

The image shows a yellow handrail system installed on a metal platform. The handrails are made of thick yellow pipes connected by ball joints. The platform has a metal grating floor. The background is a solid grey color.

Weldlok®

Balltube® Handrail Systems

Technical Guide

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NEPEAN Building & Infrastructure is a division of NEPEAN, Australia's largest privately owned engineering, mining services and industrial manufacturing organisation, and proudly home to the Weldlok® brand.

With expertise spanning 65 years strong, Weldlok designs, manufactures and distributes an extensive range of Access System solutions. Products include Forgebar® grating, flormesh walkways, and handrail systems manufactured from steel and aluminium, as well as fibre-reinforced plastic (FRP) walkway grating.

This brochure is designed to assist architects, engineers, fabricators or specifiers in the correct selection and specification of Weldlok Balltube® Handrail Systems.

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Weldlok Balltube® Handrail

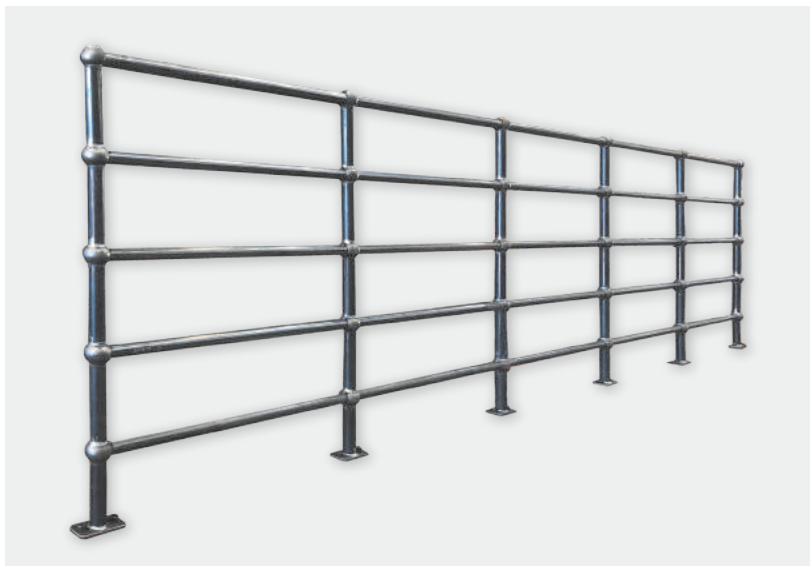
Weldlok Balltube® Handrail Systems are designed and engineered for safety, custom configured and fabricated to suit industrial, commercial or infrastructure applications.

Offering efficient installation, with minimal onsite welding, the Weldlok Balltube system can provide considerable savings in labour costs and project completion times.

Fabricated systems or components can be delivered to site including fully galvanised stanchions, rails, bends, kickplates, slip-joints, closures, etc., ready for trouble-free erection.

Our unique integrated manufacturing includes in-house galvanising services in NSW for complete fabrication management. Facilities are backed by advanced quality control systems, supported by a dedicated team of experts to provide our clients with reliable service and dependable quality.

The Weldlok Balltube® Handrail System is designed and manufactured to conform with Australian Standard AS1657:2018 and tested to meet load requirements of AS1170.1 Table 3.3 [B, E] for Fixed Platforms, Walkways and Stairways for access.



Specifications

Standard Duty Stanchions

Standard duty stanchions are manufactured from 40 NB pipe [48.3mm OD x 3.2mm wall thickness].

Heavy Duty Stanchions

Heavy duty stanchions are manufactured from 40 NB pipe [48.3mm OD x 4.0mm wall thickness].

Stanchion Pitching

Australian Standard AS1657 recommends a maximum pitching of 2.4 metres for steel stanchions and 2.0 metres for Aluminium stanchions.

Stanchion Handing

Handing of stanchions is from point of view on stairway or platform, facing the inside of the stanchion. Those on the right-hand side are suffixed 'R', and those on the left-hand side are suffixed 'L'.

Rails

Standard drilled openings on Balltube stanchions allow for a top rail of 32 NB [42.4mm OD] and a mid-rail of 25 NB [33.7mm OD]. Hole sizes for 40 NB [48.3mm OD] and 20 NB [26.9mm OD] rails in either top rail or mid-rail positions are also available. Rails are supplied in a medium gauge, with a maximum length of 6.5m.

Kickplate Mounting Brackets

Manufactured from 40mm x 40mm x 5mm angle x 85mm long, with two 14mm diameter slotted holes, to suit 100mm kickplate.

Kickplates

Standard kickplates are 100mm x 6mm in 6m lengths. Other sizes available on request.

Base Plates

Steel base plates for 15-45° BPAM stanchions are 65mm x 172mm x 10mm with 18mm diameter holes at 126mm centres for fixing to stair stringers. C & CA stanchions have Ø75mm x 6mm rings.

All other steel base plates [incl. for 1-14° BPAMs] are 75mm x 146mm x 10mm with 18mm diameter holes at 102mm centres.

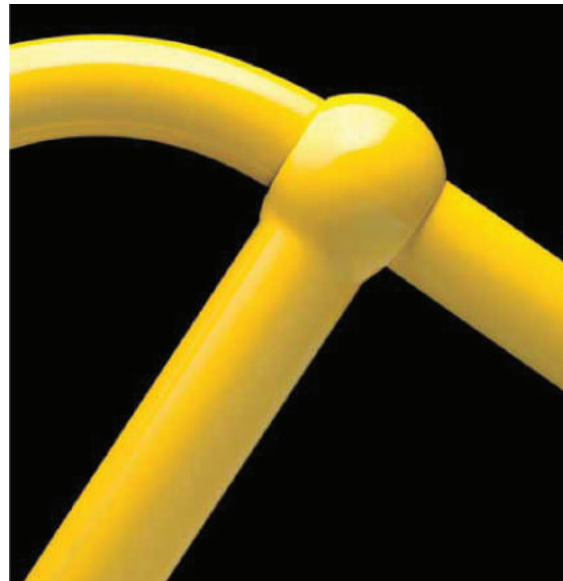
Note: Special base plates can be made to order. Aluminium base plates differ, refer to our Aluminium flooring and handrail guide.

Finish

The standard finish is hot-dip galvanised to AS/NZS4680. Untreated finish, paint or powdercoating available on request.

Specials

Variations on standard stanchions and fittings can be manufactured to individual requirements.



Materials

Weldlok Balltube Handrail systems can be manufactured from mild steel, stainless steel or aluminium. Dimensions in this guide relate to mild steel and stainless steel materials.

For specifications related to aluminium, refer to our Aluminium flooring and handrail guide.

Mega Ball Specifications [Refer page 10]

Standard Duty Stanchions:	65 NB [76.1mm OD x 3.6mm wall thickness].
Heavy Duty Stanchions:	65 NB [76.1mm OD x 4.5mm wall thickness].
Spheres:	125mm OD, to suit 76.1mm OD piping.
Rails:	Same duty as stanchions. Supplied in 6.5m lengths.
Base Plates:	150mm x 150mm. Thickness 16mm. Holes 20mm OD.
Special Base Plates:	Made to requirements.
Finish:	Hot-dip galvanised as standard. Untreated, paint & powdercoat on request.

Installation Instructions

The Weldlok Balltube system has been designed for efficient on site-installation with instructions available.

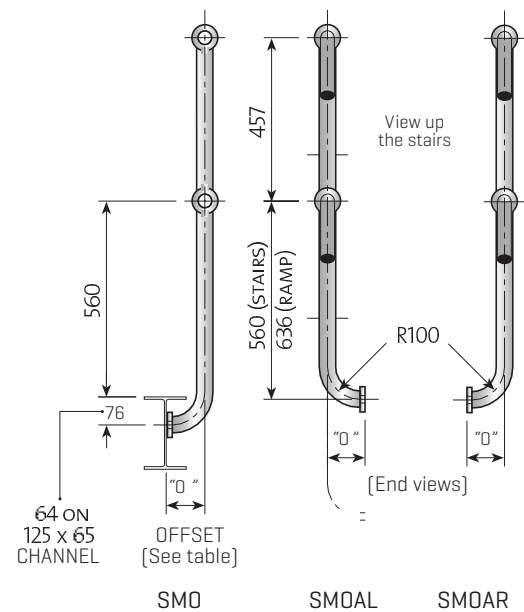
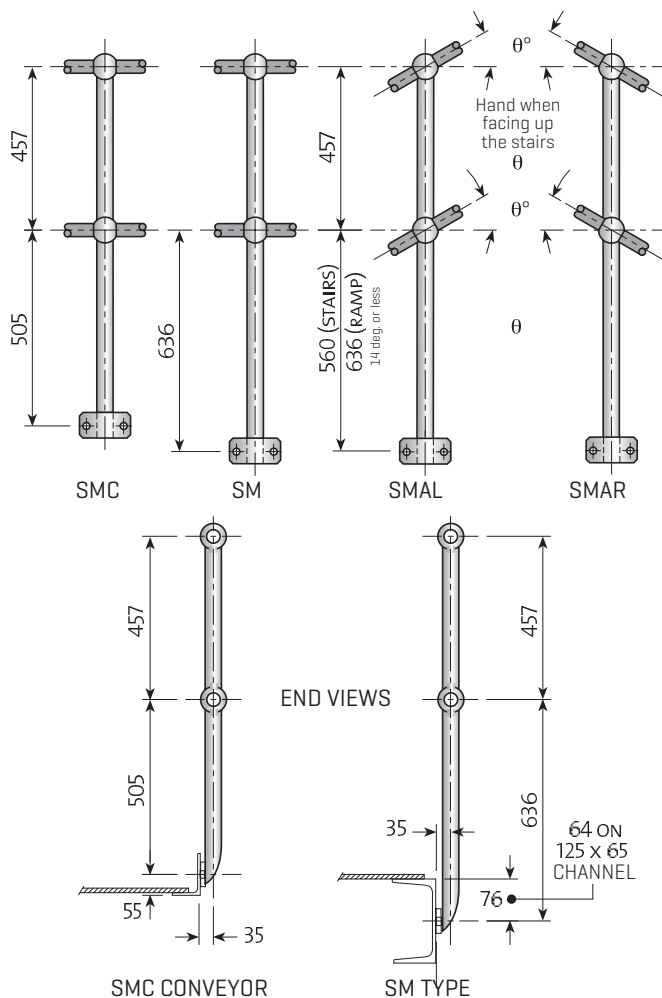
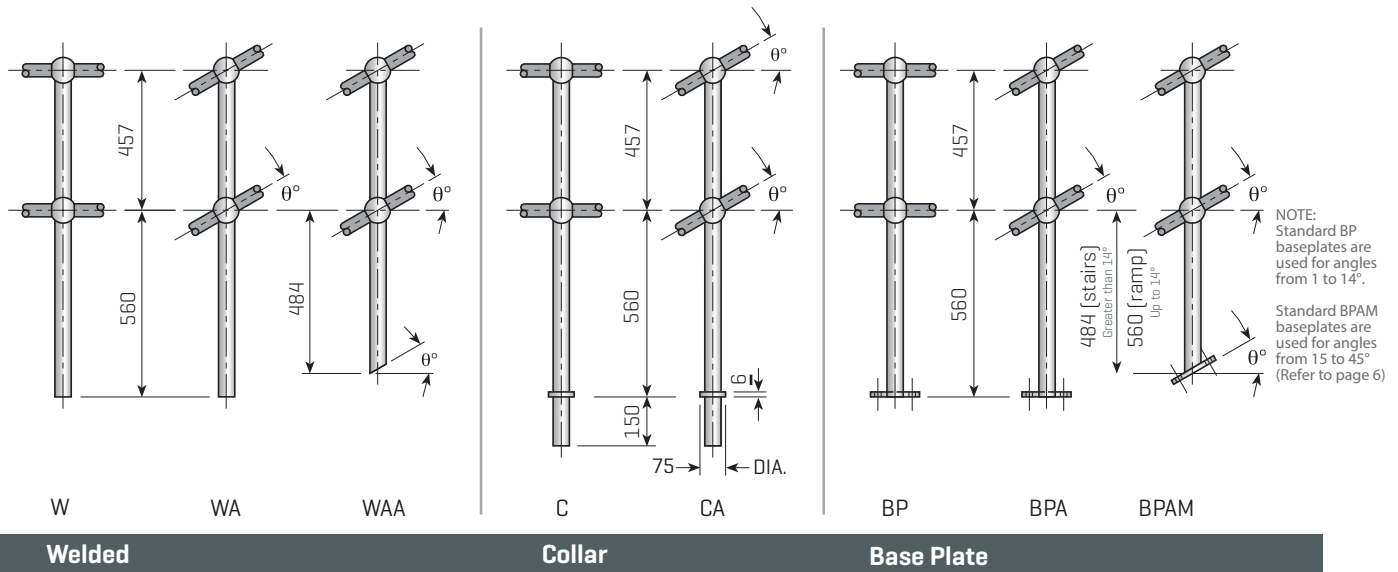
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Component Dimensions

Weldlok Balltube® Standard Stanchions



Offset "O" (mm)

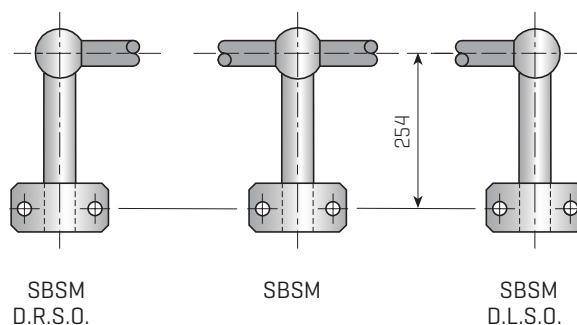
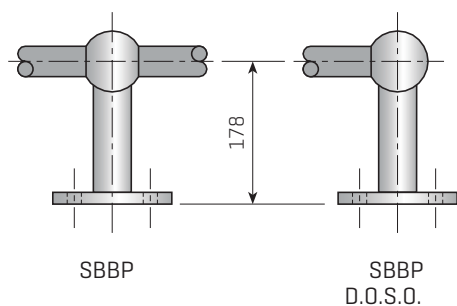
Channel	"O" offset	Universal Beam	"O" offset
125 x 65	110	200	110
150 x 75	110	250	110
180 x 75	110	310	120
200 x 75	110	360	125
230 x 75	110	410	125
250 x 90	125	460	135
300 x 90	125	530	140
380 x 100	135		

Side Mounted

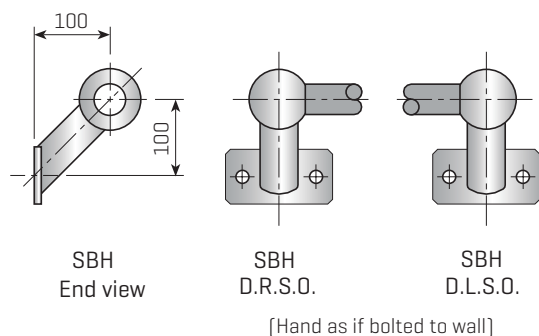
Side Mounted Offset

Component Dimensions

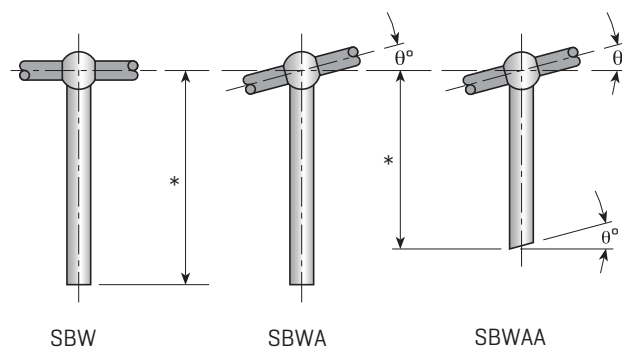
Weldlok Balltube® Standard Single Ball Stanchions



Single Ball Base Plate

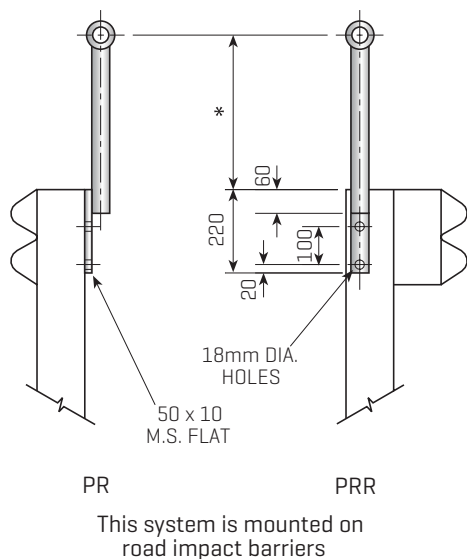


Single Ball Side Mounted

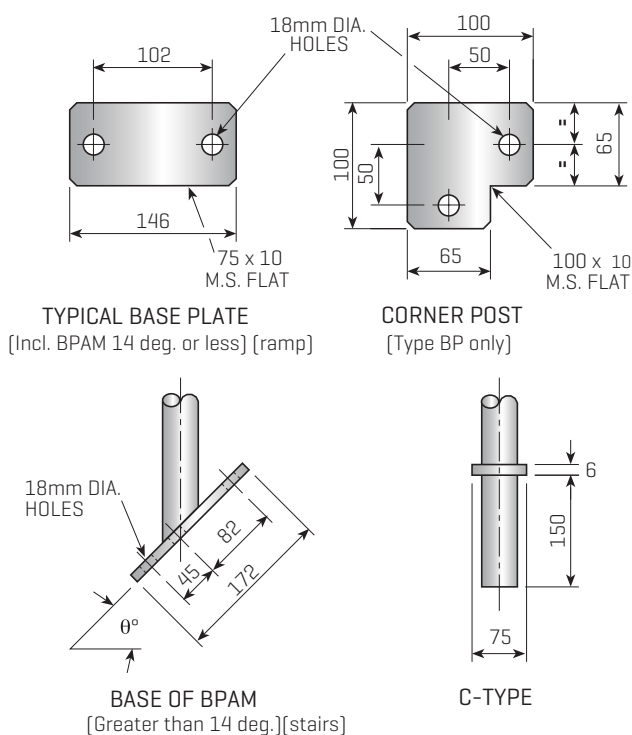


* Nominate dimensions
Available in all base plate types

Single Ball Offset Handrail



Single Ball Welded

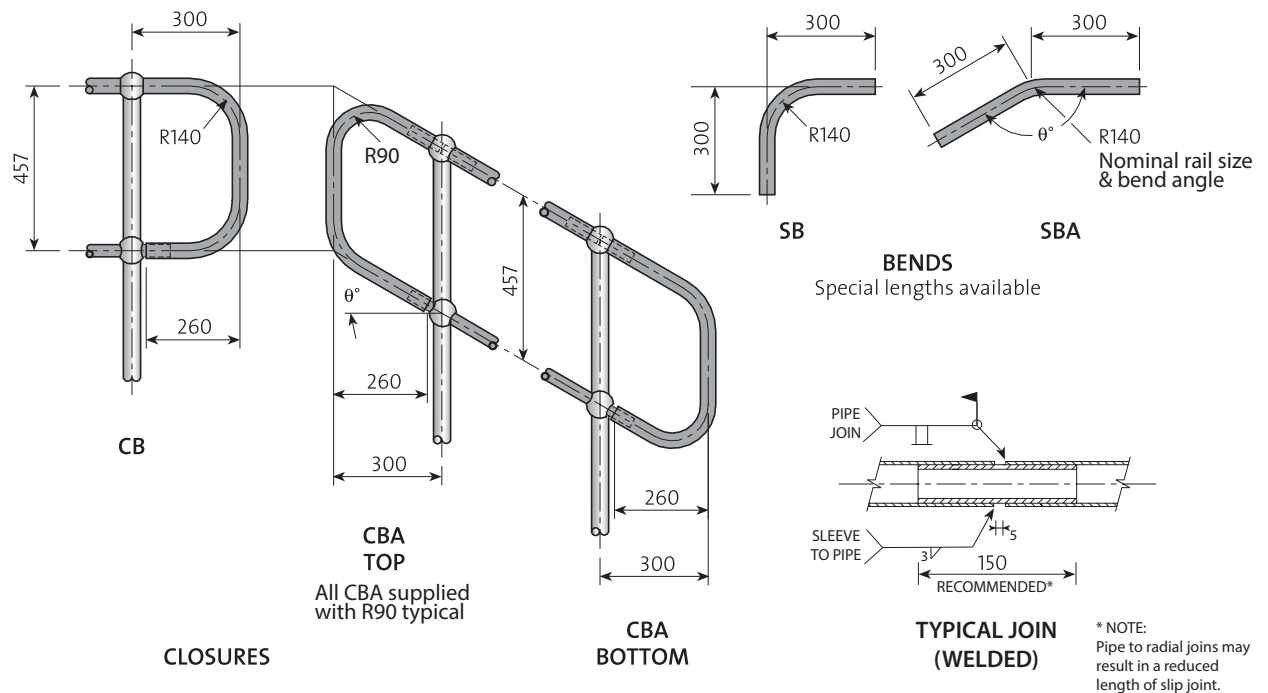


Personnel Handrail

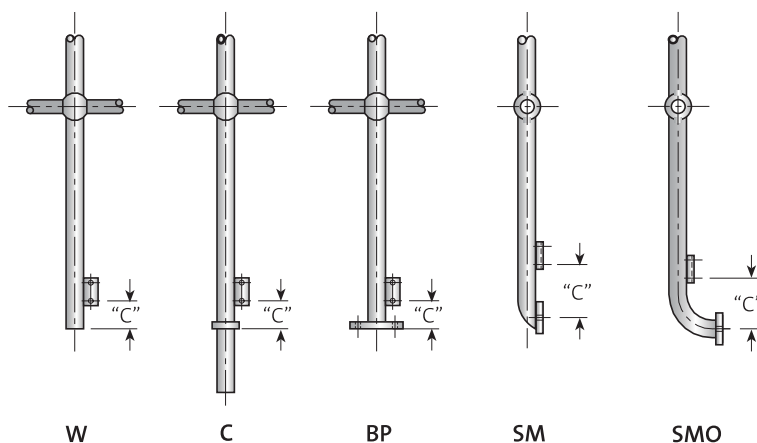
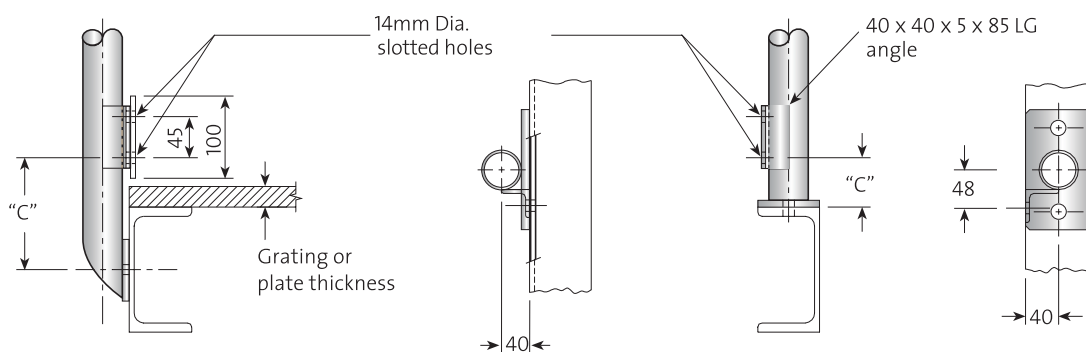
Standard Base Plates

Component Dimensions

Weldlok Balltube® Standard Closures, Joiners and Bends



Weldlok Balltube® Kickplate Mounting Brackets



Dimension "C" [mm]

Type	"C" = Grating or Plate Thickness Plus
W	30
C	30
BP	30
SM	106*
SMO	106*

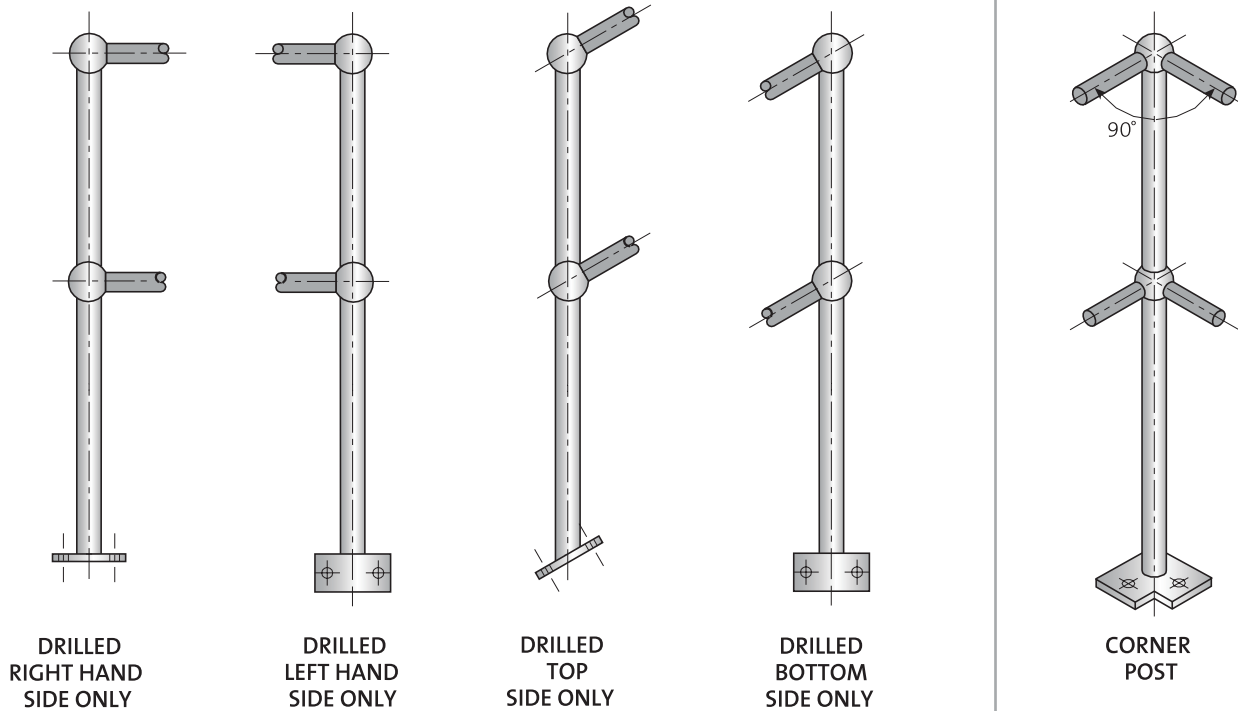
*94 when used on 125 x 65

Note: Kickplate mounting brackets are an optional extra

Example:
If grating is 25mm deep then "C" Dimension = 55mm for types W, C, & BP.

Component Dimensions

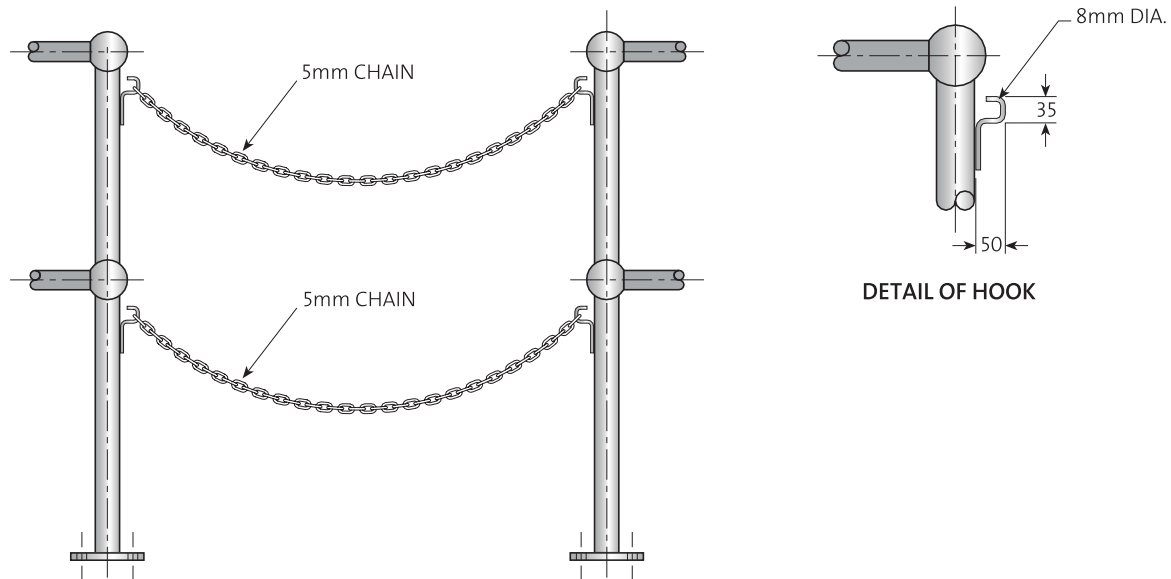
Weldlok Balltube® Special Drilling for Rails



DRILLED ONE SIDE ONLY (D.O.S.O.)

These combinations of drilling are available on full range of standard stanchions

Weldlok Balltube® Chain Hooks



D.O.S.O. STANCHIONS WITH CHAIN HOOKS

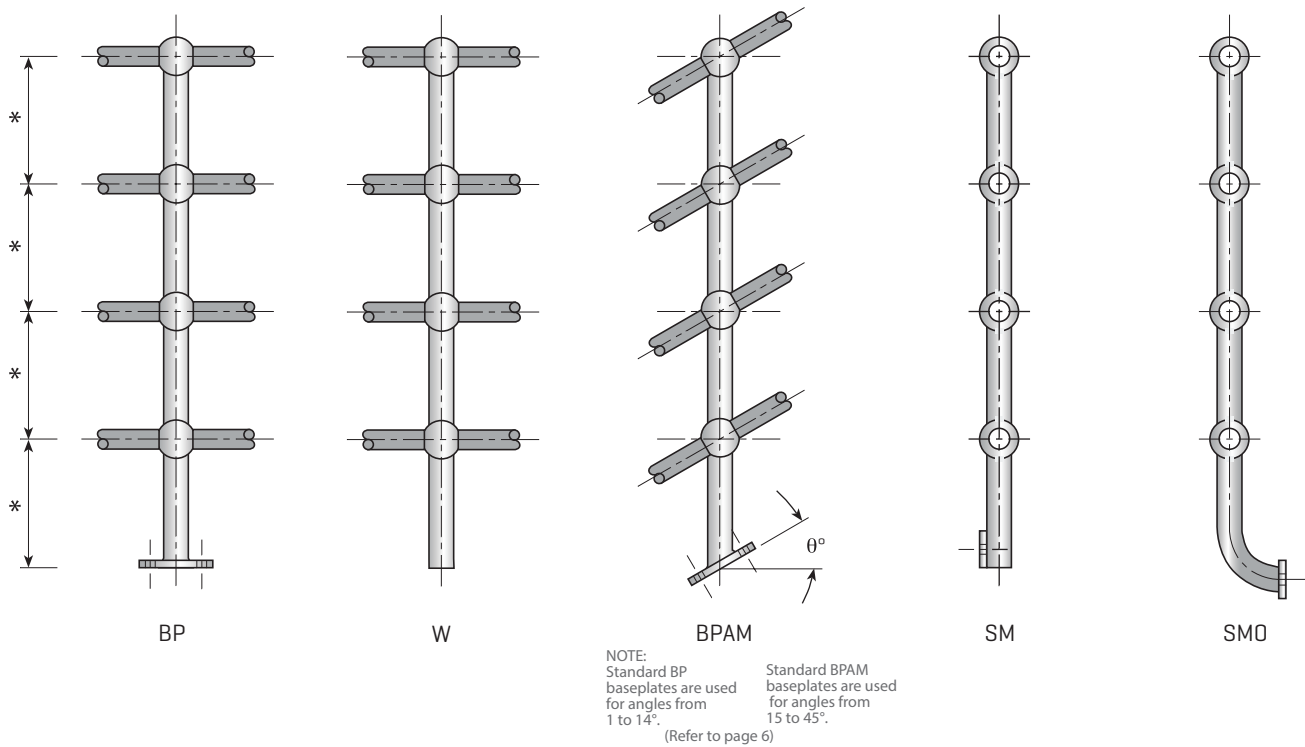
Specify whether top rail only or both rails
5mm heavy duty chain available on request

Component Dimensions

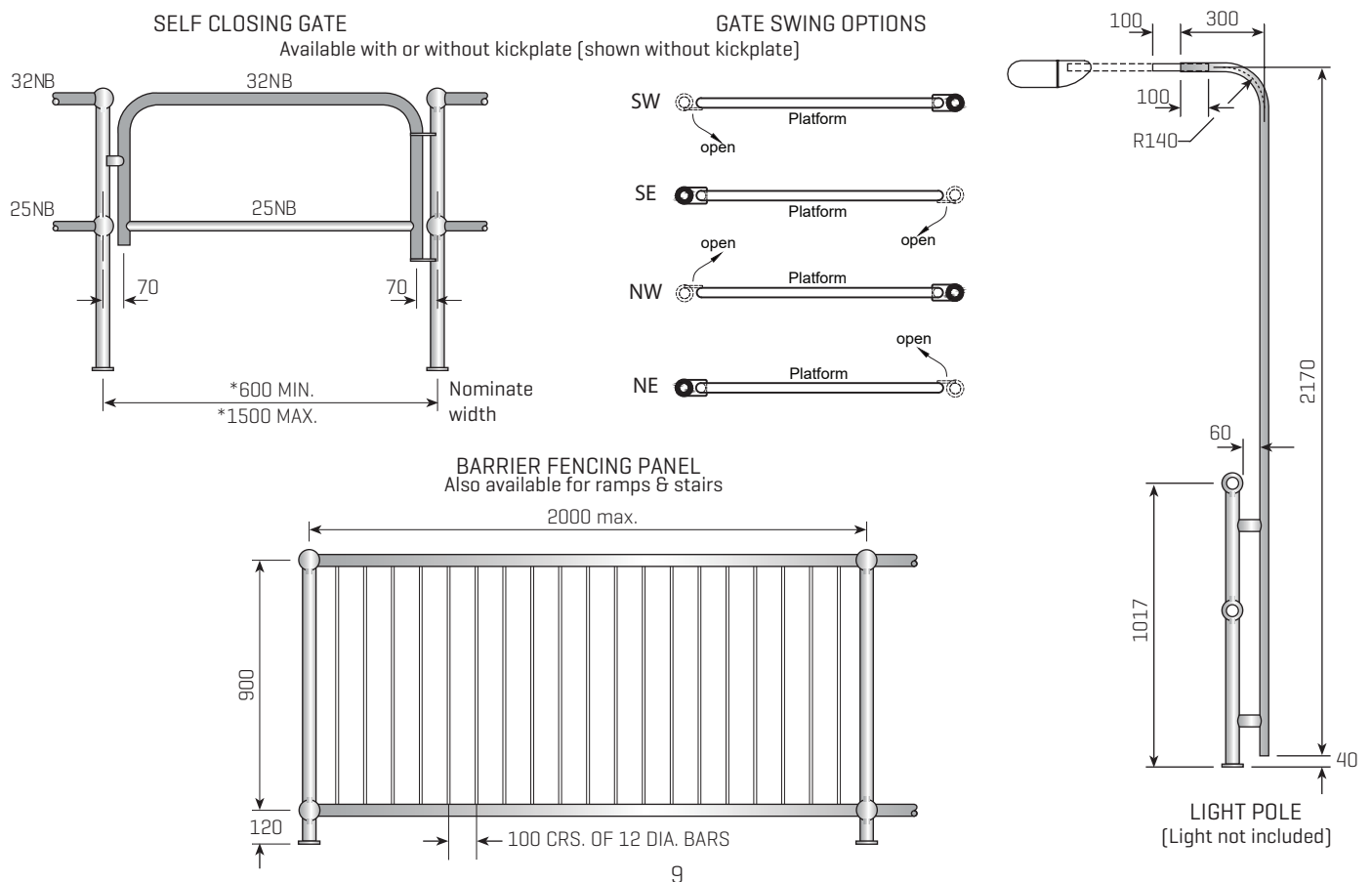
Weldlok Balltube® Multi Ball Stanchions

* Specify number of balls, pitching & height required of stanchion [150mm minimum centres]

Multi ball stanchions are available in any of the range of Balltube stanchion configurations

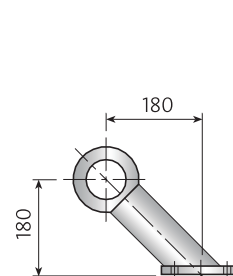
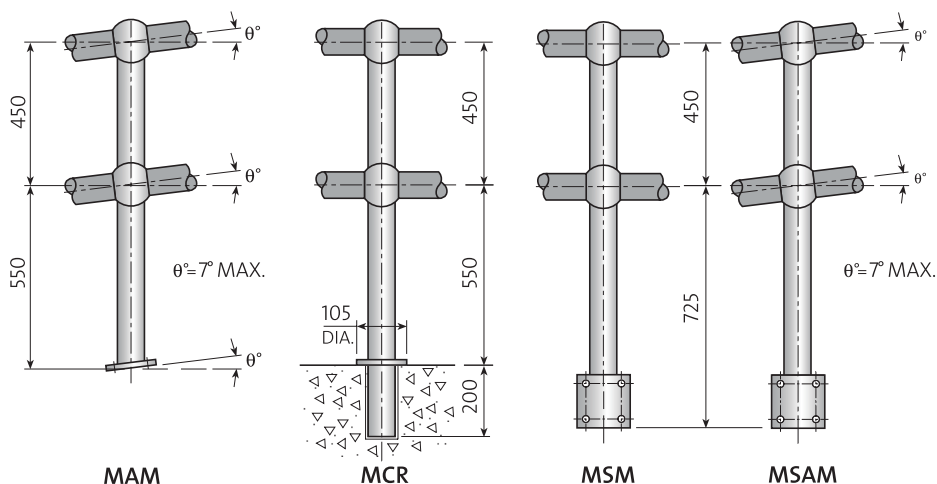


Weldlok Balltube® Handrail Accessories

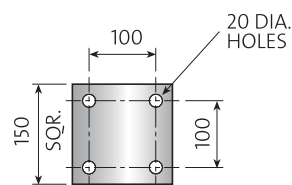


Weldlok Balltube® Mega Ball Component Dimensions

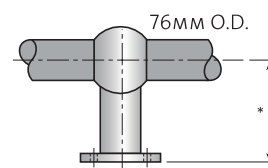
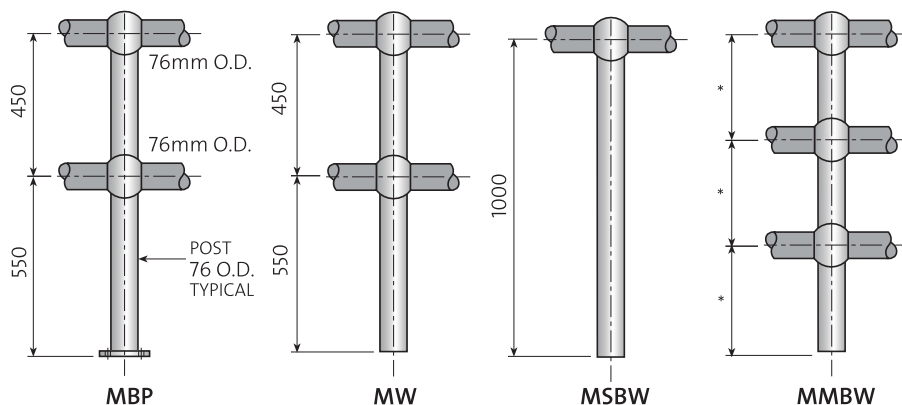
Weldlok Balltube® Mega Ball Stanchions



MOF



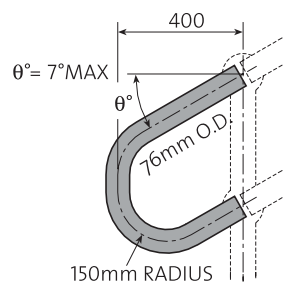
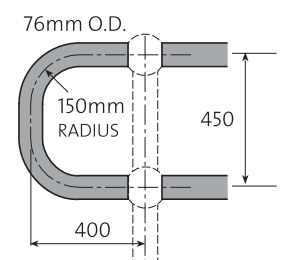
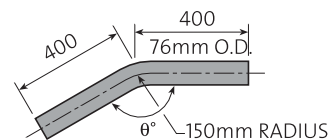
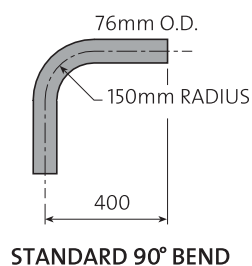
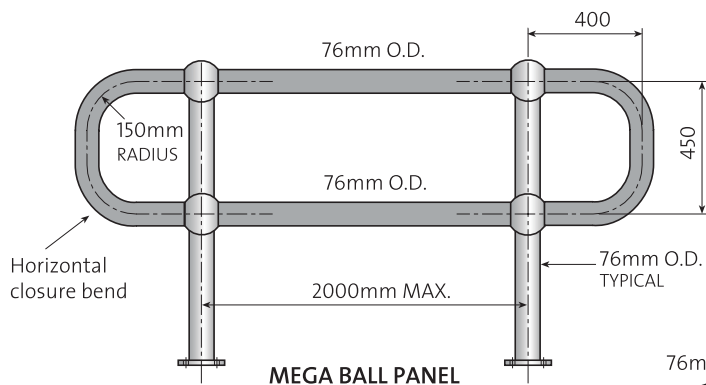
TYPICAL BASE PLATE
(16mm THICK)



MSBBP

*specify number of balls,
pitching & height required of stanchion (180mm minimum)
(300mm min. centres)

Weldlok Balltube® Mega Ball Closures and Bends



Weldlok Balltube® Handrail Weights

Weldlok Balltube® Stanchions

Type	3.2mm Wall Thickness	4.0mm Wall Thickness
BP	4.8 kg	5.3 kg
BPA	4.8 kg	5.3 kg
C	4.9 kg	5.4 kg
CA	4.9 kg	5.4 kg
W	3.9 kg	4.4 kg
WA-WAA	3.9 kg	4.4 kg
SM	5.0 kg	5.6 kg
SMO	5.3 kg	5.9 kg
SMA	4.9 kg	5.4 kg
SMC	4.9 kg	5.4 kg
SMOA	5.3 kg	5.9 kg
BPAM	4.5 kg	5.0 kg
SBW	3.9 kg	4.4 kg
SBWA	3.9 kg	4.4 kg
SBBP	1.7kg	2.0 kg
SBSM	2.0 kg	2.3 kg
SBH	1.3kg	



Ordering Information

Important When Ordering

1. Nominate duty of stanchions (standard or heavy duty).
2. Specify the finish required for stanchions (galvanised, untreated, paint or powdercoat).
3. Nominate the type of stanchion (see codes in this brochure).
4. State top rail and mid-rail sizes required in nominal bore pipe sizes.
5. If a kickplate mounting bracket is required, nominate handing and dimension "C" (refer to page 7). Note: Right-hand location of the kickplate is standard and will be supplied on RH unless otherwise nominated.
6. If stanchions are offset type, state the "O" dimension from the selection table on page 5.
7. If stanchions are angled type, specify the angle of elevation.
8. If stanchions are to be drilled on one side only, nominate handing.
9. Any variations to normal stanchions should be noted and drawing supplied.
10. Supply a list of all joiners and split pins, rails, kickplates, etc.

Mega Ball Stanchions

Type	N.B.	Weight
MAM	65	11.50 kg
MCR	65	10.50 kg
MSM	65	12.65 kg
MSAM	65	12.65 kg
MBP	65	11.50 kg
MW	65	8.70 kg
MSBW	65	8.10 kg
MOF	65	5.30 kg
RAIL – Standard Duty	65	6.51 kg/m
RAIL – Heavy Duty	65	7.90 kg/m

Weights based on wall thickness of 3.6mm

Bends & Closures

Type	N.B.	Weight
SB, SBA	32	1.8 kg
SB, SBA	25	1.4 kg
SB, SBA	20	0.9 kg
CB	32	2.8 kg
CB	25	2.2 kg
CBA	32	2.8 kg
CBA	25	2.2 kg

Rails & Kickplates

Type	Weight
32 N.B. Rail	3.2 kg/m
25 N.B. Rail	2.5 kg/m
20 N.B. Rail	1.6 kg/m
100 x 6 Kickplate	4.8 kg/m

The above weights for rails and bends are based on medium gauge pipe.

Weights above are for an untreated finish. For an approximate galvanized mass add 7.5%.

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Branches

New South Wales

137 Rookwood Road
Yagoona NSW 2199
P: + 61 2 9707 5088
E: info@weldlok.com.au

Victoria

171 Derrimut Drive
Derrimut VIC 3026
P: + 61 3 8353 3701
E: vic.bi@nepean.com

Queensland

14 Griffin Crescent
Brendale QLD 4500
P: + 61 7 3633 1333
E: qld.bi@nepean.com

Western Australia

98 Campbell Street
Belmont WA 6104
P: + 61 8 9230 8466
E: wa.bi@nepean.com

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