

novaphit® SSTC TA-L

Lowest costs – highest value.

Best Available Techniques (BAT) for strictest fugitive emission regulations.



GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

 **Frenzelit**

creating
hightech
solutions

Lowest costs – highest value

novaphit® SSTC^{TA-L} is the first flat gasket material for universal application which fulfils the requirements of plant engineering and the chemical/petrochemical industry. It therefore sets a new standard for all gasket requirements in plants, combining maximum safety with enormous cost-saving potential.

The EU IPPC Directive, the US Clean Air Act or the Kyoto Protocol are just some of the fugitive emission regulations that companies have to observe. IPPC stands for Integrated Pollution Prevention and Control. The objective of the European IPPC Directive 96/61/EC is to minimise pollution throughout the European Union. Germany has already implemented the directive with the latest amendments to the TA Luft and VDI 2440 on emission reduction at oil refineries. Other European countries have to introduce similar national regulations by 2007.

novaphit® SSTC^{TA-L} fulfils the strict German fugitive emission regulation TA Luft, as has been proved by two independent testing facilities. It does not matter whether it has an inner eyelet or not; it can be made directly from sheet.

novaphit® SSTC^{TA-L} is the foolproof plant-wide standard gasket that complies in full with the Best Available Techniques (BAT) according to Council Directive 96/61/EC and low or zero emission requirements.

- no leakage
- observes global fugitive emission regulations
- one fits all – standardise your gasket diversity
- maximise your plant safety
- speed up availability – get your tailor-made gasket within 5 minutes
- very forgivable in terms of overcoming flange surface imperfections
- reduce your costs
- active contribution for a clean environment

Unique material profile for maximum safety requirements

- Gradient gasket material made from expanded graphite (purity level at least 99 %), with an internal impregnation and an acid-proof expanded metal insert made from chrome-nickel steel (material no. 1.4404/AISI 316 L)
- Material compound without any binders and fillers

High heat and mechanical resistance

- From -240 °C to +550 °C
- Very high operating pressure levels of up to 200 bar

Excellent properties

- Outstanding handling properties thanks to optimum choice of the components and the low mesh size of the expanded metal insert
- novaphit® SSTC^{TA-L} can be processed very effectively not only with standard die-cutting equipment but also in manual finishing operations and with CNC-plotters

Unique media resistance

- Resistant to practically all organic and inorganic acids, alkalis, oils and solvents

Typical application areas for novaphit® SSTC^{TA-L}

- The gasket concept for the tougher safety requirements and fugitive emission regulations that have to be observed today
- All-purpose use in industry in general
- Covers the complete range of classic gaskets
- Suitable for all applications in extreme conditions, including changing loads
- Compliance with TA-Luft in all areas:
 - Petrochemical industry
 - Chemical industry
 - Plant engineering

Advantages of the expanded metal insert used

Expanded metal made from extremely acid-proof stainless steel

The material is resistant to corrosion and acids (material no. 1.4404/AISI 316 L).

Thickness of the expanded metal insert used

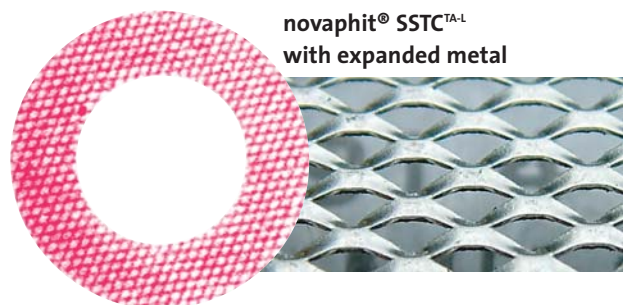
Expansion of the stainless steel foil used (0.15 mm) produces a three-dimensional structure with a considerably thicker projected height (about 0.5 mm), as a result of which genuine “chambering” of the gasket core is achieved. Minimisation of the danger of injury during handling and processing – no “sharp” cut edges.

Geometry of the stainless steel insert

- Better use of the surface pressure available to compress the graphite, because no “crowns” have to be bent.
- No undercutting in the insert material.

The graphite foil covers and surrounds the insert almost completely. Optimisation of surface pressure distribution is a major advantage of expanded metal inserts over other insert concepts. This is demonstrated impressively by the closed lines of increased surface pressure (see the Fuji film picture of novaphit® with expanded metal).

- The favourable mesh geometry (mesh size = passo 3.0 mm) makes it possible to produce gaskets with very narrow projections.
- Easy cutting, handling benefits in manual and/or in-house finishing.
- Considerably less danger of layer separation when the gasket is bent. Even if bending does occur, the graphite foil is pressed into position around the insert again completely when pressure is applied to the gasket during installation in the flange, i.e. larger tolerance with respect to installation faults.
- The “countless” bends in the insert are irreversible because of strain hardening, i.e. the insert has a good recovery and participates actively in the sealing process! This guarantees greater gasket reliability, above all at higher surface pressure levels.
- The new novaphit® SSTC^{TA-L} performs impressively in a direct comparison with smooth metal inserts thanks to its open insert design principle too. Due to this principle, not just the external graphite layer but also a considerably greater thickness is available to compensate flange damage.



Graphite gasket ...

...with tanged metal

... with smooth metal

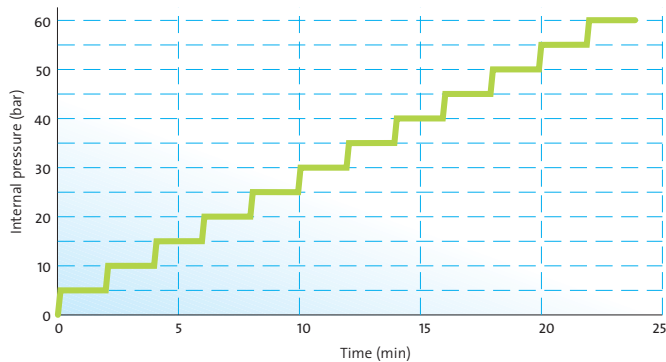
Fuji film picture

- Sensitivity: medium



Technical information about novaphit® SSTC^{TA-L}

Blow-out test passed easily

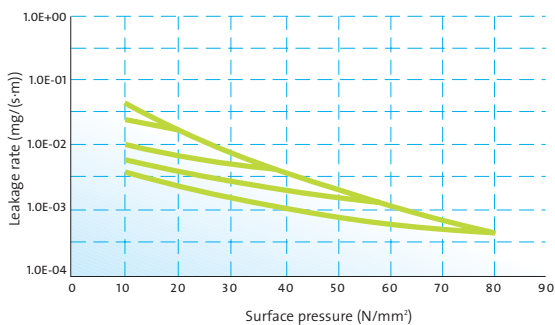


Proof of the blow-out resistance of the gasket system is required in addition to leakage testing. According to the version of VDI 2200 (draft 06/2005), the gasket has to be able to withstand 1.5 times nominal pressure at very reduced surface pressure levels. The gasket is fitted in a DIN flange PN40/DN40 at 30 N/mm².

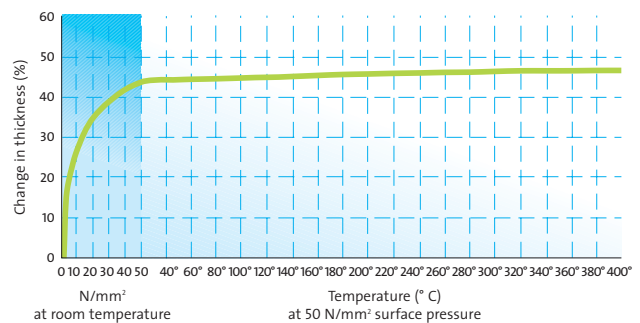
After storage of the flange system at 300 °C for 24 hours, nitrogen is applied gradually at a pressure of up to a maximum of 60 bar. Pressure would drop very rapidly if the gasket failed.

The gasket is then tested at two considerably reduced surface pressure levels. If the test is passed at 10 N/mm², a further reduction is made to 7.5 N/mm². Even in the most critical case of an extremely low surface pressure level of 7.5 N/mm² and maximum pressure of 60 bar, novaphit® SSTC^{TA-L} demonstrates its impressive blow-out resistance in line with the German pollution regulations – without inner eyelet. We can provide a certificate confirming this on request.

Leakage-surface pressure (L, σ) according to DIN EN 13555

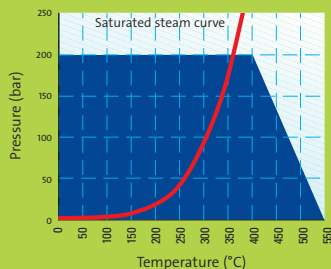


Deformation under temperature 1.6 mm

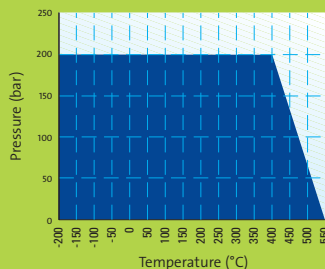


Recommendations for use according to the pressure and temperature

Water/steam



Other media*



The temperature and pressure recommendations in the graphs apply to gaskets with a thickness of 1.6 mm and smooth flanges. Higher stresses are possible when thinner gaskets are used!

*Example for the most common other media. Exact data for specific individual cases are available in the Frenzelit novaDISC programme or contact our application engineering specialists.

Warranty exclusion

In view of the variety of different installation and operation conditions and application and process engineering options, the information given in this prospectus can only provide approximate guidance. There is as a result no basis for warranty claims.

Material data

Installation instructions

- Clean the contact areas, remove old gasket material without damaging the surface of the flange.
- Check whether the flange surfaces are parallel and even and make adjustments if necessary.
- Check gaskets that have been stored in a dry place for cracks, surface damage and dimensional accuracy before installing them. In the case of gaskets with holes in them, make sure the hole pattern coincides with the holes in the flange.
- Do not use any auxiliary sealing agents!
- Check whether the screws are working properly before installing the gaskets and use new screws if necessary.
- Uniform and careful initial installation by hand.
- Use a torque wrench to tighten the screws diagonally in 3 stages (first of all with about 50 % torque, then with about 80 % and finally with 100 %).

General data

Binders	-		
Approvals	TA Luft, Firesafe (API607 / BS6755), BAM (O ₂ :200°C/130 bar), DVGW		
Colour	graphite		
Printing	platin grey		
Sheet sizes and thickness tolerance	according DIN 28 091-1		
Physical properties	Standard	Unity	Value*
Gasket thickness 1.6 mm			
Identification	DIN 28 091-4		GR-10-I-1M-Cr
Density	DIN 28 090-2	[g/cm ³]	1.40
Tensile strength	DIN 52 910		
longitudinal		[N/mm ²]	25
transverse		[N/mm ²]	10
Residual stress $\sigma_{dE/16}$	300°C	DIN 52 913	[N/mm ²] > 45
Compressibility	ASTM F 36 J	[%]	30
Recovery	ASTM F 36 J	[%]	20
Cold compressibility ϵ_{KSW}	DIN 28 090-2	[%]	30 - 40
Cold recovery ϵ_{KRW}	DIN 28 090-2	[%]	3.5 - 5
Hot creep $\epsilon_{WSW/300}$	DIN 28 090-2	[%]	< 5
Hot recovery $\epsilon_{WRW/300}$	DIN 28 090-2	[%]	> 3
Recovery R	DIN 28 090-2	[mm]	0.065
Leakage (TA Luft)	VDI 2200 (draft)	[mbar·l/(s·m)]	< 0.0001
Flangetest 30 MPa, 300°C, 1 bar Helium			
Blow-out test	VDI 2200 (draft)		
Class A (30 MPa, 60 bar, N ₂)			passed
Class B (10 MPa, 60 bar, N ₂)			passed
Class C (7.5 MPa, 60 bar, N ₂)			passed
Chloride content	DIN 28 090-2	[ppm]	≤ 50

* Modal value (typical value)

Product data

- Dimensions in mm:
1000 x 1000
1500 x 1500
- Thickness in mm:
1.0/1.6/2.0/3.0
- Further dimensions and thicknesses are available on request

The technical data stated has been determined with standard material under laboratory conditions. With the variety of installation and operating conditions no guarantee claim can be inferred regarding the behaviour of a flanged joint. We reserve the right to product changes which serve the purpose of technical progress.

Do you have any questions about your application?

The gasket information service will help you:

gaskets@frenzelit.de

Good for people and the environment.

Frenzelit has obtained certification that the company complies with the requirements of both ISO/TS 16949 and ISO 14001. This means complete transparency in all areas and a high degree of security for our customers.

TA Luft

Since October 2002 plant operators have had to observe the drastically tightened threshold values on diffuse emissions – that's what the revised German Fugitive Emission Regulation TA Luft requires which have thus been adjusted to the new European regulation (Council Directive 96/61/EC) as well as to new environmental and technical standards.

novaphit® SSTC^{TA-L} has been certified by the independent company Amtec. The result: Classified as a high quality sealing system according to the test criteria VDI 2440 and TA Luft.

novaphit® SSTC^{TA-L} meets the TA Luft criteria easily with a measured helium leakage rate of **8·10⁻⁵ mbar·l/(s·m)**.

Firesafe Test

novaphit® SSTC^{TA-L} is approved acc. to API 607 and BS 6755.

Quality management

ISO/TS 16949

Environmental management

ISO 14001



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hightech
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