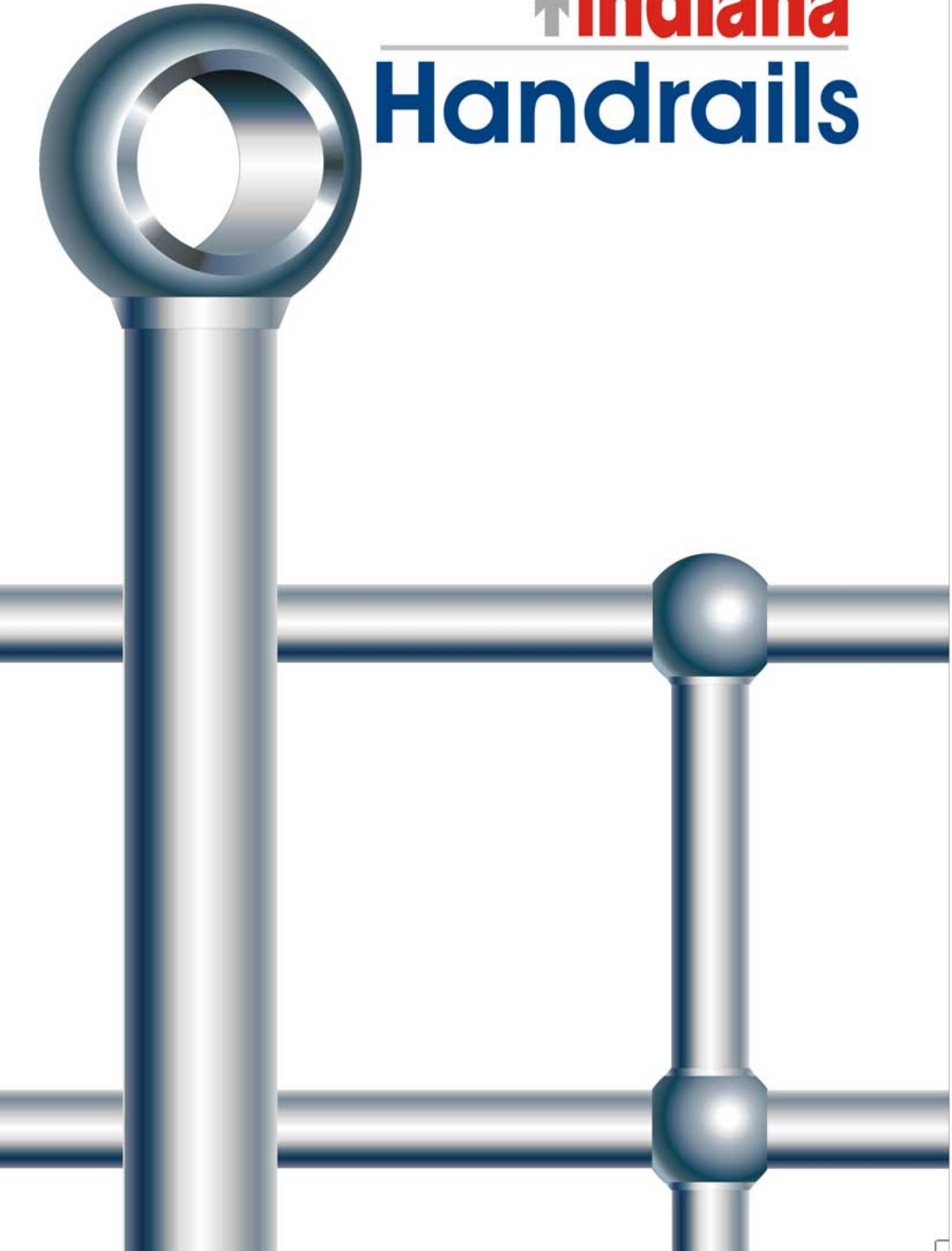


 **Indiana**

Handrails





Indiana

Ready-Fix

HANDRAILS

Indiana Commenced its operations in the year 1968 and is today recognized as a multi-product and diversified group catering to various customers worldwide. The main product of the group continues to be Gratings, Handrails and Cable Trays.

Indiana's Ready-Fix Handrail Systems, which are widely used to guard platforms, stairways, gangways, towers, danger zones and all other areas where safety is of prime concern. These **Modular Systems** are proven to be unique because of their cost-effectiveness and time saving installation techniques. They ensure speedy erection thereby saving time and labour costs.

Indiana's Handrail Systems offers a complete package consisting of standard and customized Handrails. This package is delivered with necessary bends and joints duly marked to ensure quick & easy installation.

We shall be pleased to offer you free technical advice and shall appreciate the opportunity to work with your engineers during early planning stages, which can help you to plan complicated

TYPES OF HANDRAILS

The two widely used Handrail Systems are

Tubular Handrail Systems

These are lighter than solid types, having similar load carrying capacities, but not recommended in very highly corrosive weather conditions.

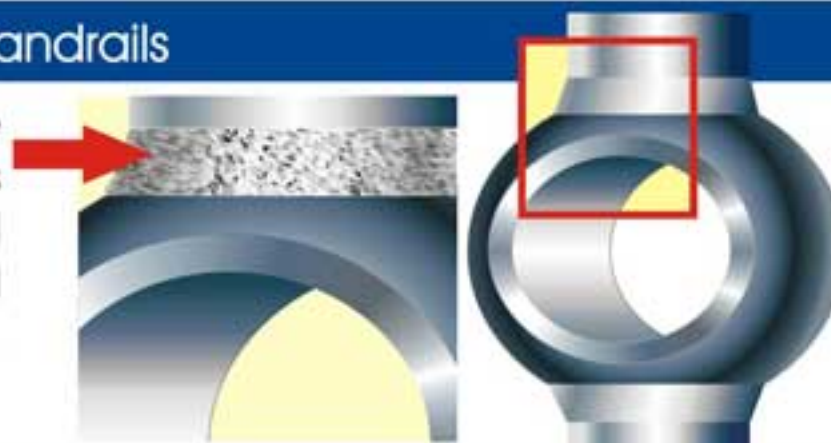
Solid Forged Handrail Systems

These are heavy duty type and mainly used for offshore installations, and are specially recommended for Highly corrosive weather conditions.

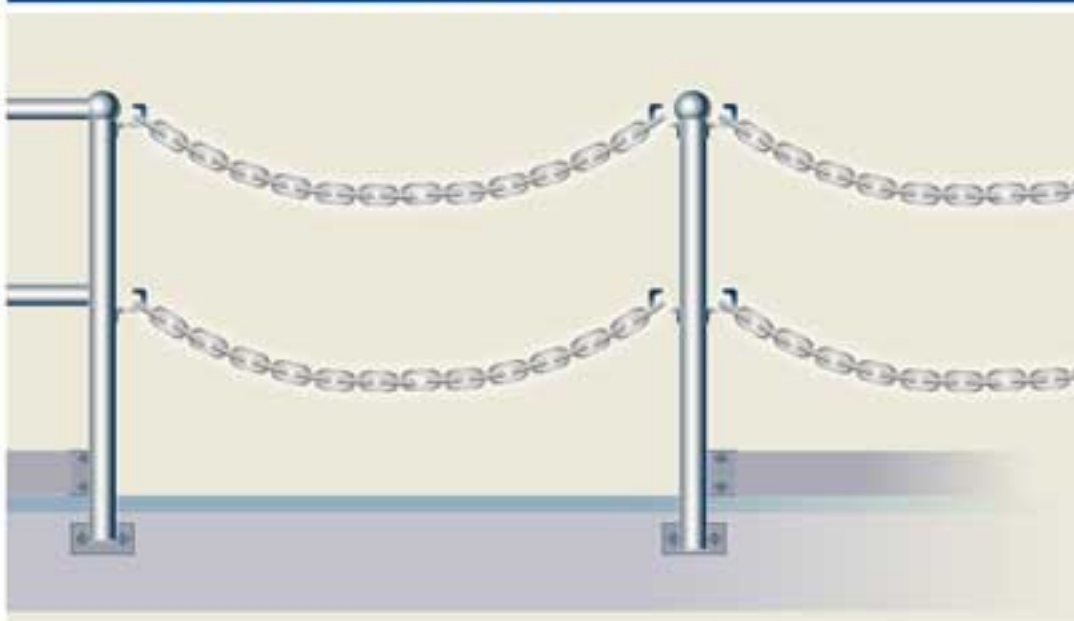
Indiana's [Ready-Fix Handrail Systems](#) are manufactured confirming to current British Standards and are available in Mild Steel and Stainless Steel with standard finish, Self colour, painted, galvanized or powder coated.

Factory Welded Handrails

These are tubular type wherein the shank is attached to a ball using a sophisticated welding procedure.



Removable Handrails



If it is required that certain section of Handrail should be removable as and when required, we shall supply A double run of chain between two shanks. The ends would be supplied with 'S' type hooks for attaching

Handrail Parameters

Handrail Height (A)

A= 1100 mm - for flat based standards
A= 1200 mm for side palm based standards
A= 900 mm for raked standards

Ball Diameter

Ball Diameter is generally taken as Dia 65 mm, Dia 75mm or Dia 90 mm depending upon the selection of handrails.

Ball Centres (B)

Ball Centers is the vertical center to center distance between two balls and is generally denoted as X

X = 550 mm for standard horizontal handrails
X = 450 mm for standard raked handrails

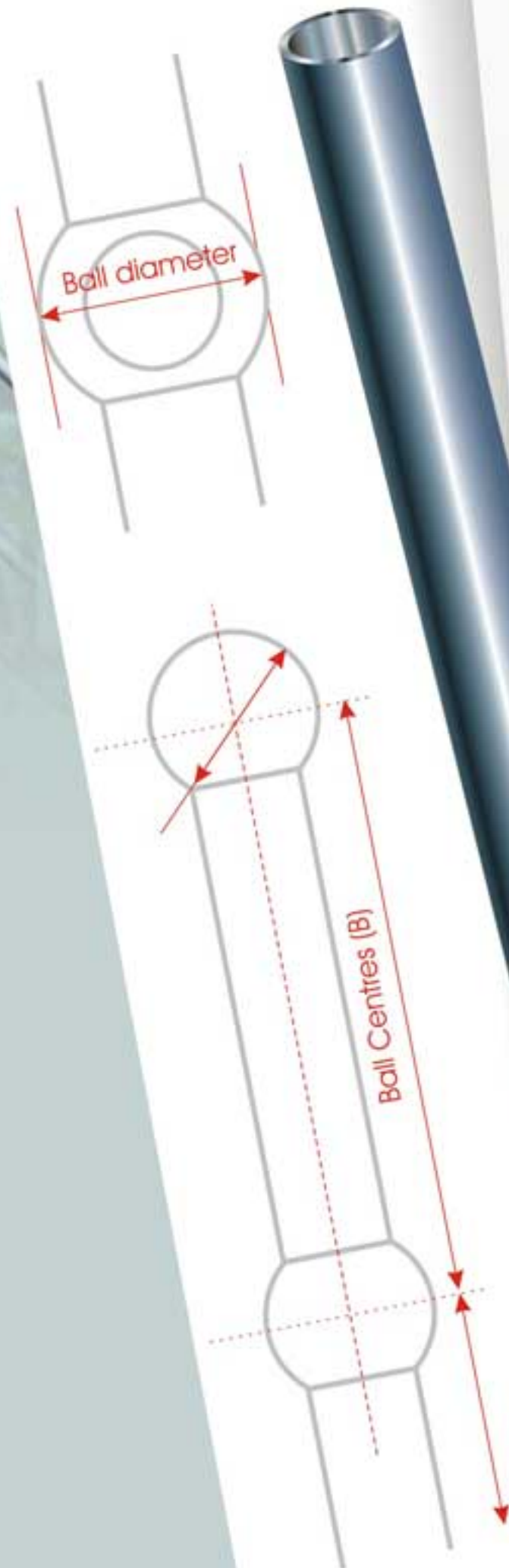
Pitch

It is the maximum center-to-center distance between the two consecutive shanks.

For Overall Height (A) = 1100 mm

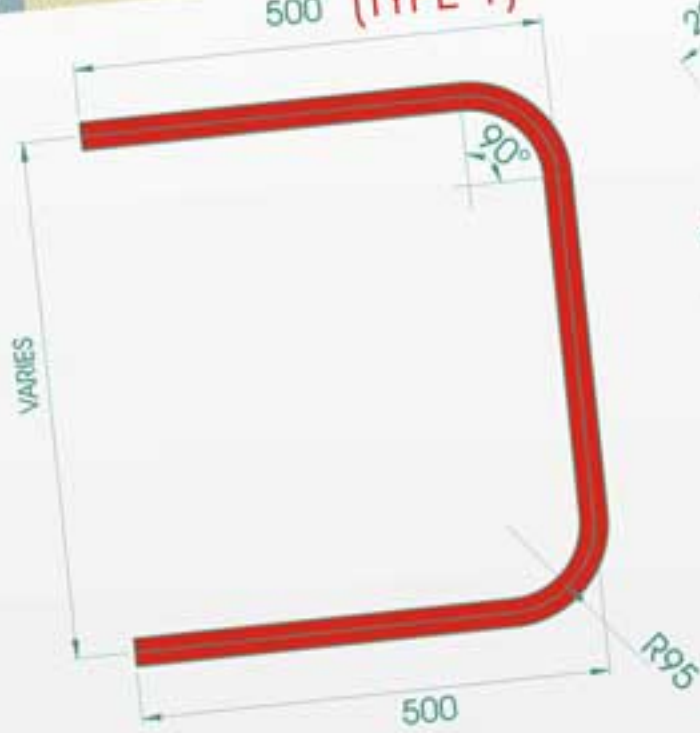
Depending upon 3 categories of loads and shank OD, the maximum center-to-center distance between the two consecutive shanks (Pitch) should be as follows

Design Recommendations			
Shank Dia OD (mm)	220 N/m (mm)	360 N/m (mm)	740 N/m (mm)
33.7	1500	970	-
42.4	2000	1620	-
48.8	-	2000	1060
60.3	-	-	-
32mm solid	1650	1125	575
38mm solid	2000	2000	1090



ails of Handrail Bends

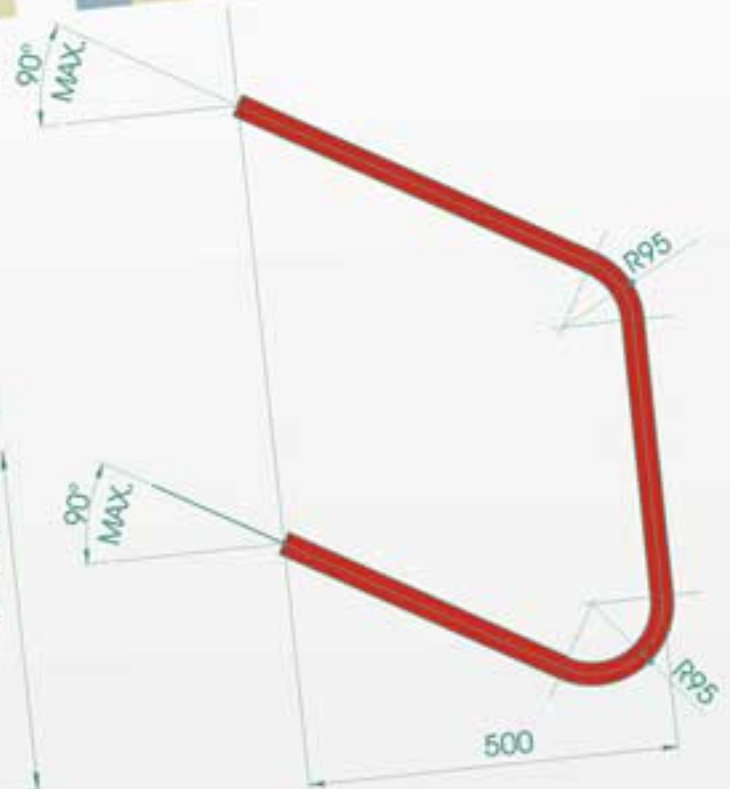
1 RETURN BEND (TYPE 1)



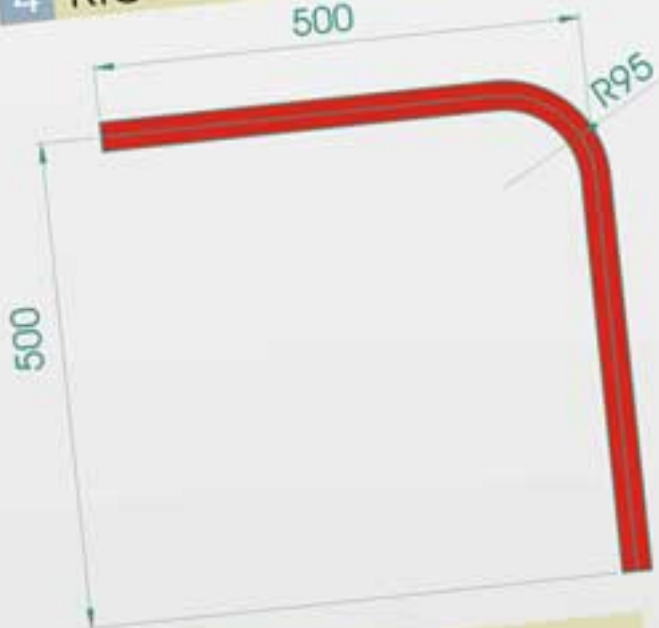
2 RETURN BEND (TYPE 2)



3 ANGLE CLOSURE BEND



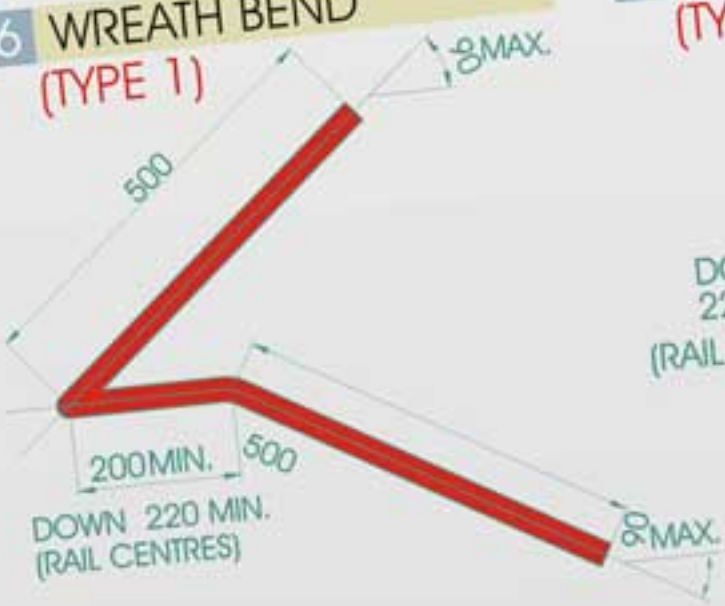
4 RIGHT ANGLE BEND



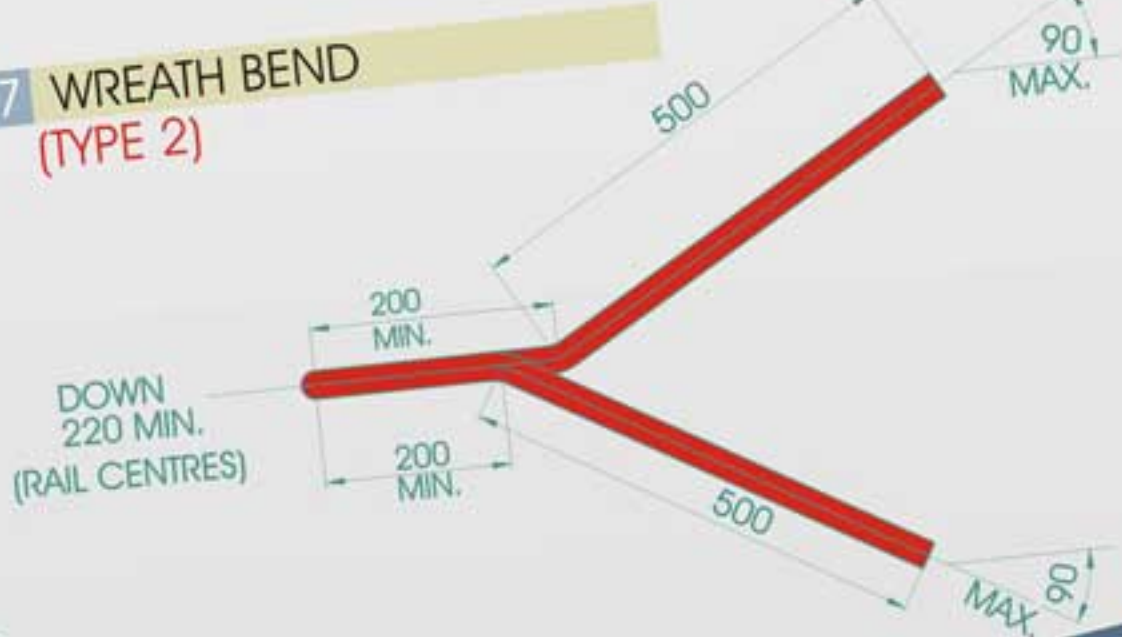
5 RAMP BEND



6 WREATH BEND (TYPE 1)

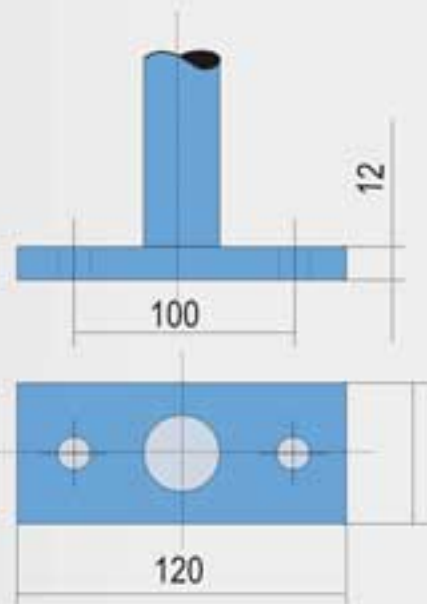


7 WREATH BEND (TYPE 2)

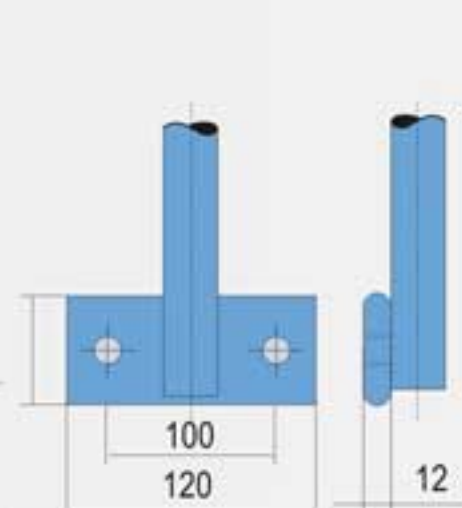


Base Plates

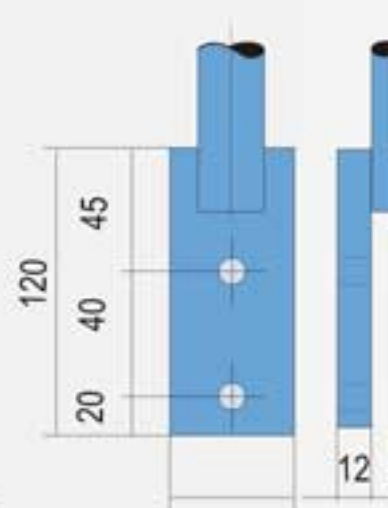
1 Flat Base



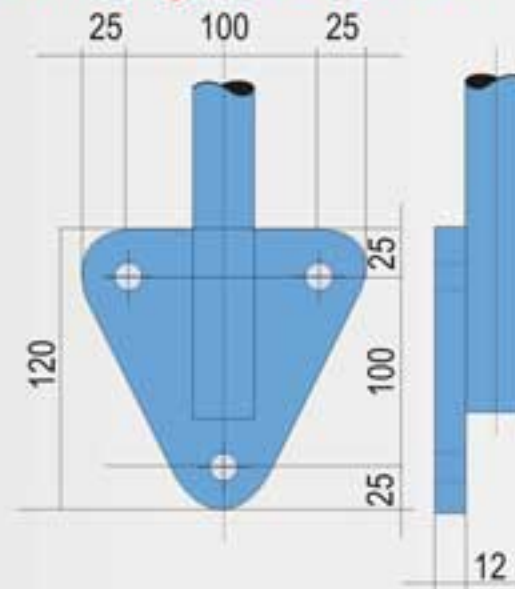
2 Horizontal Side Palm



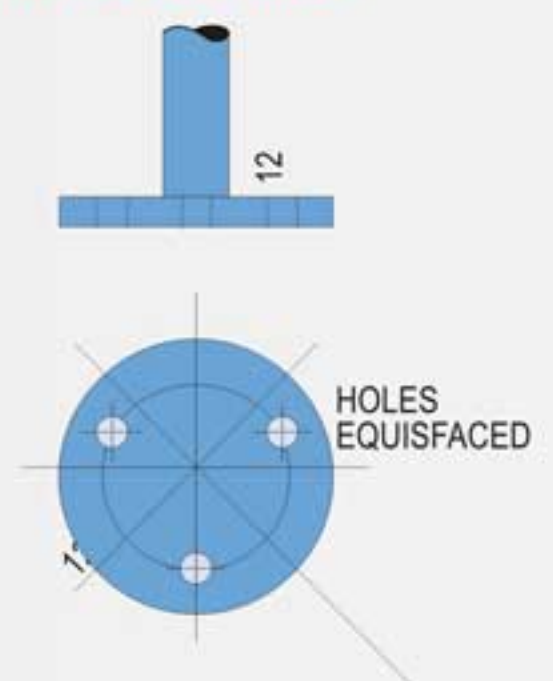
3 Vertical Side Palm



5 Triangular Side Palm



6 Circular Base



Loose bases can be supplied upon request for fixing all types of Handrail standards thereby offering more flexibility.



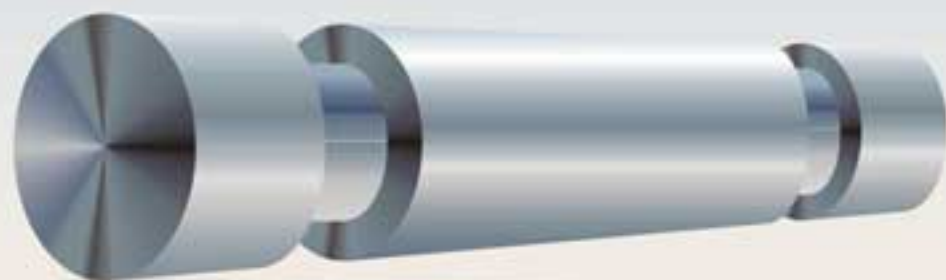
Connectors

Straight Connectors

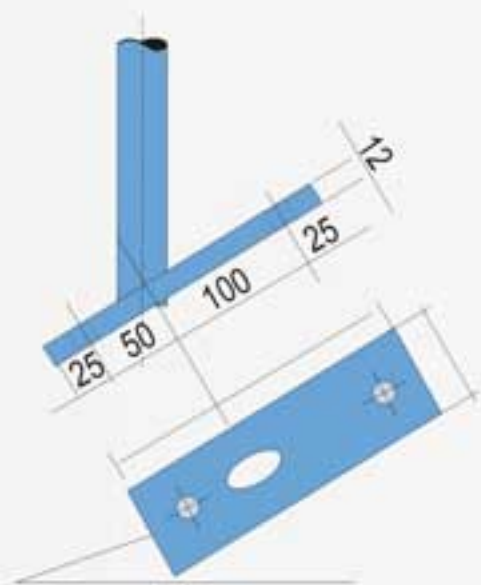
They are used to join the two pipes during installation at site

Mild Steel Dowel Connectors

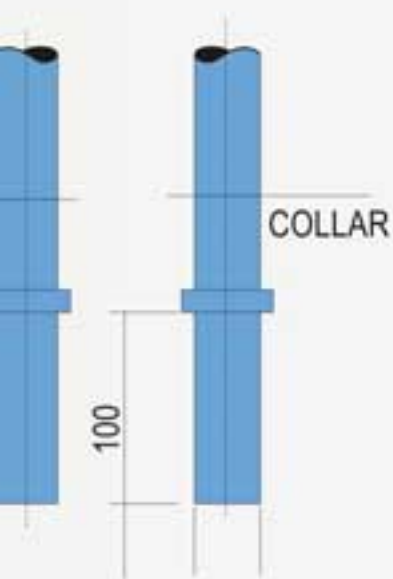
Dowel Connectors are available for 20, 25, 30 and 40 mm nominal bore tube with galvanized finish each dowel is supplied with 2 nos. 6mm diameter allen screws.



m 4 Angle Flat

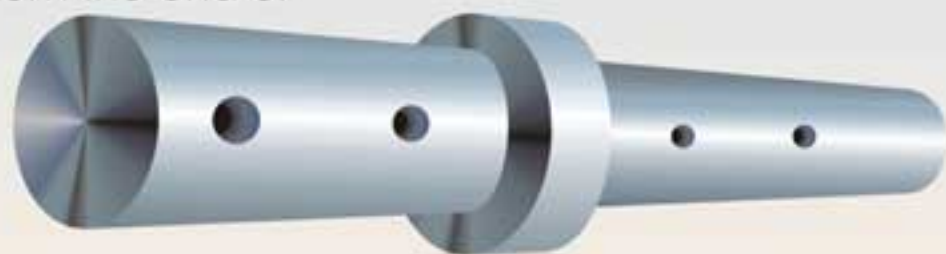
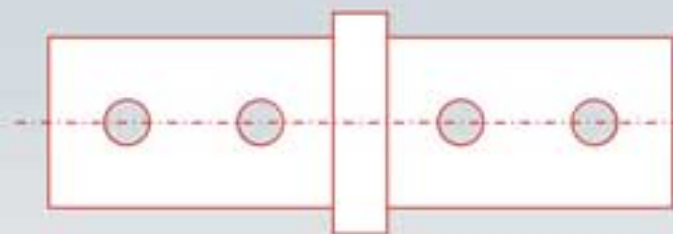


bed or Spigot



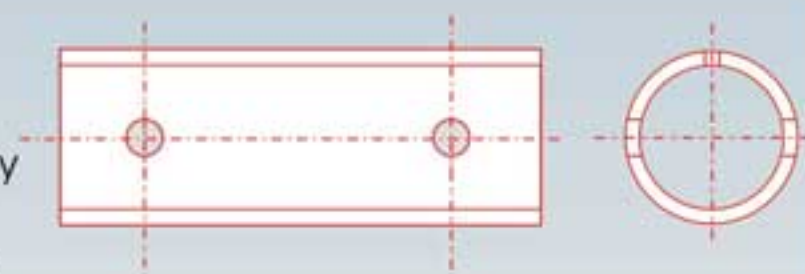
Malleable Cast Dimpled Fittings

Dimpled Connectors are available for 25 mm nominal bore tube only and are supplied with galvanized finish. The connectors are secured to the rail by dimples spaced at 12.5 mm or 25 mm from the end of

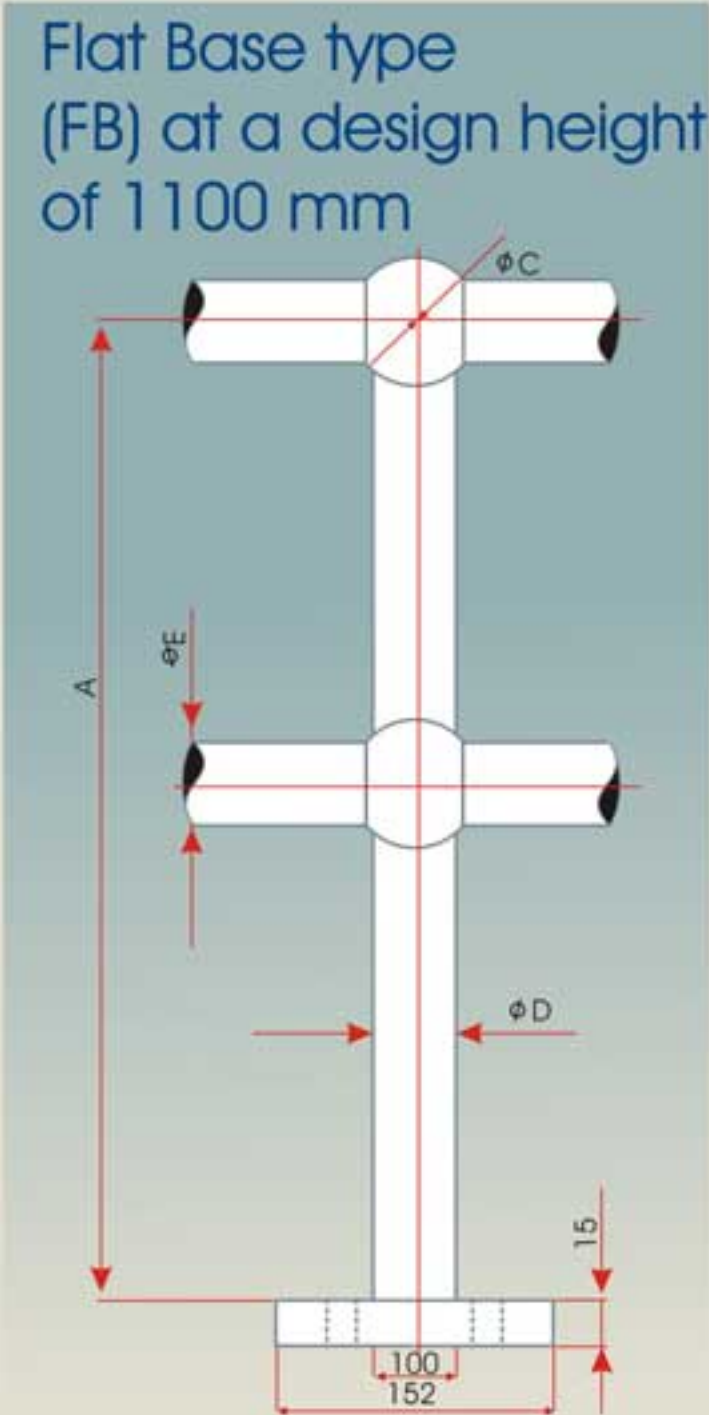


Spring Joints

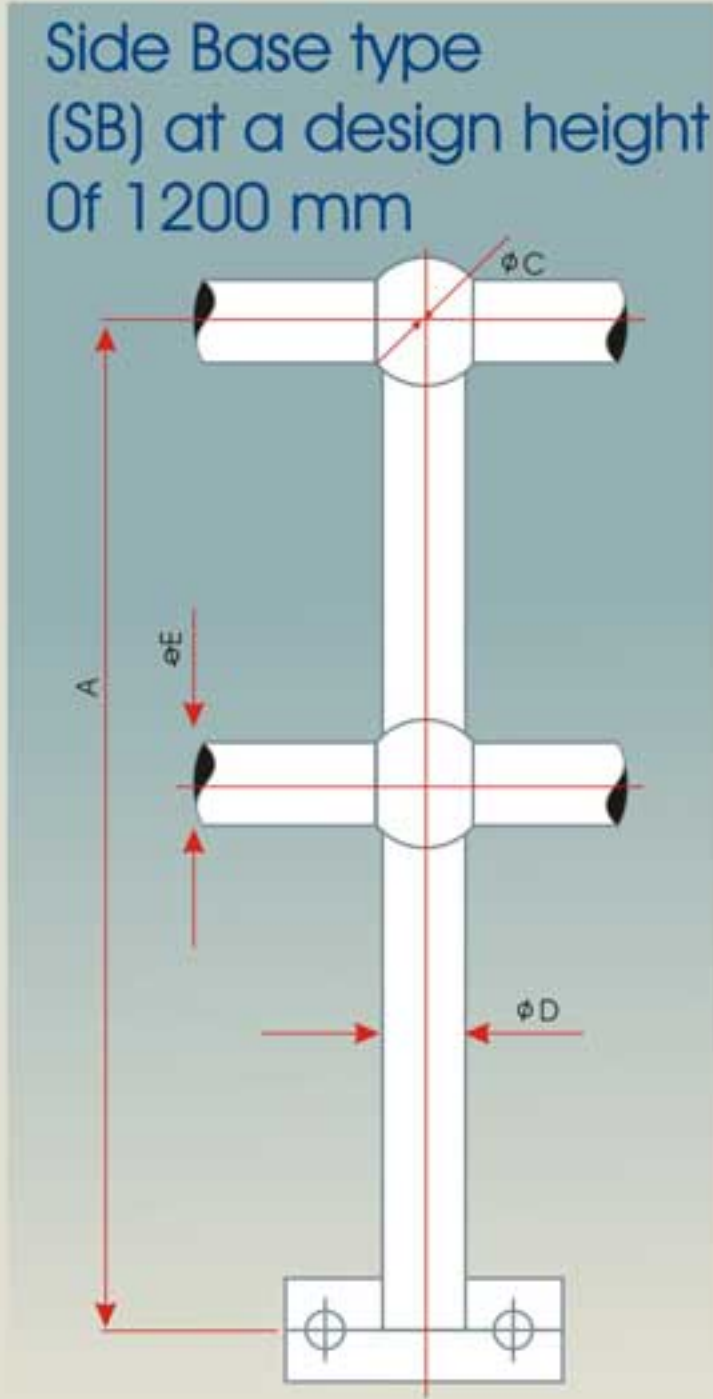
Spring Joints are simple, strong, neat and ideal for onsite use. They are made from plastic coated spring steel ferrule, which can be easily pressed using a clamp and is then inserted inside a pipe. Once the clamp is released, the ferrule expands fits on the inner surface of the thereby tightening



Tubular Handrail Standards



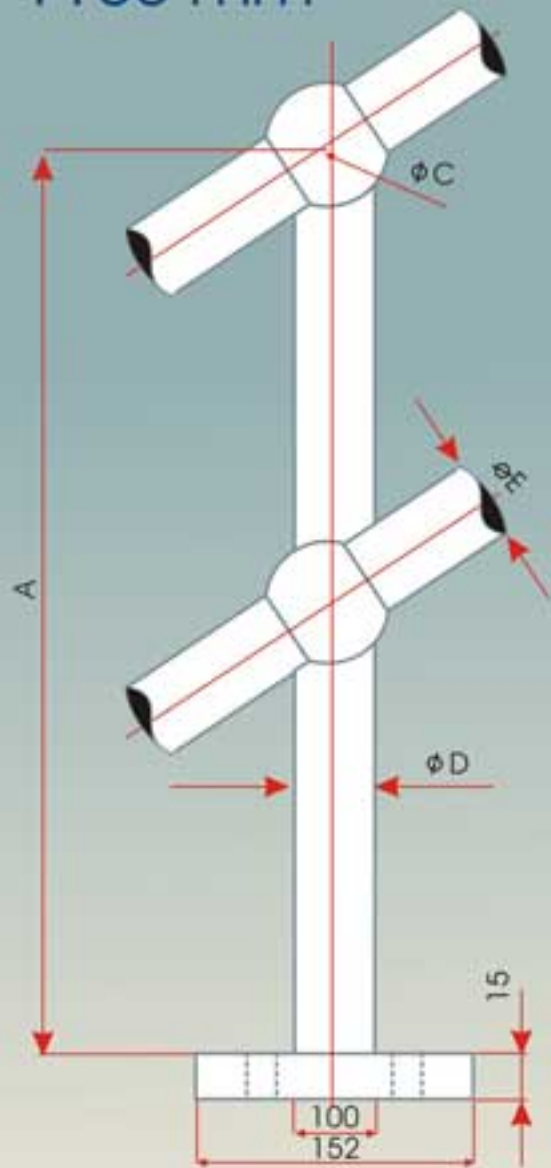
Design Load(N/m)	Ball Dia.(C)	Shank Dia (D)	Handrail Dia (E)	Max. Pitch
740	75	48.8x3.2	33.7x3.2	980
740	75	48.8x4.0	33.7x3.2	1190
740	90	60.8x3.6	42.4x3.2	1500
740	90	60.8x4.5	42.4x3.2	1800
360	65	42.4x3.2	33.7x3.2	1570
360	65	42.4x4.0	33.7x3.2	1920
360	75	48.8x3.2	33.7x3.2	2000
360	75	48.8x4.0	33.7x3.2	2460
220	65	33.7x3.2	33.7x3.2	1590



Design Load(N/m)	Ball Dia (C)	Shank Dia (D)	Handrail Dia (E)	Max. Pitch
740	75	48.8x 3.2	33.7 x 3.2	970
740	75	48.8x 4.0	33.7 x 3.2	1150
740	75	60.8x3.6	42.4x 3.2	1450
740	75	60.8x4.5	42.4x 3.2	1750
360	65	42.4x 3.2	33.7 x 3.2	1490
360	65	42.4x 4.0	33.7 x 3.2	1760
360	75	48.8x 3.2	33.7 x 3.2	1990
220	65	42.4x 3.2	33.7 x 3.2	2450

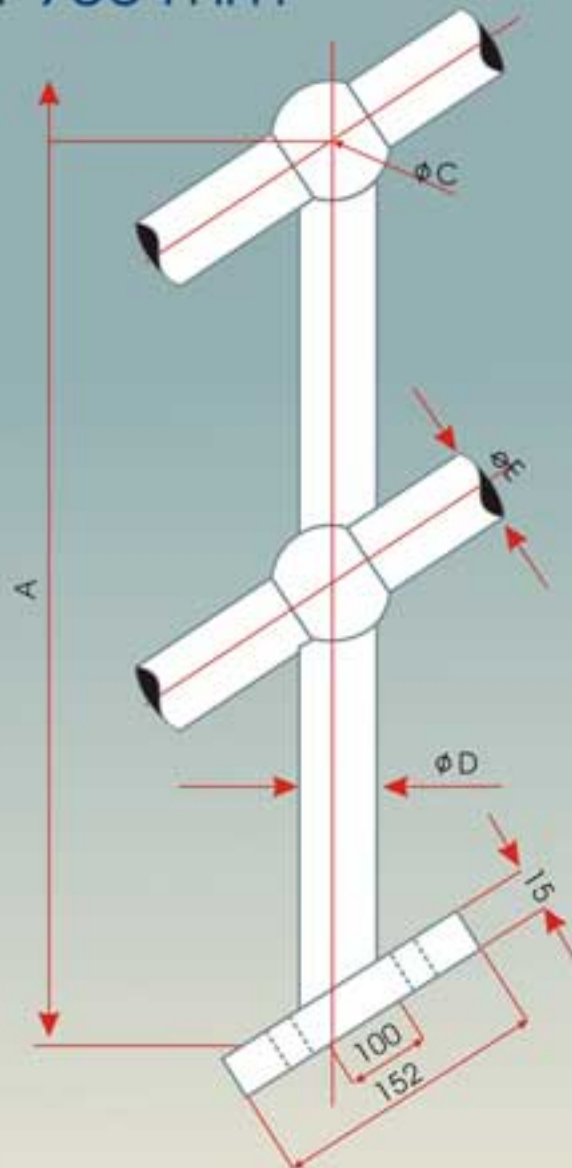


Flat Base Raked type (FBR) at a design height of 1100 mm

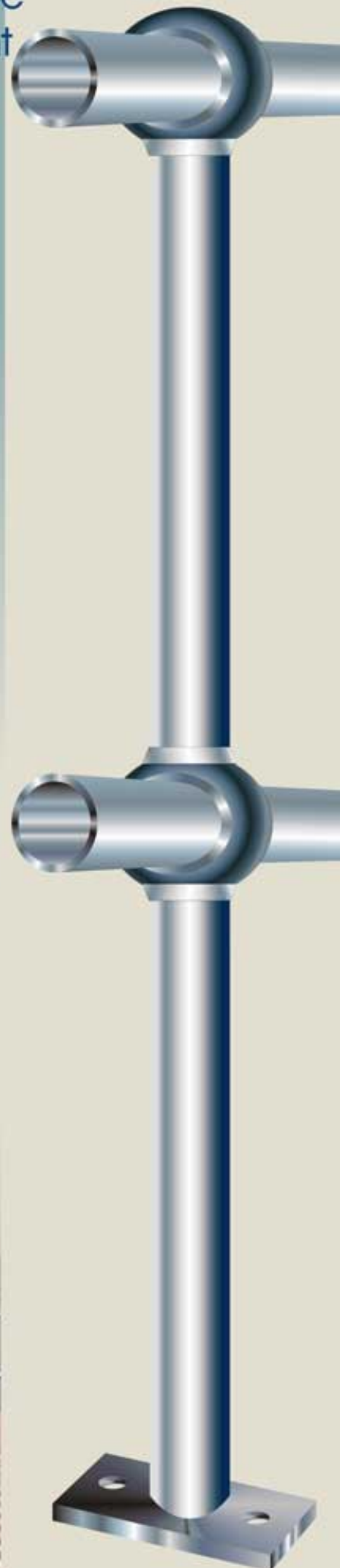


Design Load(N/m)	Ball Dia (C)	Shank Dia (D)	Handrail Dia (E)	Max Pitch
740	75	48.8x3.2	33.7x3.2	980
740	75	48.8x4.0	33.7x3.2	1190
360	65	33.7x3.2	33.7x3.2	970
360	65	42.4x3.2	33.7x3.2	1400
220	65	42.4x3.2	33.7x3.2	1860

Angled Base Raked type (ABR) at a design height of 900 mm

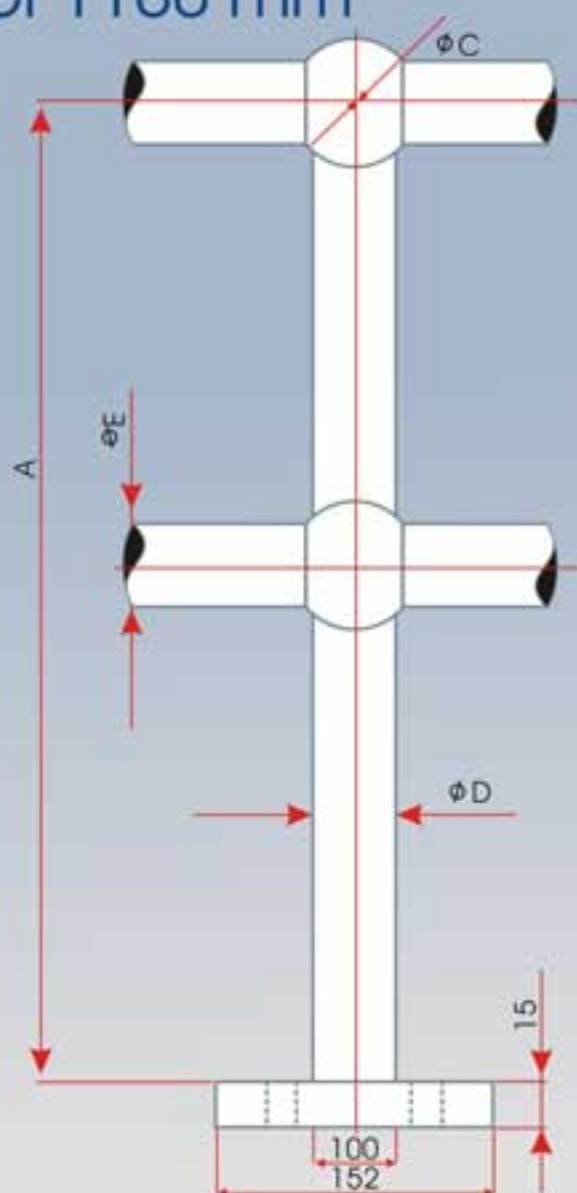


Design Load(N/m)	Ball Dia (C)	Shank Dia (D)	Handrail Dia (E)	Max. Pitch
740	75	48.8x3.2	33.7x3.2	980
740	75	48.8x4.0	33.7x3.2	1190
740	75	60.8x3.6	42.4x3.2	1450
360	65	42.4x3.2	33.7x3.2	1570
360	65	33.7x3.2	33.7x3.2	970



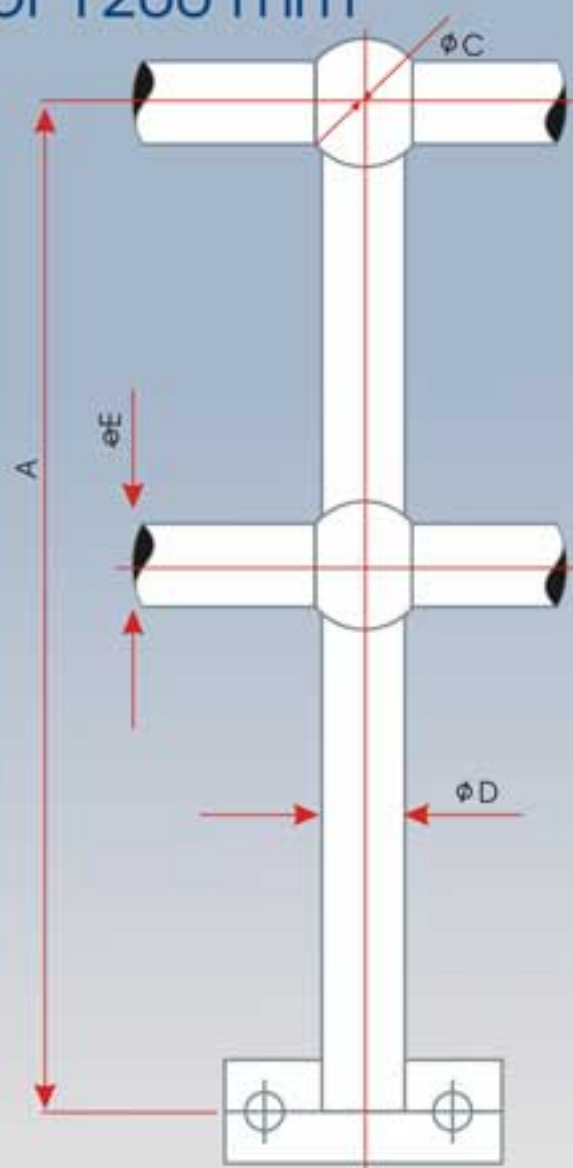
Solid Handrail Standards

Flat Base type
(FB) at a design height
of 1100 mm



Design Load (N/m)	Shank Dia (D)	Handrail Dia (E)	Max. Pitch
740	45	33.7x3.2	1560
740	38	33.7x3.2	1190
360	38	33.7x3.2	2440
360	32	33.7x3.2	1460

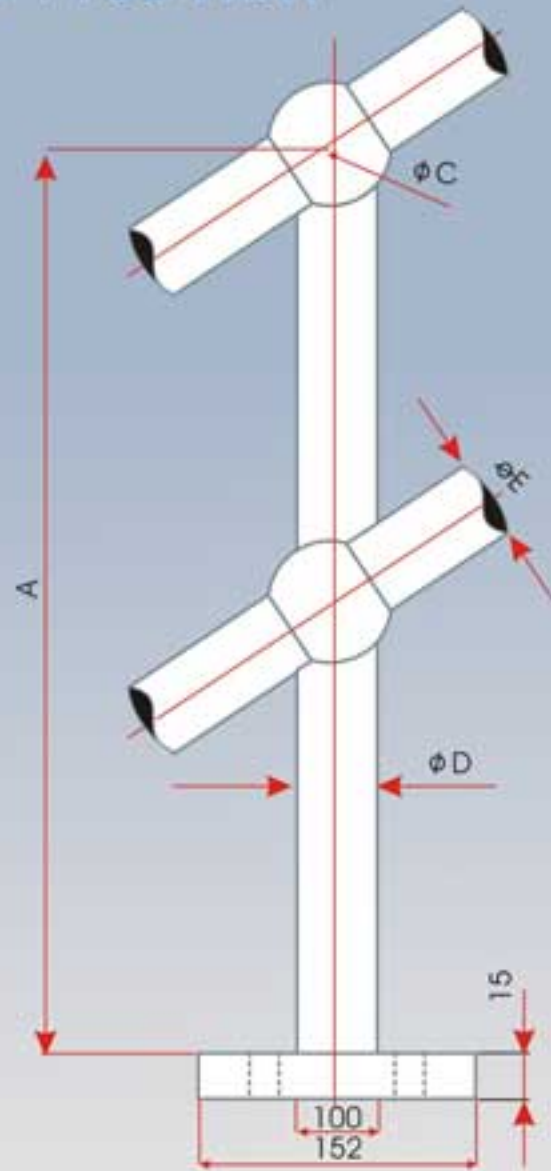
Side Base type
(SB) at a design height
of 1200 mm



Design Load (N/m)	Shank Dia (D)	Handrail Dia (E)	Max. Pitch
740	45	33.7 x 3.2	1420
740	38	33.7 x 3.2	1090
360	38	33.7 x 3.2	2000
360	32	33.7 x 3.2	1260
220	32	33.7 x 3.2	1600

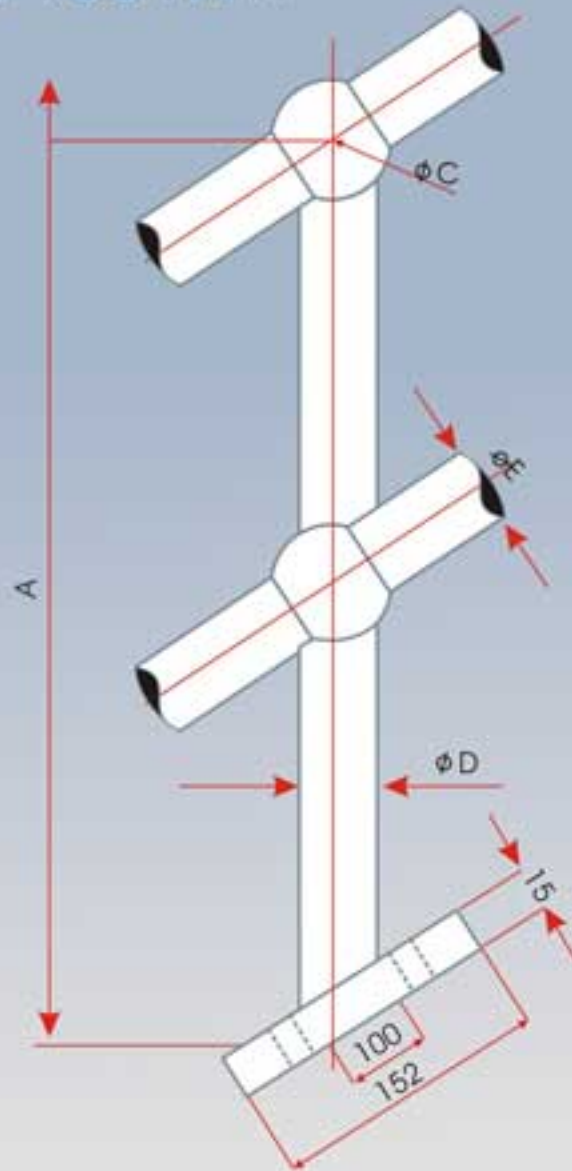


Flat Base Raked type (FBR) at a design height of 1100 mm



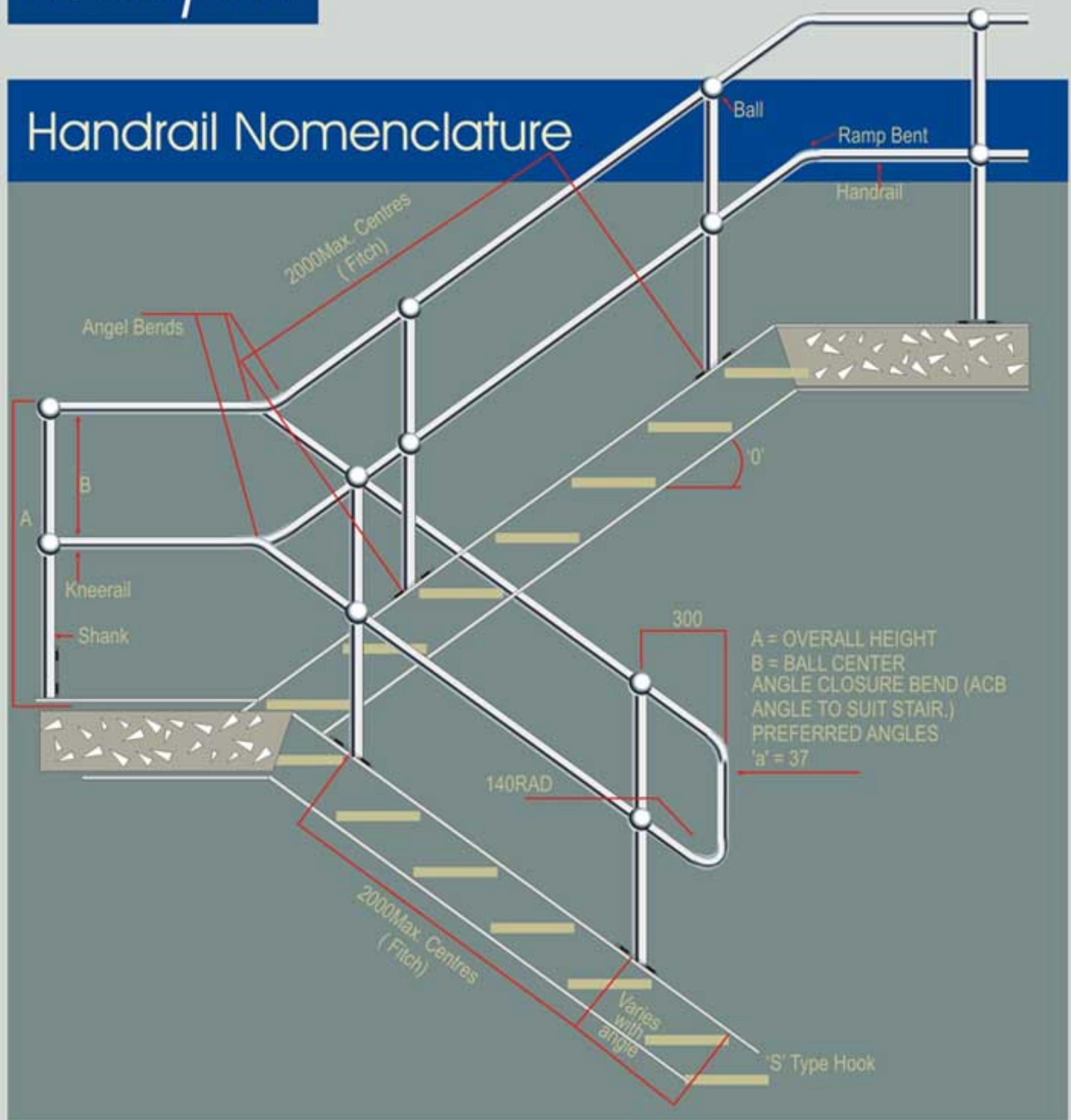
Design Load (N/m)	Shank Dia (D)	Handrail Dia(E)	Max. Pitch
740	45	33.7 x 3.2	1500
740	38	33.7 x 3.2	1190
360	38	33.7 x 3.2	2000
360	32	33.7 x 3.2	1460

Angled Base Raked type (ABR) at a design height of 900 mm



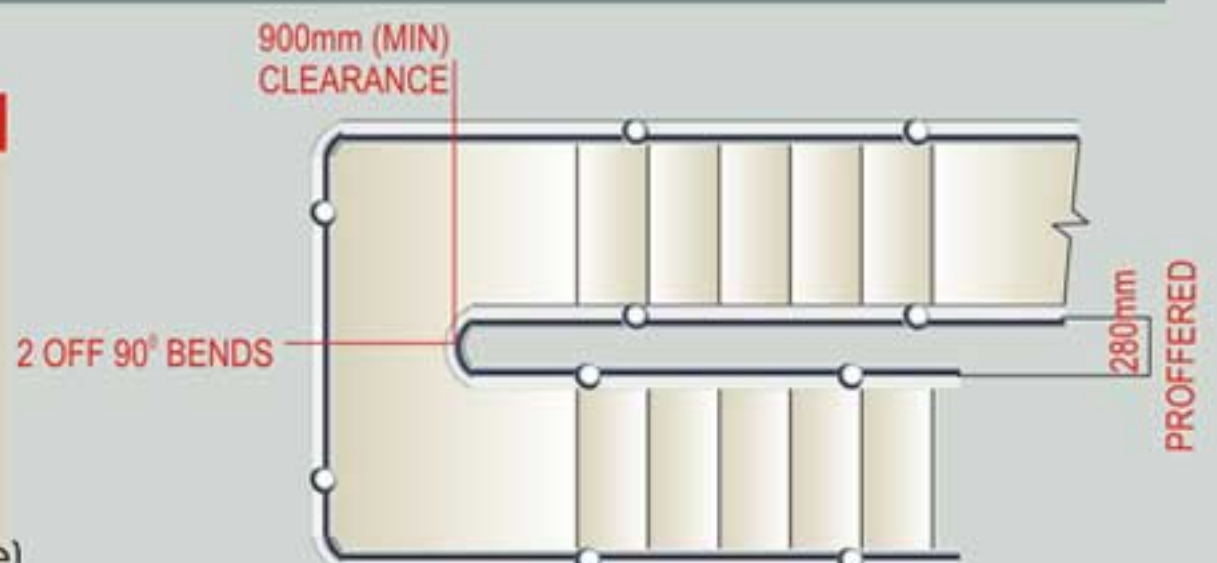
Design Load (N/m)	Shank Dia (D)	Handrail Dia (E)	Max. Pitch
740	45	33.7 x 3.2	1880
740	38	33.7 x 3.2	1190
360	38	33.7 x 3.2	2440
360	32	33.7 x 3.2	1460





Ordering Specifications:

Quantity
Specify the loading requirement
Colour or finish
Overall height
Type of base plate
If raked the angle
Type of shank
Construction drawing (If available)

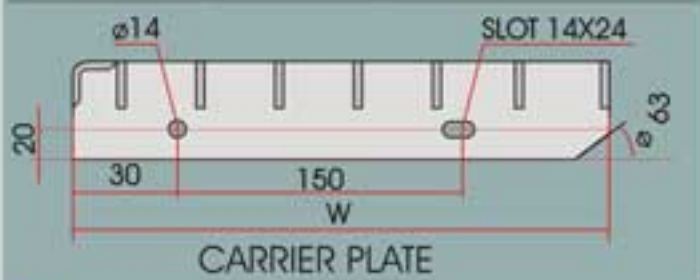


Indiana offers ex-stock staircase steps for landings as per following standard Dimensions:

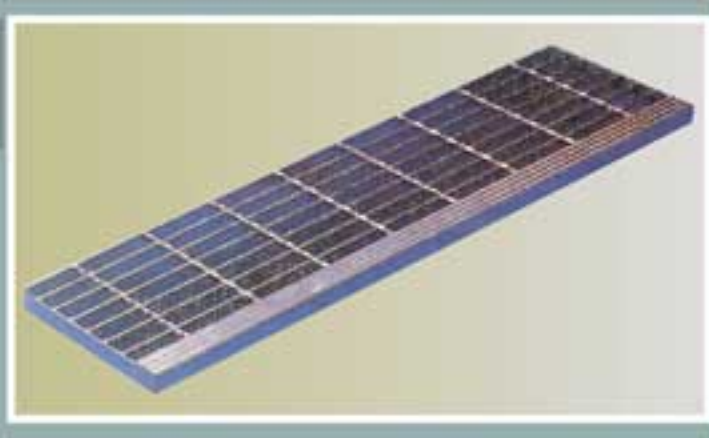
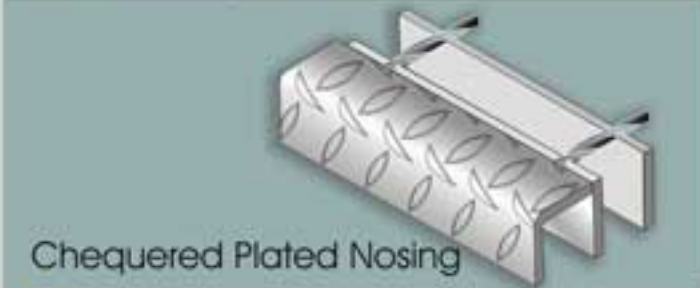
Span (L) mm	995			
Width (W) mm	236	244	253	266

Staircase steps are made available in the following three types:

A With carrier plate & chequered plate



B With chequered plate nosing only

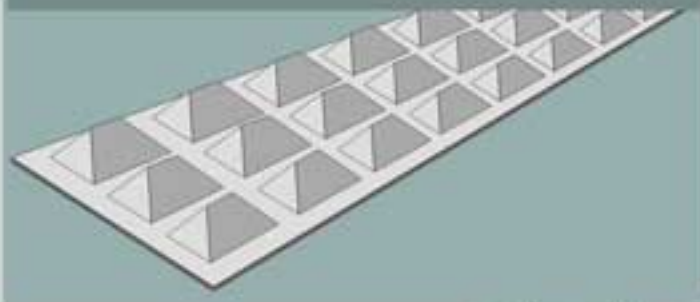


C Without Chequered plate & Carrier plate

We also offer tailormade sizes and design to suit your individual requirements.



D Pyramid Nosing





Indiana

Ready-Fix

HANDRAILS

It's better to be Safe than Sorry

Everyone has the right to live in a safe environment, free from unnecessary risk and fear of injury or accident. Safety at work place does not remain an ideological dream but becomes an integral part of the working environment.

Indiana offers Ready-Fix Handrail Systems that builds a sense of security by ensuring maximum safety in the work arena and brings utmost confidence by allowing unrestricted body movements thereby increasing efficiency of work. These handrails provide maximum safeties towards preventing of mishaps at the work place. They also impart

Ready-Fix handrail designs are reinforced by implementation of our engineering abilities considering all the required safety precautions that are adhered to during the entire work process.

Our understanding of how safety



We can also design and manufacture Tailor-made FRP Sections as per your requirements.

Tailormade FRP Sections

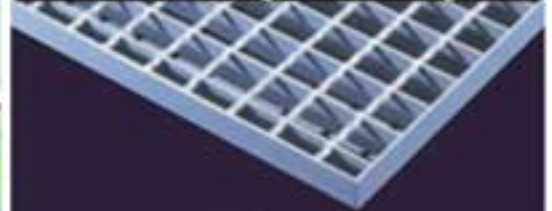


Made to order
FRP Design

FRP Trash Rack



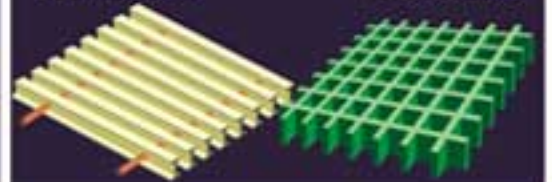
Electroforged Gratings



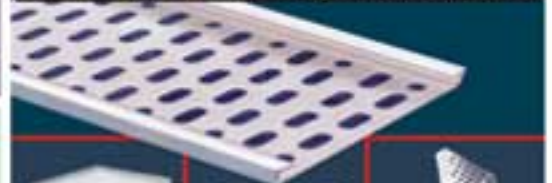
FRP Gratings

Pultruded

Moulded



Perforated Cable Trays & Accessories



Ladder Cable Trays & Accessories



Our other products

Floor Gratings in Mild Steel,
Hot Dip Galvanized, Aluminum,
Stainless Steel and FRP

Ladder Type Cable Trays & Accessories
in MS, Aluminum and FRP

Perforated Cable Trays & Accessories
in MS and Aluminum

Trunkings, Support Systems and Hardwares

Trash Racks in FRP

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for more detailed information
on the above products.

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Award for 15
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Indiana Gratings Pvt. Ltd.

Manufacturers of Gratings, Cable Trays & Handrails

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Website: www.indianagroup.com