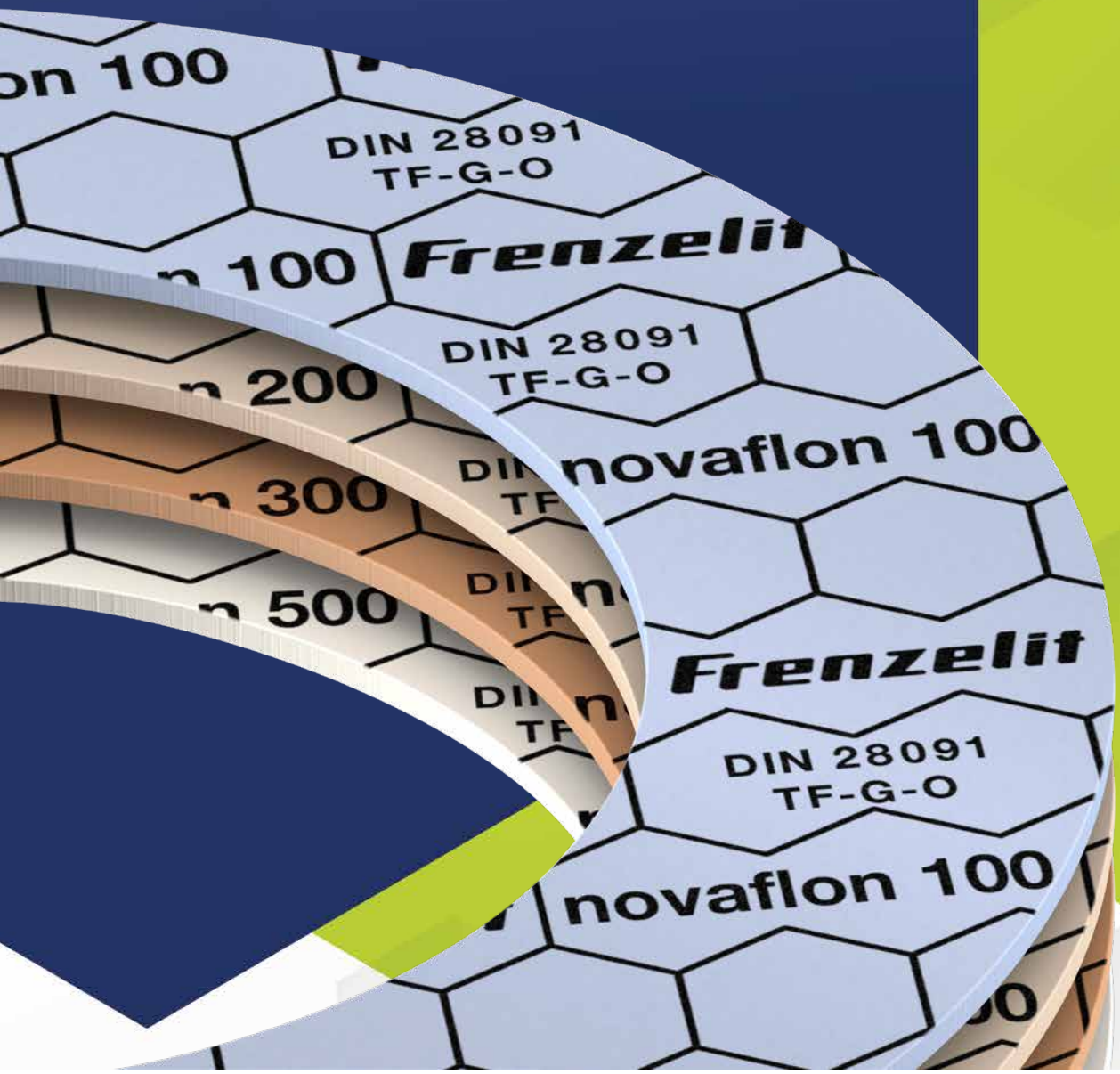
Frenzelit

novaflon®

PTFE gaskets

For highly aggressive chemicals
in industrial applications



DICHTUNGEN GASKETS | **ISOLATIONEN** INSULATION | **KOMPENSATOREN** EXPANSION JOINTS

www.frenzelit.com

AT A GLANCE
The benefits of novaflon®

novaflon® [mm] | 1.0 | 1.5 | 2.0 | 3.0 | 6.0 | 9.0

The novaflon® product line is based on modified or expanded PTFE. This material makes the gaskets resistant to most acids and alkalis throughout the entire pH range from 0 to 14. novaflon® gaskets can therefore be used universally with nearly all media and are perfect for use in the chemical industry.

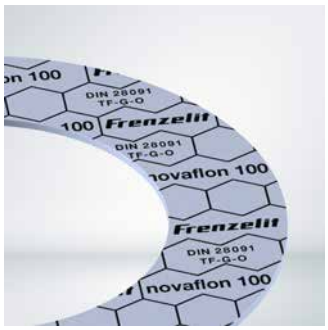
ADVANTAGES:

- Excellent media resistance to most lyes and acids throughout the pH range (pH levels 0-14)
- High residual stress
- Resistant to cold flow
- High mechanical resistance
- Wide temperature range from -210°C to 260°C
- Unlimited shelf life
- Excellent leakage properties:
  Meets TA Luft (German Clean Air Act)
  [leakage rate < 10^{-4} mbar·l/(s·m)]
- Compliance with FDA 177.1550
  Perfluorocarbon regulation

Typical application areas for novaflon®

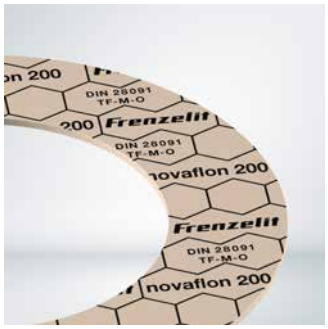
- All-purpose use in the chemical, petrochemical, pharmaceutical, paper and food industries
- Oils and greases, acids and alkalis, solvents, refrigerants, water, steam
- Compliance with TA Luft (German Clean Air Act) in these areas:
  - Petrochemicals
  - Chemical industry
  - Pharmaceutical industry
  - Food industry

THE BETTER CHOICE
novaflon® - gaskets made from PTFE



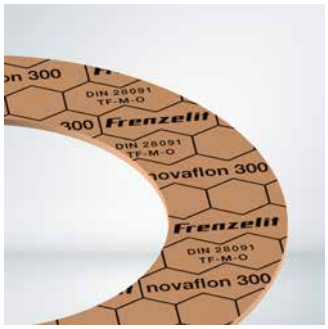
novaflon® 100 - Modified PTFE with hollow glass microspheres

Thanks to its extremely high compressibility, novaflon® 100 is eminently suitable for use in stress-sensitive flanges, such as glass, ceramic and FRP flanges.
Very good anti-stick properties are an outstanding feature of the all-purpose gasket made from modified PTFE. Downtime is minimized as a result, while machine reliability and availability are increased.
Another advantage: novaflon® 100's impressive adaptability enables it to compensate for minor damage or unevenness in the flange surface.
Excellent media resistance makes novaflon® 100 the ideal solution for use in the chemical industry.



novaflon® 200 - Modified PTFE with barium sulphate

novaflon® 200 has the best chemical resistance to strong alkalis.
High mechanical resistance, high pressure resistance (vacuum to 83 bar) and strongly optimized creep properties are convincing features of the all-purpose flat gasket made from modified PTFE.
The high purity of the gasket material, which is physiologically harmless, makes novaflon® 200 the ideal solution for use in the food and pharmaceutical industry.



novaflon® 300 - Modified PTFE with silica

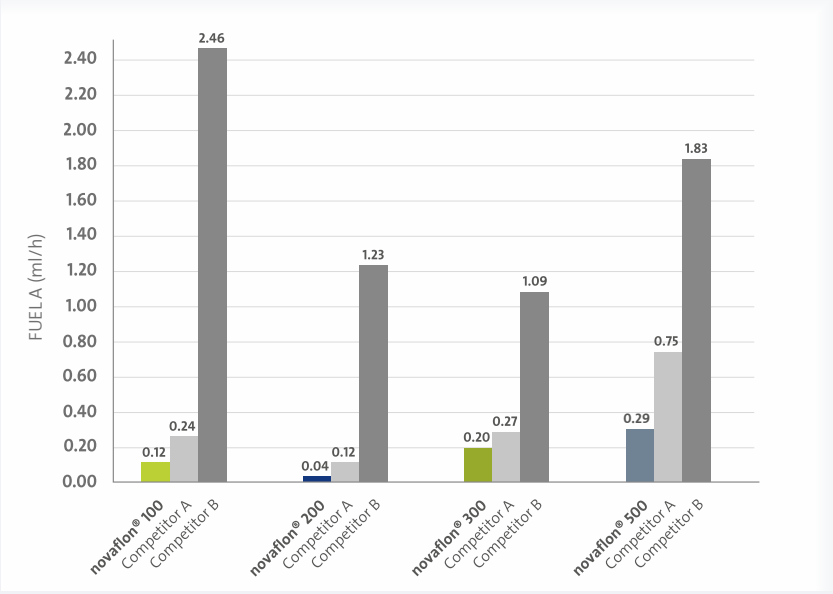
novaflon® 300 offers a very good balance between chemical resistance and reduced creep properties. The flat gasket is not affected by concentrated acids either (except for hydrofluorides). The all-purpose gasket made from modified PTFE is therefore the product of choice for process industry applications.
High mechanical resistance at both high pressure (vacuum to 83 bar) and high temperatures makes novaflon® 300 the ideal solution for use in the chemical and petrochemical industry.

novaflon® 500 - Pure, multi-directionally expanded PTFE

novaflon® 500 offers a universal chemical resistance (pH 0-14).
Due to its unique production process novaflon® 500 shows an extremely good resistance to creep and cold flow. The gasket material compensates low bolt forces as well as flange irregularities and moreover stands out by extremely high pressure resistance (vacuum up to 100 bar).
These properties predestine novaflon® 500 for the application in the pharmaceutical industry, the food and beverage industry, especially suitable for glass lined flanges and FRP equipment or in reactors in the process industry.

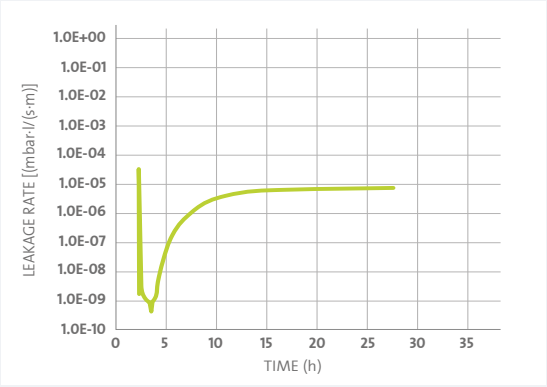
TECHNICAL INFORMATION
about novaflon®

Leakage measurement - ASTM F 37 A

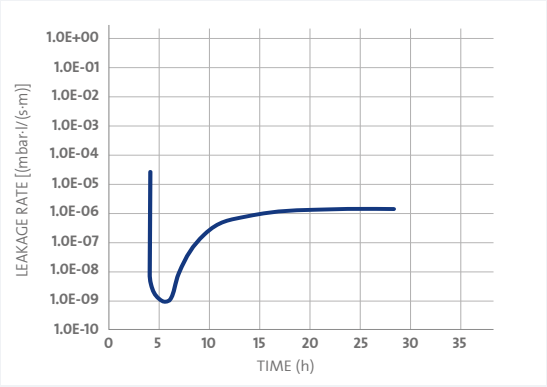


novaflon® meets TA Luft (German Clean Air Act)

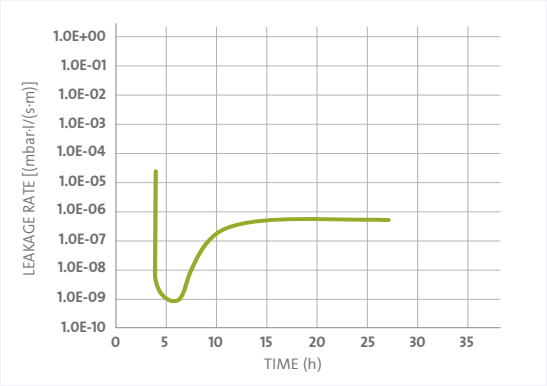
novaflon® 100
Leakage rate λ 5.8·10^{-6} mbar·l/(s·m)



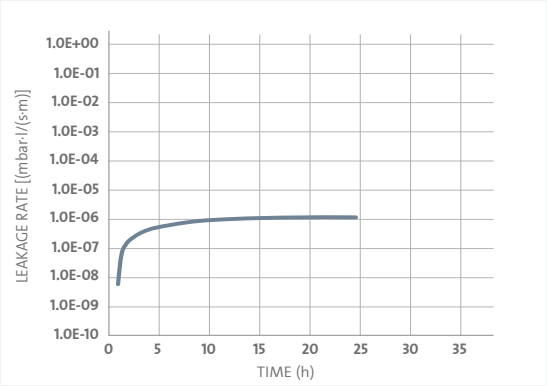
novaflon® 200
Leakage rate λ 1.7 ·10^{-6} mbar·l/(s·m)



novaflon® 300
Leakage rate λ 5.4·10^{-6} mbar·l/(s·m)



novaflon® 500
Leakage rate λ 1.2 ·10^{-6} mbar·l/(s·m)

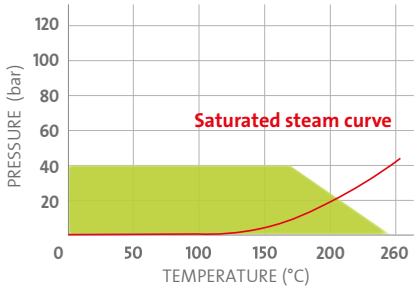


Recommendations for use

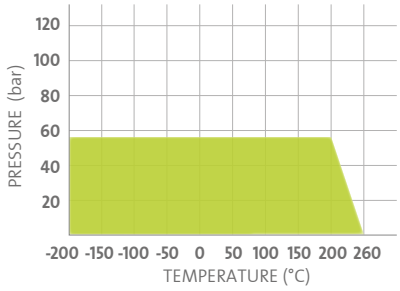
Depending on pressure and temperature levels

novaflon® 100

Water / steam

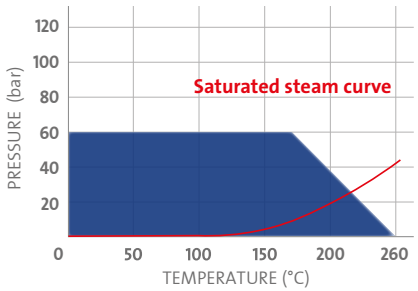


Other media*



novaflon® 200

Water / steam



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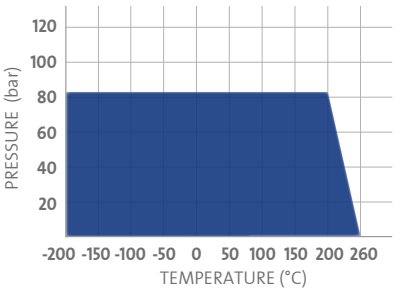
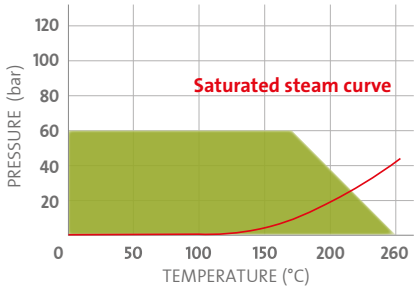


novaflon® 300

Water / steam



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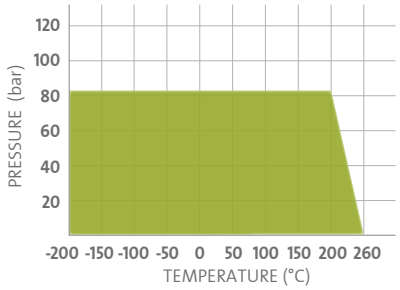
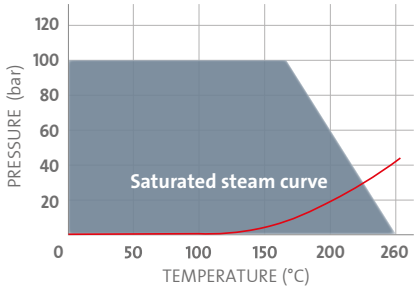
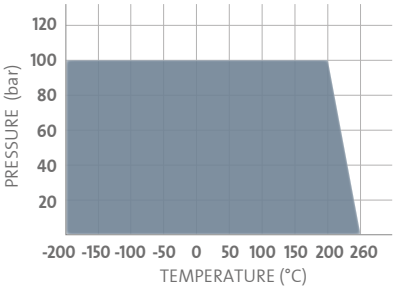


novaflon® 500

Water / steam



Other media*



The temperature and pressure recommendations in the graphs apply to gaskets 2.0 mm thick that are used with raised face flanges. Higher stresses are possible when thinner gaskets are used! The information provided must therefore be considered as estimates that are on the safe side rather than as specific operational limits.

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

Warranty disclaimer

In view of the variety of different installation and operation conditions and applications and processing engineering options, the information given in this prospectus can only provide approximate guidance and cannot therefore be used as the basis for warranty claims.

TECHNICAL DATA
Material information and application temperature limits

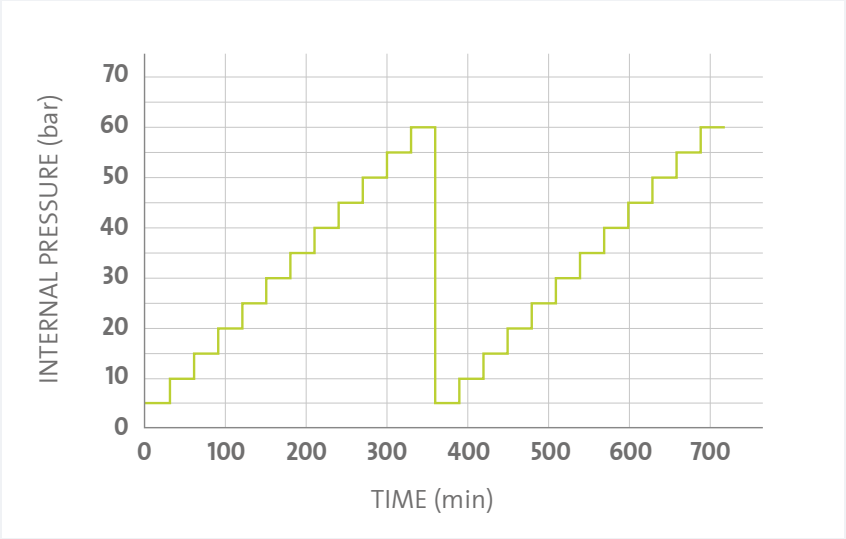
Material data

General data				novaflon® 100	novaflon® 200	novaflon® 300	novaflon® 500
Approvals and tests				Blow-out VDI 2200, EG 1935/2004, FDA, GL, TA Luft	BAM, Blow-out VDI 2200, DVGW, EG 1935/2004, FDA, GL, TA Luft	BAM, Blow-out VDI 2200, DVGW, EG 1935/2004, FDA, GL, TA Luft	BAM, Blow-out VDI 2200, EG 1935/2004, FDA, GL, TA Luft
Color				light blue	white	fawn *	white
Printing				black honeycomb brand	black honeycomb brand	black honeycomb brand	black honeycomb brand
Product data (tolerances acc. to DIN 28091-1)							
Dimensions			[mm]	1200 x 1200 (for thickness 1.0 mm) 1500 x 1500 (from thickness 1.5 mm)	1200 x 1200 (for thickness 1.0 mm) 1500 x 1500 (from thickness 1.5 mm)	1200 x 1200 (for thickness 1.0 mm) 1500 x 1500 (from thickness 1.5 mm)	1500 x 1500
Thicknesses			[mm]	1.0 / 1.5 / 2.0 / 3.0	1.0 / 1.5 / 2.0 / 3.0	1.0 / 1.5 / 2.0 / 3.0	0.5 - 9.0
Physical properties (typical values)							
Thickness			**[mm]**	**2.0**	**2.0**	**2.0**	**2.0**
Density		DIN 28090-2	[g/cm³]	1.5	2.9	2.1	0.9
Residual stress	150 °C	DIN 52913	[N/mm²]	14	14	16	18
Compressibility		ASTM F 36 M	[%]	35	3	5	50
Recovery		ASTM F 36 M	[%]	30	45	45	10
Cold compressibility ε_{KSW}		DIN 28090-2	[%]	24	3	3	40
Cold recovery ε_{KRW}		DIN 28090-2	[%]	6	1	1	3
Hot creep $\varepsilon_{WSW/150}$		DIN 28090-2	[%]	35	40	20	15
Hot recovery $\varepsilon_{WRW/150}$		DIN 28090-2	[%]	6	4	3	2
Specific leakage rate		DIN 3535-6	[mg/m/s]	< 0.015	< 0.015	< 0.015	< 0.015
Tensile strength		DIN 52910	[N/mm²]	15	18	17	26

Subject to technical data changes as part of product improvement.

* Also available as novaflon® 300 WHITE.

Blow-out test



Blow-out test passed convincingly

Not only a leakage rate that satisfies TA Luft (German Clean Air Act) but also proof of the blow-out resistance of the gasket is required for flange connections that are subject to TA Luft. This is to avoid sudden high leakage. According to the latest version of VDI 2200 that was issued in 2007, the gasket has to be able to withstand 1.5 times nominal pressure with a large reduction in surface pressure. To make sure that this is the case, the gasket is installed with an initial surface pressure level of $Q_{min\ (L\ 0.01)}$ according to DIN EN 13555 and the flange system is stored at 150 °C for 48 hours. After cooling down to room temperature, the internal pressure is first of all increased gradually at the remaining surface pressure level to a maximum of 60 bar nitrogen and the leakage rate per step is determined. The pressure would drop very rapidly if the gasket connection failed.

The surface pressure level is then reduced further to 5 MPa in a second operation and the leakage rate is measured again while increasing the internal pressure gradually. Even in the most critical case of an extremely low surface pressure level of 5 MPa and maximum pressure of 60 bar, novaflon® gaskets demonstrate impressive blow-out resistance in line with TA Luft – without an inner eyelet (metal edging). We can provide you with a certificate confirming this on request.

OUR COMMITMENT
to people and the environment.

As a company with a rich tradition, we care about long-term success and the satisfaction of our customers. Quality is always a top priority for us – as is our commitment to the environment, society and our employees.

We also pride ourselves on always considering our customers' present and future needs, something that is apparent in our application consulting, training seminars and installation services.
A development partnership with us is an excellent opportunity for you to optimize products that are already a success – and a great way to get your new developments to the market even faster. We help you modify products or support you in implementing innovative material concepts – and create real added value for you.

TÜV SÜD ISO 9001 TÜV SÜD ISO 14001 TÜV SÜD ISO 50001

GASKET MATERIALS

- **novapress®** *approx. -100 to 200 °C*
- **novatec®** *approx. -100 to 250 °C*
- **novaflon®** *approx. -200 to 260 °C*
- **novaphit®** *approx. -200 to 550 °C*
- **novamica®** *approx. -200 to 1000 °C*

INSULATION MATERIALS

- **isoplan®** *approx. -100 to 1100 °C*

novadisc.de
ONLINE Design Software

Your Specialist Partner

GERMANY

Frenzelit GmbH
Frankenhammer
95460 Bad Berneck
Germany

Frenzelit GmbH
Industriestraße 4-11
95502 Himmelkron
Germany

Address:
Postfach / P.O. Box 11 40
95456 Bad Berneck
Germany

Contact:
Phone +49 9273 72-0
Fax +49 9273 72-222
info@frenzelit.com

www.frenzelit.com

INTERNATIONAL

USA
Frenzelit Inc.
4165 Old Salisbury Road
Lexington, NC 27295
info.usa@frenzelit.com

United Arab Emirates
Frenzelit Middle East FZE
P.O. Box: 263940
Jafza One, Dubai
info.dubai@frenzelit.com

India
Frenzelit India Pvt. Ltd.
KM No.: 632/6B, SY. No. 7/1A
Basavanahalli Nelamangala
Bangalore – 562 123
info.india@frenzelit.com

PARTNERS

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FZ/7/03.20/01/KO

Frenzelit
creating hightech solutions