

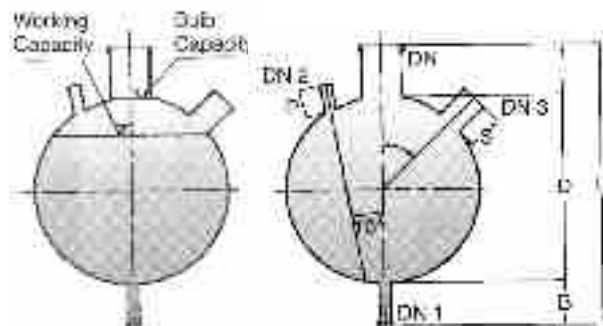


**ISO 9001 : 2015
Certified**



Certified

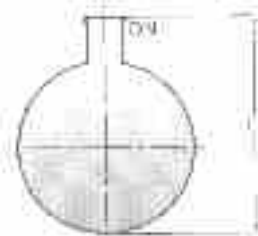
SPHERICAL VESSEL - General Data



Nominal Capacity (Ltrs.)	Bulb Cap. (Ltrs.)	Working Cap. (Ltrs.)	Maximum Pressure (Bar)
5	5	4	1
10	10	9	0.7
20	21	20	0.6
50	62	58	0.4
100	118	111	0.3
200	212	200	0.2
300	300	300	0.2

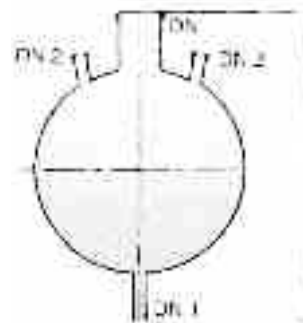
Nominal Capacity (Ltrs.)	L	d	DN	T	DN1	B	DN2	P	DN3	S
5	425	215	40	85	25	125	25	50	40	75
10	500	275	40	100	25	125	25	50	40	75
20	575	350	80	100	25	125	25	50	40	75
50	825	470	100	150	40	200	40	75	100	100
100	925	600	150	150	40	200	40	75	100	100
200	1175	750	225	250	40	200	40	75	100	100
300	1225	850	300	250	50	175	50	75	100	100

SINGLE NECK SPHERICAL VESSELS



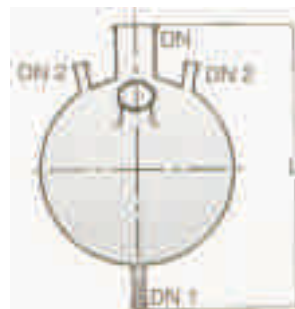
Cat. Ref.	Nominal Capacity	L	DN
BVSA5	5 L	300	40
BVSA10	10 L	375	40
BVSA20	20 L	450	80
BVSA50	50 L	650	100
BVSA100	100 L	750	150
BVSA200	200 L	1000	225
BVSA300	300 L	1050	300

3 NECK BOTTOM OUTLET SPHERICAL VESSELS



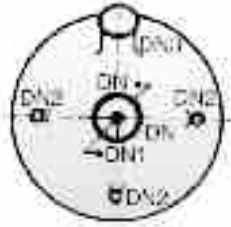
Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2
BVSM5	5 L	425	40	25	25
BVSM10	10 L	500	40	25	25
BVSM20	20 L	575	80	25	25
BVSM50	50 L	825	100	40	40
BVSM100	100L	925	150	40	40
BVSM200	200 L	1175	225	40	40
BVSM300	300 L	1225	300	50	50

4 NECK BOTTOM OUTLET SPHERICAL VESSELS

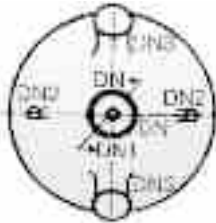


Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	DN3
BVSPL5	5 L	425	40	25	25	40
BVSPL10	10 L	500	40	25	25	40
BVSPL20	20 L	575	80	25	25	40
BVSPL50	50 L	825	100	40	40	100
BVSPL100	100L	925	150	40	40	100
BVSPL200	200 L	1175	225	40	40	100
BVSPL300	300 L	1225	300	50	50	100

5 NECK BOTTOM OUTLET SPHERICAL VESSELS

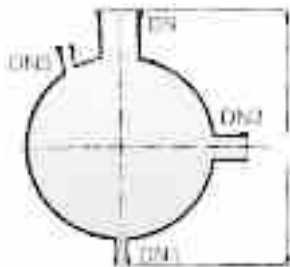


Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	DN3
BVSL5	5 L	425	40	25	25	40
BVSL10	10 L	500	40	25	25	40
BVSL20	20 L	575	80	25	25	40
BVSL50	50 L	825	100	40	40	100
BVSL100	100L	925	150	40	40	100
BVSL200	200 L	1175	225	40	40	100
BVSL300	300 L	1225	300	50	50	100



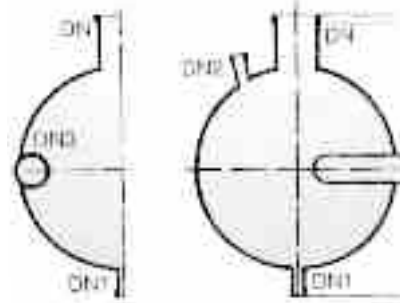
Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	DN3
BVS5	5 L	425	40	25	25	40
BVS10	10 L	500	40	25	25	40
BVS20	20 L	575	80	25	25	40
BVS50	50 L	825	100	40	40	100
BVS100	100L	925	150	40	40	100
BVS200	200 L	1175	225	40	40	100
BVS300	300 L	1225	300	50	50	100

SPHERICAL VESSELS WITH NOZZLE AT 90°



Nominal Capacity	L	DN	DN1	DN2	DN3	Cat. Ref.
5 L	375	40	25	25	50	BVSD5
10 L	450	40	25	25	50	BVSD10
20 L	525	80	25	25	50	BVSD20
50 L	725	100	40	40	80	BVSD50
100L	825	150	40	40	80	BVSD100
200 L	1075	225	40	40	150	BVSD200
300 L	1225	300	50	50	150	BVSD300

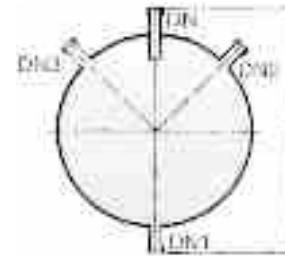
SPHERICAL CYCLONES



Nominal Capacity	L	DN	DN1	DN2	DN3	Cat. Ref.
5 L	375	40	25	25	40	BVSCY5
10 L	450	40	25	25	40	BVSCY10
20 L	525	80	25	25	50	BVSCY20
50 L	725	100	40	40	50	BVSCY50

Cyclones can be used for the separation of droplets and solids from gases and vapours. Cyclones are to be supported on a vessel holder. A dip pipe should be used on the top neck.

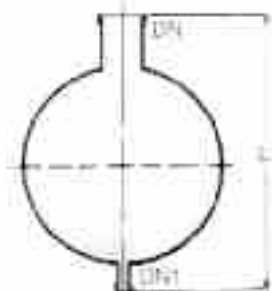
SPHERICAL RECEIVERS



Nominal Capacity	L	DN	DN1	(10°) DN2	(10°) DN3	Cat. Ref.
5 L	350	25	25	25		BVR5
10 L	425	25	25	25		BVR10
20 L	500	25	25	25		BVR20
5 L	350	25	25	25	25	BVRB5
10 L	425	25	25	25	25	BVRB10
20 L	500	25	25	25	25	BVRB20

Receivers are provided with built-in drip pipe. These are to be supported on a vessel holding ring.

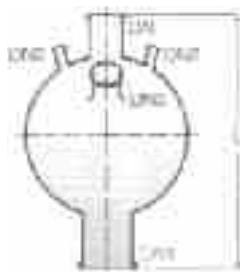
ADDITION VESSELS



Cat. Ref.	Nominal Capacity	L	DN	DN1 Va5
BVA 5	5 L	375	40	25
BVA 10	10 L	450	40	25
BVA 20	20 L	525	80	25
BVA 50	50 L	725	100	40
BVA 100	100L	825	150	40
BVA 200	200 L	1075	225	40
BVA 300	300 L	1225	300	50

The vessels are provided with short bottom outlet supported by holder/holding ring.

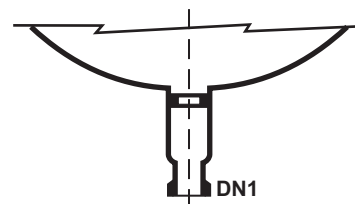
SPHERICAL VESSELS WITH WIDE BOTTOM OUTLET



Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	DN3
BVSR 50	50 L	800	100	150	40	100
BVSR 100	100 L	900	150	150	40	100
BVSR 200	200 L	1150	225	150	40	100
BVSE 50	50 L	850	100	225	40	100
BVSE 100	100 L	950	150	225	40	100
BVSE 200	200 L	1200	225	225	40	100

These vessels are usually used to fit immersion exchangers in the bottom. Special heating mantle or bath should be used with it.

VESSELS WITH BOTTOM OUTLET VALVE SEAT

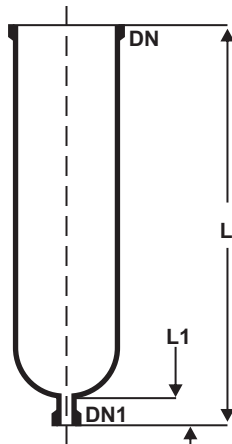


In this type of vessels a special valve seat is provided at the bottom outlet to fit bottom outlet valve (BAL type). For Catalogue reference, use suffix 'B' i.e. 'BVSL/50B' in place of 'BVSL/50'.

NOTATION USED IN SPHERICAL VESSELS

- ☞ DN - Stands for centre nozzle, generally used for stirrers as vapour outlet.
- ☞ DN1 - Stands for bottom outlet, generally used for drain purpose while in BVSR and BVSE it is used for fixing immersion heat exchangers.
- ☞ DN2 - Stands for side pockets used for
 - (a) Thermometer pocket
 - (b) Dip pipe for inlet
 - (c) Sparger for gas inlet
 - (d) Vacuum control
 - (e) For solid addition
- ☞ DN3 - Stands for bigger size nozzle generally used for vapour outlet if stirrer is fixed at centre.

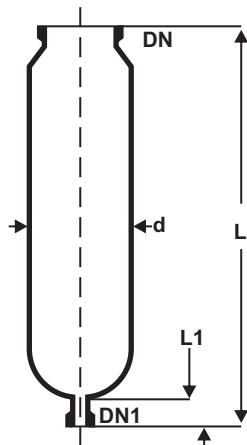
CYLINDRICAL VESSELS



Cat. Ref.	Nominal Capacity	DN	DN1	L	L1
BVZ 5/4	5 L	100	25	700	60
BVZ 10/6	10 L	150	25	700	60
BVZ 20/9	20 L	225	25	750	60
BVZ 50/12	50 L	300	40	1000	65
BVZ 100/18	100L	450	40	900	65
BVZ 150/16	150 L	400	40	1400	65
BVZ 200/18	200 L	450	40	1500	65
BVZ 300/24	300 L	600	50	1300	65

Cylindrical vessels of 50 Litres are supported in vessel holder.

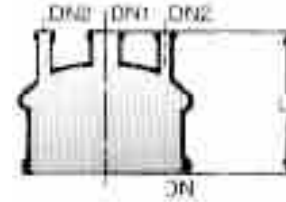
KETTLES



Cat. Ref.	Nominal Capacity	DN	DN1	L	L1	d
BKZ 200	200 L	300	40	1400	65	485
BKZ 350	350 L	400	50	1500	65	620

Kettles are similar to cylindrical vessels but having a less wide top neck.

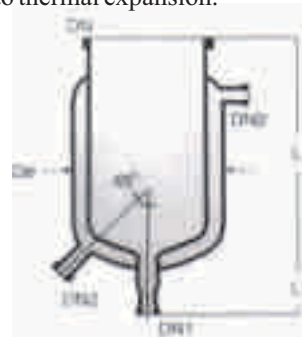
CYLINDRICAL VESSEL COVERS



Cat. Ref.	DN	DN 1	DN 2	L
BVZA 4	100	-	2 x 25	200
BVZA 6	150	-	2 x 40	200
BVZA 9	225	50	3 x 25	250
BVZA 12	300	80	3 x 40	250
BVZA 16	400	100	3 x 40	275
BVZA 18	450	100	4 x 40	275
BVZA 24	600	100	4 x 40	300

JACKETTED VESSELS

Cylindrical vessels in special cases are provided with Jackets for purpose of cooling or heating. These jackets are fixed to vessels with the help of Viton 'O' ring, which reduces stresses and strain on both, jackets and vessels and allows free movement upto certain level due to thermal expansion.



Glass Jackets

Glass Jacket can be used for a maximum operating pressure of 0.5 bar and a maximum operating temperature of 130 C in jacket. The temperature difference between jacket & vessel should not exceed 120 C

Cat. Ref.	DN	DN 1	L	L1	D	DN2
BVZD 5/6	150	25	375	75	200	25
BVZD 10/9	225	25	385	75	300	25
BVZD 20/12	300	40	385	75	375	25
BVZD 30/12	300	40	535	75	375	25

Metal Jackets

Jacket can be used in a maximum operating pressure of 2.0 bar and a maximum operation temperature of 150 C

Cat. Ref.	Nominal Capacity	DN	DN1	d	L	J
BVZJ 5/4	5 L	100	25	135	700	550
BVZJ 10/6	10 L	150	25	188	700	550
BVZJ 20/9	20 L	225	25	262	750	600
BVZJ 50/12	50 L	300	40	345	1000	1000

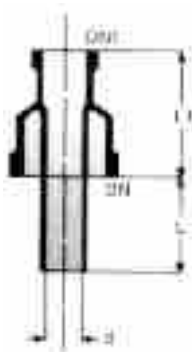
DIP PIPES



Cat. Ref.	For Vessel	DN	DN 1	d	L	L 1
BDP 20/1	20 L	25	25	12	300	100
BDP 50/1.5	50 L	40	25	19	400	100
BDP 100/1.5	100 L	40	25	19	500	100
BDP 200/1.5	200 L	40	25	19	600	100

Dip pipes are used as liquid inlet for spherical vessels.

SHORT DIP PIPES



Cat. Ref.	DN	DN 1	d	L	L 1
BDP 1/1	25	25	12	100	100
BDP 1.5/1	40	25	19	100	100
BDP 1.5/1.5	40	40	19	100	100
BDP 2/1	50	25	25	100	100
BDP 2/1.5	50	40	25	100	100
BDP 3/1.5	80	40	37	100	125
BDP 4/1	100	25	25	100	150
BDP 4/2	100	50	50	100	150

Short dip pipes are used as re-entry tubes for vessels, heat exchangers etc.

GAS SPARGERS



Cat. Ref.	For Vessel	DN	DN1	d	L	L1	No. of Holes
BSPG20/1	20 L	25	25	12	300	100	5x1mm
BSPG50/1.5	50 L	40	25	19	400	100	5x1mm
BSPG100/1.5	100 L	40	25	19	500	100	5x1mm
BSPG200/1.5	200 L	40	25	19	600	100	5x1mm

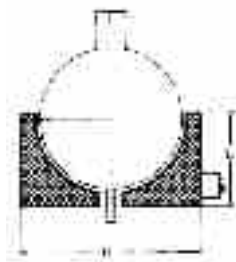
Gas spargers are used for gas feed/sparging in the vessels.

THERMOMETER POCKETS



Cat. Ref.	For Vessel	DN	d	L	L 1
BTP 20/1	20 L	25	12	300	50
BTP 50/1.5	50 L	40	19	400	50
BTP 100/1.5	100 L	40	19	500	50
BTP 200/1.5	200 L	40	19	600	50

HEATING MANTLES

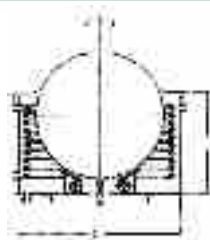


Cat. Ref.	Vessel Size	D	L	Watts	Cir-cuits	Supply Volts
BJMD 5	5 L	320	190	750	2	230
BJMD 10	10 L	380	220	1200	2	230
BJMD 20	20 L	485	285	2000	3	230
BJMD 50	50 L	600	345	3700	3	415
BJMD 100	100 L	790	470	6000	3	415
BJMD 200	200 L	920	530	7500	6	415

Cat. Ref.	Vessel Size	D	L	Watts	Cir-cuits	Supply Volts
BJMD 5/F	5 L	330	200	600	1	230
BJMD 10/F	10 L	440	220	1000	1	230
BJMD 20/F	20 L	510	285	2000	2	230
BJMD 50/F	50 L	610	350	3600	3	415
BJMD 100/F	100 L	790	430	5200	3	415
BJMD 200/F	200 L	940	510	8400	3	415

Heating Mantles are used for electrical heating of cylindrical as well as spherical vessels, available in flameproof & non-flame proof models. In heating mantles heating coils are provided which do the work of heating. For proper temperature control different controlling elements like digital temperature cum controller with sensor is also provided.

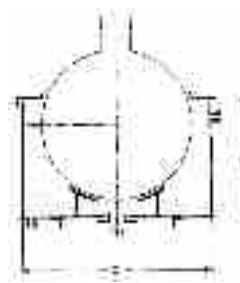
HEATING BATHS



Cat. Ref.	Vessel Size	D	L	Watts	HTA Vessel	HTA Coils
BSBH 20	20 L	480	340	2x1500	0.25	0.4
BSBH 50	50 L	615	415	2x2000	0.50	0.6
BSBH 100	100 L	720	535	2x3000	0.70	1.0
BSBH 200	200 L	900	620	2x4000	1.00	1.5

For heating of glass vessels electrically or by steam heating baths are used. They transfer heat to the vessel by the means of thermic fluids which depends upon different types of temperature requirements. For purpose of cooling of this thermic fluids a coil is provided through which cooling water or steam passes.

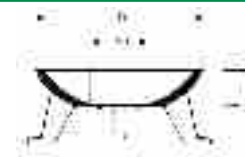
COOLING BATHS



Cat. Ref.	Vessel Size	D	L
BBHC20	20 L	480	340
BBHC50	50 L	615	415
BBHC100	100 L	720	535
BBHC200	200 L	900	620

Cooling baths are used for cooling the gas vessels through ice crystals. They are provided with the holding ring, bottom outlet and a lid.

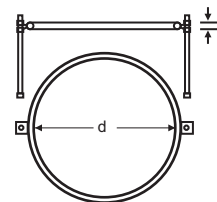
VESSEL HOLDERS



Cat. Ref.	Vessel Size	D	d	L
BVSS20	20 L	325	230	100
BVSS50	50 L	390	230	100
BVSS100	100 L	410	250	100
BVSS200	200 L	700	400	215

Vessel holders are made through casting process with a plaster lining to support the vessels, which again is supported by three jacketed bolts.

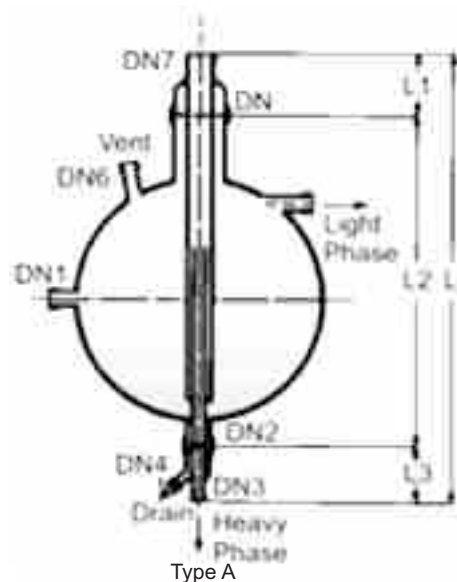
VESSEL HOLDING RINGS



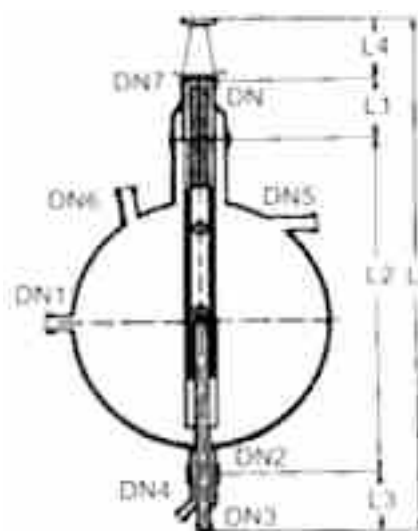
Cat. Ref.	Vessel Size	d	L
BVRS2	2 L	100	15
BVRS5	5 L	150	15
BVRS10	10 L	215	15
BVRS20	20 L	300	15

Vessel holding rings are made of metal, wrapped with asbestos rope & supported with two jacketed bolts.

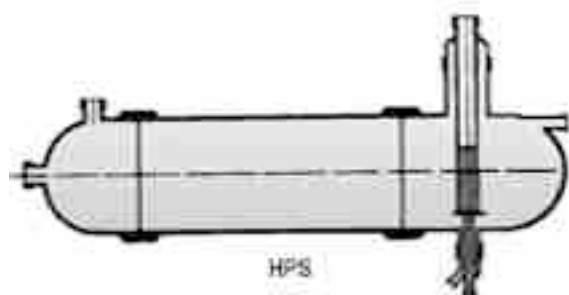
DECANTORS



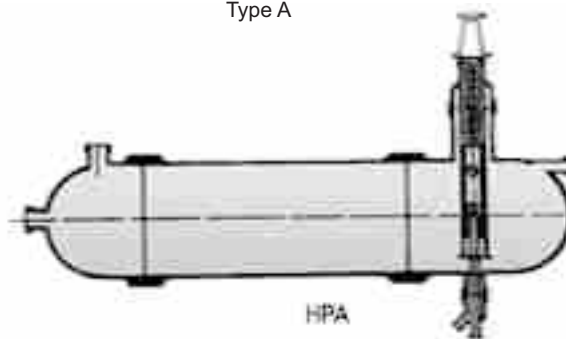
Type A



Type A



HPS



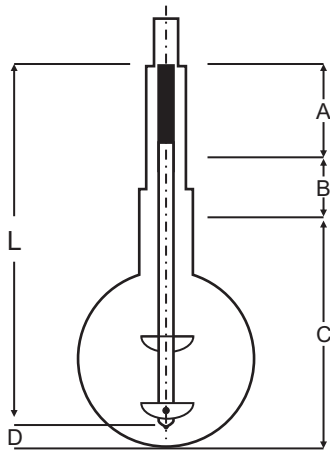
HPA

Cat. Ref.	Nominal Capacity	L	L1	L2	L3	L4	DN	Inlet DN1	DN2	Heavy Phase Outlet DN3	Drain DN4	Light Phase Outlet DN5	Vent DN6	DN7	Type
BSPS20	20 L	800	125	525	150		80	25	50	25	25	25	25	50	A
BSPS50	50 L	1025	150	725	150		100	40	50	25	25	40	40	50	A
BSPS100	100 L	1175	200	825	150		150	40	50	25	25	40	40	50	A
BSPS200	200 L	1475	250	1075	150		225	40	50	25	25	40	40	50	A
BSPA20	20 L	1000	125	525	150	200	80	25	50	25	25	25	25	50	B
BSPA50	50 L	1225	150	725	150	200	100	40	50	25	25	40	40	80	B
BSPA100	100 L	1375	200	825	150	200	150	40	50	25	25	40	40	80	B
BSPA200	200 L	1675	250	1075	150	200	225	40	50	25	25	40	40	80	B

The process of separating two immiscible liquids having different densities is called decantation. The instrument used for this process is decantor. In this process due to difference in densities, at certain level two liquids settle down. Which generates a layer that separates light phase from heavy phase. In our decantor special types of modulations are done that help in continuous decantation with visual monitoring & separation. This modulations allow greater residence time for the formation of layers. The light phase liquid is continuously removed from the light phase outlet provided at the top, while the heavy phase liquid exists into the deep pipe at the lower end & overflow in the discharge pipe which can be removed. Thus, Borolab's decantor can also be used for continuous process. Decantors are provided with adjustable overflow valve (Type B) to adjust the position of phase interface for different operating conditions.

Decantors can also be constructed in horizontal cylindrical vessels (Cat. Ref. BHPS or BHPA). This type of decantors provide large interface surface area i.e. large separating surface.

STIRRER



Cat Ref	Size	A	B	C	D	L
B	20 L	250	125	450	25	800
B	50 L	300	150	650	50	1050
B	100 L	300	200	750	50	1200
B	200 L	300	250	1000	50	1500

Stirrers play an important role in a chemical reaction. These are assembled in a vessel using a chuck & seal mechanism.

CHUCK & SEAL



Cat. Ref.	Vessel Size	D	L	Watts	HTA Vessel	HTA Coils
BSBH 20	20 L	480	340	2x1500	0.25	0.4
BSBH 50	50 L	615	415	2x2000	0.50	0.6
BSBH 100	100 L	720	535	2x3000	0.70	1.0
BSBH 200	200 L	900	620	2x4000	1.00	1.5

Chuck & seal is a part of stirrer assembly. This mechanism can be easily used under corrosive conditions, as only the PTFE & Glass part is exposed to the chemical.

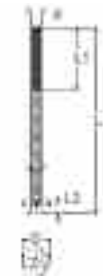
STIRRER WITH TEFLON BLADES



Cat. Ref.	Vessel	L	L1	L2	L3	d	D
BSTB10	-	-	-	-	-	-	-
BSTB20	20	800	350	25	-	25	100
BSTB50	50	1050	350	25	200	47	150
BSTB100	100	1200	350	30	250	47	175
BSTB200	200	1500	350	30	325	47	200
BSTB300	300	1500	350	30	425	59	275

Generally used with liquid of low viscosity.

VORTEX STIRRER



Cat. Ref.	Vessel	L	L1	L2	d	D
BSTV50	50	1050	400	50	47	95
BSTV100	100	1200	400	65	47	140
BSTV200	200	1500	400	65	47	190

Generally used with liquid of low viscosity containing small solid particles.

PROPELLER STIRRER



Cat. Ref.	Vessel	L	L1	L2	d	D
BSTP50	50	1050	400	50	47	95
BSTP100	100	1200	400	65	47	145
BSTP200	200	1500	400	65	47	210

Generally used with liquid of high viscosity containing large solid particles.

STIRRING ASSEMBLY WITH BELLOW SEAL

Cat. Ref.	For Vessel	Stirrer Used	Chuck & Seal	Reducer Used
BSTBA20	20 L	BSTB20	BCSA1	BPR3/2
BSTBA50	50 L	BSTB50	BCSA1.5	BPR4/3
BSTBA100	100 L	BSTB100	BCSA1.5	BPR6/3
BSTBA200	200 L	BSTB200	BCSA1.5	BPR9/3
BSTVA50	50 L	BSTV50	BCSA1.5	BPR4/3
BSTVA100	100 L	BSTV100	BCSA1.5	BPR6/3
BSTVA200	200 L	BSTV200	BCSA1.5	BPR9/3
BSTPA50	50 L	BSTP50	BCSA1.5	BPR4/3
BSTPA100	100 L	BSTP100	BCSA1.5	BPR6/3
BSTPA200	200 L	BSTP200	BCSA1.5	BPR9/3

Stirrer is assembled in chuck using bellow seal & appropriate reducer. The assembly consists of:

- Glass stirrer BSTB/BSTV/BSTP
- Chuck and seal assembly BCSA
- Reducer BPR



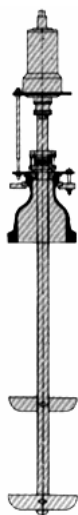
STIRRING ASSEMBLY WITH MECHANICAL SEAL

Cat. Ref.	For Vessel	Stirrer Used	Chuck & *M. Seal	Reducer Used
BSTBA20	20 L	BSTB20	BCSM1	BPR3/2
BSTBA50	50 L	BSTB50	BCSM1.5	BPR4/3
BSTBA100	100 L	BSTB100	BCSM1.5	BPR6/3
BSTBA200	200 L	BSTB200	BCSM1.5	BPR9/3
BSTVA50	50 L	BSTV50	BCSM1.5	BPR4/3
BSTVA100	100 L	BSTV100	BCSM1.5	BPR6/3
BSTVA200	200 L	BSTV200	BCSM1.5	BPR9/3
BSTPA50	50 L	BSTP50	BCSM1.5	BPR4/3
BSTPA100	100 L	BSTP100	BCSA1.5	BPR6/3
BSTPA200	200 L	BSTP200	BCSA1.5	BPR9/3

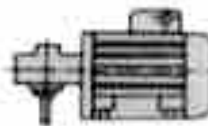
Stirrer is assembled in chuck using mechanical seal & appropriate reducer. The assembly consists of:

- Glass stirrer BSTB/BSTV/BSTP
- Chuck and seal assembly BCSM
- Reducer BPR

*M stands for Mechanical



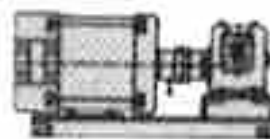
NON FLAMEPROOF STIRRER DRIVES



Cat. Ref.	HP	RPM
BFSD 0.5	0.5	192

To rotate a stirrer a non flameproof 1400 RPM, 415V, 50Hz, 3 Phase Motor is used.

FLAMEPROOF STIRRER DRIVES



Cat. Ref.	HP	RPM
BFSD 0.5	0.5	192

To rotate a stirrer a flameproof 1400 RPM, 415V, 50Hz, 3 Phase Motor is used. It is more suitable motor drive to work with, as the risk factors included are comparatively less than non flameproof drive.

SPEED REGULATORS



Cat. Ref.	Phase
BREG 3	3

Speed regulator is a controlling device which works on a 3 phase supply and is connected with drive.