



The importance of guaranteeing
for over 50 years



GF7700 GORE® GFO®



**EX-STOCK IN
SOUTH AFRICA !**



**100% GORE® GFO® PACKING
THE COMPRESSION PACKING
GF7700 FOR PUMPS AND MIXERS
IS MADE WITH GORE® GFO®. PTFE
AND GRAPHITE TOGETHER: THE
GRAPHITE IS ENCAPSULATED
IN THE EXPANDED PTFE. THE
GORE® GFO® PACKING IS SOFT
BUT POWERFUL, ELASTIC BUT
RESISTANT, EASY TO CUT AND
PUT IN PLACE...**

PVALVE PACKING

CARRARA
Global Sealing Solutions

WELCOME TO OUR SEALING WORLD

Carrara S.p.a. was the first Italian Seal Maker of flexible graphite Sigraflex® formed rings which built in house a laboratory for Helium test, to study and improve their knowledge about the fugitive emissions. The Low Emission product range today offers 5 approved stem packings which cover all international standard.

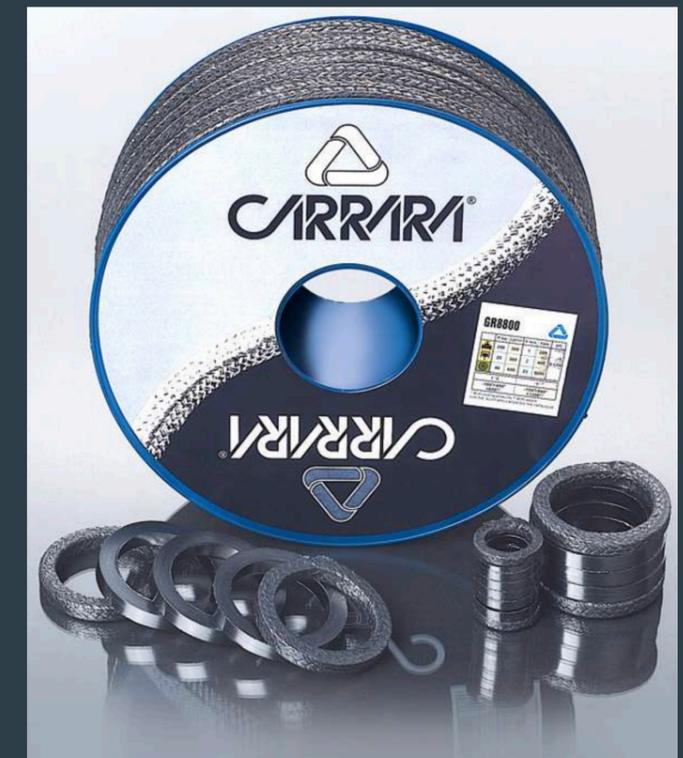
Equipped with the special wiper rings GR80SGR and the formed expanded graphite Sigraflex®, **Controller One** Evolution can work easily with all industrial fluids in high pressure and temperature services, according to the EN 14772 - section 6.7 weight loss requirements. Controller One Evolution is the Cup & Cone stem packing, Low Emissions VDI2440 approved, that offers great resistance and reliability for long time, thanks to the special configuration that preserves the packing from the aging and guarantees the recovery.

Equipped with the special packing GR80SGR and the flexible expanded graphite Sigraflex® formed Rings, **Controller 2** Evolution offers a great recovery combined with a very high aging resistance. Controller 2 Evolution it's the stem packing TA LUFT VDI2440 Low Emissions approved which can work easily with all industrial fluids in high pressure and temperature services, according to the EN 14772 - Section 6.7 weight loss requirements.

API std 622 3rd Edition packing approved. **PGT3 GR8622** it's a special 5 formed rings sealing flexible graphite APX packing. The yarns guarantee a very low weight loss (according to EN 14772, section 6.7) and great sliding properties. PGT3 GR8622 guarantees for long time great recovery and do not need retightening.

API std 622 3rd Edition and ISO 15848 BH C02 approved. packing. **PGT4 GR8622** it's a special valve stem graphite sealing set composed by die-formed flexible graphite and wiper braided rings style GR8622. PGT4 GR8622, which meets the Low Emission requirements, guarantees long life service. TA LUFT VDI 2440 approved.

Controller 3 Evolution it's a special valve graphite packing composed by formed braided rings. The braided packing is manufactured with flexible graphite Sigraflex® strands impregnated one by one with a special compound of colloidal graphite, reach of passive inhibitor of corrosion and solid lubricants (suitable also in Dry style for Oxygen use). This packing guarantees a very low weight loss (requirement EN 14772, section 6.7) and great sliding property. Controller 3, that meets the Low Emission VDI 2440 requirements, is able to preserve for a long time the recovery and the sealing performance without retightening.



Approvals

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



**Controller
One Evolution**



**Controller
2 Evolution**

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.

Approvals

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

**PGT4
GR8622**



PGT3 GR8622

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 **Valvograph** graphite seal sets for Gate, Globe, Butterfly, 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.



Approvals

- AIT greater than 500°C
- Artificial ageing: 100 hrs at 325°C and 250 Bar
- AIT of the aged sample greater than 500°C
- Impact with gaseous oxygen at 300°C
- Impact with liquid oxygen



**BAM approved
for Oxygen Services**

Product range with BAM approval for oxygen applications

GR80SGR OXY

GR80SGR OXY packing is available in packaging of 1.0, 2.5 and 5.0 kg in all the sections, for maintenance activities on oxygen application lines.

CONTROLLER 2 EVO OXY

The CONTROLLER 2 EVO OXY set in graphite is made up of packing rings such as Top & Bottom and of pressed graphite rings. The pressed rings also have BAM approval.

CONTROLLER 3 OXY

The CONTROLLER 3 OXY set in graphite is wholly made up of packing rings GR80SGR OXY stamped.

V48Z OXY e V48ZN OXY

Single rings in graphite and reinforces graphite such as static seals for valves.

SW316G OXY

Wound metal with filter in graphite for the valve bonnet and the line flange.

HOCKDRUCK

Gaskets in graphite for the valve bonnet and line flanges.

GF7700 GORE® GFO®

The GF7700 packing has the words 100% GORE® GFO® on it to guarantee its authenticity.

The special technique used to encapsulate the graphite inside the ePTFE matrix is still something that differentiates it from other types of graphite-filled PTFE.

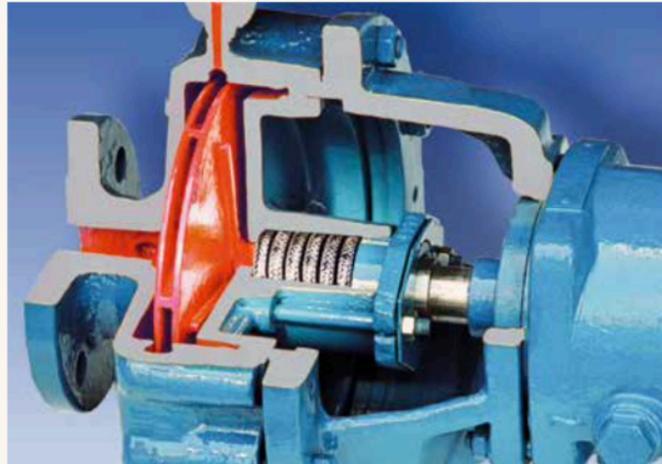
The perfect and homogeneous graphite distribution increases its heat distribution capacity when the seal is in service.

Together with the high toughness of ePTFE, this characteristic allows GF7700 GORE® GFO® to maintain excellent levels of performance.

-  **Temperature**
-200°C / +280°C
-  **Pressure range**
Piston pumps, up to 200 bar
Centrifugal pumps, up to 50 bar
-  **pH Range**
0 to 14
-  **Speed**
Piston pumps, 2 m/s
Centrifugal pumps, 25 m/s

The GF7700 100% GORE® GFO® PTFE braid for pumps gives maintenance technicians a seal for general use that is suitable for a wide range of applications and uses.

Unlike other graphite-filled PTFE packings, only those made 100% with genuine GFO® fibre made by GORE®, with its 30-year success story, can offer unequalled reliability and performance. Thanks to its service life, GF7700 is clearly top quality. GF7700 can be used to seal gland followers in high-speed pumps, mixers, agitators and generally in all rotating and reciprocating systems.



GF7700 100% GORE® GFO® does not harden nor embrittle, minimising the friction with pump shafts. Due to its excellent lubricating properties and high thermal conductivity, it can keep down the temperature of the parts in contact with the shaft, ensuring a long service life even at the highest speeds.

Easy to install and remove, GF7700 100% GORE® GFO® can be used in a wide range of temperatures and with any industrial fluids except for strong oxidants.

GR80SGR OXY

Oxygen service

GR80SGR OXY is an expanded mineral graphite that is BAM approved for industrial oxygen service valves.

The valve is made with very pure expanded graphite yarn, enriched with an oxidation retardant. It is precisely the latter feature, together with the care with which it is made, that gives GR80SGR OXY its exceptional resistance to contact with oxygen in both the liquid and gaseous states.

Every production batch can be tested in accordance with ASTM G136-03 to determine the amount of residual soluble compounds and ensure that the product is extremely clean.

Approvals

- AIT higher than 500°C
- Artificial ageing: 100h at 325°C and 250 Bar
- AIT of the aged sample higher than 500°C
- Impact with Gaseous Oxygen at 300°C
- Impact with Liquid Oxygen

**BAM approved
for services**

Oxygen Design

The BAM tests include various types of analysis to investigate the behaviour of the material in different temperature and pressure conditions with pure oxygen. The AIT (Auto Ignition Temperature) test is performed twice. First on an untreated sample and then on an aged sample.

The ageing is performed for 100 h at 325°C and 250 Bar. Impact tests with liquid and gaseous oxygen complete the compatibility analysis. **GR80SGR OXY** passed each test phase with flying colours, obtaining the BAM approval.



■ GR80SGR

TA LUFT VDI 2440 Approved

This is a valve packing made from very pure expanded graphite yarn with a special nickel alloy reinforcement. It is suitable for all uses that are compatible with graphite. Its special composition ensures excellent resistance to high pressures and temperatures with low weight losses, guaranteeing low emission levels.

Approvals

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

GR80SGR



GR80SGR, the TA LUFT packing

Elastic, resistant and simple to install

Elasticity, wear resistance, ease of installation, low emission, extrusion resistance, low oxidation rate, low friction coefficient, non-corrosive. **GR80SGR** was designed and made to achieve all of these goals!

Low oxidation rate and friction coefficient

GR80SGR is made from very pure materials, ensuring a low weight loss at high temperatures. Thanks to the special thread-by-thread impregnation with corrosion inhibitors and solid lubricants, **GR80SGR** keeps stems intact and reduces the need for re-tightening during service.

Low Emission

GR80SGR is a packing that meets the requirements of TA LUFT VDI2440, thanks to its elasticity and low permeability.



-  **Temperature**
-200°C to 650°C, with a limit of 450°C for weakly oxidising fluids and hot air.
-  **Pressure range**
It covers all the pressure classes up to API 10000 psi.
-  **pH Range**
0 to 14, except for strong oxidants.

■ GR8807

INCOBRAID®

GR8807 INCOBRAID® is a special packing for valve applications. It has unmatched elasticity in the most demanding conditions.



Approvals

- Specifically for HT - HP Valves
- High elasticity
- High extrusion resistance

GR8807 INCOBRAID®



GR8807 INCOBRAID®, effective and safe

GR8807 INCOBRAID® is a packing developed and manufactured by Carrara in a completely innovative way. Its PAN (polyacrylonitrile) graphite yarn is reinforced with thousands of discontinuous Inconel® filaments, which are very similar to PAN fibres in size.

Greater elasticity

The particular intim blending reinforcement technique makes packing body extremely compact, as well as incredibly elastic and resistant. When it is installed in a stuffing box, the packing gives a greater elastic force than that of synthetic graphite, which is still greater than that of expanded graphite and of traditional reinforced yarns with a single continuous metal filament.

Low relaxation and high extrusion resistance

The very high elastic memory of **GR8807 INCOBRAID®** remains the same over time, minimising the relaxation of the stem set and reducing the need for re-tightening. Its compactness also guarantees that there is no extrusion.

Steam, hydrocarbons and chemicals

GR8807 INCOBRAID® is effective and safe in all valve applications in power stations, refineries and petrochemical plants. Its special impregnation, enriched with a passive corrosion inhibitor, protects the stems from corrosion and ensures long-term safety and reliability.

-  **Temperature**
-100°C to 650°C, with a limit of 450°C for weakly oxidising fluids and hot air.
-  **Pressure range**
Up to 300 bar.
-  **pH Range**
0 to 14 except for strong oxidants and incompatible fluids.

GR8622

GR8622 API 622 APPROVED

GR8622 is an API 622 3rd Edition certified low emission packing for first-use seals and maintenance of industrial valves. It keeps its elastic properties and sealing performance over time without the need for re-tightening.



Temperature

GR8622 can be used equally in cryogenics at -200°C and at very high temperatures up to 650°C with non-oxidising fluids and up to 450°C with weakly oxidising fluids and hot air.



Pressure range

In order to work under any pressure condition*, GR8622 was designed with specially reinforced expanded mineral graphite yarns, impregnated with the latest generation lubricant and passive corrosion inhibitor.



Ph Range

GR8622 can be used with the whole range from 0 to 14, with the exception of strong oxidants.

*Suitable for pressure classes up to API 10000.

Approvals

- API 622 3rd Edition
- Fire Test API 589
- Corrosion Test
- Weight Loss Test EN 14772, section 6.7

GR8622



Design Low Emission



GR8622 is a graphite packing designed to minimize valve emissions. It can be used both as a first-use seal in the FULL PACKING configuration composed of 5 rings, and for the subsequent industrial valve maintenance needed to maintain the Low Emission certification.

Applications

GR8622 was designed for VOC and VHAP fluids and most non-oxidising chemicals, but it can also be used for H.P./H.T. steam valves. With GR8622, you can manage the maintenance of all the valves in the plant with a single packing, thereby reducing warehouse costs and potential packing choice errors.



CARRARA
GLOBAL SEALING SOLUTIONS

Setting Valve seals for valves

The stamping division for **Valvograph** graphite 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 emission controls and of purity of the materials.





PLANICHEM
SICHEM SOLUTIONS



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