



SINCE 1973

GRAFOIL[®]
BRAND FLEXIBLE GRAPHITE
NON ASBESTOS PACKINGS
AND
SPIRAL WOUND METALLIC GASKETS

The Ultimate In Fluid Sealing Control



Leak-Proof Engineering (I) Pvt. Ltd.

1 - F, LAXMI INDUSTRIAL ESTATE, NEW LINK ROAD, ANDHERI (WEST), MUMBAI 400 053. INDIA.

FAX: 022- 2636 8429, 2632 0866 PHONE: 022-2636 1737, 2639 0337

E. mail: leakprof@bom5.vsnl.net.in • Website: <http://www.leakproofseals.com>



SINCE 1967

...together we achieve

AN ISO 9001: 2000 COMPANY

TYPE			PRESSURE (MPa)*			LINEAR SPEED M/S	TEMP °C	PH RANGE
			PUMP	PISTON	VALVE			
7101		BRAIDED FLEXIBLE GRAPHITE PACKING REINFORCED COTTON FIBRE	3	25	50	0-20	-200 to 850	0 to 14
7102		BRAIDED FLEXIBLE GRAPHITE PACKING REINFORCED BY COTTON FIBRE + STAINLESS STEEL WIRE	3.5	30	50	0-20	-200 to 850	0 to 14
7103		BRAIDED FLEXIBLE GRAPHITE PACKING REINFORCED BY COTTON FIBRE + INCONEL WIRE	3.5	30	50	0-20	-200 to 850	0 to 14
7104		BRAIDED FLEXIBLE GRAPHITE PACKING REINFORCED BY GLASS FIBRE	3.5	30	50	0-20	-200 to 850	0 to 14
7105		BRAIDED FLEXIBLE GRAPHITE PACKING REINFORCED BY GLASS FIBRE + STAINLESS STEEL WIRE	3.5	30	50	0-20	-200 to 850	0 to 14
7106		FLEXIBLE GRAPHITE WITH FIBERGLASS & INCONEL WIRE REINFORCED BRAIDED PACKING - Non Asbestos	3	25	40	0-20	-200 to 850	0 to 14
7107		BRAIDED FLEXIBLE GRAPHITE PACKING REINFORCED BY POLYSTER FIBRE	3.5	30	50	0-20	-200 to 850	0 to 14
7108		FLEXIBLE GRAPHITE PACKING REINFORCED BY CARBON FIBRE	3.5	30	50	0-20	-200 to 850	0 to 14
7111		FLEXIBLE GRAHITE WITH INCONEL WIRE MESH REINFORCED BRAIDED PACKING - Non Asbestos	3.5	30	50	0-20	-200 to 850	0 to 14
7112		FLEXIBLE GRAPHITE PACKING REINFORCED BY OUT SIDE BRAID INCONEL WIRE COTTON FIBRE Non Asbestos	4	30	50	0-20	-200 to 850	0 to 14
7113		FLEXIBLE GRAPHITE WITH ONLY INCONEL WIRE REINFORCED BRAIDED PACKING - Non Asbestos	4	25	40	0-20	< = 260	0 to 14
7300		PURE PTFE BRAIDED PACKING Non Asbestos	4.5	30	50	0-20	< = 260	0 to 14
7302		PTFE & ARAMID FIBRE IN CORNERS BRAIDED PACKING - Non Asbestos	4	25	40	0-20	< = 260	0 to 14

* 1MPa = 10.19 Kg / cm²

TYPE	IMAGE	DESCRIPTION	PRESSURE (MPa)*			LINEAR SPEED M/S	TEMP °C	PH RANGE
			PUMP	PISTON	VALVE			
7400		PTFE WITH GRAPHITE BRAIDED PACKING - Non Asbestos	4.5	30	50	0-20	< = 260	0 to 14
7402		PTFE WITH GRAPHITE & ARamid FIBRE IN CORNERS BRAIDED PACKING - Non Asbestos	5	25	50	0-10	< = 260	0 to 14
7500		ASBESTOS WITH PTFE DIPPED BRAIDED PACKING	3	20	30	0-15	< = 260	2 to 13
7600		CARBON FIBRE WITH PTFE DIPPED BRAIDED PACKING - Non Asbestos	5	25	50	0-15	< = 260	2 to 14
7700		ARAMID FIBRE WITH PTFE DIPPED BRAIDED PACKING - Non Asbestos	5	20	30	0-20	-100 to 250	2 to 13
8100		ELASTIC EXPANDED PTFE SEALING TAPES	5	20	30	0-20	< = 260	0 to 14

Specifications Of Type 7101/7102/7103/7104/7105/7106/7107/7108/7111/711 2/7113

The sealing packings braided by technology of braiding around a core (or cores) or multiple sleeve braid etc. with 1000 flexible graphite cords, have more perfect end safe properties on sealing. They are the best composite parts for solving sealing problem. In addition, according to conditions of different corrosive circumstances and customer's demands, the packings can be treated with inhibitors of corrosion to make their anticorrosive property better.

These products are almost suitable to all media, such as: hot water, steam, oils, heat-exchanging liquids, acids, alkalis, ammonia, hydrogen, organic solvents, hydrocarbons, low temperature liquids, etc. They can be applied to the equipments and devices in petroleum, electricity generation, chemical, pharmaceutical and light industries.

Cross-section in mm	3	4	5	6	8	10	11	12	13	14	15	16	17	18	19	20	22	24	25
Length in meter per kg	90	50	32	23	17	13	8.3	7	5.8	4.9	4.5	4	3.5	2.7	2.5	2.2	1.9	1.7	1.5
Cross-section in inch	1/8	5/32	3/16	1/4		5/16	3/8	7/16	1/2		9/16		5/8	11/16	3/4	13/16	7/8	15/16	1
Length in feet per pound	115	75	50	30		20	14	10	8		6		5	4	3.8	3.4	2.8	2.5	2.2

Specifications Of Type 7300/7302

Braided PTFE packings s are made of pure PTFE yarn through braiding. Because PTFE has characteristics of excellent anticorrosion, good self-lubrication and non-sticking, therefore, braided PTFE packings possess not only good flexibility and resilience but also very excellent anticorrosive property. They almost can resist all types of chemical media.

These packings are applied to sealing of flanges, valves and pumps for equipments and devices of petroleum, chemical engineering, chemical fertilizer, chemical fibre, foodstuff, pharmaceutical and brewing industries.

Cross-section in mm	3	4	5	6	8	10	11	12	14	16	18	20	22	25
Length in meter per kg	95	54	34	24	13	9	7.5	6.3	4.6	3.5	2.8	2.3	2.0	1.5
Cross-section in inch	1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1
Length in feet per pound	125	80	57	32	20	15	11	8.4	6.6	5.3	4.4	3.9	2.8	2.2

Specifications Of Type 7400/7402

These products are made by combining PTFE with graphite. Because in this kind of composite material, both PTFE and graphite have good self-lubrication property, so the products have very low friction factor and good self-lubrication property too. Thus, axles of machinery will not be scratched and the cost for changing axle sleeves will be decreased to a great extent. Owing to good heat conductivity of graphite, working temperature of packings can be increased, hence the working life will be longer. Furthermore, they almost suit to all of chemical media.

These packings are widely applied to sealing at operating places where contamination is not permitted, for example, for sealing of pumps, valves, flanges in equipment of foodstuff, pharmaceutical, wine-making, petroleum, chemical, power, paper making, printing and dyeing industries.

Cross-section in mm	3	4	5	6	8	10	11	12	14	16	18	20	22	25
Length in meter per kg	70	39	25	17	10	6.7	5.5	4.6	3.4	2.6	2.0	1.6	1.3	1.0
Cross-section in inch	1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1
Length in feet per pound	93	58	36	23	15	11	8	6.1	4.8	3.9	3.2	2.7	2	1.5

Specifications Of Type 7500

The product is made of high quality asbestos dipped in PTFE emulsion, through proper braiding process. Owing to good self-lubrication and anticorrosive properties of PTFE, they make the dipped products have more better of antiwear, anticorrosive and sealing effect.

These packings are applied to sealing of pumps, valves, flanges of various media.

Cross-section in mm	3	4	5	6	8	10	11	12	14	16	18	20	22	25
Length in meter per kg	65	40	27	17	10	7.5	5.5	4.5	3.5	2.8	2.2	1.8	1.4	1.1
Cross-section in inch	1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	11/16	5/8	11/16	3/4	7/8	1
Length in feet per pound	85	60	41	28	15	11	8.3	6.1	5.2	4.1	3.3	2.9	2.1	1.6

Specifications Of Type 7600

The product is made from high quality carbon fibre pre-dipped with PTFE emulsion, then through special braiding process to form a square cross-section. Because carbon fibre has quite high strength and good heat conductivity and PTFE makes the packings have very good self-lubrication property, thus the product possesses properties of fine anti-chemical corrosion, self-lubrication and heat conductivity, then they will not damage pump shafts and have long working life. They are suitable for almost all corrosive media, organic solvents and mainly used for centrifugal pumps, plunger pumps, mixers and valves.

Cross-section in mm	3	4	5	6	8	10	11	12	14	16	18	20	22	25
Length in meter per kg	75	45	28	20	12	7.5	5.9	4.9	3.9	3.0	2.4	1.9	1.7	1.3
Cross-section in inch	1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1
Length in feet per pound	100	65	45	25	16	12	8.5	6.5	5.5	4.5	3.8	3.2	2.4	1.9

Specifications Of Type 7700

The packings are made from braiding of aromatic polyamide yarn (Kevlar), which is first dipped with PTFE emulsion then treated with lubricant and inhibitor of corrosion, finally braided to form square cross-section. Because Kevlar yarn has excellent properties with very high strength and module (It is called artificial steel wire.) So compared with other kinds of braided packing, they can resist more severe media and higher pressure. They can be installed separately from other kinds of packings as well as combined with others to form packing sets of different characteristics to be used as end rings.

This kind of packing is mainly used as substitute of asbestos in pump system. Not only it protects environment but also its property is better than asbestos. Even if under very bad conditions where ordinary asbestos packings can't provide satisfied service effect, this kind of packings can do. In addition, its working life is very long, sealing effect more better and it is often used at bad conditions, such as: water pumps at mortar site, in mine, pulp factory and power plant.

Cross-section in mm	3	4	5	6	8	10	11	12	14	16	18	20	22	25
Length in meter per kg	50	35	25	15	10	7	5.3	4	3.6	2.8	2.3	1.8	1.4	1.1
Cross-section in inch	1/8	5/32	3/16	1/4	6/16	3/8	7/16	1/2	9/16	5/8	1/16	3/4	7/8	1
Length in feet per pound	75	55	38	22	15	11	8	6	5.5	4.2	3.5	2.8	2.1	1.6

Specifications Of Type 8100

This is a very novel sealing material made of pure PTFE through a unique process, therefore, it retains all excellent properties of PTFE and has valuable characteristics, such as: very good flexibility, high compressibility and resilience, creep-resisting and very high tensile strength, etc. This product is an ideal sealing material applied at the positions of intermediate and low temperature.

Spiral Wound Metallic Gaskets For Flange/Gland Sealing

Construction

Preformed V or U shaped Continuous metal stripes and filler material like PTFE/Grafoil, both wound spirally from inside to outside under constant stress. The MOC & Size to be selected to suit working condition.

Standard Materials

Filler : Grafoil - 600° C
 : PTFE - 250° C (max)
 : Mill Board - 800° C (max)

Metal Strip : SS 304 / SS 304 L
 (Standard) : SS 316 / SS 316 L

Specials : Inconel, Monel
 Titanium, SS 321

Inner / Outer Ring : Carbon steel
 (Standard) : SS 304 / SS 304 L
 : SS 316 / SS 316 L

Specials : Monel, Titanium, Inconel

Sizes

Thickness : 0.125" ± 0.005" - 3.2mm ± 0.10
 (Actual) : 0.175" ± 0.055" - 4.5mm ± 0.13

Diameter : 10mm to 1600mm

Gaskets as per API 601

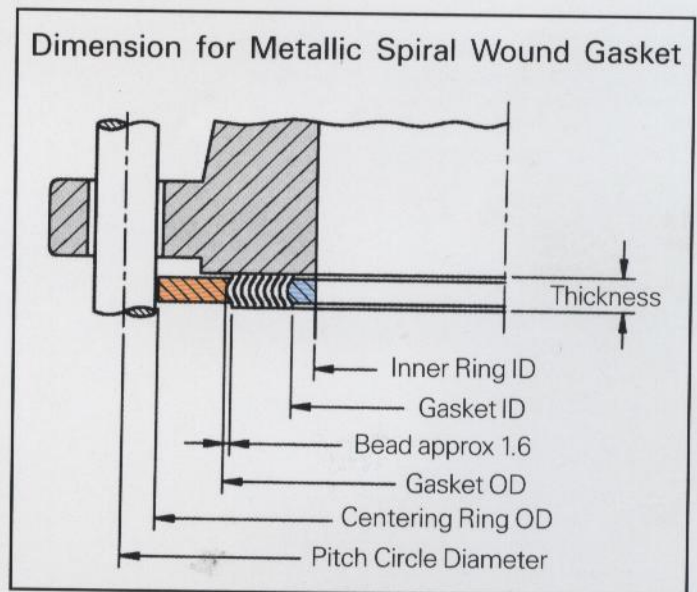
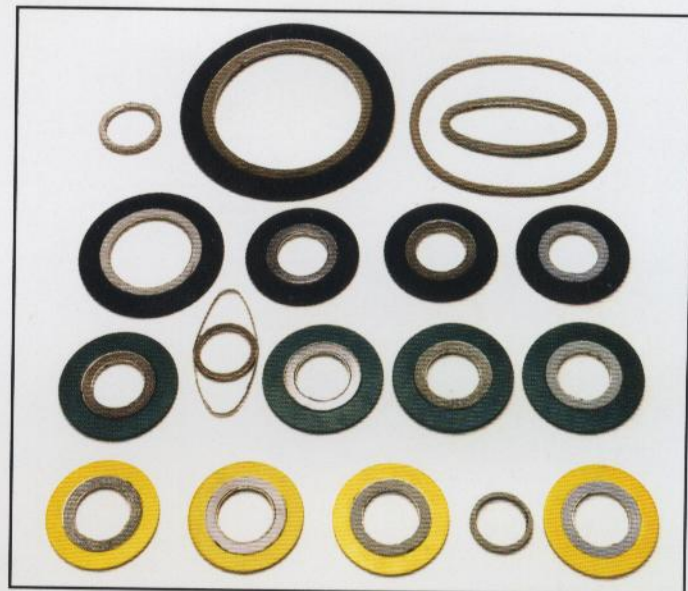
Gaskets as per above specification & thickness 4.5mm or 3.2mm are available to suit ANSI B - 16.5 flanges.

Applications

Offshore, Petrochemicals, Refineries, Chemical Plants, Fertilizers, Nuclear power plants, Thermal power stations, Diesel engines, Heat exchangers, Navy, Pumps, Valves, Compressors, Paper & Pulp.

It is important to consider the tolerances on the dimensions of the gasket before it is installed.

	Gasket	Centering ring
Outside dia	± 0.4 mm	- 0.4 mm
Inside dia	± 0.4 mm	± 0.4 mm
Thickness	+ 0.25 mm - 0.00 mm	+ 0.25 mm - 0.10 mm



Ordering Information

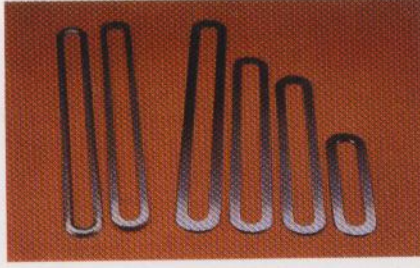
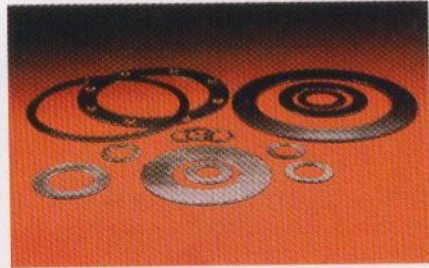
1. Nominal pipe size (NPS)
2. Pressure rating
3. Operating temperature
4. Gasket standard specification
5. Winding material (Fillers / metal)
6. Outer ring material
7. Inner ring material
8. Flange specifications

a fluid sealing product designed to meet your needs

GRAFOIL®



SINCE 1973



OPERATING LIMITS

Temperature	-200°C to 3650°C
Pressure	up to 10,000 psi
Chemical	pH 0-14
Vacuum	28" Hg.

Most conventional sealing products have properties that limit their use, they fail prematurely in hostile environments Just a brief spell of service, and some gaskets and packing look much the worse for wear; corroded; deformed, brittle and degraded. In short, a total write-off. But why?

- Because the material isn't chemically resistant—hence corrosion.
- Because the material isn't adequately resistant to pressure—hence deformation.
- Because the binders in the gasket material decompose and harden—hence embrittlement.
- Because the material undergoes changes over a period of time—hence degradation.

The simple fact is:

You can't effect a good sealing out of bad material

GRAFOIL is pure natural graphite. No fillers and no binders, nothing to leach out or harden. Grafoil gaskets and gland packing therefore, last indefinitely in virtually any fluid sealing application. What's more, it's free from corrosion, flow, embrittlement and ageing. This means that gaskets and

gland packing made from GRAFOIL can perform successfully even under extreme conditions.

- They withstand temperatures from -200°C to 1850°C (or as high as 3000°C in the absence of oxygen).
- They're resistant to nearly all aggressive media, such as highly concentrated acids, solvents and hot oils.
- They're resilient across the entire temperature range for any length of time.
- They're not susceptible to cold or hot flow at upto the highest permitted surface pressure.
- They're unaffected by radiation and are recommended for use in nuclear power stations.
- They're permitted for use in conjunction with oxygen.
- They're physiologically inert.
- Together with the material's ideal compression/resilience behaviour, these properties enable the gaskets to be employed even for most difficult applications:
- Completely unaffected by fatigue, the gaskets cope perfectly with changes in stress due to frequent hot/cold cycles, as well as with pressure fluctuations and vibration.
- Flange distortions are reliably compensated for.
- Large or complicated gaskets can be simply assembled from segments; the butt joints are totally impermeable.

ADVANTAGES

One Material Shaped To Your Fluid Sealing Needs.

Grafoil is available in a variety of forms for versatile maintenance and OEM applications.

- as Ribbon Packing Tape for making endless packing rings 'in situ' within the stuffing box, by compression under gland pressure only. To fill up any stuffing box of any valve or pump, any size and in any service.
- as endless or split gland packing rings and self sealing rings.
- as cut gaskets to suit specific requirements of pipe flange gaskets, bonnet gaskets, sight gauge glass gaskets etc.
- as self adhesive gasket tape for easy handlay gaskets for flanges, pressure vessels, heat exchangers etc.
- as pipe thread sealants.

BENEFITS

Maximum Sealability
Absolute Reliability
No Fluid Losses
Negligible Downtime
Extended Equipment Life
Enhanced Plant Safety
Long Service Life
Minimal Maintenance

the surest approach to zero leakage **GRAFOIL®** Gaskets & Gland Packing