INSAPLEX

REDEFINING STRENGTH.

With the exceptional range of INSAPLEX

INSAPLEX

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QUALITY SYSTEM CERTIFICATION
DNV·GL
ISO 9001:2015

About us

Insaplex, a USD 80 million+ company specializing in High-Performance Polymers, was founded in 2009 with a clear vision – to craft high-quality mechanical products tailored for various industries. Our foundation is rooted in prior accomplishments, particularly in the delivery of high-quality rubber gaskets, stainless steel hoses, and fabric expansion joints. This extensive experience seamlessly complements our expertise, enabling us to consistently meet and exceed industry standards while providing advanced solutions for mechanical applications.

The Insaplex team possesses decades of collective experience, showcasing a high level of technical proficiency and notable accomplishments. Our High-Performance Polymers have carved a niche in the valve and automobile industries, where their exceptional properties are harnessed. Our polymers undergo rigorous and thorough quality processes, reflecting our dedication to delivering reliable and high-performance materials for diverse industrial applications.

High-performance polymers, such as PTFE, PEEK and PCTFE, offer a myriad of advantages that position them as promising candidates for the future, potentially supplanting metals in certain applications. These polymers exhibit characteristics such as low friction, exceptional wear resistance, chemical resilience, high thermal stability, electrical insulation, lightweight properties, and non-stick attributes. Their capacity to perform effectively over extended periods without the need for lubricants or oil consumption makes them an appealing choice for industries seeking durable and efficient materials. Another crucial advantage of these materials is their ability to withstand cryogenic temperatures of up to +/- 260°C.

Our Group

From a modest beginning in 1955, the IGP Group today provides over 20 products and services to the core sector. The Group's products are well accepted both in the domestic and international markets.

Since our humble start in 1955, the IGP Group has evolved to offer 20+ products and services to the core sector, gaining acceptance both domestically and internationally. Our Group's manufacturing facilities span across 17 factories, employing state-of-the-art techniques and modern testing facilities to ensure top-quality products for our customers.

Our Group's R&D team, utilizing in-house facilities and collaborating with universities and technical associations, continuously develops new products and processes.

Quality policies

Customer Satisfaction is the foremost objective of INSAPLEX and accordingly, we adhere to continued process improvement that enhances operational competency. We communicate effectively and rigorously keep up our commitment to deliver products of high quality and free from defects. INSAPLEX complies with statutory and legal requirements at all times without fail.

Mission

To consistently deliver reliable high-quality and high-performance materials for diverse industrial applications.

Vision

To create world-class products that exceed expectations of global businesses while meeting future challenges.

RANGE OF PRODUCTS

Rubber Gaskets

INSAPLEX, a part of IGP groups is a leading manufacturer of rubber with metal insert gaskets and rubber gaskets for Drinking water and Gas applications, which adhere to international standards applicable for European countries.

- Metal inserted gasket
- Manway gasket

Fabric Expansion Joints

A Range of Fabric Expansion Joints for Critical Applications. INSAPLEX is a leading manufacturer of fabric expansion joints in India

- Composite layer Bellows
- PTFE/ PTFE linned Bellows

Engineering Plastics

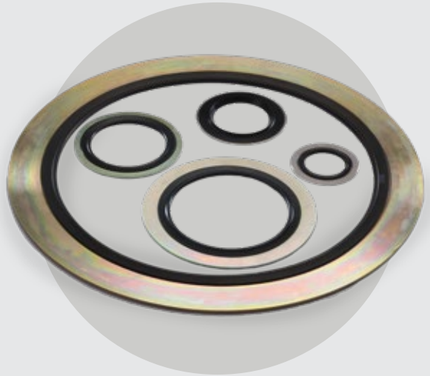
INSAPLEX presents Engineering and High-Performance Polymer Products like seals, bellows, energized lip seals etc.

- PTFE
- PEEK
- PFA
- PCTFE
- VESPEL®
- Devlon

RUBBER GASKETS

Metal Inserted Gasket

Our metal inserted rubber gaskets offer superior sealing in demanding applications by combining a resilient metal core with soft materials like rubber, graphite etc.. Key advantages include improved sealing under high pressure and temperature, increased durability, enhanced chemical resistance, a wider temperature range, and reduced gasketing stress for extended lifespan.



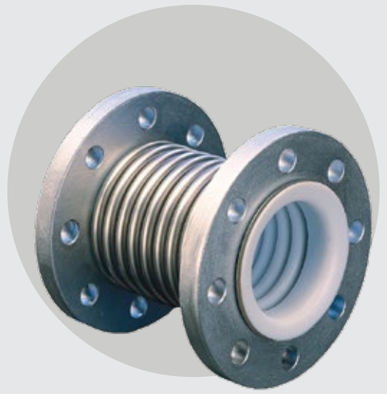
Manway Gasket

Manway gaskets are crucial components in industrial applications, ensuring a secure seal to prevent leaks from tanks and vessels. Available in diverse shapes, sizes, and materials, they resist movement, removal, or blowouts even under extreme stress loads. Specialized for manway openings, these seals facilitate access for inspection, cleaning, and maintenance, playing a vital role in preventing leaks of liquids, gases, and other contents for enhanced safety and process efficiency.

FABRIC EXPANSION JOINTS

Composite layer bellows

Crafted to address thermal expansion, contraction, and vibration in piping systems, these bellows excel under diverse operating conditions. Engineered with a blend of materials like metal, fabric, and elastomers, they offer versatile performance.

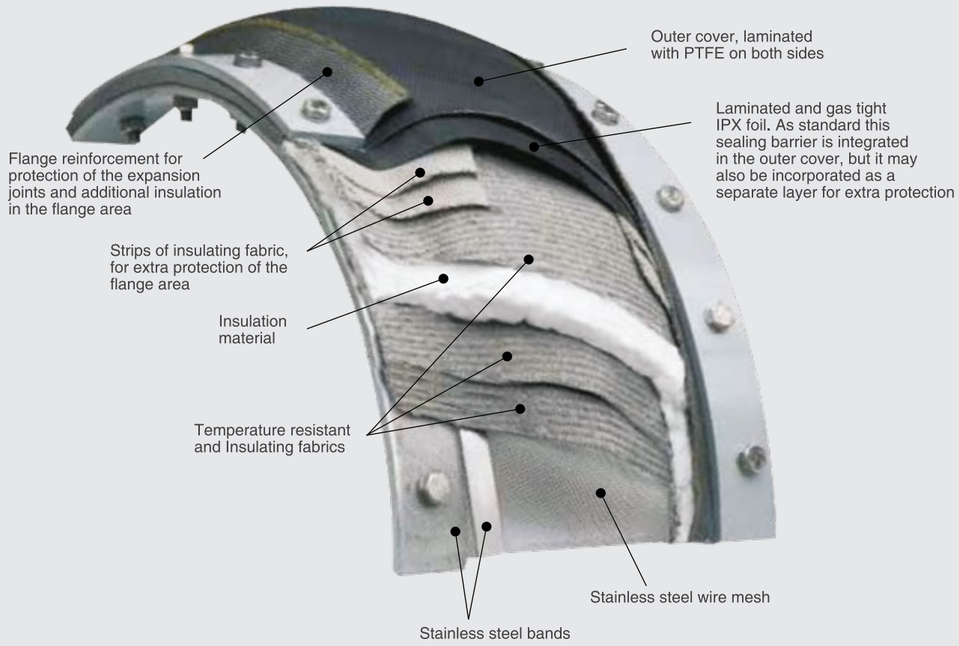


PTFE/ PTFE-lined bellows

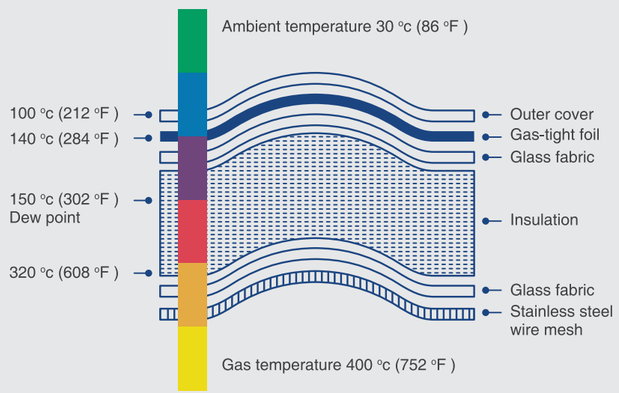
PTFE-lined bellows are designed to address thermal expansion challenges in pipelines. These bellows also play a crucial role in safeguarding delicate process equipment like graphite, plastic, or glass, and effectively isolating vibration hazards. The versatility of PTFE-lined bellows, specifically tailored for corrosive, high-purity, and high-temperature applications. Lined bellows provide safe passage of pipeline and also reduce the transfer the vibration from the rotation equipment connected to the glass assembly.

Fabric Expansion Illustrated Composition

All fabric expansion joints are fully customized according to client's request and requirement.
The below diagram is a typical expansion joint design:



Temperature Flow Chart



Temperature gradient and flow in a multi-layer expansion joint

Type of Fabric Expansion Joints

Single Layer Type:

This comprises of reinforcement plies with coating of elastomers or fluoroplastic to from a homogenous material.

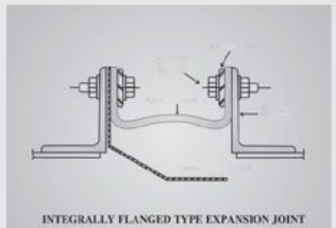
Composite Type:

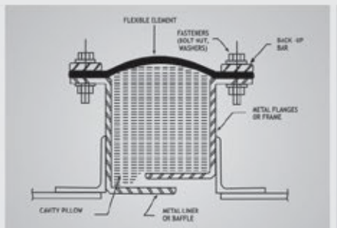
This consists of various plies of materials which are laid one over another, usually bounded, sewn or joint together in the clamped flange area.

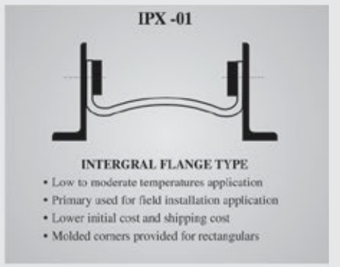
Insaplex offers different designs for a variety of applications

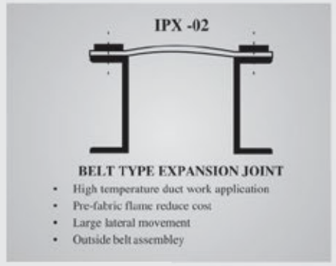
Anatomy of Type:

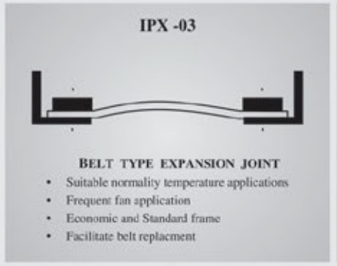
1) Integrally Flanged Type Expansion Joint
2) Belt Type Expansion Joint

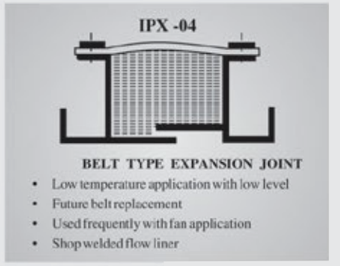


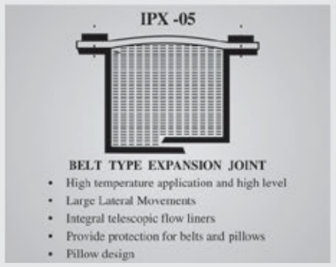


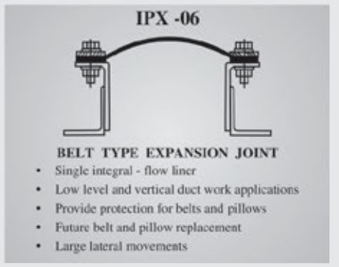






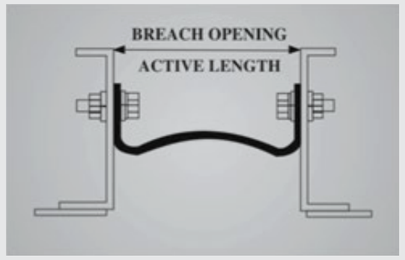


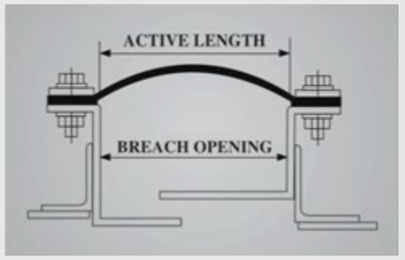




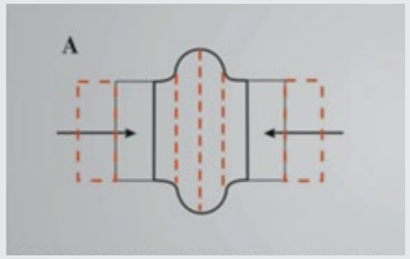
Movement Capabilities

Non-metallic ducting movements can be calculated on the design and maximum excursion temperatures. One unit of fabric expansion joint is able to handle combined axial, lateral, angular and torsional movements. The expansion joint are carefully placed to minimize the number of expansion joints required while absorbing all of the duct movements.

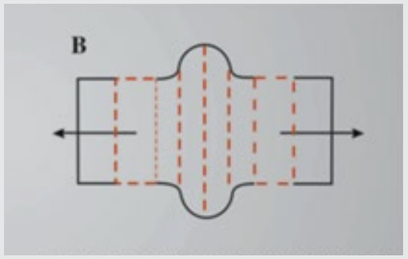




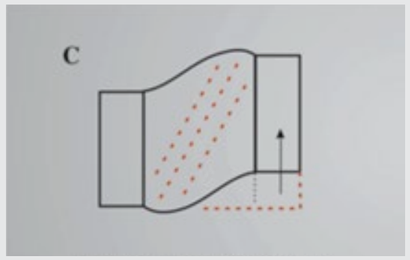
Fabric Expansion Joints Movements



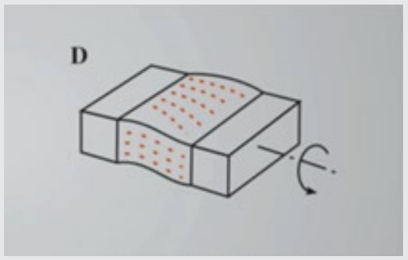
Axial Movement (Compression)



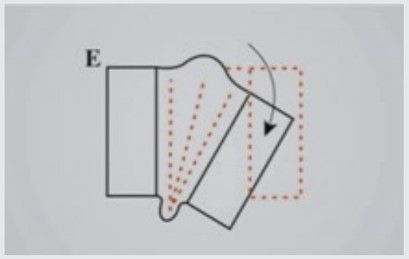
Axial Movement (Extension)



Lateral Movement



Torsion (Rotation)



Angular Deflection
Bending

HIGH PERFORMANCE

PTFE

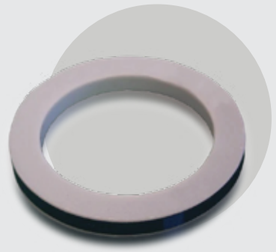
We are able to offer a wide variety of precisely engineered parts and components made in India, using different grades of PTFE. High-end moulding presses and PTFE sintering ovens are housed in our specially constructed PTFE moulding facility. We also offer top-notch coating solutions for a scope of utilizations, for example, stud bolt coatings, release coatings, and glass coatings, thanks to our expertise in fluoropolymer materials. A wide variety of PTFE coatings are available from our Coatings and Surface Preparation business. We can create and deliver complicated machined parts, including high-performance electrified seals, PTFE slide bearings, skidway structure, and rods and tubes with a width of 1800mm to 2500mm. These coatings provide a durable, heat-resistant finish with nearly perfect chemical inertness.

Hydraulic & Actuator Seals

Oil seals set

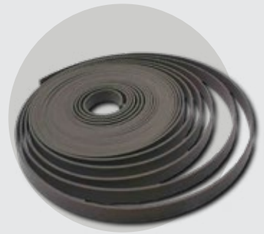
Stuffing box

Chevron packing set



Envelope Gaskets

PTFE O Rings



Actuator strips

Technical data Sheet PTFE & PTFE Compounds

Sl#	Properties	Unit	Test Method	Virgin PTFE	Chemically Modified PTFE	15% Glass Filled PTFE	25% Glass Filled PTFE	5% Glass + 5% MoS2 Filled PTFE	15% Glass + 5% MoS2 Filled PTFE	23% Carbon + 2% Graphite Filled PTFE	33% Carbon + 2% Graphite Filled PTFE	15% Graphite Filled PTFE	40% Bronze/ TSQ Filled PTFE	40% Bronze + 5% MoS2 Filled PTFE	60% Bronze Filled PTFE	55% Bronze + 5% MoS2 Filled PTFE
1	Density	gm / cc	ASTM D-792	2.1 – 2.2	2.15 – 2.2	2.15– 2.22	2.22– 2.25	2.20 – 2.24	2.20– 2.24	2.0 – 2.2	2.0 – 2.14	2.10– 2.16	3.0 – 3.2	3 – 3.2	3.8 – 4.0	3.8 – 4
2	Tensile Strength	kgf/cm^2	ASTM D-4894	210 – 375	300 – 325	180– 260	125– 200	175– 250	150– 220	125–200	100– 175	150– 200	125– 225	125-225	100– 200	100-200
3	Elongation of Break	%		250 – 400	400 – 450	225-325	200-300	200-300	220-320	80–150	100-150	150-250	200-350	200-350	150-300	150-300
4	Compressive Strength	kgf/cm^2	ASTM D-695	40-50	45-55	65-75	75-85	60-70	65-75	75–85	80-90	65-75	85-100	80-95	115-125	115-125
5	Deformation under load (Max.)															
	2 Hrs. 23^0C 113 kgf	%	ASTM D-621	12	3.5	10	9	11	10	5	4	6	5	5	4	4
	24 Hrs. 23^0C 113 kgf			15	5	12	11	13	12	7	6	8	6	6	5	5
	Permanent			8	2.5	7.5	7	8.5	7.5	3.5	3	4.5	3	3	2.5	2.5
	2 Hrs. 150^0C 113 kgf			55	40	52	50	52	50	35	30	43	42	42	40	40
6	Impact strength	J/cm	ASTM D-256	1.4 – 1.5	1.6 – 1.75	1.2 – 1.3	1.0 – 1.1	1.25 – 1.35	1.2 – 1.3	0.7 – 0.8	0.6 – 0.7	0.8 – 0.9	0.9 – 1.0	0.9 – 1.0	0.8 – 0.9	0.85 – 0.95
7	Hardness	Shore D	ASTM D-2240	58 – 62	56 – 62	58 – 62	58 – 63	60 – 65	60 – 65	60 – 65	60 – 65	60 – 65	62 – 66	62 – 66	64 – 68	64 – 68
8	Coefficient of Friction -ASTM-D-1894															
	DynamicP-7 kg/cm^2V-0.5	kg/cm2	ASTM-D-1894	0.04-0.06	0.02-0.03	0.31-0.37	0.5-0.54	0.15-0.20	0.15-0.20	0.12-0.17	0.13-0.18	0.11-0.16	0.11-0.15	0.1-0.14	0.12-0.16	0.11-0.14
	Static P-35 kg/cm^2			0.05-0.08	0.04-0.06	0.01-0.12	0.11-0.13	0.08-0.01	0.08-0.01	0.09-0.11	0.01-0.12	0.08-0.10	0.08-0.10	0.075-0.09	0.08-0.10	0.07-0.09
9	Wear Rate (Max.)	gm/s	ASTM-G-137	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
10	Water Absorption (Max.)	%	ASTM D-570	0	0	0.015	0.013	0.015	0.015	0	0	0	0	0	0	0
11	Continuous Service Temperature	0 C	ASTM-D-648	260	260	260	260	260	260	260	260	260	260	260	260	260
12	Heat Resistance (Max.)	%	ASTM-D-648	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
13	Coefficient of Linear Thermal Expansion– 10^{-6} X	%	ASTM D-696	250 – 275	250 – 275	240 – 265	235 – 255	245 – 270	240 – 265	225 – 250	215 – 240	240 – 265	200 – 225	200 – 225	175 – 200	175 – 200
14	Linear Thermal Expansion (Max.)	%	ASTM D-696	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R
	30 – 150^0 C			1.5	1.5	1.5	1.5	1.5	1	1.5	0.7	1.5	1	1.5	1	1.2	1	1.1	0.9	1.3	1	1.15	0.95	1.15	0.95	1.1	0.9	1.1	0.9
	30 – 200^0 C			2.4	2.3	2.4	2.3	2.3	1.8	2.2	1	2.3	1.8	2.3	1.8	1.9	1.5	1.8	1.4	2	1.7	1.85	1.55	1.85	1.55	1.8	1.5	1.8	1.5
	30 – 250^0 C			3.4	3.6	3.4	3.6	3.3	2.2	3.2	1.4	3.3	2.2	3.3	2.2	2.7	2.4	2.5	2.3	3	2.5	2.55	2.25	2.55	2.25	2.5	2.2	2.5	2.2
15	Dielectric Strength	Kv/mm	149	22 – 24		30 – 35		15 – 16		11 – 12		15 – 16		15 – 16		1 – 2		1 – 2		1 – 2		Conductive		Conductive		Conductive		Conductive	
16	Dimensional stability																												
	Length	%	-D 1710	1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3	
				0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1	

PEEK

PEEK, or poly ether ether ketone, is a remarkable high-performance thermoplastic known for its outstanding mechanical and chemical resistance properties. These properties remain exceptional even at elevated temperatures, making PEEK ideal for demanding applications. PEEK can be processed using conventional methods such as injection moulding, extrusion, and compression moulding. However, due to its high-performance properties, PEEK is significantly more expensive than other thermoplastics.

VICTREX VIRGIN PEEK

- Excellent strength and stiffness.
- High ductility.
- Suitable for sterilization of medical and food contact applications.
- Low co-efficient of friction and higher wear resistance without any kind of lubrication.
- Excellent chemical resistance.

PEEK Tube & Rod Manufacturing Range:

DIA – 10 MM TO 650 MM

PEEK Grades

VICTREX- 450G, 450PF, 450FC30, 450GL30, 450CA30 ETC.

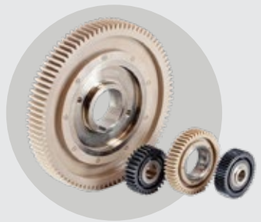
VICTREX VIRGIN PEEK 450G

Heat exchanger seal

Energized spring seal

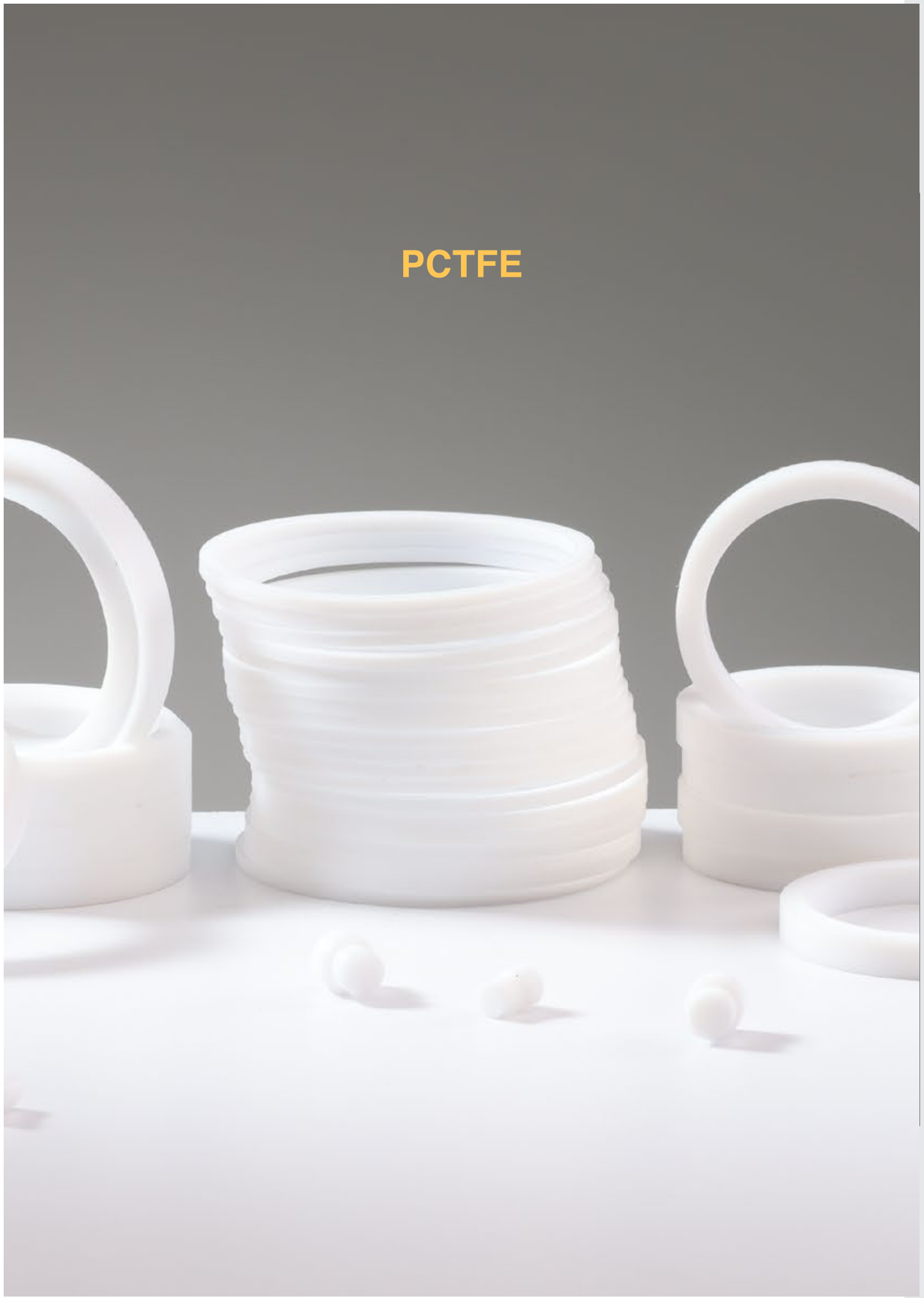
Actuator packing seal

PEEK bush & tube



Automotive transmission

PEEK sheet & rod



PCTFE - NEOFLON

PCTFE, or polychlorotrifluoroethylene, is a high-performance thermoplastic with a unique combination of properties that make it ideal for demanding applications. The presence of both chlorine and fluorine in its molecule contributes to its exceptional performance and good melt-flow processability, making it easy to process into various shapes and forms.

NEOFLON Grades

M-300 SERIES (M-300, M-300H, M-300P, M-400H).

PCTFE - Application

Ball valve seat cryogenic Applications

TEMPERATURE RANGE: **-240*c to +204*c**

Valve

Rods

Seal

PFA

PFA plastic, or perfluoroalkoxy alkane, is a remarkable high-performance polymer renowned for its exceptional properties that make it ideal for a wide range of demanding industrial applications.

Devlon

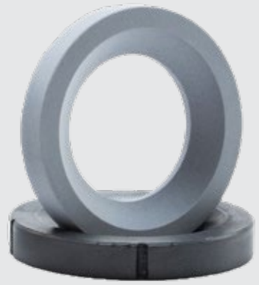
Devlon is a family of high-performance thermoplastics renowned for their exceptional properties and versatility. Devlon is unaffected by most acids, bases, solvents, and fuels, making it suitable for use in harsh chemical environments. By combining high-performance properties with versatility and ease of processing, Devlon materials offer properties that make it suitable for diverse applications. Its exceptional mechanical strength, chemical resistance, thermal stability, and other benefits make it the material of choice for engineers and manufacturers seeking to optimize their products for demanding environments.

DuPont™ Vespel®

VESPEL® is a revolutionary high-performance polyimide resin that stands out for its unique ring-shaped molecular structure containing nitrogen. This innovative structure allows Vespel® to combine the best properties of ceramics, metals, and plastics into one exceptional material, offering unmatched strengths for both performance and cost efficiency.

DuPont™ Vespel® Polyimide Materials

SP-1 –. SP-21 –SP-211 –SP-22 & SP-3 34

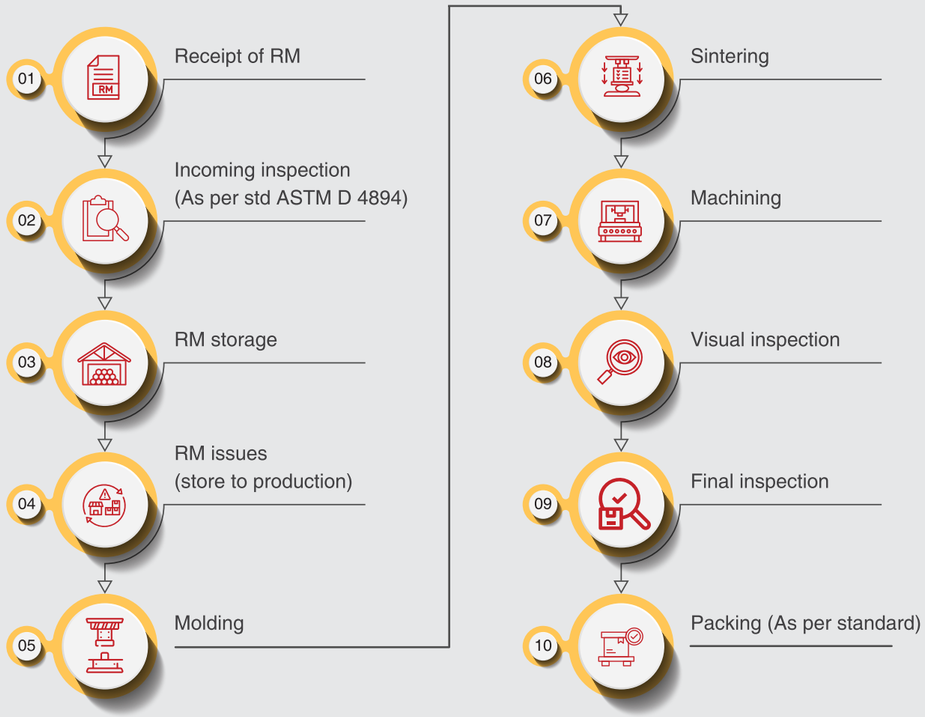


vespel® Ball valve seat

vespel® Ball valve seat

vespel® Ball valve seat

Manufacturing process flow - Engg plastics



Source Our raw material From

DUPONT · 3M · Chemours DUPONT · SOLVAY · GFL Gujarat Fluorochemicals · victrex · James Walker · DAIKIN

Our Customers

TRILLIUM FLOW TECHNOLOGIES · EMERSON · AMPO POYAM VALVES "TECHNICAL DESIGN PARTNER" · CIRCOR · FESTO · FLOWSERVE · JANATICS Pneumatic · hawa valves committed to a safer world · KITZ Group · C.R.I. PUMPS Pumping trust. Worldwide · VELAN · SPIRA POWER Gasket Manufacturing LLC · REDBRIDGE VALVES · DelVal Flow Controls