



# FLUOROPOLYMER & THERMOPLASTIC

VALVES & PIPING SYSTEM

**"HI-TECH"**

An ISO 9001:2008 Certified Manufacturing Unit



**UNP Polyvalves**

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FLUOROPOLYMER / THERMOPLASTIC – VALVES & PIPING SYSTEM

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Standards

UNP Polyvalves (India) Pvt. Ltd. is manufacturing giant that produces various types of corrosion free valves, pipes and pipe fittings manufactured in advanced engineering plastics.

Kicked off two decades ago, with manufacturing of ball valves ranging for 15 NB to 50NB, today UNP Polyvalves has the product range in valves comprising of Ball, Diaphragm, Butterfly, Ball Check, Foot, Sight glass, Sampling, Strainers, Lined valves, Pipes & Fittings etc. UNP Polyvalves also specializes in single shot molding capacity up to 30kg, which is an achievement in itself.

Envisioned for quality and reliability, UNP Polyvalves aims for highest level of customer satisfaction through its solutions with the commitment for excellence in all spheres of business.

Thus, UNP Polyvalves possesses five skill sets headed by highly knowledgeable, technically and administratively experienced entrepreneurs. These experts lead and guide the team of technically qualified engineers with a vision to offer elevated quality standards, optimum realization of value for money and satisfaction to the customers.

Over the years, UNP Polyvalves has been dealing with almost every leading chemical, petrochemicals, pharmaceuticals related giants in India and is also exporting to such projects overseas in the countries like Bangladesh, Brazil, Egypt, Indonesia, Kenya, Kuwait, Thailand, U.A.E, Morocco, Chile, Qatar, U.S.A. et al.

## ACHIEVEMENTS

UNP Polyvalves has permanently resolved the problems for piping systems of steel industries, Chloralkali projects and many other chemical plants with introduction of right material of construction for their most aggressive and corrosive applications. UNP Polyvalves has carried out numerous projects and has approvals of major project consultants of India and abroad. Consultants such as UHDE, Jacobs H&G, Datal Mott Macdonald, Chemtex, Toyo Engineering, TUV India, Kvaerner Powergas, Kvaerner John Brown, EIL etc.

## SCOPE

To meet this ever growing demand, UNP Polyvalves has its base spread over three plants at Baroda, Gujarat, where full fledge manufacturing activities are carried out here under one roof. The company has its indigenous marketing base at Thane, Maharashtra to bump into its all kind of marketing and sales requirements. UNP Polyvalves also cherishes a team of well qualified technical experts for research and development as well for production,

Survival of the fittest is policy of nature

Only Quality lasts forever, we practice



# Special purpose Hi-definition Valves

## GENERAL PROPERTIES OF POLYMERS

Technical Properties	Specific Gravity	Water Absorption %	Hardness Rockwell (R)	Tensile Strength Yield PSI	Impact Strength Notched ft. lb/in	Elongation At break (%)	HDT °C	Injection Molding Temp. °C	Max Working Temp. °C
Normal Grade Polypropylene	0.90-0.91	0.01-0.03	50	4400	1.5-2.5	200	90	200-300	80-85
Isotactic Polypropylene	0.90	0.01	70	4800	2.2-2.7	200	142	200-300	120
PVDF	1.77-1.78	0.03	76-80	7000	2.0-4.0	50-250	168	200-300	-40 to +140
ETFE	1.70	0.007	75	6700	2.0	300	176	310-330	-100 to +160
FEP	2.15	0.004	80	3400	2.9	325	260	350-370	205
PTA	2.15	< 0.03	72	3600	1.2	300	305	350-370	260

### Advantages Of Isotactic Polypropylene v/s Normal Grade PP

- 1 Isotactic Polypropylene is a fractional MFI homopolymer therefore it has sufficiently better toughness than any other homopolymer
- 2 Due to the presence of atmospheric oxygen, Degradation and Oxidation of normal grade PP is inevitable; even when there is no direct sunlight, while ISOTACTIC POLYPROPYLENE is immune to such degradation & oxidation.
- 3 Chemical resistance of ISOTACTIC PP is more than that of normal grade PP even at an elevated temperature.
- 4 Isotactic polypropylene has got excellent heat resistance upto 120°C as against 85-90°C of normal grade PP. w.r.t. water.

- 5 This grade is proven in pickling lines (CRM) as well as ARP in steel industries for handling HCL containing ferrous & ferric chloride at an elevated temp. upto 110°C.
- 6 This grade is also proven in Caustic Chloro Plant for application in brine for Anolyte and catholyte service upto 100 °C temp..
- 7 This grade is also proven in application of HCL with solvent traces such benzene, toluene etc. at an elevated temperature up to 110°C.

Minimum life expected in hours for three continuous service temperature levels.

Formulation	At 120°C	At 100°C	At 80°C
Isotactic Polypropylene	18,000 (2 Yrs)	1,04,000 (12 Yrs)	7,15,000 (80 Yrs)



## TECHNICAL PROPERTIES OF NORMAL GRADE POLYPROPYLENE

Properties	Polypropylene (MELT INDEX 1 TO 3.5)
Specific Gravity / Density at 23°C	0.90-0.91
Water Absorption (% in 24 hrs.)	<0.01-0.03
Hardness (Rockwell)	80-95
Tensile Strength (lb./sq.in.)	4400-4800
Impact Strength -Izod notched (ft.lbs.)	1.5-2.5
Elongation at break (%)	220-600
Yield Stress (lb./sq.in.)	4400-4800
Flexural Modulus (lb./sq.in.)	1.5 X 10 <sup>7</sup>
Modules Of Elasticity In Tension (lb./sq.in.)	1.5 X 10 <sup>7</sup>
Softening Point (°C)	135-150
Load-Heat (Cal/grm/°C)	0.46
Thermal Expansion (in/in./°C)	8.5-11* 10 <sup>-6</sup>
Mould Shrinkage (in. per Inch)	0.01-0.02
Injection Moulding Temp (°C)	200-300

### Polyvinylidene Fluoride (PVDF)

PVDF is an engineering fluoropolymer, the grade containing no additives has remarkable properties. The most important of which are:

- 1 Exceptional outdoor weather resistance, due to its transparency and total inertness to ultra-violet light.
- 2 Excellent resistance to most of the chemicals.
- 3 Remarkable thermal stability under operating and processing application temperatures. It does not darken when subjected to heat.
- 4 Good abrasion resistance, enabling it to be used with slurries.
- 5 Very low creep.
- 6 High mechanical strength.
- 7 The crystalline content of PVDF was chosen in order

to obtain excellent properties, such as low permeability to gases & fluids as well as low swelling in certain solvents, while retaining a high impact resistance, good stress cracking resistance and a very high dimensional stability.

- 8 PVDF may be used over wide temperatures: from -40°C to +140°C. It is non flammable and may be used for contact with foodstuffs.

### Ethylene Tetra Fluoro Ethylene (ETFE)

- 1 It has very high temperature resistance from -100°C to +160°C.
- 2 It is resistant to a wide variety of corrosive chemicals and organic solvents, including strong acids, and strong bases. No known solvent dissolves or stress cracks the polymer at temp. up to 121°C.
- 3 It possesses excellent mechanical properties over a wide temperature from cryogenic temperatures to 204°C. It has nylon like durability and provides

## TECHNICAL PROPERTIES OF SPECIAL GRADE ISOTACTIC POLYPROPYLENE

Physical properties	Unit	Test Method	Value
Flow rate at 23°C-2. 16 kgs.	gms/10 mins	ISO- 11 33-ASTM D1238/C	0.81
Specific gravity at 23°C	gm/cm <sup>3</sup>	ISO-1183-ASTM D1505	0.90
HDT46N/cm <sup>2</sup>	°C	ISO-75-ASTM D-648	A  142 B  92
HDT 185N/cm <sup>2</sup>	°C	ISO-75-ASTM EXM8	A  64 B  50
Accelerated oven aging in air at 150deg.C(Natural Ventilation)	hours	ASTMD3012	1200(2000)
10000 hrs. continuous indoor service. Maximum allowable thermal limit	°C	Extrapolation	117(120)
<b>Mechanical Properties at 23°C.</b>			
Flexural modulus of elasticity.	daN/cm <sup>2</sup> (kg/cm <sup>2</sup> )	ISO- 178-ASTM D790	A  12,500 B  12,500
Tensile Strength at Yield	daN/cm <sup>2</sup> (kg/cm <sup>2</sup> )	ISO-527-ASTM D638	A  350 B  330
Elongation at failure	%	ISO-527-ASTM D638	A  80 B  200
Rockwell Hardness	alpha	ASTM/D 785/B	A  50 B  50
Maximum Stress.	daN (kg)	DIN 53412	A  265 B  80
Recorded energy at break	Joule	DIN 53443	A  18 B  2.50
Izod Impact strength notched	Joule/dm (kg cm/cm)	ISO- 180-ASTM D265	A  50 B  15
Izod Impact strength at 0°C Unnotched	Joule/dm (kg cm/cm)	ISO- 180-ASTM D265	A  4 B  2.5
Izod Impact strength at 20°C Unnotched	daN/cm <sup>2</sup> (kg cm/cm <sup>2</sup> )	ISO- 180-ASTM D638	A  2.5 B  2
Izod Impact strength at 20°C Unnotched	Joule/dm (kg cm/cm)	ISO-180-ASTM D265	A  100
Vicat Softening point under 1 kg/mm <sup>2</sup> load	°C	ISO-306-ASTM D1525	A  151 B  150

excellent impact resistance at ambient and subambient temperatures.

4. It is fluoropolymer which is mouldable & weldable with an ordinary thermoplastic welding equipment.

#### Teflon FEP "Perfluoro (Ethylene Propylene) Copolymer"

1. FEP is a fluorocarbon resin having very strong interatomic bonds between Carbon & Fluorine atoms.
2. It has very high molecular Weight or long molecular chain length compared to other polymers.
3. FEP can be used for continuous service temperature upto an elevated temperatures as high as 205°C

(400°F).

4. This fluorocarbon is resistant to all chemicals aggressive and hazardous in nature.
5. Absorption rate of this fluorocarbon is as lower as 0.004%, hence swelling is avoided, and permeation is negligible.

#### PFA (Per Fluoro Alkoxy)

PFA is also a Fluorocarbon resin with all other properties same as FEP but can be used for Continuous service temperature up to an elevated temperature as high as 260°C (500 °F).

**TECHNICAL PROPERTIES OF PVDF**

Physical Properties	Standards	Units	Value
Density	ISO 1183	g/cm <sup>3</sup>	1.78
Water absorption (24 h at 23°C)	ISO 62 (method 1)	%	<0.04
Melt Flow Index	ASTM D 1238		
	230°C, 10 kg	g/10 min	-
	230°C, 5 kg	g/10 min	24
	230°C, 2.16 kg	g/10 min	8
Mechanical Properties			
<b>Tensile</b>			
Tensile stress at yield	ASTM D 368		
Tensile stress at break	23°C, 50 mm/min	MPa/psi	53-57/7685-8265
Elongation at yield		%	5-10
Elongation at break		%	20-50
Modulus	23°C, 1 mm/min	MPa/psi	2500/362500
<b>Flexion</b>			
Maximum load	ASTM D 255		
Modulus	23°C	MPa/psi	78/11310
	2 mm/MIN	MPa/psi	2200/319000
IZOD impact	ASTM D 255	J/m	85
(notched V 10 mm at 23°C - 4 mm thick)			
Shore D Hardness (2 mm thick)	ASTM D 2240	-	77
Abrasion resistance	TABER CS 10/1 kg	mg/1000 rev	5-10
Friction coefficient	ASTM D 1894	static	0.2-0.4
		dynamic	0.2-0.3
Thermal Properties			
<b>Crystallinity by DSC</b>			
Melting point	ASTM D 3418	°C/°F	174/345
Heat of fusion (80°C to end of melting)		J/g	62
Crystallizing point		°C/°F	139/282
Crystallization heat		J/g	58
VICAT point (4 mm thick)	ISO 306		
load 1kg		°C/°F	170/338
deflection temperature (4 mm thick)	ASTM D 648		
load 0.46 MPa	after annealing	°C/°F	147/294
load 1.82 MPa		°C/°F	112/234
glass transition (T <sub>g</sub> )	DMTA	°C/°F	-32/-26
Brittleness temperature	ASTM D 746 A	°C/°F	0-10/32-50
(on 2 mm pressed sheet)			
Molding shrinkage		%	2-3
Thermal stability	TGA begining & at 1%	°C/°F	375-400/707-752
Linear thermal expansion coefficient	weight loss in air	10-6k	120-140
Thermal conductance at 23°C	ASTM D 696	W/m.k	0.2
Specific heat	ASTM C 177	J/g.k	1.2-1.6
	23°C & 100°C		
Electrical Properties			
Surface resistivity	ASTM D 257		
Voltage < 1V, after 2 min - 500 V at 23°C	DIN 53483		
Volume resistivity	ASTM D 257	ohm/square	> 1.10 <sup>7</sup>
Intensity = 10 mA, after 2 min at 23°C	DIN 53483		
		ohm.cm	> 1.10 <sup>7</sup>
Fire Resistance			
UL-94 Flammability test	UL-94	Class	V0
Limiting Oxygen Index (sheet 3 mm thick)	ASTM D 2853	%	44

**Minimum life expected in hours for three continuous service temperature levels.**

Formulation	At	At	At
	120°C	100°C	80°C
Isotactic	18,000	1,04,000	7,15,000
Polypropylene	(2 Yrs)	(12 Yrs)	(80 Yrs)

**NOTES:**

- In the case of articles in rapid movement (e.g.: Suction fans) or forced ventilation, With hot air, the service time allowed must be reduced by about 1/3 of the value tabulated for your information.
- Isotactic Polypropylene have been studied for very long service times in contact with hot detergent solutions at 95°C. They have in fact high resistance to extraction and washing.

## QUALITY ASSURANCE PLAN

Sr. No.	Items	Parameter	Type of Check	Quantum	Acceptance Criteria	Reference	Record
<b>A. Incoming Inspection</b>							
1	Raw Material	a) Intactness b) Grade Confirmation c) Physical Verification	Visual Visual Visual	5 bags/lot 5 bags/lot 5 bags/lot	No damage information on packaging material Grade Verification on bag No damage to package	1) Purchase order 2) Supplier's challan	1) Inward inspection report 2) Supplier challan
2	Moulds	1) Physical 2) First sample	Visual Measure	First sample	As per drawing	As per drawing	Inward inspection report
3	Packaging Material	Physical	Visual	5% per lot	No damage	Supplier's challan purchase followed	1) Supplier's challan Inward inspection report
<b>B. Inprocess Inspection : Valves &amp; Pipe Fittings</b>							
1	Moulding Operation	Dimension & Physical Verification	Measure & Visual	First sample 100%	Drawing, no deformities no surface porosity	Drawing	
2	Machining	Dimension	Measure	100%	Drawing	Drawing	
3	Assembly of valves	Physical Verification Dimension	Visual measure	100%	Proper within limits	Assembly drawing	Final inspection report
<b>C. Final inspection : Valves</b>							
1	Hydro testing 1) Body testing 2) Seat testing	Leakage test Leakage test	Visual check Visual check	100% 100%	No leakage No leakage	WPD0400 WPD0400	Final inspection report
2	PCD drilling check	Dimension	Dimension	As per sampling plan inspection report	Within limits	WPD0300/Drawing	
3	Packing	Packing of finished goods	Visual	100%	Intactness of package	Order register	Delivery challan / Invoice

The Above said QAP is our internal procedure of testing.  
We provide our final inspection report to our customers.

Based on final inspection report we allow our customer to check following :

1. Physical verification of valves & quality check.
2. Witnessing a leakage test i.e. hydro test as per our standard test procedure & pressure rating confirmed by us only for acceptance sampling i.e. 10% of the total quantity.
3. Dimension check of final assembly of valve as per our standard drawings.

## ISOTACTIC POLYPROPYLENE

### ADVANTAGES :

- Due to presence of atmospheric oxygen degradation & oxidation of ordinary PP is inevitable, even when there is no direct sunlight, while high heat stabilized isotactic polypropylene is immune to such degradation and oxidation.
- Isotactic PP has got very good heat resistance (upto 150°C when not subjected to mechanical stresses.)
- The chemical resistance of isotactic has been tested towards most of the inorganic and organic chemical

reagents and has proved to be excellent even at temperature at which common thermoplastics are usually not employable. The polymer is not attacked for example by aqueous solutions of inorganic salts or by practically any of the mineral acids & bases, even when highly concentrated at temperature that may be higher than 60°C. Concerning resistance to organic chemical reagents it is the highest among those exhibited by thermo-plastics & no solvent exists that is capable of dissolving isotactic polypropylene.



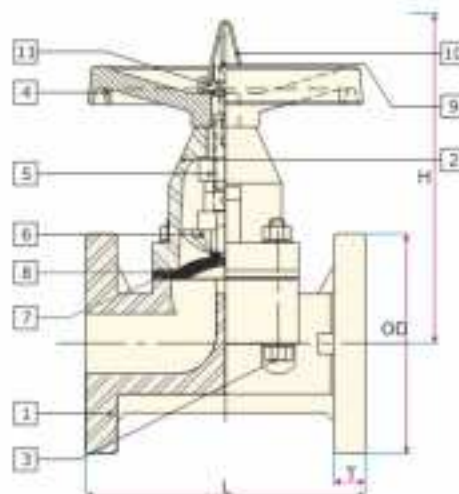


## Manual Valves



## DIAPHRAGM VALVE

Advanced Version



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO.PP / PPH / PVDF
2	BONNET	1	CLCS EPOXY PAINTED
3	BOLTS & NUTS	4	MS GALVANIZED / SS-304
4	HAND WHEEL	1	POLYPROPYLENE
5	SLEEVE SPINDLE ASSLY	1	SS 202 / SS 304 / SS 316
6	COMPRESSOR	1	CAST IRON / CAST STEEL
7	DIAPHRAGM	1	PTFE
8	RUBBER PAD	1	EPDM
9	POSITION INDICATOR	1	PP/PVC
10	INDICATOR CAP	1	POLYCARBONATE
11	HANDWHEEL NUT	1	BRASS

### Dimensional Table

Rating : 150 Class

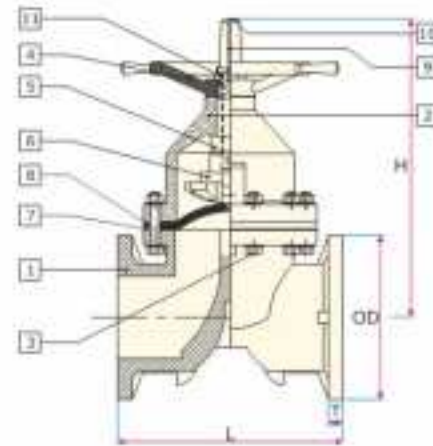
SIZE (NB)	L±3	OD	H	Y
15 mm	120	95	95	17
20 mm*	150	120	150	17
25 mm	150	120	150	17
40 mm	178	140	205	18
50 mm	213	160	215	19
65 mm**	260	200	285	24
80 mm	260	200	285	24

#### NOTE

- 1) \* our standard 25 NB valve with 20 NB flange ending.
- 2) \*\* our standard 80 NB valve with 65 NB flange ending.
- 3) Indicator cap from size 25 NB onwards.
- 4) For special chemical applications of Causal Chlorine (AET triple layer) diaphragms are also available.

## DIAPHRAGM VALVE

Advanced Version



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO.PP / PPH / PVDF
2	BONNET	1	CI-EPOXY PAINTED
3	BOLTS & NUTS	—	MS GALVANIZED / SS-304
4	HAND WHEEL	1	POLYPROPYLENE
5	SLEEVE SPINDLE ASSLY	1	SS 202 / SS 304 / SS 316
6	COMPRESSOR	1	CAST IRON
7	DIAPHRAGM	1	PTFE
8	RUBBER PAD	1	EPDM
9	POSITION INDICATOR	1	PP/PVC
10	INDICATOR CAP	1	POLYCARBONATE
11	HANDWHEEL NUT	1	BRASS

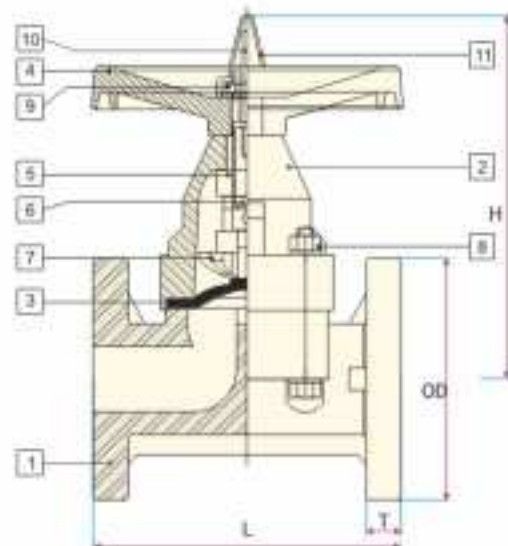
### Dimensional Table Rating :150 Class

SIZE (NB)	L±3	OD	H	T
100 mm	312	228	300	23
150 mm	408	280	525	26

#### NOTE

- 1) Indicator cap from size 25 up onwards.
- 2) For typical chemical applications of Caustic Chlorine plant triple layer diaphragms are also available.

## DIAPHRAGM VALVE



### Material Specification

NO.	DESCRIPTION	QTY	MATERIAL
1	BODY	1	PP / ISO. PP / PPH / PVDF / ETFE
2	BONNET	1	POLYPROPYLENE
3	DIAPHRAGM	1	EPDM / VITON / NEOPRENE / NYPALON / 1mm THK PTFE LINED BACKED WITH EPDM
4	HAND WHEEL	1	POLYPROPYLENE
5	SLEEVE	1	SS-202 / SS-304 / BRASS
6	SPINDLE	1	SS-202 / SS-304 / BRASS
7	COMPRESSOR	1	CAST ALUMINIUM / CI
8	FASTENERS	—	SS-304 / SS-316 / MS. GALVANISED
9	HAND WHEEL NUT	1	BRASS
10	POSITION INDICATOR	1	PP / PVC
11	INDICATOR CAP	1	POLYCARBONATE

### Dimensional Table Rating :150 Class

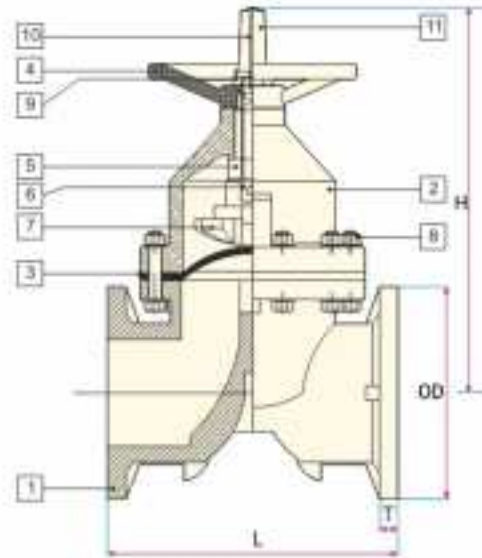
SIZE (NB)	L ± 3	OD	H	T
15 mm	120	98	95	17
20 mm*	142	120	140	17
25 mm	142	120	140	17
40 mm	200	140	215	18
50 mm	213	160	245	19
65 mm**	255	180	265	24
80 mm	255	200	285	24
100 mm	312	220	345	25

#### NOTE

- \* Size 15mm is non indicating type.
- \*\* Our standard 25 mm valve with 20 mm flange drilling.
- \*\*\* Our standard 80 mm valve with 65 mm flange drilling.



## DIAPHRAGM VALVE



### Material Specification

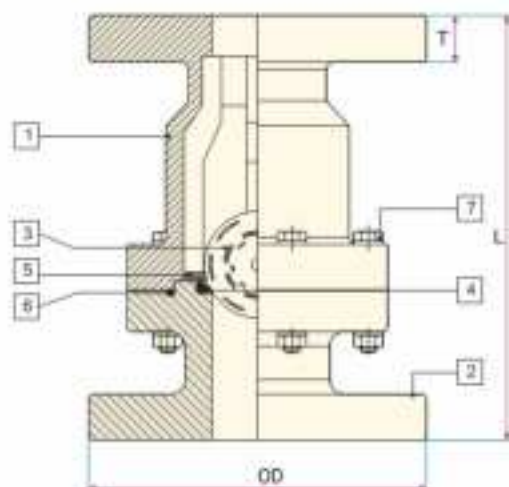
NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO. PP/ PPH / PVDF / ETFE
2	BONNET	1	POLYPROPYLENE
3	DIAPHRAGM	1	EPDM / VITON / NEOPRENE / NYPALON / 1mm THK PTFE LINED BACKED WITH EPDM
4	HAND WHEEL	1	POLYPROPYLENE
5	SLEEVE	1	SS-202 / SS-304 / BRASS
6	SPINDLE	1	SS-202 / SS-304 / BRASS
7	COMPRESSOR	1	CAST ALUMINIUM / CI
8	FASTENERS	—	SS-304 / SS-316 / MS GALVANISED
9	HAND WHEEL NUT	1	BRASS
10	POSITION INDICATOR	1	PP / PVC
11	INDICATOR CAP	1	POLYCARBONATE

### Dimensional Table

Rating :150 Class

SIZE(NR)	L±3	OD	H	T
150mm	400	280	512	26

## CHECK VALVE BALL TYPE – FLANGED END



### Material Specification

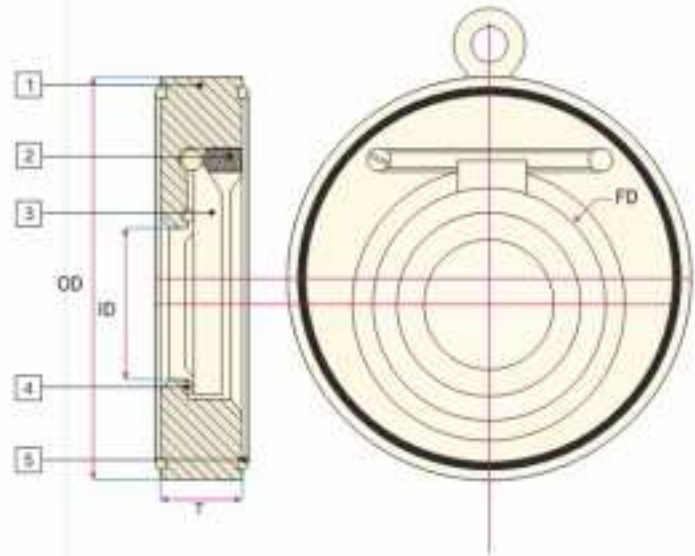
NO.	DESCRIPTION	QTY	MATERIAL
1	BODY	1	PP / ISO. PP/ PPH / PVDF / ETFE
2	END PIECE	1	PP / ISO. PP/ PPH / PVDF / ETFE
3	BALL	1	PP / ISO. PP/ PPH / PVDF / ETFE
4	SEAT	1	EPDM / VITON / PTFE
5	SEAT PAD	1	PP / ISO. PP/ PPH / PVDF / ETFE
6	BODY SEAL	1	EPDM / VITON / PTFE / NEOPRENE
7	FASTENERS	—	MS GALVANISED / SS-304 / SS-316

### Dimensional Table

Rating :150 Class

SIZE (NB)	Lx3	OD	T
15 mm	140	95	16
25 mm	140	120	17
40 mm	175	140	17
50 mm	212	165	19
65 mm	245	203	23
80 mm	245	203	23
100 mm	300	230	23
150 mm	355	280	26

## SWING CHECK VALVE WAFER TYPE



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1.	BODY	1	PP / ISO.PP / PPH / PVDF / ETFE
2.	FLAP SCREW*	1	PP / ISO.PP / PPH / PVDF / ETFE
3.	FLAP	1	PP / ISO.PP / PPH / PVDF / ETFE
4.	FLAP SEAL	1	EPDM / VITON
5.	BODY SEAL	1	EPDM / VITON

### Dimensional Table

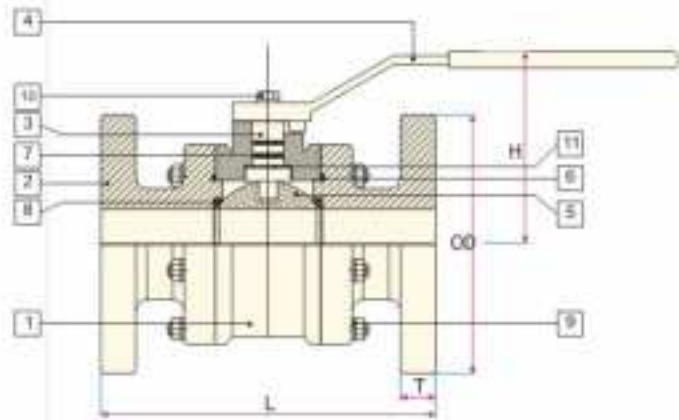
Rating : 150 Class

SIZE (NB)	OD	ID	FD	T
80 mm	135	44	59	30
100 mm	172	62	80	25
150 mm	216	80	110	40
200 mm	272	110	144	40
250 mm	335	165	190	65

#### NOTE

\* 150 nb and 200 nb with screw  
 \* 80nb, 100nb and 250nb without screw

## BALL VALVE FLANGED END



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1.	BODY	1	PP / ISO. PP/ PPH / PVDF / ETFE
2.	END PIECE	2	PP / ISO. PP/ PPH / PVDF / ETFE
3.	SPINDLE	1	EN-8 INSERTED PP / ISO. PP/ PPH / PVDF / ETFE LINED
4.	HANDLE	1	MS EPOXY COATED WITH FLEXIBLE PVC SLEEVE
5.	BALL	1	PP / ISO. PP/ PPH / PVDF / ETFE
6.	FLANGE SEAL	2	EPDM / VITON / PTFE / NEOPRENE
7.	SPINDLE SEAL	2	EPDM / VITON / PTFE / NEOPRENE
8.	SEAT	2	PTFE
9.	FASTENERS	—	MS GALVANISED / SS-304 / SS-316
10.	SPINDLE BOLT	1	MS GALVANISED / SS-304 / SS-316
11.	SPINDLE BUSH	1	PTFE

### Dimensional Table

Rating : 150 Class

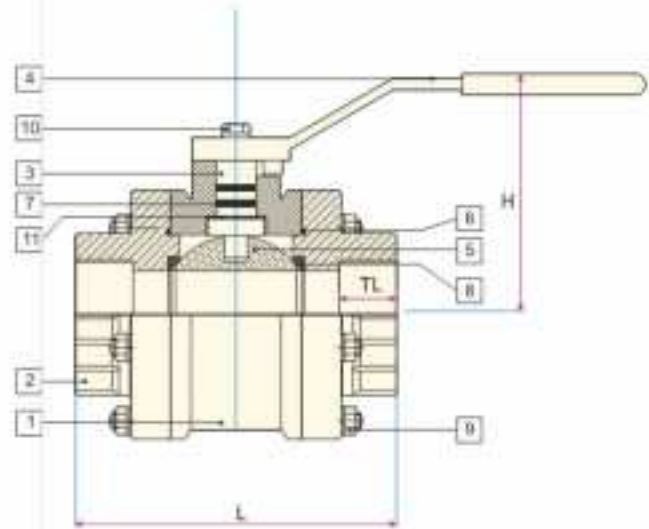
SIZE (NB)	L±3	OO	H	T
15 mm	132	95	70	17
20 mm	138	114	80	17
25 mm	158	120	100	17
32 mm*	182	140	105	17
40 mm	182	140	105	17
50 mm	212	165	120	19
65 mm	238	180	133	22
80 mm	255	203	145	23
100 mm	298	230	175	23
125 mm	352	254	225	26
150 mm	415	280	253	30

**NOTE**

\*Our standard 40 mm size with 32 mm flange drilling.



## BALL VALVE THREADED END



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO. PP / PPH / PVDF / ETFE
2	END PIECE	2	PP / ISO. PP / PPH / PVDF / ETFE
3	SPINDLE	1	EN-8 INSERTED PP / ISO. PP / PPH / PVDF / ETFE LINED
4	HANDLE	1	MS EPOXY COATED WITH FLEXIBLE PVC SLEEVE
5	BALL	1	PP / ISO. PP / PPH / PVDF / ETFE
6	FLANGE SEAL	2	EPDM / VITON / PTFE / NEOPRENE
7	SPINDLE SEAL	2	EPDM / VITON / PTFE / NEOPRENE
8	SEAT	2	PTFE
9	FASTENERS	—	MS GALVANISED / SS-304 / SS-316
10	SPINDLE BOLT	1	MS GALVANISED / SS-304 / SS-316
11	SPINDLE BUSH	1	PTFE

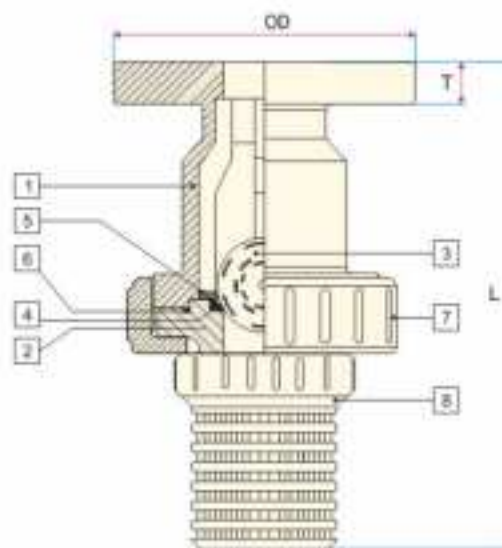
### Dimensional Table Rating :150 Class

Size (NB)	L ± 3	TL	H	THREAD TYPE
15 mm	105	20	70	
20 mm	110	25	80	MPT
25 mm	135	25	100	OR
40 mm	132	30	105	BSP
50 mm	160	30	120	

#### NOTE

Socket weld ends are also available

## FOOT VALVE FLANGED END



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO.PP / PPH / PVDF / ETFE
2	SOCKET	1	PP / ISO.PP / PPH / PVDF / ETFE
3	BALL	1	PP / ISO.PP / PPH / PVDF / ETFE
4	SEAT	1	EPDM / VITON / PTFE
5	SEAT PAD	1	PP / ISO.PP / PPH / PVDF / ETFE
6	BODY SEAL	1	EPDM / VITON / PTFE / NEDPRENE
7	COVER NUT	1	PP / ISO.PP / PPH / PVDF / ETFE
8	STRAINER	1	PP / ISO.PP / PPH / PVDF / ETFE

### Dimensional Table

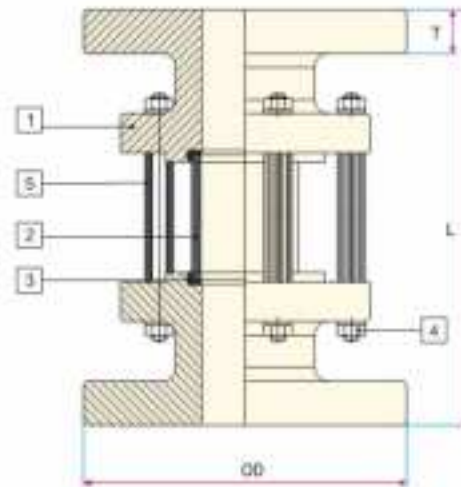
Rating : 150 Class

SIZE (NB)	L±3	OD	T
25 mm	180	120	17
40 mm	230	140	17
50 mm	265	165	19
65 mm*	315	203	23
80 mm	315	203	23
100 mm	365	230	23
150 mm	556	280	25

#### NOTE

Large sizes can be provided upon request.  
 \*Our standard 60 NB valve with 65 NB  
 PCD drilling or flanges.

## SIGHT GLASS FLANGED END



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	END PIECE	2	PP / ISO PP / PPH / PVDF / ETFE
2	GLASS TUBE	1	BOROSIL
3	SEAT	2	EPDM / VITON / NEOPRENE / PTFE
4	STUDS & NUTS	—	M5 GALVANISED / SS-304 / SS-316
5	STUD SLEEVE	—	PVC

### LARGE SIZE SIGHT GLASS



### Dimensional Table

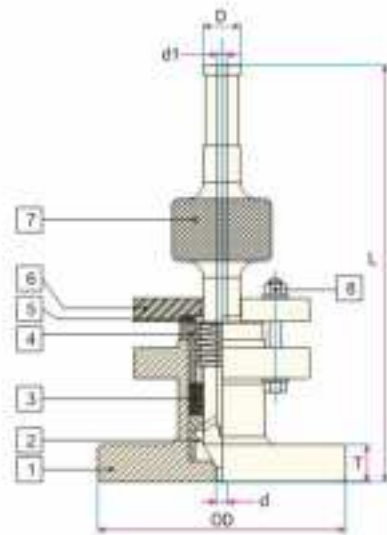
Rating :150 Class

SIZE (NB)	L±3	OD	T
25 mm	162	120	17
40 mm	180	140	17
50 mm	212	165	19
65 mm	238	180	22
80 mm	255	203	23
100 mm	298	230	23
125 mm	362	254	26
150 mm	375	280	29

**NOTE**

Special sizes can be provided upon request.

## SAMPLING VALVE FLANGED TYPE



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO.PP / PPH / PVDF / ETFE
2	MATERIAL PORT	1	PTFE
3	CHEVRON PACKING	1	PTFE
4	SOCKET	1	PTFE
5	LOCK PLATE	1	SS-304
6	COMPANION FLANGE	1	SS-304
7	SPINDLE	1	PTFE
8	FASTENERS	-	SS-304

### Dimensional Table Rating :150 Class

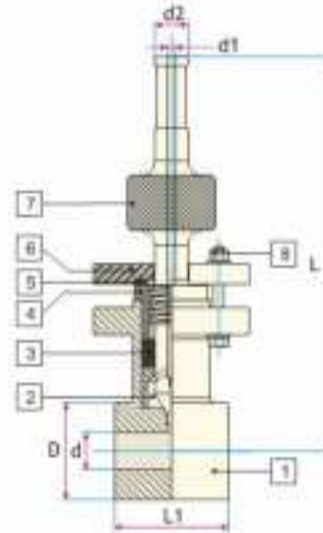
SIZE (NB)	L±3	ØØ	Ø	d	d1	T
25 mm	200	120	18	6	6	17

**NOTE**

ØØ or D1 = PVDF / TEP / PFA lined sampling valve is also in our product range.



## SAMPLING VALVE SANDWICH TYPE



### Material Specification

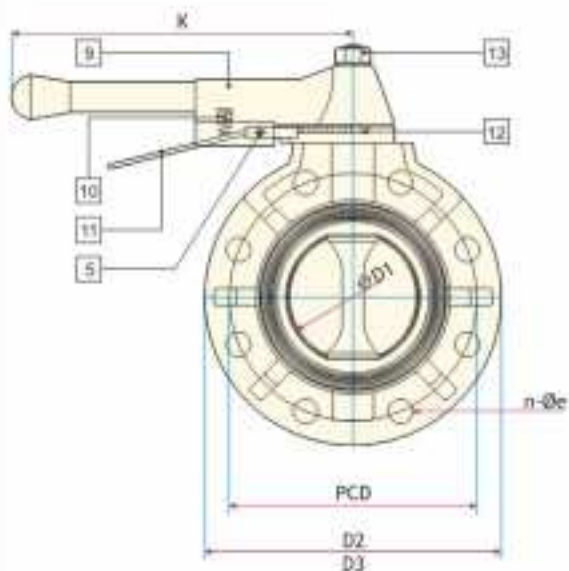
NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISGPP / PPH / PVDF / ETFE
2	MATERIAL PORT	1	PTFE
3	CHEVRON PACKING	1	PTFE
4	SOCKET	1	PTFE
5	LOCK PLATE	1	SS-304
6	COMPANION FLANGE	1	SS-304
7	SPINDLE	1	PTFE
8	FASTENERS	—	SS-304

### Dimensional Table Rating :150 Class

SIZE (NB)	L±3	L1	D	d	d1	d2
25 mm	212	62	52	22	6	18

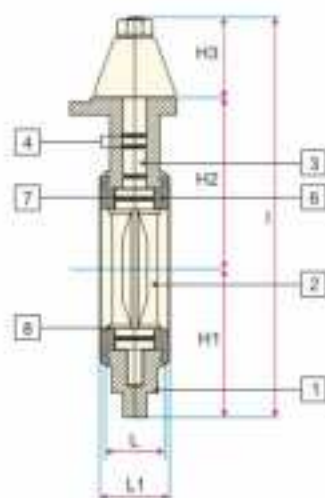
**NOTE**  
 O3 or O2 + PVDF / PEP / PFA lined  
 sampling valve is also in our product range.

## BUTTERFLY VALVE LEVER OPERATED



### Material Specification

NO.	DESCRIPTION	QTY	MATERIAL
1	BODY	1	PP/ISO, PP/PPH/PVDF/UPVC/CPVC
2	DISC	1	PP/ISO, PP/PPH/PVDF/UPVC/CPVC
3	STEM	1	SS-410/SS-304 (ECTFE-HALAR COATING)
4	STEM O' RING	2	EPDM/VITON / HYPALON
5	HINGE PIN	1	BRASS
6	SEAT	1	EPDM/VITON / HYPALON
7	DISC O' RING	2	EPDM/VITON / HYPALON
8	DISC O' RING	2	EPDM/VITON / HYPALON
9	HANDLE	1	ABS/PPGL
10	SPRING	1	SS-304
11	POSITIONER LEVER	1	SS-304
12	POSITIONER PLATE	1	SS-304
13	STEM NUT	1	SS-304

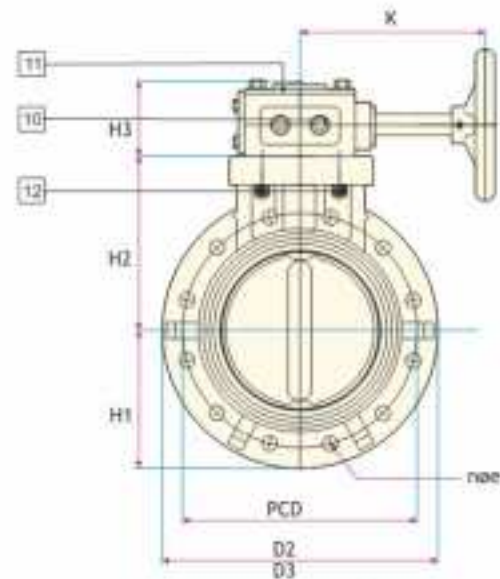


### Dimensional Table

Rating: 150 Class

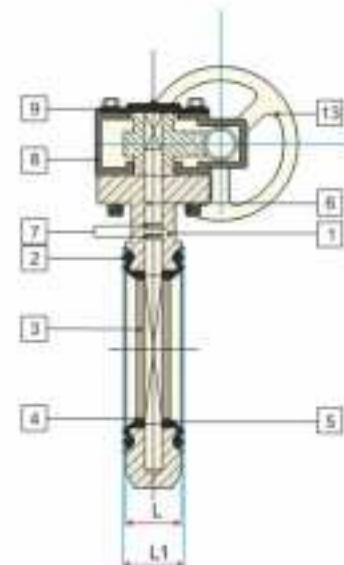
Size (NB)	D1	D2	D3	Øe	n	L	L1	H1	H2	H3	l	K
50mm	51	121	160	19	04	35	42	83	102	68	253	220
65mm	65	140	182	19	04	30	42	91	108	61	265	220
80mm	80	152	200	19	04	37	46	100	118	68	286	220
100mm	100	191	229	18	08	46	54	115	132	62	309	220

## BUTTERFLY VALVE GEAR OPERATED



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO-PP / PPH / PVDF / UPVC / CPVC
2	SEAT	1	EPDM / VITON / HYPALON
3	DISC	1	PP / ISO-PP / PPH / PVDF / UPVC / CPVC
4	DISC 'O' RING	2	EPDM / VITON / HYPALON
5	DISC 'O' RING	2	EPDM / VITON / HYPALON
6	STEM	1	SS-410 / SS-304
7	STEM 'O' RING	2	EPDM / VITON / HYPALON
8	GEAR BOX	1	CAST IRON EPOXY PAINTED
9	GEAR BOX CAP	1	CAST IRON EPOXY PAINTED
10	ADJUSTABLE BOLT	2	SS-304
11	INDICATOR PLATE	1	CAST IRON EPOXY PAINTED
12	FASTENERS	—	MS GALVANISED / SS-304
13	HAND WHEEL	1	CAST IRON EPOXY PAINTED

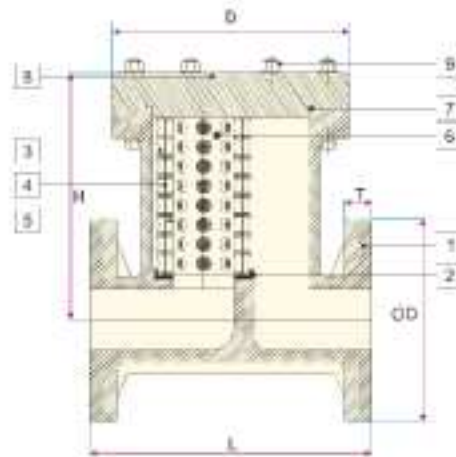


### Dimensional Table

Rating :150 Class

Size (NB)	D1	D2	D3	D4	e	L	L1	H1	H2	H3	K
125 mm	130	216	254	22	08	57	66	126	162	70	240
150 mm	150	241	280	22	08	59	74	140	175	69	240
200 mm	200	298	340	22	08	76	87	168	204	69	240
250 mm	254	362	400	25	12	96	111	199	235	69	240
300 mm	312	432	485	25	12	116	126	229	300	100	240
350 mm	358	476	514	26	12	116	132	257	305	100	244
400 mm	398	540	594	28	16	153	169	297	353	100	252
450 mm	451	578	634	32	16	166	181	317	365	121	269
500 mm	500	635	704	32	20	171	190	352	405	121	330
600 mm	600	749	805	35	20	191	209	403	460	121	330

## STRAINER T / BASKET TYPE



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	SHELL	1	PP / ISO.PP / PPH / PVDF
2	SEAT	1	25% GLASS-FILLED PTFE
3	OUTER TUBE	1	PP / ISO.PP / PPH / PVDF
4	FILTER WEB	1	PP / ETFE
5	INNER TUBE	1	PP / ISO.PP / PPH / PVDF
6	LOCK PIN	1	25% GLASS-FILLED PTFE
7	COVER SEAL	1	EPDM / VITON / NEOPRENE / PTFE
8	STRAINER COVER	1	PP / ISO.PP / PPH / PVDF
9	FASTENERS	—	M5 GALVANISED / SS-304 / SS-316

### Dimensional Table Rating : 150 Class

SIZE (NB)	L±3	OD	H	T	D
15 mm*	160	95	140	17	140
20 mm*	160	120	140	17	140
25 mm	160	120	140	17	140
40 mm**	230	165	190	19	195
50 mm	230	165	190	19	195
80 mm	310	200	260	25	250
100 mm	352	230	290	26	310

#### NOTE

OD: 31 + PMD / YEP / PPA Load Strainers are also in our product range.

\* Our standard 25 NB Strainer with 15 / OD NB flange fitting.

\*\* Our standard 50 NB Strainer with 40 NB flange fitting.

Larger size Strainers can be provided upon request in fabricated type construction.



## Actuated Valves





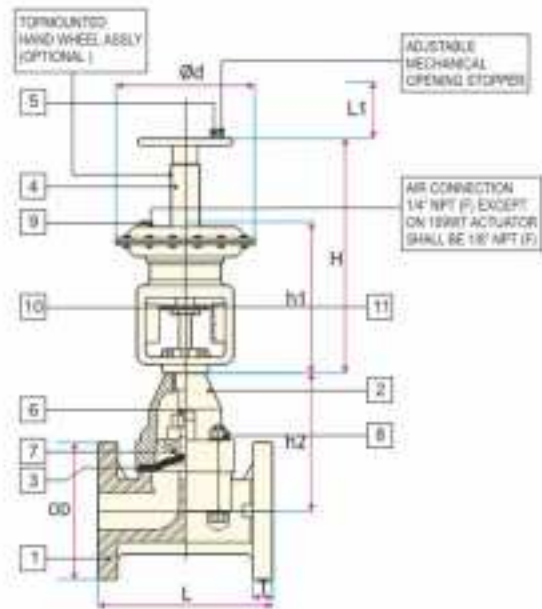
## DIAPHRAGM VALVE

PNEUMATICALLY & ELECTRICALLY ACTUATED



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO-PP / PPH / PVDF
2	BONNET	1	PP / UVCS EPOXY PAINTED
3	DIAPHRAGM	1	EPDM / VITON / NEOPRENE / HYPALON / PTFE BACKED WITH NEOPRENE OR EPDM
4	HAND WHEEL ASSEMBLY	1	CI EPOXY PAINTED
5	AMS	1	MS EPOXY COATED
6	SPINDLE	1	SS-202 / SS-304 / BRASS
7	COMPRESSOR	1	CAST ALUMINUM / CI
8	FASTENERS	—	SS-304 / SS-316 / MS GALVANISED
9	AIR CONNECTION SOCKET	1	BRASS / SS
10	POSITION INDICATOR	1	BRASS / SS
11	INDICATOR SCALE	1	SS



### Dimensional Table Rating :150 Class

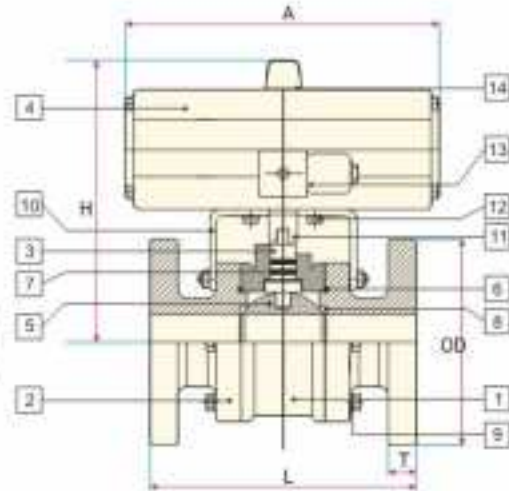
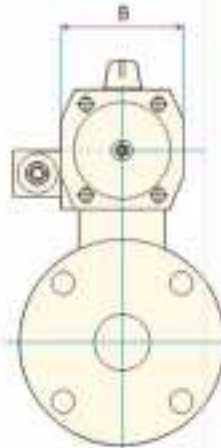
SIZE (NB)	L±3	OO	T	H	h1	h2	d	L1	MODEL NO.
15 mm	120	98	17	280	170	67	110	200	109WT
20 mm*	142	120	17	280	170	75	110	200	109WT
25 mm	142	120	17	280	170	75	110	200	109WT
40 mm	178	140	18	430	295	140	185	200	1016WT
50 mm	213	160	19	440	300	165	235	200	1035WT
65 mm**	255	200	24	540	315	203	330	250	1000WT
80 mm	255	200	24	540	315	203	330	250	1002WT
100 mm	312	228	25	560	330	255	390	250	1003WT
150 mm	408	280	26	770	470	395	600	310	1005WT

#### NOTE

1. If manual override application & Limit Switch are required height 'L1' may increase accordingly.
2. Actuator Size may vary as per Actuator type and Air Supply pressure rating.
3. Solenoid valve & Coil will be available as per requirement.
4. Electrically Actuated Diaphragm valves are also in our product range.
5. Proportional control valves are also available.

## BALL VALVE

PNEUMATICALLY & ELECTRICALLY ACTUATED



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO, PP/ PPH / PVDF / ETFE
2	END PIECE	2	PP / ISO, PP/ PPH / PVDF / ETFE
3	SPINDLE	1	EN-8 INSERTED PP / ISO, PP/ PPH / PVDF / ETFE LINED
4	ACTUATOR	1	SEE NOTE 2
5	BALL	1	PP / ISO, PP/ PPH / PVDF / ETFE
6	FLANGE SEAL	2	EPDM / VITON / PTFE / NEDPRENE
7	SPINDLE SEAL	2	EPDM / VITON / PTFE / NEDPRENE
8	SEAT	2	PTFE
9	FASTENERS	-	MS GALVANISED / SS-304 / SS-316
10	ACT. MOUNTING BRACKET	2	MS EPOXY COATED
11	COUPLER	1	MS EPOXY COATED
12	ACT. MOUNTING BOLT	4	MS GALVANISED / SS-304 / SS-316
13	SOLENOID VALVE	1	SEE NOTE 3
14	POSITION INDICATOR	1	-



### Dimensional Table

Rating : 150 Class

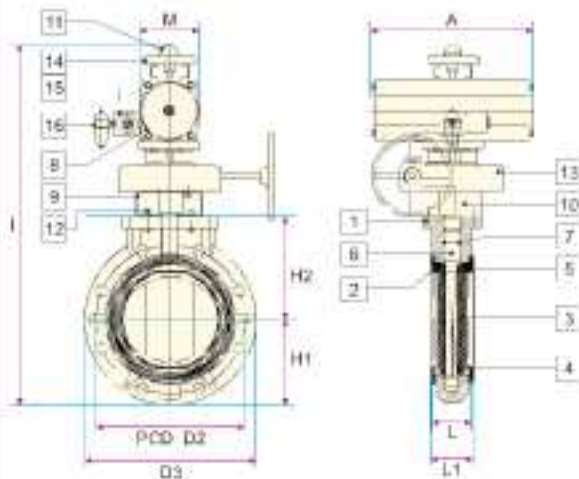
SIZE(IN)	L±3	OD	H	A	B	T
15 mm	132	95	200	197	80	17
20 mm	138	114	210	197	80	17
25 mm	158	120	220	197	80	17
40 mm	182	140	240	210	96	17
50 mm	212	165	380	260	122	19
65 mm	238	180	400	260	122	23
80 mm	255	203	410	260	122	23
100 mm	298	230	440	260	122	23
150 mm	412	305	520	347	174	30

#### NOTE

1. If manual override application & Limit Switch are required height 'H' may increase accordingly.
2. Actuator Size may vary as per Actuator type and Air Supply pressure rating.
3. Solenoid valve & Coil will be available as per requirement.
4. Electrically Actuated Ball valves are also in our product range.
5. Proportional control valves are also available.

## BUTTERFLY VALVE

PNEUMATICALLY & ELECTRICALLY ACTUATED



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	PP / ISO PP / PPH / PVDF / UPVC / CPVC
2	SEAT	1	EPDM / WTDN
3	DISC	1	PP / ISO PP / PPH / PVDF / UPVC / CPVC
4	DISC 'O' RING		EPDM / WTDN
5	DISC 'O' RING	1	EPDM / WTDN
6	STEM	1	SS-316 / SS-304
7	STEM 'O' RING	2	EPDM / WTDN
8	PH. ACTUATOR	2	CAST ALUMINIUM - ANODISED
9	MOUNTING BRACKET	1	MS EPOXY PAINTED
10	COUPLER	1	MS EPOXY PAINTED
11	POSITION INDICATOR	1	
12	FASTENERS	1	SS-304
13	M.O.R.	1	GI EPOXY PAINTED
14	LIMIT SWITCH	1	STANDARD
15	SOLENOID VALVE	1	STANDARD
16	A.F.R.	1	STANDARD



### Dimensional Table

Rating : 150 Class

SIZE (NB)	D1	D2	D3	De	n	L	L1	H1	H2
50 mm	51	121	160	19	04	35	42	83	102
65 mm	65	140	182	19	04	30	42	91	108
80 mm	80	152	200	19	04	37	46	100	118
100 mm	100	181	229	18	08	46	54	115	132
125 mm	130	216	250	22	08	67	66	127	160
150 mm	150	241	280	22	08	69	74	140	170
200 mm	200	298	338	22	08	76	88	169	210
250 mm	255	362	396	25	12	96	111	198	232
300 mm	312	432	478	25	12	116	132	239	289
350 mm	358	478	514	28	12	116	132	257	305
400 mm	398	540	594	28	16	153	169	297	353
450 mm	451	578	634	32	16	166	181	317	365
500 mm	500	635	704	32	20	171	190	352	405
600 mm	600	748	805	35	20	181	209	403	460

#### NOTE

1. If manual override application & Limit Switch are required height 'H' may increase accordingly.
2. Actuator Size may vary as per Actuator type and Air Supply pressure rating.
3. Solenoid valve & Coil will be available as per requirement.
4. Electrically Actuated Butterfly valves are also in our product range.
5. Proportional control valves are also available.



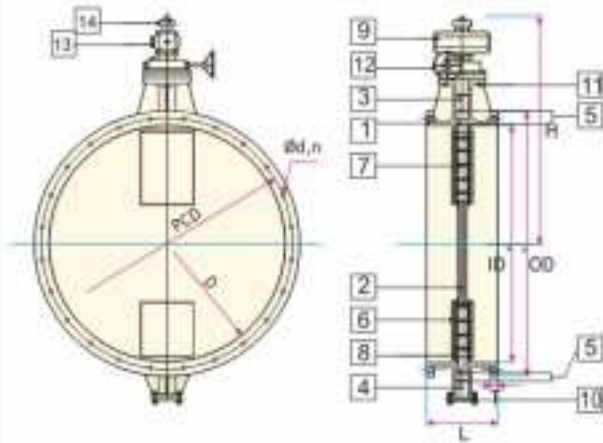


## Speciality Valves



## DAMPER

GEAR, PNEUMATICALLY & ELECTRICALLY ACTUATED



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY	1	FRP
2	DISC	1	PP / ISO.PP / PPH / PVDF
3	SPINDLE	1	SS-304 / SS-316, PP SLEEVED
4	BOTTOM PIN	1	SS-304 / SS-316, PP SLEEVED
5	SEAL	2	EPDM / VITON / NEOPRENE
6	HINGE PLATE COVER	—	PP / ISO.PP / PPH / PVDF
7	SPINDLE BOLTS	—	SS-304 / SS-316
8	HINGE PLATE	—	SS-304 / SS-316
9	ACTUATOR	—	AS PER DETAIL 1
10	BOTTOM FLANGE	1	FRP
11	FASTENERS	—	SS-304 / SS-316
12	MANUAL OVERRIDE	1	CAST IRON
13	SOLENOID VALVE	1	AS PER DETAIL 3
14	LIMIT SWITCH	1	AS PER DETAIL 4

### Dimensional Table

Rating : 150 Class

SIZE (NB)	L±5	OD	ID	H	D	T	PCD	Ød	n
400 mm	200	520	400	755	399	30			
500 mm	300	630	500	800	499	30			
600 mm	300	730	600	855	599	30	670	14	20
800 mm	300	930	800	955	798	30	890	14	20
900 mm	300	1030	900	1005	898	30	990	14	24
1000 mm	300	1120	997	1130	996	30	1000	15	24
1100 mm	300	1230	1099	1175	1097	30	1100	15	20

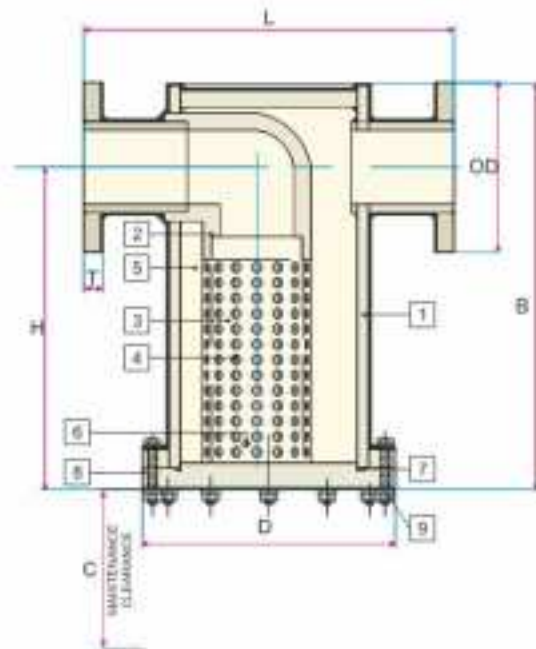
**NOTE**

Larger size Dampers can be provided upon request in fabricated type construction.



## STRAINER T / BASKET TYPE

LARGE SIZE



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	SHELL	1	PP / ISO.PP / PPH / PVDF + MIN 5mm THK. FRP
2	SEAT	1	PP / ISO.PP / PPH / PVDF / PTFE 25% GLASS-FILLED
3	OUTER TUBE	1	PP / ISO.PP / PPH / PVDF
4	FILTER WEB	1	PP / ETFE
5	INNER TUBE	1	PP / ISO.PP / PPH / PVDF
6	LOCK PIN	1	PTFE
7	COVER SEAL	1	EPDM / VITON
8	SHELL COVER	1	PP / ISO.PP / PPH / PVDF + MIN 5 mm THK. FRP
9	FASTENERS	—	SS-304 / MS GALVANISED

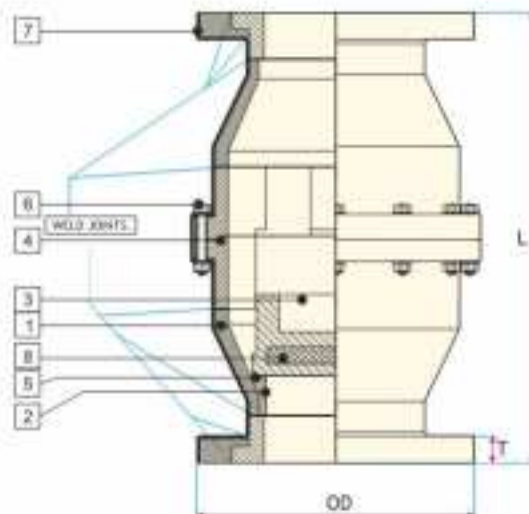
### Dimensional Table Rating : 150 Class

SIZE (NB)	L±8	OD	H±8	Q±8	T±8	B±8	C±8
150 mm	650	280	580	450	34	720	500
200 mm	905	343	880	660	34	880	600

**NOTE**  
Large sizes upto 300 mm are also in our Product Range.

## CHECK VALVE FLOAT TYPE

VERTICAL INSTALLATION – LARGE SIZE



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY PIECE	2	PP / ISO-PP / PPH / PVDF
2	SEAT	1	PP / ISO-PP / PPH / PVDF
3	FLOAT	1	PP / ISO-PP / PPH / PVDF
4	BODY SEAL	1	EPDM / VITON / PTFE
5	FLOAT SEAL	1	EPDM / VITON / PTFE
6	FASTNERS	—	MS GALVANISED / SS-304
7	FRP COATING	—	3mm THK ISOPHTHALIC / VINYLESTER RESIN
8	FLOAT INSERT	—	MS / SS

### Dimensional Table Rating :150 Class

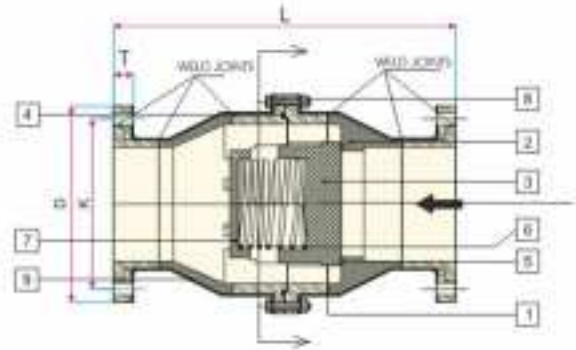
Size(NB)	L±0	OD	T	PCD	No of Holes	Hole Ø
200 mm	600	343	29	298	8	22
250 mm	640	407	31	362	12	25
300 mm	640	483	32	432	12	25

**NOTE**

1- Larger size Check Valves can be provided upon request in fabricated form construction  
 2- Large size Foot Valves are also in our product range

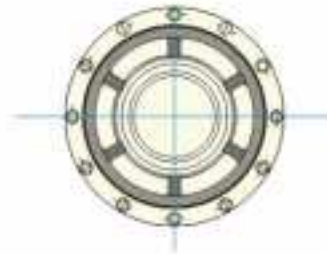
## CHECK VALVE FLOAT TYPE

### HORIZONTAL INSTALLATION – LARGE SIZE



### Material Specification

NO.	DESCRIPTION	QTY.	MATERIAL
1	BODY PIECE	2	PP / ISO.PP / PPH / PVDF
2	SEAT	1	PP / ISO.PP / PPH / PVDF
3	FLOAT	1	PP / ISO.PP / PPH / PVDF
4	BODY SEAL	1	EPDM / NBR / PTFE
5	FLOAT SEAL	1	EPDM / NBR / PTFE
6	OPEN COIL SPRING	1	HASTALLOY / SS-316L
7	SPRING HOUSING	1	PP / ISO.PP / PPH / PVDF
8	FASTENERS		SS - 304
9	FRP LINING		3 mm THK. -ISOPHTHALIC RESIN



### Dimensional Table

Rating - 150 Class

Size(NB)	L±B	D	T	K	No of Holes	Holes
200 mm	600	343	29	298	8	22
250 mm	640	407	31	362	12	25
300 mm	640	483	32	432	12	26

#### NOTE

Larger size Check Valves can be provided upon request in fabricated type construction.

## DISTRIBUTION HEADERS

### CAUSTIC AND BRINE APPLICATION



### Material Specification

SR.	DESCRIPTION	QTY	DESCRIPTION	QTY
<b>Figure 1</b>			<b>Figure 2</b>	
1	Stub end	1	Stub end	1
2	Range	1	Flange	1
3	Equal Tee	1	Short Bend (R=0)	1
4	Pipe Ø 63 mm	2	Pipe Ø 63 mm	1
5	Nozzle ferrule assy.	34	Nozzle ferrule assy	—
6	Vent valve	2	Vent valve	1
7	Nipple	2	Nipple	1
8	End cap	2	End cap	1

Figure 1

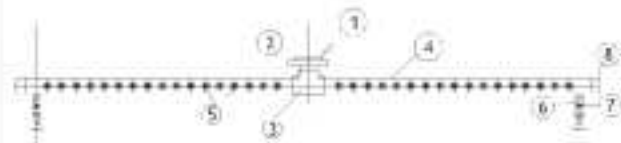
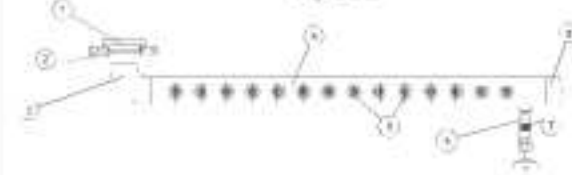


Figure 2



Caustic and Brine distribution header pipes are a vital component of caustic chloro plant, manufacturing caustic soda with membrane cell technology.

These header pipes are installed in combination of left and right an electrolyser of caustic chloro plant. Different electrolyser have requirements of various numbers of nozzles on header pipes depending on the capacity of electrolyser.

Entire ranges of 14 nos., 17 nos., 21 nos. and 34 nos. are manufactured by us.

These pipes are subjected to elevated temperatures upto 110°C, and are manufactured from special grade Isotactic PP / PPH, the most suitable material of construction for such application.

The pipes are in operation in the leading caustic chloro plants in India for last 9 years.

### Dimensional Table

Nozzles	LENGTH (L)
14 Nos.	1040 mm
17 Nos.	1235 mm
21 Nos.	1445 mm

#### NOTE

1. 4th & 5th generation Headers are also available
2. Right & Left assembly and T type versions.
3. Analytic & Coriolis auto distribution headers are also available

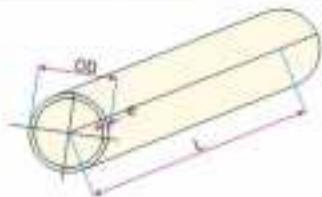


## Pipes & Fittings





## PIPES PVDF Plain Ends



### PN—10

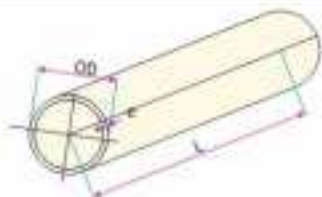
SIZE OD	THICKNESS e	LENGTH L (mm)
83 mm	2.0	5000
75 mm	2.3	5000
90 mm	2.6	5000
110 mm	3.4	5000
125 mm	3.9	5000
140 mm	4.3	5000
160 mm	4.9	5000
180 mm	5.5	5000
200 mm	6.2	5000
225 mm	6.9	5000

### PN—16

SIZE OD	THICKNESS e	LENGTH L (mm)
15 mm	1.8	5000
20 mm	1.9	5000
25 mm	1.8	5000
32 mm	2.4	5000
40 mm	2.4	5000
50 mm	3.0	5000
63 mm	3.0	5000
75 mm	3.6	5000
90 mm	4.3	5000
110 mm	5.3	5000
125 mm	6.0	5000
140 mm	6.7	5000
160 mm	7.7	5000

## PIPES PP / ISO . PP / PPH Plain Ends

PP / ISO, PP / PPH Pipes Manufactured as per DIN 8077



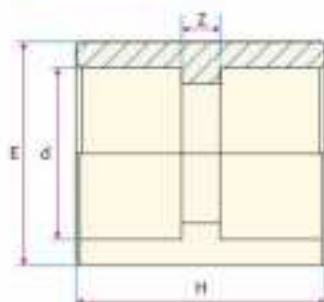
Size DN	Wall Series			
	NORMAL PRESSURES			
	PN 2.5	PN 4	PN 6	PN 10
OD mm	e mm	e mm	e mm	e mm
20			1.8	2.5
25			1.8	2.7
32			2.0	3.0
40			2.3	3.7
50	1.8	2.0	2.9	4.5
63	1.8	2.5	3.6	5.8
75	1.9	2.9	4.3	6.9
90	2.2	3.0	5.1	8.2
110	2.7	4.3	6.3	10.0

Size DN	Wall Series			
	NORMAL PRESSURES			
	PN 2.5	PN 4	PN 6	PN 10
OD mm	e mm	e mm	e mm	e mm
125	3.1	4.9	7.1	11.4
140	3.5	5.4	8.0	12.8
160	3.9	6.2	9.1	14.6
180	4.4	7.0	10.2	16.4
200	4.9	7.7	11.4	18.2
225	5.3	8.7	12.8	20.5
250	6.1	9.7	14.2	22.8
280	6.9	10.8	15.9	25.5
315	7.7	12.2	17.9	29.7

OD = Outside diameter of pipe  
e = Wall thickness of pipe  
Standard Length of pipe is 3000 mm

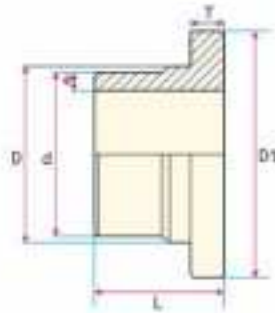
## COUPLINGS PP / ISO, PP / PPH / PVDF ENDS : SOCKET WELD

Dimensional Table



SIZE (OD)	E	d	H	Z
20 mm	31	25	35	7
25 mm	36	26	39	7
32 mm	44	32	43	7
40 mm	50	38	49	8
50 mm	60	46	59	9
63 mm	72	56	71	10
75 mm	82	66	81	11
90 mm	96	78	96	12
110 mm	116	96	116	13
140 mm	146	120	146	15

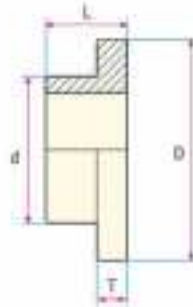
## STUB ENDS PVDF ENDS : BUTT WELD – LONG NECK



Dimensional Table

SIZE (OD)	d	D	D1	L	T
20 mm	2.5	26	45	30	6
25 mm	2.5	31	55	30	7
32 mm	3.0	38	60	30	7
40 mm	3.0	46	75	50	8
50 mm	3.5	58	80	50	8
63 mm	3.5	69	95	50	8
75 mm	4.0	84	119	50	10
90 mm	4.5	99	130	80	11
110 mm	5.0	118	153	80	12
140 mm	7.5	150	188	80	13
160 mm	8.5	170	205	118	18
180 mm	10.4	188	211	80	20
200 mm	10.2	213	247	80	20
225 mm	15.0	255	299	100	20
280 mm	25.0	291	321	100	25
315 mm	28.0	330	360	95	25
400 mm	25.0	400	460	90	27
450 mm	27.0	450	513	92	28

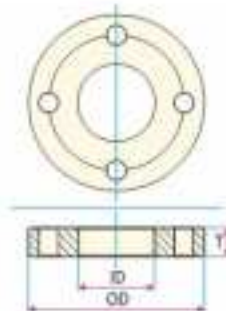
## STUB ENDS PP / ISO. PP / PPH / PVDF ENDS : BUTT WELD – SHORT NECK



Dimensional Table

SIZE (OD)	d	D	L	T
20 mm	20	37	25	6
25 mm	25	44	30	6
32 mm	32	60	30	6
50 mm	50	75	30	10
63 mm	63	95	30	12
75 mm	75	105	30	14
90 mm	90	123	30	14
110 mm	110	135	30	14
160 mm	160	203	38	18
225 mm	225	268	42	25

## FLANGES PP / ISO. PP / PPH / PVDF SLIP ON & PIPE BORE

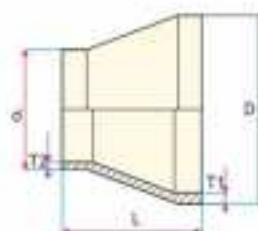


Dimensional Table

SIZE IN PIPE OD	SIZE IN NB	ID	OD	T
20	15	30	95	18
25	20	35	114	18
32	25	42	120	17
50	40	50	140	17
63	50	63	163	21
75	65	75	189	22
90	80	90	198	22
110	100	110	230	22
140	125	140	254	25
160	150	160	300	25
225	200	225	343	30
315	300	315	443	30

NOTE: For slip on flanges ID may vary

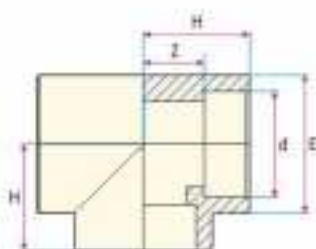
## CONCENTRIC REDUCERS PP / ISO, PP/ PPH / PVDF ENDS : BUTT WELD



Dimensional Table

SIZE IN PIPE OD (D-d)	SIZE IN NB	T1	T2	L
32 X 20	25 X 15	3.5	2.5	55.0
32 X 25	25 X 20	3.5	2.5	55.0
40 X 32	32 X 25	3.8	3.5	45.0
50 X 40	40 X 32	5.0	4.0	58.0
50 X 32	40 X 25	5.0	3.5	60.0
50 X 20	40 X 15	5.0	2.5	60.0
63 X 32	50 X 25	6.0	3.5	70.0
63 X 50	50 X 40	6.0	5.0	70.0
75 X 40	65 X 32	7.0	3.8	80.0
75 X 50	65 X 40	7.0	5.0	50.0
75 X 63	65 X 50	7.0	6.0	50.0
90 X 50	75 X 40	9.0	5.0	75.0
90 X 63	75 X 50	9.0	6.0	75.0
80 X 32	75 X 25	9.0	3.0	145.0
110 X 90	100 X 75	10.0	9.0	75.0
110 X 63	100 X 50	10.0	6.0	120.0
160 X 110	100 X 150	10.0	15.0	120.0
160 X 125	150 X 125	15.0	11.4	100.0
160 X 140	150 X 125	15.0	13.0	100.0
315 X 225	300 X 200	13.0	18.0	130.0
400 X 280	400 X 250	17.0	25.0	145.0
450 X 315	450 X 300	20.0	25.0	145.0

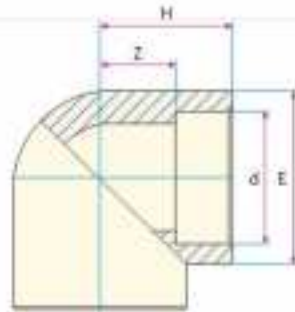
## EQUAL TEES PP / ISO, PP/ PPH / PVDF ENDS : SOCKET WELD



Dimensional Table

SIZE (OD)	E	d	H	Z
20 mm	26	20	29	17
25 mm	32	25	34	20
32 mm	42	32	46	24
40 mm	53	40	49	22
50 mm	63	50	61	30
63 mm	79	63	62	36
75 mm	91	75	75	43
90 mm	107	90	88	53
110 mm	128	110	104	69
150 mm	190	160	140	100

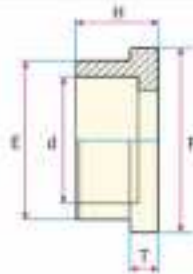
### ELBOWS PP / ISO. PP/ PPH / PVDF ENDS : SOCKET WELD



Dimensional Table

SIZE (OD)	E	d	H	Z
20 mm	26	20	27	15
25 mm	33	25	32	16
32 mm	44	32	38	20
40 mm	53	40	40	22
50 mm	67	50	49	25
63 mm	83	63	64	36
75 mm	91	75	75	43
90 mm	111	90	89	57
110 mm	136	110	106	69
160 mm	190	160	162	122

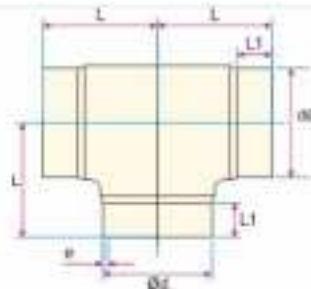
### STUB ENDS PP / ISO. PP/ PPH / PVDF ENDS: SOCKET WELD



Dimensional Table

SIZE (OD)	E	d	H	F	T
25mm	33	25	23	44	7
32 mm	41	32	26	50	10
50 mm	63	50	35	77	12
63 mm	76	63	37	90	14
90 mm	109	90	47	125	16
110 mm	131	110	55	150	18
160 mm	188	160	70	216	18
200 mm	228	200	90	275	22

### EQUAL TEE PVDF BUTT WELD ENDS

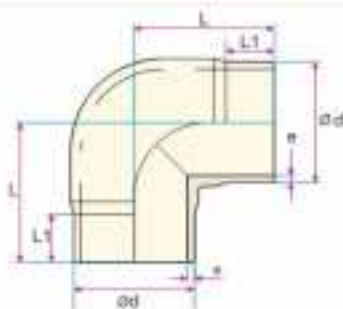


Dimensional Table

d	PN	e	L	L1
20 mm	16	1.9	38	20
25 mm	16	1.9	42	20
32 mm	16	2.4	48	20
40 mm	16	2.4	51	20
50 mm	16	3.0	58	20
63 mm	16	3.0	66	20
75 mm	16	3.6	78	20
90 mm	16	4.3	90	20
110 mm	16	5.3	110	20
160 mm	16	7.7	160	25



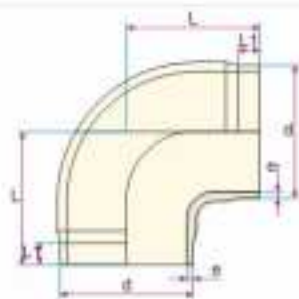
### ELBOW 90° PVDF BUTT WELD ENDS



Dimensional Table

d	PN	e	L	L1
20 mm	16	1.9	38	16
25 mm	16	1.9	42	16
32 mm	16	2.4	46	18
40 mm	16	2.4	51	18
50 mm	16	3.0	59	20
63 mm	16	3.0	66	20

### BENDS 90° PVDF BUTT WELD ENDS



Dimensional Table

d	PN	e	L	L1
75 mm	16	2.6	75	16
90 mm	16	4.3	90	20
110 mm	16	5.3	110	20
160 mm	16	7.7	160	25

### ELBOW 45° PVDF / PP / ISO. PP / PPH / SOCKET WELD ENDS



Dimensional Table

SIZE (ØD)	PN	D	L	Z
20 mm	16	31	21	7
25 mm	16	36	24	8
32 mm	16	44	28	10
40 mm	16	53	33	13
50 mm	16	64	36	13
63 mm	16	82	43	16
75 mm	16	93	51	20
90 mm	16	114	58	23
110 mm	16	134	68	27



## Our Range of Fluoropolymer / Fluorocarbon Lined – Valves & Piping System



Brochure Available on Request

### Standard Hydro Test Pressure Chart

SIZE (NB)	Pressure -KG/CM <sup>2</sup> Seat	
	Body	Seat
<b>Ball Valves</b>		
15 - 80 mm	15	10
100 mm	10	10
150 mm	05	05
<b>Ball Type Check Valves - Vertical &amp; Horizontal</b>		
25 - 100 mm	15	10
150 mm	05	05
<b>Float Type Check Valves</b>		
200 - 300 mm	04	04
350 mm	03	03
<b>Float Type Foot Valves</b>		
200 - 300 mm	04	04
350 mm	03	03

SIZE (NB)	Pressure -KG/CM <sup>2</sup> Seat	
	Body	Seat
<b>Diaphragm Valves - Rubber Diaphragm</b>		
15 - 50 mm	10	07
80 - 150 mm	07	07
<b>Advanced Version - PTFE Diaphragm</b>		
<b>Diaphragm Valves</b>		
15 - 50 mm	10	10
80 - 150 mm	07	07
<b>Butterfly Valves - Full Lug Type</b>		
upto 100 mm	10	10
125 - 450 mm	05	05
above 450 mm	05	04

For Hi-Tech<sup>®</sup> Polyvalves<sup>®</sup> make Valves

SIZE (NB)	Pressure -KG/CM <sup>2</sup> Seat	
	Body	Seat
<b>Ball Type Foot Valves</b>		
25 - 150 mm	04	04
<b>Sight Glass</b>		
25 - 80 mm	10	
100 - 150 mm	05	
<b>Sampling Valves - Flanged &amp; Dandelion Type</b>		
28mm	05	05
<b>T-Type Strainer</b>		
50 - 100 mm	06	
150 - 200 mm	05	
250 - 300 mm	02	

**NOTE**

- 1) All valves are subjected to hydrotest pressure for 30 seconds.
- 2) Pneumatic test can also be offered upon request for specific application.

### Different Drilling Standards For 150# Flanges

All Dimensions are in mm, unless otherwise specified.

SIZE NO.	DESCRIPTION OF DIMENSION	BS 159	BS 16	BS 10	BS 10	ANSI	ASA 150	BS 159	BS 4504 T. 6/3-DR	BS 4504 T. 5&6	AS
1/2" 15MM	THICK	13	13	12	12	11	11	14	12	12	12
	OD	114	95	95	95	88.9	89	95	80	80	95
	PC.D.	83	67	67	67	60.3	60	65	55	55	70
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	14/4	14/4	14/4	14/4	11/4	11/4	15/4
3/4" 20MM	THICK	13	13	13	13	12.7	11	16	14	14	14
	OD	114	102	102	102	98.4	98	105	90	90	100
	PC.D.	83	73	73	73	66.8	66	73	65	65	75
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	14/4	14/4	14/4	14/4	11/4	11/4	15/4
1" 25MM	THICK	14	13	13	13	14.2	11	16	14	14	16
	OD	121	114	114	121	107.0	100	115	100	100	125
	PC.D.	87	82	82	87	79.3	79	85	75	75	90
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	11/4	11/4	15/4
1-1/4" 32MM	THICK	16	16	16	16	15.8	13	16	16	16	16
	OD	139	121	121	133	117.4	117	140	130	130	135
	PC.D.	95	87	87	98	88.9	89	100	90	90	100
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	12/4	12/4	15/4
1-1/2" 40MM	THICK	17	16	16	16	17.4	14	16	16	16	18
	OD	149	135	135	149	127.0	127	150	150	150	140
	PC.D.	105	98	98	105	98.4	95	110	100	100	105
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	14/4	14/4	15/4
2" 50MM	THICK	18	18	18	18	18	16	18	16	16	20
	OD	165	152	152	165	152.4	152	165	160	160	165
	PC.D.	127	114	114	127	120.6	121	125	110	110	120
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	14/4	14/4	15/4
2-1/2" 65MM	THICK	18	18	18	18	22.2	17	21	16	16	22
	OD	184	165	165	184	177.8	178	185	180	180	175
	PC.D.	145	127	127	145	138.7	140	145	130	130	140
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	14/4	14/4	15/4
3" 80MM	THICK	22	19	19	19	23.8	19	20	16	16	22
	OD	203	188	188	203	190.5	191	200	190	190	185
	PC.D.	165	145	145	165	152.4	152	160	150	150	150
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	14/4	14/4	15/4
4" 100MM	THICK	25	22	22	22	25.8	24	20	16	16	24
	OD	329	299	299	329	328.6	329	329	320	320	310
	PC.D.	191	178	178	191	181.5	181	181	170	170	175
	HOLE DIA./NO OF HOLES	18/4	14/4	14/4	18/4	14/4	14/4	14/4	14/4	14/4	15/4
6" 150MM	THICK	25	22	22	22	25.4	25	22	20	20	25
	OD	305	279	279	305	279.4	279	280	265	265	280
	PC.D.	200	235	235	200	241.3	241	240	225	225	240
	HOLE DIA./NO OF HOLES	22/12	18/8	22/8	22/12	22/8	22/8	22/8	22/8	22/8	23/8

## CONSULTANTS WITH WHOM OUR PRODUCTS ARE APPROVED

Aer Powergas Pvt Ltd  
 Chempro Expertise Pvt Ltd  
 Chemtek Engineering of India Limited  
 Engineers India Limited  
 Fumaco Fabrica India Ltd  
 Hindustan Door Oiler Limited  
 BI Chematur-Engg & Consulting] Ltd  
 Hwa Bidstock  
 Jeebix Engineering India Pvt Ltd

Kaestner John Brown Limited  
 KT India Limited  
 Lele & Associates  
 Lurgi India Limited  
 M. R. Dastur & Company Limited  
 Monsanto DMCC Envision tech s limited  
 Muz McDonald Limited  
 Pwtech Consultants Pvt Ltd  
 Shrinam Projects Limited

Shroff & Associates Pvt Ltd  
 Simor India Limited  
 SNC Lavin Associates  
 Tata Consulting Engineering  
 Tata Projects  
 Technomac ICI Limited  
 Toyo Engineering India Limited  
 TUV India Pvt Limited  
 UHF India Limited

## OUR ESTEEMED CUSTOMERS

### CHLOR ALKALI PLANTS

Aditya Birla Nuvo Ltd (Indian Rayon)	Venkat
Aditya Birla Chemicals Ltd (Bihar Coaster)	Jharkhand
Anilco Sugar limited	Kolar / Suggonda
Arc Limited	Vadod
Century Rayon	Sahel
Chemtech Alkalies & Chemicals Ltd	Pondicherry
Chemplast Sommer Ltd	Karnal / Mehar Dam
DCW Limited	Sahapuram, TN
Eajurat Alkalies & Chemical Ltd	Banda & Oshj
Gujarat Fluoro Chemicals Ltd	Dahj
Green Industries Ltd (Chemical Division)	Magda
Hukumchand Jute & Industries Ltd	Shadi
Jagdish Chemicals Ltd	Orissa
Kanona Chemicals Ltd	Perunkot

Meghmani Finechem Ltd	Dahj
Nirma Limited	Bharuagar
NRC Limited	Sahel
Punjab Alkalies & Chemical Ltd	Naga Nangal
Reliance Industries Ltd (PCL)	Dahj
United Phosphorus Ltd (Unit 5)	Jhagada
Shrinam Alkalies and Chemical Ltd	Jhagada
Shrinam Vinyl & Chemicals Ltd	Kota
Sol Chemical Complex	Rajpura
Sree Raja Keema Alkalies & Chemicals Ltd	Kumool
Tamilnada Petroproducts Ltd	Chennai
Tata Chemicals Ltd	Midnapur
Tejnar Chemicals Ltd	Andhrpradesh
Trentacore Cation Chemicals Ltd	Cochin

### COLD ROLLING MILLS & STEEL INDUSTRIES

Bhushan Power & Steel Ltd	Orissa
Essar Steel Ltd	Hajira
Hindustan Industries Ltd (Birla Copper)	Dahj
Hindustan Copper Ltd	Khatm
Hindustan Zinc Ltd	Dahan
IPAT Industries Ltd	Kalneshtwar
Jagdish Copper Ltd	Jagdish
JSA Ltd	Vasind
Jindal Iron & Steel Co Ltd	Tanapur
JSA Ltd	Hosur
Lloyds Steel Industries Ltd	Wardha
NMDC Ltd	Waknagabanam
Panchmahal Steel Ltd	Hald
Niramat Industries Ltd	Mumbai & Dns
Steel Authority of India Ltd	Bokaro
Steel Authority of India Ltd	Salem
Steelco Gujarat Ltd	Paldi
SAIL Ltd	Jhagada
Tata SSl Ltd	Hosur, Beroil & Narayan
Thyssen Krupp Electrical Steel India Pvt Ltd	Nasik
Tinplate Co of India Ltd	Jamshedpur
Uttam Gaha Ltd	Khopol

### ORIGINAL EQUIPMENT MANUFACTURERS

Aquatich Asia Ltd	Mumbai
Andhra Ltd	Bangalore
CEI FPE Ltd Andhra	Mumbai
Dash-In Ltd	Mumbai
Dipco Water Engineering Ltd	Mumbai
Fumaco Fabrica India Ltd	Mumbai
GEA Energy System Ltd	Chennai
Hindustan Door Oiler Ltd	Bangalore
Hollow Block Mfg Co	Thane
Ion Exchange India Ltd	Now Mumbai
ISI	New Delhi
KTI Ltd	New Delhi
Multiform Machinery Bombay Pvt Ltd	Mumbai
Paramount Pollution Control Ltd	Boroda
Rocin Ltd	Cambeah
Sulzer India Ltd	Pune
SNC Lavin Associates	Mumbai
Shachi Engineering Pvt Ltd	Pune
Thermax Ltd	Kolcat
VA-Tech Wabag Pune	Chennai
Wipro Water Ltd New	Mumbai

### CHEMICAL & PHARMACEUTICAL INDUSTRIES

Anilco Chemicals Pvt Ltd	Mumbai
Arb Organics Ltd	Vapi
Arnold Organics Ltd	Bhalera
Andhra Pradesh Rayons Ltd	Secunderabad
BAJF Ltd New	Mumbai & Mangalore
Balapur Industries Ltd	Bolapur
Bharat Rayayan Ltd	Rohat
Barni Proteins Ltd	Chandrapur
BPCL	Mumbai
Bayer India Ltd	Thane, Maharashtra
Cheminox India Ltd	Panaji
Damphor & Allied Products	Mumbai
Dansat India Ltd	Thane & Roha
Daurala Organics Ltd	Daurala
DSM And Intersols Ltd	Mohali
Emurex Pharma Ltd	Pune
Eddle Industries Ltd	Pune & Talas
Galaxy Bio-Products Ltd	Now Mumbai
Gemini Distilleries Ltd	Nanjanga
Ghanta Chemicals Ltd	Dombval

Hindustan Lever Ltd	Talga
Indian Rare Earth Ltd	Orissa
Indian Organics	Khatol
Lupin Ltd	Andhrahar & Panaji
Pesticides India Ltd	Panaji & Udupur
Phthalic Colours & Chemicals [I] Ltd	Vapi
PFER Ltd C	hastigarh
Pandray Laboratories Ltd	Dewas, Mawal & Popar
Solanes Chemicals Ltd	Kawar, Khaida & Vadodara
SRF Ltd	Bhwal, Rajasthan
South India Dyes and Chemicals Ltd	Tuticort
Sun Pharmaceuticals Hd Ltd	Panaji
Transpet Industry Ltd	Boroda
The Barni Manarje Chemical Ltd	Anbamath
The Andhra Pradesh Paper Mills Ltd	Rajmudra
Troby Distilleries & Chemicals Ltd	Tinathrapalli
United Phosphorus Ltd	Vapi
Vasant Chemicals Ltd	Hydrabad
Wohardt Ltd	Mumbai & Anandhar

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