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Made in EU

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A perfect fit

TESNIT[®]

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GRAFILIT[®]

DONIFLON[®]

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STEAM
TRAP VALVE
CASE

Problem description

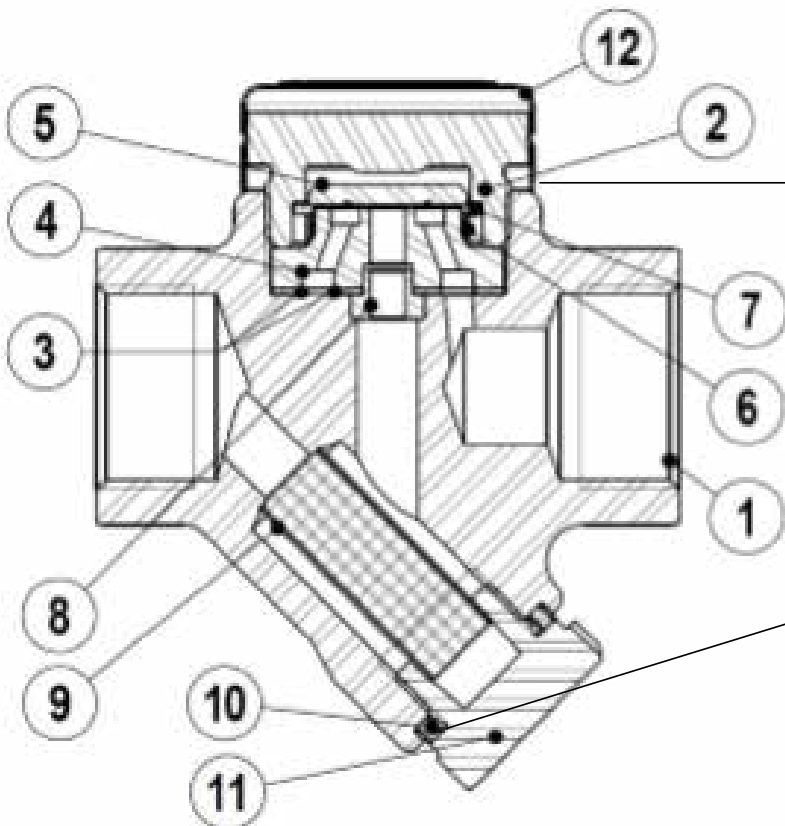
One of our customers was faced with steam trap valve challenge. We are talking about saturated and superheated steam at 46 bar and 400°C. Previous graphite gasket materials applied to the valve broke up during installation, as they were instable and prone to friction movement. Pieces of remaining gasket had to be removed and seating of the gasket to be cleaned.



Figure 1: Threaded – nickel plated



Figure 2: Flanged and SW black painted



2 - GASKET

10 - GASKET

Figure 3: Steam trap valve scheme

Solution

GRAFILIT® IQ - A special engineered high quality gasket sheet material with outstanding anti-stick performance. It is made of exfoliated natural graphite foil laminated by a special process to an expanded chromium-nickel-steel insert (1.4404 / AISI 316L):

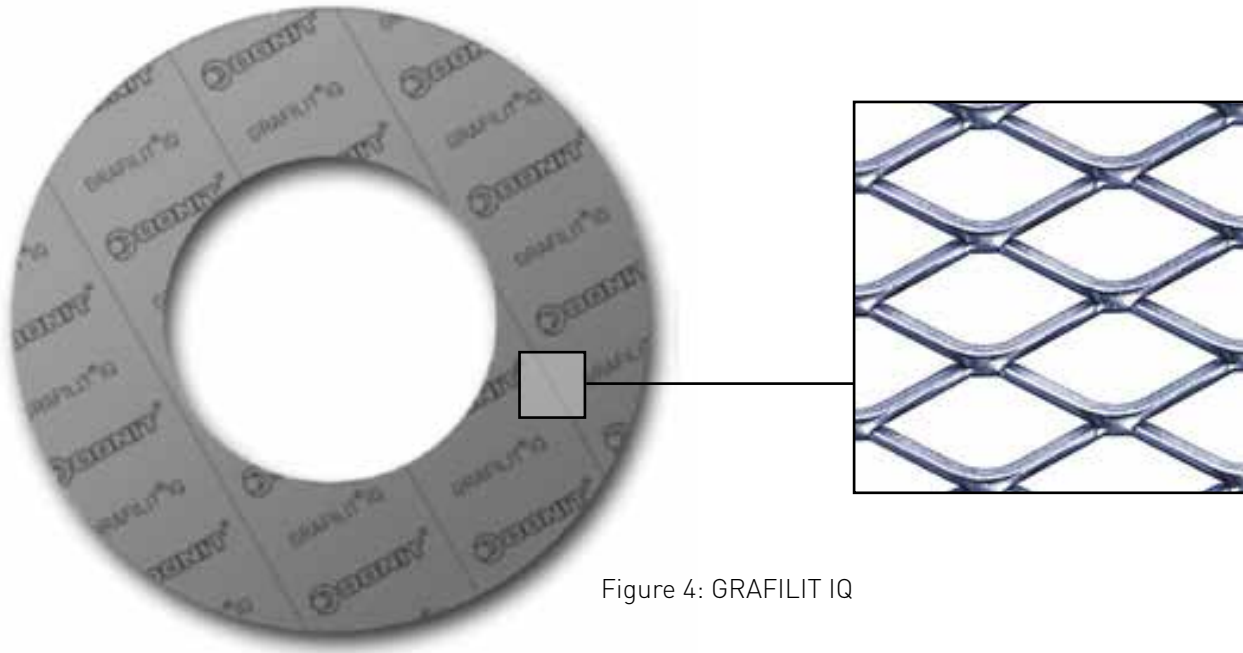


Figure 4: GRAFILIT IQ

Grafilit IQ with exceptional thermo-mechanical properties:

- Excellent anti-stick performance
- Complies to the most stringent Fugitive Emissions regulations
- Fire Safe according to EN10497 (incorporates API607 & BS6755)



Figure 5: Fire safe test



Figure 6: Fire safe test

Benefits

As GRAFILIT® IQ is more stable, it does not break so easy unlike previously used graphite gaskets.

Grafilit IQ due to its excellent anti-stick properties, is easy to remove and does not leave any remaining debris on the faces and therefore easy to install a new set of gaskets.



Figure 7: GRAFILIT® IQ application



GRAFILIT® IQ is an engineered graphite-based composite material endowed with mechanical reinforcement and anti-stick property making it suitable for high temperature applications. This heavy-duty material has improved surface load resistance (in particular for cycling operations) and blowout resistance.

PROPERTIES

	MECHANICAL RESISTANCE	THERMAL RESISTANCE	SEALABILITY PERFORMANCE	CHEMICAL RESISTANCE
SUPERIOR				
EXCELLENT				
VERY GOOD				
GOOD				
MODERATE				

APPROPRIATE INDUSTRIES & APPLICATIONS

- | | |
|---|---------------------------|
| GENERAL PURPOSE | SHIPBUILDING |
| STEAM SUPPLY | POWER PLANT |
| GAS SUPPLY | REFRIGERATION AND COOLING |
| CHEMICAL INDUSTRY | HEATING SYSTEMS |
| PETROCHEMICAL INDUSTRY | HIGH TEMP. APPLICATIONS |
| PAPER AND CELLULOSE INDUSTRY | COMPRESSORS AND PUMPS |
| AUTOMOTIVE AND ENGINE BUILDING INDUSTRY | VALVES |

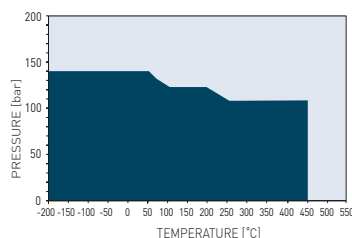
Composition	Expanded natural graphite (>99% graphite purity) laminated by a special process to an expanded chromium-nickel-steel (AISI 316L; 0.15 mm) insert
Colour	Silver
Approvals	ISO 10497 (fire safe test), DIN-DVGW DIN 3535-6

TECHNICAL DATA Typical values for a thickness of 1.5 mm

Density	DIN 28090-2	g/cm ³	1.4
Compressibility	ASTM F36A	%	35
Recovery	ASTM F36A	%	22
Tensile strength (longitudinal)	ASTM F152	MPa	25
Tensile strength (transversal)	ASTM F152	MPa	9
Stress resistance	DIN 52913		
16 h, 50 MPa, 300 °C		MPa	48
Specific leak rate	DIN 3535-6	mg/(s·m)	0.05
Leachable chloride content	FSA NMG 202	ppm	<20
Leachable fluoride content	FSA NMG 203	ppm	<20
Thickness increase	ASTM F146		
Oil IRM 903, 5 h, 150 °C		%	3.5
ASTM Fuel B, 5 h, 23 °C		%	6.0
Ash content of graphite	DIN 51903		<1
Compression modulus	DIN 28090-2		
At room temperature: ϵ_{KSW}		%	32
At elevated temperature: $\epsilon_{WSW/300\text{ °C}}$		%	2.5
Percentage creep relaxation	DIN 28090-2		
At room temperature: ϵ_{KRW}		%	4
At elevated temperature: $\epsilon_{WRW/300\text{ °C}}$		%	3.0
Operating conditions			
Minimum temperature		°C/°F	-200/-328
Continuous maximum temperature			
- oxidizing atmosphere		°C/°F	550/1022
- reducing or inert atmosphere		°C/°F	700/1292
Maximum pressure		bar/psi	200/1450

P-T DIAGRAM

EN 1514-1, Type IBC, PN 40, DIN 28091-2 / 3.8, 1.5 mm



- General suitability - Appropriate measures ensure maximum performance for joint design and gasket installation.
- Limited suitability - Technical consultation is mandatory.

P-T diagrams indicate the maximum allowed combination of internal pressure and service temperature which can be applied simultaneously for a given gasket depending on its material type, thickness, size and tightness class. Given the variety of gasket applications and service conditions, these values should only be regarded as guidance for the proper gasket assembly. In general, thinner gaskets exhibit better P-T properties.

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