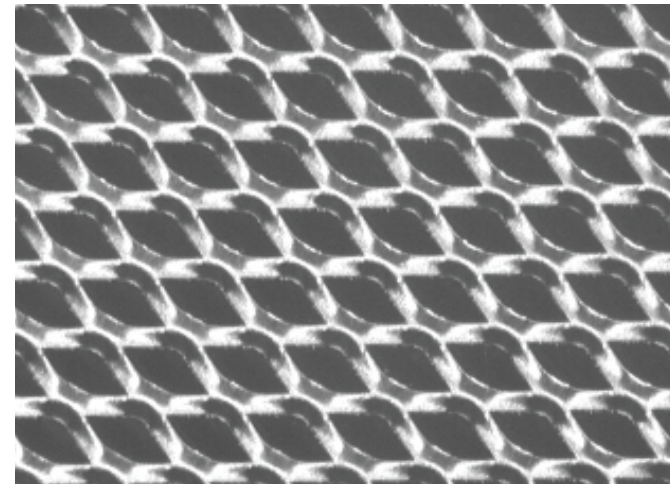


A special engineered high quality sheet made of expanded natural graphite foil impregnated with an anti-oxidation and anti-corrosion inhibitor, reinforced by an expanded stainless (AISI 316L) steel insert with outstanding anti-stick performance.

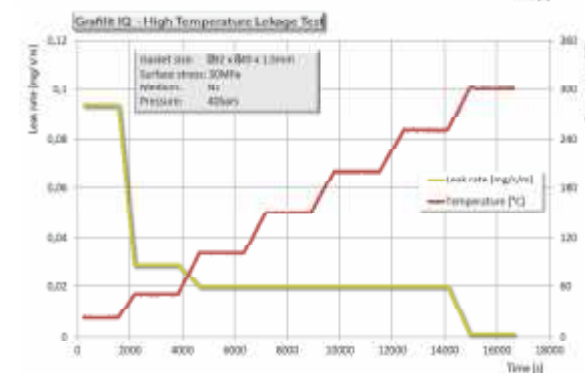
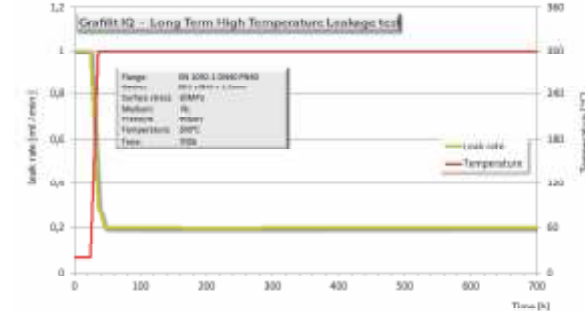


Composition: expanded natural graphite with >98% graphite purity (> 99% initial purity) laminated by a special process to an expanded chromium-nickel-steel insert (AISI 316L- 0.15 mm).

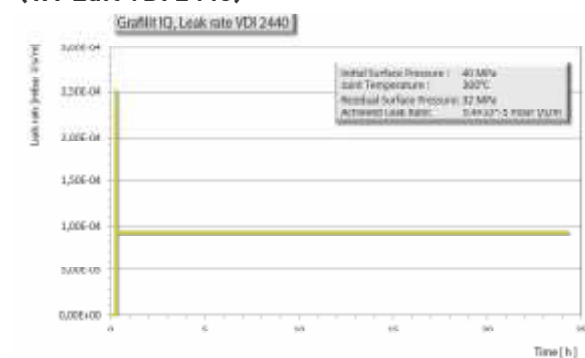
ADVANTAGES

- Superior anti-stick performance
- Easy handling
- Excellent load distribution
- Excellent adaptability to irregularities or scratches on the flange surface
- No hardening or ageing due to absence of binders
- High pressure and temperature resistance even under cycling conditions
- Lowest sulphur content
- Suitable for corrosive media
- Complies to Low Fugitive Emission regulations
- Complies to Fire Safe Test API 607 and ISO 10497
- Complies to TA Luft VDI 2440

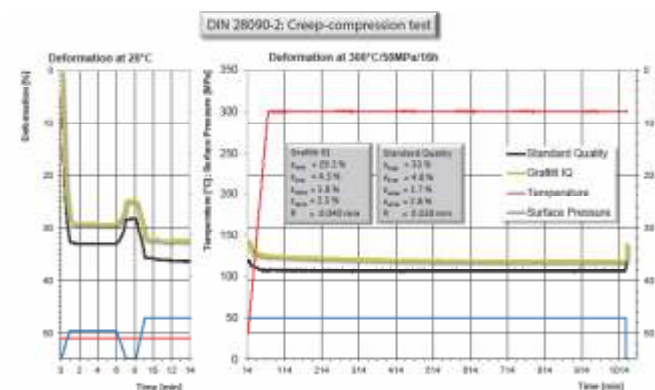
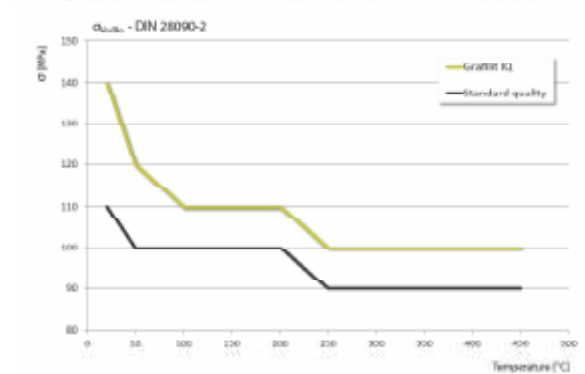
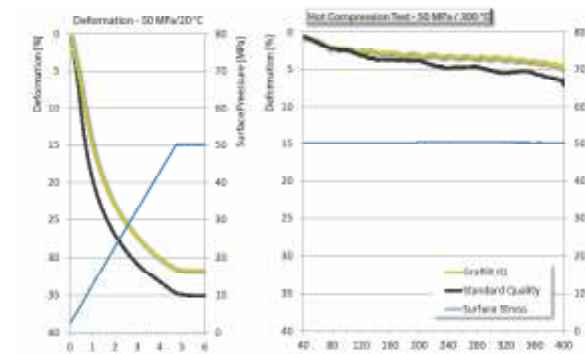
Excellent leakage performance



Complies to Low Fugitive Emission regulation (TA-Luft VDI 2440)



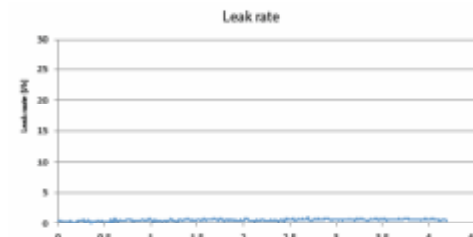
Excellent thermo-mechanical performance



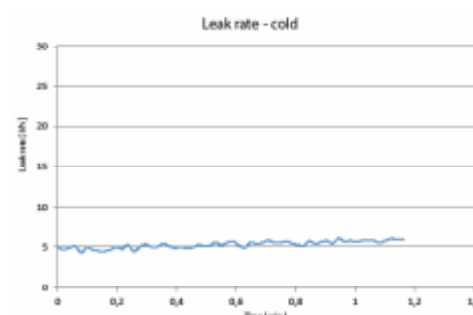
FIRE SAFE PRODUCT

Complies to Fire Safe Test DVGW VP 401

The state of the gasket after opening the joint also shows the superb thermo mechanical properties and fire safety of Graitlit IQ. These same properties make it suitable even for the most demanding applications.



Pass criteria is leak rate under 30l/h.



The average leak rate of the seal was 0.5 l/h.

The leak rate was of average 5l/h after cooling down.

Complies to Fire Safe Test API 6FB



Outstanding anti-stick properties

The unique composition of Graitlit IQ results in outstanding anti-stick properties.

Removing a stuck gasket from the flange surface can be a tedious and labour intensive task that can end up damaging the flange surfaces. The amount of time spent on cleaning flanges can be significant, and in many services, the plant must remain off-line longer while the gaskets are removed, resulting in a loss of production.

By using Graitlit IQ we enable you to optimize your resources and shorten your maintenance duration.

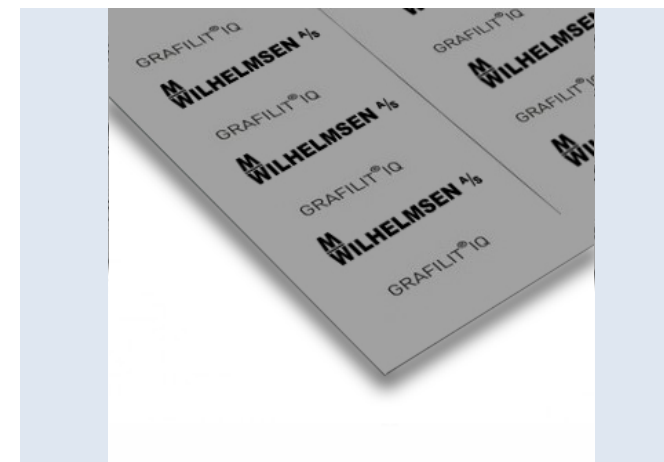


Without anti-stick



Graitlit IQ with outstanding anti-stick performance

MADE IN EU



M WILHELMESEN A/S

GRAFILIT® IQ



GRAFILIT® IQ is an engineered graphite-based composite material endowed with mechanical reinforcement and anti-stick property making it suitable for high temperature applications with improved resistance against flange corrosion. 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% (initial >99% graphite purity) with anti-oxidation and anti-corrosion inhibitors laminated by a special process to an expanded chromium-nickel-steel insert (AISI 316L; 0.15 mm)
Color	Silver
Approvals	ISO 10497 (fire safe test), DIN-DVGW DIN 3535-6, TA Luft VDI 2440

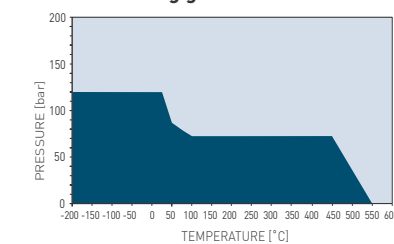
TECHNICAL DATA Typical values for a thickness of 1.5 mm

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	MPa	
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
Total sulphur content	ASTM D5016	ppm	<100
Oxidation rate in air at 670 °C (TGA)		%/h	<3
Thickness increase	ASTM F146		
Oil IRM 903, 5 h, 150 °C		%	3.5
ASTM Fuel B, 5 h, 23 °C		%	5.0
Ash content of graphite	DIN 51903		<1
Compression modulus	DIN 28090-2		
At room temperature: ϵ_{KSW}		%	32
At elevated temperature: $\epsilon_{KSW/300 °C}$		%	2.5
Percentage creep relaxation	DIN 28090-2		
At room temperature: ϵ_{KRW}		%	4
At elevated temperature: $\epsilon_{KRW/300 °C}$		%	3.0
Operating conditions		°C/°F	-200/-328
Minimum temperature			
Continuous maximum temperature			
- oxidizing atmosphere		°C/°F	550/1022
- reducing or inert atmosphere		°C/°F	700/1292
Maximum pressure		bar/psi	200/2900

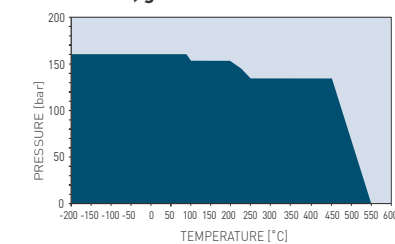
P-T DIAGRAMS

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

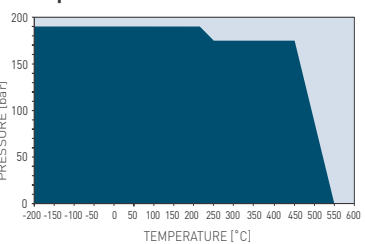
Demanding gasses



Steam, gasses



Liquids



- 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.

CHEMICAL RESISTANCE CHART

The recommendations made here are intended as a guideline for the selection of a suitable gasket type. As the function and durability of products are dependent upon a number of factors, the data may not be used to support any warranty claims.

Legend: + Recommended, ? Recommendation depends on operating conditions, - Not recommended.

Acetamide	+	Butyric acid	+	Formic acid, 85%	?	N-Methyl-pyrrolidone (NMP)	+	Silicones (oil/grease)	+
Acetic acid, 10%	+	Calcium chloride	?	Formic acid, 100%	?	Milk	+	Soaps	+
Acetic acid, 100% (Glacial)	?	Calcium hydroxide	+	Freon-12 (R-12)	+	Mineral oil (ASTM no.1)	+	Sodium aluminate	+
Acetone	+	Carbon dioxide (gas)	+	Freon-134a (R-134a)	+	Motor oil	+	Sodium bicarbonate	+
Acetonitrile	+	Carbon monoxide (gas)	+	Freon-22 (R-22)	+	Naphtha	+	Sodium bisulfite	+
Acetylene (gas)	+	Cellosolve	+	Fruit juices	+	Nitric acid, 10%	?	Sodium carbonate	+
Acid chlorides	?	Chlorine (gas)	?	Fuel oil	+	Nitric acid, 65%	?	Sodium chloride	+
Acrylic acid	+	Chlorine (in water)	-	Gasoline	+	Nitrobenzene	+	Sodium cyanide	+
Acrylonitrile	+	Chlorobenzene	+	Gelatin	+	Nitrogen (gas)	+	Sodium hydroxide	+
Adipic acid	+	Chloroform	+	Glycerine (Glycerol)	+	Nitrous gases (NOx)	?	Sodium hypochlorite (Bleach)	-
Air (gas)	+	Chloroprene	+	Glycols	+	Octane	+	Sodium silicate (Water glass)	+
Alcohols	+	Chlorosilanes	?	Helium (gas)	+	Oils (Essential)	+	Sodium sulfate	+
Aldehydes	+	Chromic acid	-	Heptane	+	Oils (Vegetable)	+	Sodium sulfide	?
Alum	?	Citric acid	?	Hydraulic oil (Glycol based)	+	Oleic acid	+	Starch	+
Aluminium acetate	?	Copper acetate	+	Hydraulic oil (Mineral type)	+	Oleum (Sulfuric acid, fuming)	-	Steam	+
Aluminium chlorate	?	Copper sulfate	+	Hydraulic oil (Phosphate ester based)	+	Oxalic acid	?	Stearic acid	+
Aluminium chloride	-	Cresote	+	Hydrazine	+	Oxygen (gas)	+	Styrene	+
Aluminium sulfate	+	Cresols (Cresylic acid)	+	Hydrocarbons	+	Palmitic acid	+	Sugars	+
Amines	+	Cyclohexane	+	Hydrochloric acid, 10%	-	Parafin oil	+	Sulfur	+
Ammonia (gas)	+	Cyclohexanol	+	Hydrochloric acid, 37%	-	Pentane	+	Sulfur dioxide (gas)	+
Ammonium bicarbonate	+	Cyclohexanone	+	Hydrofluoric acid, 10%	-	Perchloroethylene	+	Sulfuric acid, 20%	-
Ammonium chloride	?	Decalin	+	Hydrofluoric acid, 48%	-	Petroleum (Crude oil)	+	Sulfuric acid, 98%	-
Ammonium hydroxide	+	Dextrin	+	Hydrogen (gas)	+	Phenol (Carbolic acid)	+	Sulfuryl chloride	-
Amyl acetate	+	Dibenzyl ether	+	Iron sulfate	+	Phosphoric acid, 40%	?	Tar	+
Anhydrides	+	Dibutyl phthalate	+	Isobutane (gas)	+	Phosphoric acid, 85%	?	Tartaric acid	?
Aniline	+	Dimethylacetamide (DMA)	+	Isooctane	+	Phthalic acid	+	Tetrahydrofuran (THF)	+
Anisole	+	Dimethylformamide (DMF)	+	Isoprene	+	Potassium acetate	+	Titanium tetrachloride	-
Argon (gas)	+	Dioxane	+	Isopropyl alcohol (Isopropanol)	+	Potassium bicarbonate	+	Toluene	+
Asphalt	+	Diphenyl (Dowtherm A)	+	Kerosene	+	Potassium carbonate	+	2,4-Toluenediisocyanate	+
Barium chloride	?	Esters	+	Ketones	+	Potassium chloride	+	Transformer oil (Mineral type)	+
Benzaldehyde	+	Ethane (gas)	+	Lactic acid	?	Potassium cyanide	+	Trichloroethylene	+
Benzene	+	Ethers	+	Lead acetate	+	Potassium dichromate	?	Vinegar	+
Benzoic acid	+	Ethyl acetate	+	Lead arsenate	+	Potassium hydroxide	+	Vinyl chloride (gas)	+
Bio-diesel	+	Ethyl alcohol (Ethanol)	+	Magnesium sulfate	+	Potassium iodide	+	Vinylidene chloride	+
Bio-ethanol	+	Ethyl cellulose	+	Maleic acid	+	Potassium nitrate	+	Water	+
Black liquor	?	Ethyl chloride (gas)	+	Malic acid	?	Potassium permanganate	?	White spirits	+
Borax	+	Ethylene (gas)	+	Methane (gas)	+	Propane (gas)	+	Xylenes	+
Boric acid	+	Ethylene glycol	+	Methyl alcohol (Methanol)	+	Propylene (gas)	+	Xylenol	+
Butadiene (gas)	+	Formaldehyde (Formalin)	+	Methyl chloride (gas)	+	Pyridine	+	Zinc sulfate	+
Butane (gas)	+	Formamide	+	Methylene dichloride	+	Salicylic acid	+		
Butyl alcohol (Butanol)	+	Formic acid, 10%	+	Methyl ethyl ketone (MEK)	+	Seawater/brine	?		

All information and data quoted are based upon years of experience in the production and operation of sealing elements. This data may not be used to support any warranty claims. With its publication this latest edition supersedes all previous issues and is subject to change without further notice.

Dimensions of standard sheets

Sheet size (mm): 1000 x 1000 | 1000 x 2000 | 1500 x 1500
 Thickness (mm): 1.0 | 1.5 | 2.0 | 3.0
 Other dimensions and thicknesses are available on request.