



Baffle Jacketed Vessel



Flexi Jacketed Vessel



Cylindrical Vessel



Receiver Vessel



Triple Wall Jacketed Vessel



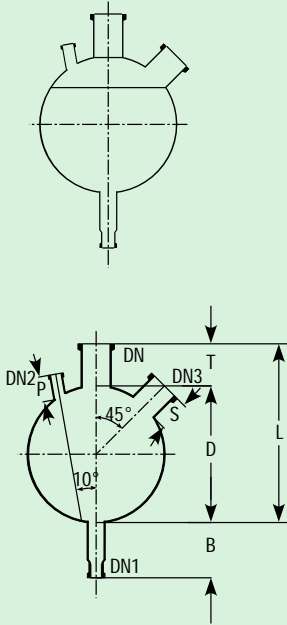
In most of the glass plants, vessels are used as reactors, receivers, separators, measuring or feed vessels.

Vessels are available in Spherical shape from 5Ltr to 500Ltr. & in cylindrical shape from 5Ltr to 800Ltr capacity. Cylindrical vessels can be supplied with glass jackets too.

All the vessels are provided with a bottom outlet for which a suitable valve can be chosen from our range of valves.

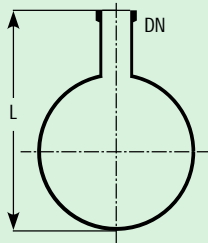
# VESSELS

## SPHERICAL VESSEL - General Data



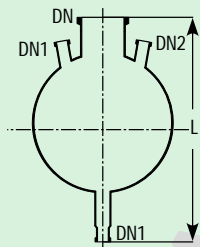
Nominal Capacity (Ltrs.)	Maximum Pressure (Bar)
5	1
10	0.8
20	0.7
50	0.5
100	0.4
200	0.3
300	0.2
500	0.1

Nominal Capacity (Ltrs.)	L	D	DN	T	DN1	B	DN2	P	DN3	S
5	425	223	50	85	25	125	25	50	40	75
10	500	285	80	100	25	125	25	50	40	75
20	575	350	100	100	25	125	25	50	40	75
50	800	490	150	150	40	200	40	75	100	100
100	900	600	225	150	40	200	40	75	100	100
200	1100	750	300	250	40	200	40	75	100	100
300	1175	860	400	250	50	175	50	75	100	100
500	1400	1000	450	250	50	200	50	75	150	165



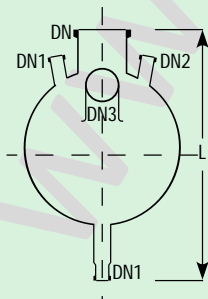
## SINGLE NECK SPHERICAL VESSELS

Cat. Ref.	Nominal Capacity	L	DN
VSA5	5 L	300	50
VSA10	10 L	375	80
VSA20	20 L	450	100
VSA50	50 L	600	150
VSA100	100 L	700	225
VSA200	200 L	900	300
VSA300	300 L	1000	400
VSA500	500 L	1200	450



## THREE NECK BOTTOM OUTLET SPHERICAL VESSELS

Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2
VSM5	5 L	450	50	25	25
VSM10	10 L	500	80	25	25
VSM20*	20 L	575	100	25	25
VSM50*	50 L	800	150	40	40
VSM100	100 L	900	225	40	40
VSM200	200 L	1100	300	40	40
VSM300	300 L	1175	400	50	50
VSM500	500 L	1400	450	50	50

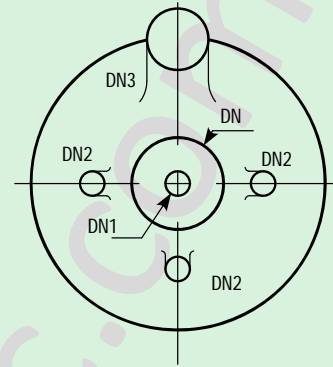


## FOUR NECK BOTTOM OUTLET SPHERICAL VESSELS

Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	Dn3
VSPL5	5 L	425	50	25	25	40
VSPL10	10 L	500	80	25	25	40
VSPL20	20 L	575	100	25	25	40
VSPL50	50 L	800	150	40	40	100
VSPL100	100 L	900	225	40	40	100
VSPL200	200 L	1100	300	40	40	100
VSPL300	300 L	1175	400	50	50	100
VSPL500	500 L	1400	450	50	50	150

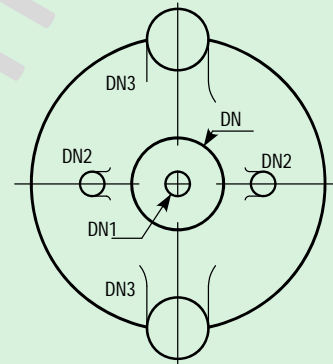
## FIVE NECK BOTTOM OUTLET SPHERICAL VESSEL

Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	Dn3
VSL5	5 L	425	50	25	25	40
VSL10	10 L	500	80	25	25	40
VSL20*	20 L	575	100	25	25	40
VSL50*	50 L	800	150	40	40	100
VSL100*	100 L	900	225	40	40	100
VSL200*	200 L	1100	300	40	40	100
VSL300	300 L	1175	400	50	50	100
VSL500	500 L	1400	450	50	50	150



## FIVE NECK BOTTOM OUTLET SPHERICAL VESSEL

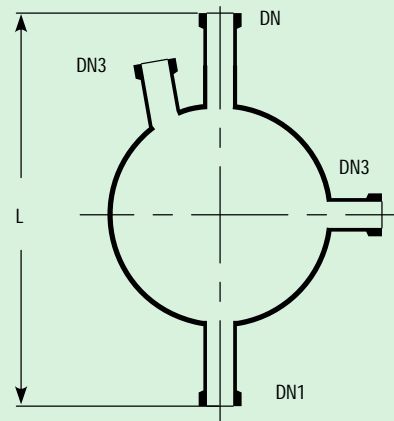
Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	Dn3
VS 5	5 L	425	50	25	25	40
VS 10	10 L	500	80	25	25	40
VS 20	20 L	575	100	25	25	40
VS 50*	50 L	800	150	40	40	100
VS 100*	100 L	900	225	40	40	100
VS 200*	200 L	1100	300	40	40	100
VS 300	300 L	1175	400	50	50	100
VS 500	500 L	1400	450	50	50	150



## SPHERICAL VESSELS WITH NOZZLE AT 90°

These vessels are used in Circulatory Boiler System and are to be supported on a vessel holder. More nozzles can be provided on the equator on request for special requirements.

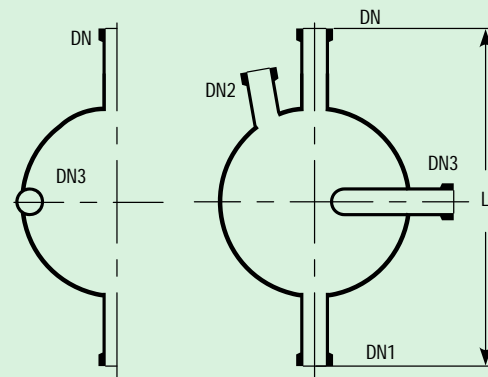
Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	Dn3
VSD5	5 L	425	50	25	25	50
VSD10	10 L	500	80	25	25	50
VSD20	20 L	575	100	25	25	50
VSD50	50 L	800	150	40	40	80
VSD100	100 L	900	225	40	40	80
VSD200	200 L	1100	300	40	40	150
VSD300	300 L	1175	400	50	50	150
VSD500	500 L	1400	450	50	50	150



## SPHERICAL CYCLONES

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.

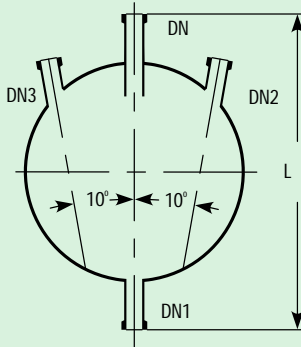
Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	Dn3
VSCY5	5 L	425	50	25	25	40
VSCY10	10 L	500	80	25	25	40
VSCY20	20 L	575	100	25	25	50
VSCY50	50 L	800	150	40	40	50



\* marked items are available fast.

## SPHERICAL RECEIVERS

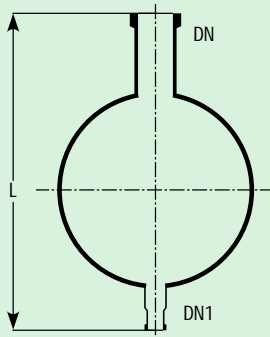
Receivers are provided with builtin drip pipe. These are to be supported on a vessel holding ring.



Cat. Ref.	Nominal Capacity	L	DN	DN1	(100) DN2	(100) Dn3
VR5*	5 L	350	25	25	25	
VR10*	10 L	425	25	25	25	
VR20*	20 L	500	25	25	25	
VR50	50 L	675	40	25	25	
VRB5*	5 L	350	25	25	25	25
VRB10	10 L	425	25	25	25	25
VRB20*	20 L	500	25	25	25	25
VRB50	50 L	675	40	25	25	25

## ADDITION VESSELS

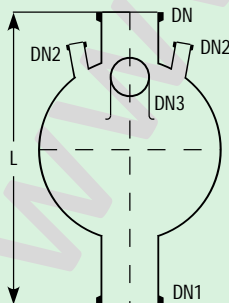
These vessels are provided with a short bottom outlet. These should be supported on a vessel holder/ holding ring.



Cat. Ref.	Nominal Capacity	L	DN	DN1
VA5*	5 L	375	360	50
VA10*	10 L	435	80	25
VA20*	20 L	510	100	25
VA50	50 L	675	150	40
VA100	100 L	775	225	40
VA200	200 L	975	300	40
VA300	300 L	1075	400	50
VA500	500 L	1400	450	50

## SPHERICAL VESSELS WITH WIDE BOTTOM OUTLET

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



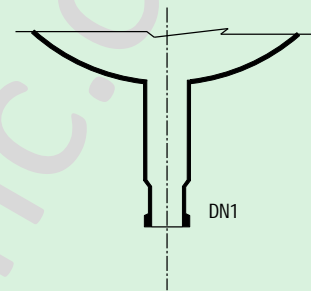
Cat. Ref.	Nominal Capacity	L	DN	DN1	DN2	Dn3
VSR50	50 L	750	150	150	40	100
VSR100	100 L	850	225	150	40	100
VSR200	200 L	1050	300	150	40	100
VSE50	50 L	800	150	225	40	100
VSE100	100 L	900	225	225	40	100
VSE200	200 L	1100	300	225	40	100

## VESSELS WITH BOTTOM OUTLET VALVE SEAT

To fit a bottom outlet valve (BAL type) all spherical and cylindrical vessels can be supplied with valve seat in bottom outlet. For this, Add a suffix "/B" to the catalogue reference of a vessel, for e.g. 'VSL50' should be mentioned as 'VSL50/B'.

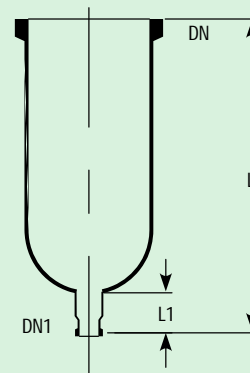
### Notes on use of Spherical vessels.

1. Generally, the centre nozzle, referred as DN in all types of vessels, is used for either stirrer fixing or if stirrer is not fixed, for vapour outlet.
2. The bottom outlet, referred as DN1 in all types is used for drain. However, in type VSR & VSE, it is also used for fixing immersion heat exchanger.
3. The small side nozzles, referred as DN2 in all types, are used
  - (a) to fix thermometer pocket or,
  - (b) to fix dip pipe for liquid inlet or,
  - (c) to fix sparger for gas purging or,
  - (d) to fix vacuum control or vent valve or,
  - (e) for solid addition.
4. The bigger side nozzle, referred as DN3, is used for vapour outlet where stirrer is fixed on centre neck. It can also be used for cleaning in case centre neck is used for vapour outlet.
5. Vessels having long bottom outlet, viz VSM, VSPL, VSL, VS etc, can be supported in a heating mantle or heating bath. However, vessels having short bottom outlet, viz VS D, VSCY, VR, VA etc. are to be supported on a vessel holder only. In case of vessels upto 20L size, vessel holding rings can be used instead of vessel holder.



## CYLINDRICAL VESSELS

Cat. Ref.	Nominal Capacity	DN	DN1	L	L1
VZ5/4	5 L	100	25	700	175
VZ10/6	10 L	150	25	700	175
VZ20/9	20 L	225	25	750	175
VZ50/12	50 L	300	40	1000	175
VZ100/18	100 L	450	40	900	175
VZ150/16	150 L	400	40	1400	175
VZ200/18	200 L	450	40	1500	175
VZ300/24	300 L	600	50	1300	175

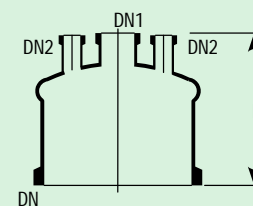


Cylindrical vessels of 50 Litres and above must be supported in a vessel holder.

Other accessories, like stirrers, baths, vessel holders etc, for cylindrical vessel scan be supplied to special orders.

## CYLINDRICAL VESSEL COVERS

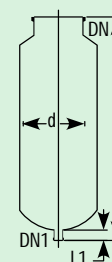
Cat. Ref.	DN	DN1	DN2	L
VZA4	100	-	2x25	200
VZA6	150	-	2x40	200
VZA9	225	50	3x25	250
VZA12	300	80	3x40	250
VZA16	400	100	3x40	275
VZA18	450	100	4x40	275
VZA24	600	100	4x40	300

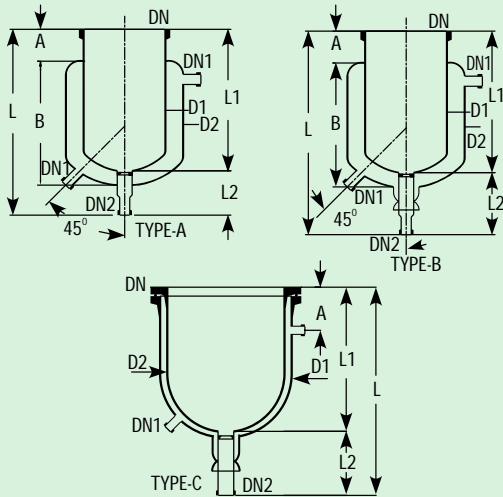


## KETTLES

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

Cat. Ref.	Nominal Capacity	DN	DN1	L	L1	d
KZ200	200 L	300	40	1400	175	485
KZ350	350 L	400	50	1500	175	620





## JACKETED VESSELS

For special applications, cylindrical vessels can be supplied with a jacket for heating or cooling. Jacket is sealed to the vessel with Viton 'O' ring and other sealing compositions. The seal prevents high stresses between vessel and jacket by allowing the movement flexibility between two 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 be exceed than 120°C

Cat. Ref.	L	L1	L2	A	B	D1	D2	DN	DN1	DN2	TYPE
VZD5/6	500	325	125	75	275	165	215	150	25	25	A
VZD10/9	575	400	125	90	340	230	280	225	25	25	B
VZD20/12	625	450	125	100	385	315	370	300	25	40	B
VZD30/12	750	575	175	100	510	315	370	300	25	40	B
VZD50/12/14	1050	875	175	-	-	315	365	300	25	40	C
VZD50/16/20	825	650	175	-	-	415	500	400	25	40	C
VZD100/20/24	955	780	175	-	-	516	600	500	25	40	C
VZD200/24/28	1175	1000	175	-	-	615	700	600	25	40	C

## JACKETED VESSELS (TRIPLE WALL)

Goel is presenting Flexi (Detachable) "Transparent Double Jacketed Vessel" to maintain the leading position in industry by way of developing indigenously newer products with higher value towards their Mission and to cater the customer via innovation.

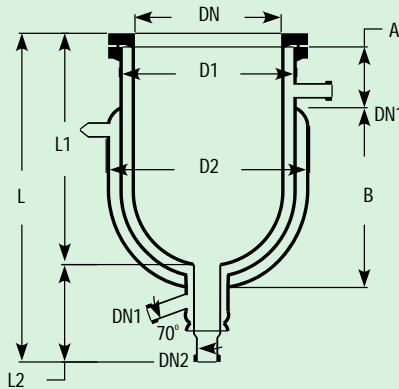
### Salient Features

Vacuum Jacket ensures

- Transparent insulation.
- Minimum heat loss
- Process visibility.
- Minimize frost formation for cryogenics operation.

Vacuum Jacket & main vessels are detachable ensures

- Ease of cleaning.
- No breakages due to thermal expansion.
- Partial Replacement of any part can be possible reduce the maintenance cost.

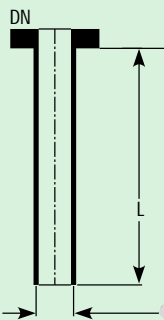


Cat. Ref.	L	L1	L2	A	B	D1	D2	DN	DN1	DN2
VZT5/6/8	620	350	175	75	310	215	275	150	25	25
VZT10/9/12	700	420	175	90	370	315	390	225	25	25
VZT20/12/14	675	500	175	125	368	365	423	300	25	40
VZT50/16/18	825	650	175	200	350	465	523	400	25	40

## DIP PIPES

Dip pipes are used as liquid inlet for spherical vessels.

Cat. Ref.	For Vessel	DN	DN1	d	L
DP20/1*	20 L	25	25	12	300
DP50/1.5*	50 L	40	25	19	400
DP100/1.5*	100 L	40	25	19	500
DP200/1.5*	200 L	40	25	19	600



## SHORT DIP PIPES

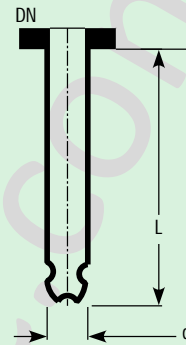
Short dip pipes are used as re-entry tubes for vessels, heat exchangers etc.

Cat. Ref.	DN	DN1	d	L	L1
DP1/1	25	25	12	100	100
DP1.5/1	40	25	19	100	100
DP1.5/1.5	40	40	19	100	100
DP2/1	50	25	25	100	100
DP2/1.5	50	40	25	100	100
DP3/1.5	80	40	37	100	125
DP4/1	100	25	25	100	150
DP4/2	100	50	50	100	150

## GAS SPARGERS

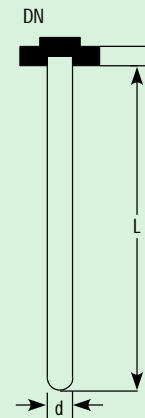
Gas spargers are used for gas feed/sparging in the vessels.

Cat.Ref.	For Vessel	DN	DN1	d	L	No.of Holes
SPG20/1	20 L	25	25	12	300	5x1mm
SPG50/1.5	50 L	40	25	19	400	5x1mm
SPG100/1.5	100 L	40	25	19	500	5x1mm
SPG200/1.5	200 L	40	25	19	600	5x1mm



## THERMOMETER POCKETS

Cat. Ref.	For Vessel	DN	d	L
TP20/1*	20 L	25	12	300
TP50/1.5*	50 L	40	19	400
TP100/1.5*	100 L	40	19	500
TP200/1.5*	200 L	40	19	600



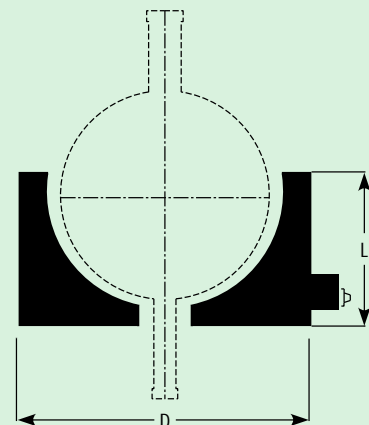
## HEATING MANTLES

Heating Mantle is used for electrical heating of cylindrical as well as spherical vessels. Also available in flameproof & non-flame proof models. The flameproof heating mantle is similar to normal mantle but the main difference is in construction of heating elements. Heating elements is flameproof by covering it in magnesium oxide powder & SS metal tube. Heater terminal terminate in flameproof cold junction terminal enclosure. All electrical control like regulator, switch, indicating lamp, relay etc. fitted in flameproof switch enclosure.

We can also provide flameproof digital temperature indicator cum controller with sensor.

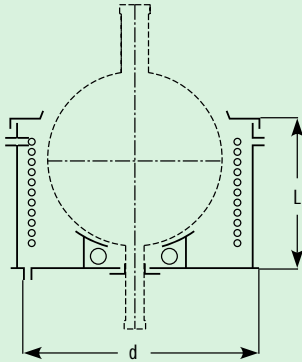
Cat.Ref.	Vessel Size	D	L	Watts	Circuits	Supply Volts
JMD5	5 L	320	190	750	1	230
JMD10*	10 L	380	220	1200	2	230
JMD20	20 L	485	285	2000	3	230
JMD50	50 L	600	345	3700	3	415
JMD100	100 L	790	470	6000	3	415
JMD200	200 L	920	530	7500	3	415

Cat.Ref.	Vessel Size	D	L	Watts	Circuits	Supply Volts
JMD5/F	5 L	330	200	600	1	230
JMD10/F	10 L	440	220	1000	2	230
JMD20/F	20 L	510	285	2000	3	230
JMD50/F	50 L	610	350	3600	3	415
JMD100/F	100 L	790	430	5200	3	415
JMD 200/F	200 L	940	510	8400	3	415



## HEATING BATHS

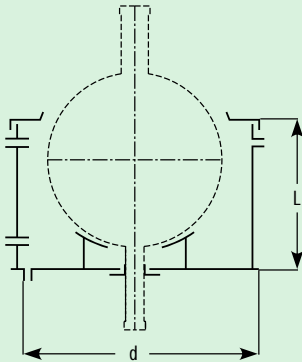
Heating baths are used for electrical or steam heating of glass vessels. Depending upon the temperature requirements, different types of thermic fluids or water can be used as heating media. Heating baths are provided with a pair of encased heaters with controller box, a coil for passing the steam or cooling water, a cushioned vessel holding ring, a bottom outlet sealing arrangement, a lid and threaded socket type inlets and outlets.



Cat.Ref.	Vessel Size	d	L	Watts	HTA Vessel	HTA Coils
SBH20	20 L	480	340	2x2000	0.25	0.4
SBH50*	50 L	615	415	2x3000	0.5	0.6
SBH100	100 L	720	535	2x4000	0.7	1
SBH200	200 L	900	620	2x5000	1	1.5
SBH300	300 L	1150	735	3x5000	1.85	2.5
SBH500	500 L	1385	880	4x5000	2.5	4.0

## COOLING BATHS

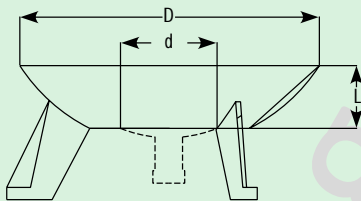
Cooling baths are used for cooling the glass vessel with ice crystals. Cooling Baths are provided with a vessel holding ring, bottom outlet sealing arrangement and a lid.



Cat.Ref.	Vessel Size	d	L
BHC20	20 L	480	340
BHC50	50 L	615	415
BHC100	100 L	720	535
BHC200	200 L	900	620

## VESSEL HOLDERS

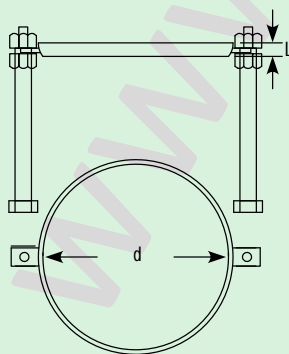
Vessel holders are made of cast aluminum with a plaster lining shaped to fit the vessel. These are to be supported on 3 jacking bolts.



Cat.Ref.	Vessel Size	D	d	L
VSS20*	20 L	325	230	100
VSS50*	50 L	390	230	100
VSS100	100 L	410	250	100
VSS200	200 L	700	400	215

## VESSEL HOLDING RINGS

These metal rings are wrapped with asbestos rope and are to be supported on two jacking bolts.



Cat.Ref.	Vessel Size	d	L
VRS2	2 L	100	15
VRS5*	5 L	150	15
VRS10*	10 L	215	15



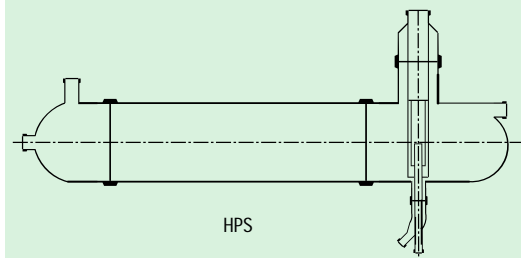
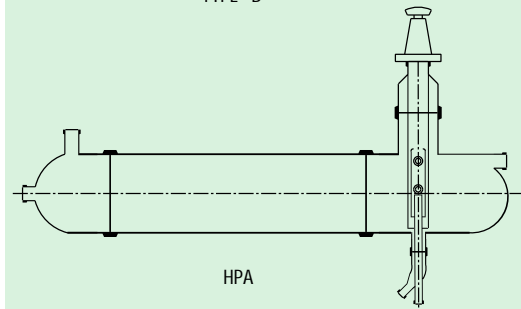
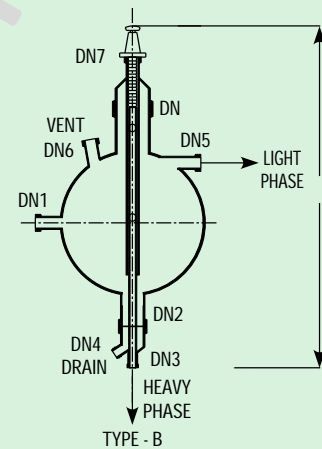
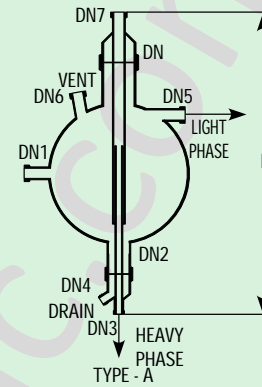
## DECANTORS

Decantation is a process of separation of two immiscible liquids having different densities. When these liquids allowed to settle forms two distinct layers, heavier at bottom and lighter at top. Goel has developed a Decantor which is suitable for continuous decantation.

The mixture of liquids is continuously fed in the Decantor at low velocity. This allows sufficient residence time for the formation of separate layers. The light phase liquid is continuously removed from the light phase outlet at the top. The heavy phase liquid enters the dip pipe at lower end and overflows in the discharge pipe and is removed from the bottom.

Goel's Decantor provides continuous separation, visual monitoring, and ensures separation even after feed is stopped.

Decantors can be provided with Adjustable overflow valve, (Type B) to adjust the position of interface for different operating situations.



Cat. Ref.	Nominal Capacity	L	DN	Inlet DN1	DN2	Heavy Phase Outlet DN3	Drain DN4	Light Phase Outlet DN5	Vent DN6	DN7	Type
SPS20	20 L	800	80	25	50	25	25	25	25	50	A
SPS50	50 L	1025	100	40	50	25	25	40	40	50	A
SPS100	100 L	1175	150	40	50	25	25	40	40	50	A
SPS200	200 L	1475	225	40	50	25	25	40	40	50	A
SPA20	20 L	1000	80	25	50	25	25	25	25	50	B
SPA50	50 L	1225	100	40	50	25	25	40	40	80	B
SPA100	100 L	1375	150	40	50	25	25	40	40	80	B
SPA200	200 L	1675	225	40	50	25	25	40	40	80	B

Decantors can also be constructed with horizontal cylindrical vessels (Cat.ref. HPS or HPA) to provide larger separating surface.