EN

SETTING COMPRESSION PACKINGS

packings for valves and pumps

GLOBAL SEALING SOLUTIONS

Carrara, high technology packings

Carrara is among the leading manufacturers of packing and sealing systems for pumps and valves for all industrial applications. Thanks to the use of high quality yarns and special techniques developed by its R&D division, Carrara packings can offer high performance with an excellent quality-price ratio.

Not only packings, but also sealing systems

Carrara sealing systems guarantee excellent sealing and emission control and can work at high pressures and speeds with any chemicals, reducing wear on shafts and bushings, and minimising maintenance.

Value added performance

- Excellent sealing
- Emission control
- Resistant to high temperatures and speeds
- Low shaft and bushing wear
- Reduced maintenance

Table of contents

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE

B1204
DINAWHITE

B1204. This is a packing specifically for paper mills, made from a special composite yarn with a high breaking strength and very low friction coefficient to guarantee high performance over time.

RECOMMENDED USE

This packing is specifically for pumps, agitators and mixers in paper mills. It is also recommended for all dynamic services related to low-temperature fluids.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					1 ÷ 14	+100	+212
	50	750	15	3000			

GF4770
G4 GORE

GF4770. This is a packing made from genuine GORE G4 yarn. Silicone-free GORE GFO can be used for services that do not required lubrication.

RECOMMENDED USE

This packing is recommended for services on valves and piston pumps. It is suitable for API 641 services. It is not suitable for use with oxidising fluids.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7500	1	200	0 ÷ 14	-200/+280	-330/+540
	200	3000	2	400			
	80	1200	10	2000			

GF7700
GFO GORE

GF7700. This is a packing made from genuine GFO GORE yarn. The words 100% GFO are printed on the packing to guarantee the authenticity of the product.

RECOMMENDED USE

This packing is recommended for all dynamic applications that require resistance and flexibility at the same time. It is not suitable for use with strong oxidants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300	4500	1,5	300	0 ÷ 14	-200/+280	-330/+540
	200	3000	2	400			
	50	750	25	5000			

GR80SGR
EVO

GR80SGR. This is a packing made from pure mineral graphite with a special metal reinforcement. This packing is TA LUFT VDI2440 certified and is impregnated with a special graphite compound enriched with an inorganic corrosion inhibitor.

RECOMMENDED USE

This packing is for industrial valve applications in high-pressure and high-temperature services in power stations, refineries and petrochemical plants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7500	1	200	0 ÷ 14	-100/+600	-150/+1100
	100	1500	1,5	300			

*With weak oxidants and hot air ** With steam
*** Not compatible with oxidants

GR80SG
FLEXIBLE GRAPHITE HP

GR80SG. This is a packing made from expanded pure mineral graphite. It is impregnated with a special graphite compound enriched with an inorganic corrosion inhibitor.

RECOMMENDED USE

This packing can be used in industrial valve applications. For services above 100 bar and high temperatures, GR80SG must be used for Middling Rings together with the GR80SGR or GR8622.reinforced Top & Bottom Rings.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	30⚠	4500	1	200	0 ÷ 14	-200/+450* -200/+650**	-330/+840* -330+1200**
	20	300	2	400			
	40	600	25	5000			

*With weak oxidants and hot air ** With steam
*** Not compatible with oxidants
⚠ Can only be used above 100 bar if assisted by anti-extrusion rings.

GR8622
API 622 APPROVED

GR8622. This is a packing made from very pure expanded mineral graphite with special reinforcement. It is impregnated with a corrosion inhibitor and solid lubricants and is API 622 and EN14772 Section 6.7 low-emission approved.

RECOMMENDED USE

GR8622 packing is specifically for low-emission service valves in refineries, petrochemical plants and gas plants. GR8622 can be used for any valve service that is compatible with graphite.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7500	2	400	0 ÷ 14	-200/+450* +650**	-330/+840* +1200**
	100	1500	1,5	300			

*With weak oxidants and hot air ** With steam
***Not compatible with oxidants

CARRARA GLOBAL SEALING SOLUTIONS

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE

GR8807
INCOBRAID®

GR8807 INCOBRAID ®. This is a special packing made from long-fibre PAN graphite reinforced with micrometric discontinuous metal filaments. The special impregnation is done in three phases: on the individual yarn, during braiding and on the packing body. The mix is enriched with an inorganic corrosion inhibitor.

RECOMMENDED USE

This packing is for industrial valves in high-pressure and high-temperature services in power stations, refineries and petrochemical plants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300	4500	1	200	0 ÷ 14	-100/+450* +650**	-150/+840* +1200**
	80	1200	1,5	300			

*With weak oxidants and hot air ** With steam
***Not compatible with oxidants

GR8888
SUPER GRAPHITE

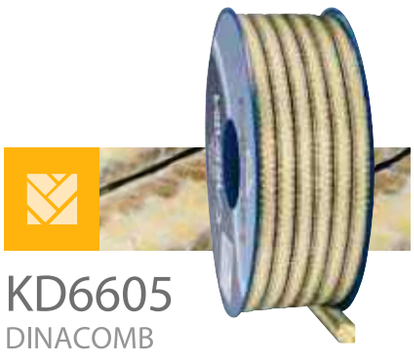
GR8888. The is a packing made from very pure (C > 99%) long-fibre RAYON graphite. This packing is impregnated with a special graphite compound enriched with an inorganic corrosion inhibitor.

RECOMMENDED USE

This packing is for industrial valve and pump applications in high-pressure and high-temperature services in power stations, refineries and petrochemical plants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	200	3000	1	200	0 ÷ 14	-100/+450* +650**	-150/+840* +1200**
	20	300	3	600			
	40	600	30	6000			

*With weak oxidants and hot air ** With steam
*** Not compatible with oxidants



KD6605
DINACOMB

KD6605. This is a special packing made from long-fibre aramid yarn with PBI yarn at the edges. It is impregnated with PTFE and special compounds in three phases. The friction coefficient of PBI is much lower than that of aramid yarn to maintain the pump shaft and bearings intact.

RECOMMENDED USE

KD6605 is an innovative packing recommended for dynamic applications with the very abrasive fluids found in paper mills, sugar factories or cement factories.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					3 ÷ 12	-100/+250	-150/+480
	80	1200	2	400			
	30	450	20	4000			

N1704
SUPER HP

N1704. This is a special packing made from high-toughness fibre with good mechanical and thermal properties, better than those of aramid fibre. It offers better performance on piston and centrifugal pumps where high mechanical resistance is required.

RECOMMENDED USE

N1704 is a packing specifically for slurry pumps. It can be used in all dynamic applications with a U13 pH range.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					1 ÷ 13	+280	+540
	500	7250	5	1000			
	30	450	20	4000			

N1706
DINACOMB EVO

N1706. This is a packing made from new-generation technical yarn and special lubricants that guarantee excellent performance in dynamic applications with particulate-rich fluids (slurry).

RECOMMENDED USE

N1706 is specifically for reciprocating and centrifugal pumps, mixers, augers, dryers and refiners.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					1 ÷ 13	+ 260	+500
	500	7250	3.5	700			
	25	375	15	3000			

SQ5000
ePTFE WHITE GRAPHITE

SQ5000. This is a packing made from pure white PTFE yarn loaded with a compound to improve its heat dispersion coefficient. SQ5000 is an FDA packing.

RECOMMENDED USE

This packing is recommended for the pharmaceutical and food industries when there is a requirement for an FDA approved packing that is more resistant than the traditional PTFE packings.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					0 ÷ 14	-100/+280	-148/+540
	30	450	2	400			
	20	300	15	3000			

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE

PB5000K
DINACOMB

PB5000K. This is a packing made from discontinuous PBI and aramide yarn with a special impregnation to further reduce its already low friction coefficient.

RECOMMENDED USE

PB5000K is a specialised packing for mixer and agitator applications. It can also be used in all dynamic applications.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7250	3.5	700	2 ÷ 12	+260	+500
	20	300	15	3000			

GF4600KS
G4 GORE ARAMID

GF4600KS. This is a braid made from pure GORE G4 yarn with aramid yarn at the edges. The G4 yarn is composed of ePTFE with encapsulated graphite. GF4600KS does not contain any lubricant and offers great resistance to extrusion and wear thanks to its ultra-dense body.

RECOMMENDED USE

GF4600KS is a packing specifically for high-pressure reciprocating pumps. It is suitable for all industrial fluids with a pH range from 3 to 12.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7500	3	600	3 ÷ 12	-100/+250	-150/+480
	50	750	25	5000			

C8100

C8100. This is a pure long-fibre PAN carbon packing. Each yarn is twisted and impregnated to ensure that the packing is very flexible.

RECOMMENDED USE

This packing is specifically for applications on boiler feed pumps and industrial pumps.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	100	1500	1,5	300	2 ÷ 12	-60/+500	-80/+940
	40	600	25	5000			

C8104/L

C8104L. This is a special packing made form multifilament PAN carbon fibre. It is impregnated with a special mixture of PTFE enriched with very pure powdered graphite.

RECOMMENDED USE

This packing is specifically for applications on industrial service pumps.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	210	3150	1,5	300			
	100	1500	2	400	1 ÷ 13	-60/+280	-80/+540
	50	750	25	5000			

C8200

C8200. This is a packing made from pre-oxidised multifilament PAN. This packing is impregnated with a special graphite compound enriched with an inorganic corrosion inhibitor. It is also available in the C8300/R version with metal reinforcement.

RECOMMENDED USE

This packing is for general services on industrial valves and pumps (C8200 style only). It is not compatible with oxidising fluids.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	200	3000	1	200			
	100	1500	2	600	2 ÷ 12	-50/+500*	-60/+940*
	40	600	20	6000			

* Short exposure to peak temperature

INCOBRAID 8207®

C8207 INCOBRAID ®. This is a special packing made from long-fibre PAN graphite reinforced with micrometric discontinuous metal filaments. The special impregnation is done in three phases: on the individual yarn, during braiding and on the packing body. The mix is enriched with an inorganic corrosion inhibitor.

RECOMMENDED USE

This packing is for industrial valves in high-pressure and high-temperature services in power stations, refineries and petrochemical plants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7250	3.5	700	1 ÷ 13	-50/+500	-60/+940
	25	375	15	3000			

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE

GF7600/K

GFO GORE ARAMID

GF7600K. This is a packing made from GORE® GFO® yarn with aramid yarn at the edges to increase its mechanical resistance.

RECOMMENDED USE

This packing is specifically for applications on piston pumps, but it is suitable for all dynamic applications with industrial fluids except for strong oxidants. It is also available in the GL7600K and GL7676 styles with a striped design.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	250		3		3 ÷ 12	-100/+250	-150/+480
	50		25				

GF7676

GFO GORE ARAMID ZEBRA

GF7676K. This is a packing made from GORE GFO yarn and aramid yarn with a striped design.

RECOMMENDED USE

This packing is specifically for applications on piston pumps, but it is suitable for all dynamic applications with industrial fluids except for strong oxidants. It is also available in the GL7676 version.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	250		3		3 ÷ 12	-100/+250	-150/+480
	50		25				

GL7000

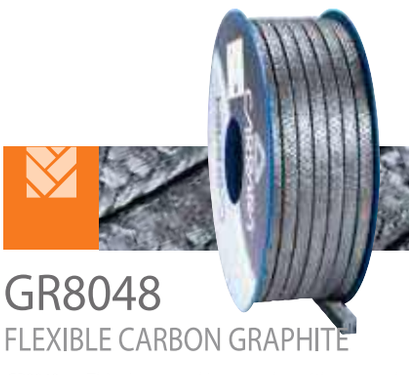
egPTFE

GL7000. This is a packing made from expanded PTFE yarn loaded with graphite and lubricated with silicone. It offers excellent reliability and performance.

RECOMMENDED USE

This packing is recommended for dynamic applications, It is not suitable for use with oxidising fluids.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	200	3000	2	400	0 ÷ 14	-200/+280	-330/+540
	50	750	25	5000			



GR8048

FLEXIBLE CARBON GRAPHITE

GR8048. This is a packing made with expanded pure mineral graphite in the core and long-fibre PAN graphite at the edges. This packing is impregnated with a special graphite compound enriched with an inorganic corrosion inhibitor.

RECOMMENDED USE

This packing is for industrial valve and pump applications in high-pressure and high-temperature services in power stations, refineries and petrochemical plants with non-oxidising fluids.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300	4500	1,5	300	0 ÷ 14	-100/+450 +650**	-148/+450* +1200**
	20	300	2	400			
	40	600	25	5000			

*With weak oxidants and hot air ** With steam
***Not compatible with oxidants

GR8800

CARBON SPECIAL

GR8800. This is a packing made from pure long-fibre multifilament PAN graphite. It is specially impregnated in three phases with a mixture enriched with an inorganic corrosion inhibitor. It is also available in the GR8800R version reinforced with a continuous metal filament.

RECOMMENDED USE

This packing is for industrial valve and pump applications (GR8800 style only) in high-pressure and high-temperature services in power stations, refineries and petrochemical plants. It is not compatible with oxidising fluids.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300	4500	1	200	0 ÷ 14	-100/+450 +650**	-150/+840* +1200**
	20	300	2	400			
	40	600	25	5000			

*With weak oxidants and hot air ** With steam
***Not compatible with oxidantsi

K6600/C

ARAMID SILICON FREE

K6600. This is a packing made from continuous aramid yarn. Each yarn is impregnated with PTFE dispersion and silicone. It is also available in the version without silicone K6600/C .

RECOMMENDED USE

This continuous aramid yarn packing is recommended for strongly abrasive dynamic applications that require the maximum resistance. It is available in the KD6604A version for the glass industry.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	100	1500	3	600	3 ÷ 12	-100/+280	-150/+540
	50	750	15	3000			

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE

KD6604
ARAMID SPECIAL

KD6604. This is a packing made from long-fibre aramid yarn. It is impregnated with PTFE and lubricants in three phases: on the individual yarn, during braiding and on the packing body.

RECOMMENDED USE

This packing is recommended for dynamic applications with abrasive fluids and on driers. It is excellent for water sampling pumps. It is also available in the KD6104 style.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					3 ÷ 12	-100/+250	-150/+480
	80	1200	2	400			
	30	450	20	4000			

N1304
PHENOLIC PTFE

N1304. This is a packing made from phenolic yarn, which has a mechanical resistance and cutting resistance similar to that of aramid yarn, but with a much lower friction coefficient. The packing is impregnated with PTFE and inert lubricants.

RECOMMENDED USE

N1304 is recommended for dynamic applications that require a strong packing with better chemical resistance than that offered by aramid yarn.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					1 ÷ 13	+260	+520
	60	900	2	400			
	25	375	15	3000			

N2609
CARBON PREOX

N2609. N2609 is a packing for general use at a very low price. It is made from a composite synthetic fibre with carbon at an intermediate stage of pre-oxidisation. It is impregnated with graphite and a silicone-free high-temperature lubricant.

RECOMMENDED USE

N2609 is a packing for general use.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	60	900	1	200			
	40	600	3	600	4 ÷ 10	-50/+250	-60/+480
	20	300	10	2000			

N3404
SYNTHETIC

N3404. This packing is made from synthetic yarns chosen to meet the demands of a general purpose seal. N3404 is impregnated with PTFE and inert lubricants. It is also available in the N2609 graphite-filled version.

RECOMMENDED USE

This packing is for general use in dynamic services. It is also available in the N3104 and N3404/SS versions specifically for manholes in tank lorries.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					2 ÷ 12	-100/+250	-150/+480
	80	1200	2	400			
	50	750	15	3000			

PA3604
META ARAMID PTFE

PA3604. This is a packing made 100% with continuous meta-aramid yarn. This meta-aramid packing has a lower friction coefficient than para-aramid, but with the same resistance to cutting and abrasion.

RECOMMENDED USE

PA3604 packing is specifically for dynamic applications with abrasive fluids that are compatible with meta-aramid.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					4 ÷ 10	-50/+250	-60/+480
	80	1200	2	400			
	20	300	15	3000			

PT5504/S
PTFE FDA

PT5504S. This is a packing made from pure GORE PTFE yarn. It is available in the PT5504L lubricated style, the PT5504AL type for food and pharmaceutical services and the PT55000X type for oxygen services. These products are FDA approved.

RECOMMENDED USE

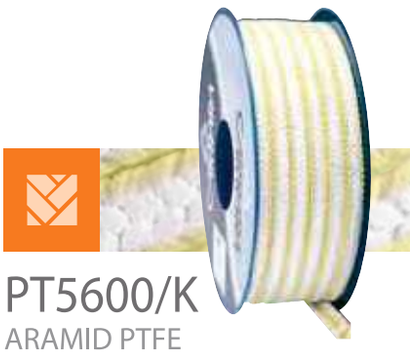
PTFE packings have a wide range of uses in both static and dynamic applications. It is also available in PL5500S, PL5500L and PL5500AL versions.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7500	1	200			
	150	2250	2	400	0 ÷ 14	-200/+280	-330/+540

CARRARA® GLOBAL SEALING SOLUTIONS

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE



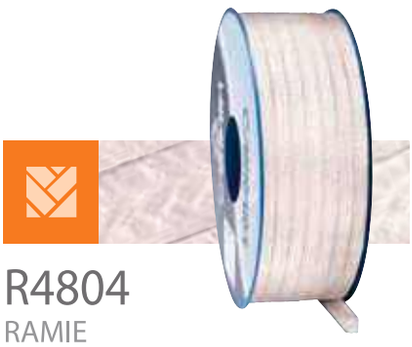
PT5600/K
ARAMID PTFE

PT5600K. This packing is made from pure GORE PTFE yarn with aramid yarn at the edges to improve its resistance in high-pressure services and on driers.

RECOMMENDED USE

PT5600K is suitable for pumps in the food and chemical industries. It is recommended for driers, agitators and mixers, and it can also be used on valves.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	500	7500	1	200			
	300	4500	3	600	3 ÷ 12	-200/+280	-330/+540
	150	2250	10	2000			



R4804
RAMIE

R4804. This is a packing made from ramie yarn impregnated with PTFE and silicone-free lubricants.

RECOMMENDED USE

This packing is specifically for dynamic applications in water and industrial fluid services with medium pH values.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	60	900	2	400	4 ÷ 10	-50/+120	-60/+240
	25	375	10	2000			

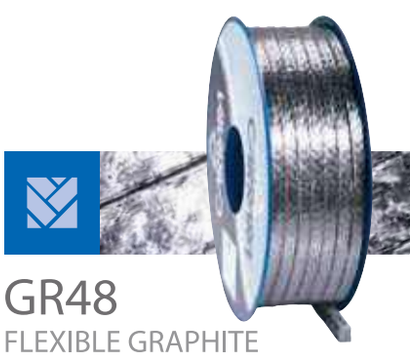
GB70
egPTFE

GB70. GB70 packing is made from expanded PTFE yarn loaded with powdered graphite and a silicone lubricant.

RECOMMENDED USE

This packing is for sealing applications on pumps with any fluids, except for strong oxidants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	100	1500	2	400	0 ÷ 14	-200/+280	-330/+540
	25	750	20	4000			



GR48
FLEXIBLE GRAPHITE

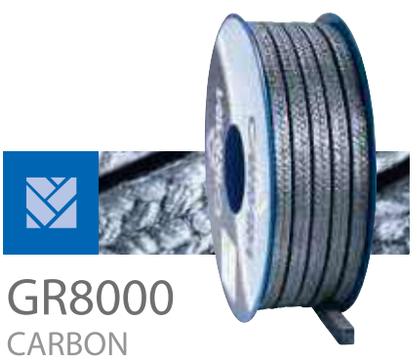
GR48. This is a packing made from pure expanded mineral graphite. It is also available in the GR48R version with metal reinforcement.

RECOMMENDED USE

This packing is for applications on industrial valves and pumps with all fluids, except for oxidants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300⚠	4500*	1	200			
					0 ÷ 14	-100/+450 +650**	-150/+840* +1200**

*With weak oxidants and hot air ** With steam
*** Not compatible with oxidants
⚠ Can only be used above 100 bar if assisted by anti-extrusion rings.



GR8000
CARBON

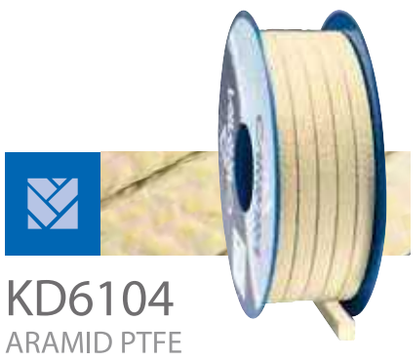
GR8000. This is a packing made 100% with continuous PN carbon fibre impregnated with colloidal graphite. It is also available in the GR8000R version with Inconel™ reinforcement.

RECOMMENDED USE

This packing can be used for valve and pump services (GR8000 style only) with all high-temperature fluids, except for strong oxidants.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300	4500	1	200			
	20	300	2	400	0 ÷ 14	-100/+450 +650**	-150/+840* +1200**
	40	600	25	5000			

*With weak oxidants and hot air ** With steam
***Not compatible with oxidants



KD6104
ARAMID PTFE

KD6104. This is a packing made from twisted short-fibre aramid yarn. It is impregnated in 2 stages: one on the thread, and a second one during twisting.

RECOMMENDED USE

This packing is for dynamic applications on pumps and agitators. It can be used in the most demanding applications where a resistant product is required.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	80	1200	2	400	3 ÷ 12	-100/+250	-150/+480
	30	450	20	4000			

PACKINGS

PERFORMER RANGE PREMIUM RANGE BASIC RANGE

N2109
CARBON PREOX

N2109. This is a packing made form synthetic fibre. It is impregnated with graphite and a silicone-free high-temperature lubricant.
RECOMMENDED USE
N2109 is a packing for general use.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	50	750	1	200			
	20	300	2	400	4 ÷ 10	-50/+250	-60/+480
	15	225	8	1600			

N3104
SYNTHETIC

N3104. This is a packing made from composite yarn impregnated with PTFE and a silicone-free lubricant.
RECOMMENDED USE
N3104 is a packing for general applications. It is extremely versatile and of excellent quality while meeting the demand for economy and ease of use.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	50	750	2	400	2 ÷ 12	-100/+250	-150/+480
	20	300	10	2000			

PL5000/S
PTFE

PL5000S. The PL5000S braid is made from white ePTFE.
RECOMMENDED USE
PL5000S can be used both for sealing on valve stems, or static sealing in general, and for sealing on reciprocating pumps and low-speed agitators. It is also available in the PL5000L lubricated version.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	300	4500	1	200			
	100	1500	2	400	0 ÷ 14	-200/+280	-330/+540
	20	300	10	2000			

V9907
GRAPHITIZED GLASS

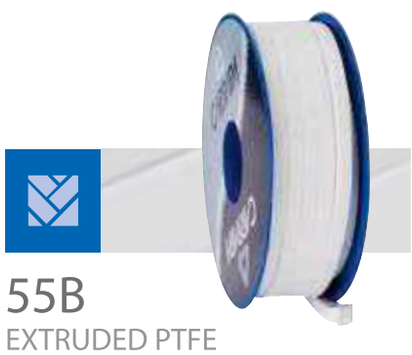
V9907. This is a packing made from twisted glass fibre yarn (taslan) from 6 to 9 microns in size. It has a high percentage of a special graphite-based compound with the addition of a small amount of lubricant and corrosion inhibitor.
RECOMMENDED USE
V9907 can be used on valve stems, manholes and where there is steam, gas, fumes, oils, acids and alkalis that are compatible with glass fibre.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	200	3000	1.5	300			
					2 ÷ 12	-50/+500	-60/+940
	20	300	5	100			

V9944
LUBRICATED GLASS

V9944. This is a packing made from slightly twisted, textured glass fibre yarn (taslan) from 6 to 9 microns in size. The braid is also impregnated with a mixture of PTFE and silicone-free inert lubricants.
RECOMMENDED USE
V9944 can be used with water, steam, oils, solvents and almost any abrasive or crystallizing chemical product that is compatible with glass fibre.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
	60	900	1,5	300			
	40	600	2	400	2 ÷ 12	-50/+280	-60/+540
	20	300	15	3000			



55B
EXTRUDED PTFE

55B. This is extruded pure unsintered PTFE with lubricants. 55B minimises shaft wear thanks to its softness. It can also be modelled in any way. Due to its high PTFE content, it is chemical resistant over the whole pH range.
RECOMMENDED USE
55B is suitable for use with acids and alkalis, oils, gasses, solvents, steam and clean fluids. It can be used on centrifugal and piston pumps, mixers, agitators as well as on valves or expansion joints and vacuum pumps.
IT IS ALSO AVAILABLE IN THE 55G GRAPHITE-FILLED VERSION.

	P bar	lbf/in²	Vm/S	f/pm	pH	T °C	°F
					0 ÷ 14	-50/+260	-60/+510
	10	150	10	2000			

Packaging

Carrara packings with sizes from 3.0 to 25.00 mm are packaged in 1.0, 2.5 and 5.0 kg reels. They are packed with the utmost care to ensure a suitable storage environment for 24 months. Packings with sections greater than 25 mm in size or rectangular in shape o in customised packaging are available on request. The package weight may vary by +/- 10% with respect to the nominal value. The dimensional tolerances of the packings follow the international reference guidelines if not otherwise agreed.

Standard sections in mm	Std box kg	Std box lbs	Standard sections in inches
3 mm ÷ 5 mm	1.0	2.2	1/8" ÷ 3/16"
6 mm ÷ 12 mm	2.5	5.5	1/4" ÷ 1/2"
14 mm ÷ 25 mm	5.0	11	9/16" ÷ 1"
Over 25 mm	On request	On request	On request

For correct product use, we recommend not using any kind of lubricant or grease as it could damage the fibres and compromise the packing performance.

The length of each ring and the quality of the cut are essential for achieving the highest performance. It is always best to cut the packing with professional tools. In addition, use special extractors to remove packings from stuffing boxes.

Packing cutter with ruler
Product code 006076

Packing cutter
Product code 056860

Extractor set
Product code 014870

Replacement extractor tips
Product code 014872

SETTING FLANGE

flat gaskets for flange

CARRARA®

GLOBAL SEALING SOLUTIONS

Carrara S.p.a. believes in the modern meaning of SUPPLIER: a partner that actively takes part in creating value. This value is the result of expertise and flexibility, in addition to the ability to innovate and build strong relationships with Customer.

Founded in 1961, Carrara boasts years of experience in offering a complete product range of flat gaskets, for more general applications as well as more challenging ones.

The product range spans the following product lines:

- PLANIGRAPH®
  Graphite gasket sheets and gaskets
- PLANIFLON®
  PTFE sheets, tapes and gaskets
- PLANIFLEX®
  Asbestos Free gasket sheets and gaskets
- PLANIX®
  Rubber gasket sheets and gaskets

PLANIGRAPH®

GRAPHITE GASKET SHEETS

LG

PLANIGRAPH®LG

Planigraph® LG gaskets are designed for special low pressure or vacuum applications.

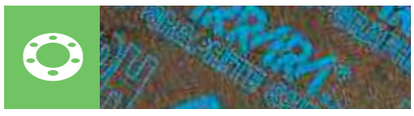
Graphite density	g/cm³	1,0
Carbon content	%	> 98,0
Ash content	%	< 2,0
Reinforcing steel foil details		
Material	-	-
Form	-	-
Thickness	mm	- -
Number	- -	- -
Compressibility	%	40-50
Recovery	%	10-15
Stress	N/mm²	> 47
Temperature	°C	- 200/+550
Maximum assembly load under service condition	N/mm²	40

LGR

PLANIGRAPH®LGR

Planigraph® LGR gaskets are made of expanded graphite supported by a 0.05 mm s316L grade stainless steel laminate.

Graphite density	g/cm³	1,0
Carbon content	%	> 98,0
Ash content	%	< 2,0
Reinforcing steel foil details		
Material	-	SS316L
Form	-	smooth
Thickness	mm	0,05
Number	- -	1
Compressibility	%	40--50
Recovery	%	10--15
Stress	N/mm²	> 45
Temperature	°C	- 200/+550
Maximum assembly load under service condition	N/mm²	60



LGRF

PLANIGRAPH®LGRF

Planigraph® LGRF gaskets are made of expanded graphite supported by a 0.10 mm perforated 316L grade stainless steel laminate.

Graphite density	g/cm³	1,0
Carbon content	%	> 98,0
Ash content	%	< 2,0
Reinforcing steel foil details		
Material	-	SS316L
Form	-	tanged
Thickness	mm	0,10
Number	- -	1
Compressibility	%	30--40
Recovery	%	15--20
Stress	N/mm²	> 45
Temperature	°C	- 200/+550
Maximum assembly load under service condition	N/mm²	140

LGRF2

PLANIGRAPH®LGRF2

Planigraph® LGRF2 gaskets are made of expanded graphite supported by two 0.10 mm perforated 316L grade stainless steel laminates.

Graphite density	g/cm³	1,0
Carbon content	%	> 98,0
Ash content	%	< 2,0
Reinforcing steel foil details		
Material	-	SS316L
Form	-	smooth
Thickness	mm	0,10
Number	- -	2
Compressibility	%	30--40
Recovery	%	20
Stress	N/mm²	> 45
Temperature	°C	- 200/+550
Maximum assembly load under service condition	N/mm²	140

LGRHDI

PLANIGRAPH®LGRHDI

Planigraph® LGRHDI gaskets are made of multiple 0.05mm 316L grade stainless steel laminates for high pressure applications.

Graphite density	g/cm³	1,0
Carbon content	%	> 98,0
Ash content	%	< 2,0
Reinforcing steel foil details		
Material	-	SS316L
Form	-	smooth
Thickness	mm	0,10
Number	- -	*
Compressibility	%	40--50
Recovery	%	10--15
Stress	N/mm²	> 47
Temperature	°C	- 200/+550
Maximum assembly load under service condition	N/mm²	40

Sizes available

Thicknesses (tolerance +/- 10%)
(mm) 0,80 - 1,00 - 1,50 - 2,00 - 3,00
(inch) 1/32" ÷ 3/64" ÷ 1/16" ÷ 5/64" ÷ 1/8"

Formats (tolerance +/- 5%)
(mm) 1000 x 1000 e 1500 x 1500
(inch) 40" x 40" ÷ 60" x 60"

Contact Carrara's technical office for information on gasket torque factors.

We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

WARNING: The data shown in the tables refer to a typical behaviour of the materials and are the result of laboratory and factory tests carried out over the years.The specifications shown can change without notification.Wrong selection of the material for the specific application or improper use can cause damage to property and people.We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

Typical values for 1.50 mm thickness

* The number of reinforcement layers depends on the thickness.

PLANIFLON®

PTFE GASKET SHEETS

B13

PLANIFLONB13

Planiflon® B13 gaskets are applicable on RF flanges up to 600 psi class.

Color		Pink
Composition		Modified PTFE silica filler
Density	g/cm³	2.2
Operative temperature range	°C	-260/+260
Max operating pressure	Bar	80
P x T max	Bar x °C	
thickness 0,5 ÷ 2,0 mm		12000
thickness 3,0 mm		8500
Leakage	mg* s^{-1}*m^{-1}	<0.05
Creep Relaxation	%	24
Compression range	%	> 4
Recovery	%	< 1.7
pH range	-	0-14

B14

PLANIFLONB14

Planiflon® B14 gaskets are loaded with glass microspheres for lower density and greater flexibility.

Color		Light Blue
Composition		Modified PTFE Hollow Glass Microsphere
Density	g/cm³	1.4
Operative temperature range	°C	-260/+260
Max operating pressure	Bar	50
P x T max	Bar x °C	
thickness 0,5 ÷ 2,0 mm		12000
thickness 3,0 mm		8500
Leakage	mg* s^{-1}*m^{-1}	< 0.05
Creep Relaxation	%	< 19
Compression range	%	> 32
Recovery	%	< 7
pH range	-	0-14

B15

PLANIFLONB15

Planiflon® B15 gaskets are made of modified PTFE filled with Barium Sulphate.

Color		Off white
Composition		Modified PTFE with Barium Sulphate filler
Density	g/cm³	2.8
Operative temperature range	°C	-260/+260
Max operating pressure	Bar	80
P x T max	Bar x °C	
thickness 0,5 ÷ 2,0 mm		12000
thickness 3,0 mm		8500
Leakage	mg* s^{-1}*m^{-1}	<0.005
Creep Relaxation	%	< 23
Compression range	%	> 4.3
Recovery	%	< 2.1
pH range	-	0-14

E12

PLANIFLONE12

Planiflon® E12 gaskets are made of expanded PTFE and it can be used with almost all types of fluid.

Color		White
Composition		Expanded PTFE
Density	g/cm³	0.9
Operative temperature range	°C	-200/+260
Max operating pressure	Bar	50
P x T max	Bar x °C	
thickness 0,5 ÷ 2,0 mm		5000
thickness 3,0 mm		3500
Leakage	mg* s^{-1}*m^{-1}	< 0.005
Creep Relaxation	%	38
Compression range	%	45
Recovery	%	14
pH range	-	0-14

B01 / B02

PLANIFLONB01/B02

Planiflon® B01 e B02 gaskets are respectively in Virgin PTFE and glass filled PTFE.

Color		White
Composition		V PTFE/ V PTFE glass
Density	g/cm³	2.1/ 2.2
Operative temperature range	°C	-200/+260
Max operating pressure	Bar	50
P x T max	Bar x °C	
thickness 0,5 ÷ 2,0 mm		5000
thickness 3,0 mm		3500
Leakage	mg* s^{-1}*m^{-1}	< 0.05
Tensile break strength	%	> 24 / > 11
Compression range	%	14-17 / 7-10
Recovery	%	20 / 25
pH range	-	0-14

B05

PLANIFLONB05

Planiflon® B05 gaskets are in graphite filled PTFE for gaskets and sealing rings.

Color		Black
Composition		V PTFE graphite filled
Density	g/cm³	2.1
Operative temperature range	°C	-200/+260
Max operating pressure	Bar	50
P x T max	Bar x °C	
thickness 0,5 ÷ 2,0 mm		5000
thickness 3,0 mm		3500
Leakage	mg* s^{-1}*m^{-1}	< 0.05
Tensile break strength	%	> 14
Compression range	%	5 - 6
Recovery	%	22
pH range	-	0-14

Thicknesses (tolerance +/- 10%)*
(mm) da 0,80 fino a 6,00
(inch) da 1/32" a 1/4"

Formats (tolerance +/- 5%)*
(mm) da 600 x 600 a 1.500 x 1.500
(inch) da 25" x 25" a 60" x 60"

* Thickness availability is linked to the type of material
Contact Carrara's technical office for information on gasket torque factors.We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

PLANIFLEX®

COMPRESSED SHEETS - CSF

PF64

PLANIFLEX® PF64

Planiflex® PF64 gaskets are made of aramid fibres and NBR based materials.

Color		Blue
Binder		NBR
Density	g/cm³	1,9
Tensile strength DIN 52910	N/mm²	8
Compressibility ASTM F36	%	11
Recovery ASTM F36	%	50
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	22
16 hours, 175°C, 50 N/mm²	MPa	28
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	5
2) ASTM Fuel B, 5h, 23°C	%	5
3) Distilled water, 5h,100°C	%	2
Max Operating conditions:		
Peak Temperature	°C	350
Continuous Temperature	°C	280
Continuous Temperature with Steam	°C	220
Pressure	MPa	10

PF65

PLANIFLEX® PF65

Planiflex® PF65 can be used up to a continuous temperature of 250°C with steam.

Color		Blue
Binder		NBR
Density	g/cm³	1,9
Tensile strength DIN 52910	N/mm²	9,0
Compressibility ASTM F36	%	10
Recovery ASTM F36	%	55
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	29
16 hours, 175°C, 50 N/mm²	MPa	34
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	6
2) ASTM Fuel B, 5h, 23°C	%	6
3) Distilled water, 5h,100°C	%	2
Max Operating conditions:		
Peak Temperature	°C	400
Continuous Temperature	°C	340
Continuous Temperature with Steam	°C	250
Pressure	MPa	12

PF81F

PLANIFLEX® PF81F

Planiflex® PF81F is a gasket sheet made of a special combination of heat-resistant fibres.

Color		Black
Binder		NBR
Density	g/cm³	1,9
Tensile strength DIN 52910	N/mm²	9,0
Compressibility ASTM F36	%	10
Recovery ASTM F36	%	50
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	25
16 hours, 175°C, 50 N/mm²	MPa	30
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	5
2) ASTM Fuel B, 5h, 23°C	%	6
3) Distilled water, 5h,100°C	%	2
Max Operating conditions:		
Peak Temperature	°C	400
Continuous Temperature	°C	320
Continuous Temperature with Steam	°C	250
Pressure	MPa	8

PF13

PLANIFLEX® PF13

Planiflex® PF13 is the sheet of compressed fibres with CSM binder for gaskets suitable for the chemical industry.

Color		Beige
Binder		NBR
Density	g/cm³	1,9
Tensile strength DIN 52910	N/mm²	9
Compressibility ASTM F36	%	9
Recovery ASTM F36	%	50
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	
16 hours, 175°C, 50 N/mm²	MPa	25
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	8
2) ASTM Fuel B, 5h, 23°C	%	10
3) Distilled water, 5h,100°C	%	
Max Operating conditions:		200
Peak Temperature	°C	150
Continuous Temperature	°C	
Continuous Temperature with Steam	°C	4
Pressure	MPa	12

PF81

PLANIFLEX® PF81

Planiflex® PF81 is made of aramid fibres, graphite and NBR binder to ensure maximum reliability.

Color		Black
Binder		NBR
Density	g/cm³	1,9
Tensile strength DIN 52910	N/mm²	8
Compressibility ASTM F36	%	11
Recovery ASTM F36	%	50
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	22
16 hours, 175°C, 50 N/mm²	MPa	28
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	5
2) ASTM Fuel B, 5h, 23°C	%	5
3) Distilled water, 5h,100°C	%	2
Max Operating conditions:		
Peak Temperature	°C	350
Continuous Temperature	°C	250
Continuous Temperature with Steam	°C	220
Pressure	MPa	10

Sizes available

Thicknesses (tolerance +/- 10%)
(mm) da 0,50 fino a 5,00
(inch) da 1/64" a 7/32"

Formats (tolerance +/- 5%)
(mm) 1.500 x 1.500 e 1.500 x 3.000
(inch) 60" x 60" ÷ 60" x 120"

Contact Carrara's technical office for information on gasket torque factors.
We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

WARNING: The data shown in the tables refer to a typical behaviour of the materials and are the result of laboratory and factory tests carried out over the years.The specifications shown can change without notification.Wrong selection of the material for the specific application or improper use can cause damage to property and people.We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

Typical values for 1.50 mm thickness

CARRARA® GLOBAL SEALING SOLUTIONS

PLANIFLEX®

COMPRESSED SHEETS - CSF

PF63

PLANIFLEX® PF63

Planiflex® PF63 is made of aramid fibres and NBR binder for general applications.

Color	Blue	
Binder	NBR	
Density	g/cm³	1.9
Tensile strength DIN 52910	N/mm²	6
Compressibility ASTM F36	%	11
Recovery ASTM F36	%	50
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	
16 hours, 175°C, 50 N/mm²	MPa	25
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	12
2) ASTM Fuel B, 5h, 23°C	%	
3) Distilled water, 5h,100°C	%	
Max Operating conditions:		
Peak Temperature	°C	250
Continuous Temperature	°C	180
Continuous Temperature with Steam	°C	150
Pressure	MPa	5

PF41

PLANIFLEX® PF41

Planiflex® PF41 is made of organic fibres and NBR binder for general applications at low temperatures.

Color	Green	
Binder	NBR	
Density	g/cm³	1.9
Tensile strength DIN 52910	N/mm²	8
Compressibility ASTM F36	%	9
Recovery ASTM F36	%	60
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	
16 hours, 175°C, 50 N/mm²	MPa	20
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	10
2) ASTM Fuel B, 5h, 23°C	%	10
3) Distilled water, 5h,100°C	%	
Max Operating conditions:		
Peak Temperature	°C	180
Continuous Temperature	°C	140
Continuous Temperature with Steam	°C	120
Pressure	MPa	4

PF81R

PLANIFLEX® PF81R

Planiflex® PF81R is made of aramid fibres, graphite and NBR binder and a metal mesh to withstand pressure.

Color	Black	
Binder	NBR	
Density	g/cm³	2.3
Tensile strength DIN 52910	N/mm²	10
Compressibility ASTM F36	%	11
Recovery ASTM F36	%	50
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	22
16 hours, 175°C, 50 N/mm²	MPa	28
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	5
2) ASTM Fuel B, 5h, 23°C	%	5
3) Distilled water, 5h,100°C	%	2
Max Operating conditions:		
Peak Temperature	°C	350
Continuous Temperature	°C	250
Continuous Temperature with Steam	°C	220
Pressure	MPa	10

PF41G

PLANIFLEX® PF41G

Planiflex® PF41G is made of organic fibres, NBR binder and surface graphite.

Color	Black	
Binder	NBR	
Density	g/cm³	1.9
Tensile strength DIN 52910	N/mm²	8
Compressibility ASTM F36	%	9
Recovery ASTM F36	%	60
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	
16 hours, 175°C, 50 N/mm²	MPa	20
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	10
2) ASTM Fuel B, 5h, 23°C	%	10
3) Distilled water, 5h,100°C	%	
Max Operating conditions:		
Peak Temperature	°C	180
Continuous Temperature	°C	140
Continuous Temperature with Steam	°C	120
Pressure	MPa	12

PF41RG

PLANIFLEX® PF41RG

Planiflex® PF41RG is made of organic fibres, NBR binder, metal mesh and surface graphite.

Color	Black	
Binder	NBR	
Density	g/cm³	2.3
Tensile strength DIN 52910	N/mm²	10
Compressibility ASTM F36	%	9
Recovery ASTM F36	%	55
Residual stress DIN 52913:		
16 hours, 300°C, 50 N/mm²	MPa	
16 hours, 175°C, 50 N/mm²	MPa	20
Thickness increase ASTM F146:		
1) Oil IRM 903, 5h, 150°C	%	10
2) ASTM Fuel B, 5h, 23°C	%	10
3) Distilled water, 5h,100°C	%	
Max Operating conditions:		
Peak Temperature	°C	180
Continuous Temperature	°C	140
Continuous Temperature with Steam	°C	120
Pressure	MPa	12

Sizes available

Thicknesses (tolerance +/- 5%)
(mm) 0,50 ÷ 0,80 ÷ 1,00 ÷ 1,50 ÷ 2,00 ÷ 2,50 ÷ 3,00 ÷ 4,00 ÷ 5,00
(inch) 1/64" ÷ 1/32" ÷ 3/64" ÷ 1/16" ÷ 5/64" ÷ 3/32" ÷ 1/8" ÷ 5/32" ÷ 3/16"

Dimensions (+/- 5% tolerance)
(mm) 1.500 x 1.500 ÷ 1.500 x 3.000
(inch) 60" x 60" ÷ 60" x 120"

For each item of the Planiflex® family the reinforced version R is available.

Contact Carrara's technical office for information on gasket torque factors.
We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

WARNING: The data shown in the tables refer to a typical behaviour of the materials and are the result of laboratory and factory tests carried out over the years.The specifications shown can change without notification.Wrong selection of the material for the specific application or improper use can cause damage to property and people.We assume no responsibility for errors due to wrong selection and inappropriate use of the material.

Typical values for 1.50 mm thickness

PLANIX®

RUBBER GASKET SHEETS

PLANIX 01

PAPER BOARD

Planix® PX01 is a thermal insulating cardboard material made entirely of asbestos-free and ceramic-free.

	UM	
Color	--	Beige
Specific Gravity	g/cm³	0.95 ± 0.05
Thickness	mm	2.0 to 10.0
Width	m	1.0
Lenght	m	1.0
Hardness	Shore A	--
Operating Temperature	°C	750
Tensile Strength	MPa	3.5
Elongation	%	--
Tear Resistance	N/mm	--
Compression Set (22 hrs at 70°C)	%	--

PLANIX 02

POLIETILENE

Planix® PX02 PE HD Polyethylene has a high resistance to chemicals and displays good electrical properties.

	UM	
Color	--	White
Specific Gravity	g/cm³	0.95 ± 0.05
Thickness	mm	1.0 to 30.0
Width	m	1.0
Lenght	m	2.0
Hardness	Shore A	63 ± 5
Operating Temperature	°C	-30 ÷ 80
Tensile Strength	MPa	20.0
Elongation	%	200
Tear Resistance	N/mm	--
Compression Set (22 hrs at 70°C)	%	--

PLANIX 03

EPDM RUBBER

Planix PX03 EPDM is a family of synthetic rubbers belonging to group M according to DIN/ ISO 1629 classification.

	UM	
Color	--	Black
Specific Gravity	g/cm³	1.25 ± 0.05
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	60 ± 5
Operating Temperature	°C	-25 ÷ 120
Tensile Strength	MPa	4.0
Elongation	%	200
Tear Resistance	N/mm	10
Compression Set (22 hrs at 70°C)	%	40

PLANIX 04

FLEXOID

FLEXOID® Planix PX04 is a cellulose-based material impregnated with plasticised gelatin.

	UM	
Color	--	Light Beige
Specific Gravity	g/cm³	0.70 ± 0.05
Thickness	mm	0.0 to 2.0
Width	m	1.0
Lenght	m	5.0
Hardness	Shore A	--
Operating Temperature	°C	-20 ÷ 120
Tensile Strength	MPa	16.0
Elongation	%	--
Tear Resistance	N/mm	--
Compression Set (22 hrs at 70°C)	%	--

PLANIX 05

WHITE SBR RUBBER

Planix® PX05 white SBR food grade rubber can be used with non-liquid, oily or greasy food substances.

	UM	
Color	--	White
Specific Gravity	g/cm³	1.5 ± 0.05
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	60 ± 5
Operating Temperature	°C	-25 ÷ 120
Tensile Strength	MPa	8.0
Elongation	%	400
Tear Resistance	N/mm	15
Compression Set (22 hrs at 70°C)	%	40

PLANIX 07

CSM RUBBER

Planix® PX07 is a sheet or roll in CSM Chloro-Sulphenated Polyethylene rubber.

	UM	
Color	--	Black
Specific Gravity	g/cm³	1.4 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	70 ± 5
Operating Temperature	°C	-35 ÷ 140
Tensile Strength	MPa	7.0
Elongation	%	400
Tear Resistance	N/mm	17
Compression Set (22 hrs at 70°C)	%	40

Thicknesses Tolerance +/- 10%, Dimensions Tolerance +/- 5%

CARRARA® GLOBAL SEALING SOLUTIONS

PLANIX®

PLANIX - RUBBER GASKET SHEETS

PLANIX 08

NBR RUBBER

Planix® PX08 is a gasket sheet in NBR nitrile rubber also known as BUNA N.

	UM	
Color	--	Black
Specific Gravity	g/cm³	1.24 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	70 ± 5
Operating Temperature	°C	-25 ÷ 120
Tensile Strength	MPa	14.0
Elongation	%	300
Tear Resistance	N/mm	55
Compression Set (22 hrs at 70°C)	%	20

PLANIX 09

CHLOROPRENE RUBBER

Planix® PX09 is a gasket sheet in CR chloroprene and has a good compatibility with oils and fuels.

	UM	
Color	–	Black
Specific Gravity	g/cm³	1.5 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	60 ± 5
Operating Temperature	°C	-20 ÷ 100
Tensile Strength	MPa	4.5
Elongation	%	250
Tear Resistance	N/mm	12
Compression Set (22 hrs at 70°C)	%	35

PLANIX 11

NR RUBBER

Planix® PX11 is a gasket sheet made of natural NR rubber that displays excellent elasticity and compressibility.

	UM	
Color	--	Black
Specific Gravity	g/cm³	0.97 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	40 ± 5
Operating Temperature	°C	-35 ÷ 70
Tensile Strength	MPa	20.0
Elongation	%	550
Tear Resistance	N/mm	40
Compression Set (22 hrs at 70°C)	%	40

PLANIX 15

SBR RUBBER

Planix® PX15 is a gasket sheet in SBR styrenic rubber suitable for general use.

	UM	
Color	--	Black
Specific Gravity	g/cm³	1.5 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	70 ± 5
Operating Temperature	°C	-25 ÷ 70
Tensile Strength	MPa	4.0
Elongation	%	200
Tear Resistance	N/mm	14
Compression Set (22 hrs at 70°C)	%	40

PLANIX 17

SILICONE RUBBER

Planix® PX17 is a odourless and stain-proof red silicone rubber gasket sheet.

	UM	
Color	–	Red
Specific Gravity	g/cm³	1.25 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.0
Lenght	m	1.0
Hardness	Shore A	60 ± 5
Operating Temperature	°C	-70 ÷ 200
Tensile Strength	MPa	7.0
Elongation	%	300
Tear Resistance	N/mm	20
Compression Set (22 hrs at 70°C)	%	34

PLANIX 19

FKM RUBBER

Planix® PX19 is a FKM rubber gasket sheet particularly suitable for oil industry.

	UM	
Color	--	Black
Specific Gravity	g/cm³	1.5 ± 0.03
Thickness	mm	1.0 to 50.0
Width	m	1.2
Lenght	m	1.2 to 10.0
Hardness	Shore A	70 ± 5
Operating Temperature	°C	-30 ÷ 250
Tensile Strength	MPa	7.5
Elongation	%	250
Tear Resistance	N/mm	18
Compression Set (22 hrs at 70°C)	%	62

Thicknesses Tolerance +/- 10%, Dimensions Tolerance +/- 5%

Chemical Resistance Chart

Chemical Compatibility Chart provides only general indications for material selection. Its use must always be accompanied by a specific application inspection and indications derived from the experience of using the gaskets at the factory.

All the information and data cited are based on the years of experience in sealing applications and must be considered to be entirely indicative.The data can not be used for warranty claims.Carrara S.p.a. can make changes to the compatibility table without prior notice and any obligation to provide notice.

	PF 64	PF 65	PF 81F	PF 13	PF 81	PF63	PF 41	PF 81R	B13	B14	B15	E12	Graphite
Acetamide	A	A	A	A	A	A	A	A	A	A	A	A	A
Acetic acid 10%	A	A	A	A	A	A	A	A	A	A	A	A	A
Acetic acid 100%	C	C	C	C	C	C	C	C	B	B	B	B	A
Acetone	B	B	B	B	B	B	B	B	A	A	A	A	A
SAcetonitrile	C	C	C	C	C	C	C	C	A	A	A	A	A
Acetylene (gas)	A	A	A	A	A	A	A	A	A	A	A	A	A
Adipic acid	A	A	A	A	A	A	A	A	A	A	A	A	A
Air	A	A	A	A	A	A	A	A	A	A	A	A	B
Alums	A	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum acetate	A	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum chlorate	B	B	B	B	B	B	B	B	A	A	A	A	A
Aluminum chloride	B	B	B	B	B	B	B	B	A	A	A	A	A
Ammonia (gas)	B	B	B	B	B	B	B	B	A	A	A	A	A
Ammonium bicarbonate	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium hydroxide	A	A	A	A	A	A	A	A	A	A	A	A	A
Amyl acetate	B	B	B	B	B	B	B	B	A	A	A	A	A
Aniline	C	C	C	C	C	C	C	C	A	A	A	A	A
Asphalt	A	A	A	A	A	A	A	A	A	A	A	A	A
Barium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A
Benzene	A	A	A	A	A	A	A	A	A	A	A	A	A
Benzoic acid	B	B	B	B	B	B	B	B	A	A	A	A	A
Boric acid	A	A	A	A	A	A	A	A	A	A	A	A	A
Borax	A	A	A	A	A	A	A	A	A	A	A	A	A
Butane	A	A	A	A	A	A	A	A	A	A	A	A	A
Butyl alcohol (Butanol)	A	A	A	A	A	A	A	A	A	A	A	A	A
Butyric acid	A	A	A	A	A	A	A	A	A	A	A	A	A
Calcium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A
Calcium hydroxide	A	A	A	A	A	A	A	A	A	A	A	A	A
Carbon monoxide	A	A	A	A	A	A	A	A	A	A	A	A	A
Carbon dioxide	A	A	A	A	A	A	A	A	A	A	A	A	A
Chloroform	C	C	C	C	C	C	C	C	A	A	A	A	A
Chloryne, (gas)	C	C	C	C	C	C	C	C	A	A	A	A	C
Chloryne, (in water)	C	C	C	C	C	C	C	C	A	A	A	A	C
Chromic acid	C	C	C	C	C	C	C	C	A	A	A	A	A
Citric acid	B	B	B	B	B	B	B	B	A	A	A	A	A
Copper acetate	A	A	A	A	A	A	A	A	A	A	A	A	B
Creosote	B	B	B	B	B	B	B	B	A	A	A	A	B
Cresol	C	C	C	C	C	C	C	C	A	A	A	A	A
Cyclohexane	A	A	A	A	A	A	A	A	A	A	A	A	A
Cycloexanone	B	B	B	B	B	B	B	B	A	A	A	A	A
Decaline	A	A	A	A	A	A	A	A	A	A	A	A	A
Dibenzylether	B	B	B	B	B	B	B	B	A	A	A	A	A
Dimethylacetamide	B	B	B	B	B	B	B	B	A	A	A	A	A
Dimethylformamide	B	B	B	B	B	B	B	B	A	A	A	A	A
Ethane	A	A	A	A	A	A	A	A	A	A	A	A	A
Ethyl acetate	B	B	B	B	B	B	B	B	A	A	A	A	A
Ethyl Alcohol (Ethanol)	A	A	A	A	A	A	A	A	A	A	A	A	A
Ethyl chloride (gas)	C	C	C	C	C	C	C	C	A	A	A	A	A
Ethylene (gas)	A	A	A	A	A	A	A	A	A	A	A	A	A
Ethylene glycol	A	A	A	A	A	A	A	A	A	A	A	A	A
Formic acid 10%	A	A	A	A	A	A	A	A	A	A	A	A	A
Formic acid 85%	B	B	B	B	B	B	B	B	A	A	A	A	A
Formaldehyde	B	B	B	B	B	B	B	B	B	B	B	B	A
Freon 12	A	A	A	A	A	A	A	A	A	A	A	A	A
Freon 22	B	B	B	B	B	B	B	B	A	A	A	A	A
Fuel oil	A	A	A	A	A	A	A	A	A	A	A	A	A
Gasoline	A	A	A	A	A	A	A	A	A	A	A	A	A
Glycerine	A	A	A	A	A	A	A	A	A	A	A	A	A
Heptane	A	A	A	A	A	A	A	A	A	A	A	A	A
Hydraulic oil (mineral)	A	A	A	A	A	A	A	A	A	A	A	A	A
Hydraulic oil (Phosphate ester type)	B	B	B	B	B	B	B	B	A	A	A	A	A
Hydraulic (Glycol based)	A	A	A	A	A	A	A	A	A	A	A	A	A
Hydrazine	C	C	C	C	C	C	C	C	A	A	A	A	A
Hydrochloric acid 10%	B	B	B	B	B	B	B	B	A	A	A	A	A
Hydrochloric acid 37%	C	C	C	C	C	C	C	C	A	A	A	A	B
Hydrofluoric acid 10%	C	C	C	C	C	C	C	C	A	A	A	A	C

Temperature, pressure and pH.

In order to select the most suitable material for the specific application, temperature, pressure and pH must always be taken into account together.

It is always a priority to check that the material can be used at the operating temperature.

Chemical compatibility verification must consider the actual operating temperature.

As pressure increases, the stress inside the gasket increases. High temperatures and aggressive chemical environments can reduce the mechanical resistance of some types of gaskets.

	PF 64	PF 65	PF 81F	PF 13	PF 81	PF63	PF 41	PF 81R	B13	B14	B15	E12	Graphite
Hydrofluoric acid 40%	C	C	C	C	C	C	C	C	A	A	A	A	C
Hydrogen	A	A	A	A	A	A	A	A	A	A	A	A	A
Isobutane	A	A	A	A	A	A	A	A	A	A	A	A	A
Isooctane	A	A	A	A	A	A	A	A	A	A	A	A	A
Isopropyl alcohol (Isopropanol)	A	A	A	A	A	A	A	A	A	A	A	A	A
Kerosene	A	A	A	A	A	A	A	A	A	A	A	A	A
Ketones	B	B	B	B	B	B	B	B	A	A	A	A	A
Lactic acid	B	B	B	B	B	B	B	B	A	A	A	A	A
Magnesium sulfate	A	A	A	A	A	A	A	A	A	A	A	A	A
Maleic acid	B	B	B	B	B	B	B	B	A	A	A	A	A
Methane	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	A	A	A	A
Methyl chloride (gas)	B	B	B	B	B	B	B	B	A	A	A	A	A
Methylene dichloride	B	B	B	B	B	B	B	B	A	A	A	A	A
Methyl Ethyl Ketone (MEK)	B	B	B	B	B	B	B	B	A	A	A	A	A
N-Methyl-pyrrolidone (NMP)	B	B	B	B	B	B	B	B	A	A	A	A	A
Milk	A	A	A	A	A	A	A	A	A	A	A	A	A
Mineral oil type ASTM no. 1	A	A	A	A	A	A	A	A	A	A	A	A	A
Naphtha	A	A	A	A	A	A	A	A	A	A	A	A	A
Nitric acid 10%	C	C	C	C	C	C	C	C	A	A	A	A	B
Nitric acid 65%	C	C	C	C	C	C	C	C	A	A	A	A	C
Nitrobenzene	C	C	C	C	C	C	C	C	A	A	A	A	A
Nitrogen (gas)	A	A	A	A	A	A	A	A	A	A	A	A	A
Octane	A	A	A	A	A	A	A	A	A	A	A	A	A
Oleic acid	A	A	A	A	A	A	A	A	A	A	A	A	A
Oleum	C	C	C	C	C	C	C	C	A	C	C	A	C
Oxalic acid	B	B	B	B	B	B	B	B	A	A	A	A	A
Oxygen (Gas)	C	C	C	C	C	C	C	C	A	C	C	C	B
Palmitic acid	A	A	A	A	A	A	A	A	A	A	A	A	A
Pentane	A	A	A	A	A	A	A	A	A	A	A	A	A
Perchloroethylene	C	C	C	C	C	C	C	C	A	A	A	A	A
Phenol (Carbolic acid)	C	C	C	C	C	C	C	C	A	A	A	A	A
Phosphoric acid	C	C	C	C	C	C	C	C	C	C	A	A	A
Potassium acetate	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium bicarbonate	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium carbonate	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium dichromate	B	B	B	B	B	B	B	B	A	A	A	A	B
Potassium hydroxide	B	B	B	B	B	B	B	B	C	B	B	B	A
Potassium iodide	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium nitrate	A	A	A	A	A	A	A	A	A	A	A	A	C
Potassium permanganate	B	B	B	B	B	B	B	B	A	A	A	A	A
Propane	A	A	A	A	A	A	A	A	A	A	A	A	A
Pyridine	C	C	C	C	C	C	C	C	A	A	A	A	A
Salicylic acid	B	B	B	B	B	B	B	B	A	A	A	A	A
Silicones (oil, grease)	A	A	A	A	A	A	A	A	A	A	A	A	A
Soap	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium aluminate	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium bicarbonate	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium bisulphite	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium carbonate	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium cyanide	A	A	A	A	A	A	A	A	C	C	A	A	A
Sodium hydroxide	B	B	B	B	B	B	B	B	C	B	B	B	A
Sodium sulfate	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
Starch	A	A	A	A	A	A	A	A	A	A	A	A	B
Steam	A	A	A	A	A	A	A	A	A	A	A	A	A
Stearic acid	A	A	A	A	A	A	A	A	A	A	A	A	A
Sugar	A	A	A	A	A	A	A	A	A	A	A	A	A
Sulphuric acid 20%	C	C	C	C	C	C	C	C	A	A	A	A	A
Sulphuric acid 96%	C	C	C	C	C	C	C	C	A	B	B	A	B
Tar	A	A	A	A	A	A	A	A	A	A	A	A	B
Tartaric acid	B	B	B	B	B	B	B	B	A	A	A	A	B
Toluene	A	A	A	A	A	A	A	A	A	A	A	A	A
Transformer oil (mineral type)	A	A	A	A	A	A	A	A	A	A	A	A	A
Trichloroethylene	C	C	C	C	C	C	C	C	A	A	A	A	A

Recommended

Recommendation depends on operating conditions

Not recommended

EN

VALVE SEALANTS & COMPONENTS

valgasket division

CARRARA®

GLOBAL SEALING SOLUTIONS

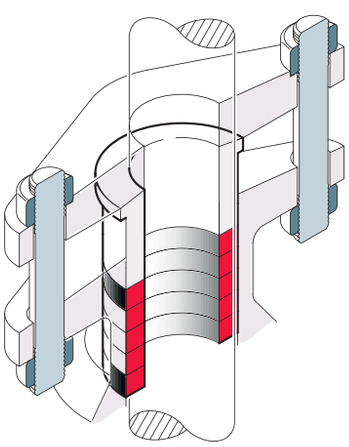
Setting Valve
seals for valves

The stampding division for Valvographgraphite seals of Carrara Global Sealing Solutions combines a large production capacity with a high level of flexibility and includes in its range seals certified for stems, closures and seats, which meet the most stringent requirements regarding runaway emmission controls and of purity of the materials.

PGT3 GR8622
PGT4 GR8622

PGT3 GR8622 is the full braided graphite rings stem seal certified API 622 which guarantees a maintenance of the low emission profile of the valve, even under maintenance with the GR8622 braid.

PGT4 GR8622 is the certified low emission stem seal complying with API 622 e ISO 15848 Standards which makes a valid solution for reducing the type of seal used for the first use on new valves. Indeed, it can be used as much in the context of Oil & Gas and Chemicals, as in high pressure and temperature steam applications.



Temperature
-200°C up to 650°C, having limitations at 450°C with weakly oxidizing fluids and hot air

Pressure range
All Pressure Classes are covered up to API 10000 psi

Ph Range
0 ÷ 14 except for strong oxidants

Approvals

- ISO 15848 C01 BH
- ISO 15848 C02 BH
- API 622 3rd Edition
- Fire Test API 589
- CorrosionTest
- Weight LossTest
  EN 14772, section 6.7

Full low emission approvals

PGT3 GR8622 and PGT4 GR8622 are the seal sets with low emission approval, be that in compliance with Standard API 622 3rd Edition or with Standard ISO 15848 (400°C, BH seal class, endurance class C01 and C02), to offer the maximum certified cover with a single seal.

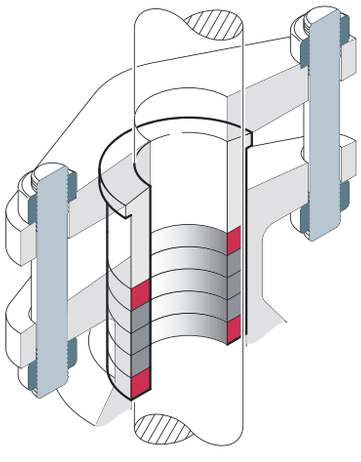
Applications

PGT3 GR8622 e PGT4 GR8622 are the Valvographgraphite seal sets for Gate, Globe, Buttflyer, Ball and Oil & Gas e Chemical Service Control valves, yet applicable with all industrial fluids compatible with graphite, allowing for the use of a single seal for all applications.

CONTROLLER ONE EVOLUTION
CONTROLLER 2 EVOLUTION

CONTROLLER EVOLUTION.
The CONTROLLER family seal sets EVOLUTION are designed to meet the demand for reliable products conforming with the TA LUFT Low Emission requirements.

CONTROLLER ONE EVOLUTION
Is the seal set with "Cup & Cone" configuration having rings at diversified densities, specifically for valves undergoing frequent movement but usable for all applications.



CONTROLLER 2 EVOLUTION
Is the seal set, the rings of which, with a squared section, are made in the W configuration at controlled densities, usable for all critical applications.

Temperature
-200°C up to 650°C, having limitations at 450°C with weakly oxidizing fluids and hot air

Pressure range
All Pressure Classes are covered up to API 10000 psi

Ph Range
0 ÷ 14 except for strong oxidants

Approvals

- TA LUFT VDI 2440
- Weight Loss Test EN 14772, section 6.7

Low Emission Design

Low Emission reliability over time
The CONTROLLER EVOLUTION seal sets are made with GR80SGR packing and Valvograph graphite rings with a high level of purity. Both the products are treated with oxidation and corrosion inhibitors, and show a very low Sulphur and Halogen content. The high quality level of the materials selected for production of the CONTROLLER EVOLUTION range is the main requisite for guaranteeing low emission reliability over time.

Differing densities
Thanks to the stamping technique at differing densities and to the W shape, jointly with the use of the special GR80SGR packing, the CONTROLLER EVOLUTION sets have a modest wear coefficient, cause of the reduction of gasket compression during activation of the valve, delaying the need for resealing during operation.

STEELGRAPH

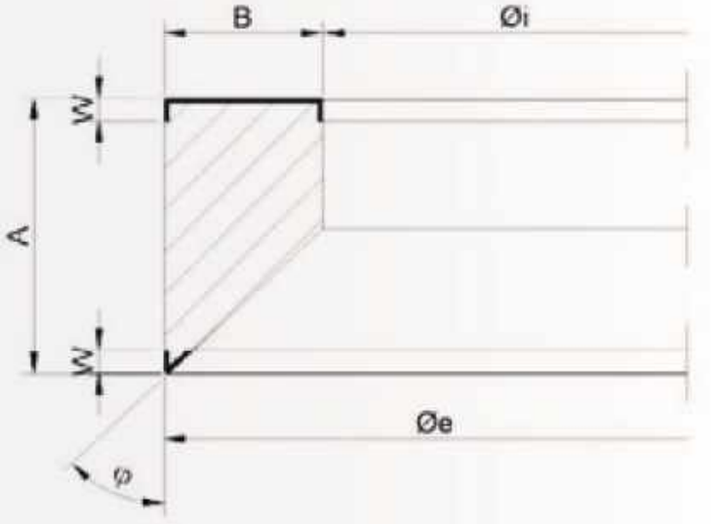
for Pressure Seal Gates and Check Valves

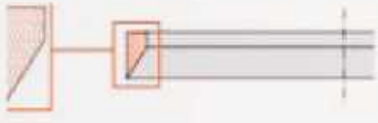
The Steelgraph gaskets for pressure seal Gate and Check Valve are made of Valvograph graphite and steel in different combinations to offer elasticity and resistance. The graphite with oxidation retardants guarantee an exceptional service life thanks to their lack of sensitivity to thermal cycles.

Temperatura
-200°C up to 650°C, having limitations at 450°C with weakly oxidizing fluids and hot air

Pressure range
Up to 1.500 bar

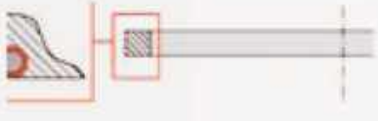
Ph Range
0 ÷ 14 except for strong incompa tible oxidants and fluids





Steelgraph G11
G11 is the gasket produced by stamping Valvograph graphite, supported by metal layers. An ultra-resistant solution.

Steelgraph G22
G22 is obtained by stamping Valvograph graphite simultaneously with metallic covers, sized in thickness and rounded edge corners as a function of the valve rating and its size, always to guarantee the maximum resistance to extrusion and an exceptional elasticity.

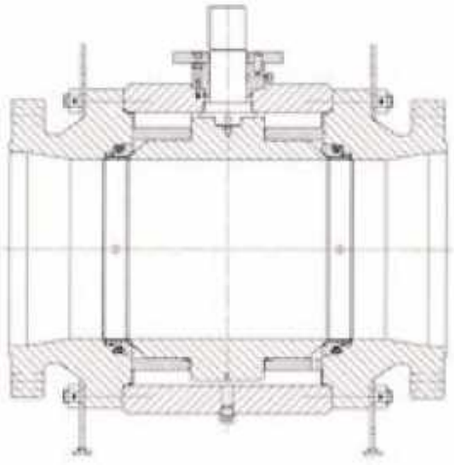


Steelgraph G33
G33 iis a gasket obtained by stamping Valvograph graphite with the insertion of metallic rings at the corners. This solution, especially useful for rectangular and square section gaskets, is advised for high and medium pressure calorific power station heat exchangers.

Valvograph Rings

Graphite	C content > 99.00 %				
	Ash content < 1,00%				
	Treatment with passive corrosion Inhibitor				
Dimensions mm	from 10 up to 2300 mm				
	Standard production tolerances				
	Diam. Internal	Diam. External	Thickness	Strip	Density
up to 250	+0,20	0,00			
	0,00	-0,10	+/-0,20		
from 251 to 500	+0,25	0,00			
	0,00	-0,25	+/-0,20		
from 501 to 750	0,30	0,00		0,00	1,25
	0,00	-0,30	+/-0,25	÷	÷
from 751 to 1000	0,40	0,00			
	0,00	-0,40	+/-0,25	-0,25	1,65
from 1001 to 1250	0,45	0,00			
	0,00	-0,45	+/-0,30		
from 1251 to 2300	+0,50	0,00			
	0,00	-0,50	+/-0,30		

The Valvograph graphite gaskets, made of graphite enriched with oxidation retardant and corrosion inhibitor, comply with EN14772, ASTM F2168 and BAM requirements for oxygen applications. The Valvograph gaskets are available in sizes from 10 to 2,300 mm in different densities depending on the technical requirements of the Client and the application.



EN

SETTING FLANGE

flange gaskets

CARRARA®

GLOBAL SEALING SOLUTIONS

Planiflon®

The PTFE Planiflon ° product line becomes rich of new models in order to better satisfy the technical requirements of the customers. Search between the different products and you will find your solution!
Planiflon ° a step ahead in order not to remain behind!

Part of the Planiflon ° line, are the following models:

- Planiflon ° SEAL TAPE SC, the adhesive tape in expanded PTFE
- Planiflon ° B 10, PTFE with special fillers
- Planiflon ° B 11, modified PTFE
- Planiflon ° E 12, expanded PTFE

You will find all the technical data sheets and other models of the Planiflon ° line at www.carrara.it.

The PTFE that renews!

Planisteel SW

Elasticity and the security Planisteel SW!

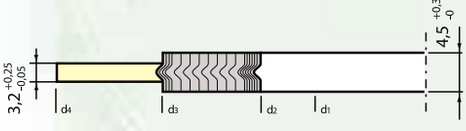
The spiral wounds product range Planisteel SW includes all types of gaskets for seal on the flanged coupling of any kind.The gaskets are realized in the dimensions and steels previewed from the regulations or in those request from the industrial applications, from the most common to the special ones.

The spiral wound is a gasket that must answer to the requirement of compressibility and elasticity in order to guarantee the seal. Therefore, Carrara S.P.A. produces spiral wounds on modern machinery with controlled winding tension, in order to always offer an answering product to the technical detailed lists of the regulations. Thanks to the versatile of its own plants, we are able to assure fast deliveries and also for series of limited quantities. Above that we offer consulting and technical support that only a constant effort of a strongly motivated teamwork can express.

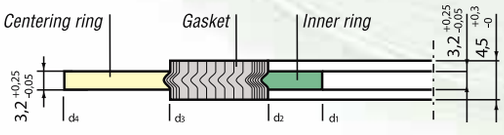
SW

SW/I

SW/C



SWC/I



Try the difference, try Planisteel SW!

- Low Emission
- Fire Safe

Low emission Test / VDI 2440
Certificates I /108988 - I /109664

Winding materials

ASTM	DIN Material No.
AISI 304	1.4301
AISI 316	1.4401
AISI 321	1.4541
AISI 316 Ti	1.4571
Monel (NiCu30Fe)	2.4360

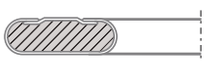
Planisteel MJ - MJS - GG

Carrara S.P.A. realizes jacketed Planisteel gaskets in all materials and inserts for piping and heat exchanger applications, in the following versions:

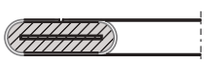
Planisteel MJ

MJ 00

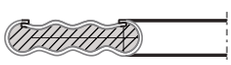
MJ 10



MJ 12



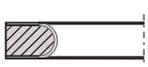
MJ 14



MJ 16

MJ 18

MJ 19



MJ 22

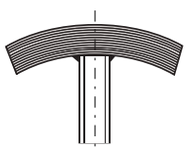
Planisteel GG

GG 10

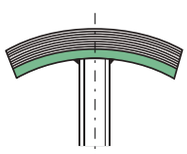
GG 20

GG 30

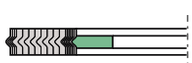
Planisteel MJS

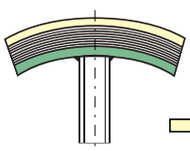


MJS 10

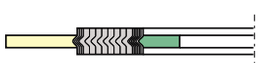


MJS 20

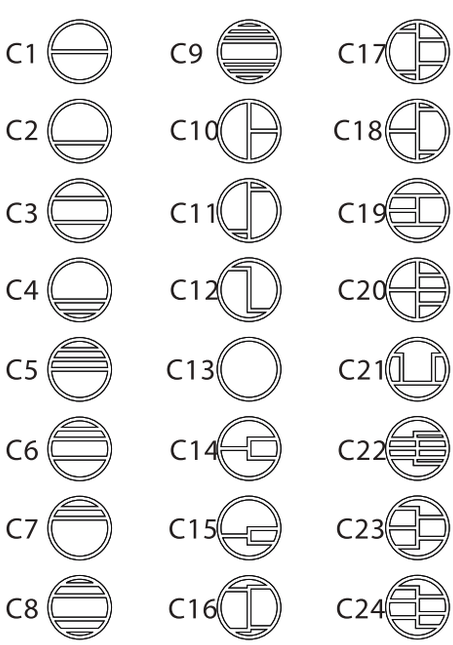




MJS 30

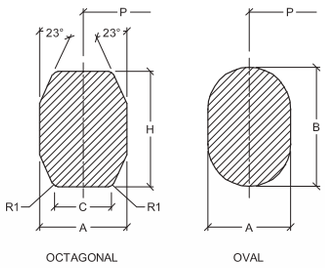


PLANISTEEL SIZE CODES

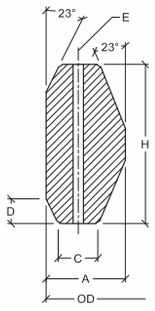


Planisteel RJ

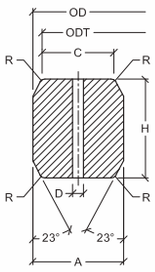
Style R



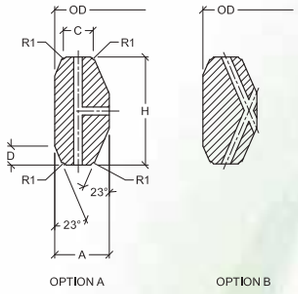
Style RX



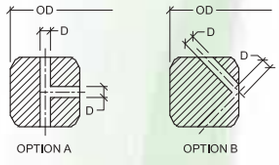
Style BX



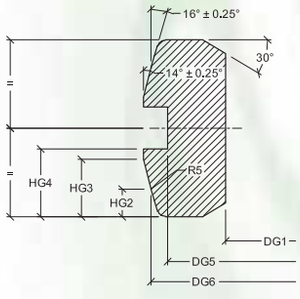
Style SRX



Style SBX



Style IX



Ring Joints Planisteel RJ , are produced in compliance to the standards API 6A and ASME B16.20 for applications at elevated temperature and pressure. The surfaces of contact between the gasket and the flange must be shaped with particular attention in order to guarantee the maximum performance of the gasket. Thanks to our modern equipments and the particular cure dedicated in the production, we succeed to guarantee superficial hardness and tolerances truly perfect.

The Ring Joints Planisteel RJ gaskets are available in all stainless steels and in all alloy.

Standard materials

According to ASME B16.20

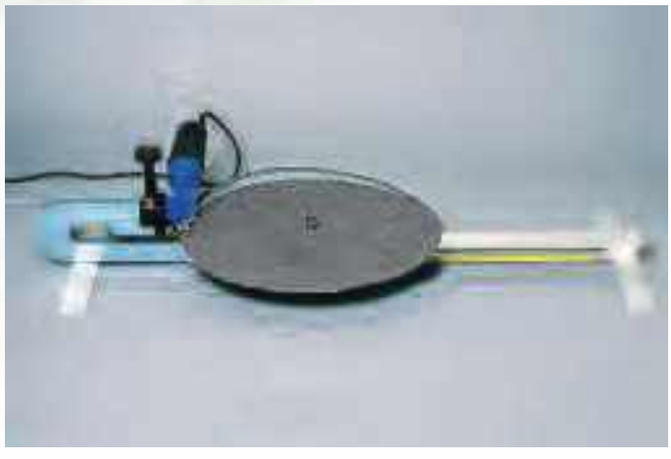
ASTM	DIN No	Max HB	Max HV	Material Code
Soft Iron	1.1003	90	56	D
Low CS	1.0038	120	78	F
4-6 Cr 1/2 Mo	1.7362	130	72	F5
AISI 410	1.4000	170	86	S 410
AISI 304	1.4301	160	83	S 304
AISI 316	1.4401	160	83	S 316
AISI 347	1.4550	160	83	S 347

References

RJ style	Gaskets	Flanges
R	ASME B16.20 - API 6A	ASME B16.5 - ANSI B16.47 series A
RX	ASME B16.20 - API 6A	API 6B
BX	API 6A	API 6BX

Easy Cutter:
your gasket maker

Easy cutter is the maintenance tool to produce FLAT GASKETS easily and quickly. Easy Cutter will become your indispensable tool to manipulate the small emergencies when the gasket are needed immediately.




LGRF GRAPHITE
S.p.A.
SHEET