DTECH
PRODUCTS PVT. LTD.

AN ISO 9001:2015
Company

ENGINEERING | INNOVATION | EMPOWERED

FLUOROPOLYMER

LINED PIPES, FITTINGS, VALVES & EXPANSION JOINTS

DTPL is an end-to-end solution provider in the business of corrosive fluid. We have efficiently helped organizations across verticals such as chemical industries, paper plants, pharmaceuticals companies and power plants. We have mastered the art and we are the chosen one when it comes to efficient corrosive fluid transfer.

With our unmatched production capabilities and stringent quality policies, we have created a strong legacy within a decade.

Quality Policy Statement

To Provide Our Clients, Quality, Cost Effective Products & Services on Time, Every Time.

Our aim is to sustain and enhance customer satisfaction by improving effectiveness of quality management system through teamwork.

OUR LEGACY

1982

Super Scientific Glass Industries

Principal company that started in Year 1982 by our promoter Mr. Naresh Goyal.

Pioneer in borosilicate glass processed in India.

1996

Chemcon Speciality Chemicals Ltd.

Chemical Company of the group, established in 1996, manufactures Pharma Intermediates & Fine Chemicals.

The company was accredited as a limited company by SEBI in 2021 and share listed on Stock exchange.

www.cscpl.com

2009

DTech Products Pvt. Ltd.

Engineering company of the group, diversified into Fluoropolymers Lined Pipes, Fittings, and Valves. Formerly known as Super Industrial Lining Pvt. Ltd.

www.dtplproducts.com

2012

Shivam Petrochem Industries

Shivam Petrochemicals Industry was formed in 2012 and thereafter rapidly grew into the field of pharmaceutical intermediates, giving in green option to pharma industry.

www.sscplin.com

2015

Supertech Fabrics Pvt. Ltd.

Technical Textile company that started in 2015 as a media manufacturing for glass based woven fabrics and PTFE coating and lamination.

Company entered into Filter bags, PTFE belts and tapes etc, and further diversifies into high temperature application products like flexible expansion joints, safety suits, etc in 2021.

www.supertechfabrics.com

2021

GGC Chemicals & Pharmaceuticals Pvt. Ltd.

Established in year 2021, the group further diversified into Active-pharma ingredients and speciality chemicals.

GGC Chemicals and Pharmaceuticals was founded as a new age company with a top-down approach of forward integration from pharma intermediates to API.

www.ggcpharma.com

VISION

To be the global leader in the field of plastic and fluoropolymer lined products, With the best value to the customer by honoring our commitments with no compromise on quality by maintaining Integrity and following Honesty, Openness, Transparency, constructive self-criticism and mutual respect.

MISSION

To provide the best value to the customer in plastic and Fluoropolymer Lined Products, by

- Constantly innovating by continuous improvements and consistent quality.
- Developing newer, better and cost effective manufacturing processes
- Developing diversified markets which provide stability and adequate financial returns.
- Applying newer technologies and business practices, for environment-friendly and sustainable growth.

General Specification - Technical Data

PTFE Properties

Raw Material	Value	Unit	Test Method
Polymer Grade			ASTM D 4895
Mechanical	**Value**	**Unit**	**Test Method**
Density	2.15 - 2.20	g/cm³	DIN 53479
Tensile Strength	≥ 20.7	Mpa	DIN 638
Elongation at Break	≥ 250	%	DIN 638
Hardness	55 - 60	Shore 'D'	DIN 53516
Thermal	**Value**	**Unit**	**Test Method**
Melting Point	327.0	ºC	ISO 12086
Temperature Range	-29 to + 260	ºC	
Coefficient of Linear Thermal Expansion			DIN 53328
20ºC - 100ºC	16 x 10^{-5}	K^{-1}	
20ºC - 200ºC	19.5 x 10^{-5}	K^{-1}	
20ºC - 300ºC	25 x 10^{-5}	K^{-1}	
Vicat Softening Point	110	ºC	DIN 53640
Conductivity	0.25 - 0.25	W/m K	DIN 52612
Flammability	Non Flammable		
Specific Heat at 0ºC	0.96	kj/kg x K	
Specific Heat at 50ºC	1.05	kj/kg x K	

PFA & FEP Properties

Properties	ASTM or Unit	PFA	FEP
Mechanical Properties			
Specific Gravity	D 792	2.15 - 2.20	2.15 - 2.20
Elongation %	D 638	≥ 300	≥ 250
Tensile Strength (psi)	D 638	≥ 26.7 MPA	≥ 20.7 MPA
Tensile Elastic Modulus (Young's Modulus) (psi)	D 638	72,500 - 87,000	50,000
Flex Life (MIT cycles)	D 2176	10,000 - 500,000	5,000 - 80,000
Hardness Durometer Shore D	D 636	D 55 ~ 60	D 55
Coefficient of Friction	on Steel	0.2	0.05
Abrasion Resistance 1000 revs.	Taber	9 ~ 17	14 - 20
Impact Strength IZOD 73ºF / 23ºC, notched ft/lbs/in	D 256	no break	no break
Thermal Properties			
Temperature Range	ºC	-29 to + 260	-29 to + 149
Flame Rating **	UL 94	V - 0	V - 0
Thermal Conductivity	BTU / hr / ft² / ºF in	1.3	1.4
Liner Coefficient of Thermal Expansion 10 - 5ºC	D 696	1.3	8.3 ~ 10.5
Electrical Properties			
Dielectric Constant	D 150 / 103Hz	2.1	2.1
	D 150 / 106Hz	2.1	2.1
Dielectric Strength 10 mil Film	D 149	> 2000	> 2000
Volume Resistivity ohm-cm	D 257	> 1018	> 1018
Surface Resistivity ohm / sq.	D 257	> 1017	> 1017

PP, HDPE & PVDF Properties

Properties	ASTM	Unit	PE-HD	PP	PVDF
Mechanical Properties					
Tensile Strength at Yield (σS)	ISO 527	Mpa	27	30	50
Elongation at Yield (εS)	ISO 527	%	9	10	9
Tensile Strength at Break (σR)	ISO 527	Mpa	35	-	46
Elongation at Break (εR)	ISO 527	%	≥ 700	≥ 50	≥ 50
Impact Strength (an)	ISO 179	kJ/m²	no break	no break	252
Notch Impact Strength (ak)	ISO 179	kJ/m²	29	50	22
Ball Indentation Hardness (Hk)/Rockwell	ISO 2039	Mpa	-	67	80
Shore-D	DIN 53505	-	64	70	78
Flexural Strength (σB 3,5%)	ISO 178	Mpa	22	-	80
Modulus of Elasticity (Et)	ISO 527	Mpa	1150	1200	2000
Thermal Properties					
Vicat Softening Temperature VST / B / 50	ISO 306	°C	80	91	140
VST / A / 50		°C	129	-	160
Heat Deflection Temperature HDT / B	ISO 75	°C	69	96	145
HDT / A		°C	-	-	104
Coef. of Linear Therm. Expansion (α)	DIN 53752	$K^{-1} \times 10^{-4}$	1.5	-	1.2
Thermal Conductivity at 20 °C (λ)	DIN 53752	W/(mxK)	0.42	-	0.13
Physical Properties					
Specific Gravity (ρ)	ISO 1183	g/cm³	0.95	0.91	1.78
Water Absorption	ISO 62	%	0.01	0.01	≥ 04
Chemical Resistance		-	DIN 8075	-	-
Max. Permissible Service	Upper	°C	90	100	150
Temperature	Lower	°C	-50	5	-30

Chemical Compatibility Table

R = Resistant / A = Excellent - No effect / B = Good - Minor effect / C = Fair - Moderate effect
U = Unsatisfactory / X = Conflicting Data / -= No Data Available
*No corrision rate reported

Code	PTFE	FEP	PFA	PVDF	HDPE	PP
Acetaldehyde	A	R	A	X	U	A
Acetamide	A	R	A	C	R	A
Acetate Solvent	A	R	A	A	R	B
Acetic Add 10%	A	R	A	C	R	B
Acetic Add, Glacial	A	R	A	B	R	A
Acetone	A	R	A	U	R	A
Acetonitrile	R	R	R	R	-	R
Acetophenone	R	R	R	R	U	R
Acetyl Chloride	A	R	A	R	U	U
Acetylene	R	R	R	R	-	R
Acrylonitrile	A	R	A	A	R	A
Adipic Acid	A	R	A	A	R	B
Aldrin (1 oz./gal.)	-	-	-	-	-	-
Allyl Alcohol	R	R	R	R	R	R
Allyl Chloride	R	R	R	R	R	R
Ammonium Acetate	A	R	A	R	-	A
Ammonium Oxalate 10%	R	R	R	-	-	R
Amyl Acetate	A	R	A	A	R	X
Amyl Alcohol	A	R	A	A	R	B
Amyl Chloride	R	R	R	U	U	U
Aniline	A	R	A	A	R	X
Aniline Hydrochloride	A	R	A	A	U	X
Antifreeze	-	-	-	-	-	U
Aroclor 1248	A	R	A		U	U
Asphalt	A	R	A	A	R	B
Benzaldehyde	A	R	A	A	U	X
Benzene	A	R	A	A	U	X
Benzo Sulfonic Acid 10%	R	R	R	R	R	R
Benzyl Alcohol	A	R	A	A	U	A
Benzoic Acid	A	R	A	A	B	R
Benzol	A	R	A	A	U	U
Benzonitrile	A	R	A	-	A	-
Benzyl Chloride	R	R	R	R	-	C
Bromobenzene	R	R	R	R	-	U
Butadiene	A	R	A	A	U	U
Butane	A	R	A	A	U	U
Butyl Alcohol	A	R	A	A	B	R
n-Butyl Amine	A	R	A	X	U	U
Butyl Ether	A	R	A	A	-	-
Butyl Phenol	R	R	R	R	-	U
Butyl Phthalate	R	R	R	R	-	R
Butylacetate	A	R	A	B	R	X
Butyric Acid	R	R	R	A	U	R
Carbon Tetrachloride	R	R	R	R	U	U
Carbonic Acid	A	R	A	A	R	A
Chloroacetic Acid	A	R	A	A	U	C
Chlorobenzene	B	R	B	A	U	U
Chlorobromomethane	A	-	A	-	-	A
Chlordane (¼.lb./gal.)	R	-	R	-	-	-
Chloroethane	A	R	A	A	R	X
Chloroform	A	R	A	A	U	X
Chloronaphthalene	-	-	-	-	-	-
Chlorophenol 5% (aq.)	R	R	R	R	-	-
Citric Acid	A	R	A	A	A	A
Cresol	R	R	R	R	U	U
Cresylic Acid 50%	R	R	R	R	R	X
Crude Oil	U	R	U	U	U	R
Cyclohexane	A	R	A	R	R	U
Cyclohexanone	A	R	A	R	U	U
DDT 5%	-	-	-	-	-	-
Detergents (general)	A	R	A	A	R	A

Code	PTFE	FEP	PFA	PVDF	HDPE	PP
Diacetone Alcohol	A	R	A	A	R	R
Dibutyl Phthalate	R	R	R	U	U	R
Dichlorobenzene	A	R	A	A	U	C
Dichloroethane	A	R	A	A	R	X
Dichloroethylene	R	R	R	R	-	R
Dichlorofluoromethane	R	R	R	-	-	-
Diesel Fuel	A	R	A	A	R	A
Diethanolamine	R	R	R	U	-	R
Diethyl Amine	X	R	X	X	U	A
Diethyl Ether	A	R	A	R	U	R
Diethyl Phthalate	R	-	R	-	-	-
Diethylene Glycol	A	R	A	A	R	A
Dimethyl Aniline	A	R	A	A	-	X
Dimethyl Ether	R	R	R	-	-	-
Dimethyl Formamide	X	R	X	U	R	A
Dimethyl Phthalate	R	R	R	R	-	R
Dimethyl Sulfoxide	R	R	R	U	R	R
Dinitrotoluene	R	-	R	-	-	-
Dioctyl Phthalate	R	R	R	R	U	U
Dioxane	R	R	R	U	U	R
Diphenyl	A	R	A	-	-	U
Diphenyl Oxide	A	-	A	B	-	U
Esters (general)	R	R	R	R	-	-
Ethane	A	-	A	A	-	U
Ethanolamine	A	R	A	X	-	X
Ethers (general)	A	-	A	R	U	U
Ethyl Acetate	A	R	A	X	R	A
Ethyl Alcohol	A	R	A	R	R	A
Ethyl Benzene	R	R	R	R	U	U
Ethyl Benzoate	A	-	A	U	U	B
Ethyl Chloride	R	R	R	R	U	U
Ethyl Ether	A	R	A	R	U	U
Ethyl Sulfate	A	-	A	-	-	-
Ethylene Bromide	A	R	A	A	U	U
Ethylene Chloride	A	R	A	A	R	X
Ethylene Chlorohydrin	A	R	A	A	U	X
Ethylene Diamine	A	R	A	B	-	R
Ethylene Dibromide	R	R	R	R	-	R
Ethylene Glycol	A	R	A	A	R	A
Ethylene Oxide	A	R	A	A	R	U
Formaldehyde 100%	A	-	A	A	-	C
Formaldehyde 37%	A	R	A	A	R	A
Formic Acid 5%	R	R	R	R	R	R
Fuel Oils	B	R	B	B	R	A
Gasoline (high-aromatic)	B	-	B	A	-	A
Gasoline (leaded)	A	R	A	A	U	X
Gasoline (unleaded)	A	R	A	A	U	X
Glycolic Acid	A	R	A	B	R	A
Heptane	A	R	A	A	R	C
Hexachloroethane	R	-	R	-	-	-
Hexamine	R	R	R	-	-	-
Hexane	A	R	A	A	U	B
Hexyl Alcohol	A	-	A	-	-	-
Hydraulic Oil (petro.)	A	-	A	A	-	U
Hydraulic Oil (synthetic)	A	-	A	A	-	U
Hydrazine	C	-	C	A	U	C
Hydrogen Peroxide (dilute)	R	R	R	R	R	R
Hydroquinone	A	R	A	R	-	A
Hydroxyacetic Acid 70%	A	-	A	A	-	-
Iodoform	C	R	C	C	-	R
Isobutyl Alcohol	A	-	A	-	-	A

Chemical Compatibility Table

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Code	PTFE	FEP	PFA	PVDF	HDPE	PP
Isooctane	A	-	A	A	B	A
Isopropyl Acetate	A	R	A	X	R	B
Isopropyl Alcohol	A	R	A	R	R	A
Isopropyl Ether	A	R	A	X	-	X
Isotane	-	-	-	A	-	U
Jet Fuel JP-4, JP-5	A	R	A	A	-	A
Kerosene	A	R	A	A	R	R
Lacquer Thinners	A	-	A	-	-	U
Lacquers	A	-	A	U	-	U
Lactic Acid	A	R	A	B	-	B
Lead Acetate	A	R	A	A	R	A
Linoleic Acid	A	R	A	A	U	B
Maleic Acid	A	R	A	A	R	R
Malic Acid	A	R	A	A	R	A
Melamine	A	-	A	-	-	A
Methane	A	R	A	A	-	A
Methyl Acetate	A	R	A	B	R	X
Methyl Acetone	A	-	A	U	-	-
Methyl Acylate	-	-	-	B	-	U
Methyl Alcohol	A	R	A	A	R	A
Methyl Alcohol 10%	A	-	A	A	B	A
Methyl Amide	A	-	A	C	-	A
Methyl Bromide	A	R	A	A	R	X
Methyl Butyl Ketone	-	-	-	U	U	U
Methyl Chloride	A	R	A	A	U	U
Methyl Chloroform	R	R	R	R	-	U
Methyl Dichloride	-	-	-	U	-	U
Methyl Ethyl Ketone	A	R	A	U	U	B
Methyl Isopropyl Ketone	A	-	A	-	-	-
Methyl Methacrylate	R	R	R	B	-	X
Methyl Pentanone	A	R	A	X	R	R
Methylene Chloride	A	R	A	B	U	B
Monochloroacetic Acid	A	-	A	B	U	-
Monoethanolamine	A	R	A	U	-	B
Motor Oil	A	R	A	B	U	U
Napthalene	A	R	A	A	U	R
Nitrobenzene	A	R	A	A	U	B
Nitromethane	A	R	A	A	-	R
Nitrophenol	R	-	R	-	-	-
Octane	R	R	R	R	R	R
Octyl Alcohol	-	-	-	-	-	-
Oleic Acid	A	R	A	A	U	B
Oxalic Acid 5%	R	R	R	R	R	R
Palmitic Acid 10%	A	R	A	A	R	B
Pentachlorophenol	R	-	R	-	-	-
Pentane	A	-	A	A	-	U
Petroleum	A	R	A	A	U	B
Phenol 10%	A	R	A	A	R	B
Phthalic Acid	A	R	A	A	-	A
Phthalic Anhydride	A	R	A	A	-	U
Picric Acid	A	R	A	A	U	A
Propyl Alcohol	A	R	A	A	R	A
Propylene	A	-	A	-	-	-
Propylene Glycol	A	R	A	A	R	A
Propylene Oxide	R	R	R	U	R	R
Pyridine	A	R	A	U	R	A
Sodium Acetate	A	R	A	A	R	A
Sodium Benzoate	A	R	A	A	R	A
Sodium Hypochlorite 20%	R	R	R	R	R	R
Stearic Acid	A	R	A	A	R	A
Acetaldehyde	A	R	A	X	U	A

Code	PTFE	FEP	PFA	PVDF	HDPE	PP
Acetamide	A	R	A	C	R	A
Acetate Solvent	A	R	A	A	R	B
Acetic Add 10%	A	R	A	C	R	B
Acetic Add, Glacial	A	R	A	B	R	A
Acetone	A	R	A	U	R	A
Acetonitrile	R	R	R	R	-	R
Acetophenone	R	R	R	R	U	R
Acetyl Chloride	A	R	A	R	U	U
Acetylene	R	R	R	R	-	R
Acrylonitrile	A	R	A	A	R	A
Adipic Acid	A	R	A	A	R	B
Aldrin (1 oz./gal.)	-	-	-	-	-	-
Allyl Alcohol	R	R	R	R	R	R
Allyl Chloride	R	R	R	R	R	R
Ammonium Acetate	A	R	A	R	-	A
Ammonium Oxalate 10%	R	R	R	-	-	R
Amyl Acetate	A	R	A	A	R	X
Amyl Alcohol	A	R	A	A	R	B
Amyl Chloride	R	R	R	U	U	U
Aniline	A	R	A	A	R	X
Aniline Hydrochloride	A	R	A	A	U	X
Antifreeze	-	-	-	-	-	U
Aroclor 1248	A	R	A		U	U
Asphalt	A	R	A	A	R	B
Benzaldehyde	A	R	A	A	U	X
Benzene	A	R	A	A	U	X
Benzo Sulfonic Acid 10%	R	R	R	R	R	R
Benzyl Alcohol	A	R	A	A	U	A
Benzoic Acid	A	R	A	A	B	R
Benzol	A	R	A	A	U	U
Benzonitrile	A	R	A	-	A	-
Benzyl Chloride	R	R	R	R	-	C
Bromobenzene	R	R	R	R	-	U
Butadiene	A	R	A	A	U	U
Butane	A	R	A	A	U	U
Butyl Alcohol	A	R	A	A	B	R
n-Butyl Amine	A	R	A	X	U	U
Butyl Ether	A	R	A	A	-	-
Butyl Phenol	R	R	R	R	-	U
Butyl Phthalate	R	R	R	R	-	R
Butylacetate	A	R	A	B	R	X
Butyric Acid	R	R	R	A	U	R
Carbon Tetrachloride	R	R	R	R	U	U
Carbonic Acid	A	R	A	A	R	A
Chloroacetic Acid	A	R	A	A	U	C
Chlorobenzene	B	R	B	A	U	U
Chlorobromomethane	A	-	A	-	-	A
Chlordane (¼.lb./gal.)	R	-	R	-	-	-
Chloroethane	A	R	A	A	R	X
Chloroform	A	R	A	A	U	X
Chloronaphthalene	-	-	-	-	-	-
Chlorophenol 5% (aq.)	R	R	R	R	-	-
Citric Acid	A	R	A	A	A	A
Cresol	R	R	R	R	U	U
Cresylic Acid 50%	R	R	R	R	R	X
Crude Oil	U	R	U	U	U	R
Cyclohexane	A	R	A	R	R	U
Cyclohexanone	A	R	A	R	U	U
DDT 5%	-	-	-	-	-	-
Detergents (general)	A	R	A	A	R	A
Diacetone Alcohol	A	R	A	A	R	R

Chemical Compatibility Table

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U = Unsatisfactory / X = Conflicting Data / -= No Data Available
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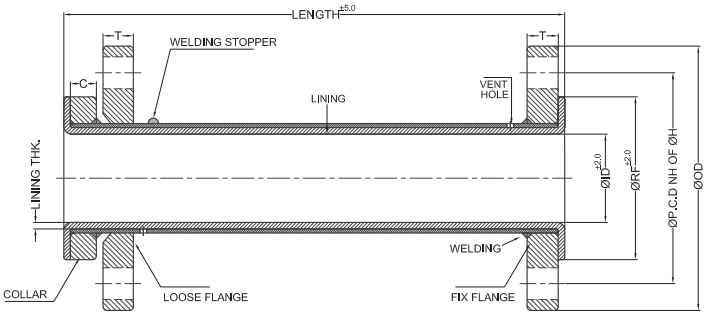
Code	PTFE	FEP	PFA	PVDF	HDPE	PP
Dibutyl Phthalate	R	R	R	U	U	R
Dichlorobenzene	A	R	A	A	U	C
Dichloroethane	A	R	A	A	R	X
Dichloroethylene	R	R	R	R	-	R
Dichlorofluoromethane	R	R	R	-	-	-
Diesel Fuel	A	R	A	A	R	A
Diethanolamine	R	R	R	U	-	R
Diethyl Amine	X	R	X	X	U	A
Diethyl Ether	A	R	A	R	U	R
Diethyl Phthalate	R	-	R	-	-	-
Diethylene Glycol	A	R	A	A	R	A
Dimethyl Aniline	A	R	A	A	-	X
Dimethyl Ether	R	R	R	-	-	-
Dimethyl Formamide	X	R	X	U	R	A
Dimethyl Phthalate	R	R	R	R	-	R
Dimethyl Sulfoxide	R	R	R	U	R	R
Dinitrotoluene	R	-	R	-	-	-
Dioctyl Phthalate	R	R	R	R	U	U
Dioxane	R	R	R	U	U	R
Diphenyl	A	R	A	-	-	U
Diphenyl Oxide	A	-	A	B	-	U
Esters (general)	R	R	R	R	-	-
Ethane	A	-	A	A	-	U
Ethanolamine	A	R	A	X	-	X
Ethers (general)	A	-	A	R	U	U
Ethyl Acetate	A	R	A	X	R	A
Ethyl Alcohol	A	R	A	R	R	A
Ethyl Benzene	R	R	R	R	U	U
Ethyl Benzoate	A	-	A	U	U	B
Ethyl Chloride	R	R	R	R	U	U
Ethyl Ether	A	R	A	R	U	U
Ethyl Sulfate	A	-	A	-	-	-
Ethylene Bromide	A	R	A	A	U	U
Ethylene Chloride	A	R	A	A	R	X
Ethylene Chlorohydrin	A	R	A	A	U	X
Ethylene Diamine	A	R	A	B	-	R
Ethylene Dibromide	R	R	R	R	-	R
Ethylene Glycol	A	R	A	A	R	A
Ethylene Oxide	A	R	A	A	R	U
Formaldehyde 100%	A	-	A	A	-	C
Formaldehyde 37%	A	R	A	A	R	A
Formic Acid 5%	R	R	R	R	R	R
Fuel Oils	B	R	B	B	R	A
Gasoline (high-aromatic)	B	-	B	A	-	A
Gasoline (leaded)	A	R	A	A	U	X
Gasoline (unleaded)	A	R	A	A	U	X
Glycolic Acid	A	R	A	B	R	A
Heptane	A	R	A	A	R	C
Hexachloroethane	R	-	R	-	-	-
Hexamine	R	R	R	-	-	-
Hexane	A	R	A	A	U	B
Hexyl Alcohol	A	-	A	-	-	-
Hydraulic Oil (petro.)	A	-	A	A	-	U
Hydraulic Oil (synthetic)	A	-	A	A	-	U
Hydrazine	C	-	C	A	U	C
Hydrogen Peroxide (dilute)	R	R	R	R	R	R
Hydroquinone	A	R	A	R	-	A
Hydroxyacetic Acid 70%	A	-	A	A	-	-
Iodoform	C	R	C	C	-	R
Isobutyl Alcohol	A	-	A	-	-	A
Isooctane	A	-	A	A	B	A

Code	PTFE	FEP	PFA	PVDF	HDPE	PP
Isopropyl Acetate	A	R	A	X	R	B
Isopropyl Alcohol	A	R	A	R	R	A
Isopropyl Ether	A	R	A	X	-	X
Isotane	-	-	-	A	-	U
Jet Fuel JP-4, JP-5	A	R	A	A	-	A
Kerosene	A	R	A	A	R	R
Lacquer Thinners	A	-	A	-	-	U
Lacquers	A	-	A	U	-	U
Lactic Acid	A	R	A	B	-	B
Lead Acetate	A	R	A	A	R	A
Linoleic Acid	A	R	A	A	U	B
Maleic Acid	A	R	A	A	R	R
Malic Acid	A	R	A	A	R	A
Melamine	A	-	A	-	-	A
Methane	A	R	A	A	-	A
Methyl Acetate	A	R	A	B	R	X
Methyl Acetone	A	-	A	U	-	-
Methyl Acylate	-	-	-	B	-	U
Methyl Alcohol	A	R	A	A	R	A
Methyl Alcohol 10%	A	-	A	A	B	A
Methyl Amide	A	-	A	C	-	A
Methyl Bromide	A	R	A	A	R	X
Methyl Butyl Ketone	-	-	-	U	U	U
Methyl Chloride	A	R	A	A	U	U
Methyl Chloroform	R	R	R	R	-	U
Methyl Dichloride	-	-	-	U	-	U
Methyl Ethyl Ketone	A	R	A	U	U	B
Methyl Isopropyl Ketone	A	-	A	-	-	-
Methyl Methacrylate	R	R	R	B	-	X
Methyl Pentanone	A	R	A	X	R	R
Methylene Chloride	A	R	A	B	U	B
Monochloroacetic Acid	A	-	A	B	U	-
Monoethanolamine	A	R	A	U	-	B
Motor Oil	A	R	A	B	U	U
Napthalene	A	R	A	A	U	R
Nitrobenzene	A	R	A	A	U	B
Nitromethane	A	R	A	A	-	R
Nitrophenol	R	-	R	-	-	-
Octane	R	R	R	R	R	R
Octyl Alcohol	-	-	-	-	-	-
Oleic Acid	A	R	A	A	U	B
Oxalic Acid 5%	R	R	R	R	R	R
Palmitic Acid 10%	A	R	A	A	R	B
Pentachlorophenol	R	-	R	-	-	-
Pentane	A	-	A	A	-	U
Petroleum	A	R	A	A	U	B
Phenol 10%	A	R	A	A	R	B
Phthalic Acid	A	R	A	A	-	A
Phthalic Anhydride	A	R	A	A	-	U
Picric Acid	A	R	A	A	U	A
Propyl Alcohol	A	R	A	A	R	A
Propylene	A	-	A	-	-	-
Propylene Glycol	A	R	A	A	R	A
Propylene Oxide	R	R	R	U	R	R
Pyridine	A	R	A	U	R	A
Sodium Acetate	A	R	A	A	R	A
Sodium Benzoate	A	R	A	A	R	A
Sodium Hypochlorite 20%	R	R	R	R	R	R
Stearic Acid	A	R	A	A	R	A

Index

Fluoropolymer Lined Pipes, Fittings, Valves & Expansion Joints

LINED SPOOL



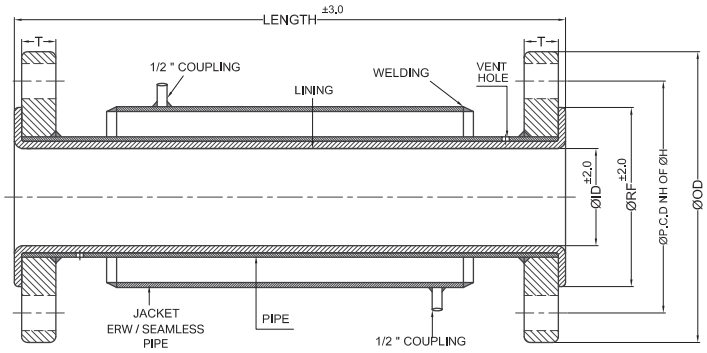
Pipework (NB)		ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	C	Max. Length	Pipe Sch.	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/2"	15	88.9	8.5	35	60.3	4	16.0	11.1	9.0	1000	40	2.5
3/4"	20	98.4	14.0	43	69.8	4	16.0	12.7	9.0	1000	40	2.5
1"	25	108.0	19.0	51	79.4	4	16.0	14.3	11.5	6000	40	3.5
1.1/2"	40	127.0	34.0	73	98.4	4	16.0	17.5	13.5	6000	40	3.5
2"	50	152.4	45.0	92	120.6	4	19.0	19.0	15.5	6000	40	3.5
2.1/2"	65	177.8	55.0	105	139.7	4	19.0	22.2	15.5	6000	40	3.5
3"	80	190.5	69.0	127	152.4	4	19.0	23.8	19.0	6000	40	4.0
4"	100	228.6	92.0	157	190.5	8	19.0	23.8	19.0	6000	40	4.0
6"	150	279.4	142.0	216	241.3	8	22.2	25.4	20.0	6000	40	4.5
8"	200	342.9	192.0	270	298.4	8	22.2	28.6	20.0	6000	40	5.0
10"	250	406.4	241.0	324	361.9	12	25.4	30.2	24.2	6000	40	5.5
12"	300	482.6	290.0	381	431.8	12	25.4	31.8	24.2	6000	40	5.5
14"	350	533.4	320.0	413	476.2	12	28.6	34.9	24.2	1000	40	6.0
16"	400	596.9	367.0	469.9	539.7	16	28.6	36.5	24.2	1000	40	6.0
18"	450	635.0	429.0	533.4	577.8	16	31.7	39.7	24.2	1000	20	6.0
20"	500	698.5	477.0	584.2	635.0	20	31.7	42.9	24.2	1000	20	6.0
24"	600	812.8	579.0	692.1	749.3	20	34.9	47.6	24.2	1000	20	6.0

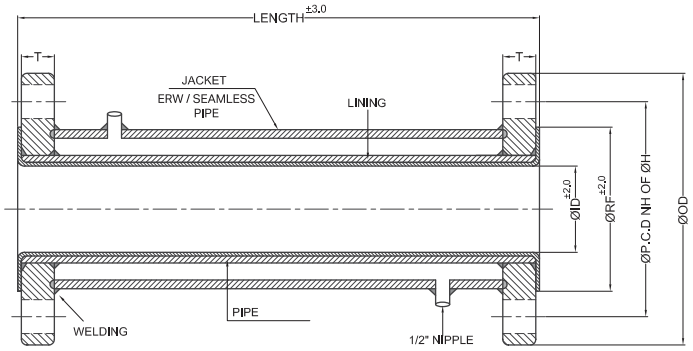
Item Des.	Material
Lining	PTFE, PP, HDPE, PVDF, Antistatic PTFE
Pipe	ASTM A 106 Gr. B, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Pipe Schedule	Sch. 20, Sch. 40, Sch. 80
Flange Rating	ASME B 16.5 - Cls. 150, Cls. 300 BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

LINED JACKETED SPOOL





Pipework (NB)		Jacket Size	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	Length	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1"	25	50	152.4	19	51	120.6	4	19.0	19.0	200 - 3000	3.5
1.1/2"	40	65	177.8	34	73	139.7	4	16.0	22.2	200 - 3000	3.5
2"	50	80	190.5	45	92	152.4	4	19.0	23.8	200 - 3000	3.5
2.1/2"	65	100	228.6	55	105	190.5	8	19.0	23.8	200 - 3000	3.5
3"	80	100	228.6	69	127	190.5	8	19.0	23.8	200 - 3000	4.0
4"	100	150	279.4	92	157	241.3	8	22.2	25.4	200 - 3000	4.0
6"	150	200	342.9	142	216	298.4	8	22.2	28.6	200 - 3000	4.5
8"	200	250	406.4	192	270	361.9	12	25.4	30.2	300 - 3000	5.0
10"	250	300	482.6	241	324	331.8	12	25.4	31.8	300 - 3000	5.5
12"	300	350	533.4	290	381	476.2	12	28.6	34.9	300 - 3000	6.0

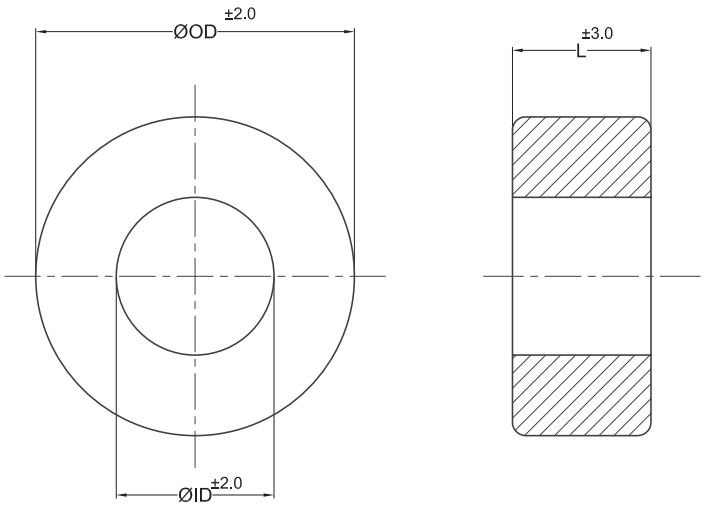
Item Des.	Material
Lining	PTFE, PP, HDPE, PVDF, Antistatic PTFE
Pipe	ASTM A 106 Gr. B, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Pipe Schedule	Sch. 20, Sch. 40, Sch. 80
Flange Rating	ASME B 16.5 - Cls. 150, Cls. 300 BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : All dimensions are according to full jacketed pipe spools.
Half jacketed details provided upon request.

SPACER



Pipework (NB)		ØOD	ØID	Max. Length
Inches	mm	mm	mm	mm
1"	25	51	22	5 - 300
1.1/2"	40	73	34	5 - 300
2"	50	92	45	5 - 300
2.1/2"	65	105	55	5 - 300
3"	80	127	69	5 - 300
4"	100	157	102	5 - 300
6"	150	216	145	5 - 300
8"	200	270	192	5 - 300
10"	250	324	244	5 - 300
12"	300	381	293	5 - 300

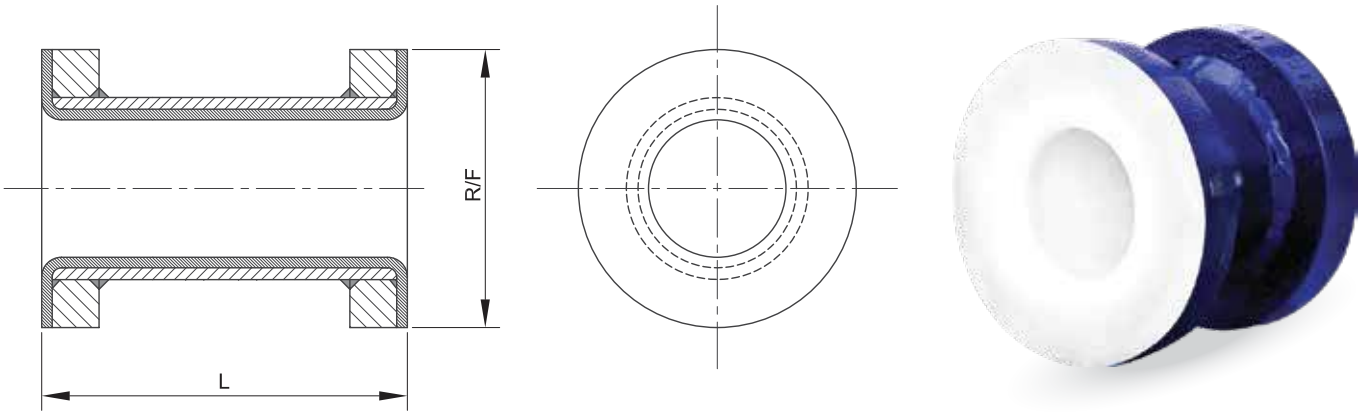
Testing Specification

100% Visual Check / Dimensional Check

Material of Construction

Pure PTFE conforming to ASTM D 4894

SPACER TYPE 1



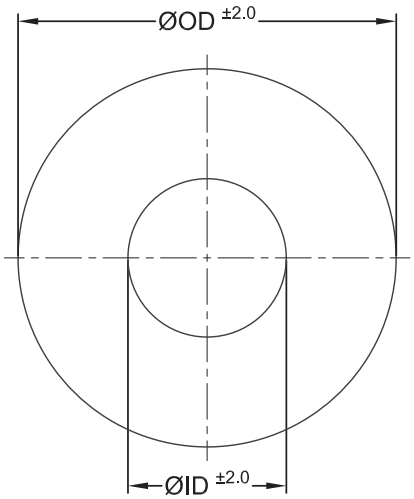
Pipework (NB)		ØRF	Min. Length	Max. Length	Liner Thickness	Pipe Schedule
Inches	mm	mm	mm	mm	mm	mm
1"	25	51	61	100	3.3	40
1.1/2"	40	73	61	100	3.3	40
2"	50	92	71	100	3.3	40
3"	80	127	71	150	3.3	40
4"	100	157	71	150	4.5	40
6"	150	216	81	150	5.0	40
8"	200	270	upon request	upon request	upon request	40
10"	250	324	upon request	upon request	upon request	40
12"	300	381	upon request	upon request	upon request	40

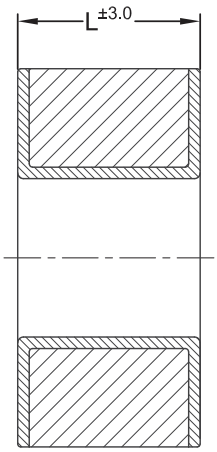
Item Des.	Material
Lining	PTFE, PP, HDPE, PVDF, Antistatic PTFE
Pipe	ASTM A 106 Gr. B, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Pipe Schedule	Sch. 20, Sch. 40, Sch. 80
Flange Rating	ASME B 16.5 - Cls. 150, Cls. 300 BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

SPACER TYPE 2





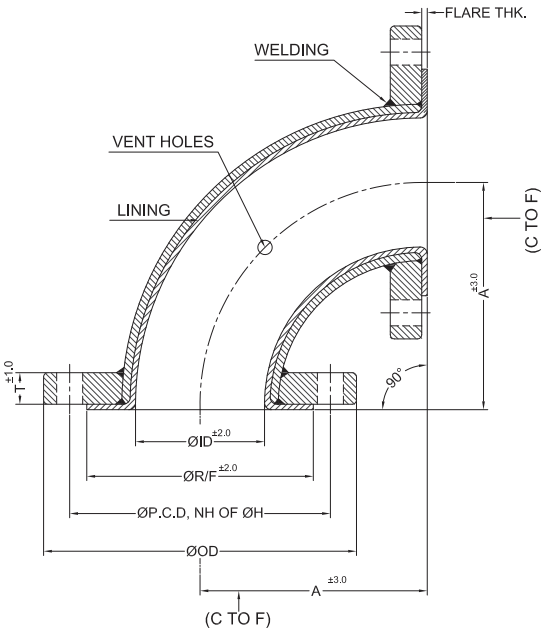
Pipework (NB)		ØOD	ØID	Length (L) maximum
Inches	mm	mm	mm	mm
1"	25	51	19	26 - 60
1.1/2"	40	73	34	26 - 60
2"	50	92	45	26 - 70
2.1/2"	65	105	55	26 - 70
3"	80	127	69	26 - 70
4"	100	157	92	26 - 70
6"	150	216	142	26 - 80
8"	200	270	192	26 - 80
10"	250	324	241	26 - 80
12"	300	381	290	26 - 80

Item Des.	Material
Lining	PTFE, PP, HDPE, PVDF
Body	Round Bar - IS 2062, SA 105N, SS 304, SS 316, SS 316L

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

LINED ELBOW 90°



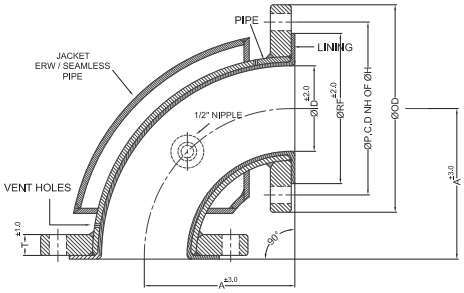
Pipework (NB)		ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	A	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/2"	15	88.9	14.0	35	60.3	4	16.0	11.1	65	2.5
3/4"	20	98.4	14.0	43	69.8	4	16.0	12.7	75	2.5
1"	25	108.0	19.0	51	79.4	4	16.0	14.3	89	3.5
1.1/2"	40	127.0	34.0	73	98.4	4	16.0	17.5	102	3.5
2"	50	152.4	45.0	92	120.6	4	19.0	19.0	114	3.5
2.1/2"	65	177.8	55.0	105	139.7	4	19.0	22.2	127	3.5
3"	80	190.5	69.0	127	152.4	4	19.0	23.8	140	4.0
4"	100	228.6	92.0	157	190.0	8	19.0	23.8	165	4.0
6"	150	279.4	141.0	216	241.3	8	22.2	25.4	203	4.5
8"	200	342.9	192.0	270	298.4	8	22.2	28.6	229	5.0
10"	250	406.4	241.0	324	361.9	12	25.4	30.2	279	5.5
12"	300	482.6	290.0	381	431.8	12	25.4	31.8	305	6.0

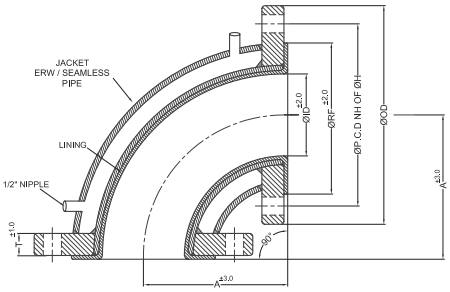
Item Des.	Material
Lining	PTFE, PVDF, PP, HDPE, Antistatic PTFE
Shell	A234 Gr.WPB, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Shell Schedule	Sch. 20, Sch. 40, Sch. 80
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, Cls. 600, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	Short Radius as per ASME B 16.5 (Long Radius, other Angles Details Provided upon Request)

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

LINED JACKETED ELBOW 90°





Nominal Bore (NB)		Jacket Size	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	A	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1.1/2"	40	65	177.8	34	73	139.7	4	19.0	22.2	127	3.5
2"	50	80	190.5	45	92	152.4	4	19.0	23.8	140	3.5
2.1/2"	65	100	228.6	55	105	190.5	8	19.0	23.8	165	3.5
3"	80	100	228.6	69	127	190.5	8	19.0	23.8	165	4.0
4"	100	150	279.6	92	157	241.3	8	22.2	25.4	203	4.0
6"	150	200	342.9	141	216	298.4	8	22.2	28.6	229	4.5
8"	200	250	406.4	192	270	361.9	12	25.4	30.2	279	5.0
10"	250	300	482.6	241	324	431.8	12	25.4	31.8	305	5.5
12"	300	350	533.4	290	381	476.2	12	28.6	34.9	356	6.0

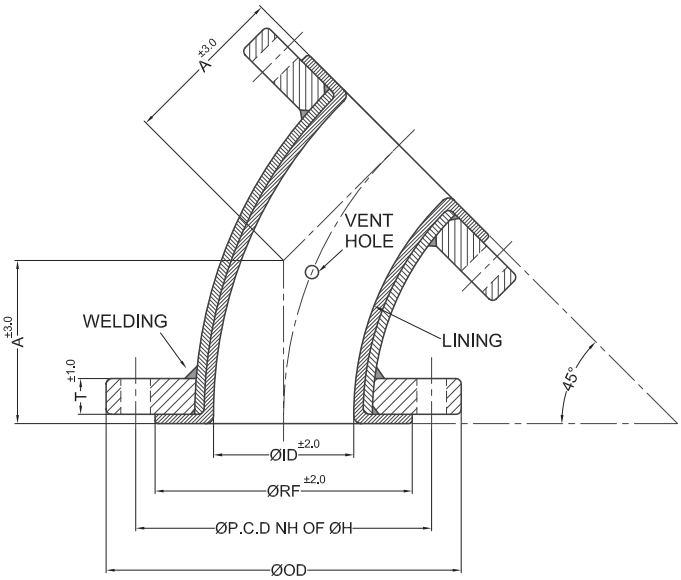
Item Des.	Material
Lining	PTFE, PVDF, PP, HDPE
Shell	A234 Gr.WPB, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Shell Schedule	Sch. 20, Sch. 40, Sch. 80
Flange Rating	Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	Short Radius as per ASME B 16.5 (Long Radius, other Angles Details Provided upon Request)

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : All dimensions are according to full jacketed 90° bend.
Half jacketed details provided upon request.

LINED ELBOW 45°



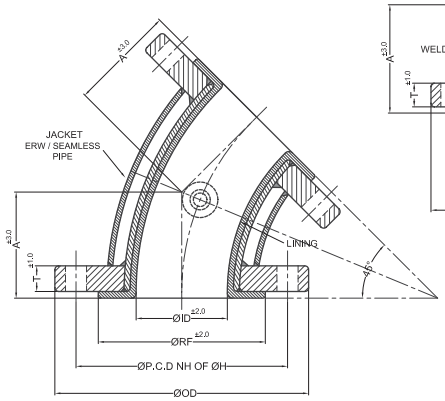
Pipework (NB)		ØOD	ØID	ØRF	ØP. C. D.	NH	ØH	T	A	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1"	25	108.0	19	51	79.4	4	16.0	14.3	44	3.5
1.1/2"	40	127.0	34	73	98.4	4	16.0	17.5	57	3.5
2"	50	152.4	45	92	120.6	4	19.0	19.0	63	3.5
2.1/2"	65	177.8	55	105	139.7	4	19.0	22.2	76	3.5
3"	80	190.5	69	127	152.4	4	19.0	23.8	76	4.0
4"	100	228.6	92	157	190.5	8	19.0	23.8	102	4.0
6"	150	279.4	141	216	241.3	8	22.2	25.4	127	4.5
8"	200	342.9	192	270	298.4	8	22.2	28.6	140	5.0
10"	250	406.4	241	324	361.9	12	25.4	30.2	165	5.5
12"	300	482.6	290	381	431.8	12	25.4	31.8	190	6.0
14"	350	533.4	320	413	476.2	12	28.6	34.9	190	6.5

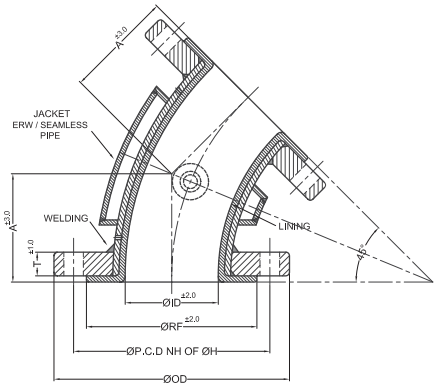
Item Des.	Material
Lining	PTFE, PVDF, PP, HDPE
Shell	A234 Gr. WPB, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Shell Schedule	Sch.20, Sch.40, Sch.80
Flange Rating	Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	Short Radius as per ASME B 16.5 (Long Radius, other Angles Details Provided upon Request)

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

LINED JACKETED ELBOW 45°





Pipework (NB)		Jacket Size	ØOD	ØID	ØRF	ØP. C. D.	NH	ØH	T	A	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1.1/2"	40	65	177.0	34	73	139.7	4	16.0	22.2	76	3.5
2"	50	80	190.5	45	92	152.4	4	19.0	23.8	76	3.5
2.1/2"	65	100	228.6	55	105	190.5	8	19.0	23.8	102	3.5
3"	80	100	228.6	69	127	190.5	8	19.0	23.8	102	4.0
4"	100	150	279.4	92	157	241.3	8	22.2	25.4	127	4.0
6"	150	200	342.9	141	216	298.4	8	22.2	28.6	140	4.5
8"	200	250	406.4	192	270	361.9	12	25.4	30.2	165	5.0
10"	250	300	482.6	241	324	431.8	12	25.4	31.8	190	5.5
12"	300	350	533.4	290	381	476.2	12	25.4	34.9	190	6.0
14"	350	400	596.9	320	413	539.7	16	28.6	36.5	203	6.5

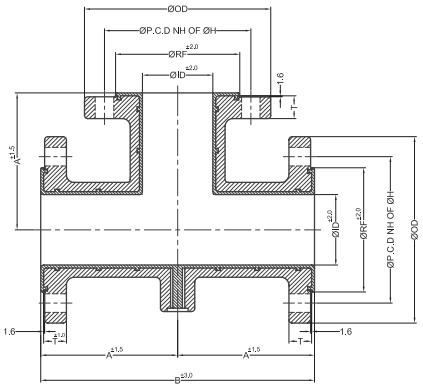
Item Des.	Material
Lining	PTFE, PP, HDPE, PVDF
Shell	A234 Gr.WPB, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Shell Schedule	Sch.20, Sch.40, Sch.80
Flange Rating	Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	Short Radius as per ASME B 16.5 (Long Radius, other Angles Details Provided upon Request)

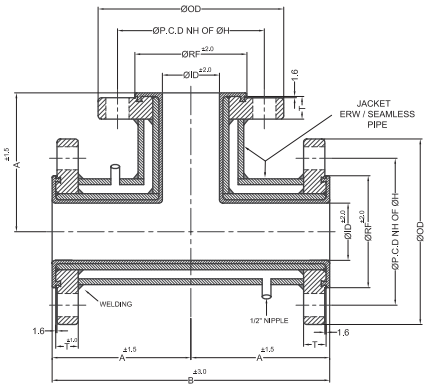
Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm²(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : All dimensions are according to full jacketed 45° bend.
Half jacketed details provided upon request.

LINED EQUAL TEE





Nominal Bore (NB)	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	A	B	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/2"	15	88.9	14.0	43	60.3	4	16.0	11.1	65	130	2.5
3/4"	20	98.4	14.0	43	69.8	4	16.0	12.7	75	150	2.5
1"	25	108.0	19.0	51	79.4	4	16.0	14.3	89	178	3
1.1/2"	40	127.0	34.0	73	98.4	4	16.0	17.5	102	204	3
2"	50	152.4	45.0	92	120.6	4	19.0	19.0	114	228	3
2.1/2"	65	177.8	55.0	105	139.7	4	19.0	22.0	127	254	3
3"	80	190.5	69.0	127	152.4	4	19.0	23.8	140	280	3
4"	100	228.6	92.0	157	190.5	8	19.0	23.8	165	330	3
6"	150	279.4	144.0	216	241.3	8	22.2	25.4	203	406	3.5
8"	200	342.9	192.0	270	298.4	8	22.2	28.6	229	458	3.5
10"	250	406.4	241.0	324	361.9	12	25.4	30.2	279	558	4
12"	300	482.6	290.0	381	431.8	12	25.4	31.8	305	610	4

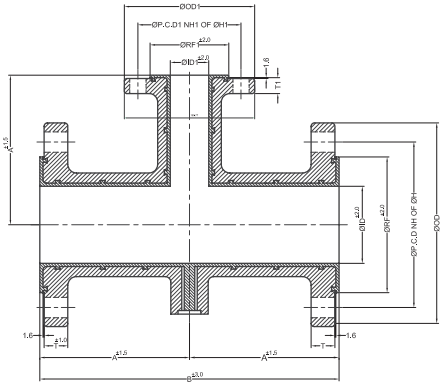
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Casting	D.I. Casting as per ASTM A 395, Gr. 60 - 40 - 18
Fabricated Tee:	Flange - A 105, IS 2062, SS 304, SS 316, SS 304L, SS 316L Shell - Fabricated from ASTM A 106 Gr.B / SS 304 / SS 316 Seamless Pipe
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	AS PER ASME B 16.5, # 150. (#300, Din Standard and other Non-std Tees Provided Upon Request)

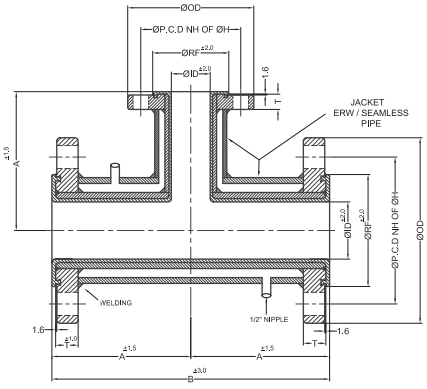
Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : Jacketed Tee details will be provided upon request.

LINED REDUCING TEE





Size (NB)	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	ØOD1	ØID1	ØRF1	ØP.C.D1	NH1	ØH1	T1	A	B
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
40 x 25	127.0	34	73	98.4	4	16.0	17.5	108.0	19	51	79.4	4	16	14.3	102	204
50 x 25	152.4	45	92	120.6	4	19.0	19.0	108.0	19	51	79.4	4	16	14.3	114	228
50 x 40	152.4	45	92	120.6	4	19.0	19.0	127.0	34	73	98.4	4	16	17.5	114	228
80 x 25	190.5	69	127	152.4	4	19.0	23.8	108.0	19	51	79.4	4	16	14.3	140	280
80 x 40	190.5	69	127	152.4	4	19.0	23.8	127.0	34	73	98.4	4	16	17.5	140	280
80 x 50	190.5	69	127	152.4	4	19.0	23.8	152.4	45	92	120.6	4	19	19.0	140	280
100 x 25	228.6	92	157	190.5	8	19.0	23.8	108.0	19	51	79.4	4	16	14.3	165	330
100 x 40	228.6	92	157	190.5	8	19.0	23.8	127.0	34	73	98.4	4	16	17.5	165	330
100 x 50	228.6	92	157	190.5	8	19.0	23.8	152.4	45	92	120.6	4	19	19.0	165	330
100 x 80	228.6	92	157	190.5	8	19.0	23.8	190.5	69	127	152.4	4	19	23.8	165	330
150 x 25	279.4	144	216	241.3	8	22.2	25.4	108.0	19	51	79.4	4	16	14.3	203	406
150 x 40	279.4	144	216	241.3	8	22.2	25.4	127.0	34	73	98.4	4	16	17.5	203	406
150 x 50	279.4	144	216	241.3	8	22.2	25.4	152.4	45	92	120.6	4	19	19.0	203	406
150 x 80	279.4	144	216	241.3	8	22.2	25.4	190.5	69	127	152.4	4	19	23.8	203	406
150 x 100	279.4	144	216	241.3	8	22.2	25.4	228.6	92	157	190.5	8	19	23.8	203	406

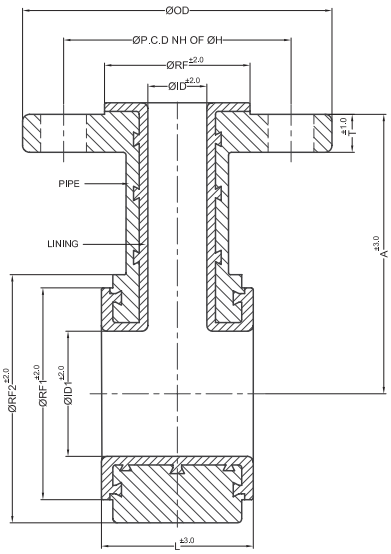
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Casting	D.I. Casting as per ASTM A 395, Gr. 60 - 40 - 18
Fabricated Tee	Flange - A 105, IS 2062, SS 304, SS 316, SS 304L, SS 316L Shell - Fabricated from ASTM A 106 Gr.B / SS 304 / SS 316 Seamless Pipe
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150 Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	AS PER ASME B 16.5, # 150. (#300, Din Standard and other Non Standard Tees Provided Upon Request)

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTMF 1545 - 15A
3) 100% Spark Test at 10kv after Lining
4) 100% Lining Thk. check.

Note : Jacketed Tee details will be provided upon request.

LINED INSTRUMENT TEE



Size (NB)	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	ØID1	ØRF1	ØRF2	L	A
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
25 x 25	108	19	51	79.4	4	16	14.3	19	51	57	51	89
40 x 25	108	19	51	79.4	4	16	14.3	34	73	79	51	102
40 x 40	127	34	73	98.4	4	16	17.5	34	73	79	76	102
50 x 25	108	19	51	79.4	4	16	14.3	45	92	98	51	114
50 x 40	127	34	73	98.4	4	16	17.5	45	92	98	76	114
80 x 25	108	19	51	79.4	4	16	14.3	69	127	135	51	140
80 x 40	127	34	73	98.4	4	16	17.5	69	127	135	76	140
100 x 25	108	19	51	79.4	4	16	14.3	92	157	165	51	165
100 x 40	127	34	73	98.4	4	16	17.5	92	157	165	76	165
150 x 25	108	19	51	79.4	4	16	14.3	144	216	222	51	203
150 x 40	127	34	73	98.4	4	16	17.5	144	216	222	76	203
200 x 25	108	19	51	79.4	4	16	14.3	192	270	276	51	229
200 x 40	127	34	73	98.4	4	16	17.5	192	270	276	76	229

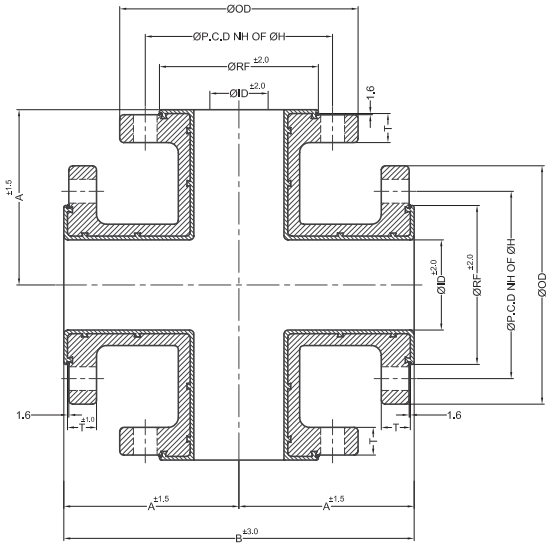
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Flange	ASTM A 106, Gr. B, SS 304, SS 316, SS 316L
Body	Fabricated from A 105 / IS 2062 / SS 304 / SS 316 Plate with ASTM A 106 Gr.B / SS 304 / SS 316 Seamless Pipe
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K
	DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	As Per Dimension Table

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : Other branch sizes details provided upon request.

LINED EQUAL CROSS



Pipework (NB)		ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	A	B	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/2"	15	88.9	14.0	43	60.3	4	16.0	11.1	65	130	2.5
3/4"	20	98.4	14.0	43	69.8	4	16.0	12.7	75	150	2.5
1"	25	108.0	19.0	51	79.4	4	16.0	14.3	89	178	3
1.1/2"	40	127.0	34.0	73	98.4	4	16.0	17.5	102	204	3
2"	50	152.4	45.0	92	120.6	4	19.0	19.0	114	228	3
2.1/2"	65	177.8	55.0	105	139.7	4	19.0	22.2	127	254	3
3"	80	190.5	69.0	127	152.4	4	19.0	23.8	140	280	3
4"	100	228.6	92.0	157	190.5	8	19.0	23.8	165	330	3
6"	150	279.4	144.0	216	241.3	8	22.2	25.4	203	406	3.5
8"	200	342.9	192.0	270	298.4	8	22.2	28.6	229	458	3.5
10"	250	406.4	241.0	324	361.9	12	25.4	30.2	279	558	4
12"	300	482.6	290.0	381	431.8	12	25.4	31.8	305	610	4

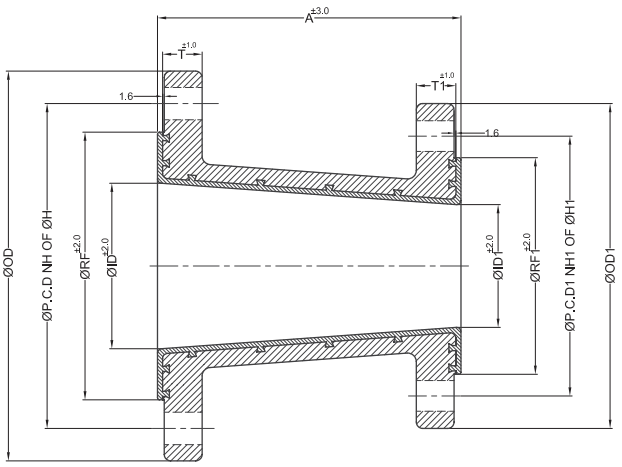
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Casting	D.I. Casting as per ASTM A 395, Gr. 60 - 40 - 18
Fabricated Cross	Flange - A 105, IS 2062, SS 304, SS 316, SS 304L, SS 316L Shell - Fabricated from ASTM A 106 Gr.B / SS 304 / SS 316 Seamless Pipe
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40
Geometry	As per ASME B16.5, # 150. (Other Standard and Non Standard Cross Provided upon Request)

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : Equal cross of size 1/2", 3/4" & above 150NB will be fabricated.

LINED CONCENTRIC REDUCER



Size NB	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	ØOD1	ØID1	ØRF1	ØP.C.D1	NH1	ØH1	T1	A
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
40 x 25	127.0	34	73	98.4	4	16.0	17.5	108.0	19	51	79.4	4	16	14.3	114
50 x 25	152.4	45	92	120.6	4	19.0	19.0	108.0	19	51	79.4	4	16	14.3	127
50 x 40	152.4	45	92	120.6	4	19.0	19.0	127.0	34	73	98.4	4	16	17.5	127
80 x 25	190.5	69	127	152.4	4	19.0	23.8	108.0	19	51	79.4	4	16	14.3	152
80 x 40	190.5	69	127	152.4	4	19.0	23.8	127.0	34	73	98.4	4	16	17.5	152
80 x 50	190.5	69	127	152.4	4	19.0	23.8	152.4	45	92	120.6	4	19	19.0	152
100 x 25	228.6	92	157	190.5	8	19.0	23.8	108.0	19	51	79.4	4	16	14.3	178
100 x 40	228.6	92	157	190.5	8	19.0	23.8	127.0	34	73	98.4	4	16	17.5	178
100 x 50	228.6	92	157	190.5	8	19.0	23.8	152.4	45	92	120.6	4	19	19.0	178
100 x 80	228.6	92	157	190.5	8	19.0	23.8	190.5	69	127	152.4	4	19	23.8	178
150 x 25	279.4	144	216	241.3	8	22.2	25.4	108.0	19	51	79.4	4	16	14.3	229
150 x 40	279.4	144	216	241.3	8	22.2	25.4	127.0	34	73	98.4	4	16	17.5	229
150 x 50	279.4	144	216	241.3	8	22.2	25.4	152.4	45	92	120.6	4	19	19.0	229
150 x 80	279.4	144	216	241.3	8	22.2	25.4	190.5	69	127	152.4	4	19	23.8	229
150 x 100	279.4	144	216	241.3	8	22.2	25.4	228.6	92	157	190.5	8	19	23.8	229

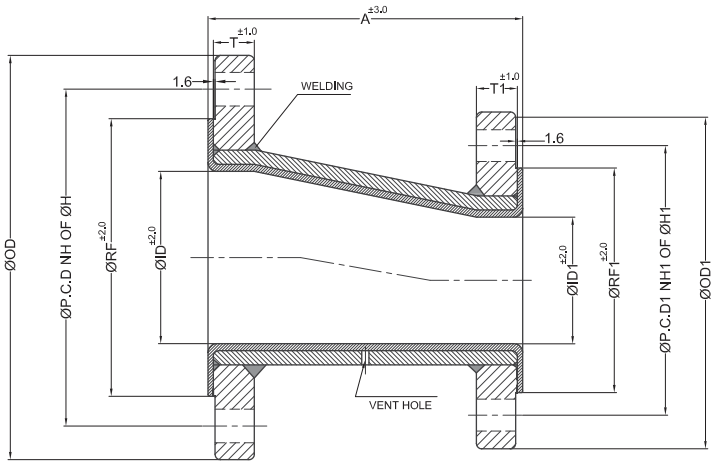
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE, PTFE
Casting	D.I. Casting as per ASTM A 395, Gr. 60 - 40 - 18
Fabricated Con Reducer	Flange - A 105, IS 2062, SS 304, SS 316, SS 304L, SS 316L Shell - ASTM A 234 Gr.WPB / SS 304 / SS 316
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : 200NB and above sizes details provided upon request.

LINED ECCENTRIC REDUCER



Size (NB)	ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	ØOD1	ØID1	ØRF1	ØP.C.D1	NH1	ØH1	T1	A
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
40 x 25	127.0	34	73	98.4	4	16.0	17.5	108.0	19	51	79.4	4	16	14.3	114
50 x 25	152.4	45	92	120.6	4	19.0	19.0	108.0	19	51	79.4	4	16	14.3	127
50 x 40	152.4	45	92	120.6	4	19.0	19.0	127.0	34	73	98.4	4	16	17.5	127
80 x 25	190.5	69	127	152.4	4	19.0	23.8	108.0	19	51	79.4	4	16	14.3	152
80 x 40	190.5	69	127	152.4	4	19.0	23.8	127.0	34	73	98.4	4	16	17.5	152
80 x 50	190.5	69	127	152.4	4	19.0	23.8	152.4	45	92	120.6	4	19	19.0	152
100 x 25	228.6	92	157	190.5	8	19.0	23.8	108.0	19	51	79.4	4	16	14.3	178
100 x 40	228.6	92	157	190.5	8	19.0	23.8	127.0	34	73	98.4	4	16	17.5	178
100 x 50	228.6	92	157	190.5	8	19.0	23.8	152.4	45	92	120.6	4	19	19.0	178
100 x 80	228.6	92	157	190.5	8	19.0	23.8	190.5	69	127	152.4	4	19	23.8	178
150 x 25	279.4	144	216	241.3	8	22.2	25.4	108.0	19	51	79.4	4	16	14.3	229
150 x 40	279.4	144	216	241.3	8	22.2	25.4	127.0	34	73	98.4	4	16	17.5	229
150 x 50	279.4	144	216	241.3	8	22.2	25.4	152.4	45	92	120.6	4	19	19.0	229
150 x 80	279.4	144	216	241.3	8	22.2	25.4	190.5	69	127	152.4	4	19	23.8	229
150 x 100	279.4	144	216	241.3	8	22.2	25.4	228.6	92	157	190.5	8	19	23.8	229

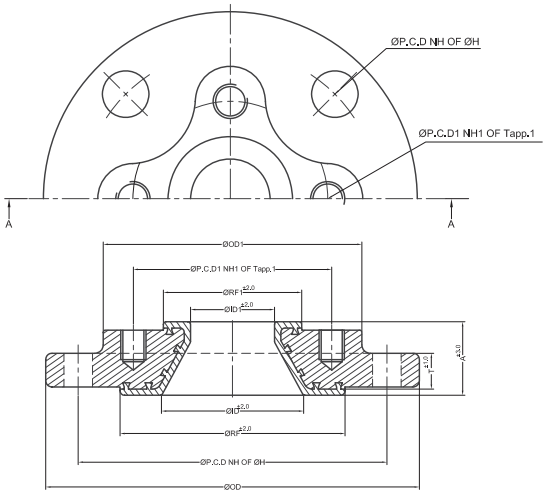
Item Des.	Material
Lining	PTFE, PVDF, PP, HDPE, PFA, FEP
Fabricated Ecc Reducer	Flange - A 105, IS 2062, SS 304, SS 316, SS 304L, SS 316L Shell - ASTM A 234 Gr.WPB / SS 304 / SS 316
Flange Rating	Rotating, Fixed on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : 200NB and above sizes details provided upon request.

LINED REDUCING FLANGE



Size (NB)	ØOD	ØID	P.C.D	R/F	NH	ØH	T	ØOD1	ØID1	ØRF1	ØP.C.D1	NH1	Tapp.1	A
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
40 x 25	127.0	40	98.4	73	4	16	17.5	108.0	25	51	79.4	4	1/2"	35
50 x 25	152.4	50	120.6	92	4	19	19.0	108.0	25	51	79.4	4	1/2"	35
50 x 40	152.4	50	120.6	92	4	19	19.0	127.0	40	73	98.4	4	1/2"	35
80 x 25	190.5	80	152.4	127	4	19	23.8	108.0	25	51	79.4	4	1/2"	45
80 x 40	190.5	80	152.4	127	4	19	23.8	127.0	40	73	98.4	4	1/2"	45
80 x 50	190.5	80	152.4	127	4	19	23.8	152.4	58	92	120.6	4	5/8	45
100 x 25	228.6	100	190.5	157	8	19	23.8	108.0	25	51	79.4	4	1/2"	45
100 x 40	228.6	100	190.5	157	8	19	23.8	127.0	40	73	98.4	4	1/2"	45
100 x 50	228.6	100	190.5	157	8	19	23.8	152.4	58	92	120.6	4	5/8"	45
100 x 80	228.6	100	190.5	157	8	19	23.8	190.5	75	127	152.4	4	5/8"	45
150 x 25	279.4	150	241.3	216	8	22.2	25.4	108.0	25	51	79.4	4	1/2"	54
150 x 40	279.4	150	241.3	216	8	22.2	25.4	127.0	40	73	98.4	4	1/2"	54
150 x 50	279.4	150	241.3	216	8	22.2	25.4	152.4	58	92	120.6	4	5/8"	54
150 x 80	279.4	150	241.3	216	8	22.2	25.4	190.5	75	127	152.4	4	5/8"	54
150 x 100	279.4	150	241.3	216	8	22.2	25.4	228.6	94	157	190.5	8	5/8"	54

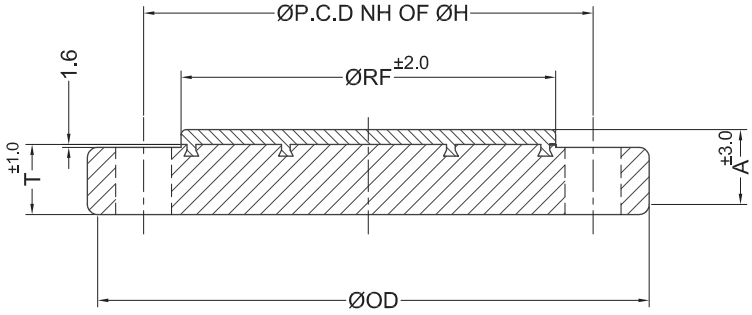
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Casting	D.I. Casting as per ASTM A 395, Gr. 60 - 40 - 18
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Flange Rating	on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

Note : 200NB and above sizes details provided upon request.

LINED BLIND FLANGE



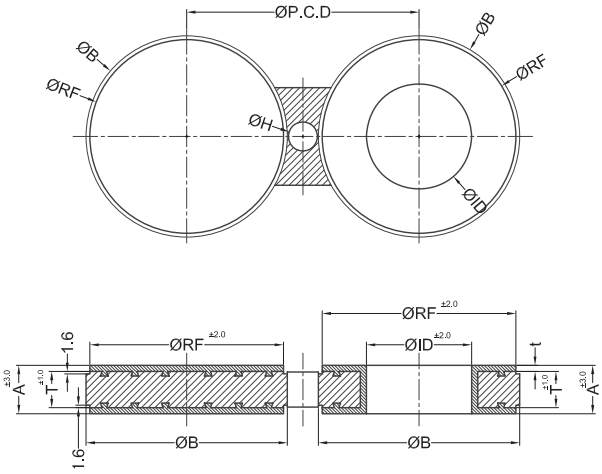
Pipework (NB)		ØOD	ØRF	ØP. C. D.	NH	ØH	T	A	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/2"	15	88.9	35	60.3	4	16.0	11.1	13.5	2.5
3/4"	20	98.4	43	69.8	4	16.0	12.7	15.5	2.5
1"	25	108.0	51	79.4	4	16.0	14.3	17.5	3
1.1/2"	40	127.0	73	98.4	4	16.0	17.5	20.5	3
2"	50	152.4	92	120.6	4	19.0	19.0	22.5	3
2.1/2"	65	177.8	105	139.7	4	19.0	22.2	26.0	3
3"	80	190.5	127	152.4	4	19.0	23.8	27.5	3
4"	100	228.6	157	190.5	8	19.0	23.8	27.5	3
6"	150	279.4	216	241.3	8	22.2	25.4	29.5	3.5
8"	200	342.9	270	298.4	8	22.2	28.6	32.5	3.5
10"	250	406.4	324	361.9	12	25.4	30.2	34.5	4
12"	300	482.6	381	431.8	12	25.4	31.8	36.5	4

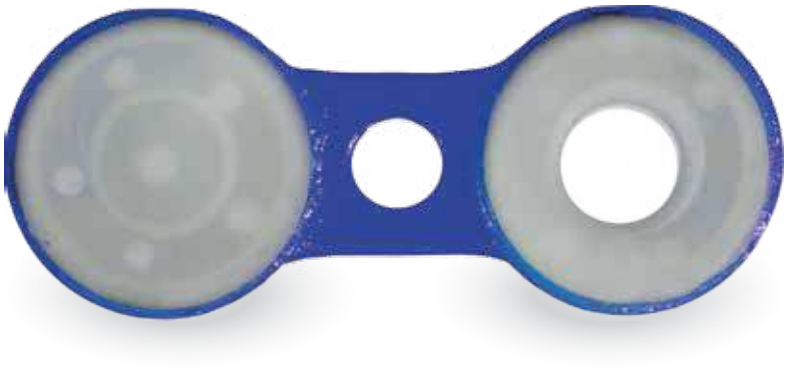
Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Flange Rating	on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, Cls. 600 BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Spark Test at 10 kv after Lining
3) 100% Lining Thk. check.

SPECTACLE BLIND FLANGE





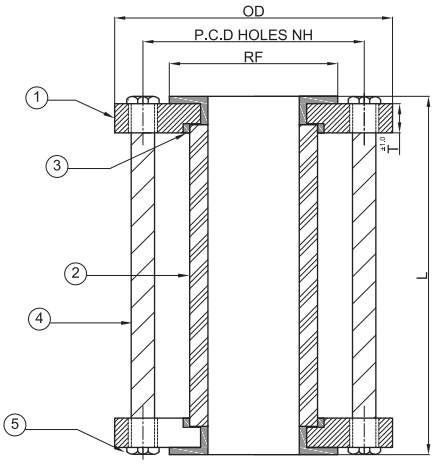
Pipework (NB)		ØRF	ØID	ØP. C. D.	ØH	T	ØB	A	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm
1"	25	51	19	79.4	16.0	14.3	55	22	2.5
1.1/2"	40	73	34	98.4	16.0	17.5	80	25	2.5
2"	50	92	45	120.6	19.0	19.0	100	27	3
2.1/2"	65	105	55	139.7	19.0	22.0	110	30	3
3"	80	127	69	152.4	19.0	23.8	135	32	3
4"	100	157	45	190.5	19.0	23.8	165	32	3
6"	150	216	144	241.3	22.2	25.4	225	35	3.5
8"	200	270	192	298.4	22.2	28.6	278	38	3.5
10"	250	324	241	361.9	25.4	30.2	330	40	4
12"	300	381	296	431.8	25.4	31.8	390	40	4

Item Des.	Material
Lining	PFA, FEP, PVDF, PP, HDPE
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Flange Rating	on/off Centers - ASME B 16.5 - Cls. 150, Cls. 300, BS 10 - Table D, Table E, Table F, Table H, Table J & Table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Spark Test at 10 kv after Lining
3) 100% Lining Thk. check.

LINED FULL VIEW SIGHT GLASS



Size (NB)	L ± 10.0	OD ± 1	T ± 1	RF	P.C.D ± 1.6	Hole Dia.	No. of Holes
mm	mm	mm	mm	mm	mm	mm	mm
25	200	108	14.3	51	79	16	04
40	200	127	17.5	73	98	16	04
50	200	152	19.0	92	121	19	04
80	200	191	23.8	127	152	19	04
100	200	229	23.8	157	191	19	08
150	200	279	25.4	216	241	22	08
200	200	343	28.6	270	298.4	22.2	08
300	200	482	31.8	381	431.8	25.4	12

Sr. No.	Description	Qty.	Material
1	Body	2	M.S. IS 2062, SS 304, SS 316 + PFA, FEP, PVDF, PP, HDPE Lined Lining 3 mm Thk.
2	Glass	1	Toughened Borosilicate
3	Seat	2	Integral PFA, FEP, PVDF, PP, HDPE Lined
4	Stud	2	M.S. SS 304 / SS 316
5	Fasteners	-	M.S. SS 304 / SS 316

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Flange Connection	ASME B 16.5; 150#; RF

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

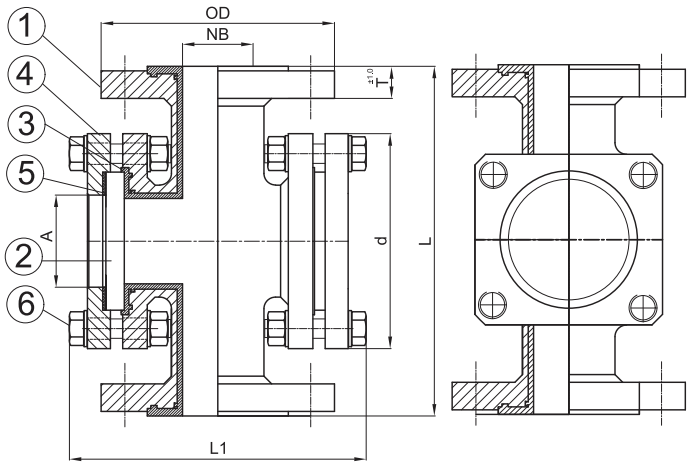
Hydro - Test Pressure

Size : 25 to 50 NB	Body : 10 kg/cm²
Size : 80 to 100 NB	Body : 05 kg/cm²
Size : Above 100NB	Body : 02 kg/cm²

Spark Test

15 kv dc

LINED DOUBLE WINDOW SIGHT GLASS



Size (NB)	L ± 3	OD	T ±1.0	P.C.D ± 1.6	Holes Dia.	No. H	L1	D	A
mm	mm	mm	mm	mm	mm	No.s	mm	mm	mm
25	178	108	14.3	79.4	16	04	130	85	40
40	204	127	17.5	98.4	16	04	150	110	50
50	228	152	19	120.6	19	04	170	135	75
80	280	178	23.8	152.4	19	04	220	175	100
100	330	228	23.8	190.5	19	08	260	205	150
150	406	280	25.4	241.3	22	08	340	250	200
200	458	343	28.6	298.4	22	08	400	315	245

Sr. No.	Description	Qty.	Material
1	Body	1	D.I., WCB 216, CF 8, CF 8M + PFA, FEP, PPH, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
2	Glass	2	Toughened Borosilicate
3	Seat	2	Integral PFA, FEP, PVDF, PP, HDPE Lined
4	Cover Flange	2	CS / CF 8 / CF 8M
5	Glass Packing	2	PTFE
6	Fasteners	-	SS 304 / SS 316

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	Manufacturing Standard
Flange Connection	ASME B 16.5; 150#; R/F

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Casting Material

Ductile Iron	ASTM A 395
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Hydro - Test Pressure

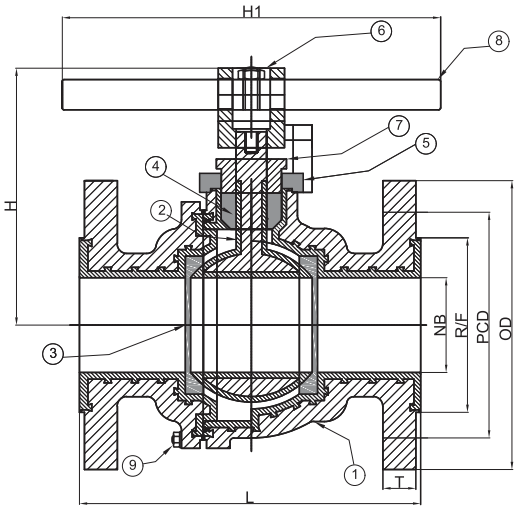
Size : 25 to 100 NB	Body : 10 kg/cm²
Size : 150 to 200 NB	Body : 05 kg/cm²

Spark Test

15 kv dc

NOTE : Designs with Rotor, Drip Tube provision provided upon demand.

LINED BALL VALVE



Size	L ± 5 .0	OD ± 1.0	T ± 1.0	P.C.D. ±1.6	No. of Holes	Hole Dia.	R/F Dia.	H ± 5.0	H1 ± 5.0	Torque - Min.	Torque - Max
NB										NM	NM
15 mm	108	89.0	11.1	60.0	04	16	35.0	105	215	15	18
20mm	117	98.0	12.7	70.0	04	16	43.0	105	225	15	20
25mm	127	108.0	14.3	79.0	04	16	51.0	105	225	20	22
40 mm	165	127.0	17.5	98.0	04	16	73.0	125	320	22	25
50 mm	178	152.0	19	121.0	04	19	92.1	134	330	30	33
65 mm	203	180.0	23.8	140.0	04	19	105.0	156	330	22	26
80 mm	203	191.0	23.8	152.0	04	19	127.0	156	400	22	26
100 mm	229	229.0	23.8	191.0	08	19	157.0	230	458	25	28
150 mm	267	280.0	25.4	241.0	08	22	216.0	298	534	30	35
200 mm	360	342.9	28.6	298.4	08	22	269.9	320	600	40	46

Sr. No.	Description	Qty.	Material
1	Body	2	D.I. Casting, WCB 216, CF 8, CF 8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
2	Ball / Stem	1	CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
3	Valves Seat	2	PTFE
4	PTFE Gland	1	PTFE
5	Top Cover / Bonnet	1	WCB 216, CF 8, CF 8M
6	Adopter	1	WCB 216, CF 8, CF 8M
7	Gland	1	WCB 216, CF 8, CF 8M
8	Lever Rod	1	M.S. Epoxy Painted / SS 304 / SS 316
9	Fasteners	-	SS 304 / SS 316

General Notes

Design Standard	BS 5351 Short Pattern
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	ASME B 16.5; 150#; R/F

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Hydro - Test Pressure

Size : 15 to 100 NB	Body : 15 kg/cm²	Seat : 11 kg/cm²
Size : 150 NB	Body : 10 kg/cm²	Seat : 07 kg/cm²
Size : 200 NB	Body : 05 kg/cm²	Seat : 05 kg/cm²

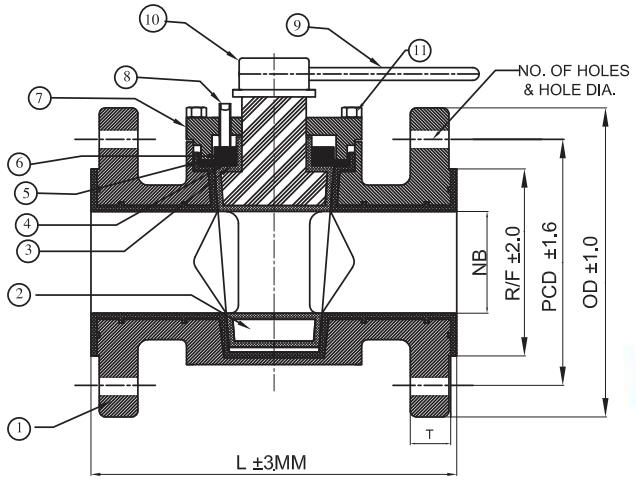
Pneumatic - Test Pressure

5 kg/cm²

Spark Test

15 kv dc

LINED PLUG VALVE



Size (NB)	L ± 3.0	OD ±1.0	R/F Ø ±2.0	T ±1.5	PCD ±1.6	No. of Hole	Hole Ø
25	127*	107.9	50.8	14.3	79.4	4	16
40	165	127	73	17.5	98.4	4	16
50	178	152.4	92.1	19	120.6	4	19
80	203	190.5	127	23.8	152.4	4	19
100	229	228.6	157.2	23.8	190.5	8	19
150	302*	279.4	215.9	25.4	241.3	8	22

* F/F as per Manufacturing Standard.

Sr. No.	Description	Qty.	Material
1	Body	1	WCB, D.I Casting, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3 mm Lining Thk.
2	Plug	1	CF8 + PFA, FEP, PVDF, PP, HDPE Lined Min. 3 mm Lining Thk.
3	Wedge Ring (40 NB & above)	1	GFT
4	Diaphragm with 45° Delta Ring	1	PTFE
5	Metallic Diaphragm	1	SS 304
6	Thrust Washer	1	SS 304
7	Bonnet	1	ASTM A216 Gr.WCB, CF8, CF8M
8	Grub Screw	3	SS 304 / MS
9	Handle Rod	1	MS / SS 304
10	Adapter	1	ASTM A216 Gr.WCB, CF8, CF8M
11	Fasteners	4	MS / SS 304

General Notes

Design Standard	BS 5158 Short Pattern
Test Standard	API 598 / BS EN 12266-1:2012
Face to Face Dimension	ASME B 16.10
Flange Connection	ASME B 16.5; 150 # ; RF

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF8, ASTM A 351 CF8M

Hydro Test Pressure

Size: 25 NB - 100 NB	Body : 15 kg/cm^2	Seat : 11 kg/cm^2
Size: 150 NB	Body : 10 kg/cm^2	Seat : 7 kg/cm^2

Pneumatic - Test Pressure

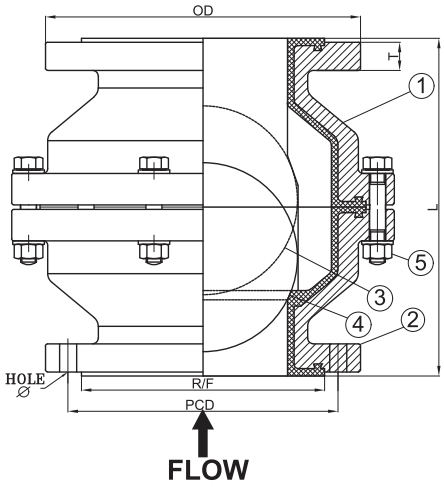
5 kg/cm^2

Spark Test

15 kv dc

Note: 150 NB Valve shall be gear operated.

LINED BALL CHECK VALVE



Size (NB)	L ± 5.0	OD ± 1.0	T ± 3.0	P.C.D ± 1.6	ØHole	No. of Holes	ØR/F
15 mm	115	89	11.1	60	16	04	35
25 mm	127	108	14.3	79	16	04	51
40 mm	165	127	17.3	98	16	04	73
50 mm	178	152	19	121	19	04	92
80 mm	203	191	23.8	152	19	04	127
100 mm	253	229	23.8	191	19	08	157
150 mm	303	280	25.4	241	22	08	216
200 mm	421	343	28.6	298	22	08	270

Sr. No.	Description	Qty.	Material
1	Body	1	D.I. Casting, WCB 216, CF 8, CF 8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
2	End Piece	1	D.I. Casting, WCB 216, CF 8, CF 8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
3	Ball	1	Solid PTFE
4	Seat	1	Integral PFA, FEP, PVDF, PP, HDPE Lining
5	Fasteners	-	SS 304 / SS 316

General Notes

Design Standard	BS 5351 Short Pattern
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	ASME B 16.5; 150#; R/F

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

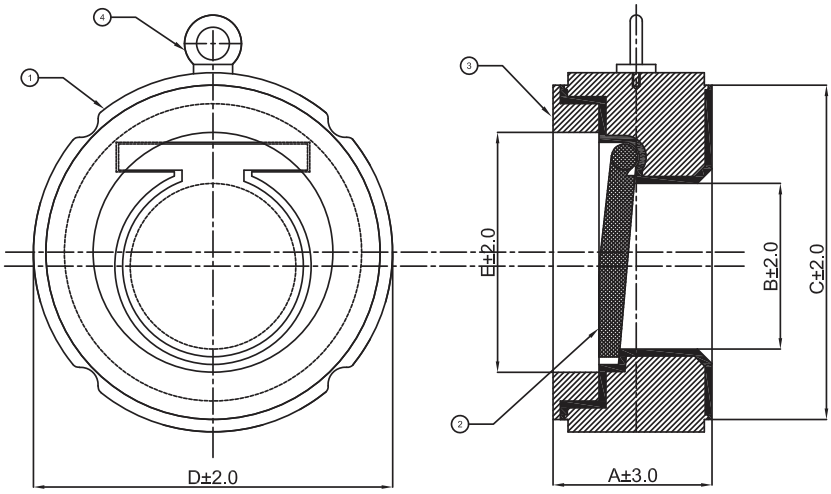
Hydro - Test Pressure

Size : 25 to 80 NB	Body : 15 kg/cm²	Seat : 11 kg/cm²
Size : 100 NB	Body : 10 kg/cm²	Seat : 10 kg/cm²
Size : 150 to 200 NB	Body : 06 kg/cm²	Seat : 05 kg/cm²

Spark Test

15 kv dc

LINED SWING CHECK VALVE



Size (NB)	A ±3mm	B ±2mm	C ±2mm	D ±2mm	E ±2mm
50	60	27	92	110.6	56
80	73	40	127	142.4	80
100	73	64	157.2	179.5	104
150	98	108	215.9	232	155
200	127	125	269.9	290	190
250	147	155	323.8	345	238

Sr. No.	Description	Qty.	Material
1	Body	1	WCB, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lining min. 3.5 MM Lining Thk.
2	Flap	1	WCB, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lining Min. 3.5 MM Lining Thk. / Pure PFA, FEP, PVDF, PP, HDPE Molded
3	Retainer Ring	1	PTFE
4	Eye-Hook	1	MS / SS 304

Casting Material

Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF8, ASTM A 351 CF 8M

General Notes

Design Standard	API 594
Test Standard	API 598 / ISO 9393-2 / BS EN 12266-1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	Suitable for ASME B 16.5; 150 # ; RF

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222
PP	ASTM D 4101

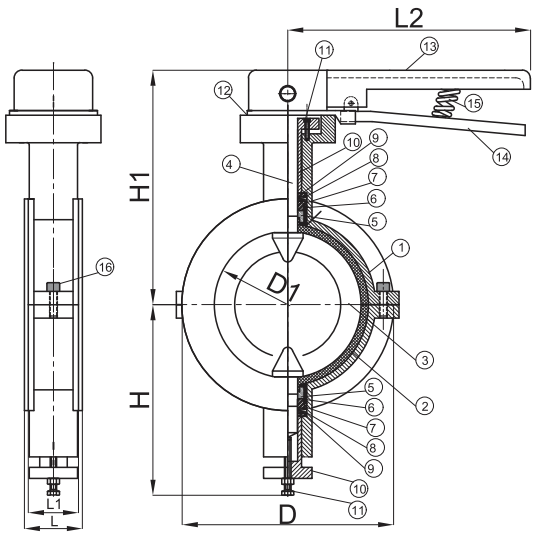
Hydro Test Pressure

Size: 50 NB - 250 NB Body : 15 kg/cm^2 Seat : 11 kg/cm^2

Spark Test

15 kv dc

LINED BUTTERFLY VALVE LEVER OPERATED



Size (NB)	L ± 3	L1 ± 1	D1 ± 2	D ± 2	H ± 8	H1 ± 8	L2 ± 8
50 mm	50	43	50	93	97	145	265
80 mm	53	46	75	128	121	165	265
100 mm	61	52	100	158	131	187	265

Sr. No.	Description	Qty.	Material
1	Body	2	WCB 216 / CF 8, CF 8M Epoxy Painted
2	Seat	1	PTFE
3	Disc	1	CF 8, CF 8M inserted PFA, FEP, PVDF, PP, HDPE Lined
4	Stem	1	CF 8, CF 8M integral to disc
5	Stem Seal - Top & Bottom	2	PTFE
6	Seal Cup - Top & Bottom	2	PFA, FEP, PVDF, PP, HDPE
7	Tee Bush - Top & Bottom	1	SS 304
8	Disc Spring - Top & Bottom	2	50 CR V4
9	Thrust Collar - Top & Bottom	2	SS 304
10	Thrust Collar - Top & Bottom	2	CS / SS
11	Adjustable bolts	1	Steel Plated
12	Positioner Lock Plate	1	Steel Plated
13	Handle Lever	1	Steel Powder Coated
14	Positioner Lever	1	Steel Powder Coated
15	Spring	1	Spring Steel Powder Coated
16	Fasteners	2	H.T. Bolt / SS

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Hydro - Test Pressure

Size : 50 to 100 NB — Body : 15 kg/cm² Seat : 11 kg/cm²

General Notes

Design Standard	API 609
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	Suitable for ASME B 16.5, #150

Pneumatic - Test Pressure

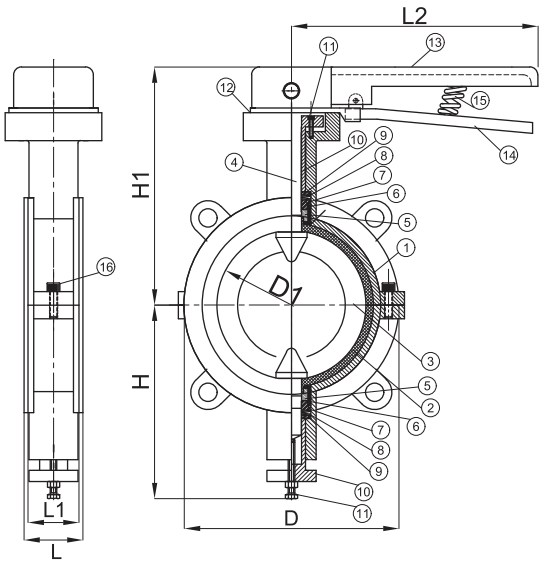
5 kg/cm²

Spark Test

15 kv dc

* Gear operated & actuator (Pneumatic / Electric) operated Valves details on demand.

LINED BUTTERFLY VALVE LUG TYPE LEVER OPERATED



Size (NB)	L ± 3	L1 ± 1	D1 ± 2	D ± 2	H ± 8	H1 ± 8	L2 ± 8
50 mm	50	43	50	93	97	145	265
80 mm	53	46	75	128	121	165	265
100 mm	61	52	100	158	131	195	265

Sr. No.	Description	Qty.	Material
1	Body	2	D.I. Casting,WCB 216, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
2	Seat	1	PTFE
3	Disc	1	CF8 / CF8M PFA, FEP, PVDF, PP, HDPE Lined
4	Stem	1	CF8 / CF8M Integral to Disc
5	Stem Seal - Top & Bottom	2	PTFE
6	Seal Cup - Top & Bottom	2	PFA, FEP, PVDF, PP, HDPE
7	Tee Bush - Top & Bottom	1	PTFE
8	Disc Spring - Top & Bottom	1	50 CR V4
9	Thrust Collar - Top & Bottom	2	SS 304
10	Thrust Collar - Top & Bottom	2	CS / SS
11	Adjustable bolts	1	Steel Plated
12	Positioner Lock Plate	1	Steel Plated
13	Handle Lever	1	Steel Powder Coated
14	Positioner Lever	1	Steel Powder Coated
15	Spring	1	Spring Steel Powder Coated
16	Fasteners	2	H.T. Bolt / SS

General Notes

Design Standard	API 609
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266-1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	Suitable for ASME B 16.5; #150

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Hydro - Test Pressure

Size : 50 to 100 NB

Body : 15 kg/cm²

Seat : 11 kg/cm²

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Pneumatic - Test Pressure

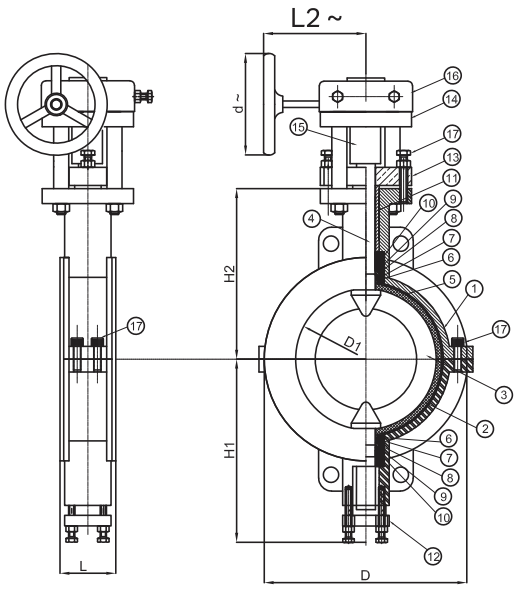
5 kg/cm²

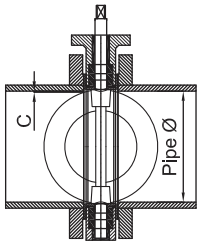
Spark Test

15 kv dc

* Gear operated & actuator (Pneumatic / Electric) operated Valves details on demand.

LINED BUTTERFLY VALVE GEAR OPERATED





INSTALLATION GUIDELINE

* 'C' shows the minimum clearance required between Valve Disc & Pipe ID

Size (NB)	L ±3.0	D1 ±2.0	D ±2.0	H1 ±8.0	H2 ±8.0	L2 ~	d ~	Min. Pipe Ø	C*
150	64	150	216	190	191	175	175	139	1.5
200	70	200	270	169	228	175	250	194	3.0
250	81	250	324	235	248	240	250	243	3.0
300	90	300	381	249	292	300	400	293	3.0
350	90	350	413	277	308	300	400	344	3.0
400	102	400	470	256	351	325	500	390	3.0
500	143	500	585	388	413	340	580	486	3.0
600	154	600	695	465	495	350	500	593	6.4

Sr. No.	Description	Qty.	Material
1	Body	2	D.I Casting, WCB, CF8, CF8M
2	Seat	1	PTFE
3	Disc	1	CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5mm Thk.
4	Stem	1	ASTM A351 Gr. CF8 Integral to Disc
5	Seat Energiser	1	Silicon Rubber
6	Stuffing Box	2	GFT
7	Chevron Ring Set	2	PTFE
8	Rubber Ring	2	Silicon Rubber
9	Ring Cage	2	SS 304
10	'T' Bush	2	SS 304
11	Stern Tube Bearing	1	MS / SS 304
12	Thrust Collar Bottom	1	MS / SS 304
13	Gland Pusher	1	MS / SS 304
14	G.B Mounting Bracket	1	MS / SS 304
15	Coupler	1	MS / SS 304
16	Gear Box	1	Manufacturing Standard
17	Fasteners	-	MS / SS 304

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF8, ASTM A 351 CF 8M

Hydro Test Pressure

Size: 150 NB - 250 NB	Body : 15 kg/cm^2	Seat : 11 kg/cm^2
Size: 300 NB - 400 NB	Body : 10 kg/cm^2	Seat : 7 kg/cm^2
Size: 500 NB - 600 NB	Body : 5 kg/cm^2	Seat : 3 kg/cm^2

Pneumatic - Test Pressure

5 kg/cm^2

Spark Test

15 kv dc

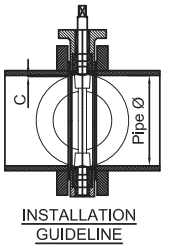
General Notes

Design Standard	API 609
Test Standard	API 598 / ISO 9393-2 / BS EN 12266-1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	ASME B 16.5; 150 # ; RF

Lining Material

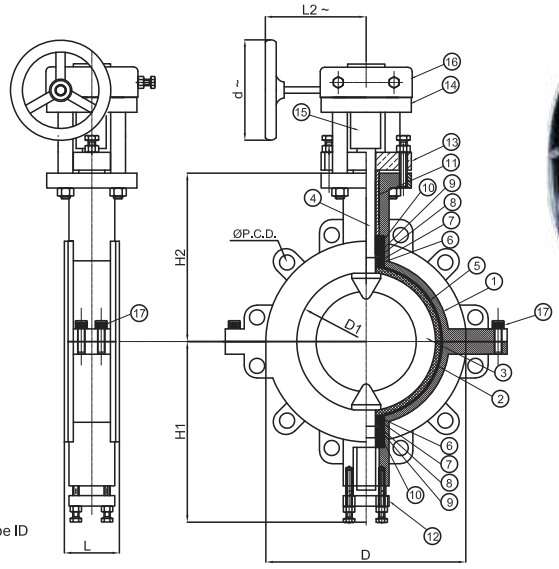
PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222
PP	ASTM D 4101

LINED BUTTERFLY VALVE LUG TYPE GEAR OPERATED



INSTALLATION GUIDELINE

* 'C' shows the minimum clearance required between Valve Disc & Pipe ID



Size (NB)	L ±3.0	D1 ±2.0	D ±2.0	H1 ±8.0	H2 ±8.0	L2 ~	ØP. C. D ±3.0	d ~	Min. Pipe Ø	C*	No. of Lugs
150	64	150	216	190	191	175	241.3	175	139	1.5	8
200	70	200	270	169	228	175	298.5	250	194	3.0	8
250	81	250	324	235	248	240	362	250	243	3.0	12
300	90	300	381	249	292	300	431.8	400	293	3.0	12
350	90	350	413	277	308	300	476.2	400	344	3.0	12
400	102	400	470	256	351	325	539.8	500	390	3.0	16
500	143	500	585	388	413	340	577.8	500	486	3.0	20
600	154	600	695	465	495	350	749.3	500	593	6.4	20

Sr. No.	Description	Qty.	Material
1	Body	2	D.I Casting, WCB, CF8, CF8M
2	Seat	1	PTFE
3	Disc	1	CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5mm Thk.
4	Stem	1	ASTM A351 Gr. CF8 Integral to Disc
5	Seat Energiser	1	Silicon Rubber
6	Stuffing Box	2	GFT
7	Chevron Ring Set	2	PTFE
8	Rubber Ring	2	Silicon Rubber
9	Ring Cage	2	SS 304
10	'T' Bush	2	SS 304
11	Stern Tube Bearing	1	MS / SS 304
12	Thrust Collar Bottom	1	MS / SS 304
13	Gland Pusher	1	MS / SS 304
14	G.B Mounting Bracket	1	MS / SS 304
15	Coupler	1	MS / SS 304
16	Gear Box	1	Manufacturing Standard
17	Fasteners	-	MS / SS 304

General Notes

Design Standard	API 609
Test Standard	API 598 / ISO 9393-2 / BS EN 12266-1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	ASME B 16.5; 150 # ; RF

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222
PP	ASTM D 4101

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF8, ASTM A 351 CF8M

Hydro Test Pressure

Size: 150 NB - 250 NB	Body : 15 kg/cm^2	Seat : 11 kg/cm^2
Size: 300 NB - 400 NB	Body : 10 kg/cm^2	Seat : 7 kg/cm^2
Size: 500 NB - 600 NB	Body : 5 kg/cm^2	Seat : 3 kg/cm^2

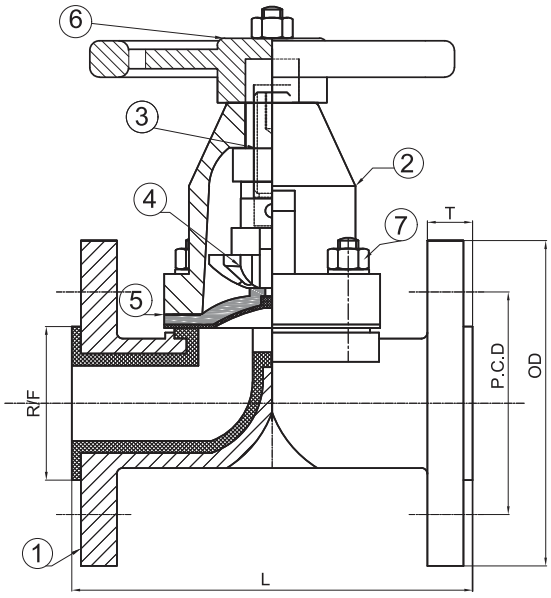
Pneumatic Test Pressure

5 kg/cm^2

Spark Test

15 kv dc

LINED DIAPHRAGM VALVE



Size (NB)	L ± 5.0	OD ± 1.0	T ± 1.5	H Approx	P.C.D. ± 1.6	No. of Holes	Holes Dia.	R/F Dia.
15 mm	108	89	11.1	105	60.0	04	16	35
25 mm	133	108	14.3	142	79.0	04	16	51
40 mm	166	127	17.5	160	98.0	04	16	73
50 mm	201	152	19.0	200	121.0	04	19	92
80 mm	262	191	23.8	240	152.0	04	19	127
100 mm	330	229	23.8	250	191.0	08	19	157

Sr. No.	Description	Qty.	Material
1	Body	1	D.I. Casting / WCB CS / SS + PFA, FEP, PVDF, PP, HDPE Lined Lining Thk. Min. 3.05 mm
2	Bonnet	1	WCB 216, CF 8, CF 8M + PFA, FEP, PVDF, PP, HDPE Lined
3	Sleeve & Spindle	1	SS 304 / SS 316
4	Compressor	1	ASTM A 216 Gr. WCB / SS
5	Diaphragm	1	PTFE padded backed with EPDM rubber
6	Hand Wheel	1	ASTM A 216 Gr. WCB
7	Fasteners	-	SS 304

General Notes

Design Standard	BS EN 13397; 2002
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	EN 558 - 1, Series 7 & 1
Flange Connection	ASME B 16.5; 150#; R/F

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

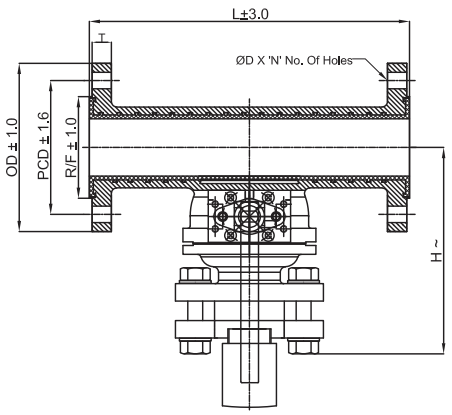
Hydro - Test Pressure

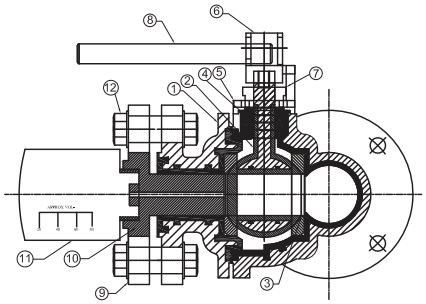
Size : 15 to 100 NB	Body : 15 kg/cm² Seat : 11 kg/cm²
Size : 150 to 200 NB	Body : 06 kg/cm² Seat : 06 kg/cm²

Spark Test

15 kv dc

INLINE SAMPLING VALVE





Size (NB)	L ± 3.0	OD ±1.0	R/F Ø ±2.0	T ±1.0	PCD ±1.6	No. of Hole	Hole Ø
25	257	107.9	50.8	14.3	79.4	4	16
40	257	127	73	17.5	98.4	4	16
50	257	152.4	92.1	19	120.6	4	19
80*	257	190.5	127	23.8	152.4	4	19

* 80 NB Valve shall be CS / SS fabricated.

Sr. No.	Description	Qty.	Material
1	Body	2	WCB, D.I Casting, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3 mm Lining Thk.
2	Ball / Stem	1	CF8 / CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk. (Cup Type)
3	Valve Seat	1	PTFE
4	Gland Packing	1	PTFE 'V' Ring
5	Top Cover	1	ASTM A 216 Gr. WCB / CF8 / CF8M
6	Adapter	1	ASTM A 216 Gr. WCB / CF8 / CF8M
7	Gland	1	ASTM A 216 Gr. WCB / CF8 / CF8M
8	Lever Rod	1	MS / SS 304
9	Flange	1	IS 2062 / SS 304 / SS 316
10	Drain Bush	1	PTFE (Drilling Size - 12.0)
11	Glass Bottle	1	Borosilicate (Size - 50ml, 100ml)
12	Fasteners	4	SS 304

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Flange Connection	ASME B 16.5; 150#; R/F

Casting Material

Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Hydro - Test Pressure

Size : 25 to 80 NB	Body : 15 kg/cm² Seat : 11 kg/cm²

Lining Material

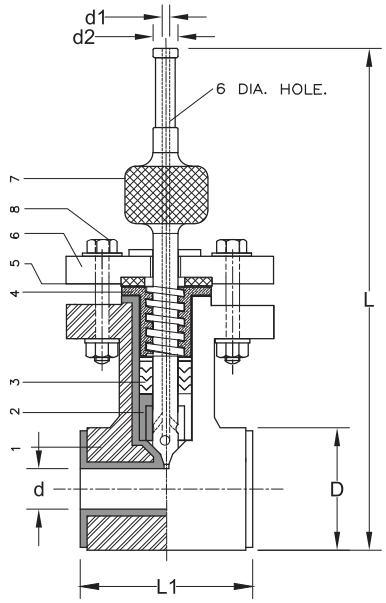
PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Spark Test

15 kv dc

Note: SS 316 / SS 316L unlined sampling valve also provided.

LINED SAMPLING VALVE SANDWICH TYPE



Size (NB)	L ± 3.0	L1	D	d	d1	d2
mm	mm	mm	mm	mm	mm	mm
25	210	60	52	20	6	18

Sr. No.	Description	Material
1	Body	ASTM A 216 Gr. WCB + PFA Lined
2	Material Port	PTFE
3	Chevorn Packign	PTFE
4	Socket	PTFE
5	Lock Plate	SS 304
6	Companion Flange	SS 304
7	Spindle	PTFE
8	Fastners	SS 304

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	Manufacturing Standard
Flange Connection	ASME B 16.5; 150#; R/F

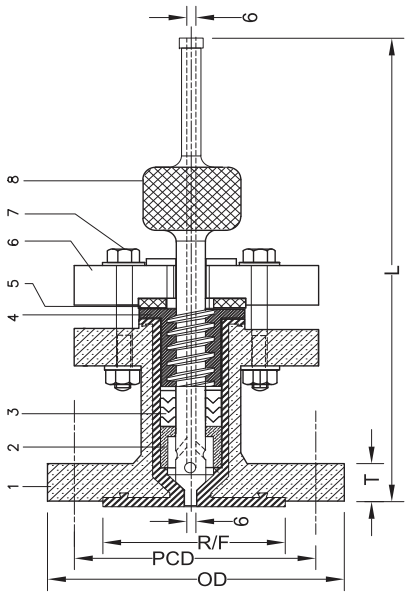
Hydro - Test Pressure

Size : 25 NB	Body : 05 kg/cm² Seat : 05 kg/cm²

Spark Test

15 kv dc

LINED SAMPLING VALVE FLANGE TYPE



Size (NB)	L ± 3.0	OD ± 1.0	T ± 1.0	R/F ± 2.0	PCD ± 1.6	No. of Holes	Hole Dia.
mm	mm	mm	mm	mm	mm	mm	mm
25	200	108	14.3	51.0	79.0	04	16

Sr. No.	Description	Material
1	Body	ASTM A 216 Gr. WCB + PFA Lined
2	Material Port	PTFE
3	Chevorn Packign	PTFE
4	Socket	PTFE
5	Lock Plate	SS 304
6	Companion Flange	SS 304
7	Spindle	PTFE
8	Fastners	SS 304

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	Manufacturing Standard
Flange Connection	ASME B 16.5; 150#; R/F

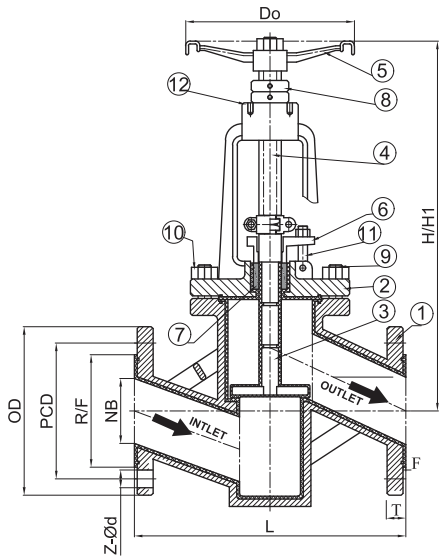
Hydro - Test Pressure

Size : 25 NB	Body : 05 kg/cm² Seat : 05 kg/cm²

Spark Test

15 kv dc

LINED GLOBE VALVE



Size (NB)	L ± 3.0	OD ± 1.0	PCD ± 1 .6	R/F	T	F	H / H1	Do	Z-d
15 mm	108	89	89	32	12	3	150/175	100	4-16
25 mm	160	108	79	51	13	3	250/275	120	4-16
40 mm	200	127	98	73	16	3	285/320	140	4-16
50 mm	230	152	121	92	18	3	300/335	160	4-19
80 mm	310	191	152	127	23	3	400/450	240	8-19

Sr. No.	Description	Material
1	Body	WCB 216, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
2	Bonnet	WCB 216, CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined
3	Plug	CF8, CF8M + PFA, FEP, PVDF, PP, HDPE Lined Min. 3.5 mm Lining Thk.
4	Stem	CF8, CF8M
5	Hand Wheel	ASTM A 216 Gr. WCB
6	Gland Cover	ASTM A 216 Gr. WCB

Sr. No.	Description	Material
7	Gland	PTFE
8	Nut	MS / SS304
9	Stud	SS 304 / SS 316
10	Nut	SS 304 / SS 316
11	Swing Bolt	SS 304 / SS 316
12	Screw	SS 304 / SS 316

General Notes

Design Standard	BS 5351 Short Pattern
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	ASME B 16.10
Flange Connection	ASME B 16.5; 150#; R/F

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF8 / ASTM A 351 CF8M

Hydro - Test Pressure

Size : 15NB TO 80 NB	Body : 15 kg/cm² Seat : 11 kg/cm²

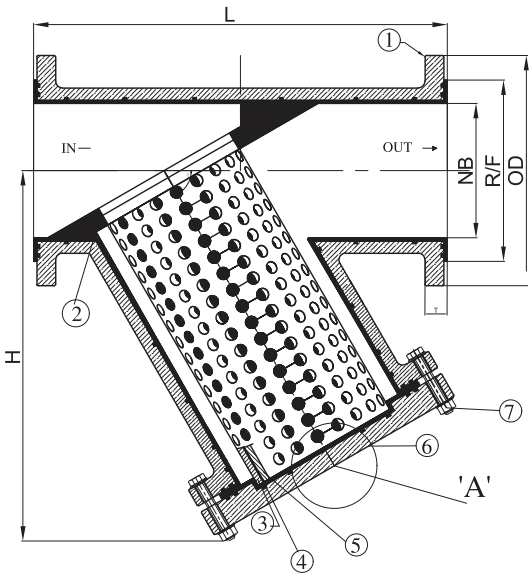
Pneumatic - Test Pressure

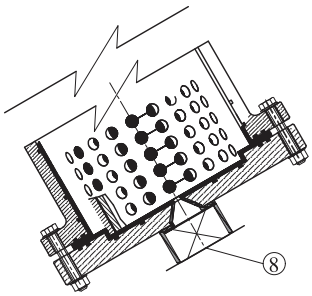
5 kg/cm²

Spark Test

15 kv dc

LINED STRAINER 'Y' TYPE





DETAIL - 'A'
WITH DRAIN PLUG

Size (NB)	L ± 5.0	OD ± 1.0	H ± 5.0	T ± 1 .5	P.C.D ± 1 .6	No. of Holes	Hole Dia.	R/F Dia.
25 NB	190	108	128	14.3	79	04	16	51
40 NB	258	127	203	17.5	98	04	16	73
50 NB	284	152	240	19	121	04	19	92
80 NB	360	191	250	23.8	152	04	19	127
100 NB	415	229	310	23.8	191	08	19	152
150 NB	520	280	388	25.4	241	08	22	216
200 NB	605	343	585	28.6	298	08	22	270
250 NB*	772	406.4	675	30.2	361.9	12	25	323.8

*250 NB Strainer Body Will be Fabricated

Sr. No.	Description	Qty.	Material
1	Shell (Body)	1	D.I. Casting, WCB 216 + PFA, FEP, PVDF, PP, HDPE Lined Lining 3.5 mm Thk.
2	Seat	1	Integral PFA, FEP, PVDF, PP, HDPE
3	Outer Tube	1	PTFE
4	Inner Tube	1	PTFE
5	Filter Web	1	PEEK/ETFE - Mesh 10/20/40
6	Flange Cover	1	D.I., WCB, IS2062, A105 + PFA, FEP, PVDF, PP, HDPE
7	Fastener	-	MS / SS 304
8	Drain Plug	1	PTFE

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	Manufacturing Standard
Flange Connection	ASME B 16.5; 150#; R/F

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF 8 / ASTM A 351 CF 8M

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222

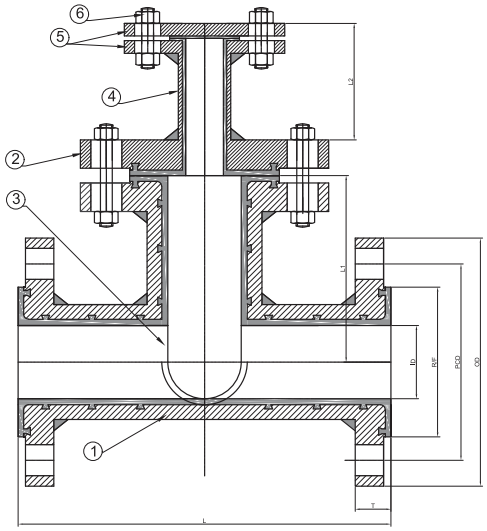
Hydro - Test Pressure

Size : 25 to 100 NB	Body : 10 kg/cm²
Size : 150 to 250NB	Body : 05 kg/cm²

Spark Test

15 kv dc

LINED STRAINER 'T' TYPE



Size (NB)	L ± 5	OD ± 1	T ± 1	R/F ± 1	P.C.D ± 1 .6	Hole Dia.	No. of Hole	L1 ± 4	L2 ± 4
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
50	228.0	152.4	19.0	92.1	120.6	19	04	114.0	75.0
80	280.0	190.5	23.8	127.0	152.4	19	04	140.0	75.0
100	330.0	228.6	23.8	157.2	190.5	19	04	165.0	75.0
150	406.0	279.4	25.4	215.9	241.3	22	04	203.0	75.0
200	558.0	342.9	28.6	269.9	298.4	22	04	229.0	75.0

Sr. No.	Description	Qty.	Material
1	Body	1	Fabricated (A 106 / SS 304 / SS 316 SMLS PIPE + IS 2062 / A 105 / SS 304 / SS 316 FLANGE) + PFA, FEP, PVDF, PP, HDPE Lined
2	Cover	1	IS 2062 / A 105 / SS 304 / SS 316 FLANGE + PFA, FEP, PVDF, PP, HDPE Lined
3	Filter	1	PEEK / ETFE - Mesh 10/20/40
4	Drain Pipe	1	3 /4" NB A 106 / SS 304 / SS 316 SMLS Pipe Sch.40 + PFA, FEP, PVDF, PP, HDPE Lined
5	Drain Cover	1	3 /4" NB IS 2062 / A 105 / SS 304 / SS 316 FLANGE + PFA, FEP, PVDF, PP, HDPE Lined
6	Fasteners	-	SS 304

General Notes

Design Standard	Manufacturing Standard
Test Standard	API 598 / ISO 9393 - 2 / BS EN 12266 - 1:2003
Face to Face Dimension	Manufacturing Standard
Flange Connection	ASME B 16.5; 150#; R/F

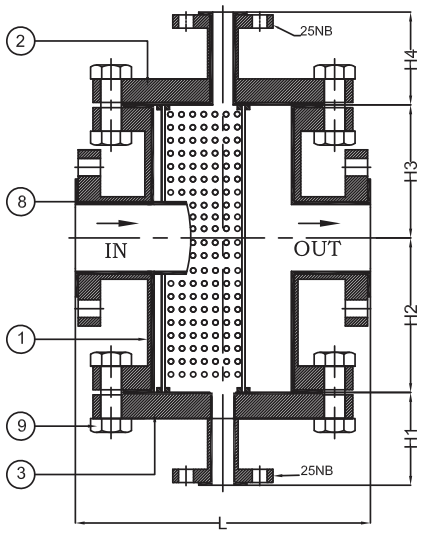
Hydro - Test Pressure

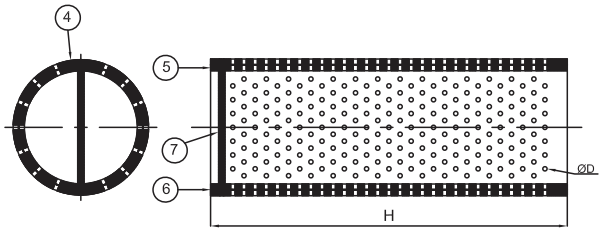
Size : 50 to 100 NB	Body : 10 kg/cm²
Size : 150 to 200 NB	Body : 05 kg/cm²

Spark Test

15 kv dc

LINED STRAINER BASKET TYPE





Size (NB)	L ±3mm	H1 ±2mm	H2 ±2mm	H3 ±2mm	H4 ±2mm	H ±3mm	ØD	Filtration Area of Strainer (MM²)	Filtration Area to Bore Ratio
25*	216	45	52	38	45	90	3	1030.8	3.7
40	230	100	174	131	100	305	8	4422.8	2.8
50	230	100	174	131	100	305	8	4422.8	2.8
80	312	100	167	145	100	312	10	8167.1	2.2
100	375	100	225	168	100	393	10	17936.2	2.7
150	430	100	300	215	100	515	12	35374.5	2.2

For 25 NB filter element shall be provided without filter web.

Sr. No.	Description	Material
1	Body	D.I Casting, CS Fabricated + PFA, FAP, PVDF, PP, HDPE Lined Min. 3.5mm Lining Thk.
2	Top Flange (Vent)	D.I Casting, CS Fabricated + PFA, FAP, PVDF, PP, HDPE Lined Min. 3.5mm Lining Thk.
3	Bottom Flange (Drain)	D.I Casting, CS Fabricated + PFA, FAP, PVDF, PP, HDPE Lined Min. 3.5mm Lining Thk.
4	Outer Tube	PTFE
5	Inner Tube	PTFE
6	Filter Web	ETFE / PEEK - MESH 10/20/40
7	Support Handle	PTFE
8	Inlet Tube	PTFE ('T' Bush)
9	Fastener	MS (Hex Bolt with Nut & Washer)

General Notes

Design Standard	Manufacturing Standard
Face to Face Dimension	Manufacturing Standard
Flange Connection	ASME B 16.5; 150 # ; RF

Lining Material

PFA	ASTM D 3307
FEP	ASTM D 2116
PVDF	ASTM D 3222
PP	ASTM D 4101

Casting Material

Ductile Iron	ASTM A 395 Gr. 60-40-18
Carbon Steel	ASTM A 216 Gr. WCB
Stainless Steel	ASTM A 351 CF8, ASTM A 351 CF8M

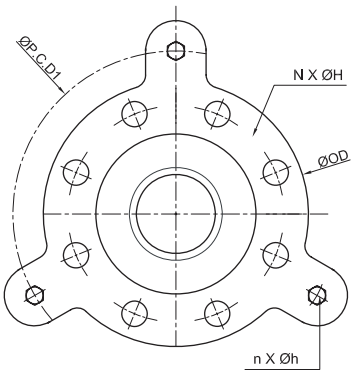
Hydro Test Pressure (Without Filter Element)

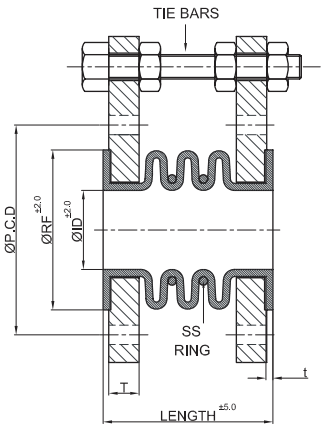
Size: 25 NB - 80 NB	15 kg/cm²
Size: 100 NB	10 kg/cm²
Size: 150 NB	06 kg/cm²

Spark Test

15 kv dc

PTFE BELLOW





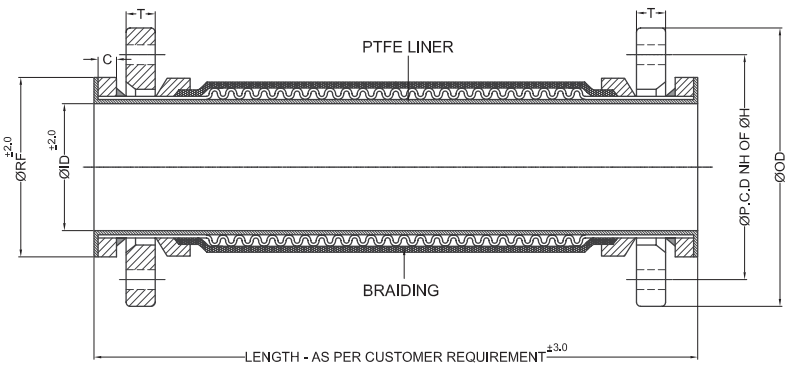
Nominal Bore (NB)		ØOD	ØID	ØRF	ØP.C.D	N x ØH	T	ØP.C.D1	n x ØH	t	LENGTH
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1"	25	108.0	19.0	50.8	79.4	4 x 14	10	129.0	3 x 10	3.5	65.0
1.1/2"	40	127.0	34.0	73.0	98.4	4 x 14	10	148.0	3 x 10	3.5	75.0
2"	50	152.4	45.0	92.1	120.6	4 x 18	12	180.0	3 x 12	3.5	80.0
2.1/2"	65	177.8	55.0	104.8	139.7	4 x 18	12	205.0	3 x 12	4	100.0
3"	80	190.5	69.0	127.0	152.4	4 x 18	12	218.0	3 x 12	4	100.0
4"	100	228.6	92.0	157.2	190.5	8 x 18	14	256.0	3 x 12	4	110.0
6"	150	279.4	145.0	215.9	241.3	8 x 20	16	313.0	3 x 14	4.5	125.0
8"	200	342.9	192.0	269.9	298.4	8 x 20	16	376.0	3 x 14	5	165.0
10"	250	406.4	245.0	323.8	361.9	12 x 23	20	445.0	3 x 14	5.5	150.0
12"	300	482.6	285.0	381.0	431.8	12 x 23	20	521.0	3 x 14	5.5	150.0
14"	350	533.4	340.0	412.7	476.2	12 x 27	20	574.0	3 x 14	5.5	150.0
16"	400	596.9	385.0	469.9	539.7	16 x 27	20	625.0	3 x 16	5.5	150.0
18"	450	635.0	440.0	533.4	577.8	16 x 30	25	680.0	3 x 19	5.5	150.0
20"	500	698.5	480.0	584.2	635.0	20 x 30	25	743.0	3 x 25	5.5	150.0
24"	600	812.8	585.0	692.1	749.3	20 x 33	25	858.0	3 x 25	5.5	150.0

Item Des.	Material
Lining	PTFE
Flange	WCB, IS 2062, SA 105N, SS 304, SS 316, SS 316L
Flange Rating	BS 10 - Table D, Table E, Table F, Table H, Table J & Table K Din Standerd - PN 6, PN 10, PN 16, PN 25, PN 40 on/off Centres - ASME B 16.5 Cls. 150, Cls. 300, Cls. 600

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test for 25 NB to 200 NB at 6.0 kg/cm^2 (g)
   250 NB to 600 NB at 3.0 kg/cm^2 (g)
   3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 15 kv after Lining
4) 100% Lining Thk. check.

LINED HOSE PIPE



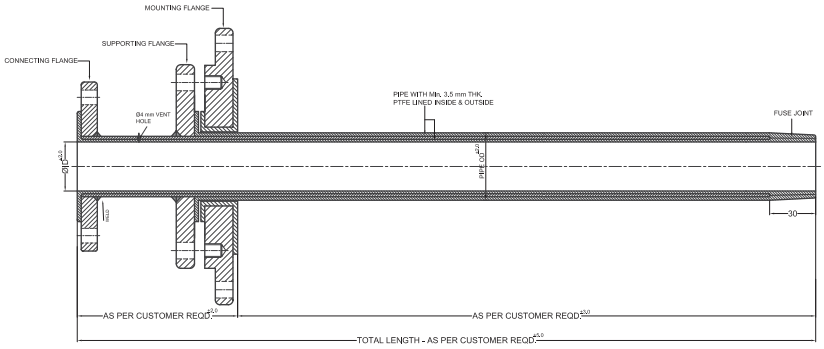
Pipework (NB)		ØOD	ØID	ØRF	ØP.C.D	NH	ØH	T	Length	Lining Thk.
Inches	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1"	25	108.0	22.0	51.0	79.4	4	16	14.3	200 - 6000	3.5
1.1/2"	40	127.0	37.0	73.0	98.4	4	16	17.5	200 - 6000	3.5
2"	50	152.4	50	92.0	120.6	4	19	19.0	200 - 6000	3.5
2.1/2"	65	177.8	57.5	105.0	139.7	4	19	22.2	200 - 6000	3.5
3"	80	190.5	73.0	127.0	152.4	4	19	23.8	200 - 6000	4.0
4"	100	228.6	97.0	157.0	190.5	8	19	23.8	200 - 6000	4.0

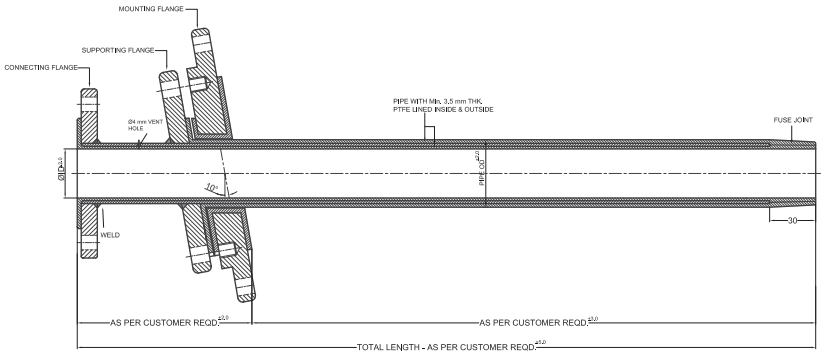
Item Des.	Material
Lining	PTFE
Corrugation	SS 304, SS 316, SS 316L
Braiding	SS 304
Flange	SS 304, SS 316, SS 316L, A 105, IS 2062
Flange Rating	ASME B 16.5 - Cls. 150, Cls. 300 BS 10 - Table D, Table E, Table F, Table H, Table J, & Table K Din Standerd - PN 6, PN 10, PN 16, PN 25, PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 29.9 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 15 kv after Lining
4) 100% Lining Thk. check.

LINED DIP PIPE





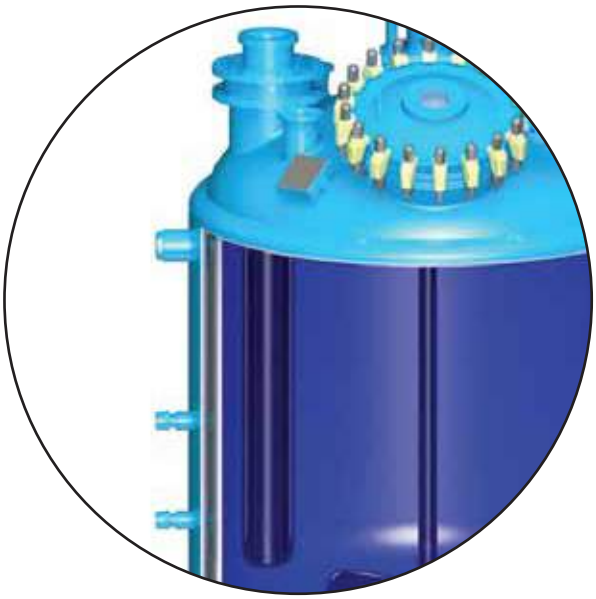
Item Des.	Material
Lining	PTFE
Pipe	ASTM A 106, Gr.B, SS 304, SS 316, SS 316L
Flange	IS 2062, SA 105N, SS 304, SS 316, SS 316L
Pipe Sch.	Sch. 20, Sch. 40, Sch. 80,
Flange Rating	BS 10 - Table D, Table E, Table F, Table H, Tabel J & table K DIN Standard - PN 6, PN 10, PN 16, PN 25 & PN 40

Testing Specification

1) 100% Visual Check / Dimensional Check
2) 100% Hydro Test at 6 kg/cm^2(g) for holding time of 3 Mins. as per ASTM F 1545 - 15A
3) 100% Spark Test at 10 kv after Lining
4) 100% Lining Thk. check.

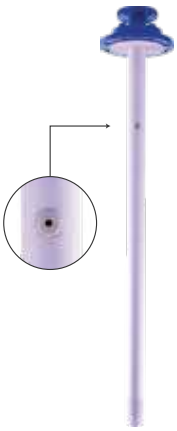
Additional Designs

1) Dip Pipe with Antisyphon Hole
2) Dip Pipe with Sparger
3) Pure PTFE Dip Pipe
4) Pure PTFE 'J' Type Dip Pipe



VALUE ADDED PRODUCTS

BUTTERFLY VALVE



LINED DIP PIPE

CHLORINE SPARGER

LINED HEADER

ROTOR SIGHT GLASS

PURE PTFE PIPES & FITTINGS

LINED VENTURI PUMP

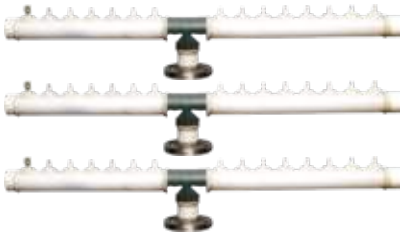
PTFE UNIVERSAL ROPE

PFA LINED IMPELLER

LINED STATIC MIXER

PTFE SPRAY BALL (SPRINKLER)

PURE PTFE RETAINER PLATE



CAUSTIC & BRINE INLET DISTRIBUTION HEADER

PTFE / PFA LINED COLUMN

ANTISTATIC PFA LINED DOME

QUALITY ASSURANCE / INSPECTION & TEST PLAN FOR PTFE & PFA LINED PIPE SPOOL, FITTINGS & VALVES

Code	Component / Stage	Characteristics	Extent of Check	Reference Documents / STD	Acceptance Norms
			1) PROCEDURE QUALIFICATION		
1.1	"Welding procedure & Welder qualification"	WPS / PQR Record	100% Review	WPS, PQR, WPQ	ASME Sec IX
			2) RAW MATERIAL INSPECTION		
2.1	PTFE Resin	Ensure Lot / batch no. details are available on drum	100% Check Correlate Lot / Batch details with Manufacturer COC	ASTM D 4895	Manufacturer COC
2.2	CS Pipes, Flanges, Fittings, Valve Body/end piece & ball	Conformity check for Chemical / Mechanical Properties	100% Check if results given in MTC / lab report Comply with relevant material specs	Approved Drawing/ Specification	Approved Drawing / ASTM F 1545
			3) IN PROCESS / FABRICATION OF PIPES & FITTINGS (BEFORE LINING)		
3.1	"Fabricated Pipe pool / fittings, machined castings"	Visual / Dimensional	100% Visual	Approved Drawing	Approved Drawing / ASTM F 1545
3.2	Weld quality check for fabricated pipes and fittings	"DP TEST / Radiography Tests"	"DPT -100% for fillet /Socket Welds/Butt Welds, RT-10% of Butt Welds" Physical	Approved Procedures	ASME Sec V & ASME 31.3

Special Notes for Sr. No. 3.1 & 3.2

1 Check the full length of pipe bore for any sharp protrusions. Ensure that all vent holes drilled are deburred and finished to a smooth finish.

2 Recheck weld joints at both flange faces where radius is provided to ensure smooth finish of the weld. All sharp edges shall be removed / ground off to smooth finish.

4) PTFE LINER

All Liners are produced using the paste extrusion technique which involves processing PTFE fine powder without use of any pigments - the color is white. On completion of Sintering process, liners are:

i Individually marked with respective batch number and sample pcs at random are cut off from tubes placed both, in front of the oven and also at the rear, for carrying out specific gravity and tensile, % elongation check.

ii All tubes are examined for cracks / deformation on the surface.

iii Liner batch no details to be transferred to respective metal pipe by means of a tag.

			5) FINAL INSPECTION FOR LINED PRODUCTS		
5.1	Hydrostatic Test	Physical	100% Visual	ASTM F 1545	"Procedure defined in ASTM F 1545 for Spools & fittings, EN12266-2 for Valves"
5.2	Continuity of Lining (spark test)	Physical	100% Spark Test 15 KV	ASTM F 1545	Procedure defined in ASTM F 1545
5.3	Thickness of Lining/ Dimensional Check of spools	Physical	Flange Ends Measurement	Approved drawing	Meet min thk requirements as given in ASTM F1545/ Approved drawing/ Specification
5.4	PTFE / PFA Linings	Physical	100% Visual	ASTM F 1545	"ASTM F 1545, Cl. 5.4, workmanship"
			6) FINAL PACKING		
6.1	Surface Cleaning / Paintings	Painting before final packing	100% Visual	Blast Cleaning Sa 2.5 + 1 coat of Self primed Epoxy (100-125 micron)	Visual
6.2	Packing	Physical	100% STD	Vendor Procedure	Both ends shall be secured with wooden blinds to avoid any damage to PTFE liner.

BUYERS GUIDE

1

CONTACT OUR SALES TEAM

Call or Email us

Interested in improving your production
by using PTFE/PFA/FEP Lined Piping System or Vessels?
Call us at **+91 9687615806** or
email us at **inquiry@dtplproducts.com**

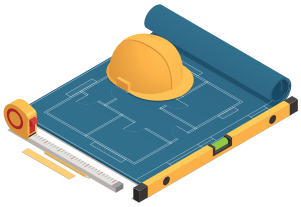
2

TELL US YOUR SPECIFICATIONS AND OPTIONS

PTFE/PFA/FEP
Lined Piping System or Vessel?

We've got it all covered! Highlight to us your
process specifications and requirements as well
as information and we will advise you accordingly.

3

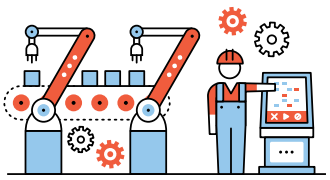


CONDUCT A SITE SURVEY AND MEASUREMENT

(On Request)

If your production plant requires specific measurements
or customised fittings & pipes, we will conduct site survey
to ensure the lined pipings are suitable for your plant.

4



MANUFACTURING AND FABRICATION

In-house manufacturing

Depending on your requirements, we will
design and manufacture your products at our
in-house manufacturing facility in Vadodara.

5

THIRD PARTY INSPECTION

(On Request)

We invite Third party inspection agencies
for pre and post production inspection and
witness the test, if required by the client.

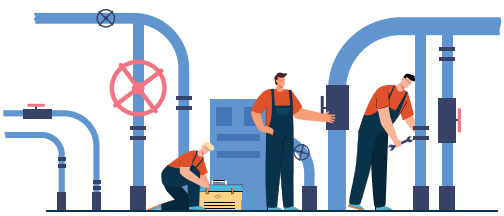
6

DELIVERY

All the way to your doorstep

Choose an available delivery date and time
that is suitable for you and our in-house delivery team
will deliver it to you at your doorstep.

7



ON SITE INSTALLATION AND SUPERVISION

(On Request)

We also provide supervision for erection,
installation and commissioning of complete
piping system at your site.

INDUSTRIES WE SERVE


Paper and Pulp Industry


Paint Manufacturers


Cleaning and Detergent Products


Chemical Manufacturers


Water Treatment


Bromine Industries


Pharmaceuticals

Food Manufacturers


Process Plant Manufacturers


Surfactant Chemical Industry


Power Stations


Flow Meter Manufacturers

Biodiesel Production


Fertilizer Industry


Fine Chemical Manufacturers


Petrochemical

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AN ISO 9001:2015 Company

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