

Electrical and Mechanical Supports Systems



tyco

Flow Control

UNISTRUT



This catalogue contains Mechanical & Electrical Support Systems information only as indicated below. For any additional information contact your nearest Unistrut Sales Office.

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Framing Members

Channels and continuous inserts are accurately and carefully cold formed to size from low carbon strip steel. The channel has a continuous slot with inturned edges. Secure attachments may be made to the framing member with the use of hardened, toothed, grooved nuts which engage the inturned edges.

Fittings

The fittings, unless noted otherwise, are punch press formed from low carbon steel plates or strip.

Channel Nuts

The nuts are produced from steel bars and after all manufacturing operations are completed, zinc plated nuts are case hardened. They are rectangular with the ends so shaped as to permit a quarter turn crosswise in the framing member after inserting through the slotted opening in the channel and to prevent any further turning of the nut. Two serrated grooves in the top of the nut engage the inturned edges of the channel and, after bolting operations are completed, will prevent any longitudinal movement of the bolt and nut within the framing member. All bolts and nuts have ISO metric coarse screw threads.

Masses and Dimensions

Masses given for all material are approximate shipping weights. All dimensions subject to commercial tolerance variations.

Finishes

All channels are available in Plain, Hot Dipped Galvanised, Galvabond, Zinc Plated and Polyester finishes. Most single channels are also available in aluminium and stainless steel.

Plain - Plain finish on UNISTRUT channel is an oiled finish that is applied to the raw material by the steel mill. The cold rolling process used to form UNISTRUT channel removes the excess of this oil and the residue provides a modicum of protection for the channel in storage. The plain finish on UNISTRUT fittings is that of the commercial bar stock input material. No surface treatment is applied to plain finish fittings.

Galvabond Channel - Input material is supplied by the steel mill generally in accordance with AS 1397 having a coating class of Z275. The material is slit to width and roll formed to shape.

Polyester Coated - Channel and parts are carefully cleaned and phosphated. Immediately after phosphating, a uniform coat of thermosetting polyester powder is electrostatically applied then baked. Minimum coating thickness to exterior surfaces is 50 microns. The polyester coating is ultra-violet stabilised.

Hot Dipped Galvanised - Coatings are applied generally in accordance with AS/NZS 4680. The thickness of the coating is dependent on the material thickness of the component being galvanised. It should be noted that due to the galvanising process, the thickness of the coating will vary over the surface and should be taken into account during component assembly. It may be necessary to remove excess build-up prior to use.

Zinc Plated - Channel, fittings and components are electroplated generally in accordance with AS 1789 Service Condition 2. Fasteners are electroplated generally in accordance with AS 1897 Service Condition 1.

Stainless Steel - Unistrut stainless steel channel is manufactured from Grade 316 stainless steel. The material is slit to width and roll formed to shape. Grade 316 stainless steel has excellent corrosion resistance and has advantages over grade 304 stainless steel, such as:-

- Resistance to pitting and crevice corrosion in chloride environments.
- Superior resistance to ordinary rusting in most applications.
- Regularly used in aggressive coastal and marine environments.
- Highly recommended for food processing environments where it can be easily cleaned and has a greater resistance to organic and inorganic chemical substances.

Aluminium - Unistrut aluminium channels are manufactured from high strength alloy 6106-T6 for all extruded components and 5005 for sheet or plate components. These alloys are suitable for marine applications and offer excellent all round corrosion resistance.

Specific Coating - When specific applications require other commercially available finishes, they can be supplied according to specification.

Metal Framing - 41mm

Channel Styles and Combinations General Specifications

Material

All single Unistrut Channel members are accurately and carefully rolled from strip steel to AS 1594 and AS 1365. Spot-welded combination members are welded 75mm (maximum) on centre. Some members may require fillet welding.

Material Thickness

The thicknesses of the various channels are as follows:

P1000	-	2.5mm
P2000	-	1.6mm
P3300	-	2.5mm
P4000	-	1.6mm
P5500	-	2.5mm

Engineering properties may vary slightly due to commercial tolerances.

Standard Lengths

Standard lengths of the above channels are 6m. Facilities are available to cut standard lengths into any special lengths for a small cutting charge.

Section Shape

“The roll forming process used by UNISTRUT AUSTRALIA produces a consistent channel within the manufacturing tolerances allowed. The process induces stresses within the section itself which are released when the channel is cut. This creates a common condition known as “Bellmouth” where the section deforms slightly for a small distance in from the end.”

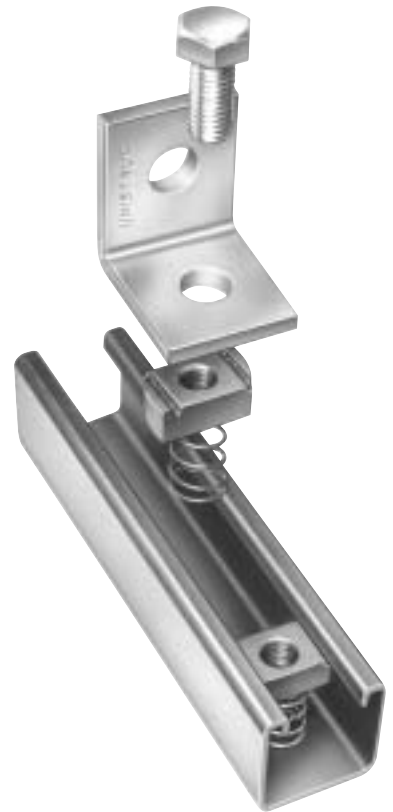
Features:

Large chamfer in nut eases starting of bolt. Special shaped inturned edges and tapered, serrated grooves produce strong vice-like grip between channel and nut.

- Channel edges and nut's tapered grooves act as guides to provide positive alignment of connection.
- Nut teeth grip the channel's inturned edges, tying the channel sides together in a "box" configuration for added strength.

- Longitudinal movement of nut is resisted as hardened teeth bite into the inturned edges.

Spring allows precision placement anywhere along channel length, then holds nut in position while connection is completed - the workman's "third hand".



Spring nut is inserted anywhere along continuous slot. Rounded nut ends permit easy insertion.



A 90° turn positions the serrated grooves in the nut with the inturned edges of the channel.



Fittings may be placed anywhere along channel slot permitting complete freedom of adjustment. The need for drilling holes is eliminated.



The fitting makes the connection between any framing channels or as means for other attachments.

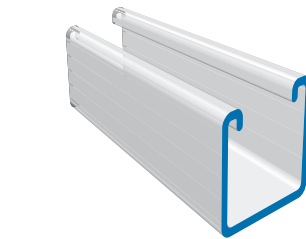
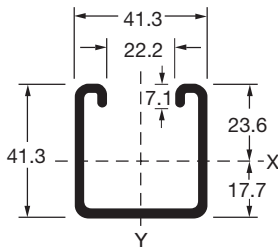


A turn of a spanner locks the serrated teeth of the nut into the inturned edges of the channel to make the strong, vice-like connection.

Metal Framing - P1000/3300/5500 - 2.5mm

41mm Roll Formed Channels and Combinations

P1000



Mass: 2.59kg/m

Note: P1000, P3300 and P5500 channel and combinations are roll formed from 2.5mm strip steel.

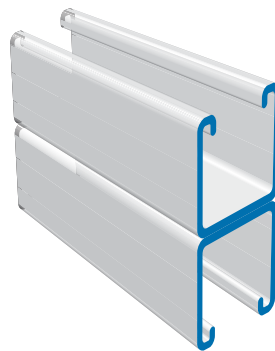
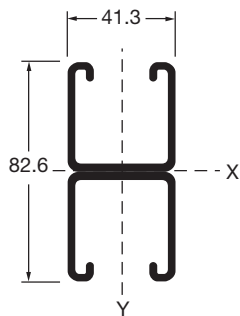
Standard Length: 6 metres.

Also available in Stainless Steel Grade 316.

For additional combination of these channels, please refer to the 'Optional Channel Configurations' located in this Tab Section.

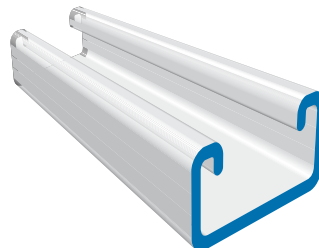
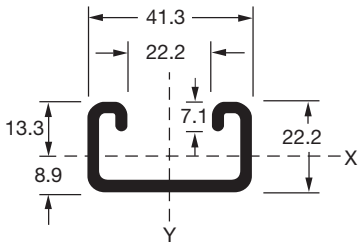
For engineering information, please refer to the 'Engineering Data' Tab Section.

P1001



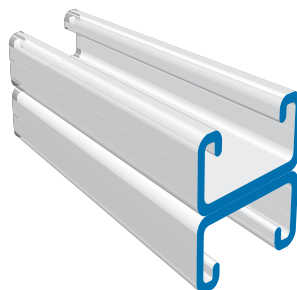
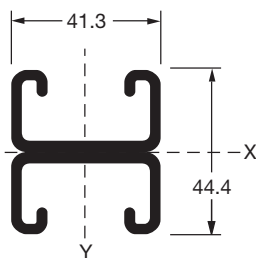
Mass: 5.18kg/m

P3300



Mass: 1.82kg/m

P3301



Mass: 3.65kg/m

Metal Framing - P1000/3300/5500 - 2.5mm 41mm Roll Formed Channels and Combinations

Note: P1000, P3300 and P5500 channel & combinations are roll formed from 2.5mm strip steel.

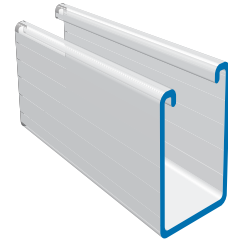
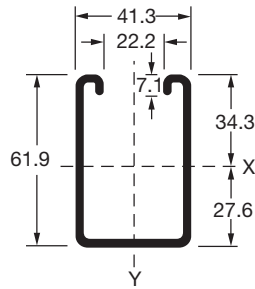
Standard Length: 6 metres.

Also available in Stainless Steel Grade 316.

For additional combination of these channels, please refer to the 'Optional Channel Configurations' located in this Tab Section.

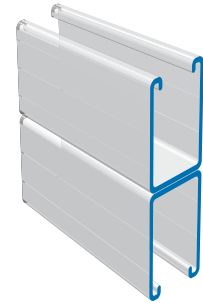
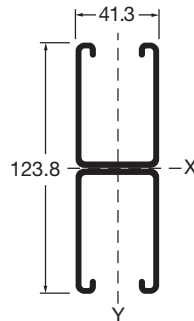
For engineering information, please refer to the 'Engineering Data' Tab Section.

P5500



Mass: 3.40kg/m

P5501

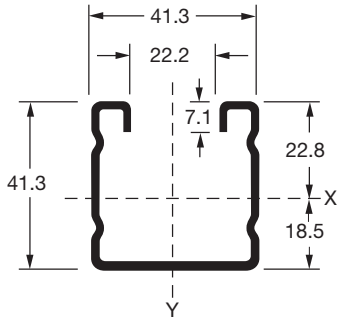


Mass: 6.81kg/m

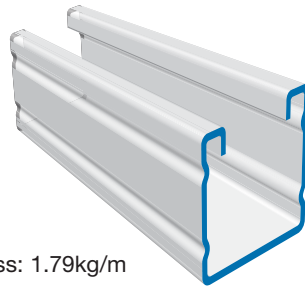
Metal Framing - P2000/4000 - 1.6mm

41mm Roll Formed Channels and Combinations

P2000



Mass: 1.79kg/m



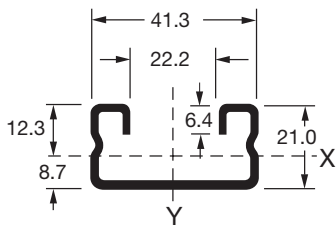
Note: P2000 and P4000 channel and combinations are roll formed from 1.6mm strip steel.

Standard Length: 6 metres.
Also available in Aluminium.

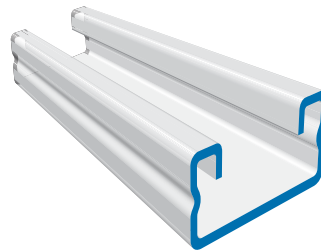
For additional combination of these channels, please refer to the 'Optional Channel Configurations' located in this Tab Section.

For engineering information, please refer to the 'Engineering Data' Tab Section.

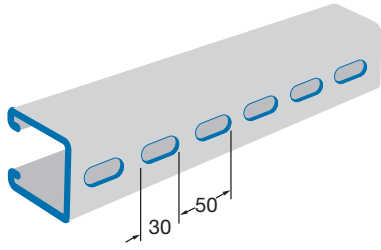
P4000



Mass: 1.26kg/m



Metal Framing - 41mm Channel Styles



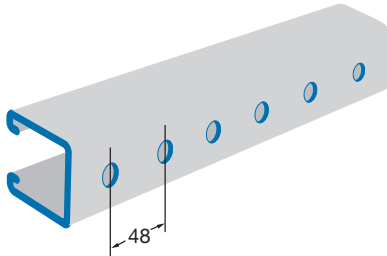
Slots 14 wide x 30 long
at 50mm centres (approx.)

P1000T, P2000T, P3300T, P4000T & P5500T

Part No.	Nominal Section Dimension mm	Material Thickness mm	Mass kg/m
P1000T	41 x 41	2.5	2.32
P2000T	41 x 41	1.6	1.62
P3300T	41 x 22	2.5	1.55
P4000T	41 x 21	1.6	1.08
P5500T	41 x 62	2.5	3.12

Standard Length: 6m

Loading: Consult matching channel table and multiply by 0.9



Holes 14 dia. at 48mm
centres (approx.)

P1000HS

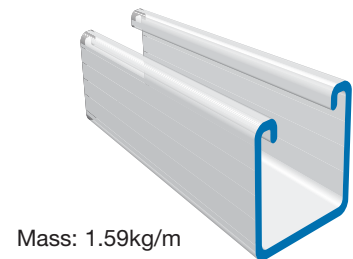
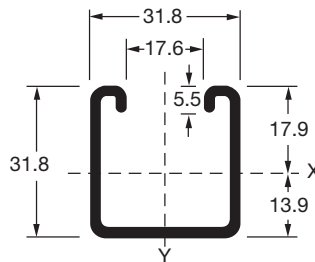
Part No.	Nominal Section Dimension mm	Material Thickness mm	Mass kg/m
P1000HS	41 x 41	2.5	2.53

Standard Length: 6m

A1000

A1000 channel and combinations are roll formed from 2.0mm strip steel.

Standard Length: 6m

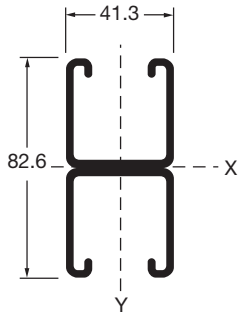


Mass: 1.59kg/m

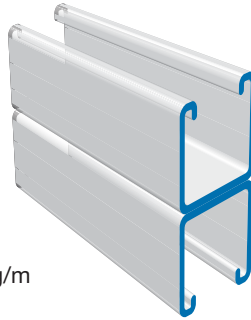
Metal Framing - P1000

41mm Optional Channel Configurations

P1001

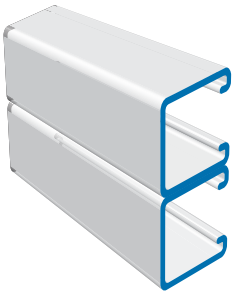


Mass: 5.18kg/m

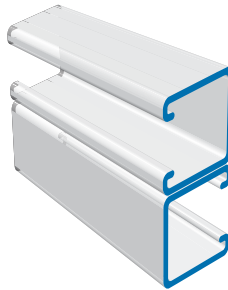


Note: Other channel configurations available on request.

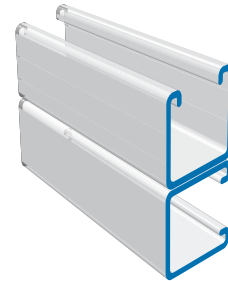
P1001-A



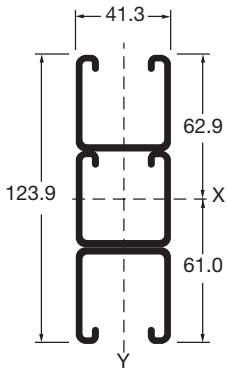
P1001-B



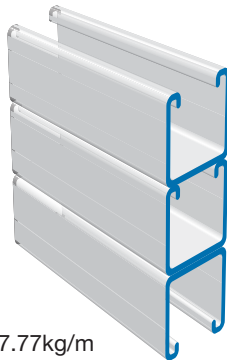
P1001-C



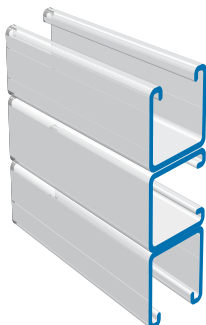
P1001-3



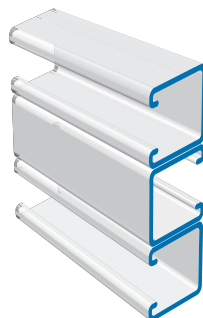
Mass: 7.77kg/m



P1001A3



P1001B3

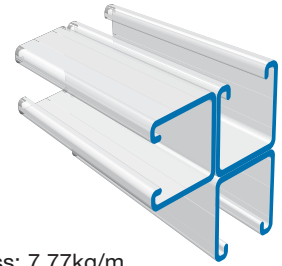
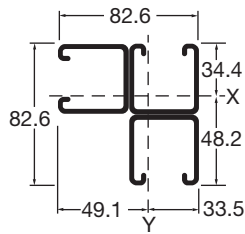


Metal Framing - P1000

41mm Optional Channel Configurations

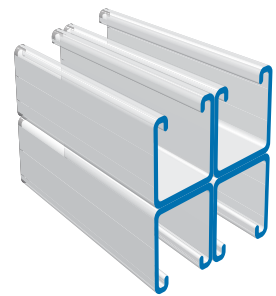
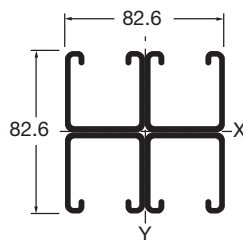
Note: Other channel configurations available on request.

P1001C3



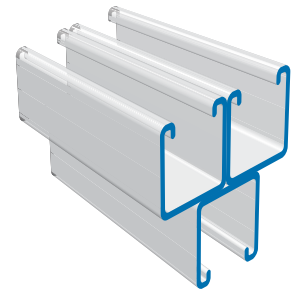
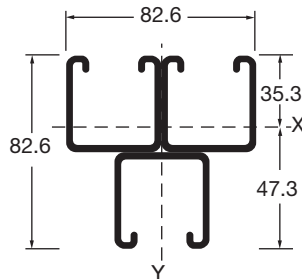
Mass: 7.77kg/m

P1001C41



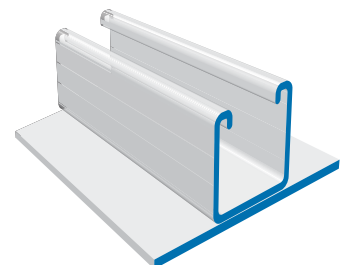
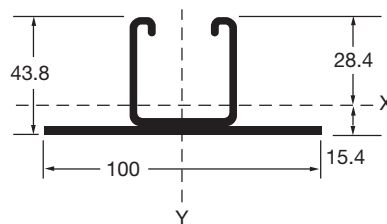
Mass: 10.36kg/m

P1001D3



Mass: 7.77kg/m

P1003



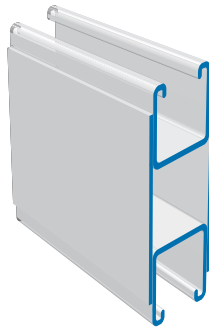
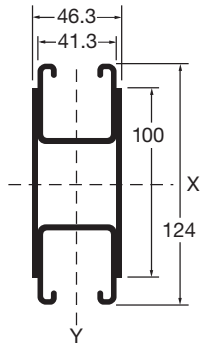
Mass: 4.55kg/m

Metal Framing - P1000

41mm Optional Channel Configurations

P1004A

Note: Other channel configurations available on request.



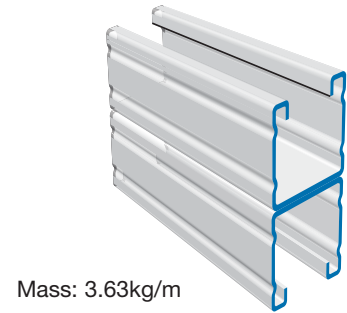
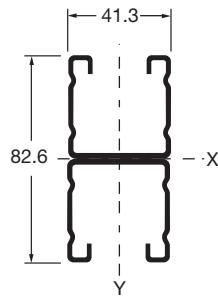
Mass: 9.12kg/m

Metal Framing - P2000

41mm Optional Channel Configurations

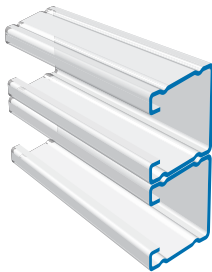
Note: Other channel configurations available on request.

P2001

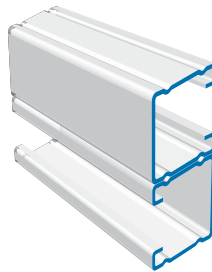


Mass: 3.63kg/m

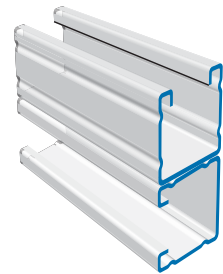
P2001A



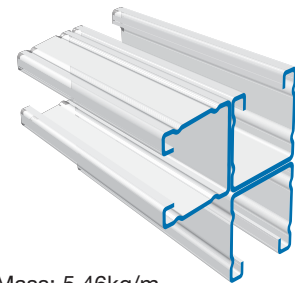
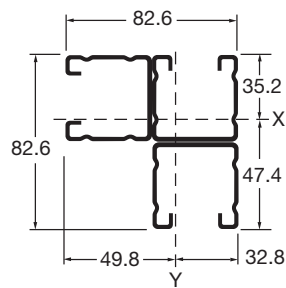
P2001B



P2001C



P2001C3

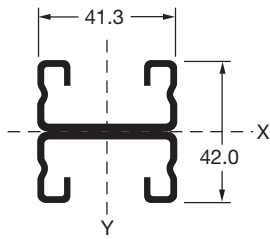


Mass: 5.46kg/m

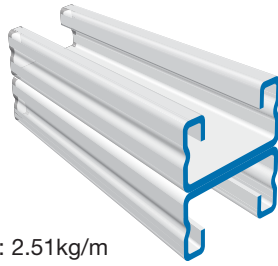
Metal Framing - P4000

41mm Optional Channel Configurations

P4001

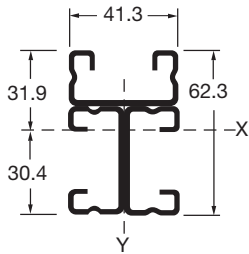


Mass: 2.51kg/m

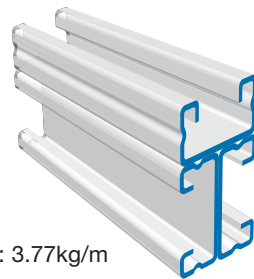


Note: Other channel configurations available on request.

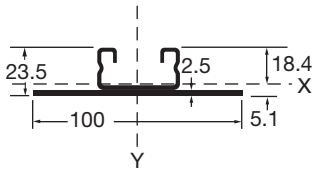
P4003



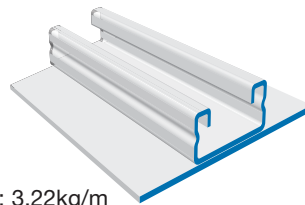
Mass: 3.77kg/m



P4002-1



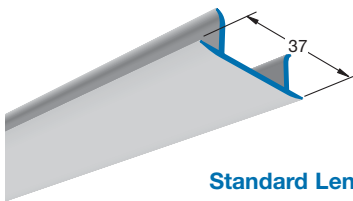
Mass: 3.22kg/m



Metal Framing - 41mm Channel Accessories

P1184 - Plastic Closure Strip

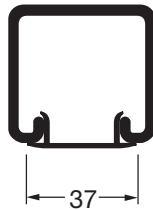
Standard Colour: Grey. Other colours available in commercial quantities on request. UV Stabilised.



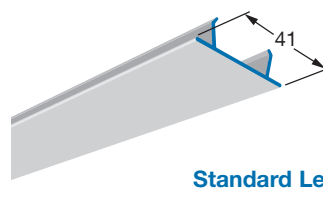
P1184

Standard Length: 3m

Mass: 0.11kg/m



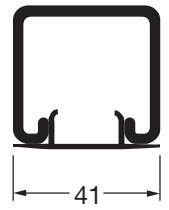
P1184A - Aluminium Closure Strip



P1184A

Standard Length: 3m

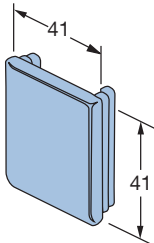
Mass: 0.25kg/m



Channel End Caps - Plastic UV Stabilised

P2240

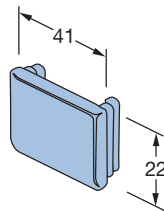
For P1000 & P2000 Channels



Mass: 0.70kg/100

P4240

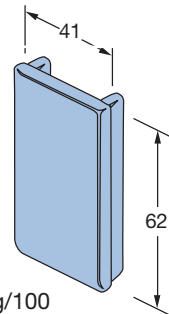
For P3300 & P4000 Channels



Mass: 0.40kg/100

P5580

For P5500 Channels

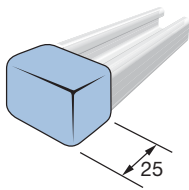


Mass: 1.2kg/100

Over-Channel End Caps - Plastic

P2860-33

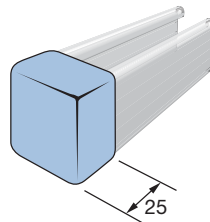
Fits P3300 Channel



Mass: 1.14kg/100

P2860-10

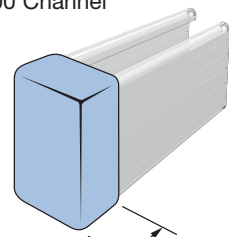
Fits P1000 Channel



Mass: 1.54kg/100

P2860-55

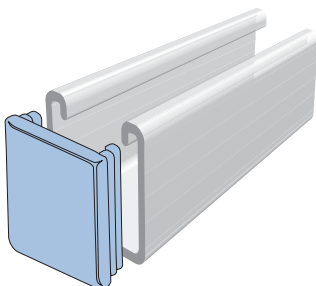
Fits P5500 Channel



Mass: 2.13kg/100

Note: Caps provide a protective covering on protruding channels to guard against personal injury or damage to clothing. They slip easily over the ends of channel.

Typical Application



Concrete Inserts are manufactured from standard Unistrut channel sections. They may be installed in floors, walls or concealed for the support of all kinds of piping, conduit, cable and other industrial equipment. Unistrut nuts can be inserted anywhere along the length of the insert providing a means of attaching fittings or hanger rods.

Fixing Methods

Note: The lugs protruding from the back of the insert are designed to provide positive anchorage in the concrete. Distortion of the lugs is not recommended as it will severely reduce the performance of the insert.

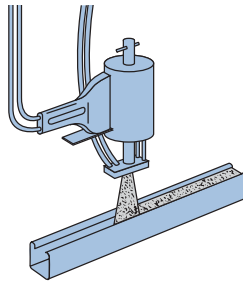
Form Ply: Unistrut P1000CI Concrete Inserts are placed face down on the form at the required location and fixed using 2.8mm x 75mm long flat head nails through holes provided. The point of the nail should be bent over to prevent lifting should the vibrator make contact.

Note: For P3300CI Concrete Insert, a 50mm long nail is recommended.

Steel Forms: Concrete Inserts are either tack welded or wired to reinforcement.

Filler Methods

Unistrut Concrete Inserts are supplied foam filled to prevent the ingress of grout and cement.



Injection Applied Polyurethane

Finishes

Unistrut Concrete Inserts are available in the following styles and finishes - P1000 & P3300 in Hot Dipped Galvanised and Stainless Steel - Grade 316.

Note: Test results are available on request.

Metal Framing - Concrete Inserts

P1000CI

Standard Length: 6m

Finish: Hot Dipped Galvanised and Stainless Steel grade 316.

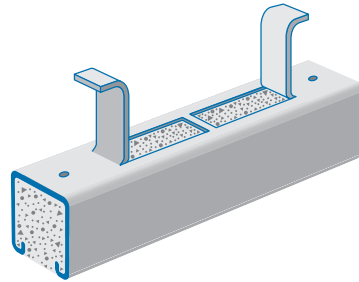
Loading Data: Because the support capacity of any Concrete Insert depends largely on the strength of the concrete used, we cannot guarantee any particular load.

Recommended Pullout Loading*: Inserts 300mm and over 8.83kN per 300mm.

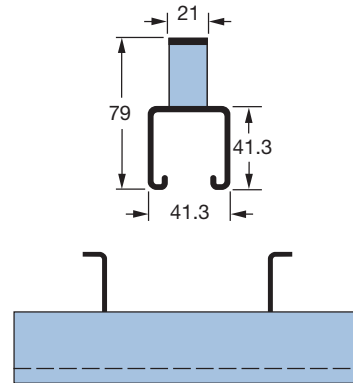
Factor of Safety: Approximately 3

Mass: 2.80kg/m

Note: Exercise care during installation - Don't bend lugs.



Lugs at 100mm centres



P3300CI

Standard Length: 6m

Finish: Hot Dipped Galvanised and Stainless Steel grade 316.

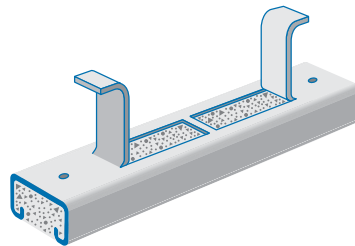
Loading Data: Because the support capacity of any Concrete Insert depends largely on the strength of the concrete used, we cannot guarantee any particular load.

Recommended Pullout Loading*: Inserts 300mm and over 6.37kN per 300mm.

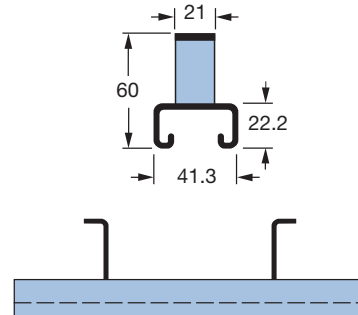
Factor of Safety: Approximately 3

Mass: 1.94kg/m

Note: Exercise care during installation - Don't bend lugs.

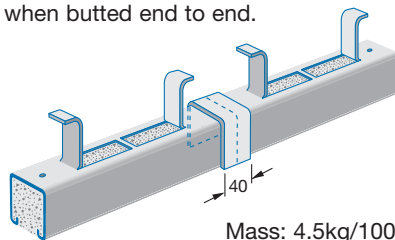


Lugs at 100mm centres



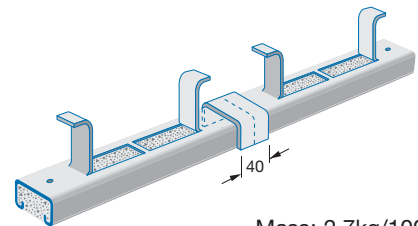
P1663

Cover joints between concrete insert when butted end to end.



Mass: 4.5kg/100

P4663



Mass: 2.7kg/100

Note*: For more detailed information regarding loading of all Concrete Inserts, refer to your local Unistrut Service Centre.

Material

Unistrut spring nuts are manufactured from steel bars, and after all machining operations are completed, zinc plated nuts are case hardened. Hardening assures positive biting action into the inturred edge of the UNISTRUT channel. Similar nuts without springs are also available. Stud nuts are manufactured by welding studs to UNISTRUT nuts except for USB series which are drop forged. Nuts and Bolts are manufactured to AS 1111 & AS 1112.

Threads

All threads on the nuts and bolts are metric coarse.

Design Bolt Torque

Refer to Engineering Data Tab.

Finishes

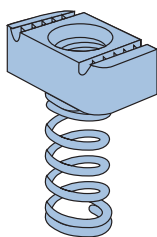
Nuts and bolts are zinc plated to Australian Standard AS 1897, selected sizes also available in hot dipped galvanised to AS 1214.

Metal Framing - Nuts and Bolts

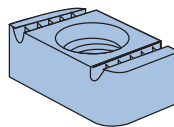
for P1000 & P2000 Channels - With Spring

Part No. **Size** **Mass kg/100**

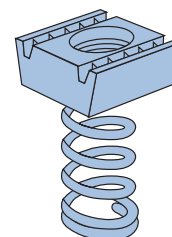
P1006	M6	3.18
P1007	M8	3.18
P1008	M10	4.54
P1010	M12	5.45
P1012S	M16	9.53



P1006/7/8/10



P3006/7/8/10

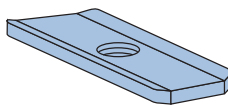


P1012S

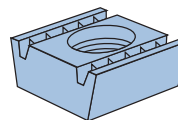
Without Spring

Part No. **Size** **Mass kg/100**

P3016	M6	1.00
P3006	M6	2.72
P3007	M8	2.72
P3008	M10	4.41
P3010	M12	3.64
P1012	M16	9.08



P3016

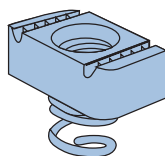


P1012

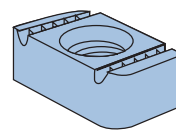
P3300 & P4000 Channels - With Spring

Part No. **Size** **Mass kg/100**

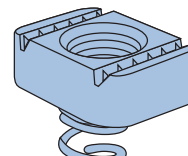
P4006	M6	2.73
P4007	M8	2.73
P4008	M10	4.42
P4010	M12	3.65
P4012S	M16	4.99



P4006/7/8/10



P3006/7/8/10/13

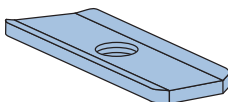


P4012S

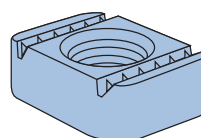
Without Spring

Part No. **Size** **Mass kg/100**

P3016	M6	1.00
P3006	M6	2.72
P3007	M8	2.72
P3008	M10	4.41
P3013	M12	4.20
P4012	M16	4.54



P3016

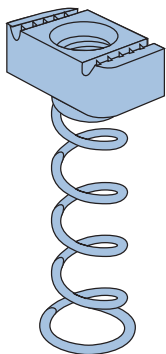


P4012

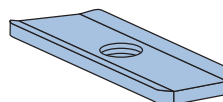
P5500 Channels - With Spring

Part No. **Size** **Mass kg/100**

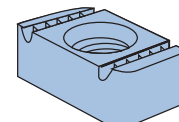
P5508	M10	4.54
P5510	M12	5.45



P5508/10



P3016

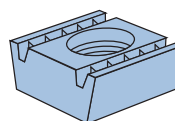


P3006/7/8/10

Without Spring

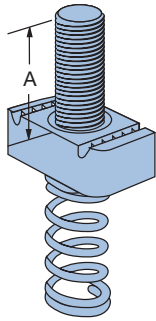
Part No. **Size** **Mass kg/100**

P3016	M6	1.00
P3006	M6	2.72
P3007	M8	2.72
P3008	M10	4.41
P3010	M12	3.64
P1012	M16	9.08



P1012

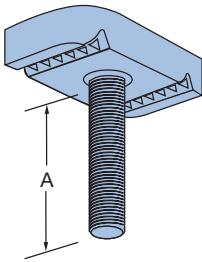
Metal Framing - Nuts and Bolts



Stud Nut - P2378M6-1 to P2381M12-5

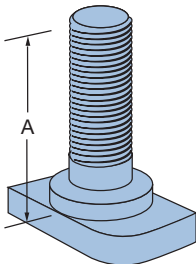
Part No.	Size	Dim "A"	Mass kg/100
P2378M6-1	M6	22	3.63
P2378M6-3	M6	34	4.09
P2380M10-1	M10	22	5.90
P2380M10-4	M10	41	6.18
P2381M12-2	M12	22	6.36
P2381M12-5	M12	41	8.17

Note: Grooves Serrated.



Fixture Stud Nut - P3116

Part No.	Size	Dim "A"	Mass kg/100
P3116	M6	30	3.50



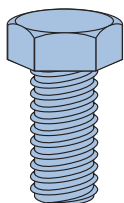
Stud Bolt - USB045 to USB102

Part No.	Size	Dim "A"	Mass kg/100
USB045	M16	45	10.00
USB076	M16	76	14.00
USB102	M16	102	18.00

Metal Framing - Nuts and Bolts

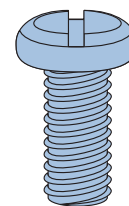
Hex Head Set Screws

Part No.	Size	Mass kg/100
HHS0620	M6 x 20	0.6
HHS0625	M6 x 25	0.7
HHS0630	M6 x 30	0.8
HHS0820	M8 x 20	1.2
HHS0825	M8 x 25	1.4
HHS0830	M8 x 30	1.5
HHS0840	M8 x 40	1.8
HHS1020	M10 x 20	1.9
HHS1025	M10 x 25	2.1
HHS1030	M10 x 30	2.5
HHS1040	M10 x 40	3.0
HHS1224	M12 x 24	4.2
HHS1230	M12 x 30	4.5
HHS1240	M12 x 40	5.1
HHS1260	M12 x 60	7.5
HHS1640	M16 x 40	9.5



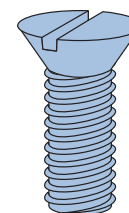
Pan Head Screws

Part No.	Size	Mass kg/100
PHS0620	M6 x 20	0.6
PHS0625	M6 x 25	0.7
PHS0630	M6 x 30	0.8
PHS0825	M8 x 25	1.3



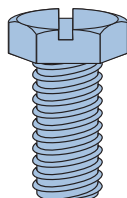
Countersunk Head Screws

Part No.	Size	Mass kg/100
CKS0615	M6 x 15	0.3
CKS0620	M6 x 20	0.4
CKS0820	M8 x 20	0.8
CKS1020	M10 x 20	1.3



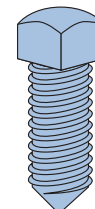
Slotted Hex Head Set Screws

Part No.	Size	Mass kg/100
SHS0620	M6 x 20	0.6
SHS0825	M8 x 25	1.2
SHS0830	M8 x 30	1.3



Cone Point Set Screws

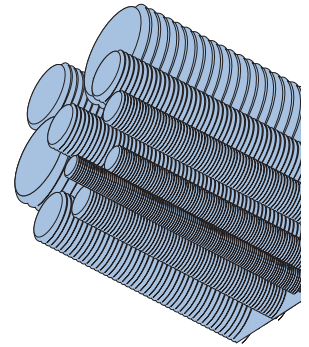
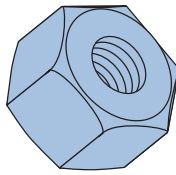
Part No.	Size	Mass kg/100
CPS1040	M10 x 40	2.3
CPS1240	M12 x 40	3.8
CPS1250	M12 x 50	4.4



Metal Framing - Nuts and Bolts

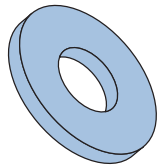
Hexagon Nuts

Part No.	Size	Mass kg/100
HN06	M6	0.2
HN08	M8	0.5
HN10	M10	0.8
HN12	M12	1.8
HN16	M16	3.3
HN20	M20	5.6



Flat Washers

Part No.	Size	Mass kg/100
FW06	M6	0.1
FW08	M8	0.1
FW10	M10	0.3
FW12	M12	0.4
FW16	M16	0.8
FW20	M20	0.9



Unirod Steel Threaded Rod

Part No.	Size	Max. Recommended Tensile Load (kN)	Mass kg/m
UR06	M6	3.47	0.20
UR08	M8	6.32	0.35
UR10*	M10	10.02	0.50
UR12*	M12	14.56	0.80
UR16*	M16	24.30	1.30
UR20*	M20	37.92	2.10

Standard Finish: Zinc Plated.

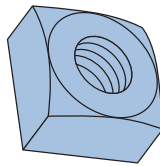
* Also available in Hot Dipped Galvanised.

Standard Length: 3.0m

Unirod Load Data: Maximum recommended tensile load is based on a factor of safety of 2.5 using the appropriate stress area of thread and ultimate tensile strength of 430 MPa.

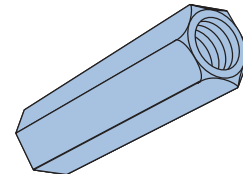
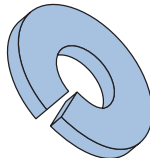
Swivel Nuts

Part No.	Size	Mass kg/100
P267910	M10	1.7
P267912	M12	1.5



Spring Washers

Part No.	Size	Mass kg/100
SW06	M6	0.1
SW08	M8	0.2
SW10	M10	0.3
SW12	M12	0.4
SW16	M16	0.6
SW20	M20	1.0



Shakeproof Lock Washers

Part No.	Size	Mass kg/100
LW06	M6	0.05
LW08	M8	0.06
LW10	M10	0.08
LW12	M12	0.10
LW16	M16	0.13
LW20	M20	0.20



Rod Couplers

Part No.	Thread	Length "A"	Mass kg/100
RC06	M6	20	1.2
RC08	M8	20	2.3
RC10*	M10	30	4.0
RC12*	M12	40	7.8
RC16*	M16	50	12.2
RC20*	M20	50	19.0

Standard Finish: Zinc Plated.

* Also available in Hot Dipped Galvanised.

Material

Unless otherwise noted, all fittings are punch press formed from plate or strip steel.

Standard Dimensions

The following dimensions apply to all fittings except as noted on the part drawings:

Hole size	14mm diameter
Hole spacing	21mm from end of fitting 48mm centre to centre
Fitting width	40mm
Fitting thickness	6mm

Fitting Application

All parts drawings illustrate only one application of each fitting. In most cases many other applications are possible. The members shown in the illustrations are P1000, 41mm square, except where noted otherwise. All 14mm diameter holes use M12 x 24 hex head set screws and M12 nuts - P1010, P4010 or P5510 - depending on the channel used. Nuts and bolts are not included with the fitting and must be ordered separately.

Design Load Data

Design load data, where shown, is based on the ultimate strength of the connection with a safety factor of 2.5.

Design Bolt Torque

Refer to Engineering Data Tab.

Finishes

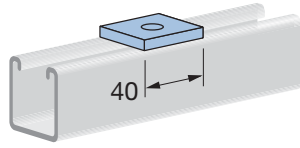
All fittings in this section are available in zinc plated finish to Australian Standard AS 1789 and Hot Dipped Galvanised to AS/NZS 4680.

Metal Framing - General Fittings

Flat Plate Fittings - 41mm Channel Width Series

P1062 to P1964

Part No.	Bolt Size	Hole Size	Mass kg/100
P1062	8	9	7
P1063	10	12	6.8
P1064	12	14	6.6
P1964	16	18	6.4

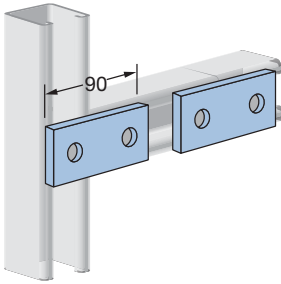


General Data

Hole Size - 14 diameter
 Hole Spacing - 21 from end
 48 on centre
 Width - 40
 Thickness - 6

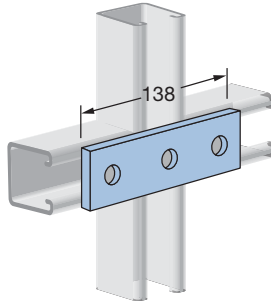
General Data applies to Flat Plate, Ninety Degree, Angular, "Z", "U" & Wing Shape Fittings

P1065



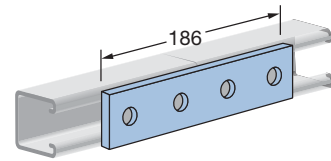
Mass: 16kg/100

P1066



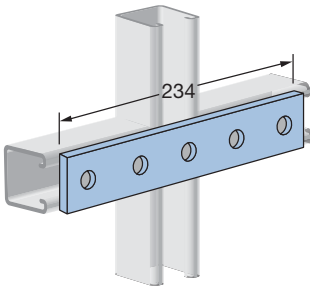
Mass: 24kg/100

P1067



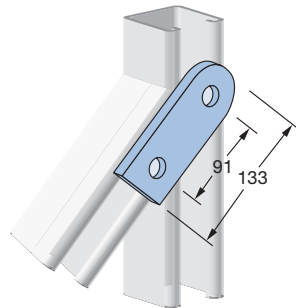
Mass: 32kg/100

P1941



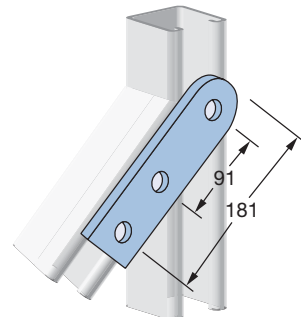
Mass: 41kg/100

P2325



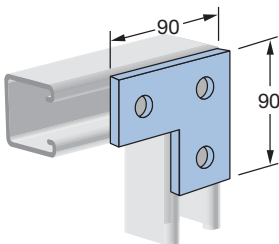
Mass: 23kg/100

P2324



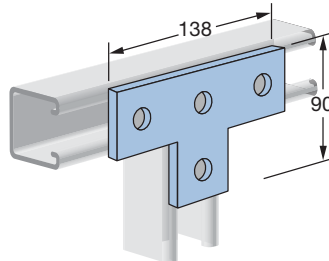
Mass: 31kg/100

P1036



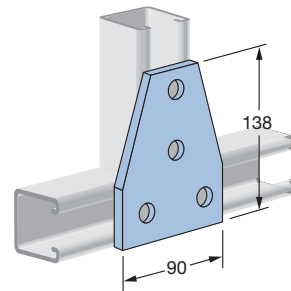
Mass: 25kg/100

P1031



Mass: 35kg/100

P1358

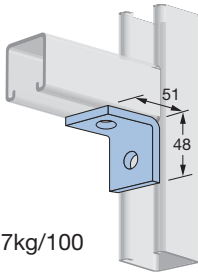


Mass: 48kg/100

Metal Framing - General Fittings

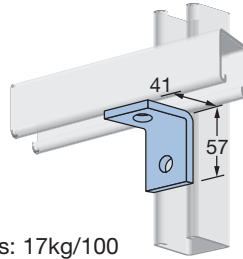
90° Angle Fittings - 41mm Channel Width Series

P1026



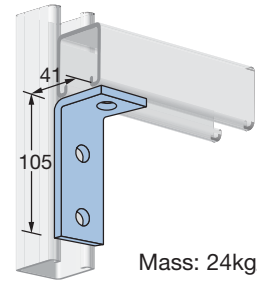
Mass: 17kg/100

P1068



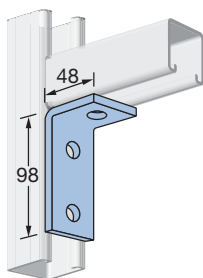
Mass: 17kg/100

P1326



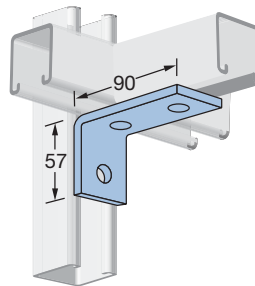
Mass: 24kg/100

P1346



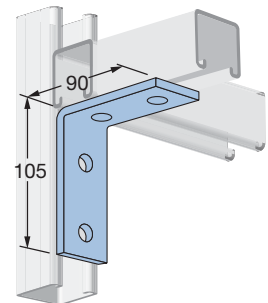
Mass: 24kg/100

P1458



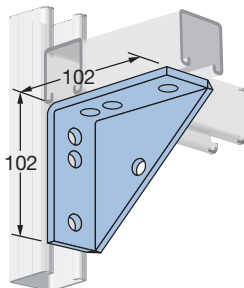
Mass: 24kg/100

P1325



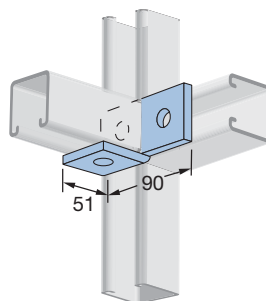
Mass: 33kg/100

P2484



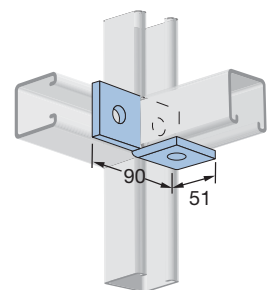
Mass: 61kg/100

P1038



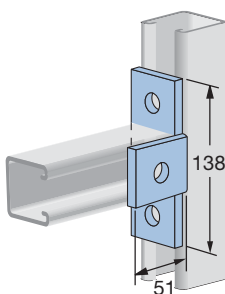
Mass: 25kg/100

P1037



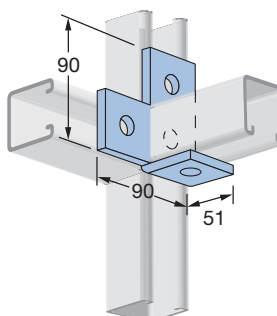
Mass: 25kg/100

P1033



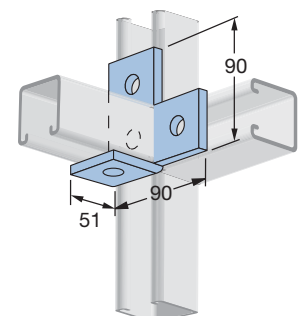
Mass: 35kg/100

P1034



Mass: 35kg/100

P1035

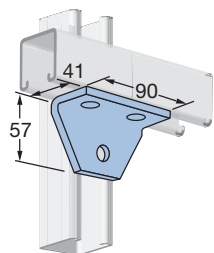


Mass: 35kg/100

Metal Framing - General Fittings

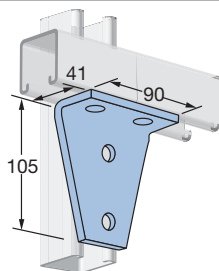
Angular Fittings - 41mm Channel Width Series

P1357



Mass: 32kg/100

P1359



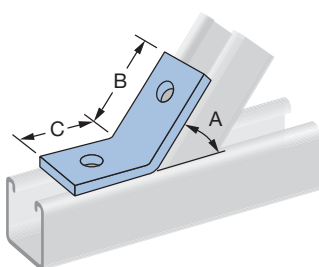
Mass: 48kg/100

General Data

Hole Size - 14 diameter
 Hole Spacing - 21 from end
 48 on centre
 Width - 40
 Thickness - 6

General Data applies to Flat Plate, Ninety Degree, Angular, "Z", "U" & Wing Shape Fittings

P2095 to P1546

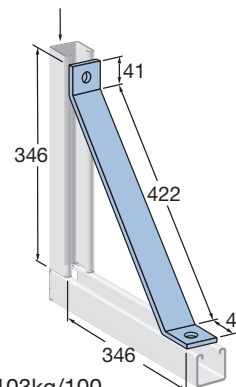


Mass: 26kg/100

Part No.	A	B	C
P2095	75°	91	43
P2097	60°	86	48
P1546	45°	76	60

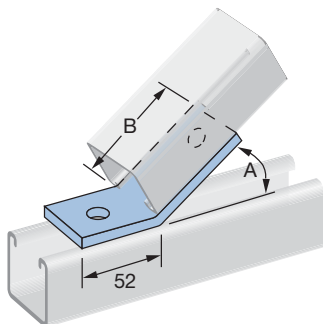
P2452

Design Axial Load - 5.36kN



Mass: 103kg/100

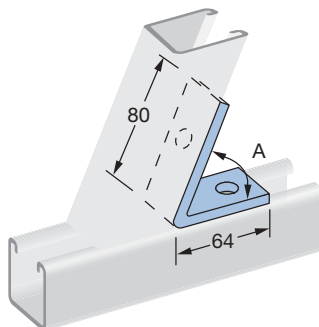
P2101 & P2103



Mass: 26kg/100

Part No.	A	B
P2101	30°	83
P2103	15°	84

P2106 to P1186



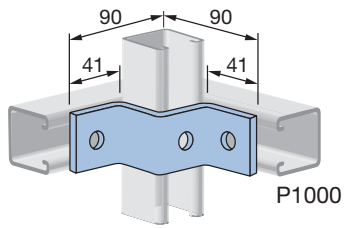
Mass: 26kg/100

Part No.	A
P2106	75°
P2108	60°
P1186	45°

Metal Framing - General Fittings

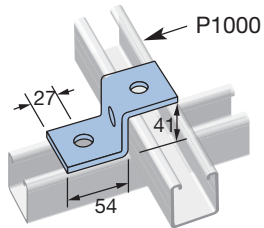
"Z" Shaped Fittings - 41mm Channel Width Series

P1736



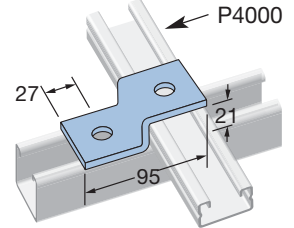
Mass: 27kg/100

P1045



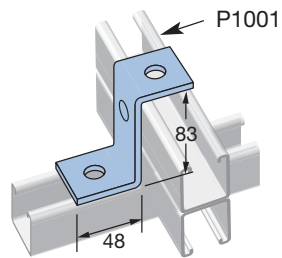
Mass: 24kg/100

P4045



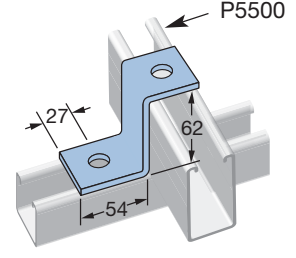
Mass: 20kg/100

P1453



Mass: 30kg/100

P5545

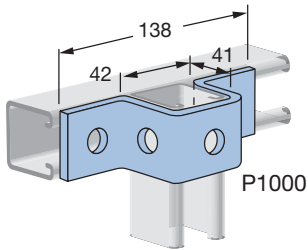


Mass: 29kg/100

Metal Framing - General Fittings

"U" Shaped Fittings - 41mm Channel Width Series

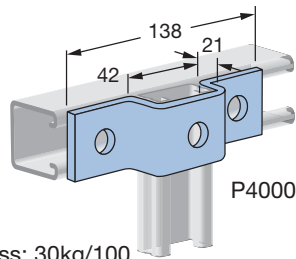
P1047



P1000

Mass: 37kg/100

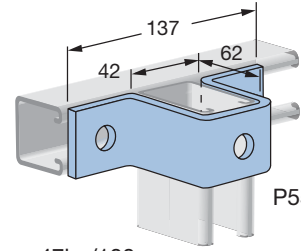
P4047



P4000

Mass: 30kg/100

P5547

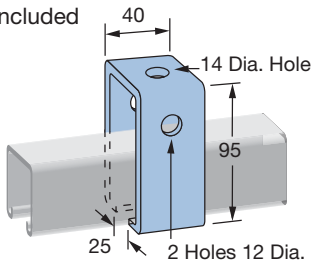


P5500

Mass: 47kg/100

P1834

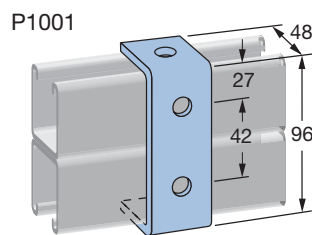
M10 x 70
bolt and
nut included



Design Load: 5.34kN

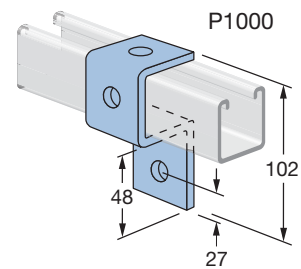
Mass: 46kg/100

P1044



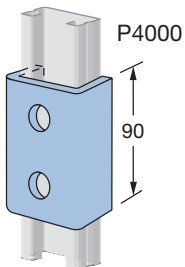
Mass: 30kg/100

P1046



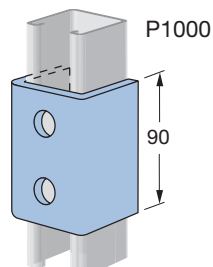
Mass: 35kg/100

P4376



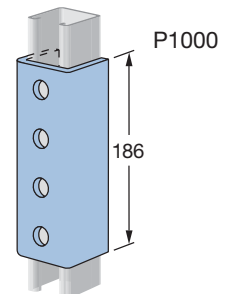
Mass: 38kg/100

P1376



Mass: 56kg/100

P1377

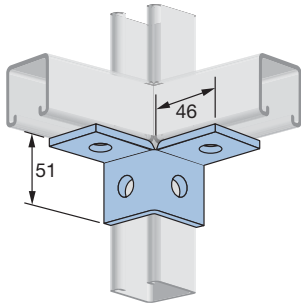


Mass: 115kg/100

Metal Framing - General Fittings

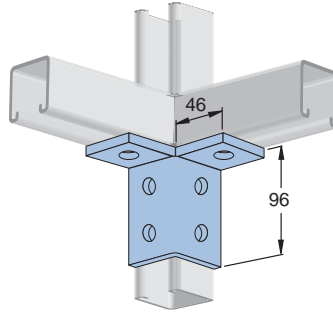
Wing Shaped Fittings - 41mm Channel Width Series

P2223



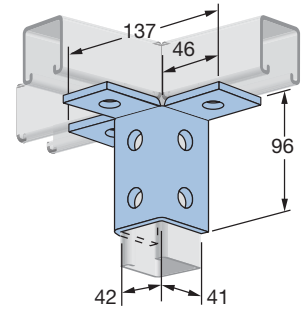
Mass: 34kg/100

P2224



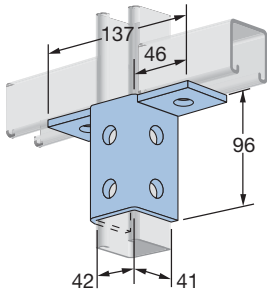
Mass: 50kg/100

P2228



Mass: 78kg/100

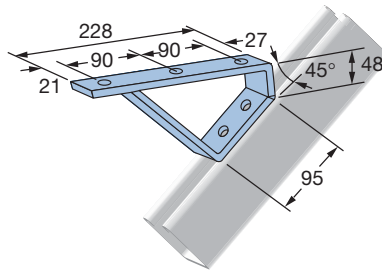
P2346



Mass: 66kg/100

P1944

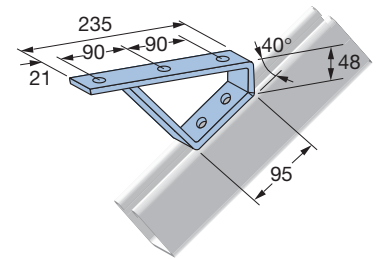
45° Stair Tread Support



Mass: 98kg/100

P2655

40° Stair Tread Support

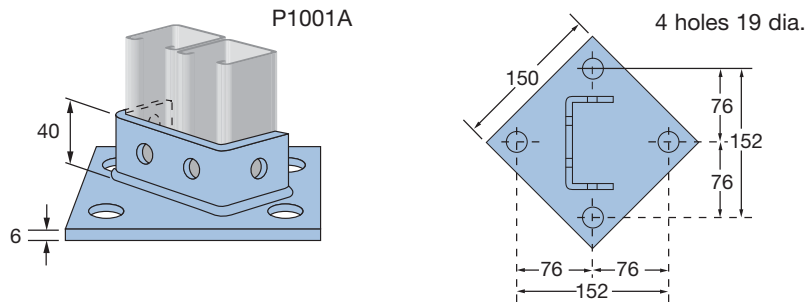


Mass: 95kg/100

Metal Framing - General Fittings

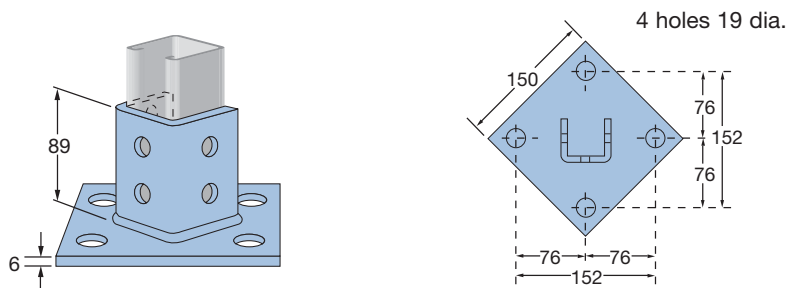
Base Plates - 41mm Channel Width Series

P2073



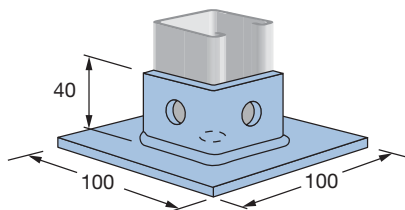
Mass: 140kg/100

P2072A



Mass: 164kg/100

P2072S1



Mass: 62kg/100

General Data

Hole Size	-	14 diameter
Hole Spacing	-	21 from end
		48 on centre
Width	-	40
Thickness	-	6

General Data applies to Flat Plate, Ninety Degree, Angular, "Z", "U" & Wing Shape Fittings

Material

Unless otherwise noted, all Unistrut special application fittings are punch press formed from plate or strip steel.

Fitting Application

All parts drawings illustrate only one application on each fitting. In most cases many other applications are possible. The Unistrut member shown in the illustrations is P1000 41mm square unless otherwise noted.

Finishes

Unless noted otherwise all special application fittings are available Zinc Plated to AS 1789.

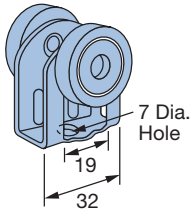
Design Bolt Torque

Refer to Engineering Data.

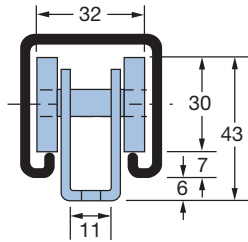
Metal Framing - Special Application Fittings

Unistrut Trolley Assemblies

P2749



Mass: 10kg/100



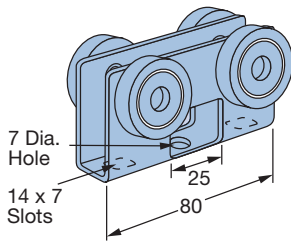
Clevis 2.5mm

Loads (kN)

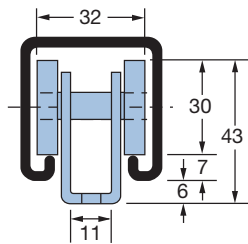
Wheel - Steel Ball Bearing
Part No. Approx. Design Load kN

Part No.	Approx. Design Load kN
P2749	0.22
P2750	0.45
P2751	0.45
P2950	2.35

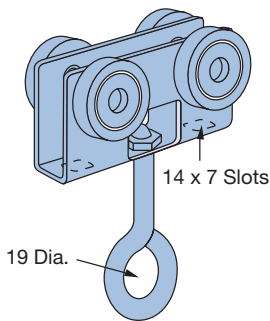
P2750



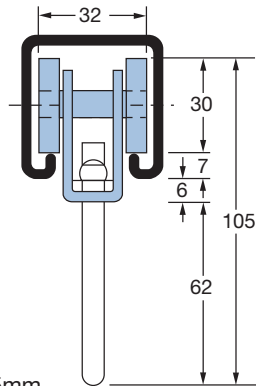
Mass: 22kg/100



P2751

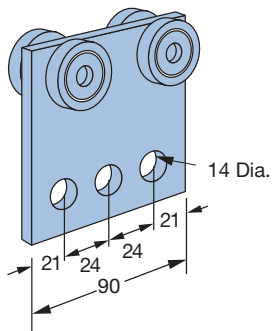


Mass: 26kg/100

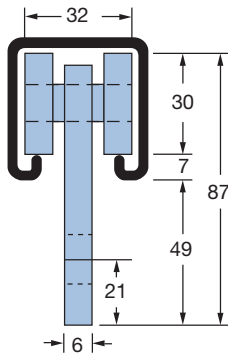


Clevis 2.5mm

P2950



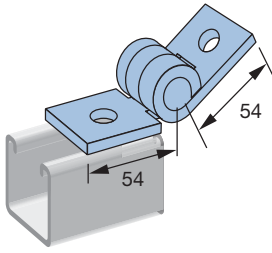
Mass: 48kg/100



Metal Framing - Special Application Fittings

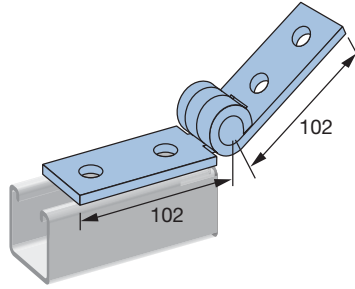
Adjustable Hinge Connections & Brace Fittings

P1843



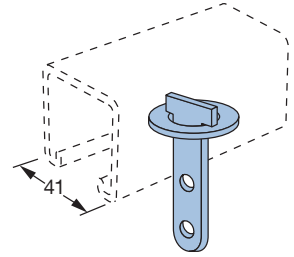
Mass: 31kg/100

P1354



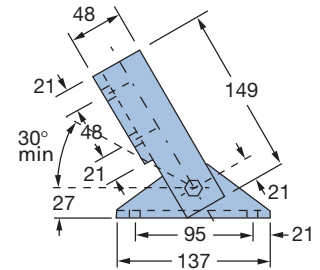
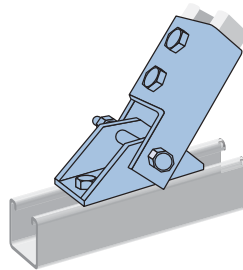
Mass: 49kg/100

P5349 - Curtain Slider



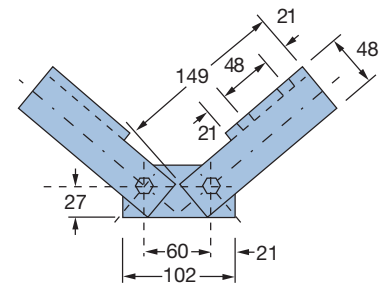
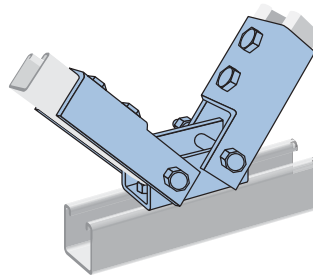
Mass: 4kg/100

P2815



Mass: 139kg/100

P2815D



Mass: 227kg/100

Material

Unless otherwise noted material is generally 40mm x 6mm mild steel. Unistrut channel where shown is P1000.

Standard Dimensions

Hole sizes are generally 14mm dia. 21mm from end and 48mm on centre.

Design Load Data

Loadings are as shown based on calculations in accordance with AS/NZS 4600 and AS 4100.

Finishes

Hot Dipped Galvanised unless otherwise shown.

Design Bolt Torque

Refer to Engineering Data.

Metal Framing - Cantilever Brackets & Traying Arms

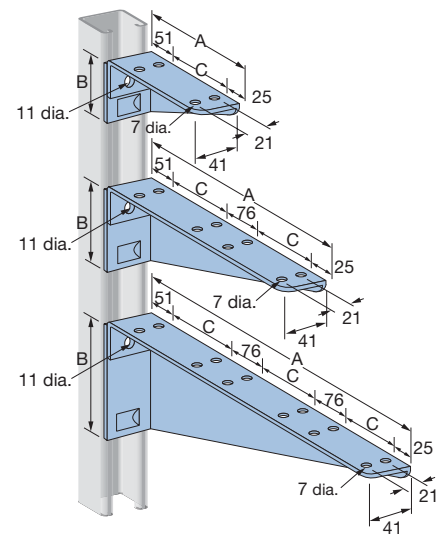
P2491R-L to P2500R-L

Part No.	A	B	C	Design Uniform Load kN	Mass kg/100
P2491R	152	56	76	1.57	30
P2491L	152	56	76	1.57	30
P2494R	305	87	76	1.37	69
P2494L	305	87	76	1.37	69
P2497R	457	125	152	1.01	121
P2497L	457	125	152	1.01	121
P2500R	610	164	127	0.98	182
P2500L	610	164	127	0.98	182

2.5mm Steel

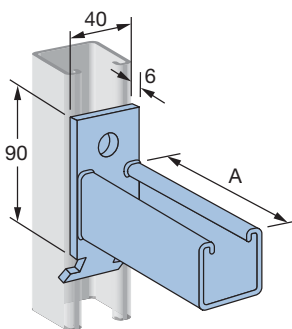
Safety Factor: 2.5

Standard Finish: Galvabond

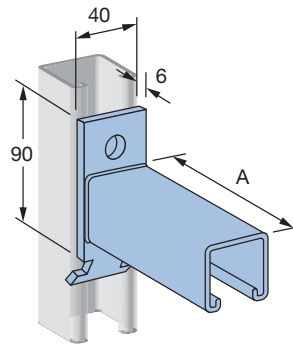


R - As shown
L - Opposite hand

P2513 to P2516

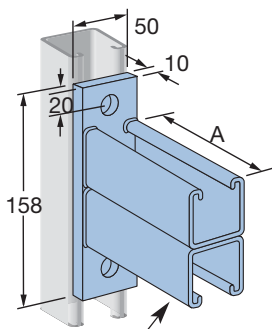


P2513A to P2516A



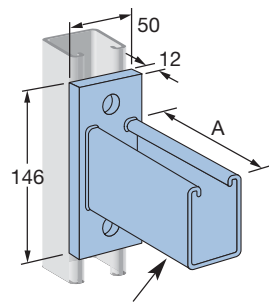
Part No.	A	Design Uniform Load kN	Mass kg/100
P2513	250	1.77	91
P2514	400	1.10	128
P2515	550	0.80	177
P2516	700	0.62	216
P2513A	250	1.77	91
P2514A	400	1.10	128
P2515A	550	0.80	177
P2516A	700	0.62	216

P2542 to P2546



P1001 Channel

P5663-300 to P5663-750

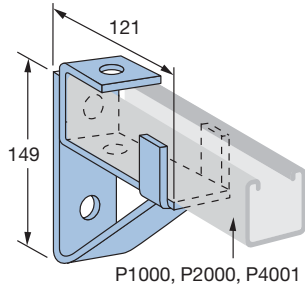


P5500 Channel

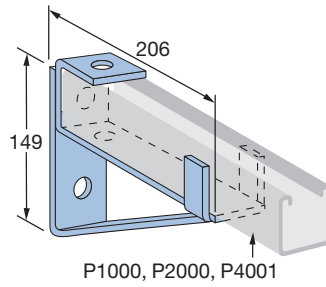
Part No.	A	Design Uniform Load kN	Mass kg/100
P2542	305	7.57	228
P2543	460	5.22	314
P2544	610	3.98	400
P2545	760	3.21	487
P2546	915	2.67	574
P5663-300	300	6.93	173
P5663-450	450	4.78	224
P5663-600	600	3.62	276
P5663-750	750	2.91	327

Metal Framing - Cantilever Brackets & Traying Arms

P1075-4



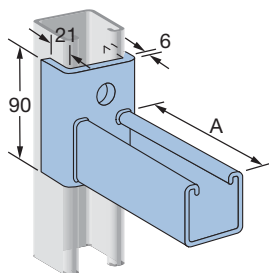
P1075-8



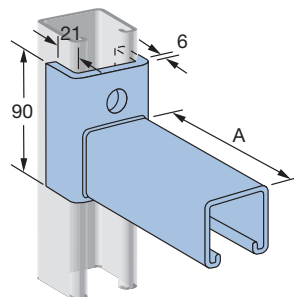
Part No.	Design Moment kN m*	Mass kg/100
P1075-4	0.58	103
P1075-8	0.58	130

Note: * Applies only to fittings and not to strength of Unistrut arm. Designed for use with "Unistrut" nuts, do not use through bolts.

P2231 & P2232

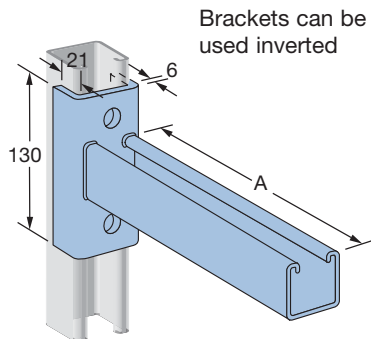


P2231A & P2232A

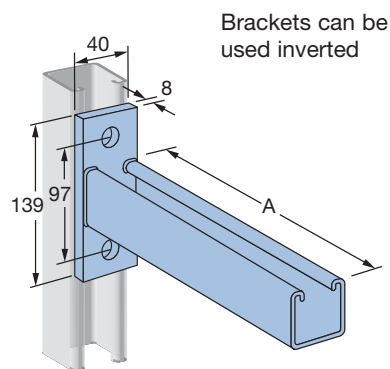


Part No.	A	Design Uniform Load kN	Mass kg/100
P2231	152	6.46	81
P2232	305	3.78	124
P2231A	152	6.46	81
P2232A	305	3.78	124

P2233 & P2234

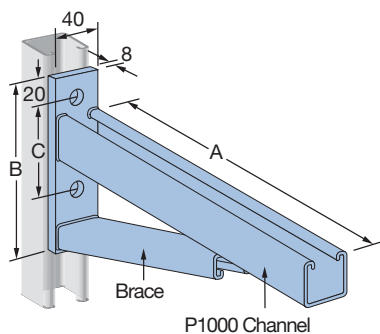


P2663-250 to P2663-700



Part No.	A	Design Uniform Load kN	Mass kg/100
P2233	457	3.14	189
P2234	610	1.97	232
P2663-250	250	3.01	102
P2663-400	400	1.88	143
P2663-550	550	1.36	186
P2663-700	700	1.06	229

PCL150 to PCL600



Part No.	A	B	C	Design Uniform Load kN	Mass kg/100
PCL150	320	165	86	4.47	170
PCL300	470	165	86	3.17	230
PCL450	635	215	112	3.33	340
PCL600	780	215	112	2.80	380

Applications

Beam Clamps are designed to provide a fast easy attachment to overhead structures. They alleviate the need for drilling and welding as well as being completely adjustable.

Finishes

Standard finishes as shown. It should be noted that Mechanically Galvanised cone pointed screws will be supplied with all Hot Dipped Galvanised beam clamps.

Design Bolt Torque

Refer to Engineering Data.

Metal Framing - Beam Clamps

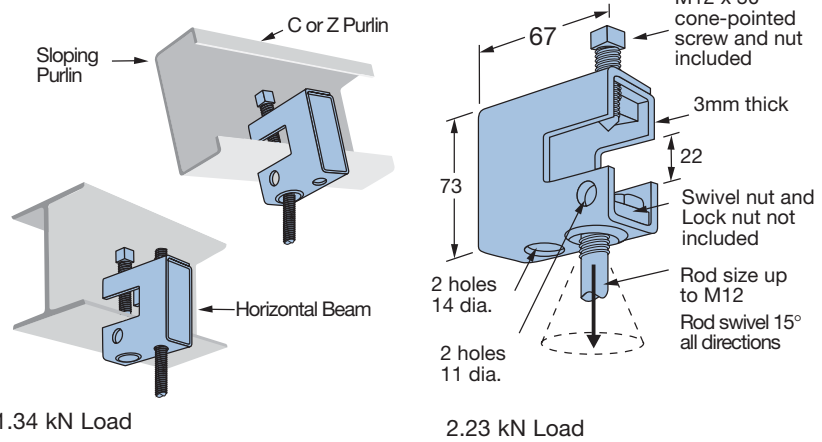
P2676

Beam Attachment Applications:

Clamp P2676 provides a means of rod suspension, either fixed, or where a free swing of up to 15° is required. Clamp will accommodate M10 or M12 rods. Clamp may also be used with P2683 as illustrated in application drawings.

Standard Finishes: Z.P. & H.D.G.

Mass: 33kg/100

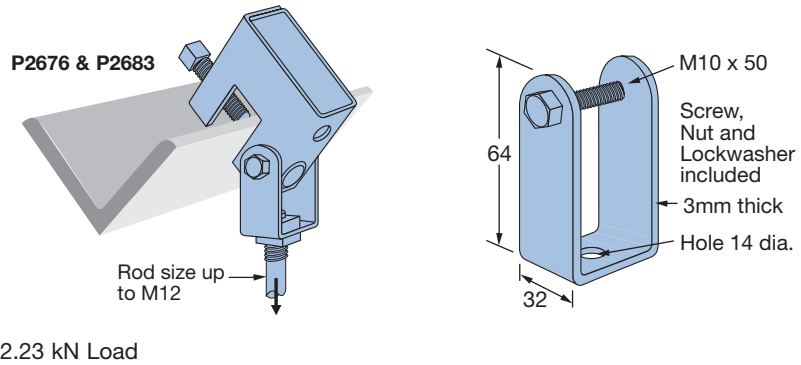


P2683

P2683 clevis hanger to be used with P2676 to provide angle adjustment for up to M12 rod suspension.

Standard Finish: Z.P.

Mass: 15kg/100

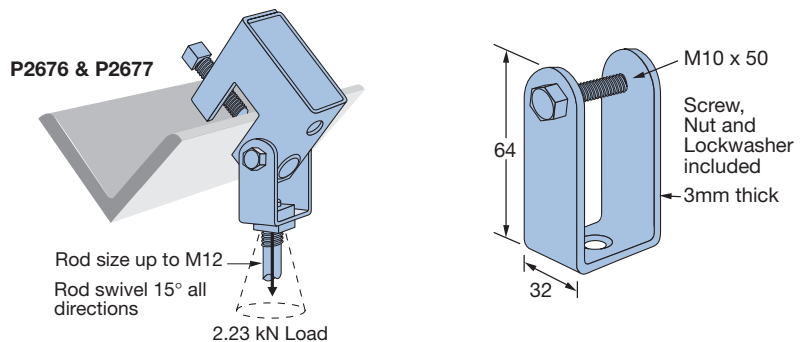


P2677

P2677 clevis hanger to be used with P2676 to provide angle adjustment and 15° free swing for up to M12 rod suspension. Order P2679 series swivel nuts as required.

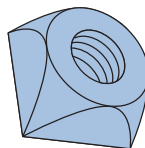
Standard Finish: Z.P.

Mass: 15kg/100



P2679 - Swivel Nut

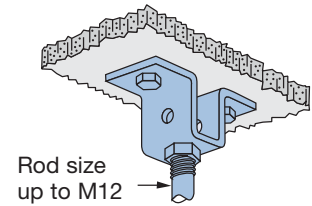
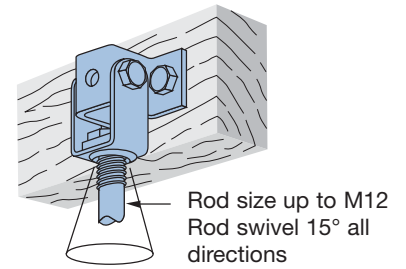
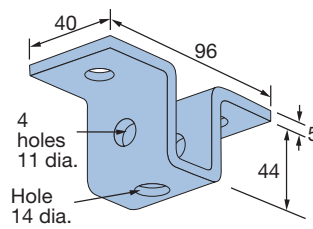
Part No.	Size	Mass kg/100
P267910	M10	1.7
P267912	M12	1.5



Note: Swivel nuts are used with P2676 and P2677. Order size as required.

P2682

Hanger clevis for up to M12 rod suspension. Suitable for wood ceilings. May also be used with P2677 or P2683 as illustrated in application drawings.
Standard Finish: Z.P.
Mass: 23kg/100

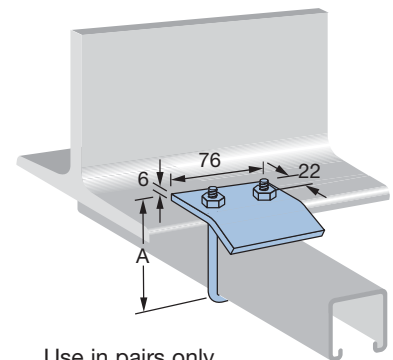


P2785 & P2786

P2785 accepts following channels:
P1000, P2000, P3300, P4000
A = 86 Mass: 38kg/100

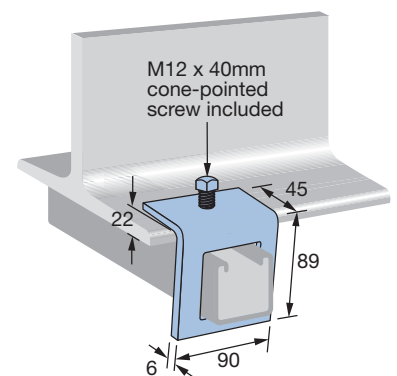
P2786 accepts following channels:
P1001, P2001, P5500
A = 127 Mass: 41kg/100

Design Load Per Pair: 8.82kN
Finishes: Z.P. & H.D.G.



P1796

Suits P1000 & P2000
Design Load Per Pair: 4.32kN
Finishes: Z.P. & H.D.G.
Mass: 49kg/100

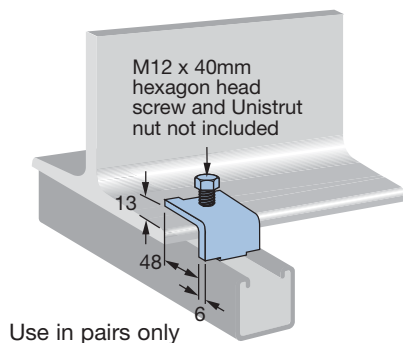


Use in pairs only

Metal Framing - Beam Clamps

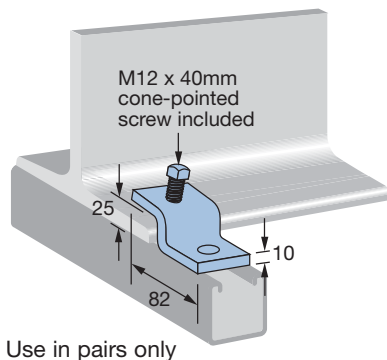
P1386

Design Load Per Pair:
P1000 - 5.30kN
P2000 - 3.92kN
Finishes: Hot Dipped Galvanised
Mass: 12kg/100



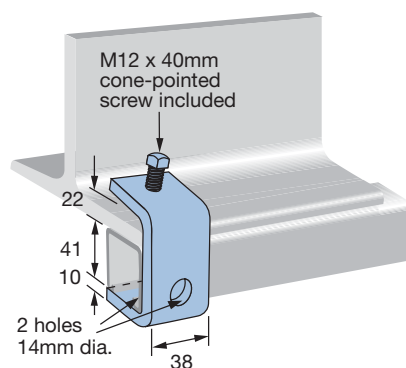
P1379

Design Load Per Pair:
P1000 - 5.34kN
P2000 - 3.92kN
Finishes: Z.P. & H.D.G.
Mass: 34kg/100



P1271

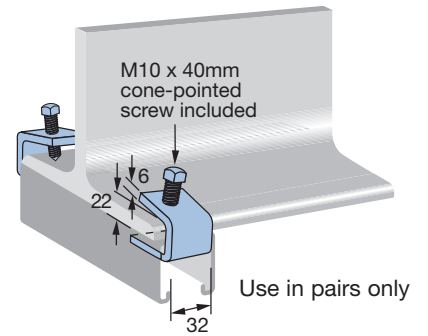
Design Load Per Pair: 4.50kN
Finishes: H.D.G.
Mass: 43kg/100



Metal Framing - Beam Clamps

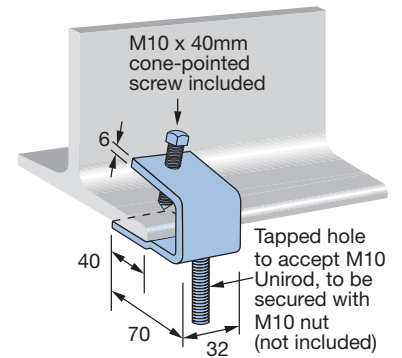
P1272

Design Load Per Pair: 3.92kN
 Finishes: ZP & H.D.G.
 Mass: 18kg/100

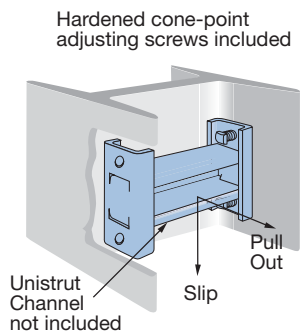


P1270

Design Load: 0.38kN
 Finishes: Z.P. & H.D.G.
 Mass: 29kg/100

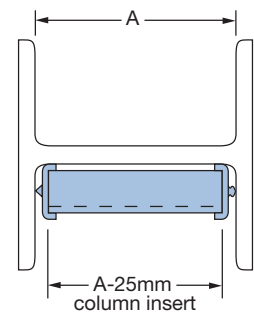


P3087



Channel Type	Design Pullout Load kN	Design Slip Load kN
P1000	4.41	3.53
P2000	2.11	1.32

Safety Factor: 3
 Standard Finishes: Z.P. & H.D.G.
 Mass: 45kg/100



32mm Channel and Combinations

Material and Finishes

All single Unistrut members in the 32mm series are accurately and carefully rolled from strip steel to AS 1594. Spot-welded combination members are welded 75mm (maximum) on centre. Some members may require fillet welding. All channels are available in plain, zinc plated, hot dipped galvanised, galvabond and polyester finishes.

Material thickness

A1000 - 2.0mm: Properties may vary slightly due to commercial tolerances and material thickness.

Standard lengths

Standard Lengths of the above channels are 6m. Facilities are available to cut standard lengths into any special lengths for a small cutting charge.

Nuts and Bolts

Material and Finishes

Nuts for the 32mm series are manufactured from mild steel bars and are thoroughly case hardened. Hardening assures positive biting action into the inturned edge of the channels. Nuts and bolts are zinc plated finish.

Threads

All threads on the nuts and bolts are ISO Metric coarse pitch series.

Design Bolt Torque

Refer to Engineering Data.

General Fittings

Materials and finishes

Unless otherwise noted, all Unistrut fittings are punch press formed from strip or sheet steel. They are available in zinc plated finish.

Standard dimensions

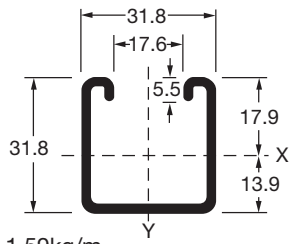
The following dimensions apply to all fittings except as noted on the parts drawings:

Hole size: 11mm diameter - Holes spacing: 16mm from end of fitting, 38mm centre to centre - Fitting width: 32mm - Fitting thickness: 5mm.

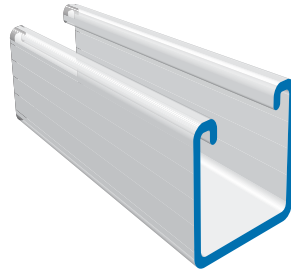
Metal Framing - A1000 - 2.0mm

32mm Roll Formed Channel and Combinations

A1000

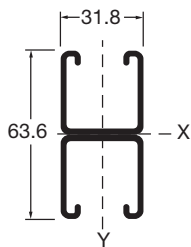


Mass: 1.59kg/m

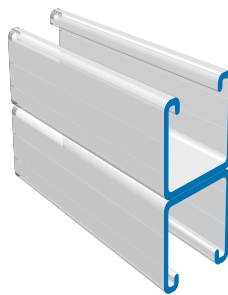


A1000 channel and combinations are roll formed from 2.0mm strip steel. Standard Length: 6m

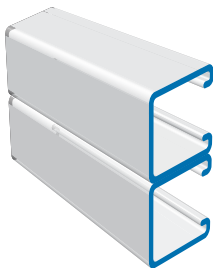
A1001



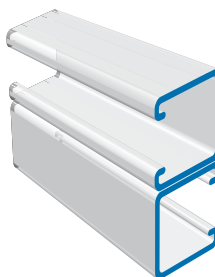
Mass: 3.18kg/m



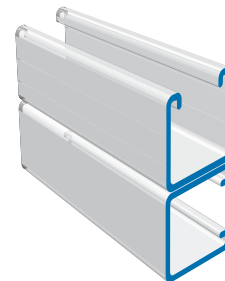
A1001A



A1001B

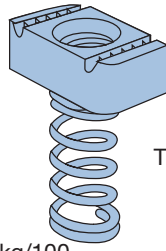


A1001C



Metal Framing - A1000 - 2.0mm Accessories

A1008 - Nuts for A1000 Channel



Thread: M10

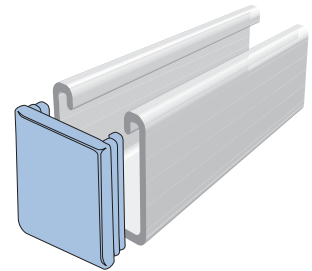
Mass: 2.7kg/100

General Data

Hole Size - 11 diameter
Hole Spacing - 16 from end
 38 on centre
Width - 32
Thickness - 5

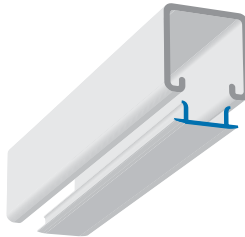
General Data applies to Flat Plate,
Ninety Degree, "Z", "U" & Wing Shape
Fittings

A1280 End Caps - Plastic for A1000 Channel

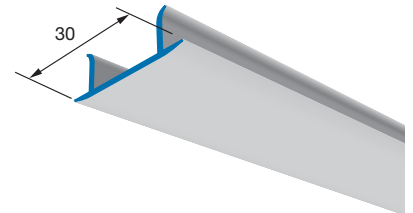


Mass: 0.51kg/100

A1184 Closure Strips Plastic



Mass: 0.10kg/m

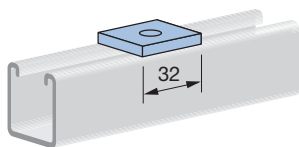


Standard
Length: 3.0m

Metal Framing - A1000 - 2.0mm

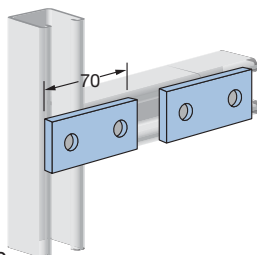
Flat Plate, Ninety Degree & "U" Shaped Fittings

A1063



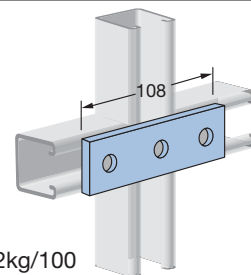
Mass: 4kg/100

A1065



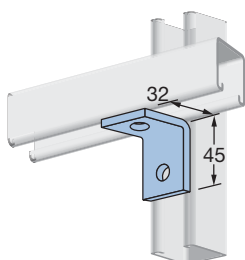
Mass: 8kg/100

A1066



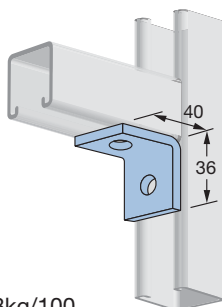
Mass: 12kg/100

A1068



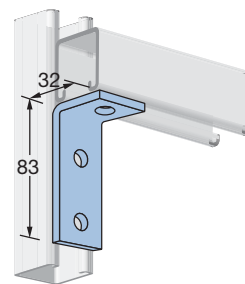
Mass: 8kg/100

A1026



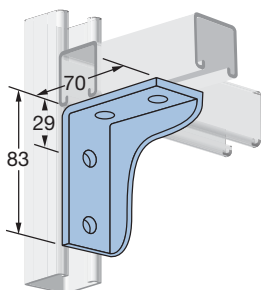
Mass: 8kg/100

A1326



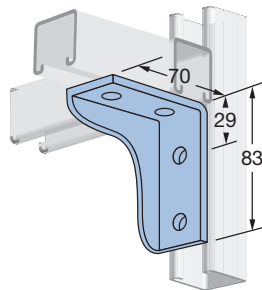
Mass: 12kg/100

A1331



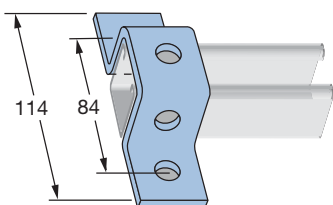
Mass: 34kg/100

A1332



Mass: 34kg/100

A1047

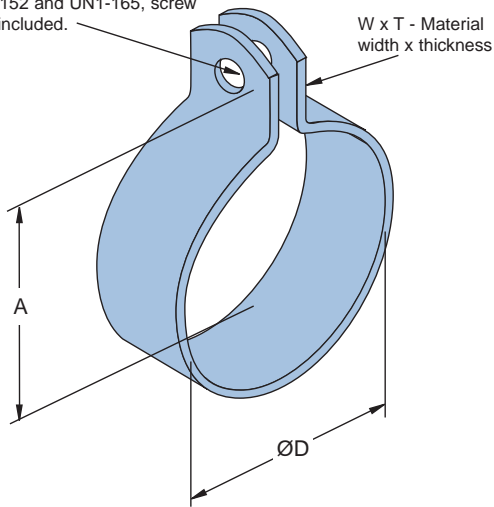


Mass: 20kg/100

1H4

Pipe Clamps - Light Duty

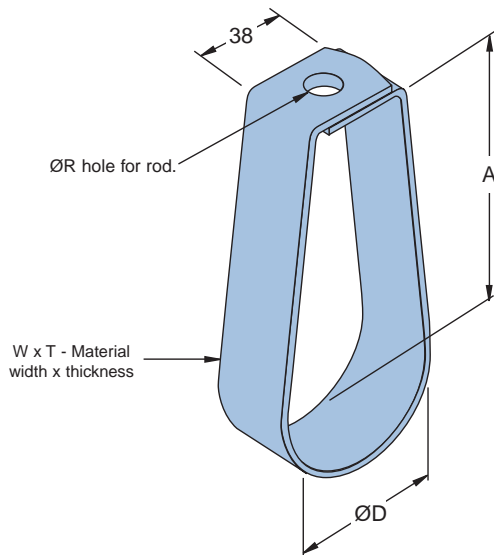
Ø10 hole for M8 x 30 screw
for UN1-013 to UN1-114.
Ø14 hole for M12 x 30 screw
for UN1-152 and UN1-165, screw
and nut included.



UN1 - One-Piece Pipe Clamp

Part No.	Dimensions			Working Load	Mass kg
	ØD	A	W x T		
UN1-013	13	20	25 x 1	0.96 kN	0.03
UN1-016	16	22	25 x 1	0.96 kN	0.04
UN1-019	19	23	25 x 1	0.96 kN	0.04
UN1-021	21	24	25 x 1	0.96 kN	0.04
UN1-025	25	26	25 x 1	0.96 kN	0.04
UN1-027	27	27	25 x 1	0.96 kN	0.04
UN1-032	32	30	25 x 1	0.96 kN	0.04
UN1-034	34	31	25 x 1	0.96 kN	0.04
UN1-038	38	33	32 x 1.5	1.54 kN	0.08
UN1-043	43	36	32 x 1.5	1.54 kN	0.08
UN1-048	48	38	32 x 1.5	1.54 kN	0.09
UN1-051	51	40	32 x 1.5	1.54 kN	0.10
UN1-060	60	45	32 x 1.5	1.54 kN	0.10
UN1-064	64	48	32 x 1.5	1.54 kN	0.10
UN1-076	76	54	32 x 1.5	1.54 kN	0.12
UN1-089	89	60	32 x 2.4	1.92 kN	0.16
UN1-102	102	66	32 x 2.4	1.92 kN	0.18
UN1-114	114	73	32 x 2.4	1.92 kN	0.20
UN1-152	152	91	40 x 2.9	2.88 kN	0.23
UN1-165	165	98	40 x 2.9	2.88 kN	0.24

Note: Standard Finish: Galvabond
Safety Factor: 2.5



UN3 - Pear Hanger

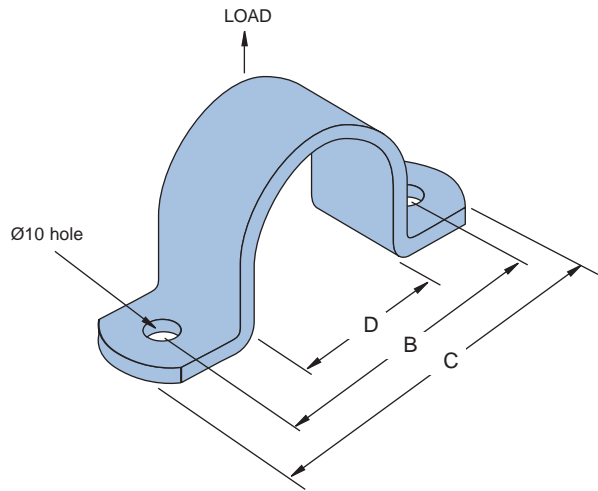
Part No.	Dimensions				Working Load	Mass kg
	ØD	A	ØR	W x T		
UN3-027	27	64	12	32 x 1.5	0.29 kN	0.09
UN3-032	32	67	12	32 x 1.5	0.29 kN	0.09
UN3-034	34	67	12	32 x 1.5	0.29 kN	0.09
UN3-038	38	70	12	32 x 1.5	0.29 kN	0.10
UN3-043	43	73	12	32 x 1.5	0.29 kN	0.10
UN3-048	48	75	12	32 x 1.5	0.29 kN	0.10
UN3-051	51	77	12	32 x 1.5	0.29 kN	0.10
UN3-060	60	81	12	32 x 1.5	0.29 kN	0.12
UN3-064	64	83	12	32 x 1.5	0.29 kN	0.12
UN3-076	76	89	14	32 x 1.5	0.45 kN	0.18
UN3-089	89	102	14	32 x 1.5	0.45 kN	0.18
UN3-102	102	108	14	32 x 2.4	0.45 kN	0.18
UN3-114	114	114	14	32 x 2.4	0.45 kN	0.19
UN3-140	140	203	14	40 x 2.9	1.26 kN	0.52
UN3-152	152	210	14	40 x 2.9	1.26 kN	0.54
UN3-165	165	222	14	40 x 2.9	1.26 kN	0.58
UN3-219	219	250	14	40 x 2.9	1.26 kN	0.78

Note: Standard Finish: Galvabond.
Safety Factor: 2.5

Pipe Clamps - Light Duty

UN4 Saddle Clamp

Part No.	Dimensions			Mass kg
	D	B	C	
UN4-016	16	56	80	0.04
UN4-019	19	59	83	0.04
UN4-021	21	61	85	0.05
UN4-025	25	65	89	0.06
UN4-027	27	67	91	0.07
UN4-032	32	72	96	0.07
UN4-034	34	74	98	0.08
UN4-038	38	78	102	0.08
UN4-043	43	83	107	0.08
UN4-048	48	88	112	0.09
UN4-051	51	91	115	0.09
UN4-060	60	100	124	0.12
UN4-064	64	104	128	0.12
UN4-073	73	113	137	0.12
UN4-076	76	116	140	0.14
UN4-089	89	129	153	0.16
UN4-095	95	135	159	0.17
UN4-102	102	142	166	0.18
UN4-114	114	154	178	0.18
UN4-127	127	167	191	0.20
UN4-140	140	180	204	0.20
UN4-152	152	192	216	0.20
UN4-165	165	205	229	0.24
UN4-170	170	210	234	0.25
UN4-190	190	230	254	0.28



Note:

Standard Finish: Hot Dipped Galvanised

Material: 25 x 3

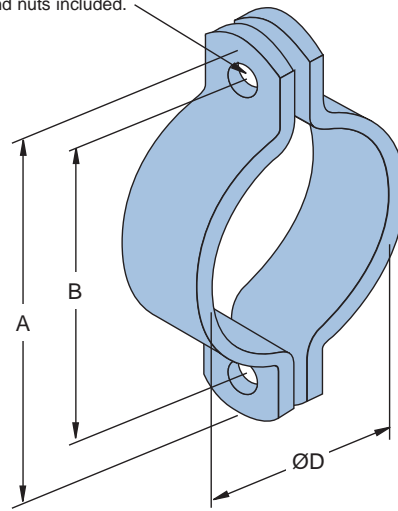
Working Load: 0.75 kN

Safety Factor: 2.5

UN6 - Two-Piece Pipe Clamp

Part No.	ØD	Dimensions		Mass kg
		A	B	
UN6-019	19	83	59	0.10
UN6-021	21	85	61	0.10
UN6-025	25	89	65	0.11
UN6-027	27	91	67	0.11
UN6-032	32	96	72	0.14
UN6-034	34	98	74	0.14
UN6-038	38	102	78	0.15
UN6-043	43	107	83	0.15
UN6-048	48	112	88	0.15
UN6-051	51	115	91	0.15
UN6-060	60	124	100	0.15
UN6-064	64	128	104	0.19
UN6-073	73	137	113	0.19
UN6-076	76	140	116	0.19
UN6-089	89	153	129	0.21
UN6-102	102	166	142	0.23
UN6-114	114	178	154	0.26
UN6-127	127	191	167	0.28
UN6-140	140	204	180	0.31
UN6-152	152	216	192	0.33
UN6-165	165	229	205	0.37

Ø10 holes for M8 x 30 bolts.
Bolts and nuts included.



Note:

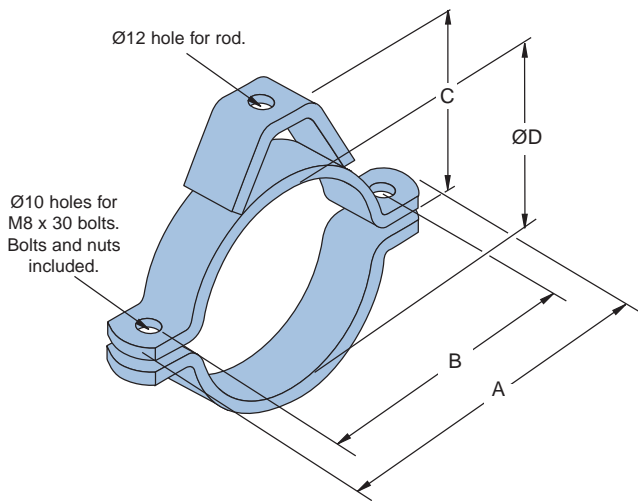
Standard Finish: Hot Dipped Galvanised

Material: 25 x 3

Working Load: 2.88 kN

Safety Factor: 2.5

Pipe Clamps - Light Duty



UN8 - Two-Piece Clamp with Yoke

Part No.	Dimensions			Mass kg	
	ØD	A	B		
UN8-019	19	83	59	47	0.17
UN8-021	21	85	61	47	0.17
UN8-025	25	89	65	47	0.19
UN8-027	27	91	67	47	0.19
UN8-032	32	96	72	52	0.19
UN8-034	34	98	74	54	0.20
UN8-038	38	102	78	56	0.21
UN8-043	43	107	83	60	0.21
UN8-048	48	112	88	63	0.21
UN8-051	51	115	91	65	0.21
UN8-060	60	124	100	70	0.21
UN8-064	64	128	104	72	0.26
UN8-073	73	137	113	77	0.27
UN8-076	76	140	116	79	0.28
UN8-089	89	153	129	86	0.30
UN8-102	102	166	142	93	0.31
UN8-114	114	178	154	99	0.34
UN8-127	127	191	167	105	0.37
UN8-140	140	204	180	112	0.38
UN8-152	152	216	192	118	0.41
UN8-165	165	229	203	125	0.44

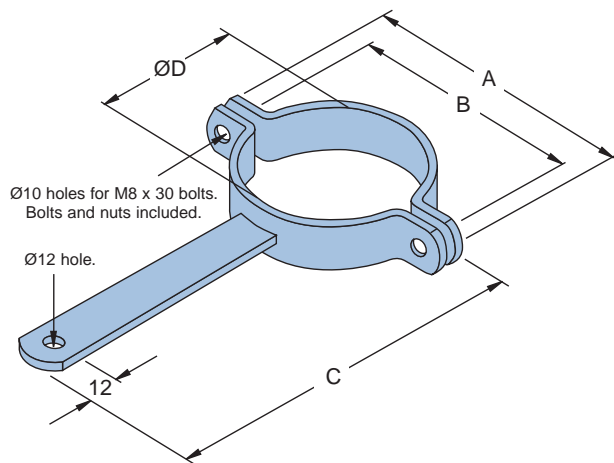
Note:

Standard Finish: Hot Dipped Galvanised

Material: 25 x 3

Working Load: 0.38 kN

Safety Factor: 2.5



UN9 - Stand-Off Bracket

Part No.	Dimensions			Mass kg	
	ØD	A	B		
UN9-021	21	85	61	164	0.20
UN9-027	27	91	67	166	0.20
UN9-034	34	98	74	170	0.21
UN9-043	43	107	83	174	0.23
UN9-048	48	112	88	177	0.26
UN9-060	60	124	100	183	0.30
UN9-076	76	140	116	191	0.28
UN9-089	89	153	129	197	0.32
UN9-114	114	178	154	210	0.33
UN9-140	140	204	180	223	0.38
UN9-165	165	229	203	235	0.44

Note:

Standard Finish: Hot Dipped Galvanised

Material: 25 x 3

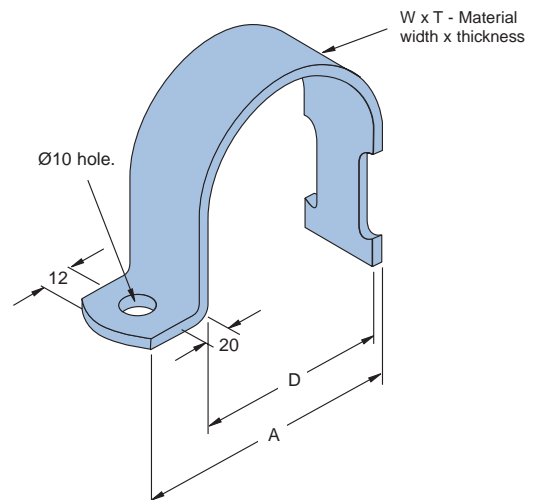
Working Load: 0.38 kN

Safety Factor: 2.5

Pipe Clamps - Light Duty

UN10 - Single Bolt Strut Clamp

Part No.	Dimensions			Mass kg
	D	A	W x T	
UN10-016	16	51	32 x 1.5	0.02
UN10-017	17	52	32 x 1.5	0.02
UN10-021	21	56	32 x 1.5	0.03
UN10-025	25	60	32 x 1.5	0.04
UN10-027	27	62	32 x 1.5	0.04
UN10-032	32	67	32 x 1.5	0.04
UN10-034	34	69	32 x 1.5	0.05
UN10-038	38	73	32 x 1.5	0.05
UN10-043	43	78	32 x 1.5	0.06
UN10-048	48	83	32 x 1.5	0.06
UN10-051	51	86	32 x 1.5	0.07
UN10-060	60	95	32 x 1.5	0.14
UN10-064	64	99	32 x 1.5	0.15
UN10-076	76	111	32 x 1.5	0.18
UN10-089	89	124	32 x 1.5	0.18
UN10-102	102	137	32 x 1.5	0.20
UN10-114	114	149	32 x 2.4	0.24
UN10-140	140	175	32 x 2.4	0.28
UN10-152	152	187	32 x 2.4	0.31
UN10-165	165	200	32 x 2.4	0.34



Note:

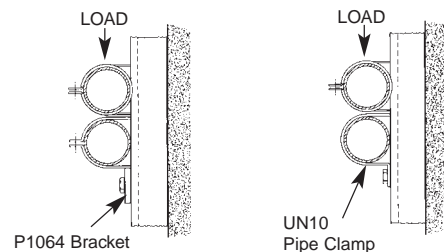
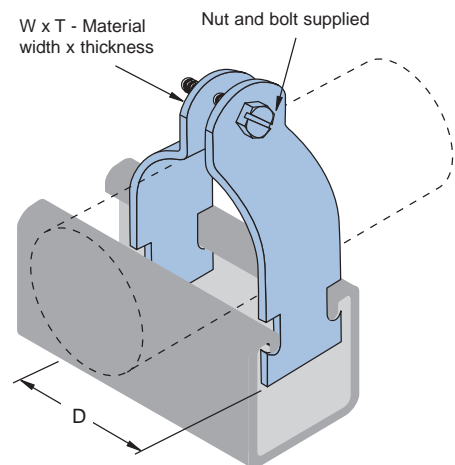
Standard Finish: Galvabond

Working Load: 1.76 kN

Safety Factor: 2.5

P2024 - Pipe Clamps

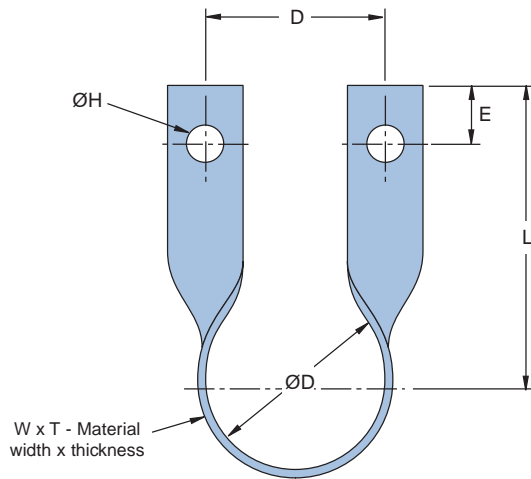
Part No.	D	Mass kg	Part No.	D	Mass kg
P2024	8	0.04	P2051	92	0.25
P2025	11	0.04	P2052	95	0.26
P2026	14	0.04	P2053	98	0.27
P2027	17	0.05	P2054	102	0.28
P2028	19	0.05	P2055	105	0.28
P2029	22	0.05	P2056	108	0.29
P2030	25	0.06	P2057	111	0.30
P2031	29	0.07	P2058	114	0.30
P2032	32	0.07	P2059	117	0.32
P2033	35	0.08	P2060	121	0.33
P2034	38	0.08	P2062	127	0.34
P2035	43	0.09	P2064	133	0.35
P2036	44	0.11	P2066	140	0.36
P2037	49	0.13	P2068	146	0.41
P2038	51	0.14	P2070	152	0.43
P2039	54	0.15	P2070-62	159	0.45
P2040	57	0.15	P2070-64	165	0.46
P2041	60	0.15	P2070-66	171	0.47
P2042	64	0.16	P2070-70	178	0.49
P2043	67	0.17	P2070-74	191	0.53
P2044	70	0.17	P2070-80	203	0.56
P2045	73	0.18	P2070-84	216	0.59
P2046	76	0.19	P2070-225	225	0.62
P2047	79	0.20	P2070-230	230	0.63
P2048	83	0.21	P2070-240	240	0.65
P2049	86	0.21	P2070-250	250	0.68
P2050	90	0.21	P2070-260	260	0.71



Note: Standard Finish: Galvabond.

When used in the application illustrated it is recommended that the lower clamp be supported against possible slippage. Where P2024 series clamps are restraining pipework subject to vibration, the use of P2600 Uni-cushion is recommended (Refer P2600 product page).

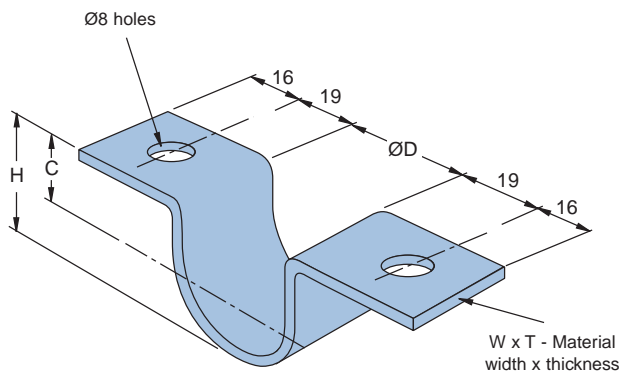
Pipe Clamps - Light Duty



F16000 - Twist Clip

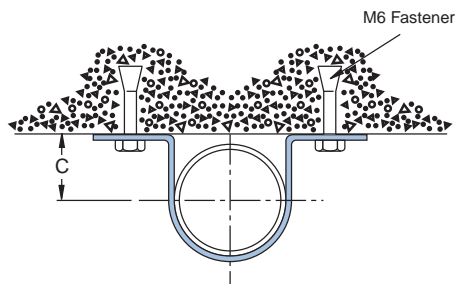
Part No.	Dimensions					Mass	
	ØD	L	E	ØH	W x T	kg	Finish
F16025	34	65	15	8	25 x 1.5	0.06	GB
F16032	43	70	15	8	25 x 1.5	0.07	GB
F16040	48	72	15	8	25 x 1.5	0.08	GB
F16050	60	85	15	11	25 x 3.0	0.10	ZP

Note: The clip detail is for pipework to be erected hard under rafters or floor joists.



F31000 - Saddle

Part No.	Dimensions				Mass	
	ØD	H	C	W x T	kg	Finish
F31025	34	41	24.0	25 x 1.5	0.04	GB
F31032	43	51	29.5	25 x 1.5	0.05	GB
F31040	48	52	28.0	25 x 1.5	0.05	GB
F31050	60	67	37.0	25 x 3.0	0.11	ZP

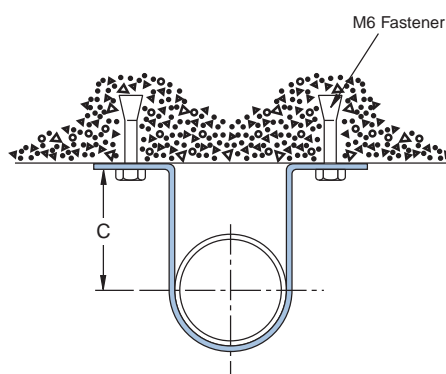
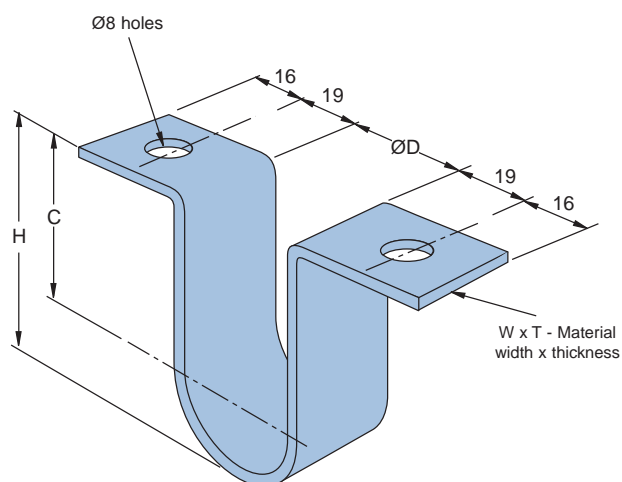


Typical Application

Pipe Clamps - Light Duty

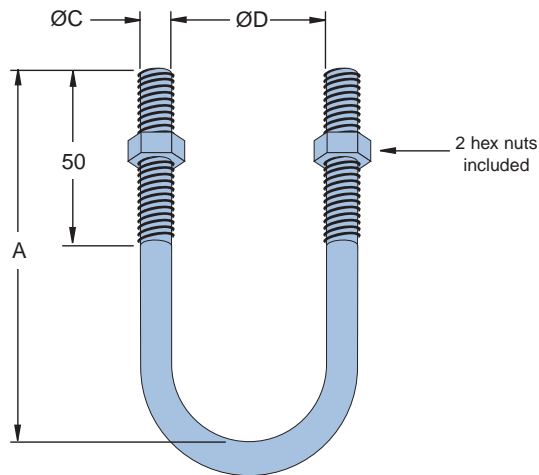
F32000 - Deep Saddle

Part No.	Dimensions				Mass	
	D	H	C	W x T	kg	Finish
F32025	34	68	51.0	25 x 1.5	0.06	GB
F32032	43	75	53.5	25 x 1.5	0.07	GB
F32040	48	79	55.0	25 x 1.5	0.08	GB
F32050	60	86	56.0	25 x 3.0	0.13	ZP



Typical Application

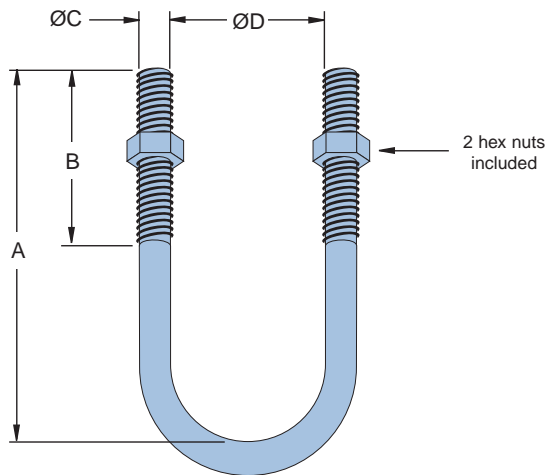
Pipe Clamps - Medium Duty



F41000 - 'U' Bolt

Part No.	Dimensions			Mass kg
	$\varnothing D$	A	$\varnothing C$	
F41034	34	85	6	0.03
F41043	43	93	6	0.03
F41048	48	100	6	0.04
F41060	60	110	6	0.06

Note: Standard Finish: Zinc Plated.



UN14 - 'U' Bolt

Part No.	Dimensions				Mass kg
	$\varnothing D$	A	B	$\varnothing C$	
UN14-021	21	65	50	10	0.09
UN14-027	27	77	50	10	0.10
UN14-034	34	85	50	10	0.12
UN14-043	43	93	50	10	0.13
UN14-048	48	100	50	10	0.14
UN14-051	51	103	50	10	0.14
UN14-060	60	110	50	10	0.16
UN14-076	76	127	50	12	0.28
UN14-089	89	140	50	12	0.30
UN14-102	102	152	50	12	0.35
UN14-114	114	165	50	12	0.38
UN14-140	140	190	50	12	0.40
UN14-165	165	215	50	12	0.44
UN14-168	168	220	50	12	0.48
UN14-219	219	295	75	16	1.13
UN14-273	273	370	100	20	2.20
UN14-324	324	420	100	20	2.52
UN14-356	356	455	100	20	2.74
UN14-406	406	505	100	20	3.05
UN14-457	457	555	100	24	4.87
UN14-508	508	605	100	24	5.32
UN14-610	610	710	100	24	6.28

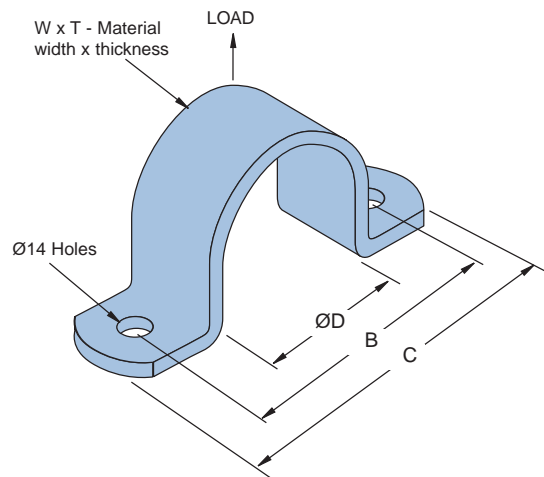
Note: Standard Finish: Hot Dipped Galvanised

Pipe Clamps - Medium Duty

UN15 - Saddle Clamp

Part No.	Dimensions			W x T	Working Load	Mass kg
	ØD	B	C			
UN15-021	21	75	115	40 x 5	2.46 kN	0.14
UN15-027	27	81	121	40 x 5	2.46 kN	0.20
UN15-034	34	88	128	40 x 5	2.46 kN	0.28
UN15-043	43	97	137	40 x 5	2.46 kN	0.34
UN15-048	48	102	142	40 x 5	2.46 kN	0.34
UN15-051	51	105	145	40 x 5	2.46 kN	0.34
UN15-060	60	114	154	40 x 5	2.46 kN	0.40
UN15-076	76	130	170	40 x 5	2.46 kN	0.46
UN15-089	89	143	183	40 x 5	2.46 kN	0.54
UN15-102	102	156	196	40 x 5	2.46 kN	0.58
UN15-114	114	170	210	40 x 6	3.57 kN	0.65
UN15-140	140	196	236	40 x 6	3.57 kN	0.75
UN15-152	152	208	248	50 x 6	4.44 kN	1.17
UN15-165	165	221	261	50 x 6	4.44 kN	1.25
UN15-168	168	224	264	50 x 6	4.44 kN	1.27
UN15-203	203	259	299	50 x 6	4.44 kN	1.48
UN15-219	219	275	315	50 x 6	4.44 kN	1.58

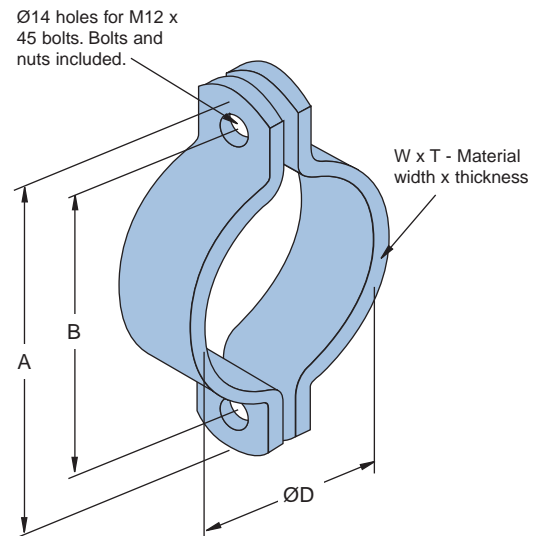
Note: Standard Finish: Hot Dipped Galvanised
Safety Factor: 2.5



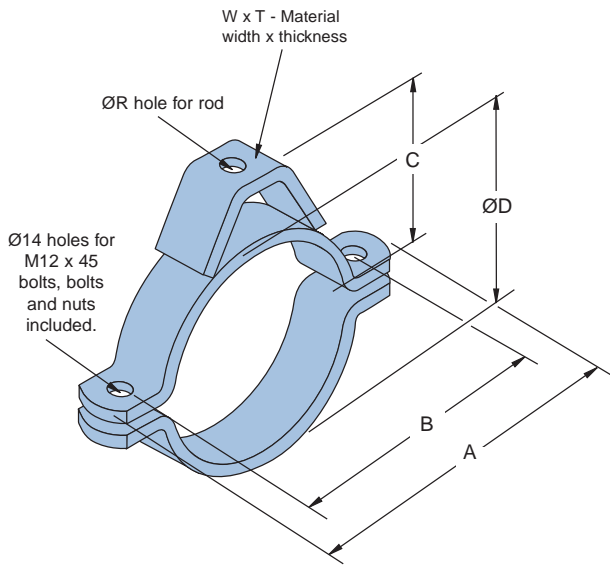
UN16 - Two-Piece Pipe Clamp

Part No.	Dimensions			W x T	Mass kg
	ØD	A	B		
UN16-060	60	154	114	40 x 5	0.72
UN16-076	76	170	130	40 x 5	0.84
UN16-089	89	183	143	40 x 5	1.02
UN16-102	102	196	156	40 x 5	1.12
UN16-114	114	210	170	40 x 6	1.17
UN16-127	127	221	181	40 x 6	1.25
UN16-140	140	234	194	40 x 6	1.31
UN16-152	152	246	206	40 x 6	1.38
UN16-165	165	259	219	40 x 6	1.46
UN16-178	178	272	232	40 x 6	1.54
UN16-190	190	284	244	40 x 6	1.64
UN16-203	203	297	257	40 x 6	1.69
UN16-219	219	313	273	40 x 6	1.78
UN16-230	230	324	284	40 x 6	1.84
UN16-240	240	334	294	40 x 6	1.92
UN16-250	250	344	304	40 x 6	2.00
UN16-273	273	367	327	40 x 6	2.18
UN16-324	324	418	378	40 x 6	2.59

Note: Standard Finish: Hot Dipped Galvanised
Working Load: 7.20 kN
Safety Factor: 2.5



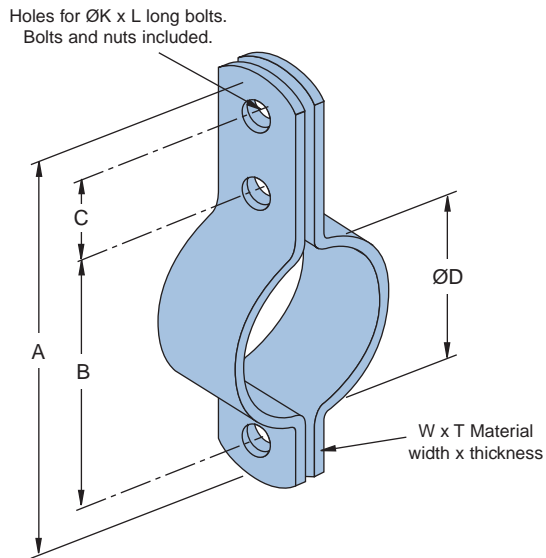
Pipe Clamps - Medium Duty



UN18 - Two-Piece Clamp with Yoke

Part No.	Dimensions						Working Load	Mass kg
	ØD	A	B	C	ØR	W x T		
UN18-060	60	154	114	75	14	40 x 5	1.24 kN	1.10
UN18-076	76	170	130	88	14	40 x 5	1.24 kN	1.16
UN18-089	89	183	143	99	14	40 x 5	1.24 kN	1.24
UN18-102	102	196	156	108	14	40 x 5	1.24 kN	1.32
UN18-114	114	210	170	116	14	40 x 6	1.78 kN	1.36
UN18-127	127	221	181	124	14	40 x 6	1.78 kN	1.46
UN18-140	140	234	194	132	14	40 x 6	1.78 kN	1.56
UN18-152	152	246	206	139	14	40 x 6	1.78 kN	1.60
UN18-165	165	259	219	146	14	40 x 6	1.78 kN	1.66
UN18-178	178	272	232	153	14	40 x 6	1.78 kN	1.77
UN18-203	203	297	257	167	14	40 x 6	1.78 kN	1.80
UN18-219	219	313	273	175	14	40 x 6	1.78 kN	1.86
UN18-230	230	324	284	181	14	40 x 6	1.78 kN	2.10

Note: Standard Finish: Hot Dipped Galvanised.
Safety Factor: 2.5



UN20 - Three-Bolt Pipe Clamp

Part No.	Dimensions						Working Load	Mass kg
	ØD	A	B	C	W x T	ØK x L		
UN20-021	21	159	71	48	25 x 5	M10 x 30	5.02 kN	0.34
UN20-027	27	165	77	48	25 x 5	M10 x 30	5.02 kN	0.36
UN20-034	34	176	88	48	40 x 6	M12 x 45	7.24 kN	0.58
UN20-043	43	185	97	48	40 x 6	M12 x 45	7.24 kN	0.62
UN20-048	48	190	102	48	40 x 6	M12 x 45	7.24 kN	0.64
UN20-060	60	210	122	48	50 x 6	M16 x 50	11.52 kN	1.57
UN20-076	76	226	138	48	50 x 6	M16 x 50	11.52 kN	1.69
UN20-089	89	239	151	48	50 x 6	M16 x 50	11.52 kN	1.79
UN20-114	114	339	200	75	75 x 10	M20 x 60	20.10 kN	5.17
UN20-140	140	365	226	75	75 x 10	M20 x 60	20.10 kN	5.65
UN20-165	165	390	251	75	75 x 10	M20 x 60	20.10 kN	6.13
UN20-219	219	444	305	75	75 x 10	M24 x 60	28.80 kN	7.83
UN20-273	273	498	359	75	75 x 10	M24 x 60	28.80 kN	8.83
UN20-324	324	549	410	75	75 x 10	M24 x 60	28.80 kN	9.77
UN20-356	356	628	464	100	75 x 16	M30 x 80	45.18 kN	17.04
UN20-406	406	678	514	100	75 x 16	M30 x 80	45.18 kN	18.50
UN20-457	457	763	587	100	75 x 20	M36 x 100	45.18 kN	24.95
UN20-508	508	814	638	100	75 x 20	M36 x 100	45.18 kN	26.83
UN20-610	610	916	740	100	75 x 20	M36 x 100	45.18 kN	30.61

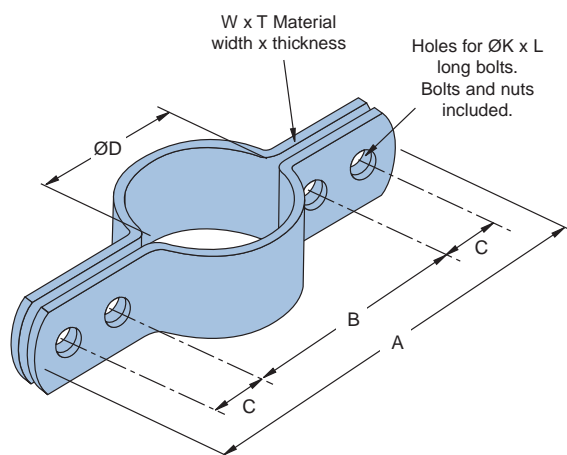
Note: Standard Finish: Hot Dipped Galvanised.
Safety Factor: 2.5

Pipe Clamps - Medium Duty

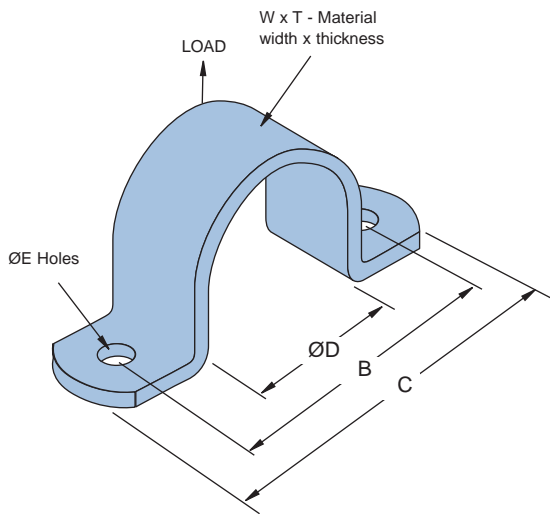
UN21 - Vertical Pipe Clamp

Part No.	Dimensions						Working Load	Mass kg
	ØD	A	B	C	W x T	ØK x L		
UN21-021	21	207	71	48	32 x 5	M10 x 35	1.11 kN	0.75
UN21-027	27	213	77	48	32 x 5	M10 x 35	1.11 kN	0.77
UN21-034	34	220	84	48	32 x 5	M10 x 35	1.11 kN	0.80
UN21-043	43	229	93	48	32 x 5	M10 x 35	1.11 kN	0.84
UN21-048	48	238	102	48	40 x 6	M12 x 45	1.80 kN	1.19
UN21-060	60	250	114	48	40 x 6	M12 x 45	1.80 kN	1.26
UN21-076	76	266	130	48	50 x 6	M12 x 45	2.22 kN	1.63
UN21-089	89	279	143	48	50 x 6	M12 x 45	2.22 kN	1.73
UN21-114	114	304	168	48	50 x 6	M12 x 45	2.22 kN	1.91
UN21-140	140	330	194	48	50 x 6	M12 x 45	2.22 kN	2.11
UN21-165	165	468	254	75	75 x 10	M16 x 60	9.71 kN	6.72
UN21-219	219	519	305	75	75 x 10	M16 x 60	9.71 kN	7.65
UN21-273	273	573	359	75	75 x 10	M16 x 60	9.71 kN	8.65
UN21-324	324	624	410	75	75 x 10	M16 x 60	10.79 kN	9.83
UN21-356	356	662	448	75	75 x 10	M16 x 60	10.79 kN	10.17
UN21-406	406	712	498	75	90 x 12	M20 x 75	11.77 kN	15.87
UN21-457	457	779	565	75	90 x 12	M20 x 75	11.77 kN	17.23
UN21-508	508	830	616	75	90 x 12	M20 x 75	11.77 kN	18.58

Note: Standard Finish: Hot Dipped Galvanised.
Safety Factor: 2.5



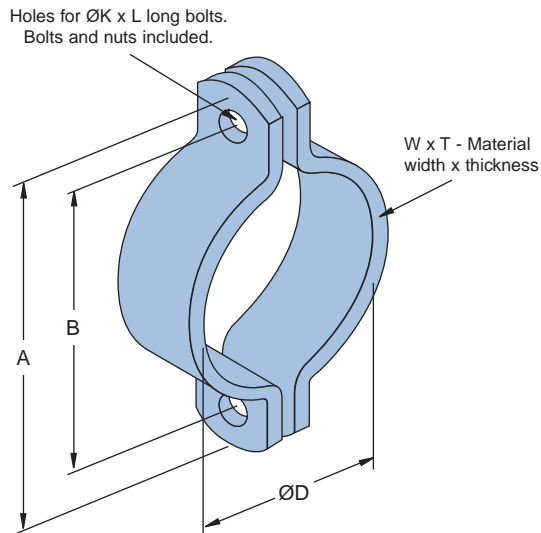
Pipe Clamps - Heavy Duty



UN30 - Saddle Clamp

Part No.	Dimensions					Working Load	Mass kg
	ØD	B	C	ØE	W x T		
UN30-168	168	260	324	22	75 x 10	10.87 kN	3.22
UN30-219	219	310	375	22	75 x 10	10.87 kN	4.21
UN30-273	273	364	428	22	75 x 10	10.87 kN	4.81
UN30-324	324	415	479	22	75 x 10	10.87 kN	5.80
UN30-356	356	447	511	22	75 x 10	10.87 kN	6.10
UN30-406	406	497	561	26	90 x 12	18.78 kN	9.90
UN30-457	457	548	612	26	90 x 12	18.78 kN	11.00
UN30-508	508	600	663	26	90 x 12	18.78 kN	12.12

Note: Standard Finish: Hot Dipped Galvanised.
Safety Factor: 2.5

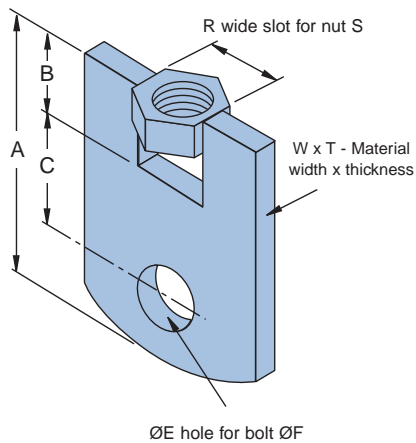


UN31 - Two-Piece Pipe Clamp

Part No.	Dimensions					Working Load	Mass kg
	ØD	A	B	W x T	ØK x L		
UN31-168	168	318	254	75 x 10	M20 x 60	20.10 kN	5.00
UN31-219	219	369	305	75 x 10	M20 x 60	20.10 kN	6.00
UN31-273	273	423	359	75 x 10	M20 x 60	20.10 kN	7.00
UN31-324	324	474	410	75 x 10	M20 x 60	20.10 kN	8.00
UN31-356	356	512	448	75 x 12	M24 x 75	28.93 kN	11.00
UN31-406	406	562	498	75 x 12	M24 x 75	28.93 kN	12.00
UN31-457	457	629	565	75 x 16	M30 x 90	45.18 kN	19.00
UN31-508	508	680	616	75 x 16	M30 x 90	45.18 kN	20.00
UN31-610	610	782	718	75 x 16	M30 x 90	45.18 kN	23.00

Note: Standard Finish: Hot Dipped Galvanised.
Safety Factor: 2.5

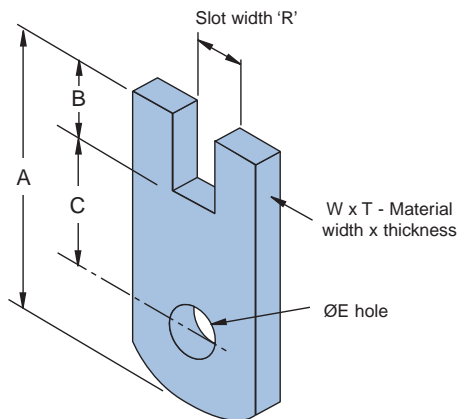
Pipe Clamps - Accessories



UN35 - Eye Nut

Part No.	Dimensions							Working Load	Mass kg	
	A	B	C	ØE	ØF	R	S			
UN35-12-M10	70	20	30	14	12	18	M10	40 x 6	3.60 kN	0.13
UN35-16-M12	80	25	30	18	16	20	M12	75 x 10	5.80 kN	0.47
UN35-20-M16	90	30	35	22	20	25	M16	90 x 12	9.72 kN	0.76
UN35-24-M20	90	30	35	26	24	31	M20	90 x 12	14.48 kN	0.76
UN35-30-M24	120	35	50	32	30	37	M24	100 x 20	21.84 kN	1.88
UN35-36-M30	140	40	60	38	36	47	M30	130 x 20	32.56 kN	2.86

Note: Standard Finish: Hot Dipped Galvanised.



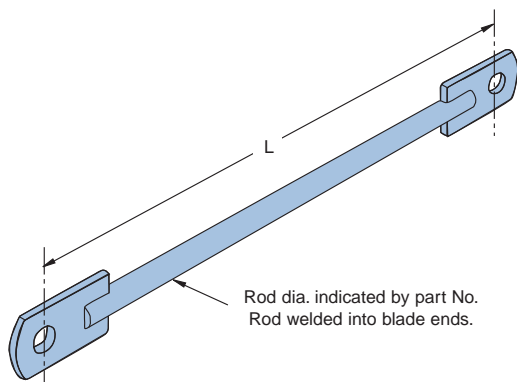
UN36 - Blade Ends

Part No.	Dimensions						Mass kg
	A	B	C	ØE	R	W x T	
UN36-10	55	15	25	12	12	25 x 5	0.05
UN36-12	70	20	30	14	14	40 x 6	0.10
UN36-16	80	25	30	18	18	75 x 10	0.40
UN36-20	90	30	35	22	22	90 x 12	0.60
UN36-24	90	30	35	26	26	90 x 12	0.70
UN36-30	120	35	50	32	32	100 x 20	1.50

Note: Standard Finish: Plain
Double blade ends also made to order

To order specify:
 "Double Blade Ends UN36 - (mm) D x - (mm)"

Series _____ ↑
 Rod Dia. _____ ↑
 Double Ends _____ ↑
 Length L _____ ↑

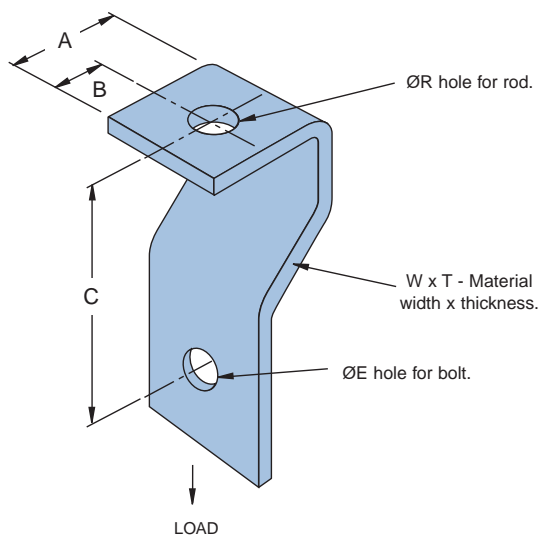


Pipe Clamps - Accessories

UNCL - Clevis

Part No.	Dimensions					Working Load	Mass kg	
	A	B	C	ØE	ØR			
UNCL-10	35	15	70	10	12	25 x 5	1.33 kN	0.08
UNCL-12	45	20	75	14	14	40 x 6	2.65 kN	0.20
UNCL-16	48	20	100	14	18	50 x 6	4.41 kN	0.32
UNCL-20	62	32	112	22	22	75 x 10	5.30 kN	1.08

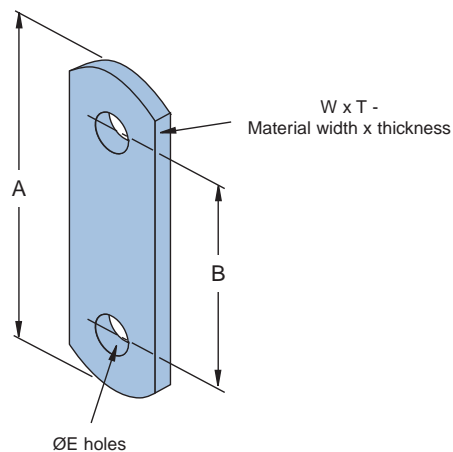
Note: Standard Finish: Hot Dipped Galvanised.



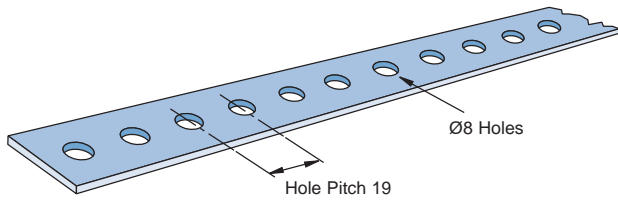
UNLP - Link Plates

Part No.	Dimensions			Mass kg	
	A	B	ØE		
UNLP08	64	36	10	25 x 3	0.03
UNLP10	64	36	12	25 x 5	0.05
UNLP12	120	80	14	40 x 6	0.23
UNLP16	120	80	18	50 x 6	0.28
UNLP20	190	126	22	75 x 10	1.11

Note: Standard Finish: Hot Dipped Galvanised.



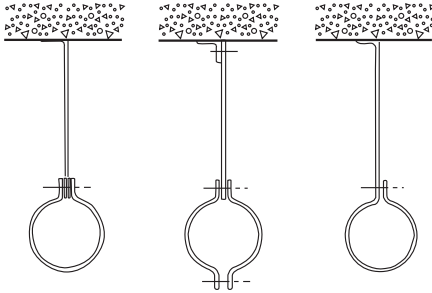
Pipe Clamps - Accessories



UHS - Hanger Strap

- Standard Finish:** Galvabond and Zinc Plated
- Material:** 32 x 1.6 and 25 x 3
- Standard Length:** 3 metres
- Standard Bundle:** 10 lengths
- Mass:** 1.05kg per 3m length for 32 x 1.6
1.4kg per 3m length for 25 x 3

Note: When ordering, specify UHS-32 or UHS-25



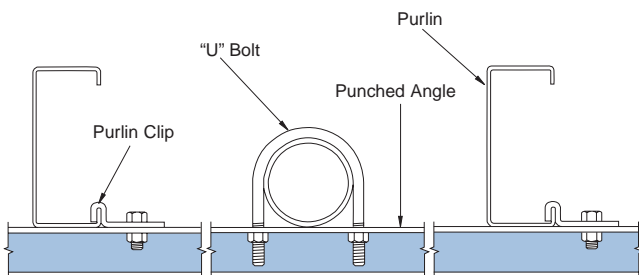
Typical Application

F15000 - Punched Angle

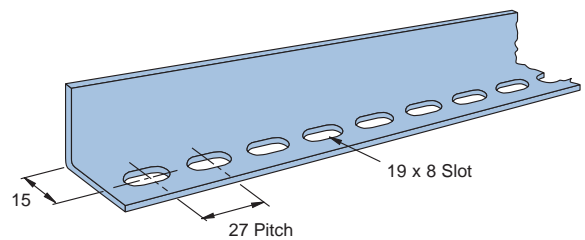
Distance Between Supports	Uniformly Distributed Loading		Mid-Span Point Load	
	Max. Permissible Loading kN	Deflection mm	Max. Permissible Loading kN	Deflection mm
500mm	0.93	1.1	0.46	0.9
1000mm	0.46	4.5	0.23	3.5
1500mm	0.30	9.7	0.15	7.7
2000mm	0.23	17.6	0.11	13.5

Note:

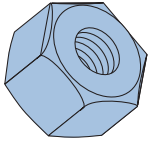
- Standard Finish:** Hot Dipped Galvanised
- Material:** 25 x 25 x 3 angle x 3m long
- Mass:** 1.00 kg/m



Typical Application



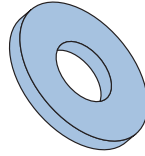
Pipe Clamps - Accessories



Hexagon Nut

Part No.	Dia.	Mass kg/100
HN06	M6	0.15
HN08	M8	0.46
HN10	M10	0.75
HN12	M12	1.77
HN16	M16	3.30
HN20	M20	5.60

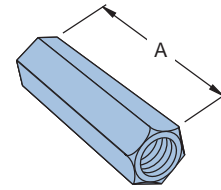
Note: Standard Finishes: Hot Dipped Galvanised and Zinc Plated.



Flat Washer

Part No.	Dia.	Mass kg/100
FW06	M6	0.06
FW08	M8	0.10
FW10	M10	0.29
FW12	M12	0.43
FW16	M16	0.73
FW20	M20	0.90

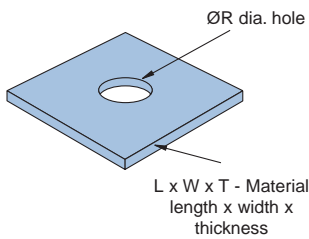
Note: Standard Finishes: Hot Dipped Galvanised and Zinc Plated.



Rod Coupler

Part No.	Dia.	A Nom	Mass kg/100
RC06	M6	20	1.80
RC08	M8	20	2.30
RC10	M10	30	4.00
RC12	M12	40	7.80
RC16	M16	50	12.20
RC20	M20	50	18.90

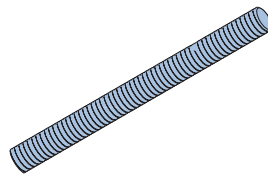
Note: Standard Finishes: Hot Dipped Galvanised and Zinc Plated.



UN40 Square Washer

Part No.	Dimensions		Mass kg/100
	ØR	L x W x T	
UN40-12	14	75 x 75 x 6	26.0
UN40-16	18	75 x 75 x 6	25.0
UN40-20	22	75 x 75 x 10	41.0

Note: Standard Finish: Hot Dipped Galvanised.



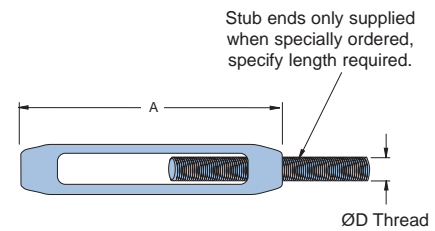
Unirod Threaded Rod

Part No.	Size Metric	Max. Recomm. Tensile Load	Mass kg/m
UR06	M6	3.47 (354kg)	0.20
UR08	M8	6.32 (644kg)	0.35
UR10*	M10	10.02 (1021kg)	0.50
UR12*	M12	14.56 (1484kg)	0.80
UR16*	M16	24.30 (2477kg)	1.30
UR20*	M20	37.92 (3866kg)	2.10

*Note: Standard Finishes: Zinc Plated. * Also available in Hot Dipped Galvanised. Standard Length: 3 metres.*

Unirod Load Data

Maximum recommended tensile load is based on a factor of safety of 2.5 using the appropriate stress area of thread and ultimate tensile strength of 430 MPa.

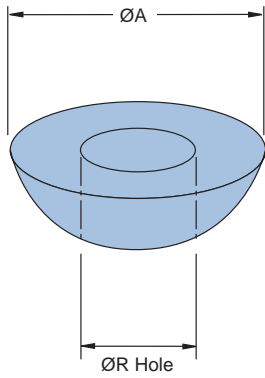


UN42 - Turnbuckle

Part No.	Dimensions		Working Load	Mass kg
	ØD	A		
UN42-10	M10	160	2.45 kN	0.2
UN42-12	M12	200	4.41 kN	0.3
UN42-16	M16	200	7.45 kN	0.5
UN42-20	M20	215	10.78 kN	0.7

Note: Standard Finish: Hot Dipped Galvanised.

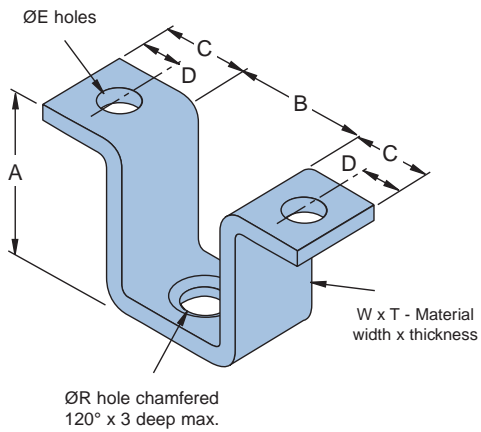
Pipe Clamps - Beam Attachments



UN37 - Spherical Washer

Part No.	Dimensions		Mass kg
	ØA	ØR	
UN37-06	33	8	0.10
UN37-10	33	12	0.09
UN37-12	33	14	0.09
UN37-16	33	18	0.07

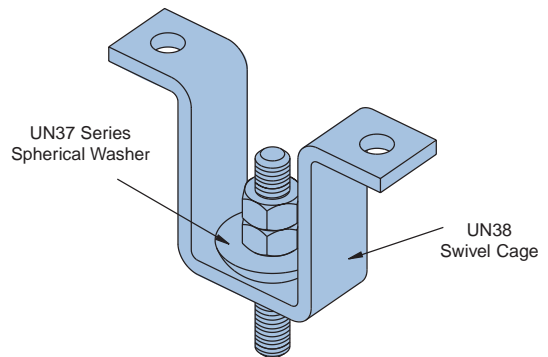
Note: Material: Malleable Iron Casting.



UN38 - Swivel Cage

Part No.	Dimensions						W x T	Mass kg
	A	B	C	D	ØE	ØR		
UN38-06	65	40	31	12	10	8	25 x 5	0.20
UN38-10	65	40	31	12	10	12	25 x 5	0.20
UN38-12	65	40	47	20	14	14	40 x 6	0.35
UN38-16	100	40	47	20	14	18	50 x 6	0.52

Note: Standard finish: Hot Dipped Galvanised.



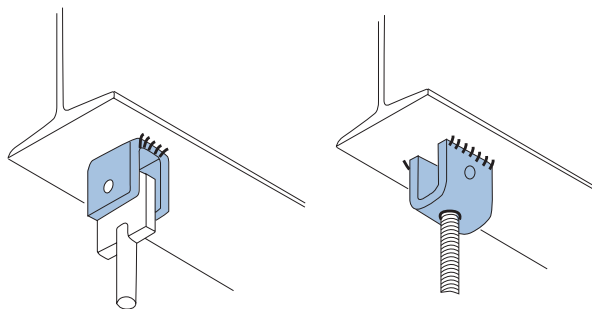
Typical Application

Pipe Clamps - Beam Attachments

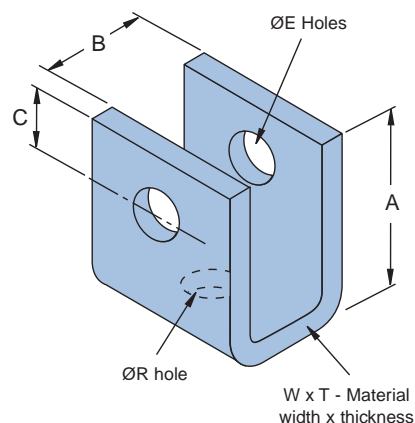
UN39 - Weld-On Bracket

Part No.	Dimensions					W x T	Working Load	Mass kg
	A	B	C	ØE	ØR			
UN39-10	75	32	22	14	12	75 x 10	1.04 kN	1.15
UN39-12	75	32	22	18	14	75 x 10	1.76 kN	1.14
UN39-16	75	40	25	22	18	75 x 10	2.56 kN	1.16
UN39-20	90	40	28	26	22	75 x 10	4.32 kN	1.30

Note: Standard Finish: Plain



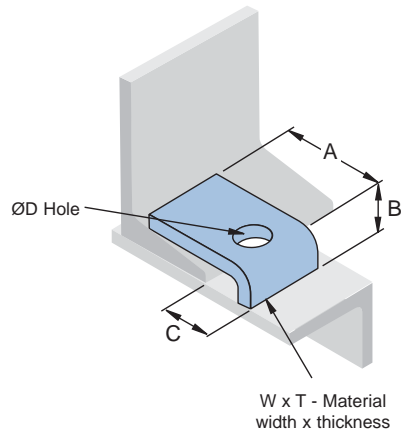
Typical Applications



UN44 - Beam Clip

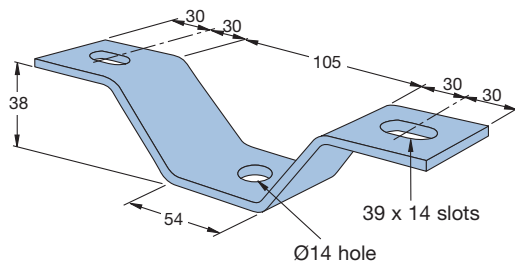
Part No.	ØD	Dimensions			W x T	Working Load	Mass kg
		A	B	C			
UN44-16	18	65	25	32	50 x 10	2.18 kN	0.3
UN44-20	22	75	30	40	75 x 12	4.58 kN	0.5
UN44-24	26	80	30	45	75 x 12	3.99 kN	0.5

Note: Standard Finish: Hot Dipped Galvanised.

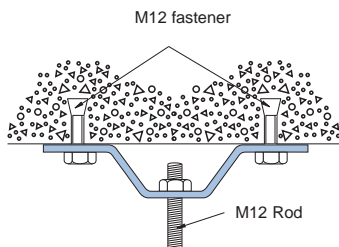


Pipe Clamps - Beam Attachments

F11000 - 'U' Bracket

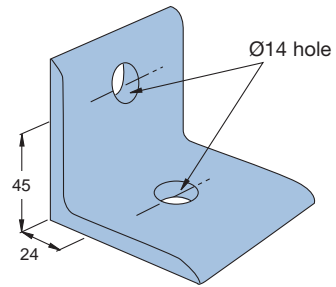


Note: Standard Finish: Hot Dipped Galvanised
Material: 32 x 6 Strip
Mass: 0.30 kg

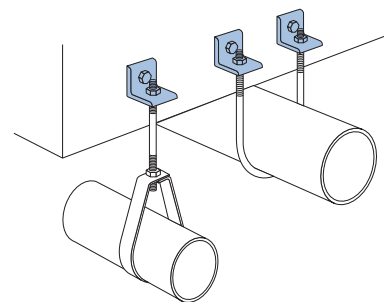


Typical Application

F12000 - Angle Bracket

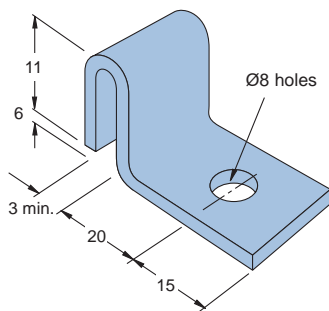


Note: Standard Finish: Hot Dipped Galvanised
Material: 65 x 65 x 6 angle x 60 long
Mass: 0.30 kg

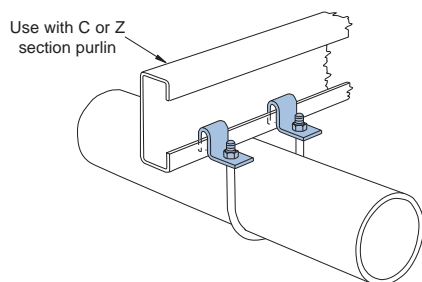


Typical Application

F13000 - Purlin Clip

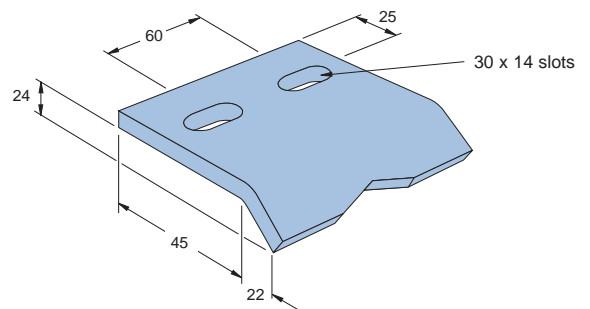


Note: Standard Finish: Hot Dipped Galvanised
Material: 20 x 3 Strip
Mass: 0.03 kg

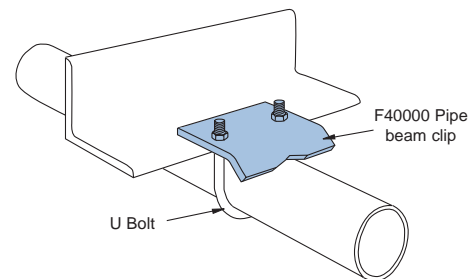


Typical Application

F40000 - Pipe Beam Clip



Note: Standard Finish: Hot Dipped Galvanised
Material: 110 x 5
Mass: 0.29 kg
To be used with U-Bolts

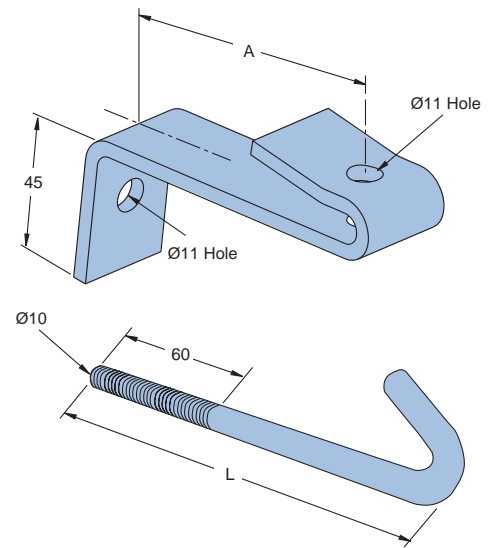


Typical Application

Pipe Clamps - Beam Attachments

F22000 Light Duty Beam Clamp

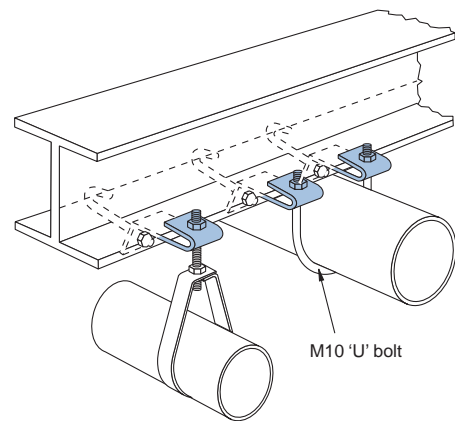
Beam Width	Beam Clamp		kg
	Part No.	A	
65	F22050	50	0.22
75	F22050	50	0.22
90	F22050	50	0.22
99	F22050	50	0.22
124	F22100	100	0.30
134	F22100	100	0.30
146	F22100	100	0.30
149	F22100	100	0.30
165	F22100	100	0.30
171	F22100	100	0.30
178	F22100	100	0.30
190	F22100	100	0.30
209	F22100	100	0.30
229	F22150	150	0.31



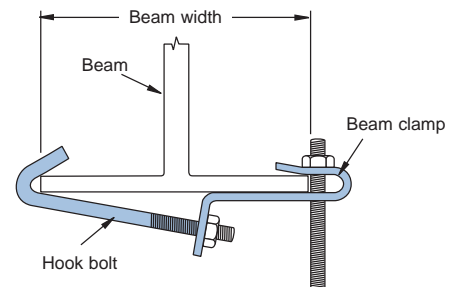
Note:
 F22000 - Light Duty Beam Clamp
 Standard Finish: Hot Dipped Galvanised
 Material: 32 x 5 Strip

F24000 Hook Bolt

Beam Width	Hook Bolt		kg
	Part No.	L	
65	F24075	75	0.07
75	F24075	75	0.07
90	F24100	100	0.08
99	F24100	100	0.08
124	F24075	75	0.07
134	F24075	75	0.07
146	F24100	100	0.08
149	F24100	100	0.08
165	F24100	100	0.08
171	F24100	100	0.08
178	F24135	135	0.09
190	F24135	135	0.09
209	F24135	135	0.09
229	F24135	135	0.09

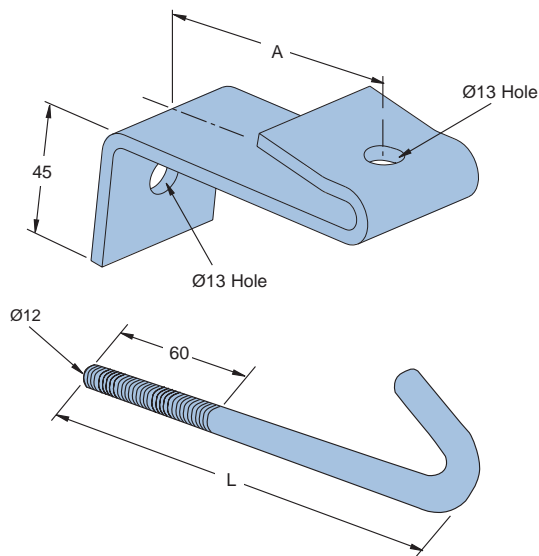


Typical Application



Note:
 F24000 - Light Duty Hook Bolt
 Standard Finish: Hot Dipped Galvanised

Pipe Clamps - Beam Attachments



F21000 Heavy Duty Beam Clamp

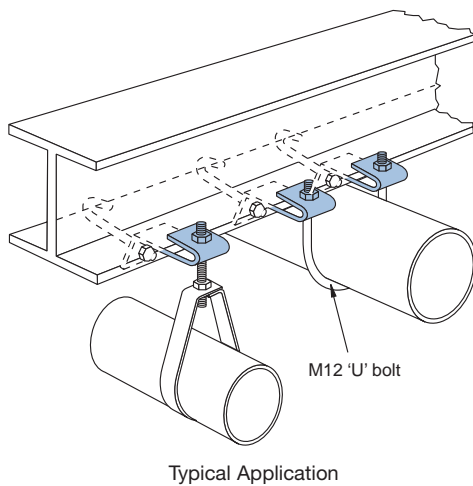
Beam Width	Beam Clamp		kg
	Part No.	A	
65	F21050	50	0.29
75	F21050	50	0.29
90	F21050	50	0.29
99	F21050	50	0.29
124	F21100	100	0.39
134	F21100	100	0.39
146	F21100	100	0.39
149	F21100	100	0.39
165	F21100	100	0.39
171	F21100	100	0.39
178	F21100	100	0.39
190	F21100	100	0.39
209	F21100	100	0.39
229	F21150	150	0.48

Note:

F21000 - Heavy Duty Beam Clamp.

Standard Finish: Hot Dipped Galvanised.

Material: 50 x 5 Strip.



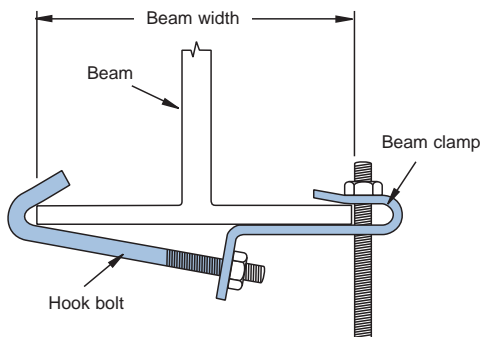
F23000 Hook Bolt

Beam Width	Hook Bolt		kg
	Part No.	L	
65	F23075	75	0.10
75	F23075	75	0.10
90	F23100	100	0.12
99	F23100	100	0.12
124	F23075	75	0.10
134	F23075	75	0.10
146	F23100	100	0.12
149	F23100	100	0.12
165	F23100	100	0.12
171	F23100	100	0.12
178	F23135	135	0.13
190	F23135	135	0.13
209	F23135	135	0.13
229	F23135	135	0.13

Note:

F23000 - Heavy Duty Hook Bolt.

Standard Finish: Hot Dipped Galvanised.

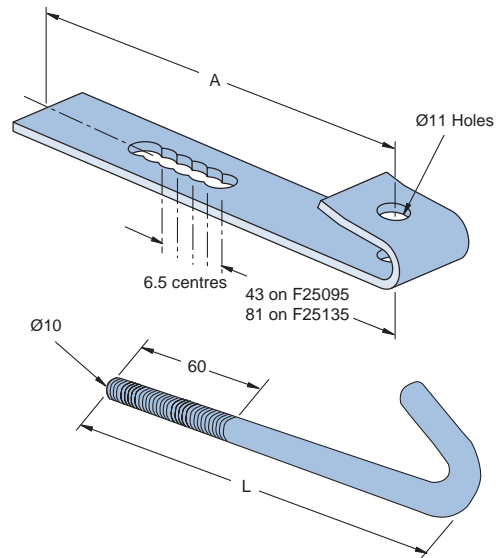


Pipe Clamps - Beam Attachments

F24000 - Hook Bolt

Angle Size Vert. Leg	Hook Bolt		Angle Size Horiz. Leg
	Part No.	Mass kg	
30	F24075	0.07	30
40	F24075	0.07	40
45	F24075	0.07	45
50	F24075	0.07	50
55	F24075	0.07	55
65	F24100	0.08	65
75	F24100	0.08	75
90	F24135	0.09	90
100	F24135	0.09	100
125	F24175	0.11	-
150	F24175	0.11	-

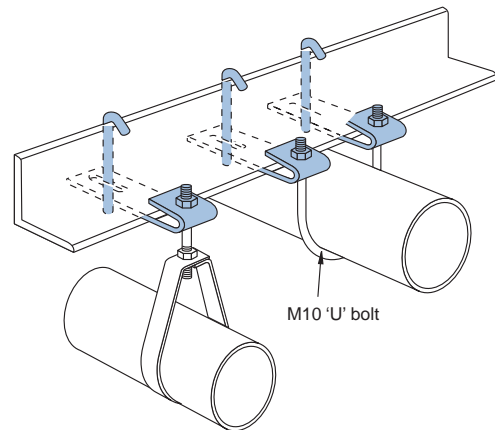
Note:
F24000 - Light Duty Hook Bolt
Standard Finish: Hot Dipped Galvanised



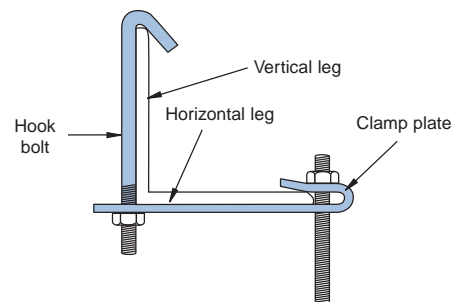
F25000 - Angle Iron Clamp Plate

Angle Size Vert. Leg	Clamp Plate		Angle Size Horiz. Leg
	Part No.	Mass kg	
30	F25095	0.11	30
40	F25095	0.11	40
45	F25095	0.11	45
50	F25095	0.11	50
55	F25095	0.11	55
65	F25095	0.11	65
75	F25135	0.14	75
90	F25135	0.14	90
100	F25135	0.14	100
125	-	-	-
150	-	-	-

Note:
F25000 - Angle Iron Clamp Plate
Standard Finish: Hot Dipped Galvanised
Material: 32 x 3 Strip



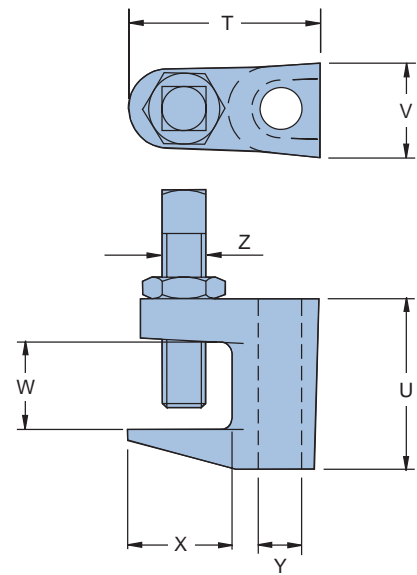
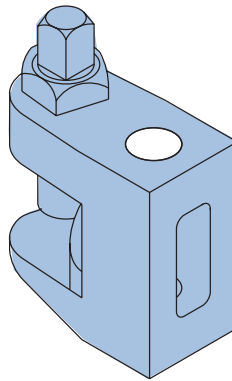
Typical Application



Pipe Clamps - Beam Attachments

The simplest, quickest and most cost-effective method of suspending building services from steel beams and suitable for use with parallel or tapered flange beams, the FL can be supplied with the back hole drilled to accept a threaded rod. The FL uses a grade 8.8 cup point setscrew to provide maximum bite into steelwork and maximum load performance.

Standard Finish: Zinc Plated

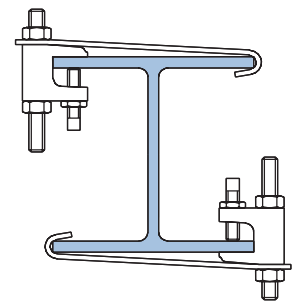
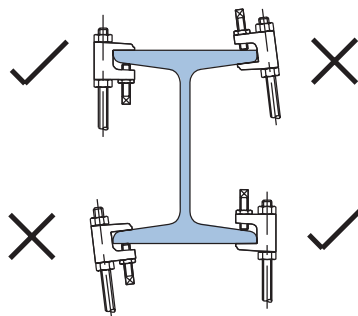
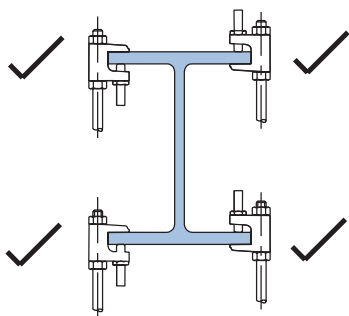


Type FL - Flange Clamp

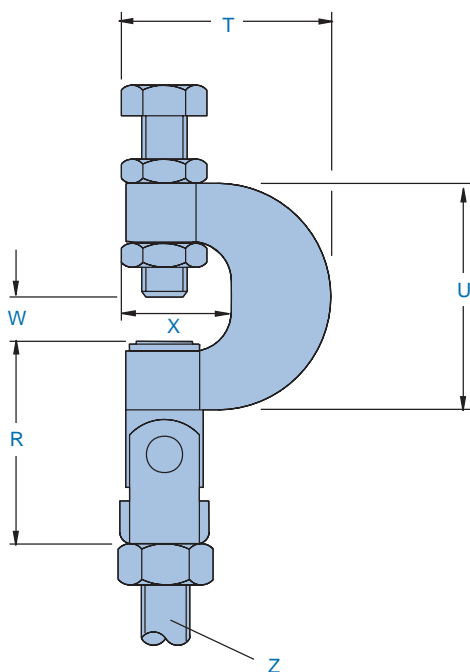
Product Code	Drop Rod	Tensile Loads			T	U	V	W	X	Y	Z
		Safe Working Load 4:1(kN)	Setscrew Torque (Nm)	Lockout Torque (Nm)							
FL16D	M6	1.1	8	11	36	35	19	17	20	7	8
FL18D	M8	1.1	8	11	36	35	19	17	20	9	8
FL210D	M10	2.4	8	22	45	40	22	19	22	11	10
FL312D	M12	3.1	8	22	50	46	25	23	28	13	10
FL412D	M12	3.1	8	22	53	51	26	28	27	13	10

Installation

- Slide FL onto beam flange and tighten setscrew to recommended torque. To avoid over tightening, a rough guide to achieve the correct torque is to tighten the setscrew with thumb and forefinger and then apply a further quarter turn (90°) with a spanner. When used with taper flanges it is important to ensure that the setscrew of the FL bites into the tapered face of the flange, rather than the parallel underside.
- Tighten the locknut to the recommended torque.



Pipe Clamps - Beam Attachments



The FLS is the only swivel beam flange clamp to meet the the stringent performance criteria required for FM and Vds approval. The product offers high load bearing capacity with a guaranteed safe working load, whilst removing the need to bend threaded rod - offering peace of mind for consultants and users alike. The product is ideal for the suspension of building services and offers an increased flexibility in system design.

Standard Finish: Zinc Plated

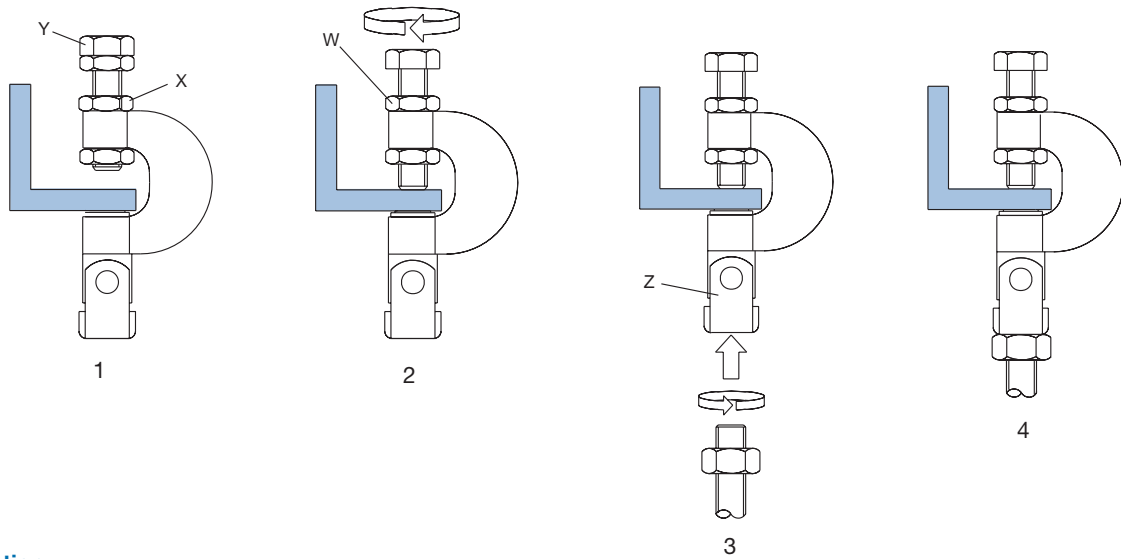
Type FLS - Swivel Flange Clamp

Product Code	Rod Size Z	Factor of Safety	Safe Working Load (kN) (<25°)	Safe Working Load (kN) (>25°)	Max Sideways/ Backwards Articulation	Torque (Nm)		Dimensions (mm)				
						Y	X	R	T	U	W	X
FLS10*	M10	4.1	2.5	1.5	45°	18	18	55	53	58	17	27

Note: * The M10FLS carries FM approval for applications up to and including 25°.

Pipe Clamps - Beam Attachments

Installation



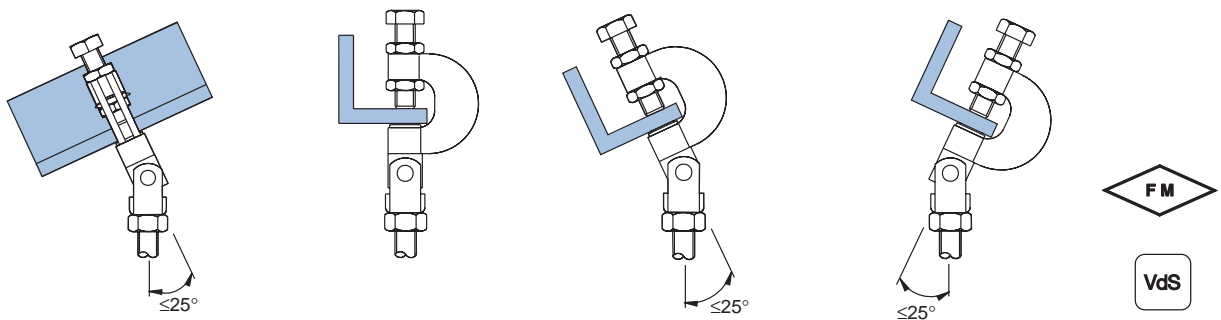
Installation

1. Unwind upper locknut (X) to fullest extent. Unwind setscrew (Y) as to fit onto flange of steelwork.
2. Ensuring lug on locknut (W) locates into main body, tighten down setscrew to the recommended tightening torque of 18Nm. Tighten down upper locknut to recommended torque of 18Nm.
3. Install threaded rod by screwing into nut located in nut basket (Z). Ensure full thread capture.
4. Secure assembly from beneath using a locknut (not supplied).

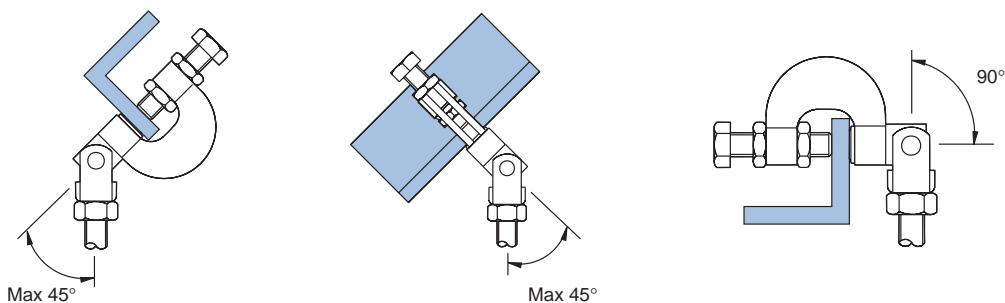
On applications supporting pipework above 65mm bore the additional safety strip should be used.

Note: The style of safety bracket can also be used on tapered flanges.

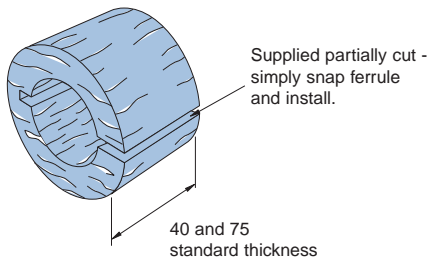
Approved Applications



Non Approved Applications (parallel flanges only)



Pipe Clamps - Ferrules and Cushioning



UN 60 Series - Timber Ferrule

Material: Structural Plywood

Machine planed both sides.

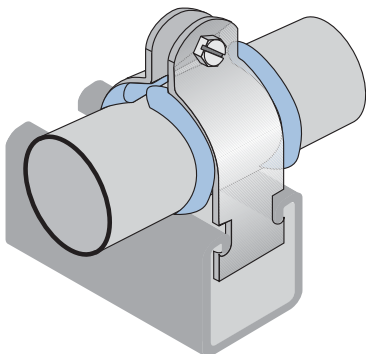
Partially rip cut.

Sizes: Nominate series, thickness, inside and outside diameters, eg:- UN60-40-45 x 95
Density Grade: F7

UN60 - Timber Ferrules

Pipe Size	Lagging Thickness		
	25mm	38mm	50mm
	Ferrule Size		
	I.D. x O.D.	I.D. x O.D.	I.D. x O.D.
13 O.D.	13 x 64	13 x 89	13 x 114
16 O.D.	16 x 64	16 x 89	16 x 114
19 O.D.	19 x 73	19 x 95	19 x 120
21 O.D.	15 N.B. 21 x 73	21 x 102	21 x 120
25 O.D.	25 x 76	25 x 102	25 x 127
27 O.D.	20 N.B. 27 x 76	27 x 102	27 x 127
32 O.D.	32 x 76	32 x 114	32 x 140
34 O.D.	25 N.B. 34 x 89	34 x 114	34 x 140
38 O.D.	38 x 89	38 x 114	38 x 140
43 O.D.	32 N.B. 43 x 95	43 x 114	43 x 140
48 O.D.	40 N.B. 48 x 102	48 x 127	48 x 152
51 O.D.	51 x 102	51 x 127	51 x 152
60 O.D.	50 N.B. 60 x 114	60 x 140	60 x 165
64 O.D.	64 x 114	64 x 140	64 x 165
76 O.D.	65 N.B. 76 x 127	76 x 152	76 x 178
89 O.D.	80 N.B. 89 x 140	89 x 165	89 x 190
102 O.D.	102 x 152	102 x 178	102 x 203
114 O.D.	100 N.B. 114 x 165	114 x 190	114 x 216
127 O.D.	127 x 178	127 x 203	127 x 230
140 O.D.	125 N.B. 140 x 190	140 x 219	140 x 240
152 O.D.	152 x 203	152 x 230	152 x 250
165 O.D.	150 N.B. 165 x 219	165 x 240	165 x 273
168 O.D.	168 x 219	168 x 240	168 x 273
203 O.D.	203 x 250	203 x 273	203 x 324
219 O.D.	219 x 273	219 x 295	219 x 324
273 O.D.	273 x 324	273 x 356	273 x 368

Note: Ferrule O.D.'s shown are preferred to suit existing Pipe Clamps.



P2600 - Uni-Cushion

Note:

- Shock absorption
- Protection from corrosion and abrasion
- Allowance for expansion and contraction
- Sound and vibration isolation
- Stability in use from -45°C to +175°C
- Flexible elastomer material
- Packaged in handy 7.6m dispenser pack
- Mass: 1.7kg per pack

Unistrut Electrical Accessories are designed to compliment the range of channels and angle brackets. Fittings include cable clamps, trunking hangers, closure strip, trunking joiners and junctions.

Finishes

Unless otherwise shown standard finish is Zinc Plated to AS 1789.

Electrical - Fittings

41mm Channel Width Series

KS2026-1 to KS2046-1

Part No.	Cable Dia.	Dim. A	Dim. B	Mass Kg/100
KS2026-1	13	16	50	5.1
KS2028-1	19	22	58	6.2
KS2030-1	25	29	66	6.8
KS2032-1	32	35	71	8.0
KS2034-1	38	44	78	14.1
KS2036-1	44	51	86	16.0
KS2038-1	51	57	92	17.2
KS2040-1	57	64	98	19.0
KS2042-1	64	70	105	20.8
KS2044-1	70	76	113	22.8
KS2046-1	76	83	122	24.0

Notes: Bottom Saddle if required can be ordered separately.

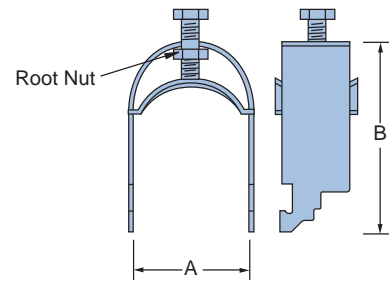
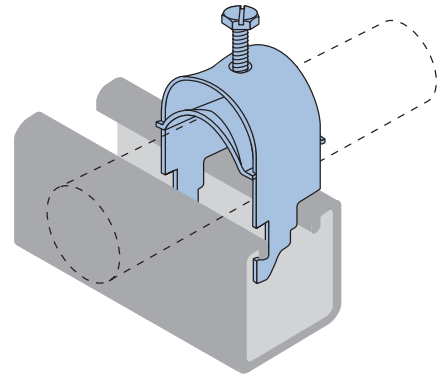
Bottom Saddles

Part No.	Cable Dia.	Part No.	Cable Dia.
KS2026	13	KS2038	51
KS2028	19	KS2040	57
KS2030	25	KS2042	64
KS2032	32	KS2044	70
KS2034	38	KS2046	76
KS2036	44		



Bottom Saddle

KS2026-1 Series Single Cable Clamp



KS2026-2 Series Double Cable Clamp

KS2026-2 to KS2046-2

Part No.	Cable Dia.	Dim. A	Dim. B	Mass Kg/100
KS2026-2	13	16	64	6.1
KS2028-2	19	22	76	7.5
KS2030-2	25	29	91	9.0
KS2032-2	32	35	102	9.7
KS2034-2	38	44	118	18.2
KS2036-2	44	51	128	20.2
KS2038-2	51	57	143	22.8
KS2040-2	57	64	156	26.0
KS2042-2	64	70	170	28.0
KS2044-2	70	76	185	31.6
KS2046-2	76	83	198	33.6

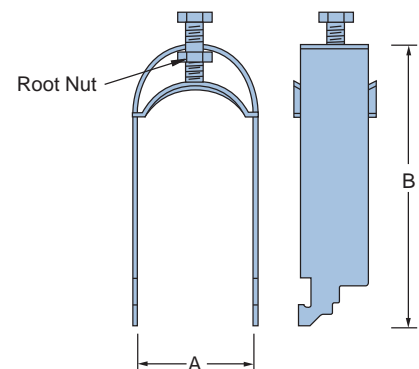
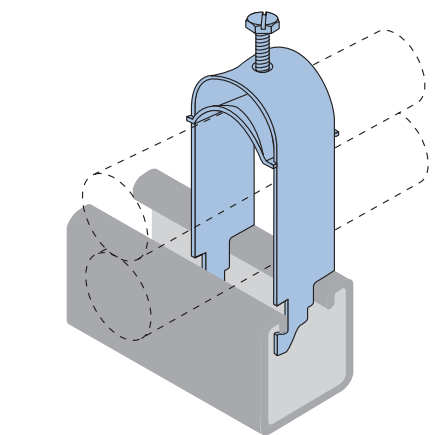
Notes: Bottom Saddle if required can be ordered separately.

Bottom Saddles

Part No.	Cable Dia.	Part No.	Cable Dia.
KS2026	13	KS2038	51
KS2028	19	KS2040	57
KS2030	25	KS2042	64
KS2032	32	KS2044	70
KS2034	38	KS2046	76
KS2036	44		



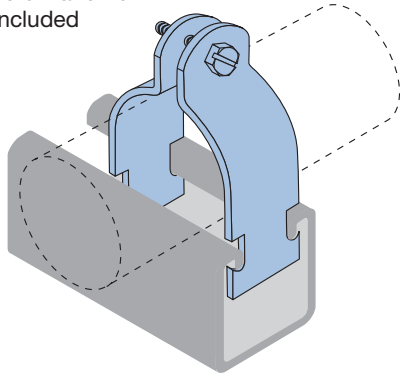
Bottom Saddle



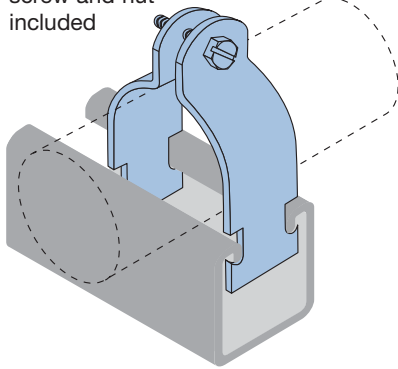
Electrical - Fittings

41mm Channel Width Series

Slotted hex head screw and nut included



Slotted hex head screw and nut included



P2024 Series - Clamps for Rigid Conduit

Part No.	Conduit Nom. Size	Conduit Actual O.D.	Mass Kg/100
P2027	16	15.8	4.5
P2028	20	19.8	5.0
P2030	25	24.8	6.4
P2032	32	31.8	7.3
P2034	40	39.8	8.2
P2037	50	49.8	12.7
P2042	63	62.8	15.9
P2046	65	75.3	18.6
P2050	80	88.9	21.3
P2058	100	114.3	30.4
P2070-62	150	160.2	44.5

P2024 Series - 2 piece Cable Clamps

Part No.	Sheathed Cable O.D.	Mass Kg/100	Part No.	Sheathed Cable O.D.	Mass Kg/100
P2024	8	3.6	P2038	51	14.1
P2025	11	3.6	P2039	54	14.5
P2026	14	4.1	P2040	57	15.0
P2027	17	4.5	P2041	60	15.4
P2028	19	5.0	P2042	64	15.9
P2029	22	5.4	P2043	67	16.8
P2030	25	6.4	P2044	70	17.2
P2031	29	6.8	P2046	76	18.6
P2032	32	7.3	P2047	79	19.5
P2033	35	7.7	P2048	83	20.4
P2034	38	8.2	P2049	86	20.9
P2035	43	8.6	P2052	95	26.3
P2036	44	10.6	P2055	105	28.1
P2037	49	12.7			

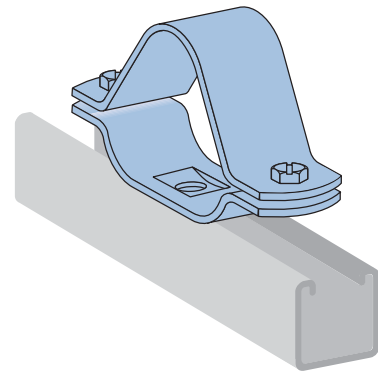
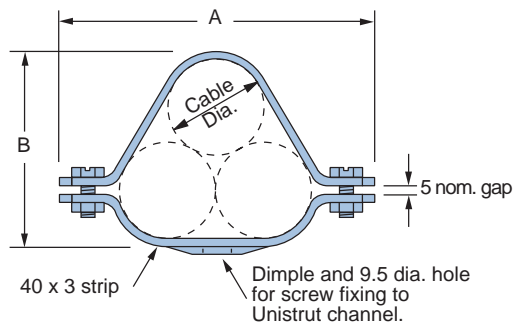
Electrical - Fittings

41mm Channel Width Series

TF20 to TF45 - Trifoil Cable Clamps

Part No.	Cable Dia.	Dim. A	Dim. B	Mass Kg/100
TF20	20	92	43	21.0
TF22	22	96	47	22.0
TF24	24	100	51	23.0
TF27	27	106	56	24.0
TF30	30	112	62	25.0
TF33	33	118	68	27.0
TF37	37	126	75	29.0
TF41	41	134	83	32.0
TF45	45	142	90	34.0

Note: Available in Zinc Plated Steel and Aluminium.

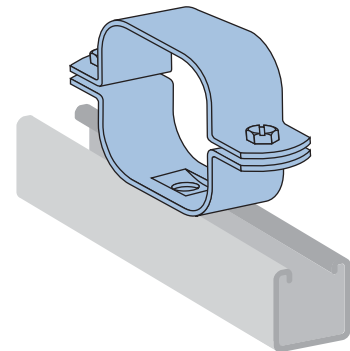
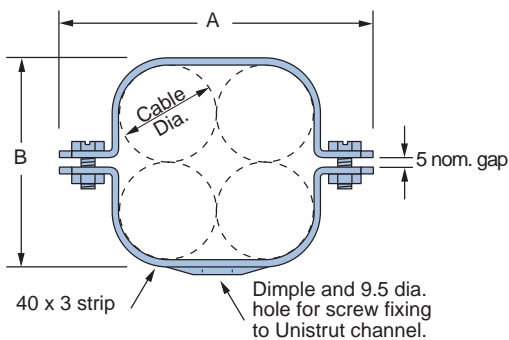


Slotted hex head screws and nuts included.

QF20 to QF45 - Quadfoil Cable Clamps

Part No.	Cable Dia.	Dim. A	Dim. B	Mass Kg/100
QF20	20	92	46	21.0
QF22	22	96	50	23.0
QF24	24	100	54	24.0
QF27	27	106	60	26.0
QF30	30	112	66	28.0
QF33	33	118	72	30.0
QF37	37	126	80	32.0
QF41	41	134	88	35.0
QF45	45	142	96	38.0

Note: Available in Zinc Plated Steel and Aluminium.

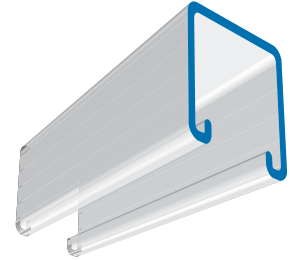
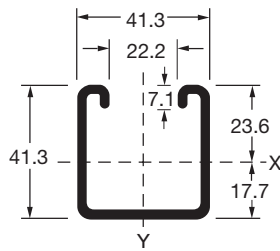


Slotted hex head screws and nuts included.

Electrical - Fluorescent Fixture Fittings 41mm Channel Width Series

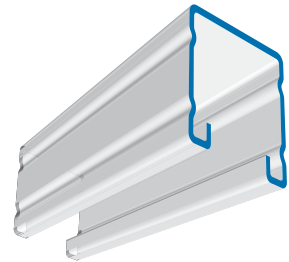
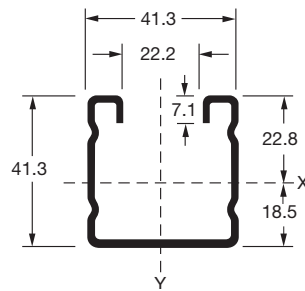
The Unistrut ducting and support channels are available in Galvabond, Hot Dipped Galvanised and Polyester finishes. Other colours such as Electrical Orange are available against special order. For back to back and other multiple channel combinations see Metal Framing Tab or consult your local Unistrut Service Centre.

P1000



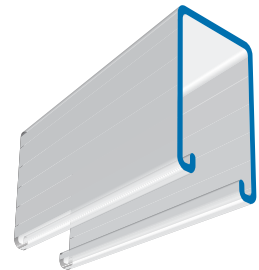
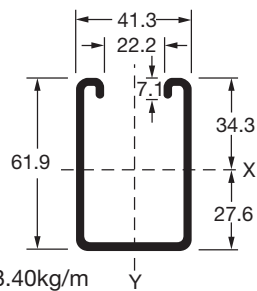
Mass: 2.59kg/m

P2000



Mass: 1.79kg/m

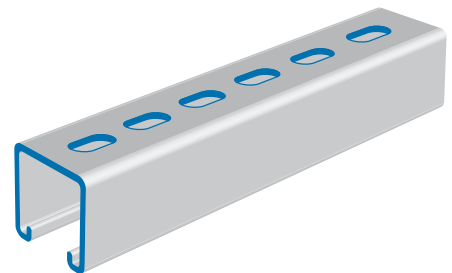
P5500



Mass: 3.40kg/m

P1000T

Slots 30 long x 14 wide at
50mm centres (approx.)



Mass: 2.51kg/m

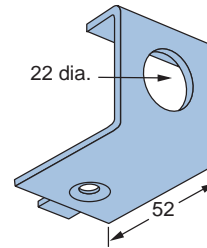
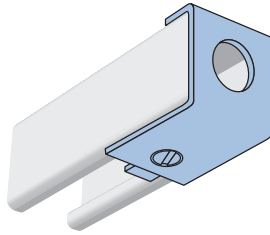
Electrical - Fluorescent Fixture Fittings

41mm Channel Width Series

P2521 - Conduit End Connector

Fitted to end of trunking for attachment of electrical conduit.
P2521 for use with P1000 and P2000 Channels. Countersunk head screw and clamping nut included.

Finish: Zinc Plated.

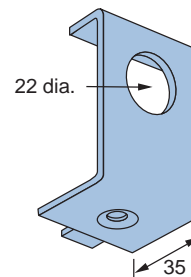
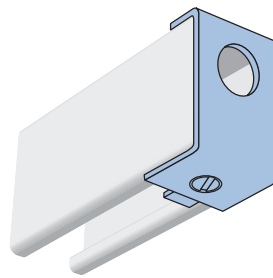


Mass: 12kg/100

P5521 - Conduit End Connector

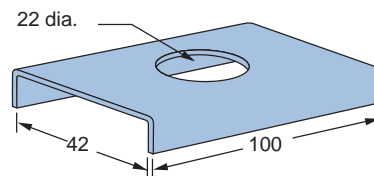
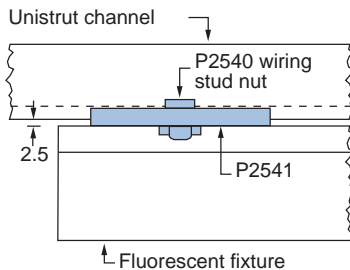
Fitted to end of trunking for attachment of electrical conduit.
P5521 for use with P5500 Channel. Countersunk head screw and clamping nut included.

Finish: Zinc Plated.



Mass: 12kg/100

P2541 (Spacer Clevis)

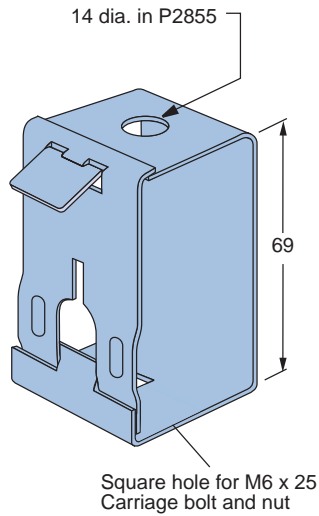


Mass: 11kg/100

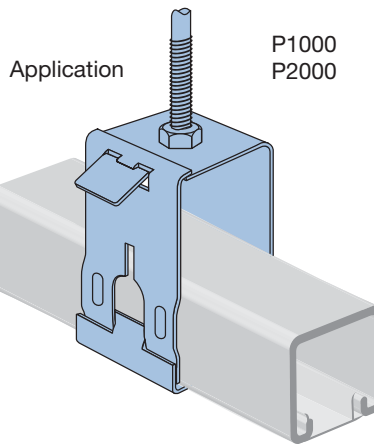
Electrical - Fluorescent Fixture Fittings

41mm Channel Width Series

P2855



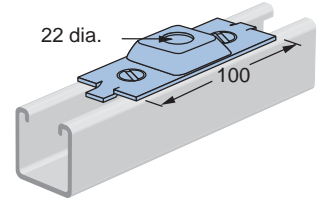
Design Load: 0.5kN
Finish: Zinc Plated.



Mass: 19kg/100

P2535

M6 x 15 Csk head machine screws and P3016 nuts included.

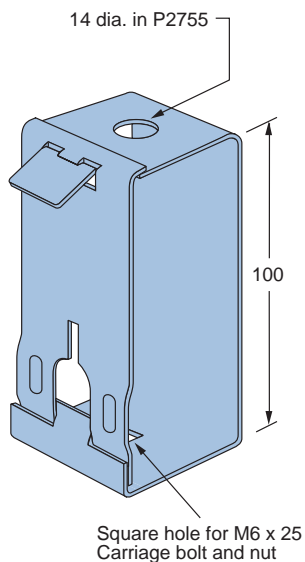


Conduit Hanger Fitting

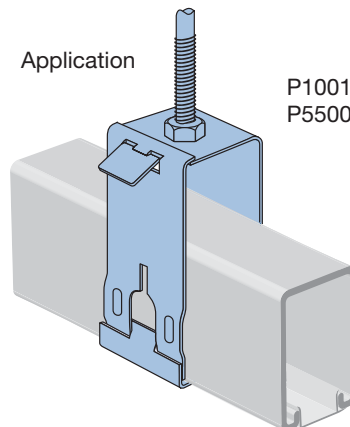
Conduit hanger fitting for rigid attachment to Unistrut channel. Design Load: 0.5kN

Mass: 13kg/100

P2755

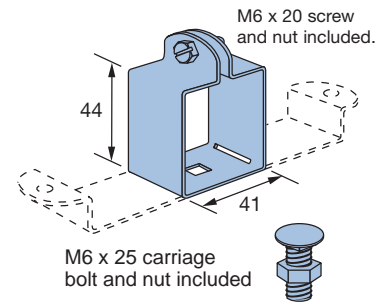


Design Load: 0.5kN
Finish: Zinc Plated.



Mass: 30kg/100

P2539



Mass: 11kg/100

Fixture Hanger Fitting

Fluorescent hanger fittings provide a means of mounting fixtures to Unistrut. They are shipped in the flat and are easily bent to form around the Unistrut Channel. For use with P1000 and P2000 Unistrut Channels.

Design Load: 0.5kN
Finish: Zinc Plated.

Electrical - Fluorescent Fixture Fittings

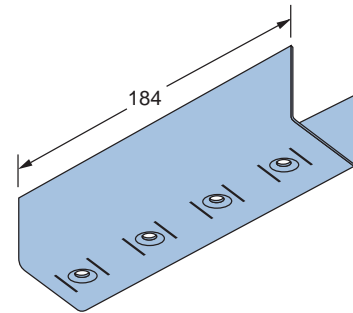
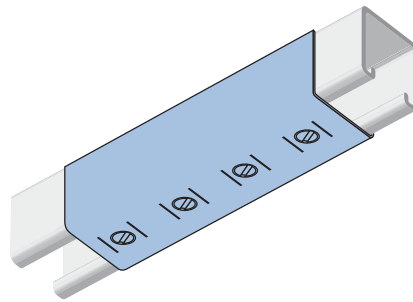
41mm Channel Width Series

P2377 - Splice Fittings

Joiner Fittings

For joining together continuous runs of trunking channel. P2377 external 41 deep, for use with P1000 and P2000 trunking. Four P3016 clamping nuts and four M6 x 15 countersunk head screws should be ordered with each fitting.

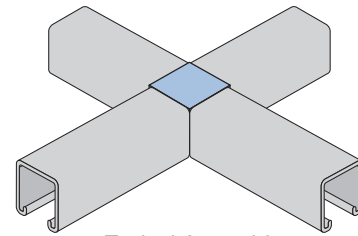
Finish: Zinc Plated.



Mass: 26kg/100

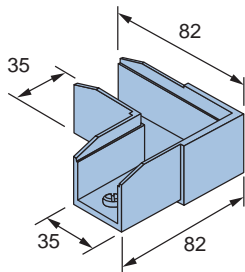
Joiner Fittings

Cast aluminium fittings designed to fit inside the channel section and provide a continuous profile on external surfaces. Fittings are secured to the channel by a pre-installed screw and washer assembly. Closure strips can be clipped into channel and extended over the fitting to complete a neat installation.



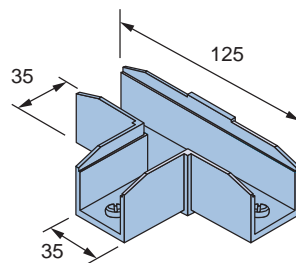
Typical Assembly

P1220 Two Way



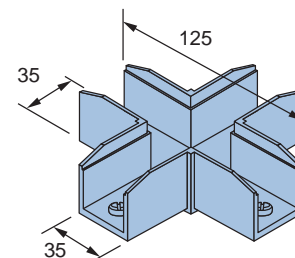
Mass: 18kg/100

P1221 Three Way



Mass: 22kg/100

P1222 Four Way



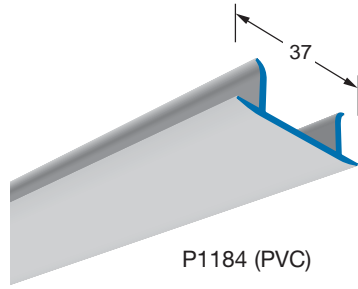
Mass: 25kg/100

P1184 - Plastic

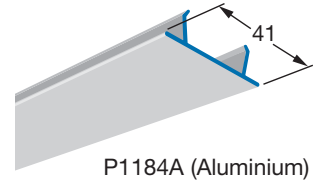
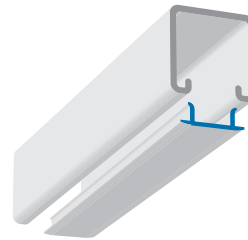
P1184 - Aluminium

Closure Strip

For closing the continuous slot of Unistrut trunking between lighting fixtures.
Material: Plastic and Aluminium.
Standard Length: 3 metres



Mass: 0.11kg/m



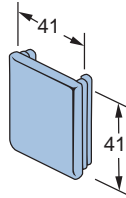
Mass: 0.25kg/m

P2240 & P5580

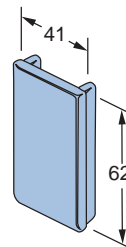
End Caps Plastic

P2240 for use with P1000 and P2000 trunking.
Mass: 0.70kg/100

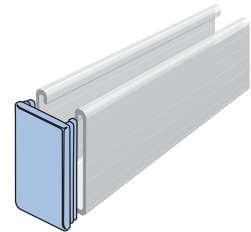
P5580 for use with P5500 trunking.
Mass: 1.2kg/100



P2240



P5580

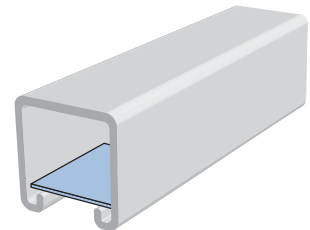
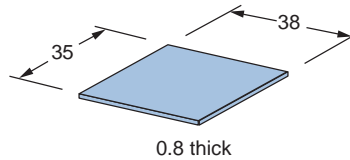


P2552

Wire Retainer

Wire retainer is pushed into Unistrut Channel to support wires until Closure strip is installed.

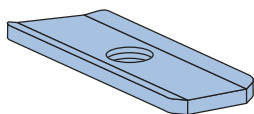
Finish: Fibre



Electrical - Fluorescent Fixture Fittings

41mm Channel Width Series

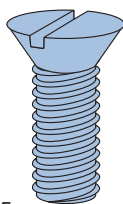
P3016 - Trunking Nuts



For the fixing of fittings and accessories. 6mm dia.

Mass: 1.00kg/100

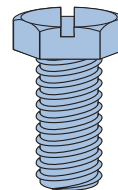
CKS0615 - Countersunk Head Screw



Size: M6 x 15

Mass: 0.3kg/100

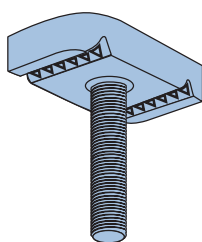
SHS0620 - Slotted Hex Head SetScrew



Size: M6 x 20

Mass: 0.6kg/100

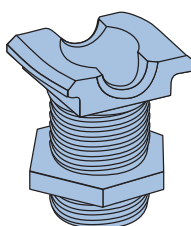
P3116 - Fixture Stud Nut



Size: M6 x 30

Mass: 3.5kg/100

P2540 - Wiring Stud Nut



20mm Electrical x 32mm overall.

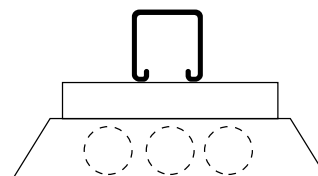
Finish: Brass

Mass: 3.0kg/100

Loading data

		1 x 36W 6kg	2 x 36W 9kg	3 x 36W 12kg	4 x 36W 14kg	1 x 58W 8kg	2 x 58W 13kg
		Hanger Rod Spacing In Metres					
Unistrut Channel and Spacing of 1220mm Long Fluorescent Fittings.							
P1000	Continuous run of fittings	4.1	3.8	3.6	3.6	3.9	3.5
	Fittings 600mm apart	4.4	4.1	3.9	3.8	4.2	3.9
	Fittings 1200mm apart	4.5	4.3	4.1	4.0	4.4	4.1
P2000	Continuous run of fittings	4.0	3.7	3.4	3.3	3.7	3.4
	Fittings 600mm apart	4.2	3.9	3.7	3.6	4.0	3.7
	Fittings 1200mm apart	4.4	4.2	3.9	3.8	4.2	3.9
P5500	Continuous run of fittings	5.2	4.9	4.6	4.5	5.0	4.6
	Fittings 600mm apart	5.5	5.2	5.0	4.8	5.3	4.9
	Fittings 1200mm apart	5.6	5.4	5.2	5.1	5.5	5.1
P2001	Continuous run of fittings	5.5	5.2	4.9	4.8	5.3	4.8
	Fittings 600mm apart	5.8	5.5	5.3	5.1	5.6	5.2
	Fittings 1200mm apart	6.0	5.7	5.5	5.4	5.8	5.4
P1001	Continuous run of fittings	5.7	5.4	5.2	5.0	5.6	5.1
	Fittings 600mm apart	6.0	5.7	5.5	5.4	5.8	5.4
	Fittings 1200mm apart	6.1	5.9	5.7	5.6	6.0	5.6

Note: Spacings have been calculated to limit section deflections between hangers to approximately 10mm, with sections considered continuous over three spans.
For Single spans - multiply spacing by 0.85. For Double spans - multiply spacing by 1.07.
For greater than 3 spans - use table above. Spacings have been calculated for Unistrut Channel opening on the underside.



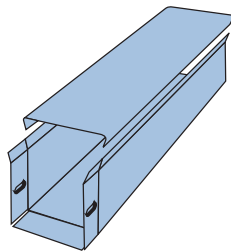
Electrical - Metal Duct and Cable Trays

Overview

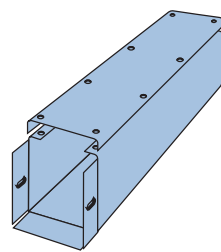
Unistrut manufactures and market the largest range of cable tray systems for the electrical industry in Australia. This extensive range of cable tray support systems include: 2 styles of metal duct; cablemesh; riteway and Supatrays. This comprehensive selection of products is offered to meet particular loading conditions and varying project requirements.

No matter what the project requirements are - Unistrut has a system to suit. Unistrut cable tray systems are complemented with a complete range of hardware and accessories including Bends, Risers, Tees and Crosses, where appropriate, as well as a comprehensive range of Adjustable Cantilever Support Brackets and Fixings.

Metal Duct



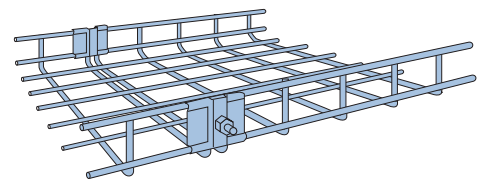
Clip-On Lid



Screw-On Lid

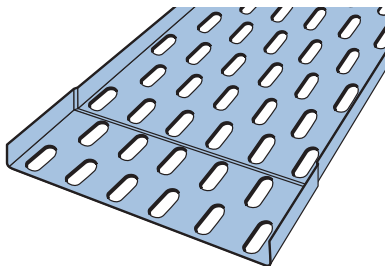
Length: 2.4m
Standard Sizes: 50 x 50, 75 x 75, 100 x 100mm

Cablemesh



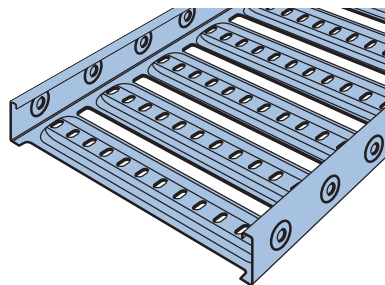
Length: 2.4m
Width: 150, 225, 300, 450mm
Cable Laying Depth: 50mm

Riteway Cable Tray



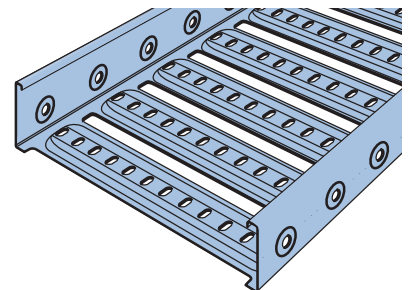
Length: 2.4m
Width: 75, 100, 150, 200, 300, 450 & 600mm
Depth: 12mm

ST3 Supatray



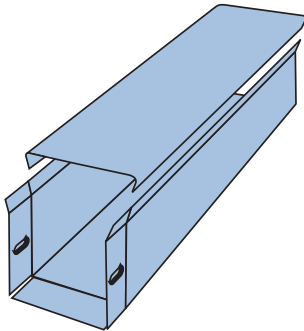
Length: 3.0m
Width: 150, 300, 450 & 600mm
Cable Laying Depth: 43mm

ST5 Supatray



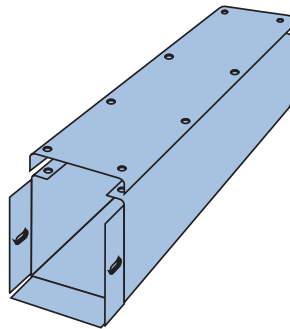
Length: 3.0m
Width: 150, 300, 450 & 600mm
Cable Laying Depth: 68mm

Clip on Lid



The Clip On Lid fixing system offers a simple, economical means of supporting and enclosing cables with a simply removed lid that needs no tools.

Screw on Lid



The Screw On Lid fixing system offers extra security plus the opportunity for total security via the optional use of your own supply of proprietary brands of "Security Screws". This system offers the same simple and economical means of supporting and enclosing cables as the other ducts in the range.

Features

"Joggled" end on Duct provides built in splice connection.

Recommended joining hardware is: M6 x 8 Gutter Bolt and M6 Flange Nut.

Standard Length: 2.4m

Standard Finish: Galvabond.

Also available in: Hot dipped Galvanised, Aluminium, Powder Coated, 304 & 316 Stainless Steel.

Nominal Standard Widths:

Width	x	Depth (mm)
50	x	50
75	x	75
100	x	100

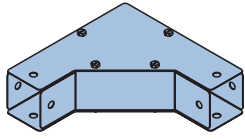
Note: Other sizes made to order. Options available to order: Dividers at your nominated positions across body width for cable separation.

Duct (Galvabond)

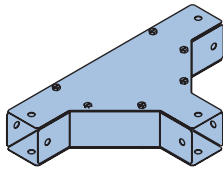
Part No	Description (mm)	Unit (m)
Clip-on Duct - Galvabond Finish		
ADG1A105	Duct Body 50x50	2.4
ADG1A005	Duct Lid 50	2.4
ADG1A207	Duct Body 75x75	2.4
ADG1A007	Duct Lid 50	2.4
ADG1A310	Duct Body 100x100	2.4
ADG1A010	Duct Lid 100	2.4
Screw-on Duct - Galvabond Finish		
ADG3A105	Duct Body 50x50	2.4
ADG3A005	Duct Lid 50	2.4
ADG3A207	Duct Body 75x75	2.4
ADG3A007	Duct Lid 50	2.4
ADG3A310	Duct Body 100x100	2.4
ADG3A010	Duct Lid 100	2.4

Electrical - Metal Duct

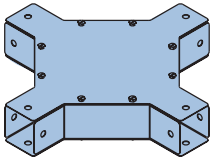
Fittings and Joiners



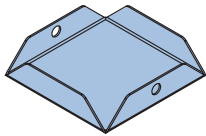
4 splice screws & nuts required



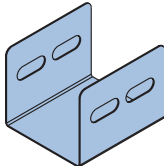
6 splice screws & nuts required



8 splice screws & nuts required



2 splice screws & nuts required



4 splice screws & nuts required

Duct Bend/Riser

Part No	Description (mm)	Unit (m)
ADGAU105	Bend/Riser 50x50	EA
ADGAU207	Bend/Riser 75x75	EA
ADGAU310	Bend/Riser 100x100	EA

Duct Tee

ADGAT105	Tee 50x50	EA
ADGAT207	Tee 75x75	EA
ADGAT310	Tee 100x100	EA

Duct Cross

ADGAX105	Cross 50x50	EA
ADGAX207	Cross 75x75	EA
ADGAX310	Cross 100x100	EA

Duct End Cap

ADGAK105	End Cap 50x50	EA
ADGAK207	End Cap 75x75	EA
ADGAK310	End Cap 100x100	EA

Duct Joiner

ADGAJ105	Duct Joiner 50x50	EA
ADGAJ207	Duct Joiner 75x75	EA
ADGAJ310	Duct Joiner 100x100	EA

Duct Joining Hardware

AHZS106008	M6 Bolt & Nuts (50/pack)	PKT
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Note: Accessory ends are slit for ease of assembly. Each accessory supplied assembled complete with lid.

Unistrut Australia manufacture the following range of Cable Trays in a variety of materials as detailed in the individual catalogue pages:

Riteway Cable Tray - with a 12mm high square side
ST3 Supatray - with a 50mm high square side
ST5 Supatray - with a 75mm high square side

The selection of a Cable Tray System for a particular application depends on FOUR main factors:

1. Environmental conditions - the working environment of the Cable Tray System determines the choice of material used in the manufacture of the Cable Tray. Unistrut has the capability of manufacturing Cable Trays in several different materials to suit different environments as follows:
Galvabond
Hot Dipped Galvanised to AS/NZS 4680
Aluminium
316 Grade Stainless Steel
2. Physical size and quantity of cables - smaller diameter cables do not require the same strength of support but they do not have any rigidity to support themselves and therefore require a more continuous support platform. A large quantity of smaller diameter cables would probably require a high sided cable tray in order to contain the sideways movement of the cables during laying.
3. Cable weight - The total maximum weight of the cables to be supported determines the choice of Tray Profile and Height in conjunction with the designated Support Span.
4. Support Span - The distance over which the Cable Tray has to support the nominated Total weight of cables determines the choice of tray Profile and Height.

Other Riteway Cable Trays (made to order)

Unistrut has the capability to manufacture other Riteway Cable Tray profiles and perforation configurations to suit a variety of applications and uses.

Cable Tray can be manufactured up to a Maximum width of 750mm in the Standard Riteway Profile (12mm Square Edge) as a one piece unit. Wider Cable Trays could be manufactured in multiple units but a more practical approach would be to install two or more standard width cable trays alongside each other to make up the desired width.

Cable tray can be manufactured up to a maximum length of 3 metres in increments of 50mm or even down to lengths of less than a metre (again in increments of 50mm).

Cable tray can be manufactured with a variety of side heights (not necessarily two equal side heights and in increments of 25mm) providing that the sum of the side heights and the width does not exceed 750mm and that the width equals or exceeds the side height.

Features

12mm Square Edge. "Joggled" end on tray provides built in splice connection.

Punched slots accept 12.7mm wide cable tie.

Recommended joining hardware is:
M6 x 8 Gutter Bolt and M6 Flange Nut.

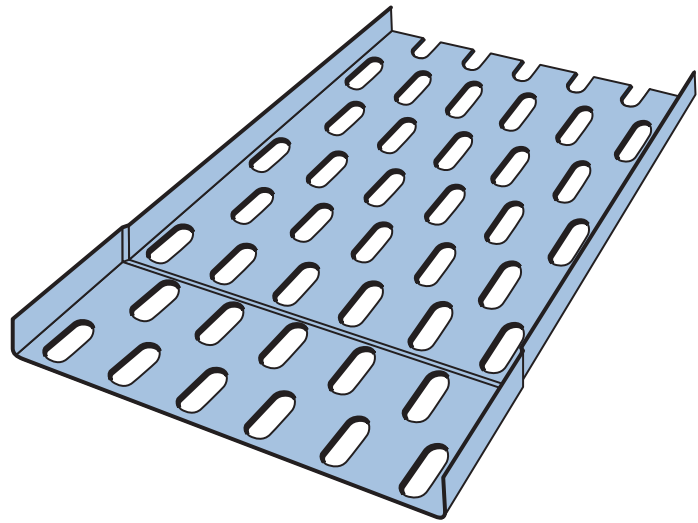
Standard Length: 2.4m

Standard Finish: Galvabond.

Also available in: Hot dipped Galvanised, Aluminium, Powder Coated, 304 & 316 Stainless Steel.

Nominal Standard Widths:
75, 100, 150, 200, 300, 450 and 600mm.

Note: Fire rated to AS/NZS3013: 1995 Appendix B - Classification WS5X - Refer to your local Service Centre for load ratings and correct installation procedures.



Load Data

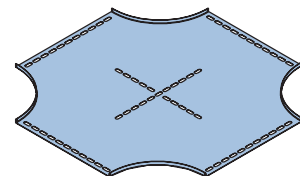
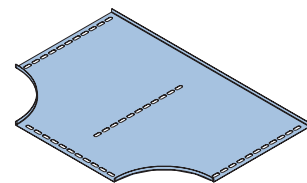
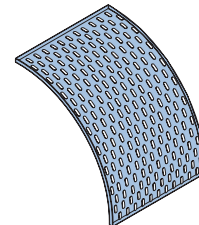
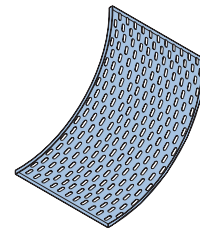
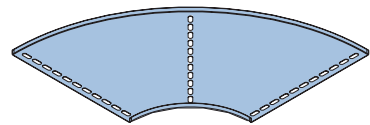
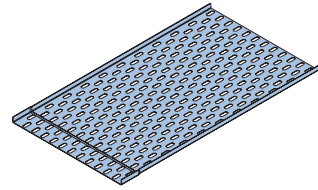
Tray width (mm)	Span Metres				
	1.0	1.2	1.5	2.0	2.4
75	10.0	6.9	4.4	2.5	1.75
100	10.0	6.9	4.4	2.5	1.75
150	10.0	6.9	4.4	2.5	1.75
200	10.0	6.9	4.4	2.5	1.75
300	12.8	8.8	5.6	3.2	2.05
450	24.0	16.6	10.6	6.0	3.85
600	24.0	16.6	10.6	6.0	3.85

Note: Load Carrying Capacities (kg/m) of Standard Galvabond Riteway Tray.

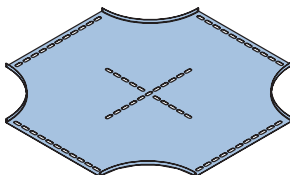
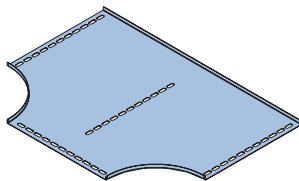
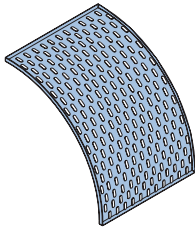
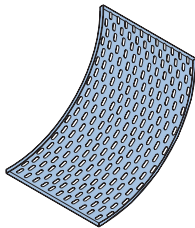
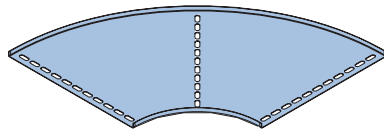
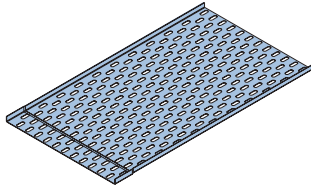
Electrical - Riteway Cable Tray & Accessories

Galvabond

Part No	Description (mm)	Unit
Riteway Tray 12mm deep		
ATG1A207	75mm Riteway Tray	2.4M
ATG1A210	100mm Riteway Tray	2.4M
ATG1A215	150mm Riteway Tray	2.4M
ATG1A220	200mm Riteway Tray	2.4M
ATG1A230	300mm Riteway Tray	2.4M
ATG1A245	450mm Riteway Tray	2.4M
ATG1A260	600mm Riteway Tray	2.4M
Riteway Bend		
ATG1B107	75mm Riteway Bend	EA
ATG1B110	100mm Riteway Bend	EA
ATG1B115	150mm Riteway Bend	EA
ATG1B120	200mm Riteway Bend	EA
ATG1B130	300mm Riteway Bend	EA
ATG1B145	450mm Riteway Bend	EA
ATG1B160	600mm Riteway Bend	EA
Riteway Internal Riser		
ATG1I107	75mm Riteway Internal Riser	EA
ATG1I110	100mm Riteway Internal Riser	EA
ATG1I115	150mm Riteway Internal Riser	EA
ATG1I120	200mm Riteway Internal Riser	EA
ATG1I130	300mm Riteway Internal Riser	EA
ATG1I145	450mm Riteway Internal Riser	EA
ATG1I160	600mm Riteway Internal Riser	EA
Riteway External Riser		
ATG1E107	75mm Riteway External Riser	EA
ATG1E110	100mm Riteway External Riser	EA
ATG1E115	150mm Riteway External Riser	EA
ATG1E120	200mm Riteway External Riser	EA
ATG1E130	300mm Riteway External Riser	EA
ATG1E145	450mm Riteway External Riser	EA
ATG1E160	600mm Riteway External Riser	EA
Riteway Tee		
ATG1T107	75mm Riteway Tee	EA
ATG1T110	100mm Riteway Tee	EA
ATG1T115	150mm Riteway Tee	EA
ATG1T120	200mm Riteway Tee	EA
ATG1T130	300mm Riteway Tee	EA
ATG1T145	450mm Riteway Tee	EA
ATG1T160	600mm Riteway Tee	EA
Riteway Cross		
ATG1X107	75mm Riteway Cross	EA
ATG1X110	100mm Riteway Cross	EA
ATG1X115	150mm Riteway Cross	EA
ATG1X120	200mm Riteway Cross	EA
ATG1X130	300mm Riteway Cross	EA
ATG1X145	450mm Riteway Cross	EA
ATG1X160	600mm Riteway Cross	EA
AHXS106008	M6x8 Gutter Bolt & M6 Flange Nut (50/pack)	PKT

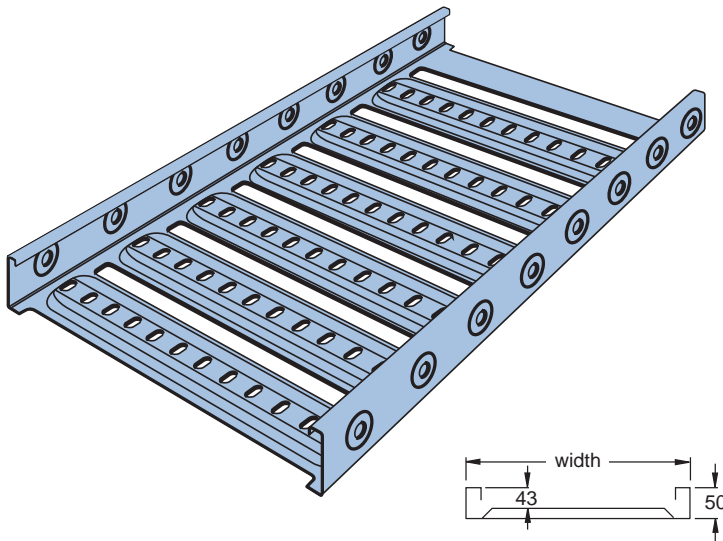


Hot Dipped Galvanised



Part No	Description (mm)	Unit
Riteway Tray 12mm deep		
ATH1A207	75mm Riteway Tray	2.4M
ATH1A210	100mm Riteway Tray	2.4M
ATH1A215	150mm Riteway Tray	2.4M
ATH1A220	200mm Riteway Tray	2.4M
ATH1A230	300mm Riteway Tray	2.4M
ATH1A245	450mm Riteway Tray	2.4M
ATH1A260	600mm Riteway Tray	2.4M
Riteway Bend		
ATH1B107	75mm Riteway Bend	EA
ATH1B110	100mm Riteway Bend	EA
ATH1B115	150mm Riteway Bend	EA
ATH1B120	200mm Riteway Bend	EA
ATH1B130	300mm Riteway Bend	EA
ATH1B145	450mm Riteway Bend	EA
ATH1B160	600mm Riteway Bend	EA
Riteway Internal Riser		
ATH1I107	75mm Riteway Internal Riser	EA
ATH1I110	100mm Riteway Internal Riser	EA
ATH1I115	150mm Riteway Internal Riser	EA
ATH1I120	200mm Riteway Internal Riser	EA
ATH1I130	300mm Riteway Internal Riser	EA
ATH1I145	450mm Riteway Internal Riser	EA
ATH1I160	600mm Riteway Internal Riser	EA
Riteway External Riser		
ATH1E107	75mm Riteway External Riser	EA
ATH1E110	100mm Riteway External Riser	EA
ATH1E115	150mm Riteway External Riser	EA
ATH1E120	200mm Riteway External Riser	EA
ATH1E130	300mm Riteway External Riser	EA
ATH1E145	450mm Riteway External Riser	EA
ATH1E160	600mm Riteway External Riser	EA
Riteway Tee		
ATH1T107	75mm Riteway Tee	EA
ATH1T110	100mm Riteway Tee	EA
ATH1T115	150mm Riteway Tee	EA
ATH1T120	200mm Riteway Tee	EA
ATH1T130	300mm Riteway Tee	EA
ATH1T145	450mm Riteway Tee	EA
ATH1T160	600mm Riteway Tee	EA
Riteway Cross		
ATH1X107	75mm Riteway Cross	EA
ATH1X110	100mm Riteway Cross	EA
ATH1X115	150mm Riteway Cross	EA
ATH1X120	200mm Riteway Cross	EA
ATH1X130	300mm Riteway Cross	EA
ATH1X145	450mm Riteway Cross	EA
ATH1X160	600mm Riteway Cross	EA
AHZS106008	M6x8 Gutter Bolt & M6 Flange Nut (50/pack)	PKT

ST3



Features

50mm high side. Rapid on-site fabrication of accessories.

Recommended joining hardware is: TU940 Nut and Bolt Pack (40/pkt).

Standard Length: 3m

Standard Finish: Galvabond.

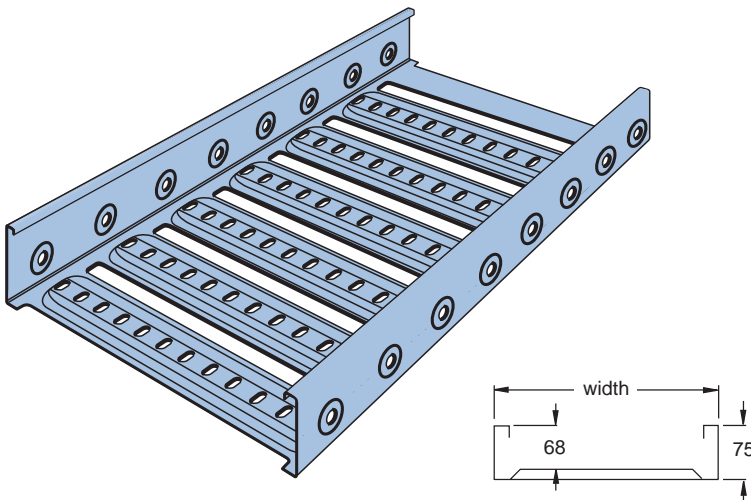
Also available in: Hot dipped Galvanised, Aluminium, Powder Coated.

Nominal Standard Widths: 150, 300, 450 and 600mm.

Load carrying capacities of standard galvabond ST3 Supatray:
140kg/lin. metre over 1.5m span
35kg/lin. metre over 3m span

Note: Fire rated to AS/NZS3013:1995 Appendix B - Classification WS5X - Refer to your local Service Centre for load ratings and correct installation procedures.

ST5



Features

75mm high side. Rapid on-site fabrication of accessories.

Recommended joining hardware is: TU940 Nut and Bolt Pack (40/pkt).

Standard Length: 3m

Standard Finish: Galvabond.

Also available in: Hot dipped Galvanised, Aluminium, Powder Coated.

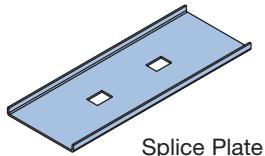
Nominal Standard Widths: 150, 300, 450 and 600mm.

Load carrying capacities of standard galvabond ST5 Supatray:
300kg/lin. metre over 1.5m span
80kg/lin. metre over 3m span

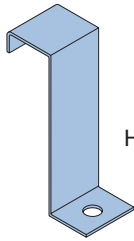
Note: Fire rated to AS/NZS3013:1995 Appendix B - Classification WS5X - Refer to your local Service Centre for load ratings and correct installation procedures.

Electrical - ST3 & ST5 Supatray Accessories

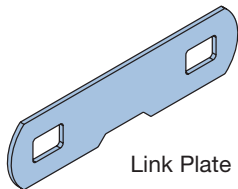
Accessories



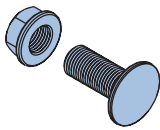
Splice Plate



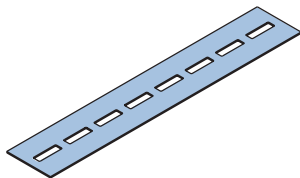
Hold Down Clamp



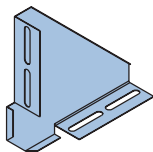
Link Plate



Joining Hardware



Bendside



Tee/Cross Bracket

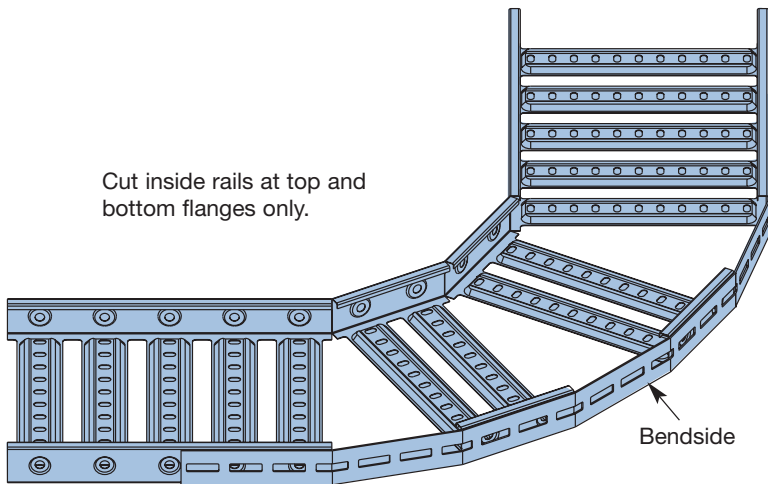
Galvabond

Part No	Description (mm)	Unit
AUG2A315	150mm Supatray ST3	3M
AUG2A330	300mm Supatray ST3	3M
AUG2A345	450mm Supatray ST3	3M
AUG2A360	600mm Supatray ST3	3M
AUG2BS3	Bendside ST3	EA
AUG2BTX	T/X Bracket ST3	EA
AUG2HDC	Hold Down Bracket ST3	EA
AUG2PFH	Splice Plate ST3	EA
AUG2PLK	Link Plate ST3	EA
LEE55	Divider Strip ST3	3M
AUG5A315	150mm Supatray ST5	3M
AUG5A330	300mm Supatray ST5	3M
AUG5A345	450mm Supatray ST5	3M
AUG5A360	600mm Supatray ST5	3M
AUG5BS3	Bendside ST5	EA
AUG5BTX	T/X Bracket ST5	EA
AUG5HDC	Hold Down Bracket ST5	EA
AUG5PFH	Splice Plate ST5	EA
AUG5PLK	Link Plate ST5	EA
LEM55	Divider Strip ST5	3M

Hot Dipped Galvanised

AUH2A315	150mm Supatray ST3	3M
AUH2A330	300mm Supatray ST3	3M
AUH2A345	450mm Supatray ST3	3M
AUH2A360	600mm Supatray ST3	3M
AUH2BS3	Bendside ST3	EA
AUH2BTX	T/X Bracket ST3	EA
AUH2HDC	Hold Down Bracket ST3	EA
AUH2PFH	Splice Plate ST3	EA
AUH2PLK	Link Plate ST3	EA
LEE55H	Divider Strip ST3	3M
AUH5A315	150mm Supatray ST5	3
AUH5A330	300mm Supatray ST5	3
AUH5A345	450mm Supatray ST5	3
AUH5A360	600mm Supatray ST5	3
AUH5BS3	Bendside ST5	EA
AUH5BTX	T/X Bracket ST5	EA
AUH5HDC	Hold Down Bracket ST5	EA
AUH5PFH	Splice Plate ST5	EA
AUH5PLK	Link Plate ST5	EA
LEM55H	Divider Strip ST5	3M

Supatray Bend

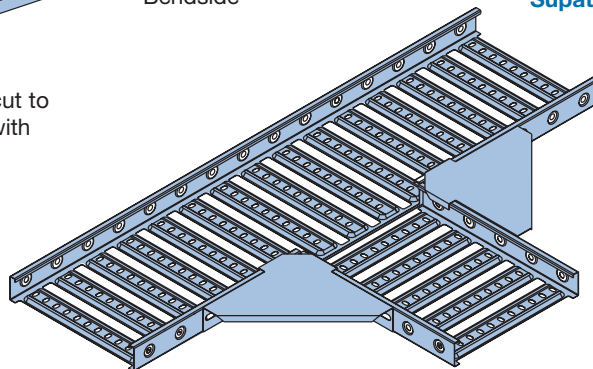


Cut inside rails at top and bottom flanges only.

Cut outside rails right through (3 full cuts make 90° bend)

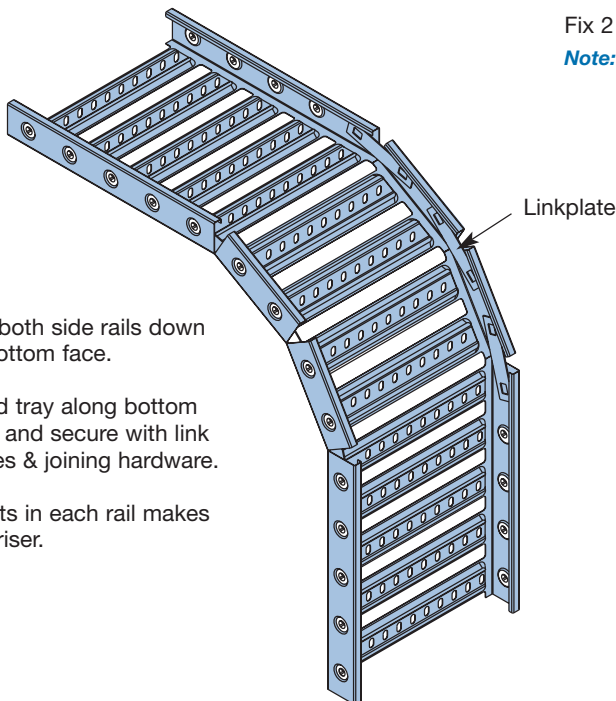
Form bendside to suit and cut to length before fixing to tray with standard joining hardware.

Supatray Tee



Cut side rail to bottom face in 2 places to suit tray width (flatten side down or cut off with snips)

Supatray External Riser



Cut both side rails down to bottom face.

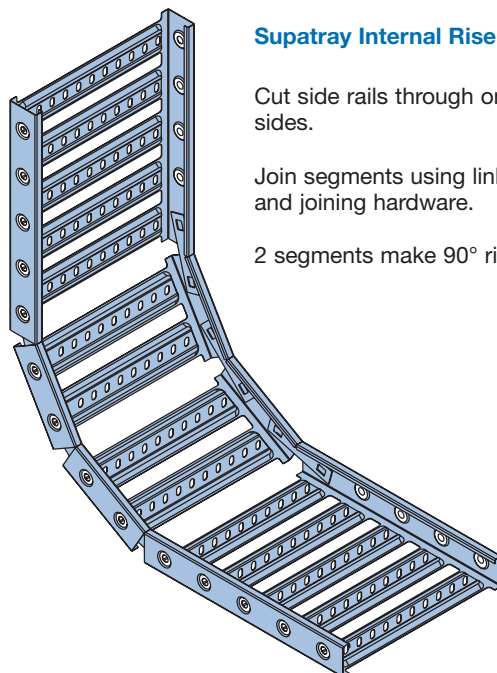
Bend tray along bottom face and secure with link plates & joining hardware.

3 cuts in each rail makes 90° riser.

Fix 2 tee/cross brackets to both trays using joining hardware.

Note: Cross is same procedure repeated on the other side.

Supatray Internal Riser



Cut side rails through on both sides.

Join segments using link plates and joining hardware.

2 segments make 90° riser.

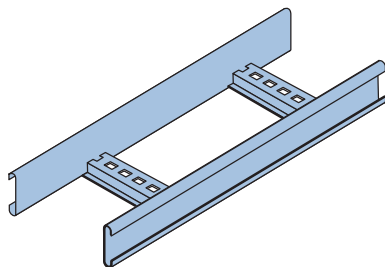
Electrical - Cable Ladder

General Information

Unistrut also manufacture and market the largest range of cable ladder systems for the Australian Electrical Industry. This extensive range of cable ladder support systems include a comprehensive range of steel and aluminium cable ladders load rated to NEMA Standard VE1. Steel cable ladders can be manufactured to side-rail in or side-rail out configuration depending on the project requirements.

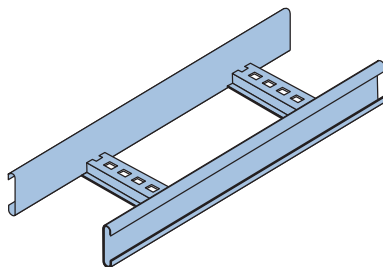
In cases where extremely high corrosion resistance is required, stainless steel cable ladder systems are available against special order. All Unistrut Cable Ladder systems are complemented with a complete range of accessories: Horizontal Bends, Internal and External Risers, Tees, Crosses, Reducers, Hinged Horizontal and Vertical Splices, Adjustable Risers, Covers, Divider Strip, Adjustable Cantilever Support Brackets, Cable Clamps and Ties.

NEMA 12A Steel



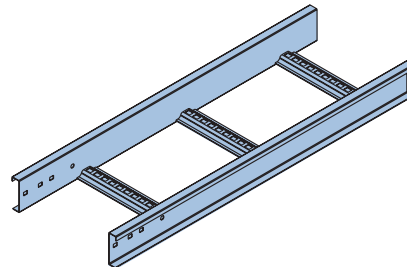
Length: 3m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 40mm

NEMA 12B Steel



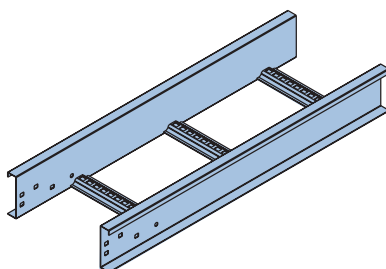
Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 40mm

NEMA 16A Steel



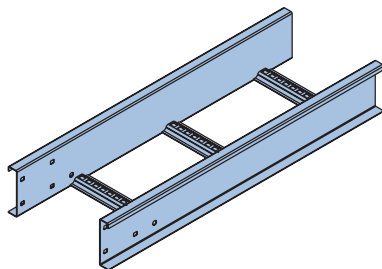
Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 75mm

NEMA 20B Steel



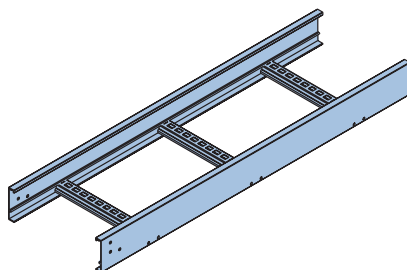
Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 112mm

NEMA 20C Steel



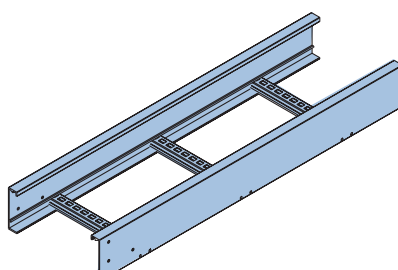
Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 128mm

NEMA 12A Aluminium



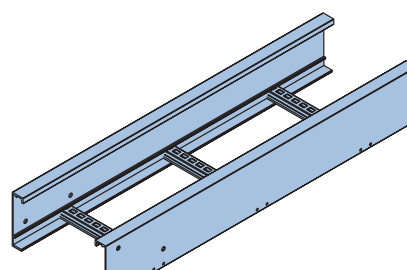
Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 67mm

NEMA 20A Aluminium



Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 96mm

NEMA 20C Aluminium



Length: 6m
Width: 150, 300, 450, 600mm
Cable Laying Depth: 125mm

The following notes are presented in order to assist users to achieve maximum economy and convenience with the installation of cable support systems. As each application will have its own particular conditions and requirements it is recommended that the services of Unistrut sales personnel and engineering team be engaged, especially in the early stages of any major project, so that the best overall result can be achieved.

Standard Sizes

Standard ladder widths are 150mm, 300mm, 450mm and 600mm, being the inside dimension between side-rails and is the maximum width available for carrying cables. Straight lengths are 6m long. Standard rung spacing on all systems is 300mm nominal.

Each of the Unistrut systems includes a full range of standard accessories, with a nominal radius of 300mm, 450mm and 600mm, depending on the system load class. Non-standard ladder widths and accessory radii can be manufactured against order.

Load Capacity

a) Cable Load – Because the cable density remains fairly constant in a total installation, the widest ladders carry the most load, and each smaller width carries proportionately less load. However, the load carrying capacity of any class of ladder is independent of the width.

For details on how safe working loads are determined, refer to the NEMA VE 1 Standard and to the published load graphs for allowable loads of each ladder type.

b) Fixed Ladder Spans – It is commonly found that the building structure supporting the cable ladders will dictate the span, but it is still possible to exercise some choice. Where the cabling is heaviest, and this is not usually extensive, it is possible to use (say) two 300mm wide ladders side by side instead of one 600mm wide, in order to select a lighter category of ladder for the total project. It is often inconvenient to use more than one ladder category in the same installation.

c) Varying the Spans – Where the structure does not dictate the ladder span, the heaviest cable runs could be supported more frequently, again enabling a lighter category of ladder to be chosen.

Cable Laying Depth

Each of the Unistrut Cable Ladder and Tray Systems has a different cable laying depth. It is a general rule that the shallower the ladder, the lower the cost per metre and the more frequently it needs support. It is sometimes found that the lightest, most economical ladders are excluded from consideration solely because a particular minimum cable laying depth is required and has been specified accordingly.

Deflection

Cable ladders are essentially structural members designed to strength requirements only and are required to support pliable load elements. Therefore, the control of deflection is not necessary for durability or stability reasons and can probably only be justified on purely aesthetic grounds. If normally accepted deflection limits such as 1/360th of span are imposed, the resultant cable ladder will be grossly overdesigned and correspondingly expensive.

There may still be locations where the designer wishes to limit visual deflection. For example, prestige areas which may be open to public view or where the ladder is installed at eye level and deflection is accentuated. If these conditions exist, it is recommended that closer support spacings be used only in those important locations (to control visual deflection) and normal support spacings elsewhere (for economy). A maximum of 1/180th of span, when deflection is determined from the graphs published in this catalogue, should prove a satisfactory limit for visual deflection.

Otherwise, wherever overall economy is the principal consideration, no limits should be placed on deflection. This does not mean that deflection will be excessive but simply that a typically acceptable installation will result and optimum economy will be attained.

Material Selection

Often the most difficult decision to be made is the selection of material, because it involves the most cost-sensitive of compromises. Material choice is directly related to service life and the longer the required life the more expensive will be the materials. The cost of these materials also must be considered as an equation of initial investment versus maintenance costs and eventual replacement.

Because service conditions for cable ladders can vary over an enormously wide range, even within a single installation, it is impossible to write down any hard and fast rules on the subject of corrosion and expected lifespan. The following may be considered a guide as to what can be expected from the various materials and finishes currently available for cable support systems.

a) Galvanised Steel – Hot-dipped galvanised steel (after fabrication) is a common selection, as it is economical to purchase and suitable for most conditions of outdoor exposure. For indoor applications, or anywhere that is essentially free from moisture, galvanised ladders can be considered to have an indefinite life. That is, they should last as long as the plant, building, cabling or equipment which they service.

On a typical industrial or processing plant installation, exposed to weather, moisture and airborne industrial pollution, a basic life of approximately ten years can be expected. This is not to say that the ladder will be completely corroded in that time but it is the probable life of the corrosion protection finish. Beyond that time, rapid decay can be expected and maintenance costs will increase substantially in order to keep the ladders serviceable.

The ten year life quoted here should be adjusted up or down depending on the circumstances. For example, if installed near the coast, the effect of salt laden air may shorten the expected life. Also galvanising is sensitive to some chemicals, especially sulphurous compounds, which may be intrinsic to plant operations where the ladder is installed. Correspondingly, a longer life will be expected in lighter industrial situations and if drier conditions exist.

b) Aluminium – Aluminium is also a popular choice of material for cable ladders. Most frequently it is selected because of its excellent performance in marine environments such as is found on wharves, coal loaders or similar Port Facilities where salt spray or salt laden atmosphere is present. Another reason for using aluminium is that it offers a long maintenance free life which is important in cases where access for future painting or repairs may be costly and difficult.

For any given load class or capacity, aluminium cable ladders are more expensive than their galvanised steel counterparts. Aluminium ladders can also be expected to have a greater deflection than an equivalent steel system. On the other hand, they are lighter, more readily handled and are easy to work with, resulting in faster installation and therefore lower installation cost.

Aluminium cable ladders can be expected to have a lifespan well in excess of twenty years in most industrial or marine applications. The exception would be in the case of a local concentration of chemicals which are detrimental to aluminium. Alkaline compounds or fumes is a common example but if any doubt exists, the advice of aluminium suppliers should be sought.

c) Powder Coating or Paint Systems:

1. Coating on bare steel.

Painting over bare steel is not generally recommended for cable ladders. This comment applies to virtually all types of 'organic' or non-metallic coatings such as powder coatings, polyesters, PVC or nylon. Although these coatings are resistant to a wide variety of chemicals, their effectiveness on cable ladders can be limited. The non-sacrificial nature of paint films means that anywhere the coating is broken, corrosion is permitted to obtain a foot-hold. It is then able to spread rapidly underneath the paint, lifting it off and allowing corrosion to progress even further.

If it is decided to use a paint or powder coating on bare steel, then before commissioning, a compatible repair paint should be used to make good any places on the ladder installation that may have been damaged during erection.

2. Coating over galvanised Steel or Aluminium

Application of paint systems over either of the above materials is obviously a more expensive approach, but in some circumstances it is the only answer. If ladders are installed in close proximity to acid tanks, process vats, steam pipes or similar situations, there may be no metallic finish capable of giving satisfactory service life. This can be overcome by the application of a suitable paint or powder coating over galvanised or aluminium base materials. Naturally, in order to contain costs, the additional finish need only be applied to those sections of the work which are effectively exposed to the corrosive fumes.

d) Stainless Steel – Stainless Steel is sometimes considered as a material for cable ladders, usually where extremely high corrosion resistance, coupled with difficulty of servicing after installation and a high degree of reliability are essential requirements. An off-shore oil drilling platform may be one example where these conditions exist.

The Nema Standards

NEMA STANDARD No. VE 1 is published by the National Electrical Manufacturers Association in the U.S.A. The Standard provides for the technical requirements of construction, performance and testing of cable tray systems. It is regularly revised by the Association in order to keep pace with technology and the ever changing requirements of the manufacturers, contractors, consultants and other users throughout the electrical industry.

There is presently no Australian Standard governing cable support systems. Despite the existence of other versions from places such as Canada and Europe, the NEMA VE 1 is by far the most widely accepted and the best known Standard for cable supports in Australia. In recognition of this situation, and in order to produce cable ladders of known quality and load capacity, Unistrut has adopted a policy of constructing and rating its cable support products in accordance with the VE 1 Standard wherever possible. This policy is reflected in the name and various class designation numbers now used by Unistrut which are drawn directly from the Standard.

For example NEMA Class 12A, 16A or 20B. Please note that in most cases Unistrut ladders exceed the minimum strength requirements of each ladder class and therefore the published load graphs should be consulted in order to find the actual safe load capacity for each ladder type.

The more important aspects of the NEMA Standard VE 1 which are relevant to Unistrut products are described as follows:

1. Load Capacity and Safety Factor

Safe working loads are required to be determined as a result of testing a series of sample ladders. Tests must be conducted as simple spans (ie the worst case for loading) and over various span lengths with a safety factor of 1.5 against the collapse load of the ladder. In this way, loads are based on average performance of a number of samples and not just a single test or some calculations. The Standard does not permit working loads to be determined by calculation because it has proven to be too unreliable. Cable ladders are specialist products which are unconventional in the structural sense. That is, they have an unusual combination of slenderness, local buckling of thin material and overall lateral restraint elements which are not satisfactorily interpreted by normal design methods.

2. Deflection

The NEMA Standard VE 1 does not specify any limitation on the deflection of cable support members. To do so, would inevitably result in an over-designed (and hence uneconomical) system. For further information on deflection please refer to notes under Guidelines for Ladder Selection.

3. Electrical Continuity

The electrical resistance of connections is limited to a maximum of 330 micro-ohms. Representative samples of Unistrut splice joints (both steel and aluminium) as well as the run to side-rail joint in aluminium ladders have been tested by an Independent Electrical Laboratory, and in all cases were found to comply with the NEMA Standard VE 1 specification.

Explanation of NEMA VE 1 load/span class designations

The NEMA VE 1 rating method is based on the Imperial system of measurement, as follows:

1. The numerals indicate the ladder span in feet.

8 = 8ft (2.4m)
12 = 12ft (3.6m)
16 = 16ft (4.8m)
20 = 20ft (6.0m)

2. The letter indicates the working load category.

A = 50lbs/lin.ft (75kg/m)
B = 75lbs/lin.ft (112kg/m)
C = 100lbs/lin.ft (149kg/m)

Example: A 20B class ladder requires a minimum safe working load of 75lb/ft. over a 20ft.span. (ie.112kg/m over a 6.0m span)

Steel Cable Ladder (SCL)

Galvanised steel cable ladders are the most popular format for cable support systems as they afford a good combination of cost, strength and service life.

Unistrut manufactures a complete range of NEMA Steel Cable Ladder systems. These provide a wide range of load and span combinations to suit the requirement of almost any installations.

Side-Rail Alternative - With the exception of Nema 12A and 12B, all other ladder systems are available with the side-rails turned outward (as standard), or inward to meet varying client specifications.

All ladder systems are load rated to NEMA Standard VE 1.

Stainless Steel - In cases where extremely high corrosion resistance is required, stainless steel cable ladder may be the only solution. All steel cable ladder systems are available in stainless steel on special order only. For load and deflection calculations, contact your local Unistrut Service Centre.

Splice Plates

16A, 20B and 20C Systems - Unistrut steel splice plates are of a robust and practical design. The neat fitting flanges and bolted configuration of Unistrut splices also reduces deflection at joints as the ladder is loaded. Unsightly dips or discontinuities along the ladder run are therefore avoided. Bolt holes in splice plates and ladder side-rails are elongated so that site misalignments as well as thermal expansion and contraction are catered for.

12B Systems - The 12B splice plate incorporates virtually all of the working features as described for the 16A, 20B and 20C ladders, but because the 12B is a lighter duty system, a simplified splice design is used. Requiring only two fixing bolts and eliminating the need for matching holes in the side-rail, the 12B splice plate is convenient in use and extremely fast to install.

Notes

Electrical resistance across splice joints is less than the 330 micro-ohms limit specified by NEMA Standard VE 1.

To attain maximum working load of the system, the following recommendations should be adopted.

- Do not splice single spans of ladder.
- Avoid splice joints in the vicinity of the end supports on continuous runs.
- Avoid splice joints directly over intermediate supports on continuous runs.
- Locate splice joints at the quarter span point between supports on continuous runs.

If in doubt, please consult your Unistrut Service Centre.

Accessories

All Unistrut steel cable ladder systems are complemented by a full range of standardised fabricated accessories and fittings which are readily available. All are of a welded construction.

Built-in Splice - The principal feature of all Unistrut cable ladder accessories is the 'built-in' splice plate. A shaped extension of the accessory side-rail permits direct connection to the straight ladder eliminating the need for a separate splice component.

The advantages of this method are:

- Minimised fixing hardware and components.
- When joining to a cut ladder, the accessory end acts as a convenient drill template for bolt holes.
- Simplifies pre-planning, quantity take-offs and ordering.
- No left-over components.
- Strong and rigid joint.
- Faster installation.

Accessories are attached with the same fasteners as used for straight splice plates.

Threaded fasteners are hot dipped galvanised.

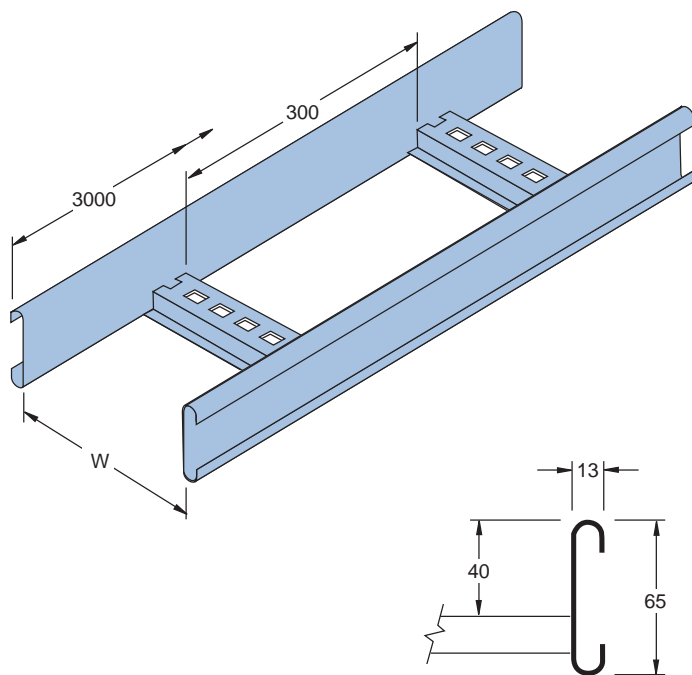
Elongated slots allow easier fit-up and permit adjustments in alignment to be absorbed.

Construction

Unistrut steel cable ladders are manufactured from steel to AS/NZS1594 "Hot-Rolled Steel Flat Products" which are cold roll formed to the desired shape. The roll forming process improves the mechanical properties of the metal whilst the special lipped channel section is designed to give the best possible combination of strength-to-weight, lateral rigidity and low deflection. The rungs are fillet welded to the side-rails which further improves the overall stability as well as strength of the finished product. The rung joint is so designed that galvanising can be effected to all areas.

Ladders, accessories and other galvanised components are hot-dipped galvanised to AS/NZS 4680, after fabrication.

Electrical - Cable Ladder Nema 12A Steel



Technical Data

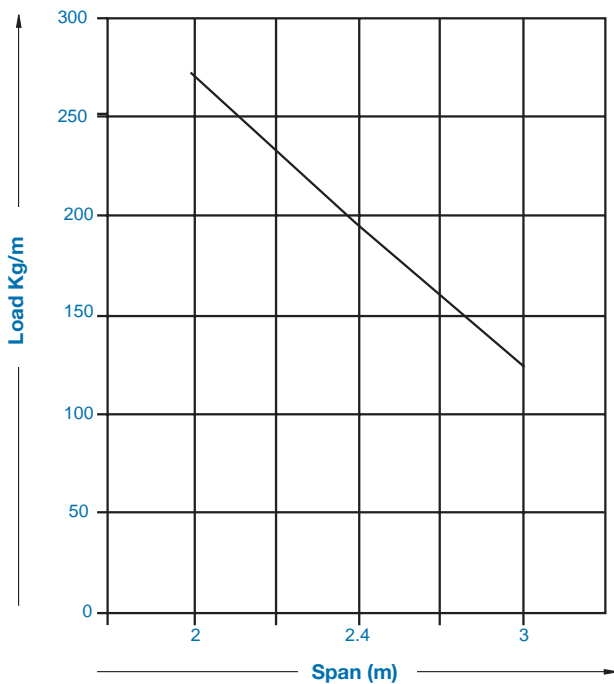
Cable Depth: 40mm
Loading Data:
 Basic Load Capacity =
 125kg/lin.m on 3m span
Length: 3m
Rung Spacing: 300mm nominal

Parts List

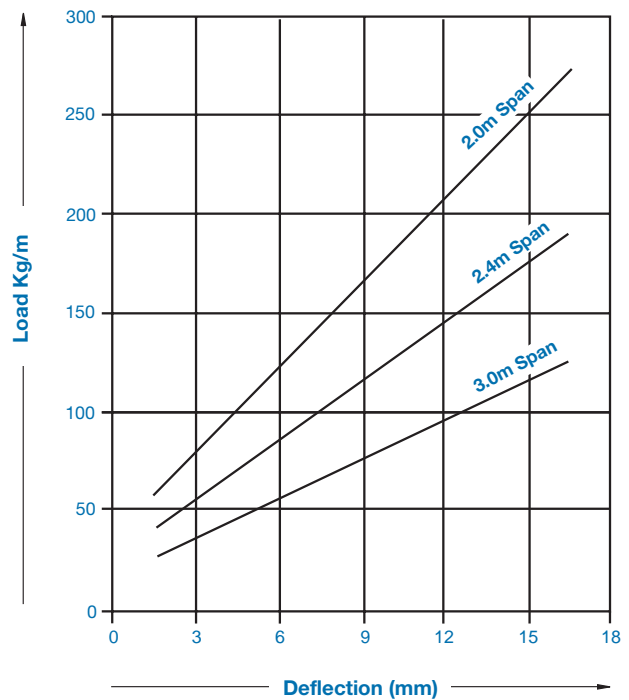
Dim "W"	Type	Part No.
150	12A	LED1013
300	12A	LED1033
450	12A	LED1043
600	12A	LED1063

Note: Fire rated to AS/NZS3013:1995
Appendix B - Classification WS5X - Refer
 to your local Service Centre for load ratings
 and correct installation procedures.

Allowable Load Graph



Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
 Safety factor = 1.5 on collapse load for single span.

Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Technical Data

Cable Depth: 40mm

Loading Data:

Basic Load Capacity =
131kg/lin.m on 3.6m span.
424kg/lin.m on 2.0m span.

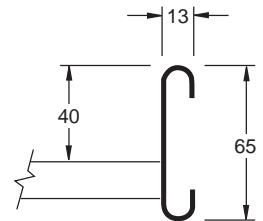
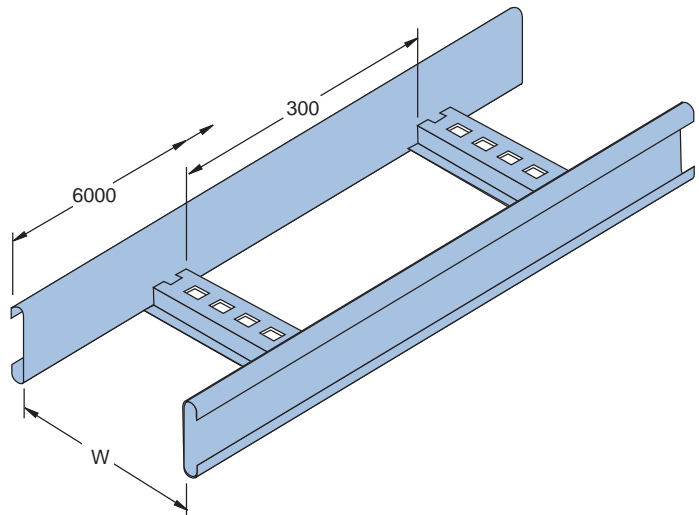
Length: 6m

Rung Spacing: 300mm nominal

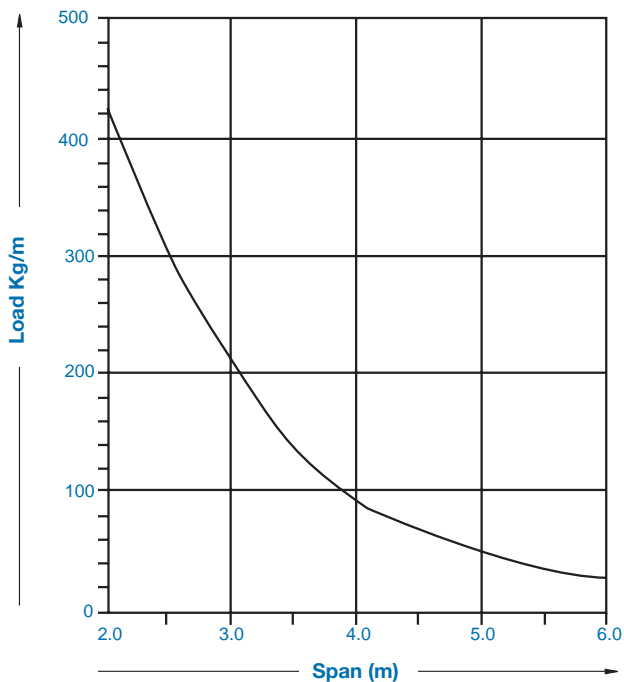
Parts List

Dim "W"	Type	Part No.
150	12B	LEE1016
300	12B	LEE1036
450	12B	LEE1046
600	12B	LEE1066

Note: Fire rated to AS/NZS3013: 1995
Appendix B - Classification WS5X - Refer to your local Service Centre for load ratings and correct installation procedures.

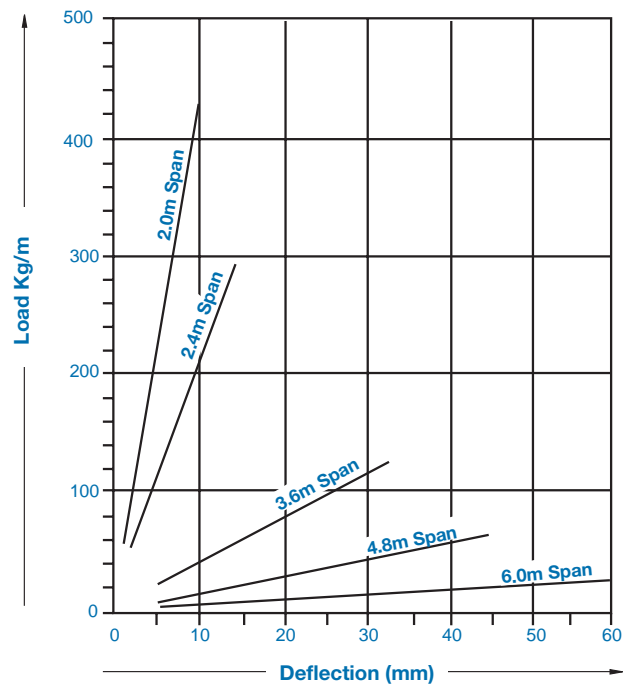


Allowable Load Graph



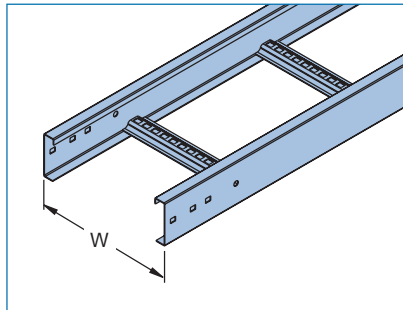
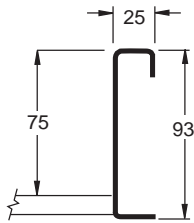
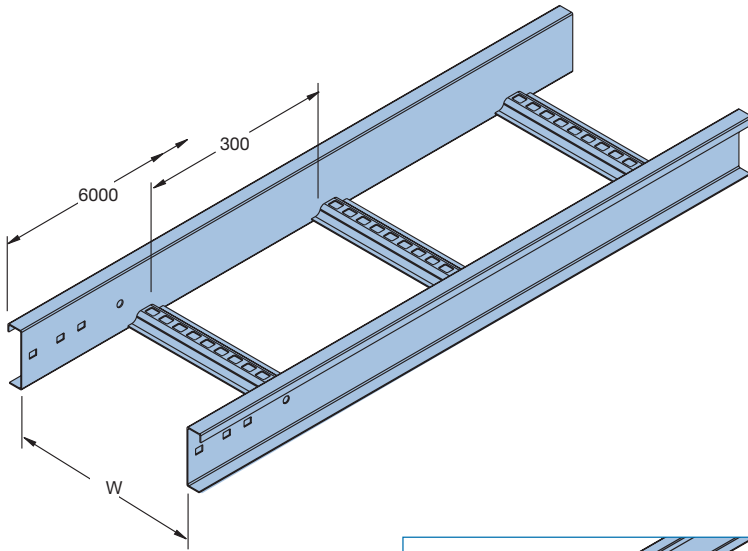
Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
Safety factor = 1.5 on collapse load for single span.

Deflection Graph



Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Electrical - Cable Ladder Nema 16A Steel



Technical Data

Cable Depth: 75mm
Loading Data:
 Basic Load Capacity =
 79kg/lin.m on 6m span.
 470kg/lin.m on 3m span.
Length: 6m
Rung Spacing: 300mm nominal

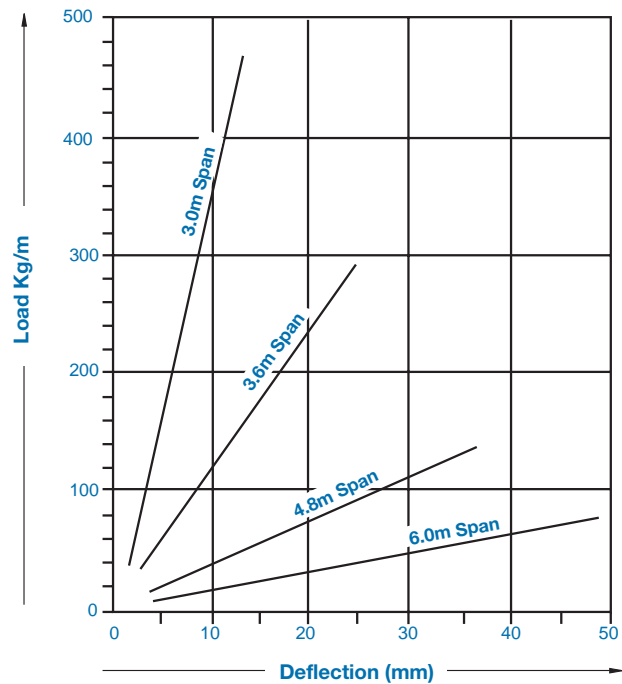
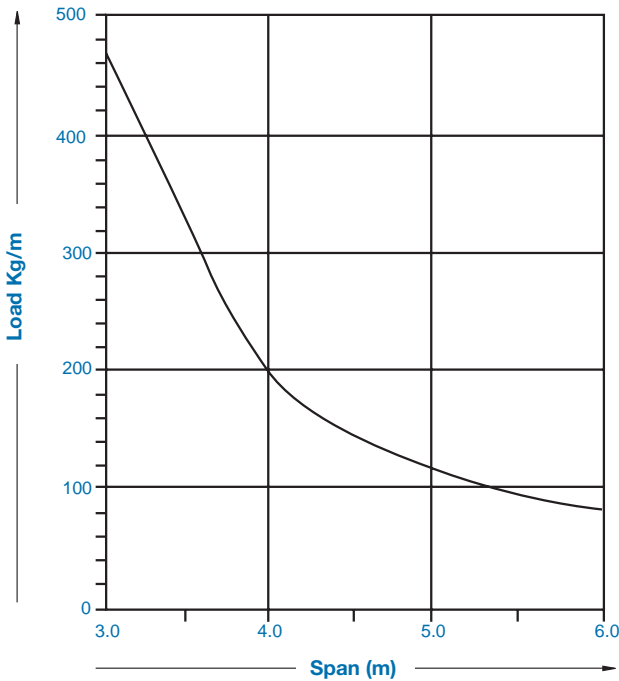
Parts List

Dim "W"	Type	Part No.
150	16A	LEG101
300	16A	LEG103
450	16A	LEG104
600	16A	LEG106
150	16A-RI	LEG101R
300	16A-RI	LEG103R
450	16A-RI	LEG104R
600	16A-RI	LEG106R

Note: Fire rated to AS/NZS3013: 1995
Appendix B - Classification WS5X - Refer to your local Service Centre for load ratings and correct installation procedures.

Allowable Load Graph

Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
 Safety factor = 1.5 on collapse load for single span.

Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Technical Data

Cable Depth: 112mm

Loading Data:

Basic Load Capacity =
136kg/lin.m on 6m span.
573kg/lin.m on 3m span.

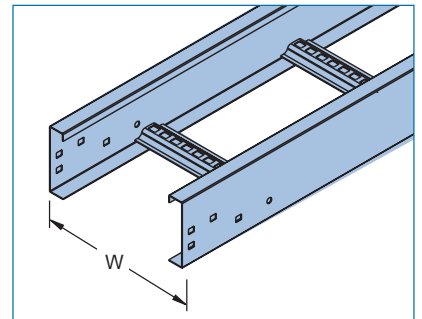
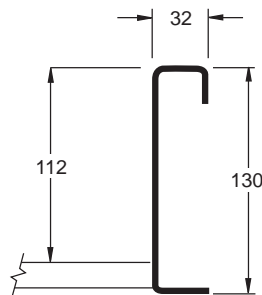
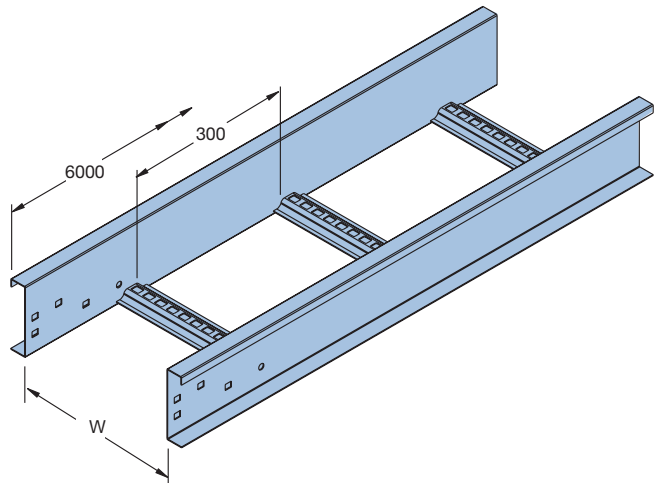
Length: 6m

Rung Spacing: 300mm nominal

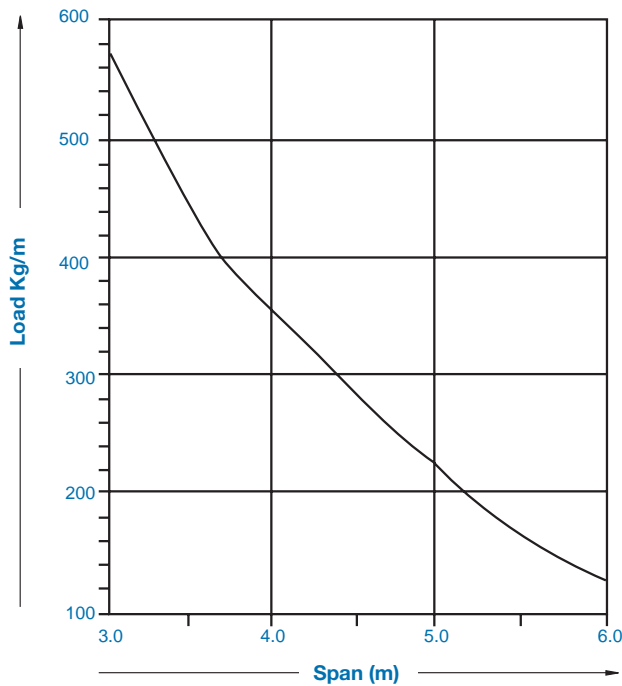
Parts List

Dim "W"	Type	Part No.
150	20B	LEK101
300	20B	LEK103
450	20B	LEK104
600	20B	LEK106
150	20B-RI	LEK101R
300	20B-RI	LEK103R
450	20B-RI	LEK104R
600	20B-RI	LEK106R

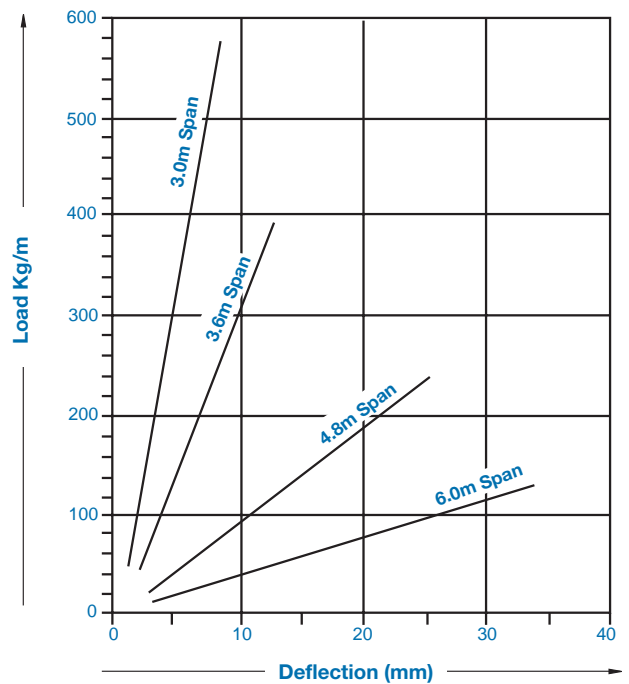
Note: Fire rated to AS/NZS3013: 1995
Appendix B - Classification WS5X - Refer
to your local Service Centre for load ratings
and correct installation procedures.



Allowable Load Graph



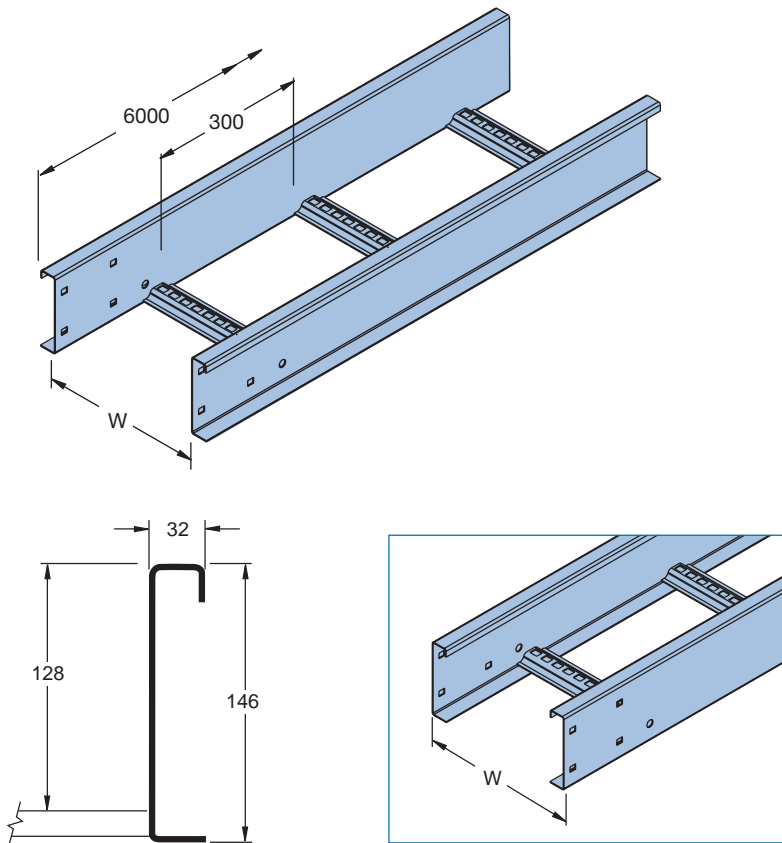
Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
Safety factor = 1.5 on collapse load for single span.

Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Electrical - Cable Ladder Nema 20C Steel



Technical Data

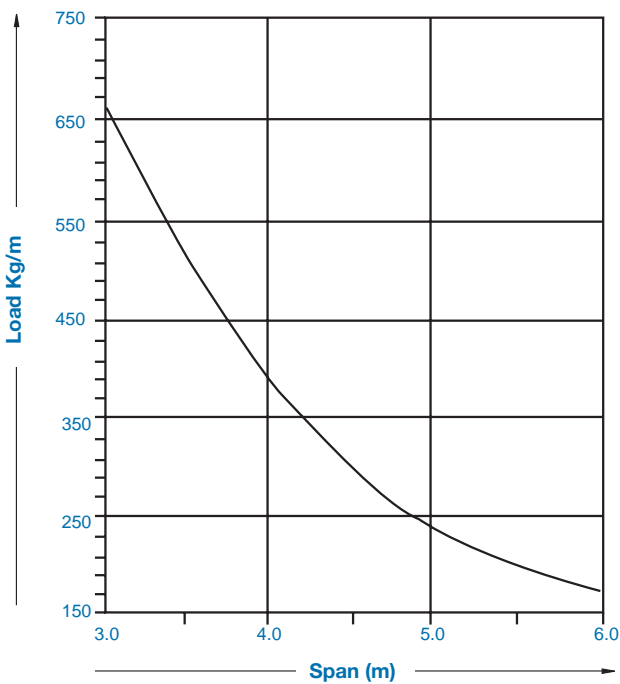
Cable Depth: 128mm
Loading Data:
 Basic Load Capacity =
 168kg/lin.m on 6m span.
 653kg/lin.m on 3m span.
Length: 6m
Rung Spacing: 300mm nominal

Parts List

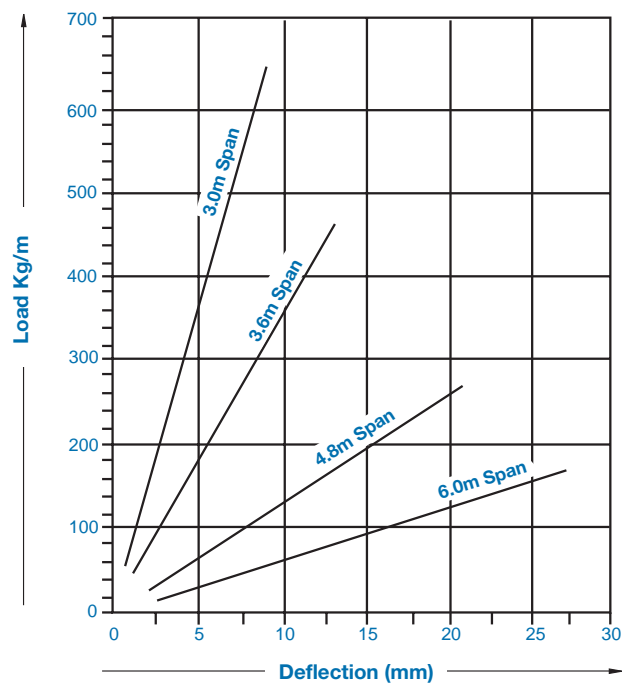
Dim "W"	Type	Part No.
150	20C	LEL101
300	20C	LEL103
450	20C	LEL104
600	20C	LEL106
150	20C-RI	LEL101R
300	20C-RI	LEL103R
450	20C-RI	LEL104R
600	20C-RI	LEL106R

Note: Fire rated to AS/NZS3013: 1995
Appendix B - Classification WS5X - Refer
 to your local Service Centre for load ratings
 and correct installation procedures.

Allowable Load Graph



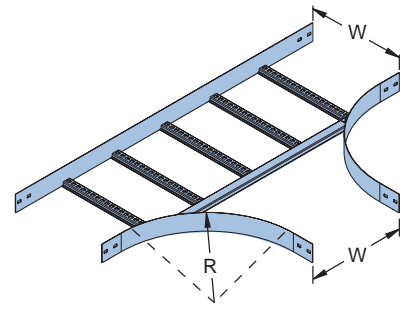
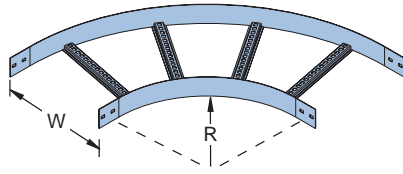
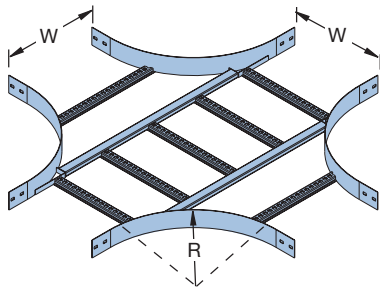
Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
 Safety factor = 1.5 on collapse load for single span.

Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Electrical - Steel Shaped Accessories



Cross

Type	Rad "R"	Width "W"	Code No.
12A/12B	300	150	LEE181
12A/12B	300	300	LEE183
12A/12B	300	450	LEE184
12A/12B	300	600	LEE186
16A	450	150	LEG181
16A	450	300	LEG183
16A	450	450	LEG184
16A	450	600	LEG186
20B	600	150	LEK181
20B	600	300	LEK183
20B	600	450	LEK184
20B	600	600	LEK186
20C	600	150	LEL181
20C	600	300	LEL183
20C	600	450	LEL184
20C	600	600	LEL186

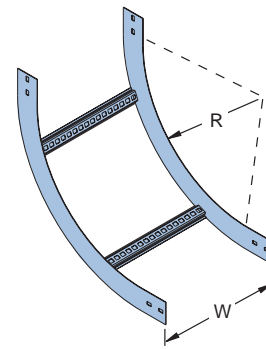
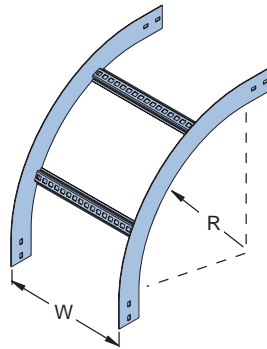
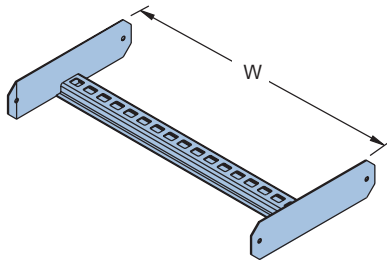
Flat Bend - 90°

Type	Rad "R"	Width "W"	Code No.
12A/12B	300	150	LEE111
12A/12B	300	300	LEE113
12A/12B	300	450	LEE114
12A/12B	300	600	LEE116
16A	450	150	LEG111
16A	450	300	LEG113
16A	450	450	LEG114
16A	450	600	LEG116
20B	600	150	LEK111
20B	600	300	LEK113
20B	600	450	LEK114
20B	600	600	LEK116
20C	600	150	LEL111
20C	600	300	LEL113
20C	600	450	LEL114
20C	600	600	LEL116

Tee

Type	Rad "R"	Width "W"	Code No.
12A/12B	300	150	LEE191
12A/12B	300	300	LEE193
12A/12B	300	450	LEE194
12A/12B	300	600	LEE196
16A	450	150	LEG191
16A	450	300	LEG193
16A	450	450	LEG194
16A	450	600	LEG196
20B	600	150	LEK191
20B	600	300	LEK193
20B	600	450	LEK194
20B	600	600	LEK196
20C	600	150	LEL191
20C	600	300	LEL193
20C	600	450	LEL194
20C	600	600	LEL196

Electrical - Steel Shaped Accessories



Adjustable Riser

Type	Width "W"	Part No.
12A/12B	150	LEE141
12A/12B	300	LEE143
12A/12B	450	LEE144
12A/12B	600	LEE146
16A	150	LEG141
16A	300	LEG143
16A	450	LEG144
16A	600	LEG146
20B	150	LEK141
20B	300	LEK143
20B	450	LEK144
20B	600	LEK146
20C	150	LEL141
20C	300	LEL143
20C	450	LEL144
20C	600	LEL146

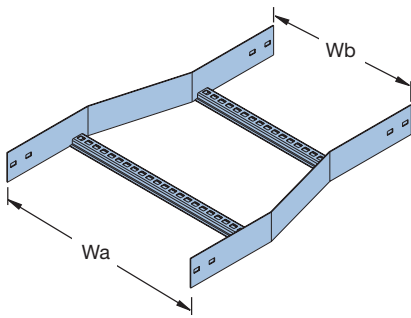
External Riser - 90°

Type	Rad "R"	Width "W"	Part No.
12A/12B	300	150	LEE131
12A/12B	300	300	LEE133
12A/12B	300	450	LEE134
12A/12B	300	600	LEE136
16A	450	150	LEG131
16A	450	300	LEG133
16A	450	450	LEG134
16A	450	600	LEG136
20B	600	150	LEK131
20B	600	300	LEK133
20B	600	450	LEK134
20B	600	600	LEK136
20C	600	150	LEL131
20C	600	300	LEL133
20C	600	450	LEL134
20C	600	600	LEL136

Internal Riser - 90°

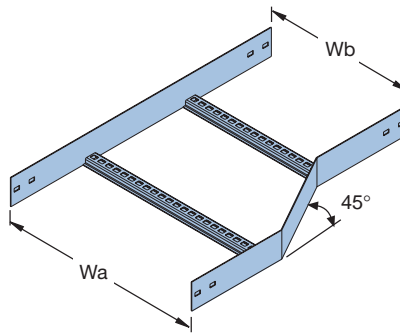
Type	Rad "R"	Width "W"	Part No.
12A/12B	300	150	LEE121
12A/12B	300	300	LEE123
12A/12B	300	450	LEE124
12A/12B	300	600	LEE126
16A	450	150	LEG121
16A	450	300	LEG123
16A	450	450	LEG124
16A	450	600	LEG126
20B	600	150	LEK121
20B	600	300	LEK123
20B	600	450	LEK124
20B	600	600	LEK126
20C	600	150	LEL121
20C	600	300	LEL123
20C	600	450	LEL124
20C	600	600	LEL126

Electrical - Steel Shaped Accessories



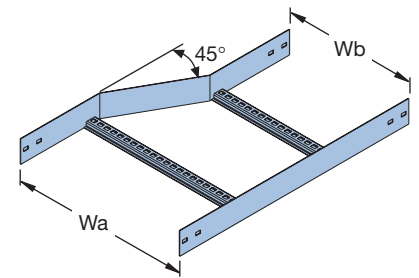
Straight Reducer

Type	Wa	Wb	Part No.
12A/12B	600	450	LEE1564
12A/12B	600	300	LEE1563
12A/12B	600	150	LEE1561
12A/12B	450	300	LEE1543
12A/12B	450	150	LEE1541
12A/12B	300	150	LEE1531
16A	600	450	LEG1564
16A	600	300	LEG1563
16A	600	150	LEG1561
16A	450	300	LEG1543
16A	450	150	LEG1541
16A	300	150	LEG1531
20B	600	450	LEK1564
20B	600	300	LEK1563
20B	600	150	LEK1561
20B	450	300	LEK1543
20B	450	150	LEK1541
20B	300	150	LEK1531
20C	600	450	LEL1564
20C	600	300	LEL1563
20C	600	150	LEL1561
20C	450	300	LEL1543
20C	450	150	LEL1541
20C	300	150	LEL1531



Offset Reducer LH

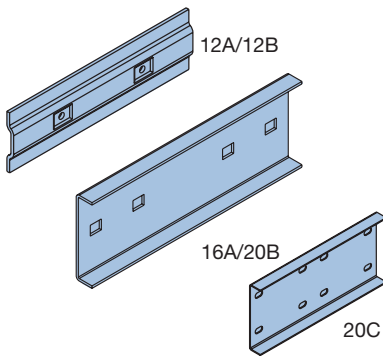
Type	Wa	Wb	Part No.
12A/12B	600	450	LEE1764
12A/12B	600	300	LEE1763
12A/12B	600	150	LEE1761
12A/12B	450	300	LEE1743
12A/12B	450	150	LEE1741
12A/12B	300	150	LEE1731
16A	600	450	LEG1764
16A	600	300	LEG1763
16A	600	150	LEG1761
16A	450	300	LEG1743
16A	450	150	LEG1741
16A	300	150	LEG1731
20B	600	450	LEK1764
20B	600	300	LEK1763
20B	600	150	LEK1761
20B	450	300	LEK1743
20B	450	150	LEK1741
20B	300	150	LEK1731
20C	600	450	LEL1764
20C	600	300	LEL1763
20C	600	150	LEL1761
20C	450	300	LEL1743
20C	450	150	LEL1741
20C	300	150	LEL1731



Offset Reducer RH

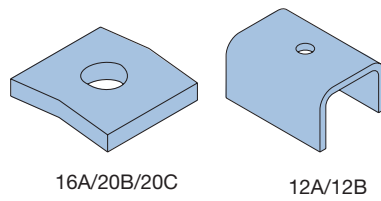
Type	Wa	Wb	Part No.
12A/12B	600	450	LEE1664
12A/12B	600	300	LEE1663
12A/12B	600	150	LEE1661
12A/12B	450	300	LEE1643
12A/12B	450	150	LEE1641
12A/12B	300	150	LEE1631
16A	600	450	LEG1664
16A	600	300	LEG1663
16A	600	150	LEG1661
16A	450	300	LEG1643
16A	450	150	LEG1641
16A	300	150	LEG1631
20B	600	450	LEK1664
20B	600	300	LEK1663
20B	600	150	LEK1661
20B	450	300	LEK1643
20B	450	150	LEK1641
20B	300	150	LEK1631
20C	600	450	LEL1664
20C	600	300	LEL1663
20C	600	150	LEL1661
20C	450	300	LEL1643
20C	450	150	LEL1641
20C	300	150	LEL1631

Electrical - Steel Shaped Accessories



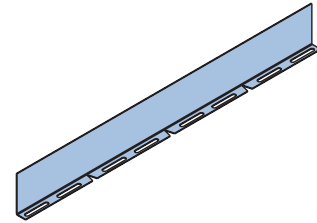
Splice Plate

Type	Part No.
12A/12B	LEE30
16A	LEG30
20B	LEK30
20C	LEL30



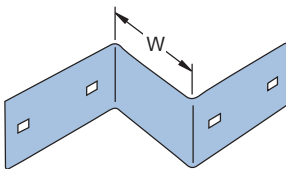
Hold Down Bracket

Type	Part No.
12A/12B	LEE50
16A, 20B, 20C	LEG50



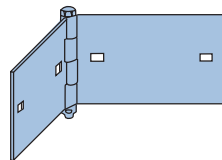
Divider Strip

Type	Part No.
12A/12B	LEE55
16A	LEM55
20B	LEM55
20C	LEM55



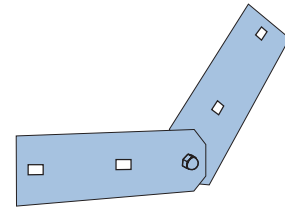
Reducer Splice

Type	Width (mm)	Part No.
12A/12B	75	LEE380
12A/12B	150	LEE381
12A/12B	300	LEE383
12A/12B	450	LEE384
16A	75	LEG380
16A	150	LEG381
16A	300	LEG383
16A	450	LEG384
20B	75	LEK380
20B	150	LEK381
20B	300	LEK383
20B	450	LEK384
20C	75	LEL380
20C	150	LEL381
20C	300	LEL383
20C	450	LEL384



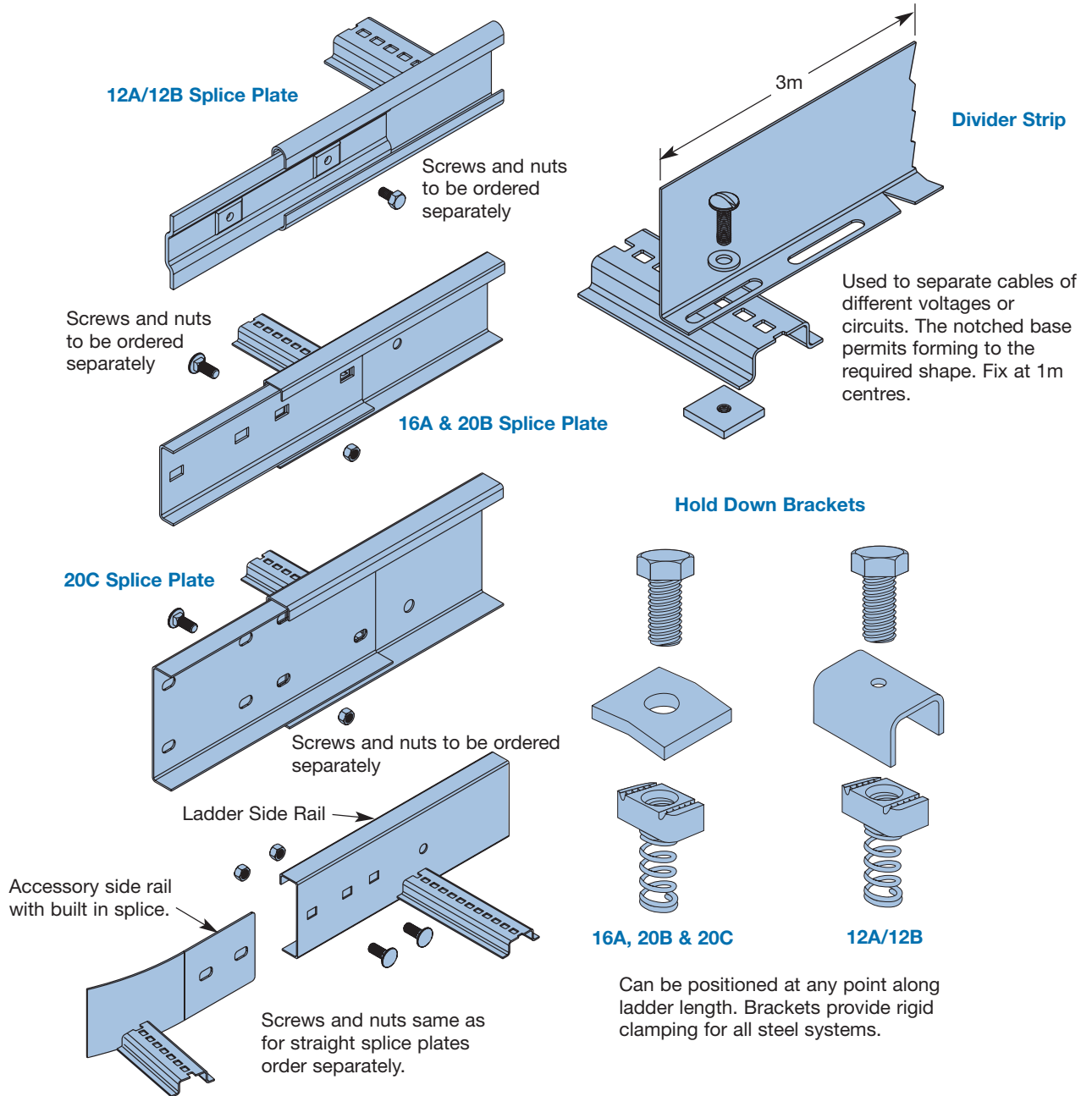
Hinged Horizontal Splice

Type	Part No.
12A/12B	LEE35
16A	LEG35
20B	LEK35
20C	LEL35



Hinged Vertical

Type	Part No.
12A/12B	LEE36
16A	LEG36
20B	LEK36
20C	LEL36



Fasteners

Type	Description	Part No.
12A/12B	Splice Screw	LEE42
12A/12B	Hold Down Bracket Screw	LEE52
12A/12B	Hold Down Bracket Nut	P1007H
12A/12B	Divider Strip Screw	PHS0620
12A/12B	Divider Strip Washer	FW06
12A/12B	Divider Strip Nut	P3016
16A, 20B, 20C	Splice Screw	LEG40
16A, 20B, 20C	Splice Nut	LEG41
16A, 20B, 20C	Hold Down Bracket Screw	HHS1230H
16A, 20B, 20C	Hold Down Bracket Nut	P1010H
16A, 20B, 20C	Divider Strip Screw	PHS0620
16A, 20B, 20C	Divider Strip Washer	FW06
16A, 20B, 20C	Divider Strip Nut	P3016

Aluminium Cable Ladder (ACL)

Wherever severe corrosion conditions are present, or a long maintenance free life is required, Unistrut aluminium cable ladder systems are the obvious choice.

Unistrut manufactures a complete range of NEMA Aluminium cable ladder systems. These provide a wide range of load and span combinations to suit the requirements of almost any installation.

Most frequently, aluminium cable ladders are selected because of their excellent performance in marine environments where salt spray or salt laden atmosphere is present. Applications such as wharves, coal loader conveyors or similar port facilities as well as coal mines, smelters, chemical processing plants and refineries are all typical users of aluminium cable ladders.

Splice Plates

The unique Unistrut aluminium system splice plate is close fitting and shaped so that it is retained neatly and firmly between mating flanges incorporated in the ladder side-rails. Initial deflection or "take-up" of the joint under load is thereby minimised, resulting in a tidy and rigid installation, free from excessive sag at splice points.

The splice design also permits up to 20mm of expansion and contraction movement at each joint – an important consideration with aluminium cable ladders – eliminates the need to place special expansion splices at predetermined intervals. The installation procedure for the splice connection is fast and simple.

Notes

To attain maximum working load of the system, the following recommendations should be adopted:

- Do not splice single spans of ladder.
 - Avoid splice joints in the vicinity of the end supports on continuous runs.
 - Avoid splice joints directly over intermediate supports on continuous runs.
 - Locate splice joints at the quarter span point between supports on continuous runs.
- If in doubt, please consult your Unistrut Service Centre.*

Accessories

All aluminium cable ladder systems are complemented by a full range of standardised fabricated accessories and fittings which are readily available.

Built-in Splice

The principal feature of all Unistrut cable ladder accessories is the 'built-in' plate. A shaped extension of the accessory side-rail permits direct connection to the straight ladder, eliminating the need for a separate splice component.

The advantages of this method are:

- Minimised fixing hardware and components.
- When joining to a cut ladder, the accessory end acts as a convenient drill template for bolt holes.
- Simplified pre-planning, quantity take-offs and ordering.
- No left-over components.
- Strong and rigid joint.
- Faster installation.

Accessories are attached with the same fasteners as used for straight splice plates.

Elongated slots allow easier fit-up and permit adjustments in alignment to be absorbed.

Hold-Down Brackets

The general purpose hold-down bracket can be positioned at any point along ladder length, even in the situation where a rung and support member coincide. The bracket provides a large bearing area for the side-rail and permits free expansion movement to occur.

For side mounted ladders, or where rigid fixing of ladder is required, the rigid clamping bracket can be used.

Construction

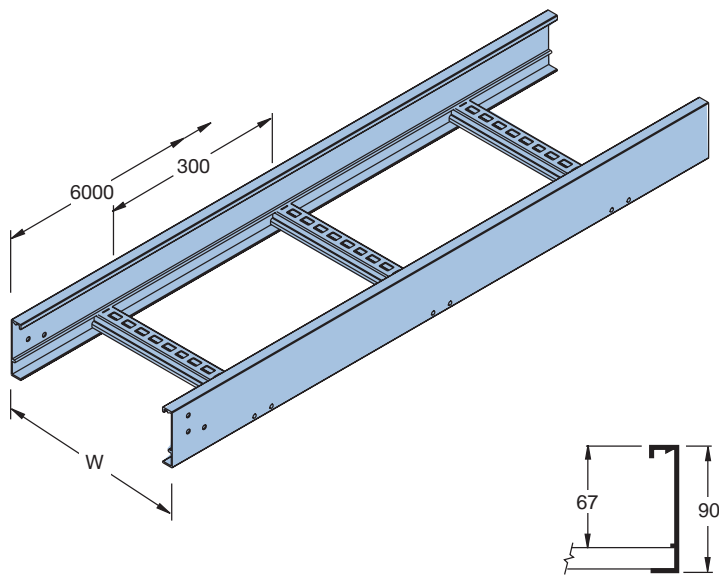
Unistrut aluminium cable ladder systems are manufactured from high strength alloy 6106-T6 for all extruded components and 5005 for sheet or plate components. These alloys are suitable for marine applications and offer excellent all round corrosion resistance. All fasteners are made from 300 series grade of stainless steel for optimum corrosion resistance.

Each rung on 12A, 20A and 20C is attached to the side-rails with four stainless steel screws. In both assembly methods rung ends are held captive between flanges extruded into the side-rail, resulting in a strong and reliable connection.

C.K.D. Feature

Aluminium cable ladders with screwed rungs are also available in C.K.D. (completely knocked down) which provides a particular advantage when on-site assembly is necessary and in freight savings for remote areas.

Electrical - Cable Ladder Nema 12A Aluminium



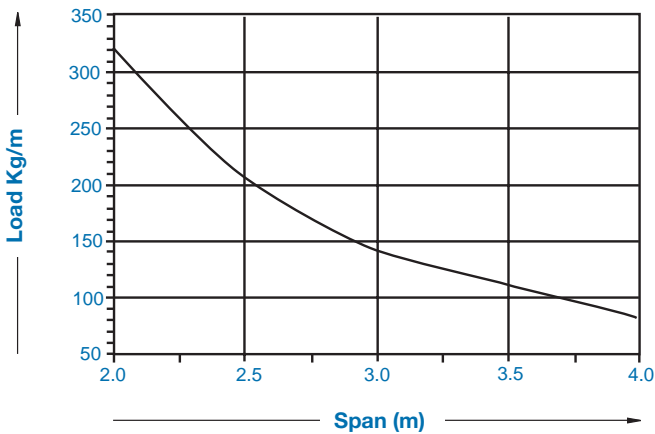
Technical Data

Cable Depth: 67mm
Loading Data:
 Basic Load Capacity =
 98kg/lin.m on 3.6m span.
 322kg/lin.m on 2.0m span.
Length: 6m
Rung Spacing: 300mm nominal

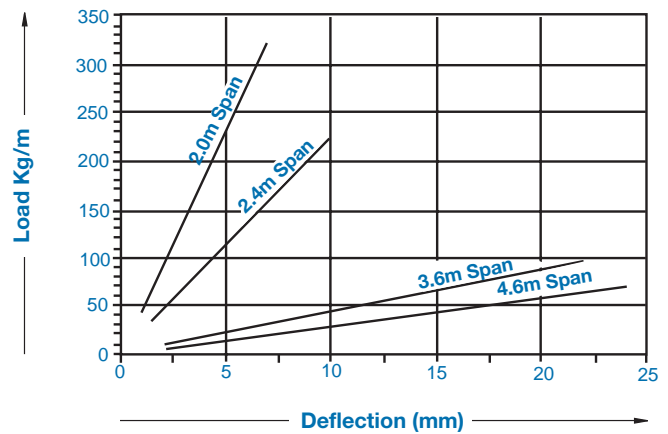
Parts List

Dim "W"	Type	Part No.
150	12A	LAD101
300	12A	LAD103
450	12A	LAD104
600	12A	LAD106

Allowable Load Graph



Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
 Safety factor = 1.5 on collapse load for single span.

Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Technical Data

Cable Depth: 96mm

Loading Data:

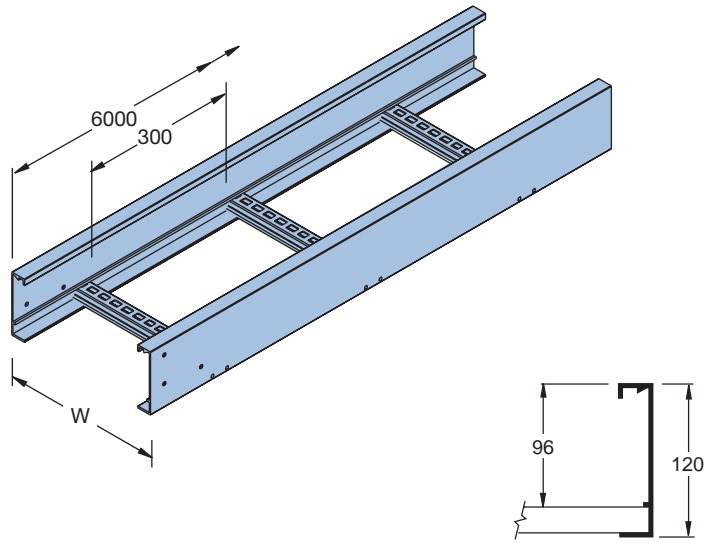
Basic Load Capacity =

90kg/lin.m on 6.0m span.

352kg/lin.m on 3.0m span.

Length: 6m

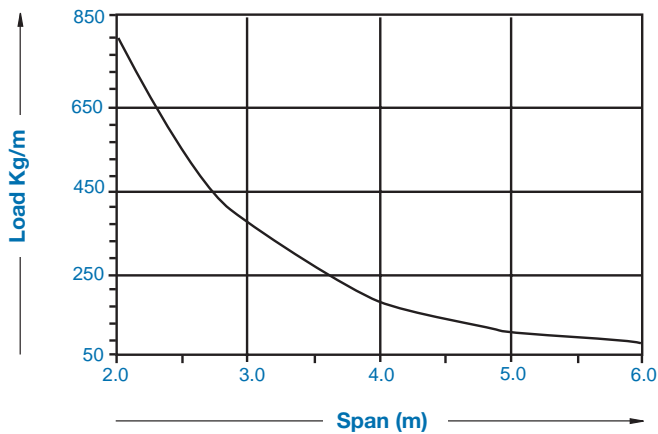
Rung Spacing: 300mm nominal



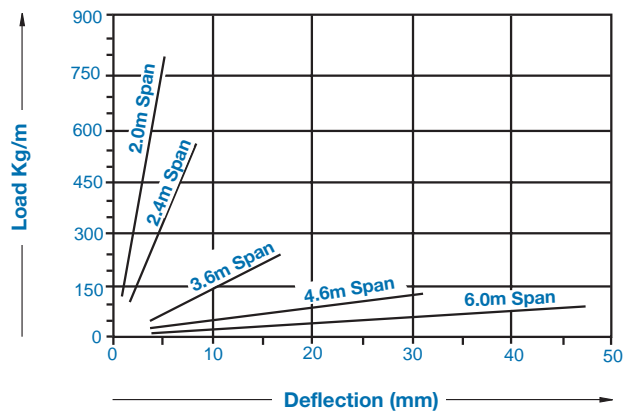
Parts List

Dim "W"	Type	Code No.
150	20A	LAJ101
300	20A	LAJ103
450	20A	LAJ104
600	20A	LAJ106

Allowable Load Graph



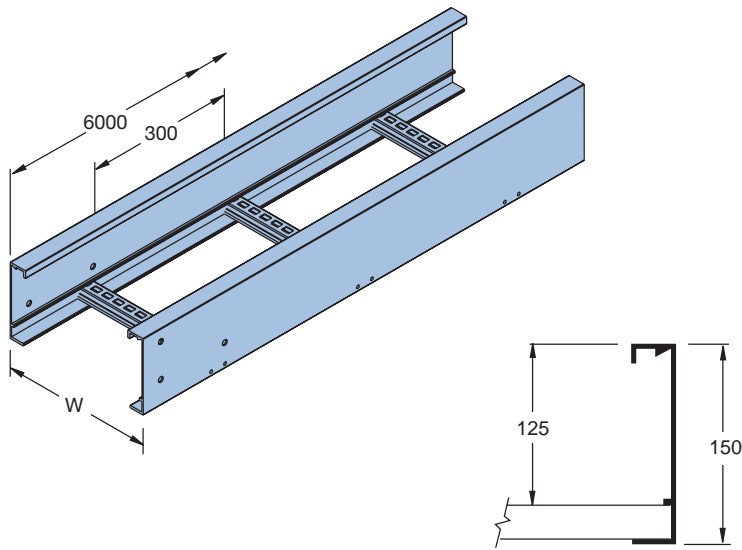
Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
Safety factor = 1.5 on collapse load for single span.

Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Electrical - Cable Ladder Nema 20C Aluminium



Technical Data

Cable Depth: 125mm

Loading Data:

Basic Load Capacity =

213kg/lin.m on 6.0m span.

854kg/lin.m on 3.0m span.

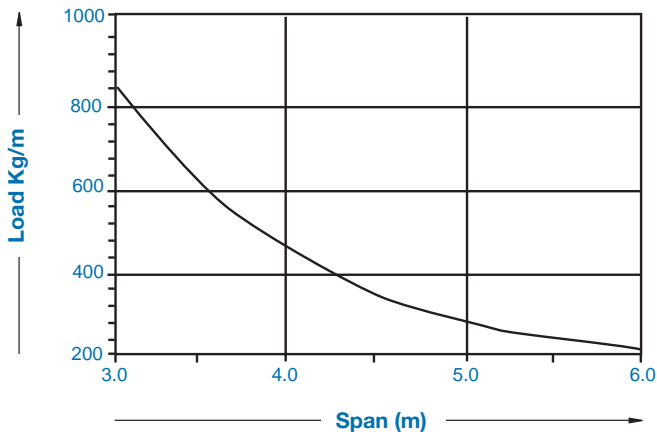
Length: 6m

Rung Spacing: 300mm nominal

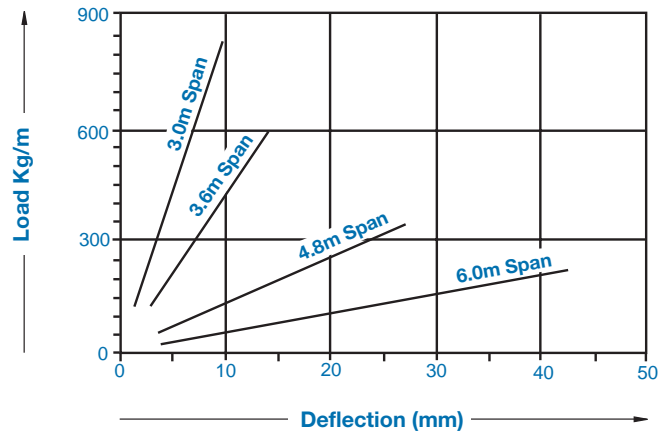
Parts List

Dim "W"	Type	Part No.
150	20C	LAL101
300	20C	LAL103
450	20C	LAL104
600	20C	LAL106

Allowable Load Graph



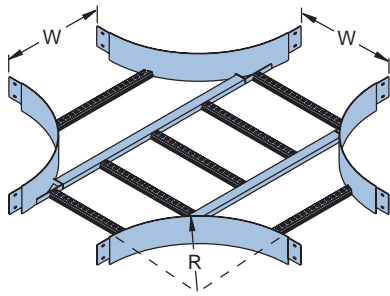
Deflection Graph



Allowable loads are determined generally in accordance with NEMA standard VE 1 and verified by testing.
Safety factor = 1.5 on collapse load for single span.

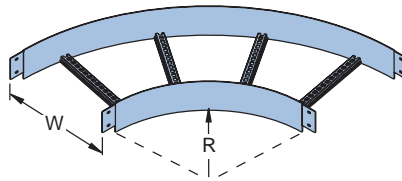
Deflections shown apply to the end-bays (ie. worst case) of a continuous ladder run. To find deflection of a single span, multiply by 2.5.

Electrical - Aluminium Shaped Accessories



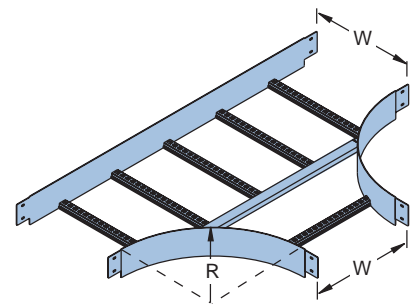
Cross

Type	Rad "R"	Width "W"	Part No.
12A	300	150	LAD181
12A	300	300	LAD183
12A	300	450	LAD184
12A	300	600	LAD186
20A	450	150	LAH181
20A	450	300	LAH183
20A	450	450	LAH184
20A	450	600	LAH186
20C	600	150	LAL181
20C	600	300	LAL183
20C	600	450	LAL184
20C	600	600	LAL186



Flat Bend - 90°

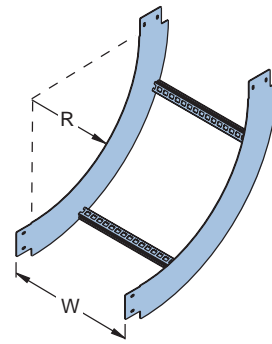
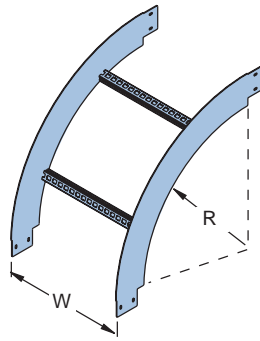
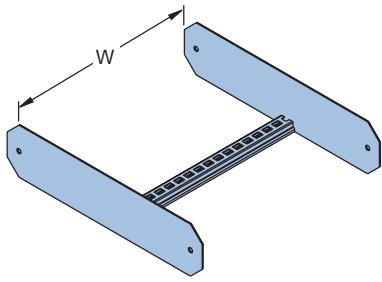
Type	Rad "R"	Width "W"	Part No.
12A	300	150	LAD111
12A	300	300	LAD113
12A	300	450	LAD114
12A	300	600	LAD116
20A	450	150	LAH111
20A	450	300	LAH113
20A	450	450	LAH114
20A	450	600	LAH116
20C	600	150	LAL111
20C	600	300	LAL113
20C	600	450	LAL114
20C	600	600	LAL116



Tee

Type	Rad "R"	Width "W"	Part No.
12A	300	150	LAD191
12A	300	300	LAD193
12A	300	450	LAD194
12A	300	600	LAD196
20A	450	150	LAH191
20A	450	300	LAH193
20A	450	450	LAH194
20A	450	600	LAH196
20C	600	150	LAL191
20C	600	300	LAL193
20C	600	450	LAL194
20C	600	600	LAL196

Electrical - Aluminium Shaped Accessories



Adjustable Riser

Type	Width "W"	Part No.
12A	150	LAD141
12A	300	LAD143
12A	450	LAD144
12A	600	LAD146
20A	150	LAH141
20A	300	LAH143
20A	450	LAH144
20A	600	LAH146
20C	150	LAL141
20C	300	LAL143
20C	450	LAL144
20C	600	LAL146

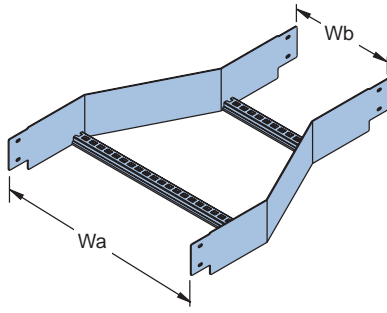
External Riser - 90°

Type	Rad "R"	Width "W"	Part No.
12A	300	150	LAD131
12A	300	300	LAD133
12A	300	450	LAD134
12A	300	600	LAD136
20A	450	150	LAH131
20A	450	300	LAH133
20A	450	450	LAH134
20A	450	600	LAH136
20C	600	150	LAL131
20C	600	300	LAL133
20C	600	450	LAL134
20C	600	600	LAL136

Internal Riser - 90°

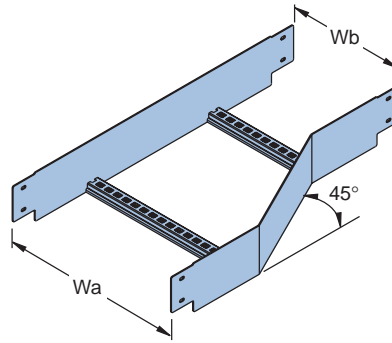
Type	Rad "R"	Width "W"	Part No.
12A	300	150	LAD121
12A	300	300	LAD123
12A	300	450	LAD124
12A	300	600	LAD126
20A	450	150	LAH121
20A	450	300	LAH123
20A	450	450	LAH124
20A	450	600	LAH126
20C	600	150	LAL121
20C	600	300	LAL123
20C	600	450	LAL124
20C	600	600	LAL126

Electrical - Aluminium Shaped Accessories



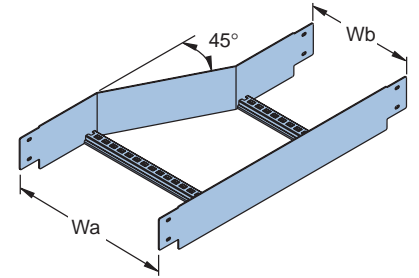
Straight Reducer

Type	Wa	Wb	Part No.
12A	600	450	LAD1564
12A	600	300	LAD1563
12A	600	150	LAD1561
12A	450	300	LAD1543
12A	450	150	LAD1541
12A	300	150	LAD1531
20A	600	450	LAH1564
20A	600	300	LAH1563
20A	600	150	LAH1561
20A	450	300	LAH1543
20A	450	150	LAH1541
20A	300	150	LAH1531
20C	600	450	LAL1564
20C	600	300	LAL1563
20C	600	150	LAL1561
20C	450	300	LAL1543
20C	450	150	LAL1541
20C	300	150	LAL1531



Offset Reducer LH

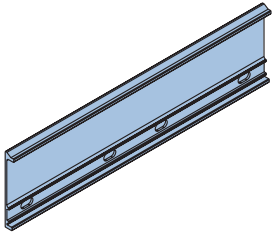
Type	Wa	Wb	Part No.
12A	600	450	LAD1764
12A	600	300	LAD1763
12A	600	150	LAD1761
12A	450	300	LAD1743
12A	450	150	LAD1741
12A	300	150	LAD1731
20A	600	450	LAH1764
20A	600	300	LAH1763
20A	600	150	LAH1761
20A	450	300	LAH1743
20A	450	150	LAH1741
20A	300	150	LAH1731
20C	600	450	LAL1764
20C	600	300	LAL1763
20C	600	150	LAL1761
20C	450	300	LAL1743
20C	450	150	LAL1741
20C	300	150	LAL1731



Offset Reducer RH

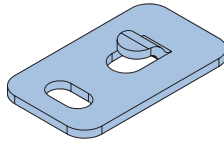
Type	Wa	Wb	Part No.
12A	600	450	LAD1664
12A	600	300	LAD1663
12A	600	150	LAD1661
12A	450	300	LAD1643
12A	450	150	LAD1641
12A	300	150	LAD1631
20A	600	450	LAH1664
20A	600	300	LAH1663
20A	600	150	LAH1661
20A	450	300	LAH1643
20A	450	150	LAH1641
20A	300	150	LAH1631
20C	600	450	LAL1664
20C	600	300	LAL1663
20C	600	150	LAL1661
20C	450	300	LAL1643
20C	450	150	LAL1641
20C	300	150	LAL1631

Electrical - Aluminium Shaped Accessories



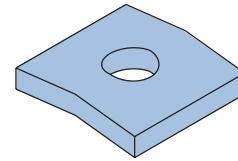
Splice Plate

Type	Part No.
12A	LAD30
20A	LAH30
20C	LAL30



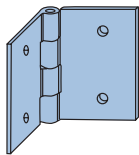
General Hold-Down Bracket

Type	Part No.
12A, 20A	LAD50
20C	LAL50



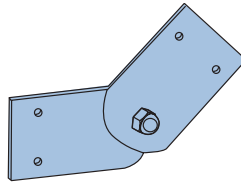
Rigid Hold Down Bracket

Type	Part No.
All Alum. Sys.	LAM50



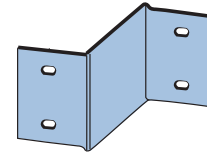
Hinged Horizontal Splice

Type	Part No.
12A	LAD35
20A	LAH35
20C	LAL35



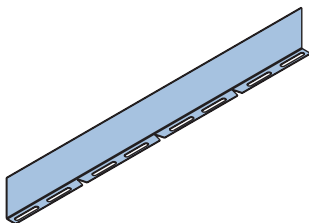
Hinged Vertical Splice

Type	Part No.
12A	LAD36
20A	LAH36
20C	LAL36



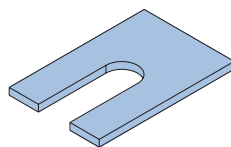
Reducer Splice

Type	Width (mm)	Part No.
12A	75W	LAD380
12A	150W	LAD381
12A	300W	LAD383
20A	75W	LAH380
20A	150W	LAH381
20A	300W	LAH383
20C	75W	LAL380
20C	150W	LAL381
20C	300W	LAL383



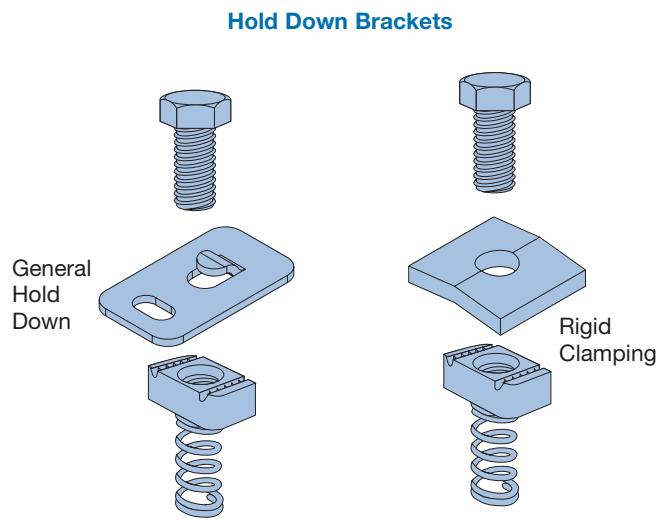
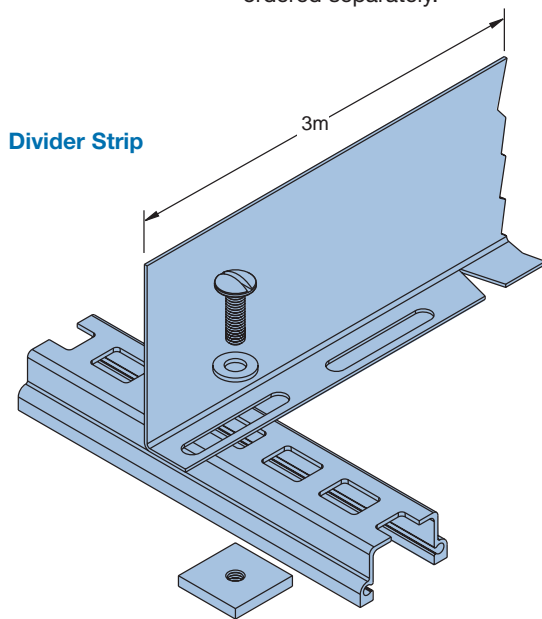
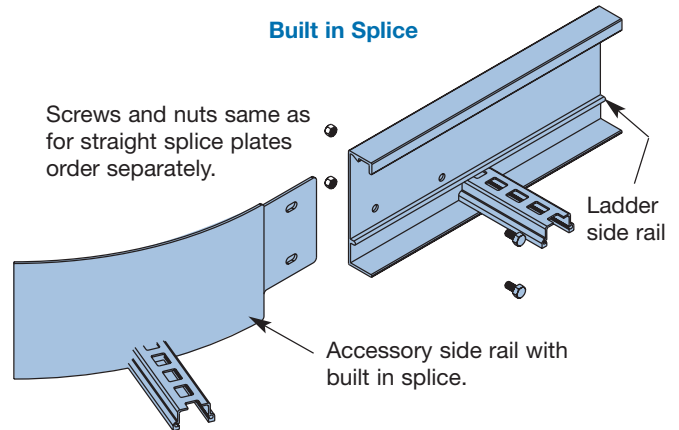
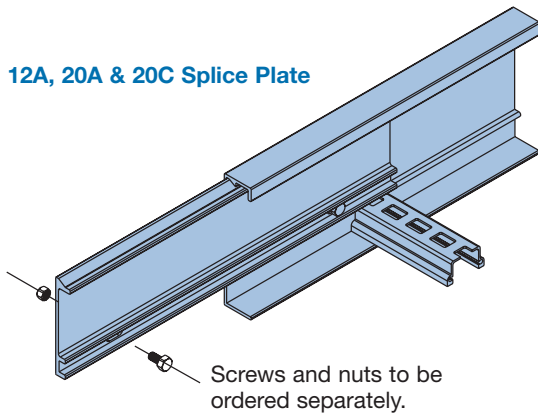
Divider Strip

Type	Part No.
All Alum. Sys.	LAM55



Interface Spacer

Type	Part No.
All Alum. Sys.	LAM54

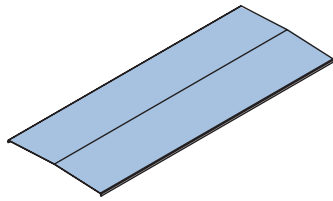


Used to separate cables of different voltages or circuits. The notched base permits forming to the required shape. Fix at 1m centres.

Can be positioned at any point along ladder length. Brackets provide rigid clamping for all aluminium systems.

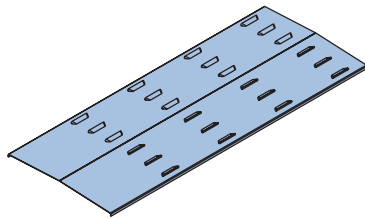
Fasteners

Type	Description	Code No.
12A, 20A	Splice Nut	LAD41
12A, 20A	Splice Screw	LAD42
12A, 20A	General Hold-Down Brkt. Screw	HHS1225SS
12A, 20A	General Hold-Down Brkt. Nut	P1013SS
12A, 20A	General Hold-Down Brkt. Washer	FW12SS
20C	Splice Nut	LAL41
20C	Splice Screw	LAL42
20C	General Hold Down Brkt. Screw	HHS1230SS
20C	General Hold Down Brkt. Nut	P1013SS
20C	General Hold Down Brkt. Washer	FW12SS
All Alum. Sys.	Divider Strip Screw	LAM56
All Alum. Sys.	Divider Strip Washer	FW06SS
All Alum. Sys.	Divider Strip Nut	LAM57
All Alum. Sys.	Rigid Hold Down Brkt. Screw	HHS1230SS
All Alum. Sys.	Rigid Hold Down Brkt. Nut	P1013SS



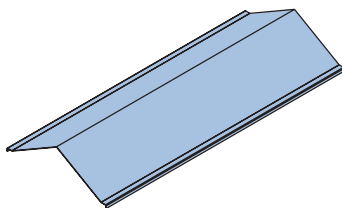
Standard Cover

The most common type used because they afford maximum protection to cables at the lowest cost.



Ventilated Cover

Should be used wherever reasonable protection for cables is required and where there is also a primary requirement to allow for the escape of heat generated by cables.



Peaked Cover

Used in very dusty situations where the self-cleaning effect of sloping sides prevents excessive dust accumulations. The larger air-space above the cables also assists with the dissipation of heat.

Ladder Covers

Covers are normally specified where protection is required:

1. To safeguard against damage to cables and insulation from falling objects - dropped tools, discarded cigarettes, sparks or solid materials.
2. Covers protect cable insulation and fixings (plastic ties etc.) from harmful effects of ultra-violet light and/or weathering deterioration.
3. In areas where high levels of airborne particles are present, covers prevent accumulation of dust or other debris on cables which may cause heat build up, fire hazards or absorb moisture, which may shorten the life of the installation.

Availability

Standard flat covers are available for all Unistrut cable ladder systems. Standard length is 3m. Straight peaked or ventilated covers are available to special order.

Material

Steel Systems: Galvabond, hot-dip galvanised steel sheet to AS 1397.

Aluminium Systems: Aluminium alloy 5005. Suitable for marine applications and compatible with the 6106-T6 used in ladders.

Steel Covers - Standard

Type	Ladder Width	Part No.
12A/12B	150	LEE6013
12A/12B	300	LEE6033
12A/12B	450	LEE6043
12A/12B	600	LEE6063

16A	150	LEG6013
16A	300	LEG6033
16A	450	LEG6043
16A	600	LEG6063

20B, 20C	150	LEK6013
20B, 20C	300	LEK6033
20B, 20C	450	LEK6043
20B, 20C	600	LEK6063

20B-RI, 20C-RI	150	LEM6013
20B-RI, 20C-RI	300	LEM6033
20B-RI, 20C-RI	450	LEM6043
20B-RI, 20C-RI	600	LEM6063

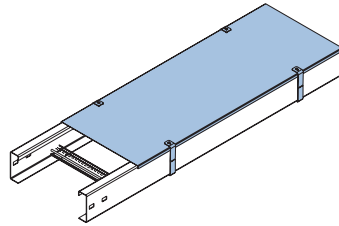
Aluminium Covers - Standard

Type	Ladder Width	Part No.
12A, 20A, 20C	150	LAM6013
12A, 20A, 20C	300	LAM6033
12A, 20A, 20C	450	LAM6043
12A, 20A, 20C	600	LAM6063

Electrical - Steel & Aluminium Ladder Covers Accessories

Cover fixing

Covers are retained in position by means of cover clips as illustrated. Manufactured from high strength stainless steel, these unique clips, which have no threaded components to freeze up, are very quickly installed and are also easily removed or replaced at a later date. One size of clip for each ladder system suits both straight and accessory covers.



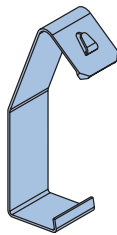
Accessory Covers

Flat covers are available to match shaped accessories of all Unistrut Cable Ladder Systems, in both steel and aluminium. Materials are the same as for straight covers.

Note: Accessory covers are identical for all steel and aluminium cable ladder systems. When ordering, please specify width and radius.

Recommended spacing for cover clips

Service Conditions	Design wind velocity, Vz (AS1170)	Ladder width, mm			
		600	450	300	150
Up to and including exposed external locations	50m/s	1.2m	1.2m	1.2m	1.2m
Cyclonic Areas	65m/s	0.6	0.8	1.2m	1.2m

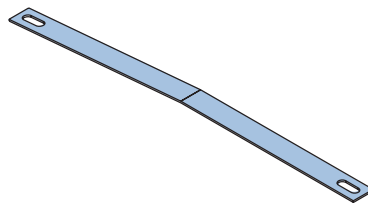


Steel Cover Clips

Type	Part No.
12A/12B	LEE90
16A	LEG90
20B	LEK90
20C	LEL90

Aluminium Cover Clips

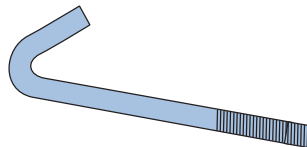
Type	Part No.
12A	LAD90
16A	LAH90
20C	LAL90



Cover Straps

Type	Ladder Width	Part No.
16A	150	LEG931
16A	300	LEG933
16A	450	LEG934
16A	600	LEG936
20B	150	LEK931
20B	300	LEK933
20B	450	LEK934
20B	600	LEK936

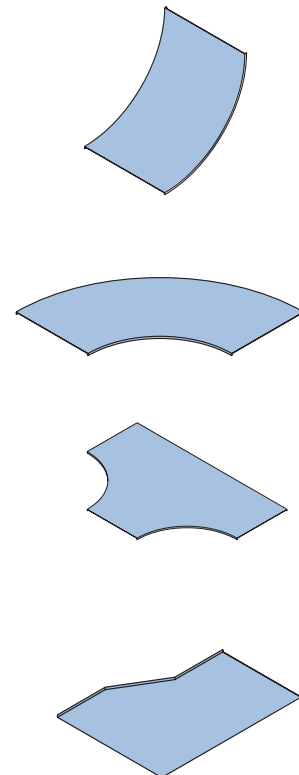
Note: Standard Finish: Hot Dipped Galvanised.



Hook Bolt & Nut

Part No.	Description
F24135MG	Hook Bolt
WN10MG	Wing Nut M10

Note: Standard Finish: Mechanically Galvanised.

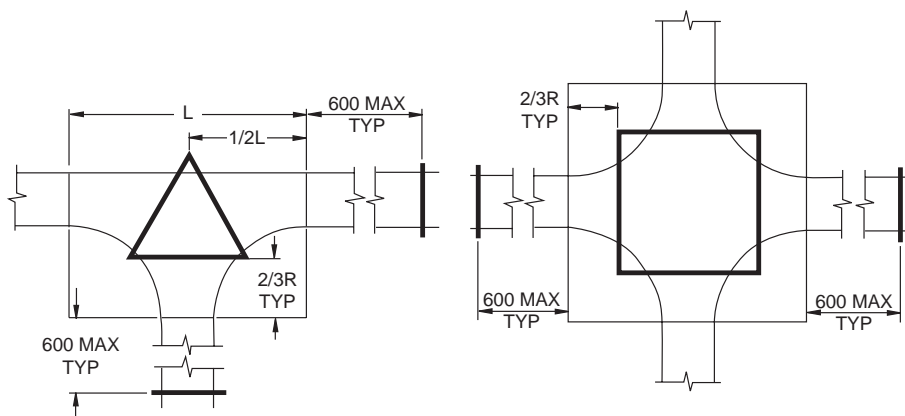


Accessories for all Unistrut cable ladder systems are available in the four standard widths - 150, 300, 450 or 600mm.

System	Std. Radius
12A/B SCL and 12A ACL	300mm
16A SCL and 20A ACL	450mm
20B, 20C SCL and 20C ACL	600mm

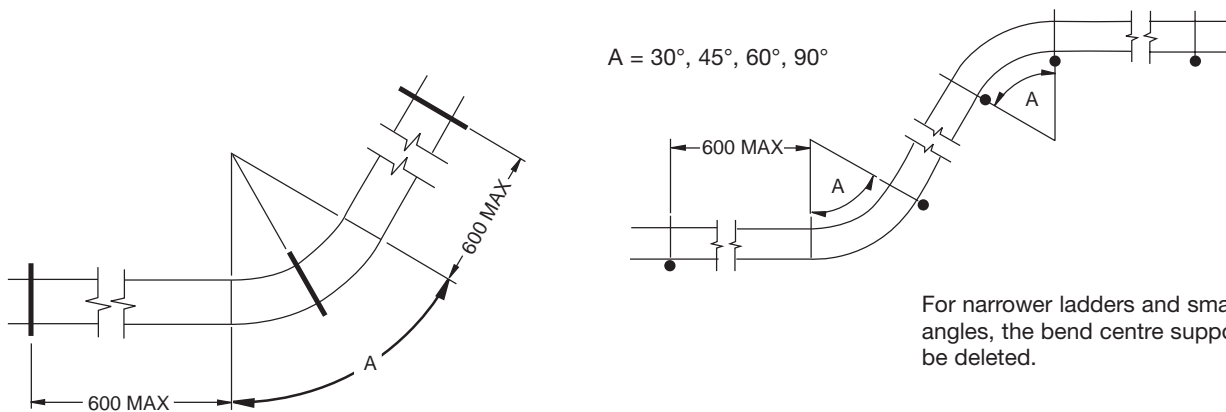
Fixed bends and Internal or External Risers are readily available with a 90° angle. Other angles (30°, 45° or 60°) and other radii (300, 450, 600 or 900mm) can be supplied on special request. The radii also applies to Tees and Crosses. All support locations below are in accordance with NEMA standard VE 1.

Tees and Crosses



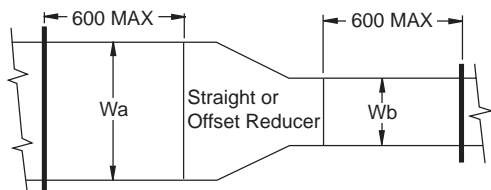
For smaller radius accessories and /or lightly loaded ladders, the support methods shown may be reduced or even eliminated. This is best determined at the point of installation or consult your local Unistrut Service Centre.

Risers and Bends



For narrower ladders and smaller angles, the bend centre support may be deleted.

Straight or Offset Reducer



Straight Reducer plus left and right hand offset reducers are available for all Unistrut Cable Ladder systems.

Major Width: Wa 300, 450, 600, 450, 600, 600
Minor Width: Wb 150, 150, 150, 300, 300, 450

Reducer splice plates are also available for all ladder systems.

Electrical - Accessory Supports

Fixing Hardware

Fasteners required for the fixing of steel and aluminium cable ladder systems.

Fastener Quantity Description - Steel Cable Ladders

Splice Plates	Description	Part No.	Quantity
(Straight, Reducer, H/H, HV) 12A, 12B	Splice Screw (HG)	LEE42	2 per Splice Plate
16A, 16A-RI, 20B, 20B-RI	Splice Screw (HG) Splice Nut (HG)	LEG40 LEG41	4 per Splice Plate
20C, 20C-RI	Splice Screw (HG) Splice Nut (HG)	LEG40 LEG41	8 per Splice Plate
Accessories			
12A, 12B	Splice Screw (HG)	LEE42	4 per Bend, Riser or Reducer. 6 per Tee, 8 per Cross.
16A, 16A-RI, 20B, 20B-RI	Splice Screw (HG) Splice Nut (HG)	LEG40 LEG41	8 per Bend, Riser or Reducer. 12 per Tee, 24 per Cross.
20C, 20C-RI	Splice Screw (HG) Splice Nut (HG)	LEG40 LEG41	16 per Bend, Riser or Reducer. 24 per Tee, 32 per Cross.

Fastener Quantity Description - Aluminium Cable Ladders

Splice Plates	Description	Part No.	Quantity
12A, 20A	Splice Screw (SS)	LAD42	2 per Splice Plate
20C	Splice Screw (SS) Splice Nut (Nyloc SS)	LAL42 LAL41	4 per Splice Plate
Accessories			
12A, 20A	Splice Screw (SS)	LAD42	8 per Bend, Riser or Reducer. 12 per Tee, 16 per Cross.
20C	Splice Screw (SS) Splice Nut (Nyloc SS)	LAL42 LAL41	8 per Bend, Riser or Reducer. 12 per Tee, 16 per Cross.

Cablemesh

Description	Width	Part No.
Straight Tray	150	CM150
Straight Tray	225	CM225
Straight Tray	300	CM300
Straight Tray	450	CM450
Connector (packs of 20)		CM920

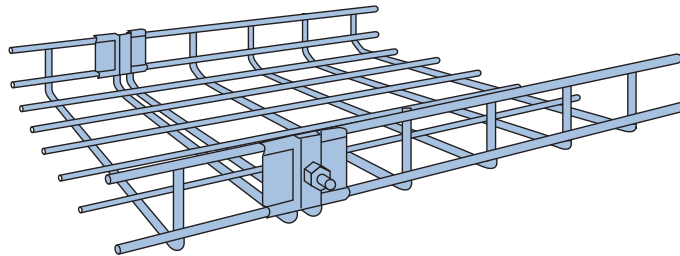
Cablemesh Straight Tray

The straight lengths of tray form the load carrying heart of the Cablemesh system. Precision formed and resistance welded from plain steel rods 5mm in diameter, they constitute a rigid and convenient structure able to support common cable loads over moderate spans. The lateral bars are closely spaced to give effectively continuous cable support and at the same time allow for maximum ventilation. An additional benefit of this style of tray is the virtually unrestricted entry/exit of branch cables from the main cable installation.

- Low initial cost.
- Ease of installation.
- Strong and durable.
- Maximum cable ventilation.
- Will not collect dust or water.
- Accessories fabricated on site.

Standard Finish:

Hot Dipped Galvanised.



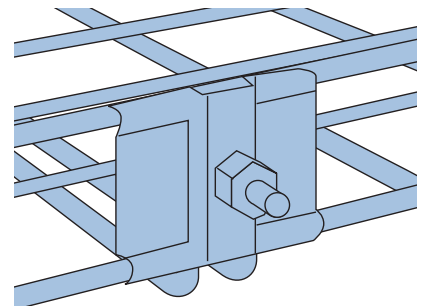
Cablemesh Connector

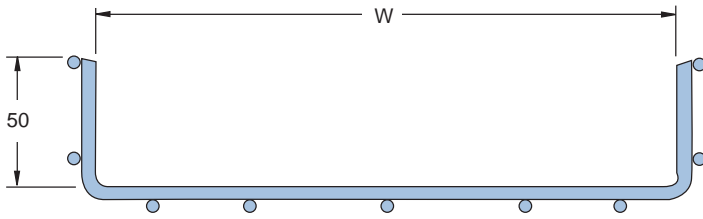
This ingenious little device makes Cablemesh so easy and simple to use. Die-formed from steel for strength, it has a single captive head clamping bolt which makes for easier installation. The connector has a primary use in end to end joining of straight lengths and a secondary use in joining fabricated accessories to complete the Cablemesh tray system.

- Economical
- Universal in use
- No Sharp projections
- Tighten with one hand

Standard Finish:

Hot Dipped Galvanised.





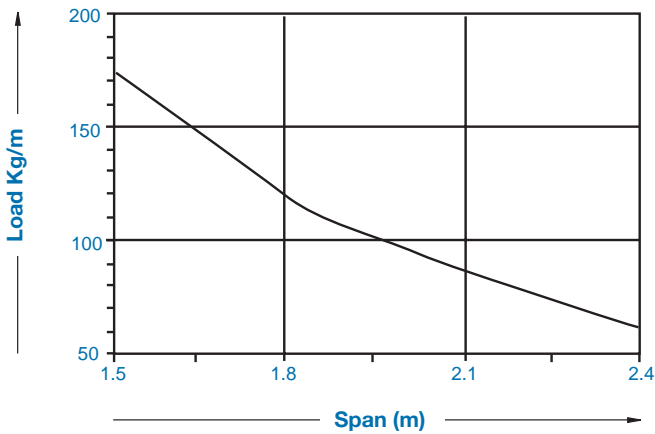
Straight Trays

Length: 2.4m
Widths: 150, 225, 300 or 450mm
Finish: Hot Dipped Galvanised.

Connectors

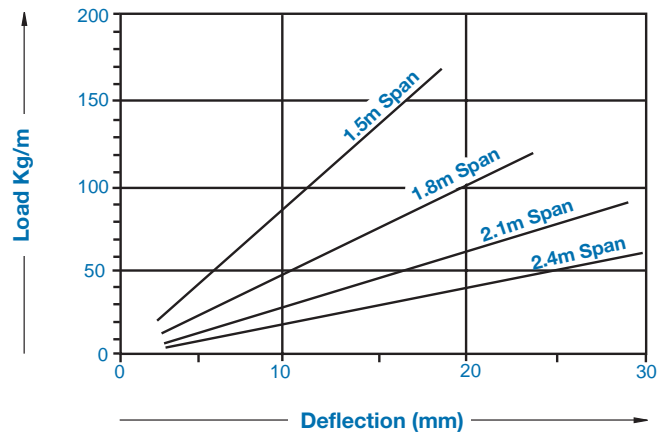
Finish: Hot Dipped Galvanised.
Available in packs of 20, including bolts and nuts.
Connectors are suitable for use in all locations except load-bearing joints in the end-bays of continuous tray runs.

Allowable Load Graph



The maximum allowable loads are determined from the collapse load of a single span, with Safety Factor = 1.5. Optimum span range is 1.8 to 2.1m.

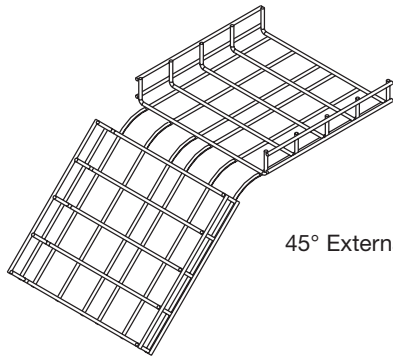
Deflection Graph



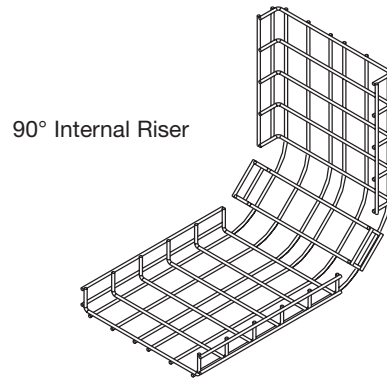
The deflections given are for guidance in tray selection only. Actual deflection may vary up or down according to final installation factors, such as the location of connector joints.

With Cablemesh, tray junctions and changes of direction are readily fabricated at the point of installation. Cutting is simple - using light duty boltcutters - and any bending required can usually be done by hand. The infinite variety of accessory shapes which are possible with Cablemesh make it a truly versatile and economical cable support system.

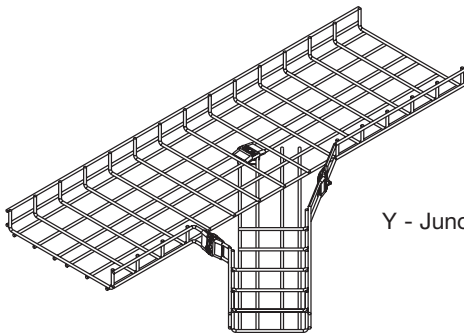
These illustrations suggest just a few of the many ways in which Cablemesh accessories can be constructed.



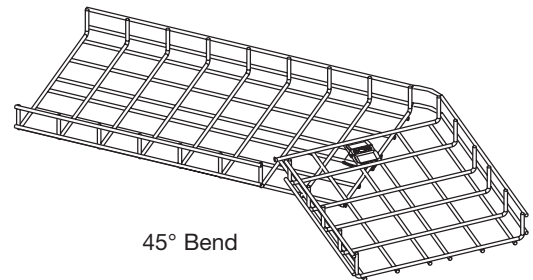
45° External Riser



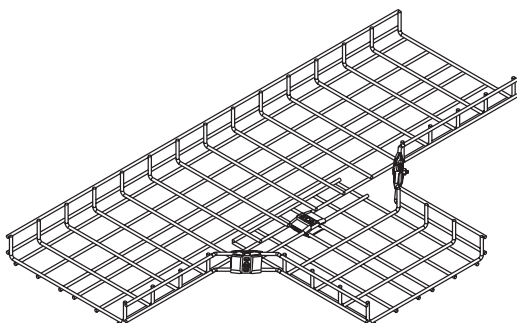
90° Internal Riser



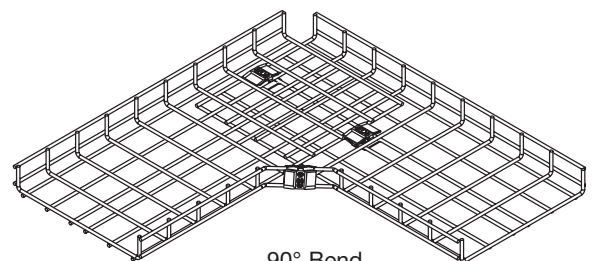
Y - Junction



45° Bend

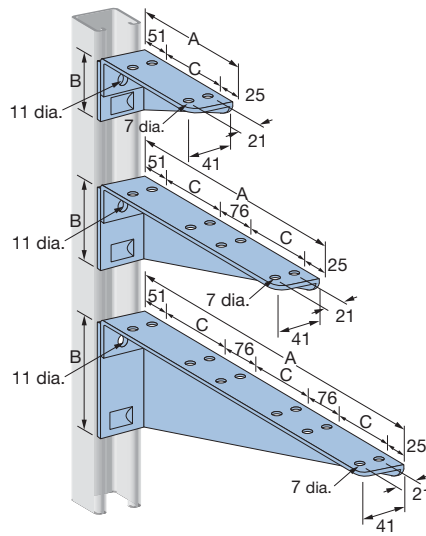


Standard Tee



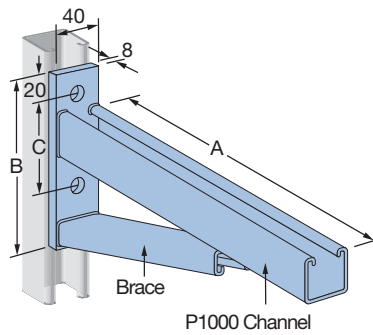
90° Bend

Electrical - Cantilever Brackets



P2491R-L to P2500R-L - Traying Arms

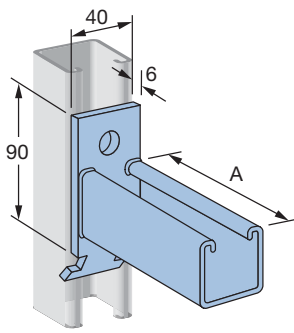
Part No.	A	B	C	Design Uniform LoadkN	Mass Kg/100
P2491R	152	56	76	1.57	30
P2491L	152	56	76	1.57	30
P2494R	305	87	76	1.37	69
P2494L	305	87	76	1.37	69
P2497R	457	125	152	1.01	121
P2497L	457	125	152	1.01	121
P2500R	610	164	127	0.98	182
P2500L	610	164	127	0.98	182



PCL150 to PCL600

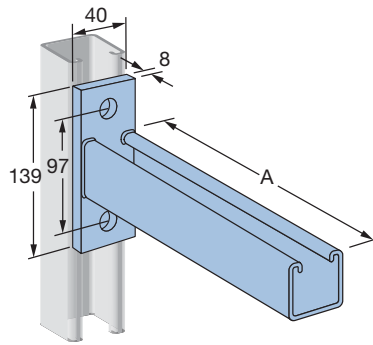
Part No.	A	B	C	Design Uniform LoadkN	Mass Kg/100
PCL150	320	165	86	4.47	170
PCL300	470	165	86	3.17	230
PCL450	635	215	112	3.33	340
PCL600	780	215	112	2.80	380

Electrical - Cantilever Brackets



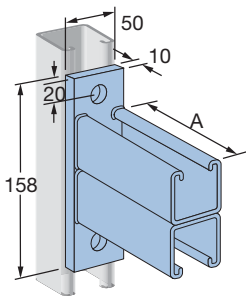
P2513 to P2516

Part No.	Design A	Design	
		Uniform LoadkN	Mass kg/100
P2513	250	1.77	91
P2514	400	1.10	128
P2515	550	0.80	177
P2516	700	0.62	216



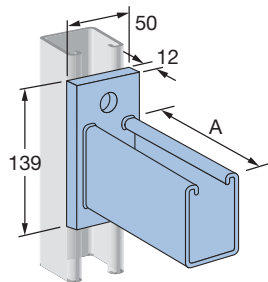
P2663-250 to P2663-700

Part No.	Design A	Design	
		Uniform LoadkN	Mass kg/100
P2663-250	250	3.01	102
P2663-400	400	1.88	143
P2663-550	550	1.36	186
P2663-700	700	1.06	229



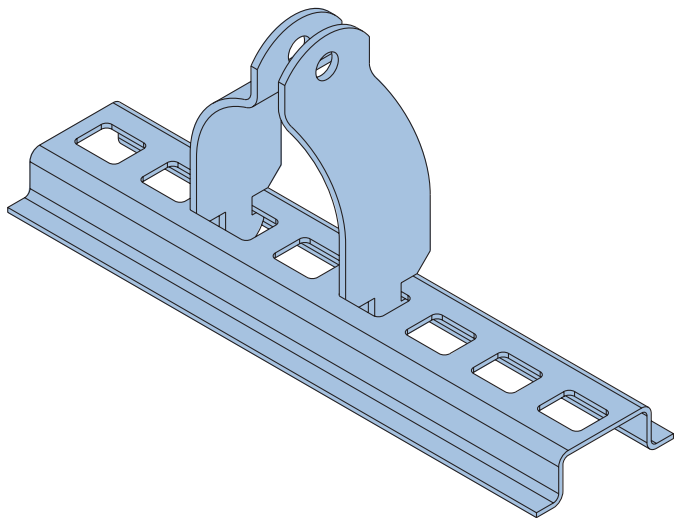
P2542 to P2546

Part No.	Design A	Design	
		Uniform LoadkN	Mass Kg/100
P2542	305	7.57	228
P2543	460	5.22	314
P2544	610	3.98	400
P2545	760	3.21	487
P2546	915	2.67	574



SD150 to SD600

Part No.	Design A	Design	
		Uniform LoadkN	Mass Kg/100
SD150	300	5.83	173
SD300	450	4.07	224
SD450	600	3.11	276
SD600	750	2.51	327



'J' Series Cable Clamp

Part No.	Cable Dia	Mass kg/100
J2029	20-24	4.1
J2030	24-28	4.4
J2031	28-32	5.9
J2032	32-34	6.0
J2033	34-36	6.5
J2034	36-39	6.8
J2035	39-43	7.3
J2036	43-47	7.6
J2037	47-49	11.4
J2038	49-51	11.6
J2039	51-54	12.2
J2040	54-57	12.4
J2041	57-61	13.1
J2042	61-64	13.6
J2043	64-69	14.0
J2044	69-72	14.5

Standard Finish: Galvabond

Note: Cable clamp to suit type 3 cable ladder rung.

Notes to Table

Note 1: Loads are governed by shear or web crippling.
Note 2: For uniform beam working loads asymmetric sections are required to be adequately braced to prevent rotation and twist.

Beam Loads

The loads and deflections shown are based on simply supported beams uniformly loaded. For other loading configurations refer to Reference Tables (Table 1) in this Tab Section.

Structural Data

1. Section Properties

Section properties have been derived from 'as formed' shapes and are based on nominal dimensions and nominal base steel thickness. Nominal masses are calculated from the tabulated areas based on a steel density of 7850 kg per cu.m. For dead load calculations the tabulated masses should be increased by 10% to allow for rolling tolerances, and the result multiplied by 0.0098 to give corresponding dead load (self weight) in kN per m. run of section. Also note the beam and column loads do not make allowance for self weight of the section. When designing a structure in which the section forms an integral part, the self weight should be determined using the method described above and subtracted from the tabulated load.

2. Beam and Column Load Tables

Ultimate load values have been calculated from the section properties as permitted by AS/NZS 4600 Cold Formed Steel Structures code. The guaranteed minimum yield stress F_y has been taken as 210MPa for plain channels, and the increase allowed resulting from cold forming has been determined in accordance with the code. The listed working loads have been derived from the ultimate load divided by 1.5.

2.1 Span or Column Length

Listed value is to be taken as the distance between centres of supports.

2.2 Beam Load at Maximum Permissible Stresses

In order to establish the table of working loads that can be carried by the corresponding section, the ultimate limit state loads that could be permitted by the code were first determined. These were divided by 1.5 to provide 'conservative' working loads. The load is considered to be uniformly distributed along the span and orientated with respect to the section, as defined by the diagrams to cause bending about X-X axis only. The webs of the beams are assumed to be unstiffened and have been checked for end bearing in accordance with clause 3.3.6 of AS/NZS4600:1996. Where this is critical the working loads have been appropriately reduced. This assessment has been based on a rigid support with the beam bearing on each support for a length equal to at least the straight length of web-depth of the basic section.

2.3 Deflection

Deflections are calculated for the corresponding beam working load, using standard formulae. Deflections or uniformly distributed loads for conditions other than those tabulated may be calculated from the following:-

$$\delta_2 = \frac{W_2}{W_1} \left[\frac{L_2}{L_1} \right]^3 \delta_1$$

where:

- W_1 tabulated load in kN
- δ_1 corresponding tabulated deflection in mm
- L_1 corresponding tabulated length in mm
- W_2 new load
- L_2 new length
- δ_2 deflection corresponding to new length and new load

It is recommended that beam deflections generally be limited to the smaller of span/180 or 10mm and loads restricted accordingly. These limitations are based on 'visual straightness' with the latter value subject to variation to suit particular visual or other physical requirements.

2.4 Maximum Column Load

Listed values of column load capacity are derived on the basis of a concentric axial load applied to the section, acting as a column with an effective length corresponding to the listed value, i.e. translational and torsional restraint available at the centres of supports. For other conditions of loading and/or restraint, reference should be made to the appropriate sections of AS/NZS 4600 Cold Formed Steel Structures.

3. Recommended Bearing & Connection Loads

Listed values are based on extensive testing of components by Unistrut Australia Pty Limited using a factor of safety of 2.5 against failure of the connection.

4. Point Loads

For point loads at midspan, the allowable loads are half the values shown in the tables. The deflection for the point load is obtained from: $\delta_2 = 0.80 \delta_1$ where δ_1 is the deflection for a uniform load which is double the value of the point load.

Engineering Data - P1000

Channel and Combination

Beams and Columns

Beam Span or Column Unsupported		Uniform Beam Working Load	Deflection at Uniform Working Load	Max. Loading of Column	Beam Span or Column Unsupported		Uniform Beam Working Load	Deflection at Uniform Working Load	Max. Loading of Column
Height mm	Section Number	kN	mm	kN	Height mm	Section Number	kN	mm	kN
250	P1000	14.83	0.22	45.51	1750	P1000	2.12	10.71	11.00
	P1001	25.64	0.08	97.71		P1001	5.60	6.13	53.40
	P1001-3	27.90	0.02	146.48		P1001-3	13.58	4.02	80.11
	P1001C3	25.64	0.05	145.92		P1001C3	7.98	5.25	83.31
	P1001C41	25.64	0.04	195.70		P1001C41	12.09	6.13	123.36
	P1003	17.46	0.15	78.01		P1003	2.49	7.25	37.16
	P1004A	26.33	0.02	157.31		P1004A	16.30	3.72	103.39
500	P1000	7.42	0.87	36.84	2000	P1000	1.85	13.99	9.35
	P1001	19.58	0.50	94.09		P1001	4.90	8.01	44.21
	P1001-3	27.90	0.19	141.13		P1001-3	11.88	5.25	66.33
	P1001C3	25.64	0.39	138.70		P1001C3	6.98	6.86	72.48
	P1001C41	25.64	0.30	188.76		P1001C41	10.58	8.01	109.59
	P1003	8.73	0.59	74.48		P1003	2.18	9.48	29.41
	P1004A	26.33	0.14	153.24		P1004A	14.26	4.86	90.69
750	P1000	4.94	1.97	28.22	2250	P1000	1.65	17.70	8.05
	P1001	13.06	1.13	88.35		P1001	4.35	10.13	35.62
	P1001-3	27.90	0.65	132.53		P1001-3	10.56	6.65	53.44
	P1001C3	18.61	0.96	128.60		P1001C3	6.20	8.68	62.04
	P1001C41	25.64	1.02	178.34		P1001C41	9.41	10.13	96.41
	P1003	5.82	1.33	68.94		P1003	1.94	11.99	23.24
	P1004A	26.33	0.47	146.68		P1004A	12.68	6.15	78.16
1000	P1000	3.71	3.50	21.44	2500	P1000	1.48	21.85	7.01
	P1001	9.79	2.00	80.90		P1001	3.92	12.51	28.85
	P1001-3	23.76	1.31	121.36		P1001-3	9.50	8.21	43.29
	P1001C3	13.96	1.72	117.29		P1001C3	5.58	10.72	52.11
	P1001C41	21.16	2.00	165.65		P1001C41	8.47	12.51	83.93
	P1003	4.36	2.37	61.87		P1003	1.75	14.81	18.82
	P1004A	26.33	1.12	137.97		P1004A	11.41	7.59	66.20
1250	P1000	2.97	5.46	16.42	2750	P1000	1.35	26.44	6.14
	P1001	7.83	3.13	72.23		P1001	3.56	15.14	23.85
	P1001-3	19.01	2.05	108.36		P1001-3	8.64	9.93	35.78
	P1001C3	11.17	2.68	105.77		P1001C3	5.08	12.97	44.05
	P1001C41	16.93	3.13	151.78		P1001C41	7.70	15.13	72.11
	P1003	3.49	3.70	53.84		P1003	3.56	15.14	23.85
	P1004A	22.82	1.90	127.53		P1004A	10.37	9.19	55.06
1500	P1000	2.47	7.87	13.20	3000	P1000	1.24	31.47	0.00
	P1001	6.53	4.50	62.89		P1001	3.26	18.02	20.04
	P1001-3	15.84	2.95	94.35		P1001-3	7.92	11.82	30.07
	P1001C3	9.31	3.86	94.42		P1001C3	4.65	15.44	37.67
	P1001C41	14.11	4.50	137.52		P1001C41	7.05	18.01	62.18
	P1003	2.91	5.33	45.43		P1003	1.45	21.32	0.00
	P1004A	19.02	2.73	115.84		P1004A	9.51	10.93	46.27

Note:

The table should be read in conjunction with 'Notes on Derivation of Structural Data' and 'How to use Load Tables' in this Tab Section.

Engineering Data - P1000

Channel and Combination

Elements of Section

Part No.	Mass kg/m	Area of Section mm ²	Axis XX			Axis YY		
			I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm	I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm
P1000	2.59	330	0.069	2.920	14.5	0.092	4.451	16.7
P1001	5.18	660	0.318	7.711	22.0	0.184	8.902	16.7
P1001-3	7.78	991	1.178	18.713	34.5	0.276	13.365	16.7
P1001C3	7.78	991	0.530	10.995	23.1	0.576	13.945	24.1
P1001D3	7.77	991	0.481	10.203	22.0	0.557	13.491	23.7
P1001C41	10.38	1322	0.688	16.670	22.8	0.931	22.546	26.5
P1003	4.55	580	0.120	3.771	14.4	0.300	6.007	22.8
P1004A	9.12	1162	1.529	24.660	36.3	0.424	18.336	19.1

Note:

I - Moment of Inertia

Z - Section Modulus

r - Radius of Gyration

For Slip and Pullout Performance details refer to this Tab Section.

Beam and Columns

Beam Span or Column Unsupported		Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN	Beam Span or Column Unsupported		Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN
Height mm	Section Number				Height mm	Section Number			
250	P2000	10.30	0.20	32.92	1750	P2000	1.73	11.54	5.56
	P2001	11.78	0.05	70.84		P2001	4.75	6.35	38.39
	P2001C3	11.77	0.03	106.31		P2001C3	6.24	5.53	59.16
500	P2000	6.06	0.94	26.55	2000	P2000	1.27 (2)	8.41	5.46
	P2001	11.78	0.37	68.18		P2001	3.48 (2)	4.63	31.77
	P2001C3	11.77	0.24	101.69		P2001C3	4.01 (2)	3.97	58.18
750	P2000	4.04	2.12	19.21	2250	P2000	1.35	19.07	4.02
	P2001	11.09	1.17	63.96		P2001	3.70	10.50	25.48
	P2001C3	11.77	0.24	94.74		P2001C3	4.85	9.13	43.10
1000	P2000	3.03	3.77	12.91	2500	P2000	1.21	23.55	3.53
	P2001	8.32	2.07	58.50		P2001	3.33	12.96	20.64
	P2001C3	10.91	1.80	86.31		P2001C3	4.37	11.28	36.13
1250	P2000	2.42	5.89	9.03	2750	P2000	1.10	28.49	3.14
	P2001	6.65	3.24	52.15		P2001	3.02	15.68	17.06
	P2001C3	8.73	2.82	77.21		P2001C3	3.97	13.64	30.72
1500	P2000	2.02	8.48	6.89	3000	P2000	1.01	33.91	2.82
	P2001	5.54	4.67	45.32		P2001	2.77	18.66	14.33
	P2001C3	7.28	4.06	68.03		P2001C3	3.64	16.24	26.44

Note:

The table should be read in conjunction with 'Notes on Derivation of Structural Data' and 'How to use Load Tables' in this Tab Section.

Elements of Section

Part No.	Mass kg/m	Area of Section mm ²	Axis XX			Axis YY		
			I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm	I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm
P2000	1.79	228	0.052	2.297	15.2	0.065	3.143	16.9
P2001	3.63	462	0.261	6.321	23.8	0.131	6.367	16.9
P2001C3	5.46	695	0.394	8.302	23.8	0.418	8.410	24.5

Note:

I - Moment of Inertia

Z - Section Modulus

r - Radius of Gyration

For Slip and Pullout Performance details, refer to this Tab Section.

Beams and Columns

Beam Span or Column Unsupported Height mm	Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN	Beam Span or Column Unsupported Height mm	Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN
250	P3300	5.52	0.42	34.88	1750	P3300	0.79	20.63	0.00
	P3301	15.58	0.25	73.20		P3301	2.23	12.32	20.21
500	P3300	2.76	1.68	27.76	2000	P3300	0.69	26.95	0.00
	P3301	7.79	1.01	67.32		P3301	1.95	16.09	15.47
750	P3300	1.84	3.79	19.42	2250	P3300	0.61	34.11	0.00
	P3301	5.19	2.26	58.55		P3301	1.73	20.36	12.22
1000	P3300	1.38	6.74	12.08	2500	P3300	0.55	42.11	0.00
	P3301	3.90	4.02	48.16		P3301	1.56	25.13	0.00
1250	P3300	1.10	10.53	7.90	2750	P3300	0.50	50.95	0.00
	P3301	3.12	6.28	37.47		P3301	1.42	30.41	0.00
1500	P3300	0.92	15.16	5.56	3000	P3300	0.46	60.63	0.00
	P3301	2.60	9.05	27.50		P3301	1.30	36.19	0.00

Note:

The table should be read in conjunction with 'Notes on Derivation of Structural Data' and 'How to use Load Tables' in this Tab Section.

Elements of section

Part No.	Mass kg/m	Area of Section mm ²	Axis XX			Axis YY		
			I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm	I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm
P3300	1.82	232	0.013	0.999	7.6	0.055	2.661	15.4
P3301	3.65	465	0.063	2.841	11.6	0.110	5.329	15.4

Note:

I - Moment of Inertia
Z - Section Modulus
r - Radius of Gyration

For Slip and Pullout Performance details, refer to this Tab Section.

Beams and Columns

Beam Span or Column Unsupported Height mm	Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN	Beam Span or Column Unsupported Height mm	Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN
250	P4000	4.20	0.44	22.36	1750	P4000	0.60	21.69	0.00
	P4001	10.39	0.24	49.05		P4001	1.59	12.67	14.00
	P4003	11.16	0.06	73.53		P4003	4.30	8.35	26.45
	P4002-1	4.71	0.25	51.41		P4002-1	0.67	12.10	0.00
500	P4000	2.10	1.77	16.30	2000	P4000	0.52	28.33	0.00
	P4001	5.55	1.03	45.24		P4001	1.39	16.54	10.72
	P4003	11.16	0.51	68.80		P4003	3.76	10.90	20.25
	P4002-1	2.35	0.99	42.12		P4002-1	0.59	15.81	0.00
750	P4000	1.40	3.98	10.46	2250	P4000	0.47	35.86	0.00
	P4001	3.70	2.33	39.54		P4001	1.23	20.94	8.47
	P4003	10.02	1.53	62.23		P4003	3.34	13.80	16.01
	P4002-1	2.35	0.99	42.12		P4002-1	0.52	20.01	0.00
1000	P4000	1.05	7.08	6.54	2500	P4000	0.42	44.27	0.00
	P4001	2.78	4.14	32.74		P4001	1.11	25.85	0.00
	P4003	7.52	2.73	53.62		P4003	3.01	17.04	12.97
	P4002-1	1.18	3.95	18.99		P4002-1	0.47	24.70	0.00
1250	P4000	0.84	11.07	4.54	2750	P4000	0.38	53.57	0.00
	P4001	2.22	6.46	25.69		P4001	1.01	31.28	0.00
	P4003	6.01	4.26	44.23		P4003	2.73	20.61	0.00
	P4002-1	0.94	6.18	12.16		P4002-1	0.43	29.89	0.00
1500	P4000	0.70	15.94	3.35	3000	P4000	0.35	63.57	0.00
	P4001	1.85	9.31	19.06		P4001	0.93	37.22	0.00
	P4003	5.01	6.13	34.96		P4003	2.51	24.53	0.00
	P4002-1	0.78	8.89	0.00		P4002-1	0.39	35.57	0.00

Note:

The table should be read in conjunction with 'Notes on Derivation of Structural Data' and 'How to use Load Tables' in this Tab Section.

Elements of Section

Part No.	Mass kg/m	Area of Section mm ²	Axis XX			Axis YY		
			I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm	I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm
P4000	1.26	160	0.010	0.786	7.8	0.039	1.880	15.6
P4001	2.51	320	0.044	2.082	11.7	0.078	3.764	15.6
P4002-1	3.22	410	0.019	1.036	6.9	0.247	4.946	24.6
P4003	3.77	480	0.180	5.636	19.3	0.083	4.002	13.1

Note:

I - Moment of Inertia
Z - Section Modulus
r - Radius of Gyration

For Slip and Pullout Performance details, refer to this Tab Section.

Beams and Columns

Beam Span or Column Unsupported Height		Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN	Beam Span or Column Unsupported Height		Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN
mm	mm					mm	mm			
250	P5500	27.04	0.14	57.03	2250	P5500	3.08	11.59	8.72	
	P5501	27.04	0.03	122.16		P5501	9.11	6.43	50.48	
500	P5500	13.84	0.57	45.91	2500	P5500	2.77	14.31	7.81	
	P5501	27.04	0.21	118.17		P5501	8.20	7.93	41.04	
750	P5500	9.23	1.29	33.78	2750	P5500	2.52	17.31	7.06	
	P5501	27.04	0.71	111.82		P5501	7.46	9.60	33.92	
1000	P5500	6.92	2.29	23.85	3000	P5500	2.31	20.61	6.43	
	P5501	20.50	1.27	103.50		P5501	6.83	11.42	28.50	
1250	P5500	5.54	3.58	17.38	3250	P5500	2.13	24.18	5.89	
	P5501	16.40	1.98	93.71		P5501	6.31	13.41	24.28	
1500	P5500	4.61	5.15	13.76	3500	P5500	1.98	28.05	0.00	
	P5501	13.67	2.86	82.98		P5501	5.86	15.55	0.00	
1750	P5500	3.95	7.01	11.48	3750	P5500	1.85	32.20	0.00	
	P5501	11.72	3.89	71.88		P5501	5.47	17.85	0.00	
2000	P5500	3.46	9.16	9.89	4000	P5500	1.73	36.63	0.00	
	P5501	10.25	5.08	60.91		P5501	5.13	20.31	0.00	

Note:

The table should be read in conjunction with 'Notes on Derivation of Structural Data' and 'How to use Load Tables' in this Tab Section.

Elements of Section

Part No.	Mass kg/m	Area of Section mm ²	Axis XX			Axis YY		
			I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm	I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm
P5500	3.40	433	0.197	5.730	21.3	0.131	6.328	17.4
P5501	6.81	867	1.052	16.990	34.8	0.261	12.662	17.4

Note:

I - Moment of Inertia
Z - Section Modulus
r - Radius of Gyration

For Slip and Pullout Performance details, refer to this Tab Section.

Beams & Columns - A1000

Beam Span or Column Unsupported Height mm	Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN	Beam Span or Column Unsupported Height mm	Section Number	Uniform Beam Working Load kN	Deflection at Uniform Working Load mm	Max. Loading of Column kN
250	A1000	7.36	0.29	26.98	1750	A1000	1.05	14.00	5.12
	A1001	16.17	0.12	59.99		A1001	2.99	7.86	21.58
500	A1000	3.68	1.14	20.05	2000	A1000	0.92	18.29	4.27
	A1001	10.47	0.64	56.28		A1001	2.62	10.27	16.52
750	A1000	2.54	2.57	14.26	2250	A1000	0.82	23.15	0.00
	A1001	6.98	1.44	50.60		A1001	2.33	12.99	13.05
1000	A1000	1.84	4.57	10.19	2500	A1000	0.74	28.58	0.00
	A1001	5.23	2.57	43.60		A1001	2.09	16.04	10.57
1250	A1000	1.47	7.14	7.78	2750	A1000	0.67	34.58	0.00
	A1001	4.19	4.01	36.00		A1001	1.90	19.41	0.00
1500	A1000	1.23	10.29	6.23	3000	A1000	0.61	41.15	0.00
	A1001	3.49	5.78	28.49		A1001	1.74	23.10	0.00

Note:

The table should be read in conjunction with 'Notes on Derivation of Structural Data' and 'How to use Load Tables' in this Tab Section.

Elements of Section

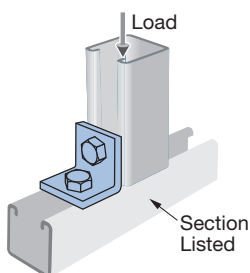
Part No.	Mass kg/m	Area of Section mm ²	Axis XX			Axis YY		
			I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm	I 10 ⁶ mm ⁴	Z 10 ³ mm ³	r mm
A1000	1.62	207	0.026	1.466	11.2	0.034	2.116	12.8
A1001	3.25	414	0.133	4.175	17.9	0.067	4.237	12.8

Note:

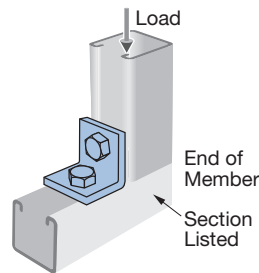
I - Moment of Inertia
Z - Section Modulus
r - Radius of Gyration

For Slip and Pullout Performance details, refer to this Tab Section.

Load data - For Unistrut sections subject to crushing loads



Section A1000
 Recommended Load: 13.3kN
 Safety Factor: 2.5



Section A1000
 Recommended Load: 8.9kN
 Safety Factor: 2.5

Slip and Pullout Performance - Zinc Plated

Channel Type	Nut Type	Pullout (kN)	Slip (kN)	Torque (Nm)
P1000	P1006	7.3	2.7*	9
	P1007	10.1	5.2*	22
	P1008	16.5	8.7*	44
	P1010	16.5	12.9*	77
P2000	P3016	2.1	0.3	9
	P1006	4.8	1.1*	9
	P1007	5.0	4.0*	22
	P1008	10.8	7.1*	37
	P1010	10.8	6.7*	37
P3300	P3016	2.2	0.6	9
	P4006	7.3	2.7*	9
	P4007	10.1	5.2*	22
	P4008	16.5	8.7*	44
	P4010	16.5	12.9*	77
P4000	P3016	2.1	0.3	9
	P4006	4.8	1.1*	9
	P4007	5.0	4.0*	22
	P4008	10.8	7.1*	37
	P4010	10.8	6.7*	37
A1000	A1008	11.3	3.7*	44
P5500	P5508	16.5	8.7*	44
	P5510	16.5	12.9*	77

“Load capacities have been calculated in accordance with the provisions of AS/NZS 4600:1996 “Cold-formed steel structures”, and in particular, Section 6.2.2.7. The bolting system chosen using the data provided in the tables will perform as specified when design, fabrication and erection are carried out in accordance with Unistrut’s recommendations and accepted building practice”.

Note:

To simplify the table, channel nuts with springs only shown with the exception of P3016. Unistrut nuts without springs will have identical performance.

Figures marked with (*) in the table opposite were obtained using high strength (Grade 8.8) screws.

Figures not marked with (*) were obtained using standard strength (Grade 4.6) screws. It should be noted that unless otherwise specified, standard strength screws (Grade 4.6) are supplied.

For Slip Loads using 4.6 Grade Commercial bolts and screws, Contact your local Unistrut Service Centre.

Hot Dipped Galvanised Channel Nuts

- Apply Pullout Loads as listed
- For Slip Loads - refer to your local Unistrut Service Centre.

Slip and Pullout Performance - Stainless Steel

Channel Type	Nut Type	Pullout (kN)	Slip (kN)	Torque (Nm)
P1000SS	P1006SS	5.7	0.4	3.5
	P1007SS	8.2	0.5	8.5
	P1008SS	11.6	1.0	17.0
	P1013SS	12.1	1.2	30.0

Note: Stainless steel grade 316 screws, nuts and channel used to determine loads.

These figures are results obtained from a comprehensive series of tests carried out by a NATA registered laboratory.

For further technical information please contact your nearest Unistrut Service Centre.

Slip and Pullout Performance - Aluminium Load Data

Approximate beam load capacities for channel sections may be obtained from the engineering data sections in this catalogue. Multiply data by the following percentages:

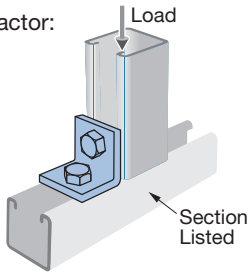
Nut pullout strength and resistance to slip for sections may be obtained from the engineering data sections in this catalogue. Multiply data by the following percentages:

Material	Percentage Factor	Material	Slip Percentage Factor	Pullout Percentage Factor
Extruded Aluminium	38%	Extruded Aluminium	75%	50%

Note: Some fittings, as shown in this catalogue can be supplied in Aluminium on special order.

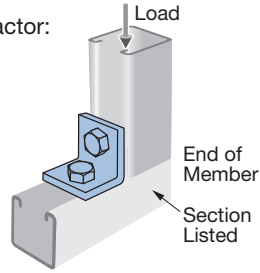
Safe Bearing Loads

Safety Factor:
2.5



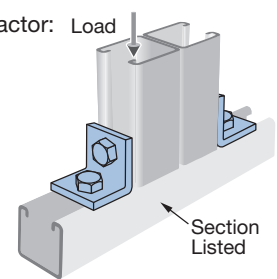
Section	Recommended Load kN
P1000	21.4
P2000	10.8
P3300	25.8
P4000	12.7

Safety Factor:
2.5



Section	Recommended Load kN
P1000	13.5
P2000	6.6
P3300	15.2
P4000	7.2

Safety Factor:
2.5



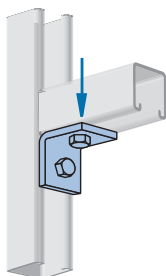
Section	Recommended Load kN
P1000	30.3
P2000	14.6
P3300	50.9
P4000	33.4

Design Load Data - Typical Channel Connections

Safety Factor = 2.5 based on ultimate strength of connection. Load diagrams indicate up to two design loads, one for 2.5mm sections (listed as P1000), and one for 1.6mm sections (P2000). Loads are calculated using high tensile (Grade 8.8) screws.

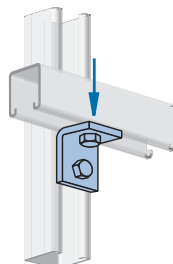
Ninety Degree Fittings - (when used in position shown)

P1026



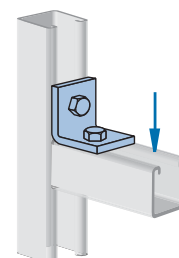
P1000 9.5kN
P2000 4.5kN
Both Ends Supported

P1068



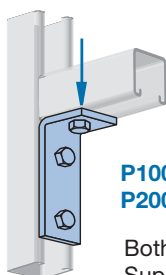
P1000 3.2kN
P2000 3.2kN

P1026



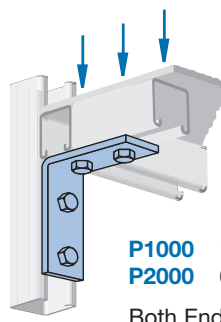
P1000 7.5kN
P2000 2.7kN
Both Ends Supported

P1346



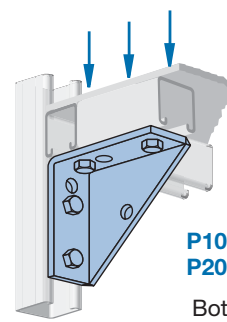
P1000 10.1kN
P2000 5.4kN
Both Ends Supported

P1325



P1000 12.1kN
P2000 6.3kN
Both Ends Supported

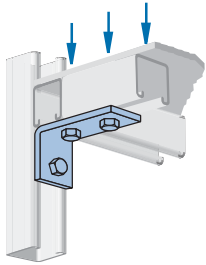
P2484



P1000 18.7kN
P2000 8.5kN
Both Ends Supported

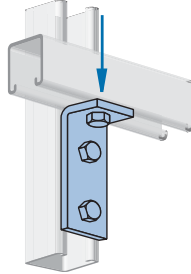
Ninety Degree Fittings - (when used in position shown) continued

P1458



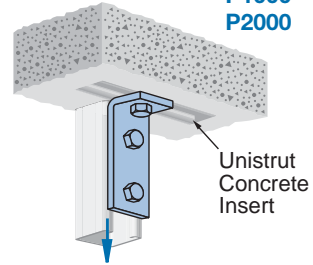
P1000 9.3kN
P2000 6.1kN
Both Ends Supported

P1326



P1000 6.8kN
P2000 4.1kN

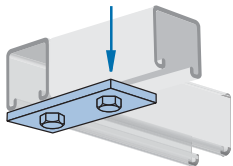
P1346



P1000 6.8kN
P2000 5.9kN

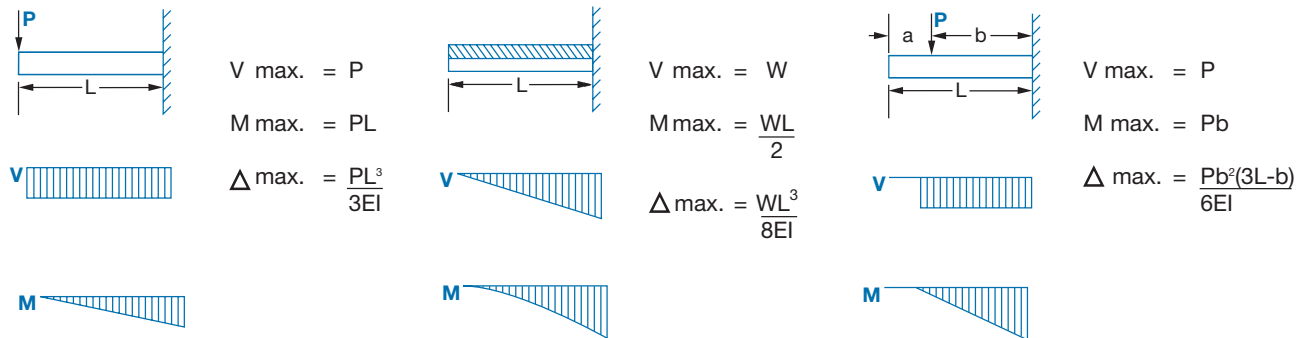
Flat Plate Fittings

P1065

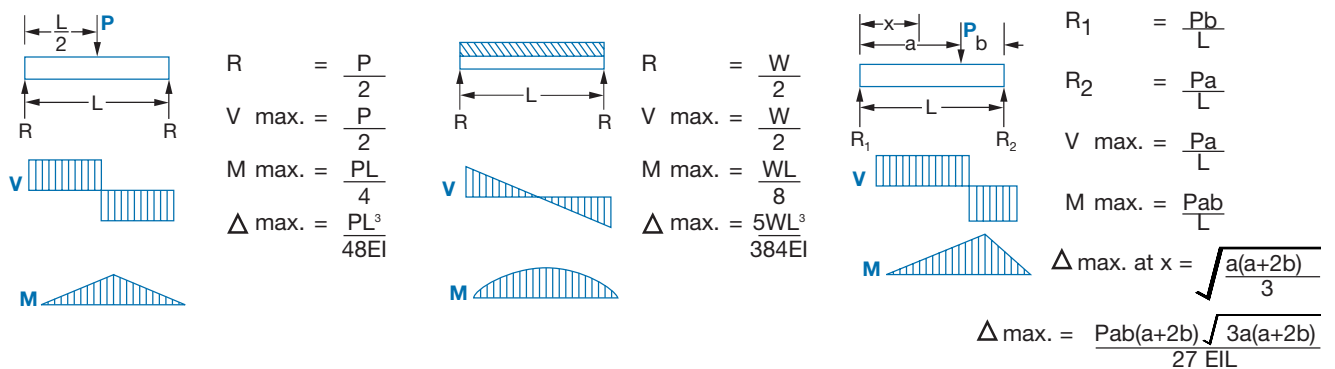


P1000 6.5kN
P2000 2.5kN
Both Ends Supported

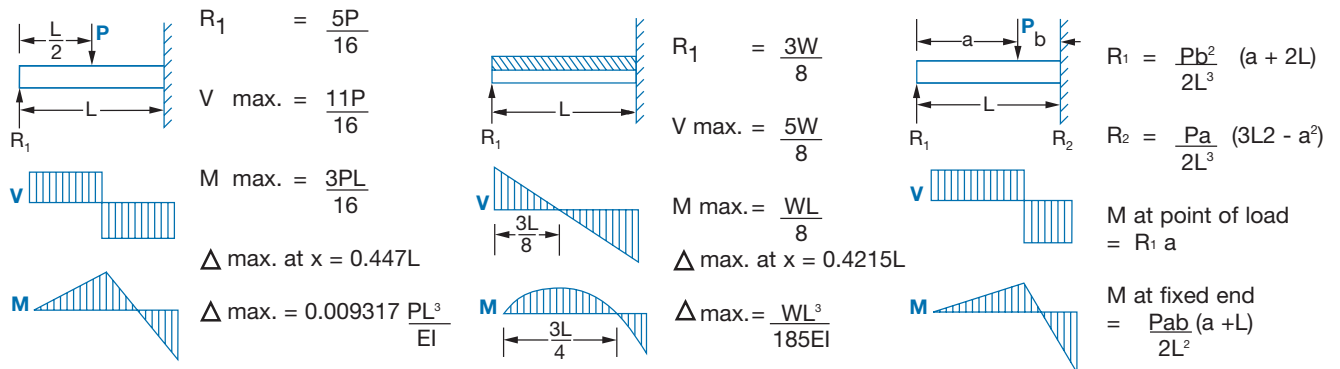
Cantilever Beams



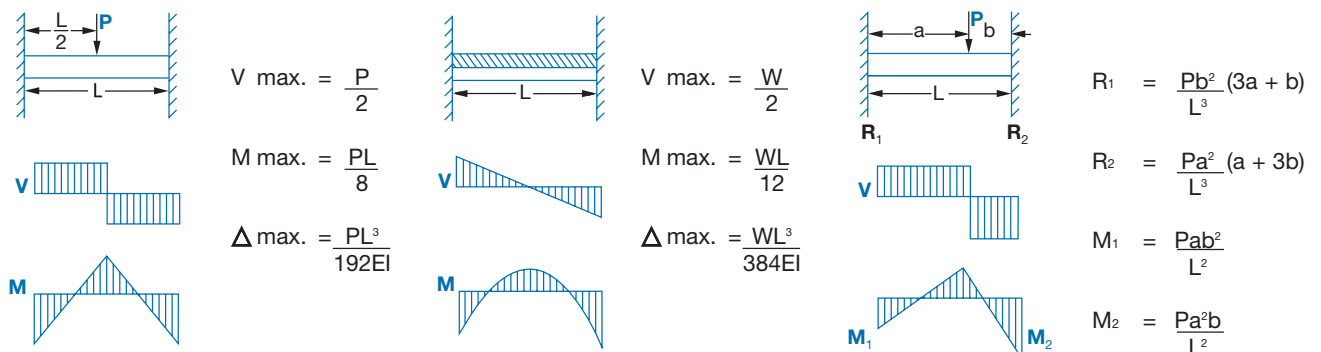
Simple Beams



Beams Fixed One End, Supported at Other



Beams Fixed at Both Ends



R - Reaction
M - Moment (Nmm)
P - Concentrated load (N)

W - Total uniform load (N)
V - Shear
L - Length (mm)



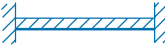



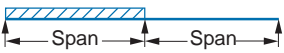
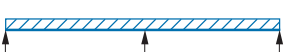

Δ - Deflection (mm)
E - Modulus of Elasticity (MPa)
I - Moment of Inertia (mm⁴)

Conversion Factors for Beams with various Static Loading Conditions

Load tables in this catalogue for 41mm channel width series and 32mm channel width series are for single span beams supported at the ends. These can be used in the majority of cases. There are times when it is necessary to know what happens with other loading and support conditions. Some

common arrangements are shown in Table 1. Simply multiply the loads from the Beam Load Tables by the load factors given in Table 1. Similarly, multiply the deflections from the Beam Load Tables by the deflection factor given in Table 1.

Table 1




Load and Support Condition		Load Factor	Deflection Factor
1 Simple Beam - Uniform Load		1.00	1.00
2 Simple Beam Concentrated Load at Centre		0.50	0.80
3 Simple Beam -Two Equal Concentrated Loads at 1/4 Points		1.00	1.10
4 Beam Fixed at Both Ends - Uniform Load		1.50	0.30
5 Beam Fixed at Both Ends - Concentrated Load at Centre		1.00	0.40
6 Cantilever Beam - Uniform Load		0.25	2.40
7 Cantilever Beam - Concentrated Load at End		0.12	3.20
8 Continuous Beam - Two Equal Spans - Uniform Load on One Span		1.30	0.92
9 Continuous Beam - Two Equal Spans - Uniform Load on Both Ends		1.00	0.42
10 Continuous Beam - Two Equal Spans - Concentrated Load at Centre of One Span		0.62	0.71
11 Continuous Beam - Two Equal Spans - Concentrated Load at Centre of Both Spans		0.67	0.48

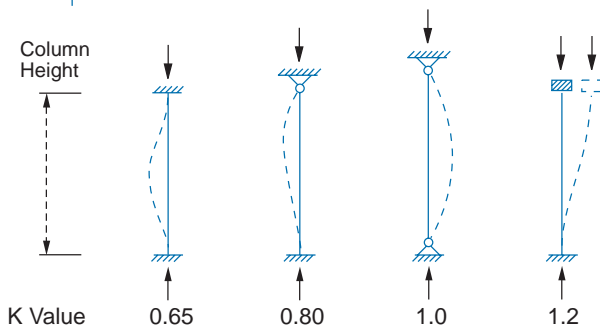
Unistrut Column Loading

The strength of axially loaded columns or compression members is, in part, dependent on the end conditions, that is, the degree of end fixity or restraint. A column with both ends fixed will support more load than one with both ends free or pin-ended.

Column loads published for UNISTRUT sections in this catalogue are offered as a guide and assume a partially fixed end condition as usually found in flat ended columns that are laterally tied and braced, i.e. $K = 1.0$. Assumed K values (effective length factors) for columns with varying end restraints are as follows:

End Condition Code

-  Rotation fixed and translation fixed
-  Rotation free and translation fixed
-  Rotation fixed and translation free



Unistrut Sections as Beams

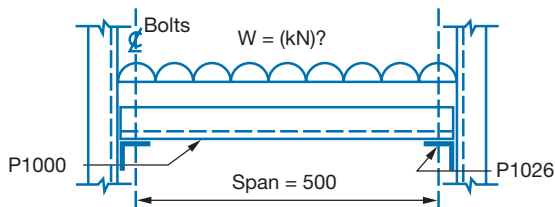
The load capacity of Unistrut members acting as a horizontal beam, between two vertical Unistrut members acting as columns, is governed by:

- the nature of the load.
- the particular section to be used.
- the span of the beam.
- the beam-load capacity of the section for a given span.
- the load capacity of the connectors used to support the beams on the columns.
- the load limitations, if any, resulting from special deflection considerations.

If items a), b) and c) are known, the load capacity is the smallest value of d), e), and f) as read or derived from the listed values in the appropriate tables.

Example 1

What is the uniformly distributed load capacity of a P1000 section used as a beam to span 500mm if P1026 connectors are used to support the beam?



Step 1

- Find beam load at maximum permissible stress.
- From P1000 Beam and Column in this Tab Section, 500mm and Section P1000, $W = 7.42\text{kN}$.

Step 2

- Find load capacity of connectors.
- From Safe Bearing Loads in this Tab Section, for P1000 section supported on P1026 connectors; Support load = 4.1kN
Beam load = 2 x support load = 2 x 4.1 = 8.2kN.

Step 3

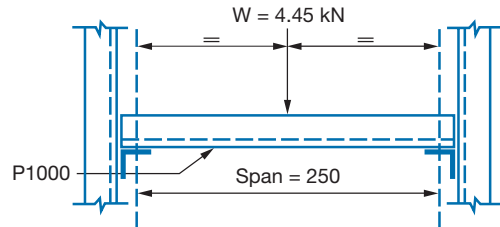
- Check deflection limitations.
- No special deflection considerations apply.

Step 4

- Select smallest load value from Step 1 to 3.
- Smallest value is 7.42kN.
- To convert to mass units divide by 0.0098, hence load capacity $W = \frac{7.42}{0.0098} = 757\text{kg}$ uniformly distributed.

Example 2

A beam of 250mm span is to carry a central point load of 4.45kN. Check if P1000 section is a satisfactory beam and if so, what type of connector should be used for supports and what is the resultant central deflection.



Step 1

- Convert point load to equivalent uniformly distributed load by multiplying by 2 (see note on point loads).
- Equivalent U.D.L. = 4.45 x 2 = 8.9kN.

Step 2

- Compare with beam load capacity for P1000 section spanning 250mm. From P1000 Beam and Columns in this Tab Section. Tabulated value = 14.83kN.
- Since this is greater than load to be applied, the P1000 section is satisfactory.

Step 3

- Determine support loads, which are each half the applied load. Support load = 2.23kN.

Step 4

- Select appropriate connector from Safe Bearing Loads in this Tab Section.
- Recommended load for P1026 supporting P1000 = 9.5kN.
- As the P1026 connectors exceed the required support load of 2.23kN, use P1026 connectors at each end.

Step 5

- Calculate central Deflection of beam from $\delta^2 = \frac{W_2}{W_1} \times \left[\frac{L_2}{L_1}\right]^3 \times \delta^1$

(See P1000 Elements of Section in this Tab Section)

- From Beam load table for P1000 section with $L_1 = 250\text{mm}$
 $W_1 = 14.83\text{kN}$ and $\delta^1 = 0.16\text{mm}$
- From example data and step 1 above $W_2 = 8.9\text{kN}$, $L_2 = 250\text{mm}$
- Substituting values in formula $\delta^2 = \frac{8.9}{14.83} \times \left[\frac{250}{250}\right]^3 \times 0.16 = 0.10\text{mm}$

As this is the value for the equivalent uniformly applied load a correction is necessary to account for a central point load. This is done by multiplying the uniform load deflection by 0.8 (see Notes to Tables). Hence deflection under applied point load:
= 0.10 x 0.8 = 0.08mm.

Unistrut Sections as Columns

The load capacity of Unistrut Sections acting as columns depends on:

- the particular section used.
- the actual height of the column, measured between centres of connections to horizontal members.
- the location of the resultant axial load with respect to the centre of gravity, CG, of the section (i.e. the intersection of the XX and YY axes as shown on the section diagrams).
- the restraint to various kinds of movements of the column offered by the connections to horizontal members at various levels.

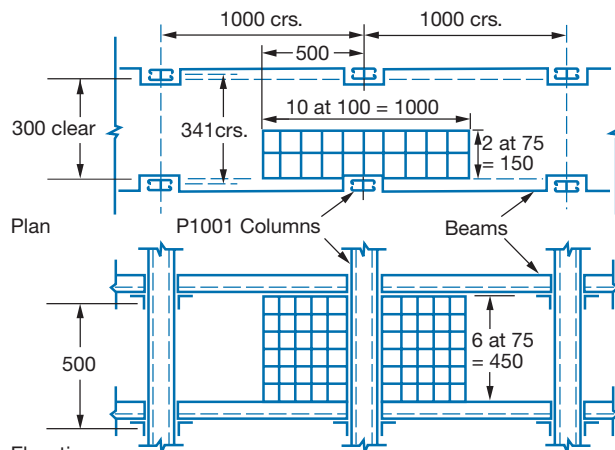
If a) and b) are known and if c) and d), for the case being considered, match the conditions in Structural Data Notes then the load capacity of the section can be read directly from the tables under 'maximum column load'.

It is emphasised that, for tabulated values to be used directly, the resultant load must be concentric (i.e. act through the C.G.) and connections at each end of a free column height must restrain those ends from both horizontal and torsional movement. If these conditions do not apply, reference should be made to the appropriate sections of AS/NZS 4600 since it is most likely that a smaller value than the listed one should be used.

Example 3

Island-type storage shelving is to be constructed using P1001 main posts (columns) at 1000 x 341mm centres. Shelves are to be at 500mm vertical spacing starting from the floor and connected to the posts so that concentric loading and translational and torsional restraint are provided at each level under full load conditions.

If the shelves are to carry packages of bolts stacked six high per shelf and the packages measure 75 x 75 x 100mm with a mass of 6.5kg each, what is the maximum height (number) of shelving that can be used?



Step 1

- Determine Concentric load for shelf.
- Plan area supported by each main column
 $= 1000 \times 150 = 150\,000\text{mm}^2$
- This area can be packed with 20 packages
 $75 \times 100\text{mm}$ in plan i.e. 120 packages per shelf.
 Hence mass per shelf $= 6.5 \times 120\text{kg}$
 and load per shelf $= 6.5 \times 120 \times 0.0098$
 $= 7.64\text{kN}$ per column.

Step 2

- Determine load capacity of P1001 section.
 From P1001 Beams and Columns Table in this Tab Section for P1001 with height 500mm.
 Maximum column load $= 94.09\text{kN}$.

Step 3

- Determine number of shelves.
- Divide column load capacity by the load per shelf.
 i.e. Number of shelves $= \frac{94.09}{7.64} = 12.31$
 Hence maximum number of shelves $= 12$
 i.e. max. height of shelving
 $= 12 \times 0.5 = 6.0$ metres.

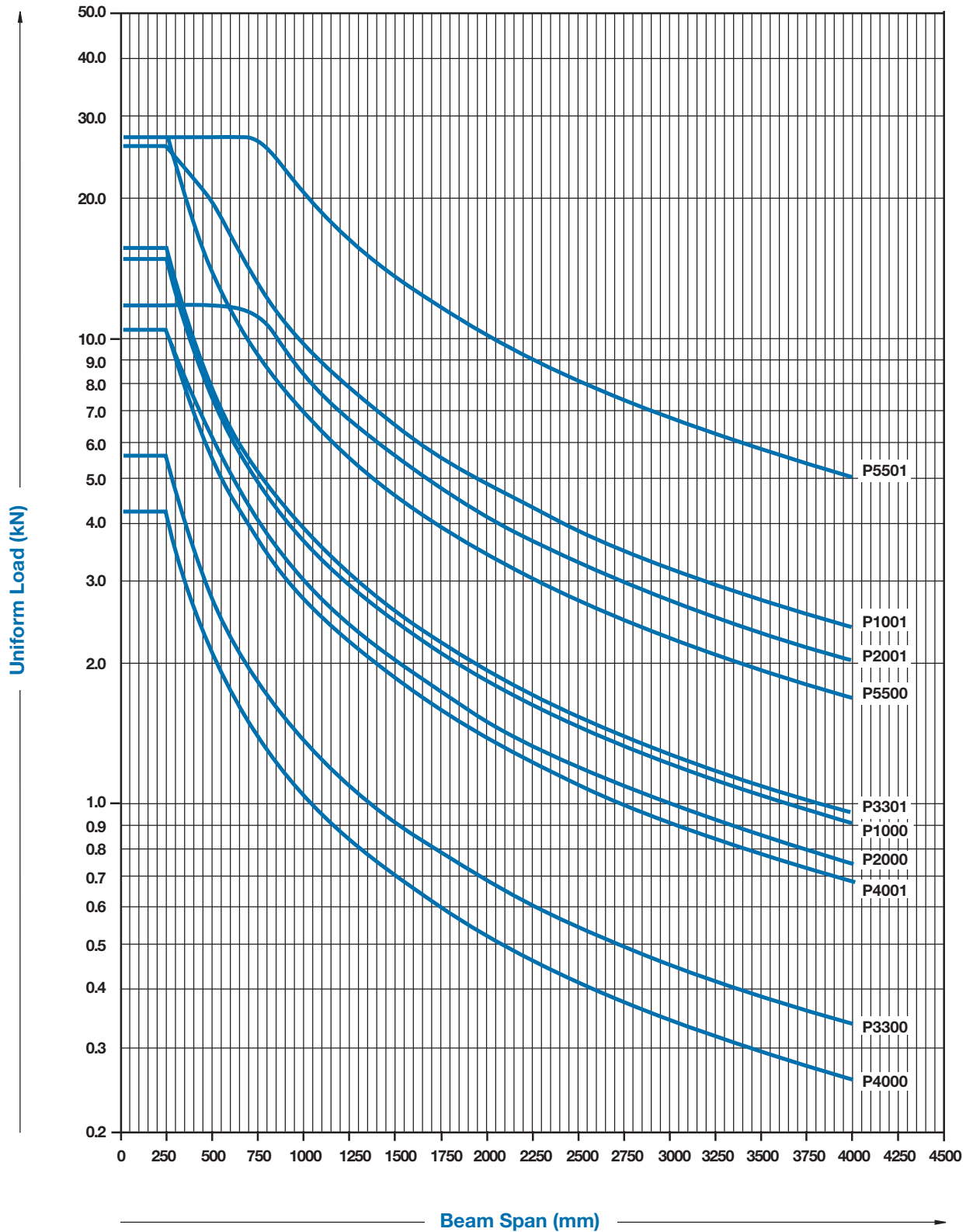
Note : If the bottoms of the columns bear onto P1000 bearers, which in turn are fixed to the ground, the load capacity of the column would be determined by the Recommended Bearing Load, (refer to Safe Bearing Loads in this Tab Section) of 30.3 kN. The number of shelves would then be given by: $\frac{30.3}{7.64} = 3.96$

i.e. 3 shelves, totalling 1.5 metres high.

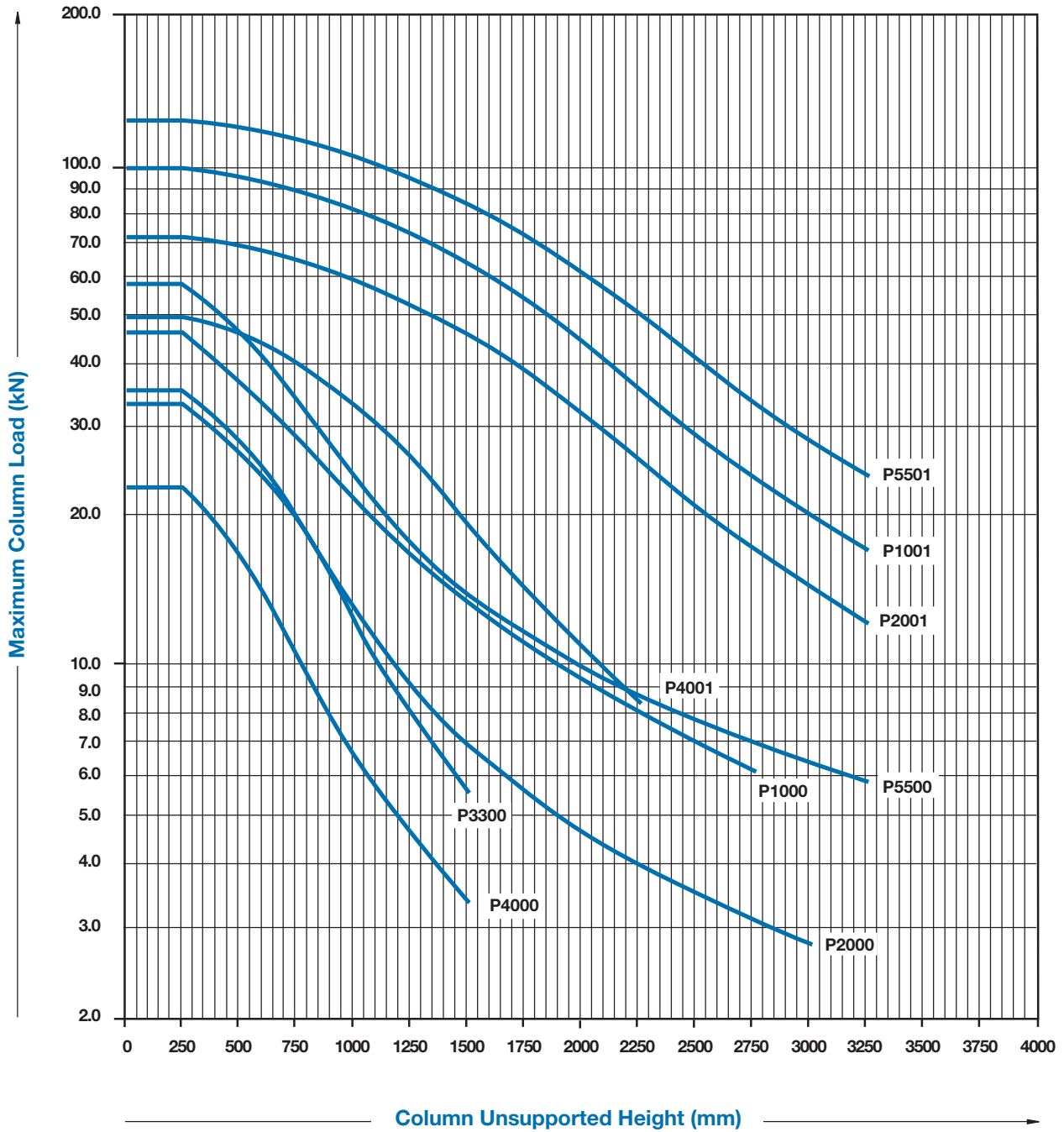
Engineering Data

Uniform Working Loads for Simply Supported Beams

Note: (Ultimate divided by 1.5)



Note: (Ultimate divided by 1.5)



Engineering Data - Mass Charts

Copper Tube

Nom. Size	Actual Size O.D. (Aust.)	Actual Size O.D. (N.Z.)	Mass of Pipe kg/m	Mass of Pipe filled with water kg/m
15 x 0.9	12.7	14.7	0.30	0.39
18 x 1.0	15.9		0.43	0.58
20 x 1.0	19.0	21.0	0.52	0.75
25 x 1.2	25.4	27.4	0.83	1.25
32 x 1.2	31.8	34.1	1.05	1.72
40 x 1.2	38.1	40.6	1.27	2.27
45 x 1.2	44.5		1.48	2.87
50 x 1.2	51.2	53.3	1.70	3.57
65 x 1.2	63.5	65.0	2.14	5.07
80 x 1.6	76.2	79.4	3.42	7.60
90 x 1.6	88.9	92.5	4.00	9.76
100 x 1.6	101.6	105.6	4.58	12.18
125 x 1.6	127.0	130.2	5.74	17.77
150 x 2.0	152.4	158.0	8.58	25.86
175 x 2.0	177.8		10.03	33.74
200 x 2.0	203.2		11.48	42.63
225 x 2.6	228.6		16.77	55.94

Pressure Pipe -

ANSI Sch 80 - API XS (up to 200 NS)

Nom. Pipe Size	Actual Size O.D. x Wall	Mass of Pipe kg/m	Mass of Pipe filled with water kg/m
8	13.7 x 3.02	0.80	0.85
10	17.1 x 3.20	1.10	1.19
15	21.3 x 3.73	1.62	1.77
20	26.7 x 3.91	2.19	2.47
25	33.4 x 4.55	3.23	3.69
32	42.2 x 4.85	4.47	5.30
40	48.3 x 5.08	5.41	6.55
50	60.3 x 5.54	7.48	9.38
65	73.0 x 7.01	11.41	14.14
80	88.9 x 7.62	15.27	19.53
90	101.6 x 8.08	18.63	24.36
100	114.3 x 8.56	22.37	29.73
125	141.3 x 9.53	30.95	42.69
150	168.3 x 10.97	42.56	59.38
200	219.1 x 12.70	64.63	94.10
250	273.0 x 12.70	81.54	129.70
300	323.9 x 12.70	97.44	167.40
350	355.6 x 12.70	107.38	193.00
400	406.4 x 12.70	123.29	234.30
450	457.0 x 12.70	139.19	285.50
500	508.0 x 12.70	155.10	337.00
600	609.6 x 12.70	186.92	455.00

Pressure Pipe -

API Std Wt - ANSI Sch 40 (up to 250 NS)

No. Pipe Size	Actual Size O.D. x Wall	Mass of Pipe kg/m	Mass of Pipe filled with Water kg/m
8	13.7 x 2.24	0.62	0.69
10	17.1 x 2.31	0.85	0.97
15	21.3 x 2.77	1.27	1.47
20	26.7 x 2.87	1.68	2.11
25	33.4 x 3.38	2.50	3.06
32	42.2 x 3.56	3.38	4.35
40	48.3 x 3.68	4.05	5.37
50	60.3 x 3.91	5.44	7.60
65	73.0 x 5.16	8.62	11.71
80	88.9 x 5.49	11.29	16.06
90	101.6 x 5.74	13.57	19.95
100	114.3 x 6.02	16.07	24.28
125	141.3 x 6.55	21.78	34.69
150	168.3 x 7.11	28.26	46.91
200	219.1 x 8.18	42.53	74.81
250	273.0 x 9.27	60.29	111.14
300	323.9 x 9.53	73.82	146.81
350	355.6 x 9.53	81.28	170.23
400	406.4 x 9.53	93.21	211.05
450	457.0 x 9.53	105.14	255.75
500	508.0 x 9.53	117.07	304.85
600	609.6 x 9.53	140.94	414.85

Galvanised Pipe

Nom. Size	Actual Size O.D. x Wall	Mass of Pipe kg/m	Mass of Pipe filled with water kg/m
8 N.B Med.	13.5 x 2.3	0.68	0.74
10 N.B Med.	17.2 x 2.3	0.89	1.01
15 N.B Med.	21.3 x 2.6	1.27	1.47
20 N.B Med.	26.9 x 2.6	1.65	2.02
25 N.B Med.	33.7 x 3.2	2.52	3.11
32 N.B Med.	42.4 x 3.2	3.24	4.26
40 N.B Med.	48.3 x 3.2	3.73	5.11
50 N.B Med.	60.3 x 3.6	5.24	7.46
65 N.B Med.	76.1 x 3.6	6.69	10.42
80 N.B Med.	88.9 x 4.0	8.68	13.82
100 N.B Med.	114.3 x 4.5	12.4	21.11
125 N.B Med.	139.7 x 4.9	16.5	29.75
150 N.B Med.	165.1 x 4.9	19.6	38.55

PVC Pressure Pipe - Class 15

Nom. Size	Actual Size O.D. x Wall	Mass of Pipe kg/m	Mass of pipe filled with Water kg/m
15	21.3 x 1.5	0.14	0.40
20	26.7 x 1.9	0.22	0.61
25	33.5 x 2.3	0.33	0.99
32	42.2 x 2.9	0.54	1.58
40	48.2 x 3.3	0.69	2.05
50	60.3 x 4.1	1.07	3.20
65	75.3 x 5.1	1.66	5.00
80	88.9 x 6.1	2.31	6.93
100	114.3 x 7.7	3.83	11.51
125	140.2 x 9.4	5.76	17.34
150	168.2 x 11.3	8.28	24.93
200	219.1 x 14.8	14.12	42.32

PVC Pressure Pipe - Class 6

Nom. Size	Actual Size O.D. x Wall	Mass of Pipe kg/m	Mass of pipe filled with water kg/m
40	48.2 x 1.5	0.31	1.91
50	60.3 x 1.8	0.48	3.00
65	75.3 x 2.2	0.75	4.70
80	88.9 x 2.6	1.03	6.53
100	114.3 x 3.2	1.70	10.84
125	140.2 x 4.0	2.55	16.28
150	168.2 x 4.8	3.65	23.41
200	219.1 x 6.2	6.19	39.75

Cast Iron Pipes - Class K9

Nom. Size	Actual Size O.D. x Wall	Pipe Mass kg/m	Pipe and Water Kg/m	Concrete Lining Thickness	Mass of Lined Pipe kg/m	Mass of Lined Pipe and Water - kg/m
80	95.5 x 6.0	12.36	17.84	6.0	15.64	19.66
100	121.9 x 6.1	16.55	26.00	6.0	21.09	28.59
150	177.3 x 6.3	25.09	46.39	6.0	31.82	50.13
200	232.2 x 6.4	34.18	71.89	8.0	46.18	78.67
225	259.1 x 6.6	39.45	86.94	8.0	52.91	94.42
250	286.0 x 6.8	44.73	103.00	8.0	60.00	111.63
300	345.4 x 7.2	57.09	143.24	10.0	81.45	157.42
375	426.2 x 7.9	79.27	211.55	10.0	109.45	229.15
400	507.0 x 8.6	107.82	290.24	10.0	138.73	312.08
500	560.3 x 9.0	117.82	347.95	10.0	158.91	373.16

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