DANA

دانة

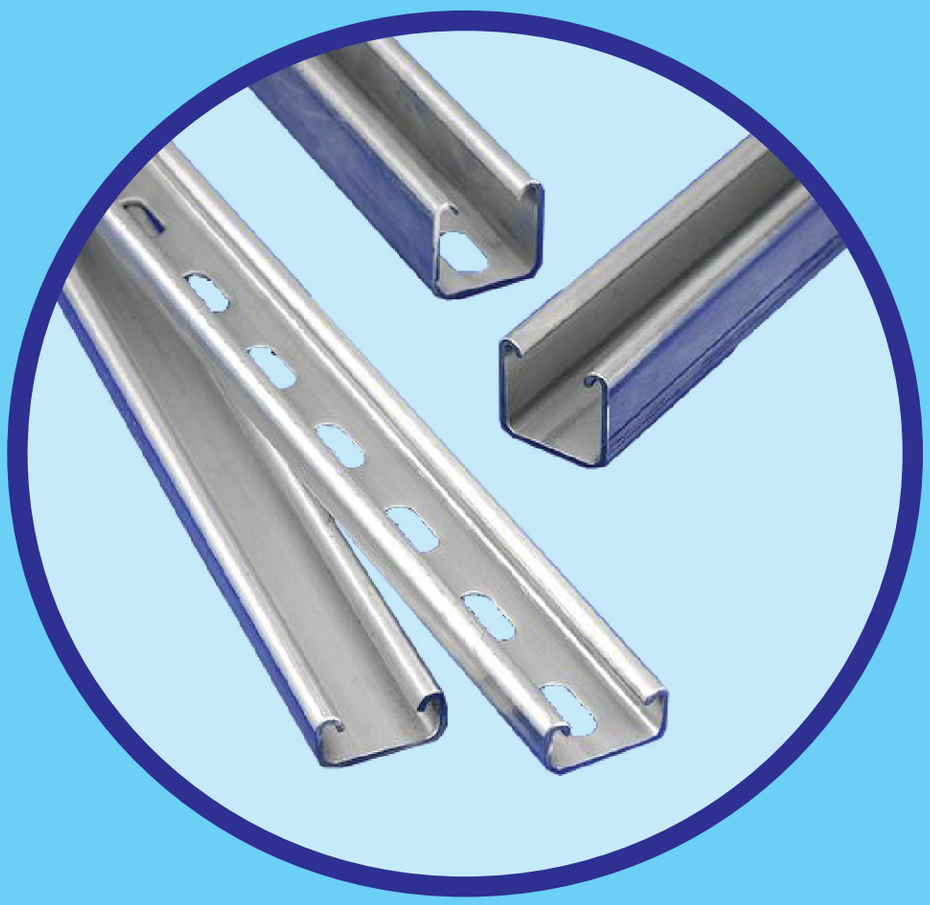
ISO 9001

JAS-ANZ

"An ISO 9001:2008 Certified Company"

CABLE MANAGEMENT SYSTEM

STRUTS, FITTINGS & ACCESSORIES



Perfect Designing

Long Term Economy

Easy Installation & Replacement

Struts as Engineered Product

"An ISO 9001:2008 Certified Company"

Vision and Mission

Our Vision

We aspire to be the global steel industry benchmark by being the world's most reliable and innovative value added Steel Manufacturer, service and Solution Provider.

Our Mission

To maximize value for our worldwide client base by supply high quality steel products, providing related services and solutions while utilizing innovative technologies and a team of motivated employees, focused on continuous improvement, highest business standards, work ethics and corporate citizenship.

Our Company Policy

The company management preaches Japanese Style of Management where ideas pass on from shop floor level right up to the top management's desk. We make sure that right thing is at right place at right time. This helps us to manufacture our products with high precision and meeting all the specifications. We have capability to deliver and meet urgent needs of our customers and have built their confidence by providing high quality in time. Our manufacturing facilities which are spread out in Al Quoz, Umm-Al-Quwain, Ajman and Libya help us to execute bulky orders in time.

We believe in continuous improvement and follow Lean and Kaizen principles. We are striving to serve you better.

PREFACE

DANA Offers a comprehensive range of components forming the elements of a Complete cable management system. The system offered comprises :

- DANA Cable trays and cable ladders (conforming to BS EN 61537)
- DANA Metal channel cable supports (conforming to BS 6946)
- DANA Steel surface Trunking (conforming to BS EN 50085-1:2005 (which supersedes BS4678-1)
- DANA Pull Boxes
- DANA Cable tray Accessories

DANA Cable Management system's full range of products from are having ISO 9001:2008 certification. We have fully equipped factory with Design, production and Quality control Departments. The load capabilities. Support span requirements, Deflection criteria, site installation problems have been carefully considered by our design department while designing the entire product range. All our products are manufactured using the latest CNC technology which help us to maintain a unique quality product throughout manufacturing. Entire DANA Cable management system has been designed to minimize welding. Last 15 Years of research and development in this field has helped us to develope a system which has taken into account all the requirements of construction sites in the Middle East & Asia.

Raw Material

Carbon Steel

This raw material occupies 90% of Cable tray manufactured through out the world, confirms to BS 1449. It combines good strength economy and availability. It has got various coating on top of that to avoid corrosion.

Stainless Steel

Stainless Steel Products, manufactured in accordance with AISI 304, or in accordance with AISI 316L are designed for use in highly aggressive environments. It has an extensive use in various areas like refineries. Chemical industries, Fertilizer factories and Industries where hygiene is a major concern like dairies, Abattoirs food industries and pharmaceutical factories. Apart from the aesthetic appearance it resists fire to a greater extent. Stainless steel can maintain its integrity even in a flame temperature of 1000ºC. The main types available are the following.

Stainless Steel AISI 304 and AISI 316 L

304 is the normal grade used in stainless steel where as 316L is used in highly aggressive environment with high chlorine contents like in marine areas. With the presence of Molybdenum in 316L it has got an improved corrosion resistance against chlorides.

Surface Coatings

HOT DIP Galvanizing After Fabrication (HDGAF)

Hot dip galvanizing is a process where completely manufactured or roll formed steel is chemically cleaned of all contaminants and then dipped in molten zinc. This will allow a coating consisting of Iron/zinc alloys which are usually over coated with a layer of almost pure zinc. The thickness of zinc coating depends on the thickness of the steel. Local coating thickness varies from 45-85 Micron (320-610 gm^2) depending on thickness.

Corten A Steel can be deep galvanized upto 3 to 4 times of normal coating where the operation remain same as aforesid. Grey coating is expected due to the high silicon content of this Steel.

American Standard : ASTM A123, A153 and A767

British Standard : BS EN ISO 1461:1999 (which supersedes BS 729:1971)

PRE-GALVANIZED Finish or Hot DIP Galvanized sheet finish (HDGBF)

This finish is an economical solution in the normally dry indoor applications where the atmosphere is less corrosive. In this finish zinc coating is applied on both sides of the steel sheet during manufacturing itself, resulting in bright and smooth surface finish. Not suitable for any highly corrosive and high humidity atmospheric conditions.
Generally we use the current steel grade of Z 275 (G-90).

British Standard : BS EN 10346; 2009, which supersedes BS EN 10142:2000 (Formerly BS 2989-1982)

American Standard : ASTM A653 / A653M

Electro-Galvanizing (EG)

In this finish a thin zinc layer is deposited in electrolysis process to an average of 8 to 10. Usage is limited only to dry interior spaces due to very less coating tickness. All zinc electroplating with passivation is in accordance to BS7371 for threaded mild steel products up to 19mm in diameter and to BS1706 for other mild steel products.

Epoxy Powder Coatings (PC)

These coatings are applied to mild steel components. The coating can be offered in a wide variety of colours to meet the architectural project requirements. The coatings themselves are resilient to damage and will withstand atmospheric pollution and ultraviolet exposure from sunlight.

INTERNATIONAL STANDARDS IN MATERIAL AND FINISHES

DANA Steel produces the components of its cable management system from materials to the following internationally recognized standards :

SUFFIX	TYPE	DESCRIPTION
PG	Pre Galvanised	To BS EN 10346: 2009, which supersedes BS EN 10142:2000 (Formerly BS 2989-1982) the substrate is mild steel Grade DX51D with yield >200 N/mm2. The zinc coating is applied before metal forming and the grade used Z275 implies a coating thickness of 20 microns.
HDG	Hot Dip Galvanized	>1.5mm thick steel Grade D11 to BS EN 10111 yield >200 N/mm2 or <1.5mm thick steel to Grade DC01 to BS EN 10130 yield >200N/mm2 is used to manufacture components, which are galvanized to the requirements of BS EN ISO 1461 generating a coating thickness of at least 65 microns
SS	Stainless Steel	Austenitic stainless steel to BS EN 10088 Grade 1-4401 is used which has 17% Chromium 12% Nickel & 2% Molybdenum analysis.
PC	Powder Coated	>1.5mm thick steel Grade D11 to BS EN 10111 yield >200 N/mm2 or <1.5mm thick steel to Grade DC01 to BS EN 10130 yield >200N/mm2 is used to manufacture components, which are coated with an epoxy powder. This will be in an agreed colour, offering a cosmetic finish with only limited anti-corrosive properties.

It is possible for DANA Steel to manufacture components of the product range in alternative materials to those listed above. For further information on these possibilities please contact our Technical Department.

WARNING

- Cutting components on site may well impair their resistance to corrosion.
- Welding coated products may generate toxic fumes.
- Products must be stores in dry and well-ventilated conditions prior to installation.

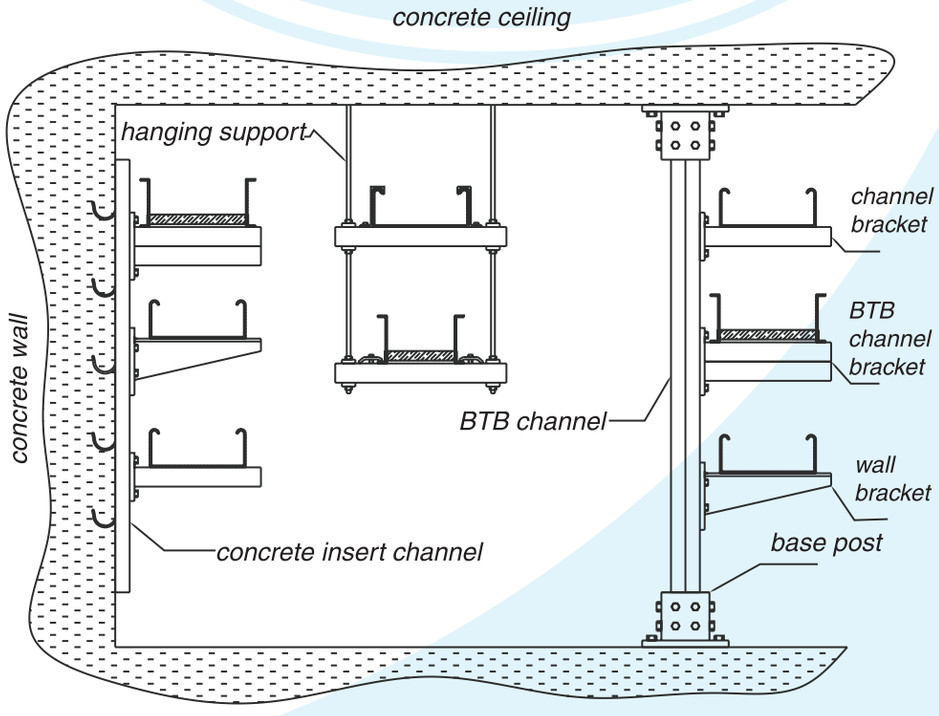
INTRODUCTION

Dana Steels *offers a comprehensive metal framing system that conforms to BS 6946:1988 (Metal channel cable support systems for electrical installations).*

The ***Dana Steels*** *system incorporates the following features*
Flexibility of elements of the system can be combined to create an unlimited range of structural designs.

- *Rigidity of easily assembled rigid structures can be created without the need for drilling and welding.*
- *Adjustability of position of components can be easily adjusted & structures can be demounted and components reused.*
- *Competitiveness & high strength to weight components and ease of assembly make this a cost effective solution to support structural requirements.*
- *It has many applications for structural support of mechanical as well as electrical services in a wide range of industries and construction projects.*

The standard material finish for strut channel and brackets is HDG Hot Dip Galvanised.
The mild steel used has a yield of at least 250 N/mm2



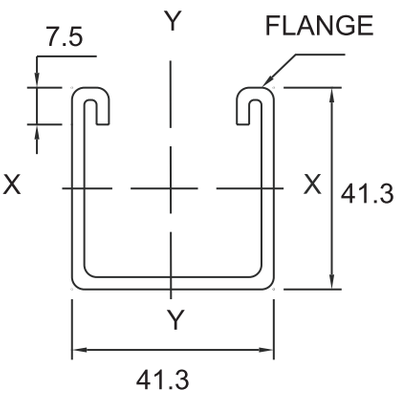
STRUT CHANNELS

PLAIN CHANNEL 41 X 41

PC 44 (plain channel 41x 41)

Material thickness = 2.5 mm

Weight = 2.64 Kgs/m

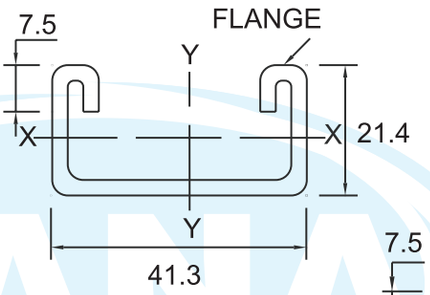


PLAIN CHANNEL 41 X 21

PC 42 (plain channel 41 x 21)

Material thickness = 2.5 mm

Weight = 1.84 Kgs/m

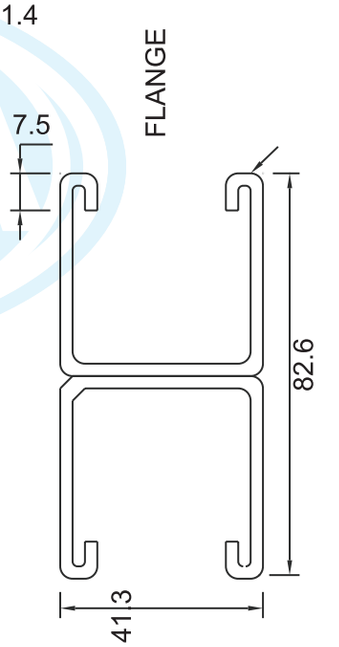


BACK TO BACK CHANNEL 41 X 41

BTB 44 (back to back channel 41 x 41)

Material thickness = 2.5 mm

Weight = 5.28 Kgs/m

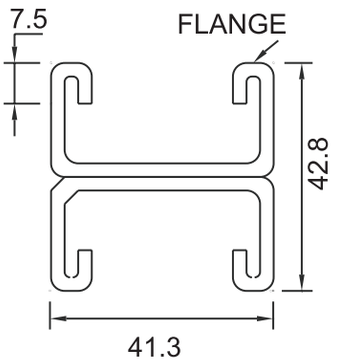


BACK TO BACK CHANNEL 41 X 21

BTB 42(back to back channel 41 x 21)

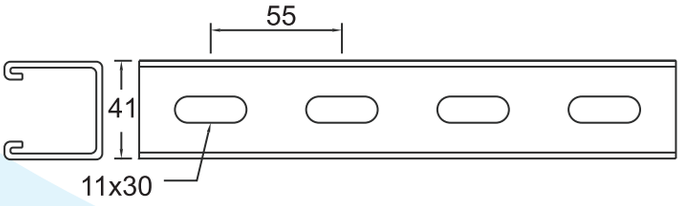
Material thickness = 2.5 mm

Weight = 3.68 Kgs/m

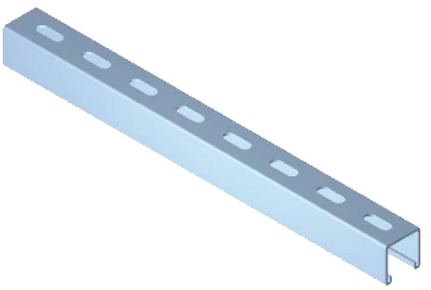


Slot Patterns

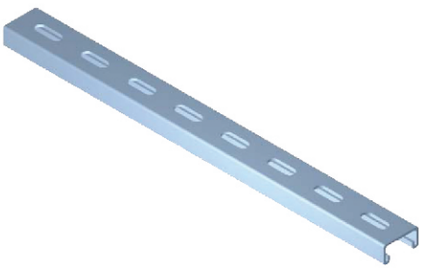
Strut channels are produced with slots also with a standard length of 3 mtrs. Extra long up to 6 mtrs . can also be produced on request.



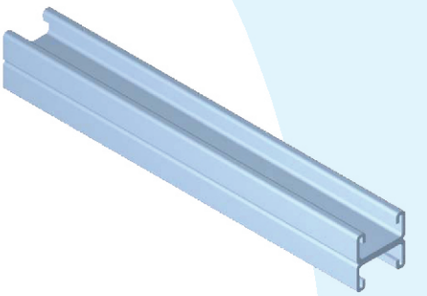
STRUT CHANNELS



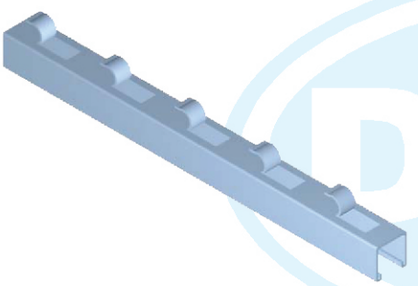
Slotted channel - 41x41



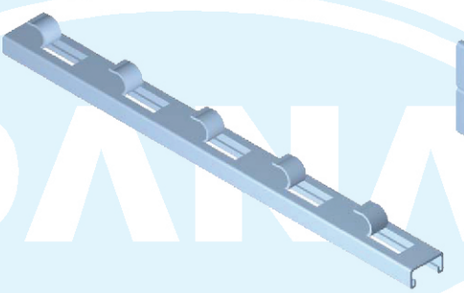
Slotted channel - 41x21



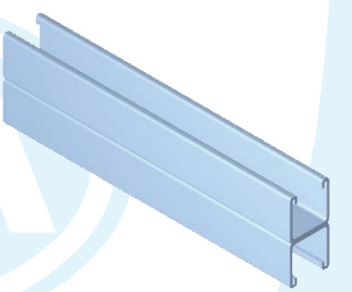
Back to Back channel - 41x21



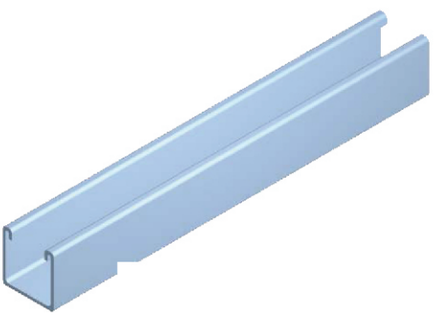
Concrete Inserts - 41x41



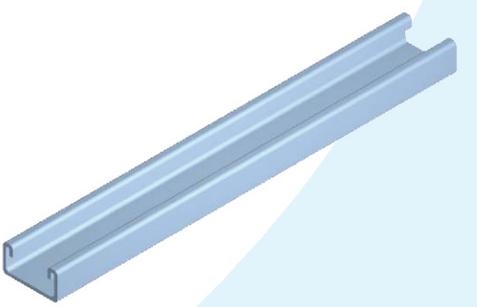
Concrete Inserts - 41x21



Back to Back channel - 41x41



Plain channel - 41x41

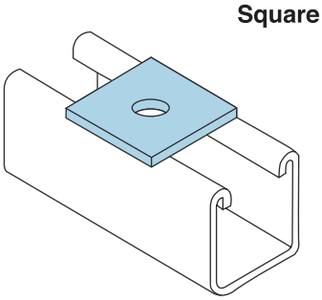


Plain channel - 41x21

Note: All strut channels are in a standard length of 3 mts

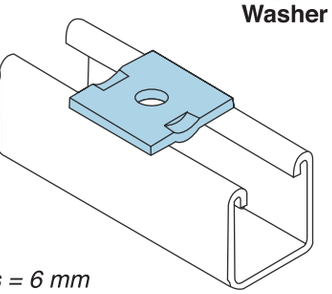
FLAT PLATE FITTINGS

Square Washer



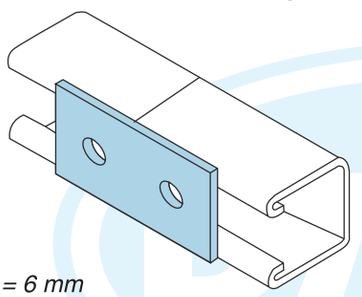
Thickness = 6 mm

Locking Square Washer



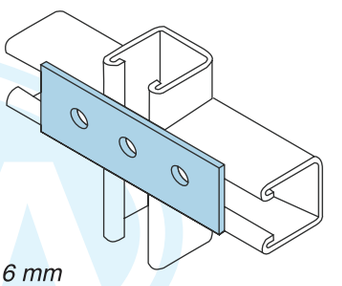
Thickness = 6 mm

Double Hole Splice Plate



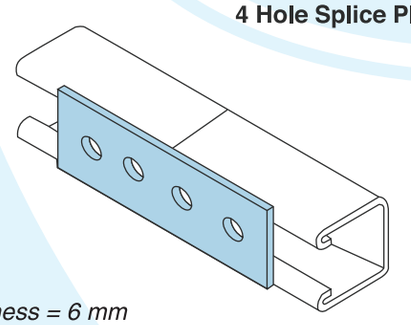
Thickness = 6 mm

Triple Hole Splice Plate



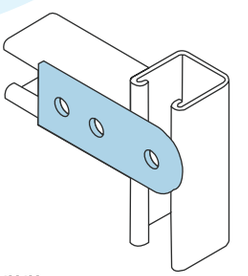
Thickness = 6 mm

4 Hole Splice Plate



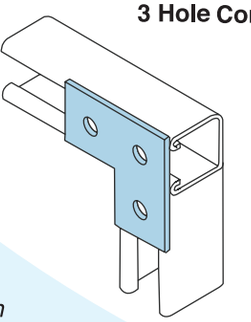
Thickness = 6 mm

3 Hole Swivel Plate



Thickness = 6 mm

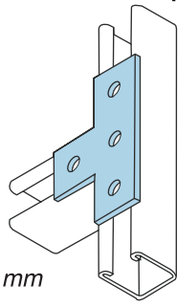
3 Hole Corner Plate



Thickness = 6 mm

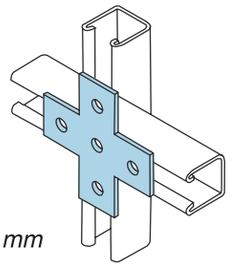
FLAT PLATE FITTINGS

4 Hole Tee Plate



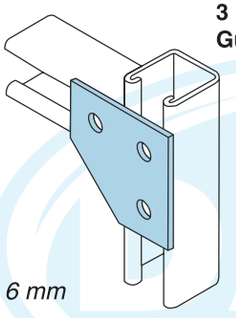
Thickness = 6 mm

5 Hole Cross Plate



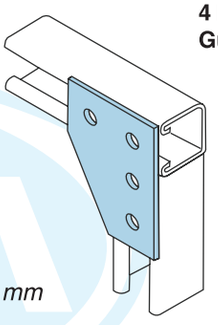
Thickness = 6 mm

3 Hole Corner Gusset Plate



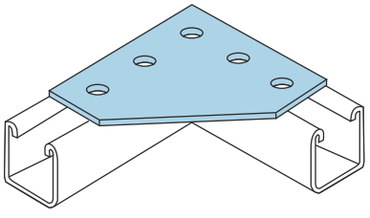
Thickness = 6 mm

4 Hole Corner Gusset Plate



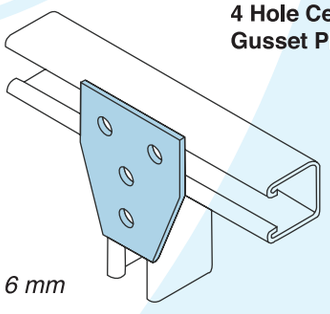
Thickness = 6 mm

5 Hole Corner Gusset Plate



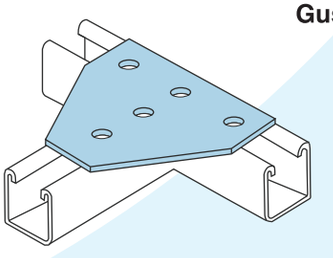
Thickness = 6 mm

4 Hole Center Gusset Plate



Thickness = 6 mm

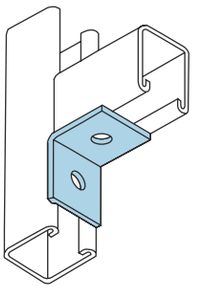
5 Hole Tee Gusset Plate



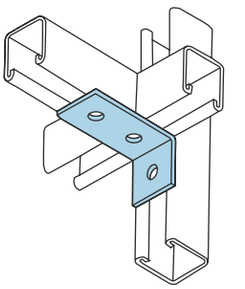
Thickness = 6 mm

ANGLE FITTINGS

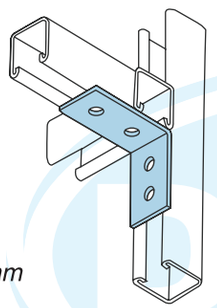
Corner Angle 2 Hole



Corner Angle 3 Hole

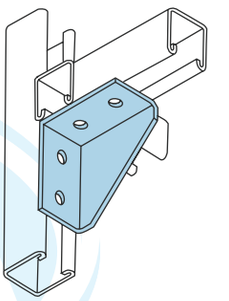


Corner Angle 4 Hole



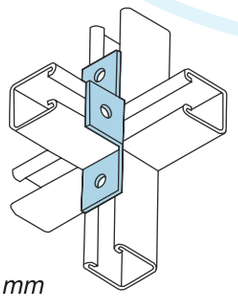
Thickness = 6 mm

Universal Bracket



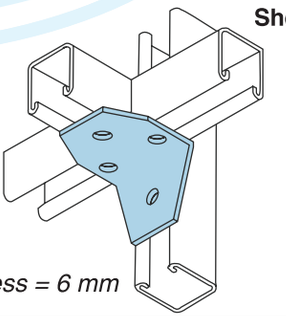
Thickness = 6 mm

Tee Angle



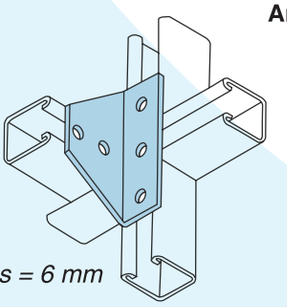
Thickness = 6 mm

4 Hole Gusset Shelf angle



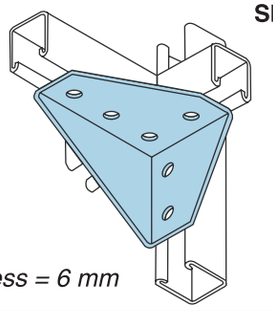
Thickness = 6 mm

5 Hole Gusset Angle Bracket



Thickness = 6 mm

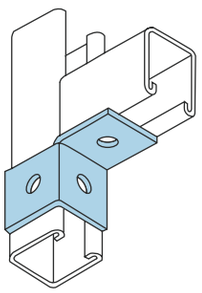
6 Hole Gusset Shelf angle



Thickness = 6 mm

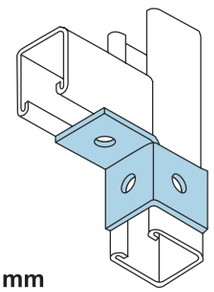
WING FITTINGS

3 Hole Right Corner Connection



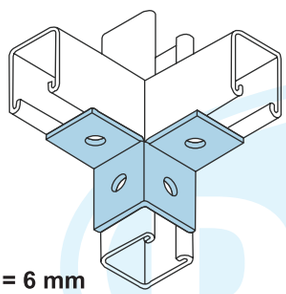
Thickness = 6 mm

3 Hole Left Corner Connection



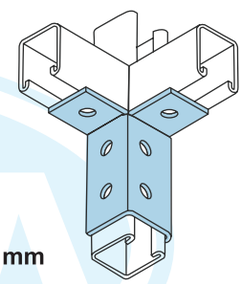
Thickness = 6 mm

4 Hole Double Corner Connection



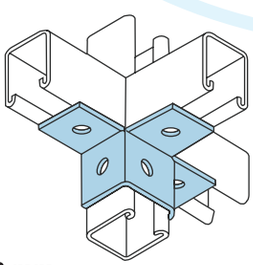
Thickness = 6 mm

6 Hole Double Corner Connection



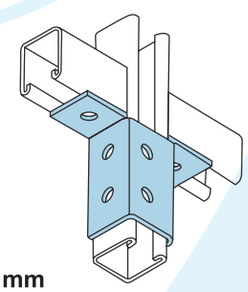
Thickness = 6 mm

6 Hole Triple Wing Connection



Thickness = 6 mm

8 Hole - Wing Connection



Thickness = 6 mm

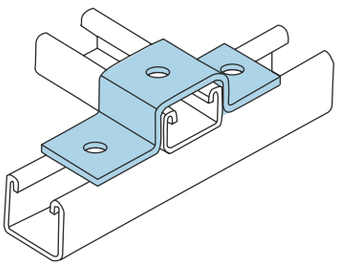
CHANNEL NUTS

DESCRIPTION	*6mm*	*8mm*	*10mm*	*12mm*
Channel Nut Without Spring	*DANA / 6 CNWS*	*DANA / 8 CNWS*	*DANA / 10 CNWS*	*DANA / 12 CNWS*
Channel Nut With Short Spring	*DANA / 6 CNSS*	*DANA / 8 CNSS*	*DANA / 10 CNSS*	*DANA / 12 CNSS*
Channel Nut With Long Spring	*DANA / 6 CNLS*	*DANA / 8 CNLS*	*DANA / 10 CNLS*	*DANA / 12 CNLS*

Note: - All Channel Nuts are zinc plated to BS3382:Part 2

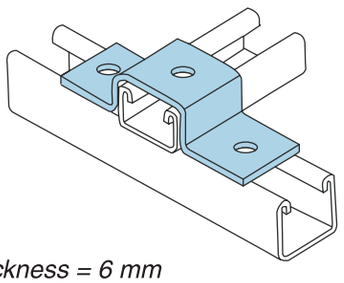
Z & U FITTINGS

U-Clamp - PC 42



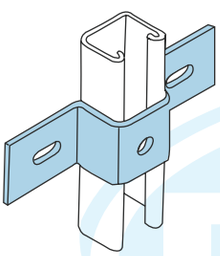
Thickness = 6 mm

U-Clamp - PC 44



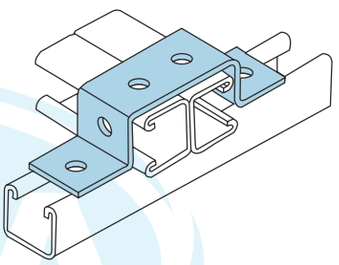
Thickness = 6 mm

5 Hole U Support



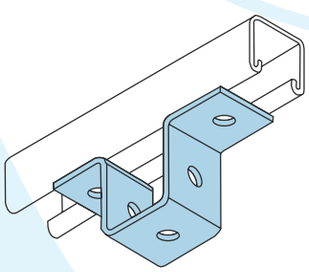
Thickness = 6 mm

U-Clamp - BTB 44



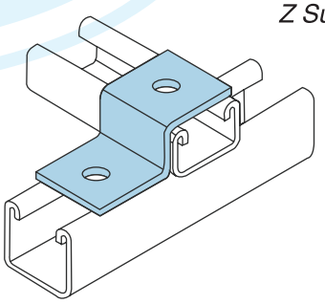
Thickness = 6 mm

5 Hole U Support



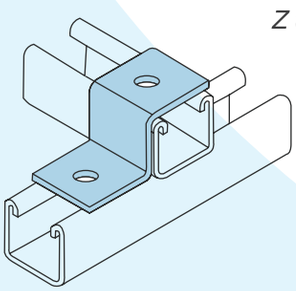
Thickness = 6 mm

Z Support



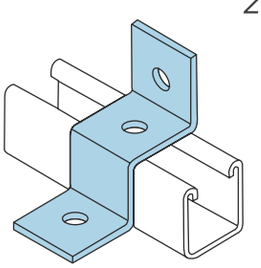
Thickness = 6 mm

Z Support



Thickness = 6 mm

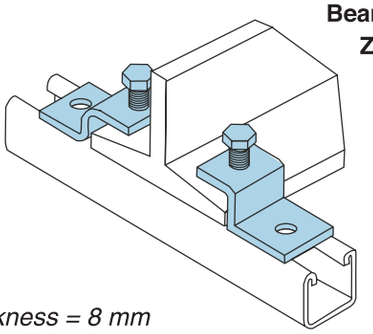
Z Support



Thickness = 6 mm

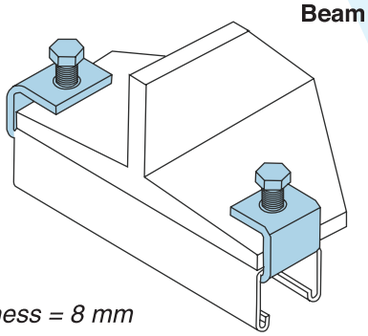
BEAM CLAMPS

Beam Clamp
Z Type



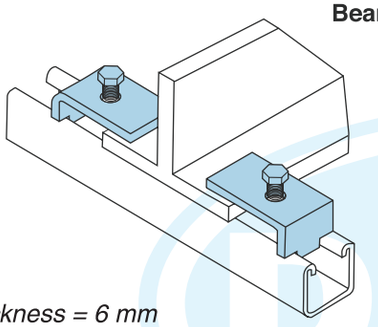
Thickness = 8 mm

Beam Clamp



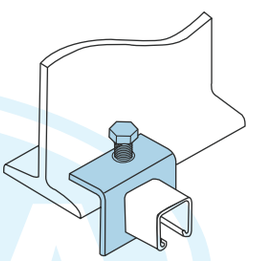
Thickness = 8 mm

Beam Clamp

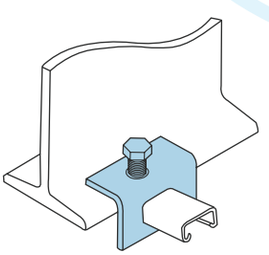


Thickness = 6 mm

Window Beam Clamp

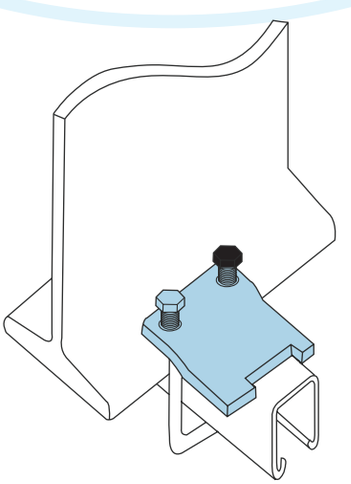


Thickness = 4 mm



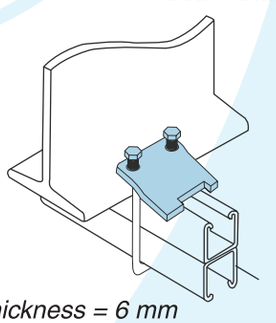
Thickness = 6 mm

Beam Clamp



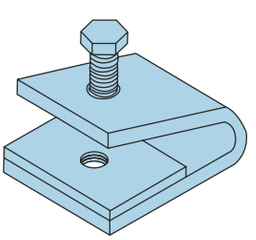
Thickness = 6 mm

Beam Clamp



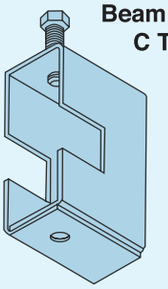
Thickness = 6 mm

Beam Clamp



Thickness = 6 mm

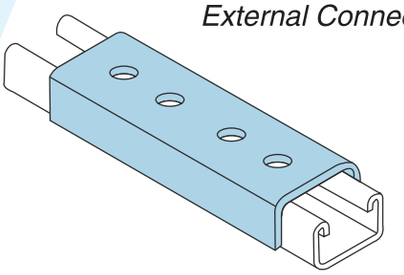
Beam Clamp
C Type



Thickness = 2 mm

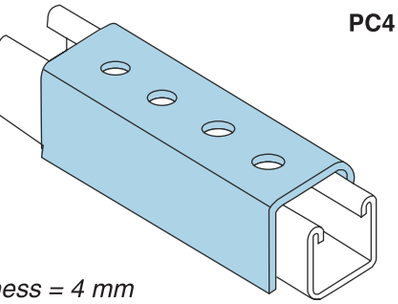
CHANNEL CONNECTORS

4 Hole
External Connector



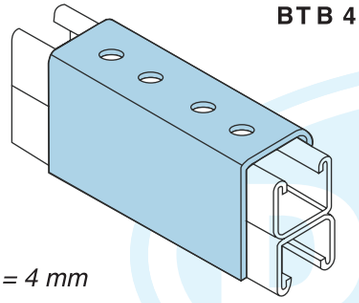
Thickness = 4 mm

U Connector
PC44



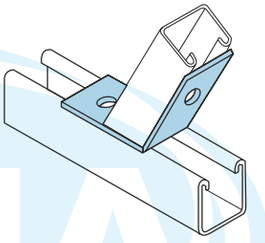
Thickness = 4 mm

U Connector
BTB 44



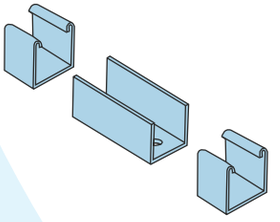
Thickness = 4 mm

Two Hole Open Angle



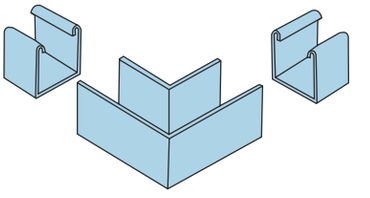
Thickness = 6 mm

Strut Connector



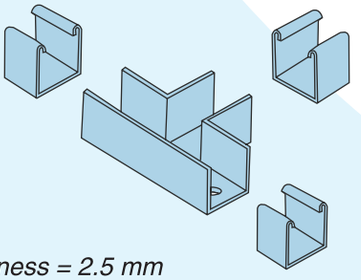
Thickness = 2.5 mm

Strut Connector 90°



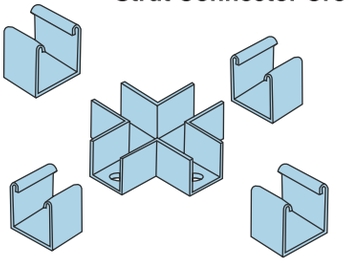
Thickness = 2.5 mm

Strut Connector Tee



Thickness = 2.5 mm

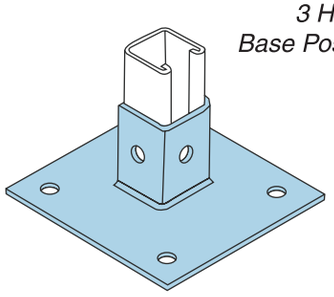
Strut Connector Cross



Thickness = 2.5 mm

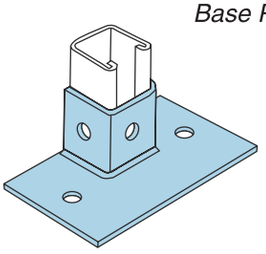
BASE POSTS

3 Hole
Base Post PC 44



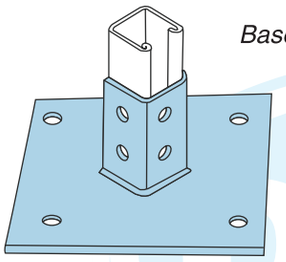
Thickness = 6 mm

3 Hole
Base Post PC 42



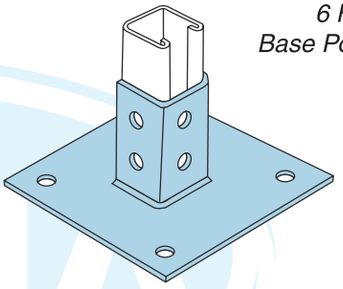
Thickness = 6 mm

6 Hole
Base Post PC 44



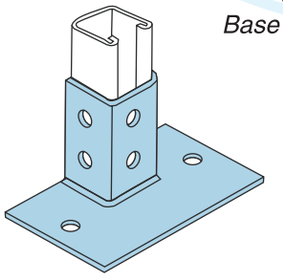
Thickness = 6 mm

6 Hole
Base Post PC 42



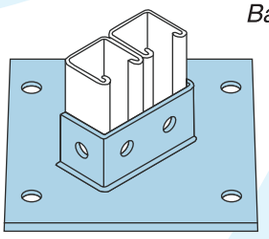
Thickness = 6 mm

6 Hole
Base Post PC 44



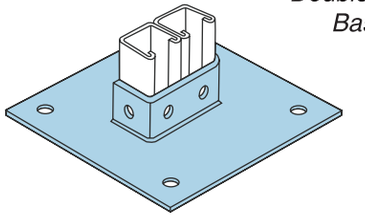
Thickness = 6 mm

4 Hole
Base Post



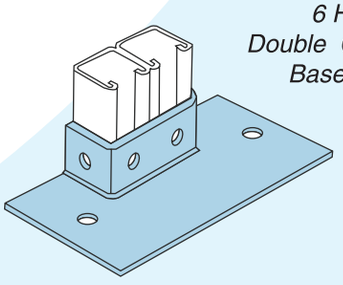
Thickness = 6 mm

6 Hole
Double Channel
Base Post



Thickness = 6 mm

6 Hole
Double Channel
Base Post

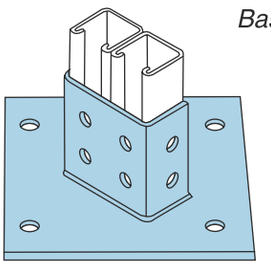


Thickness = 6 mm

BASE POSTS

DS809

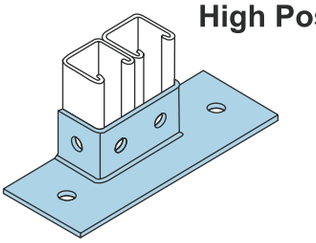
BTB High Base Post



Thickness = 6 mm

DS810

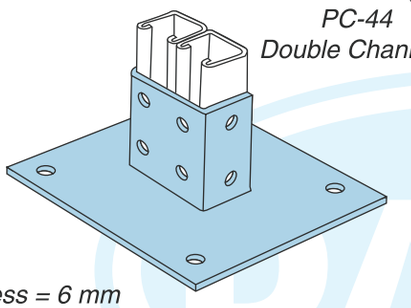
Double Channel High Post Base



Thickness = 6 mm

DS809

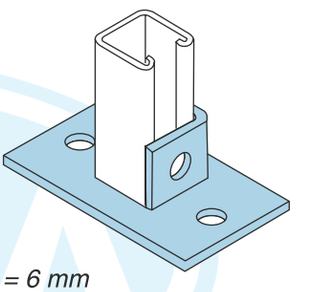
Base Post High PC-44 Double Channel



Thickness = 6 mm

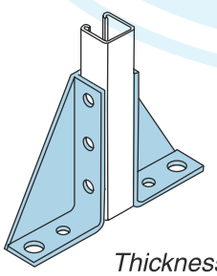
DS810

Base Post PC-44



Thickness = 6 mm

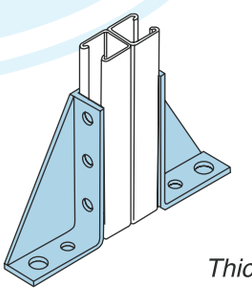
DS809



Thickness = 6 mm

DS810

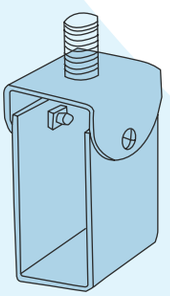
BTB Gusset Base Post



Thickness = 6 mm

CHANNEL HANGERS

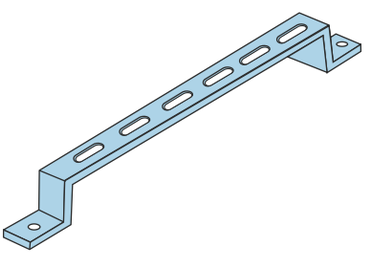
DS809



Thickness = 2.5 mm

FLOOR BRACKET

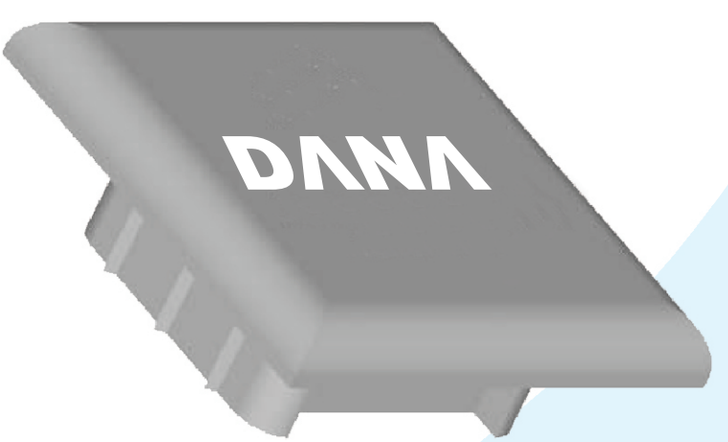
DS810



Thickness = 2.0 mm

CHANNEL END CAP

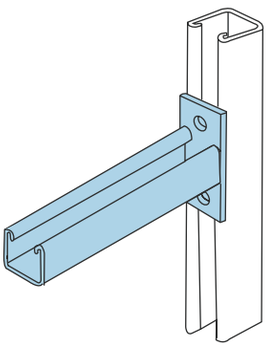
41 x 21 End Cap



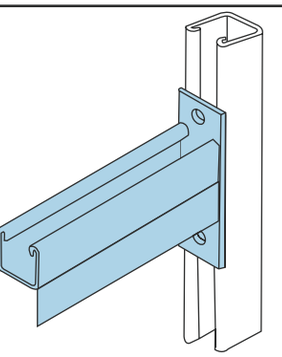
41 x 41 End Cap

CANTILEVERS

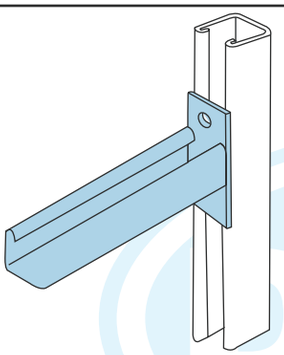
DS-1



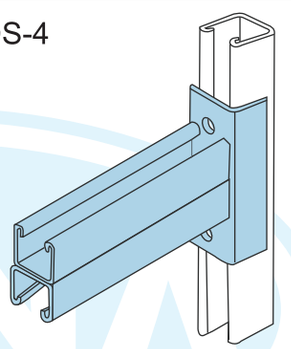
DS-2



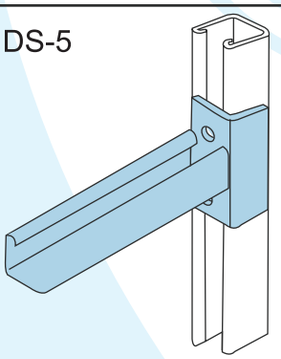
DS-3



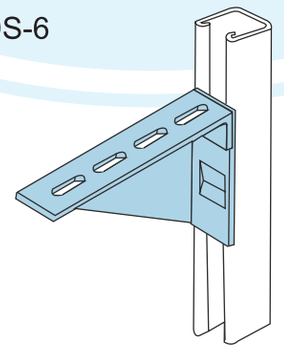
DS-4



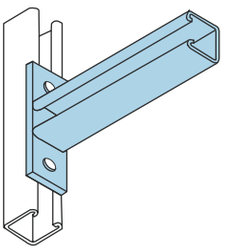
DS-5



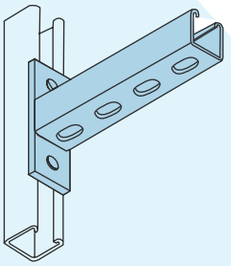
DS-6



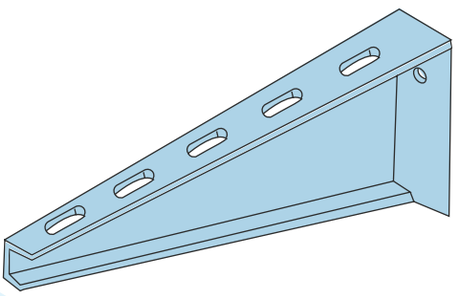
DS-7



DS-8

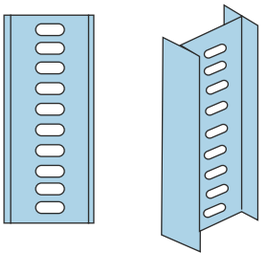


DS-9

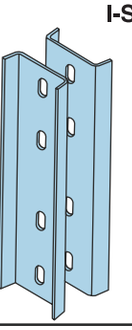


I-BEAM SUPPORTS

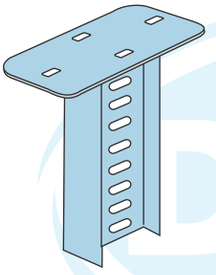
DS 909 **I - Support**



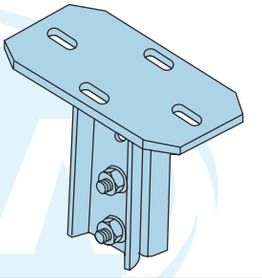
DS 910 **I-Support Connector**



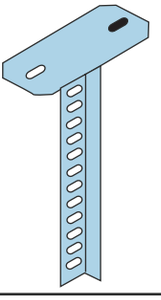
DS 911 **Top Head I-Support**



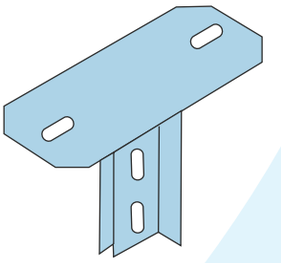
DS 912 **Base-Head Plate**



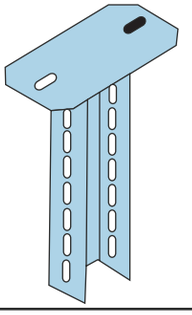
DS 913 **Top Head T-Support**



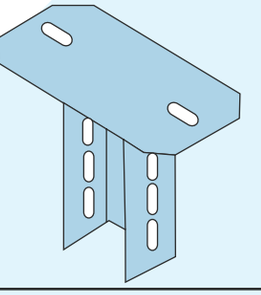
DS 914 **Base Head Plate**



DS 915 **Top Head Plate**

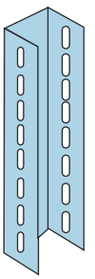


DS 916 **Base Head Plate**

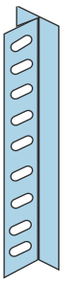


I-BEAM SUPPORTS

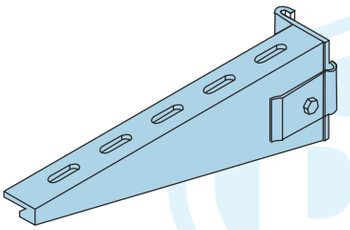
U Support



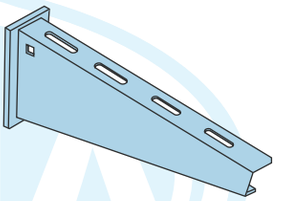
T - Support Bracket



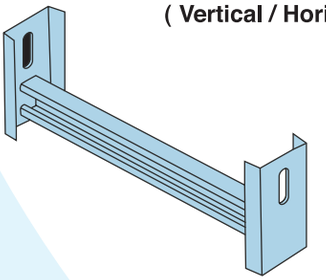
I - Support Bracket



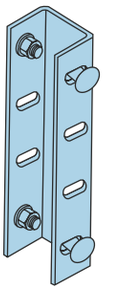
U - Support Bracket



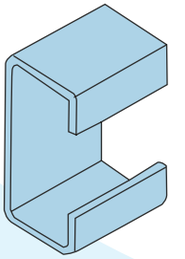
Joint Bracket
(Vertical / Horizontal)



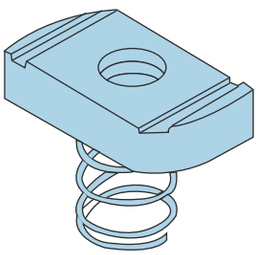
U Support Connector



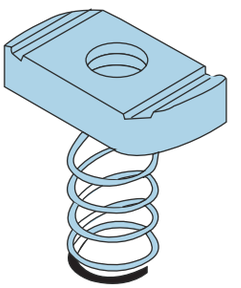
Spacer



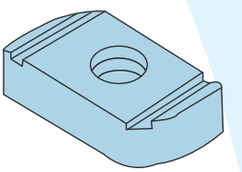
FASTNERS



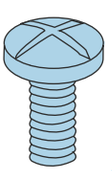
Channel Nut with short spring



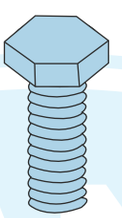
Channel Nut with long spring



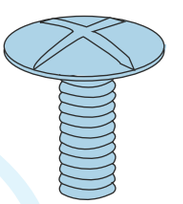
Channel Nut without spring



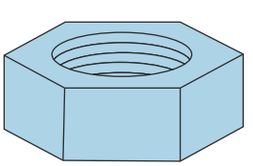
Machine Screw



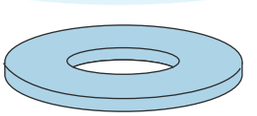
Hexagonal Bolt



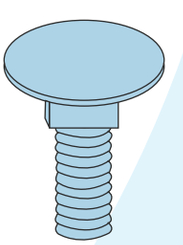
Roofing Bolt



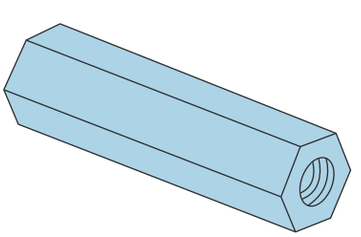
Hexagonal Nut



Flat Washer

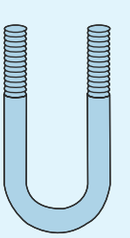


Carriage Bolt



Channel Nut

Threaded Rod



U - Bolt

PROPERTIES OF SECTION PROFILES

Distance between supports L (mm)	Safe Working Load as total UDL across span (kN)	UDL at L/180 Deflection (kN)	UDL at L/360 Deflection (kN)	Maximum Axial Column Load (kN)
500	23.28	-	-	105.0
1000	11.64	-	-	91.1
1500	7.76	-	7.5	63.3
2000	5.82	-	4.3	40.2
2500	4.65	-	2.7	26.8
3000	3.88	3.8	1.9	19.0

BTB 42

500	6.96	-	-	69.0
1000	3.48	-	2.6	44.1
1500	2.32	2.3	1.2	23.0
2000	1.74	1.3	0.6	13.3
2500	1.39	0.8	0.4	8.7
3000	1.16	0.6	0.3	-

Important notes on loading data supplied:
Loads have been treated as imposed loads in accordance with BS 5950 with a load factor of 1.6

Beam loads - assumptions

Beams are simply supporte d over span L
Load is applied perpendicular to the axis XX
There is lateral restraint to the beams
No r estriction to loads which may exceed slip resistance of bracket fixings

Column loads - assumptions

Distance between supports is the "effective length" of column
Slenderness ratio is calculated with the lesser value of radius of gyration of the profile, and restricted to L/r < 180
In practical assembly conditions, using brackets, it will be necessary to calculate the bending moment and combine with axial column loading to establish a safe working load.

Pull out loads

Strut channel n ut type	Recommended maximum load (kN)
M12	9.0
M10	7.0
M8	5.0
M6	3.5

Resistance to slip.

To provide resistance to slip at bolted connections it is recommended that M12 set screws should be used with M12 strut channel nuts, toque tightened to 65 Nm.

The loading data for bracket connections is given with other data on brackets, this incorporates resistance to slip.

PROPERTIES OF SECTION PROFILES

		Axis XX		
	Moment of inertia I (mm4)	Section modulus Z (mm3)	Radius of gyration r (mm)	Maximum Bending Moment M (Nm)
PC 44	75000	3400	14.9	530
PC 42	13000	1000	7.5	156
BTB 44	380000	9300	23.8	1455
BTB 42	59000	2800	11.3	435

		Axis YY		
	Moment of inertia I (mm4)	Section modulus Z (mm3)	Radius of gyration r (mm)	Maximum Bending Moment M (Nm)
PC 44	93000	4600	16.6	720
PC 42	56000	2700	15.6	420
BTB 44	186000	9200	16.6	1440
BTB 42	112000	5400	15.6	845

Loading tables

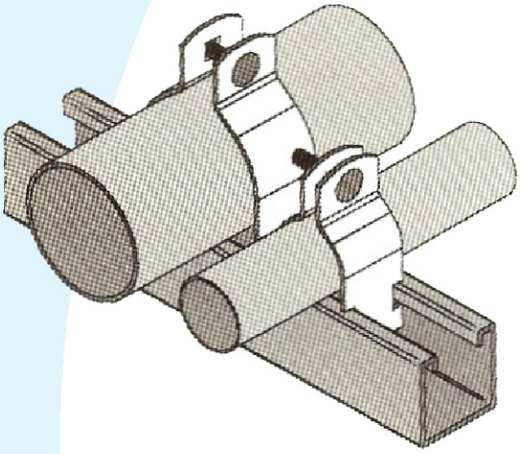
PC 44

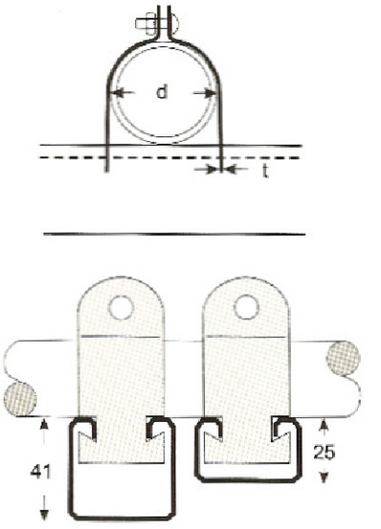
Distance between supports L (mm)	Safe Working Load as total UDL across span (kN)	UDL at L/180 Deflection (kN)	UDL at L/360 Deflection (kN)	Maximum Axial Column Load (kN)
500	8.48	-	-	50.0
1000	4.24	-	3.36	33.5
1500	2.86	-	1.49	20.1
2000	2.12	1.68	0.84	12.7
2500	1.67	1.07	0.53	9.0
3000	1.41	0.75	0.37	7.0

PC42

500	2.5	-	2.32	29.4
1000	1.25	1.16	0.58	11.5
1500	0.83	0.51	0.26	5.2
2000	0.61	0.29	0.14	-
2500	0.50	0.18	0.09	-
3000	0.41	0.12	-	-

STRUT CLAMPS FOR PIPES AND CONDUITS





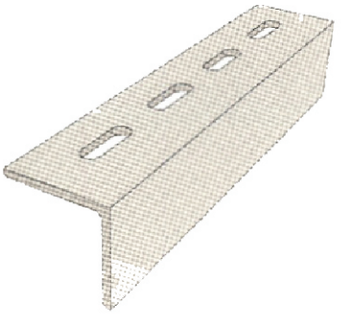
Technical Data

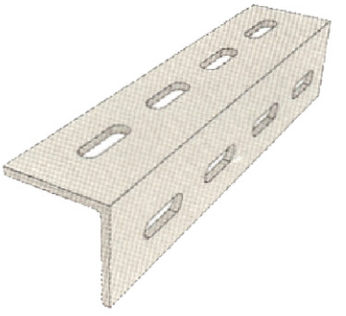
Code	Pipe mm	Size in	d mm	T mm	Bolt and Nut Size	Weight gm/set	Max. Load kg
DL-26	12	½"	21.7	1.5	¼" x ¾"	52	180
DL-27	19	¾"	27.2	1.5	¼" x ¾"	55	180
DL-28	25	1"	34.0	2.0	¼" x 1"	72	270
DL-29	32	1¼"	42.7	2.0	¼" x 1"	86	270
DL-30	40	1½"	48.6	2.0	¼" x 1"	92	270
DL-31	50	2"	60.5	2.6	5/16" x 1½"	154	360
DL-32	65	2½"	76.3	2.6	5/16" x 1½"	195	360
DL-33	75	3"	89.1	2.6	5/16" x 1½"	214	360
DL-34	100	4"	114.3	3.0	3/9" x 1½"	359	420
DL-35	125	5"	139.8	3.0	3/9" x 1½"	359	420
DL-36	150	6"	165.2	3.4	3/9" x 1½"	455	450
DL-38	200	8"	216.3	3.4	3/9" x 1½"	586	450
DMP-19A	19		19.1mm	1.4	¼" x ¾"	52	180
DMP-25A	25		25.4mm	1.4	¼" x ¾"	55	180
DMP-32A	31		31.8mm	2.0	¼" x 1"	72	270
DMP-40A	39		38.1mm	2.0	¼" x 1"	86	270
DMP-50A	51		50.8mm	2.0	¼" x 1"	92	270
DMP-65A	63		63.5mm	2.6	5/16" x 1½"	154	360

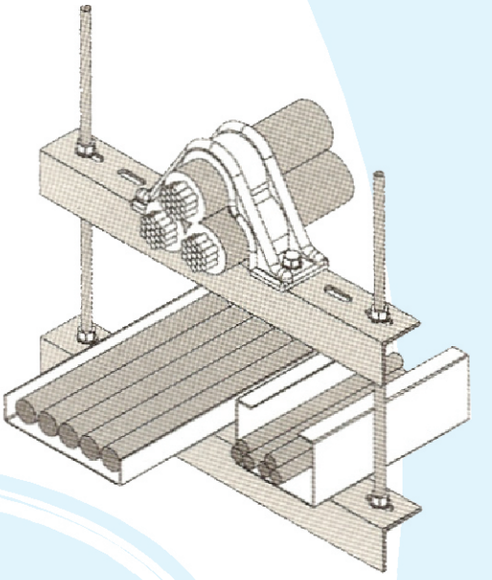
- Quick and easy installation.
- Suitable for pipes, conduits and even cables.
- DL series for pipes and DMP series for conduits.
- Fits into both 41mm and 25mm strut channels.
  Excellent finishing for indoor and outdoor us

HSA - Hot-Dipped Galvanised Slotted Angle

Single Slotted **Double Slotted**







The **DANA Slotted Angle** meets the requirement of 'No Drilling" & fully] galvanised support brackets and it is able to take heavy load. As the slots are elongated, it allows adjustments fast and easy. It is also a perfect solution for building a heavy-duty rack. It does not require any weldings to safely assemble support systems and metal framings, so that it can be disassemble later.

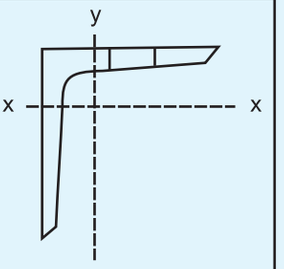
The **DANA Slotted Angle** are pre-slotted and Hot-dipped Galvanised to BS729 that makes it ready to use.

Physical Dimension

Code	Thickness	z	Length	y	x	Line of Slots
DSA-3831	3mm	38mm	3m	53mm	9.5mm x 32mm	Single
DSA-3832	3mm	38mm	3m	53mm	9.5mm x 32mm	Double
DSA-5041	4mm	50mm	3m	53mm	9.5mm x 32mm	Single
DSA-5042	4mm	50mm	3m	53mm	9.5mm x 32mm	Double
DSA-5061	6mm	50mm	3m	53mm	13.5mm x 32mm	Single
DSA-5062	6mm	50mm	3m	53mm	13.5mm x 32mm	Double
DSA-6561	6mm	65mm	3m	53mm	13.5mm x 32mm	Single
DSA-6562	6mm	65mm	3m	53mm	13.5mm x 32mm	Double
DSA-7561	6mm	75mm	3m	53mm	13.5mm x 32mm	Single
DSA-7562	6mm	75mm	3m	53mm	13.5mm x 32mm	Double

Sectional Properties Axis x-x

Code	Hole Width mm	Moment of Inertia cm^4	Section Modulus cm^3	Radius of Gyration cm
DSA-3831	10	2.76	1.06	1.21
DSA-5041	10	8.61	2.49	1.58
DSA-5061	13	11.82	3.59	1.56
DSA-6561	13	25.20	5.83	1.98
DSA-7561	13	44.09	8.44	2.37



S #	Final Customer	Project Name	Plant Type	Delivery Period (month/year)	Place of Construction
1	EMICOOL Union Properties PJSC	Dubai Motor City Project	District Cooling Plant	2007	Dubai
2	Ministry of Transport and Communications - Oman, Daewoo Shipbuilding and Marine Engineering (DSME) - South Korea , Ministry of National Economy Oman	Duqm Port in Gulf of Masirah, Oman	Port and neighbouring infrastructure projects	2009 till 2011	Oman
3	SNC Lavalin	Ambatovy Nickel Pipeline Project	Mining and preparation Plant	2009	Madagascar
4	BURULLUS GAS COMPANY	WDDM – Phase VII Main Compression Project	Gas Compression Project	2010	Egypt
5	SAUDI ARAMCO	KARAN ARAMCO OFFSHORE AND SUBSEA PIPELINES PROJECT	Offshore Gas Field Production Plant	2009-2010	Karan, KSA
6	EMAL (Dubai Aluminium Company Limited (DUBAL) and Mubadala Development Company	Emirates Aluminium Smelter Complex	Smelter complex	2009	Taweelah, Abu Dhabi
7	DEWA (Dubai Electr icity and Water Authority)	Project 2202 : Jebel Ali DEWA substation for Blocks 1,2 & 3	Black Diesel Start Generator Set	2007 - till date	Jebel Ali
8	ADNOC Group, Abu Dhabi Polymers Company (BOROUGE LLC)	Petrochemical Complex Expansion : Phase 2	PetroChemical Complex	2008 till date	Ruwais
9	YEMEN LNG	TOTAL CCU extension project	Cent ral Compression Unit	2010	Yemen
10	ADNOC Group, Abu Dhabi Polymers Company (BOROUGE LLC)	Petrochemical Complex Expansion : Borouge	PetroChemical Complex	2008	Ruwais
11	Jay Ray McDermott	Transformer Skids for Port	Jebel Ali Port	2010	Jebel Ali
12	Cimac FZCO	RAK GAS Project	Gas Project	2009	Ras Al Khaimah
13	GS Engineering and Construction	Green Diesel Project	Refinery Expansion	2009	Ruwais
14	TRANSCO (Abu Dhabi Transmission and Despatch company) , ADWEA	IWPP Fujairah Phase II Water Transmission Project System	Water Transmission Project	2008	Abu Dhabi
15	ADNOC Group, Abu Dhabi Polymers Company (BOROUGE LLC)	Borouge 2	PetroChemical Complex	2008-till date	Ruwais
16	DEWA (Dubai Electricity and Water Authority)	DFO PipeLine from Jebel Ali Free Zone to Aweer Power Station	PipeLine	2008-till date	Dubai
17	BP SAJAA SHARJAH LTD .	Jet Fuel Storage Facility (Anabeeb)	PipeLine	2008	Sharjah

S #	Final Customer	Project Name	Plant Type	Delivery Period (month/year)	Place of Construction
18	Emaar Properties PJSC	Infinity Tower, Dubai Marina	Commercial Complex	2008	Dubai
19	Hayan Petroleum Company (HPC)	Jihar Stage 3 Projet	Gas Treatment Plant	2009	Syria
20	Tamouh Investments	Al Reem Island : Zone C, Shopping Mall in Zone E1	Commercial Complex	2008	Dubai
21	BOROUGE LLC	Petrochemical Complex Expansion : Borouge	PetroChemical Complex	2009	Ruwais
22	DEWA (Dubai Electricity and Water Authority)	Power Plant and DeSalination Plant Phase 'M' Block 1	Power Plant	2008	Jebel Ali, Dubai
23	DEWA (Dubai Electricity and Water Authority)	Gas Compression Plant for Power Plant and DeSalination Plant Phase 'M' Block 1, 2 and 3	Gas Compression Plant	2009	Jebel Ali, Dubai
24	Gulf Steel Factory	Gulf Steel Rolling Mill Project	Mill	2009	Abu Dhabi
25	Dubailand	Skycourts Apartments	Commercial Complex	2008	Dubai
26	RTA , Dubai	Metro Station : Al Qusais Parking	Metro Project	2009	Dubai
27 E	nterprise de construction et des services	Avenue Georges Clemenceau,	Building Project	2009	Djibouti
28	Flowserve	Inhouse requirements	Pump Transport boxes	2009	Jebel Ali
29	Al Jazeera Port	Al Hamra Development Project	Port and maintenance	2009	Ras Al Kahimah
30	SNC Lavalin , Fichtner	Al Qatrana Power Project	Power Plant Project	2010	Jordan
31	Bechtel Overseas	Angola LNG Project	Angola LNG Project	2009 , 2010	Angola

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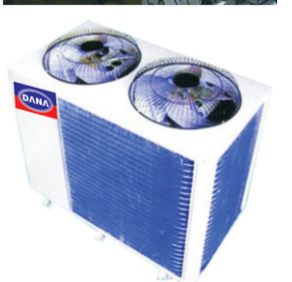

Printed by : Raj Printers (India) +91-11-9811568084