

EXPANDED GRAPHITE MULTI LAYERS WHISTANDING HIGH STRESSES

A MULTI-INSERT STRUCTURE

SUPRANITE NGR AS is composed of very fine layers of PMUC graphite reinforced ⁽¹⁾ by several ultra-thin, semi-rigid sheets of stainless steel.

The graphite and stainless steel are bound together by means of an exclusive process which promotes the cohesive properties of SUPRANITE NGR AS.

Its compressibility which ranges from 30 to 40% coupled with an excellent level of elastic recovery of approximately 10% (see Figure 2) guarantees a high-performance gasket which is far superior to other, more conventional graphite gaskets.

(1) EXAMPLE:

For a thickness of 3 mm, SUPRANITE NGR AS is reinforced by 5 sheets of stainless steel.

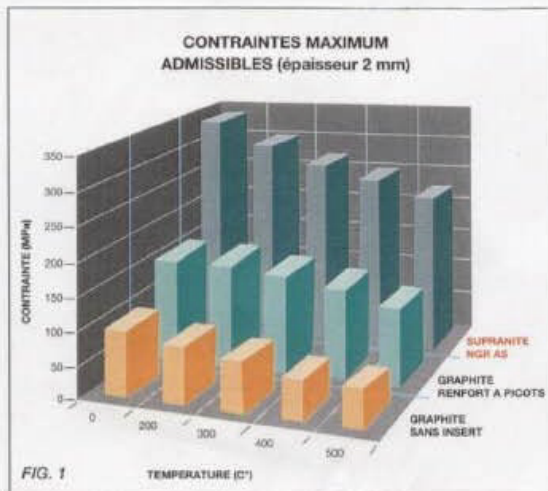
MECHANICAL RESISTANCE AT HIGH TEMPERATURE

SUPRANITE NGR AS offers exceptional features in terms of mechanical resistance at cold and at high temperatures. SUPRANITE NGR AS therefore displays remarkable properties in the most tricky of situations, e.g. in narrow recesses or narrow spans.

Figure 1 illustrates enhanced mechanical resistance to compression offered by SUPRANITE NGR AS compared with tanged graphite gaskets and graphite without insert.

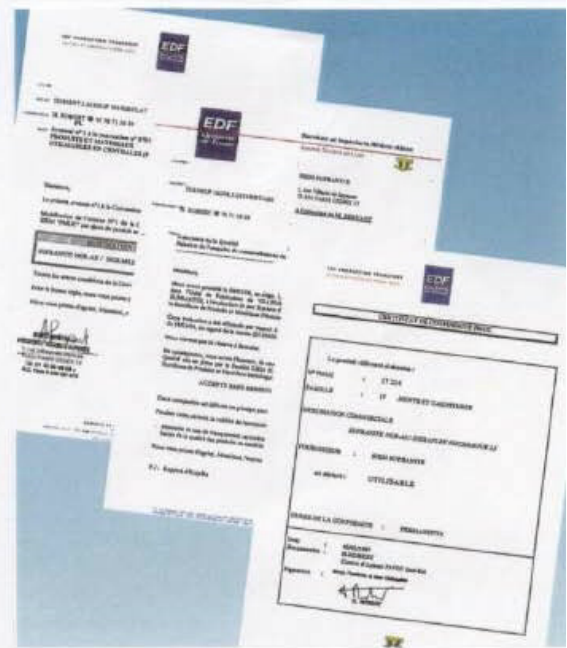
Thanks to its excellent mechanical resistance to compression, SUPRANITE NGR AS withstands the effects of thermal cycling in terms of stress resistance, deformation, permeability and gasket integrity.

SUPRANITE NGR AS can be assembled on exchangers and, in particular on tube sheets.



SUPRANITE NGR AS is available in substantial thicknesses (4 mm) without losing any of its features. Its mechanical characteristics (compressibility, low level of relaxation, elastic recovery, etc.) combined with its level of sealing will facilitate metal/metal contact assembly.

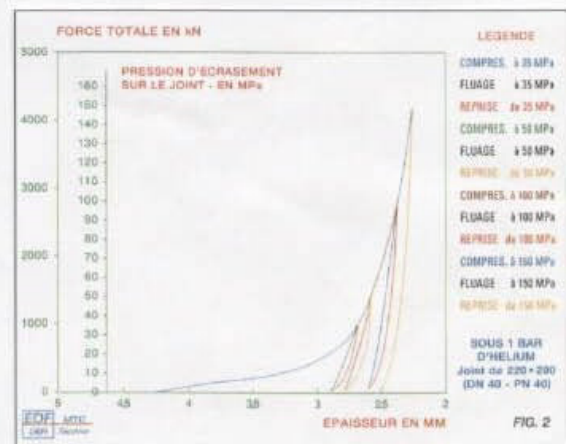
PMUC AGREEMENT



SUPRANITE NGR AS is consistent with the surface finish of the flanges and will penetrate into the microasperities. SUPRANITE NGR AS adapt easily your flanges.

Its resistance to rupture due to its extremely dense graphite structure makes it suitable for use on all types of flanges at very high operating pressures and temperatures in the presence of the most aggressive of fluids ⁽²⁾.

⁽²⁾ Contact us for a compatibility list.



TITLE / TITRE

SUPRANITE NGR AS GRAPHITE GASKET JOINT GRAPHITE SUPRANITE NGR AS

ISSUING DEPT: DEPT EMETTEUR:		ETL	SIZE / FORMAT A4		ALSTOM Turbo Machine Group						
SCALE / ECHELLE		DRAWN / DESSINE FEAT. C	DATE / DATE 26/07/07								
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		APPROVED / APPROUVE GUILLET. F		DATE / DATE 26/07/07		754D90659			1	2	A
FIRST ORDER / 1er CONTRAT:					DRG ORIGIN / DOC ORIGINE: DRG / DOC ORIGIN						

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Tolerances of untoleranced dimensions as per NBV A77500

Dept. Document No. 9010 754D90659 Type Z Rev. Released 2007-07-26 85 Status Approved

Tol_rances des cotes sans tol_rances suivant NBV A77500

NBV Z91424 B

Tolerances of
untoleranced dimensions
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Dept	Document No.	Type	Rev. Released	Ing.	Status
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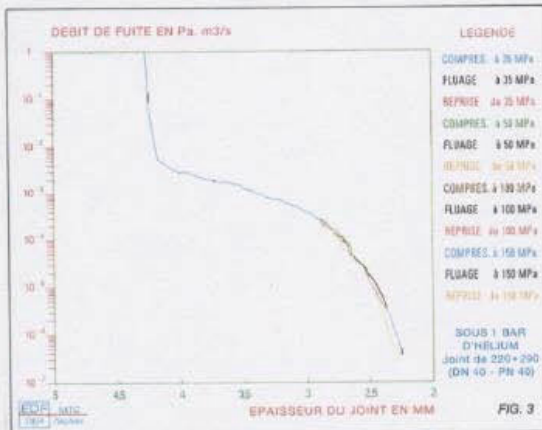
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sans tol_rances suivant
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EXPANDED GRAPHITE MULTI LAYERS WHISTAND HIGH STRESSES

STEAM RESISTANCE

Thanks to its multi-layered structure, SUPRANITE NGR AS possesses excellent steam resistance, as corroborated by its thermal stability, mechanical resistance at high temperatures and its level of sealing confirmed in tests carried out in steam within the scope of the EUROPEAN PROJECT (BRITE 5191). Typical curves (Figure 3) illustrating the level of sealing of SUPRANITE NGR AS indicate a highly satisfactory result, right from the initial clamping of the gasket.



NON-AGGRESSIVE PHYSICO-CHEMICAL CHARACTERISTICS

Report GDL D.5001/LQE/DIX/RC 92 1020/ind.0

. HALOGEN CONTENT:

200 ppm max.

. ION CHLORIDE CONTENT:

30 ppm max., generally less than 10 ppm.

. SULPHUR CONTENT:

200 ppm max.

TECHNICAL CHARACTERISTICS

Max. temperature in an inert atmosphere	800°C
Max. temp. in cool. steam service	500°C
Minimum temperature	-210°C
Maximum pressure	250 bar
Compressibility according to ASTM	30 to 40%
Elastic recovery according to ASTM	15 to 20%
Density	1.1
Colour	black

TYPICAL VALUES FOR A THICKNESS OF 2 mm

Temperature and pressure unrelated.

USES AND SIMPLE MAINTENANCE PROCEDURES

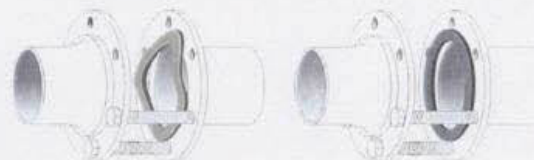
. Good bending strength

SUPRANITE NGR AS marks less easily than standard graphite and is resistant to minor scratches

INTRINSIC RIGIDITY

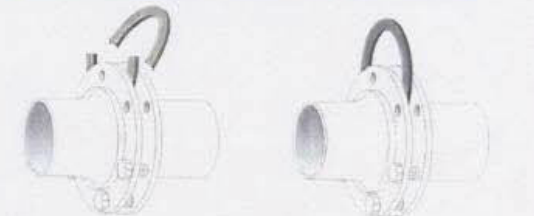
The multi-layered structure which binds the graphite and the multi-inserts together to form very fine layers of stainless steel by means of a process exclusive to SUPRANITE NGR AS confers intrinsic rigidity which makes the gasket easier to handle and to fit.

This facilitates gasket centring and insertion between flanges.



Facilitates assembly, centring and insertion between flanges

STRAIGHTFORWARD ASSEMBLY AND DISMANTLING WITH NO RISK OF RUPTURE



The gasket is not ruptured before assembly.

MAIN AREAS OF APPLICATION

- . Energy (nuclear power/thermal plants and conventional plants)
- . Petrochemical, iron and steel and paper industries, fertilisers
- . Chemical industry
- . Pharmaceutical industry

EDF "unreserved" PMUC registration with no "deviation".
This grade is the object of technical agreement.

No. S76 14033/SUPRANITE NGR AS /No. PMUC 17 214.

SHEETS MEASURING 1000 X 1000 MM QUANTITY OF SHEETS PER PACKING

Thickness	1 mm	1.5 mm	2 mm	3 mm	4 mm
Amount of sheets	3	2	2	2	1

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