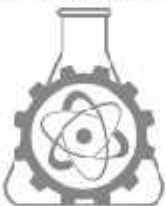


SILGLAS

glass lined reactors



Technical Collaboration with



JP Laboratories, Inc., USA
www.silglas.com



SACHIN INDUSTRIES LTD.

An ISO 9001:2008 Certified Company



SACHIN INDUSTRIES LTD, formerly **Sachin Filtech Pvt. Ltd.**, a well known manufacturer of Filter Press & Polypropylene Filter Plates since **1982**, has established an international benchmark facility to manufacture glass lined equipments in the year **2011**. Spread over an area of **1,00,000 square meters**, located amidst a lush green environment at village Rajpur, **Chhatral**, near **Ahmedabad**, this facility has been established in **Technical Collaboration** with **JP LABORATORIES, INC. USA**, a company having more than **80 patents world wide**.

The plant is equipped with state-of-the-art manufacturing machineries, computer controlled furnaces, Ultra Modern Glass Manufacturing Facility with newly innovated Glass and Hi-tech Glass lining facilities for designing & manufacturing of **Glass Lined Reactor, Agitator, Storage Tank, Distillation Column, Heat Exchanger, Agitated Nutsche Filters, Accessories, Pipe, Fittings & Valves** of international quality & best workmanship. These reactors are manufactured as per **DIN standard 28136** and in accordance with **ASME code section VIII, division 1**, for unfired pressure vessels.

Our Mission at SILGLAS, is to provide the best in the industry with continuous up gradation of quality measures for customers' satisfaction by assessing their needs in depth, be it timely supply or service for domestic as well as export markets.





Products Manufactured

A wide range of process equipment in glasslined construction are manufactured for evaporation, crystallization, sulfonation, chlorination, nitration, distillation, condensation, filtration and other processes involving corrosive chemicals.

1. M.S. Glasslined Reaction Vessels (Standard & cGMP Models)	63 Ltrs. to 20000 Ltrs.
2. M.S. Glasslined Distillation Columns, Towers & Heat Exchanger	Column dia 150 mm to 2500 mm, 2 m ² to 20 m ²
3. M.S. Glasslined Storage Tanks	63 Ltrs. to 20,000 Ltrs.
4. M.S. Glasslined Agitated Nutsche Filter	0.75 m ² to 5 m ² Filtration area
5. M.S. Glasslined Reactors with Limpet Coil	
6. Alloy metal Reactors & Heat Exchangers	
7. M.S. Glasslined Agitating Systems	Anchor, Turbine, Pitched blade, Axial propeller etc.
8. M.S. Glasslined Valves	FBV (flush bottom valves) and diaphragm valves - with or without pneumatic actuator
9. M.S. Glasslined Pipes and Fittings	All sizes



Manufacturing Facilities

Workshop:

Total Land Area	1,00,000 sq. m.
Office Floor Area	3000 sq. m.
Shop Floor Area [under crane]	30000 sq. m.
Power capacity	2200 kVA 250kVA Dgset
GAS Supply	24 hours
Equipment manufacturing capacity	60 - 80 per month
Lab & R&D Centre	600 sq. m.

Material Handling Facility:

Overhead Cranes	30 MT-9 m-4 nos. 20 MT-9 m-4 nos. 10 MT-9 m-5 nos. 5 MT -9 m-2 nos.
Jib Cranes	1 MT-4 nos.
Fork Lift	3 MT-1 no., 5 MT-1 no.
Manipulator	30 MT-1 no.



Manufacturing Facilities



Utilities:

Screw air compressor	315 CFM@7 kg/cm ² , 75HP-2 nos. 160 CFM@7 kg/cm ² , 40HP-2 nos. with refrigerated air dryer.
Standard Compressor	5 nos.

Cutting Facilities:

Gas cutting	up to 50 mm thickness
Profile cutting	up to 50 mm thickness
Plasma arc cutting machine	up to 30 mm thickness
CNC cutting machine	up to 50 mm thickness
Power Hacksaw	up to 250 mm dia

Forming Facilities:

Hydraulic press	400 MT/600 MT/1000 MT
Plate bending machine	2500 mm x 50 mm thickness 2 Nos. with Pre-Pinching

Welding Process:

SMAW, SAW, GTAW, MIG

Welding equipment & skilled resource:

Column & boom	4000 mm x 4000 mm-3 nos.
Submerged arc	1000 Amp - 4 nos. welding machine
Welding rotator	10 tonnes-4 nos. 5 tonnes-15 set.
Welding positioner	5 tonnes-10 nos.
Welding machine	400 Amp-85 nos.
MIG unit	10 nos.
Tig welding set	4 nos.
Qualified welders	1 G position-36 nos. 2 G position-10 nos. 6 G position-4 nos.
SAW operator	3 nos.

Surface Preparation Facilities:

Shot Blasting unit	4 nos.
Grinding Machines	150 nos.

Machining facilities:

Vertical Turning Lathe	2500 mm Turning Diameter
Horizontal Boring Machine	125 mm Spindle Diameter
Heavy Duty Lathes	Length 4500 mmx915 mm Center Length 3600 mmx450 mm Center Length 2500 mmx100 mm Center

Glass Frit manufacturing facilities:

Gas Fired Rotary Smelter	04 nos.
Ball Mill	1500 kg, 500 kg & 50 kg - 2 nos.

Material Sub Contracted:

Dishing / Forgings / Teflon moulding






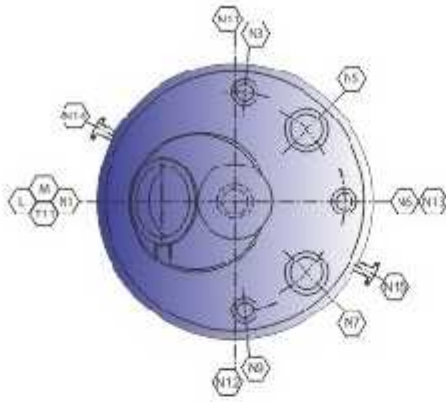
Furnaces: 1400 KW x 2 nos.
180 KW x 2 nos.
150 KW x 2 nos.
50 KW x 2 nos.



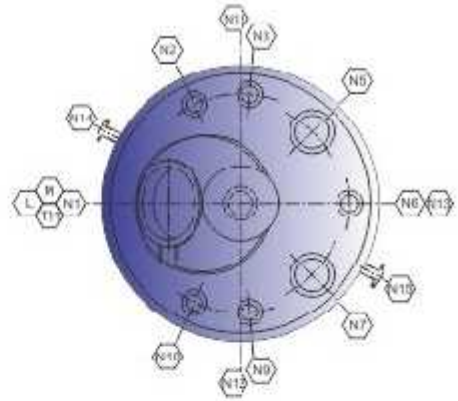
SILGLAS



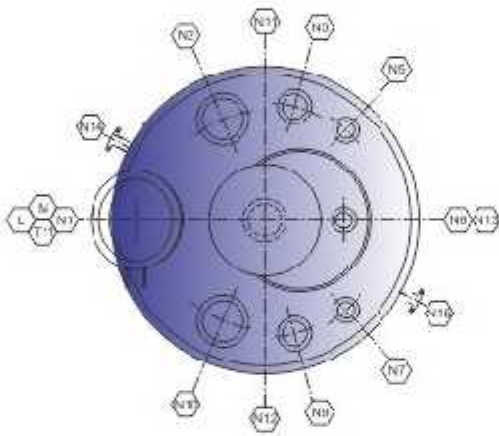
Auto Control Electric Furnace



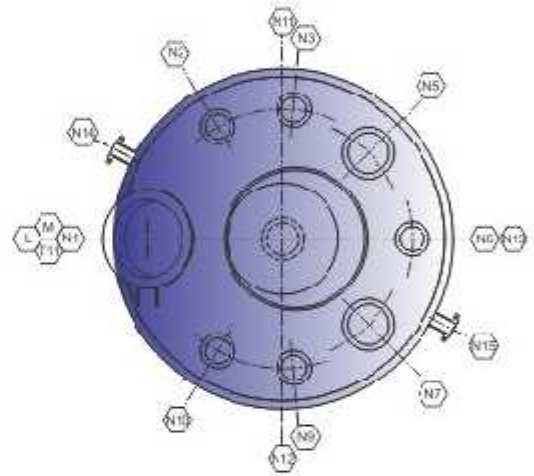
CE - 1600 & CE - 2000 Ltrs



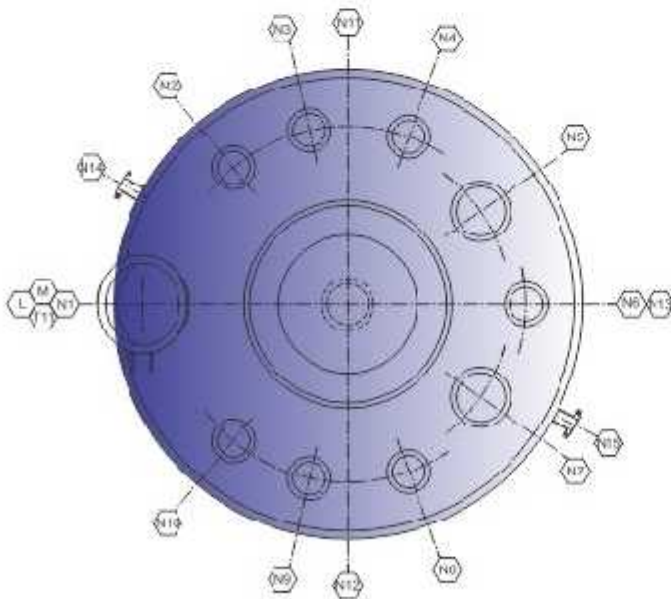
CE - 2500 & CE - 3000 Ltrs



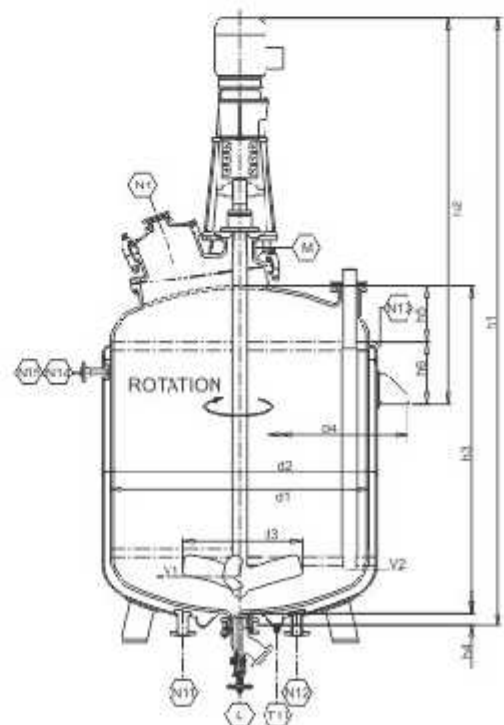
CE - 4000 Ltrs



CE - 5000 & CE - 6300 Ltrs



CE - 8000 To CE - 20000 Ltrs



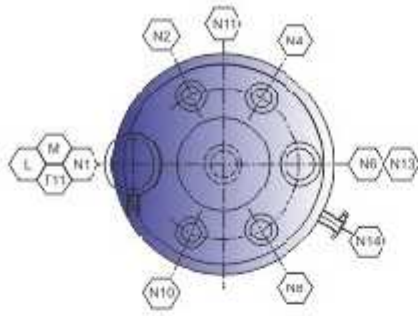


Dimensions

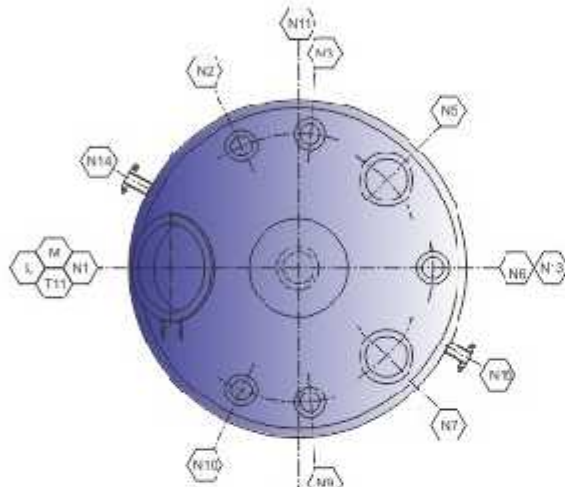
Nominal Volume(Ltrs.)	1600	2000	2500	3000	4000	5000	6300	8000	10000	12500	16000	20000
Total Volume (Ltrs.)	2045	2360	3100	3400	4920	6060	7595	9540	11770	15065	18756	22532
Jacket Volume (Ltrs.)	320	355	415	455	570	552	755	847	900	1050	1120	1306
Min Stirrable Volume												
V1 (Ltrs.)	115	115	195	195	195	210	210	215	345	345	610	610
Min Sensible Volume												
V2 (Ltrs.)	205	205	244	244	337	412	412	1067	2043	2043	2650	2650
Heat Transfer Area												
(Sq. Mtrs.)	6.5	7.5	8.6	10	12	13.4	15.6	18	20.7	25.2	29	34
d1	1400	1400	1600	1600	1800	2000	2000	2200	2400	2400	2800	2800
d2	1500	1500	1700	1700	1900	2100	2100	2300	2500	2500	2900	2900
d3	840	840	960	960	1100	1100	1100	1100	1300	1300	1500	1500
d4	1780	1780	1980	1980	2210	2414	2414	2618	2618	2618	3200	3200
h1	3310	3510	3638	3793	4207	4341	4856	5006	5429	6029	6160	6730
h2	2284	2284	2423	2423	2747	2889	2889	3034	3384	3384	3804	3795
h3	1611	1811	1859	2014	2297	2325	2840	3000	3180	3780	3806	4385
h4	80	80	80	80	80	86	86	86	84	84	82	82
h5	285	285	344	344	372	424	424	457	614	614	732	732
h6	380	380	380	380	545	535	535	540	605	605	800	800
Drain Valve	100x80	100x80	100x80	100x80	100x80	150x100	150x100	150x100	150x100	150x100	150x100	150x100
Drive Power (H.P)	5	5	7.5	7.5	10	12.5	12.5	15	20	25	30	30
Approx Weight (Kg.)	2682	2860	3437	3606	5241	5756	6498	7648	9527	10743	13680	15202

Nozzles

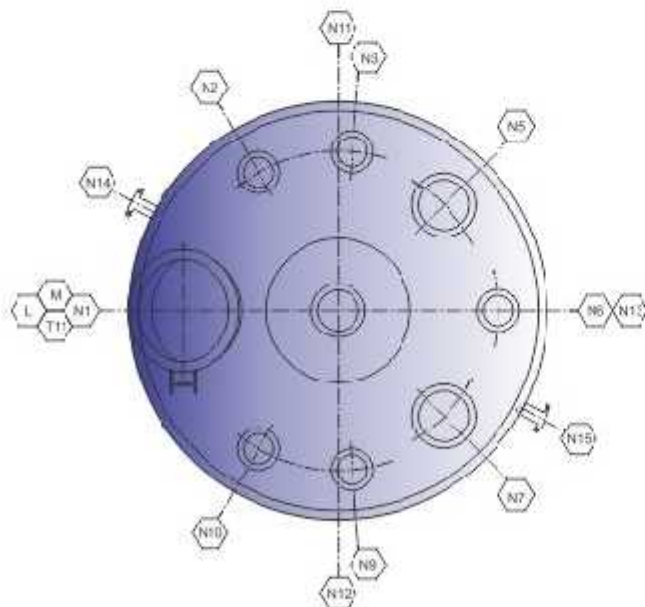
Nominal Volume	1600	2000	2500	3000	4000	5000	6300	8000	10000	12500	16000	20000
N1	350x450	350x450	350x450	350x450	500	500	500	500	500	500	500	500
N2,N10	-	-	100	100	250	150	150	150	200	200	200	200
N3	100	100	100	100	150	150	150	150	200	200	200	200
N4	-	-	-	-	-	-	-	150	200	200	200	200
N5,N7	200	200	200	200	100	250	250	300	300	300	300	300
N6	100	100	100	100	100	150	150	150	200	200	200	200
N8	-	-	-	-	-	-	-	150	200	200	200	200
N9	100	100	100	100	150	150	150	150	200	200	200	200
M	150	150	150	150	200	200	200	200	250	250	250	250
L	100	100	100	100	100	150	150	150	150	150	150	150
N11,N15	50	50	50	50	50	80	80	80	80	80	80	80
N12,N14	50	50	50	50	50	80	80	80	80	80	80	80
N13,T11	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP



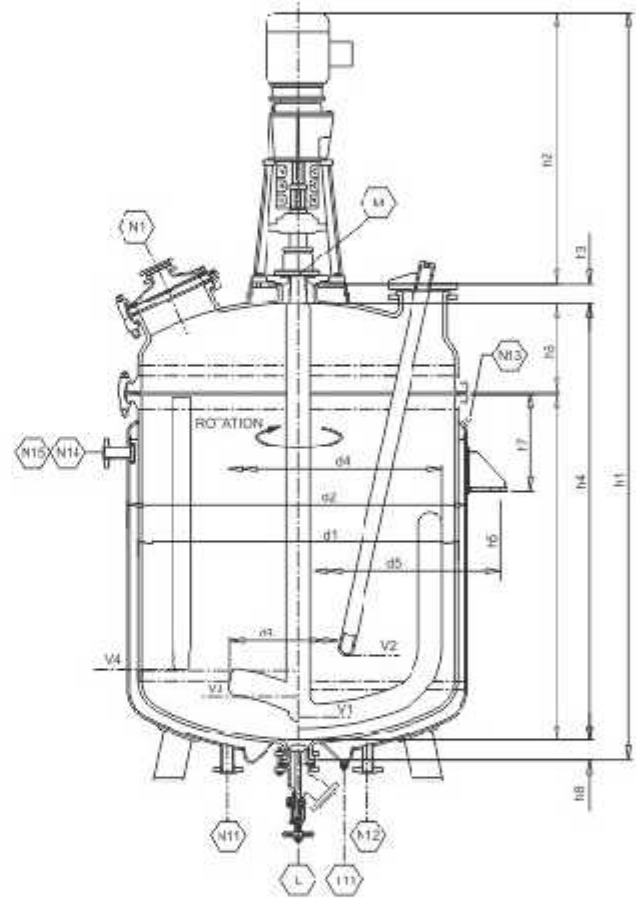
63-630



1000-3000



4000-6300





Dimensions

Nominal Volume (Ltrs.)	63	100	160	250	500	630	1000	1600	2000	2500	3000	4000	5000	6300
Total Volume (Ltrs.)	93	135	250	340	730	855	1470	2300	2580	3500	3800	5385	6800	8200
Jacket Volume (Ltrs.)	22	33	71	95	150	155	210	287	340	375	455	522	560	630
Min Stirrable Volume V1 (With ANC) (Ltrs.)	6	6	15	15	32	32	35	60	60	69	69	102	117	158
Min Stirrable Volume V2 (With ANC) (Ltrs.)	34	34	72	90	204	234	305	465	465	604	634	900	773	1185
Min Stirrable Volume V3 (With IMP) (Ltrs.)	12	12	32	32	52	62	78	150	150	126	126	250	242	242
Min Stirrable Volume V4 (With IMP) (Ltrs.)	19	19	64	85	37	87	102	215	215	277	282	326	1132	1000
Heat Transfer Area (Sq. Mtrs.)	0.6	0.9	1.2	1.8	2.7	3.1	4.6	6.2	7.3	8.3	9.2	11.7	13	16.1
d1	508	508	800	800	1300	1000	1200	1400	1400	1600	1600	1800	2000	2000
d2	600	600	900	900	1100	1100	1300	1500	1500	1700	1700	1900	2100	2100
d3	300	300	480	480	600	630	720	840	840	960	960	1100	1100	1100
d4	420	420	670	570	880	830	1060	1250	1250	1440	1440	1630	1630	1810
d5	756	756	1056	1056	1355	1355	1559	1780	1780	1980	1980	2210	2414	2414
h1	1558	1758	1998	2190	2395	2550	2798	3272	3472	3598	3753	4297	4476	4976
h2	828	828	1026	1026	1372	1072	1072	1282	1282	1348	1348	1577	1700	1700
h3	70	70	90	90	90	90	90	100	100	100	100	130	130	130
h4	590	790	812	1004	1155	1310	1560	1810	2010	2070	2225	2510	2560	3060
h5	400	600	522	714	845	1000	1200	1400	1600	1600	1755	2000	2000	2500
h6	180	180	280	280	300	330	350	400	400	460	460	500	550	550
h7	300	300	320	360	405	432	432	475	475	485	485	630	640	640
h8	70	70	70	70	78	78	76	80	80	80	80	80	86	86
Drain Valve	80x50	30x50	100x80	100x80	100x80	100x80	100x80	100x80	100x80	100x80	100x80	100x80	150x100	150x100
Drive Power (H.P)	1	1	2	2	3	3	3	5	5	7.5	7.5	10	15	15
Approx Weight (Kg.)	445	500	935	1038	1532	1630	2122	2835	3014	3631	3801	5572	6190	6924

Nozzles

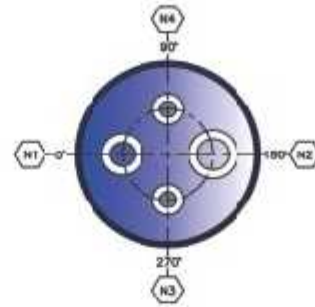
Nominal Volume	63	100	160	250	500	630	1000	1600	2000	2500	3000	4000	5000	6300
N1	100	100	150	150	250	250	350x450	350x450	350x450	350x450	350x450	500	500	500
N2,N10	40	40	50	50	100	100	100	100	100	100	100	150	150	150
N3	-	-	-	-	-	-	100	100	100	100	100	150	150	150
N4	80	80	80	80	100	100	-	-	-	-	-	-	-	-
N5,N7	-	-	-	-	-	-	200	200	200	200	200	250	250	250
N6	80	80	80	80	150	150	100	100	100	100	100	150	150	150
N8	50	50	80	80	100	100	-	-	-	-	-	-	-	-
N9	-	-	-	-	-	-	100	100	100	100	100	150	150	150
M	50	50	80	80	125	125	125	150	150	150	150	200	200	200
L	80	80	100	100	100	100	100	100	100	100	100	100	100	150
N11	40	40	40	40	50	50	50	50	50	50	50	50	80	80
N12	-	-	-	-	-	-	-	50	50	50	50	50	80	80
N14	40	40	40	40	50	50	50	50	50	50	50	50	80	80
N15	-	-	-	-	-	-	-	50	50	50	50	50	80	80
N13,T11	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP



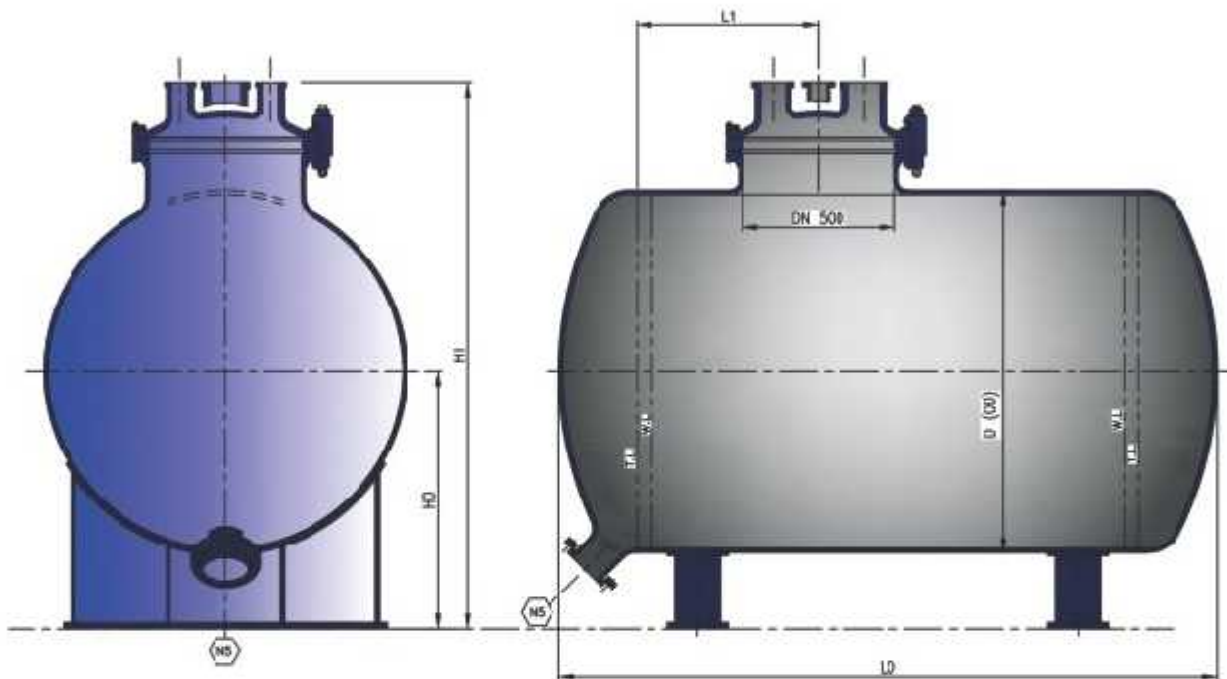
Range: 1,600 Ltrs. to 20,000 Ltrs.



Range: 63 Ltrs. - 12,500 Ltrs.



1000 Ltrs To 20000 Ltrs



All dimensions are in mm

NOMINAL CAPACITY (Ltrs)	TOTAL CAPACITY (Ltrs)	DIMENSIONS					NOZZLES (DN)					WEIGHT (~Kg)
		D	L0	L1	H0	H1	N1	N2	N3	N4	N5	
1000	1240	1000	1800	450	900	1735	80	100	50	50	10C	900
1600	1740	1200	1800	450	850	1785	80	100	50	50	10C	1020
2000	2145	1200	2175	450	850	1785	80	100	50	50	10C	1700
3000	3390	1400	2520	550	1010	2045	80	100	50	50	10C	2250
4000	4355	1600	2500	550	1110	2265	80	100	50	50	10C	2650
5000	5835	1800	2675	600	1150	2400	80	100	50	50	10C	3400
6300	7240	1800	3200	650	1150	2400	80	100	50	50	10C	3900
8000	8370	2000	3200	650	1300	2655	80	100	50	50	10C	4900
10000	11340	2000	4000	700	1300	2655	80	100	50	50	10C	5500
12500	13755	2200	4100	700	1550	3010	80	100	50	50	15C	6550
16000	17545	2400	4500	750	1650	3210	80	100	50	50	15C	8210
20000	21230	2600	4600	750	1700	3415	80	100	50	50	15C	9200

Note: The specification mentioned are for reference purpose only and we reserve the rights to modify due to continuous improvement in technology



Mild Steel Glasslined Storage Tanks



Spares & Accessories



Flush bottom outlet valve



Center Opening Cover & Manhole Cover



Top Dish



Glass lined Pipes & Fitting

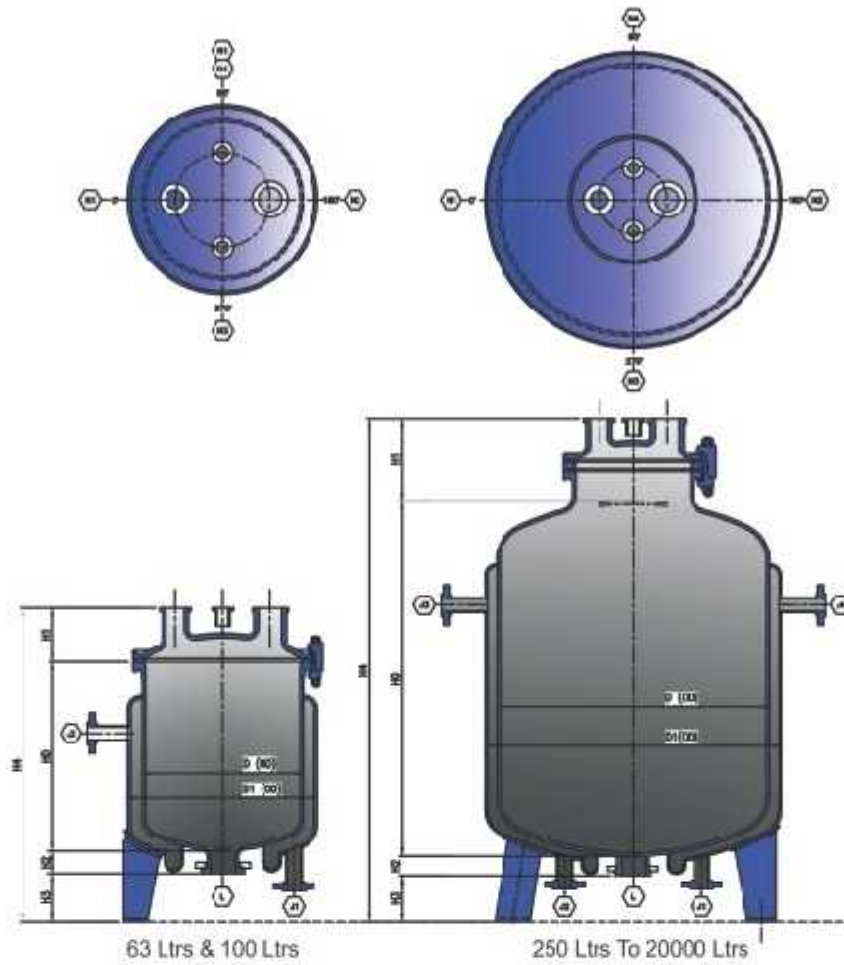


Agitator & Baffles



CBRT / Rat type baffle / Anchor / Straight thermowell

Vertical Jacketed / Unjacketed Tanks



All dimensions are in mm.

NOMINAL CAPACITY (Ltrs)	TOTAL CAPACITY (Ltrs)	DIMENSIONS						NOZZLES (DN)					WEIGHT (~kg)	JACKET CAPACITY (Ltrs)	DIMENSIONS			HEATING SURFACE AREA(m ²)	NOZZLES (DN)				WEIGHT (~kg)
		D	H0	H1	H2	H3	H4	N1	N2	N3	N4	L			D1	H3	H4		J1	J2	J3	J4	
63	87	508	450	190	70	150	860	80	100	50	50	80	150	26	600	127	837	0.62	40	-	40	-	212
100	135	508	600	190	70	150	1010	80	100	50	50	80	190	33	600	127	987	0.90	40	-	40	-	300
160	240	800	522	210	80	150	962	80	100	50	50	100	350	71	900	127	939	1.20	40	-	40	-	480
250	340	800	1000	330	80	55	1465	80	100	50	50	100	475	95	900	115	1525	2.15	40	-	40	-	650
500	730	1000	1155	355	78	65	1653	80	100	50	50	100	600	135	1100	125	1713	3.67	50	-	50	-	990
630	900	1000	1355	355	80	65	1855	80	100	50	50	100	720	160	1100	125	1915	3.97	50	-	50	-	1130
1000	1470	1200	1560	355	80	80	2075	80	100	50	50	100	1110	230	1300	105	2100	6	50	-	50	-	1660
1600	2060	1400	1610	355	80	80	2125	80	100	50	50	100	1200	278	1500	105	2150	6.5	50	50	50	50	2000
2000	2385	1400	1810	355	80	80	2325	80	100	50	50	100	1350	355	1500	105	2350	7.25	50	50	50	50	2100
2500	3100	1600	1860	355	80	50	2340	80	100	50	50	100	1780	415	1700	105	2400	8.6	50	50	50	50	2500
3000	3400	1600	2015	355	80	50	2500	80	100	50	50	100	1970	455	1700	105	2555	10	50	50	50	50	2950
4000	4920	1800	2300	355	80	90	2835	80	100	50	50	100	2760	570	1900	150	2895	12	50	50	50	50	3860
5000	6598	2000	2480	355	86	70	2991	80	100	50	50	150	3860	662	2100	160	3081	14.2	80	80	80	80	5230
6300	7595	2000	2840	355	86	55	3336	80	100	50	50	150	4750	755	2100	130	3411	16.6	80	80	80	80	6100
8000	9750	2200	3000	355	86	104	3545	80	100	50	50	150	5140	785	2300	192	3547	18	80	80	80	80	6490
10000	11770	2400	3157	380	84	385	3981	80	100	50	50	150	6160	855	2500	450	4046	20.70	80	80	80	80	8565
12500	15065	2400	3780	380	84	395	4614	-	-	-	-	150	6700	1050	2500	450	4669	25.2	80	80	80	80	9150
16000	18756	2800	3806	380	82	255	4523	-	-	-	-	150	7400	1120	2900	322	4590	29	80	80	80	80	11000
20000	22995	2800	4385	380	82	233	5080	-	-	-	-	150	8900	1306	2900	288	5135	34	80	80	80	80	12980

Note: The specification mentioned are for reference purpose only and we reserve the rights to modify due to continuous improvement in technology



Mild Steel Glasslined Storage Tanks



Flanged type receivers



Monoblock type receivers

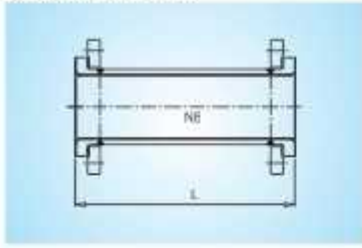


cGMP Reactors



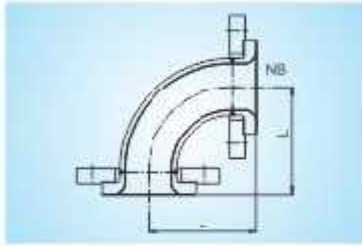


STRAIGHT PIPES



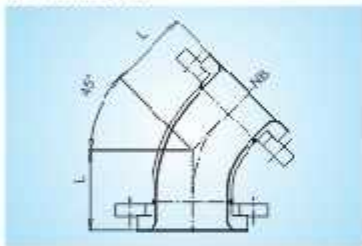
NB	MM	25	32	40	50	65	80	100	125	150	200	250	300
	INCH	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
L (MIN MAX)		100-400	100-400	100-500	100-600	100-600	100-800	100-1000	150-1000	150-1500	150-1500	150-1500	150-2000

90° ELBOWS



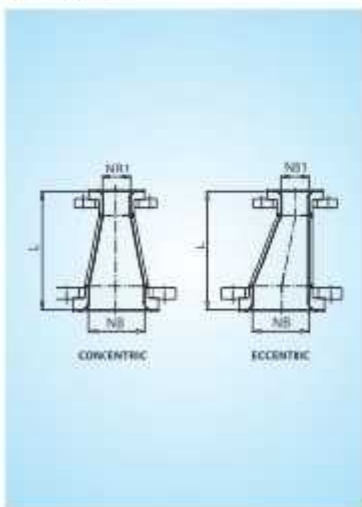
NB	MM	25	32	40	50	65	80	100	125	150	200	250	300
	INCH	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
L		90	100	105	115	120	135	155	175	195	260	315	350

45° ELBOWS



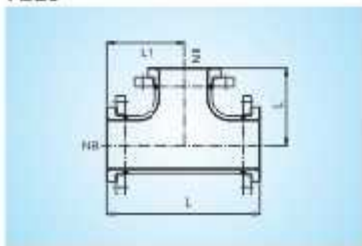
NB	MM	25	32	40	50	65	80	100	125	150	200	250	300
	INCH	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
L		60	65	70	80	85	95	105	125	150	180	220	260

REDUCERS



NB	NB1	25	32	40	50	65	80	100	125	150	200	250	
		MM	INCH	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"
32	1¼"	140											
40	1½"	140	140										
50	2"	140	140	140									
65	2½"	150	150	150	150								
80	3"		160	160	160	160							
100	4"			175	175	175	175						
125	5"				200	200	200	200					
150	6"					225	225	225	225				
200	8"							250	250	250			
250	10"								300	300	300	300	
300	12"									350	350	350	350

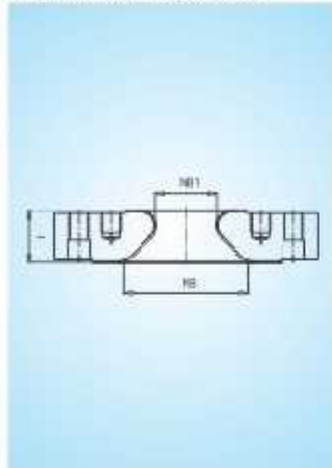
TEES



NB	MM	25	32	40	50	65	80	100	125	150	200	250	300
	INCH	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
L		180	200	210	230	240	270	310	350	390	520	630	700
L1		90	100	105	115	120	135	155	175	195	260	315	350

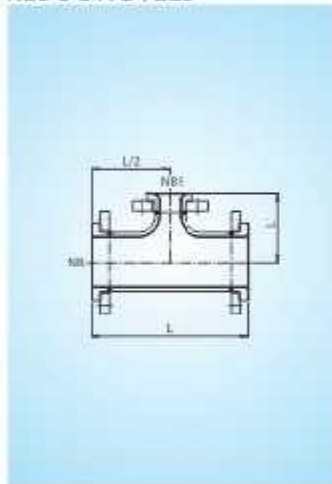


REDUCING FLANGES



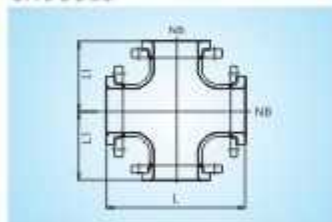
NB		NB1	25	32	40	50	65	80	100	125	150	200
MM	INCH		1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"
32	1¼"	L1	35									
40	1½"		35	35								
50	2"		35	35	35							
65	2½"		35	35	35	35						
80	3"		35	35	35	35	35					
100	4"		45	45	45	45	45	45				
125	5"				45	45	45	45	45			
150	6"					45	45	45	45	45		
200	8"					45	45	45	45	45	45	
250	10"								45	45	45	45

REDUCING TEES



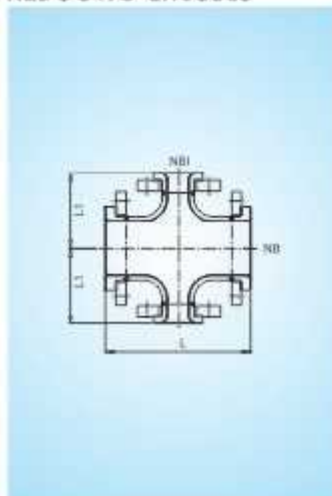
NB		L	NB1	25	32	40	50	65	80	100	125	150	200	250
MM	INCH			1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"
32	1¼"	200	L1	95										
40	1½"	210		95	100									
50	2"	230		100	105	110								
65	2½"	240		105	110	115	120							
80	3"	270		115	120	125	130	135						
100	4"	310		125	130	135	140	145	150					
125	5"	350		140	145	150	155	160	165	170				
150	6"	390		155	160	165	170	175	180	185	190			
200	8"	520		185	190	195	200	205	210	215	220	225		
250	10"	630		230	235	240	245	250	255	260	265	270	275	
300	12"	700		290	295	300	305	310	315	320	325	330	335	340

CROSSES



NB	MM	25	32	40	50	65	80	100	125	150	200	250	300
	INCH	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	L	180	200	210	230	240	270	310	350	390	520	630	700
	L1	90	100	105	115	120	135	155	175	195	260	315	350

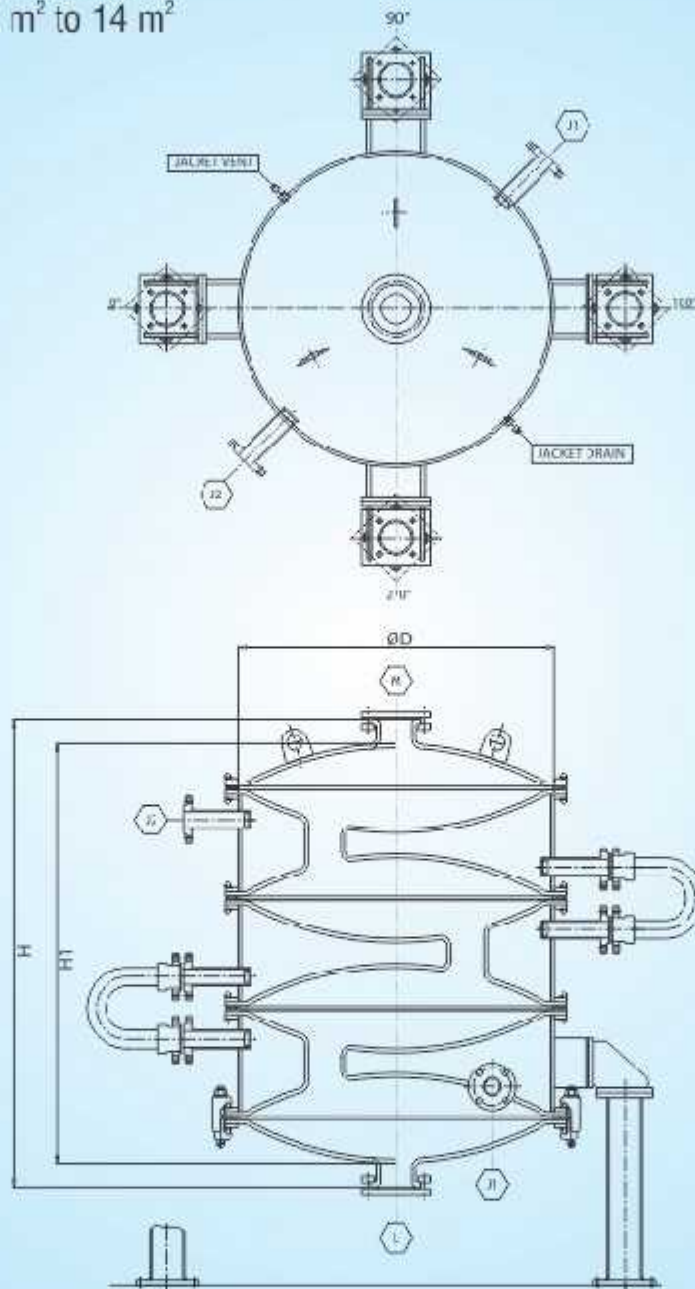
REDUCING CROSSES



NB		L	NB1	25	32	40	50	65	80	100	125	150	200	250
MM	INCH			1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"
32	1¼"	200	L1	95										
40	1½"	210		95	100									
50	2"	230		100	105	110								
65	2½"	240		105	110	115	120							
80	3"	270		115	120	125	130	135						
100	4"	310		125	130	135	140	145	150					
125	5"	350		140	145	150	155	160	165	170				
150	6"	390		155	160	165	170	175	180	185	190			
200	8"	520		185	190	195	200	205	210	215	220	225		
250	10"	630		230	235	240	245	250	255	260	265	270	275	
300	12"	700		290	295	300	305	310	315	320	325	330	335	340



Plate Type Heat Exchanger: Size - 2 m² to 14 m²

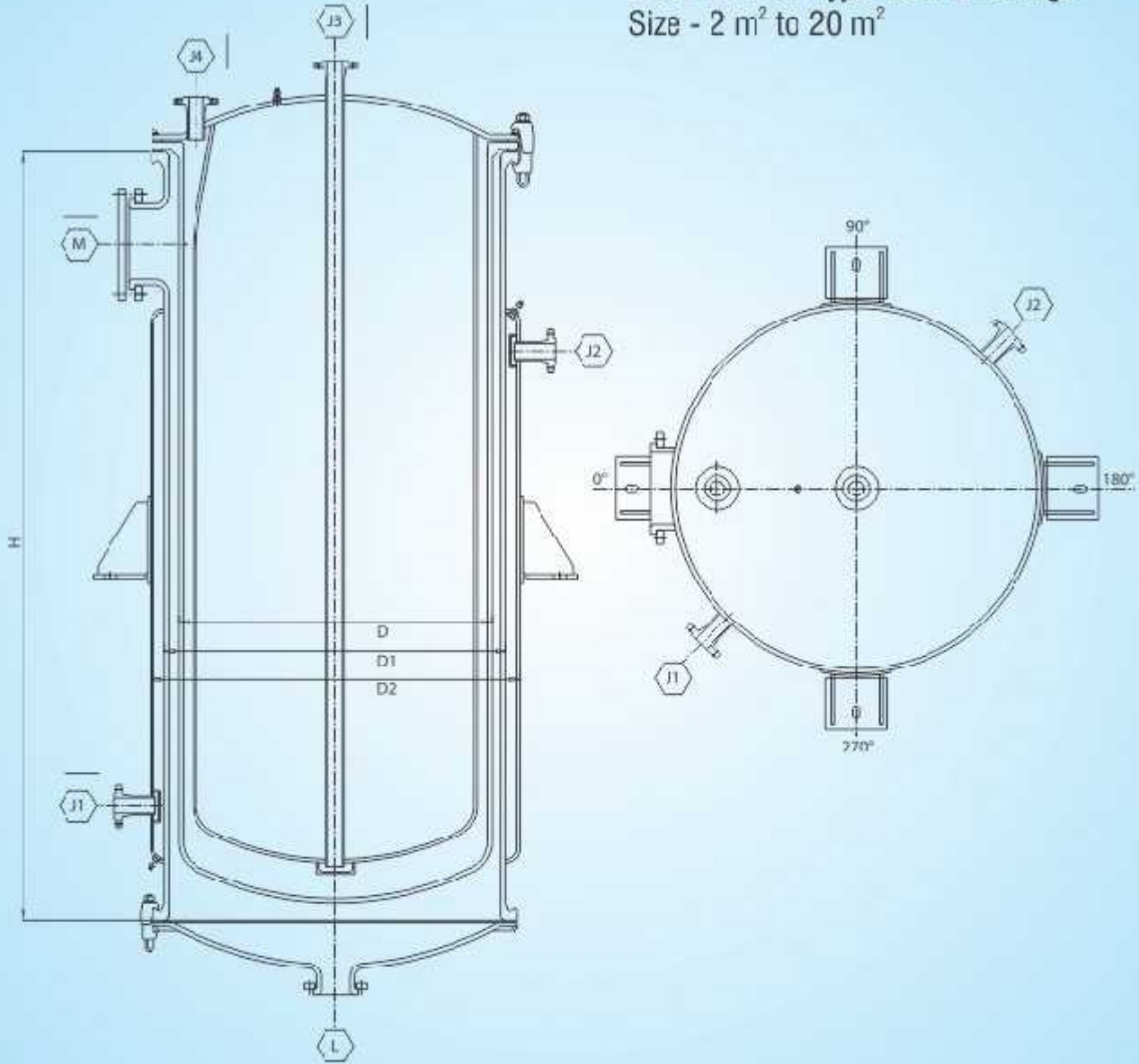


All dimensions are in mm.

HEAT TRANSFER AREA (m ²)	INNER VESSEL VOLUME (ltrs)	JACKET VOLUME (ltrs)	ØD	H1	H	NOZZLES			
						J1	J2	M	L
2	200	255	820	1157	1317	40	40	80	80
4	400	450	1020	1350	1510	50	50	100	100
6	510	600	1020	1705	1865	50	50	100	100
8	850	1000	1200	2013	2173	50	50	100	100
10	1200	1150	1400	1880	2080	50	50	150	150



Shell in Shell Type Heat Exchanger Size - 2 m² to 20 m²



All dimensions are in mm.

HEAT TRANSFER AREA (m ²)	ØD	ØD1	ØD2	H	NOZZLES					
					J1	J2	J3	J4	M	L
2	324	406	508	1150	25	25	25	25	100	50
4	500	600	700	1600	25	25	25	25	150	50
6	600	700	800	1900	40	40	40	40	150	80
8	750	850	950	2050	50	50	50	50	200	80
10	750	850	950	2450	50	50	50	50	200	80
12	900	1000	1100	2485	50	50	50	50	250	80
14	1000	1100	1200	2500	50	50	50	50	250	80
16	1100	1200	1300	2700	50	50	50	50	250	80
20	1200	1300	1400	3010	50	50	50	50	300	100



Distance piece



Bend



Equal T



Reducer





Glass Lined Heat Exchangers

Plate Type Heat Exchanger:

Size - 2 m² to 14 m²

Shell in Shell Type Heat Exchanger

Size - 2 m² to 20 m²



Glass lined Agitated Nutsche Filter



Capacity : 0.75 m² to 5 m² Filtration area



Glass Lined Distillation Columns



Type : jacketed & unjacketed
Dia. Range : 200 mm to 2200 mm



Design Parameters



Description	Inner vessel	Jacket
Design pressure	6kg/cm ² /F.V.	6kg/cm ²
Design temperature	-25 to 200°C	-25 to 200°C
Max. allowable pressure	6 kg/cm ² G/F.V.	6kg/cm ² G
Final hydrostatic test	6kg/cm ² G	6kg/cm ² G
Radiography shell/head	Spot /full	Nil/full
Joint efficiency	0.85/1.0	0.70/1
Corrosion allowance	1.0/0.0/0.0	1.0/0.0/wetted/not wetted/GL

Material & Grades



Main shell, heads, blind flange, manhole cover & Center opening cover (COC)	Eramel Quality steel SA 285 - Gr C SA 516M GR. 380
Manhole (MH), main shell & COC body flange & main shell nozzles, MH protection ring, spind e	Eramel quality forging SA 836M or SA 181M Cl 60
Pad plate, agitator connecting head, reducing flange, Agitator and baffle pipe & GL Pipes	Eramel quality forging SA836M or SA 181M CL 60 or SA 105M Eramel quality pipe SA 106 Gr B.
Nozzle backing flange (split type)	SA 216 M Gr. WCB or SA 285 - Gr C/IS 2062 GRB
C Clamp & J bolts	SA 105M
Gasket	PTFE envelope-non-asbestos with SS304 corrugated ring inserts
Nozzle bolt & nuts	IS 1367 CL 4/4.6
Jacket shell heads & closer ring	SA 285 - Gr C
Jacket nozzle necks	SA 106 Gr. B
WNRF/ SORF flange for jacket nozzle supports	SA 105 Gr. B
Drive unit components	Carbon steel eqvt. To IS 2062 / Cl, IS 210 Gr. 150
Valves (flush & diaphragm type)	C.I. - IS 210 Gr. 260
Fittings (bend, tee, reducer etc.)	C.I. - IS 210 Gr. - 150/SA 234 Gr. WPB SA 234M Gr. WPB or IS -210 Gr. 150





Testing Procedures



BASE METAL TEST:

- > **CHEMICAL:** Carbon sulphur test to ascertain composition of metal Testing to determine manganese and silicon component in the metal.
- > **PHYSICAL:** Tensile, bend and Impact test are done at accredited laboratory

WELDING TEST:

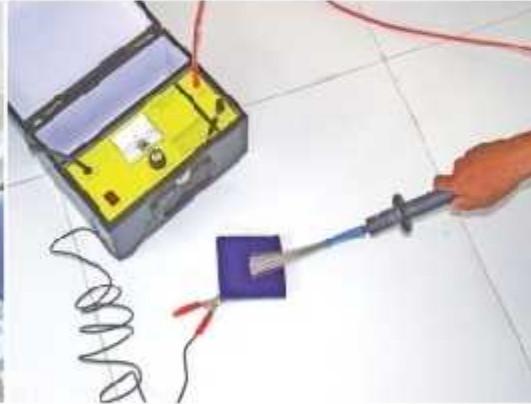
- > Dye penetration test for detecting superficial defects on the metal surface.
- > Radiography examination to detect welding defect(sub- contracted)
- > Ultrasonic test for detecting welding defects





Testing Facility:

▶ Non destructive test	Radiography test (Gamma Ray) Ultrasonic test (Ultrasonic flaw detector) Liquid penetrant TEST
▶ Radiograph processing	Dark room
▶ Radiograph evaluator	Film viewer
▶ Calibration of pressure gauge	Dead weight tester
▶ G.L. thickness measurement	Magnetic base digital thickness gauge
▶ Discontinuity checking	High voltage spark testers
▶ Hydrostatic test	Plunger pump of capacity 20kg/cm ²
▶ Vacuum test	Vacuum pump
▶ Acid corrosion test	As per DIN ISO -2743
▶ Alkaline corrosion test	As per DIN ISO -2745
▶ Thermal Shock Test	As per DIN-51167
▶ Impact test	As per DIN ISO-4532
▶ Electrical Instrumentation	Loop calibrator, universal calibrator





Glass Lining Test:

- > Glass fritraw material test
- > Alkali resistance test of glass as per DIN standards
- > Acid resistance test for glass as per DIN standards
- > Thermal shock resistance test for glass lining
- > Spark test to check glasslining continuity
- > Water impregnation test





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