

great service, great quality

Revision #	Revision Date
# 0	18/01/2023

Introduction

Lockinex Ball posts are manufactured from three main components, Base Plates, Circular uprights & spheres (The "Ball"). Most common are where the upright is Tubular Steel & the balls are hollow (Pressed from tube).

A more robust design is where the upright is of a Solid Steel Circular Section and the balls are solid forged steel.

99% percent of the manufacturing process is carried out robotically

Application

Predominately used for safety guard-railing in areas such as, Water Treatment, Chemical, Storage, Petro Chemical, Oil Rigs, Mezzanine Floors, Roof Edge, Access walkways, Sea Fronts & Marinas.

Design

Most common configurations are shown, and are available directly from stock. Many other configurations and material types are manufactured to order.

Warranted & Certified

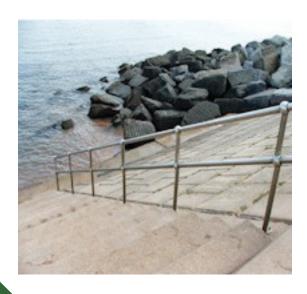
When installed correctly, this product Complies with current regulations; BS 6180:2011 Barriers in & about buildings.

BS EN ISO 14122-3:2001 Safety of Machinery-Permanent means of access to machinery.

BS 4592-0:2006+A1:2012 Handrails for industrial use.

Galvanised to BS EN 1461:2009.

Stainless Steel Grade 304 & 316.





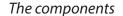


System Components Overview

"Ball" Type Posts are manufactured utilising a number of components, which are welded together to form the finished article.

There are a number of Ball configurations, which can be made to order, along with various base plate types for bolting to an existing structure.

Most common types of posts are held in stock & ready for immediate shipment.







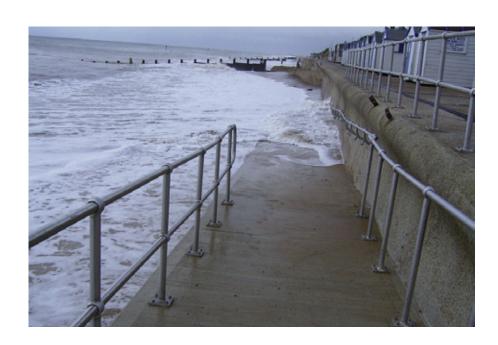


Various types of base plates.





Tubular Sections-Machine welded between balls & Base Plates construct the Upright post





Stock items (Most common configurations) -I n Tubular Steel Construction

Style Ref HS1 - Flat Base Plate

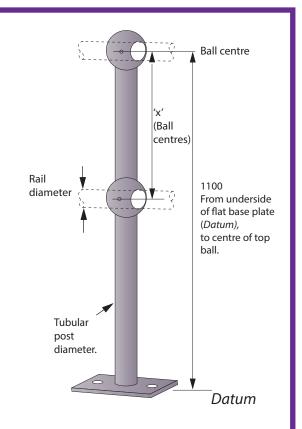
The HS1 is available directly from stock, with a galvanised finish.

Vertical post & Horizontal rail diameters are as follows:

Product code

HS1-6	33.7mm post & rails.	"X"= 550
HS1-7x6	42.4mm post 33.7mm rails	"X"= 500
HS1-7	42.4mm post & rails	"X"= 550
HS1-7-500	42.4mm post & rails	"X"= 500
HS1-8	48.3mm posts & rails	"X"= 550

Many other ball & rail configurations can be manufactured-Please call if you require this service.



Style Ref HS2 - Side Mounted Base Plate

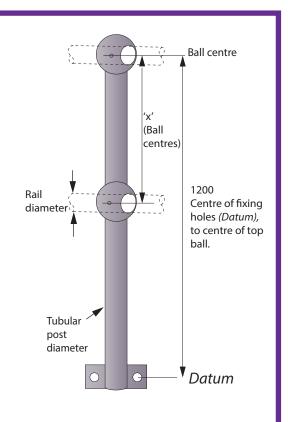
The HS2 is available directly from stock, with a galvanised finish.

Vertical post & Horizontal rail diameters are as follows:

Product Code

HS2-6	33.7mm post & rails.	"X"= 550
HS2-7x6	42.4mm post 33.7mm rails	"X"= 500
HS2-7	42.4mm post & rails	"X"= 550
HS2-7-500	42.4mm post & rails	"X"= 500
HS2-8	48.3mm posts & rails	"X"= 550

Many other ball & rail configurations can be manufactured-Please call if you require this service.



Stock items (Most common configurations) - In Tubular Steel Construction

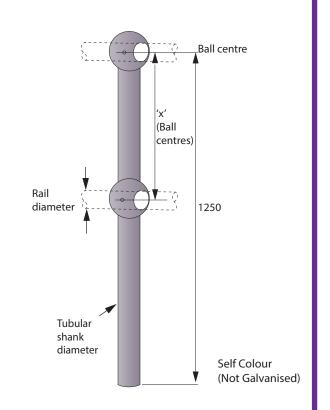
Style Ref HS3 - No Base Plate (For the fabricator to use accordingly)

The HS3 is available directly from stock, with a self colour finish. (Not Galvanised) Vertical post & Horizontal rail diameters are as follows:

Product Code

HS36B	33.7mm post & rails	"X"= 550
HS36B-500	33.7mm post & rails	"X"= 500
HS37B	42.4mm post & rails	"X"= 550
HS37B-500	42.4mm post & rails	"X"= 500
HS38B	48.3mm posts & rails	"X"= 550

Many other ball & rail configurations can be manufactured-Please call if you require this service.



Style Ref HS4 - Angled Balls & Base Plate

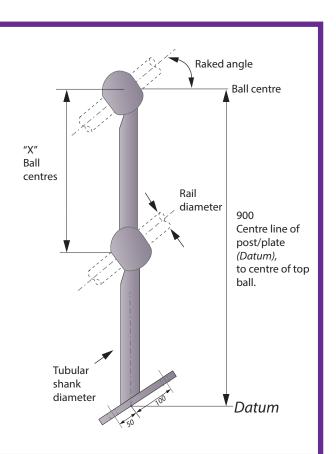
The HS4 post is available directly from stock, with a galvanised finish.

Vertical post & Horizontal rail diameters are as follows:

Product Code

HS4-6	33.7mm post & rails.	"X"= 450
HS4-7	42.4mm post & rails	"X"= 450
HS4-8	48.3mm posts & rails	"X"= 450

Many other ball & rail configurations can be manufactured-Please call if you require this service.



Stock items (Most common configurations) - In Tubular Steel Construction

Style Ref HS5 - Angled Balls Side Mounted Base Plate

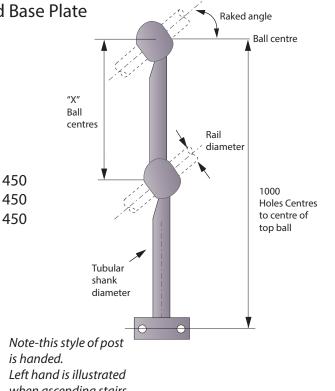
The HS5 post is available directly from stock, with a galvanised finish.

Vertical post & Horizontal rail diameters are as follows:

Product Code

HS5-6	33.7mm post & rails.	"X"= 450
HS5-7	42.4mm post & rails	"X"= 450
HS5-8	48 3mm nosts & rails	"X"= 450

Many other ball & rail configurations can be manufactured-Please call if you require this service.



when ascending stairs.

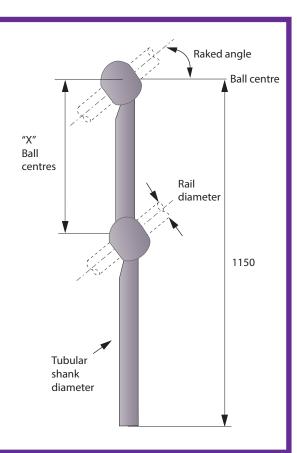
Style Ref HS6 - Balls Angled No Base Plate (For the fabricator to use accordingly)

The HS post is available directly from stock, with a self colour finish. (Not Galvanised) Vertical post & Horizontal rail diameters are as follows:

Product Code

HS6-6B	33.7mm post & rails	"X"= 450
HS6-7B	42.4mm post & rails	"X"= 450
HS6-8B	48.3mm post & rails	"X"= 450

Many other ball & rail configurations can be manufactured-Please call if you require this service.



Other configurations - Manufactured to order.

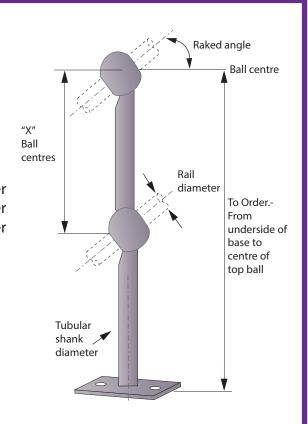
Style Ref HS7 - Angled Balls & Flat Base Plate

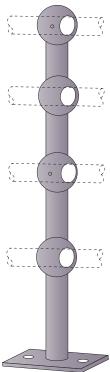
The HS7 is manufactured to order.

Vertical post & Horizontal rail diameters are as follows:

Product Code

HS7-6 33.7mm post & rails. "X"= To order HS7-7 42.4mm post & rails "X"= To order HS7-8 48.3mm posts & rails "X"= To order

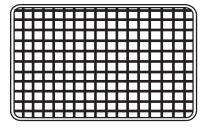




Many other ball & rail configurations can be manufactured.

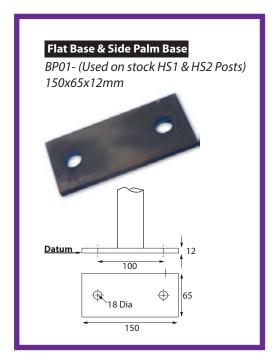
Please call to discuss your requirements.

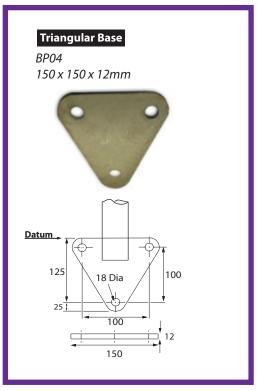
Mesh panel inserts. Manufactured to order.

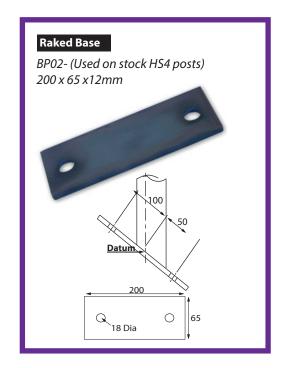


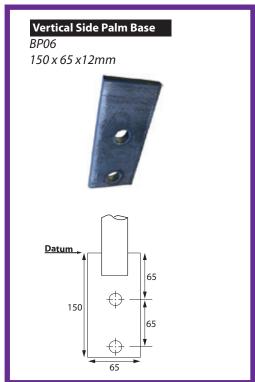
Base plate options

Standard weldable base plates (Specials made to order)







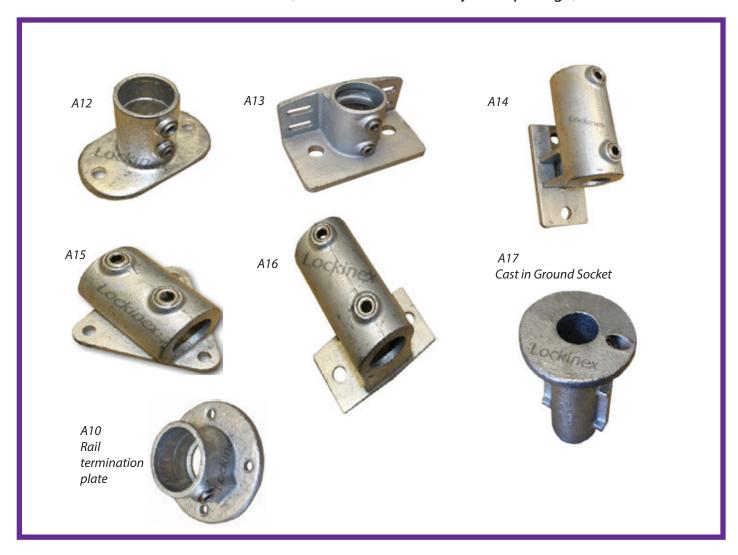


Square Base *BP05 150 x 150 x12mm*

Many other types, including Circular, can be manufactured to order.

Base plate options

Standard socket screw Base Plates (From the Lockinex Key Clamp range)





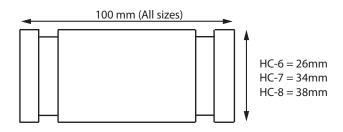


Handrail Joints & Connectors

HC-6- Galvanised (To suit 33.7mm dia. tube) HC-7- Galvanised (To suit 42.4mm dia. tube)

HC-8 -Galvanised (To suit 48.3mm dia. tube)





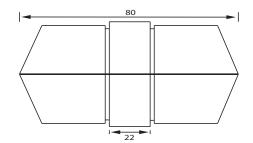
Straight connector for tubular handrail.

Centralise the tube over the connector and mark the position of the grooves in relation to the outside of the handrail tube. Drill & Tap the holes in the wall of the tube. Insert grub screws and lock into grooves.

Alternatively, the tube and connector can be drilled through with clearance holes and insert a bolt & nut through for a more secure permanent connection.

A09-6- Galvanised (To suit 33.7mm dia. tube) A09-7- Galvanised (To suit 42.4mm dia. tube) A09-8 -Galvanised (To suit 48.3mm dia. tube)





Insert into either end of the tubular handrail to be joined. Tighten central grub screw, which will expand the connector inside the handrail.

Provides a streamline flush joint in the handrail tube. Joints should be no further than 300mm from the nearest support. Not for joining tubes that are subject to extreme loads, or where a direct tensile load is applied.

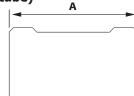
A08-6- Galvanised (To suit 33.7mm dia. tube)

A08-7- Galvanised (To suit 42.4mm dia. tube)

A08-8 -Galvanised (To suit 48.3mm dia. tube)

A08-9 - Galvanised (To suit 60.3mm dia. tube)





	Α
33.7mm dia.	90
42.4mm dia.	96
48.3mm dia.	96
60.3mm dia.	125

External handrail connector.

Joints should be no further than 300mm from the nearest support.

Not for joining tubes that are subject to extreme loads.

Direct tensile loads can be accommodated, however not for critical applications.

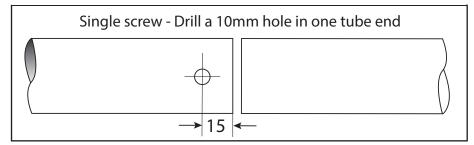
Handrail Joints & Connectors

SI-6- BZP (To suit 33.7mm dia. tube) SI-7- BZP (To suit 42.4mm dia. tube) SI-8 -BZP (To suit 48.3mm dia. tube)

SI-9 -BZP (To suit 60.3mm dia. tube)

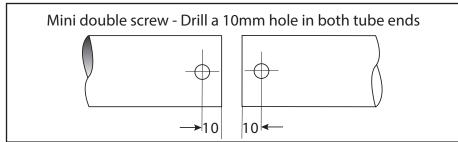


Length: 95mm Single screw type

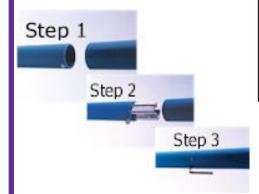


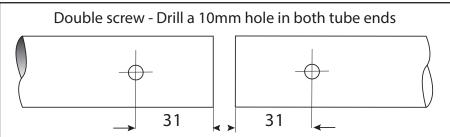
Length: 95mm Mini double screw type





Length: 152mm Double screw type





Depending on which style is being used, drill clearance holes in the handrail tubes being joined, as shown above.

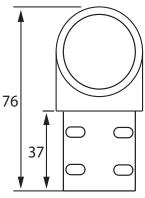
Insert the connector into either end of the handrail. Insert screw/s and locate into connector. Tighten screws, which will expand the connector inside the handrail.

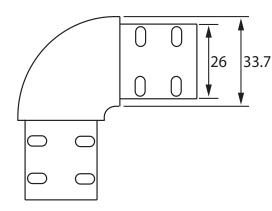
Provides a streamline flush joint in the handrail tube. Joints should be no further than 300mm from the nearest support. Not for joining tubes that are subject to extreme loads, or where a direct tensile load is applied.

Handrail Joints & Connectors

CC01- Galvanised (To suit 33.7mm dia. tube)



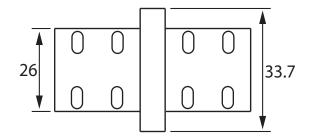




90 elbow connector for handrail. Crimping tool is used to crimp the tube into the indents on the connector creating a secure connection. This product has a galvanised finish.

CC02- Galvanised (To suit 33.7mm dia. tube)





Straight connector for handrail. A Crimping tool is used to crimp the tube into the indents on the connector creating a secure connection. This product has a galvanised finish.

A06-6- Galvanised (To suit 33.7mm dia. tube)

A06-7- Galvanised (To suit 42.4mm dia. tube)

A06-8- Galvanised (To suit 48.3mm dia. tube)

A06-9 -Galvanised (To suit 60.3mm dia. tube)



90 Degree Handrail connector.

Handrail Joints, Fixings & Components

A05-7- Galvanised (To suit 42.4mm dia. tube) A05-8- Galvanised (To suit 48.3mm dia. tube)



Multi angle Handrail connector.

VB35- Galvanised M16 x 35mm Grade 8.8 High Tensile Bolt, Nut & Washer. VB50- Galvanised M16 x 50mm Grade 8.8 High Tensile Bolt, Nut & Washer



16mm Dia Grade 8.8 High Tensile Bolts to suit welded base plate fixing holes.

M16- Galvanised M16 x 120 Through Bolt (For use in concrete).



16mm Dia. Through bolts to suit welded base plate fixing holes.

Hollow Steel Balls.

SBH06- Hollow Steel Ball 64mm dia. SBH07- Hollow Steel Ball 75mm dia. SBH08- Hollow Steel Ball 82mm dia.



Solid (Forged) Steel Balls.

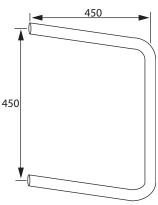
SS06- Solid Steel Ball 64mm dia. SS07- Solid Steel Ball 75mm dia. SS08- Solid Steel Ball 82mm dia.



Handrail Sections & Bends

RB6g - 33.7mm Galvanised - Stock items raked to 34, 37 & 41 Degree (Other angles made to order).
RB7g - 42.4mm Galvanised - Stock items raked to 34, 37 & 41 Degree (Other angles made to order).
RB8g- 48.3mm Galvanised - Stock items raked to 34, 37 & 41 Degree (Other angles made to order).



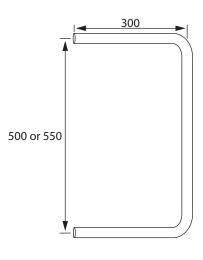


Raked handrail end section, stock items angled to 34, 37 &41 degrees.

RB6g - "D" End - 33.7mm Galvanised - Stock items RB7g - "D" End - 42.4mm Galvanised - Stock items

RB8g - "D" End - 48.3mm Galvanised - Stock Items





"D" End handrail end section.

RB6g - 90 Degree Corner - 33.7mm Galvanised - Stock items

RB7g - 90 Degree Corner - 42.4mm Galvanised - Stock items

RB8g - 90 Degree Corner - 48.3mm Galvanised - Stock items



500

90 Degree handrail section.

Handrail Sections

T6g - 33.7mm dia. Galvanised - Stock items - 6.0 mtr & 3.0mtr lengths. T7g - 42.4mm dia. Galvanised - Stock items - 6.0 mtr & 3.0mtr lengths. T8g- 48.3mm dia. Galvanised - Stock items - 6.0 mtr & 3.0mtr lengths. T9g- 60.3mm dia. Galvanised - Stock items - 6.0 mtr & 3.0mtr lengths.



Handrail tube, in stock lengths or cut to order.





Design Load Tables for Tubular Ball Posts

The following tables provide recommended vertical post spacings to obtain the desired horizontal design load applied to the handrail. Satisfies BS 6180:2011 only when using table 2

Note!

Table 1 does NOT include any safety factor Table 2 INCLUDES a safety factor of 50%

Table 1

Handrail Standard	Handrail	Horizontal Design Load				
		0.22 kN/m	0.36 kN/m	0.50 kN/m	0.74 kN/m	1.00 kN/m
		Recommended post spacing - Tubular (hollow) uprights				
33.7mm o.d x 3.0mm	33.7mm o.d	1650mm	1075mm	750mm	-	-
42.4mm o.d x 3.0mm	33.7mm o.d	2000mm	1850mm	1450mm	1050mm	-
42.4mm o.d x 3.0mm	42.4mm o.d	2000mm	1900mm	1500mm	1100mm	-
48.3mm o.d x 3.0mm	42.4mm o.d	2000mm	2000mm	2000mm	1500mm	1200mm
48.3mm o.d x 4.0mm	42.4mm o.d	2000mm	2000mm	2000mm	1700mm	1400mm
60.3mm o.d x 4.0mm	48.3mm o.d	2000mm	2000mm	2000mm	2000mm	1800mm
		Recommended post spacing - Solid uprights				
32mm o.d	33.7mm o.d	2000mm	1350mm	1100mm	-	-
38mm o.d	42.4mm o.d	2000mm	2000mm	1800mm	1400mm	1100mm
40mm o.d	42.4mm o.d	2000mm	2000mm	2000mm	1650mm	1250mm

Table 2These measurements include a safety factor of 50%.

Handrail Standard	Handrail	Horizontal Design Load				
		0.22 kN/m	0.36 kN/m	0.50 kN/m	0.74 kN/m	1.00 kN/m
		Recommended post spacing - Tubular (hollow) uprights				
33.7mm o.d x 3.0mm	33.7mm o.d	1150mm	700mm	500mm	-	-
42.4mm o.d x 3.0mm	33.7mm o.d	1800mm	1300mm	1000mm	700mm	-
42.4mm o.d x 3.0mm	42.4mm o.d	2000mm	1400mm	1100mm	750mm	-
48.3mm o.d x 3.0mm	42.4mm o.d	2000mm	1800mm	1500mm	1100mm	800mm
48.3mm o.d x 4.0mm	42.4mm o.d	2000mm	2000mm	1700mm	1300mm	1000mm
60.3mm o.d x 4.0mm	48.3mm o.d	2000mm	2000mm	2000mm	1700mm	1400mm
		Recommended post spacing - Solid uprights				ights
32mm o.d	33.7mm o.d	1500mm	1000mm	750mm	-	-
38mm o.d	42.4mm o.d	2000mm	1800mm	1400mm	1000mm	750mm
40mm o.d	42.4mm o.d	2000mm	2000mm	1600mm	1200mm	900mm

Maintenance/Design/Manufacture

Maintenance

Manufactured from either mild steel, with a hot dipped galvanised finish to BS EN1461:2009 or Stainless Steel Grade 304 or 316.

Once installed this product requires very little maintenance.

If the optional self closing gates have been specified and installed, it is recommended they are checked and greased on a regular basis to ensure free action on self closing.

Once the Structural fixings have been connected, at initial install, they should not require any further attention. Depending on the local environment it may be prudent to have these checked at an agreed interval to ensure there has been no tampering or removal.

Design

When installed correctly and to the design loading criteria, this product will perform to current legislation and recommendations.

Manufacture

Warranted & Certified.

When installed correctly, this product Complies with current regulations; BS 6180:2011 Barriers in & about buildings.

BS EN ISO 14122-3:2001 Safety of Machinery-Permanent means of access to machinery. BS 4592-0:2006+A1:2012 Handrails for industrial use.

Galvanised to BS EN 1461:2009.

Stainless Steel Grade 304 & 316.

Lockinex UK Ltd reserves the right to alter, re-design, remove options or remove products from sale, at any time, without notice.