

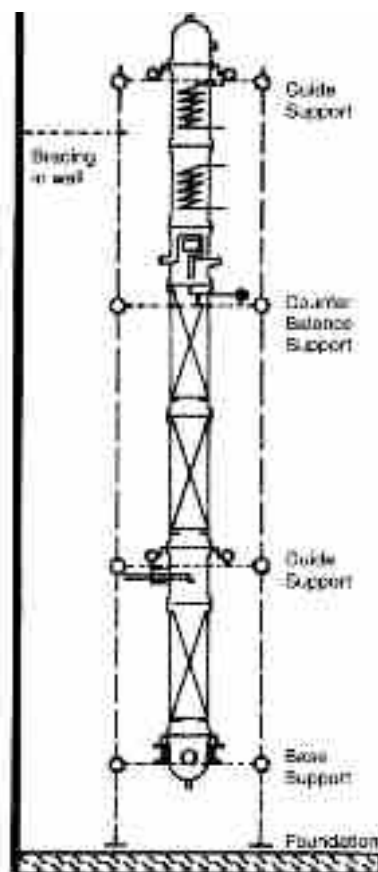


**ISO 9001 : 2015
Certified**



Certified

SUPPORT OF COLUMN



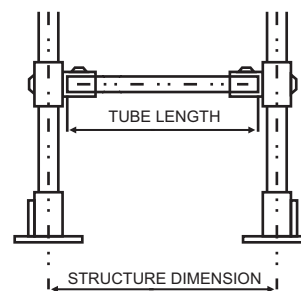
Glass plants and pipeline should be supported correctly. To prevent inducing undesirable stresses in the glass, support should be rigid. When supported, glass should be in compression.

Generally, glass plant and equipment are supported in a rectangular tubular structure. This structure is formed of galvanised mild steel tubing with the cast iron fittings which are described in this catalogue. This type of structure provides enough flexibility for future modifications and is strong enough to support a glass unit.

Following rules should be followed while supporting a glass unit in a tubular structure.

- ✦ The structure must be rigid. To give lateral support it must be braced back to the nearest wall or any rigid feature.
- ✦ All glass columns are build up from a fixed point on which whole weight of the column should be taken. If total load exceeds the permissible limits, counter balance supports should be used to relieve excessive weight.
- ✦ With change in temperature, glass column and tubualr structure expands at different rate. Therefore glass unit must be free for vertical movement above the fixed point. Hence, above the fixed point, guide upports should be used to give lateral support.

STRUCTURE TUBES, GALVANISED



TUBE SIZE

NB Inches	NB mm	External Diameter
0.50	15	19.5
1.00	25	32.5
1.25	30	41.5
1.50	40	48.3
2.00	50	60.3

Structure	NB (mm)				
Dimension	15	25	30	40	50

Available cut lengths

2500	-	2500	-	-	-
3000	-	3000	3000	-	-
3500	-	3500	3500	-	-
4000	-	-	4000	-	-
6000	-	6000	6000	6000	6000

For Frames

400	-	365	355	345	335
500	-	465	455	445	435
600	-	565	555	545	535
800	-	765	755	745	735
1000	-	965	955	945	935
1200	-	1165	1155	1145	1135
1500	-	1465	1455	1445	1435

For Frames

400	435	455	445	455	465
500	535	545	545	555	565
600	635	645	645	655	665
800	835	845	845	855	865
1000	1035	1045	1045	1055	1065
1200	1235	1245	1245	1255	1265
1500	1535	1545	1545	1555	1565

Cat. Ref. BTBG (NBmm/Cut length)
for e.g. BTBG(25/365)

For forming the structure, 'B' class galvanised tubes are used in size of 0.5", 1", 1.25", 1.5" and 2". Cut tubes are available in required length to form a standard size structure. Cut tubes are provided with rubber plug at both the ends.

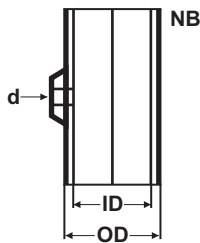
STRUCTURE FITTINGS

Following structure fittings are available to use with galvanised tubes in order to form a tubular structure for a glass plant. These fittings are made of cast iron and are suitable to the galvanised tubes described earlier.

These slidable fittings are provided with grub screws to fix it at required position on a galvanised tube.

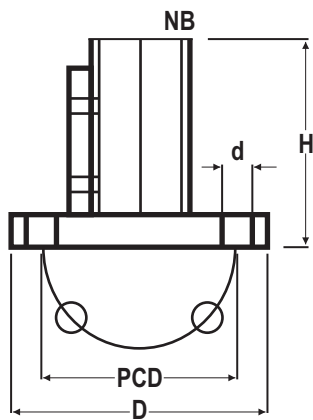
These fittings are specially made to construct a tubular structure which provides enough flexibility for future modifications without involving any hammering and welding.

GENERAL DATA



NB	TUBE DIA	ID	OD	d
25	32.5	35	45	0.5"
30	42.5	45	55	0.5"
40	48.3	51	61	0.5"
50	60.3	63	73	0.5"

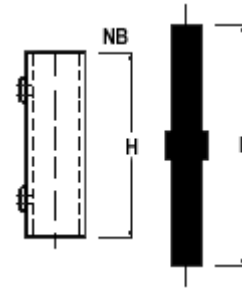
BASE



Cat. Ref.	NB	D	H	PCD	d ϕ
BBS25	25	150	75	110	4 x 14 ϕ
BBS30	30	150	75	110	4 x 14 ϕ
BBS40	40	150	75	110	4 x 14 ϕ
BBS50	50	175	75	125	4 x 14 ϕ

These are to be used with vertical tubes. Holes are provided for foundation.

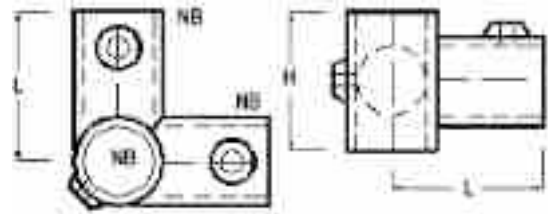
COUPLER



Cat. Ref.	NB	H	H1
BCL25	25	150	200
BCL30	30	150	200
BCL40	40	150	200
BCL50	50	150	200

These are generally used to couple the vertical tubes where more length is required.

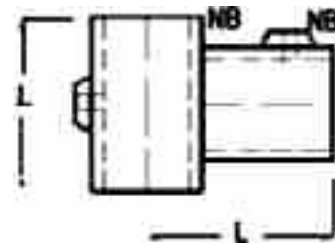
BEND



Cat. Ref.	NB	H	L
BBN25	25	50	55
BBN30	30	65	70
BBN40	40	70	80
BBN50	50	85	95

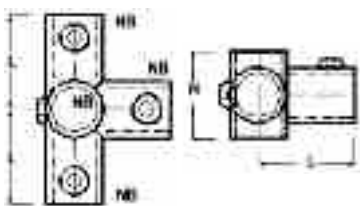
These are used to build frames on vertical tubes.

TEE



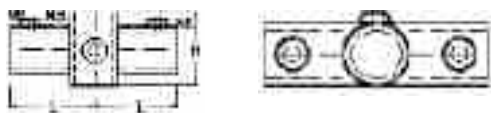
Cat. Ref.	NB	H	L
BT25	25	50	55
BT30	30	65	70
BT40	40	70	80
BT50	50	85	95

DOUBLE BEND



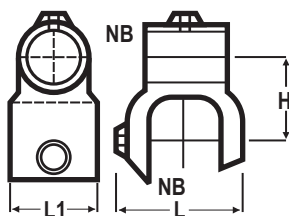
Cat. Ref.	NB	H	L
BBN25	25	50	55
BBN30	30	65	70
BBN40	40	70	80
BBN50	50	85	95

DOUBLE TEE



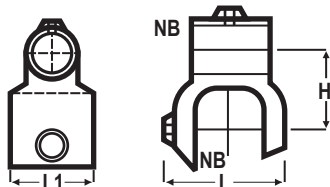
Cat. Ref.	NB	H	L
BDT25	25	50	55
BDT30	30	65	70
BDT40	40	70	80
BDT50	50	85	95

EQUAL BRACKET



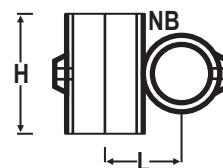
Cat. Ref.	NB	H	L	L1
BEBT25	25	40	65	50
BEBT30	30	52	75	60
BEBT40	40	62	85	60
BEBT50	50	72	95	60

UNEQUAL BRACKET



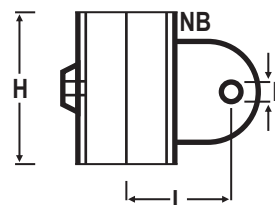
Cat. Ref.	NB	Nb1	H	L	L1
BUBT25/15	25	15	35	65	50
BUBT30/15	30	15	40	75	60
BUBT40/25	40	25	50	85	60
BUBT50/25	50	25	55	95	60

CROSS



Cat. Ref.	NB	H	L
BX25	25	50	45
BX30	30	65	55
BX40	40	65	70
BX50	50	65	85

SUPPORT



Cat. Ref.	NB	h	L	d
BSPT15	15	40	35	13
BSPT25	25	55	50	13
BSPT30	30	55	57	13
BSPT40	40	55	62	13
BSPT50	50	55	67	13

PLUGS



Cat. Ref.	NB
BPLUG15	15
BPLUG25	25
BPLUG30	30
BPLUG40	40
BPLUG50	50

These are used to plug the open ends of galvanised tubes.

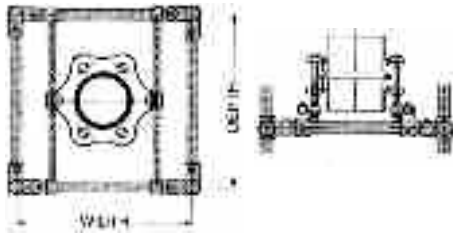
STUDS



Cat. Ref.	d	L
BSTUD5/16-150	5/16"	150
BSTUD3/8-150	3/8"	150
BSTUD1/2-200	1/2"	200

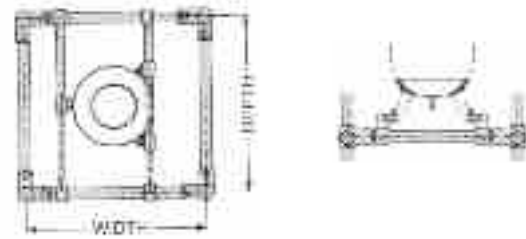
These are used as screwed rods with supports

STRUCTURE DIMENSIONS - For Column



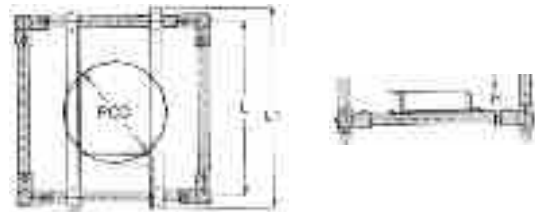
DN	Recommended tube size NB (mm)	Minimum Structure Size Depth X Width
80	25	500 x 500
100	25	500 x 500
150	25, 30	600 x 600
225	30	800 x 800
300	30	800 x 800
400	30	1000 x 1000
450	30, 40	1000 x 1000
600	40, 50	1200 x 1200

Used in Vessel Holders



Size (Litres)	Recommended tube size NB (mm)	Minimum Structure Size Depth X Width
20	25	500 x 600
50	25	600 x 800
100	25, 30	1000 x 1000
200	30	1000 x 1000

COLUMN BASE SUPPORT FRAMES

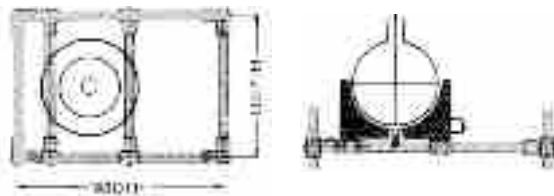


Cat. Ref.	PCD	L1	L	H
BFCSH225	310	1000	800	75
BFCSH300	395	1000	800	75
BFCSH400	495	1200	1000	75
BFCSH450	585	1200	1000	100
BFCSH600	710	1400	1200	100

These channel frames are used as fixed support in erection of columns. These are supplied with full threaded jacking rods and U bolts.

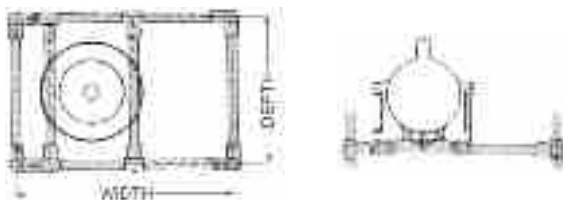
STRUCTURE DIMENSIONS - For Vessels

Used in Heating Mantles



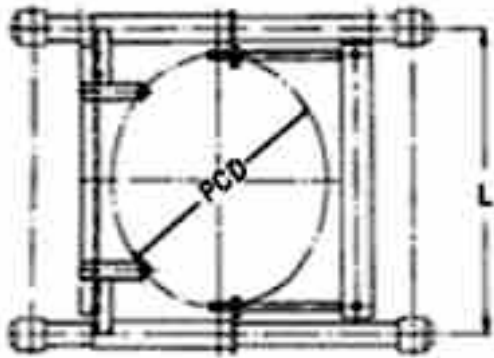
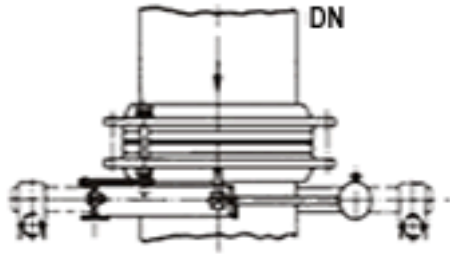
Size (Litres)	Recommended tube size NB (mm)	Minimum Structure Size Depth X Width
20	25	400 x 600
50	25	600 x 800
100	25, 30	800 x 800
200	30	800 x 1000

Used in Heating Baths



Size (Litres)	Recommended tube size NB (mm)	Minimum Structure Size Depth X Width
20	25	500 x 600
50	25	600 x 800
100	25, 30	800 x 1000
200	30	800 x 1200

COUNTER BALANCE SUPPORTS



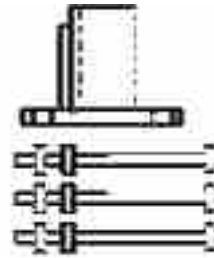
DN of Column	Permissible weight(kgs)	Force require for sealing(Kgs)
225	200	25
300	380	35
400	500	55
450	700	70
600	1000	110

When the total weight of the column is more and it can not be supported on fix support at the bottom, excessive weight is received by counter balance supports. The maximum load which can be supported on fix support and minimum force require to support the sealing of coupling are as under.

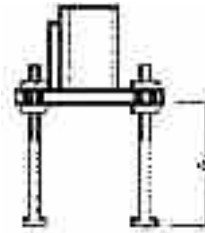
Cat. Ref.	PCD	L
BLCB225	310	800
BLCB300	395	800
BLCB400	495	1000
BLCB450	585	1000
BLCB600	710	1200

The counter weight acts through two levers on the lower backing flange. The maximum lever ratio is 1:10. More than one counter balance supports can be used to relieve the excessive load keeping minimum force require to support the sealing of coupling.

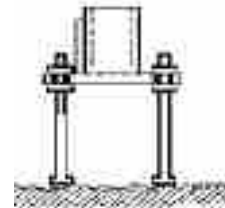
GROUTING OF BASE



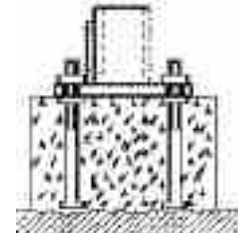
1. Take one Cast Iron BASE and four foundation Bolts, each with 2 nuts.



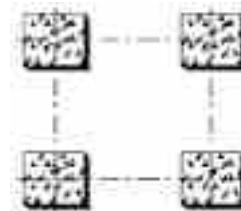
2. Fit the bolts in BASE so that base is raised upto 150mm from head of bolts



3. Put this assembly on the floor and prepare a rough surface for proper bonding of grouting.



4. Make a concrete block over the bolts of about 200 x 200 mm upto the base of BASE i.e. 150mm high.



5. Prepare separate block for each BASE instead of making one big common block for all BASES.

ASSEMBLING OF STRUCTURE

Fig 1



Fig 2



Fig 3

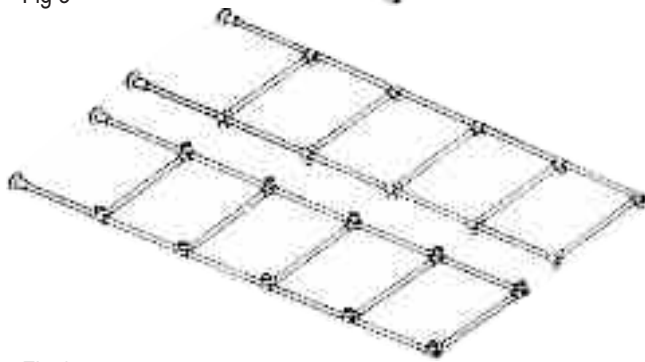


Fig 4

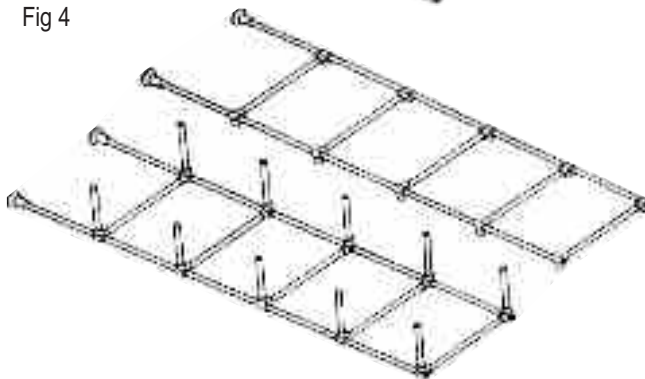


Fig 5

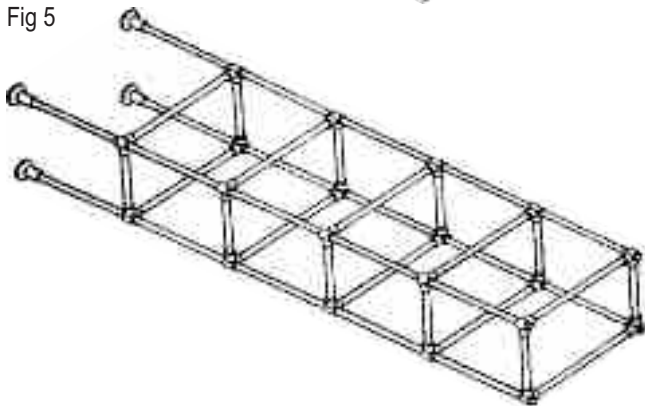


Fig 6

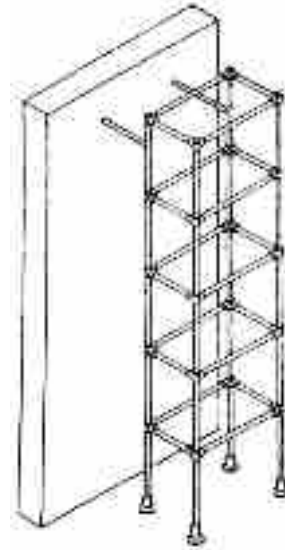


Fig 7



Fig 8

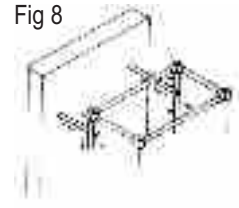
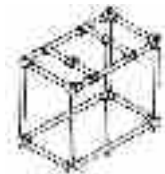


Fig 9



Fig 10



1. Mark the position of required fittings on all the Vertical tubes, slide them in correct sequence and lightly Tighten.
2. Assemble one side frame of the structure by adding the cross tubes between two vertical tubes.
3. Assemble other side frame of the structure by adding the cross tubes between other two vertical tubes.
4. Build up the cross tubes in one side frame and Tighten lightly.
5. Add the other side frame on it and tighten all the fittings firmly.
6. Hoist the structure and brace it to some existing rigid feature.
7. Grout the foundation bolts and fix the structure bases with that.
8. Adjust bracing to obtain a correct plumb in structure.
9. Adjust the horizontal frames in correct level.
10. Assemble the support tubes at their positions.