

3. **VESSELS & STIRRERS**



VESSELS & STIRRERS

VESSELS & STIRRERS

INTRODUCTION

In the majority of glass plant installations, vessels find universal applications as reactors, re-boilers, receivers and separators as well as for storage, feed or measuring.

Vessels are available in spherical & cylindrical shape form 5 to 500 liter capacity. All vessels are provided with bottom outlet nozzle for which a suitable valve can be selected from the range of valves. Both spherical and cylindrical vessels can be supplied with graduation to special order.

Cylindrical vessel can be supplied with glass / metal jacket also.

SPHERICAL VESSELS GENERAL DATA

Nominal Cap. Ltr.	Bulb Cap. Ltr.	Working Cap. Ltr.	Maximum Internal Pressure (bar G.)
5L	5L	4L	1.0
10L	10L	9L	0.8
20L	21L	20L	0.7
50L	62L	58L	0.5
100L	118L	111L	0.4
200L	212L	200L	0.25
300L	315L	300L	0.2

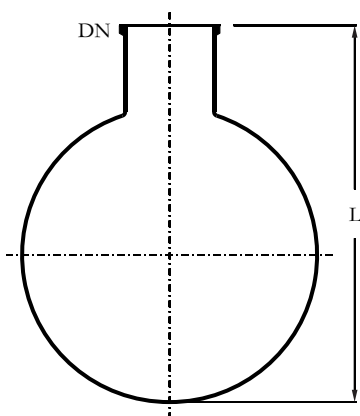
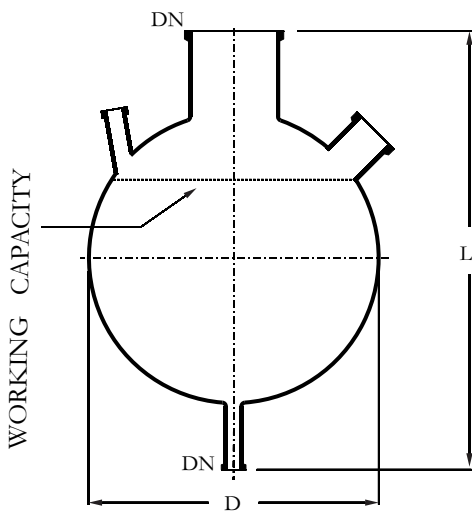
Nominal Cap. Ltr.	Bulb Diameter in MM (D)	Vessel Length in MM (L)	Tolerance in Diameter mm	Tolerance in Length mm L
5L	223	425	±2	±5
10L	285	500	±2	±5
20L	350	575	±2	±5
50L	490	800	±3	±5
100L	600	900	±5	±10
200L	750	1100	±5	±15
300L	860	1175	±6	±15

500 Liter vessel on request.

SINGLE NECK SPHERICAL VESSEL

Nominal Cap. Ltr.	DN mm	L mm	CAT. REF.
5L	50	300	AVSA5
10L	80	375	AVSA10
20L	100	450	AVSA20
50L	150	600	AVSA50
100L	225	700	AVSA100
200L	300	900	AVSA200
300L	400	1000	AVSA300

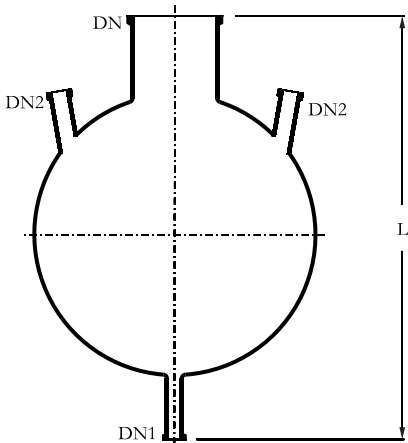
Tolerance ± as per given general data in the vessel chapter.



THREE NECK BOTTOM OUTLET SPHERICAL VESSEL

Nominal Cap. Ltr	DN mm	DN1 mm	DN2 mm	L mm	CAT. REF.
5L	50	25	25	425	AVSM5
10L	80	25	25	500	AVSM10
20L	100	25	25	575	AVSM20
50L	150	40	40	800	AVSM50
100L	225	40	40	900	AVSM100
200L	300	40	40	1100	AVSM200
300L	400	50	50	1175	AVSM300

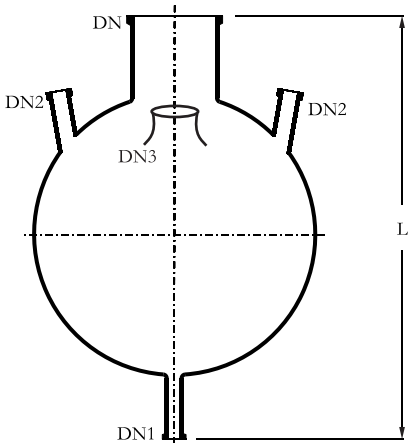
Tolerance ± as per given general data in the vessel chapter.



FOUR NECK BOTTOM OUTLET SPHERICAL VESSEL

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	DN3 MM	L MM	CAT. REF.
5L	50	25	25	40	425	AVSPL5
10L	80	25	25	40	500	AVSPL10
20L	100	25	25	40	575	AVSPL20
50L	150	40	40	100	800	AVSPL50
100L	225	40	40	100	900	AVSPL100
200L	300	40	40	100	1100	AVSPL200
300L	400	50	50	100	1175	AVSPL300

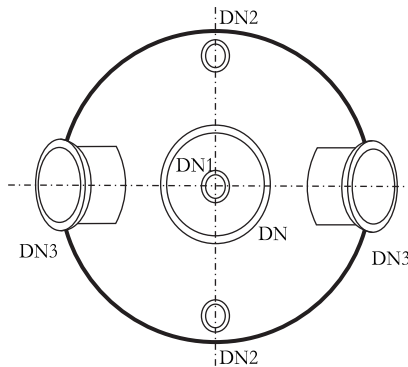
Tolerance ± as per given general data in the vessel chapter.



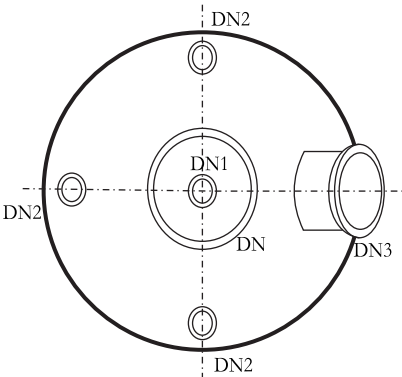
FIVE NECK BOTTOM OUTLET SPHERICAL VESSEL

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	DN3 MM	L MM	CAT. REF.
5L	50	25	25	40	425	AVSL5
10L	80	25	25	40	500	AVSL10
20L	100	25	25	40	575	AVSL20
50L	150	40	40	100	800	AVSL50
100L	225	40	40	100	900	AVSL100
200L	300	40	40	100	1100	AVSL200
300L	400	50	50	100	1175	AVSL300

Tolerance ± as per given general data in the vessel chapter.



VESSELS & STIRRERS



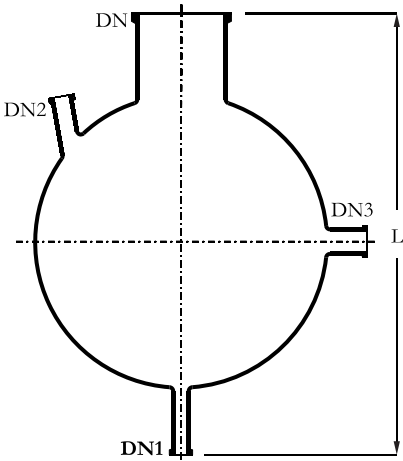
FIVE NECK BOTTOM OUTLET SPHERICAL VESSELS

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	DN3 MM	L MM	CAT. REF.
5L	50	25	25	40	425	AVSL5
10L	80	25	25	40	500	AVSL10
20L	100	25	25	40	575	AVSL20
50L	150	40	40	100	800	AVSL50
100L	225	40	40	100	900	AVSL100
200L	300	40	40	100	1100	AVSL200
300L	400	50	50	100	1175	AVSL300

Tolerance $\pm$ as per given general data in the vessel chapter.

SPHERICAL VESSEL WITH NOZZEL AT 90°

This vessel is used in circulatory boiler systems. Additional nozzles can be provided on the equator on request for special requirement.

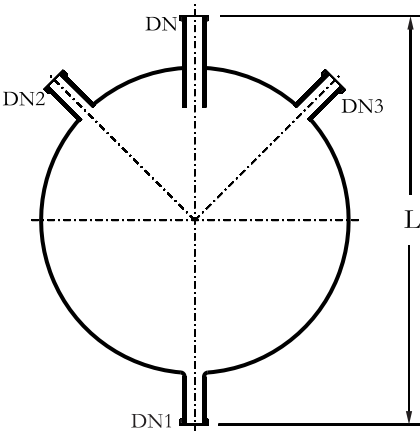


Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	DN3 MM	L MM	CAT. REF.
5L	50	25	25	50	425	AVSD5
10L	80	25	25	50	500	AVSD10
20L	100	25	25	50	575	AVSD20
50L	150	40	40	80	800	AVSD50
100L	225	40	40	80	900	AVSD100
200L	300	40	40	100	1100	AVSD200
300L	400	50	50	150	1175	AVSD300

Tolerance $\pm$ as per given general data in the vessel chapter.

RECEIVER SPHERICAL VESSEL

Receiver is provided with built in dip pipe. This is to be supported on a vessel holding ring.



Nominal Cap. Ltr	DN MM	DN1 MM	DN2 45°	DN3 45°	L MM	CAT. REF.
5L	25	25	25	-	350	AVR5
10L	25	25	25	-	425	AVR10
20L	25	25	25	-	500	AVR20
5L	25	25	25	25	350	AVRB5
10L	25	25	25	25	425	AVRB10
20L	25	25	25	25	500	AVRB20

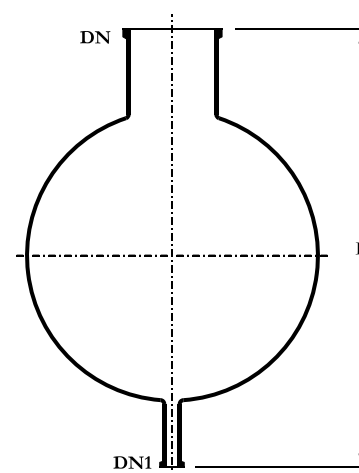
Tolerance $\pm$ as per given general data in the vessel chapter.

ADDITION SPHERICAL VESSEL

This vessel is provided with a short bottom outlet, it should be supported on vessel holder / holding ring.

Nominal Cap. Ltr	DN MM	DN1 MM	L MM	CAT. REF.
5L	50	25	375	AVA5
10L	80	25	435	AVA10
20L	100	25	510	AVA20
50L	150	40	675	AVA50
100L	225	40	775	AVA100
200L	300	40	975	AVA200
300L	400	50	1075	AVA300

Tolerance $\pm$ as per given general data in the vessel chapter.

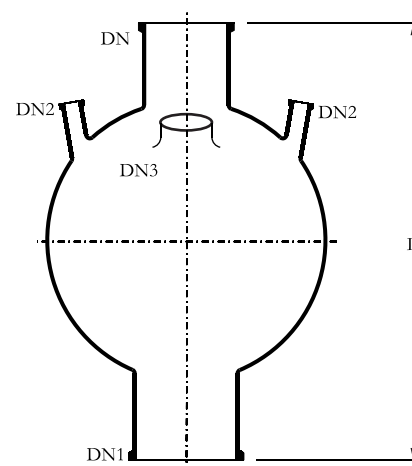


WIDE BOTTOM OUTLET SPHERICAL VESSEL

This vessel is used to fit immersion heat exchanger at the bottom.

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	DN3 MM	L MM	CAT. REF.
50 L	150	150	40	100	800	AVSR50
100 L	225	150	40	100	900	AVSR100
200 L	300	150	40	100	1150	AVSR200
50 L	150	225	40	100	825	AVSE50
100 L	225	225	40	100	950	AVSE100
200 L	300	225	40	100	1200	AVSE200

Tolerance $\pm$ as per given general data in the vessel chapter.

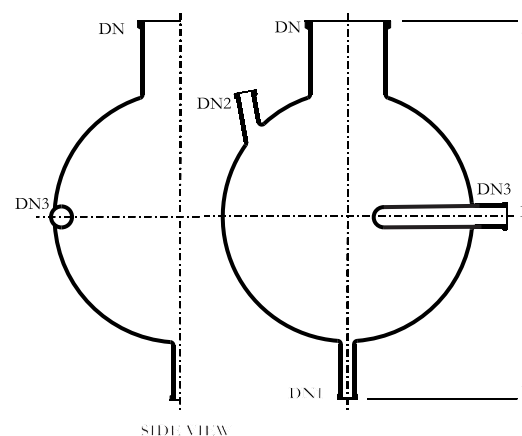


CYCLONE SPHERICAL VESSEL

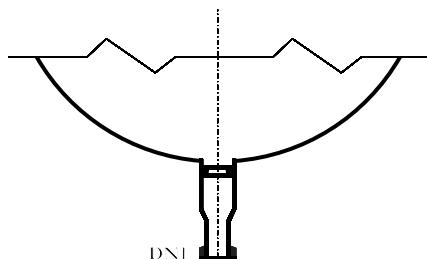
Cyclone is used for the separation of droplets and solids from gases and vapours. Cyclone is supported on a vessel holder. A dip pipe is used on the top neck.

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	DN3 MM	L MM	CAT. REF.
5L	50	25	25	40	425	AVSCY5
10L	80	25	25	40	500	AVSCY10
20L	100	25	25	50	575	AVSCY20
50L	150	40	40	50	800	AVSCY50

Tolerance $\pm$ as per given general data in the vessel chapter.



VESSELS & STIRRERS



VESSEL WITH BOTTOM OUTLET VALVE SEAT

To fit a bottom outlet valve (ABAL type) all spherical and cylindrical vessel 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. 'AVSL50' should be mentioned as 'AVSL50/B'.

NOTES ON USE OF SPHERICAL VESSEL:

- 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 AVSR & AVSE, it is also used for fixing immersion heat exchanger.
- 3 The small side nozzle, referred as DN2 in all types, are used to fix thermometer pocket, or to fix sparger for gas purging or to fix dip pipe for liquid inlet, to fix vacuum control or vent valve or for solid addition.
- 4 The bigger side nozzle, referred as DN3, is used for vapour outlet when stirrer is fixed on centre neck. It can also be used for cleaning etc., in case centre neck is used for vapour outlet.
- 5 Vessels having long bottom outlet, viz. AVSM, AVSPL, AVSL, AVS etc. can be supported in a heating mantle or heating bath.

However, vessels having short bottom outlet, viz AVSD, AVSCY, AVR, AVA etc. are to be supported in vessel holder only.

In case of vessels upto 20 L capacity, vessel holding rings can be used instead of vessel holders.

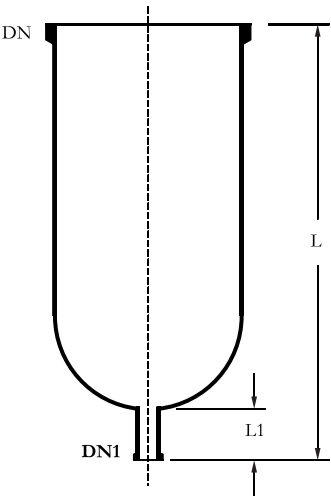


CYLINDRICAL VESSEL

Cylindrical vessels can be used for various applications such as reaction, separating receiver, feeding etc. 50 liter and above cylindrical vessels need to be supported in a vessel holder.

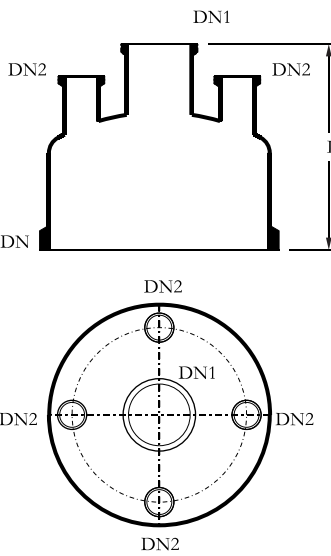
Nominal Cap. Ltr	DN MM	DN1 MM	L MM	L1 MM	CAT. REF.
5L	100	25	700	60	AVZ5/4
5L	150	25	460	60	AVZ5/6
10L	150	25	700	60	AVZ10/6
20L	225	25	750	60	AVZ20/9
30L	300	40	650	60	AVZ30/12
50L	300	40	915	65	AVZ50/12
100L	450	40	900	65	AVZ100/18
150L	450	40	1200	65	AVZ150/16
200L	450	40	1500	65	AVZ200/18
300L	600	50	1300	65	AVZ300/24
400L	600	50	1650	65	AVZ300/24

Tolerance $\pm$ as per given general data in the vessel chapter.
If need the graduation marking on the vessel, please mention the "G" with catalogue code.
The same vessel can be supplied in reduced top neck.

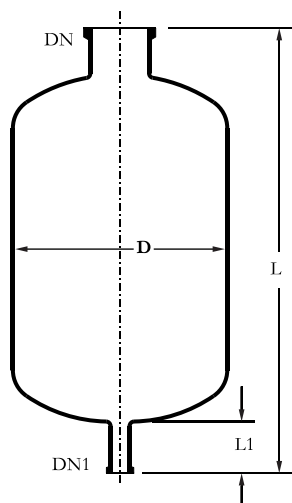


CYLINDRICAL VESSEL COVER

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	L MM	CAT. REF.
5L	100	-	2 x 25	200	AVZA5/4
5L	150	-	2 x 25	200	AVZA5/6
10L	150	50	2 x 25	200	AVZA10/6
20L	225	50	3 x 25	250	AVZA20/9
30L	300	50	3 x 25	250	AVZA30/12
50L	300	50	3 x 40	250	AVZA50/12
100L	300	80	3 x 50	250	AVZA100/18
	450	50	3 x 40	275	
	450	80	3 x 40	275	
150L	450	100	3 x 40	275	AVZA150/16
	400	100	3 x 40	275	
	450	100	3 x 40	275	
200L	450	100	3 x 40	275	AVZA200/18
300L	600	50	3 x 40	300	AVZA300/24
400L	600	80	4 x 40	300	AVZA400/24
	600	100	4 x 40	300	
	600	100	4 x 40	300	



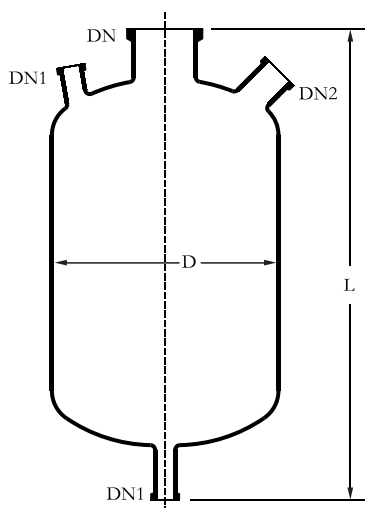
VESSELS & STIRRERS



CYLINDRICAL RECEIVER VESSEL

Nominal Cap. Ltr	D MM	DN MM	DN1 MM	L MM	L1 MM	CAT. REF.
20L	300	100	25	650	60	AVZR20/12
30L	300	150	25	800	65	AVZR30/12
50L	300	150	40	1000	65	AVZR50/12
100L	450	225	40	1100	65	AVZR100/18
150L	450	225	40	1400	65	AVZR150/16
200L	450	225	40	1625	65	AVZR200/18
300L	600	225	40	1500	75	AVZR300/24
400L	600	300	40	1715	75	AVZR400/24

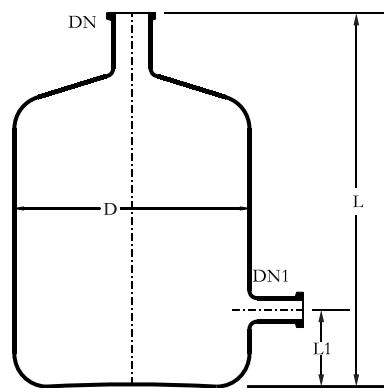
Tolerance $\pm$ as per given general data in the vessel chapter.



CYLINDRICAL FLASK

Nominal Cap. Ltr	D MM	DN MM	DN1 MM	DN2	L MM	CAT. REF.
5L	200	50	25	40	475	AVCY5
10L	220	50	25	40	600	AVCY10
20L	300	80	25	50	650	AVCY20
30L	300	80	25	50	790	AVCY30
50L	420	100	40	100	795	AVCY50
100L	470	150	40	100	1020	AVCY100
150L	470	150	40	100	1315	AVCY150
200L	600	225	40	100	1190	AVCY200
300L	600	225	40	100	1590	AVCY300
400L	600	300	40	100	1715	AVCY400

Tolerance $\pm$ as per given general data in the vessel chapter.



ASPIRATOR BOTTLE

Nominal Cap. Ltr	D MM	DN MM	DN1 MM	L MM	L1 MM	CAT. REF.
10L	215	40	25	410	100	AAB10
20L	280	40	25	485	100	AAB20

Tolerance $\pm$ as per given general data in the vessel chapter.

JACKETED VESSEL

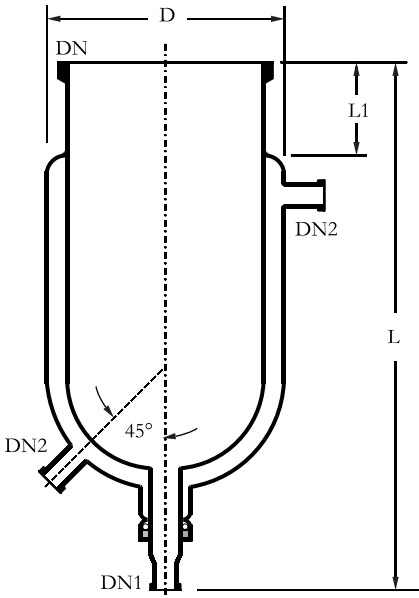
For special applications, cylindrical vessels can be supplied with a jacket for heating or cooling. Jacket is sealed to the vessel with silicon rubber or viton 'O' ring and other sealing compositions. The seal prevents impermissible high stresses between vessel and jacket and allows the movement which comes due to thermal expansion.

- ☞ Glass jacket can be used for a maximum operating pressure of 0.5 bar g.
- ☞ Maximum operating temperature is 150°C in jacket.
- ☞ Temperature difference between jacket & vessel should not exceed 120°C.

Nominal Cap. Ltr	DN MM	DN1 MM	DN2 MM	D MM	L MM	L1 MM	CAT. REF.
5L	100	25	25	165	825	150	AVZD5/4
	150	25	25	220	600	150	AVZD5/6
10L	150	25	25	220	850	150	AVZD10/6
	225	40	25	300	600	175	AVZD10/9
20L	225	40	25	300	900	200	AVZD20/9
	300	40	25	390	650	200	AVZD20/12
30L	300	40	25	390	775	200	AVZD30/12
50L	300	40	25	390	1050	200	AVZD50/12
60L	300	40	25	390	1200	200	AVZD60/12
100L	400	40	25	460	1100	210	AVZD100/16
	450	40	25	515	1000	210	AVZD100/18

Tolerance ± as per given general data in the vessel chapter.

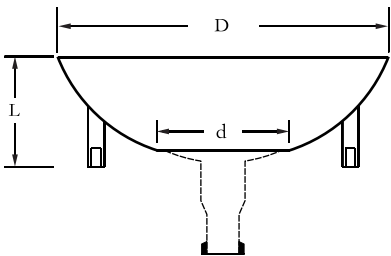
This vessel can also be supplied with metal jacket. Metal Jacket can be used in a maximum operating pressure of 2.0 bar g and a maximum operation temperature of 150°C.



VESSEL HOLDER

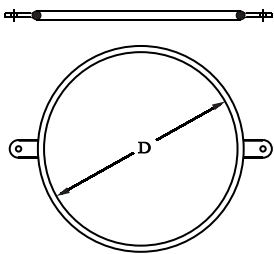
Vessel holders is made of cast aluminium with a plaster lining shape to fit the vessel . Vessel holder is fitted with 3 jacking bolts.

Vessel holder size wise	D MM	d MM	L MM	CAT. REF.
20L	325	230	100	AVSS20
30L	325	230	100	AVSS30
50L	390	230	100	AVSS50
100L	420	250	100	AVSS100
200L	700	400	215	AVSS200

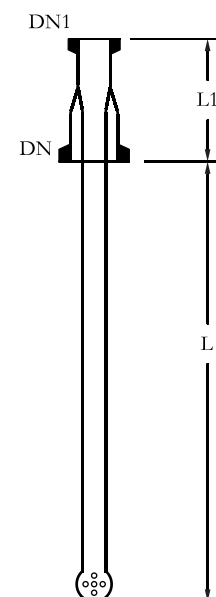
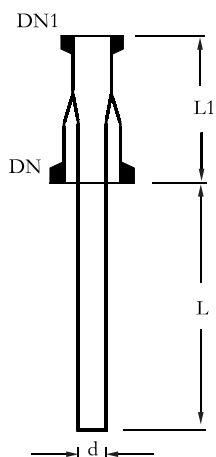
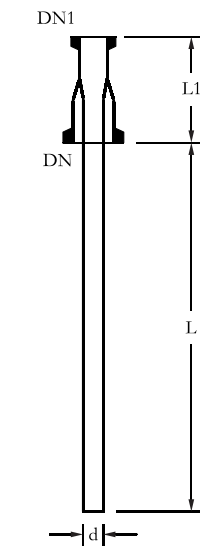


VESSEL HOLDING RING

Vessel holder size wise	D mm	L mm	CAT. REF.
2 L	100	15	AVRS 2
5 L	150	15	AVRS 5
10 L	215	15	AVRS 10
20 L	300	15	AVRS 20



VESSELS & STIRRERS



DIP PIPE

Dip pipe is used as liquid inlet for spherical & cylindrical vessels.

Nominal Cap. Ltr	DN MM	DN1 MM	d MM	L MM	L1 MM	CAT. REF.
20L	25	25	12	300	100	ADP20/1
50L	40	25	19	400	100	ADP50/1.5
100L	40	25	19	500	100	ADP100/1.5
200L	40	25	19	600	100	ADP200/1.5

SHORT DIP PIPE

Short dip pipe is used as re-entry tube for vessel, heat exchanger etc.

Nominal Cap. Ltr	DN MM	DN1 MM	d MM	L MM	L1 MM	CAT. REF.
20L	25	25	12	300	100	ADP20/1
50L	40	25	19	400	100	ADP50/1.5
100L	40	25	19	500	100	ADP100/1.5
200L	40	25	19	600	100	ADP200/1.5

GAS SPARGER

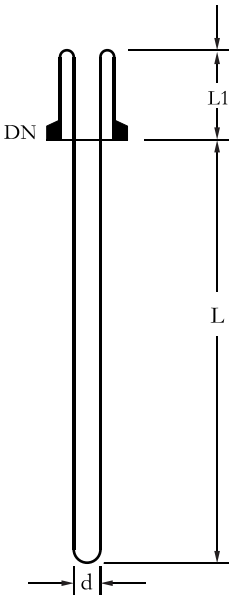
Gas sparger is used for gas feeding & sparging in vessels.

Nominal Cap. Ltr	DN MM	DN1 MM	d MM	L MM	L1 MM	No. of Holes	CAT. REF.
20L	25	25	12	300	100	5 x 1mm	AGS20/1
50L	40	25	19	400	100	5 x 1 mm	AGS50/1.5
100L	40	25	19	500	100	5 x 1 mm	AGS100/1.5
200L	40	25	19	600	100	5 x 1 mm	AGS200/1.5

THERMOMETER POCKET

Thermometer pocket is used to put thermometer , where temperature need to be measured.

Nominal Cap. Ltr	DN MM	d MM	L MM	L1 MM	CAT. REF.
5L	25	12	150	50	ATP5/1
10L	25	12	200	50	ATP10/1
20L	25	12	300	50	ATP20/1
50L	40	19	400	50	ATP50/1.5
100L	40	19	500	50	ATP100/1.5
200L	40	19	600	50	ATP200/1.5
300L	40	19	680	50	ATP300/1.5



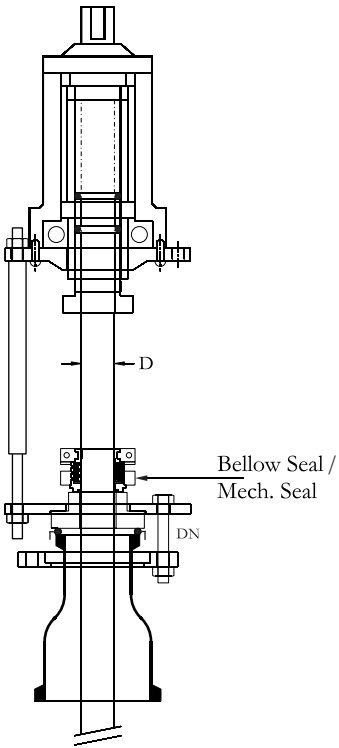
STIRRERS

A variety of stirrers and stirrer drives are available to use glass vessel as agitated reaction equipments. Stirrer assemblies are used with spherical or cylindrical vessels and generally comprise two main components: a drive unit (including shaft seal) and a stirrer shaft. In addition a reducer or vessels cover is normally required, to connect the top neck of the vessel to the drive unit. Variable speed drive unit can be supplied on request.

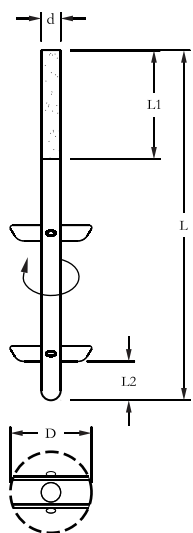
CHUCK & SEAL ASSEMBLY

This unit is suitable for use under corrosive conditions. Only GLASS & PTFE are exposed to process fluids. Bellow seal can be used under vacuum down to 10mm Hg absolute. Mechanical seal can be used under vacuum 1 mm Hg absolute or under pressure permitted into glass vessels.

Vessel Cap. Ltr.	DN MM	D MM	CAT. REF. BELLOW SEAL	CAT. REF. MECH. SEAL
10L	50	24.5	ACSA1	ACSM1
20L	50	24.5	ACSA1	ACSM1
50L	50	24.5	ACSA1	ACSM1
100L	50	45.5	ACSA1.5	ACSM1.5
200L	50	45.5	ACSA1.5	ACSM1.5
300L	50	45.5	ACSA1.5	ACSM1.5



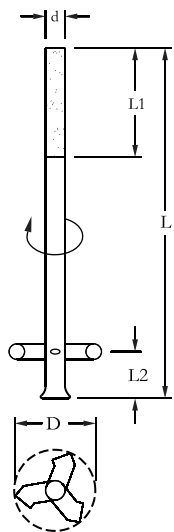
VESSELS & STIRRERS



GLASS STIRRER WITH TEFLON BLADE

This stirrer is used for low viscosity fluid.

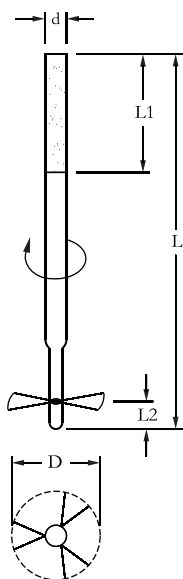
Vessel Cap. Ltr	d MM	D MM	L	L1	L2	CAT. REF.
5L	24.5	40	625	350	25	ASTB5
10L	24.5	40	700	350	25	ASTB10
20L	24.5	70	800	350	25	ASTB20
50L	24.5	100	1000	350	25	ASTB50
100L	45.5	150	1200	400	30	ASTB100
200L	45.5	175	1400	400	30	ASTB200
300L	45.5	200	1500	400	30	ASTB300



VORTEX STIRRER

This stirrer is used for low viscosity fluid containing small solid particles.

Vessel Cap. Ltr	d MM	D MM	L	L1	L2	CAT. REF.
5L	24.5	40	625	350	50	ASTV5
10L	24.5	40	700	350	50	ASTV10
20L	24.5	50	800	350	50	ASTV20
50L	24.5	65	1000	350	65	ASTV50
100L	45.5	65	1200	400	65	ASTV100
200L	45.5	105	1400	400	65	ASTV200
300L	45.5	105	1500	400	65	ASTV300



PROPELLER STIRRER

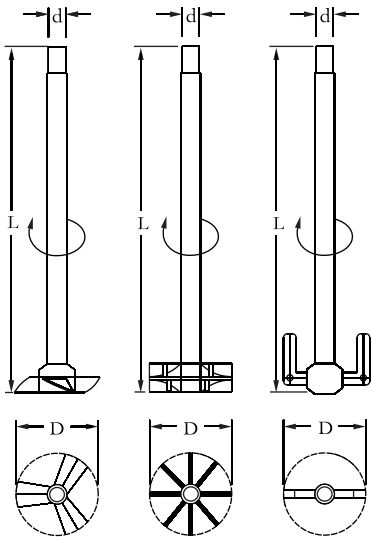
This stirrer is used for high viscosity fluid containing big solid particles.

Vessel Cap. Ltr	d MM	D MM	L	L1	L2	CAT. REF.
5L	24.5	40	625	350	50	ASTP5
10L	24.5	40	700	350	50	ASTP10
20L	24.5	50	800	350	50	ASTP20
50L	24.5	65	1000	350	65	ASTP50
100L	45.5	65	1200	400	65	ASTP100
200L	45.5	105	1400	400	65	ASTP200
300L	45.5	105	1500	400	65	ASTP300

PTFE STIRRER

This stirrer produces axial primary flow with a radial component and is particularly suitable for homogenisation and suspension. It is also suitable for general stirring duties with simultaneous heat transfer (heating or cooling) between the liquid being stirred and the vessel wall. It can also be used for dispersion (including from gases) and emulsification. This stirrer is available in three combinations (like Propeller/Turbine/Anchor type).

L	d	D	Cat. Ref.
700	45	150	ASPT150/700
800	45	150	ASPT150/800
1100	45	150	ASPT150/1100
1350	45	200	ASPT200/1350



STIRRING ASSEMBLY WITH BELLOW SEAL

A stirrer is assembled in chuck with bellow seal and appropriate reducer. This assembly is convenient to install on a vessel. This assembly mainly consists of :

- A. Glass Stirrer

B. Chuck and seal.

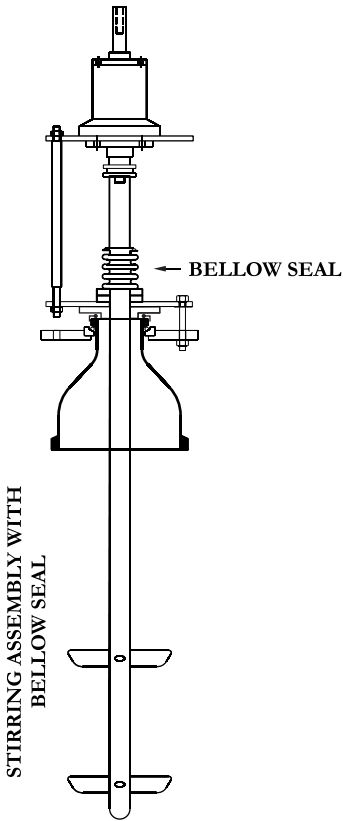
C. Glass Reducer
- (ASTB/ ASTV/ ASTP)

(ASCA)

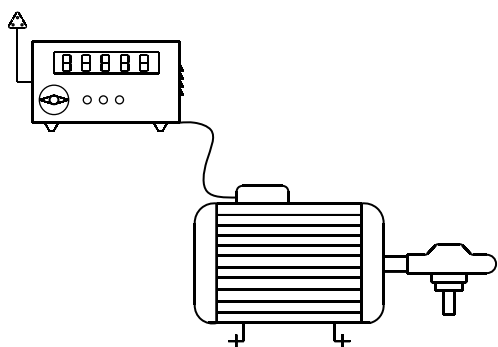
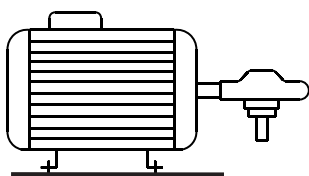
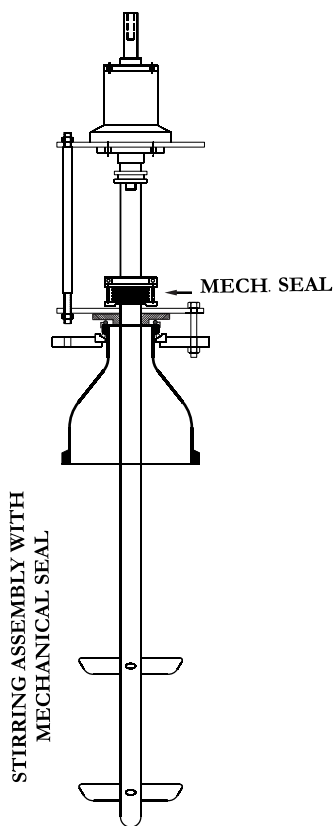
(APR)

STIRRER

Vessel Cap. Ltr.	Stripper Used	Chuck & Seal Used	Reducer Used	CAT. REF.
10L	ASTB10	ACSA1		ASTBA10
20L	ASTB20	ACSA1	APR3/2	ASTBA20
50L	ASTB50	ACSA1	APR4/2	ASTBA50
100L	ASTB100	ACSA1.5	APR6/3	ASTBA100
200L	ASTB200	ACSA1.5	APR9/3	ASTBA200
300L	ASTB300	ACSA1.5	APR12/3	ASTBA300
10L	ASTV10	ACSA1	-	ASTVA10
20L	ASTV20	ACSA1	APR3/2	ASTVA20
50L	ASTV50	ACSA1	APR4/2	ASTVA50
100L	ASTV100	ACSA1.5	APR6/3	ASTVA100
200L	ASTV200	ACSA1.5	APR9/3	ASTVA200
300L	ASTV300	ACSA1.5	APR12/3	ASTVA300
10L	ASTP10	ACSA1	-	ASTPA10
20L	ASTP20	ACSA1	APR3/2	ASTPA20
50L	ASTP50	ACSA1	APR4/2	ASTPA50
100L	ASTP100	ACSA1.5	APR6/3	ASTPA100
200L	ASTP200	ACSA1.5	APR9/3	ASTPA200
300L	ASTP300	ACSA1.5	APR12/3	ASTPA300



VESSELS & STIRRERS



STIRRER ASSEMBLY WITH MECHANICAL SEAL

A stirrer is assembled in chuck with mechanical seal and appropriate reducer. This assembly is convenient to install on a vessel .

The assembly consists of :

- | | |
|------------------------------|---------------------|
| A. Glass Stirrer | (ASTB/ ASTV/ ASTP) |
| B. Chuck and mechanical seal | (ASCA) |
| C. Glass Reducer | (APR) |

STIRRER

Vessel Cap. Ltr.	Stripper Used	Check & Seal Used	Reducer User	CAT. REF.
10L	ASTB10	ACSA1	-	ASTBM10
20L	ASTB20	ACSA1	APR3/2	ASTBM20
50L	ASTB50	ACSA1	APR4/2	ASTBM50
100L	ASTB100	ACSA1.5	APR6/3	ASTBM100
200L	ASTB200	ACSA1.5	APR9/3	ASTBM200
300L	ASTB300	ACSA1.5	APR12/3	ASTBM300
10L	ASTV10	ACSA1	-	ASTVM10
20L	ASTV20	ACSA1	APR3/2	ASTVM20
50L	ASTV50	ACSA1	APR4/2	ASTVM50
100L	ASTV100	ACSA1.5	APR6/3	ASTVM100
200L	ASTV200	ACSA1.5	APR9/3	ASTVM200
300L	ASTV300	ACSA1.5	APR12/3	ASTVM300
10L	ASTP10	ACSA1	-	ASTPM10
20L	ASTP20	ACSA1	APR3/2	ASTPM20
50L	ASTP50	ACSA1	APR4/2	ASTPM50
100L	ASTP100	ACSA1.5	APR6/3	ASTPM100
200L	ASTP200	ACSA1.5	APR9/3	ASTPM200
300L	ASTP300	ACSA1.5	APR12/3	ASTPM300

STIRRER DRIVE MOTOR (NON- FLAME PROOF)

A 1400 RPM 3 Phase non-flameproof motor with built-in gear is supplied along with a flexible shaft. A motor coupling to couple the flexible shaft to motor is also provided. Other end of the flexible shaft is to be fitted into the chuck.

HP	SPEED RPM	Cat. Ref.
0.25	190	ARSD 0.25
0.5	195	ARSD 0.5
1.0	195	ARSD 1

This motor is also available in **FLAME PROOF**

SPEED VARIATOR (Drive)

3 Phase non-flame proof regulators are available to control the speed of stirrer drives.

Type	Phase	Cat. Ref.
0.25	190	AFSD0.25
0.5	195	AFSD0.5
1.0	195	AFSD 1

BATHS

HEATING BATH WITH COIL & HEATER

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

Vessel Cap. Ltr.	D MM	L MM	POWER (kW)	CAT. REF.
5L	325	225	2 kW (2 x 1000)	ABH5
10L	350	250	2 kW (2 x 1000)	ABH10
20L	480	340	3 kW (3 x 1500)	ABH20
50L	615	415	4 kW (2 x 2000)	ABH50
100L	720	535	6 kW (2 x 3000)	ABH100
200L	900	620	8 kW (2 x 4000)	ABH200

* S.S. Heating bath can be supplied on request . This should be specified during inquiry stage

* S.S. / Copper coil can be supplied on request . This should be specified during inquiry stage.

HEATING BATH JACKETED WITH COIL & HEATER

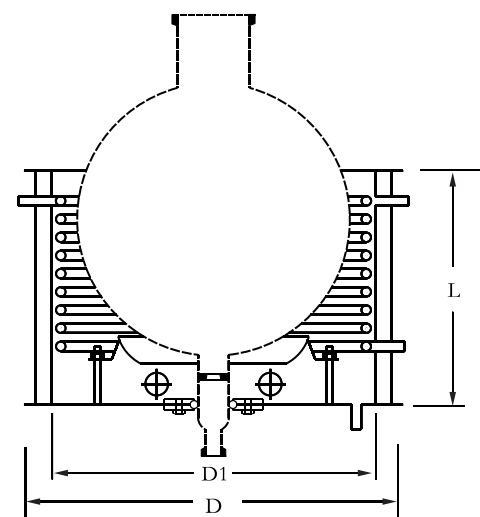
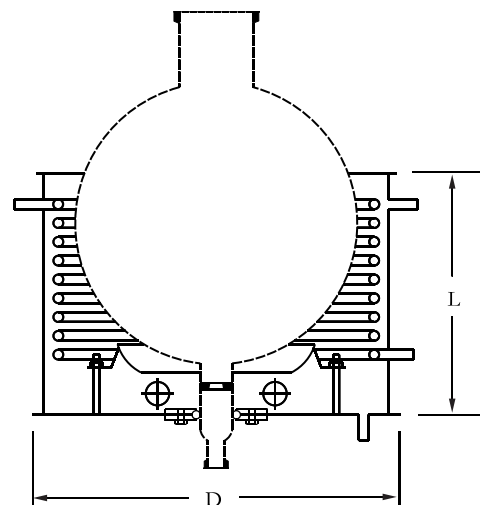
M.S. Jacketed Heating bath is provided with a coil inside to circulate either steam or heat transfer fluid depending upon the application . Provision for placing a electrical heater is also kept .

(Non Flame proof)- Heater can also be provided along with the bath on request . Although the standard heating bath is specifically designed for spherical vessel , similar bath for cylindrical vessel can also be supplied on special order. This heating bath can be fitted with suitable temperature control equipments if required.

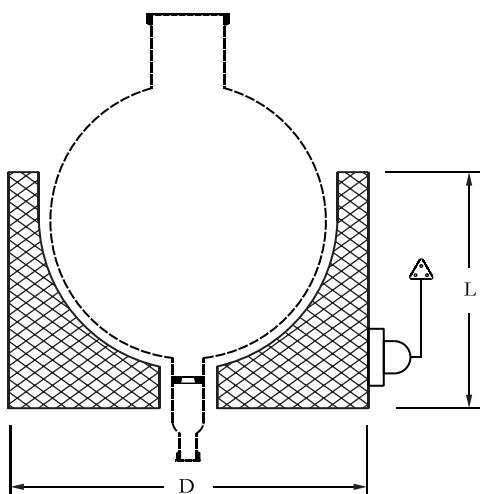
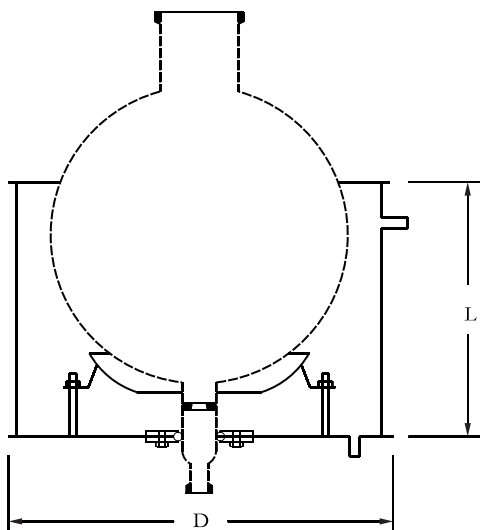
VESSEL CAP. LTR.	D MM	D1 MM	L MM	POWER (kW)	CAT. REF.
5L	395	325	260	2 kW (2 x 1000)	ABHD5
10L	420	350	285	2 kW (2 x 1000)	ABHD10
20L	550	480	365	3 kW (3 x 1500)	ABHD20
50L	685	615	465	4 kW (2 x 2000)	ABHD50
100L	830	720	560	6 kW (2 x 3000)	ABHD100
200L	1050	900	680	8 kW (2 x 4000)	ABHD200

* S.S. Heating bath can be supplied on request . This should be specified during inquiry stage.

* S.S. / Copper coil can be supplied on request . This should be specified during inquiry stage.



VESSELS & STIRRERS



COOLING BATH

Cooling bath is used for cooling the glass vessel with ice crystals. Cooling bath is provided with cushioned vessel holding ring, a bottom outlet sealing arrangement and a lid.

Vessel Cap. Ltr.	D MM	L MM	CAT. REF.
5L	325	225	ABHC5
10L	350	250	ABHC10
20L	480	330	ABHC20
50L	615	415	ABHC50
100L	720	535	ABHC100
200L	900	620	ABHC200

HEATING MANTLE

As an alternative to heating bath, electric heating mantle can also be supplied for spherical & cylindrical vessels. It's heating power varies according to the nominal capacity of the vessel involved.

This heating mantle is sub-divided into several heating zones each of which is equipped with a temperature probe so that the surface temperature of the vessel can be monitored. This work in conjunction with the control unit includes in the supply to prevent local hot spots occurring. The control unit also includes energy regulators, which can be used to control the heat input separately for each heating zone depending on the liquid level.

Vessel Cap. Ltr	D MM	L MM	ELEC. SUPPLY	CIRCUITS	POWER (kW)	CAT. REF.
5L	-	260	230V	1	0.6 kW (1 x 600)	AJMD5
10L	-	285	230V	3	1.0 kW (2 x 500)	AJMD10
20L	550	365	230V	3	1.5 kW (3 x 500)	AJMD20
50L	685	465	440V	3	3.6 kW (4 x 900)	AJMD50
100L	830	560	440V	3	5.4 kW (6 x 900)	AJMD100
200L	1050	680	440V	6	8.0 kW (8 x 1000)	AJMD200

Notes:

1. Powder coating / S.S. Heating bath can be supplied on request. This should be specified during inquiry stage.
2. S.S. / Copper coil can be supplied on request. This should be specified during inquiry stage.
3. In all cases, electrical supply should be specified when ordering. All heating mantles are non-flame proof type. Flame proof heating mantle can be supplied on request.

MEASUREMENT & CONTROL

DIGITAL TEMPERATURE INDICATOR

This instrument is mainly used to monitor the temperature of liquid in a glass vessel in a typical glass distillation unit.

This instrument consists of a Temperature indicator and a Resistance Temperature Detector (RTD). The instrument works on 230V, 50Hz power supply. This displays the temperature in degree Centigrade in three and half digits of 12.5mm character height.

VESSEL CAP. LTR.	RTD LENGTH	CAT. REF.
20	400	ADTI20
50	500	ADTI50
100	600	ADTI100
200	700	ADTI200

TWO POINT DIGITAL TEMPERATURE INDICATOR

This instrument is mainly used to monitor the temperature of liquid in a glass vessel and temperature of vapours at reflux divider in a typical glass distillation unit. This instrument consists of a Temperature indicator and two Resistance temperature detectors (RTDs). The instrument works on 230V, 50Hz power supply.

This displays the temperature in degree Centigrade in three and half digits of 12.5mm character height. A switch is provided to see the two temperatures alternatively.

VESSEL CAP. LTR.	RTD LENGTH FOR VESSEL	RTD LENGTH FOR REFLUX DIVIDER	CAT. REF.
20	400	200	ADTT20
50	500	225	ADTT50
100	600	250	ADTT100
200	700	300	ADTT200

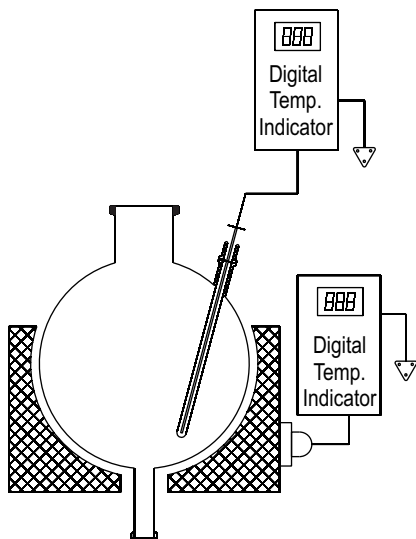
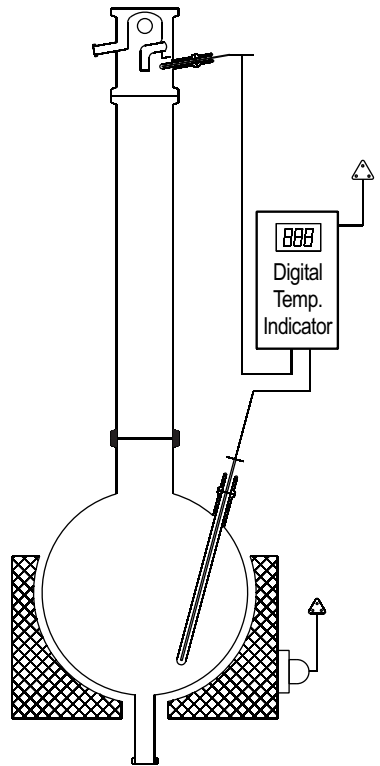
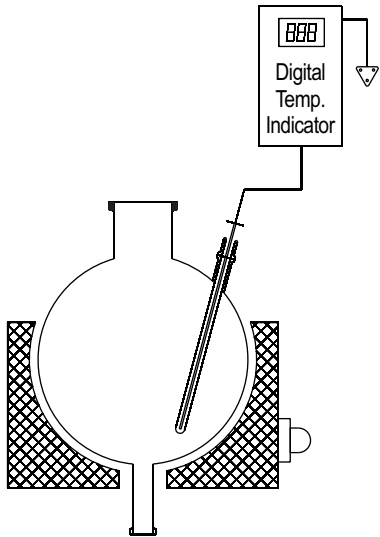
CONTINUOUS TEMPERATURE CONTROLLER

This instrument displays and controls the temperature continuously by switching the power supply ON and OFF in an electrical heating equipment as per the initial settings of heating temperature, band width and reset temperature. The instrument consists of a Temperature controller, a series magnetic controller and a Resistance Temperature Detector (RTD).

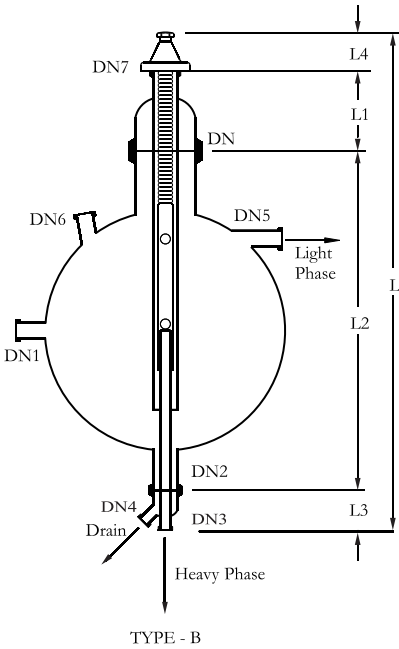
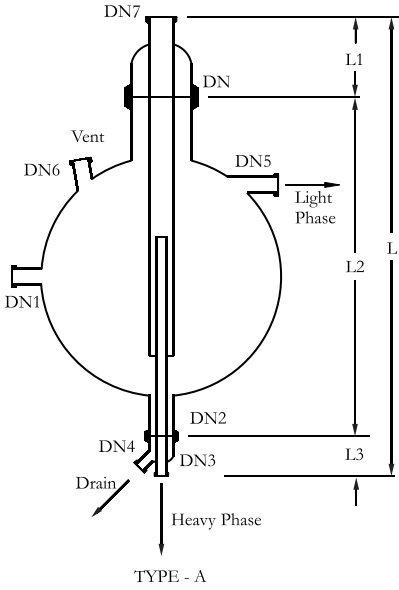
RTD is put into the Thermometer Pocket of the glass vessel and desired settings are done. As the temperature in the vessel reaches to the set heating temperature, the temperature controller cuts the power in heating the equipment. Power starts on again as the temperature goes down as per the settings of band width and reset temperature.

This instrument works on power supply of 230V 50Hz and can be used with heating mantles and heating baths of all the size. It displays the temperature in Degree Centigrade (°C)

VESSEL CAP. LTR.	RTD LENGTH	CAT. REF.
20	400	ACTC20
50	500	ACTC50
100	600	ACTC100
200	700	ACTC200



VESSELS & STIRRERS



DECANTOR (SEPARATOR)

Decantation is a process of separation of two immiscible liquids, having different densities. When these liquids are allowed to settle, two distinct layers are formed, heavier at bottom and lighter at top. This is a decantor which is suitable for continuous decantation. The mixture of liquids is continuously feed 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 and overflow in the discharge pipe and is removed from the bottom.

This decantor provides continuous separation, visual monitoring, and ensures separation even after feeding is stopped. Decantor can be provided with adjustable overflow valve, (Type B) to adjust the position of interface for different operating situations

Nom. Cap.	DN	DN1	DN2	DN3	DN4	DN5	DN6	DN7	L	L1	L2	L3	L4	Type	Cat. Ref.
20L	80	25	50	25	25	25	25	50	800	125	525	150	-	A	ASPS20
50L	100	40	50	25	25	40	40	50	1025	150	725	150	-	A	ASPS50
100L	150	40	50	25	25	40	40	50	1175	200	825	150	-	A	ASPS100
200L	225	40	50	25	25	40	40	50	1475	250	1075	150	-	A	ASPS200
20L	80	25	50	25	25	25	25	50	1000	125	525	150	200	B	ASPA20
50L	100	40	50	25	25	40	40	50	1225	150	725	150	200	B	ASPA50
100L	150	40	50	25	25	40	40	50	1375	200	825	150	200	B	ASPA100
200L	225	40	50	25	25	40	40	50	1675	250	1075	150	200	B	ASPA200

Decantor can be constructed with horizontal cylindrical vessels and to provide larger separating surface (Mention catalogue ref. is AHPA & AHPS)

