



SUH HAN
CABLE TRAY
SYSTEMS



SUHHAN - Global Leader

SUHHAN Industry Co.,Ltd is specialized in various business fields including offshore, onshore, shipbuilding,energy and plant, promising the bright future. SUHHAN has been grown up, as Cable Tray Division, hot dip galvanizing Division and ship's window Division concentrating on the better relation with customers. Under the business philosophy, 'Faith and sincerity', Suhhan will intensify development and production of better products and win the confidence in the quality and technological power. Suhhan do the best to lead the global business environment and offer you the maximized satisfaction.



HISTORY

- 1982.12 Established Suh Han Industry co., Ltd.
- 1983.04 Joined in Association of the Korean Ship building material industry
- 1983.11 Designated a Professional manufacturing factory of shipbuilding materials by the Ministry of commerce & industry
- 1984.03 Designated a partner company by the Daewoo heavy industries co., Ltd. & samsung heavy industries co., Ltd.
- 1984.03 Located a new factory in shin pyung-jang rim industry complex.
- 1984.12 Designated a prospective company by the bank of Pusan.
- 1986.01 Designated a partner company by the korea heavy industries co., Ltd.
- 1986.02 Designated a partner company by the korea electric power corp. & Pohang Iron steel works
- 1987.06 Designated a prospective company by the korean Exchange bank.
- 1989.02 Joined in association of korean International Trade.
- 1991.10 Developed internals for petrochemical tower & vessels
- 1993.04 Developed internal packing for tower
- 1993.11 award of 1million worth of export
- 1998.08 Acquisition of ISO 9002
- 2000.03 Established jang rim factory (SG Division)
- 2002.09 Acquisition of ISO 9001
- 2002.09 Acquisition of CSA
- 2002.11 Acquisition of ISO 14001
- 2003.03 Acquisition of KS (KS C8464)
- 2003.11 Acquisition of CE Mark
- 2004.02 Developed clean fitting for semiconductor Equipment
- 2005.05 Acquisition of CSA (Update)
- 2007.03 Established SHINPYUNG Factory(SW Division)
- 2007.11 Acquisition of Class Certificate
- 2008.03 Established DADAE Factory (SW Division)



Suhhan

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MANUFACTURING STANDARDS

I . Materials

Cable tray system shall be made of either corrosion-resistant metal, such as aluminum or stainless steel, fiberglass or metal with a corrosion-resistant finish.

II . Welding

The welding procedures used in the fabrication of all SUH HAN cable trays and accessories in accordance with the latest American Welding Society Standard, AWS D1.3. Our welders are qualified per the AWS Code. SUH HAN aluminum and steel cable trays are welded by the MIG(Metal Inert Gas) or TIG(Tungsten Inert Gas) welding process producing smooth, clean, slag-free weldments.

III . Finishes

Carbon steel used for cable trays shall be protected against corrosion by one of the following process.

1. Hot-Dip galvanizing after fabrication in accordance with ASTM A123 or BS 1461 and KS D 8308.
2. Hot-Dip mill galvanizing after fabrication in accordance with ASTM A653, coating designation G90.
3. Electrodeposited zinc in accordance with ASTM B633 (SC 2 minimum).

IV . Dimensions

A. Ladder and Solid bottom-type trays

1. Lengths of straight sections : 3m(±5mm) or 6m(±5mm)
2. Widths : 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 and 900mm (The tolerance of the width is within ±6mm for inside dimensions)
3. Depths : 100, 150 and 200mm (The tolerance of the depth is within ±10mm)
4. inside radii : 300, 600 and 900mm
5. Rung spacings (only ladder) : 150, 200, 230 and 300mm

B. Perforated-type trays

1. Lengths of straight sections: 3m (±5mm)
2. Widths : 50, 100, 150, 200, 300, 400, 500, 600 and 900mm (The tolerance of the width is within ±4mm for inside dimensions)
3. Depths : 25, 50, 70, 75 and 100mm (The tolerance of the depths is within ±3mm)
4. inside radii : 150, 300 and 600mm
5. Degrees of Arc for Elbows : 30°, 45°, 60° and 90°.

V . Applicable codes and standards

All equipment, material and workmanship shall comply with the requirements and latest revisions of the following standards and codes where applicable.

1. ASTM : American Society for Testing and Materials
2. NEMA : National Electrical Manufacturers Association
3. CSA : Canadian Standards Association
4. UL : Underwriters Laboratories
5. IEC : International Electrotechnical Commission
6. BSI : British Standards Institution
7. JIS : Japanese Industrial Standards
8. KS : Korean Standards

TEST STANDARDS

I . Load testing

1. Test Specimen

For each design of cable tray, two specimens shall be tested. An unspliced straight section of the greatest width shall be used in each test.

2. Supports

Each end of the specimen shall be supported by a steel bars of 30mm width and 19mm height, with a 120° V-notch cut in its bottom to a depth of 5mm. The V-notch shall rest on a 25mm solid round steel bar fastened to a rigid base, or the specimen shall be supported directly on a 65mm diameter round steel bar or heavy wall steel tube fastened to a rigid base.

3. Loading material

Loading materials shall have a maximum weight of 4.5kg, a maximum width of 125mm, and a maximum length of 300mm.

4. Applicable method of loading material

Loading shall be uniformly distributed for the length and breadth of the specimen, except that the loading material shall not be closer than 13mm nor further than 25mm from the innermost elements of the sides. It shall be arranged across the tray with a minimum of 10mm between stacks so that the loading material does not bridge transversely. All loading materials shall be placed between supports without overhanging. In multi-tier cable tray, the loading shall be uniformly distributed among the tiers.

5. Load application

Each test specimen shall first be loaded to 10% of the minimum test load. The vertical deflection of the tray shall be measured at three points along the line midway between the supports and at right angles to the longitudinal axis of the tray. The three points of measurement shall be under each side rail and at the center of the tray. In trays where there are no side rails,

the three points of measurement shall be under the outer edges and under the center. This measurement shall be known as the initial deflection. The loading shall then be continued until all of the rated load is applied. The deflection shall be measured in the same manner as the initial deflection. The loading shall then be continued until the total minimum test load has been applied. The total load shall then be removed from the tray. After 15 minutes the vertical deflection shall be measured in the same manner as previously used. This measurement shall be known as the residual deflection. The specimen may then be reloaded until it collapses, and the values of the load at collapse shall be recorded. This information concerning the load at collapse point is optional, but some users may require it to obtain product acceptance.

6. Minimum test load

The minimum test load to be applied shall be determined in accordance with the following formula:
Total minimum test load = 1.5 x L x W, where, 1.5 is a safety factor, W is a rated load(kg/m)and L is a span length(m).

7. Measurement of residual deflection

The residual deflection at each point of measurement of the two specimens shall be averaged. Where a residual deflection for either specimen is equal to or exceeds 80% of the initial deflection and, in addition, deviates from the average by more than 10%, two more specimens shall be tested. The average of the three highest values at the point of measurement of the four specimens shall be regarded as the final result.

8. Load/span class NEMA VE1 designation

Load kg/m	Span, m				
	2.4	3.0	3.7	4.9	6.0
37	-	A	-	-	-
67	-	-	-	-	D
74	8A	-	12A	16A	20A
97	-	C	-	-	-
112	8B	-	12B	16B	E or 20B
149	8C	-	12C	16C	20C
179	-	D	-	-	-
299	-	E	-	-	-

Note : 8A/B/C, 12A/B/C, 16A/B/C, and 20A/B/C are the traditional NEMA designations. A,C,D and E are the conventional CSA designation.

TEST STANDARDS

9. SUH HAN cable tray load class

Material	Dimension (mm)				Thickness (mm)		Load Class	Load/kg (Safety factor:1.5)	Model No.	New Catalogue No.
	Width	Height	Span (m)	Rung spacing	Side rail	Rung				
SS400	600	150	6.0	230	2.6	2.0	20C	1,341.0	LSTOCLD23-06063-1	LSTOCKD23-06063-1
	600	150	4.9	230	2.6	2.0	16C	1,095.0	LSTOCLD23-06052	LSTOCKD23-06052
	600	150	6.0	230	2.6	2.0	20B	1,008.0	LSTOCLD23-06063-2	LSTOCKD23-06063-2
	600	150	6.0	230	2.0	2.0	20B	1,008.0	LSTOCJD23-06063	LSTOCHD23-06063
	600	150	4.9	230	2.0	2.0	16C	1,341.0	LSTOCJD23-06052	LSTOCHD23-06052
	600	150	3.7	230	2.0	2.0	12C	826.0	LSTOCJD23-06040	LSTOCHD23-06040
SS316	600	150	6.0	230	2.5	2.0	20C	1,341.0	LST6CSD23-06063	LST6CJD23-06063
	600	150	6.0	230	2.0	2.0	20B	1,008.0	LST6CJD23-06063	LST6CHD23-06063
	600	150	4.9	230	2.0	2.0	16C	1,095.0	LST6CJD23-06052	LST6CHD23-06052
	600	150	3.7	230	2.0	2.0	12C	826.0	LST6CJD23-06040	LST6CHD23-06040
AL	600	150	6.0	200	4.0	3.0	20C	1,341.0	LSTAABG20-06063-1	LSTADCG20-06063-1
	600	150	4.9	200	4.0	3.0	16C	1,095.0	LSTAABG20-06052	LSTADCG20-06052
	600	150	6.0	200	4.0	3.0	20B	1,008.0	LSTAABG20-06063-2	LSTADCG20-06063-2
	600	100	4.9	200	4.0	3.0	16B	823.0	LSTAACG20-06052	LSTADBG20-06052
	600	100	3.7	200	3.0	3.0	12B	621.6	LSTAAAG20-06040	LSTADAG20-06040
F.R.P	600	150	4.9	200	3.5	□ 29	16B	823.0	LSTPAAJ20-06052	LSTPAAA20-06052
	600	150	3.7	200	3.5	□ 29	12B	621.6	LSTPAAJ20-06040	LSTPAAA20-06040
	600	150	4.9	200	4.8	□ 29	16B	823.0	LSTPABJ20-06052	LSTPABA20-06052
	600	150	3.7	200	4.8	□ 29	12B	621.6	LSTPABJ20-06040	LSTPABA20-06040
	600	150	6.0	200	6.0	□ 29	20C	1,341.0	LSTPACJ20-06063-1	LSTPACA20-06063-1
	600	150	4.9	200	6.0	□ 29	16C	1,095.0	LSTPACJ20-06052	LSTPACA20-06052
	600	150	6.0	200	6.0	□ 29	20B	1,008.0	LSTPACJ20-06063-2	LSTPACA20-06063-2

II . Electrical continuity of test connections

Each specimen shall consist of two 600mm minimum lengths of standard spliced or coupled sections. A current of 30 A dc shall be passed through the specimen and the resistance measured between two points located 1.6mm from each side of the splice or coupling. The net resistance of the connection shall be not more than

0.00033 Ω as computed from the measured voltage drop and current passing through the specimen, at an ambient temperature of 15-35°C . (60-95° F). The current source shall be applied at least 300mm on either side of the splice or coupling.

III. Impact resistance test

1. Test samples

The test is carried out on samples of cable tray lengths or cable ladder lengths, 250mm $\pm$ 5mm long. Samples of ladder shall consist of two side members with two rungs positioned centrally, and the sample length has to be increased accordingly. Samples of mesh trays shall be prepared in such a way that there will be a wire in the center. The samples shall be mounted on a wooden fiberboard of thickness 20mm $\pm$ 2mm.

2. Test Temperature

Before the test, non-metallic and composite components are aged at a temperature of 60°C $\pm$ 2°C for 240h continuously. The samples to be tested shall be placed in a refrigerator, the temperature within is maintained at the declared temperature according to Table1, with a tolerance of $\pm$ 2°C.

3. Impact

After 2hours, the samples shall, in turn, be removed from the refrigerator and immediately placed in the test apparatus.

At 10s $\pm$ 1s after removal of each sample from the refrigerator, the hammer shall be allowed to fall with the declared impact energy according to Table1. The mass of the hammer and the fall height shall be as given in Table 1.

The impact shall be applied to the base, or respectively a rung, in the first sample, to one of the side members in the second sample, and to the other side member in the third sample.

In each case, the impact is applied to the center of the face being tested.

Table 1 - Impact and Temperature test values

Approximate energy (J)	Mass of hammer (kg)	Fall height (mm)	Temperature class (°C)	
			Minimum	Maximum
2	0,5	400 $\pm$ 4	+20	+20
5	1,7	295 $\pm$ 3	+5	+40
10	5,0	200 $\pm$ 2	+5	+60
20	5,0	400 $\pm$ 4	+15	+90
50	10,0	500 $\pm$ 5	-20,-40,-50	+105,+120,+150

4. Impact result

After the test, the samples shall show no signs of disintegration and/or deformation that impairs safety.

IV. Non metal cable tray (F.R.P) test

1. Weathering(UV) test

Five specimens taken from laminate of cable tray component shall be subjected to a flexural test in accordance with ASTM D 790, and the value shall be recorded. An additional five specimens from the same sample source shall be subjected to 1000 hours of ultraviolet exposure in accordance with ASTM D4329 or 1000 hours of xenon arc exposure in accordance with ASTM G155 using the following respective apparatus settings.

ASTM D4329

- Cycle : 4hours at 65°C followed by 4hours at 45°C with water condensation
- Fluorescent bulb type : QUV-A

ASTM G155

- Test method : A
- Wavelength : 0.35W/m² at 340nm
- Temperature : 63 $\pm$ 3°C

Following the exposure, the specimens shall be subjected to the flexural test specified above. The material shall retain at least 75 percent of the originally recorded strength.

2. Water Absorption Test

The weight gain of edge-sealed cable tray specimens shall be no greater than 0.50 percent when immersed in water at 23 $\pm$ 2°C for 24-hours, in accordance with ASTM D570.

3. Dielectric Strength Exam

Cable tray side rails and bottoms shall withstand, without breakdown, the application of 5000V ac for one minute when tested in accordance with ASTM D149. Cable trays designed expressly to dissipate static charges need not comply with this requirement.

4. Combustibility Exam of Cable Tray Assemblies

- a) A cable tray section specimen that includes three rung/joint assembly locations shall not emit flaming or glowing particles or dropping particles that ignite the cotton layer situated below the flame application point.
- b) The cable tray section specimen shall be subjected to a 125mm flame.
- c) The test burner shall conform to ASTM D5025, or an equivalent burner may be used. The burner shall be calibrated to the requirements of ASTM D5207.
- d) The test specimens shall be mounted in their normal position or located in the most adverse position for flame impingement. A 6mm layer of cotton shall be positioned 300mm below the flame application point. The burner shall be at an angle of at least 20 degrees to avoid dripping of flaming particles into the barrel.
- e) The flame shall be applied for 3 cycles consisting of a one-minute flame application followed by a 30-second removal, except that subsequent applications shall not be reapplied until after the sample self-extinguishes.

5. Flame spread

Material shall meet a flame spread index of 25 or less, when tested in accordance with ASTM E84.

MATERIALS TECHNICAL DATA

Standard Available

MATERIAL	MATERIAL SPECIFICATION
Aluminm	6063-T6 (Side rails, Rungs and Splice Plates)
	5052-H32 (Trough Bottoms, Covers and Accessories)
Steel	ASTM A1011 SS Gr.33 (14 Gauge Plain Steel)
	ASTM A1008 Gr.33 Type 2 (16&18 Gauge Plain Steel)
	ASTM A653 SS Gr.33 G90 (Pre-Galvanized)
	KS D3503 (JIS G3101) Gr.SS400
	KS D3501 (JIS G3131) Gr.SPHC
	KS D3506 Gr.SGHC (Pre-Galvanized)
Stainless Steel	AISI Type 304 or AISI Type 316
	ASTM A240
	KS Type 304 or 316(L)
F.R.P	Fiber +Glass

Aluminum cable trays are fabricated from structural grade "copper free" (marine grade) aluminum extrusions. Aluminum's excellent corrosion resistance is due to its ability to form an aluminum oxide film that when scratched or cut reforms the original protective film. Aluminum has excellent resistance to "weathering" in most outdoor applications. Typically, aluminum cable trays can perform indefinitely, with little or no gradation over time, making it ideal for many chemical and marine environments. The resistance to chemicals, indoor and outdoor, can best be determined by tests conducted by the user with exposure to the specific conditions for which it is intended. The high strength to weight ratio of aluminum cable trays can greatly affect the overall cost of installation through ease of handling and field cutting. An aluminum cable tray weights approximately 1/2 that of a comparable size steel tray.

2. Steel

Steel cable trays are fabricated from continuous roll-formed structural quality steel. By roll-forming steel, the mechanical properties are increased allowing the use of a lighter gauge steel to carry the required load. This reduces the dead weight that must be carried by the supports and the installers. Using structural quality steel, SUH HAN assures that the material will meet the minimum yield and tensile strengths of applicable ASTM standards. The corrosion resistance of steel varies widely with coating and alloy. SUH HAN standard finishes for cable trays, cable channels and strut are pre-galvanized and hot-dip galvanized and PVC epoxy coated steel are also available for special environmental conditions.

3. Stainless Steel

Stainless Steel cable trays are fabricated from continuous roll-formed AISI Type 304 or AISI Type 316/316L stainless steel. Both are non-magnetic and belong to the group called austenite stainless steels. Like carbon steel, they exhibit increased strength when cold worked by roll-forming or bending. Several important conditions could make the use of stainless steel imperative. These include long term maintenance costs, corrosion resistance, appearance and locations where product contamination is undesirable.

Stainless steel exhibits stable structure properties such as yield strength and high creep strength at elevated temperatures.

SUH HAN's stainless steel cable trays are welded using stainless steel welding wire to ensure each weldment exhibits the same corrosion resistant characteristic as the base metal. Localized staining in the weld area or heat affected zone may occur in severe environments. Specialized shielding gases and low carbon materials are used to minimize carbon contamination during welding and reduce staining and stress corrosion. Specify passivation after fabrication per ASTM A380 to minimize staining, improve aesthetics and further improve corrosion resistance.

4. Fiberglass

All SUH HAN cable trays, fittings and accessories shall be fabricated from fiberglass and shall be corroded resistant and fire retardant.

The composite material shall be SUH HAN Series fiberglass polyester resin, or equal, combined with fiberglass reinforcement utilizing longitudinal glass roving and continuous strand mat.

The composite material shall have an ultraviolet light inhibiting chemical additive.

FINISH TECHNICAL DATA

Standard Available

FINISH	SPECIFICATION	RECOMMEND USE
Electrogalvanized Zinc	ASTM B633	Indoor
Pre-Galvanized Zinc	ASTM A653SS Gr.33 G90 or D3506 Gr.SGHC Z27	Indoor
Hot-Dip Galvanized Zinc	ASTM A123 or BS1461	Indoor / Outdoor
After Fabrication	and KS D8308	
Special Paint	Per Customer Specification	Indoor

1. Zinc Coatings

Zinc protects steel in two ways. First it protects the steel as a coating and second as a sacrificial anode to repair bare areas such as cut edges, scratches, and gouges. The corrosion protection of zinc is directly related to its thickness and the environment. This means a .2 mil coating will last twice as long as a .1 mil coating in the same environment.

2. Electrogalvanized Zinc

Electrogalvanized zinc (also known as zinc plated or electroplated) is the process by which a coating of zinc is deposited on the steel by electrolysis from a bath of zinc salts. This finish is standard for cable tray hardware and some accessories for aluminum and pre-galvanized systems.

A rating of SC2, SUH HAN's standard, provides a minimum zinc coating thickness of 8mil (min: 8µm) when exposed to air and moisture, zinc forms a tough, adherent, protective film consisting of a mixture of zinc oxides, hydroxides, and carbonates. This coating is usually recommended for indoor use in relatively dry areas, as it provides ninety-six hours protection in salt spray testing per ASTM B117.

3. Pre-Galvanized Zinc

(Mill Galvanized, hot dip mill galvanized or continuous hot dip galvanized)
Pre-Galvanized steel is produced by coating coils of sheet steel with zinc by continuously rolling the material through molten zinc at the mills. This is also known as mill galvanized or hot-dip mill galvanized. These coils are then slit to size and fabricated by roll forming, shearing, punching, or forming to produce SUH HAN pre-galvanized cable tray products. The G90 specification calls for a coating of .90 ounces of zinc per square foot of steel. This results in a coating of .45 ounces per square foot on each side of sheet. This is important when comparing this finish to hot dip galvanized after fabrication. During fabrication, cut edges and welded areas are not normally zinc coated; however, the zinc near the uncoated metal becomes a sacrificial anode to protect the bare areas after a short period of time. Pre-Galvanized steel is not generally used outdoors in suitable for extended exposure in dry or mildly corrosive atmospheres.

FINISH TECHNICAL DATA

4. Hot-Dip Galvanized after Fabrication
(Hot-Dip Galvanized or batch hot dip galvanized)

Hot-Dip Galvanized After Fabrication cable tray products are fabricated from steel and then completely immersed in a bath of molten zinc. A metallic bond occurs resulting in a zinc coating that completely coats all surfaces, including edges and welds.

Another advantages of this method is coating thickness. Cable tray hot dip galvanized after fabrication have a minimum thickness of 460g/m² on each side, or a total 920 kg/m² of steel, according to ASTM A 123.

The zinc thickness is controlled by the amount of time each part is immersed in the molten zinc bath as well as the speed at which it is removed. The term "double dipping" refers to parts too large to fit into the galvanizing kettle and, therefore, must be dipped one end at a time. It does not refer to extra coating thickness. The layer of zinc which bonds to steel provides a dual protection against corrosion. It protects first as an overall barrier coating. If this coating happens to be scratched or gauged, zinc's secondary defense is called upon to protect the steel by galvanic action.

Hot-dip Galvanized after fabrication is recommended for prolonged outdoor exposure and will protect steel for many years in most outdoor environments and in many aggressive industrial environments.

5. PVC Coating

Another of the corrosion resistant material offered by SUH HAN is PVC (poly vinyl chloride) coated steel or aluminum cable trays, cable channels, and strut. The PVC coating process begins by cleaning the product thoroughly. A bonding coating is applied to the part and then preheated to a temperature above the melting point of the coating powder.

The product is then passed through a fluidized bed of vinyl plastic powder where the powder particles adhere and flow out to form a smooth continuous coating to a thickness controlled by the base metal temperature and the immersion time in the bed. It is then postheated to

complete the fusion of the outer surfaces.

The standard coating thickness on SUH HAN PVC coated products is 15 mils plus or minus 5 mils. Since the chemistry, not the thickness, of vinyl plastic PVC determines longevity, our experience has found that a coating of 10 to 20 mils is more than adequate.

If the corrosive conditions are such that the plasticizers are leached out, a thicker coating will do little to extend the life of a coated product.

For certain severe environment, a plastic dipped PVC coating is available on special order. PVC depends totally on the concept of encapsulation attached to the base metal by a bonding agent. If any size hole or discontinuity occurs due to shipping or rough handling, the corrosive action can undercut the base metal to a point where all that remains are the PVC.

In the event of field cuts or any other damages to the coating, a liquid PVC patch must be applied to maintain the integrity of the coating. After the installation is complete, a thorough inspection, including spark testing, should be performed by the owner to assure the absence of voids, pinholes, or cuts.

PVC has excellent resistance to most inorganic acids, alkalis, minerals acids, and edible oils at temperatures up to 66°C however, it is unsuited for solvents such as ketones, esters and halogenated hydrocabons.

6 Epoxy Coatings

Most all SUH HAN products are available with an epoxy coating. Cable trays are electrostatically sprayed with epoxy.

Epoxy coatings are used where resistance to alkalis, salts, petroleum solvents, aliphatic and aromatic hydrocarbons or dilute aqueous acid is required.

COATING WEIGHT
DATA SHEET

1. BS 1461-1999 : Hot-dip galvanized Coatings on fabricated iron and steel

Article and its thickness	Local coating thickness (minimum)		Mean coating thickness (minimum)	
	g/m ²	μm	g/m ²	μm
steel > 6mm	505	70	610	85
steel > 3mm to < 6mm	395	55	505	70
steel > 1.5mm to < 3mm	325	45	395	55
steel < 1.5mm	250	35	325	45

2. ASTM A653-2004 : Steel Sheet, Zinc-Coated
(Galvanized or Zinc-Iron Alloy Coated (Galvanized) by the Hot-dip process)

Minimum Requirement				
Triple-Spot Test				
Single-Spot Test				
Type	Inch-Pound Units			
	Coating Designation	Total Both Sides, oz/ft ²	one side	Total Both Sides, oz/ft ²
Zinc	G360	3.60	1.28	3.20
	G300	3.00	1.04	2.60
	G235	2.35	0.80	2.00
	G210	2.10	0.72	1.80
	G185	1.85	0.64	1.60
	G165	1.65	0.56	1.40
	G140	1.40	0.48	1.20
	G115	1.15	0.40	1.00
	G90	0.90	0.32	0.80
	G60	0.60	0.20	0.50
	G40	0.40	0.12	0.30
	G30	0.30	0.10	0.25
	G01	no minimum	no minimum	no minimum

COATING WEIGHT
DATA SHEET

3. KS D3506-2001 : Hot-Dip Zinc Coated Steel Sheets and Coils

Type	Coating Designation	Triple-Spot Test	Single-Spot Test
Zinc (SGHC)	Z06	60	51
	Z08	80	68
	Z10	100	85
	Z12	120	102
	Z18	180	153
	Z20	200	170
	Z22	220	187
	Z25	250	213
	Z27 (G90)	275	234
	Z35	350	298
	Z45	450	383
	Z60	600	510

4. KS D8308-2001 : Zinc hot dip galvanizings

Classification	Coating Weight (g/m²) Minimum	µm	Steel thickness
Zinc	HDZ35	49	steel > 1mm to < 2mm
	HDZ40	56	steel > 2mm to < 3mm
	HDZ45	63	steel > 3mm to < 5mm
	HDZ50	70	steel < 5mm
	HDZ55	77	Highly corrosive environments
	HDZ61	86	Highly corrosive environments (steel < 5mm)

5. ASTM 123-2004 : Zinc (Hot-Dip Galvanized) Coating on iron and Steel Products

Material Category	All Specimens Tested Steel Thickness Range (Measured)			
	< 1.6mm	1.6mm to < 3.2mm	3.2mm to < 4.8mm	> 4.8mm to < 6.4mm
Plate	45	65	75	85
Strip and Bar	45	65	75	85
Pipe and Tubing	45	45	75	75
Wire	35	50	60	65

* Coating Thickness Grade

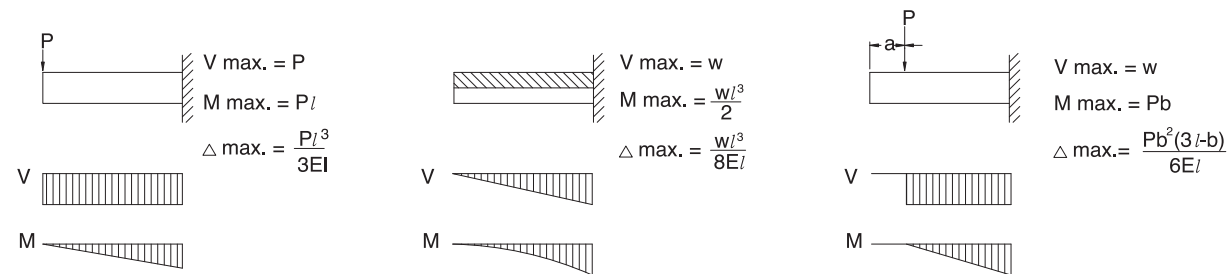
Coating Grade	mils	oz/ft²	µm	g/m²
35	1.4	0.8	35	245
45	1.8	1.0	45	320
50	2.0	1.2	50	355
55	2.2	1.3	55	390
60	2.4	1.4	60	425
65	2.6	1.5	65	460
75	3.0	1.7	75	530
80	3.1	1.9	80	565
85	3.3	2.0	85	600
100	3.9	2.3	100	705

6. ASTM B633-1998 : Electrodeposited Coatings of Zinc on Iron and Steel

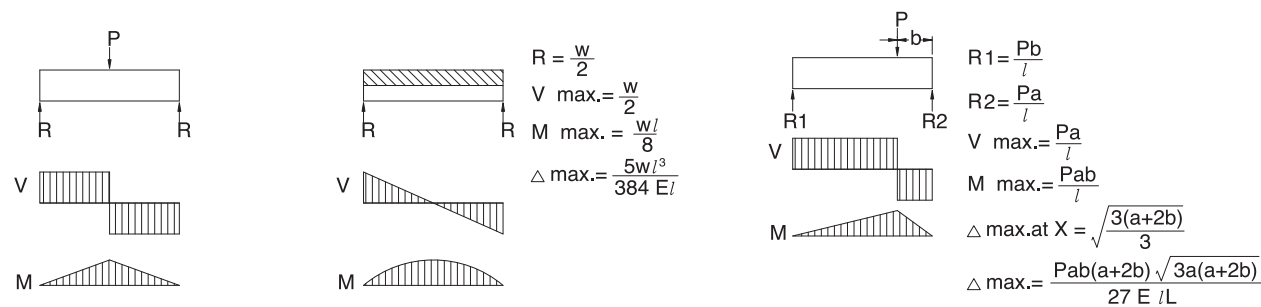
Classification Number and Conversion Coating Suffix	Service Condition	Thickness, min µm
Fe/Zn 25	SC4 (very severe)	25
Fe/Zn 12	SC3 (severe)	12
Fe/Zn 8	SC2 (moderate)	8
Fe/Zn 5	SC1 (mild)	5

FORMULAE ON COMMON BEAM LOADINGS

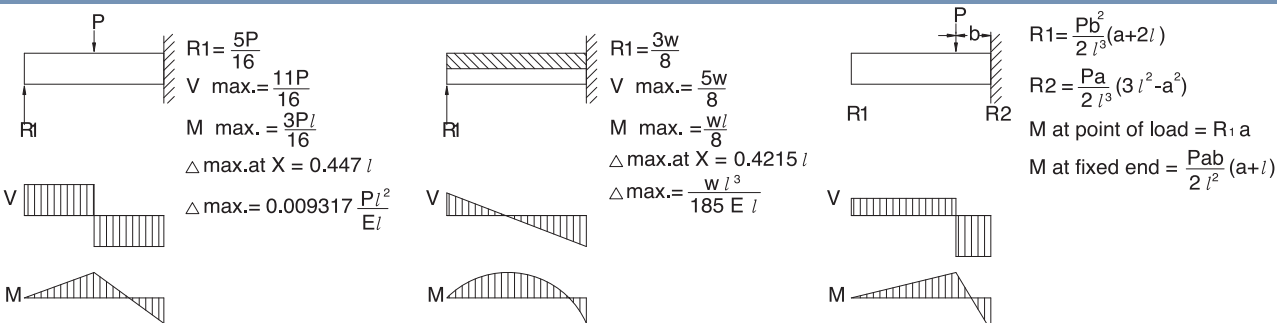
Cantilever Beams



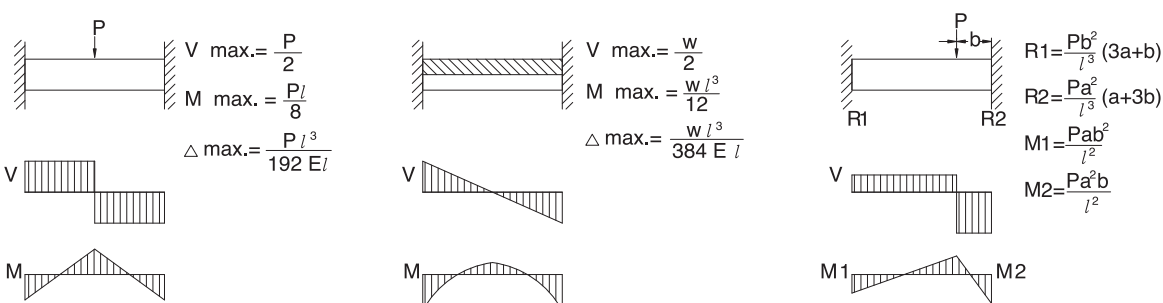
Simple Beams



Beams Fixed one end, Supported at other



Beams Fixed at both ends



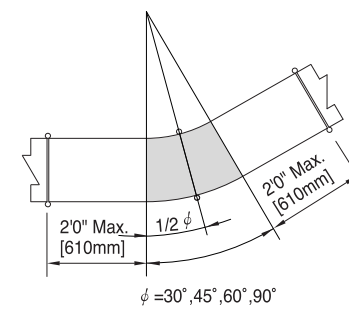
R = Reaction
M = Moment
P = Concentrated load

W = Total uniform load
V = Shear

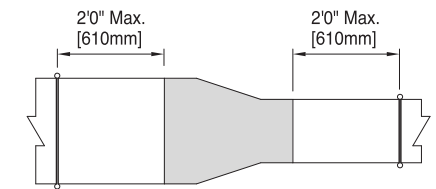
Δ = Deflection
E = Modulus of Elasticity
I = Moment of inertia

SUPPORT LOCATION FOR FITTING

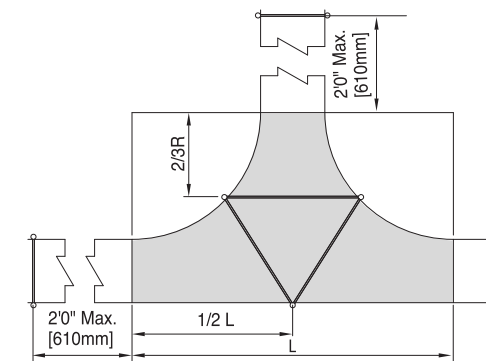
Horizontal Elbows



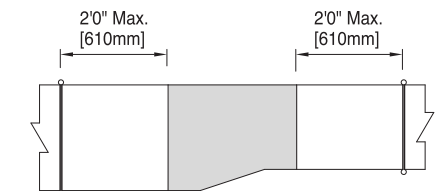
Straight Reducer



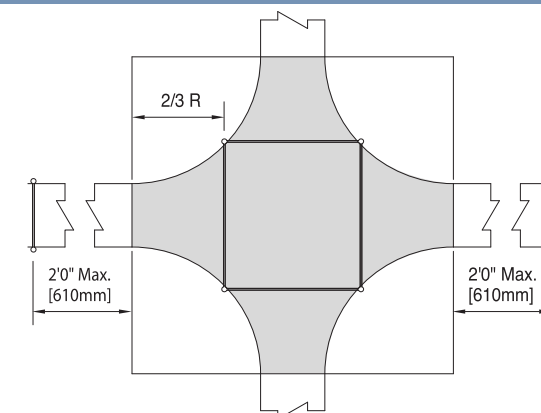
Horizontal Tee



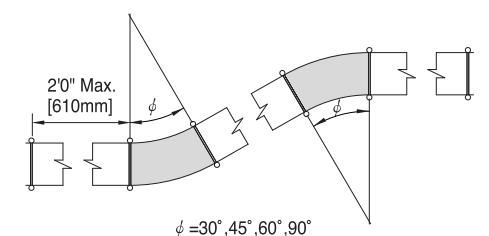
Offset Reducer



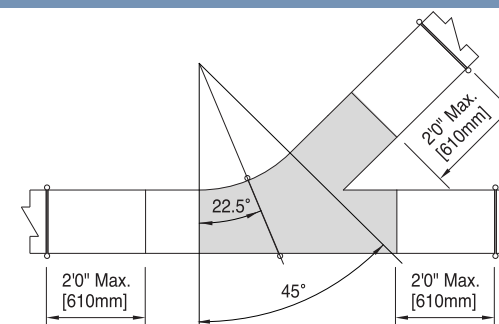
Horizontal Cross



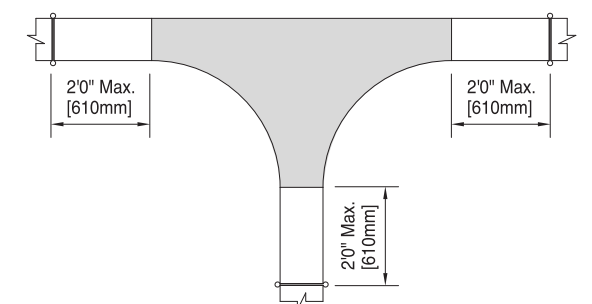
Vertical Elbows



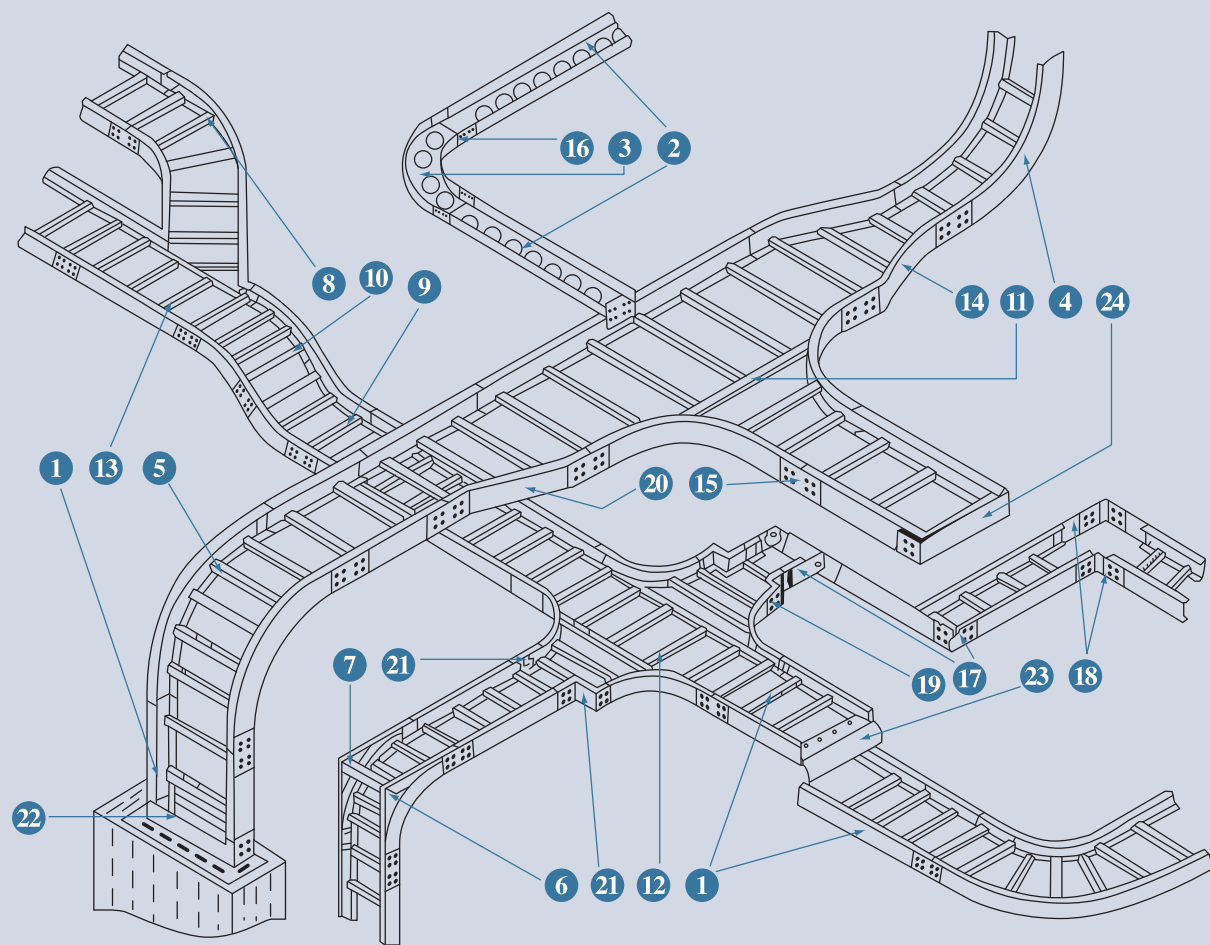
Y-Branch



Vertical Tee



TYPICAL DRAWING



LADDER TYPE & SOLID BOTTOM TYPE

- | | |
|-------------------------------------|-------------------------------------|
| 1. STRAIGHT CABLE TRAY | 13. 45° HORIZONTAL WYE BRANCH |
| 2. STRAIGHT CABLE CHANNEL | 14. STRAIGHT REDUCER |
| 3. CHANNEL HORIZONTAL FITTING | 15. JOINT CONNECTOR |
| 4. 90° VERTICAL INSIDE ELBOW | 16. CHANNEL CONNECTOR |
| 5. 90° VERTICAL OUTSIDE ELBOW | 17. ADJUSTABLE VERTICAL CONNECTOR |
| 6. 90° VERTICAL CABLE SUPPORT ELBOW | 18. ADJUSTABLE HORIZONTAL CONNECTOR |
| 7. SUPPORT HOOK OR HANGER CABLE | 19. STRAIGHT REDUCING CONNECTOR |
| 8. 45° HORIZONTAL ELBOW | 20. RIGHT HAND REDUCER |
| 9. 45° VERTICAL INSIDE ELBOW | 21. OFFSET REDUCING CONNECTOR |
| 10. 45° VERTICAL OUTSIDE ELBOW | 22. DROPOUT BOX CONNECTOR |
| 11. HORIZONTAL TEE | 23. END DROPOUT PLATE |
| 12. HORIZONTAL CROSS | 24. BLIND END PLATE |

CABLE TRAY SIDE RAILS

Design Data For One Rail

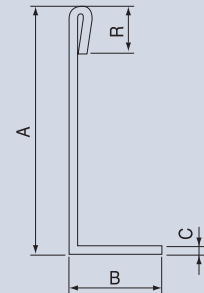
A



A : Height
B : Flange Width
C : Thickness

Material Type	Side Rail Type	A (mm)	B (mm)	C (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel	AA	100	20	2.0	6.79	33.96	2.72
Stainless Steel							
Galvanized Steel							
Carbon Steel	AB	100	20	2.3	7.72	38.6	3.11
Galvanized Steel							
Carbon Steel	AC	100	20	2.6	8.63	43.13	3.5
Carbon Steel	AD	150	20	2.0	12.76	95.68	3.72
Stainless Steel							
Carbon Steel	AE	150	20	2.3	14.55	109.1	4.26
Stainless Steel	AF	150	20	2.5	15.72	117.91	4.63
Carbon Steel	AG	150	20	2.6	16.3	122.28	4.8
Carbon Steel	AH	150	32	2.3	18.56	139.2	4.82
Stainless Steel	AI	150	32	2.5	20.07	150.55	5.22
Carbon Steel	AJ	150	32	2.6	20.82	156.17	5.43

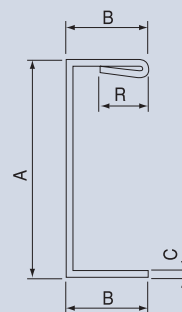
B



A : Height
B : Flange Width
C : Thickness
R : Return Flange Width

Material Type	Side Rail Type	A (mm)	B (mm)	C (mm)	R (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel	BA	100	20	2.0	13	5.78	30.25	2.63
Stainless Steel								
Carbon Steel								
Carbon Steel	BB	100	20	2.3	13	6.59	34.47	3.01
Carbon Steel	BC	100	20	2.6	13	7.4	38.63	3.39
Carbon Steel	BD	150	20	2.0	13	11.42	88.3	3.63
Stainless Steel								
Carbon Steel	BE	150	20	2.3	13	13.05	100.84	4.16
Stainless Steel	BF	150	20	2.5	13	14.14	109.15	4.51
Carbon Steel	BG	150	20	2.6	13	14.67	113.28	4.69
Carbon Steel	BH	150	30	2.0	20	13.15	103.64	3.96
Stainless Steel								
Carbon Steel	BI	150	30	2.3	20	14.99	118.16	4.54
Stainless Steel	BJ	150	30	2.5	20	16.24	127.97	4.93
Carbon Steel	BK	150	30	2.6	20	16.86	132.84	5.12

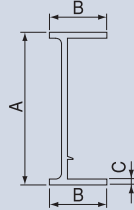
C



A : Height
B : Flange Width
C : Thickness
R : Return Flange Width

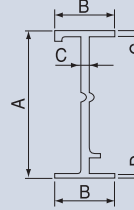
Material Type	Side Rail Type	A (mm)	B (mm)	C (mm)	R (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel	CA	100	20	2.0	13	7.21	39	2.98
Stainless Steel								
Carbon Steel								
Carbon Steel	CB	100	20	2.3	13	8.19	44.21	3.41
Carbon Steel	CC	100	20	2.6	13	9.14	49.25	3.84
Carbon Steel	CD	150	20	2.0	13	13.56	108.04	3.98
Stainless Steel								
Carbon Steel	CE	150	20	2.3	13	15.44	122.94	4.56
Stainless Steel	CF	150	20	2.5	13	16.67	132.69	4.95
Carbon Steel	CG	150	20	2.6	13	17.3	137.5	5.14
Carbon Steel	CH	150	30	2.0	20	16.73	136.05	4.52
Stainless Steel								
Carbon Steel	CI	150	30	2.3	20	19.05	154.7	5.18
Stainless Steel	CJ	150	30	2.5	20	20.6	167.08	5.62
Carbon Steel	CK	150	30	2.6	20	21.36	173.21	5.83

D



Material Type	Side Rail Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Aluminum	DA	100	40	3.0	-	15.88	80.03	5.41
	DB	100	40	4.0	-	20.36	102.39	7.07
	DC	150	50	4.0	-	41.89	315.88	9.87

E



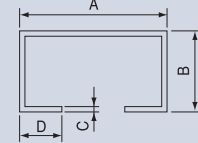
Material Type	Side Rail Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Aluminum	EA	150	50	6.0	4.5	57.08	445.21	14.84

A : Height, B : Flange Width, C : Thickness, D : Thickness

CABLE TRAY BOTTOM MEMBERS

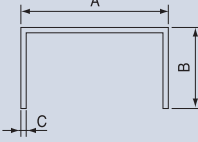
Ladder Type Rungs

A



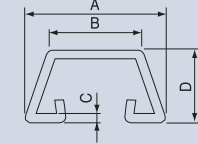
Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel	28	16	2.0	8	0.51	0.47	1.36

B



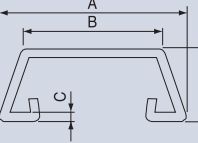
Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel Stainless Steel	40	20	2.0	-	0.41	0.58	1.52

C



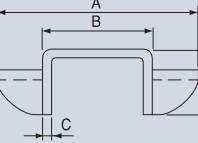
Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel Stainless Steel	40	30	2.0	16	0.66	0.57	1.63

D



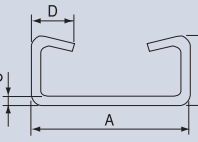
Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel Stainless Steel	50	40	2.0	16	0.68	0.64	1.83

E



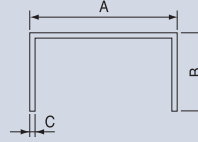
Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Carbon Steel	49	25	2.3	16	0.27	0.29	1.21

F



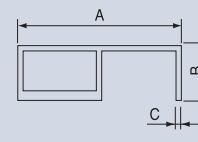
Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Galvanized Steel	40	16	1.6	9	0.44	0.44	1.33

G



Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Aluminum	40	20	3.0	-	0.58	0.81	2.22

H



Material Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
Aluminum	50	15	2.3	-	0.92	0.88	2.85

Desing Factors : Ix = Moment of Inertia, Sx = Section Modulus

LADDER TYPE CABLE TRAY

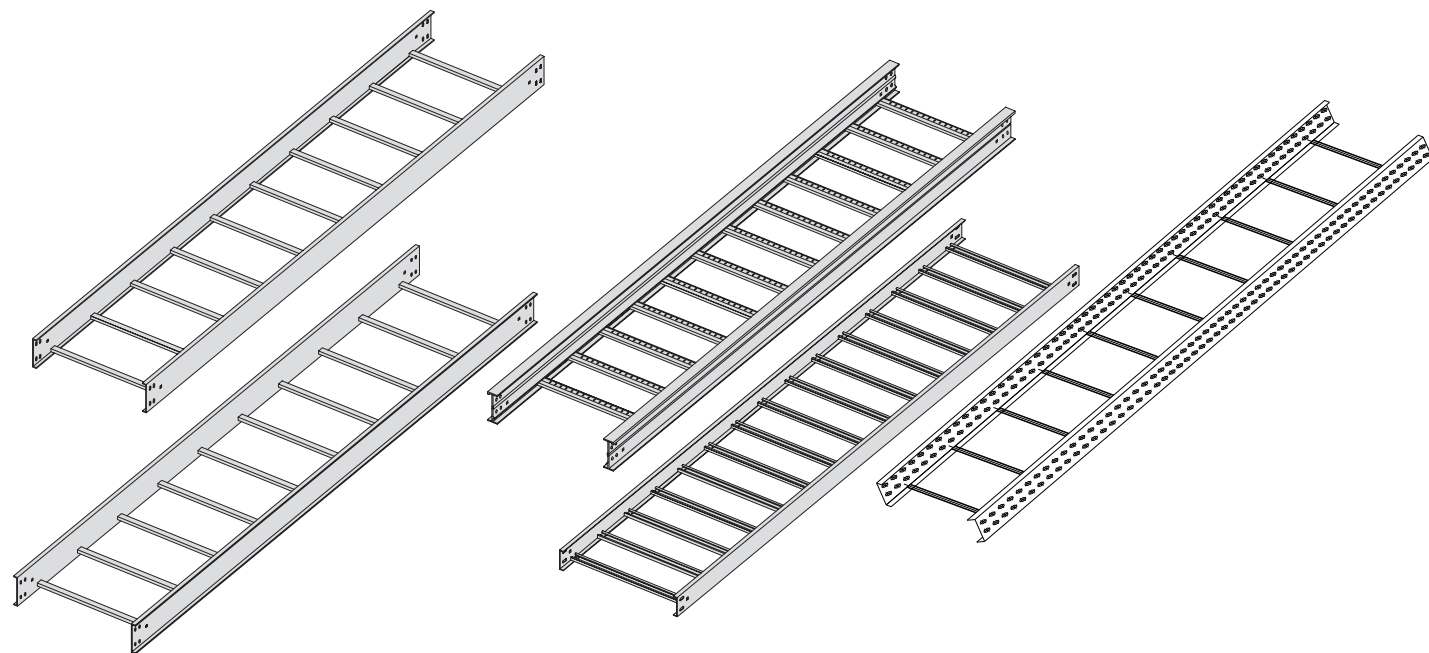
Straight Section Numbering System

Example

Prefix
L ST 4 AB A 30 - 030 30

Type	Shape	Material	Side rail	Rung	Rung Spacing	Width	Length
L=Ladder Type	ST=Straight tray	0=Hot Rolled Mild Steel 4=Stainless Steel SUS304 6=Stainless Steel SUS316 L=Stainless Steel SUS316L G=Hot-dip Zinc-Coated Steel A=Aluminum			20=200 23=230 30=300	15=150 20=200 30=300 45=450 60=600 75=750 90=900	24=2400 30=3000 60=6000

1. All dimensions are millimeters unless otherwise specified.
2. For side rail & rung data, see chart on page 20, 21



LADDER TYPE CABLE TRAY

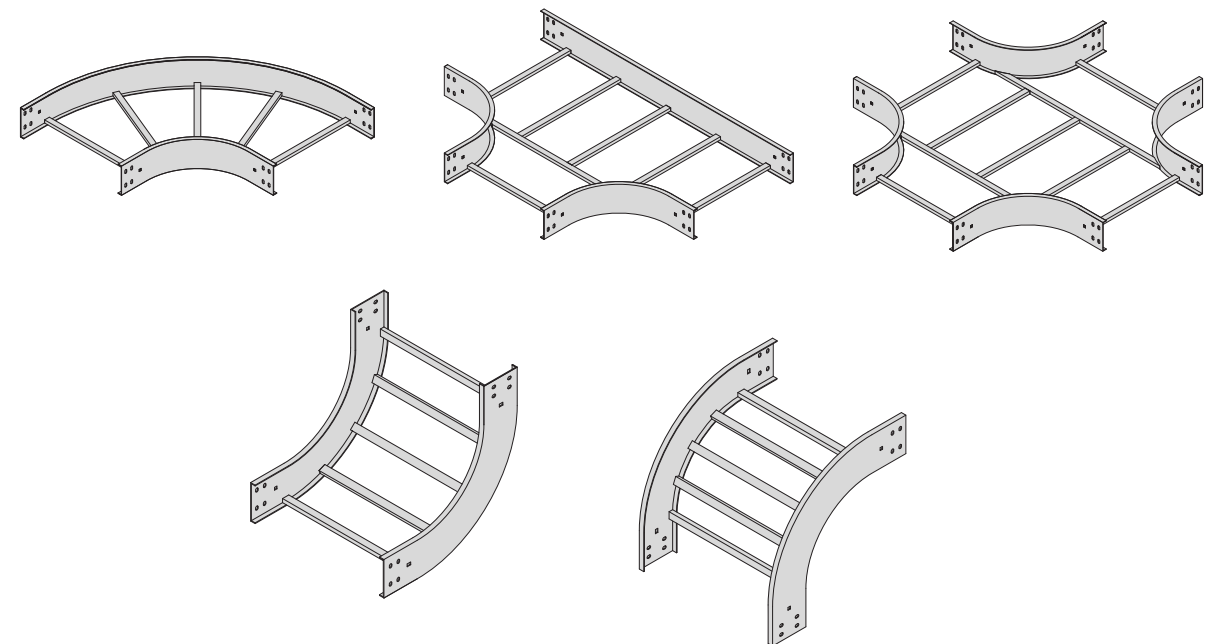
Fitting Numbering System

Example

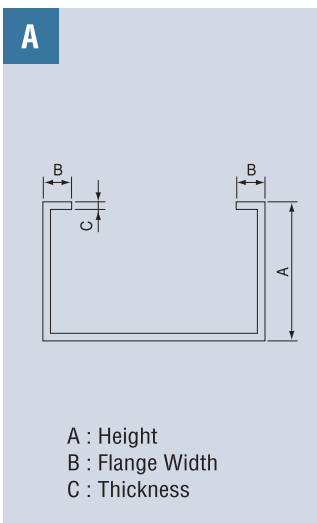
Prefix
L HE 4 AB A 30 - 015 90 30

Type	Shape	Material	Side rail	Rung	Rung Spacing	Width	Degree	Radius
L=Ladder Type	HE=Horizontal Elbow HT=Horizontal Tee HC=Horizontal Cross VI=Vertical Inside Elbow VO=Vertical Outside Elbow	0=Hot Rolled Mild Steel 4=Stainless Steel SUS304 6=Stainless Steel SUS316 L=Stainless Steel SUS316L G=Hot-dip Zinc-Coated Steel A=Aluminum			20=200 23=230 30=300	15=150 20=200 30=300 45=450 60=600 75=750 90=900	90=90° 60=60° 45=45° 30=30°	30=300 60=600 90=900

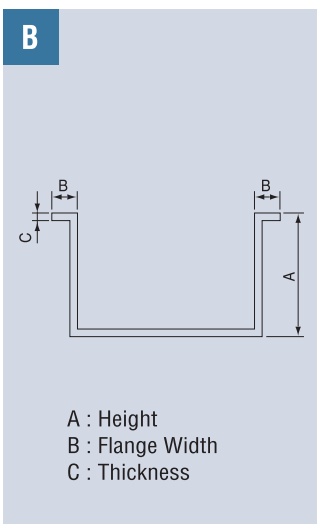
1. All dimensions are millimeters unless otherwise specified.
2. For side rail & rung data, see chart on page 20, 21



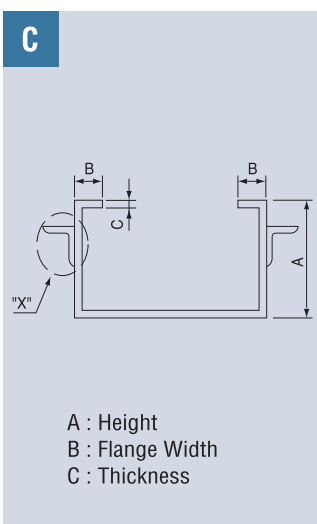
STRAIGHT SECTIONS FOR SOLID BOTTOM TYPE



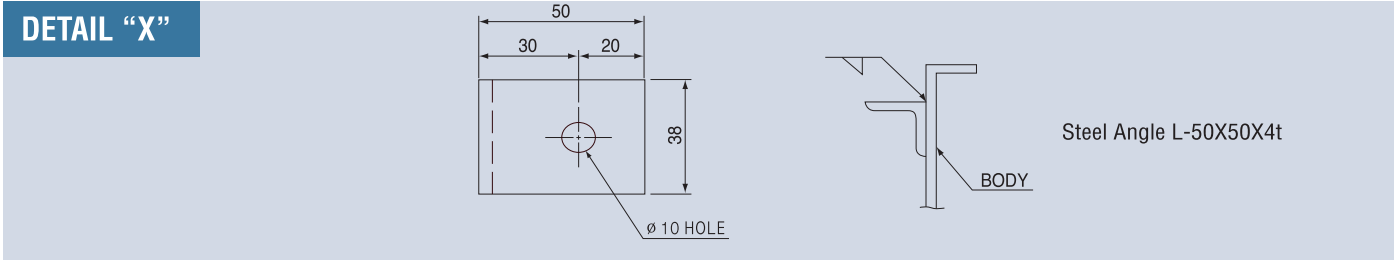
Material Type	Straight Section Type	A (mm)	B (mm)	C (mm)
Carbon Steel	AA	100	20	2.0
Stainless Steel	AB	100	20	2.3
Carbon Steel	AC	100	20	2.5
Carbon Steel	AD	100	20	2.6
Carbon Steel	AE	150	20	2.0
Stainless Steel	AF	150	20	2.3
Stainless Steel	AG	150	20	2.5
Carbon Steel	AH	150	20	2.6



Material Type	Straight Section Type	A (mm)	B (mm)	C (mm)
Carbon Steel	BA	100	20	2.0
Stainless Steel	BB	100	20	2.3
Carbon Steel	BC	100	20	2.5
Carbon Steel	BD	100	20	2.6
Carbon Steel	BE	150	20	2.0
Stainless Steel	BF	150	20	2.3
Stainless Steel	BG	150	20	2.5
Carbon Steel	BH	150	20	2.6



Material Type	Straight Section Type	A (mm)	B (mm)	C (mm)
Carbon Steel	CA	100	20	2.0
Stainless Steel	CB	100	20	2.3
Carbon Steel	CC	100	20	2.5
Carbon Steel	CD	100	20	2.6
Carbon Steel	CE	150	20	2.0
Stainless Steel	CF	150	20	2.3
Stainless Steel	CG	150	20	2.5
Carbon Steel	CH	150	20	2.6



SOLID BOTTOM TYPE CABLE TRAY

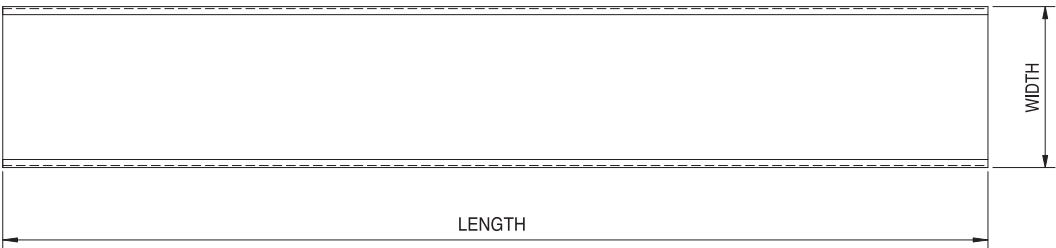
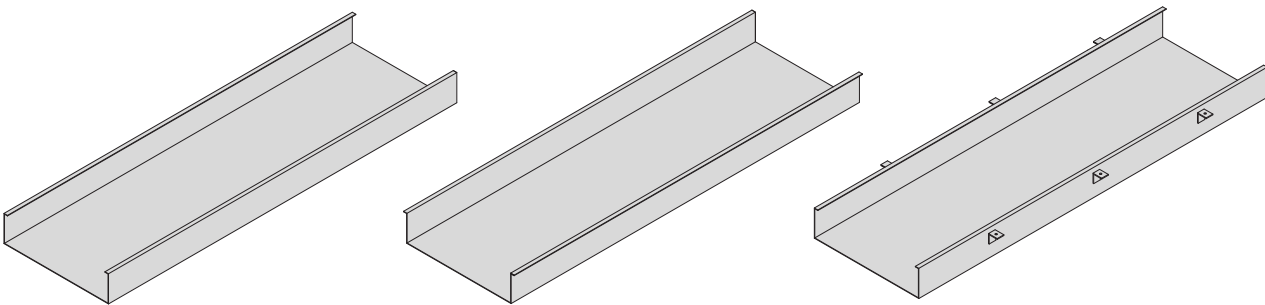
Straight Section Numbering System

Example

Prefix
S ST 4 AB - 030 30

Type	Shape	Material	Section	Width	Length
S=Solid Bottom Type	ST=Straight tray	0=Hot Rolled Mild Steel 4=Stainless Steel SUS304 6=Stainless Steel SUS316 L=Stainless Steel SUS316L G=Hot-dip Zinc-Coated Steel A=Aluminum		15=150 20=200 30=300 45=450 60=600 75=750 90=900	24=2400 30=3000

1. All dimensions are millimeters unless otherwise specified.
2. For Section data, see chart on page 24



SOLID BOTTOM TYPE CABLE TRAY

Fitting Numbering System

Example

Prefix
S HE 4 AB - 015 90 30

Type

S=Solid Bottom Type

Shape

HE=Horizontal Elbow
HT=Horizontal Tee
HC=Horizontal Cross
VI=Vertical Inside Elbow
VO=Vertical Outside Elbow

Material

0=Hot Rolled Mild Steel
4=Stainless Steel SUS304
6=Stainless Steel SUS316
L=Stainless Steel SUS316L
G=Hot-dip Zinc-Coated Steel
A=Aluminum

Section

Width

15=150
20=200
30=300
45=450
60=600
75=750
90=900

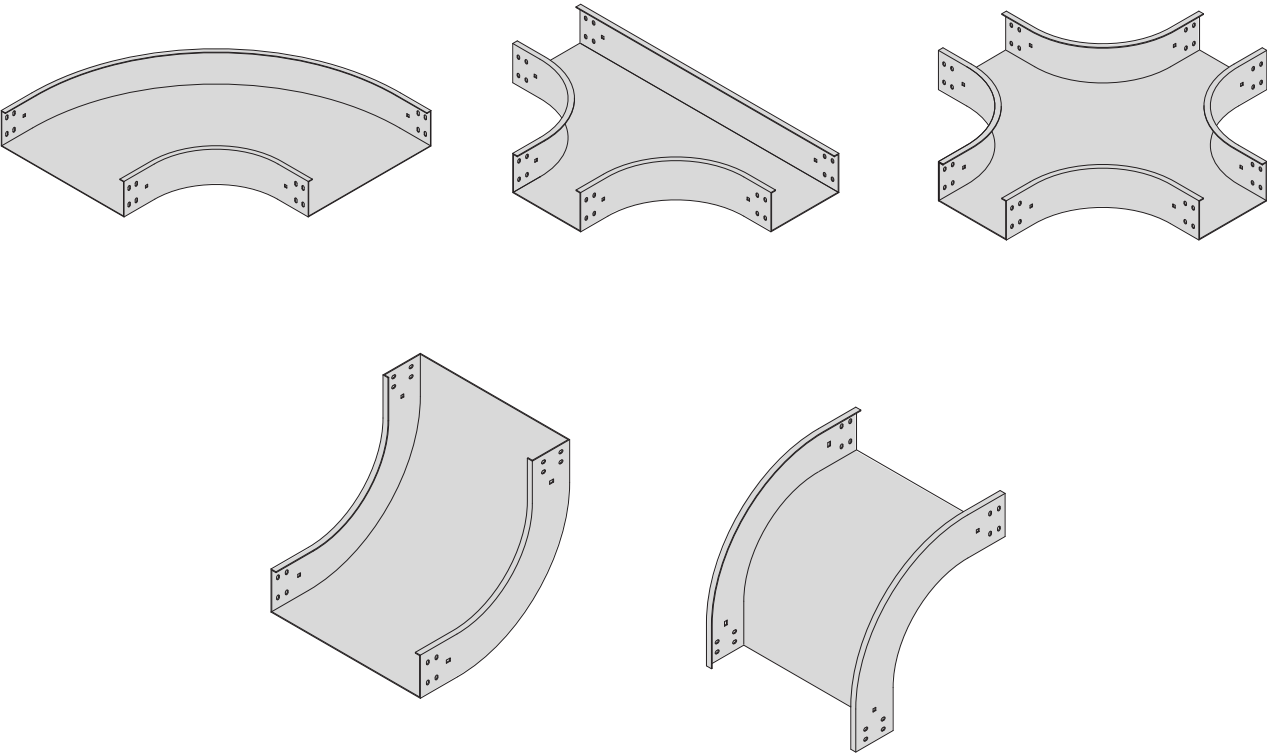
Degree

90=90°
60=60°
45=45°
30=30°

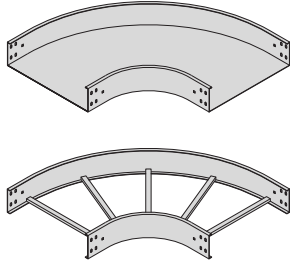
Radius

30=300
60=600
90=900

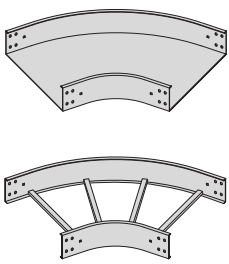
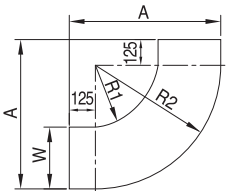
1. All dimensions are millimeters unless otherwise specified.
2. For section data, section chart on page 24



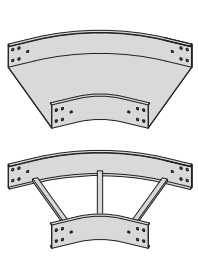
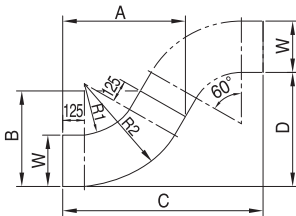
HORIZONTAL ELBOW



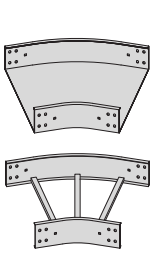
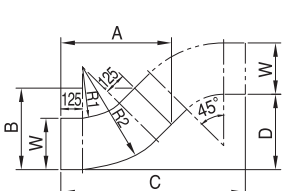
90° HORIZONTAL ELBOW



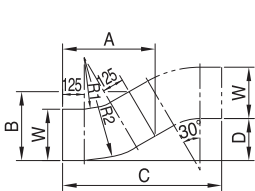
60° HORIZONTAL ELBOW



45° HORIZONTAL ELBOW



30° HORIZONTAL ELBOW



90° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A
(Prefix)-0159030	150	300	450	575
(Prefix)-0159060		600	750	875
(Prefix)-0159090		900	1050	1175
(Prefix)-0209030	200	300	500	625
(Prefix)-0209060		600	800	925
(Prefix)-0209090		900	1100	1225
(Prefix)-0309030	300	300	600	725
(Prefix)-0309060		600	900	1025
(Prefix)-0309090		900	1200	1325
(Prefix)-0459030	450	300	750	875
(Prefix)-0459060		600	1050	1175
(Prefix)-0459090		900	1350	1475
(Prefix)-0609030	600	300	900	1025
(Prefix)-0609060		600	1200	1325
(Prefix)-0609090		900	1500	1625
(Prefix)-0759030	750	300	1050	1175
(Prefix)-0759060		600	1350	1475
(Prefix)-0759090		900	1650	1775
(Prefix)-0909030	900	300	1200	1325
(Prefix)-0909060		600	1500	1625
(Prefix)-0909090		900	1800	1925

60° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0156030	150	300	450	577	407	1024	592
(Prefix)-0156060		600	750	837	557	1544	892
(Prefix)-0156090		900	1050	1097	708	2063	1192
(Prefix)-0206030	200	300	500	620	458	1067	616
(Prefix)-0206060		600	800	880	608	1587	916
(Prefix)-0206090		900	1100	1140	758	2107	1216
(Prefix)-0306030	300	300	600	707	562	1154	667
(Prefix)-0306060		600	900	967	712	1674	967
(Prefix)-0306090		900	1200	1227	864	2194	1267
(Prefix)-0456030	450	300	750	837	712	1284	742
(Prefix)-0456060		600	1050	1097	864	1804	1042
(Prefix)-0456090		900	1350	1357	1013	2324	1342
(Prefix)-0606030	600	300	900	967	864	1414	817
(Prefix)-0606060		600	1200	1226	1013	1934	1117
(Prefix)-0606090		900	1500	1487	1162	2453	1417
(Prefix)-0756030	750	300	1050	1097	1013	1544	892
(Prefix)-0756060		600	1350	1357	1162	2063	1192
(Prefix)-0756090		900	1650	1616	1313	2583	1492
(Prefix)-0906030	900	300	1200	1227	1162	1674	967
(Prefix)-0906060		600	1500	1487	1313	2194	1267
(Prefix)-0906090		900	1800	1746	1463	2713	1567

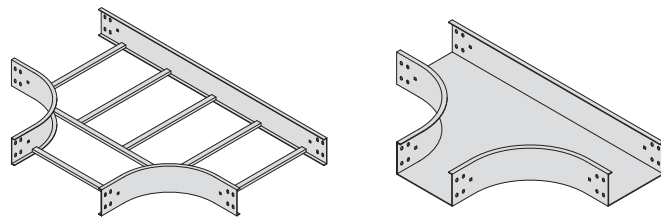
45° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0154530	150	300	450	532	318	957	396
(Prefix)-0154560		600	750	744	407	1381	572
(Prefix)-0154590		900	1050	956	501	1806	748
(Prefix)-0204530	200	300	500	567	376	993	410
(Prefix)-0204560		600	800	779	464	1417	587
(Prefix)-0204590		900	1100	991	552	1841	763
(Prefix)-0304530	300	300	600	638	462	1063	440
(Prefix)-0304560		600	900	850	559	1489	616
(Prefix)-0304590		900	1200	1062	651	1912	792
(Prefix)-0454530	450	300	750	744	619	1169	484
(Prefix)-0454560		600	1050	956	710	1593	660
(Prefix)-0454590		900	1350	1168	802	2018	836
(Prefix)-0604530	600	300	900	850	770	1275	528
(Prefix)-0604560		600	1200	1062	861	1670	704
(Prefix)-0604590		900	1500	1274	953	2124	880
(Prefix)-0754530	750	300	1050	956	920	1381	572
(Prefix)-0754560		600	1350	1168	1012	1806	748
(Prefix)-0754590		900	1650	1380	1103	2230	924
(Prefix)-0904530	900	300	1200	1062	1071	1487	116
(Prefix)-0904560		600	1500	1274	1162	1912	792
(Prefix)-0904590		900	1800	1486	1254	2336	968

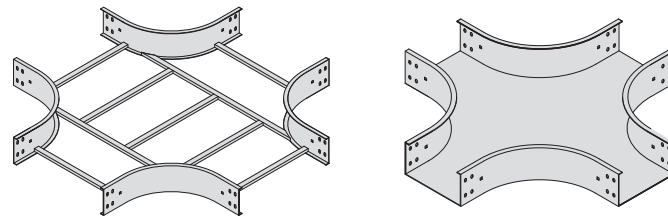
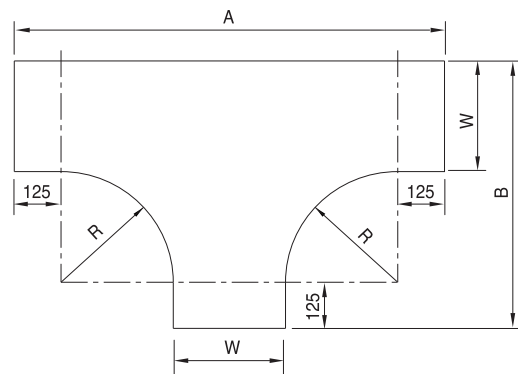
30° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0153030	150	300	450	460	255	840	235
(Prefix)-0153060		600	750	610	295	1140	315
(Prefix)-0153090		900	1050	760	335	1340	395
(Prefix)-0203030	200	300	500	483	303	867	233
(Prefix)-0203060		600	800	633	343	1166	313
(Prefix)-0203090		900	1100	783	383	1467	393
(Prefix)-0303030	300	300	600	535	405	920	250
(Prefix)-0303060		600	900	685	445	1220	330
(Prefix)-0303090		900	1200	835	485	1520	410
(Prefix)-0453030	450	300	750	610	555	1000	265
(Prefix)-0453060		600	1050	760	595	1300	345
(Prefix)-0453090		900	1350	910	635	1600	425
(Prefix)-0603030	600	300	900	685	705	1080	280
(Prefix)-0603060		600	1200	835	745	1380	360
(Prefix)-0603090		900	1500	985	785	1680	440
(Prefix)-0753030	750	300	1050	760	855	1160	295
(Prefix)-0753060		600	1350	910	895	1460	375
(Prefix)-0753090		900	1650	1060	935	1760	455
(Prefix)-0903030	900	300	1200	835	1005	1240	310
(Prefix)-0903060		600	1500	985	1045	1540	390
(Prefix)-0903090		900	1800	1135	1085	1840	470

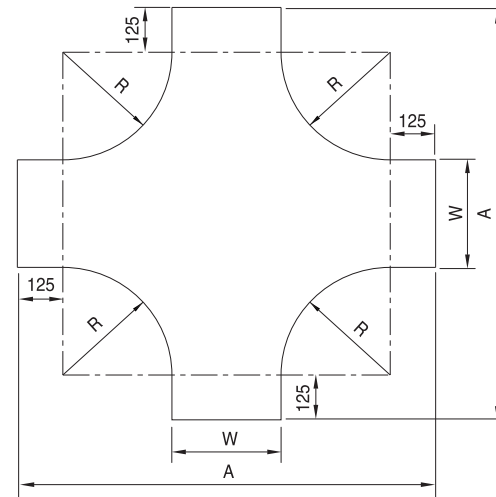
HORIZONTAL TEE & CROSS



HORIZONTAL TEE



HORIZONTAL CROSS



CATALOG NO.	WIDTH	R	A	B
(Prefix)-01530	150	300	1000	575
(Prefix)-01560		600	1600	875
(Prefix)-01590		900	2200	1175
(Prefix)-02030	200	300	1050	625
(Prefix)-02060		600	1650	925
(Prefix)-02090		900	2250	1225
(Prefix)-03030	300	300	1150	725
(Prefix)-03060		600	1750	1025
(Prefix)-03090		900	2350	1325
(Prefix)-04530	450	300	1300	875
(Prefix)-04560		600	1900	1175
(Prefix)-04590		900	2500	1475
(Prefix)-06030	600	300	1450	1025
(Prefix)-06060		600	2050	1325
(Prefix)-06090		900	2650	1625
(Prefix)-07530	750	300	1600	1175
(Prefix)-07560		600	2200	1475
(Prefix)-07590		900	2800	1775
(Prefix)-09030	900	300	1750	1325
(Prefix)-09060		600	2350	1625
(Prefix)-09090		900	2950	1925

CATALOG NO.	WIDTH	R	A
(Prefix)-01530	150	300	1000
(Prefix)-01560		600	1600
(Prefix)-01590		900	2200
(Prefix)-02030	200	300	1050
(Prefix)-02060		600	1650
(Prefix)-02090		900	2250
(Prefix)-03030	300	300	1150
(Prefix)-03060		600	1750
(Prefix)-03090		900	2350
(Prefix)-04530	450	300	1300
(Prefix)-04560		600	1900
(Prefix)-04590		900	2500
(Prefix)-06030	600	300	1450
(Prefix)-06060		600	2050
(Prefix)-06090		900	2650
(Prefix)-07530	750	300	1600
(Prefix)-07560		600	2200
(Prefix)-07590		900	2800
(Prefix)-09030	900	300	1750
(Prefix)-09060		600	2350
(Prefix)-09090		900	2950

REDUCER

Example

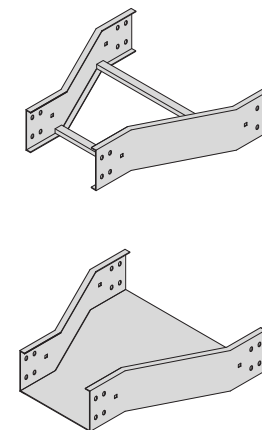
Prefix

- 020 015

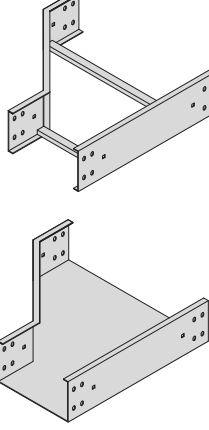
Width-1

Width-2

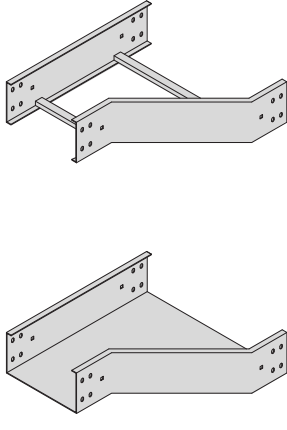
STRAIGHT



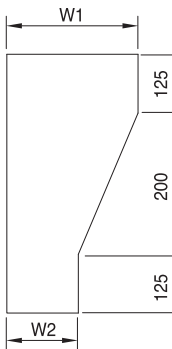
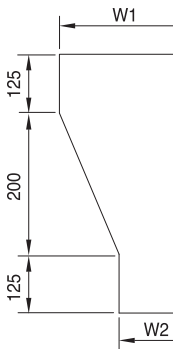
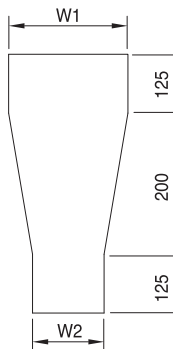
LEFT



RIGHT

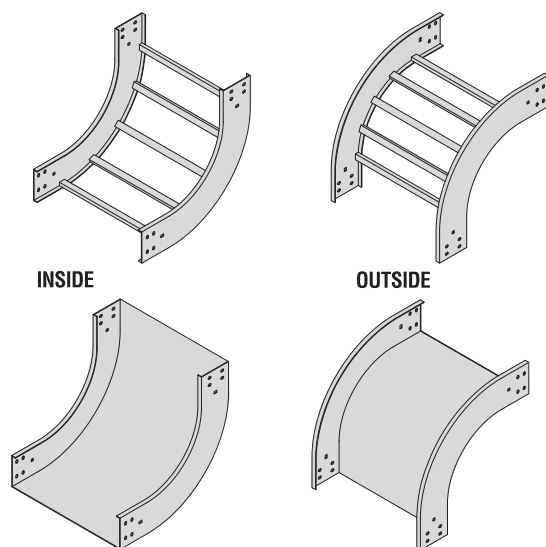


REDUCER

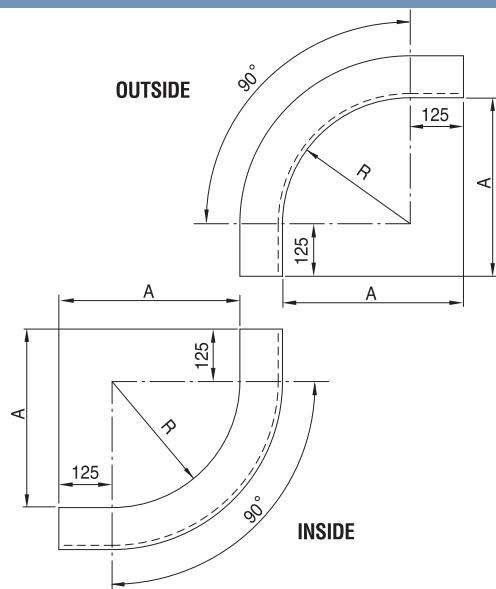


CATALOG NO. STRAIGHT	CATALOG NO. LEFT	CATALOG NO. RIGHT	W1	W2
(Prefix)-020015	(Prefix)-020015	(Prefix)-020015	200	150
(Prefix)-030015	(Prefix)-030015	(Prefix)-030015	300	150
(Prefix)-030020	(Prefix)-030020	(Prefix)-030020	300	200
(Prefix)-045015	(Prefix)-045015	(Prefix)-045015	450	150
(Prefix)-045020	(Prefix)-045020	(Prefix)-045020	450	200
(Prefix)-045030	(Prefix)-045030	(Prefix)-045030	450	300
(Prefix)-060015	(Prefix)-060015	(Prefix)-060015	600	150
(Prefix)-060020	(Prefix)-060020	(Prefix)-060020	600	200
(Prefix)-060030	(Prefix)-060030	(Prefix)-060030	600	300
(Prefix)-060045	(Prefix)-060045	(Prefix)-060045	600	450
(Prefix)-075015	(Prefix)-075015	(Prefix)-075015	750	150
(Prefix)-075020	(Prefix)-075020	(Prefix)-075020	750	200
(Prefix)-075030	(Prefix)-075030	(Prefix)-075030	750	300
(Prefix)-075045	(Prefix)-075045	(Prefix)-075045	750	450
(Prefix)-075060	(Prefix)-075060	(Prefix)-075060	750	600
(Prefix)-090015	(Prefix)-090015	(Prefix)-090015	900	150
(Prefix)-090020	(Prefix)-090020	(Prefix)-090020	900	200
(Prefix)-090030	(Prefix)-090030	(Prefix)-090030	900	300
(Prefix)-090045	(Prefix)-090045	(Prefix)-090045	900	450
(Prefix)-090060	(Prefix)-090060	(Prefix)-090060	900	600
(Prefix)-090075	(Prefix)-090075	(Prefix)-090075	900	750

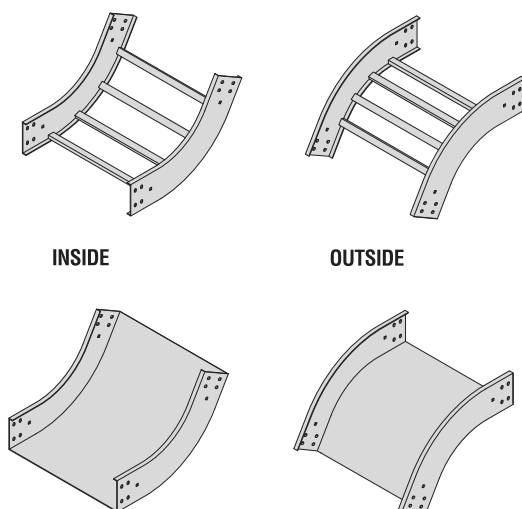
VERTICAL INSIDE / OUTSIDE ELBOW



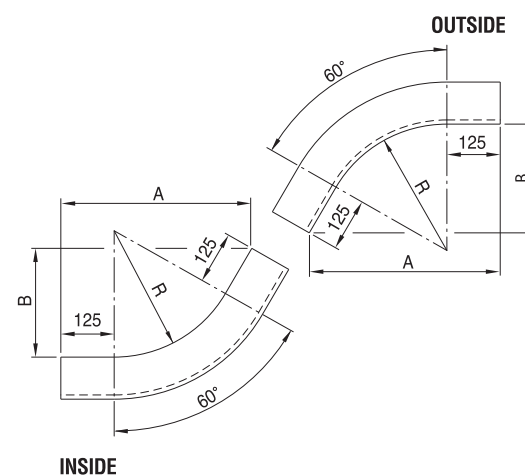
90° VERTICAL ELBOW



CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A
(Prefix)-0159030	(Prefix)-0159030	150	300	425
(Prefix)-0159060	(Prefix)-0159060		600	725
(Prefix)-0159090	(Prefix)-0159090		900	1025
(Prefix)-0209030	(Prefix)-0209030	200	300	425
(Prefix)-0209060	(Prefix)-0209060		600	725
(Prefix)-0209090	(Prefix)-0209090		900	1025
(Prefix)-0309030	(Prefix)-0309030	300	300	425
(Prefix)-0309060	(Prefix)-0309060		600	725
(Prefix)-0309090	(Prefix)-0309090		900	1025
(Prefix)-0459030	(Prefix)-0459030	450	300	425
(Prefix)-0459060	(Prefix)-0459060		600	725
(Prefix)-0459090	(Prefix)-0459090		900	1025
(Prefix)-0609030	(Prefix)-0609030	600	300	425
(Prefix)-0609060	(Prefix)-0609060		600	725
(Prefix)-0609090	(Prefix)-0609090		900	1025
(Prefix)-0759030	(Prefix)-0759030	750	300	425
(Prefix)-0759060	(Prefix)-0759060		600	725
(Prefix)-0759090	(Prefix)-0759090		900	1025
(Prefix)-0909030	(Prefix)-0909030	900	300	425
(Prefix)-0909060	(Prefix)-0909060		600	725
(Prefix)-0909090	(Prefix)-0909090		900	1025

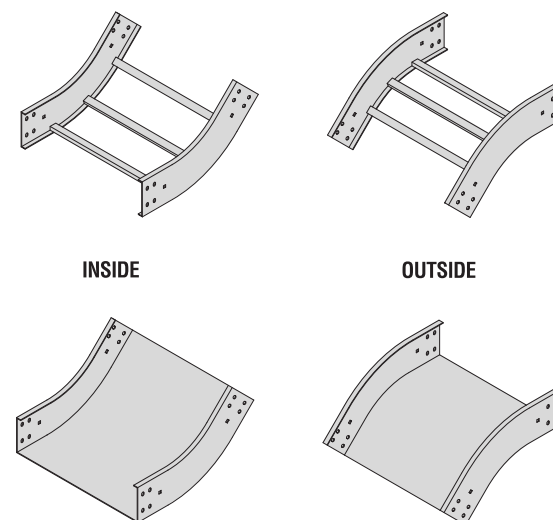


60° VERTICAL ELBOW

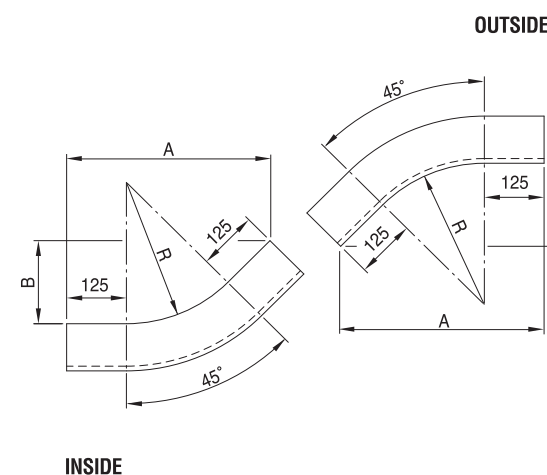


CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A	B
(Prefix)-0156030	(Prefix)-0156030	150	300	447	256
(Prefix)-0156060	(Prefix)-0156060		600	707	408
(Prefix)-0156090	(Prefix)-0156090		900	967	560
(Prefix)-0206030	(Prefix)-0206030	200	300	447	256
(Prefix)-0206060	(Prefix)-0206060		600	707	408
(Prefix)-0206090	(Prefix)-0206090		900	967	560
(Prefix)-0306030	(Prefix)-0306030	300	300	447	256
(Prefix)-0306060	(Prefix)-0306060		600	707	408
(Prefix)-0306090	(Prefix)-0306090		900	967	560
(Prefix)-0456030	(Prefix)-0456030	450	300	447	256
(Prefix)-0456060	(Prefix)-0456060		600	707	408
(Prefix)-0456090	(Prefix)-0456090		900	967	560
(Prefix)-0606030	(Prefix)-0606030	600	300	447	256
(Prefix)-0606060	(Prefix)-0606060		600	707	408
(Prefix)-0606090	(Prefix)-0606090		900	967	560
(Prefix)-0756030	(Prefix)-0756030	750	300	447	256
(Prefix)-0756060	(Prefix)-0756060		600	707	408
(Prefix)-0756090	(Prefix)-0756090		900	967	560
(Prefix)-0906030	(Prefix)-0906030	900	300	447	256
(Prefix)-0906060	(Prefix)-0906060		600	707	408
(Prefix)-0906090	(Prefix)-0906090		900	967	560

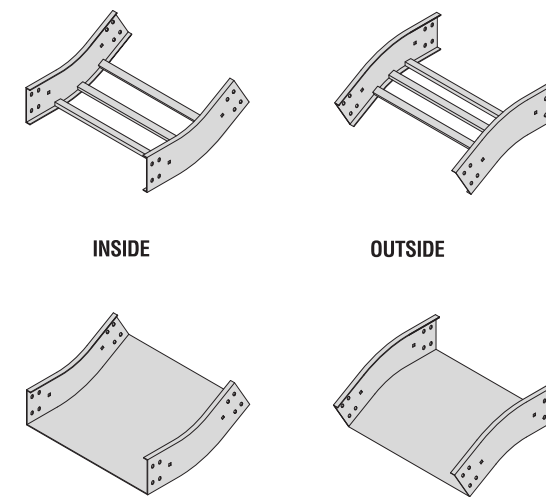
VERTICAL INSIDE / OUTSIDE ELBOW



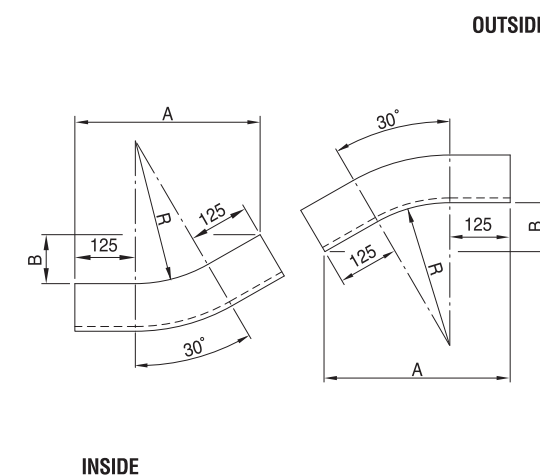
45° VERTICAL ELBOW



CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A	B
(Prefix)-0154530	(Prefix)-0154530	150	300	426	166
(Prefix)-0154560	(Prefix)-0154560		600	638	258
(Prefix)-0154590	(Prefix)-0154590		900	850	350
(Prefix)-0204530	(Prefix)-0204530	200	300	426	166
(Prefix)-0204560	(Prefix)-0204560		600	638	258
(Prefix)-0204590	(Prefix)-0204590		900	850	350
(Prefix)-0304530	(Prefix)-0304530	300	300	426	166
(Prefix)-0304560	(Prefix)-0304560		600	638	258
(Prefix)-0304590	(Prefix)-0304590		900	850	350
(Prefix)-0454530	(Prefix)-0454530	450	300	426	166
(Prefix)-0454560	(Prefix)-0454560		600	638	258
(Prefix)-0454590	(Prefix)-0454590		900	850	350
(Prefix)-0604530	(Prefix)-0604530	600	300	426	166
(Prefix)-0604560	(Prefix)-0604560		600	638	258
(Prefix)-0604590	(Prefix)-0604590		900	850	350
(Prefix)-0754530	(Prefix)-0754530	750	300	426	166
(Prefix)-0754560	(Prefix)-0754560		600	638	258
(Prefix)-0754590	(Prefix)-0754590		900	850	350
(Prefix)-0904530	(Prefix)-0904530	900	300	426	166
(Prefix)-0904560	(Prefix)-0904560		600	638	258
(Prefix)-0904590	(Prefix)-0904590		900	850	350



30° VERTICAL ELBOW



CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A	B
(Prefix)-0153030	(Prefix)-0153030	150	300	383	97
(Prefix)-0153060	(Prefix)-0153060		600	533	143
(Prefix)-0153090	(Prefix)-0153090		900	683	189
(Prefix)-0203030	(Prefix)-0203030	200	300	383	97
(Prefix)-0203060	(Prefix)-0203060		600	533	143
(Prefix)-0203090	(Prefix)-0203090		900	683	189
(Prefix)-0303030	(Prefix)-0303030	300	300	383	97
(Prefix)-0303060	(Prefix)-0303060		600	533	143
(Prefix)-0303090	(Prefix)-0303090		900	683	189
(Prefix)-0453030	(Prefix)-0453030	450	300	383	97
(Prefix)-0453060	(Prefix)-0453060		600	533	143
(Prefix)-0453090	(Prefix)-0453090		900	683	189
(Prefix)-0603030	(Prefix)-0603030	600	300	383	97
(Prefix)-0603060	(Prefix)-0603060		600	533	143
(Prefix)-0603090	(Prefix)-0603090		900	683	189
(Prefix)-0753030	(Prefix)-0753030	750	300	383	97
(Prefix)-0753060	(Prefix)-0753060		600	533	143
(Prefix)-0753090	(Prefix)-0753090		900	683	189
(Prefix)-0903030	(Prefix)-0903030	900	300	383	97
(Prefix)-0903060	(Prefix)-0903060		600	533	143
(Prefix)-0903090	(Prefix)-0903090		900	683	189

VERTICAL TEE (UP & DOWN)

Example

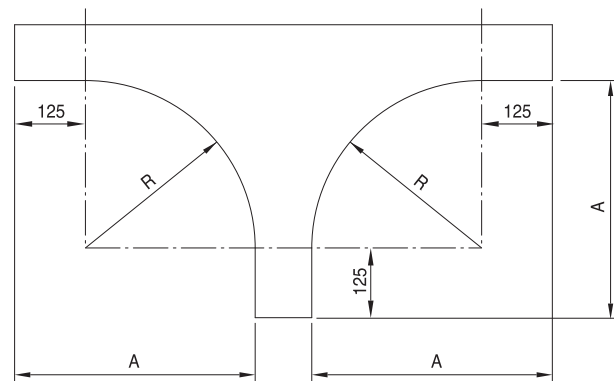
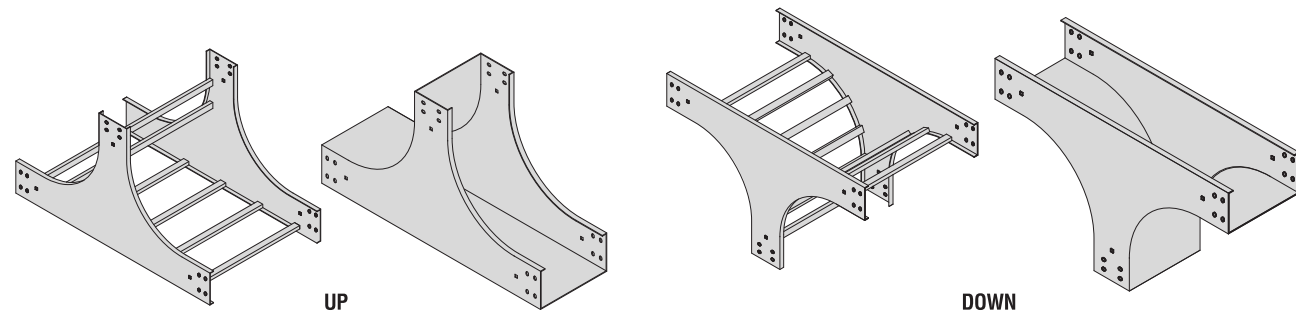
Prefix

- 015 30 D

Width
30=300
60=600
90=900

Radius
30=300
60=600
90=900

D=down
U=up



CATALOG NO. DOWN	CATALOG NO. UP	WIDTH	R	A
(Prefix)-01530D	(Prefix)-01530U	150	300	425
(Prefix)-01560D	(Prefix)-01560U		600	725
(Prefix)-01590D	(Prefix)-01590U		900	1025
(Prefix)-02030D	(Prefix)-02030U	200	300	425
(Prefix)-02060D	(Prefix)-02060U		600	725
(Prefix)-02090D	(Prefix)-02090U		900	1025
(Prefix)-03030D	(Prefix)-03030U	300	300	425
(Prefix)-03060D	(Prefix)-03060U		600	725
(Prefix)-03090D	(Prefix)-03090U		900	1025
(Prefix)-04530D	(Prefix)-04530U	450	300	425
(Prefix)-04560D	(Prefix)-04560U		600	725
(Prefix)-04590D	(Prefix)-04590U		900	1025
(Prefix)-06030D	(Prefix)-06030U	600	300	425
(Prefix)-06060D	(Prefix)-06060U		600	725
(Prefix)-06090D	(Prefix)-06090U		900	1025
(Prefix)-07530D	(Prefix)-07530U	750	300	425
(Prefix)-07560D	(Prefix)-07560U		600	725
(Prefix)-07590D	(Prefix)-07590U		900	1025
(Prefix)-09030D	(Prefix)-09030U	900	300	425
(Prefix)-09060D	(Prefix)-09060U		600	725
(Prefix)-09090D	(Prefix)-09090U		900	1025

VERTICAL CROSS & 45° HORIZONTAL WYE BRANCH

Example

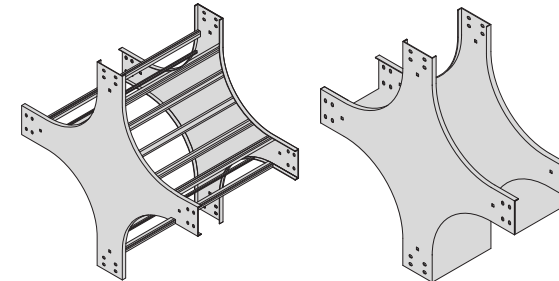
Prefix

- 015 30 L

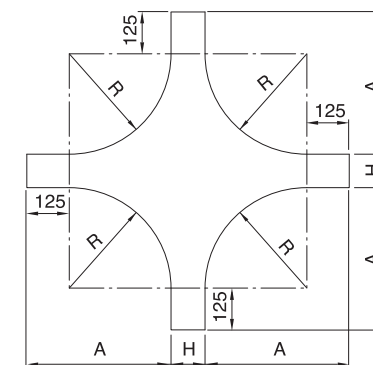
Width
30=300
60=600
90=900

Radius
30=300
60=600
90=900

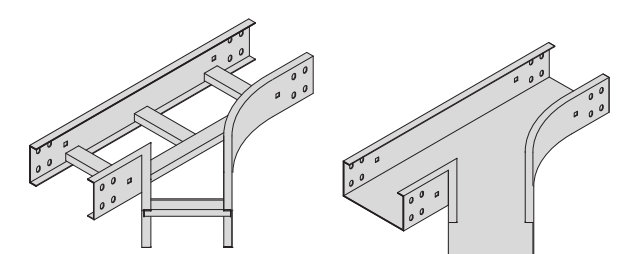
L=left
R=right



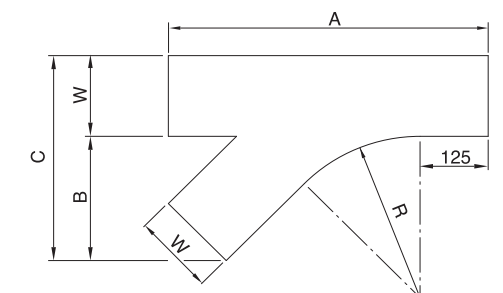
VERTICAL CROSS



CATALOG NO.	WIDTH	R	A
(Prefix)-01530	150	300	425
(Prefix)-01560		600	725
(Prefix)-01590		900	1025
(Prefix)-02030	200	300	425
(Prefix)-02060		600	725
(Prefix)-02090		900	1025
(Prefix)-03030	300	300	425
(Prefix)-03060		600	725
(Prefix)-03090		900	1025
(Prefix)-04530	450	300	425
(Prefix)-04560		600	725
(Prefix)-04590		900	1025
(Prefix)-06030	600	300	425
(Prefix)-06060		600	725
(Prefix)-06090		900	1025
(Prefix)-07530	750	300	425
(Prefix)-07560		600	725
(Prefix)-07590		900	1025
(Prefix)-09030	900	300	425
(Prefix)-09060		600	725
(Prefix)-09090		900	1025



45° HORIZONTAL WYE BRANCH



LEFT - HAND SHAPE(LW)
RIGHT - HAND IS ALSO IDENTICAL(RW)

CATALOG NO. LEFT	CATALOG NO. RIGHT	WIDTH	R	A	B	C
(Prefix)-01530L	(Prefix)-01530R	150	300	620	265	415
(Prefix)-01560L	(Prefix)-01560R		600	740	265	415
(Prefix)-02030L	(Prefix)-02030R		300	680	325	475
(Prefix)-02060L	(Prefix)-02060R	200	600	800	325	475
(Prefix)-03030L	(Prefix)-03030R		300	840	380	680
(Prefix)-03060L	(Prefix)-03060R		600	960	380	680
(Prefix)-04530L	(Prefix)-04530R	450	300	1050	485	935
(Prefix)-04560L	(Prefix)-04560R		600	1170	485	935
(Prefix)-06030L	(Prefix)-06030R		300	1260	585	1185
(Prefix)-06060L	(Prefix)-06060R	600	600	1380	585	1185
(Prefix)-07530L	(Prefix)-07530R		300	1480	700	1450
(Prefix)-07560L	(Prefix)-07560R		600	1600	700	1450
(Prefix)-09030L	(Prefix)-09030R	900	300	1680	800	1700
(Prefix)-09060L	(Prefix)-09060R		600	1800	800	1700

SOLID BOTTOM TYPE (ANGLE TYPE)

Example

Prefix

- 015 15

Width

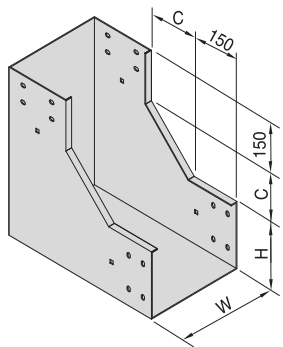
Chamfer

15=150

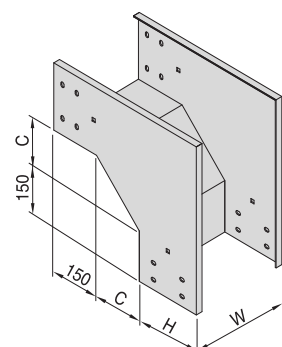
20=200

30=300

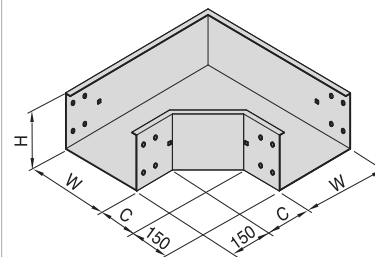
VERTICAL INSIDE ELBOW



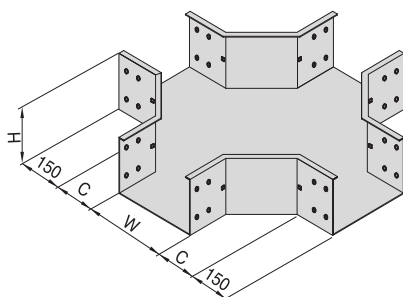
VERTICAL OUTSIDE ELBOW



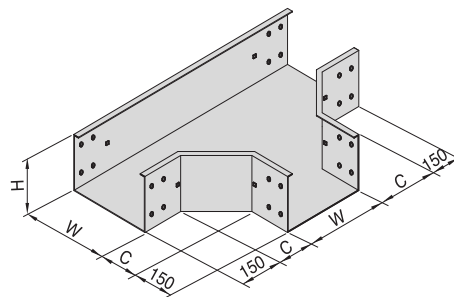
HORIZONTAL ELBOW



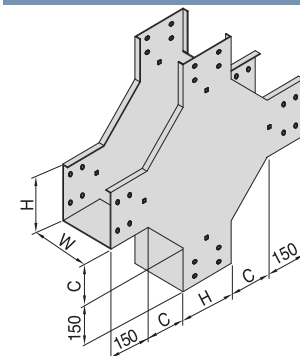
HORIZONTAL CROSS



HORIZONTAL TEE



VERTICAL CROSS



CATALOG NO.	WIDTH	C
(Prefix)-01515	150	150
(Prefix)-01520		200
(Prefix)-01530		300
(Prefix)-02015	200	150
(Prefix)-02020		200
(Prefix)-02030		300
(Prefix)-03015	300	150
(Prefix)-03020		200
(Prefix)-03030		300
(Prefix)-04515	450	150
(Prefix)-04520		200
(Prefix)-04530		300
(Prefix)-06015	600	150
(Prefix)-06020		200
(Prefix)-06030		300
(Prefix)-07515	750	150
(Prefix)-07520		200
(Prefix)-07530		300
(Prefix)-09015	900	150
(Prefix)-09020		200
(Prefix)-09030		300

SOLID BOTTOM TYPE (ANGLE TYPE)

Example

Prefix

- 015 30 D

Width

Chamfer

15=150

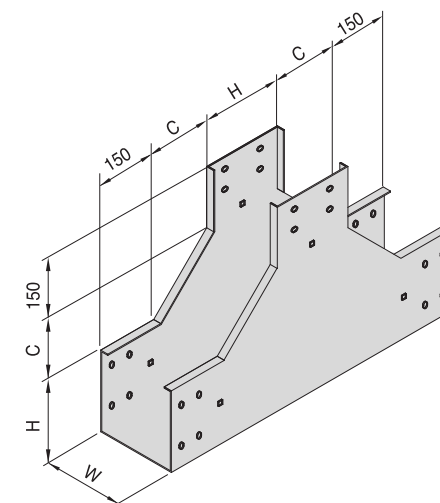
20=200

30=300

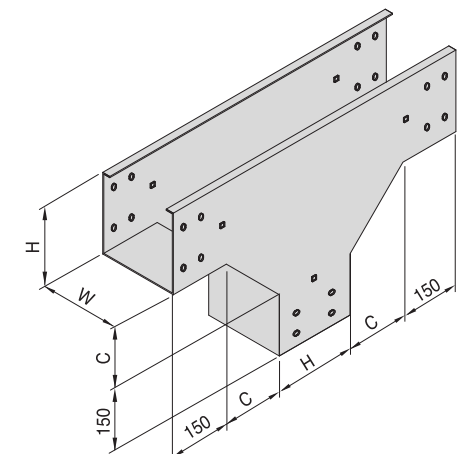
D=down

U=up

VERTICAL TEE(UP)



VERTICAL TEE(DOWN)

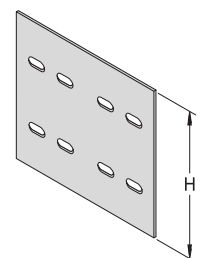


CATALOG NO. UP	WIDTH	C
(Prefix)-01515U	150	150
(Prefix)-01520U		200
(Prefix)-01530U		300
(Prefix)-02015U	200	150
(Prefix)-02020U		200
(Prefix)-02030U		300
(Prefix)-03015U	300	150
(Prefix)-03020U		200
(Prefix)-03030U		300
(Prefix)-04515U	450	150
(Prefix)-04520U		200
(Prefix)-04530U		300
(Prefix)-06015U	600	150
(Prefix)-06020U		200
(Prefix)-06030U		300
(Prefix)-07515U	750	150
(Prefix)-07520U		200
(Prefix)-07530U		300
(Prefix)-09015U	900	150
(Prefix)-09020U		200
(Prefix)-09030U		300

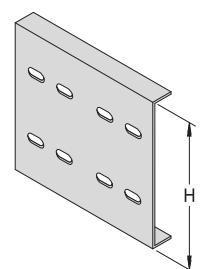
CATALOG NO. DOWN	WIDTH	C
(Prefix)-01515D	150	150
(Prefix)-01520D		200
(Prefix)-01530D		300
(Prefix)-02015D	200	150
(Prefix)-02020D		200
(Prefix)-02030D		300
(Prefix)-03015D	300	150
(Prefix)-03020D		200
(Prefix)-03030D		300
(Prefix)-04515D	450	150
(Prefix)-04520D		200
(Prefix)-04530D		300
(Prefix)-06015D	600	150
(Prefix)-06020D		200
(Prefix)-06030D		300
(Prefix)-07515D	750	150
(Prefix)-07520D		200
(Prefix)-07530D		300
(Prefix)-09015D	900	150
(Prefix)-09020D		200
(Prefix)-09030D		300

ACCESSORIES

JOINT CONNECTOR

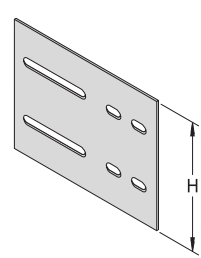


CATALOG NO.	H
IJC-10	100
IJC-15	150

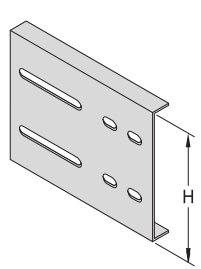


CATALOG NO.	H
CJC-10	100
CJC-15	150

EXPANSION CONNECTOR

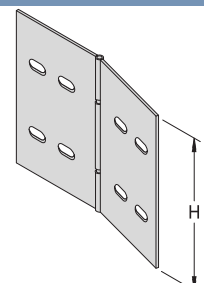


CATALOG NO.	H
IEC-10	100
IEC-15	150

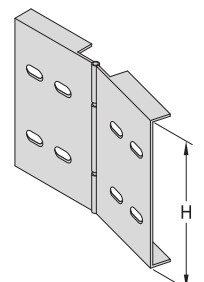


CATALOG NO.	H
CEC-10	100
CEC-15	150

HORIZONTAL CONNECTOR

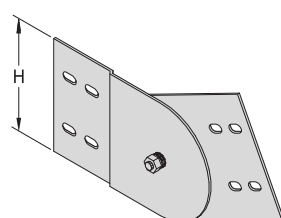


CATALOG NO.	H
IHC-10	100
IHC-15	150

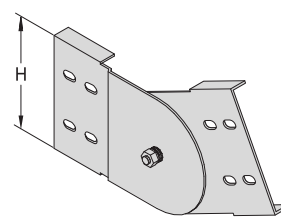


CATALOG NO.	H
CHC-10	100
CHC-15	150

VERTICAL CONNECTOR

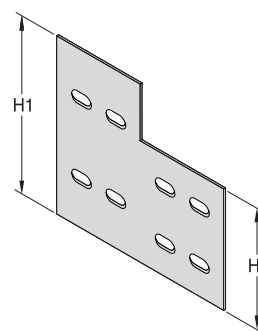


CATALOG NO.	H
IVC-10	100
IVC-15	150

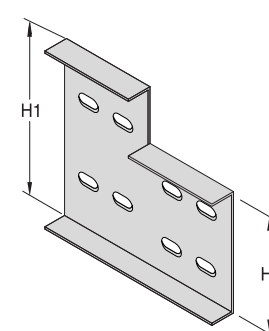


CATALOG NO.	H
CVC-10	100
CVC-15	150

STEP DOWN CONNECTOR



CATALOG NO.	H1	H2
ISC-1510	150	100

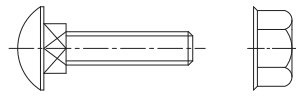


CATALOG NO.	H1	H2
CSC-1510	150	100

CONNECTORS HARDWARE

CATALOG NO.
SKBN

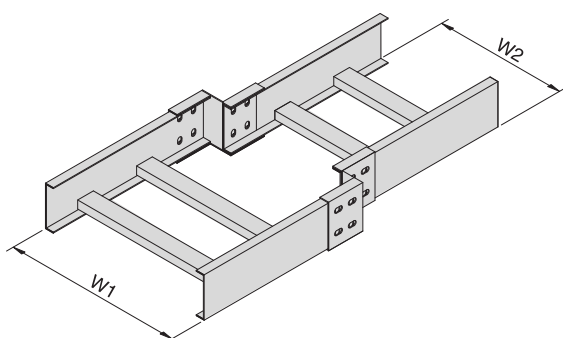
ELE'C
SS304
SS316
SS316L



SIZE (inch) × Length
3/8" × 19
3/8" × 25

ACCESSORIES

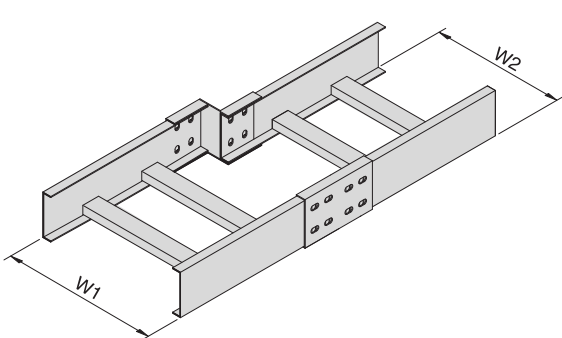
STRAIGHT REDUCING CONNECTOR



CATALOG NO.	H
ISR-10	100
ISR-15	150

CATALOG NO.	H
CSR-10	100
CSR-15	150

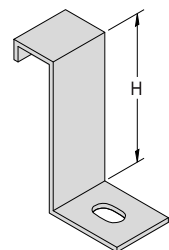
OFFSET REDUCING CONNECTOR



CATALOG NO.	H
IOR-10	100
IOR-15	150

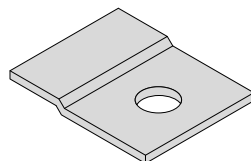
CATALOG NO.	H
COR-10	100
COR-15	150

HOLD DOWN CLAMP- "A"



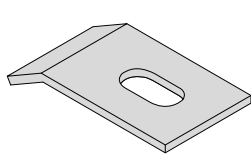
CATALOG NO.	H
HDC-3810	100
HDC-3815	150

HOLD DOWN CLAMP- "B"



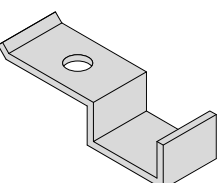
CATALOG NO
HDC-4050

HOLD DOWN CLAMP- "C"



CATALOG NO
HDC-3870

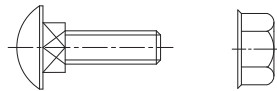
SEPARATOR CLAMP



CATALOG NO
LSC-0325

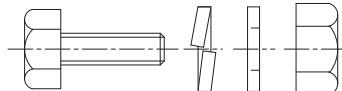
HARDWARE

ELE'C SS304 SS316 SS316L	CONNECTOR CATALOG NO SKBN
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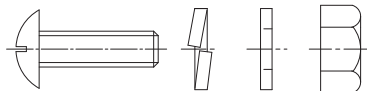
SIZE (inch) × Length
3/8" × 19
3/8" × 25

ELE'C SS304 SS316 SS316L	HOLD DOWN CLAMP CATALOG NO HBN
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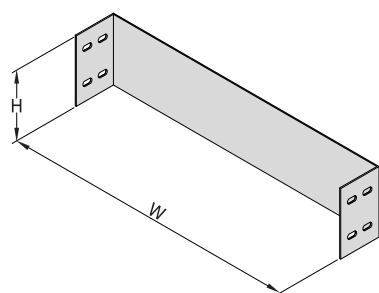
SIZE (inch) × Length
M10 × 30
M10 × 35

ELE'C SS304 SS316 SS316L	SEPARATOR CLAMP CATALOG NO RBN
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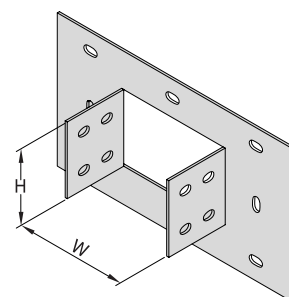
SIZE (inch) × Length
M8 × 25
M8 × 30

ACCESSORIES



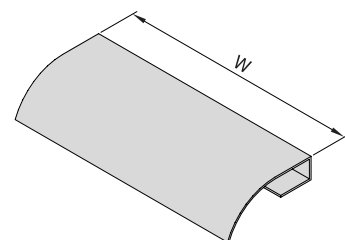
BLIND END PLATE

CATALOG NO.	W	H
BEP-01510	150	100
BEP-02010	200	
BEP-03010	300	
BEP-04510	450	
BEP-06010	600	
BEP-07510	750	
BEP-09010	900	150
BEP-01515	150	
BEP-02015	200	
BEP-03015	300	
BEP-04515	450	
BEP-06015	600	
BEP-07515	750	
BEP-09015	900	



DROPOUT BOX CONNECTOR

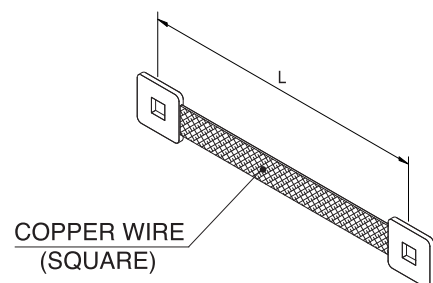
CATALOG NO.	W	H
DBC-01510	150	100
DBC-02010	200	
DBC-03010	300	
DBC-04510	450	
DBC-06010	600	
DBC-07510	750	
DBC-09010	900	150
DBC-01515	150	
DBC-02015	200	
DBC-03015	300	
DBC-04515	450	
DBC-06015	600	
DBC-07515	750	
DBC-09015	900	



END DROPOUT PLATE

CATALOG NO.	W
EDP-015	150
EDP-020	200
EDP-030	300
EDP-045	450
EDP-060	600
EDP-075	750
EDP-090	900

GROUNDING BONDING JUMPER

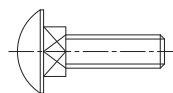


CATALOG NO.	SQ	L
GBJ-2224	22	240
GBJ-2524	25	240
GBJ-3824	38	240

HARDWARE

CATALOG NO.
SKBN

ELE'C
SS304
SS316
SS316L



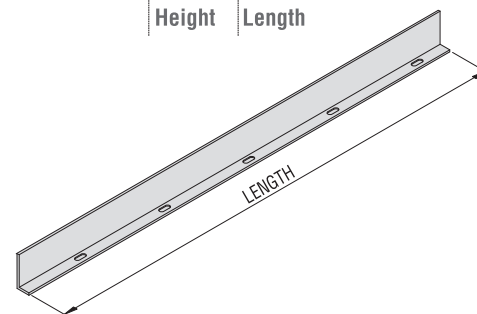
SIZE (inch) × Length
3/8" × 19
3/8" × 25

ACCESSORIES

STRAIGHT SEPARATOR

SST - 10 30

Height Length

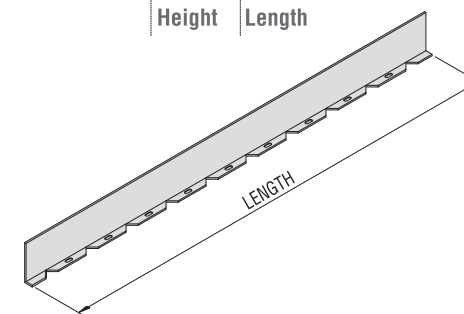


CATALOG NO.	H	LENGTH
SST-1030	100	3000
SST-1530	150	3000

HORIZONTAL ELBOW SEPARATOR

SHS - 10 30

Height Length

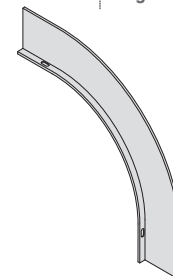


CATALOG NO.	H	LENGTH
SHS-1030	100	3000
SHS-1530	150	3000

VERTICAL INSIDE & OUTSIDE ELBOW SEPARATOR

SVO - 10 90 30

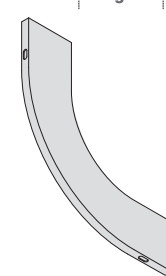
Height Degree Radius



CATALOG NO.	H	DEGREE	A
SVO-109030	100	90	300
SVO-109060			600
SVO-106030	100	60	300
SVO-106060			600
SVO-104530	100	45	300
SVO-104560			600
SVO-103030	100	30	300
SVO-103060			600

SVI - 10 90 30

Height Degree Radius



CATALOG NO.	H	DEGREE	A
SVI-109030	100	90	300
SVI-109060			600
SVI-106030	100	60	300
SVI-106060			600
SVI-104530	100	45	300
SVI-104560			600
SVI-103030	100	30	300
SVI-103060			600

HORIZONTAL ELBOW SEPARATOR

SHE - 10 90 30

Height Degree Radius



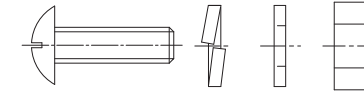
CATALOG NO.	H	DEGREE	A
SHE-109030	100	90	300
SHE-109060			600
SHE-106030	100	60	300
SHE-106060			600
SHE-104530	100	45	300
SHE-104560			600
SHE-103030	100	30	300
SHE-103060			600

HARDWARE

SEPARATOR CLAMP

CATALOG NO.
RBN

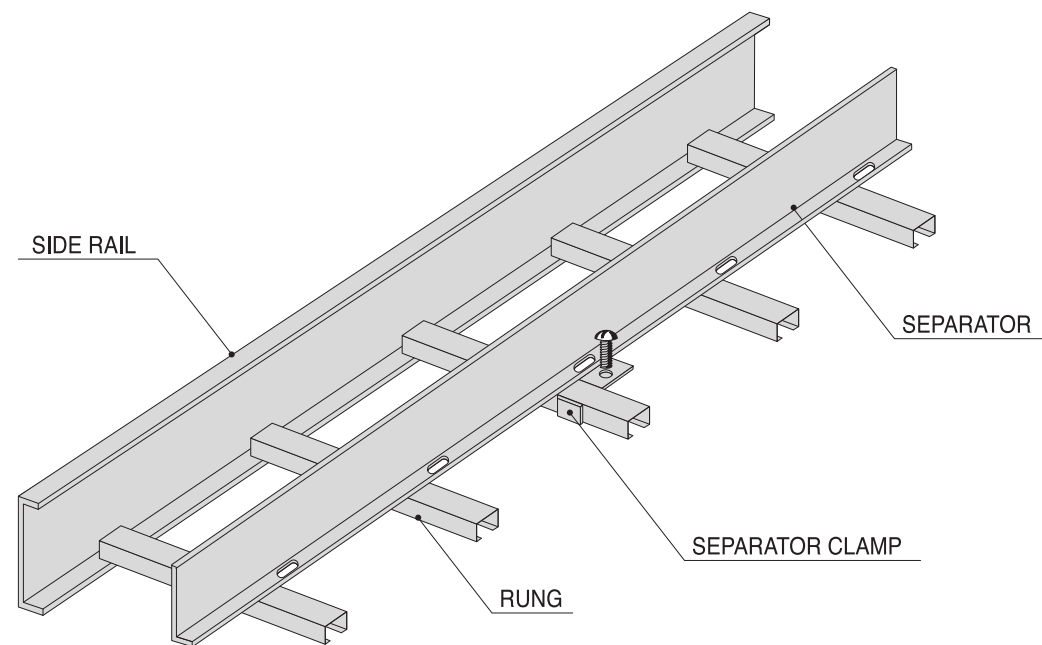
ELE'C
SS304
SS316
SS316L



SIZE (inch) × Length
M8 × 25
M8 × 30

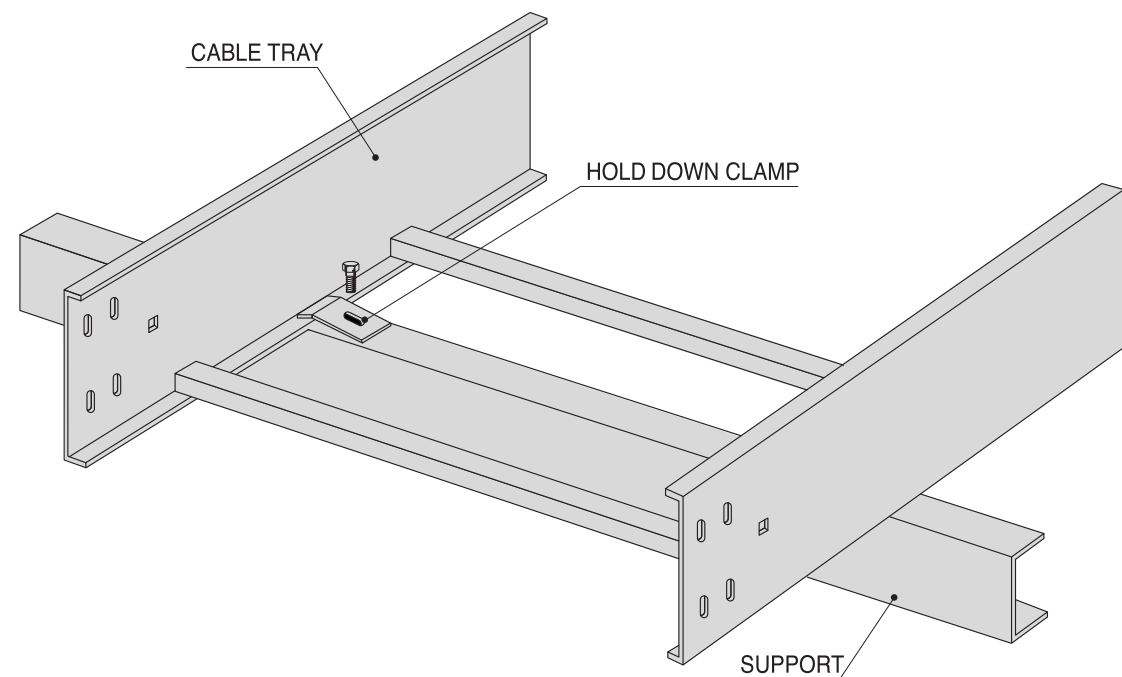
ASSEMBLY

SEPARATOR ASSEMBLY

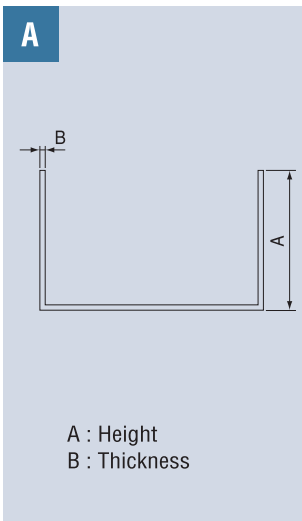


PERFORATED TYPE

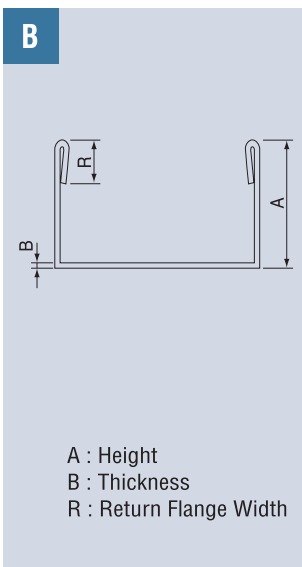
HOLD DOWN CLAMP ASSEMBLY



STRAIGHT SECTIONS FOR PERFORATED TYPE

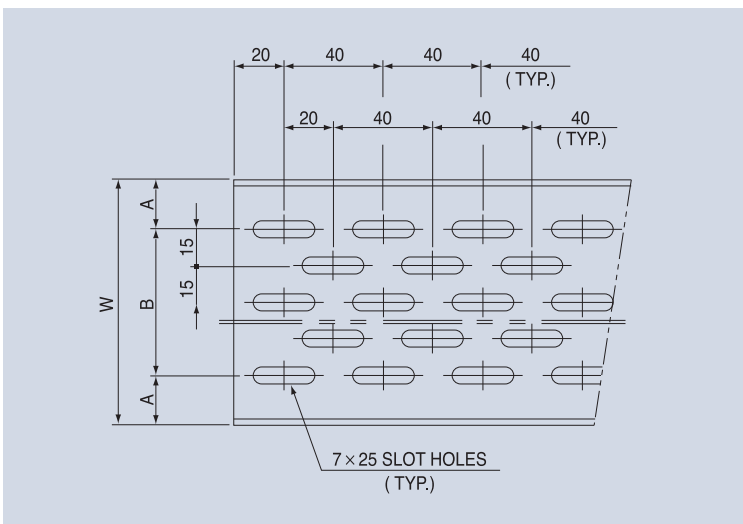


Material Type	Straight Section Type	A (mm)	B (mm)	
Carbon Steel	AA	25	2.0	
Stainless Steel	AA	25	2.0	
Carbon Steel	AB	25	2.3	
Carbon Steel	AC	50	2.0	
Stainless Steel	AC	50	2.0	
Carbon Steel	AD	50	2.3	
Carbon Steel	AE	70	2.0	
Stainless Steel	AE	70	2.0	
Carbon Steel	AF	70	2.3	
Carbon Steel	AG	75	2.0	
Stainless Steel	AG	75	2.0	
Carbon Steel	AH	75	2.3	
Carbon Steel	AI	100	2.0	
Stainless Steel	AI	100	2.0	
Carbon Steel	AJ	100	2.3	



Material Type	Straight Section Type	A (mm)	B (mm)	R (mm)
Carbon Steel	BA	50	2.0	13
Stainless Steel	BA	50	2.0	13
Carbon Steel	BB	50	2.3	13
Carbon Steel	BC	70	2.0	13
Stainless Steel	BC	70	2.0	13
Carbon Steel	BD	70	2.3	13
Carbon Steel	BE	75	2.0	13
Stainless Steel	BE	75	2.0	13
Carbon Steel	BF	75	2.3	13
Carbon Steel	BG	100	2.0	13
Stainless Steel	BG	100	2.0	13
Carbon Steel	BH	100	2.3	13

Perforation Pattern



W	A	B
50	25	-
100	20	@30 × 2
150	15	@30 × 4
200	25	@30 × 5
300	15	@30 × 9
400	20	@30 × 12
500	25	@30 × 15
600	15	@30 × 19
900	15	@30 × 29

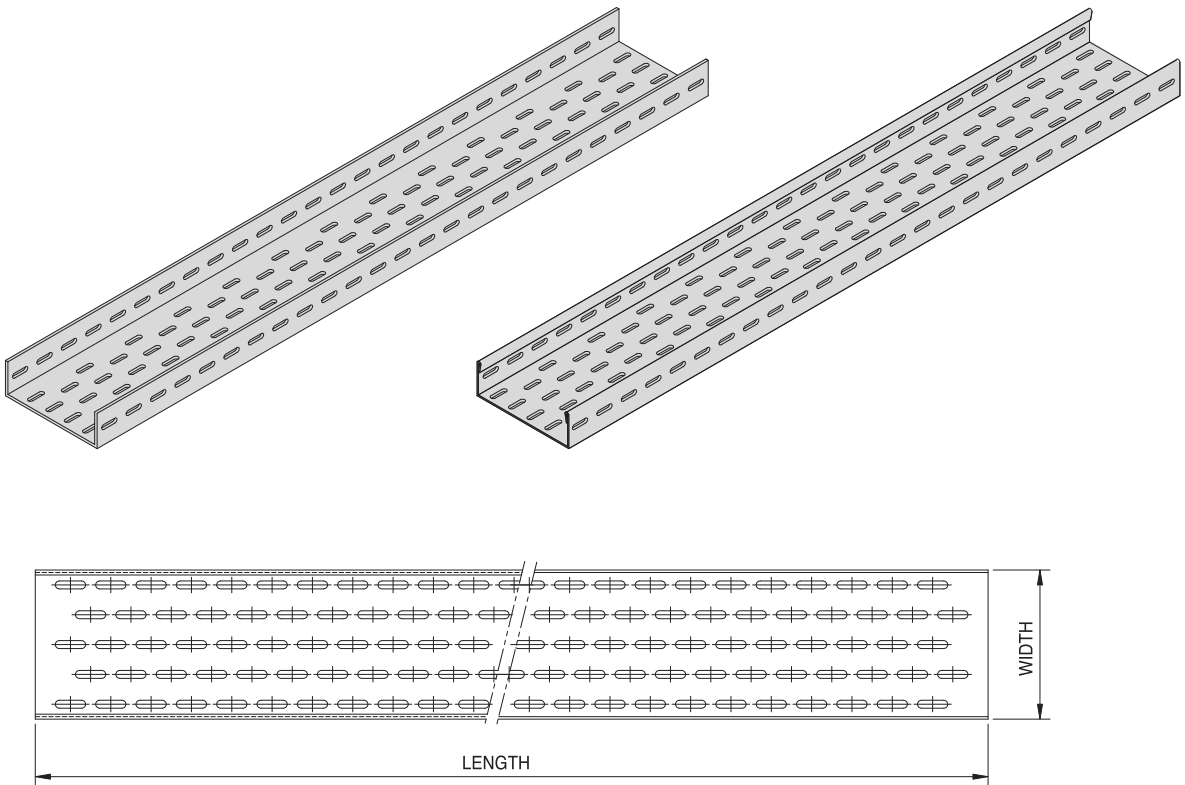
PERFORATED TYPE CABLE TRAY

Straight Section Numbering System

Example

Prefix					
P ST 6 AA - 015 30					
Type	Shape	Material	Section	Width	Length
P=Perforated Type	ST=Straight tray	0=Hot Rolled Mild Steel 4=Stainless Steel SUS304 6=Stainless Steel SUS316 L=Stainless Steel SUS316L G=Hot-dip Zinc-Coated Steel A=Aluminum		005=50 010=100 015=150 020=200 030=300 040=400 050=500 060=600 090=900	24=2400 30=3000

1. All dimensions are millimeters unless otherwise specified.
2. For section data, see chart on page 42



PERFORATED TYPE CABLE TRAY

Fitting Numbering System

Example

Prefix
P HE 6 AA - 015 90 30

Type

P=Perforated Type

Shape

HE=Horizontal Elbow
HT=Horizontal Tee
HC=Horizontal Cross
VI=Vertical Inside Elbow
VO=Vertical Outside Elbow

Material

0=Hot Rolled Mild Steel
4=Stainless Steel SUS304
6=Stainless Steel SUS316
L=Stainless Steel SUS316L
G=Hot-dip Zinc-Coated Steel
A=Aluminum

Section

Width

005=50
010=100
015=150
020=200
030=300
040=400
050=500
060=600
090=900

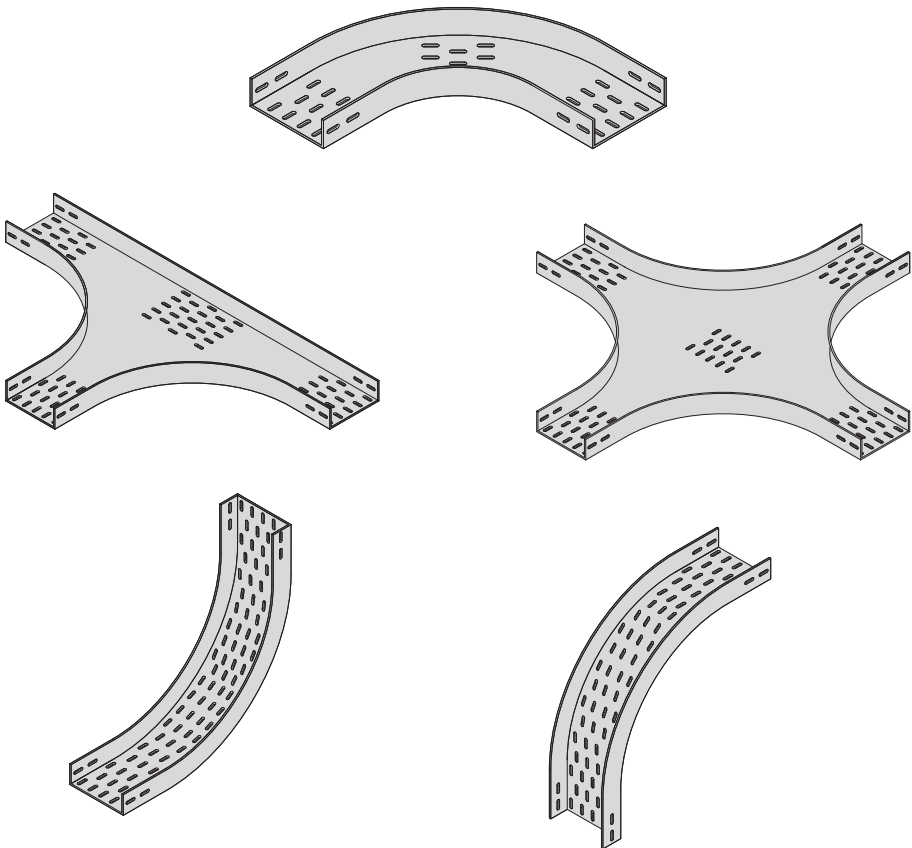
Degree

90=90°
60=60°
45=45°
30=30°

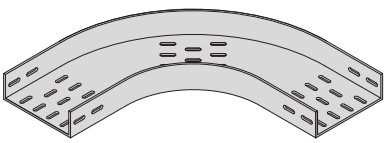
Radius

30=300
60=600
90=900

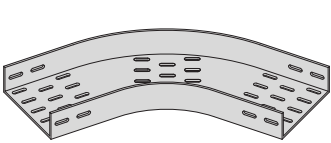
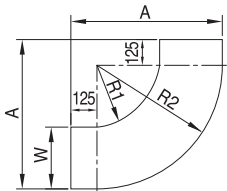
1. All dimensions are millimeters unless otherwise specified.
2. For section data, see chart on page 42



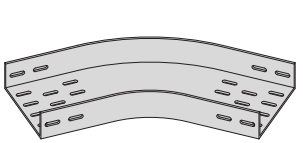
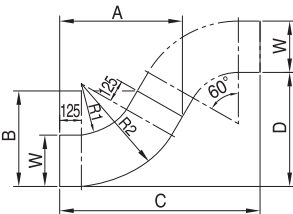
HORIZONTAL ELBOW



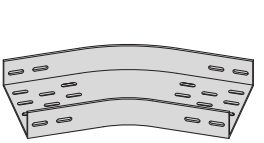
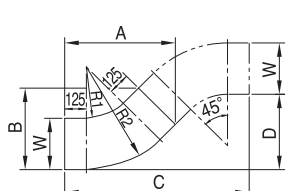
90° HORIZONTAL ELBOW



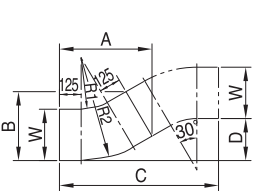
60° HORIZONTAL ELBOW



45° HORIZONTAL ELBOW



30° HORIZONTAL ELBOW



90° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A
(Prefix)-0059015	50	150	200	325
(Prefix)-0059030		300	350	475
(Prefix)-0109015	100	150	250	375
(Prefix)-0109030		300	400	525
(Prefix)-0159015	150	150	300	425
(Prefix)-0159030		300	450	575
(Prefix)-0209015	200	150	350	475
(Prefix)-0209030		300	500	625
(Prefix)-0309015	300	150	450	575
(Prefix)-0309030		300	600	725
(Prefix)-0409015	400	150	550	675
(Prefix)-0409030		300	700	825
(Prefix)-0509015	500	150	650	775
(Prefix)-0509030		300	800	925
(Prefix)-0609015	600	150	750	875
(Prefix)-0609030		300	900	1025
(Prefix)-0909015	900	150	1050	1175
(Prefix)-0909030		300	1200	1325

60° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0056015	50	150	200	361	233	678	392
(Prefix)-0056030		300	350	491	308	938	542
(Prefix)-0106015	100	150	250	404	283	721	417
(Prefix)-0106030		300	400	534	358	981	567
(Prefix)-0156015	150	150	300	447	333	765	442
(Prefix)-0156030		300	450	577	407	1024	592
(Prefix)-0206015	200	150	350	491	383	808	467
(Prefix)-0206030		300	500	620	458	1067	616
(Prefix)-0306015	300	150	450	577	483	895	517
(Prefix)-0306030		300	600	707	562	1154	667
(Prefix)-0406015	400	150	550	664	583	981	567
(Prefix)-0406030		300	700	794	658	1241	717
(Prefix)-0506015	500	150	650	750	683	1068	617
(Prefix)-0506030		300	800	880	758	1328	767
(Prefix)-0606015	600	150	750	837	783	1154	667
(Prefix)-0606030		300	900	967	864	1414	817
(Prefix)-0906015	900	150	1050	1097	1083	1414	817
(Prefix)-0906030		300	1200	1227	1162	1674	967

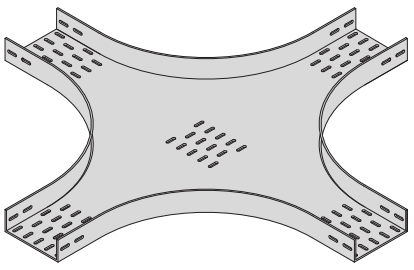
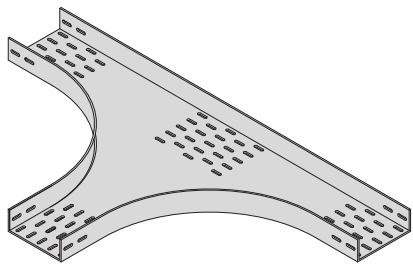
45° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0054515	50	150	200	355	182	674	279
(Prefix)-0054530		300	350	461	226	886	367
(Prefix)-0104515	100	150	250	390	232	710	294
(Prefix)-0104530		300	400	496	276	922	382
(Prefix)-0154515	150	150	300	426	282	745	309
(Prefix)-0154530		300	450	532	318	957	396
(Prefix)-0204515	200	150	350	461	332	780	323
(Prefix)-0204530		300	500	567	376	993	410
(Prefix)-0304515	300	150	450	532	432	851	353
(Prefix)-0304530		300	600	638	476	1063	440
(Prefix)-0404515	400	150	550	602	532	922	382
(Prefix)-0404530		300	700	708	576	1134	470
(Prefix)-0504515	500	150	650	673	632	992	411
(Prefix)-0504530		300	800	779	676	1205	499
(Prefix)-0604515	600	150	750	744	732	1063	440
(Prefix)-0604530		300	900	850	770	1275	528
(Prefix)-0904515	900	150	1050	956	1032	1275	528
(Prefix)-0904530		300	1200	1062	1076	1487	616

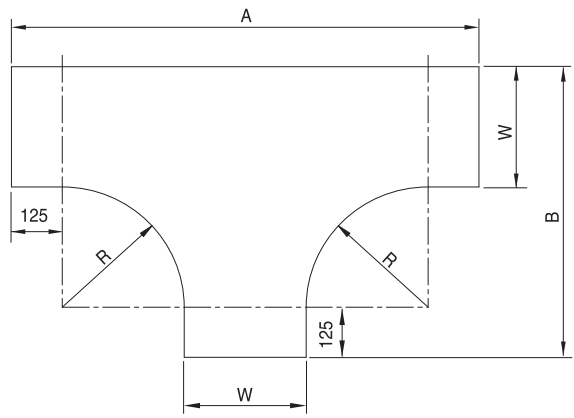
30° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0053015	50	150	200	333	133	642	172
(Prefix)-0053030		300	350	408	153	792	212
(Prefix)-0103015	100	150	250	358	183	667	179
(Prefix)-0103030		300	400	433	203	817	219
(Prefix)-0153015	150	150	300	383	233	692	185
(Prefix)-0153030		300	450	460	255	840	235
(Prefix)-0203015	200	150	350	408	283	717	192
(Prefix)-0203030		300	500	483	303	867	233
(Prefix)-0303015	300	150	450	458	383	767	205
(Prefix)-0303030		300	600	535	405	920	250
(Prefix)-0403015	400	150	550	508	483	817	219
(Prefix)-0403030		300	700	583	503	967	259
(Prefix)-0503015	500	150	650	558	583	867	232
(Prefix)-0503030		300	800	633	603	1017	272
(Prefix)-0603015	600	150	750	608	683	917	246
(Prefix)-0603030		300	900	685	705	1080	280
(Prefix)-0903015	900	150	1050	758	983	1067	286
(Prefix)-0903030		300	1200	835	1005	1240	310

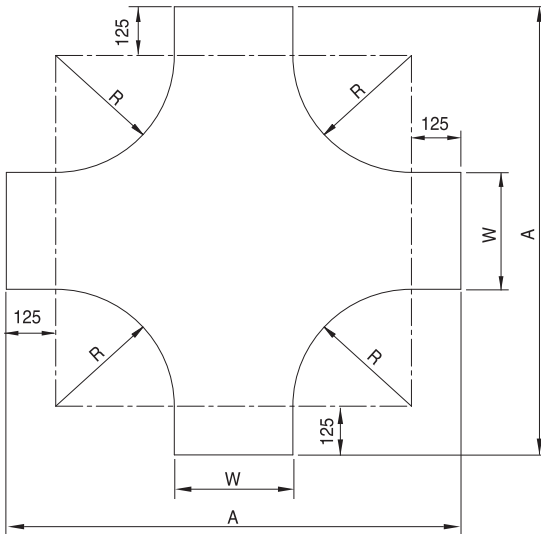
HORIZONTAL TEE & CROSS



HORIZONTAL TEE



HORIZONTAL CROSS



CATALOG NO.	WIDTH	R	A	B
(Prefix)-00515	50	150	600	325
(Prefix)-00530		300	900	475
(Prefix)-01015	100	150	650	375
(Prefix)-01030		300	950	525
(Prefix)-01515	150	150	700	425
(Prefix)-01530		300	1000	575
(Prefix)-02015	200	150	750	475
(Prefix)-02030		300	1050	625
(Prefix)-03015	300	150	850	575
(Prefix)-03030		300	1150	725
(Prefix)-04015	400	150	950	675
(Prefix)-04030		300	1250	825
(Prefix)-05015	500	150	1050	775
(Prefix)-05030		300	1350	925
(Prefix)-06015	600	150	1150	875
(Prefix)-06030		300	1450	1025
(Prefix)-09015	900	150	1450	1175
(Prefix)-09030		300	1750	1325

CATALOG NO.	WIDTH	R	A
(Prefix)-00515	50	150	600
(Prefix)-00530		300	900
(Prefix)-01015	100	150	650
(Prefix)-01030		300	950
(Prefix)-01515	150	150	700
(Prefix)-01530		300	1000
(Prefix)-02015	200	150	750
(Prefix)-02030		300	1050
(Prefix)-03015	300	150	850
(Prefix)-03030		300	1150
(Prefix)-04015	400	150	950
(Prefix)-04030		300	1250
(Prefix)-05015	500	150	1050
(Prefix)-05030		300	1350
(Prefix)-06015	600	150	1150
(Prefix)-06030		300	1450
(Prefix)-09015	900	150	1450
(Prefix)-09030		300	1750

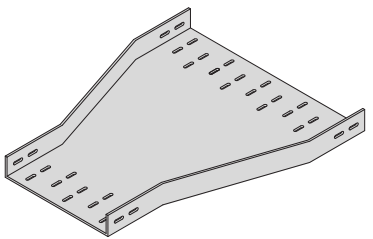
REDUCER

Example

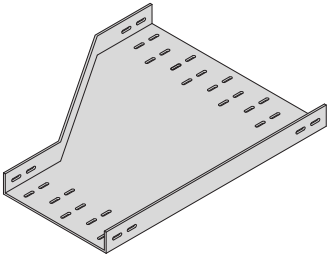
Prefix - 020 015

Width1 Width2

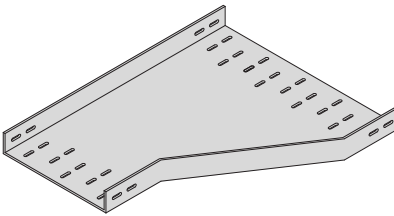
STRAIGHT



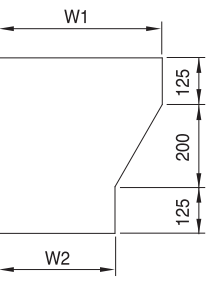
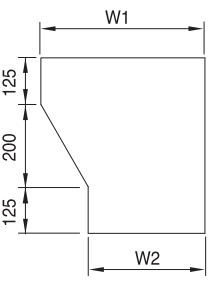
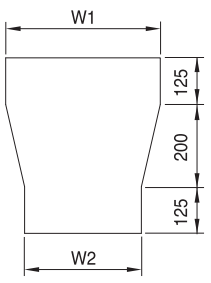
LEFT



RIGHT

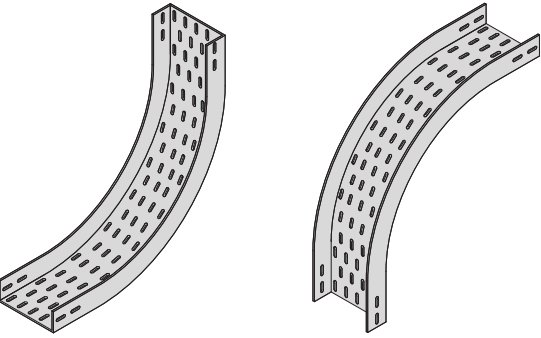


REDUCER



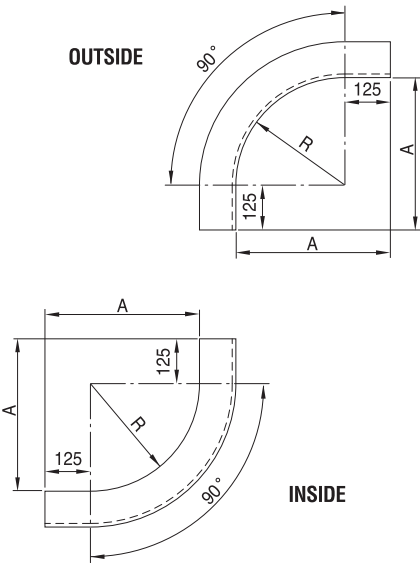
CATALOG NO. STRAIGHT	CATALOG NO. LEFT	CATALOG NO. RIGHT	W1	W2
(Prefix)-010005	(Prefix)-010005	(Prefix)-010005	100	50
(Prefix)-015005	(Prefix)-015005	(Prefix)-015005	150	50
(Prefix)-015010	(Prefix)-015010	(Prefix)-015010		100
(Prefix)-020005	(Prefix)-020005	(Prefix)-020005	200	50
(Prefix)-020010	(Prefix)-020010	(Prefix)-020010		100
(Prefix)-020015	(Prefix)-020015	(Prefix)-020015		150
(Prefix)-030005	(Prefix)-030005	(Prefix)-030005	300	50
(Prefix)-030010	(Prefix)-030010	(Prefix)-030010		100
(Prefix)-030015	(Prefix)-030015	(Prefix)-030015		150
(Prefix)-030020	(Prefix)-030020	(Prefix)-030020		200
(Prefix)-040005	(Prefix)-040005	(Prefix)-040005	400	50
(Prefix)-040010	(Prefix)-040010	(Prefix)-040010		100
(Prefix)-040015	(Prefix)-040015	(Prefix)-040015		150
(Prefix)-040020	(Prefix)-040020	(Prefix)-040020		200
(Prefix)-040030	(Prefix)-040030	(Prefix)-040030		300
(Prefix)-050005	(Prefix)-050005	(Prefix)-050005	500	50
(Prefix)-050010	(Prefix)-050010	(Prefix)-050010		100
(Prefix)-050015	(Prefix)-050015	(Prefix)-050015		150
(Prefix)-050020	(Prefix)-050020	(Prefix)-050020		200
(Prefix)-050030	(Prefix)-050030	(Prefix)-050030		300
(Prefix)-050040	(Prefix)-050040	(Prefix)-050040		400
(Prefix)-060005	(Prefix)-060005	(Prefix)-060005	600	50
(Prefix)-060010	(Prefix)-060010	(Prefix)-060010		100
(Prefix)-060015	(Prefix)-060015	(Prefix)-060015		150
(Prefix)-060020	(Prefix)-060020	(Prefix)-060020		200
(Prefix)-060030	(Prefix)-060030	(Prefix)-060030		300
(Prefix)-060040	(Prefix)-060040	(Prefix)-060040		400
(Prefix)-060050	(Prefix)-060050	(Prefix)-060050		500
(Prefix)-090005	(Prefix)-090005	(Prefix)-090005	900	50
(Prefix)-090010	(Prefix)-090010	(Prefix)-090010		100
(Prefix)-090015	(Prefix)-090015	(Prefix)-090015		150
(Prefix)-090020	(Prefix)-090020	(Prefix)-090020		200
(Prefix)-090030	(Prefix)-090030	(Prefix)-090030		300
(Prefix)-090040	(Prefix)-090040	(Prefix)-090040		400
(Prefix)-090050	(Prefix)-090050	(Prefix)-090050		500
(Prefix)-090060	(Prefix)-090060	(Prefix)-090060		600

VERTICAL INSIDE & OUTSIDE ELBOW

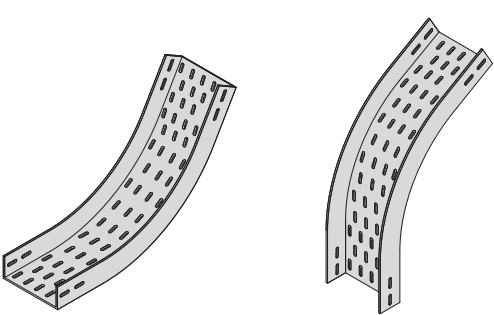


INSIDE OUTSIDE

90° VERTICAL ELBOW

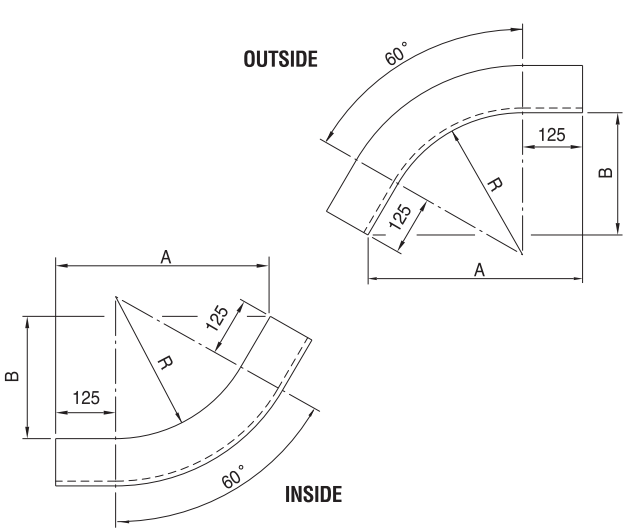


CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A
(Prefix)-0059015	(Prefix)-0059015	50	150	275
(Prefix)-0059030	(Prefix)-0059030		300	425
(Prefix)-0109015	(Prefix)-0109015	100	150	275
(Prefix)-0109030	(Prefix)-0109030		300	425
(Prefix)-0159015	(Prefix)-0159015	150	150	275
(Prefix)-0159030	(Prefix)-0159030		300	425
(Prefix)-0209015	(Prefix)-0209015	200	150	275
(Prefix)-0209030	(Prefix)-0209030		300	425
(Prefix)-0309015	(Prefix)-0309015	300	150	275
(Prefix)-0309030	(Prefix)-0309030		300	425
(Prefix)-0409015	(Prefix)-0409015	400	150	275
(Prefix)-0409030	(Prefix)-0409030		300	425
(Prefix)-0509015	(Prefix)-0509015	500	150	275
(Prefix)-0509030	(Prefix)-0509030		300	425
(Prefix)-0609015	(Prefix)-0609015	600	150	275
(Prefix)-0609030	(Prefix)-0609030		300	425
(Prefix)-0909015	(Prefix)-0909015	900	150	275
(Prefix)-0909030	(Prefix)-0909030		300	425



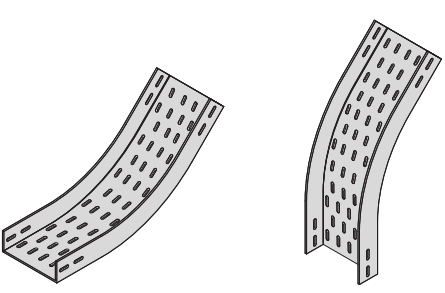
INSIDE OUTSIDE

60° VERTICAL ELBOW



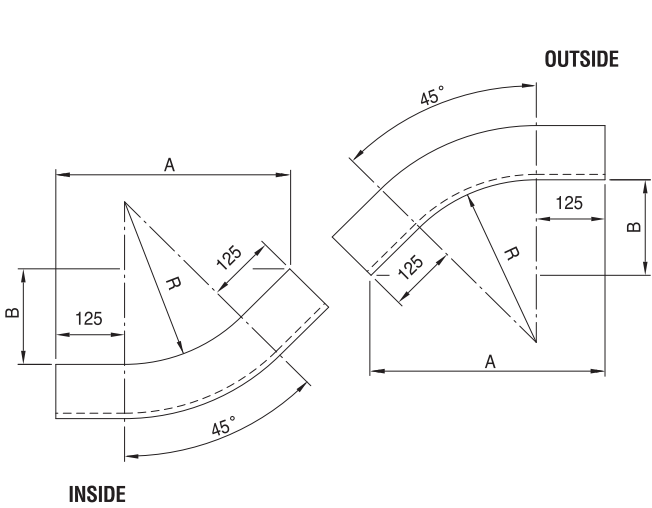
CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A	B
(Prefix)-0056015	(Prefix)-0056015	50	150	317	183
(Prefix)-0056030	(Prefix)-0056030		300	447	258
(Prefix)-0106015	(Prefix)-0106015	100	150	317	183
(Prefix)-0106030	(Prefix)-0106030		300	447	258
(Prefix)-0156015	(Prefix)-0156015	150	150	317	183
(Prefix)-0156030	(Prefix)-0156030		300	447	258
(Prefix)-0206015	(Prefix)-0206015	200	150	317	183
(Prefix)-0206030	(Prefix)-0206030		300	447	258
(Prefix)-0306015	(Prefix)-0306015	300	150	317	183
(Prefix)-0306030	(Prefix)-0306030		300	447	258
(Prefix)-0406015	(Prefix)-0406015	400	150	317	183
(Prefix)-0406030	(Prefix)-0406030		300	447	258
(Prefix)-0506015	(Prefix)-0506015	500	150	317	183
(Prefix)-0506030	(Prefix)-0506030		300	447	258
(Prefix)-0606015	(Prefix)-0606015	600	150	317	183
(Prefix)-0606030	(Prefix)-0606030		300	447	258
(Prefix)-0906015	(Prefix)-0906015	900	150	317	183
(Prefix)-0906030	(Prefix)-0906030		300	447	258

VERTICAL INSIDE & OUTSIDE ELBOW

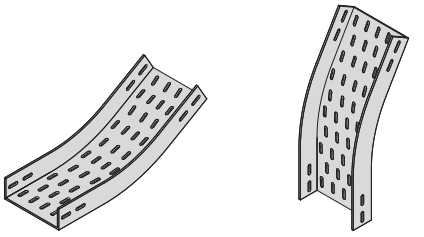


INSIDE OUTSIDE

45° VERTICAL ELBOW

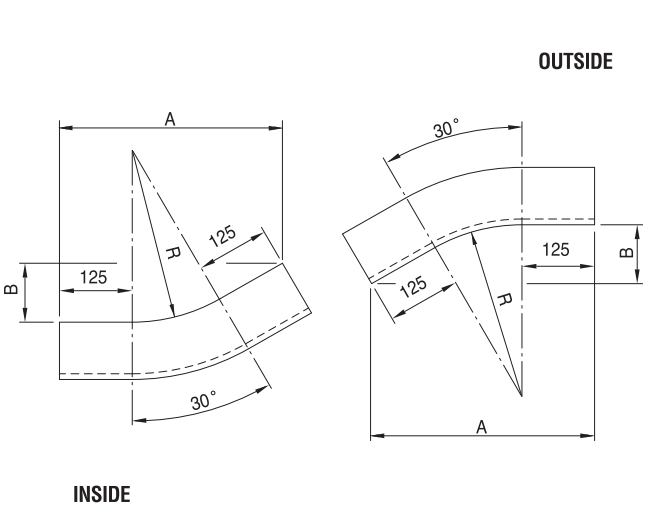


CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A	B
(Prefix)-0054515	(Prefix)-0054515	50	150	319	132
(Prefix)-0054530	(Prefix)-0054530		300	426	176
(Prefix)-0104515	(Prefix)-0104515	100	150	319	132
(Prefix)-0104530	(Prefix)-0104530		300	426	176
(Prefix)-0154515	(Prefix)-0154515	150	150	319	132
(Prefix)-0154530	(Prefix)-0154530		300	426	176
(Prefix)-0204515	(Prefix)-0204515	200	150	319	132
(Prefix)-0204530	(Prefix)-0204530		300	426	176
(Prefix)-0304515	(Prefix)-0304515	300	150	319	132
(Prefix)-0304530	(Prefix)-0304530		300	426	176
(Prefix)-0404515	(Prefix)-0404515	400	150	319	132
(Prefix)-0404530	(Prefix)-0404530		300	426	176
(Prefix)-0504515	(Prefix)-0504515	500	150	319	132
(Prefix)-0504530	(Prefix)-0504530		300	426	176
(Prefix)-0604515	(Prefix)-0604515	600	150	319	132
(Prefix)-0604530	(Prefix)-0604530		300	426	176
(Prefix)-0904515	(Prefix)-0904515	900	150	319	132
(Prefix)-0904530	(Prefix)-0904530		300	426	176



INSIDE OUTSIDE

30° VERTICAL ELBOW



CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R	A	B
(Prefix)-0053015	(Prefix)-0053015	50	150	308	83
(Prefix)-0053030	(Prefix)-0053030		300	383	103
(Prefix)-0103015	(Prefix)-0103015	100	150	308	83
(Prefix)-0103030	(Prefix)-0103030		300	383	103
(Prefix)-0153015	(Prefix)-0153015	150	150	308	83
(Prefix)-0153030	(Prefix)-0153030		300	383	103
(Prefix)-0203015	(Prefix)-0203015	200	150	308	83
(Prefix)-0203030	(Prefix)-0203030		300	383	103
(Prefix)-0303015	(Prefix)-0303015	300	150	308	83
(Prefix)-0303030	(Prefix)-0303030		300	383	103
(Prefix)-0403015	(Prefix)-0403015	400	150	308	83
(Prefix)-0403030	(Prefix)-0403030		300	383	103
(Prefix)-0503015	(Prefix)-0503015	500	150	308	83
(Prefix)-0503030	(Prefix)-0503030		300	383	103
(Prefix)-0603015	(Prefix)-0603015	600	150	308	83
(Prefix)-0603030	(Prefix)-0603030		300	383	103
(Prefix)-0903015	(Prefix)-0903015	900	150	308	83
(Prefix)-0903030	(Prefix)-0903030		300	383	103

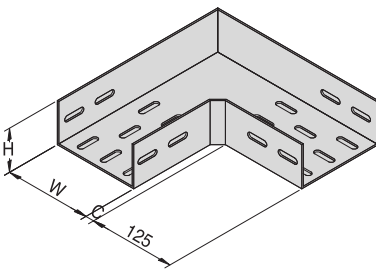
PERFORATED TYPE(TUBE TYPE)

Example

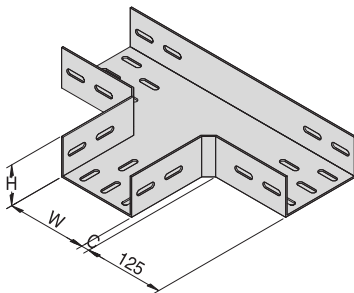
Prefix - 005 01

Width
01=10
10=100
15=150

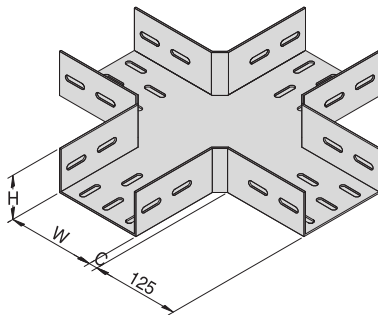
HORIZONTAL ELBOW



HORIZONTAL TEE



HORIZONTAL CROSS



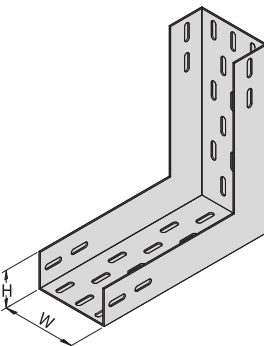
Catalog NO.	WIDTH	C	Catalog NO.	WIDTH	C
(Prefix)-00501	50	10	(Prefix)-04001	400	10
(Prefix)-00510		100	(Prefix)-04010		100
(Prefix)-00515		150	(Prefix)-04015		150
(Prefix)-01001	100	10	(Prefix)-05001	500	10
(Prefix)-01010		100	(Prefix)-05010		100
(Prefix)-01015		150	(Prefix)-05015		150
(Prefix)-01501	150	10	(Prefix)-06001	600	10
(Prefix)-01510		100	(Prefix)-06010		100
(Prefix)-01515		150	(Prefix)-06015		150
(Prefix)-02001	200	10	(Prefix)-09001	900	10
(Prefix)-02010		100	(Prefix)-09010		100
(Prefix)-02015		150	(Prefix)-09015		150
(Prefix)-03001	300	10			
(Prefix)-03010		100			
(Prefix)-03015		150			

Example

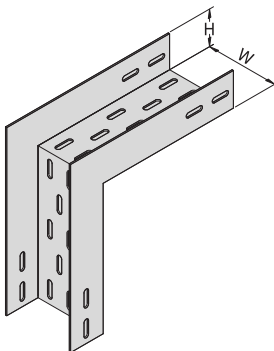
Prefix - 005

Width

VERTICAL INSIDE ELBOW

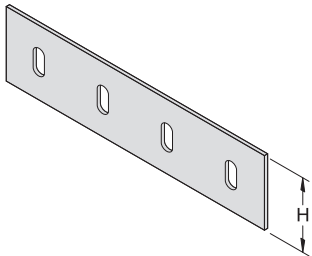


VERTICAL OUTSIDE ELBOW



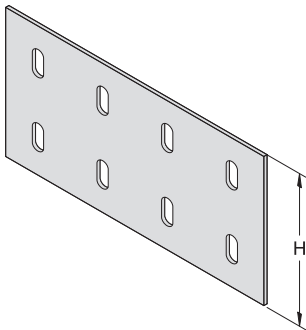
Catalog NO.	WIDTH
(Prefix)-005	50
(Prefix)-010	100
(Prefix)-015	150
(Prefix)-020	200
(Prefix)-030	300
(Prefix)-040	400
(Prefix)-050	500
(Prefix)-060	600
(Prefix)-090	900

ACCESSORIES

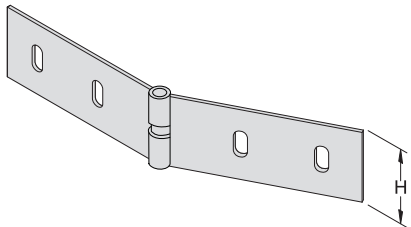


Catalog NO.	H
PJC-025	25
PJC-050	50

JOINT CONNECTOR

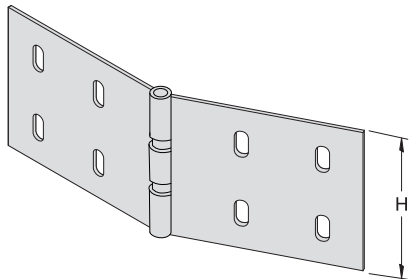


Catalog NO.	H
PJC-070	70
PJC-075	75
PJC-010	100

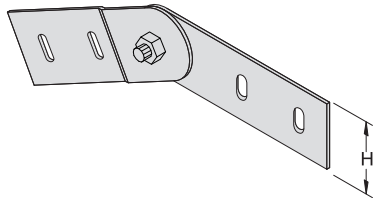


Catalog NO.	H
PHC-025	25
PHC-050	50

HORIZONTAL CONNECTOR

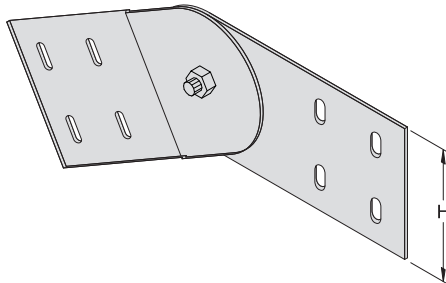


Catalog NO.	H
PHC-070	70
PHC-075	75
PHC-010	100



Catalog NO.	H
PVC-025	25
PVC-050	50

VERTICAL CONNECTOR



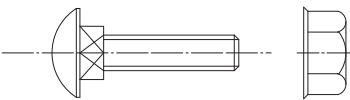
Catalog NO.	H
PVC-070	70
PVC-075	75
PVC-010	100

HARDWARE FOR CONNECTOR

CONNECTOR

CATALOG NO.
SKBN

ELE'C
SS304
SS316
SS316L



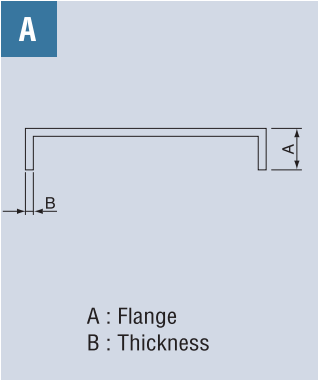
SIZE
(inch) × Length

M6 × 15

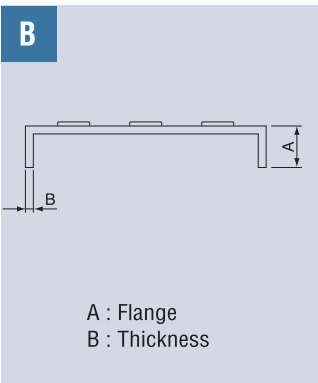


COVER

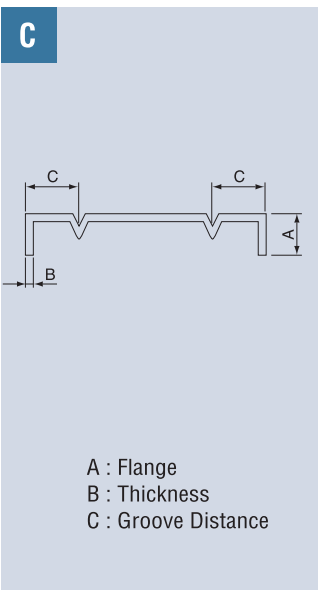
STRAIGHT SECTIONS FOR COVER



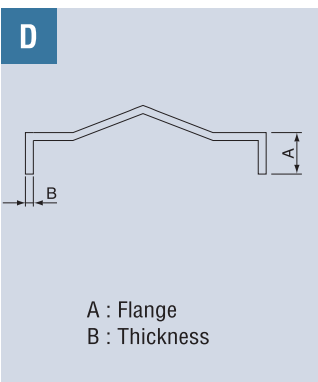
Material Type	Straight Section Type	A (mm)	B (mm)	
Carbon Steel Stainless Steel	AA	15	2.0	
Carbon Steel	AB	15	2.3	
Stainless Steel	AC	15	2.5	
Carbon Steel	AD	15	2.6	



Material Type	Straight Section Type	A (mm)	B (mm)	
Carbon Steel Stainless Steel	BA	15	2.0	
Carbon Steel	BB	15	2.3	
Stainless Steel	BC	15	2.5	
Carbon Steel	BD	15	2.6	



Material Type	Straight Section Type	A (mm)	B (mm)	C (mm)
Carbon Steel Stainless Steel	CA	15	2.0	18
Carbon Steel	CB	15	2.3	18
Stainless Steel	CC	15	2.5	18
Carbon Steel	CD	15	2.6	18
Carbon Steel Stainless Steel	CE	15	2.0	35
Carbon Steel	CF	15	2.3	35
Stainless Steel	CG	15	2.5	35
Carbon Steel	CH	15	2.6	35



Material Type	Straight Section Type	A (mm)	B (mm)	
Carbon Steel Stainless Steel	DA	15	2.0	
Carbon Steel	DB	15	2.3	
Stainless Steel	DC	15	2.5	
Carbon Steel	DD	15	2.6	

COVER

Straight Section Numbering System

Example

Prefix

C ST 6 AA - 015 30

Type

C=Cover

Shape

ST=Straight
Cover

Material

0=Hot Rolled
Mild Steel
4=Stainless Steel
SUS304
6=Stainless Steel
SUS316
L=Stainless Steel
SUS316L
G=Hot-dip Zinc-Coated
Steel
A=Aluminum

Section

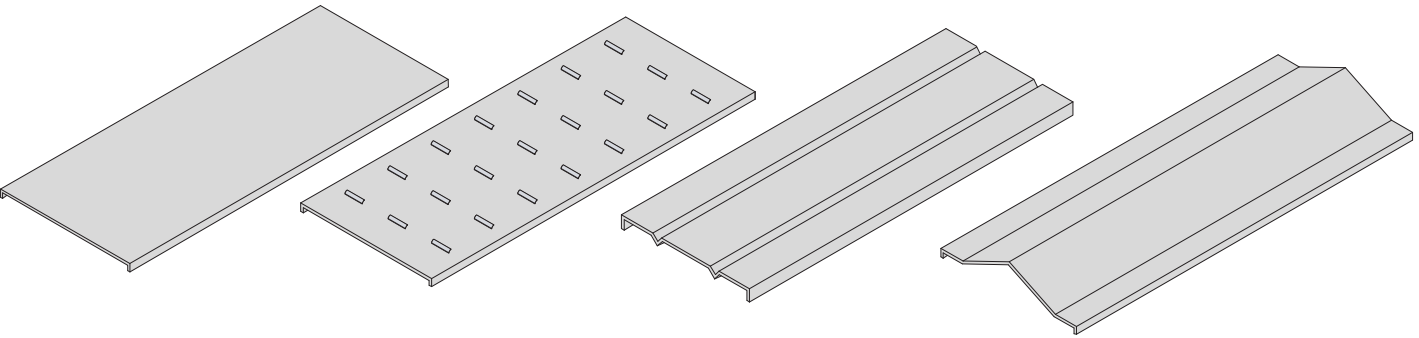
Width

15=150
20=200
30=300
45=450
60=600
75=750
90=900

Length

24=2400
30=3000

1. All dimensions are millimeters unless otherwise specified.
2. For section data, see chart on page 53.

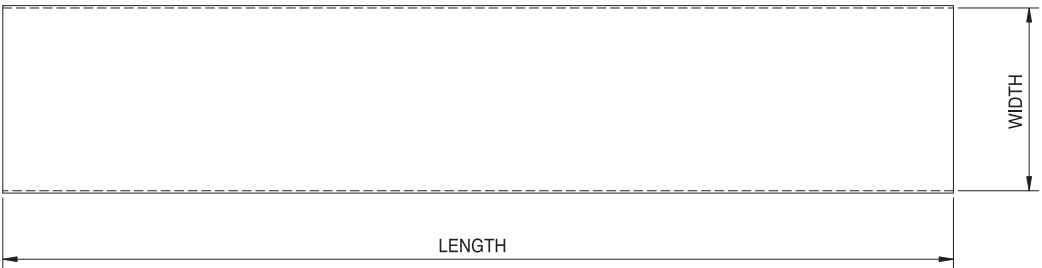


Solid Flanged

Ventilated Flanged

V-Groove Flanged

2 To 3 Pitch Peaked



COVER

Fitting Numbering System

Example

Prefix

C HE 6 AA - 015 90 30

Type

C=Cover

Shape

HE=Horizontal
Elbow
HT=Horizontal
Tee
HC=Horizontal
Cross
VI=Vertical
Inside Elbow
VO=Vertical
Outside Elbow

Material

0=Hot Rolled
Mild Steel
4=Stainless Steel
SUS304
6=Stainless Steel
SUS316
L=Stainless Steel
SUS316L
G=Hot-dip
Zinc-Coated Steel
A=Aluminum

Section

Width

15=150
20=200
30=300
45=450
60=600
75=750
90=900

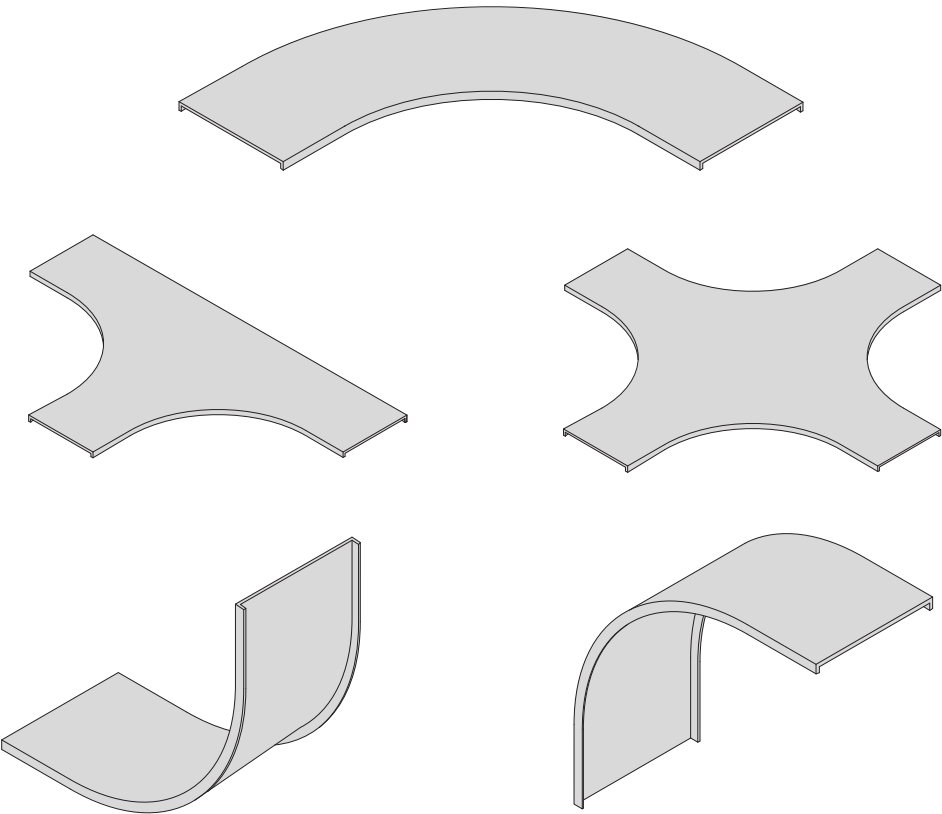
Degree

90=90°
60=60°
45=45°
30=30°

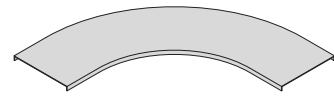
Radius

30=300
60=600
90=900

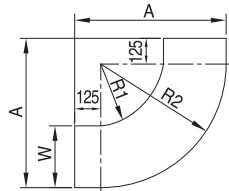
1. All dimensions are millimeters unless otherwise specified.
2. For section data, see chart on page 53.



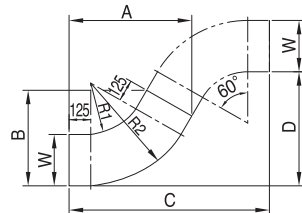
HORIZONTAL ELBOW COVER



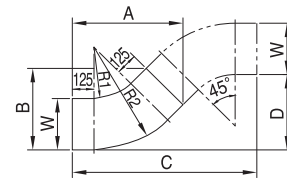
90° HORIZONTAL ELBOW



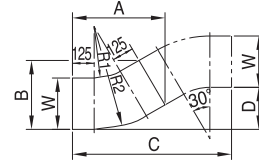
60° HORIZONTAL ELBOW



45° HORIZONTAL ELBOW



30° HORIZONTAL ELBOW



90° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A
(Prefix)-0159030	150	300	450	575
(Prefix)-0159060		600	750	875
(Prefix)-0159090		900	1050	1175
(Prefix)-0209030	200	300	500	625
(Prefix)-0209060		600	800	925
(Prefix)-0209090		900	1100	1225
(Prefix)-0309030	300	300	600	725
(Prefix)-0309060		600	900	1025
(Prefix)-0309090		900	1200	1325
(Prefix)-0459030	450	300	750	875
(Prefix)-0459060		600	1050	1175
(Prefix)-0459090		900	1350	1475
(Prefix)-0609030	600	300	900	1025
(Prefix)-0609060		600	1200	1325
(Prefix)-0609090		900	1500	1625
(Prefix)-0759030	750	300	1050	1175
(Prefix)-0759060		600	1350	1475
(Prefix)-0759090		900	1650	1775
(Prefix)-0909030	900	300	1200	1325
(Prefix)-0909060		600	1500	1625
(Prefix)-0909090		900	1800	1925

60° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0156030	150	300	450	577	407	1024	592
(Prefix)-0156060		600	750	837	557	1544	892
(Prefix)-0156090		900	1050	1097	708	2063	1192
(Prefix)-0206030	200	300	500	620	458	1067	616
(Prefix)-0206060		600	800	880	608	1587	916
(Prefix)-0206090		900	1100	1140	758	2107	1216
(Prefix)-0306030	300	300	600	707	562	1154	667
(Prefix)-0306060		600	900	967	712	1674	967
(Prefix)-0306090		900	1200	1227	864	2194	1267
(Prefix)-0456030	450	300	750	837	712	1284	742
(Prefix)-0456060		600	1050	1097	864	1804	1042
(Prefix)-0456090		900	1350	1357	1013	2324	1342
(Prefix)-0606030	600	300	900	967	864	1414	817
(Prefix)-0606060		600	1200	1226	1013	1934	1117
(Prefix)-0606090		900	1500	1487	1162	2453	1417
(Prefix)-0756030	750	300	1050	1097	1013	1544	892
(Prefix)-0756060		600	1350	1357	1162	2063	1192
(Prefix)-0756090		900	1650	1616	1313	2583	1492
(Prefix)-0906030	900	300	1200	1227	1162	1674	967
(Prefix)-0906060		600	1500	1487	1313	2194	1267
(Prefix)-0906090		900	1800	1746	1463	2713	1567

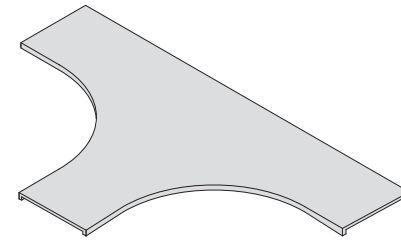
45° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0154530	150	300	450	532	318	957	396
(Prefix)-0154560		600	750	744	407	1381	572
(Prefix)-0154590		900	1050	956	501	1806	748
(Prefix)-0204530	200	300	500	567	376	993	410
(Prefix)-0204560		600	800	779	464	1417	587
(Prefix)-0204590		900	1100	991	552	1841	763
(Prefix)-0304530	300	300	600	638	462	1063	440
(Prefix)-0304560		600	900	850	559	1489	616
(Prefix)-0304590		900	1200	1062	651	1912	792
(Prefix)-0454530	450	300	750	744	619	1169	484
(Prefix)-0454560		600	1050	956	710	1593	660
(Prefix)-0454590		900	1350	1168	802	2018	836
(Prefix)-0604530	600	300	900	850	770	1275	528
(Prefix)-0604560		600	1200	1062	861	1670	704
(Prefix)-0604590		900	1500	1274	953	2124	880
(Prefix)-0754530	750	300	1050	956	920	1381	572
(Prefix)-0754560		600	1350	1168	1012	1806	748
(Prefix)-0754590		900	1650	1380	1103	2230	924
(Prefix)-0904530	900	300	1200	1062	1071	1487	116
(Prefix)-0904560		600	1500	1274	1162	1912	792
(Prefix)-0904590		900	1800	1486	1254	2336	968

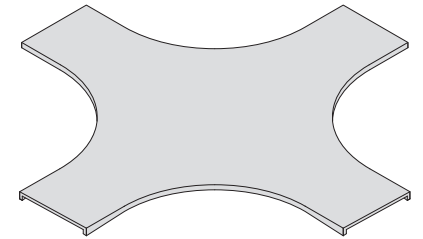
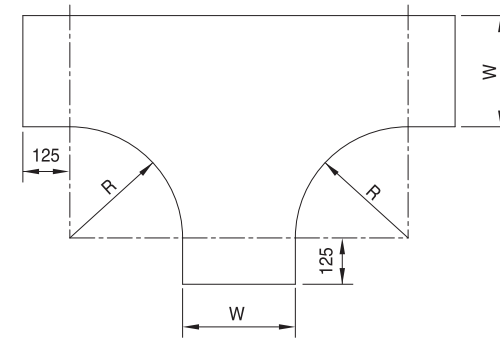
30° HORIZONTAL ELBOW

CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0153030	150	300	450	460	255	840	235
(Prefix)-0153060		600	750	610	295	1140	315
(Prefix)-0153090		900	1050	760	335	1340	395
(Prefix)-0203030	200	300	500	483	303	867	233
(Prefix)-0203060		600	800	633	343	1166	313
(Prefix)-0203090		900	1100	783	383	1467	393
(Prefix)-0303030	300	300	600	535	405	920	250
(Prefix)-0303060		600	900	685	445	1220	330
(Prefix)-0303090		900	1200	835	485	1520	410
(Prefix)-0453030	450	300	750	610	555	1000	265
(Prefix)-0453060		600	1050	760	595	1300	345
(Prefix)-0453090		900	1350	910	635	1600	425
(Prefix)-0603030	600	300	900	685	705	1080	280
(Prefix)-0603060		600	1200	835	745	1380	360
(Prefix)-0603090		900	1500	985	785	1680	440
(Prefix)-0753030	750	300	1050	760	855	1160	295
(Prefix)-0753060		600	1350	910	895	1460	375
(Prefix)-0753090		900	1650	1060	935	1760	455
(Prefix)-0903030	900	300	1200	835	1005	1240	310
(Prefix)-0903060		600	1500	985	1045	1540	390
(Prefix)-0903090		900	1800	1135	1085	1840	470

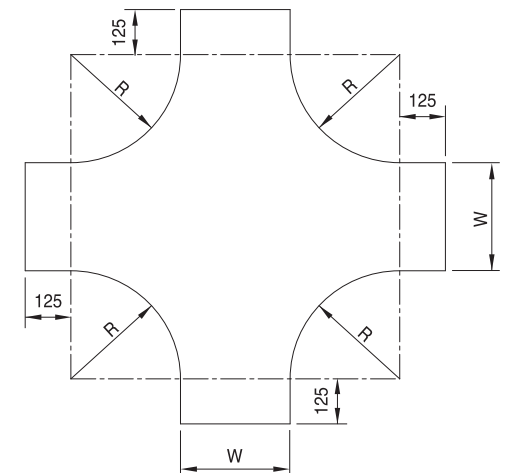
HORIZONTAL TEE & CROSS COVER



HORIZONTAL TEE



HORIZONTAL CROSS



CATALOG NO.	WIDTH	R
(Prefix)-01530	150	300
(Prefix)-01560		600
(Prefix)-01590		900
(Prefix)-02030	200	300
(Prefix)-02060		600
(Prefix)-02090		900
(Prefix)-03030	300	300
(Prefix)-03060		600
(Prefix)-03090		900
(Prefix)-04530	450	300
(Prefix)-04560		600
(Prefix)-04590		900
(Prefix)-06030	600	300
(Prefix)-06060		600
(Prefix)-06090		900
(Prefix)-07530	750	300
(Prefix)-07560		600
(Prefix)-07590		900
(Prefix)-09030	900	300
(Prefix)-09060		600
(Prefix)-09090		900

CATALOG NO.	WIDTH	R
(Prefix)-01530	150	300
(Prefix)-01560		600
(Prefix)-01590		900
(Prefix)-02030	200	300
(Prefix)-02060		600
(Prefix)-02090		900
(Prefix)-03030	300	300
(Prefix)-03060		600
(Prefix)-03090		900
(Prefix)-04530	450	300
(Prefix)-04560		600
(Prefix)-04590		900
(Prefix)-06030	600	300
(Prefix)-06060		600
(Prefix)-06090		900
(Prefix)-07530	750	300
(Prefix)-07560		600
(Prefix)-07590		900
(Prefix)-09030	900	300
(Prefix)-09060		600
(Prefix)-09090		900

REDUCER COVER

Example

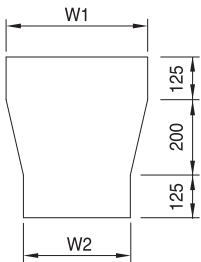
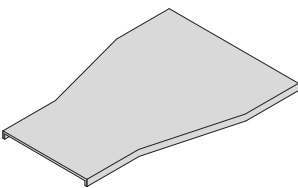
Prefix

- 020 015

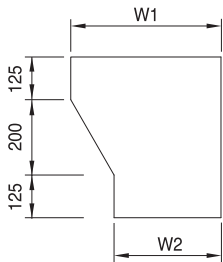
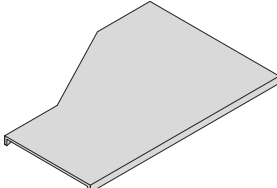
Width-1

Width-2

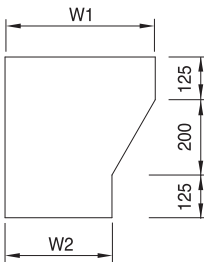
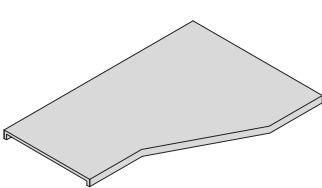
STRAIGHT



LEFT

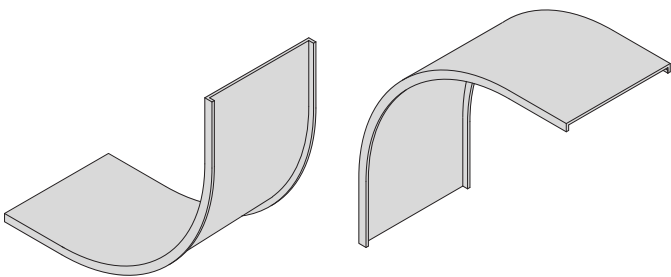


RIGHT



CATALOG NO. STRAIGHT	CATALOG NO. LEFT	CATALOG NO. RIGHT	W1	W2
(Prefix)-020015	(Prefix)-020015	(Prefix)-020015	200	150
(Prefix)-030015	(Prefix)-030015	(Prefix)-030015	300	150
(Prefix)-030020	(Prefix)-030020	(Prefix)-030020	300	200
(Prefix)-045015	(Prefix)-045015	(Prefix)-045015	450	150
(Prefix)-045020	(Prefix)-045020	(Prefix)-045020	450	200
(Prefix)-045030	(Prefix)-045030	(Prefix)-045030	450	300
(Prefix)-060015	(Prefix)-060015	(Prefix)-060015	600	150
(Prefix)-060020	(Prefix)-060020	(Prefix)-060020	600	200
(Prefix)-060030	(Prefix)-060030	(Prefix)-060030	600	300
(Prefix)-060045	(Prefix)-060045	(Prefix)-060045	600	450
(Prefix)-075015	(Prefix)-075015	(Prefix)-075015	750	150
(Prefix)-075020	(Prefix)-075020	(Prefix)-075020	750	200
(Prefix)-075030	(Prefix)-075030	(Prefix)-075030	750	300
(Prefix)-075045	(Prefix)-075045	(Prefix)-075045	750	450
(Prefix)-075060	(Prefix)-075060	(Prefix)-075060	750	600
(Prefix)-090015	(Prefix)-090015	(Prefix)-090015	900	150
(Prefix)-090020	(Prefix)-090020	(Prefix)-090020	900	200
(Prefix)-090030	(Prefix)-090030	(Prefix)-090030	900	300
(Prefix)-090045	(Prefix)-090045	(Prefix)-090045	900	450
(Prefix)-090060	(Prefix)-090060	(Prefix)-090060	900	600
(Prefix)-090075	(Prefix)-090075	(Prefix)-090075	900	750

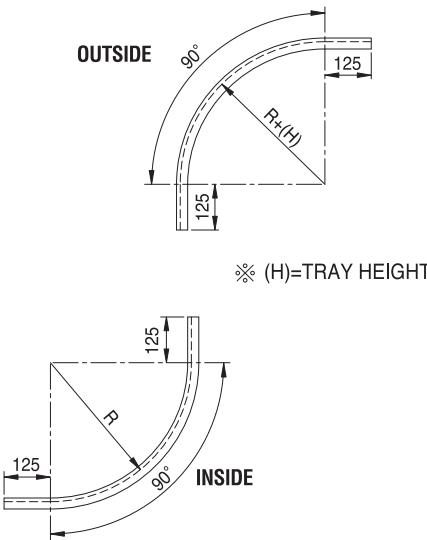
VERTICAL INSIDE / OUTSIDE ELBOW COVER



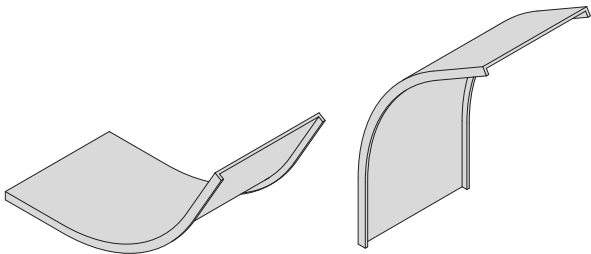
INSIDE

OUTSIDE

90° VERTICAL ELBOW



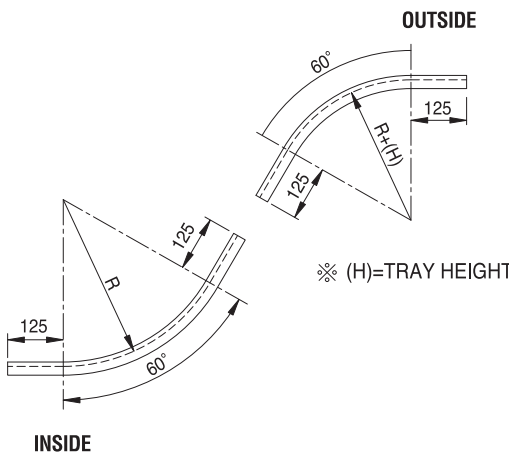
CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R
(Prefix)-0159030	(Prefix)-0159030	150	300
(Prefix)-0159060	(Prefix)-0159060	150	600
(Prefix)-0159090	(Prefix)-0159090	150	900
(Prefix)-0209030	(Prefix)-0209030	200	300
(Prefix)-0209060	(Prefix)-0209060	200	600
(Prefix)-0209090	(Prefix)-0209090	200	900
(Prefix)-0309030	(Prefix)-0309030	300	300
(Prefix)-0309060	(Prefix)-0309060	300	600
(Prefix)-0309090	(Prefix)-0309090	300	900
(Prefix)-0459030	(Prefix)-0459030	450	300
(Prefix)-0459060	(Prefix)-0459060	450	600
(Prefix)-0459090	(Prefix)-0459090	450	900
(Prefix)-0609030	(Prefix)-0609030	600	300
(Prefix)-0609060	(Prefix)-0609060	600	600
(Prefix)-0609090	(Prefix)-0609090	600	900
(Prefix)-0759030	(Prefix)-0759030	750	300
(Prefix)-0759060	(Prefix)-0759060	750	600
(Prefix)-0759090	(Prefix)-0759090	750	900
(Prefix)-0909030	(Prefix)-0909030	900	300
(Prefix)-0909060	(Prefix)-0909060	900	600
(Prefix)-0909090	(Prefix)-0909090	900	900



INSIDE

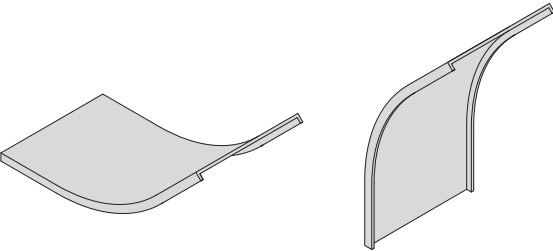
OUTSIDE

60° VERTICAL ELBOW



CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R
(Prefix)-0156030	(Prefix)-0156030	150	300
(Prefix)-0156060	(Prefix)-0156060	150	600
(Prefix)-0156090	(Prefix)-0156090	150	900
(Prefix)-0206030	(Prefix)-0206030	200	300
(Prefix)-0206060	(Prefix)-0206060	200	600
(Prefix)-0206090	(Prefix)-0206090	200	900
(Prefix)-0306030	(Prefix)-0306030	300	300
(Prefix)-0306060	(Prefix)-0306060	300	600
(Prefix)-0306090	(Prefix)-0306090	300	900
(Prefix)-0456030	(Prefix)-0456030	450	300
(Prefix)-0456060	(Prefix)-0456060	450	600
(Prefix)-0456090	(Prefix)-0456090	450	900
(Prefix)-0606030	(Prefix)-0606030	600	300
(Prefix)-0606060	(Prefix)-0606060	600	600
(Prefix)-0606090	(Prefix)-0606090	600	900
(Prefix)-0756030	(Prefix)-0756030	750	300
(Prefix)-0756060	(Prefix)-0756060	750	600
(Prefix)-0756090	(Prefix)-0756090	750	900
(Prefix)-0906030	(Prefix)-0906030	900	300
(Prefix)-0906060	(Prefix)-0906060	900	600
(Prefix)-0906090	(Prefix)-0906090	900	900

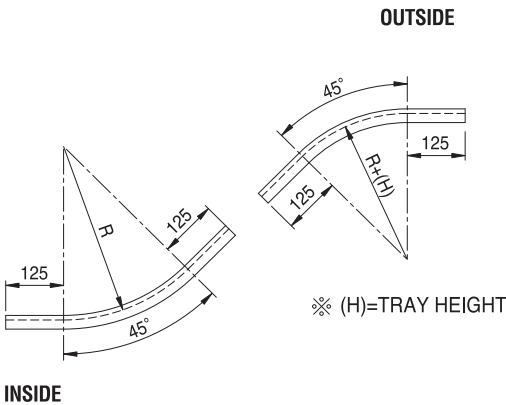
VERTICAL INSIDE / OUTSIDE ELBOW COVER



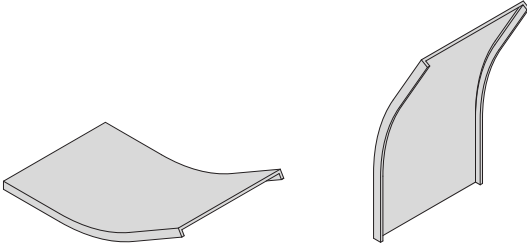
INSIDE

OUTSIDE

45° VERTICAL ELBOW



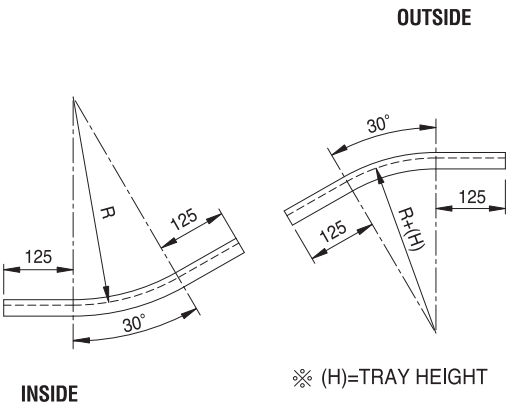
CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R
(Prefix)-0154530	(Prefix)-0154530	150	300
(Prefix)-0154560	(Prefix)-0154560		600
(Prefix)-0154590	(Prefix)-0154590		900
(Prefix)-0204530	(Prefix)-0204530	200	300
(Prefix)-0204560	(Prefix)-0204560		600
(Prefix)-0204590	(Prefix)-0204590		900
(Prefix)-0304530	(Prefix)-0304530	300	300
(Prefix)-0304560	(Prefix)-0304560		600
(Prefix)-0304590	(Prefix)-0304590		900
(Prefix)-0454530	(Prefix)-0454530	450	300
(Prefix)-0454560	(Prefix)-0454560		600
(Prefix)-0454590	(Prefix)-0454590		900
(Prefix)-0604530	(Prefix)-0604530	600	300
(Prefix)-0604560	(Prefix)-0604560		600
(Prefix)-0604590	(Prefix)-0604590		900
(Prefix)-0754530	(Prefix)-0754530	750	300
(Prefix)-0754560	(Prefix)-0754560		600
(Prefix)-0754590	(Prefix)-0754590		900
(Prefix)-0904530	(Prefix)-0904530	900	300
(Prefix)-0904560	(Prefix)-0904560		600
(Prefix)-0904590	(Prefix)-0904590		900



INSIDE

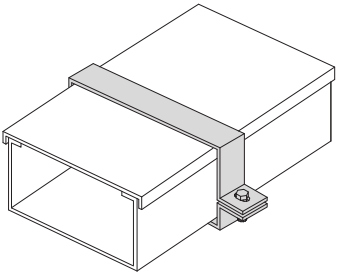
OUTSIDE

30° VERTICAL ELBOW



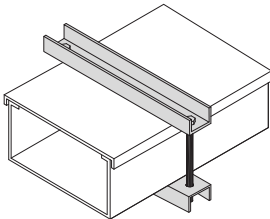
CATALOG NO. INSIDE	CATALOG NO. OUTSIDE	WIDTH	R
(Prefix)-0153030	(Prefix)-0153030	150	300
(Prefix)-0153060	(Prefix)-0153060		600
(Prefix)-0153090	(Prefix)-0153090		900
(Prefix)-0203030	(Prefix)-0203030	200	300
(Prefix)-0203060	(Prefix)-0203060		600
(Prefix)-0203090	(Prefix)-0203090		900
(Prefix)-0303030	(Prefix)-0303030	300	300
(Prefix)-0303060	(Prefix)-0303060		600
(Prefix)-0303090	(Prefix)-0303090		900
(Prefix)-0453030	(Prefix)-0453030	450	300
(Prefix)-0453060	(Prefix)-0453060		600
(Prefix)-0453090	(Prefix)-0453090		900
(Prefix)-0603030	(Prefix)-0603030	600	300
(Prefix)-0603060	(Prefix)-0603060		600
(Prefix)-0603090	(Prefix)-0603090		900
(Prefix)-0753030	(Prefix)-0753030	750	300
(Prefix)-0753060	(Prefix)-0753060		600
(Prefix)-0753090	(Prefix)-0753090		900
(Prefix)-0903030	(Prefix)-0903030	900	300
(Prefix)-0903060	(Prefix)-0903060		600
(Prefix)-0903090	(Prefix)-0903090		900

ACCESSORIES



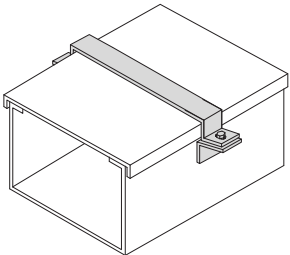
COVER CLAMP- “O”

CATALOG NO.	W	H
CC1-01510	150	100
CC1-02010	200	
CC1-03010	300	
CC1-04510	450	
CC1-06010	600	
CC1-07510	750	
CC1-09010	900	150
CC1-01515	150	
CC1-02015	200	
CC1-03015	300	
CC1-04515	450	
CC1-06015	600	
CC1-07515	750	
CC1-09015	900	



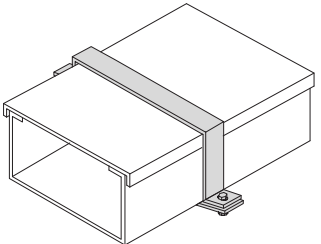
COVER CLAMP- “H”

CATALOG NO.	W	H
CC4-01510	150	100
CC4-02010	200	
CC4-03010	300	
CC4-04510	450	
CC4-06010	600	
CC4-07510	750	
CC4-09010	900	150
CC4-01515	150	
CC4-02015	200	
CC4-03015	300	
CC4-04515	450	
CC4-06015	600	
CC4-07515	750	
CC4-09015	900	



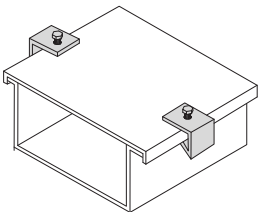
COVER CLAMP- “U”

CATALOG NO.	W
CC7-015	150
CC7-020	200
CC7-030	300
CC7-045	450
CC7-060	600
CC7-075	750
CC7-090	900



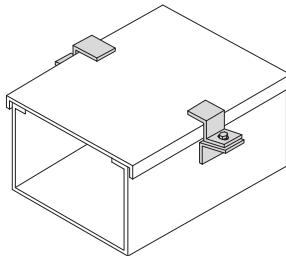
COVER CLAMP- “D”

CATALOG NO.	W	H
CC8-01510	150	100
CC8-02010	200	
CC8-03010	300	
CC8-04510	450	
CC8-06010	600	
CC8-07510	750	
CC8-09010	900	150
CC8-01515	150	
CC8-02015	200	
CC8-03015	300	
CC8-04515	450	
CC8-06015	600	
CC8-07515	750	
CC8-09015	900	



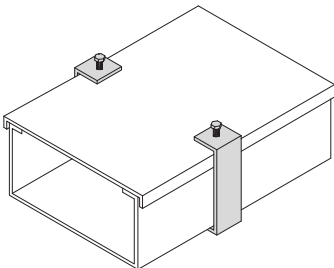
COVER CLAMP- “E”

CATALOG NO.
CC5-3850



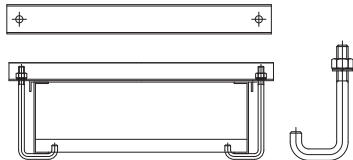
COVER CLAMP- “Z”

CATALOG NO.
CC6-3845



COVER CLAMP- “C”

CATALOG NO.	H
CC2-10	100
CC2-15	150

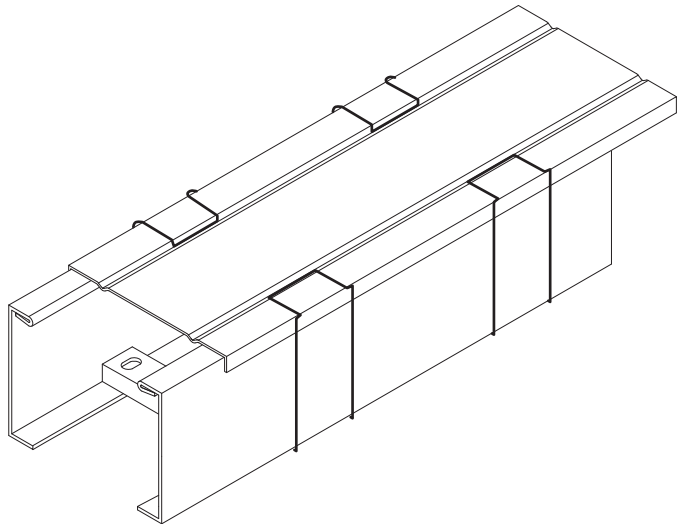


COVER CLAMP- “J”

CATALOG NO.	H
CC3-10	100
CC3-15	150

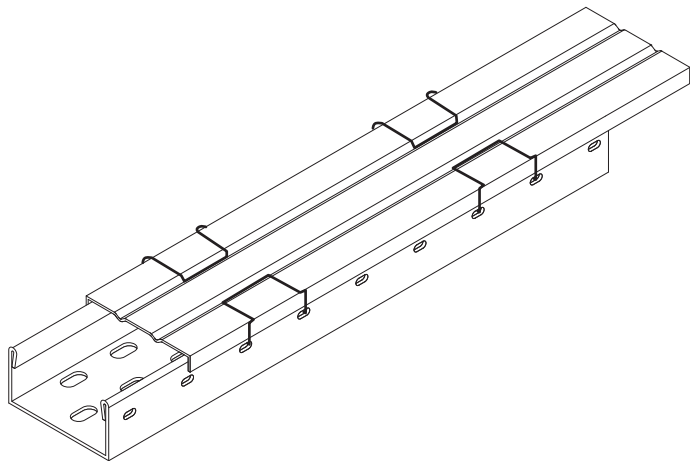
ACCESSORIES

COVER CLIP- “A”



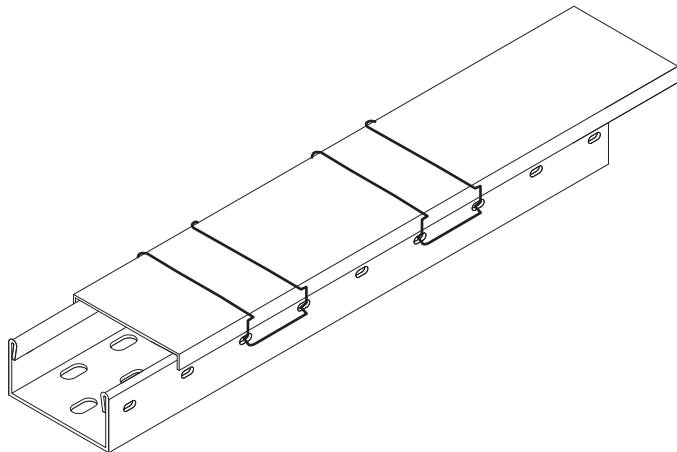
CATALOG NO.	H
WCC-010	100
WCC-015	150

COVER CLIP- “B”



CATALOG NO.	H
WCC-020	20 (FOR 70H)
WCC-022	22.5 (FOR 75H)
WCC-025	25 (FOR50,100H)

COVER CLIP- “C”



CATALOG NO.	W
WCC-005	50



FRP TYPE

TECHNICAL DATA

STANDARD PUBLICATIONS

NEC (National Electric Code) STANDARDS Article 318 (current issue applicable sections only)
NEMA (National Electrical Manufacturers Association)
STANDARDS FOR CABLE TRAY SYSTEMS-FG1 (current issue)

WORKING (Allowable) LOADCAPACITY

REFERENCE:NEMA FG1-3.1

The working (allowable) load capacity represents the ability of a fiberglass cable tray to support the static weight of cables. It is equivalent to the determined by testing with a minimum safety factor of 1.5.

*Designates a minimum safety factor of 2.0.

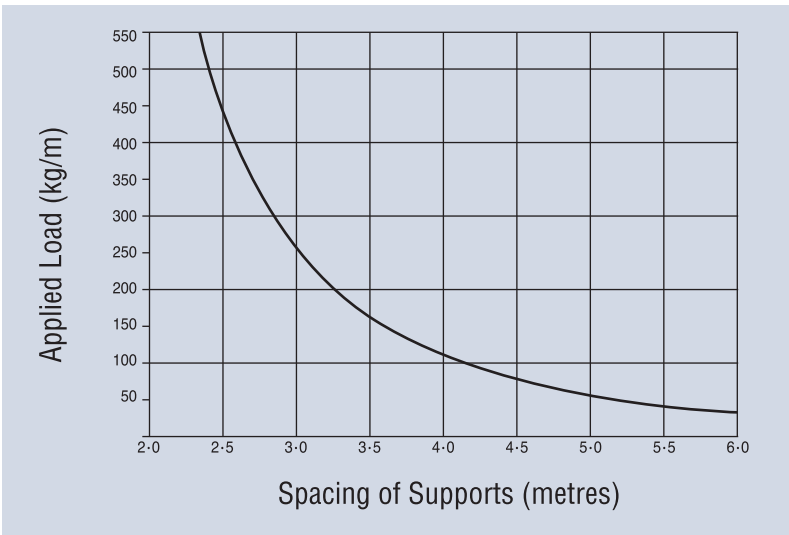


TABLE 1

CONCENTRATED STATIC LOAD

A concentrated static load is not included in TABLE 1. Some user applications may require that a given concentrated static load be imposed over and above the working load.

Such concentrated static load represents a static weight applied between the side rails at midspan. When so specified, the concentrated static load may be converted to an equivalent load (We) in pounds per linear foot (kg/m) using the formulae :

We = $\frac{2 \times (\text{Concentrated Static Load})}{\text{span length (M)} - (\text{M})}$

and added to the static weight of cable in the tray.
This combined load may be used to select a suitable load / span designation.
If the combined load exceeds the working load shown, the manufacturer should be consulted.

EFFECT OF TEMPERATURE

Strength properties of reinforced plastics are reduced when continuously exposed to elevated temperatures. Working loads shall be reduced when based on the following :

NOTE : Percentages are approximate, If unusual temperature conditions exist, the manufacturer should be consulted. Below freezing temperatures do not adversely affect the load rating capability of the tray. Fiberglass does not become brittle at below freezing temperatures.

Temperatures in Degree F	Polyester Resin % of Strength	Vinyl Ester Resin % of Strength
75	100	100
100	90	100
125	78	100
150	68	90
175	60	90
200	52	75

TYPICAL PROPERTIES OF GRP STRUCTURALSHAPES

MECHANICAL (coupon)

GR-P

GR-VE

LONGITUDINAL DIRECTION

Ultimate Tensile Strength psi ASTM D638	30,000	35,000
Ultimate Compressive Strength psi ASTM D695	30,000	35,000
Ultimate Flexural Strength psi ASTM D790	30,000	35,000
Tensile Modulus psi $\times 10^6$	2.5	3.0
Compressive Modulus psi $\times 10^6$	2.5	2.5
Flexural Modulus psi $\times 10^6$	1.6	2.0
Ultimate Shear Strength psi	5,500	7,000
Ultimate Bearing Stress psi	30,000	35,000
Izod Impact Strength (ASTM D256) ft-lbs per inch of notch (sample Thickness - 1/8" except 1/4" for rod)	25	30

ELECTRICAL

Electric Strength, short term in oil, 1/8" (ASTM D149), vpm*	200	200
Electric Strength, short term in oil, KV per inch	35	35
Dielectric Constant, 60Hz. (ASTM D150)*	5.6	5.2
Dissipation Factor 60Hz. (ASTM D150)*	0.03	0.03
Arc Resistance (ASTM D495), seconds**	120	120

FIRE RETARDANT PROPERTIES

Flame Resistance (FTMS 406-2023) ign/burn, seconds	75/75	75/75
Intermittent Flame Test (HLT-15), rating	100	100
Flammability Test (ASTM D635)		
Average time of burning 5 seconds		
Average extent of burning 15mm		
Surface Burning Characteristics (ASTM E84), maximum	20	20

*Specimen tested perpendicular to laminate face
**Indicates reported value measured in longitudinal direction.

MECHANICAL (coupon)

GR-P

GR-VE

TRANSVERSE DIRECTION

Ultimate Tensile Strength psi	7,000	10,000
Ultimate Compressive Strength	15,000	20,000
Ultimate Flexural Strength psi	10,000	14,000
Tensile Modulus psi $\times 10^6$	0.8	1.0
Compressive Modulus psi $\times 10^6$	1.0	1.2
Flexural Modulus psi $\times 10^6$	0.8	1.0
Ultimate Shear Strength psi	5,500	6,000
Ultimate Bearing Stress psi	30,000	35,000
Izod Impact Strength (ASTM D256)ft-lbs per inch of notch	4	5
Barcol Hardness ASTM D2583-75	50	50

FULL SECTION IN BENDING

Modulus of Elasticity psi $\times 10^6$	2.5	3.0
Tensile Strength psi	20,000	25,000
Compressive Strength psi	20,000	25,000

THERMAL

Thermal Coefficient of Expansion(ASTM D696)(inches/inch°F)**	5×10^{-6}	5×10^{-6}
Thermal Conductivity, BTU per sq. ft/hr°F/in ASTM C-1776-76	4	4
Specific Heat BTU/lb°F	0.28	0.28

OTHER

Density (ASTM D792) lbs./in³	0.065	0.065
Specific Gravity (ASTM D792)	1.80	1.80
Water Absorption (24 hour immersion)(ASTM D570) Max. % by weight	.50	.50

CHEMICAL COMPATABILITY GUIDE

CHEMICAL ENVIRONMENT	POLYESTER		VINYL ESTER		CHEMICAL ENVIRONMENT	POLYESTER		VINYL ESTER	
	Max Wt %	Max Temp °F	Max Wt %	Max Temp °F		Max Wt %	Max Temp °F	Max Wt %	Max Temp °F
Acetic Acid	10	190	10	210	Copper Nitrate	SAT	170	SAT	200
Acetic Acid	50	125	50	180	Crude Oil, Sour	100	170	100	200
Acetone	N/R	N/R	N/R	N/R	Cyclohexane	N/R	N/R	N/R	N/R
Aluminum Chloride	SAT	170	SAT	200	Cyclohexane, Vapor	ALL	100	ALL	130
Aluminum Hydroxide	SAT	160	SAT	170	Diesel Fuel	100	160	100	180
Aluminum Nitrate	SAT	150	SAT	170	Diethyl Ether	N/R	N/R	N/R	N/R
Aluminum Sulfate	SAT	180	SAT	200	Dimethyl Phthalate	N/R	N/R	100	80
Ammonium Chloride	SAT	170	SAT	190	Ethanol	50	75	50	90
Ammonium Hydroxide	1	100	10	150	Ethyl Acetate	N/R	N/R	N/R	N/R
Ammonium Hydroxide	28	N/R	28	100	Ethylene Chloride	N/R	N/R	N/R	N/R
Ammonium Carbonate	N/R	N/R	SAT	150	Ethylene Glycol	100	90	100	200
Ammonium Bicarbonate	15	125	SAT	130	Fatty Acids	SAT	180	SAT	200
Ammonium Nitrate	SAT	160	SAT	190	Ferric Chloride	SAT	170	SAT	200
Ammonium Persulfate	SAT	N/R	SAT	150	Ferric Nitrate	SAT	170	SAT	200
Ammonium Sulfate	SAT	170	SAT	200	Ferric Sulfate	SAT	170	SAT	200
Amyl Alcohol	ALL	N/R	ALL	90	Ferrous Chloride	SAT	170	SAT	200
Amyl Alcohol Vapor	—	140	—	120	Fluoboric Acid	N/R	N/R	SAT	165
Benzene	N/R	N/R	N/R	N/R	Fluosilicic Acid	N/R	N/R	SAT	70
Benzene Sulfonic Acid	25	110	SAT	200	Formaldehyde	50	75	50	100
Benzoic Acid	SAT	150	SAT	200	Formic Acid	N/R	N/R	50	100
Benzyl Alcohol	100	N/R	100	N/R	Gasoline	100	80	100	150
Borax	SAT	170	SAT	200	Glucose	100	170	100	200
Calcium Carbonate	SAT	170	SAT	200	Glycerine	100	150	100	200
Calcium Chloride	SAT	170	SAT	200	Heptane	100	110	100	120
Calcium Hydroxide	25	70	25	165	Hexane	100	90	100	130
Calcium Nitrate	SAT	180	SAT	200	Hydrobromic Acid	50	120	50	120
Calcium Sulfate	SAT	180	SAT	200	Hydrochloric Acid	10	150	10	200
Carbon Disulfide	N/R	N/R	N/R	N/R	Hydrochloric Acid	20	140	20	190
Carbonic Acid	SAT	130	SAT	180	Hydrochloric Acid	37	75	37	95
Carbon Dioxide Gas	—	200	—	200	Hydrofluoric Acid	N/R	N/R	15	80
Carbon Monoxide Gas	—	200	—	200	Hydrogen Bromide, Dry	100	190	100	200
Carbon Tetrachloride	N/R	N/R	100	75	Hydrogen Bromide, Wet	100	75	100	130
Chlorine, Dry Gas	—	140	—	170	Hydrogen Chloride	—	120	—	200
Chlorine, Wet Gas	—	N/R	—	N/R	Hydrogen Peroxide	30	N/R	30	80
Chlorine Water	SAT	N/R	SAT	90	Hydrogen Sulfide, Dry	—	140	ALL	180
Chromic Acid	5	70	10	120	Hydrogen Sulfide, Wet	FUM	140	FUM	180
Citric Acid	SAT	170	SAT	200	Hypochlorous Acid	10	70	20	100
Copper Chloride	SAT	170	SAT	200	Isopropyl Alcohol	N/R	N/R	15	80
Copper Cyanide	SAT	170	SAT	200	Kerosene	100	140	100	180

-No information Available N/R Not Recommended SAT Saturated Solution FUM Fumes
Information contained in this chart is based on data from raw material supplier's and collected from several years of actual industrial applications. The recommendations or suggestions contained in this chart are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory or actual field trial prior to use.

F.R.P CABLE TRAY

Straight Section Numbering System

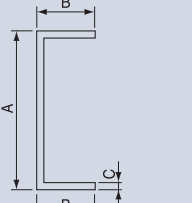
Example

Prefix
L ST P AB A 30 - 030 30

Type	Shape	Material	Side rail	Rung	Rung Spacing	Width	Length
L=Ladder Type	ST=Straight tray	P=Fiberglass Reinforced Plastic (F.R.P)			20=200 23=230 30=300	15=150 20=200 30=300 45=450 60=600 75=750 90=900	24=2400 30=3000 60=6000

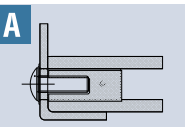
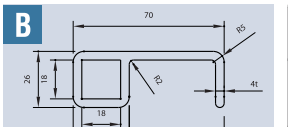
1. All dimensions are millimeters unless otherwise specified.
2. For side rail & rung data, see chart on page 66.

Cable Tray Side Rails - Design Data For One Rail

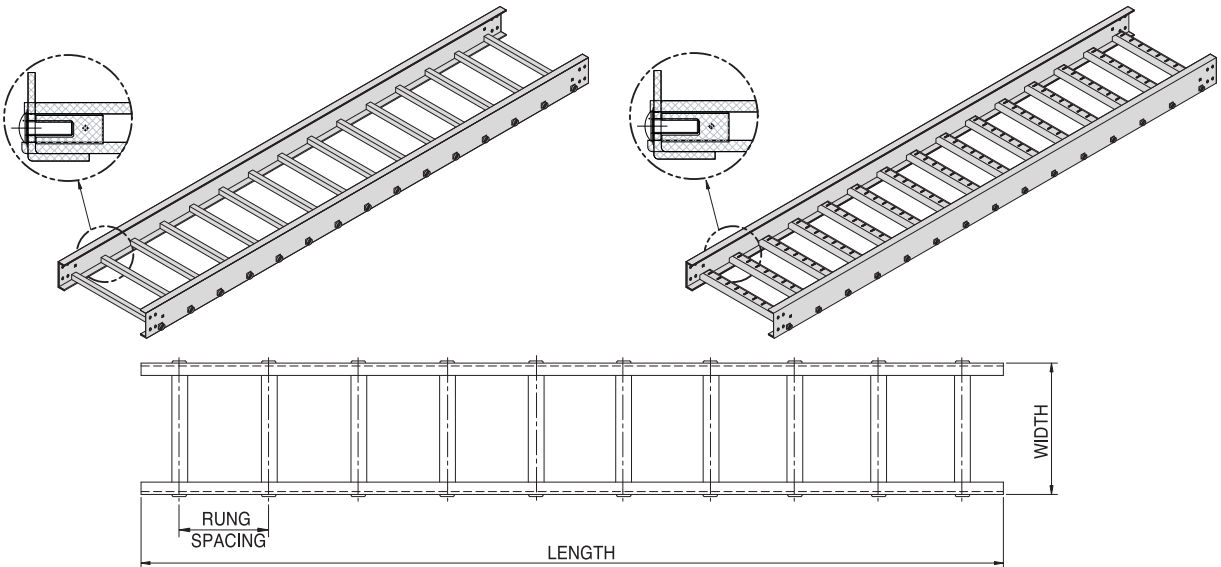
A	Material Type	Side Rail Type	A (mm)	B (mm)	C (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
	FRP	AA	150	41	3.5	31.91	239.31	7.88
		AB	150	41	4.8	42.43	318.24	10.68
		AC	150	41	6.0	51.55	386.6	13.2

A : Height, B : Flange Width, C : Thickness

Cable Tray Bottom Members - Ladder Type Rungs

A	B	Material Type	Rung Type	A (mm)	B (mm)	C (mm)	D (mm)	Sx (cm³)	Ix (cm⁴)	Area (cm²)
		FRP	A	29	29	19	-	3.63	5.26	5.59
			B	68	25	18	3	2.55	3.93	5.07

Desing Factors : Ix = Moment of Inertia, Sx = Section Modulus



F.R.P CABLE TRAY

Fitting Numbering System

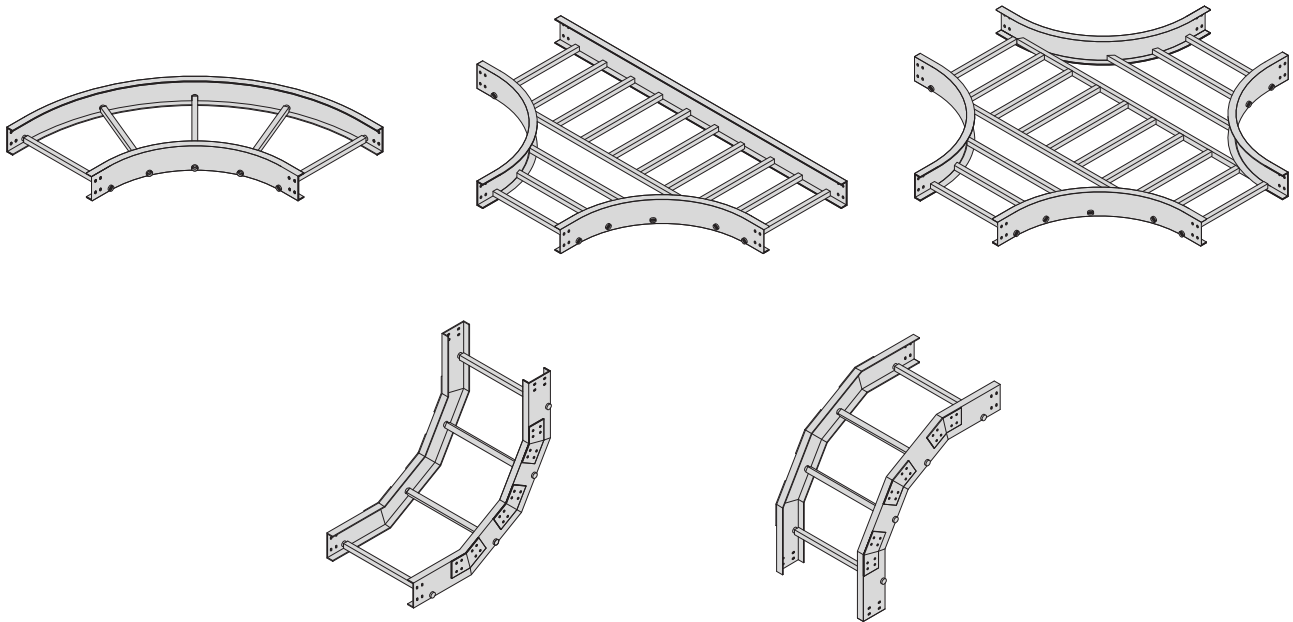
Example

Prefix
L HE P AB A 30 - 015 90 30

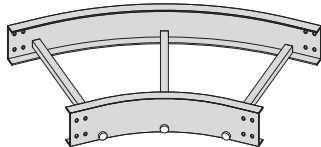
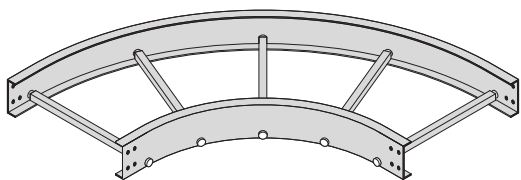
Type	Shape	Material	Side rail	Rung	Rung Spacing	Width	Degree
L=Ladder Type	HE=Horizontal Elbow HT=Horizontal Tee HC=Horizontal Cross VI=Vertical Inside Elbow VO=Vertical Outside Elbow	P=Fiberglass Reinforced Plastic (F.R.P)			20=200 23=230 30=300	15=150 20=200 30=300 45=450 60=600 75=750 90=900	90=90° 60=60° 45=45° 30=30°

Radius
30=300
60=600
90=900

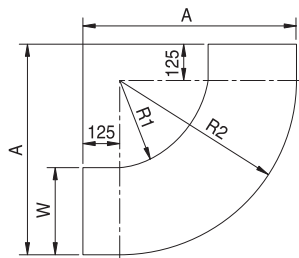
1. All dimensions are millimeters unless otherwise specified.
2. For side rail & rung data, see chart on page 66



HORIZONTAL ELBOW

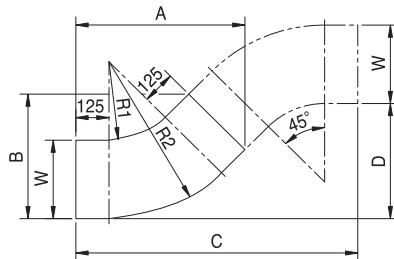


90° HORIZONTAL ELBOW



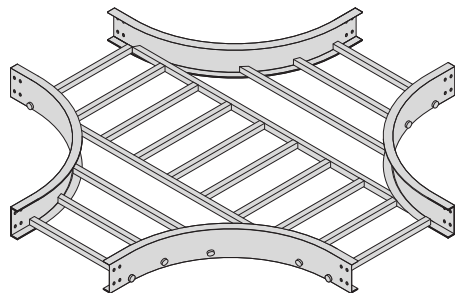
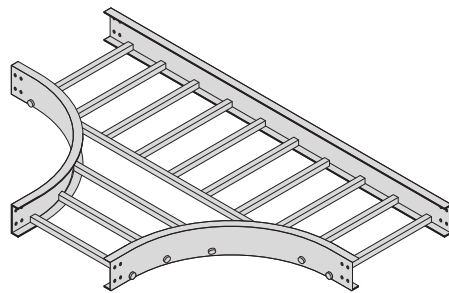
CATALOG NO.	WIDTH	R1	R2	A
(Prefix)-0159030	150	300	450	575
(Prefix)-0159060		600	750	875
(Prefix)-0159090		900	1050	1175
(Prefix)-0209030	200	300	500	625
(Prefix)-0209060		600	800	925
(Prefix)-0209090		900	1100	1225
(Prefix)-0309030	300	300	600	725
(Prefix)-0309060		600	900	1025
(Prefix)-0309090		900	1200	1325
(Prefix)-0459030	450	300	750	875
(Prefix)-0459060		600	1050	1175
(Prefix)-0459090		900	1350	1475
(Prefix)-0609030	600	300	900	1025
(Prefix)-0609060		600	1200	1325
(Prefix)-0609090		900	1500	1625
(Prefix)-0759030	750	300	1050	1175
(Prefix)-0759060		600	1350	1475
(Prefix)-0759090		900	1650	1775
(Prefix)-0909030	900	300	1200	1325
(Prefix)-0909060		600	1500	1625
(Prefix)-0909090		900	1800	1925

45° HORIZONTAL ELBOW

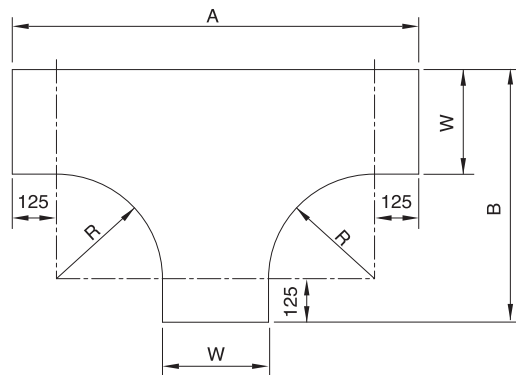


CATALOG NO.	WIDTH	R1	R2	A	B	C	D
(Prefix)-0154530	150	300	450	532	318	957	396
(Prefix)-0154560		600	750	744	407	1381	572
(Prefix)-0154590		900	1050	956	501	1806	748
(Prefix)-0204530	200	300	500	567	376	993	410
(Prefix)-0204560		600	800	779	464	1417	587
(Prefix)-0204590		900	1100	991	552	1841	763
(Prefix)-0304530	300	300	600	638	462	1063	440
(Prefix)-0304560		600	900	850	559	1489	616
(Prefix)-0304590		900	1200	1062	651	1912	792
(Prefix)-0454530	450	300	750	744	619	1169	484
(Prefix)-0454560		600	1050	956	710	1593	660
(Prefix)-0454590		900	1350	1168	802	2018	836
(Prefix)-0604530	600	300	900	850	770	1275	528
(Prefix)-0604560		600	1200	1062	861	1670	704
(Prefix)-0604590		900	1500	1274	953	2124	880
(Prefix)-0754530	750	300	1050	956	920	1381	572
(Prefix)-0754560		600	1350	1168	1012	1806	748
(Prefix)-0754590		900	1650	1380	1103	2230	924
(Prefix)-0904530	900	300	1200	1062	1071	1487	116
(Prefix)-0904560		600	1500	1274	1162	1912	792
(Prefix)-0904590		900	1800	1486	1254	2336	968

HORIZONTAL TEE & CROSS COVER

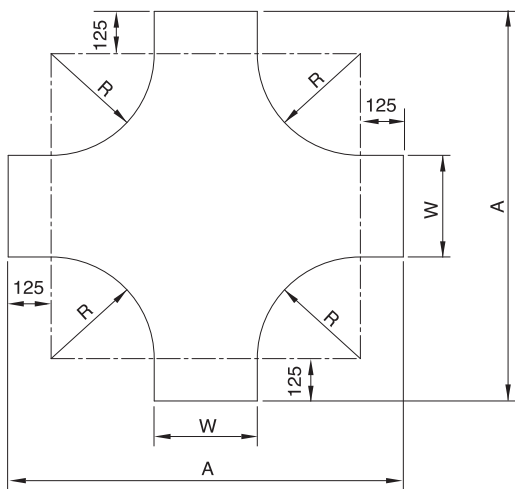


HORIZONTAL TEE



CATALOG NO.	WIDTH	R	A	B
(Prefix)-01530	150	300	1000	575
(Prefix)-01560		600	1600	875
(Prefix)-01590		900	2200	1175
(Prefix)-02030	200	300	1050	625
(Prefix)-02060		600	1650	925
(Prefix)-02090		900	2250	1225
(Prefix)-03030	300	300	1150	725
(Prefix)-03060		600	1750	1025
(Prefix)-03090		900	2350	1325
(Prefix)-04530	450	300	1300	875
(Prefix)-04560		600	1900	1175
(Prefix)-04590		900	2500	1475
(Prefix)-06030	600	300	1450	1025
(Prefix)-06060		600	2050	1325
(Prefix)-06090		900	2650	1625
(Prefix)-07530	750	300	1600	1175
(Prefix)-07560		600	2200	1475
(Prefix)-07590		900	2800	1775
(Prefix)-09030	900	300	1750	1325
(Prefix)-09060		600	2350	1625
(Prefix)-09090		900	2950	1925

HORIZONTAL CROSS



CATALOG NO.	WIDTH	R	A
(Prefix)-01530	150	300	1000
(Prefix)-01560		600	1600
(Prefix)-01590		900	2200
(Prefix)-02030	200	300	1050
(Prefix)-02060		600	1650
(Prefix)-02090		900	2250
(Prefix)-03030	300	300	1150
(Prefix)-03060		600	1750
(Prefix)-03090		900	2350
(Prefix)-04530	450	300	1300
(Prefix)-04560		600	1900
(Prefix)-04590		900	2500
(Prefix)-06030	600	300	1450
(Prefix)-06060		600	2050
(Prefix)-06090		900	2650
(Prefix)-07530	750	300	1600
(Prefix)-07560		600	2200
(Prefix)-07590		900	2800
(Prefix)-09030	900	300	1750
(Prefix)-09060		600	2350
(Prefix)-09090		900	2950

REDUCER

Example

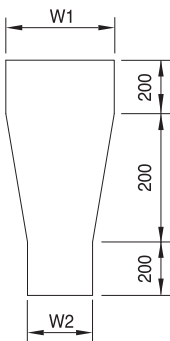
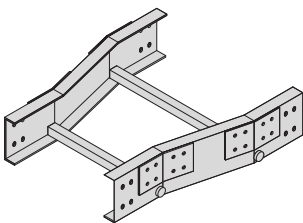
Prefix

- 020 015

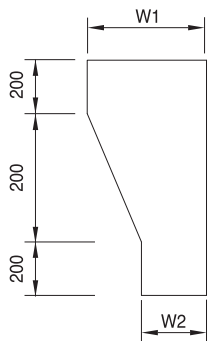
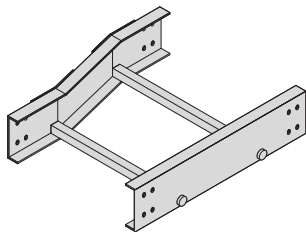
Width-1

Width-2

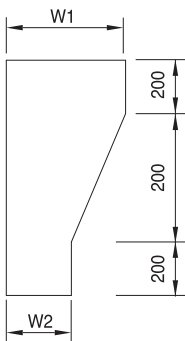
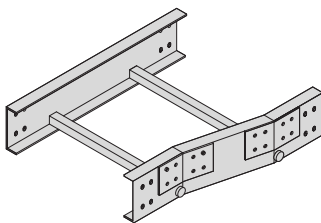
STRAIGHT



LEFT



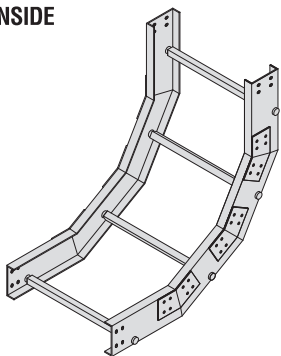
RIGHT



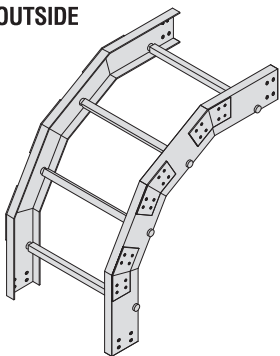
CATALOG NO. STRAIGHT	CATALOG NO. LEFT	CATALOG NO. RIGHT	W1	W2
(Prefix)-020015	(Prefix)-020015	(Prefix)-020015	200	150
(Prefix)-030015	(Prefix)-030015	(Prefix)-030015	300	150
(Prefix)-030020	(Prefix)-030020	(Prefix)-030020	300	200
(Prefix)-045015	(Prefix)-045015	(Prefix)-045015	450	150
(Prefix)-045020	(Prefix)-045020	(Prefix)-045020	450	200
(Prefix)-045030	(Prefix)-045030	(Prefix)-045030	450	300
(Prefix)-060015	(Prefix)-060015	(Prefix)-060015	600	150
(Prefix)-060020	(Prefix)-060020	(Prefix)-060020	600	200
(Prefix)-060030	(Prefix)-060030	(Prefix)-060030	600	300
(Prefix)-060045	(Prefix)-060045	(Prefix)-060045	600	450
(Prefix)-075015	(Prefix)-075015	(Prefix)-075015	750	150
(Prefix)-075020	(Prefix)-075020	(Prefix)-075020	750	200
(Prefix)-075030	(Prefix)-075030	(Prefix)-075030	750	300
(Prefix)-075045	(Prefix)-075045	(Prefix)-075045	750	450
(Prefix)-075060	(Prefix)-075060	(Prefix)-075060	750	600
(Prefix)-090015	(Prefix)-090015	(Prefix)-090015	900	150
(Prefix)-090020	(Prefix)-090020	(Prefix)-090020	900	200
(Prefix)-090030	(Prefix)-090030	(Prefix)-090030	900	300
(Prefix)-090045	(Prefix)-090045	(Prefix)-090045	900	450
(Prefix)-090060	(Prefix)-090060	(Prefix)-090060	900	600
(Prefix)-090075	(Prefix)-090075	(Prefix)-090075	900	750

VERTICAL INSIDE / OUTSIDE ELBOW

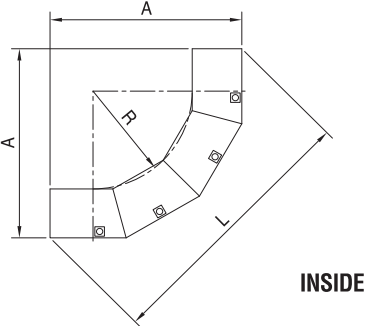
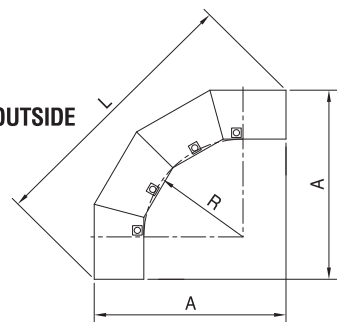
INSIDE



OUTSIDE



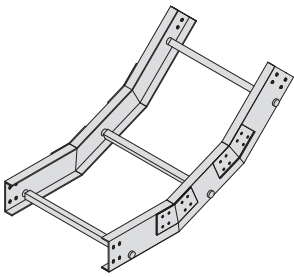
OUTSIDE



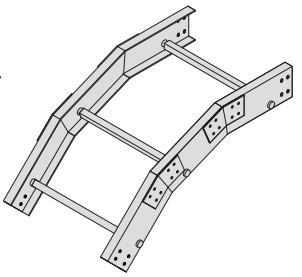
INSIDE

CATALOG NO.	WIDTH	R	A	L
(Prefix)-0159030	150	300	580	820
(Prefix)-0159060		600	880	1245
(Prefix)-0159090		900	1180	1669
(Prefix)-0209030	200	300	580	820
(Prefix)-0209060		600	880	1245
(Prefix)-0209090		900	1180	1669
(Prefix)-0309030	300	300	580	820
(Prefix)-0309060		600	880	1245
(Prefix)-0309090		900	1180	1669
(Prefix)-0459030	450	300	580	820
(Prefix)-0459060		600	880	1245
(Prefix)-0459090		900	1180	1669
(Prefix)-0609030	600	300	580	820
(Prefix)-0609060		600	880	1245
(Prefix)-0609090		900	1180	1669
(Prefix)-0759030	750	300	580	820
(Prefix)-0759060		600	880	1245
(Prefix)-0759090		900	1180	1669
(Prefix)-0909030	900	300	580	820
(Prefix)-0909060		600	880	1245
(Prefix)-0909090		900	1180	1669

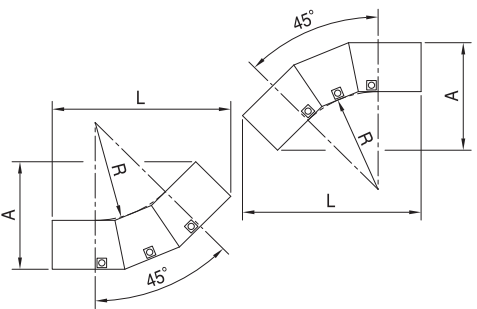
INSIDE



OUTSIDE



OUTSIDE

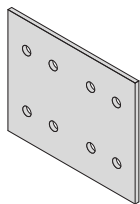


INSIDE

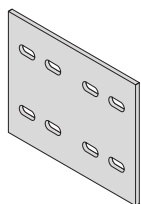
CATALOG NO.	WIDTH	R	A	L
(Prefix)-0154530	150	300	330	540
(Prefix)-0154560		600	418	752
(Prefix)-0154590		900	506	964
(Prefix)-0204530	200	300	330	540
(Prefix)-0204560		600	418	752
(Prefix)-0204590		900	506	964
(Prefix)-0304530	300	300	330	540
(Prefix)-0304560		600	418	752
(Prefix)-0304590		900	506	964
(Prefix)-0454530	450	300	330	540
(Prefix)-0454560		600	418	752
(Prefix)-0454590		900	506	964
(Prefix)-0604530	600	300	330	540
(Prefix)-0604560		600	418	752
(Prefix)-0604590		900	506	964
(Prefix)-0754530	750	300	330	540
(Prefix)-0754560		600	418	752
(Prefix)-0754590		900	506	964
(Prefix)-0904530	900	300	330	540
(Prefix)-0904560		600	418	752
(Prefix)-0904590		900	506	964

ACCESSORIES

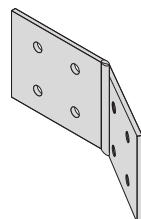
JOINT CONNECTOR



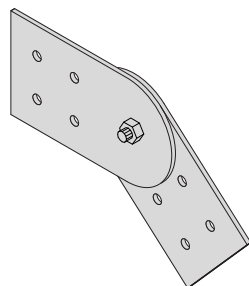
EXPANSION CONNECTOR



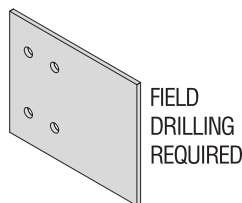
HORIZONTAL CONNECTOR



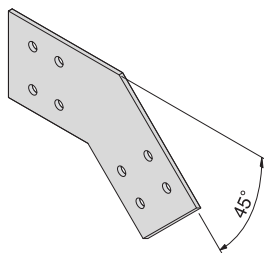
VERTICAL CONNECTOR



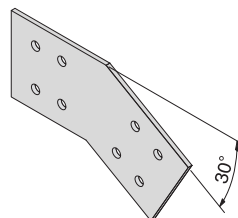
90° VERTICAL CONNECTOR



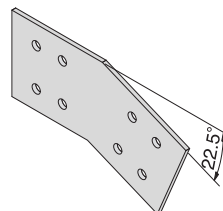
45° VERTICAL CONNECTOR



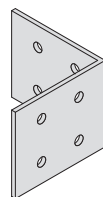
30° VERTICAL CONNECTOR



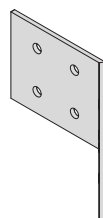
22.5° VERTICAL CONNECTOR



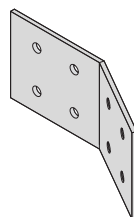
90° HORIZONTAL CONNECTOR



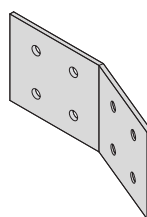
45° HORIZONTAL CONNECTOR



30° HORIZONTAL CONNECTOR



22.5° HORIZONTAL CONNECTOR

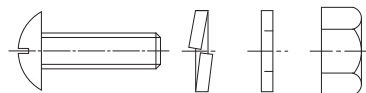


HARDWARE

CATALOG NO.

RBN

SS316
SS316L



SIZE
(mm) × Length

M10 × 30

F.R.P PERFORATED CABLE TRAY

Straight Section Numbering System

Example

Prefix

P ST P AA - 015 30

Type

P=Perforated
Type

Shape

ST=Straight tray

Material

P=Fiberglass
Reinforced
Plastic (F.R.P)

Section

Width

005=50
010=100
015=150
020=200
030=300

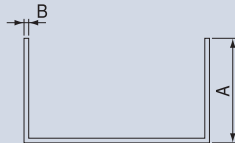
Length

24=2400
30=3000

1. All dimensions are millimeters unless otherwise specified.
2. For section data, see chart on page 73.

Straight Sections For Perforated Type

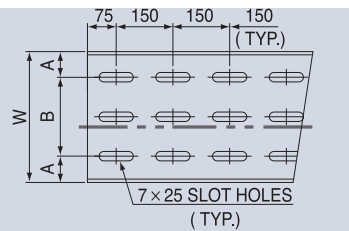
A



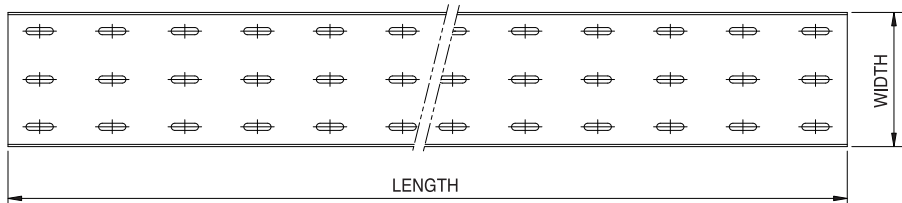
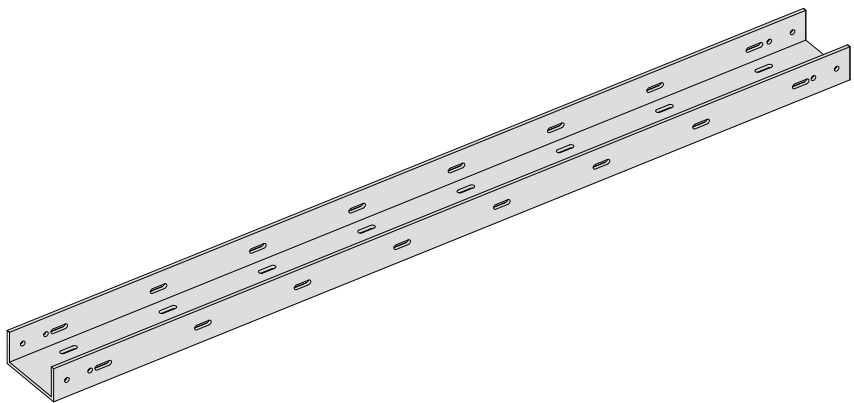
A : Height, B : Thickness

Material Type	Side Rail Type	A (mm)	B (mm)
FRP	AA	50	3.5

Perforation Pattern



W	A	B
50	25	-
100	25	50
150	25	@50 × 2
200	25	@75 × 2
300	30	@80 × 3



F.R.P PERFORATED CABLE TRAY

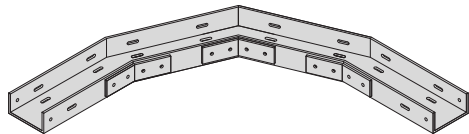
Fitting Numbering System

Example

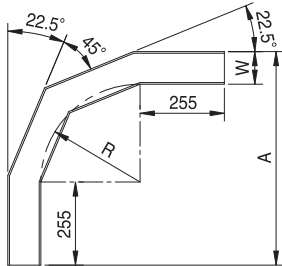
Prefix
P HE P AA - 015 90 30

Type	Shape	Material	Section	Width	Degree	Radius
P=Perforated Type	HE=Horizontal Elbow VI=Vertical Inside Elbow VO=Vertical Outside Elbow	P=Fiberglass Reinforced Plastic (F.R.P)		005=50 010=100 015=150 020=200 030=300	90=90°	30=300 60=600

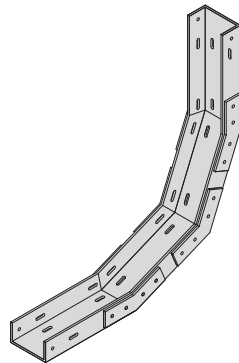
1. All dimensions are millimeters unless otherwise specified.
2. For section data, see chart on page 73.



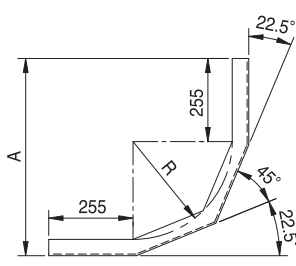
90° HORIZONTAL ELBOW



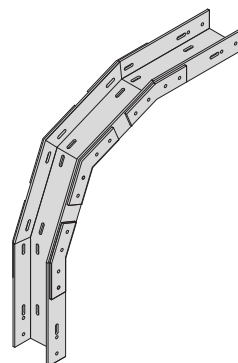
CATALOG NO.	WIDTH	R	A
(Prefix)-0059030	50	300	605
(Prefix)-0059060	600	905	
(Prefix)-0109030	100	300	655
(Prefix)-0109060	600	955	
(Prefix)-0159030	150	300	705
(Prefix)-0159060	600	1005	
(Prefix)-0209030	200	300	755
(Prefix)-0209060	600	1055	
(Prefix)-0309030	300	300	855
(Prefix)-0309060	600	600	1155



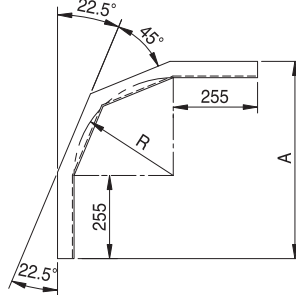
90° VERTICAL INSIDE ELBOW



CATALOG NO.	WIDTH	R	A
(Prefix)-0059030	50	300	605
(Prefix)-0059060	600	905	
(Prefix)-0109030	100	300	655
(Prefix)-0109060	600	905	
(Prefix)-0159030	150	300	705
(Prefix)-0159060	600	905	
(Prefix)-0209030	200	300	755
(Prefix)-0209060	600	905	
(Prefix)-0309030	300	300	855
(Prefix)-0309060	600	600	905



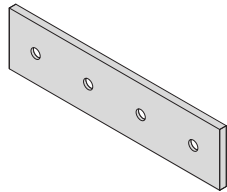
90° VERTICAL OUT SIDE ELBOW



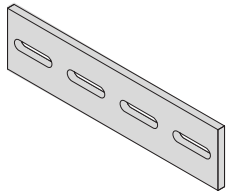
CATALOG NO.	WIDTH	R	A
(Prefix)-0059030	50	300	605
(Prefix)-0059060	600	905	
(Prefix)-0109030	100	300	655
(Prefix)-0109060	600	905	
(Prefix)-0159030	150	300	705
(Prefix)-0159060	600	905	
(Prefix)-0209030	200	300	755
(Prefix)-0209060	600	905	
(Prefix)-0309030	300	300	855
(Prefix)-0309060	600	600	905

ACCESSORIES

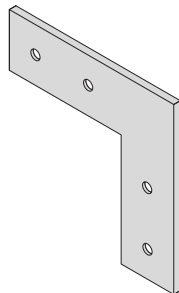
JOINT CONNECTOR



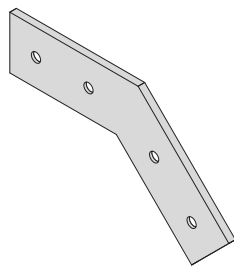
EXPANSION CONNECTOR



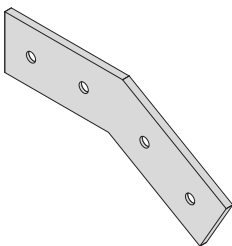
90° VERTICAL CONNECTOR



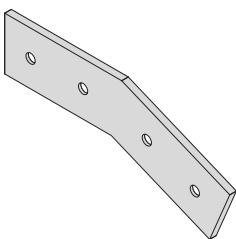
45° VERTICAL CONNECTOR



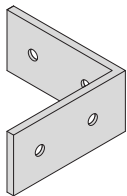
30° VERTICAL CONNECTOR



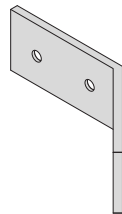
22.5° VERTICAL CONNECTOR



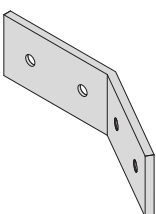
90° HORIZONTAL CONNECTOR



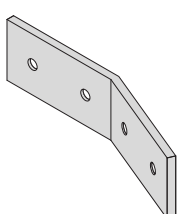
45° HORIZONTAL CONNECTOR



30° HORIZONTAL CONNECTOR



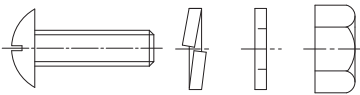
22.5° HORIZONTAL CONNECTOR



HARDWARE

CATALOG NO.
RBN

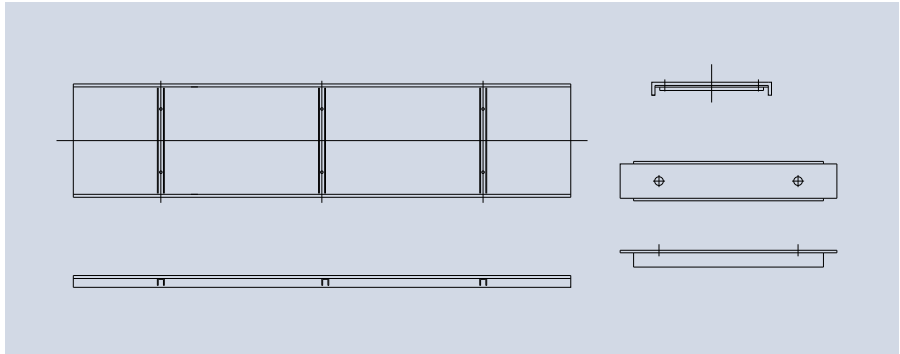
SS316
SS316L



SIZE (mm) × Length
M6 × 20

STRAIGHT SECTION COVERS

Cable tray covers are recommended for those areas where the cable needs protection from falling objects, adverse weather conditions, etc. Available in polyester and vinyl ester resin types in 3m sections in flat design.



FLAT COVER	
TRAY WIDTH MM	FLAT COVER FOR TRAY TYPES CATALOG NO.
150	CSTPFL-01530
200	CSTPFL-02030
300	CSTPFL-03030
450	CSTPFL-04530
600	CSTPFL-06030
750	CSTPFL-07530
900	CSTPFL-09030

INSTALLATION METHODS FOR FLAT COVER :

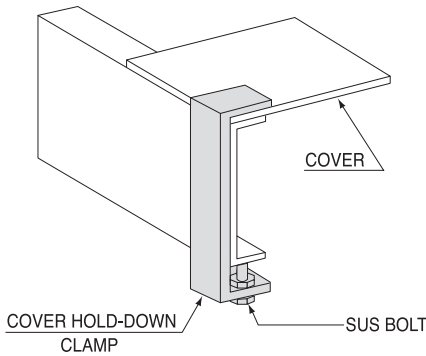
Thermoplastic Drive Rivets are the most economical method, but do require field drilling. It is recommended rivets be installed on 600mm centers along both side rails.

Cover Hold Down Clamps and Ventilated Cover Clips allow cover to be removed for easy access to cables. It is recommended to use six clamps per 3m length of cover.

NOTE : ADD VENTILATION HEIGHT 25mm IS STANDARD.

COVER ACCESSORIES FOR “[“SIDE RAIL TRAY TYPES ONLY

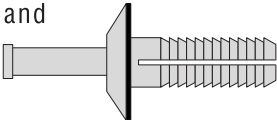
CLAMPS



POLYESTER RESIN	CATALOG NO.
150mm TRAY DEPTH	SCHD-150-UP
150mm TRAY DEPTH	SCHD-150-VE

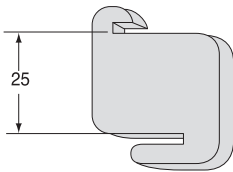
THERMOPLASTIC DRIVE RIVET

For securing cover material and divider strip.
Pigmented to match resin type.



TRAY TYPE	CATALOG NO.
Polyester	R-UP
Vinyl ester	R-VE

CLIPS

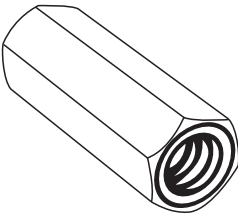


VENTILATED COVER CLIP

CATALOG NO.	RESIN
SVC-3	POLYESTER

CABLE TRAY ACCESSORIES

SEPARATOR

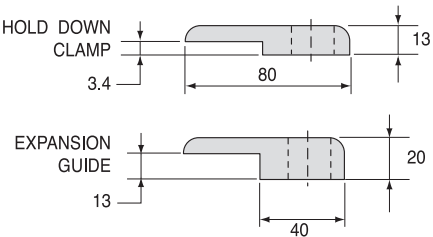
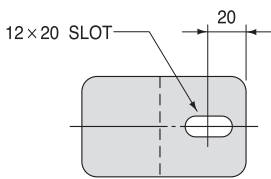


TRAY TYPE	CATALOG NO.
Polyester	SCC-UP
Vinyl ester	SCC-VE

Refer to the Fitting Section for ordering factory installed dividers for pre-assembled fittings.

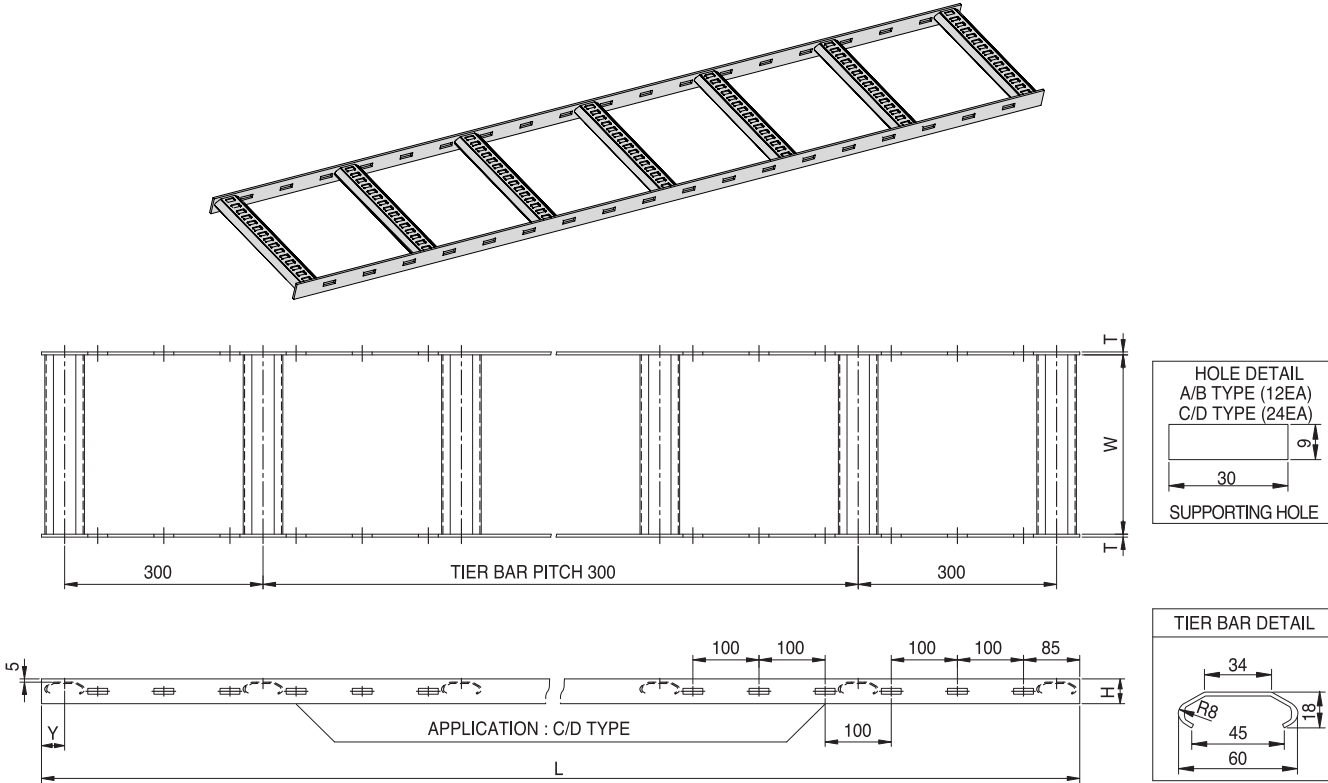
Separator is supplies in ten foot lengths. Unless indicated otherwise, separators are intended for field installation. For securing separators to tray we recommend the use fo thermoplastic drive rivets which require field drilling.

HOLD DOWN CLAMP & EXPANSION GUIDE



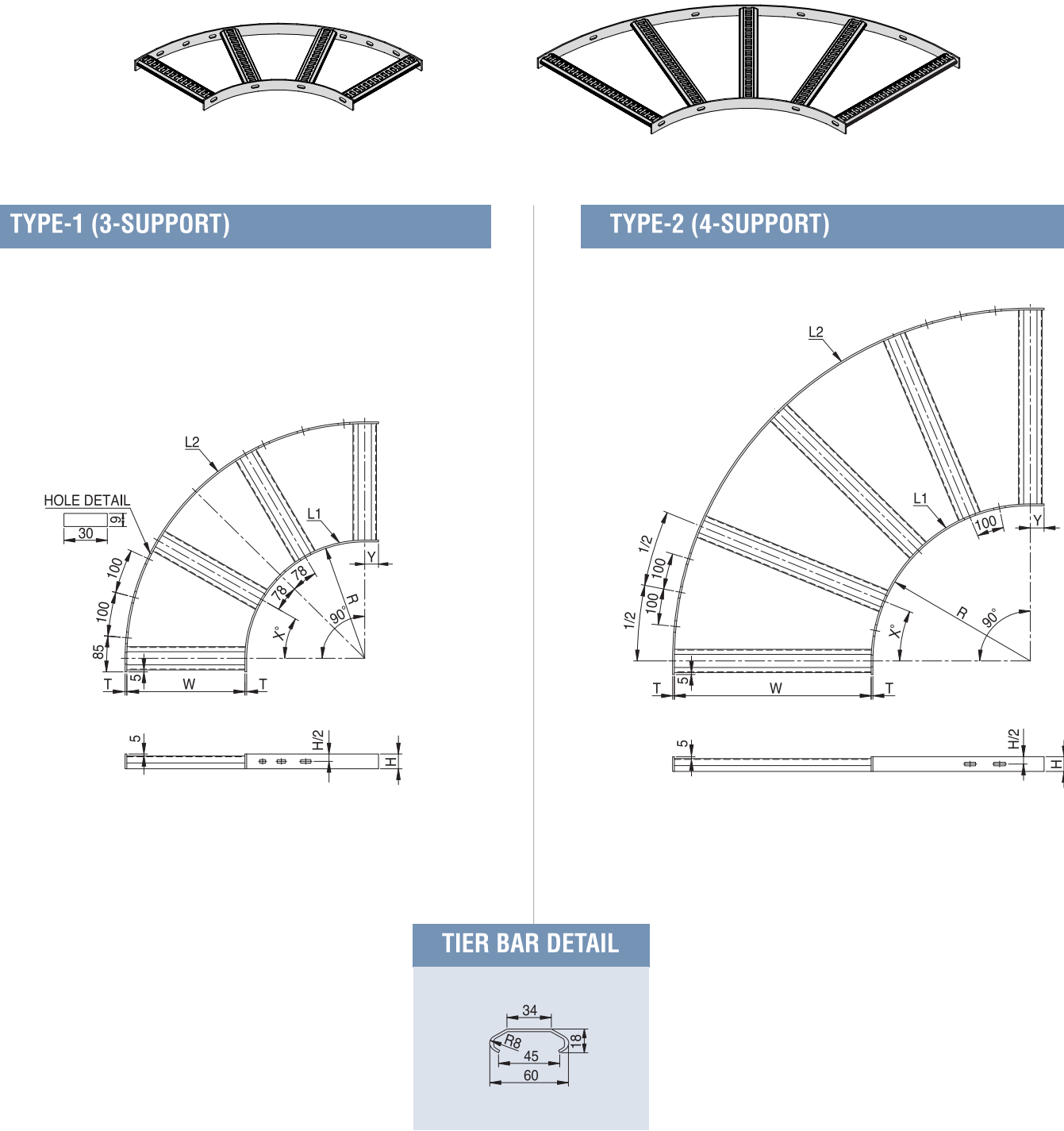
DESCRIPTION	RESIN SYSTEM	CATALOG NO.
Hold Down Clamp	Polyester	SHDC-UP
Hold Down Clamp	Vinly Ester	SHDC-VE
Expansion Guide	Polyester	SEG-UP
Expansion Guide	Vinyl Ester	SEG-VE

HANGER TYPE CABLE TRAY(LS)



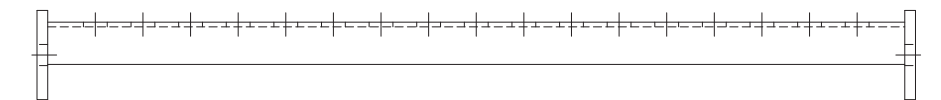
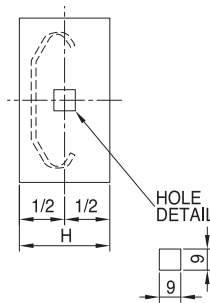
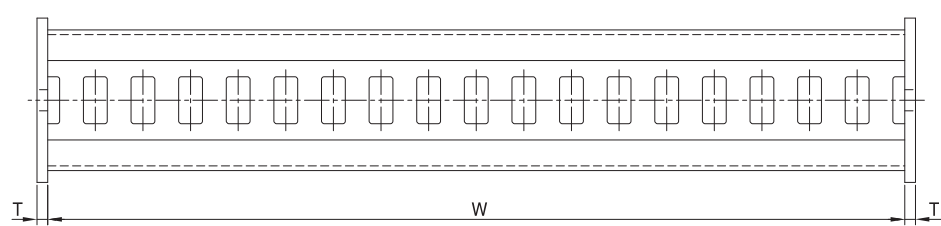
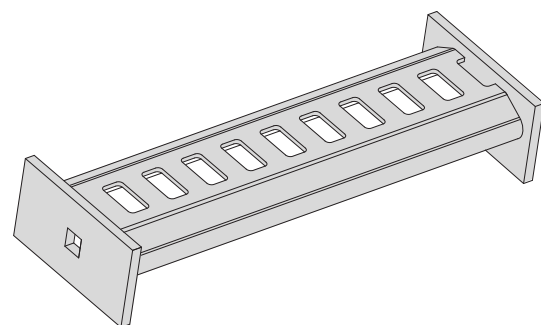
TYPE		L	TIER BAR TYPE	W	Y	T	H	WEIGHT
LS2	A	970	T-2(2.0t)	200	35	4.5	38	3.66
	B	1270						4.73
	C	1570						5.80
	D	1870						6.87
LS3	A	970	T-3(2.0t)	300	35	4.5	38	4.19
	B	1270						5.39
	C	1570						6.59
	D	1870						7.79
LS4	A	970	T-4(2.0t)	400	35	4.5	38	4.71
	B	1270						6.05
	C	1570						7.38
	D	1870						8.71
LS5	A	970	T-5(2.0t)	500	35	4.5	38	5.24
	B	1270						6.71
	C	1570						8.17
	D	1870						9.64
LS6	A	970	T-6(2.0t)	600	35	4.5	38	5.77
	B	1270						7.37
	C	1570						8.96
	D	1870						10.56
LS7	A	970	T-7(2.0t)	700	35	4.5	38	6.30
	B	1270						8.03
	C	1570						9.75
	D	1870						11.48
LS8	A	970	T-8(2.0t)	800	35	4.5	38	6.82
	B	1270						8.68
	C	1570						10.55
	D	1870						12.41
LS9	A	970	T-9(3.2t)	900	35	4.5	38	10.20
	B	1270						12.90
	C	1570						15.61
	D	1870						18.31
LS10	A	970	T-10(3.2t)	1000	35	4.5	38	11.04
	B	1270						13.96
	C	1570						16.88
	D	1870						19.79
LS11	A	970	T-11(3.2t)	1100	35	4.5	38	11.89
	B	1270						15.02
	C	1570						18.14
	D	1870						21.27
LS12	A	970	T-12(3.2t)	1200	35	4.5	38	12.73
	B	1270						16.07
	C	1570						19.41
	D	1870						22.75

HANGER TYPE CABLE TRAY(LSR)

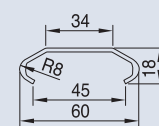


TYPE	SIZE								TIER BAR TYPE	WEIGHT	REMARK
	W	R	L1	L2	Y	T	H	X			
LSR2	200	300	541	855	35	4.5	38	30	T-2 (2.0t)	2.93	TYPE-1
LSR3	300	300	541	1012	35	4.5	38	30	T-3 (2.0t)	3.67	
LSR4	400	400	698	1326	35	4.5	38	22.5	T-4 (2.0t)	5.35	
LSR5	500	400	698	1483	35	4.5	38	22.5	T-5 (2.0t)	6.22	
LSR6	600	400	698	1640	35	4.5	38	18	T-6 (2.0t)	7.89	TYPE-2
LSR7	700	400	698	1797	35	4.5	38	18	T-7 (2.0t)	8.89	
LSR8	800	400	698	1954	35	4.5	38	15	T-8 (2.0t)	10.95	
LSR9	900	400	698	2111	35	4.5	38	15	T-9 (3.2t)	17.06	
LSR10	1000	400	698	2268	35	4.5	38	15	T-10 (3.2t)	18.75	
LSR11	1100	400	698	2425	35	4.5	38	15	T-11 (3.2t)	20.44	
LSR12	1200	400	698	2582	35	4.5	38	15	T-12 (3.2t)	22.13	

HANGER TYPE CABLE TRAY(SLS)

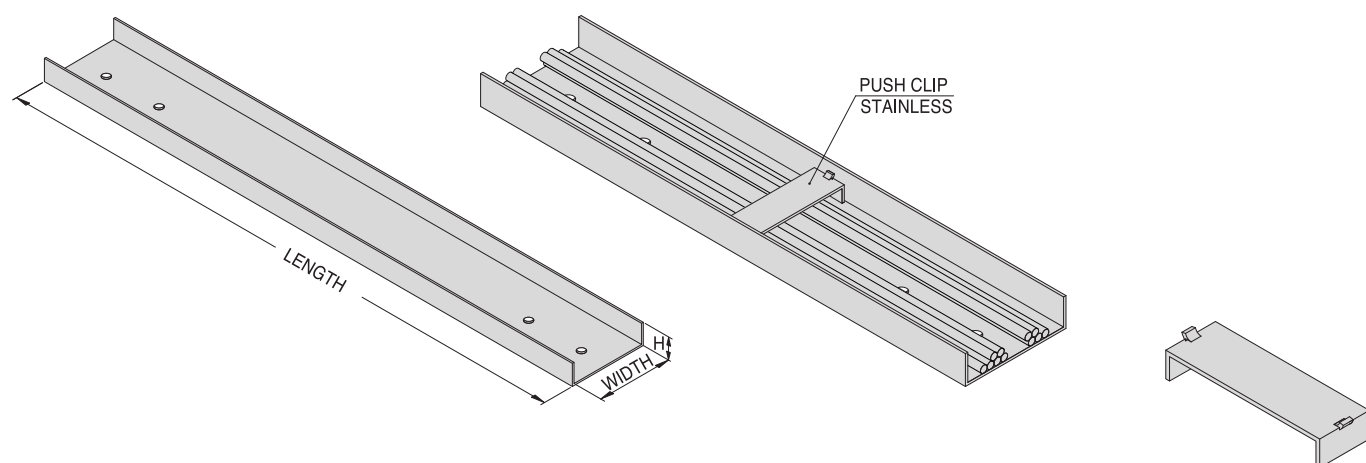


TIER BAR DETAIL



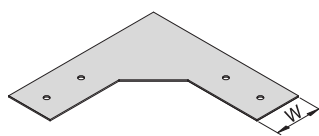
TYPE	SIZE					WEIGHT
	W	TIER BAR TYPE	L	T	Y	
SL-2	200	T-2 (2.0t)	70	4.5	38	0.45
SL-3	300	T-3 (2.0t)	70	4.5	38	0.59
SL-4	400	T-4 (2.0t)	70	4.5	38	0.72
SL-5	500	T-5 (2.0t)	70	4.5	38	0.85
SL-6	600	T-6 (2.0t)	70	4.5	38	0.98
SL-7	700	T-7 (2.0t)	70	4.5	38	1.11
SL-8	800	T-8 (2.0t)	70	4.5	38	1.25
SL-9	900	T-9 (3.2t)	70	4.5	38	2.09
SL-10	1000	T-10 (3.2t)	70	4.5	38	2.3
SL-11	1100	T-11 (3.2t)	70	4.5	38	2.51
SL-12	1200	T-12 (3.2t)	70	4.5	38	2.72

TUBING RACE WAY



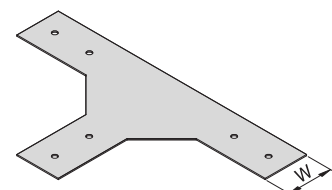
CATALOG NO.	WIDTH	H	LENGTH
TRW-0251930	25	19	3000
TRW-0381930	38	19	3000
TRW-0641930	64	19	3000
TRW-0861930	86	19	3000

CATALOG NO.	WIDTH
TRP-025	25
TRP-038	38
TRP-064	64
TRP-086	86



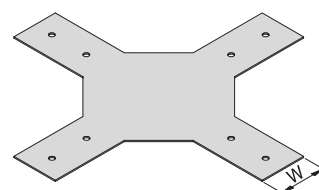
90° HORIZONTAL ELBOW

CATALOG NO.	WIDTH
TRE-025	25
TRE-038	38
TRE-064	64
TRE-086	86



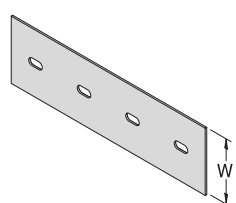
HORIZONTAL TEE

CATALOG NO.	WIDTH
TRT-025	25
TRT-038	38
TRT-064	64
TRT-086	86



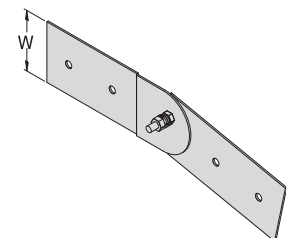
HORIZONTAL CROSS

CATALOG NO.	WIDTH
TRC-025	25
TRC-038	38
TRC-064	64
TRC-086	86



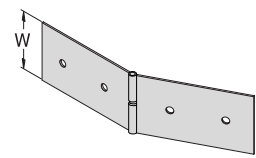
JOINT CONNECTOR

CATALOG NO.	W
TRJ-025	25
TRJ-038	38
TRJ-064	64
TRJ-086	86



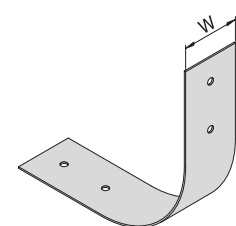
VERTICAL CONNECTOR

CATALOG NO.	W
TRV-025	25
TRV-038	38
TRV-064	64
TRV-086	86



HORIZONTAL CONNECTOR

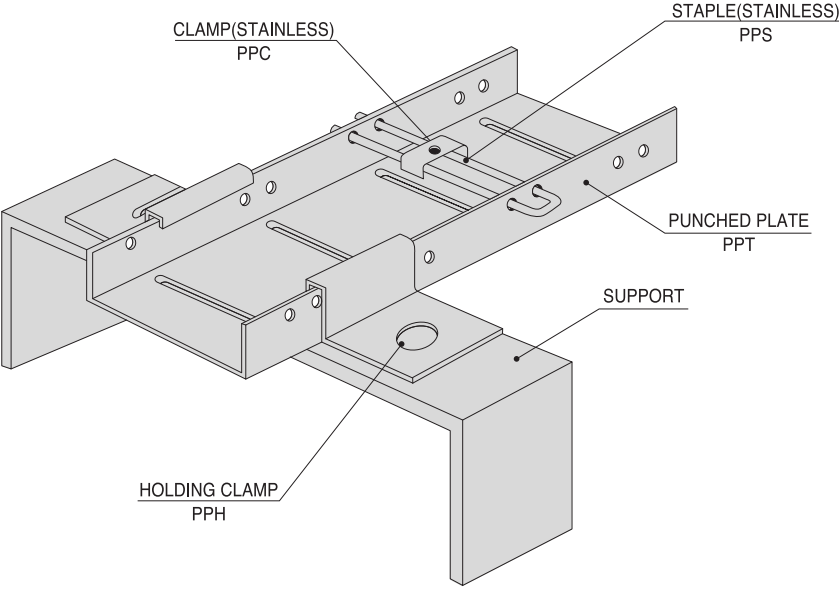
CATALOG NO.	W
TRH-025	25
TRH-038	38
TRH-064	64
TRH-086	86



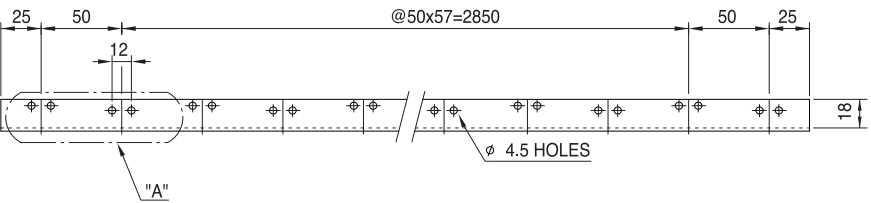
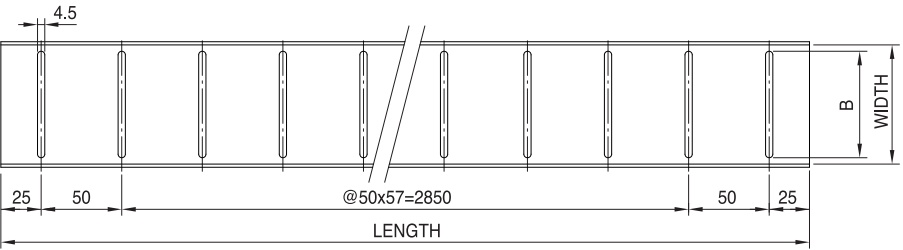
90° UNIVERSAL CONNECTOR

CATALOG NO.	W
TRU-025	25
TRU-038	38
TRU-064	64
TRU-086	86

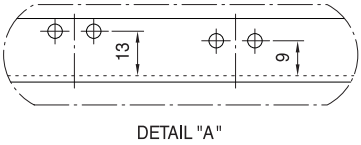
PUNCHED PLATE



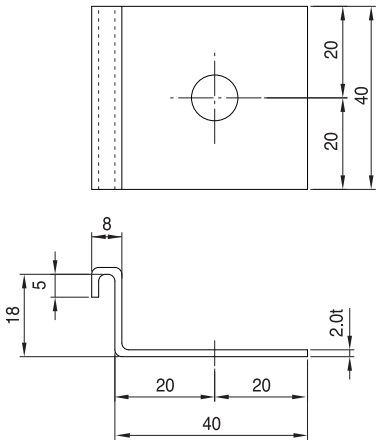
PUNCHED PLATE



CATALOG NO.	WIDTH	B	LENGTH
PPT-00330	35	27	3000
PPT-00530	50	42	3000
PPT-00730	70	62	3000
PPT-01030	100	92	3000



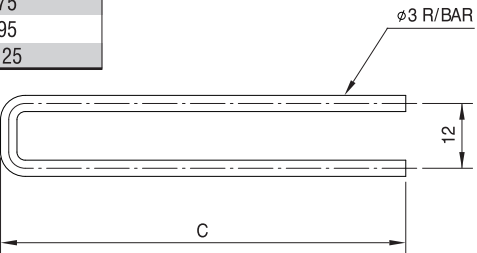
HOLDING CLAMP



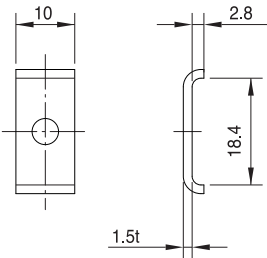
CATALOG NO.
PPH-4018

STAPLE

CATALOG NO.	C
PPS-003	60
PPS-005	75
PPS-007	95
PPS-010	125

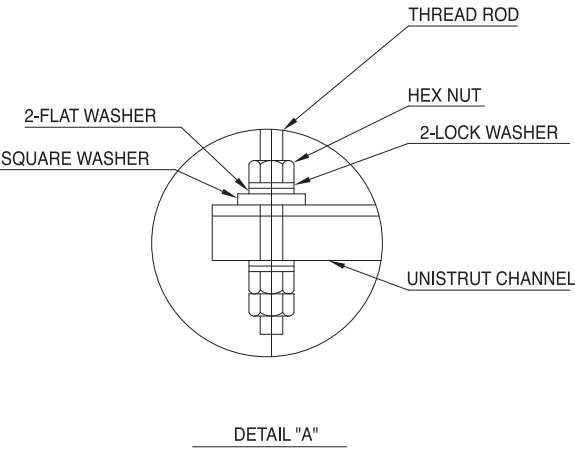
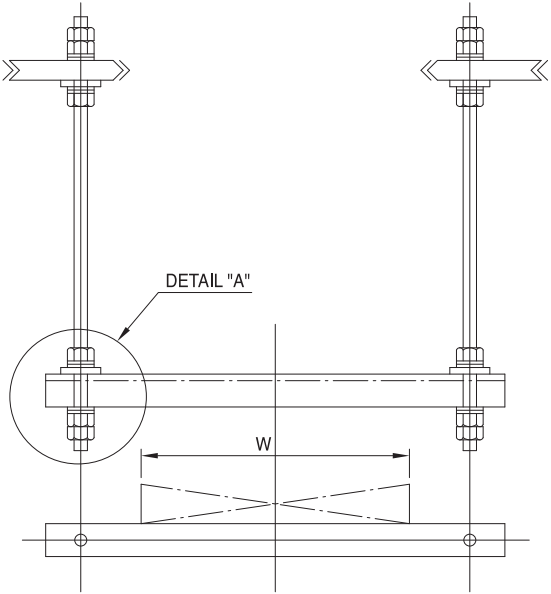
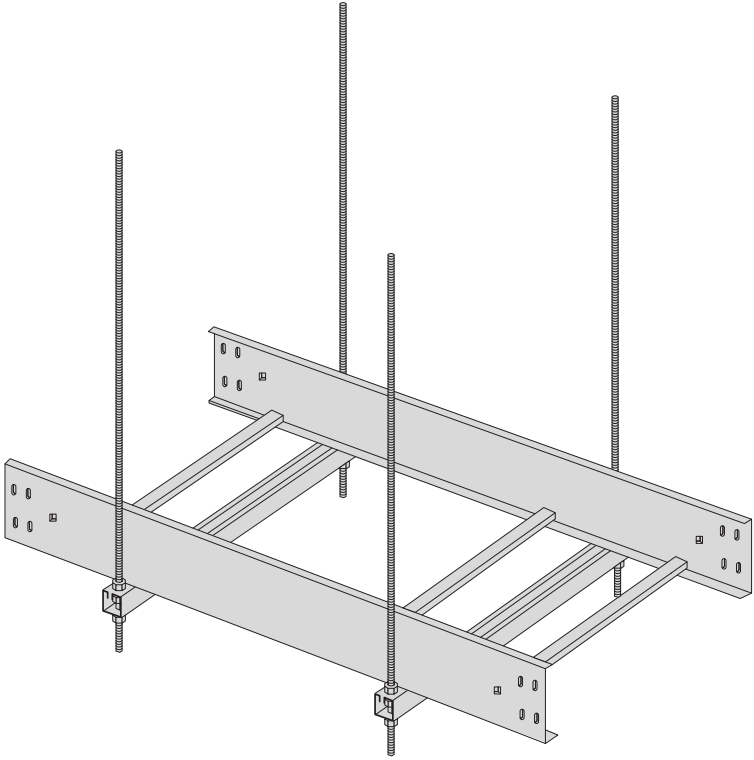


CLAMP



CATALOG NO.
PPC-1018

CEILING HANGER



METAL FRAMING SYSTEMS

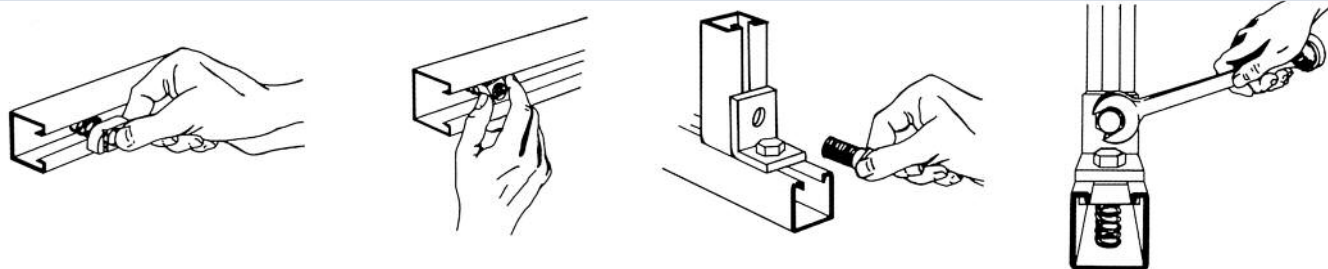


LOCK FOR THESE FEATURES :

- Large chamfer in nut eases starting of bolt.
- Special shaped clamping ridges and tapered, serrated grooves produce strong vise-like grip between channel and nut.
- Channel and nut are aligned since the special shaped clamping ridges and the nut's tapered grooves act as guides.
- Nut grooves grip clamping ridges tying channel sides together as bolt is tightened
- Longitudinal movement of nut is resisted as hardened teeth dig into the clamping ridges.
- Spring holds nut in places-the workman's "third hand"

The UNISTRUT connection

strong, fast, economical, adjustable for all framing uses and standardizing all joints.



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

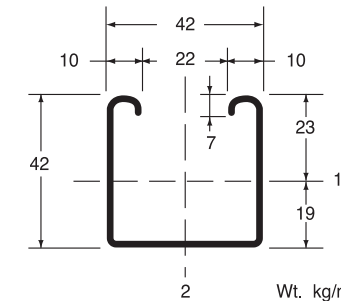
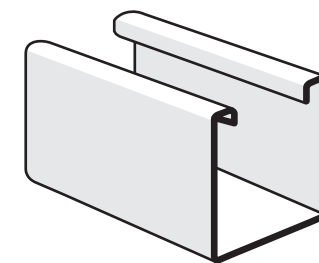
A 90 degree turn positions the serrated grooves in the nut with the clamping ridges of the channels.

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

Tightening by a wrench, locks the serrated teeth of the nut into the clamping ridge of the channel to make the strong vise like connection.

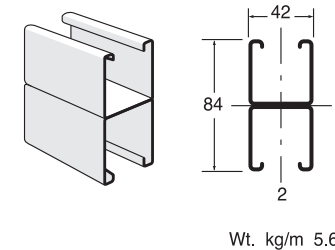
1000 CHANNEL & COMBINATIONS

SH 1000

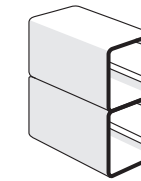


SH 1000 channel and combinations are roll formed from 12 gauge(2.6t) strip steel. Standard lengths 3M and 6M.

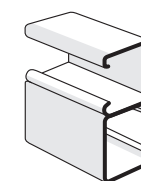
SH 1001



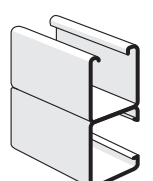
SH 1001 A



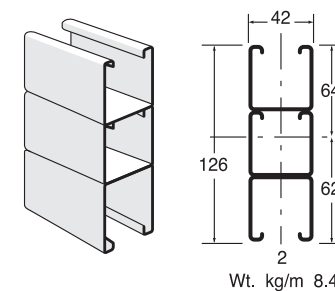
SH 1001 B



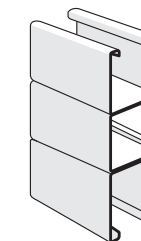
SH 1001 C



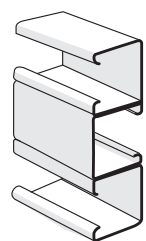
SH 1002



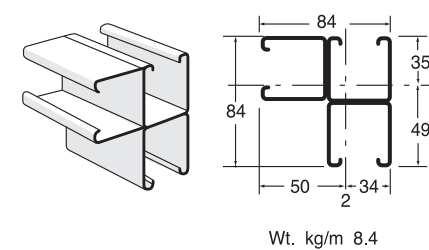
SH 1002 A



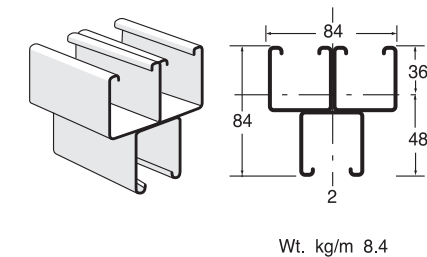
SH 1002 B



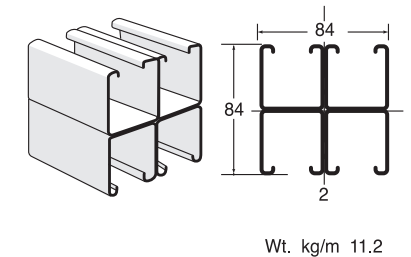
SH 1003



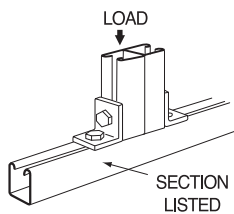
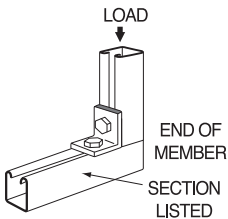
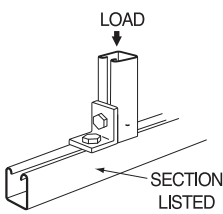
SH 1003 A



SH 1003 B



ENGINEERING DATA-42MM CHANNEL & COMBINATIONS



SECTION	RECOMMENDED LOAD IN kg
SH 1000	2267
SH 3300	2721

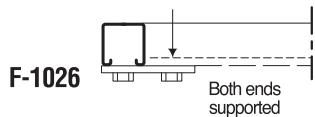
SECTION	RECOMMENDED LOAD IN kg
SH 1000	1587
SH 3300	1814

SECTION	RECOMMENDED LOAD IN kg
SH 1000	3628
SH 3300	4082

DESIGN LOAD DATA FOR TYPICAL “UNISTRUT” CHANNEL CONNECTIONS

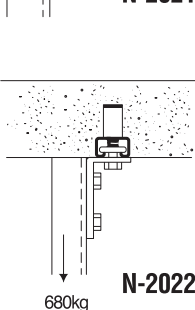
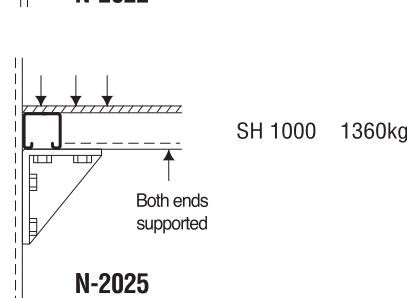
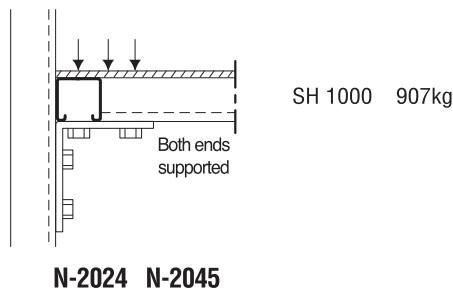
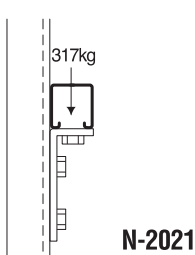
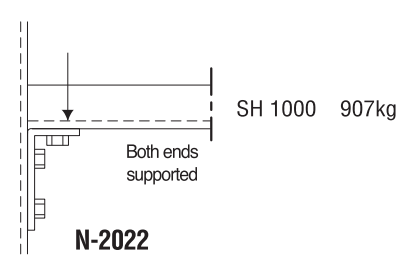
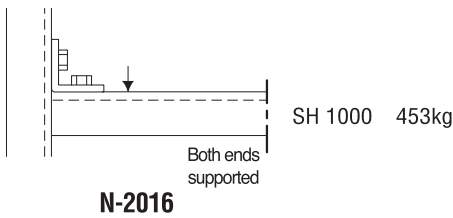
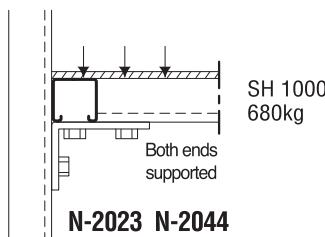
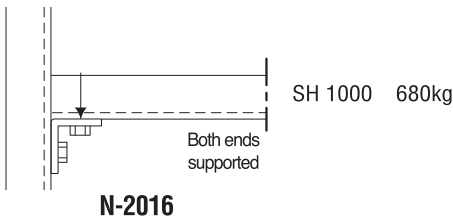
Safety factor = 2½ based on ultimate strength of connection
Load diagrams indicate up to three design loads, on for 12 gauge sections(listed as SH 1000)

FLAT PLATE FITTINGS



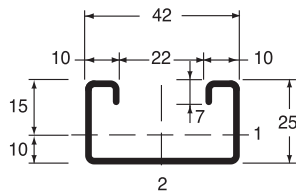
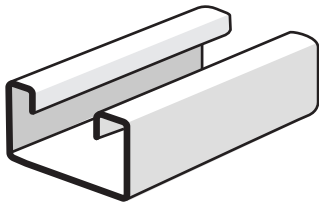
SECTION	RECOMMENDED LOAD IN kg
SH 1000	453

NINETY DEGREE FITTINGS (when used in positon shown)



3300 CHANNEL & COMBINATIONS

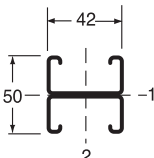
SH 3300



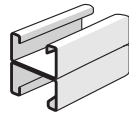
SH 3300 channel and combinations are roll formed from 12 gauge(2.6t) strip steel.
Standard lengths 3M and 6M.

Wt. kg/m 2.0

SH 3301



Wt. kg/m 4.0



BEAM LOADS :

Allowable uniformly distributed loads are listed for various simple spans, that is, beam on two supports. If load is concentrated at center of span, multiply load from table by 0.5 and corresponding deflection by 0.8.

Stress 1757kg/cm² ——— Recommended for use where deflection is not a factor on long spans.
Deflection 1/240 span — Recommended for use when deflection is a factor.

COLUMN LOADS :

Column loadings are for allowable axial loads for the unsupported heights listed and include a k value of 0.80.
If loads are eccentric, loads should be reduced according to standard practice.

BEAM AND COLUMN DATA : NOTE : “Long span deep beams should be supported in a manner to prevent rotation at supports and tied between supports to prevent twist.”

BEAM SPAN OR COLUMN UNSUPPORTED HEIGHT(mm)	SECTION NUMBER	UNIFORM LOAD AT 1757kg/cm² STRESS	DEFLECTION AT 1757kg/cm² STRESS	UNIFORM LOAD @ MAX DEFLECTION = 1/240 SPAN	MAX LOADING OF COLUMN(kg)
609	SH 3300	45	.10	-	3565
	SH 3301	121	.06	-	7961
762	SH 3300	36	.14	191	3207
	SH 3301	96	.09	-	7571
914	SH 3300	30	.21	132	2808
	SH 3301	81	.13	-	7140
1066	SH 3300	25	.29	95	2363
	SH 3301	68	.17	-	6668
1218	SH 3300	22	.38	73	1878
	SH 3301	60	.23	340	6164
1524	SH 3300	18	.59	45	1202
	SH 3301	48	.34	227	5044
1828	SH 3300	15	.85	32	835
	SH 3301	40	.51	154	3769
2132	SH 3300	-	-	-	-
	SH 3301	34	.70	109	2767
2436	SH 3300	-	-	-	-
	SH 3301	30	.92	86	2118
3048	SH 3300	-	-	-	-
	SH 3301	24	1.62	45	-

ELEMENTS OF SECTION :

Part No.	Wt./M. (kg)	Area of Section Sq. (cm)	Axis 1-1			Axis 2-2		
			I cm⁴	S cm³	r cm	I cm⁴	S cm³	r cm
SH 3300	2.6	2.56	1.665	1.278	0.868	6.149	2.966	1.547
SH 3301	4.0	-	7.534	3.392	1.214	12.237	5.932	1.547

*I-Moment of Inertia S-Section Modulus r-Radius of Gyration

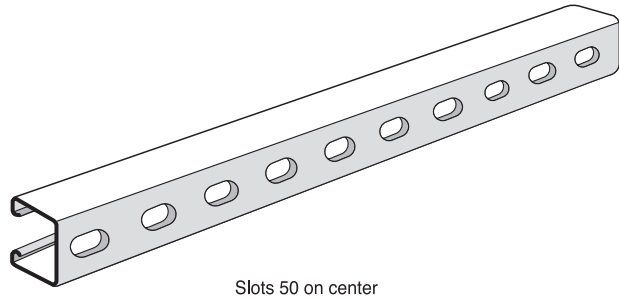
Strength of SH 4010 Nuts used in Sh 3300 :

Resistance to Slip ——— 680kg per bolt
Pull Out Strength ——— 680kg per bolt

Minimum Safety Factor of 3

CHANNEL STYLES

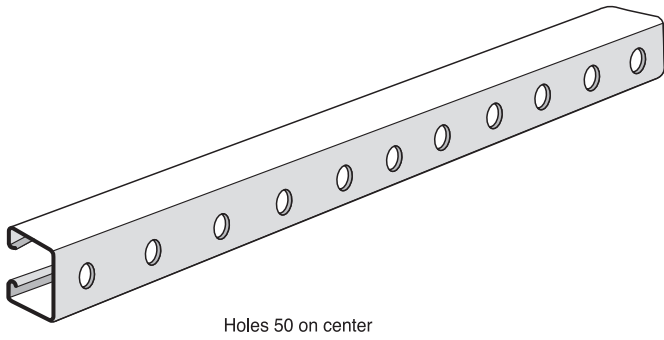
SOLT HOLE TYPE



Part No.	SOLT SIZE	SECTION DIMENSION	MATERIAL THICKNESS(mm)	Wt. kg/m
SH 1000 HS-1	Ø7 x 16	42 x 42	2.6	2.8
SH 1000 HS-2	Ø11 x 20	42 x 42	2.6	2.8
SH 1000 HS-3	Ø12 x 37	42 x 42	2.6	2.8
SH 1000 HS-4	Ø14 x 28	42 x 42	2.6	2.8
SH 1000 HS-5	Ø18 x 30	42 x 42	2.6	2.8
SH 3300 HS-1	Ø7 x 16	42 x 25	2.6	2.0
SH 3300 HS-2	Ø11 x 20	42 x 25	2.6	2.0
SH 3300 HS-3	Ø12 x 37	42 x 25	2.6	2.0
SH 3300 HS-4	Ø14 x 28	42 x 25	2.6	2.0
SH 3300 HS-5	Ø18 x 30	42 x 25	2.6	2.0

Standard length - 3M and 6M
SH1000 HS-3 & SH 3300 HS-3 : Slots 70 on Center

HOLES TYPE

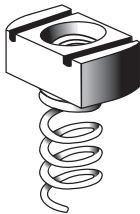


Part No.	HOLE SIZE	SECTION DIMENSION	MATERIAL THICKNESS(mm)	Wt. kg/m
SH 1000 T	18	42 x 42	2.6	2.8
SH 3300 T	18	42 x 25	2.6	2.0

Standard length - 3M and 6M

CHANNEL NUTS

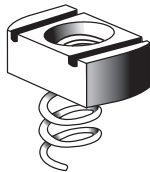
CHANNEL NUTS for SH 1000



WITH SPRING

Part No.	SIZE	THREAD
SH 1006-0832	#8	32
SH 1006-1024	#10	24
SH 1006-1420	1/4"	20
SH 1007	5/16"	18
SH 1008	3/8"	16
SH 1009	7/16"	14
SH 1010	1/2"	13
SH 1012S	5/8"	11
SH 1023S	3/4"	10
SH 1024S	7/8"	9

CHANNEL NUTS for SH 3300

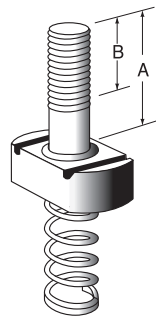


WITH SPRING

Part No.	SIZE	THREAD
SH 4006-0832	#8	32
SH 4006-1024	#10	24
SH 4006-1420	1/4"	20
SH 4007	5/16"	18
SH 4008	3/8"	16
SH 4009	7/16"	14
SH 4010	1/2"	13
SH 4012S	5/8"	11
SH 4023S	3/4"	10

STUD NUTS

SH 2378-1 thru SH 2382-3



NOTE : GROOVES
SERRATED

1/4" - 20 NUTS

Part No.	"A" STUD LGTH	"B" THD LGTH
SH 2378-1	7/8"	3/4"
SH 2378-2	1 1/8"	7/8"
SH 2378-3	1 3/8"	1 1/8"

5/16" - 18 NUTS

Part No.	"A" STUD LGTH	"B" THD LGTH
SH 2379-1	7/8"	3/4"
SH 2379-2	1 1/8"	7/8"
SH 2379-3	1 3/8"	1 1/8"

3/8" - 16 NUTS

Part No.	"A" STUD LGTH	"B" THD LGTH
SH 2380-1	7/8"	3/4"
SH 2380-2	1 1/8"	7/8"
SH 2380-3	1 3/8"	1 1/8"
SH 2380-4	1 5/8"	1 3/8"
SH 2380-5	1 7/8"	1 5/8"
SH 2380-6	2 1/8"	1 7/8"

1/2" - 13 NUTS

Part No.	"A" STUD LGTH	"B" THD LGTH
SH 2381-2	7/8"	1/2"
SH 2381-3	1 1/8"	3/4"
SH 2381-4	1 3/8"	1"
SH 2381-5	1 5/8"	1 1/4"
SH 2381-6	1 7/8"	1 1/2"
SH 2381-7	2 1/8"	1 3/4"

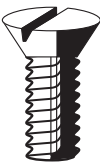
5/8" - 11 NUTS

Part No.	"A" STUD LGTH	"B" THD LGTH
SH 2382-2	1 1/8"	7/8"
SH 2382-3	1 3/8"	7/8"

Special stud lengths and thread lengths can be supplied upon request.
UNISTRUT stud nuts with spring to be used in SH 1000 channels.

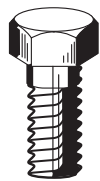
STANDARD SCREWS

FLAT HEAD MACH. SCREWS



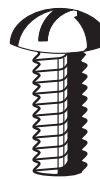
PART NUMBER	SIZES
HFMS025062EG	M6 × 15mm
HFMS031100EG	M8 × 25mm
HFMS050100EG	M12 × 25mm

HEX HEAD CAP SCREWS



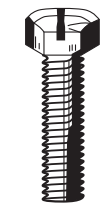
PART NUMBER	SIZES	PART NUMBER	SIZES
HHCS025044EG	M6 × 11mm	HHCS037200EG	M10 × 50mm
HHCS025075EG	M6 × 19mm	HHCS037225EG	M10 × 57mm
HHCS025150EG	M6 × 37mm	HHCS037250EG	M10 × 62mm
HHCS031125EG	M8 × 31mm	HHCS050094EG	M12 × 23mm
HHCS037075EG	M10 × 19mm	HHCS050119EG	M12 × 30mm
HHCS037087EG	M10 × 22mm	HHCS050150EG	M12 × 37mm
HHCS037100EG	M10 × 25mm	HHCS050175EG	M12 × 42mm
HHCS037125EG	M10 × 31mm	HHCS050200EG	M12 × 50mm
HHCS037150EG	M10 × 37mm	HHCS050225EG	M12 × 57mm
		HHCS050250EG	M12 × 62mm

ROUND HEAD MACH. SCREWS



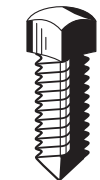
PART NUMBER	SIZES	PART NUMBER	SIZES
HRMS025050EG	M6 × 12mm	HRMS037100EG	M10 × 25mm
HRMS025075EG	M6 × 17mm		
HRMS025100EG	M6 × 25mm	HRMS037125EG	M10 × 31mm
HRMS031100EG	M8 × 25mm		
HRMS031125EG	M8 × 31mm	HRMS037150EG	M10 × 37mm

HEX SLOTTED MACH. SCREWS



PART NUMBER	SIZES
HSMS025050EG	M6 × 12mm
HSMS025062EG	M6 × 15mm
HSMS025075EG	M6 × 19mm
HSMS031100EG	M8 × 25mm
HSMS031125EG	M8 × 31mm
HSMS031150EG	M8 × 37mm
HSMS037125EG	M10 × 31mm

CONE POINT SET SCREWS



PART NUMBER	SIZES	PART NUMBER	SIZES
HCSS025100EG	M6 × 25mm	HCSS050150EG	M12 × 37mm
HCSS031150EG	M8 × 37mm	HCSS050200EG	M12 × 50mm
HCSS037150EG	M10 × 37mm	HCSS062150EG	M16 × 37mm
HCSS037200EG	M10 × 50mm	HCSS062200EG	M16 × 50mm

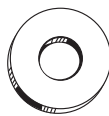
STANDARD SCREWS, NUTS AND WASHERS

HEXAGON NUTS



PART NUMBER	SIZES
HHXN025EG	M6
HHXN031EG	M8
HHXN037EG	M10
HHXN050EG	M12
HHXN062EG	M16

FLAT WASHERS



PART NUMBER	SIZES	PART NUMBER	SIZES
HFLW025EG	M6	HFLW050EG	M12
HFLW031EG	M8	HFLW062EG	M16
HFLW037EG	M10	HFLW075EG	M20

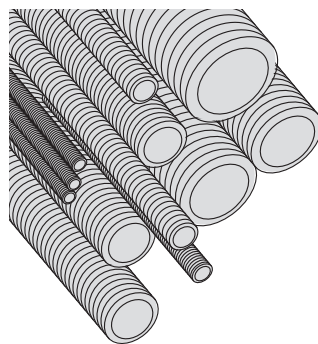
LOCK WASHERS



PART NUMBER	SIZES	PART NUMBER	SIZES
HLKW025EG	M6	HLKW050EG	M12
HLKW031EG	M8	HLKW062EG	M16
HLKW037EG	M10	HLKW075EG	M20

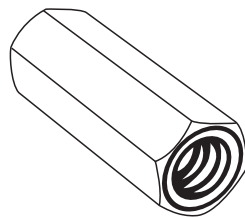
THREADED ROD - COUPLER NUTS

STEEL THREADED ROD



PART NUMBER	SIZE	THREAD PER 25.4mm
HTHR010	#10	24
HTHR011	#10	32
HTHR025	M6	20
HTHR031	M8	18
HTHR037	M10	16
HTHR044	M12	14
HTHR050	1/2"	13
HTHR062	5/8"	11
HTHR075	3/4"	10
HTHR087	7/8"	9
HTHR100	1"	8

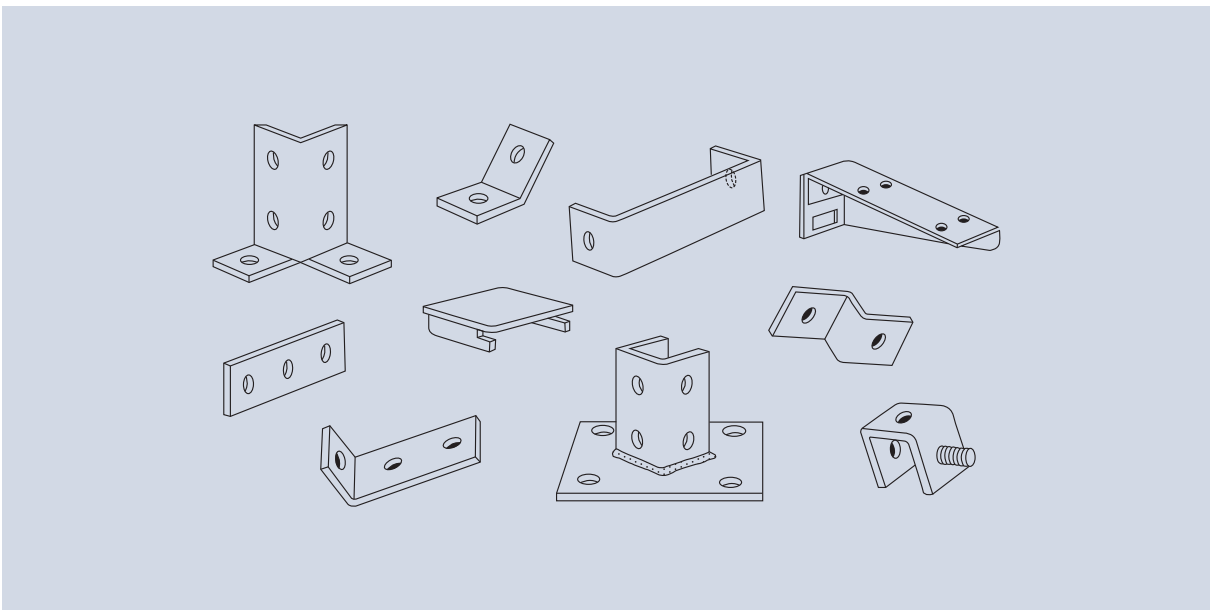
STEEL COUPER NUTS



PART NUMBER	SIZE	THREAD PER 25.4mm
HRCN025	1/4"	20
HRCN031	5/16"	18
HRCN037	3/8"	16
HRCN044	7/16"	14
HRCN050	1/2"	13
HRCN062	5/8"	11
HRCN075	3/4"	10
HRCN087	7/8"	9
HRCN100	1"	8

CHANNEL WIDTH SERIES

UNISTRUT General Fittings



MATERIAL

Unless otherwise noted, all UNISTRUT fittings are punch press formed from hot rolled pickled and oiled plate or strip steel.

STANDARD DIMENSIONS

The following dimensions apply to all fittings except as noted on the part drawings :
Hole size 12mm diameter Fitting width 42mm
Hole spacing 20mm form end of fitting Fitting 6.0mm
48mm center to center

FITTING APPLICATION

All parts drawings illustrate only one application of each fitting. In most cases many other applications are possible. The UNISTRUT members shown in the illustrations are SH 1000, 41mm square, except where noted otherwise. All 14mm diameter holes use 1/2" x 13 hex head cap screws and 1/2" UNISTRUT nuts-SH 1010, SH 4010 depending on the UNISTRUT channel used. Nuts and bolts are not included with the fitting and must be ordered separately.

DESIGN LOAD DATA

Design load data, where shown, is based on the ultimate strength of the connection with a safety factor of 2 1/2

DESIGN BOLT TORQUE

Bolt size	1/4"-20	5/16"-18	3/8"-16	1/2"-13
poot-pounds	6	11	19	50

FINISHES

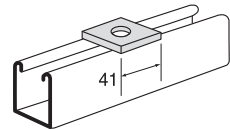
All fittings in this section are available in plain, PERMA-GREEN, or hot dipped galvanized finish

METRIC CONVERSIONS

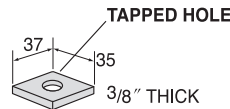
To convert engineering data to Metric Equivalents see reference table.

FLAT PLATE FITTINGS

SQUARE WASHER



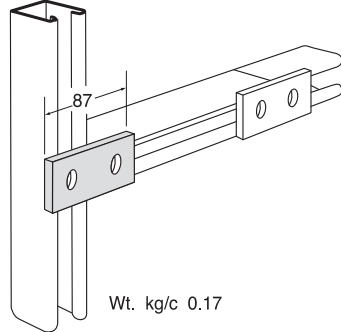
Part No.	BOLT SIZE	HOLE SIZE(mm)	Wt. kg/c
F 1011	5/16"	8.7	8.2
F 1012	3/8"	11.1	8.2
F 1013	1/2"	14.2	7.7
F 1014	5/8"	17.4	7.2
F 1015	3/4"	20.6	6.8
F 1016	7/8"	23.8	6.3



Part No.	U.S. STD THD. SIZE
F 1017	M10-16
F 1018	M12-13
F 1019	M16-11

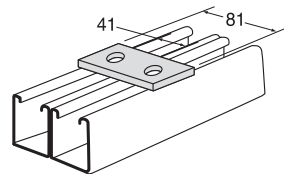
2-HOLE SPLICE PLATE

Part No. F-1023



Wt. kg/c 0.17

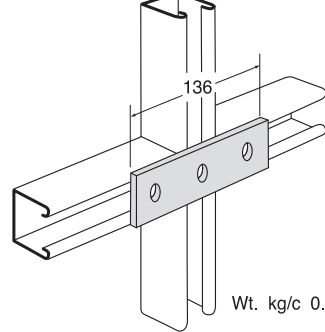
Part No. F-1024



Wt. kg/c 0.15

3-HOLE SPLICE PLATE

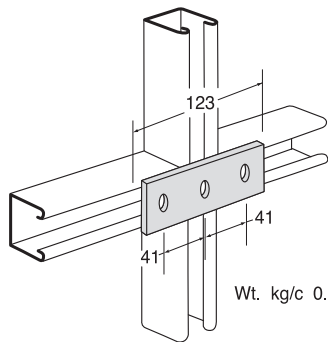
Part No. F-1025



Wt. kg/c 0.26

3-HOLE SPLICE PLACE

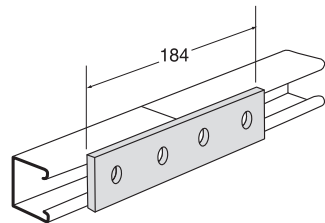
Part No. F-1026



Wt. kg/c 0.22

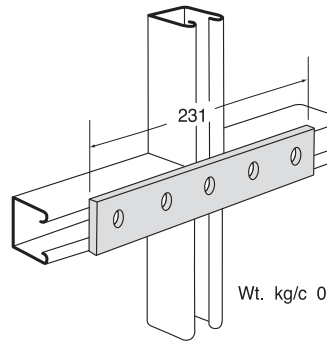
4-HOLE SPLICE PLACE

Part No. F-1027



Wt. kg/c 0.35

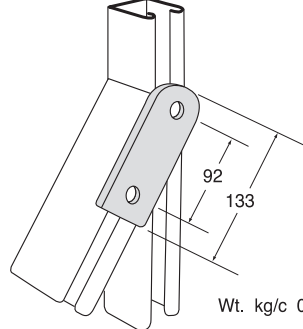
Part No. F-1028



Wt. kg/c 0.42

2-HOLE SWIVEL PLATE

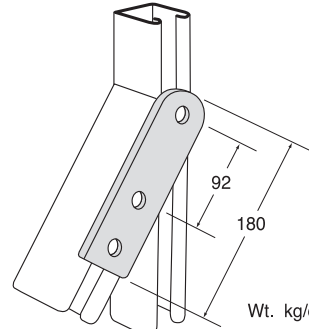
Part No. F-1029



Wt. kg/c 0.25

3-HOLE SWIVEL PLATE

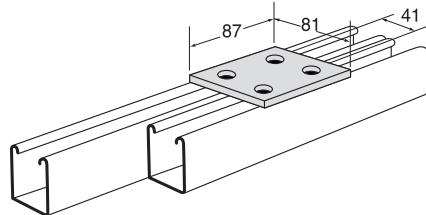
Part No. F-1030



Wt. kg/c 0.34

4-HOLE SPLICE PLATE

Part No. F-1031



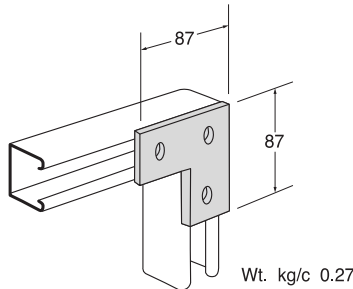
Wt. kg/c 0.33

FLAT PLATE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

3-HOLE ANGLE PLATE

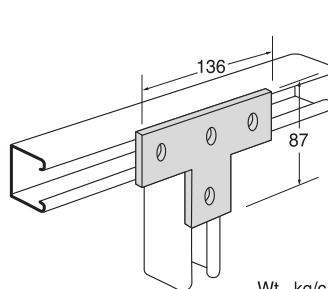
Part No. F-1032



Wt. kg/c 0.27

TEE PLATE

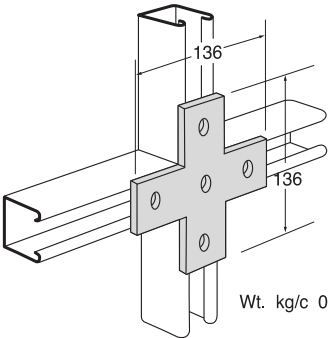
Part No. F-1033



Wt. kg/c 0.36

CROSS PLATE

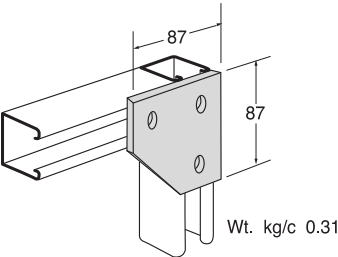
Part No. F-1034



Wt. kg/c 0.47

3-HOLE CORNER CONN

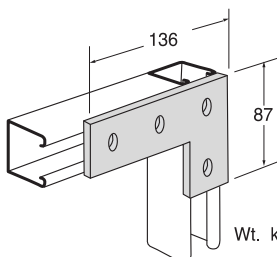
Part No. F-1035



Wt. kg/c 0.31

4-HOLE ANGLE CONN

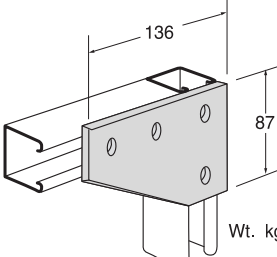
Part No. F-1036



Wt. kg/c 0.36

4-HOLE CORNER CONN

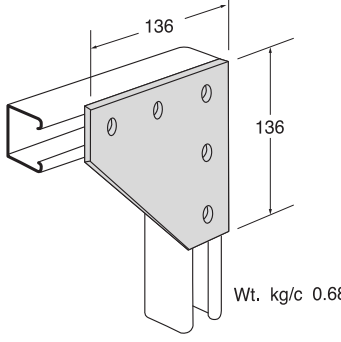
Part No. F-1037



Wt. kg/c 0.47

5-HOLE CORNER CONN

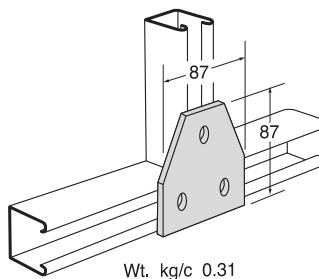
Part No. F-1038



Wt. kg/c 0.68

3-HOLE SYMMETRICAL PLATE

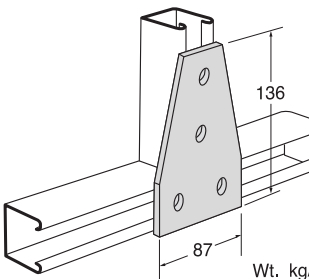
Part No. F-1039



Wt. kg/c 0.31

4-HOLE SYMMETRICAL PLATE

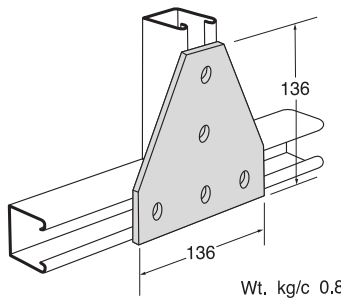
Part No. F-1040



Wt. kg/c 0.47

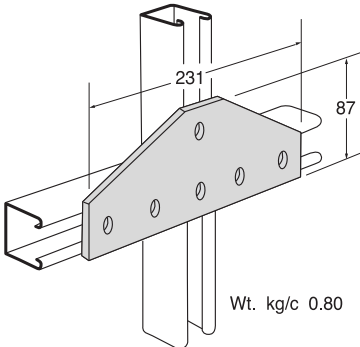
SYMMETRICAL PLATE (5-HOLE, 6-HOLE & 7-HOLE)

Part No. F-1041



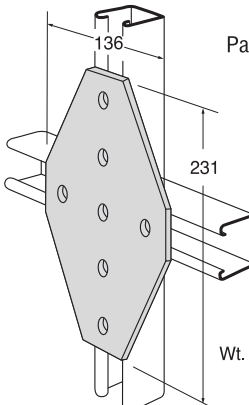
Wt. kg/c 0.87

Part No. F-1042



Wt. kg/c 0.80

Part No. F-1043

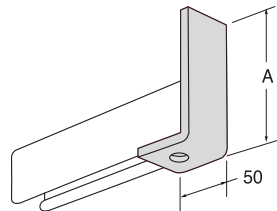


Wt. kg/c 1.08

NINETY DEGREE ANGLE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

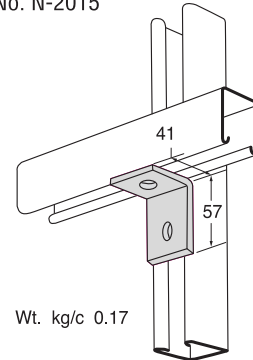
1-HOLE CORNER CONN



Part No.	A	Wt. kg/c
N-2011	100	0.27
N-2012	150	0.38
N-2013	200	0.49
N-2014	250	0.59

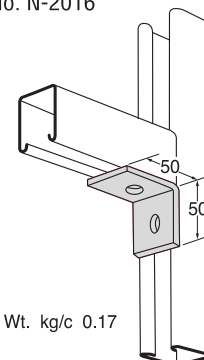
2-HOLE ANGLE CONN

Part No. N-2015



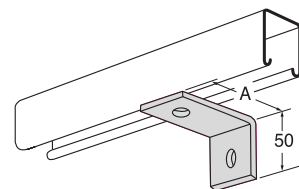
Wt. kg/c 0.17

Part No. N-2016



Wt. kg/c 0.17

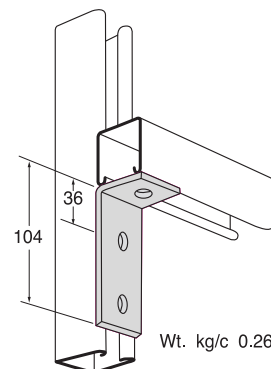
2-HOLE ANGLE CONN



Part No.	A	Wt. kg/c
N-2018	75	0.22
N-2019	90	0.24
N-2020	100	0.27

3-HOLE CORNER CONN

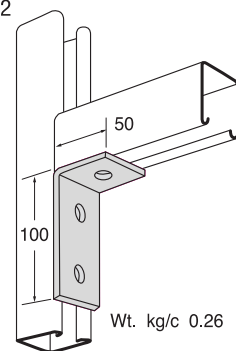
Part No. N-2021



Wt. kg/c 0.26

3-HOLE CORNER CONN

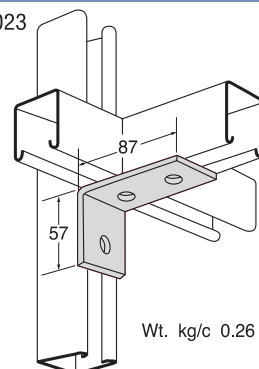
Part No. N-2022



Wt. kg/c 0.26

3-HOLE ANGLE FITTING

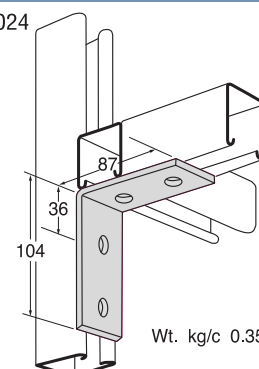
Part No. N-2023



Wt. kg/c 0.26

4-HOLE ANGLE FITTING

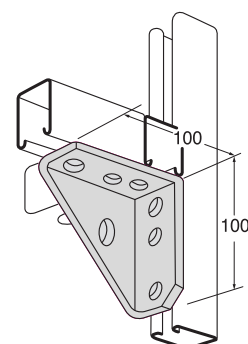
Part No. N-2024



Wt. kg/c 0.35

GUSSETED CORNER CONN

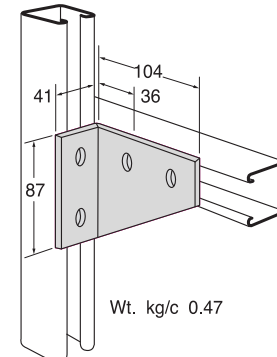
Part No. N-2025



Wt. kg/c 0.60

4-HOLE 90° OFFSET ANGLE

Part No. N-2026



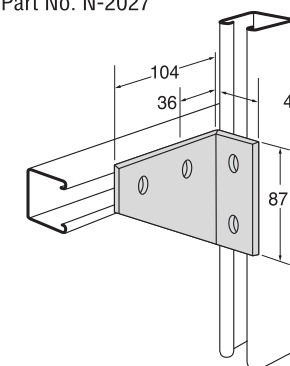
Wt. kg/c 0.47

NINETY DEGREE ANGLE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

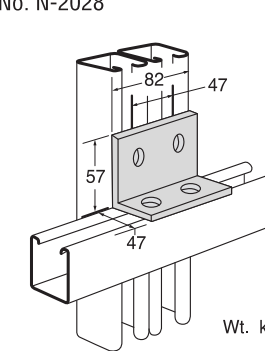
ANGLE TEE CONN

Part No. N-2027



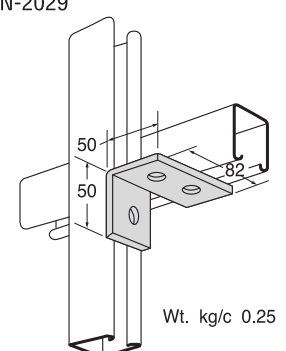
Wt. kg/c 0.47

Part No. N-2028



Wt. kg/c 0.34

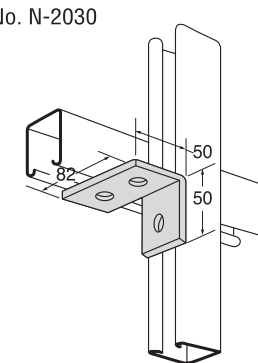
Part No. N-2029



Wt. kg/c 0.25

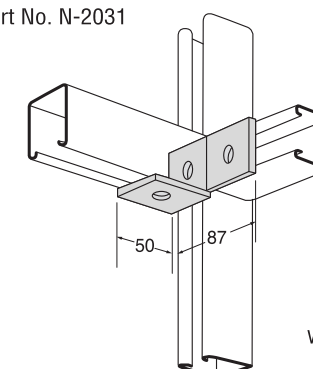
ANGLE TEE CONN

Part No. N-2030



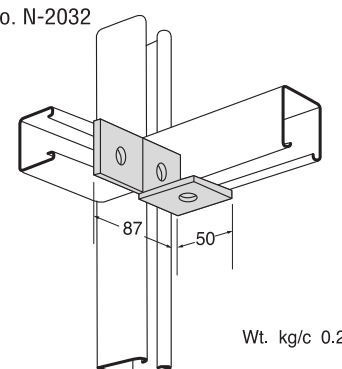
Wt. kg/c 0.25

Part No. N-2031



Wt. kg/c 0.26

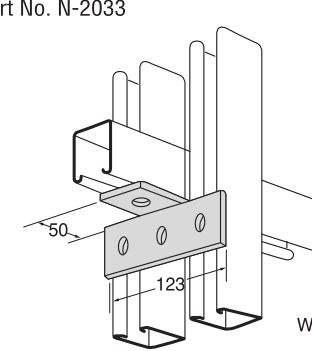
Part No. N-2032



Wt. kg/c 0.26

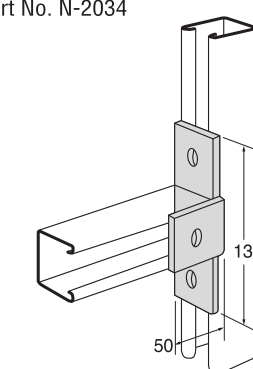
ANGLE TEE CONN

Part No. N-2033



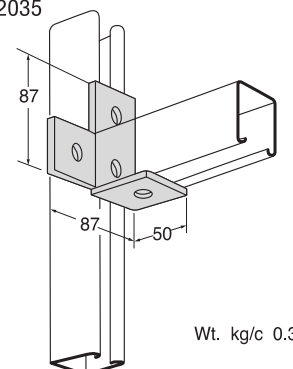
Wt. kg/c 0.32

Part No. N-2034



Wt. kg/c 0.36

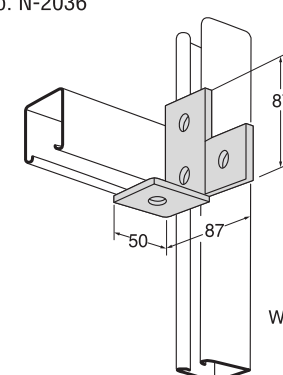
Part No. N-2035



Wt. kg/c 0.36

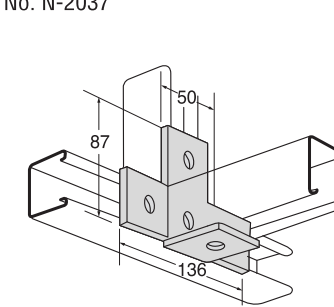
ANGLE TEE CONN

Part No. N-2036



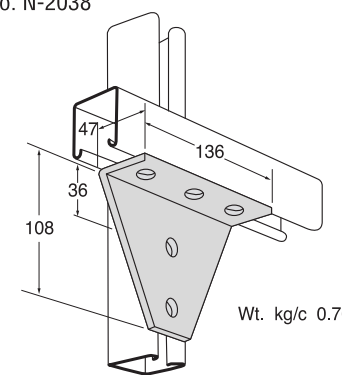
Wt. kg/c 0.36

Part No. N-2037



Wt. kg/c 0.47

Part No. N-2038



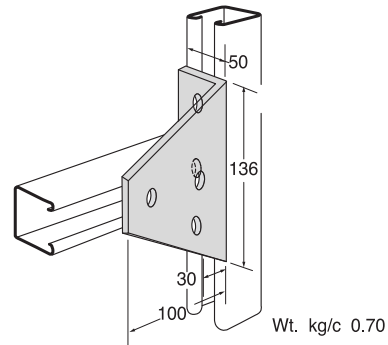
Wt. kg/c 0.70

NINETY DEGREE ANGLE FITTINGS

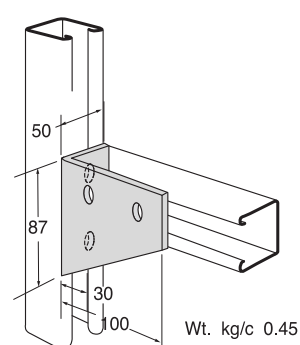
GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

ANGLE TEE 90°

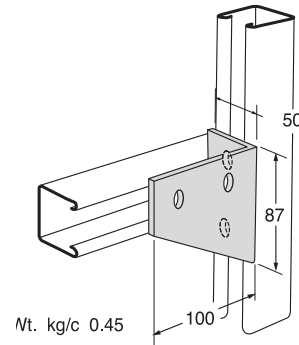
Part No. N-2039



Part No. N-2040

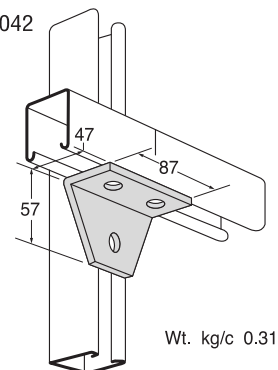


Part No. N-2041



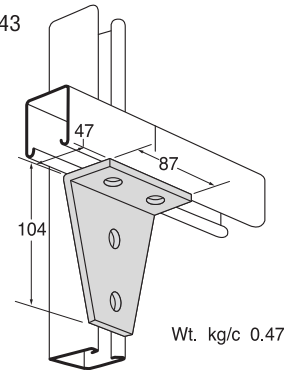
ANGLE TEE 90°

Part No. N-2042

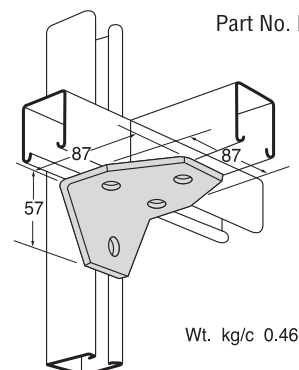


4-HOLE 90° OFFSET ANGLE

Part No. N-2043

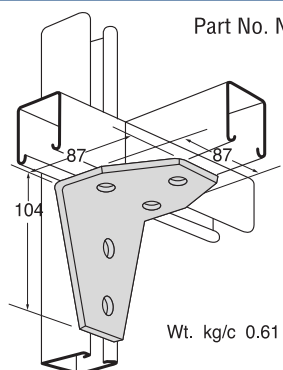


Part No. N-2044



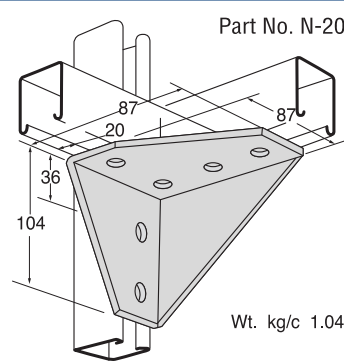
5-HOLE DUPLEX CORNETR ANGLE

Part No. N-2045

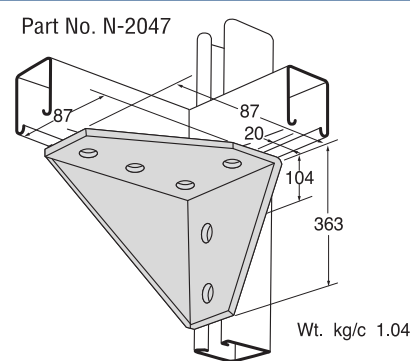


GUSSETED CORNETR CONN

Part No. N-2046

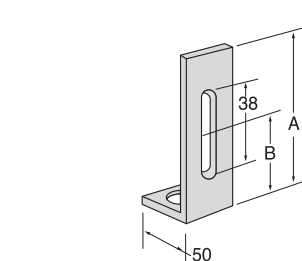
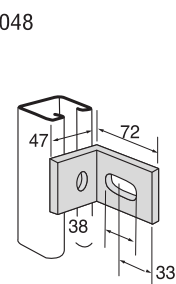


Part No. N-2047



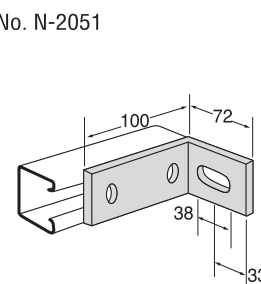
ADJUSTMENT ANGLE

Part No. N-2048



Part No.	A	B	Wt. kg/c
N-2049	125	63	0.29
N-2050	175	114	1.38

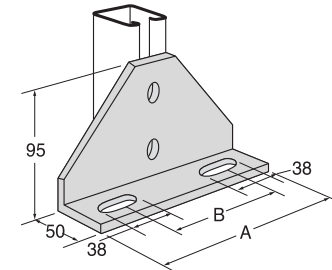
Part No. N-2051



ANGULAR FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

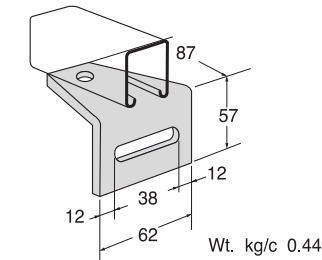
ADJ. DOUBLE STRUT SUPPORT



Part No.	A	B	Wt. kg/c
N-2052	168	101	0.86
N-2053	219	152	1.10

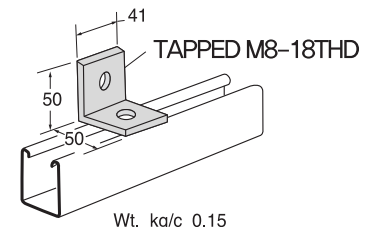
SLOTTED ANGLE CONN

Part No. N-2054



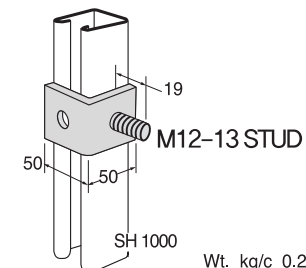
90° ANGLE CONN

Part No. N-2055



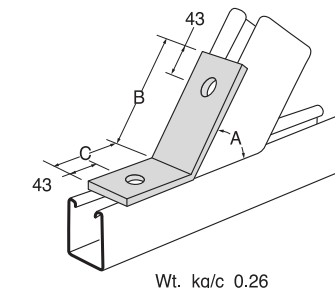
90° ANGLE CONN

Part No. N-2056



2-HOLE ANGLE CONN

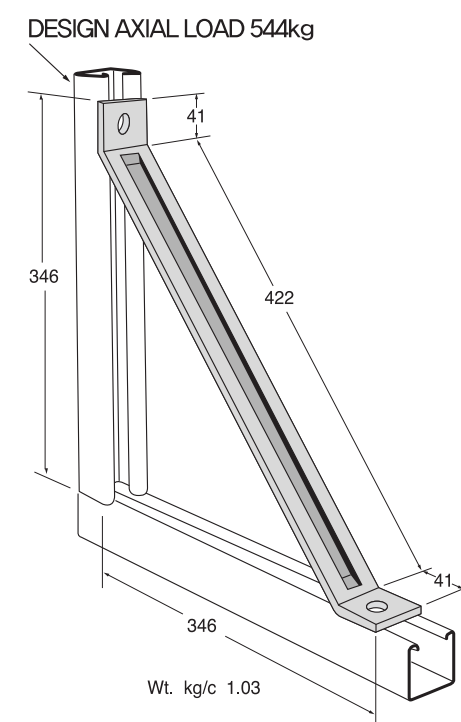
Part No. N-2057



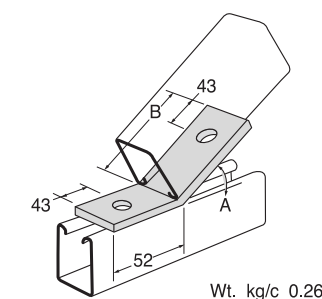
Part No.	A	B (mm)	C (mm)
N-2058	82½°	90	43
N-2059	75°	90	43
N-2060	67½°	89	44
N-2061	60°	85	50
N-2062	52½°	87	52
N-2063	45°	76	58
N-2064	37½°	89	71
N-2065	37½°	68	66

KNEE BRACE

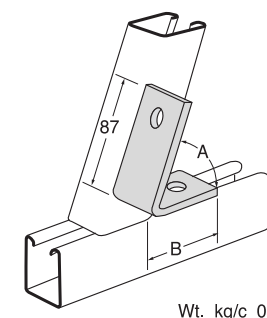
Part No. N-2066



ANGULAR FITTING



Part No.	A	B (mm)
N-2067	30°	87
N-2068	22½°	84
N-2069	15°	84
N-2070	7½°	84



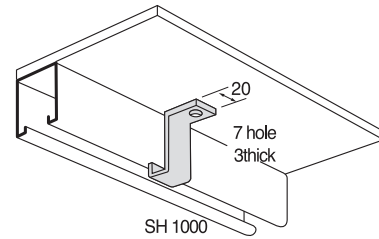
Part No.	A	B (mm)
N-2071	82½°	65
N-2072	75°	66
N-2073	67½°	68
N-2074	60°	70
N-2075	52½°	73
N-2076	45°	77
N-2078	37½°	81

“Z” SHAPE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

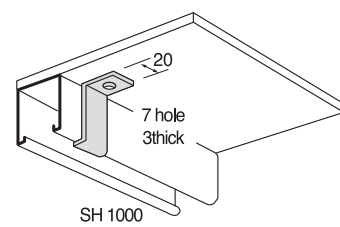
ZEE CLAMP

Part No. Z-3014



Wt. kg/c 0..4

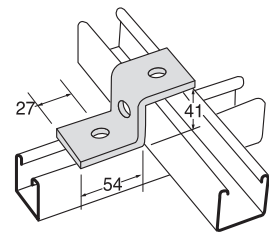
Part No. Z-3015



Wt. kg/c 0.4

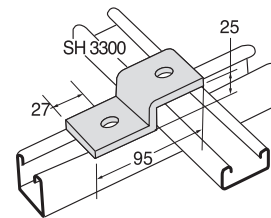
2-HOLE & 3-HOLE ZEE ANGLE CLAMP

Part No. Z-3017



Wt. kg/c 0.25

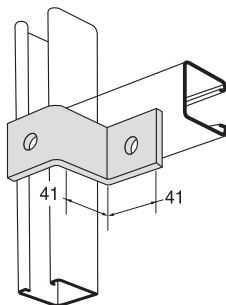
Part No. Z-3019



Wt. kg/c 0.21

2-HOLE ZEE ANGLE CLAMP

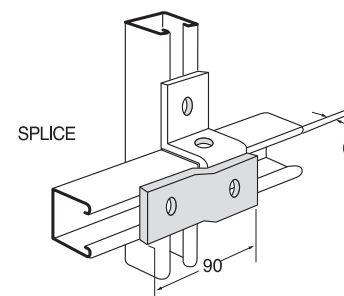
Part No. Z-3021



Wt. kg/c 0.25

OFFSET CONN

Part No. Z-3012



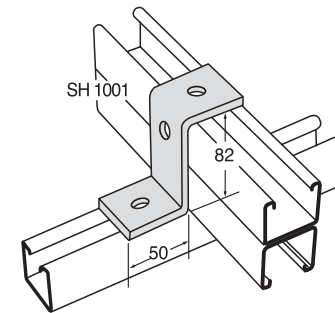
Wt. kg/c 0.17

“Z” SHAPE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

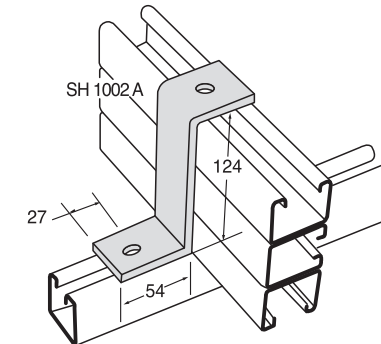
2-HOLE & 3-HOLE OFFSET ZEE ANGLE

Part No. Z-3022



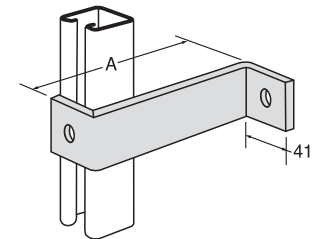
Wt. kg/c 0.31

Part No. Z-3023



Wt. kg/c 0.42

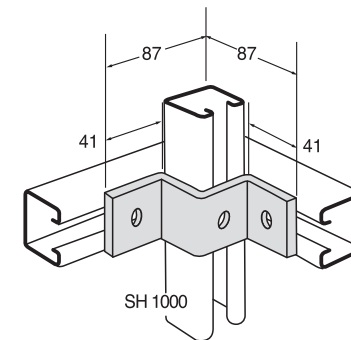
BUSS DUCT CONN



Part No.	A	Wt. kg/c
Z-3024	101	0.36
Z-3025	127	0.41
Z-3026	152	0.47
Z-3027	178	0.52
Z-3028	203	0.57

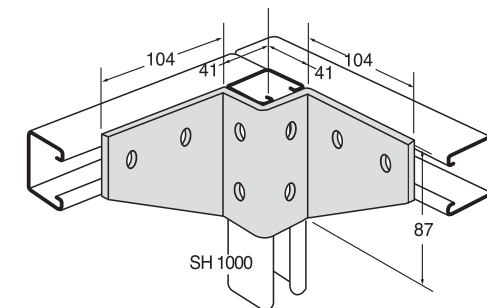
SHEATH ATTACH CORNER CONN

Part No. Z-3029



Wt. kg/c 0.31

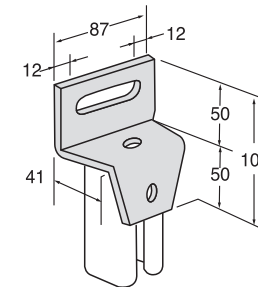
Part No. Z-3030



Wt. kg/c 0.17

ADJ. OFFSET ANGLE

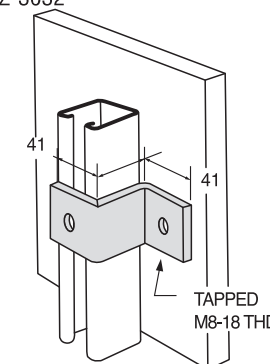
Part No. Z-3031



Wt. kg/c 0.42

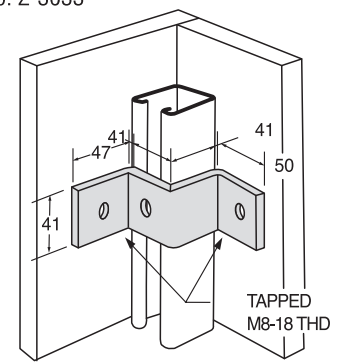
SHEATH ATTACH CORNER CONN

Part No. Z-3032



Wt. kg/c 0.24

Part No. Z-3033



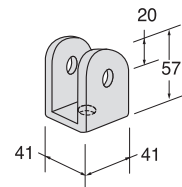
Wt. kg/c 0.31

“U” SHAPE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

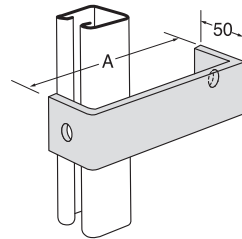
BEAM CLAMP MEMBER

Part No. U-4011



Wt. kg/c 0.24

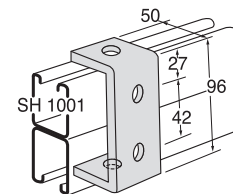
BUSS DUCT CONN CLEVIS



Part No.	A	Wt. kg/c
U-4012	100	0.35
U-4013	127	0.40
U-4014	152	0.45
U-4015	178	0.50
U-4016	203	0.56

STRUT SUSPENSION MEMBER

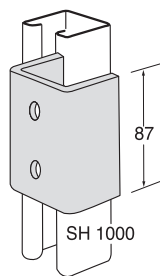
Part No. U-4017



Wt. kg/c 0.31

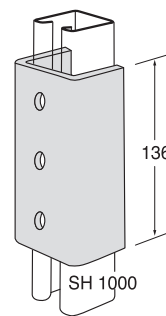
CHANNEL SPLICE PLATE

Part No. U-4020



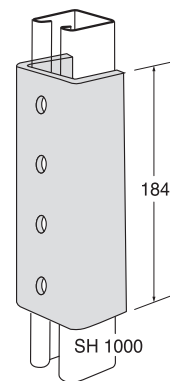
Wt. kg/c 0.58

Part No. U-4022



Wt. kg/c 0.89

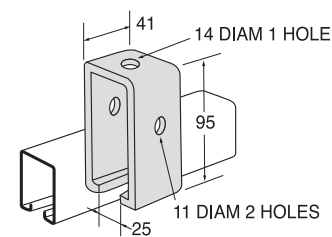
Part No. U-4024



Wt. kg/c 1.2

DESIGN LOAD 544kg

Part No. U-4025

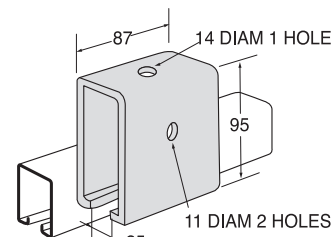


Wt. kg/c 0.46

REQUIRES M10×37mm BOLT & NUT
(NOT INCLUDED)

DESIGN LOAD-1134kg

Part No. U-4026



Wt. kg/c 1.0

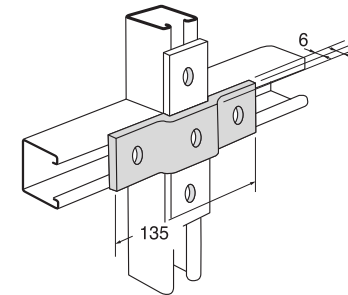
REQUIRES M10×37mm BOLT & NUT
(NOT INCLUDED)

“U” SHAPE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

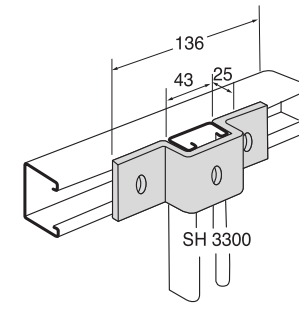
CHANNEL “U” SUPPORT

Part No. U-4027



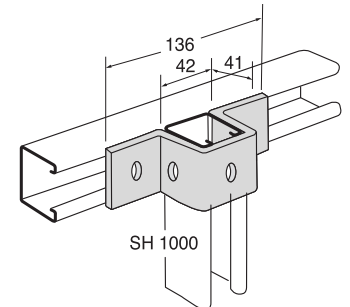
Wt. kg/c 0.26

Part No. U-4029



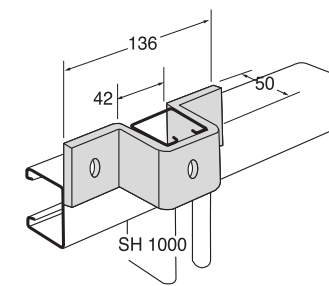
Wt. kg/c 0.32

Part No. U-4031



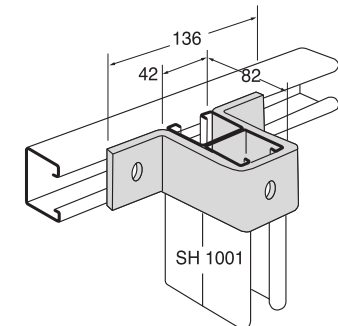
Wt. kg/c 0.40

Part No. U-4032



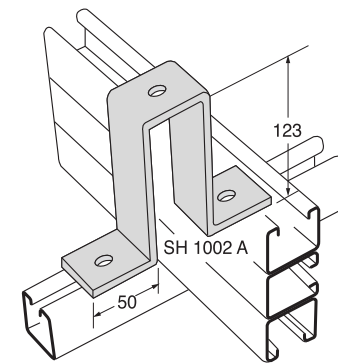
Wt. kg/c 0.43

Part No. U-4035



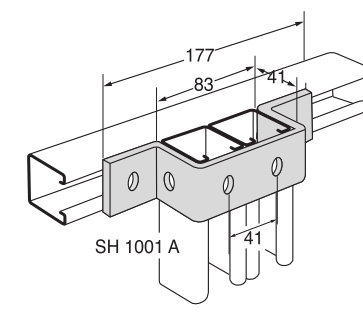
Wt. kg/c 0.58

Part No. U-4036



Wt. kg/c 0.89

Part No. U-4038



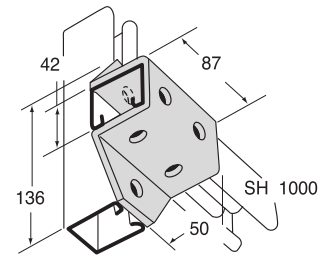
Wt. kg/c 0.47

“U” SHAPE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

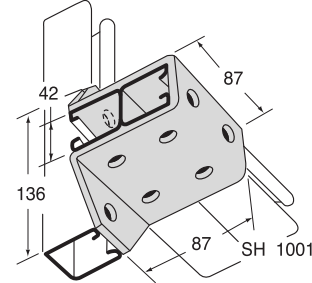
CHANNEL “U” SUPPORT

Part No. U-4039



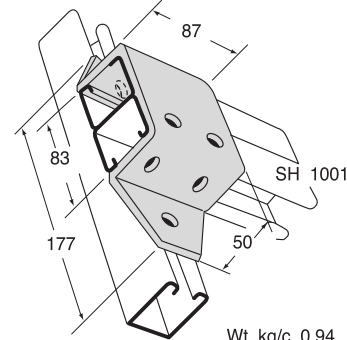
Wt. kg/c 0.77

Part No. U-4040

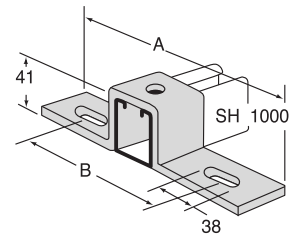


Wt. kg/c 1.16

Part No. U-4041

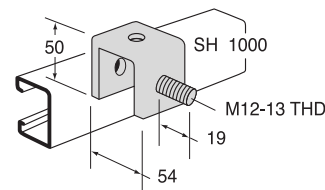


Wt. kg/c 0.94



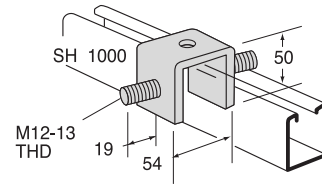
Part No.	A(mm)	B(mm)	Wt. kg/c
U-4042	184	104	0.47
U-4043	216	136	0.54
U-4044	263	184	0.59

Part No. U-4045



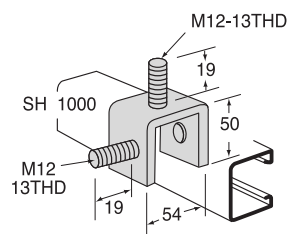
Wt. kg/c 0.28

Part No. U-4046



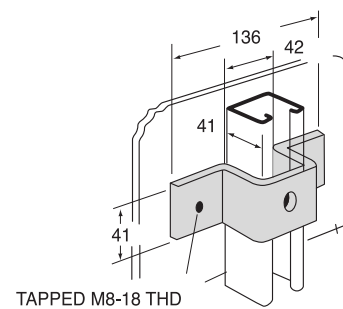
Wt. kg/c 0.29

Part No. U-4047



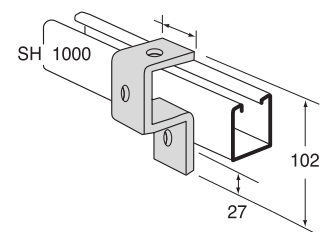
Wt. kg/c 0.29

Part No. U-4048



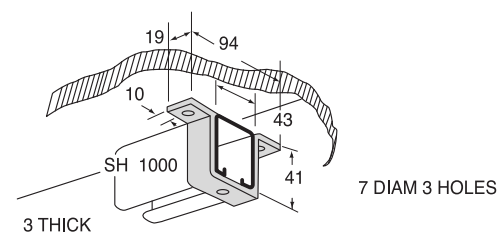
Wt. kg/c 0.40

Part No. U-4049



Wt. kg/c 0.34

Part No. U-4050



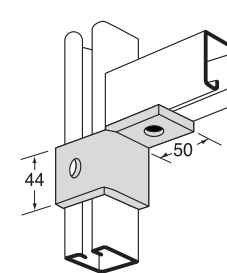
Wt. kg/c 0.08

WING SHAPE FITTINGS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

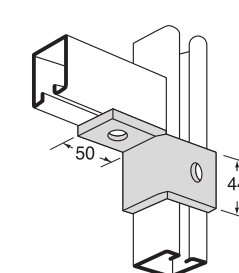
CLEVIS CONN

Part No. W-5010



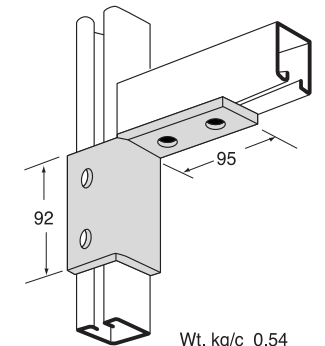
Wt. kg/c 0.27

Part No. W-5011



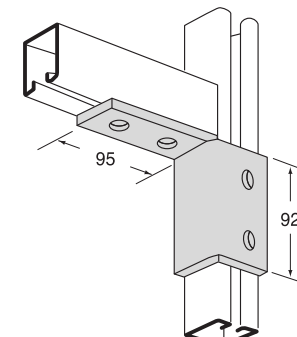
Wt. kg/c 0.27

Part No. W-5012



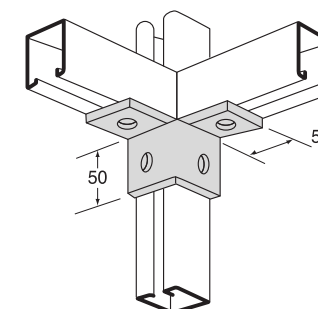
Wt. kg/c 0.54

Part No. W-5013



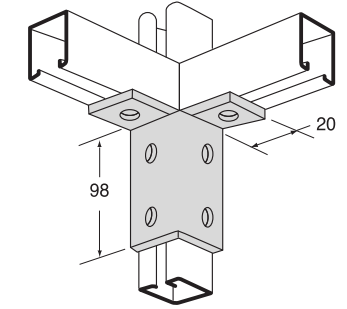
Wt. kg/c 0.54

Part No. W-5014



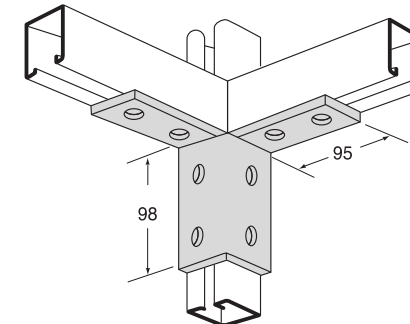
Wt. kg/c 0.34

Part No. W-5015



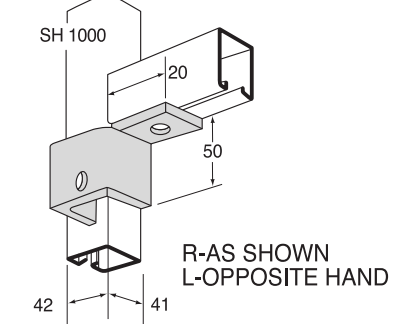
Wt. kg/c 0.52

Part No. W-5016



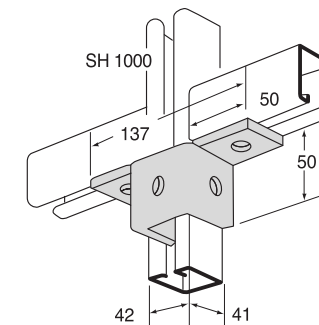
Wt. kg/c 0.70

Part No. W-5017



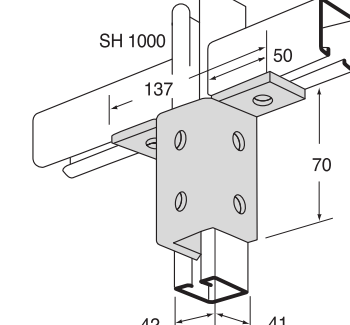
Wt. kg/c 0.24

Part No. W-5018



Wt. kg/c 0.42

Part No. W-5019



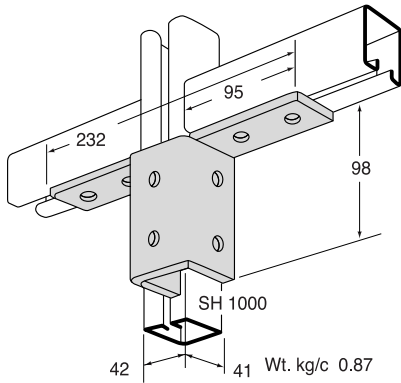
Wt. kg/c 0.68

WING SHAPE FITTINGS

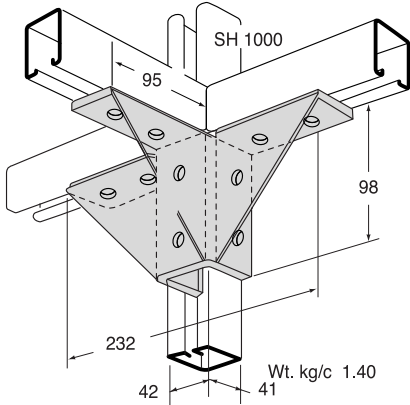
GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

WING FITTING

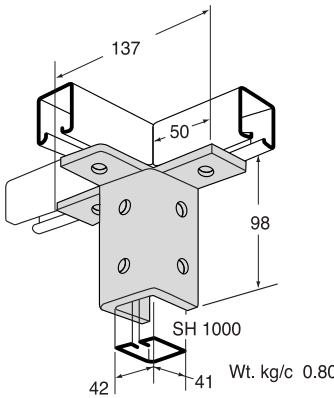
Part No. W-5020



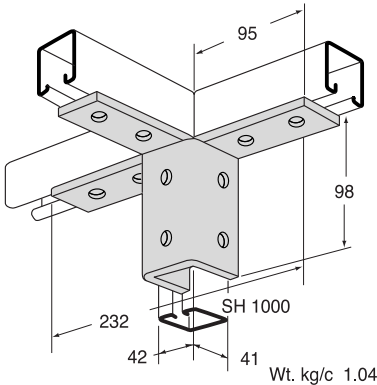
Part No. W-5021



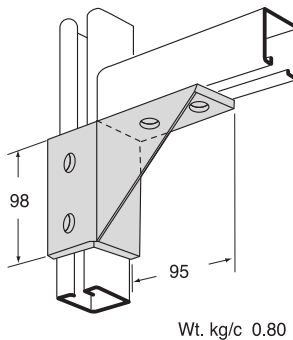
Part No. W-5022



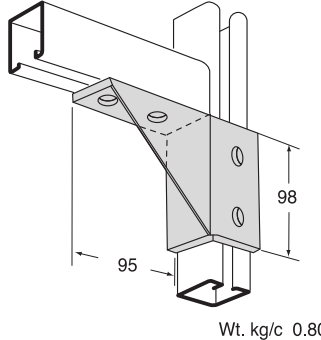
Part No. W-5023



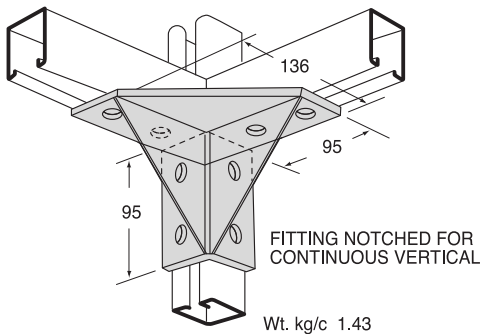
Part No. W-5024



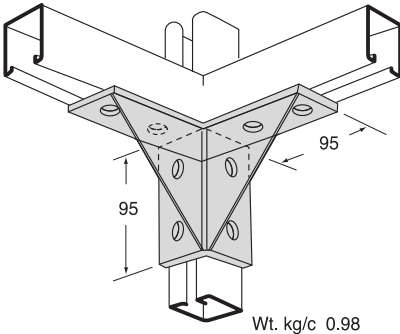
Part No. W-5025



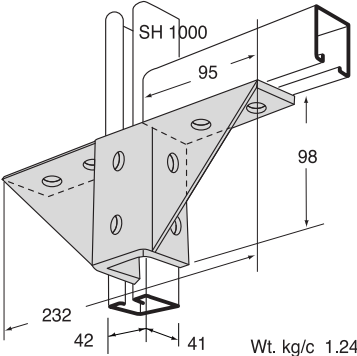
Part No. W-5026



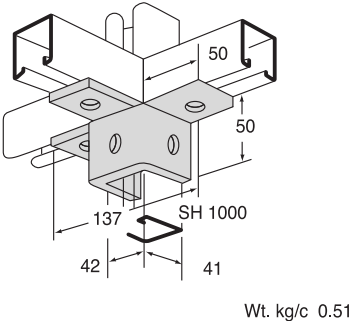
Part No. W-5027



Part No. W-5028



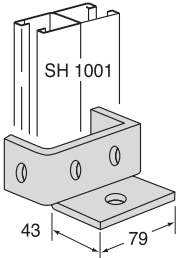
Part No. W-5029



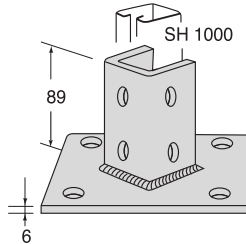
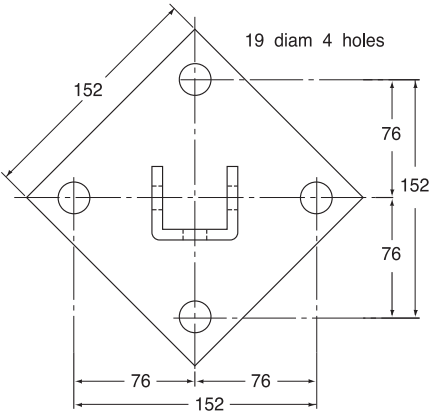
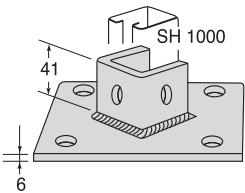
POST BASES

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

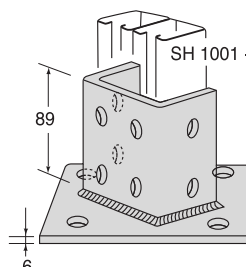
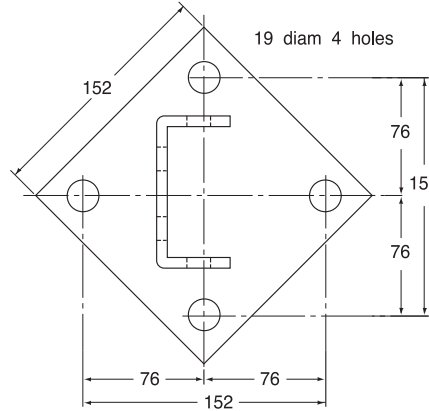
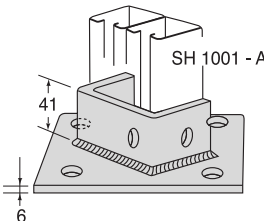
SH 2453



SH 2072 SH 2072 A



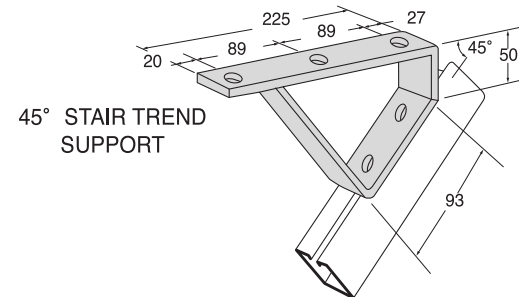
SH 2073 SH 2073 A



SPECIAL APPLICATION FITTINGS

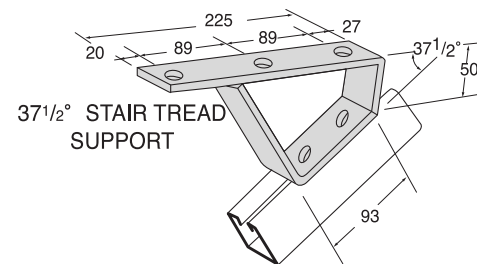
GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

SH 1944



Wt. kg/c 0.99

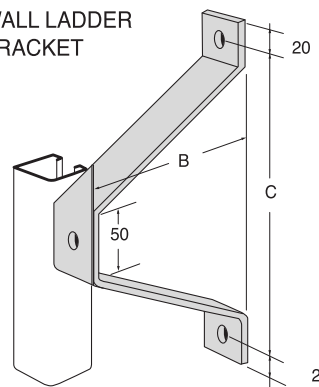
SH 2655



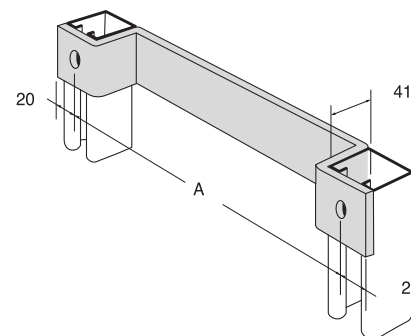
Wt. kg/c 0.96

SH 1204 thru SH 1208 SH1201 thru SH1203

WALL LADDER BRACKET



LADDER RUNG

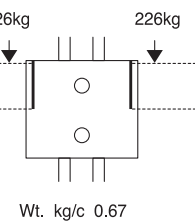
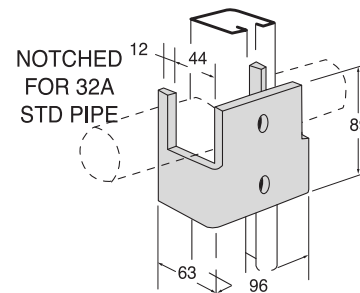


Part No.	B	C	Wt. kg/c
SH 1204	60	152	0.51
SH 1205	111	203	0.74
SH 1206	162	254	0.98
SH 1207	212	304	1.21
SH 1208	263	365	1.44

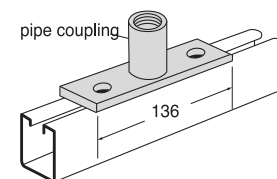
Part No.	A	Wt. kg/c
SH 1201	304	0.84
SH 1202	381	1.00
SH 1203	457	1.15

SH 2454 SH 2470-50, -75 & -100

LIGHT WEIGHT AXLE PIPE AXLE SUPPORT FOR 32A STD.

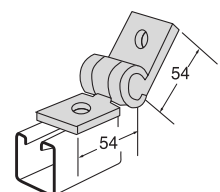


PIPE COUPLING FITTING

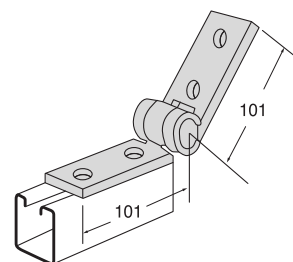


Part No.	PIPE COUPLING SIZE	Wt. kg/c
SH 2470-50	1/2"	0.35
SH 2470-75	3/4"	0.43
SH 2470-100	1"	0.46

SH 1843 SH 1354 SH 5349

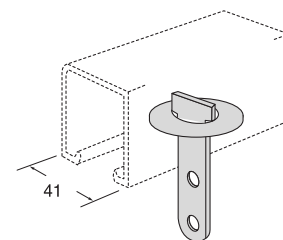


Wt. kg/c 0.30



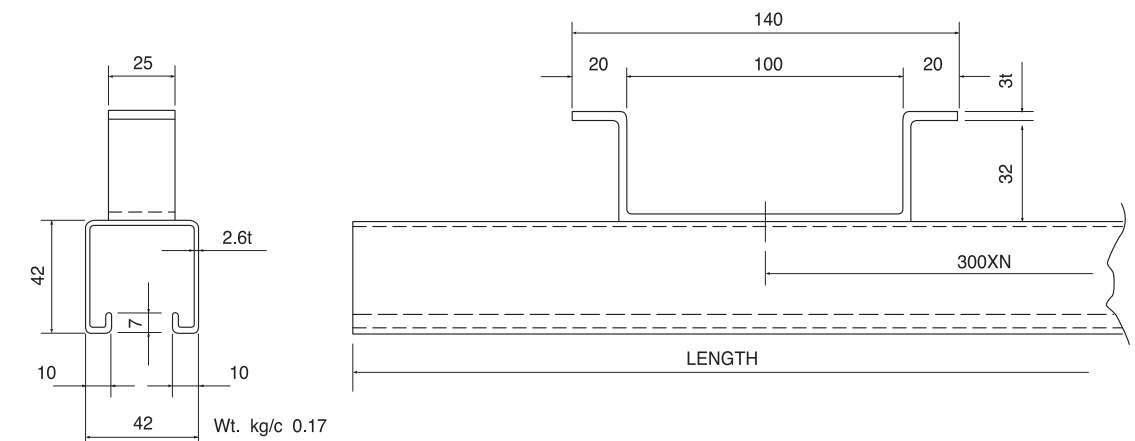
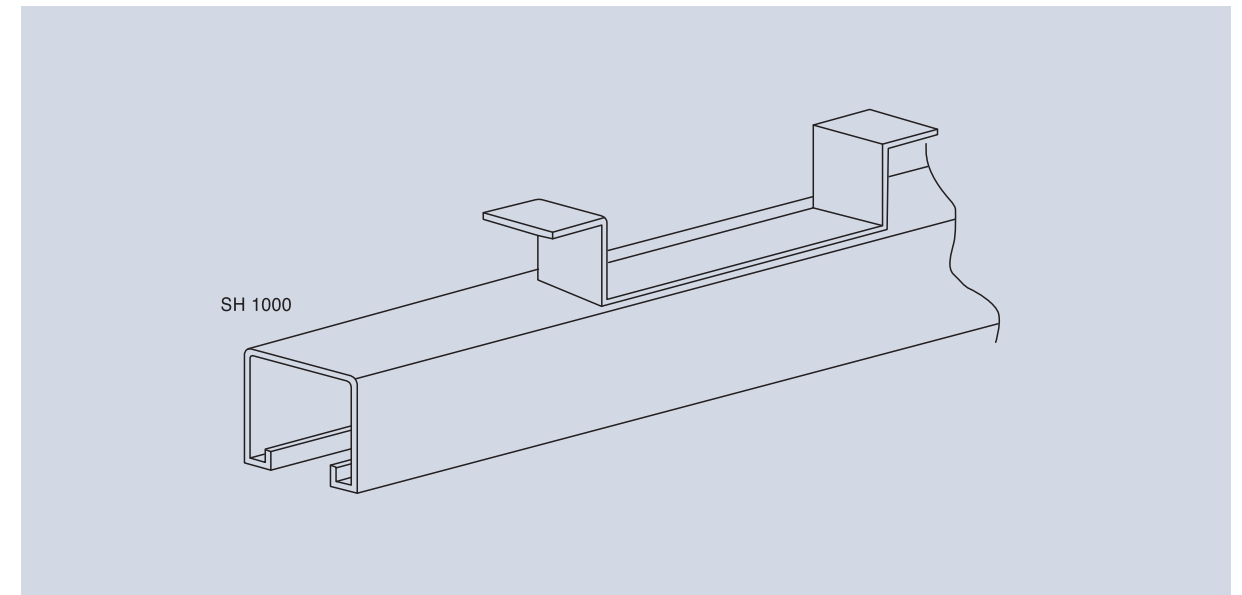
Wt. kg/c 0.49

CURATIN SLIDER



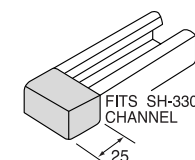
Wt. kg/c 4.5

CONCRETE INSERTS

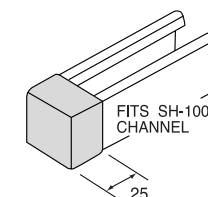


CATALOG No.	LENGTH	CATALOG No.	LENGTH	CATALOG No.	LENGTH
CI 1003	300	CI 1004	400	CI 1005	500
CI 1006	600	CI 1008	800	CI 1009	900
CI 1010	1000	CI 1012	1200	CI 1015	1500
CI 1018	1800	CI 1021	2100	CI 1024	2400
CI 1027	2700	CI 1030	3000	CI 1036	3600
CI 1042	4200	CI 1048	4800	CI 1054	5400
CI 1060	6000				

OVER-CHANNEL END CAPS



Wt. kg/c 0.01



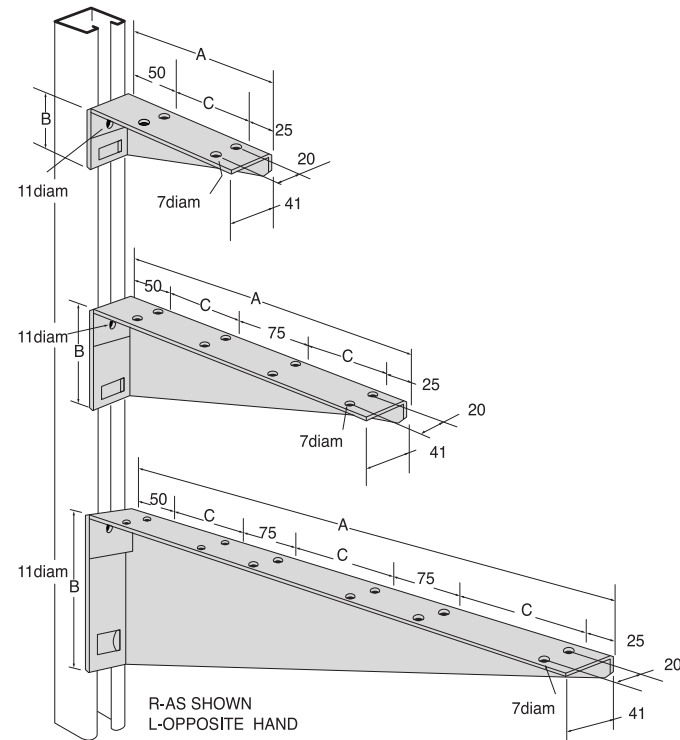
Wt. kg/c 0.015

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

BRACKETS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

SH 2491 R-L thru SH 2503 R-L



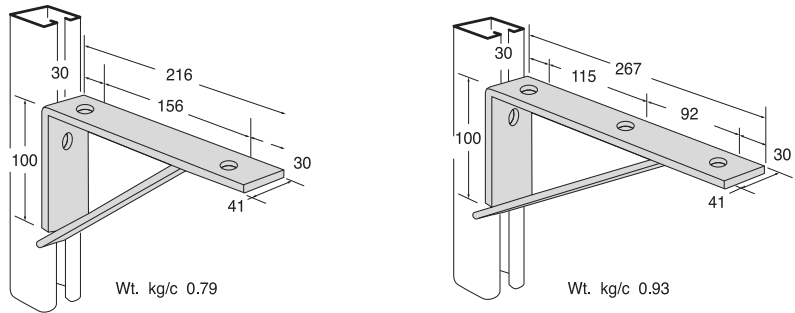
NOTE : “When used for mechanical supports, load capacities of brackets and fittings should be reduced by 50% to reflect a safety factor of 5 as required by the American Standard Code for Pressure Piping.”

Part No.	A	B	C	Wt. kg/c
SH 2491R-L	152	49	77	0.30
SH 2492R-L	203	62	128	0.42
SH 2493R-L	254	75	179	0.54
SH 2494R-L	304	87	77	0.69
SH 2495R-L	356	100	103	0.78
SH 2496R-L	406	113	128	1.01
SH 2497R-L	458	125	154	1.20
SH 2498R-L	508	138	179	1.40
SH 2499R-L	558	151	204	1.61
SH 2500R-L	609	163	128	1.81
SH 2501R-L	660	172	145	2.02
SH 2502R-L	711	189	162	2.24
SH 2503R-L	762	202	179	2.47

12 GAUGE STEEL
DESIGN UNIFORM LOAD ON BRACKETS
SH 2491R-L thru SH 2503R-L
(channel upright listed)

SH 1000 136kg
SAFETY FACTOR-2½

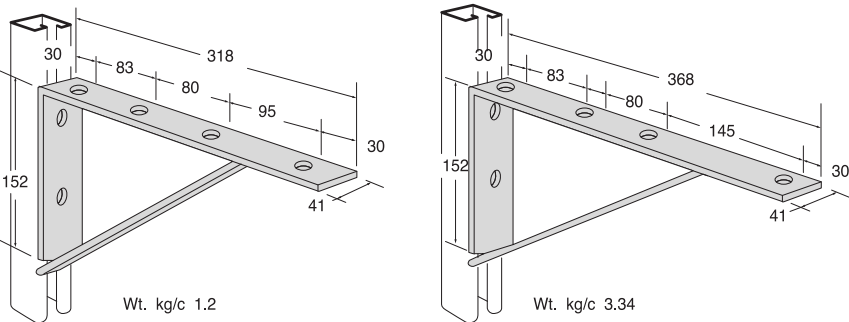
SH 1769 SH 1771



DESIGN UNIFORM LOAD
(channel upright listed)

SH 1000 363kg
SAFETY FACTOR-2½

SH 1773 SH 1775



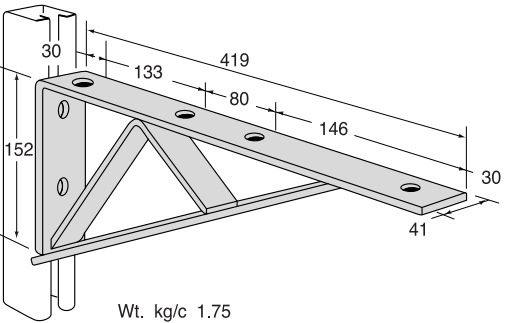
DESIGN UNIFORM LOAD
(channel upright listed)

SH 1000 408kg
SAFETY FACTOR-2½

BRACKETS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

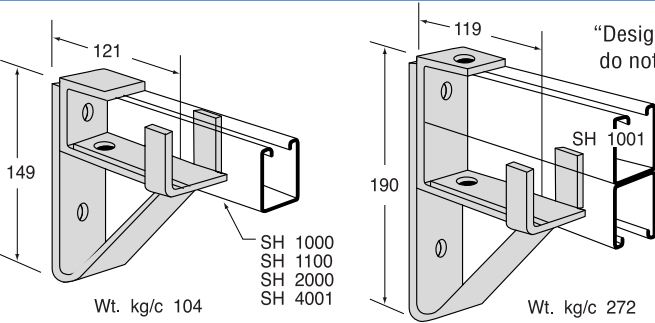
SH 1777



NOTE : “When used for mechanical supports, load capacities of brackets and fittings should be reduced by 50% to reflect a safety factor of 5 as required by the American Standard Code for Pressure Piping.”

DESIGN UNIFORM LOAD
(channel upright listed)
SH 1000 544kg
SAFETY FACTOR-2½

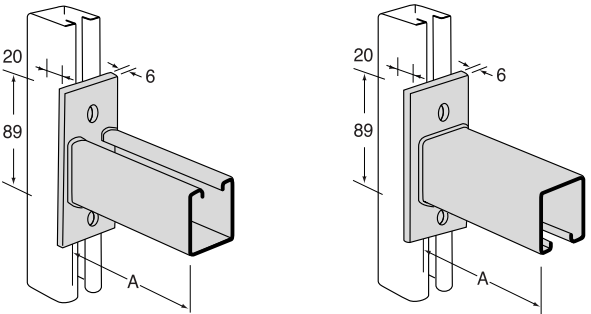
SH 1075 SH 1593



Part No.	DESIGN MOMENT (m-kg) (channel upright listed) SH 1000
SH 1075	72
SH 1593	149

applies only to fittings and
not to strength of Unistrut arm.
SAFETY FACTOR -2½

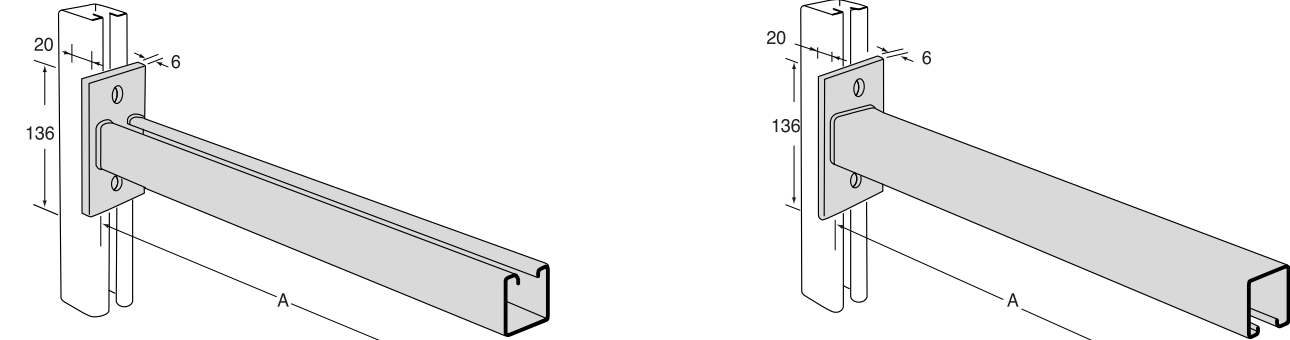
SH 2231 & SH 2232 SH 2231 A & SH 2232 A



Part No.	A	WT. (kg/c)	DESIGN MOMENT(channel upright listed) SH 1000
SH 2231	152	0.87	725
SH 2232	304	1.32	363
SH 2231A	152	0.87	725
SH 2232A	304	1.32	363

SAFETY FACTOR -2½

SH 2233 & SH 2234 SH 2233 A & SH 2234 A



Part No.	A	WT. (kg/c)	DESIGN MOMENT(channel upright listed) SH 1000
SH 2233	457	1.98	272
SH 2234	609	2.43	204

SAFETY FACTOR -2½

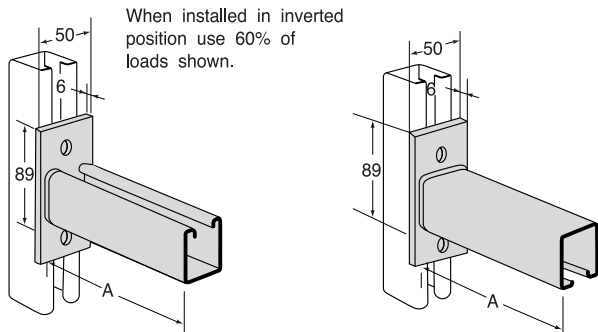
Part No.	A	WT. (kg/c)	DESIGN MOMENT(channel upright listed) SH 1000
SH 2233A	457	1.98	272
SH 2234A	609	2.43	204

SAFETY FACTOR -2½

BRACKETS

GENERAL DATA
hole size- 14mm diameter
hole spacing- 20mm from end
48mm on center
width- 42mm
thickness- 6mm

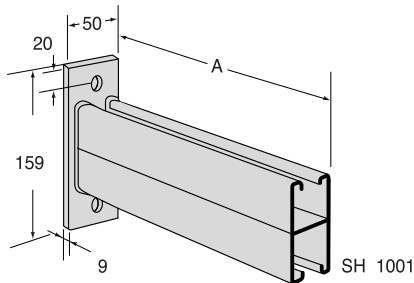
SH 2513 thru SH 2516 SH 2513 A thru SH 2516 A



Part No.	A	WT. (kg/c)	DESIGN MOMENT(channel upright listed)
			SH 1000
SH 2513	150	0.73	545
SH 2514	300	1.18	272
SH 2515	450	1.63	181
SH 2516	600	2.09	136
SH 2513A	150	0.73	545
SH 2514A	300	1.18	272
SH 2515A	450	1.63	181
SH 2516A	600	2.09	136

SAFETY FACTOR -2½

SH 2542 thru SH 2546

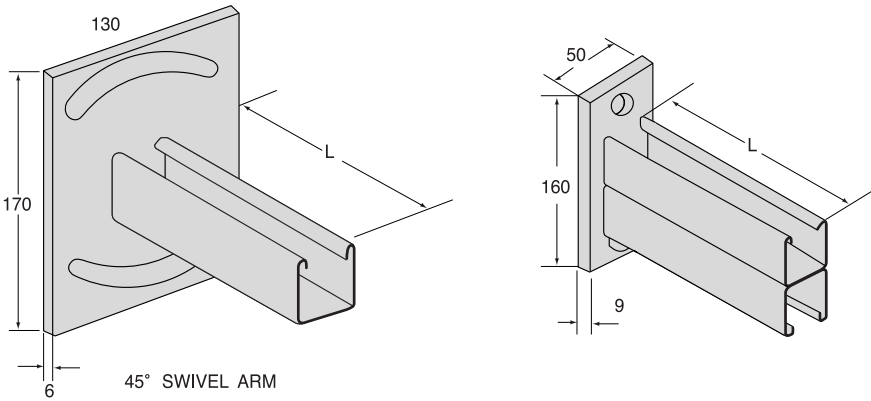


NOTE : “When used for mechanical supports, load capacities of brackets and fittings should be designed as required by the American Standard Code for Pressure Piping.”

Part No.	A	WT. (kg/c)	DESIGN MOMENT(channel upright listed)
			SH 1000
SH 2542	300	2.24	927
SH 2543	450	3.14	589
SH 2544	600	4.00	453
SH 2545	750	4.96	362
SH 2546	900	5.72	294

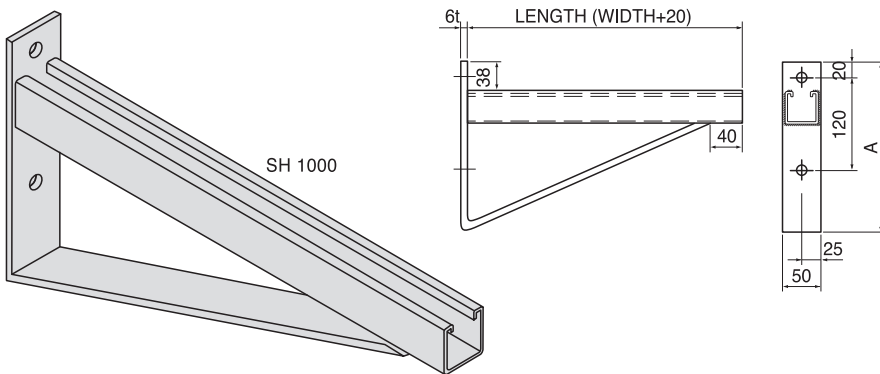
SAFETY FACTOR -2½

HSBS-1506 thru HSBS-7506 & HSBA-1506 thru HSBA-7506



L	Part No.
150	HSBS-1506
300	HSBS-3006
450	HSBS-4506
600	HSBS-6006
750	HSBS-7506
150	HSBA-1506
300	HSBA-3006
450	HSBA-4506
600	HSBA-6006
750	HSBA-7506

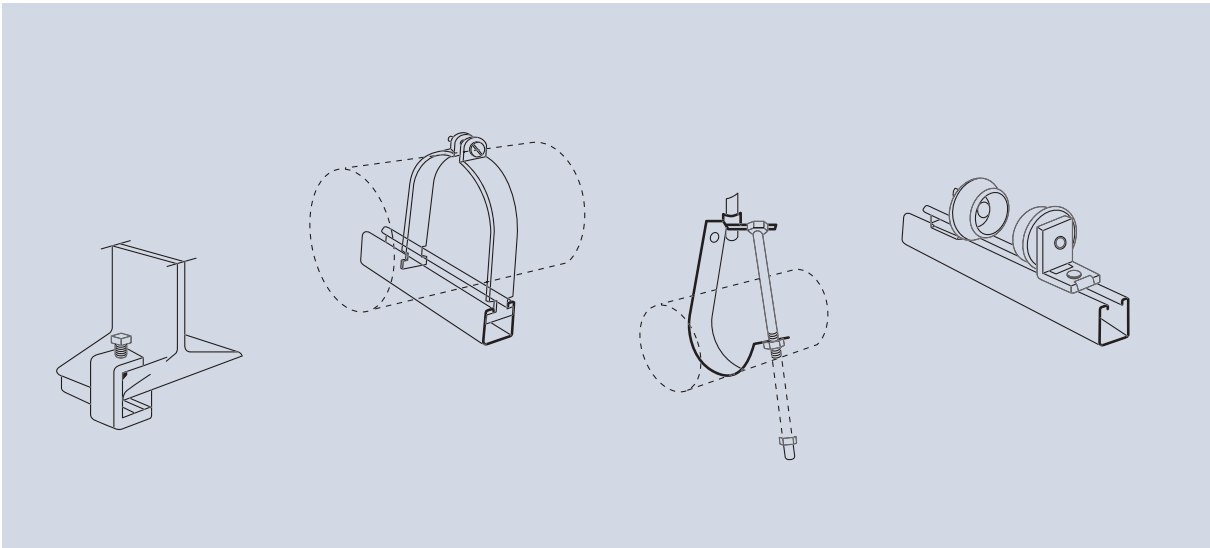
REINFORCING BRACKET (RB)



CATALOG No.	LENGTH	A
RB-015	170	220
RB-020	220	220
RB-030	320	220
RB-045	470	220
RB-060	620	220
RB-075	770	280
RB-090	920	280

CHANNEL WIDTH SERIES

UNISTRUT Mechanical Accessories



MATERIAL

Unless otherwise noted, all pipe clamps, brackets, pipe rollers, pipe hangers and beam clamp fittings are punch press formed from hot rolled pickled and oiled plate or strip steel. Pipe rollers and beam clamps where noted are gray cast iron.

STANDARD DIMENSIONS

The following dimensions apply to all fittings except as noted :
Hole size - 14mm diameter
Fitting width - 41mm
Fitting thickness - 6mm

APPLICATIONS

UNISTRUT pipe clamps, pipe hangers, brackets, rollers and beam clamps are designed for the support of mechanical services. Used in conjunction with UNISTRUT framing, supports to meet nearly every requirement can be fabricated.

DESIGN LOADING

Load data given in the following section of mechanical accessories includes a safety factory of five(5). NOTE : “When used for mechanical supports, load capacities of brackets and fittings should be designed as required by the American Standard Code for Pressure Piping.”

DESIGN BOLT TORQUE

Bolt size	1/4"-20	5/16"-18	3/8"-16	1/2"-13
foot-pounds	6	11	19	50

FINISHES

All fittings in this section are available in plain, PERMA-GREEN, hot dipped galvanized, or electro-galvanized finish.

METRIC CONVERSIONS

To convert engineering data to Metric Equivalents see reference table.

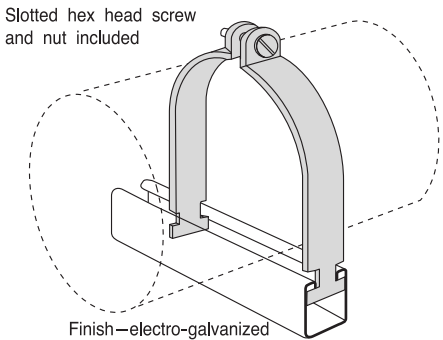
PIPE CLAMPS

PIPE CLAMPS FOR O.D TUBING, TRANSITE PIPE, FIBER DUCT, OR CERAMIC TUBES

Part No.	O.D.TUBE SIZE	Wt. kg/c	Part No.	O.D.TUBE SIZE	Wt. kg/c
SH 2024	1/4"	0.036	SH 1119	3 1/2"	0.21
SH 2025	3/8"	0.036	SH 2051	3 5/8"	0.25
SH 2026	1/2"	0.04	SH 2052	3 3/4"	0.26
SH 2027	5/8"	0.045	SH 2053	3 7/8"	0.27
SH 2028	3/4"	0.05	SH 1120	4"	0.28
SH 2029	7/8"	0.054	SH 2055	4 1/8"	0.28
SH 2030	1"	0.063	SH 2056	4 1/4"	0.29
SH 2031	1 1/8"	0.068	SH 2057	4 3/8"	0.30
SH 2032	1 1/4"	0.072	SH 1121	1 1/2"	0.30
SH 2033	1 3/8"	0.077	SH 2059	4 5/8"	0.32
SH 2034	1 1/2"	0.081	SH 2060	4 3/4"	0.33
SH 2035	1 5/8"	0.086	SH 2061	4 7/8"	0.33
SH 1430	1 3/4"	0.13	SH 2062	5"	0.34
SH 2037	1 7/8"	0.13	SH 2063	5 1/8"	0.34
SH 2038	2"	0.14	SH 2064	5 1/4"	0.35
SH 2039	2 1/8"	0.14	SH 2065	5 3/8"	0.35
SH 2040	2 1/4"	0.15	SH 2066	5 1/2"	0.36
SH 1117	2 3/8"	0.15	SH 2067	5 5/8"	0.40
SH 2042	2 1/2"	0.16	SH 2068	5 3/4"	0.41
SH 2043	2 5/8"	0.17	SH 2069	5 7/8"	0.42
SH 2044	2 3/4"	0.17	SH 2070	6"	0.43
SH 1118	2 7/8"	0.18	SH 2070-61	6 1/8"	0.43
SH 2046	3"	0.18	SH 2070-62	6 1/4"	0.44
SH 2047	3 1/8"	0.19	SH 2070-63	6 3/8"	0.44
SH 2048	3 1/4"	0.20	SH 2026-64	6 1/2"	0.45
SH 2049	3 3/8"	0.21	SH 1124	6 5/8"	0.46

SH 2024 THRU SH 2029 16 GA.
SH 2030 THRU SH 2035 14 GA.
SH 2037 THRU SH 2049 12 GA.

SH 2051 THRU SH 2066 11 GA.
SH 2067 THRU SH 2070-84 10 GA.



Part No.	O.D.TUBE SIZE	Wt. kg/c
SH 2070-66	6 3/4"	0.47
SH 2070-67	6 7/8"	0.48
SH 2070-70	7"	0.49
SH 2070-71	7 1/8"	0.50
SH 2070-72	7 1/4"	0.51
SH 2070-73	7 3/8"	0.52
SH 2070-74	7 1/2"	0.53
SH 2070-75	7 5/8"	0.54
SH 2070-76	7 3/4"	0.54
SH 2070-77	7 7/8"	0.55
SH 2070-80	8"	0.56
SH 2070-81	8 1/8"	0.57
SH 2070-82	8 1/4"	0.57
SH 2070-83	8 3/8"	0.58
SH 2070-84	8 1/2"	0.59
SH 1126	8 5/8"	0.59

SH 1109, SH 2024, thru SH 2070-84

MATERIAL

Steel strap, Everdur hardware
Copper strap, Everdur hardware
Aluminum
Stainless steel
Plastic coated steel straps

ADD SUFFIX TO "SH" NUMBER

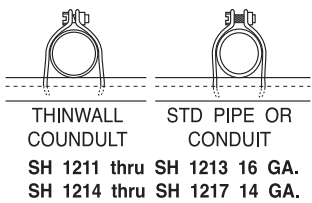
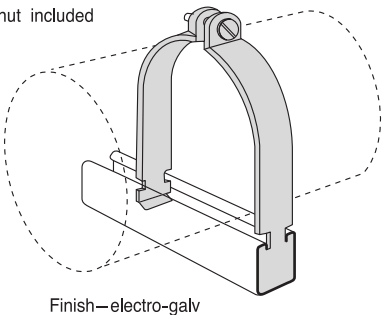
E
C
AL
SS
PC

EXAMPLE

SH 1109E
SH 1109C
SH 1109AL
SH 1109SS
SH 1109PC

UNIVERSAL CLAMP SERIES 12.7mm THRU 50.8mm PIPE, RIGID OR THINWALL CONDUIT

Slotted hex head screw
and nut included



Part No.	PIPE SIZE RIGID CONDUIT TW SIZE	Wt. kg/c
SH 1211	1/2"	0.045
SH 1212	3/4"	0.05
SH 1213	1"	0.054
SH 1214	1 1/4"	0.081
SH 1215	1 1/2"	0.09
SH 1217	2"	0.10

PIPE CLAMPS

SH 1109 thru SH 1126

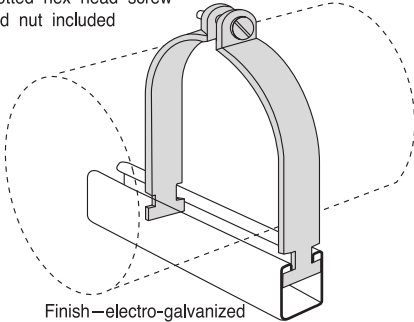
PIPE CLAMPS FOR RIGID STEEL CONDUIT

Part No.	PIPE SIZE	O.D. SIZE	Wt. kg/c	Part No.	PIPE SIZE	O.D. SIZE	Wt. kg/c
SH 1109	3/8"	0.675	0.045	SH 1118	2 1/2"	2.875	0.18
SH 1111	1/2"	0.840	0.05	SH 1119	3"	3.500	0.21
SH 1112	3/4"	0.050	0.07	SH 1120	3 1/2"	4.000	0.28
SH 1113	1"	1.315	0.08	SH 1121	4"	4.500	0.30
SH 1114	1 1/4"	1.660	0.096	SH 1123	5"	5.563	0.36
SH 1115	1 1/2"	1.900	0.131	SH 1124	6"	6.625	0.46
SH 1117	2"	2.375	0.154	SH 1126	8"	8.625	0.51

SH 1109 THRU SH 1111 16 GA.
SH 1112 THRU SH 1114 14 GA.
SH 1115 THRU SH 1119 12 GA.
SH 1120 THRU SH 1123 11 GA.

SH 1124 THRU SH 1126 10 GA.
SH-1121 MAY ALSO BE USED WITH
NOMINAL 4" E.M.T

Slotted hex head screw
and nut included



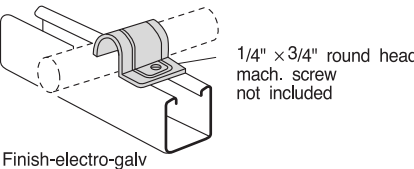
SH 2008 thru SH 2020

ONE HOLE CLAMP FOR O.D. TUBING

Part No.	O.D.TUBE SIZE	Wt. kg/c	Part No.	O.D.TUBE SIZE	Wt. kg/c
SH 2008	1/4"	0.018	SH 2014	5/8"	0.03
SH 2009	5/16"	0.022	SH 2016	3/4"	0.04
SH 2010	3/8"	0.022	SH 2018	7/8"	0.05
SH 2012	1/2"	0.027	SH 2020	1"	0.06

SH 2008 THRU SH 2012 16 GA.

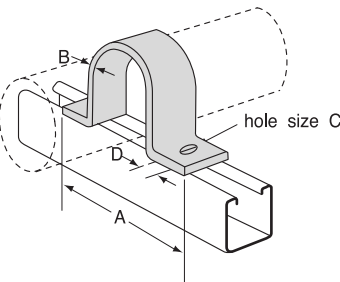
SH 2014 THRU SH 2020 14 GA.



SH 2558-5 thru SH 2558-60

STANDARD PIPE STRAP

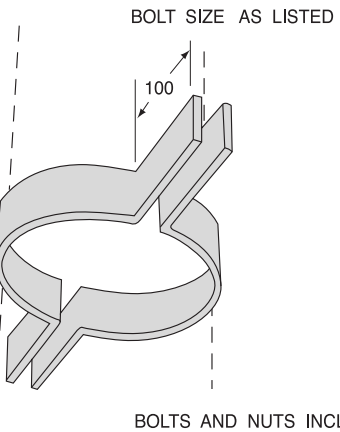
Part No.	NOMINAL PIPE SIZE	A	B	C	D	Wt. kg/c
SH 2558-5	1/2"	2 7/8"	3 1/8"	7 9/16"	11 1/16"	0.10
SH 2558-7	3/4"	3 1/16"	3 1/8"	7 9/16"	11 1/16"	0.12
SH 2558-10	1"	3 3/8"	3 1/8"	7 9/16"	11 1/16"	0.14
SH 2558-12	1 1/4"	3 1/16"	3 1/8"	7 9/16"	11 1/16"	0.16
SH 2558-15	1 1/2"	3 3/16"	3 1/8"	7 9/16"	11 1/16"	0.18
SH 2558-20	2"	5 3/4"	6 1/4"	11 7/16"	20 9/16"	0.43
SH 2558-25	2 1/2"	6 3/16"	6 1/4"	11 7/16"	20 9/16"	0.52
SH 2558-30	3"	6 3/16"	6 1/4"	11 7/16"	20 9/16"	0.60
SH 2558-35	3 1/2"	7 5/16"	6 1/4"	11 7/16"	20 9/16"	0.69
SH 2558-40	4"	7 13/16"	6 1/4"	11 7/16"	20 9/16"	0.80
SH 2558-50	5"	8 7/8"	6 1/4"	11 7/16"	20 9/16"	0.90
SH 2558-60	6"	9 15/16"	6 1/4"	11 7/16"	20 9/16"	1.02



SH 3130-7 THRU SH 3130-80

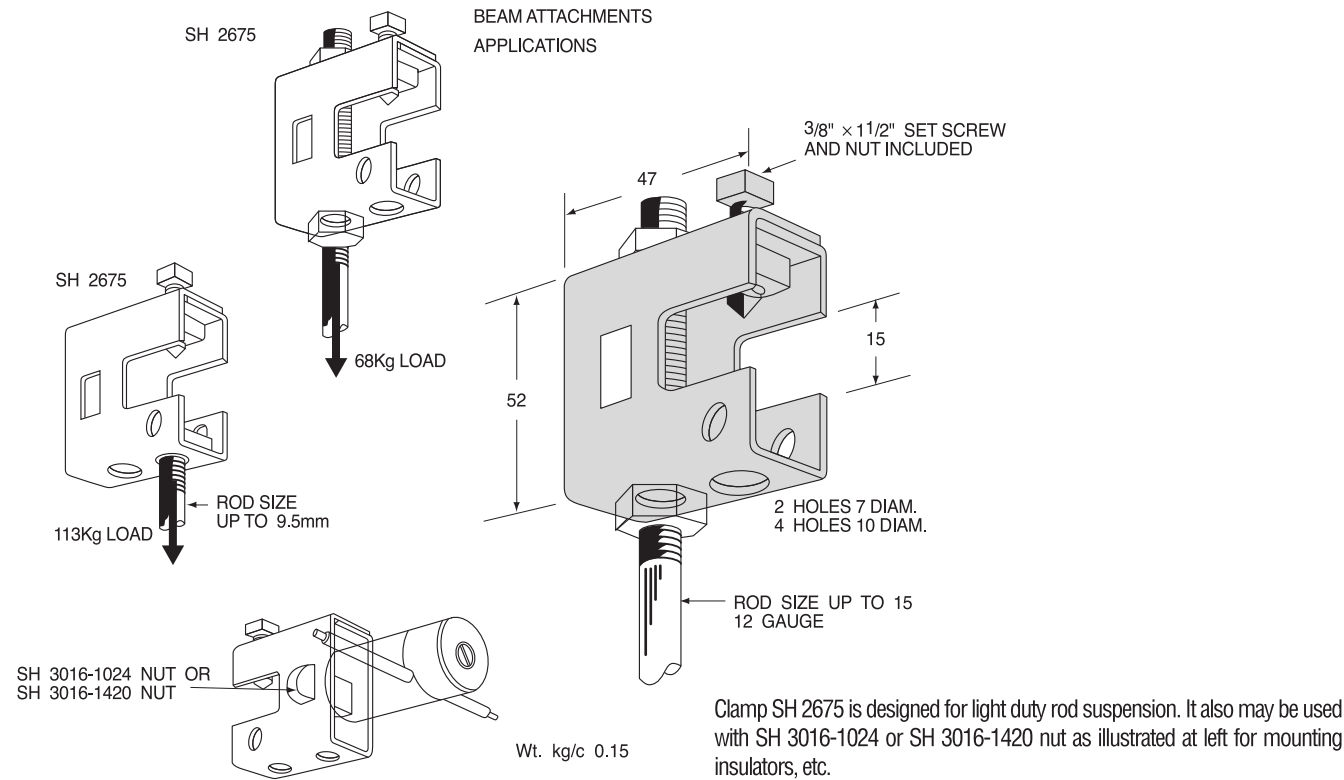
RISER SUPPORTS

Part No.	NOMINAL PIPE SIZE	STRAP SIZE	BOLT SIZE	Wt. kg/c
SH 3130-7	3/4"	3/16" X 1 1/4"	5/16" X 1 1/4"	0.61
SH 3130-10	1"	3/16" X 1 1/4"	5/16" X 1 1/4"	0.63
SH 3130-12	1 1/4"	3/16" X 1 1/4"	5/16" X 1 1/4"	0.65
SH 3130-15	1 1/2"	3/16" X 1 1/4"	5/16" X 1 1/4"	0.67
SH 3130-20	2"	1/4" X 1 1/4"	5/16" X 1 1/4"	0.95
SH 3130-25	2 1/2"	1/4" X 1 1/4"	3/8" X 1 1/4"	1.00
SH 3130-30	3"	1/4" X 1 1/4"	3/8" X 1 1/4"	1.09
SH 3130-35	3 1/2"	1/4" X 1 5/8"	3/8" X 1 1/4"	1.31
SH 3130-40	4"	1/4" X 2"	1/2" X 1 1/2"	1.60
SH 3130-50	5"	1/4" X 2"	5/8" X 1 1/2"	2.06
SH 3130-60	6"	1/4" X 2"	5/8" X 1 1/2"	2.20
SH 3130-80	8"	1/4" X 2"	3/4" X 2"	2.63

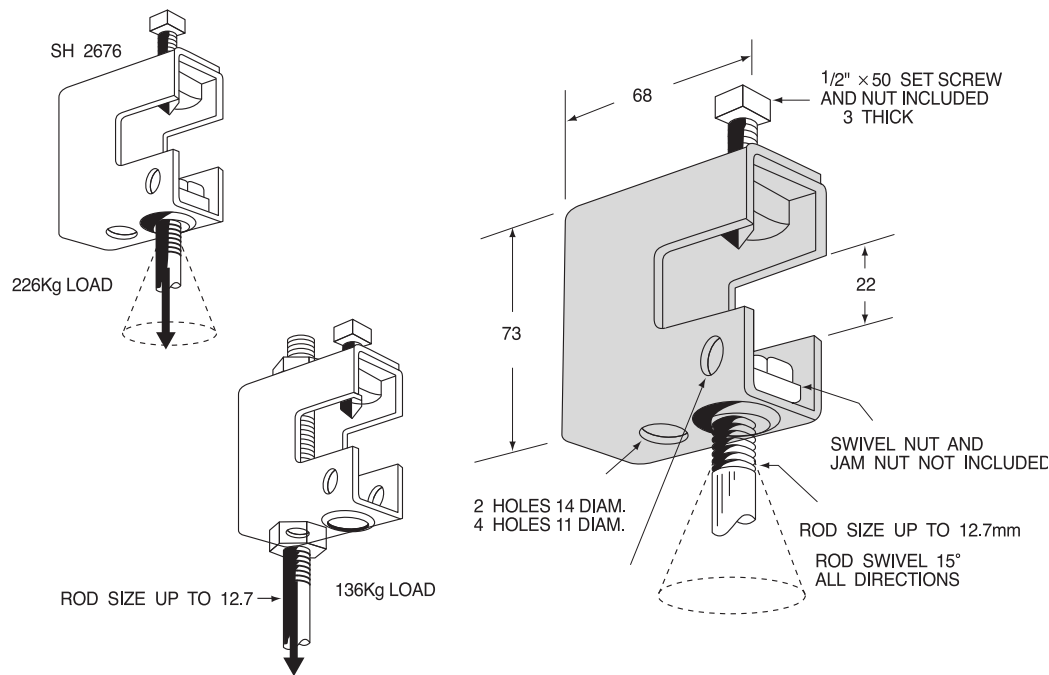


BEAM CLAMPS

SH 2675



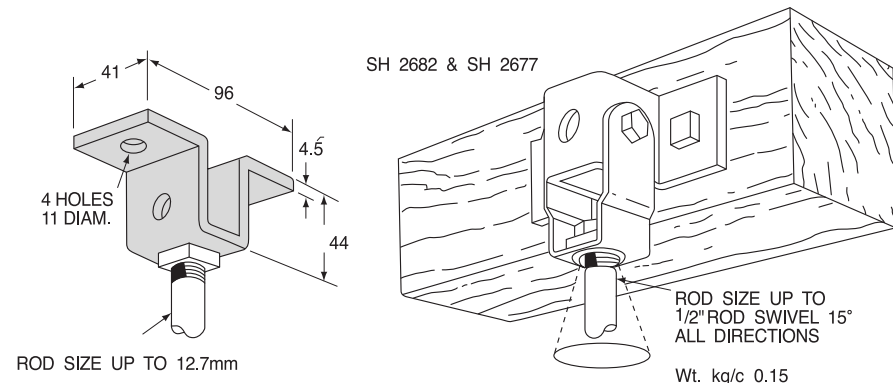
SH 2676



Clamp SH 2676 provides a means of rod suspension where a free swing of up to 15° is required. Clamp will accommodate 6.35, 10.3, or 12.7mm rods. Order swivel nuts SH 2679-4, -6 and -8 as required. Clamp may also be used with SH 2677 or SH 2683 as illustrated in application drawings.

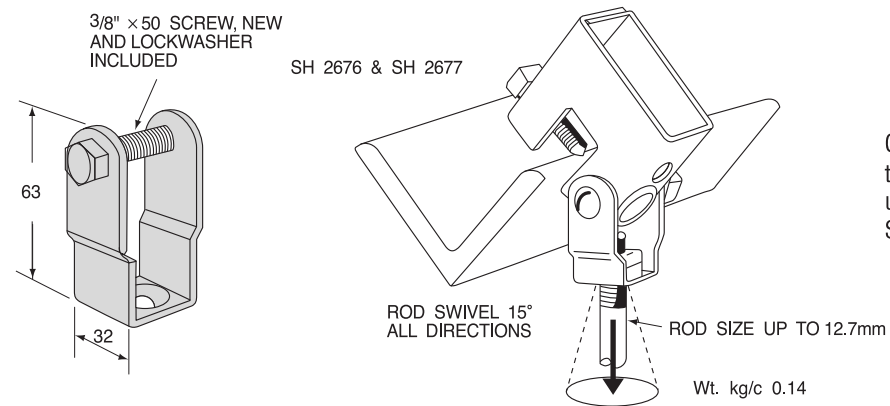
BEAM CLAMPS

SH 2682



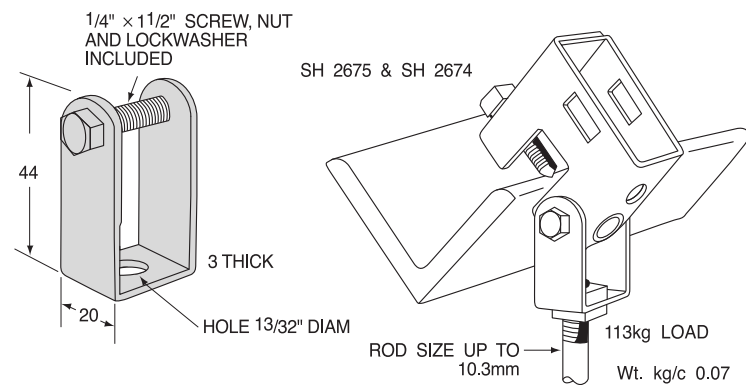
Hanger clevis for up to 1/2" rod suspension from wood ceilings. May also be used with SH 2677 as illustrated in application drawings.

SH 2677



Clevis hanger to be used with SH 2676 or SH 2682 to provide angle adjustment and 15° free swing for up to 12.7mm rod suspension. Order swivel nuts SH 2679-4, -6 and -8 as required.

SH 2674



Clevis hanger to be used with SH 2675 to provide angle adjustment for up to 10.3mm rod suspension as illustrated.

SH 2679-4, -6 & -8

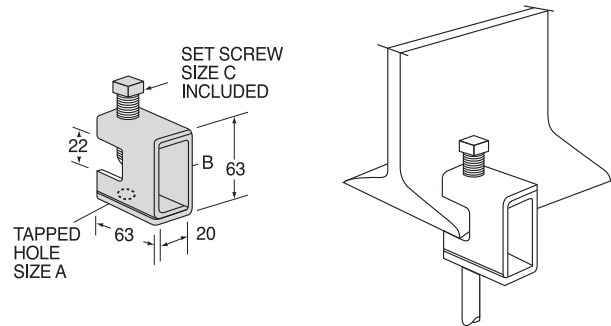


Part No.	THRD SIZE	Wt. kg/c
SH 2679-4	6.3-20	0.018
SH 2679-6	10.3-16	0.022
SH 2679-8	12.7-13	0.027

Swivel nuts are used with SH 2676 and SH 2677. Order size as required.

BEAM CLAMPS

SH 1648 S thru SH 1653 S

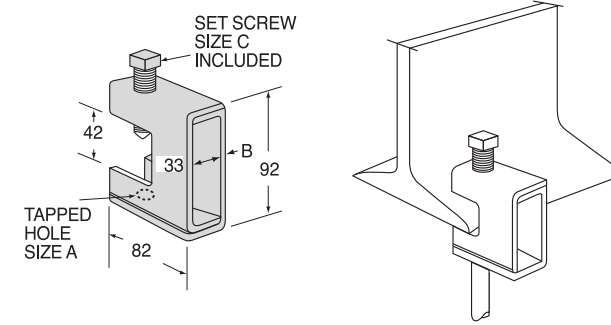


33mm FOR SH 1652S & SH 1653S

FOR BEAMS UNDER 22 THICK FLANGE.

Part No.	A	B	C	Wt. kg/c	LOAD CAP M-Kg
SH 1648S	1/4"-20	3	3/8" X 1 1/2"	0.30	0.75
SH 1649S	5/16"-18	3	3/8" X 1 1/2"	0.30	0.75
SH 1649AS	3/8"-16	3	3/8" X 1 1/2"	0.30	0.75
SH 1650S	3/8"-16	4.5	1/2" X 1 1/2"	0.45	1.26
SH 1650AS	1/2"-13	4.5	1/2" X 1 1/2"	0.45	1.26
SH 1651S	1/2"-13	6	1/2" X 1 1/2"	0.59	1.84
SH 1651AS	5/8"-11	6	1/2" X 1 1/2"	0.59	1.84
SH 1652S	5/8"-11	8	5/8" X 1 1/2"	0.72	2.76
SH 1653S	3/4"-10	8	5/8" X 1 1/2"	0.72	2.76

SH 2398 S thru SH 2403 S

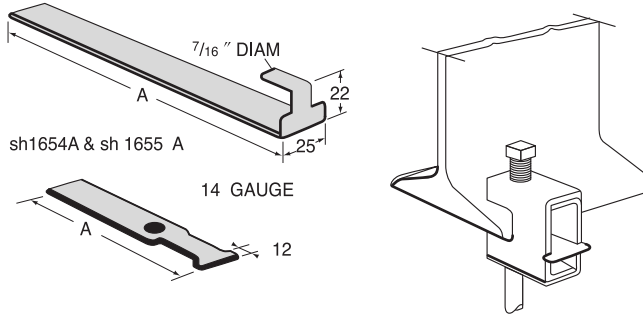


33mm FOR SH 2405S

FOR BEAMS BETWEEN 19 TO 41 THICK FLANGES.

Part No.	A	B	C	Wt. kg/c	LOAD CAP M-Kg
SH 2398S	1/4"-20	3	3/8" X 2"	0.49	0.92
SH 2401S	3/8"-16	4.5	1/2" X 2"	0.70	1.5
SH 2403S	1/2"-13	6	1/2" X 2"	0.91	2.19

SH 1654 A thru SH 1661 A



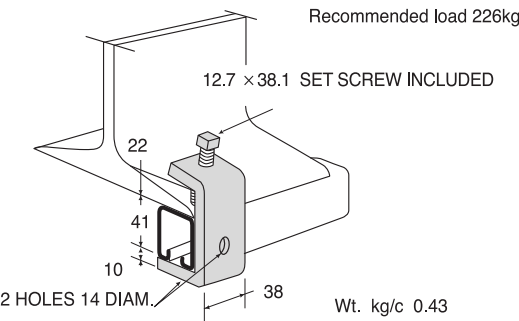
SH 1656A & thru SH 1661 A

FOR BEAM CLAMPS UNDER 22 THICK FLANGE.

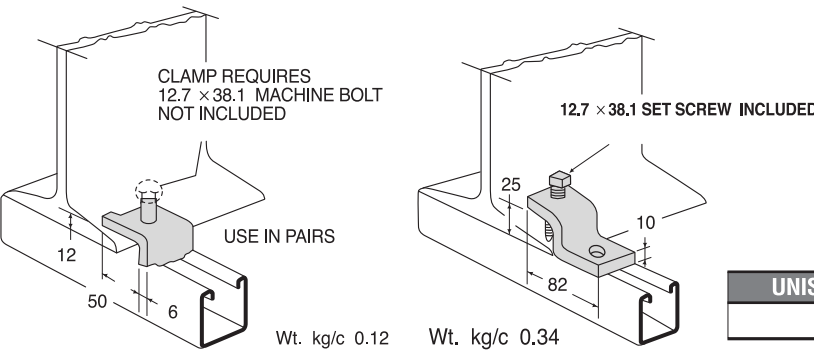
Part No.	FLANGE WIDTH	A	CLAMP USED WITH	Wt. Kg/c
SH 1654A	153	177	SH 2675	0.08
SH 1655A	228	254	SH 2675	0.11
SH 1656A	153	228	SH 1648S Series and	0.12
SH 1657A	228	304	SH 1648S Series and	0.15
SH 1658A	304	381	SH 2398S Series	0.20
SH 1659A	152	117	SH 2676	0.11
SH 1660A	228	304	SH 2676	0.15
SH 1661A	304	381	SH 2676	0.19

BEAM CLAMPS

SH 1271 S

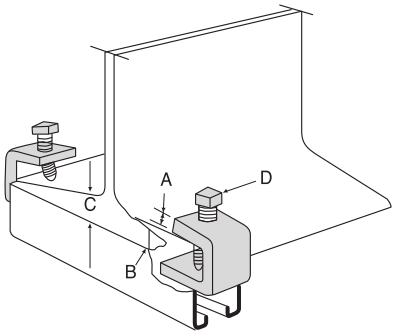


SH 1386 SH 1379 S



UNISTUT CHANNEL SIZE	REC. LOAD(Kg)
SH 1000	272

SH 1272 S SH 1985 S SH 1986 S

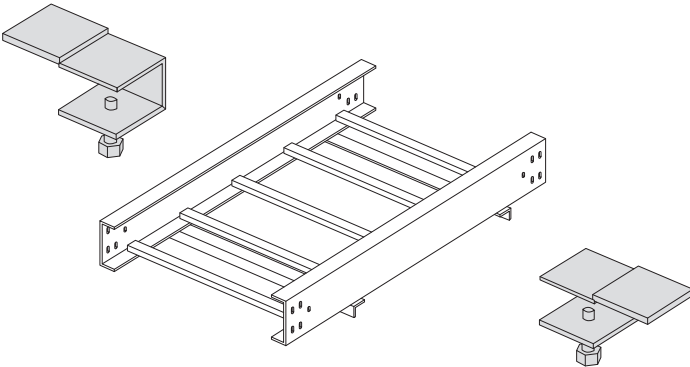


Part No.	DIM "A"	DIM "B"	DIM "C"
SH 1272S	6	22	Up to 19
SH 1985S	10	22	Up to 19
SH 1986S	10	54	22 to 50

USE IN PAIRS

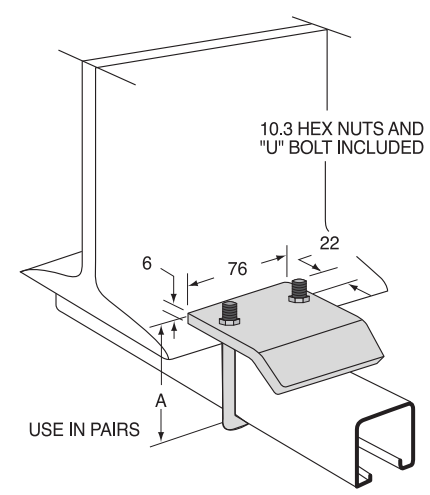
SET SCREW INCLUDED "D"	ALLOWABLE LEAD PER PAIR(kg)	Wt. kg/C
9.5-16 x 38.1	204	0.17
12.7-13 x 38.1	453	0.28
12.7-13 x 38.1	408	0.37

SH 1390



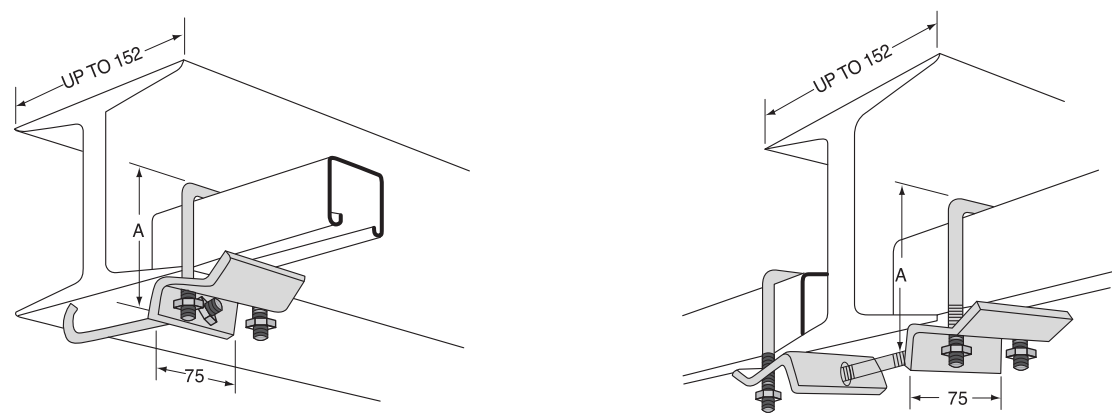
BEAM CLAMPS

SH 2785 & SH 2786



Part No.	UNISTRUT CHANNEL SIZE	A(mm)	Wt. kg/c	REC LOAD(kg)
SH 2785	SH 1000 SH 3300, SH 3301	85	87	453
SH2786	SH 1001	127	41	453

SH 2675 & 2786



Part No.	UNISTRUT CHANNEL SIZE	A(mm)
SH 2867 and SH 2868	SH 1000 SH 3300, SH 3301	85
SH 2867A and SH 2868A	SH 1001	127

Part No.	Wt. kg/c
SH 2867	0.6
SH 2867A	0.64
SH 2868	1.27
SH 2868A	1.35



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