

Company Introduction

INO Energy Equipment Co., Ltd. is a professional enterprise who specialized in production, processing, sales and services of sealing products. Shanghai Seal-First was established in 2004 and it has advanced and perfect gaskets producing equipments and it has a large number of stocked raw material sourced from domestic and abroad. Over these years we have been unanimously affirmed by our users in the industries of gas and oil, Steel smelting, drilling platform, Oil and gas extraction, paper -making, ship-building, electric power, pharmaceutical and general machinery.

We supply a completed range of sealing products, including the Non-asbestos Gasket, Graphite Gasket, Reinforced PTFE Gasket, PTFE Gasket, GORE-TEX® Production, Spiral Wound Gasket, Ring Joint Gasket, Rubber Gasket, Insulation Gasket Kits, Laminate Gasket, High Temperature Gasket, we can also provide products made of special materials such as Titanium, Monel, Inconel, Hastelloy.

We can also produce customized products under standard and non-standard to meet different customers' requests and ensure our quick and convenient services. Furthermore, we constantly develop new products and striving for perfection in technology, we sincerely welcome customers with our best products and services.

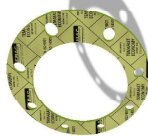


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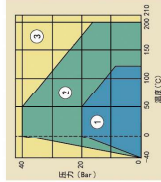
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Non-asbestos Gasket

TC-50



TEMFAST ECONOMY		Colour	Wire insertion
		Yellow	No
Description		The economic version of jointing manufactured from mixture of organic fibres with mixture NBR/SBR rubber binder.	
Range usage		This grade has wide araeusage in all sorts of industries at lower parameters.	
Certification		Germanischer Lloyd, TZW/ TZH, GOST	
Technical data			
Marking according		FA-2-12-0 ASTM F 104	
Max. temperature		°C Peak 210 continual 140	
Max. pressure		Bar 40	
typical parameters of 2 mm thickness jointing			
Density		DIN 28091-2 1.7-2.1	
Compressibility		STM F36 % 12	
Recovery		STM F36 % 50	
Residual stress (175°C)		DIN 52 913 ~Mpa 20	
Gas leakage X2.0		DIN 3535-6/99 ~mg/(m³) 0.1	
Fluid resistance - thickness increase			
Oil IRM 903 (50/150°C)		ASTM F146 % 15	
ASTM Fuel B (50/23°C)		ASTM F146 % 15	
Standard sheet size		1.5 x 1.5 m	
Standard size		1.5 x 3.0 m	
Another sheet sizes are available		upon the customer request.	
tolerance		±2%	
Standard thickness		0.5-5.0mm	
Thickness tolerances		1.0 - 5.0 (± 10 %)	
Surface		All jointings are produced with an antistatic surface on one side	

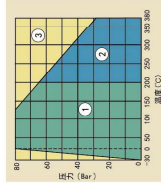


密封产品的压力-温度曲线

TC-58



TEMAFLEX		Colour	Wire insertion
		Green	No
Description		Thegasketing sheets containing mixture of mineral and aramid fibres with NBR binder. The material has very good flexibile.	
Range usage		It is a general purpose material suitable for sealing oil, cooling liquids, nonaggressive gases and basic chemicals.	
Certification		Germanischer Lloyd, GOST	
Technical data			
Marking according		DIN 28091-2 FA-MA-1-0 ASTM F 104	
Max. temperature		°C Peak 380 continual 220	
Max. pressure		Bar 90	
typical parameters of 2 mm thickness jointing			
Density		DIN 28090-2 1.7-2.1	
Compressibility		STM F36 % 9	
Recovery		STM F36 % 45	
Residual stress (175°C)		DIN 52 913 ~Mpa 27	
Gas leakage X2.0		DIN 3535-6/99 ~mg/(m³) 0.07	
Fluid resistance - thickness increase			
Oil IRM 903 (50/150°C)		ASTM F146 % 5	
ASTM Fuel B (50/23°C)		ASTM F146 % 5	
Standard sheet size		1.5 x 1.5 m	
Standard size		1.5 x 3.0 m	
Another sheet sizes are available		upon the customer request.	
tolerance		±2%	
Standard thickness		0.5-5.0mm	
Thickness tolerances		1.0 - 5.0 (± 10 %)	
Surface		All jointings are produced with an antistatic surface on one side	

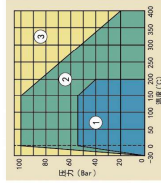


密封产品的压力-温度曲线

TC-30



TEMASIL NEW GENERATION		Colour	Wire insertion
		Blue	Yes
Description		The new generation of high quality material with high performance expressed jointing resistant aramid fiber and high quality nitrile rubber binder. Completely fresh ecological type of sheets suitable for elevated temperatures and aggressive applications, exhibiting excellent gas stability.	
Range usage		Due to its composition of high quality raw materials, this grade is suitable for use under alkaline conditions, with good steam resistance. It also possesses excellent creep resistance and is suitable for application with oils, alkalis, acids medium and refrigerants.	
Certification		Germanischer Lloyd, KTW, BAMA, DVGW, BAMI, TZWMZ71, GOST	
Technical data			
Marking according		DIN 28091-2 FA-MA-1-0 (ST) ASTM F 104	
Max. temperature		°C Peak 400 continual 250 (steam 200)	
Max. pressure		Bar 100	
typical parameters of 2 mm thickness jointing			
Density		DIN 28090-2 1.7-2.1	
Compressibility		STM F36 % 10	
Recovery		STM F36 % 50	
Residual stress (175°C)		DIN 52 913 ~Mpa 30	
Gas leakage X2.0		DIN 3535-6/99 ~mg/(m³) 0.05	
Fluid resistance - thickness increase			
Oil IRM 903 (50/150°C)		ASTM F146 % 3	
ASTM Fuel B (50/23°C)		ASTM F146 % 5	
Standard sheet size		1.5 x 1.5 m	
Standard size		1.5 x 3.0 m	
Another sheet sizes are available		upon the customer request.	
tolerance		±2%	
Standard thickness		0.5-5.0mm	
Thickness tolerances		1.0 - 5.0 (± 10 %)	
Surface		All jointings are produced with an antistatic surface on one side	

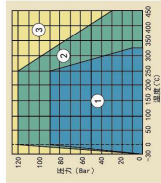


密封产品的压力-温度曲线

TC-33



TEMASIL HT		Colour	Wire insertion
		Light blue	Yes
Description		Superior performance expressed jointing material incorporating a blend of special heat resistant aramid fiber and high quality nitrile rubber binder. Completely fresh ecological type of sheets suitable for elevated temperatures and aggressive applications, exhibiting excellent gas stability.	
Range usage		Due to its composition of high quality raw materials, this grade is suitable for use under alkaline conditions, with good steam resistance. It also possesses excellent creep resistance and is suitable for application with oils, alkalis, acids medium and refrigerants.	
Certification		Germanischer Lloyd, DVGW, BAMI, GOST	
Technical data			
Marking according		DIN 28 091-2 FA-MA-1-0 (ST) ASTM F 104	
Max. temperature		°C Peak 430 continual 250 (steam 250)	
Max. pressure		Bar 120	
typical parameters of 2 mm thickness jointing			
Density		DIN 28090-2 1.7-2.1	
Compressibility		STM F36 % 10	
Recovery		STM F36 % 55	
Residual stress (175°C)		DIN 52 913 ~Mpa 32	
Gas leakage X2.0		DIN 3535-6/99 ~mg/(m³) 0.04	
Fluid resistance - thickness increase			
Oil IRM 903 (50/150°C)		ASTM F146 % 3	
ASTM Fuel B (50/23°C)		ASTM F146 % 5	
Standard sheet size		1.5 x 1.5 m	
Standard size		1.5 x 3.0 m	
Another sheet sizes are available		upon the customer request.	
tolerance		±2%	
Standard thickness		0.5-5.0mm	
Thickness tolerances		1.0 - 5.0 (± 10 %)	
Surface		All jointings are produced with an antistatic surface on one side	

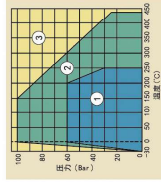


密封产品的压力-温度曲线

TC-45



TEMACARB		Colour	Wire insertion
		Black	Yes
Description		Premium quality carbon fiber reinforced material with a high quality nitrile rubber binder.	
Range usage		A universal grade especially suitable for use under alkaline conditions, with good steam resistance. It also possesses excellent creep resistance and is suitable for application with oils, alkalis, acids medium and refrigerants.	
Certification		GOST	
Technical data			
Marking according		DIN 28091-2 FA-CA-1-1 (ST) ASTM F 104	
Max. temperature		°C Peak 450 continual 250	
Max. pressure		Bar 200	
typical parameters of 2 mm thickness jointing			
Density		DIN 28090-2 1.7-2.1	
Compressibility		STM F36 % 9	
Recovery		STM F36 % 50	
Residual stress (175°C)		DIN 52 913 ~Mpa 32	
Gas leakage X2.0		DIN 3535-6/99 ~mg/(m³) 0.05	
Fluid resistance - thickness increase			
Oil IRM 903 (50/150°C)		ASTM F146 % 3	
ASTM Fuel B (50/23°C)		ASTM F146 % 5	
Standard sheet size		1.5 x 1.5 m	
Standard size		1.5 x 3.0 m	
Another sheet sizes are available		upon the customer request.	
tolerance		±2%	
Standard thickness		0.5-5.0mm	
Thickness tolerances		1.0 - 5.0 (± 10 %)	
Surface		All jointings are produced with an antistatic surface on one side	

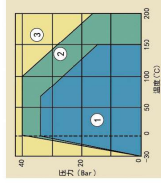


密封产品的压力-温度曲线

TC-48



TEMACID		Colour	Wire insertion
		Grey	No
Description		Premium quality acid jointing gas-let material based on a blend of fibres with a special under system.	
Range usage		A chemical grade material suitable for most acids, alkalis, oils, fuels and refrigerants.	
Certification		GOST	
Technical data			
Marking according		DIN 28091-2 FA-A-42-0 ASTM F 104	
Max. temperature		°C Peak 210 continual 140	
Max. pressure		Bar 40	
typical parameters of 2 mm thickness jointing			
Density		DIN 28090-2 1.7-2.1	
Compressibility		STM F36 % 9	
Recovery		STM F36 % 50	
Residual stress (175°C)		DIN 52 913 ~Mpa 20	
Gas leakage X2.0		DIN 3535-6/99 ~mg/(m³) 0.1	
Fluid resistance - thickness increase			
Oil IRM 903 (50/150°C)		ASTM F146 16% Sulphuric acid (96%)	
ASTM Fuel B (50/23°C)		15% Hydrochloric acid (38%) 7% Nitric acid (50N)	
Standard sheet size		1.5 x 1.5 m	
Standard size		1.5 x 3.0 m	
Another sheet sizes are available		upon the customer request.	
tolerance		±2%	
Standard thickness		0.5-5.0mm	
Thickness tolerances		1.0 - 5.0 (± 10 %)	
Surface		All jointings are produced with an antistatic surface on one side	

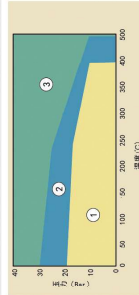


密封产品的压力-温度曲线

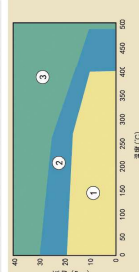
- 1 suitable area (for steam application)
- 2 suitable extended area, technical advice is recommended
- 3 for this area technical consu tation is mandatory



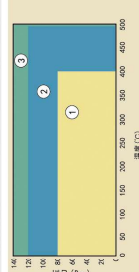
Printing colour	without branding
Description and application	Ecograph S is base sheet made of expanded graphite without any reinforcing insertion. These compressed sheets are also used in manufacturing of Ecograph materials with stainless steel or nickel foil reinforcement. Ecograph S is used as a gasket material or as a layering material for compoflex gaskets and as an insert material for Double Jacketed gaskets. The sheets are excellent for handling and cutting.
Technical properties	
Marking according to DIN 28 091-4	GR-10
Certification	BAM, DVGW, KTW
Sheet Size (m)	1.0 x 1.0
Thickness (mm)	1.0 1.5 2.0 3.0
No. of inserts (Pc)	-
Thickness of insertion (mm)	-
Material of insertion (DIN/ASTM)	without insertion
Max. temperature (°C)	from -200 to +450
Max. pressure (Bar)	4C
Density (g/cm³)	1.0
Compressibility (%)	4C-50
Recovery (%)	1C-15
Residual stress (N/mm²)	> 47
Ash content (%)	≤ 2.0
Chloride content (ppm)	≤ 50
Gas permeability (cm³/min)	<0.30 <0.60 <0.80 <0.85
Spec. leak rate λ (mg/s/m)	<0.05 <0.08 <0.1 <0.15
Gasket factors	
σ VU (N/mm²)	2C
m (DIN)	1.3
σ VU (N/mm²)	160 140 120 100
σ BO at 300°C (N/mm²)	140 120 100 80
ASTM m	2.5
ASTM y (psi)	2000



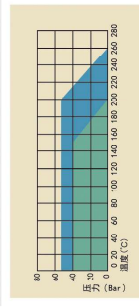
Printing colour	red branding
Description and application	Ecograph FI is a graphite laminate (chloride-free adhesive layer) with one or more thin, flat stainless steel 316 insertion - thickness is 0.05 mm. Ecograph FI is general purpose material for high temperature applications including steam. This material is mainly used in chemical, petrochemical and other industries.
Technical properties	
Marking according to DIN 28 091-4	GR-10-O-1 K-Cr
Certification	BAM, DVGW
Sheet Size (m)	1.0 x 1.0
Thickness (mm)	0.75 1.0 1.5 2.0 3.0
No. of inserts (Pc)	1 1 1 1 1
Thickness of insertion (mm)	0.05
Material of insertion (DIN/ASTM)	1.4401/SS316 (flat)
Max. temperature (°C)	from -200 to +450
Max. pressure (Bar)	140
Density (g/cm³)	1.0
Compressibility (%)	40-50
Recovery (%)	10-15
Residual stress (N/mm²)	≥ 45
Ash content (%)	≤ 2.0
Chloride content (ppm)	≤ 50
Gas permeability (cm³/min)	≤ 0.60
Spec. leak rate λ (mg/s/m)	≤ 0.60
Gasket factors	
σ VU (N/mm²)	10
m (DIN)	1.3
σ VU (N/mm²)	100
σ BO at 300°C (N/mm²)	60
ASTM m	2
ASTM y (psi)	900



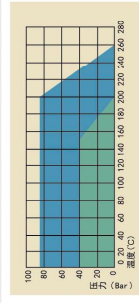
Printing colour	blue branding
Description and application	Ecograph TI is reinforced with a single insertion of tapered 0.1mm thick 3.16 stainless steel for improved blow-out resistance. No adhesive is used to bond the graphite layers. This sheet is used frequently in flange application and other machinery. It is suitable for steam systems, chemical, petrochemical industries, processing industry, etc.
Technical properties	
Marking according to DIN 28 091-4	GR-10-O-1 M-Cr
Certification	BAM, DVGW
Sheet Size (m)	1.5 x 1.5
Thickness (mm)	1.0 1.5 2.0 3.0
No. of inserts (Pc)	1 1 1 1
Thickness of insertion (mm)	0.1
Material of insertion (DIN/ASTM)	1.4401/SS316 (tapered)
Max. temperature (°C)	from -200 to +450
Max. pressure (Bar)	140
Density (g/cm³)	1.0
Compressibility (%)	30-35 30-40
Recovery (%)	15-20
Residual stress (N/mm²)	> 48 > 48 > 45
Ash content (%)	≤ 2.0
Chloride content (ppm)	≤ 50
Gas permeability (cm³/min)	<0.60 <0.60 <0.80 <1.0
Spec. leak rate λ (mg/s/m)	<0.05 <0.06 <0.08 <0.1
Gasket factors	
σ VU (N/mm²)	20
m (DIN)	1.3
σ VU (N/mm²)	180 160 140 120
σ BO at 300°C (N/mm²)	160 140 120 100
ASTM m	3 3 2.5 2.5
ASTM y (psi)	9000 9000 4000 4000



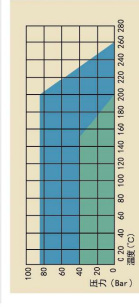
Composition	PTFE, hollow glass microbeads.
Colour	Blue
Properties	Material suitable for nearly all media. Not suitable for molten alkali metals and fluorine compounds. Is high compressibility enables very good adaptability to pressure sensitive connections like ceramic, plastic or glass flanges.
Appropriate industries	Gas supply, chemical industry, petrochemical industry, pharmaceutical industry, food industry, refrigeration and cooling.
Technical data	
Density	DIN 28090-2 g/cm³ 1.5
Compressibility	ASTM F360 % 35
Recovery	ASTM F360 % 40
Tensile strength	ASTM F152 Mpa 14
Stress resistance	DIN 52913 30MPa, 16h, 150 °C
Density (g/cm³)	Mpa 14
Specific leak rate	DIN 3535-6 mg/(s/m) 0.02
pH range	0-14
Operating conditions	
Minimum temperature	°C / °F -200/-328
Maximum temperature	°C / °F 260/500
Pressure	bar/psi 60/870
Standard sheet size	
Standard size	1.5 x 1.5 m
Standard thickness	1.5, 2.0, 3.0mm



Composition	PTFE, Silica
Colour	Fawn
Properties	Material suitable for nearly all media. Not suitable for molten alkali metals and fluorine compounds.
Appropriate industries	General purpose, potable water supply, chemical industry, petrochemical industry, pharmaceutical industry, food industry
Technical data	
Density	DIN 28090-2 g/cm³ 2.1
Compressibility	ASTM F360 % 7
Recovery	ASTM F360 % 45
Tensile strength	ASTM F152 Mpa 14
Stress resistance	DIN 52913 30MPa, 16h, 150 °C
Density (g/cm³)	Mpa 13
Specific leak rate	DIN 3535-6 mg/(s/m) 0.002
pH range	0-14
Operating conditions	
Minimum temperature	°C / °F -200/-328
Maximum temperature	°C / °F 260/500
Pressure	bar/psi 80/1160
Standard sheet size	
Standard size	1.5 x 1.5 m
Standard thickness	1.5, 2.0, 3.0mm



Composition	PTFE, barium sulfate
Colour	White
Properties	Material suitable for nearly all media especially recommended for strong alkalis. Not suitable for molten alkali metals and fluorine compounds.
Appropriate industries	Potable water supply, steam supply, gas supply, chemical industry, petrochemical industry, pharmaceutical industry.
Technical data	
Density	DIN 28090-2 g/cm³ 3.0
Compressibility	ASTM F360 % 6
Recovery	ASTM F360 % 40
Tensile strength	ASTM F152 Mpa 10
Stress resistance	DIN 52913 30MPa, 16h, 150 °C
Density (g/cm³)	Mpa 13
Specific leak rate	DIN 3535-6 mg/(s/m) 0.002
pH range	0-14
Operating conditions	
Minimum temperature	°C / °F -200/-328
Maximum temperature	°C / °F 260/500
Pressure	bar/psi 80/1160
Standard sheet size	
Standard size	1.5 x 1.5 m
Standard thickness	1.5, 2.0, 3.0mm



① suitable subject to chemical compactability ② suitable extended area, technical advice is recommended ③ for this area technical consultation is mandatory

GORE-TEX GR® (Sheet Gasketing)

GORE-TEX GR® Sheet Gasketing is designed to outperform both conventional (filled and skived) PTFE and other ePTFE gasketing in steel piping and equipment.

GORE-TEX GR® Sheet Gasketing has the chemical resistance of conventional PTFE sheet gasketing without the creep and cold flow commonly associated with that material. GORE GR Sheet Gasketing is stronger and more dimensionally stable than other ePTFE gaskets. It is highly conformable to rough or irregular sealing surfaces, and compresses into an extremely tough gasket that creates a tight, long-lasting seal.

GORE-TEX GR® Sheet Gasketing is a versatile, single-solution material for both standard and custom gasketing shapes and sizes.



TYPICAL APPLICATIONS

Steel pipe and equipment flanges requiring standard or complex gasketing shapes and sizes.

Processes utilizing highly-aggressive media in:

- Chemical processing
- Pulp and paper manufacturing
- Mining and minerals
- Semiconductor manufacturing
- Power generation

GORE-TEX® Universal Pipe Gasket (Style 800)

GORE-TEX® Universal Pipe Gasket (Style 800) provides a reliable seal for steel, glass-lined steel and fiber reinforced plastic (FRP) flanges, in the full spectrum of strong acid, alkali, and solvent process media, including the most challenging thermal cycling and elevated temperature applications. This single gasket solution can reduce the process safety and production downtime risks caused by the use of an incorrect gasket material. Highly conformable 100% ePTFE reliably seals irregular surfaces.



TYPICAL APPLICATIONS

Steel, Technical Enamel (Glass-lined Steel) and Fiber Reinforced Plastic (FRP) flanges

Processes utilizing highly-aggressive media in:

- Chemical processing
- Pulp and paper manufacturing
- Mining and minerals
- Semiconductor manufacturing
- Power generation

GORE-TEX® (Joint Sealant)

Joint Sealant, the first form-in-place gasket, was invented by Gore more than 40 years ago. It is a time-tested sealing solution for steel flanges with large diameters, rectangular or irregular shapes, and rough or pitted surfaces. When compressed, this soft, conformable cord forms a thin yet strong seal. It can also seal applications where available bolt loads are low.

Versatile GORE Joint Sealant is standard sealing material for many MRO (Maintenance, Repair and Operations) teams because it seals reliably – and because it's easy and cost-effective to install. For most applications, just peel off the adhesive backing, apply to the surface, and overlap the ends. (For more complex applications, see our installation instructions.)



TYPICAL APPLICATIONS

Large/non-standard steel equipment flanges:

Tank manways, ductwork, housing covers

Processes using highly-aggressive media:

- Chemical processing
- Pulp and paper
- Mining and minerals
- Semiconductor manufacturing
- Power generation

GORE-TEX® (Gasket Tape)

GORE-TEX® gasket tape is a flat, thin, form-in-place gasketing material. It can be used to form a full-face strip-type gasket under 2 inches (50.8 mm) wide for smooth, flat, rectangular sealing surfaces or for narrow sealing surfaces. It easily compresses into an extremely thin profile, and requires only minimal compression to seal. GORE -TEX® gasket tape is an ideal choice when compressed thickness is critical, and perfect for equipment with tight tolerances.

Available in a variety of widths and thickness, this gasketing can be shaped easily and quickly, without pre-cutting, to fit any ring-type or full-face gasket application. GORE -TEX® gasket tape, with self-adhesive backing, can be used anywhere you need a flat, thin, engineered gasket.



GORE-TEX® Series 500

Gasket Tape For Steel Equipment

A spool of **GORE-TEX®** Gasket Tape Series 500 provides an immediate, cost-effective solution to sealing challenges that demand reliable performance and extended durability. This advanced product, with its industry-leading creep resistance, is designed to maximize the operational reliability of large steel-flanged applications, especially those with thermal cycling.

Save time, money, and trouble with this cutting-edge form-in-place product that maximizes operational reliability of large steel pipe and equipment flanges. Delivering dramatically improved creep resistance, the highly compressible tape forms a very tight seal that is long-lasting while also handling the rigors of virtually any chemical process. Unlike traditional large gaskets, this tape fits any shape instantly which eliminates large gasket fabrication and inventory challenges.



TYPICAL APPLICATIONS

Large and/or non-standard steel equipment flanges
Vessel and tank process flanges & manways, large diameter piping, heat exchangers, baffles

• S500-Standard sheet size

Standard Thickness	Standard Width	Standard Length
1/8" (3mm)	3/8" (10mm)	5m
1/4" (6mm)	1/2" (15mm)	10m
	3/4" (20mm)	20m
	1" (25mm)	
	1-1/4" (30mm)	

Processes utilizing highly-aggressive media in:

- Chemical processing
- Pulp and paper
- Mining and minerals
- Semiconductor manufacturing
- Power generation

GORE-TEX® Series 1000

Glass-lined steel equipment is used by chemical processors to deal with aggressive media under demanding conditions. Yet the inherent demands of such systems – high temperatures, alternating system pressures, limited gasket loads and deviation of sealing surfaces – can make it challenging to maintain a tight, lasting seal.

GORE-TEX® Gasket Tape Series 1000 addresses all the challenges of reliably sealing large glass-lined-steel flanges. Made of 100% expanded PTFE (ePTFE), this highly conformable tape is chemically inert, and highly resistant to creep, cold flow and clamp-force loss. Its proprietary barrier core maintains an extra tight seal even at low loads.



TYPICAL APPLICATIONS

Large (≥ DN 600/ASME 24") or non-standard glass-lined steel equipment flanges: Columns, mixer vessels, reactors, storage and receiver tanks

Processes utilizing highly-aggressive media in:

- Chemical processing
- Mining and minerals

GORE-TEX® GFO® Fiber

Plant operators often are not aware that similar looking compression packings do not perform the same, leading to significant hidden costs. While procurement has a tight hold on the upfront packing cost, the greater cost takes place in operation.

Packings with 100% GORE-TEX® GFO® Fiber can provide maintenance engineers with consistently high performance general service packing for wide application and use, including sealing shafts on high-speed pumps, mixers, agitators or any other equipment with rotating or reciprocating shafts. They don't become hard or brittle, are temperature and chemically tolerant and easy to install and remove. Plant operators can be assured that packings with 100% GORE-TEX® GFO® Fiber will consistently deliver the trouble-free performance they need.



Technical Specifications

Temperature Range: -240°C to +288°C (-400°F to +550°F)

Chemical Resistance: Chemically inert, with few exceptions, over the entire 0-14 pH range.

Stability: Able to withstand shaft speeds to 4,300 feet per minute (21.8 m/s).

Certification

The GORE Sealant Technologies Quality Management System is certified in accordance with ISO 9001.

QUALITY ASSURED

Through a global network of authorized braiders, the Seal of Assurance Program ensures that every fiber used to braid the packing is a GORE® GFO® Fiber. Look for the 100% GFO® seal on the box and print right on the packing – it's the only packing that is identified this way!

Technical Information

CETIM EN 16752 Test Results

Cetim has performed testing on packing made of 100% GORE® GFO® Fiber using the EN 16752 « Centrifugal pumps – Test procedure for seal packing ».

Test Protocol

- Ambient temperature
- 50 mm shaft diameter, 1500 & 3000 rpm
- Loading: After 2 hours 1.8 kN, <1.5 kN 2nd & subsequent adjustments to 1.6–1.8 kN
- Test medium: clean water
- Pressure: steady 0.6 MPa

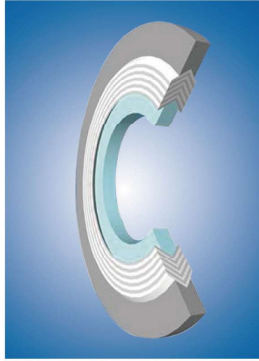
Shaft Leak Rate

After initial break in stabilization, 3000 rpm.

Power Consumption

After initial break in stabilization, 3000 rpm.

Spiral Wound Gasket

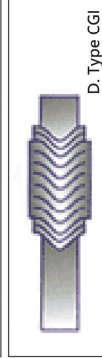
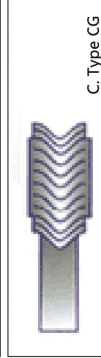
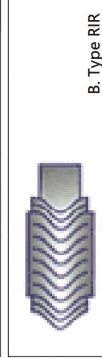
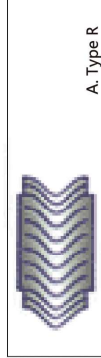


iron and steel smelting, electric power, water treatment, aviation, ship, paper making, pharmaceutical, general machinery supporting industries, etc.

We can process the spiral wound gaskets under all kinds of standards, such as standards of GB, HG, SH, JB/T, ASME, DIN, API, JPI, JIS, etc. We can also design and manufacture the non-standard gasket product according to your special requests.

Spiral wound gasket consists of "V-shape" (or "W-shape") metal tape and nonmetal tape, which are overlapped each other and wound continuously. To fasten the metal tape, both its start point and end point are tack welded. Feature: Wide Scope of acceptable working conditions. Can be used under high temperature, high pressure and ultra-low temperature or vacuum conditions. Change the combination of the gasket materials is to tackle the chemical corrosion problem of diverse media...

Our gasket products are widely used in industries of petrochemical, iron and steel smelting, electric power, water treatment, aviation, ship, paper making, pharmaceutical, general machinery supporting industries, etc.



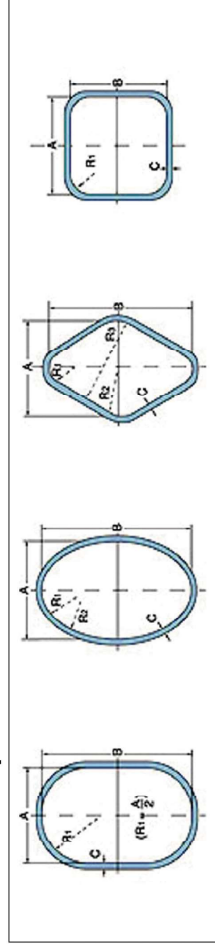
Standard sizes: acc. to EN, ASME/ANSI, BS, DIN, GOST and non standard sizes (dimension from 15 mm to 3200 mm)

Standard fillers: expanded graphite, PTFE, ceramic, mica

Thickness of fillers: from 2,5 mm up to 7,2 mm (standard thickness 4,8 mm)

Standard metals: low carbon steel (paint or zinc plated finish), SS 316/316L, SS 304/304L, SS 321, SS 316Ti, Inconel625/ 825, Monel, and other exotic materials are on demand

Non-standard Spiral Wound Gasket



Ring Joint Gasket

Ring joint Gaskets are designed for high pressure applications. They are available in a variety of forms to suit differing flange formats. Ring joint Gaskets can be used for very high and / or fluctuating pressures (up to 1500 bar) depending on the profile selected. Material selection determines its use at high temperatures (up to 1000 °C) and in aggressive media. Ring joint Gaskets are used above all in the chemical, petrochemical industry, offshore platforms, submarine pipelines and FPSO.

Standard Sizes: ASME B16.20, API 6A, NORSOK L005

Standard metals: soft iron, LC carbon, range of SS, other materials on demand

• Type

Name	Profile
Oval	
Octagonal	
RX	
BX	
Delta	
Lens	

• Material properties

Type	Material	Name	BRINELL	Hardness	ROCKWELL B	low temperature	high temperature
Carbon Steel		Profile	120		58	-40	540
		Soft iron	90		56	-60	500
		304SS	160		33	-250	540
		304LSS	160		33	-250	540
stainless steel		316SS	160		33	-200	815
		316LSS	160		33	-200	815
		410SS	170		36	-40	850
		5Cr-0.5Mo	130		72	-29	650
Special material		321SS	160		33	-200	870
		347SS	160		33	-200	870
		Copper	80		-	-100	315
		Aluminum	35		-	-200	425
		Inconel600/625	150		78	-100	1095
		Inconel600/825	150		78	-100	1095
		Monel 400	150		78	-100	760
		Titanium	215		-	-200	540
		Nickel 200	120		58	-200	760
		Hastelloy B2/B3	230		121	-100	1095
		Hastelloy C276	210		110	-100	1095

Ring Joint Gasket

Ring Joint Gasket

- Size specification

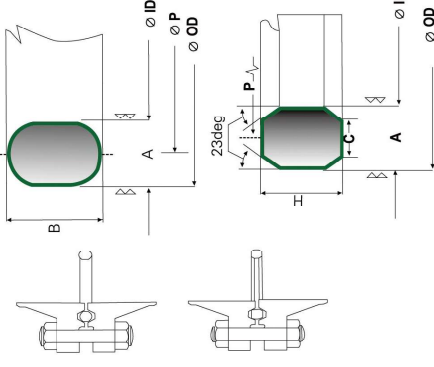
ASME-ANSI B16.5			Range Size/ Class				API 68		
150	300-600	900	1500	2500	300-600	900	2000	3000	5000
1"	1/2"	1/2"	1/2"	1/2"					
	3/4"	3/4"	3/4"	1/2"					
	1"	1"	1"	3/4"			1"	1"	1"
1-1/4"	1-1/4"	1-1/4"	1-1/4"	1"			1-1/4"	1-1/4"	1-1/4"
1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/4"			1-1/2"	1-1/2"	1-1/2"
2"	2"	2"	2"				2"	2"	2"
2-1/2"	2-1/2"	2-1/2"	2-1/2"	2"			2-1/2"	2-1/2"	2-1/2"
3"	3"	3"		2-1/2"					
	3"	3"		3"			3"	3"	
3-1/2"	3-1/2"		3"						3"
4"	4"	4"	4"	4"			4"	4"	3-1/2"
5"	5"	5"		5"			5"	5"	4"
6"	6"	6"	5"	6"			6"	6"	5"
			6"	6"					6"
8"	8"	8"	8"	8"			8"	8"	8"
10"	10"	10"	10"	10"			10"	10"	10"
12"	12"	12"	12"			12"	12"	12"	
14"	14"	14"		12"					
			14"	14"		14"	14"	14"	
16"	16"	16"	16"	16"		16"	16"	16"	
18"	18"	18"	18"	18"		18"	18"	18"	

- **Size specification**

[illegible]

Note: 1. Class 10000 flanges to API 6B are obsolete. Data are for information only.

2. R-30 is for lapped joint only.



Oval Ring Gasket

Octagonal Ring Gasket

Tolerances	mm	inch
A,C=width of ring	+/-0.20	+/-0.008
B,H=height of ring	+1.3,-0.5	+0.05,-0.02
2=average pitch diameter of ring	+/-0.18	+/-0.007
R1=radius in ring	+/-0.5	+/-0.5

Insulating Gasket Kits

The Insulation Kits consist of one full-length insulating sleeve, two insulating washers and two steel washers for each of the bolts in the flange assembly. The purpose of the insulating sleeves is to electrically separate the bolts from each side of the flange, while the insulating washers provide electrical insulation for each of the nuts attached to the bolts. This method of insulation provides the user with a high-reliability solution to complete the electrical insulation of a flanged joint. They are widely used to seal flanges and control stray electric currents in piping at oil, gas, water, refinery, and chemical plants, to increase the effectiveness of cathodic protection systems.

TYPE F

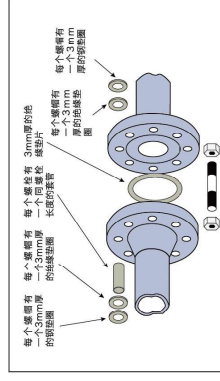
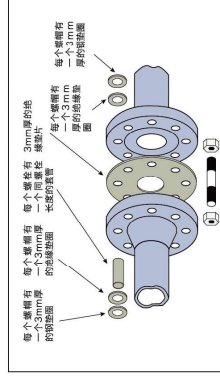
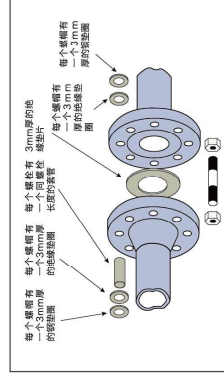
Type F gaskets are made to fit the raised face portion of the flange only. As there are no bolt holes in the F gasket, the inside diameter of the bolt hole circle is slightly smaller than the outside diameter of the gasket, assuring an exact, automatic positioning of the gasket.

TYPE E

Type E is a full-faced gasket with the same outside diameter as the flange and precision cut bolt holes. This design facilitates proper alignment of the gasket during installation and foreign material is prevented from shorting the flange insulation.

TYPE D

Type D gaskets are specifically designed to fit into the ring groove of ring-type-joint flanges. They are manufactured of a medium weave, fabric-reinforced phenolic material and are sized to ANSI and API specifications - available in basic oval as well as octagonal shape. Also available are BX gaskets with pressure ratings to 15,000 PSI.



Laminate Gasket



Laminate gasket is made up from a number of laminate foils of a chosen thickness bonded

Standard sheet sizes can be supplied or material can be converted to components in conjunction with customer drawings and specifications.

The materials available are carbon steel, cadmium-plated steel, stainless steel, aluminum and brass, standard sheets can normally be provided straight from stock.

It is also available as a hybrid sheet that comprises of a solid material with layered foils of a chosen thickness from 0.025mm to 0.1mm. Standard sheet sizes are 1220mm by 610mm.

Product Advantage

- Quick production line adjustment and field repairs
- Reduces assembly times
- No production stoppages
- Dimensional accuracy
- Eliminates grinding and hence the associated costs
- Eliminates need of solid shims inventory
- Compensates for wear and tear (play)



