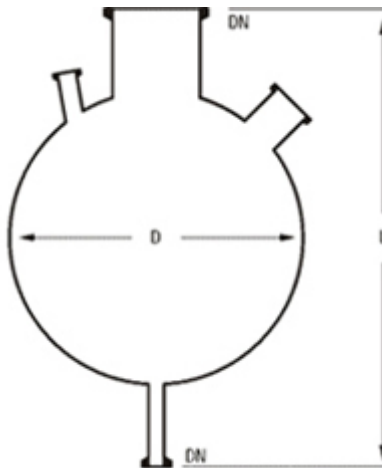




Vessels are used as reactors, receivers, separators, measuring, feeds etc. Vessels can be used under full vacuum and as per given below working pressure (Bar g).

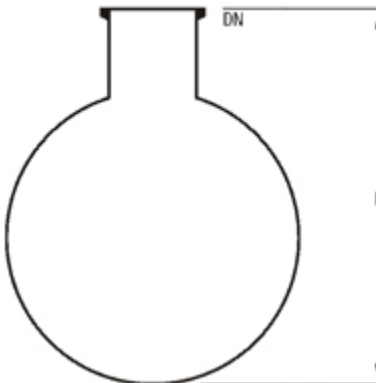
Vessels are available in spherical / cylindrical shape from 5Ltr. to 300Ltr. capacity. Vessels are provided with a bottom outlet nozzle, for which a suitable valve can be chosen from range of valves.

## SPHERICAL VESSELS GENERAL DATA



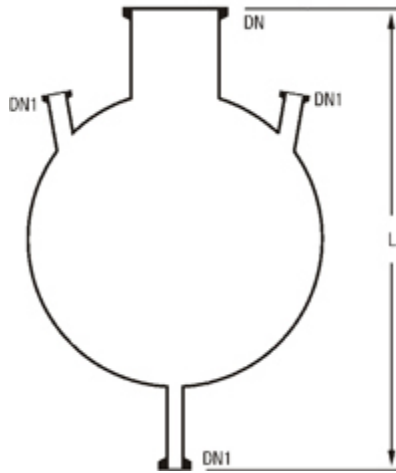
NOMINAL CAP. (LTR.)	BULB DIAMETER MM D	MAXIMUM INTERNAL PRESSURE (Bar g)	TOLERANCE OF DIAMETER MM	TOLERANCE IN LENGTH MM L
5 L	220	1.0	± 2	± 5
10 L	285	0.8	± 2	± 5
20 L	350	0.7	± 2	± 5
50 L	470	0.5	± 3	± 5
100 L	600	0.4	± 4	± 5
200 L	750	0.20	± 5	± 8
300 L	850	0.25	± 6	± 8

## SINGLE NECK SPHERICAL VESSELS



Nominal capacity(Ltr.)	DN (mm)	L (mm)	Cat. Ref.
5 L	40	270	DVSA 5
10 L	40	350	DVSA 10
20 L	80	430	DVSA 20
50 L	100	590	DVSA 50
100 L	150	740	DVSA 100
200 L	225	910	DVSA 200
300 L	300	1025	DVSA 300

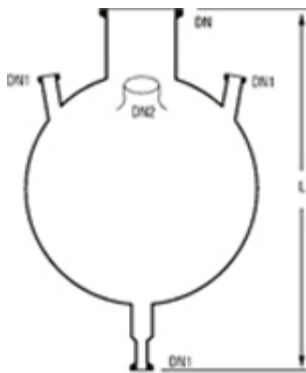
## HREE NECK BOTTOM OUTLET SPHERICAL VESSELS



Nominal capacity (Ltr)	DN	DN1	L	Cat. Ref.
5 L	40	25	345	DVSM 5
10 L	40	25	425	DVSM 10
20 L	80	25	525	DVSM 20
50 L	100	40	690	DVSM 50
100 L	150	40	840	DVSM 100
200 L	225	40	1020	DVSM 200
300 L	300	40	1155	DVSM 300

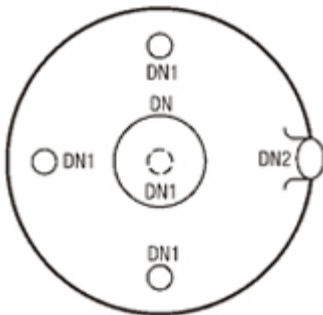


## FOUR NECK BOTTOM OUTLET SPHERICAL VESSELS



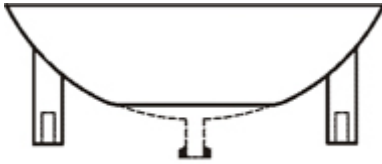
Nominal capacity(Ltr)	DN	DN1	DN2	L	CAT. REF.
5 L	50	25	40	445	DVSPL 5
10 L	50	25	40	525	DVSPL 10
20 L	80	25	40	605	DVSPL 20
50 L	100	40	100	765	DVSPL 50
100 L	150	40	100	920	DVSPL 100
200 L	225	40	100	1100	DVSPL 200
300 L	300	40	100	1215	DVSPL 300

## FIVE NECK BOTTOM OUTLET SPHERICAL VESSELS



Nominal capacity (Ltr)	DN	DN1	DN2	L	Cat. Ref.
5 L	50	25	40	445	DVSL 5
10 L	50	25	40	525	DVSL 10
20 L	80	25	40	605	DVSL 20
50 L	100	40	100	765	DVSL 50
100 L	150	40	100	920	DVSL 100
200 L	225	40	100	1100	DVSL 200
300 L	300	40	100	1215	DVSL 300

## FIVE NECK BOTTOM OUTLET SPHERICAL VESSELS

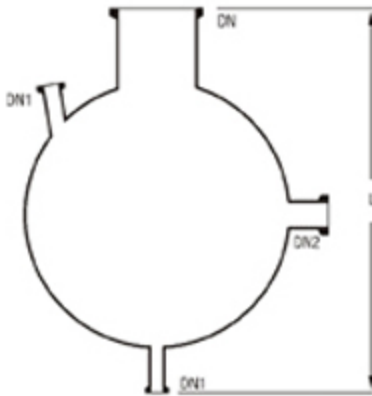


Nom inal capacity (Ltr)	DN	DN1	DN2	L	Cat. Ref.
5 L	50	25	40	445	DVS 50
10 L	50	25	40	525	DVS 10
20 L	80	25	40	605	DVS 20
50 L	100	40	100	765	DVS 50
100 L	150	40	100	920	DVS 100
200 L	225	40	100	1100	DVS 200
300 L	300	40	100	1215	DVS 300

TOP

## SPHERICAL VESSELS WITH NOZZLE AT 90°

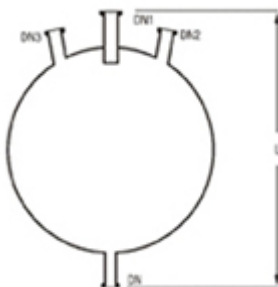
These vessels are used in circulatory boiler system. More nozzles can be provided on the equator on request .



Nominal capacity (Ltr)	DN	DN1	DN2	L	Catalogue Reference
5 L	40	25	25	345	DVSD 5
10 L	40	25	40	425	DVSD 10
20 L	80	25	40	525	DVSD 20
50 L	100	40	80	690	DVSD 50
100 L	150	40	80	840	DVSD 100
200 L	225	40	80	1020	DVSD 200
300 L	300	40	80	1155	DVSD 300

## RECEIVERS SPHERICAL VESSELS

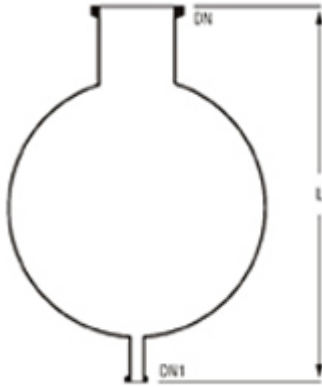
Receivers are provided with built-in drip pipe.



Nominal capacity	DN	DN1	DN2	DN3	L	Catalogue Reference
5 L	25	25	25	-	345	DVR 5
10 L	25	25	25	-	425	DVR 10
20 L	25	25	25	-	525	DVR 20
5 L	25	25	25	25	345	DVR 5
10 L	25	25	25	25	425	DVR 10
20 L	25	25	25	25	525	DVR 20

## ADDITION SPHERICAL VESSELS

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



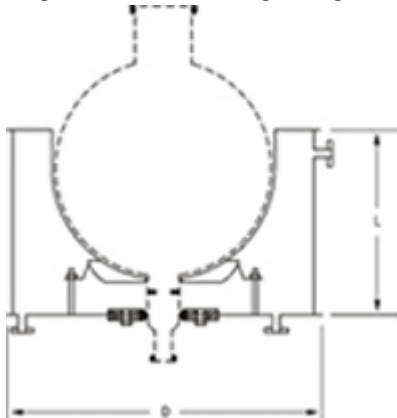
Nominal capacity	DN	DN1	L	Catalogue Reference
5L	40	25	345	DVA 5
10 L	40	25	425	DVA 10
20 L	80	25	525	DVA 20
50 L	100	40	690	DVA 50
100 L	150	40	840	DVA 100
200 L	225	40	1020	DVA 200
300 L	300	40	1155	DVA 300



## BATHS

### COOLING BATHS

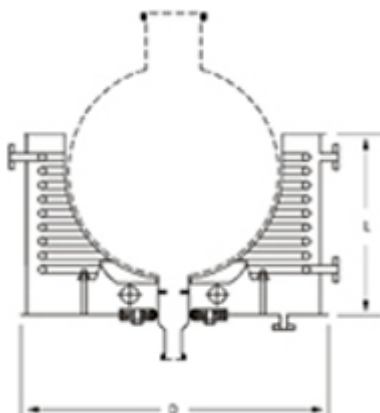
Cooling baths are used for cooling the glass vessel with ice crystals. Cooling baths are provided with a vessel holding ring, bottom outlet sealing arrangement and a lid.



VESSEL CAP. (LTR.)	D	L	CAT. REF.
5	325	350	DBHC 5
10	350	250	DBHC10
20	480	330	DBHC20
50	615	415	DBHC 50
100	720	510	DBHC100
200	900	620	DBHC200

### HEATING BATHS - WITH COIL & HEATER

M.S. Heating baths are used with electrical or steam heating for glass vessel. 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 non flame proof heaters, M.S. Coil for passing the steam or cooling water, cushioned vessel holder, a bottom outlet sealing arrangement, a lid and threaded socket type or flange type inlet and outlets.

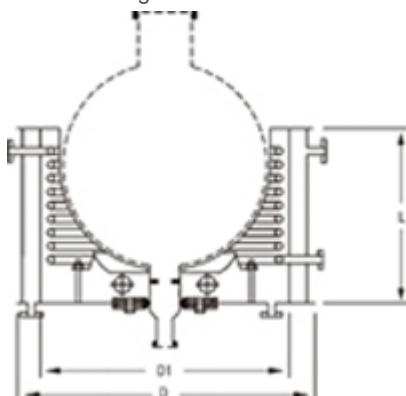


VESSEL CAP. (LTR.)	D	L	LOADING KW	CAT. REF.
5 L	325	225	2 (2x1000)	DBH 5
10 L	350	250	2 (2x1000)	DBH 10
20 L	480	330	3 (3x1000)	DBH 20
50 L	615	415	4.5 (3x1500)	DBH 50
100 L	720	510	6 (3x2000)	DBH 100

## HEATING BATHS - JACKETED WITH COIL

MS Jacketed heating bath is provided with a coil inside to circulate either steam or heat transfer fluid depending upon the application. Provision for insertion of Electrical heater is also kept.

(Non-flame proof) Heater can also be provided along with the bath on request. Although the standard heating baths are specifically designed for spherical vessels, similar baths for cylindrical vessels can also be supplied to special order. All these heating baths can be fitted with suitable temperature control equipment if required.



VESSEL CAP. (LTR.)	D1	D	L	CAT. REF.
5 L	325	395	260	DBHD5
10 L	350	420	285	DBHD10
20 L	480	550	365	DBHD 20
50 L	635	685	465	DBHD 50
100 L	730	830	560	DBHD 100
200 L	900	1050	680	DBHD 200

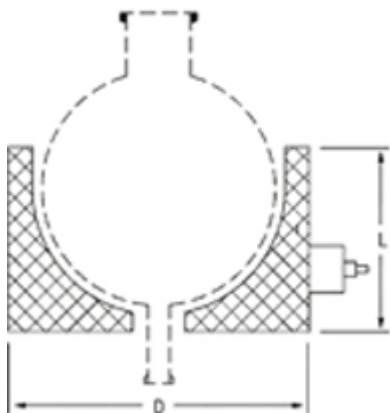
### Notes:

Powder coating / 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

## HEATING MANTLES

As an alternative to heating baths electric heating mantles can also be supplied for spherical vessels. Their heating power varies according to the nominal capacity of the vessel involved.

These heating mantles are subdivided into several heating zones each of which is equipped with a temperature probe so that the surface temperature of the vessel can be monitored. These work in conjunction with the control unit included 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.



CAPACITY VESSELS	D	L	LOADING KW	CIRCUITS	SUPPLY	CAT. REF.
5	-	-	0.6 (1x600)	1	230V	DJMD 5
10	-	-	1.0 (2X500)	3	230V	DJMD 10
20	470	245	1.5 (3X500)	3	230V	DJMD 20
50	610	305	3.6 (6X900)	3	440V	DJMD 50
100s	715	360	5.4 (6X900)	3	440V	DJMD100
200	890	450	8.1 (9X900)	3	440V	DJMD 200

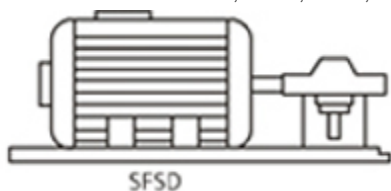
TOP

## MOTOR WITH REDUCTION GEAR BOX

Flameproof motor with reduction gearbox is supplied as standard. A motor is coupled with gearbox. The other end of the gearbox is coupled with flexible shaft.

1:7 Reduction gearbox is used with motor. 1:10 reduction gearbox can also be supplied on request. This should be specified at the time of enquiry stage.

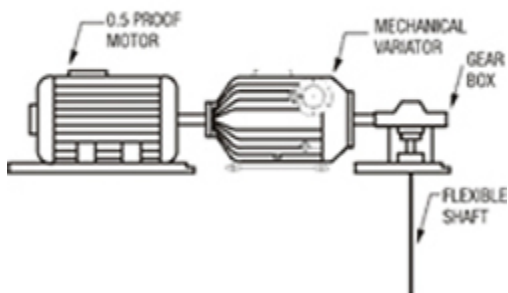
**SPECIFICATION :** 1400 RPM, 415V, 50Hz, 3 Phase supply, insulation class F, degree of protection : IP 55.



H.P.	SPEED	CAT. REF.
0.5	190	DFSD 0.5/190
0.5	130	DFSD 0.5/130
0.25	190	DFSD 0.25/190

## SPEED VARIATOR

Different variable speed stirrer drives are available for adjusting stirrer speeds to different operating conditions.



## MECHANICAL VARIATOR

Mechanical variator have been designed for either horizontal or vertical mounting, one end of the mechanical variator is coupled with motor shaft and other end is fitted with reduction gear box. Control for speed regulation is attached to one end of the control shaft. Hand wheel control is standard control provided on the unit, where selected speed can be read on the indication drum. Variable output speed between lowest 1/7 of the input speed and highest 1.7 times of the input speed can be adjusted. The variator can run in either direction at the rated HP.

## FREQUENCY VARIATOR

Non-flameproof digital microprocessor AC variable speed drives (inverters) is also available to adjust the speed of motor. This VARIATOR has got LED display for frequency, speed, setting value, voltage etc. Frequency is set by keypad or external analog signal.

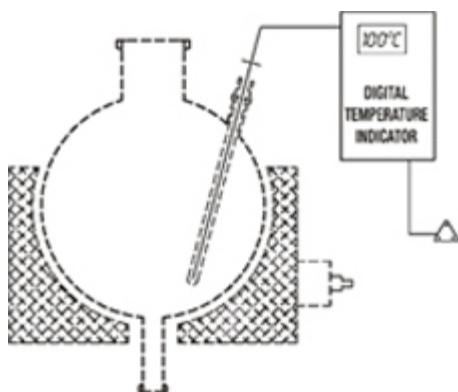
Power supply: 3 Phase, 440V, 50Hz.

Flameproof version can also be supplied on request. This should be specified at the time of enquiry stage.



## MESUEMENT AND CONTROL

### DIGITAL TEMPERATURE INDICATOR

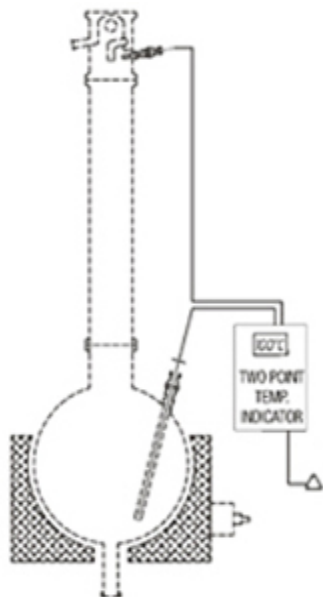


This instrument is mainly used to monitor of liquid in a typical glass distillation unit.

This instrument mainly consists of : temperature Indicator and Resistance Temperature Detectors (RTD). This instrument works on 230V, 50 Hz power supply. This displays the temperature in degree Centigrade (°C).

VESSEL CAPACITY (Ltr.)	RTD LENGTH	CAT. REF.
20	400	DDTI 20
50	500	DDTI 50
100	600	DDTI 100

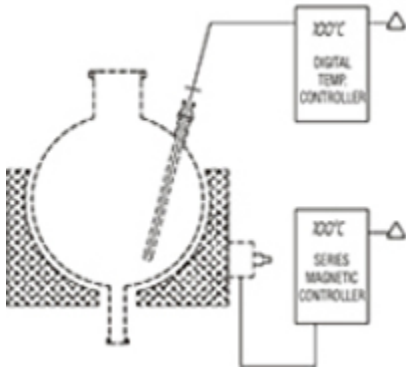
### TWO POINT DIGITAL TEMPERATURE INDICATOR



This instrument is mainly used to monitor temperature of liquid in a glass vessel and temperature of vapours of reflux divider in a typical glass distillation unit. This instrument mainly consists of Temperature Indicator and Two Resistance Temperature Detectors (RTD). This instrument works on 230V, 50Hz power supply. This display temperature in degree Centigrade (°C) a switch is provided to see the two temperature alternatively.

VESSELS CAPACITY(Ltr.)	RTD LENGTH FOR VESSEL	RTD LENGTH FOR REFLUX DIVIDER	CAT. REF.
20	400	200	DTDTI 20
50	500	225	STDT50
100	600	250	DTDTI 100
200	700	300	DTDTI 200

## CONTINUOUS TEMPERATURE CONTROLLER



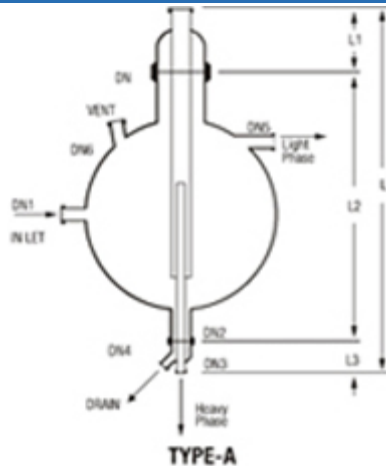
This instrument displays and controls temperature continuously by switching the power supply ON and OFF in an electrical heating equipment as per the initial settings of heating temperature, band width and reset temperature. This instrument mainly consists of a Temperature controller, a series magnetic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

RTD is put into the thermometer pocket of the glass vessel and desired settings are done. As temperature, in the vessels reaches to the set heating temperature, the temperature controller cuts the power in heating equipment OFF. 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 sizes. It displays temperature in Degree Centigrade

VESSEL CAPACITY (Ltr.)	RTD LENGTH	CAT. REF.
20	400	DKCTC 20
50	500	DKCTC50

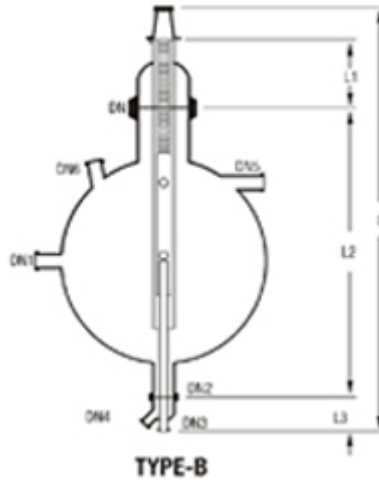
## SEPARATORS



Separators are used to separate two immiscible liquids with different densities. When these liquids allowed settling forms two separate layers, heavier at bottom and lighter at up. Mixture of liquid is continuously feeded in separator at low velocity. This allow sufficient residence time for the formation of separating layers. Light phase liquid is continuously removed from light phase outlet at the top. The Heavy phase liquid enters through dip pipe at lower end and overflows in the discharge pipe and is removed from the bottom outlet.

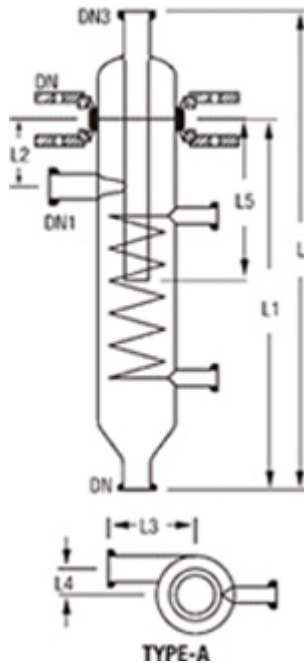
Separator can be provided with Adjustable overflow valve, (Type B) to adjust position of interface for different operating situations. Separator can also be constructed with horizontal cylindrical vessel and to provide larger separating surface. (Cat Ref. HSPS OR





NOM. CAP.	DN	INLET DN1	DN2	HEAVY PHASE OUTLET DN3	DRAIN DN4	LIGHT PHASE OUTLET DN5	VENT DN6	L	L1	L2	L3	TYPE	CAT.REF.
20L	80	25	50	25	25	25	25	80	125	525	-	A	DKPS20
50L	100	40	50	25	25	40	40	1025	150	725	-	A	DKPS50
100L	150	40	50	25	25	40	40	1175	200	825	-	A	DKPS100
200L	225	40	50	25	25	40	40	1475	250	1075	-	A	DKPS200
20L	80	25	50	25	25	25	25	1000	125	525	200	B	DKPS20
500L	100	40	50	25	25	40	40	1225	150	725	200	B	DKPS50
100L	150	40	50	25	25	40	40	1375	200	825	200	B	DKPS100

## CYCLONES

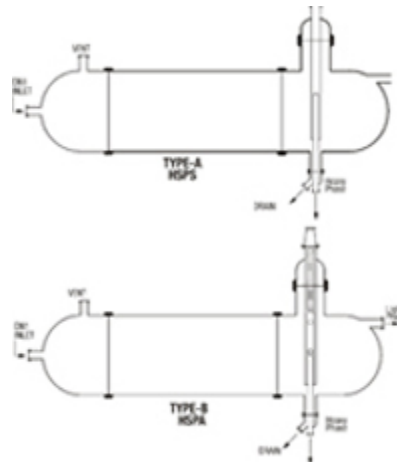


Cyclones are designed for separation not only for droplets from gases and vapours, but also for particulate solids from gases.

The overall degree of separation can be as high as 99% but this figure is governed to a large extent by the following factors.

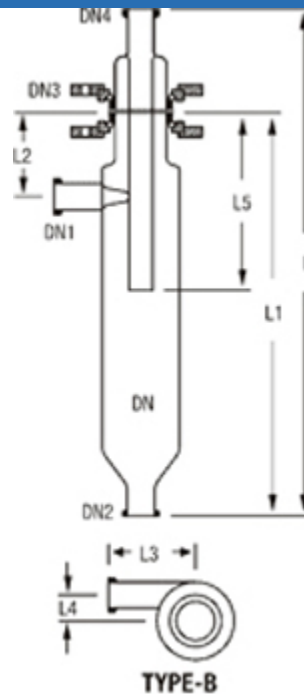
- \* Liquid loading of the gas or vapour or solids loading of the gas.
- \* Droplet or particle size range.
- \* Droplet or particle size distribution.

The following are examples of limiting droplet diameters for the standard air/water system(at ambient temperature) with a velocity in the dip pipe of 15m/sec



DN	DN1	DN2	DN3	DN4	L	L1	L2	L3	L4	L5	CAT.REF.
100	40	25	80	40	415	560	130	125	35	180	DKCY4
150	50	25	100	50	850	665	165	150	55	235	DKCY6
225	80	25	150	80	1120	870	225	200	75	320	DKCY9

## CYCLONES WITH INTERNAL COOLING COIL



DN	DN1	DN2	DN3	L	L1	L2	L3	L4	L5	CAT.REF.
100	40	25	40	715	560	130	125	35	330	DKCY 4
150	50	25	50	850	665	165	150	55	375	DKCY 6

225	80	25	80	1120	870	180	200	75	500	DKCY 9
300	100	25	100	1430	1155	215	275	100	675	DKCY 12