Step by step to success.
Guidelines for planning a cable support system

Just eight questions to choose the perfect cable support system
Correct planning of a cable support system requires a systematic approach. The following eight questions will guide you through the complex requirements of the task. The corresponding explanation will guarantee that no important question is missed out, thus protecting you against unpleasant surprises. In each step, you will receive the answers to the basic questions – from the selection of the optimum surface to the correct fastening of the systems.

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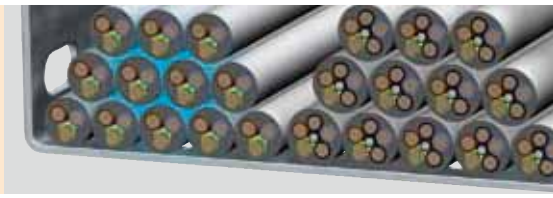

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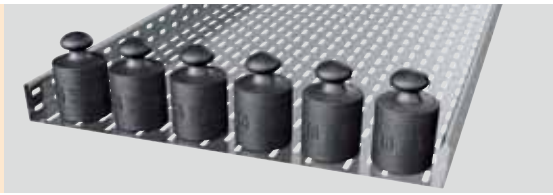

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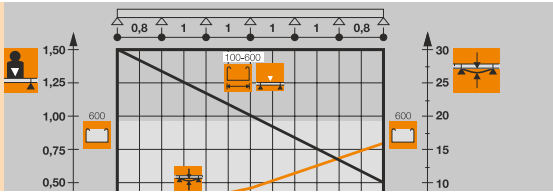

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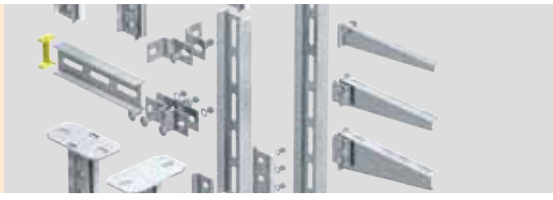

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Question 1
Where will the system be used?

Whether indoors or outdoors, in aggressive atmospheres or under special hygienic conditions: OBO can offer the perfect surface and materials for your cable support system, no matter what the requirements may be.

OBO cable support systems are machined from high-quality sheet steel or steel wire and are available with various surfaces. Different hardening and coating methods ensure tailor-made corrosion protection, specially tailored to the appropriate application. In addition, OBO cable support systems are available in stainless steel and with coloured coatings.

Indoor use

For indoor areas, OBO can offer cable support systems with electro galvanisation or strip galvanisation. They are particularly suited to dry atmospheres without any influence from aggressive pollutants.

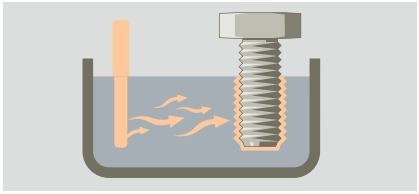
Components
Mesh cable trays and small parts such as screws, washers and nuts.

Electro galvanisation
- Electrolytic galvanisation in accordance with DIN E 12329
- Average coating thickness approx. 2.5–10 µm
- According to RoHS guideline

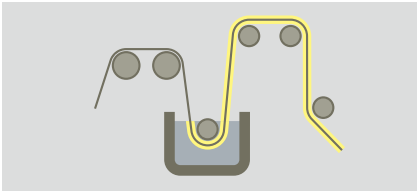
Components
Metal products such as cable trays, fittings and barrier strips.

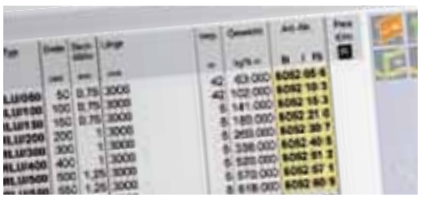
Strip galvanisation
- Galvanisation according to the strip galvanisation method to DIN EN 10327 (formerly DIN EN 10147 and DIN EN 10142)
- Average coating thickness approx. 20 µm
- Joints in the metal are protected by the cathodic corrosion protection up to a material thickness of 2.0 mm

G



FS





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Surface selection in OBO Construct KTS

In each phase of the project, our construction and planning software will support you in your choice of surface and material for your selected cable support system. Be it in the FS, FT, DD or stainless steel variant, all the available systems are stored and available. This means that errors can be avoided well in advance. The user can see at a glance which options can be implemented.

Outdoor use

OBO can offer versions with hot-dip galvanisation and double-dip galvanisation for outdoor and wet-room use.

Components

Sheet steel products such as cable trays and welded components such as supports and brackets.

Hot-dip galvanisation

- Galvanisation according to the hot-dip method to DIN EN ISO 1461
- Coating thickness to DIN EN ISO 1461 approx. 40–60 µm
- Joints made later must be re-galvanised for corrosion protection reasons.

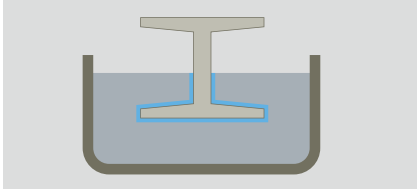
Components

Sheet steel products such as covers, barrier strips and punched parts.

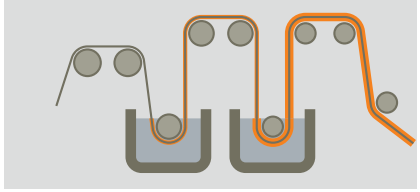
Double-dip galvanisation

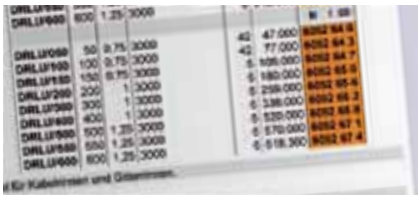
- Hot dipping with zinc-aluminium coating in accordance with DIN EN 10327
- Average coating thickness approx. 23 µm
- Joints in the metal are protected by the cathodic corrosion protection up to a material thickness of 2.0 mm

FT



DD





Question 1
Where will the system be used?

Use in tunnel construction, food or chemical industries

There are also OBO stainless steel systems for special hygiene and quality requirements for special visual criteria for open wiring.

Components
SS304 selection programme with the title "Stainless steel systems"

Stainless steel, grade 304
- OBO code: V2A
- European material number 1.4301
- American material designation 304
- Welded components are additionally acid cleaned
- Unwelded components are rinsed and degreased

Components
SS316 selection programme with the title "Stainless steel systems"

Stainless steel, grade 316
- OBO code: V4A
- European material number 1.4571
- American material designation 316 / 316 Ti
- Welded components are additionally acid cleaned
- Unwelded components are rinsed and degreased

V2A

V4A

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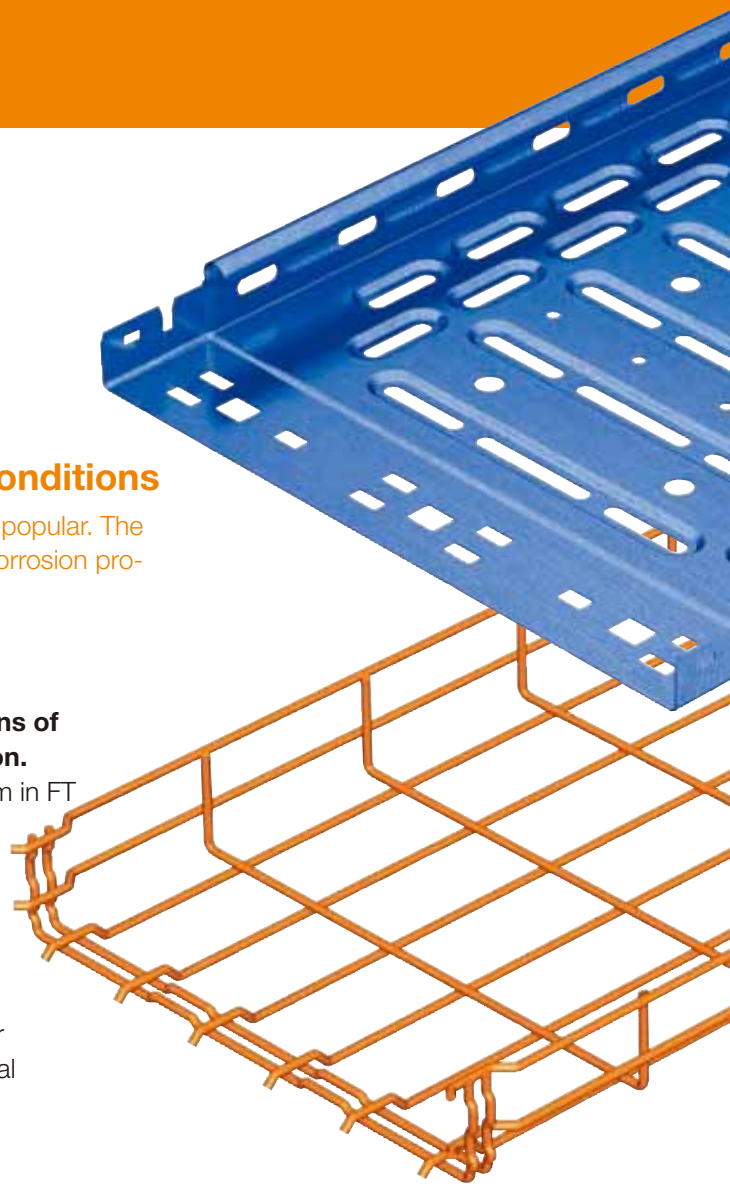
Applications with specific optical requirements or special environmental conditions

Colour-coated cable support systems are becoming ever more popular. The coating may be required for optical reasons or for reasons of corrosion protection:

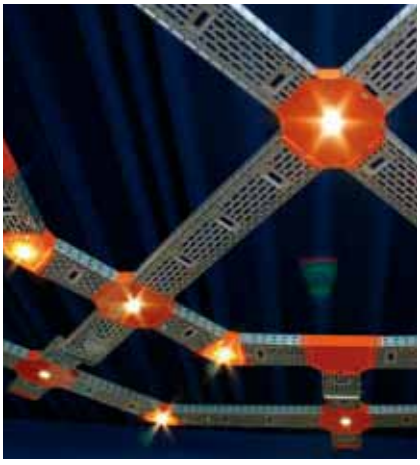


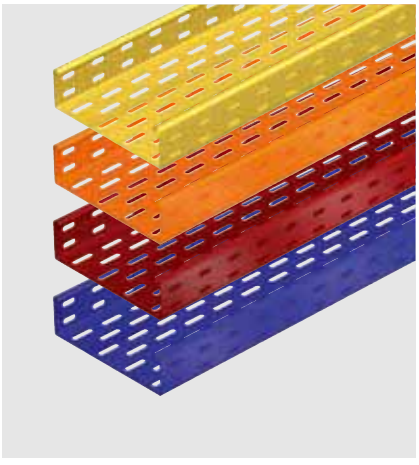
1. Colour coating for optical reasons

- Cable support system in FS (strip galvanised version)
- All RAL colours available
- Coating of the visible surfaces and/or the complete system
- For open wiring, designed to match the colour of the structure
- Separation of different voltages/functions (e. g. blue mains 230/400 V; red low voltage such as telephone cables and IT cables)

2. Coatings for reasons of corrosion protection.

- Cable support system in FT (hot-dip galvanised version)
- All RAL colours available
- High mechanical resistance of the epoxy-polyester layer used against chemical influences





Colour-coated systems are not indicated specially in this catalogue. You can obtain details for these systems by contacting our telephone hotline on +49 (0)2373 / 89 15 00.

Question 2
Which cabling method is used?

Not all cables are the same. To select the perfect cable support system, you need to know which type of cables are to be laid. Sensitive data cables, which must be laid apart from each other due to the screening necessary? Or power cables, for which a not inconsiderable heat build-up must be taken into account? For all these applications OBO can offer tailor-made system solutions.

Universal cable trays
Areas of application: from low voltage cabling to power supply.

RKSM cable tray
Efficient cable tray system with quick connector

MKS cable tray
Medium duty cable tray system

SKS cable tray
Heavy duty cable tray system

EKS cable tray
Extra-heavy duty cable tray system

DKS cable tray
Permeable cable tray system

IKS cable tray
Installation cable tray system

AZK 050 channel
Feeding tray

Mesh cable trays for the installation of light cables
Areas of application: IT cabling, telephone cabling and control cables. Also suitable for use in false ceilings and cavity floors.

GRM mesh cable tray
Magic mesh cable tray (with shaped connector)

CGR mesh cable tray
C-shaped mesh cable tray

Cable ladders for power cables with a large cross-section

Areas of application: (power) cables with large cross-sections. These can be fastened to the rungs using U clamps. The high load capacity and good ventilation ensure perfect cable laying.

LG 45 NS
Perforated cable ladder with a side height of 45 mm and integrated NS rung

SLG 45 NS
Heavy duty perforated cable ladder with a side height of 45 mm and integrated NS rung

LG 60 NS
Perforated cable ladder with a side height of 60 mm and integrated NS rung

LG 60 VS
Perforated cable ladder with a side height of 60 mm and integrated VS rung

LG 110 VS
Perforated cable ladder with a side height of 110 mm and integrated VS rung

Wide span cable trays and ladders for large support distances

Areas of application: for installations in which the support distances are more than three metres, on account of the construction conditions.

WKSG 110
Wide span cable tray, perforated with a side height of 110 mm

WKSG 160
Wide span cable tray, perforated with a side height of 160 mm

WKLG 110
Wide span cable ladder, perforated with a side height of 110 mm

WKLG 160
Wide span cable ladder, perforated with a side height of 160 mm

WKL 200
Wide span cable ladder, with a side height of 200 mm

Modular system for special tasks

The product range that knows no bounds. The range of individually combinable products is particularly suited to difficult installation tasks.

AZK 050 channel
Feeding tray of width 50 mm

AZK 100 channel
Feeding tray of width 100 mm

BKK basic profile
Modular tray basic profile

Question 3
How can I work out the volume of cables?

A key criterion for the selection of the correct cable support system is the cable volume, for which there must be sufficient space in the cable tray. As the cables are never very close and laying in parallel, it is insufficient to base the volume calculation on just the cable diameter. A realistic basis is supplied by the formula $(2r)^2$. To save you work, we have listed the diameter and usable cross-section of the most important cable types below. Important: they are average values, which may vary from manufacturer to manufacturer. Please refer to the manufacturer's specifications for the exact values.

Calculation of the cable volume in OBO Construct KTS
With our construction and planning software OBO Construct KTS, you can calculate the cable volume very easily.

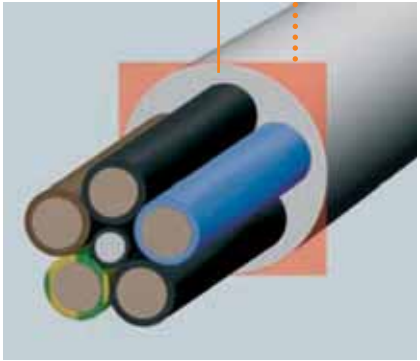
For this, the most common cable types, which are stored in the program, are transferred to a cable list at the touch of a button. Then you will see a matrix with the appropriate cable volume data.

Space required in cm²

Diameter in mm

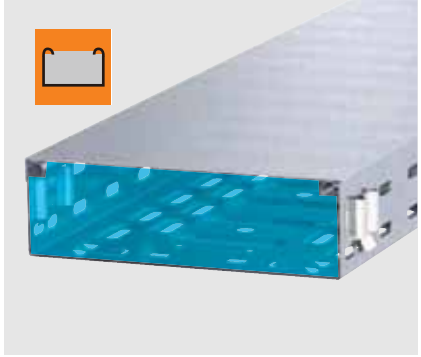
Calculation using the formula $(2r)^2$ The diameter says little about the actual space required by a cable. Calculate: $(2r)^2$.

This value reflects the realistic space requirements, including the compartments.



Cable diameter and space requirement

The usable cross-section of the cable simulates the spaces in real cable laying



Usable cross-section of the system with corresponding pictogram

Insulated power cables

Type	Diameter mm	Usable cross-section cm²
1 x 4	6.5	0.42
1 x 6	7	0.49
1 x 10	8	0.64
1 x 16	9.5	0.9
1 x 25	12.5	1.56
3 x 1.5	8.5	0.72
3 x 2.5	9.5	0.9
3 x 4	11	1.21
4 x 1.5	9	0.81
4 x 2.5	10.5	1.1
4 x 4	12.5	1.56
4 x 6	13.5	1.82
4 x 10	16.5	2.72
4 x 16	19	3.61
4 x 25	23.5	5.52
4 x 35	26	6.76
5 x 1.5	9.5	0.9
5 x 2.5	11	1.21
5 x 4	13.5	1.82
5 x 6	14.5	2.1
5 x 10	18	3.24
5 x 16	21.5	4.62
5 x 25	26	6.76
7 x 1.5	10.5	1.1
7 x 2.5	13	1.69

Insulated power cables

Type	Diameter in mm	Usable cross-section cm²
1 x 10	10.5	1.1
1 x 16	11.5	1.32
1 x 25	12.5	1.56
1 x 35	13.5	1.82
1 x 50	15.5	2.4
1 x 70	16.5	2.72
1 x 95	18.5	3.42
1 x 120	20.5	4.2
1 x 150	22.5	5.06
1 x 185	25	6.25
1 x 240	28	7.84
1 x 300	30	9
3 x 1.5	11.5	1.32
3 x 2.5	12.5	1.56
3 x 10	17.5	3.06
3 x 16	19.5	3.8
3 x 50	26	6.76
3 x 70	30	9
3 x 120	36	12.96
4 x 1.5	12.5	1.56
4 x 2.5	13.5	1.82
4 x 6	16.5	2.72
4 x 10	18.5	3.42
4 x 16	21.5	4.62
4 x 25	25.5	6.5
4 x 35	28	7.84
4 x 50	30	9
4 x 70	34	11.56
4 x 95	39	15.21
4 x 120	42	17.64
4 x 150	47	22
4 x 185	52	27
4 x 240	58	33.6
5 x 1.5	13.5	1.82
5 x 2.5	14.5	2.1
5 x 6	18.5	3.42
5 x 10	20.5	4.2
5 x 16	22.5	5.06
5 x 25	27.5	7.56
5 x 35	34	11.56
5 x 50	40	16

Telecommunication cables

Type	Diameter in mm	Usable cross-section cm²
2 x 2 x 0.6	5	0.25
4 x 2 x 0.6	5.5	0.3
6 x 2 x 0.6	6.5	0.42
10 x 2 x 0.6	7.5	0.56
20 x 2 x 0.6	9	0.81
40 x 2 x 0.6	11	1.12
60 x 2 x 0.6	13	1.69
100 x 2 x 0.6	17	2.89
200 x 2 x 0.6	23	5.29
2 x 2 x 0.8	6	0.36
4 x 2 x 0.8	7	0.49
6 x 2 x 0.8	8.5	0.72
10 x 2 x 0.8	9.5	0.9
20 x 2 x 0.8	13	1.69
40 x 2 x 0.8	16.5	2.72
60 x 2 x 0.8	20	4
100 x 2 x 0.8	25.5	6.5
200 x 2 x 0.8	32	10.24

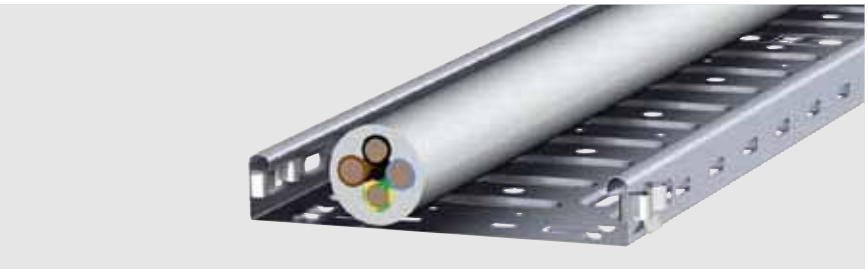
IT cables Type Cat...

Type	Diameter in mm	Usable cross-section cm²
Cat.	8	0.64

Coax cable (standard)

Type	Diameter in mm	Usable cross-section cm²
SAT/BK cable	6.8	0.46

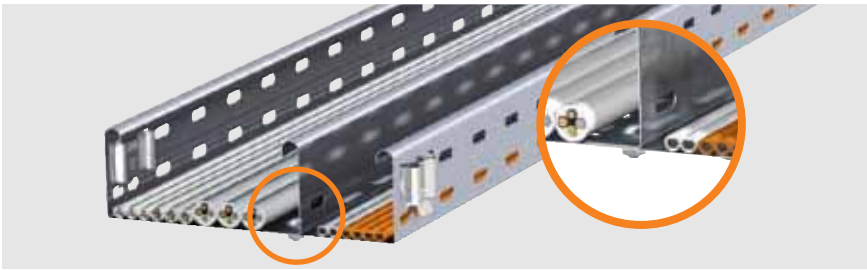
Question 4
How can I find a system of the appropriate volume?



Cable height
The cable height may not exceed the edge height of the cable tray.

Volume reserve
When selecting the system, a volume reserve of at least 30% should be planned for possible later installations.

Branches
When dimensioning branches, the bending radii of the cables must be taken into account.



Separation of system levels
When selecting the volume, pay attention to the different cables. To separate different voltage levels, you must taken the required spacings into account.

Reference laying types
The specifications of DIN 298-4 with regard to the mass and ventilation of cables should be taken into account during laying.

Reference laying type: C
Cable on unperforated cable tray, e.g. type MKSU

Reference laying type: E or F
Cable on perforated cable tray, horizontal/vertical, e.g. type RKS/MKS

Reference laying type: E, F or G
Cable or installation cable on mesh cable trays, e. g. type GR-Magic®

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Volume calculation in OBO Construct KTS

The method for calculating the cable volume using the OBO Construct KTS construction and planning software, as described in Step 3, can be extended. When all the necessary parameters have been input, the user receives a matrix with data on the filling factor as a percentage of the slant height and the width of the cable support system. A colour diagram provides additional information on the approved support spacings of the cable support system.

A world of choice. The right system for every application

The following table will help you to choose a cable support system of the right volume. It underlines the interplay of tray or ladder width, side height and usable cross-section. The difference when laying the same volume of data and power cables should be taken into account: while it is possible to select a narrow, high tray for data cables, a wide, flat version is necessary for power cables. When selecting the correct system, also observe the current DIN/VDE standards (0298 T1 to T4), which provide information on the heating of cables, depending on the cumulation of the ambient temperature.

Flat, wide variant

e. g. for power cables

Cable tray width: 300 mm

Side height: 35 mm

Usable cross-section: 103 cm²

Narrow, high variant

e.g. for data cables

Cable tray width: 100 mm

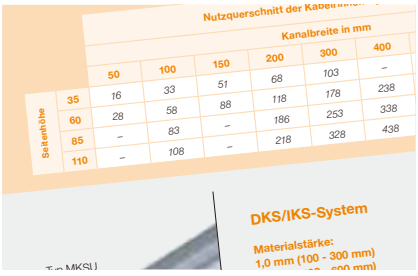
Side height: 110 mm

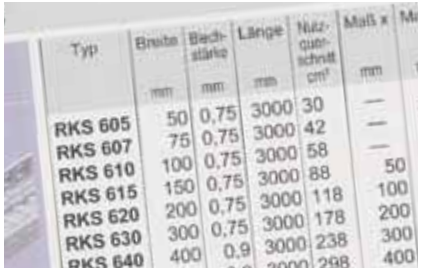
Usable cross-section: 108 cm²

Overview of usable cross-sections

As an aid to orientation, we have summarised the usable cross-sections in tables at the beginning of each product chapter.

In addition, the usable cross-sections of the individual types are explained along with the appropriate component.





Question 5
How do I calculate the cable weight?

Of equal significance for the selection of the cable support system most suited to the application is the load capacity, which must be matched with the expected cable weight (including the reserve for later installations). There are three variants for determining the cable weight:

Variant 1: Orientation to experience values

The average load capacity of a cable tray can be calculated roughly using experience values. For a system with a rail height of 60 mm, a value of 15 kg per 100 mm width is valid for each metre of cable tray or cable ladder. However, more accurate than orientation to experience values is to calculate the cable load using the formula from DIN VDE 0639 Part 1 (Variant 2) or the manufacturer's specifications (Variant 3).

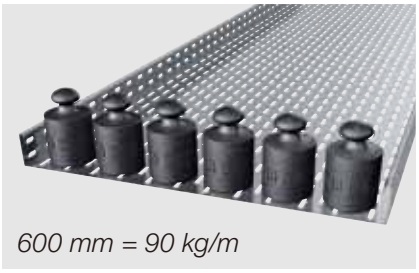
100 mm = 15 kg/m


200 mm = 30 kg/m


300 mm = 45 kg/m


400 mm = 60 kg/m


500 mm = 75 kg/m


600 mm = 90 kg/m

The graphics show the load capacities, based on experience values, of cable trays with a rail height of 60 mm, relative to cable tray widths of 100 to 600 mm.

Variant 2: Calculation formula according to VDE 0639 T1

Calculation formula according to DIN VDE 0639 Part 1 (cable support systems) offers the following formula for calculating the maximum permitted cable load:

$$\text{Cable load (F)} = \frac{0.028\ \text{N}}{\text{m} \times \text{mm}^2} \times \text{usable cross-section}$$

In the example calculation, the maximum approved cable load for a cable tray is worked out using the dimesion 60 mm x 300 mm and a usable cross-section of 178 cm².

1. **Cable load (F) =** $\frac{0.028\ \text{N}}{\text{m} \times \text{mm}^2}$ **x 17,800 mm² = 500 N/m**
2. **Conversion from Newtons (N) to kilogrammes (kg)**
   10 N ~ 1 kg – in our example, this means: 500 N/m = 50 kg/m
3. **Maximum occurring load = 50 kg/m**

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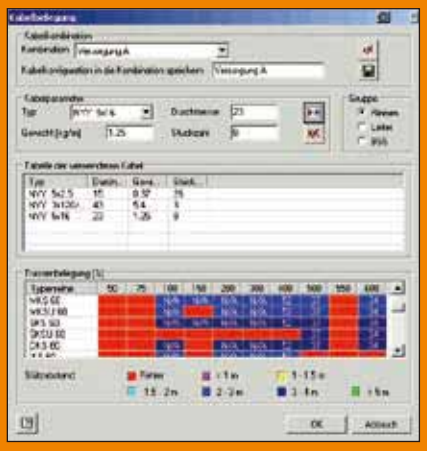


Cable filling and calculation of the cable weight

OBO Construct KTS can be used to calculate the expected total cable weight from the individual weights of the cables. For this, the most common cable types, which are stored in the database, are transferred to a cable list at the touch of a button. The user receives a matrix with data on the filling factor as a percentage of the slant height and the width of the cable support system. In this case too, the permissible support spacings of the cable support system can be determined with the help of a colour diagram. After construction of the cable support system in the diagram, cables can be added virtually. The user receives a tabular overview of all the important parameters, such as filling factor, total weight, load, etc.

Variant 3: Exact calculation according to manufacturer's specifications

Most cable manufacturers offer a very accurate method of calculating cable weights, and appropriate lists or tables can be obtained from them.

Important: The tables only provide a rough overview. They are average values, which may vary from manufacturer to manufacturer. Please refer to the manufacturer's specifications for the exact values.

Actual cable weights of different cable types:

Insulated power cables

Type	Cable load kg/m
1 x 4	0.08
1 x 6	0.105
1 x 10	0.155
1 x 16	0.23
1 x 25	0.33
3 x 1.5	0.135
3 x 2.5	0.19
3 x 4	0.265
4 x 1.5	0.16
4 x 2.5	0.23
4 x 4	0.33
4 x 6	0.46
4 x 10	0.69
4 x 16	1.09
4 x 25	1.64
4 x 35	2.09
5 x 5.1	0.19
5 x 2.5	0.27
5 x 4	0.41
5 x 6	0.54
5 x 10	0.85
5 x 16	1.35
5 x 25	1.99
7 x 1.5	0.235
7 x 2.5	0.35

Insulated power cables

Type	Cable load kg/m
1 x 10	0.18
1 x 16	0.24
1 x 25	0.35
1 x 35	0.46
1 x 50	0.6
1 x 70	0.8
1 x 95	1.1
1 x 120	1.35
1 x 150	1.65
1 x 185	2
1 x 240	2.6
1 x 300	3.2
3 x 1.5	0.19
3 x 2.5	0.24
3 x 10	0.58
3 x 16	0.81
3 x 50	1.8
3 x 70	2.4
3 x 120	4
4 x 1.5	0.22
4 x 2.5	0.29
4 x 6	0.4
4 x 16	1.05
4 x 25	1.6
4 x 35	1.75

Type	Cable load kg/m
4 x 50	2.3
4 x 70	3.1
4 x 95	4.2
4 x 120	5.2
4 x 150	6.4
4 x 185	8.05
4 x 240	11
5 x 1.5	0.27
5 x 2.5	0.35
5 x 6	0.61
5 x 10	0.88
5 x 16	1.25
5 x 25	1.95
5 x 35	2.4
5 x 50	3.5

Telecommunication cables

Type	Cable load kg/m
2 x 2 x 0.6	0.03
4 x 2 x 0.6	0.035
6 x 2 x 0.6	0.05
10 x 2 x 0.6	0.065
20 x 2 x 0.6	0.11
40 x 2 x 0.6	0.2
60 x 2 x 0.6	0.275
100 x 2 x 0.6	0.445
200 x 2 x 0.6	0.87
2 x 2 x 0.8	0.04
4 x 2 x 0.8	0.055
6 x 2 x 0.8	0.08
10 x 2 x 0.8	0.115
20 x 2 x 0.8	0.205
40 x 2 x 0.8	0.38
60 x 2 x 0.8	0.54
100 x 2 x 0.8	0.875
200 x 2 x 0.8	1.79

IT cables Type Cat...

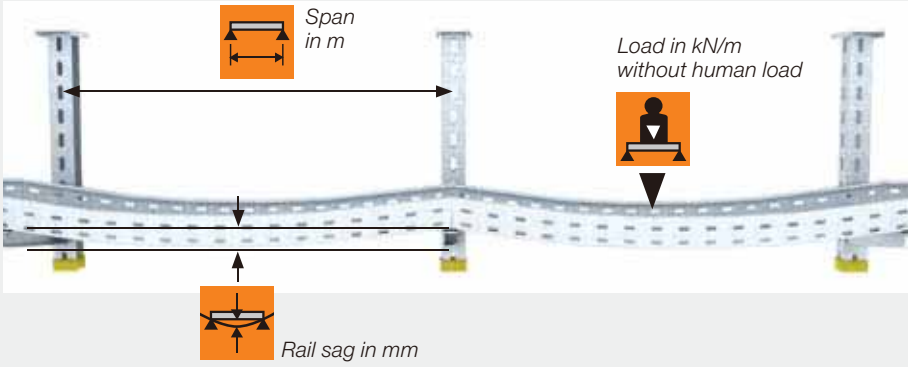
Type	Cable load kg/m
Cat. 5 / Cat. 6	0.06

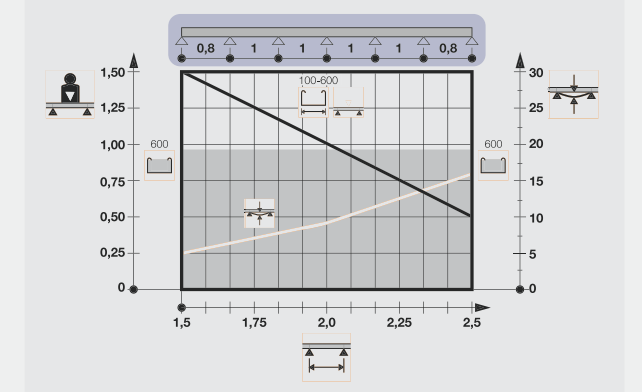
Coax cable (Standard)

Type	Cable load kg/m
SAT/BK cable	0.06

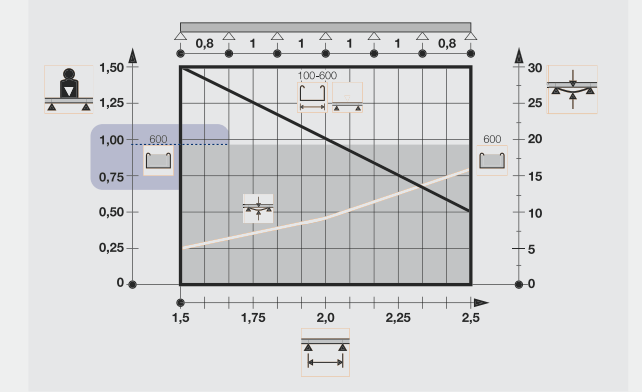
Question 6.1
Which trays and ladders can support which cable load?

Small diagram.
Lots of information.
The OBO cable support systems are tested on our in-house testing system for the load capacities of the various components, such as cable trays, cable ladders and mounting systems. The results of the tests are presented in a diagram, which will explain, step-by-step, below.

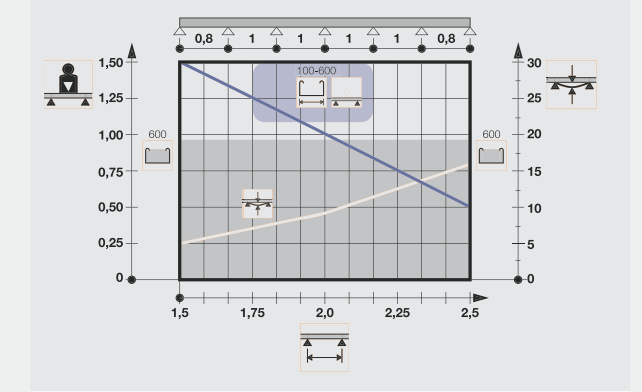




Information 1: The testing process
The basic principles of the tests of OBO cable support systems is VDE 0639 Part 1 and DIN EN 61537. The purpose of the tests is to determine the maximum load capacities for each component, depending on parameters such as component width, support spacing, etc. and to present this in a diagram to be included with each component. In our example, we have selected the cable tray MKS 60. The area with the blue background indicates the experiment set-up, with a variable support spacing (L) in the central area, with a fixed value of 0.8 m at the front and rear ends of the cable tray.



Information 2: The theoretical volume of the largest cable tray or cable ladder type
Which cable weight can be inserted in the largest cable tray? This information, related to the heaviest cable type (NYY), can be read off from the diagram, relative to the width and the side height of the cable tray. In our example (with the blue background), an MKS 60 tray with a width of 600 mm and a side height of 60 mm can support a maximum cable weight of 0.9 kN per metre.



Information 3: Load curves for selected cable tray or cable ladder widths
In the diagram, the load capacity of the cable trays can be read off relative to the span using the load curves given here as an example (see blue line) for the cable tray MKS 60/.... A key factor for the load capacity of the cable trays is, beside the support spacing and slant height, the material thickness, which varies according to type.

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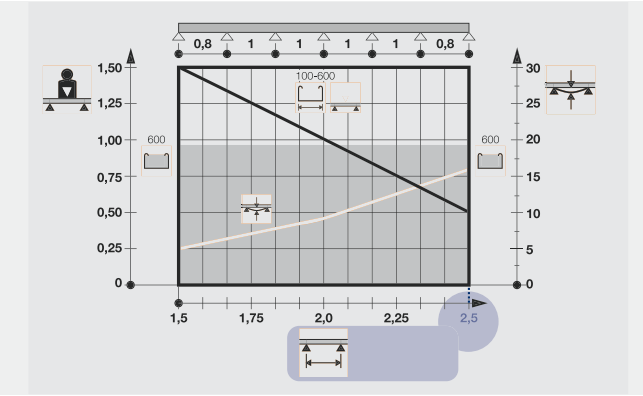
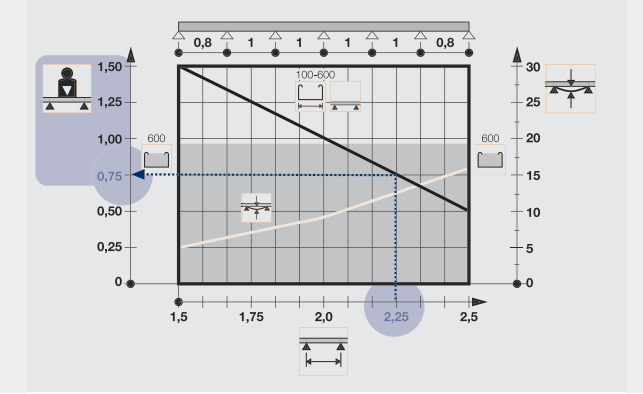


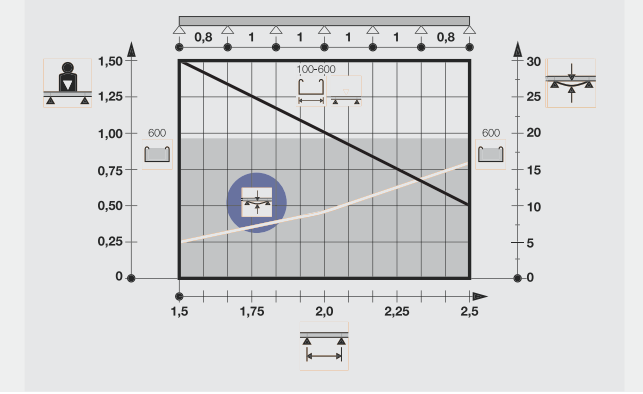
Information 4: Possible support spacings

The theoretically possible support spacings for the cable tray can be read off on the axis at the foot of the table. Using the load curves, it is easy to read off to what extent the load capacity of the system falls as the support spacing grows. On all OBO cable support systems (with the exception of the wide span trays), we recommend not exceeding a support spacing of 1.5 m if possible.



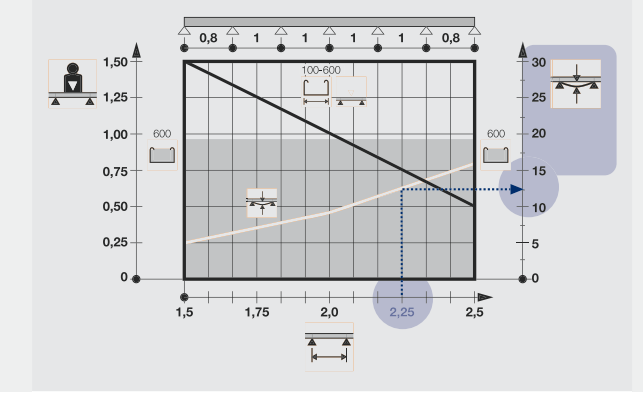
Information 5: Ratio: load/span

Which load is possible at which support spacing? With the diagram, you can find the appropriate information at a glance. In our example (with the blue background), a span of 2.25 m on the MKS tray produces a maximum load capacity of 0.75 for each running metre of cable tray. Please note that, in this example, the volume of the cable tray may exceed the permitted load. Therefore, if at all possible, do not exceed the support spacing of 1.5 m, as recommended by OBO.



Information 6: W = rail sag

To what extent does the load on a cable tray cause the rail to bend? This information is supplied by the orange curve (w) in millimetres (orientation value on the axis on the right-hand side of the diagram).

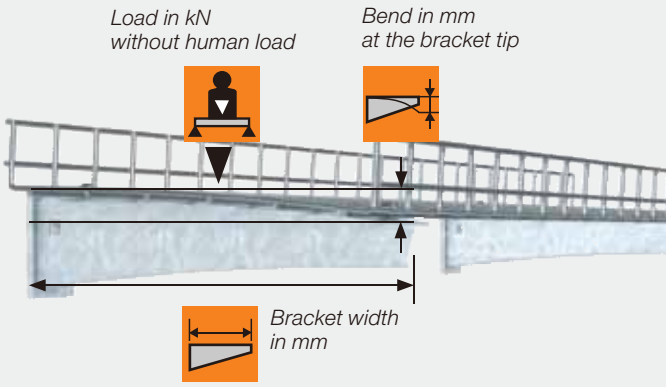


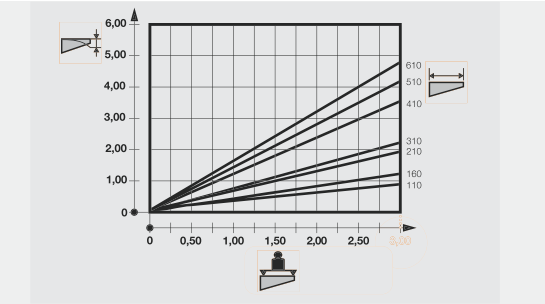
Information 7: Rail sag at maximum load

The orange curve clearly shows how quickly the cable tray will bend when the support spacing increases. In our example, the bend at a support spacing of 2.25 m is shown, here approximately 12 mm.

Question 6.2
Which bracket can support which cable load?

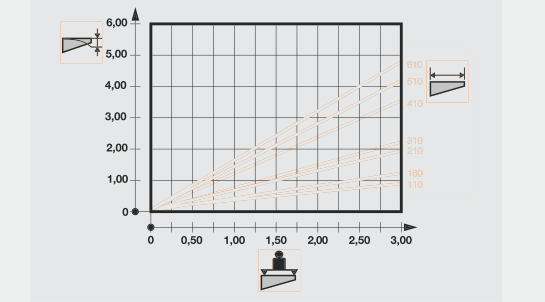
A key component of the OBO cable support systems are the mounting components, in particular the brackets and supports. They connect the cable trays and ladders to the wall and to the ceiling, and are thus an important construction element of the overall system.
When calculating the load capacity of cable support system, the brackets and supports must not be forgotten. The test diagram is also useful in selecting the right products.





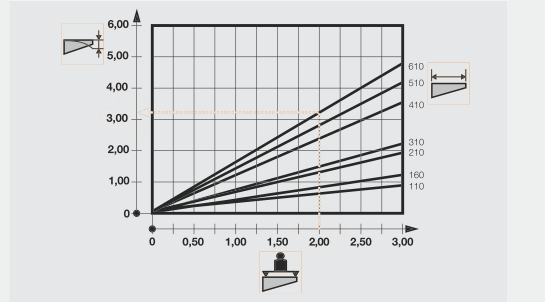
Information 1: Recommended maximum load on the bracket

The bracket is the part of the installation system upon which the cable tray or mesh cable tray is located. It is either directly connected to the wall or is connected to the ceiling using supports. The grey bar on the right edge of the diagram provides information on the maximum load capacity of the bracket.



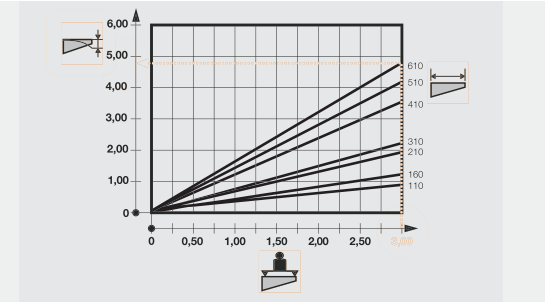
Information 2: Load curves for all bracket widths

The bending of the bracket is dependent on its width, which, in our example, can range from 110 mm to 610 mm. The load curves are assigned to the appropriate bracket type.



Information 3: Bending of the bracket tip at a specific load

The load curve in the diagram provides information on the bending of the boom tip at a specific load. In our example (highlighted in red), a bracket with a width of 610 mm will bend by approximately 3.1 mm at a load of 2 kN. A basic rule of thumb is: The shorter the bracket, the less the bend will be.



Information 4: Bending of the bracket tip at maximum load

The bending factor of the bracket at maximum load can also be seen in the diagram. In our example (shown in orange), the bend value for a 610 mm wide bracket at a maximum load of approx. 3.0 kN is approximately 4.5 mm. To minimise the bend, the centre of gravity of the cable load should be as close as possible to the wall or the support fastening.

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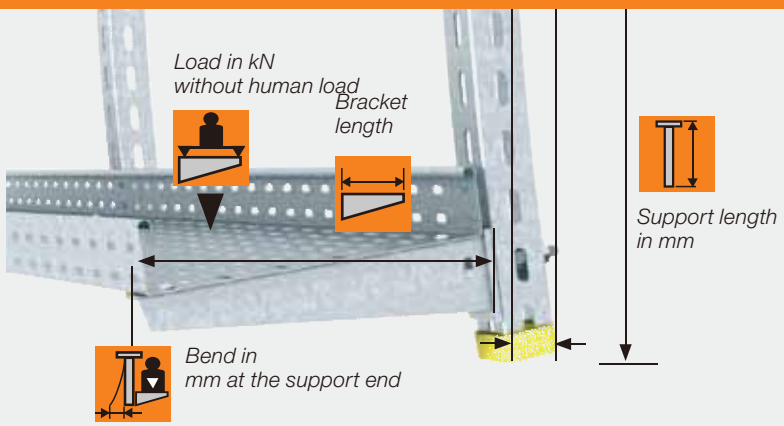
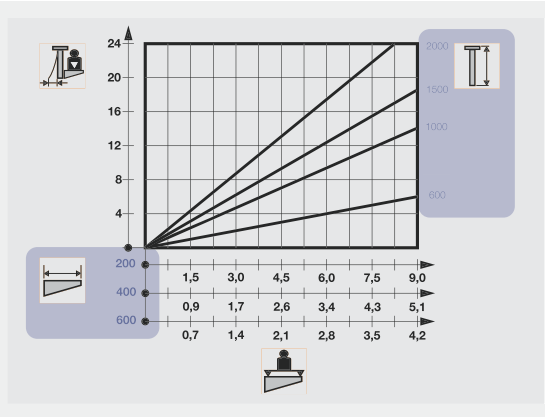
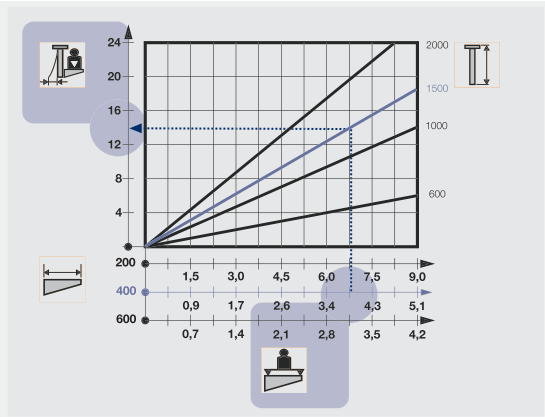
Question 6.3
Which support can support which cable load?





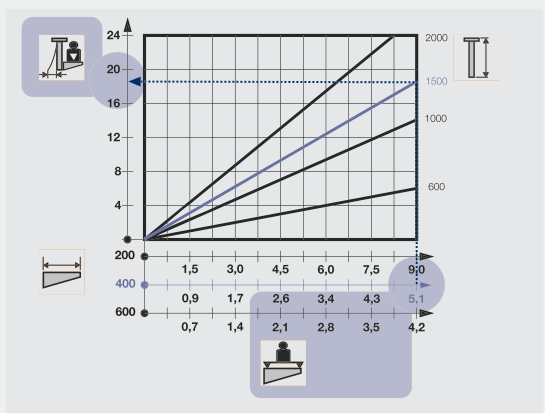
Information 1: Various support lengths and bracket widths

The load capacity of a cable support system is not just dependent on the width of a bracket, but also on the length of a support. The load curves in the diagram provide information on the load capacity of a support of length 600, 1,000, 1,500 or 2,000 mm, taking the bracket width into account.



Information 2: Calculation of the deflection for the example

The weight of the total support/bracket/cable tray system causes a deflection of the support from the vertical. The deflection value can be read off from the axis on the left edge of the diagram. In our example (blue background), a 1,500 mm long support, together with a 400 mm wide bracket and a weight load of 4 kN at the end of the support will produce an deflection of approximately 14 mm.



Information 3: Calculation of the deflection at maximum load for the example

The deflection of the support at a maximum load can also be read off on the diagram. Our blue example shows an deflection of roughly 18 mm at the end of the support for a 1,500 mm long support in combination with a 400 mm wide bracket at a maximum cable load of approximately 5 kN.

Question 7
How can I find the right mounting system?

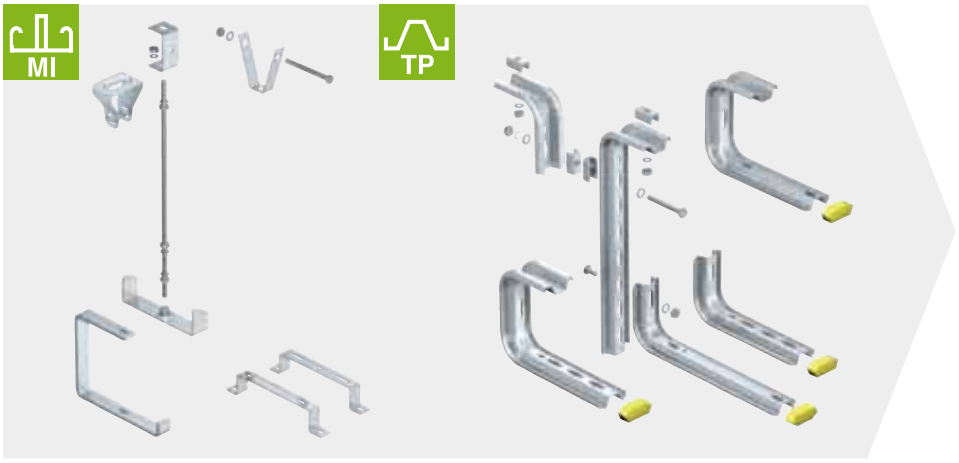
Allocation of supports and brackets

The mounting systems range from light universal systems, through U support and bracket systems up to the heavy I support systems. You can find an overview of the combination options for supports and brackets in the following combinations and explanations. As the component allocation is determined by many factors, such as support spacing, side heights, weight and additional loads, we recommend using the OBO Construct KTS software.

Universal systems

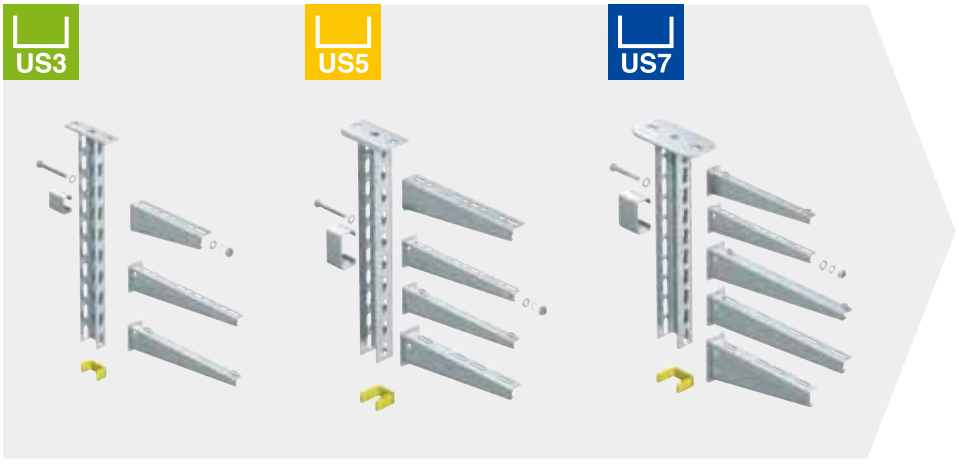
Are divided up into:

Suspensions with
threaded rods
Central hangers
Ceiling brackets
Stand off brackets



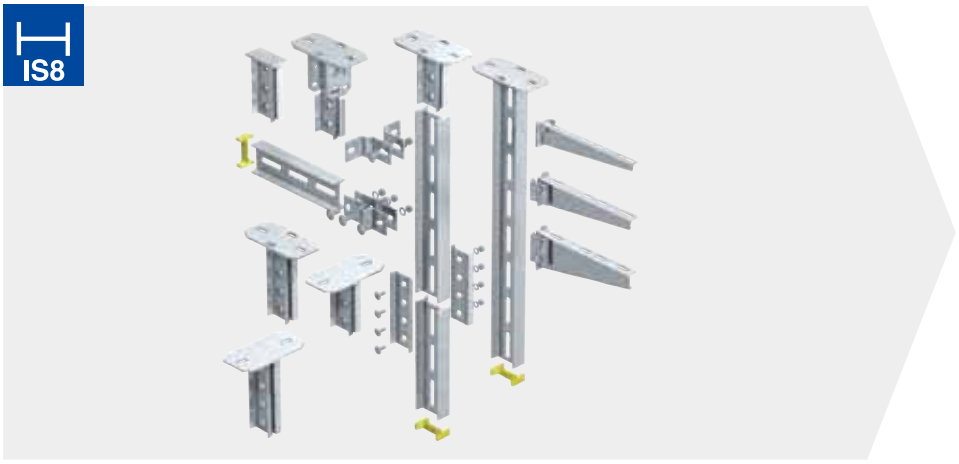
U support and bracket systems

Type US 3, U support
Type US 5, U support
Type US 7, U support



I support systems

Type IS 8 K, I support



Calculating the cable load

Our construction and planning software OBO Construct KTS can find the optimum support/bracket or wall bracket combination for you. The program can provide you with a simplified selection of suitable system components, depending on the tray type and the load. Naturally, you will have the choice of using higher performance support systems from the catalogue. The program does not allow the use of components which are too weak. This means that errors are eliminated well in advance. This is because safety is paramount!









Question 8
What can I use to fix the cable support system?

Not only the individual components of the cable support system – cable tray, brackets and supports – are important for the load capacity of the installation. Also of importance is the anchoring in the concrete/masonry or to metal constructions.

Allocation of fastening materials

OBO article	Length/mm Width/mm	Heavy duty anchors/ anchor bolt	Load classes in C25**	Thread length mm	Thread	Item No.
US 3K support	*200 - 1200*	*FAZ II 8/10 GS*	*2.4 kN*	*10*	*M8*	***3498 50 6***
MWA 12 bracket	*100 - 400*					
TP bracket	*145 - 345*	*FAZ II 10/30*	*4.3 kN*	*30*	*M10*	***3498 58 1***
TP support	*145 - 645*					
US 5 support	*200 - 1200*	*FAZ II 10/10 GS**	*4.3 kN*	*10*	*M10*	***3498 54 9***
US 7 support	*200 - 1000*					
AW 15 bracket	*110 - 610*					
AW 30 bracket	*110 - 710*					
US 7 support	*1100 - 2000*	*FAZ II 12/10**	*7.6 kN*	*10*	*M12*	***3498 65 4***
IS 8 support	*200 - 2000*					
AW 55 bracket	*210 - 810*					
AW 55 bracket	*910 - 1010*	*FH 18/80**	*9.91*	*18*	*M12*	***3498 74 3***
AW 80 bracket	*210 - 810*					

Which anchor can carry which load?

The load capacity of a support (table on left) or a wall bracket (table on right) is dependent on the quality of the anchoring in the wall or ceiling. The anchor plays an important role in this. The maximum load capacity values can be read off from the anchor diagrams, which allow a direct allocation using the load class to the OBO anchors and heavy-duty anchors listed in the ordering section of the catalogue:

Anchor bolt	Load class
FAZ II 8	*2.4 kN*
FAZ II 10	*4.3 kN*
FAZ II 12	*7.6 kN*
Heavy duty anchors	**Load class**
FH 18	*9.91 kN*

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Installation with heavy-duty/ anchor bolts
Anchors for fastening KTS components to standard reinforced or non-reinforced C20/25 to C50/60 concrete. The anchor bolts of type FAZ II are suited to pass-through installation and are all available with the dimensions M8 to M12. The heavy-duty anchors have an M12 threaded connection and are drilled at a width of 18 mm. All the heavy-duty/anchor bolts are tested for function maintenance and have European approvals.

Installation with screw anchors
The screw anchors are suitable for direct installation in chalky sandstone and tiled full brick. They cut a thread into the fastening substrate. This means that there is no need to use dowels. All the screw anchors are tested for function maintenance and have European approvals.

Installation with injection anchor
Injection anchors are suitable for universal fastening in practically any substrate. They consist of a mortar cartridge, threaded bolt, wire sleeve and pressing gun. In addition, they are suited to function maintenance and have European approvals.

Installation with clamping angles and chuck jaws
OBO clamping angles and chuck jaws are suitable for direct installation on steel constructions. They can be used to fasten even the heaviest system directly or using auxiliary constructions to the steel framework of buildings.