DIFLON

TECHNOLOGY

DIFLINE

General catalogue

DIN

Gennaio 2017

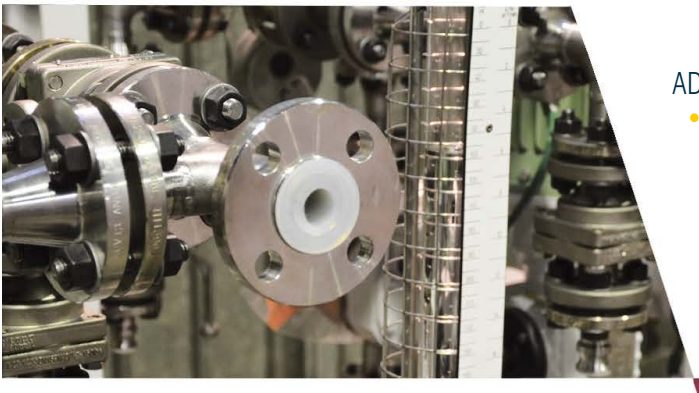

SINCE 1969

DIFLON
TECHNOLOGY

AT GLANCE

WHY DIFLON ?

The application of products manufactured by Diflon Technology Srl is a strategic choice, responsible and safe, thanks to the technical materials of high quality certified.
The finished products are designed with their own technical offices with cutting-edge tools and manufactured in stablimenti of Diflon production in Italy.
All materials are manufactured in accordance with ISO 9001 certification following the instructions of the Decree 81/08 and in accordance with 97/23/EC (PED).

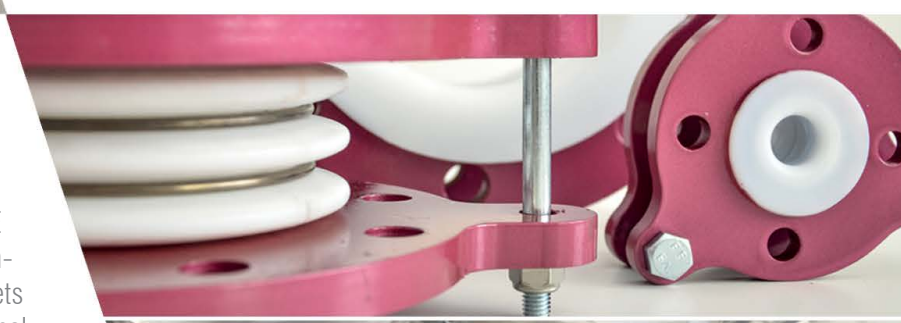


ADDITIONAL SERVICES

- Design and production of special coatings anticorrosion in fluoropolimery
- Supply of valve packages
- Technical consultancy in the choice of materials
- Technical testing and certification standards and on request
- Detailed engineering of sketches, material lists, assembly supervision

SINCE 1969

Since more than 40 years, Diflon Technology srl.
Direct production, in their establishment located in Carobbio degli Angeli (BG) Italy:
• Pipes, fittings, columns and tanks internally lined in PTFE / PFA according to DIN and ANSI standards for corrosion-resistant applications.• Technical hoses, fittings and gaskets used for high-performance applications in the chemical, petrochemical, pharmaceutical, food, industry.
• Universal gaskets Diflex.• PTFE / TFM expansion joints.• Lining in PFA for valves, pomps etc.
All products are made using the most modern production techniques.



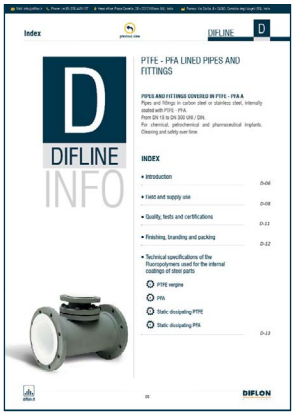
STRUCTURE OF PRODUCTION DEPARTMENTS

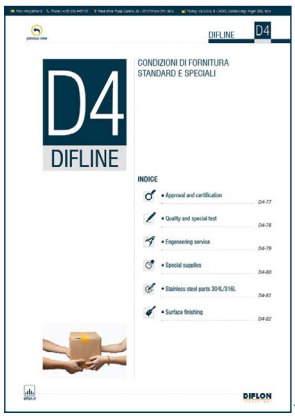
- Stores finished parts, raw materials
- Automatic CNC Machines
- Cutting and welding departments
- Coating PTFE/PFA pipes, columns and tanks
- Sandblasting
- Painting
- PFA transfer molding
- PTFE molding
- expansion joints Stamping in TFM / PTFE
- pipes and fittings Flexible Manufacturing
- Industrial gaskets
- Flexible hoses and fittings

DIFLINE introduction

GENERAL CATALOGUE

The general catalog DIFLINE DIN is the general overview of pipes, fittings and stainless steel lined dip pipes with flanged connections, internally lined with PTFE, TFM, PFA fluoropolymers. Built, tested, certified and tracked according to the most important international standards.





HOW TO USE THE CATALOGUE

General catalog Difline is divided into 5 sections: D - D1 - D2 - D3 - D4

D - General characteristics
D1 - Technical sheets of materials
D2 - Technical Information
D3 - Y filter and Bull's eye sight indicator
D4 - Supply condition

SIMBOLOGY

By clicking directly on the cover of catalogs you will be immediately directed to the point of interest.

In the pages of catalogs you will find the symbol that brings you back to the index of the section

General Technical Information

DIFLON SERVICES

By clicking on the symbol on the side of each card gives access to tables of chemical resistance of the materials.

D

DIFLINE

INFO

PTFE - PFA LINED PIPES AND FITTINGS

PIPES AND FITTINGS COVERED IN PTFE - PFA A

Pipes and fittings in carbon steel or stainless steel, internally coated with PTFE - PFA.
From DN 15 to DN 300 UNI / DIN.
For chemical, petrochemical and pharmaceutical implants. Cleaning and safety over time.

INDEX

INTRODUCTION

CATALOG INTRODUCTION TO DIFLINE PRODUCTS

This catalog and the attached tables want to be an introduction and a technical guide for those who intend to find in the DIFLINE products the solution to corrosion problems, contamination and safety of their own products, adopting and equipping their systems with a piping and fittings system in flanged steel completely covered in PTFE / PFA virgin or antistatic and thus exploiting the exceptional characteristics of fluoropolymers. So the customer will make not only a purchase but an investment in quality, safety and durability of the plants.

NOTES

The data and materials mentioned in the tables may vary over time, so the catalog has a general indication and does not constitute a guarantee.
For specific requests for mechanical strength, chemical compatibility, temperature or special operating conditions, please contact our technical office.
For requests for compliance with standards, specifications and tolerances, please contact our technical department.

CHARACTERISTICS OF DIFLINE PRODUCTS

The DIFLINE piping consists of flanged steel pipes and fittings according to DIN 2848 for the European market, ANSI F1545 for the Anglo-Saxon market. The internal coating consists of fluoropolymers such as, virgin PTFE, antistatic PTFE, virgin PFA, anti-static PFA, PVDF and also polypropylene. This makes it a completely anti-corrosion, antacid piping system suitable for the transport of food and chemical and pharmaceutical products: your products will only be in contact with it.

INTRODUCTION

REALIZATION OF METAL PARTS

Diflon pays particular attention to the realization of metal products. All the personnel of the departments and the procedures are certified with the TUV sud. The welding department is equipped with high-performance welding machines that guarantee, together with the mechanical workshop for the preparation of the components, perfect execution in compliance with the most restrictive designs and specifications. Diflon also makes use of a stock of components made of wax casting that allows it to deliver faster than the most used dimensional standards on the market.

AT THE VANGUARD IN THE FLUOROPOLYMER STAMPING TECHNIQUE

- in the molding of PFA, PVDF and Polypropylene the transfer molding technique is used with the latest machinery controlled by sophisticated PLC software. We can also print large parts.
- For the molding of PTFE we use large isostatic presses capable of reaching 400 bar of pressure and sintering furnaces.
- At the end of the molding processes all the manufactured articles are checked with poroscope and ultrasound to check for cracks or porosity in the coating.
- The coating thicknesses are monitored using ultrasonic thickness gauges

FIELD AND SUPPLY USE

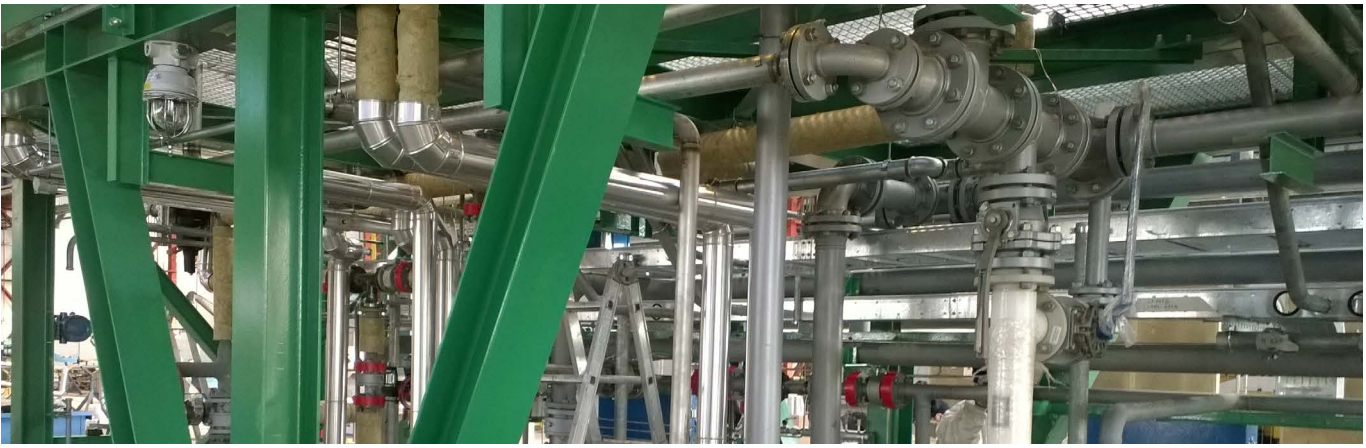
Difline products and their applications

Diflon's standard delivery program includes PTFE-lined carbon steel tubes and fittings in various versions from the DN 15 to the DN 600, for standard tube lengths up to 3 m and extended tube lengths up to 6 m. The continuous application temperature ranges from –29°C to +260°C, however, under certain conditions, these limits can be exceeded for a short time.

In the standard versions (PN10/16 – ANSI 150) and at ambient temperature, the Difline products can be used in applications not exceeding 13 bar. For higher pressure values, tubes and fittings in the PN 25 and PN 40 versions are available on request.

All Difline installation components feature high resistance against vacuum conditions. For absolute vacuum applications, the special versions HD (see table 1). The extraordinary properties of the PTFE material used by Diflon allow the application of Difline installation components on virtually all fluid media. The material's properties are particularly appreciated in the handling of highly aggressive media such as hydrochloric, hydrofluoric and nitric acids, oleum (fuming sulphuric acid), etc.

On the contrary, PTFE is not recommended with alkali metals, chlorotrifluoride and elemental fluorine (at high temperature and pressure).



QUALITY, TESTS AND CERTIFICATIONS

Quality control
Non-destructive tests carried out on Diflon engineering products include:

- Poroscope from 5000 to 50000 V
- Hydraulic test up to 80 bar
- Non-destructive tests: radiographs, penitent liquids, magnetoscopic control
- SMEs
- Ferroxyl test
- Other tests on request

Quality control of manufactured goods and certificates
- physical properties of PTFE
- physical and chemical properties of steel
- dimensional check of items
- check of machining tolerances
- simulation of the expected application limits.
- other tests on request

The above tests and checks are usually performed “on the spot”; upon specific request, they can be extended to all components making part of a supply. Finally, on request, destructive tests can be carried out for the determination of the application limit conditions of the items.

FINISHING, BRANDING AND PACKING

Final treatment of surfaces and painting

Steel surfaces are normally finished by brushing, and by applying an epoxy-based rust proofing paint:

- sandblasting to SA2 1/2 grade
- application of one or two coats of an epoxy enamel in the required color

application of zinc-rich paints can be additionally carried out.

Protection for handling and storage

All Diflon items are provided by suitable protections, such as plastic or special cardboard caps on the stub ends at the flanges, to protect them from damage during transportation, handling and throughout the storage period, until they are used.

Protections shall be removed only immediately before installation and assembly with the other components. The accidental damage, due to impact, of the sealing face of the flange can seriously impair the entire item.

Assembly and set up of equipment, steel pipes and fittings PTFE lined steel

No particular tool is required to assemble PTFE-lined pipes manufactured by Diflon; nevertheless, some basic rules should be complied with for the optimum performance of all components.

- A thorough on-site survey should be carried out to determine the size and dimensions of the piping to be installed; this is in order to avoid post-installation adjustments and makeshift solutions unsuitable for the intended service.
- Whenever possible, standard items should be used in order to facilitate eventual replacement.
- Adjustable sleepers and supports should be foreseen to avoid any strain in pipes due to inaccuracy and imperfect alignment of supports during assembly and operation.
- Pipes should not be forced when adjusting them, an unstable sealing of the flanged couplings only could be achieved.
- Should any adjustment be required, shimming rings or solid PTFE shimming units must be employed.
- In order to avoid permanent damage, PTFE-lined steel components should not be welded according to the conventional procedure.
- No sealing compound or adhesive putty should be inserted between the flanges; it could impair their tightness and integrity.
- The use of a torque wrench is recommended for flanged couplings; a tightening pressure will be achieved that is evenly distributed throughout the sealing surface.
- The use of Diflex gaskets is recommended on couplings in order to protect stub ends from incorrect tightening.

1 VIRGIN PTFE

Property of the PTFE

PTFE

Polytetrafluoroethylene (PTFE) is a plastic material obtained by polymerization of tetrafluoroethylene (CF4), obtained in turn by the difluorochloromethane pyrolysis (CH C1 F2). The invention of PTFE dates back to 1938 and is due to the American Plunkett, the beginning of its spread happened in the 50s, while the large-scale production started from the 60s. The set of elevated characteristics that distinguishes the PTFE, has decreed its success making it a unique product.

1. PTFE features

Polytetrafluoroethylene (PTFE) is a tetrafluoroethylene polymer featuring a unique combination of physical-chemical features that make it different from any other plastic material.
The main features of PTFE are:

- extreme chemical inertness
- excellent heat resistance
- optimum dielectric properties
- zero hygroscopicity and maximum resistance against solvents
- optimum resistance to ageing
- self-lubricating properties and minimum friction coefficient.

2. Chemical properties

PTFE withstands virtually all chemical reactants. It is only attacked by elemental alkali metals, chlorotrifluorides and elemental fluorine at high pressure and high temperature. PTFE is indifferent to all solvents up to 300°C. It can only be swelled and melt by some highly fluorinated oils at temperatures around the crystalline melting point.

3. Thermal properties

PTFE has a low heat transmission factor and can be therefore considered a thermoinsulating material. It also shows flame-retardant properties and is stable at 260°C for an indefinite length of time.

4. Electrical properties

PTFE has optimum dielectric properties within a vast range of temperatures and frequencies. As water absorption is virtually inexistent, these properties are maintained even after a prolonged exposure to weather agents. Electric strength is practically not influenced by the operating temperature. The resistance to arcing of PTFE is considerable and the spark does not generate carbon residues but only non-conductive vapours.

The other electric properties (dielectric constant, surface resistivity, volume resistivity, power factor, etc.) show very interesting values.

5. Mechanical properties

The following table displays the mechanical properties of PTFE, measured at the temperature of 23°C. Take note that between 19°C and 21°C, the material shows a transition point determined by a modification of its crystalline structure which provokes a loss of volume of about 1%.
Other particular properties of PTFE are its non-adhesivity and its low friction coefficient, above all under high loads.

6. General characteristics of printed PTFE

The general characteristics of the printed PTFE are expressed in the following table.

1 VIRGIN PTFE

PTFE technical specifications

Properties	Method	Unit of measure	Values
Specific gravity	ISO 1183	-	2,130 - 2,180
Tensile strength	ISO 527	MPa	20 - 30
Elongation	ISO 527	%	200 - 350
Hardness	ISO 868	Shore D	54 - 60
Elasticity module	23°C	N/mm^2	600 - 700
Deformation under load (140 kg/cm^2 for 24 hrs at 23°C)	ASTM D695	%	10 - 13
Permanent deformation (after 24 hrs - Relaxation at 23°C)	ASTM D695	%	6 - 7,5
Friction coefficient	ASTM D1894	/	Dynamic 0,07
Dielectric constant at 60 Hz to 2GHz	ASTM D150	/	2,1
Dielectric strength	ASTM D149	kV/mm	20 -70
Volume resistivity	ASTM D275	Ohm cm	10^{18}
Flammability	UL 94	%	VE-0
Melting point		°C	325 - 335
Water absorption	ASTM D570	%	0,01

2 ANTISTATIC PTFE

Antistatic PTFE 1,2% CSC technical specifications

Properties	Method	Unit of measure	Values
Specific gravity	ASTM D792	g/cm ^{3}	2,140 – 2,170
Tensile strength	ASTM D4894	MPa	> 22
Elongation	ASTM D4894	%	> 250
Hardness	ASTM D2240	Shore D	> 60
Coefficient of static friction	ASTM D1894		0,08 – 0,10
Coefficient of dynamic friction	ASTM D1894		0,06 – 0,08
Volume resistivity	ASTM D257	Ohm cm	10^4
Surface resistance	ASTM D257	Ohm	10^3
Ageing and weatherability		Stable over 20 years of exposure	
Service Temperature		C°	-200/ +260

3 PFA

Property of the PFA

PerFluoroAlkoxy alkanes (PFA) is a fluoroplastic. It is produced by copolymerization of tetraefluoroethylene (C2F4) and perfluoroethers (CF2F3ORf). In terms of its properties, this polymer is similar to polytetrafluoroethylene (PTFE). The big difference is that the alkoxy substituents allow the polymer to be melt-processed.

PFA is melt-processable by conventional thermoplastic processing methods, including injection, transfer, blow, and compression molding and by extrusion.
It is a relatively soft thermoplastic with lower tensile strength and creep resistance than many other engineering plastics. It is chemically inert and has a low dielectric constant over a wide frequency range.

PFA is used when extended service is required in hostile environments involving chemical, thermal, and mechanical stress. PFA offers high melt strength, stability at high processing temperatures, excellent crack and stress resistance, a low coefficient of friction.
It has high resistance to creep and retention of properties after service at 260°C (500°F). PFA also meets FDA 21CFR.177.1550.

PFA has high transparency (with good transmittance of UltraViolet and visible wavelengths.) It has long term weatherability and excellent resistance to ozone, sunlight and weather.
Important applications are linings for pipe and chemical processing equipment, roll covers, and several wire and cable applications, including aircraft wire, plenum cable, fire alarm cable, and well logging cable.

Special Features

- Wide service temperature range
- Extremely high weathering resistance and UV stability
- High limiting oxygen index: Does not support combustion
- Good non-stick characteristics
- Broad processing window
- Improved mould release property
- High transparency
- Excellent, almost universal resistance to solvents and chemicals
- Excellent electrical insulation properties, e.g.: dielectric breakdown strength, dielectric constant
- Smooth surfaces
- Good low-friction properties
- Improved stress crack resistance Properties

3 PFA

PFA Technical specifications – Perfluoroalkoxy

Property	Method	Units	Specification
Specific Gravity	DIN EN ISO 12086	g/cm³	2.15
Melting Point	DIN EN ISO 12086	°C	308
Melt Flow Index (372 °C/5 kg)	DIN EN ISO 1133	g/10 min	2
Limiting Oxygen Index (LOI)	ASTM D2863	%	> 95
Hardness Shore D	ASTM D2240/ISO 868	-	60
Tensile Strength at Break (23 °C)	ASTM D638	MPa	34
Elongation at Break (23 °C)	DIN EN ISO 527-1	%	360
Flexural Modulus	DIN EN ISO 527-1	MPa	550
MIT Folding Endurance (200 µm film)	ASTM D 2176	double folds	3.1 Mio.

4 ANTISTATIC PFA

ANTISTATIC PFA Technical specifications

Fluoroplastic PFA is an electrostatic dissipative fluorothermoplastic compound consisting of a fully fluorinated PFA base polymer and an electroconductive carbon black. The product has specifically been developed for transfer moulding.

Special Features

- Electrostatic dissipative
- Processing: Transfer moulding
- Wide service temperature range up to 240 °C Properties Test method Unit Value*

Typical Properties

Fluoroplastic PFA compound that is electrostatically dissipative. Typical Applications

Typical Applications

Fluoroplastic PFA, is a material with a high viscosity and is used in low shear processes.
Fluoroplastic PFA has specifically been developed for transfermoulding , when an electrostatically dissipative product is required.

Property	Method	Units	Specification
Specific Gravity	DIN EN ISO 12086	g/cm^3	2.11
Melting Point	DIN EN ISO 12086	°C	278
Melt Flow Index (372 °C/5 kg)	DIN EN ISO 1133	g/10 min	2
Tensile Strength at Break (23 °C)	ASTM D638	MPa	30
Elongation at Break (23 °C)	DIN EN ISO 527-1	%	290
Volume Resistivity	DIN ICE93	Ohm x cm	<10.000

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D1

DIFLINE

DIN

TECHNICAL SPECIFICATIONS OF TUBES AND DIFLINE FITTINGS UNDER **2014/68 / EU (PED)**

PIPES AND FITTINGS COVERED IN: PTFE - PFA

Pipes and fittings in carbon steel or 304L / 316L stainless steel, internally lined with PTFE - M TOPSEAL - virgin and antistatic PFA.
From 1/2 “to 12” ANSI 150.
For chemical, petrochemical and pharmaceutical plants.

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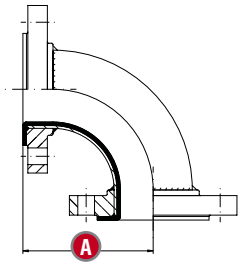
SIZE OF FITTINGS AND COMPONENTS- 2014/68/EU (PED)



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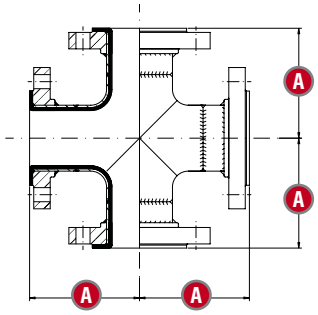

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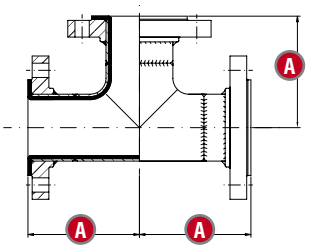

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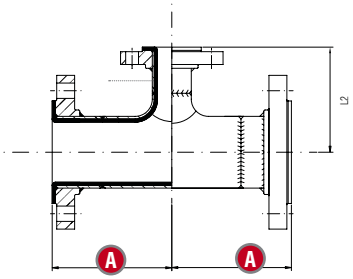

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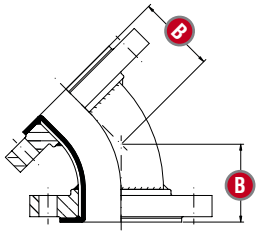

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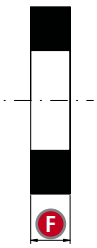
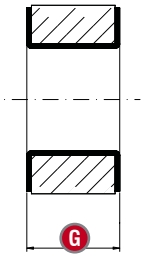
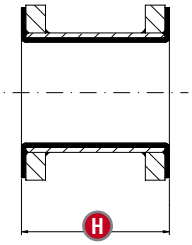


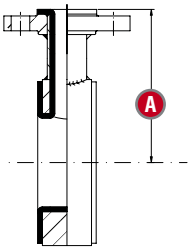
Distanziale Tipo F



Distanziale Tipo G



Distanziale Tipo H



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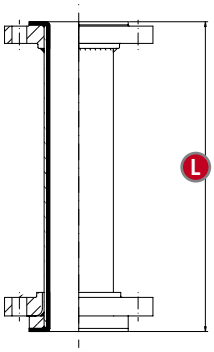

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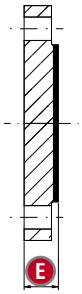
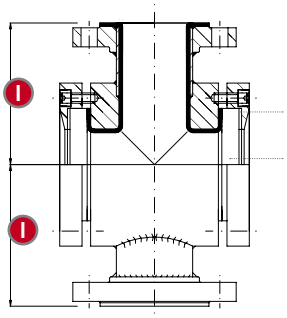
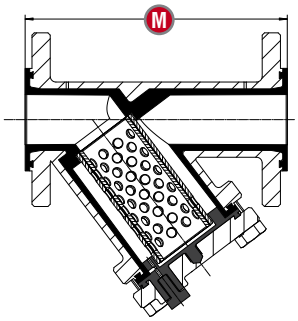


Flangia Cieca

Flangia ridotta



Spia Visiva



Filtro a Y

NB inch	A	B	E	F max.	G max.	H max.	I	M	L Min.	L Max
15	80	45	17	25	60	100			90	3000
20	95	65	17	25	60	100			90	3000
25	110	70	20	25	60	100	110	160	90	3000
40	150	90	20	25	60	100	150	200	95	3000
50	120	80	22	25	70	100	120	230	110	3000
65										
80	165	100	24	25	70	120	165	310	120	3000
100	205	115	24	25	80	120	205	350	125	3000
150	285	150	27	25	80	150	245	480	140	3000
200	365	190	29	25	80	150	365	600	150	3000
250	450	225	31	25	80	150	450		165	3000

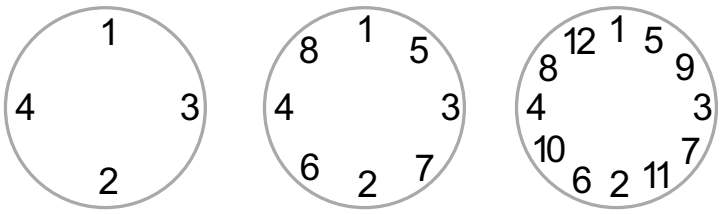
SIZE OF SCHEDULED METALLIC PIPES

All the pipes used by DIFLON are dimensionally compliant with ASME B36.1 / API 5L
The nominal hole is freely related to the I / D of the tube, there are different wall thicknesses or programs available for each dimension, the o / d remains constant for each NB, the more heavy the tube program is the smaller the hole .

NB	DN	OD (mm)	Pipe Schedule						
inch	mm		SCH 5	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80
3/4"	20	26.67	1.65	2.11	x	2.41	2.87	x	3.91
1"	25	33.40	1.65	2.77	x	2.90	3.38	x	4.55
1.1/2"	40	48.26	1.65	2.77	x	3.18	3.68	x	5.08
2"	50	60.32	1.65	2.77	x	x	3.91	x	5.54
2.1/2"	65	73.02	2.11	3.05	x	x	5.16	x	7.01
3"	80	88.9	2.11	3.05	x	x	5.49	x	7.62
4"	100	114.3	2.11	3.05	x	x	6.02	x	8.56
5"	125	141.3	5.77	3.4	x	x	6.55	x	9.53
6"	150	168.27	2.77	3.4	x	x	7.11	x	10.97
8"	200	219.07	2.77	3.76	6.35	7.04	8.18	12.7	12.70
10"	250	273.05	3.4	4.19	6.35	7.8	9.27	12.7	15.06
12"	300	323.85	4.19	4.57	6.35	8.38	10.31	12.7	17.45

RECOMMENDED TIGHTNENING FORCE TABLES

Lined Pipe and Fittings
Bolting Materials should be of good quality, clean and well lubricated and to the site standard. The use of washers is recommended to ensure correct even torque. Bolts should be brought finger tight and then tightened through the use of a torque wrench in strict sequence of diagonally opposite pairs. This, and all subsequent torquing, of bolts should be undertaken at ambient temperature.



*Torque bolts diagonally opposite each other in pairs
Please note that PTFE is suject to cold flow or “creep”. It is therefore strongly recommended that all bolts are retorqued a minimum of 24 hours after commissioning or following the initial full process cycle. The torque of all bolted joints should then be rechecked at least annually thereafter.

DN	PN 10		PN 6	
	n° bulloni x filettatura	Forza serraggio N/m	n° bulloni x filettatura	Forza serraggio N/m
15	4 x M12	15	4 x M12	27
20	4 x M12	25	4 x M12	27
25	4 x M12	34	4 x M12	27
32	4 x M16	55	4 x M16	30
40	4 x M16	68	4 x M16	30
50	4 x M16	86	4 x M16	45
65	4 x M16	55	8 x M16	55
80	8 x M16	71	8 x M16	55
100	8 x M16	78	8 x M20	58
125	8 x M16	84	8 x M24	85
150	8 x M20	141	8 x M24	85
200	8 x M20	170	12 x M24	80
250	12 x M20	166	12 x M27	115
300	12 x M20	160	16 x M27	150
350	16 x M20	175	16 x M30	155
400	16 x M24	342	16 x M33	190
500	20 x M24	288	20 x M33	205
600	20 x M27	457	20 x M36	235

RECOMMENDED TIGHTNENING FORCE TABLES

The torque values given above are a guide; they may be exceeded by a value of 50% to effect a seal. If once this torque level has been reached a seal has not been achieved, it is likely that there is another cause.
This may be due to joint misalignment or strain, or it may be that the PTFE flare face has suffered mechanical damage. Small scratches can be removed with the use of a fine abrasive without detriment. If damage is significant, overtightening is not a solution and the component should be rejected.

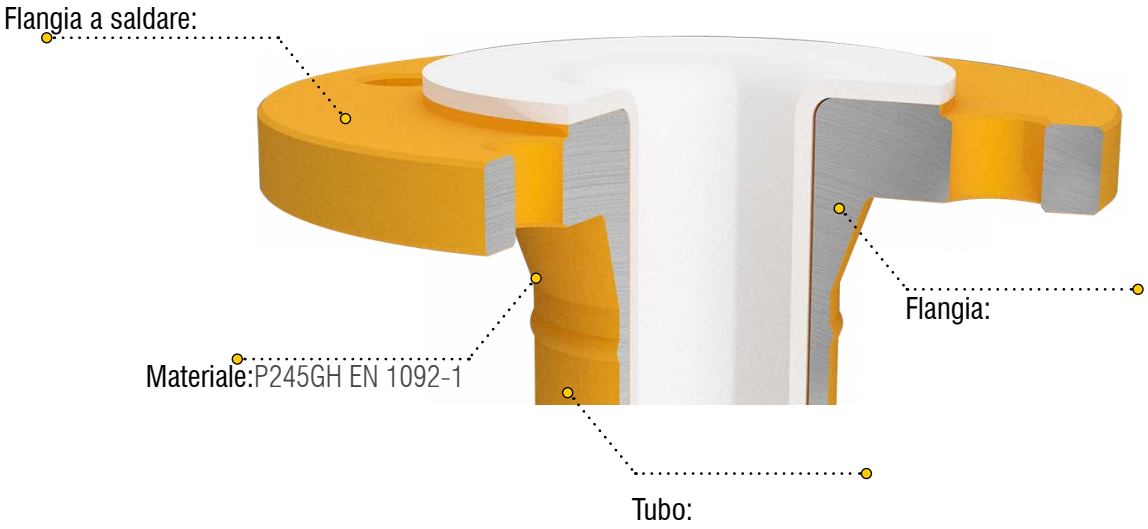
VACUUM RESISTANCE OF PTFE-COATED CARBON STEEL PIPES AND FITTINGS

DN	Pollici / *Inch*	Temperatura ° C							
		Spessore PTFE: STD=Standard HD=Maggiorato							
		23°C		100°C		150°C		200°C	
		STD	HD	STD	HD	STD	HD	STD	HD
15	1/2”	0	0	0	0	0	0	0	0
20	3/4”	0	0	0	0	0	0	0	0
25	1”	0	0	0	0	0	0	0	0
32	1”1/4	0	0	0	0	0	0	0	0
40	1”1/2	0	0	0	0	0	0	0	0
50	2”	0	0	0	0	0	0	0	0
65	2”1/2	0	0	0	0	0	0	0	0
80	3”	0	0	0	0	0	0	0	0
100	4”	10^4	0	$1,5 \times 10^4$	0	3×10^4	0	$3,5 \times 10^4$	0
125	5”	$1,5 \times 10^4$	0	$2,5 \times 10^4$	0	$3,5 \times 10^4$	0	$4,5 \times 10^4$	0
150	6”	$1,5 \times 10^4$	0	$2,5 \times 10^4$	0	$3,5 \times 10^4$	0	$4,5 \times 10^4$	0
200	8”	2×10^4	0	8×10^4	0	$9,5 \times 10^4$	0	10^5	0
250	10”	5×10^4	0	$9,5 \times 10^4$	0	10^5	0	10^5	0
300	12”	8×10^4	0	$9,5 \times 10^4$	0	10^5	0	10^5	0

PIPE AND FLANGE DIMENSION FOR PTFE COATED - PFA PIPES AND FITTINGS

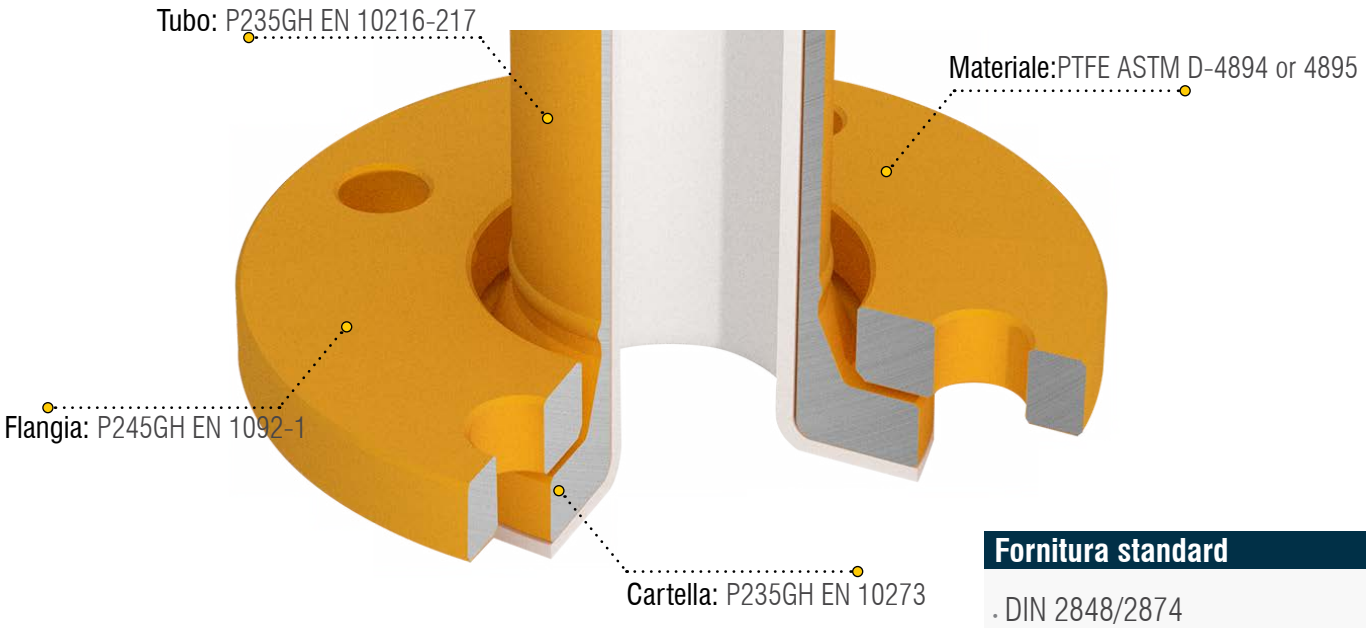
Esempio n.1

Sezione di tubo rivestito in PTFE con connessione flangiata tipo welding neck saldata



Esempio n.2

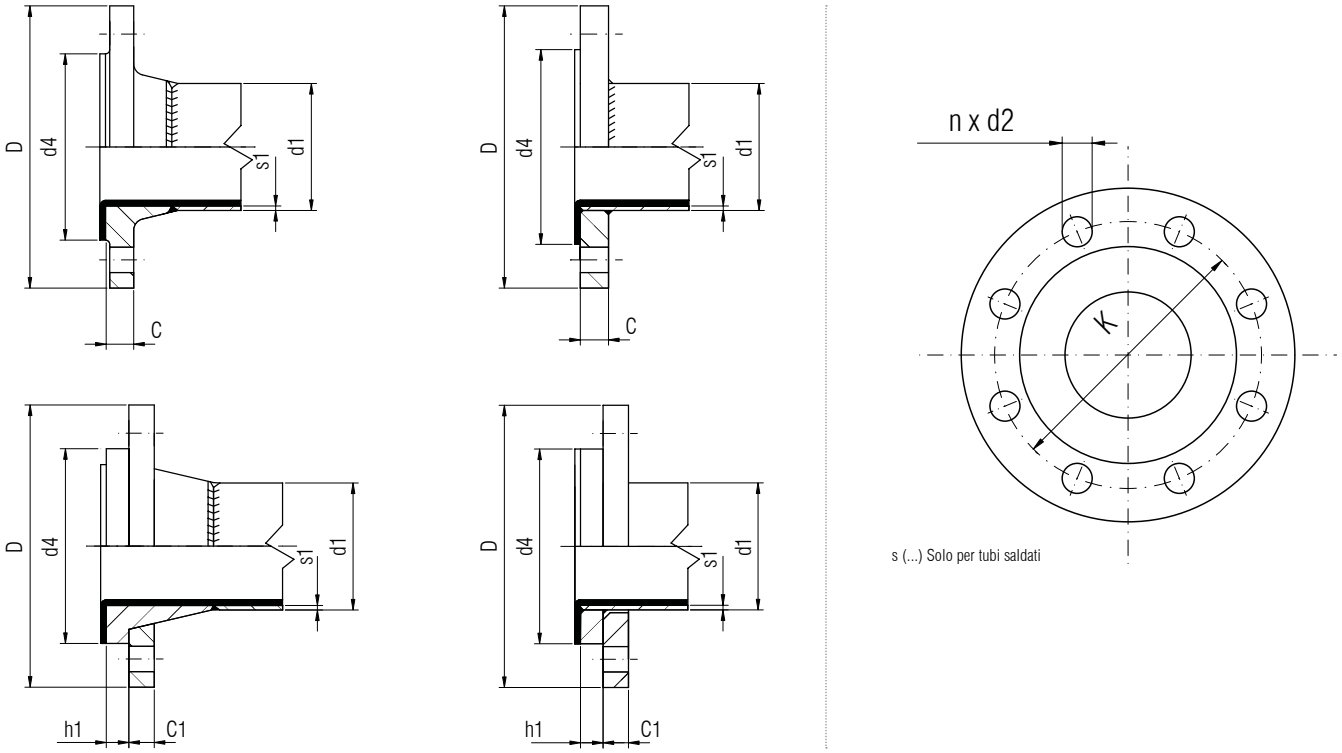
Sezione di tubo rivestito in PTFE con collarino saldato di testa e flangia lap joint



Fornitura standard

- DIN 2848/2874
- DN 15 - DN 600
- Pipe acc. to DIN 2448 - EN 10216-2
- EN 1092-1
- Corpo in acciaio di carbonio

PIPE AND FLANGE DIMENSION FOR PTFE COATED - PFA PIPES AND FITTINGS



DN	D	K	d4	n	d2	C	C1	h1	d1 x s1	Viti Bolt
15	95	65	45	4	14	16	14	10	26,9 x 2,3	M 12
20	105	75	58	4	14	18	16	12	26,9 x 2,3	M 12
25	115	85	68	4	14	18	16	12	33,7 x 2,6	M 12
32	140	100	78	4	18	18	18	12	42,4 x 2,6	M 16
40	150	110	88	4	18	18	18	12	48,3 x 2,6	M 16
50	165	125	102	4	18	18	20	14	60,3 x 2,9	M 16
65	185	145	122	4	18	18	20	14	76 x 2,9	M 16
80	200	160	138	8	18	20	20	16	88,9 x 3,2	M 16
100	220	180	158	8	18	20	22	16	114,3 x 3,6	M 16
125	250	210	188	8	18	22	22	18	139,7 x 4,0	M 16
150	285	240	212	8	22	22	24	18	168,3 x 4,5	M 20
200	340	295	268	8	22	24	24	20	219,1 x 5,9	M 20
250	395	350	320	12	22	26	26	22	273,0 x 6,3	M 20
300	445	400	378	12	22	26	26	22	323,9 x 7,1	M 20
350	505	460	438	16	22	26	30	22	355,6 x 8,0	M 20
400	565	515	490	16	25	26	32	24	406,4 x 8,0	M 24
450	615	565	550	20	25	26	36	24	457,2 x 8,0	M 24
500	670	620	610	20	25	28	38	26	508,0 x 9,5	M 24
600	780	725	725	20	30	28	42	26	610,0 x 9,5	M 27

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D2

DIFLINE

DIN

STEEL PIPES AND FITTINGS COVERED INTERNALLY WITH PTFE

PIPES AND FITTINGS

Carbon steel or stainless steel Pipes and fittings, internally coated with PTFE.
From DN 15 to DN 300. For chemical, petrochemical and pharmaceutical plants.
Cleaning and safety over time.

INDEX

PTFE LINED PIPES - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: 1 fixed + 1 free

Range:

DN 15 - DN 600, PN 10

Version A:

body: P235GH EN 10216-217

flange: P245GH EN 1092-1

stub-end: P235GH EN 10 273

Interior lining:

PTFE

Variants

Design:

Flange: 2 free

Length: up to 6 m

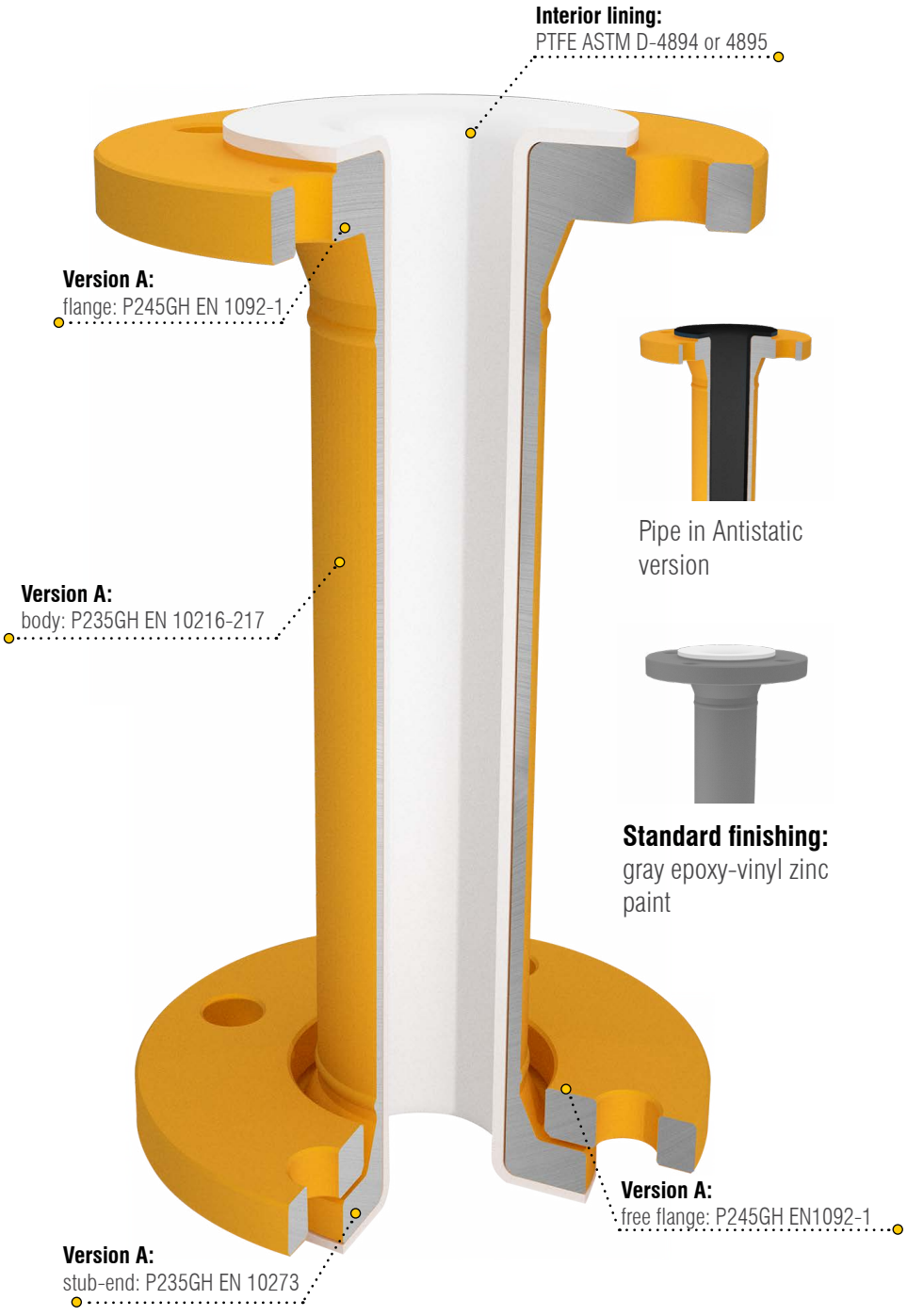
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

Antistatic PTFE



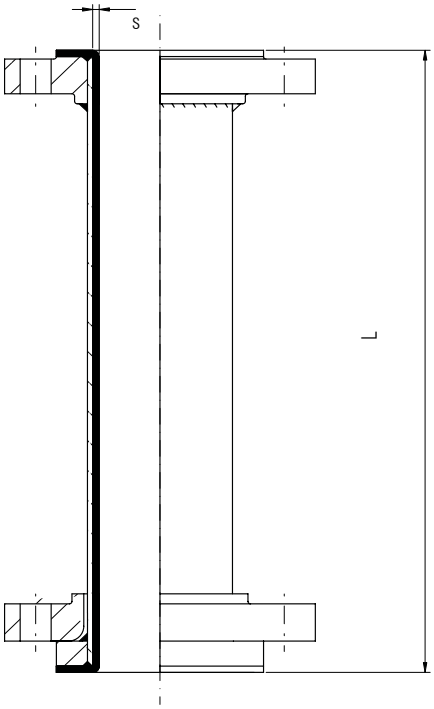
Pipe in Antistatic version

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE LINED PIPES - CERTIFIED - 2014/68/EU (PED)



Dimensional table

DN	L min. mm	L max. mm	s mm	Weight pipe kg/m	Weight 2 flange
15	100	3000	3	1,2	1,5
20	100	3000	3	1,6	2
25	100	3000	3	2,5	2,5
32	100	3000	3,5	3,4	3,6
40	100	3000	3,5	4,5	4,2
50	100	3000	4	5,8	5,5
65	120	3000	4,5	7,1	6,6
80	120	3000	5	10	8,3
100	120	3000	5,5	14	9,9
125	120	3000	5,5	17,5	13,2
150	150	3000	6	23,5	16
200	150	3000	6,5	39	23
250	150	3000	7	55,5	31
300	200	3000	7	74	39
350	200	3000	7	85	52
400	200	3000	7	102	67
450	200	3000	7	130	85

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED ELBOWS 90°
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: 1 fixed + 1 free

Range:

DN 15 - DN 500, PN 10

Version A:

With welded components

body: P245GH EN 10216-217

flange: P245GH EN 1092-1

stub-end: P235GH EN 10273

Version F:

fusion: GP240GH

Interior lining:

- PTFE
- PFA

Variants

Design:

for big diameters more than one piece will be provided

Flange: 1 fixed + 1 fixed

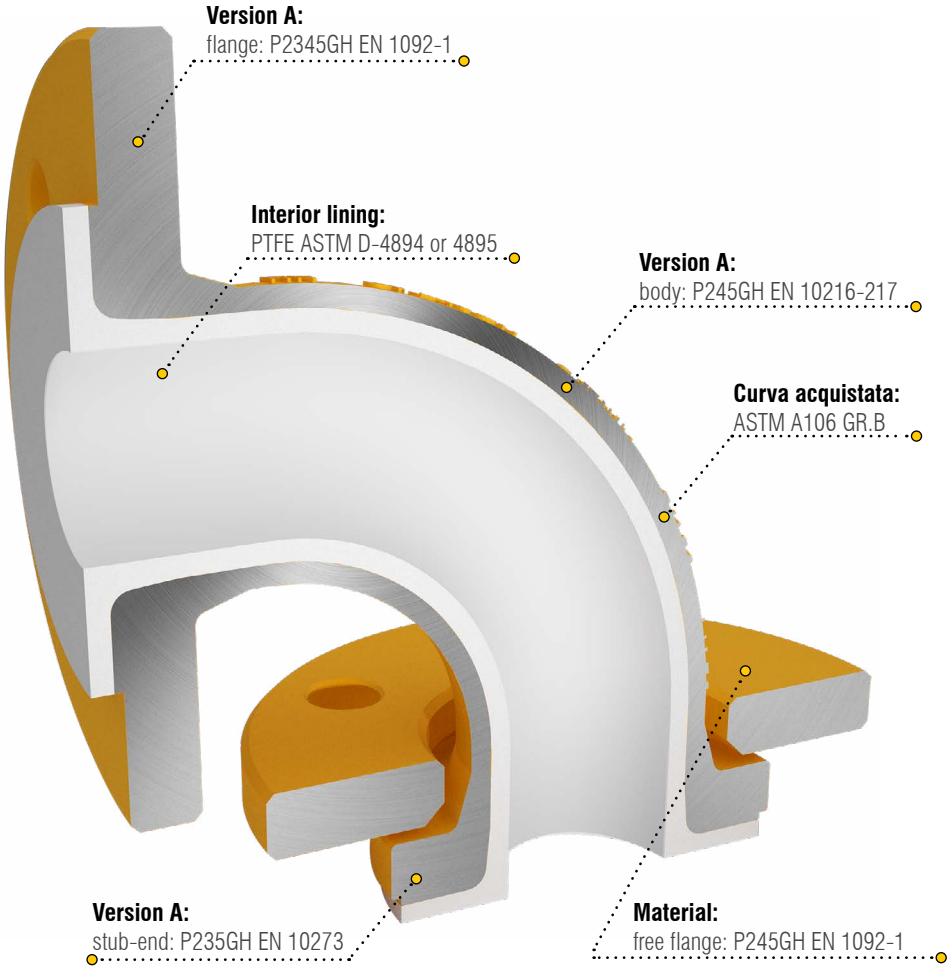
Metallic parts:

Stainless Steel 304L/316L

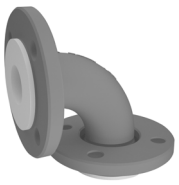
Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- Antistatic PFA



Elbow 90° in Antistatic version

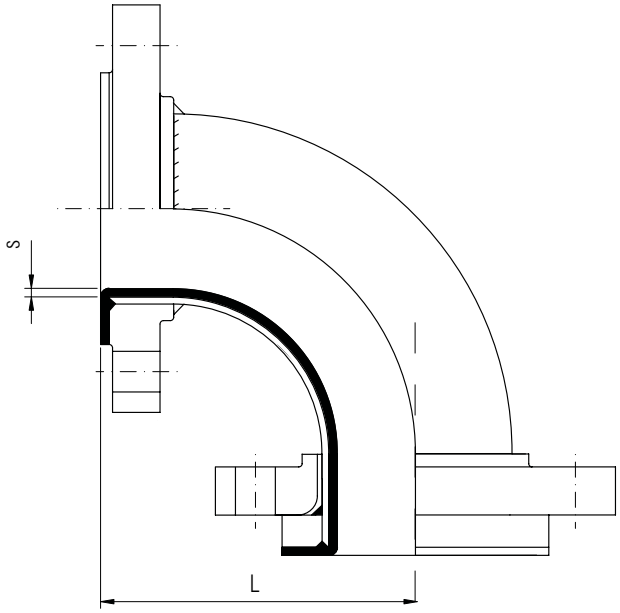


Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE LINED ELBOWS 90°
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED))



Dimensional table

DN	L mm	s ± 10% mm	*Weight kg*
15	80	3,0	1,5
20	95	3,0	2,1
25	110	3,0	2,7
32	130	3,5	4,0
40	150	3,5	4,6
50	120	4,0	5,9
65	140	4,5	7,5
80	165	5	9,6
100	205	5,5	13,1
125	245	5,5	18,1
150	285	6	25,0
200	365	6,5	41,8
250	450	7	88,1
300	525	7	117,4
350	600	7	156,1
400	680	7	175
450	705	7	282
500	830	7	210

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED ELBOWS 45° DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: 2 fixed

Range:

DN 15 - DN 600, PN 10

Version A:

With welded components

body: ASTM A106 GR.B

flange: P245GH EN 1092-1

stub-end: P235GH EN 10273

Version F:

fusion: GP240GH

Interior lining:

PTFE

Variants

Design:

Flange: where possible

1 fixed + 1 free

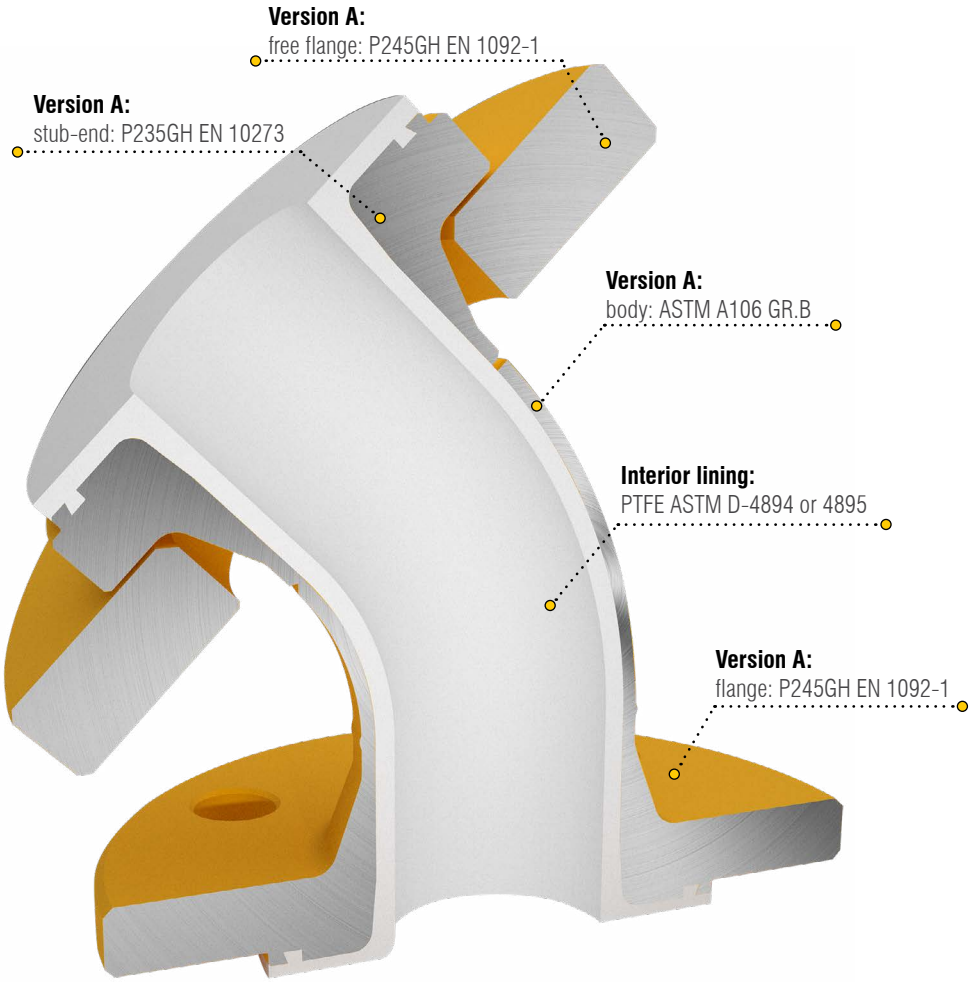
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

Antistatic PTFE



Elbows 45° in Antistatic version

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

Approvals and Certifications

Quality and Special tests

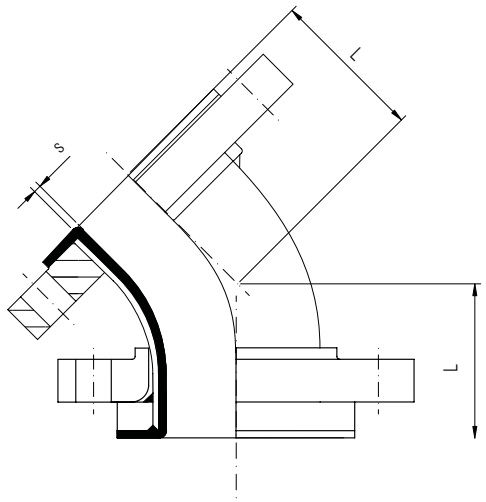
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE LINED ELBOWS 45°
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimensional table

DN	L mm	s ± 10% mm	*Weight kg*
15	45	3,0	1,6
20	65	3,0	2,1
25	70	3,0	2,8
32	80	3,5	4,0
40	90	3,5	4,7
50	80	4,0	5,9
65	85	4,5	7,4
80	100	5	9,4
100	115	5,5	12,1
125	135	5,5	16,2
150	150	6	21
200	190	6,5	33,1
250	225	7	48,5
300	260	7	66
350	290	7	87
400	325	7	117
450	305	7	148
500	390	7	186

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE - PFA EQUAL TEE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: 1 fixed+ 2 free

Range:

DN 15 - DN 600, PN 10

Version A:

With welded components

body: GP240GH ASTM A234 WPB

flange: P245GH EN 1092-1

stub-end: P235GH EN 10273

Version F:

fusion: GP240GH

Rivestimento interno:

- PTFE
- PFA

Variants

Design:

for big diameters more than one piece will be provided

Flange: 3 fixed

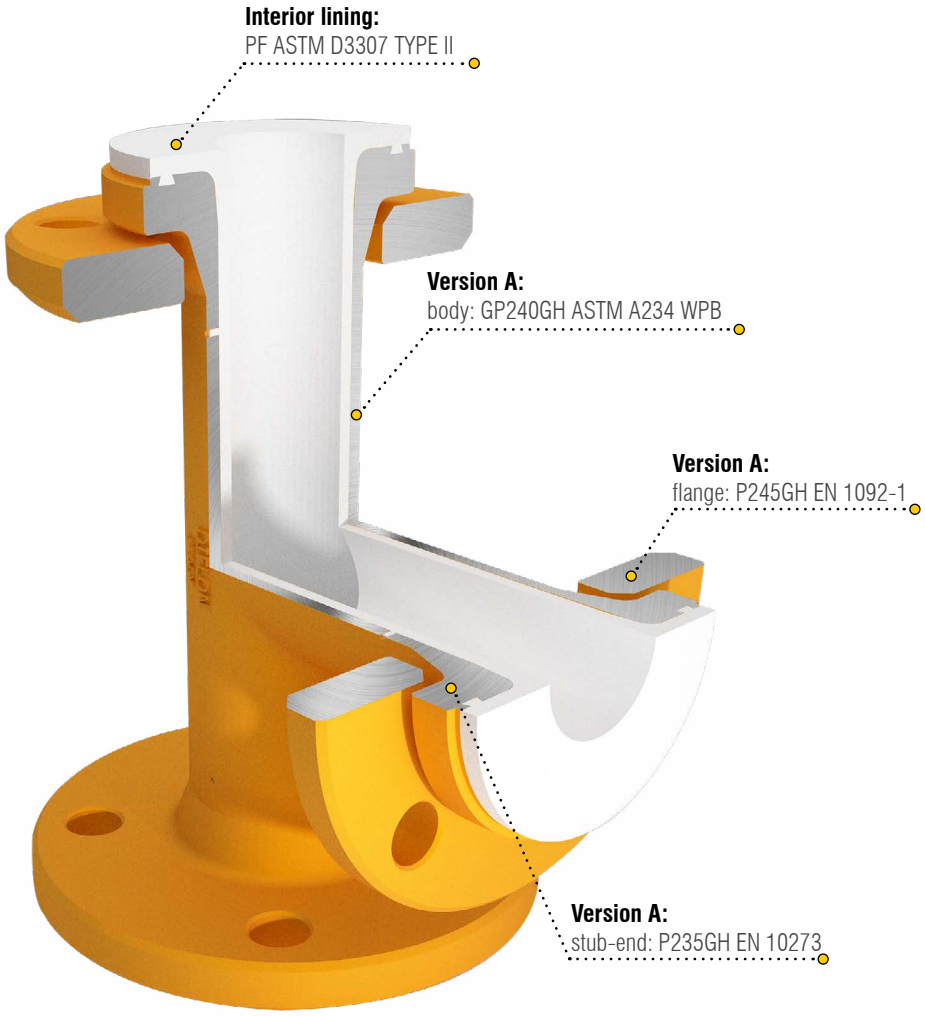
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- Antistatic PFA



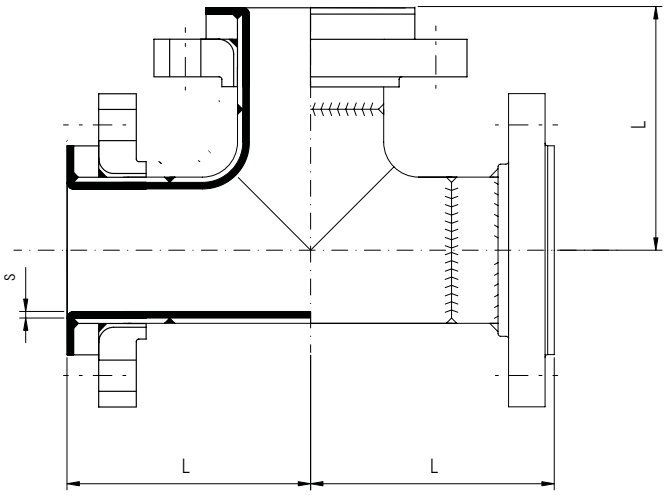
Equal Tee in Antistatic version

Standard finishing:
gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA EQUAL TEE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN	L mm	s ± 10% mm	*Weight kg*
15	80	3,0	2,5
20	95	3,5	3,2
25	110	3,5	5,5
32	130	4,5	8,0
40	150	4,5	9,5
50	120	5,0	11,5
65	140	5,0	14,5
80	165	5,0	19,5
100	205	5,0	24
125	245	5,5	34
150	285	6	45
200	365	10	72
250	450	6,5	165
300	525	13	160
350	600	6,5	312
400	680	6,5	375
450	680	6,5	400
500	500	6,5	420
600	500	4,5	580

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE - PFA REDUCING TEE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: 1 fixed + 2 free

Range:

DN 15 - DN 600, PN 10

Version A:

With welded components

body: P245GH EN 10216-217

flange: P245GH EN 1092-1

Version F:

fusion: GP240GH

Interior lining:

- PTFE
- PFA

Variantis

Design:

for big diameters more than one piece will be provided

Flanges: 3 fixed

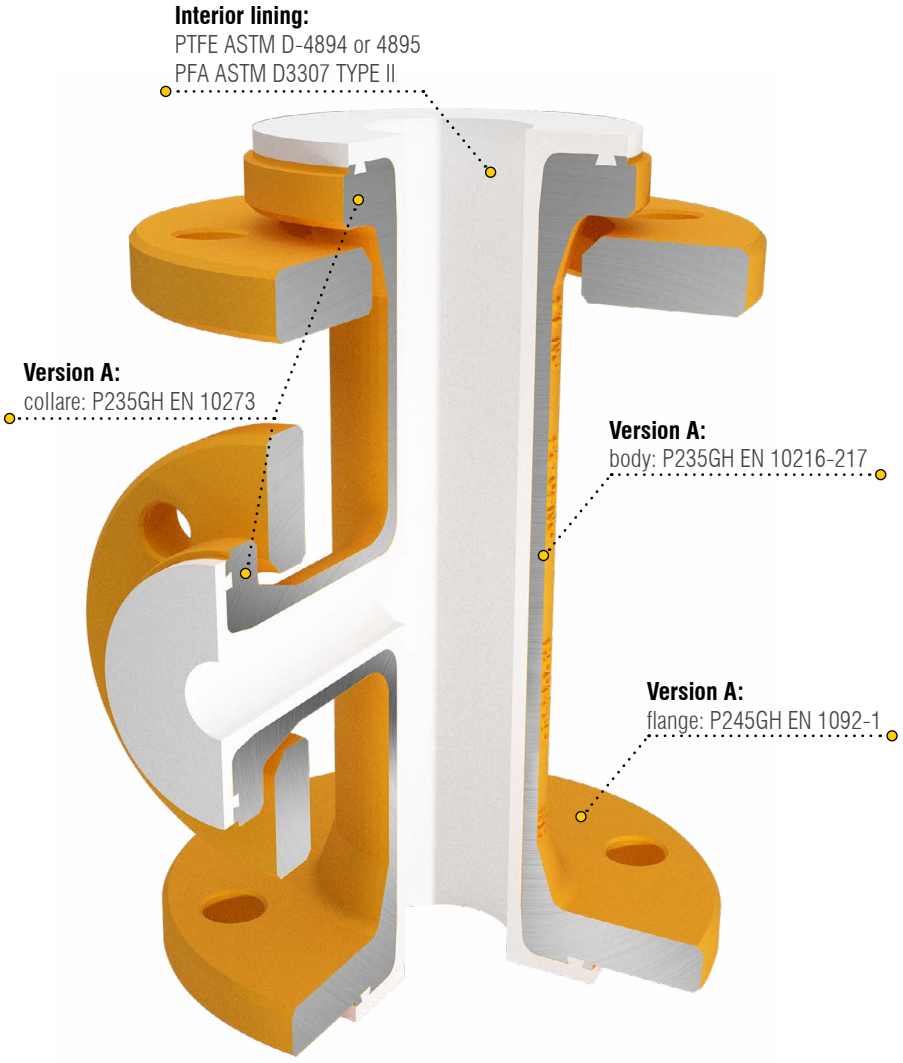
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- Antistatic PFA



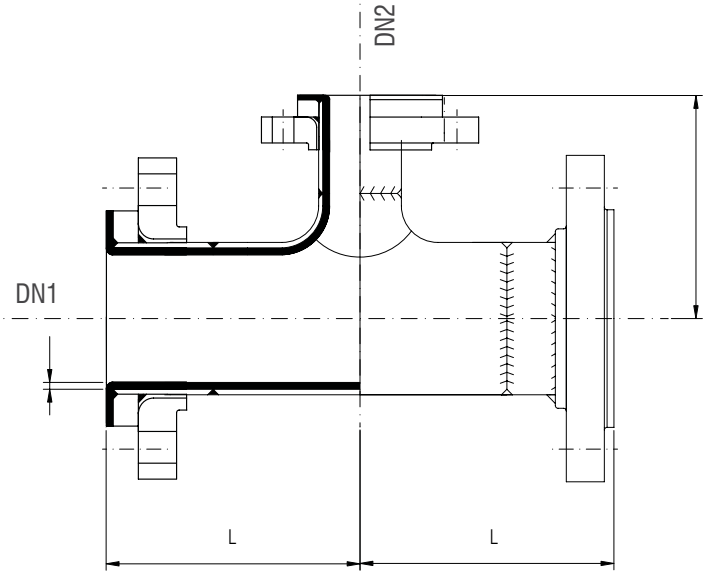
Reducing Tee in Antistatic version

Standard finishing:
gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA REDUCING TEE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table to norm DIN 2448/2874

DN1	DN2	L1 mm	L2 mm	s ± 10% mm	Weight kg
20	15	95	80	4,0	3,1
25	15	110	80	4,0	3,7
	20		95		3,9
32	20	130	100	4,0	4,4
	25		110		5,2
40	15	150	80	4,0	5,3
	20		100		5,5
	25		110		5,7
	32		130		6,0
50	15	120	80	4,0	8,8
50x20	20	120	80		
	25		110		9,3
	32		130		9,5
50x40	40	120	150		
65	25	140	110	4,0	14,0
	32		130		14,0
	40		150		14,7
	50		120		15,5
80	25	165	110	4,0	19,7
	40		150		20,4
	50	165	120	4,0	20,9
	65		140		21,8
100	25	205	110	4,5/4,0	31,4
	40		150		33,3
	50		120		34,1
	65		140		35,0
	80		165		36,0
125	65	245	140	5,0	49,0
	80		165		52,0
150	80	285	165	6,0	56,2
	100		205		77,0
	125		245		80,0
200	100	365	205	6,0	83,0
	125		245		125
	150		285		130
250	150	450	285	6,5	156
	200		365		161
300	150	525	285	6,5	165
	200		365		218
	250		450		222
350	150	600	285	6,5	205
	200		365		294
	250		450		300
	300		525		308
400	200	680	365	6,5	292
	250		450		356
	300		525		362
	350		600		370

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PTFE - PFA REDUCING TEE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA EQUAL CROSSES
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: 1 fixed + 2 free

Range:

DN 15 - DN 500, PN 10

Version A:

body: P245GH EN 10216-1

flange: P245GH EN 1092-1

stub-end: P235GH EN 10273

Interior lining:

- PTFE
- PFA

Variants

Design:

for big diameters more than one piece will be provided

Flanges: 3 fixed

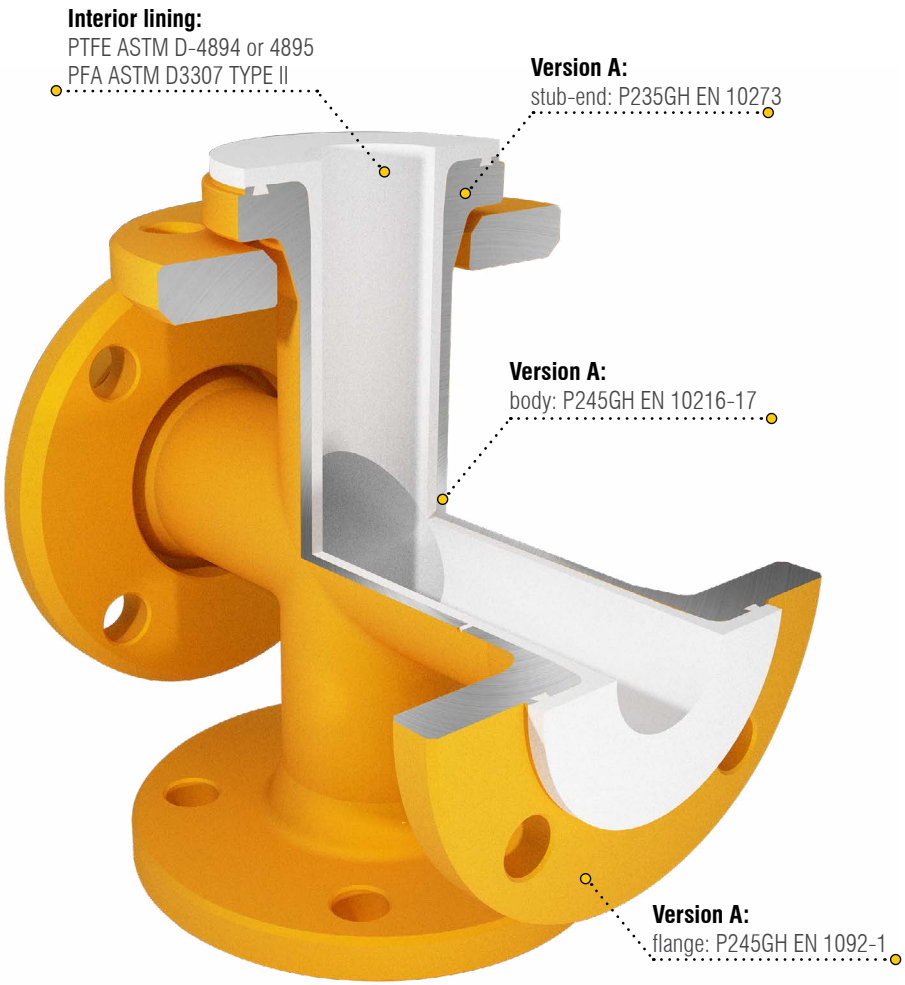
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- Antistatic PFA



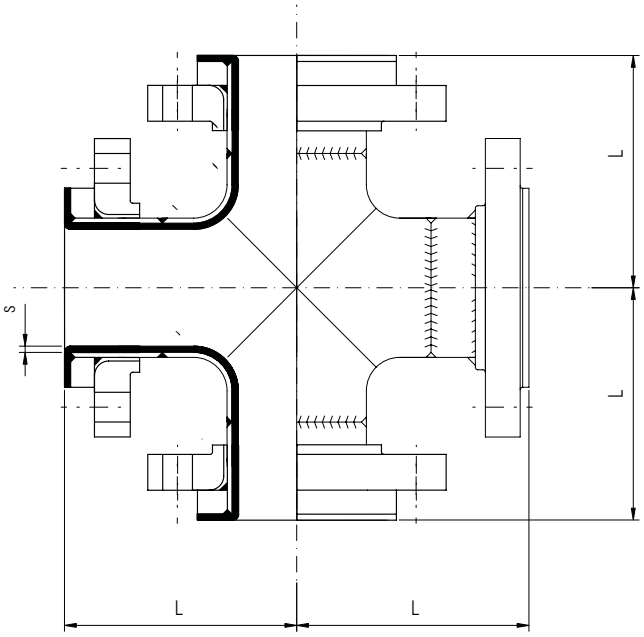
Equal Crosses in Antistatic version

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA EQUAL CROSSES
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN	L mm	s ± 10% mm	*Weight kg*
15	80	3	2,5
20	95	3	3,2
25	110	3,5	3,6
32	130	3,5	4,7
40	150	4	6,1
50	120	4	9,7
65	140	4,5	13,5
80	165	4,5	21
100	205	5	36
125	245	6	73
150	285	6,0	97
200	365	7	126
250	450	7,5	198
300	525	8	286
350	600	8	385
400	680	8	485
450	680	8	530
500	500	8	560
600	500	8	740

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE - PFA LINED ISTRUMENT TEES DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Used for : thermometers, manometers, sample sockets

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Version A:

body: ASTM A106 GR.B

flange: P245GH EN 1092-1

Interior lining:

- PTFE
- PFA

Variants

Design:

for big diameters more than one piece will be provided

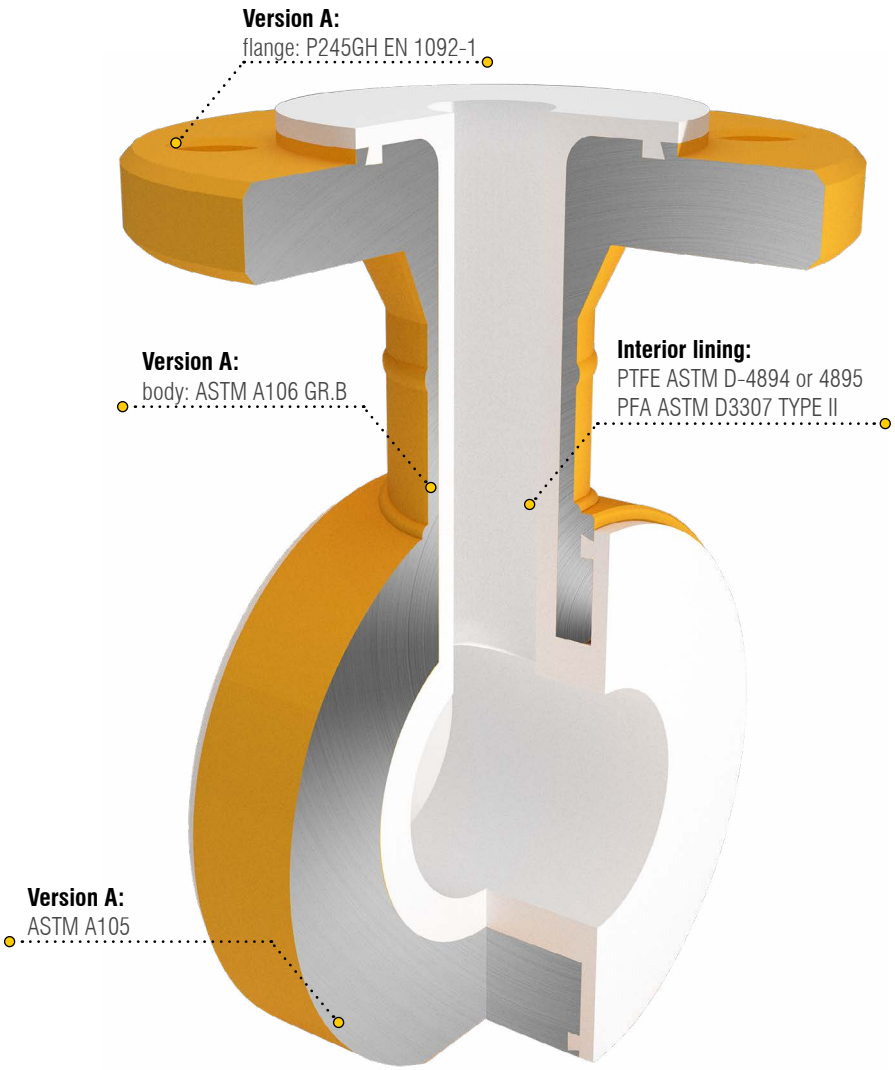
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- Antistatic PFA



Istrument Tee in Antistatic version

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

Approvals and Certifications

Quality and Special tests

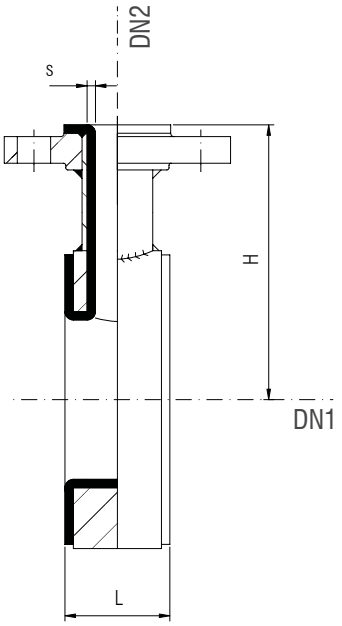
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE - PFA LINED ISTRUMENT TEES
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN1	DN2	L mm	H mm	s	*Weight kg*
25	15	50	90	4	1,9
	20				2,0
	25				2,2
32	15	50	100	4	2,1
	20				2,3
	25				2,5
40	15	50	110	4	2,4
	20	50			2,6
	25	50			2,8
	40	75			4,4
50	15	50	115	4	3,2
	20	50			3,4
	25	50			3,6
	40	75			6,2
	50	90			8,1
65	15	50	125	4	3,7
	20	50			3,8
	25	50			3,9
	40	75			7,2
	50	90	125	4	9,8
80	15	50	135	4	4,3
	20	50			4,5
	25	50			4,7
	40	75			8,3
	50	90			12,6
100	15	50	150	4,5	5,5
	20	50			5,7
	25	50			5,9
	40	75			8,9
	50	90			16,0
125	15	50	160	5	6,6
	20	50			6,8
	25	50			7,0
	40	75			12,4
	50	90			20,5
150	15	50	180	5	7,7
	20	50			7,9
	25	50			8,2
	40	75			14,7
	50	90			21,8
200	15	50	210	5	9,9
	20	50			10,3
	25	50			10,5
	40	75			17,8
	50	90			23,4
250	15	50	240	5	13,3
	20	50			13,5
	25	50			13,7
	40	75			23,2
	50	90			25,9

PTFE - PFA LINED ISTRUMENT TEES DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA LINED REDUCING FLANGE DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Metallic part:

body: ASTM A105

Interior lining:

- PTFE
- PFA

Variants

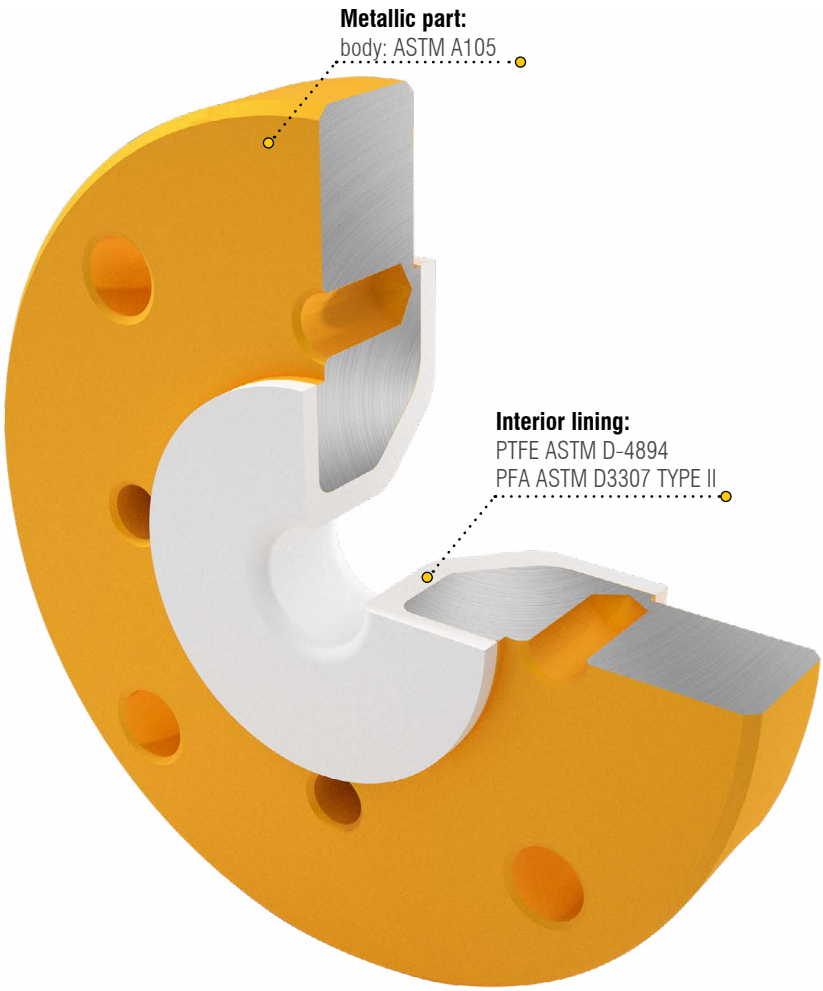
Metallic parts:

Stainless Steel 304/316L

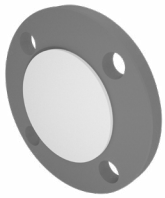
Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- Antistatic PFA



Blind Flange in Antistatic version

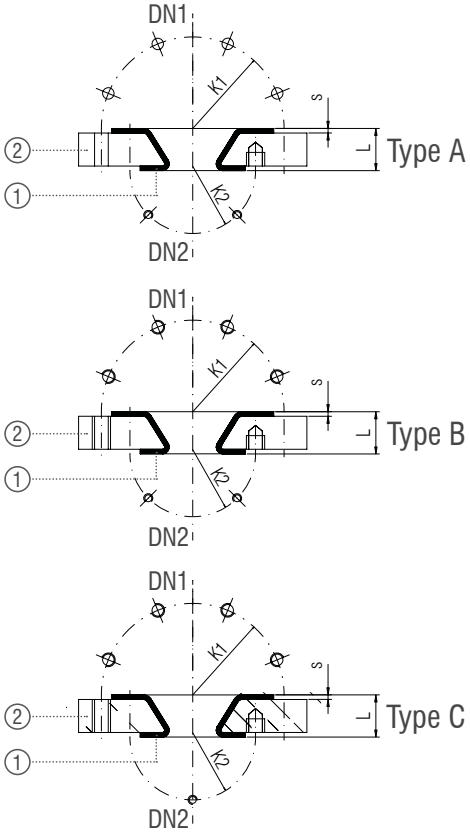


Standard finishing:
gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA LINED REDUCING FLANGE DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN1	DN2	L mm	s ± 10% mm	Type	*Weight kg*
20	15	35	3	C	2,0
25	20	35	3,5	C	2,4
32	20	35	3,5	C	3,9
	25				3,5
40	20	35	4,0	C	4,0
	25				4,1
	32				3,9
50	20	35	4,0	B	5,0
	25			B	4,9
	32			C	5,0
	40			C	5,1

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE - PFA LINED REDUCING FLANGE DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

DN1	DN2	L mm	s ± 10% mm	Type	*Weight kg*
65	25	35	4,0	B	5,9
	32			B	5,8
	40			C	5,6
	50	35	4,0	C	5,6
80	25	35	4/3,5	A	6,8
	32		4/3,5	B	6,7
	40		4	B	6,6
	50		4	B	6,4
	65		4	B	6,2
100	25	45	4,5/3,5	A	12
	32		4,5/3,5	B	12
	40		4,5/4	B	12
	50		4,5/4	B	12
	80		4,5/4	C	10
125	25	45	4,5/3,5	A	16
	32		4,5/3,5	A	16
	40		4,5/4	A	15
	50		4,5/4	A	14
	80		4,5/4	B	13
	100		4,5/4	C	13
150	25	45	5/3,5	A	22
	32		5/3,5	A	21
	40		5/4	A	20
	50		5/4	A	19
	80		5/4	A	18
	100		5/4,5	B	17
	125		5/4,5	C	16
200	25	45	5/3,5	A	29
	50		5/4	A	28
	80		5/4	A	27
	100		5/4,5	A	25
	150		5	B	23
250	50	45	6/4	A	28
	80		6/4	A	24
	100		6/4	A	22
	150		5	A	19
	200		5	B	16
300	50	50	6/4	A	44
	80		6/4	A	38
	100		6/4	A	36

DN1	DN2	L mm	s ± 10% mm	Type	*Weight kg*
300	150		6/4	A	31
	200		5,5	A	28
	250		5,5	C	24
350	50	50	6/4	A	56
	80		6/4	A	50
	100		6/4	A	47
	150		6/4	A	42
	200		6/4	A	38
	250		6	A	35
	300		6	B	33
400	80	50	6/4	A	71
	100				68
	150				62
	200				60
	250				55
400	300	50	6	A	49
	350			B	40
450	100	50	6/4	A	77
	150		6/4	A	72
	200		6/4	A	70
	250		6/4	A	66
	300		6/4	A	58
	350		6/4	A	49
	400		6	B	44
500	100	50	6/4	A	93
	150			A	87
	200			A	86
	250			A	85
	300			A	77
	350			A	70
	400			A	62
	450			C	51
600	150	50	6,4	A	139
	200				131
	250				128
	300				121
	350				105
	400				93
	450				84
	500				78

PTFE LINED BLIND FLANGE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Metallic part:

body: P245 GH EN 1092-1

Interior lining:

- PTFE

Variants

Metallic parts:

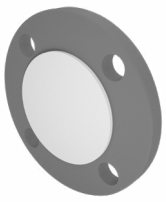
Stainless steel 304/316L

Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- PFA
- Antistatic PFA

Blind Flange in Antistatic version

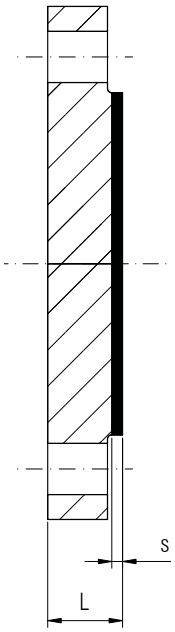


Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE LINED BLIND FLANGE
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN	L mm	s ± 10% mm	*Weight kg*
15	18,5	2,5	0,8
20	21	3,0	0,9
25	21	3,0	1,2
32	21	3,0	1,8
40	21	3,0	2,1
50	21	3,0	3,0
65	21	3,0	4,0
80	23,5	3,5	5,0
100	24,5	4,5	6,0
125	26,5	4,5	9,1
150	27	5,0	11,8
200	29	5,0	18
250	31	5,0	26
300	31	5,0	35
350	31	5,0	45
400	32	6,0	60
450	32	6,0	70
500	34	6,0	85

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE - PFA LINED CONCENTRIC REDUCERS
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED) - FLANGED EN 1092-1

Standard Supply

Design:

DIN 2848/2874

Flange: EN 1092-1

1 fixed + 1 free

Range:

DN 15 - DN 600, PN 10

Metallic parts:

body: ASTM A234 WPB

flange: P245 GH EN 1092-1

Interior lining:

- PTFE
- PFA

Variants

Design:

For big diameters more than one piece will be provided

Flanges: 1 fixed + 1 free (DN1)

Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Rivestimento interno:

- Antistatic PTFE
- Antistatic PFA

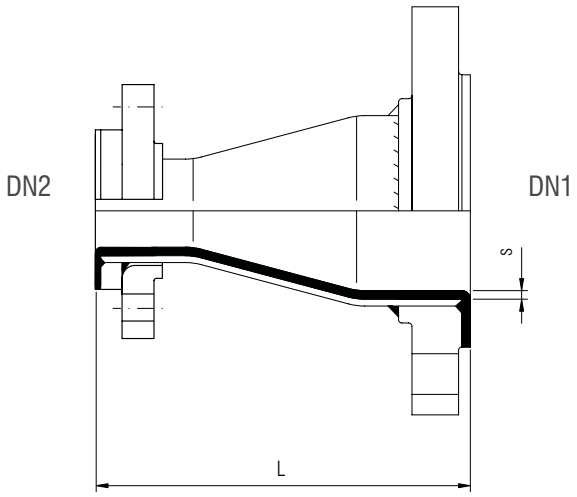
Concentric Reducer in Antistatic version

Standard finishing:
gray epoxy-vinyl zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA LINED CONCENTRIC REDUCERS
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED) - FLANGED EN 1092-1



Dimension table to norm DIN 2848/2874

DN1	DN2	L mm	s ± 10% mm	Weight kg
20	15	110	2	2,1
25	15	125	3	2,4
	20			2,3
32	20	130	3	2,8
	25			3,0
40	20	145	3	3,1
	25	145		3,3
	32	150		3,8
50	25	160	4/3	4,1
	32	165	4	4,3
	40	165	4	4,8
65	25	175	4/3	5,8
	32	180	4/3	6,1
	40	180	4	6,4
	50	185	4	7,0
80	25	180	4/3	6,7
	32	180	4/3	6,5
	40	185	4/3	6,3
	50	190	4	6,9
	65	190	4	7,5
100	25	200	4,5/3	10,2
	32	200	4,5/3	9,6
	40	200	4,5/3	9,4
	50	200	4,5/4	9,9
	65	200	4,5/4	10,6
	80	205	4,5/4	12,3

DN1	DN2	L mm	s ± 10% mm	Weight kg
125	50	230	4,5/4	10,6
	65	230		11,0
	80	235		12,8
	100	235		15,0
150	25	250	5/3	19,0
	50		5/4	20,0
	65		5/4	18,0
	80		5/4	17,4
	100		5/4,5	18,3
	125		5	20,1
	100		6/4,5	22,1
	125		6/4,5	23,8
	150		6/5	25,2
250	100	305	6,5/4,5	33,1
	125	305	6,5/4,5	35,0
	150	305	6,5/5	37,8
	200	310	6,5/6	44,8
300	150	330	6,5	46,0
	200	335		48,0
	250	340		52,6
350	200	465	6,5	69,0
	250			73,6
	300			80,0
400	250	495	6,5	98,0
	300			105
	350			115

PTFE - PFA LINED CONCENTRIC REDUCERS
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED) - FLANGED EN 1092-1

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE - PFA LINED ECCENTRIC REDUCERS DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Flange: EN 1092-1

1 fixed + 1 free

Range:

DN 15 - DN 600, PN 10

Metallic parts:

body: P245GH EN 10216-1

flange: P245GH EN 1092-1

Interior lining:

PTFE

Variants

Design:

for large diameters expected

pieces in several parts

Flanges: 1 fixed + 1 free (DN1)

Metallic parts:

Stainless Steel 304L/316L

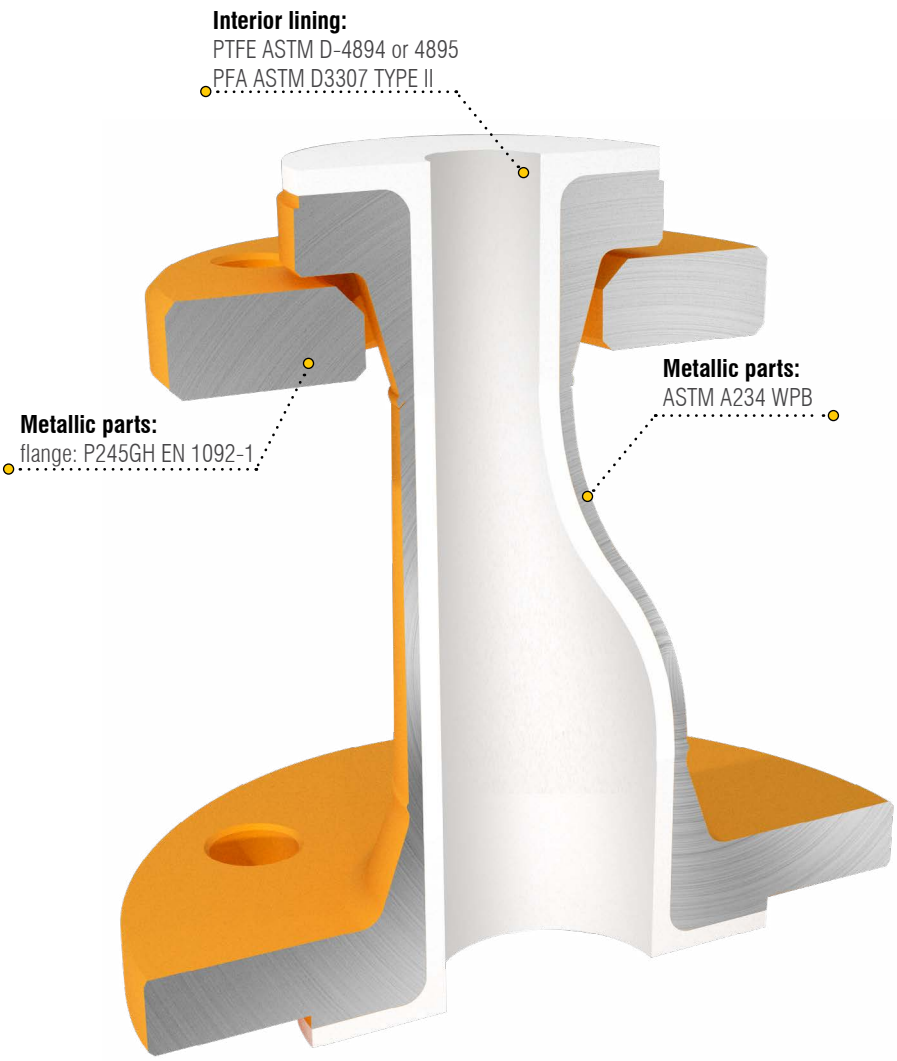
Low temp. steel P275NL

Interior lining:

Antistatic PTFE

PFA

Antistatic PFA



Antistatic version
of the eccentric reduction

Standard finishing:
gray epoxy-vinyl
zinc paint

Avaiable on request

Approvals and Certifications

Quality and Special tests

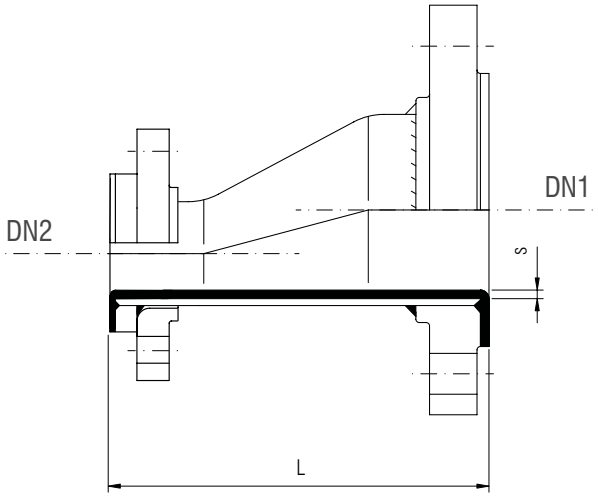
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE - PFA LINED ECCENTRIC REDUCERS DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN1	DN2	L mm	s ± 10% mm	*Weight kg*
20	15	110	3	2,1
25	15	125	3	2,4
	20			2,3
32	20	130	3	2,8
	25			3,0
40	20	145	3	3,1
	25	145		3,3
	32	150		3,8
50	25	160	3	4,1
	32	165		4,3
	40	165		4,8
65	25	180	3	6,0
	32	180		6,2
	40	180		6,4
	50	185		7,0
80	40	190	3	6,0
				6,9
	65	190	3	7,5
100	50	200	3	9,9
	80	205	4,5	12,3

DN1	DN2	L mm	s ± 10% mm	*Weight kg*
125	80	235	4,5	12,8
	100			15,0
150	100	250	5	18,3
	125			20,1
200	100	270	6	23,5
	150			25,2
250	150	305	6,5	37,8
	200	310		44,8
300	200	335	6,5	48,0
	250	340		52,6
350	250	465	6,5	73,6
	300			80,0
400	300	495	6,5	105
	350			115
450	350	495	6,5	148
	400			157
500	400	650	6,5	210
	450			218
600	500	750	4,5	291

PTFE - PFA LINED ECCENTRIC REDUCERS DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE SOLID SPACER TYPE F
DESIGN DIN 2448/2874 - CERTIFIED- 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Material:

PTFE

Variants

Material:

Antistatic PTFE

Spacer Type F
in Antistatic version

Avaiable on request

Approvals and Certifications

Quality and Special tests

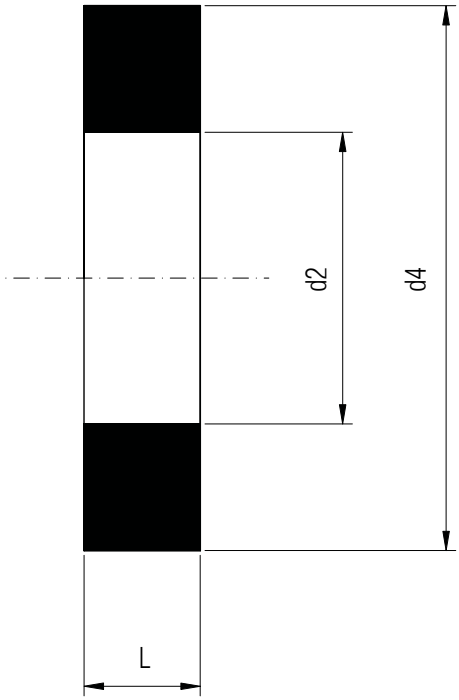
Engineering Services

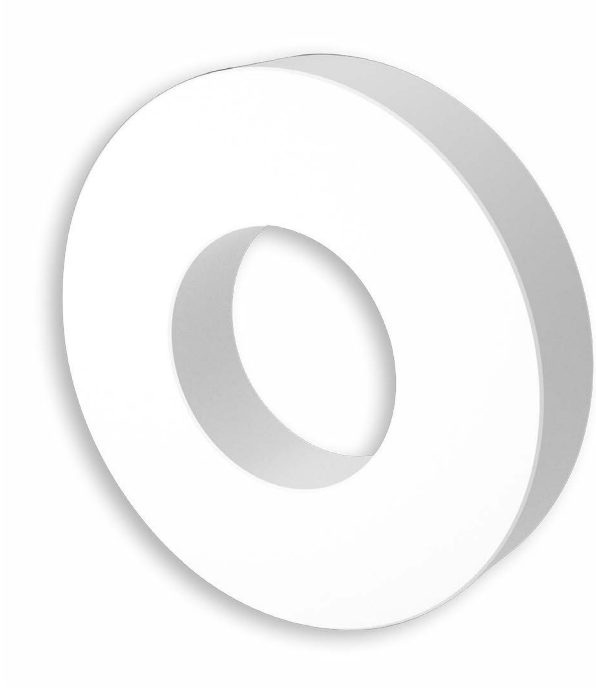
Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE SOLID SPACER TYPE F
DESIGN DIN 2448/2874 - CERTIFIED- 2014/68/EU (PED)





Dimension table

DN	L max. mm	d2 mm	d4 mm	weight kg
15	300	14	45	0,1
20	300	16	58	0,1
25	300	22	68	0,2
32	300	31	78	0,25
40	300	37	88	0,3
50	300	48	102	0,4
65	300	64	122	0,5
80	300	76	138	0,6
100	300	101	158	0,75
125	300	125	188	1,1
150	300	153	212	1,4
200	300	201	268	2,0
250	300	254	320	3,2
300	300	303	370	4,0
350	300	333	430	4,5
400	300	382	482	5,2
450	300	430	532	6,1
500	300	480	585	7,2

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED SPACERS TYPE G
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Metallic part:

body: P265GH

Interior lining:

- PTFE

Variants

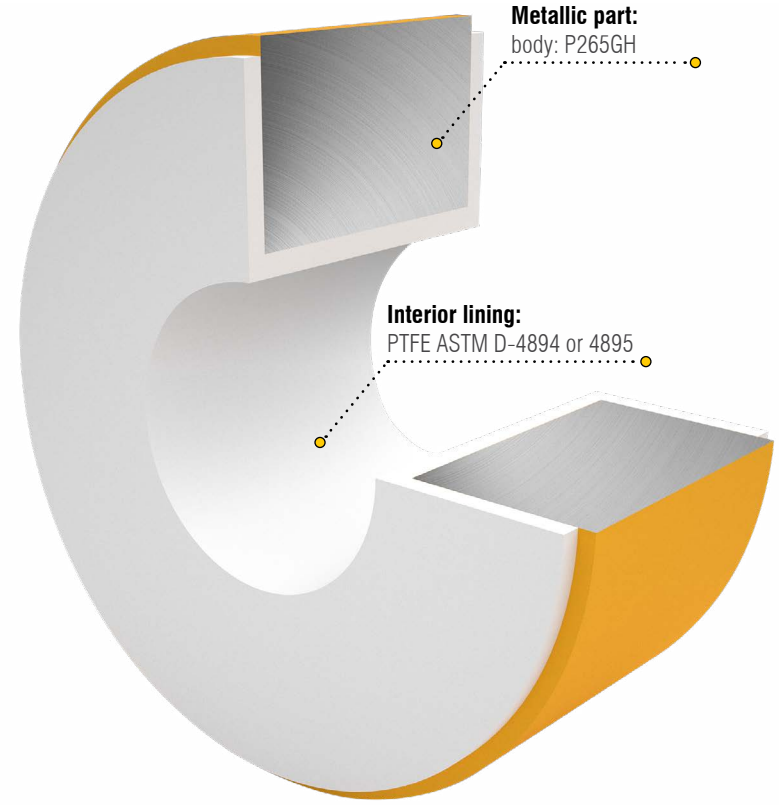
Metallic parts:

Stainless Steel 304L/316L

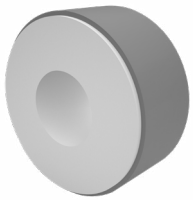
Low temp. steel P275NL

Interior lining:

- Antistatic PTFE
- PFA
- Antistatic PFA



Spacer Type G in
Antistatic version

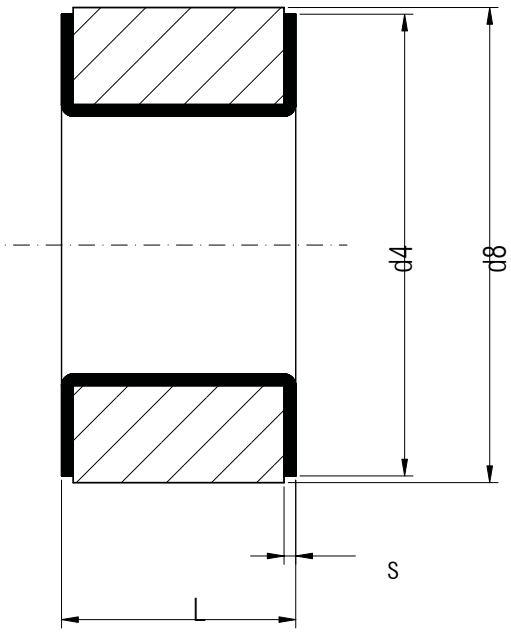


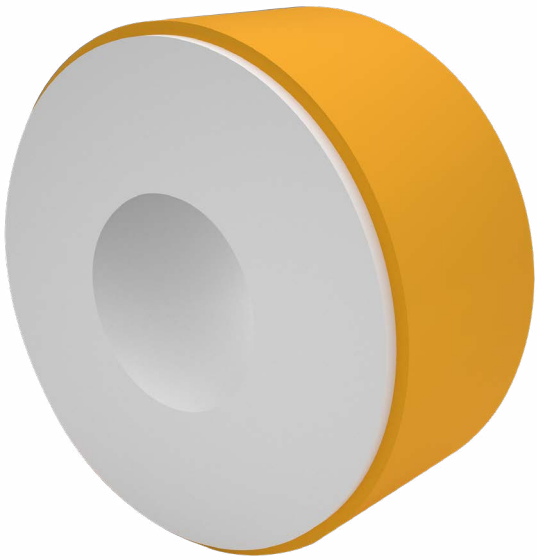
Standard finishing:
gray epoxy-vinyl
zinc paint

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

PTFE LINED SPACERS TYPE G
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)





Dimension table

DN	L min. mm	L max. mm	s ± 10% mm	d4 mm	d8 mm	Weight kg
15	30	60	3	45	50	0,9
20	30	60	3	58	60	1,2
25	30	60	3	68	70	1,8
32	30	60	3,5	78	82	2,1
40	30	60	3,5	88	92	2,6
50	30	60	4	102	107	3,7
65	30	70	4,5	122	127	4,7
80	30	70	5	138	142	5,3
100	30	80	5,5	158	162	9,5
125	30	80	5,5	188	192	11
150	30	80	6	212	218	14
200	30	80	6,5	268	273	18
250	30	80	7	320	328	29
300	30	90	7	370	378	30
350	30	90	7	430	438	50
400	30	90	7	482	488	60
450	30	100	7	532	540	71
500	30	100	7	585	594	75

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED SPACERS TYPE H
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Metallic parts:

body: P245GH EN 10216-1

flange: P245GH EN 1092-1

Interior lining:

PTFE

Variants

Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

Antistatic PTFE

Spacers Type H in Antistatic version

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

Approvals and Certifications

Quality and Special tests

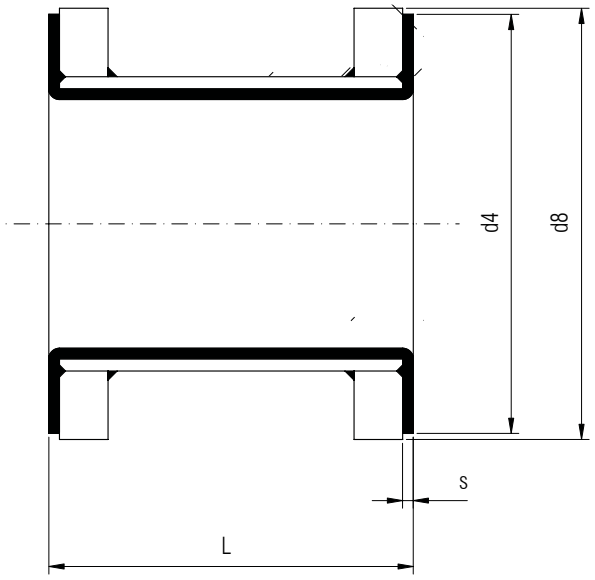
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE LINED SPACERS TYPE H
DESIGN DIN 2448/2874 - CERTIFIED - 2014/68/EU (PED)



Dimension table

DN	L min. max.	L max. mm	s	d4 mm	d8 mm	Weight pipe kg/m	Weight 2
15	60	100	3	45	50	1,2	0,3
20	60	100	3	58	60	1,6	0,4
25	60	100	3	68	70	2,5	0,5
32	60	100	3,5	78	82	3,4	0,7
40	60	100	3,5	88	92	4,5	0,9
50	60	100	4	102	107	5,8	1,3
65	70	120	4,5	122	127	7,1	1,6
80	70	120	5	138	142	10	2,3
100	80	120	5,5	158	162	14	2,7
125	80	120	5,5	188	192	14,5	4
150	80	150	6	212	218	23,5	4,5
200	80	150	6,5	268	273	39	6
250	80	150	7	320	328	55,5	8,5
300	90	200	7	370	378	74	10
350	90	200	7	430	438	85	13
400	90	200	7	482	488	102	16,5
450	100	200	7	532	540	130	20
500	100	250	7	585	594	155	23

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED SPECTACLE RINGS

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 450, PN 10

Metallic part:

body: P235GH EN 10273

Interior lining:

PTFE

Variants

Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

Antistatic PTFE

Antistatic version of the spectacle ring

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

Approvals and Certifications

Quality and Special tests

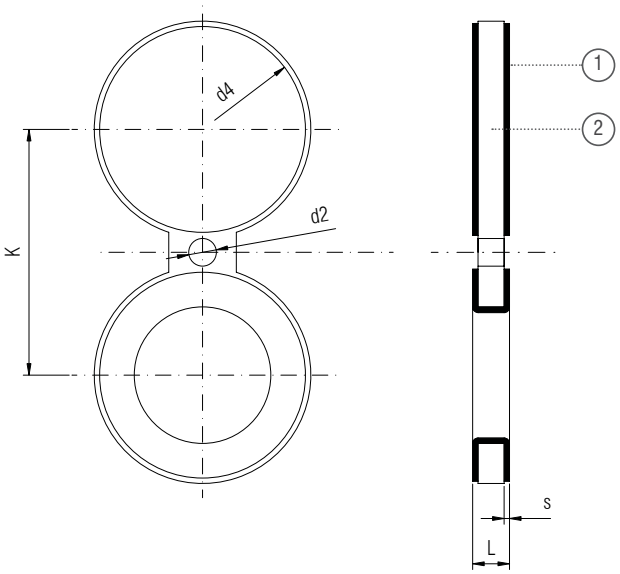
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE LINED SPECTACLE RINGS



Dimension table

DN	L mm	s ± 10% mm	K mm	d2 mm	d4 mm
25	16	3	85	14	68
32	16	3	100	18	78
40	18	3	110	18	88
50	20	3	125	18	102
65	20	3	145	18	122
80	24	3,5	160	18	138
100	24	4	180	18	158
125	25	4,5	210	18	180
150	26	5	240	23	212
200	28	6	295	23	268
250	30	6,5	350	23	320
300	32	6,5	400	23	370
350	35	6,5	460	23	430
400	36	6,5	515	27	482
450	40	6,5	565	27	532

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE CONVEYOR

Standard Supply

Design:

DIN 2848/2874

Range:

DN 15 - DN 600, PN 10

Material:

PTFE

Variants

Material:

Antistatic PTFE

Antistatic version of Conveyor

Avaiable on request

Approvals and Certifications

Quality and Special tests

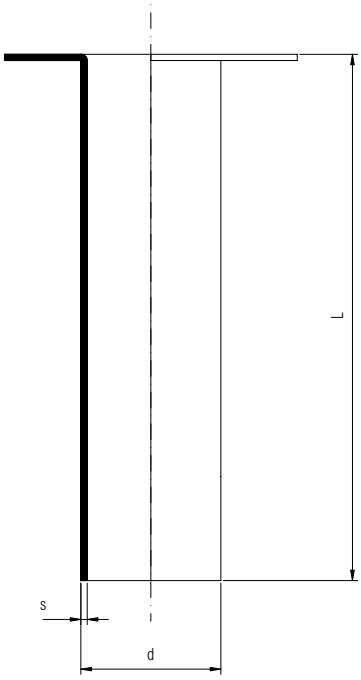
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE CONVEYOR



Dimension table

DN	L max. mm	d mm	s ± 10% mm
25	3000	24,5	3,0
32	3000	29,0	3,5
40	3000	32,0	3,5
50	3000	41,0	4
65	3000	60,0	4,5
80	3000	66,0	5
100	3000	94,5	5,5
125	3000	117	5,5
150	3000	139	6
200	3000	182	6,5
250	3000	231	7
300	3000	288	7,0
350	3000	277	7
400	3000	319	7

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED DIP PIPE

Standard Supply

Design:

To customer specification

Flange: DN1 fixed

DN2 fixed

EN 1092-1

1 fixed + 1 fixed

Range:

DN 15 - DN 500, PN 10

Metallic parts:

body: P245GH EN 10216-217

flange: P245GH EN 1092-1

stub-end: P245GH EN 1092-1

Interior lining:

PTFE

Variants

Design:

Flange: for DN1 - free flange

Length: up to 5 m until DN

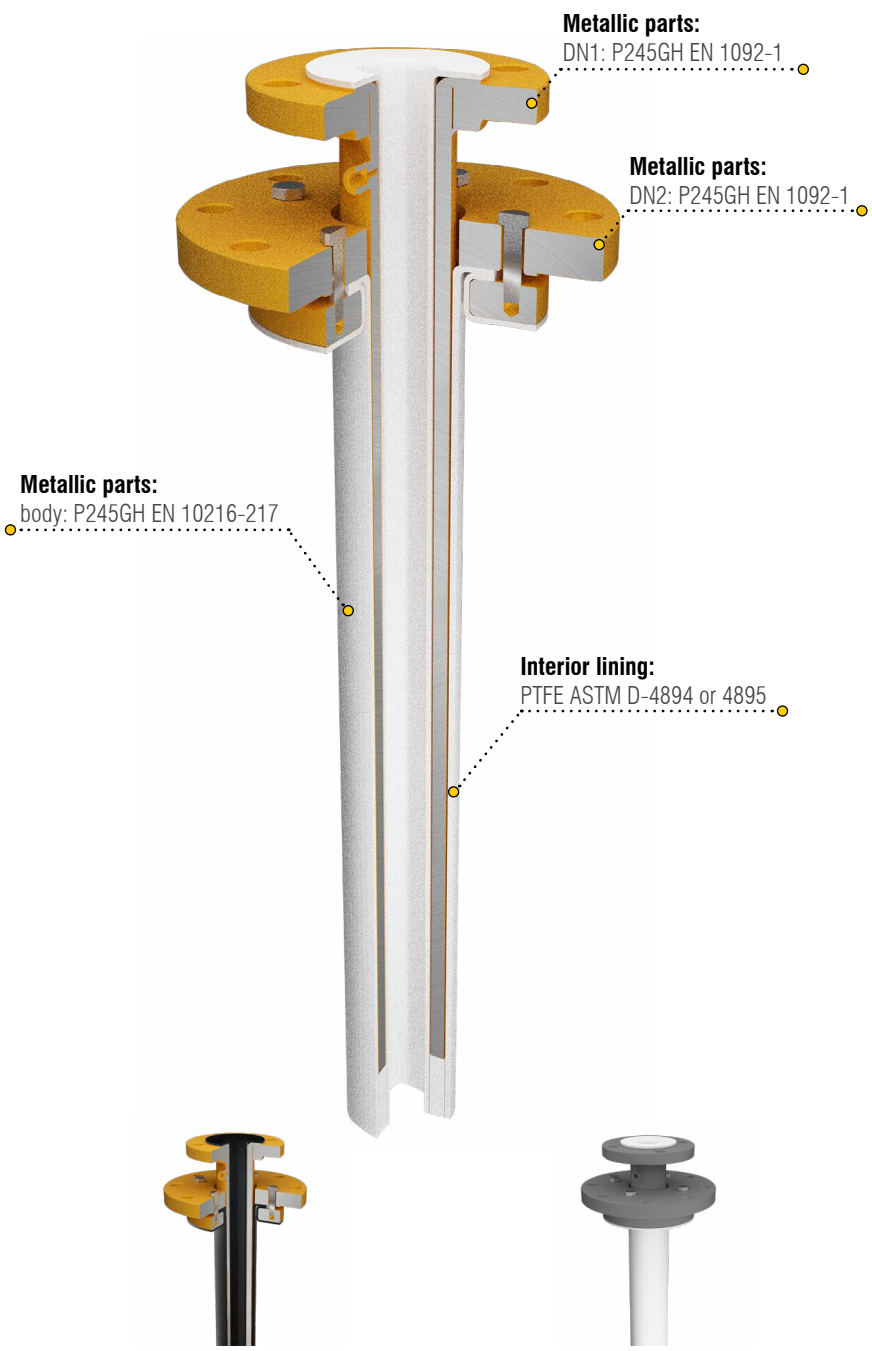
Metallic parts:

Stainless Steel 304L/316L

Low temp. steel P275NL

Interior lining:

Antistatic PTFE



Antistatic version of dip pipe

Standard finishing: gray epoxy-vinyl zinc paint

Avaiable on request

Approvals and Certifications

Quality and Special tests

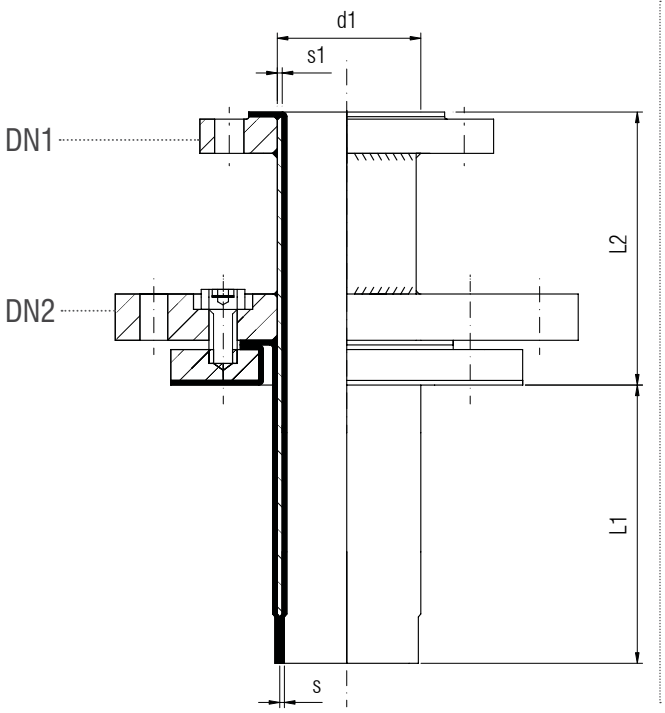
Engineering Services

Special Supply

Stainless steel 304L/316L components

External Finiture

PTFE LINED DIP PIPE



Dimension table

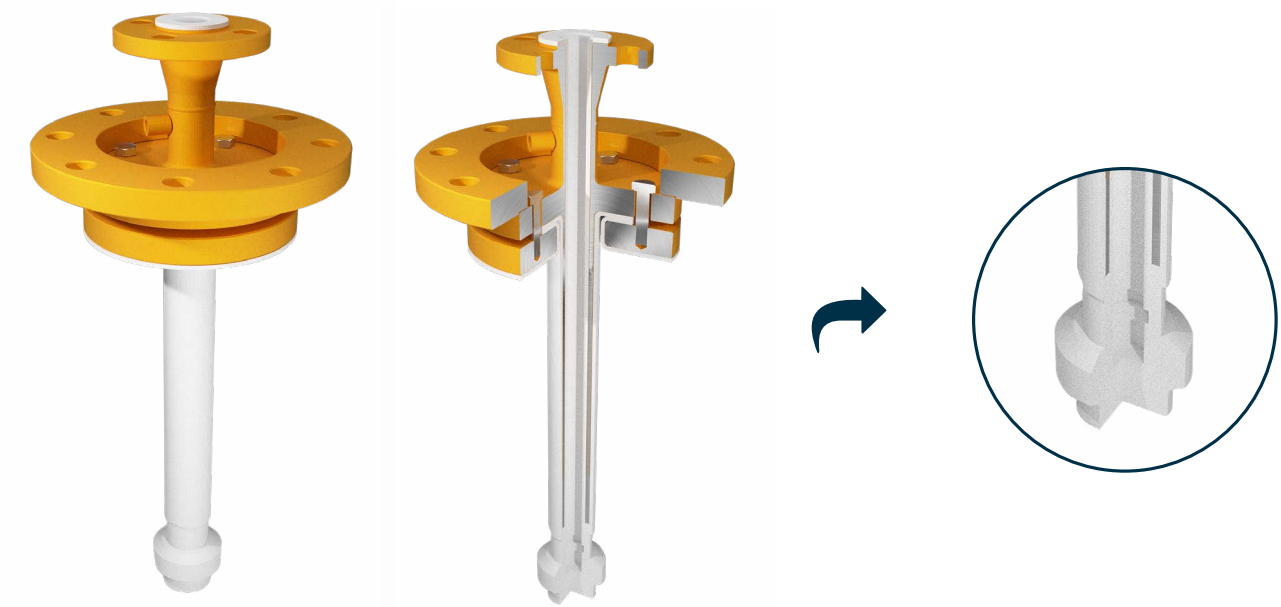
DN1	DN2	L1 max. ± 25 mm	L2 max. ± 5 mm	d1 x s1	s ± 10% mm	*Weight kg*
15	*on request*	2500	150	26,9 x 2,3	3,0	1,3
20		2500	150	26,9 x 2,3	3,0	1,5
25		2500	150	33,7 x 2,6	3,0	2,0
32		2500	150	42,4 x 2,6	3,5	2,8
40		2500	150	48,3 x 2,6	3,5	3,4
50		2500	150	60,3 x 2,9	4,0	4,8
65		2500	150	76,1 x 2,9	4,5	6,4
80		2500	150	88,9 x 3,2	5,0	8,2
100		2500	150	114,3 x 3,6	5,5	11,5
125		2500	150	139,7 x 4,0	5,5	18,0
150		2500	150	168,3 x 4,5	6,0	28,7
200		2500	150	219,1 x 5,9	6,5	40,0
250		2500	150	273 x 6,3	7,0	57,0
300		2500	200	323,9 x 7,1	7,0	76,0
400		2500	200	406,4 x 8,0	7,0	120

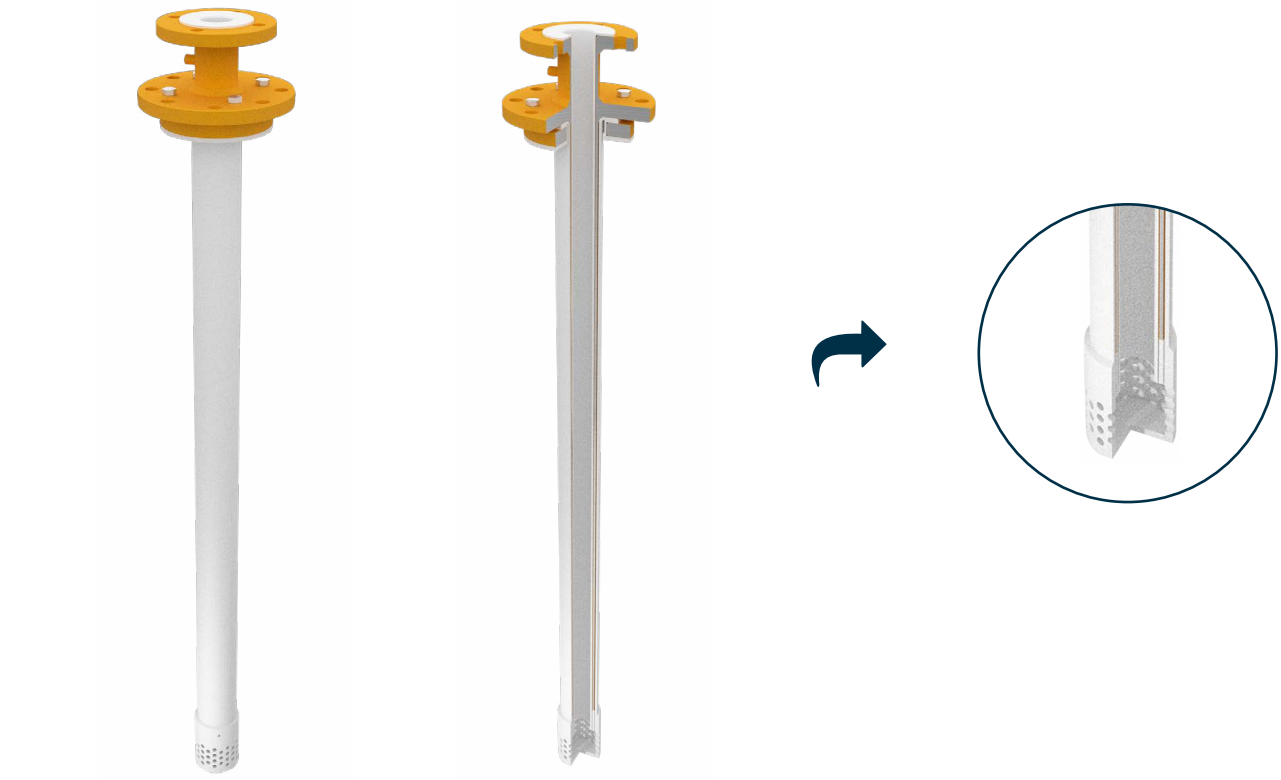
Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

PTFE LINED DIP PIPE

Examples of embodiments with terminals





PTFE LINED DIP PIPE

Examples of embodiments with terminals

Mail: info@diflon.it Phone: (+39) 035 4491137 Head Office: Via Bartolini, 39 - 20155 Milano (MI), Italia Factory: Via Umberto I, 73 - 24054, Calcio (BG), Italia

D3

DIFLINE

Y FILTER AND BULL'S EYE SIGHT INDICATORS

Y filters and Bull's eye sight indicators internally lined with PFA

INDEX

Y FILTER IN PTFE

Standard Supply

Design:

DIN 2848/2874

Flange: Fixed

Range:

DN 25 - DN 200

Until DN 150 PN 16

Until DN 250 PN 10

Version A:

body: ASTM A105

flange: P245GH EN 1092-1

Version F:

fusion: GP240GH

Interior lining:

PFA

Filter cartridge coating:

PTFE

Variants

Design:

for big diameters more than one piece will be provided

Metallic parts:

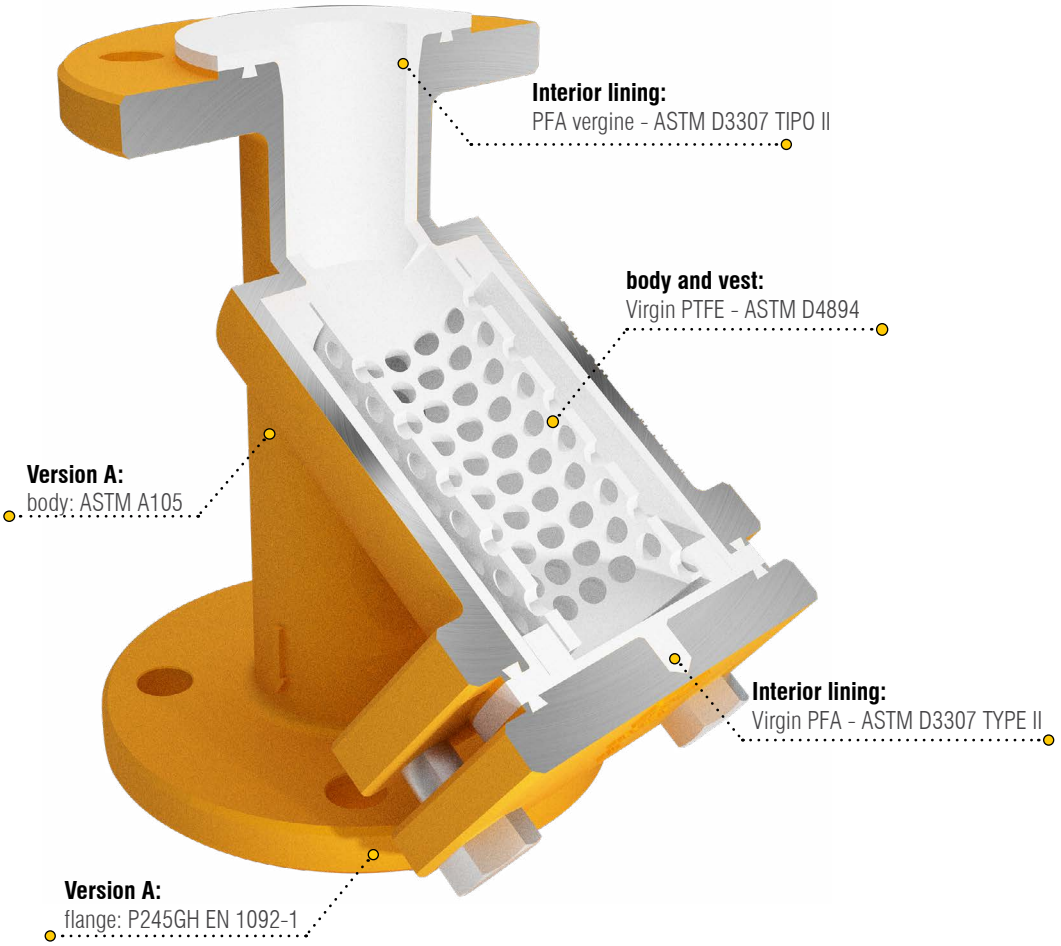
Stainless steel 304L/316L

Low temp. steel P275NL

Interior lining:

Antistatic PTFE

Antistatic PFA



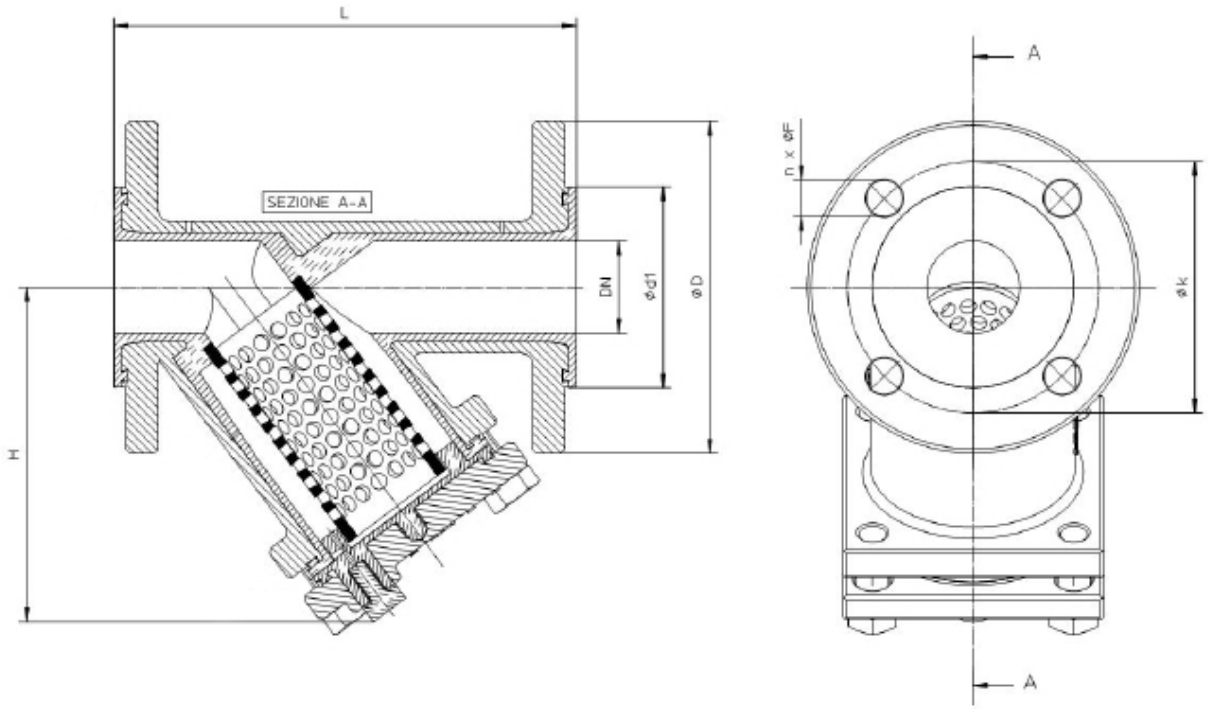
Antistatic version of Y filter

standard finish

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

Y FILTER IN PTFE



Standard PTFE filter mesh:

250 μm (60 mesh),
300 μm (50 mesh),
420 μm (40 mesh),
850 μm (20 mesh),
1000 μm (18 mesh),
2000 μm (10 mesh);
Other dimensions are available on request.
External protection with RAL 5005 two-component polyurethane paint.

Dimension table

DN	L [mm]	H [mm]	D [mm]	k [mm]	d1 [mm]	n x ØF [num x mm]
25	160	125	115	85	68	4 x 14
40	200	145	150	110	88	4 x 18
50	230	165	165	125	102	4 x 18
80	310	210	200	160	138	8 x 18
100	350	310	220	180	158	8 x 18
150	480	370	285	240	212	8 x 22
200	600	580	340	395	268	8 x 22

Y FILTER IN PTFE

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

Avaiable on request

- Approvals and Certifications
- Quality and Special tests
- Engineering Services
- Special Supply
- Stainless steel 304L/316L components
- External Finiture

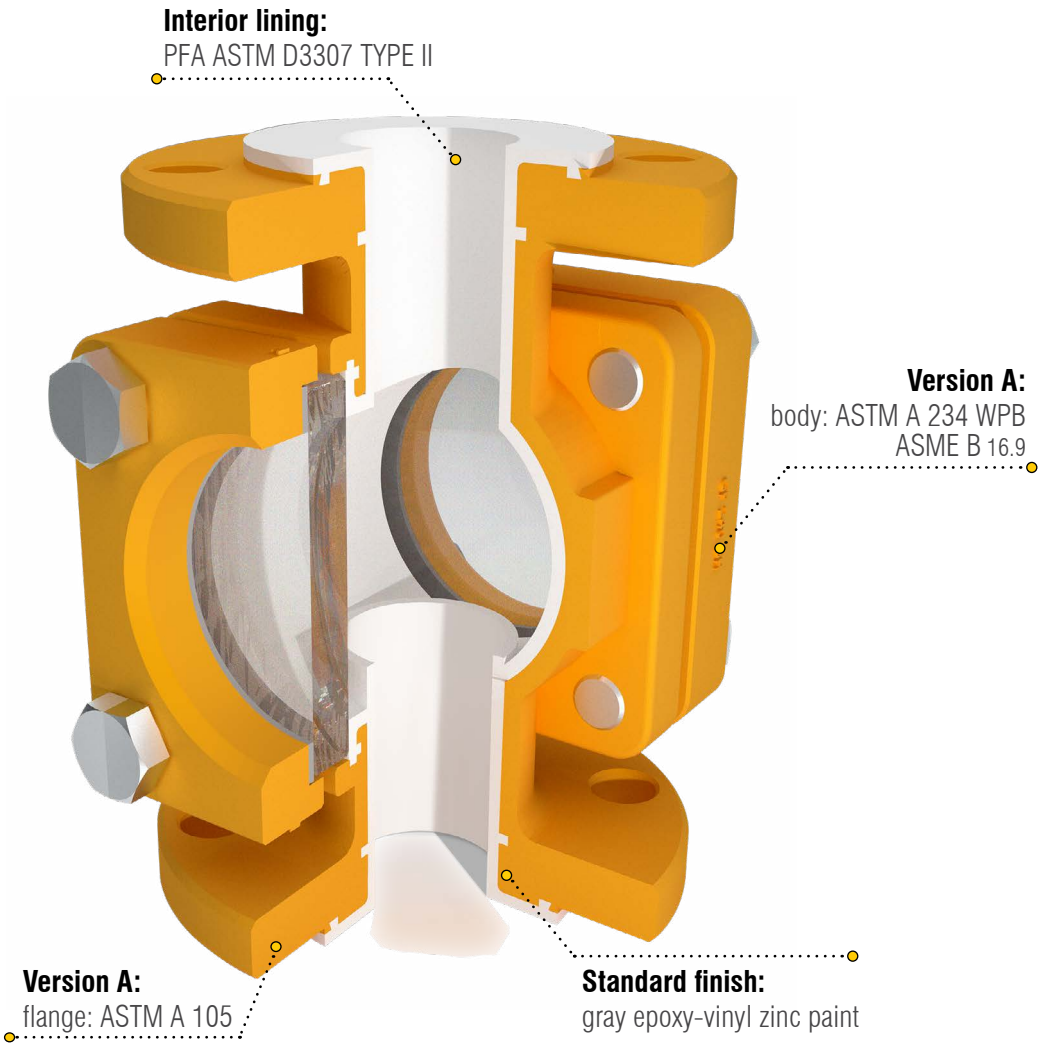
BULL'S EYE SIGHT INDICATOR IN PFA

Standard Supply

Design:
DIN 2848/2874
Flange: 2 fixed
Range:
DN 25 - DN 400
Version A:
body: ASTM A 106 GR. B
flange: ASTM A 105
glass: DIN 7080
Cast Steel: ASTM A216 Grade WCB
Version F:
fusion: GP240GH
Interior lining:
PFA
Gasket: Diflex

Variants

Design:
DIN 2848/2874
Metallic part:
Stainless steel 304L/316L
Interior lining:
Antistatic PFA

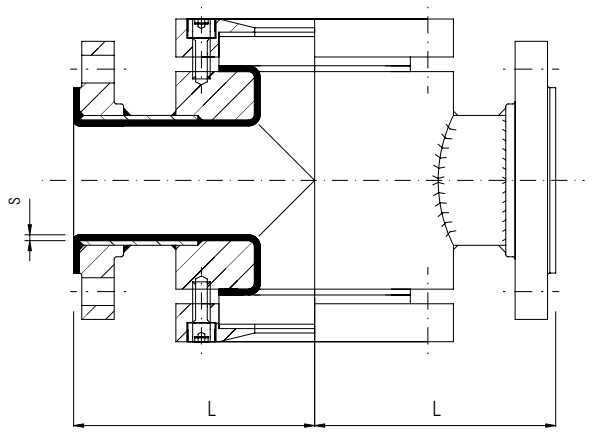


Materials
1 PTFE ASTM D-4894
2 ASTM A 106 GR. B / ASTM A 216 WCB
3 ASTM A 105 / ASTM A 216 GR. WCB
4 Glass DIN 7080 / *Sight glass*
5 Diflex

Avaiable on request

Approvals and Certifications
Quality and Special tests
Engineering Services
Special Supply
Stainless steel 304L/316L components
External Finiture

BULL'S EYE SIGHT INDICATOR IN PFA



Dimension table

DN	L mm	s ± 10% mm	Weight kg
25	80	4,0	3,8
32	90	4,0	4,8
40	100	4,0	6,3
50	115	4,0	10,0
65	145	4,0	14,5
80	155	4,0	23,0
100	175	4,0	39,0
125	210	4,0	59
150	240	5	83
200	300	5	122
250	450	5	166
300	525	5	232
350	600	5	320
400	680	5	380

Technical specifications of Difline products

- Pipes and Flanges dimensions according to DIN
- Fittings dimensions according to DIN 2848
- Operative Conditions
- Bolt Torque
- Finiture, Marking, Packing
- Table of Chemical Resistance of Materials*

D4

DIFLINE

STANDARD AND SPECIAL SUPPLY CONDITIONS

INDEX

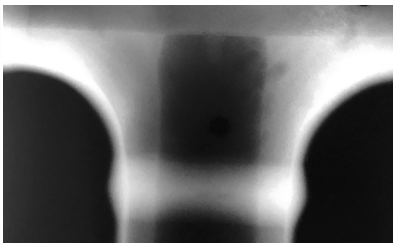
APPROVAL AND CERTIFICATION

Certified company
- ISO 9001:2008
- PED

QUALITY AND SPECIAL TESTS

Tests:

- Hydraulic
- Pneumatic
- Scintigraphy
- Visual / Dimensional
- Thickness
- X ray (with film viewer)
- Magnetic particle
- Penetrating fluids
- PMI (stainless steel only)
- Passtivation (stainless steel only)
- Holiday test over coating
- Dry Film Thickness



ENGINEERING SERVICES

We carry out detailed **engineering services,** with **technical drawings** and **lists of materials** for the various implants, which occur to the use of fluoropolymer and steel materials.

We perform measurement and design services **from the preliminary system to the final supply**, with a list of materials and related chemical implants, with CE certifications. We supply complete valve packages.

At our factory in Carobbio degli Angeli we develop the engineering projects, we carry out the processing of coatings, and we produce tanks and columns in fluoropolymers and steel, designed with **3D technology** and tested according to **CE and PED certifications.**

We offer the production of flexible pipes for the industry where you can request characteristics and dimensions. We can also develop, with an exclusive engineering service, metal bodies to be prepared for coating with fluoropolymers and polypropylene. In addition, we make molded cast and lost wax parts with tolerances of 00.

For carbon steel the tolerance is: 00.

We are strongly encouraged to accept cost and **engineering challenges** that concern fluoropolymer and polypropylene coatings of metal parts.

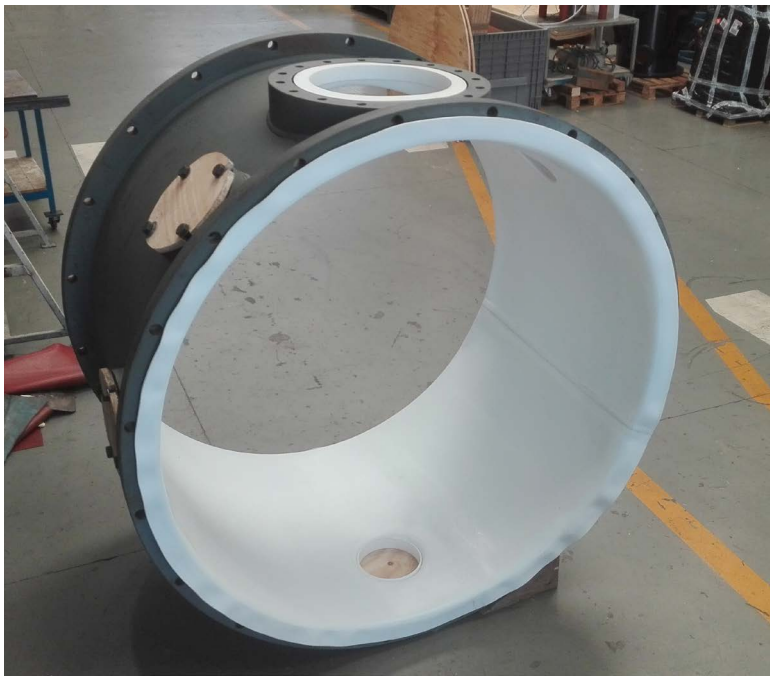
The cost of the engineering service is 50 euros / hour and the cost of mergersit is about 3.5 for the lost wax with a tolerance of: 00.

We can tackle every problem with professional experience.

Our services offer the **best quality at affordable prices.**

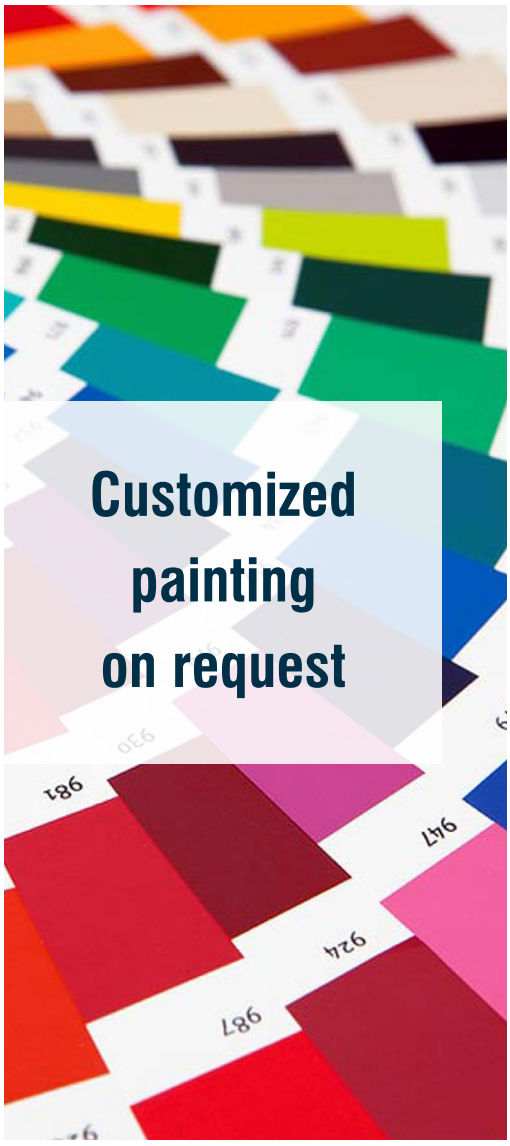
- **Surveys directly on the spots**
- **Detailed engineering**
- **Stress Analysis**
- **Assistence while assembling**
- **Developing of itemized lists**
- **Stirrups design**

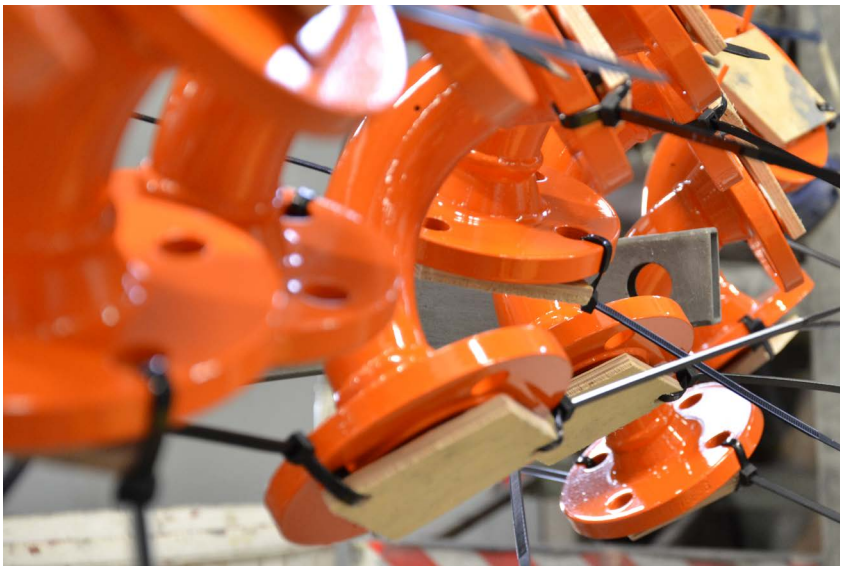
SPECIAL SUPPLIES

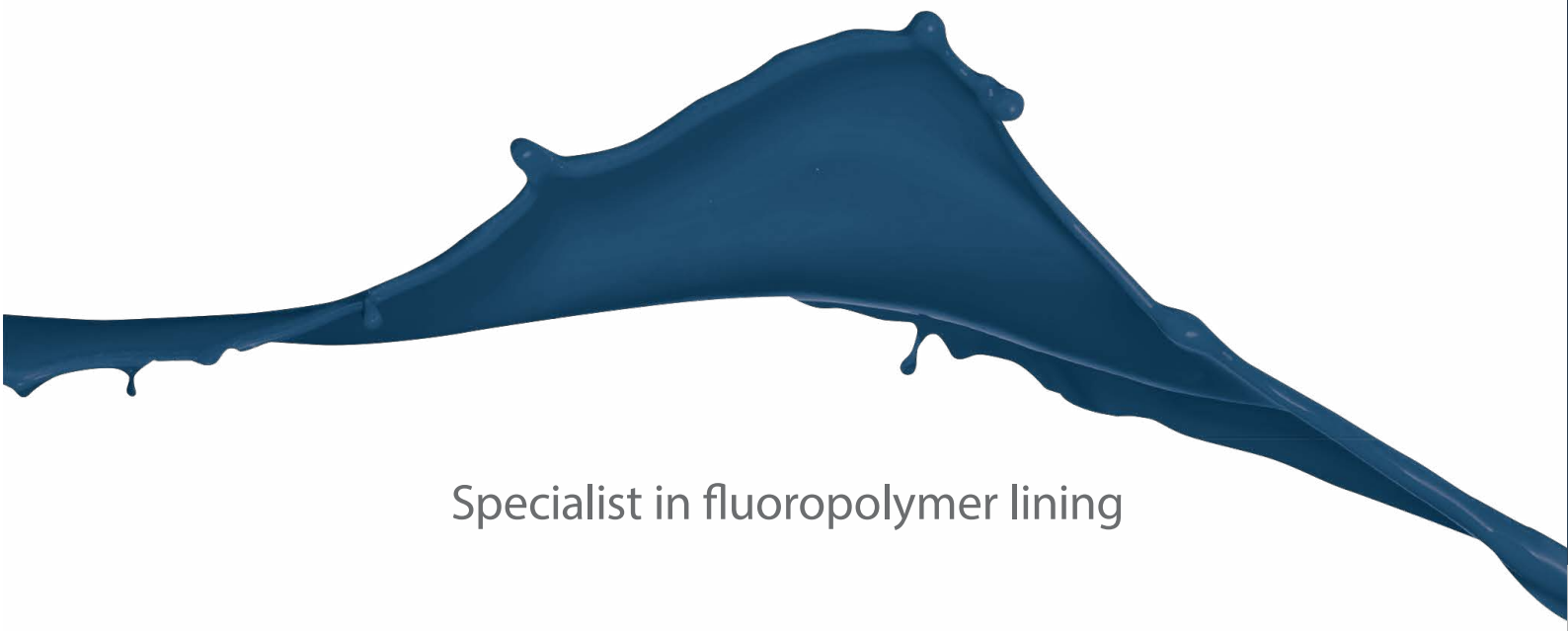


STAINLESS STEEL METALLIC PARTS 304L/316L

SURFACES FINISHING







Specialist in fluoropolymer lining

DIFLON
TECHNOLOGY

DIFLON Technology S.r.l.

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www.diflon.it - info@diflon.it

www.diflon.it

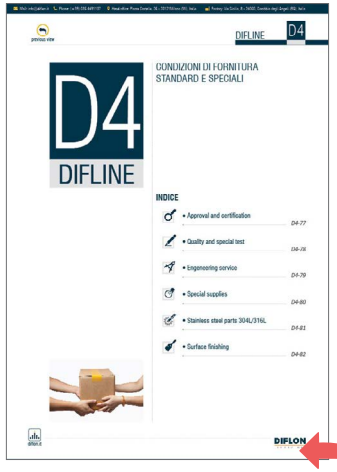
DIFLON
TECHNOLOGY

Chemical Resistence Materials

Material's chemical resistance

General overview of the chemical resistance of plastic, elastic and metal materials in the Diflon catalog.
You can request a personalized consultancy service for all types of products treated, our technical department will be happy to answer you.

By clicking on the cover of the catalogs you can directly access the topic of interest.



DIFLON SERVICE

Chemical resistance of materials

Table of Chemical Resistance of Materials*

	NATURAL RUBBER NR	SBR SBR	CHLOROPRENE CH	NITRILE NBR	BUTYL IIR	hypalon® CSM	EPDM EPDM	EPR EPM	silicone VMQ	viton® FKM	CROSS-LINKED POLYETHYLENE XLPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE UHMWPE	polytetrafluoroethylene PTFE	DIFLEX®	perfluorocoxi PFA	Stainless steel 304 304SS	Stainless steel 316L 316LSS
Acetic acid, duluite, 10%	B	C	C	C	A	C	A	A	B	B	A	A	A	A	A	B	AB
Acetic acid glacial	C	X	X	X	B	C	B	A	C	X	A	A	A	A	A		
Acetic acid anhydride	C	C	B	B	B	A	I	B	I	X	A	A	A	A	A	AB	A
Acetone	B	C	B	X	A	B	A	A	X	X	A	A	A	A	A	A	A
Acetylene	A	A	B	A	A	B	A	A	C	A	A	A	A	A	A	A	A
Air 68°F (20°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
Air 150°F (65°C)	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A		
Aluminium chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	X	B/X
Aluminium fluoride 150°F (65°C)	A	A	A	A	A	A	A	A	B	I	A	A	A	A	A	X	C/X
Aluminium sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AB	A
Alums 150°F (65°C)	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	B	AB
Ammonia gas, anhydrous	A	A	A	A	A	A	A	A	I	X	A	A	A	A	A	A	A
Ammonia 10%water solution	B	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonia 30%water solution	B	B	B	A	A	B	A	A	C	A	A	A	A	A	A	A	A
Ammonium chloride	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	AB	AB
Ammonium hydroxide	C	B	B	B	A	A	A	A	C	B	A	A	A	A	A	A	A
Ammonium nitrate	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium phosphate monobasic	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium phosphate dibasic	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium phosphate tribasic	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium sulfate	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Amyl acetate	B	X	X	X	B	X	A	B	X	X	A	A	A	A	A	A	A
Amyl alcohol	A	A	A	A	A	A	A	A	X	A	A	A	A	A	A	A	A
Aniline, Aniline oil	X	X	C	X	A	X	C	B	X	A	A	A	A	A	A	A	A
Aniline, dyes	B	B	B	X	A	B	C	A	X	B	A	A	A	A	A	A	A
Asphalt	X	X	B	B	X	B	X	X	I	A	A	A	A	A	A	A	A

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Chemical resistance of materials

Table of Chemical Resistance of Materials*

	NATURAL RUBBER NR	SBR SBR	CHLOROPRENE CH	NITRILE NBR	BUTYL IIR	hypalon® CSM	EPDM EPDM	EPR EPM	silicone VMQ	viton® FKM	CROSS-LINKED POLYETHYLENE XLPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE UHMWPE	polytetrafluoroethylene PTFE	DIFLEX®	perfluorocoxi PFA	Stainless steel 304 304SS	Stainles steel 316L 316LSS
Barium chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AB	A
Barium hydroxide 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AB	A
Barium sulfide 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AB	AB
Beer	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Beet sugar liquors	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Benzene, Benzol	X	X	X	X	X	X	X	X	X	A	A	A	A	A	A	A	A
Benzine, petroleum ether	I	I	I	I	I	I	I	I	X	A	I	B	A	A	A	A	A
Benzine, petroleum naphtha	X	X	C	A	X	B	X	X	X	A	A	B	A	A	A	A	A
Black sulfate liquor	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	A	AB
Blast furnace gas	C	C	A	C	C	C	C	C	A	A	A	A	A	A	A		
Borax	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A
Boric acid	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Bromine	X	X	X	X	X	C	X	X	X	A	X	X	A	A	A	NR	NR
Butane	X	X	A	A	X	A	X	X	X	A	A	A	A	A	A	A	A
Butyl acetate	X	X	X	X	B	X	B	B	X	X	A	A	A	A	A	B	A
Butyl alcohol, Butanol	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	A	A
Calcium bisulfate	C	C	A	A	B	A	B	A	C	A	A	A	A	A	A	B	A
Calcium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AB	B
Calcium hydroxide	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AB	AB
Calcium hypochlorite	X	X	X	X	A	B	A	A	C	A	A	A	A	A	A	X	AB
Caliche liquors	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A
Cane sugar liquors	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Carbolic acid, phenol	C	C	C	C	C	C	A	A	X	A	A	A	A	A	A	A	A
Carbon dioxide, dry-wet	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Carbon disulfide	X	X	X	X	X	X	X	X	X	A	C	C	A	A	A	A	B
Carbon monoxide 140°F (60°C)	C	C	C	C	C	B	C	A	A	A	A	A	A	A	A	A	A

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Carbon tetrachloride	X	X	X	C	X	X	X	X	X	A	A	C	A	A	A	A	A
Castor oil	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cellosolve acetate	B	B	X	X	A	I	A	A	X	X	A	A	A	A	A	A	A
CFC-12	X	X	A	A	B	I	B	C	I	C	I	I	A	A	A		
China wood oil, tung oil	X	X	B	A	A	B	A	C	X	A	A	A	A	A	A	A	A
Chlorine, dry/wet	X	X	X	X	X	C	X	X	X	B	C	X	A	A	A	A	AB
Chlorinated solvents	X	X	X	X	X	X	X	X	X	A	A	B	A	A	A	AB	AC
Chloroacetic acid	X	C	C	C	X	A	I	A	I	X	A	A	A	A	A	AB	A
Chlorosulfonic acid	X	X	C	C	X	X	X	X	X	X	C	X	A	A	A	B	B
Chromic acid	X	X	X	X	C	A	I	I	C	A	A	C	A	A	A	C	BC
Citric acid	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	AB
Coke oven gas	X	X	X	X	X	A	I	I	B	A	A	X	A	A	A	A	A
Copper chloride 150°F (65°C)	C	A	B	A	A	B	A	A	A	A	A	A	A	A	A	X	X
Copper sulfate 150°F (65°C)	C	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
Corn oil	X	C	B	A	A	B	C	C	A	A	A	A	A	A	A	A	A
Cottonseed oil	X	C	B	A	A	B	C	C	A	A	A	A	A	A	A	A	A
Creosote, coal tar	X	X	B	A	X	B	X	X	C	A	A	A	A	A	A	A	A
Creosote, coal tar wood	X	X	B	A	X	I	X	X	X	A	A	A	A	A	A	A	AB
Creosols, cresylic acid	C	X	X	C	C	B	X	X	I	A	A	B	A	A	A	A	A
Dichlorobenzene	X	X	X	X	X	X	X	X	X	A	X	C	A	A	A	A	A
Dichloroethylene	X	X	X	X	X	X	X	X	X	A	C	X	A	A	A	A	A
Diesel fuel	X	X	C	A	X	B	X	X	X	A	B	B	A	A	A	A	A
Diethanolamine 20%	C	X	I	I	A	X	A	A	X	X	A	A	A	A	A	A	A
Diethylamine	B	B	B	C	B	C	B	B	B	X	A	A	A	A	A	A	A
Diisopropylamine	B	I	I	B	I	C	I	I	I	I	A	A	A	A	A	A	A
Dioctylphthalate	X	X	X	X	B	X	B	A	X	A	A	A	A	A	A	A	A

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Ethers	X	X	X	X	X	X	C	B	X	X	A	B	A	A	A	A	A
Ethyl acetate	X	X	X	X	B	X	B	A	B	X	A	A	A	A	A	A	A
Ethyl alcohol	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ethyl cellulose	B	B	B	B	B	I	B	B	C	X	A	A	A	A	A	A	AB
Ethyl chloride	X	X	X	X	B	X	C	C	C	A	A	C	A	A	A	A	A
Ethyl glycol	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
Ferric chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	X	X
Ferric sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	AB	A
Formaldehyde	B	B	B	C	A	A	A	A	B	X	A	A	A	A	A		
Formic acid	A	A	C	B	A	A	A	A	C	X	A	A	A	A	A	B	B
Fuel oil	X	X	A	A	X	B	X	X	X	A	A	A	A	A	A	A	A
Furfural	X	C	C	X	A	B	C	B	X	X	A	I	A	A	A	X	A
Gasoline, unleaded	X	X	X	A	X	C	X	X	X	A	A	B	A	A	A	A	A
Gasoline + MTBE	X	X	X	A	X	C	X	X	X	A	A	B	A	A	A	A	A
Gasoline Hi Test + MTBE	X	X	X	A	X	C	X	X	X	A	A	B	A	A	A	A	A
Gelatin	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Glucose	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Glue	B	B	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
Glycerine, glycerol	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Green sulfate liquor	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
HFC-134A	B	X	A	A	A	B	A	A	I	X	A	I	A	A	A		
Hydraulic fluids: Petroleum	X	X	B	A	X	B	X	X	C	A	I	A	A	A	A	A	A
Hydraulic fluids: Phosphate ester alkyl	X	X	C	X	A	X	A	A	X	I	I	I	A	A	A	A	A
Hydraulic fluids: Phosphate ester aryl	X	X	X	X	C	X	C	C	X	I	I	I	A	A	A		
Hydraulic fluids: Phosphate ester blends	X	X	X	X	X	X	C	C	X	A	I	I	A	A	A		

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Hydraulic fluids: Water glycol	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	A
Hydrobromic acid	C	X	C	C	A	A	A	A	X	A	I	A	A	A	A	X	X
Hydrochloric acid	B	B	B	C	B	B	B	A	X	A	A	A	A	A	A	X	X
Hydrocyanic acid	B	B	C	B	C	A	C	B	B	A	A	A	A	A	A	AB	A
Hydrofluoric acid	X	X	X	X	C	A	B	B	X	X	A	B	A	A	A	B	AB
Hydrofluosilicic acid	A	B	B	B	A	I	A	A	I	A	I	A	A	A	A	X	AB
Hydrogen gas 140°F (60°C)	B	A	A	A	A	I	A	A	C	A	A	A	A	A	A	A	A
Hydrogen peroxide	X	X	C	C	C	C	C	B	A	A	I	C	A	A	A	AB	A
Hydrogen sulfide, dry	C	C	B	C	A	A	A	A	X	X	A	A	A	A	A	AC	A
Hydrogen sulfide, wet	C	C	B	C	A	A	A	A	X	X	A	A	A	A	A	A	A
Isobutyl alcohol	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A
Isopropyl alcohol	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A
Isooctane	X	X	B	A	X	A	X	X	X	A	A	A	A	A	A	A	A
Kerosene	X	X	B	A	X	C	X	X	X	A	A	A	A	A	A	A	A
Lacquers	X	X	X	X	C	X	X	X	X	X	A	B	A	A	A	A	A
Lacquers solvents	X	X	X	X	C	X	X	X	X	X	A	B	A	A	A	A	A
Lactic acid	C	C	C	C	C	A	C	B	A	A	A	A	A	A	A	B	A
Linseed oil	C	C	B	A	A	A	A	B	A	A	A	A	A	A	A	A	A
Lubricating oil, crude	X	X	B	A	X	B	X	X	C	A	A	A	A	A	A	A	A
Lubricating oil, refined	X	X	B	A	X	B	X	X	C	A	A	A	A	A	A	A	A
Magnesium chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	X	A
Magnesium hydroxide 150°F (65°C)	A	B	B	B	A	A	A	A	B	A	A	A	A	A	A	A	A
Magnesium sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Mercuric chloride	B	B	C	B	A	A	A	A	A	A	A	A	A	A	A	X	X
Mercury	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Methyl alcohol, methanol	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A

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Methyl chloride	X	X	X	X	C	X	X	C	X	B	C	C	A	A	A	A	A
Methyl ethyl ketone	X	X	X	X	B	X	A	A	X	X	A	A	A	A	A	A	A
Methyl isopropyl ketone	X	X	X	X	B	X	C	C	C	X	A	A	A	A	A	A	A
Milk	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
MTBE	I	I	I	I	I	I	I	I	I	X	A	I	I	I	I		
Mineral oils	X	X	B	A	X	B	X	X	A	A	A	A	A	A	A	A	A
Natural gas	C	C	A	A	X	A	X	X	C	A	A	A	A	A	A	A	A
Nickel chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B
Nickel sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Nitric acid, crude	X	X	X	X	X	C	X	X	X	B	X	I	A	A	A	A	A
Nitric acid, diluted 10%	X	X	B	X	B	A	C	A	C	A	A	A	A	A	A	X	X
Nitric acid, concentrated 70%	X	X	X	X	C	C	X	C	X	B	C	X	A	A	A		
Nitrobenzene	X	X	X	X	X	X	X	X	C	B	A	A	A	A	A	A	A
Oleic acid	X	X	C	C	B	B	B	C	X	B	A	A	A	A	A	A	A
Oleum	X	C	C	C	X	B	X	C	I	A	X	X	A	A	A		
Oxalic acid	B	C	B	B	A	A	A	A	B	A	A	A	A	A	A	A	A
Oxygen	B	C	A	C	A		A	A	X	B	A	A	A	A	A	A	A
Palmitic acid	X	B	A	A	B	B	B	B	X	A	A	A	A	A	A	AB	A
Perchlorethylene	X	X	X	C	X	X	X	X	C	A	C	C	A	A	A	A	A
Petroleum oils and crude 200°F (95°C)	X	X	B	A	X	C	X	X	X	B	C	X	A	A	A	A	A
Phosphoric acid, crude	C	C	C	C	C	A	B	A	C	A	A	A	A	A	A	X	X
Phosphoric acid, pure 45%	C	C	C	C	C	A	B	A	C	A	A	A	A	A	A	A	A
Picric acid, molten	C	C	C	C	C	I	I	I	X	A	C	X	A	A	A	A	A
Picric acid, water solution	A	C	B	B	A	A	I	I	I	A	A	A	A	A	A	X	X
Potassium chlorite	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

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Sodium cyanide		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium hydroxide	to 50% at 140°F	B	B	B	B	A	B	A	A	A	A	A	A	A	A	A	A	A
Sodium hypochlorite		X	X	C	C	A	B	A	A	B	A	A	C	A	A	A	NR	NR
Sodium metaphosphate		A	A	C	A	A	B	A	A	A	A	A	A	A	A	A	A	A
Sodium nitrate		B	B	B	B	A	A	A	A	X	A	A	A	A	A	A	A	A
Sodium perborate		B	B	B	B	A	A	A	A	B	A	A	A	A	A	A	A	A
Sodium peroxide		B	B	B	B	A	A	A	A	C	A	A	C	A	A	A	A	A
Sodium phosphate, monobasic		A	B	B	B	A	A	A	A	X	A	A	A	A	A	A	A	A
Sodium phosphate, dibasic		A	B	B	B	A	A	A	A	X	A	A	A	A	A	A	A	A
Sodium phosphate, tribasic		A	B	B	B	A	A	A	A	X	A	A	A	A	A	A	AB	A
Sodium silicate		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium sulfate		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium sulfide		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	NR	AB
Sodium thiosulfate, "hypo"		A	A	A	A	A	A	A	A	I	A	A	A	A	A	A	A	A
Soybean oil		X	C	B	A	A	A	A	C	A	A	A	A	A	A	A	A	A
Stannic chloride		A	A	A	A	B	A	B	A	B	A	A	A	A	A	A	X	X
Steam	450°F (230°C)	X	X	X	X	B	X	B	B	I	X	X	X	A	A	A	A	A
Stearic acid		X	X	C	B	B	C	B	A	A	A	A	A	A	A	A	A	AB
Sulfur		X	X	A	X	A	A	A	A	B	A	A	A	A	A	A	A	A
Sulfur chloride		X	X	C	C	X	A	X	X	C	A	A	I	A	A	A	B	B
Sulfur dioxide, dry (GAS)	C	C	C	C	C	C	A	C	B	B	B	A	A	A	A	A	A	A
Sulfur trioxide, dry	X	C	C	C	C	B	C	B	B	A	X	X	A	A	A	A	AB	B
Sulfuric acid, 10%	C	C	B	C	A	A	A	A	X	A	A	A	A	A	A	A	A	A
Sulfuric acid, 11% - 75%	X	X	X	X	B	A	C	A	X	A	A	A	A	A	A	A	A	A

Legend
A = Good resistence;
B = Quite good resistance;
C = Lousy resistance;
X = Not suitable;
I = Insufficient informations

Chemical resistance of materials

Table of Chemical Resistance of Materials*

		NATURAL RUBBER NR	SBR SBR	CHLOROPRENE CH	NITRILE NBR	BUTYL IIR	hypalon® CSM	EPDM EPDM	EPR EPM	silicone VMQ	viton® FKM	CROSS-LINKED POLYETHYLENE XLPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE UHMWPE	polytetrafluorothylene PTFE	DIFLEX®	perfluorocoxi PFA	Stainless steel 304 304SS	Stainless steel 316L 316LSS
Sulfurous acid	C	C	C	C	C	A	C	B	X	B	A	A	A	A	A	A	AC	B
Tannic acid	A	C	A	C	A	A	A	A	B	A	A	A	A	A	A	A	AB	A
Tar	X	X	C	C	X	C	X	X	B	A	X	I	A	A	A	A	A	A
Tartaric acid	A	C	C	C	B	A	B	B	A	A	A	A	A	A	A	A	A	A
Toluene, Toluol	X	X	X	X	X	X	X	X	X	A	C	C	A	A	A	A	A	A
Trichloroethylene	X	X	X	X	X	X	X	X	X	A	C	B	A	A	A	A	A	A
Turpentine	X	X	X	B	X	X	X	X	X	A	A	B	A	A	A	A	A	A
Urea, water solution	A	I	A	A	A	A	A	A	A	I	A	A	A	A	A	A	A	A
Vinegar	C	C	C	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Vinyl acetate	X	X	X	X	A	X	B	A	X	X	I	A	A	A	A	A	A	A
Water, acid mine	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Water, fresh	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Water, distilled	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Whiskey and wines	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Xylene, xylol	X	X	X	X	X	X	X	X	X	A	C	C	A	A	A	A	A	A
Zinc chloride	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	NR	AB
Zinc sulfate	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

Legend
A = Good resistence;
B = Quite good resistance;
C = Lousy resistance;
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NOTE 1

*The tables are based on laboratory tests and published data, and are believed to be accurate. However, they should only be used as an indicative guide because they do not take into account all the variables encountered in the use of the product, such as temperature, concentration, pressure, duration of exposure to the fluid, stability and possible contamination of the fluid itself .
All applications must always be verified; the contact part used must always be tested with the chemical to be conveyed.
Note: all data are based on tests conducted at 20 ° C (70 ° F) unless otherwise specified.

Chemical Resistence Materials