

Speedway Cable Ladder



Total Cable Management Solutions

SPEEDWAY FOR WHEN IT MATTERS

The Proven Product

Installed in Exacting Environments from -45°C to +45°C

For All Applications

Oil, Petrochemical, Gas, Chemical, Nuclear, Utilities, Power, Ship Building,
Transport, Defence & Communications

Across Continents & Seas

Europe · Middle East · Russia · Americas · Africa · Far East · Australia
North Sea · Irish Sea · Caspian Sea

Features & Advantages

- ▶ Special profiled side section for enhanced rigidity, better coupling & increased internal width.
- ▶ Slotted ladder sides give faster installation. The ladder can be cut to length and coupled without the need for drilling.
- ▶ Slotted ladder sides reduce weight.
- ▶ Slotted ladder sides allow easy fixing of secondary brackets and equipment.
- ▶ Safety edges on ladder sides and rungs improves safety and reduces damage to cables.
- ▶ Channel rung design gives high strength, even on widest widths.
- ▶ Rungs fixed at lowest point within cable area to give maximum loading depth.
- ▶ Rungs alternately inverted on straight ladders to allow flexibility of fixing and suspension of equipment from underside.
- ▶ Rungs on fittings all one way up to allow fixing for short circuit restraint cleats.
- ▶ Unique coupling system designed to minimise slip – a common problem for slotted cable ladder.

Vantrunk

The Original UK Manufacturer of Cable Ladder Systems

40 Years of 'Know How' and Continuous Product Enhancement

Unrivalled Levels of Technical Support

Continuous Investment in Our People and Manufacturing Technology

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Other Vantrunk catalogues

Founded in the 1960's, Vantrunk was the first company in the United Kingdom to manufacture and supply cable ladder products, leading the way with developments in cable management for the North Sea by supplying cable ladder for the BP Graythorpe 1 Platform and applications in the petrochemical industry with ICI Wilton.



Vantrunk is now a worldwide market leader in the manufacture and supply of steel cable management products and support systems.

Our Runcorn site includes 5000m² for manufacturing and warehouse and an additional 6500m² marshalling and storage yard used for major projects. Since becoming part of the Unitrunk Group in July 2000 the company's manufacturing resources have been significantly increased with the utilisation of Unitrunk's 9300m²

manufacturing facility in Lisburn, Northern Ireland.



At Vantrunk we believe that a manufacturing company must continuously invest to remain competitive in today's global market place. In recent years substantial investment has been made at both facilities updating process lines using high specification machinery

incorporating industry-leading technology to ensure that product quality and delivery are constantly improving.

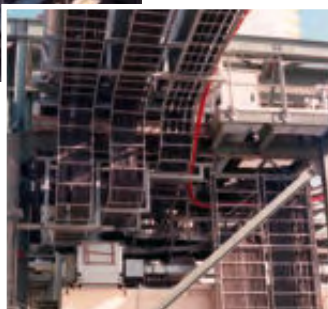
Since the company's inception over 40 years ago we have focussed on our customers' needs and have developed an in-depth knowledge of their requirements and expectations. Vantrunk's steel cable management products and support systems are used extensively within various markets including the petrochemical industry (both onshore and offshore), utilities (including power generation and water treatment) and the building services industry.



Vantrunk has developed an enviable reputation for meeting the demanding schedules of the international design houses in the oil & gas sector. Recent projects include the BP Azeri Project in Azerbaijan, Kellogg Brown & Root – In Salah Gas Project in Algeria, Samsung Corporation – Qatar Petroleum Project in Qatar and Britannia Satellites, UK.



Vantrunk also supplies companies and projects throughout the United Kingdom with steel cable management solutions. Recent projects include Buxton Cement, Ineos Chlor and The Royal Bank of Scotland.





As part of the Unitrunk Group, Vantrunk now offers a complete range of steel cable management and support products which include:



- Speedway cable ladder
- Vantrunk cable tray
- Intelok steel framing (strut) and associated brackets
- Power & lighting trunking
- Floor trunking systems
- Skirting, dado & bench trunking
- Special trunking
- Wire basket

Vantrunk is accredited to ISO 9001:2000.

Vantrunk is registered with FPAL and with Achilles JQS.

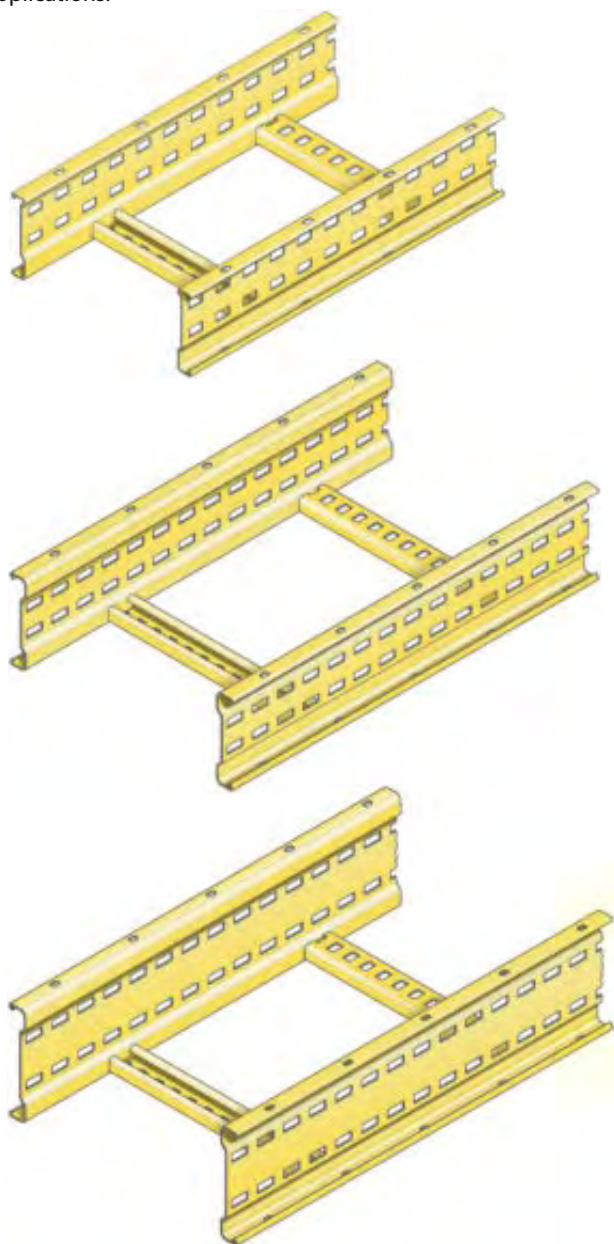
Vantrunk is a member of the Energy Industries Council.

A Vantrunk representative sits on the IEC committee and European Standards for BEAMA writing Cable Management Standards.

Speedway Cable Ladder

The Speedway cable ladder system represents a major advance in cable ladder design, providing faster & easier installation, greater cable fill capacity, total flexibility based on shallow channel profile rungs for cable fixing options, a unique locking coupler system and a comprehensive range of accessories for flexible mounting of supplementary equipment.

The Speedway cable ladder system comprises of a family of cable ladders to suit all cable loading requirements. Speedway SW4 for medium duty applications, Speedway SW5 for heavy duty applications and Speedway SW6 for extra-heavy duty applications.



The Speedway cable ladder system conforms to BS EN 61537:2006 Cable Tray Systems & Cable Ladder Systems for Cable Management.

The Speedway cable ladder system is subject to Registered Design, Trade Mark, & Patent considerations.

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Cable Tray

A full range of perforated cable trays manufactured to the highest standards, offering time saving and adaptable designs, practical slot patterns and versatile accessories including variable risers and adjustable couplers to simplify site installations.

The cable tray range includes light duty (13.5/21.5mm high), medium duty return flange (25mm high) and heavy duty return flange (50mm high) as standard. 75mm high and 100mm high heavy duty return flange cable trays and accessories are available to order.



The cable tray system conforms to BS EN 61537:2006 Cable Tray Systems & Cable Ladder Systems for Cable Management.

Intelok Steel Framing Systems

The Intelok steel framing system encompasses a comprehensive range of channel, brackets and accessories which form a versatile strut system specifically designed for use in mechanical, electrical & building services applications. Intelok brackets are designed for interconnection, attachment and securing of Intelok channel. The Intelok range includes Quickfit brackets & cantilevers incorporating captive fixings for time-saving installation.



Power & Lighting Trunking Systems

Power & lighting trunking is a complete range of trunking and fittings manufactured to BS 4678 Part 1:1988. The trunking is manufactured as standard using pre-galvanised sheet steel to BS EN 10142 but can also be supplied in other finishes including epoxy/polyester coated, Zintec and stainless steel. Straight trunking lengths are supplied complete with lid, coupler and fixings. Accessories are manufactured with integral couplers. The trunking is available in multi-compartment configurations.

Floor Trunking Systems

The range of floor trunking systems includes flush floor trunking, cavity floor trunking and in-screed underfloor trunking systems, each of which is manufactured from pre-galvanised sheet steel to BS EN 10142. Each floor trunking system offers unlimited versatility within the trunking layout, giving the end user the final option as to the position of the service boxes and outlets. The flush floor trunking system conforms to BS 6339:Part 1:1996 (Public Occupancy Class).

Skirting, Dado & Bench Trunking

Skirting, dado & bench trunking are manufactured with bodies and dividers in pre-galvanised sheet steel to BS EN 10142. The covers are made from 1.2mm Zintec sheet steel and can be finished in epoxy/polyester coating of any colour on request. Each trunking system includes a comprehensive range of accessories.

Special Trunking

The special trunking systems include weatherproof trunking (pre-galvanized and hot dip galvanised finishes), screw-fixed lid trunking including tamper-proof lid fixings if required, flooring trunking with either tray or chequer plate covers & cable guard trunking available in sizes and finishes to suit customer requirements.

Wire Basket

Wire basket forms a strong & lightweight alternative to conventional cable tray and is ideally suited for the orderly containment of data and fibre optic cables in wall, floor and ceiling installations. Manufactured from zinc plated or hot dip galvanized wires, the wire basket system is adaptable and flexible. ■

Manufactured to BS 6946, the Intelok Steel Framing System is subject to Registered Design, Trade Mark & Patent considerations.

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The Speedway cable ladder system is the result of many years of development & testing. Based on Vantrunk's long experience as a leading manufacturer of cable ladder systems for the international market with a reputation for innovation & design, the Speedway cable ladder system represents a significant advance in the field of cable ladder for cable management purposes.

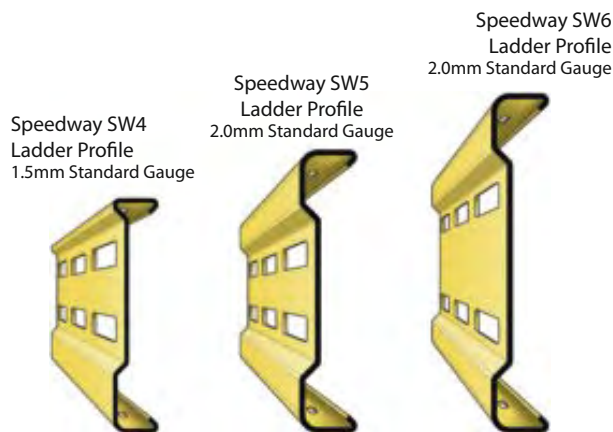
Speedway Profile

The Speedway cable ladder system is based on a unique profiled side section which increases the effective cable loading width, enhances the strength in the side members and allows the use of a high performance coupling system. This unique profile is used throughout the range of cable ladder and fittings.

The Speedway profile is manufactured in three section heights, each of which gives the cable ladder system its specific load carrying capabilities:

Speedway SW4	103.5mm high for medium duty applications.
Speedway SW5	125mm high for heavy duty applications.
Speedway SW6	150mm high for extra heavy duty applications.

The Speedway profiles are manufactured in a number of gauges which allow for versatile solutions to differing requirements based on loading performance, loading depth and competitiveness. For details of the standard profile gauges see 'Technical Data'.



The Speedway ladder side is fully slotted, this reduces weight, improves ventilation when covers are fitted and, more significantly, allows for simplified and faster installation – the ladder sections can be cut to length and coupled without the need for drilling. A specially designed coupling system minimises slip between adjacent ladder sections and between ladder & fittings – a common problem for slotted cable ladder systems.

The flanges on the Speedway profile are fully returned to prevent damage to cables during pulling operations and to improve safety during handling, installation and use.

All flanges are pre-punched with slots to provide a means of drainage and to give an attachment point for covers, accessories & ancillary items. ■

Speedway Rung

Speedway Rung
(continuous slot facing downwards)



Speedway Rung
(continuous slot facing upwards)



The Speedway rung is truly versatile, offering unlimited options for cable fixing and equipment attachment. Manufactured with a standard shallow channel profile, this allows conventional channel nuts to be used for the securing of cleats and other items. Light fittings and other items can be easily suspended from the underside of the ladder rungs – the shallow channel profile is ideal for this application. The rung slot pattern allows cable ties and banding to be used on every rung irrespective of the rung orientation.

The rungs are positioned at low level within the Speedway cable ladder and fittings to maximise the available loading depth for cables and other items.

Rungs are available in a range of gauges to offer cost effective solutions for cable and equipment support whilst maximising performance for all loading requirements. For details of the standard rung gauges refer to 'Technical Data'.

Rungs in the Speedway cable ladder can be supplied to order with the open face (referred to as a continuous slot) either all facing upwards or all facing downwards to suit specific installation requirements.

Rungs on Speedway straight ladder are spaced at 300mm centres and are alternately inverted as standard to allow for cleat fixing at 600mm centres. Rungs on Speedway cable ladder fittings are, with the exception of risers and reducers, spaced at a maximum of 465mm along the outer edge of radiused fittings to comply with the latest developments in the petrochemical industry. To suit short circuit restraint requirements, the rungs on Speedway cable ladder fittings are supplied with the continuous slot uppermost and the rungs on Speedway riser fittings are spaced at 300mm centres.

Finishes & Materials

The Speedway cable ladder system is available in a number of standard materials and finishes:

GA	Hot Dip Galvanized Finish, Mild Steel.
EA	Epoxy Coated Finish, Mild Steel (Black as standard).
FA	Hot Dip Galvanized & Epoxy Coated, Mild Steel (Black as standard).
GX	Deep Galvanized Finish, Silicon Rich Steel.
SS	Stainless Steel (316 Marine Grade) 1.4404 to BS EN 10088-2:1995.
TT	Stainless Steel (304 Grade) 1.4301 to BS EN 10088-2:1995.

Other finishes and materials are available to order – further details can be obtained from our Sales Team. ■



The Speedway cable ladder system is based on straight ladder lengths and an extensive range of fittings & accessories which provide for infinite routing possibilities and straightforward solutions to the requirements of cable management using cable ladder.

Speedway Cable Ladder

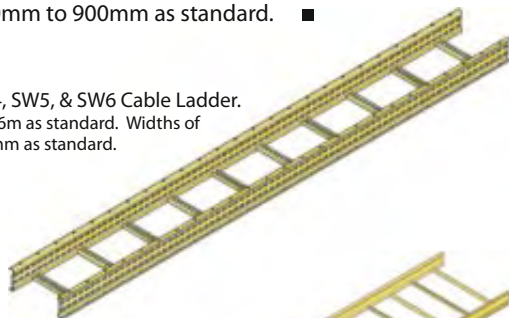
The family of Speedway cable ladders offers a comprehensive range of cable support systems which demonstrates the versatility and effectiveness of this internationally recognised product.

For general purpose cable ladder installations, the standard Speedway SW4, SW5 & SW6 cable ladder is available in lengths of 3m and 6m. The straight ladder is available in standard stocked widths of 150mm, 300mm, 450mm, 600mm, 750mm, 900mm & 1050mm. Other widths from 100mm to 1500mm are available to special order.

For supporting heavy loads over long spans Vantrunk has developed the ultra heavy duty Speedway Long Span Ladder System. This unique cable ladder is specifically designed for both onshore and offshore use, reducing the need for intermediate supports whilst offering an improved load carrying performance. The long span ladder is available in lengths of 6m and in widths of 150mm to 900mm as standard.

For long span applications the Speedway range also includes cross braced ladder which is intended for edge mounting. The cross braced ladder offers the capability of bridging significant support spaces. This ladder is available in 3m lengths and in widths of 150mm to 900mm as standard. ■

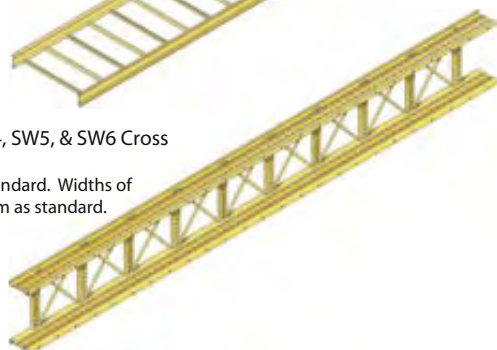
Speedway SW4, SW5, & SW6 Cable Ladder.
Lengths of 3m & 6m as standard. Widths of 150mm to 1050mm as standard.



Speedway SW6 Long Span Cable Ladder.
6m lengths as standard. Widths of 150mm to 900mm as standard.



Speedway SW4, SW5, & SW6 Cross Braced Ladder.
3m lengths as standard. Widths of 150mm to 900mm as standard.



Every Speedway straight ladder has a true width which is achieved by fully welding the rungs to the internal faces of the side sections – this maximises the available width for cable loading purposes.

Speedway Cable Ladder Fittings

Speedway cable ladder fittings allow for changes in direction & width and provide intersections between straight cable ladder runs. The range of fittings includes flat elbows, risers, equal tees, unequal tees, crosses & reducers. Articulated risers are available to compliment the Speedway cable ladder system.

Flat elbows & risers are available with angles of 30°, 45°, 60° & 90°.

Articulated risers provide infinite angular adjustment and on-site adjustment to suit specific installation requirements.

Standard radii for flat elbows, tees, crosses, and risers are 300mm, 450mm, 600mm, 750mm, 900mm, 1050mm & 1200mm (300mm radius fittings are stocked as standard & are supplied unless otherwise stated).

All radiused fittings are manufactured with a repeatable and true radius which ensures dimensional accuracy between fittings – this eliminates the traditional approach of 'make it fit' during installation. ■



Flat Elbows



Right Hand Reducers



Straight Reducers



Left Hand Reducers



Inside Risers



Outside Risers



Equal Tees



Unequal Tees



Articulated Risers



Crosses

The information given on this page should be used as a guide when ordering Speedway cable ladder, fittings and accessories. For more detailed information and examples refer to the relevant page within the catalogue.

Speedway Straight Ladder

System Type / Ladder Type / Width / Finish & Material

Speedway Couplers

System Type / Coupler Type / Width / Finish & Material

Speedway Covers

System Type / Cover Type / Width(s) / Radius / Finish & Material

Speedway Fittings

System Type / Fitting Type / Width(s) / Radius / Finish & Material

Speedway Accessories

System Type / Accessory Type / Width / Finish & Material

Supports

Support type

System Type		Page
SW4	Speedway SW4	9
SW5	Speedway SW5	9
SW6	Speedway SW6	9
SW	Common to all Speedway systems	
SW45	Common to SW4 & SW5	

Ladder Type

SL3	Straight ladder – 3m length	10
SL6	Straight ladder – 6m length	10
LSC	Long span ladder – 6m length	16
SL/XB	Cross-braced straight ladder – 3m length	17

Coupler Type

CS	Straight coupler	11
LSC	Long span coupler	16
HAC	Horizontal adjustable coupler (SW4 & SW5 are common – use SW45)	13
VAC	Vertical adjustable coupler (SW4 & SW5 are common – use SW45)	13
SAC	Short adjustable coupler (SW4 & SW5 are common – use SW45)	14
LAC	Long adjustable coupler (SW4 & SW5 are common – use SW45)	14
EXP	Expansion coupler (SW4 & SW5 are common – use SW45)	14
RA	Abrupt reducer	15

Cover Type

CC	Closed cover	53
CL	Louvre cover	53
CP	Peaked cover	53

Suffix cover type with ladder or fitting type:
e.g. CL/FE45 = ventilated cover for 45° flat elbow.

Add width(s) and radius as required to describe ladder or fitting type.

Supports

IC/CARM/SC	Cantilever arm bracket - single channel (add type e.g. IC/CARM/SC/P/600)	46
IC/CARM/BB/P	Cantilever arm bracket - double channel (add type e.g. IC/CARM/BB)	47
IC/PROP	Cantilever arm prop (add type e.g. IC/prop/600-750/GA)	48

Add support type as necessary. Suffix 340 with X for stainless steel finish.

Width (standard)	Page
150mm, 300mm, 450mm, 600mm, 750mm, 900mm & 1050mm	9

Radius (standard)	Page
300mm, 450mm, 600mm, 750mm, 900mm 1050mm & 1200mm	9

Fitting Type

FE	Flat elbow	19
IR	Inside riser	22
OR	Outside riser	22
AR	Articulated riser (add number of sections e.g. AR3 = 3 sections)	25
ET	Equal tee	27
UT	Unequal tee (quote main width Wm & branch width Wb)	27
EC	Cross	31
RS	Reducer straight (quote primary width Wp & secondary width Ws)	33
RL	Reducer left (quote primary width Wp & secondary width Ws)	33
RR	Reducer right (quote primary width Wp & secondary width Ws)	33

Accessory Type

EFC	External flange clamp	35
AFB	Adaptable fixing bracket	36
HDB	Hold down bracket (use system type)	37
ASB	Angle securing bracket	37
SCB	Structural connecting bracket	38
DOB	Drop out bracket	38
DIV/SL	Straight ladder divider (use system type)	39
DIV/FL	Fitting divider (use system type)	39
DIR/RL	Riser divider (use system type)	40
CDO	Cable drop out (include width)	40
EP	End plate (use system type & include width)	41
EBS/01	Earth bonding strap	41
SMP	Mounting plate (include width)	42
PEC	Protective end cap (use system type)	42
JBP	Junction box plate (add type e.g. JBP02)	43
TCP	Tube clamp plate (add type e.g. TCP01)	44
HDC	Heavy duty cantilever (add width)	49
LTH	Ladder trapeze hanger (add width)	50
TSC	Trapeze support channel (add width)	51
THC	Heavy duty trapeze support channel (add width)	52
JCLIP	J-Clip	18
VCF3	Cover fixing kit (VCF8 on SS)	54
CBK	Cover bracing kit	54

System type is SW unless indicated otherwise.

Finish & Material

GA	Hot dip galvanized, mild steel
SS	Stainless steel (316 marine grade)
TT	Stainless steel (304 grade)
GX	Deep galvanized, silicon-rich steel
EA	Epoxy coated, mild steel
FA	Hot dip galvanized & epoxy coated, mild steel
PP	Pre-galvanised, mild steel
GK	Galvanised, structural steel S355J2G2

Details on the range of standard materials and finishes are given in Technical Data.

Further Guidance

Please contact our Sales Team for further advice and guidance on the correct ordering details for the full range of Speedway cable ladder, fittings and accessories.

Speedway straight cable ladder is available in standard widths of 150mm, 300mm, 450mm, 600mm, 750mm, 900mm & 1050mm. Other widths from 100mm to 1500mm in 50mm increments are available to order.

Speedway straight cable ladder is available in standard lengths of 3m and 6m. Unless otherwise specified, 3m lengths are supplied as standard. 6m lengths are available to order.

Speedway straight cable ladder is supplied with standard side wall gauges of 1.5mm for SW4 and 2.0 mm for SW5 &

Speedway SW4

Speedway SW4 cable ladder – medium duty ladder for general purpose applications.

Speedway SW4 Cable Ladder		
Height	H	103.5mm
Loading Depth	D	78mm
Ladder Width	W	100mm to 1500mm
Maximum Internal Width	W1	W + 10mm
Overall Width	W2	W + 39mm
Flange Width	F	19.5mm
Standard Gauge	T	1.5mm
Rung Gauge		See 'Technical Data'

Speedway SW5

Speedway SW5 cable ladder – heavy duty ladder suitable for longer spans for general purpose applications.

Speedway SW5 Cable Ladder		
Height	H	125mm
Loading Depth	D	100mm
Ladder Width	W	100mm to 1500mm
Maximum Internal Width	W1	W + 14mm
Overall Width	W2	W + 50mm
Flange Width	F	25mm
Standard Gauge	T	2mm
Rung Gauge		See 'Technical Data'

Speedway SW6

Speedway SW6 cable ladder – extra heavy duty ladder with deeper cable filling capacity, suitable for long span applications.

Speedway SW6 Cable Ladder		
Height	H	150mm
Loading Depth	D	125mm
Ladder Width	W	100mm to 1500mm
Maximum Internal Width	W1	W + 14mm
Overall Width	W2	W + 50mm
Flange Width	F	25mm
Standard Gauge	T	2mm
Rung Gauge		See 'Technical Data'

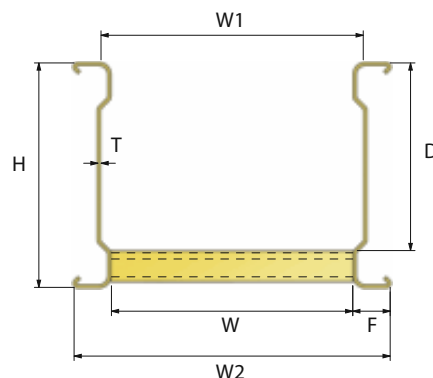
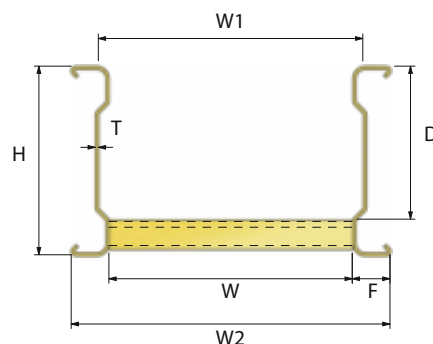
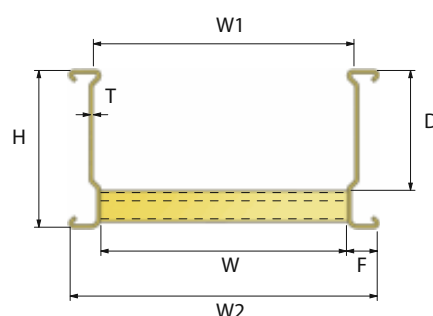
Order details are as follows:

Ladder Type/SL/Width/Material & Finish

- SW4/SL3/300/GA Speedway SW4 Straight Ladder, 3m Length, 300mm Wide, Hot Dip Galvanized Finish.
- SW5/SL3/900/SS Speedway SW5 Straight Ladder, 3m Length, 900mm Wide, Stainless Steel.
- SW6/SL3/750/GX Speedway SW6 Straight Ladder, 3m Length, 750mm Wide, Deep Galvanized Finish.

SW6. Details of the standard rung gauge configuration are given in 'Technical Data'. Other side wall and rung gauge configurations are available to special order – consult our Sales Team for details. The standard side wall and rung gauge combination will be supplied unless otherwise stated.

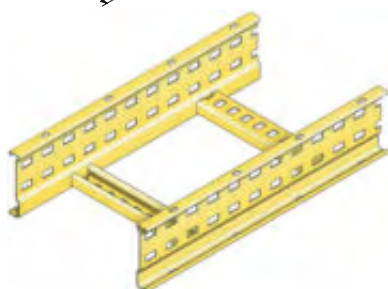
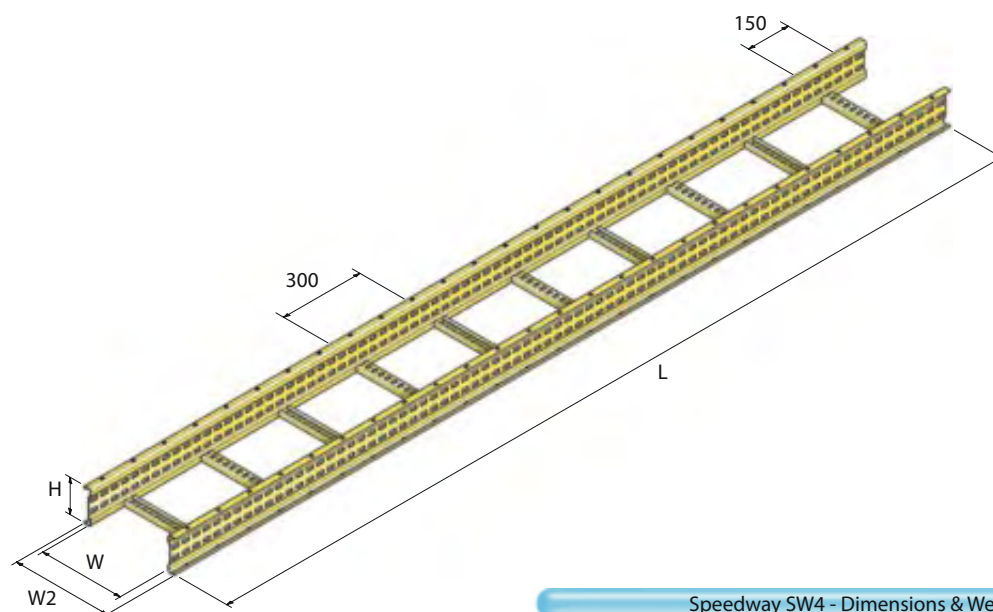
Rung spacing on straight ladders is 300mm centres. As standard, the Speedway rung is orientated alternately inverted to allow for cable cleat spacing at 600mm centres. Other orientations such as rungs all facing up or all facing down are available to order.



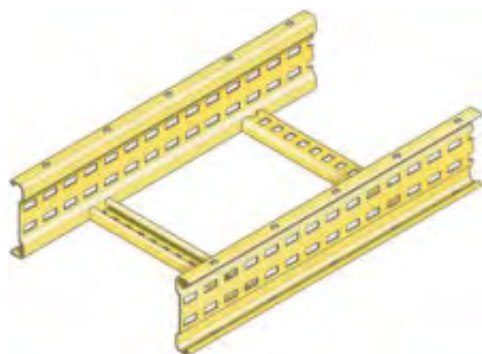
For 6m lengths, change SL3 to SL6:

SW6/SL6/450/GA = Speedway SW6 Straight Ladder, 6m Length, 450mm Wide, Hot Dip Galvanized Finish.

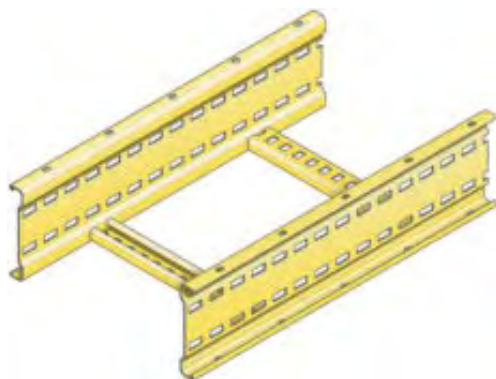
Contact our Sales Team for availability on non-standard straight ladder configurations.



Speedway SW4 Medium Duty Cable Ladder



Speedway SW5 Heavy Duty Cable Ladder



Speedway SW6 Extra Heavy Duty Cable Ladder

Speedway SW4 - Dimensions & Weights

Ladder	Dimensions mm				Weight Each		
	W	W2	L	H	GA	SS	GX
SW4/SL3/150/#	150	189	3000	103.5	11.69	11.13	12.24
SW4/SL3/300/#	300	339			13.32	12.67	14.15
SW4/SL3/450/#	450	489			14.94	14.22	15.88
SW4/SL3/600/#	600	639			16.57	15.77	17.61
SW4/SL3/750/#	750	789			20.90	17.32	19.34
SW4/SL3/900/#	900	939			23.07	18.87	21.06
SW4/SL3/1050/#	1050	1089			25.24	20.41	22.79
# - Finish & Material							

Speedway SW5 - Dimensions & Weights

Ladder	Dimensions mm				Weight Each		
	W	W2	L	H	GA	SS	GX
SW5/SL3/150/#	150	200	3000	125	18.31	17.94	19.46
SW5/SL3/300/#	300	350			19.94	20.01	21.18
SW5/SL3/450/#	450	500			21.56	22.07	22.91
SW5/SL3/600/#	600	650			23.19	24.14	24.64
SW5/SL3/750/#	750	800			27.53	26.20	26.37
SW5/SL3/900/#	900	950			29.70	28.26	28.10
SW5/SL3/1050/#	1050	1100			31.87	30.33	29.83
# - Finish & Material							

Speedway SW6 - Dimensions & Weights

Ladder	Dimensions mm				Weight Each		
	W	W2	L	H	GA	SS	GX
SW6/SL3/150/#	150	200	3000	150	21.70	20.33	23.04
SW6/SL3/300/#	300	350			25.01	22.40	25.37
SW6/SL3/450/#	450	500			27.31	24.46	27.71
SW6/SL3/600/#	600	650			29.62	26.53	30.05
SW6/SL3/750/#	750	800			31.92	28.59	32.39
SW6/SL3/900/#	900	950			34.22	30.66	34.73
SW6/SL3/1050/#	1050	1100			36.53	32.72	37.07
# - Finish & Material							

Weights given above are for 3m lengths of Speedway cable ladder using the standard ladder side and rung gauge combination. Contact our Design Team for weights for other gauges & finishes. ■



The Speedway coupling system has been designed to prevent slip between connected components – a common problem for slotted cable ladder systems. The slot pattern in the ladder sides and fitting sides can be combined with the slot pattern in the couplers to create a pattern of squares; these square patterns can also be formed irrespective of where straight ladders are cut to length to suit site installation requirements. The specially designed Vantrunk square shouldered bolt interlocks into this pattern of squares to create a slip-resistant connection.

The Speedway coupler has a profile which exactly matches the unique profile of the Speedway ladder & fitting side walls to give a high performance connection which securely holds the connected components together.

All Speedway couplers are supplied singly and come complete with all necessary ladder fixings.

Each Speedway ladder fixing comprises of a specially designed dome headed M10 x 16 bolt with a square shoulder, an M10 hex nut, and an M10 shake-proof washer as standard.

Straight Couplers (CS)

Speedway straight couplers are used to make connections between straight ladders and fittings.

Speedway straight couplers are supplied singly and come complete with all necessary ladder fixings.

For each type of ladder and fitting, the following number of couplers are required:

Straight Ladder	2
Flat Elbows (all angles)	2
Risers (Inside & outside)	2
Reducers	2
Equal & Unequal Tees	4
Crosses	6

It is recommended that an additional 10% quantity is ordered for contingency use arising when cutting straight ladders to suit installation requirements.

Order details are as follows:

Ladder Type / CS / Finish & Material.

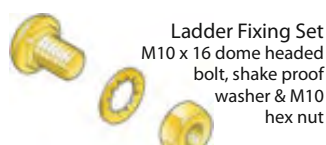
SW6/CS/GA Speedway SW6 Coupling Set, Hot Dip Galvanized Finish.

Ladder fixing sets are available separately to connect supplementary brackets and equipment (3mm thickness maximum) to the Speedway cable ladder.

Order details are as follows:

389AA31 Speedway Ladder Fixing Set – Hot Dip Galvanized Finish.

389AA81 Speedway Ladder Fixing Set - Stainless Steel. ■



For Finish and Material use suffix as on page 8.

SW4 Straight Coupler SW4/CS/#
Supplied with 4 fixings per coupler



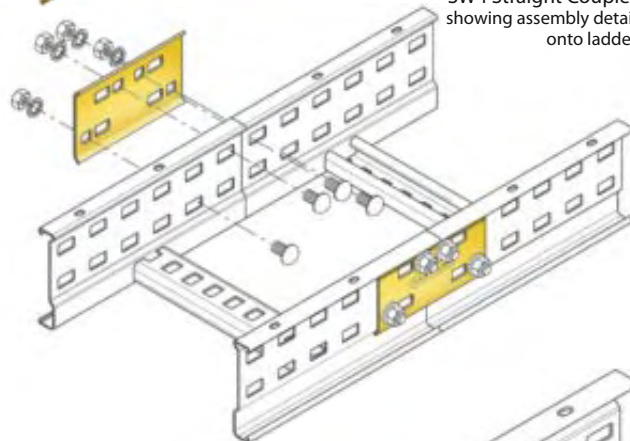
SW6 Straight Coupler SW6/CS/#
Supplied with 8 fixings per coupler



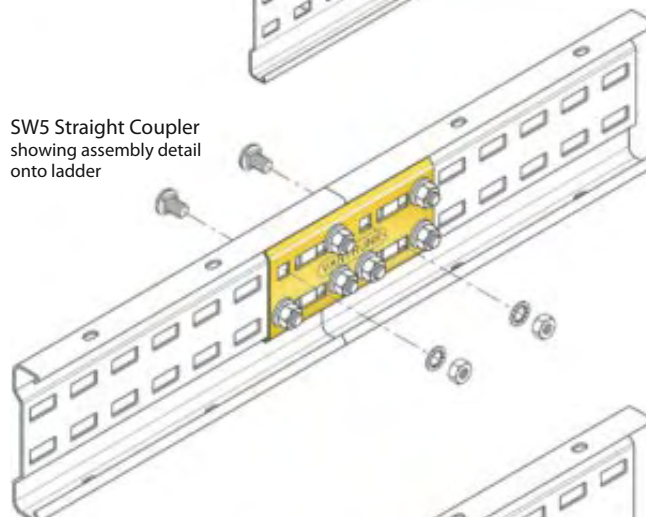
SW5 Straight Coupler SW5/CS/#
Supplied with 8 fixings per coupler



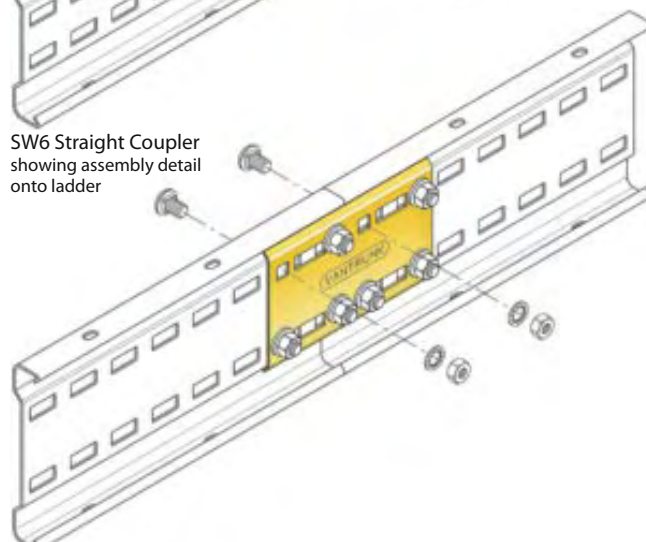
SW4 Straight Coupler showing assembly detail onto ladder



SW5 Straight Coupler showing assembly detail onto ladder



SW6 Straight Coupler showing assembly detail onto ladder



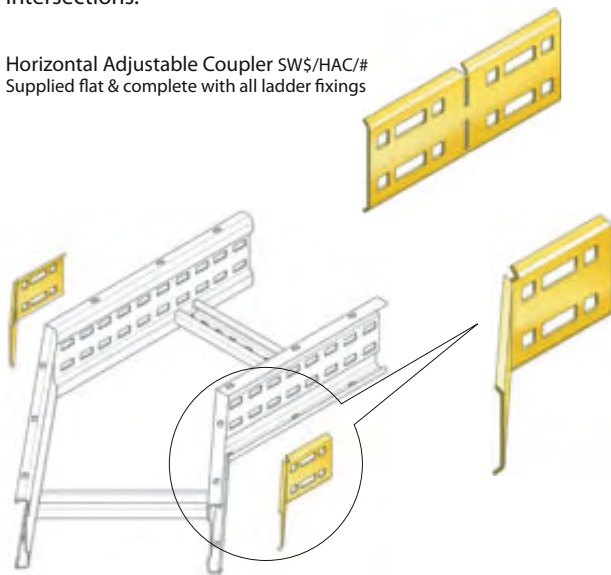
Horizontal Adjustable Couplers (HAC)

Speedway horizontal adjustable couplers (HAC) are used to join straight ladder and fittings where these need to be connected at offset angles in the same horizontal or vertical plane.

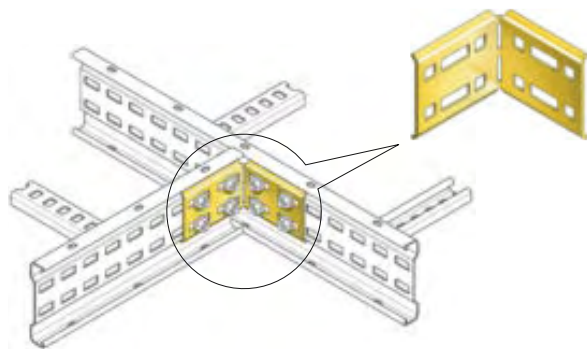
Speedway horizontal adjustable couplers are supplied singly and come complete with all necessary ladder fixings.

The Speedway horizontal adjustable coupler is supplied flat and has easi-bend slots which allow the coupler to be bent on site to any angle to connect two cable ladder runs to form 'T' & 'Y' intersections.

Horizontal Adjustable Coupler SW\$/HAC/#
Supplied flat & complete with all ladder fixings



Horizontal adjustable couplers shown as a pair in use to create an offset connection between two ladders



Horizontal adjustable coupler shown formed to 90° to join a ladder to a main run

Order details are as follows:

Ladder Type / HAC / Finish & Material

SW6/HAC/GA SW6 Horizontal Adjustable Coupler, Hot Dip Galvanized Finish.

Horizontal adjustable couplers for SW4 & SW5 are identical – order as SW4/5/HAC/...

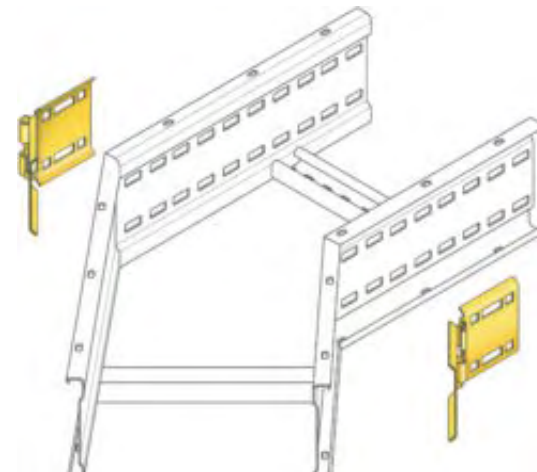
SW45/HAC/SS SW45 Horizontal Adjustable Coupler, Stainless Steel. ■

Horizontal Hinged Couplers (HHC)

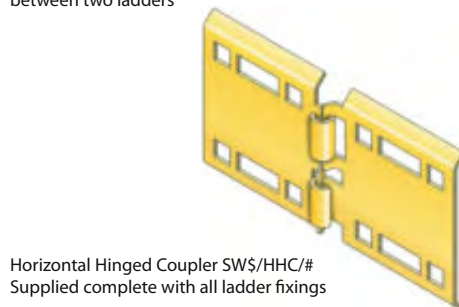
Speedway horizontal hinged couplers (HHC) are used to join straight ladder and fittings where these need to be connected at offset angles in the same horizontal or vertical plane.

Speedway horizontal hinged couplers are supplied singly and come complete with all necessary ladder fixings.

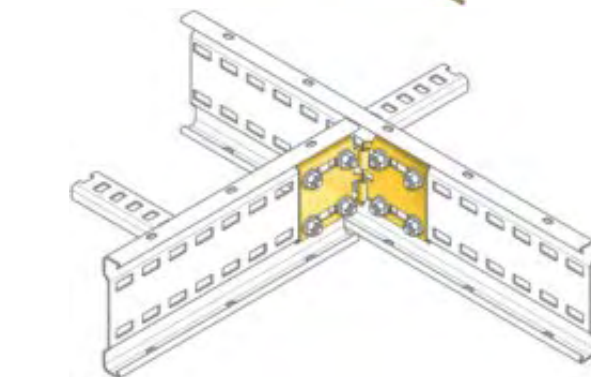
The Speedway horizontal hinged coupler is supplied as an assembly allowing the coupler to be hinged to any angle to connect two cable ladder runs to form 'T' & 'Y' intersections.



Horizontal hinged couplers shown as a pair in use to create an offset connection between two ladders



Horizontal Hinged Coupler SW\$/HHC/#
Supplied complete with all ladder fixings



Horizontal hinged coupler shown formed to 90° to join a ladder to a main run

Order details are as follows:

SW6/HHC/GX SW6 Horizontal Hinged Coupler, Deep Galvanised Finish.

Horizontal hinged couplers for SW4 & SW5 are identical - order as SW45/HHC/...

SW45/HHC/SS SW4/5 Horizontal Adjustable Coupler, Stainless Steel. ■



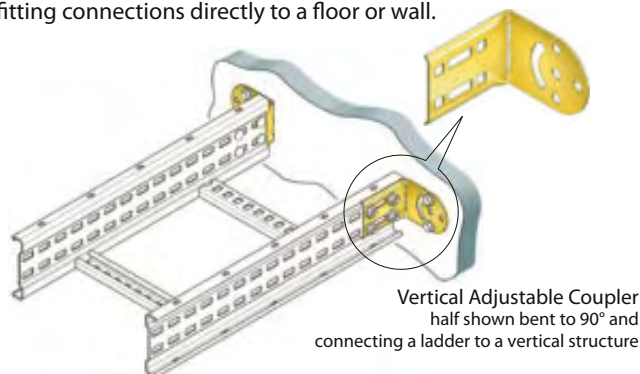
Vertical Adjustable Couplers (VAC)

Speedway vertical adjustable couplers are used to join straight ladder and fittings where these need to be connected at offset angles when these lie in different planes.

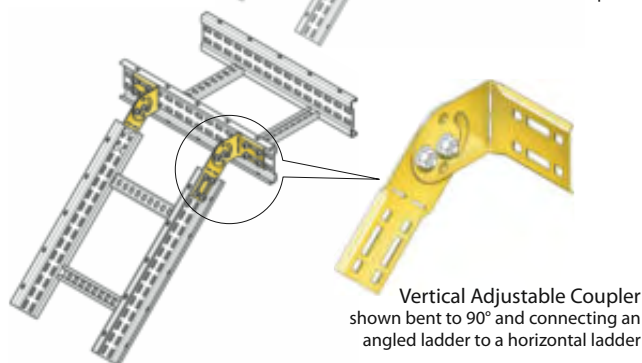
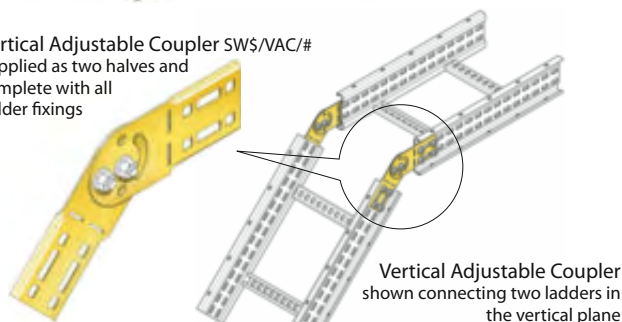
Speedway vertical adjustable couplers are supplied singly and come complete with all necessary ladder fixings. Each vertical adjustable coupler comprises of two half plates (smileys) complete with all necessary pivot fixings.

The arrangement of the pivot holes and elongated slots allows for infinite angular adjustment to suit specific site requirements.

The vertical adjustable coupler features easi-bend slots which allow the couplers to be adjusted on site to create combined horizontal & vertical offset connections, ladder connections onto the side wall of a main run to form tees, or straight ladder & fitting connections directly to a floor or wall.



Vertical Adjustable Coupler SWS/VAC/#
Supplied as two halves and complete with all ladder fixings



Order details are as follows:

Ladder Type / VAC / Finish & Material.

SW6/VAC/SS SW6 Vertical Adjustable Coupler, Stainless Steel.

Vertical adjustable couplers for SW4 & SW5 are identical – order as SW45/VAC/... for example:

SW45/VAC/GA SW4/5 Vertical Adjustable Coupler, Hot Dip Galvanized Finish. ■

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Short & Long Adjustable Couplers (SAC & LAC)

Speedway short and long adjustable couplers are used to create custom reductions during installation & to convert equal tees and crosses into unequal tees and crosses.

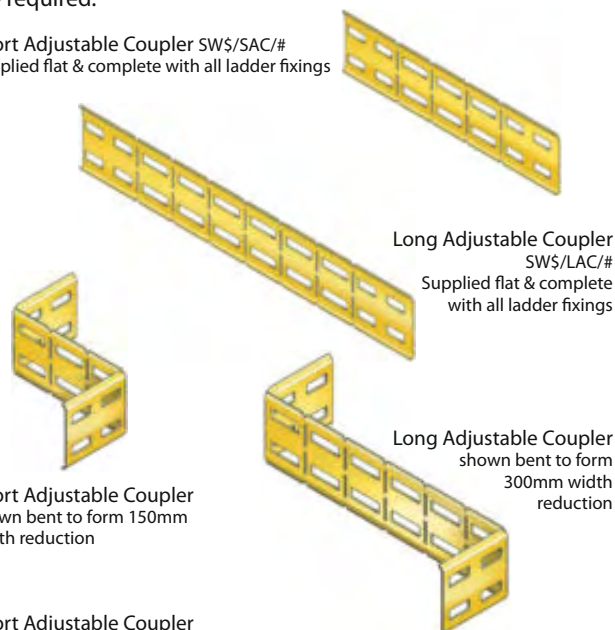
Speedway short and long adjustable couplers are supplied singly and come complete with all necessary ladder fixings.

Each adjustable coupler has 50mm long segments with easi-bend slots which allow the couplers to be adjusted on site to suit specific installation requirements.

Short adjustable couplers allow reductions of up to & including 150mm per coupler. Long adjustable couplers allow reductions of up to & including 300mm per coupler. For larger reductions use abrupt reducers.

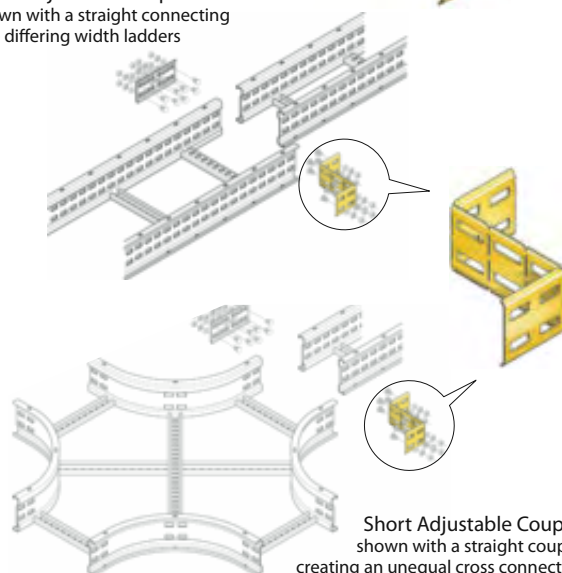
A single short or long adjustable coupler can be used in conjunction with a standard coupler to create an offset connection between two ladders or fittings of differing widths. For concentric reductions, two short or long adjustable couplers are required.

Short Adjustable Coupler SWS/SAC/#
Supplied flat & complete with all ladder fixings



Short Adjustable Coupler shown bent to form 150mm width reduction

Short Adjustable Coupler shown with a straight connecting two differing width ladders



Short Adjustable Coupler shown with a straight coupler creating an unequal cross connection

Order details are as follows:

Ladder Type / Adjustable Coupler Type / Finish & Material.

SW6/SAC/GA Speedway SW6 Short Adjustable Coupler, Hot Dip Galvanized Finish.

Short & long adjustable couplers for SW4 & SW5 are identical – order as SW45/SAC/... or SW45/LAC/... for example:

SW45/LAC/SS Speedway SW45 Long Adjustable Coupler, Stainless Steel. ■

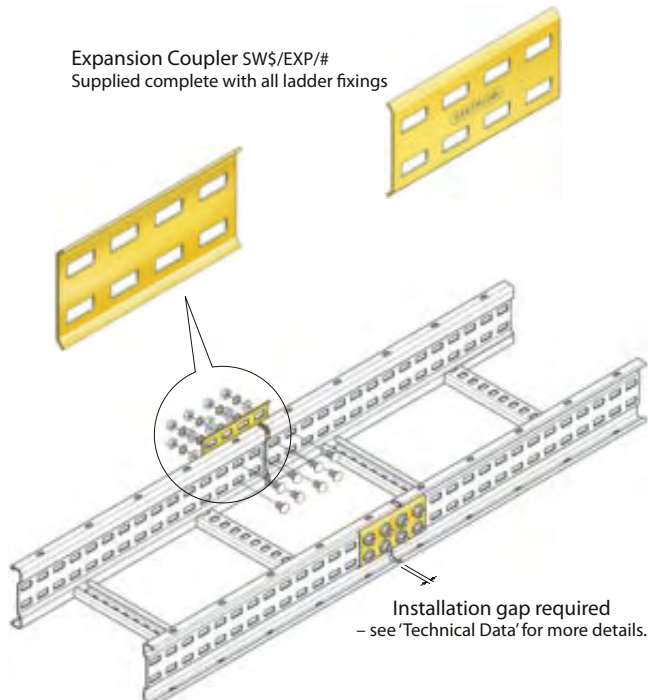
Expansion Couplers (EXP)

Speedway expansion couplers (EXP) are recommended for those installations where the maximum and minimum temperatures are such that the expansion and contraction of the cable ladder installation is a consideration.

Each expansion coupler is designed to allow for a maximum movement of 28mm.

Speedway expansion couplers are supplied singly and come complete with all necessary ladder fixings (8 fixings supplied with each coupler).

Specific recommendations covering the spacing of expansion couplers and the setting gap at the time of installation are given in the 'Technical Data' section.



Order details are as follows:

Ladder Type / EXP / Finish & Material.

SW6/EXP/GX Speedway SW6 Expansion Coupler, Deep Galvanized Finish.

Expansion couplers for SW4 & SW5 are identical – order as follows:

SW45/EXP/SS Speedway SW45 Expansion Coupler, Stainless Steel. ■

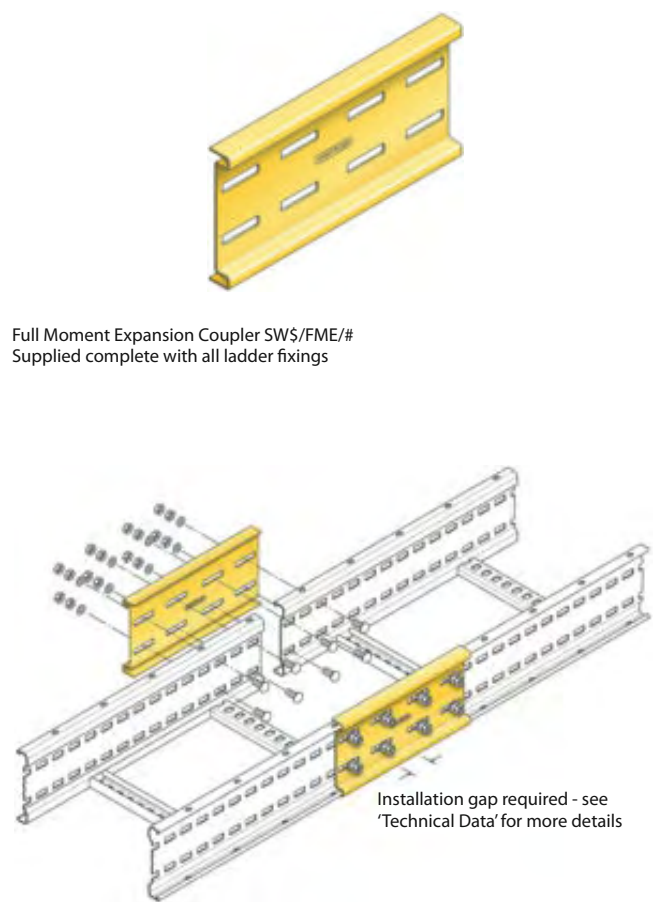
Full Moment Expansion Couplers (FME)

Speedway full moment expansion couplers (FME) are recommended for those installations where the maximum and minimum temperatures are such that the expansion and contraction of the cable ladder installation is a consideration and where it is not possible to provide support within 600mm of the expansion joint.

Capable of carrying the full load of the Speedway cable ladder at the expansion joint, each expansion coupler is designed to allow for a maximum movement of 75mm.

Speedway expansion couplers are supplied singly and come complete with all necessary ladder fixings (8 fixings supplied with each coupler).

Specific recommendations covering the spacing of expansion couplers and the setting gap at the time of installation are given in the 'Technical Data' section.



Order details are as follows:

Ladder Type / FME / Finish & Material

SW6/FME/SS Speedway SW6 Full Moment Expansion Coupler, Stainless Steel. ■



Abrupt Reducers (RA)

Speedway abrupt (RA) reducers give exact reductions and are ideal for connecting ladders and fittings of differing widths.

Abrupt reducers can also be used to convert equal tees and equal crosses into unequal tees and unequal crosses.

A single abrupt reducer can be used in conjunction with a standard coupler to create an offset (handed) connection between two ladders or fittings of differing widths. For concentric (straight) reductions, two abrupt reducers are required.

Speedway abrupt reducers are supplied singly and come complete with all necessary ladder fixings.

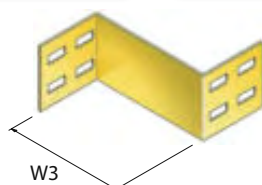
The following table shows, for standard widths, which size of abrupt reducer to order for each type of reduction.

Straight Reductions		
Abrupt Reducer Type	Reduction W3 mm	
	From	To
RA/75	300	150
RA/150	450	
RA/225	600	
RA/300	750	
RA/375	900	
RA/450	1050	
RA/75	450	300
RA/150	600	
RA/225	750	
RA/300	900	
RA/375	1050	
RA/75	600	450
RA/150	750	
RA/225	900	
RA/300	1050	
RA/375	1200	
RA/75	750	600
RA/150	900	
RA/225	1050	
RA/300	1200	
RA/375	1350	
RA/75	900	750
RA/150	1050	
RA/225	1200	
RA/300	1350	
RA/375	1500	
RA/75	1050	900

Straight reductions require 2 of the above abrupt reducers

Left or Right Hand Reductions		
Abrupt Reducer Type	Reduction W3 mm	
	From	To
RA/150	300	150
RA/300	450	
RA/450	600	
RA/600	750	
RA/750	900	
RA/900	1050	
RA/150	450	300
RA/300	600	
RA/450	750	
RA/600	900	
RA/750	1050	
RA/150	600	450
RA/300	750	
RA/450	900	
RA/600	1050	
RA/750	1200	
RA/150	750	600
RA/300	900	
RA/450	1050	
RA/600	1200	
RA/750	1350	
RA/150	900	750
RA/300	1050	
RA/450	1200	
RA/600	1350	
RA/750	1500	
RA/150	1050	900

Handed reductions require 1 of the above abrupt reducers & 1 standard coupler



Order details are as follows:

Ladder Type / RA / Width Reduction W3 / Finish & Material.

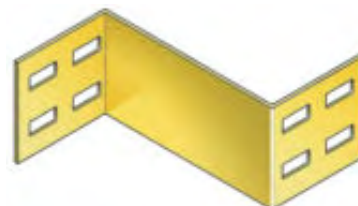
SW6/RA/300/GA Speedway SW6 Abrupt Reducer, 300mm, Hot Dip Galvanized Finish.

Abrupt reducers for SW4 & SW5 are identical – order as SW45/RA/..... for example:

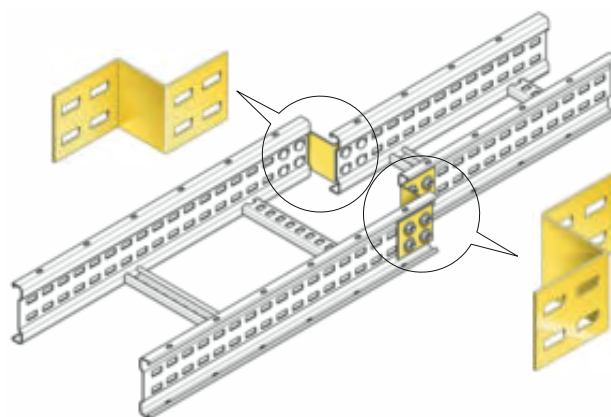
SW45/RA/150/SS Speedway SW45 Abrupt Reducer, 150mm, Stainless Steel.

Consult our Sales Team for abrupt reducers to suit non-standard width reductions. ■

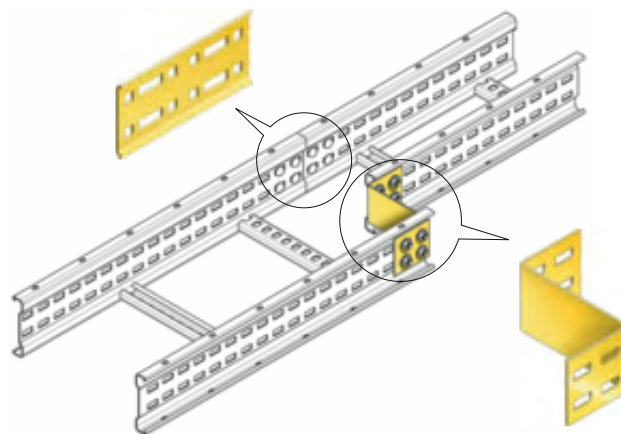
ibemo Kazakhstan - 090301 Republic of Kazakhstan, West Kazakhstan Oblast, Aksai, Pramzone, BKKS office complex
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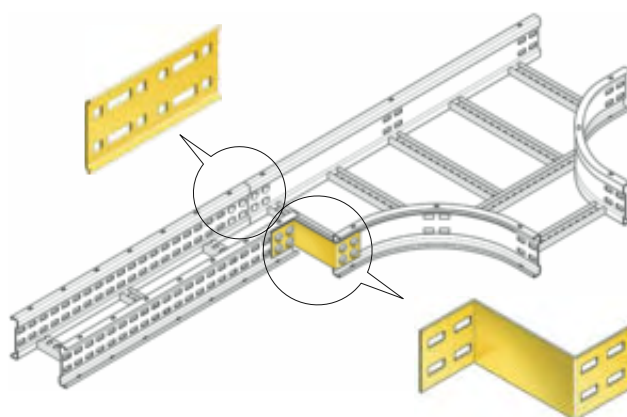
Abrupt Reducer (RA)
Supplied complete with all ladder fixings



Two abrupt reducers
used to create a straight reduction between cable ladders.



Abrupt reducer and straight coupler
used to create an offset (handed) reduction between cable ladders



Abrupt reducer and straight coupler
used to convert an equal tee into an unequal tee



The Vantrunk Speedway SW6 long span ladder system has been developed to carry ultra heavy cable loads over spans of up to and including 6m. Based on the Speedway SW6 profile with a gauge of 2.5mm and a ladder length of 6m, the Speedway long span cable ladder system, normally specified in stainless steel, is ideally suited to both offshore and onshore installations as it reduces the number of supports required to carry the cable ladder installation. This saves on costs for secondary support steelwork, reduces top weight, and cuts installation time.

The Speedway long span ladder system features a specially designed long span coupler which is intended to sit directly onto the supporting structure. The Speedway long span coupler provides a high performance means of connecting the long span ladders whilst reinforcing the ladder profile and assisting in distributing the high loads from the cable ladder over the width of the supporting structure.

Standard Speedway cable ladder fittings and couplers are used at each horizontal and vertical change in direction as these require specific support arrangements – refer to 'Technical Data' for further details.

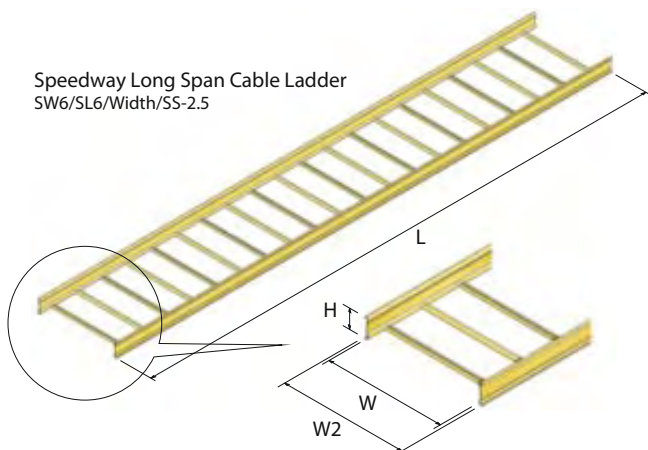
Speedway Long Span Cable Ladder

Rung spacing for the long span cable ladder is 300mm centres in common with the standard cable ladder. Rung orientation is alternately inverted to allow for cleat spacing at 600mm. Other rung orientation patterns are available to order.

Standard long span cable ladder widths are shown below. Other widths are available to order.

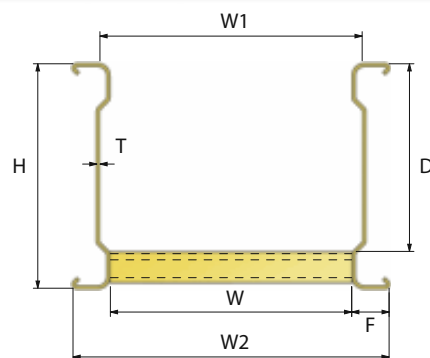
Speedway LSL - Stainless Steel Dimensions & Weights					
Ladder	W mm	W2 mm	L mm	H mm	Weight kg
SW6/SL6/150/SS-2.5	150	200	6000	150	49.9
SW6/SL6/300/SS-2.5	300	350			54.1
SW6/SL6/450/SS-2.5	450	500			58.2
SW6/SL6/600/SS-2.5	600	650			62.4
SW6/SL6/750/SS-2.5	750	800			66.6
SW6/SL6/900/SS-2.5	900	950			70.8

Weights are given for stainless steel. Contact our Design Team for other weights.



Speedway SW6 Cable Ladder - Profile Details		
Height	H	150mm
Loading Depth	D	125mm
Ladder Width	W	150mm to 900mm
Maximum Internal Width	W1	W + 14mm
Overall Width	W2	W + 50mm
Flange Width	F	25mm
Standard Gauge	T	2.5mm
Rung Gauge		See 'Technical Data'

For slot pattern details refer to Speedway SW6 straight cable ladder



Order details are as follows:

SW6 / SL6 / Width / Finish & Material - 2.5.

SW6/SL6/900/SS-2.5 Speedway SW6 Long Span Ladder, 6m Length 900mm Wide, Stainless Steel, gauge 2.5mm. ■

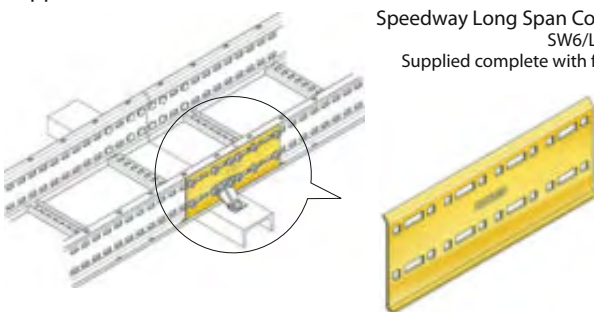
Speedway Long Span Couplers (LSC)

Speedway long span couplers (LSC) are used to connect lengths of long span cable ladder.

Speedway long span couplers are supplied singly and come complete with all necessary ladder fixings.

The Speedway ladder fixings each comprise of an M10 x 16 square section bolt with a domed head, an M10 nut and an M10 shake-proof washer as standard. M10 cup square head x 20mm set screw is included to allow the use of a Speedway® adaptable fixing bracket (AFB) for securing the long span ladder to the support structure.

Speedway Long Span Coupler
SW6/LSC/SS
Supplied complete with fixings



Two long span couplers are required for each long span ladder.

Order details are as follows:

SW6 / LSC / Finish & Material.

SW6/LSC/SS Speedway SW6 Long Span Coupler, Stainless Steel.

It is recommended that an additional 10% quantity is ordered for contingency use arising when cutting straight ladders to suit installation requirements. ■



The Speedway cross-braced ladder system is specifically designed to be edge-mounted. This method of installation preserves space and has the advantage of allowing cables to be secured to both sides of the cable ladder using the Speedway J-clips or standard cable cleats.

The cross-braced ladder features diagonal stiffening rods which significantly increase the overall strength of the cable ladder, allowing comparatively long spans to be bridged with relative ease.

The Speedway cross-braced ladder coupling system comprises of two standard couplers and two threaded cross-bracing rods which need to be fitted at each connection between adjacent lengths of Speedway cross-braced cable ladder.

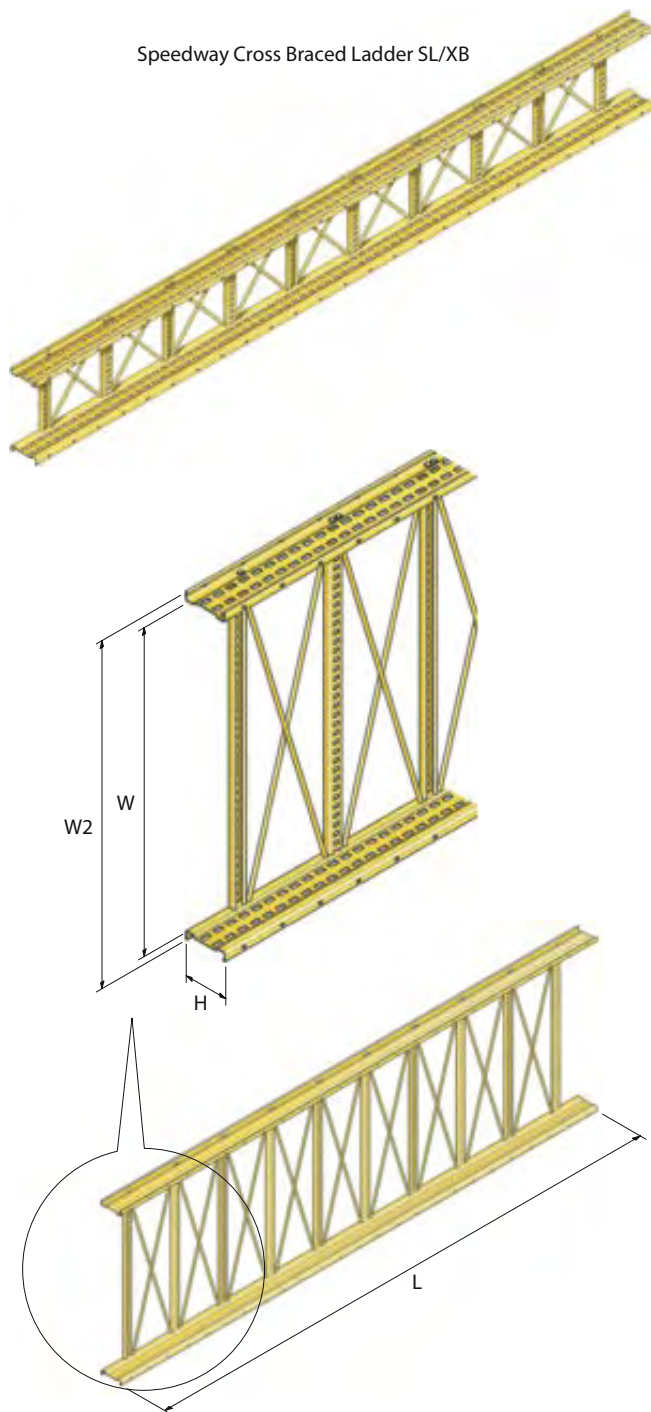
Standard Speedway cable ladder fittings and couplers are used at each horizontal & vertical change in direction as these require specific support arrangements – refer to 'Technical Data' for further details.

Speedway Cross-Braced Cable Ladder (XL)

The Speedway cross-braced ladder is available in SW4, SW5, & SW6 versions with a standard length of 3m and widths of 150mm to 900mm.

Rung spacing for the cross-braced cable ladder is 300mm centres in common with the standard cable ladder. Rung orientation is alternately inverted to allow for Speedway J-clip & cleat spacing at 600mm centres. Other rung orientation patterns are available to order.

Speedway Cross Braced Ladder SL/XB



Speedway Cross Braced Ladder - Dimensions & Weights

Ladder	W mm	W2 mm	L mm	H mm	Weight kg
SW4/XL3/150/GA	150	189	3000	103.5	16.19
SW4/XL3/300/GA	300	339			18.89
SW4/XL3/450/GA	450	489			21.93
SW4/XL3/600/GA	600	639			25.13
SW4/XL3/750/GA	750	789			31.27
SW4/XL3/900/GA	900	939			35.17
SW5/XL3/150/GA	150	200	3000	125	22.75
SW5/XL3/300/GA	300	350			25.45
SW5/XL3/450/GA	450	500			28.49
SW5/XL3/600/GA	600	650			31.69
SW5/XL3/750/GA	750	800			37.83
SW5/XL3/900/GA	900	950			41.73
SW6/XL3/150/GA	150	200	3000	150	25.81
SW6/XL3/300/GA	300	350			29.08
SW6/XL3/450/GA	450	500			32.69
SW6/XL3/600/GA	600	650			36.31
SW6/XL3/750/GA	750	800			40.32
SW6/XL3/900/GA	900	950			44.22

Order details are as follows:

Ladder Type / XL3 / Width / Finish & Material.

SW5/XL3/300/GA Speedway SW5 Cross Braced Straight Ladder, 3m Length, 300mm Wide, Hot Dip Galvanized Finish.

SW6/XL3/900/SS Speedway SW6 Cross Braced Straight Ladder, 3m Length, 900mm Wide, Stainless Steel. ■

Weights are given for hot dip galvanized finish. Contact our

Design Team for other weights.

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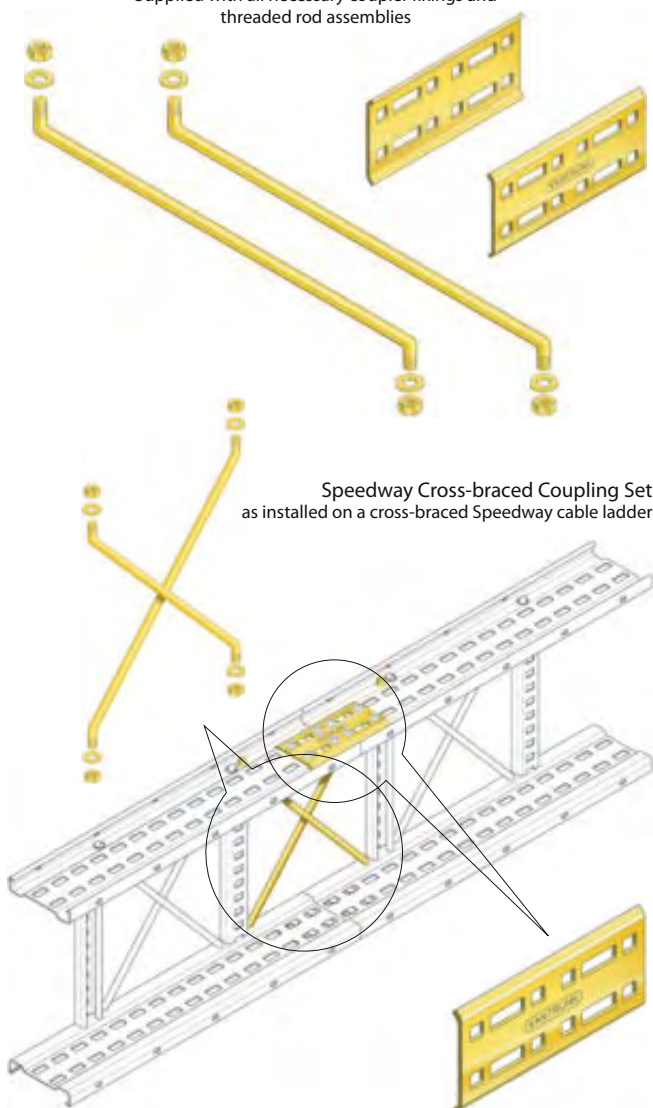
Speedway Cross-braced Coupling Set (CS/XL)

Speedway cross-braced coupling sets (CS/XL) are used to connect adjacent lengths of cross-braced cable ladder.

Cross-braced coupling sets are supplied as a complete package consisting of two Speedway straight couplers, two threaded cross-bracing bars and all necessary fixings.

One cross-braced coupling set is required for each long span ladder. It is recommended that an additional 10% quantity is ordered for contingency use arising when cutting straight ladders to suit installation requirements. Standard Speedway couplers should be used to connect the Speedway cross-braced ladder to Speedway fittings.

Speedway Cross-braced Coupling Set CS/XB
Supplied with all necessary coupler fixings and threaded rod assemblies



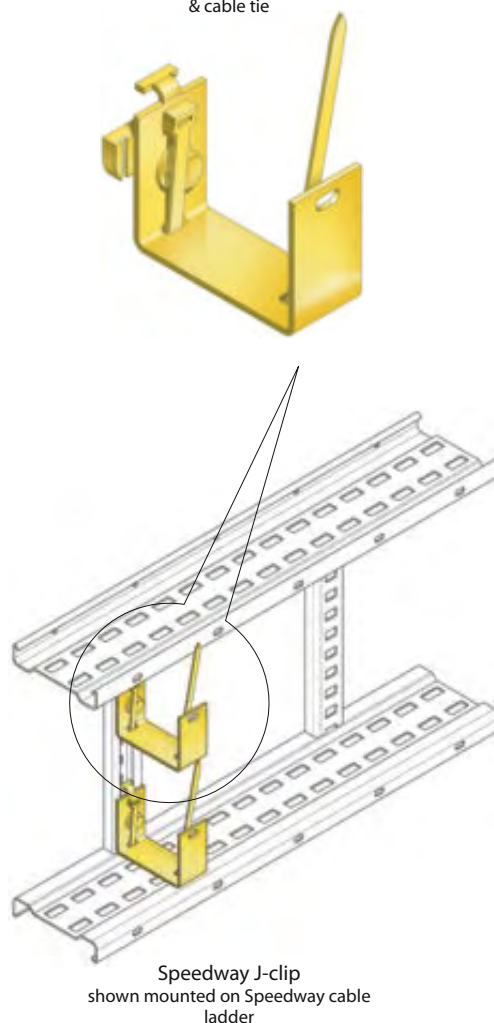
Speedway Cross-braced Coupling Set
as installed on a cross-braced Speedway cable ladder

J-Clip (JCLIP)

The Speedway J-Clip (JCLIP) is designed for use with edge-mounted cable ladder and is supplied complete with a nylon cable tie and the fixings necessary to attach the J-Clip to the Speedway rung.

The J-Clip can be mounted on both sides of the Speedway cable ladder, offering the ability to support cables every 600mm on alternate rungs whilst maximising the number of cables being carried.

Speedway J-Clip (JCLIP)
Supplied complete with ladder fixing
& cable tie



Speedway J-clip
shown mounted on Speedway cable
ladder

Order details are as follows:

SW / JCLIP / Finish & Material.

SW/JCLIP/GA Speedway J-Clip, Hot Dip Galvanized Finish. ■

Order details are as follows:

Ladder Type / CS / XL / Width / Finish & Material.

SW5/CS/XL/300/GA Speedway SW5 Cross-Braced Coupling Set,
300mm Wide, Hot Dip Galvanized Finish. ■



Speedway flat elbows (FE) are designed to create fixed angular coplanar connections between horizontal cable runs (cable ladder installed in horizontal plane) and between vertical cable runs (cable ladder installed in vertical plane).

Speedway flat elbows are available in widths from 150mm to 1050mm as standard.

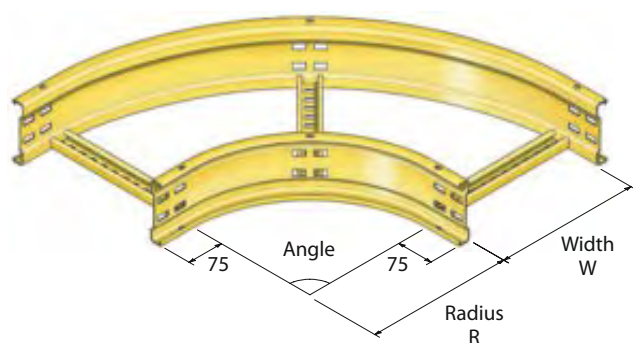
Speedway flat elbows are available with angles of 30°, 45°, 60° & 90° as standard.

Speedway flat elbows are available with standard radii of 300mm, 450mm, 600mm, 750mm, 900mm, 1050mm & 1200mm. 300mm radius flat elbows are stocked as standard and are supplied unless otherwise specified.

The radius of the Speedway flat elbow is measured relative to the rung position. The width of the Speedway flat elbow is measured along the length of the rung. These measurements ensure that the Speedway flat elbow has an exact width and radius to match the Speedway straight ladder and other Speedway fittings.

The Speedway flat elbow is manufactured with a repeatable and true radius which eliminates the traditional approach of 'make it fit' during installation.

Each radiused side wall has a 75mm straight section at each end to facilitate connection to Speedway straight ladder and Speedway fittings using the standard range of Speedway couplers.



The rungs in the Speedway flat elbows are located radially at either 0° or at 7½° incremental angles (or multiples thereof) and are spaced to give a maximum linear distance of no more than 465mm between adjacent rungs and between rungs on adjacent Speedway cable ladder and Speedway fittings when measured along the outer radius.

The rungs are orientated with the open face uppermost to suit the use of cleats and similar cable restraint devices. This allows compliance with current recommendations for cable restraint, especially where cables are used which have a high potential fault current level.



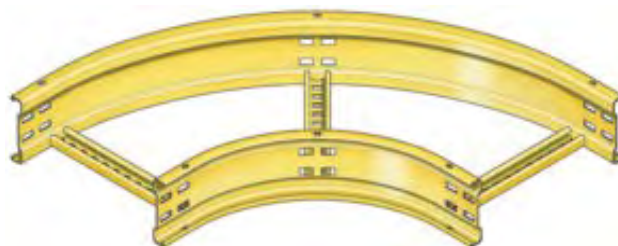
Speedway 30° Flat Elbow



Speedway 45° Flat Elbow



Speedway 60° Flat Elbow



Speedway 90° Flat Elbow

The number of rungs shown in the Speedway flat elbows above are based on the standard 300mm wide and 300mm radius flat elbows. Refer to the dimensional information tables for the number of rungs for other widths and radii.

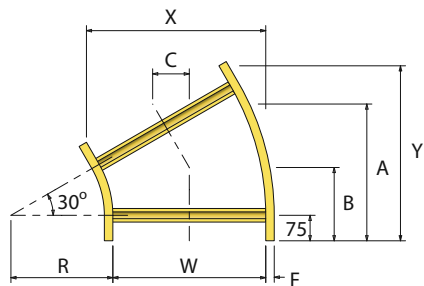
Order details are as follows:

Ladder Type / Flat Elbow Type / Width / Radius / Finish & Material

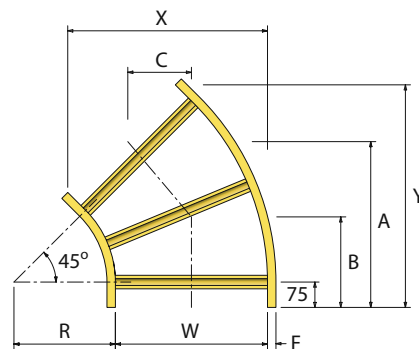
SW4/FE90/450/300/GA Speedway SW4 Flat Elbow, 90°, 450mm Wide, 300mm Radius, Hot Dip Galvanized Finish

SW6/FE30/600/900/SS Speedway SW6 Flat Elbow, 30°, 600mm Wide, 900mm Radius, Stainless Steel

Contact our Sales Team for availability of non-standard flat elbow configurations.



F = Flange Width (SW4 = 19.5mm, SW5 & SW6 = 25mm)



F = Flange Width (SW4 = 19.5mm, SW5 & SW6 = 25mm)

Speedway 30° Flat Elbows

Part Number	No of Rungs	Dimensions (mm)						
		R	W	A	B	C	X	Y
FE30/150/300	2	300	150	327	175	88	228	365
FE30/300/300	2		300	365	196	98	378	440
FE30/450/300	2		450	402	216	108	528	515
FE30/600/300	2		600	440	236	118	678	590
FE30/750/300	2		750	477	256	128	828	665
FE30/900/300	3		900	515	276	138	978	740
FE30/1050/300	3		1050	552	296	148	1128	815
FE30/150/450	2	450	150	402	216	108	248	440
FE30/300/450	2		300	440	236	118	398	515
FE30/450/450	2		450	477	256	128	548	590
FE30/600/450	2		600	515	276	138	698	665
FE30/750/450	3		750	552	296	148	848	740
FE30/900/450	3		900	590	316	158	998	815
FE30/1050/450	3		1050	627	336	168	1148	890
FE30/150/600	2	600	150	477	256	128	268	515
FE30/300/600	2		300	515	276	138	418	590
FE30/450/600	2		450	552	296	148	568	665
FE30/600/600	3		600	590	316	158	718	740
FE30/750/600	3		750	627	336	168	868	815
FE30/900/600	3		900	665	356	178	1018	890
FE30/1050/600	3		1050	702	376	188	1168	965
FE30/150/750	2	750	150	552	296	148	288	590
FE30/300/750	2		300	590	316	158	438	665
FE30/450/750	3		450	627	336	168	588	740
FE30/600/750	3		600	665	356	178	738	815
FE30/750/750	3		750	702	376	188	888	890
FE30/900/750	3		900	740	397	198	1038	965
FE30/1050/750	3		1050	777	417	208	1188	1040
FE30/150/900	2	900	150	627	336	168	308	665
FE30/300/900	3		300	665	356	178	458	740
FE30/450/900	3		450	702	376	188	608	815
FE30/600/900	3		600	740	397	198	758	890
FE30/750/900	3		750	777	417	208	908	965
FE30/900/900	3		900	815	437	218	1058	1040
FE30/1050/900	5		1050	852	457	228	1208	1115
FE30/150/1050	3	1050	150	702	376	188	328	740
FE30/300/1050	3		300	740	397	198	478	815
FE30/450/1050	3		450	777	417	208	628	890
FE30/600/1050	3		600	815	437	218	778	965
FE30/750/1050	3		750	852	457	228	928	1040
FE30/900/1050	5		900	890	477	238	1078	1115
FE30/1050/1050	5		1050	927	497	249	1228	1190
FE30/150/1200	3	1200	150	777	417	208	348	815
FE30/300/1200	3		300	815	437	218	498	890
FE30/450/1200	3		450	852	457	228	648	965
FE30/600/1200	3		600	890	477	238	798	1040
FE30/750/1200	5		750	927	497	249	948	1115
FE30/900/1200	5		900	965	517	259	1098	1190
FE30/1050/1200	5		1050	1002	537	269	1248	1265

Example of a Speedway 30° flat elbow part number is as follows:

SW4/FE30/300/450/GA Speedway SW4 Flat Elbow, 30°, 300mm Wide, 450mm Radius, Hot Dip Galvanized Finish.

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; http://www.ibemo.kz

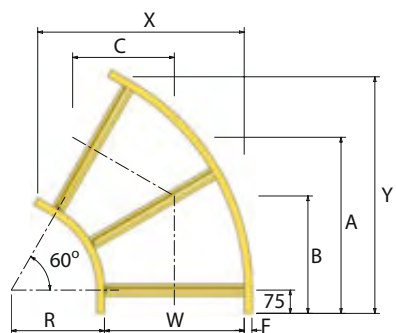
Speedway 45° Flat Elbows

Part Number	No of Rungs	Dimensions						
		R	W	A	B	C	X	Y
FE45/150/300	2	300	150	393	230	163	291	446
FE45/300/300	2		300	446	261	185	441	552
FE45/450/300	2		450	499	292	207	591	658
FE45/600/300	2		600	552	324	229	741	764
FE45/750/300	2		750	605	355	251	891	870
FE45/900/300	3		900	658	386	273	1041	977
FE45/1050/300	3		1050	711	417	295	1191	1083
FE45/150/450	2	450	150	499	292	207	335	552
FE45/300/450	2		300	552	324	229	485	658
FE45/450/450	2		450	605	355	251	635	764
FE45/600/450	2		600	658	386	273	785	870
FE45/750/450	3		750	711	417	295	935	977
FE45/900/450	3		900	764	448	317	1085	1083
FE45/1050/450	3		1050	817	479	339	1235	1189
FE45/150/600	2	600	150	605	355	251	379	658
FE45/300/600	2		300	658	386	273	529	764
FE45/450/600	2		450	711	417	295	679	870
FE45/600/600	3		600	764	448	317	829	977
FE45/750/600	3		750	817	479	339	979	1083
FE45/900/600	3		900	870	510	361	1129	1189
FE45/1050/600	3		1050	924	541	383	1279	1295
FE45/150/750	2	750	150	711	417	295	423	764
FE45/300/750	2		300	764	448	317	573	870
FE45/450/750	3		450	817	479	339	723	977
FE45/600/750	3		600	870	510	361	873	1083
FE45/750/750	3		750	924	541	383	1023	1189
FE45/900/750	3		900	1242	727	405	1411	1613
FE45/1050/750	3		1050	1030	603	426	1323	1401
FE45/150/900	3	900	150	817	479	339	467	870
FE45/300/900	3		300	870	510	361	617	977
FE45/450/900	4		450	924	541	383	767	1083
FE45/600/900	4		600	977	572	405	917	1189
FE45/750/900	4		750	1030	603	426	1067	1295
FE45/900/900	4		900	1083	634	448	1217	1401
FE45/1050/900	7		1050	1136	665	470	1367	1507
FE45/150/1050	4	1050	150	924	541	383	511	977
FE45/300/1050	4		300	977	572	405	661	1083
FE45/450/1050	4		450	1030	603	426	811	1189
FE45/600/1050	4		600	1083	634	448	961	1295
FE45/750/1050	4		750	1136	665	470	1111	1401
FE45/900/1050	7		900	1189	696	492	1261	1507
FE45/1050/1050	7		1050	1242	727	514	1411	1613
FE45/150/1200	4	1200	150	1030	603	426	555	1083
FE45/300/1200	4		300	1083	634	448	705	1189
FE45/450/1200	4		450	1136	665	470	855	1295
FE45/600/1200	4		600	1189	696	492	1005	1401
FE45/750/1200	7		750	1242	727	514	1155	1507
FE45/900/1200	7		900	1295	758	536	1305	1613
FE45/1050/1200	7		1050	1348	790	558	1455	1719

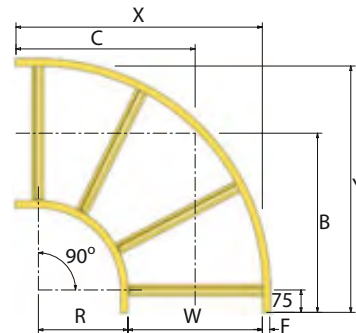
Example of a Speedway 45° flat elbow part number is as follows:

SW6/FE45/600/300/SS Speedway SW6 Flat Elbow, 45°, 600mm Wide, 300mm Radius, Stainless Steel.

SPEEDWAY FLAT ELBOWS



F = Flange Width (SW4 = 19.5mm, SW5 & SW6 = 25mm)



F = Flange Width (SW4 = 19.5mm, SW5 & SW6 = 25mm)

Speedway 60° Flat Elbows

Part Number	No of Rungs	Dimensions						
		R	W	A	B	C	X	Y
FE60/150/300	2	300	150	437	292	252	365	502
FE60/300/300	2		300	502	335	290	515	632
FE60/450/300	3		450	567	378	327	665	762
FE60/600/300	3		600	632	421	365	815	892
FE60/750/300	3		750	697	465	402	965	1022
FE60/900/300	5		900	762	508	440	1115	1152
FE60/1050/300	5		1050	827	551	477	1265	1282
FE60/150/450	2	450	150	567	378	327	440	632
FE60/300/450	3		300	632	421	365	590	762
FE60/450/450	3		450	697	465	402	740	892
FE60/600/450	3		600	762	508	440	890	1022
FE60/750/450	5		750	827	551	477	1040	1152
FE60/900/450	5		900	892	595	515	1190	1282
FE60/1050/450	5		1050	957	638	552	1340	1412
FE60/150/600	3	600	150	697	465	402	515	762
FE60/300/600	3		300	762	508	440	665	892
FE60/450/600	3		450	827	551	477	815	1022
FE60/600/600	5		600	892	595	515	965	1152
FE60/750/600	5		750	957	638	552	1115	1282
FE60/900/600	5		900	1022	681	590	1265	1412
FE60/1050/600	5		1050	1087	725	627	1415	1541
FE60/150/750	3	750	150	827	551	477	590	892
FE60/300/750	3		300	892	595	515	740	1022
FE60/450/750	5		450	957	638	552	890	1152
FE60/600/750	5		600	1022	681	590	1040	1282
FE60/750/750	5		750	1087	725	627	1190	1412
FE60/900/750	5		900	1152	768	665	1340	1541
FE60/1050/750	5		1050	1217	811	702	1490	1671
FE60/150/900	3	900	150	957	638	552	665	1022
FE60/300/900	5		300	1022	681	590	815	1152
FE60/450/900	5		450	1087	725	627	965	1282
FE60/600/900	5		600	1152	768	665	1115	1412
FE60/750/900	5		750	1217	811	702	1265	1541
FE60/900/900	5		900	1282	854	740	1415	1671
FE60/1050/900	9		1050	1347	898	777	1565	1801
FE60/150/1050	5	1050	150	1087	725	627	740	1152
FE60/300/1050	5		300	1152	768	665	890	1282
FE60/450/1050	5		450	1217	811	702	1040	1412
FE60/600/1050	5		600	1282	854	740	1190	1541
FE60/750/1050	5		750	1347	898	777	1340	1671
FE60/900/1050	9		900	1412	941	815	1490	1801
FE60/1050/1050	9		1050	1476	984	852	1640	1931
FE60/150/1200	5	1200	150	1217	811	702	815	1282
FE60/300/1200	5		300	1282	854	740	965	1412
FE60/450/1200	5		450	1347	898	777	1115	1541
FE60/600/1200	5		600	1412	941	815	1265	1671
FE60/750/1200	9		750	1476	984	852	1415	1801
FE60/900/1200	9		900	1541	1028	890	1565	1931
FE60/1050/1200	9		1050	1606	1071	927	1715	2061

Speedway 90° Flat Elbows

Part Number	No of Rungs	Dimensions						
		R	W	B	C	X	Y	
FE90/150/300	2	300	150	450	450	525	525	
FE90/300/300	3		300	525	525	675	675	
FE90/450/300	4		450	600	600	825	825	
FE90/600/300	4		600	675	675	975	975	
FE90/750/300	5		750	750	750	1125	1125	
FE90/900/300	5		900	825	825	1275	1275	
FE90/1050/300	7		1050	900	900	1425	1425	
FE90/150/450	3	450	150	600	600	675	675	
FE90/300/450	4		300	675	675	825	825	
FE90/450/450	4		450	750	750	975	975	
FE90/600/450	5		600	825	825	1125	1125	
FE90/750/450	5		750	900	900	1275	1275	
FE90/900/450	7		900	975	975	1425	1425	
FE90/1050/450	7		1050	1050	1050	1575	1575	
FE90/150/600	4	600	150	750	750	825	825	
FE90/300/600	4		300	825	825	975	975	
FE90/450/600	5		450	900	900	1125	1125	
FE90/600/600	5		600	975	975	1275	1275	
FE90/750/600	7		750	1050	1050	1425	1425	
FE90/900/600	7		900	1125	1125	1575	1575	
FE90/1050/600	7		1050	1200	1200	1725	1725	
FE90/150/750	4	750	150	900	900	975	975	
FE90/300/750	5		300	975	975	1125	1125	
FE90/450/750	5		450	1050	1050	1275	1275	
FE90/600/750	7		600	1125	1125	1425	1425	
FE90/750/750	7		750	1200	1200	1575	1575	
FE90/900/750	7		900	75	75	1725	1725	
FE90/1050/750	7		1050	1350	1350	1875	1875	
FE90/150/900	5	900	150	1050	1050	1125	1125	
FE90/300/900	5		300	1125	1125	1275	1275	
FE90/450/900	7		450	1200	1200	1425	1425	
FE90/600/900	7		600	1275	1275	1575	1575	
FE90/750/900	7		750	1350	1350	1725	1725	
FE90/900/900	7		900	1425	1425	1875	1875	
FE90/1050/900	13		1050	1500	1500	2025	2025	
FE90/150/1050	5	1050	150	1200	1200	1275	1275	
FE90/300/1050	7		300	1275	1275	1425	1425	
FE90/450/1050	7		450	1350	1350	1575	1575	
FE90/600/1050	7		600	1425	1425	1725	1725	
FE90/750/1050	7		750	1500	1500	1875	1875	
FE90/900/1050	13		900	1575	1575	2025	2025	
FE90/1050/1050	13		1050	1650	1650	2175	2175	
FE90/150/1200	7	1200	150	1350	1350	1425	1425	
FE90/300/1200	7		300	1425	1425	1575	1575	
FE90/450/1200	7		450	1500	1500	1725	1725	
FE90/600/1200	7		600	1575	1575	1875	1875	
FE90/750/1200	13		750	1650	1650	2025	2025	
FE90/900/1200	13		900	1725	1725	2175	2175	
FE90/1050/1200	13		1050	1800	1800	2325	2325	

Example of a Speedway 60° flat elbow part number is as follows:

SW5/FE60/900/750/GX Speedway SW5 Flat Elbow, 60°, 900mm Wide, 750mm Radius, Deep Galvanized

Example of a Speedway 90° flat elbow part number is as follows:

SW6/FE90/450/600/GA Speedway SW6 Flat Elbow, 90°, 450mm Wide, 600mm Radius, Hot Dip

Finish.

Galvanized Finish.

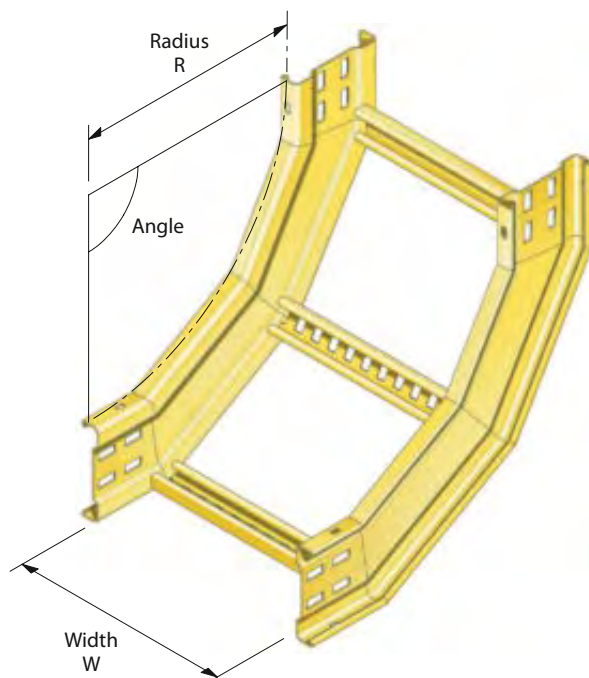
Speedway inside risers (IR) and outside risers (OR) are designed to create fixed angular non-coplanar connections between cable runs and can be used in both vertical and horizontal orientations.

Speedway inside risers (or vertical inside bends) create internal changes in direction; outside risers (or vertical outside bends) create external changes in direction.

Speedway risers are available in widths from 150mm to 1050mm as standard. Speedway risers are available with angles of 30°, 45°, 60° & 90° and in standard radii of 300mm, 450mm, 600mm, 750mm, 900mm, 1050mm & 1200mm. 300mm radius inside and outside risers are stocked as standard and are supplied unless otherwise specified.

For both inside and outside risers, the radius is measured to the inside flange of the riser fitting. The width of the Speedway riser is measured along the length of the rung. These measurements ensure that the Speedway riser has an exact width and radius to match the Speedway straight ladder and other Speedway fittings.

The angle of the Speedway inside and outside riser is measured relative to the ends of the side wall profile. Sufficient land is provided to suit the use of the Speedway coupling system. The unique Speedway profile is maintained along the full length of the side wall, thereby maximising the width available for cable containment.

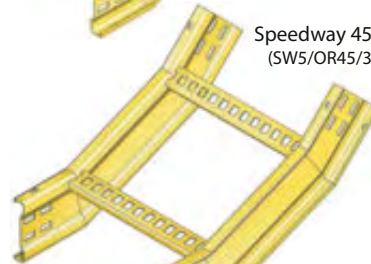


Rungs in the Speedway risers are located at the intersection between adjacent facets and are spaced to give a maximum linear distance of no more than 300mm between rungs and between rungs on adjacent Speedway cable ladder and fittings. The rungs are orientated with the continuous slot uppermost to allow compliance with recommendations for cable restraint, especially where cables are used which have a high potential fault current level.

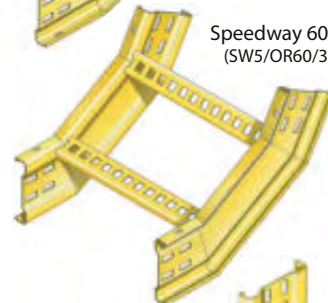
Speedway 30° Inside Riser
(SW5/IR30/300/300 shown)



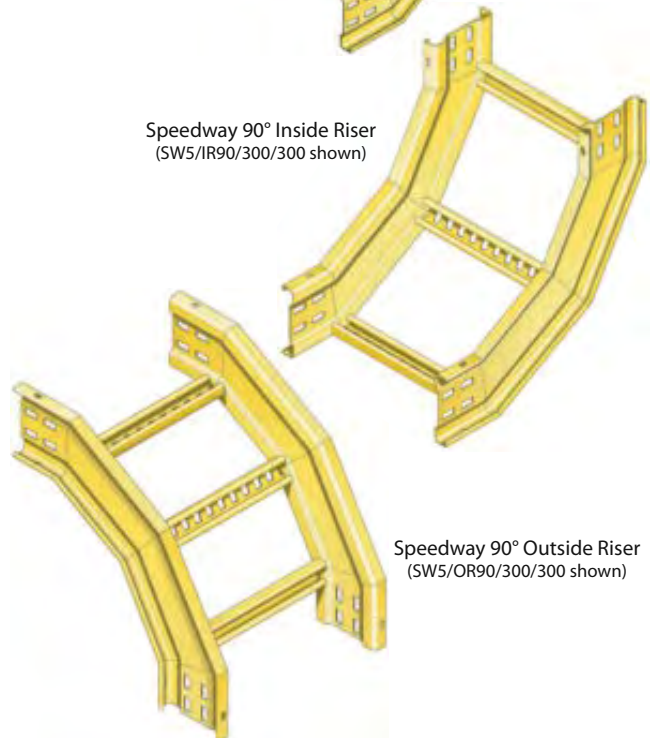
Speedway 45° Outside Riser
(SW5/OR45/300/600 shown)



Speedway 60° Outside Riser
(SW5/OR60/300/300 shown)



Speedway 90° Inside Riser
(SW5/IR90/300/300 shown)



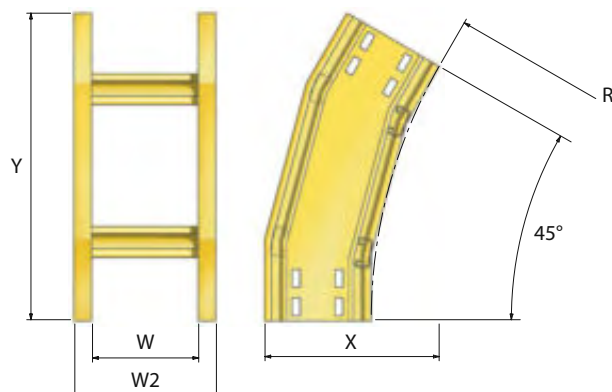
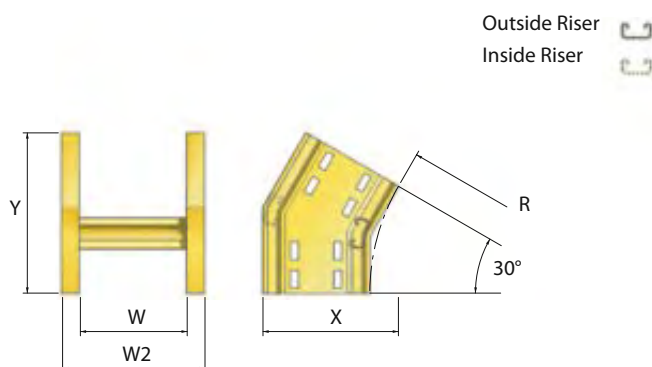
Speedway 90° Outside Riser
(SW5/OR90/300/300 shown)

Order details are as follows:

Ladder Type / Riser Type / Width / Radius / Finish & Material

SW5/IR90/450/300/SS	Speedway SW5 Inside Riser, 90°, 450mm Wide, 300mm Radius, Steel
Stainless	
SW6/OR60/600/750/GX	Speedway SW6 Outside Riser, 60°, 600mm Wide, 750mm Radius, Deep Galvanized Finish

Contact our Sales Team for availability on non-standard inside & outside riser configurations.



Part Number	Radius R mm	No of Rungs	Width W mm	X & Y mm			W2 mm		
				SW4	SW5	SW6	SW4	SW5	SW6
IR30/150/300	300	1	150				189	200	200
IR30/300/300			300	202	213	225	339	350	350
IR30/450/300			450	Y	Y	Y	489	500	500
IR30/600/300			600				639	650	650
IR30/750/300			750	144	165	190	789	800	800
IR30/900/300			900	X	X	X	939	950	950
IR30/1050/300			1050				1089	1100	1100
IR30/150/450	450	1	150				189	200	200
IR30/300/450			300	277	288	300	339	350	350
IR30/450/450			450	Y	Y	Y	489	500	500
IR30/600/450			600				639	650	650
IR30/750/450			750	164	185	210	789	800	800
IR30/900/450			900	X	X	X	939	950	950
IR30/1050/450			1050				1089	1100	1100
IR30/150/600	600	2	150				189	200	200
IR30/300/600			300	352	363	375	339	350	350
IR30/450/600			450	Y	Y	Y	489	500	500
IR30/600/600			600				639	650	650
IR30/750/600			750	184	205	230	789	800	800
IR30/900/600			900	X	X	X	939	950	950
IR30/1050/600			1050				1089	1100	1100
IR30/150/750	750	2	150				189	200	200
IR30/300/750			300	427	438	450	339	350	350
IR30/450/750			450	Y	Y	Y	489	500	500
IR30/600/750			600				639	650	650
IR30/750/750			750	204	225	250	789	800	800
IR30/900/750			900	X	X	X	939	950	950
IR30/1050/750			1050				1089	1100	1100
IR30/150/900	900	2	150				189	200	200
IR30/300/900			300	502	513	525	939	350	350
IR30/450/900			450	Y	Y	Y	489	500	500
IR30/600/900			600				639	650	650
IR30/750/900			750	224	246	271	789	800	800
IR30/900/900			900	X	X	X	939	950	950
IR30/1050/900			1050				1089	1100	1100
IR30/150/1050	1050	2	150				189	200	200
IR30/300/1050			300	577	588	600	339	350	350
IR30/450/1050			450	Y	Y	Y	489	500	500
IR30/600/1050			600				639	650	650
IR30/750/1050			750	244	266	291	789	800	800
IR30/900/1050			900	X	X	X	939	950	950
IR30/1050/1050			1050				1089	1100	1100
IR30/150/1200	1200	3	150				189	200	200
IR30/300/1200			300				339	350	350
IR30/450/1200			450	Y	Y	Y	489	500	500
IR30/600/1200			600				639	650	650
IR30/750/1200			750	264	286	311	789	800	800
IR30/900/1200			900	X	X	X	939	950	950
IR30/1050/1200			1050				1089	1100	1100

For Outside Riser change IR to OR

Part Number	Radius R mm	No of Rungs	Width W mm	X & Y mm			W2 mm		
				SW4	SW5	SW6	SW4	SW5	SW6
IR45/150/300	300	2	150				189	200	200
IR45/300/300			300	285	301	318	339	350	350
IR45/450/300			450	Y	Y	Y	489	500	500
IR45/600/300			600				639	650	650
IR45/750/300			750	191	213	238	789	800	800
IR45/900/300			900	X	X	X	939	950	950
IR45/1050/300			1050				1089	1100	1100
IR45/150/450	450	2	150				189	200	200
IR45/300/450			300	391	407	424	339	350	350
IR45/450/450			450	Y	Y	Y	489	500	500
IR45/600/450			600				639	650	650
IR45/750/450			750	235	257	282	789	800	800
IR45/900/450			900	X	X	X	939	950	950
IR45/1050/450			1050				1089	1100	1100
IR45/150/600	600	2	150				189	200	200
IR45/300/600			300	497	513	530	339	350	350
IR45/450/600			450	Y	Y	Y	489	500	500
IR45/600/600			600				639	650	650
IR45/750/600			750	279	301	326	789	800	800
IR45/900/600			900	X	X	X	939	950	950
IR45/1050/600			1050				1089	1100	1100
IR45/150/750	750	3	150				189	200	200
IR45/300/750			300	604	619	636	339	350	350
IR45/450/750			450	Y	Y	Y	489	500	500
IR45/600/750			600				639	650	650
IR45/750/750			750	323	345	370	789	800	800
IR45/900/750			900	X	X	X	939	950	950
IR45/1050/750			1050				1089	1100	1100
IR45/150/900	900	3	150				189	200	200
IR45/300/900			300	710	725	742	939	350	350
IR45/450/900			450	Y	Y	Y	489	500	500
IR45/600/900			600				639	650	650
IR45/750/900			750	367	389	414	789	800	800
IR45/900/900			900	X	X	X	939	950	950
IR45/1050/900			1050				1089	1100	1100
IR45/150/1050	1050	3	150				189	200	200
IR45/300/1050			300	816	831	849	339	350	350
IR45/450/1050			450	Y	Y	Y	489	500	500
IR45/600/1050			600				639	650	650
IR45/750/1050			750	411	433	458	789	800	800
IR45/900/1050			900	X	X	X	939	950	950
IR45/1050/1050			1050				1089	1100	1100
IR45/150/1200	1200	4	150				189	200	200
IR45/300/1200			300	922	937	955	339	350	350
IR45/450/1200			450	Y	Y	Y	489	500	500
IR45/600/1200			600				639	650	650
IR45/750/1200			750	455	476	501	789	800	800
IR45/900/1200			900	X	X	X	939	950	950
IR45/1050/1200			1050				1089	1100	1100

For Outside Riser change IR to OR

Example of a Speedway 30° inside riser part number is as follows:

SW6/IR30/600/450/SS

Speedway SW6 Inside Riser,
30°, 600mm Wide, 450mm Radius,
Stainless Steel

Example of a Speedway 45° outside riser part number is as follows:

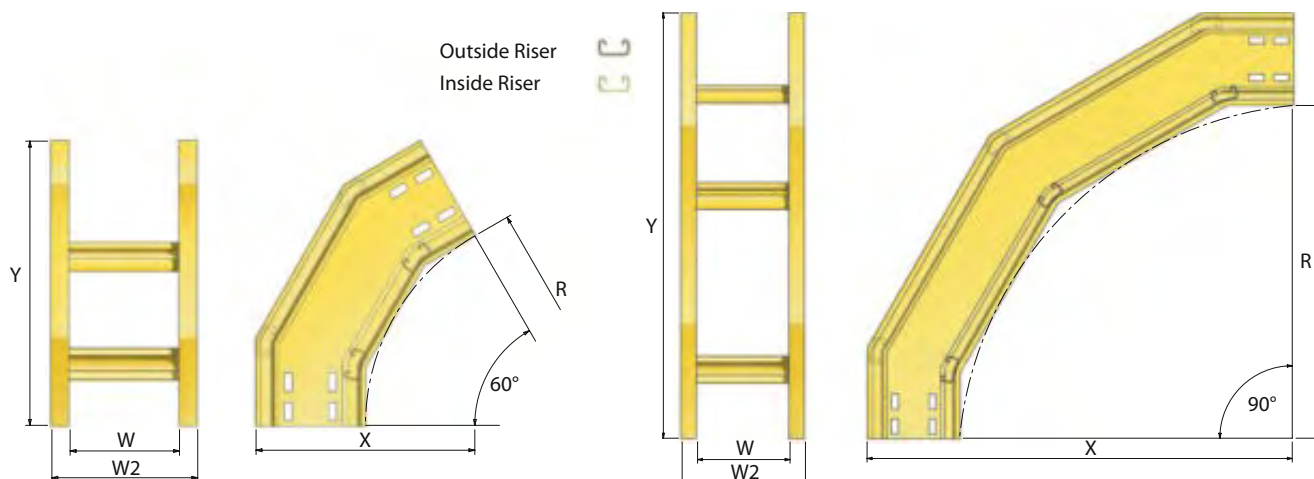
SW5/OR45/900/1050/GA

Speedway SW5 Outside Riser,
45°, 900mm Wide, 1050mm Radius,

Hot Dip Galvanized Finish

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Speedway 60° Inside & Outside Risers

Part Number	Radius R mm	No of Rungs	Width W mm	X & Y mm			W2 mm		
				SW4	SW5	SW6	SW4	SW5	SW6
IR60/150/300	300	2	150				189	200	200
IR60/300/300			300	349	368	390	339	350	350
IR60/450/300			450	Y	Y	Y	489	500	500
IR60/600/300			600	254	275	300	639	650	650
IR60/750/300			750	X	X	X	789	800	800
IR60/900/300			900	X	X	X	939	950	950
IR60/1050/300			1050				1089	1100	1100
IR60/150/450	450	2	150				189	200	200
IR60/300/450			300	479	498	520	339	350	350
IR60/450/450			450	Y	Y	Y	489	500	500
IR60/600/450			600	329	350	375	639	650	650
IR60/750/450			750	X	X	X	789	800	800
IR60/900/450			900	X	X	X	939	950	950
IR60/1050/450			1050				1089	1100	1100
IR60/150/600	600	3	150				189	200	200
IR60/300/600			300	609	628	650	339	350	350
IR60/450/600			450	Y	Y	Y	489	500	500
IR60/600/600			600	404	425	450	639	650	650
IR60/750/600			750	X	X	X	789	800	800
IR60/900/600			900	X	X	X	939	950	950
IR60/1050/600			1050				1089	1100	1100
IR60/150/750	750	3	150				189	200	200
IR60/300/750			300	739	758	779	339	350	350
IR60/450/750			450	Y	Y	Y	489	500	500
IR60/600/750			600	479	500	525	639	650	650
IR60/750/750			750	X	X	X	789	800	800
IR60/900/750			900	X	X	X	939	950	950
IR60/1050/750			1050				1089	1100	1100
IR60/150/900	900	4	150				189	200	200
IR60/300/900			300	869	888	909	339	350	350
IR60/450/900			450	Y	Y	Y	489	500	500
IR60/600/900			600	554	575	600	639	650	650
IR60/750/900			750	X	X	X	789	800	800
IR60/900/900			900	X	X	X	939	950	950
IR60/1050/900			1050				1089	1100	1100
IR60/150/1050	1050	4	150				189	200	200
IR60/300/1050			300	999	1018	1093	339	350	350
IR60/450/1050			450	Y	Y	Y	489	500	500
IR60/600/1050			600	629	650	675	639	650	650
IR60/750/1050			750	X	X	X	789	800	800
IR60/900/1050			900	X	X	X	939	950	950
IR60/1050/1050			1050				1089	1100	1100
IR60/150/1200	1200	5	150				189	200	200
IR60/300/1200			300	1129	1147	1169	339	350	350
IR60/450/1200			450	Y	Y	Y	489	500	500
IR60/600/1200			600	704	725	750	639	650	650
IR60/750/1200			750	X	X	X	789	800	800
IR60/900/1200			900	X	X	X	939	950	950
IR60/1050/1200			1050				1089	1100	1100

For Outside Riser change IR to OR

Speedway 90° Inside & Outside Risers

Part Number	Radius R mm	No of Rungs	Width W mm	X & Y mm			W2 mm		
				SW4	SW5	SW6	SW4	SW5	SW6
IR90/150/300	300	3	150				189	200	200
IR90/300/300			300				339	350	350
IR90/450/300			450	Y	Y	Y	489	500	500
IR90/600/300			600	404	425	450	639	650	650
IR90/750/300			750	X	X	X	789	800	800
IR90/900/300			900	X	X	X	939	950	950
IR90/1050/300			1050				1089	1100	1100
IR90/150/450	450	3	150				189	200	200
IR90/300/450			300	554	575	600	339	350	350
IR90/450/450			450	Y	Y	Y	489	500	500
IR90/600/450			600	554	575	600	639	650	650
IR90/750/450			750	X	X	X	789	800	800
IR90/900/450			900	X	X	X	939	950	950
IR90/1050/450			1050				1089	1100	1100
IR90/150/600	600	4	150				189	200	200
IR90/300/600			300	704	725	750	339	350	350
IR90/450/600			450	Y	Y	Y	489	500	500
IR90/600/600			600	704	725	750	639	650	650
IR90/750/600			750	X	X	X	789	800	800
IR90/900/600			900	X	X	X	939	950	950
IR90/1050/600			1050				1089	1100	1100
IR90/150/750	750	5	150				189	200	200
IR90/300/750			300	854	875	900	339	350	350
IR90/450/750			450	Y	Y	Y	489	500	500
IR90/600/750			600	854	875	900	639	650	650
IR90/750/750			750	X	X	X	789	800	800
IR90/900/750			900	X	X	X	939	950	950
IR90/1050/750			1050				1089	1100	1100
IR90/150/900	900	6	150				189	200	200
IR90/300/900			300	1004	1025	1050	339	350	350
IR90/450/900			450	Y	Y	Y	489	500	500
IR90/600/900			600	1004	1025	1050	639	650	650
IR90/750/900			750	X	X	X	789	800	800
IR90/900/900			900	X	X	X	939	950	950
IR90/1050/900			1050				1089	1100	1100
IR90/150/1050	1050	6	150				189	200	200
IR90/300/1050			300	1154	1175	1200	339	350	350
IR90/450/1050			450	Y	Y	Y	489	500	500
IR90/600/1050			600	1154	1175	1200	639	650	650
IR90/750/1050			750	X	X	X	789	800	800
IR90/900/1050			900	X	X	X	939	950	950
IR90/1050/1050			1050				1089	1100	1100
IR90/150/1200	1200	7	150				189	200	200
IR90/300/1200			300	1304	1325	1350	339	350	350
IR90/450/1200			450	Y	Y	Y	489	500	500
IR90/600/1200			600	1304	1325	1350	639	650	650
IR90/750/1200			750	X	X	X	789	800	800
IR90/900/1200			900	X	X	X	939	950	950
IR90/1050/1200			1050				1089	1100	1100

For Outside Riser change IR to OR

Example of a Speedway 60° outside riser part number is as follows:

SW5/OR60/450/900/GX

Speedway SW5 Outside Riser,
60°, 450mm Wide, 900mm Radius,

Deep Galvanized Finish.

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Example of a Speedway 90° inside riser part number is as follows:

SW4/IR90/300/750/GA

Speedway SW4 Inside Riser, 90°,
300mm Wide, 750mm Radius, Hot

Dip Galvanized Finish.

Speedway articulated risers (AR) are designed to create adjustable angular non-coplanar connections between Speedway cable runs and can be used in both vertical and horizontal orientations.

Speedway articulated risers consist of pre-assembled units, each comprising of end connectors and one or more middle sections which can be adjusted on site to suit specific installation requirements.

The articulated riser has a number of advantages over fixed risers:

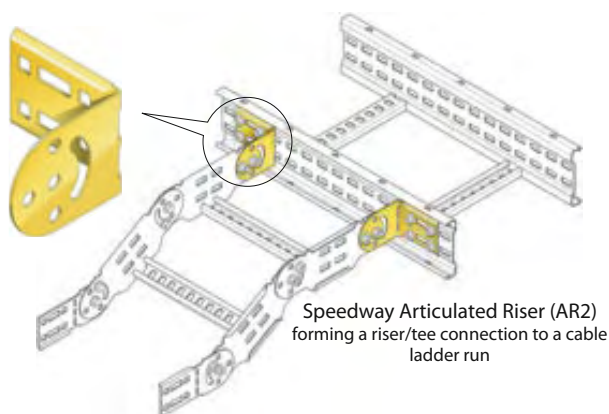
- universal application – there is no requirement to select both inside and outside risers.
- any number of middle sections can be added to achieve very large radii and allow strong support along an undulating cable route.
- the pattern of fixing holes allows for infinite angle and radius adjustment.
- can be used to form a bridge, an 'S' bend, or an offset to suit installation routing problems on site.
- the end connectors are vertical adjustable couplers and, by using the easi-bend slots, can be adjusted on site to create combined horizontal & vertical offset connections, or combined riser/tee connections onto

the

side wall of a main run.

Speedway articulated risers are available in widths from 150mm to 1050mm as standard.

Intended to be locked into place after installation, the Speedway articulated riser is not designed to allow for relative movement between adjacent cable runs.



Order details are as follows:

Ladder Type / AR + No. of Segments / Width / Finish & Material.

SW6/AR3/900/SS Speedway SW6 Articulated Riser,
3 Segment, 900mm Wide, Stainless Steel.

Articulated risers for Speedway SW4 & SW5 are common – order as follows:

SW4/5/AR1/300/GX Speedway SW4/5 Articulated Riser,
1 Segment, 300mm Wide, Deep Galvanized

Finish.

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Speedway Articulated Riser (AR1)
arranged to form an inside riser



Speedway Articulated Riser (AR3)
arranged to form a large radius inside riser



Speedway Articulated Riser (AR3)
arranged to form a bridge

The following table shows the combination of angle and radius which can be formed for a number of differing middle sections. The radius for both the inside and outside articulated riser is measured relative to the rung position.

Speedway Articulated Risers - Angle & Section Details						
Part Number	Angle	No of Sections	Radius R mm			
			Inside Articulated Risers		Outside Articulated Risers	
			SW4 & SW5	SW6	SW4 & SW5	SW6
AR1	30	1	1148	1160	1070	1058
AR2		2	1718	1731	1640	1628
AR3		3	2327	2340	2250	2237
AR1	45	1	781	793	737	724
AR2		2	1163	1176	1122	1109
AR3		3	1562	1574	1484	1472
AR4	60	4	1945	1957	1867	1855
AR1		1	592	605	514	502
AR2		2	882	894	804	791
AR3	90	3	1178	1191	1100	1088
AR4		4	1466	1479	1388	1376
AR5		5	1753	1766	1676	1663
AR6	120	6	2041	2053	1963	1950
AR1		1	399	411	330	318
AR2		2	596	608	527	515
AR3	150	3	793	806	715	703
AR4		4	986	998	908	896
AR5		5	1178	1191	1100	1088
AR6	180	6	1370	1383	1292	1280
AR7		7	1562	1574	1484	1472
AR8		8	1753	1766	1676	1663

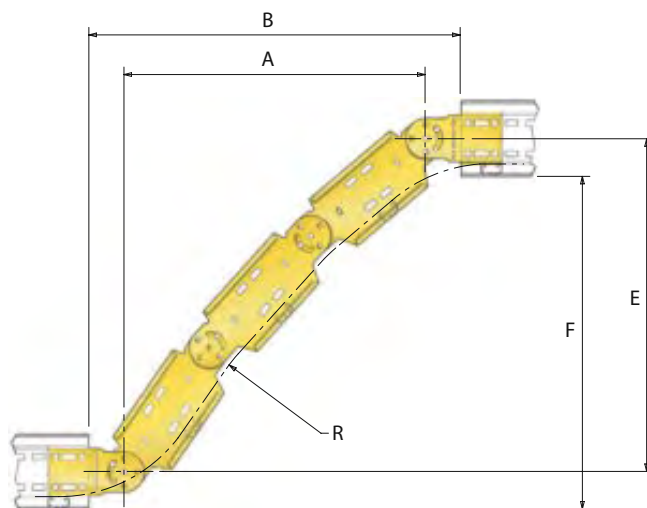
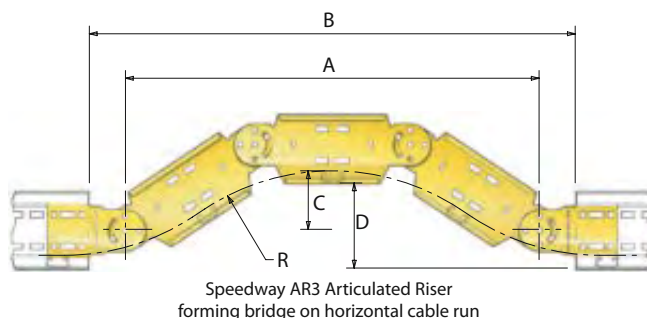
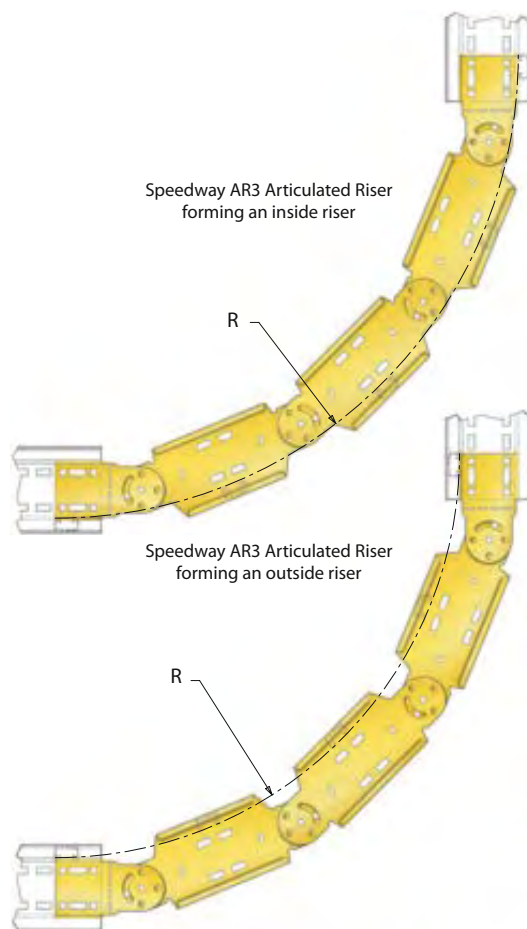
When using the Speedway articulated riser as a bridge the following dimensions should be used as a guide.

Speedway Articulated Risers - Bridge Dimensions							
Part Number	Radius R mm	No of Sections	A mm	B mm	C mm	D mm	
AR3	300	3	715	855	165	SW4/5	SW6
AR3	450	3	801	941	113	152	164
AR4	450	4	961	1101	242	251	293
AR3	600	3	840	980	80	118	131

The following table gives the maximum horizontal and vertical offsets which can be achieved for articulated risers with 1 to 4 sections whilst maintaining a radius of 300mm relative to the rung position.

Speedway Articulated Risers - Vertical Offset Dimensions							
Part Number	Radius R mm	No of Sections	A mm	B mm	E mm	F mm	
AR1	300	1	216	356	208	SW4/5	SW6
AR2		2	399	539	441	416	441
AR3		3	600	740	663	638	663
AR4		4	823	963	865	840	865

Consult our Technical Team for further offset dimensional information and guidance in the selection of the correct number of middle sections. ■



Speedway equal tees (ET) and unequal tees (UT) are designed to create perpendicular coplanar connections between horizontal cable runs (ladder installed in horizontal plane) and between vertical cable runs (ladder installed in vertical plane).

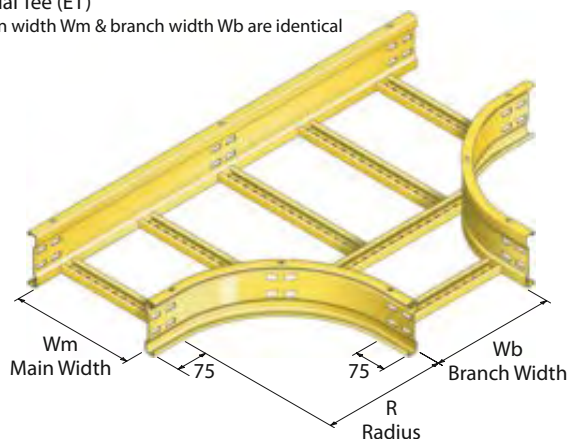
Speedway tees are available in widths from 150mm to 1050mm as standard. Speedway tees are available with standard radii of 300mm, 450mm, 600mm, 750mm, 900mm, 1050mm & 1200mm. 300mm radius tees are stocked as standard and are supplied unless otherwise specified.

The radius of the Speedway tee is measured relative to the rung position. The widths of the Speedway tee are measured along the length of the outermost rung on each branch. These measurements ensure that the Speedway tee has exact widths and radii to match the Speedway straight ladder and other Speedway fittings.

The Speedway tee radiused side walls are manufactured with a repeatable and true radius which eliminates the traditional approach of 'make it fit' during installation. Each radiused side wall has a 75mm straight section at each end to facilitate connection to straight ladder and other fittings using the standard range of Speedway couplers.

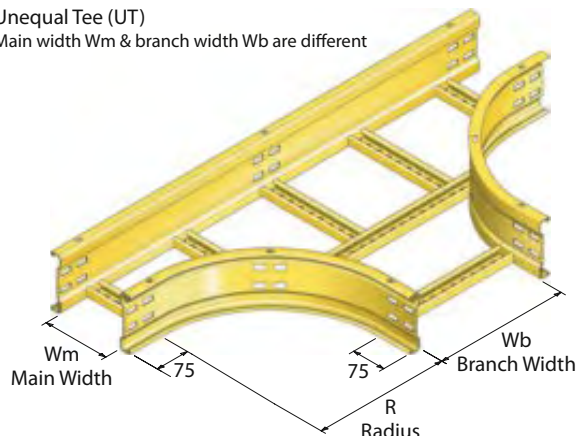
Equal Tee (ET)

Main width Wm & branch width Wb are identical



Unequal Tee (UT)

Main width Wm & branch width Wb are different



See the following pages for examples of product codes and ordering details.

Contact our Sales Team for availability on non-standard equal tee & unequal tee configurations.

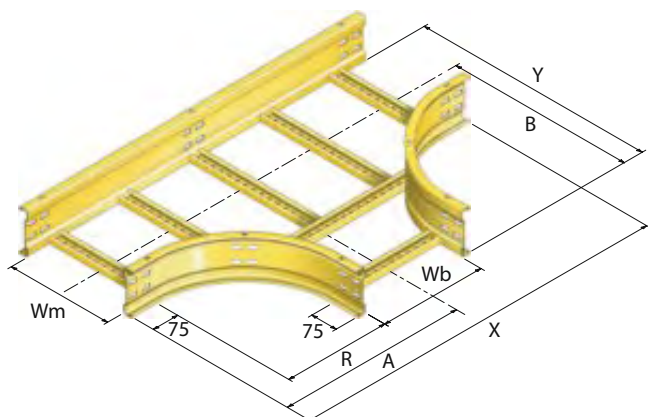
The rungs in the Speedway tees are spaced to give a maximum linear distance of no more than 465mm between adjacent rungs/rungs on adjacent ladder and fittings. The rungs are orientated with the open face uppermost to suit the use of cleats and similar cable restraint devices. This allows compliance with current recommendations for cable restraint, especially where cables are used which have a high potential fault current level.

Tees have a primary or main width (Wm) and a secondary or branch width (Wb). Tees with the same primary and secondary widths are called equal tees. Tees with differing main and branch widths are called unequal tees.

Speedway 300mm Radius Tees

Part Number	Type	Dimensions mm						
		R	Wm	Wb	A	B	X	Y
ET/150	150mm Branch	300	150	150	450	450	900	525
UT/300/150		300	300	150	450	525	900	675
UT/450/150		300	450	150	450	600	900	825
UT/600/150		300	600	150	450	675	900	975
UT/750/150		300	750	150	450	750	900	1125
UT/900/150		300	900	150	450	825	900	1275
UT/1050/150		300	1050	150	450	900	900	1425
UT/150/300	300mm Branch	300	150	300	525	450	1050	525
ET/300		300	300	300	525	525	1050	675
UT/450/300		300	450	300	525	600	1050	825
UT/600/300		300	600	300	525	675	1050	975
UT/750/300		300	750	300	525	750	1050	1125
UT/900/300		300	900	300	525	825	1050	1275
UT/1050/300		300	1050	300	525	900	1050	1425
UT/150/450	450mm Branch	300	150	450	600	450	1200	525
UT/300/450		300	300	450	600	525	1200	675
ET/450		300	450	450	600	600	1200	825
UT/600/450		300	600	450	600	675	1200	975
UT/750/450		300	750	450	600	750	1200	1125
UT/900/450		300	900	450	600	825	1200	1275
UT/1050/450		300	1050	450	600	900	1200	1425
UT/150/600	600mm Branch	300	150	600	675	450	1350	525
UT/300/600		300	300	600	675	525	1350	675
UT/450/600		300	450	600	675	600	1350	825
ET/600		300	600	600	675	675	1350	975
UT/750/600		300	750	600	675	750	1350	1125
UT/900/600		300	900	600	675	825	1350	1275
UT/1050/600		300	1050	600	675	900	1350	1425
UT/150/750	750mm Branch	300	150	750	750	450	1500	525
UT/300/750		300	300	750	750	525	1500	675
UT/450/750		300	450	750	750	600	1500	825
UT/600/750		300	600	750	750	675	1500	975
ET/750		300	750	750	750	750	1500	1125
UT/900/750		300	900	750	750	825	1500	1275
UT/1050/750		300	1050	750	750	900	1500	1425
UT/150/900	900mm Branch	300	150	900	825	450	1650	525
UT/300/900		300	300	900	825	525	1650	675
UT/450/900		300	450	900	825	600	1650	825
UT/600/900		300	600	900	825	675	1650	975
UT/750/900		300	750	900	825	750	1650	1125
ET/900		300	900	900	825	825	1650	1275
UT/1050/900		300	1050	900	825	900	1650	1425
UT/150/1050	1050mm Branch	300	150	1050	900	450	1800	525
UT/300/1050		300	300	1050	900	525	1800	675
UT/450/1050		300	450	1050	900	600	1800	825
UT/600/1050		300	600	1050	900	675	1800	975
UT/750/1050		300	750	1050	900	750	1800	1125
UT/900/1050		300	900	1050	900	825	1800	1275
ET/1050		300	1050	1050	900	900	1800	1425

See page 27 for dimension notation.



Order details for equal tees are as follows:

Ladder Type / ET / Width / Radius / Finish & Material.

SW4/ET/450/300/SS Speedway SW4 Equal Tee, 450mm Wide, 300mm Radius, Stainless Steel.

Order details for unequal tees are as follows:

Ladder Type / UT / Main Width Wm / Branch Width Wb / Radius / Material & Finish.

SW6/UT/900/600/900/GA Speedway SW6 Unequal Tee, 900mm/600mm Wide, 900mm Radius, Hot Dip Galvanized Finish.

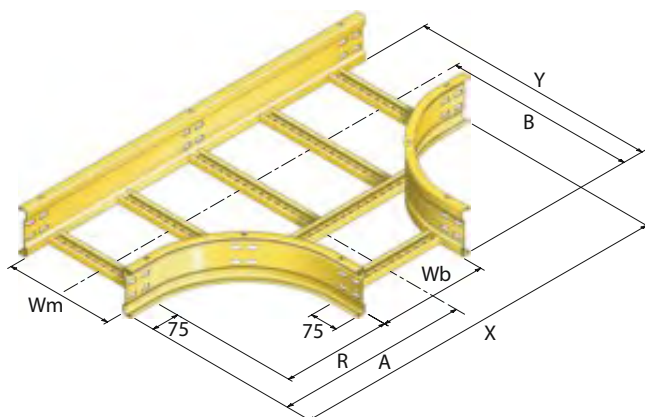
SW5/UT/300/750/450/GX Speedway SW5 Unequal Tee, 300mm/750mm Wide, 450mm Radius, Deep Galvanized Finish.

Speedway 450mm Radius Tees

Part Number	Type	Dimensions mm						
		R	Wm	Wb	A	B	X	Y
ET/150	150mm Branch	450	150	150	600	600	1200	675
UT/300/150		450	300	150	600	675	1200	825
UT/450/150		450	450	150	600	750	1200	975
UT/600/150		450	600	150	600	825	1200	1125
UT/750/150		450	750	150	600	900	1200	1275
UT/900/150		450	900	150	600	975	1200	1425
UT/1050/150		450	1050	150	600	1050	1200	1575
UT/150/300	300mm Branch	450	150	300	675	600	1350	675
ET/300		450	300	300	675	675	1350	825
UT/450/300		450	450	300	675	750	1350	975
UT/600/300		450	600	300	675	825	1350	1125
UT/750/300		450	750	300	675	900	1350	1275
UT/900/300		450	900	300	675	975	1350	1425
UT/1050/300		450	1050	300	675	1050	1350	1575
UT/150/450	450mm Branch	450	150	450	750	600	1500	675
UT/300/450		450	300	450	750	675	1500	825
ET/450		450	450	450	750	750	1500	975
UT/600/450		450	600	450	750	825	1500	1125
UT/750/450		450	750	450	750	900	1500	1275
UT/900/450		450	900	450	750	975	1500	1425
UT/1050/450		450	1050	450	750	1050	1500	1575
UT/150/600	600mm Branch	450	150	600	825	600	1650	675
UT/300/600		450	300	600	825	675	1650	825
UT/450/600		450	450	600	825	750	1650	975
ET/600		450	600	600	825	825	1650	1125
UT/750/600		450	750	600	825	900	1650	1275
UT/900/600		450	900	600	825	975	1650	1425
UT/1050/600		450	1050	600	825	1050	1650	1575
UT/150/750	750mm Branch	450	150	750	900	600	1800	675
UT/300/750		450	300	750	900	675	1800	825
UT/450/750		450	450	750	900	750	1800	975
UT/600/750		450	600	750	900	825	1800	1125
ET/750		450	750	750	900	900	1800	1275
UT/900/750		450	900	750	900	975	1800	1425
UT/1050/750		450	1050	750	900	1050	1800	1575
UT/150/900	900mm Branch	450	150	900	975	600	1950	675
UT/300/900		450	300	900	975	675	1950	825
UT/450/900		450	450	900	975	750	1950	975
UT/600/900		450	600	900	975	825	1950	1125
UT/750/900		450	750	900	975	900	1950	1275
ET/900		450	900	900	975	975	1950	1425
UT/1050/900		450	1050	900	975	1050	1950	1575
UT/150/1050	1050mm Branch	450	150	1050	1050	600	2100	675
UT/300/1050		450	300	1050	1050	675	2100	825
UT/450/1050		450	450	1050	1050	750	2100	975
UT/600/1050		450	600	1050	1050	825	2100	1125
UT/750/1050		450	750	1050	1050	900	2100	1275
UT/900/1050		450	900	1050	1050	975	2100	1425
ET/1050		450	1050	1050	1050	1050	2100	1575

Speedway 600mm Radius Tees

Part Number	Type	Dimensions mm						
		R	Wm	Wb	A	B	X	Y
ET/150	150mm Branch	600	150	150	750	750	1500	825
UT/300/150		600	300	150	750	825	1500	975
UT/450/150		600	450	150	750	900	1500	1125
UT/600/150		600	600	150	750	975	1500	1275
UT/750/150		600	750	150	750	1050	1500	1425
UT/900/150		600	900	150	750	1125	1500	1575
UT/1050/150		600	1050	150	750	1200	1500	1725
UT/150/300	300mm Branch	600	150	300	825	750	1650	825
ET/300		600	300	300	825	825	1650	975
UT/450/300		600	450	300	825	900	1650	1125
UT/600/300		600	600	300	825	975	1650	1275
UT/750/300		600	750	300	825	1050	1650	1425
UT/900/300		600	900	300	825	1125	1650	1575
UT/1050/300		600	1050	300	825	1200	1650	1725
UT/150/450	450mm Branch	600	150	450	900	750	1800	825
UT/300/450		600	300	450	900	825	1800	975
ET/450		600	450	450	900	900	1800	1125
UT/600/450		600	600	450	900	975	1800	1275
UT/750/450		600	750	450	900	1050	1800	1425
UT/900/450		600	900	450	900	1125	1800	1575
UT/1050/450		600	1050	450	900	1200	1800	1725
UT/150/600	600mm Branch	600	150	600	975	750	1950	825
UT/300/600		600	300	600	975	825	1950	975
UT/450/600		600	450	600	975	900	1950	1125
ET/600		600	600	600	975	975	1950	1275
UT/750/600		600	750	600	975	1050	1950	1425
UT/900/600		600	900	600	975	1125	1950	1575
UT/1050/600		600	1050	600	975	1200	1950	1725
UT/150/750	750mm Branch	600	150	750	1050	750	2100	825
UT/300/750		600	300	750	1050	825	2100	975
UT/450/750		600	450	750	1050	900	2100	1125
UT/600/750		600	600	750	1050	975	2100	1275
ET/750		600	750	750	1050	1050	2100	1425
UT/900/750		600	900	750	1050	1125	2100	1575
UT/1050/750		600	1050	750	1050	1200	2100	1725
UT/150/900	900mm Branch	600	150	900	1125	750	2250	825
UT/300/900		600	300	900	1125	825	2250	975
UT/450/900		600	450	900	1125	900	2250	1125
UT/600/900		600	600	900	1125	975	2250	1275
UT/750/900		600	750	900	1125	1050	2250	1425
ET/900		600	900	900	1125	1125	2250	1575
UT/1050/900		600	1050	900	1125	1200	2250	1725
UT/150/1050	1050mm Branch	600	150	1050	1200	750	2400	825
UT/300/1050		600	300	1050	1200	825	2400	975
UT/450/1050		600	450	1050	1200	900	2400	1125
UT/600/1050		600	600	1050	1200	975	2400	1275
UT/750/1050		600	750	1050	1200	1050	2400	1425
UT/900/1050		600	900	1050	1200	1125	2400	1575
ET/1050		600	1050	1050	1200	1200	2400	1725



Example of a Speedway unequal tee part number is as follows:

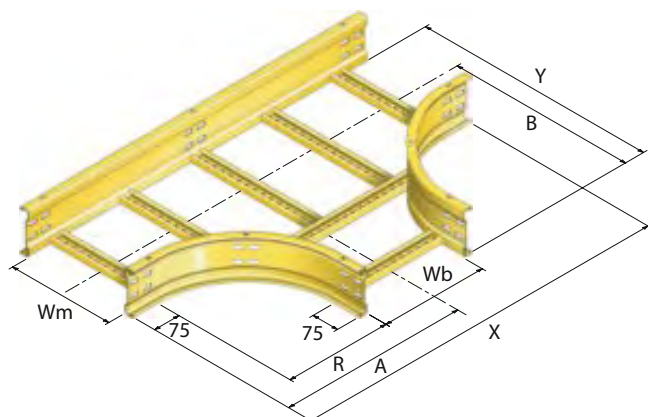
SW6/UT/600/900/900/GX Speedway SW6 Unequal Tee,
600/900mm Wide, 900mm Radius,
Deep Galvanized Finish.

Speedway 750mm Radius Tees

Part Number	Type	Dimensions mm					
		R	Wm	Wb	A	B	Y
ET/150	150mm Branch	750	150	150	900	900	1800
UT/300/150		750	300	150	900	975	1800
UT/450/150		750	450	150	900	1050	1800
UT/600/150		750	600	150	900	1125	1800
UT/750/150		750	750	150	900	1200	1800
UT/900/150		750	900	150	900	1275	1800
UT/1050/150		750	1050	150	900	1350	1800
UT/150/300	300mm Branch	750	150	300	975	900	1950
ET/300		750	300	300	975	975	1950
UT/450/300		750	450	300	975	1050	1950
UT/600/300		750	600	300	975	1125	1950
UT/750/300		750	750	300	975	1200	1950
UT/900/300		750	900	300	975	1275	1950
UT/1050/300		750	1050	300	975	1350	1950
UT/150/450	450mm Branch	750	150	450	1050	900	2100
UT/300/450		750	300	450	1050	975	2100
ET/450		750	450	450	1050	1050	2100
UT/600/450		750	600	450	1050	1125	2100
UT/750/450		750	750	450	1050	1200	2100
UT/900/450		750	900	450	1050	1275	2100
UT/1050/450		750	1050	450	1050	1350	2100
UT/150/600	600mm Branch	750	150	600	1125	900	2250
UT/300/600		750	300	600	1125	975	2250
UT/450/600		750	450	600	1125	1050	2250
ET/600		750	600	600	1125	1125	2250
UT/750/600		750	750	600	1125	1200	2250
UT/900/600		750	900	600	1125	1275	2250
UT/1050/600		750	1050	600	1125	1350	2250
UT/150/750	750mm Branch	750	150	750	1200	900	2400
UT/300/750		750	300	750	1200	975	2400
UT/450/750		750	450	750	1200	1050	2400
UT/600/750		750	600	750	1200	1125	2400
ET/750		750	750	750	1200	1200	2400
UT/900/750		750	900	750	1200	1275	2400
UT/1050/750		750	1050	750	1200	1350	2400
UT/150/900	900mm Branch	750	150	900	1275	900	2550
UT/300/900		750	300	900	1275	975	2550
UT/450/900		750	450	900	1275	1050	2550
UT/600/900		750	600	900	1275	1125	2550
UT/750/900		750	750	900	1275	1200	2550
ET/900		750	900	900	1275	1275	2550
UT/1050/900		750	1050	900	1275	1350	2550
UT/150/1050	1050mm Branch	750	150	1050	1350	900	2700
UT/300/1050		750	300	1050	1350	975	2700
UT/450/1050		750	450	1050	1350	1050	2700
UT/600/1050		750	600	1050	1350	1125	2700
UT/750/1050		750	750	1050	1350	1200	2700
UT/900/1050		750	900	1050	1350	1275	2700
ET/1050		750	1050	1050	1350	1350	2700

Speedway 900mm Radius Tees

Part Number	Type	Dimensions mm					
		R	Wm	Wb	A	B	Y
ET/150	150mm Branch	900	150	150	1050	1050	2100
UT/300/150		900	300	150	1050	1125	2100
UT/450/150		900	450	150	1050	1200	2100
UT/600/150		900	600	150	1050	1275	2100
UT/750/150		900	750	150	1050	1350	2100
UT/900/150		900	900	150	1050	1425	2100
UT/1050/150		900	1050	150	1050	1500	2100
UT/150/300	300mm Branch	900	150	300	1125	1050	2250
ET/300		900	300	300	1125	1125	2250
UT/450/300		900	450	300	1125	1200	2250
UT/600/300		900	600	300	1125	1275	2250
UT/750/300		900	750	300	1125	1350	2250
UT/900/300		900	900	300	1125	1425	2250
UT/1050/300		900	1050	300	1125	1500	2250
UT/150/450	450mm Branch	900	150	450	1200	1050	2400
UT/300/450		900	300	450	1200	1125	2400
ET/450		900	450	450	1200	1200	2400
UT/600/450		900	600	450	1200	1275	2400
UT/750/450		900	750	450	1200	1350	2400
UT/900/450		900	900	450	1200	1425	2400
UT/1050/450		900	1050	450	1200	1500	2400
UT/150/600	600mm Branch	900	150	600	1275	1050	2550
UT/300/600		900	300	600	1275	1125	2550
UT/450/600		900	450	600	1275	1200	2550
ET/600		900	600	600	1275	1275	2550
UT/750/600		900	750	600	1275	1350	2550
UT/900/600		900	900	600	1275	1425	2550
UT/1050/600		900	1050	600	1275	1500	2550
UT/150/750	750mm Branch	900	150	750	1350	1050	2700
UT/300/750		900	300	750	1350	1125	2700
UT/450/750		900	450	750	1350	1200	2700
UT/600/750		900	600	750	1350	1275	2700
ET/750		900	750	750	1350	1350	2700
UT/900/750		900	900	750	1350	1425	2700
UT/1050/750		900	1050	750	1350	1500	2700
UT/150/900	900mm Branch	900	150	900	1425	1050	2850
UT/300/900		900	300	900	1425	1125	2850
UT/450/900		900	450	900	1425	1200	2850
UT/600/900		900	600	900	1425	1275	2850
UT/750/900		900	750	900	1425	1350	2850
ET/900		900	900	900	1425	1425	2850
UT/1050/900		900	1050	900	1425	1500	2850
UT/150/1050	1050mm Branch	900	150	1050	1500	1050	3000
UT/300/1050		900	300	1050	1500	1125	3000
UT/450/1050		900	450	1050	1500	1200	3000
UT/600/1050		900	600	1050	1500	1275	3000
UT/750/1050		900	750	1050	1500	1350	3000
UT/900/1050		900	900	1050	1500	1425	3000
ET/1050		900	1050	1050	1500	1500	3000



Example of a Speedway equal tee part number is as follows:

SW5/ET/300/600/GA Speedway SW5 Equal Tee, 300mm Wide, 600mm Radius, Hot Dip Galvanized Finish.

Speedway 1050mm Radius Tees								
Part Number	Type	Dimensions mm						
		R	Wm	Wb	A	B	X	Y
ET/150	150mm Branch	1050	150	150	1200	1200	2400	1275
UT/300/150		1050	300	150	1200	1275	2400	1425
UT/450/150		1050	450	150	1200	1350	2400	1575
UT/600/150		1050	600	150	1200	1425	2400	1725
UT/750/150		1050	750	150	1200	1500	2400	1875
UT/900/150		1050	900	150	1200	1575	2400	2025
UT/1050/150		1050	1050	150	1200	1650	2400	2175
UT/150/300	300mm Branch	1050	150	300	1275	1200	2550	1275
ET/300		1050	300	300	1275	1275	2550	1425
UT/450/300		1050	450	300	1275	1350	2550	1575
UT/600/300		1050	600	300	1275	1425	2550	1725
UT/750/300		1050	750	300	1275	1500	2550	1875
UT/900/300		1050	900	300	1275	1575	2550	2025
UT/1050/300		1050	1050	300	1275	1650	2550	2175
UT/150/450	450mm Branch	1050	150	450	1350	1200	2700	1275
UT/300/450		1050	300	450	1350	1275	2700	1425
ET/450		1050	450	450	1350	1350	2700	1575
UT/600/450		1050	600	450	1350	1425	2700	1725
UT/750/450		1050	750	450	1350	1500	2700	1875
UT/900/450		1050	900	450	1350	1575	2700	2025
UT/1050/450		1050	1050	450	1350	1650	2700	2175
UT/150/600	600mm Branch	1050	150	600	1425	1200	2850	1275
UT/300/600		1050	300	600	1425	1275	2850	1425
UT/450/600		1050	450	600	1425	1350	2850	1575
ET/600		1050	600	600	1425	1425	2850	1725
UT/750/600		1050	750	600	1425	1500	2850	1875
UT/900/600		1050	900	600	1425	1575	2850	2025
UT/1050/600		1050	1050	600	1425	1650	2850	2175
UT/150/750	750mm Branch	1050	150	750	1500	1200	3000	1275
UT/300/750		1050	300	750	1500	1275	3000	1425
UT/450/750		1050	450	750	1500	1350	3000	1575
UT/600/750		1050	600	750	1500	1425	3000	1725
ET/750		1050	750	750	1500	1500	3000	1875
UT/900/750		1050	900	750	1500	1575	3000	2025
UT/1050/750		1050	1050	750	1500	1650	3000	2175
UT/150/900	900mm Branch	1050	150	900	1575	1200	3150	1275
UT/300/900		1050	300	900	1575	1275	3150	1425
UT/450/900		1050	450	900	1575	1350	3150	1575
UT/600/900		1050	600	900	1575	1425	3150	1725
UT/750/900		1050	750	900	1575	1500	3150	1875
ET/900		1050	900	900	1575	1575	3150	2025
UT/1050/900		1050	1050	900	1575	1650	3150	2175
UT/150/1050	1050mm Branch	1050	150	1050	1650	1200	3300	1275
UT/300/1050		1050	300	1050	1650	1275	3300	1425
UT/450/1050		1050	450	1050	1650	1350	3300	1575
UT/600/1050		1050	600	1050	1650	1425	3300	1725
UT/750/1050		1050	750	1050	1650	1500	3300	1875
UT/900/1050		1050	900	1050	1650	1575	3300	2025
ET/1050		1050	1050	1050	1650	1650	3300	2175

Speedway 1200mm Radius Tees								
Part Number	Type	Dimensions mm						
		R	Wm	Wb	A	B	X	Y
ET/150	150mm Branch	1200	150	150	1350	1350	2700	1425
UT/300/150		1200	300	150	1350	1425	2700	1575
UT/450/150		1200	450	150	1350	1500	2700	1725
UT/600/150		1200	600	150	1350	1575	2700	1875
UT/750/150		1200	750	150	1350	1650	2700	2025
UT/900/150		1200	900	150	1350	1725	2700	2175
UT/1050/150		1200	1050	150	1350	1800	2700	2325
UT/150/300	300mm Branch	1200	150	300	1425	1350	2850	1425
ET/300		1200	300	300	1425	1425	2850	1575
UT/450/300		1200	450	300	1425	1500	2850	1725
UT/600/300		1200	600	300	1425	1575	2850	1875
UT/750/300		1200	750	300	1425	1650	2850	2025
UT/900/300		1200	900	300	1425	1725	2850	2175
UT/1050/300		1200	1050	300	1425	1800	2850	2325
UT/150/450	450mm Branch	1200	150	450	1500	1350	3000	1425
UT/300/450		1200	300	450	1500	1425	3000	1575
ET/450		1200	450	450	1500	1500	3000	1725
UT/600/450		1200	600	450	1500	1575	3000	1875
UT/750/450		1200	750	450	1500	1650	3000	2025
UT/900/450		1200	900	450	1500	1725	3000	2175
UT/1050/450		1200	1050	450	1500	1800	3000	2325
UT/150/600	600mm Branch	1200	150	600	1575	1350	3150	1425
UT/300/600		1200	300	600	1575	1425	3150	1575
UT/450/600		1200	450	600	1575	1500	3150	1725
ET/600		1200	600	600	1575	1575	3150	1875
UT/750/600		1200	750	600	1575	1650	3150	2025
UT/900/600		1200	900	600	1575	1725	3150	2175
UT/1050/600		1200	1050	600	1575	1800	3150	2325
UT/150/750	750mm Branch	1200	150	750	1650	1350	3300	1425
UT/300/750		1200	300	750	1650	1425	3300	1575
UT/450/750		1200	450	750	1650	1500	3300	1725
UT/600/750		1200	600	750	1650	1575	3300	1875
ET/750		1200	750	750	1650	1650	3300	2025
UT/900/750		1200	900	750	1650	1725	3300	2175
UT/1050/750		1200	1050	750	1650	1800	3300	2325
UT/150/900	900mm Branch	1200	150	900	1725	1350	3450	1425
UT/300/900		1200	300	900	1725	1425	3450	1575
UT/450/900		1200	450	900	1725	1500	3450	1725
UT/600/900		1200	600	900	1725	1575	3450	1875
UT/750/900		1200	750	900	1725	1650	3450	2025
ET/900		1200	900	900	1725	1725	3450	2175
UT/1050/900		1200	1050	900	1725	1800	3450	2325
UT/150/1050	1050mm Branch	1200	150	1050	1800	1350	3600	1425
UT/300/1050		1200	300	1050	1800	1425	3600	1575
UT/450/1050		1200	450	1050	1800	1500	3600	1725
UT/600/1050		1200	600	1050	1800	1575	3600	1875
UT/750/1050		1200	750	1050	1800	1650	3600	2025
UT/900/1050		1200	900	1050	1800	1725	3600	2175
ET/1050		1200	1050	1050	1800	1800	3600	2325



Speedway crosses (EC) are designed to create intersecting coplanar connections between horizontal cable runs (ladder installed in horizontal plane) and between vertical cable runs (ladder installed in vertical plane).

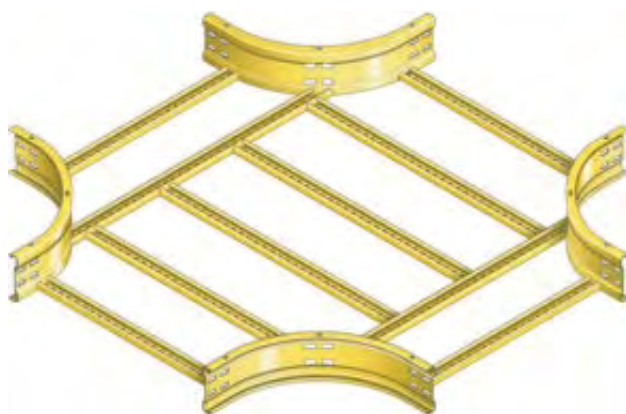
Speedway crosses are available in widths from 150mm to 1050mm as standard.

Speedway crosses are available with standard radii of 300mm, 450mm, 600mm, 750mm, 900mm, 1050mm & 1200mm. 300mm radius crosses are stocked as standard and are supplied unless otherwise specified.

The Speedway cross is manufactured with a repeatable and true radius which eliminates the traditional approach of 'make it fit' during installation. Each radiused side wall has a 75mm straight section at each end to facilitate connection to Speedway straight ladder and other Speedway fittings using the standard range of Speedway couplers.



Speedway Cross
(300mm wide 300mm radius)

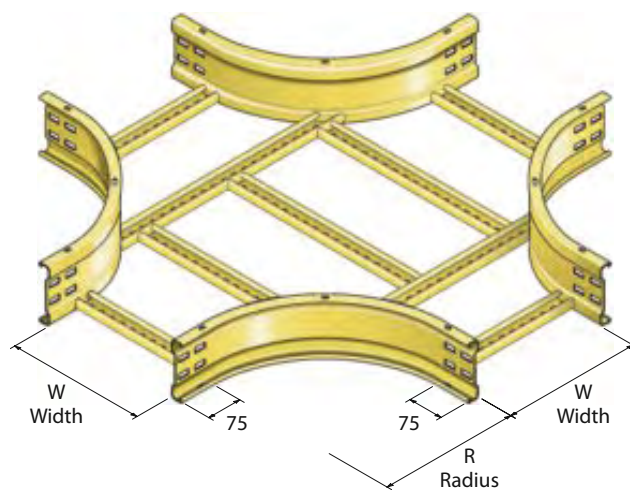


Speedway Cross
(600mm wide 300mm radius)

The radius of the Speedway cross is measured relative to the rung position. The width of the Speedway cross is measured along the length of the rung. These measurements ensure that the Speedway cross has an exact width and radius to match the Speedway straight ladder and other Speedway fittings.

Rungs in the Speedway crosses are spaced to give a maximum linear distance of no more than 465mm between adjacent rungs/rungs on adjacent ladder and fittings.

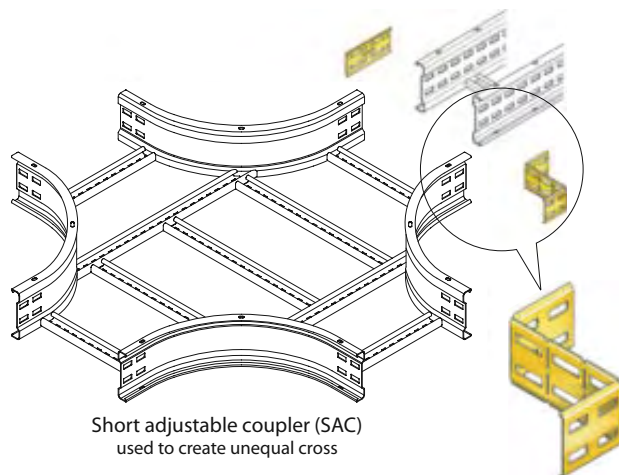
The rungs are orientated with the open face uppermost to suit the use of cleats and similar cable restraint devices. This allows compliance with current recommendations for cable restraint, especially where cables are used which have a high potential fault current level.



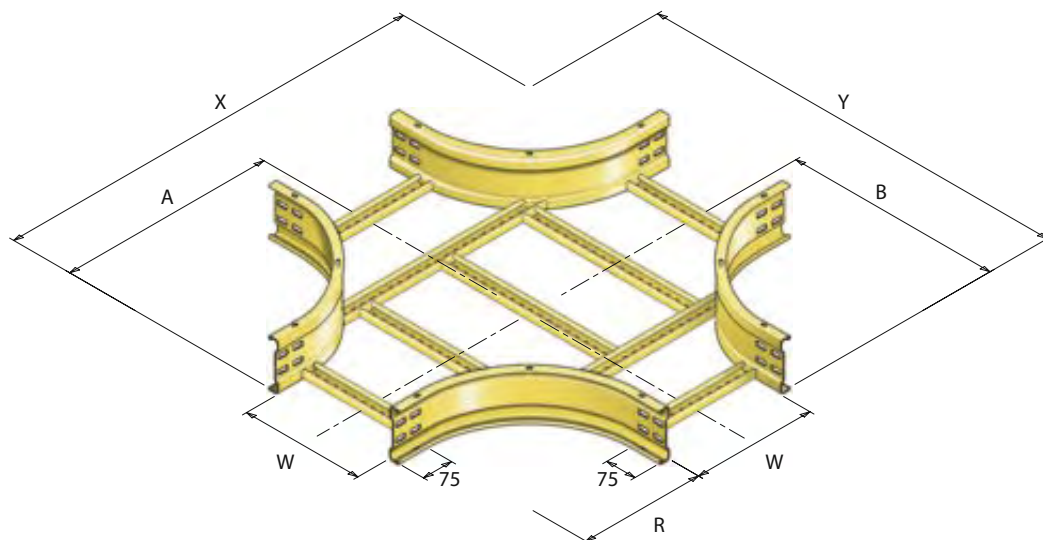
Speedway Cross
All branches have identical widths

Equal crosses, where the branches have identical widths, are supplied as standard. Short and long adjustable couplers, as well as abrupt reducers, can be used to convert equal crosses into unequal crosses. The short and long adjustable couplers give maximum width reductions of 150mm and 300mm respectively. Abrupt reducers can be used where larger width reductions are required.

Consult our Sales Team on the availability of non-standard crosses where differing branch widths and differing radii are required to suit specific installation requirements.



Short adjustable coupler (SAC)
used to create unequal cross



Speedway Crosses							
Part Number	Type	Dimensions mm					
		R	W	A	B	X	Y
EC/150/300	300mm Radius	300	150	450	450	900	900
EC/300/300		300	300	525	525	1050	1050
EC/450/300		300	450	600	600	1200	1200
EC/600/300		300	600	675	675	1350	1350
EC/750/300		300	750	750	750	1500	1500
EC/900/300		300	900	825	825	1650	1650
EC/1050/300	450mm Radius	300	1050	900	900	1800	1800
EC/150/450		450	150	600	600	1200	1200
EC/300/450		450	300	675	675	1350	1350
EC/450/450		450	450	750	750	1500	1500
EC/600/450		450	600	825	825	1650	1650
EC/750/450		450	750	900	900	1800	1800
EC/900/450	600mm Radius	450	900	975	975	1950	1950
EC/1050/450		450	1050	1050	1050	2100	2100
EC/150/600		600	150	750	750	1500	1500
EC/300/600		600	300	825	825	1650	1650
EC/450/600		600	450	900	900	1800	1800
EC/600/600		600	600	975	975	1950	1950
EC/750/600	750mm Radius	600	750	1050	1050	2100	2100
EC/900/600		600	900	1125	1125	2250	2250
EC/1050/600		600	1050	1200	1200	2400	2400
EC/150/750		750	150	900	900	1800	1800
EC/300/750		750	300	975	975	1950	1950
EC/450/750		750	450	1050	1050	2100	2100
EC/600/750	900mm Radius	750	600	1125	1125	2250	2250
EC/750/750		750	750	1200	1200	2400	2400
EC/900/750		750	900	1275	1275	2550	2550
EC/1050/750		750	1050	1350	1350	2700	2700
EC/150/900		900	150	1050	1050	2100	2100
EC/300/900		900	300	1125	1125	2250	2250
EC/450/900	1050mm Radius	900	450	1200	1200	2400	2400
EC/600/900		900	600	1275	1275	2550	2550
EC/750/900		900	750	1350	1350	2700	2700
EC/900/900		900	900	1425	1425	2850	2850
EC/1050/900		900	1050	1500	1500	3000	3000
EC/150/1050		1050	150	1200	1200	2400	2400
EC/300/1050	1200mm Radius	1050	300	1275	1275	2550	2550
EC/450/1050		1050	450	1350	1350	2700	2700
EC/600/1050		1050	600	1425	1425	2850	2850
EC/750/1050		1050	750	1500	1500	3000	3000
EC/900/1050		1050	900	1575	1575	3150	3150
EC/1050/1050		1050	1050	1650	1650	3300	3300
EC/150/1200		1200	150	1350	1350	2700	2700
EC/300/1200		1200	300	1425	1425	2850	2850
EC/450/1200		1200	450	1500	1500	3000	3000
EC/600/1200		1200	600	1575	1575	3150	3150
EC/750/1200		1200	750	1650	1650	3300	3300
EC/900/1200		1200	900	1725	1725	3450	3450
EC/1050/1200		1200	1050	1800	1800	3600	3600

Order details are as follows:

Ladder Type / EC / Width / Radius / Finish & Material.

SW4/EC/450/300/GA Speedway SW4 Cross, 450mm Wide, 300mm Radius, Hot Dip Galvanized Finish.

SW6/EC/900/600/SS Speedway SW6 Cross, 900mm Wide, 600mm Radius, Stainless Steel.

Contact our Sales Team for availability on non-standard cross configurations.

Examples of Speedway cross part numbers are as follows:

SW6/EC/300/600/GX Speedway SW6 Cross, 300mm Wide, 600mm Radius, Deep Galvanized Finish.

SW4/EC/750/300/SS Speedway SW4 Cross, 750mm Wide, 300mm Radius, Stainless Steel.

Speedway reducers are used to create coplanar reductions in widths between straight ladders and between straight ladder & fittings of the same ladder type, fulfilling the same role as abrupt reducers and short/long adjustable couplers but using a purpose-made fitting capable of self-support as part of a cable run.

Speedway straight reducers (RS reducer straight) are used to create a concentric reduction, having an equal width reduction along both sides. Left hand reducers (RL reducer left) and right hand reducers (RR reducer right) are used to create offset reductions to suit particular installation requirements. Left hand reducers have the width reduction on the left when viewed from the primary width. Right hand reducers have the width reduction on the right when viewed from the primary width.

Speedway reducers are available for widths of 150mm to 1050mm as standard. The widths of the Speedway reducer are measured along the length of the two rungs. These measurements ensure that the Speedway reducer has an exact width to match the Speedway straight ladder and other Speedway fittings. The Speedway reducer has an overall length of 500mm irrespective of ladder type and width reduction.

Each reducer has two rungs as standard. The reducer rungs are orientated with the open face uppermost to suit the use of cleats and similar cable restraint devices. This allows compliance with current recommendations for cable restraint, especially where cables are used which have a high potential fault current level.

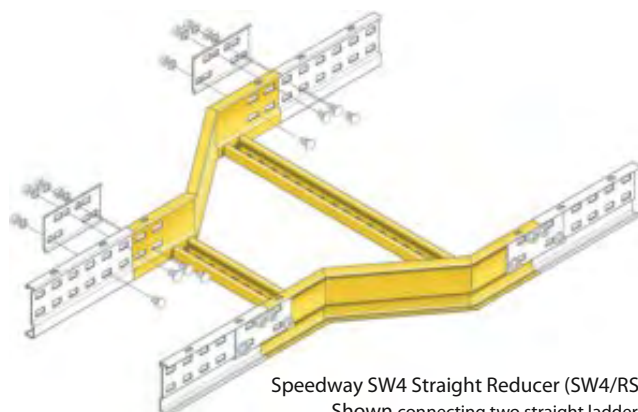
Order details are as follows:

Ladder Type / Reducer Type / Primary Width Wp / Secondary Width Ws / Finish & Material

SW6/RR/450/300/SS Speedway SW6 Reducer Right, 450mm to 300mm Wide, Stainless Steel

SW4/RS/600/150/GA Speedway SW6 Reducer Straight, 600mm to 150mm Wide, Hot Dip Galvanized Finish

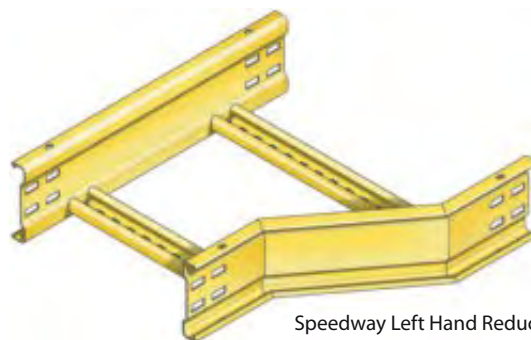
Contact our Sales Team for availability on non-standard reducer configurations.



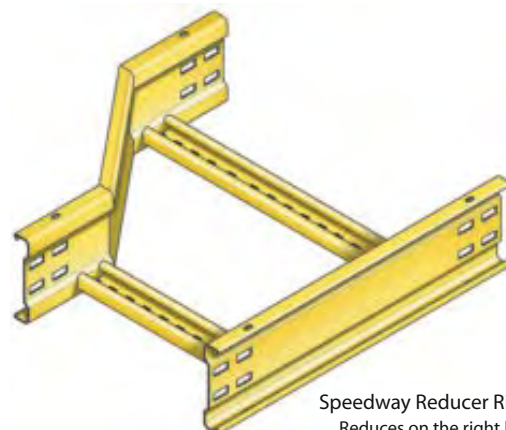
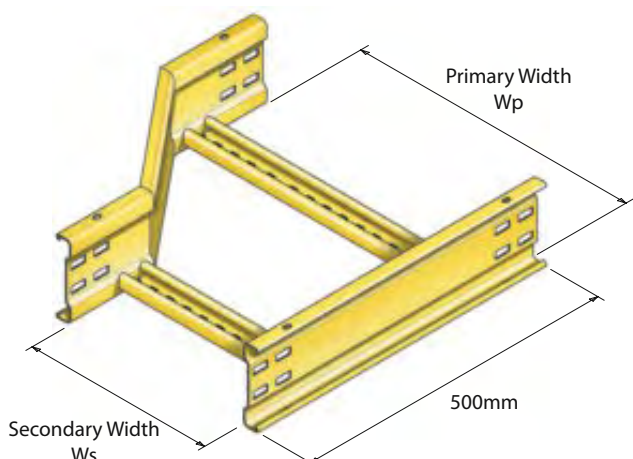
Speedway SW4 Straight Reducer (SW4/RS)
Shown connecting two straight ladders



Speedway Straight Reducer (RS)
Reduces equally on both sides



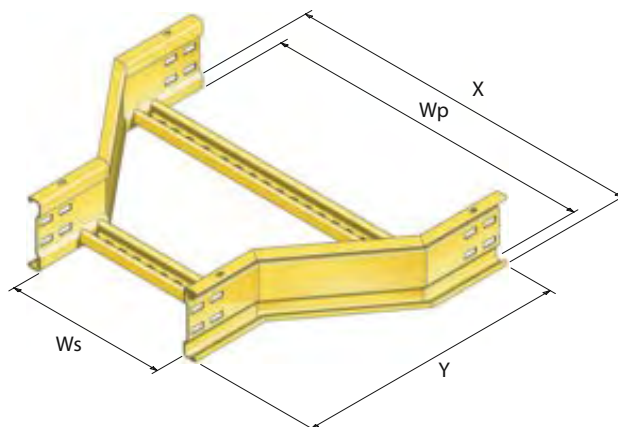
Speedway Left Hand Reducer (RL)
Reduces on the left hand side



Speedway Reducer Right (RR)
Reduces on the right hand side

Speedway Reducer Dimensions

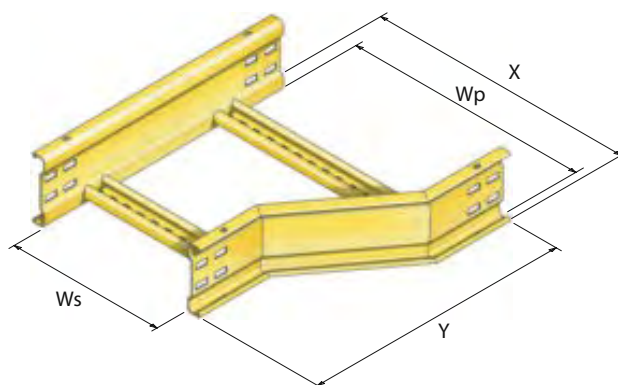
Type	Part Number	Dimensions mm				
		Wp	Ws	X		Y
				SW4	SW5 & SW6	
Reducer Straight (RS)	RS/300/150	300	150	339	350	500
	RS/450/150	450		489	500	
	RS/600/150	600		639	650	
	RS/750/150	750		789	800	
	RS/900/150	900		939	950	
	RS/1050/150	1050		1089	1100	
	RS/450/300	450	300	489	500	500
	RS/600/300	600		639	650	
	RS/750/300	750		789	800	
	RS/900/300	900		939	950	
	RS/1050/300	1050		1089	1100	
	RS/600/450	600	450	639	650	500
	RS/750/450	750		789	800	
	RS/900/450	900		939	950	
	RS/1050/450	1050		1089	1100	
	RS/750/600	750	600	789	800	500
	RS/900/600	900		939	950	
	RS/1050/600	1050		1089	1100	
	RS/900/750	900	750	939	950	500
	RS/1050/750	1050		1089	1100	
	RS/1050/900	1050	900	1089	1100	500
Reducer Left (RL)	RL/300/150	300	150	339	350	500
	RL/450/150	450		489	500	
	RL/600/150	600		639	650	
	RL/750/150	750		789	800	
	RL/900/150	900		939	950	
	RL/1050/150	1050		1089	1100	
	RL/450/300	450	300	489	500	500
	RL/600/300	600		639	650	
	RL/750/300	750		789	800	
	RL/900/300	900		939	950	
	RL/1050/300	1050		1089	1100	
	RL/600/450	600	450	639	650	500
	RL/750/450	750		789	800	
	RL/900/450	900		939	950	
	RL/1050/450	1050		1089	1100	
	RL/750/600	750	600	789	800	500
	RL/900/600	900		939	950	
	RL/1050/600	1050		1089	1100	
	RL/900/750	900	750	939	950	500
	RL/1050/750	1050		1089	1100	
	RL/1050/900	1050	900	1089	1100	500
Reducer Right (RR)	RR/300/150	300	150	339	350	500
	RR/450/150	450		489	500	
	RR/600/150	600		639	650	
	RR/750/150	750		789	800	
	RR/900/150	900		939	950	
	RR/1050/150	1050		1089	1100	
	RR/450/300	450	300	489	500	500
	RR/600/300	600		639	650	
	RR/750/300	750		789	800	
	RR/900/300	900		939	950	
	RR/1050/300	1050		1089	1100	
	RR/600/450	600	450	639	650	500
	RR/750/450	750		789	800	
	RR/900/450	900		939	950	
	RR/1050/450	1050		1089	1100	
	RR/750/600	750	600	789	800	500
	RR/900/600	900		939	950	
	RR/1050/600	1050		1089	1100	
	RR/900/750	900	750	939	950	500
	RR/1050/750	1050		1089	1100	
	RR/1050/900	1050	900	1089	1100	500



Speedway Straight Reducer (RS)

Example of a Speedway straight reducer is as follows:

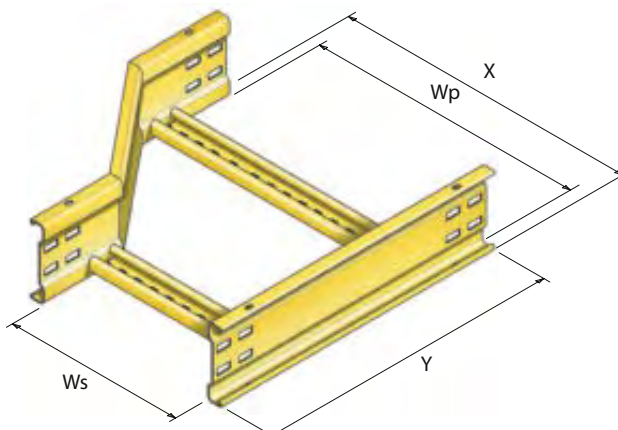
SW5/RS/900/300/GX Speedway SW5 Reducer Straight, 900mm to 300mm, Deep Galvanized Finish.



Speedway Reducer Left (RL)

Example of a Speedway left hand reducer is as follows:

SW4/RL/1050/750/SS Speedway SW4 Reducer Left, 1050mm to 750mm, Stainless Steel.



Speedway Reducer Right (RR)

Example of a Speedway right hand reducer is as follows:

SW6/RR/450/150/GA Speedway SW6 Reducer Right, 450mm to 150mm, Hot Dip Galvanized Finish. ■

The Speedway cable ladder system is complimented by a range of accessories designed to aid installation and to add additional functionality & flexibility to the Speedway cable ladder system.

From versatile fixing clamps and brackets to junction box mounting plates and instrumentation tubing clamp plates, the following accessories represent cost-effective & practical solutions to most installation requirements.

External Flange Clamp (EFC)

The external flange clamp (EFC) forms a simple but effective means of connecting Speedway cable ladder and fittings to the supporting structure.

Designed for use with either channel (BS 6946 strut type) or structural steelwork, the external flange clamp has an M10 clearance hole.

Forming a secure clamping attachment onto the bottom flange of the Speedway profile, the external flange clamp can be used with all Speedway SW4, SW5, & SW6 cable ladder and fittings.

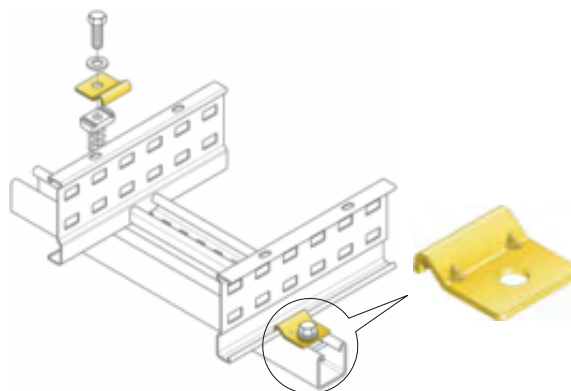
The external flange clamp is suitable for securing horizontal runs of Speedway cable ladder and fittings in the horizontal plane.

Safe working load 200kg per pair of external flange clamps when supporting edge mounted Speedway cable ladder.

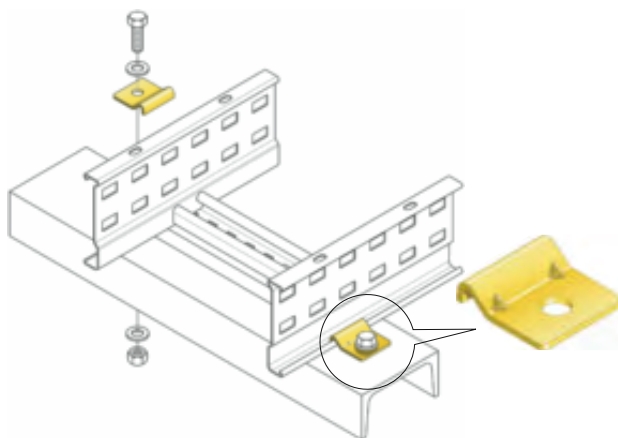
External flange clamps are not suitable for supporting Speedway cable ladder installed as part of a vertical run.



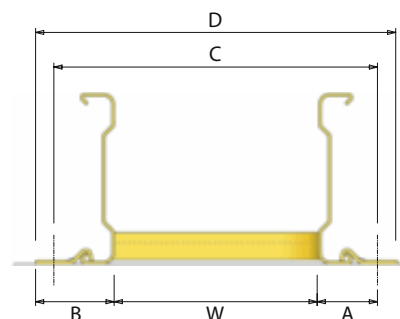
External Flange Clamp (EFC)



External flange clamp used to secure cable ladder to channel section (strut type)



External flange clamp used to secure cable ladder to structural section (requires M10 clearance hole or slot)



Order details are as follows:

SW / EFC / Finish & Material.

SW/EFC/GA Speedway External Flange Clamp, Hot Dip Galvanized Finish. ■

The following table gives the recommended fixing hole centres and general dimensions when using external flange clamps.

Speedway External Flange Clamp Installation Details				
Ladder Type	Dimensions mm			
	A	B	C	D
Speedway SW4	39.5	50	W+79	W+100
Speedway SW5	44.5	55	W+89	W+110
Speedway SW6				
W = Ladder Width				

Adaptable Fixing Bracket (AFB)

The Speedway adaptable fixing bracket (AFB) provides a bolted connection between the supporting structure and the Speedway cable ladder & fittings.

The adaptable fixing bracket is recommended for use in supporting vertical runs of Speedway cable ladder and fittings and for applications where the Speedway cable ladder is edge-mounted (i.e. installed in the vertical plane running horizontally).

The adaptable fixing bracket gives multiple fixing options for attaching and securing Speedway cable ladder and fittings. Forming a secure bolted connection into the lower row of slots, the adaptable fixing bracket is suitable for use with Speedway SW4, SW5, & SW6 cable ladder and fittings.

For those applications where space is limited, the adaptable fixing bracket can be fitted internally within the Speedway cable ladder. The unique design of the adaptable fixing bracket is such that there is no decrease in the effective loading area of the cable ladder when installed in this manner.

The adaptable fixing bracket can also be used singularly or in pairs to suspend Speedway cable ladder from threaded rod. For Speedway SW4 & SW5 cable ladder, the adaptable fixing bracket forms a simple but effective end connector to walls and floors.

The adaptable fixing bracket is supplied with one ladder fixing as standard.

Safe working load 300kg per pair of adaptable fixing brackets when supporting edge mounted Speedway cable ladder.

Safe working load 215 kg per pair of adaptable fixing brackets when supporting Speedway cable ladder installed as part of a vertical run.

Order details are as follows:

SW / AFB / Material & Finish.

SW/AFB/SS Speedway Adaptable Fixing Bracket, Stainless Steel.

Supplied complete with one ladder fixing, additional ladder fixings can be ordered separately as follows:

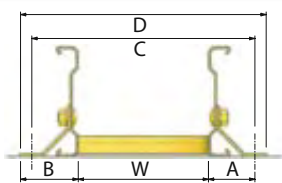
389AA31 Speedway Ladder Fixing Set – Hot Dip Galvanized.

389AA81 Speedway Ladder Fixing Set – Stainless Steel A4. ■

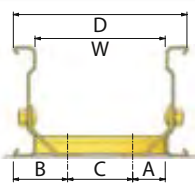
The following table gives the recommended fixing hole centres and general dimensions when using adaptable fixing brackets.

Speedway Adaptable Fixing Bracket Installation Details								
Ladder Type	Installed Externally				Installed Internally			
	A mm	B mm	C mm	D mm	A mm	B mm	C mm	D mm
Speedway SW4	51	64.5	W+102	W+129	41.5	62.5	W-83	W+39
Speedway SW5	53.5	67	W+107	W+138	39.5	65	W-79	W+50
Speedway SW6								

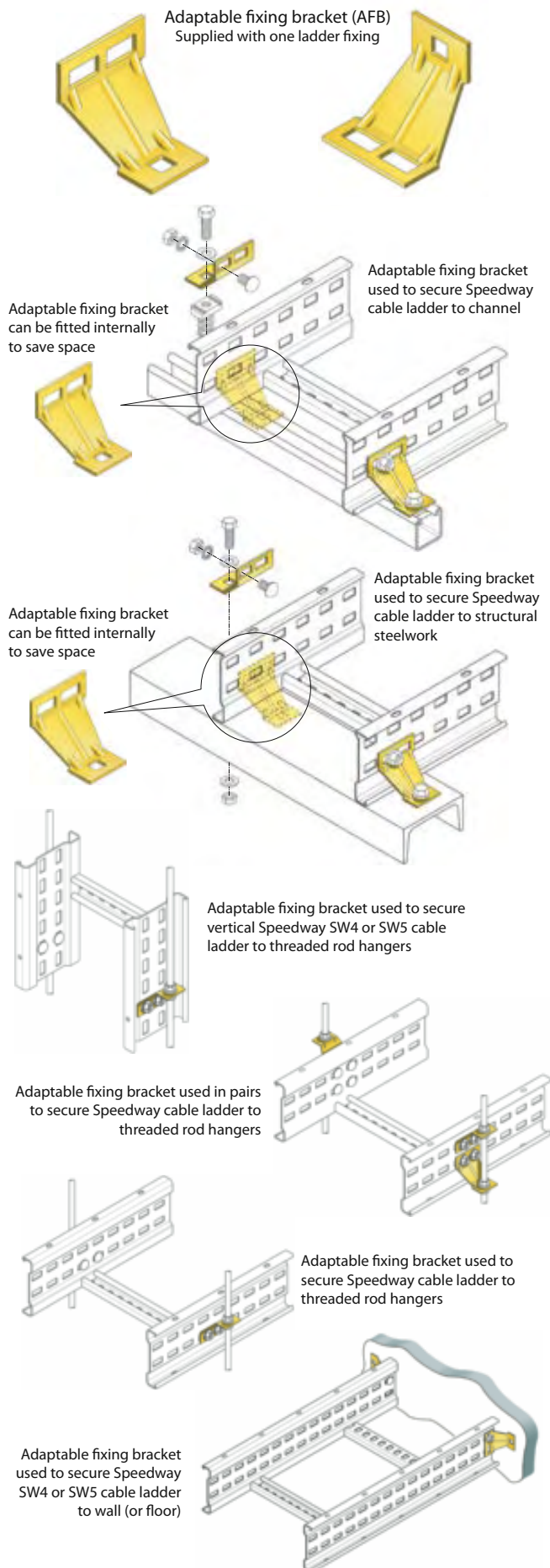
W = Ladder Width



Adaptable fixing bracket located externally on cable ladder



Adaptable fixing bracket located internally on cable ladder





Speedway Hold Down Bracket (HDB)

The Speedway hold down bracket (HDB) is a simple but effective means of securing Speedway cable ladder and fittings to the supporting structure. The hold down bracket has a single M10 clearance slot which allows for easy adjustment to suit pre-drilled fixing holes in the supporting structure. The hold down bracket is equally suited for installation on channel (BS 6946 strut type) or steelwork.

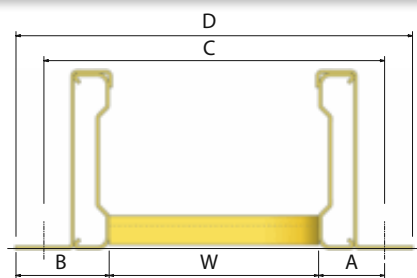
Safe working load 135kg per pair of hold down brackets when supporting edge mounted Speedway cable ladder.

Hold down brackets are not suitable for supporting Speedway cable ladder installed as part of a vertical run.

Speedway Hold Down Bracket Installation Details

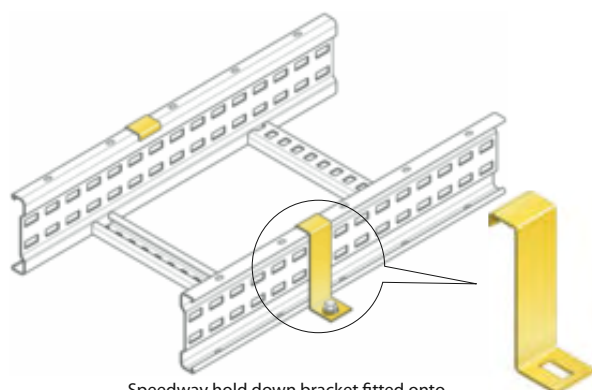
Ladder Type	Dimensions mm			
	A	B	C	D
Speedway SW4	39.5	59.5	W+79	W+119
Speedway SW5	45	65	W+90	W+130
Speedway SW6				

W = Ladder Width



25mm x 11.5mm slot

Speedway Hold Down Bracket (HDB)



Speedway hold down bracket fitted onto Speedway cable ladder

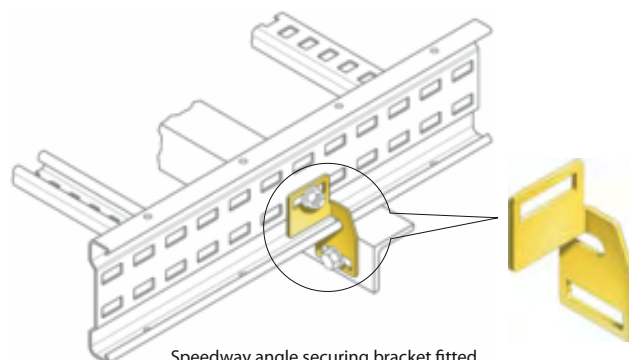
Angle Securing Bracket (ASB)

The Speedway angle securing bracket (ASB) is designed to connect Speedway SW4, SW5, & SW6 cable ladder to supporting structural angles. The 40mm x 11.5mm slots in both faces of the angle securing bracket make installation quick & easy (M10 fixing recommended). The angle securing bracket is supplied with one ladder fixing bracket as standard.

Speedway Angle Securing Bracket Installation Details

Dimensions mm			
Ladder Type	A	B	C
Speedway SW4	W + 35	W + 85	24
Speedway SW5	W + 36	W + 86	24
Speedway SW6			

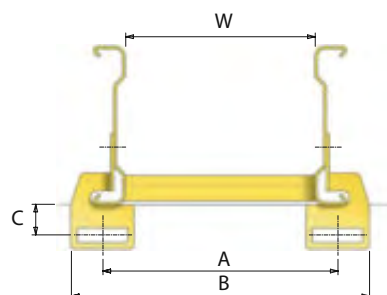
W = Ladder Width



Speedway angle securing bracket fitted onto Speedway cable ladder



Speedway Angle Securing Bracket (ASB)
Supplied with one ladder fixing.



Order details are as follows:

SW / ASB / Finish & Material.

SW/ASB/SS Speedway Angle Securing Bracket, Stainless Steel.

Supplied complete with one ladder fixing. ■

Order details are as follows:

Ladder Type / HDB / Finish & Material.

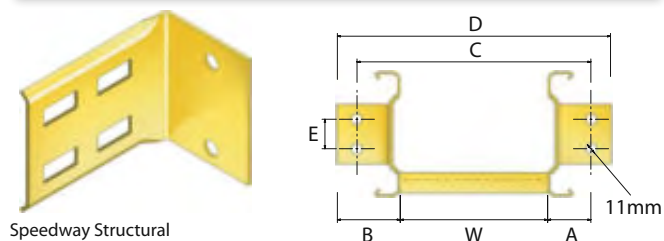
SW5/HDB/GA Speedway SW5 Hold Down Bracket, Hot Dip Galvanized Finish. ■

Structural Connector Bracket (SCB)

As an alternative to using a vertical adaptable coupler plate, the Speedway structural connector bracket (SCB) is specifically designed for connecting Speedway cable ladder runs to walls and floors.

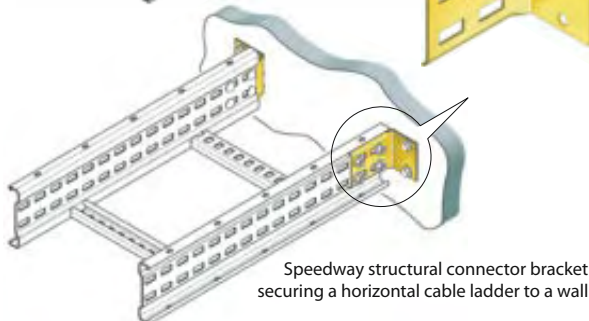
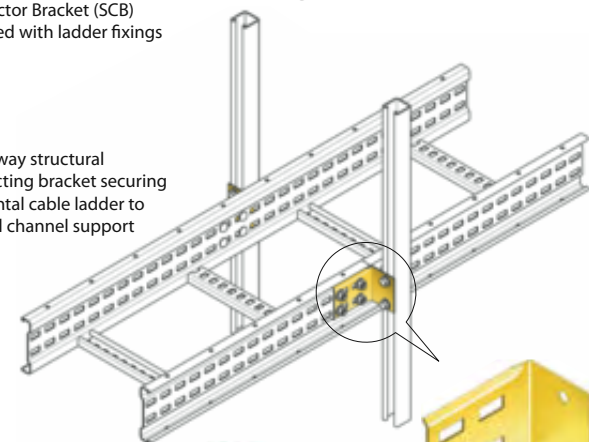
The structural connector bracket has two 11 mm diameter (M10 clearance) fixing holes and is supplied complete with all necessary ladder fixings.

Speedway Structural Connector Bracket Installation Details					
Ladder Type	Dimensions mm				
	A	B	C	D	E
Speedway SW4	46.5	66.5	W+93	W+133	30
Speedway SW5	47	67	W+94	W+134	30
Speedway SW6					55
W = Ladder Width					



Speedway Structural Connector Bracket (SCB)
Supplied with ladder fixings

Speedway structural connecting bracket securing horizontal cable ladder to vertical channel support



Speedway structural connector bracket securing a horizontal cable ladder to a wall

Order details are as follows:

Ladder Type / SCB / Finish & Material.

SW6/SCB/GA Speedway SW6 Structural Connector Bracket, Hot Dip Galvanized Finish.

Structural connector brackets for SW4 and SW5 are common, order as follows:

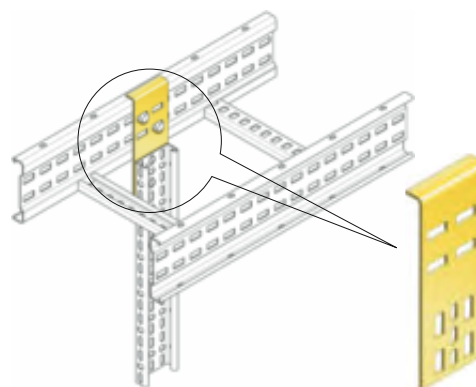
SW45/SCB/SS Speedway SW4/5 Structural Connector Bracket, Stainless Steel

Supplied complete with ladder fixings.

Drop Out Bracket (DOB)

The Speedway drop out bracket (DOB) facilitates connection of vertical ladder to horizontal ladder, allowing on-site use to form vertical tee connections.

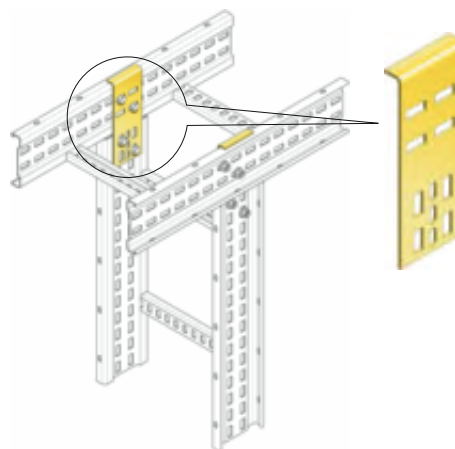
Additional slots in the drop out bracket allow secondary tray and other items to be attached to the cable ladder.



Speedway drop out bracket securing a vertical cable tray to a horizontal cable run



Speedway Drop Out Bracket (DOB)
Supplied with ladder fixings



Speedway drop out bracket securing a vertical cable ladder to a horizontal cable run

Order details are as follows:

Ladder Type / DOB / Finish & Material.

SW4/DOB/GA Speedway SW4 Drop Out Bracket, Hot Dip Galvanized Finish

Supplied complete with two ladder fixings.

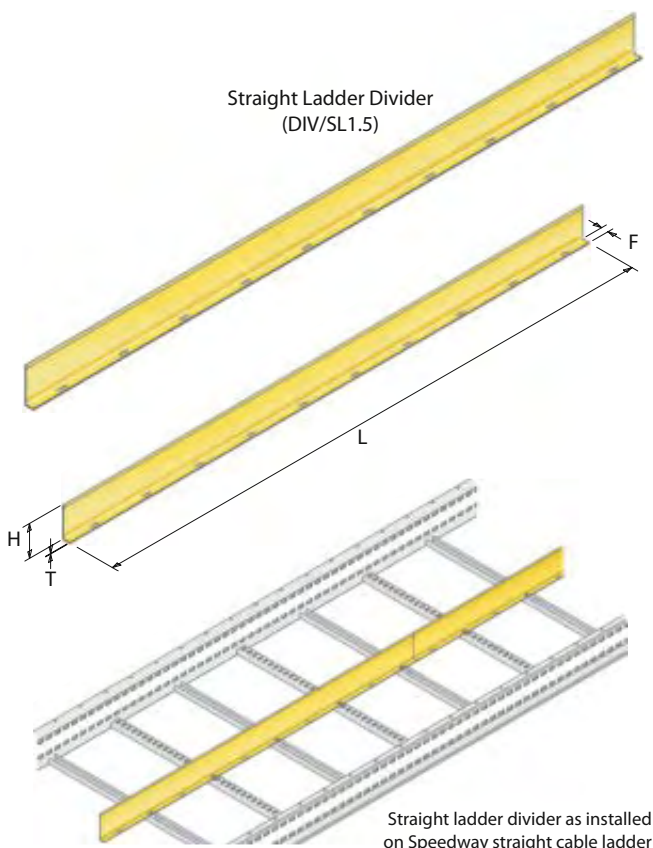
Straight Ladder Divider (DIV/SL1.5)

Speedway straight ladder dividers (DIV/SL1.5) are available for cable segregation and separation purposes along the length of a cable run.

Straight ladder dividers are available in three heights to suit Speedway SW4, SW5, & SW6 cable ladder.

Straight ladder dividers are 1500mm in length and have a fully returned top edge to prevent damage to cables.

Speedway Straight Ladder Dividers					
Ladder	Part No	Dimensions mm			
		L	H	F	T
SW4	SW4/DIV/SL1.5	1500	70	20	1
SW5	SW5/DIV/SL1.5		85		
SW6	SW6/DIV/SL1.5		110		



Order details are as follows:

Ladder Type / DIV / SL1.5 / Finish & Material.

SW6/DIV/SL1.5/TT Speedway SW6 Straight Ladder Divider, 1.5m long, 304 Grade Stainless Steel.

Straight ladder dividers are not supplied with fixings (3 required per straight divider).

Recommended fixings – M6 channel nut and M6 x 12 pan head screw (& M6 flat washer for stainless steel dividers). Consult our Sales Team for further details. ■

Fitting Divider (DIV/FL1.5)

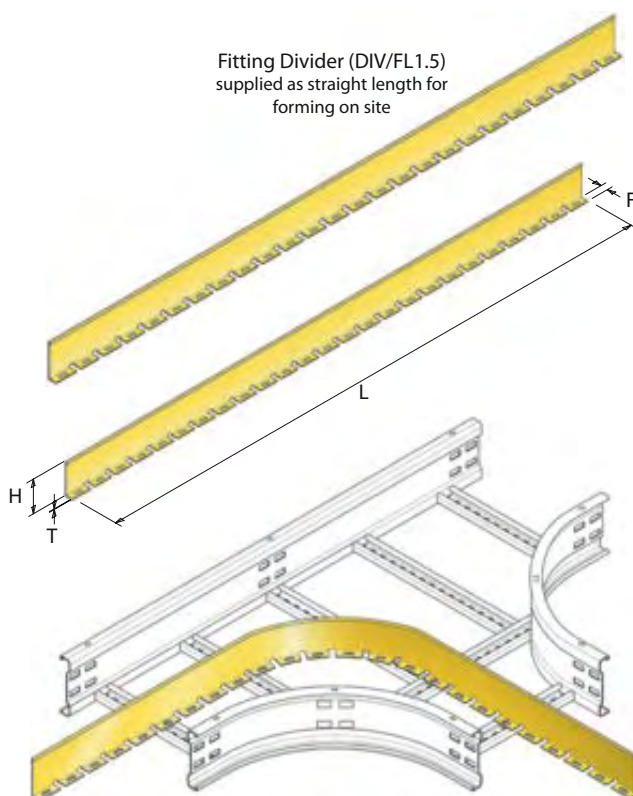
Speedway fitting dividers (DIV/FL1.5) are available for cable segregation and separation purposes on fittings.

The Speedway fitting divider is supplied as a straight length and is notched to allow for forming around flat elbows, tees, crosses & reducers.

Speedway fitting dividers are available in three heights to suit Speedway SW4, SW5, & SW6 cable ladder fittings.

Speedway fitting dividers are 1500mm in length and have a fully returned top edge to prevent damage to cables.

Speedway Fitting Dividers					
Ladder	Part No	Dimensions mm			
		L	H	F	T
SW4	SW4/DIV/FL1.5	1500	70	20	1
SW5	SW5/DIV/FL1.5		85		
SW6	SW6/DIV/FL1.5		110		



Fitting divider as installed on a Speedway tee fitting

Order details are as follows:

Ladder Type / DIV / FL1.5 / Finish & Material.

SW4/DIV/FL1.5/GA Speedway SW4 Fitting Divider, Hot Dip Galvanized Finish.

Fitting dividers are not supplied with fixings (minimum of 3 required per fitting divider).

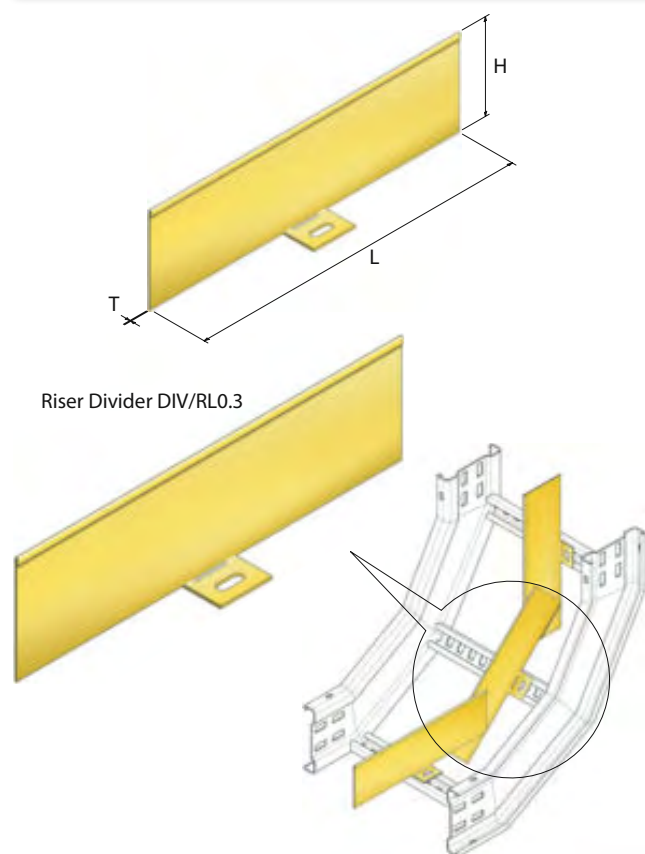
Recommended fixings – M6 channel nut and M6 x 12 pan head screw (& M6 flat washer for stainless steel dividers). Consult our Sales Team for further details. ■

Riser Divider (DIV/RL0.3)

Speedway riser dividers (DIV/RL0.3) are available for cable segregation and separation purposes on riser fittings. The Speedway riser divider is suitable for use on inside and outside risers as well as the articulated riser.

Speedway riser dividers are available in three heights to suit Speedway SW4, SW5, & SW6 risers. Riser dividers are 300mm in length and have a fully returned top edge to prevent damage to cables.

Speedway Riser Dividers				
Ladder	Part No	Dimensions mm		
		L	H	T
SW4	SW4/DIVRL0.3	300	70	1
SW5	SW5/DIV/RL0.3		85	
SW6	SW6/DIV/RL0.3		110	



Riser divider installed on a Speedway 90° Inside Riser

Order details are as follows:

Ladder Type / DIV / RL0.3 / Finish & Material.

SW5/DIV/RL0.3/SS Speedway SW5 Riser Divider, Stainless Steel.

Riser dividers are not supplied with fixings (1 required per riser divider).

Recommended fixings – M6 channel nut and M6 x 12 pan head screw (& M6 flat washer for stainless steel dividers). Consult our Sales Team for further details.

The required number of riser dividers is dependant on the type of riser in use. Consult our Sales Team for further details. ■

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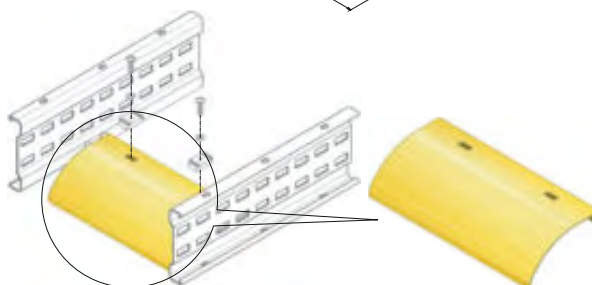
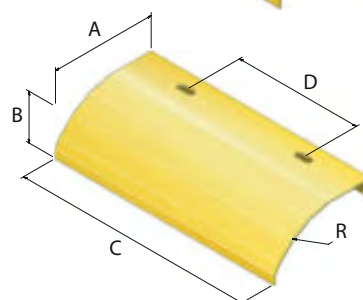
Cable Drop Out (CDO)

Speedway cable drop-outs (CDO) are designed to provide a smooth transition for cable, particularly those with a small diameter, where these enter and leave the cable ladder.

Cable drop-outs are available to suit Speedway cable ladder of widths from 150mm to 1050mm as standard and are common to all Speedway ladder types. Other widths are available – contact our Sales Team for details.

Speedway Cable Drop Out Installation Details					
Cable Drop Out Type	Dimensions mm				
	A	B	C	D	R
SW/CDO/150	120	60	130	N/A	95
SW/CDO/300			280	150	
SW/CDO/450			430	300	
SW/CDO/600			580	450	
SW/CDO/750			730	600	
SW/CDO/900			880	750	
SW/CDO/1050			1030	900	

SW/CDO/150 has a single central fixing slot



Order details are as follows:

SW / CDO / Width / Finish & Material.

SW/CDO/750/GA Speedway Cable Drop Out, 750mm Wide, Hot Dip Galvanised Finish.

Cable drop-outs are not supplied with fixings. Recommended fixings – M6 channel nut and M6 x 12 pan head screw (& M6 flat washer for stainless steel dividers). Consult our Sales Team for further details. ■



End Plate (EP)

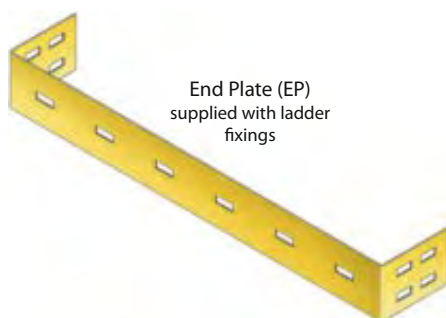
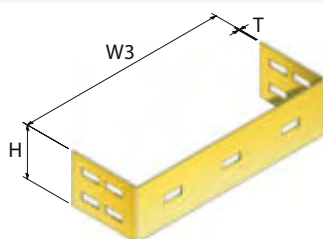
Speedway end plates (EP) provide a neat termination for open ends of cable ladders.

Speedway end plates are available in widths from 150mm to 1050mm as standard. Other widths are available – contact our Sales Team for details.

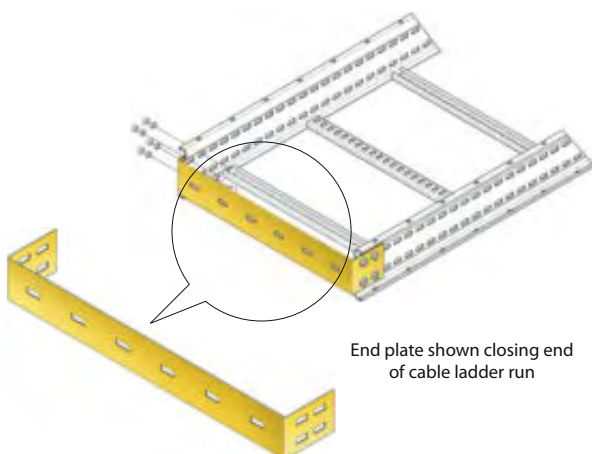
Each Speedway end plate has 25mm x 11.5mm fixing slots at 100mm centres which allow the end plate to be used for securing the cable ladder to a wall or floor.

Speedway End Plate Installation Details						
End Plate Type	Dimensions mm					Number of Fixing Slots
	W	W3	H		T	
			SW4 & SW5	SW6		
EP/150	150	172	80	105	2	2
EP/300	300	322				3
EP/450	450	472				5
EP/600	600	622				6
EP/750	750	772				8
EP/900	900	922				9
EP/1050	1050	1072				11
W = Ladder Width						

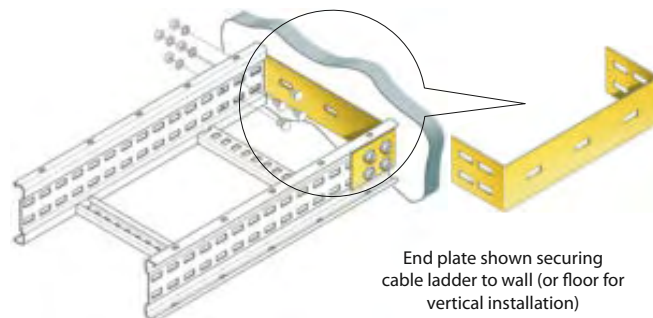
W = Ladder Width



End Plate (EP)
supplied with ladder
fixings



End plate shown closing end
of cable ladder run



End plate shown securing
cable ladder to wall (or floor for
vertical installation)

Order details are as follows:

Ladder Type / EP / Width / Finish & Material.

SW6/EP/600/SS Speedway SW6 End Plate, 600mm Wide, Stainless Steel.

End plates for SW4 & SW5 are common, order as follows:

SW45/EP/300/GA Speedway SW4/5 End Plate, 300 wide, Hot Dip Galvanized Finish.

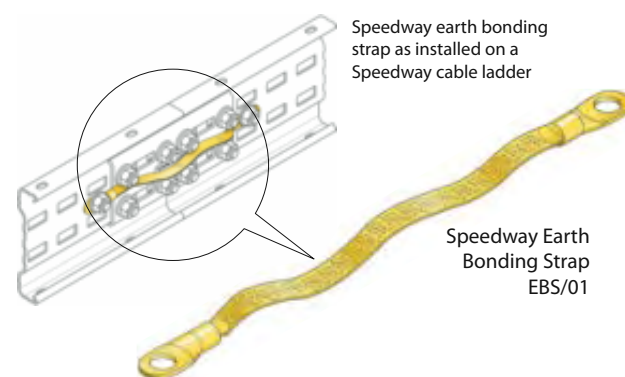
Supplied complete with ladder fixings. ■

Earth Bonding Strap (EBS/01)

The Speedway earth bonding strap (EBS01) is designed for use in installations where an additional means of earthing or electrical bonding is specified.

The Speedway earth bonding strap comprises of a 16mm² tinned copper braid crimped into M10 tinned copper end connectors.

The Speedway earth bonding strap is common to Speedway SW4, SW5, & SW6.



Speedway earth bonding
strap as installed on a
Speedway cable ladder

Speedway Earth
Bonding Strap
EBS/01

Order details are as follows:

EBS/01 Speedway Earth Bonding Strap

Recommended fixings for the earth bonding strap are an M10 x 25 hex head set screw, M10 shake-proof washer and M10 hex nut. These are available as a set, order details as follows:

389AA55 Speedway EBS01 Fixing Set – Hot Dip Galvanized Finish.

389AA65 Speedway EBS01 Fixing Set – Stainless Steel.

Refer to the Technical Data section for full details on the electrical continuity properties of the Speedway cable ladder system. ■

Speedway Mounting Plate (SMP)

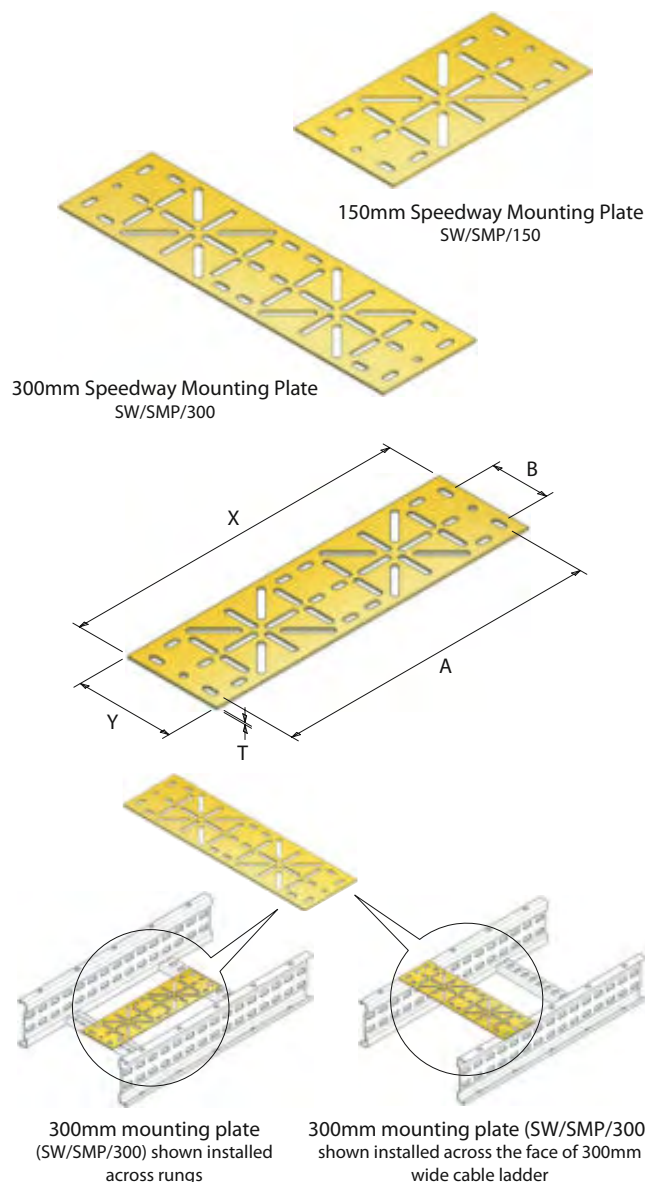
The Speedway mounting plate (SMP) provides a means of attaching junction boxes and other items to the Speedway cable ladder system.

Mounting plates are available to suit all Speedway cable ladder widths up to & including 900mm for attachment across the face of the cable ladder.

The 300mm Speedway mounting plate (SW/SMP/300/#) can also be attached between rungs on all widths of Speedway cable ladder and can be mounted either within the cable space or below the cable ladder.

Speedway Mounting Plate Dimensions

Dimensions mm						
Type	Ladder Width	X	Y	A	B	T
SW/SMP/150	150	200	100	175	60	2
SW/SMP/300	300	350		325		
SW/SMP/450	450	500		475		
SW/SMP/600	600	650		625		
SW/SMP/750	750	800		775		
SW/SMP/900	900	950		925		



Order details are as follows:

SW / SMP / Width / Finish & Material.

SW/SMP/450/GA Speedway Mounting Plate, 450mm Wide, Hot Dip Galvanised Finish.

Mounting plates are not supplied with ladder fixings. Recommended fixings for attachment to Speedway rungs – M6 channel nut & M6 x 12 pan head screw (plus M6 flat washer for stainless steel). Recommended fixings for attaching across the face of the Speedway cable ladder – M6 x 12 pan head screw & M6 nut (plus M6 flat washer for stainless steel). Consult our Sales Team for further details.

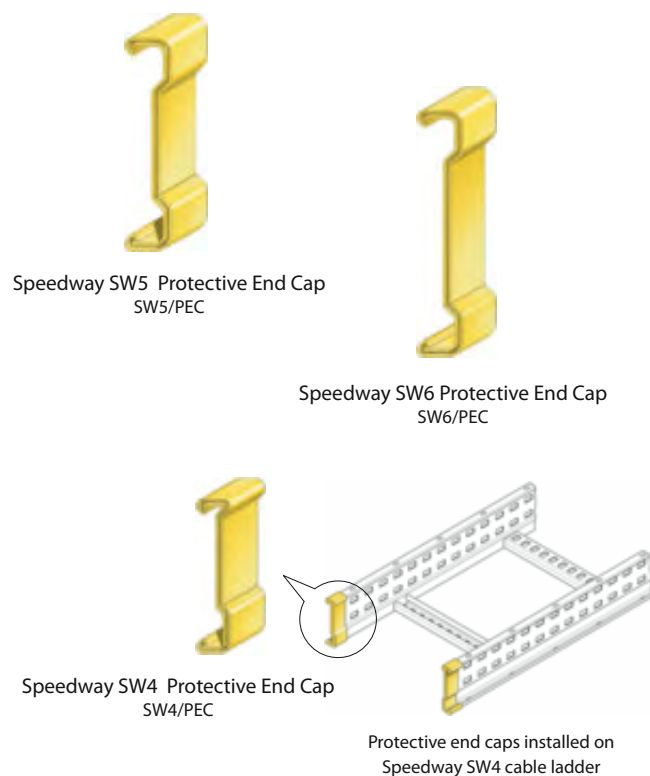
Alternative mounting plate designs can be manufactured to special order – Consult our Design Team for further details. ■

Protective End Caps (PEC)

Protective end caps (PEC) are available for Speedway SW4, SW5, & SW6 profiles.

Manufactured in flexible yellow PVC material as standard, the protective end cap provides a visible and safe means of identifying & covering the open ends of Speedway cable ladder and fittings.

A low smoke/zero halogen version is available – contact our Technical Team for details.



Order details are as follows:

(two required per open end of ladder or fitting)

Ladder Type / PEC

SW6/PEC Speedway SW6 Protective End Cap. ■



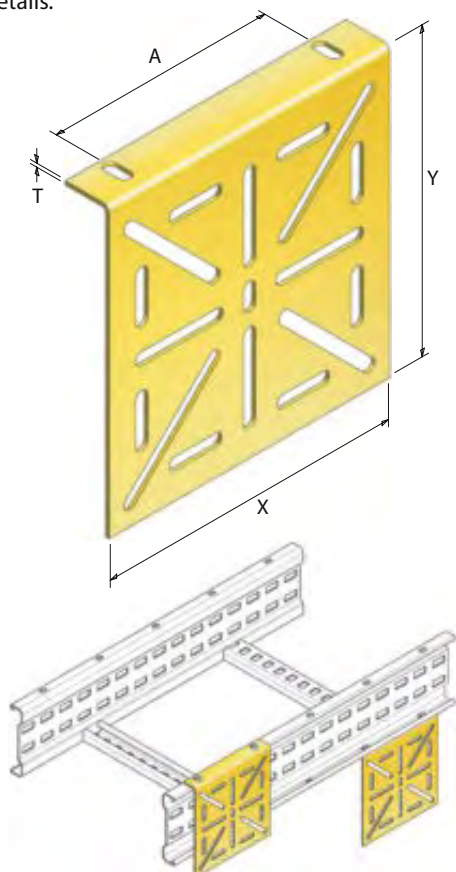
Junction Box Plates (JBP)

Speedway junction box plates (JBP) provide a versatile means of attaching junction boxes, switches and other equipment directly onto Speedway cable ladder and fittings.

Junction box plates are available in five standard sizes to suit all secondary equipment mounting requirements.

Speedway Junction Box Plates					
Type	Dimensions mm				No of fixings
	X	Y	A	T	
JBP01	160	165	120	2	2
JBP02	210	215	120	2	2
JBP03	310	315	120	3	3
JBP04	65	90	47	2	1
JBP05	150	110	120	2	2

Alternative junction box plates can be produced to suit specific site installation requirements – consult our Design Team for further details.



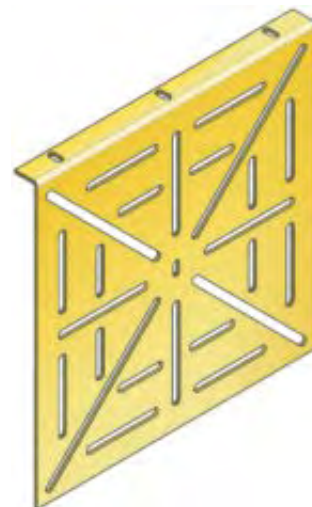
Junction Box Plate JBP01 shown mounted in two possible orientations on Speedway cable ladder



Junction Box Plate
JBP01



Junction Box Plate
JBP02



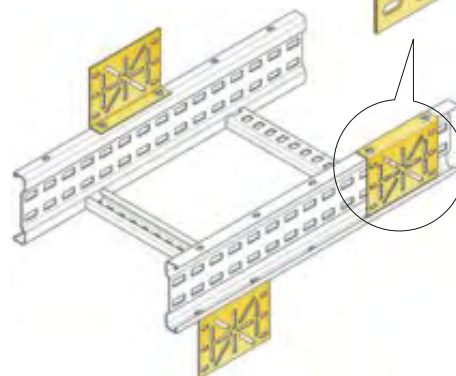
Junction Box Plate
JBP03



Junction Box Plate
JBP04



Junction Box Plate
JBP05



Junction Box Plate JBP05 shown mounted in three possible orientations on Speedway cable ladder

Order details are as follows:

SW / JBP Type / Finish & Material.

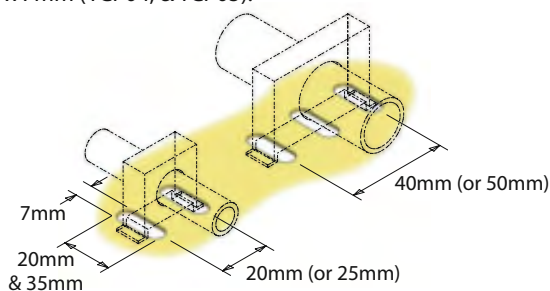
SW6/JBP02/SS Speedway Junction Box Plate 02, Stainless Steel.

Junction box plates are not supplied with ladder fixings. Recommended fixings for attachment to Speedway cable ladder – M6 x 12 pan head screw and M6 nut (& M6 flat washer for stainless steel). Consult our Sales Team for further details. ■

Tube Clamp Plates (TCP)

Speedway tube clamp plates (TCP) are specifically designed for use with tubing clamp systems which require 7mm wide fixing slots at 20mm or 40mm slot centres.

Speedway tube clamp plates are also available with fixing slots at 25mm or 50mm slot centres (to order these items replace the '0' in the part number with '5'). The slots in the tube clamp plates are either 20mm x 7mm (TCP01, TCP02, & TCP03) or 35mm x 7mm (TCP04, & TCP05).



The tube clamp plates will allow easy and convenient routing of both instrumentation tubing and cables on the same Speedway cable ladder run.

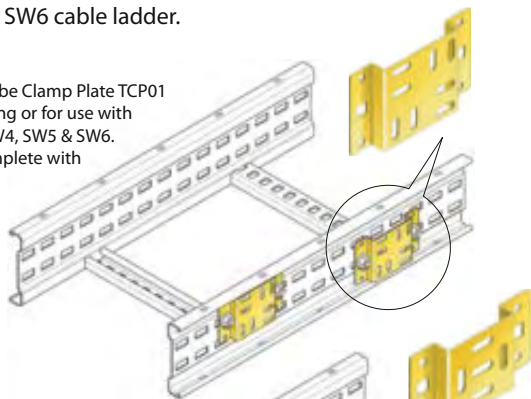
All tube clamp plates (except TCP04) have additional M6 clearance fixing holes to allow for securing to any suitable flat surface and have square fixing slots to facilitate attachment to the side wall of the Speedway cable ladder system using the standard Speedway cable ladder fixing set.

Tube clamp plate TCP03 is also suitable for attachment to channel (strut type) and will attach directly to the Speedway rung – this will allow routing of instrumentation tubing both within the cable space and along the underside of the Speedway cable ladder.

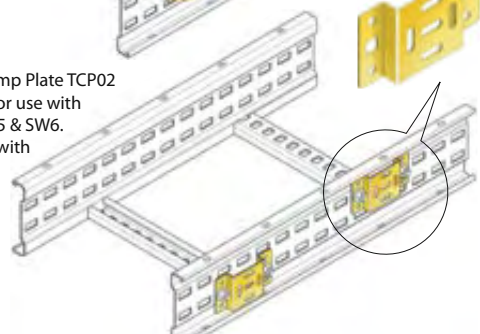
Tube clamp plate TCP04 is suitable for attachment to the side of Speedway SW4, SW5, & SW6 cable ladders.

Tube clamp plate TCP05 is designed specifically for use with Speedway SW6 cable ladder.

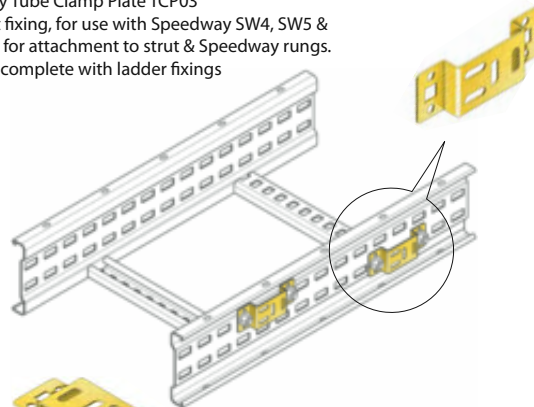
Speedway Tube Clamp Plate TCP01
For direct fixing or for use with Speedway SW4, SW5 & SW6. Supplied complete with ladder fixings



Speedway Tube Clamp Plate TCP02
For direct fixing or for use with Speedway SW4, SW5 & SW6. Supplied complete with ladder fixings

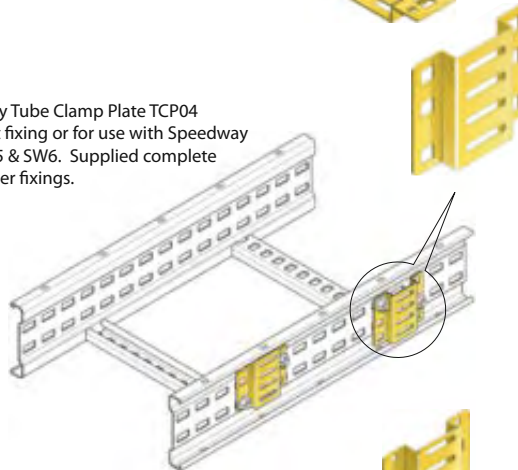


Speedway Tube Clamp Plate TCP03
For direct fixing, for use with Speedway SW4, SW5 & SW6, and for attachment to strut & Speedway rungs. Supplied complete with ladder fixings

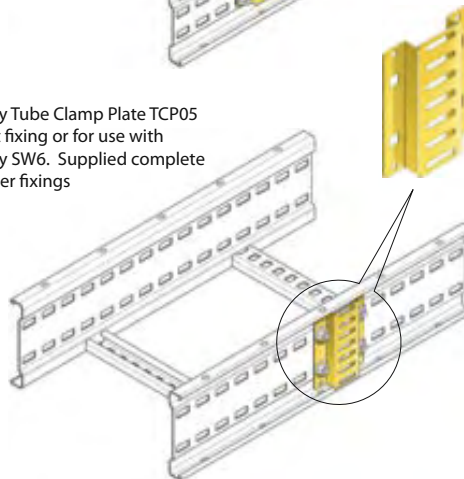


Speedway Tube Clamp Plate TCP03 shown fixed to Speedway cable ladder rungs

Speedway Tube Clamp Plate TCP04
For direct fixing or for use with Speedway SW4, SW5 & SW6. Supplied complete with ladder fixings.



Speedway Tube Clamp Plate TCP05
For direct fixing or for use with Speedway SW6. Supplied complete with ladder fixings



Order details are as follows:

SW / Tube Clamp Plate Type / Finish & Material.

SW/TCP03/SS Speedway Tube Clamp Plate TCP03, Stainless Steel. ■



Insulating Assemblies

A comprehensive range of nylon insulating assemblies are available to suit those installations where there is a requirement to prevent bi-metallic corrosion between the Speedway cable ladder system and the support structure. A typical example is a stainless steel Speedway cable ladder system mounted on galvanised or painted steel supports.

The insulating assembly is based on nylon base pads, nylon bushes and nylon washers which, when used with the Speedway external flange clamp or the Speedway adaptable fixing bracket, totally encapsulate the fixings and provide electrical separation between the Speedway cable ladder system and the supporting structure.

Insulating Assembly Components- External Flange Clamp (EFC)

Item	Part Number	Description
1	318AK\$\$	M10 Hex Head Set Screw Stainless Steel
2	315AE90	M10 Flat Washer Stainless Steel
3A	SW/EFC/SS	Speedway External Flange Clamp Stainless Steel
4A	315AN10	Nylon Pad (66.5 x 50 x 4mm)
5	315AN01-##	Nylon Bush - Length = ##
6	315AE05	M10 Flat Washer Nylon
7	315AD90	M10 Hex Nut Stainless Steel

Insulating Assembly Components- Hold Down Bracket (HDB)

Item	Part Number	Description
1	318AK\$\$	M10 Hex Head Set Screw Stainless Steel
2	315AE90	M10 Flat Washer Stainless Steel
3B	SW/HDB/SS	Speedway Hold Down Bracket Stainless Steel
4B	315AN18	Nylon Pad (75 x 50 x 4mm)
5	315AN01-##	Nylon Bush - Length = ##
6	315AE05	M10 Flat Washer Nylon
7	315AD90	M10 Hex Nut Stainless Steel

Insulating Assembly Components- Adaptable Fixing Bracket (AFB)

Item	Part Number	Description
1	318AK\$\$	M10 Hex Head Set Screw Stainless Steel
2	315AE90	M10 Flat Washer Stainless Steel
3C	SW/AFB/SS	Speedway Adaptable Fixing Bracket (AFB)
4C	315AN12	Nylon Pad (80 x 55 x 4mm)
5	315AN01-##	Nylon Bush - Length = ##
6	315AE05	M10 Flat Washer Nylon
7	315AD90	M10 Hex Nut Stainless Steel

\$\$ - Thread length code. See table below.

= Thickness of supporting steelwork in mm.

The minimum thread length for the 318AK\$\$ M10 fixing bolt is 22mm plus the thickness of the supporting steelwork. Refer to the table below for details of the fixing bolts.

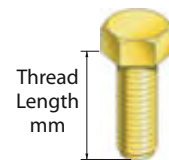
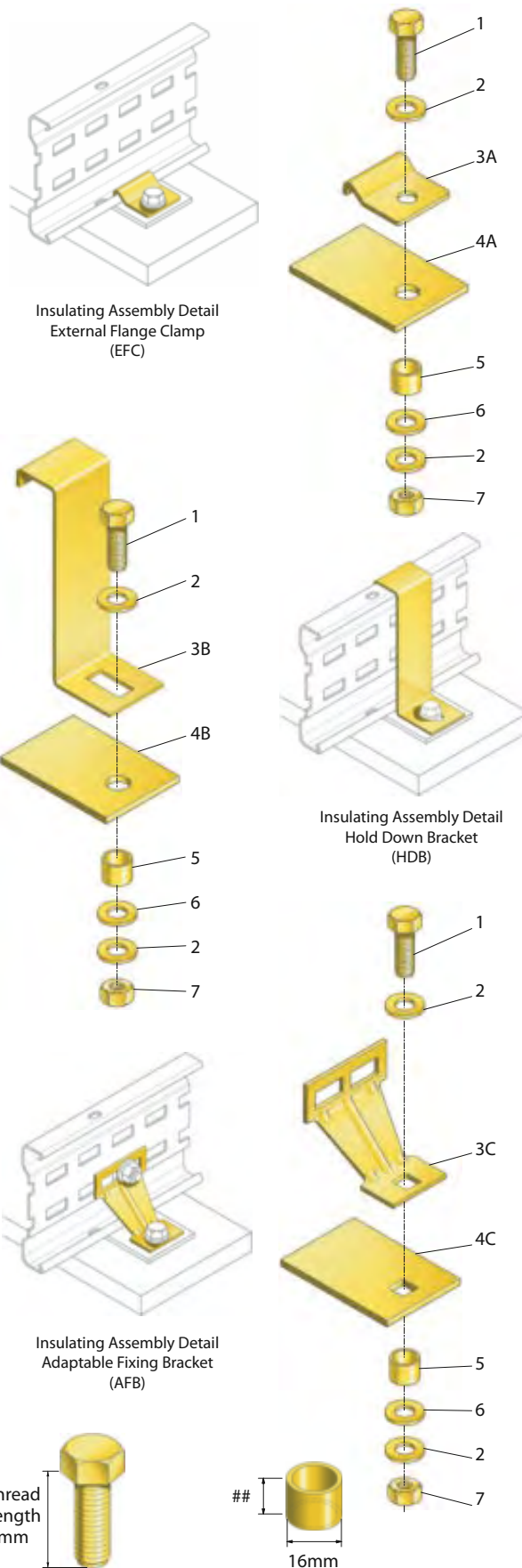
318AK\$\$ Fixing Bolt Details

Part Number	Thread Length	Description
318AK82	25mm	M10 x 25 Hex Head Set Screw Stainless Steel
318AK83	30mm	M10 x 30 Hex Head Set Screw Stainless Steel
318AK84	35mm	M10 x 35 Hex Head Set Screw Stainless Steel
318AK85	40mm	M10 x 40 Hex Head Set Screw Stainless Steel

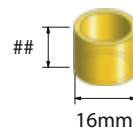
The length of the 315AN01-## nylon bush is the thickness of the supporting steelwork. For example, 315AN01-10 has a length of 10mm to suit 10mm thick steelwork. The nylon bush requires a 17mm diameter hole in the supporting steelwork.

Consult our Design Team for details of insulating assemblies to suit channel (BS 6946 strut type) and rolled hollow sections.

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M10 Fixing Bolt 318AK\$\$
Minimum Thread Length =
22mm + Steel Thickness mm



Nylon Bush 315AN01-##
Nylon Bush Length ## =
Steel Thickness mm

A range of supports and accessories compliment the Speedway cable ladder system. General purpose single and double channel cantilevers, heavy duty props, heavy duty cantilevers, and a comprehensive channel (strut type) support system manufactured to BS 6946 with a full range of beam clamps and interconnecting brackets offer solutions to suit all particular site requirements.

Cantilever Arm Bracket – Single Channel (IC / CARM / SC)

The single channel cantilever arm bracket (IC/CARM/SC) is suitable for supporting light to medium loads. The single channel cantilever arm bracket is available in lengths from 150mm to 1200mm for supporting Speedway cable ladder and cable tray. Where heavier load carrying performance is required, the single channel cantilever arm bracket can be reinforced using a cantilever arm prop (IC/PROP/length/#) see page 48.

The single channel cantilever arm bracket, based on a conventional strut profile, is suitable for use with both external flange clamps (SW/EFC/#), adaptable fixing brackets (SW/AFB/#) and hold down brackets (SW/HDB/#).

The loading table below gives the recommended maximum load for each size of single channel cantilever arm bracket for supporting uniformly distributed loads (UDL) such as cable tray or for supporting Speedway cable ladder (which should be uniformly loaded to apply two equal point loads onto the cantilever arm).

IC/CARM/SC Dimensions & Safe Working Loads

Cantilever Type	Arm Length L (mm)	Maximum UDL (kg)	Ladder Width (mm)	Maximum Ladder Load (kg)
IC/CARM/SC/P/150/#	150	363	---	---
IC/CARM/SC/P/300/#	300	182	150	145
IC/CARM/SC/P/450/#	450	121	300	104
IC/CARM/SC/P/600/#	600	91	450	
IC/CARM/SC/P/750/#	750	59	600	
IC/CARM/SC/P/900/#	900	41	750	
IC/CARM/SC/P/1050/#	1050		900	
IC/CARM/SC/P/1200/#	1200		1050	

Factor of Safety = 3.

Shaded details – use not recommended without use of prop (340PA)

Longer cantilever arm lengths are available for use as part of a pendant assembly where the single channel cantilever arm is suspended vertically to create a support system in conjunction with cantilever arm brackets as shown opposite. Consult our Design Team for loading information.

Order details are as follows:

IC/CARM/SC/P/600/GK Intelok / Cantilever Arm / Single Channel / Plain / 600mm / Galvanized structural steel.

Product range (IC) / Product type (CARM) / Channel config (SC) / Slotting (P) / Length (600mm) / Finish (G) & Material (K).

IC/CARM/SC Speedway Fixing Details

Ladder Type	SW4	SW5	SW6
A	W + 102mm	W + 107mm	
B	W - 83mm	W - 79mm	
C	W + 79mm	W + 89mm	
D	W + 123mm	W + 134mm	
L	W + 150mm		

W = Ladder Width mm

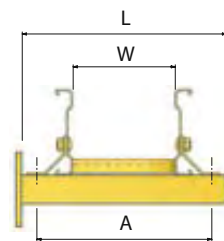
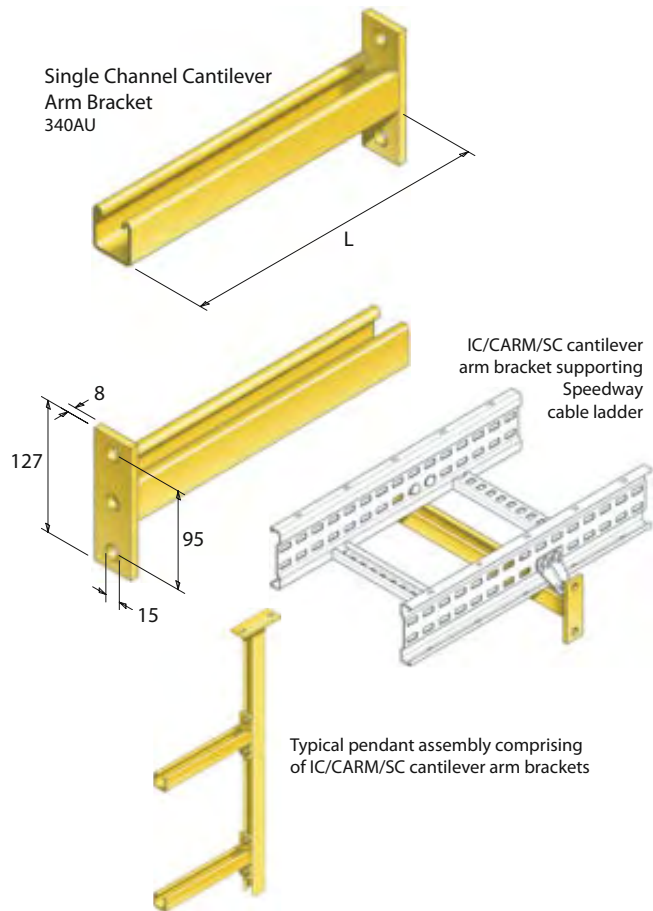
ibemo Kazakhstan - 090301 Republic of Kazakhstan, West Kazakhstan Oblast, Aksai, Pramzone, BKKS office complex
Phone: +7 71133 93077; Fax: +7 71133 93074; E-Mail: info@ibemo-kz.com; http://www.ibemo.kz

For Finish and Material use suffix as on page 8.

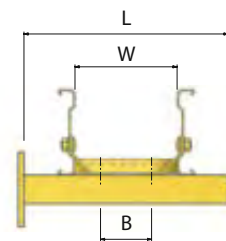
IC/CARM/SC/P/300/SS Single Channel Cantilever Arm Bracket, 300mm Long, Stainless Steel.

For other cantilever arm lengths, suffix IC/CARM/SC/P or IC/CARM/BB/P with the required cantilever arm length in mm, for example:

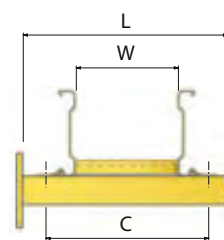
IC/CARM/SC/P/500/SS Single Channel Cantilever Arm Bracket, 1500mm Length, Stainless Steel. ■



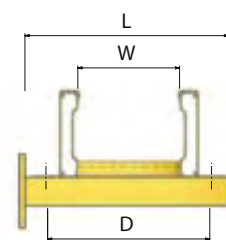
IC/CARM/SC/P Cantilever with Adaptable Fixing Brackets installed externally



IC/CARM/SC/P Cantilever with Adaptable Fixing Brackets installed internally



IC/CARM/SC/P Cantilever with External Flange Clamps



IC/CARM/SC/P Cantilever with Hold Down Brackets

Cantilever Arm – Double Channel (IC / CARM / BB)

The double channel cantilever arm bracket (IC/CARM/BB) is suitable for supporting medium to heavy loads. The double channel cantilever arm bracket is available in lengths from 150mm to 1200mm for supporting Speedway cable ladder and cable tray. Where heavier load carrying performance is required, the double channel cantilever bracket can be reinforced using a cantilever arm prop (IC/CARM/BB).

The double channel cantilever arm bracket, based on conventional back to back strut profiles, is suitable for use with Speedway external flange clamps (SW/EFC/#), adaptable fixing brackets (SW/AFB/#) and hold down brackets (SW-/HDB/#).

The loading table below gives the recommended maximum load for each size of double channel cantilever arm bracket for supporting uniformly distributed loads (UDL) such as cable tray or for supporting Speedway cable ladder (which should be uniformly loaded to apply two equal point loads onto the cantilever arm).

IC/CARM/BB Dimensions & Safe Working Loads				
Cantilever	Arm Length L (mm)	Maximum UDL kg	Ladder Width mm	Maximum Ladder kg
IC/CARM/BB/P/150/GM	150	997	---	---
IC/CARM/BB/P/300/GM	300	498	150	398
IC/CARM/BB/P/450/GM	450	332	300	285
IC/CARM/BB/P/600/GM	600	249	450	221
IC/CARM/BB/P/750/GM	750	199	600	181
IC/CARM/BB/P/900/GM	900	166	750	153
IC/CARM/BB/P/1050/GM	1050	142	900	133
IC/CARM/BB/P/1200/GM	1200	118	1050	117
Factor of Safety = 3				

Longer cantilever arm lengths are available for use as part of a pendant assembly where the double channel cantilever arm bracket is suspended vertically to create a support system in conjunction with cantilever arms as shown opposite. Consult our Design Team for loading information.

Order details are as follows:

IC/CARM/BB/P/300/GK Intelok / Cantilever Arm / Back to Back / Plain / 300mm / Galvanized structural steel.

Product range (IC) / Product type (CARM) / Channel config (BB) / Slotting (P) / Length (300mm) / Finish (G) & Material (K).

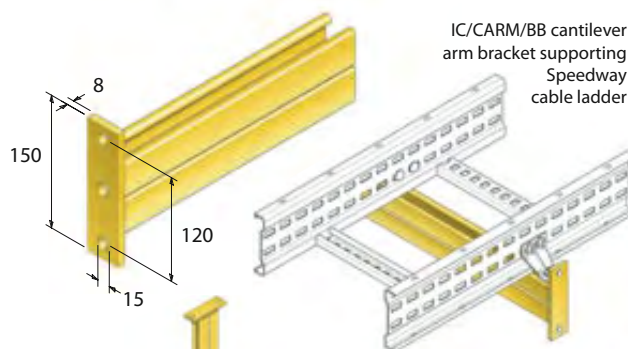
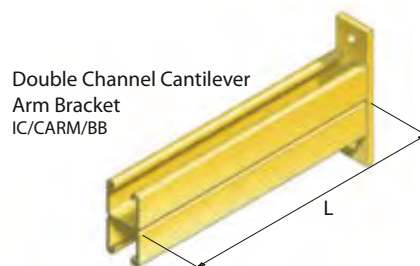
IC/CARM/BB Speedway Fixing Details			
Ladder Type	SW4	SW5	SW6
A	W + 102mm	W + 107mm	
B	W - 83mm	W - 79mm	
C	W + 79mm	W + 89mm	
D	W + 123mm	W + 134mm	
L	W + 150mm		
W = Ladder Width mm			

For Finish and Material use suffix as on page 8.

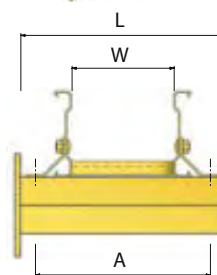
IC/CARM/BB/P/900/SS Back to back Channel Cantilever, 900mm Long, Stainless Steel.

For other cantilever arm lengths, see previous table with the required cantilever arm length in mm, for example:

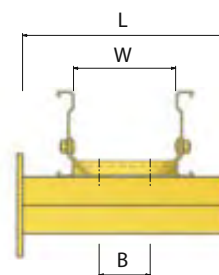
IC/CARM/BB/P/500/SS Double Channel Cantilever Arm Bracket, 500mm Length, Stainless Steel. ■



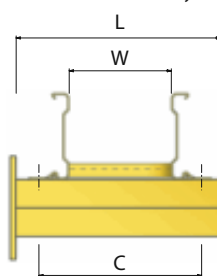
Typical pendant assembly comprising of IC/CARM/BB cantilever arm brackets



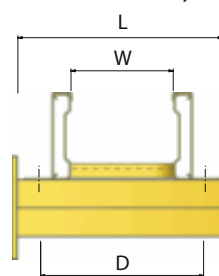
IC/CARM/BB Cantilever with Adaptable Fixing Brackets installed externally



IC/CARM/BB Cantilever with Adaptable Fixing Brackets installed internally



IC/CARM/BB Cantilever with External Flange Clamps



IC/CARM/BB Cantilever with Hold Down Brackets

Cantilever Arm Prop (IC / PROP / SC / length)

The cantilever arm prop (IC/PROP) is used where there is a requirement to increase the effective safe working loads of single channel cantilever arm brackets (IC/CARM/SC) and double channel cantilever arm brackets (IC/CARM/BB). The cantilever arm prop is particularly effective when used to reinforce cantilever arm brackets carrying the heavier duty Speedway cable ladders with their correspondingly higher load bearing capabilities.

The cantilever arm prop is available in three sizes:

Cantilever Arm Prop IC/PROP	
Part Number	Cantilever Length
IC/PROP/300-450/#	300mm & 450mm
IC/PROP/600-750/#	600mm & 750mm
IC/PROP/900-1200/#	900mm, 1050mm & 1200mm

The table below gives the fixing centres and recommended maximum safe working load for each size of cantilever arm prop when supporting Speedway cable ladder.

IC/PROP Dimensions & Safe Working Loads						
Prop Type	Cantilever Length (mm)	Prop Fixing Centres		Maximum Ladder Load		
		X (mm)	Y (mm)	Single Channel Cantilever	kg	Double Channel Cantilever
IC/PROP/300-450	300	120	189.5	IC/CARM/SC/P/300/GA	748	IC/CARM/BB/P/300/GA
	450	120	189.5	IC/CARM/SC/P/450/GA	238	IC/CARM/BB/P/450/GA
IC/PROP/600-750	600	315	527	IC/CARM/SC/P/600/GA	1587	IC/CARM/BB/P/600/GA
	750	315	527	IC/CARM/SC/P/750/GA	286	IC/CARM/BB/P/750/GA
IC/PROP/900-1200	900	425	718	IC/CARM/SC/P/900/GA	369	IC/CARM/BB/P/900/GA
	1050	425	718	IC/CARM/SC/P/1050/GA	179	IC/CARM/BB/P/1050/GA
	1200	425	718	IC/CARM/SC/P/1200/GA	118	IC/CARM/BB/P/1200/GA
Factor of Safety = 3						

Other cantilever arm props are available to suit specific site installation requirements – consult our Design Team for further details.

Where used with IC/PROP single channel cantilever arm brackets, it will be necessary to drill the single channel to accept a fixing for the cantilever arm prop.

Order details are as follows:

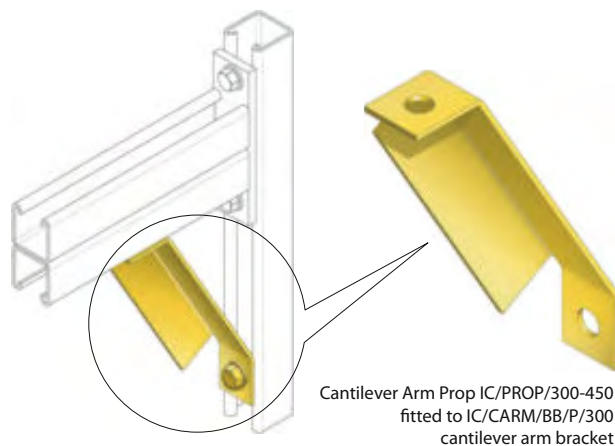
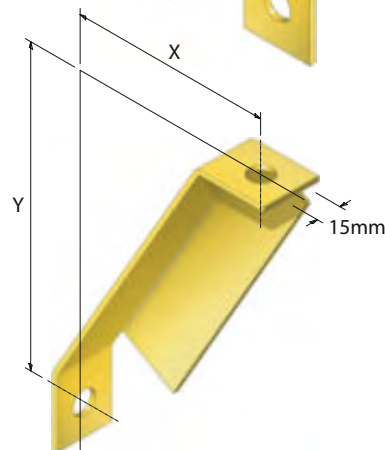
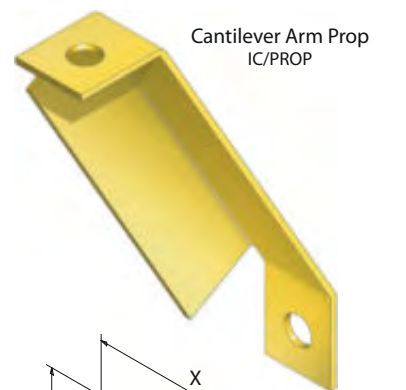
IC/PROP/Type

IC/PROP/300-450/GA Cantilever Arm Prop, 300-450mm/
Hot Dip Galvanized Mild steel.

For stainless steel, use SS as follows:

IC/PROP/600-750/SS Cantilever Arm Prop, 600-750mm type,
Stainless Steel.

Cantilever arm props are not supplied with fixings – consult our Sales Team for recommendations. ■





Heavy Duty Cantilever (HDC)

The Speedway heavy duty cantilever (HDC) provides a specific means of supporting Speedway cable ladder on vertical fixed structures or channel (strut type) uprights.

The heavy duty cantilevers are available to suit Speedway SW4, SW5 & SW6 cable ladders for all widths up to and including 900mm wide.

Each heavy duty cantilever has fixing slots to accept the Speedway external flange clamps (SW/EFC/#), adaptable fixing brackets (SW/AFB/#) and hold down brackets (SW-/HDB/#). The slot pattern allows the adaptable fixing bracket to be fitted either internally or externally on the Speedway cable ladder.

The heavy duty cantilever arm back plate has a minimum of two 15mm diameter fixing holes (see table below for details) to accept fixings up to and including M14.

The loading table below gives the recommended maximum load for each size of heavy duty cantilever arm for supporting uniformly distributed loads (UDL) such as cable tray or for supporting Speedway cable ladder (which should be uniformly loaded to apply two equal point loads onto the cantilever arm).

Speedway Heavy Duty Cantilevers - Safe Working Loads

Part Number	Ladder size	Arm Length mm	Maximum Load kg	
			UDL	Ladder
SW/HDC/150	150	300	629	315
SW/HDC/300	300	450	419	210
SW/HDC/450	450	600	496	248
SW/HDC/600	600	750	690	345
SW/HDC/750	750	900	871	435
SW/HDC/900	900	1050	1045	522
Factor of Safety = 3				

Heavy duty cantilevers with non-standard arm lengths and alternative fixing slot configurations are available – consult our Design Team for further information.

Installation dimensions are given in the following table.

Speedway Heavy Duty Cantilevers - Installation Details

Part Number	Ladder Width mm	Dimensions mm			
		L	No of Holes	A	B
SW/HDC/150	150	300	2	70	N/A
SW/HDC/300	300	450	2	70	N/A
SW/HDC/450	450	600	3	55	40
SW/HDC/600	600	750	3	105	40
SW/HDC/750	750	900	3	155	40
SW/HDC/900	900	1050	3	205	40

Order details are as follows:

SW / HDC / Ladder Width / Finish & Material.

SW/HDC/450/SS Speedway Heavy Duty Cantilever, 450mm Wide, Stainless Steel.

Contact our Sales Team for order details for non-standard heavy duty cantilevers.

Heavy duty cantilevers are not supplied with fixings – consult our Sales Team for recommendations. ■

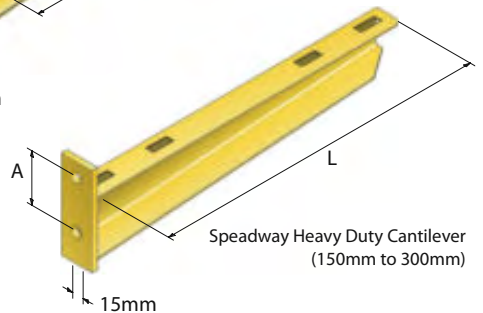
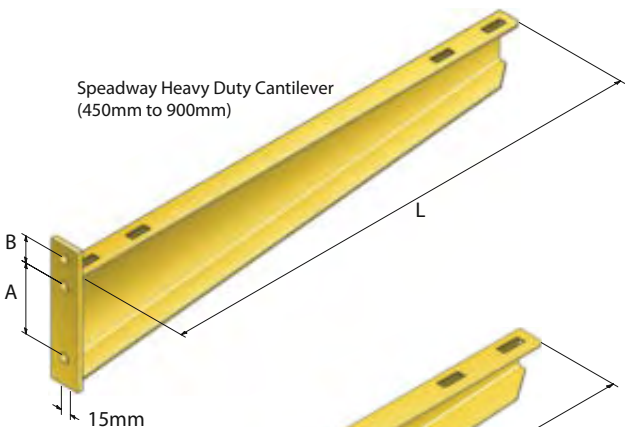
Speedway Heavy Duty Cantilever (HDC)
(SW/HDC/600 shown)



Speedway Heavy Duty Cantilever (HDC)
(SW/HDC/300 shown)



Speedway Heavy Duty Cantilever
(450mm to 900mm)



Speedway Heavy Duty Cantilever
(150mm to 300mm)



SW/HDC/600 Heavy Duty Cantilever
shown supporting Speedway SW5/
SL/600 cable ladder

Ladder Trapeze Hanger (LTH)

The Speedway ladder trapeze hanger (LTH) provides a dedicated and effective means of installing Speedway cable ladder using a trapeze support arrangement.

Each ladder trapeze hanger has fixing slots to accept the Speedway external flange clamps (SW/EFC/#), adaptable fixing brackets (SW/AFB/#) and hold down brackets (SW-/HDB/#). The slot pattern allows the adaptable fixing bracket to be fitted either internally or externally on the cable ladder.

The ladder trapeze hanger has 25 x 13.5 end slots to suit the use of M10 or M12 threaded rod hangers. M10 threaded rod hangers can also be utilised for securing the Speedway cable ladder using Speedway external flange clamps (SW/EFC), adaptable fixing brackets (SW/AFB) and hold down brackets (SW/HDB).

The loading table below gives the recommended maximum load for each size of ladder trapeze hanger when used with Speedway cable ladder (which should be uniformly loaded to apply two equal point loads onto the ladder trapeze hanger).

Speedway Ladder Trapeze Hanger - Safe Working Loads

Part Number	Ladder Width mm	Ladder Load kg
SW/LTH/150	150	1137
SW/LTH/300	300	1039
SW/LTH/450	450	994
SW/LTH/600	600	969
SW/LTH/750	750	952
SW/LTH/900	900	941
SW/LTH/1050	1050	917

Factor of Safety = 3

Non-standard ladder trapeze hangers and alternative fixing slot configurations are available – consult our Design Team for further information.

Installation dimensions are given in the following table.

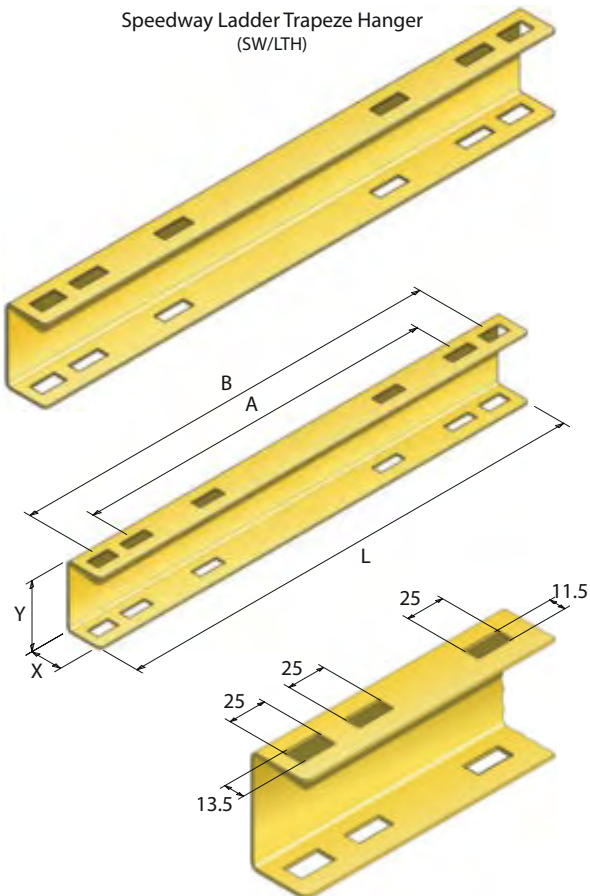
Speedway Ladder Trapeze Hanger - Installation Details

Part Number	Ladder Width mm	Dimensions mm				
		L	X	Y	A	B
SW/LTH/150	150	370	40	75	243	325
SW/LTH/300	300	520	40	75	393	475
SW/LTH/450	450	670	40	75	543	625
SW/LTH/600	600	820	40	75	693	775
SW/LTH/750	750	970	40	75	843	925
SW/LTH/900	900	1120	40	75	993	1075
SW/LTH/1050	1050	1270	40	75	1143	1225

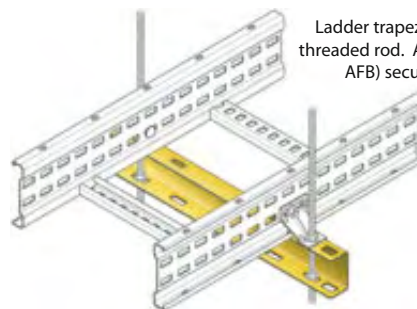


The maximum safe working load is based on securing the ladder support channel using four hex nuts and flat washers for each hanger rod as shown.

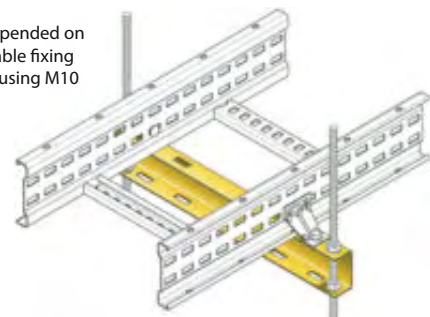
Speedway Ladder Trapeze Hanger (SW/LTH)



Ladder trapeze hanger suspended on M10 threaded rod. Adaptable fixing bracket (SW/AFB) secured using same threaded rod



Ladder trapeze hanger suspended on M12 threaded rod. Adaptable fixing bracket (SW/AFB) secured using M10 fixings



Order details are as follows:

SW / LTH / Ladder Width / Finish & Material.

SW/LTH/600/GA Speedway Ladder Trapeze Hanger, 600mm Wide, Hot Dip Galvanized Finish.

Contact our Sales Team for order details for non-standard ladder support channels.

Ladder support channels are not supplied with fixings – consult our Sales Team for recommendations. ■

Trapeze Support Channel (IC/CNL/D)

The Speedway trapeze support channel (IC/CNL/D) provides a versatile means of installing Speedway cable ladder using a trapeze support arrangement.

Based on slotted deep channel (strut type) to BS6946, the Speedway trapeze support channel has 26 x 13 slots at 50mm pitch and is suited to either M10 or M12 threaded rod hangers. The slotted deep channel is supplied to an exact size to suit each width of Speedway cable ladder and has the slots arranged uniformly along the length of the channel to simplify installation.

The continuous open slot on the trapeze support channel facilitates the use of either Speedway external flange clamps (SW/EFC/#), adaptable fixing brackets (SW/AFB/#) or hold down brackets (SW-/HDB/#) for securing the Speedway cable ladder.

The loading table below gives the recommended maximum load for each size of trapeze support channel when used with Speedway cable ladder (which should be uniformly loaded to apply two equal point loads onto the ladder trapeze hanger).

Speedway Trapeze Support Channel - Safe Working Loads		
Part Number	Ladder size	Ladder Load kg
IC/CNL/D/S/SL150/#	150	321
IC/CNL/D/S/SL300/#	300	322
IC/CNL/D/S/SL450/#	450	323
IC/CNL/D/S/SL600/#	600	324
IC/CNL/D/S/SL750/#	750	324
IC/CNL/D/S/SL900/#	900	325
IC/CNL/D/S/SL1050/#	1050	325
Factor of Safety = 3		

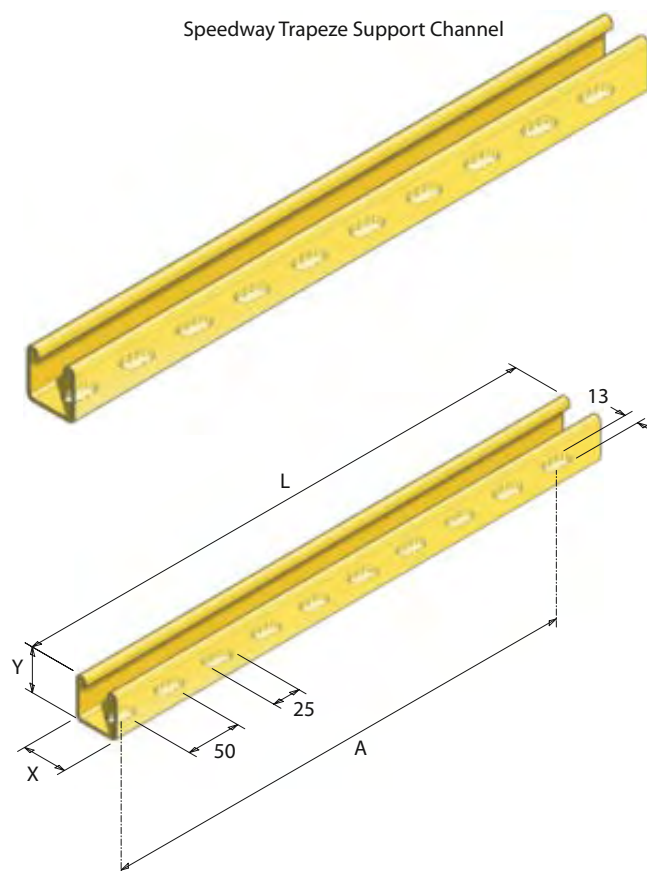
Consult our Design Team for loading information on non-standard trapeze support channels and non uniform loading configurations.

Installation dimensions are given in the following table.

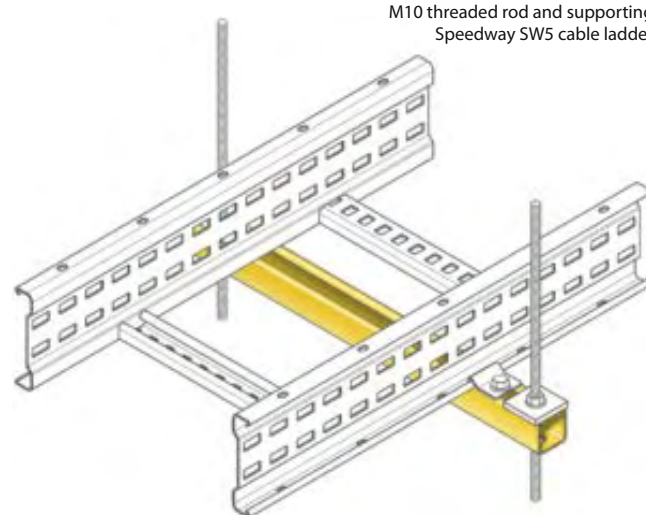
Speedway Trapeze Support Channel - Installation Details					
Part Number	Ladder Width mm	Dimensions mm			
		L	X	Y	A
IC/CNL/D/S/SL150/#	150	350	41.3	41.3	300
IC/CNL/D/S/SL300/#	300	500	41.3	41.3	450
IC/CNL/D/S/SL450/#	450	650	41.3	41.3	600
IC/CNL/D/S/SL600/#	600	800	41.3	41.3	750
IC/CNL/D/S/SL750/#	750	950	41.3	41.3	900
IC/CNL/D/S/SL900/#	900	1100	41.3	41.3	1050
IC/CNL/D/S/SL1050/#	1050	1250	41.3	41.3	1200

Add finish and material see page 8.

Speedway Trapeze Support Channel



Trapeze support channel suspended on M10 threaded rod and supporting Speedway SW5 cable ladder



Order details are as follows:

IC / CNL / D / S / SL Length / Finish & Material.

Product range (IC) / Product type (CNL) / Channel config (D) / Slotting (S) / Length (SL) / Finish (S) & Material (S).

IC/CNL/D/S/SL750/SS Speedway Ladder Trapeze Hanger, 750mm Wide, Stainless Steel.

Contact our Sales Team for order details for non-standard ladder support channels.

Ladder support channels are not supplied with fixings – consult our Sales Team for recommendations. ■

Heavy Duty Trapeze Support Channel (IC/CNL/BBD)

The Speedway heavy duty trapeze support channel (IC/CNL/BBD) provides a versatile means of installing Speedway cable ladder using trapeze support arrangements.

Based on slotted back-to-back deep channel (strut type) to BS 6946, the Speedway heavy duty trapeze support channel has 26 x 13 slots at 50mm pitch and is suited to either M10 or M12 threaded rod hangers. The slotted deep back-to-back channel is supplied to an exact size to suit each width of Speedway cable ladder and has the slots arranged uniformly along the length of the channel to simplify installation.

The continuous open slot on the heavy duty trapeze support channel facilitates the use of either Speedway external flange clamps (SW/EFC/#), adaptable fixing brackets (SW/AFB/#) or hold down brackets (SW-/HDB/#) for securing the Speedway cable ladder. Additional equipment can be attached to the underside of the heavy duty support channel – consult our Design Team for further details.

The loading table below gives the recommended maximum load for each size of heavy duty trapeze support channel when used with Speedway cable ladder (which should be uniformly loaded to apply two equal point loads onto the heavy duty trapeze hanger).

Speedway Heavy Duty Trapeze Support Channel - Safe Working Loads

Part Number	Ladder size	Ladder Load kg
IC/CNL/BBD/S/SL150/#	150	912
IC/CNL/BBD/S/SL300/#	300	914
IC/CNL/BBD/S/SL450/#	450	917
IC/CNL/BBD/S/SL600/#	600	919
IC/CNL/BBD/S/SL750/#	750	920
IC/CNL/BBD/S/SL900/#	900	921
IC/CNL/BBD/S/SL1050/#	1050	922
Factor of Safety = 3		

Consult our Design Team for loading information on non-standard heavy duty trapeze support channels and non uniform loading configurations.

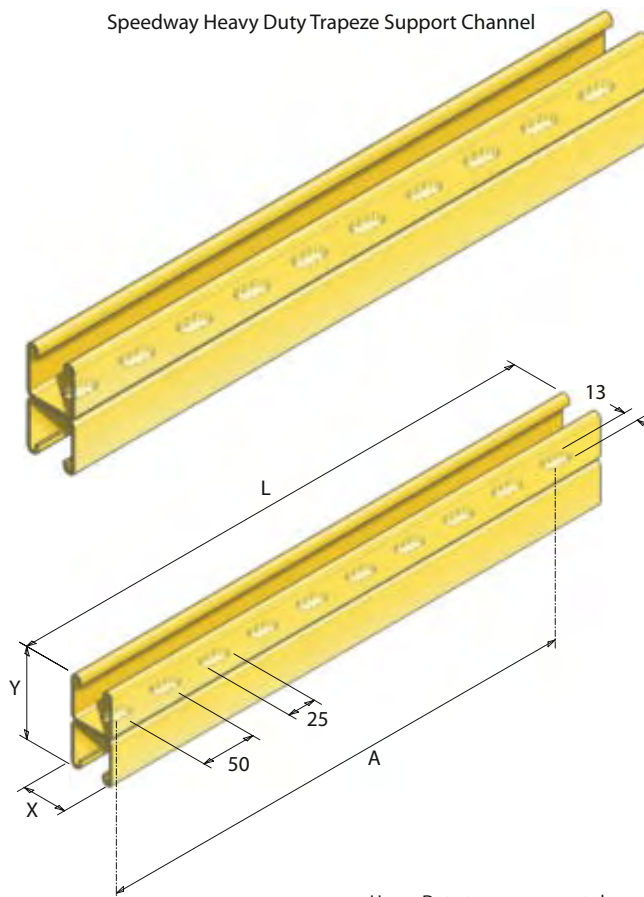
Non-standard heavy duty trapeze hangers and alternative fixing slot configurations are available – consult our Design Team for further information.

Installation dimensions are given in the following table.

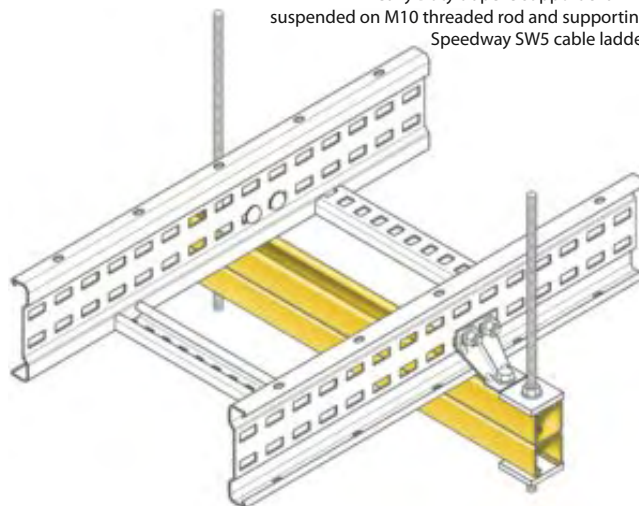
Speedway Heavy Duty Trapeze Support Channel - Installation Details

Part Number	Ladder Width mm	Dimensions mm			
		L	X	Y	A
IC/CNL/BBD/S/SL150/#	150	350	41.3	82.6	300
IC/CNL/BBD/S/SL300/#	300	500	41.3	82.6	450
IC/CNL/BBD/S/SL450/#	450	650	41.3	82.6	600
IC/CNL/BBD/S/SL600/#	600	800	41.3	82.6	750
IC/CNL/BBD/S/SL750/#	750	950	41.3	82.6	900
IC/CNL/BBD/S/SL900/#	900	1100	41.3	82.6	1050
IC/CNL/BBD/S/SL1050/#	1050	1250	41.3	82.6	1200

Speedway Heavy Duty Trapeze Support Channel



Heavy Duty trapeze support channel suspended on M10 threaded rod and supporting Speedway SW5 cable ladder



Order details are as follows:

IC / CNL / BBD / S / SL300 / Finish & Material.

Product range (IC) / Product type (CNL) / Channel config (BBD) / Slotting (S) / Length (SL) / Finish (S) & Material (S).

IC/CNL/BBD/S/SL300/SS Speedway Heavy Duty Trapeze Hanger, 300mm Wide, Stainless Steel.

Contact our Sales Team for order details for non-standard ladder support channels.

Ladder support channels are not supplied with fixings – consult our Sales Team for recommendations. ■

Covers

Three types of covers are available for the Speedway cable ladder system:

Closed Covers (CC) – Closed covers fit directly onto the side walls of the Speedway ladder & fittings to provide mechanical protection and shielding for cables and other equipment within the cable space.

Ventilated Covers (CL) – Louvre covers are similar to closed covers but with the addition of louvers for improved air flow through the cable space. Louvre covers are particularly useful where heavy duty power cables are being used.

Peaked Covers (CP) – Peaked covers are closed covers which are formed into a peak with an overall height of 50mm to shed sand, snow, water, etc. Peaked covers are only available for straight covers as standard – consult our Design Team for details of peaked covers for fittings.

All Speedway covers feature integral joint strips and pre-formed M6 threaded fixing holes which allow for quick and easy connection between adjacent covers. Straight ladder covers have an integral joint strip at one end whereas covers for fittings have integral joint strips on each end. Each cover is supplied with the required number of cover to cover joint fixings and cover installation fixings as standard (see next page for details).

Closed and louvre covers of widths 450mm and above are supplied complete with bracing kits (see next page for details).

Covers are supplied as standard in the gauges given in the following table. Other gauges up to and including 2mm are available to order.

Standard Cover Gauges	
Material	Gauge
Pre-galvanised (indoor use only)	1.0mm
Hot Dip Galvanised	1.2mm
Stainless Steel	1.0mm

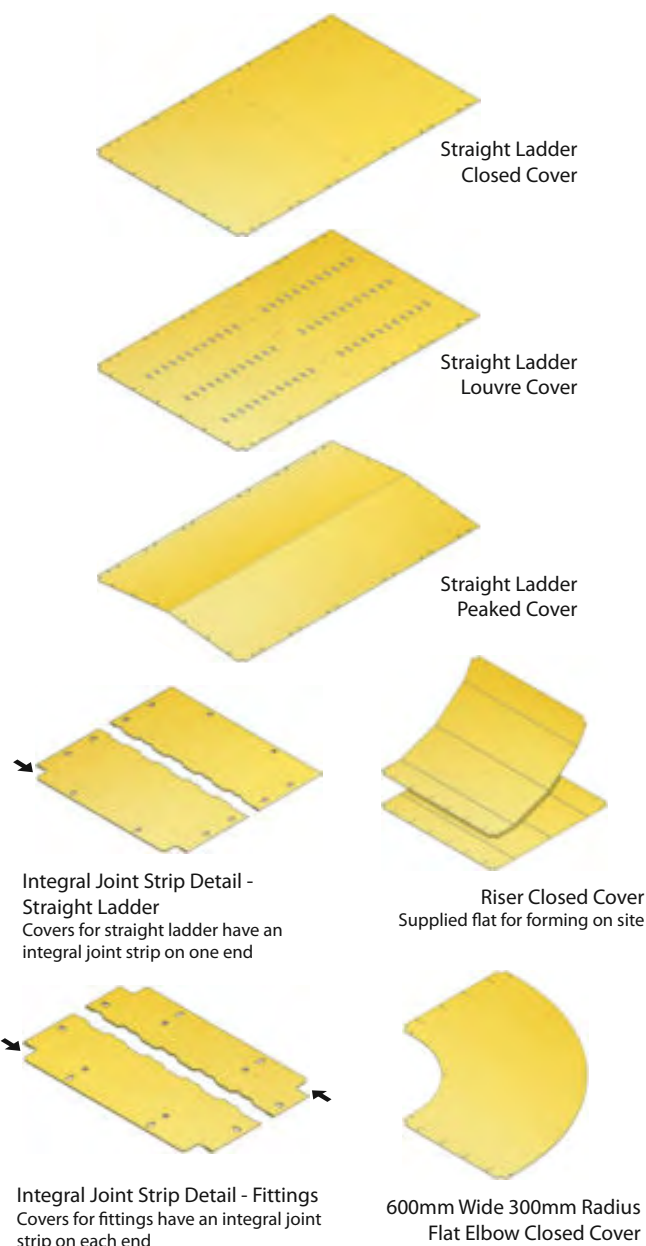
Straight ladder covers are supplied in lengths of 1.5m (excluding the integral joint strip) and, for gauges of up to and including 1.2mm, have fully returned edges along the length of the cover.

Covers for fittings are supplied to the exact size of the fitting and, for riser covers of gauges of up to and including 1.2mm, have fully returned edges along the full length of the cover.

Covers for risers are supplied flat and feature easi-bend slots to allow the cover to be formed on site for attachment to the riser fitting.

Covers for larger fittings are supplied as a kit which assembles to form the full cover. These covers are supplied with all necessary assembly fixings and have integral jointing strips with pre-formed M6 threaded fixing holes to aid assembly.

Closed covers are punched with centreline slots to provide for water drainage.



Order details are as follows:

Covers to suit all Speedway products except Outside Risers – do not include ladder type:

SW/Cover Type/Width/Radius/Material.

SW/CC/SL1.5/600/GA	Speedway Closed Cover, Straight Ladder, 600mm Wide, Hot Dip Galvanized Finish.
SW/CL/FE45/750/600/SS	Speedway Ventilated Louvres, 45° Flat Elbow, 750mm Wide, 600mm Radius, Stainless Steel.

Covers to suit Speedway Outside Risers – include ladder type:

SW Type/Cover Type/Riser Type/Width/Radius/Material.

SW5/CC/OR60/600/450/SS	Speedway SW5 Closed Cover, 60° Outside Riser, 600mm Wide, 450mm Radius, Stainless Steel. ■
------------------------	--------------------------------------------------------------------------------------------

Cover Fixing Kits (VCF)

Speedway covers are supplied complete with the required number of cover installation fixing kits (VCF3) and cover to cover joint fixing kits (VCF8). The cover fixing kits are common to closed, ventilated and peaked covers.

Each cover fixing kit comprises of an M6 pan headed screw with an M6 square nut (or M6 hex nut & M6 flat washer) and an M6 shakeproof washer as standard. The covers are secured using pre-punched slots which are incorporated into the flanges of all Speedway ladder and fittings.

The number of fixing kits supplied with each type of cover is given in the following table and cover to cover fixing to suit width.

Speedway Cover Fixing Kit Requirements	
Ladder & Fitting Type	Number
Straight Ladder	8
30° Flat Elbows	6
45° Flat Elbows	6
60° Flat Elbows	6
90° Flat Elbows	6
Inside & Outside Risers	2 x no. of facets* (minimum of 4)
Equal & Unequal Tees	9
Crosses	12
Reducers	4

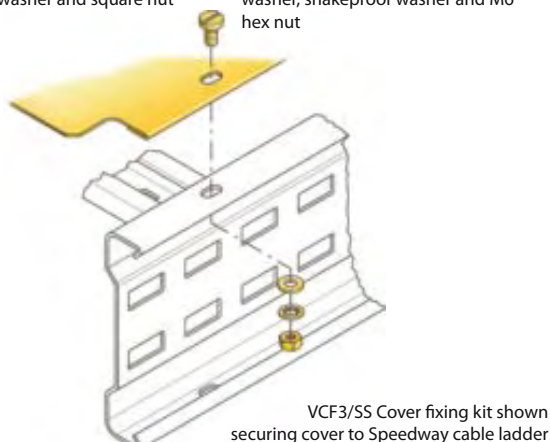
* N° of facets = N° of rungs plus 1. See Risers for details.

It is recommended that additional cover fixing kits are ordered to suit contingency requirements during installation (10% is suggested).



For Hot Dip Galvanised Covers:
VCF3/G Cover Fixing Kit
M6 x 12 mushroom headed bolt,
shakeproof washer and square nut

For Stainless Steel Covers:
VCF3/SS Cover Fixing Kit
M6 x 12 pan head screw, M6 flat
washer, shakeproof washer and M6
hex nut



VCF3/SS Cover fixing kit shown
securing cover to Speedway cable ladder

Order details for additional cover fixing kits are as follows:

SW/VCF3/Finish & Material.

SW/VCF3/SS Speedway Cover Fixing Kit, Stainless Steel.

Consult our Design Team for cover fixing recommendations in locations subject to severe weather conditions. ■

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Bracing Kits (CBK)

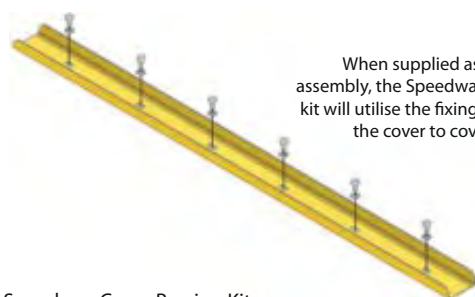
Bracing kits are provided for additional strengthening of closed and ventilated covers for all widths of 450mm and above. Bracing kits are not required for covers of widths less than 300mm.

All closed and vented covers of widths 450mm and above have pre-formed threaded fixing holes as standard to accept the bracing kits.

The following table gives the number of bracing kits supplied for each type of ladder & fitting cover.

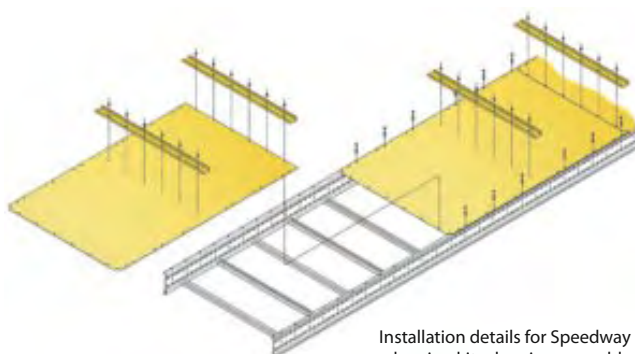
Speedway Bracing Kit Requirements			
Ladder & Fitting Type	Number of Bracing Kits		
Straight ladder	Widths ≥ 450mm	2 per 1.5m cover	
30° Flat Elbows	Widths ≥ 450mm	Radius ≤ 600mm	1 per cover
	Widths ≥ 450mm	Radius > 600mm	1 per cover
45° Flat Elbows	Widths ≥ 450mm	Radius ≤ 600mm	2 per cover
	Widths ≥ 450mm	Radius > 600mm	2 per cover
60° Flat Elbows	Widths ≥ 450mm	Radius ≤ 600mm	2 per cover
	Widths ≥ 450mm	Radius > 600mm	2 per cover
90° Flat Elbows	Widths ≥ 450mm	Radius ≤ 600mm	2 per cover
	Widths ≥ 450mm	Radius > 600mm	3 per cover
Inside Risers	Not Required		
Outside Risers	Not Required		
Equal & Unequal Tees	All Widths ≥ 450mm	Radius ≤ 600mm Radius > 600mm	As required 750mm max pitch
Crosses	All Widths ≥ 450mm	Radius ≤ 600mm Radius > 600mm	As required 750mm max pitch
Reducers	Not Required		

It is recommended that additional bracing kits are ordered to suit contingency requirements during installation (5% is suggested).



When supplied as part of a cover assembly, the Speedway cover bracing kit will utilise the fixings supplied with the cover to cover connections.

Speedway Cover Bracing Kit
Comprising of a channel section and all necessary fixings



Installation details for Speedway
cover bracing kits showing assembly
positions at the cover joint and at the cover mid point

Order details for additional bracing kits are as follows:

SW/CBK/Width/Finish & Material.

SW/CBK/900/GA Speedway Cover Bracing Kit, 900mm Wide,
Hot Dip Galvanized Finish. ■



Channel Nut - Long Spring

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	UCM6/L	GAUCM6/L	SSUCM6/L
M8	UCM8/L	GAUCM8/L	SSUCM8/L
M10	UCM10/L	GAUCM10/L	SSUCM10/L
M12	UCM12/L	GAUCM12/L	SSUCM12/L



Channel Nut - Short Spring

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	UCM6/S	GAUCM6/S	SSUCM6/S
M8	UCM8/S	GAUCM8/S	SSUCM8/S
M10	UCM10/S	GAUCM10/S	SSUCM10/S
M12	UCM12/S	GAUCM12/S	SSUCM12/S



Channel Nut - Plain

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	UCM6/N	GAUCM6/N	SSUCM6/N
M8	UCM8/N	GAUCM8/N	SSUCM8/N
M10	UCM10/N	GAUCM10/N	SSUCM10/N
M12	UCM12/N	GAUCM12/N	SSUCM12/N



Hex Nut

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	M6HN		SSM6HN/A4
M8	M8HN	GAM8HN	SSM8HN/A4
M10	M10HN	GAM10HN	SSM10HN/A4
M12	M12HN	GAM12HN	SSM12HN/A4



Hex Nyloc Nut

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	M6NYL		SSM6NYL/A4
M8	M8NYL	GAM8NYL	SSM8NYL/A4
M10	M10NYL	GAM10NYL	SSM10NYL/A4
M12	M12NYL	GAM12NYL	SSM12NYL/A4

Delta Finish



Hex Head Set Screw

Thread Size	Length mm	Zinc Plated	Galvanized	Stainless Steel
M6	12	M6X12HS		SSM6X12HS/A4
	16	M6X16HS		SSM6X16HS/A4
	20	M6X20HS		SSM6X20HS/A4
	25	M6X25HS		SSM6X25HS/A4
	30	M6X30HS		SSM6X30HS/A4
	35	M6X35HS		SSM6X35HS/A4
M8	40	M6X40HS		SSM6X40HS/A4
	20	M8X20HS	GAM8X20HS	SSM8X20HS/A4
	25	M8X25HS	GAM8X25HS	SSM8X25HS/A4
	30	M8X30HS	GAM8X30HS	SSM8X30HS/A4
	35	M8X35HS	GAM8X35HS	SSM8X35HS/A4
M10	40	M8X40HS	GAM8X40HS	SSM8X40HS/A4
	20	M10X20HS	GAM10X20HS	SSM10X20HS/A4
	25	M10X25HS	GAM10X25HS	SSM10X25HS/A4
	30	M10X30HS	GAM10X30HS	SSM10X30HS/A4
	35	M10X35HS	GAM10X35HS	SSM10X35HS/A4
M12	40	M10X40HS	GAM10X40HS	SSM10X40HS/A4
	20	M12X20HS	GAM12X20HS	SSM12X20HS/A4
	25	M12X25HS	GAM12X25HS	SSM12X25HS/A4
	30	M12X30HS	GAM12X30HS	SSM12X30HS/A4
	35	M12X35HS	GAM12X35HS	SSM12X35HS/A4
	40	M12X40HS	GAM12X40HS	SSM12X40HS/A4



Mushroom Head Bolt & Square Nut

Thread Size	Length mm	Zinc Plated
M6	12	M6X12RNB
M6	16	M6X16RNB
M6	20	M6X20RNB
M6	25	M6X25RNB





Pan Head Screw

Thread Size	Length mm	Zinc Plated	Stainless Steel
M6	12	M6X12PH	SSM6X12PH/A4
	16	M6X16PH	SSM6X16PH/A4
	20	M6X20PH	SSM6X20PH/A4
	25	M6X25PH	SSM6X25PH/A4
	30	M6X30PH	SSM6X30PH/A4
	35	M6X35PH	SSM6X35PH/A4
	40	M6X40PH	SSM6X40PH/A4



Internal Tooth Shake Proof Washer

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	M6SW	GAM6SW	SSM6SW/A4
M8	M8SW	GAM8SW	SSM8SW/A4
M10	M10SW	GAM10SW	SSM10SW/A4
M12	M12SW	GAM12SW	SSM12SW/A4



Pan Head Screw, Hex Nut & Flat Washer

Thread Size	Length mm	Stainless Steel
M6	12	SSM6X12PH/NW/A4
	16	SSM6X16PH/NW/A4
	20	SSM6X20PH/NW/A4
	25	SSM6X25PH/NW/A4
	30	SSM6X30PH/NW/A4
	35	SSM6X35PH/NW/A4
	40	SSM6X40PH/NW/A4



Single Coil Spring Washer

Thread Size	Zinc Plated	Galvanized	Stainless Steel
M6	M6SPW	GAM6SPW	SSM6SPW/A4
M8	M8SPW	GAM8SPW	SSM8SPW/A4
M10	M10SPW	GAM10SPW	SSM10SPW/A4
M12	M12SPW	GAM12SPW	SSM12SPW/A4



Nylon Bush

Size	Outside Diameter mm	Part Number
M6	8	315AN25-\$\$
M8	8	315AN03-\$\$
M10	16	315AN01-\$\$
M12	16	315AN04-\$\$

\$\$ = Bush length in mm



Studding

Size	Length m	Zinc Plated	Galvanized	Stainless Steel
M6	3	M6R3	GAM6R3	SSM6R3
M8	3	M8R3	GAM8R3	SSM8R3
M10	3	M10R3	GAM10R3	SSM10R3
M12	3	M12R3	GAM12R3	SSM12R3



Ladder Fixing Sets

Galvanized	M10 x 16 Cup Square Hex Bolt	389AA31
Stainless Steel	M10 Internal Tooth Shake Proof Washer	389AA81
	M10 Hex Nut	



This compilation of technical data is intended to supply essential information relating to cable ladder systems and to aid in the selection of the correct Speedway cable ladder system & supports. This will ensure that the specified cable ladder installation is adequately protected against corrosion and has suitable strength & rigidity to provide reliable support at minimum installed cost.

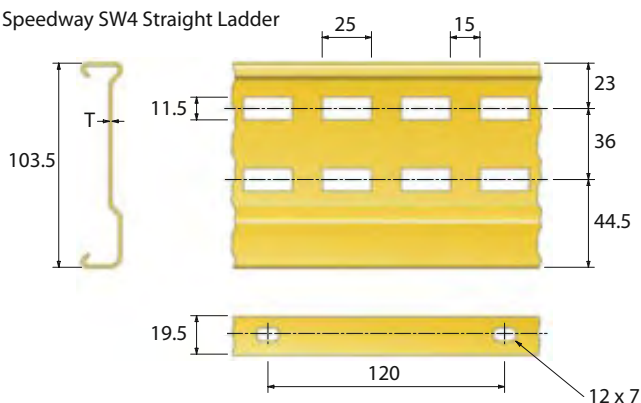
Our Design Team is available to answer any questions relating to particular site requirements which may not be answered in the following sections.

1 Speedway Cable Ladder – General Information

1.1 Slot Patterns

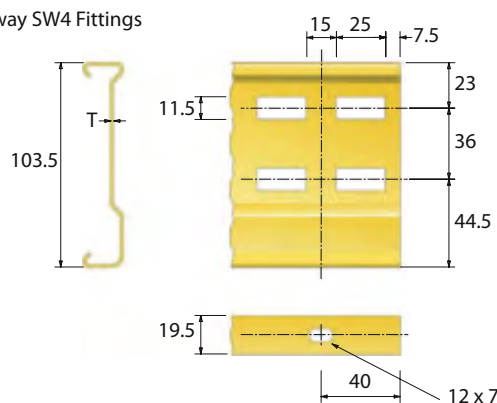
Details of the slot patterns for the Speedway cable ladder system are given in the following diagrams. These slot patterns are common for each Speedway cable ladder type, irrespective of material gauge.

Speedway SW4 Straight Ladder



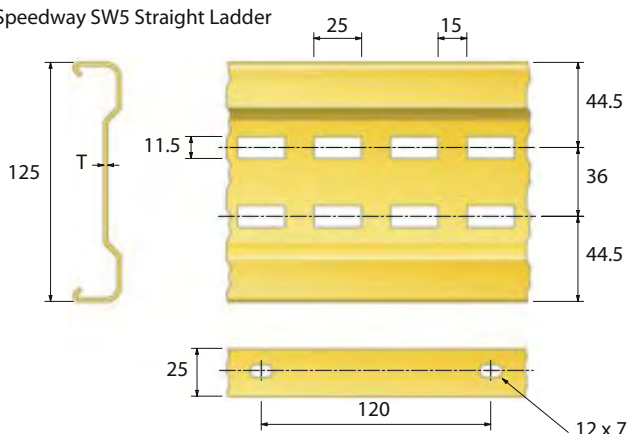
T = Side Wall Gauge (1.5mm standard gauge)

Speedway SW4 Fittings



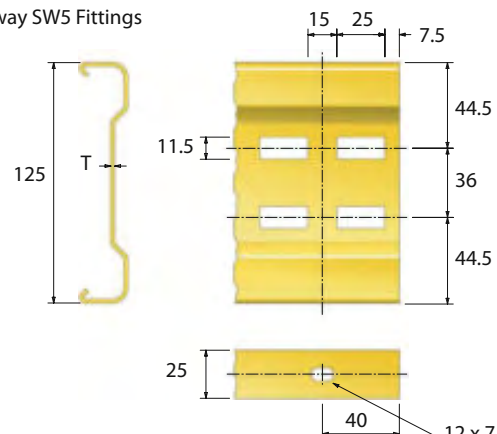
The slot pattern for the Speedway SW4 fittings is repeated at each end of the fitting side wall and centrally on radiused side walls (elbows, tees & crosses).

Speedway SW5 Straight Ladder



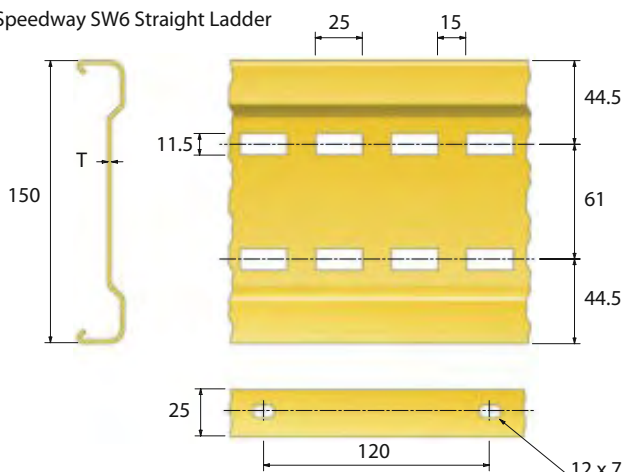
T = Side Wall Gauge (2.0mm standard gauge)

Speedway SW5 Fittings



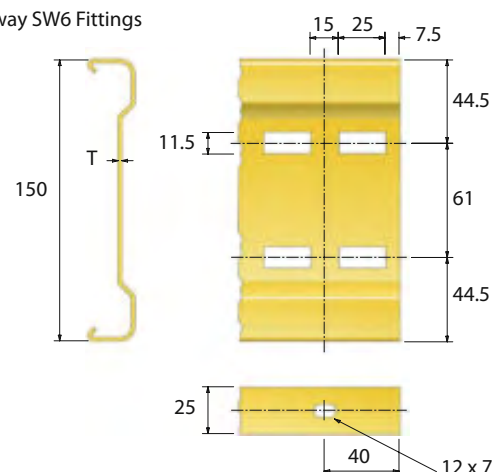
The slot pattern for the Speedway SW5 fittings is repeated at each end of the fitting side wall and centrally on radiused side walls (elbows, tees & crosses).

Speedway SW6 Straight Ladder



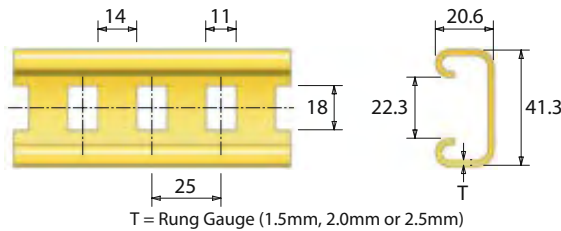
T = Side Wall Gauge (2.0mm standard gauge. 2.5mm for Long Span Cable Ladder)

Speedway SW6 Fittings



The slot pattern for the Speedway SW6 fittings is repeated at each end of the fitting side wall and centrally on radiused side walls (elbows, tees & crosses).

Speedway Rung



T = Rung Gauge (1.5mm, 2.0mm or 2.5mm)

For small order quantities, Speedway rungs of material gauge 2.5mm may be supplied with slots of size 26mm x 13mm pitched at 50mm centres.

1.2 Standard Material Gauges

The gauges for the standard Speedway cable ladder & fittings have been determined by providing the most cost effective and efficient combination of material gauges for the side walls and rungs to suit the designed application of each type of Speedway cable ladder system.

The following table shows the standard material gauges for the Speedway cable ladder system in mild steel/hot dip galvanized finish (GA), stainless steel (SS) and for silicon rich steel/deep galvanized finish (GX). These gauges are supplied as standard unless otherwise specified.

Speedway Cable Ladder System – Standard Material Gauges								
Ladder Type	Material & Finish	Side Wall Gauge	Rung Gauge					
			150 mm	300 mm	450 mm	600 mm	750 mm	900 mm
Speedway SW4	GA	1.5mm				2mm		
	SS							
	GX							
Speedway SW5	GA	2mm	1.5mm					
	SS							
	GX							
Speedway SW6	GA	2mm	2mm					
	SS							
	GX							
Speedway Long Span Ladder	SS	2.5mm	2mm					
GA - Mild Steel/Hot Dip Galvanized SS - Stainless Steel GX - Silicon Rich/Deep Galvanized								

The Speedway cable ladder system is also available in a combination of non-standard side wall and rung gauge combinations from 1.5mm to 2.5mm to suit specific installation requirements. Details of the possible material gauge combinations for the Speedway side walls and rungs are given in the following table.

Speedway Cable Ladder System – Non-Standard Material Gauge Combinations					
Ladder Type	Material & Finish	Side Wall Gauge		Rung Gauge	
Speedway SW4	GA	1.5mm	2mm	N/A	2.5mm
	SS				N/A
	GX				N/A
Speedway SW5	GA	1.5mm	2mm	1.5mm	2.5mm
	SS				N/A
	GX				N/A
Speedway SW6	GA	1.5mm	2mm	2.5mm	2.5mm
	SS				N/A
	GX				N/A
Speedway Long Span Ladder	SS	N/A	N/A	N/A	2.5mm
GA - Mild Steel/Hot Dip Galvanized SS - Stainless Steel GX - Silicon Rich/Deep Galvanized					

Consult our Design Team for guidance on the correct selection of non-standard material gauge combinations.

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Phone: +7 71133 93077; Fax: +7 71133 93074; E-Mail: info@ibemo-kz.com; http://www.ibemo.kz

1.3 Free Base Area

Speedway straight cable ladder has the following free base area (FBA):

Ladder Type	Free Base Area	Classification to BS EN ISO 61537
Speedway SW4	86.5%	Y
Speedway SW5		
Speedway SW6		

1.4 Cross-sectional Area

Speedway cable ladder has the following cross-sectional area (CSA):

Speedway SW4 Ladder	CSA mm ²	Speedway SW5 Ladder	CSA mm ²	Speedway SW6 Ladder	CSA mm ²
SW4/SL/150/#	12366	SW5/SL/150/#	15975	SW6/SL/150/#	20075
SW4/SL/300/#	24066	SW5/SL/300/#	30975	SW6/SL/300/#	38825
SW4/SL/450/#	35766	SW5/SL/450/#	45975	SW6/SL/450/#	57575
SW4/SL/600/#	47466	SW5/SL/600/#	60975	SW6/SL/600/#	76325
SW4/SL/750/#	59166	SW5/SL/750/#	75975	SW6/SL/750/#	95075
SW4/SL/900/#	70866	SW5/SL/900/#	90975	SW6/SL/900/#	113825
SW4/SL/1050/#	82566	SW5/SL/1050/#	105975	SW6/SL/1050/#	132575

Add Finish & Material. See page 8.

1.5 Speedway Cable Ladder Specification

The following is a typical specification for a cable ladder system which embodies the key features of the Speedway cable ladder system.

- The cable ladder system shall be based on two longitudinal outward facing side members with returned edge flanges to improve safety during handling, installation and cable-pulling activities. The longitudinal side members shall form the main structural elements of the cable ladder system and shall be longitudinally ribbed for enhanced stiffness and rigidity.
- The profile of the side members shall remain constant for the straight cable ladder and the cable ladder fittings.
- The profile of the side members shall present a smooth surface to allow for easier cable pulling and to minimise the opportunities for damage to the cable insulation.
- The longitudinal side members shall have a height of: 103.5mm and a flange width of 19.5mm (for Speedway SW4) 125mm and a flange width of 25mm (for Speedway SW5) 150mm and a flange width of 25mm (for Speedway SW6).
- The longitudinal side member shall have a wall thickness of: 1.5mm* (for Speedway SW4). 2.0mm* (for Speedway SW5 & Speedway SW6).

* or required side wall thickness – see 1.2 for details.

- The side members of the straight cable ladder shall be fully slotted to minimise weight. The slot pattern in the side members shall allow for cutting of the straight cable ladder at any point along the length without the need to drill the side member when connecting to adjacent straight cable ladder and cable ladder fittings using the standard means of coupling.
- The two longitudinal side members shall be connected by individual transverse members (rungs) which shall be welded at low level to the inside face of the side members to give a loading depth of: 78mm for Speedway SW4, 100mm for Speedway SW5 & 125mm for Speedway SW6.



- 8 The transverse members shall be evenly spaced at 300mm centres along the length of the straight cable ladder. The transverse members for horizontal bends (flat elbows) shall be located at either 0° or 7.5° and multiples thereof around the fitting subject to a maximum spacing of 465mm between adjacent transverse members when measured as a linear distance along the outside face of the horizontal bend. The transverse members for horizontal intersection fittings (tees and crosses) shall be evenly spaced at intervals not exceeding 465mm. The transverse members for vertical bends (inside and outside risers) shall be evenly spaced at intervals not exceeding 300mm centres.
- 9 The transverse members shall be of channel profile with a width of 41.3mm and a height of 20.6mm. The transverse members shall have a continuous open slot to suit the mounting of cable restraint devices (cleats, etc.) and other equipment using standard channel nuts and fixings. The base of the transverse members shall have slots of size 18mm x 11mm at 25mm centres to suit the use of cable ties and banding.
- 10 The transverse members shall have a wall thickness of:

Hot Dip Galvanised Finish;

1.5mm* for widths up to and including 600mm, and a wall thickness of 2.0mm* for widths above 600mm (for Speedway SW4)

1.5mm* for widths up to and including 600mm, and a wall thickness of 2.0mm* for widths above 600mm (for Speedway SW5)

2.0mm* (for Speedway SW6)

Stainless Steel;

1.5mm* (for Speedway SW4)

2.0mm* (for Speedway SW5)

2.0mm* (for Speedway SW6)

Deep Galvanised Finish;

1.5mm* (for Speedway SW4)

1.5mm* (for Speedway SW5)

2.0mm* (for Speedway SW6)

* or required rung wall thickness – see 1.2 for details.

- 11 The transverse members for straight cable ladder shall be orientated with the continuous slot facing alternately upwards and downwards. The transverse members for cable ladder fittings shall be orientated with the continuous slot facing upwards to allow for the securing of cable restraint devices (cleats, etc.) at every rung position.
- 12 The width of the straight cable ladder and the cable ladder fittings shall be measured relative to the inside faces of the side members. The widths of the straight cable ladder and cable ladder fittings shall be 150mm, 300mm, 450mm, 600mm, 750mm, 900mm & 1050mm.

- 13 The straight cable ladder shall have a length of 3000mm or 6000mm as specified.

- 14 The cable ladder fittings shall have fixed angles of 90°, 60°, 45° and 30°.

- 15 Radiused cable ladder fittings shall have a radius of 300mm, 450mm, 600mm, 750mm, 900mm, 1050mm & 1200mm. The radius of the fitting shall be measured relative to the inside face on the radiused side wall.

- 16 The cable ladder system shall be manufactured using:

For Mild Steel – Hot Dip Galvanized Finish;
mild steel of grade D11 to BS EN 10111 and shall be hot dip galvanized after manufacture to BS EN ISO 1461.

For Stainless Steel (Marine Grade);
using stainless steel material 1.4404 (316 marine grade) to BS EN 10088.

For Silicon-rich Steel – Deep Galvanized Finish;
silicon-rich steel (generally complying to grade S355 to BS EN 10025) and shall be deep galvanized after manufacture to twice the coating thickness specified by BS EN ISO 1461.

- 17 The couplers shall be profiled to match the profile of the cable ladder. The couplers shall be secured using M10 square-shouldered bolts with rounded heads. The bolts shall be secured with M10 hex nuts and M10 shake-proof washers as standard. The couplers shall have a slot pattern which prevents slip between adjacent straight ladder lengths (including cut lengths of straight cable ladder) and between cable ladder fittings. The couplers shall have a slot pattern which allows for easy connection to cut lengths of straight cable ladder without the need for on-site drilling. ■

2 Installation Recommendations

2.1 Loads

A correctly designed and specified cable ladder installation should take into account the nature and extent of the loads which will be imposed on the cable ladder system. These loads comprise of dead loads including the self-weight of the cable ladder system, the weight of the cables and secondary equipment attached to the cable ladder, imposed loads which occur during installation of the cable ladder system and during cable pulling operations, and external loads such as wind, snow, & ice.

Cable ladders are often employed in locations where the wind speeds may cause considerable lateral loading and careful consideration must be given to design to ensure a satisfactory installation. An awareness of the worst possible climate conditions is necessary when specifying the correct Speedway cable ladder system.

The load-deflection information given in 3.4 is based on static loading of the Speedway cable ladder installation and does not take into account dynamic effects such as earthquake loading, etc.

In designing a cable ladder installation it is good practice to allow at least a 20% excess capacity in a new installation for future expansion. Such a provision is of great economic advantage when there is a later need for additional cables.

2.2 Support Spacing

The space between the supports of a cable ladder installation is referred to as the span. Supports for cable ladder should, as far as is practicable, be spaced so as to create the most economical load/span ratio to suit the capacity of the cable ladder system. This will give the most advantageous solution when considering procurement and installation costs. As a general rule of thumb, the load-carrying capability of the Speedway cable ladder system increases as the span decreases, so a lighter duty cable ladder system can be specified for shorter spans. Conversely, a heavier duty Speedway cable ladder system will need to be specified for longer spans.

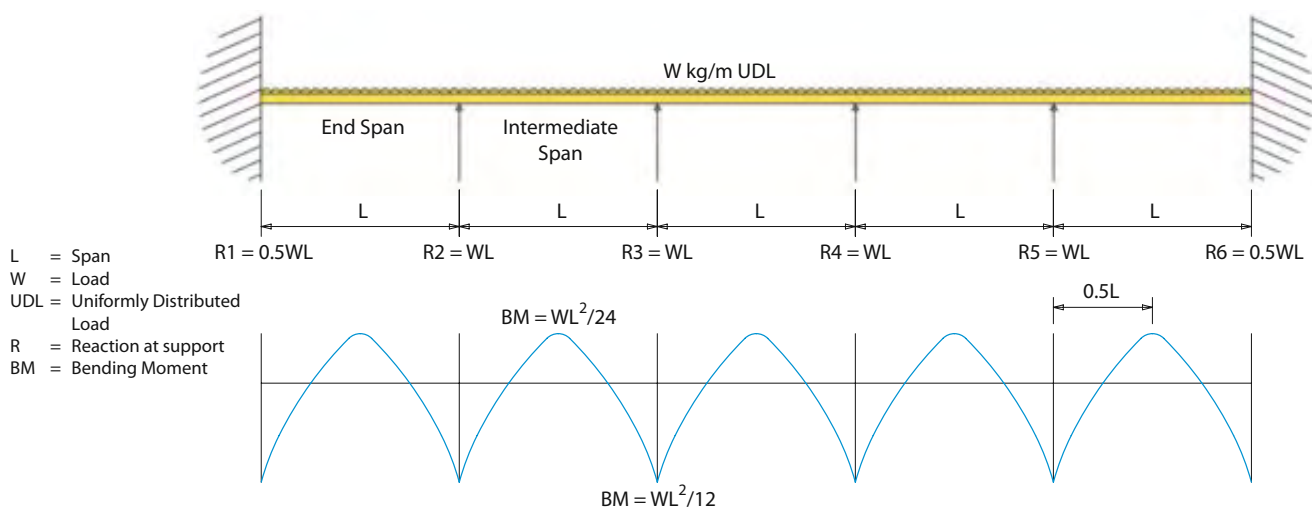
Speedway straight cable ladder can provide cost-effective support for cable loads at spans of 3m to 6m. For longer spans, or for carrying significantly increased cable loads, the Speedway Long Span Ladder should be used; the slightly increased cost of this ultra-heavy duty cable ladder in comparison to the standard Speedway cable ladder is easily offset by the cost savings arising from a reduced number of supports and the reduction in installation costs.

When considering support positions it should be remembered that it is necessary to support accessories when a change of direction takes place i.e. bends, tees, risers etc. This is to ensure that undue 'corner' cantilever reaction is minimised. Recommendations for the location of supports for Speedway cable ladder fittings are given in section 2.4.

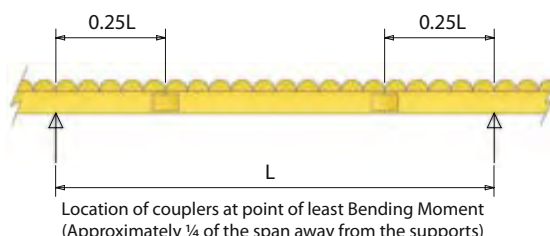
2.3 Location of Couplers

The maximum bending moments acting on a cable ladder run occur in the cable ladder side members at the supports and at the mid span position. For this reason it is good practice to avoid locating couplers in a cable ladder run either directly on supports or at the mid span position. It is also good practice to avoid locating couplers in the end span of a continuous beam installation as the bending moments in the end span are, for simple end support installations, much higher than those found in the intermediate spans. These limitations cannot always be achieved in a cable ladder installation and are not

a mandatory requirement for the Speedway coupling system where the loading information given in 3.4 is valid irrespective of the location of the couplers. The ideal positions to locate the connections in a cable ladder run are at approximately a quarter of a span from the supports where the bending moment, and hence the stress, are minimal. Positioning the couplers at the quarter span positions is of benefit during installation, assisting in alignment of the cable ladders and allowing unhindered securing of the cable ladder to the supports.



Bending Moment distribution for a continuous beam with fixed ends
(The Bending Moment for end spans in a continuous beam with simple end supports will be higher than that shown)



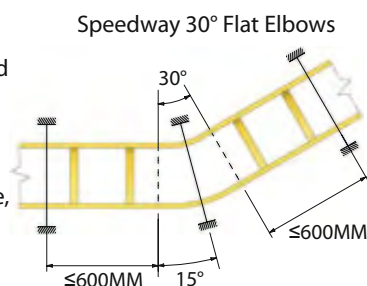
2.4 Support Locations for Speedway Fittings

The following illustrations show the recommended support positions when installing Speedway cable ladder fittings. The supports should be fully fixed to provide maximum support for the Speedway cable ladder fitting.

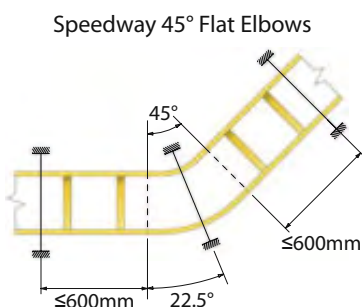
For more specific recommendations relating to particular site installations please contact our Design Team.

2.4.1 Speedway Flat Elbows

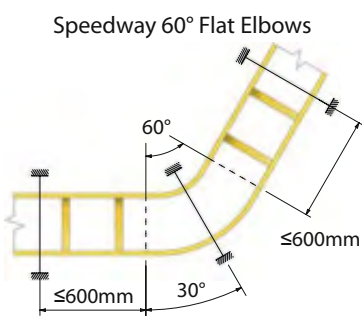
For 30° flat elbows, supports should be placed within 600mm of the end of the flat elbow. For 30° flat elbows with radii of 450mm and above, an intermediate support should be located radially at 15° under the flat elbow.



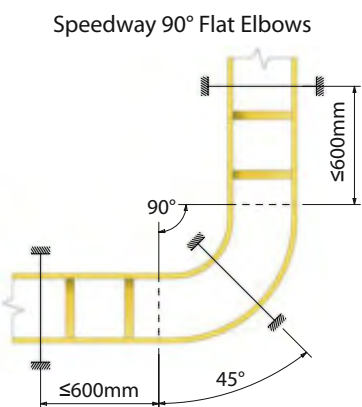
For 45° flat elbows, supports should be placed within 600mm of the end of the flat elbow. For 45° flat elbows with radii of 450mm and above, an intermediate support should be located radially at 22.5° under the flat elbow.



For 60° flat elbows, supports should be placed within 600mm of the end of the flat elbow. An intermediate support should be located radially at 30° under the flat elbow.



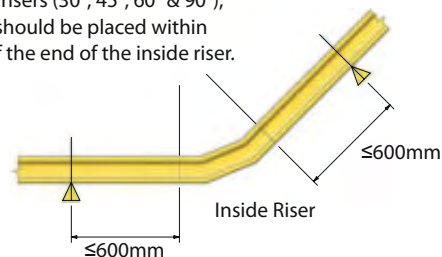
For 90° flat elbows, supports should be placed within 600mm of the end of the flat elbow. An intermediate support should be located radially at 45° under the flat elbow.



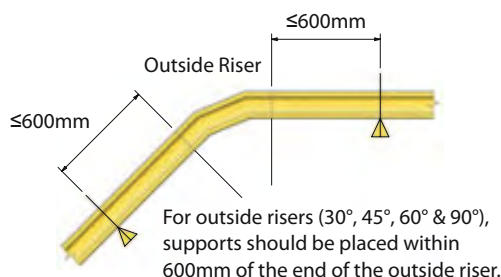
2.4.2 Speedway Inside & Outside Risers

Speedway Inside Risers (all angles)

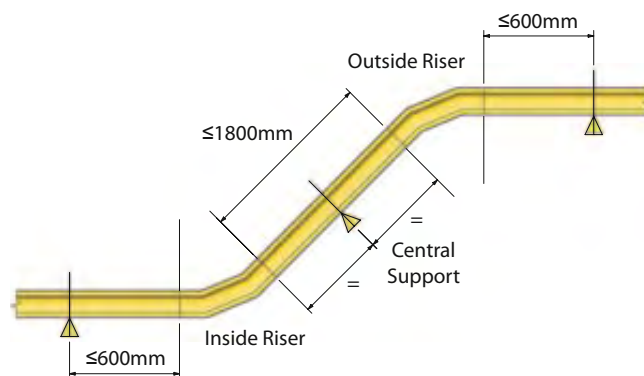
For inside risers (30°, 45°, 60° & 90°), supports should be placed within 600mm of the end of the inside riser.



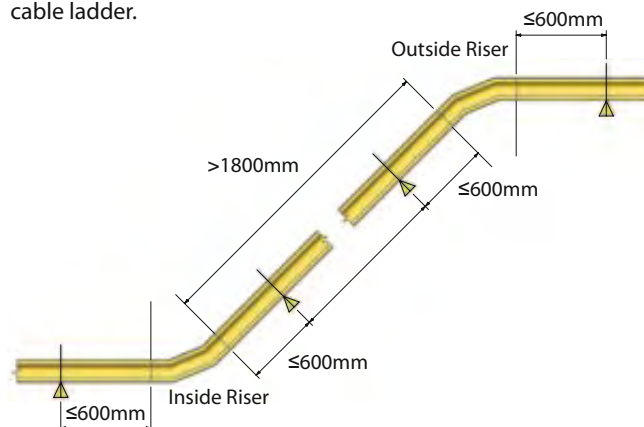
Speedway Outside Risers (all angles)



Speedway Inside & Outside Risers in Offset Arrangement



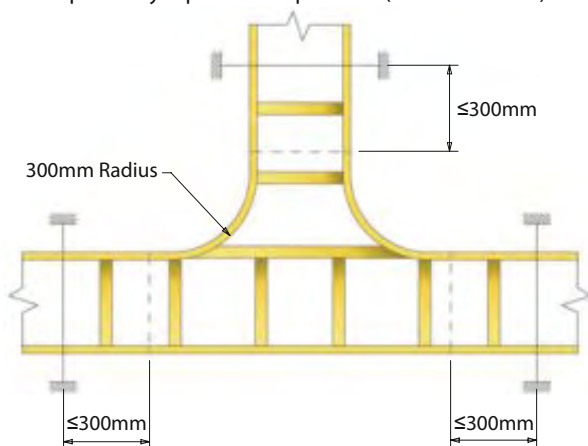
For inside & outside risers (30°, 45°, 60° & 90°) forming an offset of length up to 1800mm, supports should be placed within 600mm of the end of the offset and centrally on the inclined cable ladder.



For inside & outside risers (30°, 45°, 60° & 90°) forming an offset of length over 1800mm, supports should be placed within 600mm of the ends of the inside & outside risers. The inclined cable ladder should be supported in accordance with the support recommendations for a straight cable ladder run.

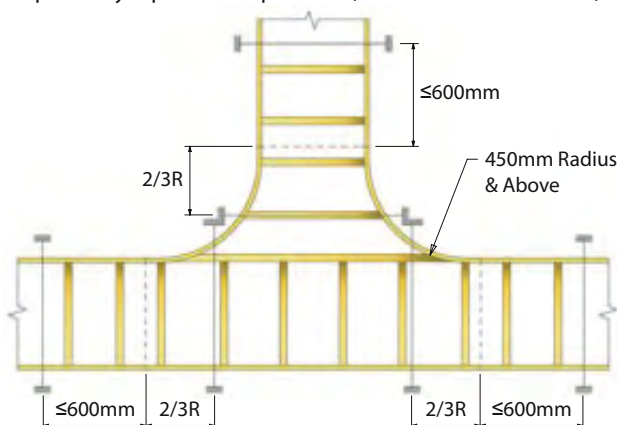
2.4.3 Speedway Equal & Unequal Tees

Speedway Equal & Unequal Tees (300mm Radius)



For equal and unequal tees with radii of 300mm, supports should be located within 300mm of the tee on each branch in the cable ladder run.

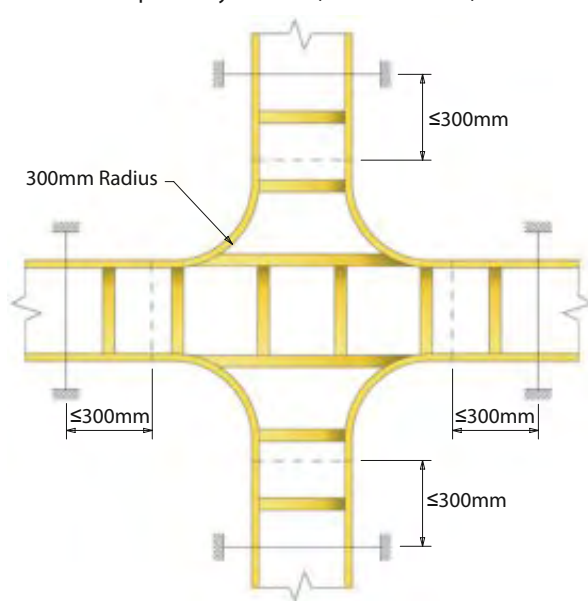
Speedway Equal & Unequal Tees (450mm Radius & Above)



For equal and unequal tees with radii of 450mm and above, supports should be located within 600mm of the tee on each branch in the cable ladder run. Intermediate supports should be placed at approximately 2/3 of the radius (R) on each branch of the tee as shown.

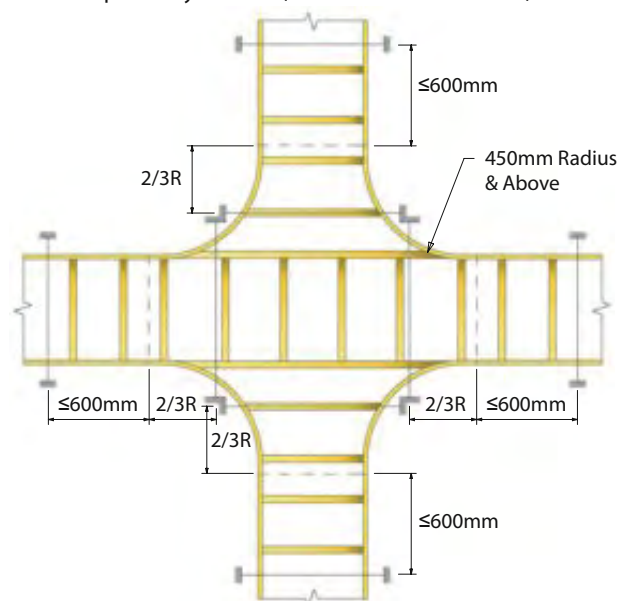
2.4.4 Speedway Crosses

Speedway Crosses (300mm Radius)



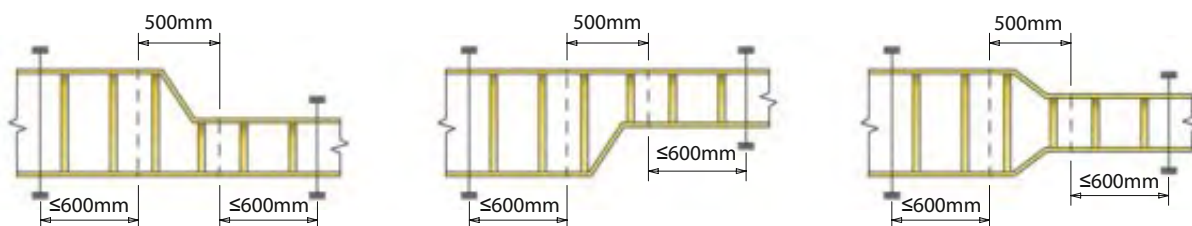
For crosses with radii of 300mm, supports should be located within 300mm of the cross on each branch in the cable ladder run.

Speedway Crosses (450mm Radius & Above)



For crosses with radii of 450mm and above, supports should be located within 600mm of the cross on each branch in the cable ladder run. Intermediate supports should be placed at approximately 2/3 of the radius (R) on each branch of the cross as shown.

2.4.5 Speedway Reducers



For all widths of straight reducer, left-hand reducer, and right-hand reducer, supports should be located on the cable ladder run within 600mm of the reducer as shown.

2.5 Loading of Supports

It is important that cable ladder and cable ladder supports are loaded in a symmetrical manner such that undue stresses are kept to a minimum.

The safe working load figures for the Speedway cable ladder and the Speedway cantilever type supports is based on a uniform loading within the Speedway cable ladder and on the assumption that the correct length of cantilever is used in each case.

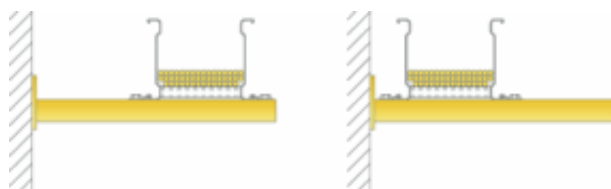
Where cantilevers of additional length are used to support Speedway cable ladder, care should be taken to position the cable ladder as close to the backplate of the cantilever as the installation routing will allow.

Where the Speedway cable ladder is not filled to capacity, or is carrying heavy cables, care should be taken to position the cables as close to the cantilever backplate as the installation routing will allow.

For those installations where the routing of the cable ladder or the position of heavy cable loads cannot be undertaken in accordance with the above, the IC/PROP/Size cantilever arm prop should be used to correctly support the cantilever arm.

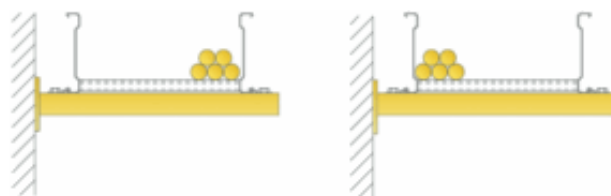
Safe working load information for Speedway supports is given on page 46 - 52 – Supports.

For further information and guidance on the loading of supports please contact our Design Team.



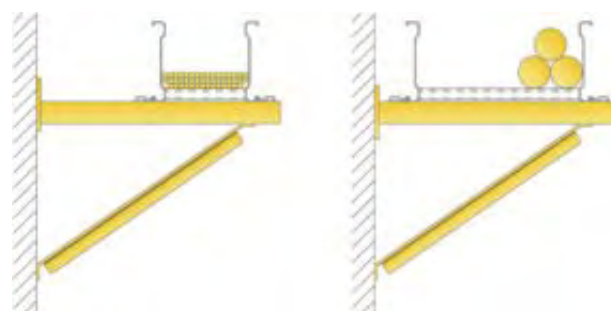
Avoid locating cable ladder on the end of cantilever support

Locate cable ladder close to the cantilever backplate



Avoid placing unsymmetrical cable loads on the extremes of cantilever supports

Locate unsymmetrical cable loads close to the cantilever backplate



Use the cantilever prop (IC/PROP/Size – See page 48) to support offset cable ladder or unsymmetrical cable loads.

2.6 Low Temperature Applications

Consideration should be given to the likely affects of low temperatures when specifying cable management products for installation at a location subject to sub zero temperatures.

The Speedway cable ladder system is manufactured using generic low carbon steels and austenitic stainless steels – general guidance on the low temperature performance of these materials is as follows:

Low Carbon Steels

Low carbon steels used in the manufacture of commercially available cable management systems exhibit a ductile to brittle transition at low temperatures. At these low temperatures an impact can cause cracking which will propagate faster than the elastic deformation, resulting in failure of the product by brittle fracture. Brittle fracture can be avoided by specifying structural grade steels that have certified minimum impact values. These structural steel grades are typically certified at temperatures of 0°C, -20°C, and -40°C, showing a decreasing impact value as the temperature decreases. Vantrunk has manufactured the Speedway cable ladder system for low temperature applications using structural steels of 2.0mm and 2.5mm thickness. These steels have been independently tested at temperatures of -46°C giving average charpy values of 20 joules for 2.0mm thickness and 30 joules for 2.5mm thickness.

Austenitic Stainless Steels

Austenitic stainless steels, including grade 1:4404 to BS EN 10088-2 (marine grade 316) which is used in the manufacture of the Speedway cable ladder system and accessories, are not affected by sub zero temperatures. These stainless steels do not suffer a loss in either ductility or toughness and are not susceptible to failure by brittle fracture at low temperatures below -20°C.

Please contact our Design Team for further information relating to low temperature applications.

2.7 Expansion & Contraction

It is important that thermal expansion and contraction are considered when designing and installing a cable ladder installation. Even in relatively moderate climates there will be sufficient seasonal thermal movement which could easily place undue stresses on the cable ladder installation and the supporting structure.

To incorporate thermal movement in the design of a cable ladder installation it is important to establish the maximum temperature differential which is likely to be encountered at the site of the installation. The temperature differential is based on the maximum and minimum seasonal temperatures. This temperature differential will determine the maximum spacing between expansion couplers within the cable ladder installation.

To facilitate correct installation of the expansion couplers it will be necessary to measure the temperature of the cable ladder at the time of installation and to use this temperature to determine the required 'setting gap' between the adjoining lengths of cable ladder. This will ensure that the movement provided by the

Speedway expansion coupler is not compromised by incorrect assembly at the time of installation.

The Speedway expansion coupler is designed to allow movement up to a maximum of 28mm. This movement allowance is the basis for determining both the maximum allowable spacing between expansion couplers and the required setting gap at the time of installation.

The maximum allowable spacing between expansion couplers is given in the adjacent table for both hot dip galvanized and stainless steel Speedway cable ladder. Intermediate values can be obtained using the formula given under the table.

As an example:

Maximum temperature = +35°C

Minimum temperature = -15°C

Temperature differential = 50°C

For a temperature differential of 50°C, based on a hot dip galvanized cable ladder system, expansion couplers should be fitted every 46m. For ease of installation, expansion couplers should be fitted at every 15th 3m cable ladder, giving 45m between expansion couplers.

Maximum Allowable Spacing – Speedway Expansion Couplers

Temperature Differential At Location of Installation		Maximum Spacing Between Expansion Couplers			
		Hot Dip Galvanized		Stainless Steel	
°C	°F	m	ft	m	ft
10	50	229.5	629.6	175.0	480.1
20	68	114.8	314.8	87.5	240.0
30	86	76.5	209.9	58.3	160.0
40	104	57.4	157.4	43.8	120.0
50	122	45.9	125.9	35.0	96.0
60	140	38.3	104.9	29.2	80.0
70	158	32.8	89.9	25.0	68.6
80	176	28.7	78.7	21.9	60.0
90	194	25.5	70.0	19.4	53.3
100	212	23.0	63.0	17.5	48.0

To determine the setting gap at the time of installation the following chart should be used.

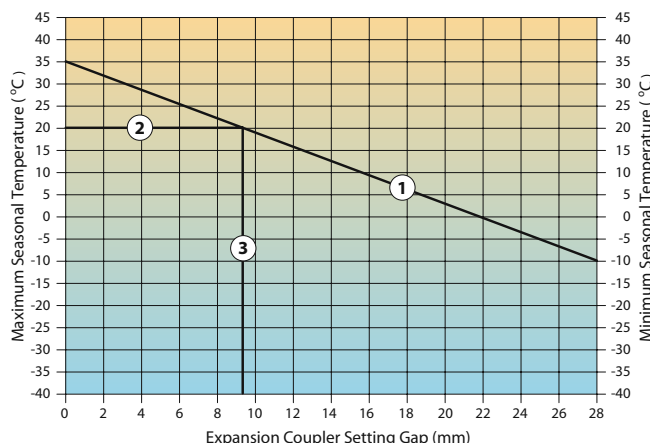
A diagonal line (1) should be constructed between the two vertical axes using the maximum and minimum seasonal temperatures, for example, +35°C & -10°C.

A horizontal line (2) should be constructed for the temperature of the Speedway cable ladder at the time of installation, for example +20°C.

A vertical line (3) should be constructed from the intersection of the diagonal and horizontal lines to give the required setting gap, for this example the expansion couplers should be set with a gap of 9.4mm.

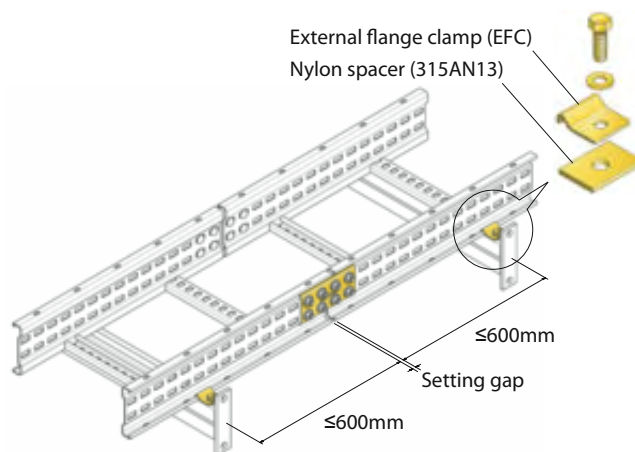
To ensure safe and correct installation, the Speedway cable ladder should be supported within 600mm on each side of connections fitted with expansion couplers.

The Speedway expansion couplers should be correctly assembled – refer to 2.10 for further details.



Where installed with expansion couplers, the Speedway cable ladder should be secured to the supporting structure using the Speedway external flange clamp (EFC)

The Speedway external flange clamp should be installed with nylon spacer pads (part number 315AN13) which will allow the Speedway cable ladder to expand and contract in a restrained manner.

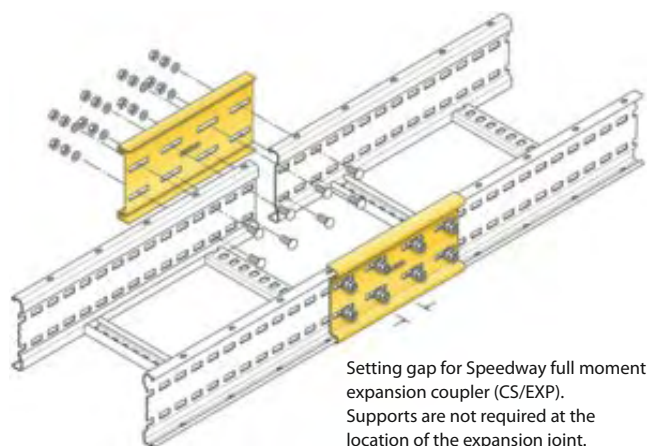


For those installations where it is not practical to fit supports within 600mm on each side of the expansion joint, or for those installations where there is a requirement to provide an expansion coupler capable of accommodating more than 28mm of movement, consideration should be given to the use of the Speedway full moment expansion couplers. The Speedway full moment expansion coupler is capable of carrying the full load of the Speedway cable ladder at the expansion joint without the need to provide local support. Typical examples of this type of installation requirement include pipe racks with expansion joints at 50m intervals.



The Speedway full moment expansion coupler provides for a maximum designed movement of 75mm without the need for local support at the location of the expansion joint. The Speedway full moment expansion coupler can accommodate movement in excess of 75mm; however, local support will be required at the location of the expansion joint.

Consult our Technical Team for full details on the installation requirements for the Speedway full moment expansion coupler (including detailed assembly requirements and gap setting at the time of installation).



2.8 Electrical Continuity Characteristics

In tests conducted to verify the electrical continuity characteristics of the Speedway cable ladder it has been established that the standard Speedway coupling system provides adequate electrical continuity, ensuring equipotential bonding and connection to earth.

The Speedway cable ladder system has been tested for electrical continuity to BS EN 61537:2002 (Section 11.1). Details are given in the following table.

Electrical Continuity to BS EN 61537			
Ladder Type	Material & Finish	Impedance across joint	Impedance per metre length
Speedway SW4	Hot Dip Galvanized	<50mΩ	<5mΩ
	Stainless Steel		
Speedway SW5	Hot Dip Galvanized		
	Stainless Steel		
Speedway SW6	Hot Dip Galvanized		
	Stainless Steel		
BS EN 61537 requires a maximum impedance of 50mΩ across the coupled joint and 5mΩ per metre length without a joint			

The electrical continuity of the Speedway cable ladder joints has been tested to NEMA VE 1-1996 (Section 5.1). Details are given in the following table.

Electrical Continuity to NEMA VE 1		
Ladder Type	Material & Finish	Resistance across joint
Speedway SW4	Hot Dip Galvanized	<33mΩ
	Stainless Steel *	
Speedway SW5	Hot Dip Galvanized	
	Stainless Steel *	
Speedway SW6	Hot Dip Galvanized	
	Stainless Steel	
NEMA VE 1 requires a net resistance of no more than 33mΩ across the coupled joint. * Requires use of earth bonding strap EBS01		

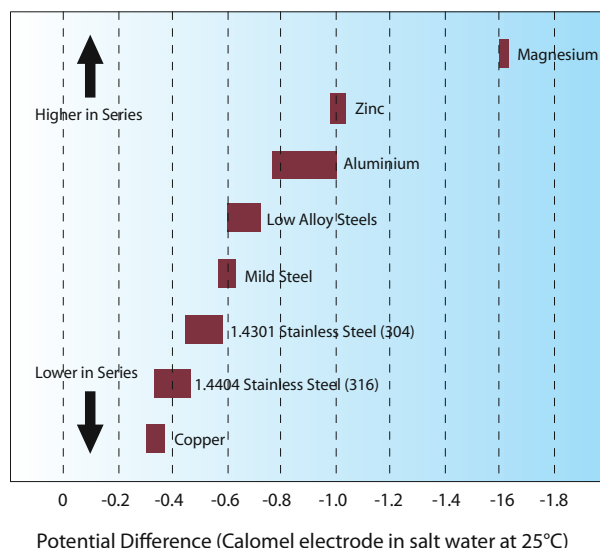
Earth continuity bonding straps (part number EBS01) of cross sectional area 16 mm² are available for use with Speedway cable ladder where a non-conductive surface finish i.e. epoxy coated etc, has been specified or where the installation requires an additional means of bonding.

2.9 Bimetallic Corrosion

Bimetallic corrosion (also referred to as galvanic or electrolytic corrosion) occurs when two dissimilar metals are in close contact with an electrolyte. An electrolyte is a medium which allows the flow of an electrical current. The presence of water as moisture can act as an electrolyte. The rate of corrosion depends upon the differences in electrical potential of the metals as defined by the Galvanic Series (see chart below), the strength of the electrolyte, the period for which the electrolyte is present, and the geometry of the connection between the dissimilar metals. When corrosion occurs it is the anodic metal (which is higher in the galvanic series) that will corrode in preference to the cathodic metal (which is lower in the galvanic series).

If corrosion takes place between two dissimilar metals, the metal which is higher in the galvanic series will corrode in preference to the metal which is lower in the galvanic series.

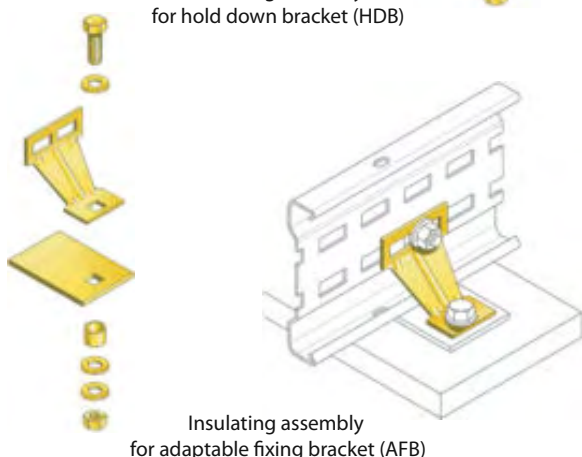
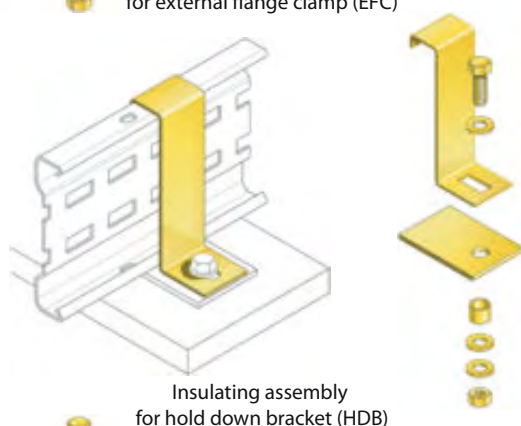
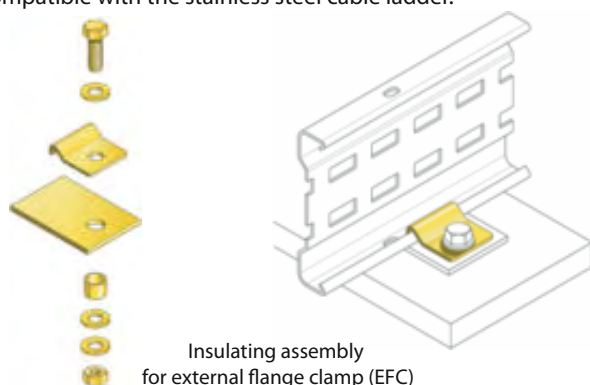
Galvanic Series Chart



It is common to find dissimilar metals such as stainless steel and mild steel or zinc (as found on a hot dip galvanized item) in contact in a damp atmosphere (i.e. sea water, rain, etc.). This arrangement is typically found in coastal and offshore applications where painted structures or heavyweight galvanized steel brackets are used to support stainless steel cable ladders on the exterior of an installation.

Whilst it is possible to use a layer of paint or grease to separate the stainless steel cable ladder from a zinc coating or any exposed mild steel arising from drilling of the support structure, these should not be considered as a long term means of

providing electrical separation between the dissimilar metals. The best solution is to electrically isolate the two dissimilar metals. The Speedway cable ladder system includes a range of nylon pads, bushes, and washers which entirely separates the cable ladder and the fixings from the support structure to prevent bimetallic corrosion. In a typical insulating assembly the ladder securing device (external flange clamp, hold down bracket, or adaptable fixing bracket), securing bolt, nut, & washer are entirely of stainless steel and are therefore compatible with the stainless steel cable ladder.



2.10 Assembly Recommendations

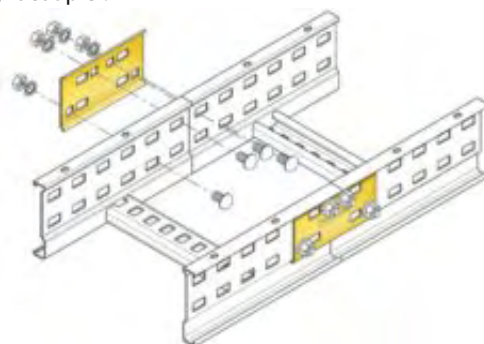
Instructions for the correct assembly of Speedway straight couplers and expansion couplers are given below.

Speedway Straight Couplers

The Speedway straight couplers are supplied with the correct number of fixing sets (4 for Speedway SW4 and 8 for Speedway SW5 & SW6), each comprising of an M10 x 16 square shouldered bolt, an M10 shake-proof washer and an M10 hex nut.

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- 1 Locate the Speedway straight coupler on the outside of the two abutting components of the Speedway cable ladder installation (ladder to ladder, ladder to fitting or fitting to fitting) with the profile of the straight coupler aligned to the central ribbed profile on the abutting components.
- 2 Position the Speedway straight coupler over the two components such that a series of square apertures are created by the alignment of the slot patterns in the coupler and the slot patterns in the two abutting components. For joints between uncut Speedway cable ladders, uncut Speedway cable ladders to Speedway fittings, and between Speedway fittings, the straight coupler should sit centrally across the joint. For connecting cut sections of Speedway cable ladder it may be necessary to reposition the coupler to create the series of square apertures.
- 3 Insert an M10 x 16 square shouldered bolt into one of the square apertures from the inside of the Speedway cable ladder with the threaded portion of the bolt protruding through the side wall of the component and the Speedway straight coupler.



- 4 Fit an M10 shake-proof washer onto the threaded portion of the bolt, followed by an M10 hex nut.
- 5 Tighten the fixing assembly by hand.
- 6 Repeat for the remaining fixing sets.
- 7 Fully secure the abutting components to the supporting structure.
- 8 Check the alignment of the Speedway straight coupler and the abutting components and adjust as necessary to give a fair and true alignment.
- 9 Tighten the hex nuts on the Speedway straight coupler to a torque of 46Nm.

Speedway Expansion Couplers

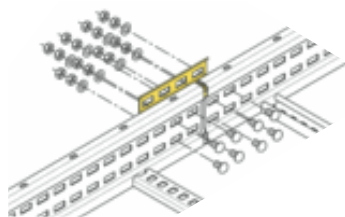
The Speedway expansion couplers are supplied with 8 fixing sets, each comprising of an M10 x 25 square shouldered bolt, an M12 flat washer and two M10 hex nuts.

Refer to 2.7 for details on the spacing between expansion couplers and the required gap setting procedure at the time of installation.

- 1 Locate the Speedway expansion coupler on the outside of the two abutting Speedway cable ladders with the profile of the expansion coupler aligned to the central ribbed profile on the Speedway cable ladders. Note - the Speedway expansion coupler should not be used to connect cut sections of Speedway cable ladder.



- 2 Position the Speedway expansion coupler equally over the two abutting Speedway cable ladders.
- 3 Insert an M10 x 25 square shouldered bolt into one of the square apertures from the inside of the Speedway cable ladder with the threaded portion of the bolt protruding through the Speedway cable ladder and the Speedway expansion coupler.



- 4 Fit an M12 flat washer and an M10 hex nut onto the threaded portion of the M10 x 25 bolt.
- 5 Tighten the M10 hex nut by hand such that the fixing assembly is free to move within the slots in the Speedway cable ladder and the Speedway expansion coupler (some light resistance to movement is preferable).
- 6 Repeat for the remaining fixing sets.
- 7 Check the alignment of the Speedway expansion coupler and the Speedway cable ladders and adjust as necessary to give a fair and true alignment.
- 8 Check the setting gap (see 2.7).
- 9 Secure the Speedway cable ladders to the supporting structure using external flange clamps (EFC) and nylon spacer pads (315AN13).
- 10 Fit a second M10 hex nut onto each of the hand tight fixing assemblies. Using an M10 spanner to hold the first M10 hex nut in place, tighten the second M10 hex nut onto the first M10 hex nut to a torque of 46Nm. Check that the completed assembly is free to move (some light resistance to movement is preferable).
- 11 Repeat for the remaining fixing sets.
- 12 Check the installed Speedway expansion coupler for freedom of movement (some light resistance to movement is preferable).

Consult our Technical Team for installation instructions for the Speedway full moment expansion coupler.

2.11 Electromagnetic Compatibility (EMC)

In normal use Speedway cable ladder can be considered to be passive in respect of electromagnetic influences, emission and immunity. When Speedway cable ladder is installed as part of a wiring installation, the installation may emit or may be influenced by electromagnetic signals. The degree of influence will depend on the nature of the installation within its operating environment and the electrical equipment connected by the wiring. As a minimum precaution to minimise the occurrence of electromagnetic influences, power and data/signal cables should be run on separate cable routings or at least separated by means of dividers.

Our Design Team should be consulted for further information on electromagnetic compatibility issues. ■

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3 Loading Information

To enable the selection of the most appropriate Speedway cable ladder for a particular installation it is necessary to consider the loads which must be supported and the distance between supports (the span). These loads are broadly classed as dead loads, imposed loads and point loads.

3.1 Dead Loads

Dead loads include the weight of any cables, pipes and secondary equipment carried on or installed on the cable ladder plus the self weight of the cable ladder and any component of the cable ladder (covers, connectors, accessories, etc.).

Weight data for cables is readily available from the cable manufacturer or supplier and is usually quoted in terms of kilograms per metre (kg/m). The weight per metre from the cables (or pipes, etc) is the sum of the individual cable (or pipe, etc) weights.

Weight data for secondary equipment should also be readily available from the equipment manufacturer or supplier and is usually quoted in terms of kilograms (kg). The unit weight for the secondary equipment can be converted into a equivalent weight per metre by using the following formula:

$$\text{Equivalent weight per metre } W_m = \frac{2 \times \text{unit of equipment (kg)}}{\text{Span (m)}} \text{ kg/m}$$

For example, a secondary item of equipment with a weight of 12kg has an equivalent weight per metre W_m of 8kg/m for a span of 3m. This figure should be added to the sum of the individual cable weights (or pipe, etc). When determining the location of secondary items of equipment, care should be taken to either mount these items centrally across the cable ladder using the Speedway mounting plates, or place these items adjacent to, or directly onto, the cable ladder side members and as close to the cable ladder supports as the installation will allow.

The allowable loading figures given in the tables below include the self weight of the Speedway cable ladder. The weight data for additional installed components (covers, mounting accessories, etc) for the Speedway cable ladder system can be provided on request by our Design Team.

3.2 Imposed Loads

Imposed loads include wind, ice and snow. The effects of imposed loads will vary from one installation to another and further advice relating to the specific influences of each should be sought at the design stage. The following information on imposed loads is given as a general guide only.

Wind Loads

Wind loads exert a sideways force on the cable ladder. The sideways force is based on the wind speed and is derived from the equation $V_p \text{ N/m}^2 = 0.6V^2$ where V is the wind speed in m/s. The wind speed will vary relative to the height above the ground and the degree of exposure. The following table gives an indication for the sideways force which will be exerted on the Speedway cable ladder in an exposed location at an ambient temperature of 20°C and average relative humidity for the United Kingdom.

The tabulated wind loads are based on Speedway cable ladder installed in the horizontal plane. In this orientation the structural properties of the Speedway cable ladders are sufficient to resist most normal wind loads. The wind loadings will be significantly higher for edge-mounted Speedway cable ladder and for this reason edge-mounted ladder should not be installed in areas of high wind exposure.

If covers are to be fitted to Speedway cable ladder in locations subject to high wind loads further advice should be sought from our Design Team regarding additional securing means.

Ice Loads

When determining the total load to be supported by the Speedway cable ladder an allowance should be made for those locations where ice formation is likely.

The table below shows the additional load imposed by a layer of ice 10mm thick and having a density of 916kg/m³.

Ice Load (10mm thick) on Speedway Cable Ladder			
Width W mm	Ice Load kg/m		
	Speedway SW4	Speedway SW5	Speedway SW6
150	1.72	1.83	1.83
300	3.10	3.21	3.21
450	4.47	4.58	4.58
600	5.84	5.95	5.95
750	7.22	7.33	7.33
900	8.59	8.70	8.70
1050	9.97	10.08	10.08

Snow Loads

The magnitude of the additional load imposed by snow will be influenced by a number of factors including the density of the snow, the degree of drifting which will alter the profile of the snow accumulating on the Speedway cable ladder, and the nature of the cable ladder installation (i.e. covers fitted or percentage of cable loading area occupied by cables). The density of snow can vary from 160kg/m³ to 481kg/m³ depending on the level of wetness and compactness. The table below assumes that the snow has a density of 160kg/m³ and is applied to a uniform height of 100mm.

Snow Load (100mm thick) on Speedway Cable Ladder			
Width W mm	Snow Load kg/m		
	Speedway SW4	Speedway SW5	Speedway SW6
150	3.01	3.20	3.20
300	5.41	5.60	5.60
450	7.81	8.00	8.00
600	10.21	10.40	10.40
750	12.61	12.80	12.80
900	15.01	15.20	15.20
1050	17.41	17.60	17.60

Assumed snow density = 160 kg/m³

3.3 Point Loads

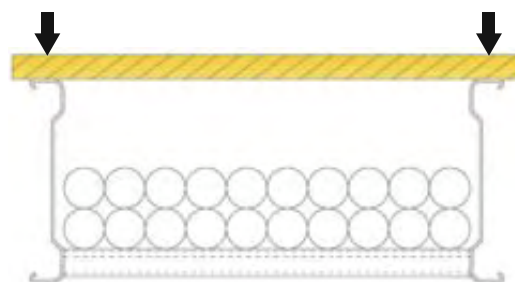
Point loads are often applied to the cable ladder during installation, cable pulling and in-service inspection.

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Wind Loads on Speedway Cable Ladder											
Beaufort Scale	Description	Wind Speed m/s		Pressure N/m ²		Wind Loads - kg/m					
						Speedway SW4		Speedway SW5		Speedway SW6	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
0	Calm	0.00	0.20	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
1	Light air	0.30	1.50	0.05	1.35	0.00	0.01	0.00	0.02	0.00	0.02
2	Light breeze	1.60	3.30	1.54	6.53	0.01	0.06	0.02	0.07	0.02	0.09
3	Gentle breeze	3.40	5.40	6.94	17.50	0.06	0.16	0.08	0.20	0.10	0.24
4	Moderate breeze	5.50	7.90	18.15	37.45	0.16	0.34	0.20	0.42	0.25	0.52
5	Fresh breeze	8.00	10.70	38.40	68.69	0.35	0.62	0.43	0.77	0.53	0.95
6	Strong breeze	10.80	13.80	69.98	114.26	0.64	1.04	0.79	1.29	0.97	1.58
7	Near gale	13.90	17.10	115.93	175.45	1.05	1.59	1.31	1.98	1.60	2.43
8	Gale	17.20	20.70	177.50	257.09	1.61	2.34	2.00	2.90	2.45	3.56

An allowance can be made for the influence of point loads at the design stage when determining the total load to be carried by the Speedway cable ladder system. Typical point loads are in the order of 75kg to 150kg. When specifying a point load requirement it should be noted that the value of the point load should be kept to a minimum as incorporating the point load will reduce the allowable cable load for the Speedway cable ladder. Loading graphs which include the influence of a mid span point load are available on request.

Speedway cable ladder is not intended to be used as a walkway and on no account should point loads be applied to the rungs. On those occasions where it is necessary to apply a point load care should be taken to apply the load evenly onto the two side members, preferably using a board or similar support to distribute the load over as long a section of the cable ladder as possible.



Correct application of point load onto Speedway cable ladder using a board to spread the load evenly onto the side members

3.4 Load-Deflection Tables

When correctly mounted and secured, cable ladder can be considered to be a 'continuous beam'. This implies that the cable ladder run is regularly supported and that the cable ladders at the extremities of the run are firmly anchored. The load bearing capacity of a cable ladder is limited by the lesser of the maximum allowable stress induced in the side members and rungs or the maximum deflection acceptable in the same members. The maximum allowable stress is usually limited to two-thirds of the materials lower yield stress. This gives a safety factor of two against the ultimate tensile strength. Maximum deflection, (in the absence of a particular customer need) is not allowed to exceed 1/360th of the distance between supports (span) longitudinally or 1/200th of the rung length (cable ladder width) transversely. Although unusual, there may be occasions when it is difficult or indeed impossible to anchor the cable ladder securely in position. Under these circumstances



the ladder is 'simply supported' and its load bearing ability is substantially reduced. As a rough guide maximum loads should be limited to two thirds of those shown in the loading graphs and increased deflection values should be accepted for each span.

The data given in the tables is for ladder installed as a continuous beam and allows for the weight of the ladder itself. The safe working load values represent a uniformly distributed load and a factor of safety of 1.5. This information is given for guidance only.

The Speedway cable ladder system, components, and accessories have been tested to BS EN ISO 61537:2002. Further details can be provided by our Design Team.

Ladder Type	Width W mm	Span & Safe Working Load kg/m								
		2m	2.5m	3m	3.5m	4m	4.5m	5m	5.5m	6m
Speedway SW4	SW4/SL3/150/GA	150	334	212	146	106	81			
	SW4/SL3/300/GA	300	333	212	146	106	80			
	SW4/SL3/450/GA	450	333	211	145	105	79			
	SW4/SL3/600/GA	600	332	211	145	105	79			
	SW4/SL3/750/GA	750	267	209	143	103	77			
	SW4/SL3/900/GA	900	204	204	142	103	77			
Speedway SW5	SW4/SL3/1050/GA	1050	147	147	142	102	76			
	SW5/SL3/150/GA	150			301	220	167	131	105	
	SW5/SL3/300/GA	300			301	219	166	130	104	
	SW5/SL3/450/GA	450			300	219	166	130	104	
	SW5/SL3/600/GA	600			300	218	165	129	103	
	SW5/SL3/750/GA	750			298	217	164	127	102	
Speedway SW6	SW5/SL3/900/GA	900			251	216	163	127	101	
	SW5/SL3/1050/GA	1050			181	181	162	126	100	
	SW6/SL3/150/GA	150			218	171	137	112	93	
	SW6/SL3/300/GA	300			217	170	136	111	92	
	SW6/SL3/450/GA	450			216	169	135	110	91	
	SW6/SL3/600/GA	600			216	168	135	110	91	
Speedway SW6	SW6/SL3/750/GA	750			215	168	134	109	90	
	SW6/SL3/900/GA	900			214	167	133	108	89	
	SW6/SL3/1050/GA	1050			181	166	132	107	88	

Ladder Type	Width W mm	Span & Safe Working Load kg/m								
		2m	2.5m	3m	3.5m	4m	4.5m	5m	5.5m	6m
Speedway SW4	SW4/SL3/150/SS	150	443	282	195	142	108			
	SW4/SL3/300/SS	300	443	282	194	142	108			
	SW4/SL3/450/SS	450	442	281	194	141	107			
	SW4/SL3/600/SS	600	442	281	193	141	106			
	SW4/SL3/750/SS	750	282	280	193	140	106			
	SW4/SL3/900/SS	900	194	194	192	140	105			
Speedway SW5	SW4/SL3/1050/SS	1050	140	140	140	139	105			
	SW5/SL3/150/SS	150			402	294	224	176	142	
	SW5/SL3/300/SS	300			402	294	223	175	141	
	SW5/SL3/450/SS	450			401	293	223	175	140	
	SW5/SL3/600/SS	600			400	292	222	174	140	
	SW5/SL3/750/SS	750			350	292	222	174	140	
Speedway SW6	SW5/SL3/900/SS	900			240	240	222	174	139	
	SW5/SL3/1050/SS	1050			174	174	174	173	139	
	SW6/SL3/150/SS	150			291	228	184	151	125	
	SW6/SL3/300/SS	300			290	228	183	150	125	
	SW6/SL3/450/SS	450			289	227	182	149	124	
	SW6/SL3/600/SS	600			289	226	182	148	123	
Speedway SW6	SW6/SL3/750/SS	750			288	226	181	148	123	
	SW6/SL3/900/SS	900			237	225	180	147	122	
	SW6/SL3/1050/SS	1050			171	171	171	146	121	

4 Materials & Finishes

Details relating to the standard materials and finishes for the Speedway cable ladder system, components, and accessories are given in the following sections. The choice of material and finish has been based on many years experience in providing cable management products and support systems for use in industrial and onshore/offshore installations.

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Ladder Type	Width W mm	Span & Safe Working Load kg/m								
		2m	2.5m	3m	3.5m	4m	4.5m	5m	5.5m	6m
Speedway SW4	SW4/SL3/150/GX	150	681	435	301	106	81			
	SW4/SL3/300/GX	300	681	434	300	106	80			
	SW4/SL3/450/GX	450	680	433	299	105	79			
	SW4/SL3/600/GX	600	456	433	299	105	79			
	SW4/SL3/750/GX	750	288	288	288	103	77			
	SW4/SL3/900/GX	900	197	197	197	103	77			
Speedway SW5	SW4/SL3/1050/GX	1050	142	142	142	102	76			
	SW5/SL3/150/GX	150			619	453	346	272	219	
	SW5/SL3/300/GX	300			618	452	345	271	219	
	SW5/SL3/450/GX	450			617	452	344	271	218	
	SW5/SL3/600/GX	600			454	451	344	270	217	
	SW5/SL3/750/GX	750			287	287	287	269	216	
Speedway SW6	SW5/SL3/900/GX	900			196	196	196	196	196	
	SW5/SL3/1050/GX	1050			141	141	141	141	141	
	SW6/SL3/150/GX	150					442	348	280	230
	SW6/SL3/300/GX	300					441	347	280	230
	SW6/SL3/450/GX	450					441	346	279	229
	SW6/SL3/600/GX	600					440	346	278	228
Speedway SW6	SW6/SL3/750/GX	750					366	345	277	227
	SW6/SL3/900/GX	900					250	250	250	227
	SW6/SL3/1050/GX	1050					180	180	180	180

Our Design Team should be consulted for more detailed information and for advice on any specific application.

4.1 Materials

The following materials are used in the manufacture of the Speedway cable ladder system, components and accessories:

Mild steel

Hot-rolled mild steel grade DD11 to BS EN 10111:1998
Cold-rolled mild steel grade DC01 to BS EN 10130:1999
Structural steel grade S275 to BS EN 10025-2:2004
Structural steel grade S355J2G3 to BS EN 10025-2:2004

Stainless steel

Marine grade stainless steel 1.4404 to BS EN 10088-2: 1995
Non-marine grade stainless steel 1.4301 to BS EN 10088-2: 1995

Silicon-rich steel

Cor-ten 'A' steel (or equivalent)

Hot dip galvanized (before manufacture)

Grade S250+Z275 to BS EN 10326: 2004 steel

4.1.1 Mild Steel

The Speedway cable ladder system, components and accessories are manufactured using three different types of mild steel, each of which is matched for performance and strength to the product and the intended application. These mild steel materials are hot-rolled steel, cold-rolled steel and structural steel grade. Mild steel products require subsequent finishing on completion of manufacture to provide a means of corrosion protection.

Material Grade	Property		
	Yield Strength R _{eH} N/mm ²	Tensile Strength R _m N/mm ²	Elongated A %
DD11	170 to 360	440	23
DC01	280 Max	270 to 410	28
S275	275 Min	430 to 580	14

Hot-rolled Mild Steel Grade DD11 to BS EN 10111:1998

(formerly HR4 to BS 1449 Part 1)

DD11 hot-rolled mild steel is a cold forming material used for bending and drawing applications. This material is suitable for welding and hot dip galvanizing.

Cold-rolled Mild Steel Grade DC01 to BS EN 10130:1999

(formerly CR4 to BS 1449 Part 1)

DC01 cold-rolled steel grade is a cold-forming material for forming and deep drawing applications. This material is suitable for welding and hot dip galvanizing.

Structural Steel Grade S275 to BS EN 10025-2:2004

(formerly 43A to BS 1449 Part 1)

S275 steel is a weldable, high-strength structural steel with good galvanizing properties.

Structural Steel Grade S355J2G3 to BS EN 10025-2:2004

S355J2G3 is a weldable, high strength structural steel with good galvanizing properties and Charpy impact rating at -20°C. Ideal for low temperature environments.

4.1.2 Stainless Steel

The Speedway cable ladder system, components and accessories are manufactured using two different types of stainless steel, each of which is matched for performance and strength to the product and the intended application. These materials are 1.4404 marine grade stainless steel (316) and 1.4301 non-marine grade stainless steel (304). Unless a post-manufacturing finishing process is requested, stainless steel products do not require subsequent finishing on completion of manufacture to provide a means of corrosion protection.

The corrosion resistance of stainless steel arises from a passive, chromium-rich, oxide film that forms naturally on the surface of the steel. Although extremely thin at 1.5 nanometres (i.e. 1.5×10^{-9} metres) thick, this protective film is strongly adherent, and chemically stable (i.e. passive) under conditions which provide sufficient oxygen to the surface. The key to the durability of the corrosion resistance of stainless steels is that if the film is damaged it will normally self repair in the presence of oxygen. In contrast to mild steel type materials which suffer from general corrosion where large areas of the surface are affected, stainless steels which have a passive oxide film are normally resistant to general corrosion. Stainless steels should not be considered to be indestructible, the oxide film can be broken down under certain conditions and corrosion can result, this typically taking the form of pitting or crevice corrosion.

The stainless steel used in the manufacture of Speedway cable ladder, components and accessories has excellent corrosion and oxidation resistance due to the high chromium content. Grades 1.4301 and 1.4404 are austenitic stainless steels which incorporate nickel to strengthen the oxide film and improve performance in more aggressive environments. The addition of molybdenum to the 1.4404 marine grade improves resistance to pitting corrosion. The austenitic stainless steels have excellent resistance to attack by acids, alkalis and other chemicals.

Stainless steels offer excellent performance at both high and low temperatures and, unlike some mild steels, are not susceptible to brittle fracture arising from impact at low temperature. Independent tests have shown that stainless steel cable ladders can withstand a temperature of 1000°C for a period of 5 minutes without collapse (contact our Design Team for further details).

As the corrosion resistance of stainless steel is derived from the self-repairing oxide film it is important that the surface of the stainless steel remains uncontaminated, allowing the inherent corrosion resistance of the stainless steel to be maintained. Possible sources of contamination includes mild steel from cutting and drilling operations on site, and impingement of small particles created by welding and grinding of mild steel in close proximity to the stainless steel product. Care must be taken both during and after installation to avoid such contamination.

Stainless Steel Grade 1.4404 to BS EN 10088-2: 1995

(formerly marine grade 316 to BS 1449 Part 2)

Marine grade 1.4404 stainless steel is a corrosion resistant steel ideally suited for aggressive environments where severe conditions are prevalent, i.e. coastal and offshore applications. 1.4404 is a molybdenum-bearing austenitic stainless steel with high corrosion resistant properties, particularly to pitting and crevice corrosion. 1.4404 has excellent forming and welding characteristics. Post-weld annealing is not required when welding gauges used for the manufacture of the Speedway cable ladder system.

Stainless Steel Grade 1.4301 to BS EN 10088-2: 1995

(formerly grade 304 to BS 1449 Part 2).

The non-marine grade 1.4301 stainless steel is not normally used unless required for a specific order. When used, the non-marine grade stainless steel is bonded and controlled throughout the manufacturing processes to eliminate errors in supplying non-marine grade stainless steel to applications requiring the superior marine grade stainless steel. Non-marine grade 1.4301 is a general purpose stainless steel which is used extensively in the food and processing industries. 1.4301 has excellent forming and welding characteristics. Post-weld annealing is not required when welding gauges used for the manufacture of the Speedway cable ladder system.

Mechanical Properties of Stainless Steel

Material Grade	Property		
	Proof Strength 0.2% R _{p0.2} N/mm ²	Tensile Strength R _m N/mm ²	Elongation A ₈₀ %
1.4404	240 Min	530 to 680	40
1.4301	240 Min	530 to 680	40

4.1.3 Silicon-rich Steels

The Speedway cable ladder system, components and accessories can be manufactured using proprietary grades of silicon-rich material such as Cor-ten 'A' or Indaten 355, which are matched for performance and strength to the product and the intended application. Cable management products produced using silicon-rich steels require subsequent finishing on completion of manufacture to provide a means of corrosion protection. Silicon-rich steels have high yield strengths,



making these materials ideal for heavy duty applications. A particular property of these materials is the high silicon content which gives an affinity to attract thicker coatings of zinc when galvanized (see Finishes – Deep Galvanizing).

Mechanical Properties of Silicon-rich Steels

Material Grade	Property		
	Yield Strength R_p N/mm ²	Tensile Strength R_m N/mm ²	Elongation A %
Cor-ten 'A'	355 Min	480 Min	19
HiTrac 1000	355 Min	510 to 680	19

4.1.4 Hot Dip Galvanized Mild Steel

Hot dip galvanized mild steels which are zinc coated at the time of manufacture are referred to as pre-galvanized steels. Grade S250 to BS EN 10326 is a structural grade steel with guaranteed minimum tensile properties and is used in the manufacture of channel profiles (strut type) to BS 6946.

Mechanical Properties of Pre-galvanised Steel

Material Grade	Property		
	Yield Strength R_p N/mm ²	Tensile Strength R_m N/mm ²	Elongation A %
S250	250	330	19

4.2 Finishes

The following are available for Speedway cable ladder system, components, and accessories:

Galvanizing

Hot dip galvanized to BS EN 10326 (pre-galvanized)	PP
Hot dip galvanized to BS EN 1461 (post-galvanized)	GA
Deep Galvanized to BS EN ISO 1461 (post-galvanized)	GX

Coatings

Epoxy coated over mild steel	EA
Epoxy coated over hot dip galvanizing	FA

Passivated

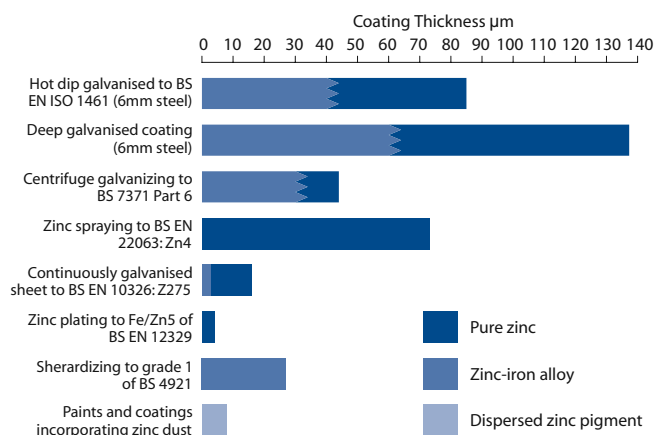
Stainless steel 316, pickled & passivated after manufacture	NS
-------------------------------------------------------------	----

4.2.1 Galvanizing

The coating of steel using zinc, either before manufacture (pre-galvanized) or after manufacture (post-galvanized) is a cost effective and practical means of protecting the steel from corrosion. The zinc coating protects the steel in three ways. Firstly, the zinc coating weathers at a very slow rate giving a long and predictable life. Secondly, the zinc coating corrodes preferentially to provide sacrificial protection of any small areas of steel exposed through cutting, drilling, or accidental damage; scratches and small areas of damage are sealed by weathering products from the zinc. Thirdly, if the damaged area is larger, the sacrificial protection provided by the surrounding zinc prevents 'creepage' typically associated with other protective finishes such as paint coatings.

The thickness of the zinc coating is dependant on the method of application. The following table shows the typical zinc coating thicknesses for a number of galvanizing and related processes, and includes zinc-based paints for comparison purposes.

Zinc Coatings Compared in Terms of Coating Thickness



Pre-galvanized Finishes to BS EN ISO 10326:2004

Pre-galvanized steel is also referred to as continuous hot dip zinc coated steel. Pre-galvanized steel comprises of sheet metal which has been hot dip galvanized in continuous production lines where the processes are linked together. The base material is flat rolled sheet in coil form which is suitably treated and annealed before being passed through a bath of molten zinc. The galvanizing process is carefully controlled to give a uniform coating thickness on the steel. Hot dip galvanized steel of grade S250+Z275 to BS EN 10326:2004 has an average triple spot zinc coating mass of 275g/m² which is measured relative to both surfaces of the steel. Based on a conversion of 7.14g/m² equating to 1µm, 275g/m² gives a zinc coating thickness of 19.25µm per surface. The zinc coating on pre-galvanized steels remains firmly attached, even under the most severe forming operations and continues to give general and sacrificial protection after forming and fabrication. Pre-galvanized steels are supplied in a spangle finish which has been treated to prevent the short term formation of zinc corrosion products.

Hot Dip Galvanized Finishes to BS EN ISO 1461

The hot dip galvanizing process provides a continuous layer of zinc-iron alloys and zinc on the surface of the products manufactured in steel. The hot dip zinc coating provides a continuous barrier to moisture and other contaminants, thereby protecting the steel substrate.

During the galvanizing process, a layer of zinc-iron alloy develops on the surface of the steel product. When the steel product is withdrawn from the zinc bath, a layer of pure zinc is left on the zinc-iron alloy. The layer of pure zinc gives a newly galvanized item a bright finish. This bright finish will gradually fade as the surface layer of the zinc oxidises, leaving a uniform dull grey appearance.

The average amount of zinc which can be deposited on a product is expressed in terms of thickness and is measured in µm. The actual zinc coating thicknesses will vary depending on the thickness of the steel, the chemical composition of the steel, and the period of immersion within the zinc bath. BS EN ISO 1461 specifies a number of thickness ranges for products to be galvanized, each of which has a specified minimum average

local reading and minimum mean average reading. Details are given in the table below.

Zinc Coating Details to BS EN ISO 1461				
Coating Weight & Thickness – Dipped Articles				
Article & Thickness	Local Coating		Mean Coating	
	(minimum)		(minimum)	
	g/m ²	µm	g/m ²	µm
Steel t ≥ 6mm	505	70	610	85
Steel 3mm ≥ t < 6mm	395	55	505	70
Steel 1.5mm ≥ t < 3mm	325	45	395	55
Steel t < 1,5mm	250	35	325	45
Castings t ≥ 6mm	505	70	575	80
Castings t < 6mm	430	60	505	70
Coating Weight & Thickness – Centrifuged Articles				
Article & Thickness	Local Coating		Mean Coating	
	(minimum)		(minimum)	
	g/m ²	µm	g/m ²	µm
Articles with threads				
Dia ≥ 20mm	325	45	395	55
6mm ≥ Dia < 20mm	250	35	325	45
< 6mm	145	20	180	25
Other articles (including castings)				
t ≥ 3mm	325	45	395	55
t < 3mm	250	35	325	45

Deep Galvanizing to BS EN ISO 1461

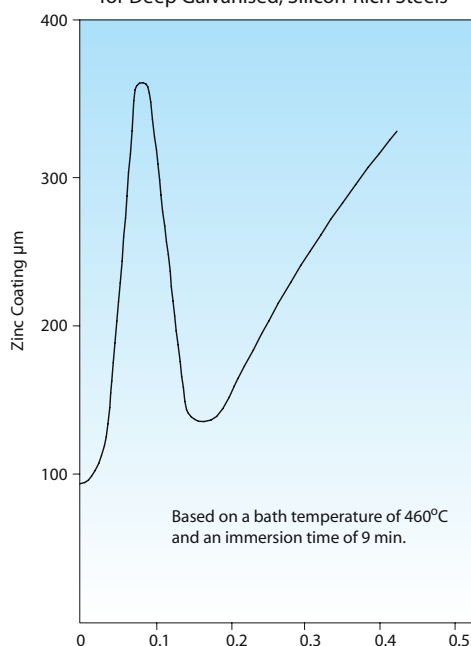
The use of silicon-rich steels such as Cor-ten 'A' and Hi-Trac 1000 allows much heavier galvanized coatings to be obtained. Average coating thicknesses of two to three times that for mild steel can be achieved. It is for this reason that silicon-rich steels are termed 'reactive' steels and the galvanizing process 'deep galvanizing'.

The influence of the silicon does not increase consistently but rather follows a curve as shown in the following diagram. This curve gives average values and variations can be expected between different silicon-rich steels with the same silicon content but from different steel casts. These variations are attributed to the fact that whilst the total silicon contents can be equal, the amount of silicon that is bound to oxygen within the steel can vary. More or less silicon is then dissolved in the steel, and it is only this amount that influences the reaction. The silicon can be unevenly distributed on the surface of the steel and this will lead to uneven variations in the coating thickness after galvanizing.

Another property of the galvanized coatings on silicon-rich steels is the colour. During the galvanizing process, a zinc layer builds up on the zinc-iron alloy layers which are adhering to the surface of the steel. The reaction rate can be such that this pure zinc layer is transformed completely to zinc-iron alloy before the article has had time to cool. This results in a coating which can be much darker in appearance, varying in colour and thickness across the surface of the galvanized item. This appearance does not alter the corrosion resistance of the zinc coating.

Due to the variations in coating thickness associated with deep galvanizing of silicon-rich materials it is normal to specify the finish as 'deep galvanized to twice the coating thickness specified by BS EN ISO 1461'.

Zinc Coating Thickness vs Silicon Content for Deep Galvanised, Silicon-Rich Steels



Wet storage stain

Galvanized steel is protected from corrosion by a layer of zinc-iron alloys and a layer of pure zinc. After galvanizing, a protective zinc carbonate film forms over the surface of the zinc. The formation of this protective layer is only possible when the galvanized surface is exposed to free flowing air. Stacking freshly galvanized articles in contact with one another prevents the free circulation of air, and in wet or humid conditions, may result in the development of wet storage stain. Wet storage stain, often referred to as white rust, appears as a white, powdery covering. The white rust, comprising of zinc oxide and zinc hydroxide corrosion products, is voluminous and can appear to be more detrimental to the galvanized coating than it actually is.

Wet storage stain can be prevented by correct transport and storage provisions. For transportation over long distances, galvanized items should be protected by waterproof cover to prevent moisture ingress. For storage, galvanized items should be kept off the ground in a dry environment. If stacked in a potentially wet environment, the galvanized items should be separated from one another to provide free circulation of air. If possible, the stacking should be at an angle to facilitate drainage of water.

In normal use, light wet storage stain is not serious and does not reduce the life expectancy of the galvanized coating. The affected area should be dried and exposed to the atmosphere to allow the zinc to form a protective carbonate layer. The appearance of the wet storage stain will gradually fade to that of a normally weathered galvanized steel. Where more stubborn wet storage stain deposits are evident, these should be removed using a stiff bristle (non wire) brush and, if necessary, a cleaning solution should be used. Typical solutions would be ammonia (5%) or acidified sodium dichromate (5% sodium dichromate with 0.1% sulphuric acid). In both instances, the cleaning

solutions should be thoroughly rinsed off after treatment and



the article allowed to dry.

Life expectancy of zinc coatings

The life expectancy of a zinc coating is largely determined by its thickness. Thicker coatings give longer life (the period to first maintenance). When exposed to atmosphere the zinc coating will weather and corrode, leading to a gradual diminution in the coating thickness. Under conditions of normal atmospheric exposure the level of corrosion is low and is typically at a rate which is between $1/10^{\text{th}}$ and $1/40^{\text{th}}$ of that of the steel base.

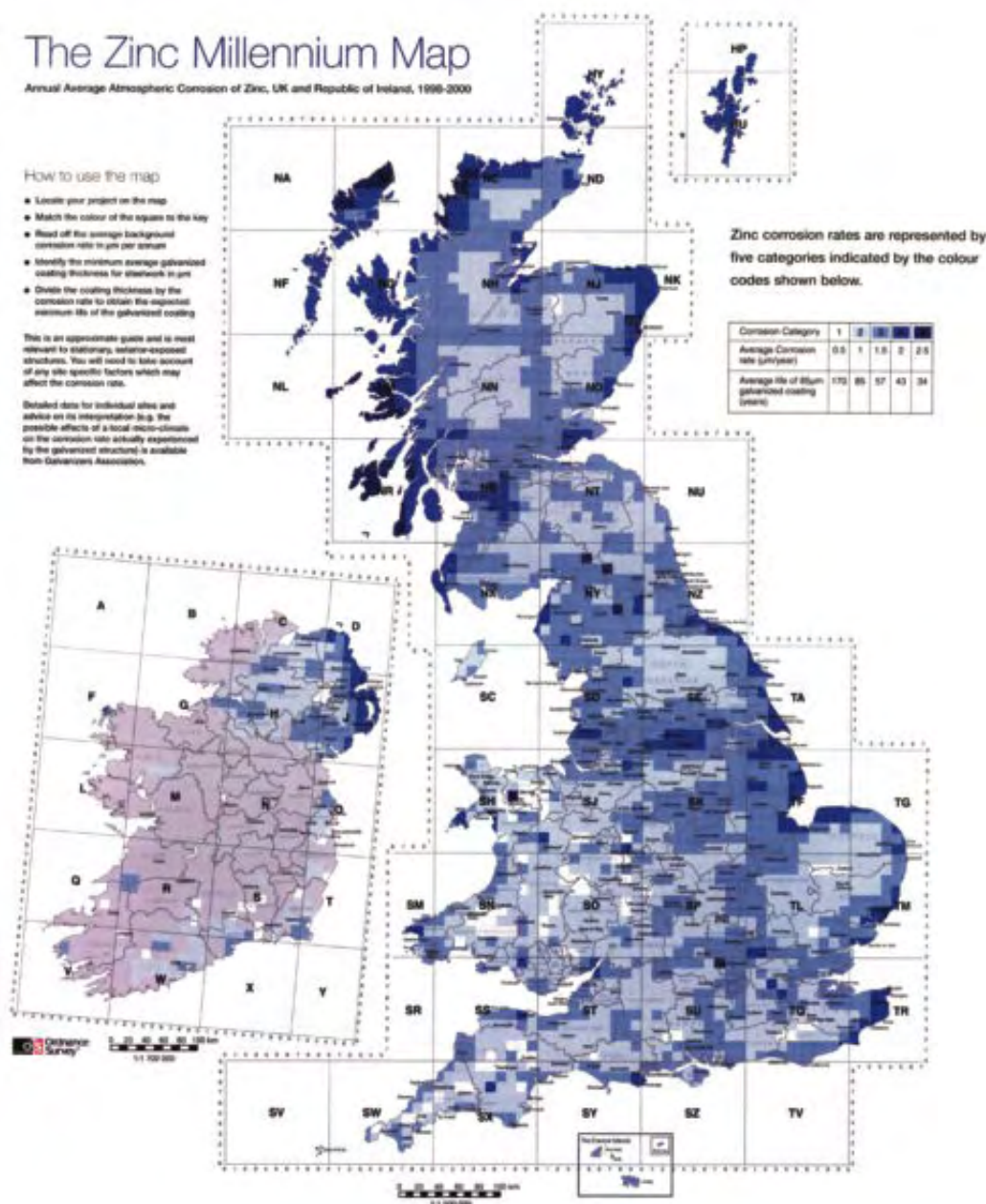
When subject to conditions of high humidity or condensation, the rate of corrosion of the zinc coating can be increased significantly.

The level of contamination in the atmosphere can also adversely affect the corrosion rate of the zinc coating. The most significant

contaminant accelerating the corrosion rate of zinc is sulphur dioxide (SO_2). The resistance of zinc to atmospheric corrosion is dependent on the protective zinc carbonate film which forms on the surface of the zinc. The sulphur dioxide reacts with moisture to destroy the protective film and this leads to the corrosion of the zinc coating.

Research undertaken by the Galvanizers Association has resulted in the publishing of a series of charts depicting the average atmospheric corrosion rate for zinc for the United Kingdom and Ireland. These charts indicate that the average local atmospheric corrosion rates for zinc have decreased, reflecting the general decrease in the levels of sulphur dioxide in the atmosphere.

Current atmospheric corrosion rates for zinc within the United Kingdom and the Republic of Ireland are given in the Zinc



Zinc Millennium Map.

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Based on Ordnance Survey 1:1,500,000 map with the permission of the controller of the Stationery Office.

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Millennium Map and are in the range of 0.5µm to 2.5µm per year (corrosivity categories C2 – C3 to ISO 14713).

The corrosion rate for zinc is generally linear for a given local environment. This allows predictions of the life expectancy of a galvanized product, to first maintenance, based on the zinc coating thickness and the zinc corrosion rates given in the Zinc Millennium Map. For example, a hot dip galvanized product with a coating thickness of 55µm will last approximately 110 years in a location where the atmospheric corrosion rate of zinc is 0.5µm per year, and approximately 22 years in a location where the atmospheric corrosion rate is 2.5µm per year.

Further information regarding hot dip galvanizing and the Zinc Millennium Map can be obtained from the Galvanizers Association.

The Zinc Millennium Map provides specific information for the United Kingdom and Ireland. For other locations, reference can be made to BS EN ISO 14713 (Protection against corrosion of iron and steel in structures – Zinc and aluminium coatings – Guidelines).

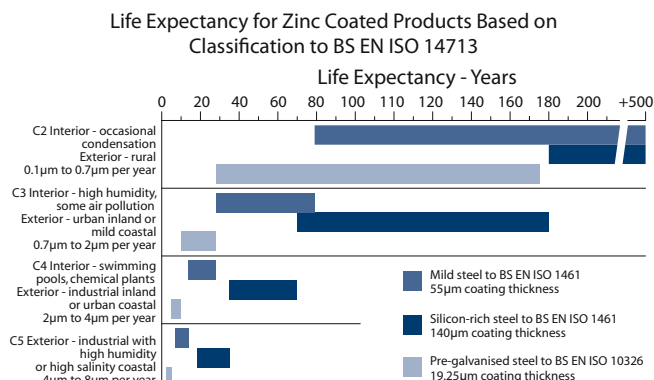
BS EN ISO 14713 provides general guidelines on corrosion rates

Environmental Categories & Corrosion Rates for Zinc Galvanizing			
Category	Environment		Corrosion Rate µm/year
C1	Interior	Dry	<0.1
C2	Interior	Occasional condensation	0.1 to 0.7
	Exterior	Rural	
C3	Interior	High humidity, some air pollution	0.7 to 2
	Exterior	Urban inland or mild coastal	
C4	Interior	Swimming pools, chemical plants	2 to 4
	Exterior	Industrial inland or urban coastal	
C5	Exterior	Industrial with high humidity or salinity coastal	4 to 8

for zinc in differing environmental conditions, details of which are given in the table below.

The corrosion rates should be considered as an indication only and provide a broad means of estimating the life expectancy of a zinc coating. This information should be treated as a general guide and further information should be sought relating to the specific zinc corrosion rates at the installation site.

Using these broad corrosivity rates, the following table shows the life expectancy of galvanized cable management products for corrosion categories C2 to C5.



4.2.2 Coatings

A number of coatings have been used for the coating of cable management products. By far the most cost effective, versatile, and advantageous is epoxy. Epoxy coatings are based on thermosetting epoxy resins which are applied electrostatically as a powder spray which is cured and hardened in an oven. The powder spray application ensures complete and even coverage of the surface. Epoxy coatings give a thin, hard and durable finish which provides good chemical resistance, excellent adhesion, and coating flexibility. Epoxy coatings are available in a variety of colours. Black is supplied as standard unless otherwise requested.

Epoxy over Mild Steel

Epoxy coatings can be applied directly to mild steel to give a corrosion resistant finish. The steel products are subject to a degreasing treatment to remove all surface contaminants and then epoxy powder coated to a dry film thickness of 75 microns.

Epoxy over Hot Dip Galvanized Mild Steel

Whilst hot dip galvanizing provides a long lasting and cost effective means of protecting steel from corrosion, the performance of the zinc coating can be enhanced by the addition of an epoxy coating. This type of finish is referred to as a duplex coating. The duplex coating can be used to add colour for aesthetic or safety purposes and provide additional protection for the steel in aggressive environments. The epoxy provides resistance to chemical degradation, and the underlying layer of zinc prevents creepage under the epoxy coating. The hot dip galvanized steel products are treated by an acid etch, a chromate pre-treatment and then epoxy powder coated to a dry film thickness of 75 microns.

4.2.3 Passivated

Stainless steel is corrosion resistant because of the presence of a thin, dense, self-healing passive chromium-rich layer on the surface of the metal. This protective layer acts as a barrier between the metal and the environment and reduces the rate of dissolution of the metal. If this chromium oxide film is damaged the steel will, in most circumstances, oxidise and reform the protective layer (self-healing). When the surface of stainless steel is subject to mechanical treatments such as grinding or machining stresses, an increased roughness will occur in the outer surface layers damaging the oxide film, occasionally leaving impurities on the surface and preventing the passive film from reforming. This can also happen in general handling. In addition, many grades of stainless steel are adversely affected by processes such as welding or heat treatment which can result in the formation of surface oxide films which can prevent the natural passive chromium oxide layer from forming. The heat discolouration marks found around the welds of stainless steel products is a form of oxide which does not necessarily adversely influence corrosion resistance unless the material is exposed to the most extremely aggressive environments e.g. when used for acid containment, etc. It should not be necessary to remove this discolouration in situations where the stainless steel offers satisfactory corrosion resistance for a particular installation.



If the passive oxide layer is damaged and the self-healing process does not occur the stainless steel will corrode, this will take the form of pitting, intercrystalline corrosion, or stress corrosion cracking. The rate of corrosion is accelerated in the presence of chloride compounds. Consequently, it is important to specify the correct grade of stainless steel, to use the correct welding techniques, and to avoid contamination with carbon steel during manufacturing processes. The use of 1.4404 marine grade stainless steel (316 S31 grade) reduces the potential corrosion problems associated with the welding of stainless steel. As manufactured, the stainless steel Speedway cable ladder system will show heat discolouration marks at areas of welding. The areas may have reduced corrosion resistance but this may be sufficient for most environments. For all normal installations this has become the accepted standard of finish.

For special prestigious projects where the required standard of finish precludes the presence of discolouration, the stainless steel can be treated by means of pickling and passivating. The pickling process removes the surface of the stainless steel by etching in a heated nitric/hydrofluoric acid solution. Pickling will remove surface debris, leaving the stainless steel clean and allowing the passive chromium oxide film to form; the surface of the stainless steel can then be described as being in the passive condition. A further treatment is then applied in which a solution of nitric acid is used to thicken the existing passive layer of chromium oxide whilst reducing the time taken to form the film. The entire process leaves the stainless steel with a uniform dull grey colour. ■

5 Classification to BS EN ISO 61537

For details of the classification of the Speedway cable ladder system, components and accessories to BS EN ISO 61537:2006 (Cable tray systems and cable ladder systems for cable management) please refer to our Design Team.

For details relating to the CE-marking of the Speedway cable ladder system, components and accessories, and to the details relating to the Technical File, please refer to our Design Team. ■

6 Reference Standards

The following is a list of the standards relating to the cable management products covered by this catalogue:

BS 729	Replaced by BS EN ISO 1461.
BS 1449 Part 1	Replaced by BS EN 10111, 10130 & 10025.
BS 1449 Part 2	Replaced by BS EN 10088-2.
BS EN ISO 1461:1999	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods (formerly BS 729).
BS 2989	Replaced by BS EN 10147.
BS 6946:1988	Specification for metal channel cable support systems for electrical installations.

ISO 9223	Corrosion of metals & alloys – Corrosivity of atmospheres.
BS EN 10025:1993	Replaced by BS EN 10025-2:2004.
BS EN 10025-2:2004	Hot rolled products of structural steels. Technical delivery conditions for non-alloy structural steels (formerly BS EN 10025:1993).
BS EN 10088-2:1995	Stainless steels. Technical delivery conditions for sheet/plate and strip for general purposes (formerly BS 1449 Part 2).
BS EN 10111:1998	Continuously hot rolled low carbon steel sheet & strip for cold forming. Technical delivery conditions.
BS EN 10130:1999	Cold rolled low carbon flat products for cold forming. Technical delivery conditions.
BS EN 10147:2000	Replaced by BS EN 10136:2004.
BS EN 10326:2004	Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions.
BS EN ISO 14713:1999	Protection against corrosion of iron and steel in structures – Zinc and aluminium coatings – Guidelines. BS EN 10327:2004 Continuously hot dip coated strip & sheet of low carbon steels for cold forming. Technical delivery conditions.
BS EN 50085-1:1999	Cable trunking and cable ducting systems for electrical installations. General requirements (formerly BS 4678 Part 1).
BS EN 61537:2006	Cable tray systems & cable ladder systems for cable management.
IEC 61537:2001	Cable tray systems & cable ladder systems for cable management.
NEMA VE 1-1998	Metal Cable Tray Systems (also CSA International C22.2 No 126.1-98).
NEMA VE 2-2000	Cable Tray Installation Guidelines.
BS EN 10327:2004	Continuously hot-dip coated strip & sheet of low carbon steels for cold forming. Technical delivery conditions. ■

CONVERSION FACTORS FOR UNITS

FPS to SI units		SI to FPS units	
Acceleration			
1 ft/s ²	= 0.30480 m/s ²	1 m/s ²	= 3.2808 ft/s ²
Angular Velocity			
1 rev/min	= 0.10472 rad/s	1 rad/s	= 9.5493 rev/min
Area			
1 in ²	= 6.4516 cm ²	1 cm ²	= 0.15500 in ²
1 ft ²	= 0.092903 m ²	1 m ²	= 10.764 ft ²
1 yd ²	= 0.83613 m ²	1 m ²	= 1.1960 yd ²
1 acre	= 0.40469 ha	1 ha	= 2.4711 acre
Density			
1 lb/ft ³	= 16.018 kg/m ³	1 kg/m ³	= 0.062428 lb/ft ³
Energy			
1 ft pdl	= 0.042140 J	1 J	= 23.730 ft pdl
1 ft lbf	= 1.35582 J	1 J	= 0.73756 ft pdf
1 kWh	= 3.6000 MJ	1 MJ	= 0.27778 kWh
1 therm	= 0.1051 GJ	1 GJ	= 9.4781 therm
Force			
1 pdl	= 0.13826 N	1 N	= 7.2330 pdl
1 lbf	= 4.4482 N	1 N	= 0.22481 lbf
Length			
1 in	= 2.54 cm	1 cm	= 0.39370 in
1 ft	= 0.30480 m	1 m	= 3.2808 ft
1 yd	= 0.91440 m	1 m	= 1.0936 yd
1 mi	= 1.6093 km	1 km	= 0.62137 mi
Mass			
1 oz	= 28.350 g	1 g	= 0.035274 oz
1 lb	= 0.45359 kg	1 kg	= 2.2046 lb
1 cwt	= 50.802 kg	1 kg	= 0.019684 cwt
1 ton	= 1.0161 tonne	1 tonne	= 0.98421 ton
Moment of Force			
1 lbf ft	= 1.3558 Nm	1 Nm	= 0.73756 lbf ft
Plane angle			
1°	= 0.01745 rad	1 rad	= 57.296°
Power			
1 ft lbf/s	= 1.3558 W	1 W	= 0.73756 ft lbf/s
1 hp	= 0.74570 kW	1 kW	= 1.3410 hp
Pressures and Stress			
1 in Hg	= 33.864 mbar	1 mbar	= 0.02953 in Hg
1 lbf/in ²	= 6.8948 kPa	1 kPa	= 0.14504 lbf/in ²
1 tonf/in ²	= 15.444 N/mm ²	1 N/mm ²	= 0.064749 tonf/in ²
1 lb/in ² (psi)	= 0.00689 N/mm ²	1 N/mm ²	= 145.03774 lb/in ² (psi)
Specific Heat Capacity			
1 Btu/(lb°F)	= 4.1868 kJ/(kg° C)	1 kJ/(kg° C)	= 0.23885 Btu/(lb°F)
Velocity			
1 ft/s	= 0.30480 m/s	1 m/s	= 3.2808 ft/s
1 mi/h	= 1.6093 km/h	1 km/h	= 0.62137 mi/h
Volume			
1 in ³	= 16.387 cm ³	1 cm ³	= 0.061024 in ³
1 ft ³	= 0.028317 m ³	1 m ³	= 35.315 ft ³
1 yd ³	= 0.76456 m ³	1 m ³	= 1.3080 yd ³
1 pt	= 0.56826 litre	1 litre	= 1.7598 pt
1 gal	= 4.5461 litre	1 litre	= 0.21997 gal