

SMART[®]r

Your Trusted Partner in Electrical & Mechanical Support

STRUT CHANNEL & METAL FRAMING Catalogue

STRUTS & FITTINGS
BRACKETS
CONCRETE INSERTS
CONDUIT CLAMPS & HANGERS
ANGLE STEEL
SPRING NUTS
BOLTS & HARDWARE
THREADED RODS
CAST-IN CHANNELS
GENERAL FITTINGS
DfMA



CONTENTS

1 || INTRODUCTION

Some Good Reasons To Use SMART^{Tr} Products

2 || METAL FRAMING SYSTEM APPLICATIONS

DfMA
Tunnel Strut Systems
High Ceiling Strut Systems

3 || STRUT CHANNELS

(Serrated – for superior anti-slip performance)

Single Strut 41 X 41
Double Strut 41 X 82

4 || Single Strut 41 X 21 Double Strut 41 X 42

5 || Single Strut Slotted 41 X 41 Single Strut Slotted 41 X 21

6 || Single Strut 41 X 62 Single Strut Slotted 41 X 62

7 || CONCRETE INSERTS & CABLE HANGER HOOK

Concrete Insert 41 X 21
Concrete Insert 41 X 41
Cable Hanger Hook
Cable Hanger Backplate

8 || CLAMPING SYSTEMS & SUPPORT FIXTURES

Standard Pipe Clamp with Rubber
2 PC Conduit Pipe Clamp
Pipe Hanger
'U' Bolt 'I' Beam Clamp
'U' Bolt 'I' Beam Clamp 86MM
Wedge C-Clamp

9 || TREFOIL CABLE CLAMP CANTILEVER ARM & CABLE COVER CHANNEL

Trefoil Cable Clamp - 300SQMM
Trefoil Cable Clamp - 400SQMM
Trefoil Cable Clamp - 630SQMM
Single Channel Bracket
Double Channel Bracket
Braced Channel Bracket
Cable Cover Channel

10 || FLOOR BRACKET / POST BASE & STRUT FITTINGS

FLOOR BRACKET / POST BASE

1 Hole Single Angle 2 Hole Double Channel
1 Hole Single Channel 2 Hole Single Wing Channel
2 Hole Single Channel 2 Hole Double Wing Channel
1 Hole Double Channel

FLAT PLATE FITTINGS

Square Channel Washer
2 Hole Splice Plate
3 Hole Splice Plate

11 || STRUT FITTINGS

FLAT PLATE FITTINGS

4 Hole Splice Plate
5 Hole Splice Plate
3 Hole Half Tee Plate
4 Hole Tee Plate
5 Hole Cross Plate

ANGLE FITTINGS

2 Hole Corner Angle
3 Hole Corner Angle
4 Hole Corner Angle
Angle Corner Support

12 || WING FITTINGS

Wing Support Short One Wing Support
Wing Support Long 2 Hole Shallow Z Support
Corner Support Short 2 Hole Deep Z Support
Corner Support Long Shallow U Support
Tee Wing Support Short U Support
Tee Wing Support Long Deep U Support

13 || CHANNEL NUTS & HARDWARE

SPRING NUTS & WEDGE NUT

Channel Nut Without Spring
Short Spring Nut
Regular Spring Nut
Long Spring Nut
Wedge Nut

BOLTS, NUTS, WASHER

Hex Bolt
FLAT WASHER
Truss Head Machine Screw
Lock Washer
Hex Nut

14 || THREADED ROD & HARDWARE

C-BRACKET

3X4X3-3/4 C-Bracket
4X6X6 C-Bracket
3X4X5 C-Bracket

THREADED RODS

THREAD ROD COUPLER
CONDUIT CLIP (KON CLIP)

15 || CAST-IN CHANNEL SYSTEMS

CAST-IN CHANNEL AND BOLT ANCHOR TYPE SELECTION

Nail-Anchor
I-Anchor

16 || COLD ROLLED CAST-IN CHANNEL

Cold Rolled Cast-In Channel 28 X 15
Cold Rolled Cast-In Channel 38 X 17
Cold Rolled Cast-In Channel 40 X 25
Cold Rolled Cast-In Channel 49 X 30
Cold Rolled Cast-In Channel 54 X 33
Cold Rolled Cast-In Channel 72 X 49

17 || HOT ROLLED CAST-IN CHANNEL

Hot Rolled Cast-In Channel 40 X 22
Hot Rolled Cast-In Channel 50 X 30
Hot Rolled Cast-In Channel 52 X 34
Hot Rolled Cast-In Channel 72 X 48

SERRATED HOT-ROLLED CHANNELS

Serrated Cast-In Channel 29 X 20
Serrated Cast-In Channel 38 X 23

18 || REFERENCE TABLES

BEAM SUPPORT CONDITIONS

Cantilever Beams
Simple Beams
Beams Fixed At One End & Supported At The Other
Beams Fixed At Both Ends

19 || CONVERSION FACTORS FOR BEAMS WITH VARIOUS STATIC

REFERENCE TABLES AND DATA

20 || UNIT CONVERSIONS

ENGLISH TO METRIC
METRIC TO ENGLISH

INTRODUCTION



**Your Trusted
Partner**
in Electrical &
Mechanical Support



Reliable Partner in Conduit Solutions Since 1996

SMART^{Tr} International is a Singapore-based manufacturer specializing in electrical containment and support systems, including **metal framing solutions** designed for light, medium, and heavy-duty applications across diverse sectors, serving the industry since 1996.

Certified under **ISO 9001:2015** and **ISO 14001:2015**, we are committed to delivering industry-compliant, high-performance framing components. Our products are widely used in electrical, **DfMA (Design for Manufacture and Assembly)**, mechanical, plumbing, HVAC, and data centre installations, for both new construction and retrofit projects across Southeast Asia, Middle East and international markets.

As a **major supplier of DFMA components**, SMART^{Tr} offers **pre-cut and cut-to-length** strut channel solutions to support off-site fabrication, improve consistency, and minimise site disruption. Our production process follows strict QC protocols from raw material selection to final inspection, ensuring **consistent quality, structural integrity**, and long-term reliability.

SMART^{Tr} metal framing products are trusted and widely used in major infrastructure, commercial, and industrial projects throughout Singapore and international markets.

Why Is SMART^{Tr} Metal Framing Better?



Made from high-strength steel for excellent load-bearing capacity



Modular strut systems designed for customized infrastructure solutions



Dimensionally accurate with uniform quality



Supports DfMA principles for faster installation and reduced site disruption



Products are securely packed and bundled for easy handling and maximum protection

METAL FRAMING SYSTEM APPLICATIONS

PRACTICAL USE CASES OF METAL FRAMING SYSTEMS

DfMA (DESIGN FOR MANUFACTURE & ASSEMBLY)

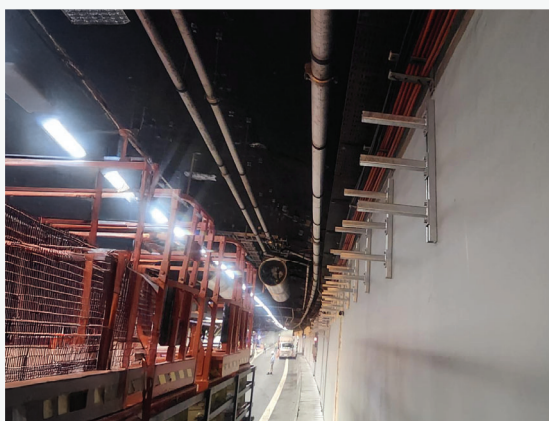
SMART's "cut-first, then-galvanize" struts come pre-cut to length, ensuring clean edges and full corrosion protection—unlike conventional systems that leave cut ends exposed.

Benefits of SMART's DfMA approach include:

Fully galvanized profiles with sealed cut edges, offering enhanced durability and long-term corrosion resistance.

Zero on-site cutting, reducing labour, debris, and installation time.

Efficient prefabrication that supports modular construction and minimizes disruption to active job sites.



TUNNEL STRUT SYSTEMS

SMART tunnel strut systems are engineered to meet strict safety and design standards, especially in confined and high-demand environments.

Our team provides fully customizable solutions tailored to specific tunnel layouts and requirements.

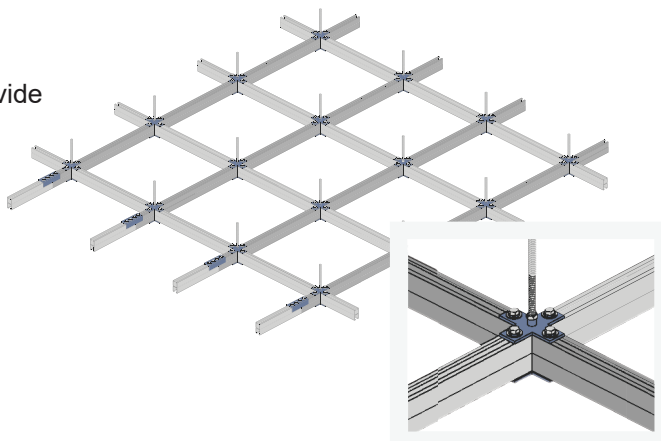
Trusted across multiple tunnel projects worldwide, SMART continues to deliver reliable and site-optimized support systems.

HIGH CEILING STRUT SYSTEMS

SMART high ceiling strut systems are designed to provide flexibility for complex overhead installations, offering efficient support for cable routing, fire suppression, and utility containment.

SMART systems enable faster installation and reduce labour costs, delivering significant savings over conventional bulky ceiling structures.

These systems are ideal for suspended service environments such as lighting, cable trays, fibre ducts, fire safety systems, and power busways.

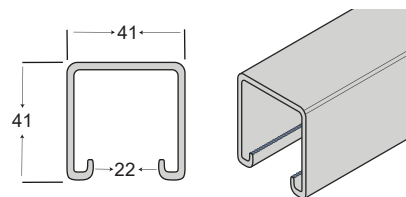


STRUT CHANNELS

(Serrated – for superior anti-slip performance)

SINGLE STRUT 41 x 41

Item Code	: SS-4141
Dimension	: 41mm x 41mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 2.78kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

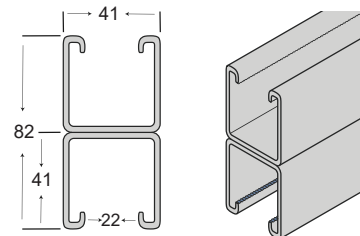
BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.GK = 1.2 (kN)
			Span/240	Span/360		
500	927	1	927	927	2129	34.8
1000	463	4	460	336	1397	21.3
1500	309	9	224	153	1091	13.4
2000	231	15	122	82	887	9.6
2500	185	24	82	51	734	-
3000	154	34	51	40	-	-
3500	133	46	40	31	-	-
4000	122	62	31	20	-	-
4500	101	78	31	20	-	-
5000	91	97	20	NR	-	-
6000	81	136	NR	NR	-	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
3.58	7.68	3.30	1.46	9.80	4.75	1.65

Note:
I - Moment of Inertia
Z - Section Modulus
R - Radius of Gyration

DOUBLE STRUT 41 x 82

Item Code	: SS-4141-BB
Dimension	: 41mm x 82mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 5.5kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.GK = 1.2 (kN)
			Span/240	Span/360		
500	2688	1	2688	2688	2957	97.4
1000	1344	2	1325	1325	2886	83.9
1500	896	5	887	754	2733	56.4
2000	672	9	642	428	2437	33.3
2500	537	14	407	275	2080	21.3
3000	448	20	285	193	-	-
3500	377	26	203	142	-	-
4000	326	34	163	112	-	-
4500	295	44	122	81	-	-
5000	265	53	101	71	-	-
6000	224	78	71	40	-	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
7.16	38.62	9.36	2.32	19.50	9.50	1.65

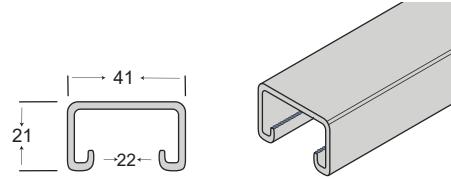
Note:
I - Moment of Inertia
Z - Section Modulus
R - Radius of Gyration

STRUT CHANNELS

(Serrated – for superior anti-slip performance)

SINGLE STRUT 41 X 21

Item Code	: SS-4121
Dimension	: 41mm x 21mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 1.45kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

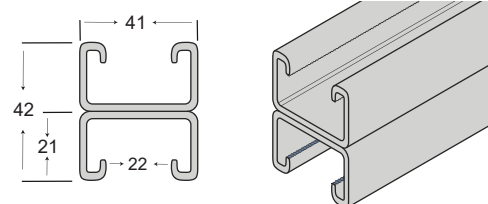
BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.GK = 1.2 (kN)
			Span/240	Span/360		
500	302	1.9	270	194	1050	24.4
1000	151	7.0	101	71	924	10.5
1500	100	15.0	41	31	640	-
1750	91	21.0	31	20	520	-
2000	75	26.8	31	20	-	-
2500	60	43.0	20	10	-	-
3000	50	60.0	10	10	-	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
2.55	1.54	1.18	0.78	5.94	2.88	1.53

Note:
 I - Moment of Inertia
 Z - Section Modulus
 R - Radius of Gyration

DOUBLE STRUT 41 X 42

Item Code	: SS-4121-BB
Dimension	: 41mm x 42mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 2.9kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.GK = 1.2 (kN)
			Span/240	Span/360		
500	893	1.4	795.0	795.0	1917	66.0
1000	446	4.3	467.0	326.1	1855	44.8
1500	297	9.6	214.0	142.7	1672	21
1750	245	11.7	163.1	101.0	1529	16
2000	223	16.0	122.2	81.3	1356	-
2500	178	24.0	81.3	50.1	1060	-
3000	148	36.0	50.0	40.2	-	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
5.10	7.33	3.30	1.20	11.87	5.75	1.53

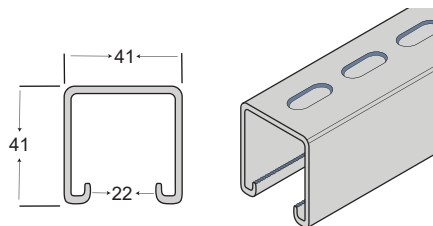
Note:
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 Z - Section Modulus
 R - Radius of Gyration

STRUT CHANNELS

(Serrated – for superior anti-slip performance)

SINGLE STRUT SLOTTED 41 X 41

Item Code	: SS-4141-SL
Dimension	: 41mm x 41mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 2.75kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

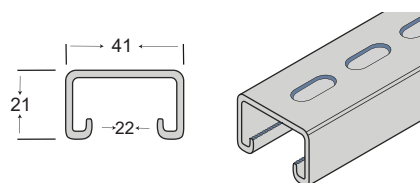
BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.GK = 1.2 (kN)
			Span/240	Span/360		
500	861	1.24	861	861	861	16.0
1000	430	4.37	430	272	272	13.6
1500	287	9.85	218	121	121	10.4
2000	215	17.48	122	67	67	8.8
2500	172	27.32	78	43	43	7.3
3000	143	39.25	54	30	30	-
3500	127	51.1	36	27	27	-
4000	113	69.5	27	18	18	-
4500	99	90.6	23	NR	NR	-
5000	87	114.8	18	NR	NR	-
6000	77	141.7	NR	NR	NR	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
2.90	6.13	3.02	1.46	9.19	4.45	1.78

Note:
I - Moment of Inertia
Z - Section Modulus
R - Radius of Gyration

SINGLE STRUT SLOTTED 41 X 21

Item Code	: SS-4121-SL
Dimension	: 41mm x 21mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 1.39kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.GK = 1.2 (kN)
			Span/240	Span/360		
500	282	2.22	308.0	177.0	1298	-
1000	141	6.07	79.0	44.0	861	-
1500	94	13.64	35.0	20.0	-	-
1750	75	18.6	27.0	16.3	-	-
2000	64	24.26	20.0	11.0	-	-
2500	56	37.90	13.0	7.0	-	-
3000	47	54.57	9.0	5.0	-	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
1.97	0.99	0.92	0.71	5.31	2.57	1.65

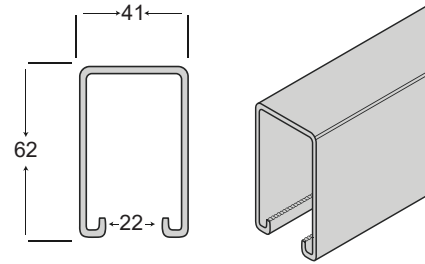
Note:
I - Moment of Inertia
Z - Section Modulus
R - Radius of Gyration

STRUT CHANNELS

(Serrated – for superior anti-slip performance)

SINGLE STRUT 41 X 62

Item Code	: SS-4162
Dimension	: 41mm x 62mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 3.42kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



Beam loading data shown below is based on 2.5mm thickness.

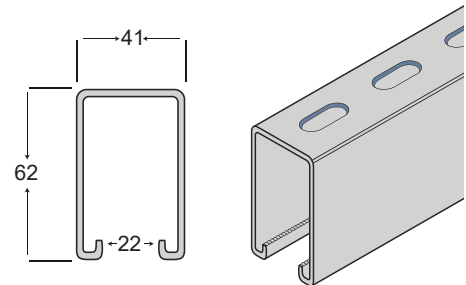
BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.G.K = 1.2 (kN)
			Span/240	Span/360		
610	1487	1	1487	1487	2036	50.8
914	993	2	993	993	1728	32.0
1219	743	4	743	648	1397	20.9
1524	594	6	594	412	1183	15.5
1829	494	9	430	285	1038	12.3
2134	426	12	317	213	929	10.2

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
9.4	21.8	6.4	2.2	13.9	6.8	1.7

Note:
 I - Moment of Inertia
 Z - Section Modulus
 R - Radius of Gyration

SINGLE STRUT SLOTTED 41 X 62

Item Code	: SS-4162-SL
Dimension	: 41mm x 62mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 3.32kg/m
Available Length	: 3m / 5.8m / 6m as standard length
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



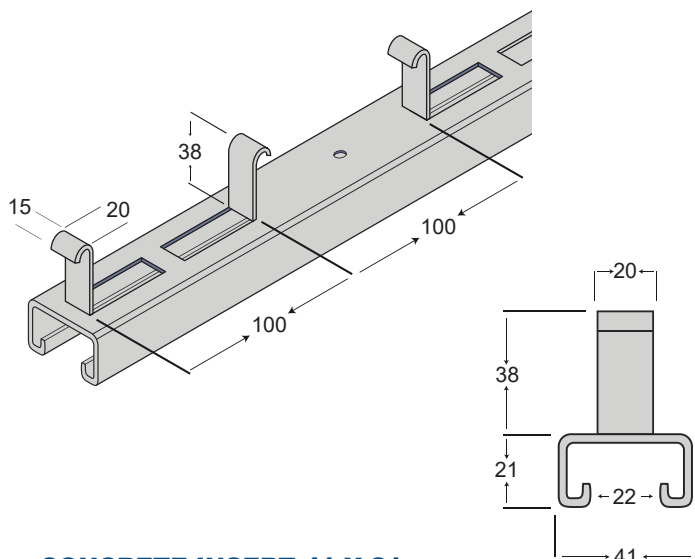
Beam loading data shown below is based on 2.5mm thickness.

BEAM LOADING (METRIC) (FOR 2.5MM)					COLUMN LOADING (METRIC)	
Span / Effective Length (mm)	Max. Allowable Uniform Load (kg)	Max. Load Deflection (mm)	Uniform Load at Deflection		Max. Load at Slot Face (kg)	Max. Column Load @ C.G.K = 1.2 (kN)
			Span/240	Span/360		
610	1256	0.85	2284	2284	2513	82.7
914	1142	1.7	1126	1126	2453	71.3
1219	761	4.25	753	640	2323	47.9
1524	571	7.65	545	363	2071	28.3
1829	456	11.9	345	233	1768	18.1
2134	380	17	242	164	-	-

Area of Section (cm ²)	AXIS X-X			AXIS Y-Y		
	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)	Moment of Inertia (cm ⁴)	Section Modulus (cm ³)	Radius of Gyration (cm)
7.99	32.82	7.95	1.97	16.57	8.07	1.40

Note:
 I - Moment of Inertia
 Z - Section Modulus
 R - Radius of Gyration

CONCRETE INSERTS & CABLE HANGER HOOK

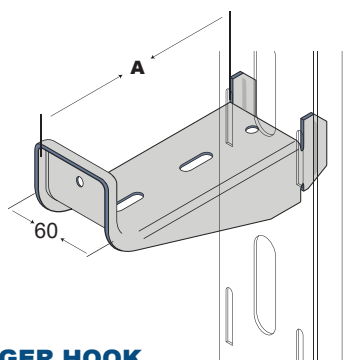


CONCRETE INSERT 41 X 21

Item Code	: SS-4121-CI
Dimension	: 41mm x 21mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 1.90kg/m
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L
Loading Data	: The load capacity of any concrete insert depends largely on the strength of the concrete.
Recommended Pullout Loading	: No specific load rating can be guaranteed. : Inserts 300mm and over 667kgf per 300mm

Notes:

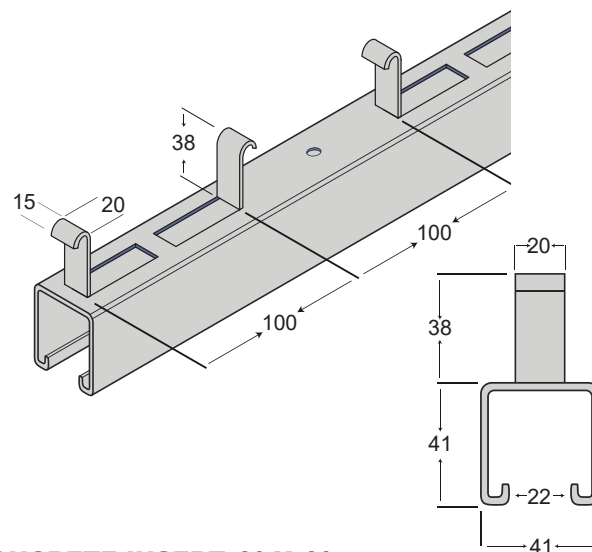
- Exercise care during installation. Do not bend lugs.
- The maximum allowable point load may be applied at any location along the insert.
- All point loads placed within 50mm from the end of the insert must be reduced by 50%.
- Made to order, MOQ and lead time apply



CABLE HANGER HOOK

Item Code	: SSA-CHA
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

Code No.	Size A (mm)
SSA-CHA-125	125
SSA-CHA-150	150
SSA-CHA-175	175
SSA-CHA-200	200
SSA-CHA-250	250

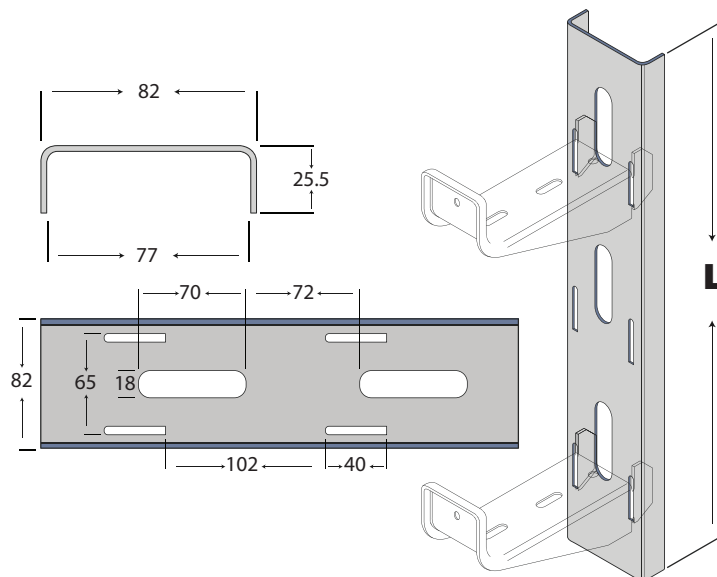


CONCRETE INSERT 41 X 41

Item Code	: SS-4141-CI
Dimension	: 41mm x 41mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Available Thickness	: 1.6mm - 2.5mm
Weight	: 2.80kg/m
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L
Loading Data	: The load capacity of any concrete insert depends largely on the strength of the concrete.
Recommended Pullout Loading	: No specific load rating can be guaranteed. : Inserts 300mm and over 8.43kN per 300mm

Notes:

- Exercise care during installation. Do not bend lugs.
- The maximum allowable point load may be applied at any location along the insert.
- All point loads placed within 50mm from the end of the insert must be reduced by 50%.
- Made to order, MOQ and lead time apply



CABLE HANGER BACKPLATE

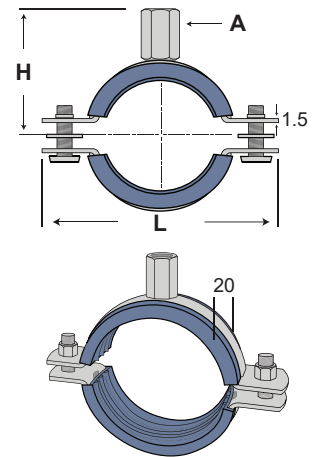
Item Code	: SSA-CHB
Dimension	: 82mm x 25.5mm
Thickness	: 2.5mm
Length (L)	: Subject to Project Requirements
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

CLAMPING SYSTEMS & SUPPORT FIXTURES

STANDARD PIPE CLAMP WITH RUBBER (Rubberless version also available upon request)

Standard Material : Steel
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized and other finishes available upon request
Size Range : Larger sizes available upon request

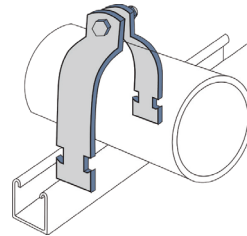
Code No.	Clamping Range	Size of Steel	A	L (mm)	H (mm)	Rec Load (kN)	Quantity / Box Unit	Wt per 100 (kg)
SSA-PCR-12	20-24	1.5x20	M8	62.5	28	1.3	100	5.65
SSA-PCR-34	25-28	1.5x20	M8	68.5	31	1.3	100	6
SSA-PCR-1	32-35	1.5x20	M8	76	34.5	1.3	100	7
SSA-PCR-114	39-46	1.5x20	M8	91.5	39	1.6	50	4.35
SSA-PCR-112	48-53	1.5x20	M8	99	42.5	1.6	50	4.8
SSA-PCR-2	59-66	1.5x20	M8	112	49	1.6	50	5.6



2 PC CONDUIT PIPE CLAMP

Standard Material : Steel
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized and other finishes available upon request
Size Range : Larger sizes available upon request

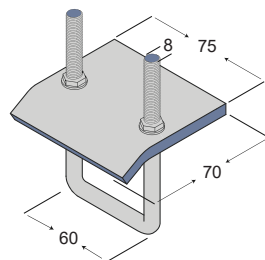
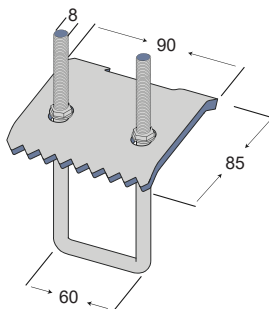
Code No.	Nominal Pipe Size (mm)	O.D Size (mm)	Thickness (mm)	Design Load (kg)
SSA-CONDCLAMP-20	20	26.7	2	272.26
SSA-CONDCLAMP-25	25	33.4	2	272.26
SSA-CONDCLAMP-32	32	42.2	2	272.26
SSA-CONDCLAMP-38	38	48.3	2.5	363.02
SSA-CONDCLAMP-50	50	60.3	2.5	363.02



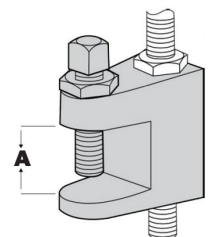
PIPE HANGER

Standard Material : Steel
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized and other finishes available upon request
Note : For use with Rigid Steel Conduit

Code No.	Nominal Pipe Size (mm)	A Diameter (mm)	Weight/C (kg)
SSA-PH-20	20	8	8
SSA-PH-25	25	8	9
SSA-PH-32	32	8	11
SSA-PH-38	38	8	19
SSA-PH-50	50	8	27



Max. Flange Thickness (mm)
25
35
45



'U' BOLT 'I' BEAM CLAMP

Item Code : SSA-UBC-BB
Standard Material : Steel
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized available upon request

'U' BOLT 'I' BEAM CLAMP 86MM

Item Code : SSA-UBC-SS
Standard Material : Steel
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized available upon request

WEDGE C-CLAMP

Item Code : SSA-BC-WCC
Standard Material : Malleable Iron
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized available upon request

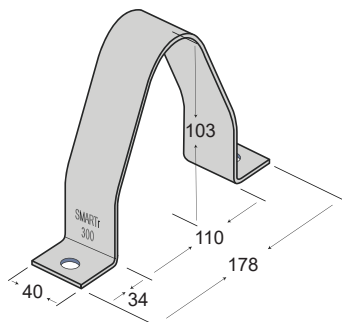
TREFOIL CABLE CLAMP CANTILEVER ARM & CABLE COVER CHANNEL

TREFOIL CABLE CLAMP

Standard Hole Dia	: 12mm
Standard Material	: Mild Steel
Standard Thickness	: 2.5mm
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

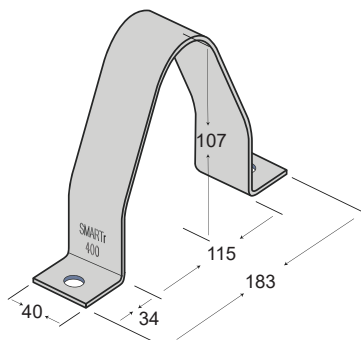
Notes:

- Larger size and Rubber Lining also available on request.
- Minor variations in post height may occur due to production tolerances.



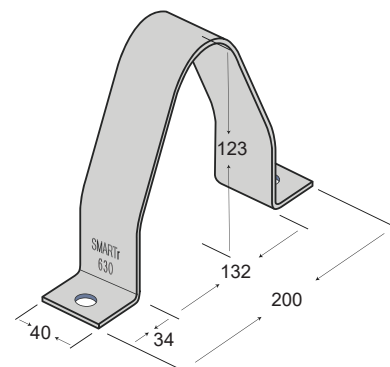
TREFOIL CABLE CLAMP - 300SQMM

Item Code : SSA-TREFOIL CLAMP-300



TREFOIL CABLE CLAMP - 400SQMM

Item Code : SSA-TREFOIL CLAMP-400



TREFOIL CABLE CLAMP - 630SQMM

Item Code : SSA-TREFOIL CLAMP-630

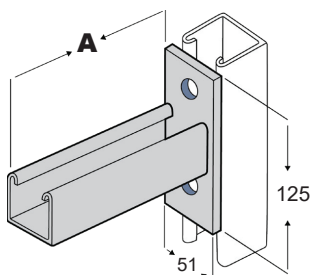
SINGLE CHANNEL BRACKET

Item Code	: SSA-SCA
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

Code No.	Size A (mm)	Uniform Load Vertical Channel (kgf)
SSA-SCA-150	150	526
SSA-SCA-300	300	262
SSA-SCA-450	450	175
SSA-SCA-600	600	131
SSA-SCA-750	750	105
SSA-SCA-900	900	88

Notes:

- Non-standard dimensions available upon request.
- (Made to Order, MOQ applies)



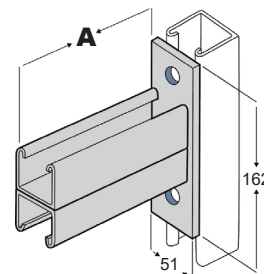
DOUBLE CHANNEL BRACKET

Item Code	: SSA-DCA
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

Code No.	Size A (mm)	Uniform Load Vertical Channel (kgf)
SSA-DCA-300	300	770
SSA-DCA-450	450	527
SSA-DCA-600	600	400
SSA-DCA-750	750	330
SSA-DCA-900	900	275

Notes:

- Non-standard dimensions available upon request.
- (Made to Order, MOQ applies)



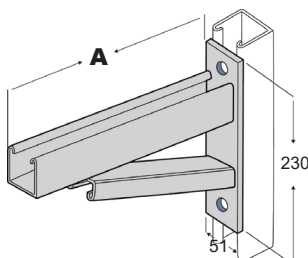
BRACED CHANNEL BRACKET

Item Code	: SSA-BCA
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

Code No.	Size A (mm)	Uniform Load Vertical Channel (kgf)
SSA-BCA-300	300	1000
SSA-BCA-450	450	350
SSA-BCA-600	600	345
SSA-BCA-750	750	294
SSA-BCA-900	900	150

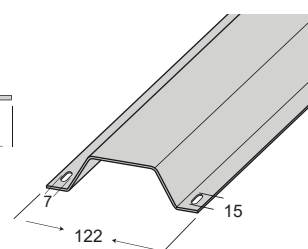
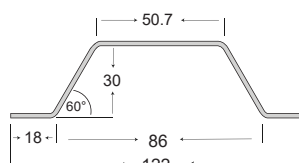
Notes:

- Non-standard dimensions available upon request.
- (Made to Order, MOQ applies)



CABLE COVER CHANNEL

Item Code	: SSA-CABLE COVER
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Standard Thickness	: 2mm
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L



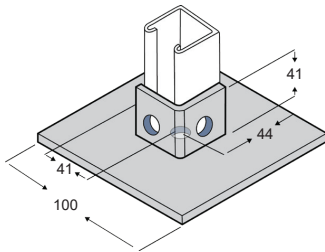
FLOOR BRACKET / POST BASE & STRUT FITTINGS

FLOOR BRACKET / POST BASE

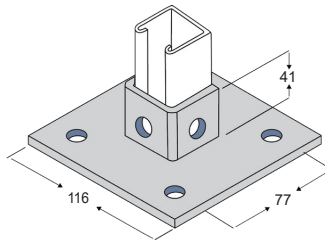
Standard Dimensions : For 41.3mm width series channel fittings
Standard Hole Dia : 12.5mm
Standard Material : Hot-Rolled Low-Carbon Steel
Standard Finish : Hot-Dipped Galvanized
Available Finish : Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

Notes:

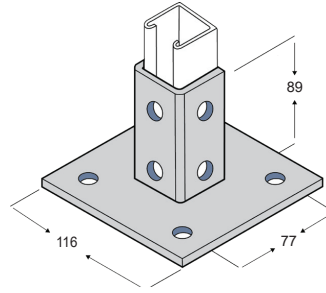
- Dimension available on request.
- Minor variations in post height may occur due to production tolerances.



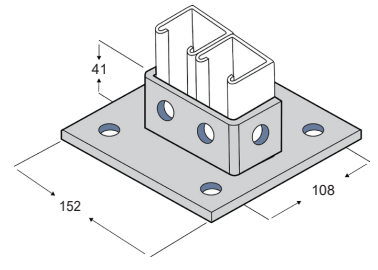
1 HOLE SINGLE ANGLE
Item Code : SSA-PB-ANGLE



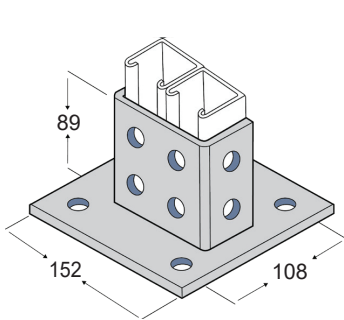
1 HOLE SINGLE CHANNEL
Item Code : SSA-PB-1H1C



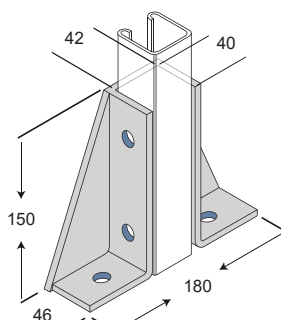
2 HOLE SINGLE CHANNEL
Item Code : SSA-PB-2H1C



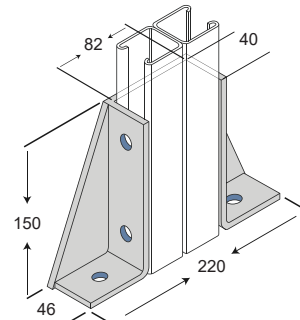
1 HOLE DOUBLE CHANNEL
Item Code : SSA-PB-1HBB



2 HOLE DOUBLE CHANNEL
Item Code : SSA-PB-2HBB



2 HOLE SINGLE WING CHANNEL
Item Code : SSA-PB-SW



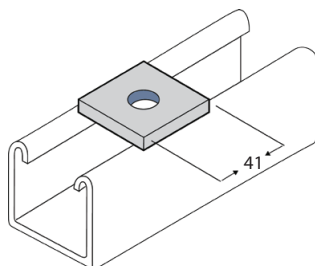
2 HOLE DOUBLE WING CHANNEL
Item Code : SSA-PB-SWBB

FLAT PLATE FITTINGS

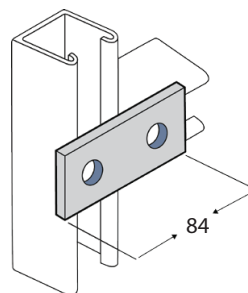
Standard Dimension : For 41.3mm width series channel fittings.
Standard Hole Dia : 10.5, 12.5mm
Standard Material : Hot-Rolled Low-Carbon Steel
Standard Finish : Hot-Dipped Galvanized
Available Finish : Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

Notes:

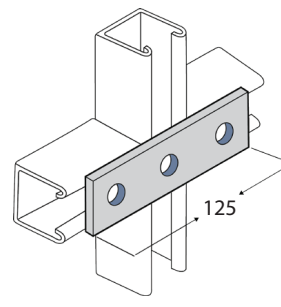
- Dimension available on request.
- Minor variations in post height may occur due to production tolerances.



SQUARE CHANNEL WASHER
Item Code : SSA-SQ-WASHER



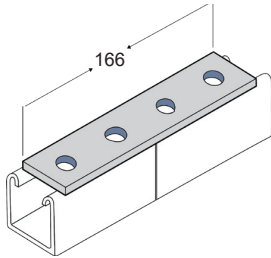
2 HOLE SPLICE PLATE
Item Code : SSA-FPF-2H



3 HOLE SPLICE PLATE
Item Code : SSA-FPF-3H

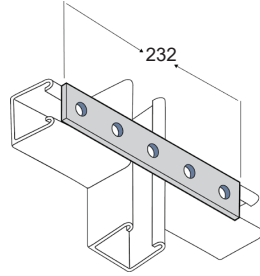
STRUT FITTINGS

FLAT PLATE FITTINGS



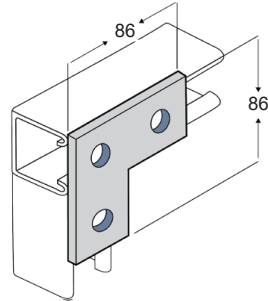
4 HOLE SPLICE PLATE

Item Code : SSA-FPF-4H



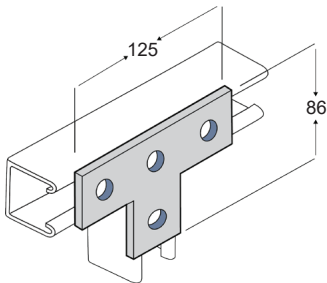
5 HOLE SPLICE PLATE

Item Code : SSA-FPF-5H



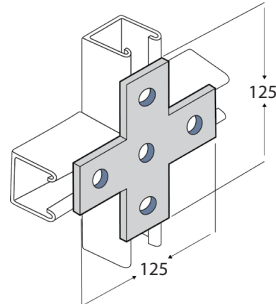
3 HOLE HALF TEE PLATE

Item Code : SSA-FBF-HT



4 HOLE TEE PLATE

Item Code : SSA-FBF-T



5 HOLE CROSS PLATE

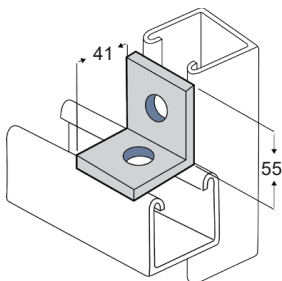
Item Code : SSA-FPF-CROSS

ANGLE FITTINGS

Standard Dimension	: For 41.3mm width series channel fittings.
Standard Hole Dia	: 10.5, 12.5mm
Standard Material	: Hot-Rolled Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

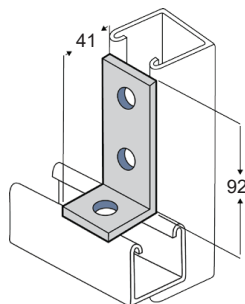
Notes:

- Dimension available on request.
- Minor variations in post height may occur due to production tolerances.



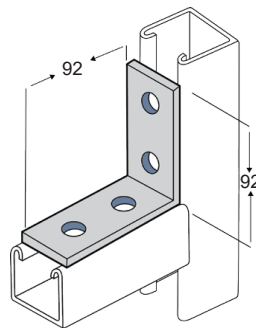
2 HOLE CORNER ANGLE

Item Code : SSA-AF-CA



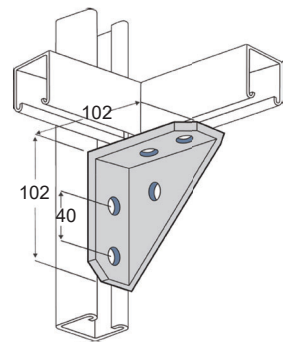
3 HOLE CORNER ANGLE

Item Code : SSA-AF-3CA



4 HOLE CORNER ANGLE

Item Code : SSA-AF-4CA



ANGLE CORNER SUPPORT

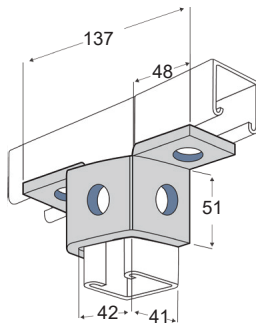
Item Code : SSA-ACS

WING FITTINGS

Standard Dimensions : For 41.3mm width series channel fittings
Standard Hole Dia : 10.5, 12.5mm
Standard Material : Hot-Rolled Low-Carbon Steel
Standard Finish : Hot-Dipped Galvanized
Available Finish : Zinc Plated, Electro-Galvanized, Epoxy Powder Coated, Stainless Steel 304 / 316 / 316L

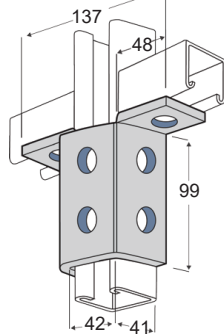
Notes:

- Dimension available on request.
- Minor variations in post height may occur due to production tolerances.



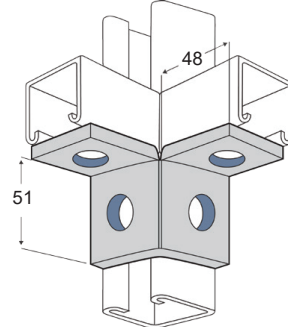
WING SUPPORT SHORT

Item Code : SSA-WF-WS



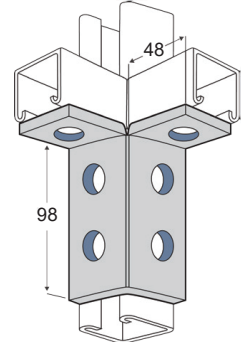
WING SUPPORT LONG

Item Code : SSA-WF-WL



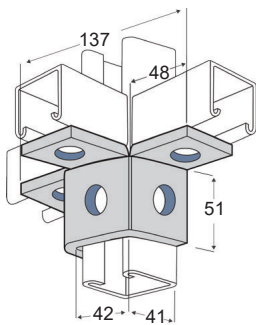
CORNER SUPPORT SHORT

Item Code : SSA-WF-CS



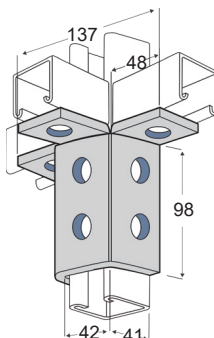
CORNER SUPPORT LONG

Item Code : SSA-WF-CL



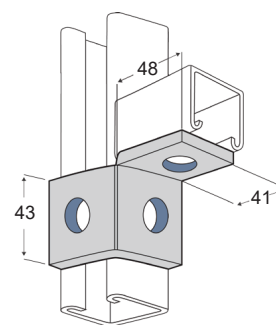
TEE WING SUPPORT SHORT

Item Code : SSA-WF-TS



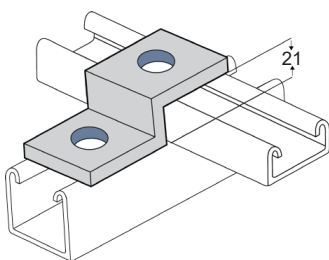
TEE WING SUPPORT LONG

Item Code : SSA-WF-TL



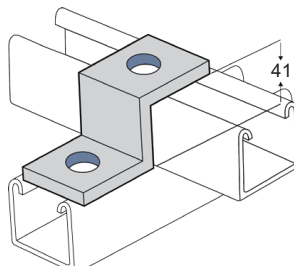
ONE WING SUPPORT

Item Code : SSA-WF-S



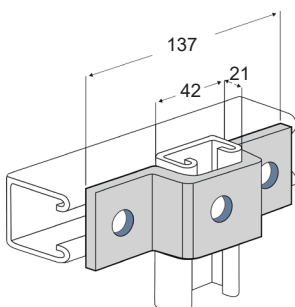
2 HOLE SHALLOW Z SUPPORT

Item Code : SSA-FZ-2S



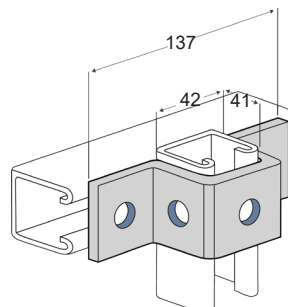
2 HOLE DEEP Z SUPPORT

Item Code : SSA-ZF-2D



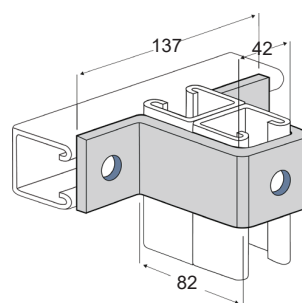
SHALLOW U SUPPORT

Item Code : SSA-UF-S



U SUPPORT

Item Code : SSA-UF-R



DEEP U SUPPORT

Item Code : SSA-UF-BB

CHANNEL NUTS & HARDWARE

CHANNEL NUTS & WEDGE NUT

Standard Material : Hot-Rolled Low-Carbon Steel
Standard Finish : Zinc Plated
Available Finish : Hot-Dipped Galvanized, Stainless Steel

CHANNEL NUT WITHOUT SPRING

Code No.	Thread Size Metric (mm)
SSA-CN-M6	6
SSA-CN-M8	8
SSA-CN-M10	10
SSA-CN-M12	12



REGULAR SPRING NUT

Code No.	Thread Size Metric (mm)
SSA-SN-M6	6
SSA-SN-M8	8
SSA-SN-M10	10
SSA-SN-M12	12



CHANNEL NUT WITH PLASTIC WING

Code No.	Thread Size Metric (mm)
SSA-WCN-M6	6
SSA-WCN-M8	8
SSA-WCN-M10	10
SSA-WCN-M12	12



WEDGE NUT

Code No.	Thread Size Metric (mm)
SSA-WN-M6	6
SSA-WN-M8	8
SSA-WN-M10	10
SSA-WN-M12	12



BOLTS, NUTS, WASHER

Standard Material : Hot-Rolled Low-Carbon Steel
Standard Finish : Zinc Plated
Available Finish : Hot-Dipped Galvanized, Stainless Steel

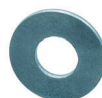
HEX BOLT

Code No.	Thread Size Metric (mm)
SSA-HB-M6	6
SSA-HB-M8	8
SSA-HB-M10	10
SSA-HB-M12	12
SSA-HB-M16	16
SSA-HB-M20	20



FLAT WASHER

Code No.	Thread Size Metric (mm)
SSA-WASHER-M6	6
SSA-WASHER-M8	8
SSA-WASHER-M10	10
SSA-WASHER-M12	12
SSA-WASHER-M16	16
SSA-WASHER-M20	20



TRUSS HEAD MACHINE SCREW

Code No.	Thread Size Metric (mm)
SSA-THB-M6	6
SSA-THB-M8	8
SSA-THB-M10	10
SSA-THB-M12	12
SSA-THB-M16	16
SSA-THB-M20	20



Notes:
- Also available in slotted (-) drive upon request.

LOCK WASHER

Code No.	Thread Size Metric (mm)
SSA-SW-M6	6
SSA-SW-M8	8
SSA-SW-M10	10
SSA-SW-M12	12
SSA-SW-M16	16
SSA-SW-M20	20

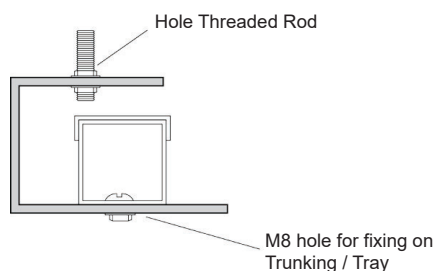
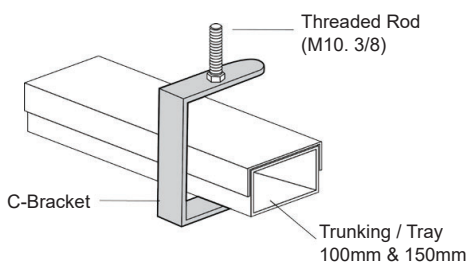


HEX NUT

Code No.	Thread Size Metric (mm)
SSA-HN-M6	6
SSA-HN-M8	8
SSA-HN-M10	10
SSA-HN-M12	12
SSA-HN-M16	16
SSA-HN-M20	20



THREADED ROD & HARDWARE

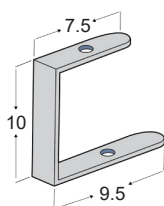


3X4X3-3/4 C-BRACKET

Standard Material : Mild Steel
Standard Finish : Hot-Dipped Galvanized
Available Finish : Zinc Plated
Standard Thickness : 4mm

Notes:

- Suitable for hanging trunking sizes for 50x50mm
- Hole size suitable for 10mm or 3/8" Threaded Rods.

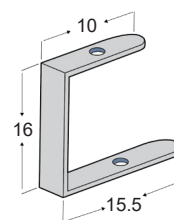


4X6X6 C-BRACKET

Standard Material : Mild Steel
Standard Finish : Hot-Dipped Galvanized
Available Finish : Zinc Plated
Standard Thickness : 5mm

Notes:

- Suitable for hanging trunking sizes between 50x50mm to 100x150mm
- Hole size suitable for 12mm or 1/2" Threaded Rods.

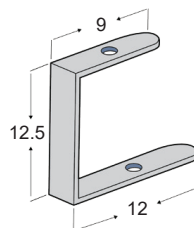


3X4X5 C-BRACKET

Standard Material : Mild Steel
Standard Finish : Hot-Dipped Galvanized
Available Finish : Zinc Plated
Standard Thickness : 4mm

Notes:

- Suitable for hanging trunking sizes between 50x50mm to 100x100mm.
- Hole size suitable for 10mm or 3/8" Threaded Rods.

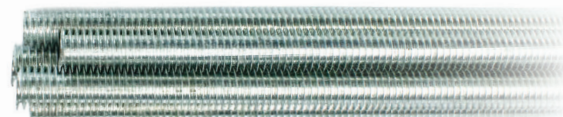


THREADED RODS

Standard Material : Hot-Roll Low Carbon Steel
Standard Finish : Zinc-Plated Electro-Galvanized
Available Finish : Stainless Steel, Hot-Dipped Galvanized
Range : Standard sizes are available in both metric and imperial threads up to 20mm and 3/4".
Length : Standard 2 metres for all metric rods.
(Other lengths also available upon request)

Notes:

- Larger sizes are available upon special order.
- Standard 6-foot lengths for imperial rods.



Code No.	Type of Threading Metric (mm)	Allowable Load (kg)	Standard Length
SSA-ROD-M6	6	112.2	2m
SSA-ROD-M8	8	204.0	
SSA-ROD-M10	10	326.3	
SSA-ROD-M12	12	479.3	
SSA-ROD-M16	16	897.4	
SSA-ROD-M20	20	1407.2	

Code No.	Type of Threading Imperial (Inch)	Allowable Load (kn)	Standard Length
SSA-ROD-14	1/4"	1.1	6ft
SSA-ROD-516	5/16"	2.0	
SSA-ROD-38	3/8"	3.2	
SSA-ROD-12	1/2"	4.7	
SSA-ROD-58	5/8"	8.8	
SSA-ROD-34	3/4"	13.8	

THREAD ROD COUPLER

Standard Material : Hot-Roll Low Carbon Steel
Standard Finish : Electro-Galvanized
Available Finish : Hot-Dipped Galvanized

Code No.	Thread Size Metric (mm)
SSA-LN-M6	6
SSA-LN-M8	8
SSA-LN-M10	10
SSA-LN-M12	12
SSA-LN-M16	16
SSA-LN-M20	20



CONDUIT CLIP (KON CLIP)

Standard Material : Steel
Standard Finish : Hot-Dipped Galvanized

Code No.	Clip Sizes	Thread Size Metric (mm)
SSA-KC-20	K20	20
SSA-KC-25	K25	25
SSA-KC-32	K32	32



CAST-IN CHANNEL SYSTEMS

CAST-IN CHANNEL AND BOLT

Cast-in Channels / Anchor Channels are innovative, high-performance building components designed for fast installation and flexible, adjustable connections. A full-length foam filler is used to prevent concrete ingress during casting.

These channels are widely used in tunnels, subways, bridges, airports, nuclear power stations, environmental projects, building facades, stadiums, opera houses, and other infrastructure applications.

Using advanced Swiss cold riveting technology, we ensure reliable and durable load-bearing performance. We supply both hot-rolled and cold-rolled cast-in channels, along with semi-automated production of hot-forged T-bolts, offering a complete and versatile cast-in channel system for all structural needs.



Length (mm)	Anchors	Anchor Distance (mm)
150	2	100
200	2	150
250	2	200
300	2	250
350 - 550	3	≤250
600 - 800	4	≤250
850 - 1050	5	≤250

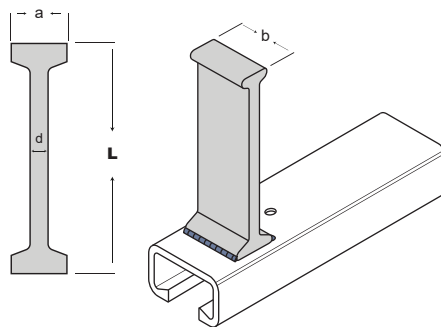
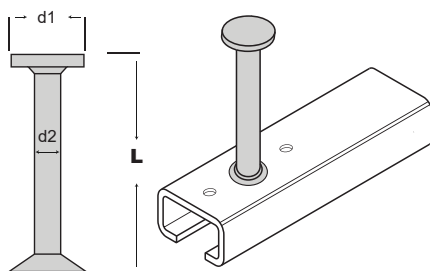
Cut Length (mm)	Anchors	Anchor Distance (mm)
1050 - 6000	—	≤250
6000 - (-0/+50)	25	≤250

Standard Material	: Low-Carbon Steel
Standard Finish	: Hot-Dipped Galvanized
Available Finish	: Electro-Galvanized, Stainless Steel 304 / 316
Available Length	: As ordered (up to 6050mm)

Notes:

- Commonly used in curtain wall and light-duty structural applications.
- Length available on request.
- Minor variations in post height may occur due to production tolerances.

ANCHOR TYPE SELECTION



NAIL-ANCHOR

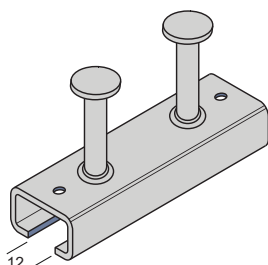
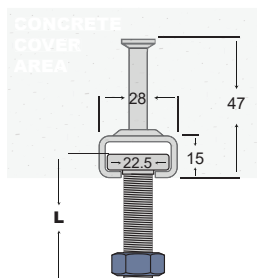
Code No.	Nail Anchor (mm)		
	L	d1	d2
CIC-CR-2815	30	12	6
CIC-CR-3817	60	16	8
CIC-CR-4025	55	16	8
CIC-HR-4022	68	16	8
CIC-CR-4930	65	20	10
CIC-CR-5025	65	20	10
CIC-HR-5030	65	20	10
CIC-HR-5234	122	24	11
CIC-CR-5433	122	24	11
CIC-CR-5436	122	24	11
CIC-HR-7248	-	-	-

I-ANCHOR

Code No.	I-Anchor (mm)			
	L	a	b	d
CIC-CR-2815	-	-	-	-
CIC-CR-3817	-	-	-	-
CIC-CR-4025	-	-	-	-
CIC-CR-4022	-	-	-	-
CIC-CR-4930	-	-	-	-
CIC-CR-5025	80	25	30	4.5
CIC-CR-5030	80	25	30	4.5
CIC-CR-5234	125	20	40	5
CIC-CR-5433	125	20	40	5
CIC-CR-5436	125	20	40	5
CIC-HR-7248	125	20	50	6

CAST-IN CHANNEL SYSTEMS

COLD ROLLED CAST-IN CHANNEL



COLD ROLLED CAST-IN CHANNEL 28 X 15

Item Code : CIC-CR-2815

Available Bolt Length (L): 15–200 mm

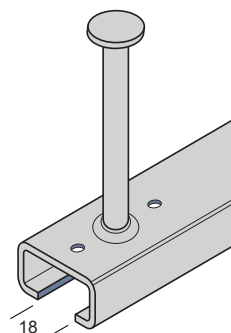
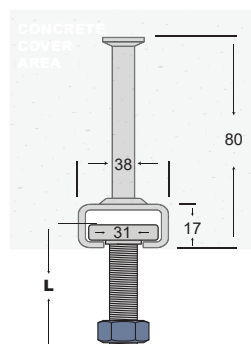
Available Thread Size: M6, M8, M10, M12

Allowable Load Per Bolt: 3.5–7 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 50 mm.

Notes:

- Light-duty cast-in channel with flat lips.



COLD ROLLED CAST-IN CHANNEL 38 X 17

Item Code : CIC-CR-3817

Available Bolt Length (L): 20–200 mm

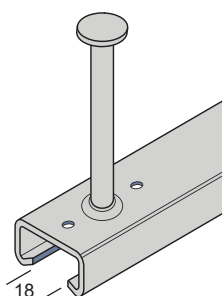
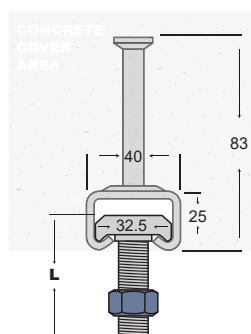
Available Thread Size: M10, M12, M16

Allowable Load Per Bolt: 3.5–7 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 75 mm.

Notes:

- Light-duty cast-in channel with flat lips.



COLD ROLLED CAST-IN CHANNEL 40 X 25

Item Code : CIC-CR-4025

Available Bolt Length (L): 20–300 mm

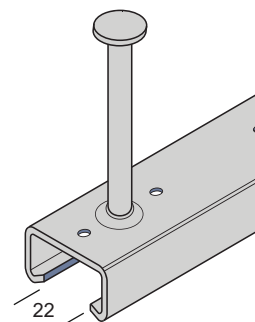
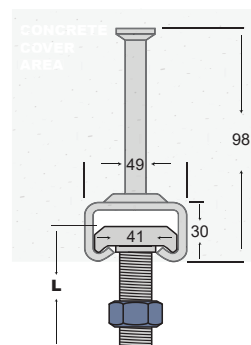
Available Thread Size: M10, M12, M16

Allowable Load Per Bolt: 8.0–10 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 100 mm.

Notes:

- Medium-duty channel with hook lips.



COLD ROLLED CAST-IN CHANNEL 49 X 30

Item Code : CIC-CR-4930

Available Bolt Length (L): 30–300 mm

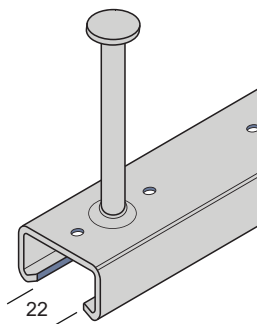
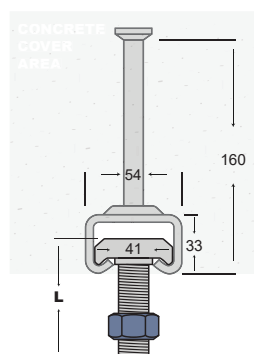
Available Thread Size: M10, M12, M16, M20

Allowable Load Per Bolt: 12.5–25 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 150 mm.

Notes:

- Heavy-duty channel with hook lips.



COLD ROLLED CAST-IN CHANNEL 54 X 33

Item Code : CIC-CR-5433

Available Bolt Length (L): 30–300 mm

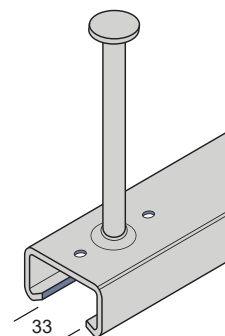
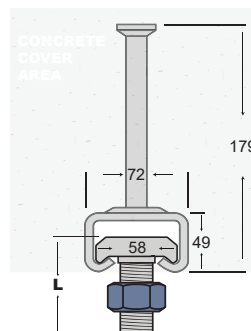
Available Thread Size: M10, M12, M16, M20

Allowable Load Per Bolt: 12.5–25 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 200 mm.

Notes:

- Heavy-duty channel with hook lips.



COLD ROLLED CAST-IN CHANNEL 72 X 49

Item Code : CIC-CR-7249

Available Bolt Length (L): 50–200 mm

Available Thread Size: M20, M24, M27, M30

Allowable Load Per Bolt: 25–32 kN (depending on bolt grade).

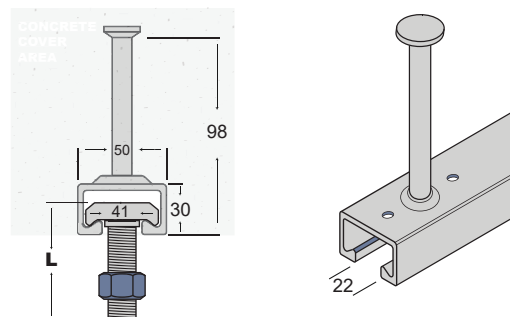
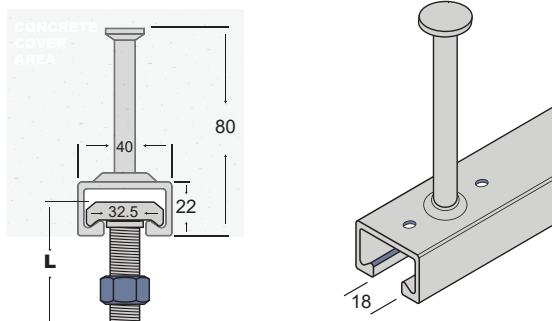
Minimum Edge Distance (ar) ≥ 250 mm.

Notes:

- Heavy-duty channel with hook lips.

CAST-IN CHANNEL SYSTEMS

HOT ROLLED CAST-IN CHANNEL



HOT ROLLED CAST-IN CHANNEL 40 X 22

Item Code : CIC-HR-4022

Available Bolt Length (L): 20–300 mm

Available Thread Size: M10, M12, M16

Allowable Load Per Bolt: 8.0–10 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 100 mm.

Notes:

- Medium-duty channel with hook lips.

HOT ROLLED CAST-IN CHANNEL 50 X 30

Item Code : CIC-HR-5030

Available Bolt Length (L): 30–300 mm

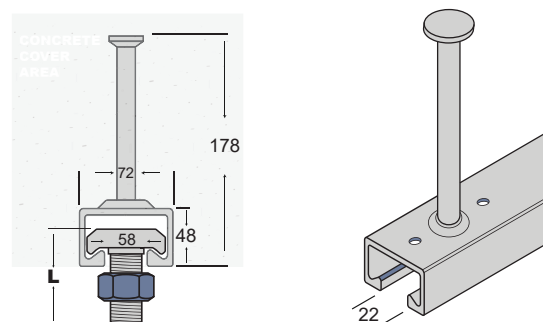
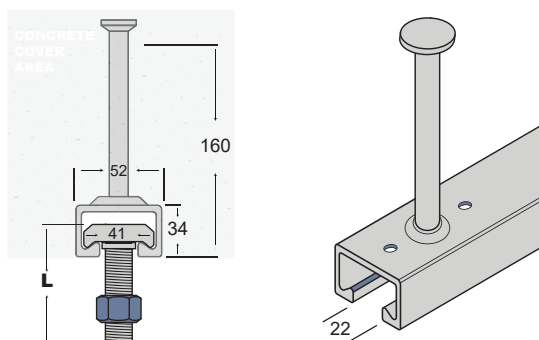
Available Thread Size: M10, M12, M16, M20

Allowable Load Per Bolt: 8–10 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 150 mm.

Notes:

- Medium-duty channel with hook lips.



HOT ROLLED CAST-IN CHANNEL 52 X 34

Item Code : CIC-HR-5234

Available Bolt Length (L): 30–300 mm

Available Thread Size: M10, M12, M16, M20

Allowable Load Per Bolt: 12.5–25 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 200 mm.

Notes:

- Heavy-duty channel with hook lips.

HOT ROLLED CAST-IN CHANNEL 72 X 48

Item Code : CIC-HR-7248

Available Bolt Length (L): 50–200 mm

Available Thread Size: M20, M24, M27, M30

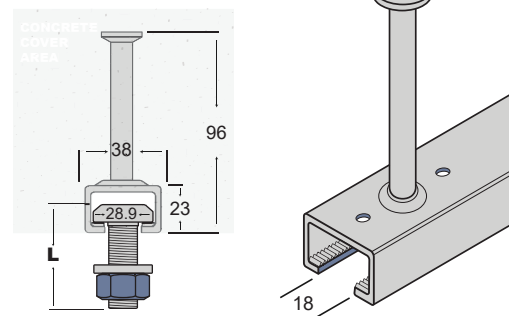
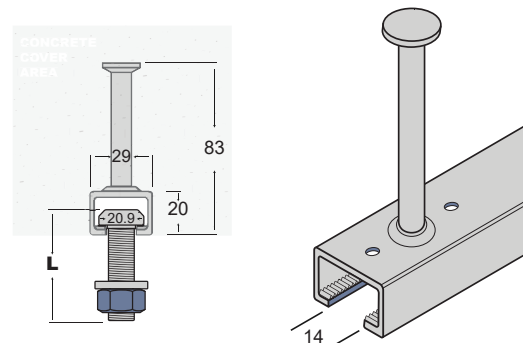
Allowable Load Per Bolt: 25–32 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 250 mm.

Notes:

- Heavy-duty channel with hook lips.

SERRATED HOT-ROLLED CHANNELS



SERRATED CAST-IN CHANNEL 29 X 20

Item Code : CIC-SHR-2920

Available Bolt Length (L): 35–150 mm

Available Thread Size: M12

Allowable Load Per Bolt: 5.5–12 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 100 mm.

Notes:

- Medium-duty channel with toothed lips.

SERRATED CAST-IN CHANNEL 38 X 23

Item Code : CIC-SHR-3823

Available Bolt Length (L): 35–150 mm

Available Thread Size: M12, M16

Allowable Load Per Bolt: 5.5–12 kN (depending on bolt grade).

Minimum Edge Distance (ar) ≥ 150 mm.

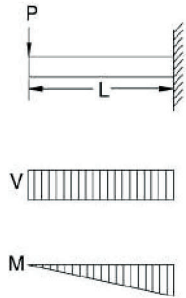
Notes:

- Medium-duty channel with toothed lips.

REFERENCE TABLES

BEAM SUPPORT CONDITIONS

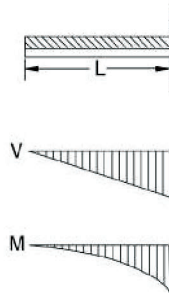
CANTILEVER BEAMS



$$V_{\max.} = P$$

$$M_{\max.} = PL$$

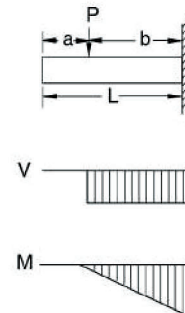
$$\Delta_{\max.} = \frac{PL^3}{3EI}$$



$$V_{\max.} = W$$

$$M_{\max.} = \frac{WL}{2}$$

$$\Delta_{\max.} = \frac{WL^3}{8EI}$$

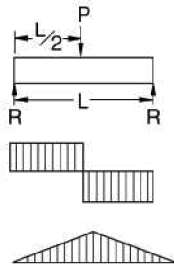


$$V_{\max.} = P$$

$$M_{\max.} = Pb$$

$$\Delta_{\max.} = \frac{Pb^2(3L-b)}{6EI}$$

SIMPLE BEAMS

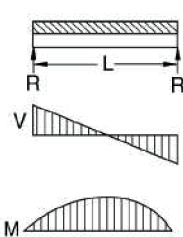


$$R = \frac{P}{2}$$

$$V_{\max.} = \frac{P}{2}$$

$$M_{\max.} = \frac{PL}{4}$$

$$\Delta_{\max.} = \frac{PL^3}{48EI}$$

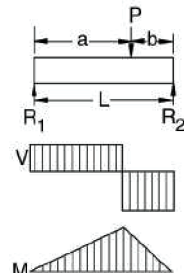


$$R = \frac{W}{2}$$

$$V_{\max.} = \frac{W}{2}$$

$$M_{\max.} = \frac{WL}{8}$$

$$\Delta_{\max.} = \frac{5WL^3}{384EI}$$



$$R_1 = \frac{Pb}{L}$$

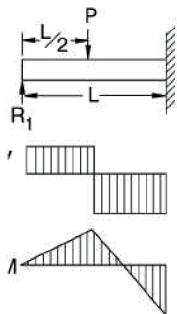
$$R_2 = \frac{Pa}{L}$$

$$V_{\max.} = \frac{Pa}{L}$$

$$M_{\max.} = \frac{Pa^2b}{L}$$

$$\Delta_{\max.} = \frac{Pab(a+2b)\sqrt{3a(a+2b)}}{27EIL}$$

BEAMS FIXED AT ONE END & SUPPORTED AT THE OTHER



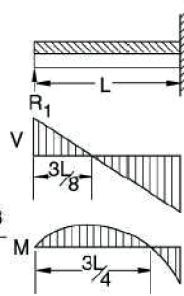
$$R = \frac{5P}{16}$$

$$V_{\max.} = \frac{11P}{16}$$

$$M_{\max.} = \frac{3PL}{16}$$

$$\Delta_{\max.} \text{ at } x = 0.447L$$

$$\Delta_{\max.} \text{ at } x = 0.009317 \frac{PL^3}{EI}$$



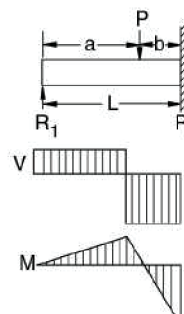
$$R_1 = \frac{3W}{8}$$

$$V_{\max.} = \frac{5W}{8}$$

$$M_{\max.} = \frac{WL}{8}$$

$$\Delta_{\max.} \text{ at } x = 0.4215L$$

$$\Delta_{\max.} = \frac{WL^3}{165EI}$$



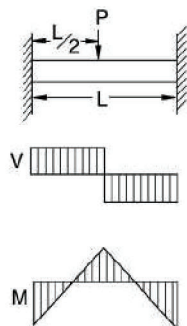
$$R_1 = \frac{Pb^2}{2L^3}(a+2L)$$

$$R_2 = \frac{Pa}{2L^3}(3L^2-a^2)$$

$$M \text{ at point of load} = R_1a$$

$$M \text{ at fixed end} = \frac{Pab}{2L^3}(a+L)$$

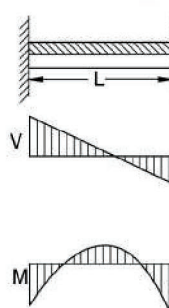
BEAMS FIXED AT BOTH ENDS



$$V_{\max.} = \frac{P}{2}$$

$$M_{\max.} = \frac{PL}{8}$$

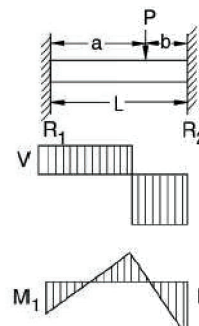
$$\Delta_{\max.} = \frac{PL^3}{192EI}$$



$$V_{\max.} = \frac{W}{2}$$

$$M_{\max.} = \frac{WL}{12}$$

$$\Delta_{\max.} = \frac{WL^3}{384EI}$$



$$R_1 = \frac{Pb^2}{2L^3}(3a+b)$$

$$R_2 = \frac{Pa}{2L^3}(a+3b)$$

$$M_1 = \frac{Pab^2}{L^2}$$

$$M_2 = \frac{Pa^2b}{L^2}$$

R - Reaction
M - Moment
P - Concentrated Load

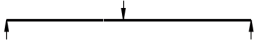
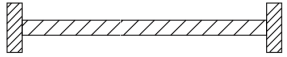
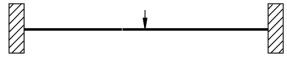
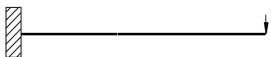
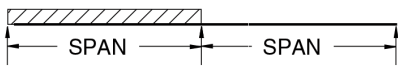
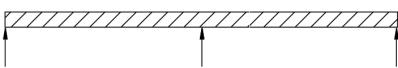
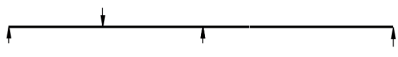
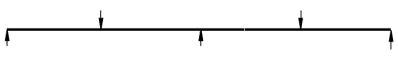
W - Total Uniform Load
V - Shear
L - Length

Δ - Deflection
E - Modulus of Elasticity
I - Moment of Inertia

CONVERSION FACTORS FOR BEAMS WITH VARIOUS STATIC

REFERENCE TABLES AND DATA

All Beam Load tables are for single-span (simple) beams supported at the ends. These can be used in majority of the cases. However, there are times when it is necessary to know what happens with other loading and support conditions. Some common arrangements are shown below. Simply multiply the values from the Beam Load tables by factors given below.

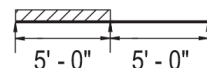
Load and Support Condition		Load Factor	Deflection Factor
1. Simple Beam, Uniform Load		1.0	1.0
2. Simple Beam, Concentrated Load at Center		0.50	0.80
3. Simple Beam, Two Equal Concentrated Loads at 1/4 pts		1.00	1.10
4. Beam Fixed at Both Ends, Uniform Load		1.50	1.10
5. Beam Fixed at Both Ends, Concentrated Load at Center		1.00	1.10
6. Cantilever Beams, Uniform Load		0.25	2.40
7. Cantilever Beams, 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 Center of One Span		0.62	0.71
11. Continuous Beam, Two Equal Spans, Concentrated Load at Center of Each Span		0.67	0.48

Example:

Determine load and deflection of a SS-4141-25 beam continuous over one support and loaded uniformly on one span.

A. From load table for SS-4141-25, load for a 1500mm span is 309kg and deflection is 15mm.

B. Multiply by factors from Table above.
Load = 309kg x 1.30 = 401.7
Deflection = 15mm x 0.92 = 13.8



UNIT CONVERSIONS

ENGLISH TO METRIC

TO CONVERT FROM	TO	MULTIPLY BY
LENGTH		
Inch (in)	Millimeter (mm)	25.400 00
Foot (ft)	Meter (m)	0.304 800
Yard (yd)	Meter (m)	0.914 400
Mile (mi) (U.S. Statute)	Kilometer (km)	1.609 347

AREA		
Square Inch (in ²)	Square Millimeter (mm ²)	645.16
Square Foot (ft ²)	Square Meter (m ²)	0.092 903
Square Yard (yd ²)	Square Meter (m ²)	0.836 127
Square Mile (mi ²) (U.S. Statute)	Square Kilometer (km ²)	2.589 998
Acre	Square Meter (m ²)	4046.873
Acre	Hectare	0.404 687

VOLUME		
Cubic Inch (in ³)	Cubic Millimeter (mm ³)	16,387.06
Cubic Foot (ft ³)	Cubic Meter (m ³)	0.028 317
Cubic Yard (yd ³)	Cubic Meter (m ³)	0.764 555
Gallon (gal) (U.S. Liquid)	Litre (l)	3.785 412
Quart (qt) (U.S. Liquid)	Litre (l)	0.945 353

MASS		
Ounce (Avoirdupois) (oz)	Gram (g)	28.349 520
Pound (Avoirdupois) (lb)	Kilogram (kg)	0.453 592
Short Ton	Kilogram (kg)	907.185

FORCE		
Ounce-Force	Newton (N)	0.278 014
Pound-Force (lbf)	Newton (N)	4.448 222

BENDING MOMENT		
Ounce-Force-Inch (lbf-in)	Newton-Meter (N-m)	0.112 985
Pound-Force-Foot (lbf-ft)	Newton-Meter (N-m)	1.355 818

PRESSURE, STRESS		
Pound-Force per Square Inch (lbf/in ²)	Kilopascal (kPa)	6.894 757
Foot of Water (39.2 °F)	Kilopascal (kPa)	2.988 980
Inch of Mercury (32 °F)	Kilopascal (kPa)	3.386 380

ENERGY, WORK, HEAT		
Foot-Pound-Force (ft-lbf)	Joule (J)	1.355 818
British Thermal Unit (Btu)	Joule (J)	1055.056
Calorie (cal)	Joule (J)	4.186 800
Kilowatt Hour (kW-h)	Joule (J)	3,600,000

POWER		
Foot-Pound-Force / Second (ft-lbf/s)	Watt (W)	1.355 818
British Thermal Unit / Hour (Btu/h)	Watt (W)	0.293 071
Horsepower (hp) (550 Ft. Lbf/s)	Kilowatt (kW)	0.745 700

POWER		
Degree	Radian (rad)	0.017 453

TEMPERATURE		
Degree Fahrenheit (°F)	Degree Celsius (°C)	(°F - 32) ÷ 1.8

METRIC TO ENGLISH

TO CONVERT FROM	TO	MULTIPLY BY
LENGTH		
Millimeter (mm)	Inch (in)	0.039 370
Meter (m)	Foot (ft)	3.280 840
Meter (m)	Yard (yd)	1.093 613
Kilometer (km)	Mile (mi) (U.S. Statute)	0.621 370

AREA		
Square Millimeter (mm ²)	Square Inch (in ²)	0.001 550
Square Meter (m ²)	Square Foot (ft ²)	10.763 915
Square Meter (m ²)	Square Yard (yd ²)	1.195 991
Square Kilometer (km ²)	Square Mile (mi ²) (U.S. Statute)	0.386 101
Square Meter (m ²)	Acre	0.000 247
Hectare	Acre	2.471 046

VOLUME		
Cubic Millimeter (mm ³)	Cubic Inch (in ³)	0.000 061
Cubic Meter (m ³)	Cubic Foot (ft ³)	35.314 662
Cubic Meter (m ³)	Cubic Yard (yd ³)	1.307 950
Litre (l)	Gallon (gal) (U.S. Liquid)	0.264 172
Litre (l)	Quart (qt) (U.S. Liquid)	1.056 688

MASS		
Gram (g)	Ounce (Avoirdupois) (oz)	0.035 274
Kilogram (kg)	Pound (Avoirdupois) (lb)	2.204 624
Kilogram (kg)	Short Ton	0.001 100

FORCE		
Newton (N)	Ounce-Force	3.596 941
Newton (N)	Pound-Force (lbf)	0.224 809

BENDING MOMENT		
Newton-Meter (N-m)	Ounce-Force-Inch (lbf-in)	8.850 732
Newton-Meter (N-m)	Pound-Force-Foot (lbf-ft)	0.737 562

PRESSURE, STRESS		
Kilopascal (kPa)	Pound-Force per Square Inch (lbf/in ²)	0.145 038
Kilopascal (kPa)	Foot of Water (39.2 °F)	0.334 562
Kilopascal (kPa)	Inch of Mercury (32 °F)	0.295 301

ENERGY, WORK, HEAT		
Joule (J)	Foot-Pound-Force (ft-lbf)	0.737 563
Joule (J)	British Thermal Unit (Btu)	0.000 948
Joule (J)	Calorie (cal)	0.238 846
Joule (J)	Kilowatt Hour (kW-h)	2.78 ⁻⁷

POWER		
Watt (W)	Foot-Pound-Force / Second (ft-lbf/s)	0.737 562
Watt (W)	British Thermal Unit / Hour (Btu/h)	3.4212 142
Kilowatt (kW)	Horsepower (hp) (550 Ft. Lbf/s)	1.341 022

POWER		
Radian (rad)	Degree	57.295 788

TEMPERATURE		
Degree Celsius (°C)	Degree Fahrenheit (°F)	1.8 × °C + 32

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