# M★RAK

Oil & Gas,
Infrastructure
and Building
Applications

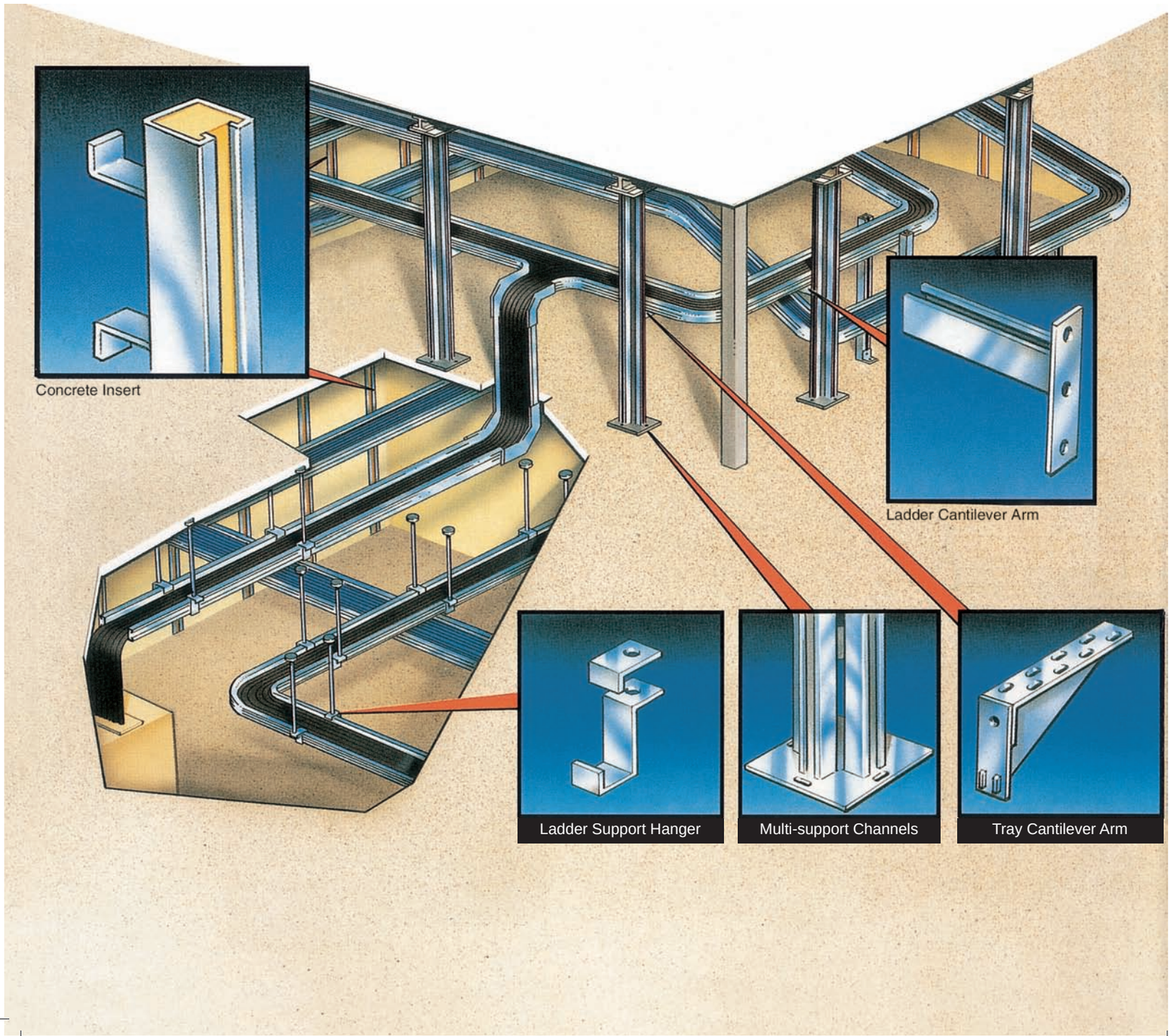
# Cable Support Systems

SBN

SBN INDUSTRIES SDN BHD

# Cable Support System

**M*RAK is a comprehensive range of high quality Cable Support System designed specifically to satisfy the demanding needs of the Oil, Gas and Power industries. M*RAK is also being used in high quality industrial and building projects.**



# Introduction

M*RAK Cable Support System, established in the 1990s, is manufactured according to ISO 9001 quality system for supply to primarily the oil and gas and power generation industries.

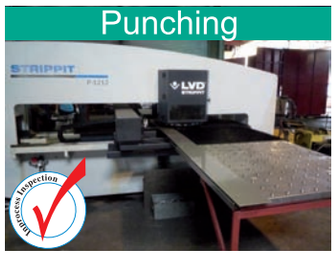
The M*RAK design is aimed at servicing quality conscious markets. Materials are available in Stainless 304, 316, 316L, Carbon Steel with Hot Dipped Galvanised or Powder Coating finish and non-ferrous materials like FRP and Aluminium. M*RAK system of cable support includes strut channels, concrete insert, cantilever arms, trapeze and brackets.

We emphasize on quality products and services, using only reliable raw materials and metal fittings on all our products. We practise stringent quality control at every stage of production, guaranteed to meet your specification and requirement and work closely with engineers and consultants to determine the most suitable system for installation.

In addition to being the first cable support system manufacturer in Malaysia to be awarded the ISO 9001, we are also the first to be accredited with ISO 9001 : 2000 certification.

Shearing

Punching



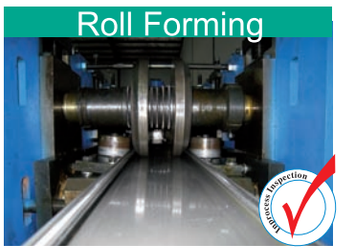
Bending

Welding

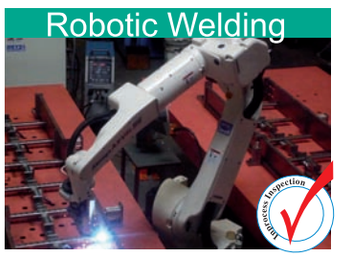
QC & Testing

Packing

Roll Forming



Robotic Welding



We are equipped with state-of-the-art machinery and testing equipment. We roll form 6M long ladders in various profiles and our robotic welding produces high quality welding in high speed production to meet high demand of quality and delivery.

We take pride of our quality. We have spectrometer to check all in-coming materials, stringent QC and total quality management.

**Stainless Steel**
**Passivation Finish**

**Mild Steel**
**Hot-Dipped Galvanised Finish**

**Mild Steel**
**Epoxy Finish**

## Choosing Your Cable Support Systems

### Cable Tray Perforated Type

Solid and rigid, good choice for carrying smaller and dedicated cables. Weight is a concern when tray size becomes bigger.

### Cable Ladder

Versatile, lighter and easy to install. Wide range of load capacity profile.

### Cable Trunking

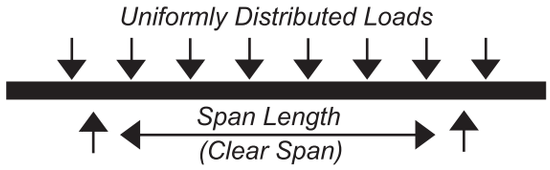
Totally enclosed, generally used indoors.

Choose a Cable Support System by your required cable load and designed support span.

NEMA Standard Classification in Table 1 shows the minimum working load with 1.5 safety factor.

Choice of Cable Support material shall be determined by the application environment; corrosion resistance and price are facts for consideration.

Cable Support Systems are meant for supporting cables, not used as walkways.




| Working Load Lbs/ft (kg/m) | Support Span Feet (m) | Class Designation Per 3.1 |
|---|---|---|
| 50 (74.4) | 8 (2.44) | 8A |
| 75 (111.6) | 8 (2.44) | 8B |
| 100 (148.8) | 8 (2.44) | 8C |
| 50 (74.4) | 12 (3.66) | 12A |
| 75 (111.6) | 12 (3.66) | 12B |
| 100 (148.8) | 12 (3.86) | 12C |
| 50 (74.4) | 16 (4.87) | 16A |
| 75 (111.5) | 16 4.87) | 16B |
| 100 (148.8) | 16 (4.87) | 16C |
| 50 (74.4) | 20 (6.09) | 20A |
| 75 (111.6) | 20 (6.09) | 20B |
| 100 (148.8) | 20 (6.09) | 20C |

*Table 1*

**Span/Load Designation on M*RAK Cable Ladder and Tray**

| Side Rail Height | NEMA 8A | 8B | 8C | 12A | 12B | 12C | 16A | 16B | 16C | 20A | 20B | 20C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38mm | FB38 | FB38 | FB38 | | | | | | | | | |
| 50mm | FB50 | FB50 | FB50 | | | | | | | | | |
| | HRF50 | HRF50 | HRF50 | | | | | | | | | |
| 75mm | CPL75 | CPL75 | | | | | | | | | | |
| | C175 | C175 | | | | | | | | | | |
| | HL75 | HL75 | HL75 | | | | | | | | | |
| | FB75 | FB75 | FB75 | | | | | | | | | |
| 100mm | CPL100 | CPL100 | CPL100 | CPL100 | | | | | | | | |
| | CI100 | CI100 | CI100 | CI100 | | | | | | | | |
| | CT100 | CT100 | CT100 | CT100 | | | | | | | | |
| | HRF100 | HRF100 | HRF100 | | | | | | | | | |
| | HL100 | HL100 | HL100 | HL100 | HL100 | HL100 | | | | | | |
| 125mm | CPL125 | CPL125 | CPL125 | CPL125 | CPL125 | CPL125 | | | | | | |
| | CI125 | CI125 | CI125 | CI125 | CI125 | CI125 | | | | | | |
| | CT125 | CT125 | CT125 | CT125 | CT125 | CT125 | | | | | | |
| | HL125 | HL125 | HL125 | HL125 | HL125 | HL125 | HL125 | HL125 | HL125 | HL125 | HL125 | |
| 150mm | CPL150 | CPL150 | CPL150 | CPL150 | CPL150 | CPL150 | CPL150 | CPL150 | CPL150 | CPL150 | | |
| | CI150 | CI150 | CI150 | CI150 | CI150 | CI150 | CI150 | CI150 | CI150 | CI150 | | |
| | CT150 | CT150 | CT150 | CT150 | CT150 | CT150 | CT150 | CT150 | CT150 | CT150 | | |
| | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 | HL150 |
| | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 | AI150 |
| 160mm | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 | HL160 |

*Table 2*

### Electrical Continuity of Connections

Electrical Continuity of Connections are verified by Resistance Test. The net resistance of the joint shall not be more than 0.00033ohm (NEMA VE1 clause 4.3)

M*RAK

# Metallic Cable Ladder

Tested to conform to all International Standards

MOODY INTERNATIONAL QA SERVICES PTE LTD
40 HILLVIEW TERRACE, SINGAPORE 669266, TELEPHONE : 7608033, FAX : 7600767
E-MAIL : moodysin@mbox3.singnet.com.sg

INSPECTION REPORT

DATE : 2ND. JUNE 1998 | MIS JOB NO. : MIS-138-98

CLIENT :

SBN INDUSTRIES SDN BHD
NO. 6, JALAN PENAGA,
PERINDUSTRIAN KOTA PUTRI
81750 MASAI, JOHOR,
WEST MALAYSIA

ATTN : MR HAROLD LIM / CHUA W.S.

COPIES TO : FILE

CLIENT P.O. NO.
VENDOR/SUPPLIER
LOCATION
VENDOR P.O. NO.
PLANT VISITED
VISIT DATE
EXPEDITOR

INSPECTION TIME
TRAVELLING TIME
REPORTING TIME
TOTAL
MILEAGE

RESULTS OF INSPECTION : [ X ] ACCEPTED [ ] REJECTED [ ] HELD
ORDER STATUS : [ X ] COMPLETE [ ] INCOMPLETE

MATERIAL DESCRIPTION

| ITEM NO. | QUANTITY | MATERIAL DESCRIPTION |
|---|---|---|
| --- | -- | CABLE LADDERS |

SUMMARY OF INSPEC

This report was issued fo
998 to witness load tes

PRESENT

1. Harold Lim
2. Doreen Chiang
3. Chua W. S.
4. Steven Chiem

WORLD WI

ABS Consulting

INSPECTION REPORT

CABLE LADDER DESTRUCTION TEST

PROJECT NO. 1107683
REPORT NO. 02-16297-SG

for

M/S SBN INDUSTRIES SDN BHD.

PREPARED BY

ABSG Consulting Inc.
Singapore Office

20th JULY 2002

BUREAU VERITAS

REPORT NO : BVKL 08-493-08
DATE : 28th Aug 2008
PAGE : 1 of 1

CERTIFICATE OF CABLE LADDER LOAD TESTING

THIS IS TO REPORT that the undersigned surveyor to BUREAU VERITAS, did, acting within the scope of General Conditions of Bureau Veritas Industrial Branch, at the request of Messrs. SBN INDUSTRIES SDN. BHD., attended on 28th Aug 2008, at the SBN INDUSTRIES SDN. BHD., premises, Kota Puteri, Masai, Johor, Malaysia to witness the Cable Tray Deflection Test in accordance to NEMA-VE-1-2002 Method A (Span Distance 6M, 148.9kg/m). The details are as follows:

| | | |
|---|---|---|
| PRODUCT | : | M*RAK Cable Ladder |
| MATERIAL | : | Mild Steel (HDG) |
| SIDE RAIL PROFILE | : | HL (Return Flange) Type Straight Cable Ladder (RFL = 150 x 25 x 15) |
| CROSS RUNG PROFILE | : | Mild Steel Slotted Type (35 x 20 x 10) |
| LOAD/ SPAN CLASS DESIGNATION | : | 20C Method A (Span Distance: 6M, W=148.9kg/m) (W= rated load, kg/m) |
| LENGTH | : | 6000 mm |
| HEIGHT | : | 150 mm |
| WIDTH | : | 600 mm |
| THICKNESS | : | 2.0 mm |
| SPAN LENGTH | : | 6.0 M |

REFERENCE TEST STANDARDS USED: NEMA-VE-1-2002 Method A

TEST PROCEDURE:
Loading to Destruction
Required minimum weight for NEMA-VE-1-2002 = 1341 kg
Weight achieved that caused the destruction = 1394.4 kg

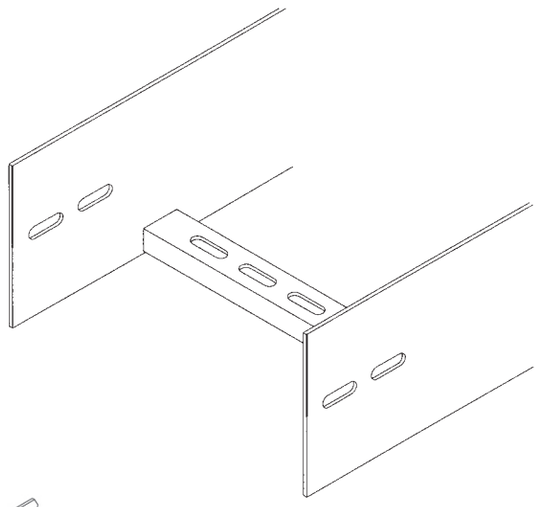
RESULT:
The products were found to be in conformity with aforementioned standards.
In witness of thereof the present certification has been issued.

Issued at Pasir Gudang, Johor, Malaysia on September 06, 2008

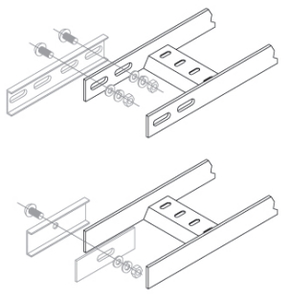
MOHD ARIF SULAIMAN
Surveyor to BUREAU VERITAS

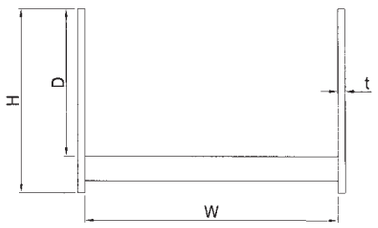
MANSOR OSMAN
Branch Manager, Pasir Gudang

## Flat Bar Type Ladder



| | | |
|---|---|---|
| Length | : | 3000mm |
| Ladder rung type | : | A to E (1.5 or 2mm) |
| Rung spacing | : | 230 or 300mm (9” or 12”) |
| Ladder rung slots | : | 11 x 35mm or 7 x 20mm |
| Joint plate | : | 2mm thick C profile |
| Fastener | : | M10 x 20mm Carriage Bolt/nut/FW/SW (4 sets per joint plate) |






| Model | H (mm) | T (mm) | W (mm) | Material | Coating |
|---|---|---|---|---|---|
| FB | 38<br>50<br>75<br>100 | 3 - 6 | SL150-900 | Stainless Steel 304<br>Stainless Steel 316 or 316L | |
| | | | | Mild Steel | Hot Dip Galvanised<br>Epoxy coated |

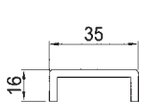
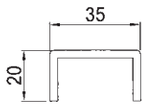
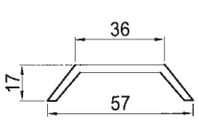
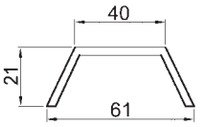
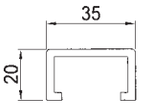
**Definition of Product Code (HOW TO ORDER)**

e.g. FB38A3/3.0/SL450/SS304

- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

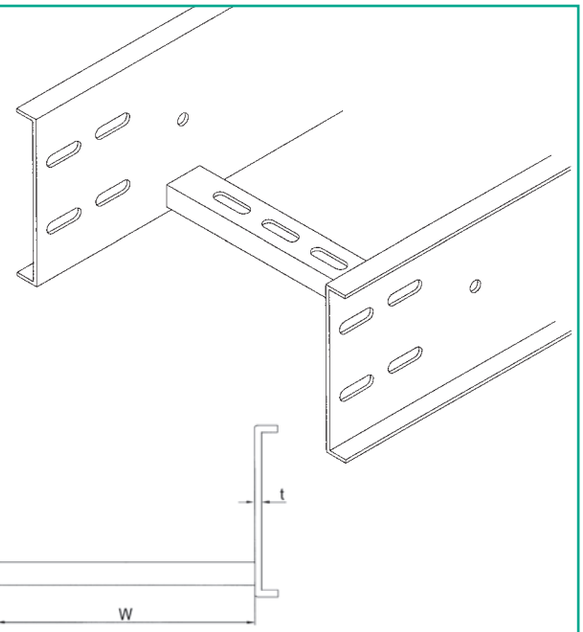
### Rung Type

Thickness:
1.5mm or 2mm

| A | B | C | D | E |
|---|---|---|---|---|
|  |  |  |  |  |

| Ladder Height(H) | Depth (D) | Depth (D) | Depth (D) | Depth (D) | Depth (D) |
|---|---|---|---|---|---|
| 38 | 19 | 15 | 21 | 18 | 15 |
| 50 | 31 | 27 | 33 | 30 | 27 |
| 75 | 56 | 52 | 58 | 55 | 52 |
| 100 | 81 | 77 | 83 | 80 | 77 |

## Open 'C' Type Ladder




| | | |
|---|---|---|
| Length | : | 3000mm or 4000mm |
| Ladder rung type | : | A to E (1.5 or 2mm) |
| Rung spacing | : | 230 or 300mm (9" or 12") |
| Ladder rung slots | : | 11 x 35mm or 7 x 20mm |
| Joint plate | : | 1.5 or 2mm thick |
| Fastener | : | M10 x 20mm Carriage Bolt/nut/FW/1SW (8 sets per joint plate) |

| Model | H (mm) | NEMA Rating | T (mm) | W (mm) | Material | Coating |
|---|---|---|---|---|---|---|
| CPL | 75<br>100<br>125<br>150 | 8AB<br>8ABC, 12A<br>8ABC, 12ABC<br>8ABC, 12ABC, 16ABC<br>20A | 1.5 - 3 | SL150-900 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052 | |
| | | | | | Mild Steel<br>Pre-Galvanised<br>Electro Galvanised | HDG<br>Epoxy Coated |

Safety factor - 1.5

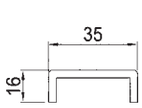
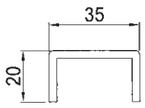
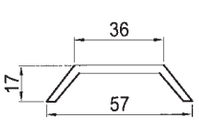
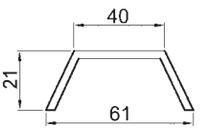
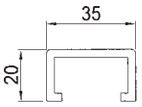
**Definition of Product Code (HOW TO ORDER)**

e.g. CPL150A3/2.0/SL300/SS304

- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

**Rung Type**

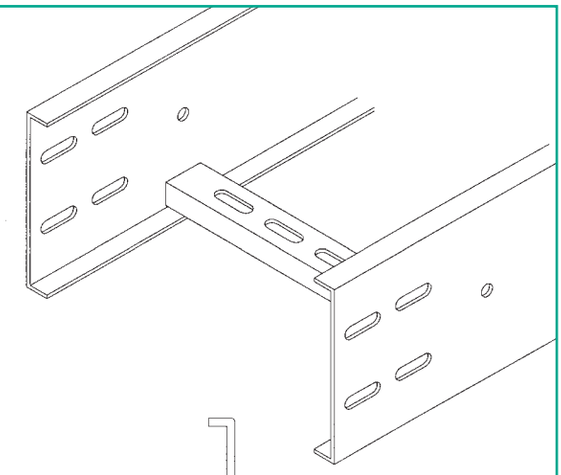
Thickness:
1.5mm or 2mm

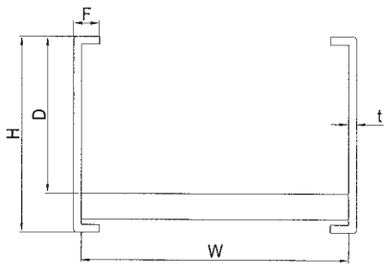
| A | B | C | D | E |
|---|---|---|---|---|
|  |  |  |  |  |



| Ladder Height(H) | Depth (D) | Depth (D) | Depth (D) | Depth (D) | Depth (D) |
|---|---|---|---|---|---|
| 75 | 54 | 50 | 56 | 53 | 50 |
| 100 | 79 | 75 | 81 | 78 | 75 |
| 125 | 104 | 100 | 106 | 103 | 100 |
| 150 | 129 | 125 | 131 | 128 | 125 |

## Inward 'C' Type Ladder






| | | |
|---|---|---|
| Length | : | 3000mm or 4000mm |
| Ladder rung type | : | A to E (1.5 or 2mm) |
| Rung spacing | : | 230 or 300mm (9" or 12") |
| Ladder rung slot | : | 11 x 35mm or 7 x 20mm |
| Joint plate | : | 1.5mm or 2mm thick |
| Fastener | : | M10 x 20mm Carriage Bolt/nut/FW/1 SW (8 sets per joint plate) |

| Model | H (mm) | NEMA Rating | T (mm) | W (mm) | Material | Coating |
|---|---|---|---|---|---|---|
| CI | 75<br>100<br>125<br>150 | 8AB<br>8ABC, 12A<br>8ABC, 12ABC<br>8ABC, 12ABC, 16ABC<br>20A | 1.5 - 3 | SL150-900 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052 | |
| | | | | | Mild Steel<br><br>Pre-Galvanised<br>Electro Galvanised | HDG<br>Epoxy Coated |

Safety factor - 1.5

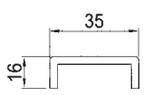
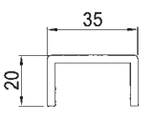
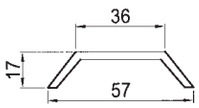
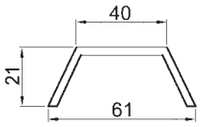
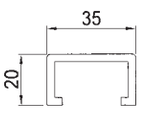
**Definition of Product Code (HOW TO ORDER)**

e.g. CI150A3/2.0/SL300/SS316

- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

**Rung Type**

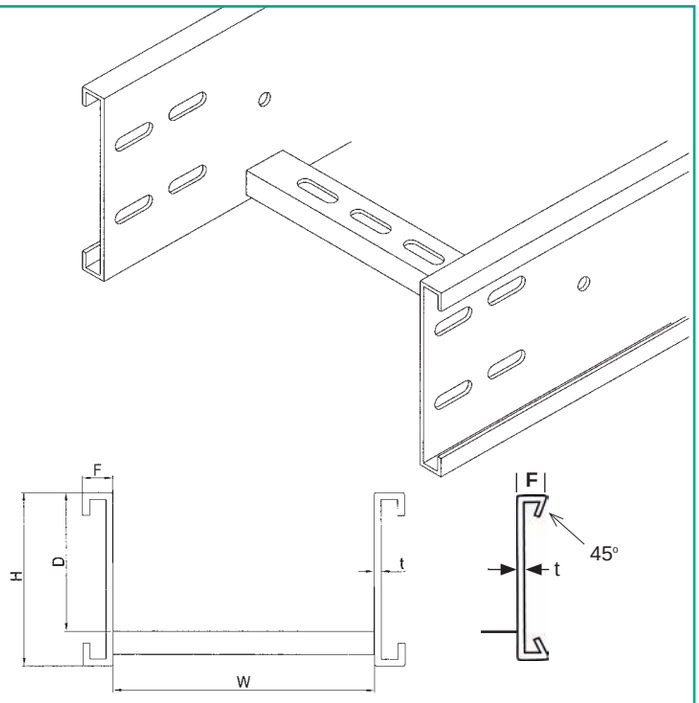
Thickness:
1.5mm or 2mm

| A | B | C | D | E |
|---|---|---|---|---|
|  |  |  |  |  |



| Ladder Height (H) | Depth (D) | Depth (D) | Depth (D) | Depth (D) | Depth (D) |
|---|---|---|---|---|---|
| 75 | 54 | 50 | 56 | 53 | 50 |
| 100 | 79 | 75 | 81 | 78 | 75 |
| 125 | 104 | 100 | 106 | 103 | 100 |
| 150 | 129 | 125 | 131 | 128 | 125 |

# Heavy Duty Return Flange Type Ladder




Length : 3000mm or 6000mm

Ladder rung type : A to E (1.5 or 2mm)

Rung spacing : 230 or 300mm (9" or 12")

Ladder rung slot : 11 x 35mm or 7 x 20mm

Joint plate : 1.5mm or 2mm thick

Fastener : M10 x 20mm Carriage Bolt/nut/FW/1 SW (8 sets per joint plate)

| Model | H (mm) | NEMA Rating | T (mm) | W (mm) | Material | Coating |
|---|---|---|---|---|---|---|
| HL | 75<br>100<br>125<br>150<br>160 | 8AB<br>8ABC, 12ABC<br>8ABC, 12ABC, 16AB, 20AB<br>8ABC, 12ABC, 16ABC, 20ABC<br>8ABC, 12ABC, 16ABC, 20ABC | 1.5 - 4 | SL150-900 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052 | |
| | | | | | Mild Steel<br>Pre-Galvanised<br>Electro Galvanised | HDG<br>Epoxy Coated |

Safety factor - 1.5

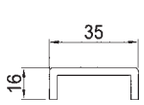
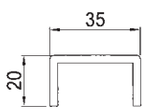
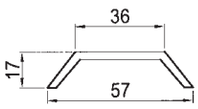
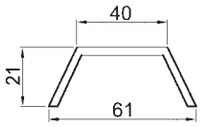
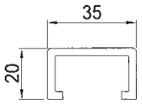
**Definition of Product Code (HOW TO ORDER)**

e.g. HL160A3/2.0/SL300/SS304

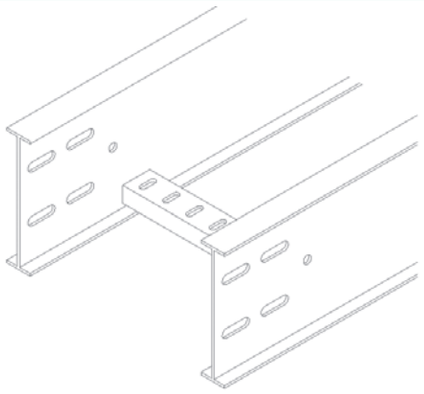
- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

## Rung Type

Thickness: 1.5mm or 2mm

| | A | B | C | D | E |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Ladder Height (H) | Depth (D) | Depth (D) | Depth (D) | Depth (D) | Depth (D) |
| 75 | 54 | 50 | 56 | 53 | 50 |
| 100 | 79 | 75 | 81 | 78 | 75 |
| 125 | 104 | 100 | 106 | 103 | 100 |
| 150 | 129 | 125 | 131 | 128 | 125 |
| 160 | 139 | 135 | 141 | 138 | 135 |

# Heavy Duty Aluminium Ladder



Length : 3000mm or 6000mm

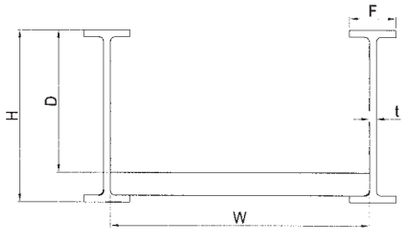
Ladder rung type : B (2 to 3mm)

Rung spacing : 230 or 300mm (9” or 12”)

Ladder rung slots : 7 x 20L

Joint plate : 2mm to 3mm thick

Fastener : M10 x 20mm Carriage Bolt/nut/1FW/1SW (8 sets per joint plate)




| Model | H (mm) | NEMA Rating | T (mm) | W (mm) | Material |
|---|---|---|---|---|---|
| AI | 150 | 8ABC, 12ABC, 16ABC, 20ABC | 2 - 4 | SL150-900 | Marine grade 6063-T6 Aluminium |

Safety factor - 1.5

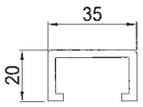
**Definition of Product Code (HOW TO ORDER)**

e.g. AI150B3/3.0/SL450/6063-T6

- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

**Rung Type** **B**

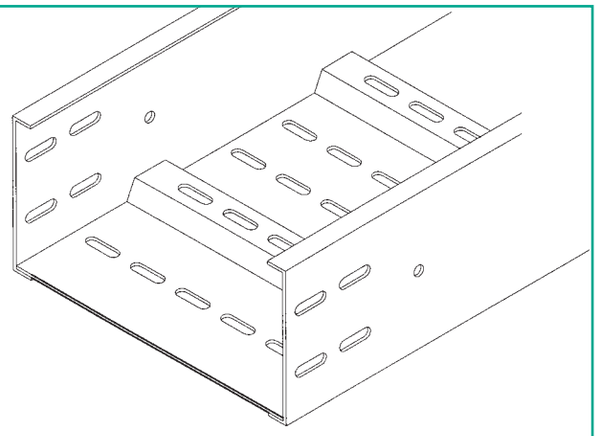
Thickness: 3.0mmT




Ladder Height (H) 150

Depth (D) 125

# Heavy Duty Corrugated Trough



Length : 3000mm or 6000mm

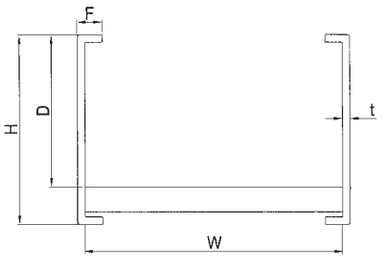
Trough rung type : B (1.5 or 2mm)

Rung spacing : 300mm (12")

Trough rung slot : 11 x 35mm or 7 x 20mm

Joint plate : 1.5mm or 2mm thick

Fastener : M10 x 20mm Carriage Bolt/nut/FW/1 SW (8 sets per joint plate)




| Model | H (mm) | NEMA Rating | T (mm) | W (mm) | Material | Coating |
|---|---|---|---|---|---|---|
| CT | 100<br>125<br>150 | 8ABC, 12ABC<br>8ABC, 12ABC, 16AB<br>8ABC, 12ABC, 16ABC<br>20ABC | 1.5 - 3 | SL 150-900 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052 | |
| | | | | | Mild Steel<br>Pre-Galvanised<br>Electro Galvanised | HDG<br>Epoxy Coated |

Safety factor - 1.5 Note: Aluminium thickness should be 2.0T and above

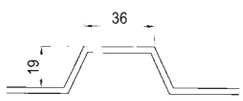
**Definition of Product Code (HOW TO ORDER)**

e.g. CT150B3/2.0/SL300/SS304

- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

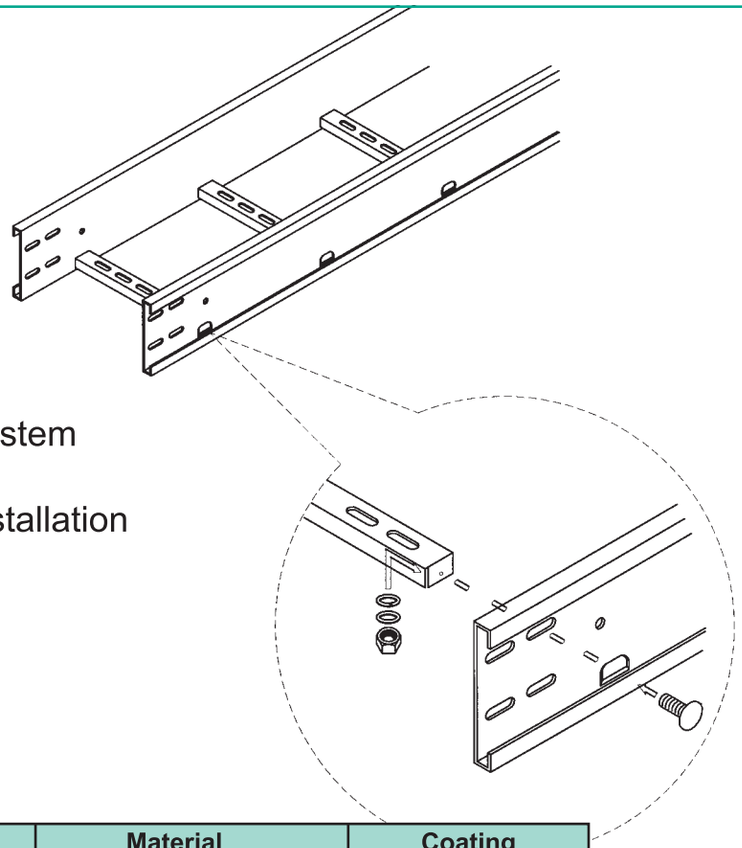
## Rung Type B

Thickness:
1.5mm or 2mm




| Ladder Height (H) | Depth (D) |
|---|---|
| 100 | 78 |
| 125 | 103 |
| 150 | 128 |

## Knock-down Type Ladder



Totally knock-down design

Most versatile cable ladder system

Flexibility for fast and easy installation

Lower shipping cost

| Model | H (mm) | T (mm) | W (mm) | Material | Coating |
|---|---|---|---|---|---|
| KFL | 75 - 150 | 1.5 - 3 | SL 150-900 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052 | |
| | | | | Mild Steel<br><br>Pre-Galvanised<br>Electro Galvanised | HDG<br>Epoxy Coated |

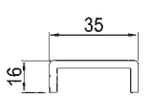
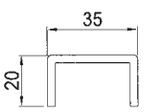
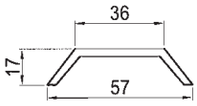
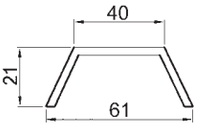
**Definition of Product Code (HOW TO ORDER)**

e.g. KFL125A3/1.5/SL450/Epoxy

- Finishes
- Width
- Thickness
- Length
- Rung Type
- Height
- Model

**Rung Type**

Thickness:
1.5mm or 2mm

| A | B | C | D |
|---|---|---|---|
|  |  |  |  |

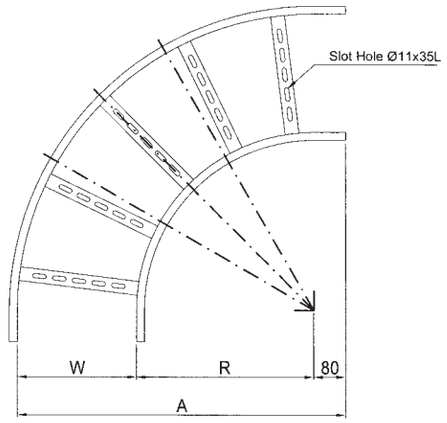
| Ladder Height (H) | Depth (D) | Depth (D) | Depth (D) | Depth (D) |
|---|---|---|---|---|
| 75 | 54 | 50 | 56 | 53 |
| 100 | 79 | 75 | 81 | 78 |
| 125 | 104 | 100 | 106 | 103 |
| 150 | 129 | 125 | 131 | 128 |

# Metallic Cable Ladder (Horizontal Elbow)

| Fitting Type | H | H | H | H | H | W |
|---|---|---|---|---|---|---|
| ..../LFB150 | 75 | 100 | 125 | 150 | 160 | 150 |
| ..../LFB300 | 75 | 100 | 125 | 150 | 160 | 300 |
| ..../LFB450 | 75 | 100 | 125 | 150 | 160 | 450 |
| ..../LFB600 | 75 | 100 | 125 | 150 | 160 | 600 |
| ..../LFB750 | 75 | 100 | 125 | 150 | 160 | 750 |
| ..../LFB900 | 75 | 100 | 125 | 150 | 160 | 900 |

**Radius (R), mm:**
150, 200, 300, 450, 500, 600, 750, 900, 1000 & 1200

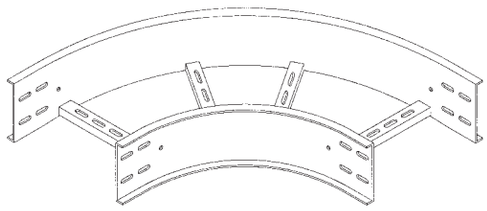
**Segment Degree:** $30^0$, $45^0$, $60^0$, $90^0$




**Definition of Product Code (HOW TO ORDER)**

e.g. CPL150A/1.5/LFB300/90/450/MS HDG

- Finishes
- Radius
- Segment Degree
- Width
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13

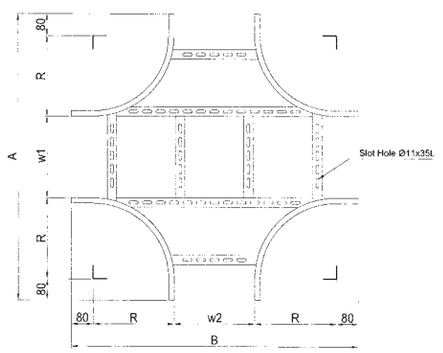


# Metallic Cable Ladder (Crossover)

| Fitting Type | H | H | H | H | H | W1 | W2 |
|---|---|---|---|---|---|---|---|
| ..../LCO150 | 75 | 100 | 125 | 150 | 160 | 150 | 150 |
| ..../LCO300 | 75 | 100 | 125 | 150 | 160 | 300 | 300 |
| ..../LCO450 | 75 | 100 | 125 | 150 | 160 | 450 | 450 |
| ..../LCO600 | 75 | 100 | 125 | 150 | 160 | 600 | 600 |
| ..../LCO750 | 75 | 100 | 125 | 150 | 160 | 750 | 750 |
| ..../LCO900 | 75 | 100 | 125 | 150 | 160 | 900 | 900 |

**Radius (R), mm :**
150, 200, 300, 450, 500, 600,
750, 900, 1000 & 1200

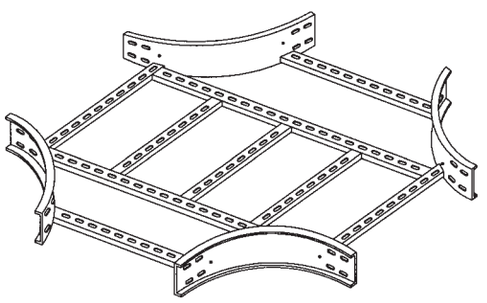
**Crossover :**
W1 = W2 Equal
W1 ≠ W2 Unequal



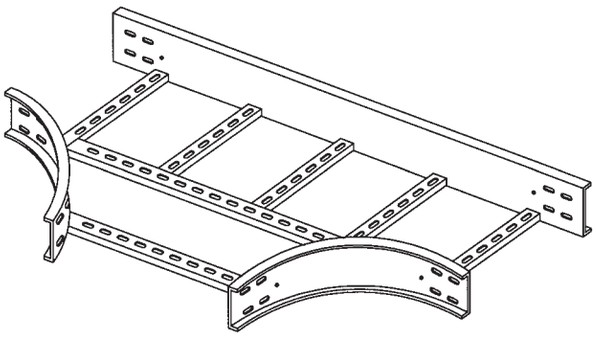

**Definition of Product Code (HOW TO ORDER)**

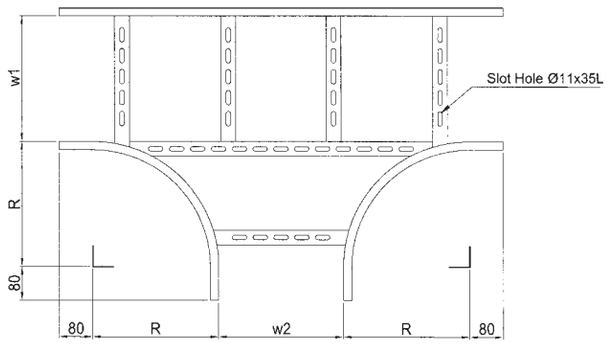
e.g. CPL150A/1.5/LCO300-300/450/MS HDG

- Finishes
- Radius
- W2
- W1
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13



| Fitting Type | H | H | H | H | H | W1 | W2 |
|---|---|---|---|---|---|---|---|
| ..../LET150-150 | 75 | 100 | 125 | 150 | 160 | 150 | 150 |
| ..../LUET150-300 | 75 | 100 | 125 | 150 | 160 | 150 | 300 |
| ..../LUET150-450 | 75 | 100 | 125 | 150 | 160 | 150 | 450 |
| ..../LUET150-600 | 75 | 100 | 125 | 150 | 160 | 150 | 600 |
| ..../LUET150-750 | 75 | 100 | 125 | 150 | 160 | 150 | 750 |
| ..../LUET150-900 | 75 | 100 | 125 | 150 | 160 | 150 | 900 |
| ..../LUET300-150 | 75 | 100 | 125 | 150 | 160 | 300 | 150 |
| ..../LET300-300 | 75 | 100 | 125 | 150 | 160 | 300 | 300 |
| ..../LUET300-450 | 75 | 100 | 125 | 150 | 160 | 300 | 450 |
| ..../LUET300-600 | 75 | 100 | 125 | 150 | 160 | 300 | 600 |
| ..../LUET300-750 | 75 | 100 | 125 | 150 | 160 | 300 | 750 |
| ..../LUET300-900 | 75 | 100 | 125 | 150 | 160 | 300 | 900 |
| ..../LUET450-150 | 75 | 100 | 125 | 150 | 160 | 450 | 150 |
| ..../LUET450-300 | 75 | 100 | 125 | 150 | 160 | 450 | 300 |
| ..../LET450-450 | 75 | 100 | 125 | 150 | 160 | 450 | 450 |
| ..../LUET450-600 | 75 | 100 | 125 | 150 | 160 | 450 | 600 |
| ..../LUET450-750 | 75 | 100 | 125 | 150 | 160 | 450 | 750 |
| ..../LUET450-900 | 75 | 100 | 125 | 150 | 160 | 450 | 900 |
| ..../LUET600-150 | 75 | 100 | 125 | 150 | 160 | 600 | 150 |
| ..../LUET600-300 | 75 | 100 | 125 | 150 | 160 | 600 | 300 |
| ..../LUET600-450 | 75 | 100 | 125 | 150 | 160 | 600 | 450 |
| ..../LET600-600 | 75 | 100 | 125 | 150 | 160 | 600 | 600 |
| ..../LUET600-750 | 75 | 100 | 125 | 150 | 160 | 600 | 750 |
| ..../LUET600-900 | 75 | 100 | 125 | 150 | 160 | 600 | 900 |
| ..../LUET750-150 | 75 | 100 | 125 | 150 | 160 | 750 | 150 |
| ..../LUET750-300 | 75 | 100 | 125 | 150 | 160 | 750 | 300 |
| ..../LUET750-450 | 75 | 100 | 125 | 150 | 160 | 750 | 450 |
| ..../LUET750-600 | 75 | 100 | 125 | 150 | 160 | 750 | 600 |
| ..../LET750-750 | 75 | 100 | 125 | 150 | 160 | 750 | 750 |
| ..../LUET750-900 | 75 | 100 | 125 | 150 | 160 | 750 | 900 |
| ..../LUET900-150 | 75 | 100 | 125 | 150 | 160 | 900 | 150 |
| ..../LUET900-300 | 75 | 100 | 125 | 150 | 160 | 900 | 300 |
| ..../LUET900-450 | 75 | 100 | 125 | 150 | 160 | 900 | 450 |
| ..../LUET900-600 | 75 | 100 | 125 | 150 | 160 | 900 | 600 |
| ..../LUET900-750 | 75 | 100 | 125 | 150 | 160 | 900 | 750 |
| ..../LET900-900 | 75 | 100 | 125 | 150 | 160 | 900 | 900 |






**Radius (R) mm :**
150, 200, 300, 450, 500, 600, 750, 900, 1000 & 1200

**Definition of Product Code (HOW TO ORDER)**

e.g. CPL150A/1.5/LUET300-600/450/MS HDG

- Finishes
- Radius
- W2
- W1
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13

These are flexible means of coping on site with difficult installation situations. When used in conjunction with articulated bends and bendable fishplates these accessories can solve most mis-alignment problems. However, minor alignment difficulties may be overcome more simply using vertically hinged connectors.

Articulated risers can be used in a number of ways depending upon the circumstances. They should always be assembled together before being lifted in situ and there are two alternative approaches to installation:

A. Using the centre bolts the component can be assembled and tightened to an approximation of the required shape then installed and adjusted in situ.

B. If the required radius is known then the various sections can be locked into predetermined positions during assembly creating a component with a fixed, known radius which can then be installed.

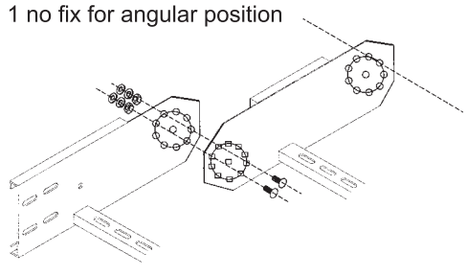
Sets can be split to create assemblies (more vertically hinged connectors will be required) or joined together to create extra long components.

Totally flexible with angle adjustment of every 4 degree

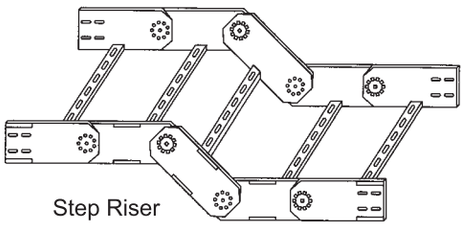
**Riser Assembly**

(A) Match the square hole with round holes in sequence

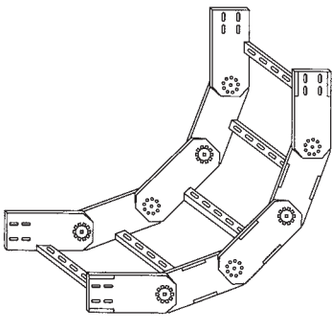
(B) 2 sets of M8 hex bolt/nuts/2 flat washer/1 spring washer to fix at one side
- 1 no installed to center of the round holes
- 1 no fix for angular position



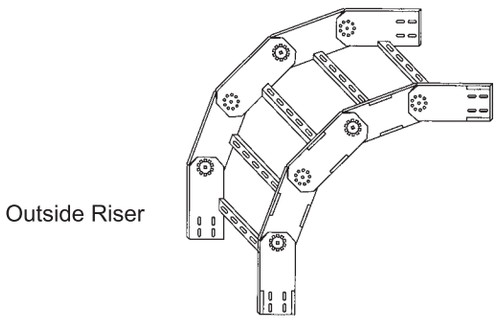
The combination of the 9 and 10 holes circles gives adjustment in steps of 4 degree



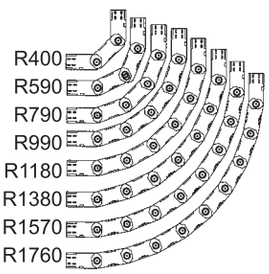
Step Riser



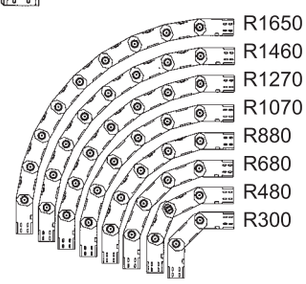
Inside Riser



Outside Riser




Inside Riser



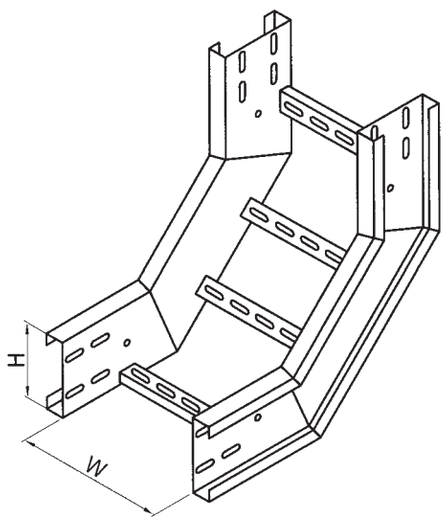

Outside Riser

| Fitting Type | W |
|---|---|
| ..../FR150 | 150 |
| ..../FR300 | 300 |
| ..../FR450 | 450 |
| ..../FR600 | 600 |
| ..../FR750 | 750 |
| ..../FR900 | 900 |

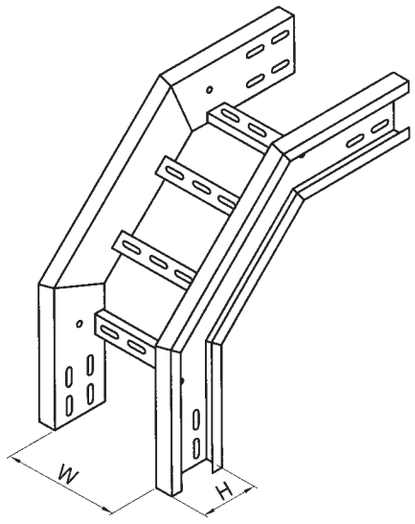
**Definition of Product Code (HOW TO ORDER)**

e.g. CPL150A/1.5/LFR300/300/MS HDG

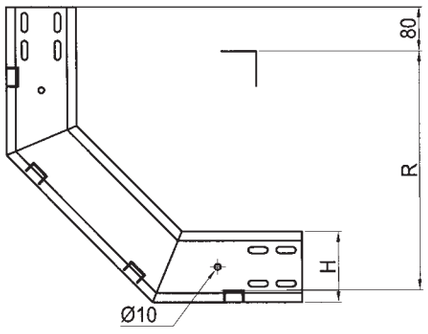
- Finishes
- Width
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13

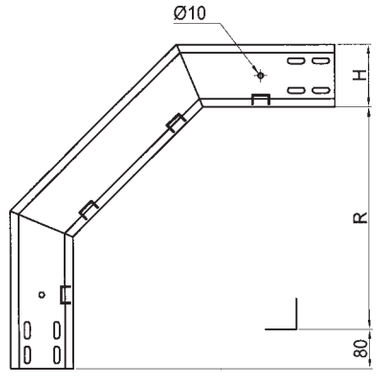



**Inside Riser**




**Outside Riser**



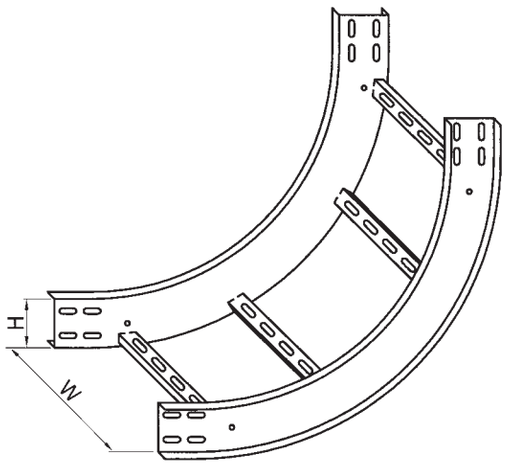

| Fitting Type | H | H | H | H | H | W |
|---|---|---|---|---|---|---|
| ..../LIR150 | 75 | 100 | 125 | 150 | 160 | 150 |
| ..../LIR300 | 75 | 100 | 125 | 150 | 160 | 300 |
| ..../LIR450 | 75 | 100 | 125 | 150 | 160 | 450 |
| ..../LIR600 | 75 | 100 | 125 | 150 | 160 | 600 |
| ..../LIR750 | 75 | 100 | 125 | 150 | 160 | 750 |
| ..../LIR900 | 75 | 100 | 125 | 150 | 160 | 900 |

| Fitting Type | H | H | H | H | H | W |
|---|---|---|---|---|---|---|
| ..../LOR150 | 75 | 100 | 125 | 150 | 160 | 150 |
| ..../LOR300 | 75 | 100 | 125 | 150 | 160 | 300 |
| ..../LOR450 | 75 | 100 | 125 | 150 | 160 | 450 |
| ..../LOR600 | 75 | 100 | 125 | 150 | 160 | 600 |
| ..../LOR750 | 75 | 100 | 125 | 150 | 160 | 750 |
| ..../LOR900 | 75 | 100 | 125 | 150 | 160 | 900 |

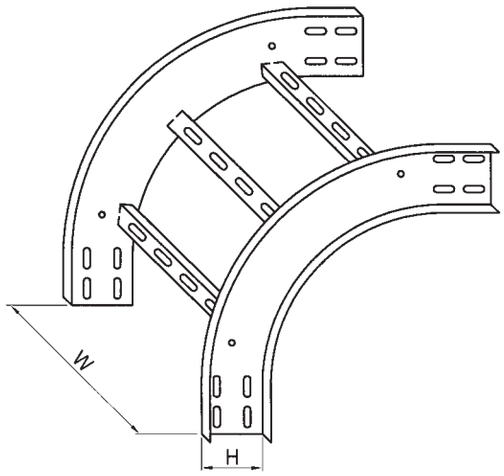
**Definition of Product Code (HOW TO ORDER)**

e.g. CPL150A/1.5/LIR300/90/450/HDG

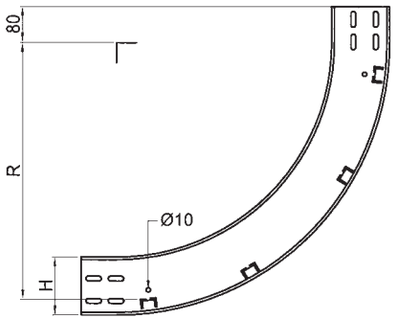
- Finishes
- Radius
- Segment Degree
- Width
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13

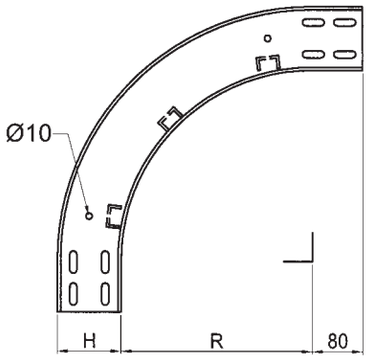



Inside Riser




Outside Riser



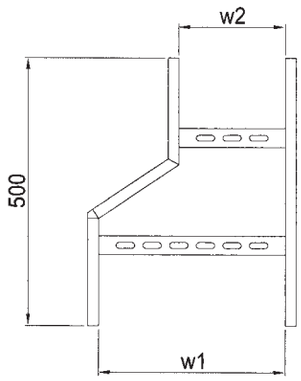

| Fitting Type | H | H | H | H | H | W |
|---|---|---|---|---|---|---|
| ..../LAIR150 | 75 | 100 | 125 | 150 | 160 | 150 |
| ..../LAIR300 | 75 | 100 | 125 | 150 | 160 | 300 |
| ..../LAIR450 | 75 | 100 | 125 | 150 | 160 | 450 |
| ..../LAIR600 | 75 | 100 | 125 | 150 | 160 | 600 |
| ..../LAIR750 | 75 | 100 | 125 | 150 | 160 | 750 |
| ..../LAIR900 | 75 | 100 | 125 | 150 | 160 | 900 |

| Fitting Type | H | H | H | H | H | W |
|---|---|---|---|---|---|---|
| ..../LAOR150 | 75 | 100 | 125 | 150 | 160 | 150 |
| ..../LAOR300 | 75 | 100 | 125 | 150 | 160 | 300 |
| ..../LAOR450 | 75 | 100 | 125 | 150 | 160 | 450 |
| ..../LAOR600 | 75 | 100 | 125 | 150 | 160 | 600 |
| ..../LAOR750 | 75 | 100 | 125 | 150 | 160 | 750 |
| ..../LAOR900 | 75 | 100 | 125 | 150 | 160 | 900 |

**Definition of Product Code (HOW TO ORDER)**

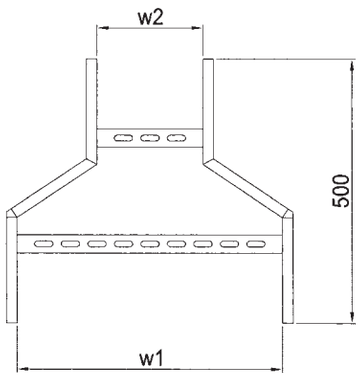
e.g. CPL150A/1.5/LAIR300/90/450/HDG

- Finishes
- Radius
- Segment Degree
- Width
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13



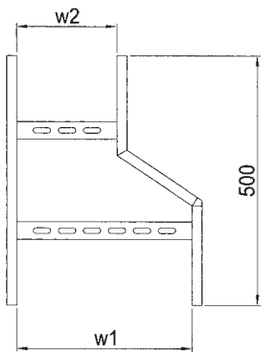

Left Hand Reducer

| Fitting Type | H | H | H | H | H | W1 | W2 |
|---|---|---|---|---|---|---|---|
| .../LLR300-150 | 75 | 100 | 125 | 150 | 160 | 300 | 150 |
| .../LLR450-300 | 75 | 100 | 125 | 150 | 160 | 450 | 300 |
| .../LLR450-150 | 75 | 100 | 125 | 150 | 160 | 450 | 150 |
| .../LLR600-450 | 75 | 100 | 125 | 150 | 160 | 600 | 450 |
| .../LLR600-300 | 75 | 100 | 125 | 150 | 160 | 600 | 300 |
| .../LLR600-150 | 75 | 100 | 125 | 150 | 160 | 600 | 150 |
| .../LLR750-600 | 75 | 100 | 125 | 150 | 160 | 750 | 600 |




Concentric Reducer

| Fitting Type | H | H | H | H | H | W1 | W2 |
|---|---|---|---|---|---|---|---|
| .../LCR300-150 | 75 | 100 | 125 | 150 | 160 | 300 | 150 |
| .../LCR450-300 | 75 | 100 | 125 | 150 | 160 | 450 | 300 |
| .../LCR450-150 | 75 | 100 | 125 | 150 | 160 | 450 | 150 |
| .../LCR600-450 | 75 | 100 | 125 | 150 | 160 | 600 | 450 |
| .../LCR600-300 | 75 | 100 | 125 | 150 | 160 | 600 | 300 |
| .../LCR600-150 | 75 | 100 | 125 | 150 | 160 | 600 | 150 |
| .../LCR750-600 | 75 | 100 | 125 | 150 | 160 | 750 | 600 |




Right Hand Reducer

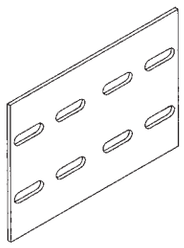
| Fitting Type | H | H | H | H | H | W1 | W2 |
|---|---|---|---|---|---|---|---|
| .../LRR300-150 | 75 | 100 | 125 | 150 | 160 | 300 | 150 |
| .../LRR450-300 | 75 | 100 | 125 | 150 | 160 | 450 | 300 |
| .../LRR450-150 | 75 | 100 | 125 | 150 | 160 | 450 | 150 |
| .../LRR600-450 | 75 | 100 | 125 | 150 | 160 | 600 | 450 |
| .../LRR600-300 | 75 | 100 | 125 | 150 | 160 | 600 | 300 |
| .../LRR600-150 | 75 | 100 | 125 | 150 | 160 | 600 | 150 |
| .../LRR750-600 | 75 | 100 | 125 | 150 | 160 | 750 | 600 |

**Definition of Product Code (HOW TO ORDER)**

e.g. CPL150A/1.5/LCR300-150/HDG

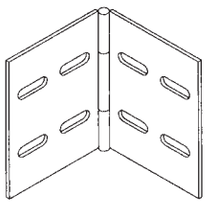
- Finishes
- W2
- W1
- Fitting Type
- Thickness
- Rung Type
- Model - refer to profile from pg 7 to 13

1 *Ladder Straight Splice Plate Code: LSSP*



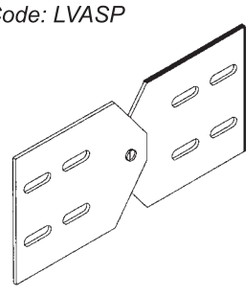
*Fastener: 8 sets of M10x20 Carriage Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

2 *Ladder Horizontal Adjustable Splice Plate Code: LHASP*



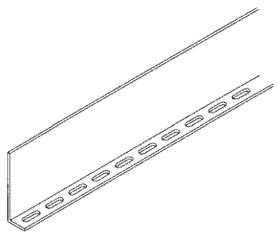
*Fastener: 8 sets of M10x20 Carriage Bolt, 1Hex Nut,1 Flat Washer & 1 Spring Washer*

3 *Ladder Vertical Adjustable Splice Plate Code: LVASP*



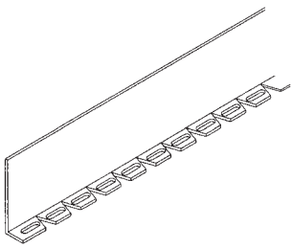
*Fastener: 8 sets of M10x20 Carriage Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

4 *Ladder Straight Divider Code: LSD*



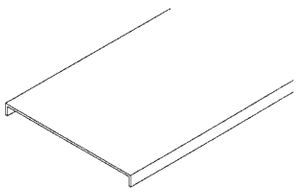
*Fastener: 2 sets of M6x16 or 2 sets of M10x20 Carriage Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

5 *Ladder Flexible Divider Code: LFD*



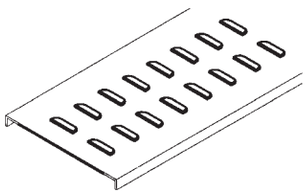
*Fastener: 2 sets of M6x16 or 2 sets of M10x20 Carriage Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

6 *Ladder Solid Flange Cover Code: LSFC*



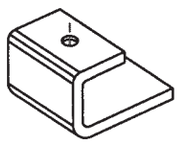
*Fastener: 4 sets of Cover Clips c/w M6x20 Hex Bolt*

7 *Ladder Ventilated Flange Cover Code: LVFC*



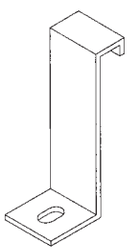
*Fastener: 4 sets of Cover Clips c/w M6x20 Hex Bolt*

8 *Ladder Cover Clip Code: LCC for CPL*



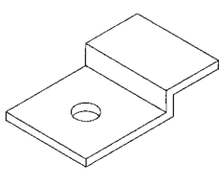
*Fastener: 1 pce of M6x20 Hex Bolt*

9 *Ladder Hold Down Clamp Code: LHDC*



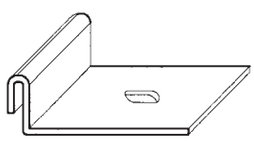
*Fastener: 1 set of M10x30 Hex Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

10 *Ladder Hold Down Clip (for CPL) Code: LHDC2*



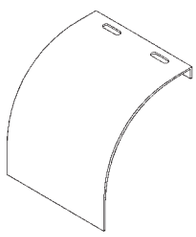
*Fastener: 1 set of M10x30 Hex Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

11 *Ladder Hold Down U Clip (for HL 90Deg) Code: LHUDC*



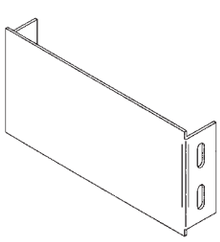
*Fastener: 1 set of M10x30 Hex Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

12 *Ladder Dropout Code: LDO*



*Fastener: 3 sets of M10x20 Carriage Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

13 *Ladder End Plate Code: LEP*



*Fastener: 4 sets of M10x20 Carriage Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

**Definition of Product Code (HOW TO ORDER)**

**For item 12**

e.g. CPL150/2.0/LDO/450/300/SS304

- Finishes
- Radius
- Width
- Code
- Thickness
- Model

**For items 1,2,3,4,5,8,9,10 & 11**

e.g. CPL150/2.0/LFD/SS316L

- Finishes
- Code
- Thickness
- Model

**For items 6,7 and 13**

e.g. CPL150/2.0/LDO/450/SS304

- Finishes
- Width
- Code
- Thickness
- Model

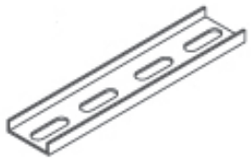
14 *Ladder Hold Down V-Clip - for Returned Flanged Type Cable Ladder (45° flanged) Code: LHDVC*

*Fastener: 1 set of M10x30 Hex Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

15 *Straight Splice Plate (C Type) for Flat Bar Type Cable Ladder Non Slotted Code: LSSP-C1*

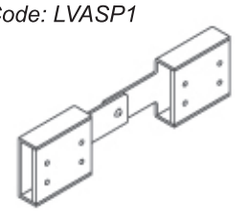
*Fastener: 1 set of M10x20 Hex Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

16 *Straight Splice Plate (C Type) for Flat Bar Type Cable Ladder Slotted Code: LSSP-C2*



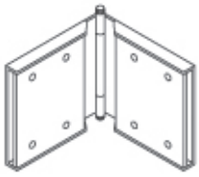
*Fastener: 4 sets of M10x20 Carriage Bolt/Hex Nut/Flat Washer/Spring Washer*

17 *Ladder Vertical Adjustable Splice Plate for Flat Bar Type Cable Ladder Non Slotted Code: LVASP1*



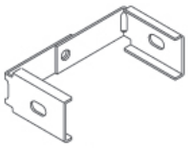
*Fastener: 1 set of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer & 8 sets of M6 x 20 Hex Bolt*

18 *Horizontal Adjustable Splice Plate (with Hinges) for Flat Bar Type Cable Ladder Non Slotted Code: LHASP1*



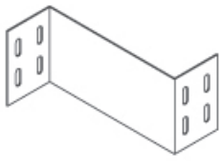
*Fastener: 8 sets of M6x20 Hex Bolt*

19 *Horizontal Adjustable Splice Plate (without Hinges) for Flat Bar Type cable Ladder Slotted Code: LHASP2*



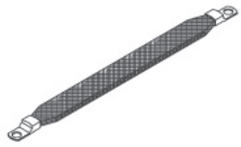
*Fastener: 1 set of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer & 2 sets of M10x20 Carriage Bolt/Hex Nut/Flat Washer/Spring Washer*

20 *Cable Ladder Reducer Plate Code: LRP*



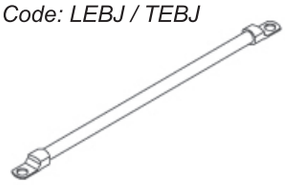
*Fastener: 8 sets of M10x20 Carriage Bolt/Hex Nut/Flat Washer/Spring Washer*

21 *Earth Bonding Jumper Material - Wire Braided Code: LEBJ / TEBJ*



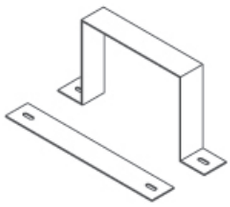
*Fastener:*
*LEBJ - 2 sets of M8x20 Pan Head Bolt/Hex Nut/Flat Washer/Spring Washer*
*TEBJ - 2 sets of M6x16 Pan Head Bolt/Hex Nut/Flat Washer/Spring Washer*

22 *Earth Bonding Jumper Material - Green PVC Code: LEBJ / TEBJ*



*Fastener:*
*LEBJ - 2 sets of M8x20 Pan Head Bolt/Hex Nut/Flat Washer/Spring Washer*
*TEBJ - 2 sets of M6x16 Pan Head Bolt/Hex Nut/Flat Washer/Spring Washer*

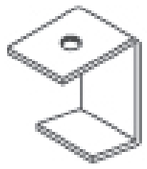
23 *Cable Ladder Clamp Code: LCCU*



*Fastener: 2 sets of M6x20 Hex Bolt/Hex Nut/Flat Washer/ Spring Washer*

24 *Edge Protector (Rubber) Code: EPR*

25 *Ladder Cover Clip Code: LCC1*



*Fastener:*
*1 set of M6x20 Hex Bolt*

26 *Cable Tray Reducer Plate Code: TRP*

*Fastener: 4 sets of M6x16 Pan Head Bolt/Hex Nut/Flat Washer/Spring Washer*

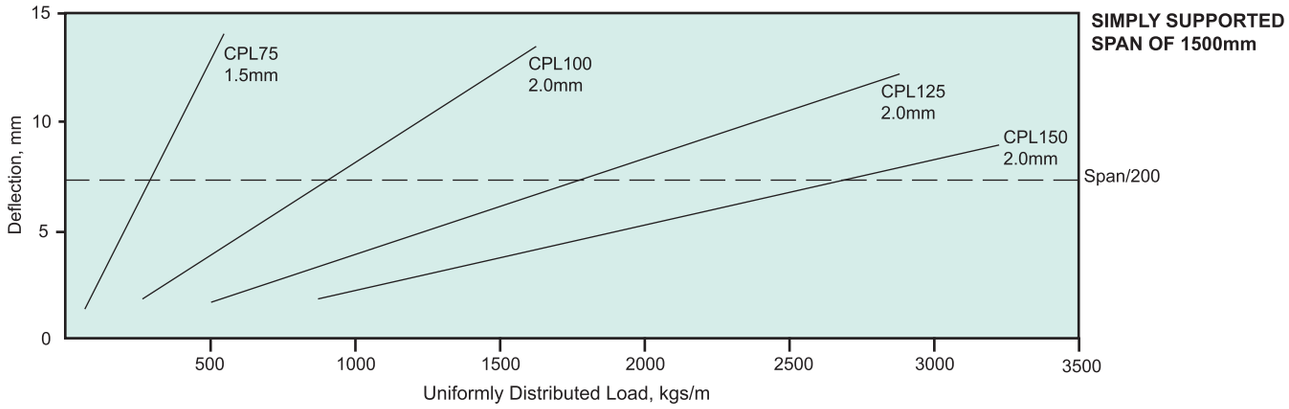
**Definition of Product Code**
**(HOW TO ORDER)**

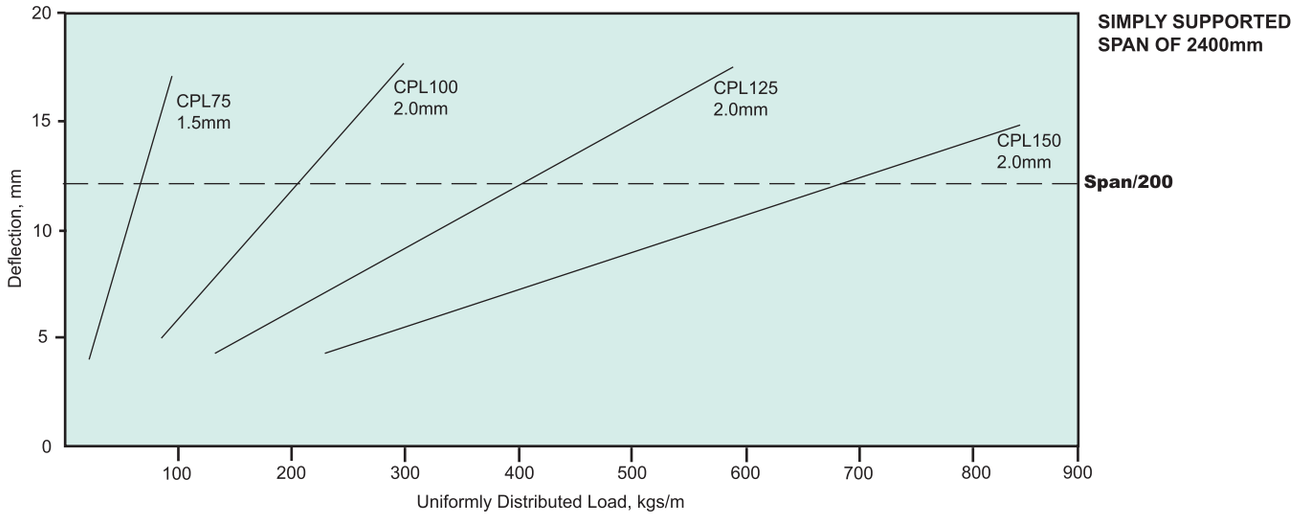
**For item 14,15,16,17,18,19,20,23,25 and 26**
e.g. CPL150/2.0/LHDVC/SS316

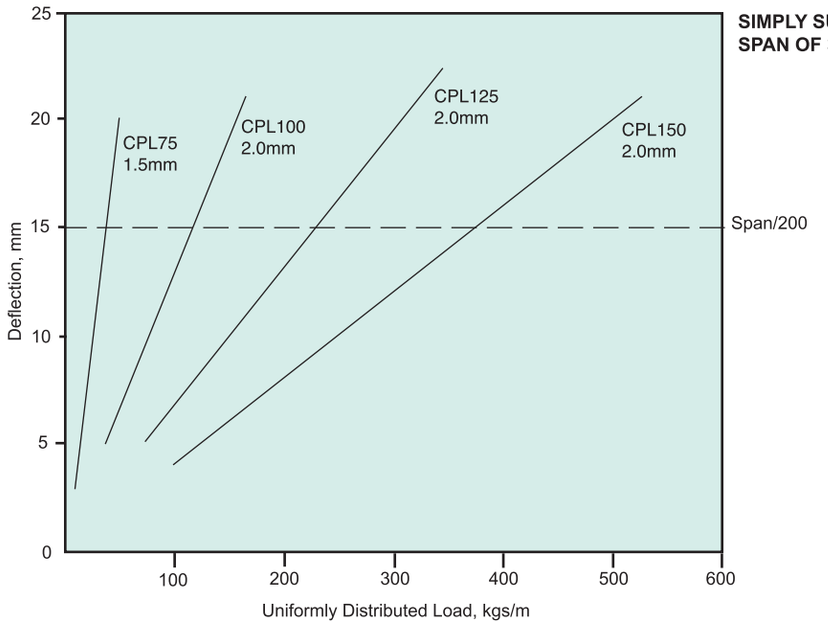
- Finishes
- Code
- Thickness
- Model

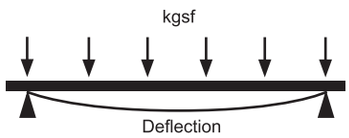
**For item 21,22 and 24**
e.g. CPL150/LEBJ/WIRE BRAIDED

- Code
- Model



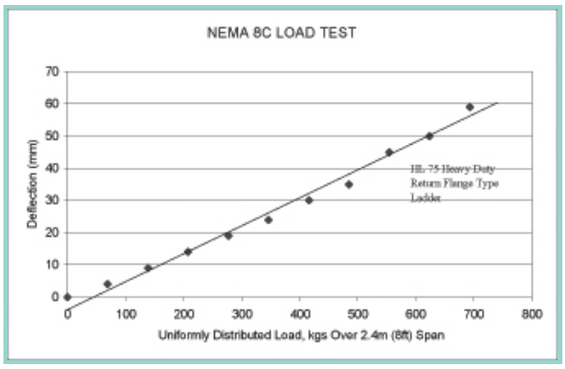



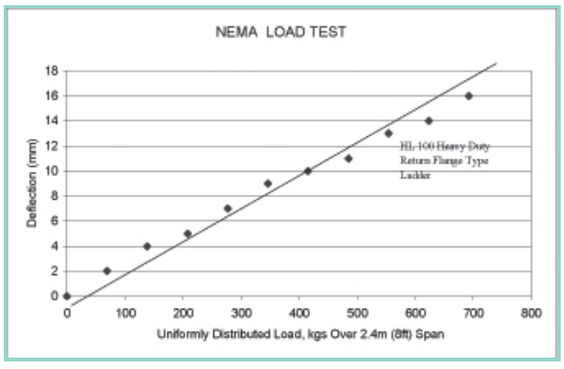



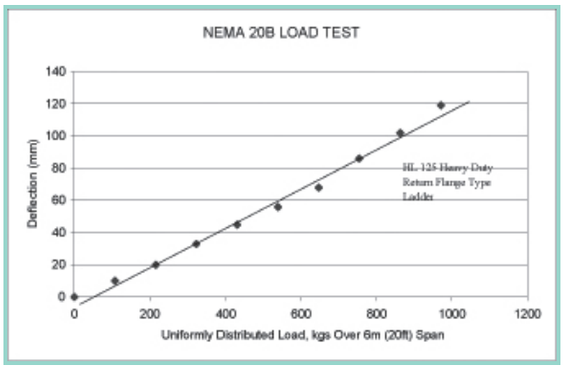



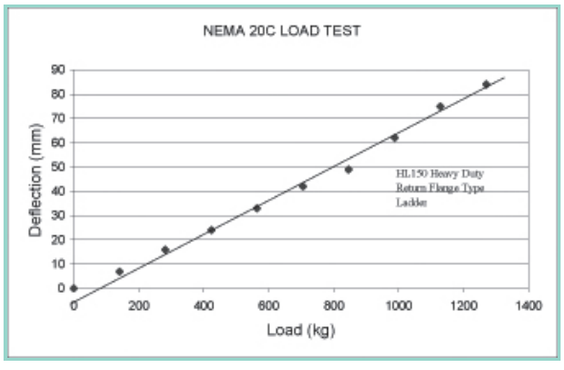

UNIFORMLY DISTRIBUTED LOAD
SIMPLY SUPPORTED

General indication of likely performance with 1.5 safety factor should have deflection no greater than span/200mm

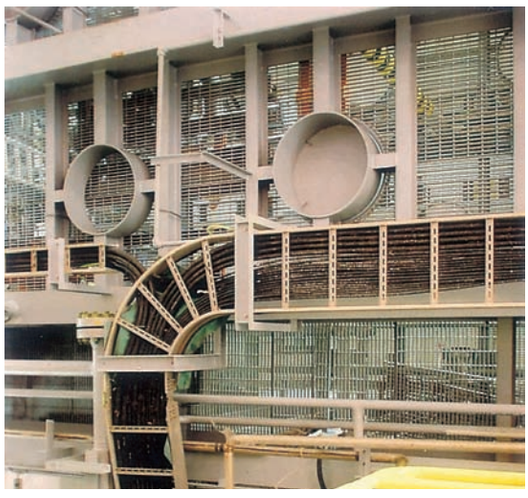

NEMA 8C LOAD TEST
Deflection (mm)
0
10
20
30
40
50
60
70
0
100
200
300
400
500
600
700
800
HL-75 Heavy Duty Return Flange Type Ladder
Uniformly Distributed Load, kgs Over 2.4m (8ft) Span


NEMA LOAD TEST
Deflection (mm)
0
2
4
6
8
10
12
14
16
18
0
100
200
300
400
500
600
700
800
HL-100 Heavy Duty Return Flange Type Ladder
Uniformly Distributed Load, kgs Over 2.4m (8ft) Span


NEMA 20B LOAD TEST
Deflection (mm)
0
20
40
60
80
100
120
140
0
200
400
600
800
1000
1200
HL-125 Heavy Duty Return Flange Type Ladder
Uniformly Distributed Load, kgs Over 6m (20ft) Span

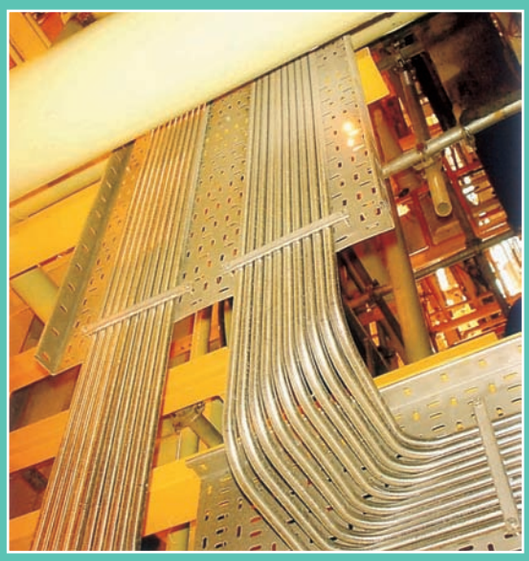

NEMA 20C LOAD TEST
Deflection (mm)
0
10
20
30
40
50
60
70
80
90
0
200
400
600
800
1000
1200
1400
HL150 Heavy Duty Return Flange Type Ladder
Load (kg)

# Metallic Cable Ladder



M★RAK

# Metallic Cable Tray



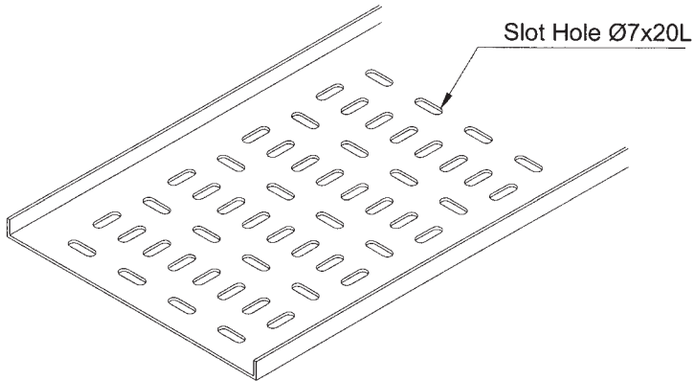
## Light Duty Tray

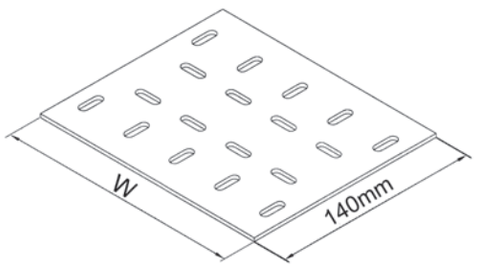
Length : 2438mm or 3000mm

Dimension of slot : 7mm x 20mm or
11mm x 35mm

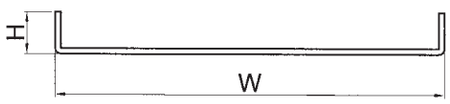
Coupler : 1.0mm or 2mm thick

Fastener : M6 x 16mm Pan
Head bolt/nut/FW/1SW
(4 sets per coupler)




LD13 Tray Straight Coupling Plate
...../TSCP/HDG or *




| Model | H(mm) | H(mm) | H(mm) | T(mm) | W(mm) | L(mm) | Material |
|---|---|---|---|---|---|---|---|
| NRF | 13 | 15 | 20 | 1 - 2 | ST50 | 2438 or 3000 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052<br>Mild Steel (HDG or epoxy coated finish)<br>Pre-Galvanised<br>Electro Galvanised |
| | 13 | 15 | 20 | 1 - 2 | ST75 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST100 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST150 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST200 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST225 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST300 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST450 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST600 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST750 | 2438 or 3000 | |
| | 13 | 15 | 20 | 1 - 2 | ST900 | 2438 or 3000 | |

**Definition of Product Code (HOW TO ORDER)**

e.g. NRF13/2.0/ST150/2438/SS304

- Finishes
- Length
- Width
- Thickness
- Height
- Model

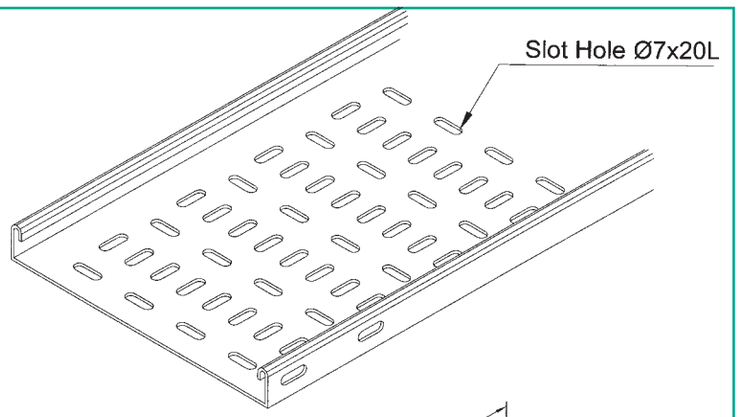
## Medium Duty Tray

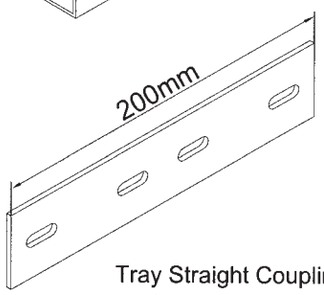
Length : 2438mm or 3000mm

Dimension of slot : 7mm x 20mm or
11mm x 35mm

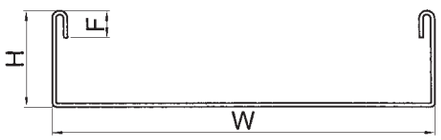
Coupler : 1.5mm or 2mm thick

Fastener : M6 x 16mm Pan
Head bolt/nut/FW/1SW
(4 sets per coupler)




Tray Straight Coupling Plate
...../TSCP/HDG or *




| Model | H (mm) | T (mm) | W (mm) | L (mm) | Material |
|---|---|---|---|---|---|
| MRF | 25 | 1 - 2 | ST50 | 2438 or 3000 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052<br>Mild Steel (HDG or epoxy coated finish)<br>Pre-Galvanised<br>Electro Galvanised |
| | 25 | 1 - 2 | ST75 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST100 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST150 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST200 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST225 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST300 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST450 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST600 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST750 | 2438 or 3000 | |
| | 25 | 1 - 2 | ST900 | 2438 or 3000 | |

**Definition of Product Code (HOW TO ORDER)**

e.g. MRF25/2.0/ST150/2438/SS304

- Finishes
- Length
- Width
- Thickness
- Height
- Model

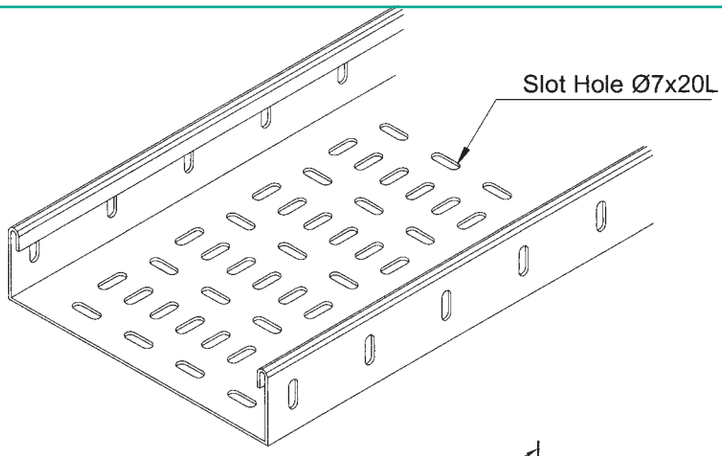
## Heavy Duty Tray

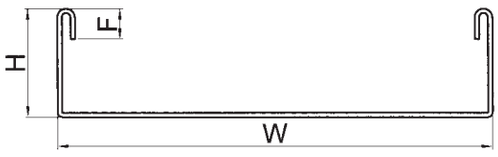
Length : 2438mm or 3000mm

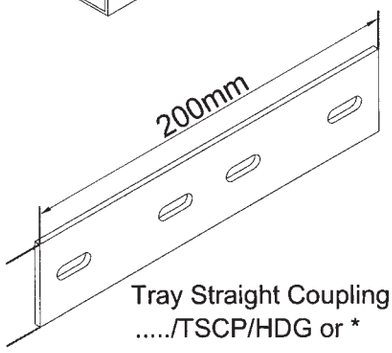
Dimension of slot : 7mm x 20mm or
11mm x 35mm

Coupler : 1.5mm or 3mm thick

Fastener : M6 x 16mm Pan
Head bolt/nut/FW/1SW
(4 sets per coupler)




Tray Straight Coupling Plate
...../TSCP/HDG or *

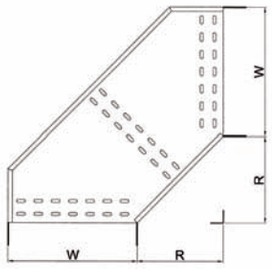
| Model | H (mm) | H (mm) | H (mm) | T (mm) | W (mm) | L (mm) | Material |
|---|---|---|---|---|---|---|---|
| HRF | 50 | 75 | 100 | 1 - 2 | ST50 | 2438 or 3000 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052<br>Mild Steel (HDG or epoxy coated finish)<br>Pre-Galvanised<br>Electro Galvanised |
| | 50 | 75 | 100 | 1 - 2 | ST75 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST100 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST150 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST200 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST225 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST300 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST450 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST600 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST750 | 2438 or 3000 | |
| | 50 | 75 | 100 | 1 - 2 | ST900 | 2438 or 3000 | |

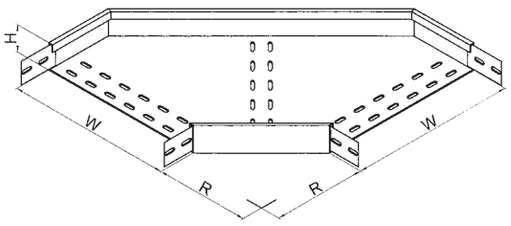
**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/2.0/ST225/2438/Epoxy

- Finishes
- Length
- Width
- Thickness
- Height
- Model

## Flat Bend



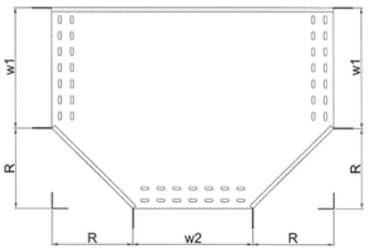

| Fitting Type | W |
|---|---|
| ..../TFB50 | 50 |
| ..../TFB75 | 75 |
| ..../TFB100 | 100 |
| ..../TFB150 | 150 |
| ..../TFB200 | 200 |
| ..../TFB225 | 225 |
| ..../TFB300 | 300 |
| ..../TFB450 | 450 |
| ..../TFB600 | 600 |
| ..../TFB750 | 750 |
| ..../TFB900 | 900 |

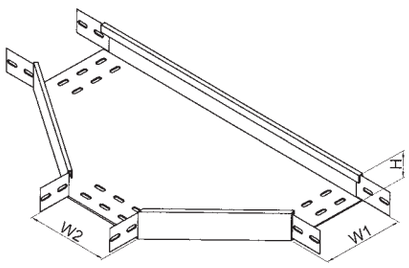
**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TFB100/200R/HDG

- Finish
- Radius
- Fitting Type
- Thickness
- Model
- (refer to pg 26 to 28)

## Equal Tee



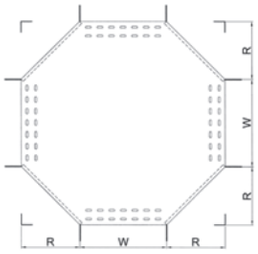

| Fitting Type | W |
|---|---|
| ..../TET50 | 50 |
| ..../TET75 | 75 |
| ..../TET100 | 100 |
| ..../TET150 | 150 |
| ..../TET200 | 200 |
| ..../TET225 | 225 |
| ..../TET300 | 300 |
| ..../TET450 | 450 |
| ..../TET600 | 600 |
| ..../TET750 | 750 |
| ..../TET900 | 900 |

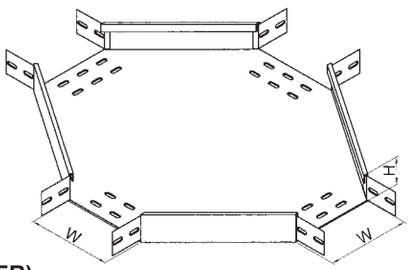
**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TET100/200R/HDG

- Finish
- Radius
- Fitting Type
- Thickness
- Model
- (refer to pg 26 to 28)

## Cross Over



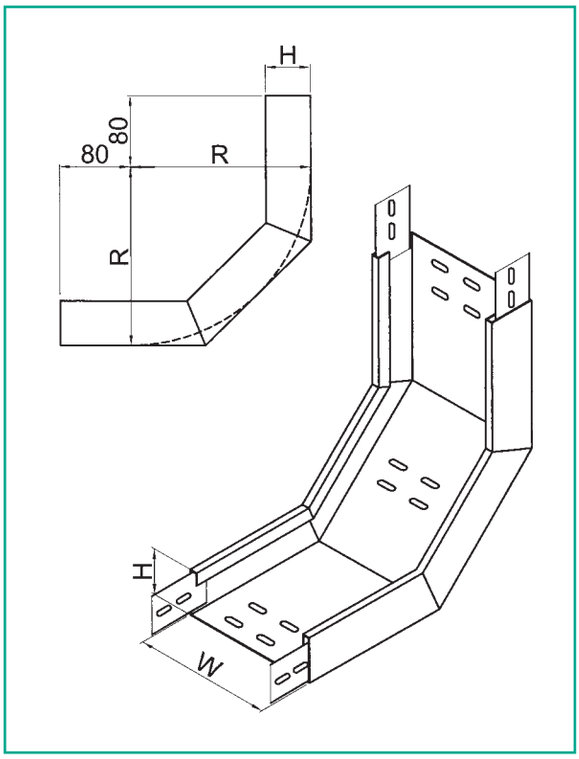




| Fitting Type | W |
|---|---|
| ..../TCO50 | 50 |
| ..../TCO75 | 75 |
| ..../TCO100 | 100 |
| ..../TCO150 | 150 |
| ..../TCO200 | 200 |
| ..../TCO225 | 225 |
| ..../TCO300 | 300 |
| ..../TCO450 | 450 |
| ..../TCO600 | 600 |
| ..../TCO750 | 750 |
| ..../TCO900 | 900 |

**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TCO100/200R/HDG

- Finish
- Radius
- Fitting Type
- Thickness
- Model
- (refer to pg 26 to 28)



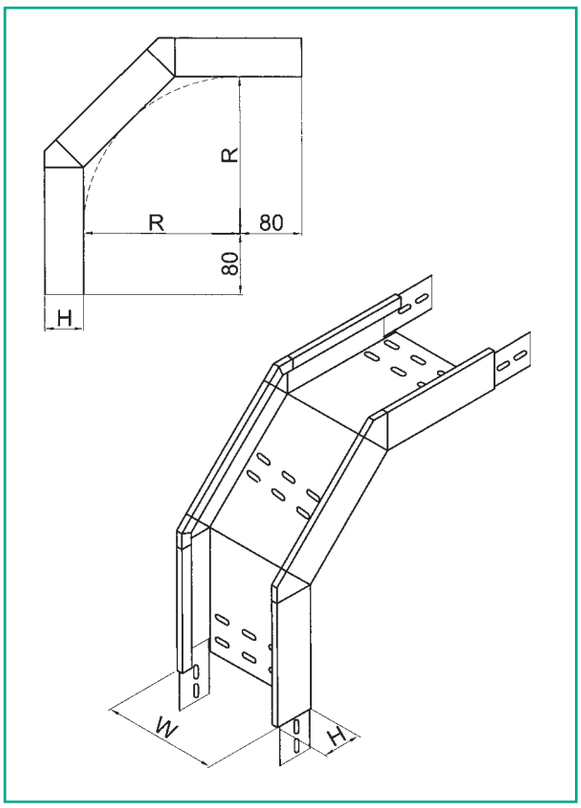

## 90⁰ Inside Riser

| Fitting Type | W |
|---|---|
| ..../TVI 50 | 50 |
| ..../TVI 75 | 75 |
| ..../TVI 100 | 100 |
| ..../TVI 150 | 150 |
| ..../TVI 200 | 200 |
| ..../TVI 225 | 225 |
| ..../TVI 300 | 300 |
| ..../TVI 450 | 450 |
| ..../TVI 600 | 600 |
| ..../TVI 750 | 750 |
| ..../TVI 900 | 900 |

**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TVI450/90/300/HDG

- Finish
- Radius
- Segment Degree
- Fitting Type
- Thickness
- Model (refer to pg 26 to 28)



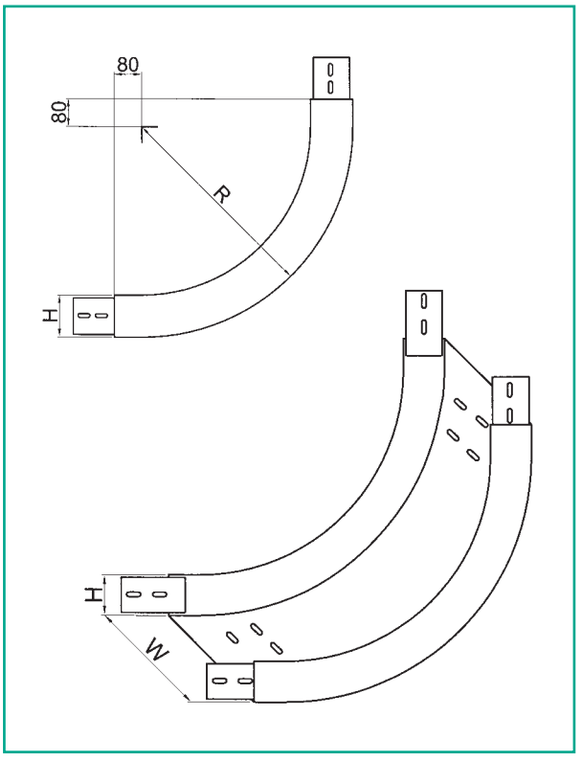

## 90⁰ Outside Riser

| Fitting Type | W |
|---|---|
| ..../TVO 50 | 50 |
| ..../TVO 75 | 75 |
| ..../TVO 100 | 100 |
| ..../TVO 150 | 150 |
| ..../TVO 200 | 200 |
| ..../TVO 225 | 225 |
| ..../TVO 300 | 300 |
| ..../TVO 450 | 450 |
| ..../TVO 600 | 600 |
| ..../TVO 750 | 750 |
| ..../TVO 900 | 900 |

**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TVO450/90/300/HDG

- Finish
- Radius
- Segment Degree
- Fitting Type
- Thickness
- Model (refer to pg 26 to 28)




## 90⁰ Inside Riser

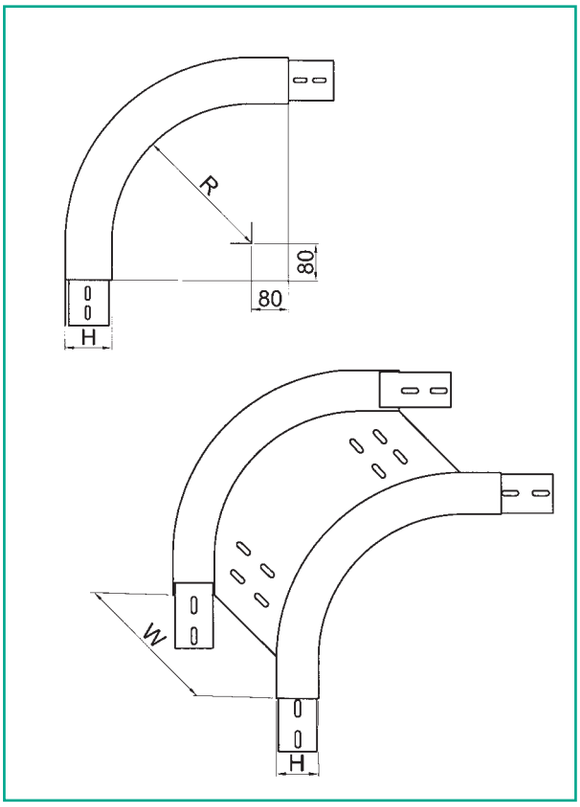
| Fitting Type | W |
|---|---|
| ..../TSI 50 | 50 |
| ..../TSI 75 | 75 |
| ..../TSI 100 | 100 |
| ..../TSI 150 | 150 |
| ..../TSI 200 | 200 |
| ..../TSI 225 | 225 |
| ..../TSI 300 | 300 |
| ..../TSI 450 | 450 |
| ..../TSI 600 | 600 |
| ..../TSI 750 | 750 |
| ..../TSI 900 | 900 |

**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TSI450/90/300/HDG

- Finish
- Radius
- Segment Degree
- Fitting Type
- Thickness
- Model

(refer to pg 26 to 28)




## 90⁰ Outside Riser

| Fitting Type | W |
|---|---|
| ..../TSO 50 | 50 |
| ..../TSO 75 | 75 |
| ..../TSO 100 | 100 |
| ..../TSO 150 | 150 |
| ..../TSO 200 | 200 |
| ..../TSO 225 | 225 |
| ..../TSO 300 | 300 |
| ..../TSO 450 | 450 |
| ..../TSO 600 | 600 |
| ..../TSO 750 | 750 |
| ..../TSO 900 | 900 |

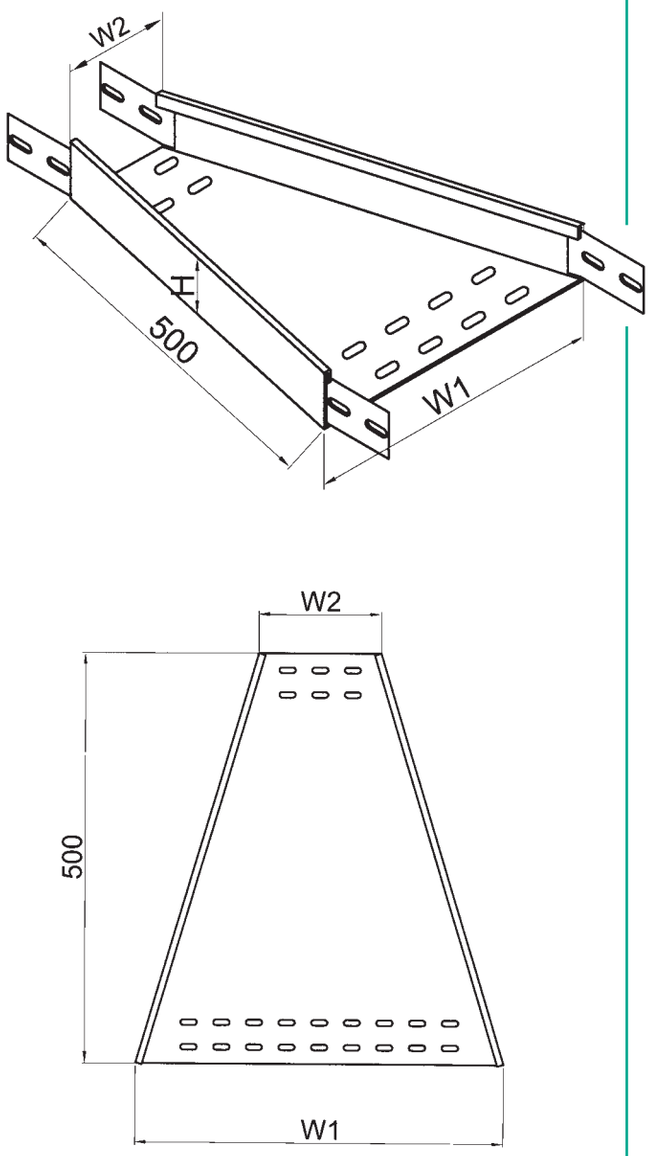
**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TSO450/90/300/HDG

- Finish
- Radius
- Segment Degree
- Fitting Type
- Thickness
- Model

(refer to pg 26 to 28)

# Cable Tray (Concentric Reducer)



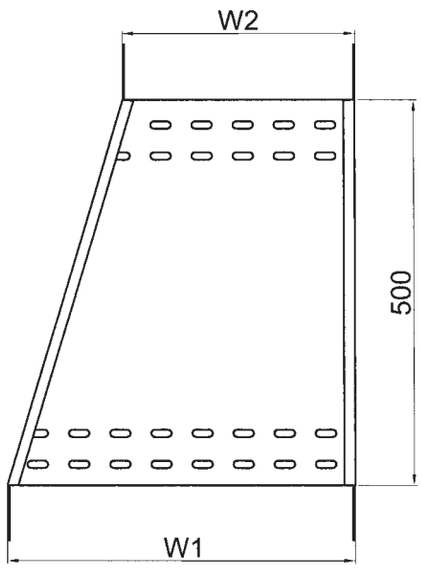

| Fitting Type | w1 | w2 |
|---|---|---|
| ..../TCR100-50 | 100 | 50 |
| ..../TCR150-50 | 150 | 50 |
| ..../TCR150-100 | 150 | 100 |
| ..../TCR200-50 | 200 | 50 |
| ..../TCR200-150 | 200 | 150 |
| ..../TCR200-100 | 200 | 100 |
| ..../TCR200-150 | 200 | 150 |
| ..../TCR225-50 | 225 | 50 |
| ..../TCR225-100 | 225 | 100 |
| ..../TCR225-150 | 225 | 150 |
| ..../TCR225-200 | 225 | 200 |
| ..../TCR300-50 | 300 | 50 |
| ..../TCR300-100 | 300 | 100 |
| ..../TCR300-150 | 300 | 150 |
| ..../TCR300-200 | 300 | 200 |
| ..../TCR300-225 | 300 | 225 |
| ..../TCR450-50 | 450 | 50 |
| ..../TCR450-100 | 450 | 100 |
| ..../TCR450-150 | 450 | 150 |
| ..../TCR450-200 | 450 | 200 |
| ..../TCR450-225 | 450 | 225 |
| ..../TCR600-50 | 600 | 50 |
| ..../TCR600-100 | 600 | 100 |
| ..../TCR600-150 | 600 | 150 |
| ..../TCR600-200 | 600 | 200 |
| ..../TCR600-225 | 600 | 225 |
| ..../TCR600-300 | 600 | 300 |
| ..../TCR600-450 | 600 | 450 |
| ..../TCR750-50 | 750 | 50 |
| ..../TCR750-100 | 750 | 100 |
| ..../TCR750-150 | 750 | 150 |
| ..../TCR750-200 | 750 | 200 |
| ..../TCR750-225 | 750 | 225 |
| ..../TCR750-300 | 750 | 300 |
| ..../TCR750-450 | 750 | 450 |
| ..../TCR750-600 | 750 | 600 |
| ..../TCR900-50 | 900 | 50 |
| ..../TCR900-100 | 900 | 100 |
| ..../TCR900-150 | 900 | 150 |
| ..../TCR900-200 | 900 | 200 |
| ..../TCR900-225 | 900 | 225 |
| ..../TCR900-300 | 900 | 300 |
| ..../TCR900-450 | 900 | 450 |
| ..../TCR900-600 | 900 | 600 |
| ..../TCR900-750 | 900 | 750 |

**Definition of Product Code (HOW TO ORDER)**

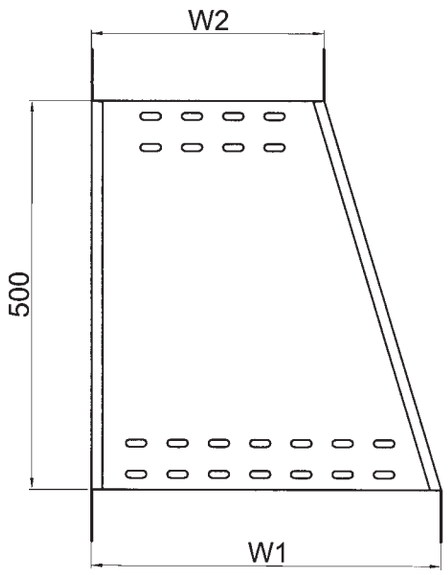
e.g. HRF50/1.5/TCR150-100/HDG

- Finish
- Fitting Type
- Thickness
- Model (refer to pg 26 to 28)

## Left Hand Reducer




## Right Hand Reducer




**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TLR150-100/HDG

- Finish
- Fitting Type
- Thickness
- Model

(refer to pg 26 to 28)

**Definition of Product Code (HOW TO ORDER)**

e.g. HRF50/1.5/TRR150-100/HDG

- Finish
- Fitting Type
- Thickness
- Model

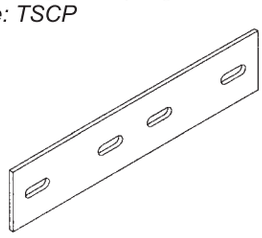
(refer to pg 26 to 28)

| Fitting Type | w1 | w2 | Fitting Type | w1 | w2 |
|---|---|---|---|---|---|
| ..../TLR100-50 | 100 | 50 | ..../TLR600-150 | 600 | 150 |
| ..../TLR150-50 | 150 | 50 | ..../TLR600-200 | 600 | 200 |
| ..../TLR150-100 | 150 | 100 | ..../TLR600-225 | 600 | 225 |
| ..../TLR200-50 | 200 | 50 | ..../TLR600-300 | 600 | 300 |
| ..../TLR200-150 | 200 | 150 | ..../TLR600-450 | 600 | 450 |
| ..../TLR200-100 | 200 | 100 | ..../TLR750-50 | 750 | 50 |
| ..../TLR200-150 | 200 | 150 | ..../TLR750-100 | 750 | 100 |
| ..../TLR225-50 | 225 | 50 | ..../TLR750-150 | 750 | 150 |
| ..../TLR225-100 | 225 | 100 | ..../TLR750-200 | 750 | 200 |
| ..../TLR225-150 | 225 | 150 | ..../TLR750-225 | 750 | 225 |
| ..../TLR225-200 | 225 | 200 | ..../TLR750-300 | 750 | 300 |
| ..../TLR300-50 | 300 | 50 | ..../TLR750-450 | 750 | 450 |
| ..../TLR300-100 | 300 | 100 | ..../TLR750-600 | 750 | 600 |
| ..../TLR300-150 | 300 | 150 | ..../TLR900-50 | 900 | 50 |
| ..../TLR300-200 | 300 | 200 | ..../TLR900-100 | 900 | 100 |
| ..../TLR300-225 | 300 | 225 | ..../TLR900-150 | 900 | 150 |
| ..../TLR450-50 | 450 | 50 | ..../TLR900-200 | 900 | 200 |
| ..../TLR450-100 | 450 | 100 | ..../TLR900-225 | 900 | 225 |
| ..../TLR450-150 | 450 | 150 | ..../TLR900-300 | 900 | 300 |
| ..../TLR450-200 | 450 | 200 | ..../TLR900-450 | 900 | 450 |
| ..../TLR450-225 | 450 | 225 | ..../TLR900-600 | 900 | 600 |
| ..../TLR600-50 | 600 | 50 | ..../TLR900-750 | 900 | 750 |
| ..../TLR600-100 | 600 | 100 | | | |

| Fitting Type | w1 | w2 | Fitting Type | w1 | w2 |
|---|---|---|---|---|---|
| ..../TRR100-50 | 100 | 50 | ..../TRR600-150 | 600 | 150 |
| ..../TRR150-50 | 150 | 50 | ..../TRR600-200 | 600 | 200 |
| ..../TRR150-100 | 150 | 100 | ..../TRR600-225 | 600 | 225 |
| ..../TRR200-50 | 200 | 50 | ..../TRR600-300 | 600 | 300 |
| ..../TRR200-150 | 200 | 150 | ..../TRR600-450 | 600 | 450 |
| ..../TRR200-100 | 200 | 100 | ..../TRR750-50 | 750 | 50 |
| ..../TRR200-150 | 200 | 150 | ..../TRR750-100 | 750 | 100 |
| ..../TRR225-50 | 225 | 50 | ..../TRR750-150 | 750 | 150 |
| ..../TRR225-100 | 225 | 100 | ..../TRR750-200 | 750 | 200 |
| ..../TRR225-150 | 225 | 150 | ..../TRR750-225 | 750 | 225 |
| ..../TRR225-200 | 225 | 200 | ..../TRR750-300 | 750 | 300 |
| ..../TRR300-50 | 300 | 50 | ..../TRR750-450 | 750 | 450 |
| ..../TRR300-100 | 300 | 100 | ..../TRR750-600 | 750 | 600 |
| ..../TRR300-150 | 300 | 150 | ..../TRR900-50 | 900 | 50 |
| ..../TRR300-200 | 300 | 200 | ..../TRR900-100 | 900 | 100 |
| ..../TRR300-225 | 300 | 225 | ..../TRR900-150 | 900 | 150 |
| ..../TRR450-50 | 450 | 50 | ..../TRR900-200 | 900 | 200 |
| ..../TRR450-100 | 450 | 100 | ..../TRR900-225 | 900 | 225 |
| ..../TRR450-150 | 450 | 150 | ..../TRR900-300 | 900 | 300 |
| ..../TRR450-200 | 450 | 200 | ..../TRR900-450 | 900 | 450 |
| ..../TRR450-225 | 450 | 225 | ..../TRR900-600 | 900 | 600 |
| ..../TRR600-50 | 600 | 50 | ..../TRR900-750 | 900 | 750 |
| ..../TRR600-100 | 600 | 100 | | | |

1

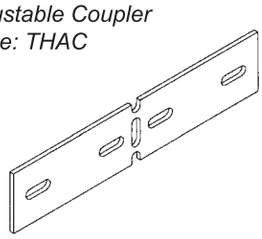
*Tray Straight Coupling Plate*
*Code: TSCP*



*Fastener: 4 sets of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

2

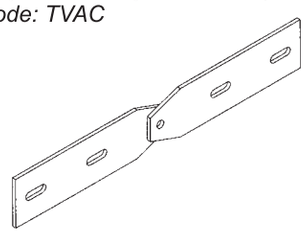
*Tray Horizontal Adjustable Coupler*
*Code: THAC*



*Fastener: 4 sets of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

3

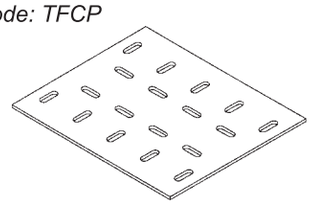
*Tray Vertical Adjustable Coupler*
*Code: TVAC*



*Fastener: 4 sets of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

4

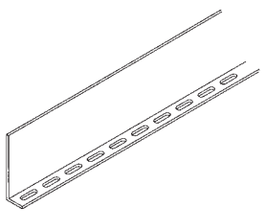
*LD13 Tray Straight Coupling Plate*
*Code: TFCP*



*Fastener: 4 sets of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

5

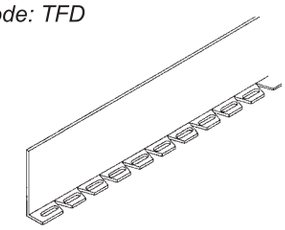
*Tray Straight Divider*
*Code: TSD*



*Fastener: 2 sets of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

6

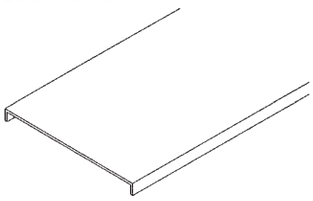
*Tray Flexible Divider*
*Code: TFD*



*Fastener: 2 sets of M6x16 Pan Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

7

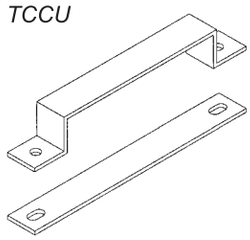
*Tray Solid Flange Cover*
*Code: TSFC*



*Fastener: 4 sets of cover clip c/w M6x20 Pan Head Bolt, 2 Hex Nut, 1 Spring Washer & 1 Flat Washer*

8

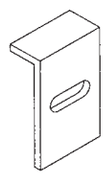
*Tray Cover Clamp*
*Code: TCCU*



*Fastener: 2 sets of M6x20 Hex Bolt, 1 Hex Nut/1FW/1SW*

9

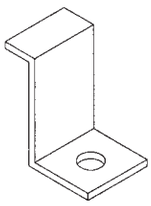
*Tray Cover Clip*
*Code: TCC*



*Fastener: 1 set of M6x16 Round Head Bolt, 1Hex Nut, 1 Flat Washer & 1 Spring Washer*

10

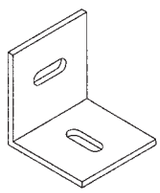
*Tray Cover Clip-combination Hold Down Clamp and Cover Clip*
*Code: TCC2*



*Fastener: 1 set of M10x30 Hex Bolt, 1 Flex Nut, 1 Flex Washer & 1 Spring Washer*

11

*Tray Hold Down Clip*
*Code: THDC*



*Fastener: 2 sets of M6x16 Pan Head Bolt, 1 Hex Nut, 1 Spring Washer & 1 Flat Washer*

**Definition of Product Code**
**(HOW TO ORDER)**
**For items 1,2,3,5,6,9,10 & 11**

e.g. HRF50/1.5/THDC/HDG

- Finishes
- Fitting Type
- Thickness
- Model

**For items 4,7 and 8**

e.g. HRF50/2.0/TCCU/450/HDG

- Finishes
- Width
- Code
- Thickness
- Model

M★RAK

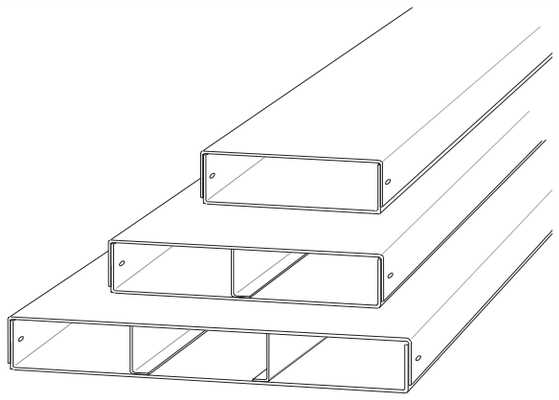
# Cable Trunking Systems

## Underfloor Ducting System

**Definition of Product Code (HOW TO ORDER)**

e.g. UD25/1.0/DST100/2438/GI/2

- Compartments
- Material
- Length
- Width
- Thickness
- Model



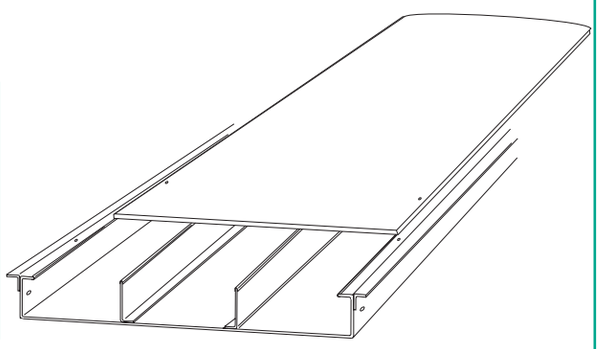
| Model | H (mm) | H (mm) | H (mm) | T (mm) | W (mm) | L (mm) | Material |
|---|---|---|---|---|---|---|---|
| UD | 25 | 32 | 38 | 0.8 - 2.0 | DST50 | 1500, 2438 or 3000 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052<br>Mild Steel (HDG or epoxy coated finish)<br>Pre-Galvanised<br>Electro Galvanised |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST75 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST100 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST150 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST200 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST225 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST250 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST275 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST300 | 1500, 2438 or 3000 | |
| | 25 | 32 | 38 | 0.8 - 2.0 | DST375 | 1500, 2438 or 3000 | |

## Flushfloor Trunking System

**Definition of Product Code (HOW TO ORDER)**

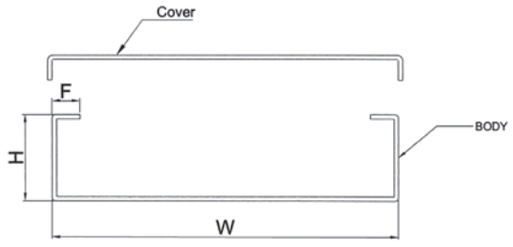
e.g. FT60/2.0/DST280/3000/GI/3

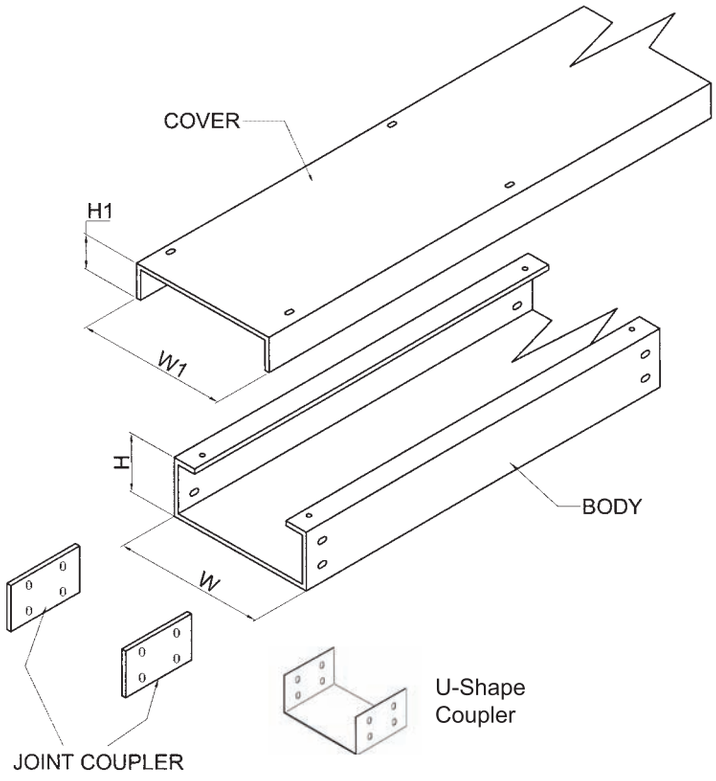
- Compartments
- Material
- Length
- Width
- Thickness
- Model



| Model | H (mm) | T (mm) | W (mm) | L (mm) | Material |
|---|---|---|---|---|---|
| FT | 60 | 0.8 - 2.0 | DST155 | 1500, 2438 or 3000 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052<br>Mild Steel (HDG or epoxy coated finish)<br>Pre-Galvanised<br>Electro Galvanised |
| | 60 | 0.8 - 2.0 | DST280 | 1500, 2438 or 3000 | |
| | 60 | 0.8 - 2.0 | DST405 | 1500, 2438 or 3000 | |
| **Model** | **H (mm)** | **T (mm)** | **W (mm)** | **L (mm)** | |
| FT | 28 | 0.8 - 2.0 | DST100 | 1500, 2438 or 3000 | |
| | 28 | 0.8 - 2.0 | DST150 | 1500, 2438 or 3000 | |
| | 28 | 0.8 - 2.0 | DST200 | 1500, 2438 or 3000 | |
| | 28 | 0.8 - 2.0 | DST225 | 1500, 2438 or 3000 | |
| | 28 | 0.8 - 2.0 | DST300 | 1500, 2438 or 3000 | |

# Light Duty Trunking




Compartments : 1, 2 or 3

Length : 2438mm or 3000mm

Coupler : 1.0mm or 2mm according to body thickness

Fastener : M6 x 16mm Mushroom Head bolt/nut/2FW/1SW (4 sets per coupler)






U-Shape Coupler

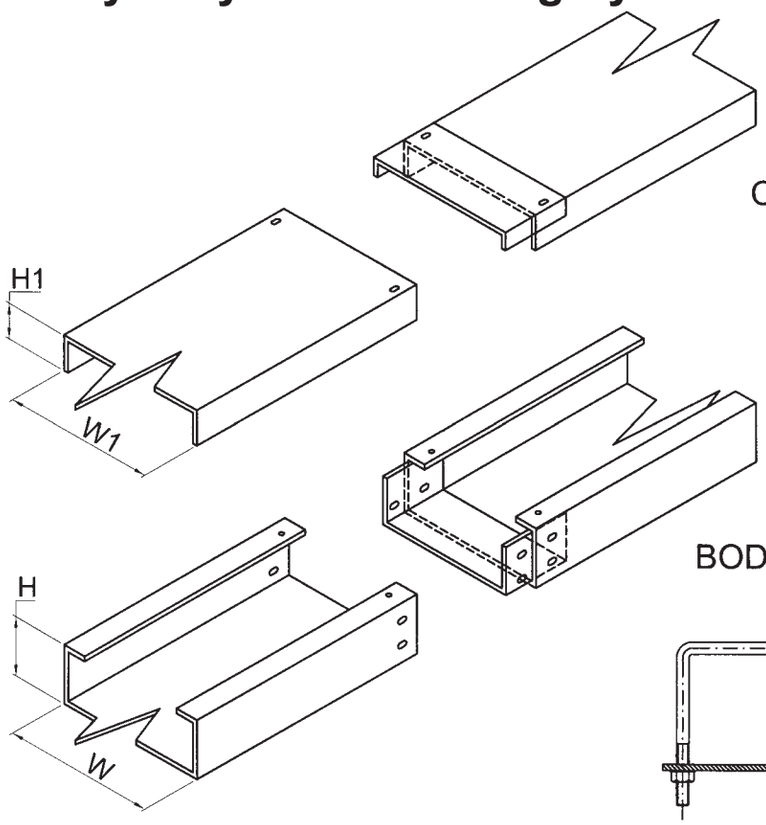
| Model | H (mm) | H (mm) | H (mm) | T (mm) | W (mm) | L (mm) | Material |
|---|---|---|---|---|---|---|---|
| NP | 25 | 50 | 100 | 1 - 2 | TST50 | 2438 or 3000 | Hot dip galvanised<br>Stainless steel 304<br>Stainless steel 316 or 316L<br>Epoxy coated |
| | 25 | 50 | 100 | 1 - 2 | TST75 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST100 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST150 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST200 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST225 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST300 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST450 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST600 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST750 | 2438 or 3000 | |
| | 25 | 50 | 100 | 1 - 2 | TST900 | 2438 or 3000 | |

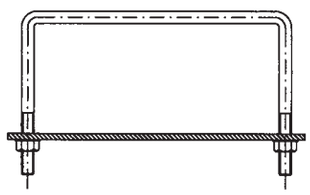
**Definition of Product Code (HOW TO ORDER)**

e.g. NP50/1.2/TST200/2438/GI Epoxy/2

- Compartments
- Material & Finish
- Length
- Width
- Thickness
- Model

## Heavy Duty Cable Ducting System



Cover Clamp c/w
U-Bolt, Flat Bar,
Washers, and Nuts.

Fittings & Accessories - please refer to manufacturer

| Model | H (mm) | H (mm) | H (mm) | H (mm) | H (mm) | T (mm) | W (mm) | L (mm) | Material |
|---|---|---|---|---|---|---|---|---|---|
| HD | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST50 | 2438 or 3000 | Stainless Steel 304<br>Stainless Steel 316 or 316L<br>Aluminium 5052<br>Mild Steel (HDG or epoxy coated finish)<br>Pre-Galvanised<br>Electro Galvanised |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST75 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST100 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST150 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST200 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST225 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST300 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST450 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST600 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST750 | 2438 or 3000 | |
| | 150 | 200 | 250 | 300 | 400 | 1.5 - 3.2 | TST900 | 2438 or 3000 | |

**Definition of Product Code (HOW TO ORDER)**

e.g. HD200/1.5/TST200/2438/Epoxy

- Finish
- Length
- Width
- Thickness
- Model

M★RAK

# Metal Framing Systems

Channels

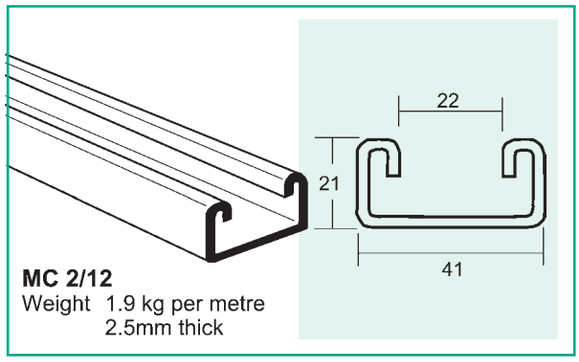
Cantilever Supports

Concrete Inserts

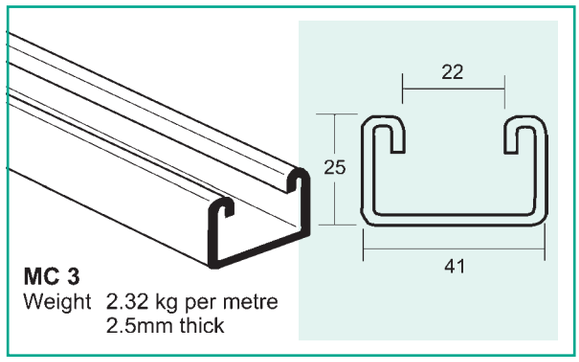
Fittings and Brackets

Clamps and Hangers

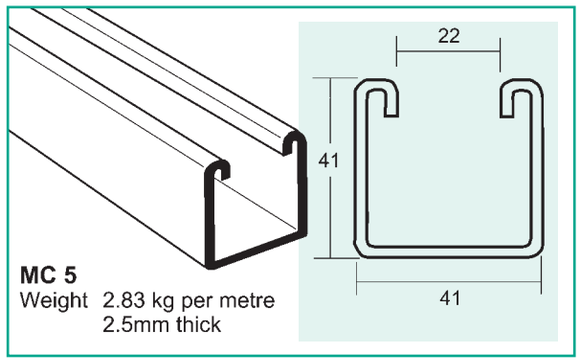
Accessories




**MC 2/12**
Weight 1.9 kg per metre
2.5mm thick




**MC 3**
Weight 2.32 kg per metre
2.5mm thick




**MC 5**
Weight 2.83 kg per metre
2.5mm thick

M*RAK Metal Framing Systems are designed as a support system which has almost infinite permutations, it provides a rigid structure without welding or drilling.

Construction and allied industries find M*RAK ideal as a framing system for structural supports, service supports, suspended ceilings, raised flooring and as concrete inserts for fixing.

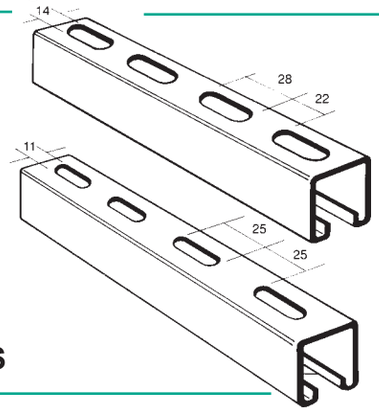
M*RAK is economical in that after installation it is easily adjustable, demountable and reusable.

## CHANNELS

Standard finishes for M*RAK channels consist of hot dipped galvanized to BS EN ISO 1461/BS 729, pre-galvanized to BS 2989 1982 and mill finish. Special coatings are available, e.g. Epoxy, Polyester, Nylon, etc, in a range of colours upon request.

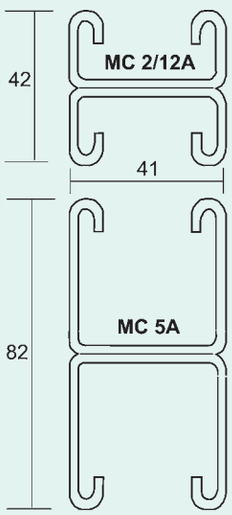
**Stainless Steel**
Channels are available in MC5 and MC2/12 etc. Sections are cold rolled from marine grade stainless steel reference T316L. A full range of fittings and accessories are also available as standard items. Please specify stainless steel when ordering.

MC5S




**SLOTTED CHANNELS**

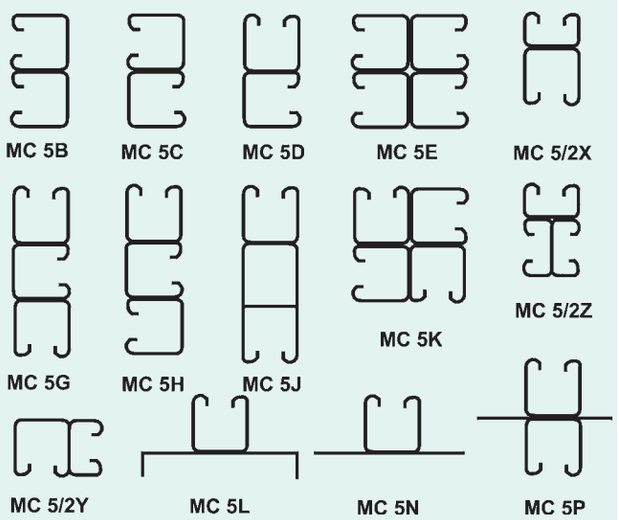
## COMBINATION CHANNELS



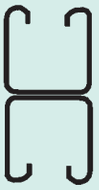

Standard Finishes:

Pre-galvanized to BS 2989
Stainless Steel
HDG to BS EN ISO 1461/BS 729

Other combination channels available to order.



## CHANNEL DATA

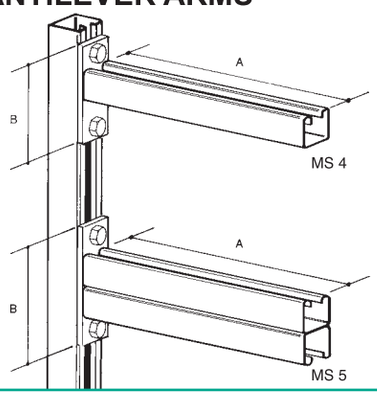
| Section | Span mm | Uniformly Distributed Load at 172N/mm² Stress kgf | Uniformly Distributed Load at deflection of span/360 kgf | Uniformly Distributed Load at deflection of span1/180 kgf |
|---|---|---|---|---|
|  MC 2/12 | 250 | 600 | 600 | - |
| | 500 | 295 | 265 | - |
| | 750 | 197 | 118 | - |
| | 1000 | 150 | 65 | - |
| | 1500 | 99 | 24 | 66 |
| | 2000 | 74 | - | 34 |
| | 2500 | 60 | - | 20 |
| | 3000 | 50 | | |
|  MC 2/12A | 500 | 815 | 815 | - |
| | 1000 | 406 | 320 | - |
| | 1500 | 268 | 140 | - |
| | 2000 | 200 | 65 | 164 |
| | 2500 | 160 | 46 | 100 |
| | 3000 | 135 | 30 | 66 |
| | 3500 | 108 | 23 | 46 |
| | 4000 | 95 | 17 | 34 |
| | 4500 | 84 | 13 | 26 |
|  MC 3 | 500 | 483 | 483 | - |
| | 1000 | 242 | 110 | - |
| | 1500 | 161 | 58 | 140 |
| | 2000 | 121 | 30 | 70 |
| | 2500 | 97 | 28 | 42 |
| | 3000 | 80 | - | 28 |
|  MC 5 | 500 | 1057 | 1057 | - |
| | 1000 | 529 | 515 | - |
| | 1500 | 352 | 190 | - |
| | 2000 | 264 | 100 | 210 |
| | 2500 | 208 | 90 | 126 |
| | 3000 | 167 | 42 | 84 |
| | 3500 | 148 | - | 60 |
| | 4000 | 130 | - | 44 |
|  MC 5A | 500 | 2892 | | - |
| | 1000 | 1446 | | - |
| | 2000 | 723 | | - |
| | 3000 | 482 | | - |

## Bolt Torque Data

| Isometric Coarse Threads Plated Only | Newton/Metres (N/M) | Foot/Pounds (ft/lbs) |
|---|---|---|
| M6 | 5.0 | 3.7 |
| M10 | 24.2 | 17.7 |
| M12 | 41.8 | 30.8 |

Notes:
Safe uniformly distributed loads are tabulated for simply supported spans based on a stress of 172N/mm² where deflection is not a critical factor. Where deflection is to be limited to a minimum, use alternative safe loads.
For loads concentrated in the centre of the span
multiply load by 0.5
multiply deflection by 0.8
Technical information for these sections and other channels and combinations is available on request.

## CANTILEVER ARMS




| Part No. | Length A mm | Length B mm | UDL Kg kg | Weight kg |
|---|---|---|---|---|
| BMS 4 150 | 150 | 110 | 398 | 0.92 |
| BMS 4 300 | 300 | 110 | 252 | 1.38 |
| BMS 4 450 | 450 | 110 | 160 | 1.74 |
| BMS 4 600 | 600 | 110 | 102 | 2.17 |
| BMS 4 750 | 750 | 110 | 51 | 2.64 |
| BMS 5 150 | 150 | 150 | 1250 | 1.74 |
| BMS 5 300 | 300 | 150 | 907 | 3.26 |
| BMS 5 450 | 450 | 150 | 544 | 4.12 |
| BMS 5 600 | 600 | 150 | 454 | 4.98 |
| BMS 5 750 | 750 | 150 | 363 | 5.83 |

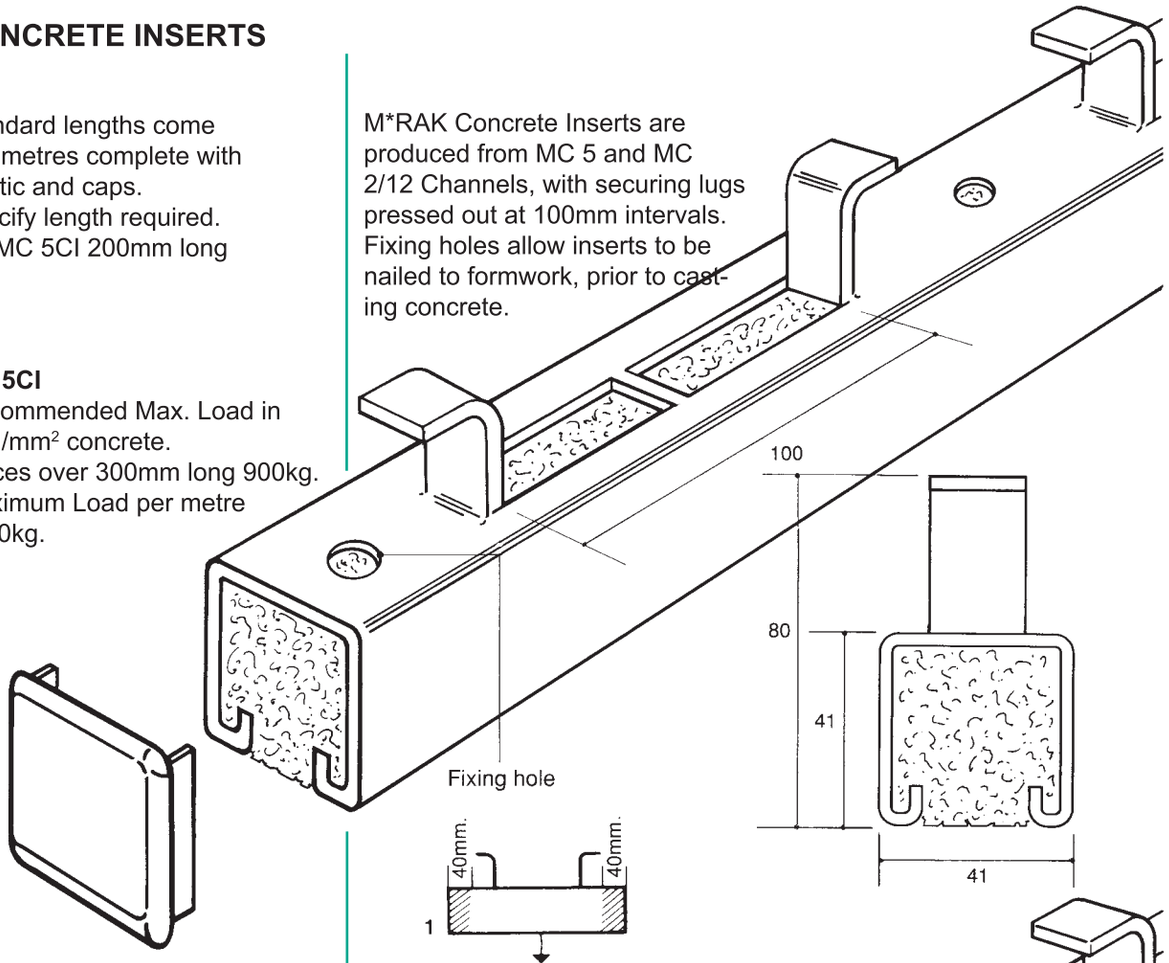
All cantilever arms are in hot dipped galvanised finish to BS EN ISO1461/BS 729.

## CONCRETE INSERTS

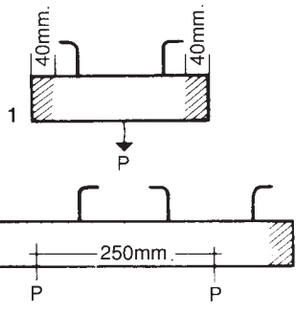
Standard lengths come in 6 metres complete with plastic and caps.
Specify length required.
i.e. MC 5CI 200mm long

M*RAK Concrete Inserts are produced from MC 5 and MC 2/12 Channels, with securing lugs pressed out at 100mm intervals. Fixing holes allow inserts to be nailed to formwork, prior to casting concrete.

**MC 5CI**
Recommended Max. Load in 30N/mm² concrete.
Pieces over 300mm long 900kg.
Maximum Load per metre 3000kg.



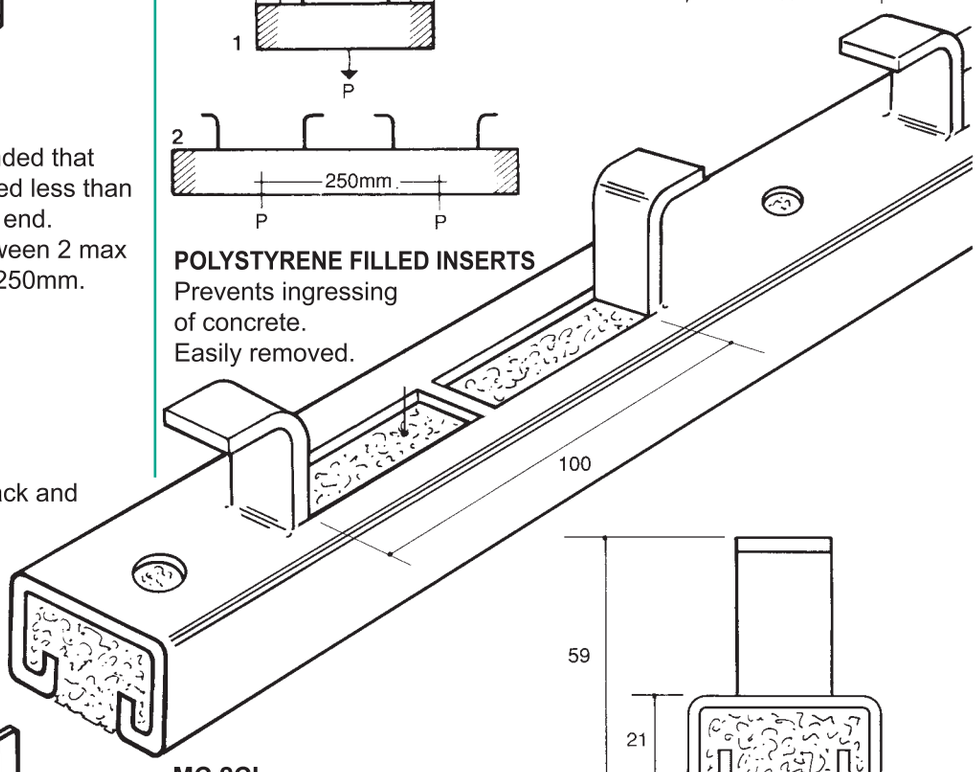


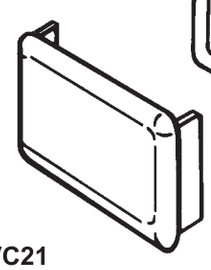




**MPVC41**
1. It is not recommended that load should be fixed less than 40mm from either end.
2. Safe distance between 2 max (P) point loads is 250mm.

**POLYSTYRENE FILLED INSERTS**
Prevents ingressing of concrete.
Easily removed.

**MPVC END CAPS**
**MPVC41**
**MPVC31**
**MPVC21**
Available in Blue, Black and White



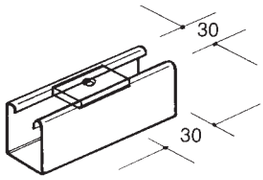



**MPVC21**

**MC 2CI**
Recommended Max Load in 30N/mm² concrete.
Pieces over 300mm long 650kg.
Maximum Load per metre 2000kg.

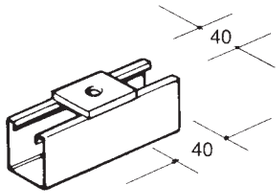
## FLAT PLATE FITTINGS

INTERNAL PLATE
3mm thick

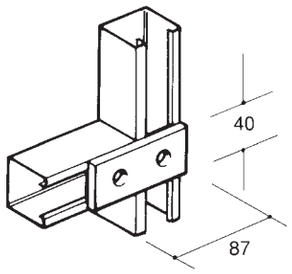



Available in 6, 8, 10 and 12mm hole clearance
**MF 999**/6/8/10/12 Weight 0.05kg

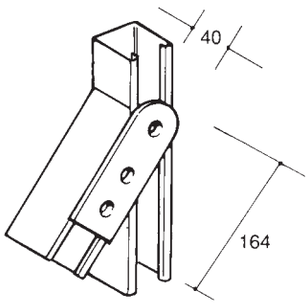
EXTERNAL PLATE



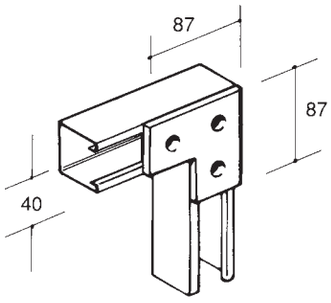

Available in 6, 8, 10 and 12mm hole clearance
**MF 1000**/6/8/10/12 Weight 0.07kg



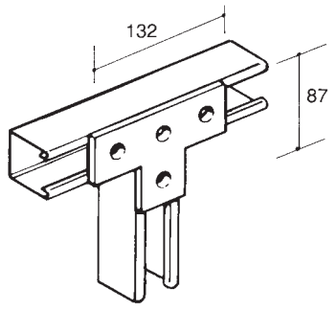

**MF 1001** Weight 0.16kg




**MF 1005** Weight 0.31kg

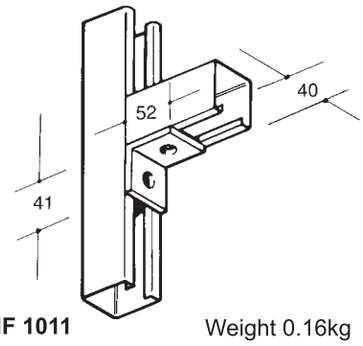



**MF 1006** Weight 0.25kg

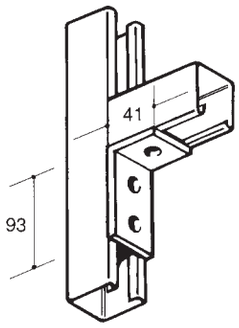



**MF 1007** Weight 0.34kg

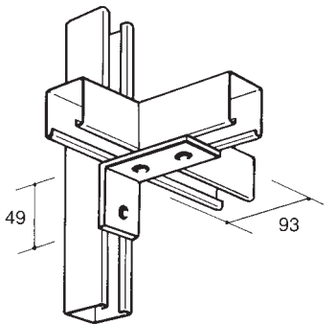
RIGHT ANGLE FITTINGS



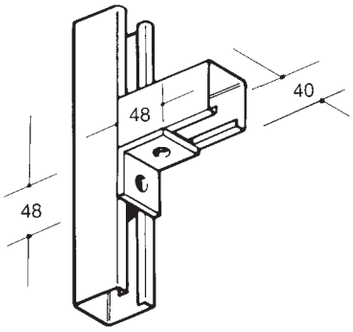

**MF 1011** Weight 0.16kg




**MF 1012** Weight 0.22kg

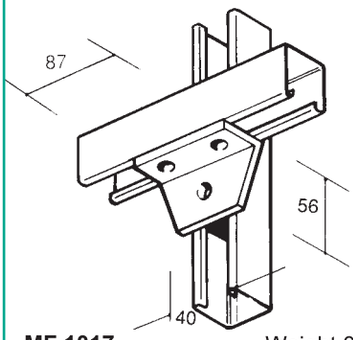



**MF 1013** Weight 0.24kg

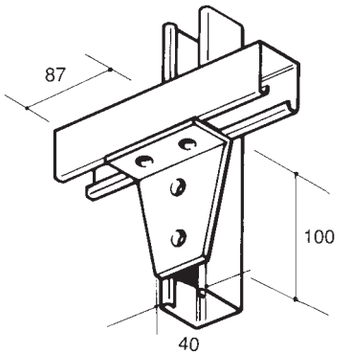



**MF 1011a** Weight 0.16kg

NINETY DEGREE ANGLE FITTINGS



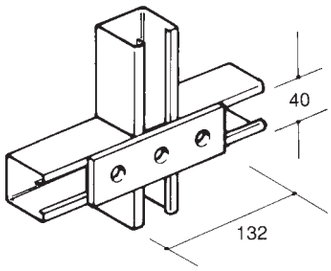

**MF 1017** Weight 0.30kg



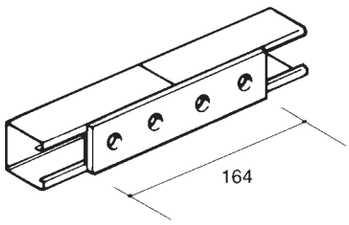

**MF 1018** Weight 0.45kg

## FLAT PLATE FITTINGS

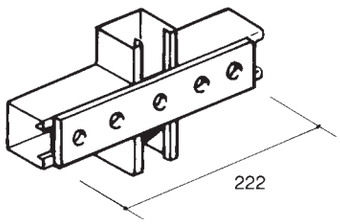
Unless otherwise stated all fittings are manufactured from 6mm thick steel strip and are hot dip galvanized to BS EN ISO 1461/BS 729. Standard hole diameter will be 14mm to give clearance on M12 diameter set screws. For best results use M12 Channel Nuts and Bolts.



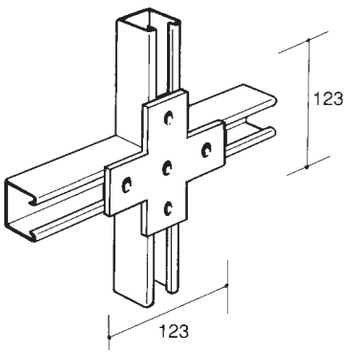

**MF 1002** Weight 0.24kg



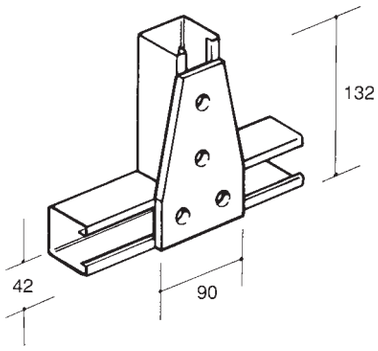

**MF 1003** Weight 0.30kg



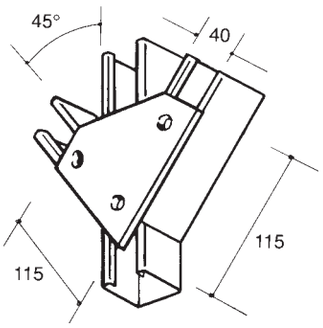

**MF 1004** Weight 0.41kg



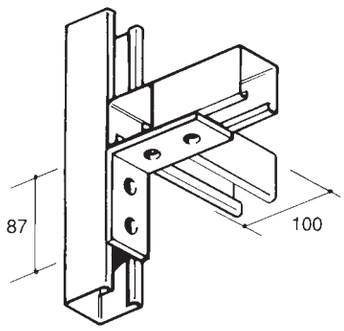

**MF 1008** Weight 0.41kg




**MF 1009** Weight 0.49kg



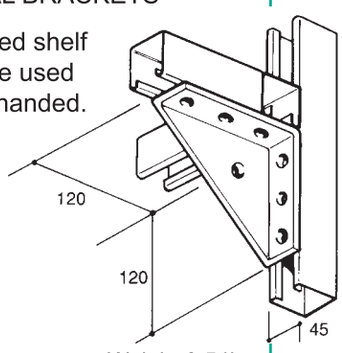

**MF 1010** Weight 0.49kg

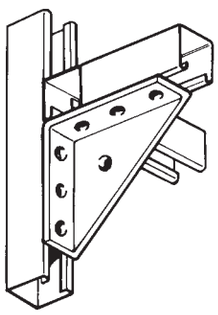



**MF 1014** Weight 0.31kg

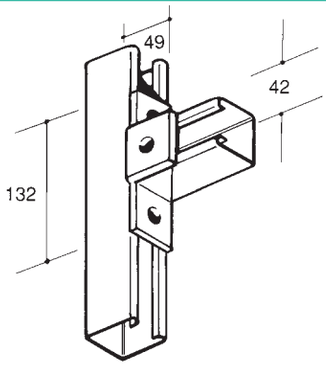
UNIVERSAL BRACKETS

This gusseted shelf fitting can be used left or right handed.

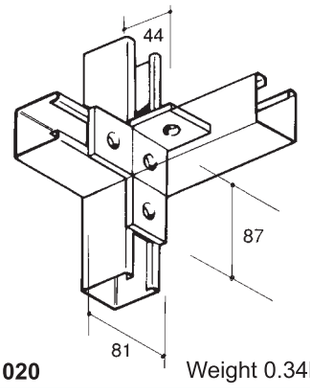


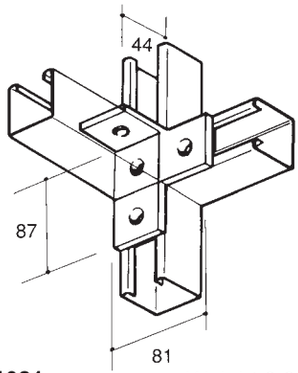
**MF 1015** Weight 0.54kg




**MF 1019** Weight 0.34kg

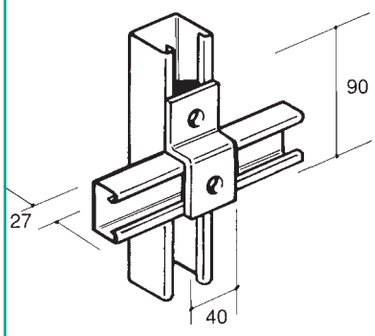



**MF 1020** Weight 0.34kg

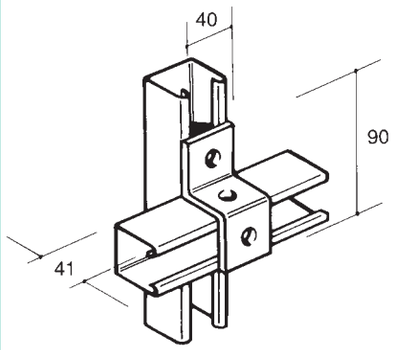



**MF 1021** Weight 0.34kg

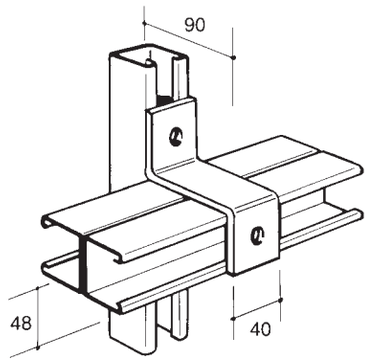
## 'Z' FITTINGS



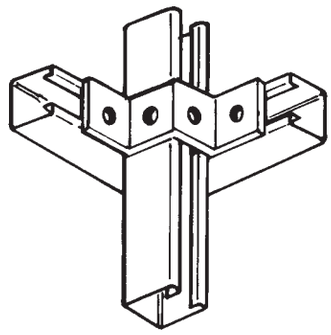

**MF 1022** Weight 0.19kg



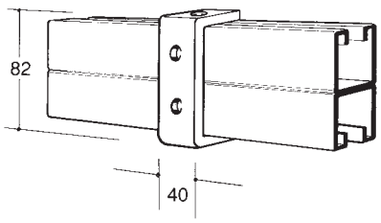

**MF 1023** Weight 0.23kg




**MF 1024** Weight 0.31kg



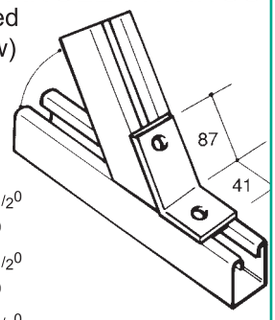
**MF 1123** Weight 0.30kg




**MF 1049** Weight 0.31kg

Specify angle required (see below)

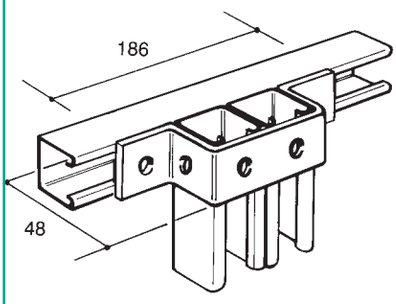
**ANGLE FITTINGS**



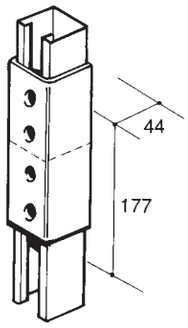

Angles available

| | |
|---|---|
| $15^0$ | $52^{1/2^0}$ |
| $22^{1/2^0}$ | $60^0$ |
| $30^0$ | $67^{1/2^0}$ |
| $37^{1/2^0}$ | $75^0$ |
| $45^0$ | $82^{1/2^0}$ |

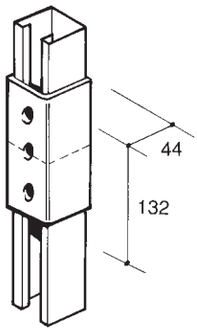
**MF 1029** Weight 0.25kg




**MF 1028** Weight 0.46kg

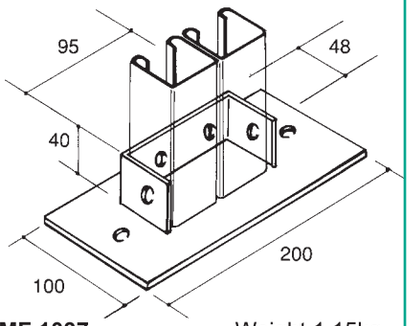



**MF 1033** Weight 0.84kg



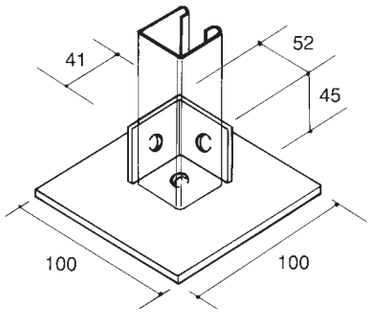

**MF 1034** Weight 0.65kg

**BASE PLATES 5mm thick**

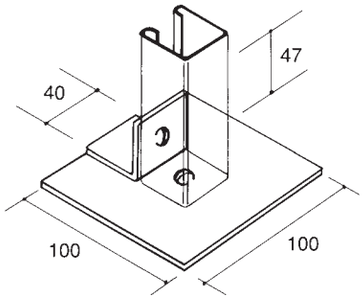



**MF 1037** Weight 1.15kg

**14mm dia Base Holes**

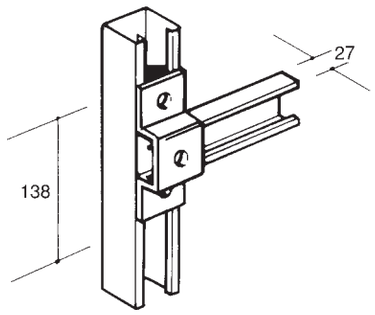



**MF 1038** Weight 0.50kg

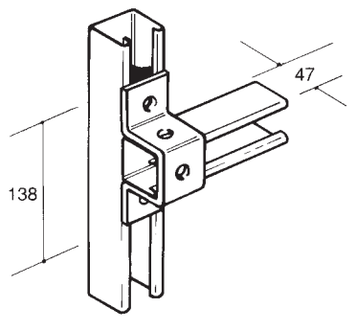



**MF 1039** Weight 0.56kg

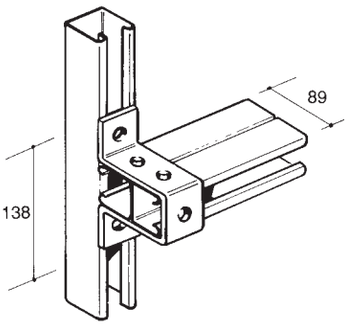
## 'U' FITTINGS




**MF 1025** Weight 0.30kg




**MF 1026** Weight 0.36kg

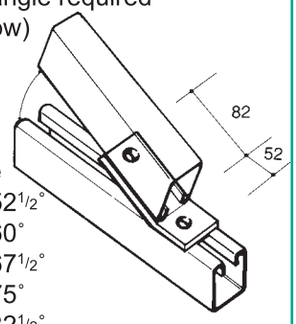



**MF 1027** Weight 0.55kg

Specify angle required (see below)

Angles available

| | |
|---|---|
| 15° | 52½° |
| 22½° | 60° |
| 30° | 67½° |
| 37½° | 75° |
| 45° | 82½° |

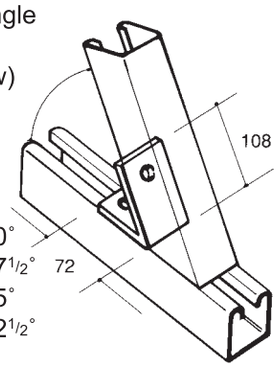



**MF 1030** Weight 0.25kg

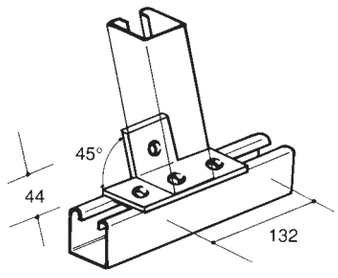
Specify angle required (see below)

Angles available

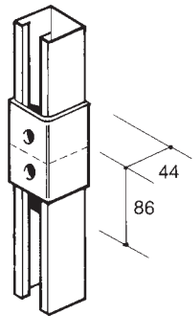
| | |
|---|---|
| 30° | 60° |
| 37½° | 67½° |
| 45° | 75° |
| 52½° | 82½° |




**MF 1031** Weight 0.30kg



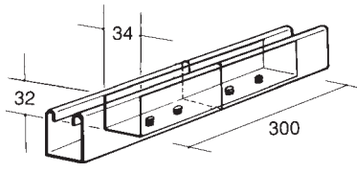

**MF 1032** Weight 0.34kg




**MF 1035** Weight 0.41kg

### INTERNAL SPLICE PLATE 2mm thick

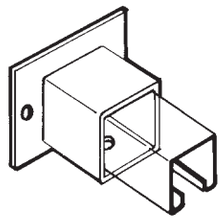
c/w self tapping fixing screws




**MF 1036/41**
Weight 0.48 kg
(To suit BMC 4 & BMC 5 Monostrut Channels)

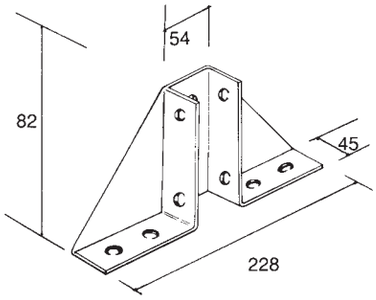
**MF 1036/21**
Weight 0.24 kg
(To suit BMC 1 & BMC 2/12 Monostrut Channels)

### FLANGE CONNECTOR

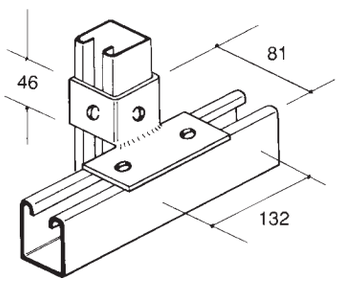


**MF 1085**

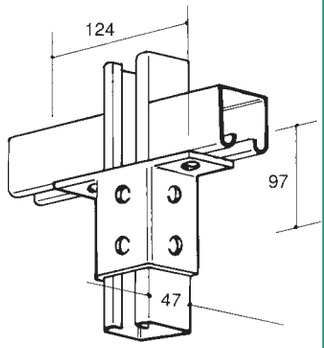
### SPECIAL FITTINGS




**MF 1040/41** Single Channel
**MF 1040/82** Double Channel




**MF 1041** Weight 0.49kg

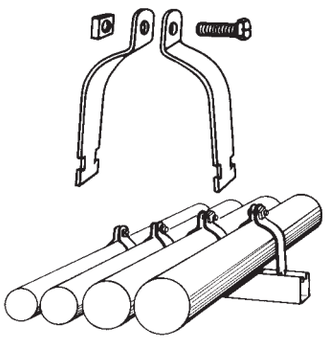



**MF 1042** Weight 0.61kg

## PIPE CLAMPS TYPE 'A'

Hot dipped galvanized finish.

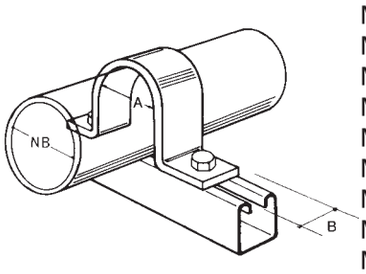
Bolts & nuts included.



| Part Number | Minimum Pipe Diameter (mm) | Minimum Pipe Diameter (mm) | Part Number | Minimum Pipe Diameter (mm) | Minimum Pipe Diameter (mm) |
|---|---|---|---|---|---|
| MS AC 201 | 8.7 | 10.3 | MS AC 218 | 48.4 | 52.4 |
| MS AC 202 | 10.3 | 12.7 | MS AC 219 | 52.4 | 58.7 |
| MS AC 203 | 11.9 | 13.5 | MS AC 220 | 58.7 | 63.5 |
| MS AC 204 | 13.5 | 14.3 | MS AC 221 | 63.5 | 68.3 |
| MS AC 205 | 14.3 | 16.7 | MS AC 222 | 68.3 | 73.0 |
| MS AC 206 | 15.9 | 18.3 | MS AC 223 | 73.0 | 79.4 |
| MS AC 207 | 18.3 | 20.6 | MS AC 224 | 76.2 | 82.6 |
| MS AC 208 | 19.0 | 21.4 | MS AC 225 | 82.6 | 88.1 |
| MS AC 209 | 21.4 | 25.4 | MS AC 226 | 88.1 | 95.2 |
| MS AC 210 | 25.4 | 27.8 | MS AC 227 | 95.2 | 100.0 |
| MS AC 211 | 27.0 | 30.2 | MS AC 228 | 100.0 | 106.4 |
| MS AC 212 | 30.2 | 33.3 | MS AC 229 | 106.4 | 111.1 |
| MS AC 213 | 31.8 | 35.9 | MS AC 230 | 111.1 | 120.7 |
| MS AC 214 | 34.9 | 39.7 | MS AC 231 | 120.7 | 129.4 |
| MS AC 215 | 39.7 | 42.9 | MS AC 232 | 129.4 | 138.1 |
| MS AC 216 | 42.9 | 46.8 | MS AC 233 | 138.1 | 149.2 |
| MS AC 217 | 46.8 | 50.8 | MS AC 234 | 149.2 | 161.9 |

## SADDLE CLAMPS

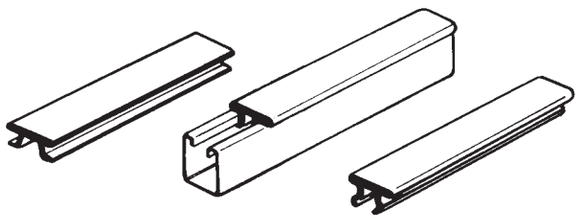
Hot dipped galvanized finish.



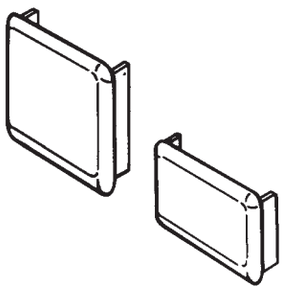

| Part Number | Minimum Bore (mm) | Dimension 'A' (mm) | Dimension 'B' (mm) |
|---|---|---|---|
| MS BC 01 | 15 | 21 | 30 |
| MS BC 02 | 20 | 27 | 30 |
| MS BC 03 | 25 | 34 | 30 |
| MS BC 04 | 32 | 43 | 30 |
| MS BC 05 | 40 | 48 | 30 |
| MS BC 06 | 50 | 60 | 30 |
| MS BC 07 | 65 | 76 | 40 |
| MS BC 08 | 80 | 89 | 40 |
| MS BC 09 | 100 | 114 | 40 |
| MS BC 10 | 125 | 140 | 40 |
| MS BC 11 | 150 | 168 | 40 |

## LIGHTING FITTINGS

SNAP-IN CLOSURE STRIP - PVC
Supplied in 3m lengths



END CAPS - PVC



M★RAK

# Wire Basket System

# Boltings & Fasteners

# GRP/FRP System

# Wire Basket Tray

“Safety edge” New concept

Speed-Lock-coupler (boltless)

Easy to handle

On-site fabrication of fittings

Clip together system

Flexibility around obstacles

Wide range of sizes and profiles

High side walls for extra cabling capacity

Wide range of fixings for walls, ceilings and floors

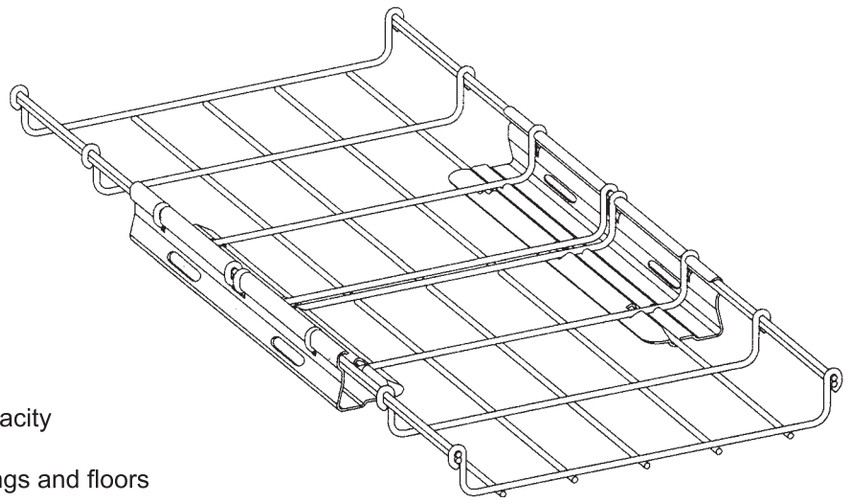
Easy to adapt and extend

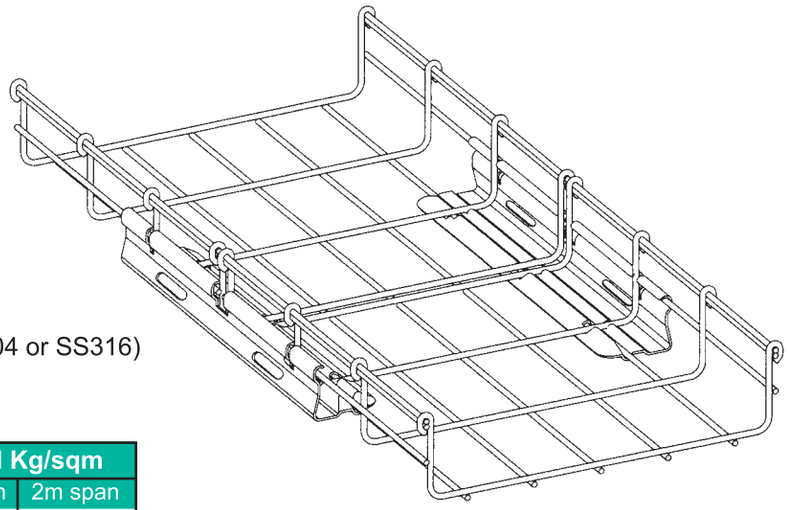
High strength to weight ratio

Easy routing of cables in and out

Improved air circulation

Dust-free : does not retain the dust





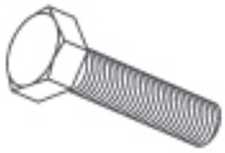
Finishes: HDG (pre-galvanised to SS304 or SS316)
Epoxy coated

| Model | H | W | L | Load Kg/sqm | |
|---|---|---|---|---|---|
| | | | | 1.5m span | 2m span |
| **WMB 30** | 30 | 50 | 3000 | 7 | 3 |
| | 30 | 100 | 3000 | 10 | 4 |
| | 30 | 150 | 3000 | 15 | 5 |
| | 30 | 200 | 3000 | 20 | 7 |
| | 30 | 300 | 3000 | 25 | 12.5 |

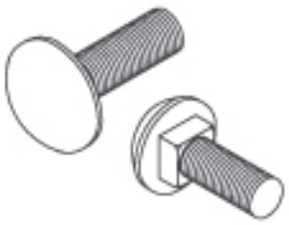
| Model | H | W | L | Load Kg/sqm | |
|---|---|---|---|---|---|
| | | | | 1.5m span | 2m span |
| **WMB 60** | 60 | 50 | 3000 | 20 | 8 |
| | 60 | 100 | 3000 | 29 | 12 |
| | 60 | 150 | 3000 | 43 | 18 |
| | 60 | 200 | 3000 | 43 | 18 |
| | 60 | 300 | 3000 | 54 | 22 |
| | 60 | 400 | 3000 | 105 | 50 |
| | 60 | 500 | 3000 | 140 | 64 |

Safety factor - 2.5 Definition 1/200

# Bolting Accessories



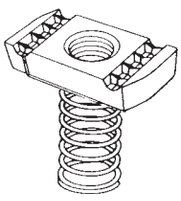
M10x30L HEX BOLT



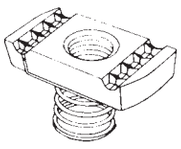
M10x20L CARRIAGE BOLT

M6x16L ROUND HEAD BOLT

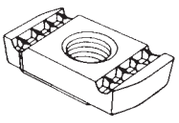
M8x20L PAN HEAD BOLT



LONG SPRING NUT



SHORT SPRING NUT



CHANNEL NUT WITHOUT SPRING

Material: Zinc-plated, Galvanised and Stainless Steel available on request

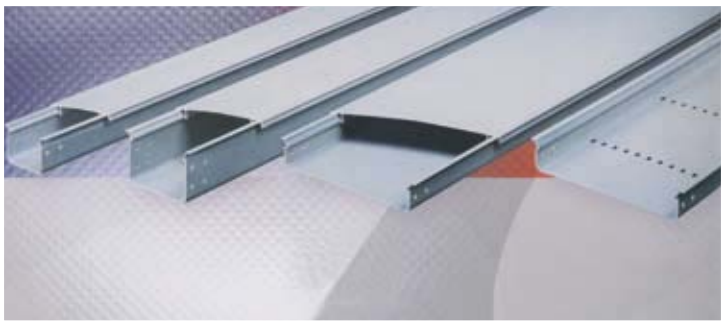
FLAT WASHER

SPRING WASHER

HEXAGON NUT

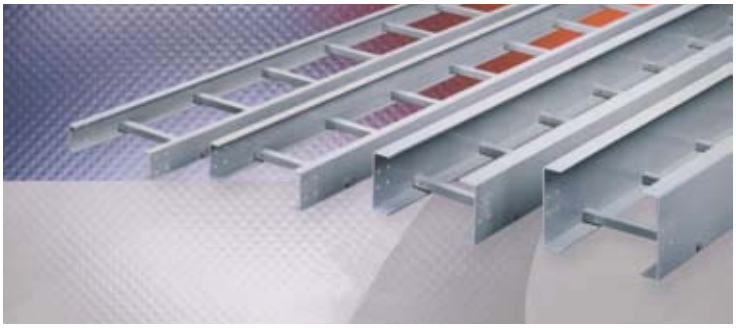
## Corrosion Resistant Composite Technology

*• No Earth-Bonding required • Easy Installation • Maintenance Free • Corrosion Resistant*



GRP Heavy Duty Cable Tray & Duct

- The Pultrusion Process
- High load carrying to NEMA FG-1
- Available in Polyester, Acrylic and Phenolic Resins
- Modar Resin is available on special order



GRP Cable Ladder

CLASS 1 (MODAR) & CLASS 2 (POLYESTER) Resins have been subjected to the following tests:

- Flame Spread Test to BS746 Part 7
- Flame Propagation Test to BS 746 Part 6
- Smoke Emission Test to BS6853
- Fire Resistance Test to IEC331
- High Temperature Flame Test to IEC332 Part 3 (withstand 1000°C temperature for 3 hours)

***Best for use in Corrosive and Harsh Environment***

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Rental and Contract Services

MC MILLER Co.
Cathodic Protection
Monitoring Equipment

Pile-Gard®
Splashzone Wrapping System

FSI
Flange Insulation Kits
and Monolithic Joints

May 2013