

1.0 Drilling and centring tools

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1.1 Countersinks and counterbores Broaches

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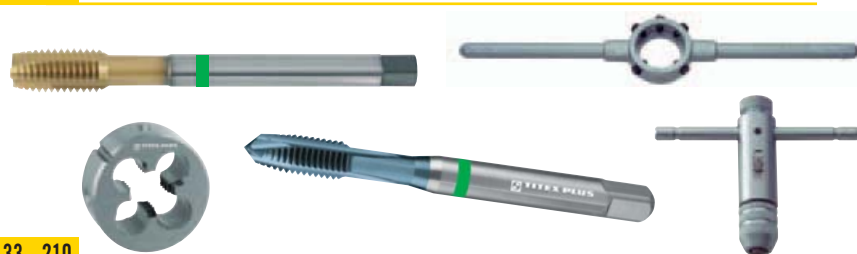
1.2 Reamers

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1.3 Thread cutting tools

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1.4 HSS circular saw blades

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1.5 HSS and VHM milling cutters

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1.6 Lathe and knurling tools

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1.9 "Turning" "Parting" "Milling/Cutting"

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Explanation of the pictograms used

	Definition		Definition		Definition
	High-speed steel		TINAL Futura Top		Centring angle
	High-speed steel 5% Co		TINAL Futura		Spiral flute
	Carbide tipped		TiN coating		Hard metal grades
	Solid carbide		Multilayer (TiAlN) coating		Hard metal grades
	Powder metallurgical high-speed steel		TCN coating		Countersink angle
	High-speed steel 5% Co		Steam treatment		Overall length
	High-speed steel 8% Co		TiCN coating		Overall length
	Morse taper shank		Carbide coating		Overall length
	Metric		Multilayer (AlCrN) coating		Tool geometry
	Metric fine		TiN head coating		Tool geometry
	In-house standard		TiNAl Microline coating		Tool geometry
	Unified fine thread		TINAL Futura head coating		Tool geometry
	Unified thread		Staggered tooth		Tool geometry
	Fit		Internal cooling		Tool geometry
	Manufacturing tolerance		Through hole		Tool geometry
	Manufacturing tolerance		Blind hole		Tool geometry
	British Standard Whitworth		left cutting		Woodworking
	Cutout		Steel machining		Parallel shank
	Manufacturing tolerance		Universal point type		Parallel shank with cutting surface
	Pipe thread		Universal point type		Cooling required
	Chamfer lead		VA machining		Rake angle
	Steel conduit thread/ PG Thread		VA machining		Rake angle
	Taper pipe thread		VA machining		
	Manufacturing tolerance		NE machining		
	Point angle		Carbide machining		
	Countersink angle		Carbide tipped		
	Taper ratio		Roughing teeth		
	Machining depth		Roughing / slotting teeth		
	Included angle of thread		Fine roughing teeth		
	Chamfer lead		Roughing teeth		
	Machining direction		Steel and carbide machining		





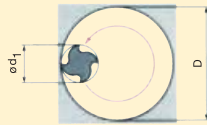
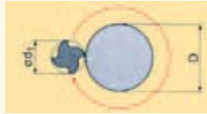
Application data calculation

Wodex®

Term	Abbreviation	Units	Formula
Speed	n	min ⁻¹	$n = \frac{v_c \times 1000}{d_1 \times \pi}$
Cutting speed	v _{fM}	mm/min	$v_c = \frac{d \times \pi \times n}{1000}$
Feed per tooth	f _z	mm	$f_z = \frac{v_f}{Z \times n}$
Feed per revolution	f	mm	$f = f_z \times Z$
Feed rate	v _{fM}	mm/min	$v_f = f_z \times Z \times n$
Mean chip thickness	h _m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{d_1}}$

Calculation of the feed rate on the milling cutter centre point path

Wodex®

Term	Abbreviation	Units	Formula
Inner contour	v _{fM}	mm/min	$v_{fM} = \frac{v_f \times (D - d_1)}{D}$ 
Outer contour	v _{fM}	mm/min	$v_{fM} = \frac{v_f \times (D + d_1)}{D}$ 

Explanation of the cutting parameters table

In the following pages you will find the table on the right under the tools. The cutting speed V_c (m/min) is given under the respective serial numbers.

In addition, we have given the following feed rates:
 Drilling = mm / revolution
 Countersinking / counterboring = mm / revolution
 Milling / cutting = mm / tooth
 Reaming = mm / revolution
 Turning = mm / revolution

P = Steel

M = VA

K = Cast iron

NE = Non-ferrous metals

H = Hardened materials

S = Special-purpose alloys

Values printed in bold type = first time use

Note:

All cutting parameters are guideline values and have to be adjusted to the individual situation. To this end, it is especially necessary to ensure adequate cooling, stable clamping of the workpiece and sufficient machine power.



Steel codes

CUTTING TOOLS

Drilling and centring tools

Material No.	DIN	Material No.	DIN	Material No.	DIN	Material No.	DIN
Steel (P)		1.2101	62 SiMnCr 4	1.5638	GS-10 Ni 14	1.7709	21 CrMoV 5 7
1.0037	St 37-2	1.2103	58 SiCr 8	1.5662	G-X 8 Ni 9	1.7715	14 MoV 6 3
1.0044	St 44-2	1.2108	90 CrSi 5	1.5680	12 Ni 19	1.7725	GS-30 CrMoV 6 4
1.0050	St 50-2	1.2162	21 MnCr 5	1.5681	GS-10 Ni 19	1.7735	14 CrMoV 6 9
1.0060	St 60-2	1.2201	G-X 165 CrV 12	1.5710	36 NiCr 6	1.7755	GS-35 CrMoV 10 4
1.0116	St 37-3	1.2210	115 CrV 3	1.5732	14 NiCr 10	1.7756	GS-36 CrMoV 10 4
1.0144	St 44-3	1.2311	40 CrMnMo 7	1.5736	36 NiCr 10	1.7903	GS-18 MnCrMo 6 3
1.0301	C 10	1.2312	40 CrMnMoS 8 6	1.5752	14 NiCr 14	1.7906	GS-19 MnCrMo 6 3
1.0401	C 15	1.2316	X 36 CrMo 17	1.5755	31 NiCr 14	1.7909	GS-20 MnCrMo 6 3
1.0402	C 22	1.2323	GS-48 CrMoV 6 7	1.5860	14 NiCr 18	1.8159	50 CrV 4
1.0406	C 25	1.2330	35 CrMo 4	1.5864	35 NiCr 18	1.8161	58 CrV 4
1.0420	GS-38	1.2332	47 CrMo 4	1.5864	35 NiCr 18	1.8504	34 CrAl 6
1.0446	GS-45	1.2341	X 6 CrMo 4	1.5919	15 CrNi 6	1.8506	34 CrAlS 5
1.0501	C 35	1.2343	X 38 CrMoV 5 1	1.5920	18 CrNi 8	1.8507	34 CrAlMo 5
1.0503	C 45	1.2344	X 40 CrMoV 5 1	1.6219	GS-22 MnNi 5	1.8509	41 CrAlMo 7
1.0511	C 40	1.2363	X 100 CrMoV 5 1	1.6221	GS-13 MnNi 6 4	1.8515	31 CrMo 12
1.0528	C 30	1.2365	X 32 CrMoV 3 3	1.6309	GS-20 MnMoNi 5 5	1.8519	31 CrMoV 9
1.0535	C 55	1.2367	X 38 CrMoV 5 3	1.6351	G-X 2 NiCoMoTi 17 10	1.8521	15 CrMoV 5 9
1.0540	C 50	1.2369	81 CrMoV 42 16	1.6356	X 2 NiCoMoTi 18 12 4	1.8523	39 CrMoV 13 9
1.0552	GS-52	1.2379	X 155 CrMoV 12 1	1.6358	X 2 NiCoMoTi 18 9 5	1.8550	34 CrAlNi 7
1.0558	GS-60	1.2392	G-X 28 CrMoV 5 1	1.6511	36 CrNiMo 4	Stainless steels (M)	
1.0570	St 52-3	1.2419	105 WCr 6	1.6513	28 NiCrMo 4	1.3941	G-X 4 CrNi 18 13
1.0601	C 60	1.2436	X 210 CrW 12	1.6515	GS-25 CrNiMo 4	1.3944	G-X 5 CrNi 18 11
1.0619	GS-C 25	1.2510	100 MnCrW 4	1.6523	21 NiCrMo 2	1.3951	G-X 4 CrNiMoN 22 15
1.0711	9 S 20	1.2516	120 WV 4	1.6546	40 NiCrMo 2 2	1.3952	G-X 4 CrNiMoN 18 14
1.0715	9 SMn 28	1.2542	45 WCrV 7	1.6552	GS-24 CrNiMo 3 2 5	1.3953	G-X 2 CrNiMo 18 15
1.0718	9 SMnPb 28	1.2550	60 WCrV 7	1.6565	40 NiCrMo 6	1.3955	G-X 12 CrNi 18 11
1.0721	10 S 20	1.2567	X 30 WCrV 5 3	1.6570	GS-30 NiCrMo 8 5	1.3959	G-X 10 CrNiNb 16 13
1.0722	10 SPb 20	1.2581	X 30 WCrV 9 3	1.6580	30 CrNiMo 8	1.3964	G-X 4 CrNiMnMoN 19 1
1.0723	15 S 20	1.2601	X 165 CrMoV 12	1.6582	34 CrNiMo 6	1.4000	X 6 Cr 13
1.0726	35 S 20	1.2606	G-X 37 CrMoW 5 1	1.6587	17 CrNiMo 6	1.4001	G-X 7 Cr 13
1.0727	45 S 20	1.2706	X 3 NiCrMo 18 8 5	1.6740	GS-33 NiCrMo 7 4 4	1.4002	X 6 CrAl 13
1.0728	60 S 20	1.2709	X 2 NiCoMoTi 18 9 5	1.6741	GS-38 NiCrMo 8 4 4	1.4005	X 12 CrS 13
1.0736	9 SMn 36	1.2711	54 NiCrMoV 6	1.6746	32 NiCrMo 14 5	1.4006	X 10 Cr 13
1.0737	9 SMnPb 36	1.2713	55 NiCrMoV 6	1.6748	GS-40 NiCrMo 6 5 6	1.4008	G-X 8 CrNi 13
1.0904	55 Si 7	1.2721	50 NiCr 13	1.6750	GS-20 NiCrMo 3 7	1.4016	X 6 Cr 17
1.0961	60 SiCr 7	1.2728	GS-20 MoNi 33 13	1.6759	GS-18 NiMoCr 3 6	1.4021	X 20 Cr 13
1.1118	GS-24 Mn 6	1.2735	15 NiCr 14	1.6760	GS-22 NiMoCr 5 6	1.4024	X 15 Cr 13
1.1120	GS-20 Mn 5	1.2738	40 CrMnNiMo 8	1.6779	GS-14 NiCrMo 10 6	1.4027	G-X 20 Cr 14
1.1121	Ck 10	1.2744	57 NiCrMoV 7 7	1.6781	GS-18 NiCrMo 12 6	1.4028	X 30 Cr 13
1.1131	GS-16 Mn 5	1.2762	75 CrMoNiW 6 7	1.6783	GS-19 NiCrMo 12 6	1.4031	X 38 Cr 13
1.1133	20 Mn 5	1.2764	X 19 NiCrMo 4	1.6916	GS-12 MnNiCrMo 5 3	1.4034	X 46 Cr 13
1.1136	GS-24 Mn 4	1.2767	X 45 NiCrMo 4	1.6982	G-X 3 CrNi 13 4	1.4057	X 20 CrNi 17 2
1.1138	GS-21 Mn 5	1.2826	60 MnSiCr 4	1.7003	38 Cr 2	1.4059	G-X 22 CrNi 17
1.1141	Ck 15	1.2833	100 V 1	1.7006	46 Cr 2	1.4085	G-X 70 Cr 29
1.1142	GS-Ck 16	1.2842	90 MnCrV 8	1.7012	13 Cr 2	1.4086	G-X 120 Cr 29
1.1151	Ck 22	1.2880	G-X 165 CrCoMo 12	1.7015	15 Cr 3	1.4104	X 12 CrMoS 17
1.1155	GS-Ck 25	1.2885	X 32 CrMoCoV 3 3 3	1.7020	32 Cr 2	1.4107	G-X 8 CrNi 12
1.1157	40 Mn 4	1.2887	GS-34 CoCrMoV 19 12	1.7030	28 Cr 4	1.4108	X 100 CrMo 13
1.1158	Ck 25	1.3202	S 12-1-4-5	1.7033	34 Cr 4	1.4109	X 65 CrMo 14
1.1159	GS-46 Mn4	1.3207	S 10-4-3-10	1.7034	37 Cr 4	1.4112	X 90 CrMoV 18
1.1165	GS-30 Mn 5	1.3243	S 6-5-2-5	1.7035	41 Cr 4	1.4113	X 6 CrMo 17
1.1167	36 Mn 5	1.3246	S 7-4-2-2	1.7045	42 Cr 4	1.4116	X 45 CrMoV 15
1.1167	GS-36 Mn 5	1.3247	S 2-10-1-8	1.7103	67 SiCr 5	1.4120	G-X 20 CrMo 13
1.1168	GS-40 Mn 5	1.3249	S 2-9-2-8	1.7131	16 MnCr 5	1.4122	G-X 35 CrMo 17
1.1170	28 Mn 6	1.3255	S 18-1-2-5	1.7139	16 MnCrS 5	1.4125	X 105 CrMo 17
1.1178	Ck 30	1.3257	S 18-1-2-15	1.7147	20 MnCr 5	1.4136	G-X 70 CrMo 29 2
1.1181	Ck 35	1.3265	S 18-1-2-10	1.7149	20 MnCrS 5	1.4138	G-X 120 CrMo 29 2
1.1186	Ck 40	1.3302	S 12-1-4	1.7176	55 Cr 3	1.4301	X 5 CrNi 18 9
1.1191	Ck 45	1.3318	S 12-1-2	1.7218	25 CrMo 4	1.4303	X 5 CrNi 18 12
1.1203	Ck 55	1.3333	S 3-3-2	1.7219	GS-26 CrMo 4	1.4305	X 10 CrNiS 18 9
1.1206	Ck 50	1.3343	S 6-5-2	1.7220	34 CrMo 4	1.4306	X 2 CrNi 19 11
1.1221	Ck 60	1.3344	S 6-5-3	1.7220	34 CrMo 4	1.4308	G-X 6 CrNi 18 9
1.1231	Ck 67	1.3346	S 2-9-1	1.7220	34 CrMo 4	1.4310	X 12 CrNi 17 7
1.1231	Ck 67	1.3348	S 2-9-2	1.7223	41 CrMo 4	1.4311	X 2 CrNiN 18 10
1.1231	Ck 67	1.3355	S 18-0-1	1.7225	42 CrMo 4	1.4312	G-X 10 CrNi 18 8
1.1248	Ck 75	1.3401	G-X 120 Mn 12	1.7228	50 CrMo 4	1.4313	X 5 CrNi 13 4
1.1248	Ck 75	1.3505	100 Cr 6	1.7262	15 CrMo 5	1.4339	G-X 32 CrNi 28 10
1.1248	Ck 75	1.3561	44 Cr 2	1.7264	20 CrMo 5	1.4340	G-X 40 CrNi 27 4
1.1273	90 Mn 4	1.3563	43 CrMo 4	1.7271	23 CrMoB 3 3	1.4347	G-X 8 CrNi 26 7
1.1274	Ck 101	1.3565	48 CrMo 4	1.7311	20 CrMo 2	1.4401	X 5 CrNiMo 18 10
1.1520	C 70 W1	1.3966	G-X 25 MnCrNi 8 8 6	1.7321	20 MoCr 4	1.4404	X 2 CrNiMo 17 13 2
1.1525	C 80 W1	1.5015	GS-8 Mn 7	1.7323	20 MoCrS 4	1.4405	G-X 5 CrNiMo 16 5
1.1545	C 105 W1	1.5120	38 MnSi 4	1.7325	25 MoCr 4	1.4406	X 2 CrNiMoN 17 12 2
1.1620	C 70 W2	1.5121	46 MnSi 4	1.7326	25 MoCrS 4	1.4407	G-X 5 CrNiMo 13 4
1.1625	C 80 W2	1.5122	37 MnSi 4	1.7335	13 CrMo 4 4	1.4408	G-X 6 CrNiMo 18 10
1.1645	C 105 W2	1.5131	50 MnSi 4	1.7337	16 CrMo 4 4	1.4410	G-X 10 CrNiMo 18 9
1.1654	C 110 W	1.5141	53 MnSi 4	1.7341	GS-34 CrMo 4 4	1.4414	G-X 4 CrNiMo 13 4
1.1663	C 125 W	1.5223	42 MnV 7	1.7354	GS-22 CrMo 5 4	1.4429	X 2 CrNiMoN 17 13 3
1.1673	C 135 W	1.5415	15 Mo 3	1.7357	GS-17 CrMo 5 5	1.4435	X 2 CrNiMo 18 14 3
1.1730	C 45 W	1.5418	GS-20 MnMo 5 3	1.7361	32 CrMo 12	1.4436	X 5 CrNiMo 17 13 3
1.1740	C 60 W	1.5419	GS-22 Mo 4	1.7363	GS-12 CrMo 19 5	1.4437	G-X 6 CrNiMo 18 12
1.1744	C 67 W	1.5423	16 Mo 5	1.7377	GS-17 CrMo 9 10	1.4438	X 2 CrNiMo 18 16 4
1.1744	C 67 W	1.5430	GS-8 MnMo 7 4	1.7379	GS-18 CrMo 9 10	1.4439	G-X 3 CrNiMo 17 13 5
1.1750	C 75 W	1.5431	GS-12 MnMo 7 4	1.7380	10 CrMo 9 10	1.4446	G-X 2 CrNiMo 17 13 4
1.1820	C 55 W	1.5475	GS-20 MnNb 5	1.7382	GS-19 CrMo 9 10	1.4448	G-X 6 CrNiMo 17 13
1.1830	C 85 W	1.5485	GS-20 MnNiTi 5 3	1.7389	G-X 12 CrMo 10 1	1.4460	X 8 CrNiMo 27 5
1.2067	100 Cr 6	1.5621	GS-10 Ni 6	1.7561	42 CrV 6	1.4462	X 2 CrNiMoN 22 5
1.2080	X 210 Cr 12	1.5622	14 Ni 6	1.7706	GS-17 CrMoV 5 11		
1.2083	X 42 Cr 13	1.5633	GS-24 Ni 8	1.7707	30 CrMoV 9		



Steel codes

Material No.	DIN
1.4463	G-X 6 CrNiMo 24 8 2
1.4464	G-X 40 CrNiMo 27 5
1.4465	G-X 2 CrNiMoN 25 25
1.4500	G-X 7 NiCrMoCuNb 25
1.4510	X 6 CrTi 17
1.4511	X 8 CrNb 17
1.4512	X 5 CrTi 12
1.4531	G-X 2 NiCrMoCuN 20 1
1.4536	G-X 2 NiCrMoCuN 25 2
1.4539	X 2 NiCrMoCu 25 20 5
1.4540	G-X 4 CrNiCuNb 16 4
1.4541	X 6 CrNiTi 18 10
1.4542	X 5 CrNiCuNb 17 14
1.4546	X 5 CrNiNb 18 10
1.4550	X 6 CrNiNb 18 10
1.4552	G-X 5 CrNiNb 18 9
1.4571	X 6 CrNiMoTi 17 12 2
1.4573	X 10 CrNiMoTi 18 12
1.4580	X 6 CrNiMoNb 17 12 2
1.4581	G-X 5 CrNiMoNb 18 10
1.4583	X 10 CrNiMoNb 18 12
1.4585	G-X 7 CrNiMoCuNb 18
1.4710	G-X 30 CrSi 6
1.4718	X 45 CrSi 9 3
1.4724	X 10 CrAl 13
1.4729	G-X 40 CrSi 13
1.4740	G-X 40 CrSi 17
1.4742	X 10 CrAl 18
1.4743	G-X 160 CrSi 18
1.4745	G-X 40 CrSi 23
1.4747	X 80 CrNiSi 20
1.4761	G-X 120 CrSi 23
1.4762	X 10 CrAl 24
1.4776	G-X 40 CrSi 29
1.4777	G-X 130 CrSi 29
1.4809	G-X 40 CrNi 23 14
1.4815	G-X 8 CrNi 19 10
1.4820	G-X 12 CrNi 26 5
1.4822	G-X 40 CrNi 24 5
1.4823	G-X 40 CrNiSi 27 4
1.4825	G-X 25 CrNiSi 18 9
1.4826	G-X 40 CrNiSi 22 9
1.4828	X 15 CrNiSi 20 12
1.4923	X 22 CrMoV 12 1
1.4832	G-X 25 CrNiSi 20 14
1.4837	G-X 40 CrNiSi 25 12
1.4840	G-X 15 CrNi 25 20
1.4841	X 15 CrNiSi 25 20
1.4845	X 12 CrNi 25 21
1.4848	G-X 40 CrNiSi 25 20
1.4849	G-X 40 NiCrSiNb 38 1
1.4852	G-X 40 NiCrNb 35 25
1.4855	G-X 30 CrNiSiNb 24 2
1.4857	G-X 40 NiCrSi 35 25
1.4859	G-X 10 NiCrNb 32 20
1.4864	X 12 NiCrSi 36 16
1.4865	G-X 40 NiCrSi 38 18
1.4868	G-X 50 CrNi 30 30
1.4871	X 53 CrMnNiN 21 9
1.4873	X 45 CrNiW 18 9
1.4876	X 10 NiCrAlTi 33 20
1.4878	X 12 CrNiTi 18 9
1.4927	G-X 5 CrNi 22 10
1.4928	G-X 12 CrNiMoCoVN 12
1.4930	G-X 14 CrCoMo 13 10
1.4931	G-X 22 CrMoV 12 1
1.4935	X 20 CrMoWV 12 1
1.4943	X 4 NiCrTi 25 15
1.4945	X 6 CrNiWb 16 16
1.4957	G-X 15 CrNiCo 21 20
1.4962	X 12 CrNiWTi 16 3
1.4968	G-X 7 CrNiNb 16 13
1.4980	X 5 NiCrTi 26 15
1.4988	G-X 8 CrNiMoVNb 16 1
1.6901	G-X 8 CrNi 18 10
1.6902	G-X 6 CrNi 18 10
1.6905	G-X 5 CrNiNb 18 10

Material No.	DIN
Non-ferrous metal (NE)	
2.0205	CuZn0.5
2.0220	CuZn5
2.0230	CuZn10
2.0240	CuZn15
2.0250	CuZn20
2.0261	CuZn28
2.0265	CuZn30
2.0280	CuZn33
2.0321	CuZn37
2.0331	CuZn36Pb1.5
2.0332	CuZn37Pb0.5
2.0335	CuZn36
2.0360	CuZn40
2.0371	CuZn38Pb1.5
2.0372	CuZn39Pb0.5
2.0375	CuZn36Pb3
2.0380	CuZn39Pb2
2.0401	CuZn39Pb3
2.0402	CuZn40Pb2
2.0410	CuZn44Pb2
2.0460	CuZn20Al2
2.0470	CuZn28Sn1
2.0490	CuZn31Si1
2.0500	CuZn23Al6Mn4Fe3
2.0510	CuZn37Al1
2.0525	CuZn38SnAl
2.0530	CuZn38Sn1
2.0540	CuZn35Ni2
2.0550	CuZn40Al2
2.0561	CuZn40Al1
2.0572	CuZn40Mn1
2.0580	CuZn40Mn1Pb
2.0730	CuNi12Zn24
2.0740	CuNi18Zn20
2.0742	CuNi18Zn27
2.0771	CuNi7Zn39Mn5Pb3
2.0780	CuNi12Zn30Pb1
2.0790	CuNi18Zn19Pb1
2.0830	CuNi25
2.0842	CuNi44Mn1
2.0850	CuNi2Be
2.0853	CuNi1.5Si
2.0855	CuNi2Si
2.0857	CuNi3Si
2.0872	CuNi10Fe1Mn
2.0875	CuNi9Sn2
2.0882	CuNi30Mn1Fe
2.0883	CuNi30Fe2Mn2
2.0918	CuAl5As
2.0920	CuAl8
2.0932	CuAl8Fe3
2.0936	CuAl10Fe3Mn2
2.0960	CuAl9Mn2
2.0966	CuAl10Ni5Fe4
2.0971	CuAl9Ni3Fe2
2.0978	CuAl11Ni6Fe5
2.1016	CuSn4
2.1020	CuSn6
2.1030	CuSn8
2.1080	CuSn6Zn6
2.1086	G-CuSn10Zn
2.1093	G-CuSn6ZnNi
2.1096	G-CuSn5ZnNb
2.1160	CuPb1P
2.1191	CuAg0.1P
2.1203	CuAg0.1
2.1245	CuBe1.7
2.1247	CuBe2
2.1248	CuBe2Pb
2.1265	CuCd0.5
2.1266	CuCd1
2.1285	CuCo2Be
2.1293	CuCrZr
2.1310	CuFe2P
2.1322	CuMg0.4
2.1323	CuMg0.7
2.1356	CuMn3
2.1363	CuMn2
2.1366	CuMn5
2.1491	CuAsP
2.1498	CuSP
2.1504	NiAlBz
2.1522	CuSuMnF34
2.1522	CuSi2Mn
2.1525	CuSi3Mn
2.1546	CuTeP
2.1580	CuZr
3.0205	Al99

Material No.	DIN
3.0255	Al99.5
3.0275	Al99.7
3.0285	Al99.8
3.0305	Al99.9
3.0505	AlMn0.5Mg0.5
3.0506	AlMn0.6
3.0515	AlMn1
3.0517	AlMnCu
3.0525	AlMn1Mg0.5
3.0526	AlMn1Mg1
3.0615	AlMgSiPb
3.0915	AlFeSi
3.1255	AlCuSiMn
3.1305	AlCu2.5Mg0.5
3.1325	AlCuMg1
3.1355	AlCuMg2
3.1371	G-AlCu4TiMg
3.1645	AlCuMgPb
3.1655	AlCuBiPb
3.1841	G-AlCu4Ti
3.2134	G-AlSi5Cu1Mg
3.2151	G-AlSi6Cu4
3.2161	G-AlSi8Cu3
3.2307	Al99.85MgSi
3.2315	AlMgSi1
3.2341	G-AlSi5Mg
3.2371	G-AlSi7Mg
3.2373	G-AlSi9Mg
3.2381	G-AlSi10Mg
3.2383	G-AlSi10Mg(Cu)
3.2581	G-AlSi12
3.2583	G-AlSi12(Cu)
3.3206	AlMgSi0.5
3.3208	Al99.9MgSi
3.3210	AlMgSi0.7
3.3211	AlMg1SiCu
3.3241	G-AlMg3Si
3.3261	G-AlMg5Si
3.3292	GD-AlMg9
3.3307	Al99.85Mg0.5
3.3308	Al99.5Mg0.5
3.3315	AlMg1
3.3316	AlMg1.5
3.3317	Al99.85Mg1
3.3318	Al99.9Mg1
3.3326	AlMg1.8
3.3345	AlMg4.5
3.3523	AlMg2.5
3.3525	AlMg2Mn0.3
3.3527	AlMg2Mn0.8
3.3535	AlMg3
3.3537	AlMg2.7Mn
3.3541	G-AlMg3
3.3543	G-AlMg3(Cu)
3.3545	AlMg4Mn
3.3547	AlMg4.5Mn
3.3549	AlMg5Mn
3.3555	AlMg5
3.3561	G-AlMg5
3.3591	G-AlMg10
3.4335	AlZn4.5Mg1
3.4337	Al99.8ZnMg
3.4345	AlZnMgCu0.5
3.4365	AlZnMgCu1.5
3.5101	G-MgZn4SE1Zr1
3.5102	G-MgZn5Th2Zr1
3.5103	G-MgSE3Zn2Zr1
3.5105	G-MgTh3Zn2Zr1
3.5106	G-MgAg3Se2Zr1
3.5200	MgMn2
3.5312	MgAl3Zn
3.5470	GD-MgAl4Si1
3.5612	MgAl6Zn
3.5612	GD-MgAl6Zn1
3.5662	G-MgAl6
3.5812	MgAl8Zn
3.5812	G-MgAl8Zn1
3.5912	G-MgAl9Zn1
Ampco 12	CuAl9Fe3
Ampco 16	CuAl10Fe3
Ampco 18	CuAl10.5Fe3.5
Ampco 20	CuAl11Fe4
Ampco 21	CuAl13Fe4.5
Ampco 22	CuAl14Fe5
Ampco 45	CuAl10Fe2.5Ni5Mn1.5
Ampco 483	CuAl9Fe4Ni4.5Mn1
Ampco 8	CuAl6.5Fe2.5Sn
Ampco M-4	CuAl10.5Fe4Ni5Mn3.5

Material No.	DIN
Cast iron (K)	
0.6010	GG-10
0.6015	GG-15
0.6020	GG-20
0.6025	GG-25
0.6030	GG-30
0.6035	GG-35
0.6040	GG-40
0.6652	GGL-NiMn 13 7
0.6655	GGL-NiCuCr 15 6 2
0.6656	GGL-NiCuCr 15 6 3
0.6660	GGL-NiCr 20 2
0.6661	GGL-NiCr 20 3
0.6667	GGL-NiSiCr 20 5 3
0.6676	GGL-NiCr 30 3
0.6680	GGL-NiSiCr 30 5 5
0.7033	GGG-35.3
0.7040	GGG-40
0.7043	GGG-40.3
0.7050	GGG-50
0.7060	GGG-60
0.7070	GGG-70
0.7080	GGG-80
0.7652	GGG-NiMn 13 7
0.7660	GGG-NiCr 20 2
0.7661	GGG-NiCr 20 3
0.7665	GGG-NiSiCr 20 5 2
0.7670	GGG-Ni 22
0.7673	GGG-NiMn 23 4
0.7676	GGG-NiCr 30 3
0.7677	GGG-NiCr 30 1
0.7680	GGG-NiSiCr 30 5 5
0.7683	GGG-Ni 35
0.7685	GGG-NiCr 35 3
0.8135	GTS-35-10
0.8145	GTS-45-06
0.8155	GTS-55-04
0.8165	GTS-65-02
0.8170	GTS-70-02
Special-purpose alloys (S)	
2.4360	NiCu30Fe
2.4375	NiCu30Al
2.4603	NiCr30FeMo
2.4630	NiCr20Ti
2.4631	NiCr20TiAl
2.4632	NiCr20Co18Ti
2.4634	NiCo20Cr15MoAlTi
2.4640	NiCr15Fe
2.4662	NiCr13Mo6Ti3
2.4668	NiCr19Fe18Nb5Mg
2.4711	CoCr20Ni15Mo
2.4816	NiCr15Fe
2.4856	NiCr22Mo9Nb
2.4858	NiCr21Mo
2.4951	NiCr20Ti
2.4952	NiCr20TiAl
2.4964	CoCr20W15Ni
2.4969	NiCr20Co18Ti
2.4973	NiCr19Co11MoTi
2.4979	CoCr28MoNi
2.4989	CoCr20NiW
3.7114	TiAl5Sn2
3.7124	TiCu2
3.7144	TiAl6Sn2Zr4Mo2
3.7154	TiAl6Zr5
3.7165	TiAl6V4
3.7174	TiAl6V6Sn2
0.8035	GTW-35-04
0.8040	GTW-40-05
0.8045	GTW-45-07
0.8055	GTW-55
0.8065	GTW-65
0.9620	G-X 260 NiCr 4 2
0.9625	G-X 330 NiCr 4 2
0.9630	G-X 300 CrNiSi 9 5 2
0.9635	G-X 330 CrMo 15 3
0.9640	G-X 300 CrMoNi 15 2
0.9645	G-X 260 CrMoNi 20 2
0.9650	G-X 260 Cr 27
0.9655	G-X 300 CrMo 27 1

CUTTING TOOLS

Drilling and centring tools



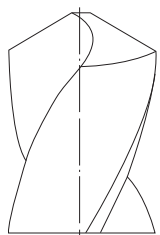
"TOOLS"

ibemo Kazakhstan - 090301 Republic of Kazakhstan, West Kazakhstan Oblast, Aksai, Pramzone, BKKS office complex
Phone: +7 71133 93077 ; Fax: +7 71133 93074 ; E-Mail: info@ibemo-kz.com

**Wodex®**

Tool geometry

1 CUTTING TOOLS



Standard conical point Normal point to DIN 1412

Use:

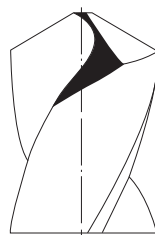
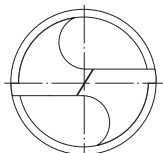
For all the usual drilling work in steel, non-ferrous metals and plastics. The point angles depend on the machinability of the materials.

Advantages:

Powerful major cutting edges, insensitive to shock and lateral forces. Easy surface grind, can be achieved manually.

Disadvantages:

Wide chisel edge requires high feed force.



Split point according to DIN 1412 C

Use:

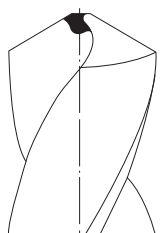
For drill bits with very strong core for particularly tough and hard materials and for deep hole drill bits.

Advantages:

Improved chip transport due to chip separation.

Disadvantages:

Perfect regrinding possible by mechanical means only.



Point-thinned chisel edge according to DIN 1412 A

Use:

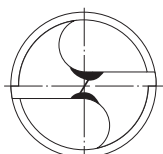
For all the usual drilling work with drill bits with a strong core, for large bore sizes for drilling into solid material.

Advantages:

Good centring for tapping due to shortening of the chisel edge to 1/10 of the bore size and reduction of the feed force.

Disadvantages:

Additional grinding work.



Point for grey cast iron according to DIN 1412 D

Use:

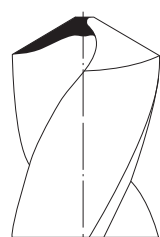
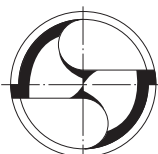
for drilling holes in grey cast iron, malleable cast iron and forgings.

Advantages:

The cut corners are protected by extended major cutting edges, insensitive to shock, good heat dissipation - therefore improved tool life.

Disadvantages:

Additional effort for regrinding work.



Point-thinned chisel edge after corrected major cutting edge according to DIN 1412 B

Use:

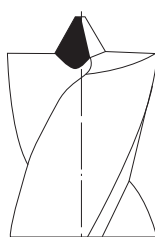
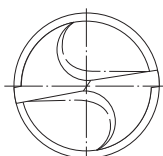
For drill bits for high-strength steels, for manganese steels with over 10% Mn, for hard spring steels and for enlarging holes.

Advantages:

Insensitive to shock, one-sided load and lateral forces. No digging into thin-walled workpieces.

Disadvantages:

High feed force, tendency to drift and run untrue, Additional effort for regrinding work.



Centre point according to DIN 1412 E

Use:

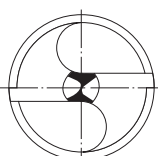
For drilling sheet metals and soft materials, for blind holes with flat bottom.

Advantages:

Good centring, low burr formation during through-drilling, precise drillholes in thin sheet metals and pipes, no digging in.

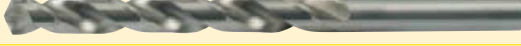
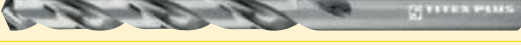
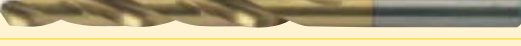
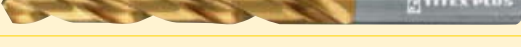
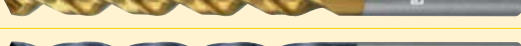
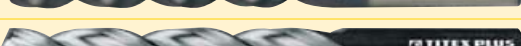
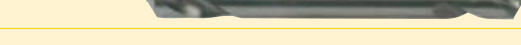
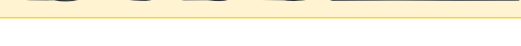
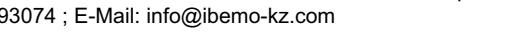
Disadvantages:

Perfect surface grinding possible by mechanical means only.



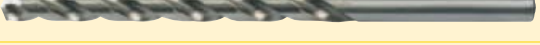
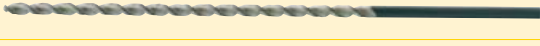
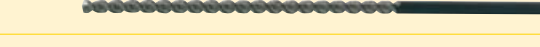
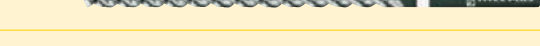
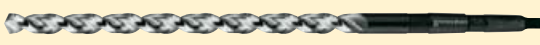
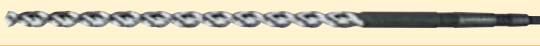
Overview of types

Twist drill bits / countersink bits

Page	Catalogue Number	DIN	Type	Material	Ø mm from - to	Brand	
23	10 010	338	N	HSS	0.5 - 14	Wodex®	
23	10 012	338	N	HSS	0.5 - 14	Standard	
24	10 015	338	N	HSS	0.2 - 17	Wodex®	
24	10 017	338	VA	HSS	0.4 - 17	TITEX	
26	10 019	338	VA	HSS-E	0.4 - 15.0	Wodex®	
26	10 022	338	VA	HSS-E	0.4 - 15.0	TITEX	
29	10 043	338	N	HSS	1.0 - 13.0	Wodex®	
29	10 044	338	N	HSS	1.0 - 13.0	TITEX	
31	10 054	338	UFL	HSS	1.0 - 12.0	TITEX	
31	10 056	338	UFL	HSS-E	1.0 - 12.0	TITEX	
31	10 057	338	UFL	HSS-E	2.0 - 12.0	TITEX	
32	10 062	338	FL	HSS	1.5 - 16.0	Wodex®	
32	10 060	338	FL	HSS	1.5 - 16.0	Wodex®	
33	10 064	338	XE	HSS-E	1.0 - 10.0	TITEX	
34	10 163	338	UFL	HSS-E	1.0 - 16.0	TITEX	
35	10 068	338	VA	HSS-E	3.0 - 16.0	TITEX	
36	10 074	338	H	HSS	1.0 - 10.0	TITEX	
36	10 076	338	W	HSS	1.0 - 10.0	TITEX	
38	10 103	1897	N	HSS	1.0 - 16.0	Wodex®	
38	10 104	1897	N	HSS	1.0 - 20.0	TITEX	
39	10 105	1897	FL	HSS-E	1.5 - 16.0	Wodex®	
39	10 106	1897	UFL	HSS-E	1.5 - 16.0	TITEX	
40	10 108	1897	TiALN-M	HSS-E	2.0 - 16.0	Wodex®	
40	10 107	1897	UFL	HSS-E	1.5 - 16.0	TITEX	
41	10 110	1897	VA	HSS-E	2.0 - 16.0	TITEX	
42	10 112	1897	UFL	HSS-E	1.0 - 20.0	TITEX	
43	10 142	WN	N	HSS	2.0 - 8.0	Wodex®	
43	10 144	1899	ESU	HSS	0.05 - 1.45	TITEX	
45	10 152	340	N	HSS	1.0 - 15.0	Wodex®	
45	10 153	340	N	HSS	0.8 - 15.0	TITEX	

Overview of types (continued)

Twist drill bits / countersink bits

Page	Catalogue Number	DIN	Type	Material	Ø mm from - to	Brand	
46	10 158	340	N	HSS	1.0 - 15.0	Wodex	
47	10 156	340	VA	HSS-E	1.5 - 12.0	TITEX	
47	10 159	340	XE	HSS-E	1.0 - 10.5	TITEX	
48	10 160	340	UFL	HSS-E	1.0 - 12.0	TITEX	
49	10 162	340	VA	HSS-E	2.0 - 13.0	Wodex	
49	10 213	1869	UFL	HSS	1.0 - 13.0	Wodex	
49	10 214	1869	UFL	HSS	2.0 - 12.0	TITEX	
50	10 215	1869	FL	HSS	1.5 - 13.0	Wodex	
50	10 216	1869	UFL	HSS	3.0 - 12.0	TITEX	
51	10 219	1869	FL	HSS	2.0 - 13.0	Wodex	
51	10 218	1869	UFL	HSS	3.5 - 12.0	TITEX	
51	10 220	extra long	UFL	HSS	6.0 - 14.0	TITEX	
52	10 310	345	N	HSS	10.0 - 60	Wodex	
52	10 312	345	N	HSS	10.0 - 40	Standard	
53	10 315	345	N	HSS	10.0 - 70	Wodex	
53	10 317	345	N	HSS	10.0 - 70	TITEX	
54	10 323	345	N	HSS	10.0 - 30	TITEX	
55	10 325	345	VA	HSS-E	10.0 - 30	Wodex	
55	10 334	345	XE	HSS-E	10.0 - 30	TITEX	
56	10 338	WN	-	HSS-E	8.0 - 30	Wodex	
56	10 384	1870	UFL	HSS	12.0 - 26	TITEX	
57	10 386	1870	UFL	HSS	12.0 - 26	TITEX	
57	10 402	1898	A	HSS	3.0 - 12.0	TITEX	

Overview of types

Step drill bits / step countersink bits

Page	Catalogue Number	DIN	Type	Material	Ø mm from - to	Brand	
58	10 412	8374	-	HSS	M3 - M10	Wodex®	
58	10 414	8376	-	HSS	M3 - M10	Wodex®	
58	10 416	8378	-	HSS	M3 - M12	Wodex®	
59	10 424	8377	-	HSS	M5 - M20	Wodex®	

Overview of types

Core drill bits

Page	Catalogue Number	Shank	Type	Material	Ø mm from - to	Brand	
60	10 428	WN	Short	HSS-Co	13 - 50	Wodex®	
60	10 429	WN	Long	HSS-Co	14 - 60	Wodex®	
61	10 431	Quick-IN	-	HM	12 - 65		

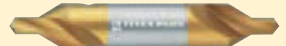
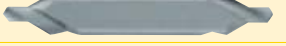
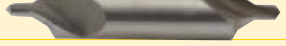
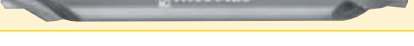
Overview of types

Bore enlargers (spiral countersink)

Page	Catalogue Number	DIN	Type	Material	Ø mm from - to	Brand	
62	10 434	343	N	HSS	15.75 - 42	TITEX	

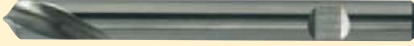
Overview of types

Centre drill bits

Page	Catalogue Number	DIN	Type	Material	Ø mm from - to	Brand	
63	10 452	333	A	HSS	1.0 - 10.0	Wodex®	
63	10 454	333	A	HSS	0.5 - 10.0	TITEX	
63	10 456	333	A	HSS	1.6 - 5.0	Wodex®	
63	10 457	333	A	HSS	1.6 - 5.0	TITEX	
63	10 458	333	A	VHM	1.6 - 4.0	TITEX	
63	10 459	333	A	HSSE	1.6 - 5.0	Wodex®	
64	10 460	333	A	HSS	1.6 - 5.0	Wodex®	
64	10 463	333	B	HSS	1.0 - 6.3	Wodex®	
64	10 465	333	R	HSS	1.6 - 5.0	Wodex®	
64	10 466	333	A long	HSS	1.0 - 5.0	TITEX	

Overview of types

NC spot drilling bits

Page	Catalogue Number	DIN	Type	Material	Ø mm from - to	Brand	
65	10 474	WN	120°	HSS	4 - 20	Wodex®	
65	10 474	WN	90°	HSS	4 - 20	Wodex®	
65	10 474	WN	120°	HSS	4 - 20	Wodex®	
65	10 474	WN	90°	HSS	4 - 20	Wodex®	
65	10 475	WN	120°	HSS	4 - 20	Wodex®	
65	10 475	WN	90°	HSS	4 - 20	Wodex®	
65	10 475	WN	120°	HSS	4 - 20	Wodex®	
65	10 475	WN	90°	HSS	4 - 20	Wodex®	
66	10 478	WN	120°	VHM	6 - 20	Wodex®	
66	10 480	WN	90°	VHM	6 - 20	Wodex®	
66	10 479	WN	120°	VHM	6 - 20	Wodex®	
66	10 481	WN	90°	VHM	3 - 20	Wodex®	
67	10 485	WN	142°	VHM	6 - 20	Wodex®	

10 010 Twist drill bits



rolled, steam tempered

Application: Machining steel, cast steel, grey cast iron, malleable cast iron, sintered iron, nickel silver, graphite.

Wodex®



10 010...



10 012...

10 012 Twist drill bits

Type as 10 010..., however, form ground



Ø	10 010...		10 012...		l1	l2	PU
mm	rolled		form ground		mm	mm	
0.5	050		050		22	6	10
0.6	060		060		24	7	10
0.7	070		070		28	9	10
0.8	080		080		30	10	10
0.9	090		090		32	11	10
1.0	100		100		34	12	10
1.1	110		110		36	14	10
1.2	120		120		38	16	10
1.3	130		130		38	16	10
1.4	140		140		40	18	10
1.5	150		150		40	18	10
1.6	160		160		43	20	10
1.7	170		170		43	20	10
1.8	180		180		46	22	10
1.9	190		190		46	22	10
2.0	200		200		49	24	10
2.1	202		202		49	24	10
2.2	204		204		53	27	10
2.3	206		206		53	27	10
2.4	208		208		57	30	10
2.5	210		210		57	30	10
2.6	212		212		57	30	10
2.7	214		214		61	33	10
2.8	216		216		61	33	10
2.9	218		218		61	33	10
3.0	220		220		61	33	10
3.1	222		222		65	36	10
3.2	224		224		65	36	10
3.3	226		226		65	36	10
3.4	228		228		70	39	10
3.5	230		230		70	39	10
3.6	232		232		70	39	10
3.7	234		234		70	39	10
3.8	236		236		75	43	10
3.9	238		238		75	43	10
4.0	240		240		75	43	10
4.1	242		242		75	43	10
4.2	244		244		75	43	10
4.3	246		246		80	47	10
4.4	248		248		80	47	10
4.5	250		250		80	47	10
4.6	252		252		80	47	10
4.7	254		254		80	47	10
4.8	256		256		86	52	10
4.9	258		258		86	52	10
5.0	260		260		86	52	10
5.1	262		262		86	52	10
5.2	264		264		86	52	10
5.3	266		266		86	52	10
5.4	268		268		93	57	10
5.5	270		270		93	57	10
5.6	272		272		93	57	10
5.7	274		274		93	57	10
5.8	276		276		93	57	10
5.9	278		278		93	57	10
P	10 - 35		10 - 35		0.05 - 0.30		
M	6 - 10		6 - 10		0.05 - 0.30		
K	5 - 20		5 - 20		0.05 - 0.30		
NE	-		-		-		
H	-		-		-		
S	-		-		-		

Ø	10 010...		10 012...		l1	l2	PU
mm	rolled		form ground		mm	mm	
6.0	280		280		93	57	10
6.1	282		282		101	63	10
6.2	284		284		101	63	10
6.3	286		286		101	63	10
6.4	288		288		101	63	10
6.5	290		290		101	63	10
6.6	292		292		101	63	10
6.7	294		294		101	63	10
6.8	296		296		109	69	10
6.9	298		298		109	69	10
7.0	300		300		109	69	5
7.1	302		302		109	69	5
7.2	304		304		109	69	5
7.3	306		306		109	69	5
7.4	308		308		109	69	5
7.5	310		310		109	69	5
7.6	312		312		117	75	5
7.7	314		314		117	75	5
7.8	316		316		117	75	5
7.9	318		318		117	75	5
8.0	320		320		117	75	5
8.1	322		322		117	75	5
8.2	324		324		117	75	5
8.3	326		326		117	75	5
8.4	328		328		117	75	5
8.5	330		330		117	75	5
8.6	332		332		125	81	5
8.7	334		334		125	81	5
8.8	336		336		125	81	5
8.9	338		338		125	81	5
9.0	340		340		125	81	5
9.1	342		342		125	81	5
9.2	344		344		125	81	5
9.3	346		346		125	81	5
9.4	348		348		125	81	5
9.5	350		350		125	81	5
9.6	352		352		133	87	5
9.7	354		354		133	87	5
9.8	356		356		133	87	5
9.9	358		358		133	87	5
10.0	360		360		133	87	5
10.1	361		361		133	87	5
10.2	362		362		133	87	5
10.5	366		366		133	87	5
10.6	367		367		133	87	5
10.8	370		370		142	94	5
11.0	380		380		142	94	5
11.2	382		382		142	94	5
11.5	386		386		142	94	5
11.8	390		390		142	94	5
12.0	400		400		151	101	5
12.5	406		406		151	101	5
13.0	420		420		151	101	5
13.5	426		426		160	108	1
14.0	440		440		160	108	1
P	10 - 35		10 - 35		0.05 - 0.30		
M	6 - 10		6 - 10		0.05 - 0.30		
K	5 - 20		5 - 20		0.05 - 0.30		
NE	-		-		-		
H	-		-		-		
S	-		-		-		

CUTTING TOOLS

1

Drilling and centring tools



UNIT PRICE FOR PURCHASE OF 100 PCS OF PACKAGING UNIT PER ORDER NUMBER. PLEASE ALWAYS STATE NUMBER OF ITEMS IN ORDER.
 JSC "Ibemo Kazakhstan" - 090501 Republic of Kazakhstan, West Kazakhstan Oblast, Aktau, "Pramzone, BKKS office complex
 Phone: +7 71133 93077 ; Fax: +7 71133 93074 ; E-Mail: info@ibemo-kz.com

10 015 Twist drill bits



Wodex®



10 015...

ground type, for long to short chipping materials, e.g. steel up to approx. 1000 N/mm², cast iron, malleable cast iron, sintered iron, nickel silver, AISi alloys (Si > 11 %), surface damped from 3.1 mm

10 017 Twist drill bits



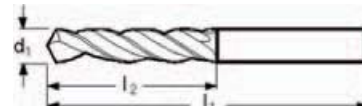
TITEX®



10 017...

ground type, for long to short chipping materials, e.g. steel up to approx. 1000 N/mm², cast iron, malleable cast iron, sintered iron, nickel silver, AISi alloys (Si > 11 %), surface damped from 3.1 mm

A 1211



Ø d1	10 015...		10 017...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
0.2	020		020		19	2.5	10
0.25	025		025		19	3	10
0.3	030		030		19	3	10
0.35	035		035		19	4	10
0.4	040		040		20	5	10
0.45	045		045		20	5	10
0.5	050		050		22	6	10
0.55	055		055		24	7	10
0.6	060		060		24	7	10
0.65	065		065		26	8	10
0.7	070		070		28	9	10
0.75	075		075		28	9	10
0.8	080		080		30	10	10
0.85	085		085		30	10	10
0.9	090		090		32	11	10
0.95	095		095		32	11	10
1	100		100		34	12	10
1.05	105		105		34	12	10
1.1	110		110		36	14	10
1.15	115		115		36	14	10
1.2	120		120		38	16	10
1.25	125		125		38	16	10
1.3	130		130		38	16	10
1.35	135		135		40	18	10
1.4	140		140		40	18	10
1.45	145		145		40	18	10
1.5	150		150		40	18	10
1.55	155		155		43	20	10
1.6	160		160		43	20	10
1.65	165		165		43	20	10
1.7	170		170		43	20	10
1.75	175		175		46	22	10
1.8	180		180		46	22	10
1.85	185		185		46	22	10
1.9	190		190		46	22	10
1.95	195		195		49	24	10
2	200		200		49	24	10
2.05	201		201		49	24	10
2.1	202		202		49	24	10
2.2	204		204		53	27	10
2.3	206		206		53	27	10
2.4	208		208		57	30	10
2.5	210		210		57	30	10
2.6	212		212		57	30	10
2.7	214		214		61	33	10
2.8	216		216		61	33	10
2.9	218		218		61	33	10
3	220		220		61	33	10
3.1	222		222		65	36	10
3.2	224		224		65	36	10
3.3	226		226		65	36	10
3.4	228		228		70	39	10
3.5	230		230		70	39	10
3.6	232		232		70	39	10
3.7	234		234		70	39	10

Ø d1	10 015...		10 017...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
3.8	236		236		75	43	10
3.9	238		238		75	43	10
4	240		240		75	43	10
4.1	242		242		75	43	10
4.2	244		244		75	43	10
4.3	246		246		80	47	10
4.4	248		248		80	47	10
4.5	250		250		80	47	10
4.6	252		252		80	47	10
4.7	254		254		80	47	10
4.8	256		256		86	52	10
4.9	258		258		86	52	10
5	260		260		86	52	10
5.1	262		262		86	52	10
5.2	264		264		86	52	10
5.3	266		266		86	52	10
5.4	268		268		93	57	10
5.5	270		270		93	57	10
5.6	272		272		93	57	10
5.7	274		274		93	57	10
5.8	276		276		93	57	10
5.9	278		278		93	57	10
6	280		280		93	57	10
6.1	282		282		101	63	10
6.2	284		284		101	63	10
6.3	286		286		101	63	10
6.4	288		288		101	63	10
6.5	290		290		101	63	10
6.6	292		292		101	63	10
6.7	294		294		101	63	10
6.8	296		296		109	69	10
6.9	298		298		109	69	10
7	300		300		109	69	5
7.1	302		302		109	69	5
7.2	304		304		109	69	5
7.3	306		306		109	69	5
7.4	308		308		109	69	5
7.5	310		310		109	69	5
7.6	312		312		117	75	5
7.7	314		314		117	75	5
7.8	316		316		117	75	5
7.9	318		318		117	75	5
8	320		320		117	75	5
8.1	322		322		117	75	5
8.2	324		324		117	75	5
8.3	326		326		117	75	5
8.4	328		328		117	75	5
8.5	330		330		117	75	5
8.6	332		332		125	81	5
8.7	334		334		125	81	5
8.8	336		336		125	81	5
8.9	338		338		125	81	5
9	340		340		125	81	5
9.1	342		342		125	81	5
9.2	344		344		125	81	5

Ø d1	10 015...		10 017...		I1	I2	
mm	Wodex		Titex		mm	mm	
9.3	346		346		125	81	5
9.4	348		348		125	81	5
9.5	350		350		125	81	5
9.6	352		352		133	87	5
9.7	354		354		133	87	5
9.8	356		356		133	87	5
9.9	358		358		133	87	5
10	360		360		133	87	5
10.1	361		361		133	87	5
10.2	362		362		133	87	5
10.3	364		364		133	87	5
10.4	365		365		133	87	5
10.5	366		366		133	87	5
10.6	367		367		133	87	5
10.7	368		368		142	94	5
10.8	370		370		142	94	5
10.9	371		371		142	94	5
11	380		380		142	94	5
11.1	381		381		142	94	5
11.2	382		382		142	94	5
11.3	384		384		142	94	5
P	10 - 35		10 - 40		0.01 - 0.25		
M	-		-		-		
K	5 - 20		10 - 30		0.01 - 0.25		
NE	10 - 50		10 - 50		0.01 - 0.25		
H	-		-		-		
S	-		-		-		

Ø d1	10 015...		10 017...		I1	I2	
mm	Wodex		Titex		mm	mm	
11.4	385		385		142	94	5
11.5	386		386		142	94	5
11.6	387		387		142	94	5
11.7	388		388		142	94	5
11.8	390		390		142	94	5
11.9	391		391		151	101	5
12	400		400		151	101	5
12.2	402		402		151	101	5
12.5	406		406		151	101	5
12.8	410		410		151	101	5
13	420		420		151	101	5
13.2	422		422		151	101	1
13.5	426		426		160	108	1
13.8	430		430		160	108	1
14	440		440		160	108	1
14.5	444		444		169	114	1
15	460		460		169	114	1
15.5	464		466		178	120	1
16	480		480		178	120	1
16.5	500		-	-	178	120	1
17	506		-	-	178	120	1
P	10 - 35		10 - 40		0.01 - 0.25		
M	-		-		-		
K	5 - 20		10 - 30		0.01 - 0.25		
NE	10 - 50		10 - 50		0.01 - 0.25		
H	-		-		-		
S	-		-		-		



WODEX® Twist drill bit sets
– see Page 27 onwards

10 019 Twist drill bits



Wodex



10 019...

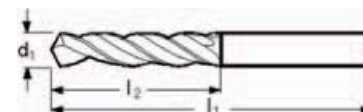
high cutting performance, good chip removal, for difficult to cut materials, e.g. **stainless steels**, heat-resisting steels, special alloys



10 022...

10 022 Twist drill bits

TITEX



with crosswise grinding, for difficult to cut materials, e.g. **stainless and heat-resisting steels**, hard bronze, titanium

A 1244

Ø d1	10 019...		10 022...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
0.4	040		040		20	5	10
0.5	050		050		22	6	10
0.6	060		060		24	7	10
0.7	070		070		28	9	10
0.8	080		080		30	10	10
0.9	090		090		32	11	10
1	100		100		34	12	10
1.1	110		110		36	14	10
1.2	120		120		38	16	10
1.3	130		130		38	16	10
1.4	140		140		40	18	10
1.5	150		150		40	18	10
1.6	160		160		43	20	10
1.7	170		170		43	20	10
1.8	180		180		46	22	10
1.9	190		190		46	22	10
2	200		200		49	24	10
2.1	202		202		49	24	10
2.2	204		204		53	27	10
2.3	206		206		53	27	10
2.4	208		208		57	30	10
2.5	210		210		57	30	10
2.6	212		212		57	30	10
2.7	214		214		61	33	10
2.8	216		216		61	33	10
2.9	218		218		61	33	10
3	220		220		61	33	10
3.1	222		222		65	36	10
3.2	224		224		65	36	10
3.3	226		226		65	36	10
3.4	228		228		70	39	10
3.5	230		230		70	39	10
3.6	232		232		70	39	10
3.7	234		234		70	39	10
3.8	236		236		75	43	10
3.9	238		238		75	43	10
4	240		240		75	43	10
4.1	242		242		75	43	10
4.2	244		244		75	43	10
4.3	246		246		80	47	10
4.4	248		248		80	47	10
4.5	250		250		80	47	10
4.6	252		252		80	47	10
4.7	254		254		80	47	10
4.8	256		256		86	52	10
4.9	258		258		86	52	10
5	260		260		86	52	10
5.1	262		262		86	52	10
5.2	264		264		86	52	5
5.3	266		266		86	52	5
5.4	268		268		93	57	5
5.5	270		270		93	57	5
5.6	272		272		93	57	5
P	-		12 - 35			0.05 - 0.2	
M	6 - 15		7 - 10			0.05 - 0.12	
K	-		-			-	
NE	-		-			-	
H	-		-			-	
S	3 - 8		2 - 6			0.03 - 0.1	

Ø d1	10 019...		10 022...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
5.7	274		274		93	57	5
5.8	276		276		93	57	5
5.9	278		278		93	57	5
6	280		280		93	57	5
6.1	282		282		101	63	5
6.2	284		284		101	63	5
6.3	286		286		101	63	5
6.4	288		288		101	63	5
6.5	290		290		101	63	5
6.6	292		292		101	63	5
6.7	294		294		101	63	5
6.8	296		296		109	69	5
6.9	298		298		109	69	5
7	300		300		109	69	5
7.1	302		302		109	69	5
7.2	304		304		109	69	1
7.3	306		306		109	69	1
7.4	308		308		109	69	1
7.5	310		310		109	69	1
7.6	312		312		117	75	1
7.7	314		314		117	75	1
7.8	316		316		117	75	1
8	320		320		117	75	1
8.1	322		322		117	75	1
8.2	324		324		117	75	1
8.3	326		326		117	75	1
8.4	328		328		117	75	1
8.5	330		330		117	75	1
8.6	332		332		125	81	1
8.7	334		334		125	81	1
8.8	336		336		125	81	1
8.9	338		338		125	81	1
9	340		340		125	81	1
9.1	342		342		125	81	1
9.2	344		344		125	81	1
9.3	346		346		125	81	1
9.4	348		348		125	81	1
9.5	350		350		125	81	1
9.6	352		352		133	87	1
9.7	354		354		133	87	1
9.8	356		356		133	87	1
9.9	358		358		133	87	1
10	360		360		133	87	1
10.2	362		362		133	87	1
10.5	366		366		133	87	1
11	380		380		142	94	1
11.5	386		386		142	94	1
12	400		400		151	101	1
12.5	406		406		151	101	1
13	420		420		151	101	1
14	440		440		160	108	1
15	460		460		169	114	1
P	-		12 - 35			0.05 - 0.2	
M	6 - 15		7 - 10			0.05 - 0.12	
K	-		-			-	
NE	-		-			-	
H	-		-			-	
S	3 - 8		2 - 6			0.03 - 0.1	

10 031 Twist drill bit sets

Wodex



in metal box, with twist drill bit No. 10 015...
...045: with tap drills 3.3 - 4.2 - 6.8 - 10.2 mm



10 031 030



10 031 035



10 031 040



10 031 050



10 031 045

10 031 Twist drill bit box, including 55 twist drill bits



with twist drill bit Product No. 10 015..., in black plastic box incl. wall bracket and removable transparent cover. Dimensions (L x D x H) 22 x 18 x 14.5 cm. From 1 to 13.0 mm rising by 0.5 mm with intermediate sizes 3.3 - 4.2 - 6.8 - 10.2 mm, right-hand cutting, for long to short chipping materials, e.g. steel up to approx. 1000 N/mm², cast iron, malleable cast iron, sintered iron, new iron.



10 031 055

Measure bits and sort them in order in one go!

10 033 Twist drill bit sets

TITEX



in metal box, with twist drill bit No. 10 017..., right-hand cutting, with parallel shank



10 033 045
with tap drills 3.3 - 4.2 - 6.8 - 10.2 mm

Drill bit range mm	10 031... Wodex		10 033... Titex		Pitch mm	Number of bits pcs
1 - 5.9	030		030		0.1	50
6 - 10	035		035		0.1	41
1 - 10	040		-	-	0.5	19
1 - 10.5*	045		045		0.5	24
1 - 13	050		050		0.5	25
1 - 13*	055		-	-	0.5	55

* with tap drills 3.3 - 4.2 - 6.8 - 10.2 mm



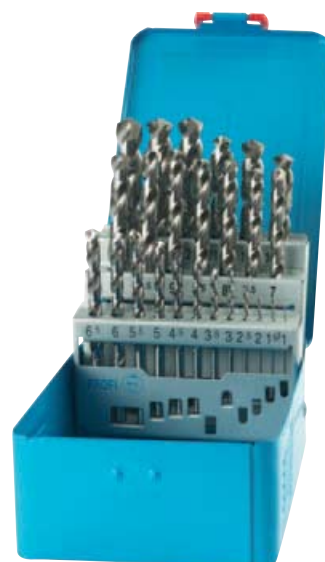
10 034 Twist drill bit sets



in metal box, with twist drill bit No. 10 019...

Wodex


10 034 040



10 034 050

10 034 Twist drill bit box, including 55 **Wodex** twist drill bits

with twist drill bit Product No. 10 019..., in black plastic box incl. wall bracket and removable transparent cover. Dimensions (L x D x H) 22 x 18 x 14.5 cm. From 1 to 13.0 mm rising by 0.5 mm with tap drills 3.3 - 4-2 - 6-8 - 10-2 mm, with crosswise grinding, for difficult to cut materials, e.g. **stainless and heat-resisting steels**, VA steel, hard bronze, titanium

Measure bits and sort them in order in one go!



10 034 055

10 035 Twist drill bit sets



in metal box, with twist drill bit No. 10 022...

TITEX

10 037 Twist drill bit sets



in metal box, with twist drill bit No. 10 010...

Wodex


10 037 040



10 035 050



10 037 050

Drill bit range mm	10 034... Type VA Wodex		10 035... Type VA Titex		10 037... Type N Wodex		Pitch mm	Number of bits pcs
1 - 5.9	035		-	-	035		0.1	50
1 - 10	040		-	-	040		0.5	19
1 - 13	050		050		050		0.5	25
6 - 10	051		-	-	051		0.1	41
1 - 10.5*	053		-	-	053		0.5	24
1 - 13*	055		-	-	-	-	0.5	55

* with tap drills 3.3 - 4.2 - 6.8 - 10.2 mm

10 043 Twist drill bits



Wodex



10 043...

for long to short chipping materials, e.g. **steel up to 1000 N/mm²**,
cast iron, malleable cast iron, sintered iron, nickel silver, AlSi alloys
(Si > 11 %)



10 044...

10 044 HSS twist drill TiN

TITEX

Standard drill bit for universal use in materials up to approx. 1000 N/mm².
With TiN coating to increase tool life and cutting data.

A 1211 TiN

Ø d1	10 043...		10 044...		l1	l2	
mm	Wodex TiN		Titex TiN		mm	mm	
1	100		100		34	12	10
1.1	110		110		36	14	10
1.2	120		120		38	16	10
1.3	130		130		38	16	10
1.4	140		140		40	18	10
1.5	150		150		40	18	10
1.6	160		160		43	20	10
1.7	170		170		43	20	10
1.8	180		180		46	22	10
1.9	190		190		46	22	10
2	200		200		49	24	10
2.1	202		202		49	24	10
2.2	204		204		53	27	10
2.3	206		206		53	27	10
2.4	208		208		57	30	10
2.5	210		210		57	30	10
2.6	212		212		57	30	10
2.7	214		214		61	33	10
2.8	216		216		61	33	10
2.9	218		218		61	33	10
3	220		220		61	33	10
3.1	222		222		65	36	10
3.2	224		224		65	36	10
3.3	226		226		65	36	10
3.4	228		228		70	39	10
3.5	230		230		70	39	10
3.6	232		232		70	39	10
3.7	234		234		70	39	10
3.8	236		236		75	43	10
3.9	238		238		75	43	10
4	240		240		75	43	10
4.1	242		242		75	43	10
4.2	244		244		75	43	10
4.3	246		246		80	47	10
4.4	248		248		80	47	10
4.5	250		250		80	47	10
4.6	252		252		80	47	10
4.7	254		254		80	47	10
4.8	256		256		86	52	10
4.9	258		258		86	52	10
5	260		260		86	52	10
5.1	262		262		86	52	10
5.2	264		264		86	52	10
5.3	266		266		86	52	10
5.4	268		268		93	57	10
5.5	270		270		93	57	5
5.6	272		272		93	57	5
P	10 - 45		15 - 45		0.02 - 0.22		
M	-		-		-		
K	5 - 25		12 - 40		0.02 - 0.25		
NE	12 - 55		15 - 60		0.02 - 0.25		
H	-		-		-		
S	-		-		-		

Ø d1	10 043...		10 044...		l1	l2	
mm	Wodex TiN		Titex TiN		mm	mm	
5.7	274		274		93	57	5
5.8	276		276		93	57	5
5.9	278		278		93	57	5
6	280		280		93	57	5
6.1	282		282		101	63	5
6.2	284		284		101	63	5
6.3	286		286		101	63	5
6.4	288		288		101	63	5
6.5	290		290		101	63	5
6.6	292		292		101	63	5
6.7	294		294		101	63	5
6.8	296		296		109	69	5
6.9	298		298		109	69	5
7	300		300		109	69	1
7.1	302		302		109	69	1
7.2	304		304		109	69	1
7.3	306		306		109	69	1
7.4	308		308		109	69	1
7.5	310		310		109	69	1
7.6	312		312		117	75	1
7.7	314		314		117	75	1
7.8	316		316		117	75	1
7.9	318		318		117	75	1
8	320		320		117	75	1
8.1	322		322		117	75	1
8.2	324		324		117	75	1
8.3	326		326		117	75	1
8.4	328		328		117	75	1
8.5	330		330		117	75	1
8.6	332		332		125	81	1
8.7	334		334		125	81	1
8.8	336		336		125	81	1
8.9	338		338		125	81	1
9	340		340		125	81	1
9.2	344		344		125	81	1
9.5	350		350		125	81	1
9.8	356		356		133	87	1
9.9	358		358		133	87	1
10	360		360		133	87	1
10.2	362		362		133	87	1
10.5	366		366		133	87	1
11	370		370		142	94	1
11.5	386		386		142	94	1
12	400		400		151	101	1
12.5	406		406		151	101	1
13	420		420		151	101	1
P	10 - 45		15 - 45		0.02 - 0.22		
M	-		-		-		
K	5 - 25		12 - 40		0.02 - 0.25		
NE	12 - 55		15 - 60		0.02 - 0.25		
H	-		-		-		
S	-		-		-		

10 037 Twist drill magazine, 230 piece.

rolled, steam tempered

Application: Machining steel, cast steel, grey cast iron, malleable cast iron, sintered iron, nickel silver, graphite.

10 each of twist drill bit sizes 1.0 - 8.5 + 3.2 + 4.2 + 10.0
 5 each of twist drill bit sizes 9.0 + 9.5 + 10.5 - 13.0,
 rising by 0.5 mm

Wodex®
230 pcs
 in sheet steel case


10 037 230

Drill bit range mm	10 037...		Pitch mm	Number of bits pcs
1 - 13	230		0.5	230

10 045 Twist drill bit sets

in metal box, with twist drill bit No. 10 043...

Wodex®

10 045...

Drill bit range mm	10 045... TiN		Pitch mm	Number of bits pcs
1 - 10	045		0.5	19

10 054 Deep hole twist drill bits



very good chip removal, **suitable for large drilling depths**, for long chipping materials, e.g. **steel up to approx. 1000 N/mm²**, Al alloys, AISi alloys, copper alloys, tough brass, soft bronze, **stainless steels** (1.4541)

A 1222



10 054...

10 056 Deep hole twist drill bits



Type as 10 054..., however, with **TiN coating**, the surface hardness of 2000 HV results in a far longer tool life than bright twist drill bits

A 1249 TiN



10 056...

10 057 Deep hole twist drill bits

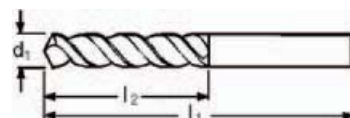


Type as 10 054..., however, with **TiNAL-FUTURA coating**, preferably for long chipping materials up to 1300 N/mm², steels, Al and Cu alloys, **suitable for dry machining in steel materials**

A 1249 TFL



10 057...



Ø d1 mm	10 054...		10 056... TiN		10 057... TFL		l1 mm	l2 mm
1	100		100		-	-	34	12
1.5	150		150		-	-	40	18
2	200		200		200		49	24
2.5	210		210		210		57	30
3	220		220		220		61	33
3.2	224		224		-	-	65	36
3.3	226		226		226		65	36
3.5	230		230		230		70	39
3.8	236		236		-	-	75	43
4	240		240		240		75	43
4.2	244		244		244		75	43
4.5	250		250		250		80	47
5	260		260		260		86	52
5.2	264		264		-	-	86	52
5.5	270		270		270		93	57
6	280		280		280		93	57
6.5	290		290		290		101	63
6.8	296		296		296		109	69
7	300		300		300		109	69
7.5	310		310		310		109	69
8	320		320		320		117	75
8.5	330		330		330		117	75
9	340		340		340		125	81
9.5	350		350		350		125	81
10	360		360		360		133	87
10.2	-	-	-	-	362		133	87
10.5	-	-	-	-	365		133	87
11	380		380		370		142	94
11.5	-	-	-	-	386		142	94
12	400		400		400		151	101
P	10 - 30		12 - 38		15 - 42		0.01 - 0.25	
M	5 - 8		8 - 12		9 - 15		0.01 - 0.16	
K	10 - 30		25 - 35		25 - 38		0.02 - 0.3	
NE	10 - 50		20 - 80		20 - 80		0.01 - 0.25	
H	-		-		-		-	
S	-		-		-		-	

10 062 Deep hole twist drill bits



Multi-purpose drill bits with outstanding hot hardness resistance, with special geometry for optimising chip formation and chip removal. Enables larger drilling depths without ventilating. Particularly wide range of possible uses for all medium and long chipping materials with 1200 N/mm²

Wodex®



10 062...

10 060 Deep hole twist drill bits

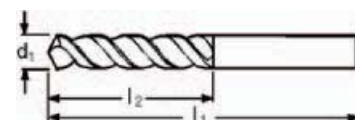


Type as 10 062..., however, with **TiAlN-M** coating

Wodex®



10 060...



Ø d1	10 062...	10 060...	l1	l2
mm		TiAlN-M	mm	mm
1.5	150	150	40	18
1.6	160	160	43	20
1.7	170	170	43	20
1.8	180	180	46	22
1.9	190	190	46	22
2	200	200	49	24
2.1	202	202	49	24
2.2	204	204	53	27
2.3	206	206	53	27
2.4	208	208	57	30
2.5	210	210	57	30
2.6	212	212	57	30
2.7	214	214	61	33
2.8	216	216	61	33
2.9	218	218	61	33
3	220	220	61	33
3.1	222	222	65	36
3.2	224	224	65	36
3.3	226	226	65	36
3.4	228	228	70	39
3.5	230	230	70	39
3.6	232	232	70	39
3.7	234	234	70	39
3.8	236	236	75	43
3.9	238	238	75	43
4	240	240	75	43
4.1	242	242	75	43
4.2	244	244	75	43
4.3	246	246	80	47
4.4	248	248	80	47
4.5	250	250	80	47
4.6	252	252	80	47
4.7	254	254	80	47
4.8	256	256	86	52
4.9	258	258	86	52
5	260	260	86	52
5.1	262	262	86	52
5.2	264	264	86	52
5.3	266	266	86	52
5.4	268	268	93	57
5.5	270	270	93	57
5.6	272	272	93	57
5.7	274	274	93	57
5.8	276	276	93	57
5.9	278	278	93	57
6	280	280	93	57
6.1	282	282	101	63
6.2	284	284	101	63
P	10 - 50	12 - 65	0.05 - 0.3	
M	8 - 12	10 - 15	0.02 - 0.14	
K	5 - 25	8 - 30	0.05 - 0.3	
NE	30 - 50	30 - 50	0.05 - 0.3	
H	-	-	-	
S	-	-	-	

Ø d1	10 062...	10 060...	l1	l2
mm		TiAlN-M	mm	mm
6.3	286	286	101	63
6.4	288	288	101	63
6.5	290	290	101	63
6.6	292	292	101	63
6.7	294	294	101	63
6.8	296	296	109	69
6.9	298	298	109	69
7	300	300	109	69
7.1	302	302	109	69
7.2	304	304	109	69
7.3	306	306	109	69
7.4	308	308	109	69
7.5	310	310	109	69
7.6	312	312	117	75
7.7	314	314	117	75
7.8	316	316	117	75
7.9	318	318	117	75
8	320	320	117	75
8.1	322	322	117	75
8.2	324	324	117	75
8.3	326	326	117	75
8.4	328	328	117	75
8.6	332	332	125	81
8.7	334	334	125	81
8.8	336	336	125	81
8.9	338	338	125	81
9	340	340	125	81
9.1	342	342	125	81
9.2	344	344	125	81
9.3	346	346	125	81
9.4	348	348	125	81
9.5	350	350	125	81
9.6	352	352	133	87
9.7	354	354	133	87
9.8	356	356	133	87
9.9	358	358	133	87
10	360	360	133	87
10.2	362	362	133	87
10.5	366	366	133	87
11	380	380	142	94
11.5	386	386	142	94
12	400	400	151	101
12.5	406	406	151	101
13	420	420	151	101
14	440	440	160	108
15	460	460	169	114
16	480	480	178	120
P	10 - 50	12 - 65	0.05 - 0.3	
M	8 - 12	10 - 15	0.02 - 0.14	
K	5 - 25	8 - 30	0.05 - 0.3	
NE	30 - 50	30 - 50	0.05 - 0.3	
H	-	-	-	
S	-	-	-	

10 064 Twist drill bits



DIN
338

Typ
ALPHA
X-E

HSS
E

130°

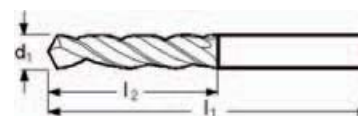
for high cutting performance, good chip removal, for medium and high-strength steels, e.g. **deep drillholes in stainless steels**, high-strength brass, electrolytic copper, bronze, cast iron, malleable cast iron, special alloys, AISi alloy (Si > 12%)

Intermediate sizes also available in VE

A 1247



10 064...



Ø d1 mm	10 064...		l1 mm	l2 mm
1	100		34	12
1.5	150		40	18
1.8	180		46	22
2	200		49	24
2.2	204		53	27
2.5	210		57	30
3	220		61	33
3.1	222		65	36
3.2	224		65	36
3.3	226		65	36
3.5	230		70	39
4	240		75	43
4.2	244		75	43
P	12 - 30		0.01 - 0.2	
M	7 - 10		0.01 - 0.14	
K	12 - 30		0.02 - 0.25	
NE	12 - 50		0.01 - 0.25	
H	-		-	
S	2 - 5		0.01 - 0.09	

Ø d1 mm	10 064...		l1 mm	l2 mm
4.5	250		80	47
5	260		86	52
5.5	270		93	57
6	280		93	57
6.5	290		101	63
7	300		109	69
7.5	310		109	69
8	320		117	75
8.5	330		117	75
9	340		125	81
9.5	350		125	81
10	360		133	87

P	12 - 30		0.01 - 0.2	
M	7 - 10		0.01 - 0.14	
K	12 - 30		0.02 - 0.25	
NE	12 - 50		0.01 - 0.25	
H	-		-	
S	2 - 5		0.01 - 0.09	

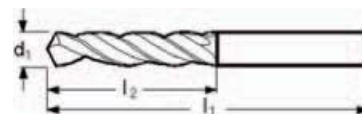
10 163 High-performance twist drill bits



High-performance twist drill bits with optimised chip formation. Wide range of applications for all, preferably long chipping, materials up to approx. 1300 N/mm², e.g. steels, Al and Cu alloys. With special AlCrN-based high-performance coating for maximum cutting data and tool lives

10 163...

A 1249 XPL



Ø d1 mm	10 163...		l1 mm	l2 mm
1.0	002		34	12
1.1	004		36	14
1.2	006		38	16
1.3	008		38	16
1.4	010		40	18
1.5	012		40	18
1.6	014		43	20
1.7	016		43	20
1.8	018		46	22
1.9	020		46	22
2.0	022		49	24
2.1	024		49	24
2.2	026		53	27
2.3	028		53	27
2.4	030		57	30
2.5	032		57	30
2.6	034		57	30
2.7	036		61	33
2.8	038		61	33
2.9	040		61	33
3.0	042		61	33
3.1	044		65	36
3.2	046		65	36
3.3	048		65	36
3.4	050		70	39
3.5	052		70	39
3.6	054		70	39
3.7	056		70	39
3.8	058		75	43
3.9	060		75	43
4.0	062		75	43
4.1	064		75	43
4.2	066		75	43
4.3	068		80	47
4.4	070		80	47
4.5	072		80	47
4.6	074		80	47
4.65	076		80	47
4.7	078		80	47
4.8	080		86	52
4.9	082		86	52
5.0	084		86	52
5.1	086		86	52
5.2	088		86	52
5.3	090		86	52
5.4	092		93	57
5.5	094		93	57
5.55	096		93	57
5.6	098		93	57
5.7	100		93	57
5.8	102		93	57
5.9	104		93	57
6.0	106		93	57
6.1	108		101	63
6.2	110		101	63
6.3	112		101	63
P	20 - 80		0.02 - 0.5	
M	5 - 25		0.01 - 0.25	
K	20 - 75		0.03 - 0.6	
NE	50 - 90		0.02 - 0.45	
H	8 - 16		0.01 - 0.2	
S	4 - 8		0.01 - 0.15	

Ø d1 mm	10 163...		l1 mm	l2 mm
6.4	114		101	63
6.5	116		101	63
6.6	118		101	63
6.7	120		101	63
6.8	122		109	69
7.0	126		109	69
6.9	124		109	69
7.1	128		109	69
7.2	130		109	69
7.3	132		109	69
7.4	134		109	69
7.5	136		109	69
7.6	138		117	75
7.7	140		117	75
7.8	142		117	75
7.9	144		117	75
8.0	146		117	75
8.1	148		117	75
8.2	150		117	75
8.3	152		117	75
8.4	154		117	75
8.5	156		117	75
8.6	158		125	81
8.7	160		125	81
8.8	162		125	81
8.9	164		125	81
9.0	166		125	81
9.1	168		125	81
9.2	170		125	81
9.3	172		125	81
9.4	174		125	81
9.5	176		125	81
9.6	178		133	87
9.7	180		133	87
9.8	182		133	87
9.9	184		133	87
10.0	186		133	87
10.2	188		133	87
10.5	190		133	87
11.0	192		142	94
11.2	194		142	94
11.3	196		142	94
11.5	198		142	94
12.0	200		151	101
12.5	202		151	101
13.0	204		151	101
13.1	206		151	101
13.3	208		160	108
13.5	210		160	108
14.0	212		160	108
14.5	214		169	114
15.0	216		169	114
15.1	218		178	120
15.3	220		178	120
15.5	222		178	120
16.0	224		178	120
P	20 - 80		0.02 - 0.5	
M	5 - 25		0.01 - 0.25	
K	20 - 75		0.03 - 0.6	
NE	50 - 90		0.02 - 0.45	
H	8 - 16		0.01 - 0.2	
S	4 - 8		0.01 - 0.15	



10 068 Twist drill bits



DIN
338

Typ
VA
INOX

HSS
E

TFT

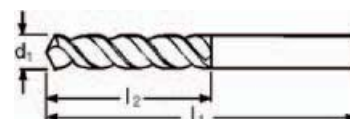
118°

for drilling austenitic stainless steels with very high cutting data, good chip removal, for steels with soft to tough strength, e.g. soft structural steels, soft copper alloys.

A 1254 TFT



10 068...



Ø d1 mm	10 068... TFT		l1 mm	l2 mm
3	220		61	33
3.2	224		65	36
3.3	226		65	36
3.4	228		70	39
3.5	230		70	39
3.7	234		70	39
3.8	236		75	43
4	240		75	43
4.2	244		75	43
4.3	246		80	47
4.5	250		80	47
4.65	253		80	47
4.7	254		80	47
4.8	256		86	52
5	260		86	52
5.1	262		86	52
5.3	266		86	52
5.5	270		93	57
5.55	271		93	57
5.6	272		93	57
5.8	276		93	57
6	280		93	57
6.5	290		101	63
6.6	292		101	63
6.8	296		109	69
6.9	298		109	69
7	300		109	69
7.4	308		109	69
7.5	310		109	69
7.8	316		117	75
8	320		117	75
8.5	330		117	75
P	12 - 45		0.05 - 0.3	
M	12 - 20		0.07 - 0.3	
K	-		-	
NE	25 - 80		0.07 - 0.25	
H	-		-	
S	-		-	

Ø d1 mm	10 068... TFT		l1 mm	l2 mm
8.6	332		125	81
8.8	336		125	81
9	340		125	81
9.3	346		125	81
9.4	348		125	81
9.5	350		125	81
9.8	356		133	87
10	360		133	87
10.2	364		133	87
10.3	366		133	87
10.5	370		133	87
11	380		142	94
11.2	384		142	94
11.3	386		142	94
11.5	390		142	94
11.8	396		142	94
12	400		151	101
12.1	402		151	101
12.5	410		151	101
13	420		151	101
13.2	424		151	101
13.5	430		160	108
14	440		160	108
14.1	442		169	114
14.2	444		169	114
14.5	450		169	114
15	460		169	114
15.1	462		178	120
15.2	464		178	120
15.5	472		178	120
16	482		178	120
P	12 - 45		0.05 - 0.3	
M	12 - 20		0.07 - 0.3	
K	-		-	
NE	25 - 80		0.07 - 0.25	
H	-		-	
S	-		-	

For suitable
empty twist drill bit boxes,
see Page 37



10 074 Twist drill bits

DIN
338Typ
H

HSS

118°

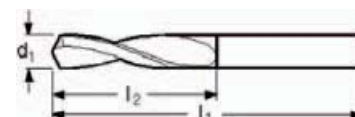
for short chipping, brittle materials, e.g. Ms 58, magnesium alloys and plastics (Plexiglas, with small drilling depths) and zinc alloys (Zamak)

A 1212

TITEX



10 074...



Ø d1 mm	10 074...		l1 mm	l2 mm
1	100		34	12
1.1	110		36	14
1.2	120		38	16
1.3	130		38	16
1.5	150		40	18
1.6	160		43	20
2	200		49	24
2.1	202		49	24
2.2	204		53	27
2.4	208		57	30
2.5	210		57	30
2.6	212		57	30
2.7	214		61	33
2.8	216		61	33
3	220		61	33
3.1	222		65	36
3.2	224		65	36
3.3	226		65	36
3.5	230		70	39
P	-		-	-
M	-		-	-
K	-		-	-
NE	10 - 50		0.02 - 0.2	-
H	-		-	-
S	-		-	-

Ø d1 mm	10 074...		l1 mm	l2 mm
4	240		75	43
4.2	244		75	43
4.5	250		80	47
4.8	256		86	52
5	260		86	52
5.2	264		86	52
5.5	270		93	57
6	280		93	57
6.2	284		101	63
6.5	290		101	63
7	300		109	69
7.5	310		109	69
7.8	316		117	75
8	320		117	75
8.5	330		117	75
9	340		125	81
9.5	350		125	81
10	360		133	87

P	-		-
M	-		-
K	-		-
NE	10 - 50		0.02 - 0.2
H	-		-
S	-		-

10 076 Twist drill bits

DIN
338Typ
W

HSS

130°

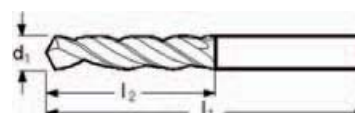
for long chipping, soft materials, e.g. Al alloys, AlSi alloys (Si<12%), copper alloys, zinc alloys, soft plastics

A 1213

TITEX



10 076...



Ø d1	10 076...		l1 mm	l2 mm
1	100		34	12
1.5	150		40	18
2	200		49	24
2.2	204		53	27
2.5	210		57	30
3	220		61	33
3.1	222		65	36
3.2	224		65	36
3.3	226		65	36
3.5	230		70	39
3.8	236		75	43
4	240		75	43
4.2	244		75	43
P	-		-	-
M	-		-	-
K	-		-	-
NE	10 - 50		0.02 - 0.2	-
H	-		-	-
S	-		-	-

Ø d1	10 076...		l1 mm	l2 mm
4.5	250		80	47
5	260		86	52
5.5	270		93	57
6	280		93	57
6.5	290		101	63
7	300		109	69
7.2	304		109	69
7.5	310		109	69
8	320		117	75
8.5	330		117	75
9	340		125	81
9.5	350		125	81
10	360		133	87
P	-		-	-
M	-		-	-
K	-		-	-
NE	10 - 50		0.02 - 0.2	-
H	-		-	-
S	-		-	-

10 091 Twist drill bit boxes, empty

DIN
338DIN
1897

made of metal for twist drills with parallel shank



10 091 115



10 091 140



10 091 150

Drill bit range mm	10 091...		Pitch mm	For number of drill bits pcs	For DIN
1 - 5.9	115		0.1	50	338
6 - 10	135		0.1	41	338
1 - 10	140		0.5	19	338
1 - 10.5	145		0.5	24	338
1 - 13	150		0.5	25	338
1 - 13	155		0.5	25	1897
1 - 10	160		0.5	19	1897

10 093 Twist drill bit box, empty

DIN
338

Measure bits and sort
them in order in one go!

For 55 drill bits with parallel shank from 1 to 13.0 mm rising by 0.5 mm with intermediate sizes 3.3 - 4.2 - 6.8 - 10.2 mm. With wall bracket and removable plastic cover for installing in drawers.



10 093 001

10 093...		Dimensions incl. cover L x D x H
001		22 x 18 x 14.5 cm

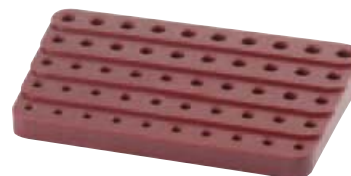
10 094 Twist drill bit stands

DIN
338DIN
340DIN
1897

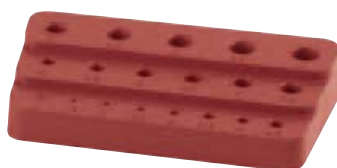
made of plastic for twist drills with parallel shank



10 094 110



10 094 125



10 094 140



10 094 150

Drill bit range mm	10 094...		Pitch mm	For number of drill bits pcs
1 - 5	110		0.1	41
5.1 - 10	125		0.1	50
1 - 10	140		0.5	19
1 - 13	150		0.5	25

10 103 Twist drills, extra short



Wodex®



10 103...

for long to short chipping materials, e.g. **steel up to approx.****1000 N/mm²**, cast iron, malleable cast iron, sintered iron, nickel silver, AlSi alloys (Si > 11 %)

10 104 Twist drills, extra short

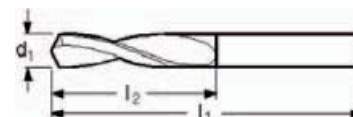
TITEX®



10 104...

for long to short chipping materials, e.g. **steel up to approx.****1000 N/mm²**, cast iron, malleable cast iron, sintered iron, nickel silver, AlSi alloys (Si > 11 %)

A 1111



Ø d1	10 103...		10 104...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
1	100		100		26	6	10
1.5	150		150		32	9	10
2	200		200		38	12	10
2.5	210		210		43	14	10
3	220		220		46	16	10
3.1	222		222		49	18	10
3.2	224		224		49	18	10
3.3	226		226		49	18	10
3.5	230		230		52	20	10
3.8	236		236		55	22	10
4	240		240		55	22	10
4.1	242		242		55	22	10
4.2	244		244		55	22	10
4.5	250		250		58	24	10
5	260		260		62	26	10
5.2	264		264		62	26	10
5.5	270		270		66	28	10
5.8	276		276		66	28	10
6	280		280		66	28	10
6.5	290		290		70	31	10
P	10 - 45		10 - 30		0.02 - 0.25		
M	-		-		-		
K	5 - 25		10 - 30		0.02 - 0.25		
NE	30 - 50		10 - 50		0.02 - 0.25		
H	-		-		-		
S	-		-		-		

Ø d1	10 103...		10 104...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
6.8	296		296		74	34	10
7	300		300		74	34	5
7.2	304		304		74	34	5
7.5	310		310		74	34	5
7.8	316		316		79	37	5
8	320		320		79	37	5
8.5	330		330		79	37	5
9	340		340		84	40	5
9.5	350		350		84	40	1
10	360		360		89	43	1
10.5	366		366		89	43	1
11	380		380		95	47	1
12	400		400		102	51	1
13	420		420		102	51	1
14	440		440		107	54	1
15	460		460		111	56	1
16	480		480		115	58	1
17	-	-	500		119	60	1
18	-	-	520		123	62	1
20	-	-	560		131	66	1
P	10 - 45		10 - 30		0.02 - 0.25		
M	-		-		-		
K	5 - 25		10 - 30		0.02 - 0.25		
NE	30 - 50		10 - 50		0.02 - 0.25		
H	-		-		-		
S	-		-		-		



10 105 Twist drills, extra short



Multi-purpose drill bits with outstanding hot hardness resistance, with special geometry for optimising chip formation and chip removal. Enables larger drilling depths without ventilating. Particularly wide range of possible uses for all medium and long chipping **materials with 1200 N/mm²**

Wodex



10 105...

10 106 Twist drills, extra short



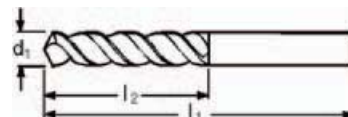
very good chip removal, particularly suitable for use in machines, for long chipping materials, e.g. **steel up to approx. 1000 N/mm²**, Al alloys, AISi alloys, copper alloys, **stainless steels (1.4541)** soft bronze, tough brass

A 1148

TITEX



10 106...



Ø d1 mm	10 105... Wodex	10 106... Titex	l1 mm	l2 mm	PU
1.5	150	150	32	9	10
2	200	200	38	12	10
2.5	210	210	43	14	10
3	220	220	46	16	10
3.1	222	222	49	18	10
3.2	224	224	49	18	10
3.3	226	-	49	18	10
3.5	230	230	52	20	10
3.8	236	236	55	22	10
4	240	240	55	22	10
4.1	242	242	55	22	10
4.2	244	244	55	22	10
4.5	250	250	58	24	10
4.8	256	256	62	26	10
5	260	260	62	26	10
5.2	264	264	62	26	5
5.5	270	270	66	28	5
5.8	276	-	66	28	5
6	280	280	66	28	5
6.1	282	282	70	31	5
6.2	284	284	70	31	5
6.5	290	290	70	31	5
6.8	296	296	74	34	5
7	300	300	74	34	5
7.5	313	313	74	34	5
P	10 - 45	12 - 35	0.02 - 0.3		
M	8 - 12	9 - 11	0.01 - 0.18		
K	5 - 25	15 - 30	0.05 - 0.4		
NE	30 - 50	12 - 60	0.02 - 0.4		
H	-	-	-		
S	-	3 - 8	0.01 - 0.1		

Ø d1 mm	10 105... Wodex	10 106... Titex	l1 mm	l2 mm	PU
7.8	316	-	79	37	5
8	320	320	79	37	5
8.5	330	330	79	37	5
9	340	340	84	40	5
9.5	350	350	84	40	5
10	360	360	89	43	1
10.2	364	364	89	43	1
10.5	370	370	89	43	1
10.8	376	376	95	47	1
11.0	380	380	95	47	1
11.2	384	384	95	47	1
11.5	390	390	95	47	1
11.8	396	396	95	47	1
12	400	400	102	51	1
12.5	410	410	102	51	1
12.8	416	416	102	51	1
13	420	420	102	51	1
13.3	426	426	107	54	1
13.5	430	430	107	54	1
14	440	440	107	54	1
14.5	450	450	111	56	1
15	460	460	111	56	1
15.3	466	466	115	58	1
15.5	470	470	115	58	1
16	480	480	115	58	1
P	10 - 45	12 - 35	0.02 - 0.3		
M	8 - 12	9 - 11	0.01 - 0.18		
K	5 - 25	15 - 30	0.05 - 0.4		
NE	30 - 50	12 - 60	0.02 - 0.4		
H	-	-	-		
S	-	3 - 8	0.01 - 0.1		

10 108 Twist drills, extra short



Multi-purpose drill bits with outstanding hot hardness resistance, with special geometry for optimising chip formation and chip removal. Enables larger drilling depths without ventilating. Particularly wide range of possible uses for all medium and long chipping materials with 1200 N/mm²

Wodex®



10 108 360

10 107 Twist drills, extra short



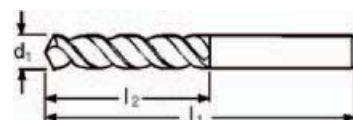
High-performance twist drill bits with optimal chip formation, particularly suitable for use in machining centres and automatic lathes. Wide range of applications for all, preferably long chipping, materials up to 1300 N/mm², e.g. steels (including austenitic stainless steels), Al and Cu alloys. With TINAL FUTURA coating for high cutting data and particularly long tool lives. Also suitable for dry machining in steel materials.

A 1149 TFL

TITEX®



10 107...



Ø d1 mm	10 108... Wodex		10 107... Titex		l1 mm	l2 mm	PU
1.5	-	-	150		32	9	10
2	200		200		38	12	10
2.5	210		210		43	14	10
2.8	216		-	-	46	16	10
3	220		220		46	16	10
3.1	222		222		49	18	10
3.2	224		224		49	18	10
3.3	226		226		49	18	10
3.4	228		-	-	52	20	10
3.5	230		230		52	20	10
3.6	232		-	-	52	20	10
3.7	234		-	-	52	20	10
3.8	236		236		55	22	10
3.9	238		-	-	55	22	10
4	240		240		55	22	10
4.1	242		242		55	22	10
4.2	244		244		55	22	10
4.3	246		-	-	58	24	10
4.4	248		-	-	58	24	10
4.5	250		250		58	24	10
4.6	252		-	-	58	24	10
4.7	254		-	-	58	24	10
4.8	256		256		62	26	10
4.9	258		-	-	62	26	10
5	260		260		62	26	10
5.1	262		-	-	62	26	5
5.2	264		264		62	26	5
5.3	266		-	-	62	26	5
5.4	268		-	-	62	26	5
5.5	270		270		66	28	5
5.6	272		-	-	66	28	5
5.7	274		-	-	66	28	5
5.8	276		276		66	28	5
5.9	278		-	-	66	28	5
6	280		280		66	28	5
6.1	282		282		70	31	5
P	12 - 60		20 - 50		0.02 - 0.35		
M	10 - 15		12 - 20		0.02 - 0.21		
K	6 - 30		30 - 45		0.04 - 0.45		
NE	-		25 - 60		0.02 - 0.4		
H	-		-		-		
S	-		3 - 8		0.01 - 0.1		

Ø d1 mm	10 108... Wodex		10 107... Titex		l1 mm	l2 mm	PU
6.2	284		284		70	31	5
6.5	290		290		70	31	5
6.8	296		296		74	34	5
7	300		300		74	34	5
7.2	304		-	-	74	34	5
7.5	310		-	-	74	34	5
7.8	316		316		79	37	5
8	320		320		79	37	5
8.2	324		-	-	79	37	5
8.5	330		330		79	37	5
8.8	336		-	-	84	40	5
9	340		340		84	40	5
9.2	344		-	-	84	40	5
9.5	350		350		84	40	5
9.8	356		-	-	89	43	5
10	360		360		89	43	1
10.2	364		364		89	43	1
10.5	370		370		89	43	1
10.8	376		376		95	47	1
11	380		380		95	47	1
11.2	384		384		95	47	1
11.5	390		390		95	47	1
11.8	396		396		95	47	1
12	400		400		102	51	1
12.5	410		410		102	51	1
12.8	416		-	-	102	51	1
13	420		420		102	51	1
13.3	-	-	426		107	54	1
13.5	430		430		107	54	1
14	440		440		107	54	1
14.5	450		450		111	56	1
15	460		460		111	56	1
15.3	-	-	466		115	58	1
15.5	470		470		115	58	1
16	480		480		115	58	1
P	12 - 60		20 - 50		0.02 - 0.35		
M	10 - 15		12 - 20		0.02 - 0.21		
K	6 - 30		30 - 45		0.04 - 0.45		
NE	-		25 - 60		0.02 - 0.4		
H	-		-		-		
S	-		3 - 8		0.01 - 0.1		



10 110 Twist drills, extra short

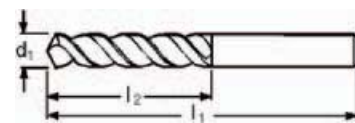


High-performance drill bits with special geometry and coating for drilling austenitic stainless steels with very high cutting data. Due to particularly good chip formation, also suitable for other soft-tough materials, e.g. soft structural steels, soft copper pipes.

A 1154 TFT



10 110...



CUTTING TOOLS

1

Ø d1 mm	10 110...		l1 mm	l2 mm
2.0	002		38	12
2.1	004		38	12
2.2	006		40	13
2.3	008		40	13
2.4	010		43	14
2.5	012		43	14
2.6	014		43	14
2.7	016		46	16
2.8	018		46	16
2.9	020		46	16
3.0	022		46	16
3.1	024		49	18
3.2	026		49	18
3.3	028		49	18
3.4	030		52	20
3.5	032		52	20
3.6	034		52	20
3.7	036		52	20
3.8	038		55	22
3.9	040		55	22
4.0	042		55	22
4.1	044		55	22
4.2	046		55	22
4.3	048		58	24
4.4	050		58	24
4.5	052		58	24
4.6	054		58	24
4.65	056		58	24
4.7	058		58	24
4.8	060		62	26
4.9	062		62	26
5.0	064		62	26
5.1	066		62	26
5.2	068		62	26
5.3	070		62	26
5.4	072		66	28
5.5	074		66	28
5.55	076		66	28
5.6	078		66	28
5.7	080		66	28
5.8	082		66	28
5.9	084		66	28
P	-		-	-
M	10 - 35		0.04 - 0.35	
K	-		-	
NE	50 - 90		0.03 - 0.45	
H	-		-	
S	-		-	

Ø d1 mm	10 110...		l1 mm	l2 mm
6.0	086		66	28
6.1	088		70	31
6.2	090		70	31
6.3	092		70	31
6.4	094		70	31
6.5	096		70	31
6.6	098		70	31
6.7	100		70	31
6.8	102		74	34
6.9	104		74	34
7.0	106		74	34
7.1	108		74	34
7.2	110		74	34
7.3	112		74	34
7.4	114		74	34
7.5	116		74	34
7.6	118		79	37
7.7	120		79	37
7.8	122		79	37
7.9	124		79	37
8.0	126		79	37
8.1	128		79	37
8.2	130		79	37
8.3	132		79	37
8.4	134		79	37
8.5	136		79	37
8.6	138		84	40
8.7	140		84	40
8.8	142		84	40
8.9	144		84	40
9.0	146		84	40
9.1	148		84	40
9.2	150		84	40
9.3	152		84	40
9.4	154		84	40
9.5	156		84	40
9.6	158		89	43
9.7	160		89	43
9.8	162		89	43
9.9	164		89	43
10.0	166		89	43
10.2	168		89	43
P	-		-	-
M	10 - 35		0.04 - 0.35	
K	-		-	
NE	50 - 90		0.03 - 0.45	
H	-		-	
S	-		-	

Ø d1 mm	10 110...		l1 mm	l2 mm
10.3	170		89	43
10.5	172		89	43
10.6	174		89	43
10.7	176		95	47
10.8	178		95	47
10.9	180		95	47
11.0	182		95	47
11.1	184		95	47
11.2	186		95	47
11.3	188		95	47
11.5	190		95	47
11.6	192		95	47
11.8	194		95	47
11.9	196		102	51
12.0	198		102	51
12.1	200		102	51
12.3	202		102	51
12.5	204		102	51
12.6	206		102	51
12.7	208		102	51
13.0	210		102	51
13.1	212		102	51
13.2	214		102	51
13.3	216		107	54
13.4	218		107	54
13.5	220		107	54
13.6	222		107	54
14.0	224		107	54
14.1	226		111	56
14.2	228		111	56
14.5	230		111	56
14.8	232		111	56
15.0	234		111	56
15.1	236		115	58
15.2	238		115	58
15.3	240		115	58
15.4	242		115	58
15.5	244		115	58
15.8	246		115	58
16.0	248		115	58
P	-		-	-
M	10 - 35		0.04 - 0.35	
K	-		-	
NE	50 - 90		0.03 - 0.45	
H	-		-	
S	-		-	

Drilling and centring tools



10 112 High-performance twist drills, extra short

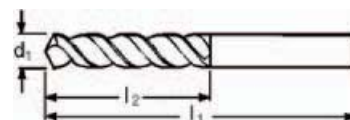


High-performance twist drill bits with optimal chip formation, particularly suitable for use in machining centres and automatic lathes. Wide range of applications for all, preferably long chipping, materials up to approx. 1300 N/mm², e.g. steels (including austenitic stainless steels), Al and Cu alloys. With special ALCrN-based high-performance coating for maximum cutting data and tool lives

A 1149 XPL



10 112...



Ø d1 mm	10 112...		l1 mm	l2 mm
1.0	002		26	6
1.1	004		28	7
1.2	006		30	8
1.3	008		30	8
1.4	010		32	9
1.5	012		32	9
1.6	014		34	10
1.7	016		34	10
1.8	018		36	11
1.9	020		36	11
2.0	022		38	12
2.1	024		38	12
2.2	026		40	13
2.3	028		40	13
2.4	030		43	14
2.5	032		43	14
2.6	034		43	14
2.7	036		46	16
2.8	038		46	16
2.9	040		46	16
3.0	042		46	16
3.1	044		49	18
3.2	046		49	18
3.3	048		49	18
3.4	050		52	20
3.5	052		52	20
3.6	054		52	20
3.7	056		52	20
3.8	058		55	22
3.9	060		55	22
4.0	062		55	22
4.1	064		55	22
4.2	066		55	22
4.3	068		58	24
4.4	070		58	24
4.5	072		58	24
4.6	074		58	24
4.65	076		58	24
4.7	078		58	24
4.8	080		62	26
4.9	082		62	26
5.0	084		62	26
P	30 - 90		0.02 - 0.5	
M	10 - 30		0.01 - 0.25	
K	25 - 80		0.03 - 0.60	
NE	60 - 100		0.02 - 0.45	
H	10 - 20		0.01 - 0.2	
S	5 - 10		0.01 - 0.15	

Ø d1 mm	10 112...		l1 mm	l2 mm
5.1	086		62	26
5.2	088		62	26
5.3	090		62	26
5.4	092		66	28
5.5	094		66	28
5.55	096		66	28
5.6	098		66	28
5.7	100		66	28
5.8	102		66	28
5.9	104		66	28
6.0	106		66	28
6.1	108		70	31
6.2	110		70	31
6.3	112		70	31
6.4	114		70	31
6.5	116		70	31
6.6	118		70	31
6.7	120		70	31
6.8	122		74	34
6.9	124		74	34
7.0	126		74	34
7.1	128		74	34
7.2	130		74	34
7.3	132		74	34
7.4	134		74	34
7.5	136		74	34
7.6	138		79	37
7.7	140		79	37
7.8	142		79	37
7.9	144		79	37
8.0	146		79	37
8.1	148		79	37
8.2	150		79	37
8.3	152		79	37
8.4	154		79	37
8.5	156		79	37
8.6	158		84	40
8.7	160		84	40
8.8	162		84	40
8.9	164		84	40
9.0	166		84	40
9.1	168		84	40
P	30 - 90		0.02 - 0.5	
M	10 - 30		0.01 - 0.25	
K	25 - 80		0.03 - 0.60	
NE	60 - 100		0.02 - 0.45	
H	10 - 20		0.01 - 0.2	
S	5 - 10		0.01 - 0.15	

Ø d1 mm	10 112...		l1 mm	l2 mm
9.2	170		84	40
9.3	172		84	40
9.4	174		84	40
9.5	176		84	40
9.6	178		89	43
9.7	180		89	43
9.8	182		89	43
9.9	184		89	43
10.0	186		89	43
10.2	188		89	43
10.5	190		89	43
10.8	192		95	47
11.0	194		95	47
11.2	196		95	47
11.3	198		95	47
11.5	200		95	47
11.8	202		95	47
12.0	204		102	51
12.5	206		102	51
13.0	208		102	51
13.1	210		102	51
13.3	212		107	54
13.5	214		107	54
14.0	216		107	54
14.5	218		111	56
15.0	220		111	56
15.1	222		115	58
15.3	224		115	58
15.5	226		115	58
16.0	228		115	58
16.5	230		119	60
17.0	232		119	60
17.5	234		123	62
18.0	236		123	62
18.5	238		127	64
19.0	240		127	64
19.5	242		131	66
20.0	244		131	66
P	30 - 90		0.02 - 0.5	
M	10 - 30		0.01 - 0.25	
K	25 - 80		0.03 - 0.60	
NE	60 - 100		0.02 - 0.45	
H	10 - 20		0.01 - 0.2	
S	5 - 10		0.01 - 0.15	

P	30 - 90		0.02 - 0.5
M	10 - 30		0.01 - 0.25
K	25 - 80		0.03 - 0.60
NE	60 - 100		0.02 - 0.45
H	10 - 20		0.01 - 0.2
S	5 - 10		0.01 - 0.15



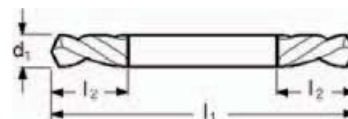
10 142 Car body drill bit

Wodex®



10 142...

Robust and powerful twist drill, mainly for sheet metal machining
(car body production)



Ø d1	10 142...		Overall length mm	Flute length mm	PU
2	520		38	9.5	10
2.5	525		43	9.5	10
3	530		46	11	10
3.1	531		49	11	10
3.2	532		49	11	10
3.3	533		49	11	10
3.5	535		52	14	10
4	540		55	14	10
4.1	541		55	14	10
4.2	542		55	14	10
4.5	545		58	17	10
5	550		62	17	10
5.2	552		62	17	5
5.5	555		66	20	5
6	560		66	20	5
6.5	565		70	20	5
7	570		74	20	5
8	580		79	20	5
P	10 - 50		0.05 - 0.3		
M	-		-	-	-
K	-		-	-	-
NE	-		-	-	-
H	-		-	-	-
S	-		-	-	-

10 144 Microdrill bit

TITEX®

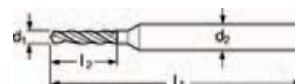


10 144...

for long to short chipping materials, e.g. **steel up to 1000 N/mm²**,
cast iron, malleable cast iron, sintered iron, nickel silver, AlSi alloys

Length l1: 25 mm

A 3143 on the right



Ø d1 mm	10 144...		l2 mm	d2 mm
0.15	015		0.8	1.0
0.20	020		1.5	1.0
0.25	025		1.9	1.0
0.30	030		1.9	1.0
0.35	035		2.4	1.0
0.40	040		3.0	1.0
0.45	045		3.0	1.0
0.50	050		3.4	1.0
0.55	055		3.9	1.0
0.60	060		3.9	1.0
0.65	065		4.2	1.0
0.70	070		4.8	1.0
0.75	075		4.8	1.0
0.80	080		5.3	1.5
0.85	085		5.3	1.5
0.90	090		6.0	1.5
1.00	100		6.8	1.5
1.05	105		6.8	1.5
1.10	110		7.6	1.5
1.15	115		7.6	1.5
1.20	120		8.5	1.5
1.25	125		8.5	1.5
1.30	130		8.5	1.5
1.35	135		9.5	1.5
1.40	140		9.5	1.5
1.45	145		9.5	1.5
P	12 - 35		0.005 - 0.03	
M	7 - 10		0.005 - 0.02	
K	12 - 40		0.005 - 0.04	
NE	12 - 60		0.005 - 0.05	
H	-		-	
S	2 - 6		0.005 - 0.01	



UNIT PRICE FOR PURCHASE OF ONE PACKAGING UNIT PER ORDER NUMBER. PLEASE ALWAYS STATE NUMBER OF ITEMS IN ORDER.

demo Kazakhstan - 090301 Republic of Kazakhstan, West Kazakhstan Oblast, Aktau, Framzone, BKKS office complex

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Wodex[®]

Chip removal &
cutting and
Clamping technology

10 152 Twist drill bit, long

Wodex®

DIN
340

Typ
N

HSS

118°



10 152...

for drilling steel and cast steel (alloyed and unalloyed), grey cast iron, malleable cast iron, ductile cast iron, sintered iron, nickel silver, graphite

10 153 Twist drill bit, long

TITEX®

DIN
340

Typ
N

HSS

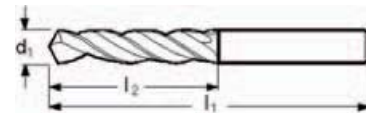
118°



10 153...

for long to short chipping materials, e.g. **steel up to approx. 1000 N/mm²**, cast iron, malleable cast iron, sintered iron, nickel silver, AISi alloys (Si > 11 %)

A 1511



Ø d1	10 152...		10 153...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
0.8	080		080		46	25	10
0.9	090		090		51	29	10
1	100		100		56	33	10
1.2	120		120		65	41	10
1.3	130		130		65	41	10
1.4	140		140		70	45	10
1.5	150		150		70	45	10
1.6	160		160		76	50	10
1.7	170		170		76	50	10
1.8	180		180		80	53	10
1.9	190		190		80	53	10
2	200		200		85	56	10
2.1	202		202		85	56	10
2.2	204		204		90	59	10
2.3	206		206		90	59	10
2.4	208		208		95	62	10
2.5	210		210		95	62	10
2.6	212		212		95	62	10
2.7	214		-	-	100	66	10
2.8	216		216		100	66	10
2.9	218		218		100	66	10
3	220		220		100	66	10
3.1	222		222		106	69	10
3.2	224		224		106	69	10
3.3	226		226		106	69	10
3.4	228		228		112	73	10
3.5	230		230		112	73	10
3.6	232		232		112	73	10
3.7	234		-	-	112	73	10
3.8	236		236		119	78	10
3.9	238		238		119	78	10
4	240		240		119	78	10
4.1	242		242		119	78	10
4.2	244		244		119	78	10
P	10 - 50		10 - 30		0.01 - 0.15		
M	8 - 12		-		0.02 - 0.14		
K	5 - 25		10 - 30		0.01 - 0.15		
NE	30 - 50		10 - 50		0.01 - 0.15		
H	-		-		-		
S	-		-		-		

Ø d1	10 152...		10 153...		l1	l2	PU
mm	Wodex		Titex		mm	mm	
4.4	248		248		126	82	10
4.5	250		250		126	82	5
4.8	256		256		132	87	5
5	260		260		132	87	5
5.1	262		262		132	87	5
5.2	264		264		132	87	5
5.4	268		268		139	91	5
5.5	270		270		139	91	5
5.7	274		274		139	91	5
5.8	276		276		139	91	5
6	280		280		139	91	5
6.2	284		284		148	97	5
6.5	290		290		148	97	5
6.8	296		296		156	102	5
7	300		300		156	102	5
7.2	304		-	-	156	102	5
7.5	310		310		156	102	5
7.8	316		316		165	109	5
8	320		320		165	109	5
8.2	324		324		165	109	1
8.5	330		330		165	109	1
9	340		340		175	115	1
9.5	350		350		175	115	1
9.8	356		356		184	121	1
10	360		360		184	121	1
10.2	362		362		184	121	1
10.5	366		366		184	121	1
11	380		380		195	128	1
11.5	386		386		195	128	1
12	400		400		205	134	1
12.5	406		406		205	134	1
13	420		420		205	134	1
14	440		440		214	140	1
15	460		460		220	144	1
P	10 - 50		10 - 30		0.01 - 0.15		
M	8 - 12		-		0.02 - 0.14		
K	5 - 25		10 - 30		0.01 - 0.15		
NE	30 - 50		10 - 50		0.01 - 0.15		
H	-		-		-		
S	-		-		-		

10 158 Twist drill bit, long

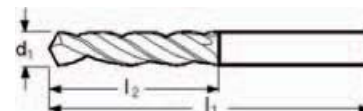
Wodex®



for long to short chipping materials, e.g. **steel up to approx. 1000 N/mm²**, cast iron, malleable cast iron, sintered iron, nickel silver, AlSi alloys (Si > 11 %) with **TiN coating**



10 158...



Ø d1	10 158...		l1	l2	
mm	TiN		mm	mm	
1	100		56	33	10
1.1	110		56	33	10
1.2	120		65	41	10
1.3	130		65	41	10
1.4	140		70	45	10
1.5	150		70	45	10
1.6	160		76	50	10
1.7	170		76	50	10
1.8	180		80	53	10
1.9	190		80	53	10
2	200		85	56	10
2.1	202		85	56	10
2.2	204		90	59	10
2.3	206		90	59	10
2.4	208		95	62	10
2.5	210		95	62	10
2.6	212		95	62	10
2.7	214		100	66	10
2.8	216		100	66	10
2.9	218		100	66	10
3	220		100	66	10
3.1	222		106	69	10
3.2	224		106	69	10
3.25	225		106	69	10
3.3	226		106	69	10
3.4	228		112	73	10
3.5	230		112	73	10
3.6	232		112	73	10
3.7	234		112	73	10
3.8	236		119	78	10
3.9	238		119	78	10
4	240		119	78	10
4.1	242		119	78	10
4.2	244		119	78	10
4.25	245		119	78	10
4.3	246		119	78	10
4.4	248		126	82	10
4.5	250		126	82	5
4.6	252		126	82	5
4.7	254		126	82	5
4.8	256		132	87	5
P	10 - 60		0.05 - 0.3		
M	10 - 15		0.02 - 0.14		
K	8 - 30		0.05 - 0.3		
NE	35 - 60		0.05 - 0.3		
H	-		-		
S	-		-		

Ø d1	10 158...		l1	l2	
mm	TiN		mm	mm	
4.9	258		132	87	5
5	260		132	87	5
5.1	262		132	87	5
5.2	264		132	87	5
5.3	266		139	91	5
5.4	268		139	91	5
5.5	270		139	91	5
5.6	272		139	91	5
5.7	274		139	91	5
5.8	276		139	91	5
5.9	278		139	91	5
6	280		139	91	5
6.1	282		139	91	5
6.2	284		148	97	5
6.3	286		148	97	5
6.4	288		148	97	5
6.5	290		148	97	5
6.6	292		148	97	5
6.7	294		148	97	5
6.8	296		156	102	5
6.9	298		156	102	5
7	300		156	102	5
7.2	304		156	102	5
7.5	310		156	102	5
7.8	316		165	109	5
8	320		165	109	5
8.2	324		165	109	1
8.5	330		165	109	1
9	340		175	115	1
9.5	350		175	115	1
9.8	356		184	121	1
10	360		184	121	1
10.2	362		184	121	1
10.5	366		184	121	1
11	380		195	128	1
11.5	386		195	128	1
12	400		205	134	1
12.5	406		205	134	1
13	420		205	134	1
14	440		214	140	1
15	460		220	144	1
P	10 - 60		0.05 - 0.3		
M	10 - 15		0.02 - 0.14		
K	8 - 30		0.05 - 0.3		
NE	35 - 60		0.05 - 0.3		
H	-		-		
S	-		-		

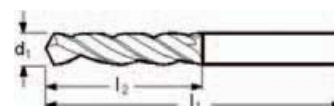


10 156 Twist drill bit, long



10 156...

high cutting performance, good chip removal, for difficult to cut materials,
e.g. **stainless steels**, heat-resisting steels, special alloys, titanium A 1544



Ø d1 mm	10 156...		l1 mm	l2 mm
1.5	150		70	45
1.6	160		76	50
2	200		85	56
2.4	208		95	62
2.5	210		95	62
3	220		100	66
3.2	224		106	69
3.3	226		106	69
3.5	230		112	73
3.8	236		119	78
4	240		119	78
4.1	242		119	78
4.2	244		119	78
4.5	250		126	82
P	12 - 35		0.02 - 0.2	
M	7 - 10		0.01 - 0.1	
K	-		-	
NE	-		-	
H	-		-	
S	2 - 6		0.005 - 0.08	

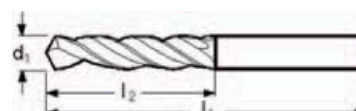
Ø d1 mm	10 156...		l1 mm	l2 mm
5	260		132	87
5.2	264		132	87
5.5	270		139	91
6	280		139	91
6.5	290		148	97
7	300		156	102
7.5	310		156	102
8	320		165	109
8.5	330		165	109
9	340		175	115
9.5	350		175	115
10	360		184	121
11	380		195	128
12	400		205	134
P	12 - 35		0.02 - 0.2	
M	7 - 10		0.01 - 0.1	
K	-		-	
NE	-		-	
H	-		-	
S	2 - 6		0.005 - 0.08	

10 159 Twist drill bit, long



10 159...

for high cutting performance, good chip removal, for medium and high-strength steels, **deep drillholes in stainless steels**, high-strength brass, bronze, cast iron, malleable cast iron, special AlSi alloys (Si > 12 %) A 1547



Ø d1 mm	10 159...		l1 mm	l2 mm
1	100		56	33
1.5	150		70	45
2	200		85	56
2.5	210		95	62
3	220		100	66
3.2	224		106	69
3.5	230		112	73
4	240		119	78
4.2	244		119	78
4.5	250		126	82
5	260		132	87
P	8 - 25		0.01 - 0.2	
M	5 - 7		0.01 - 0.13	
K	10 - 20		0.02 - 0.22	
NE	6 - 45		0.01 - 0.2	
H	-		-	
S	1 - 4		0.01 - 0.09	

Ø d1 mm	10 159...		l1 mm	l2 mm
5.5	270		139	91
6	280		139	91
6.5	290		148	97
7	300		156	102
7.5	310		156	102
8	320		165	109
8.5	330		165	109
9	340		175	115
10	360		184	121
10.5	366		184	121
P	8 - 25		0.01 - 0.2	
M	5 - 7		0.01 - 0.13	
K	10 - 20		0.02 - 0.22	
NE	6 - 45		0.01 - 0.2	
H	-		-	
S	1 - 4		0.01 - 0.09	

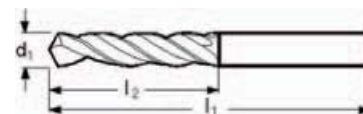
10 160 High-performance twist drill bit



10 160...

High-performance drill bit with special geometry and coating for optimising chip formation and chip removal; enables drilling depths of approx. 12 - 15 x d without ventilation. Particularly wide range of possible uses in all materials up to approx. 1300 N/mm².

A 1549 TIP



Ø d1 mm	10 160...		l1 mm	l2 mm
1.0	002		56	33
1.1	004		60	37
1.2	006		65	41
1.3	008		65	41
1.4	010		70	45
1.5	012		70	45
1.6	014		76	50
1.7	016		76	50
1.8	018		80	53
1.9	020		80	53
2.0	022		85	56
2.1	024		85	56
2.2	026		90	59
2.3	028		90	59
2.4	030		95	62
2.5	032		95	62
2.6	034		95	62
2.7	036		100	66
2.8	038		100	66
2.9	040		100	66
3.0	042		100	66
3.1	044		106	69
3.2	046		106	69
3.3	048		106	69
3.4	050		112	73
3.5	052		112	73
3.6	054		112	73
3.7	056		112	73
3.8	058		119	78
3.9	060		119	78
4.0	062		119	78
4.1	064		119	78
4.2	066		119	78
4.3	068		126	82
4.4	070		126	82
4.5	072		126	82
4.6	074		126	82
4.7	076		126	82
4.8	078		132	87
4.9	080		132	87
5.0	082		132	87
5.1	084		132	87
5.2	086		132	87
5.3	088		132	87
5.4	090		139	91
5.5	092		139	91
5.6	094		139	91
5.7	096		139	91
P	10 - 50		0.01 - 0.35	
M	5 - 12		0.01 - 0.15	
K	10 - 45		0.01 - 0.40	
NE	25 - 55		0.01 - 0.25	
H	2 - 6		0.01 - 0.10	
S	4 - 8		0.01 - 0.10	

Ø d1 mm	10 160...		l1 mm	l2 mm
5.8	098		139	91
5.9	100		139	91
6.0	102		139	91
6.1	104		148	97
6.2	106		148	97
6.3	108		148	97
6.4	110		148	97
6.5	112		148	97
6.6	114		148	97
6.7	116		148	97
6.8	118		156	102
6.9	120		156	102
7.0	122		156	102
7.1	124		156	102
7.2	126		156	102
7.3	128		156	102
7.4	130		156	102
7.5	132		156	102
7.6	134		165	109
7.7	136		165	109
7.8	138		165	109
7.9	140		165	109
8.0	142		165	109
8.1	144		165	109
8.2	146		165	109
8.3	148		165	109
8.4	150		165	109
8.5	152		165	109
8.6	154		175	115
8.7	156		175	115
8.8	158		175	115
8.9	160		175	115
9.0	162		175	115
9.1	164		175	115
9.2	166		175	115
9.3	168		175	115
9.4	170		175	115
9.5	172		175	115
9.6	174		184	121
9.7	176		184	121
9.8	178		184	121
9.9	180		184	121
10.0	182		184	121
10.2	184		184	121
10.5	186		184	121
11.0	188		184	128
11.5	190		195	128
12.0	192		205	134
P	10 - 50		0.01 - 0.35	
M	5 - 12		0.01 - 0.15	
K	10 - 45		0.01 - 0.40	
NE	25 - 55		0.01 - 0.25	
H	2 - 6		0.01 - 0.10	
S	4 - 8		0.01 - 0.10	

10 162 Twist drill bit, long

DIN
340

Typ
VA

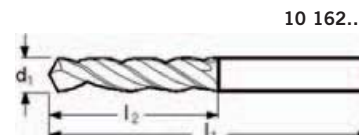
HSS
E

130°



Wodex

Twist drill with outstanding hot hard resistance. For drilling alloyed and unalloyed steels and types of cast iron with strength over 800 N/mm², in particular hot and cold work steels, high-alloy steels as well as quenched and tempered steels and case hardening steels



10 162...

Ø d1 mm	10 162...		l1 mm	l2 mm
2	200		85	56
2.5	210		95	62
3	220		100	66
3.1	222		106	69
3.2	224		106	69
3.3	226		106	69
3.5	230		112	73
3.8	236		119	78
4	240		119	78
4.1	242		119	78
4.2	244		119	78
4.5	250		126	82
5	260		132	87
5.2	264		132	87
5.5	270		139	91
6	280		139	91
P	-		-	-
M	8 - 18		0.08 - 0.14	-
K	-		-	-
NE	-		-	-
H	-		-	-
S	3 - 6		0.02 - 0.14	-

Ø d1 mm	10 162...		l1 mm	l2 mm
6.5	290		148	97
6.8	296		156	102
7	300		156	102
7.5	310		156	102
8	320		165	109
8.5	330		165	109
9	340		175	115
9.5	350		175	115
10	360		184	121
10.2	362		184	121
10.5	366		184	121
11	380		195	128
11.5	386		195	128
12	400		205	134
12.5	406		205	134
13	420		205	134
P	-		-	-
M	8 - 18		0.08 - 0.14	-
K	-		-	-
NE	-		-	-
H	-		-	-
S	3 - 6		0.02 - 0.14	-

10 213 Deep hole twist drill bit, long

DIN
1869-1

Typ
FL

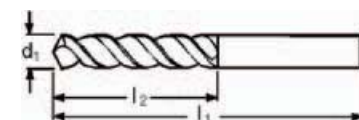
HSS

130°



Wodex

stable special drill bit for drilling extremely deep holes under difficult drilling conditions, e.g. with poor chip removal and therefore resulting poor cooling of the tip of the drill bit. Suitable for drilling grey cast iron and steels up to max. 1000 N/mm². Exception: CrNi steels as well as VA and similar materials.



10 213...

10 214 Deep hole twist drill bit, long

very good chip removal, suitable for large drilling depths, for long chipping materials, e.g. steel up to approx. 1000 N/mm² Al alloys, copper alloys, tough brass, soft bronze, stainless steels (1.4541)

A 1622



TITEX

10 214...

Ø d1 mm	10 213... Wodex		10 214... Titex		l1 mm	l2 mm
1	100		-	-	100	60
1.5	150		-	-	100	60
2	200		200		125	85
2.5	210		210		140	95
3	220		220		150	100
3.1	222		-	-	155	105
3.2	224		224		155	105
3.3	226		-	-	155	105
3.5	228		-	-	165	115
4	240		240		175	120
4.2	244		-	-	175	120
4.5	250		250		185	125
5	260		260		195	135
5.5	270		270		205	140
6	280		280		205	140
6.5	290		290		215	150
P	7 - 18		8 - 20		0.02 - 0.18	-
M	-		-		-	-
K	8 - 12		10 - 12		0.04 - 0.22	-
NE	-		6 - 45		0.02 - 0.18	-
H	-		-		-	-
S	-		-		-	-

Ø d1 mm	10 213... Wodex		10 214... Titex		l1 mm	l2 mm
6.8	296		-	-	225	155
7	300		300		225	155
7.5	310		310		225	155
8	320		320		240	165
8.5	330		330		240	165
9	340		340		250	175
9.5	350		350		250	175
10	360		360		265	185
10.2	362		-	-	265	185
10.5	366		-	-	265	185
11	380		380		280	195
11.5	386		-	-	280	195
12	400		400		295	205
12.5	406		-	-	295	205
13	420		-	-	295	205
P	7 - 18		8 - 20		0.02 - 0.18	-
M	-		-		-	-
K	8 - 12		10 - 12		0.04 - 0.22	-
NE	-		6 - 45		0.02 - 0.18	-
H	-		-		-	-
S	-		-		-	-



10 215 Deep hole twist drill bit, extra long**Wodex®**

stable special drill bit for drilling extremely deep holes under difficult drilling conditions, e.g. with poor chip removal and therefore resulting poor cooling of the tip of the drill bit. Suitable for drilling grey cast iron and steels up to max. 1000 N/mm².

Exception: CrNi steels as well as VA and similar materials.

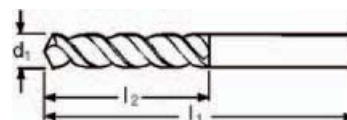


10 215...

10 216 Deep hole twist drill bit, very long**TITEX®**

very good chip removal, suitable for large drilling depths, for long chipping materials, e.g. steel up to approx. 1000 N/mm². Al alloys, copper alloys, AISi alloys, magnesium alloys, cast iron, tough brass, soft bronze, stainless steels (1.4541)

A 1722



10 216...

Ø d1 mm	10 215... Wodex		10 216... Titex		l1 mm	l2 mm
1.5	150		-	-	150	100
2	200		-	-	160	110
2.5	210		-	-	180	120
3	220		220		190	130
3.2	224		-	-	200	135
3.5	230		230		210	145
4	240		240		220	150
4.2	244		-	-	220	150
4.5	250		250		235	160
5	260		260		245	170
5.5	270		270		260	180
6	280		280		260	180
6.5	290		290		275	190
6.8	296		-	-	290	200
P	5 - 18		6 - 20		0.02 - 0.15	
M	-		-		-	
K	7 - 12		10 - 18		0.05 - 0.20	
NE	-		6 - 15		0.02 - 0.16	
H	-		-		-	
S	-		-		-	

Ø d1 mm	10 215... Wodex		10 216... Titex		l1 mm	l2 mm
7	300		300		290	200
7.5	310		310		290	200
8	320		320		305	210
8.5	330		330		305	210
9	340		340		320	220
9.5	350		-	-	320	220
10	360		360		340	235
10.2	362		-	-	340	235
10.5	366		366		340	235
11	380		380		360	250
11.5	386		-	-	360	250
12	400		400		380	260
12.5	406		-	-	380	260
13	420		-	-	380	260
P	5 - 18		6 - 20		0.02 - 0.15	
M	-		-		-	
K	7 - 12		10 - 18		0.05 - 0.20	
NE	-		6 - 15		0.02 - 0.16	
H	-		-		-	
S	-		-		-	

10 219 Deep hole twist drill bit, extra long

Wodex®



stable special drill bit for drilling extremely deep holes under difficult drilling conditions, e.g. with poor chip removal and therefore resulting poor cooling of the tip of the drill bit. Suitable for drilling grey cast iron and steels up to max. 1000 N/mm².

Exception: CrNi steels as well as VA and similar materials.



10 219...

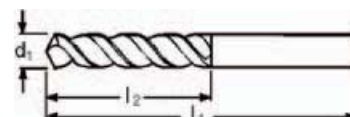
10 218 Deep hole twist drill bit, extra long

TITEX®



very good chip removal, suitable for large drilling depths, for long chipping materials, e.g. steel up to 1000 N/mm². Al alloys, copper alloys, AISi alloys, magnesium alloys, cast iron, tough brass, soft bronze, stainless steels (1.4541)

A 1822



10 218...

Ø d1 mm	10 219... Wodex		10 218... Titex		l1 mm	l2 mm
2	200		-	-	200	135
2.5	210		-	-	225	150
3	220		-	-	240	160
3.2	224		-	-	250	170
3.5	230		230		265	180
4	240		240		280	190
4.2	244		-	-	280	190
4.5	250		250		295	200
5	260		260		315	210
5.5	270		270		330	225
6	280		280		330	225
6.5	290		290		350	235
6.8	296		-	-	370	250
7	300		300		370	250
P	10 - 50		5 - 20		0.02 - 0.14	
M	-		-		-	
K	5 - 25		9 - 15		0.06 - 0.2	
NE	-		5 - 40		0.02 - 0.15	
H	-		-		-	
S	-		-		-	

Ø d1 mm	10 219... Wodex		10 218... Titex		l1 mm	l2 mm
7.5	310		-	-	370	250
8	320		320		390	265
8.5	330		330		390	265
9	340		340		410	280
9.5	350		-	-	410	280
10	360		360		430	295
10.2	362		-	-	430	295
10.5	366		-	-	430	295
11	380		380		450	305
11.5	386		-	-	450	305
12	400		400		480	305
12.5	406		-	-	480	305
13	420		-	-	480	305
P	10 - 50		5 - 20		0.02 - 0.14	
M	-		-		-	
K	5 - 25		9 - 15		0.06 - 0.2	
NE	-		5 - 40		0.02 - 0.15	
H	-		-		-	
S	-		-		-	

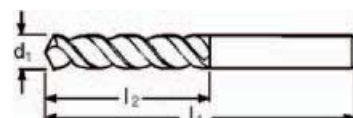
10 220 Deep hole twist drill bit, super long

TITEX®



very good chip removal, suitable for large drilling depths without having to ventilate, for materials up to 1300 N/mm²

A 1922 S



10 220...

Ø d1 mm	10 220...		l1 mm	l2 mm
6	280		500	400
6.5	290		500	400
7	300		500	400
8	320		650	550
8	325		800	700
9	340		650	550
10	360		800	700
P	5 - 15		0.03 - 0.12	
M	2 - 3		0.03 - 0.08	
K	7 - 12		0.08 - 0.17	
NE	3 - 30		0.03 - 0.12	
H	-		-	
S	-		-	

Ø d1 mm	10 220...		l1 mm	l2 mm
10	365		1000	800
11	380		800	700
12	400		800	700
12	405		1000	800
13	420		800	700
14	440		800	700
P	5 - 15		0.03 - 0.12	
M	2 - 3		0.03 - 0.08	
K	7 - 12		0.08 - 0.17	
NE	3 - 30		0.03 - 0.12	
H	-		-	
S	-		-	



10 310 Twist drill bits

DIN
345Typ
N

HSS

118°

MK



Wodex®



10 310...

extruded, steam tempered

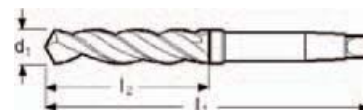


10 312...

Application: Standard drill bit for machining steel, cast steel, grey cast iron, malleable cast iron, sintered iron, nickel silver, graphite

10 312 Twist drill bits

Type as 10 310..., however, form ground and milled



Ø d1	10 310...		10 312...		Morse taper	l1	l2
mm	Wodex					mm	mm
10	360		360		1	168	87
10.2	362		362		1	168	87
10.5	366		366		1	168	87
11	380		380		1	175	94
11.5	386		386		1	175	94
12	400		400		1	182	101
12.5	406		406		1	182	101
13	420		420		1	182	101
13.5	426		426		1	189	108
14	440		440		1	189	108
14.5	446		446		2	212	114
15	460		460		2	212	114
15.5	466		466		2	218	120
16	480		480		2	218	120
16.5	486		486		2	223	125
17	500		500		2	223	125
17.5	506		506		2	228	130
18	520		520		2	228	130
18.5	526		526		2	233	135
19	540		540		2	233	135
19.5	546		546		2	238	140
20	560		560		2	238	140
20.5	566		566		2	243	145
21	580		580		2	243	145
21.5	586		586		2	248	150
22	600		600		2	248	150
22.5	606		606		2	253	155
23	620		620		2	253	155
23.5	625		625		3	276	155
24	630		630		3	281	160
24.5	635		635		3	281	160
25	640		640		3	281	160
25.5	645		645		3	286	165
26	650		650		3	286	165
26.5	655		655		3	286	165
P	10 - 50		10 - 50		0.2 - 0.5		
M	8 - 12		8 - 12		0.08 - 0.27		
K	5 - 25		5 - 25		0.2 - 0.5		
NE	-		-		-		
H	-		-		-		
S	-		-		-		

Ø d1	10 310...		10 312...		Morse taper	l1	l2
mm	Wodex					mm	mm
27	660		660		3	291	170
27.5	665		665		3	291	170
28	670		670		3	291	170
28.5	675		675		3	296	175
29	680		680		3	296	175
29.5	685		685		3	296	175
30	690		690		3	296	175
30.5	695		695		3	301	180
31	700		700		3	301	180
31.5	705		705		3	301	180
32	710		710		4	334	185
33	715		715		4	334	185
34	720		720		4	339	190
35	725		725		4	339	190
36	730		730		4	344	195
37	735		735		4	344	195
38	740		740		4	349	200
39	745		745		4	349	200
40	750		750		4	349	200
41	755		755		4	354	205
42	760		760		4	354	205
43	765		765		4	359	210
44	770		770		4	359	210
45	775		775		4	359	210
46	780		780		4	364	215
47	785		785		4	364	215
48	790		790		4	369	220
50	800		800		4	369	220
51	805		-	-	5	412	225
52	810		-	-	5	412	225
53	815		-	-	5	412	225
55	825		-	-	5	417	230
57	835		-	-	5	422	235
58	840		-	-	5	422	235
60	850		-	-	5	422	235
P	10 - 50		10 - 50		0.2 - 0.5		
M	8 - 12		8 - 12		0.08 - 0.27		
K	5 - 25		5 - 25		0.2 - 0.5		
NE	-		-		-		
H	-		-		-		
S	-		-		-		

10 315 Twist drill bits

DIN
345

Typ
N

HSS

118°

MK



Wodex



10 315...

for long to short chipping materials, e.g. **steel up to approx. 1000 N/mm²**,
cast iron, malleable cast iron, sintered iron, nickel silver

10 317 Twist drill bits

DIN
345

Typ
N

HSS

118°

MK

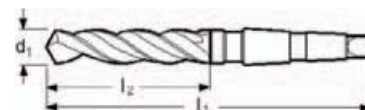
TITEX



10 317...

for long to short chipping materials, e.g. **steel up to approx. 1000 N/mm²**,
cast iron, malleable cast iron, sintered iron, nickel silver

A 4211



Ø d1	10 315...		10 317...		Morse taper	I1	I2
mm	Wodex		Titex			mm	mm
8	320		320		1	156	75
8.5	330		330		1	156	75
9	340		340		1	162	81
10	360		360		1	168	87
10.2	362		362		1	168	87
10.5	366		366		1	168	87
10.8	-	-	370		1	175	94
11	380		380		1	175	94
11.2	-	-	382		1	175	94
11.5	386		386		1	175	94
11.8	390		390		1	175	94
12	400		400		1	182	101
12.2	-	-	402		1	182	101
12.5	406		406		1	182	101
12.8	-	-	410		1	182	101
13	420		420		1	182	101
13.5	426		426		1	189	108
13.75	429		429		1	189	108
14	440		440		1	189	108
14.25	443		443		2	212	114
14.5	446		446		2	212	114
14.75	449		449		2	212	114
15	460		460		2	212	114
15.25	463		463		2	218	120
15.5	466		466		2	218	120
15.75	469		469		2	218	120
16	480		480		2	218	120
16.25	483		483		2	223	125
16.5	486		486		2	223	125
16.75	489		489		2	223	125
17	500		500		2	223	125
17.25	503		503		2	228	130
17.5	506		506		2	228	130
17.75	509		509		2	228	130
18	520		520		2	228	130
18.25	523		523		2	233	135
18.5	526		526		2	233	135
18.75	529		529		2	233	135
19	540		540		2	233	135
19.5	546		546		2	238	140
19.75	549		549		2	238	140
20	560		560		2	238	140
20.25	563		563		2	243	145
20.5	566		566		2	243	145
20.75	569		569		2	243	145
21	580		580		2	243	145
21.5	586		586		2	248	150
22	600		600		2	248	150
22.5	606		606		2	253	155
23	620		620		2	253	155
23.5	625		625		3	276	155
23.75	627		627		3	281	160
24	630		630		3	281	160
24.5	635		635		3	281	160
24.75	637		637		3	281	160

Ø d1	10 315...		10 317...		Morse taper	I1	I2
mm	Wodex		Titex			mm	mm
25	640		640		3	281	160
25.5	645		645		3	286	165
26	650		650		3	286	165
26.5	655		655		3	286	165
27	660		660		3	291	170
27.5	665		665		3	291	170
28	670		670		3	291	170
28.5	675		675		3	296	175
29	680		680		3	296	175
29.5	685		685		3	296	175
30	690		690		3	296	175
30.5	695		695		3	301	180
31	700		700		3	301	180
31.5	705		705		3	301	180
32	710		710		4	334	185
32.5	712		712		4	334	185
33	715		715		4	334	185
33.5	717		717		4	334	185
34	720		720		4	339	190
34.5	722		722		4	339	190
35	725		725		4	339	190
35.5	727		727		4	339	190
36	730		730		4	344	195
36.5	732		732		4	344	195
37	735		735		4	344	195
37.5	737		737		4	344	195
38	740		740		4	349	200
38.5	742		742		4	349	200
39	745		745		4	349	200
39.5	747		747		4	349	200
40	750		750		4	349	200
40.5	752		752		4	354	205
41	755		755		4	354	205
41.5	757		757		4	354	205
42	760		760		4	354	205
42.5	762		762		4	354	205
43	765		765		4	359	210
43.5	767		767		4	359	210
44	770		770		4	359	210
44.5	772		772		4	359	210
45	775		775		4	359	210
46	780		780		4	364	215
46.5	782		782		4	364	215
47	785		785		4	364	215
47.5	787		787		4	364	215
48	790		790		4	369	220
48.5	792		792		4	369	220
49	795		795		4	369	220
49.5	797		797		4	369	220
50	800		800		4	369	220
51	805		805		5	412	225
52	810		810		5	412	225
53	815		815		5	412	225
54	820		820		5	417	230
55	825		825		5	417	230

Continued on next page



10 315... continued

Wodex®

10 317... continued

TITEX®

Ø d1	10 315...		10 317...		Morse taper	I1	I2
mm	Wodex		Titex			mm	mm
56	830		830		5	417	230
57	835		835		5	422	235
58	840		840		5	422	235
59	845		845		5	422	235
60	850		850		5	422	235
61	852		852		5	422	235
62	854		854		5	427	240
63	856		856		5	427	240
P	10 - 50		10 - 30			0.1 - 0.5	
M	8 - 12		-			0.08 - 0.27	
K	5 - 25		10 - 30			0.1 - 0.5	
NE	-		10 - 50			0.1 - 0.5	
H	-		-			-	
S	-		-			-	

Ø d1	10 315...		10 317...		Morse taper	I1	I2
mm	Wodex		Titex			mm	mm
64	858		858		5	432	245
65	860		860		5	432	245
66	862		862		5	432	245
67	864		864		5	432	245
68	866		866		5	437	250
69	868		868		5	437	250
70	870		870		5	437	250

P	10 - 50		10 - 30			0.1 - 0.5	
M	8 - 12		-			0.08 - 0.27	
K	5 - 25		10 - 30			0.1 - 0.5	
NE	-		10 - 50			0.1 - 0.5	
H	-		-			-	
S	-		-			-	

10 323 Twist drill bits

TITEX®

DIN
345Typ
N

HSS

TIN

118°

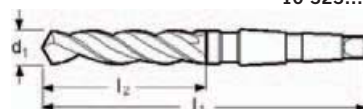
MK

for long to short chipping materials, e.g. **steel up to 1000 N/mm²**, cast iron, malleable cast iron, sintered iron, nickel silver

A 4211 TiN



10 323...



Ø d1	10 323...		Morse taper	I1	I2
mm	TiN			mm	mm
10	360		1	168	87
10.2	362		1	168	87
10.5	366		1	168	87
11	380		1	175	94
11.5	386		1	175	94
12	400		1	182	101
12.5	406		1	182	101
13	420		1	182	101
13.5	426		1	189	108
14	440		1	189	108
15	460		2	212	114
15.5	466		2	218	120
16	480		2	218	120
16.5	486		2	223	125
17	500		2	223	125
17.5	506		2	228	130
P	15 - 45			0.12 - 0.35	
M	-			-	
K	12 - 40			0.12 - 0.4	
NE	15 - 60			0.12 - 0.35	
H	-			-	
S	-			-	

Ø d1	10 323...		Morse taper	I1	I2
mm	TiN			mm	mm
18	520		2	228	130
18.5	526		2	233	135
19	540		2	233	135
19.5	546		2	238	140
20	560		2	238	140
21	580		2	243	145
22	600		2	248	150
23	620		2	253	155
24	630		3	281	160
25	640		3	281	160
26	650		3	286	165
27	660		3	291	170
28	670		3	291	170
29	680		3	296	175
30	690		3	296	175

P	15 - 45			0.12 - 0.35	
M	-			-	
K	12 - 40			0.12 - 0.4	
NE	15 - 60			0.12 - 0.35	
H	-			-	
S	-			-	



10 325 Twist drill bits

DIN
345

Typ
VA

HSS
E

130°

MK



Wodex



10 325...

Twist drill bit with outstanding high temperature resistance. For drilling alloyed and unalloyed steels and types of cast iron with strength over 800 N/mm², in particular hot and cold work steels, high-alloy steels as well as quenched and tempered steels and case hardening steels

10 334 Twist drill bits

DIN
345

Typ
ALPHA
X-E

HSS
E

130°

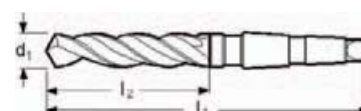
MK

TITEX



10 334...

high cutting performance, good chip removal, for medium and high-strength steels, deep drillholes in stainless steels or heat-resisting steels (VA), bronze, malleable cast iron, cast iron, special alloys, high-strength brass, AISi alloys (Si > 12%).



Special feature: From 23 mm, damped

A 4247

Ø d1	10 325...		10 334...		Morse taper	I1	I2
mm	Wodex		Titex			mm	mm
10	360		360		1	168	87
10.2	-	-	362		1	168	87
10.5	366		366		1	168	87
10.8	-	-	370		1	175	94
11	380		380		1	175	94
11.2	-	-	382		1	175	94
11.5	386		386		1	175	94
11.8	-	-	390		1	175	94
12	400		400		1	182	101
12.2	-	-	402		1	182	101
12.5	406		406		1	182	101
12.8	-	-	410		1	182	101
13	420		420		1	182	101
13.5	426		426		1	189	108
14	440		440		1	189	108
14.5	446		446		2	212	114
15	460		460		2	212	114
15.5	466		466		2	218	120
P	-		10 - 30			0.1 - 0.4	
M	6 - 15		7 - 10			0.1 - 0.25	
K	-		12 - 20			0.2 - 0.5	
NE	-		7 - 40			0.05 - 0.5	
H	-		-			-	
S	3 - 8		-			0.08 - 0.18	

Ø d1	10 325...		10 334...		Morse taper	I1	I2
mm	Wodex		Titex			mm	mm
16	480		480		2	218	120
16.5	486		486		2	223	125
17	500		500		2	223	125
17.5	506		506		2	228	130
18	520		520		2	228	130
18.5	526		526		2	233	135
19	540		540		2	233	135
20	560		560		2	238	140
21	580		580		2	243	145
22	600		600		2	248	150
23	620		620		2	253	155
24	630		630		3	281	160
25	640		640		3	281	160
26	650		650		3	286	165
27	660		660		3	291	170
28	670		670		3	291	170
29	680		680		3	296	175
30	690		690		3	296	175
P	-		10 - 30			0.1 - 0.4	
M	6 - 15		7 - 10			0.1 - 0.25	
K	-		12 - 20			0.2 - 0.5	
NE	-		7 - 40			0.05 - 0.5	
H	-		-			-	
S	3 - 8		-			0.08 - 0.18	

10 338 Hardox twist drill bits

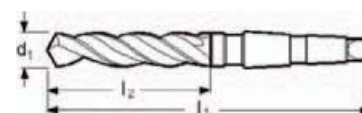


Wodex®



10 338...

for machining extremely hard materials, manganese steel and wear resistant metal plate such as Hardox, Duromax



Ø d1 mm	10 338...		Morse taper	l1 mm	l2 mm
10	360		1	140	56
11	380		2	175	76
12.0	400		2	179	81
13.0	420		2	179	81
14	440		2	184	86
15	460		2	187	89
16	480		2	187	89
17	500		2	190	92
18	520		2	190	92
P	-		-	-	-
M	-		-	-	-
K	-		-	-	-
NE	-		-	-	-
H	-		-	-	-
S	3 - 5		0.08 - 0.18	-	-

Ø d1 mm	10 338...		Morse taper	l1 mm	l2 mm
20	560		3	213	95
21	580		3	222	105
22	600		3	222	105
23	620		3	222	105
24	630		3	222	105
25	640		3	225	108
26	650		3	225	108
28	670		4	270	124
30	690		4	270	124
P	-		-	-	-
M	-		-	-	-
K	-		-	-	-
NE	-		-	-	-
H	-		-	-	-
S	3 - 5		0.08 - 0.18	-	-

10 384 Deep hole twist drill bits

TITEX



very long, Series 1, very good chip removal, suitable for large drilling depths, for long chipping materials, e.g. **steel up to approx. 1000 N/mm²**, aluminium alloys, AlSi alloys, copper alloys, tough brass, soft bronze, stainless steels (1.4541)

A 4622

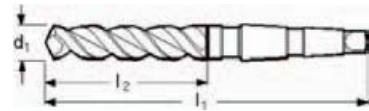


10 384...

Ø d1 mm	10 384...		Morse taper	l1 mm	l2 mm
12	400		1	310	205
12.5	406		1	310	205
13	420		1	310	205
13.5	426		1	325	220
14	440		1	325	220
15	460		2	340	220
16	480		2	355	230
17	500		2	355	230
17.5	506		2	370	245
18	520		2	370	245
20	560		2	385	260
21	580		2	385	260
22	600		2	405	270
23	620		2	405	270
24	630		3	440	290
25	640		3	440	290
26	650		3	440	290
P	5 - 10		0.08 - 0.3	-	-
M	3 - 4		0.05 - 0.2	-	-
K	9 - 15		0.2 - 0.4	-	-
NE	5 - 40		0.08 - 0.35	-	-
H	-		-	-	-
S	-		-	-	-

Further sizes available on request

10 386 Deep hole twist drill bits



very good chip removal, suitable for large drilling depths, for long chipping materials, e.g. **steel up to approx. 1000 N/mm²**, aluminium alloys, AlSi alloys, copper alloys, tough brass, soft bronze, stainless steels (1.4541)

A 4722

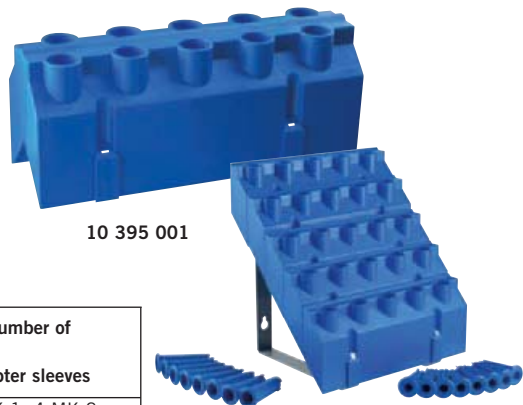


10 386...

Ø d1 mm	10 386...		Morse taper	l1 mm	l2 mm
12	400		1	395	260
13	420		1	395	260
14	440		1	410	275
15	460		2	425	275
16	480		2	445	295
17	500		2	445	295
17.5	506		2	465	310
18	520		2	465	310
20	560		2	490	325
21	580		2	490	325
22	600		2	515	345
24	630		3	555	365
25	640		3	555	365
26	650	0	3	555	365
P	5 - 15			0.05 - 0.25	
M	2 - 3			0.05 - 0.15	
K	7 - 12			0.18 - 0.35	
NE	3 - 30			0.08 - 0.25	
H	-			-	
S	-			-	

Further sizes available on request

10 395 Twist drill bit stand for tools with Morse tapers



10 395 001

10 395 002

Plastic, breakproof and impact-resistant, **all tool holders MK 3** with adapter sleeves for MK 2 and MK 1

Number of slots	10 395...		Number of adapter sleeves
10	001		4 MK 1. 4 MK 2
25	002		8 MK 1. 8 MK 2

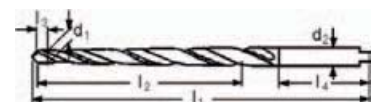
10 402 HSS taper pin drill



K2929

10 402...

Nominal Ø d1 mm	10 402...		Smallest Ø d1 mm	Largest Ø d1 mm	l1 mm	l2 mm
3	220		2.98	4.14	100	60
4	240		3.98	5.38	115	72
5	260		4.98	6.62	135	86
6	280		5.97	8.25	170	117
8	320		7.97	10.69	205	143
10	360		9.96	13.12	230	165
12	400		11.96	15.7	275	198
P	10 - 50			0.05 - 0.30		
M	8 - 12			0.02 - 0.14		
K	5 - 25			0.05 - 0.3		
NE	-			-		
H	-			-		
S	-			-		



10 412 Subland drill bits

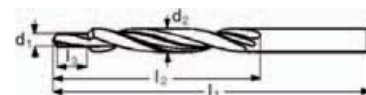


Nitrided surface, **for through holes** according to DIN - ISO 273 and countersinks according to DIN 74, Part 1, Shape A

Wodex®



10 412...



10 414 Subland drill bits

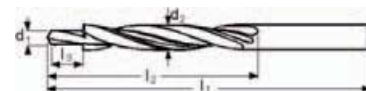


Nitrided surface, **for through holes** according to DIN - ISO 273 and countersinks according to DIN 74, Part 2

Wodex®



10 414...



For thread	10 412...		10 414...		Subland Ø d1 10 412... mm	Subland Ø d1 10 414... mm	Counter- sink Ø d1 mm	l1 mm	l2 mm	l3 mm
M 3	130		130		3.2	3.4	6	93	57	9
M 4	160		160		4.3	4.5	8	117	75	11
M 5	190		190		5.3	5.5	10	133	87	13
M 6	210		210		6.4	6.6	11.5	142	94	15
M 8	240		240		8.4	9.0	15	169	114	19
M 10	280		280		10.5	11.0	19	198	135	23
P	10 - 50		10 - 50		0.05 - 0.30					
M	8 - 12		8 - 12		0.02 - 0.14					
K	5 - 25		5 - 25		0.05 - 0.3					
NE	-		-		-					
H	-		-		-					
S	-		-		-					

10 416 Subland drill bits

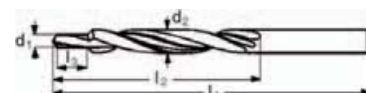


Nitrided surface, **for tap drillholes** according to DIN 336, Part 1

Wodex®



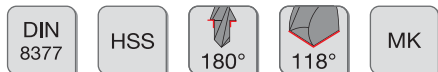
10 416...



For thread	10 416...		Subland Ø d1 mm	Counter- sink Ø d1 mm	l1 mm	l2 mm	l3 mm
M 3	130		2.5	3.4	70	39	8.8
M 4	160		3.3	4.5	80	47	11.4
M 5	190		4.2	5.5	93	57	13.6
M 6	210		5.0	6.6	101	63	16.5
M 8	240		6.8	9.0	125	81	21
M 10	280		8.5	11.0	142	94	25.5
M 12	330		10.2	13.5	160	108	30
P	10 - 50		0.05 - 0.30				
M	8 - 12		0.02 - 0.14				
K	5 - 25		0.05 - 0.3				
NE	-		-				
H	-		-				
S	-		-				

10 424 HSS subland drill bits

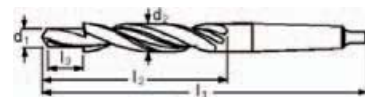
Wodex®



Nitrided surface, **for through holes** according to DIN 74, Part 2

10 424...

For thread	10 424...		Morse taper	Counter-sink Ø d2 mm	Subland Ø d1 mm	l1 mm	l2 mm	l3 mm
M 5	190		1	10	5.5	168	87	13
M 6	210		1	11	6.6	175	94	15
M 8	240		2	15	9	212	114	19
M 10	280		2	18	11	228	130	23
M 12	330		2	20	13.5	238	140	27
M 16	410		3	26	17.5	286	165	35
M 20	460		4	33	22	334	185	43
P	10 - 50				0.05 - 0.30			
M	8 - 12				0.02 - 0.14			
K	5 - 25				0.05 - 0.3			
NE	-				-			
H	-				-			
S	-				-			



CUTTING TOOLS

1



PRIMAT® cutting oils and metalworking fluids are included in Group 69.

Drilling and centring tools



Why use core drills?

Core drill bits require up to 10 x shorter drilling time than twist drills.

Core drill bits only cut out the tooth tooth face width, the drill core is ejected. Lower energy requirement and lower wear result in a long tool life.

With **twist drills** the complete bore diameter is cut. This requires greater effort and high drive power.



10 428 Core drill bit, jobber



Wodex

with **Vario coating** for good results with little lubrication, heat resistant up to 800°, **cutting depth 30 mm**, with Weldon shank 19 mm



10 428...

10 429 Core drill bit, long

Type as 10 428..., however, with a **cutting depth of 55 mm**



10 429...

Ø d1 mm	10 428... Cutting depth 30 mm		10 429... Cutting depth 55 mm	
13	013		-	-
14	014		114	
15	015		115	
16	016		116	
17	017		117	
18	018		118	
19	019		119	
20	020		120	
21	021		121	
22	022		122	
23	023		123	
24	024		124	
25	025		125	
26	026		126	
27	027		127	
28	028		128	
29	029		129	
30	030		130	
31	031		131	
32	032		132	
33	033		133	
P	20 - 24	0.05 - 0.1	20 - 25	0.05 - 0.1
M	5 - 9	0.05 - 0.1	5 - 9	0.05 - 0.1
K	-	-	-	-
NE	50 - 60	0.05 - 0.1	50 - 60	-
H	-	-	-	-
S	-	-	-	-

Ø d1 mm	10 428... Cutting depth 30 mm		10 429... Cutting depth 55 mm	
34	034		134	
35	035		135	
36	036		136	
38	038		138	
39	039		139	
40	040		140	
41	041		141	
42	042		142	
43	043		143	
44	-	-	144	
45	045		145	
48	048		148	
49	-	-	149	
50	050		150	
51	-	-	151	
52	-	-	152	
53	-	-	153	
54	-	-	154	
55	-	-	155	
58	-	-	158	
60	-	-	160	
P	20 - 24	0.05 - 0.1	20 - 24	0.05 - 0.1
M	5 - 9	0.05 - 0.1	5 - 9	0.05 - 0.1
K	-	-	-	-
NE	50 - 60	0.05 - 0.1	50 - 60	0.05 - 0.1
H	-	-	-	-
S	-	-	-	-



81 464 Accessories

for **Primat** Magnetic core drills No. 81 452... - 81 458...
see Page 1259

Term	Length mm	81 464...	
Ejector pin, short type	75	018	
Ejector pin, long type	100	020	



10 431 Core drill bits



with QuickIN holder, length 77 mm, effective length 35 mm

Drill Ø mm	10 431...	
12	001	
13	002	
14	003	
15	004	
15.5	005	
16	006	
17	007	
17.5	008	
18	009	
19	010	
19.5	011	
20	012	
21	013	
22	014	
23	015	
24	016	
25	017	
26	018	
26.5	019	
27	020	
28	021	
29	022	
30	023	
31	024	
32	025	
33	026	
34	027	
35	028	
36	029	
37	030	

Drill Ø mm	10 431...	
38	031	
39	032	
40	033	
41	034	
42	035	
43	036	
44	037	
45	038	
46	039	
47	040	
48	041	
49	042	
50	043	
51	044	
52	045	
53	046	
54	047	
55	048	
56	049	
57	050	
58	051	
59	052	
60	053	
61	054	
62	055	
63	056	
64	057	
65	058	



10 431...



10 431...



10 431...

CUTTING TOOLS

1

Drilling and centring tools



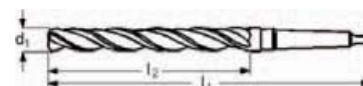
10 434 Bore enlargers (spiral countersink)



10 434...

with driver, three-lipped tool with stable construction for enlarging pre-drilled, pre-punched or cast holes, spiral countersinks achieve far better drilling results than conventional twist drills.

E 3111



Ø d1	10 434...		Morse taper	l1	l2	Smallest Ø of the pre-drilled hole
mm				mm	mm	mm
15.75	469		2	218	120	11.2
16	480		2	218	120	11.2
16.75	489		2	223	125	11.9
17	500		2	223	125	11.9
17.75	509		2	228	130	12.6
18	520		2	228	130	12.6
18.7	528		2	233	135	13.3
19	540		2	233	135	13.3
19.7	548		2	238	140	14
20	560		2	238	140	14
20.7	568		2	243	145	14.6
21	580		2	243	145	14.6
21.7	588		2	248	150	15.3
22	600		2	248	150	15.3
22.7	608		2	253	155	16
23	620		2	253	155	16
23.7	627		3	281	160	16.6
24	630		3	281	160	16.6
24.7	637		3	281	160	17.3
25	640		3	281	160	17.3
25.7	647		3	286	165	18
26	650		3	286	165	18
26.7	657		3	291	170	18.6
27	660		3	291	170	18.6
27.7	667		3	291	170	19.3
28	670		3	291	170	19.3
28.7	677		3	296	175	20
29	680		3	296	175	20
29.7	687		3	296	175	20.5
30	690		3	296	175	20.5
30.6	696		3	301	180	21
31	700		3	301	180	21
31.6	706		4	306	185	22
32	710		4	334	185	22
32.6	716		4	334	185	23
33	720		4	334	185	23
33.6	726		4	339	190	24
34	730		4	339	190	24
34.6	736		4	339	190	25
35	740		4	339	190	25
35.6	746		4	344	195	25.5
36	750		4	344	195	25.5
36.6	756		4	344	195	26
37	760		4	344	195	26
37.6	766		4	349	200	26.5
38	770		4	349	200	26.5
38.6	776		4	349	200	27
39	780		4	349	200	27
39.6	786		4	349	200	28
40	790		4	349	200	28
40.6	796		4	354	205	28.5
41	800		4	354	205	28.5
41.6	806		4	354	205	29
42	810		4	354	205	29
P	10 - 30		0.15 - 0.4			
M	-		-			
K	10 - 30		0.15 - 0.4			
NE	10 - 50		0.15 - 0.4			
H	-		-			
S	-		-			



10 452 Centre drill bits



Wodex®



10 452...

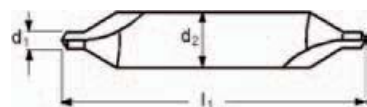
10 454 Centre drill bit



TITEX®



10 454...



K 1111

Drill bit Ø d1 mm	10 452... Wodex		10 454... Titex		Shank Ø d2 mm	l1 mm
0.5 *	-	-	050		3.15	25
0.8 *	-	-	080		3.15	25
1	100		100		3.15	31.5
1.25	125		125		3.15	31.5
1.6	160		160		4	35.5
2	200		200		5	40
2.5	210		210		6.3	45
3.15	223		223		8	50
4	240		240		10	56
5	260		260		12.5	63
6.3	286		286		16	71
8	320		320		20	80
10	360		360		25	100

* single-sided

10 456 Centre drill bits



Wodex®



10 456...

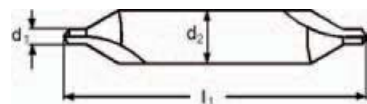
10 457 Centre drill bits



TITEX®



10 457...



K 1111 TiN

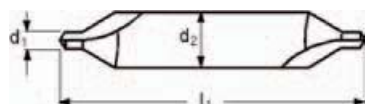
10 459 Centre drill bits



Wodex®



10 459...



for high-strength and stainless steels

Drill bit Ø d1 mm	10 456... TiN Wodex		10 457... TiN Titex		10 459... Wodex		Shank Ø d2 mm	l1 mm
1.6	016		016		160		4	35.5
2	020		020		200		5	40
2.5	021		021		210		6.3	45
3.15	022		022		223		8	50
4	024		024		240		10	56
5	026		026		260		12.5	63

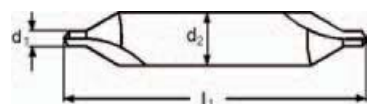
10 458 Centre drill bits, solid carbide



Wodex®



10 458...



Drill bit Ø d1 mm	10 458...		d2 mm	l1 mm
1.6	016		4	35.5
2	020		5	40
2.5	021		6.3	45
3.15	022		8	50
4	024		10	56



10 460 Centre drill bits

TITEX

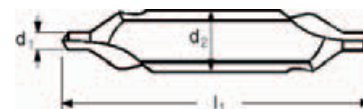
DIN 333	Form A	N60°	HSS
------------	-----------	------	-----

with flattened shank

Drill bit Ø d1 mm	10 460...		d2 mm	l1 mm
1.6	160		4	35.5
2	200		5	40
2.5	210		6.3	45
3.15	223		8	50
4	240		10	56
5	260		12.5	63



10 460...



10 463 Centre drill bits

Wodex

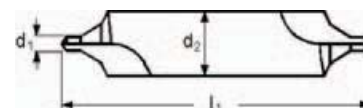
DIN 333	Form B	60°/ 120°	HSS
------------	-----------	--------------	-----

relief-ground, for countersunk recess

Drill bit Ø d1 mm	10 463...		d2 mm	l1 mm
1	501		4	35.5
1.25	512		5	40
1.6	516		6.3	45
2	520		8	50
2.5	525		10	56
3.15	531		11.2	60
4	540		14	67
5	550		18	75
6.3	563		20	80



10 463...



10 465 Centre drill bits

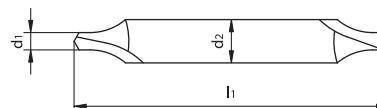
Wodex

DIN 333	Form R	N60°	HSS
------------	-----------	------	-----

Drill bit Ø d1 mm	10 465...		d2 mm	l1 mm
1.6	160		4	35.5
2	200		5	40
2.5	210		6.3	45
3.15	223		8	50
4	240		10	56
5	260		12.5	63



10 465...



10 466 Centre drill bits

TITEX

WN	Form A	N60°	HSS
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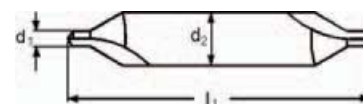
very long

K 1411

Drill bit Ø d1 mm	10 466...		d2 mm	l1 mm
1	100		4	120
1.5	150		5	120
2	200		6	120
2.5	210		8	120
3	220		8	120
3	221		10	120
4	241		12	120
5	260		14	120

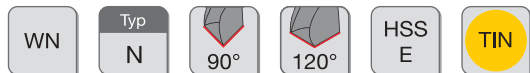


10 466...



10 474 NC spot drill bits

Wodex®



with spiral shank, spiral fluted, for precise position and fast spot drilling on NC machine tools, jig borers, etc., capital-intensive boring mills, for centring and chamfering threaded holes in one operation

10 474 004-020 Point angle 120° HSS-E
 10 474 504-520 Point angle 120° HSS-TiN
 10 474 104-120 Point angle 90° HSS-E
 10 474 604-620 Point angle 90° HSS-TiN



10 474 004 - ...020

10 474 104 - ...120

10 474 504 - ...520

10 474 604 - ...620

Ø d1 mm	10 474...	10 474...	Overall length mm	Flute length mm
		TiN		
Point angle 120°				
4	004	504	55	12
5	005	505	60	15
6	006	506	66	20
8	008	508	79	24
10	010	510	89	30
12	012	512	102	34
16	016	516	115	40
20	020	520	131	45
P	10 - 50	12 - 60	0.02 - 0.16	
M	8 - 12	10 - 15	0.02 - 0.14	
K	5 - 25	6 - 30	0.02 - 0.14	
NE	-	-	-	
H	-	-	-	
S	-	-	-	

Ø d1 mm	10 474...	10 474...	Overall length mm	Flute length mm
		TiN		
Point angle 90°				
4	104	604	55	12
5	105	605	60	15
6	106	606	66	20
8	108	608	79	24
10	110	610	89	30
12	112	612	102	34
16	116	616	115	40
20	120	620	131	45
P	10 - 50	12 - 60	0.02 - 0.16	
M	8 - 12	10 - 15	0.02 - 0.14	
K	5 - 25	6 - 30	0.02 - 0.14	
NE	-	-	-	
H	-	-	-	
S	-	-	-	

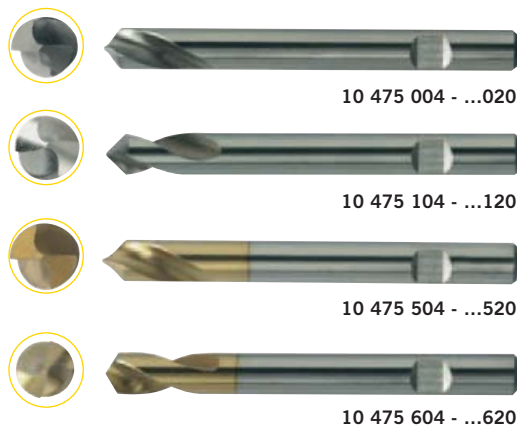
10 475 NC spot drill bits

Wodex®



as 10 474... however, HB shank

Point angle 120° HSS-E
 Point angle 120° HSS-TiN
 Point angle 90° HSS-E
 Point angle 90° HSS-TiN



10 475 004 - ...020

10 475 104 - ...120

10 475 504 - ...520

10 475 604 - ...620

Ø d1 mm	10 475...	10 475...	Overall length mm	Flute length mm
		TiN		
Point angle 120°				
6	006	506	66	20
8	008	508	79	24
10	010	510	89	30
12	012	512	102	34
16	016	516	115	40
20	020	520	131	45
P	10 - 50	12 - 60	0.02 - 0.16	
M	8 - 12	10 - 15	0.02 - 0.14	
K	5 - 25	6 - 30	0.02 - 0.14	
NE	-	-	-	
H	-	-	-	
S	-	-	-	

Ø d1 mm	10 475...	10 475...	Overall length mm	Flute length mm
		TiN		
Point angle 90°				
6	106	606	66	20
8	108	608	79	24
10	110	610	89	30
12	112	612	102	34
16	116	616	115	40
20	120	620	131	45
P	10 - 50	12 - 60	0.02 - 0.16	
M	8 - 12	10 - 15	0.02 - 0.14	
K	5 - 25	6 - 30	0.02 - 0.14	
NE	-	-	-	
H	-	-	-	
S	-	-	-	

10 478 NC spot drill bits



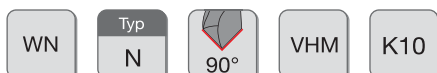
Wodex®



spiral-fluted, for precise spot drilling and precise centring and deburring on NC machine tools, boring mills

10 478...

10 480 NC spot drill bits



Wodex®



Type as 10 478..., however 90°

10 480...

Ø d1	10 478...		10 480...		Overall length	Flute length
mm	120°		90°		mm	mm
6	-	-	280		50	13
8	320		320		60	23
10	360		360		70	24
12	400		400		70	24
16	480		480		75	26
20	-	-	560		100	35
P	20 - 60		20 - 60		0.03 - 0.16	
M	15 - 25		15 - 25		0.03 - 0.16	
K	50 - 60		50 - 60		0.03 - 0.16	
NE	50 - 250		50 - 250		0.03 - 0.16	
H	-		-		-	
S	10 - 20		10 - 20		0.03 - 0.16	

10 479 NC spot drill bits



Wodex®



spiral-fluted, for precise spot drilling and precise centring and deburring on NC machine tools, boring mills

10 479...

10 481 NC spot drill bits



Wodex®



Type as 10 479..., however 90°

10 481...

Ø d1	10 479...		10 481...		Overall length	Cutting edge length
mm	120°		90°		mm	mm
3.0	-	-	160		38	8
4.0	-	-	200		50	10
5.0	-	-	240		50	13
6.0	280		280		57	13
8.0	320		320		63	19
10.0	360		360		66	20
12.0	400		400		73	22
16.0	480		480		82	24
20.0	560		560		92	30
P	25 - 70		25 - 70		0.03 - 0.16	
M	15 - 25		18 - 30		0.03 - 0.16	
K	50 - 60		6 - 60		0.03 - 0.16	
NE	-		-		-	
H	-		-		-	
S	20 - 30		20 - 30		0.03 - 0.16	

10 485 NC spot drill bits

Wodex®



Type as 10 479..., however, 142°

10 485...

Ø d1 mm	10 485...		Overall length mm	Cutting edge length mm
6.0	280		57	11
8.0	320		63	19
10.0	360		66	20
12.0	400		73	22
16.0	480		82	24
20.0	560		92	30
P	25 - 70		0.03 - 0.16	
M	18 - 30		0.03 - 0.16	
K	6 - 60		0.03 - 0.16	
NE	-		-	
H	-		-	
S	20 - 30		0.03 - 0.16	

10 502 Cone cutter drill bit

Wodex®



Precision design with ground flutes, regrindable, taper 20°, laser cut diameter sizes in the flute and speeds on the tool, 3-flatted shank, tenifer-treated (nitrated) surface

Application: For burr-free, smooth drilling and enlarging of holes in sheet metals.

Areas of use: Steel, stainless steel, Nirosta V2A, non-ferrous metals, plastics, etc.



10 502 016



10 504 010



10 504 013



10 504 016



10 504 019

10 504 Cone cutter drill bit

Wodex®



Type as 10 502..., however, longer tool lives, less wear

Size	10 502...		10 504...		Drill Ø d1	Shank Ø d1	l1
	FNZ		TiN		mm	mm	mm
1	010		010		3 - 14	6	58
2	013		013		6 - 20	8	71
3	016		016		16 - 30.5	9	76
4	019		019		24 - 40	10	89
5	022		-	-	36 - 50	12	97
7	029		029		4 - 31	10	103
P	10 - 50		12 - 60		0.02 - 0.14		
M	8 - 12		10 - 15		0.02 - 0.14		
K	-		-		-		
NE	30 - 60		35 - 80		0.02 - 0.14		
H	-		-		-		
S	-		-		-		

10 505 Cone cutter drill bit set

HSS

FNZ

Type as 10 502..., consisting of 1 drill bit each size 1, 2 and 3, in metal box, incl. drilling paste

10 505...	
050	

Wodex®

10 505 050

10 506 Cone cutter drill bit set

HSS

TIN

Type as 10 504..., consisting of 1 drill bit each size 1, 2 and 3, in metal box, incl. drilling paste

10 506...	
050	

Wodex®

10 506 050

10 508 Drilling paste

Metalworking lubricant, 25 ml can

10 508...	
050	

Wodex®

10 508 050

10 512 All-purpose milling/drill bit

WN

HSS



10 512 280

for thin-walled workpieces made of iron and non-ferrous materials, rust and acid-resistant steels, lightweight and structural metals, as well as wood and plastics

Ø mm	10 512...		Overall length mm	Speed rpm
6	280		90	1000 - 1200

Wodex®

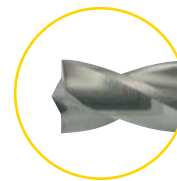
10 513 Spotweld remover bit



Wodex



10 513...



Preferably used on short to long chipping materials such as steel up to approx. 1000 N/mm², electrolytic copper, AlSi alloys, as well as for non-ferrous metals. The special cut finish with 90° centre point ensures easy centring, spot drilling and precise, round drilling.

Ø mm	10 513...		Overall length mm	Flute length mm
6	280		66	28
8	320		79	37

10 515 Metal drilling bit with hexagon connection end

BOSCH

- Connection end: 1/4" hexagonal shank
- True-running precision
- For use in all cordless screwdrivers and drills with hexagonal toolholder
- Drill bit (tip and spiral) cut from one solid piece
- HSS steel
- 135° cross-ground, self-centring
- For machining alloyed and unalloyed steel up to a tensile strength of 900 N/mm², cast steel, sintered iron, malleable cast iron, non-ferrous metals, hard plastics



10 515...

Ø mm	10 515...		Overall length mm
2	002		62
3	003		74
4	004		88
5	005		99
6	006		106
8	008		117

Set:

Number of drill bits pcs	10 515...		Ø mm
5	105		2, 3, 4, 5, 6

For wood drill bits with hexagon connection end, please see 67 067...



10 515 105

Guideline speed values for step drill bits

Ø d1	CrNi steel	Structural steel soft	Non-ferrous metals	Plastics
4 - 12 mm	400 - 250	800 - 500	1500 - 1000	2000 - 1500
14 - 20 mm	250 - 150	500 - 300	1000 - 600	1500 - 800
22 - 30 mm	150 - 100	300 - 200	600 - 400	800 - 500
32 - 38 mm	100 - 70	200 - 150	400 - 300	500 - 350

10 517 Step drill bits

Wodex®



Electrical dimensions, products for cable glands (**former PG standard**) with spiral flute and "edge beveller" (DBGM), 12 mm shank. For burr-free drilling in sheet metals, especially for use in electrical cable glands according to Europe's newest standard: DIN EN 60423 ...110 and ...120 with high-quality **TiAIN** coating, enabling dry machining (temperature resistance up to 800°) – up to 50% higher speeds possible (surface hardness 3300HV) – tool life extended by a factor of 3-10 and more.



10 517 100



10 517...



10 517...

Product information

The power of shape.



Unsurpassed 99% of the contour of **ROTASTOP** ensures optimum torque transfer as, through its increasing contours, **ROTASTOP** practically clamps itself in the chuck.

The result: No slipping through the chuck. Precise metalworking results.

ROTASTOP enables easy tool change in seconds and longer periods of use for the tools.

suitable for	Overall length mm	10 517...		10 517...	
				TiAIN	
Tap holes for cable glands Drill Ø: 7 10.5 14.5 18.5 23.5 30.5 - M12 x 1.5 M16 x 1.5 M20 x 1.5 M25 x 1.5 M32 x 1.5	96	010		110	
Through holes with cable gland Drill Ø: 7 12.5 16.5 20.5 25.5 32.5 - M12 x 1.5 M16 x 1.5 M20 x 1.5 M25 x 1.5 M32 x 1.5					
Tap holes for cable glands Drill Ø: 7 10.5 14.5 18.5 23.5 30.5 38.5 - M12 x 1.5 M16 x 1.5 M20 x 1.5 M25 x 1.5 M32 x 1.5 M40 x 1.5	110	020		120	
Through holes with cable gland Drill Ø: 7 12.5 16.5 20.5 25.5 32.5 40.5 - M12 x 1.5 M16 x 1.5 M20 x 1.5 M25 x 1.5 M32 x 1.5 M40 x 1.5					
Electrical range in robust plastic case fully equipped with 1 step drill bit 10 517 010 and 1 each Special single cut taps 10 519 012 to 10 519 032		100		-	-
P		10 - 50	0.02 - 0.14	12 - 60	0.02 - 0.14
M		8 - 12	0.02 - 0.14	10 - 15	0.02 - 0.14
K		-	-	-	-
NE		30 - 60	0.02 - 0.14	35 - 80	0.02 - 0.14
H		-	-	-	-
S		-	-	-	-

10 522 Step drill bits

HSS

With steady spot drilling tip, for machining sheet metals, pipes and profiles/sections made of CrNi steel, steel, Plexiglas, non-ferrous metals up to 6 mm thick, CBN plunge ground, holes are deburred by the following step (one-sided), laser cut diameter sizes in the flute and speeds on the tool, 3-flatted shank

Wodex®



10 522...

Ø of the individual steps mm	10 522...		Step length mm	Overall length mm	Flute length mm
4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12	013		5	80	6
4 - 6 - 8 - 10 - 12 - 14 - 16 - 18 - 20	016		4	67	8
6 - 8 - 10 - 12 - 14 - 16 - 18 - 20 - 22 - 24 - 26 - 28 - 30	019		4	98	10
9 - 12 - 15 - 18 - 21 - 24 - 27 - 30 - 33 - 36	022		3	86	12
P	10 - 50			0.02 - 0.14	
M	8 - 12			0.02 - 0.14	
K	-			-	
NE	30 - 60			0.02 - 0.14	
H	-			-	
S	-			-	

10 525 Step drill bit set

HSS

Type as step drill bits **10 522 013-...019** in stable metal case, incl. drilling paste

Wodex®



10 525 100

Contents pcs	Drilling range mm	10 525...	
je 1	4 - 12; 4 - 20; 6 - 30	100	

10 530 Step drill bits

HSS

with spiral flute and "edge beveller" (DBGM). For burr-free drilling and reaming sheet metals, pipes and profiles/sections. Deburring and bevelling (up to 1.5 mm thick material) on both sides in one operation. Up to 6 mm thick structural steel, CrNi steel, non-ferrous metals. Hole diameters and speeds laser cut on the tool, CBN plunge ground spiral flute.



10 530 050



10 530...

10 531 Step drill bits

HSS



Type as 10 530..., however, with high-quality TIALN coating (titanium-aluminium-nitride), enabling dry machining (temperature resistant up to 800 °), up to 50% higher speeds possible (surface hardness 3300HV), tool life extended by a factor of 3-10 and more, requires less effort, better and faster chip removal.



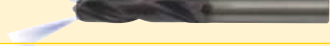
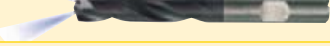
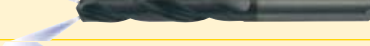
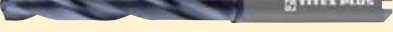
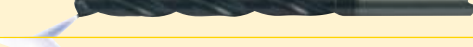
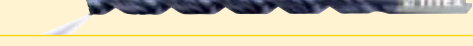
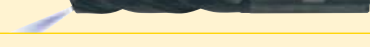
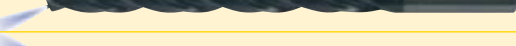
10 531 050



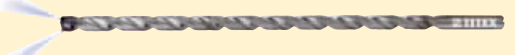
10 531...

Drill Ø mm	10 530...		10 531... TIALN		Step length mm	Shank Ø mm	Overall length mm
4-5-6-7-8-9 10-11-12	012		012		5	6	80
4-6-8-10-12 14-16-18-20	020		020		4	8	87
6-8-10-12-14-16 18-20-22-24 26-28-30	030		030		4	10	98
6-9-12-15-18-21 24-27-30-33-36	036		036		3	12	82
Sheet steel case, equipped with 1 each size							
4-12, 4-20, 6-30	050		050				
P	10 - 50		10 - 50		0.02 - 0.14		
M	8 - 12		8 - 12		0.02 - 0.14		
K	-		-		-		
NE	30 - 60		30 - 60		0.02 - 0.14		
H	-		-		-		
S	-		-		-		

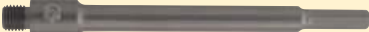
Overview of types VHM twist-drill bits / carbide-tipped twist drill bits

Page	Catalogue Number	DIN	Type	HM Quality	Material	Ø mm from - to	Brand	
75	10 550	338	-	K10	VHM	3 - 10.5	Wodex	
76	10 552	6539	-	K10	VHM	1 - 10	Wodex	
77	10 553	6539	-	K30F	VHM	1.5 - 20	TITEX	
78	10 554	WN	-	K40F	VHM	M3 - M10	Wodex	
78	10 557	WN	-	K40F	VHM	M3 - M12	Wodex	
79	10 558	WN	-	K40F	VHM	M4 - M12	Wodex	
79	10 559	6535	Micro	K30F	VHM	0.5 - 2.9	TITEX	
80	10 561	6535	Micro/IK	K30F	VHM	0.5 - 2.9	TITEX	
80	10 562	6535	Micro/IK	K30F	VHM	1.0 - 2.9	TITEX	
82	10 563	6535	RC	K30F	VHM	3.4 - 10.4	TITEX	
82	10 564	6535	jobber	K40F	VHM	3 - 16	Wodex	
82	10 565	6535	jobber	K40F	VHM	3 - 16	Wodex	
82	10 566	6535	jobber/cooling	K40F	VHM	3 - 20	Wodex	
82	10 567	6535	jobber/cooling	K40F	VHM	3 - 20	Wodex	
84	10 569	6535	jobber/cooling	K30F	VHM	3 - 20	TITEX	
85	10 570	6535	jobber	K30F	VHM	3 - 20	TITEX	
87	10 573	6535	long/cooling	K40F	VHM	3 - 20	Wodex	
87	10 574	6535	long/cooling	K40F	VHM	3 - 20	Wodex	
88	10 581	6535	long/cooling	K30F	VHM	3 - 25	TITEX	
89	10 585	6537	long/cooling	K40F	VHM	3 - 20	Wodex	
90	10 587	6535	long/cooling	K30F	VHM	3 - 20	TITEX	
91	10 583	6535	long/cooling	K30F	VHM	3 - 20	TITEX	
89	10 589	6535	long/cooling	K30F	VHM	3 - 20	Wodex	
92	10 590	6535	long/cooling	K40F	VHM	5 - 20	Wodex	
92	10 591	6535	long/cooling	K40F	VHM	5 - 20	Wodex	
93	10 593	6535	long/cooling	K40F	VHM	5 - 20	Wodex	
93	10 597	6535	long/cooling	K40F	VHM	5 - 20	Wodex	
93	10 598	6535	jobber/cooling	K30F	VHM	3 - 12	TITEX	
94	10 599	6535	XD16	K30F	VHM	3 - 12	TITEX	

Overview of types VHM twist-drill bits / carbide-tipped twist drill bits (continued)

Page	Catalogue Number	DIN	Type	HM Quality	Material	Ø mm from - to	Brand	
94	10 600	6535	XD20	K30F	VHM	3 - 12	TITEX	
94	10 601	6535	XD25	K30F	VHM	4 - 8.5	TITEX	
95	10 603	6535	XD30	K30F	VHM	4 - 8.5	TITEX	
97	10 602	8037	-	-	Carbide tipped	3 - 16	Wodex	

Overview of types Carbide-tipped masonry drill bits and impact core drill bits

Page	Catalogue Number	DIN	Type	HM Quality	Material	Ø mm from - to	Brand	
97	10 652	-	-	-	Carbide tipped	4 - 20	Primat	
98	10 654	-	-	-	Carbide tipped	4 - 16	Primat	
98	10 656	-	long	-	Carbide tipped	6 - 12	Primat	
98	10 657	-	-	-	Carbide tipped	4 - 12	Primat	
99	10 660	-	-	-	Carbide tipped	4 - 26	Primat	
100	10 666	-	-	-	Carbide tipped	12 - 42	Primat	
100	10 672	-	-	-	Carbide tipped	45 - 90	-	
100	10 676	-	-	-	Carbide tipped	30 - 105	-	
101	10 682	-	-	-	-	8 - 7.2	-	
101	10 684	-	-	-	Carbide tipped	-	-	

10 550 Solid carbide twist drill bits

DIN
338

Typ
N

VHM

K10

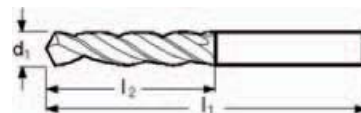
118°



Wodex®



10 550...



for drilling grey cast iron, malleable cast iron, non-ferrous metals, thermosetting plastics, glass and carbon reinforced plastics, resin-bonded paper, etc.

Ø d1 mm	10 550...		l1 mm	l2 mm
1	180		34	12
1.1	182		36	14
1.2	184		38	16
1.3	186		38	16
1.4	188		40	18
1.5	190		40	18
1.6	192		43	20
1.7	194		43	20
1.8	196		46	22
1.9	198		46	22
2.0	200		49	24
2.1	202		49	24
2.2	204		53	27
2.3	206		53	27
2.4	208		57	30
2.5	210		57	30
2.6	212		57	30
2.7	214		61	33
2.8	216		61	33
2.9	218		61	33
3	220		61	33
3.1	221		65	36
3.2	222		65	36
3.3	224		65	36
3.4	228		70	39
3.5	230		70	39
3.6	232		70	39
3.7	234		70	39
3.8	236		75	43
3.9	238		75	43
4	240		75	43
4.1	242		75	43
4.2	244		75	43
4.3	246		75	43
4.4	248		80	47
4.5	250		80	47
4.6	252		80	47
4.7	254		80	47
4.8	256		86	52
4.9	258		86	52
5	260		86	52
5.1	262		86	52
5.2	264		86	52
5.3	266		86	52
5.4	268		93	57
5.5	270		93	57
5.6	272		93	57
5.7	274		93	57
5.8	276		93	57
P	60 - 75		0.02 - 0.23	
M	30 - 40		0.02 - 0.23	
K	65 - 100		0.02 - 0.23	
NE	90 - 140		0.02 - 0.23	
H	-		-	
S	15 - 35		0.02 - 0.23	

Ø d1 mm	10 550...		l1 mm	l2 mm
5.9	278		93	57
6	280		93	57
6.1	282		101	63
6.2	284		101	63
6.3	286		101	63
6.4	288		101	63
6.5	290		101	63
6.6	292		101	63
6.7	294		101	63
6.8	296		109	69
6.9	298		109	69
7	300		109	69
7.1	302		109	69
7.2	304		109	69
7.3	306		109	69
7.4	308		109	69
7.5	310		109	69
7.6	312		117	75
7.7	314		117	75
7.8	316		117	75
7.9	318		117	75
8	320		117	75
8.1	322		117	75
8.2	324		117	75
8.3	326		117	75
8.4	328		117	75
8.5	330		117	75
8.6	332		125	81
8.7	334		125	81
8.8	336		125	81
8.9	338		125	81
9.0	340		125	81
9.1	342		125	81
9.2	344		125	81
9.3	346		125	81
9.4	348		125	81
9.5	350		125	81
9.6	352		133	87
9.7	354		133	87
9.8	356		133	87
9.9	358		133	87
10	360		133	87
10.2	362		133	87
10.5	366		133	87
11.0	368		142	94
11.5	370		142	94
12.0	372		151	101
12.5	374		151	101
13.0	376		151	101
P	60 - 75		0.02 - 0.23	
M	30 - 40		0.02 - 0.23	
K	65 - 100		0.02 - 0.23	
NE	90 - 140		0.02 - 0.23	
H	-		-	
S	15 - 35		0.02 - 0.23	

CUTTING TOOLS

1

Drilling and centring tools



10 552 Solid carbide twist drill bits, jobber

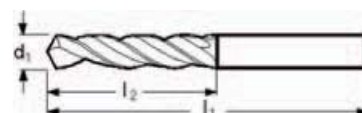
Wodex®



for drilling grey cast iron, malleable cast iron, non-ferrous metals, thermosetting plastics, glass and carbon reinforced plastics, resin-bonded paper, etc.



10 552...



Ø d1 mm	10 552...		l1 mm	l2 mm
1	100		26	6
1.1	102		28	6
1.2	104		28	6
1.3	106		28	6
1.4	108		28	6
1.5	150		32	9
1.6	152		34	10
1.7	154		34	10
1.8	156		36	11
1.9	158		36	11
2	200		38	12
2.1	202		38	12
2.2	204		40	13
2.3	206		40	13
2.4	208		43	14
2.5	210		43	14
2.6	212		43	14
2.7	214		46	16
2.8	216		46	16
2.9	218		46	16
3	220		46	16
3.1	222		49	18
3.2	224		49	18
3.3	226		49	18
3.4	228		52	20
3.5	230		52	20
3.6	232		52	20
3.7	234		52	20
3.8	236		55	22
3.9	238		55	22
4	240		55	22
4.1	242		55	22
4.2	244		55	22
4.3	246		58	24
4.4	248		58	24
P	60 - 75		0.02 - 0.23	
M	30 - 40		0.02 - 0.23	
K	65 - 100		0.02 - 0.23	
NE	90 - 140		0.02 - 0.23	
H	-		-	
S	15 - 35		0.02 - 0.23	

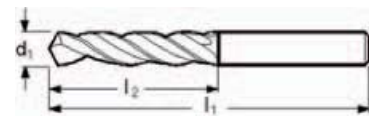
Ø d1 mm	10 552...		l1 mm	l2 mm
4.5	250		58	24
4.6	252		58	24
4.7	254		58	24
4.8	256		62	26
4.9	258		62	26
5	260		62	26
5.1	262		62	26
5.2	264		62	26
5.3	266		62	26
5.4	268		66	28
5.5	270		66	28
5.6	272		66	28
5.7	274		66	28
5.8	276		66	28
5.9	278		66	28
6	280		66	28
6.5	290		70	31
6.8	296		74	34
7	300		74	34
7.5	310		74	34
7.8	312		79	37
8	320		79	37
8.5	330		79	37
8.8	332		84	40
9	340		84	40
9.5	350		84	40
10	360		89	43
10.2	362		89	43
10.5	364		89	43
11.0	366		95	47
11.5	368		95	47
12	370		102	51
12.5	372		102	51
13	374		102	51

P	60 - 75		0.02 - 0.23
M	30 - 40		0.02 - 0.23
K	65 - 100		0.02 - 0.23
NE	90 - 140		0.02 - 0.23
H	-		-
S	15 - 35		0.02 - 0.23

10 553 Solid carbide metal twist drill bit ALPHA 2



10 553...



High-performance drill bits preferably for steel and cast materials. Also for stainless ferritic, pearlitic and martensitic steels (Ni < 4%) as well as for hardened stainless steels (e.g. 17-4PH). However, not for stainless austenitic steels. Also suitable for dry machining in steel materials.

Up to 1.9 mm overall dimensions according to DIN 1897. A 1164 TIN

Ø d1 mm	10 553...		l1 mm	l2 mm
1.5	002		32	9
1.6	004		34	10
1.7	006		34	10
1.8	008		36	11
1.82	010		36	11
1.9	012		36	11
2.0	014		38	12
2.05	016		38	12
2.1	018		38	12
2.2	020		40	13
2.3	022		40	13
2.4	024		43	14
2.5	026		43	14
2.6	028		43	14
2.7	030		46	16
2.8	032		46	16
2.9	034		46	16
3.0	036		46	16
3.1	038		49	18
3.2	040		49	18
3.25	042		49	18
3.3	044		49	18
3.4	046		52	20
3.5	048		52	20
3.6	050		52	20
3.65	052		52	20
3.7	054		52	20
3.8	056		55	22
3.9	058		55	22
4.0	060		55	22
4.1	062		55	22
4.2	064		55	22
4.3	066		58	24
4.4	068		58	24
4.5	070		58	24
4.6	072		58	24
4.65	074		58	24
4.7	076		58	24
4.8	078		62	26
4.9	080		62	26
5.0	082		62	26
5.1	084		62	26
5.2	086		62	26
5.3	088		62	26
5.4	090		66	28
5.5	092		66	28
5.55	094		66	28
5.6	096		66	28
5.7	098		66	28
5.8	100		66	28
5.9	102		66	28
6.0	104		66	28
6.1	106		70	31
6.2	108		70	31
6.3	110		70	31
6.4	112		70	31
6.5	114		70	31
6.6	116		70	31
6.7	118		70	31
6.8	120		74	34
6.9	122		74	34
7.0	124		74	34
7.1	126		74	34

Ø d1 mm	10 553...		l1 mm	l2 mm
7.2	128		74	34
7.3	130		74	34
7.4	132		74	34
7.5	134		74	34
7.55	136		79	37
7.6	138		79	37
7.7	140		79	37
7.8	142		79	37
7.9	144		79	37
8.0	146		79	37
8.1	148		79	37
8.2	150		79	37
8.3	152		79	37
8.4	154		79	37
8.5	156		79	37
8.6	158		84	40
8.7	160		84	40
8.8	162		84	40
8.9	164		84	40
9.0	166		84	40
9.1	158		84	40
9.2	170		84	40
9.3	172		84	40
9.4	174		84	40
9.5	176		84	40
9.55	178		89	43
9.6	180		89	43
9.7	182		89	43
9.8	184		89	43
9.9	186		89	43
10.0	188		89	43
10.1	190		89	43
10.2	192		89	43
10.3	194		89	43
10.4	196		89	43
10.5	198		89	43
10.6	200		89	43
10.7	202		95	47
10.8	204		95	47
10.9	206		95	47
11.0	208		95	47
11.1	210		95	47
11.2	212		95	47
11.3	214		95	47
11.4	216		95	47
11.5	218		95	47
11.55	220		95	47
11.6	222		95	47
11.7	224		95	47
11.8	226		95	47
11.9	228		102	51
12.0	230		102	51
12.1	232		102	51
12.2	234		102	51
12.25	236		102	51
12.3	238		102	51
12.4	240		102	51
12.5	242		102	51
12.6	244		102	51
12.7	246		102	51
12.75	248		102	51
12.8	250		102	51
12.9	252		102	51

Continued on next page



Ø d1 mm	10 553...		l1 mm	l2 mm
13.0	254		102	51
13.1	256		102	51
13.2	258		102	51
13.3	260		107	54
13.4	262		107	54
13.5	264		107	54
13.6	266		107	54
13.7	268		107	54
13.8	270		107	54
13.9	272		107	54
14.0	274		107	54
14.1	276		111	56
14.2	278		111	56
14.3	280		111	56
14.4	282		111	56
14.5	284		111	56
14.6	286		111	56
14.7	288		111	56
14.75	290		111	56
14.8	292		111	56
P	35 - 140		0.02 - 0.50	
M	-		-	
K	45 - 130		0.03 - 0.70	
NE	140 - 280		0.02 - 0.50	
H	20 - 40		0.01 - 0.15	
S	-		-	

Ø d1 mm	10 553...		l1 mm	l2 mm
14.9	294		111	56
15.0	296		111	56
15.1	298		115	58
15.2	300		115	58
15.3	302		115	58
15.4	304		115	58
15.5	306		115	58
15.6	308		115	58
15.7	310		115	58
15.8	312		115	58
15.9	314		115	58
16.0	316		115	58
16.5	318		119	60
17.0	320		119	60
17.5	322		123	62
18.0	324		123	62
18.5	326		127	64
19.0	328		127	64
19.5	330		131	66
20.0	332		131	66
P	35 - 140		0.02 - 0.50	
M	-		-	
K	45 - 130		0.03 - 0.70	
NE	140 - 280		0.02 - 0.50	
H	20 - 40		0.01 - 0.15	
S	-		-	

10 554 VHM Step drill bits for cheese head screws **Wodex®**

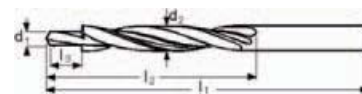


for cheese head screws to DIN 912, 84, 6912, 7513 and DIN 7984



10 554...

Ø d1 mm	Ø d2 mm	10 554...		l1 mm	l2 mm	l3 mm	for screws
3.4	6	030		66	28	9	M 3
4.5	8	040		80	37	11	M 4
5.5	10	050		89	43	13	M 5
6.6	11	060		95	47	15	M 6
9.0	15	080		110	56	19	M 8
11.0	18	100		123	62	23	M 10
P		60 - 75		0.02 - 0.23			
M		30 - 40		0.02 - 0.23			
K		65 - 100		0.02 - 0.23			
NE		90 - 140		0.02 - 0.23			
H		-		-			
S		15 - 35		0.02 - 0.23			



10 557 VHM Step drill bits for tapped holes **Wodex®**

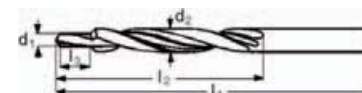


for tap drilling and countersinking in one operation



10 557...

Ø d1 mm	Ø d2 mm	10 557...		l1 mm	l2 mm	l3 mm	For thread
2.5	6	030		66	20	8.8	M 3
3.3	6	040		66	24	11.4	M 4
4.2	6	050		66	28	13.6	M 5
5.0	8	060		79	34	16.5	M 6
6.8	10	080		89	47	21.0	M 8
8.5	12	100		102	55	25.5	M 10
10.2	14	120		107	60	30.0	M 12
P		60 - 75		0.02 - 0.23			
M		30 - 40		0.02 - 0.23			
K		65 - 100		0.02 - 0.23			
NE		90 - 140		0.02 - 0.23			
H		-		-			
S		15 - 35		0.02 - 0.23			



10 558 VHM thread drilling tool

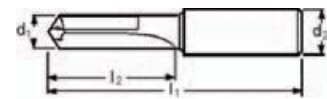
Wodex®



the drilling must be carried out dry, at approx. 1500 - 3500 rpm. The core of the thread is quickly drilled by using a suitable core drill and the remains of the tap can be cleanly removed from the drill hole. The workpiece must be very stably clamped so that it cannot move at high speeds. If the tap broke out obliquely a centring has to be made first by driving the thread drilling bit at it several times. Only then can the drilling begin. In addition, the chips have to be removed by swarf clearing several times. Before reaching the end of the drilling process you will feel vibrations. The drilling bit should now be removed. It is now possible to cut a new thread using a tap bit. Due to the large stresses that occur during drilling the cutting edges of the tool must be resharpened from time to time to achieve optimum results.



10 558...



Ø d1 mm	Ø d2 mm	10 558...		l1 mm	l2 mm	For thread
3.3	6	040		50	15	M 4
4.2	6	050		50	15	M 5
5.0	6	060		50	15	M 6
6.8	8	080		60	20	M 8
8.5	10	100		70	25	M 10
10.2	12	120		75	30	M 12
12.0	12	140		75	30	M 14
14.0	14	160		100	40	M 16
15.5	16	180		100	40	M 18
17.5	18	200		100	50	M 20

10 559 Solid carbide drill bit Alpha 2 PLUS Micro

TITEX®

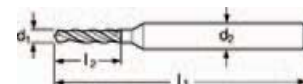


High-performance drill bit for small holes with wide range of uses, especially for steel materials, cast iron materials and non-ferrous metals

A 3378 TML



10 559...



Ø d1 m7 mm	10 559...		d2 h6 mm	l1 mm	l2 mm
0.5	002		3	45	3.5
0.55	004		3	45	4.0
0.6	006		3	45	4.5
0.65	008		3	45	5.0
0.7	010		3	45	5.0
0.75	012		3	45	5.5
0.8	014		3	45	6.0
0.85	016		3	45	6.0
0.88	018		3	45	6.5
0.9	020		3	45	6.5
0.95	022		3	45	7.0
1.0	024		3	45	7.0
1.05	026		3	45	7.5
1.08	028		3	45	8.0
1.1	030		3	45	8.0
1.15	032		3	45	8.5
1.2	034		3	45	8.5
1.25	036		3	45	9.0
1.3	038		3	45	9.5
1.35	040		3	45	9.5
1.4	042		3	45	10.0
1.45	044		3	45	10.5

Ø d1 m7 mm	10 559...		d2 h6 mm	l1 mm	l2 mm
1.5	046		3	53	10.5
1.55	048		3	53	11.0
1.6	050		3	53	11.5
1.65	052		3	53	12.0
1.7	054		3	53	12.0
1.75	056		3	53	12.5
1.8	058		3	53	13.0
1.82	060		3	53	13.0
1.85	062		3	53	13.0
1.9	064		3	53	13.5
1.95	066		3	53	14.0
2.0	068		3	59	14.0
2.05	070		3	59	14.5
2.1	072		3	59	15.0
2.2	074		3	59	15.5
2.3	076		3	59	16.5
2.4	078		3	66	17.0
2.5	080		3	66	17.5
2.6	082		3	66	18.5
2.7	084		3	66	19.0
2.8	086		3	66	20.0
2.9	088		3	66	20.5

10 561 Solid carbidedrill bit Alpha 2 PLUS Micro



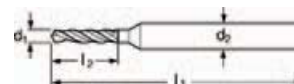
High-performance drill bit for small holes with wide range of uses, especially for steel materials, cast iron materials and non-ferrous metals

External cooling recommended.

A 6478 TML



10 561...



Ø d1 m7 mm	10 561...		d2 h6 mm	l1 mm	l2 mm
0.5	002		3	55	5.0
0.6	004		3	55	6.0
0.7	006		3	55	7.0
0.75	008		3	55	7.5
0.8	010		3	55	8.0
0.88	012		3	55	9.0
0.9	014		3	55	9.0
0.95	016		3	55	9.5
1.0	018		3	55	10.0
1.08	020		3	55	11.0
1.1	022		3	55	11.0
1.2	024		3	55	12.0
1.25	026		3	55	12.5
1.3	028		3	55	13.0
1.4	030		3	55	14.0
1.45	032		3	55	14.5
1.5	034		3	68	15.0

Ø d1 m7 mm	10 561...		d2 h6 mm	l1 mm	l2 mm
1.6	036		3	68	16.0
1.65	038		3	68	16.5
1.7	040		3	68	17.0
1.8	042		3	68	18.0
1.82	044		3	68	18.5
1.9	046		3	68	19.0
2.0	048		3	74	20.0
2.05	050		3	74	20.5
2.1	052		3	74	21.0
2.2	054		3	74	22.0
2.3	056		3	74	23.0
2.4	058		3	74	24.0
2.5	060		3	81	25.0
2.6	062		3	81	26.0
2.7	064		3	81	27.0
2.8	066		3	81	28.0
2.9	068		3	81	29.0

10 562 Solid carbidedrill bit Alpha 4 PLUS Micro



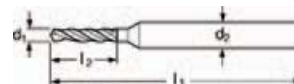
High-performance drill bit for small holes with wide range of uses, especially for steel materials including stainless steels, cast iron materials and non-ferrous metals, including nickel-based alloys.

Up to 1 mm with helical coolant channels.

A 6588 TML



10 562...



Ø d1 m7 mm	10 562...		d2 h6 mm	l1 mm	l2 mm
1.0	002		3	55	21
1.1	004		3	55	21
1.2	006		3	55	21
1.3	008		3	55	21
1.4	010		3	55	21
1.5	012		3	68	28
1.6	014		3	68	28
1.7	016		3	68	28
1.8	018		3	68	28
1.9	020		3	68	28

Ø d1 m7 mm	10 562...		d2 h6 mm	l1 mm	l2 mm
2.0	022		3	74	35
2.1	024		3	74	35
2.2	026		3	74	35
2.3	028		3	74	35
2.4	030		3	74	35
2.5	032		3	81	42
2.6	034		3	81	42
2.7	036		3	81	42
2.8	038		3	81	42
2.9	040		3	81	42





Guideline values for ALPHA4Plus Micro (internal cooling) and ALPHA2PLUS Micro (external cooling)

Material to be machined			Ø [mm]	Feed f and speed for Ø [mm]				
Mat.-Group	Designation			0.50 - 0.95	1.00 - 1.45	1.50 - 1.95	2.00 - 2.45	2.50 - 2.95
1.1.1	Machining steels	up to 8xd	f (mm)	0.023 - 0.047	0.045 - 0.072	0.068 - 0.097	0.090 - 0.122	0.113 - 0.147
		>8...12xd	f (mm)	0.018 - 0.038	0.037 - 0.058	0.055 - 0.079	0.073 - 0.099	0.091 - 0.119
			n (1/min)	18.600 - 21.700	17.900 - 20.600	15.100 - 18.000	13.300 - 14.300	10.600 - 11.900
1.1.2	Soft structural steels	up to 8xd	f (mm)	0.020 - 0.042	0.040 - 0.065	0.061 - 0.087	0.081 - 0.109	0.101 - 0.132
		up to 550 N/mm²	f (mm)	0.016 - 0.034	0.033 - 0.052	0.049 - 0.070	0.065 - 0.088	0.082 - 0.106
		>8...12xd	n (1/min)	18.600 - 21.700	17.900 - 20.600	15.100 - 18.000	13.300 - 14.300	10.600 - 11.900
1.1.3	Steel & cast steel	up to 8xd	f (mm)	0.020 - 0.042	0.040 - 0.065	0.061 - 0.087	0.081 - 0.109	0.101 - 0.132
		550 - 700 N/mm²	f (mm)	0.016 - 0.034	0.033 - 0.052	0.049 - 0.070	0.065 - 0.088	0.082 - 0.106
		>8...12xd	n (1/min)	16.000 - 18.700	15.400 - 17.700	12.900 - 15.500	11.400 - 12.300	9.100 - 10.200
1.2	Low-alloy Steel	up to 8xd	f (mm)	0.018 - 0.039	0.037 - 0.059	0.055 - 0.079	0.074 - 0.100	0.092 - 0.120
		and cast steel	f (mm)	0.015 - 0.031	0.030 - 0.048	0.045 - 0.064	0.060 - 0.080	0.075 - 0.097
		700 - 1000 N/mm²	n (1/min)	13.200 - 15.400	12.700 - 14.600	10.700 - 12.800	9.400 - 10.200	7.500 - 8.400
1.3	Steel & cast steel	up to 8xd	f (mm)	0.009 - 0.019	0.018 - 0.029	0.027 - 0.038	0.036 - 0.048	0.045 - 0.058
		1000 - 1300 N/mm²	f (mm)	0.007 - 0.015	0.014 - 0.023	0.022 - 0.031	0.029 - 0.039	0.036 - 0.047
		>8...12xd	n (1/min)	8.500 - 10.000	8.200 - 9.400	6.900 - 8.300	6.100 - 6.600	4.900 - 5.500
1.4	Steel & cast steel	up to 8xd	f (mm)	0.007 - 0.015	0.014 - 0.023	0.021 - 0.031	0.029 - 0.039	0.036 - 0.046
		1300 - 1600 N/mm²	f (mm)	0.006 - 0.012	0.012 - 0.018	0.017 - 0.025	0.023 - 0.031	0.029 - 0.038
		>8...12xd	n (1/min)	6.200 - 7.200	6.000 - 6.900	5.000 - 6.000	4.400 - 4.800	3.500 - 4.000
1.6.1	Tool steels, unalloyed	up to 8xd	f (mm)	0.014 - 0.030	0.029 - 0.046	0.043 - 0.061	0.057 - 0.077	0.071 - 0.093
		>8...12xd	f (mm)	0.012 - 0.024	0.023 - 0.037	0.035 - 0.050	0.046 - 0.062	0.058 - 0.075
			n (1/min)	10.900 - 12.700	10.500 - 12.000	8.800 - 10.500	7.800 - 8.400	6.200 - 6.900
1.6.2	Tool steels, low-alloy	up to 8xd	f (mm)	0.014 - 0.030	0.029 - 0.046	0.043 - 0.061	0.057 - 0.077	0.071 - 0.093
		>8...12xd	f (mm)	0.012 - 0.024	0.023 - 0.037	0.035 - 0.050	0.046 - 0.062	0.058 - 0.075
			n (1/min)	12.100 - 14.100	11.700 - 13.400	9.800 - 11.700	8.600 - 9.300	6.900 - 7.700
1.6.3	Tool steels, high-alloy	up to 8xd	f (mm)	0.012 - 0.025	0.024 - 0.038	0.036 - 0.051	0.048 - 0.064	0.060 - 0.077
		>8...12xd	f (mm)	0.010 - 0.020	0.019 - 0.031	0.029 - 0.041	0.038 - 0.052	0.048 - 0.063
			n (1/min)	9.300 - 10.900	9.000 - 10.300	7.500 - 9.000	6.600 - 7.200	5.300 - 6.000
1.7.1	stainless steel ferritic, martensitic	up to 8xd	f (mm)	0.012 - 0.025	0.024 - 0.038	0.036 - 0.051	0.048 - 0.064	0.060 - 0.077
		>8...12xd	f (mm)	0.010 - 0.020	0.019 - 0.031	0.029 - 0.041	0.038 - 0.052	0.048 - 0.063
			n (1/min)	10.200 - 12.000	9.900 - 11.300	8.300 - 9.900	7.300 - 7.900	5.800 - 6.600
1.7.2	stainless steel austenitic, sulphur containing	up to 8xd	f (mm)	0.011 - 0.022	0.021 - 0.034	0.032 - 0.046	0.043 - 0.058	0.054 - 0.070
		>8...12xd	f (mm)	0.009 - 0.018	0.017 - 0.028	0.026 - 0.037	0.035 - 0.047	0.043 - 0.056
			n (1/min)	14.700 - 17.200	14.200 - 16.300	11.900 - 14.300	10.500 - 11.400	8.400 - 9.400
1.7.3	stainless steel, austenitic	up to 8xd	f (mm)	0.009 - 0.019	0.018 - 0.029	0.027 - 0.038	0.036 - 0.048	0.045 - 0.058
		>8...12xd	f (mm)	0.007 - 0.015	0.014 - 0.022	0.022 - 0.031	0.029 - 0.039	0.036 - 0.047
			n (1/min)	6.200 - 7.200	6.000 - 6.900	5.000 - 6.000	4.400 - 4.800	3.500 - 4.000
2.1	Ni & Co alloys	up to 8xd	f (mm)	0.008 - 0.017	0.017 - 0.027	0.025 - 0.036	0.033 - 0.045	0.042 - 0.054
		up to 900 N/mm²	f (mm)	0.007 - 0.014	0.013 - 0.022	0.020 - 0.029	0.027 - 0.036	0.034 - 0.044
		>8...12xd	n (1/min)	4.300 - 5.100	4.200 - 4.800	3.500 - 4.200	3.100 - 3.300	2.500 - 2.800
2.2	Ni & Co alloys	up to 8xd	f (mm)	0.007 - 0.015	0.014 - 0.023	0.021 - 0.031	0.029 - 0.039	0.036 - 0.046
		900 - 1200 N/mm²	f (mm)	0.006 - 0.012	0.012 - 0.018	0.017 - 0.025	0.023 - 0.031	0.029 - 0.038
		>8...12xd	n (1/min)	2.800 - 3.300	2.700 - 3.100	2.300 - 2.700	2.000 - 2.200	1.600 - 1.800
2.3	Ni & Co alloys over 1200 N/mm²	up to 8xd	f (mm)	0.006 - 0.012	0.012 - 0.019	0.018 - 0.026	0.024 - 0.032	0.030 - 0.039
		>8...12xd	f (mm)	0.005 - 0.010	0.010 - 0.015	0.014 - 0.021	0.019 - 0.026	0.024 - 0.031
			n (1/min)	2.800 - 3.300	2.700 - 3.100	2.300 - 2.700	2.000 - 2.200	1.600 - 1.800
3.1	Cast iron GG10-GG20	up to 8xd	f (mm)	0.026 - 0.055	0.052 - 0.084	0.079 - 0.113	0.105 - 0.141	0.131 - 0.170
		>8...12xd	f (mm)	0.021 - 0.044	0.042 - 0.068	0.063 - 0.091	0.085 - 0.114	0.106 - 0.138
			n (1/min)	17.100 - 19.900	16.400 - 18.900	13.800 - 16.500	12.200 - 13.100	9.700 - 10.900
3.2 /	Cast iron	up to 8xd	f (mm)	0.026 - 0.055	0.052 - 0.084	0.079 - 0.113	0.105 - 0.141	0.131 - 0.170
3.3.1	GG25-GG40, GGG40-GGG50	>8...12xd	f (mm)	0.021 - 0.044	0.042 - 0.068	0.063 - 0.091	0.085 - 0.114	0.106 - 0.138
			n (1/min)	14.700 - 17.200	14.200 - 16.300	11.900 - 14.300	10.500 - 11.400	8.400 - 9.400
3.3.2	Cast iron GGG60-GGG90	up to 8xd	f (mm)	0.024 - 0.050	0.048 - 0.076	0.071 - 0.102	0.095 - 0.129	0.119 - 0.155
		>8...12xd	f (mm)	0.019 - 0.040	0.038 - 0.061	0.058 - 0.083	0.077 - 0.104	0.096 - 0.125
			n (1/min)	10.900 - 12.700	10.500 - 12.000	8.800 - 10.500	7.800 - 8.400	6.200 - 6.900
5.1	Cast AlSi alloy < 7% Si	up to 8xd	f (mm)	0.026 - 0.055	0.052 - 0.084	0.079 - 0.113	0.105 - 0.141	0.131 - 0.170
		>8...12xd	f (mm)	0.021 - 0.044	0.042 - 0.068	0.063 - 0.091	0.085 - 0.114	0.106 - 0.138
			n (1/min)	23.300 - 27.200	22.400 - 25.800	18.800 - 22.500	16.600 - 17.900	13.300 - 14.900
5.2	Cast AlSi alloy 7-14% Si	up to 8xd	f (mm)	0.026 - 0.055	0.052 - 0.084	0.079 - 0.113	0.105 - 0.141	0.131 - 0.170
		>8...12xd	f (mm)	0.021 - 0.044	0.042 - 0.068	0.063 - 0.091	0.085 - 0.114	0.106 - 0.138
			n (1/min)	23.300 - 27.200	22.400 - 25.800	18.800 - 22.500	16.600 - 17.900	13.300 - 14.900



10 563 Alpha Rc solid carbide metal twist drill bit



Special drill bits for machining hardened steels up to approx. 65 HRC.
With face correction, for tap holes (nominal tap sizes) M4 - M12.

A 3269TFL



10 563...

Ø d1 mm	10 563...		d2 mm	l1 mm	l2 mm	l4 mm
3.4	002		6	62	20	36
4.3	004		6	66	24	36
5.1	006		6	66	28	36
P	-			-		
M	-			-		
K	-			-		
NE	-			-		
H	-			-		
S	20 - 40			0.01 - 0.10		

Ø d1 mm	10 563...		d2 mm	l1 mm	l2 mm	l4 mm
6.9	008		8	79	34	36
8.6	010		10	89	47	40
10.4	012		12	102	55	45
P	-			-		
M	-			-		
K	-			-		
NE	-			-		
H	-			-		
S	20 - 40			0.01 - 0.10		

10 564 Solid carbide twist drill bits



preferably for machining long and short chipping materials such as structural and case hardening steels, cast steel, quenched and tempered steels, alloyed steels up to approx. 1200 N/mm², carbon steels, cast and corrosion resistant AISi alloys



10 564...

10 565 Solid carbide twist drill bits

Type as 10 564..., however, with HB shank



10 565...

10 566 Solid carbide cooling duct twist drill bits

Type as 10 564..., however, with internal cooling



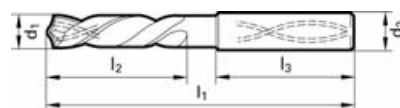
10 566...

10 567 Solid carbide cooling duct twist drill bits

Type as 10 564..., however with internal cooling and HB shank



10 567...



Ø d1 mm	10 564... HA		10 565... HB		10 566... HA IK		10 567... HB IK		l1 mm	l2 mm	d2 mm
3.0	220		220		220		220		62	20	6
3.3	226		226		226		226		62	20	6
3.5	230		230		230		230		62	20	6
4.0	240		240		240		240		66	24	6
4.2	244		244		244		244		66	24	6
4.5	250		250		250		250		66	24	6
4.8	256		256		256		256		66	28	6
5.0	260		260		260		260		82	44	6
5.5	270		270		270		270		66	28	6
5.8	276		276		276		276		66	28	6
6.0	280		280		280		280		66	28	6
6.5	290		290		290		290		79	34	8
6.8	296		296		296		296		79	34	8
7.0	300		300		300		300		79	34	8
7.4	308		308		308		308		79	41	8
7.5	310		310		310		310		79	41	8
7.8	316		316		316		316		79	41	8
8.0	320		320		320		320		79	41	8



Ø d1 mm	10 564... HA		10 565... HB		10 566... HA IK		10 567... HB IK		l1 mm	l2 mm	d2 mm
8.5	330		330		330		330		89	47	10
8.8	336		336		336		336		89	47	10
9.0	340		340		340		340		89	47	10
9.3	346		346		346		346		89	47	10
9.5	350		350		350		350		89	47	10
9.8	-	-	-	-	356		356		89	47	10
10.0	360		360		360		360		89	47	10
10.2	364		364		364		364		102	55	12
10.5	370		370		370		370		102	55	12
10.7	-	-	-	-	374		374		102	55	12
11.0	380		380		380		380		102	55	12
11.2	384		384		384		384		102	55	12
11.5	390		390		390		390		102	55	12
11.7	-	-	-	-	394		394		102	55	12
12.0	400		400		400		400		102	55	12
12.5	410		410		410		410		107	60	14
12.7	-	-	-	-	414		414		107	60	14
13.0	420		420		420		420		107	60	14
13.5	430		430		430		430		107	60	14
13.7	-	-	-	-	434		434		107	60	14
14.0	440		440		440		440		107	60	14
14.5	450		450		450		450		115	65	16
14.7	-	-	-	-	454		454		115	65	16
15.0	460		460		460		460		115	65	16
15.5	472		472		472		472		115	65	16
15.7	-	-	-	-	476		476		115	65	16
16.0	482		482		482		482		115	65	16
16.5	-	-	-	-	484		484		123	73	18
17.0	-	-	-	-	486		486		123	73	18
17.5	-	-	-	-	488		488		123	73	18
18.0	-	-	-	-	490		490		123	73	18
18.5	-	-	-	-	492		492		131	79	20
19.0	-	-	-	-	494		494		131	79	20
19.5	-	-	-	-	496		496		131	79	20
20.0	-	-	-	-	498		498		131	79	20
P	100 - 130		100 - 130		100 - 130		100 - 130		0.05 - 0.25		
M	45 - 65		45 - 65		45 - 65		45 - 65		0.05 - 0.25		
K	35 - 210		35 - 210		35 - 210		35 - 210		0.05 - 0.25		
NE	180 - 270		180 - 270		180 - 270		180 - 270		0.05 - 0.25		
H	25 - 45		25 - 45		25 - 45		25 - 45		0.05 - 0.25		
S	25 - 45		25 - 45		25 - 45		25 - 45		0.05 - 0.25		

10 569 Solid carbide cooling duct channel twist drill bit



Alpha 4



10 569...

High-performance drill bit, preferably for steel and cast iron materials, as well as non-ferrous metals such as aluminium, copper, zinc and magnesium alloys. Especially for all types of stainless steels and titanium alloys too. With TINAL FUTURA coating for high cutting data and particularly long tool lives.

A 3285 TFL

Ø d1 mm	10 569...	d2 mm	l1 mm	l2 mm	l4 mm
3.0	002	6	62	20	36
3.1	004	6	62	20	36
3.2	006	6	62	20	36
3.25	008	6	62	20	36
3.3	010	6	62	20	36
3.4	012	6	62	20	36
3.5	014	6	62	20	36
3.6	016	6	62	20	36
3.65	018	6	62	20	36
3.7	020	6	62	20	36
3.8	022	6	66	24	36
3.9	024	6	66	24	36
4.0	026	6	66	24	36
4.1	028	6	66	24	36
4.2	030	6	66	24	36
4.3	032	6	66	24	36
4.4	034	6	66	24	36
4.5	036	6	66	24	36
4.6	038	6	66	24	36
4.65	040	6	66	24	36
4.7	042	6	66	28	36
4.8	044	6	66	28	36
4.9	046	6	66	28	36
5.0	048	6	66	28	36
5.1	050	6	66	28	36
5.2	052	6	66	28	36
5.3	054	6	66	28	36
5.4	056	6	66	28	36
5.5	058	6	66	28	36
5.55	060	6	66	28	36
5.6	062	6	66	28	36
5.7	064	6	66	28	36
5.8	066	6	66	28	36
5.9	068	6	66	28	36
6.0	070	6	66	28	36
6.1	072	8	79	34	36
6.2	074	8	79	34	36
6.3	076	8	79	34	36
6.4	078	8	79	34	36
6.5	080	8	79	34	36
6.6	082	8	79	34	36
6.7	084	8	79	34	36
6.8	086	8	79	34	36
6.9	088	8	79	34	36
7.0	090	8	79	34	36
7.1	092	8	79	41	36
7.2	094	8	79	41	36
7.3	096	8	79	41	36
7.4	098	8	79	41	36
7.5	100	8	79	41	36
7.55	102	8	79	41	36
7.6	104	8	79	41	36
7.7	106	8	79	41	36
7.8	108	8	79	41	36
7.9	110	8	79	41	36
8.0	112	8	79	41	40
8.1	114	10	89	47	40
8.2	116	10	89	47	40
8.3	118	10	89	47	40
8.4	120	10	89	47	40

Ø d1 mm	10 569...	d2 mm	l1 mm	l2 mm	l4 mm
8.5	122	10	89	47	40
8.6	124	10	89	47	40
8.7	126	10	89	47	40
8.8	128	10	89	47	40
8.9	130	10	89	47	40
9.0	132	10	89	47	40
9.1	134	10	89	47	40
9.2	136	10	89	47	40
9.3	138	10	89	47	40
9.4	140	10	89	47	40
9.5	142	10	89	47	40
9.55	144	10	89	47	40
9.6	146	10	89	47	40
9.7	148	10	89	47	40
9.8	150	10	89	47	40
9.9	152	10	89	47	40
10.0	154	10	89	47	40
10.1	156	12	102	55	45
10.2	158	12	102	55	45
10.3	160	12	102	55	45
10.4	162	12	102	55	45
10.5	164	12	102	55	45
10.6	166	12	102	55	45
10.7	168	12	102	55	45
10.8	170	12	102	55	45
10.9	172	12	102	55	45
11.0	174	12	102	55	45
11.1	176	12	102	55	45
11.2	178	12	102	55	45
11.3	180	12	102	55	45
11.4	182	12	102	55	45
11.5	184	12	102	55	45
11.55	186	12	102	55	45
11.6	188	12	102	55	45
11.7	190	12	102	55	45
11.8	192	12	102	55	45
11.9	194	12	102	55	45
12.0	196	12	102	55	45
12.1	198	14	107	60	45
12.2	200	14	107	60	45
12.25	202	14	107	60	45
12.3	204	14	107	60	45
12.4	206	14	107	60	45
12.5	208	14	107	60	45
12.6	210	14	107	60	45
12.7	212	14	107	60	45
12.75	214	14	107	60	45
12.8	216	14	107	60	45
12.9	218	14	107	60	45
13.0	220	14	107	60	45
13.1	222	14	107	60	45
13.2	224	14	107	60	45
13.3	226	14	107	60	45
13.4	228	14	107	60	45
13.5	230	14	107	60	45
13.6	232	14	107	60	45
13.7	234	14	107	60	45
13.8	236	14	107	60	45
13.9	238	14	107	60	45
14.0	240	14	107	60	45



Ø d1 mm	10 569...		d2 mm	l1 mm	l2 mm	l4 mm
14.1	242		16	115	65	48
14.2	244		16	115	65	48
14.3	246		16	115	65	48
14.4	248		16	115	65	48
14.5	250		16	115	65	48
14.6	252		16	115	65	48
14.7	254		16	115	65	48
14.75	256		16	115	65	48
14.8	258		16	115	65	48
15.0	260		16	115	65	48
15.1	262		16	115	65	48
15.2	264		16	115	65	48
15.3	266		16	115	65	48
15.5	268		16	115	65	48
15.6	270		16	115	65	48
15.7	272		16	115	65	48
15.8	274		16	115	65	48
15.9	276		16	115	65	48
16.0	278		16	115	65	48
16.1	280		18	123	73	48
16.2	282		18	123	73	48
16.3	284		18	123	73	48
16.4	286		18	123	73	48

P	45 - 180		0.04 - 0.50			
M	30 - 80		0.03 - 0.03			
K	50 - 160		0.07 - 0.80			
NE	160 - 330		0.05 - 0.60			
H	30 - 50		0.02 - 0.15			
S	15 - 25		0.02 - 0.15			

Ø d1 mm	10 569...		d2 mm	l1 mm	l2 mm	l4 mm
16.5	288		18	123	73	48
16.6	290		18	123	73	48
16.7	292		18	123	73	48
16.75	294		18	123	73	48
16.8	296		18	123	73	48
17.0	298		18	123	73	48
17.2	300		18	123	73	48
17.3	302		18	123	73	48
17.5	304		18	123	73	48
17.6	306		18	123	73	48
17.7	308		18	123	73	48
17.8	310		18	123	73	48
18.0	312		18	123	73	48
18.2	314		20	131	79	50
18.5	316		20	131	79	50
18.7	318		20	131	79	50
18.8	320		20	131	79	50
19.0	322		20	131	79	50
19.5	324		20	131	79	50
19.7	326		20	131	79	50
19.8	328		20	131	79	50
20.0	330		20	131	79	50

P	45 - 180		0.04 - 0.50			
M	30 - 80		0.03 - 0.03			
K	50 - 160		0.07 - 0.80			
NE	160 - 330		0.05 - 0.60			
H	30 - 50		0.02 - 0.15			
S	15 - 25		0.02 - 0.15			

10 570 Solid carbide metal twist drill bit Alpha 2



10 570...

High-performance drill bit, preferably for steel and cast iron materials, as well as non-ferrous metals such as aluminium, copper, zinc and magnesium alloys. With TINAL FUTURA coating for high cutting data and particularly long tool lives.

A 3265 TFL

Ø d1 mm	10 570...		d2 mm	l1 mm	l2 mm	l4 mm
3.0	002		6	62	20	36
3.1	004		6	62	20	36
3.2	006		6	62	20	36
3.25	008		6	62	20	36
3.3	010		6	62	20	36
3.4	012		6	62	20	36
3.5	014		6	62	20	36
3.6	016		6	62	20	36
3.65	018		6	62	20	36
3.7	020		6	62	20	36
3.8	022		6	66	24	36
3.9	024		6	66	24	36
4.0	026		6	66	24	36
4.1	028		6	66	24	36
4.2	030		6	66	24	36
4.3	032		6	66	24	36
4.4	034		6	66	24	36
4.5	036		6	66	24	36
4.6	038		6	66	24	36
4.65	040		6	66	24	36
P	40 - 150		0.04 - 0.50			
M	-		-			
K	45 - 140		0.07 - 0.80			
NE	150 - 320		0.04 - 0.60			
H	25 - 40		0.02 - 0.15			
S	-		-			

Ø d1 mm	10 570...		d2 mm	l1 mm	l2 mm	l4 mm
4.7	042		6	66	24	36
4.8	044		6	66	28	36
4.9	046		6	66	28	36
5.0	048		6	66	28	36
5.1	050		6	66	28	36
5.2	052		6	66	28	36
5.3	054		6	66	28	36
5.4	056		6	66	28	36
5.5	058		6	66	28	36
5.55	060		6	66	28	36
5.6	062		6	66	28	36
5.7	064		6	66	28	36
5.8	066		6	66	28	36
5.9	068		6	66	28	36
6.0	070		6	66	28	36
6.1	072		8	79	34	36
6.2	074		8	79	34	36
6.3	076		8	79	34	36
6.4	078		8	79	34	36
6.5	080		8	79	34	36
P	40 - 150		0.04 - 0.50			
M	-		-			
K	45 - 140		0.07 - 0.80			
NE	150 - 320		0.04 - 0.60			
H	25 - 40		0.02 - 0.15			
S	-		-			

Continued on next page



"TOOLS"

Ø d1 mm	10 570...		d2 mm	l1 mm	l2 mm	l4 mm
6.6	082		8	79	34	36
6.7	084		8	79	34	36
6.8	086		8	79	34	36
6.9	088		8	79	34	36
7.0	090		8	79	34	36
7.1	092		8	79	41	36
7.2	094		8	79	41	36
7.3	096		8	79	41	36
7.4	098		8	79	41	36
7.5	100		8	79	41	36
7.55	102		8	79	41	36
7.6	104		8	79	41	36
7.7	106		8	79	41	36
7.8	108		8	79	41	36
7.9	110		8	79	41	36
8.0	112		8	79	41	36
8.1	114		10	89	47	40
8.2	116		10	89	47	40
8.3	118		10	89	47	40
8.4	120		10	89	47	40
8.5	122		10	89	47	40
8.6	124		10	89	47	40
8.7	126		10	89	47	40
8.8	128		10	89	47	40
8.9	130		10	89	47	40
9.0	132		10	89	47	40
9.1	134		10	89	47	40
9.2	136		10	89	47	40
9.3	138		10	89	47	40
9.4	140		10	89	47	40
9.5	142		10	89	47	40
9.55	144		10	89	47	40
9.6	146		10	89	47	40
9.7	148		10	89	47	40
9.8	150		10	89	47	40
9.9	152		10	89	47	40
10.0	154		10	89	47	40
10.2	156		12	102	55	45
10.3	158		12	102	55	45
10.4	160		12	102	55	45
10.5	162		12	102	55	45
10.6	164		12	102	55	45
10.7	166		12	102	55	45
10.8	168		12	102	55	45
10.9	170		12	102	55	45
11.0	172		12	102	55	45
11.1	174		12	102	55	45
11.2	176		12	102	55	45
11.3	178		12	102	55	45
11.4	180		12	102	55	45
11.5	182		12	102	55	45
11.55	184		12	102	55	45
11.6	186		12	102	55	45
11.7	188		12	102	55	45
11.8	190		12	102	55	45
11.9	192		12	102	55	45
12.0	194		12	102	55	45
12.1	196		14	107	60	45
12.2	198		14	107	60	45
12.25	200		14	107	60	45
12.3	202		14	107	60	45
12.4	204		14	107	60	45
P	40 - 150		0.04 - 0.50			
M	-		-			
K	45 - 140		0.07 - 0.80			
NE	150 - 320		0.04 - 0.60			
H	25 - 40		0.02 - 0.15			
S	-		-			

Ø d1 mm	10 570...		d2 mm	l1 mm	l2 mm	l4 mm
12.5	206		14	107	60	45
12.6	208		14	107	60	45
12.7	210		14	107	60	45
12.8	212		14	107	60	45
12.9	214		14	107	60	45
13.0	216		14	107	60	45
13.1	218		14	107	60	45
13.2	220		14	107	60	45
13.3	222		14	107	60	45
13.4	224		14	107	60	45
13.5	226		14	107	60	45
13.6	228		14	107	60	45
13.7	230		14	107	60	45
13.8	232		14	107	60	45
13.9	234		14	107	60	45
14.0	236		14	107	60	45
14.1	238		16	107	65	48
14.2	240		16	107	65	48
14.3	242		16	115	65	48
14.4	244		16	115	65	48
14.5	246		16	115	65	48
14.6	248		16	115	65	48
14.7	250		16	115	65	48
14.75	252		16	115	65	48
14.8	254		16	115	65	48
15.0	256		16	115	65	48
15.1	258		16	115	65	48
15.2	260		16	115	65	48
15.3	262		16	115	65	48
15.5	264		16	115	65	48
15.6	266		16	115	65	48
15.7	268		16	115	65	48
15.8	270		16	115	65	48
15.9	272		16	115	65	48
16.0	274		16	115	65	48
16.1	276		18	123	73	48
16.2	278		18	123	73	48
16.3	280		18	123	73	48
16.4	282		18	123	73	48
16.5	284		18	123	73	48
16.6	286		18	123	73	48
16.7	288		18	123	73	48
16.75	290		18	123	73	48
16.8	292		18	123	73	48
17.0	294		18	123	73	48
17.2	296		18	123	73	48
17.3	298		18	123	73	48
17.5	300		18	123	73	48
17.6	302		18	123	73	48
17.7	304		18	123	73	48
17.8	306		18	123	73	48
18.0	308		18	123	73	48
18.2	310		20	131	79	50
18.5	312		20	131	79	50
18.7	314		20	131	79	50
18.8	316		20	131	79	50
19.0	318		20	131	79	50
19.5	320		20	131	79	50
19.7	322		20	131	79	50
19.8	324		20	131	79	50
20.0	326		20	131	79	50

P	40 - 150		0.04 - 0.50			
M	-		-			
K	45 - 140		0.07 - 0.80			
NE	150 - 320		0.04 - 0.60			
H	25 - 40		0.02 - 0.15			
S	-		-			



10 573 Solid carbide cooling duct twist drill bits

Wodex®



preferably for machining long and short chipping materials such as structural and case hardening steels, cast steel, quenched and tempered steels, alloyed steels up to approx. 1200 N/mm², carbon steels, cast and corrosion resistant AlSi alloys



10 573...

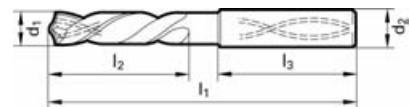
10 574 Solid carbide cooling duct twist drill bits

Wodex®

Type as 10 573... however, with HB shank



10 574...



Ø d1 mm	10 573... HA	10 574... HB	l1 mm	l2 mm	d2 mm
3.0	220	220	66	28	6
3.3	226	226	66	28	6
3.5	230	230	66	28	6
4.0	240	240	74	36	6
4.2	244	244	74	36	6
4.5	250	250	74	36	6
4.8	256	256	82	44	6
5.0	260	260	82	44	6
5.5	270	270	82	44	6
5.8	276	276	82	44	6
6.0	280	280	82	44	6
6.5	290	290	91	53	8
6.8	296	296	91	53	8
7.0	300	300	91	53	8
7.4	308	308	91	53	8
7.5	310	310	91	53	8
7.8	316	316	91	53	8
8.0	320	320	91	53	8
8.5	330	330	103	61	10
8.8	336	336	103	61	10
9.0	340	340	103	61	10
9.3	346	346	103	61	10
9.5	350	350	103	61	10
9.8	356	356	103	61	10
10.0	360	360	103	61	10
10.2	364	364	118	71	12
10.5	370	370	118	71	12

Ø d1 mm	10 573... HA	10 574... HB	l1 mm	l2 mm	d2 mm
10.7	374	374	118	71	12
11.0	380	380	118	71	12
11.2	384	384	118	71	12
11.5	386	386	118	71	12
11.7	394	394	118	71	12
12.0	400	400	118	71	12
12.5	410	410	124	77	14
12.7	414	414	124	77	14
13.0	420	420	124	77	14
13.5	430	430	124	77	14
13.7	434	434	124	77	14
14.0	440	440	124	77	14
14.5	450	450	133	83	16
14.7	454	454	133	83	16
15.0	460	460	133	83	16
15.5	472	472	133	83	16
15.7	476	476	133	83	16
16.0	482	482	133	83	16
16.5	484	484	143	93	18
17.0	486	486	143	93	18
17.5	488	488	143	93	18
18.0	490	490	143	93	18
18.5	492	492	153	101	20
19.0	494	494	153	101	20
19.5	496	496	153	101	20
20.0	498	498	153	101	20

P	100 - 130	100 - 130	0.05 - 0.25
M	45 - 65	45 - 65	0.05 - 0.25
K	35 - 210	35 - 210	0.05 - 0.25
NE	180 - 270	180 - 270	0.05 - 0.25
H	25 - 45	25 - 45	0.05 - 0.25
S	25 - 45	25 - 45	0.05 - 0.25

P	100 - 130	100 - 130	0.05 - 0.25
M	45 - 65	45 - 65	0.05 - 0.25
K	35 - 210	35 - 210	0.05 - 0.25
NE	180 - 270	180 - 270	0.05 - 0.25
H	25 - 45	25 - 45	0.05 - 0.25
S	25 - 45	25 - 45	0.05 - 0.25

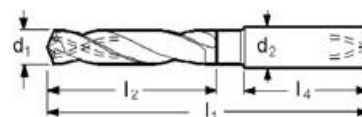
10 581 Solid carbide cooling duct twist drill bit Alpha 4



High-performance drill bit, preferably for steel and cast iron materials, as well as non-ferrous metals such as aluminium, copper, zinc and magnesium alloys. Especially for all types of stainless steels and titanium alloys too. With TINAL FUTURA coating for high cutting data and particularly long tool lives.

Over 20 mm - overall dimensions according to TITEX standard A 3385 TFL

10 581...



Ø d1 mm	10 581...	d2 mm	l1 mm	l2 mm	l4 mm
3.0	002	6	66	28	36
3.1	004	6	66	28	36
3.2	006	6	66	28	36
3.25	008	6	66	28	36
3.3	010	6	66	28	36
3.4	012	6	66	28	36
3.5	014	6	66	28	36
3.6	016	6	66	28	36
3.65	018	6	66	28	36
3.7	020	6	66	28	36
3.8	022	6	74	36	36
3.9	024	6	74	36	36
4.0	026	6	74	36	36
4.1	028	6	74	36	36
4.2	030	6	74	36	36
4.3	032	6	74	36	36
4.4	034	6	74	36	36
4.5	036	6	74	36	36
4.6	038	6	74	36	36
4.65	040	6	74	36	36
4.7	042	6	74	36	36
4.8	044	6	82	44	36
4.9	046	6	82	44	36
5.0	048	6	82	44	36
5.1	050	6	82	44	36
5.2	052	6	82	44	36
5.3	054	6	82	44	36
5.4	056	6	82	44	36
5.5	058	6	82	44	36
5.55	060	6	82	44	36
5.6	062	6	82	44	36
5.7	064	6	82	44	36
5.8	066	6	82	44	36
5.9	068	6	82	44	36
6.0	070	6	82	44	36
6.1	072	8	91	53	36
6.2	074	8	91	53	36
6.3	076	8	91	53	36
6.4	078	8	91	53	36
6.5	080	8	91	53	36
6.6	082	8	91	53	36
6.7	084	8	91	53	36
6.8	086	8	91	53	36
6.9	088	8	91	53	36
7.0	090	8	91	53	36
7.1	092	8	91	53	36
7.2	094	8	91	53	36
7.3	096	8	91	53	36
7.4	098	8	91	53	36
7.5	100	8	91	53	36
7.55	102	8	91	53	36
7.6	104	8	91	53	36
7.7	106	8	91	53	36
7.8	108	8	91	53	36
7.9	110	8	91	53	36
8.0	112	8	91	53	36
8.1	114	10	103	61	40
8.2	116	10	103	61	40
8.3	118	10	103	61	40
8.4	120	10	103	61	40
8.5	122	10	103	61	40
8.6	124	10	103	61	40
8.7	126	10	103	61	40
8.8	128	10	103	61	40

Ø d1 mm	10 581...	d2 mm	l1 mm	l2 mm	l4 mm
8.9	130	10	103	61	40
9.0	132	10	103	61	40
9.1	134	10	103	61	40
9.2	136	10	103	61	40
9.3	138	10	103	61	40
9.4	140	10	103	61	40
9.5	142	10	103	61	40
9.55	144	10	103	61	40
9.6	146	10	103	61	40
9.7	148	10	103	61	40
9.8	150	10	103	61	40
9.9	152	10	103	61	40
10.0	154	10	103	61	40
10.1	156	12	118	71	45
10.2	158	12	118	71	45
10.3	160	12	118	71	45
10.4	162	12	118	71	45
10.5	164	12	118	71	45
10.6	166	12	118	71	45
10.7	168	12	118	71	45
10.8	170	12	118	71	45
10.9	172	12	118	71	45
11.0	174	12	118	71	45
11.1	176	12	118	71	45
11.2	178	12	118	71	45
11.3	180	12	118	71	45
11.4	182	12	118	71	45
11.5	184	12	118	71	45
11.6	186	12	118	71	45
11.7	188	12	118	71	45
11.8	190	12	118	71	45
11.9	192	12	118	71	45
12.0	194	12	118	71	45
12.1	196	14	124	77	45
12.2	198	14	124	77	45
12.25	200	14	124	77	45
12.4	202	14	124	77	45
12.5	204	14	124	77	45
12.6	206	14	124	77	45
12.7	208	14	124	77	45
12.75	210	14	124	77	45
12.8	212	14	124	77	45
12.9	214	14	124	77	45
13.0	216	14	124	77	45
13.1	218	14	124	77	45
13.2	220	14	124	77	45
13.3	222	14	124	77	45
13.4	224	14	124	77	45
13.5	226	14	124	77	45
13.6	228	14	124	77	45
13.7	230	14	124	77	45
13.8	232	14	124	77	45
13.9	234	14	124	77	45
14.0	236	14	124	77	45
14.1	238	16	133	83	48
14.2	240	16	133	83	48
14.3	242	16	133	83	48
14.4	244	16	133	83	48
14.5	246	16	133	83	48
14.6	248	16	133	83	48
14.7	250	16	133	83	48
14.75	252	16	133	83	48
14.8	254	16	133	83	48
14.9	256	16	133	83	48



Ø d1 mm	10 581...		d2 mm	l1 mm	l2 mm	l4 mm
15.0	258		16	133	83	48
15.1	260		16	133	83	48
15.2	262		16	133	83	48
15.3	264		16	133	83	48
15.4	266		16	133	83	48
15.5	268		16	133	83	48
15.6	270		16	133	83	48
15.7	272		16	133	83	48
15.8	274		16	133	83	48
15.9	276		16	133	83	48
16.0	278		16	133	83	48
16.1	280		18	143	93	48
16.2	282		18	143	93	48
16.3	284		18	143	93	48
16.4	286		18	143	93	48
16.5	288		18	143	93	48
16.6	290		18	143	93	48
16.7	292		18	143	93	48
16.75	294		18	143	93	48
17.6	296		18	143	93	48
17.7	298		18	143	93	48
17.8	300		18	143	93	48
17.9	302		18	143	93	48
18.0	304		18	143	93	48
18.1	306		20	153	101	50
18.2	308		20	153	101	50
18.3	310		20	153	101	50
P	45 - 180		0.04 - 0.50			
M	30 - 80		0.03 - 0.30			
K	50 - 160		0.07 - 0.80			
NE	160 - 330		0.05 - 0.60			
H	30 - 50		0.02 - 0.15			
S	15 - 25		0.02 - 0.15			

Ø d1 mm	10 581...		d2 mm	l1 mm	l2 mm	l4 mm
18.4	312		20	153	101	50
18.5	314		20	153	101	50
18.6	316		20	153	101	50
18.7	318		20	153	101	50
18.8	320		20	153	101	50
18.9	322		20	153	101	50
19.0	324		20	153	101	50
19.1	326		20	153	101	50
19.2	328		20	153	101	50
19.3	330		20	153	101	50
19.4	332		20	153	101	50
19.5	334		20	153	101	50
19.6	336		20	153	101	50
19.7	338		20	153	101	50
19.8	340		20	153	101	50
19.9	342		20	153	101	50
20.0	344		20	153	101	50
20.5	346		25	166	108	56
21.0	348		25	166	108	56
21.5	350		25	166	108	56
22.0	352		25	166	108	56
22.5	354		25	173	115	56
23.0	356		25	173	115	56
23.5	358		25	173	115	56
24.0	360		25	173	115	56
24.5	362		25	180	122	56
25.0	364		25	180	122	56
P	45 - 180		0.04 - 0.50			
M	30 - 80		0.03 - 0.30			
K	50 - 160		0.07 - 0.80			
NE	160 - 330		0.05 - 0.60			
H	30 - 50		0.02 - 0.15			
S	15 - 25		0.02 - 0.15			

10 585 Solid carbide cooling duct twist drill bit

Wodex®

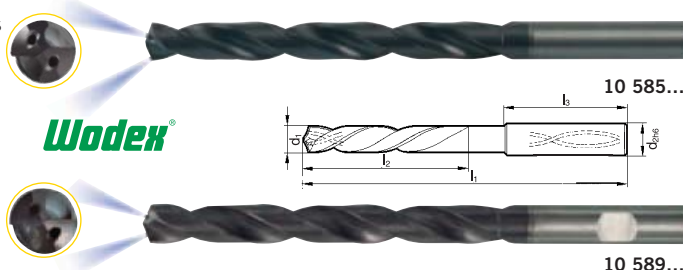


preferably for machining long and short chipping materials such as structural and case hardening steels, cast steel, quenched and tempered steels, alloyed steels up to approx. 1200 N/mm², carbon steels, cast and corrosion resistant AlSi alloys

10 589 Solid carbide cooling duct twist drill bits

Type as 10 585... however, with HB shank

Wodex®



Ø d1 mm	10 585... HA		10 589... HB		l1 mm	l2 mm	d2 mm
5.0	260		260		90	50	6
5.5	270		270		97	57	6
6.0	280		280		97	57	6
6.5	290		290		106	66	8
6.8	296		296		106	66	8
7.0	300		300		116	76	8
7.5	310		310		116	76	8
7.8	316		316		116	76	8
8.0	320		320		116	76	8
8.5	330		330		131	87	10
9.0	340		340		131	87	10
9.5	350		350		139	95	10
10.0	360		360		139	95	10
10.2	364		364		155	106	12
10.5	370		370		155	106	12
11.0	380		380		155	106	12
11.5	390		390		163	114	12
12.0	400		400		163	114	12
P	100 - 130		100 - 130		0.05 - 0.25		
M	45 - 65		45 - 65		0.05 - 0.25		
K	35 - 210		35 - 210		0.05 - 0.25		
NE	180 - 270		180 - 270		0.05 - 0.25		
H	25 - 45		25 - 45		0.05 - 0.25		
S	25 - 45		25 - 45		0.05 - 0.25		

Ø d1 mm	10 585... HA		10 589... HB		l1 mm	l2 mm	d2 mm
12.5	410		410		182	133	14
12.7	414		414		182	133	14
13.0	420		420		182	133	14
13.5	430		430		182	133	14
14.0	440		440		182	133	14
14.5	450		450		204	153	16
15.0	460		460		204	153	16
15.5	470		470		204	153	16
16.0	480		480		204	153	16
16.5	490		490		223	171	18
17.0	500		500		223	171	18
17.5	510		510		223	171	18
18.0	520		520		223	171	18
18.5	530		530		244	190	20
19.0	540		540		244	190	20
19.5	550		550		244	190	20
20.0	560		560		244	190	20
P	100 - 130		100 - 130		0.05 - 0.25		
M	45 - 65		45 - 65		0.05 - 0.25		
K	35 - 210		35 - 210		0.05 - 0.25		
NE	180 - 270		180 - 270		0.05 - 0.25		
H	25 - 45		25 - 45		0.05 - 0.25		
S	25 - 45		25 - 45		0.05 - 0.25		

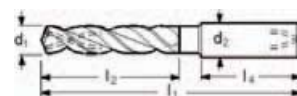


10 587...

New high-performance drill bit, with parallel shank according to DIN 6535 HA. Preferably for steel and cast iron materials, as well as non-ferrous metals such as aluminium, copper, zinc and magnesium alloys. Especially for all types of stainless steels and titanium alloys too.

Deep hole drilling up to 8xD without venting.

A 6485 TFT



Ø d1 mm	10 587... TFT		d2 mm	l1 mm	l2 mm
3.0	220		6	74	34
3.1	222		6	74	34
3.2	224		6	74	34
3.3	226		6	74	34
3.4	227		6	74	34
3.5	230		6	74	34
3.6	232		6	74	34
3.7	234		6	74	34
3.8	236		6	85	45
3.9	238		6	85	45
4.0	240		6	85	45
4.1	242		6	85	45
4.2	244		6	85	45
4.3	246		6	85	45
4.4	248		6	85	45
4.5	250		6	85	45
4.6	252		6	85	45
4.7	254		6	85	45
4.8	256		6	97	57
4.9	258		6	97	57
5.0	260		6	97	57
5.1	262		6	97	57
5.2	264		6	97	57
5.3	266		6	97	57
5.4	268		6	97	57
5.5	270		6	97	57
5.6	272		6	97	57
5.7	274		6	97	57
5.8	276		6	97	57
5.9	278		6	97	57
6.0	280		6	97	57
6.1	282		8	106	66
6.2	284		8	106	66
6.3	286		8	106	66
6.4	288		8	106	66
6.5	290		8	106	66
6.6	292		8	106	66
6.7	294		8	106	66
6.8	296		8	106	66
6.9	298		8	106	66
7.0	300		8	106	66
7.1	302		8	116	76
7.2	304		8	116	76
7.3	306		8	116	76
7.4	308		8	116	76
7.5	310		8	116	76
7.6	312		8	116	76
7.7	314		8	116	76
7.8	316		8	116	76
7.9	318		8	116	76
8.0	320		8	116	76
8.1	322		10	139	95
8.2	324		10	139	95
8.3	326		10	139	95
P	70 - 110		0.05 - 0.3		
M	35 - 60		0.04 - 0.2		
K	65 - 100		0.05 - 0.3		
NE	50 - 300		0.04 - 0.3		
H	-		-		
S	10 - 40		0.02 - 0.12		

Ø d1 mm	10 587... TFT		d2 mm	l1 mm	l2 mm
8.4	328		10	139	95
8.5	330		10	139	95
8.6	332		10	139	95
8.7	334		10	139	95
8.8	336		10	139	95
8.9	338		10	139	95
9.0	340		10	139	95
9.1	342		10	139	95
9.2	344		10	139	95
9.3	346		10	139	95
9.4	348		10	139	95
9.5	350		10	139	95
9.6	352		10	139	95
9.7	354		10	139	95
9.8	356		10	139	95
9.9	358		10	139	95
10.0	360		10	139	95
10.1	362		12	163	114
10.2	364		12	163	114
10.3	366		12	163	114
10.4	368		12	163	114
10.5	370		12	163	114
10.6	372		12	163	114
10.7	374		12	163	114
10.8	376		12	163	114
10.9	378		12	163	114
11.0	380		12	163	114
11.1	382		12	163	114
11.2	384		12	163	114
11.3	386		12	163	114
11.4	388		12	163	114
11.5	390		12	163	114
11.6	392		12	163	114
11.7	394		12	163	114
11.8	396		12	163	114
11.9	398		12	163	114
12.0	400		12	163	114
12.5	410		14	182	133
13.0	420		14	182	133
13.5	430		14	182	133
14.0	440		14	182	133
14.5	450		16	204	152
15.0	460		16	204	152
15.5	470		16	204	152
16.0	480		16	204	152
16.5	490		18	223	171
17.0	500		18	223	171
17.5	510		18	223	171
18.0	520		18	223	171
18.5	530		20	244	190
19.0	540		20	244	190
19.5	550		20	244	190
20.0	560		20	244	190

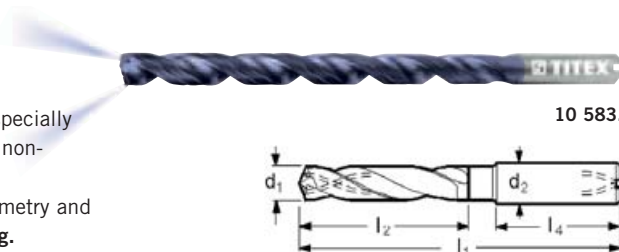
P	70 - 110		0.05 - 0.3		
M	35 - 60		0.04 - 0.2		
K	65 - 100		0.05 - 0.3		
NE	50 - 300		0.04 - 0.3		
H	-		-		
S	10 - 40		0.02 - 0.12		



High-performance drill bit for deep holes with wide range of uses, especially for steel materials including stainless steels, cast iron materials and non-ferrous metals.

With 4 radii for high drilling quality and alignment. With special geometry and low-friction surface for **drilling deep holes up to 12xD without venting**.

A 6585 TFT



10 583...

Ø d1 mm	10 583...	d2 mm	l1 mm	l2 mm	l4 mm
3.0	002	6	92	54	36
3.1	004	6	92	54	36
3.2	006	6	92	54	36
3.4	008	6	92	54	36
3.5	010	6	92	54	36
3.6	012	6	92	54	36
3.7	014	6	92	54	36
3.8	016	6	102	64	36
3.9	018	6	102	64	36
4.0	020	6	102	64	36
4.1	022	6	102	64	36
4.2	024	6	102	64	36
4.3	026	6	102	64	36
4.4	028	6	102	64	36
4.5	030	6	102	64	36
4.6	032	6	102	64	36
4.7	034	6	102	64	36
4.8	036	6	121	83	36
4.9	038	6	121	83	36
5.0	040	6	121	83	36
5.1	042	6	121	83	36
5.2	044	6	121	83	36
5.3	046	6	121	83	36
5.4	048	6	121	83	36
5.5	050	6	121	83	36
5.55	052	6	121	83	36
5.6	054	6	121	83	36
5.7	056	6	121	83	36
5.8	058	6	121	83	36
5.9	060	6	121	83	36
6.0	062	6	121	83	36
6.1	064	8	148	110	36
6.2	066	8	148	110	36
6.3	068	8	148	110	36
6.4	070	8	148	110	36
6.5	072	8	148	110	36
6.6	074	8	148	110	36
6.7	076	8	148	110	36
6.8	078	8	148	110	36
6.9	080	8	148	110	36
7.0	082	8	148	110	36
7.1	084	8	148	110	36
7.2	086	8	148	110	36
7.3	088	8	148	110	36
7.4	090	8	148	110	36
7.5	092	8	148	110	36
7.8	094	8	148	110	36
7.9	096	8	148	110	36
8.0	098	8	148	110	36
P	70 - 110	0.05 - 0.3			
M	35 - 60	0.04 - 0.2			
K	65 - 100	0.05 - 0.3			
NE	50 - 300	0.04 - 0.3			
H	-	-			
S	10 - 40	0.02 - 0.12			

Ø d1 mm	10 583...	d2 mm	l1 mm	l2 mm	l4 mm
8.1	100	10	180	138	40
8.2	102	10	180	138	40
8.3	104	10	180	138	40
8.4	106	10	180	138	40
8.5	108	10	180	138	40
8.6	110	10	180	138	40
8.7	112	10	180	138	40
8.8	114	10	180	138	40
9.0	116	10	180	138	40
9.2	118	10	180	138	40
9.3	120	10	180	138	40
9.5	122	10	180	138	40
9.6	124	10	180	138	40
9.7	126	10	180	138	40
9.8	128	10	180	138	40
10.0	130	10	180	138	40
10.1	132	12	206	158	45
10.2	134	12	206	158	45
10.3	136	12	206	158	45
10.4	138	12	206	158	45
10.5	140	12	206	158	45
10.8	142	12	206	158	45
11.0	144	12	206	158	45
11.1	146	12	206	158	45
11.2	148	12	206	158	45
11.5	150	12	206	158	45
11.7	152	12	206	158	45
11.8	154	12	206	158	45
12.0	156	12	206	158	45
12.1	158	14	230	182	48
12.2	160	14	230	182	48
12.3	162	14	230	182	48
12.5	164	14	230	182	48
12.6	166	14	230	182	48
13.0	168	14	230	182	48
13.5	170	14	230	182	48
14.0	172	14	230	182	48
14.5	174	16	260	208	48
15.0	176	16	260	208	48
15.5	178	16	260	208	48
16.0	180	16	260	208	48
16.5	182	18	285	234	48
17.0	184	18	285	234	48
18.0	186	18	285	234	48
18.5	188	20	310	310	50
19.0	190	20	310	310	50
19.5	192	20	310	310	50
20.0	194	20	310	310	50

P	70 - 110	0.05 - 0.3			
M	35 - 60	0.04 - 0.2			
K	65 - 100	0.05 - 0.3			
NE	50 - 300	0.04 - 0.3			
H	-	-			
S	10 - 40	0.02 - 0.12			

10 590 Solid carbide cooling duct twist drill bits

Wodex®



preferably for machining high-alloy, rust, acid and heat-resistant steels, titanium and titanium alloys, aluminium and magnesium



10 590...

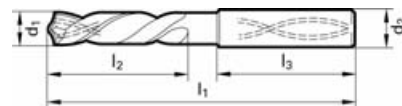
10 591 Solid carbide cooling duct twist drill bits

Wodex®

Type as 10 590... however, with HB shank



10 591...



Ø d1 mm	10 590... HA		10 591... HB		l1 mm	l2 mm	d2 mm
4.0	240		240		74	36	6
4.2	244		244		74	36	6
4.5	250		250		74	36	6
4.8	256		256		82	44	6
5.0	260		260		82	44	6
5.5	270		270		82	44	6
6.0	280		280		82	44	6
6.8	296		296		91	53	8
7.0	300		300		91	53	8
7.4	308		308		91	53	8
7.5	310		310		91	53	8
8.0	320		320		91	53	8
8.5	330		330		103	61	10
9.0	340		340		103	61	10

P	100 - 130		100 - 130		0.05 - 0.25		
M	45 - 65		45 - 65		0.05 - 0.25		
K	35 - 210		35 - 210		0.05 - 0.25		
NE	180 - 270		180 - 270		0.05 - 0.25		
H	25 - 45		25 - 45		0.05 - 0.25		
S	25 - 45		25 - 45		0.05 - 0.25		

Ø d1 mm	10 590... HA		10 591... HB		l1 mm	l2 mm	d2 mm
9.5	350		350		103	61	10
10.0	360		360		103	61	10
10.2	364		364		118	71	12
10.5	370		370		118	71	12
11.0	380		380		118	71	12
12.0	400		400		118	71	12
14.0	440		440		124	77	14
15.0	460		460		133	83	16
16.0	482		482		133	83	16
17.0	486		486		143	93	18
18.0	490		490		143	93	18
19.0	494		494		153	101	20
20.0	498		498		153	101	20

P	100 - 130		100 - 130		0.05 - 0.25		
M	45 - 65		45 - 65		0.05 - 0.25		
K	35 - 210		35 - 210		0.05 - 0.25		
NE	180 - 270		180 - 270		0.05 - 0.25		
H	25 - 45		25 - 45		0.05 - 0.25		
S	25 - 45		25 - 45		0.05 - 0.25		

10 593 Solid carbide cooling duct twist drill bits

Wodex®



preferably for machining long and short chipping materials such as structural and case hardening steels, cast steel, quenched and tempered steels, alloyed steels up to approx. 1200 N/mm², carbon steels, cast and corrosion resistant AISi alloys



10 593...

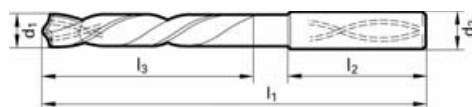
10 597 Solid carbide cooling duct twist drill bits

Wodex®

Type as 10 593... however, with HB shank



10 597...



Ø d1 mm	10 593... HA	10 597... HB	l1 mm	l2 mm	d2 mm
4.0	240	240	102	64	6
4.5	250	250	102	64	6
5.0	260	260	116	78	6
5.5	270	270	116	78	6
6.0	280	280	116	78	6
6.5	290	290	146	108	8
7.0	300	300	146	108	8
7.5	310	310	146	108	8
8.0	320	320	146	108	8
8.5	330	330	162	120	10
9.0	340	340	162	120	10
9.5	350	350	162	120	10
10.0	360	360	162	120	10
10.5	370	370	204	156	12
11.0	380	380	204	156	12
P	100 - 130	100 - 130	0.05 - 0.25		
M	45 - 65	45 - 65	0.05 - 0.25		
K	35 - 210	35 - 210	0.05 - 0.25		
NE	180 - 270	180 - 270	0.05 - 0.25		
H	25 - 45	25 - 45	0.05 - 0.25		
S	25 - 45	25 - 45	0.05 - 0.25		

Ø d1 mm	10 593... HA	10 597... HB	l1 mm	l2 mm	d2 mm
11.5	390	390	204	156	12
12.0	400	400	204	156	12
12.5	410	410	230	182	14
13.0	420	420	230	182	14
13.5	430	430	230	182	14
14.0	440	440	230	182	14
14.5	450	450	260	208	16
15.0	460	460	260	208	16
16.0	480	480	260	208	16
16.5	490	490	285	234	18
17.0	500	500	285	234	18
18.0	520	520	285	234	18
19.0	540	540	310	258	20
20.0	560	560	310	258	20

P	100 - 130	100 - 130	0.05 - 0.25		
M	45 - 65	45 - 65	0.05 - 0.25		
K	35 - 210	35 - 210	0.05 - 0.25		
NE	180 - 270	180 - 270	0.05 - 0.25		
H	25 - 45	25 - 45	0.05 - 0.25		
S	25 - 45	25 - 45	0.05 - 0.25		

10 598 Solid carbide cooling duct twist drill bits XD Pilot

TITEX®



Special drill bit for making centring points and pilot holes for the ALPHA 4 XD16...XD30 type deep hole drill bits.

Special tolerance matched to the XD technology; use for making pilot holes/centre points only.

A 6181 TFT



10 598...



Ø d1 mm	10 598...	d2 mm	l1 mm	l2 mm	l4 mm
3.0	030	6	66	20	36
4.0	040	6	74	24	36
4.5	045	6	74	24	36
5.0	050	6	82	28	36
5.5	055	6	82	28	36
6.0	060	6	82	28	36
6.5	065	8	91	34	36
P	50 - 180	0.04 - 0.45			
M	30 - 80	0.03 - 0.25			
K	50 - 160	0.08 - 0.65			
NE	160 - 330	0.05 - 0.50			
H	30 - 50	0.02 - 0.10			
S	15 - 25	0.02 - 0.10			

Ø d1 mm	10 598...	d2 mm	l1 mm	l2 mm	l4 mm
7.0	070	8	91	34	36
8.0	080	8	91	41	36
8.5	085	10	103	47	40
9.0	090	10	103	47	40
10.0	100	10	103	47	40
11.0	110	12	118	55	45
12.0	120	12	118	55	45
P	50 - 180	0.04 - 0.45			
M	30 - 80	0.03 - 0.25			
K	50 - 160	0.08 - 0.65			
NE	160 - 330	0.05 - 0.50			
H	30 - 50	0.02 - 0.10			
S	15 - 25	0.02 - 0.10			



10 599 Solid carbide cooling duct drill bit Alpha 4 XD16 TITEX



High-performance drill bit for deep holes with wide range of uses, especially for steel materials including stainless steels, cast iron materials and non-ferrous metals.

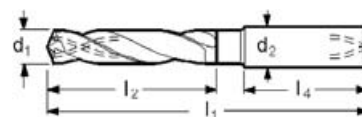
With 4 radii for high drilling quality and alignment.

With special geometry and low-friction surface for **drilling deep holes up to 16xd without venting.**

A 6685 TFP



10 599...



Ø d1 mm	10 599...	d2 mm	l1 mm	l2 mm	l4 mm
3.0	030	6	100	57	36
4.0	040	6	120	78	36
4.5	045	6	140	100	36
5.0	050	6	140	100	36
5.5	055	6	150	110	36
6.0	060	6	160	120	36
6.5	065	8	175	135	36

Ø d1 mm	10 599...	d2 mm	l1 mm	l2 mm	l4 mm
7.0	070	8	175	135	36
8.0	080	8	192	152	36
8.5	085	10	206	162	40
9.0	090	10	206	162	40
10.0	100	10	224	180	40
11.0	110	12	247	198	45
12.0	120	12	265	216	45

10 600 Solid carbide cooling duct drill bit Alpha 4 XD20 TITEX



High-performance drill bit for deep holes with wide range of uses, especially for steel materials including stainless steels, cast iron materials and non-ferrous metals.

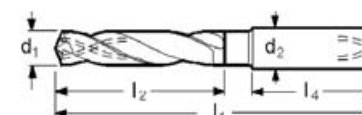
With 4 radii for high drilling quality and alignment.

With special geometry and low-friction surface for **drilling deep holes up to 20xd without venting.**

A 6785 TFP



10 600...



Ø d1 mm	10 600...	d2 mm	l1 mm	l2 mm	l4 mm
3.0	030	6	107	65	36
4.0	040	6	134	92	36
4.5	045	6	158	118	36
5.0	050	6	158	118	36
5.5	055	6	170	132	36
6.0	060	6	182	144	36
6.5	065	8	200	162	36

Ø d1 mm	10 600...	d2 mm	l1 mm	l2 mm	l4 mm
7.0	070	8	200	162	36
8.0	080	8	222	184	36
8.5	085	10	240	198	40
9.0	090	10	240	198	40
10.0	100	10	262	220	40
11.0	110	12	189	242	45
12.0	120	12	311	264	45

10 601 Solid carbide cooling duct drill bit Alpha 4 XD25 TITEX



High-performance drill bit for deep holes with wide range of uses, especially for steel materials including stainless steels, cast iron materials and non-ferrous metals.

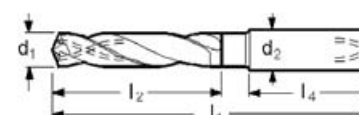
With 4 radii for high drilling quality and alignment.

With special geometry and low-friction surface for **drilling deep holes up to 25xd without venting.**

A 6885 TFP



10 601...



Ø d1 mm	10 601...	d2 mm	l1 mm	l2 mm	l4 mm
4.0	040	6	156	114	36
4.5	045	6	185	145	36
5.0	050	6	185	145	36
5.5	055	6	200	160	36
6.0	060	6	214	174	36

Ø d1 mm	10 601...	d2 mm	l1 mm	l2 mm	l4 mm
6.5	065	8	234	194	36
7.0	070	8	234	194	36
8.0	080	8	260	220	36
8.5	085	10	289	243	40

10 603 Solid carbide cooling duct drill bit Alpha 4 XD30

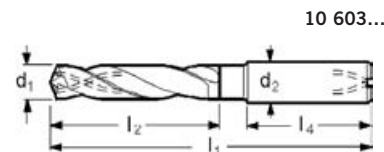


High-performance drill bit for deep holes
with wide range of uses, especially for steel materials including stainless
steels, cast iron materials
and non-ferrous metals.
With 4 radii for high drilling quality and alignment.
With special geometry and low-friction surface for **drilling**
deep holes up to 30xd without venting.

A 6985 TFP

Ø d1 mm	10 603...	d2 mm	l1 mm	l2 mm	l4 mm
4.0	040	6	174	133	36
4.5	045	6	208	169	36
5.0	050	6	208	169	36
5.5	055	6	225	187	36
6.0	060	6	242	204	36

Ø d1 mm	10 603...	d2 mm	l1 mm	l2 mm	l4 mm
6.5	065	8	268	228	36
7.0	070	8	268	228	36
8.0	080	8	294	256	36
8.5	085	10	330	287	40



10 603...

CUTTING TOOLS

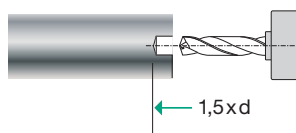
1



Drilling strategy for ALPHA®-XD

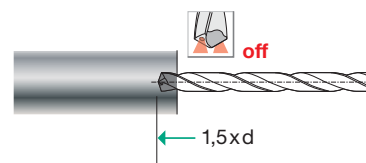


1.



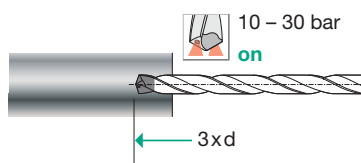
Pilot drillhole 1.5xd with XD® pilot. To this end the diameter tolerances are matched to the XD® pilot.

2.



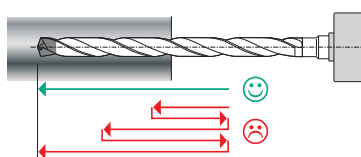
Move the XD tool into the hole with max. 500 1/min.

3.



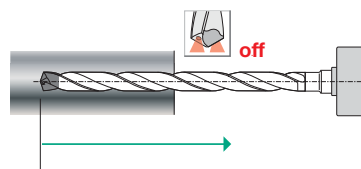
Tap with reduced cutting speed and feed rate to approx. 3xd.
To this end reduce cutting and feed rate to 25 – 50 % of the recommended TITEX ELECTRONIC CONSULTANT values.

4.



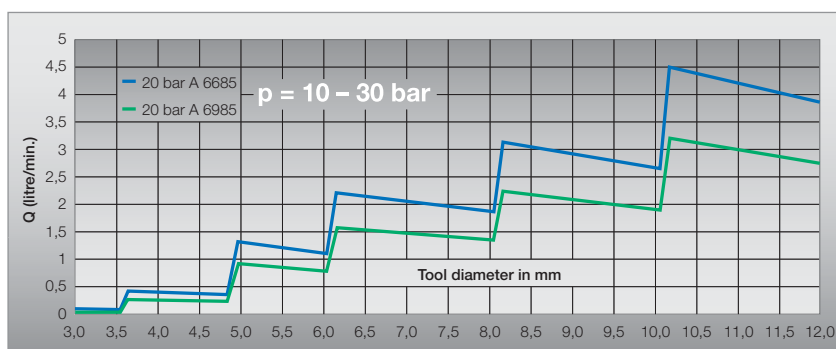
Increase the cutting speed and feed rate to the recommended TITEX ELECTRONIC CONSULTANT values (without interrupting feed, the drill bit must be engaged). **Continue drilling without venting!**

5.



After reaching the drilling depth, reduce the speed to max. 500 1/min or stop the spindle.
Remove the drill bit from the hole.

Recommended flow
rate and pressure
XD® technology,
2 helical channels



Drilling and centring tools





Drilling strategy for ALPHA®-XD



Material to be machined			Cutting speed v_c (m/min)		VR	Feed f (mm) for $\varnothing$ (mm)				
Mat. group	Designation	Drilled depth	Working range	Guideline value		3-4	4-6	6-9	9-14	14-20
1.1.1	Machining steels	up to 10xd	100-140	120	12	0.09-0.13	0.11-0.19	0.17-0.27	0.24-0.35	0.32-0.43
		>10-16xd	90-130	111	12	0.08-0.12	0.11-0.18	0.17-0.26	0.24-0.34	0.31-0.42
		over 16xd	80-120	99	10	0.07-0.11	0.10-0.16	0.15-0.23	0.21-0.30	0.27-0.37
1.1.2	Soft structural steels up to 550 N/mm ²	up to 10xd	100-140	120	10	0.07-0.10	0.09-0.16	0.14-0.22	0.20-0.29	0.26-0.36
		>10-16xd	90-130	111	9	0.06-0.09	0.08-0.14	0.12-0.19	0.18-0.25	0.23-0.31
		over 16xd	80-120	99	8	0.06-0.08	0.07-0.12	0.11-0.17	0.16-0.23	0.20-0.28
1.1.3	Steel & cast steel 550 to 700 N/mm ²	up to 10xd	90-120	103	11	0.08-0.12	0.10-0.17	0.16-0.25	0.22-0.32	0.29-0.40
		>10-16xd	80-110	95	11	0.08-0.11	0.10-0.17	0.15-0.24	0.22-0.31	0.28-0.38
		over 16xd	70-100	85	9	0.07-0.10	0.09-0.15	0.14-0.21	0.19-0.28	0.25-0.34
1.2	Steel & cast steel 700 to 1000 N/mm ²	up to 10xd	70-110	88	10	0.07-0.11	0.10-0.16	0.14-0.23	0.20-0.29	0.26-0.36
		>10-16xd	70-100	81	10	0.07-0.10	0.09-0.15	0.14-0.22	0.20-0.28	0.26-0.35
		over 16xd	60- 90	73	9	0.06-0.09	0.08-0.14	0.12-0.19	0.18-0.25	0.23-0.31
1.3	Steel & cast steel 1000 to 1300 N/mm ²	up to 10xd	50- 70	60	8	0.06-0.08	0.08-0.13	0.11-0.18	0.16-0.23	0.21-0.29
		>10-16xd	50- 70	56	8	0.06-0.08	0.07-0.12	0.11-0.18	0.16-0.23	0.21-0.28
		over 16xd	40- 60	50	7	0.05-0.07	0.07-0.11	0.10-0.16	0.14-0.20	0.19-0.25
1.4	Steel 1300 to 1600 N/mm ²	up to 10xd	30- 40	34	6	0.04-0.06	0.06-0.09	0.09-0.14	0.12-0.18	0.16-0.22
		>10-16xd	20- 30	28	6	0.04-0.06	0.06-0.09	0.09-0.14	0.12-0.18	0.16-0.22
		over 16xd	20- 30	24	5	0.04-0.06	0.05-0.08	0.08-0.12	0.11-0.16	0.14-0.19
1.6.1	Tool steel, unalloyed	up to 10xd	70-100	80	9	0.06-0.09	0.09-0.14	0.13-0.20	0.18-0.26	0.24-0.32
		>10-16xd	60- 90	74	9	0.06-0.09	0.08-0.14	0.13-0.20	0.18-0.26	0.23-0.32
		over 16xd	60- 80	66	8	0.06-0.08	0.07-0.12	0.11-0.18	0.16-0.23	0.21-0.28
1.6.2	Tool steel, low-alloy	up to 10xd	70-100	80	10	0.07-0.11	0.10-0.16	0.14-0.23	0.20-0.29	0.26-0.36
		>10-16xd	60- 90	74	10	0.07-0.10	0.09-0.15	0.14-0.22	0.20-0.28	0.26-0.35
		over 16xd	60- 80	66	9	0.06-0.09	0.08-0.14	0.12-0.19	0.18-0.25	0.23-0.31
1.6.3	Tool steel, high-alloy	up to 10xd	60- 80	66	9	0.06-0.09	0.08-0.13	0.12-0.19	0.17-0.25	0.22-0.31
		>10-16xd	50- 70	61	8	0.06-0.09	0.08-0.13	0.12-0.19	0.17-0.24	0.22-0.30
		over 16xd	50- 70	54	7	0.05-0.08	0.07-0.12	0.11-0.17	0.15-0.22	0.20-0.27
1.7.1	Stainless steel ferritic, martensitic	up to 10xd	40- 50	43	7	0.05-0.07	0.07-0.11	0.10-0.16	0.14-0.20	0.19-0.25
		>10-16xd	30- 50	40	7	0.05-0.07	0.07-0.11	0.10-0.16	0.14-0.20	0.18-0.25
		over 16xd	30- 40	35	6	0.04-0.06	0.06-0.10	0.09-0.14	0.13-0.18	0.16-0.22
1.7.2	Stainless steel, austenitic, sulphur containing	up to 10xd	60- 80	66	7	0.05-0.07	0.07-0.11	0.10-0.16	0.14-0.20	0.19-0.25
		>10-16xd	50- 70	61	7	0.05-0.07	0.07-0.11	0.10-0.16	0.14-0.20	0.18-0.25
		over 16xd	50- 70	54	6	0.04-0.06	0.06-0.10	0.09-0.14	0.13-0.18	0.16-0.22
1.7.3	Stainless steel austenitic	up to 10xd	40- 50	43	5	0.04-0.05	0.05-0.08	0.07-0.11	0.10-0.15	0.13-0.18
		>10-16xd	30- 50	40	5	0.04-0.05	0.05-0.08	0.07-0.11	0.10-0.15	0.13-0.18
		over 16xd	30- 40	35	5	0.03-0.05	0.04-0.07	0.06-0.10	0.09-0.13	0.12-0.16
3.1	Cast iron GG10-GG20	up to 10xd	100-140	120	14	0.10-0.15	0.14-0.23	0.21-0.32	0.29-0.42	0.38-0.52
		>10-16xd	90-130	111	12	0.08-0.12	0.11-0.19	0.17-0.27	0.24-0.35	0.31-0.43
		over 16xd	80-120	99	11	0.08-0.11	0.10-0.17	0.15-0.24	0.22-0.31	0.28-0.38
3.2	Cast iron GG25-GG40	up to 10xd	80-120	100	14	0.10-0.15	0.14-0.23	0.21-0.32	0.29-0.42	0.38-0.52
		>10-16xd	80-110	93	12	0.08-0.12	0.11-0.19	0.17-0.27	0.24-0.35	0.31-0.43
		over 16xd	70-100	83	11	0.08-0.11	0.10-0.17	0.15-0.24	0.22-0.31	0.28-0.38
3.3.1	Cast iron GGG40-GGG50	up to 10xd	80-120	100	14	0.10-0.15	0.14-0.23	0.21-0.32	0.29-0.42	0.38-0.52
		>10-16xd	80-110	93	12	0.08-0.12	0.11-0.19	0.17-0.27	0.24-0.35	0.31-0.43
3.3.2	Cast iron GGG60-GGG90	up to 10xd	60- 90	75	13	0.09-0.13	0.12-0.20	0.18-0.28	0.26-0.37	0.33-0.45
		>10-16xd	60- 80	69	10	0.07-0.11	0.10-0.16	0.15-0.23	0.21-0.30	0.27-0.37
		over 16xd	50- 70	62	9	0.07-0.10	0.09-0.15	0.13-0.21	0.19-0.27	0.24-0.33
5.1	Pure aluminium, Wrought aluminium alloy	up to 10xd	300-430	360	16	0.11-0.17	0.15-0.25	0.23-0.36	0.33-0.47	0.42-0.58
		>10-16xd	170-240	204	15	0.11-0.16	0.14-0.23	0.21-0.33	0.30-0.43	0.39-0.53
		over 16xd	110-160	132	13	0.09-0.14	0.13-0.21	0.19-0.30	0.27-0.39	0.35-0.47
5.2	cast AlSi alloy <7% Si	up to 10xd	210-300	250	16	0.11-0.17	0.15-0.25	0.23-0.36	0.33-0.47	0.42-0.58
		>10-16xd	170-240	204	15	0.11-0.16	0.14-0.23	0.21-0.33	0.30-0.43	0.39-0.53
		over 16xd	110-160	132	13	0.09-0.14	0.13-0.21	0.19-0.30	0.27-0.39	0.35-0.47
5.3	cast AlSi alloy 7-14% Si	up to 10xd	190-280	230	16	0.11-0.17	0.15-0.25	0.23-0.36	0.33-0.47	0.42-0.58
		>10-16xd	170-240	204	15	0.11-0.16	0.14-0.23	0.21-0.33	0.30-0.43	0.39-0.53
		over 16xd	110-160	132	13	0.09-0.14	0.13-0.21	0.19-0.30	0.27-0.39	0.35-0.47
6.2	Titanium alloys over 700 N/mm ²	up to 10xd	30- 40	34	5	0.04-0.05	0.05-0.08	0.07-0.11	0.10-0.15	0.13-0.18
		>10-16xd	20- 30	25	5	0.03-0.05	0.04-0.07	0.07-0.10	0.09-0.13	0.12-0.17
		over 16xd	20- 20	20	4	0.03-0.04	0.04-0.06	0.06-0.09	0.08-0.12	0.11-0.15

10 602 Sintered carbide twist drill bit



Sintered carbide tool tips according to DIN 8010, for drilling **steel 750 – 1400 N/mm², cast steel over 700 N/mm²**, grey, white and malleable cast iron, red brass, brass, bronze.

Wodex®



10 602...

Ø mm	10 602...		Overall length mm	Flute length mm
3	220		50	20
3.2	224		56	25
3.5	230		56	25
4	240		56	25
4.2	244		63	28
4.5	250		63	28
5	260		63	28
5.5	270		71	32
6	280		71	32
6.5	290		71	32
7	300		80	40
7.5	310		80	40
8	320		80	40

Ø mm	10 602...		Overall length mm	Flute length mm
8.5	330		90	50
9	340		90	50
9.5	350		90	50
10	360		100	56
10.5	366		100	56
11	380		100	56
11.5	386		112	63
12	400		112	63
13	420		112	63
14	440		125	71
15	460		125	71
16	480		140	80

10 652 Sintered carbide masonry drill bit



cold-forged and ground, with tip made of sintered carbide, suitable for drilling **concrete, masonry, natural and cast stone** and similar building products, for use in electric hammer and rotary drills.



10 652...

Ø mm	10 652...		Overall length mm	Spiral length mm	Shank Ø mm
4	240		75	40	4
5	260		85	50	5
5.5	270		85	50	5.5
6	280		100	60	6
6.5	290		100	60	6.5
7	300		100	60	7
8	320		120	80	8
9	340		120	80	9

Ø mm	10 652...		Overall length mm	Spiral length mm	Shank Ø mm
10	360		120	80	10
12	400		150	90	10
13	420		160	100	10
14	440		160	100	10
15	460		160	100	10
16	480		160	100	10
18	520		160	100	10
20	560		160	100	13

10 653 Sintered carbide masonry drill bit set



Set of **No. 10 652...** bits, in metal box.



10 653 700

Bit Ø mm	10 653...		Number of drill bits
4 - 5 - 6 - 6 - 8 - 10 - 12	700		7



10 654 Sintered carbide masonry drill bit

Primat®


 Typ
HM


10 654...

rolled, with tip made of sintered carbide, suitable for drilling in **concrete, masonry, natural and cast stone**, for use in electric drills and impact drills.

Ø mm	10 654...		Overall length mm	Spiral length mm	Shank Ø mm	PU
4	240		75	40	4	10
5	260		85	50	5	10
6	280		100	60	6	10
7	300		100	60	7	10
8	320		120	80	8	10
9	340		120	80	9	1
10	360		120	80	10	1
12	400		150	90	10	1
14	440		150	90	10	1
16	480		150	90	10	1

10 656 Sintered carbide masonry drill bit, long

Primat®


 Typ
HM


10 656...

cold-forged and ground, with tip made of sintered carbide, suitable for drilling **concrete, masonry, natural and cast stone** and similar building products, for use in hammer and rotary drills.

Ø mm	10 656...		Overall length mm	Spiral length mm	Shank Ø mm
6	280		150	110	6
8	320		200	135	8

Ø mm	10 656...		Overall length mm	Spiral length mm	Shank Ø mm
10	360		200	135	10
12	400		200	135	10

10 657 Sintered carbide multipurpose drill bit

Primat®


 Typ
HM


10 657...

with sharp ground sintered carbide cutting edge and **special multipurpose cutting angle** for immediate centring on hard surfaces, these drill bits perform much better than conventional hammer drill bits, for rotary use only, **suitable for tiles** (up to scratch hardness 6), **ceramic, marble, Eternit, aerated concrete, vertically perforated bricks, light-weight building materials, plastics, etc.**

Ø mm	10 657...		Overall length mm	Spiral length mm	Shank Ø mm
4	240		85	50	3.8
5	260		85	50	4.6
6	280		100	60	5.5

Ø mm	10 657...		Overall length mm	Spiral length mm	Shank Ø mm
8	320		120	80	7.5
10	360		120	80	9
12	400		150	90	9.5



10 660 Sintered carbide SDS hammer drill bit

Primat



quadruple flute helix for optimum drilling dust transport, aggressive head geometry for optimum force transfer and fast drilling progress, tough, sharp sintered carbide, maximum stability through core reinforcement, size 12 mm upwards with centring tip for precise point spot drilling and precise guidance

Use: in rotary hammer drills with SDS plus tool holder and 2 slot tool holder TE 10-22, suitable for concrete, masonry, natural stone



10 660 010 - ...180



10 660 221 - ...527

size Ø 12 mm upwards with centring tip

Ø mm	10 660...		Overall length mm	Working length mm
4.0	010		110	50
4.0	011		160	100
5.0	030		110	50
5.0	031		160	100
5.0	032		210	150
5.5	051		160	100
6.0	070		110	50
6.0	071		160	100
6.0	073		260	200
7.0	111		160	100
8.0	130		110	50
8.0	131		160	100
8.0	132		210	150
8.0	133		260	200
8.0	136		410	350
8.0	140		610	550
9.0	152		210	150
10.0	170		110	50
10.0	171		160	100
10.0	172		210	150
10.0	173		260	200
10.0	174		310	250
10.0	177		460	400
10.0	180		610	550
12.0	221		160	100
12.0	222		210	150
12.0	223		260	200
12.0	225		360	300
12.0	227		460	400

Ø mm	10 660...		Overall length mm	Working length mm
12.0	230		610	550
13.0	251		160	100
14.0	271		160	100
14.0	273		260	200
14.0	277		460	400
14.0	280		610	550
15.0	301		160	100
15.0	303		260	200
16.0	322		210	150
16.0	324		310	250
16.0	327		460	400
16.0	330		610	550
18.0	372		200	150
18.0	374		300	250
18.0	377		450	400
18.0	380		600	550
20.0	422		200	150
20.0	424		300	250
20.0	427		450	400
20.0	430		600	550
22.0	453		250	200
22.0	454		300	250
22.0	457		450	400
22.0	460		600	550
24.0	483		250	200
24.0	487		450	400
25.0	503		250	200
25.0	507		450	400
26.0	527		450	400

10 663 Sintered carbide SDS hammer drill bit set

Primat



tried and tested set composition of the HM drill bits No. 10 660..., in metal box, 7-piece.

Set contents	Ø d1 mm	Length mm	10 663...	
1 x	5	110	010	
1 x	6	110		
1 x	6	160		
2 x	8	160		
1 x	10	160		
1 x	12	160		



10 663...

10 666 Sintered carbide hammer drill bit

Primat

Typ
HMSDS
max

10 666...

with impact resistant tool tip made of sintered carbide, **strengthened shank of 18 mm Ø** in drive and guide slot for heavy rotary hammer drills, suitable for drilling in **concrete, masonry, natural and cast stone**, drill bits size 16 mm Ø upwards have a **4 cutting edge head**, which ensures better centring and achieves double drilling performance, the optimised spiral flute ensures perfect removal of the drilling dust.

Ø mm	10 666...		Overall length mm	Working length mm
12	123		340	200
12	125		540	400
14	143		340	200
14	145		540	400
16	163		340	200
16	165		540	400
18	183		340	200
18	185		540	400
20	203		320	200
20	205		520	400
22	223		320	200
22	225		520	400
22	229		920	800
24	245		520	400

Ø mm	10 666...		Overall length mm	Working length mm
25	253		320	200
25	255		520	400
28	283		370	250
28	285		570	450
30	303		370	250
30	305		570	450
32	323		370	250
32	325		570	450
35	363		370	250
35	365		570	450
38	383		370	250
38	385		570	450

10 672 Sintered carbide impact core drill bits

Typ
HM

without shank and centre drill, with tool tips made of sintered carbide, **with M 16 internal thread**, suitable for drilling large holes and openings using drill hammers in **concrete, masonry**, max. drilling depth for all sizes is 55 mm.

Ø mm	10 672...		Number of teeth
45	145		6
50	150		6
68	165		6
82	180		6
90	190		6



10 672...

10 676 Multipurpose hole saw

Typ
HM

for wood, tiles, plastic, masonry, lightweight building materials, with carbide metal cutting edges, without shank and centre drill. Use: In drills with hexagon shaft or in rotary hammer drills with SDS-plus shank, for rotary use only, switch off drill and/or hammer operation. Machine power required:
 <= Ø 50 mm min. **400 W**, >= Ø 50 mm min. **600 W**,
 max. drilling depth: 60 mm.

Ø mm	10 676...		Number of teeth	Examples of use
30	130		3	Sanitary and heating pipes, Water and heating pipes, including with insulation sleeve Switch boxes, 60 mm Ø Cavity wall boxes, 68 mm Ø
40	140		3	
50	150		3	
63	163		5	
68	168		5	
74	174		5	Tapping boxes, 74 mm Ø Splitting boxes, 80 mm Ø Exhaust air pipes
80	180		5	
105	190		6	



10 676...



10 682 Tool holder shanks

without centre drill bit for HM impact core drill bits No. 10672, multipurpose hole saws, No. 10676.

Shank	10 682...		Length mm
hexagon SW 11	010		78
hexagon SW 11	020		220
SDS-Plus	030		105
SDS-Plus	040		220



10 682 020



10 682 040

10 684 Centre drill bits



10 684...

for core drill bits, hole saws and diamond box sinker.

Ø mm	10 684...		Length mm	Cutters	Insert for
8.0	010		120	HM	No. 10672
8.0	012		120	HM	No. 10676
7.2	022		109	HSS	No. 10676

10 702 "Marchner System" circular cutter

stable and versatile tool for cutting out holes in sheet metals, composites and plastics. The LILIPUT type tool consists of a middle piece, crossbar and blade, the two larger types 00 and 00a also include an exchangeable blade holder for different blade shapes. All circular cutters are easy to handle and ensure trouble-free working for every user.

Use: Cutting out holes and discs with Ø 18 mm – 400 mm.
Advantages: Penetration depths in metal up to 5 mm (LILIPUT and Type 00) and 12 mm (Type 00a). Loss-free cutting of elastic materials using the appropriate blades. (HSS/E, HSS/E TiN coated, sintered carbide soldered).



10 702 010



10 702 030 - 050



10 702 060

Size	10 702...		Cut-out range mm	Shank type
Liliput	010		18 - 80	10 mm parallel
00	030		30 - 200	12 mm parallel
00	040		30 - 200	MK 2
00	050		30 - 200	MK 3
00a	060		30 - 400	MK 3

10 703 Spare parts for circular cutter

	10 703...	
For Liliput circular cutter		
Crossbar with 2 blade holders (one inclined for blade type 122 with draw-type cut and one straight for blades type 2 & 3)	015	
Centre drill bit 5 mm Ø	017	
For circular cutter "00"		
Middle piece complete with twist drill bit with parallel shank 12 mm	031	
Middle piece complete with twist drill bit with parallel MK 2 shank	032	
Middle piece complete with twist drill bit with parallel MK 3 shank	033	
Crossbar	035	
Centre drill bit 6 mm Ø	037	
Steel holder for draw-type cut No. 422-00 for circular cutter 00	041	
Steel holder No. 560-00 for circular cutter 00	043	
Steel holder No. 700-00 for circular cutter 00	045	
Steel holder No. 422 - 00a for circular cutter 00a	071	
Steel holder No. 560 - 00a for circular cutter 00a	073	
Steel holder No. 700 - 00a for circular cutter 00a	075	
Steel holder No. 800 - 00a for circular cutter 00a	077	

10 705 Blades for circular cutter

Intended use	Type	10 705...		Type	suitable for size
Soft plastics, soft PVC, rubber, leather, Plexiglas, sealants	2	012		HSS-E	Liliput
Rigid plastics, rigid PVC, polyamide, moulding compounds, Pertinax, Novotex, Eternit, acrylic glass (Plexiglas)	3	013		HSS-E	Liliput
Rigid plastics, rigid PVC, polyamide, moulding compounds, composites such as Pertinax, Novotex, Eternit	3	023		HSS-E-TiN	Liliput
Rigid plastics, rigid PVC, polyamide, moulding compounds, composites such as Pertinax, Novotex, Eternit, glass reinforced plastics, acrylic glass (Plexiglas)	3	028		HM	Liliput
Sheet stainless steel V2A (conditionally V4A also), sheet aluminium (hard)	122	010		HSS-E	Liliput
Sheet steel > 850 N/mm ² , sheet stainless steel V2A (conditionally VA4 too), sheet aluminium (hard)	122	020		HSS-E-TiN	Liliput
Sheet steel < 850 N/mm ² , sheet stainless steel V2A (conditionally VA4 too), 850 Sheet aluminium (hard), sheet brass	122	025		HM	Liliput
Soft plastics, soft PVC, rubber, leather, Plexiglas, sealants	5	032		HSS-E	00 + 00a
Rigid plastics, rigid PVC, polyamide, moulding compounds, Pertinax, Novotex, Eternit, acrylic glass (Plexiglas)	6	034		HSS-E	00 + 00a
Rigid plastics, rigid PVC, polyamide, moulding compounds, Pertinax, Novotex, Eternit, acrylic glass (Plexiglas)	6	044		HSS-E-TiN	00 + 00a
Rigid plastics, rigid PVC, polyamide, moulding compounds, Pertinax, Novotex, Eternit, acrylic glass (Plexiglas)	6	054		HM	00 + 00a
Moulding compounds, composites as above; however, for robust working methods, glass reinforced plastics and related plastics, acrylic glass (Plexiglas)	7	056		HM	00 + 00a
Sheet steel over 5 mm thick with circular cutter 00a only, Ø range from 34..150 mm	8	038		HSS-E	00a
Sheet steel over 5 mm thick with circular cutter 00a only, Ø range from 34..150 mm	8	048		HSS-E-TiN	00a
Sheet steel over 5 mm thick with circular cutter 00a only, Ø range from 34..150 mm	8	058		HM	00a
Sheet steel < 850 N/mm ² , sheet stainless steel V2A (conditionally VA4 too), sheet aluminium (hard)	422	030		HSS-E	00 + 00a
Sheet steel < 850 N/mm ² , sheet stainless steel V2A (conditionally VA4 too), sheet aluminium (hard)	422	040		HSS-E-TiN	00 + 00a
Sheet steel < 850 N/mm ² , sheet stainless steel V2A (conditionally VA4 too), sheet aluminium (hard)	422	050		HM	00 + 00a

Type 122



10 705 010
020
025

Type 2



10 705 012

Type 3



10 705 013
023
028

Type 422



10 705 030
040
050

Typ 5



10 705 032

Typ 6



10 705 034
044
054

Typ 8



10 705 038
048
058

Typ 7



10 705 056

11 101 Countersink bit, single point



tapering to a point, for **chatter free countersinking** and deburring

Nominal Ø mm	11 101...		Overall length mm	Shank Ø mm
6	210		40	6
8	320		45	8
12	400		48	8
16	480		50	10
P	10 - 25		0.05 - 0.15	
M	5 - 12		0.03 - 0.1	
K	10 - 25		0.05 - 0.15	
NE	25 - 60		0.06 - 0.2	
H	-		-	
S	-		-	

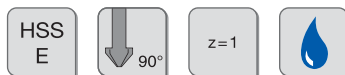
Wodex



11 101...

Nominal Ø mm	11 101...		Overall length mm	Shank Ø mm
20	560		55	10
25	640		68	12
30	690		70	12
P	10 - 25		0.05 - 0.15	
M	5 - 12		0.03 - 0.1	
K	10 - 25		0.05 - 0.15	
NE	25 - 60		0.06 - 0.2	
H	-		-	
S	-		-	

11 105 Deburring countersink bit



the distinguishing features of these tools are their **chatter free operation** and the **high surface quality** they produce, very good chip removal

Counter-sink Ø mm	For drillholes mm	11 105...		Overall length mm	Shank Ø mm
10	2 - 5	360		45	6
14	5 - 10	440		56	6
21	10 - 15	580		71	10
P		10 - 25		0.05 - 0.15	
M		5 - 12		0.03 - 0.1	
K		10 - 25		0.05 - 0.15	
NE		25 - 60		0.06 - 0.2	
H		-		-	
S		-		-	

Wodex



11 105...

Counter-sink Ø mm	For drillholes mm	11 105...		Overall length mm	Shank Ø mm
28	15 - 20	670		90	12
35	20 - 25	725		112	15
P		10 - 25		0.05 - 0.15	
M		5 - 12		0.03 - 0.1	
K		10 - 25		0.05 - 0.15	
NE		25 - 60		0.06 - 0.2	
H		-		-	
S		-		-	

11 110 Countersink bit



radially relieved, **tool mark, channel and chatter-free operation**, good centring and chip removal, for deburring and countersinking drillholes

Nominal Ø mm	11 110...		small Ø mm	Overall length mm	Shank Ø mm
4.3	246		1.3	40	4
5	260		1.5	40	4
5.3	266		1.5	40	4
5.8	276		1.5	45	5
6	280		1.5	45	5
6.3	286		1.5	45	5
7	300		1.8	50	6
7.3	306		1.8	50	6
8	320		2	50	6
8.3	326		2	50	6
9.4	348		2.2	50	6
10	360		2.5	50	6
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

Wodex



11 110...

Nominal Ø mm	11 110...		small Ø mm	Overall length mm	Shank Ø mm
10.4	365		2.5	50	6
11.5	386		2.8	56	8
12.4	405		2.8	56	8
13.4	425		2.9	56	8
15	460		3.2	60	10
16.5	486		3.2	60	10
19	540		3.5	63	10
20.5	566		3.5	63	10
23	620		3.8	67	10
25	640		3.8	67	10
28	670		4	71	12
31	700		4.2	71	12
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

11 110 Countersink bit sets, 90° HSS



Type as 11 110..., in wooden box

Wodex®



11 110 912

11 110 917



Size	11 110...		Contents	pcs
1	912		1 each countersink bit size 5.3 - 5.8 - 6.3 - 7.3 - 8.3 - 9.4 - 10.4 12.4 - 13.4 - 16.5 - 20.5 - 25 mm Ø	12
2	917		1 each countersink bit size 4.3 - 5 - 6 - 6.3 - 7 - 8 - 8.3 - 10 - 10.4 - 11.5 - 12.4 - 15 - 16.5 - 19 - 20.5 - 23 - 25 mm Ø	17

11 112 Countersink bit, long

Type as 11 110...,
however, with extended parallel shank

Wodex®



11 112...

Nominal Ø	11 112...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
10.4	365		2.5	112	8
12.4	405		2.8	113	8
16.5	486		3.2	115	10
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.03 - 0.1	
NE	25 - 60			0.05 - 0.15	
H	-			-	
S	-			-	

Nominal Ø	11 112...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
20.5	566		3.5	119	10
25.0	640		3.8	122	10

P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.03 - 0.1	
NE	25 - 60			0.05 - 0.15	
H	-			-	
S	-			-	

11 115 Countersink bit

radially relieved, tool mark, channel and chatter-free operation,
good centring and chip removal, for deburring and countersinking
drillholes, highly wear-resistant, for higher cutting speeds and shorter
production times with improved tool lives

Wodex®



11 115...

Nominal Ø	11 115...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
6.3	286		1.5	45	5
7.3	306		1.8	50	6
8.3	326		2	50	6
10.4	365		2.5	50	6
12.4	405		2.8	56	8
P	15 - 30			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	12 - 25			0.05 - 0.15	
NE	30 - 80			0.06 - 0.2	
H	-			-	
S	-			-	

Nominal Ø	11 115...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
15	460		3.2	60	10
16.5	486		3.2	60	10
20.5	566		3.5	63	10
25	640		3.8	67	10
31	700		4.2	71	12
P	15 - 30			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	12 - 25			0.05 - 0.15	
NE	30 - 80			0.06 - 0.2	
H	-			-	
S	-			-	

11 118 Countersink bit sets

Wodex



Contents pcs	Quality	Ø mm	11 118...		Case
5	HSS	6.3 - 10.4 - 16.5 - 20.5 - 25	102		Plastic
5	HSS - TiN	6.3 - 10.4 - 16.5 - 20.5 - 25	104		Plastic
6	HSS	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5	106		Metal
6	HSS - TiN	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5	108		Metal



11 118 008

CUTTING TOOLS

1

11 122 Countersink bit

Wodex



radially relieved, tool mark, channel and chatter-free operation, good centring and chip removal, for deburring and countersinking drill-holes, highly wear-resistant, **for machining very high strength steels, stainless steels and non-ferrous metals**, cutting speeds: 30 m/min – 45 m/min



11 122...

Nominal Ø	11 122...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
6.3	286		1.5	45	5
8.3	326		2	50	6
10.4	365		2.5	50	6
12.4	405		2.8	56	8
P	20 - 45		0.05 - 0.15		
M	20 - 45		0.03 - 0.1		
K	12 - 25		0.05 - 0.15		
NE	30 - 80		0.06 - 0.2		
H	-		-		
S	-		-		

Nominal Ø	11 122...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
16.5	486		3.2	60	10
20.5	566		3.5	63	10
25	640		3.8	67	10
31	700		4.2	71	12
P	20 - 45		0.05 - 0.15		
M	20 - 45		0.03 - 0.1		
K	12 - 25		0.05 - 0.15		
NE	30 - 80		0.06 - 0.2		
H	-		-		
S	-		-		

11 126 ASP countersink

Wodex



radially relieved, **for VA steels**, for deburring and countersinking drillholes

ideal for VA



11 126...

Nominal Ø	11 126...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
6.3	286		1.5	45	5
10.4	365		2.5	50	6
16.5	486		3.2	60	10
P	15 - 30		0.05 - 0.15		
M	5 - 12		0.03 - 0.1		
K	10 - 25		0.05 - 0.15		
NE	25 - 60		0.06 - 0.2		
H	-		-		
S	-		-		

Nominal Ø	11 126...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
20.5	566		3.5	63	10
25	640		3.8	67	10
P	15 - 30		0.05 - 0.15		
M	5 - 12		0.03 - 0.1		
K	10 - 25		0.05 - 0.15		
NE	25 - 60		0.06 - 0.2		
H	-		-		
S	-		-		



11 130 Countersink bit



radially relieved

Wodex®



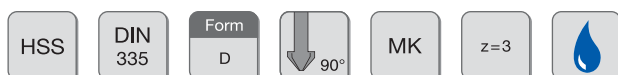
11 130...

Nominal Ø	11 130...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
8.3	320		2.0	45	6
10.4	365		2.5	46	8
12.4	405		2.8	56	8
16.5	486		3.2	60	10
P	-		-	-	-
M	-		-	-	-
K	-		-	-	-
NE	-		-	-	-
H	2 - 12			0.03 - 0.1	
S	2 - 12			0.03 - 0.1	

Nominal Ø	11 130...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
20.5	566		3.5	63	10
25	640		3.8	67	10
31	700		4.2	71	12

P	-		-
M	-		-
K	-		-
NE	-		-
H	2 - 12		0.03 - 0.1
S	2 - 12		0.03 - 0.1

11 140 Countersink bit



radially relieved. for chatter-free countersinking for countersunk screws and for countersinking and deburring

Wodex®



11 140...

Nominal Ø	11 140...		small Ø	Overall length	Morse taper
mm			mm	mm	
16.5	486		3.2	85	1
20.5	566		3.5	100	2
25	640		3.8	106	2
30	690		4.2	112	2
31	700		4.2	112	2
34	720		4.5	118	2
P	10 - 25			0.07 - 0.25	
M	5 - 12			0.02 - 0.1	
K	10 - 25			0.1 - 0.3	
NE	25 - 60			0.15 - 0.35	
H	-			-	
S	-			-	

Nominal Ø	11 140...		small Ø	Overall length	Morse taper
mm			mm	mm	
37	735		4.8	118	2
40	750		10	140	3
50	800		14	150	3
63	856		16	180	4
80	890		22	190	4

P	10 - 25		0.07 - 0.25
M	5 - 12		0.02 - 0.1
K	10 - 25		0.1 - 0.3
NE	25 - 60		0.15 - 0.35
H	-		-
S	-		-

11 143 Countersink bit

Type as 11 140..., however, **TiN** coated, for higher cutting speeds and shorter production times with improved tool life

Wodex®

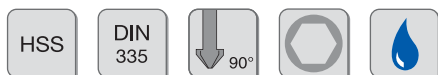


11 143...

Nominal Ø	11 143...		small Ø	Overall length	Morse taper
mm			mm	mm	
25	640		3.8	106	2
31	700		4.2	112	2
37	735		4.8	118	2
P	15 - 30			0.1 - 0.3	
M	5 - 12			0.06 - 0.2	
K	12 - 25			0.1 - 0.3	
NE	30 - 80			0.32 - 0.4	
H	-			-	
S	-			-	

Nominal Ø	11 143...		small Ø	Overall length	Morse taper
mm			mm	mm	
40	750		10	140	3
50	800		14	150	3
63	856		16	180	4
P	15 - 30			0.1 - 0.3	
M	5 - 12			0.06 - 0.2	
K	12 - 25			0.1 - 0.3	
NE	30 - 80			0.32 - 0.4	
H	-			-	
S	-			-	

11 160 Countersink bit



axially and radially relieved, with 6.3 mm bit holder, for direct insertion in electric or cordless screwdrivers, no slipping through when clamped in the drill chuck, can be used in conjunction with bit holder as hand deburrer, suitable for metal and plastic machining

Wodex®

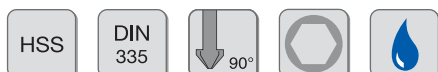


11 160...

Nominal Ø	11 160...		small Ø	Overall length
mm			mm	mm
6.3	286		1.5	31
8.3	326		2	31
10.4	365		2.5	34

Nominal Ø	11 160...		small Ø	Overall length
mm			mm	mm
12.4	405		2.8	35
16.5	486		3.2	40
20.5	566		3.5	41

11 160 Countersink bit set, 90° HSS



Type as 11 160..., in metal case, 9-piece

- 6 countersink bits
- Handle with 1/2" hexagon socket
- Universal holder
- 1 can of drilling paste

Wodex®



11 160 906

Contents pcs	Ø mm	11 160...	
6	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5	906	

11 165 Hand deburrer



Wodex®



11 165...

Nominal Ø	11 165...		small Ø	Overall length
mm			mm	mm
12.4	405		2.8	123
16.5	486		3.2	138

Nominal Ø	11 165...		small Ø	Overall length
mm			mm	mm
20.5	566		3.5	143
25	640		3.8	143

11 170 Countersink bit



Wodex®



11 170...

radially relieved, for chatter-free countersinking and deburring

Nominal Ø	11 170...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
6.3	286		1.6	45	5
8	320		2	50	6
12.5	406		3.2	56	8
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.02 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

Nominal Ø	11 170...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
16	480		4	63	10
20	560		5	67	10
25	640		6.3	71	10
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.02 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

TiN Type - see Product 11 173... on page 88

11 173 Countersink bit



Type as 11 170..., however, **TiN** surface coating, highly wear-resistant, for higher cutting speeds and shorter production times with improved tool life

Wodex®



11 173...

Nominal Ø	11 173...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
6.3	286		1.6	45	5
8	320		2	50	6
10	360		2.5	50	6
12.5	406		3.2	56	8
P	15 - 30			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	12 - 25			0.05 - 0.15	
NE	30 - 80			0.06 - 0.2	
H	-			-	
S	-			-	

Nominal Ø	11 173...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
16	480		4	63	10
20	560		5	67	10
25	640		6.3	71	10
P	15 - 30			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	12 - 25			0.05 - 0.15	
NE	30 - 80			0.06 - 0.2	
H	-			-	
S	-			-	

11 200 Countersink bit



radially relieved, for chatter-free countersinking and deburring

Wodex®



11 200...

Nominal Ø	11 200...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
10.4	365		2.5	51	6
12.4	405		3	55	8
16.5	486		3.5	61	10
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

Nominal Ø	11 200...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
20.5	566		4	65	10
25	640		5	69	10
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

11 220 Countersink bit



radially relieved, for chatter-free countersinking and deburring

Wodex®



11 220...

Nominal Ø	11 220...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
10.4	365		2.5	50	6
12.4	405		3	53	8
16.5	480		3.5	53	10
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

Nominal Ø	11 220...		small Ø	Overall length	Shank Ø
mm			mm	mm	mm
20.5	566		4	59	10
25	640		5	61	10
P	10 - 25			0.05 - 0.15	
M	5 - 12			0.03 - 0.1	
K	10 - 25			0.05 - 0.15	
NE	25 - 60			0.06 - 0.2	
H	-			-	
S	-			-	

11 712 Counterbore bit



Wodex®



11 712...

with parallel shank and fixed pilot, for countersinks according to DIN 74 Sheet 2, Form H, J, K, **fine grade for through hole**, form H for cheese head screws according to DIN 84, for cheese head self-tapping screws according to DIN 7513, for cheese head screws according to DIN 7984, form J for cheese head screws according to DIN 6912, form K for cheese head screws according to DIN 912

11 713 Counterbore bit

Type as 11 712..., however, additional **TiN** surface coating, highly wear-resistant, for higher cutting speeds and shorter production times with improved tool lives

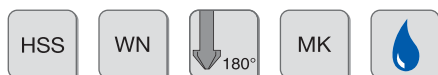
Wodex®



11 713...

For screws	11 712...		Countersink Ø	Pilot Ø	11 713... TiN		Countersink Ø	Pilot Ø	Overall length	Shank Ø
M			mm	mm			mm	mm	mm	mm
3	130		6	3.2	130		6	3.2	71	5
4	160		8	4.3	160		8	4.3	71	5
5	190		10	5.3	190		10	5.3	80	8
6	210		11	6.4	210		11	6.4	80	8
8	240		15	8.4	240		15	8.4	100	12.5
10	280		18	10.5	280		18	10.5	100	12.5
12	330		20	13	330		20	13	100	12.5
P	10 - 25	0.05 - 0.15			10 - 30	0.1 - 0.3				
M	5 - 12	0.03 - 0.1			5 - 12	0.03 - 0.1				
K	10 - 25	0.05 - 0.15			10 - 30	0.07 - 0.16				
NE	25 - 60	0.06 - 0.2			25 - 60	0.08 - 0.2				
H	-	-			-	-				
S	-	-			-	-				

11 717 Counterbore bit



Wodex®



11 717...

Type as 11 712... however, with Morse taper

For screws	11 717...		Overall length	Morse taper	Countersink Ø	Pilot Ø
M			mm		mm	mm
10	280		150	2	18	10.5
12	330		150	2	20	13
14	360		160	2	24	15
16	410		190	3	26	17
P	10 - 25		0.05 - 0.2			
M	5 - 12		0.03 - 0.1			
K	10 - 25		0.12 - 0.25			
NE	25 - 60		0.1 - 0.25			
H	-		-			
S	-		-			

11 722 Counterbore bit

with parallel shank and fixed pilot, for countersinks according to DIN 74 Sheet 2, Form H, J, K, **medium grade for through hole**, form H for cheese head screws according to DIN 84, for cheese head self-tapping screws according to DIN 7513, for cheese head screws according to DIN 7984, form J for cheese head screws according to DIN 6912, form K for cheese head screws according to DIN 912

Wodex®

11 722...

11 723 Counterbore bit

Type as 11 722..., however, with **TiN surface coating**, highly wear-resistant, for higher cutting speeds and shorter production times with improved tool lives

Wodex®

11 723...

For screws	11 722...		11 723... TiN		Overall length	Shank Ø	Countersink Ø	Pilot Ø
M					mm	mm	mm	mm
3	130		130		71	5	6	3.4
4	160		160		71	5	8	4.5
5	190		190		80	8	10	5.5
6	210		210		80	8	11	6.6
8	240		240		100	12.5	15	9
10	280		280		100	12.5	18	11
12	330		330		100	12.5	20	13.5
P	10 - 25	0.05 - 0.15	10 - 30	0.1 - 0.3				
M	5 - 12	0.03 - 0.1	5 - 12	0.03 - 0.1				
K	10 - 25	0.05 - 0.15	10 - 30	0.07 - 0.16				
NE	25 - 60	0.06 - 0.2	25 - 60	0.08 - 0.2				
H	-	-	-	-				
S	-	-	-	-				

11 727 Counterbore bit

Type as 11 722... however, with Morse taper, DIN 912

Wodex®

11 727...

For screws	11 727...		Overall length	Morse taper	Countersink Ø	Pilot Ø
M			mm		mm	mm
10	280		150	2	18	11
12	330		150	2	20	13.5
14	360		160	2	24	13.5
16	410		190	3	26	17.5
20	460		190	3	33	22
24	520		205	3	40	26
P	10 - 15			0.05 - 0.2		
M	5 - 12			0.03 - 0.1		
K	10 - 25			0.12 - 0.25		
NE	25 - 60			0.1 - 0.25		
H	-			-		
S	-			-		



11 732 Counterbore bit

Wodex®



with parallel shank and fixed pilot, for tap hole, form H for cheese head screws according to DIN 84, for cheese head screws according to DIN 7913, for cheese head screws according to DIN 7984. Form J for cheese head screws according to DIN 6912, form K for cheese head screws according to DIN 912



11 732...

For screws	11 732...		Overall length	Shank Ø	Countersink Ø	Pilot Ø
M			mm	mm	mm	mm
3	130		71	5	6	2.5
4	160		71	5	8	3.3
5	190		80	8	10	4.2
6	210		80	8	11	5
8	240		100	12.5	15	6.8
10	280		100	12.5	18	8.5
12	330		100		20	10.2
P	10 - 25		0.05 - 0.15			
M	5 - 12		0.03 - 0.1			
K	10 - 25		0.05 - 0.15			
NE	25 - 60		0.06 - 0.02			
H	-		-			
S	-		-			

11 742 Counterbore bit sets

Wodex®



with parallel shank and fixed pilot, for countersinks according to DIN 74 Sheet 2, form H, J, K, in metal case

11 742 008



11 742 012

Contents Qty	11 742...		Size	Hole type	Quality	Grade
6	004		M 3 - M 4 - M 5 - M 6 - M 8 - M 10	Through hole	HSS	fine
6	008		M 3 - M 4 - M 5 - M 6 - M 8 - M 10	Through hole	HSS	medium
6	012		M 3 - M 4 - M 5 - M 6 - M 8 - M 10	Tap hole	HSS	medium
6	024		M 3 - M 4 - M 5 - M 6 - M 8 - M 10	Through hole	HSS - TiN	fine
6	029		M 3 - M 4 - M 5 - M 6 - M 8 - M 10	Through hole	HSS - TiN	medium

11 742 024



11 803 Pipe deburrer



Machine type, with parallel shank, adjustable to different pipe diameters and wall thicknesses, right-hand cutting, internal and external 90° angle



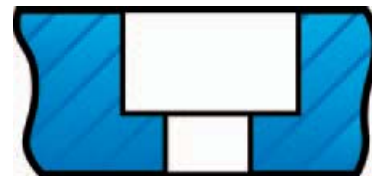
11 803...

Size	11 803...		Ø	Overall length	Shank Ø	For pipe external Ø	For pipe internal Ø
			mm	mm	mm	mm	mm
1	010		16	58	12.5	6 - 12	2 - 5.4
2	013		18	65	12.5	7 - 14	2.6 - 7.8
3	016		24	75	16	9 - 20	3.6 - 12.8
4	019		32	85	16	16 - 27	4.6 - 24



Combination tools

GRANLUND



Same design as the Granlund system, for countersinking and piloted counterboring, helps you to increase your productivity and cut your costs. Toolholders, counterbore bits, insert drill bits and pilots can be combined to satisfy all machine types and applications. The system consists of three sizes: 0, 1 and 2. Within each size, all tools can be combined with each other; combined insert drill bits with counterbore or countersink bits are suitable for through holes only and may not be used for blind holes. Choose the insert drill bit length so that it has already emerged from the workpiece before countersinking begins.

Tool selection by sizes



Size	B	BH	F	R	N	H	WHV	T	KV
0	4.2 - 7	5 - 6.8	4 - 6	6 - 14	7 - 24	10 - 24	18 - 19	8 - 16.5	20.5 - 25
1	6.5 - 12	6.5 - 12	6 - 7	7 - 24	10 - 38	12 - 38	20 - 33	11.5 - 30	26 - 30
2	11 - 25	11 - 21	10 - 30	10 - 50	16 - 85	18 - 75	34 - 75	20 - 85	32 - 60

Recommended tool selection by materials



Material	N	H	WHV	T	KV
Steel	•		•	•	•
Stainless steel	•			•	
Grey cast iron		•	•		•
Aluminium (soft)				•	
Aluminium (hard)			•		
Plastic, soft				•	
Plastic, rigid		•			
Copper	•			•	
Bronze/brass		•	•		•
Hardox			•		•

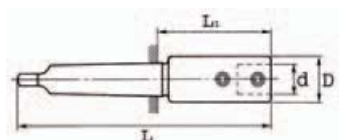
Guideline cutting/chip removal values for counterbore and countersink bits

Material	Strength N/mm ² Hardness HB	V m/min	Feed mm/rev	V m/min	Feed mm/rev	V m/min	Feed mm/rev	V m/min	Feed mm/rev
Tool type		N-NA-W		H-HA		WHV-KV*		T-TK	
		HSS		Sintered carbide		For indexable inserts		HSS	
Steel	450	20 - 40	0.1 - 0.5	60 - 130	0.1 - 0.6	75 - 130	0.1 - 0.6	15 - 30	0.05 - 0.3
Steel	600	15 - 30	0.1 - 0.4	50 - 110	0.1 - 0.5	65 - 120	0.1 - 0.5	10 - 25	0.05 - 0.3
Steel	1000	10 - 25	0.05 - 0.3	40 - 110	0.1 - 0.3	55 - 100	0.1 - 0.4	10 - 20	0.05 - 0.3
Steel	1000	5 - 20	0.05 - 0.3	30 - 90	0.1 - 0.2	45 - 90	0.1 - 0.4	5 - 15	0.05 - 0.3
Cast steel	800	10 - 25	0.05 - 0.3	30 - 90	0.1 - 0.3	45 - 90	0.1 - 0.4	5 - 15	0.05 - 0.3
Stainless steel		10 - 20	0.1 - 0.3	20 - 60	0.1 - 0.4	30 - 60	0.1 - 0.3	5 - 15	0.05 - 0.3
Grey cast iron	180 HB	20 - 40	0.2 - 0.5	60 - 120	0.2 - 0.5	80 - 120	0.2 - 0.5	10 - 25	0.05 - 0.3
Grey cast iron	200 HB	20 - 35	0.2 - 0.4	50 - 100	0.2 - 0.4	80 - 120	0.2 - 0.5	10 - 20	0.05 - 0.3
Grey cast iron	220 HB	10 - 30	0.1 - 0.4	40 - 100	0.2 - 0.4	70 - 110	0.1 - 0.4	5 - 15	0.05 - 0.3
Malleable cast iron	180 HB	20 - 40	0.1 - 0.4	60 - 120	0.2 - 0.5	80 - 120	0.1 - 0.5	15 - 25	0.05 - 0.3
Malleable cast iron	200 HB	15 - 35	0.1 - 0.4	50 - 110	0.2 - 0.5	75 - 110	0.1 - 0.5	10 - 20	0.05 - 0.3
Malleable cast iron	220 HB	10 - 30	0.1 - 0.4	40 - 100	0.2 - 0.5	60 - 110	0.1 - 0.4	5 - 15	0.05 - 0.3
Aluminium, soft		100 - 400	0.05 - 0.5	100 - 350	0.1 - 0.8	80 - 150	0.2 - 0.1	20 - 50	0.05 - 0.3
Aluminium, hard		100 - 300	0.05 - 0.5	100 - 350	0.1 - 0.8	100 - 200	0.2 - 0.1	30 - 70	0.05 - 0.3
Cast aluminium		100 - 200	0.1 - 0.5	200 - 350	0.1 - 0.5	100 - 200	0.2 - 0.1	30 - 70	0.05 - 0.3
Bronze		30 - 60	0.1 - 0.5	50 - 150	0.1 - 0.8	80 - 150	0.1 - 0.5	20 - 40	0.05 - 0.3
Brass		40 - 80	0.1 - 0.4	50 - 150	0.1 - 0.4	80 - 200	0.2 - 0.6	20 - 60	0.05 - 0.3
Copper		30 - 60	0.1 - 0.4	50 - 150	0.1 - 0.4	50 - 120	0.2 - 0.4	20 - 50	0.05 - 0.3
Hardox 400						*40	0.1 - 0.2		
Hardox 500						*30	0.1 - 0.2		
Plastic, soft		50 - 100	0.1 - 0.5					40 - 80	0.05 - 0.3
Plastic, rigid				70 - 200	0.1 - 0.5				
Wood, type		200 - 400	0.2 - 0.8	300 - 600	0.2 - 0.8	90 - 200	0.2 - 0.5	150 - 200	0.2 - 0.7

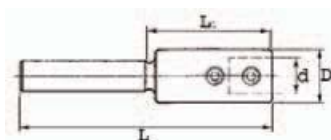
* Guideline cutting/chip removal values for type KV=0.7xGuideline value for WHV

11 818 Toolholder size 0

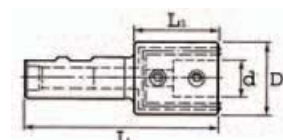
Shank socket adapter	11 818...		D	d	L	L1
			mm	mm	mm	mm
MK 2	001		18	10	132	57
10	003		18	10	92	42
W 16	005		18	10	80	28



11 818 001



11 818 003



11 818 005



11 820 Insert drill bit HSS CO Size 0

Cutting edge length 15 mm

Ø mm	11 820...	
5	005	
6	010	
6.5	012	
7	015	



11 820...

11 822 Pilot F Size 0

Fixed

Ø mm	11 822...	
4	001	
5.8	004	



11 822...

11 824 Pilot R Size 0

Rotating

Ø mm	11 824...	
6	001	
7	004	
8	007	
9	010	
10	013	
11	016	
12	019	
13	022	
14	025	



11 824...

11 826 HSS counterbore bit Size 0

Type N

Ø mm	11 826...	
7.0	001	
8.0	004	
9.0	007	
10.0	010	
11.0	013	
12.0	016	
13.0	019	
14.0	022	
15.0	025	
16.0	028	
17.0	031	
18.0	034	
19.0	037	
20.0	040	



11 826...

11 828 HM counterbore bit Size 0

Type H, Sintered carbide K 10 fine grain

Ø mm	11 828...	
10	001	
11	004	
12	007	
13	010	
14	013	
15	016	
16	019	
17	022	
18	025	
19	028	
20	031	



11 828...

11 830 90° countersink bit Size 0 Type KV

for indexable inserts, countersinks/counterbore should only be used in combination with "R" pilots. Indexable inserts No. 11 888 007

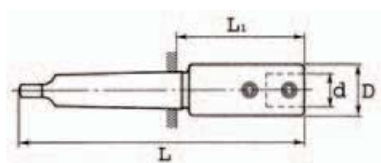
Ø mm	11 830...	
25	001	



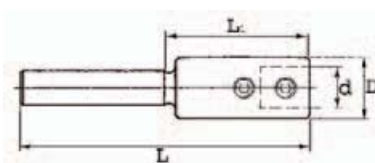
11 830...

11 835 Toolholder Size 1

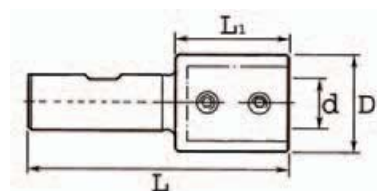
Shank socket adapter	11 835...		D mm	d mm	L mm	L1 mm
MK 2	001		24	14	137	62
MK 3	004		24	14	160	66
10	007		24	14	110	55
12	010		24	14	120	55
20	013		24	14	110	55



11 835 001 - ...004



11 835 007 - ...010



11 835 013

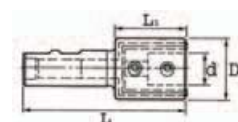
11 836 Toolholder Size 1

with internal cooling

Shank socket adapter	11 836...		D mm	d mm	L mm	L1 mm
25	001		36	14	105	40



11 836 001



11 838 Insert drill bit HSS CO Size 1

Cutting edge length 25 mm

Ø mm	11 838...	
7	001	
8	004	
9	007	
10	010	
11	013	
12	016	



11 838...

11 840 VHM insert drill bit Size 1

Solid carbide, K20 fine grain, cutting edge length 25 mm

Ø mm	11 840...	
7	001	
8	004	
9	007	
10	010	
11	013	
12	016	



11 840...

11 852 Pilot F Size 1

Fixed

Ø mm	11 852...	
6.0	001	
7.0	004	



11 852...

11 854 Pilot R Size 1

Rotating

Ø mm	11 854...	
7.0	001	
8.0	004	
9.0	007	
10.0	010	
11.0	013	
12.0	016	
13.0	019	
14.0	022	
15.0	025	
16.0	028	
17.0	031	
18.0	034	



11 854...

11 856 HSS counterbore bit Size 1

Type N

Ø mm	11 856...	
14.0	001	
15.0	004	
16.0	007	
17.0	010	
18.0	013	
19.0	016	
20.0	019	
21.0	022	
22.0	025	
23.0	028	
24.0	031	
25.0	034	
26.0	037	
27.0	040	
28.0	044	
29.0	047	
30.0	050	



11 856...

11 858 HM counterbore bit Size 1

Type H, Sintered carbide K 10 fine grain

Ø mm	11 858...	
14.0	001	
15.0	004	
16.0	007	
17.0	010	
18.0	013	
19.0	016	
20.0	019	
21.0	022	
23.0	028	
24.0	031	
25.0	034	
26.0	037	
27.0	040	
28.0	043	
29.0	046	
30.0	049	



11 858...

11 861 Counterbore bit Size 1 Type WHV

for indexable inserts

up to 25 mm diameter insert No. 11 888 001

from 26 mm diameter insert No. 11 888 004

Ø mm	11 861...	
20.0	001	
21.0	004	
22.0	007	
23.0	010	
24.0	013	
25.0	016	
26.0	019	
27.0	022	
28.0	025	
29.0	028	
30.0	031	
31.0	034	
32.0	037	



11 861...

11 863 90° countersink bit Size 1 Type KV

for indexable inserts, countersinks/counterbores should only be used in combination with "R" pilots. Indexable inserts No. 11 888 007

Ø mm	11 863...	
26.0	001	
30.0	004	



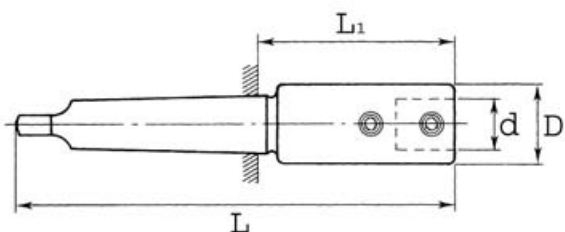
11 863...

11 868 Toolholder Size 2

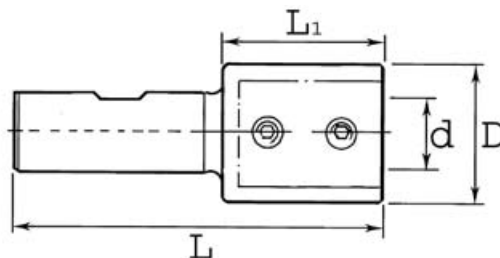
Shank socket adapter	11 868...		D mm	d mm	L mm	L1 mm
MK 3	001		36	22	180	87
MK 4	004		36	22	206	89
MK 5	007		36	22	240	91
20	010		36	22	105	45



11 868 001 - 11 868 007

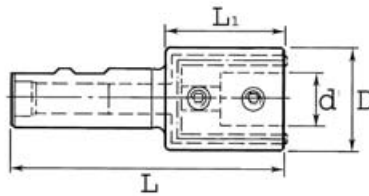


11 868 010



11 870 Toolholder Size 2

with internal cooling



11 870 001

Shank socket adapter	11 870...		D	d	L	L1
			mm	mm	mm	mm
25	001		44	22	115	40

11 872 CO insert drill bit Size 2

Cutting edge length 30 mm

Ø mm	11 872...	
11.0	001	
12.0	004	
13.0	007	
14.0	010	
15.0	013	
16.0	016	
17.0	019	
18.0	022	
19.0	025	
20.0	028	
21.0	031	
22.0	034	
23.0	037	
24.0	040	
25.0	043	



11 872...

11 875 Pilot R Size 2

Rotating

Ø mm	11 875...	
10.0	001	
11.0	004	
12.0	007	
13.0	010	
14.0	013	
15.0	016	
16.0	019	
17.0	022	
18.0	025	
19.0	028	
20.0	031	
21.0	034	
22.0	037	
23.0	040	
24.0	043	
25.0	046	
26.0	049	
27.0	052	
28.0	055	
29.0	058	
30.0	061	



11 875...

11 877 Counterbore bit Size 2

Type N

Ø mm	11 877...	
24	001	
25	004	
26	007	
27	010	
28	013	
29	016	
30	019	
31	022	
32	025	
33	028	
34	031	
35	034	
36	037	
37	040	
38	043	
39	046	
40	049	
41	052	
42	055	
43	058	
44	061	
45	064	
46	067	
47	070	
48	073	
49	076	
50	079	



11 877...

11 878 HM counterbore bit Size 2

Type H, Sintered carbide K 40 fine grain

Ø mm	11 878...	
18	001	
19	004	
20	007	
21	010	
22	013	
23	016	
24	019	
25	022	
26	025	
27	028	
28	031	
29	034	
30	037	
31	040	
32	043	
33	046	
34	049	
35	052	
36	055	
37	058	
38	061	
39	064	
40	067	
41	070	
42	073	
43	076	
44	079	
45	082	
46	085	
48	091	
50	097	



11 878...

11 880 Countersink bit for indexable inserts Size 2 Type KV

for indexable inserts, countersinks/counterbores should only be used in combination with R pilots. Countersink angle 90°

Countersink Ø mm	11 880...	
32	001	
38	004	
40	007	
50	010	
60	101	



11 880...

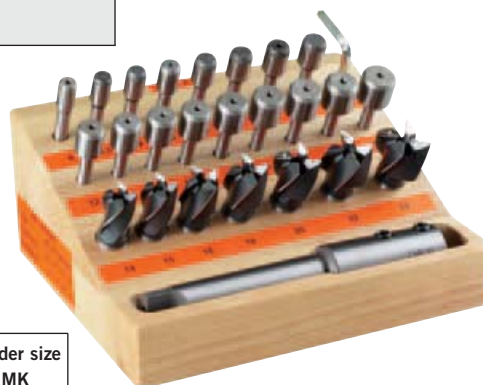
11 882 Countersink bit Size 2

Ø mm	Countersink angle	11 882...	
30	80°	001	
40	80°	004	
20	90°	101	
22	90°	104	
25	90°	107	
28	90°	110	
30	90°	113	
31	90°	116	
34	90°	119	
35	90°	122	
37	90°	125	
40	90°	128	
45	90°	131	
50	90°	134	



11 882...

11 885 Counterbore bit sets



11 885 004

* fixed pilots

Size mm	11 885...		Countersink Type N d mm	Pilot F d mm	Holder size MK
0	001		8; 9; 10; 11; 12; 13; 14; 15	0.5; 5.0; 5.5; 6.0; 6.5; 7.0; 7.5; 8.0; 8.5; 9.0; 10.0	2
1	004		14; 15; 16; 18; 20; 22; 24	8.0; 8.5; 9.0; 9.5; 10.0; 10.5; 11.0; 11.5; 12.0; 12.5; 13.0; 14.0; 14.5; 15.0; 15.5; 16.0	2
2	007		24; 26; 28; 30; 32; 33; 34; 38; 40	13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; 24; 25; 26	3

11 888 Sintered carbide indexable inserts

Sintered carbide quality HC P 40, suitable for countersink No. 11 830..., 11 861..., 11 863..., 11 880...



11 888...

Insert	Cutting edge length	11 888...	Radius	For tool type	
				WHV	KV
TPMT - 07T	07	001	0.4	18.0 - 25.0	> 20.0 - 26.0
TPMT - 10T	10	004	0.4	> 25.0 - 33.0	> 26.0 - 41.0
TPMT - 12T	12	007	0.8	> 34.0 - 45.0	-
TPMT - 17T	17	010	0.8	-	> 41.0 - 60.0

11 965 HSS push broaches

HSS

DIN
6885

for making keyways according to DIN 6885, can be used on hand presses and broaching machines, faster and more precise broaching operation with low setting up costs, specially ground teeth ensure clean surfaces, guide bushes and additional inserts enable precisely centred and dimensionally correct keyways, suitable for machining steel, cast iron, aluminium, brass, etc., the appropriate number of additional inserts for the number of strokes are included with the broaching tools (number of strokes 3 = 2 inserts)



11 965...

Keyway size mm	11 965...		For drillholes mm	Broach length mm	Overall length mm	Back width mm	Number of strokes
2 x 2	003		6 - 8	6 - 30	133	3.17	1
3 x 3	006		8 - 10	6 - 30	133	3.17	2
4 x 4	009		10 - 12	8 - 43	178	6.35	2
5 x 5	013		12 - 17	8 - 43	178	6.35	2
6 x 6	016		17 - 22	10 - 64	302	9.53	2
8 x 7	019		22 - 30	10 - 64	302	9.53	2
10 x 8	024		30 - 38	20 - 150	340	14.29	3
12 x 8	027		38 - 44	20 - 150	340	14.29	3
14 x 9	031		44 - 50	20 - 150	340	14.29	3
16 x 10	034		50 - 58	20 - 150	387	19.05	4
18 x 11	037		58 - 65	20 - 150	387	19.05	4

11 971 Guide bushes

for push broaches No. 11 965..., Size up to 30 mm diameter with collar from 32 mm without collar



11 971...

For drillhole length mm	11 971...		Overall length mm	For back width mm
6	106		32	3.17
8	108		32	3.17
9	109		32	3.17
10	110		32	3.17
11	211		46	6.35
12	212		46	6.35
14	214		46	6.35
15	215		46	6.35
16	216		46	6.35
17	217		46	6.35
18	218		46	6.35
17	317		65	9.53

For drillhole length mm	11 971...		Overall length mm	For back width mm
18	318		65	9.53
19	319		65	9.53
20	320		65	9.53
22	322		65	9.53
24	324		65	9.53
25	325		65	9.53
26	326		65	9.53
28	328		65	9.53
30	330		65	9.53
32	432		102	14.29
35	435		102	14.29

11 973 Inserts

for push broaches No. 11 965...



11 973...

For push broach width mm	11 973...		Thickness mm
3	003		0.787
4	004		0.965
5	005		1.270
6	006		1.448

For push broach width mm	11 973...		Thickness mm
8	008		1.879
10	010		1.422
12	012		1.524
14	014		1.778

11 976 Push broach sets

Set composition according to DIN consisting of push broaches No. 11 965... and guide bushes No. 11 971..., including the necessary additional inserts, in a stable wooden box

Size mm	1 broach each	Ø Guide bushes 1 each	11 976...	
4 - 8	4 mm Size 2 5 mm Size 2 6 mm Size 3 8 mm Size 3	12 - 14, 15, 16 18 20 - 22 - 24 - 25	008	
10 - 14	10 mm Size 4 12 mm Size 4 14 mm Size 4	34 - 36 - 38 40 - 42 - 44 46 - 48 mm Ø	014	



11 976 014

12 242 Quick release, adjustable hand reamers, **Wodex** hard chromed

HSS

WN



12 242...

Right-hand cutting hand reamer with adjustable blades. The standard reamer for repair and installation work. Blade edges with the unique Hunger special grinding (progressively increasing clearance angle!) produce an optimum cut.

From size D 12 the adjusting nut has a setting scale, whereby 1 scale mark corresponds to a change in cutting edge diameter by 0.01 mm.

Size	Adjustment range mm	12 242...		Overall length mm	Cutting edge length mm	Square mm	Number of blades
D 8	8 - 9	007		111	32	4.3	5
D 9	9 - 10	010		115	32	4.3	5
D 10	10 - 11	013		120	35	4.9	5
D 11	11 - 12	016		125	35	6.2	5
D 12	12 - 13.5	019		130	42	6.2	5
D 13.5	13.5 - 15.5	022		145	50	7.0	5
D 15.5	15.5 - 18	025		165	60	8.0	5
D 18	18 - 21	028		180	65	9.0	5
D 21	21 - 24	031		190	70	10.0	5
D 24	24 - 27.5	034		205	75	11.0	5
D 27.5	27.5 - 31.5	037		225	80	12.0	6
D 31.5	31.5 - 37	040		240	90	14.5	6
D 37	37 - 45	043		285	100	16.0	6
D 45	45 - 55	046		320	109	20.0	6

12 244 Quick release, adjustable hand reamer sets, hard chromed **Wodex**

HSS

WN

Type D, consisting of Product No. 12 242..., in wooden box



12 244 116

Size	Adjustment range mm	12 244...		Set contents pcs
1	8 - 31.5	110		11
2	8 - 45	116		13

12 246 Replacement blades, hard chromed **Wodex** suitable for quick release, adjustable hand reamers Type D No. 12 242...



12 246...

Size	Adjustment range mm	12 246...		Contents Qty
0	8 - 9	007		5
1	9 - 10	010		5
2	10 - 11	013		5
3	11 - 12	016		5
4	12 - 13.5	019		5
5	13.5 - 15.5	022		5
6	15.5 - 18	025		5

Size	Adjustment range mm	12 246...		Contents Qty
7	18 - 21	028		5
8	21 - 24	031		5
9	24 - 27.5	034		5
10	27.5 - 31.5	037		6
11	31.5 - 37	040		6
12	37 - 45	043		6
13	45 - 55	046		8

12 250 Hand reamers

HSS

DIN
206Form
B

H7

Wodex®



Left-hand spiral

12 250...

Ø mm	12 250...		Overall length mm	Cutting edge length mm	Square mm
1	010		34	13	-
1.2	012		38	17	-
1.4	014		41	20	1.12
1.5	015		41	20	1.12
2	020		50	25	1.6
2.2	022		54	27	1.8
2.5	025		58	29	2
3	030		62	31	2.24
3.5	035		71	35	2.8
4	040		76	38	3.15
4.5	045		81	41	3.55
5	050		87	44	4
5.5	055		93	47	4.5
6	060		93	47	4.5
7	070		107	54	5.6
8	080		115	58	6.3
9	090		124	62	7.1
10	100		133	66	8
11	110		142	71	9
12	120		152	76	10

Ø mm	12 250...		Overall length mm	Cutting edge length mm	Square mm
13	130		152	76	10
14	140		163	81	11.2
15	150		163	81	11.2
16	160		175	87	12.5
17	170		175	87	12.5
18	180		188	93	14
19	190		188	93	14
20	200		201	100	16
22	220		215	107	18
24	240		231	115	20
25	250		231	115	20
26	260		231	115	20
28	280		247	124	22.4
30	300		247	124	22.4
32	320		265	133	25
34	340		284	142	28
35	350		284	142	28
36	360		284	142	28
38	380		305	152	31.5
40	400		305	152	31.5

12 303 Tapered reamers

HSS

DIN
9

1:50

Wodex®



12 303...

for reaming tapered holes for taper pins according to DIN 1,
DIN 258, DIN 1447, DIN 7977 and DIN 7978

Ø mm	12 303...		smallest Ø mm	largest Ø mm	Overall length mm	Cutting edge length mm	Square mm
1	010		0.9	1.46	46	28	2.5
2	020		1.9	2.86	68	48	2.5
3	030		2.9	4.06	80	58	3.15
4	040		3.9	5.26	93	68	4
5	050		4.9	6.36	100	73	5
6	060		5.9	8	135	105	6.3
8	080		7.9	10.8	180	145	8
10	100		9.9	13.4	215	175	10
12	120		11.8	16	255	210	11.2
16	160		15.8	20.4	280	230	14
20	200		19.8	24.8	310	250	18
25	250		24.7	30.7	370	300	22.4
30	300		29.7	36.1	400	320	28
P	10 - 18		0.15 - 0.45				
M	4 - 6		0.08 - 0.2				
K	8 - 14		0.15 - 0.45				
NE	14 - 20		0.1 - 0.35				
H	-		-				
S	-		-				

12 306 Tapered roughing reamers

Wodex®



12 306...

45° left-hand spiral, for reaming tapered holes for **taper pins**
according to DIN 1, DIN 258, DIN 1447, DIN 7958 and DIN 7977

Ø mm	12 306...		smallest Ø mm	largest Ø mm	Overall length mm	Cutting edge length mm	Square mm
3	030		2.9	4.06	100	58	4
4	040		3.9	5.26	112	68	5
5	050		4.9	6.36	122	73	6.3
6	060		5.9	8	160	105	8
8	080		7.9	10.8	207	145	10
10	100		9.9	13.4	245	175	12.5
12	120		11.8	16	290	210	16
P	10 - 18		0.15 - 0.3				
M	4 - 6		0.08 - 0.2				
K	8 - 14		0.15 - 0.3				
NE	14 - 20		0.1 - 0.25				
H	-		-				
S	-		-				

12 312 Tapered reamers

Wodex®



12 312...

Left-hand spiral

Ø mm	12 312...		Overall length mm	Cutting edge length mm	Square mm
3 x 10	030		100	70	6.3
5 x 15	050		140	100	10
10 x 25	100		195	150	16
15 x 35	150		250	200	22.4
P	10 - 18		0.15 - 0.3		
M	4 - 6		0.08 - 0.2		
K	8 - 14		0.15 - 0.3		
NE	14 - 20		0.1 - 0.25		
H	-		-		
S	-		-		

12 315 Morse taper reamers

Wodex®



12 315...

Left-hand spiral, **finish reaming of holes for Morse tapers**

Morse taper	12 315...		smallest Ø mm	largest Ø mm	Overall length mm	Cutting edge length mm	Square mm
0	007		6.547	9.722	93	61	6.3
1	010		9.571	12.863	102	66	8
2	013		14.733	18.679	121	79	11.2
3	016		20.010	24.829	146	96	16
4	019		26.229	32.41	179	119	20
P	10 - 18		0.15 - 0.3				
M	4 - 6		0.08 - 0.2				
K	8 - 14		0.15 - 0.3				
NE	14 - 20		0.1 - 0.25				
H	-		-				
S	-		-				

12 349 Nozzle reamer set

HSS

pentagonal reamer with tang, including **nickel** metal holder, in plastic case



Contents pcs	Ø mm	12 349...	
12	0.6 - 1.9	120	

12 349 120

12 503 Bridge reamers

HSS

DIN 311



1:10

MK

Wodex®



12 503...

Left-handed spiral 25°

Ø mm	12 503...		Chamfer lead length mm	Overall length mm	Cutting edge length mm	Morse taper
6.4	064		19	151	75	1
7.4	074		22	156	80	1
8.4	084		25	161	85	1
9.5	095		27	166	90	1
10	100		30	171	95	1
11	110		33	176	100	1
12	120		39	199	105	2
13	130		39	199	105	2
14	140		42	209	115	2
15	150		45	219	125	2
16	160		48	229	135	2
17	170		51	251	135	3
18	180		58	261	145	3
19	190		58	261	145	3
20	200		62	271	155	3
21	210		62	271	155	3
22	220		66	281	165	3
23	230		66	281	165	3
24	240		72	296	180	3
25	250		72	296	180	3
26	260		72	296	180	3
27	270		78	311	195	3
28	280		78	311	195	3
30	300		78	311	195	3
31	310		84	326	210	3
32	320		84	354	210	4
P	10 - 18			0.15 - 0.3		
M	4 - 6			0.08 - 0.2		
K	8 - 14			0.15 - 0.3		
NE	14 - 20			0.1 - 0.25		
H	-			-		
S	-			-		



12 512 Machine reamers



Wodex



12 512...

Left-hand spiral, continuous shank, both sides with centring tip

Ø mm	12 512...		Overall length mm	Cutting edge length mm	Shank Ø mm
1	010		34	5.5	1
1.5	015		40	8	1.5
1.8	018		46	10	1.8
2	020		49	11	2
2.5	025		57	14	2.5
3	030		61	15	3
3.5	035		70	18	3.5
P	10 - 18		0.1 - 0.15		
M	4 - 6		0.06 - 0.08		
K	8 - 14		0.1 - 0.15		
NE	14 - 20		0.1 - 0.15		
H	-		-		
S	-		-		

12 513 Machine reamers



Wodex



12 513...

7° left-hand spiral

12 515 Machine reamers

Type as 12 513... however, **TiN** coated

Wodex



12 515...

Ø mm	12 513...		12 515... TiN		Overall length mm	Cutting edge length mm	Shank Ø mm
4	040		040		75	19	4
4.5	045		-	-	80	21	4.5
5	050		050		86	23	5
5.5	055		-	-	93	26	5.6
6	060		060		93	26	5.6
6.5	065		-	-	101	28	6.3
7	070		-	-	109	31	7.1
7.5	075		-	-	109	31	7.1
8	080		080		117	33	8
8.5	085		-	-	117	33	8
9	090		-	-	125	36	9
9.5	095		-	-	125	36	9
10	100		100		133	38	10
11	110		-	-	142	41	10
12	120		120		151	44	10
13	130		-	-	151	44	10
14	140		140		160	47	12.5
15	150		-	-	162	50	12.5
16	160		-	-	170	52	12.5
17	170		-	-	175	54	14
18	180		180		182	56	14
19	190		-	-	189	58	16
20	200		200		195	60	16
P	10 - 18		10 - 20		0.15 - 0.3		
M	4 - 10		4 - 12		0.08 - 0.2		
K	8 - 14		8 - 16		0.15 - 0.3		
NE	14 - 20		-		0.15 - 0.35		
H	-		-		-		
S	-		-		-		

Intermediate dimensions available on request

12 520 Machine reamers

HSS
EDIN
212Form
BForm
D

up to 3.52 mm diameter, form B, left-hand spiral, continuous shank,
both sides with centring tip,

from 3.97 mm diameter, form D, left-hand spiral, parallel shaft
stepped, driver according to DIN 1809

Production tolerances:

up to 5.5 mm + 0.004 / 0

over 5.5 mm + 0.005 / 0 Machine reamers DIN 212,

H7 see No. 12 512... and No. 12 513...

Wodex®



12 520 099 - ...352



12 520 397 - ...920

Ø mm	12 520...		Overall length mm	Cutting edge length mm	Shank Ø mm
0.99	099		34	5.5	0.99
1	100		34	5.5	1
1.01	101		34	5.5	1.01
1.5	150		40	8	1.5
1.51	151		43	9	1.51
1.52	152		43	9	1.52
1.97	197		49	11	1.97
1.98	198		49	11	1.98
1.99	199		49	11	1.99
2	200		49	11	2
2.01	201		49	11	2.01
2.02	202		49	11	2.02
2.49	249		57	14	2.49
2.5	250		57	14	2.5
2.51	251		57	14	2.51
2.52	252		57	14	2.52
2.97	297		61	15	2.97
2.98	298		61	15	2.98
2.99	299		61	15	2.99
3	300		61	15	3
3.01	301		65	16	3.01
3.02	302		65	16	3.02
3.5	350		70	18	3.5
3.51	351		70	18	3.51
3.52	352		70	18	3.52
3.97	397		75	19	4
3.98	398		75	19	4
3.99	399		75	19	4
4	400		75	19	4
4.01	401		75	19	4
4.02	402		75	19	4
4.5	450		80	21	4.5
4.51	451		80	21	4.5

P	10 - 18		0.15 - 0.3
M	4 - 10		0.08 - 0.2
K	8 - 14		0.15 - 0.3
NE	14 - 20		0.15 - 0.35
H	-		-
S	-		-

Ø mm	12 520...		Overall length mm	Cutting edge length mm	Shank Ø mm
4.97	497		86	23	5
4.98	498		86	23	5
4.99	499		86	23	5
5	500		86	23	5
5.01	501		86	23	5
5.02	502		86	23	5
5.97	597		93	26	5.6
5.98	598		93	26	5.6
5.99	599		93	26	5.6
6	600		93	26	5.6
6.01	601		93	26	5.6
6.02	602		93	26	5.6
6.99	699		109	31	7.1
7	700		109	31	7.1
7.01	701		109	31	7.1
7.02	702		109	31	7.1
7.98	798		117	33	8
7.99	799		117	33	8
8	800		117	33	8
8.01	801		117	33	8
8.02	802		117	33	8
8.98	803		125	36	9
8.99	804		125	36	9
9	890		125	36	9
9.01	891		125	36	9
9.02	892		125	36	9
9.98	898		133	38	10
9.99	899		133	38	10
10	900		133	38	10
10.01	901		133	38	10
10.02	902		133	38	10
11.98	918		151	44	10
11.99	919		151	44	10
12	920		151	44	10

P	10 - 18		0.15 - 0.3
M	4 - 10		0.08 - 0.2
K	8 - 14		0.15 - 0.3
NE	14 - 20		0.15 - 0.35
H	-		-
S	-		-

Intermediate dimensions available on request

12 522 NC machine reamers



right-hand cutting, spiral-fluted, parallel shank, **without** square; however, with straight shank diameters. Tol. +0.003/-0
The NC reamer can be directly used in hydro-expanding and high-precision chucks as their shank dimensions are matched to their hole dimensions.

Wodex



12 522 098 - ...303



12 522 397 - ...925

Ø mm	12 522...		Cutting edge length mm	Overall length mm	Shank Ø
0.98	098		6.00	34.00	1.00
0.99	099		6.00	34.00	1.00
1.00	100		6.00	34.00	1.00
1.01	101		6.00	34.00	1.00
1.02	102		6.00	34.00	1.00
1.03	103		6.00	34.00	1.00
1.48	148		8.00	40.00	2.00
1.49	149		8.00	40.00	2.00
1.50	150		8.00	40.00	2.00
1.51	151		8.00	40.00	2.00
1.52	152		8.00	40.00	2.00
1.53	153		8.00	40.00	2.00
1.98	198		11.00	49.00	2.00
1.99	199		11.00	49.00	2.00
2.00	200		11.00	49.00	2.00
2.01	201		11.00	49.00	2.00
2.02	202		11.00	49.00	2.00
2.03	203		11.00	49.00	2.00
2.48	248		15.00	57.00	3.00
2.49	249		15.00	57.00	3.00
2.50	250		15.00	57.00	3.00
2.51	251		15.00	57.00	3.00
2.52	252		15.00	57.00	3.00
2.53	253		15.00	57.00	3.00
2.97	297		15.00	61.00	3.00
2.98	298		15.00	61.00	3.00
2.99	299		15.00	61.00	3.00
3.00	300		15.00	61.00	3.00
3.01	301		15.00	61.00	3.00
3.02	302		15.00	61.00	3.00
3.03	303		15.00	61.00	3.00
3.97	397		19.00	75.00	4.00
3.98	398		19.00	75.00	4.00
3.99	399		19.00	75.00	4.00
4.00	400		19.00	75.00	4.00
4.01	401		19.00	75.00	4.00
4.02	402		19.00	75.00	4.00
4.03	403		19.00	75.00	4.00
4.97	497		23.00	86.00	5.00
P	10 - 18		0.15 - 0.3		
M	4 - 10		0.08 - 0.2		
K	8 - 14		0.15 - 0.3		
NE	14 - 20		0.15 - 0.35		
H	-		-		
S	-		-		

Ø mm	12 522...		Cutting edge length mm	Overall length mm	Shank Ø
4.98	498		23.00	86.00	5.00
4.99	499		23.00	86.00	5.00
5.00	500		23.00	86.00	5.00
5.01	501		23.00	86.00	5.00
5.02	502		23.00	86.00	5.00
5.03	503		23.00	86.00	5.00
5.97	597		26.00	93.00	6.00
5.98	598		26.00	93.00	6.00
5.99	599		26.00	93.00	6.00
6.00	600		26.00	93.00	6.00
6.01	601		26.00	93.00	6.00
6.02	602		26.00	93.00	6.00
6.03	603		26.00	93.00	6.00
7.97	797		33.00	117.00	8.00
7.98	798		33.00	117.00	8.00
7.99	799		33.00	117.00	8.00
8.00	800		33.00	117.00	8.00
8.01	801		33.00	117.00	8.00
8.02	802		33.00	117.00	8.00
8.03	803		33.00	117.00	8.00
8.04	804		33.00	117.00	8.00
9.97	897		38.00	133.00	10.00
9.98	898		38.00	133.00	10.00
9.99	899		38.00	133.00	10.00
10.00	900		38.00	133.00	10.00
10.01	901		38.00	133.00	10.00
10.02	902		38.00	133.00	10.00
10.03	903		38.00	133.00	10.00
10.04	904		38.00	133.00	10.00
10.05	905		38.00	133.00	10.00
11.97	911		44.00	151.00	10.00
11.98	912		44.00	151.00	10.00
11.99	913		44.00	151.00	10.00
12.00	920		44.00	151.00	10.00
12.01	921		44.00	151.00	10.00
12.02	922		44.00	151.00	10.00
12.03	923		44.00	151.00	10.00
12.04	924		44.00	151.00	10.00
12.05	925		44.00	151.00	10.00
P	10 - 18		0.15 - 0.3		
M	4 - 10		0.08 - 0.2		
K	8 - 14		0.15 - 0.3		
NE	14 - 20		0.15 - 0.35		
H	-		-		
S	-		-		

12 526 NC machine reamers

Wodex®



12 526...

similar to DIN 212, left-hand spiral, both sides with centring tip up to diameter 2.8 mm. Can be directly used in hydro-expanding and high-precision chucks by matching the shank dimensions to the hole dimensions.

Ø mm	12 526...		Overall length mm	Cutting edge length mm	Number of cutting edges	Shank Ø mm (h6)
1.0	010		34	6	3	1
1.5	015		40	8	3	2
1.8	018		46	10	4	2
2.0	020		49	11	4	2
2.5	025		57	15	4	3
2.8	028		61	15	4	3
P	10 - 18		0.1 - 0.15			
M	4 - 6		0.06 - 0.08			
K	8 - 14		0.1 - 0.15			
NE	14 - 20		0.1 - 0.15			
H	-		-			
S	-		-			

12 528 NC machine reamers

Wodex®



12 528...

similar to DIN 212, left-handed spiral, can be directly used in hydro-expanding and high-precision chucks by matching the shank dimensions to the hole dimensions.

Ø mm	12 528...		Overall length mm	Cutting edge length mm	Number of cutting edges	Shank Ø mm
3.0	030		61	15	6	3
4.0	040		75	19	6	4
5.0	050		86	23	6	5
6.0	060		93	26	6	6
7.0	070		109	31	6	8
8.0	080		117	33	6	8
9.0	090		125	36	6	10
10.0	100		133	38	6	10
11.0	110		142	41	6	10
12.0	120		151	44	6	10
13.0	130		151	44	6	14
14.0	140		160	47	8	14
15.0	150		162	50	8	14
16.0	160		170	52	8	14
17.0	170		175	54	8	14
18.0	180		182	56	8	14
19.0	190		189	58	8	16
20.0	200		195	60	8	16
P	10 - 18		0.15 - 0.3			
M	4 - 10		0.08 - 0.2			
K	8 - 14		0.15 - 0.3			
NE	14 - 20		0.15 - 0.35			
H	-		-			
S	-		-			

12 533 Machine roughing reamers

HSS E	DIN 212	Form E	z=3	H7
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Wodex



12 533...

45° left-hand spiral, for long-chipping materials, particularly suitable for series production of continuous drillholes, the reamers have a bevel lead over around 1/4 of the cutting edge length and cannot be used for blind holes, the chips flow away to the front

Ø mm	12 533...		Overall length mm	Cutting edge length mm	Shank Ø mm
4	040		75	19	4
5	050		86	23	5
6	060		93	26	5.6
8	080		117	33	8
10	100		133	38	10
P	10 - 18		0.15 - 0.3		
M	4 - 10		0.08 - 0.2		
K	8 - 14		0.15 - 0.3		
NE	14 - 20		0.15 - 0.35		
H	-		-		
S	-		-		

Ø mm	12 533...		Overall length mm	Cutting edge length mm	Shank Ø mm
12	120		151	44	10
13	130		151	44	10
14	140		160	47	12.5
16	160		170	52	12.5

P	10 - 18		0.15 - 0.3		
M	4 - 10		0.08 - 0.2		
K	8 - 14		0.15 - 0.3		
NE	14 - 20		0.15 - 0.35		
H	-		-		
S	-		-		

12 616 Sintered carbide machine reamers

Typ HM	K10	DIN 8093	Form B	H7
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Wodex



12 616...

Left-hand spiral. with parallel shaft and driver according to DIN 1809

Ø	12 616...		Overall length	Cutting edge length	Number of cutting edges	Shank Ø
mm			mm	mm		mm (e9)
5.0	050		86	25	4	5.0
6.0	060		93	26	4	5.6
7.0	070		109	31	4	7.1
8.0	080		117	33	4	8.0
9.0	090		125	36	4	9.0
10.0	100		133	38	6	10.0
11.0	110		142	41	6	10.0
12.0	120		151	44	6	10.0
13.0	130		151	44	6	10.0
14.0	140		160	47	6	12.5
15.0	150		162	50	6	12.5
16.0	160		170	52	6	12.5
17.0	170		175	54	6	14.0
18.0	180		182	56	6	14.0
19.0	190		189	58	6	16.0
20.0	200		195	60	6	16.0
P	15 - 25		0.15 - 0.3			
M	8 - 15		0.15 - 0.3			
K	12 - 18		0.3 - 0.45			
NE	30 - 60		0.15 - 0.35			
H	-		-			
S	5 - 12		0.15 - 0.35			

12 620 NC solid sintered carbide machine reamers **Wodex**

VHM

Typ
HM

K10

WN

Form
B

H7

similar to DIN 8093, left-handed spiral, spiral fluted, right-hand cutting, can be directly used in hydro-expanding and high-precision chucks by matching the shank dimensions to the hole dimensions.

up to Ø 8 mm completely made of VHM
from Ø 10 mm with VHM head and steel shank



12 620 020 - ...080



12 620 100 - ...160

Ø mm	12 620...		Overall length mm	Cutting edge length mm	Number of cutting edges	Shank Ø mm
2	020		49	11	4	2
3	030		61	19	4	3
4	040		75	19	4	4
5	050		86	23	6	5
6	060		93	26	6	5.6
7	070		109	31	4	7.1
8	080		117	33	4	8
10	100		133	38	6	10
12	120		151	44	6	10
14	140		160	47	6	12.5
16	160		170	52	6	12.9
P	15 - 25		0.1 - 0.3			
M	8 - 15		0.1 - 0.3			
K	12 - 18		0.25 - 0.45			
NE	30 - 60		0.1 - 0.35			
H	-		-			
S	5 - 12		0.15 - 0.35			

12 603 Machine reamers

HSS
EDIN
208Form
B

MK

H7

Wodex

12 603...

Left-hand spiral

Ø mm	12 603...		Overall length mm	Cutting edge length mm	Morse taper
5	050		133	23	1
6	060		138	26	1
7	070		150	31	1
8	080		156	33	1
9	090		162	36	1
10	100		168	38	1
11	110		175	41	1
12	120		182	44	1
13	130		182	44	1
14	140		189	47	1
15	150		204	50	2
16	160		210	52	2
17	170		214	54	2
18	180		219	56	2
19	190		223	58	2
20	200		228	60	2
22	220		237	64	2
24	240		268	68	3
P	10 - 18		0.15 - 0.3		
M	4 - 10		0.08 - 0.2		
K	8 - 14		0.15 - 0.3		
NE	14 - 20		0.15 - 0.35		
H	-		-		
S	-		-		

Ø mm	12 603...		Overall length mm	Cutting edge length mm	Morse taper
25	250		268	68	3
26	260		273	70	3
28	280		277	71	3
30	300		281	73	3
32	320		317	77	4
34	340		321	78	4
35	350		321	78	4
36	360		325	79	4
38	380		329	81	4
40	400		329	81	4
42	420		333	82	4
44	440		336	83	4
45	450		336	83	4
46	460		340	84	4
47	470		340	84	4
48	480		344	86	4
50	500		344	86	4

P	10 - 18		0.35 - 0.6		
M	4 - 10		0.25 - 0.4		
K	8 - 14		0.35 - 0.6		
NE	14 - 20		0.35 - 0.6		
H	-		-		
S	-		-		



12 622 Sintered carbide machine reamers

Typ
HM

K10

DIN
8094

Form
B

MK

H7

Wodex



12 622...

spiral fluted, left-hand, with long cutting parts, right-hand cutting, with extremely uneven spacing

Ø mm	12 622...		Overall length mm	Cutting edge length mm	Number of cutting edges	Morse taper
8	080		156	33	6	1
10	100		168	38	6	1
12	120		182	44	6	1
14	140		189	47	6	1
16	160		210	52	6	2
18	180		219	56	6	2
20	200		228	60	6	2
P	15 - 25		0.1 - 0.3			
M	8 - 15		0.1 - 0.3			
K	12 - 18		0.25 - 0.45			
NE	30 - 60		0.1 - 0.35			
H	-		-			
S	5 - 12		0.15 - 0.35			

Ø mm	12 622...		Overall length mm	Cutting edge length mm	Number of cutting edges	Morse taper
22	220		237	64	6	2
24	240		268	68	8	3
25	250		268	68	8	3
26	260		273	70	8	3
28	280		277	71	8	3
30	300		281	73	8	3
32	320		317	77	8	4
P	15 - 25		0.3 - 0.5			
M	8 - 15		0.3 - 0.5			
K	12 - 18		0.25 - 0.5			
NE	30 - 60		0.3 - 0.4			
H	-		-			
S	5 - 12		0.35 - 0.45			

CUTTING TOOLS

1



**PRIMAT® cutting oils and
metalworking fluids are included in
Group 69.**

Reamers



12 626 Arbor

DIN
217

for reamers 12 628..., with forcing nut and driving ring, mounting taper 1:30, holder and driving ring hardened, Morse taper.

Wodex®



12 626...

Size	12 626...		Ø mm	Overall length mm	MK	Range of use DIN 219	Range of use DIN 222	Range of use DIN 8054
1	005		10.0	220	2	20 - 24	-	-
2	010		13.0	250	3	25 - 30	25 - 35	30 - 35
3	015		16.0	261	3	31 - 35	36 - 45	36 - 45
4	020		19.0	298	4	36 - 42	46 - 53	46 - 53
5	025		22.0	312	4	43 - 50	54 - 63	54 - 63

12 628 Shell reamers

HSS
EDIN
219Form
B

H7

Wodex®



12 628...

HSS/E, right-hand cutting, with tapered hole 1:30, spiral fluted

Design features

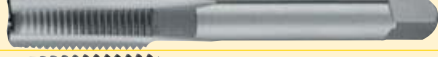
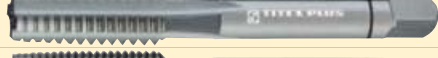
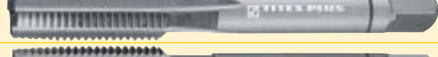
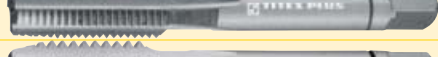
The shell reamers have a short 45° bevel lead. The tenon is made to DIN 138. Spiral fluted shell reamers must be used for holes with interrupted cut (e.g. transverse holes, flutes).

Areas of use

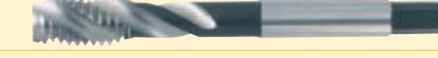
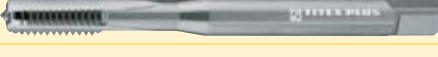
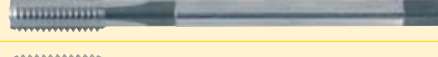
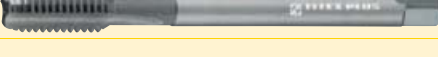
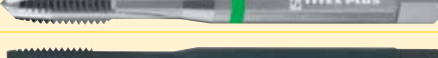
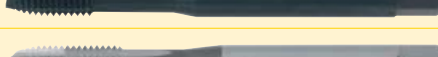
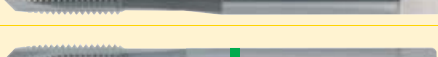
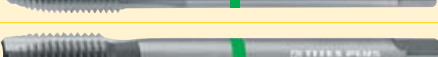
For iron, non-ferrous metals and plastics.

Ø mm	12 628...		Cutting edge length mm	Overall length mm	Hole Ø mm	Arbor
20.0	020		40	50	10	1
21.0	021		40	50	10	1
22.0	022		40	50	10	1
23.0	023		40	50	10	1
24.0	024		40	50	10	1
25.0	025		32	45	13	2
26.0	026		32	45	13	2
27.0	027		32	45	13	2
28.0	028		32	45	13	2
29.0	029		32	45	13	2
30.0	030		32	45	13	2
31.0	031		36	50	16	3
32.0	032		36	50	16	3
33.0	033		36	50	16	3
34.0	034		36	50	16	3
35.0	035		36	50	16	3
36.0	036		40	56	19	4
37.0	037		40	56	19	4
38.0	038		40	56	19	4
39.0	039		40	56	19	4
40.0	040		40	56	19	4
41.0	041		40	56	19	4
42.0	042		40	56	19	4
43.0	043		45	63	22	5
44.0	044		45	63	22	5
45.0	045		45	63	22	5
46.0	046		45	63	22	5
47.0	047		45	63	22	5
48.0	048		45	63	22	5
49.0	049		45	63	22	5
50.0	050		45	63	22	5
P	10 - 18		0.35 - 0.6			
M	4 - 10		0.25 - 0.4			
K	8 - 14		0.35 - 0.6			
NE	14 - 20		0.35 - 0.6			
H	-		-			
S	-		-			

Overview of types Hand taps

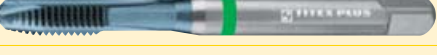
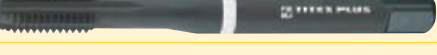
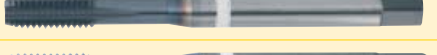
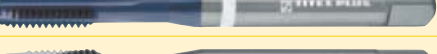
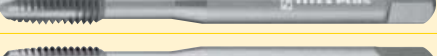
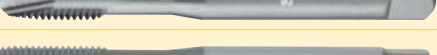
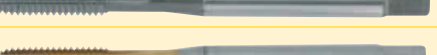
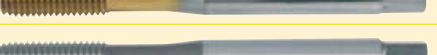
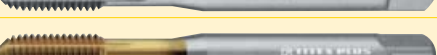
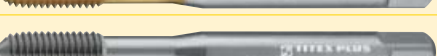
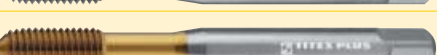
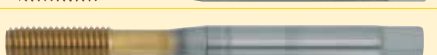
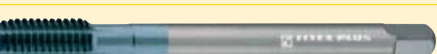
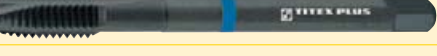
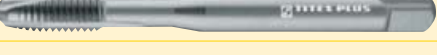
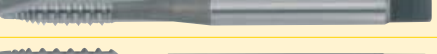
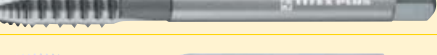
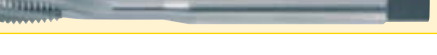
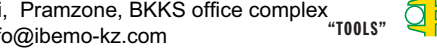
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138	13 002	352	straight	HSS	M	M1 - M48	Wodex	
139	13 003	352	straight	HSS	M	M1 - M48	TITEX	
140	13 004	352	straight	HSS-E	M	M2 - M16	TITEX	
140	13 006	352	straight	HSS-E	M	M3 - M12	TITEX	
141	13 007	352	straight	HSS-E	M	M3 - M20	Wodex	
141	13 009	352	straight	HSS	M	M3 - M20	TITEX	
142	13 011	2181	straight	HSS	MF	M2x0.25 - M50-1.5	Wodex	
142	13 013	2181	straight	HSS	MF	M2x0.25 - M50-1.5	TITEX	
143	13 015	2184-2	straight	HSS	UNC	1/4" - 1"	TITEX	
143	13 017	2184-2	straight	HSS	UNF	1/4" - 1"	TITEX	
144	13 019	2184-2	straight	HSS	BSW	1/8" - 3/4"	TITEX	
144	13 021	5157	straight	HSS	G	G1/8 - G1	Wodex	
145	13 023	5157	straight	HSS	G	G1/16 - G2	TITEX	

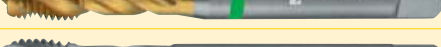
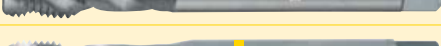
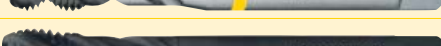
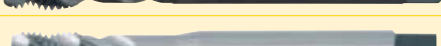
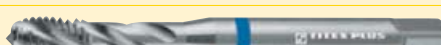
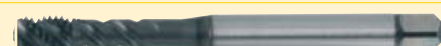
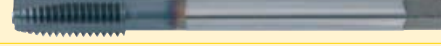
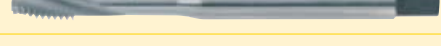
Overview of types Machine taps / machine fluteless taps

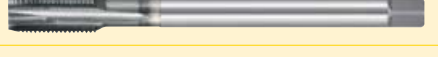
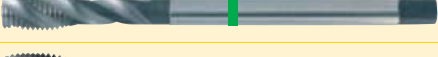
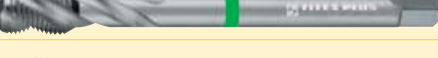
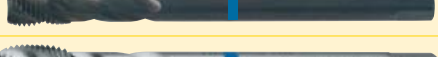
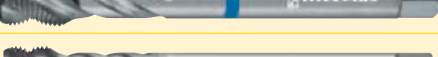
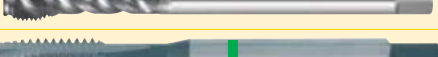
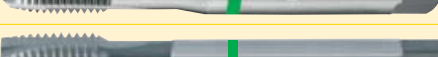
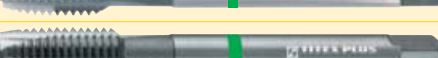
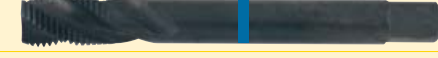
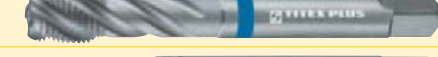
Page	Catalogue Number	DIN	Flutes	Chamfer lead	Material	Thread type	Size from - to	Brand	
145	13 040	352	straight	B	HSS-E	M	M3 - M12	Wodex	
146	13 042	352	R 15	C	HSS-E	M	M3 - M12	Wodex	
146	13 043	352	R 40	C	HSS-E	M	M3 - M12	Wodex	
148	13 050	371	straight	C	HSS-E	M	M3 - M10	Wodex	
148	13 051	371	straight	C	HSS-E	M	M1 - M10	TITEX	
149	13 052	376	straight	C	HSS-E	M	M3 - M36	Wodex	
149	13 054	376	straight	C	HSS-E	M	M2 - M36	TITEX	
150	13 056	371	straight	B	HSS-E	M	M3 - M10	Wodex	
150	13 057	371	straight	B	HSS-E	M	M3 - M20	TITEX	
150	13 060	371/376	straight	C	HSS-E	M	M3 - M10	Wodex	
151	13 058	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
152	13 061	376	straight	B	HSS-E	M	M3 - M20	Wodex	
152	13 062	376	straight	B	HSS-E	M	M3 - M42	TITEX	



Overview of types Machine taps / machine fluteless taps

Page	Catalogue Number	DIN	Flutes	Chamfer lead	Material	Thread type	Size from - to	Brand	
151	13 059	371/376	L 40	C	HSS-E	M	M3 - M20	Wodex	
153	13 066	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
153	13 068	371/376	straight	B	HSS-E	M	M3 - M20	TITEX	
153	13 070	371/376	straight	B	HSS-E	M	M3 - M16	TITEX	
154	13 072	371/376	straight	C	HSS-E	M	M3 - M30	TITEX	
154	13 074	371/376	straight	C	HSS-E	M	M3 - M20	Wodex	
154	13 075	371/376	straight	C	HSS-E	M	M3 - M20	TITEX	
156	13 076	371	none	B	HSS-E	M	M2.5 - M10	TITEX	
156	13 078	371	straight	B	HSS-E	M	M3 - M10	TITEX	
156	13 077	2174	Fluteless	C	HSS-E	M	M3 - M16	Wodex	
156	13 077	2174	Fluteless	C	HSS-E	M	M3 - M16	Wodex	
157	13 079	2174	Fluteless	C	HSS-E	M	M2 - M10	Wodex	
157	13 080	2174	Fluteless	C	HSS-E	M	M3 - M10	TITEX	
157	13 080	2174	Fluteless	C	HSS-E	M	M3 - M16	TITEX	
158	13 081	2174	Fluteless	C	HSS-E	M	M2 - M10	TITEX	
158	13 083	2174	Fluteless	C	HSS-E	M	M2 - M10	TITEX	
158	13 087	2174	Fluteless	C	HSS-E	M	M2 - M10	Wodex	
159	13 085	2174	Fluteless	C	HSS-E	M	M12 - M16	TITEX	
159	13 086	2174	Fluteless	C	HSS-E	M	M12 - M16	Wodex	
160	13 082	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
160	13 084	371/376	straight	B	HSS-E	M	M2.5 - M10	TITEX	
161	13 089	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
161	13 088	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
161	13 090	371/376	straight	B	HSS-E	M	M2 - M24	TITEX	
162	13 093	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
162	13 092	371	straight	B	HSS-E	M	M3 - M10	TITEX	
163	13 094	371	straight	B	HSS-E-PM	M	M3 - M10	TITEX	
164	13 098	371/376	straight	B	HSS-E	M	M3 - M20	Wodex	
164	13 101	371/376	straight	B	HSS-E	M	M3 - M20	TITEX	
165	13 117	371/376	R 15	C	HSS-E	M	M3 - M24	Wodex	

Page	Catalogue Number	DIN	Flutes	Chamfer lead	Material	Thread type	Size from - to	Brand	
165	13 118	371/376	R 15	C	HSS-E	M	M2 - M30	TITEX	
166	13 119	371	R 40	C	HSS-E	M	M2 - M10	Wodex	
166	13 119	371	R 40	C	HSS-E	M	M2 - M10	Wodex	
166	13 124	371	R 40	C	HSS-E	M	M2 - M10	TITEX	
166	13 124	371	R 40	C	HSS-E	M	M2 - M10	TITEX	
167	13 122	376	R 40	C	HSS-E	M	M3 - M30	Wodex	
167	13 128	376	R 40	C	HSS-E	M	M3 - M30	TITEX	
168	13 130	371/376	R 40	C	HSS-E	M	M3 - M20	Wodex	
168	13 134	371/376	R 40	C	HSS-E	M	M3 - M20	TITEX	
168	13 138	371/376	R 40	C	HSS-E	M	M3 - M16	TITEX	
169	13 147	371/376	R 45	C	HSS-E	M	M3 - M20	Wodex	
169	13 148	371/376	R 45	C	HSS-E	M	M2 - M20	TITEX	
170	13 150	371/376	R 40	C	HSS-E	M	M6 - M20	TITEX	
171	13 151	371/376	R 40	C	HSS-E	M	M3 - M20	Wodex	
171	13 152	371/376	R 40	C	HSS-E	M	M3 - M20	Wodex	
171	13 161	371/376	R 40	C	HSS-E	M	M3 - M20	Wodex	
171	13 156	371/376	R 35	C	HSS-E	M	M2 - M24	TITEX	
172	13 157	371/376	R 50	C	HSS-E-PM	M	M3 - M20	Wodex	
172	13 158	371/376	R 50	C	HSS-E-PM	M	M3 - M20	Wodex	
173	13 159	371/376	R 50	C	HSS-E-PM	M	M3 - M20	TITEX	
173	13 160	371/376	R 35	C	HSS-E	M	M3 - M16	TITEX	
174	13 162	357	straight	B	HSS-E	M	M3 - M14	TITEX	
174	13 168	357	straight	-	HSS-E	M	M3 - M20	Wodex	
175	13 174	371/376	straight	B	HSS-E	M	M3 - M30	Wodex	
175	13 176	371/376	straight	B	HSS-E	M	M3 - M30	Wodex	
176	13 180	371/376	straight	B	HSS-E-PM	M	M3 - M12	Wodex	
176	13 182	371/376	straight	B	HSS-E-PM	M	M3 - M12	Wodex	
177	13 175	371/376	straight	C	HSS-E	M	M3 - M30	Wodex	
177	13 183	371/376	straight	C	HSS-E	M	M3 - M30	Wodex	
178	13 184	371/376	R 15	C	HSS-E-PM	M	M3 - M12	Wodex	
178	13 186	371/376	R 15	C	HSS-E-PM	M	M3 - M12	Wodex	

Page	Catalogue Number	DIN	Flutes	Chamfer lead	Material	Thread type	Size from - to	Brand	
179	13 188	371/376	straight	B	HSS-E-PM	M	M6 - M20	Wodex®	
179	13 190	371/376	straight	B	HSS-E-PM	M	M3 - M20	Wodex®	
180	13 371	374	straight	B	HSS-E	MF	M4x0.5-M36x1.5	Wodex®	
180	13 373	374	straight	B	HSS-E	MF	M3x0.35-M52x1.5	TITEX	
181	13 374	374	straight	B	HSS-E	MF	M6x0.75-M20x1.5	Wodex®	
181	13 375	374	straight	B	HSS-E	MF	M6x0.75-M20x1.5	TITEX	
182	13 177	374	straight	B	HSS-E	MF	M8x1-M20x1.5	Wodex®	
183	13 376	374	R 40	C	HSS-E	MF	M4x0.5-M30x2	Wodex®	
183	13 377	374	R 40	C	HSS-E	MF	M5x0.5-M30x2	TITEX	
184	13 378	374	R 40	C	HSS-E	MF	M8x1-M20x1.5	Wodex®	
184	13 379	374	R 35	C	HSS-E	MF	M6x0.75-M24x1.5	TITEX	
184	13 178	374	R 40	C	HSS-E	MF	M8x1-M20x1.5	Wodex®	
185	13 410	2182	straight	B	HSS-E	UNC	5 - 3/8"	Wodex®	
185	13 412	2182	straight	B	HSS-E	UNC	5 - 3/8"	TITEX	
186	13 414	2183	straight	B	HSS-E	UNC	7/16" - 1"	Wodex®	
186	13 416	2183	straight	B	HSS-E	UNC	7/16" - 1"	TITEX	
187	13 421	2182	R 40	C	HSS-E	UNC	8 - 3/8"	Wodex®	
187	13 423	2182	R 40	C	HSS-E	UNC	8 - 3/8"	TITEX	
187	13 425	2183	R 40	C	HSS-E	UNC	1/2" - 1"	Wodex®	
187	13 427	2183	R 40	C	HSS-E	UNC	1/2" - 1"	TITEX	
188	13 460	2183	straight	B	HSS-E	UNF	8 - 1"	Wodex®	
188	13 462	2183	straight	B	HSS-E	UNF	8 - 1"	TITEX	
189	13 560	5156	straight	B	HSS-E	G	G1/8" - G2"	Wodex®	
189	13 564	5156	straight	B	HSS-E	G	G1/8" - G2	TITEX	
190	13 566	5156	R 40	C	HSS-E	G	G1/8" - G1	Wodex®	
190	13 568	5156	R 40	C	HSS-E	G	G1/8" - G1	TITEX	
190	13 572	5156	R 40	C	HSS-E	G	G1/4" - G1	Wodex®	
191	13 574	5156	R 35	C	HSS-E	G	G1/4" - G1	TITEX	
191	13 603	-	straight	C	HSS-E	NPT	1/8" - 11/2"	TITEX	
192	13 653	-	straight	B	HSS-E	Pg	Pg7 - Pg48	TITEX	



Explanation of the cutting parameters table

In the following pages you will find the table on the right under the tools. The cutting speed V_c (m/min) is given under the respective serial numbers.

In addition, we have given the following feed rates:

Drilling = mm / revolution

Countersinking / counterboring = mm / revolution

Milling / cutting = mm / tooth

Reaming = mm / revolution

Turning = mm / revolution

P = Steel
M = VA
K = Cast iron
NE = Non-ferrous metals
H = Hardened materials
S = Special-purpose alloys

Values printed in bold type = first time use

Note:

All cutting parameters are guideline values and have to be adjusted to the individual situation. To this end, it is especially necessary to ensure adequate cooling, stable clamping of the workpiece and sufficient machine power.

Tap chamfer forms

Form	Number of pitches in chamfer length	Lead angle $\chi_r \approx$	Flute type	Mainly used for
B	3.5 to 5	8°	straight fluted with spiral point	through holes
C	2 to 3	15°	straight or spiral fluted	Blind holes as well as for through holes

Tap use with coloured rings.

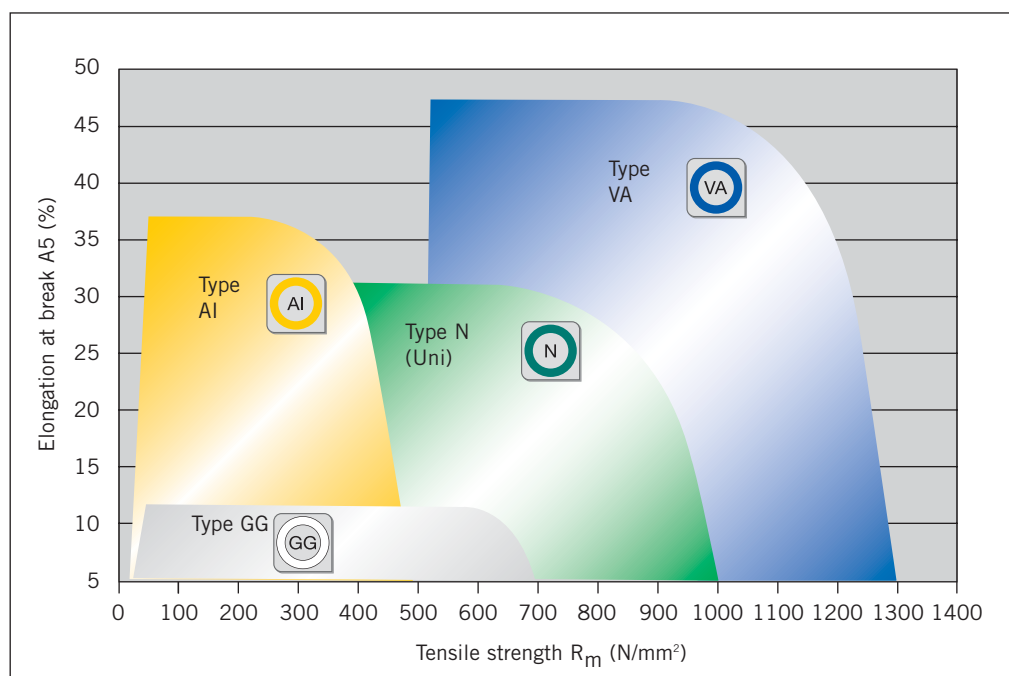
Use of tap drills in the individual material areas is to be controlled by coloured rings.

TITEX has introduced coloured rings for the four most important tap material groups: steel, stainless steel, aluminium, grey cast iron.

The diagram clearly shows the areas of use.

The coloured ring advantages:

- internationally understood, simple colour code system
- Clear assignment of material, tool and application
- Clear: all suitable standard tools at a glance
- Simple tool selection in operative environment
- Less rejects due to correct tool use



Type N

Use for a wide range of materials: preferably **steels up to 1000 N/mm²**, **AlSi alloys**



Type AI

Use for **wrought Al alloys**, soft structural steels, E copper and thermoplastics



Type VA

Use for **stainless steels**, high-strength steels up to 1300 N/mm², grey cast iron (GG and GGG), bronze and brass



Type GG

Use for **grey cast iron (GG)**, brittle plastics, hard bronzes (e.g. AMPCO)



"TOOLS"

13 002 Hand taps

Wodex®

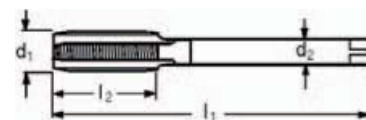


Special features: Set consisting of taper tap, second tap, bottom tap

Application: for universal use and materials up to approx. 1000 N/mm².



13 002...



d1	13 002...		13 002...	13 002...	13 002...		Pitch	l1	l2	d2	Square	Tapping drill size
	Set		Nr. 1	Nr. 2	Nr. 3		mm	mm	mm	mm	mm	mm
M 1	010		011	012	013		0.25	32	5.5	2.5	2.1	0.75
M 1.2	030		031	032	033		0.25	32	5.5	2.5	2.1	0.75
M 1.4	040		041	042	043		0.3	32	7	2.5	2.1	1.1
M 1.6	050		051	052	053		0.35	32	8	2.5	2.1	1.25
M 1.8	070		071	072	073		0.35	32	8	2.5	2.1	1.45
M 2	080		081	082	083		0.4	36	8	2.8	2.1	1.6
M 2.2	090		091	092	093		0.45	36	9	2.8	2.1	1.75
M 2.5	110		111	112	113		0.45	40	9	2.8	2.1	2.05
M 3	130		131	132	133		0.5	40	11	3.5	2.7	2.5
M 3.5	150		151	152	153		0.6	45	13	4	3	2.9
M 4	160		161	162	163		0.7	45	13	4.5	3.4	3.3
M 4.5	180		181	182	183		0.75	50	16	6	4.9	3.8
M 5	190		191	192	193		0.8	50	16	6	4.9	4.2
M 6	210		211	212	213		1	50	19	6	4.9	5
M 7	230		231	232	233		1	50	19	6	4.9	6
M 8	240		241	242	243		1.25	56	22	6	4.9	6.8
M 9	270		271	272	273		1.25	63	22	7	5.5	7.8
M 10	280		281	282	283		1.5	70	24	7	5.5	8.5
M 11	320		321	322	323		1.5	70	24	8	6.2	9.5
M 12	330		331	332	333		1.75	75	29	9	7	10.2
M 14	360		361	362	363		2	80	30	11	9	12
M 16	410		411	412	413		2	80	32	12	9	14
M 18	430		431	432	433		2.5	95	40	14	11	15.5
M 20	460		461	462	463		2.5	95	40	16	12	17.5
M 22	490		491	492	493		2.5	100	40	18	14.5	19.5
M 24	520		521	522	523		3	110	50	18	14.5	21
M 27	560		561	562	563		3	110	50	20	16	24
M 30	590		591	592	593		3.5	125	56	22	18	26.5
M 33	630		631	632	633		3.5	125	56	25	20	29.5
M 36	650		651	652	653		4	150	63	28	22	32
M 39	690		691	692	693		4	150	63	32	24	35
M 42	710		711	712	713		4.5	150	63	32	24	37.5
M 45	720		721	722	723		4.5	160	70	36	29	40.5
M 48	730		731	732	733		5	180	75	36	29	43

13 003 Hand taps



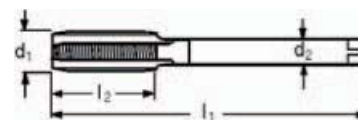
Special features: Set consisting of taper tap, second tap, bottom tap

Application: for universal use and materials up to approx. 1000 N/mm².

B 1189



13 003...



d1	13 003... Set		13 003... No. 1	13 003... No. 2	13 003... No. 3		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 1	010		011	012	013		0.25	32	5.5	2.5	2.1	0.75
M 1.2	030		031	032	033		0.25	32	5.5	2.5	2.1	0.75
M 1.4	040		041	042	043		0.3	32	7	2.5	2.1	1.1
M 1.6	050		051	052	053		0.35	32	8	2.5	2.1	1.25
M 1.8	070		071	072	073		0.35	32	8	2.5	2.1	1.45
M 2	080		081	082	083		0.4	36	8	2.8	2.1	1.6
M 2.2	090		091	092	093		0.45	36	9	2.8	2.1	1.75
M 2.5	110		111	112	113		0.45	40	9	2.8	2.1	2.05
M 3	130		131	132	133		0.5	40	11	3.5	2.7	2.5
M 3.5	150		151	152	153		0.6	45	13	4	3	2.9
M 4	160		161	162	163		0.7	45	13	4.5	3.4	3.3
M 4.5	180		181	182	183		0.75	50	16	6	4.9	3.8
M 5	190		191	192	193		0.8	50	16	6	4.9	4.2
M 6	210		211	212	213		1	50	19	6	4.9	5
M 7	230		231	232	233		1	50	19	6	4.9	6
M 8	240		241	242	243		1.25	56	22	6	4.9	6.8
M 9	270		271	272	273		1.25	63	22	7	5.5	7.8
M 10	280		281	282	283		1.5	70	24	7	5.5	8.5
M 11	320		321	322	323		1.5	70	24	8	6.2	9.5
M 12	330		331	332	333		1.75	75	29	9	7	10.2
M 14	360		361	362	363		2	80	30	11	9	12
M 16	410		411	412	413		2	80	32	12	9	14
M 18	430		431	432	433		2.5	95	40	14	11	15.5
M 20	460		461	462	463		2.5	95	40	16	12	17.5
M 22	490		491	492	493		2.5	100	40	18	14.5	19.5
M 24	520		521	522	523		3	110	50	18	14.5	21
M 27	560		561	562	563		3	110	50	20	16	24
M 30	590		591	592	593		3.5	125	56	22	18	26.5
M 33	630		631	632	633		3.5	125	56	25	20	29.5
M 36	650		651	652	653		4	150	63	28	22	32
M 39	690		691	692	693		4	150	63	32	24	35
M 42	710		711	712	713		4.5	150	63	32	24	37.5
M 45	720		721	722	723		4.5	160	70	36	29	40.5
M 48	730		731	732	733		5	180	75	36	29	43

13 004 Hand taps



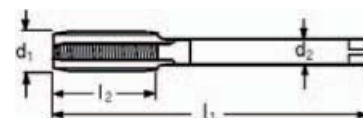
Special features: Set consisting of taper tap with pilot, second tap, bottom tap

Application: for higher strength materials (**1000-1300 N/mm²**) or materials difficult to machine (**stainless steels**, tool steels, hard bronze).

B 1149



13 004...



d1	13 004... Set		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 2	080		0.4	36	8	2.8	2.1	1.6
M 2.5	110		0.45	40	9	2.8	2.1	2.05
M 3	130		0.5	40	11	3.5	2.7	2.5
M 4	160		0.7	45	13	4.5	3.4	3.3
M 5	190		0.8	50	16	6	4.9	4.2
M 6	210		1	50	19	6	4.9	5
M 8	240		1.25	56	22	6	4.9	6.8
M 10	280		1.5	70	24	7	5.5	8.5
M 12	330		1.75	75	29	9	7	10.2
M 14	360		2	80	30	11	9	12
M 16	410		2	80	32	12	9	14

13 006 Hand taps



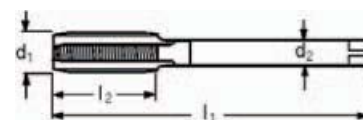
Special features: Set consisting of taper tap with pilot, second tap, bottom tap

Application: for materials extremely difficult to machine e.g. titanium alloys, Ni and Co based alloys, chilled cast iron, **steels over 1300 N/mm²**, Ampco alloys.

B 1169



13 006...



d1	13 006... Set		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	40	11	3.5	2.7	2.5
M 4	160		0.7	45	13	4.5	3.4	3.3
M 5	190		0.8	50	16	6	4.9	4.2
M 6	210		1	50	19	6	4.9	5
M 8	240		1.25	56	22	6	4.9	6.8
M 10	280		1.5	70	24	7	5.5	8.5
M 12	330		1.75	75	29	9	7	10.2

13 007 Hand taps

Wodex®

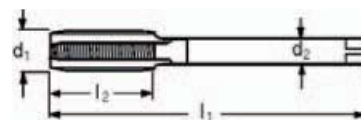


Special features: Set consisting of taper tap with pilot, second tap and bottom tap.

Application: High-strength materials up to approx. 1300 N/mm²
Tool steels, stainless & acid resistant steels, alloyed steels, hardened and tempered steels



13 007...



d1	13 007...		Pitch	l1	l2	d2	Square	Tapping drill size
	Set		mm	mm	mm	mm	mm	mm
M 3	003		0.50	40	11	3.5	2.7	2.5
M 4	004		0.70	45	13	4.5	3.4	3.3
M 5	005		0.80	50	16	6.0	4.9	4.2
M 6	006		1.00	56	19	6.0	4.9	5
M 8	008		1.25	63	22	6.0	4.9	6.8
M 10	010		1.50	70	24	7.0	5.5	8.5
M 12	012		1.75	75	28	9.0	7.0	10.2
M 14	014		2.00	80	30	11.0	9.0	12
M 16	016		2.00	80	32	12.0	9.0	14
M 18	018		2.50	95	34	14.0	11.0	15.5
M 20	020		2.50	95	34	16.0	12.0	17.5

13 009 Hand taps - left-hand

TITEX®

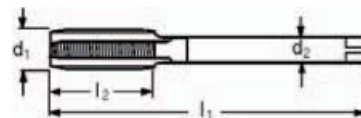


Special features: Set consisting of taper tap, second tap, bottom tap

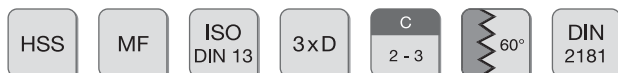
Application: for universal use and materials up to approx. 1000 N/mm².
B 1199 left-hand



13 009...



d1	13 009...		Pitch	l1	l2	d2	Square	Tapping drill size
	Set		mm	mm	mm	mm	mm	mm
M 3	130		0.5	40	11	3.5	2.7	2.5
M 4	160		0.7	45	13	4.5	3.4	3.3
M 5	190		0.8	50	16	6	4.9	4.2
M 6	210		1	50	19	6	4.9	5
M 8	240		1.25	56	22	6	4.9	6.8
M 10	280		1.5	70	24	7	5.5	8.5
M 12	330		1.75	75	29	9	7	10.2
M 14	360		2	80	30	11	9	12
M 16	410		2	80	32	12	9	14
M 20	460		2.5	95	40	16	12	17.5

13 011 Hand tap set**Wodex®****Special features:** Set consisting of taper tap, bottom tap**Application:** for universal use and materials up to approx. 1000 N/mm².

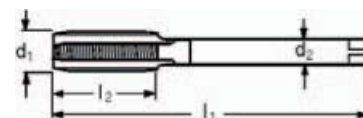
13 011...

13 013...

**13 013 Hand tap set
DIN 2181 HSS****TITEX®**

Type as 13 011...

B 2189



d1 x pitch mm	13 011... Wodex		13 013... Titex		l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 2 x 0.25	080		080		36	8	2.8	2.1	1.75
M 2 x 0.35	110		110		40	9	2.8	2.1	1.65
M 3.5 x 0.35	130		130		40	9	3.5	2.7	3.15
M 3 x 0.35	150		150		45	10	4	3	2.65
M 4 x 0.5	160		160		45	10	4.5	3.4	3.5
M 5 x 0.5	190		190		50	12	6	4.9	4.5
M 6 x 0.5	210		210		50	14	6	4.9	5.5
M 6 x 0.75	220		220		50	14	6	4.9	5.2
M 7 x 0.75	230		230		50	14	6	4.9	6.2
M 8 x 0.5	240		240		50	19	6	4.9	7.5
M 8 x 0.75	250		250		50	19	6	4.9	7.2
M 8 x 1	260		260		56	22	6	4.9	7
M 9 x 1	270		270		63	22	7	5.5	8
M 10 x 0.75	290		290		63	20	7	5.5	9.2
M 10 x 1	300		300		63	20	7	5.5	9
M 10 x 1.25	310		310		70	24	7	5.5	8.8
M 11 x 1	320		320		63	20	8	6.2	10
M 12 x 1	330		330		70	22	9	7	11
M 12 x 1.25	340		340		70	22	9	7	10.8
M 12 x 1.5	350		350		70	22	9	7	10.5
M 14 x 1	360		360		70	22	11	9	13
M 14 x 1.25	370		370		70	22	11	9	12.8
M 14 x 1.5	380		380		70	22	11	9	12.5
M 15 x 1	390		390		70	22	12	9	14
M 15 x 1.5	400		400		70	22	12	9	13.5
M 16 x 1	410		410		70	22	12	9	15
M 16 x 1.5	420		420		70	22	12	9	14.5
M 18 x 1	430		430		80	22	14	11	17
M 18 x 1.5	440		440		80	22	14	11	16.5
M 18 x 2	450		450		80	22	14	11	16
M 20 x 1	460		460		80	22	16	12	19
M 20 x 1.5	470		470		80	22	16	12	18.5
M 20 x 2	480		480		80	22	16	12	18
M 22 x 1	490		490		80	22	18	14.5	21
M 22 x 1.5	500		500		80	22	18	14.5	20.5
M 22 x 2	510		510		80	22	18	14.5	20
M 24 x 1	520		520		90	22	18	14.5	23
M 24 x 1.5	530		530		90	22	18	14.5	22.5
M 24 x 2	540		540		90	22	18	14.5	22
M 26 x 1.5	550		550		90	22	18	14.5	24.5
M 27 x 1.5	560		560		90	22	20	16	25.5
M 27 x 2	570		570		90	22	20	16	25
M 28 x 1.5	580		580		90	22	20	16	26.5
M 30 x 1	590		590		90	22	22	18	29
M 30 x 1.5	600		600		90	22	22	18	28.5
M 30 x 2	610		610		90	22	22	18	28
M 32 x 1.5	620		620		90	22	22	18	30.5
M 33 x 1.5	630		630		100	25	25	20	31.5
M 35 x 1.5	650		650		100	25	28	22	33.5
M 36 x 1.5	660		660		100	25	28	22	34.5
M 36 x 3	670		670		125	40	28	22	33
M 38 x 1.5	680		680		100	25	28	22	36.5
M 40 x 1.5	700		700		110	25	32	24	38.5
M 42 x 1.5	710		710		110	25	32	24	40.5
M 45 x 1.5	720		720		110	25	36	29	43.5
M 48 x 1.5	730		730		140	40	36	29	46.5
M 48 x 2	740		740		140	40	36	29	46
M 48 x 3	750		750		140	40	36	29	45
M 50 x 1.5	760		760		140	40	36	29	48.5

13 015 Hand tap set



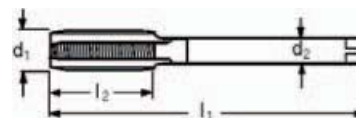

Special features: Set consisting of taper tap, second tap, bottom tap

Application: for universal use and materials up to approx. 1000 N/mm².

B 3189



13 015...



d1	13 015...		Pitch TPI	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
1/4	220		20	50	19	6	4.9	5.1
5/16	230		18	56	22	6	4.9	6.5
3/8	240		16	70	24	7	5.5	8.0
7/16	250		14	70	24	8	6.2	9.4
1/2	260		13	75	29	9	7	10.8
9/16	270		12	80	30	11	9	12.2
5/8	280		11	80	32	12	9	13.5
3/4	300		10	95	40	14	11	16.5
1	320		8	110	50	20	16	22.25

13 017 Hand tap set
HSS DIN 2184-1



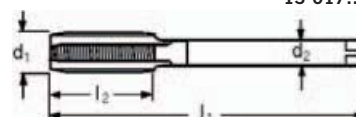
Special features: Set consisting of taper tap, bottom tap

Application: for universal use and materials up to approx. 1000 N/mm².

B 4189



13 017...



d1	13 017...		Pitch TPI	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
1/4	220		28	50	14	6	4.9	5.5
5/16	230		24	56	22	6	4.9	6.9
3/8	240		24	63	22	7	5.5	8.5
7/16	250		20	63	20	8	6.2	9.9
1/2	260		20	70	22	9	7	11.5
9/16	270		18	70	22	11	9	12.9
5/8	280		18	70	22	12	9	14.5
3/4	300		16	80	22	14	11	17.5
7/8	310		14	80	22	18	14.5	20.5
1	320		12	90	22	18	14.5	22.25

13 019 Hand tap set



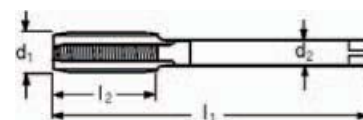
TITEX

Special features: Set consisting of taper tap, second tap, bottom tap

Application: for universal use and materials up to approx. 1000 N/mm².
B 6189



13 019...



d1	13 019...		Pitch TPI	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
1/8	160		40	40	11	3.5	2.7	2.5
5/32	180		32	45	13	4.5	3.4	3.2
3/16	190		24	50	16	6	4.9	3.7
7/32	200		24	50	17	6	4.9	4.5
1/4	220		20	50	19	6	4.9	5.1
5/16	230		18	56	22	6	4.9	6.5
3/8	240		16	63	22	7	5.5	7.9
7/16	250		14	70	24	8	6.2	9.25
1/2	260		12	75	29	9	7	10.5
9/16	270		12	80	30	11	9	12
5/8	280		11	80	32	12	9	13.5
3/4	300		10	95	40	14	11	16.5

13 021 Hand tap set

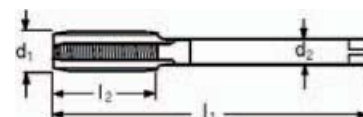


Wodex

Special features: Set consisting of taper tap, bottom tap



13 021...



d1	13 021...		Pitch TPI	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
G 1/8	170		28	63	20	7	5.5	8.8
G 1/4	220		19	70	22	11	9	11.8
G 3/8	240		19	70	22	12	9	15.25
G 1/2	260		14	80	22	16	12	19
G 3/4	300		14	90	22	20	16	24.50
G 1	320		11	100	25	25	20	30.75

13 023 Hand tap set

TITEX



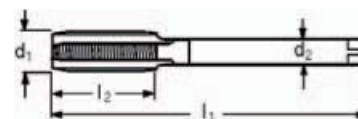
Special features: Set consisting of taper tap, bottom tap

Application: for universal use and materials up to approx. 1000 N/mm².

B 6689



13 023...



d1	13 023...		13 023...		13 023...		Pitch	l1	l2	d2	Square	Tapping drill size
	Set		Taper tap		Bottom tap		TPI	mm	mm	mm	mm	mm
G 1/16	140		141		143		28	56	22	6	4.9	6.6
G 1/8	170		171		173		28	63	20	7	5.5	8.8
G 1/4	220		221		223		19	70	22	11	9	11.8
G 3/8	240		241		243		19	70	22	12	9	15.25
G 1/2	260		261		263		14	80	22	16	12	19
G 5/8	280		281		283		14	80	22	18	14.5	21
G 3/4	300		301		303		14	90	22	20	16	24.5
G 7/8	310		311		313		14	90	22	22	18	28.25
G 1	320		321		323		11	100	25	25	20	30.75
G 1 1/4	340		341		343		11	125	40	32	24	39.5
G 1 1/2	370		371		373		11	140	40	36	29	45
G 1 3/4	390		391		393		11	140	40	40	32	51
G 2	410		411		413		11	160	40	45	35	57

13 040 Machine taps, short

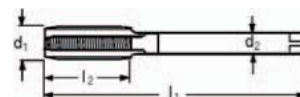
Wodex



Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 040...



d1	13 040...		Pitch	l1	l2	d2	Square	Tapping drill size
			mm	mm	mm	mm	mm	mm
M 3	130		0.5	40	11	3.5	2.7	2.5
M 4	160		0.7	45	13	4.5	3.4	3.3
M 5	190		0.8	50	16	6	4.9	4.2
M 6	210		1	50	19	6	4.9	5
M 8	240		1.25	56	22	6	4.9	6.8
M 10	280		1.5	70	24	7	5.5	8.5
M 12	330		1.75	75	29	9	7	10.2
P	8 - 12							
M	-							
K	-							
NE	10 - 26							
H	-							
S	3 - 4							

13 042 Machine taps, short

Wodex®

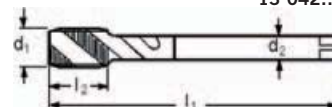


Type: Right-hand spiral R 15

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 042...



d1	13 042...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	40	11	3.5	2.7	2.5
M 4	160		0.7	45	13	4.5	3.4	3.3
M 5	190		0.8	50	16	6	4.9	4.2
M 6	210		1	50	19	6	4.9	5
M 8	240		1.25	56	22	6	4.9	6.8
M 10	280		1.5	70	24	7	5.5	8.5
M 12	330		1.75	75	29	9	7	10.2
P	6 - 12							
M	-							
K	-							
NE	8 - 18							
H	-							
S	2 - 3							

13 043 Machine taps, short

Wodex®

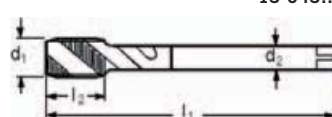


Type: Right-hand spiral R40

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 043...



d1	13 043...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	40	11	3.5	2.7	2.5
M 4	160		0.7	45	13	4.5	3.4	3.3
M 5	190		0.8	50	16	6	4.9	4.2
M 6	210		1	50	19	6	4.9	5
M 8	240		1.25	56	22	6	4.9	6.8
M 10	280		1.5	70	24	7	5.5	8.5
M 12	330		1.75	75	29	9	7	10.2
P	6 - 12							
M	-							
K	-							
NE	8 - 18							
H	-							
S	2 - 3							

13 044 Combined drill bit and taps

Wodex®



13 044...

Type: with ¼" hexagon shank according to DIN 3126, for use on drill presses or hand drills with reversing (right/left)

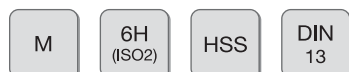
Application: for predrilling, thread cutting and deburring in one operation in steel, non-ferrous metals and plastic up to 600 N/mm², material thickness 1.5xd.

Ø	13 044...	
M 3	130	
M 4	160	
M 5	190	

Ø	13 044...	
M 6	210	
M 8	240	
M 10	280	

13 046 Combined drill bit and taps set

Wodex®



consisting of 13 044... incl. adapter

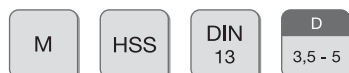


13 046 001

Ø range	13 046...		Contents pcs
M 3 - M 10	001		6

13 047 Single cut tap bits

Wodex®



13 047...

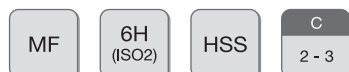
Type: with ¼" hexagon shank according to DIN 3126, for use on drill presses or hand drills with reversing (right/left), 4-5 pitch chamfer length

Application: for steel, non-ferrous metal and plastic up to 600 N/mm².

Size mm	13 047...		Overall length mm	Thread length mm	Tapping drill size mm
M 3	130		33	11	2.5
M 4	160		35	12	3.3
M 5	190		36	15	4.2
M 6	210		39	18	5
M 8	240		40	19	6.8
M 10	280		41	21	8.5

13 048 Special single cut tap

Wodex®



13 048...

form ground and relieved for metric ISO fine thread to DIN 13 ISO 2. Short type with outer hexagon drive for one-hand operation even in positions hard to access. With pilot for tap holes and perfectly aligned thread. Drive with "normal" sockets and ratchet. Pitch 1.5 mm, total length 51 mm, thread length 16.5 mm

Nominal size	13 048...		Drive SW	Tapping drill size mm
M 12	012		8	10.5
M 16	016		10	14.5
M 20	020		13	18.5
M 25	025		13	23.5
M 32	032		13	30.5

13 050 Machine taps

Wodex®



Application: Easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 050...

13 051 Machine taps

TITEX

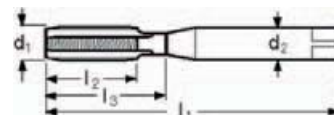


Application: Materials up to approx. 1000 N/mm², short-chipping as well as long-chipping (up to approx. 1xd).
M1 - M4 = tolerance 5H; M5 - M10 = tolerance 6H

B 1215



13 051...



d1	13 050...		13 051...		Pitch	l1	l2	d2	Square	Tapping
	Wodex		Titex		mm	mm	mm	mm	mm	drill size
M 1	-	-	010		0.25	40	5.5	2.5	2.1	0.75
M 1.2	-	-	030		0.25	40	5.5	2.5	2.1	0.75
M 1.4	-	-	040		0.3	40	7	2.5	2.1	1.1
M 1.6	-	-	050		0.35	40	8	2.5	2.1	1.25
M 1.8	-	-	070		0.35	40	8	2.5	2.1	1.45
M 2	-	-	080		0.4	45	8	2.8	2.1	1.6
M 2.2	-	-	090		0.45	45	9	2.8	2.1	1.75
M 2.5	-	-	110		0.45	50	9	2.8	2.1	2.05
M 3	130		130		0.5	56	11	3.5	2.7	2.5
M 3.5	150		150		0.6	56	13	4	3	2.9
M 4	160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		1	80	19	6	4.9	5
M 8	240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		1.5	100	24	10	8	8.5
P	8 - 12		5 - 18							
M	-		-							
K	-		-							
NE	10 - 26		10 - 35							
H	-		-							
S	3 - 4		5 - 8							

13 052 Machine taps

Wodex®



Application: Easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 052...

13 054 Machine taps DIN 376 HSS-E

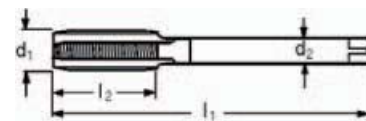
TITEX®



Application: Materials up to approx. 1000 N/mm², short-chipping as well as long-chipping (up to approx. 1xd). B 1315



13 054...



d1	13 052... Wodex		13 054... Titex		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 2	-	-	080		0.4	45	8	1.4	-	1.6
M 3	130		130		0.5	56	11	2.2	-	2.5
M 4	160		160		0.7	63	13	2.8	2.1	3.3
M 5	190		190		0.8	70	16	3.5	2.7	4.2
M 6	210		210		1	80	19	4.5	3.4	5
M 8	240		240		1.25	90	22	6	4.9	6.8
M 10	280		280		1.5	100	24	7	5.5	8.5
M 12	330		330		1.75	110	29	9	7	10.2
M 14	360		360		2	110	30	11	9	12
M 16	410		410		2	110	32	12	9	14
M 18	430		430		2.5	125	34	14	11	15.5
M 20	460		460		2.5	140	34	16	12	17.5
M 22	490		490		2.5	140	34	18	14.5	19.5
M 24	520		520		3	160	38	18	14.5	21
M 27	560		560		3	160	38	20	16	24
M 30	590		590		3.5	180	45	22	18	26.5
M 36	660		660		4	200	56	28	22	32
P	8 - 12		5 - 18							
M	-		-							
K	-		-							
NE	10 - 26		10 - 35							
H	-		-							
S	3 - 4		5 - 8							

13 056 Machine taps



Application: Easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 056...

13 057 Machine taps



Application: Materials up to approx. 1000 N/mm².
Tolerance: 4H and 6G available on request

B 1217



13 057...

d1	13 056...		13 057...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		mm	mm	mm	mm	mm	mm
M 2	080		080		0.4	45	8	2.8	2.1	1.6
M 2.5	110		110		0.45	50	9	2.8	2.1	2.05
M 3	130		130		0.5	56	11	3.5	2.7	2.5
M 3.5	-	-	150		0.6	56	13	4	3	2.9
M 4	160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		1	80	19	6	4.9	5
M 7	-	-	230		1	80	19	7	5.5	6
M 8	240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		1.5	100	24	10	8	8.5
P	8 - 12		5 - 18							
M	-		-							
K	-		-							
NE	10 - 26		10 - 35							
H	-		-							
S	3 - 4		5 - 8							

13 060 Machine taps



reduces the risk of overcutting

Application: Easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels

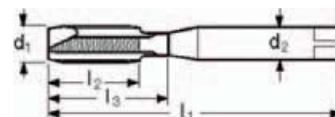


13 060 003 - ...010



13 060 012 - ...020

M3-M10=DIN 371 / M12-M20=DIN 376



d1	13 060...		Pitch	l1	l2	d2	Square	Tapping drill size
			mm	mm	mm	mm	mm	mm
M 3	003		0.50	56	11	3.5	2.7	2.5
M 4	004		0.70	63	13	4.5	3.4	3.3
M 5	005		0.80	70	16	6.0	4.9	4.2
M 6	006		1.00	80	19	6.0	4.9	5.0
M 8	008		1.25	90	22	8.0	6.2	6.8
M 10	010		1.50	100	24	10.0	8.0	8.5
M 12	012		1.75	110	28	9.0	7.0	10.2
M 16	016		2.00	110	32	12.0	9.0	14.0
M 20	020		2.50	140	34	16.0	12.0	17.5
P	10 - 15							
M	-							
K	-							
NE	-							
H	-							
S	-							

13 058 Machine taps, left cutting

Wodex®



Application: for through thread in materials up to approx. 800 N/mm².

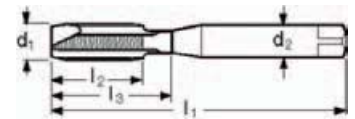
M3-M10=DIN 371 / M12-M20=DIN 376



13 058 130 - ...280



13 058 330 - ...460



d1	13 058...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	56	11	2.2	-	2.5
M 4	160		0.7	63	13	2.8	2.1	3.3
M 5	190		0.8	70	16	3.5	2.7	4.2
M 6	210		1	80	19	4.5	3.4	6.8
M 8	240		1.25	90	22	6	4.9	6.8
M 10	280		1.5	100	24	7	5.5	8.5
M 12	330		1.75	110	29	9	7	10.2
M 16	410		2	110	32	12	9	14
M 20	460		2.5	140	34	16	12	17.5
P	8 - 12							
M	-							
K	-							
NE	10 - 26							
H	-							
S	3 - 4							

13 059 Machine taps, left cutting

Wodex®



Type: Left-hand spiral L40

Application: for tapped blind hole in materials up to approx. 800 N/mm²

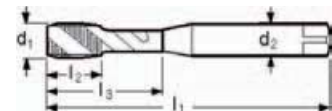
M3-M10=DIN 371 / M12-M20=DIN 376



13 059 130 - ...280



13 059 330 - ...460



d1	13 059...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	56	11	2.2	-	2.5
M 4	160		0.7	63	13	2.8	2.1	3.3
M 5	190		0.8	70	16	3.5	2.7	4.2
M 6	210		1	80	19	4.5	3.4	5
M 8	240		1.25	90	22	6	4.9	6.8
M 10	280		1.5	100	24	7	5.5	8.5
M 12	330		1.75	110	29	9	7	10.2
M 16	410		2	110	32	12	9	14
M 20	460		2.5	140	34	16	12	17.5
P	6 - 10							
M	-							
K	-							
NE	8 - 18							
H	-							
S	2 - 3							



13 061 Machine taps

Wodex®

Application: for through thread in materials up to approx. 800 N/mm².

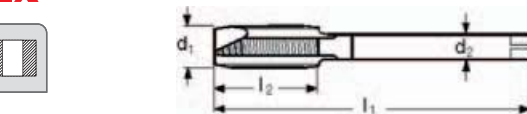
13 061...

13 062 Machine taps

TITEX®

Application: for through thread in materials up to approx. 1000 N/mm².

B 1317



13 062...

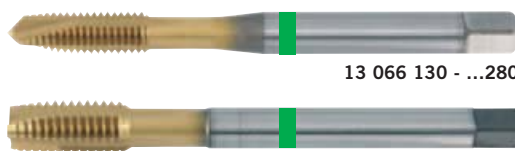
d1	13 061...		13 062...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		mm	mm	mm	mm	mm	mm
M 3	130		130		0.5	56	11	2.2	-	2.5
M 4	160		160		0.7	63	13	2.8	2.1	3.3
M 5	190		190		0.8	70	16	3.5	2.7	4.2
M 6	210		210		1	80	19	4.5	3.4	5
M 7	-	-	230		1	80	19	5.5	4.3	6
M 8	240		240		1.25	90	22	6	4.9	6.8
M 10	280		280		1.5	100	24	7	5.5	8.5
M 12	330		330		1.75	110	29	9	7	10.2
M 14	360		360		2	110	30	11	9	12
M 16	410		410		2	110	32	12	9	14
M 18	430		430		2.5	125	34	14	11	15.5
M 20	460		460		2.5	140	34	16	12	17.5
M 22	490		490		2.5	140	34	18	14.5	19.5
M 24	520		520		3	160	38	18	14.5	21
M 27	560		560		3	160	38	20	16	24
M 30	590		590		3.5	180	45	22	18	26.5
M 33	630		630		3.5	180	50	25	20	29.5
M 36	660		660		4	200	56	28	22	32
M 39	-	-	690		4	200	60	32	24	35
M 42	-	-	710		4.5	200	60	32	24	37.5
P	8 - 12		5 - 18							
M	-		-							
K	-		-							
NE	10 - 26		10 - 35							
H	-		-							
S	3 - 4		5 - 8							

13 066 Machine taps

Wodex®



Application: Easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 066 130 - ...280

13 066 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 068 Machine taps

TITEX®



Application: Materials up to approx. 1000 N/mm², short-chipping as well as long-chipping



13 068 130 - ...280

13 068 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

B 1217 TiN; B 1317 TiN

13 070 Machine taps

TITEX®



Application: high-alloy steel materials

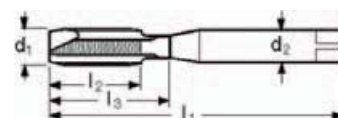


13 070 130 - ...280

13 070 330 - ...410

M3-M10=DIN 371 / M12-M20=DIN 376

B 1217 TCN; B 1317 TCN



d1	13 066...		13 068...		13 070...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		Titex		mm	mm	mm	mm	mm	mm
M 3	130		130		130		0.5	56	11	3.5	2.7	2.5
M 3.5	-	-	150		-	-	0.6	56	13	4	3	2.9
M 4	160		160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		210		1	80	19	6	4.9	5
M 8	240		240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		280		1.5	100	24	10	8	8.5
M 12	330		330		330		1.75	110	29	9	7	10.2
M 14	360		360		-	-	2	110	30	11	9	12
M 16	410		410		410		2	110	32	12	9	14
M 18	430		430		-	-	2.5	125	34	14	11	15.5
M 20	460		460		-	-	2.5	140	34	16	12	17.5
P	12 - 18		15 - 30		15 - 35							
M	-		5 - 10		5 - 12							
K	-		20 - 40		20 - 40							
NE	15 - 26		15 - 35		15 - 35							
H	-		-		-							
S	4 - 5		8 - 12		8 - 12							

13 072 Machine taps

TITEX



Application: for cast iron with flake graphite as well as for brittle plastics.

M3-M10=DIN 371 / M12-M30=DIN 376

B 1218; B 1318



13 072 130 - ...280



13 072 330 - ...590

13 074 Machine taps

Wodex



Application: Short-chipping materials

grey cast iron, nodular cast iron, non-ferrous metals,
plastics (e.g. Bakelite, fibre reinforced)
also suitable for dry machining

13 074 130 - ...280



13 074 330 - ...460

13 075 Machine taps

TITEX



Application: also suitable for dry machining

M3-M10=DIN 371 / M12-M30=DIN 376

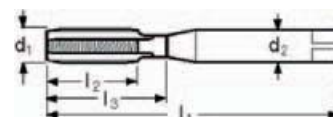
B 1218 TFL; B 1318 TFL



13 075 130 - ...280



13 075 330 - ...460



d1	13 072...		13 074...		13 075...		Pitch	l1	l2	d2	Square	Tapping
	Titex		Wodex		Titex		mm	mm	mm	mm	mm	drill size
M 3	130		130		130		0.5	56	11	3.5	2.7	2.7
M 4	160		160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		210		1	80	19	6	4.9	5
M 8	240		240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		280		1.5	100	24	10	8	8.5
M 12	330		330		330		1.75	110	29	9	7	10.2
M 14	360		-	-	360		2	110	30	11	9	12
M 16	410		410		410		2	110	32	12	9	14
M 18	430		-	-	430		2.5	125	34	14	11	15.5
M 20	460		460		460		2.5	140	34	16	12	17.5
M 24	520		-	-	-	-	3	160	38	18	14.5	21
M 30	590		-	-	-	-	3.5	180	45	22	18	26.5
P	-		-		-							
M	5 - 10		-		5 - 12							
K	15 - 30		15 - 22		15 - 40							
NE	10 - 25		8 - 26		10 - 30							
H	-		-		-							
S	3 - 5		-		5 - 8							

13 076 Machine taps

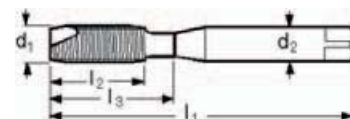
TITEX



13 076...

Application: shallow depth in materials up to approx. **800 N/mm²**, preferably for drawn collars

B 1222



d1	13 076...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 2.5	110		0.45	50	9	2.8	2.1	2.05
M 3	130		0.5	56	11	3.5	2.7	2.5
M 4	160		0.7	63	13	4.5	3.4	3.3
M 5	190		0.8	70	16	6	4.9	4.2
M 6	210		1	80	19	6	4.9	5
M 8	240		1.25	90	22	8	6.2	6.8
M 10	280		1.5	100	24	10	8	5.5
P	5 - 15							
M	5 - 10							
K	-							
NE	5 - 10							
H	-							
S	-							

13 078 Machine taps

TITEX

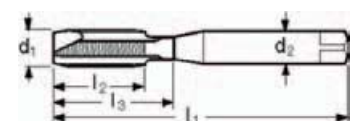


13 078...

Type: straight fluted, with two flutes, large chip spaces and spiral point

Application: for long-chipping materials of low to medium strength, e.g. steels up to approx. **700 N/mm²**, Al and Cu alloys.

B 1223



d1	13 078...	Price	Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	56	11	3.5	2.7	2.5
M 4	160		0.7	63	13	4.5	3.4	3.3
M 5	190		0.8	70	16	6	4.9	4.2
M 6	210		1	80	19	6	4.9	5
M 8	240		1.25	90	22	8	6.2	6.8
M 10	280		1.5	100	24	10	8	8.5
P	5 - 15							
M	-							
K	-							
NE	5 - 20							
H	-							
S	-							

Chipless fluteless tap



Advantages chipless tapping:

- **Consistent accuracy** of the thread produced. Prevents too large or too small cutting. All threads are absolutely within the tolerances over their whole length.
- **Higher loading capacity** of the thread produced, especially in thin sheet metals and materials with low tensile strength, because the material's grain flow is not cut through.
- **Only one fluteless tap is required for through and blind hole thread.**
- **Cost cutting** due to long tool life of the fluteless tap (no blunting) and due to shorter cycle time when using higher speed (whereby the materials generally flow better).

Requirements for the use of fluteless taps:

- **Materials with good workability.**
This includes almost all non-ferrous metals and aluminium alloys, including those which are short-chipping with 1 to 3 % elongation at break only.
AlSi alloys up to max. 12% Si. Very many grades of steel can be formed, even quenched and tempered steels with 900 N/mm². However, the application limits can only be determined by way of practical trials.
- **Lubrication**
Good anti-friction properties are particularly important for the thread format. Lubricative, graphite containing cooling lubricant or oils should be used for fluteless taps/formers, or a suitable additive added to the existing lubricant. **TiN**-coated fluteless taps produce very good results in various materials with emulsion too.
- **Larger drilled hole diameter** than the tap drill size of a thread made using cutting methods. The root of the thread formed may not be fully formed. However, the degree of thread engagement is 70 to 75 %.

13 077 Fluteless tap



Application: Materials with good workability up to approx. 1000 N/mm²

Steels and non-ferrous metals with min. 8% elongation
Bright for non-ferrous metals
With oil grooves for deeper thread



13 077 330 - ...480



13 077 490 - ...510

13 077 Fluteless tap

Application: Materials with good workability up to approx. 1000 N/mm²

Steels and non-ferrous metals with min. 8% elongation
TiN for higher tapping speeds and longer tool lives
With oil grooves for deeper thread

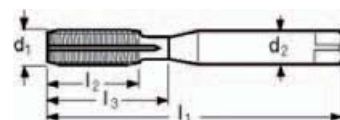
Wodex



13 077 530 - ...680



13 077 870 - ...890



d1	13 077... bright		13 077... TiN		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	330		530		0.5	56	11	3.5	2.7	2.8
M 4	360		560		0.7	63	13	4.5	3.4	3.7
M 5	390		590		0.8	70	16	6.0	4.9	4.65
M 6	410		610		1.0	80	19	6.0	4.9	5.55
M 8	440		640		1.25	90	22	8.0	6.2	7.40
M 10	480		680		1.5	100	24	10.0	8.0	9.20
M 12	490		870		1.75	110	28	9.0	7.0	11.20
M 14	500		880		2.00	110	30	11.0	9.0	13.10
M 16	510		890		2.00	110	32	12.0	9.0	15.10
P	15 - 20		12 - 25							
M	-		6 - 10							
K	-		-							
NE	12 - 18		15 - 26							
H	-		-							
S	-		-							



13 079 Fluteless tap

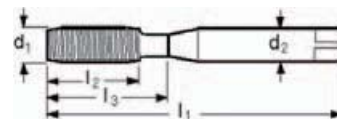
Wodex



Application: Materials with good workability up to approx. 1000 N/mm²
Steels and non-ferrous metals with min. 8% elongation
Bright for non-ferrous metals



13 079...



d1	13 079...		Pitch	l1	l2	d2	Square	Tapping drill size
			mm	mm	mm	mm	mm	mm
M 2	020		0.4	45	9	2.8	2.1	1.82
M 2.5	025		0.45	50	9	2.8	2.1	2.30
M 3	330		0.5	56	11	3.5	2.7	2.8
M 4	360		0.7	63	13	4.5	3.4	3.7
M 5	390		0.8	70	16	6.0	4.9	4.65
M 6	410		1.0	80	19	6.0	4.9	5.55
M 8	440		1.25	90	22	8.0	6.2	7.40
M 10	480		1.5	100	24	10.0	8.0	9.20
P	15 - 20							
M	-							
K	-							
NE	12 - 18							
H	-							
S	-							

13 080 Fluteless tap

TITEX



Application: For chipless making of threads in non-ferrous metals with good workability, e.g Al and Cu alloys.

Tolerance: 6GX available on request

B 1227 BLK



13 080 330 - ...480

13 080 Fluteless tap

TITEX

Type as 13 080..., however, with additional **TiN** coating

Application: For chipless making of blind hole and through threads in steel materials up to approx. 1000 N/mm² including stainless steels and non-ferrous metals.

M3 - M10 DIN 371 / M12 - M16 DIN 376

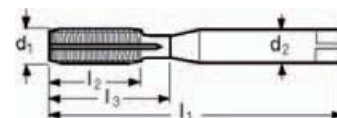
B 1227 TiN; B 1327 TiN



13 080 530 - ...680



13 080 870 - ...890



d1	13 080... bright		13 080... TiN		Pitch	l1	l2	d2	Square	Tapping drill size
					mm	mm	mm	mm	mm	mm
M 3	330		530		0.5	56	11	3.5	2.7	2.8
M 4	360		560		0.7	63	13	4.5	3.4	3.7
M 5	390		590		0.8	70	16	6.0	4.9	4.65
M 6	410		610		1.0	80	19	6.0	4.9	5.55
M 8	440		640		1.25	90	22	8.0	6.2	7.40
M 10	480		680		1.5	100	24	10.0	8.0	9.20
M 12	-	-	870		1.75	110	28	9.0	7.0	11.20
M 14	-	-	880		2.00	110	30	11.0	9.0	13.10
M 16	-	-	890		2.00	110	32	12.0	9.0	15.10
P	-		10 - 20							
M	-		5 - 10							
K	-		-							
NE	5 - 15		20 - 40							
H	-		-							
S	-		-							



13 081 Fluteless tap



Application: Non-ferrous metals with adequate workability

Tolerance: 6GX available on request

B 1225 BLK



13 081...

13 083 Fluteless tap

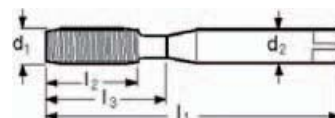
Type as 13 081... however surface **TiN** coated

Application: For chipless making of threads in steel materials up to approx. 1000 N/mm² including stainless steels and non-ferrous metals.

B 1225 TiN



13 083...



d1	13 081...		13 083...		Pitch	l1	l2	d2	Square	Tapping drill size
	bright		TiN		mm	mm	mm	mm	mm	mm
M 2	020		020		0.40	45	9	2.8	2.1	1.82
M 2.5	025		025		0.45	50	9	2.8	2.1	2.30
M 3	330		330		0.50	56	9	3.5	2.7	2.80
M 4	360		360		0.70	63	12	4.5	3.4	3.70
M 5	390		390		0.80	70	13	6.0	4.9	4.65
M 6	410		410		1.00	80	15	6.0	4.9	5.55
M 8	440		440		1.25	90	18	8.0	6.2	7.40
M 10	480		480		1.50	100	20	10.0	8.0	9.20
P	-		10 - 20							
M	-		5 - 10							
K	-		-							
NE	5 - 15		20 - 40							
H	-		-							
S	-		-							

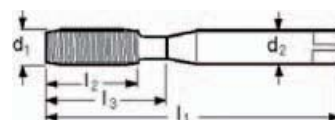
13 087 Fluteless tap



Application: Materials with good workability up to approx. 1000 N/mm²
Steels and non-ferrous metals with min. 8% elongation
TiN for higher tapping speeds and longer tool lives



13 087...



d1	13 087...		Pitch	l1	l2	d2	Square	Tapping drill size
			mm	mm	mm	mm	mm	mm
M 2	020		0.40	45	9	2.8	2.1	1.82
M 2.5	025		0.45	50	9	2.8	2.1	2.30
M 3	330		0.50	56	9	3.5	2.7	2.80
M 4	360		0.70	63	12	4.5	3.4	3.70
M 5	390		0.80	70	13	6.0	4.9	4.65
M 6	410		1.00	80	15	6.0	4.9	5.55
M 8	440		1.25	90	18	8.0	6.2	7.40
M 10	480		1.50	100	20	10.0	8.0	9.20
P	12 - 25							
M	6 - 10							
K	-							
NE	15 - 26							
H	-							
S	-							

13 085 High-performance fluteless tap

TITEX



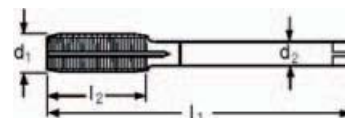
Type: with oil grooves

Application: Steel materials up to approx. 1000 N/mm² including stainless steels and easily malleable non-ferrous metals

B 1367 TCN



13 085...



d1	13 085...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 12	330		1.75	110	29	9	7	11.20
M 14	360		2.00	110	30	11	9	13.10
M 16	410		2.00	110	32	12	9	15.10
P	10 - 35							
M	5 - 15							
K	-							
NE	20 - 40							
H	-							
S	-							

13 086 High-performance fluteless tap

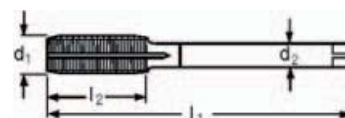
Wodex



Application: Materials with good workability up to approx. 1000 N/mm²
Steels and non-ferrous metals with min. 8% elongation
TiCN for higher tapping speeds and longer tool lives
With oil grooves for deeper thread



13 086...



d1	13 086...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 12	330		1.75	110	29	9	7	11.20
M 14	360		2.00	110	30	11	9	13.10
M 16	410		2.00	110	32	12	9	15.10
P	15 - 30							
M	6 - 10							
K	-							
NE	26 - 32							
H	-							
S	-							

13 082 Machine taps

Wodex®



Application: Long-chipping non-ferrous materials
Aluminium and aluminium alloys (less than 5% Si),
copper and copper alloys, brass, soft bronze

M3-M10=DIN 371 / M12-M20=DIN 376



13 082 130 - ...280



13 082 330 - ...460

13 084 Machine taps

TITEX®



Type: with spiral point

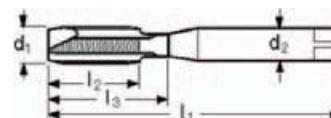
Application: soft, long-chipping materials, e.g. wrought Al alloys,
copper and zinc alloys, thermoplastics.

M2.5-M10=DIN 371

B 1221



13 084...



d1	13 082...		13 084...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		mm	mm	mm	mm	mm	mm
M 2.5	-	-	110		0.45	50	9	2.8	2.2	2.05
M 3	130	-	130		0.5	56	11	3.5	2.7	2.5
M 3.5	-	-	150		0.6	56	13	4	3	2.9
M 4	160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		1	80	19	6	4.9	5
M 8	240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		1.5	100	24	10	8	8.5
M 12	330		-	-	1.75	110	29	9	7	10.2
M 16	410		-	-	2	110	32	12	9	14
M 20	460		-	-	2.5	140	34	16	12	17.5
P	-		5 - 15							
M	-		-							
K	-		-							
NE	12 - 26		10 - 20							
H	-		-							
S	-		-							

13 089 Machine taps

Wodex®



Type: with spiral point

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 089 130 - ...280



13 089 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 088 Machine taps

Wodex®



Type: with spiral point

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 088 130 - ...280



13 088 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 090 Machine taps
DIN 371/376 HSS-E

TITEX®



Type: with spiral point

Application: difficult to machine materials, e.g. steels from 1000-1350 N/mm², stainless steels, bronze



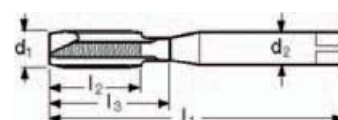
13 090 130 - ...280



13 090 330 - ...520

M2-M10=DIN 371 / M12-M24=DIN 376

B 1244; B 1344



d1	13 089... Wodex		13 088... Wodex		13 090... Titex		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 2	-	-	-	-	080		0.4	45	8	2.8	2.1	1.6
M 2.5	-	-	-	-	110		0.45	50	9	2.8	2.1	2.05
M 3	130		130		130		0.5	56	11	3.5	2.7	2.5
M 4	160		160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		190		0.8	70	16	6.0	4.9	4.2
M 6	210		210		210		1	80	19	6.0	4.9	5
M 8	240		240		240		1.25	90	22	8.0	6.2	6.8
M 10	280		280		280		1.5	100	24	10.0	8.0	8.5
M 12	330		330		330		1.75	110	29	9.0	7.0	10.2
M 14	-	-	360		360		2	110	30	11.0	9.0	12
M 16	410		410		410		2	110	32	12.0	9.0	14
M 18	-	-	430		430		2.5	125	34	14.0	11.0	15.5
M 20	460		460		460		2.5	140	34	16.0	12.0	17.5
M 22	-	-	-	-	490		2.5	140	34	18.0	14.5	19.5
M 24	-	-	-	-	520		3	160	38	18.0	14.5	21
P	6 - 12		8 - 15		5 - 15							
M	5 - 6		6 - 8		5 - 10							
K	8 - 12		10 - 15		10 - 18							
NE	8 - 26		8 - 18		5 - 20							
H	-		-		-							
S	3 - 4		3 - 4		5 - 8							

13 093 Machine taps

Wodex®



Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels, aluminium and aluminium alloys (long-chipping), copper and copper alloys (long-chipping)

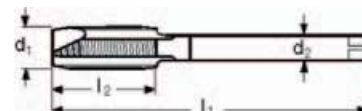


13 093...



13 093...

M3-M10=DIN 371 / M12-M20=DIN 376



d1	13 093..		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	56	11	3.5	2.7	2.5
M 4	160		0.7	63	13	4.5	3.4	3.3
M 5	190		0.8	70	16	6	4.9	4.2
M 6	210		1	80	19	6	4.9	5
M 8	240		1.25	90	22	8	6.2	6.8
M 10	280		1.5	100	24	10	8	8.5
M 12	330		1.75	100	24	10	8	10.2
M 14	360		2	100	24	10	8	12
M 16	410		2	100	24	10	8	14
M 18	430		2.5	100	24	10	8	15.5
M 20	460		2.5	100	24	10	8	17.5
P	12 - 22							
M	10 - 12							
K	15 - 25							
NE	15 - 32							
H	-							
S	5 - 6							

13 092 Machine taps

TITEX®



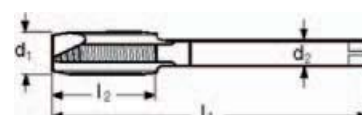
Type: with spiral point

Application: Especially for difficult to machine steel materials with higher strength 1000 - 1300 N/mm² stainless steels, tool steels.

B 1244 FNZ



13 092...



d1	13 092..		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	56	11	3.5	2.7	2.5
M 4	160		0.7	63	13	4.5	3.4	3.3
M 5	190		0.8	70	16	6	4.9	4.2
M 6	210		1	80	19	6	4.9	5
M 8	240		1.25	90	22	8	6.2	6.8
M 10	280		1.5	100	24	10	8	8.5
P	5 - 15							
M	5 - 10							
K	10 - 18							
NE	5 - 20							
H	-							
S	5 - 8							

13 094 Machine taps

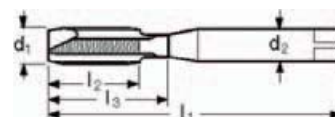


13 094...

Type: with spiral point

Application: extremely difficult to machine materials, e.g. titanium alloys, Ni and Co based alloys, **steels over 1000 N/mm²**.

B 1247



HSS-E-PM =
higher cutting edge stability

d1	13 094...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	330		0.5	56	11	3.5	2.7	2.5
M 4	360		0.7	63	13	4.5	3.4	3.3
M 5	390		0.8	70	16	6	4.9	4.2
M 6	410		1	80	19	6	4.9	5
M 8	440		1.25	90	22	8	6.2	6.8
M 10	480		1.5	100	24	10	8	8.5
P	-							
M	5 - 15							
K	-							
NE	-							
H	-							
S	10 - 15							



**PRIMAT® cutting oils and
metalworking fluids are included
in Group 69.**

13 098 Machine taps

Wodex®



Special features: with interrupted threads

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 098 130 - ...280



13 098 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 101 Machine taps

TITEX®



Special features: with interrupted threads

Application: for tapping in components and materials which tend to cause the tap to jam, e.g. thin-walled, flexible pipes, stainless steels, bronze.



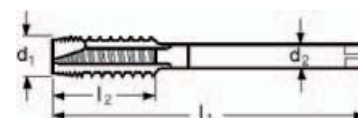
13 101 130 - ...280



13 101 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

B 1245; B 1345



d1	13 098...		13 101...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		mm	mm	mm	mm	mm	mm
M 3	130		130		0.5	56	11	3.5	2.7	2.5
M 4	160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		1	80	19	6	4.9	5
M 8	240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		1.5	100	24	10	8	8.5
M 12	330		330		1.75	110	29	9	7	10.2
M 14	360		360		2	110	30	11	9	12
M 16	410		410		2	110	32	12	9	14
M 20	460		460		2.5	140	34	16	12	17.5
P	8 - 15		5 - 18							
M	6 - 8		5 - 8							
K	10 - 15		-							
NE	8 - 18		5 - 20							
H	-		-							
S	3 - 4		5 - 8							

13 117 Machine taps

Wodex



Type: Right-hand spiral R15

Application: Easily machinable materials up to approx. 800 N/mm² structural steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 117 130 - ...280



13 117 330 - ...520

M3-M10=DIN 371 / M12-M24=DIN 376

13 118 Machine taps

TITEX



Type: Right-hand spiral R15

Application: preferably in long-chipping materials with low to medium strength, e.g. steels up to approx. 1000 N/mm², AISi alloys, tough brass alloys, thermoplastics.



13 118 130 - ...280

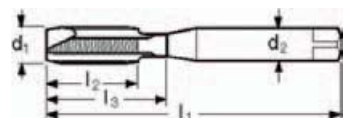


13 118 330 - ...520

Tolerance: 6G (ISO 3) to M 10 available on request

M3-M10=DIN 371 / M12-M30=DIN 376

B 1231; B 1331



d1	13 117...		13 118...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		mm	mm	mm	mm	mm	mm
M 2	-	-	080		0.4	45	8	2.8	2.1	1.6
M 3	130		130		0.5	56	11	3.5	2.7	2.5
M 4	160		160		0.7	63	13	4.5	3.4	3.3
M 5	190		190		0.8	70	16	6	4.9	4.2
M 6	210		210		1	80	19	6	4.9	5
M 8	240		240		1.25	90	22	8	6.2	6.8
M 10	280		280		1.5	100	24	10	8	8.5
M 12	330		330		1.75	110	29	9	7	10.2
M 14	360		360		2	110	30	11	9	12
M 16	410		410		2	110	32	12	9	14
M 20	460		460		2.5	140	34	16	12	17.5
M 22	490		490		2.5	140	34	18	14.5	19.5
M 24	520		520		3	160	38	18	14.5	21
M 27	-	-	560		3	160	38	20	16	24
M 30	-	-	590		3.5	180	45	22	18	26.5
P	6 - 10		5 - 15							
M	-		3 - 5							
K	-		10 - 15							
NE	8 - 18		10 - 20							
H	-		-							
S	2 - 3		3 - 5							

13 119 Machine taps



Type: Right-hand spiral R40

Application: Easily machinable materials up to approx. 800 N/mm²
bright Structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



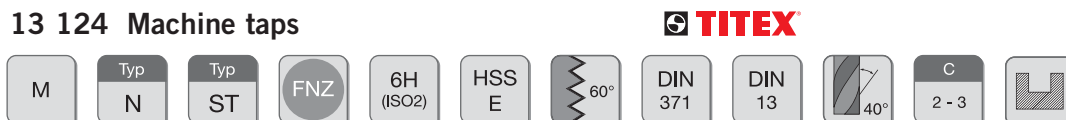
13 119 080 - ...280



13 119 330 - ...480

Application: soft, lubricating materials up to approx. 800 N/mm²
FNZ Structural steels, free-cutting steels

13 124 Machine taps



Type: Right-hand spiral R40

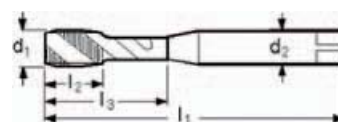
Application: long-chipping materials up to approx. 1000 N/mm², preferably for thread depths over 1.5 x d.
 B 1233; B 1233 FNZ



13 124 080 - ...280



13 124 330 - ...480



d1	13 119...		13 119...		13 124...		13 124...		Pitch	l1	l2	d2	Square	Tapping
	Wodex		FNZ Wodex		Titex		FNZ Titex		mm	mm	mm	mm	mm	mm
M 2	080	-	-	-	080	-	-	-	0.4	45	4	2.8	2.1	1.6
M 2.2	-	-	-	-	090	-	-	-	0.45	45	4	2.8	2.1	1.75
M 2.5	110	-	-	-	110	-	-	-	0.45	50	4	2.8	2.1	2.05
M 3	130	-	330	-	130	-	330	-	0.5	56	6	3.5	2.7	2.5
M 3.5	150	-	-	-	150	-	-	-	0.6	56	6	4	3	2.9
M 4	160	-	360	-	160	-	360	-	0.7	63	7	4.5	3.4	3.3
M 5	190	-	390	-	190	-	390	-	0.8	70	8	6	4.9	4.2
M 6	210	-	410	-	210	-	410	-	1	80	10	6	4.9	5
M 8	240	-	440	-	240	-	440	-	1.25	90	13	8	6.2	6.8
M 10	280	-	480	-	280	-	480	-	1.5	100	15	10	8	8.5
P	6 - 10	-	8 - 12	-	5 - 15	-	5 - 15	-						
M	-	-	-	-	3 - 5	-	3 - 5	-						
K	-	-	-	-	-	-	-	-						
NE	8 - 18	-	-	-	5 - 20	-	5 - 20	-						
H	-	-	-	-	-	-	-	-						
S	2 - 3	-	-	-	3 - 5	-	3 - 5	-						

13 122 Machine taps

Wodex



Type: Right-hand spiral R40

Application: Easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 122...

13 128 Machine taps DIN 376 HSS-E

TITEX



Type: Right-hand spiral R40

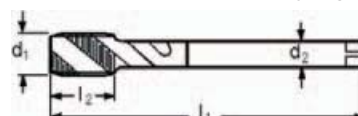
Application: long-chipping materials up to approx. 1000 N/mm², preferably for thread depths over 1.5 x d



13 128...

Tolerance: 6G (ISO 3) available on request

B 1333



d1	13 122...		13 128...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex		Titex		mm	mm	mm	mm	mm	mm
M 3	130		130		0.5	56	6	2.2	0	2.5
M 3.5	150		150		0.6	56	6	2.5	2.1	2.9
M 4	160		160		0.7	63	7	2.8	2.1	3.3
M 5	190		190		0.8	70	8	3.5	2.7	4.2
M 6	210		210		1	80	10	4.5	3.4	5
M 7	230		230		1	80	10	5.5	4.3	6
M 8	240		240		1.25	90	13	6	4.9	6.8
M 10	280		280		1.5	100	15	7	5.5	8.5
M 12	330		330		1.75	110	16	9	7	10.2
M 14	360		360		2	110	20	11	9	12
M 16	410		410		2	110	20	12	9	14
M 18	430		430		2.5	125	25	14	11	15.5
M 20	460		460		2.5	140	25	16	12	17.5
M 22	490		490		2.5	140	25	18	14.5	19.5
M 24	520		520		3	160	30	18	14.5	21
M 27	560		560		3	160	30	20	16	24
M 30	590		590		3.5	180	35	22	18	26.5
P	8 - 12		5 - 15							
M	-		-							
K	-		-							
NE	10 - 26		5 - 20							
H	-		-							
S	3 - 4		3 - 5							

13 130 Machine taps

Wodex®



Type: Right-hand spiral R40

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 130 130 - ...280



13 130 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 134 Machine taps

TITEX®



Type: Right-hand spiral R40

Application: long-chipping materials up to approx. 1000 N/mm², preferably for thread depths over 1.5 x d.



13 134 130 - ...280



13 134 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

B 1233 TiN; B 1333 TiN

13 138 Machine taps

TITEX®



Type: Right-hand spiral R40

Application: high-alloy steel materials

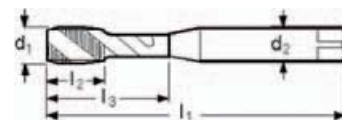
13 138 130 - ...280



13 138 330 - ...410

M3-M10=DIN 371 / M12-M20=DIN 376

B 1233 TCN; B 1333 TCN



d1	13 130...		13 134...		13 138...		Pitch	l1	l2	d2	Square	Tapping drill size
	Wodex TiN		Titex TiN		Titex TiCN		mm	mm	mm	mm	mm	mm
M 3	130	-	130	-	130	-	0.5	56	5	3.5	2.7	2.5
M 3.5	-	-	150	-	-	-	0.6	56	6	4	3	2.9
M 4	160	-	160	-	160	-	0.7	63	7	4.5	3.4	3.3
M 5	190	-	190	-	190	-	0.8	70	8	6	4.9	4.2
M 6	210	-	210	-	210	-	1	80	10	6	4.9	5
M 7	-	-	230	-	-	-	1	80	10	7	5.5	6
M 8	240	-	240	-	240	-	1.25	90	12	8	6.2	6.8
M 10	280	-	280	-	280	-	1.5	100	15	10	8	8.5
M 12	330	-	330	-	330	-	1.75	110	16	9	7	10.2
M 14	-	-	360	-	360	-	2	110	20	11	9	12
M 16	410	-	410	-	410	-	2	110	20	12	9	14
M 18	-	-	430	-	-	-	2.5	125	25	14	11	15.5
M 20	460	-	460	-	-	-	2.5	140	25	16	12	17.5
P	12 - 18		10 - 30		10 - 35							
M	-		5 - 10		5 - 10							
K	-		-		-							
NE	15 - 26		10 - 30		10 - 30							
H	-		-		-							
S	4 - 5		5 - 10									

13 147 Machine taps

Wodex



Type: Right-hand spiral R45

Application: Long-chipping non-ferrous materials

Aluminium and aluminium alloys (less than 5% Si), copper and copper alloys, brass, soft bronze

M2-M10=DIN 371 / M12-M20=DIN 376



13 147 130 - ...280



13 147 330 - ...460

13 148 Machine taps

TITEX



Type: Right-hand spiral R45

Application: long-chipping materials, e.g. wrought Al alloys, Cu alloys

M2-M10=DIN 371 / M12-M20=DIN 376

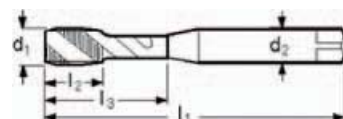
B 1235



13 148 080 - ...280



13 148 330 - ...460



d1	13 147...		13 148...		Pitch	l1	l2	d2	Square	Tapping
	Wodex		Titex		mm	mm	mm	mm	mm	drill size
M 2	-	-	080		0.4	45	8	2.8	2.1	1.6
M 2.5	-	-	110		0.45	50	9	2.8	2.1	2.05
M 3	130		130		0.5	56	5	3.5	2.7	2.5
M 4	160		160		0.7	63	7	4.5	3.4	3.3
M 5	190		190		0.8	70	8	6	4.9	4.2
M 6	210		210		1	80	10	6	4.9	5
M 8	240		240		1.25	90	12	8	6.2	6.8
M 10	280		280		1.5	100	15	10	8	8.5
M 12	330		330		1.75	110	16	9	7	10.2
M 14	-	-	360		2	110	20	11	9	12
M 16	410		410		2	110	20	12	9	14
M 20	460		460		2.5	140	25	16	12	17.5
P	-		5 - 10							
M	-		-							
K	-		-							
NE	10 - 22		8 - 15							
H	-		-							
S	-		-							

13 150 Machine taps



Type: Right-hand spiral R40, **FNZ** coating

Special features: with tapered thread runout

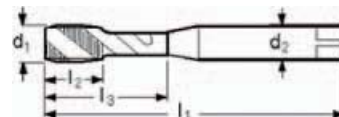
Application: universal use for long-chipping materials up to approx.
1000 N/mm², preferably for thread depths less than 1.5 x d.
B 1237 FNZ; B 1337 FNZ



13 150 210 - ...280



13 150 330 - ...460



d1	13 150...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 6	210		1	80	19	6	4.9	5
M 8	240		1.25	90	22	8	6.2	6.8
M 10	280		1.5	100	24	10	8	8.5
M 12	330		1.75	110	16	9	7	10.2
M 14	360		2	110	20	11	9	12
M 16	410		2	110	20	12	9	14
M 18	430		2.5	125	24	14	11	15.5
M 20	460		2.5	140	25	16	12	17.5
P	5 - 15							
M	5 - 10							
K	-							
NE	-							
H	-							
S	-							

13 151 Machine taps

Wodex®



Type: Right-hand spiral R40

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 151 150 - ...280



13 151 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 152 Machine taps

Wodex®



Type: Right-hand spiral R40

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 152 150 - ...280



13 152 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 161 Machine taps

Wodex®



Type: Right-hand spiral R40

Application: Stainless, acid-resistant steels and high-strength materials up to 1100 N/mm²
Structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, Nitrided steels, tool steels, rust & acid-resistant steels



13 161 003 - ...010



13 161 012 - ...020

M3-M10=DIN 371 / M12-M20=DIN 376

13 156 Machine taps

TITEX®



Type: Right-hand spiral R35

Application: difficult to machine materials, e.g. steels from 1000-1300 N/mm², stainless steels, bronze



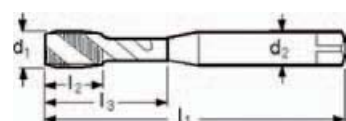
13 156 080 - ...280



13 156 330 - ...520

M2-M10=DIN 371 / M12-M24=DIN 376

B 1251; B 1351



d1	13 151... Wodex	13 152... Wodex FNZ	13 161... Wodex TiCN	13 156... Titex FNZ	Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 2	-	-	-	080	0.4	45	4	2.8	2.1	1.6
M 2.5	-	-	-	110	0.45	50	4	2.8	2.1	2.05
M 3	150	150	003	150	0.5	56	5	3.5	2.7	2.5
M 4	160	160	004	160	0.7	63	6	4.5	3.4	3.3
M 5	190	190	005	190	0.8	70	7	6	4.9	4.2
M 6	210	210	006	210	1	80	10	6	4.9	5
M 8	240	240	008	240	1.25	90	12	8	6.2	6.8
M 10	280	280	010	280	1.5	100	15	10	8	8.5
M 12	330	330	012	330	1.75	110	16	9	7	10.2
M 14	-	360	-	360	2	110	20	11	9	12
M 16	410	410	016	410	2	110	20	12	9	14
M 18	-	430	-	430	2.5	125	25	14	11	15.5
M 20	460	460	020	460	2.5	140	25	16	12	17.5
M 22	-	-	-	490	2.5	140	25	18	14.5	19.5
M 24	-	-	-	520	3	160	30	18	14.5	21
P	5 - 10	6 - 12	10 - 18	5 - 15						
M	4 - 5	5 - 6	8 - 10	5 - 10						
K	6 - 10	8 - 12	12 - 20	5 - 15						
NE	6 - 22	8 - 15	12 - 26	10 - 18						
H	-	-	-	-						
S	2 - 3	2 - 3	4 - 5	3 - 5						

13 157 Machine taps

Wodex®



Type: Right-hand spiral R50

Application: High-performance tap for (almost) all materials

Structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, tool steels up to approx. 1300 N/mm², rust & acid-resistant steels, grey cast iron, nodular cast iron, aluminium alloys, copper and long-chipping copper alloys, nickel and nickel alloys up to approx. 900 N/mm²



13 157 130 - ...280



13 157 330 - ...460

M3-M10=DIN 371 / M12-M20=DIN 376

13 158 Machine taps

Wodex®



Type: Right-hand spiral R50

Application: High-performance tap for (almost) all materials

Structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, tool steels up to approx. 1300 N/mm², rust & acid-resistant steels, grey cast iron, nodular cast iron, aluminium alloys, copper and long-chipping copper alloys, nickel and nickel alloys up to approx. 900 N/mm²

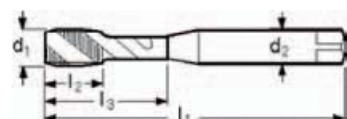


13 158 210 - ...280



13 158 330 - ...460

with internal cooling



M3-M10=DIN 371 / M12-M20=DIN 376

d1	13 157...		13 158...		Pitch	l1	l2	d2	Square	Tapping
			with IK		mm	mm	mm	mm	mm	drill size
M 3	130		-	-	0.5	56	6	3.5	2.7	2.5
M 4	160		-	-	0.7	63	7	4.5	3.4	3.3
M 5	190		-	-	0.8	70	8	6	4.9	4.2
M 6	210		210		1	80	10	6	4.9	5
M 8	240		240		1.25	90	12	8	6.2	6.8
M 10	280		280		1.5	100	15	10	8	8.5
M 12	330		330		1.75	110	16	9	7	10.2
M 16	410		410		2	110	20	12	9	14
M 20	460		460		2.5	140	34	16	12	17.5
P	12 - 30		10 - 25							
M	10 - 12		10 - 12							
K	18 - 26		15 - 22							
NE	10 - 40		8 - 35							
H	-		-							
S	6 - 8		6 - 8							

13 159 Machine taps

TITEX



Type: Right-hand spiral R50

Application: Special tool for tapping blind hole threads with high cutting speeds, with special geometry for particularly good chip removal, for tough steel materials up to approx. 1000 N/mm² (structural steels, rust and acid-resistant steels).

M3-M10=DIN371 / M12-M16=DIN376

Special feature: With tapered thread runout

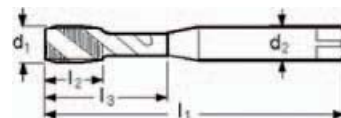
B 1257 TFT; B 1357 TFT



13 159 130 - ...280



13 159 330 - ...410



d1	13 159...		Pitch	l1	l2	d2	Square	Tapping drill size
	TFT		mm	mm	mm	mm	mm	mm
M 3	130		0.5	56	6	3.5	2.7	2.5
M 4	160		0.7	63	7	4.5	3.4	3.3
M 5	190		0.8	70	8	6	4.9	4.2
M 6	210		1	80	10	6	4.9	5
M 8	240		1.25	90	12	8	6.2	6.8
M 10	280		1.5	100	15	10	8	8.5
M 12	330		1.75	110	16	9	7	10.2
M 16	410		2	110	20	12	9	14
P	10 - 50							
M	10 - 20							
K	-							
NE	10 - 35							
H	-							
S	5 - 10							

13 160 Machine taps

TITEX



Type: Right-hand spiral R35

Application: especially for difficult to machine steel materials with higher strength 1000-1300 N/mm² stainless steels, tool steels.

M3-M10=DIN371 / M12-M16=DIN376

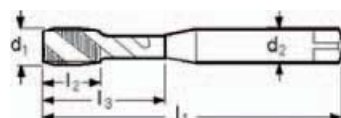
B 1251 FNZ; B 1351 FNZ



13 160 130 - ...280



13 160 330 - ...410



d1	13 160...		Pitch	l1	l2	d2	Square	Tapping drill size
			mm	mm	mm	mm	mm	mm
M 3	130		0.5	56	6	3.5	2.7	2.5
M 4	160		0.7	63	7	4.5	3.4	3.3
M 5	190		0.8	70	8	6	4.9	4.2
M 6	210		1	80	10	6	4.9	5
M 8	240		1.25	90	13	8	6.2	6.8
M 10	280		1.5	100	15	10	8	8.5
M 12	330		1.75	110	16	9	7	10.2
M 14	360		2	110	20	11	9	12
M 16	410		2	110	20	12	9	14
P	5 - 15							
M	5 - 10							
K	5 - 15							
NE	10 - 18							
H	-							
S	3 - 5							

13 162 Machine taps



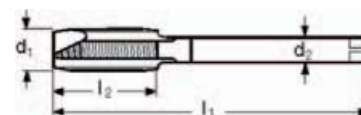
13 162...

Type: with spiral point

Special features: Overall dimensions according to DIN 357

Application: Preferably for cutting nuts.

B 1417



d1	13 162...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	70	18	2.2	-	2.5
M 4	160		0.7	90	22	2.8	2.1	3.3
M 5	190		0.8	100	24	3.5	2.7	4.2
M 6	210		1	110	25	4.5	3.4	5
M 8	240		1.25	125	28	6	4.9	6.8
M 10	280		1.5	140	30	7	5.5	8.5
M 12	330		1.75	180	35	9	7	10.2
M 14	360		2	200	35	11	9	12
P	5 - 15							
M	5 - 8							
K	5 - 10							
NE	5 - 15							
H	-							
S	3 - 5							

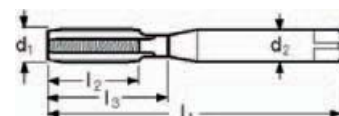
13 168 Taps for automatic machines



13 168...

Type: long chamfer length, straight fluted

Application: easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



d1	13 168...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	70	22	2.2	-	2.5
M 4	160		0.7	90	25	2.8	2.1	3.3
M 5	190		0.8	100	28	3.5	2.7	4.2
M 6	210		1	110	32	4.5	3.4	5
M 8	240		1.25	125	40	6	4.9	6.8
M 10	280		1.5	140	45	7	5.5	8.5
M 12	330		1.75	180	50	9	7	10.2
M 14	360		2	200	56	11	9	12
M 16	410		2	200	63	12	9	14
M 18	430		2.5	220	63	14	11	15.5
M 20	460		2.5	250	70	16	12	17.5
P	8 - 12							
M	-							
K	-							
NE	10 - 26							
H	-							
S	3 - 4							

13 174 Machine taps

Wodex®



Application: High-strength materials with up to 1100 N/mm²
Tool steels, high-speed steels, quenched and tempered steels

M3-M10=DIN 371 / M12-M30=DIN 376



13 174 003 - ...010



13 174 012 - ...030

13 176 Machine taps

Wodex®

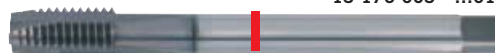


Application: High-strength materials with up to 1100 N/mm²
Tool steels, high-speed steels, quenched and tempered steels

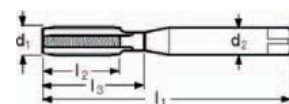
M3-M10=DIN 371 / M12-M30=DIN 376



13 176 003 - ...010



13 176 012 - ...030



d1	13 174...		13 176...		Pitch	l1	l2	d2	Square	Tapping drill size
			TiCN		mm	mm	mm	mm	mm	mm
M 3	003		003		0.5	56	11	2.2	-	2.5
M 4	004		004		0.7	63	13	2.8	2.1	3.3
M 5	005		005		0.8	70	16	3.5	2.7	4.2
M 6	006		006		1	80	19	4.5	3.4	5
M 8	008		008		1.25	90	22	6	4.9	6.8
M 10	010		010		1.5	100	24	7	5.5	8.5
M 12	012		012		1.75	110	29	9	7	10.2
M 14	014		014		2	110	30	11	9	12
M 16	016		016		2	110	32	12	9	14
M 18	018		018		2.5	125	34	14	11	15.5
M 20	020		020		2.5	140	34	16	12	17.5
M 22	022		022		2.5	140	34	18	14.5	19.5
M 24	024		024		3	160	38	18	14.5	21
M 27	027		027		3	160	38	20	16	24
M 30	030		030		3.5	180	45	22	18	26.5
P	8 - 10		10 - 12							
M	-		-							
K	10 - 15		12 - 20							
NE	8 - 18		12 - 26							
H	-		-							
S	3 - 4		5 - 6							

13 180 Machine taps

Wodex®



Application: High-strength materials with up to 1400 N/mm²
tool steels, high-speed steels, quenched and tempered
steels, Hardox 400

M3-M10=DIN371 / M12=DIN376



13 180 130 - ...280



13 180 330

13 182 Machine taps

Wodex®



Application: High-strength materials with up to 1400 N/mm²
tool steels, high-speed steels, quenched and tempered
steels, Hardox 400

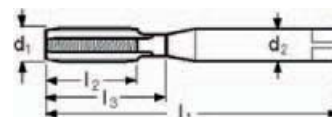
M3-M10=DIN371 / M12=DIN376



13 182 130 - ...280



13 182 330



d1	13 180...		13 182...		Pitch	l1	l2	d2	Square	Tapping
			TiCN		mm	mm	mm	mm	mm	drill size
M 3	130		130		0.5	56	5	3.5	2.7	2.5
M 4	160		160		0.7	63	6	4.5	4.5	3.3
M 5	190		190		0.8	70	7	6	4.9	4.2
M 6	210		210		1	80	10	6	4.9	5
M 8	240		240		1.25	90	12	8	6.2	6.8
M 10	280		280		1.5	100	15	10	8	8.5
M 12	330		330		1.75	110	16	9	7	10.2
P	12 - 15		15 - 18							
M	-		-							
K	18 - 26		22 - 32							
NE	10 - 26		12 - 32							
H	-		-							
S	3 - 4		4 - 5							



13 175 Machine taps

Wodex®

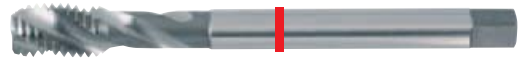


Application: High-strength materials with up to 1100 N/mm²
Tool steels, high-speed steels, quenched and tempered steels



13 175 003 - ...010

M3-M10=DIN 371 / M12-M30=DIN 376



13 175 012 - ...030

13 183 Machine taps

Wodex®



Application: High-strength materials with up to 1100 N/mm²
Tool steels, high-speed steels, quenched and tempered steels

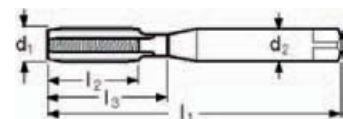


13 183 003 - ...010

M3-M10=DIN 371 / M12-M30=DIN 376



13 183 012 - ...030



d1	13 175...		13 183...		Pitch	l1	l2	d2	Square	Tapping drill size
			TiCN		mm	mm	mm	mm	mm	mm
M 3	003		003		0.5	56	11	2.2	-	2.5
M 4	004		004		0.7	63	13	2.8	2.1	3.3
M 5	005		005		0.8	70	16	3.5	2.7	4.2
M 6	006		006		1	80	19	4.5	3.4	5
M 8	008		008		1.25	90	22	6	4.9	6.8
M 10	010		010		1.5	100	24	7	5.5	8.5
M 12	012		012		1.75	110	29	9	7	10.2
M 14	014		014		2	110	30	11	9	12
M 16	016		016		2	110	32	12	9	14
M 18	018		018		2.5	125	34	14	11	15.5
M 20	020		020		2.5	140	34	16	12	17.5
M 22	022		022		2.5	140	34	18	14.5	19.5
M 24	024		024		3	160	38	18	14.5	21
M 27	027		027		3	160	38	20	16	24
M 30	030		030		3.5	180	45	22	18	26.5
P	6 - 8		8 - 10							
M	-		-							
K	8 - 12		10 - 15							
NE	8 - 15		8 - 18							
H	-		-							
S	2 - 3		3 - 4							

13 184 Machine taps

Wodex®



Application: High-strength materials with up to 1400 N/mm²
tool steels, high-speed steels, quenched and tempered
steels, Hardox 400

M3-M10=DIN371 / M12=DIN376



13 184 130 - ...280



13 184 330

13 186 Machine taps

Wodex®



Type: Right-hand spiral R15

Application: High-strength materials with up to 1400 N/mm²
tool steels, high-speed steels, quenched and tempered
steels, Hardox 400

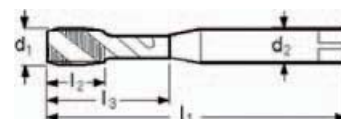
M3-M10=DIN371 / M12=DIN376



13 186 130 - ...280



13 186 330



d1	13 184...		13 186...		Pitch	l1	l2	d2	Square	Tapping drill size
			TiCN		mm	mm	mm	mm	mm	mm
M 3	130		130		0.5	56	5	3.5	2.7	2.5
M 4	160		160		0.7	63	6	4.5	3.4	3.3
M 5	190		190		0.8	70	7	6	4.9	4.2
M 6	210		210		1	80	10	6	4.9	5
M 8	240		240		1.25	90	12	8	6.2	6.8
M 10	280		280		1.5	100	15	10	8	8.5
M 12	330		330		1.75	110	16	9	7	10.2
P	10 - 12		12 - 15							
M	-		-							
K	15 - 22		18 - 26							
NE	8 - 22		10 - 26							
H	-		-							
S	2 - 3		3 - 4							

13 190 Machine taps

Wodex



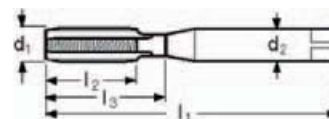
Application: High-performance tap for (almost) all materials
Structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, tool steels up to approx. 1300 N/mm², rust & acid-resistant steels, grey cast iron, nodular cast iron, aluminium alloys, copper and long-chipping copper alloys, nickel and nickel alloys up to approx. 900 N/mm²



13 190 130 - ...280



13 190 330 - ...460



M3-M10=DIN 371 / M12-M20=DIN 376

d1	13 190...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 3	130		0.5	56	5	3.5	2.7	2.5
M 4	160		0.7	63	6	4.5	3.4	3.3
M 5	190		0.8	70	7	6	4.9	4.2
M 6	210		1	80	10	6	4.9	5
M 8	240		1.25	90	12	8	6.2	6.8
M 10	280		1.5	100	15	10	8	8.5
M 12	330		1.75	110	16	9	7	10.2
M 16	410		2	110	20	12	9	14
M 20	460		2.5	140	25	16	12	17.5
P	12 - 30							
M	10 - 12							
K	18 - 26							
NE	10 - 40							
H	-							
S	6 - 8							

13 188 Machine taps

Wodex



Application: High-performance tap for (almost) all materials
Structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, tool steels up to approx. 1300 N/mm², rust & acid-resistant steels, grey cast iron, nodular cast iron, aluminium alloys, copper and long-chipping copper alloys, nickel and nickel alloys up to approx. 900 N/mm²



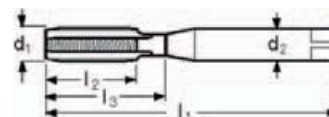
13 188 006 - ...010



13 188 012 - ...020

M3-M10=DIN 371 / M12-M20=DIN 376

with internal cooling



d1	13 188...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 6	006		1.00	80	19	6	4.9	5.00
M 8	008		1.25	90	22	8	6.2	1.25
M 10	010		1.50	100	24	10	8.0	8.50
M 12	012		1.75	110	28	10	7.0	10.20
M 16	016		2.00	110	32	12	9.0	14.00
M 20	020		2.50	140	34	15	12.0	17.50
P	12 - 30							
M	12 - 15							
K	18 - 26							
NE	10 - 40							
H	-							
S	6 - 8							



13 371 Machine taps



Wodex®

Type: with spiral point

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 371...

13 373 Machine taps



TITEX®

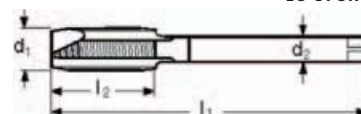
Type: with spiral point

Application: Materials up to approx. 1000 N/mm².

B 2317



13 373...



d1 x pitch mm	13 371... Wodex		13 373... Titex		Overall length mm	Thread length mm	Shank Ø mm	Square mm	Tapping drill size mm
M 3 x 0.35	-	-	130		56	9	2.2	-	2.65
M 3.5 x 0.35	-	-	150		56	10	2.5	2.1	3.15
M 4 x 0.5	160		160		63	12	2.8	2.1	3.5
M 5 x 0.5	190		190		70	12	3.5	2.7	4.5
M 6 x 0.5	210		210		80	14	4.5	3.4	5.5
M 6 x 0.75	220		220		80	14	4.5	3.4	5.2
M 7 x 0.75	230		230		80	14	5.5	4.3	6.2
M 8 x 0.5	240		240		80	19	6	4.9	7.5
M 8 x 0.75	250		250		80	19	6	4.9	7.2
M 8 x 1	260		260		90	22	6	4.9	7
M 9 x 1	-	-	270		90	22	7	5.5	8
M 10 x 0.75	290		290		90	20	7	5.5	9.2
M 10 x 1	300		300		90	20	7	5.5	9
M 10 x 1.25	310		310		100	24	7	5.5	8.8
M 11 x 1	-	-	320		90	20	8	6.2	10
M 12 x 1	330		330		100	22	9	7	11
M 12 x 1.25	340		340		100	22	9	7	10.8
M 12 x 1.5	350		350		100	22	9	7	10.5
M 14 x 1	360		360		100	22	11	9	13
M 14 x 1.25	370		370		100	22	11	9	13
M 14 x 1.5	380		380		100	22	11	9	12.8
M 15 x 1	390		390		100	22	12	9	14
M 15 x 1.5	400		400		100	22	12	9	13.5
M 16 x 1	410		410		100	22	12	9	15
M 16 x 1.5	420		420		100	22	12	9	14.5
M 18 x 1	430		430		110	25	14	11	17
M 18 x 1.5	440		440		110	25	14	11	16.5
M 18 x 2	450		450		125	34	14	11	16
M 20 x 1	460		460		125	25	16	12	19
M 20 x 1.5	470		470		125	25	16	12	18.5
M 20 x 2	480		480		140	25	16	12	18
M 22 x 1	490		490		125	25	16	14.5	21
M 22 x 1.5	500		500		125	25	18	14.5	20.5
M 22 x 2	510		510		140	25	18	14.5	20
M 24 x 1	520		520		140	28	18	14.5	23
M 24 x 1.5	530		530		140	28	18	14.5	22.5
M 24 x 2	540		540		140	28	18	14.5	22
M 26 x 1.5	550		550		140	28	18	14.5	24.5
M 27 x 1.5	560		560		140	28	20	16	25.5
M 27 x 2	570		570		140	28	20	16	25
M 28 x 1.5	580		580		140	28	20	16	26.5
M 30 x 1	590		590		150	28	22	18	29
M 30 x 1.5	600		600		150	28	22	18	28.5
M 30 x 2	610		610		150	28	22	18	28
M 32 x 1.5	620		620		150	28	22	18	30.5
M 33 x 1.5	630		630		160	30	25	20	31.5
M 34 x 1.5	-	-	640		170	30	28	22	
M 35 x 1.5	650		650		170	30	28	22	33.5
M 36 x 1.5	660		660		170	30	28	22	34.5
M 38 x 1.5	-	-	680		170	30	28	22	36.5

d1 x pitch mm	13 371... Wodex		13 373... Titex		Overall length mm	Thread length mm	Shank Ø mm	Square mm	Tapping drill size mm
M 40 x 1.5	-	-	700		170	30	32	24	38.5
M 42 x 1.5	-	-	710		170	30	32	24	40.5
M 45 x 1.5	-	-	720		180	32	36	29	43.5
M 48 x 1.5	-	-	730		190	32	36	29	46.5
M 50 x 1.5	-	-	760		190	32	36	29	48.5
M 52 x 1.5	-	-	770		190	32	40	32	
P	8 - 12		5 - 18						
M	-		-						
K	-		-						
NE	10 - 26		10 - 35						
H	-		-						
S	3 - 4		5 - 8						

13 374 Machine taps

Wodex®



Type: with spiral point

Application: Stainless, acid resistant steels and high-strength materials
up to 1100 N/mm²

structural steels, carbon steels, case-hardening steels,
unalloyed and alloyed steels, nitrided steel, tool steels,
rust and acid-resistant steels



13 374...

13 375 Machine taps

TITEX®



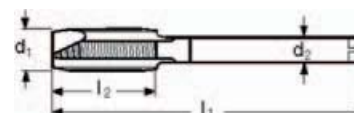
Type: with spiral point

Application: difficult to machine materials, e.g. steels from
1000-1300 N/mm², stainless steels, bronze

B 2344



13 375...



d1 x pitch mm	13 374... Wodex		13 375... Titex		l1 mm	l2 mm	d2 mm	Square	Tapping drill size mm
M 6 x 0.75	220		-	-	80	14	4.5	3.4	5.2
M 8 x 1	260		260		90	22	6	4.9	7
M 10 x 1	300		300		90	20	7	5.5	9
M 12 x 1	-	-	330		100	22	9	7	11
M 12 x 1.5	350		350		100	22	9	7	10.8
M 14 x 1.5	-	-	380		100	22	11	9	12.5
M 16 x 1.5	420		420		100	22	12	9	14.5
M 18 x 1.5	-	-	440		110	25	14	11	16.5
M 20 x 1.5	470		470		125	25	16	12	18.5
P	8 - 15		5 - 15						
M	6 - 8		5 - 10						
K	10 - 15		10 - 18						
NE	8 - 18		5 - 20						
H	-		-						
S	3 - 4		5 - 8						

13 177 Machine taps

Wodex®

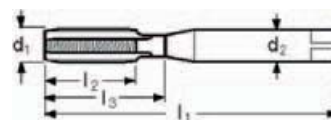


Application: High-performance tap for (almost) all materials

Structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, tool steels up to approx. 1300 N/mm², rust & acid-resistant steels, grey cast iron, nodular cast iron, aluminium alloys, copper and long-chipping copper alloys, nickel and nickel alloys up to approx. 900 N/mm²



13 377...



d1	13 177...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 8 x 1	002		1.00	90	22	6	4.9	7.0
M 10 x 1	004		1.00	90	20	7	5.5	9.0
M 10 x 1.25	006		1.25	100	24	7	5.5	8.8
M 12 x 1.0	008		1.00	100	22	9	7.0	11.0
M 12 x 1.25	010		1.25	100	22	9	7.0	10.8
M 12 x 1.5	012		1.50	100	22	9	7.0	10.5
M 14 x 1.5	014		1.50	100	22	11	9.0	12.5
M 16 x 1.5	016		1.50	100	22	12	9.0	14.5
M 18 x 1.5	018		1.50	110	25	14	11.0	16.5
M 20 x 1.5	020		1.50	125	25	16	12.0	18.5
P	12 - 30							
M	12 - 15							
K	18 - 26							
NE	10 - 40							
H	-							
S	6 - 8							



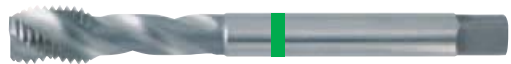
13 376 Machine taps

Wodex®



Type: Right-hand spiral R40

Application: easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 376...

13 377 Machine taps

TITEX®



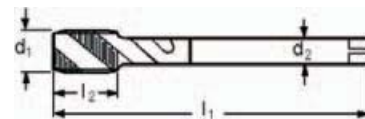
Type: Right-hand spiral R40

Application: long-chipping materials up to approx. 1000 N/mm².

B 2333



13 377...



d1 x pitch mm	13 376... Wodex	13 377... Titex	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 4 x 0.5	140	-	63	6	2.8	2.1	3.5
M 5 x 0.5	190	190	70	8	3.5	2.7	4.5
M 6 x 0.5	210	210	80	10	4.5	3.4	5.5
M 6 x 0.75	220	220	80	10	4.5	3.4	5.2
M 8 x 0.75	250	250	80	12	6	4.9	7.5
M 8 x 1	260	260	90	12	6	4.9	7
M 10 x 1	300	300	90	14	7	5.5	9
M 12 x 1	330	330	100	16	9	7	11
M 12 x 1.5	350	350	100	20	9	7	10.5
M 14 x 1.5	380	380	100	20	11	9	12.5
M 16 x 1.5	420	420	100	20	12	9	14.5
M 18 x 1.5	440	440	110	25	14	11	16.5
M 20 x 1.5	470	470	125	25	16	12	18.5
M 22 x 1.5	500	500	125	25	18	14.5	20.5
M 24 x 1.5	530	530	140	28	18	14.5	22.5
M 26 x 1.5	550	550	140	28	18	14.5	24.5
M 27 x 1.5	560	560	140	28	20	16	25.5
M 27 x 2	570	570	140	28	20	16	25
M 28 x 1.5	580	580	140	28	20	16	26.5
M 30 x 1.5	-	600	150	28	22	18	28.5
M 30 x 2	610	610	150	28	22	18	28
P	6 - 10	5 - 15					
M	-	-					
K	-	-					
NE	8 - 18	5 - 20					
H	-	-					
S	2 - 3	3 - 5					

13 378 Machine taps

Wodex®

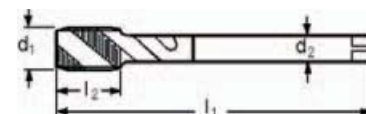


Type: Right-hand spiral R40

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm²
structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 378...



13 379 Machine taps

TITEX®



Type: Right-hand spiral R35

Application: difficult to machine materials, e.g. steels from 1000-1300 N/mm², stainless steels, hard bronze, tool steels



13 379...

B 2351

d1 x pitch mm	13 378... Wodex		13 379... Titex		l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 6 x 0.75	220		-	-	80	8	4.5	3.4	5.2
M 8 x 0.75	250		-	-	80	10	6	4.9	7.2
M 8 x 1	260		260		90	13	6	4.9	7
M 10 x 1	300		300		90	12	7	5.5	9
M 12 x 1	330		330		100	13	9	7	11
M 12 x 1.5	350		350		100	13	9	7	10.5
M 14 x 1.5	380		380		100	15	11	9	12.5
M 16 x 1.5	420		420		100	15	12	9	14.5
M 18 x 1.5	440		440		110	17	14	11	16.5
M 20 x 1.5	470		470		125	17	16	12	18.5
M 22 x 1.5	-	-	500		125	25	18	14.5	20.5
M 24 x 1.5	-	-	530		140	27	18	14.5	22.5
P	6 - 12		5 - 15						
M	5 - 6		5 - 10						
K	8 - 12		10 - 18						
NE	8 - 15		5 - 20						
H	-		-						
S	2 - 3		5 - 8						

13 178 Machine taps

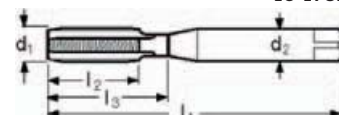
Wodex®



Application: High-performance tap for (almost) all materials
Structural steels, carbon steels, free-cutting steels, case-hardening steels, unalloyed and alloyed steels, tool steels up to approx. 1300 N/mm², rust & acid-resistant steels, grey cast iron, nodular cast iron, aluminium alloys, copper and long-chipping copper alloys, nickel and nickel alloys up to approx. 900 N/mm²



13 178...



d1	13 178...		Pitch mm	l1 mm	l2 mm	d2 mm	Square mm	Tapping drill size mm
M 8 x 1	002		1.00	90	22	6	4.9	7.0
M 10 x 1	004		1.00	90	20	7	5.5	9.0
M 10 x 1.25	006		1.25	100	24	7	5.5	8.8
M 12 x 1.0	008		1.00	100	22	9	7.0	11.0
M 12 x 1.25	010		1.25	100	22	9	7.0	10.8
M 12 x 1.5	012		1.50	100	22	9	7.0	10.5
M 14 x 1.5	014		1.50	100	22	11	9.0	12.5
M 16 x 1.5	016		1.50	100	22	12	9.0	14.5
M 18 x 1.5	018		1.50	110	25	14	11.0	16.5
M 20 x 1.5	020		1.50	125	25	16	12.0	18.5
P	10 - 25							
M	10 - 12							
K	15 - 22							
NE	8 - 35							
H	-							
S	5 - 6							

13 410 Machine taps



Wodex

Type: with spiral point

Special features: with reinforced shank

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 410...

13 412 Machine taps



TITEX

Type: with spiral point

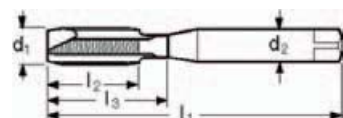
Special features: with reinforced shank

Application: for through thread in materials up to approx. 1000 N/mm².

B 3217



13 412...



UNC	13 410...		13 412...		Pitch	l1	l2	d2	Square	Tapping
d1	Wodex		Titex		TPI	mm	mm	mm	mm	drill size
5	050		050		40	56	11	3.5	2.7	2.65
6	060		060		32	56	13	4	3	2.85
8	080		080		32	63	13	4.5	3.4	3.5
10	100		100		24	70	16	6	4.9	3.9
12	120		120		24	80	17	6	4.9	4.5
1/4	220		220		20	80	17	7	5.5	5.1
5/16	230		230		18	90	20	8	6.2	6.6
3/8	240		240		16	100	24	10	8	8.0
P	8 - 12		5 - 15							
M	-		-							
K	-		-							
NE	10 - 26		5 - 20							
H	-		-							
S	3 - 4		3 - 5							

13 414 Machine taps

Wodex®



Type: with spiral point

Special features: with reduced diameter shank

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 414...

13 416 Machine taps

TITEX®



Type: with spiral point

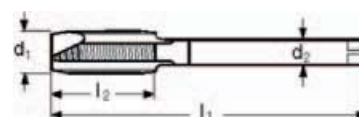
Special features: with reduced diameter shank

Application: Materials up to approx. 1000 N/mm².

B 3317



13 416...



UNC	13 414...		13 416...		Pitch	l1	l2	d2	Square	Tapping drill size
d1	Wodex		Titex		TPI	mm	mm	mm	mm	mm
7/16	250		250		14	100	24	8	6.2	4.4
1/2	260		260		13	110	29	9	7	10.8
9/16	270		270		12	110	30	11	9	12.2
5/8	280		280		11	110	32	12	9	13.5
3/4	300		300		10	125	34	14	11	16.5
7/8	310		310		9	140	34	18	14.5	19.5
1	320		320		8	160	38	18	14.5	22.25
P	8 - 12		5 - 15							
M	-		-							
K	-		-							
NE	10 - 26		5 - 20							
H	-		-							
S	3 - 4		3 - 5							

13 421 Machine taps

Wodex®



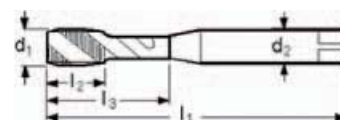
Type: Right-hand spiral R40

Special features: with reinforced shank

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 421...



13 423 Machine taps

TITEX®



Type: Right-hand spiral R40

Special features: With reinforced shank

Application: long-chipping materials up to approx. 1000 N/mm². B 3233



13 423...

UNC	13 421...		13 423...		Pitch	I1	I2	d2	Square	Tapping drill size
d1	Wodex		Titex		TPI	mm	mm	mm	mm	mm
8	080		080		32	63	7	4.5	3.4	3.5
10	100		100		24	70	8	6	4.9	3.9
12	120		120		24	80	10	6	4.9	4.5
1/4	220		220		20	80	10	7	5.5	5.1
5/16	230		230		18	90	12	8	6.2	6.6
3/8	240		240		16	100	15	10	8	8
P	6 - 10		5 - 15							
M	-		-							
K	-		-							
NE	8 - 18		5 - 20							
H	-		-							
S	2 - 3		3 - 5							

13 425 Machine taps

Wodex®



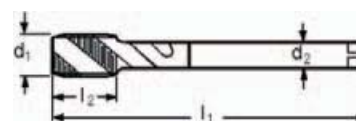
Type: Right-hand spiral R40

Special features: with reduced diameter shank

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 425...



13 427 Machine taps

TITEX®



Type: Right-hand spiral R40

Special features: with reduced diameter shank

Application: long-chipping materials up to approx. 1000 N/mm². B 3333



13 427...

UNC	13 425...		13 427...		Pitch	I1	I2	d2	Square	Tapping drill size
d1	Wodex		Titex		TPI	mm	mm	mm	mm	mm
1/2	260		260		13	110	18	9	7	10.8
5/8	280		280		11	110	20	12	9	13.5
3/4	300		300		10	125	25	14	11	16.5
7/8	310		310		9	140	25	18	14.5	19.5
1	320		320		8	160	30	18	14.5	22.25
P	6 - 10		5 - 15							
M	-		-							
K	-		-							
NE	8 - 18		5 - 20							
H	-		-							
S	2 - 3		3 - 5							

13 460 Machine taps

Wodex®

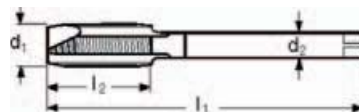


Type: with spiral point

Application: easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 460...



UNF	13 460...		Pitch	l1	l2	d2	Square	Tapping drill size
d1			TPI	mm	mm	mm	mm	mm
8	080		36	63	13	4.5	3.4	3.5
10	100		32	70	12	6	4.9	4.1
12	120		28	80	17	6	4.9	4.65
1/4	220		28	80	14	7	5.5	5.5
5/16	230		24	90	22	8	6.2	6.9
3/8	240		24	100	24	10	8	8.5
7/16	250		20	90	20	8	6.2	9.9
1/2	260		20	100	22	9	7	11.5
5/8	280		18	100	22	12	9	14.5
3/4	300		16	110	25	14	11	17.5
7/8	310		14	125	25	18	14.5	20.5
1	320		12	140	28	18	14.5	23.25
P	8 - 12							
M	-							
K	-							
NE	10 - 26							
H	-							
S	3 - 4							

13 462 Machine taps

TITEX®



Type: with spiral point

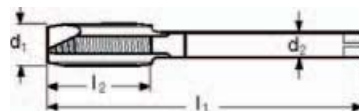
Special features: with reduced diameter shank

Application: Materials up to approx. 1000 N/mm².

B 4317



13 462...



UNF	13 462...		Pitch	l1	l2	d2	Square	Tapping drill size
d1			TPI	mm	mm	mm	mm	mm
8	080		36	63	13	4.5	3.4	3.5
10	100		32	70	12	6	4.9	4.1
12	120		28	80	17	6	4.9	4.65
1/4	220		28	80	14	7	5.5	5.5
5/16	230		24	90	22	8	6.2	6.9
3/8	240		24	100	24	10	8	8.5
7/16	250		20	90	20	8	6.2	9.9
1/2	260		20	100	22	9	7	11.5
5/8	280		18	100	22	12	9	14.5
3/4	300		16	110	25	14	11	17.5
7/8	310		14	125	25	18	14.5	20.5
1	320		12	140	28	18	14.5	23.25
P	5 - 15							
M	-							
K	-							
NE	5 - 20							
H	-							
S	3 - 5							

13 560 Machine taps



Wodex®



13 560...

Type: with spiral point

Application: easily machinable materials up to approx. 800 N/mm²
structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)

13 564 Machine taps



TITEX®

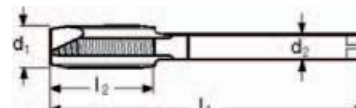


13 564...

Type: with spiral point

Application: Materials up to approx. 1000 N/mm².

B 6817



G	13 560...		13 564...		Pitch	l1	l2	d2	Square	Tapping drill size
d1	Wodex		Titex		TPI	mm	mm	mm	mm	mm
G 1/8	170		170		28	90	20	7	5.5	8.8
G 1/4	220		220		19	100	22	11	9.0	11.8
G 3/8	240		240		19	100	22	12	9.0	15.25
G 1/2	260		260		14	125	25	16	12.0	19
G 5/8	280		280		14	125	25	18	14.5	21
G 3/4	300		300		14	140	28	20	16.0	24.5
G 7/8	310		310		14	150	28	22	18.0	28.25
G 1	320		320		11	160	30	25	20.0	30.75
G 1 1/4	340		340		11	170	30	32	24.0	39.5
G 1 1/2	370		370		11	190	32	36	29.0	45
G 1 3/4	390		390		11	190	32	40	32.0	51
G 2	410		410		11	190	32	45	35.0	57
P	8 - 12		5 - 15							
M	-		-							
K	-		-							
NE	10 - 26		5 - 20							
H	-		-							
S	3 - 4		3 - 5							

13 566 Machine taps



Wodex®

Type: Right-hand spiral R40

Application: easily machinable materials up to approx. 800 N/mm² structural steels, carbon steels, free-cutting steels and case-hardening steels, copper and copper alloys (long-chipping), aluminium and aluminium alloys (long-chipping), plastics (long-chipping)



13 566...

13 568 Machine taps



TITEX®

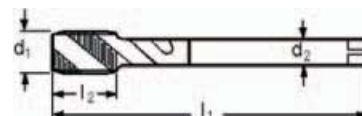
Type: Right-hand spiral R40

Application: long-chipping materials up to approx. 1000 N/mm², preferably over 1.5 x d. depth.

B 6833



13 568...



G	13 566...		13 568...		Pitch	I1	I2	d2	Square	Tapping
d1	Wodex		Titex		TPI	mm	mm	mm	mm	drill size
G 1/8	170		170		28	90	14	7	5.5	8.8
G 1/4	220		220		19	100	20	11	9	11.8
G 3/8	240		240		19	100	20	12	9	15.25
G 1/2	260		260		14	125	25	16	12	19
G 5/8	280		280		14	125	25	18	14.5	21
G 3/4	300		300		14	140	28	20	16	24.5
G 7/8	310		310		14	150	28	22	18	28.25
G 1	320		320		11	160	30	25	20	30.75
P	6 - 10		5 - 15							
M	-		-							
K	-		-							
NE	8 - 18		5 - 20							
H	-		-							
S	2 - 3		3 - 5							

13 572 Machine taps



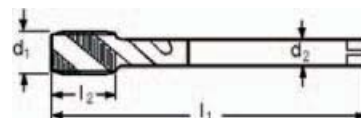
Wodex®

Type: Right-hand spiral R40

Application: Stainless, acid resistant steels and high-strength materials up to 1100 N/mm² structural steels, carbon steels, case-hardening steels, unalloyed and alloyed steels, nitrided steel, tool steels, rust and acid-resistant steels



13 572...



G	13 572...		Pitch	I1	I2	d2	Square	Tapping
d1			TPI	mm	mm	mm	mm	drill size
G 1/4	220		19	100	15	11	9	11.8
G 3/8	240		19	100	15	12	9	15.25
G 1/2	260		14	125	24	16	12	19
G 3/4	300		14	140	27	20	16	24.5
G 1	320		11	160	29	25	20	30.75
P	6 - 12							
M	5 - 6							
K	8 - 12							
NE	8 - 15							
H	-							
S	2 - 3							

13 574 Machine taps

TITEX

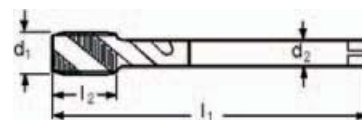


Type: Right-hand spiral R35

13 574...

Application: difficult to machine materials, e.g. steels from 1000-1300 N/mm², stainless steels, hard bronze, tool steels

B 6851



G	13 574...		Pitch	l1	l2	d2	Square	Tapping drill size
d1			TPI	mm	mm	mm	mm	mm
G 1/4	220		19	100	15	11	9	11.8
G 3/8	240		19	100	15	12	9	15.25
G 1/2	260		14	125	24	16	12	19
G 3/4	300		14	140	27	20	16	24.5
G 1	320		11	160	29	25	20	30.75
P	5 - 15							
M	5 - 10							
K	5 - 15							
NE	10 - 18							
H	-							
S	3 - 5							

13 603 Machine taps

TITEX

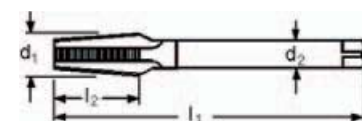


Special features: Included angle of thread 60°

13 603...

Application: for universal use, in materials up to approx. 1000 N/mm².

B 5615



Nominal pipe size	13 603...		Pitch	l1	l2	d2	Square	Tapping drill size
d1			TPI	mm	mm	mm	mm	mm
1/8	170		27	90	14	11	9.0	8.5
1/4	220		18	100	20	14	11.0	11.1
3/8	240		18	110	20	16	12.0	14.5
1/2	260		14	125	26	18	14.5	17.75
3/4	300		14	140	26	22	18.0	23
1	320		11.5	150	31	28	22.0	29
1 1/4	340		11.5	160	31	32	24	38
1 1/2	370		11.5	160	31	36	29	44
P	5 - 15							
M	5 - 10							
K	10 - 20							
NE	10 - 20							
H	-							
S	3 - 5							

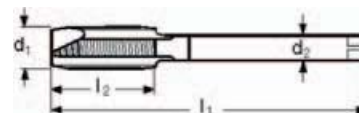
13 653 Machine taps



13 653...

Type: with spiral point

Application: for through thread in materials up to approx. 1000 N/mm².
B 7117



Pg	13 653...		Pitch	l1	l2	d2	Square	Tap hole minimum size mm	Tap hole maximum size mm
d1			TPI	mm	mm	mm	mm		
Pg 7	070		20	70	22	9	7	11.28	11.43
Pg 9	090		18	70	22	12	9	13.86	14.01
Pg 11	110		18	80	22	14	11	17.26	17.41
Pg 13.5	130		18	80	22	16	12	19.06	19.21
Pg 16	160		18	80	22	18	14.5	21.16	21.31
Pg 21	210		16	90	22	22	18	26.78	27.03
Pg 29	290		16	100	25	28	22	35.48	35.73
Pg 36	360		16	140	40	36	29	45.48	45.73
Pg 42	420		16	140	40	40	32	52.48	52.73
Pg 48	480		16	140	40	45	35	57.78	58.03
P	5 - 15								
M	5 - 8								
K	10 - 20								
NE	10 - 20								
H	-								
S	3 - 5								





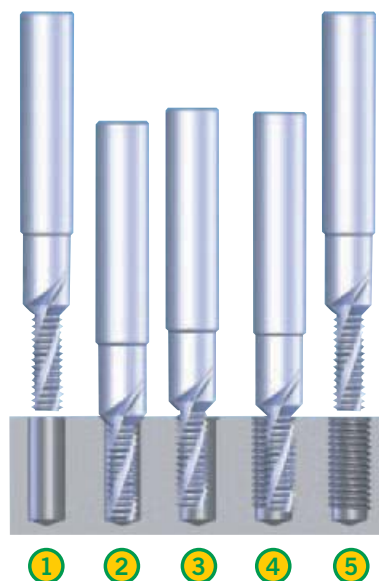
Solid carbide thread milling cutter for internal thread

- High productivity due to countersinking and thread milling in one work cycle without tool change
- Reduction of the utilisation time
- Saving in magazine locations in the tool magazine
- Cuts tool changing time
- Setting up time savings

Wodex®

Machining steps

- 1 Move into start position centrally above the hole
- 2 Countersink the 90° chamfer
- 3 Move into the workpiece with a 180° movement
- 4 Remove with a 180° movement after completing the milling process
- 5 Withdraw to start position



Machining example 1

G1/8 thread production
Tool G1/8 - 2xD TiAlN-M
Thread depth 20 mm
Material X5 Cr Ni 18 10
Cutting speed 80 m/min
Milling feed per tooth 0.05 mm
Total time 3.6 s
Output (bit life) 7900 threads

Machining example 2

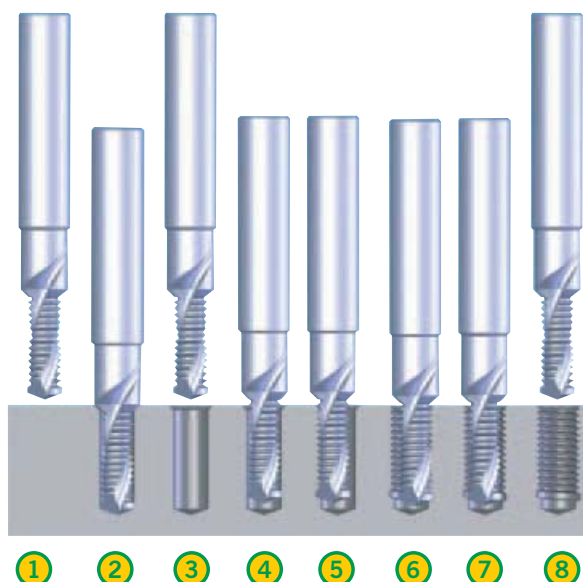
M10 thread production
Tool M10 - 2xD TiAlN-M
Thread depth 20 mm
Material GG 25, dry
Cutting speed 100 m/min
Milling feed per tooth 0.08 mm
Total time 1.8 s
Output (bit life) 5000 threads

Solid carbide thread milling drill bit for internal thread

- Reduction of the utilisation times
- No tool change
- Saves two tool positions
- Precise concentricity of tap hole and thread
- Length of thread engagement is only 1.3 x pitch shorter than the drilled depth
- Blind and through hole

Machining steps

- 1 Move to the start position
- 2 Drill the tap hole and position taper start
- 3 Remove chips from tap hole
- 4 Move to start position for thread milling
- 5 Move into the workpiece with a 180° movement
- 6 Mill the thread
- 7 Withdraw by way of a 180° movement
- 8 Withdraw to start position



Machining example 1

M8 thread production
Thread depth 18 mm
Material Al Cu Mg 1
Cutting speed 250 m/min
Drilling feed 0.3 mm/rev
Milling feed per tooth 0.25 mm
Total time 1.5 s

Machining example 2

M8 thread production
Thread depth 18 mm
Material GG 25
Cutting speed 100 m/min
Drilling feed 0.24 mm/U
Milling feed per tooth 0.08 mm
Total time 3.3 s

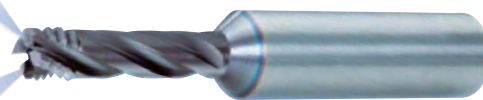


13 688 Thread milling drill bit - standard & fine - internal **Wodex®**

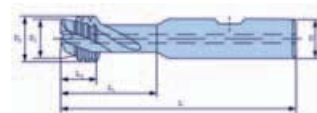
Universal tool: 3 in 1. 1. Drill tap hole 2. Cut thread 3. Countersink

Application: universal, for all long and short-chipping materials, e.g. steels, stainless steels, cast iron, aluminium, AISi alloys, nickel and titanium alloys.

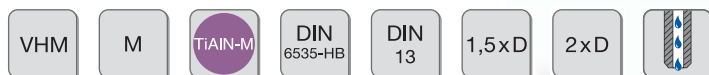
Type: fluted spiral with internal cooling



13 688...



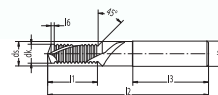
Thread	Pitch	13 688...		D mm	D1 mm	D2 mm	L mm	L1 mm	L2 mm	Z
M 6 x 1.0	1.0	008		8.0	3.41	4.51	60.0	16.0	4.1	3
M 8 x 1.25	1.25	014		10.0	4.91	6.23	71.0	21.0	5.1	4
M10 x 1.5	1.5	016		10.0	6.11	7.77	76.0	26.0	6.0	4
M12 x 1.75	1.75	024		12.0	7.21	9.16	86.0	31.0	7.0	4
M14 x 2.0	2.0	026		16.0	8.91	11.08	98.0	40.0	8.1	4
M18 x 2.5	2.5	028		20.0	11.71	14.38	111.00	50.0	10.0	5

13 689 Thread milling drill bit for metric ISO thread **Wodex®**

Type: 45° countersink chamfer, parallel shank
27° right-hand spiral flutes and cooling duct



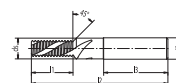
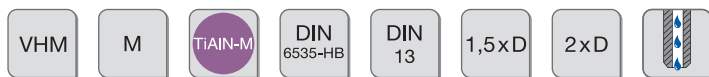
13 689...



Thread	Pitch	13 689... 1.5xD		l1 1.5xD mm	13 689... 2xD		l1 2xD mm	l2 mm	d2 mm	l3 mm	ds mm	l6 mm	dk mm	Z
M 4	0.7	004		6.9	104		9.0	48	6	36	4.5	0.70	3.3	2
M 5	0.8	005		8.7	105		11.1	54	6	36	5.5	0.80	4.2	2
M 6	1.0	006		10.9	106		13.9	62	8	36	6.6	1.00	5.0	2
M 7	1.0	007		12.1	107		16.1	74	10	40	9.0	1.00	6.0	2
M 8	1.25	008		13.7	108		18.7	74	10	40	9.0	1.25	6.8	2
M10	1.5	010		18.0	110		22.5	80	12	45	11.0	1.50	8.5	2
M12	1.75	012		20.8	112		26.1	90	14	45	13.5	1.50	10.2	2
M14	2.0	014		23.6	114		31.6	102	16	48	15.5	1.50	12.0	2
M16	2.0	016		26.0	116		36.0	102	18	48	17.5	1.50	14.0	2

13 693 Thread milling drill bit for metric ISO thread

Wodex



Type: 45° countersink chamfer, parallel shank
27° right-hand spiral flutes

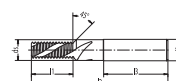
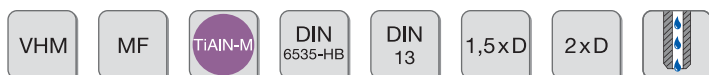


13 693...

Thread	Pitch	13 693... 1.5xD		I1 1.5xD mm	13 693... 2xD		I1 2xD mm	I2 mm	d2 mm	I3 mm	ds mm	Z
M 2	0.4	001		3.4	101		4.6	48	6	36	2.5	2
M 2.5	0.45	003		4.3	103		6.1	48	6	36	3.4	3
M 3	0.5	005		5.2	105		6.7	48	6	36	3.4	3
M 3.5	0.6	007		6.3	107		8.1	48	6	36	4.0	3
M 4	0.7	009		7.3	109		8.7	48	6	36	4.5	3
M 5	0.8	011		9.2	111		10.8	54	6	36	5.5	3
M 6	1.0	013		10.5	113		13.5	62	8	36	6.6	3
M 8	1.25	015		13.7	115		18.1	74	10	40	9.0	3
M10	1.5	017		17.2	117		21.7	80	12	45	11.0	4
M12	1.75	019		20.1	119		25.4	90	14	45	13.5	4
M14	2.0	021		25.0	121		31.0	102	16	48	15.5	4
M16	2.0	023		27.0	123		35.0	102	18	48	17.5	4
M18/M20	2.5	025		33.7	125		41.2	125	22	50	21.5	4

13 694 Thread milling drill bit for metric ISO thread

Wodex



Type: 45° countersink chamfer, parallel shank
27° right-hand spiral flutes



13 694...

Thread	Pitch	13 694... 1.5xD		I1 1.5xD mm	13 694... 2xD		I1 2xD mm	I2 mm	d2 mm	I3 mm	ds mm	Z
M 4	0.5	001		7.2	101		8.7	48	6	36	4.5	3
M 5	0.5	003		8.7	103		10.7	54	6	36	5.5	3
M 6	0.5	005		9.7	105		12.7	62	8	36	6.6	3
M 6	0.75	007		10.1	107		13.1	62	8	36	6.6	3
M 8	0.5	009		12.7	109		17.7	74	10	40	9.0	3
M 8	0.75	011		13.1	111		16.9	74	10	40	9.0	3
M 8	1.0	013		13.5	113		17.5	74	10	40	9.0	3
M10	1.0	015		16.5	115		21.5	80	12	45	11.0	4
M10	1.25	017		16.9	117		21.9	80	12	45	11.0	4
M12	1.0	019		19.5	119		25.5	90	14	45	13.5	4
M12	1.5	021		20.2	121		26.2	90	14	45	13.5	4
M14	1.5	023		23.2	123		30.8	102	16	48	15.5	4
M16	1.5	025		26.2	125		33.8	102	18	48	17.5	4

13 699 Thread-milling cutter for Whitworth thread DIN ISO 228

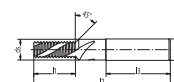
Wodex



Type: 45° countersink chamfer, parallel shank
27° right-hand spiral flutes



13 699...



D	Pitch	13 699... 1.5xD		I1 1.5xD mm	13 699... 2xD		I1 2xD mm	I2 mm	d2 mm	I3 mm	ds mm	Z
	TPI											
G 1/8	28	001		15.9	101		21.4	80	12	45	11.0	4
G 1/4	19	003		22.1	103		28.8	90	14	45	13.9	4
G 3/8	19	005		27.4	105		35.5	102	18	48	17.5	4



13 690 Thread milling cutter shanks - standard, **Wodex**[®] internal/external

DIN
1835-B

Application: universal range of uses, optimum tool for frequently changing types of thread and smaller batch sizes. Particularly suitable for larger thread dimensions.

Type: with internal cooling, supplied without indexable insert



13 690...



Indexable insert size	13 690...		L mm	L1 mm	D mm	D1 mm	D2 mm
6.0 mm	001		69	12	12	6.8	9
	002		84	17	20	6.8	9
1/4"	004		70	12	12	8.9	11.5
	005		85	20	20	8.9	11.5
3/8"	007		90	22	16	13.6	17
	008		95	43	20	16.6	20
5/8"	010		110	52	25	24	30
	011		120	58	32	31	37

13 691 Thread milling cutter shanks - long, **Wodex**[®] internal/external

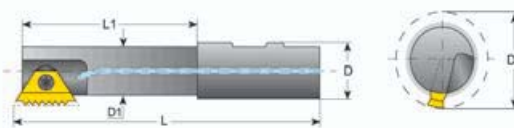
DIN
1835-B

Application: universal range of uses, optimum tool for frequently changing types of thread and smaller batch sizes. Particularly suitable for larger thread dimensions.

Type: with internal cooling, supplied without indexable insert



13 691...



Indexable insert size	13 691...		L mm	L1 mm	D mm	D1 mm	D2 mm
3/8	001		125	25	25	18.6	22
5/8	005		150	92	25	24	30
5/8	006		160	98	32	31	37

13 692 Thread milling cutter shanks - double seat, **Wodex**[®] internal/external

DIN
1835-B

Application: for double feed rates, universal range of uses, optimum tool for frequently changing types of thread and smaller batch sizes. Particularly suitable for larger thread dimensions.

Type: with internal cooling and double indexable insert seats, supplied without indexable insert



13 692...



Indexable insert size	13 692...		L mm	L1 mm	D mm	D1 mm	D2 mm
3/8	001		100	43	25	22.5	26
5/8	005		120	45	32	36	42

13 695 Indexable insert for 60° thread milling cutter, internal/external

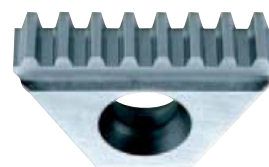
Wodex®



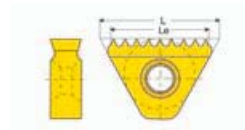
Application: universal, for all long and short-chipping materials, e.g. steels, stainless steels, cast iron, aluminium, AISi alloys, nickel and titanium alloys.

Type: Precision ground, 2 cutting edges

Product No.13 695 001 to 037 for **internal** metric thread 60°,
Product No.13 695 101 to 127 for **external** metric thread 60°.



13 695...



internal:

Internal insert size	Pitch mm	13 695...	L mm	L e mm	Teeth
6 mm	0.5	001	10.4	10.0	20
	0.75	002	10.4	9.75	13
	1.0	003	10.4	9.0	9
	1.25	004	10.4	8.75	7
	1.5	005	10.4	9.0	6
1/4"	0.5	010	11.0	10.0	20
	0.75	011	11.0	10.5	14
	1.0	012	11.0	10.0	10
	1.25	013	11.0	8.75	7
	1.5	014	11.0	10.5	7
3/8"	0.5	020	16.0	15.0	30
	0.75	021	16.0	15.0	20
	1.0	022	16.0	15.0	15
	1.25	023	16.0	15.0	12
	1.5	024	16.0	15.0	10
	1.75	025	16.0	14.0	8
5/8"	2.0	026	16.0	14.0	7
	1.0	030	27.0	26.0	26
	1.25	031	27.0	25.0	20
	1.5	032	27.0	25.5	17
	2.0	033	27.0	24.0	12
	2.5	034	27.0	25.0	10
	3.0	035	27.0	24.0	8
	3.5	036	27.0	24.5	7
	4.0	037	27.0	24.0	6

external:

External insert size	Pitch mm	13 695...	L mm	L e mm	Teeth
3/8"	1.0	101	16.0	14.0	14
	1.25	102	16.0	15.0	12
	1.5	103	16.0	15.0	10
	1.75	104	16.0	14.0	8
	2.0	105	16.0	14.0	7
5/8"	1.0	120	27.0	26.0	26
	1.5	122	27.0	25.5	17
	2.0	123	27.0	24.0	12
	2.5	124	27.0	25.0	10
	3.0	125	27.0	24.0	8
	4.0	127	27.0	24.0	6

13 696 Indexable inserts for 55° thread milling cutter, internal/external

Wodex®

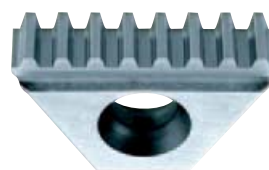


Type DIN 259

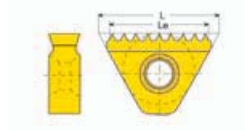
Tolerance class: Medium A.

Application: universal, for all long and short-chipping materials, e.g. steels, stainless steels, cast iron, aluminium, AISi alloys, nickel and titanium alloys.

Type: Precision ground, 2 cutting edges



13 696...



Indexable insert size	Pitch TPI	13 696...	L mm	Le mm	Teeth
6 mm	19	001	10.4	9.36	7
1/4"	14	005	11	9.07	5
	19	006	11	9.36	7
3/8"	11	008	16	13.85	6
	14	009	16	14.51	8
5/8"	11	012	27	23.9	10
	14	013	27	25.4	14

13 701 Dies



Thread type: EN 22568

Type: pre-split, length of chamfer lead approx. 2 threads,
up to pitch $0.3=6H$, from pitch $0.35=6G$

Special features: from M3 with spiral face

Application: for materials up to approx. 1000 N/mm².

Wodex®



13 701...



13 703...

13 703 Dies

Type as 13 701...

TITEX®

C 1111

d1	13 701...		13 703...		Pitch	External Ø	Thickness
	Wodex		Titex		mm	mm	mm
M 1	010		010		0.25	16	5
M 1.2	030		030		0.25	16	5
M 1.4	040		040		0.3	16	5
M 1.6	050		050		0.35	16	5
M 1.8	070		070		0.35	16	5
M 2	080		080		0.4	16	5
M 2.2	090		090		0.45	16	5
M 2.5	-	-	110		0.45	16	5
M 3	130		130		0.5	20	5
M 3.5	150		150		0.6	20	5
M 4	160		160		0.7	20	5
M 5	190		190		0.8	20	7
M 6	210		210		1	20	7
M 7	230		230		1	25	9
M 8	240		240		1.25	25	9
M 9	270		270		1.25	25	9
M 10	280		280		1.5	30	11
M 12	330		330		1.75	38	14
M 14	360		360		2	38	14
M 16	410		410		2	45	18
M 18	430		430		2.5	45	18
M 20	460		460		2.5	45	18
M 22	490		490		2.5	55	22
M 24	520		520		3	55	22
M 27	560		560		3	65	25
M 30	590		590		3.5	65	25
M 33	630		630		3.5	65	25
M 36	650		650		4	65	25
M 39	690		690		4	75	30
M 42	710		710		4.5	75	30

13 705 Dies



Thread type: EN 22568

Type: lapped

Special features: Length of chamfer lead approx. 2 threads; from M 3 with spiral face

Application: for materials up to approx. 1000 N/mm².

C 1112



13 705...

d1	13 705...		Pitch mm	External Ø mm	Thickness mm
M 2	080		0.4	16	5
M 3	130		0.5	20	5
M 4	160		0.7	20	5
M 5	190		0.8	20	7
M 6	210		1	20	7
M 8	240		1.25	25	9
M 10	280		1.5	30	11
M 12	330		1.75	38	14
M 14	360		2	38	14
M 16	410		2	45	18
M 20	460		2.5	45	18
M 24	520		3	55	22
M 27	560		3	65	25
M 30	590		3.5	65	25

13 733 VA thread-cutting die



Thread type: EN 22568

Type: pre-slit

Special features: Length of chamfer lead approx. 2.5 threads, from M3 with spiral face

Application: for difficult to machine materials, e.g. stainless steels.

C 1114



13 733...

d1	13 733...		Pitch mm	External Ø mm	Thickness mm
M 2	080		0.4	16	5
M 2.2	090		0.45	16	5
M 2.5	110		0.45	16	5
M 3	130		0.5	20	5
M 4	160		0.7	20	5
M 5	190		0.8	20	7
M 6	210		1	20	7
M 8	240		1.25	25	9
M 10	280		1.5	30	11
M 12	330		1.75	38	14
M 14	360		2	38	14
M 16	410		2	45	18
M 18	430		2.5	45	18
M 20	460		2.5	45	18

13 742 Hexagonal die

HSS

M

ISO
DIN 13

60°

DIN
382

Wodex®



13 742...

Type: Length of chamfer lead approx. 1.5 threads

Application: for rethreading damaged threads.

d1	13 742...		Pitch mm	Width across flats mm
M 3	140		0.5	19
M 4	160		0.7	19
M 5	190		0.8	19
M 6	210		1	19
M 8	240		1.25	22
M 10	280		1.5	27
M 12	330		1.75	36
M 14	360		2	36
M 16	410		2	41
M 18	430		2.5	41
M 20	460		2.5	41
M 22	490		2.5	50
M 24	520		3	50
M 27	560		3	60
M 30	590		3.5	60
M 33	630		3.5	60
M 36	660		4	60

13 748 Dies - left-hand

HSS

M

ISO
DIN 13

60°

6G

LH

TITEX®



13 748...

Thread type: EN 22568

Type: pre-slit

Special features: Length of chamfer lead approx. 2 threads, from M3 with spiral face

Application: for materials up to approx. 1000 N/mm².

C 1191

d1	13 748...		Pitch mm	External Ø mm	Thickness mm
M 2	080		0.4	16	5
M 3	130		0.5	20	5
M 4	160		0.7	20	5
M 5	190		0.8	20	7
M 6	210		1	20	7
M 8	240		1.25	25	9
M 10	280		1.5	30	11
M 12	330		1.75	38	14
M 14	360		2	38	14
M 16	410		2	45	18
M 20	460		2.5	45	18

13 752 Dies



Thread type: EN 22568

Type: pre-slit

Special features: Length of chamfer lead approx. 2 threads, pitch
< 0.3 mm = 6H > 0.3 mm = 6G with spiral face

Application: for materials up to approx. 1000 N/mm².

Wodex



13 752...

13 754...

CUTTING TOOLS

1

13 754 HSS die

Type as 13 752...

TITEX

C 2111

d1 mm	13 752... Wodex		13 754... Titex		External Ø mm	Thickness mm
M 2 x 0.25	-	-	080		16	5
M 2.2 x 0.25	-	-	090		16	5
M 2.5 x 0.35	-	-	110		16	5
M 3 x 0.35	130		130		20	5
M 3.5 x 0.35	-	-	150		20	5
M 4 x 0.5	160		160		20	5
M 5 x 0.5	190		190		20	5
M 6 x 0.5	210		210		20	5
M 6 x 0.75	220		220		20	7
M 7 x 0.75	230		230		25	9
M 8 x 0.5	240		240		25	9
M 8 x 0.75	250		250		25	9
M 8 x 1	260		260		25	9
M 9 x 1	270		270		25	9
M 10 x 0.75	290		290		30	11
M 10 x 1	300		300		30	11
M 10 x 1.25	310		310		30	11
M 11 x 1	320		320		30	11
M 12 x 1	330		330		38	10
M 12 x 1.25	340		340		38	10
M 12 x 1.5	350		350		38	10
M 14 x 1	360		360		38	10
M 14 x 1.25	370		370		38	10
M 14 x 1.5	380		380		38	10
M 15 x 1	390		390		38	10
M 15 x 1.5	400		400		38	10
M 16 x 1	410		410		45	14
M 16 x 1.5	420		420		45	14
M 18 x 1	430		430		45	14
M 18 x 1.5	440		440		45	14
M 18 x 2	450		450		45	14
M 20 x 1	460		460		45	14
M 20 x 1.5	470		470		45	14
M 20 x 2	480		480		45	14
M 22 x 1	490		490		55	16
M 22 x 1.5	500		500		55	16
M 22 x 2	510		510		55	16
M 24 x 1	520		520		55	16
M 24 x 1.5	530		530		55	16
M 24 x 2	540		540		55	16
M 25 x 1.5	545		545		55	16
M 26 x 1.5	550		550		55	16
M 27 x 1.5	560		560		65	18
M 27 x 2	570		570		65	18
M 28 x 1.5	580		580		65	18
M 30 x 1	590		590		65	18
M 30 x 1.5	600		600		65	18
M 30 x 2	610		610		65	18
M 32 x 1.5	620		620		65	18
M 33 x 1.5	630		630		65	18
M 34 x 1.5	640		640		65	18
M 35 x 1.5	650		650		65	18
M 36 x 1.5	660		660		65	18
M 36 x 3	670		670		65	18
M 38 x 1.5	680		680		75	20
M 40 x 1.5	700		700		75	20
M 42 x 1.5	710		710		75	20

Taps and dies



13 802 Dies

HSS

UNC

EN
22568

2A



Type: pre-slit

Special features: Length of chamfer lead approx. 2 threads, with spiral face

Application: for materials up to approx. 1000 N/mm².

C 3111



13 802...

d1	13 802...		Pitch	External Ø	Thickness
inch			TPI	mm	mm
1/4	220		20	20	7
5/16	230		18	25	9
3/8	240		16	30	11
7/16	250		14	30	11
1/2	260		13	38	14
9/16	270		12	38	14
5/8	280		11	45	18
3/4	300		10	45	18
7/8	310		9	55	22
1	320		8	55	22

13 822 Dies

HSS

UNF

EN
22568

2A



Type: pre-slit, length of chamfer lead approx. 2 threads

Special features: Length of chamfer lead approx. 2 threads

Application: for materials up to approx. 1000 N/mm².

C 4111



13 822...

d1	13 822...		Pitch	External Ø	Thickness
inch			TPI	mm	mm
1/4	220		28	20	7
5/16	230		24	25	9
3/8	240		24	30	11
7/16	250		20	30	11
1/2	260		20	38	10
9/16	270		18	38	10
5/8	280		18	45	14
3/4	300		16	45	14
7/8	310		14	55	16
1	320		12	55	16



13 842 Dies



Type: pre-slit

Special features: Length of chamfer lead approx. 2 threads, with spiral face

Application: for materials up to approx. 1000 N/mm².

C 6211



13 842...

d1	13 842...		Pitch	External Ø	Thickness
inch			TPI	mm	mm
1/8	160		40	20	5
3/16	190		24	20	7
7/32	200		24	20	7
1/4	220		20	20	7
5/16	230		18	25	9
3/8	240		16	30	11
7/16	250		14	30	11
1/2	260		12	38	14
9/16	270		12	38	14
5/8	280		11	45	18
3/4	300		10	45	18
7/8	310		9	55	22
1	320		8	55	22

13 862 Dies



Type: pre-slit, A

Special features: Length of chamfer lead approx. 2 threads, with spiral face

Application: for materials up to approx. 1000 N/mm².



13 862...



13 863...

13 863 Dies



Type as 13 862...

C 6111

Size	13 862...		13 863...		Pitch	External Ø	Thickness
	Wodex		Titex		TPI	mm	mm
G 1/8	170		170		28	30	11
G 1/4	220		220		19	38	10
G 3/8	240		240		19	45	14
G 1/2	260		260		14	45	14
G 5/8	280		280		14	55	16
G 3/4	300		300		14	55	16
G 7/8	310		310		14	65	18
G 1	320		320		11	65	18
G 1 1/8	330		-	-	11	75	20
G 1 1/4	340		-	-	11	75	20
G 1 3/8	350		-	-	11	90	22
G 1 1/2	370		-	-	11	90	22
G 1 3/4	390		-	-	11	105	22
G 2	410		-	-	11	105	22



13 878 Hexagonal die

HSS

G

DIN-ISO
228

Wodex®



13 878...

Thread type: DIN-ISO 228

Type: Length of chamfer lead approx. 1.5 threads

Application: for rethreading damaged threads.

Size	13 878...		Pitch TPI	Width across flats mm
G 1/8	170		28	36
G 1/4	220		19	36
G 3/8	240		19	41
G 1/2	260		14	41
G 3/4	300		14	60
G 1	320		11	60
G 1 1/8	330		11	70
G 1 1/4	340		11	70
G 1 1/2	370		11	85

13 898 Die guide bushes

Wodex®

For right-hand and left-hand thread, as well as all thread pitches.
The guide bush is used together with the die stock (according to DIN 223/225).

Advantages: Precisely aligning thread, clean thread flanks, good chip removal.

For thread	13 898...	
M 3	003	
M 4	004	
M 5	005	
M 6	006	
M 8	008	
M 10	010	
M 12	012	



13 898...

13 904 Thread cutting tool sets

HSS

M



Wodex®

complete in painted sheet steel case.

Contents: With product 13 904 330:

1 set each of 3-piece hand taps DIN 352, 1 each die DIN 223, 25 mm Ø, die stock DIN 225, adjustable tap wrench DIN 1814, screwdriver.

Contents: With product 13 904 520:

as Product No. 13 940 330; however, with 7 die holders, 3 adjustable tap wrenches, 1 screwdriver, 1 thread gauge, and die guide bushes 13 898...



13 904 330

Thread	Contents	13 904...	
M 3 - M 12	M 3 - 4 - 5 6 - 8 - 10 - 12	330	
M 3 - M 24	M 3 - 4 - 5 - 6 - 8 10 - 12 - 14 - 16 18 - 20 - 22 - 24	520	



13 904 520

13 920 Hand tap sets

complete in painted sheet steel case, with hand tap sets, **DIN 352**, HSS, for metric ISO thread according to **DIN 13**,



13 920...

**13 922 Hand tap sets**

Type as 13 920...

No. ...335 with twist drill for tap hole sizes



13 922 330

13 922 335

Size	13 920... Titex		13 922... Wodex		Contents
M 3 - M 12	330		330		M 3 - 4 - 5 - 6 - 8 - 10 - 12
M 3 - M 12	-	-	335		M 3 - 4 - 5 - 6 - 8 - 10 - 12

13 926 Machine tap sets

Complete in painted sheet steel case, with **machine taps**, **DIN 371 / 376, Form B**, HSS-E, for **metric ISO thread** DIN 13, tolerance 6 H



13 926 330

13 926 340

Size	13 926...		Contents
M 3 - M 12	330		1 each machine taps, DIN 371 up to M 10, DIN 376, M 12 straight fluted, for through holes M 3 - 4 - 5 - 6 - 8 - 10 - 12
M 3 - M 12	340		1 each machine taps DIN 371 up to M 10 DIN 376, M 12 right-hand spiral fluted, for blind holes M 3 - 4 - 5 - 6 - 8 - 10 - 12

13 928 Sheet steel case, empty

For machine taps



13 928 040

Size	13 928...		For thread Ø
M 3 - M 12	040		M 3 - 4 - 5 - 6 8 - 10 - 12

13 953 Ball-type tap wrench

DIN
10



13 953...

with 4 square holes for taps and reamers, arms can be unscrewed

Size	13 953...		Squares mm	For taps mm	Length mm
0	007		2.1 - 2.7 - 3 - 3.4	M 1 - 4	200
1	010		3 - 3.4 - 4.3 - 4.9	M 3.5 - 8	200
2	013		3.4 - 4.3 - 4.9 - 5.5	M 4 - 10	240
3	016		4.9 - 5.5 - 6.2 - 7	M 4.5 - 12	300
4	019		5.5 - 6.2 - 7 - 9	M 9 - 16	340
5	022		7 - 9 - 11 - 12	M 12 - 20	500
6	025		11 - 12 - 14.5 - 16	M 18 - 27	650



13 955 Tap wrench, adjustable

DIN
1814

Wodex®



13 955...

precision designed, with hardened steel jaws

Size	13 955...		For taps	Length mm	Square clamping range mm
0	007		M 1 - 8	130	2.1 - 4.9
1	010		M 1 - 10	180	2.1 - 5.5
1 1/2	011		M 1 - 12	215	2.1 - 7
2	013		M 4 - 12	290	3.8 - 7
3	016		M 5 - 20	390	4.9 - 12
4	019		M 9 - 27	500	5.5 - 16
5	022		M 12 - 33	780	7 - 20
6	025		M 20 - 42	1000	12 - 24
7	028		M 27 - 52	1200	16 - 32
8	031		M 27 - 64	1200	16 - 40

13 959 Extensions

DIN
377

Wodex®



13 959...

for **taps and other tools with square**, squares according to DIN 10, hardened and ground

Square mm	13 959...		For taps M	Length mm
2.1	031		1.0 - 2.5	60
2.4	038		-	70
2.7	040		3	80
3	043		3.5	90
3.4	050		4	95
3.8	061		-	100
4.3	070		-	105
4.9	079		4.5 - 8	110
5.5	091		9 - 10	115
6.2	103		11	120
7	109		12	125

Square mm	13 959...		For taps M	Length mm
8	115		-	125
9	121		14 - 16	130
10	127		-	140
11	139		18	150
12	145		20	155
13	154		-	165
14.5	172		22 - 24	175
16	178		27	180
18	193		30	200
20	205		33	220

13 960 Extensions

for clamping tools with square shanks, such as taps, reamers with two-jaw chucks, bright chromium plated surface

Wodex®



13 960 001



13 960 002

For thread	13 960		Length mm
M 3 - M 9	001		200
M 5 - M 12	002		240

13 962 T-handle tool holder with ratchet

for right-hand and left-hand operation and for rigid use, with adjustable T-handle, for inserting taps and reamers

Wodex®



13 962...

Size	13 962...		For taps M	Length mm	Square clamping range mm
1	010		3 - 10	85	2.4 - 5.5
2	013		5 - 12	100	4.5 - 7
1 long	020		3 - 10	250	2.4 - 5.5
2 long	023		5 - 12	300	4.5 - 7

13 973 "Tap crown" tap remover

for removing a broken off tap, the broken off piece is removed by turning in direction opposite to the thread

Wodex®



13 973...

Size	13 973...		For taps M	For taps Whw	Number of lands
0	004		3	1/8"	3
1	010		4	5/32"	3
2	013		5	3/16"	3
3	016		6	1/4"	3
3	017		6	1/4"	4
4	019		8	5/16"	3
4	020		8	5/16"	4
5	022		10	3/8"	3
5	023		10	3/8"	4
6	025		12	1/2"	3
6	026		12	1/2"	4
7	028		14	9/16"	3
7	029		14	9/16"	4
8	031		16	5/8"	3
8	032		16	5/8"	4
9	034		20	3/4"	3
9	035		20	3/4"	4
10	037		22	7/8"	3
10	038		22	7/8"	4
11	040		24	1"	3
11	041		24	1"	4

13 982 Die stock

EN
22568

Wodex®



13 982...

for holding circular dies

EN 22568 (DIN 223)

EN 24231 (DIN 5158) and DIN 40434,

for fastening the die with 4 screws for sizes 16 - 20 mm,
with 5 screws from size 25 mm

from size 45 x 14 mm with unscrewable handles

For die external Ø mm	13 982...		Thickness mm	Length mm
16	010		5	175
20	013		5	200
20	016		7	200
25	019		9	220
30	022		11	270
38	025		10	325
38	028		14	325
45	031		14	450
45	034		18	450
55	037		16	510
55	040		22	510
65	043		18	620
65	046		25	620
75	049		20	800
75	052		30	800
90	055		22	900
90	058		36	900

13 990 Eroder unit (tap disintegrator)

Mobile, fast deployment

If the tool breaks the stuck broken off piece must be removed quickly and easily without damaging the workpiece.

With out LE eroder units you remove the broken off piece directly at any machine tool with spindle sleeve or quill. On a drill, milling machine, the tailstock of a lathe, in situ with the magnetic stand or on special eroder benches.

Without damaging the thread or hole wall.

And thanks to the EEC control, it can be done as quickly and as easily as drilling a hole.

How it works

The equipment includes a control unit, eroder head and coolant pump. To e.g. remove a tap from the workpiece, clamp a hollow electrode with half the diameter of the tap in the eroder head. This is now lowered by hand using the spindle sleeve.

When the electrode touches the broken off piece of the tap a large number of small electric arcs are struck on the underside of the electrode. Simultaneous cooling from within by the electrode with drilling water (dielectric liquid) causes the material to disintegrate into minute particles which are rinsed away by the drilling water.

The following electrode erodes and removes the core of the tap.

The cutting edges are then loose and can be easily removed. The **thread remains undamaged**.

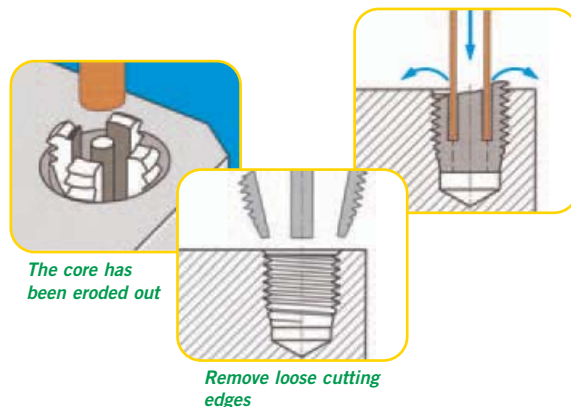
Broken out twist drills, centre drills and reamers can be removed in the same way.

Other applications

- Removing broken off screws, studs, pins.
- Eroding any hole shapes, slits/slots, marks in hardened steel, in cemented carbide metal or in any other electrically conducting materials.



13 990...



- Standard MK 2 Morse taper
 - Stable supply hose with steel helix
 - Steadying handle for tightening the clamping nut and protecting any internal connections
 - Eroding current lamps
 - Anchor and clamping nut threads hardened
 - Collet chuck system:
Electrodes up to x 12 can be pushed up to 130 mm deep in the eroder head.
 - Power switch
 - Eroding level switch
 - Pump On / Off
 - Bush for test lamp
 - Side recessed grip handles
 - Eroding level table
 - Eroding current indicator
 - Function lamps
- At the rear: Eroder head connections
Pump socket,
Fuses, power cord

Switching steps	13 990...		for electrode Ø	Thread Ø	Control unit weight kg	Control unit dimensions B x H x D	elec. connected loads	Eroding current indicator
5	016		Ø 1 - Ø 10	M 2 - M 20	28	490 x 225 x 310	400 V 50 Hz 16 A	Accessories
6	030		Ø 1 - Ø 22	M 2 - M 50	33	490 x 225 x 310	400 V 50 Hz 16 A	Standard

13 993 Cu electrodes

for HSS, steel, Al, Ms

Ø mm	13 993...		Overall length mm
1.0	010		200
1.5	015		200
2.0	020		200
2.5	025		200
3.0	030		250
3.5	035		250
4.0	040		250
4.5	045		250
5.0	050		250
6.0	060		250
7.0	070		250
8.0	080		250
10.0	100		250
12.0	120		250
14.0	140		250
16.0	160		250
18.0	180		250
20.0	200		250
22.0	220		250
Ø mm	13 993... Set		consisting of
1.0 - 22.0	400		...010 - ...220

13 994 WK electrodes

for cemented carbide metals

Ø mm	13 994...		Overall length mm
1.0	010		150
1.5	015		150
2.0	020		150
2.5	025		150
3.0	030		150
3.5	035		150
4.0	040		150
4.5	045		150
5.0	050		150
6.0	060		150
7.0	070		150
8.0	080		150
10.0	100		150
12.0	120		150
Ø mm	13 994... Set		consisting of
1.0 - 12.0	400		...010 - ...120

13 995 Collet chucks

for holding the electrodes

Ø mm	13 995...		Ø mm	13 995...	
1.0	010		4.5	045	
1.5	015		5.0	050	
2.0	020		6.0	060	
2.5	025		7.0	070	
3.0	030		8.0	080	
3.5	035		10.0	100	
4.0	040		12.0	120	

Set consisting of	13 995...	
...010 - ...120	400	

13 992 Accessories for eroder units

Term	13 992...	
Unit trolley for holding the control unit, coolant pump, coolant vessel and eroder head. With shelf and closed box for electrodes, collet chucks and tools	011	
Coolant vessel 30 l with handles and cover	012	
Test lamp 3.7 V Lamp holder with halogen bulb Ø 5 mm 2 m cable and plug	013	
Eroding current indicator for LE 16 (standard with LE 30)	015	
Magnetic stand (for eroding in situ) horizontally and vertically adjustable, fine eroder stroke, two powerful high-load magnets	016	



13 992 011
Supplied without equipment.



13 992 016
Supplied without equipment.



13 995 020



13 995 050



13 995 100

HELICOIL® plus thread technology

HELICOIL® plus thread inserts create heavy-duty connections, especially in low strength materials. HELICOIL® plus thread repair is used for all metal materials and furthermore, its use in many plastics and composites is common practice. The optimised design with reduced diameter of the first winding substantially simplifies the installation of HELICOIL® plus. The HELICOIL® plus thread insert is positioned like a screw and is screwed in. It is therefore not necessary to use a tool sleeve and the prestressing cartridge in it. It is screwed in with a built in spindle only, which is no larger than a threading tap. The built-in depth can be visually monitored, therefore there is no need to set a depth stop.

13 996 Thread repair packs

- for metric ISO thread
- Stainless steel A2

...101: Thread M 14 x 1.25, special spark plug thread

Scope of supply for all models:

Thread inserts in three lengths, twist drill bit, HSS hand tap, built-in spindle, pin breaker

Helicoil® plus



13 996...

Thread size d (x P)	Pitch P	13 996...		Number of HELICOIL® inserts
M 5	0.8	001		20 x M 5 x 5 20 x M 5 x 7.5 20 x M 5 x 10
M 6	1.0	003		20 x M 6 x 6 20 x M 6 x 9 20 x M 6 x 12
M 8	1.25	005		10 x M 8 x 8 10 x M 8 x 12 10 x M 8 x 16

Thread size d (x P)	Pitch P	13 996...		Number of HELICOIL® inserts
M 10	1.5	007		10 x M 10 x 10 10 x M 10 x 15 10 x M 10 x 20
M 12	1.75	009		10 x M 12 x 12 10 x M 12 x 18 10 x M 12 x 24
M 14 x 1.25	1.25	101		10 x M 14 x 1.25 x 8.4 10 x M 14 x 1.25 x 12.4 10 x M 14 x 1.25 x 16.4

13 997 Refill packs for thread repair packs

Suitable for HELICOIL® plus 13 996...

Helicoil® plus



13 997 009

Thread size d (x P) x L	13 997...		Number of HELICOIL® inserts
M 5 x 5	001		20
M 5 x 7.5	003		20
M 5 x 10	005		20
M 6 x 6	007		20
M 6 x 9	009		20
M 6 x 12	011		20
M 8 x 8	013		10
M 8 x 12	015		10
M 8 x 16	017		10

Thread size d (x P) x L	13 997...		Number of HELICOIL® inserts
M 10 x 10	019		10
M 10 x 15	021		10
M 10 x 20	023		10
M 12 x 12	025		10
M 12 x 18	027		10
M 12 x 24	029		10
M 14 x 1.25 x 8.4	051		10
M 14 x 1.25 x 12.4	053		10
M 14 x 1.25 x 16.4	055		10

13 998 Thread repair kit M5 - M12

- 230-piece
consisting of 13 996 001 - ...009
- For metric ISO thread

Scope of supply:

Thread inserts with various dimensions and lengths, twist drill bit, HSS hand tap, built-in spindle, pin breaker

Helicoil® plus



13 998 003

Type	13 998...	
Thread repair kit M5 - M12	003	

Further HELICOIL® plus repair and refill packs as well as repair kits with metric (M2 - M36) and inch sizes (UNC, UNF, BSW, BSF and G) are available from us on request.

14 003 Metal cutting circular saw blades



for slitting and milling work, fine toothed, tooth form A / straight tooth, production standard according to DIN 1840, for thin-walled materials and small cutting depths, for short-chipping materials.

14 005 Metal cutting circular saw blades



Type as 14 003..., coarse toothed, tooth form B / curved tooth, production standard to DIN 1840, for thick-walled materials and larger cutting depths



14 003...



14 005...

Ø mm	Thickness mm	Bore mm	14 003... fine		14 005... coarse		No. of teeth 14 003...	No. of teeth 14 005...
63	0.4	16	104		-	-	128	-
63	0.5	16	105		105		128	64
63	0.6	16	106		106		100	48
63	0.8	16	107		107		100	48
63	1	16	108		108		100	48
63	1.2	16	109		109		80	40
63	1.6	16	110		110		80	40
63	2	16	111		111		80	40
80	0.3	22	123		-	-	160	-
80	0.4	22	124		-	-	160	-
80	0.5	22	125		125		128	64
80	0.6	22	126		126		128	64
80	0.8	22	127		127		128	64
80	1	22	128		128		100	48
80	1.2	22	129		129		100	48
80	1.6	22	130		130		100	48
80	2	22	131		131		80	40
80	2.5	22	132		132		80	40
100	0.5	22	145		145		160	80
100	0.6	22	146		146		160	80
100	0.8	22	147		147		128	64
100	1	22	148		148		128	64
100	1.2	22	149		149		128	64
100	1.6	22	150		150		100	48
100	2	22	151		151		100	48
100	2.5	22	152		152		100	48
100	3	22	153		153		80	40
125	1	22	168		168		160	80
125	1.2	22	169		169		128	64
125	1.6	22	170		170		128	64
125	2	22	171		171		128	64
125	2.5	22	172		172		100	48
125	3	22	173		173		100	48
125	4	22	174		174		100	48
125	5	22	175		175		80	40
160	1	32	188		188		160	80
160	1.2	32	189		189		160	80
160	1.6	32	190		190		160	80
160	2	32	191		191		128	64
200	1	32	208		208		200	100
200	1.2	32	209		209		200	100
200	1.6	32	210		210		160	80
200	2	32	211		211		160	80

Further dimensions and tooth form MZ also available at short-notice ex factory.

14 052 Metal cutting circular saw blades

HSS

DMo5

for machines made by: **Eisele, B & S, Häberle, Trennjäger, etc.**,
metal cutting circular saw blades HSS-DMo5, steam tempered,
with bore 40 mm Ø, with off-centre holes in body: 2/8/55 + 4/12/64



14 052...

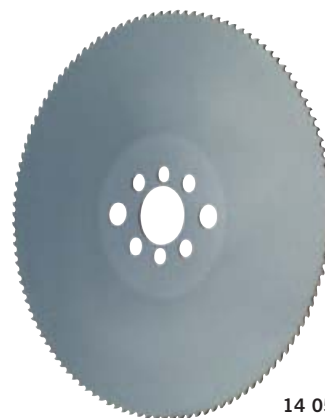
Ø mm	Thick- ness mm	Bore mm	14 052...	Pitch mm	No. of teeth	Tooth shape
225	2	40	223	3	220	Bw
225	2	40	224	4	180	Bw
225	2	40	226	6	120	C
225	2	40	228	8	90	C
250	2.5	40	254	4	200	Bw
250	2.5	40	256	6	128	C
275	2	40	273	3	280	Bw
275	2	40	274	4	220	Bw
275	2	40	276	6	140	C
275	2	40	278	8	110	C
275	2.5	40	283	3	280	Bw
275	2.5	40	284	4	220	Bw
275	2.5	40	286	6	140	C
275	2.5	40	288	8	110	C

Ø mm	Thick- ness mm	Bore mm	14 052...	Pitch mm	No. of teeth	Tooth shape
300	2.5	40	304	4	220	Bw
300	2.5	40	306	6	160	C
300	2.5	40	308	8	120	C
315	2.5	40	314	4	250	Bw
315	2.5	40	316	6	160	C
315	2.5	40	318	8	120	C
315	3	40	324	4	250	Bw
315	3	40	326	6	160	C
315	3	40	328	8	120	C
350	3	40	354	4	220	C
350	3	40	359	9	120	C

14 057 Metal cutting circular saw blades

HSS

for machines made by: **Eisele, B & S, IBP etc.**, steam tempered,
with bore 32 mm Ø, with off-centre side holes in body 2/8/45 +
2/9/50



14 057...

Ø mm	Thick- ness mm	14 057...	Pitch mm	No. of teeth	Tooth shape
210	2	214	4	160	BW
210	2	216	6	120	C
225	2	223	3	220	BW
225	2	224	4	180	BW
225	2	226	6	120	C
225	2	228	8	90	C
250	2	254	4	200	BW
250	2	256	6	128	C
250	2	258	8	100	C

Ø mm	Thick- ness mm	14 057...	Pitch mm	No. of teeth	Tooth shape
275	2.5	274	4	220	BW
275	2.5	276	6	140	C
275	2.5	278	8	110	C
300	2.5	304	4	220	BW
300	2.5	306	6	160	C
300	2.5	308	8	120	C
315	2.5	314	4	250	BW
315	2.5	316	6	160	C
315	2.5	318	8	120	C



14 058 Metal cutting circular saw blades

HSS
E

for machines made by: **Eisele, B & S, Häberle, Trennjäger, Kaltenbach, etc.** 5% Co., "VARIDEN" with varied teeth and 40 mm bore, **the new generation - up to 40% longer tool life**, steam tempered, for cutting all VA steels at max. cutting speed of 15 m/min. Also available with other bore diameters and coatings



14 058...

Ø mm	14 058...	Thick- ness mm	Pitch mm	No. of teeth	Tooth shape
275	274	2.0	4	216	Bw
275	276	2.0	6	144	C
275	284	2.5	4	216	Bw
275	286	2.5	6	144	C
275	288	2.5	8	104	C
300	304	2.5	4	232	Bw
300	306	2.5	6	160	C

Ø mm	14 058...	Thick- ness mm	Pitch mm	No. of teeth	Tooth shape
300	308	2.5	8	120	C
315	314	2.5	4	248	Bw
315	316	2.5	6	168	C
315	318	2.5	8	120	C
315	326	3	6	168	C
350	354	3	4	216	C
350	359	3	9	112	C

14 059 Metal cutting circular saw blades

HSS
E

for machines made by: **Eisele, Trennjäger, Kaltenbach etc.**, made of cobalt alloyed **super high-speed steel** for cutting **stainless steels**, with **special tooth geometry**, max. cutting speed 15 m/min



14 059...

Ø mm	Thickness mm	Bore mm	14 059...	Pitch	Number of teeth	Tooth form
Bore = 32 mm Ø with 4 universal elongated holes 2 No. 9.5 mm Ø, off-centre holes + pitch circle 8/45, 9/50, and 9/56 2 No. 11.5 mm Ø, off-centre holes + pitch circle 11/63, 11/65, and 11/80						
250	2	32	234	4	200	Bw
250	2	32	235	5	160	C
250	2	32	236	6	128	C
275	2.5	32	244	4	220	Bw
275	2.5	32	246	6	140	C
Bore = 40 mm Ø with 2 off-centre holes 8 mm Ø, pitch circle Ø 55 mm and with 4 off-centre holes 12 mm Ø, pitch circle Ø 64 mm						
250	2	40	254	4	200	Bw
250	2	40	255	5	160	C
250	2	40	256	6	128	C
250	2.5	40	264	4	200	Bw
250	2.5	40	265	5	160	C
275	2.5	40	266	6	128	C
275	2.5	40	274	4	220	Bw
275	2.5	40	276	6	140	C
300	2.5	40	306	6	160	C
315	2.5	40	316	6	160	C
Bore = 40 mm Ø with 2 off-centre holes 9 mm Ø, pitch circle Ø 55 mm and with 4 off-centre holes 12 mm Ø, pitch circle Ø 64 mm						
350	3	40	356	6	180	C
350	3	40	357	7	140	C

14 060 Metal cutting circular saw blades

HSS

for Baier hand-held circular saws with 4 drive slots and 32 mm bore

No. 101 - 102 for material thicknesses up to 4 mm No. 201 - 202

for material thicknesses over 4 mm

Ø mm	Thickness mm	14 060...		Pitch mm	Number of teeth	Tooth form mm
175	2	101		2.5	220	Aw
250	2	102		2.5	320	Aw
175	2	201		3	180	Aw
250	2	202		3	250	Aw



14 060...

14 104 Metal-cutting segmented circular saw blades

HSS

Segments made of HSS, main discs made of hardened chromium vanadium steel, strength 130 / 140 kg/m², the segments are fixed to the main blade by 4 rivets and 2 middle rivets per segment

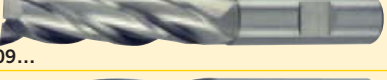
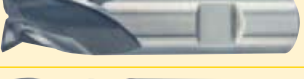
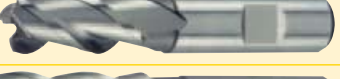
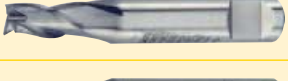
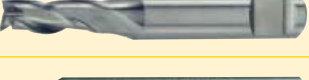
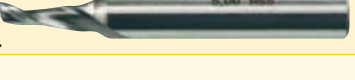
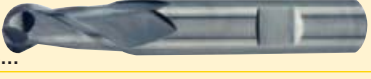


14 104...

Ø mm	Kerf width mm	Bore mm	14 104...		Number of segments	No. of teeth per segment	Tooth pitch mm
for machines made by: Kaltenbach, Trennjäger							
400	4	50	402		16	5	15.7
400	4	50	403		16	6	13.1
400	4	50	404		16	8	9.8

Overview of uses of HSS milling cutters

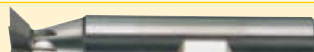
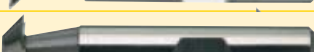
✓=optimally suited / ✕=alternative use

Page	DIN	Shank	Coating	Type	Order Number	Aluminium and non-ferrous metals	Steels up to 1200 N/mm	Steels up to 1600 N/mm	Stainless steels	Cast materials
HSS narrow side & face slotting cutters and side & face slotting cutters (staggered tooth)										
217	DIN 1834 Shape A	-	bright	N	15 009...		✕	✓	✓	✕
218	DIN 885 Shape A	-	bright	N	15 015...		✕	✓	✓	✕
HSS shell end mills, finish and roughing types (Bore with longitudinal and transverse groove to DIN 138)										
219	DIN 1880	-	bright TiCN	N	15 110...		✕	✓	✓	✓
219	DIN 1880	-	bright TiCN	NR	15 140...		✕	✓	✓	✓
219	DIN 1880	-	bright	NF	15 160...		✕	✓	✓	✓
HSS long slot drill and slot drill cutters (1, 2 and 3 flute)										
220	DIN 327 short	HB	bright TiAIN-M	N	15 203...		✕	✓	✓	
221	DIN 844 long	HB	bright TiAIN-M	N	15 206...		✕	✓	✓	
221	DIN 327 long	HB	bright TiAIN-M	N	15 209...			✓	✓	
222	DIN 327 short	HB	bright TiAIN-M	N	15 212...		✕	✓	✕	✓
223	DIN 844 short	HB	bright TiAIN-M	N	15 215...		✕	✓	✕	✓
223	DIN 844 short	HB	bright TiAIN-M	N	15 218...			✓	✓	
226	WN short	HB	bright TiAIN-M	N	15 230...		✕	✓	✕	✓
226	WN long	HB	bright TiAIN-M	N	15 233...		✕	✓	✓	
231	WN	HA	bright	N	15 475...		✕	✓	✓	
HSS copy milling cutters for universal machining (2 flute)										
227	DIN 327 short	HB	bright TiAIN-M	N	15 236...		✕	✓	✓	✕
227	DIN 844 long	HB	bright TiAIN-M	N	15 239...			✓	✓	

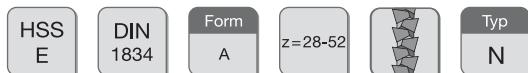
Continued on next page

Overview of uses of HSS milling cutters

✓=optimally suited / ✕=alternative use

Page	DIN	Shank	Coating	Type	Order Number	Aluminium and non-ferrous metals	Steels up to 1200 N/mm	Steels up to 1600 N/mm	Stainless steels	Cast materials
HSS end mill cutters for finishing (4 and multi-flute)										
224	DIN 844 short	HB	bright TiAIN-M	N	15 221... 	✕	✓		✓	✓
225	DIN 844 long	HB	bright TiAIN-M	N	15 224... 		✓		✓	✕
225	WN extra long	HB	bright	N	15 227... 		✓		✕	✕
PM Eco milling cutters for finishing (4 flute)										
231	DIN 884 short	HB	TiAIN-M	N	15 260... 		✓	✓	✓	✓
231	DIN 844 long	HB	TiAIN-M	N	15 263... 		✓	✓	✓	✓
HSS roughing finishing cutters (Type NF) (4 and multi-flute)										
228	DIN 844 short	HB	bright TiAIN-M	NF	15 245... 	✕	✓		✓	
229	DIN 844 long	HB	bright TiAIN-M	NF	15 251... 		✓		✓	
HSS roughing cutters (Type NR) (4 and multi-flute)										
228	DIN 844 short	HB	bright TiAIN-M	NR	15 242... 	✕	✓		✓	
229	DIN 844 long	HB	bright TiAIN-M	NR	15 248... 		✓		✓	
PM roughing cutters (Type NRF, fine toothed) (4 and multi-flute)										
230	DIN 844 short	HB	bright TiAIN-M	NRF (HR)	15 254... 		✓	✓	✓	✓
230	DIN 844 long	HB	bright TiAIN-M	NRF (HR)	15 257... 		✓	✓	✓	✓
HSS T slot cutters (staggered tooth)										
232	DIN 851	HB	bright	N	15 491... 	✕	✓		✕	✕
HSS Woodruff keyseat cutter (staggered tooth)										
232	DIN 850	HB	bright	N	15 494... 	✕	✓		✕	✕
HSS corner rounding cutter (profile relieved)										
233	DIN 6518	B/D	bright	N	15 499... 	✕	✓		✕	✕
HSS angle cutters										
233	DIN 1833 Shape C	B	bright	N	15 500... 	✕	✓		✕	✕
233	DIN 1833 Shape D	HB	bright	N	15 500... 	✕	✓		✕	✕

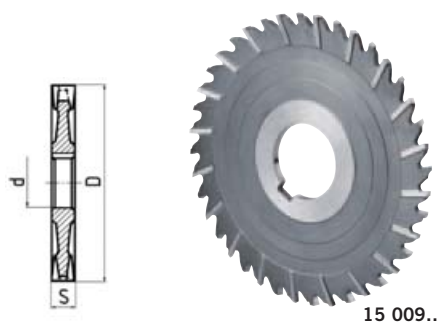
15 009 HSS-E narrow side & face slotting cutters *Wodex®*



with longitudinal groove according to DIN 138

Use: Slot milling

Materials: for materials up to approx. 1100 N/mm²



15 009...

Ø	Width	15 009...		Bore	Number of teeth
mm	mm			mm	
63	1.6	200		22	28
63	2	201		22	28
63	2.5	202		22	28
63	3	203		22	28
63	4	204		22	28
63	5	205		22	28
63	6	206		22	28
80	1.6	300		27	32
80	2	301		27	32
80	2.5	302		27	32
80	3	303		27	32
80	4	304		27	32
80	5	305		27	32
80	6	306		27	32
100	1.6	400		32	36
100	2	401		32	36
100	2.5	402		32	36
100	3	403		32	36
100	4	404		32	36
100	5	405		32	36
100	6	406		32	36
100	8	408		32	28
125	2	501		32	40
125	2.5	502		32	40
P		25 - 40			
M		15 - 25			
K		15 - 25			
NE		-			
H		-			
S					

Ø	Width	15 009...		Bore	Number of teeth
mm	mm			mm	
125	3	503		32	40
125	4	504		32	40
125	5	505		32	40
125	6	506		32	40
125	8	508		32	32
125	10	510		32	32
160	2	601		40	44
160	2.5	602		40	44
160	3	603		40	44
160	4	604		40	44
160	5	605		40	44
160	6	606		40	44
160	8	608		40	36
160	10	610		40	36
160	12	612		40	36
200	2	701		40	52
200	2.5	702		40	52
200	3	703		40	52
200	4	704		40	52
200	5	705		40	52
200	6	706		40	52
200	8	708		40	40
200	10	710		40	40
200	12	712		40	40
P		25 - 40			
M		15 - 25			
K		15 - 25			
NE		-			
H		-			
S					

Note:

All cutting parameters are guideline values and have to be adjusted to the individual situation. To this end, it is especially necessary to ensure adequate cooling, stable clamping of the workpiece and sufficient machine power. The feed per tooth f_z (mm/t) can be reduced to increase the surface quality on the workpiece and to increase the tool life. If vibrations occur, the cutting speed V_c (m/min.) must also be changed. We recommend dry or MMS machining for all materials with a tensile strength over 1,600 N/mm². The given feed must always be reduced for drilling or deep (plunge) operations.

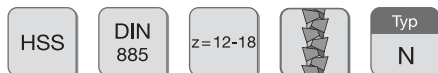
Feed per tooth f_z (mm/min.)

Type of infeed:	Slot cutting		Finish milling		Rough milling		Rough milling		Copy milling	
Cut width:	ae = 1 x d		ae = 0.1 x d		ae = 0.5 x d		ae = 1.0 x d		ae = 0.05 x d	
Cut depth:	ap = 0.5 x d		ap = 1.5 x d		ap = 1.5 x d		ap = 1.5 x d		ap = 0.05 x d	
Surface	bright	TiAIN-M	bright	TiAIN-M	bright	TiAIN-M	bright	TiAIN-M	bright	TiAIN-M
2	0.010	0.012	0.010	0.011	-	-	-	-	0.012	0.014
4	0.017	0.020	0.016	0.019	-	-	-	-	0.020	0.023
6	0.026	0.030	0.024	0.029	0.020	0.023	0.015	0.017	0.029	0.035
8	0.030	0.035	0.028	0.033	0.030	0.035	0.023	0.026	0.034	0.040
10	0.034	0.040	0.032	0.038	0.040	0.046	0.030	0.035	0.039	0.046
12	0.038	0.045	0.036	0.043	0.050	0.058	0.038	0.043	0.044	0.052
14	0.043	0.050	0.040	0.048	0.060	0.069	0.045	0.052	0.049	0.058
16	0.051	0.060	0.048	0.057	0.070	0.081	0.053	0.060	0.059	0.069
18	0.051	0.060	0.048	0.057	0.090	0.104	0.068	0.078	0.059	0.069
20	0.068	0.080	0.065	0.076	0.110	0.127	0.083	0.095	0.078	0.092
Reduction in f_z with cut depth ap:	f_z -25% = 1.0 x d f_z -50% = 1.5 x d		f_z -25% = 1.5 x d f_z -50% = 2.0 x d		f_z -25% = 1.5 x d f_z -50% = 2.0 x d		f_z -25% = 1.5 x d f_z -50% = 2.0 x d		f_z -35% = 0.1 x d	



15 015 HSS narrow side & face slotting cutters

Wodex®



with longitudinal groove according to DIN 138

Use: Slot cutting

Materials: for materials up to approx. 1100 N/mm²

15 015...

Ø	Width	15 015...		Bore	Number of teeth
mm	mm			mm	
50	4	104		16	12
50	5	105		16	12
50	6	106		16	12
50	8	108		16	12
50	10	110		16	12
63	4	204		22	12
63	5	205		22	12
63	6	206		22	12
63	8	208		22	12
63	10	210		22	12
63	12	212		22	12
63	14	214		22	12
63	16	216		22	12
63	18	218		22	12
80	4	304		27	14
80	5	305		27	14
80	6	306		27	14
80	8	308		27	14
80	10	310		27	14
80	12	312		27	14
80	14	314		27	14
80	16	316		27	14
80	18	318		27	14
80	20	320		37	14
100	6	406		32	14
100	8	408		32	14
100	10	410		32	14
100	12	412		32	14
100	14	414		32	14
100	16	416		32	14
100	18	418		32	14
P		25 - 40			
M		15 - 25			
K		15 - 25			
NE		-			
H		-			
S					

Ø	Width	15 015...		Bore	Number of teeth
mm	mm			mm	
100	20	420		32	14
100	25	425		32	14
125	6	506		32	16
125	8	508		32	16
125	10	510		32	16
125	12	512		32	16
125	14	514		32	16
125	16	516		32	16
125	18	518		32	16
125	20	520		32	16
125	25	525		32	16
125	28	528		32	16
160	6	606		40	18
160	10	610		40	18
160	12	612		40	18
160	14	614		40	18
160	16	616		40	18
160	18	618		40	18
160	20	620		40	18
160	25	625		40	18
160	32	632		40	18
200	8	708		40	24
200	10	710		40	24
200	12	712		40	24
200	14	714		40	24
200	16	716		40	24
200	18	718		40	24
200	20	720		40	24
200	25	725		40	24
200	32	732		40	24

P	25 - 40			
M	15 - 25			
K	15 - 25			
NE	-			
H	-			
S				

15 110 Shell end mills



with longitudinal and transverse groove, for finish milling, suitable for universal use, in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.

Wodex®



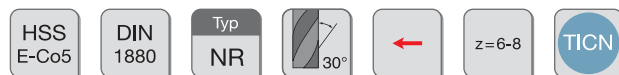
15 110 040 - ...080



15 110 440 - ...480

Ø mm	15 110...		15 110... TiCN		Bore mm	Width mm	Teeth
40	040		440		16	32	8
50	050		450		22	36	8
63	063		463		27	40	8
80	080		480		27	45	10
P	30 - 40		50 - 60				
M	20 - 30		40 - 50				
K	15 - 25		30 - 45				
NE	-		-				
H	-		-				
S							

15 140 Shell end mills



with longitudinal and transverse groove, with round knurl for rough milling, suitable for universal use, in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.

Wodex®



15 140 040 - ...080



15 140 440 - ...480

Ø mm	15 140...		15 140... TiCN		Bore mm	Width mm	Teeth
40	040		440		16	32	6
50	050		450		22	36	6
63	063		463		27	40	8
80	080		480		27	45	8
P	30 - 40		50 - 60				
M	20 - 30		40 - 50				
K	15 - 25		30 - 45				
NE	-		-				
H	-		-				
S							

15 160 Shell end mills



with longitudinal and transverse groove, with flat roughing-finishing profile, suitable for universal use, in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.

Wodex®



15 160...

Ø mm	15 160...		Bore mm	Width mm	Teeth
40	040		16	32	6
50	050		22	36	8
63	063		27	40	8
80	080		27	45	10
P	30 - 40				
M	20 - 30				
K	15 - 25				
NE	-				
H	-				
S					

15 203 Long slot drill cutters

Wodex®

HSS
E-Co8DIN
327-DDIN
1835-BTyp
N

z=2

TiAlN-M

Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron. With tolerance e8 is suitable for milling keyways according to DIN with tolerance p9



15 203 030 - ...250



15 203 430 - ...650

Ø mm	15 203... uncoated		15 203... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		5	49	6
3.5	035		435		6	50	6
4	040		440		7	51	6
4.5	045		445		7	51	6
5	050		450		8	52	6
5.5	055		455		8	52	6
6	060		460		8	52	6
6.5	065		465		10	60	10
7	070		470		10	60	10
7.5	075		475		10	60	10
8	080		480		11	61	10
8.5	085		485		11	61	10
9	090		490		11	61	10
9.5	095		495		11	61	10
10	100		500		13	63	10
10.5	105		505		13	70	12
11	110		510		13	70	12
11.5	115		515		13	70	12
12	120		520		16	73	12
13	130		530		16	73	12
14	140		540		16	73	12
15	150		550		16	73	12
16	160		560		19	79	16
17	170		570		19	79	16
18	180		580		19	79	16
19	190		590		19	79	16
20	200		600		22	88	20
22	220		620		22	88	20
24	240		640		26	102	25
25	250		650		26	102	25
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							



15 206 Long slot drill cutters

Wodex®



Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 206 030 - ...200



15 206 430 - ...600

Ø mm	15 206... uncoated		15 206... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		8	52	6
4	040		440		11	55	6
5	050		450		13	57	6
6	060		460		13	57	6
7	070		470		16	66	10
8	080		480		19	69	10
10	100		500		22	72	10
11	110		510		22	79	12
12	120		520		26	83	12
13	130		530		26	83	12
14	140		540		26	83	12
15	150		550		26	83	12
16	160		560		32	92	16
18	180		580		32	92	16
20	200		600		38	104	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							

15 209 Long slot drill cutters

Wodex®



Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 209 030 - ...200



15 209 430 - ...600

Ø mm	15 209... uncoated		15 209... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		12	56	6
4	040		440		19	63	6
5	050		450		24	68	6
6	060		460		24	68	6
8	080		480		38	88	10
10	100		500		45	95	10
12	120		520		53	110	12
14	140		540		53	110	12
16	160		560		63	123	16
18	180		580		63	123	16
20	200		600		75	141	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							

15 212 Slot drill cutters

Wodex®

HSS
E-Co8DIN
327-DDIN
1835-BTyp
N

z=3

TiAIN-M

Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.

With tolerance e8 is suitable for milling keyways according to DIN with tolerance p9

Undersize cutters suitable for milling keyways within the scope of increasing workpiece quality.



15 212 030 - ...200



15 212 430 - ...600

Ø mm	15 212... uncoated		15 212... TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3.0	030		430		5	49	6
3.8	038		438		6	50	6
4.0	040		440		7	51	6
4.8	048		448		7	51	6
5.0	050		450		8	52	6
5.75	057		457		8	52	6
6.0	060		460		8	52	6
7.0	070		470		10	60	10
7.75	077		477		10	60	10
8.0	080		480		11	61	10
9.7	097		497		11	61	10
10.0	100		500		13	63	10
11.7	117		517		13	70	12
12.0	120		520		16	73	12
13.7	137		537		16	73	12
14.0	140		540		16	73	12
15.7	157		557		19	79	16
16.0	160		560		19	79	16
18.0	180		580		19	79	16
20.0	200		600		22	88	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							



15 215 Slot drill cutters

Wodex®



Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 215 030 - ...210



15 215 430 - ...610

Ø mm	15 215... uncoated		15 215... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		8	52	6
3.8	038		438		10	54	6
4	040		440		11	55	6
4.8	048		448		11	55	6
5	050		450		13	57	6
5.75	057		457		13	57	6
6	060		460		13	57	6
6.75	067		467		16	66	10
7	070		470		16	66	10
7.75	077		477		16	69	10
8	080		480		19	69	10
9	090		490		19	69	10
9.7	097		497		22	72	10
10	100		500		22	72	10
11	110		510		22	79	12
12	120		520		26	83	12
14	140		540		26	83	12
15	150		550		26	83	12
16	160		560		32	92	16
18	180		580		32	92	16
20	210		610		38	104	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							

15 218 Slot drill cutters

Wodex®



Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 218 030 - ...200



15 218 430 - ...600

Ø mm	15 218... uncoated		15 218... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		12	56	6
4	040		440		19	63	6
5	050		450		24	68	6
6	060		460		24	68	6
8	080		480		38	88	10
10	100		500		45	95	10
11	110		510		45	102	12
12	120		520		53	110	12
14	140		540		53	110	12
16	160		560		63	123	16
18	180		580		63	123	16
20	200		600		75	141	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							

15 221 End mill cutter, multi flute

Wodex®

HSS
E-Co8DIN
844-BDIN
1835-BTyp
N

z=4-6

TiAlN-M

Shank with side Weldon flat, with centre cut
Suitable for universal use, as well as for finish milling in all materials
up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 221 030 - ...320



15 221 430 - ...720

Ø mm	15 221... uncoated		15 221... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm	Teeth
3	030		430		8	52	6	4
3.5	035		435		10	54	6	4
4	040		440		11	55	6	4
4.5	045		445		11	55	6	4
5	050		450		13	57	6	4
5.5	055		455		13	57	6	4
6	060		460		13	57	6	4
6.5	065		465		16	66	10	4
7	070		470		16	66	10	4
7.5	075		475		16	66	10	4
8	080		480		19	69	10	4
8.5	085		485		19	69	10	4
9	090		490		19	69	10	4
9.5	095		495		19	69	10	4
10	100		500		22	72	10	4
11	110		510		22	79	12	4
12	120		520		26	83	12	4
13	130		530		26	83	12	4
14	140		540		26	83	12	4
15	150		550		26	83	12	4
16	160		560		32	92	16	4
18	180		580		32	92	16	4
20	200		600		38	104	20	4
22	220		620		38	104	20	6
25	250		650		45	121	25	6
28	280		680		45	121	25	6
30	300		700		45	121	25	6
32	320		720		53	133	32	6
P	40 - 55		65 - 75					
M	18 - 22		28 - 38					
K	30 - 35		45 - 55					
NE	120 - 250		200 - 300					
H	-		-					
S								



15 224 End mill cutter, multi flute

Wodex®



Suitable for universal use, as well as for finish milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 224 030 - ...320



15 224 430 - ...720

Ø mm	15 224... uncoated		15 224... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm	Teeth
3	030		430		12	56	6	4
4	040		440		19	63	6	4
5	050		450		24	68	6	4
6	060		460		24	68	6	4
7	070		470		30	80	10	4
8	080		480		38	88	10	4
9	090		490		38	88	10	4
10	100		500		45	95	10	4
12	120		520		53	110	12	4
14	140		540		53	110	12	4
16	160		560		63	123	16	4
18	180		580		63	123	16	4
20	200		600		75	141	20	4
25	250		650		90	166	25	6
28	280		680		90	166	25	6
30	300		700		90	166	25	6
32	320		720		106	186	32	6
P	40 - 55		65 - 75					
M	18 - 22		28 - 38					
K	30 - 35		45 - 55					
NE	120 - 250		200 - 300					
H	-		-					
S								

15 227 End mill cutter, multi flute

Wodex®



Suitable for universal use, as well as for finish milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 227...

Ø mm	15 227... uncoated		Cutting edge length mm	Overall length mm	Shank Ø mm
6	060		45	79	6
8	080		56	105	10
10	100		63	112	10
12	120		71	125	12
14	140		71	125	12
16	160		80	141	16
18	180		80	141	16
20	200		100	163	20
P	40 - 55				
M	18 - 22				
K	30 - 35				
NE	120 - 250				
H	-				
S					

15 230 Mini-shank cutter

Wodex®



Cost effective alternative to milling slots without resharping.
 With tolerance e8 is suitable for milling keyways according to DIN with tolerance p9
 Suitable for universal use, as well as for slot milling in all materials up to approx. 900 N/mm².



15 230 030 - ...100



15 230 430 - ...500

Ø mm	15 230... uncoated		15 230... TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		5	36	6
4	040		440		7	38	6
5	050		450		8	39	6
6	060		460		8	39	6
8	080		480		11	43	10
10	100		500		13	50	10
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							

15 233 Mini-shank cutter

Wodex®



Cost effective alternative to milling slots without resharping.
 With tolerance e8 is suitable for milling keyways according to DIN with tolerance p9.
 Suitable for universal use, as well as for slot milling in all materials up to approx. 900N/mm².



15 233 030 - ...100



15 233 430 - ...500

Ø mm	15 233... uncoated		15 233... TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		8	39	6
4	040		440		11	42	6
5	050		450		13	44	6
6	060		460		13	44	6
8	080		480		19	51	10
10	100		500		22	59	10
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	100 - 250		200 - 300				
H	-		-				
S							

15 236 Ball nosed slot drills

Wodex®



Suitable for universal use, as well as for copying in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 236 030 - ...200



15 236 430 - ...600

Ø mm	15 236... uncoated		15 236... TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		5	49	6
4	040		440		7	51	6
5	050		450		8	52	6
6	060		460		8	52	6
8	080		480		11	61	10
10	100		500		13	63	10
12	120		520		16	73	12
14	140		540		16	73	12
15	150		550		16	73	12
16	160		560		19	79	16
18	180		580		19	79	16
20	200		600		22	88	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	-		-				
H	-		-				
S							

15 239 Ball nosed slot drills

Wodex®



Suitable for universal use, as well as for slot milling in all materials up to approx. 1,200 N/mm² as well as cast iron and grey cast iron.



15 239 030 - ...200



15 239 430 - ...600

Ø mm	15 239... uncoated		15 239... TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		8	56	6
4	040		440		11	63	6
5	050		450		13	68	6
6	060		460		13	68	6
8	080		480		19	88	10
10	10		500		22	95	10
12	120		520		26	110	12
14	140		540		26	110	12
15	150		550		26	110	12
16	160		560		32	123	16
18	180		580		32	123	16
20	200		600		38	141	20
P	35 - 50		60 - 70				
M	16 - 20		25 - 35				
K	26 - 30		42 - 52				
NE	-		-				
H	-		-				
S							

15 242 Roughing cutters

Wodex®



Suitable for rough milling in all materials up to 1200 N/mm², as well as cast iron and grey cast iron. Produces short chips.



15 242 060 - ...320



15 242 460 - ...720

Ø mm	15 242... uncoated		15 242... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm	Teeth
6	060		460		13	57	6	3
7	070		470		16	66	10	3
8	080		480		19	69	10	3
9	090		490		19	69	10	4
10	100		500		22	72	10	4
11	110		510		22	79	12	4
12	120		520		26	83	12	4
14	140		540		26	83	12	4
15	150		550		26	83	12	4
16	160		560		32	92	16	4
18	180		580		32	92	16	4
20	200		600		38	104	20	4
25	250		650		45	121	25	5
28	280		680		45	121	25	5
32	320		720		53	133	32	5
P	36 - 40		85 - 90					
M	14 - 16		24 - 28					
K	22 - 28		42 - 48					
NE	200 - 400		400 - 600					
H	-		-					
S								

15 245 Roughing - finishing cutters

Wodex®



Suitable for roughing - finish milling in material up to 1200 N/mm². Produces smoother, better surfaces than type NR.



15 245 060 - ...200



15 245 460 - ...600

Ø mm	15 245... uncoated		15 245... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm	Teeth
6	060		460		13	57	6	3
7	070		470		16	66	10	3
8	080		480		19	69	10	3
9	090		490		19	69	10	4
10	100		500		22	72	10	4
12	120		520		26	83	12	4
14	140		540		26	83	12	4
16	160		560		32	92	16	4
18	180		580		32	92	16	4
20	200		600		38	104	20	4
P	36 - 40		85 - 90					
M	14 - 16		24 - 28					
K	22 - 28		42 - 48					
NE	200 - 400		400 - 600					
H	-		-					
S								

15 248 Roughing cutters

Wodex®



Suitable for rough milling in all materials up to 1200 N/mm², as well as cast iron and grey cast iron. Produces short chips.



15 248 060 - ...320



15 248 460 - ...720

Ø mm	15 248... uncoated		15 248... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
6	060		460		24	68	6
7	070		470		30	80	10
8	080		480		38	88	10
9	090		490		38	88	10
10	100		500		45	95	10
12	120		520		53	110	12
14	140		540		53	110	12
16	160		560		63	123	16
18	180		580		63	123	16
20	200		600		75	141	20
25	250		650		90	166	25
32	320		720		106	186	32
P	36 - 40		85 - 90				
M	14 - 16		24 - 28				
K	22 - 28		42 - 48				
NE	200 - 400		400 - 600				
H	-		-				
S							

15 251 Roughing - finishing cutters

Wodex®



Suitable for roughing - finish milling in material up to 1200 N/mm². Produces smoother, better surfaces than type NR.



15 251 060 - ...200



15 251 460 - ...600

Ø mm	15 251... uncoated		15 251... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
6	060		460		24	68	6
8	080		480		38	88	10
10	100		500		45	95	10
12	120		520		53	110	12
14	140		540		53	110	12
16	160		560		63	123	16
18	180		580		63	123	16
20	200		600		75	141	20
P	36 - 40		85 - 90				
M	14 - 16		24 - 28				
K	22 - 28		42 - 48				
NE	200 - 400		400 - 600				
H	-		-				
S							

15 254 PM Roughing cutters (3 flute)

Wodex®



Suitable for rough milling in material up to 1600 N/mm².
Fine roughing teeth Produces short chips.

fine knurl profile



15 254 060 - ...200



15 254 460 - ...600

Ø mm	15 254... uncoated		15 254... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
6	060		460		13	57	6
8	080		480		19	69	10
10	100		500		22	72	10
12	120		520		26	83	12
14	140		540		26	83	12
16	160		560		32	92	16
18	180		580		32	92	16
20	200		600		38	104	20
P	36 - 40		85 - 90				
M	14 - 16		24 - 28				
K	22 - 28		42 - 48				
NE	200 - 400		400 - 600				
H	-		-				
S							

15 257 PM Roughing cutters (4 and multi-flute)

Wodex®



Suitable for rough milling in material up to 1600 N/mm².
Fine roughing teeth Produces short chips.

fine knurl profile



15 257 060 - ...250



15 257 460 - ...650

Ø mm	15 257... uncoated		15 257... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm	Teeth
6	060		460		13	57	6	4
8	080		480		19	69	10	4
10	100		500		22	72	10	4
12	120		520		26	83	12	4
14	140		540		26	83	12	4
16	160		560		32	92	16	4
18	180		580		32	92	16	4
20	200		600		38	104	20	4
25	250		650		45	121	25	5
P	36 - 40		85 - 90					
M	14 - 16		24 - 28					
K	22 - 28		42 - 48					
NE	200 - 400		400 - 600					
H	-		-					
S								



15 260 PM Wodex-Eco milling cutters

Wodex®



The outstanding feature of this tool is its vibration-free running achieved by its new type of tool geometry with 2 different helix angles. The tool is used for finish or rough milling with 1 x d cutting depth, as well as for finish milling in all materials up to **1,400 N/mm²**. The vibration-free running enables feed rates and cutting speeds up to 50% higher than conventional milling cutters to be achieved.



15 260...

Ø mm	15 260... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
8	480		19	69	10
10	500		22	72	10
12	520		26	83	12
14	540		26	83	12
16	560		32	92	16
18	580		32	92	16
20	600		38	104	20
P	40 - 55				
M	18 - 22				
K	30 - 35				
NE	120 - 250				
H	-				
S					

15 263 PM Wodex-Eco milling cutters

Wodex®



The outstanding feature of this tool is its vibration-free running achieved by its new type of tool geometry with 2 different helix angles. The tool is used for finish or rough milling with 1 x d cutting depth, as well as for finish milling in all materials up to **1,400 N/mm²**. The vibration-free running enables feed rates and cutting speeds up to 50% higher than conventional milling cutters to be achieved.

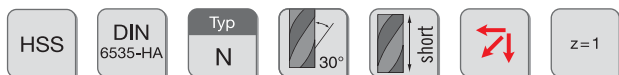


15 263...

Ø mm	15 263... TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
16	560		63	123	16
18	580		63	123	16
20	600		75	141	20
25	650		90	166	25
P	40 - 55				
M	18 - 22				
K	30 - 35				
NE	120 - 250				
H	-				
S					

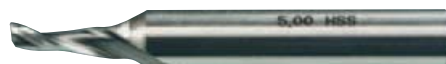
15 475 Single tooth milling cutter

Wodex®



18° rake angle, right-hand cutting, CNC ground, 1 tooth cutting over centre, **centre cutting**

Use: Trimming, bore, slot and face milling and pocketing



15 475...

Ø mm	15 475...		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		12	60	8
4	040		12	60	8
5	050		12	60	8
6	060		14	60	8
8	080		15	80	8
10	100		15	80	10
P	25 - 50				
VA	16 - 20				
K	26 - 30				
NE	100 - 250				
H	-				
S					



15 491 T slot cutters

Wodex®

HSS
E-Co5DIN
851-BDIN
1835-BTyp
N

z=6-8



15 491...

Milling T slots.

Ø	15 491...		Head width mm	Overall length mm	Shank Ø mm	Teeth
12.5	125		6	57	10	6
16.0	160		8	62	10	6
18.0	180		8	70	12	6
21.0	210		9	74	12	8
25.0	250		11	82	16	8
28.0	280		12	85	16	8
P	25 - 40					
M	15 - 25					
K	15 - 25					
NE	80 - 160					
H	-					
S						

15 494 W druff keyseat cutters

Wodex®

HSS
E-Co5DIN
6518DIN
1835-BTyp
N

z=6-12



15 494...

DIN 850 Shape B, for keyseat and groove cutting.

Ø	15 494...		Head width mm	Overall length mm	Shank Ø mm	Teeth
10.5	105		2	50	6	6
10.5	106		2.5	50	6	6
10.5	107		3	50	6	6
13.5	136		3	56	10	8
13.5	137		4	56	10	8
16.5	165		3	56	10	8
16.5	166		4	56	10	8
16.5	167		5	56	10	8
19.5	195		4	63	10	8
19.5	196		5	63	10	8
19.5	197		6	63	10	8
22.5	226		5	63	10	10
22.5	227		6	63	10	10
25.5	257		6	63	10	10
28.5	287		6	63	10	10
28.5	288		8	63	10	10
32.5	328		8	71	12	12
P	25 - 40					
M	15 - 25					
K	15 - 25					
NE	80 - 160					
H	-					
S						



15 499 HSS-E corner rounding cutter

Wodex



15 499...



DIN 6518 Shape B/D, relieved with constant profile.

Radius	15 499...		Head width mm	Overall length mm	large Ø mm	Shank Ø mm
3	030		12	60	12	12
4	040		12	60	14	12
5	050		12	60	16	12
6	060		16	67	20	16
8	080		16	71	24	16
10*	100		25	85	28	25
P	25 - 40					
M	15 - 25					
K	15 - 25					
NE	80 - 160					
H	-					
S						

* Shape D only without Weldon flat

15 500 45°/60° angle cutter

Wodex



DIN 1833 C/D, for slot milling
helical teeth, shaft with Weldon flat, Shape B

...016 to ...032 and ...316 to ...332: **45°**

...116 to ...132 and ...416 to ...432: **60°**



Shape C 45° 15 500 016 - ...032



Shape C 60° 15 500 116 - ...132



Shape D 45° 15 500 316 - ...332



Shape D 60° 15 500 416 - ...432

Ø	15 500... Shape C		15 500... Shape D		Head width mm	Overall length mm	Shank Ø mm	Teeth
45°								
16	016		316		4	60	12	8
20	020		320		5	63	12	10
25	025		325		6.3	67	12	10
32	032		332		8	71	16	12
60°								
16	116		416		6.3	60	12	8
20	120		420		8	63	12	10
25	125		425		10	67	12	10
32	132		432		12.5	71	16	12
P	25 - 40		25 - 40					
M	15 - 25		15 - 25					
K	15 - 25		15 - 25					
NE	80 - 160		80 - 160					
H	-		-					
S								



“Safety Products” catalogue

- ➔ Eye protection
- ➔ Head protection/ Face protection
- ➔ Hearing protection
- ➔ Respiratory protection
- ➔ Hand protection
- ➔ General work clothing
- ➔ Protective clothing
- ➔ Foot protection
- ➔ Protection against falling/ General health & safety

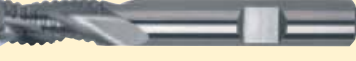
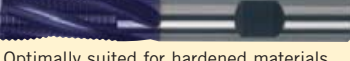
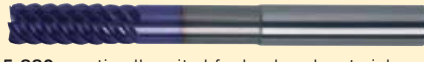
verview of uses of VHM milling cutters

✓= optimally suited / ✕=alternative use

Page	DIN	Shank	Coating	Type	Order Number	Aluminium and non-ferrous metals	Steels up to 1000 N/mm	Steels up to 1600 N/mm	Stainless steels	Cast materials
Deburring and chamfering										
238	WN	HA	bright	N	 15 777...	✕	✓	✕	✕	✓
238	WN	HA	TiAlN-M	N	 15 780...	✕	✓	✕	✕	✓
239	DIN 6527 long	HB	bright	N	 15 784...	✕	✓	✕	✕	✓
239	DIN 6527 long	HB	bright	N	 15 786...	✕	✓	✕	✕	✓
Single tooth milling cutter										
239	WN	HA	bright	W	 15 782...	✓	✕			
VHM long slot drill and slot drill cutters for universal machining (2 and 3 flute)										
240	DIN 6527 long	HA/HB	bright TiAlN-M	N	 15 800...	✕	✓	✕	✕	✓
241	WN extra long	HA	bright TiAlN-M	N	 15 803...		✓	✕		✕
241	DIN 6527 long	HA/HB	bright TiAlN-M	N	 15 804...		✓	✕	✕	✕
242	WN extra Long	HA	bright TiAlN-M	N	 15 806...		✓	✕	✕	✕
244	DIN 6527 long	HA/HB	bright TiAlN-M	NH	 15 808...		✓	✓	✓	
242	WN short	HB	TiAlN-M	N	 15 811...	✕	✓	✕	✕	✓
243	WN long	HB	TiAlN-M	NH	 15 813...		✓	✓	✓	
VHM long slot drill cutters for finishing (4 flute)										
246	DIN 6527 long	HA/HB	bright TiAlN-M	N	 15 823...		✓	✓	✓	✓
246	WN extra long	HA	bright TiAlN-M	N	 15 825...		✓	✓	✕	✕
VHM copy milling cutters for universal machining (2 and 4 flute)										
248	DIN 6527 long	HA/HB	bright TiAlN-M	N	 15 828...	✕	✕	✓		✓
249	WN extra Long	HA	bright TiAlN-M	N	 15 831...	✕	✕			✓
249	DIN 6527 long	HA/HB	bright TiAlN-M	N	 15 834...		✕	✓	✓	
250	WN extra long	HA	bright TiAlN-M	N	 15 838...			✓	✓	

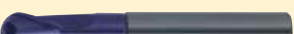
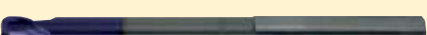
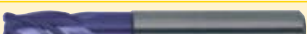
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✓= optimally suited / ✗=alternative use

Page	DIN	Shank	Coating	Type	Order Number	Aluminium and non-ferrous metals	Steels up to 1000 N/mm	Steels up to 1600 N/mm	Stainless steels	Cast materials
VHM corner radius end mills for universal machining (2, 4 and 6 flute)										
247	DIN 6527 long	HA	bright TiAlN-M	N	 15 824...	✗	✓	✗	✗	✓
247	DIN 6527 Long	HA	bright TiAlN-M	N	 15 826...		✓	✓	✓	✗
248	DIN 6527 long	HA	bright TiAlN-M	NH	 15 827...	✗	✓	✓	✓	✗
VHM long slot drill cutters for machining aluminium (2 and 3 flute)										
245	DIN 6527 short	HA/HB	bright	W	 15 817...	✓				
245	DIN 6527 long	HA/HB	bright	W	 15 819...	✓				
244	DIN 6527 long	HA	bright	W	 15 810...	✓				
250	DIN 6527 long	HB	bright	WR	 15 852...	✓				
250	DIN 6527 long	HB	bright	WR	 15 842...	✓				
VHM Roughing cutter for universal machining (3 and 4 flute)										
251	DIN 6527 long	HB	bright TiAlN-M	NRF	 15 856...		✓	✓	✓	
251	DIN 6527 long	HB	TiAlN-M	NRF	 15 858...		✓	✓	✓	
251	DIN 6527 long	HB	TiAlN-M	HR	 15 860... Optimally suited for hardened materials			✗	✓	✓
VHM multi-tooth milling cutters for precision finishing up to 50 HRC (6 and 8 flute)										
254	DIN 6527 long	HA/HB	bright TiAlN-M	NH	 15 864...	✗	✓	✓	✓	
255	WN extra long	HA/HB	bright TiAlN-M	NH	 15 868...	✗	✓	✓	✓	
VHM hard milling cutters for precision finishing up to 62 HRC (6 and 8 flute)										
255	DIN 6527 long	HA	TiAlN-M	H	 15 872... optimally suited for hardened materials			✓	✗	
256	WN extra long	HA	TiAlN-M	H	 15 876... Optimally suited for hardened materials			✓	✗	
256	WN extra long	HA	TiAlN-M	H	 15 880... optimally suited for hardened materials			✓	✗	



✓ = optimally suited / ✗ = alternative use

Page	DIN	Shank	Coating	Type	Order Number	Aluminium and non-ferrous metals	Steels up to 1000 N/mm	Steels up to 1600 N/mm	Stainless steels	Cast materials
Eco milling cutters for Roughing and finishing (4 flute)										
252	DIN 6527 long	HB	bright	W	 15 884...	✓	✗			
252	DIN 6527 short	HB	TiAlN-M	N	 15 886...	✗	✓	✓	✗	✓
253	DIN 6527 long	HB	TiAlN-M	N	 15 890...	✗	✓	✓	✗	✓
253	DIN 6527 long	HB	TiAlN-M	VA	 15 891...	✓	✗		✓	
254	WN extra long	HA	TiAlN-M	N	 15 892...	✗	✓	✓	✗	✓
Ball nosed HSC copy milling cutters for hard machining in mouldmaking (2 flute)										
256	WN short	HA	TiAlN-M	N/H	 15 898... Optimally suited for hardened materials			✓		✗
257	WN long	HA	TiAlN-M	N/H	 15 900... Optimally suited for hardened materials			✓		✗
257	WN extra long	HA	TiAlN-M	N/H	 15 902... Optimally suited for hardened materials			✓		✗
257	WN extra long	HA	TiAlN-M	N/H	 15 904... Optimally suited for hardened materials			✓		✗
258	WN short	HA	TiAlN-M	H	 15 906... Optimally suited for hardened materials			✗		✓
258	WN extra long	HA	TiAlN-M	H	 15 908... Optimally suited for hardened materials			✗		✓
Torus HSC copy milling cutters for hard machining in mouldmaking (2 and 4 flute)										
259	WN short	HA	TiAlN-M	N/H	 15 910... Optimally suited for hardened materials			✓		✗
259	WN long	HA	TiAlN-M	N/H	 15 912... Optimally suited for hardened materials			✓		✗
259	WN extra long	HA	TiAlN-M	N/H	 15 914... Optimally suited for hardened materials			✓		✗
260	WN extra long	HA	TiAlN-M	N/H	 15 916... Optimally suited for hardened materials			✓		✗
260	WN short	HA	TiAlN-M	H	 15 918... Optimally suited for hardened materials			✗		✓
260	WN extra long	HA	TiAlN-M	H	 15 920... Optimally suited for hardened materials			✗		✓

NOTE:

The following tolerance values apply to all universal milling cutters:
Diameter: **h10** (15 811..., 15 817... and 15 819... : **e8**)
Shank diameter: **h6**

HSC milling cutters

Diameter: **h8**
Shank diameter: **h6**
Radius tolerance: **+/- 0.015**



15 777 Corner rounding cutters

Wodex®



for rounding off and deburring contours and edges



15 777 005 - ...060



15 777 105 - ...160

Radius mm	15 777...		15 777... TiAlN-M		Cutter Ø mm	Overall length mm	Shank Ø mm
0.5	005		105		7	70	8
1.0	010		110		6	70	8
1.5	015		115		7	75	10
2.0	020		120		6	75	10
2.5	025		125		7	75	12
3.0	030		130		6	75	12
3.5	035		135		9	80	16
4.0	040		140		8	80	16
4.5	045		145		7	80	16
5.0	050		150		10	80	20
6.0	060		160		8	80	20
P	80 - 140				0.02 - 0.1		
M	-				-		
K	-				-		
NE	70 - 200				0.02 - 0.1		
H	-				-		
S	-				-		

15 780 Double angle deburrers

Wodex®



for forwards/backwards deburring and chamfering



15 780...

Ø mm	15 780..		Cutting edge length mm	Overall length mm	Shank Ø mm
4.0	040		2	100	6
6.0	060		2	100	6
8.0	080		2	100	6
10.0	100		4	100	6
12.0	120		4	100	6
P	80 - 140		0.1 - 0.2		
M	60 - 90		0.1 - 0.2		
K	70 - 100		0.1 - 0.2		
NE	70 - 200		0.1 - 0.2		
H	-		-		
S	30 - 60		0.1 - 0.2		

15 782 1-flute cutters

Wodex®



special geometry for machining aluminium, for plastic contours and for grooving

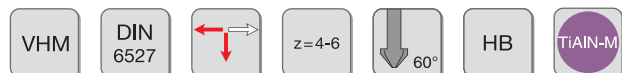


15 782...

Ø mm	15 782..		Cutting edge length mm	Overall length mm	Shank Ø mm
1.5	015		6	50	3
2.0	020		8	50	3
3.0	030		12	50	3
4.0	040		15	60	4
5.0	050		17	60	5
6.0	060		20	65	6
8.0	080		22	65	8
10.0	100		25	75	10
12.0	120		30	80	12
P	80 - 140		0.02 - 0.1		
M	-		-		
K	-		-		
NE	70 - 200		0.02 - 0.1		
H	-		-		
S	-		-		

15 784 Deburring cutter

Wodex®



for chamfering and deburring workpiece edges and contours



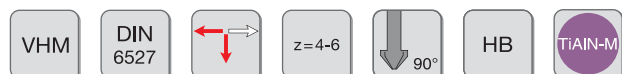
15 784 040 - ...200



15 784 340 - ...500

15 786 Deburring cutter

Wodex®



for chamfering and deburring workpiece edges and contours



15 786 040 - ...200



15 786 340 - ...500

Ø mm	15 784... 60°		15 784... 60° TiAlN-M		15 786... 90°		15 786... 90° TiAlN-M		Overall length mm	Shank Ø mm
4.0	040		340		040		340		54	4
6.0	060		360		060		360		57	6
8.0	080		380		080		380		63	8
10.0	100		400		100		400		72	10
12.0	120		420		120		420		83	12
16.0	160		460		160		460		92	16
20.0	200		500		200		500		104	20
P	80 - 140				80 - 140				0.1 - 0.2	
M	60 - 90				60 - 90				0.1 - 0.2	
K	70 - 100				70 - 100				0.1 - 0.2	
NE	70 - 200				70 - 200				0.1 - 0.2	
H	-				-				-	
S	30 - 60				30 - 60				0.1 - 0.2	



15 800 “Uni” long slot drill cutters

Wodex®



15 800 020 - ...200



15 800 220 - ...400



15 800 420 - ...600



15 800 620 - ...800

Ø mm	15 800... HA shank		15 800... HA shank TiAlN-M		15 800... HB shank		15 800... HB shank TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
2	020		220		420		620		6	57	6
2.5	025		225		425		625		7	57	6
2.8	028		228		428		628		7	57	6
3	030		230		430		630		7	57	6
3.5	035		235		435		635		7	57	6
3.8	038		238		438		638		8	57	6
4	040		240		440		640		8	57	6
4.5	045		245		445		645		8	57	6
4.8	048		248		448		648		10	57	6
5	050		250		450		650		10	57	6
5.5	055		255		455		655		10	57	6
5.75	057		257		457		657		10	57	6
6	060		260		460		660		10	57	6
6.75	067		267		467		667		13	63	8
7	070		270		470		670		13	63	8
7.5	075		275		475		675		16	63	8
7.75	077		277		477		677		16	63	8
8	080		280		480		680		16	63	8
8.7	087		287		487		687		16	72	10
9	090		290		490		690		16	72	10
9.7	097		297		497		697		19	72	10
10	100		300		500		700		19	72	10
11.7	117		317		517		717		22	83	12
12	120		320		520		720		22	83	12
13.7	137		337		537		737		22	83	14
14	140		340		540		740		22	83	14
15.7	157		357		557		757		26	92	16
16	160		360		560		760		26	92	16
18	180		380		580		780		26	92	18
20	200		400		600		800		32	104	20
P	65 - 80		110 - 130		65 - 80		110 - 130				
M	40 - 50		65 - 75		40 - 50		65 - 75				
K	70 - 100		120 - 160		70 - 100		120 - 160				
NE	150 - 300		250 - 500		150 - 300		250 - 500				
H	-		-		-		-				
S											

Note:

All cutting parameters are guideline values and have to be adjusted to the individual situation. To this end, it is especially necessary to ensure adequate cooling, stable clamping of the workpiece and sufficient machine power. The feed per tooth f_z (mm/t) can be reduced to increase the surface quality on the workpiece and to increase the tool life. If vibrations occur, the cutting speed V_c (m/min.) must also be changed. We recommend dry or MMS machining for all materials with a tensile strength over 1,600 N/mm². The given feed must always be reduced for drilling or deep (plunge) operations.



Type of infeed:	Slot milling		Rough milling		Rough milling		Finish milling		Precision finishing		Copy milling		Wodex Eco milling cutters	
Cut width:	ae = 1xd		ae = 0.5 x d		ae = 0.25 x d		ae = 0.5 x d		ae = 0.02 x d		ae = 0.05 x d		ae = 0.5 x d	
Cut depth:	ap= 0.5 x d		ap= 1.0 x d		ap= 1.0 x d		ap= 1.0 x d		ap= 1.5 x d		ap= 0.05 x d		ap= 1.0 x d	
Surface	bright	TiAlN	bright	TiAlN	bright	TiAlN	bright	TiAlN	bright	TiAlN	bright	TiAlN	bright	TiAlN
2	0.003	0.004	0.004	0.005	0.005	0.006	0.005	0.006	0.006	0.007	0.005	0.006	0.005	0.007
3	0.004	0.005	0.006	0.007	0.006	0.007	0.007	0.008	0.008	0.009	0.007	0.008	0.007	0.009
4	0.005	0.006	0.008	0.009	0.009	0.011	0.010	0.012	0.011	0.013	0.010	0.012	0.010	0.012
5	0.007	0.008	0.010	0.012	0.011	0.013	0.012	0.015	0.013	0.017	0.012	0.015	0.013	0.016
6	0.010	0.011	0.013	0.014	0.014	0.016	0.015	0.017	0.017	0.019	0.015	0.017	0.017	0.019
8	0.010	0.013	0.015	0.017	0.018	0.018	0.020	0.020	0.022	0.022	0.020	0.020	0.020	0.022
10	0.015	0.017	0.018	0.021	0.019	0.023	0.020	0.025	0.022	0.028	0.020	0.025	0.024	0.028
12	0.015	0.020	0.020	0.025	0.023	0.028	0.025	0.030	0.028	0.033	0.025	0.030	0.027	0.034
14	0.017	0.025	0.024	0.030	0.027	0.033	0.030	0.035	0.033	0.039	0.030	0.035	0.032	0.041
16	0.025	0.027	0.030	0.034	0.033	0.037	0.035	0.040	0.039	0.044	0.035	0.040	0.041	0.045
18	0.030	0.035	0.035	0.040	0.038	0.043	0.040	0.045	0.044	0.050	0.040	0.045	0.047	0.054
20	0.035	0.040	0.040	0.045	0.043	0.048	0.045	0.050	0.050	0.055	0.045	0.050	0.054	0.061
Reduction in f_z	fz -25% = 1.0 x d		fz -25% = 1.5 x d		fz -25% = 1.5 x d		fz -25% = 1.5 x d		fz -35% = 0.1 x d		fz -20% = 1.5 x d		fz -20% = 1.5 x d	
with cut depth ap:	fz -50% = 1.5 x d		fz -50% = 2.0 x d		fz -50% = 2.0 x d		fz -50% = 2.0 x d							



15 803 “XL” long slot drill cutters

Wodex®



Can be used as 15 800...; however, with longer flute or longer reach.



15 803 030 - ...200

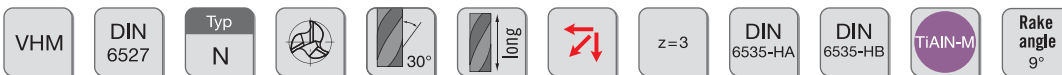


15 803 230 - ...400

Ø mm	15 803... HA shank		15 803... HA shank TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		230		20	75	3
4	040		240		25	75	4
5	050		250		30	75	5
6	060		260		30	75	6
8	080		280		40	100	8
10	100		300		40	100	10
12	120		320		45	150	12
14	140		340		45	150	14
16	160		360		65	150	16
18	180		380		65	150	18
20	200		400		65	150	20
P	55 - 65		90 - 110				
M	30 - 35		50 - 60				
K	60 - 70		100 - 130				
NE	100 - 200		150 - 250				
H	-		-				
S							

15 804 “Uni” slot drill cutters

Wodex®



Universal milling cutters suitable for slot and rough milling.
The feed increases by 50% due to the higher number of flutes.
The tool is particularly suitable for oblique plunging and for milling pockets.



15 804 020- ...200



15 804 220 - ...400



15 804 420 - ...600



15 804 620 - ...800

Ø mm	15 804... HA shank		15 804... HA shank TiAlN-M		15 804... HB shank		15 804... HB shank TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
2	020		220		420		620		6	57	6
2.5	025		225		425		625		7	57	6
3	030		230		430		630		7	57	6
3.5	035		235		435		635		7	57	6
4	040		240		440		640		8	57	6
4.5	045		245		445		645		8	57	6
5	050		250		450		650		10	57	6
6	060		260		460		660		10	57	6
7	070		270		470		670		13	63	8
8	080		280		480		680		16	63	8
9	090		290		490		690		16	72	10
10	100		300		500		700		19	72	10
12	120		320		520		720		22	83	12
14	140		340		540		740		22	83	14
16	160		360		560		760		26	92	16
18	180		380		580		780		26	92	18
20	200		400		600		800		32	104	20
P	65 - 80		110 - 130		65 - 80		110 - 130				
M	40 - 50		65 - 75		40 - 50		65 - 75				
K	70 - 100		120 - 160		70 - 100		120 - 160				
NE	150 - 300		250 - 500		150 - 300		250 - 500				
H	-		-		-		-				
S											

15 806 "XL" slot drill cutters

Wodex®



Universal milling cutters suitable for slot and rough milling. The feed increases by 50% due to the higher number of flutes. The tool is particularly suitable for oblique plunging and for milling pockets; however, at full Cutting edge length for side milling only



15 806 030 - ...200



15 806 230 - ...400

Ø mm	15 806... HA shank		15 806... HA shank TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		230		20	75	3
4	040		240		25	75	4
5	050		250		30	75	5
6	060		260		30	75	6
8	080		280		40	100	8
10	100		300		40	100	10
12	120		320		45	150	12
16	160		360		65	150	16
20	200		400		65	150	20
P	55 - 65		90 - 110				
M	30 - 35		50 - 60				
K	60 - 70		100 - 130				
NE	100 - 200		150 - 250				
H	-		-				
S							

15 811 Mini-shank/disposal milling cutter, 30°

Wodex®



Universal milling cutters suitable for slot and rough milling. The tool is particularly suitable for oblique plunging and for milling pockets and due to its shortened shank length is a cost-effective variant on all DIN milling cutters



15 811...

Ø mm	15 811... HB TiAIN-M shank		Cutting edge length mm	Overall length mm	Shank Ø mm
0.5	605		1.5	38.0	3
0.6	606		1.5	38.0	3
0.8	608		2.0	38.0	3
1.0	610		2.0	38.0	3
1.2	612		2.0	38.0	3
1.5	615		2.0	38.0	3
1.8	618		2.0	38.0	3
2.0	620		4.0	38.0	6
2.5	625		5.0	38.0	6
3.0	630		5.0	38.0	6
3.5	635		6.0	38.0	6
4.0	640		7.0	38.0	6
4.5	645		8.0	38.0	6
5.0	650		8.0	38.0	6
5.5	655		8.0	38.0	6
5.75	657		8.0	38.0	6
6.0	660		8.0	38.0	6
6.75	667		10.0	42.0	8
7.0	670		10.0	42.0	8
7.75	677		10.0	42.0	8
8.0	680		11.0	43.0	8
8.7	687		11.0	48.0	10
9.0	690		11.0	48.0	10
9.7	697		11.0	48.0	10
10.0	700		13.0	50.0	10
12.0	720		15.0	55.0	12
14.0	740		15.0	58.0	14
16.0	760		18.0	62.0	16
18.0	780		20.0	70.0	18
20.0	800		22.0	75.0	20
P	110 - 130				
M	65 - 75				
K	120 - 160				
NE	250 - 500				
H	-				
S					

15 813 Mini-shank/disposal milling cutter, 45°

Wodex®



Universal milling cutters suitable for slot and rough milling, as well as for finish milling. The tool is particularly suitable for oblique plunging and for milling pockets. Due to the high helix angle, particularly smooth running is achieved, which increases the life of the tool and, due to its shortened shank length, forms a cost-effective variant on all DIN milling cutters



15 813...

CUTTING TOOLS

1

Ø mm	15 813... HB TiAlN-M shank		Cutting edge length mm	Overall length mm	Shank Ø mm
1.0	610		2	38	3
1.2	612		2	38	3
1.5	615		3	38	3
1.8	618		3	38	3
2.0	620		4	45	6
2.5	625		5	45	6
3.0	630		6	45	6
3.5	635		6	45	6
4.0	640		7	45	6
4.5	645		8	45	6
5.0	650		8	45	6
5.5	655		8	45	6
5.75	657		10	45	6
6.0	660		10	45	6
6.75	667		10	55	8
7.0	670		12	55	8
7.75	677		12	55	8
8.0	680		13	55	8
8.7	687		14	55	10
9.0	690		14	55	10
9.7	697		16	55	10
10.0	700		16	55	10
P	110 - 130				
M	65 - 75				
K	120 - 160				
NE	250 - 500				
H	-				
S					



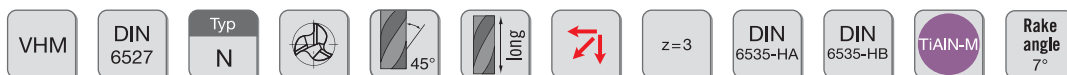
PRIMAT® cutting oils and metalworking fluids are included in Group 69.

HSS and VHM milling cutters

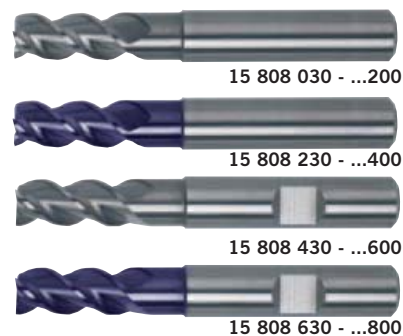


15 808 “NH” slot drill cutters

Wodex®



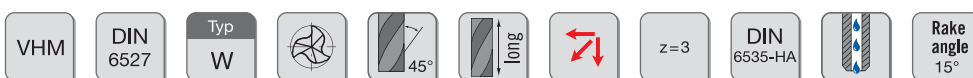
Universal milling cutters suitable for slot and rough milling, as well as for finish milling. The feed increases by 50% due to the higher number of flutes. The tool is particularly suitable for oblique plunging and for milling pockets. Particularly smooth running is achieved by the high helix angle, which increases the life of the tool.



Ø mm	15 808... HA shank	15 808... HA shank TiAlN-M	15 808... HB shank	15 808... HB shank TiAlN-M	Cutting edge length mm	Overall length mm	Shank Ø mm
3	030	230	430	630	7	57	6
3.5	035	235	435	635	7	57	6
4	040	240	440	640	8	57	6
4.5	045	245	445	645	8	57	6
5	050	250	450	650	10	57	6
6	060	260	460	660	10	57	6
7	070	270	470	670	13	63	8
8	080	280	480	680	16	63	8
9	090	290	490	690	16	72	10
10	100	300	500	700	22	72	10
12	120	320	520	720	22	83	12
14	140	340	540	740	22	83	14
16	160	360	560	760	26	92	16
18	180	380	580	780	26	92	18
20	200	400	600	800	32	104	20
P	65 - 80	110 - 130	65 - 80	110 - 130			
M	40 - 50	65 - 75	40 - 50	65 - 75			
K	70 - 100	120 - 160	70 - 100	120 - 160			
NE	150 - 300	250 - 500	150 - 300	250 - 500			
H	-	-	-	-			
S							

15 810 “Alu-Cut” slot drill cutter

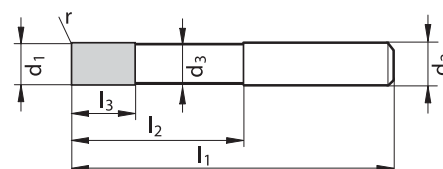
Wodex®



Suitable for roughing pockets. Particularly smooth running due to high helix and long life due to corner radius.



d1/R mm	15 810... HA shank	d2 mm	l1 mm	l3 mm	l2 mm	d3 mm
6/1.0	060	6	57	10	21	5.7
8/1.0	080	8	63	16	27	7.7
10/1.5	100	10	72	19	32	9.5
12/1.5	120	12	83	22	38	11.5
16/2.0	160	16	92	26	44	15.5
20/2.5	200	20	104	32	54	19.5
P	-					
M	-					
K	-					
NE	200 - 300					
H	-					
S						



15 817 “Uni-alu” slot drill cutters

Wodex®



Aluminium milling cutter, short type (1 x d), especially suitable for slotting and roughing of aluminium and non-ferrous metals **up to 600 N/mm²**. Also suitable for finishing due to the 45° helix. The particularly outstanding feature of the tool is its smooth running, which increases its life.



15 817 030 - ...200



15 817 430 - ...600

Ø mm	15 817... HA shank		15 817... HB shank		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		4	50	6
4	040		440		5	54	6
5	050		450		6	54	6
6	060		460		7	54	6
8	080		480		9	58	8
10	100		500		11	66	10
12	120		520		12	73	12
14	140		540		14	75	14
16	160		560		16	82	16
18	180		580		18	84	18
20	200		600		20	92	20
P	-		-				
M	-		-				
K	-		-				
NE	150 - 300		150 - 300				
H	-		-				
S							

15 819 “Uni-ALU” slot drill cutters

Wodex®



Can be used as 15 817...; however, can be universally used as a long type with cutting depths up to 2 x d and can also be more frequently reground.



15 819 030 - ...200

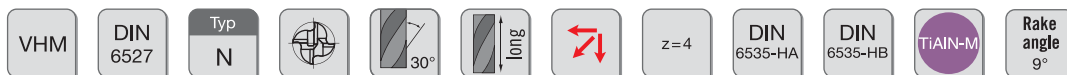


15 819 430 - ...600

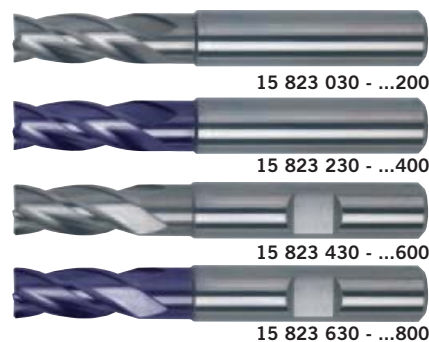
Ø mm	15 819... HA shank		15 819... HB shank		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		430		7	57	6
4	040		440		8	57	6
5	050		450		10	57	6
6	060		460		10	57	6
8	080		480		16	63	8
10	100		500		19	72	10
12	120		520		22	83	12
14	140		540		22	83	14
16	160		560		26	92	16
18	180		580		26	92	18
20	200		600		32	104	20
P	-		-				
M	-		-				
K	-		-				
NE	150 - 300		150 - 300				
H	-		-				
S							

15 823 “Uni” end milling cutters

Wodex®



End milling cutters suitable for finishing operations as well as for trimming. With cutting widths of approx. $0.1 \times d$.



Ø mm	15 823... HA shank	15 823... HA shank TiAlN-M	15 823... HB shank	15 823... HB shank TiAlN-M	Cutting edge length mm	Overall length mm	Shank Ø mm
3	030	230	430	630	8	57	6
3.5	035	235	435	635	10	57	6
4	040	240	440	640	11	57	6
4.5	045	245	445	645	11	57	6
5	050	250	450	650	13	57	6
6	060	260	460	660	13	57	6
7	070	270	470	670	16	63	8
8	080	280	480	680	19	63	8
9	090	290	490	690	19	72	10
10	100	300	500	700	22	72	10
12	120	320	520	720	26	83	12
14	140	340	540	740	26	83	14
16	160	360	560	760	32	92	16
18	180	380	580	780	32	92	18
20	200	400	600	800	38	104	20
P	65 - 80	110 - 130	65 - 80	110 - 130			
M	40 - 50	65 - 75	40 - 50	65 - 75			
K	70 - 100	120 - 160	70 - 100	120 - 160			
NE	150 - 300	250 - 500	150 - 300	250 - 500			
H	-	-	-	-			
S							

15 825 “XL” end milling cutters

Wodex®



Can be used as Product 15 823... for finishing and trimming all materials **up to approx. 1,400 N/mm²**. Suitable for finishing over the full Cutting edge length approx. $4 \times d$ with a max. cutting width of $0.05 \times d$.



extra long - over the full cutting
edge length (approx. $4 \times d$)!

Ø mm	15 825... HA shank	15 825... HA shank TiAlN-M	Cutting edge length mm	Overall length mm	Shank Ø mm
3	030	230	20	75	3
4	040	240	25	75	4
5	050	250	30	75	5
6	060	260	30	75	6
8	080	280	40	100	8
10	100	300	40	100	10
12	120	320	45	150	12
14	140	340	45	150	14
16	160	360	65	150	16
18	180	380	65	150	18
20	200	400	65	150	20
P	65 - 80	110 - 130			
M	40 - 50	65 - 75			
K	70 - 100	120 - 160			
NE	150 - 300	250 - 500			
H	-	-			
S					

15 824 “Uni R” long slot drill cutters

Wodex®



With corner radius and shoulder gash. Especially for mouldmaking as improved reach due to shoulder gash.

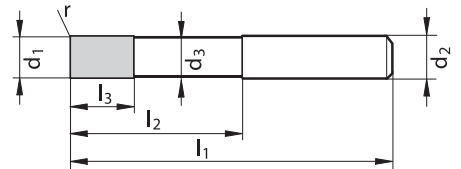
d1/R mm	15 824...		15 824... TiAlN-M		d2 mm	d3 mm	l1 mm	l3 mm
6/0.5	060		660		6	5.7	57	10
6/1.0	061		661		6	5.7	57	10
8/0.5	080		680		8	7.7	63	16
8/1.0	081		681		8	7.7	63	16
8/1.5	082		682		8	7.7	63	16
8/2.0	083		683		8	7.7	63	16
10/0.5	100		700		10	9.5	72	19
10/1.0	101		701		10	9.5	72	19
10/1.5	102		702		10	9.5	72	19
10/2.0	103		703		10	9.5	72	19
12/0.5	120		720		12	11.5	83	22
12/1.0	121		721		12	11.5	83	22
12/1.5	122		722		12	11.5	83	22
12/2.0	123		723		12	11.5	83	22
16/1.0	160		760		16	15.5	92	26
16/1.5	161		761		16	15.5	92	26
16/2.0	162		762		16	15.5	92	26
20/1.0	200		800		20	19.5	104	32
20/1.5	201		801		20	19.5	104	32
20/2.0	202		802		20	19.5	104	32
P	65 - 80		110 - 130					
M	40 - 50		65 - 75					
K	70 - 100		120 - 160					
NE	150 - 300		250 - 500					
H	-		-					
S								



15 824 060 - ...202

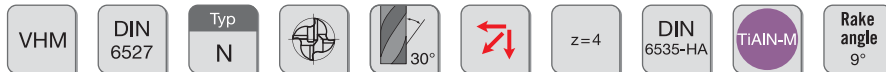


15 824 660 - ...802



15 826 “Uni R” end milling cutters

Wodex®



With corner radius and shoulder gash. Especially for mouldmaking as improved reach due to shoulder gash.

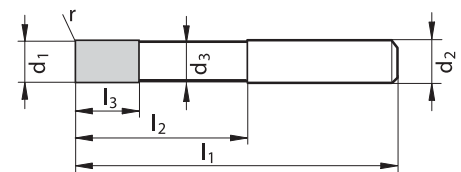
d1/R mm	15 826...		15 826... TiAlN-M		d2 mm	d3 mm	l1 mm	l3 mm
6/0.5	060		660		6	5.7	57	13
6/1.0	061		661		6	5.7	57	13
8/0.5	080		680		8	7.7	63	19
8/1.0	081		681		8	7.7	63	19
8/1.5	082		682		8	7.7	63	19
8/2.0	083		683		8	7.7	63	19
10/0.5	100		700		10	9.5	72	22
10/0.8	101		701		10	9.5	72	22
10/1.0	102		702		10	9.5	72	22
10/1.5	103		703		10	9.5	72	22
10/2.0	104		704		10	9.5	72	22
12/0.5	120		720		12	11.5	83	26
12/0.8	121		721		12	11.5	83	26
12/1.0	122		722		12	11.5	83	26
12/1.5	123		723		12	11.5	83	26
12/2.0	124		724		12	11.5	83	26
16/1.0	160		760		16	15.5	92	32
16/1.5	161		761		16	15.5	92	32
16/2.0	162		762		16	15.5	92	32
20/1.0	200		800		20	19.5	104	38
20/1.5	201		801		20	19.5	104	38
20/2.0	202		802		20	19.5	104	38
P	65 - 80		110 - 130					
M	40 - 50		65 - 75					
K	70 - 100		120 - 160					
NE	150 - 300		250 - 500					
H	-		-					
S								



15 826 060 - ...202



15 826 660 - ...802



15 827 "Uni R" end milling cutters

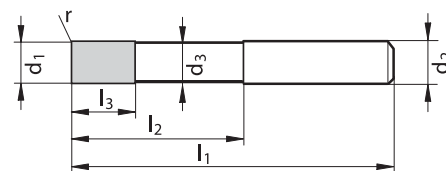
Wodex®



With corner radius and shoulder gash. Especially for mouldmaking as improved reach due to shoulder gash.

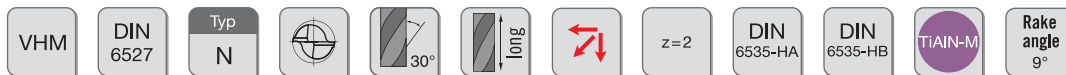
d1/R mm	15 827...		15 827... TiAlN-M		d2 mm	d3 mm	l1 mm	l3 mm
6/0.5	060		660		6	5.7	57	13
6/1.0	061		661		6	5.7	57	13
8/0.5	080		680		8	7.7	63	19
8/1.0	081		681		8	7.7	63	19
8/1.5	082		682		8	7.7	63	19
10/0.5	100		700		10	9.5	72	22
10/1.0	101		701		10	9.5	72	22
10/1.5	102		702		10	9.5	72	22
12/0.5	120		720		12	11.5	83	26
12/1.0	121		721		12	11.5	83	26
12/1.5	122		722		12	11.5	83	26
12/2.0	123		723		12	11.5	83	26
16/0.5	159		759		16	15.5	92	32
16/1.0	160		760		16	15.5	92	32
16/1.5	161		761		16	15.5	92	32
16/2.0	162		762		16	15.5	92	32
20/0.5	199		799		20	19.5	104	38
20/1.0	200		800		20	19.5	104	38
20/1.5	201		801		20	19.5	104	38
20/2.0	202		802		20	19.5	104	38
P	80 - 100		130 - 140					
M	45 - 55		80 - 90					
K	60 - 70		120 - 120					
NE	150 - 250		250 - 500					
H	-		-					
S								

20 mm diameter with 8 teeth.

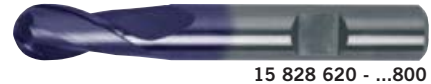


15 828 "Uni-B" ball nosed copy milling cutters

Wodex®



Universal copy milling cutter suitable for copying all materials up to approx. 1,600 N/mm². Can also be used as slot cutter with cutting widths of 1 x d, as well as for oblique plunging in materials up to approx. 1,200 N/mm².



Ø mm	15 828... HA shank		15 828... HA shank TiAlN-M		15 828... HB shank		15 828... HB shank TiAlN-M		Cutting edge length mm	Total length mm	Shank Ø mm
3	030		230		420		620		7	57	6
4	040		240		440		640		8	57	6
5	050		250		450		650		10	57	6
6	060		260		460		660		10	57	6
8	080		280		480		680		16	63	8
10	100		300		500		700		19	72	10
12	120		320		520		720		22	83	12
14	140		340		540		740		22	83	14
16	160		360		560		760		26	92	16
18	180		380		580		780		26	92	18
20	200		400		600		800		32	104	20
P	75 - 90		130 - 160		75 - 90		130 - 160				
M	50 - 60		80 - 90		50 - 60		80 - 90				
K	85 - 100		140 - 180		85 - 100		140 - 180				
NE	150 - 300		250 - 500		150 - 300		250 - 500				
H	-		-		-		-				
S											

15 831 “XL-B” ball nosed copy milling cutters

Wodex®



Can be used as 15 828...; however, with longer reach; for example, for use in toolmaking or mouldmaking or for difficult to access parts.



15 831 030 - ...120

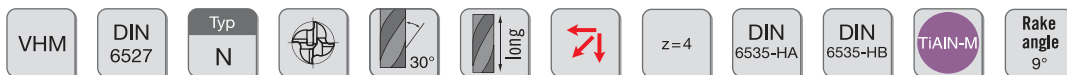


15 831 230 - ...320

Ø mm	15 831... HA shank?		15 831... HA shank TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		230		20	75	3
4	040		240		25	75	4
5	050		250		30	75	5
6	060		260		30	75	6
8	080		280		40	100	8
10	100		300		40	100	10
12	120		320		45	150	12
P	65 - 75		110 - 130				
M	40 - 45		65 - 75				
K	50 - 60		80 - 100				
NE	-		-				
H	-		-				
S	-		-				

15 834 “Uni-B” ball nosed copy milling cutters

Wodex®



Universal copy milling cutter suitable for copying all materials **up to approx. 1,600 N/mm²**. Can also be used as a finishing cutter for trimming with cutting widths of 0.1 x d.



15 834 060 - ...200



15 834 260 - ...400



15 834 460 - ...600



15 834 660 - ...800

Ø mm	15 834... HA shank		15 834... HA shank TiAlN-M		15 834... HB shank		15 834... HB shank TiAlN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
6	060		260		460		660		13	57	6
8	080		280		480		680		19	63	8
10	100		300		500		700		22	72	10
12	120		320		520		720		26	83	12
14	140		340		540		740		26	83	14
16	160		360		560		760		32	92	16
18	180		380		580		780		32	92	18
20	200		400		600		800		38	104	20
P	75 - 90		130 - 160		75 - 90		130 - 160				
M	50 - 60		80 - 90		50 - 60		80 - 90				
K	85 - 100		140 - 180		85 - 100		140 - 180				
NE	150 - 300		250 - 500		150 - 300		250 - 500				
H	-		-		-		-				
S	-		-		-		-				

15 838 “XL-B” ball nosed copy milling cutters

Wodex®



Can be used as 15 834...; however, with longer reach; for example, for use in toolmaking or mouldmaking or for difficult to access parts. Also suitable for finishing over the whole Cutting edge length.



15 838 030 - ...120



15 838 230 - ...320

Ø mm	15 838... HA shank		15 838... HA shank TiAIN-M		Cutting edge length mm	Overall length mm	Shank Ø mm
3	030		230		20	75	3
4	040		240		25	75	4
5	050		250		30	75	5
6	060		260		30	75	6
8	080		270		40	100	8
10	100		300		40	100	10
12	120		320		45	150	12
P	65 - 75		110 - 130				
M	40 - 45		65 - 75				
K	50 - 60		80 - 100				
NE	-		-				
H	-		-				
S							

15 852 “ALU” roughing cutters

Wodex®



higher feed rates for large cutting widths due to special profile

Roughing cutter suitable for machining slots and pockets in aluminium and non-ferrous metals **up to approx. 600 N/mm²**. The rougher knurl profile produces smaller, easier to remove chips. As a result, high feed rates can be used for large cutting widths and depths.



15 852...

15 842 “ALU-IK” roughing cutters

Wodex®

Type as 15 824...; however, with internal cooling



15 842...

Ø mm	15 852...		15 842... with IK		Cutting edgelength mm	Overall length mm	Shank Ø mm
6	460		760		10	57	6
8	480		780		16	63	8
10	500		800		19	72	10
12	520		820		22	83	12
14	540		-	-	22	83	14
16	560		860		26	92	16
18	580		-	-	26	92	18
20	600		900		32	104	20
P	-		-				
M	-		-				
K	-		-				
NE	200 - 300		200 - 300				
H	-		-				
S							

15 856 “INOX” roughing cutters

Wodex®



Roughing cutter suitable for machining slots and pockets in normal steels, stainless steels, titanium alloys and CrNi steels up to approx. 1,600 N/mm². The fine rougher knurl profile produces very small, easy to remove chips. As a result, high feed rates can be used for large cutting widths and depths.



15 856 460 - ...600



15 856 660 - ...800

15 858 “INOX-IK” roughing cutters

Type as 15 856...; however, with internal cooling

Wodex®



15 858...

Ø mm	15 856...		15 856... TiAIN-M		15 858... TiAIN-M with IK		Cutting edge length mm	Overall length mm	Shank Ø mm
6	460		660		660		10	57	6
8	480		680		680		16	63	8
10	500		700		700		19	72	10
12	520		720		720		22	83	12
14	540		740		-	-	22	83	14
16	560		760		760		26	92	16
18	580		780		-	-	26	92	18
20	600		800		800		32	104	20
P	65 - 75		110 - 130		110 - 130				
M	40 - 45		65 - 75		65 - 75				
K	50 - 60		80 - 100		80 - 100				
NE	-		-		-				
H	-		-		-				
S									

15 860 “56 HRC” roughing cutters

Wodex®



Roughing cutters are suitable for hard machining of slots and pockets in materials up to 56 HRC. The fine rougher knurl profile produces very small, easy to remove chips. As a result, high feed rates can be used for large cutting widths and depths. The tool should be used with minimum lubrication or compressed air.



15 860...

Ø mm	15 860... HB TiAIN-M shank		Cutting edge length mm	Overall length mm	Shank Ø mm
6	660		10	57	6
8	680		16	63	8
10	700		19	72	10
12	720		22	83	12
14	740		26	83	14
16	760		32	92	16
18	780		32	92	18
20	800		32	104	20
P	-				
M	-				
K	-				
NE	-				
H	20 - 40				
S					

15 884 Wodex "ALU" ECO cutters

Wodex®



The outstanding feature of this tool is its vibration-free running achieved by its new type of tool geometry with 2 different helix angles. The tool is used for slot and rough milling with 1 x d cut depth, as well as for finish milling in aluminium. The vibration-free running enables feed rates and cutting speeds up to 50% higher than conventional milling cutters to be achieved.



15 884...

vibration-free running

Ø mm	15 884... HB shank		Cutting edge length mm	Overall length mm	Shank Ø mm
4	440		11	57	6
5	450		13	57	6
6	460		13	57	6
8	480		19	63	8
10	500		22	72	10
12	520		26	83	12
16	560		32	92	16
20	600		38	104	20
P	-				
M	-				
K	-				
NE	200 - 300				
H	-				
S	-				

15 886 Wodex "UNI" ECO cutters

Wodex®



The outstanding feature of this tool is its vibration-free running achieved by its new type of tool geometry with 2 different helix angles. The tool is used for slot and rough milling with 1 x d cutting depth, as well as for finish milling in all materials up to **1,600 N/mm²**. The vibration-free running enables 1,400 and cutting speeds up to 50% higher than conventional milling cutters to be achieved.



15 886...

vibration-free running

Ø mm	15 886... HB TiAlN-M shank		Cutting edge length mm	Overall length mm	Shank Ø mm
6	660		10	54	6
8	680		12	58	8
10	700		14	66	10
12	720		16	73	12
14	740		18	75	14
16	760		22	83	16
18	780		24	84	18
20	800		26	92	20
P	100 - 180				
M	80 - 100				
K	100 - 170				
NE	150 - 250				
H	-				
S	-				

15 890 Wodex “UNI” ECO cutters

Wodex®



4 flutes with centre cut, can be used as 15 886...; however, with larger cutting depths of 1.5 x d. This tool is optimal for rough milling in feed widths up to 0.5 x d in the synchronised operation and sets itself apart through maximum contour accuracy on the workpiece.



vibration-free running

15 890...

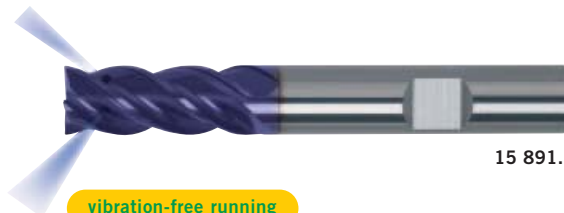
Ø mm	15 890... HB TiAlN-M shank		Cutting edge length mm	Overall length mm	Shank Ø mm
6	660		13	57	6
8	680		19	63	8
10	700		22	72	10
12	720		26	83	12
14	740		26	83	14
16	760		32	92	16
18	780		32	92	18
20	800		38	104	20
P	100 - 180				
M	85 - 100				
K	100 - 170				
NE	150 - 250				
H	-				
S					

15 891 Wodex “VA-IK” ECO cutters

Wodex®



Can be used as 15 886...; however, mainly for rustproof and titanium alloys, as well as for CrNi steels



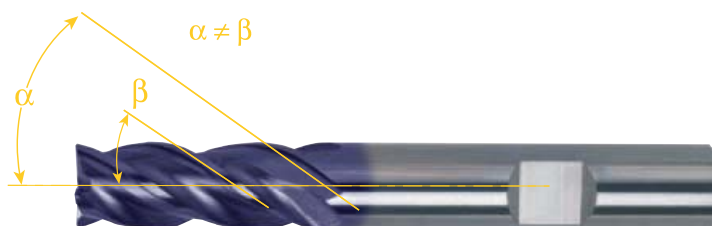
vibration-free running

15 891...

Ø mm	15 891... HB shank		Cutting edge length mm	Overall length mm	Shank Ø mm
6	460		13	57	6
8	480		19	63	8
10	500		22	72	10
12	520		26	83	12
16	560		32	92	16
20	600		38	104	20
P	100 - 180				
M	85 - 100				
K	-				
NE	150 - 250				
H	-				
S					

Wodex® ECO cutters The high-performance milling cutter for roughing and finishing

- vibration-free running
- improved workpiece surface
- higher feed rates
- longer tool lives



The outstanding feature of this tool is its vibration-free running achieved by its new type of tool geometry with 2 different helix angles. The tool is used for slot and rough milling with 1 x d cut depth, as well as for finish milling. The vibration-free running enables feeds and cutting speeds up to 50% higher than conventional milling cutters to be achieved. WODEX ECO cutters are available as the “Uni” versions for normal steels up to 1,600 N/mm², “Alu” for aluminium as well as “VA” for soft, rustproof materials.

15 892 Wodex "UNI-XL" ECO cutters

Wodex®



4 flutes with centre cut, can be used as 15 890...; however, with larger cutting depths of $1.5 \times d$. This tool is optimal for rough milling in feed widths up to $0.5 \times d$ in the synchronised operation and sets itself apart through maximum contour accuracy on the workpiece.



15 892...

vibration-free running

Ø mm	15 892... HA shank		Cutting edge length mm	Overall length mm	Shank Ø mm
10	100		40	100	10
12	120		45	150	12
14	140		45	150	14
16	160		65	150	16
18	180		65	150	18
20	200		65	150	20
P	100 - 180				
M	85 - 100				
K	100 - 170				
NE	-				
H	-				
S					

15 864 "50 HRC" multi-tooth milling cutters

Wodex®



Suitable for precision finishing ($0.05 \times d$) of all materials up to 50 HRC hardness. The outstanding feature of this tool is its high degree of stability, through which extremely high surface qualities are achieved on the workpiece. Extremely smooth running is achieved due to the large number of flutes together with the high helix angle. The tool can also be used for HSC applications in dry, minimum lubrication or wet machining.



15 864 060 - ...200



15 864 260 - ...400



15 864 460 - ...600



15 864 660 - ...800

Ø mm	15 864... HA shank		15 864... HA TiAlN-M shank		15 864... HB shank		15 864... HB TiAlN-M shank		Cutting edge length mm	Overall length mm	Shank Ø mm
6	060		260		460		660		13	57	6
8	080		280		480		680		19	63	8
10	100		300		500		700		22	72	10
12	120		320		520		720		26	83	12
14	140		340		540		740		26	83	14
16	160		360		560		760		32	92	16
18	180		380		580		780		32	92	18
20	200		400		600		800		38	104	20
P	80 - 100		130 - 140		80 - 100		130 - 140				
M	45 - 55		80 - 90		45 - 55		80 - 90				
K	60 - 70		100 - 120		60 - 70		100 - 120				
NE	150 - 250		250 - 500		150 - 250		250 - 500				
H	-		-		-		-				
S											

18 and 20 mm diameter with 8 teeth.



15 868 “50 HRC XXL” multi-tooth milling cutters *Wodex*



Can be used as 15 864...; however, with cutting depths up to 4 x d; i.e. it can be used for finishing with top surface quality over the whole cutter length.



15 868 060 - ...200



15 868 260 - ...400



15 868 460 - ...600



15 868 660 - ...800

Ø	15 868...		15 868...		15 868...		15 868...		Cutting edge length	Overall length	Shank Ø
mm	HA shank		HA TiAlN-M shank		HB shank		HB TiAlN-M shank		mm	mm	mm
6	060		260		460		660		30	75	6
8	080		280		480		680		40	100	8
10	100		300		500		700		40	100	10
12	120		320		520		720		45	150	12
16	160		360		560		760		65	150	16
20	200		400		600		800		65	150	20
P	60 - 70		100 - 115		60 - 70		100 - 115				
M	40 - 45		65 - 75		40 - 45		65 - 75				
K	50 - 60		80 - 100		50 - 60		80 - 100				
NE	-		-		-		-				
H	-		-		-		-				
S											

20 mm diameter with 8 teeth.

15 872 “62/HRC” hard/multi-tooth cutter *Wodex*



Suitable for precision finishing (0.05 x d) of hardened materials from 50 up to 62 HRC hardness. The outstanding feature of this tool is its high degree of stability, through which extremely high surface qualities are achieved on the workpiece. Extremely smooth running is achieved due to the large number of flutes together with the extremely high helix angle. The tool can also be used for HSC applications with dry or minimum lubrication machining.



15 872...

Ø	15 872...		Cutting edge length	Overall length	Shank Ø	Number of teeth
mm	HA TiAlN-M shank		mm	mm	mm	
6	260		13	57	6	6
8	280		19	63	8	6
10	300		22	72	10	6
12	320		26	83	12	6
14	340		26	83	14	6
16	360		32	92	16	6
18	380		32	92	18	8
20	400		38	104	20	8
P	-					
M	-					
K	-					
NE	-					
H	30 - 70					
S						

18 and 20 mm diameter with 8 teeth.

15 876 "62 HRC" hard/multi-tooth cutter

Wodex®



Can be used as Prod. No. 15 872...; however, with cutting depths up to $4 \times d$; i.e. it can be used for finishing with top surface quality over the whole cutter length.



15 876...

Ø mm	15 876...	Cutting edge length mm	Overall length mm	Shank Ø mm
6	260	30	75	6
8	280	40	100	8
10	300	40	100	10
12	340	45	150	12
16	360	65	150	16
20	400	65	150	20
P	-			
M	-			
K	-			
NE	-			
H	30 - 70			
S				

20 mm diameter with 8 teeth.

15 880 "Torus 62/HRC" hard/multi-tooth cutter

Wodex®



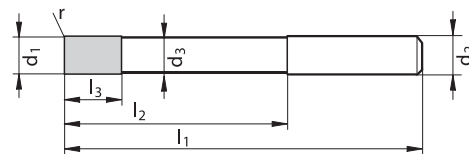
with corner radius and long reach.

High performance cutter suitable for finishing. Particularly smooth running due to high helix angle and core. With smooth shank and TiAlN-M coating suitable for HSC milling in mouldmaking.



15 880...

d1/R mm	15 880...	I3 mm	I2 mm	d3 mm	I1 mm	d2 mm
6/0.5	260	13	39	5.7	75	6
8/0.5	280	19	64	7.7	100	8
10/0.5	300	22	60	9.5	100	10
12/1.0	320	26	105	11.5	150	12
16/1.0	360	32	102	15.5	150	16
P	-					
M	-					
K	-					
NE	-					
H	30 - 70					
S						



15 898 HSC cutters with "HRC 55" ball nose

Wodex®

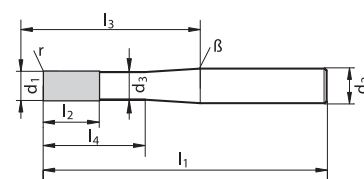


2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 898...

d1 mm	15 898...	I2 mm	I4 mm	I3 mm	d3 mm	I1 mm	a °	d2 mm
2	220	3.0	8	18	1.8	57	5.7	6
3	230	3.5	10	18	2.8	57	4.3	6
4	240	4.0	12	18	3.8	57	2.9	6
6	260	6.0	20	-	5.6	57	0	6
8	280	7.0	25	-	7.6	63	0	8
10	300	8.0	30	-	9.6	72	0	10
12	320	10.0	35	-	11.5	83	0	12
P	150 - 400							
M	-							
K	200 - 400							
NE	-							
H	150 - 300							
S								



15 900 HSC cutters with “HRC 55-L” ball nose

Wodex®

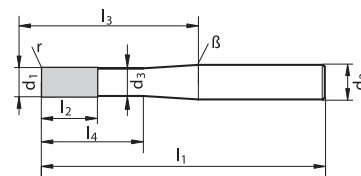


2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 900...

d1 mm	15 900...		l2 mm	l4 mm	l3 mm	d3 mm	l1 mm	a °	d2 mm
2	220		3.0	6	38	1.8	80	2.9	6
3	230		3.5	10	38	2.8	80	2.2	6
4	240		4.0	18	38	3.8	80	1.4	6
6	260		6.0	22	58	5.6	100	1.0	8
8	280		7.0	28	72	7.6	100	0.8	10
10	300		8.0	28	68	9.6	100	0.8	12
12	320		10.0	32	95	11.5	100	1.2	16
P	150 - 400								
M	-								
K	200 - 400								
NE	-								
H	150 - 300								
S									



15 902 HSC cutters with “HRC 55-XL” ball nose

Wodex®

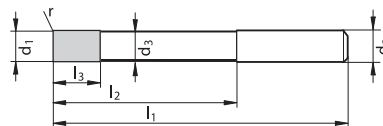


2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 902...

d1 mm	15 902...		l3 mm	l2 mm	d3 mm	l1 mm	d2 mm
6	260		6	35	5.6	80	6
8	280		7	55	7.6	100	8
10	300		8	70	9.6	120	10
12	320		10	65	11.5	120	12
P	150 - 400						
M	-						
K	200 - 400						
NE	-						
H	150 - 300						
S							



15 904 HSC cutters with “Uni HRC 55” ball nose

Wodex®



2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making.



15 904...

d1 mm	15 904...		Cutting edge length mm	Overall length mm	Shank Ø mm
6	260		12	100	6
8	280		16	100	8
10	300		20	100	10
12	320		24	120	12
P	150 - 400				
M	-				
K	200 - 400				
NE	-				
H	150 - 300				
S					

15 906 HSC hard cutters with "HRC 65" ball nose

Wodex®

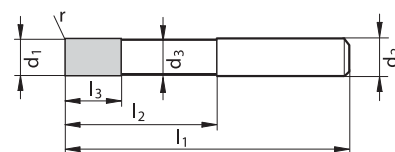


2 flute cutter suitable for HSC machining in materials up to 65 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



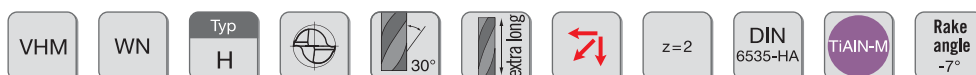
15 906...

d1 mm	15 906...		l3 mm	l2 mm	d3 mm	l1 mm	d2 mm
0.5	205		0.75	10	0.4	38	3
0.8	208		1.20	10	0.7	38	3
1.0	210		1.50	10	0.9	38	3
1.5	215		2.25	10	1.4	38	3
2.0	220		3.00	21	1.9	57	6
3.0	230		5.00	21	2.7	57	6
4.0	240		6.00	21	3.7	57	6
5.0	250		8.00	21	4.7	57	6
6.0	260		9.00	21	5.7	57	6
8.0	280		12.00	27	7.7	63	8
10.0	300		15.00	32	9.5	72	10
12.0	320		18.00	38	11.5	83	12
16.0	360		24.00	44	15.5	92	16
P	-						
M	-						
K	200 - 400						
NE	-						
H	150 - 300						
S							



15 908 HSC hard cutters with "HRC 65-XL" ball nose

Wodex®

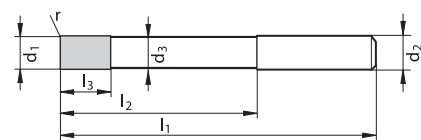


2 flute cutter suitable for HSC machining in materials up to 65 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 908...

d1 mm	15 908...		l3 mm	l2 mm	d3 mm	l1 mm	d2 mm
3	230		5	39	2.7	75	6
4	240		6	39	3.7	75	6
5	250		8	39	4.7	75	6
6	260		9	39	5.7	75	6
8	280		12	64	7.7	100	8
10	300		15	60	9.5	100	10
12	320		18	105	11.5	150	12
16	360		24	102	15.5	150	16
P	-						
M	-						
K	200 - 400						
NE	-						
H	150 - 300						
S							



15 910 “HRC 55” HSC torus cutters

Wodex®

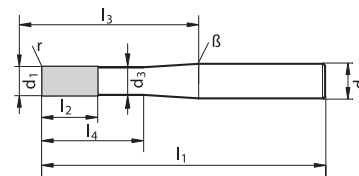


2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 910...

d1/R mm	15 910...		l2 mm	l4 mm	l3 mm	d3 mm	l1 mm	a °	d2 mm
2/0.5	220		3.0	8	18	1.8	57	5.7	6
3/0.5	230		3.5	10	18	2.8	57	4.3	6
4/1.0	240		4.0	12	18	3.8	57	2.9	6
6/2.0	260		6.0	20	-	5.6	57	0	6
8/2.0	280		7.0	25	-	7.6	63	0	8
10/3.0	300		8.0	30	-	9.6	72	0	10
12/4.0	320		10.0	35	-	11.5	83	0	12
P	150 - 400								
M	-								
K	200 - 400								
NE	-								
H	150 - 300								
S									



15 912 “HRC 55-L” HSC torus cutters

Wodex®

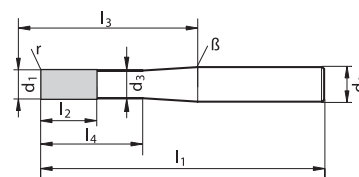


2 flute cutter suitable for HSC machining in materials up to 55 HRC in mould-making and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 912...

d1/R mm	15 912...		l2 mm	l4 mm	l3 mm	d3 mm	l1 mm	a °	d2 mm
2/0.5	220		3.0	6	38	1.8	80	2.9	6
3/0.5	230		3.5	10	38	2.8	80	2.2	6
4/1.0	240		4.0	18	38	3.8	80	1.4	6
6/2.0	260		6.0	22	58	5.6	100	1.0	8
8/2.0	280		7.0	28	72	7.6	120	0.8	10
10/3.0	300		8.0	28	68	9.6	120	0.8	12
12/4.0	320		10.0	32	95	11.5	150	1.2	16
P	150 - 400								
M	-								
K	200 - 400								
NE	-								
H	150 - 300								
S									



15 914 “HRC 55-XL” HSC torus cutters

Wodex®

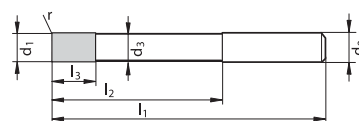


2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



15 914...

d1/R mm	15 914...		l3 mm	l2 mm	d3 mm	l1 mm	d2 mm
6/2.0	260		6	35	5.6	80	6
8/2.0	280		7	55	7.6	100	8
10/3.0	300		8	70	9.6	120	10
12/4.0	320		10	65	11.5	120	12
P	150 - 400						
M	-						
K	200 - 400						
NE	-						
H	150 - 300						
S							



15 916 “Uni HRC 55” HSC torus cutters

Wodex®



2 flute cutter suitable for HSC machining in materials up to 55 HRC in mouldmaking and die making.



d1/R mm	15 916...		Cutting edge length mm	Overall length mm	Shank Ø mm
6/1.0	260		12	100	6
8/1.0	280		16	100	8
10/1.0	300		20	100	10
12/1.5	320		24	120	12
P	150 - 400				
M	-				
K	200 - 400				
NE	-				
H	150 - 300				
S					

15 916...

15 918 “HRC 65” HSC torus cutters

Wodex®

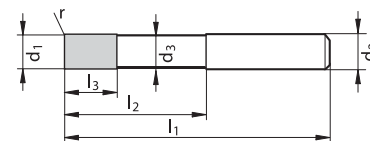


4 flute cutter suitable for HSC machining in materials up to 65 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



d1/R mm	15 918...		l3 mm	l2 mm	d3 mm	l1 mm	d2 mm
3/0.5	230		4.5	21	2.7	57	6
4/0.5	240		6.0	21	3.7	57	6
5/0.5	250		7.5	21	4.7	57	6
6/1.0	260		9.0	21	5.7	57	6
8/1.0	280		12.0	27	7.7	63	8
10/1.5	300		15.0	32	9.5	72	10
12/1.5	320		18.0	38	11.5	83	12
16/2.0	360		24.0	44	15.5	92	16
P	-						
M	-						
K	200 - 400						
NE	-						
H	150 - 300						
S							

15 918...



15 920 “HRC 65-XL” HSC torus cutters

Wodex®

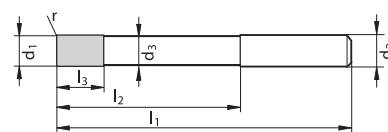


4 flute cutter suitable for HSC machining in materials up to 65 HRC in mouldmaking and die making. The shoulder gash enables it to have a particularly reach where edges make machining more difficult.



d1/R mm	15 920...		l3 mm	l2 mm	d3 mm	l1 mm	d2 mm
6/1.0	260		9	39	5.7	75	6
8/1.0	280		12	64	7.7	100	8
10/1.5	300		15	60	9.5	100	10
12/1.5	320		18	105	11.5	150	12
16/2.0	360		24	102	15.5	150	16
P	-						
M	-						
K	200 - 400						
NE	-						
H	150 - 300						
S							

15 920...



16 501 Straight lathe tools

DIN 4971 (ISO 1), right-hand type, with sintered carbide tip P 20

Wodex®

16 501...

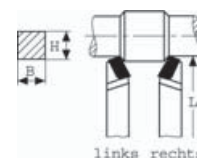
16 502 Straight lathe tools

DIN 4971 (ISO 1), left-hand type, with sintered carbide tip P 20

Wodex®

16 502...

Height H mm	16 501...		16 502...		Width B mm	Length L mm
10	022		022		10	90
12	023		023		12	100
16	024		024		16	110
20	025		025		20	125
25	026		026		25	140

**16 507 Cranked rough turning tools**

DIN 4972 (ISO 2), right-hand type, with sintered carbide tip P 20

Wodex®

16 507...

16 508 Cranked rough turning tools

DIN 4972 (ISO 2), left-hand type, with sintered carbide tip P 20

Wodex®

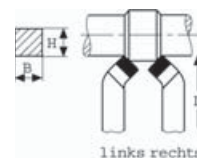
16 508...

16 509 Cranked rough turning tools

DIN 4972 (ISO 2), right-hand type, with sintered carbide tip P 30

Wodex®

16 509...



Height H mm	16 507...		16 508...		16 509...		Width B mm	Length L mm
10	022		022		022		10	90
12	023		023		023		12	100
16	024		024		024		16	110
20	025		025		025		20	125
25	026		026		026		25	140
32	-	-	-	-	027		32	170

16 510 Cranked rough turning tools

DIN 4972 (ISO 2), left-hand type, with sintered carbide tip P 30

Wodex®

16 510...

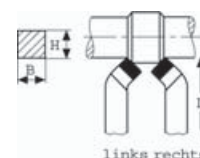
16 511 Cranked rough turning tools

DIN 4972 (ISO 2), right-hand type, with sintered carbide tip K 10

Wodex®

16 511...

Height H mm	16 510...		16 511...		Width B mm	Length L mm
10	022		022		10	90
12	023		023		12	100
16	024		024		16	110
20	025		025		20	125
25	026		026		25	140
32	027		-	-	32	170



16 520 Inside turning tools

DIN 4973 (ISO 8), right-hand type, with sintered carbide tip P 20

Wodex®

16 520...

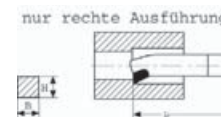
16 521 Inside turning tools

DIN 4973 (ISO 8), right-hand type, with sintered carbide tip P 30

Wodex®

16 521...

Height H	16 520...		16 521...		Width B	Length L	Smallest bore Ø
mm					mm	mm	mm
10	022		022		10	150	18
12	023		023		12	180	21
16	024		024		16	210	27
20	025		025		20	250	34
25	026		026		25	300	43
32	027		027		32	355	52

**16 523 Internal side turning tools for corner work**

DIN 4974 (ISO 9), right-hand type, with sintered carbide tip P 20

Wodex®

16 523...

16 524 Internal side turning tools for corner work

DIN 4974 (ISO 9), right-hand type, with sintered carbide tip P 30

Wodex®

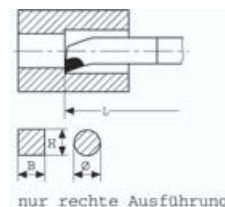
16 524...

16 525 Internal side turning tools for corner work

DIN 4974 (ISO 9), right-hand type, with sintered carbide tip K 10

Wodex®

16 525...



Height H	16 523...		16 524...		16 525...		Width B	Length L	Smallest bore Ø
mm							mm	mm	mm
10	022		022		022		10	150	18
12	023		023		023		12	180	21
16	024		024		024		16	210	27
20	025		025		025		20	250	34
25	026		026		026		25	300	43
32	027		027		027		32	355	52

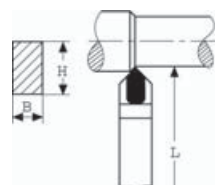
16 528 Pointed straight turning tools

DIN 4975, with sintered carbide tip P 20

Wodex®

16 528...

Height H	16 528...		Width B	Length L
mm			mm	mm
16	022		10	110
20	023		12	125
25	024		16	140



16 536 Wide face square nose turning tools
DIN 4976 (ISO 4), right-hand type,
with sintered carbide tip **P 20**

Wodex®



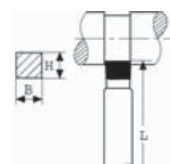
16 536...

16 538 Wide face square nose turning tools
DIN 4976 (ISO 4), with sintered carbide tip **P 30**

Wodex®



16 538...



Height H mm	16 536...		16 538...		Width B mm	Length L mm
10	022		022		10	90
16	024		024		16	110
20	025		025		20	125
25	026		026		25	140
32	027		027		32	170

16 540 Offset face turning tools
DIN 4977 (ISO 5), right-hand type, with sintered carbide tip **P 20**

Wodex®



16 540...

16 542 Offset face turning tools
DIN 4977 (ISO 5), left-hand type, with sintered carbide tip **P 20**

Wodex®



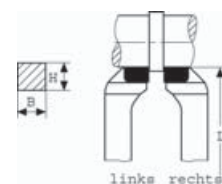
16 542...

16 548 Offset face turning tools
DIN 4977 (ISO 5), right-hand type, with sintered carbide tip **K 10**

Wodex®



16 548...



Height H mm	16 540...		16 542...		16 548...		Width B mm	Length L mm
16	024		024		024		16	110
20	025		025		025		20	125
25	026		026		026		25	140

16 552 Offset turning tools for corner work

DIN 4978 (ISO 3), right-hand type, with sintered carbide tip P 20

Wodex®

16 552...

16 556 Offset turning tools for corner work

DIN 4978 (ISO 3), right-hand type, with sintered carbide tip P 30

Wodex®

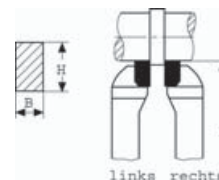
16 556...

16 560 Offset turning tools for corner work

DIN 4978 (ISO 3), right-hand type, with sintered carbide tip K 10

Wodex®

16 560...



Height H mm	16 552...		16 556...		16 560...		Width B mm	Length L mm
16	024		024		024		10	110
20	025		025		025		12	125
25	026		026		026		16	140
32	027		027		027		20	170

16 570 Offset side turning tools

DIN 4980 (ISO 6), right-hand type, with sintered carbide tip P 20

Wodex®

16 570...

16 572 Offset side turning tools

DIN 4980 (ISO 6), left-hand type, with sintered carbide tip P 20

Wodex®

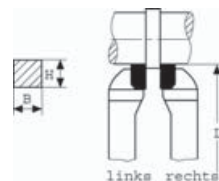
16 572...

16 574 Offset side turning tools

DIN 4980 (ISO 6), right-hand type, with sintered carbide tip P 30

Wodex®

16 574...



Height H mm	16 570...		16 572...		16 574...		Width B mm	Length L mm
10	022		022		022		10	90
12	023		023		023		12	100
16	024		024		024		16	110
20	025		025		025		20	125
25	026		026		026		25	140
32	027		027		027		32	170

16 576 Offset side turning tools

DIN 4980 (ISO 6), left-hand type, with sintered carbide tip P 30

Wodex®

16 576...

16 578 Offset side turning tools

DIN 4980 (ISO 6), right-hand type, with sintered carbide tip K 10

Wodex®

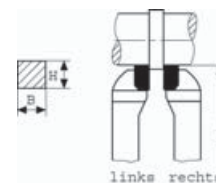
16 578...

16 580 Offset side turning tools

DIN 4980 (ISO 6), left-hand type, with sintered carbide tip K 10

Wodex®

16 580...



Height H mm	16 576...		16 578...		16 580...		Width B mm	Length L mm
10	022		022		022		10	90
12	023		023		023		12	100
16	024		024		024		16	110
20	025		025		025		20	125
25	026		026		026		25	140
32	027		027		027		32	170

16 584 Parting turning tools

DIN 4981 (ISO 7), right-hand type, with sintered carbide tip P 20

Wodex®

16 584...

16 586 Parting turning tools

DIN 4981 (ISO 7), left-hand type, with sintered carbide tip P 20

Wodex®

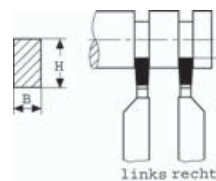
16 586...

16 588 Parting turning tools

DIN 4981 (ISO 7), right-hand type, with sintered carbide tip P 30

Wodex®

16 588...



Height H mm	16 584...		16 586...		16 588...		Width B mm	Parting width mm	Length L mm
12	021		021		021		8	3	100
16	022		022		022		10	4	110
20	023		023		023		12	5	125
25	024		024		024		16	6	140
32	025		025		025		20	8	170

16 590 Parting turning tools

DIN 4981 (ISO 7), left-hand type, with sintered carbide tip P 30

Wodex®

16 590...

16 592 Parting turning tools

DIN 4981 (ISO 7), right-hand type, with sintered carbide tip K 10

Wodex®

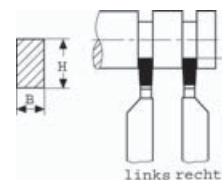
16 592...

16 594 Parting turning tools

DIN 4981 (ISO 7), left-hand type, with sintered carbide tip K 10

Wodex®

16 594...



Height H mm	16 590...		16 592...		16 594...		Width B mm	Parting width mm	Length L mm
12	021		021		021		8	3	100
16	022		022		022		10	4	110
20	023		023		023		12	5	125
25	024		024		024		16	6	140
32	025		025		025		20	8	170

16 598 Right-angle cranked turning tools

right-hand type, with sintered carbide tip P 20

Wodex®

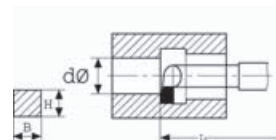
16 598...

16 600 Right-angle cranked turning tools

right-hand type, with sintered carbide tip P 30

Wodex®

16 600...



Height H mm	16 598...		16 600...		Width B mm	Length L mm	Parting width mm	Smallest bore Ø mm	max. parting depth mm
10	022		022		10	140	3	25	6
12	023		023		12	160	4	30	8
16	024		024		16	180	5	40	9
20	025		025		20	210	6	50	10
25	026		026		25	250	8	60	12
32	027		027		32	300	10	85	16

16 606 60° external thread turning tools
right-hand type, with sintered carbide tip P 20

Wodex®



16 606...

16 608 60° external thread turning tools
right-hand type, with sintered carbide tip P 30

Wodex®



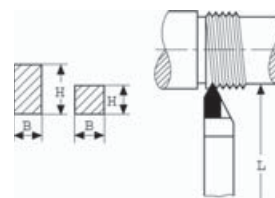
16 608...

16 610 60° external thread turning tools
right-hand type, with sintered carbide tip K 10

Wodex®



16 610...



Height H mm	16 606...		16 608...		16 610...		Width B mm	Length L mm
10	022		022		022		10	100
12	023		023		023		12	110
16	024		024		024		10	120
20	025		025		025		12	140
25	026		026		026		16	160
32	-	-	027		-	-	20	180

16 612 60° internal thread turning tools
right-hand type, with sintered carbide tip P 20

Wodex®



16 612...

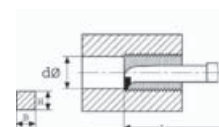
16 613 60° internal thread turning tools
right-hand type, with sintered carbide tip P 30

Wodex®



16 613...

Height H mm	16 612...		16 613...		Width B mm	Length L mm
10	022		022		10	100
12	023		023		12	110
16	024		024		10	120
20	025		025		12	140
25	026		026		16	160



16 625 HSS-Co bent turning tools

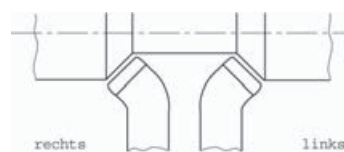
DIN 4952, right-hand type

Wodex®



16 625...

Height mm	16 625...		Width mm	Length mm
10	022		10	100
12	023		12	125
16	024		16	150
20	025		20	175
25	026		25	200



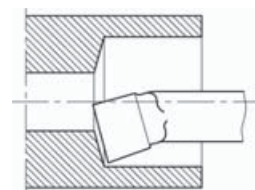
16 630 HSS-Co internal turning tools

DIN 4953, right-hand type, butt welded

Wodex®



16 630...



16 632 HSS-Co internal side turning tool for corner work

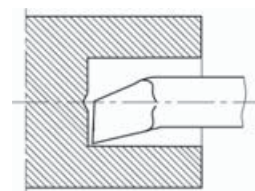
DIN 4954, right-hand type, butt welded

Wodex®



16 632...

Height mm	16 630...		16 632...		Width mm	Length mm	Smallest bore Ø mm
10	022		022		10	160	18
12	023		023		12	180	21
16	024		024		16	210	27
20	-	-	025		20	250	34



16 644 HSS-Co offset side turning tools

DIN 4960, right-hand type, butt welded

Wodex®



16 644...

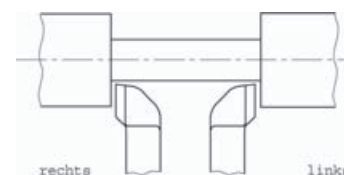
16 646 HSS-Co offset side turning tools

DIN 4960, left-hand type, butt welded

Wodex®

16 646...

Height mm	16 644...		16 646...		Width mm	Length mm
10	022		-	-	10	100
12	023		023		12	125
16	024		024		16	150
20	025		025		20	175



16 650 HSS-Co parting turning tools

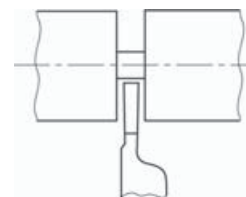
DIN 4961, right-hand type, butt welded

Wodex



16 650...

Height mm	16 650...		Width mm	Groove width mm	Length mm
10	022		10	4	100
12	023		12	4	125
16	024		10	4	160
20	025		12	4	180
25	026		16	5	200



16 658 HSS-Co right-hand cranked turning tools

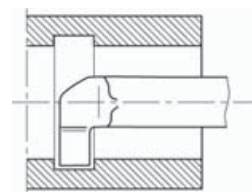
DIN 4963, right-hand type, butt welded

Wodex



16 658...

Height mm	16 658...		Width mm	Groove width mm	Length mm	Smallest bore Ø mm	max. parting depth mm
10	022		10	4	160	18	6
12	023		12	5	180	22	8
16	024		16	6	210	28	10
20	025		20	8	250	35	12



16 660 HSS-Co 60° external thread turning tools

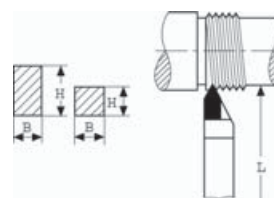
right-hand type, butt welded

Wodex



16 660...

Height mm	16 660...		Width mm	Length mm
10	022		10	100
12	023		12	125
16	024		16	150
20	025		20	175



16 662 HSS-Co 60° internal thread turning tools

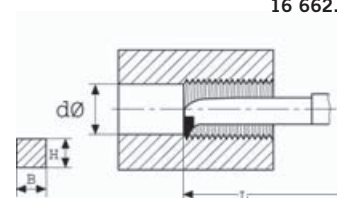
right-hand type, butt welded

Wodex



16 662...

Height mm	16 662...		Width mm	Length mm	Smallest bore Ø mm
10	022		10	160	18
12	023		12	180	22
16	024		16	210	28
20	025		20	250	35



16 680 HSS-Co 10 square tool blanks

DIN 4964 - ISO 5421, Shape B, quality according to DIN
S10-4-3-10 (EW 9 Co10), working hardness 65 - 68 HRC,
hardened, tempered and ground, ends straight and unground

Wodex®**16 680...**

Cross-section mm	16 680...		Overall length mm
4 x 4	043		80
4 x 4	044		100
5 x 5	053		80
5 x 5	054		100
6 x 6	062		63
6 x 6	063		80
6 x 6	064		100
6 x 6	065		125
6 x 6	066		160
8 x 8	081		80
8 x 8	082		100
8 x 8	083		125
8 x 8	084		160
8 x 8	085		200
10 x 10	101		80
10 x 10	102		100
10 x 10	103		125

Cross-section mm	16 680...		Overall length mm
10 x 10	104		160
10 x 10	105		200
12 x 12	121		100
12 x 12	122		125
12 x 12	123		160
12 x 12	124		200
14 x 14	143		160
14 x 14	144		200
16 x 16	161		100
16 x 16	162		125
16 x 16	163		160
16 x 16	164		200
18 x 18	181		160
20 x 20	201		160
20 x 20	202		200
25 x 25	251		200

16 683 HSS-Co 10 round tool blanks

DIN 4964 - ISO 5421, Shape A, quality according to DIN
S10-4-3-10 (EW 9 Co10), working hardness 65 - 68 HRC,
hardened, tempered and ground, ends straight and unground

Wodex®**16 683...**

Ø mm	16 683...		Overall length mm
4	041		63
4	042		100
5	044		40
5	051		80
5	053		100
6	054		40
6	061		80
6	063		100
6	064		160
8	066		80
8	081		100
8	082		160
8	084		200
10	085		80

Ø mm	16 683...		Overall length mm
10	101		100
10	102		160
10	104		200
12	105		100
12	121		160
12	124		200
14	143		160
16	161		100
16	163		160
16	164		200
18	182		160
18	183		200
20	202		200

16 686 HSS-Co 10 rectangular tool blanks

DIN 4964 - ISO 5421, Shape D, quality according to DIN
S10-4-3-10 (EW 9 Co10), working hardness 65 - 68 HRC,
hardened, tempered and ground, ends straight and unground

Wodex®**16 686...**

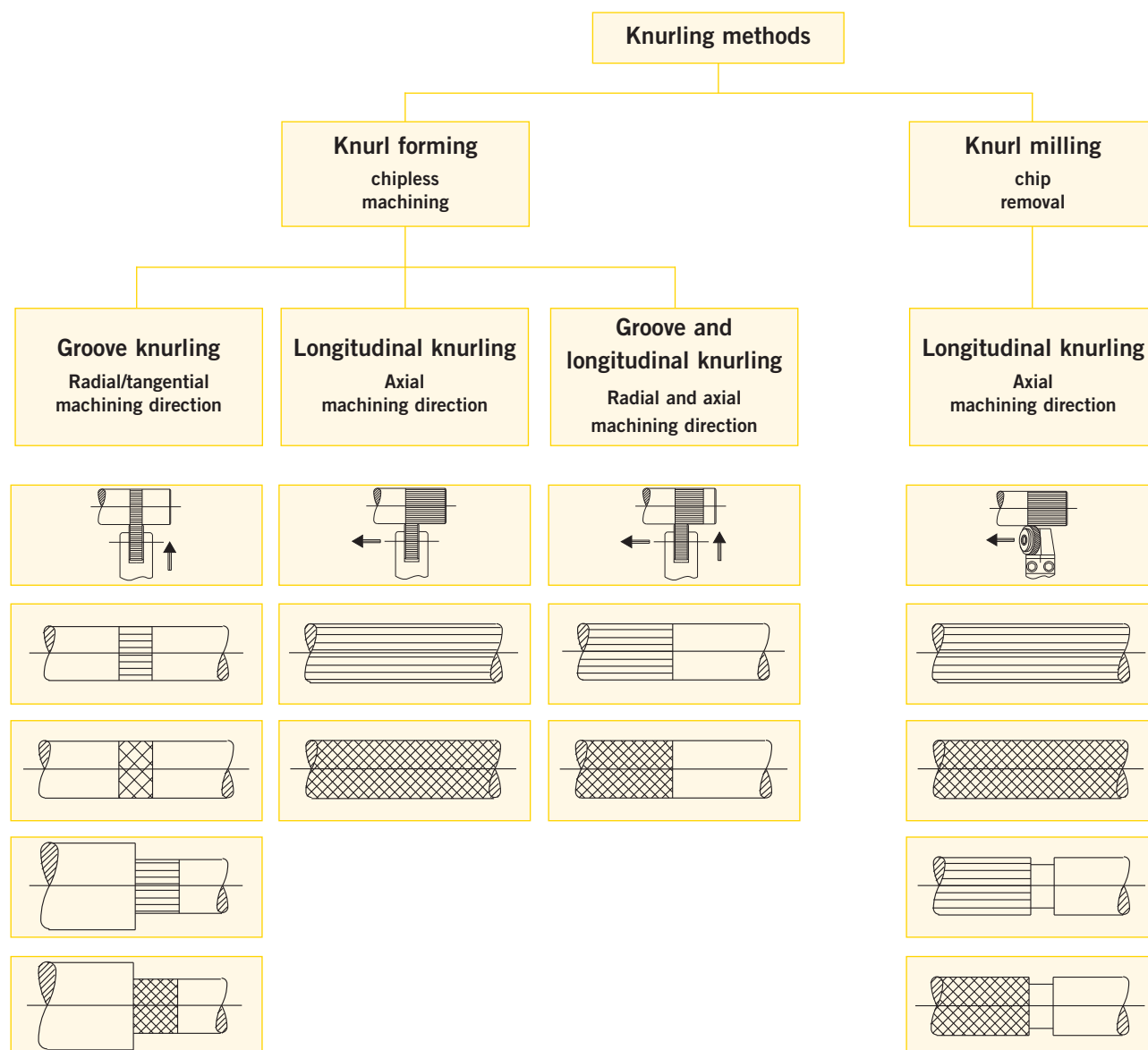
Cross-section mm	16 686...		Overall length mm
6 x 4	062		100
8 x 4	082		100
8 x 5	084		100
10 x 5	101		100
10 x 5	102		160
10 x 5	103		200
10 x 6	104		100
10 x 6	105		160
12 x 6	121		100
12 x 6	122		160
12 x 6	123		200
12 x 8	124		100
12 x 8	125		160

Cross-section mm	16 686...		Overall length mm
12 x 8	126		200
16 x 8	162		160
16 x 8	163		200
16 x 10	165		160
16 x 10	166		200
20 x 10	202		160
20 x 12	204		160
20 x 12	205		200
25 x 12	251		160
25 x 12	252		200
25 x 16	253		160
25 x 16	254		200



Properties of the knurling methods

	Knurl forming	Knurl milling
Use	• Machining cold workable materials • Forming knurls on thin-walled workpieces is problematic • Wide range of uses • All knurl forms and profiles can be made - Suitable for face and internal knurling - Knurling possible up to collar - Tool can be position on any point on the workpiece	• Almost all materials can be machined • Thin-walled workpieces can be machined • Suitable for visible knurling – top knurl quality • Limited range of uses - Knurl profiles RAA and RGE only can be made - Cylindrical workpieces only can be machined in an axial machining direction - A cut in/groove is required to position the tool in the middle of the workpiece
Properties	• The external diameter of the workpiece is increased by material displacement • The surface is compressed • Higher machine load than for knurl milling	• No substantial change in the external diameter of the workpiece • Low surface compaction • High precision and surface quality of the knurl • Lower machine load than for knurl forming
Handling	• In general the workpiece does not require preparation • Very easy tool handling	• Precise tool setting and fine adjustment is necessary • Precise preparation of the workpiece is necessary



16 840 Knurling tool

Knurl forming (chipless reshaping) groove knurling (longitudinal knurling RAA, RBL, RBR possible)
For making all knurl patterns, profiles and labelling. All knurl forms can be used. For use on conventional lathes. Supplied without knurls. The pitch must be set.



For thumbwheel	16 840...		Shank B x H x L mm	Working range mm
20 x 8 x 6	010		16 x 16 x 130.5	15 - 200



16 840 010

16 842 Knurling tool

For making all knurl patterns, profiles and labelling. All knurl forms can be used. For use on conventional and CNC controlled lathes. Pitch incorporated in toolholder. Supplied without knurls. Special surface hardening for increased wear resistance sintered carbide running pins = higher speeds = faster machining = improved tool life

Prod. No. 16 842 010 - ...015 for long automatic lathes

Prod. No. 16 842 020 - ...025 for short automatic lathes

Knurl forming (chipless reshaping) groove knurling (longitudinal knurling RAA, RBL, RBR possible)



For thumbwheels	16 842...		Shank B x H x L mm	Working range mm
10 x 4 x 4 / 15 x 4 x 4	010		10 x 10 x 99	3 - 50 L
10 x 4 x 4 / 15 x 4 x 4	011		10 x 10 x 99	3 - 50 R
10 x 4 x 4 / 15 x 4 x 4	014		12 x 12 x 99	3 - 50 L
10 x 4 x 4 / 15 x 4 x 4	015		12 x 12 x 99	3 - 50 R
25 x 8 x 6	020		20 x 20 x 119.5	8 - 200 U
25 x 8 x 6	025		20 x 25 x 119.5	8 - 200 U

L=left-hand type, R=right-hand type, U=universal type (left+right-hand)



16 842...



16 842...

16 843 Knurling tool set

In metal box.

Set consisting of:

1 knurling tool 16 844..., 1 knurling tool 16 840..., 1 thumbwheel each BL-BR 20 x 8 x 6 gradation. 0.8; 1.0; 1.2 made of HSS, 1 thumbwheel each AA 20 x 8 x 6 gradation. 0.8; 1.0; 1.2 made of HSS, 3 spare running pins



16 843...	
100	



16 843 100

16 844 Knurling tool

Knurl forming (chipless reshaping) groove and longitudinal knurling
For making the knurl patterns RAA, RGE30° and RGE45° according to DIN 82,

Thumbwheels: RAA - 2 No. shape AA, RGE30° - 1 No. BL30° / 1 No. BR30°, RGE45° - 1 No. BL45° / 1 No. BR45°

Supplied without knurls.

With flexible centring, pitch must be set.

For use on conventional lathes.



For thumbwheel	16 844...		Shank B x H x L mm	Working range mm
20 x 8 x 6	010		18 x 25 x 184	10 - 80



16 844 010

16 846 Knurling tool

Knurl forming (chipless reshaping) groove and longitudinal knurling
For making the knurl patterns RAA, RGE30° and RGE45° according to DIN 82, thumbwheels: RAA - 2 No. shape AA, RGE30° - 1 No. BL30° / 1 No. BR30°, RGE45° - 1 No. BL45° / 1 No. BR45°. Supplied without knurls. Pitch is integrated in the tool. Special surface hardening for increased wear resistance. Sintered carbide running pins = higher speeds = faster machining = improved tool life

16 846 010 - ...011 for long automatic lathes

16 846 020 for short automatic lathes



For thumbwheel	16 846...		Shank B x H x L mm	Working range mm
10 x 4 x 4	010		10 x 10 x 105.5	3 - 12
10 x 4 x 4	011		12 x 12 x 105.5	3 - 12
20 x 8 x 6	020		20 x 20 x 140.0	10 - 80



16 846 010



16 846 020



16 847 Knurling milling cutter tool

For making the knurl patterns RGE30° and RGE45° according to DIN 82, thumbwheels: RGE30° - 2 No. shape AA, RGE45° - 1 No. BL15° / 1 No. BR15°. Supplied without knurls.

Special surface hardening for increased wear resistance.

Sintered carbide arbor bearing sleeves = higher speeds = faster machining = improved tool life

Longitudinal knurling, knurl milling cutting (machining with chip removal)

Pitch is integrated in the tool holder.

Synchronous adjustment of the knurl edges to the workpiece diameter via central adjusting screw.



16 847...

For thumbwheel	16 847...		Shank B x H x L mm	Working range* mm	Type
10 x 3 x 6	010		10 x 10 x 107	2 - 15	L
10 x 3 x 6	011		10 x 10 x 107	2 - 15	R
10 x 3 x 6	012		12 x 12 x 107	2 - 15	L
10 x 3 x 6	013		12 x 12 x 107	2 - 15	R

16 848 Knurling milling cutter tool

For making the knurl pattern RAA (thumbwheels BR30°, right-hand type, or BL30°, left-hand type)

Fine adjustment for axially parallel knurling by means of adjustable knurling head. Adjustment of the clearance angle via the grub screw on the shaft. Supplied without knurls.

Special surface hardening for increased wear resistance.

Sintered carbide running pins = higher speeds = faster machining = improved tool life.

Prod. No. 16 848 010 - 16 848 017 for long automatic lathes

Prod. No. 16 848 020 - 16 848 026 for short automatic lathes (CNC + conventional)



16 848...



16 848...

Modular layout - knurl milling cutting head for right-hand and left-hand version is interchangeable. Pitch is integrated in the tool holder. Knurl milling cutting (machining with chip removal), longitudinal knurling

For thumbwheel	16 848...		Shank B x H x L mm	Working range mm	Type
10 x 3 x 6	010		10 x 10 x 98	1.5 - 15	L
10 x 3 x 6	011		10 x 10 x 98	1.5 - 15	R
15 x 4 x 8	012		12 x 12 x 99	3 - 50	L
15 x 4 x 8	013		12 x 12 x 99	3 - 50	R
15 x 4 x 8	016		16 x 16 x 99	3 - 50	R
15 x 4 x 8	017		16 x 16 x 99	3 - 50	L
25 x 6 x 8	020		20 x 20 x 129	10 - 300	R
25 x 6 x 8	021		20 x 20 x 129	10 - 300	L
25 x 6 x 8	025		25 x 25 x 129	10 - 300	R
25 x 6 x 8	026		25 x 25 x 129	10 - 300	L

16 849 Knurling milling cutter tool

For knurling by chip removal - RGE30°, RGE45° according to DIN 82. RGE30° - 2 No. knurl edge shape AA RGE45° - 1 No. knurl edge BL15° and BR15°.

With setting scale for the workpiece Ø, adjustable via an adjusting screw and synchronous gearing, fine adjustment for positioning of the knurl milling cutting head, with modular layout: This knurl milling cutting tool can be also universally used as right and left-hand version - reset by simply turning the knurl milling cutting head.

Special surface hardening for increased wear resistance.

Sintered carbide arbor bearing sleeves = higher speeds = faster machining = improved tool life.

Supplied without knurls.

Prod. No. 16 849 016 and 16 849 020

Use on conventionally controlled lathes, pitch of the tool must be adjusted

Prod. No. 16 849 116 to 16 849 125

Additional use on CNC controlled lathes too. Pitch is integrated in the tool holder.



16 849...

For knurled edge mm	16 849...		Shank B x H mm	Working range mm
15 x 4 x 8	016		16 x 16	3 - 50
25 x 6 x 8	020		20 x 20	10 - 250
15 x 4 x 8	116		20 x 16	10 - 250
25 x 6 x 8	120		20 x 20	10 - 250
25 x 6 x 8	125		25 x 25	10 - 250

16 850 Spare parts for knurl forming tools



suitable for	16 850...		Designation
16 842 010 + ...011, 16 846 011	001		running pin HSS 4 x 12 mm
16 842 020 + ...025, 16 846 020	005		running pin HSS 6 x 20 mm
16 840 010	011		running pin 6 x 18 mm
16 844 010	013		running pin 6 x 20 mm



16 850 001



16 850 011

16 853 Spare parts for knurl milling cutting tools

Complete sets with arbor bearing sleeve, cover washer and screw



suitable for	16 853...		Designation
16 848 021 + ...026 16 849 020	001		Spare parts kit with arbor bearing sleeve, cover washer, screw 25 x 6 x 8
16 848 020 + ...025	003		Spare parts kit with arbor bearing sleeve, cover washer, screw 25 x 6 x 8



16 853...

16 855 HSS thumbwheels (DIN 403) for ZEUS knurling tools



For chipless machining (knurl forming).

HSS, with chamfer, teeth finely milled, completely hardened,
flat side and hole are ground.

Dimensions in mm: Diameter x width x bore

Knurl Type	Pitch mm	16 855... 10 x 4 x 4 mm		16 855... 15 x 4 x 4 mm		16 855... 20 x 8 x 6 mm	
AA	0.6	101		201		301	
AA	0.8	102		202		302	
AA	1.0	103		203		303	
AA	1.2	-	-	-	-	304	
AA	1.5	-	-	-	-	305	
BL30°	0.6	111		211		311	
BL30°	0.8	112		212		312	
BL30°	1.0	113		213		313	
BL30°	1.2	-	-	-	-	314	
BL30°	1.5	-	-	-	-	315	
BR30°	0.6	121		221		321	
BR30°	0.8	122		222		322	
BR30°	1.0	123		223		323	
BR30°	1.2	-	-	-	-	324	
BR30°	1.5	-	-	-	-	325	
GE30°	0.6	131		231		331	
GE30°	0.8	132		232		332	
GE30°	1.0	133		233		333	
GE30°	1.2	-	-	-	-	334	
GE30°	1.5	-	-	-	-	335	



Knurl type AA

16 855...



Knurl type BL30°

16 855...



Knurl type BR30°

16 855...



Knurl type GE30°

16 855...

16 857 HSS thumbwheels (DIN403) for ZEUS knurl milling cutting tools



For machining with chip removal (knurl milling).
without chamfer, teeth finely milled, completely hardened, flat side
and hole are ground
Dimensions in mm: Diameter x width x bore

Knurl Type	Pitch mm	16 857... 10 x 3 x 6		16 857... 15 x 4 x 8		16 857... 25 x 6 x 8	
AA	0.6	101		201		301	
AA	0.8	102		202		302	
AA	1.0	103		203		303	
AA	1.2	-	-	204		304	
AA	1.5	-	-	205		305	
BL15°	0.6	111		211		311	
BL15°	0.8	112		212		312	
BL15°	1.0	113		213		313	
BL15°	1.2	-	-	214		314	
BL15°	1.5	-	-	215		315	
BR15°	0.6	121		221		321	
BR15°	0.8	122		222		322	
BR15°	1.0	123		223		323	
BR15°	1.2	-	-	224		324	
BR15°	1.5	-	-	225		325	
BL30°	0.6	131		231		331	
BL30°	0.8	132		232		332	
BL30°	1.0	133		233		333	
BL30°	1.2	-	-	234		334	
BL30°	1.5	-	-	235		335	
BR30°	0.6	141		241		341	
BR30°	0.8	142		242		342	
BR30°	1.0	143		243		343	
BR30°	1.2	-	-	244		344	
BR30°	1.5	-	-	245		345	

Knurl type AA



16 857...

Knurl type BL15°



16 857...

Knurl type BL15°



16 857...

Knurl type BL30°



16 857...

Knurl type BR30°



16 857...

16 859 Thumbwheels for “Quick” knurl milling cutting tools (DIN403)



HSS, without chamfer, teeth finely milled, completely hardened,
flat side and hole are ground.

Prod. No. 16 589 201, ...245 and
16 859 401-...445:

additionally **TENIFER** coated for increasing the tool life.

Dimensions in mm: Diameter x width x bore

Knurl Type	Pitch mm	16 859... 14.5x3x 5		16 859... 14.5x3x 5		16 859... 21.5x5x 8		16 859... 21.5x5x 8	
AA	0.6	101		201		301		401	
AA	0.8	102		202		302		402	
AA	1.0	103		203		303		403	
AA	1.2	104		204		304		404	
AA	1.5	105		205		305		405	
BL15°	0.6	111		211		311		411	
BL15°	0.8	112		212		312		412	
BL15°	1.0	113		213		313		413	
BL15°	1.2	114		214		314		414	
BL15°	1.5	115		215		315		415	
BR15°	0.6	121		221		321		421	
BR15°	0.8	122		222		322		422	
BR15°	1.0	123		223		323		423	
BR15°	1.2	124		224		324		424	
BR15°	1.5	125		225		325		425	
BL30°	0.6	131		231		331		431	
BL30°	0.8	132		232		332		432	
BL30°	1.0	133		233		333		433	
BL30°	1.2	134		234		334		434	
BL30°	1.5	135		235		335		435	
BR30°	0.6	141		241		341		441	
BR30°	0.8	142		242		342		442	
BR30°	1.0	143		243		343		443	
BR30°	1.2	144		244		344		444	
BR30°	1.5	145		245		345		445	

Knurl type AA



16 859...

Knurl type BL15°



16 859...

Knurl type BL15°



16 859...

Knurl type BL30°



16 859...

Knurl type BR30°



16 859...

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 TCKN 75° for CNGX Page 283	 TCLN 95° for CNGX Page 283	 PDJN 93° for DNMG Page 284	 PDNNN 62° 30' for DNMG Page 284	 PDUN 93° for DNMG Page 284	 TDJN DNGX Page 287
 SRDC for RCMT Page 250	 PRDC for RCMX Page 251	 PRSC for RCMX Page 251	 PSSN 45° for SNMG Page 252	 TSRN 75° for SNGX Page 253	 TSSN 45° for SNGX Page 253
 PTGN 90° for TNMG Page 288	 PTFN 90° for TNMG Page 289	 PWLN 95° for WNMG Page 289	 PWLN 95° for WNMG Page 290	 SCLC for CCMT Page 291	 SCLC 95° for CCMT Page 291
 SCLC 95° for CCMT Page 292	 A SCLC 95° for CCMT Page 292	 E SCLC 95° for CCMT Page 294	 SDUC / SDQC for DCMT Page 294	 SDJC 93° for DCMT Page 296	 SDNC 62° 30' for DCMT Page 296
 SDQC 107° 30' for DCMT Page 296	 A SDQC 107° 30' for DCMT Page 296	 SDUC 93° for DCMT Page 297	 A SDUC 93° for DCMT Page 299	 E SDUC 93° for DCMT Page 299	 SSDC 45° for SCMT Page 299
 SVVB 72° 30' for VBMT Page 304	 SVJB 93° for VBMT Page 304	 SVUB 93° for VBMT Page 304	 SVC 72° 30' for VCMT Page 305	 SVJC 93° for VCMT Page 305	 SVHC 107° 30' for VCMT Page 305
 SVQC 107° 30' for VCMT Page 305	 SVUC 93° for VCMT Page 306	 A SVUC 93° for VCMT Page 306	 E SVUC 93° for VCMT Page 306	 STFC 90° for TCMT Page 308	 Eco-Cut for XCNT Page 311



Thread die cutting and tapping

Pages 330 - 333



Explanation of the cutting parameters table

In the following pages you will find the table on the right under the tools. The cutting speed V_c (m/min) is given under the respective serial numbers.

In addition, we have given the following feed rates:

Drilling = mm / revolution

Countersinking / counterboring = mm / revolution

Milling / cutting = mm / tooth

Reaming = mm / revolution

Turning = mm / revolution

P = Steel

M = VA

K = Cast iron

NE = Non-ferrous metals

H = Hardened materials

S = Special-purpose alloys

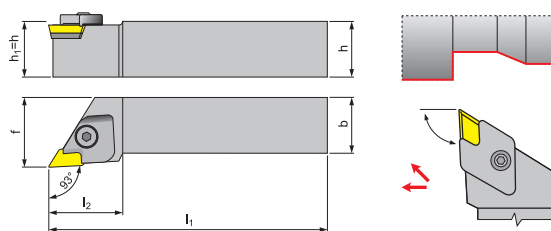
Values printed in bold type = first time use

Note:

All cutting parameters are guideline values and have to be adjusted to the individual situation. To this end, it is especially necessary to ensure adequate cooling, stable clamping of the workpiece and sufficient machine power.

19 203 CKJN 93° toolholder

for external machining, with clamping element "C"

Wodex®

19 203 020

Toolholder Type	19 203... right-hand	19 203... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
CKJN R/L 2020 K 16	020	021		20	20	125	34	30	KNUX 1604...
CKJN R/L 2525 M 16	025	026		25	25	150	34	32	KNUX 1604...

Accessories

For toolholder	Clamp "C" 19 939...	Screw 19 935...	Spring 19 949...	Spring pin 19 948...	Key 19 950...	Shim 19 952...	Wedge 19 946...
CKR 16	001	001	001	003	003	001	002
CKL 16	002	001	001	003	003	002	002

19 436 KNUX tip

for external machining, with clamping element "C"

Wodex®

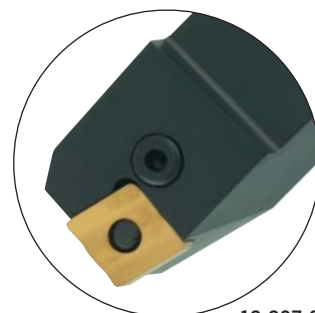
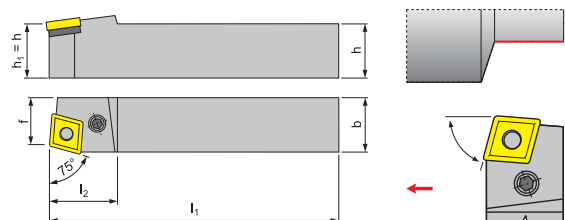
Type	19 436... WOG 2320 left-hand	19 436... WOG 2320 right-hand	19 436... WOG 2025 left-hand	19 436... WOG 2025 right-hand	19 436... WOG 4235 left-hand	19 436... WOG 4235 right-hand	
KNUX 160405 L/R 11	001	021	004	024	005	025	
KNUX 160405 L/R 12	-	061	044	064	045	065	
KNUX 160410 L/R 11	081	101	084	104	085	105	
KNUX 160410 L/R 12	121	141	124	144	125	145	
P	120 - 270	120 - 270	100 - 230	100 - 230	80 - 190	80 - 190	0.12 - 0.5
M	-	-	-	-	80 - 180	80 - 180	0.12 - 0.5
K	100 - 220	100 - 220	-	-	-	-	0.12 - 0.5
NE	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-



19 207 PCBN 75° toolholder

for external machining, with lever lock "P"

Wodex®



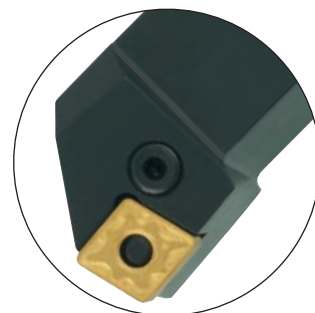
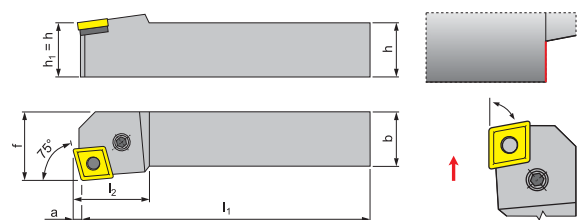
19 207 020

Toolholder Type	19 207... right-hand	19 207... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PCBN R/L 2525 M 12	020	021		25	25	150	28	22	CNMG 1204...
PCBN R/L 2525 M 16	025	026		25	25	150	34	22	CNMG 1606...

19 208 PCKN 75° toolholder

for external machining, with lever lock "P"

Wodex®



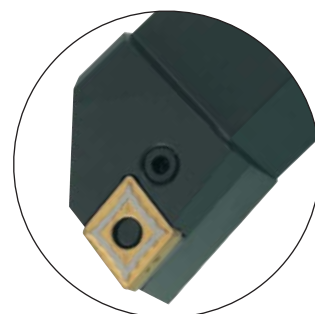
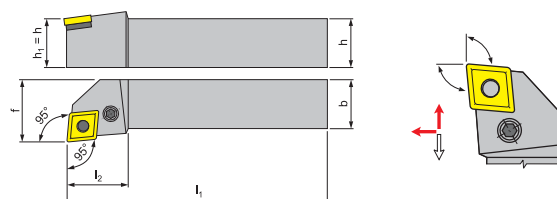
19 208 025

Toolholder Type	19 208... right-hand	19 208... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PCKN R/L 2525 M 12	025	026		25	25	150	28	32	CNMG 1204...

19 213 PCLN 95° toolholder

for external machining, with lever lock "P"

Wodex®

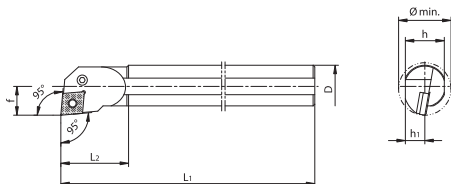


19 213 085

Toolholder Type	19 213... right-hand	19 213... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PCLN R/L 1616 H 09	005	006		16	16	100	25	20	CNMG 0903...
PCLN R/L 2020 K 09	010	011		20	20	125	27	25	CNMG 0903...
PCLN R/L 2525 M 09	015	016		25	25	150	27	32	CNMG 0903...
PCLN R/L 1616 H 12	020	021		16	16	100	26	20	CNMG 1204...
PCLN R/L 2020 K 12	025	026		20	20	125	28	25	CNMG 1204...
PCLN R/L 2525 M 12	030	031		25	25	150	28	32	CNMG 1204...
PCLN R/L 2525 M 16	050	051		25	25	150	34	32	CNMG 1606...
PCLN R/L 3225 P 16	055	056		32	32	170	34	32	CNMG 1606...
PCLN R/L 3232 P 16	060	061		32	32	170	34	40	CNMG 1606...
PCLN R/L 3232 P 19	080	081		32	32	170	42	40	CNMG 1906...
PCLN R/L 4040 S 19	085	086		40	40	250	45	50	CNMG 1906...

19 265 PCLN 95° toolholder

for internal machining, with lever lock "P"

Wodex®


19 265 030

Toolholder Type	19 265... right-hand	19 265... left-hand		D mm	h mm	h1 mm	L1 mm	L2 mm	f mm	Ø min. mm	Tip
S 16 R PCLN R/L 09*	005	006		16	15	7.5	200	26	11	20	CNMG 0903...
S 20 S PCLN R/L 09*	010	011		20	18	9.0	250	29	13	25	CNMG 0903...
S 25 T PCLN R/L 09	015	016		25	23	11.5	300	33	17	32	CNMG 0903...
S 25 T PCLN R/L 12*	020	021		25	23	11.5	300	40	17	31	CNMG 1204...
S 32 U PCLN R/L 12	025	026		32	30	15.0	350	50	22	39	CNMG 1204...
S 40 V PCLN R/L 12	030	031		40	37	18.5	400	60	27	48	CNMG 1204...
S 50 W PCLN R/L 12	032	034		50	47	23.5	450	65	27	61	CNMG 1204...

* = Toolholder without shim / on request with internal cooling

Accessories for 19 207..., 19 208..., 19 213..., 19 265...



For toolholder Type	Lever lock "P" 19 942...	Clamping screw 19 934...	Key 19 950...	Shim 19 943...	Wedge 19 947...	Mandrel 19 930...
PC 09	002	004	006	009	001	001
PC 12	003	005	002	006	003	002
PC 16	005	008	002	007	004	003
PC 19	006	006	003	008	006	004
S 16/20 PC 09	001	003	001	-	-	-
S 25 PC 09	002	009	006	009	001	001
S 25 PC 12	014	009	006	-	-	-
S 32 PC 12	017	011	002	006	003	002

19 359 CNMG - WM tip

Wodex®

medium machining
ap = 1.0 - 5.0 mm



Type	19 359... WOG 2315	19 359... WOG 2025	19 359... WOG 2435	
CNMG 090304 - WM	-	054	045	
CNMG 090308 - WM	-	074	065	
CNMG 120404 - WM	013	007	008	
CNMG 120408 - WM	023	014	005	
CNMG 120412 - WM	033	034	025	
P	120 - 270	100 - 230	80 - 190	0.05 - 0.4
M	-	-	80 - 180	0.05 - 0.4
K	100 - 220	-	-	0.05 - 0.4
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 361 CNMG - 909 tip

Wodex®

roughing, double-sided
ap = 2.0 - 5.0 mm



Type	19 361... WOG 2315	19 361... WOG 2025	19 361... WOG 2435	
CNMG 120408 - 909	023	014	005	
CNMG 160612 - 909	063	054	065	
P	120 - 270	100 - 230	80 - 190	0.25 - 0.8
M	-	-	80 - 180	0.25 - 0.8
K	100 - 220	-	-	0.25 - 0.8
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-



19 352 CNMG - DM tip

medium machining
ap = 0.8 - 4.5 mm

Wodex®



Type	19 352... WOG 2315	19 352... WOG 2025	19 352... WOG 2430	19 352... WOG 4230	
CNMG 090304 - DM	543	554	545	-	
CNMG 090308 - DM	563	-	565	-	
CNMG 120408 - DM	501	504	505	506	
CNMG 120412 - DM	521	524	525	526	
CNMG 120416 - DM	541	544	-	546	
CNMG 160608 - DM	561	564	555	-	
CNMG 160612 - DM	581	584	-	586	
CNMG 160616 - DM	571	574	-	576	
CNMG 190612 - DM	591	594	-	-	
P	80 - 240	70 - 200	55 - 240	70 - 200	0.12 - 0.5
M	-	-	70 - 100	100 - 250	0.12 - 0.5
K	100 - 200	-	-	-	0.12 - 0.5
NE	-	-	-	-	-
H	-	-	-	-	-
S	-	-	-	-	-

19 356 CNMG - EX tip

medium machining, easy cutting,
for stainless steels
ap = 0.5 - 4.0 mm

Wodex®



Type	19 356... WOG 4240	
CNMG 090304 - EX	102	
CNMG 120404 - EX	122	
CNMG 120408 - EX	132	
CNMG 120412 - EX	142	
P	-	-
M	90 - 230	0.05 - 0.43
K	-	-
NE	-	-
H	-	-
S	-	-

19 362 CNMX-ER / EL tip

Special machining, easy cutting
ap = 1.0 - 3.0 mm

Wodex®



Type	19 362... WOG 2025	
CNMX 120408 - ER	014	
CNMX 120408 - EL	034	

P	70 - 200	0.08 - 0.32
M	-	-
K	-	-
NE	-	-
H	-	-
S	-	-

19 354 CNMM-DR tip

roughing, single-sided
ap = 2.0 - 8.0 mm

Wodex®



Type	19 354... WOG 2315	19 354... WOG 2425	19 354... WOG 2435	19 354... WOG 4240	
CNMM 120408 - DR	203	204	-	202	
CNMM 120412 - DR	223	214	-	212	
CNMM 120416 - DR	243	224	-	-	
CNMM 160612 - DR	263	234	236	-	
CNMM 160616 - DR	283	244	246	-	
CNMM 190612 - DR	303	254	-	-	
CNMM 190616 - DR	323	264	-	-	
CNMM 190624 - DR	343	274	276	-	
P	80 - 240	70 - 200	55 - 240	-	0.35 - 0.8
M	-	-	70 - 100	100 - 250	0.35 - 0.8
K	100 - 200	-	-	-	0.35 - 0.8
NE	-	-	-	-	-
H	-	-	-	-	-
S	-	-	-	-	-

19 649 CNMG-3J tip

ap = 1.0 - 2.5 mm



Type	19 649... NL40		19 649... SP3036	
CNMG120404E-3J	016		015	
CNMG120408E-3J	026		025	
P	40 - 360	-	60 - 430	0.12 - 0.4
M	50 - 245	-	70 - 290	0.12 - 0.4
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 660 CNGA ceramic tip**Wodex®**

- tough ceramic mix with high wear resistance
- Finishing to roughing of hardened steel and hard materials up to 62 HRC
- can be used for lost (incomplete) cut



Type	19 660... WOK 2310	
CNGA 120404	023	
CNGA 120408	043	
P	-	-
M	-	-
K	300 - 800	0.1 - 0.5
NE	-	-
H	50 - 200	0.1 - 0.25
S	-	-

19 653 CNMG ceramic tip with chip breaker**Wodex®**

- tough ceramic mix with high wear resistance
- Finishing to roughing of hardened steel and hard materials up to 62 HRC
- can be used for lost (incomplete) cut



Type	19 653... WOK 2310	
CNMG 120404	023	
CNMG 120408	043	
P	-	-
M	-	-
K	300 - 800	0.1 - 0.5
NE	-	-
H	50 - 200	0.1 - 0.25
S	-	-

19 650 CNMA CBN tip**Wodex®**

- for finishing and roughing hardened steels (from 45 HRC)
- can be used for lost (incomplete) cut



Type	19 650... SKL 2.5 mm		19 650... SKL 4 mm	
CNMA 120404	003		002	
CNMA 120408	023		022	
CNMA 120412	043		042	
P	-	-	-	-
M	-	-	-	-
K	-	-	-	-
NE	-	-	-	-
H	80 - 200	-	80 - 200	0.1 - 0.2
S	-	-	-	-

19 648 CNMG SI tip

with SI chip breaker

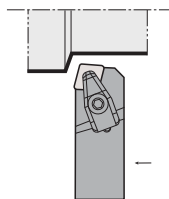
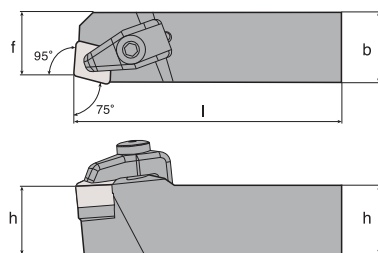
Wodex®

Type	19 648... right-hand WOG 4230	19 648... left-hand WOG 4230	
CNMG 120404ER/L-SI	003	005	
CNMG 120408ER/L-SI	007	009	
P	90 - 280	90 - 280	0.05 - 0.3
M	80 - 180	80 - 180	0.05 - 0.3
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-



19 662 TCBN 75° toolholder

Wodex®

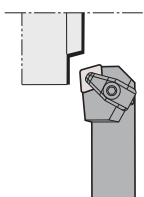
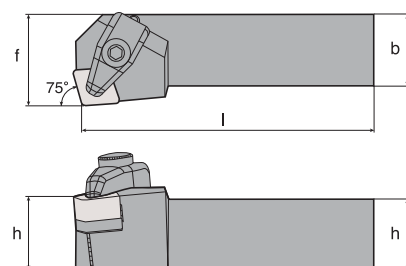


19 662...

Toolholder Type	19 662... right-hand	19 662... left-hand		h mm	b mm	l mm	f mm	Tip
TCBNR/L 2525 M12	020	021		25	25	150	22	CNGX 1207...

19 664 TCKN 75° toolholder

Wodex®

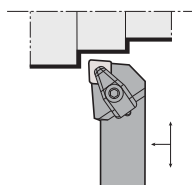
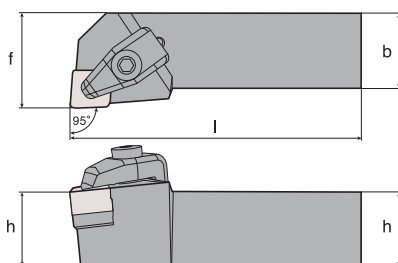


19 664...

Toolholder Type	19 664... right-hand	19 664... left-hand		h mm	b mm	l mm	f mm	Tip
TCKNR/L 2525 M12	020	021		25	25	150	32	CNGX 1207...

19 666 TCLN 95° toolholder

Wodex®



19 666...

Toolholder Type	19 666... right-hand	19 666... left-hand		h mm	b mm	l mm	f mm	Tip
TCLNR/L 2525 M12	020	021		25	25	150	32	CNGX 1207...
TCLNR/L 3225 P12	025	026		32	25	150	32	CNGX 1207...

19 668 CNGX ceramic tip

Wodex®

- Extremely tough grade with high wear resistance and thermal shock resistance
- for roughing and finishing of cast iron
- for wet and dry machining



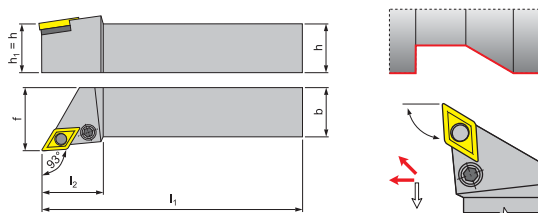
Type	19 668... WOK 3015	
CNGX 120712	063	
CNGX 120716	083	
P	-	-
M	-	-
K	250 - 1000	0.2 - 0.8
NE	-	-
H	-	-
S	-	-



19 210 PDJN 93° toolholder

for external machining, with lever lock "P"

Wodex®



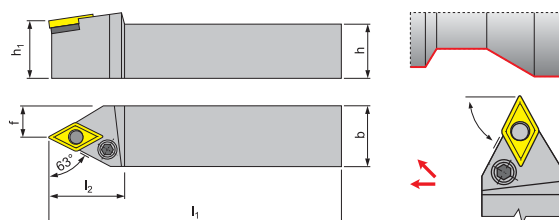
19 210 040

Toolholder Type	19 210... right-hand	19 210... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PDJN R/L 2020 K 11	010	011		20	20	125	28	25	DNMG 1104...
PDJN R/L 2525 M 11	015	016		25	25	150	28	30	DNMG 1104...
PDJN R/L 2020 K 15	020	021		20	20	125	35	25	DNMG 1506...
PDJN R/L 2525 M 15	025	026		25	25	150	35	32	DNMG 1506...
PDJN R/L 3225 P 15	030	031		32	32	170	35	32	DNMG 1506...
PDJN R/L 3232 P 15	035	036		32	32	170	35	40	DNMG 1506...
PDJN R/L 4025 R 15	040	041		40	25	200	35	32	DNMG 1506...

19 211 PDNNN 62° 30' toolholder

for external machining, with lever lock "P"

Wodex®



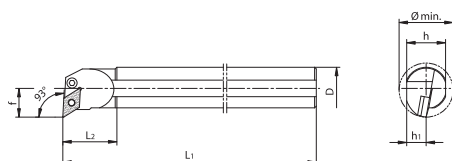
19 211 035

Toolholder Type	19 211...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PDNNN 2020 K 15	020		20	20	125	35	10.0	DNMG 1506...
PDNNN 2525 M 15	025		25	25	150	35	12.5	DNMG 1506...
PDNNN 3225 P 15	030		32	25	170	35	12.5	DNMG 1506...
PDNNN 3232 P 15	035		32	32	170	35	16.0	DNMG 1506...

19 267 PDUN 93° toolholder

for internal machining, with lever lock "P"

Wodex®



19 267 026

Toolholder Type	19 267... right-hand	19 267... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	Ø min. mm	Tip
S 25 T PDUN R/L 11	010	011		25	23	11.5	300	35	17	32	DNMG 1104...
S 32 U PDUN R/L 15	020	021		32	30	15.0	350	50	22	39	DNMG 1506...
S 40 V PDUN R/L 15	025	026		40	37	18.5	400	60	27	48	DNMG 1506...
S 50 W PDUN R/L 15	030	031		50	37	23.5	450	65	35	61	DNMG 1506...

on request with internal cooling

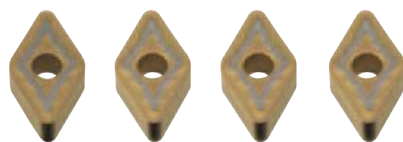
Accessories for 19 210..., 19 211..., 19 267...



For toolholder Type	Lever lock "P" 19 942...	Clamping screw 19 934...	Key 19 950...	Shim 19 944...	Wedge 19 947...	Mandrel 19 930...
PD 11	002	004	006	001	001	-
PD 15	018	010	002	002	003	-
SPD 11	002	004	006	001	001	001
SPD 15	018	011	002	002	003	001

19 367 DNMG - WM tip**Wodex®**medium machining
ap = 1.0 - 5.0 mm

Type	19 367... WOG 2315	19 367... WOG 2025	19 367... WOG 2435	
DNMG 110404 - WM	043	054	045	
DNMG 110408 - WM	063	074	065	
DNMG 150608 - WM	003	014	006	
DNMG 150612 - WM	023	034	026	
P	120 - 270	100 - 230	80 - 190	0.05 - 0.4
M	-	-	80 - 180	0.05 - 0.4
K	100 - 220	-	-	0.05 - 0.4
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 366 DNMG - DM tip**Wodex®**medium machining
ap = 0.8 - 4.5 mm

Type	19 366... WOG 2315	19 366... WOG 2025	19 366... WOG 2430	19 366... WOG 4235	
DNMG 110408 - DM	541	544	545	546	
DNMG 150608 - DM	561	564	565	566	
DNMG 150612 - DM	581	584	585	586	
DNMG 150616 - DM	601	604	-	606	
P	80 - 240	70 - 200	55 - 240	70 - 200	0.12 - 0.5
M	-	-	70 - 100	100 - 250	0.12 - 0.5
K	100 - 200	-	-	-	0.12 - 0.5
NE	-	-	-	-	-
H	-	-	-	-	-
S	-	-	-	-	-

19 371 DNMG - 909 tip**Wodex®**roughing, double-sided
ap = 2.0 - 5.0 mm

Type	19 371... WOG 2315	19 371... WOG 2025	
DNMG 150608 - 909	003	014	
DNMG 150612 - 909	023	034	

P	120 - 270	100 - 230	0.25 - 0.8
M	-	-	0.25 - 0.8
K	100 - 220	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

19 365 DNMG - EX tip**Wodex®**medium machining, easy cutting, for stainless steels
ap = 0.5 - 4.0 mm

Type	19 365... WOG 4240	
DNMG 110404 - EX	102	
DNMG 150604 - EX	122	
DNMG 150608 - EX	132	
DNMG 150612 - EX	142	
P	-	-
M	90 - 230	0.05 - 0.43
K	-	-
NE	-	-
H	-	-
S	-	-

19 368 DNMM - DR tip

roughing, single-sided
ap = 2.0 - 8.0 mm

Wodex®

Type	19 368... WOG 2315	19 368... WOG 2425	19 368... WOG 2435	
DNMM 150608 - DR DNMM 150612 - DR	203 -	204 214	- 216	
P	80 - 240	70 - 200	55 - 240	0.35 - 0.8
M	-	-	70 - 100	0.35 - 0.8
K	100 - 200	-	-	0.35 - 0.8
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 653 DNMG-CE tip**Wodex®**

- tough ceramic mix with high wear resistance
- Finishing to roughing of hardened steel and hard materials up to 62 HRC
- can be used for lost (incomplete) cut



Type	19 653... WOG 2310	
DNMG 150608 CE	103	
P	-	-
M	-	-
K	-	-
NE	-	-
H	80 - 200	0.1 - 0.2
S	-	-

19 375 DNMG-3J tip

ap = 1.0 - 2.5 mm

STELLRAM

Type	19 375... NL40		19 375... SP3036	
DNMG150604E-3J DNMG150608E-3J	016 026		015 025	
P	40 - 360	-	60 - 430	0.14 - 0.4
M	50 - 245	-	75 - 290	0.14 - 0.4
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 376 DNMG-SI tip

with SI chip breaker

Wodex®

Type	19 376... right-hand WOG 4230	19 376... left-hand WOG 4230	
DNMG 150604ER/L-SI DNMG 150608ER/L-SI	003 007	005 009	
P	90 - 280	90 - 280	0.05 - 0.3
M	80 - 180	80 - 180	0.05 - 0.3
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

19 660 DNGA ceramic tip

- tough ceramic mix with high wear resistance
- Finishing to roughing of hardened steel and hard materials up to 62 HRC
- can be used for lost (incomplete) cut

Wodex®

Type	19 660... WOK 2310	
DNGA 150604 DNGA 150608	123 143	
P	-	-
M	-	-
K	300 - 800	0.1 - 0.5
NE	-	-
H	50 - 200	0.1 - 0.25
S	-	-

19 652 DNMA CBN tip

- for finishing and roughing hardened steels (from 45 HRC)
- can be used for lost (incomplete) cut

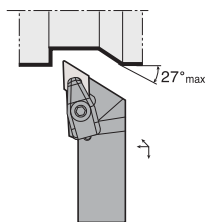
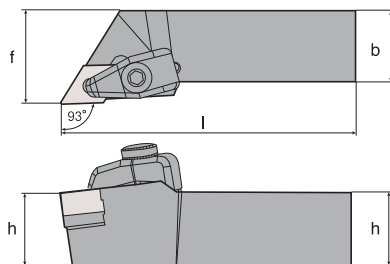
Wodex®

Type	19 652... SKL 2.5 mm		19 652... SKL 4 mm	
DNMA 150604 DNMA 150608	003 004		001 002	
P	-	-	-	-
M	-	-	-	-
K	-	-	-	-
NE	-	-	-	-
H	80 - 200	-	80 - 200	0.1 - 0.2
S	-	-	-	-



19 670 TDJN 93° toolholder

Wodex®



19 670...

Toolholder Type	19 670... right-hand	19 670... left-hand		h mm	b mm	l mm	f mm	Tip
TDJNR/L 2525 M15	020	021		25	25	150	32	DNGX 1507...
TDJNR/L 3225 M15	025	026		32	25	150	32	DNGX 1507...
TDJNR/L 3232 P15	030	031		32	32	150	39	DNGX 1507...

19 672 DNGX/DNGN ceramic tip

Wodex®

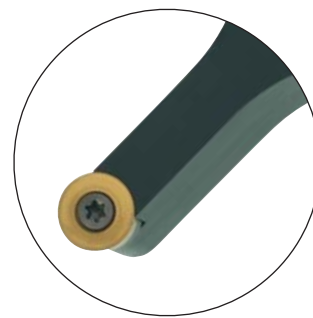
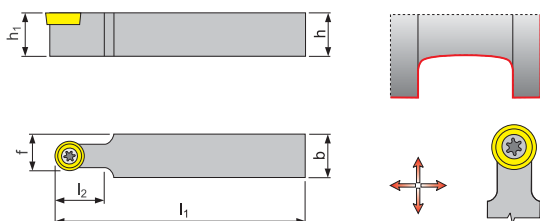
- Extremely tough grade with high wear resistance and thermal shock resistance
- for roughing and finishing of cast iron
- for wet and dry machining



Type	19 672... WOK 3015	
DNGX 150712	063	
DNGX 150716	083	
DNGN 150712	103	
P	-	-
M	-	-
K	250 - 1000	0.2 - 0.8
NE	-	-
H	-	-
S	-	-

19 242 SRDC toolholder**Wodex®**

For external machining, with clamping screw "S"



19 242 030

Toolholder Type	19 242...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SRDCN 2020 K 10	020		20	20	125	22	10.0	RCMT 10T3...
SRDCN 2525 M 10	025		25	25	150	22	12.5	RCMT 10T3...
SRDCN 2525 M 12	030		25	25	150	28	12.5	RCMT 1204...

Accessories for 19 242...

For toolholder Type	Shim 19 945...	Clamping screw "S" 19 931...	Key 19 951...	Threaded shim pin 19 947...
SR 10	101	105	103	101
SR 12	102	105	103	101

19 450 RCMT tip**Wodex®**

for S clamping system

ap = 0.25 - 3.0 mm

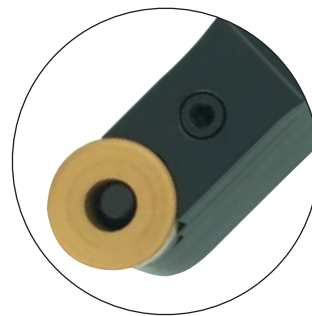
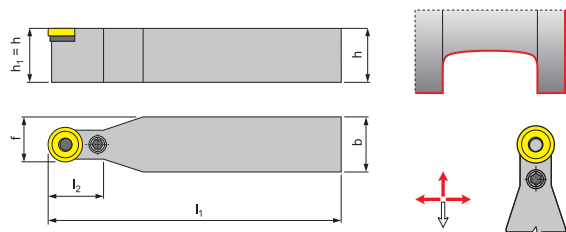


Type	19 450... WOG 2415	19 450... WOG 2025	
RCMT 0602M0 S-70	001	004	
RCMT 10T3M0 S-69	041	044	
RCMT 1204M0 S-66	061	064	
P	50 - 180	60 - 210	0.05 - 0.38
M	80 - 140	-	0.05 - 0.38
K	-	-	-
NE	-	-	-
H	-	-	-
S			



19 217 PRDC toolholder

for external machining, with lever lock "P"

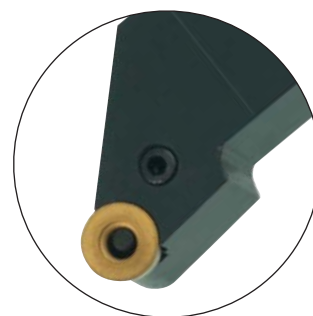
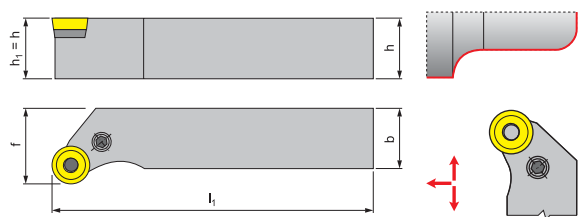
Wodex®

19 217 036

Toolholder Type	19 217...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PRDCN 2525 M 12	025		25	25	150	28	18.5	RCMX 1204...
PRDCN 3225 P 12	026		32	25	170	28	18.5	RCMX 1204...
PRDCN 3225 P 16	031		32	25	170	34	20.5	RCMX 1606...
PRDCN 3225 P 20	036		32	32	170	42	26.0	RCMX 2006...

19 218 PRSC toolholder

for external machining, with lever lock "P"

Wodex®

19 218 035

Toolholder Type	19 218... right-hand	19 218... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PRSC R/L 2020 K 12	030	031		20	20	125	28	25	RCMX 1204...
PRSC R/L 2525 M 12	035	036		25	25	150	28	32	RCMX 1204...

Accessories for 19 217..., 19 218...

For toolholder type	Lever lock "P" 19 942...	Clamping screw 19 934...	Key 19 950...	Shim 19 945...	Wedge 19 947...	Mandrel 19 930...
PR 12	009	004	006	002	002	001
PR 16	010	013	006	003	005	002
PR 20	011	014	002	004	004	003

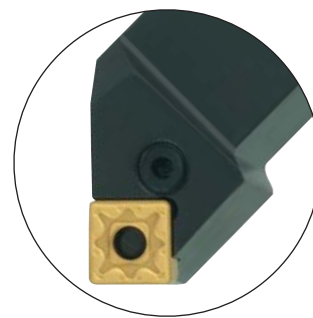
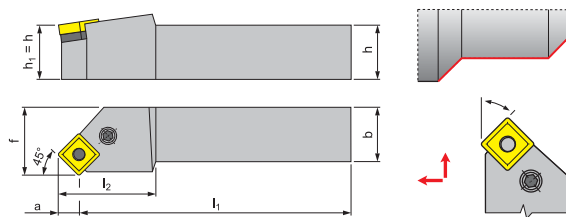
19 379 RCMX tipfor P clamping system
ap = 1.0 - 5.0 mm**Wodex®**

Type	19 379... WOG 2025	19 379... WOG 2430	
RCMX 1204MOT-32	024	025	
RCMX 1606MOT-33	044	045	
RCMX 2006MOT-34	064	065	
P	60 - 210	80 - 180	0.12 - 0.35
M	-	60 - 200	0.12 - 0.35
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

19 227 PSSN 45° toolholder

for external machining, with lever lock "P"

Wodex®



19 227 035

Toolholder Type	19 227... right-hand	19 227... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PSSN R/L 1616 H 09	020	021		16	16	100	22	20	SNMG 0903...
PSSN R/L 2020 K 12	030	031		20	20	125	28	25	SNMG 1204...
PSSN R/L 2525 M 12	035	036		25	25	150	28	32	SNMG 1204...

Accessories



For toolholder Type	Lever lock "P" 19 942...	Clamping screw 19 934...	Key 19 950...	Shim 19 943...	Wedge 19 947...	Mandrel 19 930...
PS 09	002	004	006	001	002	001
PS 12	003	005	002	002	003	002

19 385 SNMG-WM tip

Wodex®

medium machining
ap = 1.0 - 5.0 mm



Type	19 385... WOG 2025	19 385... WOG 2435	
SNMG 120404 - WM	014	006	
SNMG 120408 - WM	034	026	
SNMG 120412 - WM	054	046	
P	100 - 230	80 - 190	0.05 - 0.4
M	-	80 - 180	0.05 - 0.4
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

19 389 SNMG - EX tip

Wodex®

medium machining, easy cutting,
for stainless steels
ap = 0.5 - 4.0 mm



Type	19 389... WOG 4240	
SNMG 090304 - EX	102	

P	-	-
M	90 - 230	0.05 - 0.43
K	-	-
NE	-	-
H	-	-
S	-	-

19 386 SNMM - DR tip

Wodex®

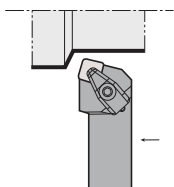
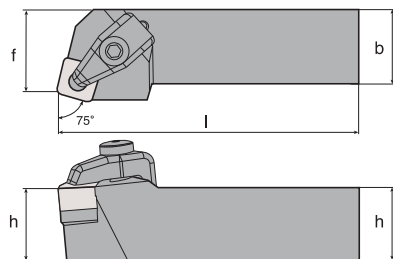
roughing, single-sided
ap = 2.0 - 8.0 mm



Type	19 386... WOG 2315	19 386... WOG 2425	19 386... WOG 2435	
SNMM 120408 - DR	203	204	206	
SNMM 120412 - DR	223	214	216	
SNMM 150612 - DR	243	224	226	
SNMM 190612 - DR	263	234	236	
SNMM 190616 - DR	283	244	246	
SNMM 190624 - DR	-	264	256	
P	80 - 240	70 - 200	55 - 240	0.35 - 0.8
M	-	-	70 - 100	0.35 - 0.8
K	100 - 200	-	-	0.35 - 0.8
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 674 TSRN 75° toolholder

Wodex®

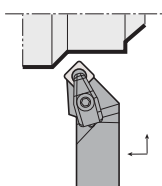
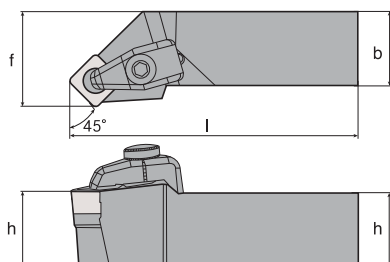


19 674...

Toolholder Type	19 674... right-hand	19 674... left-hand		h mm	b mm	l mm	f mm	Tip
TSRNR/L 2525 M12	020	021		25	25	150	27	SNGX 1207...

19 676 TSSN 45° toolholder

Wodex®



19 676...

Toolholder Type	19 676... right-hand	19 676... left-hand		h mm	b mm	l mm	f mm	Tip
TSSNR/L 2525 M12	020	021		25	25	150	32	SNGX 1207...
TSSNR/L 3225 P15	025	026		32	25	150	32	SNGX 1207...
TSSNR/L 3232 P12	030	031		32	32	150	39	SNGX 1207...

19 678 SNGX ceramic tip

Wodex®

- Extremely tough grade with high wear resistance and thermal shock resistance
- for roughing and finishing of cast iron
- for wet and dry machining

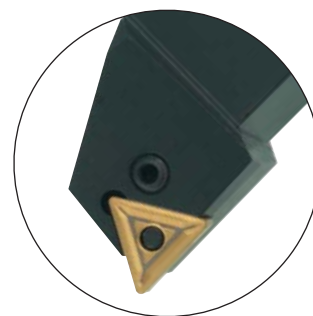
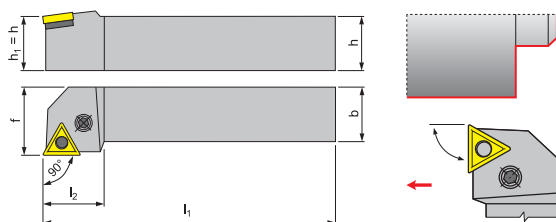


Type	19 678... WOK 3015	
SNGX 120712	063	
SNGX 120716	083	
P	-	-
M	-	-
K	250 - 1000	0.2 - 0.8
NE	-	-
H	-	-
S		

19 230 PTGN 90° toolholder

for external machining, with lever lock "P"

Wodex®



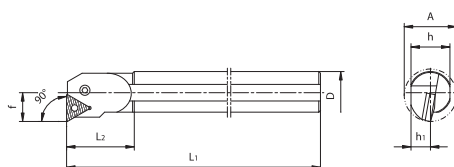
19 230 030

Toolholder Type	19 230... right-hand	19 230... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PTGN R/L 1616 H 16	020	021		16	16	100	22	20	TNMG 1604...
PTGN R/L 2020 K 16	025	026		20	20	125	22	25	TNMG 1604...
PTGN R/L 2525 M 16	030	031		25	25	150	22	32	TNMG 1604...

19 272 PTFN 90° toolholder

for internal machining, with lever lock "P"

Wodex®



19 272 020

Toolholder Type	19 272... right-hand	19 272... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	A mm	Tip
S 25 T PTFN R/L 16*	020	021		25	23	11.5	300	40	17	31	TNMG 1604...

* = toolholder without shim

Accessories for 19 230..., 19 272...



For toolholder Type	Lever lock "P" 19 942...	Clamping screw 19 934...	Key 19 950...	Shim 19 941...	Wedge 19 947...	Mandrel 19 930...
PT 16	002	004	006	001	001	001
SPT 16	015	003	001	-	-	-

19 400 TNMG - DM tip

Wodex®

medium machining
ap = 0.8 - 4.5 mm



Type	19 400... WOG 2315	19 400... WOG 2025	19 400... WOG 2430	19 400... WOG 4230	
TNMG 160408 - DM	101	104	105	106	
TNMG 160412 - DM	121	124	125	126	
TNMG 220408 - DM	141	144	-	146	
TNMG 220412 - DM	-	-	-	166	
P	80 - 240	70 - 200	55 - 240	70 - 200	0.12 - 0.5
M	-	-	70 - 100	100 - 250	0.12 - 0.5
K	100 - 220	-	-	-	0.12 - 0.5
NE	-	-	-	-	-
H	-	-	-	-	-
S	-	-	-	-	-



19 405 TNMG - EX tip

medium machining, easy cutting,
for stainless steels
ap = 0.5 - 4,0 mm

Wodex®



Type	19 405... WOG 4240	
TNMG 160404 - EX	102	
TNMG 160408 - EX	122	

P	-	-
M	90 - 230	0.05 - 0.43
K	-	-
NE	-	-
H	-	-
S		

19 402 TNMM - DR tip

roughing, single-sided
ap = 2,0 - 8,0 mm

Wodex®



Type	19 402... WOG 2315	19 402... WOG 2425	19 402... WOG 2435	
TNMM 160408 - DR	203	204	206	
TNMM 160412 - DR	223	214	216	
TNMM 220408 - DR	243	224	226	
TNMM 220412 - DR	263	234	236	

P	80 - 240	70 - 200	55 - 240	0.35 - 0.8
M	-	-	70 - 100	0.35 - 0.8
K	100 - 200	-	-	0.35 - 0.8
NE	-	-	-	-
H	-	-	-	-
S				

19 406 TNMG-SI tip

with SI chip breaker

Wodex®

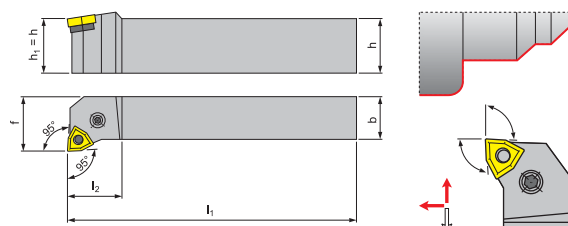


Type	19 406... right-hand WOG 4230	19406... left-hand WOG 4230	
TNMG 160404ER/L-SI	003	005	
TNMG 160408ER/L-SI	007	009	
P	90 - 280	90 - 280	0.05 - 0.3
M	80 - 180	80 - 180	0.05 - 0.3
K			
NE			
H			
S			

19 234 PWLN 95° toolholder

for external machining, with lever lock "P"

Wodex®



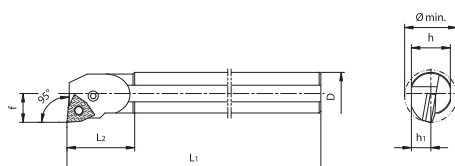
19 234 025

Toolholder Type	19 234... right-hand	19 234... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
PWLN R/L 1616 H 06	010	011		16	16	100	15	25	WNMG 0604...
PWLN R/L 2020 K 08	020	021		20	20	125	34	25	WNMG 0804...
PWLN R/L 2525 M 08	025	026		25	25	150	34	32	WNMG 0804...

19 273 PWLN 95° toolholder

for internal machining, with lever lock "P"

Wodex®



19 273 030

Toolholder Type	19 273... right-hand	19 273... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	Ø min. mm	Tip
S 16 R PWLN R/L 06*	005	006		16	14	7.5	200	24	11	20	WNMG 0604...
S 20 S PWLN R/L 06	010	011		20	18	9.0	250	36	13	27	WNMG 0604...
S 25 T PWLN R/L 06*	015	016		25	23	11.5	300	40	17	31	WNMG 0604...
S 25 T PWLN R/L 08*	020	021		25	23	11.5	300	40	17	31	WNMG 0804...
S 32 U PWLN R/L 08	025	026		32	30	15.0	350	50	22	39	WNMG 0804...
S 40 V PWLN R/L 08	030	031		40	37	18.5	400	60	27	48	WNMG 0804...

* = toolholder without shim

Accessories for 19 234..., 19 273...



For toolholder Type	Lever lock "P" 19 942...	Clamping screw 19 934...	Key 19 950...	Shim 19 954...	Wedge 19 947...	Mandrel 19 930...
PW 06	002	004	006	003	001	001
PW 08	003	005	002	004	003	002
SPW 06	015	003	001	-	-	-
S 25 PW 06	002	004	006	003	001	001
S 25 SPW 08	017	011	006	-	-	-
S 32/40 SPW 08	003	005	002	004	003	002

19 417 WNMG - WM tip

Wodex®

medium machining
ap = 1,0 - 5,0 mm



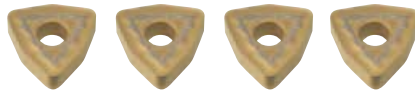
Type	19 417... WOG 2315	19 417... WOG 2025	19 417... WOG 2435	
WNMG 060404 - WM	-	004	-	
WNMG 060408 - WM	-	014	-	
WNMG 080404 - WM	-	024	016	
WNMG 080408 - WM	023	034	026	
P	120 - 270	100 - 230	80 - 190	0.25 - 0.8
M	-	-	80 - 180	0.25 - 0.8
K	100 - 220	-	-	0.25 - 0.8
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-



19 417 WNMG - DM tip

medium machining
ap = 0.8 - 4.5 mm

Wodex



Type	19 417... WOG 2315	19 417... WOG 2025	19 417... WOG 2430	19 417... WOG 4230	
WNMG 060408 - DM	513	514	506	512	
WNMG 060412 - DM	503	504	505	-	
WNMG 080408 - DM	523	534	526	532	
WNMG 080412 - DM	543	554	546	552	
WNMG 080416 - DM	563	574	566	572	
P	80 - 240	70 - 200	55 - 240	70 - 200	0.12 - 0.5
M	-	-	70 - 100	100 - 250	0.12 - 0.5
K	100 - 200	-	-	-	0.12 - 0.5
NE	-	-	-	-	-
H	-	-	-	-	-
S	-	-	-	-	-

19 419 WNMG - EX tip

medium machining, easy cutting, for stainless steels

Wodex



Type	19 419... WOG 4240	
WNMG 060404 - EX	102	
WNMG 080404 - EX	122	
WNMG 080408 - EX	132	
P	-	-
M	90 - 230	0.05 - 0.43
K	-	-
NE	-	-
H	-	-
S	-	-

19 420 WNMG - SI tip

with SI chip breaker

Wodex



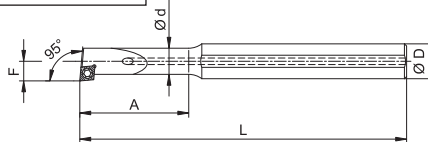
Type	19 420... right-hand WOG 4230	19 420... left-hand WOG 4230	
WNMG 080408ER/L-SI	003	005	

P	90 - 280	90 - 280	0.05 - 0.3
M	80 - 180	80 - 180	0.05 - 0.3
K			
NE			
H			
S			

19 235 A-SCLC-95° boring bar set

Wodex

Set	19 235... right-hand	19 235... left-hand		Tip
A-SCLCR/L 06	020	021		CC.T 0602...



Contents:

Toolholder Type	D mm	d mm	L mm	F mm	B mm	A mm	Y°	SW mm
A 0608H SCLCR/L 06	8	6	100	4	8	25	18	7
A 08010J SCLCR/L 06	10	8	110	6	12	32	15	9
A 1012K SCLCR/L 06	12	10	125	7	14	38	13	11
A 1216M SCLCR/L 06	16	12	150	9	18	50	10	15



19 235...

Accessories for 19 235...



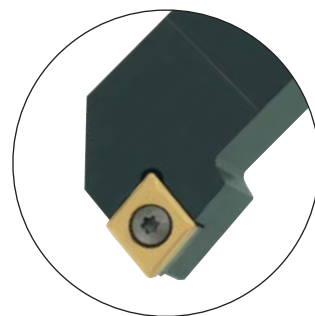
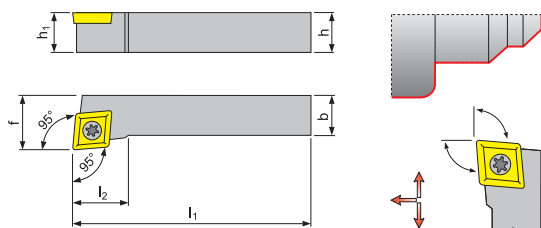
Clamping screw "S"	Key
19 235...	19 235...
810	910



19 236 SCLC 95° toolholder

for external machining, with clamping screw "S"

Wodex®



19 236 045

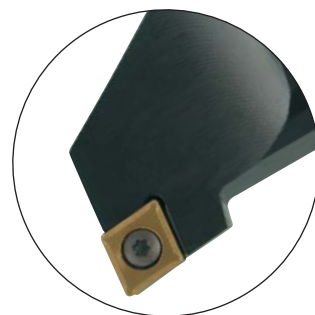
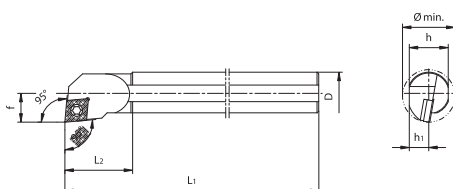
Toolholder Type	19 236... right-hand	19 236... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SCLC R/L 0808 D 06*	020	021		8	8	60	10	10	CCMT 0602...
SCLC R/L 1010 E 06*	025	026		10	10	70	10	12	CCMT 0602...
SCLC R/L 1212 F 09*	030	031		12	12	80	16	16	CCMT 09T3...
SCLC R/L 1616 H 09*	035	036		16	16	100	16	20	CCMT 09T3...
SCLC R/L 2020 K 12	040	041		20	20	125	25	25	CCMT 1204...
SCLC R/L 2525 M 12	045	046		25	25	150	25	32	CCMT 1204...

* = toolholder without shim

19 275 SCLC 95° toolholder

for internal machining, with clamping screw "S"

Wodex®



19 275 055

Toolholder Type	19 275... right-hand	19 275... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	Ø min. mm	Tip
S 08 K SCLC R/L 06*	020	021		8	7	3.5	125	16	5	11	CCMT 0602...
S 10 M SCLC R/L 06*	025	026		10	9	4.5	150	25	7	13	CCMT 0602...
S 12 M SCLC R/L 06*	030	031		12	11	5.5	150	25	9	16	CCMT 0602...
S 16 R SCLC R/L 09*	035	036		16	15	7.5	200	30	11	20	CCMT 09T3...
S 20 S SCLC R/L 09*	040	041		20	18	9.0	250	35	13	24	CCMT 09T3...
S 25 T SCLC R/L 09*	045	046		25	23	11.5	300	40	17	31	CCMT 09T3...
S 20 S SCLC R/L 12*	050	051		20	18	9.0	250	35	13	24	CCMT 1204...
S 25 T SCLC R/L 12*	055	056		25	23	11.5	300	40	17	31	CCMT 1204...
S 32 U SCLC R/L 12	060	061		32	30	15.0	350	50	22	39	CCMT 1204...
S 40 V SCLC R/L 12	065	066		40	37	18.5	400	60	27	48	CCMT 1204...

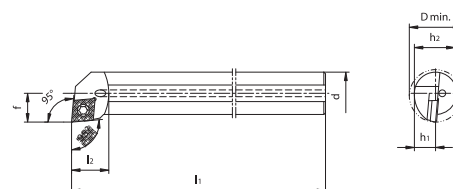
* = Toolholder without shim / on request with internal cooling / on request made of solid carbide

19 275 SCLC 95° boring bars

for internal machining, steel shank with internal coolant supply

Wodex®

with internal cooling



19 275 125

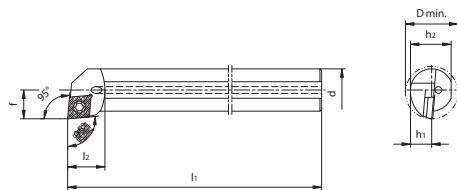
Boring bars Type	19 275... right-hand	19 275... left-hand		d mm	f mm	l ₁ mm	l ₂ mm	h ₁ mm	h ₂ mm	D min. mm	Tip
A 08F SCLC R/L 06	100	101		8	5	80	-	4.0	7.5	11.0	CCMT 0602...
A 10H SCLC R/L 06	105	106		10	7	100	10	5.0	9.5	13.0	CCMT 0602...
A 12K SCLC R/L 06	110	111		12	9	125	10	6.0	11.5	16.0	CCMT 0602...
A 16M SCLC R/L 09	115	116		16	11	150	16	8.0	15.5	20.0	CCMT 09T3...
A 20Q SCLC R/L 09	120	121		20	13	180	16	10.0	19.0	25.0	CCMT 09T3...
A 25R SCLC R/L 09	125	126		25	17	200	16	12.5	24.0	31.5	CCMT 09T3...
A 32S SCLC R/L 12	130	131		32	22	250	22	16.0	31.0	40.0	CCMT 1204...
A 40T SCLC R/L 12	135	136		40	27	300	22	20.0	38.5	49.0	CCMT 1204...

19 275 SCLC 95° boring bars

Wodex®

for internal machining, solid carbide shank with internal coolant supply

low vibration, with
internal cooling



19 275 225

Boring bars Type	19 275... right-hand	19 275... left-hand		d mm	f mm	l1 mm	l2 mm	h1 mm	h2 mm	D min. mm	Tip
E 08H SCLC R/L 06	200	201		8	5	100	-	4.0	7.5	11.00	CCMT 0602...
E 10K SCLC R/L 06	205	206		10	7	125	10	5.0	9.5	14.0	CCMT 0602...
E 12Q SCLC R/L 06	210	211		12	9	180	10	6.0	11.5	17.0	CCMT 0602...
E 16R SCLC R/L 09	215	216		16	11	200	16	8.0	15.5	21.0	CCMT 09T3...
E 20S SCLC R/L 09	220	221		20	13	250	16	10.0	19.0	25.0	CCMT 09T3...
E 25T SCLC R/L 09	225	226		25	17	300	16	12.5	24.0	31.5	CCMT 09T3...
E 32U SCLC R/L 12	230	231		32	22	350	22	16.0	31.0	40.0	CCMT 1204...

Accessories for 19 236..., 19 275...



For toolholder Type	Clamping screw "S" 19 931...	Key 19 951...	Shim 19 943...	Threaded shim pin 19 947...
SC 06	002	002	-	-
SC 09	003	003	-	-
SC 12	101	104	106	102
SSC 09	008	003	-	-
SSC 12	004	004	-	-
S 32 / 40 SC 12	101	104	106	102

19 439 CCMT - WM tip

medium machining
ap = 1.0 - 4.0 mm

Wodex®



19 438 CCMW tip

Cast iron machining
ap = 0.5 - 4.0 mm

Wodex®



Type	19 439... WOG 2025	19 439... WOG 2435	19 439... WOG 4240	
CCMT 060204 - WM	004	-	008	
CCMT 060208 - WM	024	-	028	
CCMT 09T304 - WM	044	046	048	
CCMT 09T308 - WM	064	066	068	
CCMT 120404 - WM	084	-	088	
CCMT 120408 - WM	104	106	108	
CCMT 120412 - WM	124	-	128	
P	120 - 270	80 - 190	60 - 150	0.15 - 0.4
M	-	80 - 180	80 - 180	0.15 - 0.4
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

Type	19 438... WOG 3010	
CCMW 09T308	062	
CCMW 120408	102	

P	-	-
M	-	-
K	90 - 200	0.12 - 0.35
NE	-	-
H	-	-
S	-	-

"Turning" / "Parting" / "Milling"



19 441 CCMT - UM tipfinishing
ap = 0.5 - 3.0 mm**Wodex®**

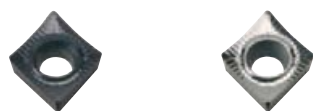
Type	19 441... WOG 2415	19 441... WOG 2425	19 441... WOG 2430	
CCMT 060202E - UM	203	-	205	
CCMT 060204E - UM	223	224	225	
CCMT 09T304E - UM	243	244	245	
CCMT 09T308E - UM	263	264	265	
CCMT 120404E - UM	-	284	285	
CCMT 120408E - UM	-	304	305	

P	80 - 230	90 - 280	120 - 260	0.05 - 0.3
M	60 - 190	100 - 210	75 - 160	0.05 - 0.3
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 441 CCMT - UR tipmedium roughing
ap = 1.0 - 4.0 mm**Wodex®**

Type	19 441... WOG 2425	19 441... WOG 2430	
CCMT 060202E - UR	404	405	
CCMT 060204E - UR	424	425	
CCMT 060208E - UR	444	443	
CCMT 09T304E - UR	464	465	
CCMT 09T308E - UR	484	-	
CCMT 120404E - UR	504	-	
CCMT 120408E - UR	524	-	

P	90 - 280	120 - 260	0.1 - 0.5
M	100 - 210	75 - 160	0.1 - 0.5
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

19 600 CCGT - WAL tipfor aluminium machining
ap = 0.25 - 6.0 mm**Wodex®**

Type	19 600... WOV 3210		19 600... WOU 3010	
CCGT 060202 - WAL	005		001	
CCGT 060204 - WAL	025		021	
CCGT 09T302 - WAL	045		041	
CCGT 09T304 - WAL	065		061	
CCGT 09T308 - WAL	085		081	
CCGT 120404 - WAL	125		121	
CCGT 120408 - WAL	145		141	

P	80 - 220	-	-	0.08 - 0.4
M	-	-	-	-
K	-	-	-	-
NE	150 - 2400	-	150 - 2000	0.08 - 0.4
H	-	-	-	-
S	-	-	-	-

19 650 CCGW CBN tip

- for finishing and roughing hardened steels (from 45 HRC)
- can be used for lost (incomplete) cut

Wodex®

Type	19 650... SKL 2.5 mm	
CCGW 060204	110	
CCGW 09T304	150	
CCGW 09T308	170	

P	-	-
M	-	-
K	-	-
NE	-	-
H	80 - 200	0.1 - 0.2
S	-	-

19 661 CCGT-SI tip

with SI chip breaker

Wodex®

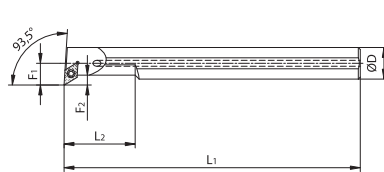
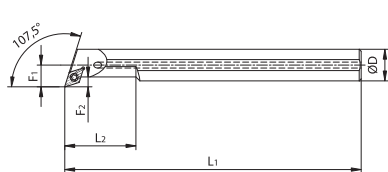
Type	19 661... right-hand WOG 4230	19 661... left-hand WOG 4230	
CCGT 060204ER/L-SI	003	005	
CCGT 09T304ER/L-SI	007	009	
CCGT 120408ER/L-SI	011	013	
P	90 - 280	90 - 280	0.05 - 0.3
M	80 - 180	80 - 180	0.05 - 0.3
K			
NE			
H			
S			

19 237 Boring bar set

A-SDQC-107° / A-SDUC-93°

Wodex®

Set	19 237... right-hand	19 237... left-hand		Tip
A-SDUCR/L 07	020	021		DC.T 0702...
A-SDQCR/L 07	030	031		DC.T 0702...



Contents:

Toolholder Type	D mm	L ₁ mm	L ₂ mm	F ₁ mm	F ₂ mm	D _{min} mm	Y°	H mm
A 0810H SDUCR/L 07 / A 0810H SDQCR/L 07	10	100	22	7	5	12.5	15	9
A 1012K SDUCR/L 07 / A 1012K SDQCR/L 07	12	125	28	9	5	15.5	13	11
A 1216M SDUCR/L 07 / A 1216M SDQCR/L 07	16	150	36	11	5	19.5	10	15

19 237...

Accessories for 19 237...

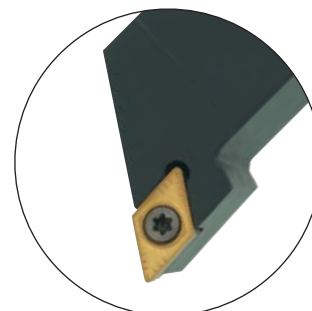
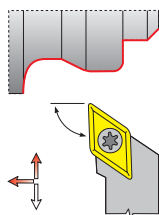
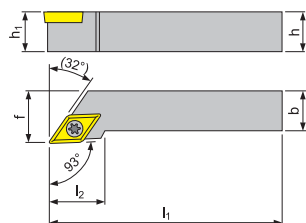


Clamping screw "S"	Key
19 237...	19 237...
810	910

19 238 SDJC 93° toolholder

for external machining, with clamping screw "S"

Wodex®



19 238 045

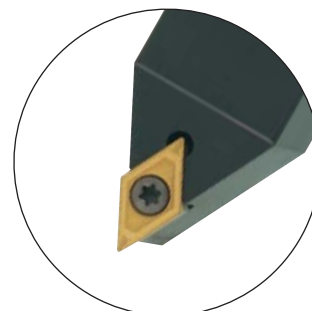
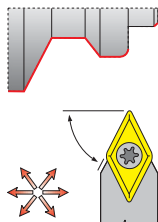
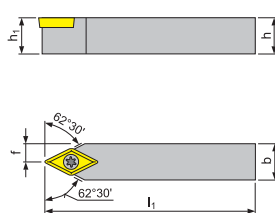
Toolholder Type	19 238... right-hand	19 238... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SDJC R/L 1010 E 07*	020	021		10	10	70	16	12	DC.. 0702...
SDJC R/L 1212 F 07*	025	026		12	12	80	18	16	DC.. 0702...
SDJC R/L 1212 F 11*	030	031		12	12	80	18	16	DC.. 11T3...
SDJC R/L 1616 H 11	035	036		16	16	100	22	20	DC.. 11T3...
SDJC R/L 2020 K 11	040	041		20	20	125	22	25	DC.. 11T3...
SDJC R/L 2525 M 11	045	046		25	25	150	22	32	DC.. 11T3...

* = toolholder without shim

19 240 SDNC 62° 30° toolholder

for external machining, with clamping screw "S"

Wodex®



19 240 030

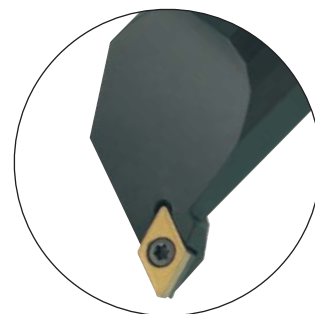
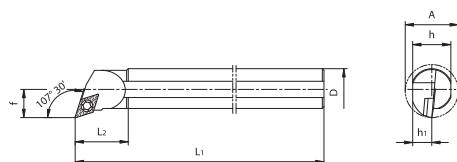
Toolholder Type	19 240...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SDNCN 1010 E 07	010		10	10	70	16	5.0	DC.. 0702...
SDNCN 1212 F 07	015		12	12	80	18	6.0	DC.. 0702...
SDNCN 1616 H 11	020		16	16	100	22	8.0	DC.. 11T3...
SDNCN 2020 K 11	025		20	20	125	22	10.0	DC.. 11T3...
SDNCN 2525 M 11	030		25	25	150	22	12.5	DC.. 11T3...



19 279 SDQC 107° 30' toolholder

for internal machining, with clamping screw "S"

Wodex®



19 279 050

Toolholder Type	19 279... right-hand	19 279... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	A mm	Tip
S 10 M SDQC R/L 07*	020	021		10	9	4.5	150	25	7	13	DC.. 0702...
S 12 M SDQC R/L 07*	025	026		12	11	5.5	150	25	9	16	DC.. 0702...
S 16 R SDQC R/L 07*	030	031		16	15	7.5	200	30	11	20	DC.. 0702...
S 20 S SDQC R/L 07*	035	036		20	18	9.0	250	35	13	24	DC.. 0702...
S 25 T SDQC R/L 11*	040	041		25	23	11.5	300	40	13	31	DC.. 11T3...
S 32 U SDQC R/L 11	045	045		32	30	15.0	350	50	17	39	DC.. 11T3...
S 40 V SDQC R/L 11	050	051		40	37	18.5	400	60	22	48	DC.. 11T3...

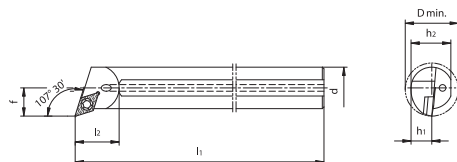
* = Toolholder without shim / on request with internal cooling / on request made of solid carbide

19 279 SDQC 107° 30' boring bars

Wodex®

for internal machining, steel shank with internal coolant supply

with internal cooling



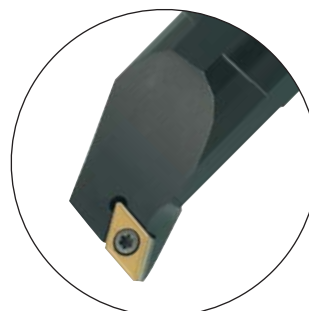
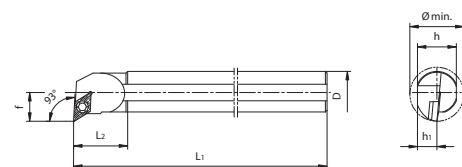
19 279 110

Boring bars Type	19 279... right-hand	19 279... left-hand		d mm	f mm	l ₁ mm	l ₂ mm	h ₁ mm	h ₂ mm	D min. mm	Tip
A 12K SDQC R/L 07	100	101		12	9	125	12.5	6.0	11.5	17.0	DC.. 0702...
A 16 M SDQC R/L 07	105	106		16	11	150	16.5	8.0	15.5	21.0	DC.. 0702...
A 20Q SDQC R/L 11	110	111		20	13	180	20.5	10.0	19.0	25.0	DC.. 11T3...
A 25R SDQC R/L 11	115	116		25	17	200	26.5	12.5	24.0	31.5	DC.. 11T3...
A 32S SDQC R/L 11	120	121		32	22	250	33.5	16.0	31.0	40.0	DC.. 11T3...
A 40T SDQC R/L 11	125	126		40	27	300	41.5	20.0	38.5	49.0	DC.. 11T3...

19 280 SDUC 93 toolholder

Wodex®

for internal machining, with clamping screw "S"



19 280 050

Toolholder Type	19 280... right-hand	19 280... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	Ø min. mm	Tip
S 10 M SDUC R/L 07*	020	021		10	9	4.5	150	25	7	13	DC.. 0702...
S 12 M SDUC R/L 07*	025	026		12	11	5.5	150	25	9	16	DC.. 0702...
S 16 R SDUC R/L 07*	030	031		16	15	7.5	200	30	11	20	DC.. 0702...
S 20 S SDUC R/L 07*	035	036		20	18	9.0	250	35	13	24	DC.. 0702...
S 20 S SDUC R/L 11*	040	041		20	18	9.0	250	35	13	24	DC.. 11T3...
S 25 T SDUC R/L 11*	045	046		25	30	11.5	300	40	17	31	DC.. 11T3...
S 32 U SDUC R/L 11	050	051		32	37	15.0	350	50	22	39	DC.. 11T3...

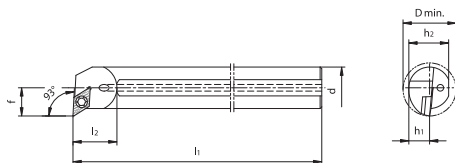
* = Toolholder without shim / on request with internal cooling

19 280 SDUC 93 boring bars

Wodex®

for internal machining, steel shank with internal coolant supply

with internal cooling



19 280 120

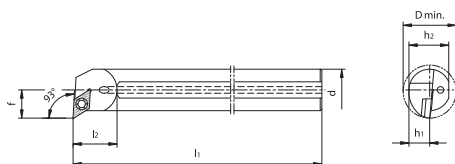
Boring bars Type	19 280... right-hand	19 280... left-hand		d mm	f mm	l ₁ mm	l ₂ mm	h ₁ mm	h ₂ mm	D min. mm	Tip
A 12K SDUC R/L 07	105	106		12	9	125	12.5	6.0	11.5	17.0	DC.. 0702...
A 16M SDUC R/L 07	110	111		16	11	150	16.5	8.0	15.5	21.0	DC.. 0702...
A 20Q SDUC R/L 11	120	121		20	13	180	21.5	10.0	19.0	25.0	DC.. 11T3...
A 25R SDUC R/L 11	125	126		25	17	200	26.0	12.5	24.0	31.5	DC.. 11T3...
A 32S SDUC R/L 11	130	131		32	22	250	50.0	16.0	31.0	40.0	DC.. 11T3...
A 40T SDUC R/L 11	135	136		40	27	300	33.0	20.0	38.5	49.0	DC.. 11T3...

19 280 SDUC 93 boring bars

Wodex®

for internal machining, solid carbide shank with internal coolant supply

low vibration,
with internal cooling



19 280 215

Boring bars Type	19 280... right-hand	19 280... left-hand		d mm	f mm	l ₁ mm	l ₂ mm	h ₁ mm	h ₂ mm	D min. mm	Tip
E 10K SDUC R/L 07	200	201		10	7	125	10.0	5.0	9.5	14.0	DC.. 0702...
E 12Q SDUC R/L 07	205	206		12	9	180	12.5	6.0	11.5	17.0	DC.. 0702...
E 16R SDUC R/L 07	210	211		16	11	200	16.5	8.0	15.5	21.0	DC.. 0702...
E 20S SDUC R/L 11	215	216		20	13	250	20.5	10.0	19.0	25.0	DC.. 11T3...
E 25T SDUC R/L 11	220	221		25	17	300	26.0	12.5	24.0	31.5	DC.. 11T3...

Accessories



For toolholder Type	Clamping screw "S" 19 931...	Key 19 951...	Shim 19 944...	Threaded shim pin 19 947...
SD 07	002	002	-	-
S 20/25	003	003	-	-
SD 11	105	103	-	-
S 32/40 SD 11	105	103	101	101

19 443 DCMT - WM tip

Wodex®

medium machining
ap = 1.0 - 4.0 mm



Type	19 443... WOG 2025	19 443... WOG 2435	19 443... WOG 4240	
DCMT 070204 - WM	004	006	008	
DCMT 11T304 - WM	064	066	068	
DCMT 11T308 - WM	084	086	088	
P	120 - 270	80 - 190	60 - 150	0.15 - 0.4
M	-	80 - 180	80 - 180	0.15 - 0.4
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S				

"Turning" / "Parting" / "Milling"



"TOOLS"

ibemo Kazakhstan - 090301 Republic of Kazakhstan, West Kazakhstan Oblast, Aksai, Pramzone, BKKS office complex
Phone: +7 71133 93077 ; Fax: +7 71133 93074 ; E-Mail: info@ibemo-kz.com

19 444 DCMT - UM tip

finishing
ap = 0.5 - 3.0 mm



Type	19 444... WOG 2425	
DCMT 070202E - UM	204	
DCMT 070204E - UM	224	
DCMT 11T304E - UM	244	
DCMT 11T308E - UM	264	

P	90 - 280	0.05 - 0.3
M	100 - 210	0.05 - 0.3
K	-	-
NE	-	-
H	-	-
S	-	-

Wodex®**19 444 DCMT - UR tip**

medium roughing
ap = 1.0 - 4.0 mm



Type	19 444... WOG 2425	19 444... WOG 2430	
DCMT 070202E - UR	304	305	
DCMT 070204E - UR	324	325	
DCMT 11T304E - UR	344	345	
DCMT 11T308E - UR	364	365	
DCMT 11T312E - UR	384	-	

P	90 - 280	120 - 240	0.1 - 0.5
M	100 - 210	75 - 160	0.1 - 0.5
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

Wodex®**19 602 DCGT - WAL tip**

for aluminium machining
ap = 0.25 - 6.0 mm



Type	19 602... WOV 3210		19 602... WOU 3010	
DCGT 070202 - WAL	005		001	
DCGT 070204 - WAL	025		021	
DCGT 11T302 - WAL	045		041	
DCGT 11T304 - WAL	065		061	
DCGT 11T308 - WAL	085		081	
P	80 - 220	-	-	0.08 - 0.4
M	-	-	-	-
K	-	-	-	-
NE	150 - 2400	-	150 - 2000	0.08 - 0.4
H	-	-	-	-
S	-	-	-	-

Wodex®**19 652 DCGW CBN tip**

- for finishing and roughing hardened steels (from 45 HRC)
- can be used for lost (incomplete) cut



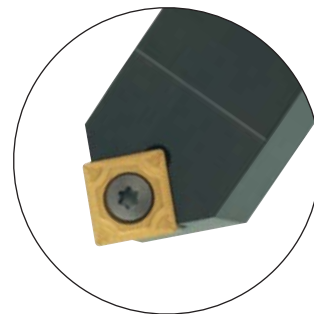
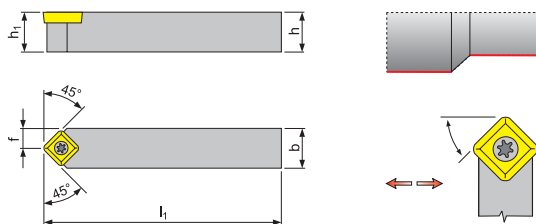
Type	19 652... SKL 2.5 mm	
DCGW 070202	222	
DCGW 070204	232	
DCGW 11T304	252	
DCGW 11T308	262	
P	-	-
M	-	-
K	-	-
NE	-	-
H	80 - 200	0.1 - 0.2
S	-	-

Wodex®

19 245 SSDC 45 toolholder

For external machining, with clamping screw "S"

Wodex



19 245 025

Toolholder Type	19 245...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SSDCN 1212 F 09	010		12	12	80	-	6.0	SC.T 09T3...
SSDCN 1616 H 09	015		16	16	100	-	8.0	SC.T 09T3...
SSDCN 2020 K 12	020		20	20	125	-	10.0	SC.T 1204...
SSDCN 2525 M 12	025		25	25	150	-	12.5	SC.T 1204...

Accessories for 19 245...



For toolholder Type	Clamping screw "S" 19 931...	Key 19 951...	Shim 19 943...	Threaded shim pin 19 947...
SS 09	003	003	-	-
SS 12	101	104	102	102

19 451 SCMW tip

without chip breaker, for cast iron
ap = 0.5 - 4.0 mm

Wodex



Type	19 451... WOG 3010	
SCMW 120408	062	

P	-	-
M	-	-
K	90 - 200	0.12 - 0.35
NE	-	-
H	-	-
S	-	-

19 452 SCMT - UM tip

finishing
ap = 0.5 - 3.0 mm

Wodex



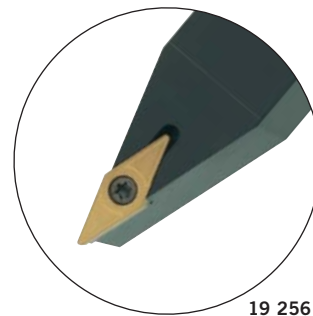
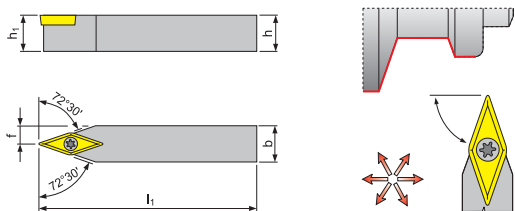
Type	19 452... WOG 2425	
SCMT 09T304-UM	124	
SCMT 120404-UM	144	

P	90 - 280	0.05 - 0.3
M	100 - 210	0.05 - 0.3
K	-	-
NE	-	-
H	-	-
S	-	-

19 256 SVVB 72° 30` toolholder

For external machining, with clamping screw "S"

Wodex®



19 256 030

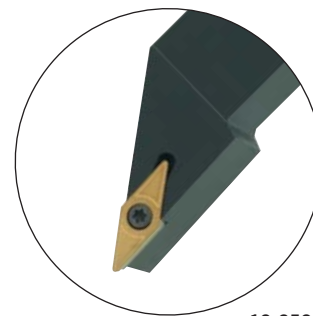
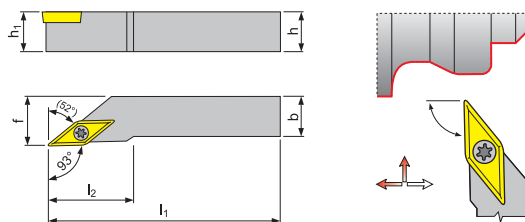
Toolholder Type	19 256...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SVVB 2020 K 16	020		20	20	125	28	10.6	VB.. 1604...
SVVB 2525 M 16	025		25	20	150	28	13.1	VB.. 1604...
SVVB 3225 P 16	030		32	25	170	28	13.1	VB.. 1604...

Accessories page 271

19 259 SVJB 93 toolholder

Wodex®

For external machining, with clamping screw "S"



19 259 030

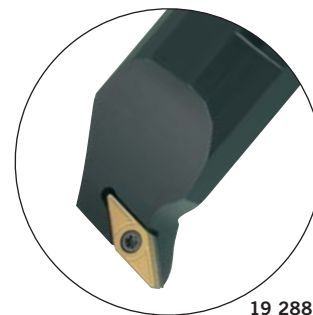
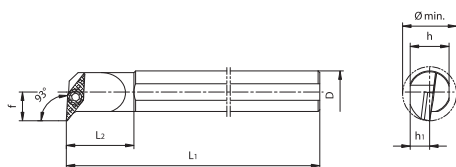
Toolholder Type	19 259... right-hand	19 259... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SVJB R/L 2020 K 16	020	021		20	20	125	37	25	VB.T 1604...
SVJB R/L 2525 M 16	025	026		25	25	150	37	32	VB.T 1604...
SVJB R/L 3225 P 16	030	031		32	25	150	37	32	VB.T 1604...

Accessories page 271

19 288 SVUB 93 toolholder

Wodex®

For internal machining, with clamping screw "S"



19 288 030

Toolholder Type	19 288... right-hand	19 288... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	Ø min. mm	Tip
S 25 T SVUB R/L 16	020	021		25	23	11.5	300	40	17	31	VB.T 1604...
S 32 U SVUB R/L 16	025	026		32	30	15.0	350	50	22	39	VB.T 1604...
S 40 V SVUB R/L 16	030	031		40	37	18.5	400	60	27	48	VB.T 1604...

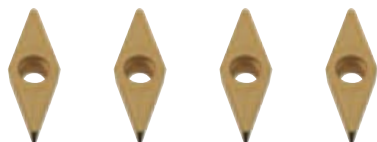
on request with internal cooling / Accessories page 271

19 459 VBMT tip

Wodex®

finishing

ap = 0.2 - 2.5 mm



Type	19 459... WOG 2320	19 459... WOG 2315	19 459... WOG 2025	19 459... WOG 2435	
VBMT 160404	001	002	004	012	
VBMT 160408	011	-	024	032	
P	80 - 230	90 - 280	120 - 260	70 - 170	0.05 - 0.25
M	-	-	-	120 - 240	0.05 - 0.25
K	90 - 200	80 - 160	-	-	0.05 - 0.25
NE	-	-	-	-	-
H	-	-	-	-	-
S	-	-	-	-	-

19 460 VBGW CBN tip

Wodex®

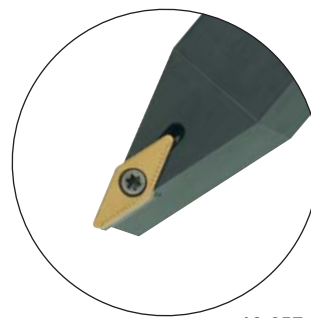
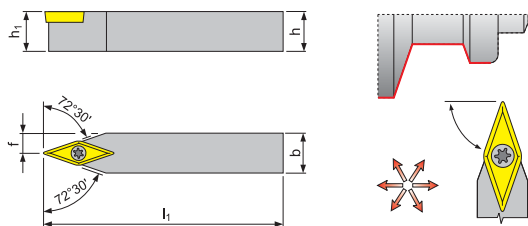
- for finishing and roughing hardened steels (from 45 HRC)
- can be used for lost (incomplete) cut



Type	19 460... SKL 2.5 mm		19 460... SKL 4 mm	
VBGW 160404	020		025	
VBGW 160408	030		-	-
P	-	-	-	-
M	-	-	-	-
K	-	-	-	-
NE	-	-	-	-
H	80 - 200	-	80 - 200	0.1 - 0.2
S	-	-	-	-

19 257 SVVC 72° 30' toolholder *Wodex*

For external machining, with clamping screw "S"



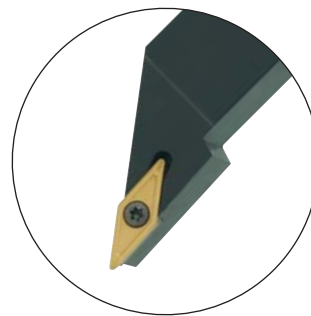
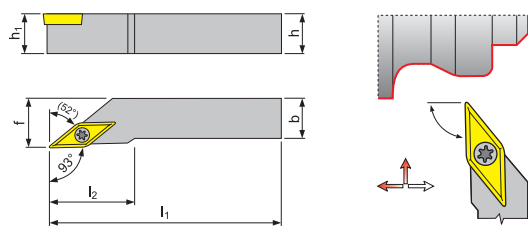
19 257 030

Toolholder Type	19 257...		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SVVCN 2020 K 16	020		20	20	125	28	10.6	VC.T 1604...
SVVCN 2525 M 16	025		25	25	150	28	13.1	VC.T 1604...
SVVCN 3225 P 16	030		32	25	170	28	13.1	VC.T 1604...

Accessories page 271

19 260 SVJC 93 toolholder *Wodex*

for external machining, with clamping screw "S"



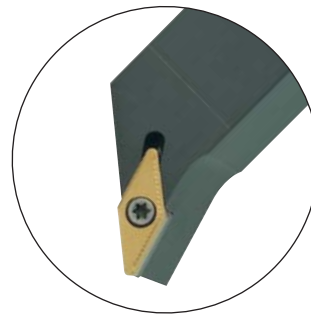
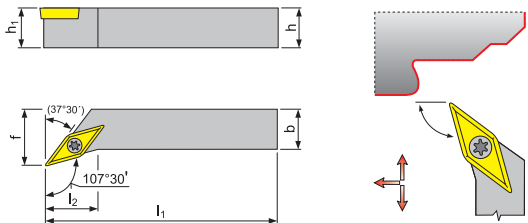
19 260 025

Toolholder Type	19 260... right-hand	19 260... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SVJC R/L 2020 K 16	020	021		20	20	125	37	25	VC.T 1604...
SVJC R/L 2525 M 16	025	026		25	25	150	37	32	VC.T 1604...

Accessories page 271

19 261 SVHC 107° 30' toolholder *Wodex*

for external machining, with clamping screw "S"



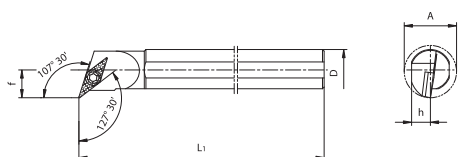
19 261 030

Toolholder Type	19 261... right-hand	19 261... left-hand		h=h ₁ mm	b mm	L ₁ mm	L ₂ mm	f mm	Tip
SVHC R/L 2020 K 16	020	021		20	20	125	15.4	25	VC.T 1604...
SVHC R/L 2525 M 16	025	026		25	25	150	21.0	32	VC.T 1604...
SVHC R/L 3225 P 16	030	031		32	25	170	21.0	32	VC.T 1604...

Accessories page 271

19 287 SVQC 107° 30' toolholder *Wodex*

for internal machining, with clamping screw "S"



v 030

Toolholder Type	19 287... right-hand	19 287... left-hand		D mm	h mm	L ₁ mm	f mm	A mm	Tip
S 25 T SVQC R/L 16*	030	031		25	11.5	300	17	31	VC.T 1604...

* = Toolholder without shim / on request with internal cooling / Accessories page 271

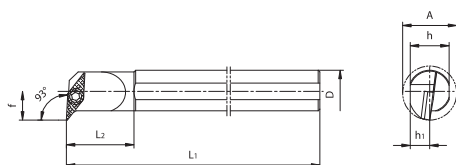


"TOOLS"

ibemo Kazakhstan - 090301 Republic of Kazakhstan, West Kazakhstan Oblast, Aksai, Pramzone, BKKS office complex
Phone: +7 71133 93077 ; Fax: +7 71133 93074 ; E-Mail: info@ibemo-kz.com

19 290 SVUC 93° toolholder

for internal machining, with clamping screw "S"

Wodex®


19 290 030

Toolholder Type	19 290... right-hand	19 290... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	A mm	Tip
S 25 T SVUC R/L 16*	020	021		25	23	11.5	300	40	17	31	VC.T 1604...
S 32 U SVUC R/L 16*	025	026		32	30	15.0	350	50	22	39	VC.T 1604...
S 40 V SVUC R/L 16*	030	031		40	37	18.5	400	60	27	48	VC.T 1604...

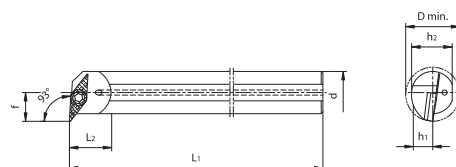
* = Toolholder without shim / on request with internal cooling

19 290 SVUC 93° boring bars

for internal machining, steel shank with internal coolant supply

Wodex®

with internal cooling



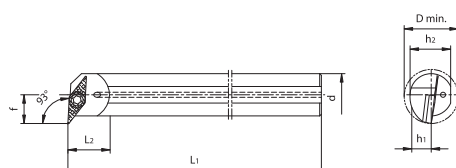
19 290 110

Boring bars Type	19 290... right-hand	19 290... left-hand		d mm	f mm	l ₁ mm	l ₂ mm	h ₁ mm	h ₂ mm	D min. mm	Tip
A 16M SVUC R/L 11	100	101		16	11	150	16.5	8.0	15.5	21.0	VC.T 1103...
A 20Q SVUC R/L 11	105	106		20	13	180	20.5	10.0	19.0	25.0	VC.T 1103...
A 25R SVUC R/L 11	110	111		25	17	200	25.5	12.5	24.0	31.5	VC.T 1103...
A 32S SVUC R/L 16	115	116		32	22	250	33.5	16.0	31.0	40.0	VC.T 1604...
A 40T SVUC R/L 16	120	121		40	27	300	40.0	20.0	38.5	49.0	VC.T 1604...

19 290 SVUC 93° boring bars

for internal machining, solid carbide shank with internal coolant supply

Wodex®

 low vibration,
with internal cooling


19 290 210

Boring bars Type	19 290... right-hand	19 290... left-hand		d mm	f mm	l ₁ mm	l ₂ mm	h ₁ mm	h ₂ mm	D min. mm	Tip
E 16R SVUC R/L 11	200	201		16	11	200	16.5	8.0	15.5	21.0	VC.T 1103...
E 20S SVUC R/L 11	205	206		20	13	250	20.5	10.0	19.0	25.0	VC.T 1103...
A 25R SVUC R/L 11	210	211		25	17	300	25.5	12.5	24.0	31.5	VC.T 1103...

Accessories for 19 256..., 19 259..., 19 288..., 19 257..., 19 260..., 19 261..., 19 290...



For toolholder Type	Clamping screw "S" 19 931...	Key 19 951...	Shim 19 955...	Threaded shim pin 19 947...
SV 16	105	103	101	101
SSV 16	105	103	101	101

Accessories for 19 287...



For toolholder Type	Clamping screw "S" 19 931...	Key 19 951...
SSVC 16	003	003

19 462 VCMT - UM tip

medium machining
ap = 0.2 - 2.5 mm

Wodex®



Type	19 462... WOG 2425	19 462... WOG 2415	19 462... WOG 2430	
VCMT 110304E - UM	-	-	205	
VCMT 110308E - UM	224	-	225	
VCMT 160404E - UM	244	243	245	
VCMT 160408E - UM	264	-	265	
VCMT 160412E - UM	284	-	285	
P	90 - 280	80 - 230	120 - 260	0.05 - 2.3
M	100 - 210	60 - 190	75 - 160	0.05 - 2.3
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S				

19 608 VCGT - WAL tip

for aluminium machining
ap = 0.25 - 6.0 mm

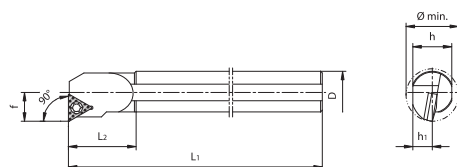
Wodex®



Type	19 608... WOV 3210		19 608... WOU 3010	
VCGT 110302 - WAL	005		001	
VCGT 110304 - WAL	025		021	
VCGT 160404 - WAL	065		061	
VCGT 160408 - WAL	085		081	
P	80 - 220	-	-	0.08 - 0.4
M	-	-	-	-
K	-	-	-	-
NE	150 - 2400	-	150 - 200	0.08 - 0.4
H	-	-	-	-
S				

19 283 STFC 90° toolholder

For internal machining, with clamping screw "S"

Wodex®

19 283 045

Toolholder Type	19 283... right-hand	19 283... left-hand		D mm	h mm	h ₁ mm	L ₁ mm	L ₂ mm	f mm	Ø min. mm	Tip
S 10 M STFC R/L 09*	020	021		10	9	4.5	150	25	7	13	TC.T 0902...
S 12 M STFC R/L 09*	025	026		12	11	5.5	150	25	9	16	TC.T 0902...
S 12 M STFC R/L 11*	030	031		12	11	5.5	150	25	9	16	TC.T 1102...
S 16 R STFC R 11*	035	-		16	15	7.5	200	30	11	20	TC.T 1102...
S 20 S STFC R 11*	040	-		20	18	9.0	250	35	13	24	TC.T 1102...
S 25 T STFC R 16*	045	-		25	23	11.5	300	40	17	31	TC.T 16T3...

Accessories for 19 283...

For toolholder Type	Clamping screw "S" 19 931...	Key 19 951...
SST 09	001	001
SST 11	002	002
SST 16	003	003

19 454 TCMT - UM tip

ap = 0.2 - 2.5 mm

Wodex®

Type	19 454... WOG 2425	19 454... WOG 2415	19 454... WOG 2430	
TCMT 110202E - UM	-	103	105	
TCMT 110204E - UM	-	123	125	
TCMT 16T304E - UM	-	143	145	
TCMT 16T308E - UM	164	-	165	
P	90 - 280	80 - 230	120 - 160	0.05 - 0.3
M	100 - 210	60 - 190	75 - 160	0.05 - 0.3
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 456 TCGT-SI tip

with SI chip breaker

Wodex®

Type	19 456... right-hand WOG 4230	19 456... left-hand WOG 4230	
TCGT 110202ER/L-SI	001	003	
TCGT 110204ER/L-SI	005	007	
P	90 - 280	90 - 280	0.05 - 0.3
M	80 - 180	80 - 180	0.05 - 0.3
K			
NE			
H			
S			

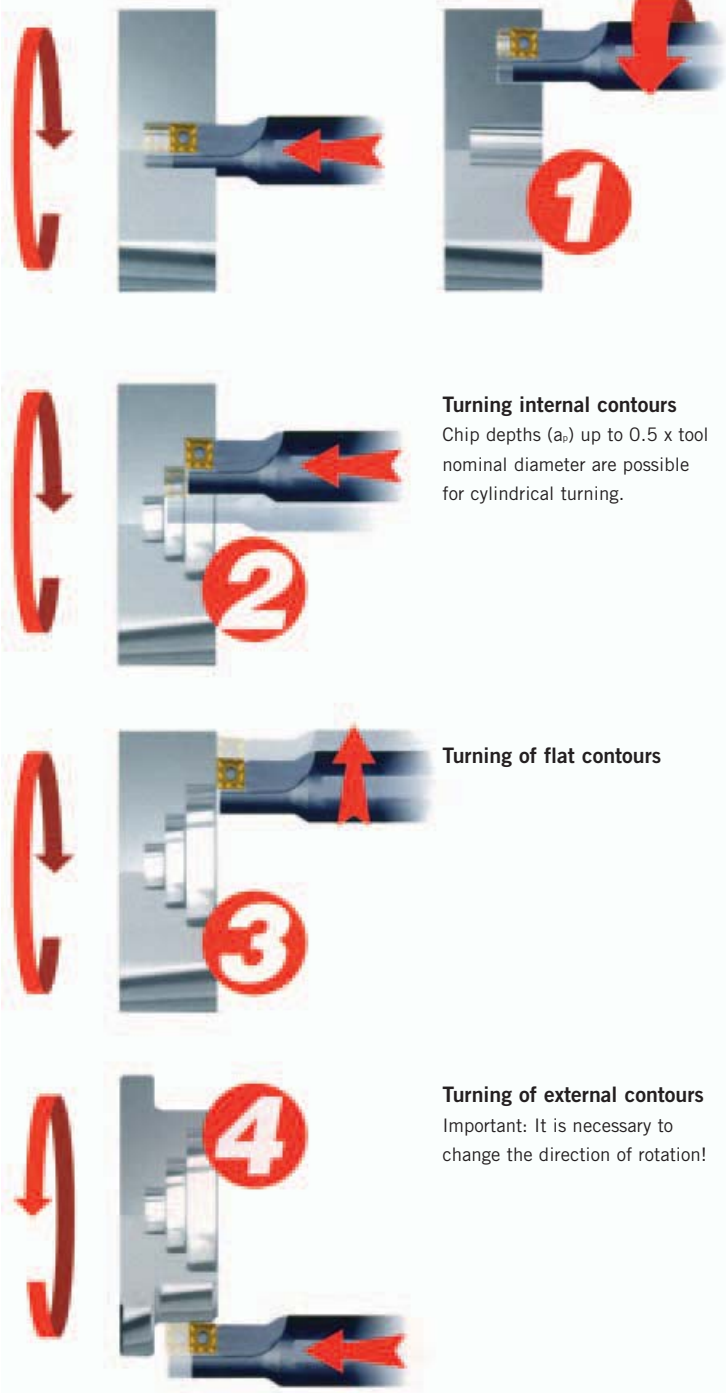




“Safety Products” catalogue

- ➔ Eye protection
- ➔ Head protection/Face protection
- ➔ Hearing protection
- ➔ Respiratory protection
- ➔ Hand protection
- ➔ General work clothing
- ➔ Protective clothing
- ➔ Foot protection
- ➔ Protection against falling/General health & safety

Four machining processes, one tool (Wodex Eco-Cut)



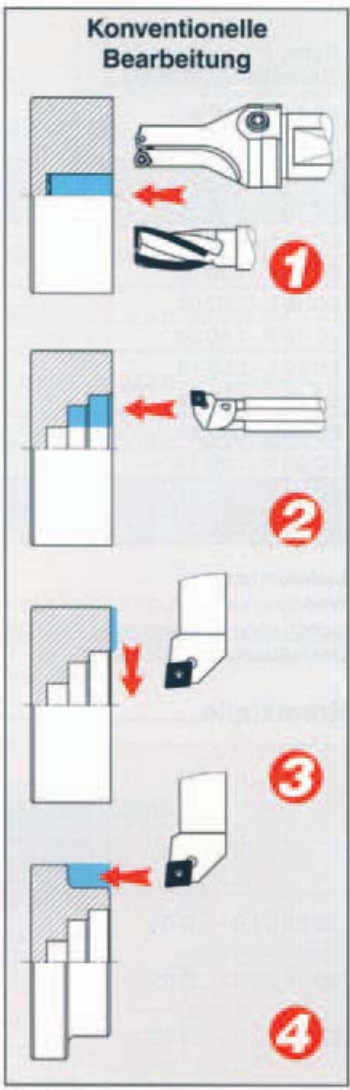
Drilling into solid material with flat drilling bottom
The tool can be used both still and upright as well as rotating.
Cooling duct available

Turning internal contours
Chip depths (a_p) up to 0.5 x tool nominal diameter are possible for cylindrical turning.

Turning of flat contours

Turning of external contours
Important: It is necessary to change the direction of rotation!

Konventionelle Bearbeitung



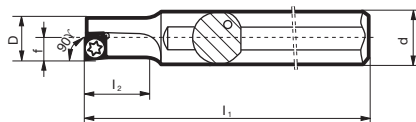
Accessories for 19 300..., 19 301..., 19 302...

For toolholder Type	Clamping screw "S" 19 968...	Key 19 951...
EC 08 L/R	001	001
EC 10 L/R	002	001
EC 12 L/R	003	002
EC 16 L/R	004	005
EC 20 L/R	005	003
EC 25 L/R	006	004
EC 32 L/R	007	004

19 300 “Eco-Cut”

for drilling depths up to 1.5 x d

Wodex



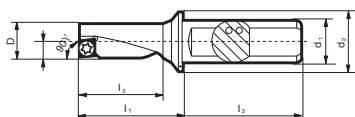
19 300 045

Toolholder Type	19 300... left-hand	19 300... right-hand		D mm	d ₁ mm	l ₁ mm	l ₂ mm	f mm	Tip
EC 08 L/R - 1.5 D 04	020	021		8	12	80	12.0	4.0	XCNT 04...
EC 10 L/R - 1.5 D 05	025	026		10	12	90	15.0	5.0	XCNT 05...
EC 12 L/R - 1.5 D 06	030	031		12	16	100	18.0	6.0	XCNT 06...
EC 16 L/R - 1.5 D 08	035	036		16	20	125	24.0	8.0	XCNT 08...
EC 18 L/R - 1.5 D 09	037	038		18	20	135	27.0	9.0	XCNT 09...
EC 20 L/R - 1.5 D 10	040	041		20	25	150	30.0	10.0	XCNT 10...
EC 25 L/R - 1.5 D 13	045	046		25	32	180	37.5	12.5	XCNT 13...

19 301 “Eco-Cut”

for drilling depths up to 2.25 x d

Wodex



19 301 051

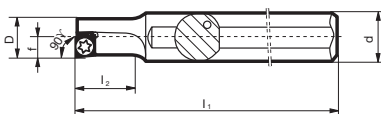
Toolholder Type	19 301... left-hand	19 301... right-hand		D mm	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	f mm	Tip
EC 08 L/R - 2.25 D 04	020	021		8	10	22.0	18.0	38	4.0	XCNT 04...
EC 10 L/R - 2.25 D 05	025	026		10	12	27.5	22.5	42	5.0	XCNT 05...
EC 12 L/R - 2.25 D 06	030	031		12	16	33.0	27.0	45	6.0	XCNT 06...
EC 16 L/R - 2.25 D 08	035	036		16	20	44.0	36.0	50	8.0	XCNT 08...
EC 18 L/R - 2.25 D 09	037	038		18	20	53.5	40.5	56	9.0	XCNT 09...
EC 20 L/R - 2.25 D 10	040	041		20	25	55.0	45.0	56	10.0	XCNT 10...
EC 25 L/R - 2.25 D 13	045	046		25	32	69.0	56.5	60	12.5	XCNT 13...
EC 32 L/R - 2.25 D 17	050	051		32	40	88.0	72.0	70	16.0	XCNT 17...

19 302 “Eco-Cut”

Densimet model for drilling depths up to 3 x d

Wodex

low vibration, with
internal cooling



19 302 060

Toolholder Type	19 302... left-hand	19 302... right-hand		D mm	d ₁ mm	l ₁ mm	f mm	Tip
EC 08L/R - 3.0D 04 H	020	021		8	12	80	4	XCNT 04...
EC 10L/R - 3.0D 05 H	025	026		10	12	85	5	XCNT 05...
EC 12L/R - 3.0D 06 H	030	031		12	16	95	6	XCNT 06...
EC 14L/R - 3.0D 07 H	035	036		14	16	100	7	XCNT 07...
EC 16L/R - 3.0D 08 H	040	041		16	20	110	8	XCNT 08...
EC 18L/R - 3.0D 09 H	045	046		18	25	125	9	XCNT 09...
EC 20L/R - 3.0D 10 H	050	051		20	25	130	10	XCNT 10...
EC 25L/R - 3.0D 13 H	055	056		25	32	150	12.5	XCNT 13...
EC 32L/R - 3.0D 17 H	060	061		32	40	185	16	XCNT 17...

19 303 Tips for “Eco-Cut”

Wodex

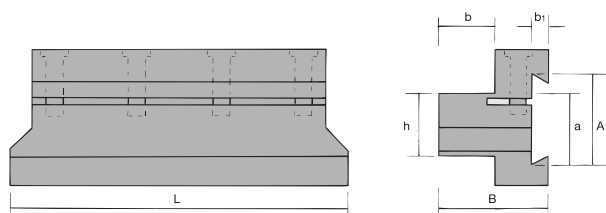


Type	19 303... WOS 2325		19 303... WOG 2435	19 303... WOV 4240		19 303... WOU 3010	
XCNT 040104 EL	001		005	006		009	
XCNT 040104 ER	021		025	026		029	
XCNT 050204 EN	041		045	046		049	
XCNT 060204 EN	061		065	066		069	
XCNT 080304 EN	081		085	086		089	
XCNT 09T304 EN	091		094	096		099	
XCNT 10T304 EN	101		105	106		109	
XCNT 130404 EN	121		125	126		129	
XCNT 170508 EN	141		145	146		149	
P	80 - 280	-	60 - 250	50 - 230	-	-	0.1 - 0.3
M	-	-	100 - 200	50 - 200	-	-	0.1 - 0.3
K	100 - 200	-	-	-	-	-	0.1 - 0.3
NE	-	-	-	-	-	100 - 500	0.1 - 0.3
H	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-



19 314 Parting tool, basic holder**Wodex®**

for tip holders

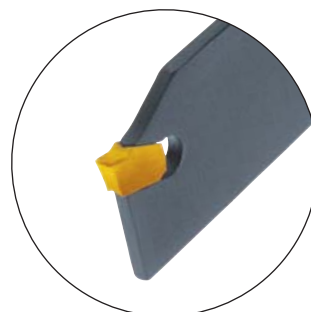
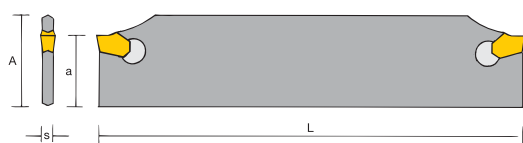


19 314...

Type	19 314...		h mm	b mm	L mm	for tip holders A
TBN 16-2	001		16	16	90	IH 19-2
TBN 20-5	002		20	20	90	IH/TIH/TMSPP 26-2, 26-3, 26-4, 26-5, 26-6, ...CX...2608X...
TBN 25-6	003		25	25	120	IH/TIH/TMSPP 32-3, 32-4, 32-5, 32-6
TBN 32-6	004		32	32	120	IH/TIH/TMSPP 32-3, 32-4, 32-5, 32-6

19 312 Tip holders**Wodex®**

radial parting



19 312 001 - ...015



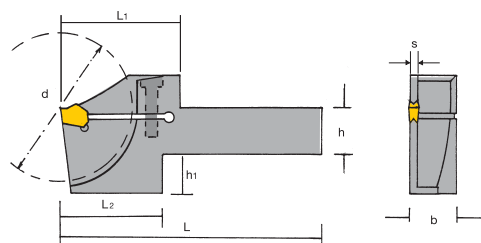
19 312 202 - ...215

Type	19 312...		s mm	A mm	L mm	a mm
IH 19-2	001		2.2	19	86	15.4
IH 26-2	002		2.2	26	110	21.4
IH 26-3	003		3.1	26	110	21.4
IH 26-4	004		4.1	26	110	21.4
IH 26-5	005		5.1	26	110	21.4
IH 26-6	006		6.4	26	110	21.4
IH 32-3	013		3.1	32	150	25.0
IH 32-4	014		4.1	32	150	25.0
IH 32-5	015		5.1	32	150	25.0
TIH 26-2	202		2.2	26	110	21.4
TIH 26-3	203		3.1	26	110	21.4
TIH 26-4	204		4.1	26	110	21.4
TIH 32-3	213		3.1	32	150	25.0
TIH 32-4	214		4.1	32	150	25.0
TIH 32-5	215		5.1	32	150	25.0

S = parting width

19 315 Parting tool, base holder, heavy type**Wodex®**

radial parting



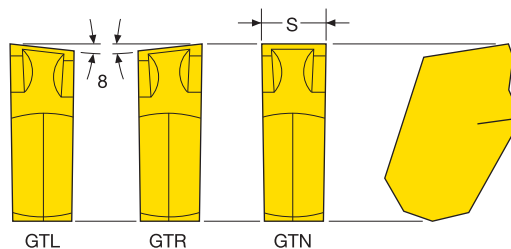
19 315...

Type	19 315...		h = b mm	L mm	L1 mm	L2 mm	h1 mm	s mm	d mm	Screw
CLCBR 2020 x 20/65	101		20	115	54	45	17	2.2	65	M6 x 25
CLCBR 2020 x 40/65	102		20	115	54	45	17	4	65	M6 x 25
CLCBR 2020 x 30/65	103		20	115	54	45	17	3	65	M6 x 25
CLCBR 2525 x 40/65	104		25	140	54	45	12	4	65	M6 x 25
CLCBR 2525 x 30/65	105		25	140	54	45	12	3	65	M6 x 25

S = parting width; d = parting off diameter

19 486 Tips
for parting, radial

Wodex®



Type	19 486... WOG 2025		19 486... WOU 2025		19 486... WOU 3010		s mm
GTN 2	006		-	-	-	-	2.2
GTR 2	008		-	-	-	-	2.2
GTN 3	016		-	-	053		3.1
GTR 3	026		029		073		3.1
GTL 3	036		-	-	093		3.1
GTN 4	046		049		113		4.1
GTR 4	056		-	-	133		4.1
GTL 4	066		-	-	153		4.1
GTN 5	076		079		-	-	5.1
GTR 5	078		-	-	-	-	5.1

S = parting width

History: Parting tips of this type have been sold since 1978. There are numerous manufacturers of cutting inserts/tips and holder tools. These tools are used in different ways on the market depending on the manufacturer. The tools are apparently compatible; but in fact they do not precisely fit together so that technically perfect connection between the parting insert and seat of the tip is coincidental and the performance of the tools is subject to large fluctuations.

Optimisation: Fits perfectly describes a new technology which establishes a precise connection between the hard metal cutting inserts (tips) and the corresponding tip seats.

“Fits perfectly”:

- prevents “wandering” of the tip in the tip seat
- reduces vibrations
- increases the stiffness of the whole tool
- achieves long and uniform tool lives
- produces clean and straight parting off surfaces
- creates process security for parting off



19 312 Self-clamping parting off holder *Wodex*[®] with “fits perfectly” stop

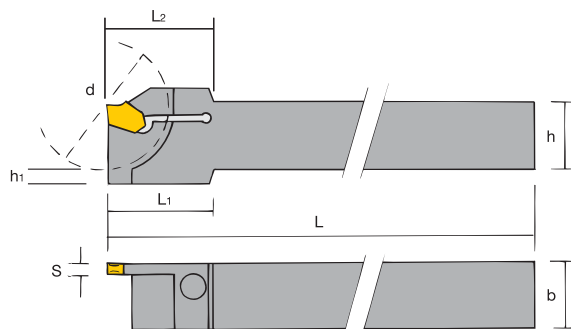


19 312...

Type	19 312...		s mm	A mm	L mm	a mm
TMSPP 26 - 20X	501		2.0	26	110	21.4
TMSPP 26 - 3	503		3.0	26	110	21.4
TMSPP 26 - 4	505		4.0	26	110	21.4
TMSPP 32-20X	506		2.0	32	150	25.0
TMSPP 32 - 3	507		3.0	32	150	25.0
TMSPP 32 - 4	509		4.0	32	150	25.0
TMSPP 32 - 5	511		5.0	32	150	25.0

S = parting width

19 312 Parting off tool holder *Wodex*[®] with “fits perfectly” screw clamp



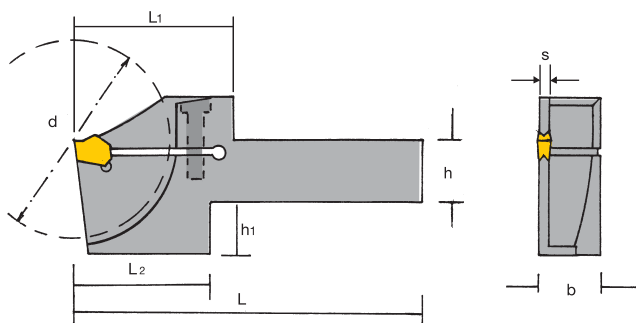
19 312...

Type	19 312... right-hand	19 312... left-hand		h mm	b mm	L mm	L1 mm	L2 mm	h1 mm	S mm	d mm
CLPPR/L 1010 K20X	600	601		10	10	125	36	26	10	2.0	28
CLPPR/L 1212 K20X	605	606		12	12	125	33	26	8	2.0	28
CLPPR/L 1212 K30	610	611		12	12	125	33	29	8	3.0	34
CLPPR/L 1612 K20X	615	616		16	12	125	31	26	4	2.0	28
CLPPR/L 1612 K30	620	621		16	12	125	34	29	4	3.0	34
CLPPR/L 1612 K40	625	626		16	12	125	34	33	8	4.0	40
CLPPR/L 2020 K20X	630	631		20	20	125	33	33	5	2.0	40
CLPPR/L 2020 K30	635	636		20	20	125	33	33	5	3.0	40
CLPPR/L 2020 K40	640	641		20	20	125	40	40	5	4.0	53
CLPPR/L 2525 M20X	645	646		25	25	150	-	36	-	2.0	40
CLPPR/L 2525 M30	650	651		25	25	150	-	36	-	3.0	40
CLPPR/L 2525 M40	655	656		25	25	150	-	40	-	4.0	53
CLPPR/L 2525 P50	660	661		25	25	170	63	56	15	5.0	80

S = parting width / d = parting off diameter

19 312 Solid parting off holder with “fits perfectly” radial stiffening

Wodex®



19 312...

Type	19 312... right-hand	19 312... left-hand		h mm	b mm	L mm	L1 mm	L2 mm	h1 mm	S mm	d mm	Screw
CLPPR/L 2020 X 30/65	700	701		20	20	115	54	45	17	3	65	M6 x 25
CLPPR/L 2020 X 40/65	705	706		20	20	115	54	45	17	4	65	M6 x 25
CLPPR/L 2525 X 30/65	710	711		25	25	140	54	45	12	3	65	M6 x 25
CLPPR/L 2525 X 40/65	715	716		25	25	140	54	45	12	4	65	M6 x 25

S = parting width / d = parting off diameter

19 486 “fits perfectly” tips for parting off and slot turning

Wodex®

Type	19 486... WOG 2025 neutral		19 486... WOG 2025 right-hand	19 486... WOG 2025 left-hand		s mm
ITPN-20	306		-	-	-	2.0
ITPN-3	316		-	-	-	3.0
ITPN-4	346		-	-	-	4.0
ITPN-5	376		-	-	-	5.0
ITPR/L-20/8°	-	-	308	309		2.0
ITPR/L-3/8°	-	-	318	319		3.0
ITPR/L-4/8°	-	-	348	349		4.0
ITPR/L-5/8°	-	-	378	379		5.0
SNPN-20	386		-	-	-	2.0
SNPN-3	396		-	-	-	3.0
SNPN-4	406		-	-	-	4.0
SNPN-5	416		-	-	-	5.0
SNPR/L-20/6°	-	-	388	389		2.0
SNPR/L-3/6°	-	-	398	399		3.0
SNPR/L-4/6°	-	-	408	409		4.0
SNPR/L-5/6°	-	-	418	419		5.0
BGPN-3	426		-	-	-	3.0
BGPR/L-3/8°	-	-	428	429		3.0
BGPR/L-3/12°	-	-	438	439		3.0

S = parting width



...306 - ...379



...386 - ...419



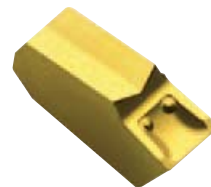
...426 - ...439

19 486 Tips

Wodex®

Type	19 486... WOG 2025	19 486... WOG 2430		s mm
KTPN-3	601	603		3.1
KTPN-4	605	607		4.1

S = parting width +0.1



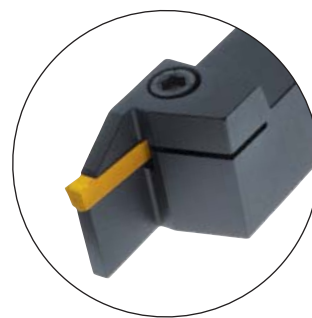
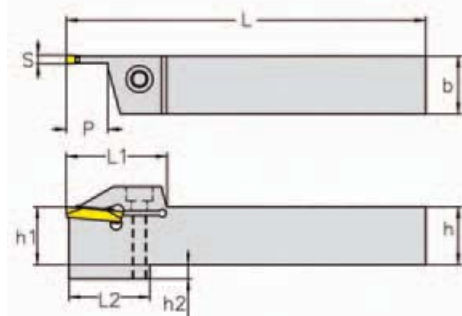
19 486...

“Turning” / “Parting” / “Milling”



19 316 Toolholders for parting off, grooving and cylindrical turning **Wodex®**

for parting turning tips 19 492... and 19 493...



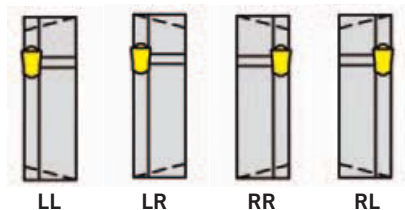
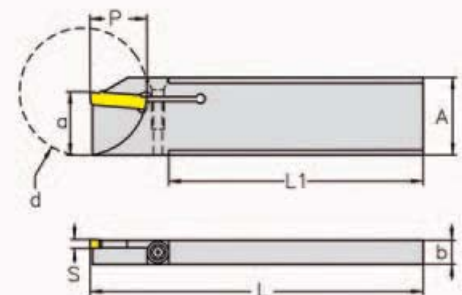
19 316...

Type	19 316... left-hand	19 316... right-hand		h=h1 mm	b mm	L mm	L1 mm	s mm	P mm	h2 mm	L2 mm
P92 - CXCBL/R 1212 K30	201	202		12	12	125	34	3	14	5	26
P92 - CXCBL/R 1212 K30-10	101	102		12	12	125	21	3	10	5	22
P92 - CXCBL/R 1212 K40	203	204		12	12	125	34	4	14	5	26
P92 - CXCBL/R 1212 K40-10	103	104		12	12	125	21	4	10	5	22
P92 - CXCBL/R 1612 K30	205	206		16	12	125	34	3	14	-	-
P92 - CXCBL/R 1612 K40	207	208		16	12	125	34	4	14	-	-
P92 - CXCBL/R 1616 K30	209	210		16	16	125	34	3	14	5	26
P92 - CXCBL/R 1616 K30A	211	212		16	16	125	37	3	17	5	29
P92 - CXCBL/R 2020 K30	213	214		20	20	125	34	3	14	5	26
P92 - CXCBL/R 2020 K30A	215	216		20	20	125	37	3	17	5	29
P92 - CXCBL/R 2020 K35A	217	218		20	20	125	37	3.5	17	5	29
P92 - CXCBL/R 2020 K40	219	220		20	20	125	34	4	14	5	26
P92 - CXCBL/R 2020 K40A	221	222		20	20	125	37	4	17	5	29
P92 - CXCBL/R 2020 K50	223	224		20	20	125	40	5	19	5	33
P92 - CXCBL/R 2525 M30	225	226		25	25	150	34	3	14	-	-
P92 - CXCBL/R 2525 M30A	227	228		25	25	150	37	3	17	-	-
P92 - CXCBL/R 2525 M35A	229	230		25	25	150	37	3.5	17	-	-
P92 - CXCBL/R 2525 M40	231	232		25	25	150	34	4	14	-	-
P92 - CXCBL/R 2525 M40A	233	234		25	25	150	37	4	17	-	-
P92 - CXCBL/R 2525 M50	235	236		25	25	150	40	5	20	-	-
P92 - CXCBL/R 2525 M60	237	238		25	25	150	40	6	20	-	-
P92 - CXCBL/R 2525 M80	239	240		25	25	150	46	8	20	-	-
P92 - CXCBL/R 3225 P60	241	242		32	25	170	45	6	26	-	-
P92 - CXCBL/R 3225 P80	243	244		32	25	170	47	8	26	-	-
P92 - CXCBL/R 3225 P100	245	246		32	25	170	47	10	26	-	-
P92-A-CXCBR/L 2020 K30-56*	247	248		20	20	125	45	3	26	-	-
P92-A-CXCBR/L 2020 K40-56*	249	250		20	20	125	45	4	26	-	-
P92-A-CXCBR/L 2525 M30-56*	251	252		25	25	150	45	3	26	-	-
P92-A-CXCBR/L 2525 M40-56*	253	254		25	25	150	45	4	26	-	-

S = parting width * Holder with radial stiffening

19 317 Reinforced parting off holder with screw **Wodex®** clamp

for parting turning tips 19 492... (s=3 mm) and parting turning tips 19 491... (s=2 mm)



19 317...

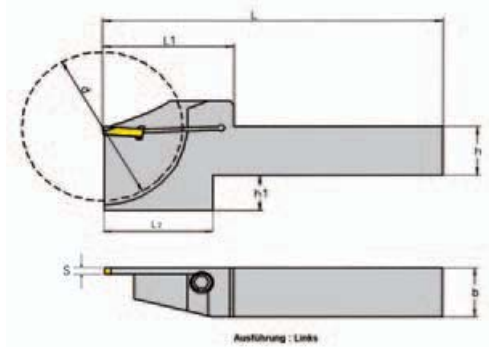
Type	19 317...		A mm	b mm	a mm	s mm	L mm	L1 mm	d mm	P mm
P92 CXCBR 2608 X30R	020		26	8	21.4	2	110	81.5	42	21
P92 CXCBR 2608 X30L	021		26	8	21.4	2	110	81.5	42	21
P92 CXCBL 2608 X30R	030		26	8	21.4	2	110	81.5	42	21
P92 CXCBL 2608 X30L	031		26	8	21.4	2	110	81.5	42	21
P92 - S - CXCBR 2608 X20R	040		26	8	21.4	2	110	84	24	12
P92 - S - CXCBR 2608 X20L	041		26	8	21.4	2	110	84	24	12
P92 - S - CXCBL 2608 X20R	050		26	8	21.4	2	110	84	24	12
P92 - S - CXCBL 2608 X20L	051		26	8	21.4	2	110	84	24	12

S = parting width / d = parting depth

19 318 Parting off holder for large parting diameters and deep chambers

for parting turning tips 19 492... and 19 493...

Wodex®



19 318...

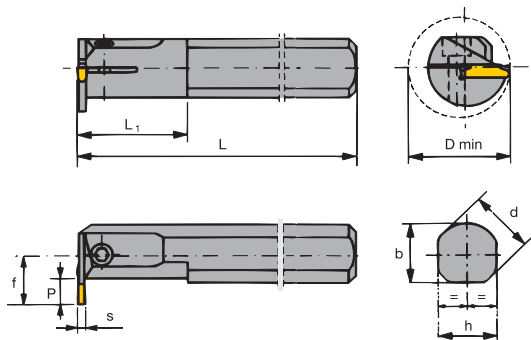
Type	19 318... right-hand	19 318... left-hand		h mm	b mm	h1 mm	L mm	L1 mm	L2 mm	s mm	d mm
P92 - A - CXCBR/L 2020 K30	020	021		20	20	17	125	54	45	3.0	65
P92 - A - CXCBR/L 2020 K35	025	026		20	20	17	125	54	45	3.5	65
P92 - A - CXCBR/L 2020 K40	030	031		20	20	17	125	54	45	4.0	65
P92 - A - CXCBR/L 2020 M50	035	036		20	20	18	150	62	52	5.0	80
P92 - A - CXCBR/L 2525 M30	040	041		25	25	12	150	54	45	3.0	65
P92 - A - CXCBR/L 2525 M35	045	046		25	25	12	150	54	45	3.5	65
P92 - A - CXCBR/L 2525 M40	050	051		25	25	12	150	54	45	4.0	65
P92 - A - CXCBR/L 2525 P50	055	056		25	25	18	170	62	52	5.0	80

S = parting width / d = parting off diameter

19 316 Boring bars with internal cooling for internal grooving and cylindrical turning

for parting tip 19 492... and 19 493...

Wodex®



19 316...

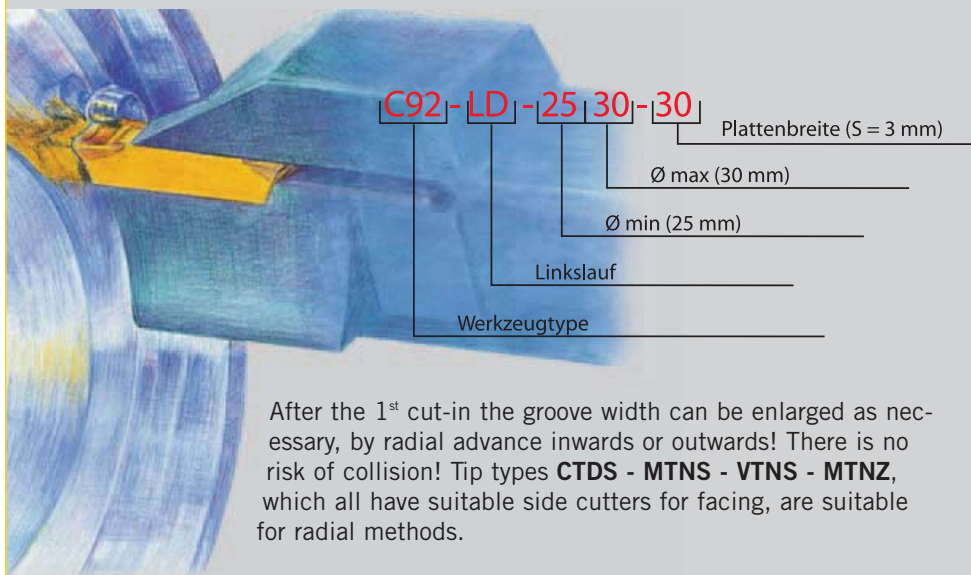
Type	19 316... left-hand	19 316... right-hand		Ø min. mm	d mm	h=b mm	f mm	p mm	s mm	L mm	L1 mm
P92 - CGR/L 0020 R30	501	502		25	20	18	13	7	3	200	40
P92 - CGR/L 0020 R35	503	504		25	20	18	13	7	3.5	200	40
P92 - CGR/L 0020 R40	505	506		25	20	18	13	7	4	200	40
P92 - CGR/L 0025 R30	507	508		32	25	32	17	10	3	200	50
P92 - CGR/L 0025 R35	509	510		32	25	23	17	10	3.5	200	50
P92 - CGR/L 0025 R40	511	512		32	25	23	17	10	4	200	50
P92 - CGR/L 0032 S30	513	514		40	32	30	22	12	3	250	64
P92 - CGR/L 0032 S35	515	516		40	32	30	22	12	3.5	250	64
P92 - CGR/L 0032 S40	517	518		40	32	30	22	12	4	250	64
P92 - CGR/L 0032 S50	519	520		44	32	30	26	16	5	250	64
P92 - CGR/L 0040 T40	521	522		52	40	38	30	16	4	300	80
P92 - CGR/L 0040 T50	523	524		52	40	38	30	16	5	300	80
P92 - CGR/L 0040 T60	525	526		52	40	38	30	16	6	300	80

S = parting width; P = parting depth

Face parting technology

Cartridge selection

Each cartridge is designed for a specific diameter range. This range is denoted by the $\varnothing$ min - max dimensions. The 1st cut **must** lie within this range. The $\varnothing$ min dimension reduces by 2xparting tip range (S).

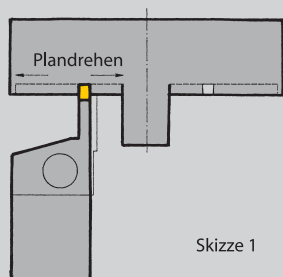


Sketch 1: Facing after the 1st cut-in has been positioned within the $\varnothing$ min - max range.

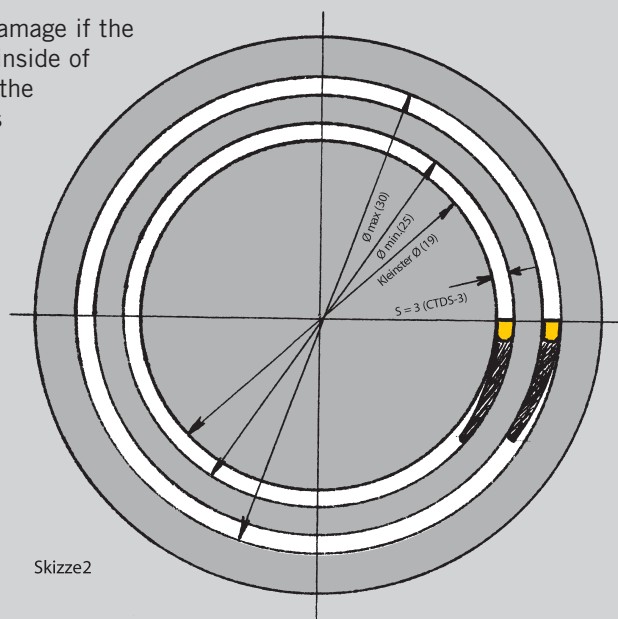
Sketch 2: shows the allowable cut-in range for the aforementioned cartridge

Sketch 2a: shows the consequential damage which occurs if the 1st cut-in is $< \varnothing$ min: The outside of the cartridge collides with the workpiece

Sketch 2b: shows the consequential damage if the 1st cut-in is $> \varnothing$ max: The inside of the cartridge collides with the workpiece. The dimensions relate to the cartridge described above.



Skizze 1



Skizze 2



Skizze 2a

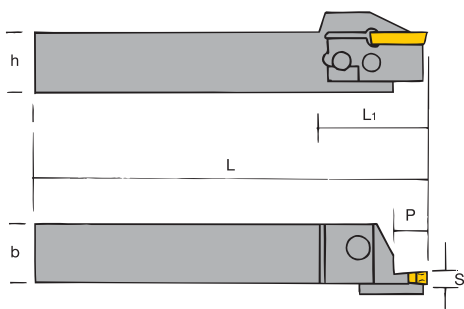
Skizze 2b

19 318 Toolholder for face grooving

Wodex®

for parting tip 19 492... and 19 493...

The toolholder is supplied with screws and keys, **without** cartridges!



19 318...

Type	19 318... right-hand RD	19 318... left-hand LD		h=b mm	L mm	L1 mm	P mm
P92-2 CXCRD/LD 2020 K-30	100	101		20	125	44	15
P92-2 CXCRD/LD 2525 M-30	110	111		25	150	44	15
P92-2 CXCRD/LD 2020 K-40	120	121		20	125	44	15
P92-2 CXCRD/LD 2525 M-40	130	131		25	150	44	15

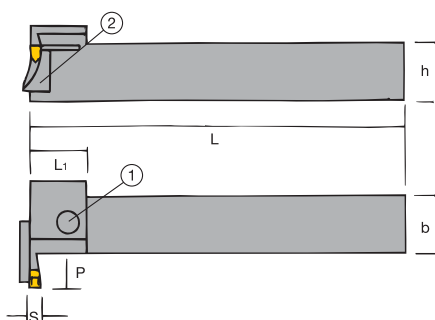
P = parting depth

19 318 90° toolholder for face parting

Wodex®

for parting tip 19 492... and 19 493...

The toolholder is supplied with screws and keys, **without** cartridges!



19 318...

Type	19 318... right-hand RD	19 318... left-hand LD		h=b mm	L mm	L1 mm	P mm
P92-90-CXCRD/LD 2020 K-30	200	201		20	125	24	15
P92-90-CXCRD/LD 2525 M-30	210	211		25	150	24	15
P92-90-CXCRD/LD 2020 K-40	220	221		20	125	24	15
P92-90-CXCRD/LD 2525 M-40	230	231		225	150	24	15

P = parting depth

19 318 Cartridges for face parting toolholder

Wodex®

Type	19 318... right-hand RD	19 318... left-hand LD		S mm	Ø min. - max mm
C92-RD/LD-2530-30	300	301		3	25 - 30
C92-RD/LD-3035-30	305	306		3	30 - 35
C92-RD/LD-3542-30	310	311		3	35 - 42
C92-RD/LD-4250-30	315	316		3	42 - 50
C92-RD/LD-5058-30	320	321		3	50 - 58
C92-RD/LD-5866-30	325	326		3	58 - 66
C92-RD/LD-6675-30	330	331		3	66 - 75
C92-RD/LD-75100-30	335	336		3	75 - 100
C92-RD/LD-100200-30	340	341		3	100 - 200
C92-RD/LD-4254-40	345	346		4	42 - 54
C92-RD/LD-5466-40	350	351		4	54 - 66
C92-RD/LD-6680-40	355	356		4	66 - 80
C92-RD/LD-80100-40	360	361		4	80 - 100
C92-RD/LD-100200-40	365	366		4	100 - 200

S = parting width

MONOBLOCK face parting

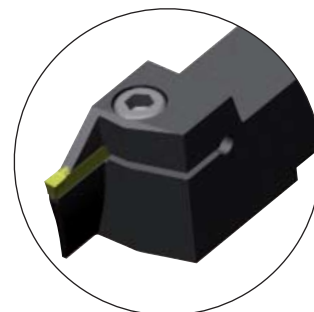
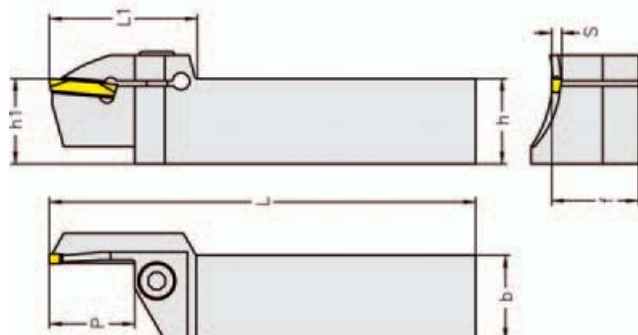
The MONOBLOCK face parting system utilises the diversity of the P92 parting tips and parting turning tips.

The stiff holder design ensures vibration-free running and high process security. If necessary, a suitable chip geometry is available for every problem.

19 481 MONOBLOCK face parting holder for parting width 3 mm

for parting tip 19 492... and 19 493...

Wodex



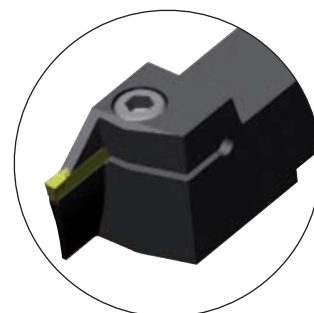
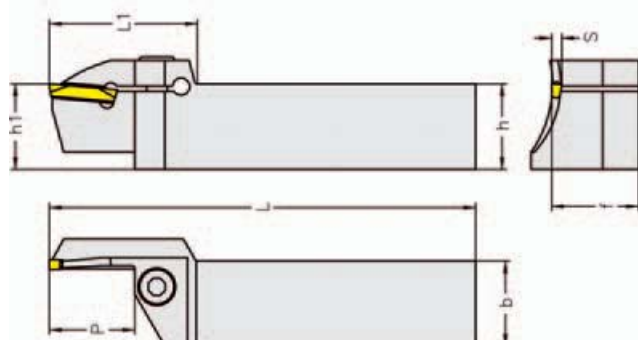
19 481...

Type	19 481... right-hand	19 481... left-hand		D min mm	D max mm	h=b mm	h1 mm	P mm	S mm	L mm	L1 mm
P92-2-CXCBRL 2020 K 30-25	001	003		25	30	20	20	15	3	125	35
P92-2-CXCBRL 2020 K 30-30	005	007		30	38	20	20	15	3	125	35
P92-2-CXCBRL 2020 K 30-38	009	011		38	48	20	20	15	3	125	35
P92-2-CXCBRL 2020 K 30-48	013	015		48	60	20	20	15	3	125	35
P92-2-CXCBRL 2020 K 30-60	017	019		60	75	20	20	22	3	125	43
P92-2-CXCBRL 2020 K 30-75	021	023		75	100	20	20	25	3	125	45
P92-2-CXCBRL 2020 K 30-100	025	027		100	200	20	20	25	3	125	45
P92-2-CXCBRL 2525 M 30-25	029	031		25	30	25	25	15	3	150	35
P92-2-CXCBRL 2525 M 30-30	033	035		30	38	25	25	15	3	150	35
P92-2-CXCBRL 2525 M 30-38	037	039		38	48	25	25	15	3	150	35
P92-2-CXCBRL 2525 M 30-48	041	043		48	60	25	25	15	3	150	35
P92-2-CXCBRL 2525 M 30-60	045	047		60	75	25	25	22	3	150	43
P92-2-CXCBRL 2525 M 30-75	049	051		75	100	25	25	25	3	150	45
P92-2-CXCBRL 2525 M 30-100	053	055		100	200	25	25	25	3	150	45

19 482 MONOBLOCK face parting holder for parting width 4 mm

for parting tip 19 492... and 19 493...

Wodex



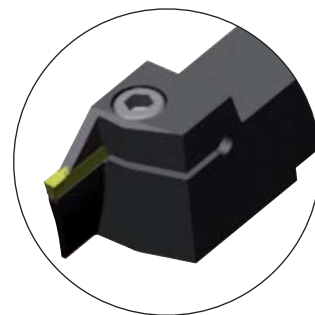
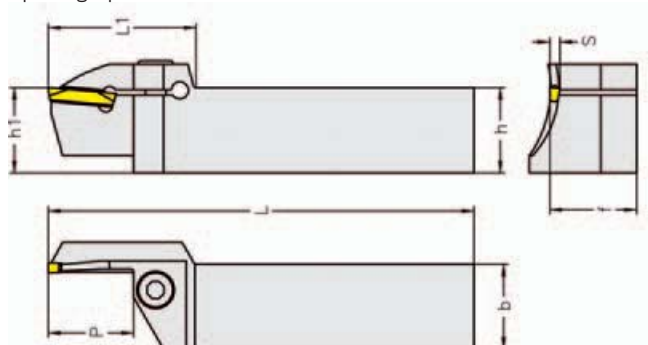
19 482...

Type	19 482... right-hand	19 482... left-hand		D min mm	D max mm	h=b mm	h1 mm	f mm	P mm	S mm	L mm	L1 mm
P92-2-CXCBRL 2020 K 40-34	001	003		34	40	20	20	20.5	20	4	125	41
P92-2-CXCBRL 2020 K 40-40	005	007		40	48	20	20	20.5	25	4	125	45
P92-2-CXCBRL 2020 K 40-48	009	011		48	60	20	20	20.5	25	4	125	45
P92-2-CXCBRL 2020 K 40-60	013	015		60	75	20	20	20.5	25	4	125	45
P92-2-CXCBRL 2020 K 40-75	017	019		75	150	20	20	20.5	25	4	125	45
P92-2-CXCBRL 2020 K 40-150	021	023		150	450	20	20	20.5	25	4	125	45
P92-2-CXCBRL 2525 K 40-34	025	027		34	40	25	25	25.5	20	4	150	41
P92-2-CXCBRL 2525 K 40-40	029	031		40	48	25	25	25.5	25	4	150	45
P92-2-CXCBRL 2525 K 40-48	033	035		48	60	25	25	25.5	25	4	150	45
P92-2-CXCBRL 2525 K 40-60	037	039		60	75	25	25	25.5	25	4	150	45
P92-2-CXCBRL 2525 K 40-75	041	043		75	150	25	25	25.5	25	4	150	45
P92-2-CXCBRL 2525 K 40-150	045	047		150	450	25	25	25.5	25	4	150	45
P92-2-CXCBRL 2525 K 40-450	049	051		450	∞	25	25	25.5	25	4	150	45

19 483 MONOBLOCK face parting holder for parting width 5 mm

Wodex

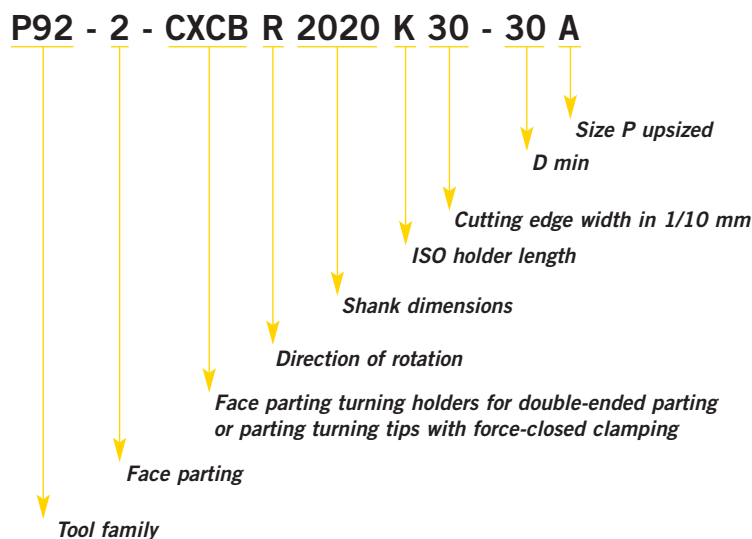
for parting tip 19 492... and 19 493...



19 483...

Type	19 483... right-hand	19 483... left-hand		D min mm	D max mm	h=b mm	h1 mm	f mm	P mm	S mm	L mm	L1 mm
P92-2-CXCBR/L 2020 K 50-42	001	003		42	55	20	20	20.5	25	5	125	45
P92-2-CXCBR/L 2020 K 50-55	005	007		55	75	20	20	20.5	25	5	125	45
P92-2-CXCBR/L 2020 K 50-75	009	011		75	130	20	20	20.5	28	5	125	48
P92-2-CXCBR/L 2525 M 50-42	013	015		42	55	25	25	25.5	25	5	150	45
P92-2-CXCBR/L 2525 M 50-55	017	019		55	75	25	25	25.5	25	5	150	45
P92-2-CXCBR/L 2525 M 50-75	021	023		75	130	25	25	25.5	32	5	150	52
P92-2-CXCBR/L 2525 M 50-75-A	025	027		75	130	25	25	25.5	40	5	150	60
P92-2-CXCBR/L 2525 M 50-130	029	031		130	200	25	25	25.5	32	5	150	52
P92-2-CXCBR/L 2525 M 50-130-A	033	035		130	200	25	25	25.5	40	5	150	60
P92-2-CXCBR/L 2525 M 50-200	037	039		200	450	25	25	25.5	32	5	150	52
P92-2-CXCBR/L 2525 M 50-200-A	041	043		200	450	25	25	25.5	45	5	150	65
P92-2-CXCBR/L 2525 M 50-450	045	047		450	∞	25	25	25.5	32	5	150	52
P92-2-CXCBR/L 2525 M 50-450-A	049	051		450	∞	25	25	25.5	45	5	150	65

Nomenclature for MONOBLOCK face parting holders



19 492 Parting turning tips for grooving and cylindrical turning

Wodex®

CUTTING TOOLS

Type	19 492... WOG 2025	19 492... WOV 2430		s mm
CTDS 302	001	002		3.00
CTDS 402	003	004		4.00
VTNS 302	101	102		3.00
VTNS 3.5	103	104		3.50
VTNS 402	105	106		4.00
VTNS 502	107	108		5.00
MTNS 302	201	202		3.00
MTNS 304	203	204		3.00
MTNS 402	205	206		4.00
MTNS 404	207	208		4.00
MTNS 504	213	214		5.00
MTNS 508	215	216		5.05
MTNS 604	217	218		6.05
MTNS 608	219	220		6.05
MTNS 612	221	222		6.05
MTNS 808	223	224		8.05
MTNS 812	225	226		8.05
MTNS 1008	227	228		10.05
MTNS 1012	229	230		10.05
CTD-3	301	302		3.00
CTD-4	303	304		4.00
CTR-3/6°	307	308		3.00
CTR-4/6°	309	310		4.00
CTR-5/6°	311	312		5.00
CTL-3/6°	327	328		3.00
CTL-4/6°	329	330		4.00
CTL-5/6°	331	332		5.00
BTNN 302	401	402		3.00
BTNN 402	403	404		4.00
BTNR 3-6°	405	406		3.00
BTNR 3-10°	407	408		3.00
BTNR 4-6°	409	410		4.00
BTNR 4-10°	411	412		4.00
BTNL 3-6°	413	414		3.00
BTNL 3-10°	415	416		3.00
BTNL 4-6°	417	418		4.00
BTNL 4-10°	419	420		4.00
RTNX 315	501	502		3.05
RTNX 420	503	504		4.05
RTNX 525	505	506		5.05
RTNX 630	507	508		6.05
RTNX 840	509	510		8.05
RTNX 1050	511	512		10.05
RTNG 315	601	602		3.00
RTNG 420	603	604		4.00
RTNG 525	605	606		5.00
RTNG 630	607	608		6.00
RTNG 840	609	610		8.00
RTNG 1050	611	612		10.00

S = parting width



...001 - ...004



...101 - ...108



...201 - ...230



...301 - ...332



...401 - ...420



...501 - ...512



...601 - ...612

Corner radius definition

e.g. MTNS 3 02

R 0.2
Cutting edge width



19 493 Parting turning tips with 2 cutting edges for parting off and grooving

Wodex®

Type	19 493... WOU 3010		19 493... WOV 3010		s mm
CTD-3 ALU	001		101		3
CTD-4 ALU	003		103		4
CTD-5 ALU	005		105		5
CTR-3/6° ALU	007		107		3
CTR-4/6° ALU	009		109		4
CTR-5/6° ALU	011		111		5
CTL-3/6° ALU	013		113		3
CTL-4/6° ALU	015		115		4
CTL-5/6° ALU	017		117		5

S = parting width +0.15



19 493...

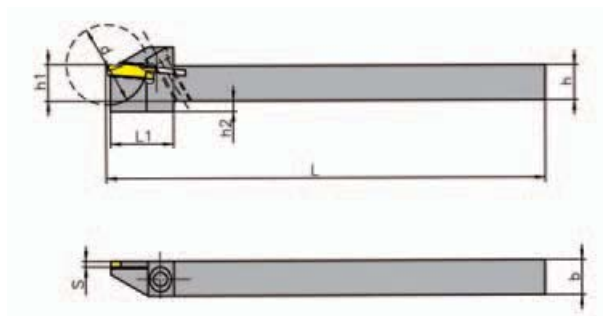
CUTTING TOOLS

1



19 319 Toolholder for parting off and grooving**Wodex®**

for parting tip



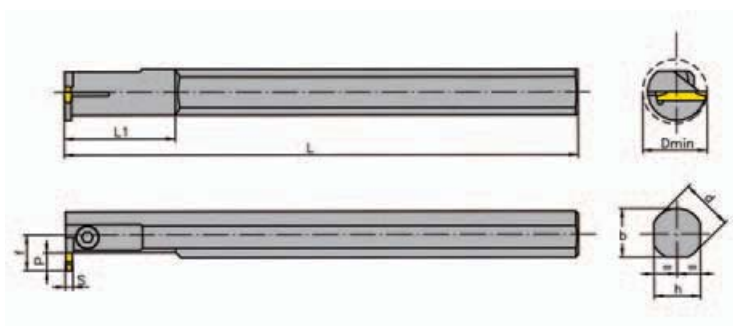
19 319...

Type	19 319... right-hand	19 319... left-hand		h=h1 mm	b mm	h2 mm	L mm	L1 mm	S mm	d mm	P mm
P92-S CXCBR/L 1010 K20-11	020	021		10	10	3	125	19	2	22	-
P92-S CXCBR/L 1212 K20-11	025	026		12	12	-	125	19	2	22	-
P92-S CXCBR/L 1616 K20-11	030	031		16	16	-	125	19	2	22	-
P92-S CXCBR/L 2020 K20	035	036		20	20	-	125	22	2	22	11
P92-S CXCBR/L 2525 M20	040	041		25	25	-	150	22	2	22	11

S = parting width / d = parting off diameter ...035 - ...041 without radial stiffening

19 319 Boring bars with internal cooling**Wodex®**

for internal grooving for parting tips with 2 cutting edges for parting holder



19 319...

Type	19 319... right-hand	19 319... left-hand		Ø min. mm	d mm	h mm	b mm	f mm	P mm	s mm	L mm	L1 mm
P92 - S - CGR/L 0012 M20	120	121		15.5	12	11	-	9	5.5	2	150	22
P92 - S - CGR/L 0016 P20	160	161		20	16	15	15.5	11	7.0	2	170	26
P92 - S - CGR/L 0020 R20	200	201		25	20	18	18.5	13	7.0	2	200	40
P92 - S - CGR/L 0025 R20	250	251		30	25	23	23	15	7.0	2	200	50

S = parting width / d = parting depth

19 491 Parting tips with 2 cutting edges**Wodex®**

for parting off and grooving

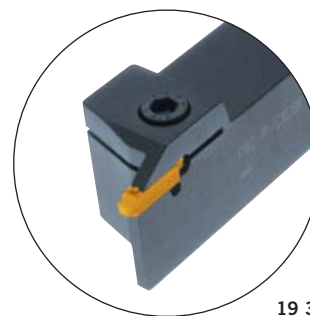
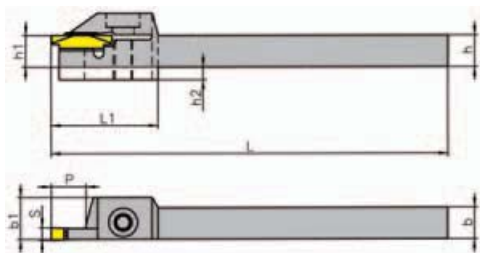
Type	19 491... WOG 2025	19 491... WOV 2430		s mm
STNS-2	701	702		2.0
STNR-2/10°	711	712		2.0
STNL-2/10°	721	722		2.0

S = parting width



19 491...

19 327 Precision grooving holder **Wodex®**



19 327...

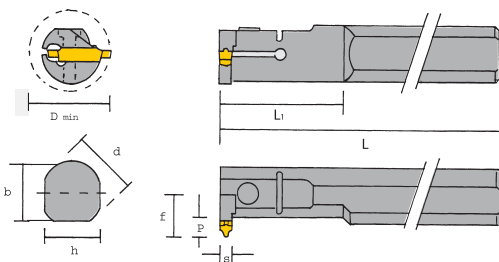
Type	19 327... right-hand	19 327... left-hand		h=h1 mm	b mm	b1 mm	h2 mm	L mm	L1 mm	S mm	P mm
P92-P-CXCBR/L 0808 K 4	010	011		08	08	12	4	125	25	4	11
P92-P-CXCBR/L 1010 K 4-11	015	016		10	10	12	3	125	19	4	11
P92-P-CXCBR/L 1212 K 4-11	020	021		12	12	-	-	125	19	4	11
P92-P-CXCBR/L 2020 K 4	035	036		20	20	-	-	125	34	4	11
P92-P-CXCBR/L 2020 K 5+6	040	041		20	20	-	-	125	35	5 - 6.5	14
P92-P-CXCBR/L 2525 M 4	045	046		25	25	-	-	150	34	4	11
P92-P-CXCBR/L 2525 M 5+6	050	051		25	25	-	-	150	37	5 - 6.5	14

S = parting width / P = parting depth...015 - ...026 with radial stiffening

19 327 Precision boring bars with internal cooling

Wodex®

for internal grooving



19 327...

Type	19 327... right-hand	19 327... left-hand		Ø min. mm	d mm	h mm	b mm	f mm	P mm	s mm	L mm	L1 mm
P92-P-CGR/L 0020 R 4	100	101		24	20	18	18.5	13	6.5	4	200	40
P92-P-CGR/L 0020 R 5+6	110	111		27	20	18	18.5	15	9	5 - 6.5	200	50
P92-P-CGR/L 0025 R 4	120	121		32	25	23	23	17	10	4	200	50
P92-P-CGR/L 0025 R 5+6	130	131		32	25	23	23	17	10	5 - 6.5	200	50
P92-P-CGR/L 0032 R 4	140	141		42	32	30	30	22	12	4	250	64
P92-P-CGR/L 0032 R 5+6	150	151		44	32	30	30	22	16	5 - 6.5	250	64

S = parting width / d = parting depth

19 327 Precision grooving tips

for retaining ring grooves (DIN 471)

Wodex®



19 327...

Type	19 327... right-hand WOG 2025	19 327... left-hand WOG 2025		s mm	s -0.05 mm
OTX 4 050 R/L	250	251		0.50	0.57
OTX 4 060 R/L	255	256		0.60	0.67
OTX 4 070 R/L	260	261		0.70	0.77
OTX 4 080 R/L	265	266		0.80	0.87
OTX 4 090 R/L	200	201		0.90	0.97
OTX 4 110 R/L	205	206		1.10	1.24
OTX 4 130 R/L	210	211		1.30	1.44
OTX 4 160 R/L	215	216		1.60	1.74
OTX 4 185 R/L	220	221		1.85	1.99
OTX 4 215 R/L	225	226		2.15	2.29
OTX 4 265 R/L	230	231		2.65	2.79
OTX 4 300 R/L	235	236		3.00	3.29
OTX 4 315 R/L	240	241		3.15	3.29
OTX 5 415 R/L	245	246		4.15	4.29

S = parting width -0.05

19 327 Precision grooving tips

for O-ring grooves (DIN 471)

Wodex®



19 327...

Type	19 327... right-hand WOG 2025	19 327... left-hand WOG 2025		s mm
OTX 4 R050 R/L	300	301		1.00
OTX 4 R075 R/L	305	306		1.50
OTX 4 R100 R/L	310	311		2.00
OTX 4 R125 R/L	315	316		2.50
OTX 4 R150 R/L	320	321		3.00
OTX 5 R200 R/L	325	326		4.00
OTX 6 R250 R/L	330	331		5.00
OTX 6 R300 R/L	335	336		6.00

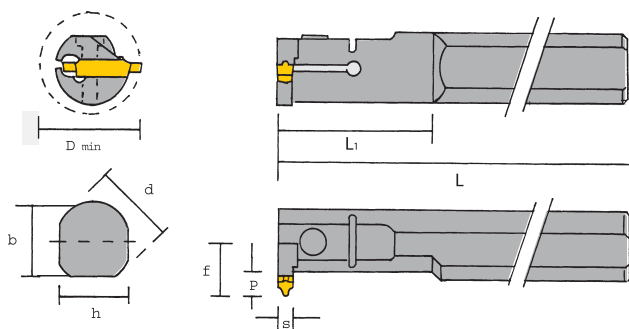
S = parting width +0.05



19 328 Boring bars

for internal grooving and internal thread turning for small diameters

Wodex®



19 328...

Type	19 328... right-hand	19 328... left-hand		Ø min. mm	d mm	h mm	b mm	f mm	P mm	s mm	L mm	L1 mm
P92-P-CGR/L 0012 M4C	005	006		15.5	12	11	-	8.7	2.5	max.1.85	150	22
P92-P-CGR/L 0016 P4C	010	011		20	15.5	15	16	11	2.5	max.3.15	170	26

S = parting width / P = parting depth

19 328 Precision grooving tips

for retaining grooves

Wodex®

Type	19 328... right-hand WOG 2025	19 328... left-hand WOG 2025		s mm	s -0.05 mm
KOTX 4 090 R/L	300	301		0.90	0.97
KOTX 4 110 R/L	305	306		1.10	1.24
KOTX 4 130 R/L	310	311		1.30	1.44
KOTX 4 160 R/L	315	316		1.60	1.74
KOTX 4 185 R/L	320	321		1.85	1.99
KOTX 4 215 R/L	325	326		2.12	2.29
KOTX 4 265 R/L	330	331		2.65	2.79
KOTX 4 315 R/L	340	341		3.15	3.29



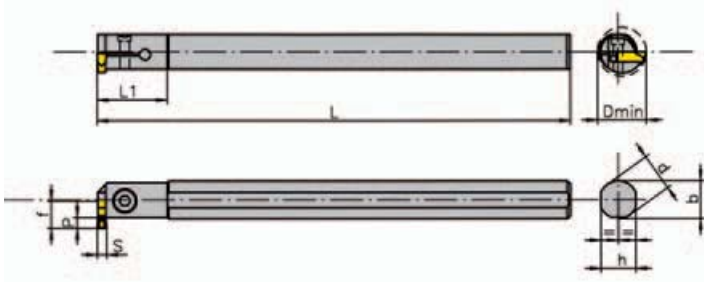
19 328...

S = parting width -0.05

19 328 Small boring bar with internal cooling

for internal grooving and cylindrical turning for parting tip KCTD/S

Wodex®



19 328...

Type	19 328... right-hand	19 328... left-hand		d mm	h mm	b mm	f mm	P mm	L mm	L1 mm
P92 - CGR/L 0012M 30C	105	106		12	11	-	9	3/5.5	150	22
P92 - CGR/L 0016P 30C	110	111		16	15	15.5	11	4.5/7	170	26

S = parting width / P = parting depth

19 328 Parting and parting turning tips

Wodex®

Type	19 328... WOG 2025	19 328... WOG 2430		s mm
KCTD 3	200	205		3.0
KCTDS 3	210	215		3.0
KCTD 3 - MAX	220	225		3.0
KCTDS 3 - MAX	230	235		3.0

S = parting width



19 470 SPGN / SPUN tip

for C clamping system

Wodex®



Type	19 470... WOG 2025		19 470... WOG 2430		19 470... WOU 2025	
SPGN 090304	-	-	-	-	-	-
SPGN 090308	-	-	125	-	-	-
SPUN 120304	284	-	285	-	289	-
SPUN 120308	304	-	-	-	-	-
P	120 - 230	-	120 - 220	-	60 - 150	0.2 - 0.8
M	-	-	75 - 100	-	-	0.2 - 0.8
K	-	-	-	-	-	-
NE	-	-	-	-	-	-
H	-	-	-	-	-	-
S	-	-	-	-	-	-

19 480 TPUN tip

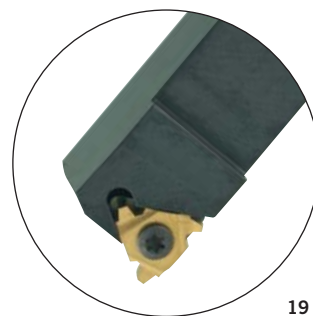
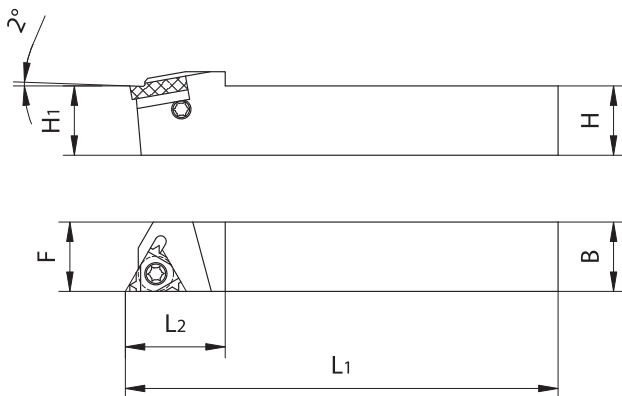
for C clamping system

Wodex®



Type	19 480... WOG 3010		19 480... WOG 2025		19 480... WOG 2430		19 480... WOU 2025	
TPUN 160304	262	-	264	-	265	-	269	-
TPUN 160308	282	-	284	-	-	-	289	-
P	-	-	120 - 230	-	120 - 220	-	60 - 150	0.2 - 0.8
M	-	-	-	-	75 - 100	-	-	0.2 - 0.8
K	150 - 290	-	-	-	-	-	-	0.2 - 0.8
NE	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-

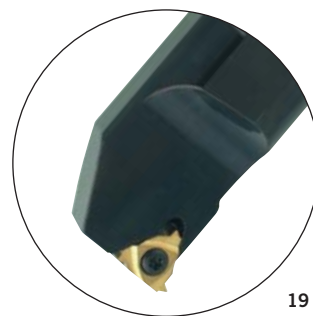
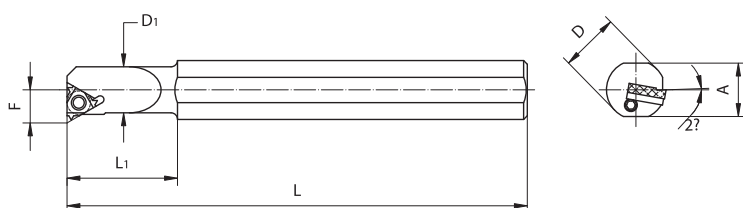
19 323 Threading toolholder for external machining

Wodex®


19 323 308

Type	19 323... left-hand	19 323... right-hand		H=H1=B mm	F mm	L1 mm	L2 mm
AL/R 16-16	301	302		14	16	100.0	20.5
AL/R 20-16	303	304		20	20	129.0	30.0
AL/R 25-16	305	306		25	25	154.0	30.0
AL/R 25-22	307	308		25	25	156.0	36.0
AL/R 25-27	309	310		25	32	151.6	35.0

19 323 Threading toolholder for internal machining

Wodex®


19 323 412

Type	19 323... left-hand	19 323... right-hand		A mm	L mm	L1 mm	D mm	D1 mm	F mm	Ø min mm
NVR/L 13-16	401	402		18	180	82	20	12.7	10.3	17
NVR/L 16-16	403	404		18	180	40	20	16	11.5	20
NVR/L 20-22	405	406		18	180	50	20	20	15.6	27
AVR/L 20-16	407	408		18	180	40	20	20	13.4	24
AVR/L 25-16	409	410		29	250	60	32	25	16.3	29
AVR/L 32-16	411	412		29	250	60	32	32	19.6	36
AVR/L 32-27	413	414		29	250	60	32	32	22.4	42

Type NVR without shim

External machining accessories

Type	Clamping screw 19 323...	Screw 19 323...	Key 19 323...	RH shim 19 323...	LH shim 19 323...
AL/R-16	516	616	716	816	916
AL/R-22	522	622	722	822	922

Internal machining accessories

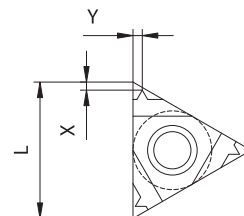
Type	Clamping screw 19 323...	Screw 19 323...	Key 19 323...	RH shim 19 323...	LH shim 19 323...
NVR/L-16	517	-	716	-	-
AVR/L-16	523	616	716	916	816



19 500 Threading tips

for external thread, 60° partial profile

Wodex®

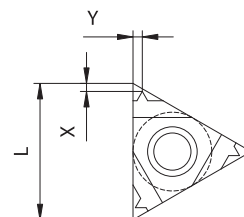


Type	19 500... WOG 2425		19 500... WOV 2425		Pitch mm	Pitch TPI	L mm	X mm	Y mm
16 ER A 60	027		227		0.50 - 1.50	48.00 - 16.00	16	0.7	0.8
16 ER G 60	047		247		1.75 - 3.00	14.00 - 8.00	16	1.1	1.5
16 ER AG 60	067		267		0.50 - 3.00	48.00 - 8.00	16	1.1	1.5

19 501 Threading tips

for internal thread, 60° partial profile

Wodex®

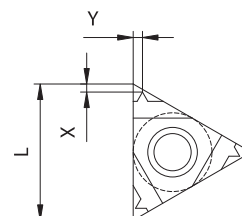


Type	19 501... WOG 2425		19 501... WOV 2425		Pitch mm	Pitch TPI	L mm	X mm	Y mm
16 NR A 60	027		227		0.50 - 1.50	48.00 - 16.00	16	0.7	0.8
16 NR G 60	047		247		1.75 - 3.00	14.00 - 8.00	16	1.1	1.5
16 NR AG 60	067		267		0.50 - 3.00	48.00 - 8.00	16	1.1	1.5

19 502 Threading tips

for external thread, 55° partial profile

Wodex®

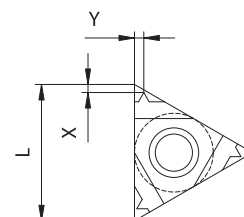


Type	19 502... WOG 2425		19 502... WOV 2425		Pitch mm	Pitch TPI	L mm	X mm	Y mm
16 ER A 55	027		227		0.50 - 1.50	48.00 - 16.00	16	0.7	0.8
16 ER G 55	047		247		1.75 - 3.00	14.00 - 8.00	16	1.1	1.5
16 ER AG 55	067		267		0.50 - 3.00	48.00 - 8.00	16	1.1	1.5

19 503 Threading tips

for internal thread, 55° partial profile

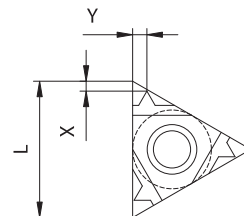
Wodex®



Type	19 503... WOG 2425		19 503... WOV 2425		Pitch mm	Pitch TPI	L mm	X mm	Y mm
16 NR A 55	027		227		0.50 - 1.50	48.00 - 16.00	16	0.7	0.8
16 NR G 55	047		247		1.75 - 3.00	14.00 - 8.00	16	1.1	1.5
16 NR AG 55	067		267		0.50 - 3.00	48.00 - 8.00	16	1.1	1.5

19 504 Threading tips

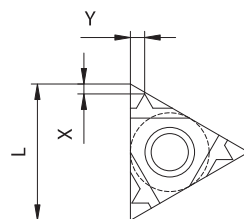
for ISO metric external thread, 60° full profile

Wodex®

Type	19 504... WOG 2425		19 504... WOV 2425		Pitch mm	L mm	X mm	Y mm
16 ER 1.00 ISO	244		246		1.00	16	0.7	0.8
16 ER 1.25 ISO	264		266		1.25	16	0.7	0.8
16 ER 1.50 ISO	284		286		1.50	16	0.7	0.8
16 ER 1.75 ISO	304		306		1.75	16	1.3	1.5
16 ER 2.00 ISO	324		326		2.00	16	1.3	1.5
16 ER 2.50 ISO	344		346		2.50	16	1.3	1.5
16 ER 3.00 ISO	364		366		3.00	16	1.3	1.5
22 ER 3.50 ISO	564		566		3.50	22	1.8	2.5
22 ER 4.00 ISO	584		586		4.00	22	1.8	2.5
22 ER 4.50 ISO	604		606		4.50	22	1.8	2.5
22 ER 5.00 ISO	624		626		5.00	22	1.8	2.5
27 ER 5.50 ISO	724		726		5.50	27	1.8	2.5
27 ER 6.00 ISO	744		746		6.00	27	1.9	2.8

19 505 Threading tips

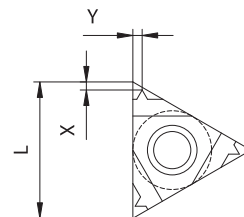
for ISO metric internal thread, 60° full profile

Wodex®

Type	19 505... WOG 2425		19 505... WOV 2425		Pitch mm	L mm	X mm	Y mm
16 NR 1.00 ISO	244		246		1.00	16	0.7	0.8
16 NR 1.25 ISO	264		266		1.25	16	0.7	0.8
16 NR 1.50 ISO	284		286		1.50	16	0.7	0.8
16 NR 1.75 ISO	304		306		1.75	16	1.3	1.5
16 NR 2.00 ISO	324		326		2.00	16	1.3	1.5
16 NR 2.50 ISO	344		346		2.50	16	1.3	1.5
16 NR 3.00 ISO	364		366		3.00	16	1.3	1.5
22 NR 3.50 ISO	564		566		3.50	22	1.8	2.5
22 NR 4.00 ISO	584		586		4.00	22	1.8	2.5
22 NR 4.50 ISO	604		606		4.50	22	1.8	2.5
22 NR 5.00 ISO	624		626		5.00	22	1.8	2.5
27 NR 5.50 ISO	724		726		5.50	27	1.8	2.5
27 NR 6.00 ISO	744		746		6.00	27	1.9	2.8

19 510 Threading tips

for Whitworth external thread, 55° full profile

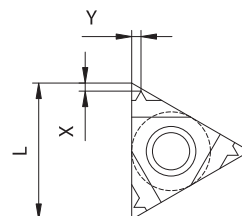
Wodex®

Type	19 510... WOG 2425		19 510... WOV 2425		Pitch TPI	L mm	X mm	Y mm
16 ER 19 W	184		186		19	16	0.7	0.8
16 ER 14 W	244		246		14	22	1.3	1.5
16 ER 11 W	284		286		11	22	1.3	1.5

19 511 Threading tips

for Whitworth internal thread, 55° full profile

Wodex®

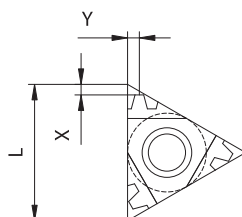


Type	19 511... WOG 2425		19 511... WOV 2425		Pitch TPI	L mm	X mm	Y mm
16 NR 19 W	184		186		19	16	0.7	0.8
16 NR 14 W	244		246		14	22	1.3	1.5
16 NR 11 W	284		286		11	22	1.3	1.5

19 514 Threading tips

for external thread, trapezoidal, DIN 103 / BS 5346

Wodex®

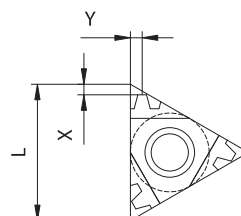


Type	19 514... WOG 2425		19 514... WOV 2425		Pitch TPI	L mm	X mm	Y mm
16 ER 3.0 TR	064		066		3	16	1.3	1.5
22 ER 4.0 TR	084		086		4	22	2.0	2.5
22 ER 5.0 TR	104		106		5	22	2.1	2.0

19 515 Threading tips

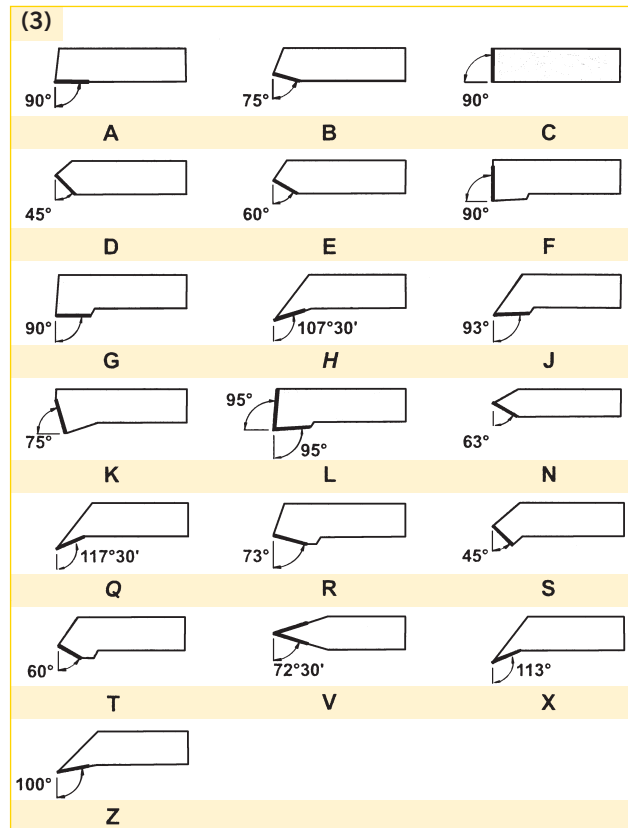
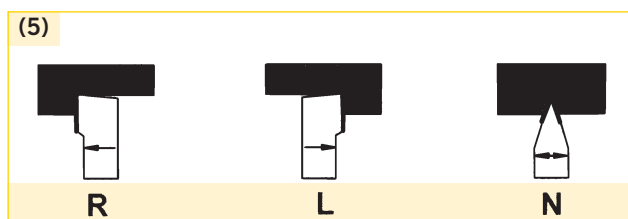
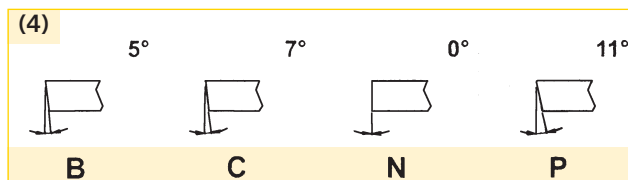
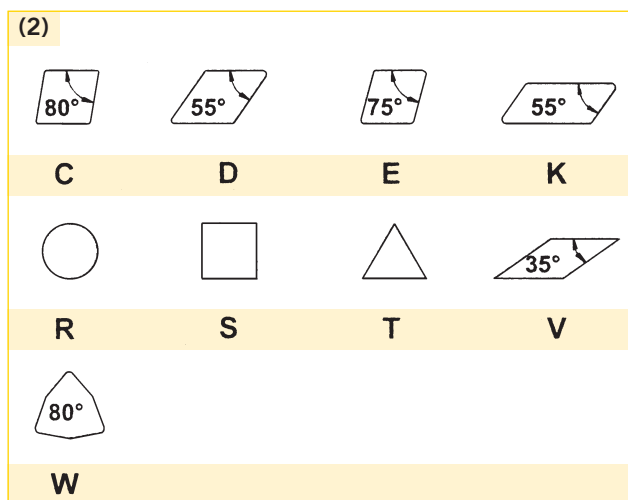
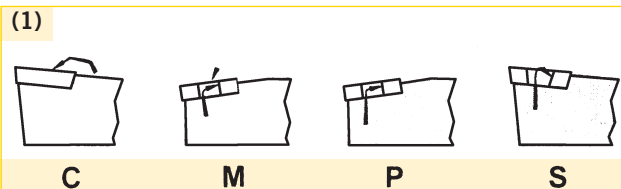
for internal thread, trapezoidal, DIN 103 / BS 5346

Wodex®



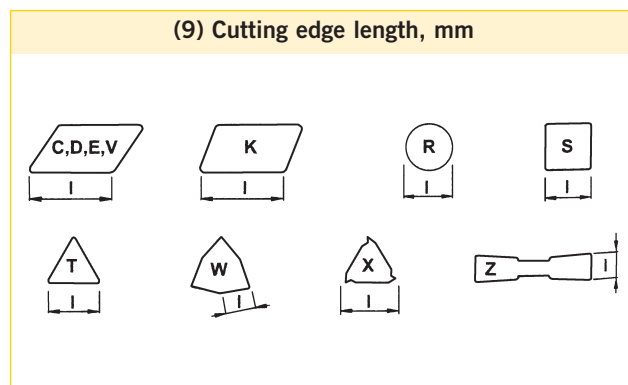
Type	19 515... WOG 2425		19 515... WOV 2425		Pitch TPI	L mm	X mm	Y mm
16 NR 3.0 TR	064		066		3	16	1.3	1.5
22 NR 4.0 TR	084		086		4	22	2.0	2.5
22 NR 5.0 TR	104		106		5	22	2.1	2.0

1	2	3	4	5	6	7	8	9
C	S	B	N	R	25	25	M	12



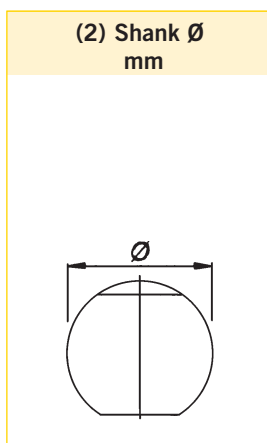
(8) Tool length, mm

D 60	P 170
E 70	R 200
F 80	S 250
H 100	T 300
K 125	U 350
L 140	V 400
M 150	X Spezial/special

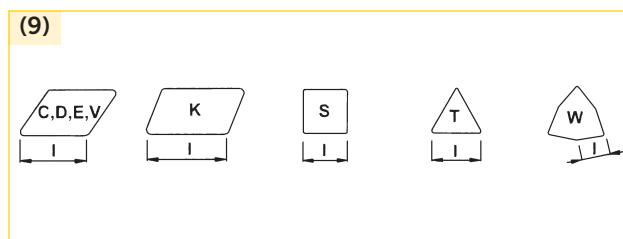
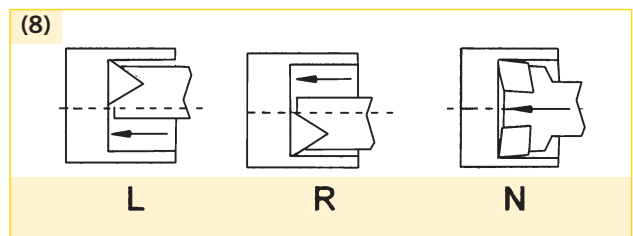
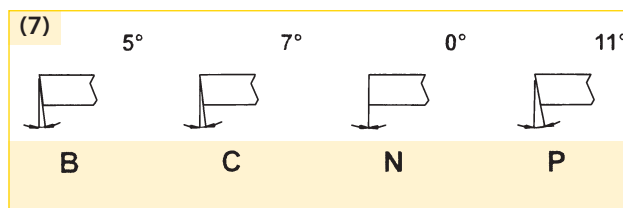
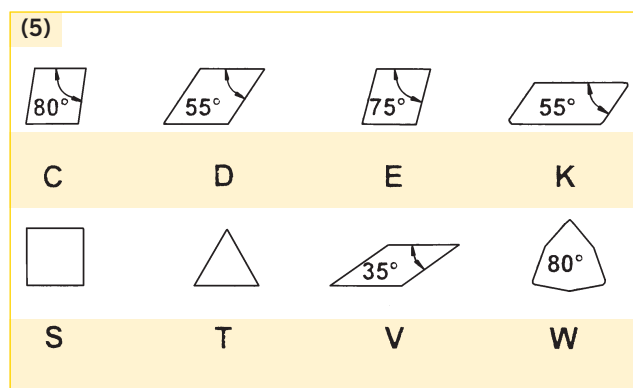
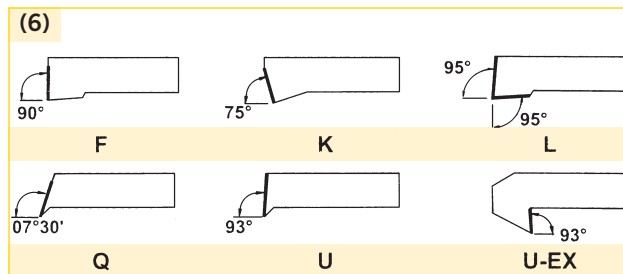
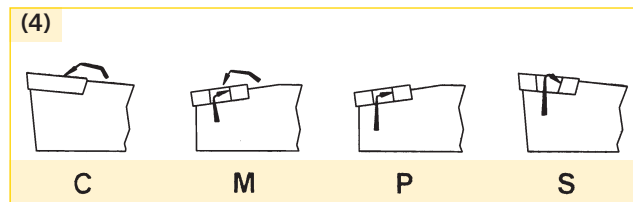


1	2	3	4	5	6	7	8	9	10
S	25	T	S	D	U	C	R	11 -	EX

(1) Shank	
A	Steel shank with internal coolant supply
C	Solid carbide tool
E	Solid carbide shank with internal coolant supply
S	Steel shank



(3) Tool length mm		
	K 125	T 300
	L 140	U 350
	M 150	V 400
	Q 180	W 450
	R 200	Y 500
	S 250	X Spezial/special



(10) Additional information, non-standardised

Sorten grades		ISO P										ISO M					ISO K					Material group				
		10	15	20	25	30	35	40	50	10	15	20	30	40	05	10	15	20	25	30	Steel	Stainless steel	Cast iron	Non-ferrous metals	Plastics	
beschichtet coated	WOG 2020																				●					
	WOG 2025																				●					
	WOG 2030																				●					
	WOG 2035																				●					
	WOG 2320																				●		●			
	WOG 2330																				●		●			
	WOG 2415																				●	●				
	WOG 2425																				●	○	●			
	WOG 2430																				●	●	○			
	WOG 2435																				●	○				
	WOG 4040																					●				
	WOG 4310																				○	●	○			
	WOG 4335																					●	○			
unbeschichtet uncoated	WOV 2020																				●					
	WOV 2035																				●					
	WOV 2435																					●	●			
	WOV 3020																						●			
	WOV 4230																				●	●				
	WOV 4235																				○	●				
	WOV 4325																					●	●			
	WOS 2325																				●	○	●			
	WOS 3010																						●			
	WOS 3015																						●	○		
	WOS 3210																				○		●			
	Spezial special	WOU 2020																				●				
		WOU 2025																				●				
WOU 2030																					●					
WOU 2035																					●					
WOU 2040																					●					
WOU 2045																					●					
WOU 3010																						○	●	○		
WOU 3020																							●	●	●	
WOC 2015																				●						
WOC 2415																				●	●					
WOK SNC																						●				
		Toughness →										Toughness →					Toughness →									
		← Wear resistance										← Wear resistance					← Wear resistance									

Toughness →

← Wear resistance

Toughness →

← Wear resistance

Toughness →

← Wear resistance



WO	G	2	3	20	Wodex®
1	2	3	4	5	

1 **WO** = WODEX quality hard metal grades

2
Coating colour
G gold / TiN
S black / AL ₂ O ₃
V violet / TiCN / TiALN
U uncoated
C Cermet
K ceramic

3
Main application
2 ISO P (steel)
3 ISO K (cast iron, non-ferrous metals)
4 ISO M (stainless/inox)

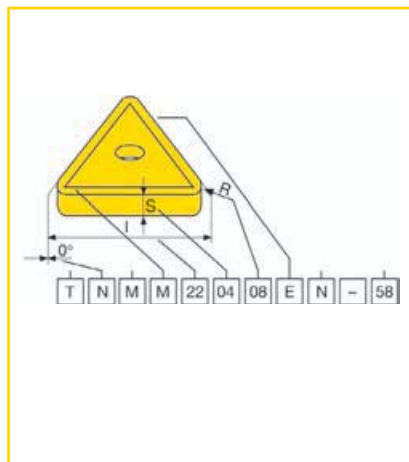
4
Extended application
2 ISO P (steel)
3 ISO K (cast iron, non-ferrous metals)
4 ISO M (stainless, inox)

5
Toughness, wear resistance
10 15 20 25 30 35 40 50
Toughness
Wear resistance

(1) Tip shape			
H	O	P	R
S	T	C	D
E	M	V	W
L	A	B	K

(2) Tool orthogonal clearance	
A	B
C	D
E	F
G	N
	spezial
P	O

(4) Tip type	
N	R
F	A
M	G
W	T
	spezial
Q	X



ISO code

1	2	3	4
T	N	U	N
T	N	M	M

ANSI code

1	2	3	4
T	N	U	
T	N	M	M

(3) Tolerances

Symbol	Tolerances (mm)			Tolerances (inch)		
	m	s	ø d = I.C.	m	s	ø d = I.C.
A	± 0.005	± 0.025	± 0.025	± 0.0002	± 0.001	± 0.0010
F	± 0.005	± 0.025	± 0.013	± 0.0002	± 0.001	± 0.0005
C	± 0.013	± 0.025	± 0.025	± 0.0005	± 0.001	± 0.0010
H	± 0.013	± 0.025	± 0.013	± 0.0005	± 0.001	± 0.0005
E	± 0.025	± 0.025	± 0.025	± 0.0010	± 0.001	± 0.0010
G	± 0.025	± 0.13	± 0.025	± 0.0010	± 0.005	± 0.0010
J	± 0.005	± 0.025	± 0.05 ÷ 0.13	± 0.0002	± 0.001	± 0.002 ÷ 0.005
K	± 0.013	± 0.025	± 0.05 ÷ 0.13	± 0.0005	± 0.001	± 0.002 ÷ 0.005
L	± 0.025	± 0.025	± 0.05 ÷ 0.13	± 0.0010	± 0.001	± 0.002 ÷ 0.005
M	± 0.08 ÷ 0.18	± 0.13	± 0.05 ÷ 0.13	± 0.003 ÷ 0.007	± 0.005	± 0.002 ÷ 0.005
N	± 0.08 ÷ 0.18	± 0.025	± 0.05 ÷ 0.13	± 0.003 ÷ 0.007	± 0.001	± 0.002 ÷ 0.005
U	± 0.13 ÷ 0.38	± 0.13	± 0.08 ÷ 0.25	± 0.005 ÷ 0.015	± 0.005	± 0.003 ÷ 0.010



(5) Cutting edge length								
ø d = I.C.		R	S	T	C	D	V	W
mm	inch							
3.97	5/32"			06				
5.0		05						
5.56	7/32"			09				03
6.0		06						
6.35	1/4"			11	06	07		04
8.0		08						
9.525	3/8"	09	09	16	09	11	16	06
10.0		10						
12.0		12						
12.7	1/2"	12	12	22	12	15		08
15.875	5/8"	15	15	27	16			
16.0		16						
19.05	3/4"	19	19	33	19			
20.0		20						
25.0		25						
25.4	1"	25	25		25			
31.75	1 1/4"	31						
32.0		32						

(6) Thickness		
Symbol	s	
	mm	inch
01	1.59	1/16"
T1	1.98	
02	2.38	3/32"
03	3.18	1/8"
T3	3.97	5/32"
04	4.76	3/16"
05	5.56	
06	6.35	1/4"
07	7.94	5/16"
09	9.52	3/8"

(7) Corner radius		
Symb.	R	
	mm	inch
00	0	0"
02	0.2	
04	0.4	1/64"
08	0.8	1/32"
12	1.2	3/64"
16	1.6	1/16"
24	2.4	3/32"
32	3.2	1/8"
Round tip		
ø d = I.C.		Symbol
inch		00
mm		M0

5	6	7	8	9	10
22	04	08			
22	04	08	E	N	58

5 A	6 A	7 A	8	9	10
4	3	2			
4	3	2	E	N	58

ANSI Code

Inner circle		Thickness		Corner radius	
Symb.	ø d = I.C.	Symb.	s	Symb.	R
	mm		mm		mm
2	6.35 1/4"		inch	0	0 0"
3	9.525 3/8"	2	3.18 1/8"	1	0.4 1/64"
4	12.7 1/2"	3	4.76 3/16"	2	0.8 1/32"
5	15.875 5/8"	4	6.35 1/4"	3	1.2 3/64"
6	19.05 3/4"	5	7.94 5/16"	4	1.6 1/16"
8	25.4 1"	6	9.52 3/8"	6	2.4 3/32"
10	31.75 1 1/4"			8	3.2 1/8"

(8) Cutting edge type	
F	E
sharp edges	rounded edges
T	S
edges with cutting chamfer	rounded edges with chamfer

(9) Feed direction		
R	N	L
Feed	Feed Feed	Feed

(10) Manufacturer's information
Designation of the chip breaker

Milling overview

Wodex

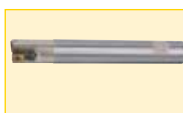
CUTTING TOOLS



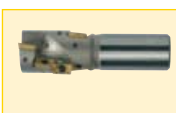
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for AP.. 1003
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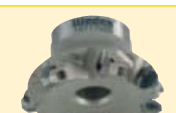
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for OFER 0704...
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for SD.. 09T3
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for CCMT 060204
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for SCMT12... and
TCMT16...
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for TCMX 16T3
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for TCMT...
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for CC.T
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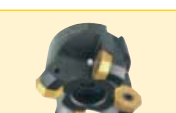
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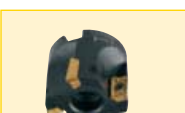
for CC.T
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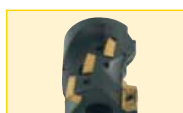
for AD.T 12T3..
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for AD.T 12T3..
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for WCMX...
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for XPNT...
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for XDLW...
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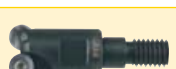
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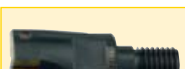
for RD... 12
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for RD... 12
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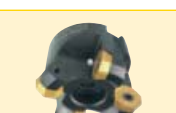


for RD...
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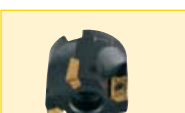


for SCMT09
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STELLRAM



for AD.T 12T3..
Page 359



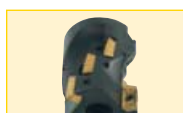
for AD.T 12T3..
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for AD.T 12T3..
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for AD.T 12T3..
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for AD.T 12T3..
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for RD...
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for RD...
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for RD...
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for RD...
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for RD...
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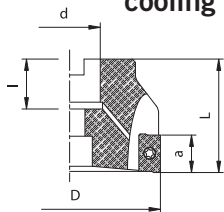


for RD...
Page 366



19 703 Angle milling cutters with internal cooling for tip AP.. 1604

Wodex®



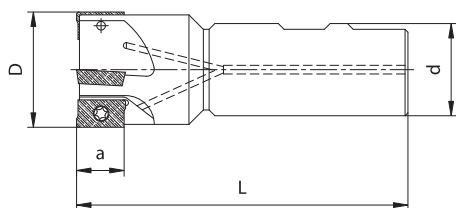
D mm	19 703...		d mm	L mm	l mm	a mm	Z
50	010		22	45	20	17	5
63	015		22	50	22	17	6
80	020		27	50	22	17	7
100	025		32	50	25	17	8
125	030		40	63	30	17	9
160	035		40	63	30	17	10



19 703 035

19 707 Angle milling cutters with internal cooling for tip AP.. 1604

Wodex®



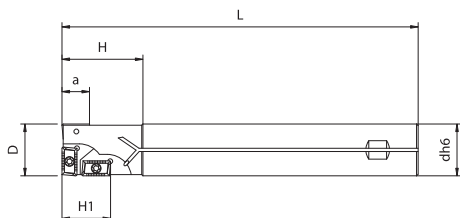
D mm	19 707...		d mm	L mm	a mm	Z
25	010		25	100	17	2
25	012		25	200	17	2
32	025		32	110	17	3
32	027		25	200	17	3
40	031		32	115	17	4



19 707 031

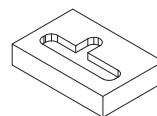
19 709 Slotting milling cutters with internal cooling for tip AP.. 1604

Wodex®



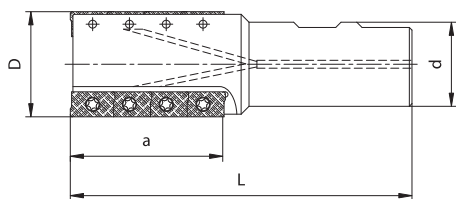
19 709 120

ØD mm	19 709...		Ødh6 mm	L mm	H mm	H1 mm	a mm	Z
32	032		32	130	50	30	15	3
32	132		32	220	50	30	15	3



19 736 Shell end mill cutters with internal cooling for tip AP.. 1604

Wodex®

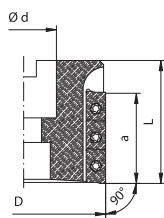


D mm	19 736...		d mm	L mm	a mm	Z
25	200		25	105	29	1
32	205		32	115	44	2
40	210		32	130	58	2



19 736 210

19 737 Shell end milling cutter for AP.. 1604

Wodex®


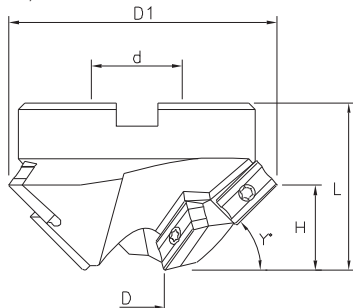
19 737 110

D mm	19 737...		d mm	L mm	a mm	Z
50	100		22	50	30	3
63	105		27	60	44	4
80	110		32	60	44	5
100	115		40	60	44	6

19 738 Chamfering milling cutter for AP.T 1604

Wodex®

15°, 30°, 45°, 60° and 75°



19 738...

Typ e / Angle γ°	19 738...		D mm	D1 mm	d mm	L mm	H mm	Number of tips	Z
15°	215		35	90	27	50	8.0	6	3
30°	230		35	85	27	50	15.0	6	3
45°	245		35	75	27	50	21.5	6	3
60°	260		35	62	27	50	26.5	6	3
75°	275		35	45	22	60	29.5	6	3

Accessories for 19 703..., 19 707..., 19 736..., 19 737..., 19 738...



For angle milling cutters with Ø D mm	Clamping screw 19 721...	Key 51 062...
25 - 160	700	015

19 818 APET tip for aluminium machining

Wodex®

19 819 APHT tip for steel and cast iron machining

Wodex®


Type	19 818... WOU 3020	
APET 1604 PD FR - AL	114	
P	-	-
M	-	-
K	-	-
NE	300 - 500	0.06 - 0.12
H	-	-
S	-	-

Type	19 819... WOG 2020		19 819... WOV 3020	
APHT 1604 PDSR - TR	103		112	
P	120 - 220	-	-	0.12 - 0.18
M	-	-	-	-
K	-	-	100 - 250	0.12 - 0.18
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 821 APFT tip
for 90° machining

Wodex®



Type	19 821... WOG 2025		19 821... WOU 2030	
APFT 1604 PD ER	004		009	
P	120 - 220	-	90 - 110	0.10 - 0.18
M	-	-	-	-
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S				

19 820 APHW tip
for cast iron machining

Wodex®



Type	19 820... WOV 3020	
APHW 1604 PDER	332	
P	-	-
M	-	-
K	100 - 250	0.10 - 0.18
NE	-	-
H	-	-
S		

19 822 APKT tip

Wodex®



Type	19 822... WOS 2325		19 822... WOG 2020		19 822... WOG 2435		19 822... WOU 3010	
APKT 1604 PD TR - 61	-	-	024	-	026	-	033	-
APKT 1604 PD SR - 29	022	-	-	-	045	-	-	-
P	100 - 320	-	150 - 250	-	120 - 220	-	-	0.10 - 0.18
M	80 - 210	-	-	-	120 - 220	-	-	0.10 - 0.18
K	80 - 220	-	-	-	-	-	170 - 290	0.10 - 0.18
NE	-	-	-	-	-	-	-	-
H	70 - 130	-	-	-	-	-	-	0.10 - 0.18
S								

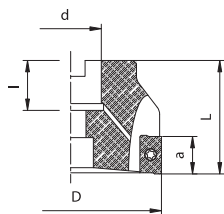
19 823 APKT tip
for steel and VA machining

Wodex®



Type	19 823... WOG 2430		19 823... WOU 4240	
APKT 1604 PD SR - 30	001		003	
P	140 - 200	-	-	0.15 - 0.35
M	100 - 160	-	70 - 140	0.08 - 0.40
K	130 - 160	-	-	0.15 - 0.35
NE	-	-	-	-
H	-	-	-	-
S				

19 704 Angle milling cutters with internal cooling for tip AP.. 1003

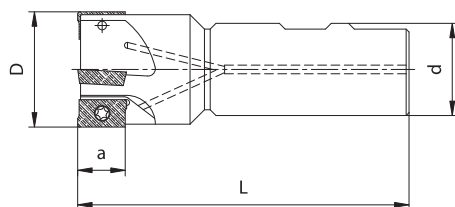
Wodex®


D mm	19 704...		d mm	L mm	a mm	Z
40	100		22	40	10	6
50	105		22	40	10	7
63	110		22	40	10	8
80	115		27	50	10	11



19 704 110

19 710 Angle slotting milling cutters with internal cooling for tip AP.. 1003

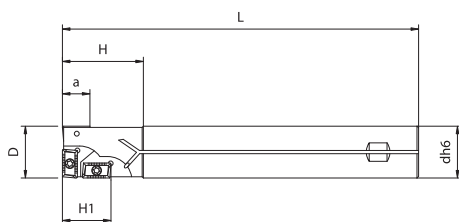
Wodex®


D mm	19 710...		d mm	L mm	a mm	Z
10	010		20	80	10	1
10	012		16	150	10	1
12	015		20	80	10	1
12	017		16	150	10	1
14	020		20	80	10	1
15.7	023		20	85	10	2
16	025		20	85	10	2
16	027		16	150	10	2
18	030		20	85	10	2
19.7	032		20	90	10	3
20	035		20	90	10	3
20	037		20	150	10	3
22	040		25	95	10	3
24.7	042		25	95	10	4
25	045		25	95	10	4
25	047		20	150	10	4
28	050		25	95	10	4
30	055		25	95	10	4
32	060		25	95	10	5
32	062		25	150	10	5



19 710 060

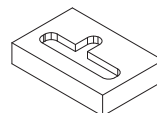
19 711 Slotting milling cutters with internal cooling for tip AP.. 1003

Wodex®


ØD mm	19 711...		Ødh6 mm	L mm	H mm	H1 mm	a mm	Z
20	110		20	90	30	17	9	3
20	120		20	150	30	17	9	3
20	130		20	180	30	17	9	3

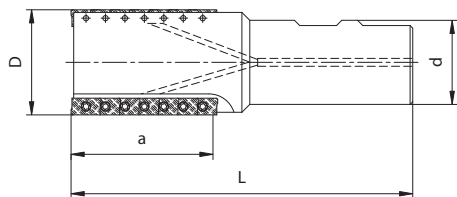


19 711 120



19 736 Shell end mill cutters with internal cooling for tip AP.. 1003

Wodex



19 736 115

D mm	19 736...		d mm	L mm	a mm	Z	Quantity WP
20	100		20	86	28	1	4
25	105		25	100	36	2	8
32	110		32	120	45	2	12
32	112		32	120	45	3	10
40	115		32	130	54	2	18

Accessories for 19 704..., 19 710..., 19 736...



For angle milling cutters with Ø D mm	Clamping screw 19 721...	Key 51 062...
10 - 80	920	008

19 819 APHT tip

for aluminium machining

Wodex



Type	19 819... WOU 3010	
APHT 1003 PD FR-AL	113	
P	-	-
M	-	-
K	-	-
NE	300 - 500	0.06 - 0.10
H	-	-
S	-	-

19 823 APKT tip

for steel and VA machining

Wodex



Type	19 823... WOG 2430		19 823... WOW 4240	
APKT 1003 PD SR - 30	005		007	
P	140 - 200	-	-	0.15 - 0.35
M	100 - 160	-	70 - 140	0.08 - 0.40
K	130 - 160	-	-	0.15 - 0.35
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

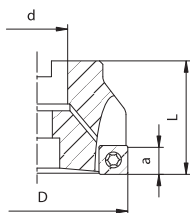
19 822 APKT tip

Wodex

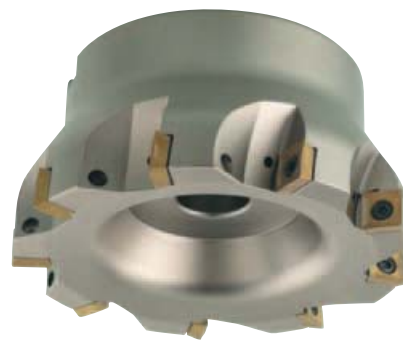


Type	19 822... WOS 2325		19 822... WOG 2020		19 822... WOG 2435		19 822... WOU 2030		19 822... WOU 3010	
APKT 1003 PD TR - 61	-	-	004	-	006	-	009	-	013	-
APKT 1003 PD SR - 29	002	-	-	-	005	-	-	-	-	-
P	100 - 320	-	150 - 250	-	120 - 220	-	90 - 190	-	-	0.10 - 0.18
M	80 - 210	-	-	-	120 - 220	-	-	-	-	0.10 - 0.18
K	80 - 220	-	-	-	-	-	-	-	170 - 290	0.10 - 0.15
NE	-	-	-	-	-	-	-	-	-	-
H	70 - 130	-	-	-	-	-	-	-	-	0.06 - 0.13
S	-	-	-	-	-	-	-	-	-	-

19 705 Angle milling cutters with **Wodex**[®] internal cooling for tip SDMT 1205



D mm	19 705...		d mm	L mm	a mm	Z
50	010		22	40	10.5	5
63	015		22	40	10.5	6
80	020		27	50	10.5	6
100	025		32	50	10.5	8
125	030		40	63	10.5	9



19 705 030

Accessories for 19 705...



For angle milling cutters with Ø D mm	Clamping screw 19 970...	Key 51 062...
50 - 125	009	015

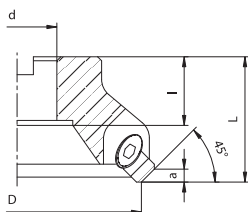
19 842 SDMT tip

Wodex[®]


Type	19 842... WOS 2325		19 842... WOG 2435		19 842... WOU 3010	
SDMT 1205 ZZ SN - 29	002		006		-	-
SDMT 120508 - AL	-	-	-	-	013	-
P	100 - 320	-	120 - 220	-	-	0.05 - 0.15
M	80 - 210	-	120 - 220	-	-	0.05 - 0.15
K	80 - 220	-	-	-	-	0.05 - 0.15
NE	-	-	-	-	80 - 1000	0.05 - 0.10
H	70 - 130	-	-	-	-	0.10 - 0.25
S						



19 715 45° face milling cutter for tip SEK. 1203 *Wodex*



19 715 140

D mm	19 715...	d mm	L mm	l mm	a mm	Z
50	105	22	48	20	6	4
63	110	22	40	20	6	5
80	115	27	50	22	6	6
100	120	32	50	26	6	6
125	125	40	63	29	6	7
160	130	40	63	29	6	7
200	135	60	63	40	6	10
250	140	60	63	40	6	13

Accessories for 19 715...



For face milling cutters with Ø D mm	Clamping screw	Key	Shim	Clamping screw for shim	Key
	19 957...	19 960...	19 965...	19 959...	19 960...
50 - 250	006	005	005	006	006

19 803 SEKR tip *Wodex*



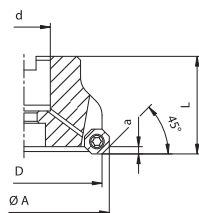
Type	19 803... WOG 2020		19 803... WOG 2035		19 803... WOU 2025		19 803... WOU 4235	
SEKR 1203 AF EN	004	-	005	-	039	-	041	-
SEKR 1203 AF TN	-	-	-	-	042	-	-	-
P	150 - 250	-	120 - 220	-	150 - 250	-	120 - 220	0.12 - 0.25
M	-	-	120 - 220	-	-	-	120 - 220	0.12 - 0.25
K	-	-	-	-	-	-	-	-
NE	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-

19 808 SEKN tip *Wodex*



Type	19 808... WOG 2020	19 808... WOG 2430	19 808... WOG 2035	19 808... WOV 2035		19 808... WOU 4235		19 808... WOU 2025	19 808... WOU 3010		19 808... WOC 2015	
SEKN 1203 AFSN	024	-	025	039	-	038	-	029	-	-	018	-
SEKN 1203 AFEN	-	-	-	-	-	-	-	-	033	-	-	-
SEKN 1204 AFSN	-	005	-	-	-	-	-	069	-	-	-	-
P	150 - 250	120 - 220	120 - 220	120 - 220	-	120 - 220	-	150 - 250	-	-	150 - 250	0.12 - 0.35
M	-	120 - 220	120 - 220	-	-	120 - 220	-	-	-	-	-	0.12 - 0.35
K	-	-	-	-	-	-	-	-	170 - 290	-	-	0.12 - 0.35
NE	-	-	-	-	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-

19 717 45° face milling cutter for tip OFEX 05T3...

Wodex®


19 717 025

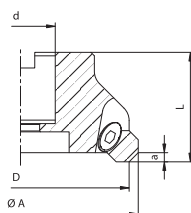
D mm	19 717...		d mm	L mm	Ø A mm	a mm	Z
32	005		16	40	39	3.5	3
40	010		16	40	47	3.5	3
50	015		22	40	59	3.5	4
63	020		22	40	72	3.5	5
80	025		27	50	89	3.5	6
100	030		32	50	107	3.5	7
125	035		40	63	132	3.5	8

19 800 OFEX tip

Wodex®


Type	19 800... WOG 2425		19 800... WOV 4230	
OFEX 05T3TN - 89	140		-	-
OFEX 05T3TN - EX	-	-	153	-
P	100 - 210	-	100 - 360	0.10 - 0.20
M	-	-	150 - 335	0.08 - 0.25
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 718 45° face milling cutter for tip OFER 0704...

Wodex®


19 718 050

D mm	19 718...		d mm	L mm	Ø A mm	a mm	Z
63	030		22	40	75	5	4
80	035		27	50	90	5	5
100	040		32	50	112	5	6
125	045		40	63	137	5	8
160	050		40	63	172	5	10

Accessories for 19 717..., 19 718...



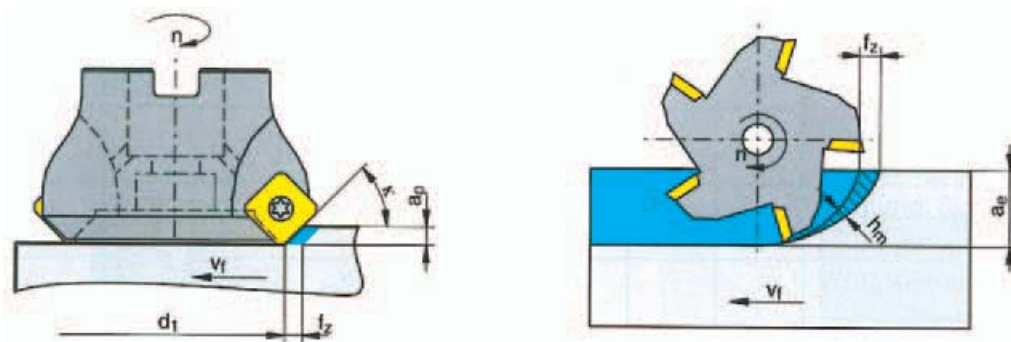
For face milling cutters with Ø D mm	Screw 19 970...	Key 51 062...	Screw 19 957...	Key 19 960...
32 - 125	011	015	-	-
63 - 160	-	-	009	010





Type	19 801... WOS 2425		19 801... WOV 4040		19 801... WOV 2325		19 801... WOV 4230	
Ofer 070405 TN - 89	240	-	-	-	-	-	-	-
Ofer 070405 TN - EX	-	-	-	-	-	-	253	-
Ofer 070410 SN - 63	-	-	-	-	283	-	-	-
P	100 - 210	-	-	-	100 - 260	-	100 - 360	0.10 - 0.20
M	-	-	135 - 210	-	-	-	150 - 335	0.08 - 0.25
K	-	-	-	-	210 - 300	-	-	0.07 - 0.12
NE	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-

Guideline values for the feed rate per tooth f_z in mm



For $a_e = 0.75 \times \varnothing$

Tip $a_p = 0.5 - 3 \text{ mm}$ $a_p = 3 - 5 \text{ mm}$

$a_p = 5 - 9 \text{ mm}$

SEK. 1203	0.15-0.30	0.10-0.25	
SEK. 1504	0.20-0.40	0.15-0.35	0.10-0.25
SE.. 1204	0.15-0.25	0.10-0.20	
SD.. 09T3	0.10-0.25		
SD.. 1204	0.15-0.30	0.10-0.25	
SP.. 0603	0.05-0.15		
SP.. 1204	0.12-0.25	0.10-0.20	
OF.. 05T3	0.12-0.25		
OF.. 0704	0.15-0.30	0.10-0.25	
TP.. 1603	0.10-0.20	0.07-0.15	0.04-0.12

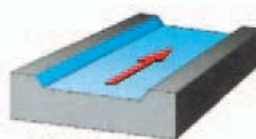
Practical tips - face milling:



Normal pitch: Used mainly on AL alloys, non-ferrous metals and plastics



Close pitch: Used mainly on steel and cast iron materials with stable, powerful machines



Face milling

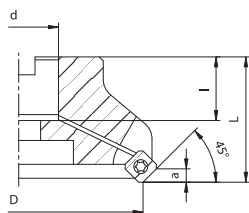


Plunge milling, circular



Chamfering, max. 3.0x45°

19 719 45° face milling cutter for tip SE.. 1204...

Wodex®


19 719 025

D mm	19 719...		d mm	L mm	a mm	Z
40	003		16	40	6	3
50	005		22	48	6	4
63	010		22	48	6	5
80	015		27	50	6	6
100	020		32	50	6	6
125	025		40	63	6	7
160	030		40	63	6	8

Accessories for 19 719...



For face milling cutters with Ø D mm	Clamping screw 19 961...	Key 51 062...
40 - 160	008	020

19 848 SEEW tip

Wodex®


Type	19 848... WOG 2025	
SEEW 1204 AF TN	044	
SEEW 1204 AF SN	064	
P	120 - 220	0.12 - 0.35
M	-	-
K	-	-
NE	-	-
H	-	-
S	-	-

19 847 SEHX tip

Wodex®


Type	19 847... WOG 2035	
SEHX 1204 AFSN	005	
P	100 - 220	0.12 - 0.35
M	100 - 220	0.12 - 0.35
K	-	-
NE	-	-
H	-	-
S	-	-

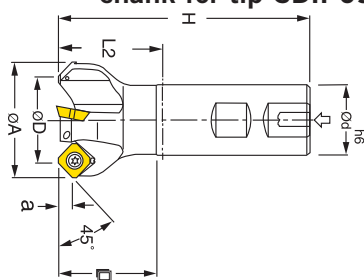
19 849 SEHT tip

Wodex®


Type	19 849... WOG 2035		19 849... WOW 2035		19 849... WOU 3020	
SEHT 1204 AF SN	065		069		013	
P	150 - 250	-	120 - 220	-	-	0.12 - 0.35
M	120 - 220	-	120 - 220	-	-	0.12 - 0.35
K	-	-	-	-	100 - 250	0.15 - 0.35
NE	-	-	-	-	-	-
H	-	-	-	-	-	-
S	-	-	-	-	-	-

19 719 45° face milling cutter with Weldon shank for tip SD.. 09T3

Wodex®

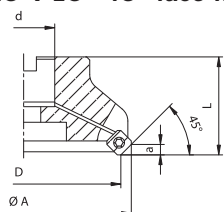


19 719 125

D mm	19 719...		dh6 mm	L mm	Ø A mm	H mm	a mm	Z
25	120		25	35	39	100	4	4
32	125		25	44	46	110	4	5

19 719 45° face milling cutter for tip SD.. 09T3...

Wodex®



19 719 220

D mm	19 719...		d mm	L mm	a mm	Z
50	205		22	40	4	6
63	210		22	40	4	8
80	215		27	50	4	10
100	220		32	50	4	11

Accessories for 19 719...



For face milling cutters with Ø D mm	Screw 19 720...	Key 51 062...
25 - 160	830	015

19 840 SDHT tip

Wodex®



Type	19 840... WOV 4235		19 840... WOU 3020	
SDHT 09T3 AEEN - EX	108		-	-
SDHT 09T3 AEFN - AL	-	-	114	
P	120 - 220	-	-	0.12 - 0.27
M	120 - 220	-	-	0.12 - 0.27
K	-	-	-	-
NE	-	-	300 - 500	0.06 - 0.12
H	-	-	-	-
S	-	-	-	-

19 844 SDLT - GP tip

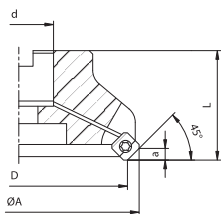
Wodex®



Type	19 844... WOG 2035		19 844... WOV 2020	
SDLT 09T3 AEEN - GP	105		104	
P	120 - 220	-	150 - 250	0.12 - 0.27
M	-	-	-	-
K	-	-	100 - 250	0.12 - 0.27
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

"Turning" / "Parting" / "Milling"



19 719 45° face milling cutter for tip SD.. 1204 **Wodex®**

D mm	19 719...		d mm	L mm	Ø A mm	a mm	Z
50	406		22	40	64	6	4
63	411		22	40	77	6	5
80	416		27	50	94	6	6
100	421		32	50	114	6	6
125	426		40	63	139	6	7



19 719 426

Accessories for 19 719...



For face milling cutters with Ø D mm	Screw 19 721...	Key 51 062...
50 - 125	960	020

19 840 SDHT tip

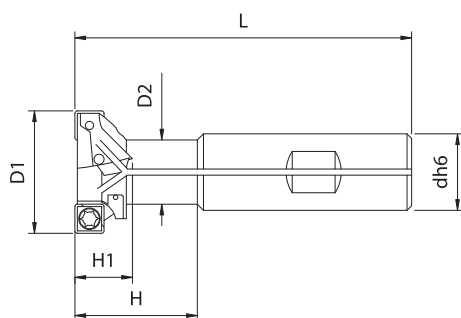
Wodex®

Type	19 840... WOG 2020	19 840... WOG 2035		19 840... WOV 2020	19 840... WOV 2035		19 840... WOV 4235		19 840... WOU 3020	
SDHT 1204 AESN	123	125		124	126		-	-	134	
SDHT 1204 AESN - EX	-	-	-	-	-	-	148	-	-	-
SDHT 1204 AEFN - AL	-	-	-	-	-	-	-	-	144	
P	120 - 220	120 - 220	-	150 - 250	120 - 220	-	120 - 220	-	-	0.12 - 0.35
M	-	-	-	-	-	-	120 - 220	-	-	0.09 - 0.18
K	-	-	-	-	-	-	-	-	100 - 250	0.15 - 0.35
NE	-	-	-	-	-	-	-	-	300 - 500	0.06 - 0.15
H	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-



19 720 T-slotting milling cutter for tip SPMT

Wodex



19 720 125

Ø D1 mm	19 720...		Ø D2 mm	L mm	H mm	H1 mm	Ø dh6 mm	K mm	Z	Tip
21	121		11	76	26	9	16	1	2	SPMT 060304
25	125		13	82	31	11	16	2	4	SPMT 060304
32	132		17	88	38	14	20	2	4	SPMT 09T308
40	140		21	108	50	17	25	2	4	SPMT 09T308
50	150		27	120	56	22	32	2	4	SPMT 120408

Accessories for 19 720...



For	Screw 19 721...	Screw 19 720...	Screw 19 961...	Key 51 062...
Ø 21 - 25	920	-	-	008
Ø 32 - 40	-	830	-	015
Ø 50	-	-	008	020

19 711 SPMT tip

Wodex

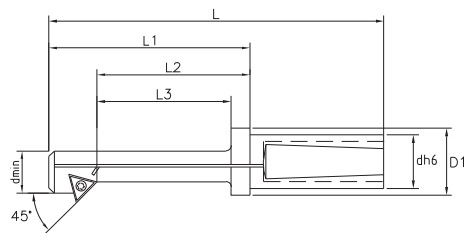


Type	19 711... WOG 2025	
SPMT 060304	201	
SPMT 09T308	203	
SPMT 120408	205	
P	120 - 220	0.12 - 0.35
M	-	-
K	-	-
NE	-	-
H	-	-
S		

19 721 45° back milling cutter

for backward countersinking of drillholes

Wodex®



19 721...

D mm	19 721...		dmin mm	L mm	L1 mm	L2 mm	L3 mm	dh6 mm	D1 mm	e mm	Tip
23	023		17	120	70	57	50	20	25	3.20	TCMT 1102...
27	027		21	140	90	77	70	20	25	3.20	TCMT 1102...
31	031		24	150	100	87	80	20	25	3.70	TCMT 1102...

Special dimensions available on request

19 454 TCMT - UM tip

ap = 0.2 - 2.5 mm

Wodex®



Type	19 454... WOG 2415	19 454... WOG 2430	
TCMT 110202E - UM	103	105	
TCMT 110204E - UM	123	125	
P	80 - 230	120 - 160	0.05 - 0.3
M	60 - 190	75 - 160	0.05 - 0.3
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

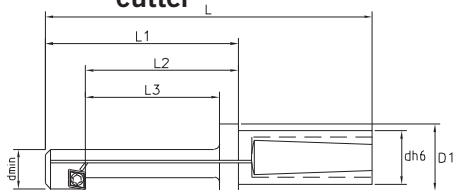
Accessories for 45° back milling cutter



For	Screw 19 721...	Key 51 062...
Ø 23 - 31	920	008

19 721 180° back countersinking cutter

Wodex®



19 721...

D mm	19 721...		dmin mm	L mm	L1 mm	L2 mm	L3 mm	dh6 mm	D1 mm	e mm	Tip
18	118		10.5	112	62	47	40	20	25	4.00	CCMT 060204
20	120		13.0	117	67	52	45	20	25	3.75	CCMT 060204
24	124		15.0	122	72	57	50	20	25	4.75	CCMT 060204
26	126		17.0	132	82	67	60	20	25	5.00	CCMT 060204
30	130		19.0	142	92	77	65	20	25	6.00	CCMT 060204
33	133		21.0	152	102	82	75	20	25	6.00	CCMT 09T304

Special dimensions available on request

19 441 CCMT - UR tip

medium roughing
ap = 1.0 - 4.0 mm

Wodex®



Type	19 441... WOG 2425	19 441... WOG 2430	
CCMT 060202E - UR	404	405	
CCMT 060204E - UR	424	425	
CCMT 060208E - UR	444	443	
CCMT 09T304E - UR	464	465	
CCMT 09T308E - UR	484	-	
P	90 - 280	120 - 260	0.1 - 0.5
M	100 - 210	75 - 160	0.1 - 0.5
K	-	-	-
NE	-	-	-
H	-	-	-
S	-	-	-

Accessories for 180° back countersinking cutter



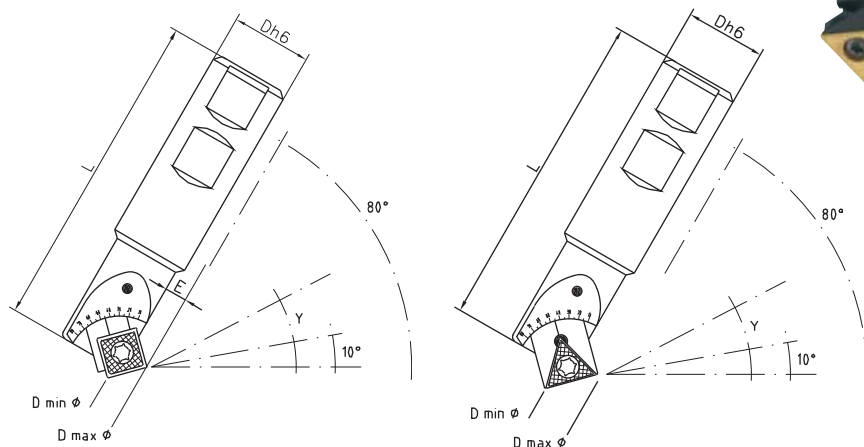
For	Screw 19 721...	Key 51 062...
Ø 18 - 30	920	008
Ø 33	700	015

19 721 Chamfering milling cutter

angle adjustable from 10° to 80°

- the tool is supplied with 2 cartridges (SCMT12... and TCMT16...)

Wodex®



19 721...



D h6 mm	19 721...		L mm	Y °	D. min. Ø mm	D. max. Ø mm
20	200		100	10 - 80	23	27
25	250		100	10 - 80	5	32

Dimension α		10°	20°	30°	40°	45°	50°	60°	70°	80°
20	D. min. Ø (mm)	5	8	10	13	14	15	17	19	20
20	D. max. Ø (mm)	26	27	27	27	27	27	26	25	24
25	D. min. Ø (mm)	5	6	7	10	11	13	16	19	23
25	D. max. Ø (mm)	32	33	34	33	33	32	31	29	27

Accessories for 19 721...



Type	Cartridge 19 721...	Clamping screw 19 961...	Clamping screw 19 721...	Key 51 062...
TCMT	600	002	800	008
SCMT	605	006	805	015

19 452 SCMT - UM tip

finishing

ap = 0.5 - 3.0 mm



Wodex®

19 454 TCMT - UM tip

ap = 0.2 - 2.5 mm

Wodex®



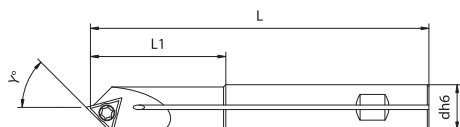
Type	19 452... WOG 2425	
SCMT 120404-UM	144	

P	90 - 280	0.05 - 0.3
M	100 - 210	0.05 - 0.3
K	-	-
NE	-	-
H	-	-
S		

Type	19 454... WOG 2425	19 454... WOG 2415	19 454... WOG 2430	
TCMT 16T304E - UM	-	143	145	
TCMT 16T308E - UM	164	-	165	

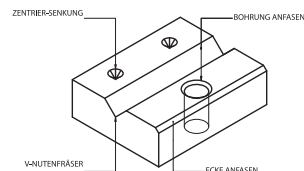
P	90 - 280	80 - 230	120 - 160	0.05 - 0.3
M	100 - 210	60 - 190	75 - 160	0.05 - 0.3
K	-	-	-	-
NE	-	-	-	-
H	-	-	-	-
S				

19 722 45° chamfering and centring milling cutter for tip TCMX 16..

Wodex®


19 722 110

D h6 mm	19 722...		L mm	L1 mm	Y °	D. min. Ø mm	D. max. Ø mm
20	100		115	40	45	0.2	20
20	105		150	60	45	0.2	20
20	110		200	80	45	0.2	20



Accessories for 19 722...

19 722 TCMX tip

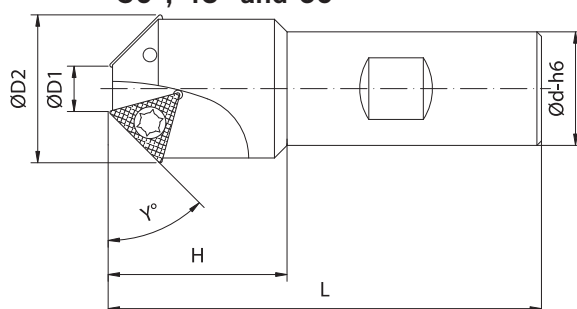
Wodex®


Clamping screw "S" 19 721...	Key 51 062...
700	015



Type	19 722...	
	WOG 2025	
TCMX 16T3 ZR	180	

19 727 Chamfering and countersinking milling cutter 30°, 45° and 60°

Wodex®


19 727...



Ø D1 mm	19 727...		Ø D2 mm	L mm	H mm	Ø dh6 mm	Y°	Z	Tip	Key	Key	Key
45°										19 721...	19 720...	51 062...
1.2	001		16	70	20	12	45°	1	TCMT 1102	920	-	008
6.2	003		21	90	35	20	45°	2	TCMT 1102	920	-	008
10.4	005		32.5	95	39	25	45°	2	TCMT 16T3	-	830	015
60°										19 721...	19 720...	51 062...
5.4	011		16	70	20	12	60°	1	TCMT 1102	920	-	008
15.8	013		26	90	35	20	60°	2	TCMT 1102	920	-	008
20	015		35	95	39	25	60°	2	TCMT 16T3	-	830	015
30°										19 721...	19 720...	51 062...
6	021		32	95	38	20	30°	2	TCMT 16T3	700	-	015

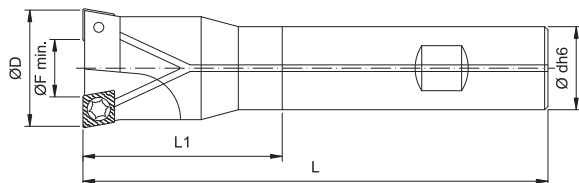
19 454 TCMT tip

Wodex®


Type	19 454...	
	WOG 2430	
TCMT 110204E - UM	125	
TCMT 16T304E - UM	145	



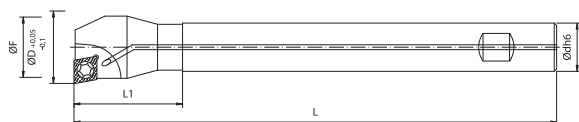
19 743 180° bore enlarger/countersink **Wodex**



19 743...

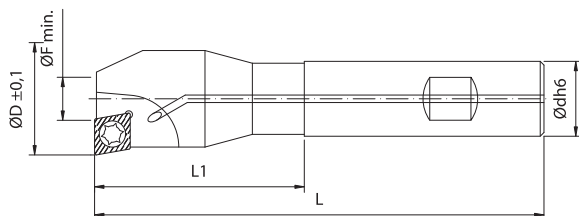
Ø D mm	19 743...		L mm	L1 mm	dh6 mm	Ø F min mm	Z	Tip
16	002		92	30	12	5	2	CC.T 0602
17	004		94	32	16	6	2	CC.T 0602
17.5	006		96	40	16	6.4	2	CC.T 0602
18	008		97	41	16	7	2	CC.T 0602
19	010		100	41	16	8	2	CC.T 0602
20	012		102	41	16	9	2	CC.T 0602
21	014		105	41	16	10	2	CC.T 0602
22	016		110	41	16	11	2	CC.T 0602
23	018		112	41	16	12	2	CC.T 0602
24	020		115	41	16	13	2	CC.T 0602
25	022		120	40	16	8	2	CC.T 09T3
26	024		125	55	20	9	2	CC.T 09T3
27	026		128	55	20	10	2	CC.T 09T3
28	028		130	55	20	11	2	CC.T 09T3
29	030		132	55	20	12	2	CC.T 09T3
30	032		134	55	20	13	2	CC.T 09T3
31	034		136	55	20	14	2	CC.T 09T3
32	036		138	55	20	15	2	CC.T 09T3
33	038		140	55	20	16	2	CC.T 09T3
34	040		140	60	25	16	2	CC.T 09T3
35	042		140	60	25	18	2	CC.T 09T3
36	044		140	60	25	18	2	CC.T 09T3
37	046		140	60	25	19	2	CC.T 09T3
38	048		140	60	25	20	2	CC.T 09T3
39	050		140	60	25	21	2	CC.T 09T3
40	052		140	60	25	22	2	CC.T 09T3
41	054		140	60	25	23	2	CC.T 09T3
42	056		140	60	25	24	2	CC.T 09T3

19 744 180° undersize bore enlarger **Wodex**



19 744...

Ø D mm	19 744...		L mm	L1 mm	dh6 mm	Ø F mm	Z	Tip
9.8	002		90	23	8	8	1	CC.T 060204
10.8	004		105	24	10	10	1	CC.T 060204
11.8	006		105	25	10	10	1	CC.T 060204
12.8	008		105	26	10	10	1	CC.T 060204
13.8	010		110	27	12	10	1	CC.T 060204
14.8	012		120	28	12	12	1	CC.T 060204
15.8	014		125	29	12	12	1	CC.T 060204
16.8	016		140	30	16	16	1	CC.T 060204
17.8	018		140	31	16	16	1	CC.T 060204
18.8	020		150	32	16	16	1	CC.T 060204
19.8	022		150	33	16	16	1	CC.T 060204
20.8	024		160	34	16	16	1	CC.T 09T304
21.8	026		160	35	20	16	1	CC.T 09T304
22.8	028		165	36	20	20	1	CC.T 09T304
23.8	030		170	37	20	20	1	CC.T 09T304
24.8	032		180	38	20	20	1	CC.T 09T304
25.8	034		185	39	20	20	1	CC.T 09T304
26.8	036		190	40	20	20	1	CC.T 09T304
27.8	038		200	42	20	20	1	CC.T 09T304
28.8	040		200	42	20	20	1	CC.T 09T304
29.8	042		200	43	25	20	1	CC.T 09T304
30.8	044		200	44	25	25	1	CC.T 09T304
31.8	046		200	45	25	25	1	CC.T 09T304

19 745 Countersink milling cutter **Wodex**

19 745...

Ø D mm	19 745...	Ø F min mm	L1 mm	L mm	dh 6 mm	Tip
10	002	4	15	85	12	CC.T 060204
11	004	4	15	85	12	CC.T 060204
12	006	4	18	85	12	CC.T 060204
13	008	5	23	85	12	CC.T 060204
14	010	5	23	85	12	CC.T 060204
15	012	5	30	85	12	CC.T 060204
16	014	5	30	85	12	CC.T 060204
17	016	5	30	95	16	CC.T 09T304
18	018	5	40	95	16	CC.T 09T304
19	020	5	40	95	16	CC.T 09T304
20	022	5	40	95	16	CC.T 09T304
21	024	5	42	95	16	CC.T 09T304
22	026	6	42	95	16	CC.T 09T304
23	028	6	42	95	16	CC.T 09T304
24	030	6	42	95	16	CC.T 09T304
25	032	8	42	95	16	CC.T 09T304
26	034	8	56	120	20	CC.T 09T304
27	036	8	56	120	20	CC.T 09T304
28	038	10	56	120	20	CC.T 09T304
29	040	10	56	120	20	CC.T 09T304
30	042	10	56	120	20	CC.T 09T304
31	044	12	56	120	20	CC.T 09T304
32	046	12	56	120	20	CC.T 09T304
33	048	12	56	120	20	CC.T 09T304

Accessories for 19 743..., 19 744..., 19 745...



Tip	Clamping screw "S" 19 721...	Key 51 062...
CC.T 06	920	008
CC.T 09	700	015

19 441 CCMT tip

finishing
ap = 0.5 - 3.0 mm

Wodex

Type	19 441... WOG 2425	
CCMT 060204-UM	224	
CCMT 09T304-UM	244	

19 600 CCGT tip

for aluminium machining
ap = 0.25 - 6.0 mm

Wodex

Type	19 600... WOU 3010		19 600... WOV 3210	
CCGT 060204	021		025	
CCGT 09T304	061		065	

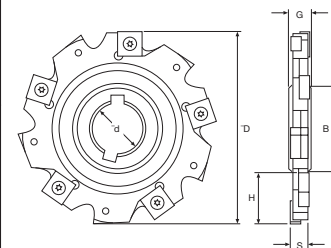


19 740 Side and face slotting cutters for tip SNHX *Wodex*[®]

for slot milling and milling cutting



19 740...



D mm	19 740...		d mm	s mm	G mm	B mm	Z mm	H mm	Tip
125	365		32	4	12	58	14	33	SNHX 1102T
125	370		32	5	12	58	14	33	SNHX 1103T
125	375		32	6	12	58	12	33	SNHX 12032
125	380		32	7	12	58	12	33	SNHX 12032
125	385		32	8	12	58	12	33	SNHX 12032
125	390		32	9	12	58	12	33	SNHX 12054
125	395		32	10	12	58	12	33	SNHX 12054
125	400		32	12	12	58	12	33	SNHX 12054
160	405		40	4	12	68	18	45	SNHX 1102T
160	410		40	5	12	68	18	45	SNHX 1103T
160	415		40	6	12	68	16	45	SNHX 12032
160	420		40	7	12	68	15	45	SNHX 12032
160	425		40	8	12	68	15	45	SNHX 12032
160	430		40	9	12	68	16	45	SNHX 12054
160	435		40	10	12	68	16	45	SNHX 12054

Other dimensions available on request

Accessories for 19 740...



For side & face slotting cutters with cut width S mm	For side & face slotting cutters with Ø D mm	Clamping screw 19 961...	Key 51 062...
4	125 - 160	040	009
5	125 - 160	045	009
6 - 8	125 - 160	050	015
9 - 12	125 - 160	055	015

19 852 SNHX tip

Steel machining



Type	19 852... WOG 2025		19 852... WOU 2030	
SNHX 1102T	104		-	-
SNHX 1103T	084		-	-
SNHX 12032	004		009	
SNHX 12054	044		-	-
P	150 - 235	-	110 - 180	0.09 - 0.27
M	75 - 90	-	-	0.09 - 0.27
K	160 - 230	-	-	0.09 - 0.27
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

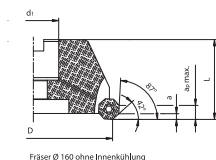
19 815 TPCN tip



Type	19 815... WOG 2025		19 815... WOG 2430		19 815... WOU 2030	
TPCN 1603 PD TR	004		005		009	
TPCN 2204 PD TR	044		045		049	
P	120 - 230	-	120 - 220	-	60 - 150	0.1 - 0.4
M	-	-	75 - 100	-	-	0.1 - 0.4
K	-	-	-	-	-	-
NE	-	-	-	-	-	-
H	-	-	-	-	-	-
S	-	-	-	-	-	-

19 787 VOD 06 milling cutter

for TIP ODMT 0605...
medium tooth pitch



19 787...

Type	19 787...		D mm	H mm	d ₁ mm	a ₁ max. mm	a mm	Quantity of TIP
7745VOD 06 -A050R	050		50	40	22	10	4.5	4
7745VOD 06 -A063R	063		63	40	22	10	4.5	5
7745VOD 06 -A080R	080		80	50	27	10	4.5	6
7745VOD 06 -A100R	100		100	55	32	10	4.5	7
7745VOD 06 -A125R	125		125	63	40	10	4.5	8
7745VOD 06 -A160R	160		160	63	40	10	4.5	10

Accessories for 19 787...



Type	Clamping screw 19 787...	Key 51 062...
7745	900	020

19 787 ODMT tip

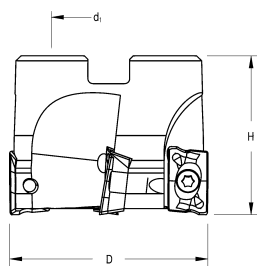


Type	19 787... MP91M		19 787... SP4036		19 787... X500		19 787... SP6564	
ODMT 06 05APEN	200		300		500		400	
P	180 - 360	0.3 - 0.7	70 - 195	0.27 - 0.5	-	-	70 - 195	0.27 - 0.5
M	-	-	120 - 230	0.27 - 0.4	120 - 230	0.05 - 0.4	120 - 230	0.27 - 0.4
K	-	-	-	-	-	-	-	-
NE	-	-	-	-	-	-	-	-
H	-	-	50 - 100	0.06 - 0.12	-	-	-	-
S	-	-	-	-	25 - 60	0.1 - 0.25	-	-



19 788 90° angle milling cutters

for TIP AD.T 12T3..

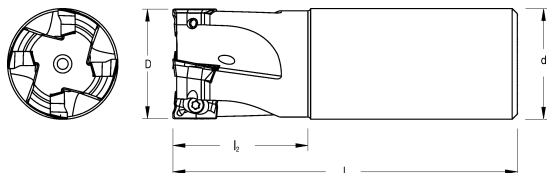


19 788...

Type	19 788...		D mm	L/H mm	d ₁ mm	a _p max. mm	Z
7690VA12-A040Z04R	044		40	32	16	11	4
7690VA12-A040Z05R	045		40	32	16	11	5
7690VA12-A050Z05R	055		50	40	22	11	5
7690VA12-A050Z06R	056		50	40	22	11	6
7690VA12-A063Z06R	063		63	40	22	11	6
7690VA12-A063Z08R	068		63	40	22	11	8
7690VA12-A080Z07R	087		80	50	27	11	7
7690VA12-A080Z10R	090		80	50	27	11	10

19 788 90° angle milling cutters

for TIP AD.T 12T3..

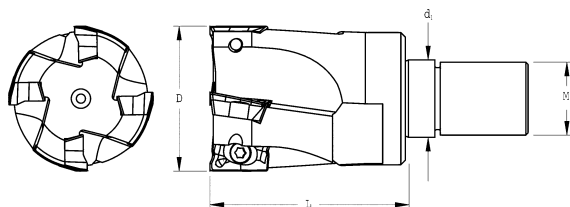


19 788...

Type	19 788...		D mm	L/H mm	L ₂ mm	d ₁ mm	a _p max. mm	Z
7690VA12CA020Z02R154	120		20	204	154	20	11	2
7690VA12CA025Z03R154	125		25	210	154	25	11	3
7690VA12CA032Z04R190	132		32	250	190	32	11	4
7690VA12WA020Z02R032	220		20	82	32	20	11	2
7690VA12WA025Z02R040	225		25	96	40	25	11	2
7690VA12WA025Z03R040	228		25	96	40	25	11	3
7690VA12WA032Z03R040	232		32	100	40	32	11	3
7690VA12WA040Z04R050	240		40	110	50	32	11	4
7690VA12WA040Z05R050	242		40	110	50	32	11	5

19 788 Angle milling cutters - screw on tools

for TIP AD.T 12T3..



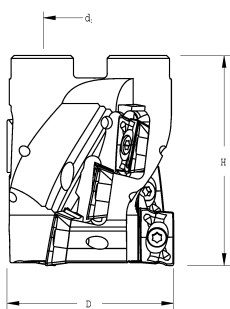
19 788...

Type	19 788...		D mm	L/H mm	M mm	d ₁ mm	Z mm
7690VA12S020R35	320		20	35	M10	10.5	2
7690VA12S025R35	325		25	35	M12	12.5	3
7690VA12S032R43	332		32	43	M16	17.0	4



19 788 Porcupine cutters

for TIP AD.T 12 T3...

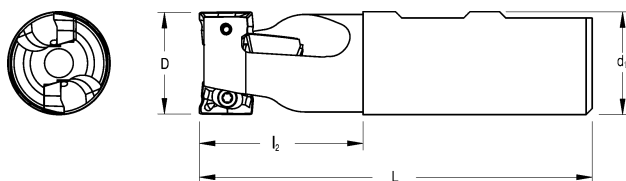


19 788...

Type	19 788...		D mm	L/H mm	a _p max. Profile milling	a _p max. Slot milling	d ₁ mm	Z
5315VA12-A040R34	440		40	50	34	20	16	9

19 788 Porcupine cutters

for TIP AD.T 12 T3...



19 788...

Type	19 788...		D mm	L/H mm	a _p max. Profile milling	a _p max. Slot milling	l ₂ mm	d ₁ mm	Z
5315VA12WA025R23	520		25	96	23	15	40	25	4
5315VA12WA025R35	525		25	106	35	17	50	25	6
5315VA12WA032R35	532		32	110	35	20	50	32	9
5315VA12WA040R45	540		40	130	45	20	60	40	12

Accessories for 19 788...



Type	Clamping screw 19 788...	Key 51 062...
AD.T 12T3	900	015

19 788 Tip AD.T 12 T3...

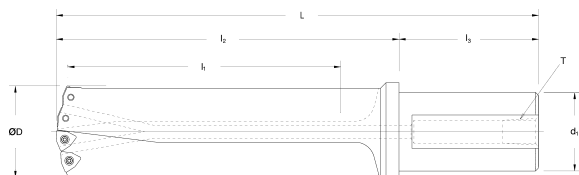


Type	19 788... MP91M		19 788... SC3025		19 788... SP6564		19 788... X500		19 788... GH1	
ADKT12T3PDER-45	600		620		630		650		-	-
ADGT12T3PDFR-721	-	-	-	-	-	-	-	-	690	-
ADHT12T308ER-46	-	-	-	-	635	-	660	-	-	-
ADHT12T308ER-46	-	-	-	-	-	-	670	-	-	-
P	120 - 305	0.08 - 0.25	-	-	120 - 450	0.12 - 0.25	120 - 450	0.08 - 0.25	-	-
M	-	-	-	-	-	-	125 - 525	0.08 - 0.18	-	-
K	-	-	230 - 920	0.08 - 0.2	-	-	-	-	-	-
NE	-	-	-	-	-	-	-	-	200 - 800	0.04 - 0.20
H	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	30 - 130	0.05 - 0.15	-	-



19 793 Posidrill Plus borer

for TIP WCMX...



19 793...

CUTTING TOOLS

1

Type	19 793...		ØD mm	d1 mm	L mm	l1 mm	l2 mm	l3 mm	T mm	Number of TIP	TIP
P69003WNX1350W040	135		13.5	20.0	109.3	40.5	57.5	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1400W042	140		14.0	20.0	110.9	42.0	59.0	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1450W043	145		14.5	20.0	112.5	43.5	60.5	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1500W045	150		15.0	20.0	114.1	45.0	62.0	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1550W046	155		15.5	20.0	115.7	46.5	63.5	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1600W048	160		16.0	20.0	117.2	48.0	65.0	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1650W049	165		16.5	20.0	118.8	49.5	66.5	50.0	1/8" NPT	2	WCMX 030204E-60
P69003WNX1700W051	170		17.0	20.0	120.4	51.0	68.0	50.0	1/8" NPT	2	WCMX 030204E-60
P69004WNX1750W052	175		17.5	20.0	124.8	52.5	72.5	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX1800W053	180		18.0	20.0	126.3	54.0	74.0	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX1850W055	185		18.5	20.0	127.9	55.5	75.5	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX1900W057	190		19.0	20.0	129.6	57.0	77.0	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX1950W058	195		19.5	20.0	131.1	58.5	78.5	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX2000W060	200		20.0	20.0	132.7	60.0	80.0	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX2050W061	205		20.5	20.0	134.3	61.5	81.5	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX2100W063	210		21.0	20.0	135.8	63.0	83.0	50.0	1/8" NPT	2	WCMX 040204E-60
P69004WNX2150W064	215		21.5	20.0	137.4	64.5	84.5	50.0	1/8" NPT	2	WCMX 040204E-60
P69005WNX2200W066	220		22.0	25.0	145.3	66.0	86.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2250W067	225		22.5	25.0	146.9	67.5	87.5	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2300W069	230		23.0	25.0	148.4	69.0	89.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2350W070	235		23.5	25.0	150.0	70.5	90.5	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2400W072	240		24.0	25.0	151.6	72.0	92.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2450W073	245		24.5	25.0	153.1	73.5	93.5	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2500W075	250		25.0	25.0	154.7	75.0	95.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2550W076	255		25.5	25.0	156.2	76.5	96.5	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2600W078	260		26.0	25.0	157.8	78.0	98.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2650W079	265		26.5	25.0	159.4	79.5	99.5	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2700W081	270		27.0	25.0	160.9	81.0	101.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2800W084	280		28.0	25.0	164.1	84.0	104.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69005WNX2900W087	290		29.0	25.0	167.2	87.0	107.0	56.0	1/8" NPT	2	WCMX 050308E-60
P69006WNX3000W090	300		30.0	32.0	174.3	90.0	110.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3100W093	310		31.0	32.0	177.4	93.0	113.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3200W096	320		32.0	32.0	180.6	96.0	116.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3300W099	330		33.0	32.0	183.7	99.0	119.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3400W102	340		34.0	32.0	186.8	102.0	122.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3500W105	350		35.0	32.0	189.9	105.0	125.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3600W108	360		36.0	32.0	193.1	108.0	128.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3700W111	370		37.0	32.0	196.1	111.0	131.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3800W114	380		38.0	32.0	199.2	114.0	134.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69006WNX3900W117	390		39.0	32.0	207.3	117.0	142.0	60.0	1/4" NPT	2	WCMX 06T308E-60
P69005WNX4000W120	400		40.0	40.0	220.3	120.0	145.0	70.0	1/4" NPT	3	WCMX 050308E-60
P69005WNX4100W123	410		41.0	40.0	223.4	123.0	148.0	70.0	1/4" NPT	3	WCMX 050308E-60
P69005WNX4200W126	420		42.0	40.0	226.5	126.0	151.0	70.0	1/4" NPT	3	WCMX 050308E-60
P69005WNX4300W129	430		43.0	40.0	229.6	129.0	154.0	70.0	1/4" NPT	3	WCMX 050308E-60
P69005WNX4400W132	440		44.0	40.0	237.7	132.0	162.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX4500W135	450		45.0	40.0	240.9	135.0	165.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX4600W138	460		46.0	40.0	243.8	138.0	168.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX4700W141	470		47.0	40.0	246.9	141.0	171.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX4800W144	480		48.0	40.0	250.2	144.0	174.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX4900W147	490		49.0	40.0	253.6	147.0	177.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX5000W150	500		50.0	40.0	256.6	150.0	180.0	70.0	1/4" NPT	4	WCMX 050308E-60
P69005WNX5100W153	510		51.0	50.0	269.8	153.0	183.0	80.0	1/4" NPT	4	WCMX 050308E-60
P69006WNX5200W156	520		52.0	50.0	274.6	156.0	188.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5300W159	530		53.0	50.0	277.8	159.0	191.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5400W162	540		54.0	50.0	280.8	162.0	194.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5500W165	550		55.0	50.0	283.9	165.0	197.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5600W168	560		56.0	50.0	287.2	168.0	200.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5700W171	570		57.0	50.0	290.1	171.0	203.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5800W174	580		58.0	50.0	293.2	174.0	206.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX5900W177	590		59.0	50.0	296.4	177.0	209.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX6000W180	600		60.0	50.0	302.7	180.0	215.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX6100W183	610		61.0	50.0	305.7	183.0	218.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX6200W186	620		62.0	50.0	308.9	186.0	221.0	80.0	1/4" NPT	4	WCMX 06T308E-60
P69006WNX6300W189	630		63.0	50.0	311.9	189.0	224.0	80.0	1/4" NPT	4	WCMX 06T308E-60



Accessories for Posidrill



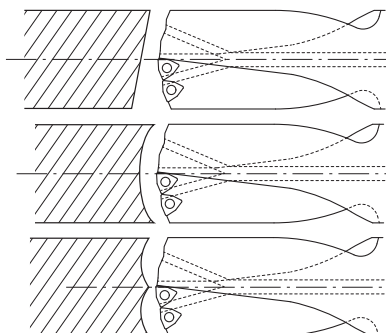
Type	Clamping screw 19 793...	Key 51 062...
P69003	905	006
P69004	910	007
P69005	920	009
P69006	925	010

19 793 WCMX tip



Type	19 793... SP4034	
WCMX 030204E - 60	700	
WCMX 040204E - 60	705	
WCMX 050308E - 60	710	
WCMX 06T308E - 60	715	

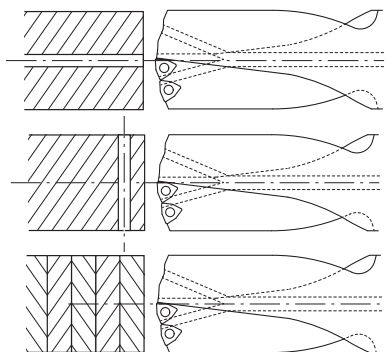
Posidrill Plus™ technical information



If possible, the surfaces to be drilled should always be flat. If the angle between the drill/boring bar axis and the surface be more than 2°, the feed rate must be reduced by 1/3.

The feed rate should be reduced by 1/3 if concave surfaces are drilled.

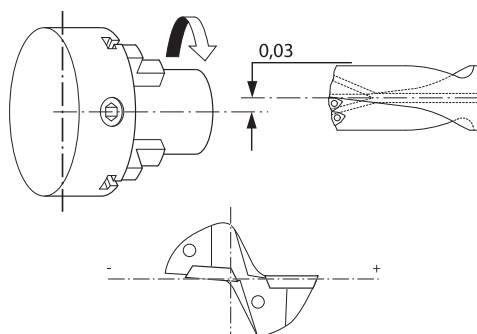
The feed rate should be reduced for irregular surfaces to avoid break-outs at the tips. Equally, the feed rate should be reduced when exiting irregular surfaces.



The tap drill hole may not be larger than 1/4 of the drill diameter, as otherwise the drill will be pushed away.

In the case of continuous through transverse drilling the penetration in the workpiece may not be larger than 1/4 of the drill diameter. The feed rate should be reduced by 50%.

Stacks of sheets and welded together sheets can be drill through with the Posidrill Plus™ if they are clamped in a stable way.



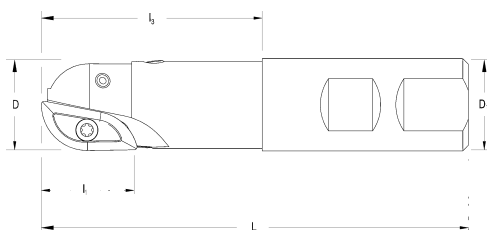
The best results are achieved if the offset between the centreline of the drill and the drill hole is not greater than 0.03 mm (upright use of the tool).

The outer tip should be parallel to the machine's longitudinal axis when changing the drill (upright use of the tool).



19 798 Ball end mill

for TIP XPNT...



19 798...

CUTTING TOOLS

1

Type	19 798...		D mm	L mm	l ₁ mm	l ₂ mm	l ₃ mm	d.h6 mm	Z	TIP
5505VX20W020R50	120		20.0	106.0	20.0	34.0	50.0	25.00	2	XPNT20
5505VX25W025R60	125		25.0	116.0	25.0	-	60.0	25.00	2	XPNT25
5505VX25W025R90	126		25.0	150.0	25.0	70.0	90.0	32.00	2	XPNT25
5505VX32W032R75	132		32.0	130.0	32.0	-	75.0	32.00	2	XPNT32
5505VX32W032R100	134		32.0	160.0	32.0	-	100.0	32.00	2	XPNT32
5505VX40W040R100	140		40.0	170.0	40.0	-	100.0	40.00	2	XPNT40
5505VX40W040R150	142		40.0	220.0	40.0	-	150.0	40.00	2	XPNT40
5505VX50W050R100	150		50.0	170.0	50.0	-	100.0	40.00	2	XPNT50
5505VX50W050R150	152		50.0	230.0	50.0	-	150.0	50.00	2	XPNT50

Accessories for 19 798...



Type 5505	Clamping screw 19 798...	Key 51 062...
XPNT20	900	015
XPNT25	905	020
XPNT32	910	-
XPNT40	915	-
XPNT50	920	-

19 798 XPNT tip

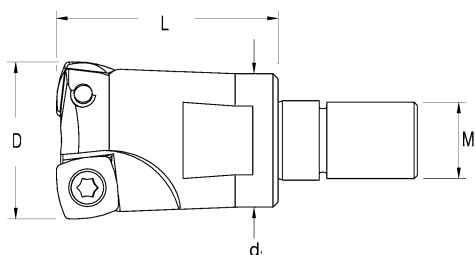


Type	19 798... SC3025		19 798... X400	
XPNT20/20T306.R-C	300		400	
XPNT25/250408.R-C	310		410	
XPNT32/320612.R-C	320		420	
XPNT40/40T716.R-C	330		430	
XPNT50/50T716.R-C	340		440	
P	-	-	70 - 235	0.1 - 0.27
M	-	-	-	-
K	120 - 395	0.1 - 0.27	-	-
NE	-	-	-	-
H	-	-	35 - 100	0.1 - 0.24
S	-	-	-	-

"Turning" / "Parting" / "Milling"



19 799 Roughing cutters with modular cutting point "High feed cutter"



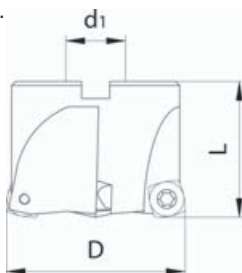
19 799...



Type	19 799...		D mm	L/H mm	M mm	d _i mm	a _p max. mm	Z mm	TIP	Screw 19 799...
7792VXD09S025Z2R35	325		25	35	M12	21	1.5	2	XDLW09	900
7792VXD09S032Z3R43	332		32	43	M16	29	1.5	3	XDLW09	910

19 799 Milling cutters for high feed rates

for TIP XDLW...



19 799...



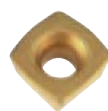
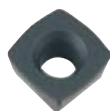
Type	19 799...		D mm	L/H mm	l ₂ mm	d _i mm	a _p max. mm	Z	TIP	Screw 19 799...
7792VXD09-A040Z4R	444		40	32	-	16	1.5	4	XDLW09	910
7792VXD09WA025Z2R	525		25	96	40	25	1.5	2	XDLW09	900
7792VXD09WA032Z3R	532		32	100	40	32	1.5	3	XDLW09	900
7792VXD12-A052Z3R	552		52	40	-	22	2.5	3	XDLW12	915
7792VXD12-A052Z4R	554		52	40	-	22	2.5	4	XDLW12	915
7792VXD12-A063Z4R	563		63	40	-	22	2.5	4	XDLW12	915
7792VXD12-A063Z5R	565		63	40	-	22	2.5	5	XDLW12	915
7792VXD12-A066Z4R	566		66	40	-	22	2.5	4	XDLW12	915
7792VXD12-A066Z5R	567		66	40	-	22	2.5	5	XDLW12	915
7792VXD12-A080Z5R	580		80	50	-	27	2.5	5	XDLW12	915

Accessories for 19 799...



Type	Key
7792	51 062... 015

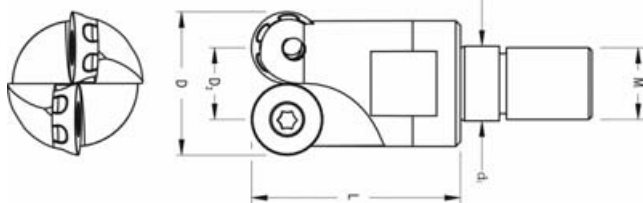
19 799 XDLW tip



Type	19 799... SC3025		19 799... X400		19 799... X500	
XDLW090408SR-D	600		640		650	
XDLW120508SR-D	610		645		655	
P	-	-	70 - 235	0.1 - 2.0	70 - 160	0.1 - 2.0
M	-	-	-	-	-	-
K	150 - 395	0.1 - 2.0	-	-	-	-
NE	-	-	-	-	-	-
H	-	-	35 - 100	0.08 - 1.0	-	-
S	-	-	-	-	-	-



19 804 Milling cutter with modular cutting point and TIP fixing

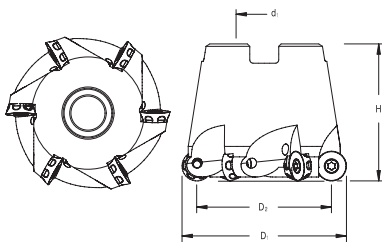


19 804...

Type	19 804...		D mm	D ₂ mm	L/H mm	M mm	d ₁ mm	Z mm	TIP
7712VRD12S024R35	024		24	12	35	M12	12.5	2	RD... 12
7712VRD12S035R35	035		35	23	35	M16	17.0	3	RD... 12
7712VRD12S042R43	042		42	30	43	M16	17.0	4	RD... 12
7712VRD16S030R43	130		30	14	43	M16	17.0	2	RD... 16
7712VRD16S032R43	132		32	16	43	M16	17.0	2	RD... 16

19 804 Push on milling cutters

for TIP RD...



19 804...

Type	19 804...		D ₁ mm	D ₂ mm	L/H mm	d ₁ mm	a _p max. mm	Z	TIP
7712VRD12-A052R	152		52	40	52	22	6	5	RD... 12
7712VRD12-A066R	166		66	54	52	27	6	6	RD... 12
7712VRD12-A080R	180		80	68	52	27	6	7	RD... 12
7712VRD16-A052R	252		52	36	52	22	8	4	RD... 16
7712VRD16-A066R	266		66	50	52	27	8	5	RD... 16
7712VRD16-A080R	280		80	64	52	27	8	6	RD... 16
7712VRD16-A0100R	300		100	84	52	32	8	7	RD... 16
7712VRD16-A0125R	325		125	109	52	40	8	8	RD... 16

Accessories for 19 804...



Type	Clamping screw 19 804...	Key 51 062...
RD... 12	900	015
RD... 16	905	020

19 804 RD tip

-X6, -X8 tip with fixing



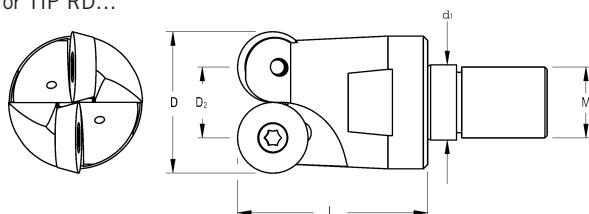
Type	19 804... SP4036		19 804... SP5464	
RDET 0702M0E-701	685		-	-
RDHW 0702M0T	690		-	-
RDHW 10 03M0T	695		-	-
RDET 12T3M0E-701-X6	700		-	-
RDHW 12T3M0T-20-X6	705		805	
RDHW 12T3M0T-X6	710		810	
RDMW12T3M0T-20-X6	-	-	815	
RDMW12T3M0T-X6	-	-	820	
RDHW 1604M0T-30-X8	715		825	
RDHW 1604M0T-X8	720		830	
RDET 1604M0E-701-X8	725		-	-
RDMW 1604M0T-30-X8	-	-	835	
RDMW 1604M0T-X8	-	-	840	
P	100 - 300	0.06 - 0.55	70 - 300	0.2 - 0.55
M	140 - 230	0.05 - 0.18	-	-
K	70 - 100	0.06 - 0.4	-	-
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-



19 804 Milling cutters - screw on tools



for TIP RD...



19 804...

Type	19 804...		D mm	D ₂ mm	L/H mm	M mm	d ₁ mm	Z	TIP
7702VRD07S015R25	215		15	8	25	M8	8.5	2	RD... 0702
7702VRD07S020R25	220		20	13	25	M10	10.5	4	RD... 0702
7702VRD07S025R35	225		25	18	35	M12	12.5	5	RD... 0702
7702VRD07S030R35	230		30	23	35	M16	17.0	5	RD... 0702
7702VRD07S035R35	235		35	28	35	M16	17.0	6	RD... 0702
7702VRD10S020R30	320		20	10	30	M10	10.5	2	RD... 1003
7702VRD10S025R35	322		25	15	35	M12	12.5	3	RD... 1003
7702VRD10S030R35	330		30	20	35	M16	17.0	4	RD... 1003
7702VRD10S035R35	335		35	25	35	M16	17.0	5	RD... 1003

Accessories for 19 804...



Type 7702	Clamping screw 19 804...	Key 51 062...
RD... 0702	600	007
RD... 1003	605	015

19 829 RDEW tip

Wodex®



Type	19 829... WOG 4310		19 829... WOG 2425	
RDEW 12T3 MO SN	-	-	125	
RDEW 1604 MO SN	-	-	145	
RDEW 1604 MO EN	201		-	-
P	120 - 240	-	140 - 255	0.20 - 0.45
M	80 - 110	-	80 - 105	0.20 - 0.45
K	120 - 260	-	120 - 250	0.20 - 0.45
NE	-	-	-	-
H	-	-	-	-
S	-	-	-	-

19 829 RDHX tip

Wodex®

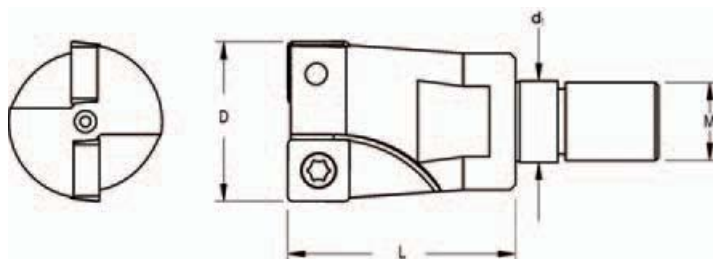


Type	19 829... WOS 4315		19 829... WOS 2040	
RDHX 0501 MOE	311		-	-
RDHX 0702 MOT	321		-	-
RDHX 1003 MOT	341		346	
RDHX 12T3 MOT	361		366	
RDHX 1604 MOT	381		386	
P	120 - 265	-	110 - 240	0.15 - 0.50
M	90 - 120	-	75 - 120	0.15 - 0.50
K	140 - 260	-	120 - 235	0.15 - 0.50
NE	-	-	-	-
H	30 - 50	-	20 - 35	0.08 - 0.2
S	30 - 50	-	20 - 45	0.08 - 0.2



19 807 Plunge milling cutters

for TIP SCMT...



19 807

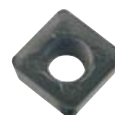
Type	19 807...		D mm	D ₂ mm	L/H mm	M mm	d ₁ mm	Z mm	TIP
7791VS09S025R35	025		25	-	35	M12	12.5	2	SCMT09
7791VS09S032R43	032		32	-	43	M16	17.0	3	SCMT09

Accessories



Type	Clamping screw 19 807...	Key 51 062...
7791	900	015

19 807 SCMT tip



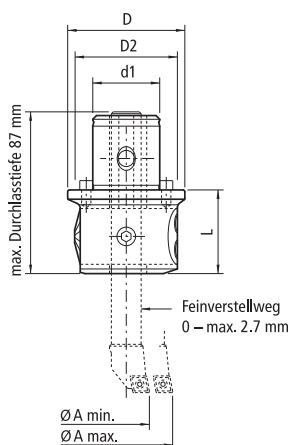
Type	19 807... GH1		19 807... X500		19 807... MP91M		19 807... SP6564	
SCMT09T308E	400		-	-	-	-	-	-
SCMT09T308EN-41	-	-	500	-	600	-	-	-
SCMT12M512EN-41	-	-	-	-	-	-	700	-
P	-	-	-	-	105 - 200	0.12 - 0.25	105 - 300	0.12 - 0.3
M	-	-	115 - 240	0.12 - 0.25	-	-	115 - 240	0.12 - 0.25
K	-	-	-	-	105 - 365	0.12 - 0.3	-	-
NE	400 - 1000	0.12 - 0.24	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-
S	-	-	30 - 85	0.05 - 0.12	-	-	30 - 85	0.05 - 0.12

19 810 Single point boring tool kit with tips Ø 9.75 - 40.1 mm

SWISS BORE

consisting of:

- 1 case
- 1 boring head
- 1 boring tool Ø 9.75 - 15.1
- 1 boring tool Ø 13.75 - 19.1
- 1 boring tool Ø 17.75 - 23.1
- 1 boring tool Ø 21.75 - 27.1
- 1 boring tool Ø 24.75 - 30.1
- 1 boring tool Ø 27.75 - 33.1
- 1 boring tool Ø 31.75 - 35.1
- 1 boring tool Ø 34.75 - 40.1
- 10 tips CCMT 060204
- 10 tips CCMT 09T304
- 1 Allen key SW 5
- 2 Torx keys T 7/T 15



19 810 001

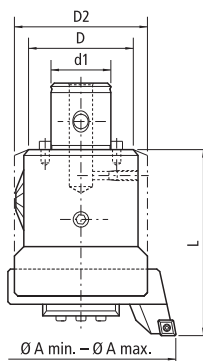
ST	19 810...		D mm	d1 mm	D2 mm	L mm	Ø A min.	Ø A max.
ST6	001		64	36	55	45	9.75	40.1

19 811 Single point boring tool kit with tips Ø 86 - 302 mm

SWISS BORE

consisting of:

- 1 case
- 1 fine boring head
- 1 tip holder incl. pressure plate and support
- 1 tip holder incl. pressure plate and support
- 1 tip holder without pressure plate and support
- 10 tips CCMT 09T304
- 1 Allen key SW 5
- 1 Torx key T 15



19 811 001

ST	19 811...		D mm	d1 mm	D2 mm	L mm	Ø A min.	Ø A max.
ST6	001		64	36	80	112	86	302

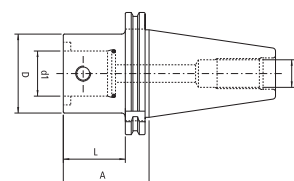
19 814 Short taper shanks DIN 69871 A/D

SWISS BORE



19 814...

ST	19 814...		ISO	D mm	d1 mm	A mm	L min.	M
ST6	001		40	64	36	59	36.9	M 16
ST6	003		50	64	36	69	49.9	M 24



19 816 Short taper shanks BT MAS "A/D"

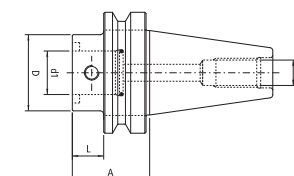
SWISS BORE

The shanks are produced with internal coolant supply through the centre.



19 816...

ST	19 816...		BT	D mm	d1 mm	A mm	L min.	M
ST6	001		40	64	36	46	19	M 16
ST6	003		50	64	36	72	34	M 24



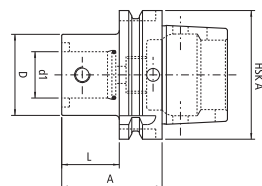
19 817 Hollow shaft taper HSK A DIN 69893

The hollow shaft tapers are produced with bores for code holders and bores through the taper shaft for manual actuation of a clamping mechanism.

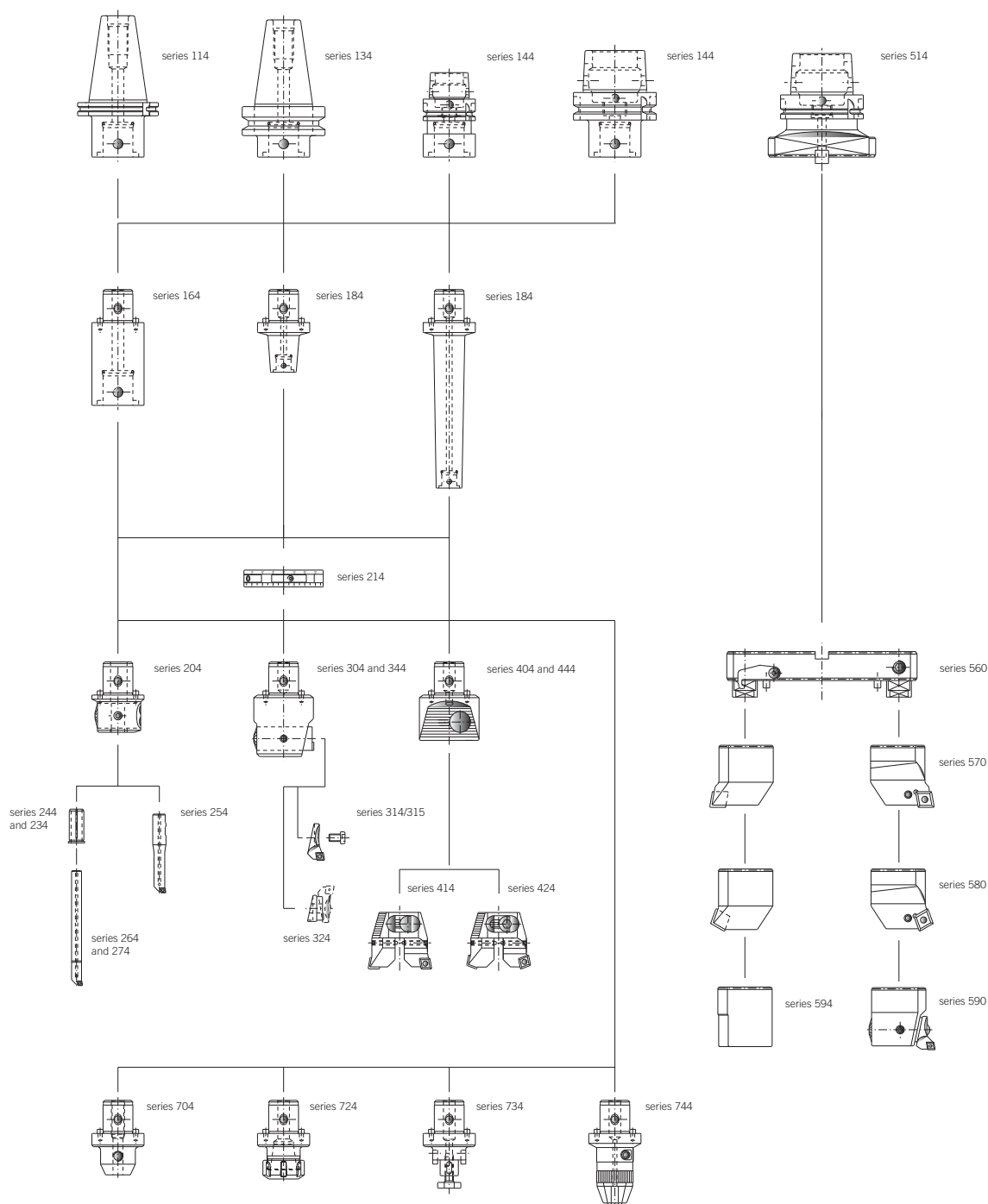
S W I S S
BORE



19 817...

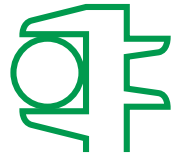


ST	19 817...		HSK A	D mm	d1 mm	A mm	L min.
ST6	001		63	64	36	70	44
ST6	003		100	64	36	78	49



“Turning” / “Parting” / “Milling”





Pickup point machines.

Efficiency, cost control, availability around the clock.

More information is available from your sales office contact or field sales representative

Pickup point machine with spiral conveyor

- ➔ 24 to 36 separate storage spaces with up to 19 packaging units per storage unit, as standard module
- ➔ can be extended with up to 7 further spiral units resulting in 288 storage spaces in total (at one terminal)
- ➔ Space for up to 54720 products (is used for TIP with sales packaging units of 10 TIP)
- ➔ all kinds of different allocation options for packaging
- ➔ Touchscreen integrated in the front as user interface



AGORA

Issue machine with individually controlled drawers and/or lockers

- ➔ Up to 140 controlled drawers and/or 1800 individually controlled flaps
- ➔ Very flexible setup of the drawer units with standardised partitioning materials
- ➔ All kinds of different options for drawer and cabinet sizes
- ➔ Operator control unit with touchscreen and barcode scanner as top-mounted unit



CONLOC

Paternoster and/or lift system with optimum utilisation of space

- ➔ 7-16 separate issue and return air locks
- ➔ Loading capacity: 140 kg per support set or 20 kg per compartment
- ➔ Standard trays with a fill height of 221 mm and an area of 1060 mm x 415 mm
- ➔ 84 to 1000 individual compartments are possible
- ➔ Height from 2100 mm, width from 1400 mm, depth from 1155 mm
- ➔ Electronically locked air lock openings



PROXIMA

Issue machine with spiral conveyor and drawers and/or lockers

- ➔ Variable locker design (6 to 15 individual lockers per drawer level)
- ➔ Different configurations possible:
 - Spirals and drawers / lockers
 - Paternoster / lift system and drawers / lockers
 - Spiral and paternoster / lift system
- ➔ Modular extension to up to
 - 288 spiral storage spaces
 - 140 individually controlled drawers
 - 1800 individually controlled lockers



EOS