

YOUR 360° SEALING PARTNER

Product Catalogue

PRODUCT RANGE | REVOSEAL | FLAT GASKET | SPIRAL WOUND
GASKETS | METAL JACKETED GASKETS | CAMPROFILE
GASKETS | RING JOINT | INSULATION SOLUTIONS



Our product range



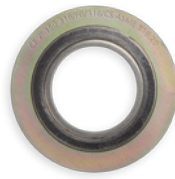
REVOSEAL SERIES
UNIVERSAL GASKETS - NEW TECHNOLOGY
Usable in every branch, new easy applicable technology.



SERIES 2000
GRAPHITE SGL
Flexible, resistant to almost all chemicals and aging, eco-friendly, wide operating temperature range, lasting stability under load and constant elastic recovery even with changes in temperature.



SERIES 1000
ASBESTOS FREE
Universal uses, hydrocarbons, water, drinking water, industrial process water, seawater, gases and low aggressive chemicals, to name a few examples.



SERIES 4000
SPIRAL WOUND GASKETS
Made up of a strip of metal material formed into a special profile and wound together with a strip of a material known as the filler. Suitable for: chemical, petrochemical and refinery plants and power stations when dealing with high temperatures and pressure.



SERIES 3000
PTFE
Chemical and pharmaceutical industries, process lines with strong acids and bases (pH 0 - 14) and food industries.



SERIES 6000
KAMMPROFILE GASKETS
Suitable for use on chemical, petrochemical and refinery plants and power stations.



SERIES 5000
METAL JACKETED GASKETS
Metal jacketed gaskets are widely used in chemical, petrochemical and refinery industries and are mainly installed on pressure vessels such as heat exchangers, reactors and columns.



SERIES 8000
SOLID GASKETS
Mainly used in pressure vessels where a high-quality seal is required (e.g. Ta - Luft) in addition to a seal that will stay stable regardless the deformation and/or expansion while the equipment is operating.



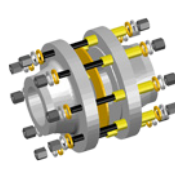
SERIES 7000
RING JOINT
Mainly used in refineries, power stations, petrochemical industries, gas return systems and high-pressure valves.



ELASTOMER GASKETS
RUBBER
Elastomer gaskets are mainly used in various fields of industry for non-heavy duty applications, such as: water, seawater, drinking water, oil, ozone, medium - low aggressive chemicals and food stuffs.



SERIES 9000
SOLID GASKETS - METAL GASKETS WITH INSERTS
These gaskets are used, above all, on equipment with critical operating temperatures and pressures. The special shape of the solid metal gaskets with inserts combines the lasting stability of the solid part with the compensation, conformability and elastic recovery properties of graphite, even on existing system flanges.



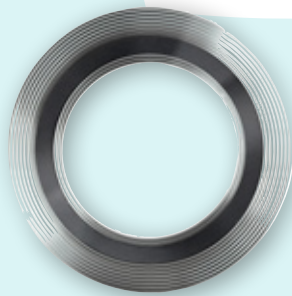
INSULATION SOLUTIONS
ELECTRICAL INSULATION
This solution electrically insulates the flanges and prevents the flow of electrical charges between flanges along the pipeline's plant. Main applications: off - shore installations, seawater environments, chemical installations, oil refinery pipelines.

Revo seal

JP-2, Revolution, Vario



REVOSEAL
JG-2



REVOSEAL
REVOLUTION



REVOSEAL
VARIO

Revoseal JG-2

The internationally patented geometry of outer and inner cogging completely encapsulates the GRAPHITE or PTFE layers. The tooth geometry has been calculated in such a way that even at using low quality bolts an ideal compression of the graphite layers and a double metallic sealing can be achieved. Therefore, Jungtec JG (encapsulated flat proile gaskets) combine the advantages of metal and composite materials in an ideal way.

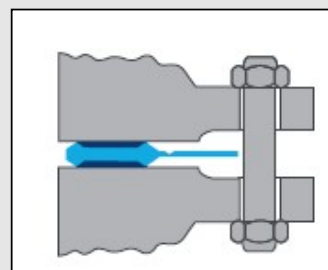


HIGHLIGHTS

1. Service temperature up to 1000 °C using graphite layers SGL Carbon
2. Measured leakage rate less than 10×10^{-11} mbar.l/m.s
3. Resistance to oxidation and thermal cycling till 1500 lbs rating

Technical Features

- **Temperature:** -200 °C + 1000 °C (dependent on the carrier material)
- **Specific loss rate:** 1×10^{-11} mbar x l/ (m x s) (acc.to Ta-Luft VDI2440)
- **Pressure:** from vacuum to 400 bar (1,500 lbs) m factor: 1.0
Y factor: 2030.5 psi (14 MPa)
- **Qs max:** 500 MPa (acc. to EN13555 at room temperature)
- **Qs max:** 200 MPa (acc. to EN13555 at 600 °C)
- **The effective gasket width** can be adapted in order to achieve optimum sealability in accordance to the Technical
- **Total thickness** 4.2 mm (additional thicknesses on request)
Instructions on Air Quality Control (TA-Luft), VDI 2290 according to DIN EN 1591
- **Material available:** AISI 304, AISI 304L, AISI 316/L/Ti, , AISI 321, AISI 347 (alloys on request)
- **JP-2 profiles** reproduce the tongue and groove principle
- **Lowest leakage rates** of all gaskets available on the market
- **Fire Safe** Certificate according to API 607 (also for PTFE), **blow-out resistance** according to VDI 2200 and Ta-Luft approved acc. to VDI2440



Revoseal JP-2

The internationally patented geometry of outer and inner cogging completely encapsulates the GRAPHITE or PTFE layers. The tooth geometry has been calculated in such a way that even at using low quality bolts an ideal compression of the graphite layers and a double metallic sealing can be achieved. Therefore, Jungtec JP (encapsulated flat proile gaskets) combine the advantages of metal and composite materials in an ideal way.

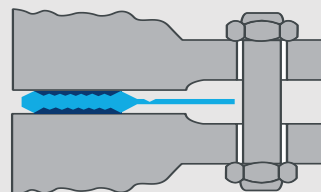


HIGHLIGHTS

1. Service temperature up to 1000 °C using graphite layers SGL Carbon
2. Measured leakage rate less than 10×10^{-11} mbar.l/m.s
3. Resistance to oxidation and thermal cycling till 1500 lbs rating

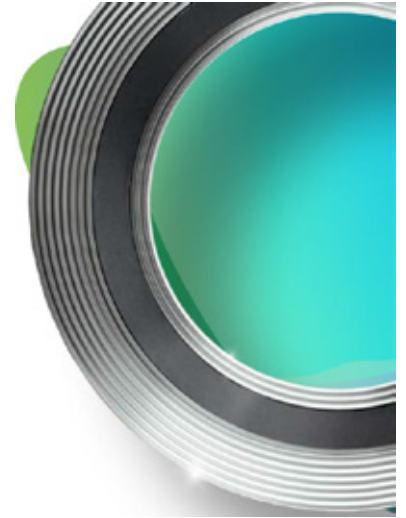
Technical Features

- **Temperature:** -200 °C + 1000 °C (dependent on the carrier material)
- **Specific loss rate:** 1×10^{-11} mbar x l/ (m x s) (acc.to Ta-Luft VDI2440)
- **Pressure:** from vacuum to 400 bar (1,500 lbs) m factor: 1.0
Y factor: 2030.5 psi (14 MPa)
- **Qs max:** 500 MPa (acc. to EN13555 at room temperature)
- **Qs max:** 200 MPa (acc. to EN13555 at 600 °C)
- **The effective gasket width** can be adapted in order to achieve optimum sealability in accordance to the Technical Instructions on Air Quality Control (TA-Luft), VDI 2290 according to DIN EN 1591
- **Total thickness** 4.2 mm (additional thicknesses on request)
- **Material available:** AISI 304, AISI 304L, AISI 316/L/Ti, , AISI 321, AISI 347 (alloys on request)
- **JP-2 profiles** reproduce the tongue and groove principle
- **Lowest leakage rates** of all gaskets available on the market
- **Fire Safe** Certificate according to API 607 (also for PTFE), **blow-out resistance** according to VDI 2200 and Ta-Luft approved acc. to VDI2440



Revoseal REVOLUTION

The Revolution gasket is an embossed flat profile gasket consisting of a flexible stainless steel carrier and encapsulated graphite or PTFE on both sides. By the revolutionary construction and flexibility of the embossed cog height double metallic sealing as well as encapsulation of the graphite or PTFE is guaranteed. Owing to its wide application range, Revolution is the alternative to all conventional flat gasket types.

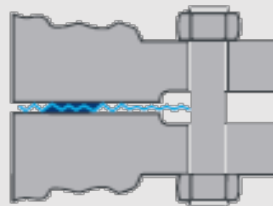


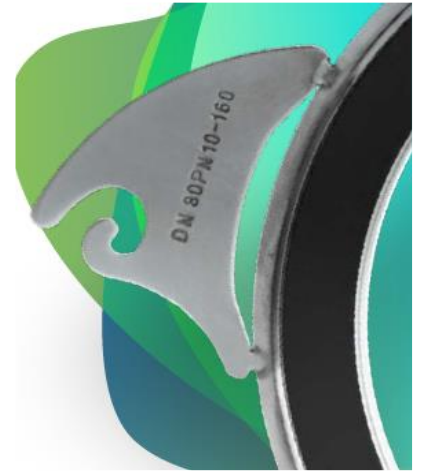
HIGHLIGHTS

1. **Temperature: -200°C to + 500°C**
2. **Pressure range: from vacuum to 64 bar (400 lbs)**
3. **Fire Safe Certificate according to API 607 (also for PTFE)**

Technical Features

- **Temperature:** -200 °C + 500 °C (dependent on the carrier material)
- **Pressure:** from vacuum to 64 bar (400 lbs)
- **The effective gasket width** can be adapted in order to achieve optimum sealability in accordance to the Technical Instructions on Air Quality Control (TA-Luft), VDI 2290 according to DIN EN 1591.
- **Material available:** AISI 304, AISI 304L, AISI 316, AISI 316L, AISI 321, AISI 316Ti, AISI 347 (alloys on request)
- **Total thickness** 1.6 mm (additional thicknesses on request)
- **Fire Safe** Certificate according to API 607 (also for PTFE), **blow-out resistance** according to VDI 2200 and Ta-Luft approved acc. to VDI2440





Revoseal VARIO

At their ratings centering rings of gaskets of the same nominal width but different pressure stage merely vary in their outside diameter.

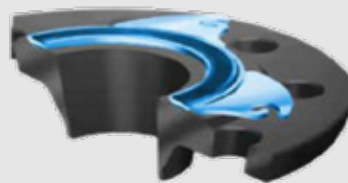
The installation of non-corresponding dimensions may cause malfunctions and failures of gaskets. The Vario centering system avoids misapplication and at the same time reduces the number of gasket types to be available from stock and increases the system availability. The form of the centering segments allows balancing for different outside diameters. There is no risk of confusion or getting off-centre. Time-consuming positioning by means of anti-fatigue shaft screws is no longer necessary.

HIGHLIGHTS

1. Considerable reduction of type varieties
2. Accurate centering of the gasket
3. Considerable cost-savings in procurement and storage
4. No danger of confusion
5. Easy assembly at using fatigue-shaft screws

Technical Features

- **Temperature:** -200 °C + 1000 °C (dependent on the carrier material)
- **Specific loss rate:** 1x 10⁻¹¹ mbar x l / (m x s) (acc. to Ta-Luft VDI2440)
- **Pressure:** from vacuum to 80 bar (600 lbs) m factor: 1.0
Y factor: 2030.5 psi (14 MPa)
- **Qs max:** 500 MP (acc. to EN13555 at room temperature)
- **Qs max:** 200 Mpa (acc. to EN13555 at 600 °C)
- **Total thickness** 4.2mm
- **Lowest leakage rates** of all gaskets available on the market
- **The effective gasket width** can be adapted in order to achieve optimum sealability in accordance to the Technical Instructions on Air Quality Control (TA-Luft), VDI 2290 acc. to DIN EN 1591.
- **Material available:** AISI 304, AISI 304L, AISI 316/L/Ti, AISI 321 AISI 347 (alloys On r.)
- **Fire Safe** Certificate according to API 607 (also for PTFE), **blow-out resistance** according to VDI 2200 and Ta-Luft approved acc. to VDI2440



Flat gasket

Non Asbestos CF1000, Graphite
CF 2000 Sgl, PTFE CF 3000,
Elastomer Gasket



**SERIES 1000
NON ASBESTOS**



**SERIES 2000
GRAPHITE SGL**



**SERIES 3000
PTFE**



ELASTOMER

NON-ASBESTOS FLAT GASKETS

1000

Temperature range (°C)	-40/+350	150*
Maximum pressure (bar)	100	40*
Max compression set value (MPa)	240	100*

* When dealing with higher values, please contact the technical department

Applications

Series 1000 gaskets are made up of non-asbestos cellulose, aramid or inorganic fibres with NBR elastomer binders. They make particularly good multi-purpose gaskets for use with hydrocarbons, water, drinking water, industrial process water, seawater, gases and low aggressive chemicals, to name a few examples.

Type options

Perforated type FF
Type IBC for RF flanges
Tongue and groove type
Custom design

Available sizes

1500x1500
3000x1500
4500x1500

Available thicknesses

0.4mm; 0.5mm; 0.8mm; 1mm; 1.5mm;
2mm; 3mm; 4mm; 5mm

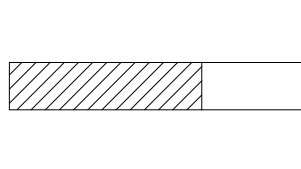
Manufactured to the following standards

ASME Code (B16.20; B16.47; B16.5)
UNI EN 1514-1
DIN 2690/ 2691

If order information is incomplete, products will be supplied:

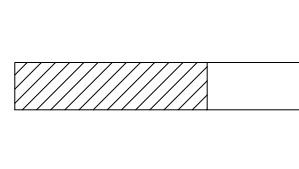
In standard sizes according to current national or international standards (ASME or EN)
In 2mm thick version
Pressure rating PN10/40 – ANSI 150

CF 1000



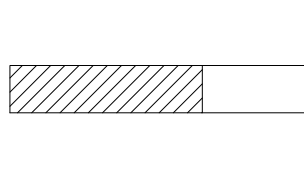
CF1000 is a gasket made up of non-asbestos cellulose fibres and NBR binder. It makes a particularly good multi-purpose gasket for non-heavy duty applications only, at medium temperatures and pressures (max. T 200 °C, max. P 35 bar). It is suitable for an extensive range of fluids, such as water, industrial process water, seawater, petroleum derivatives, diluted alkalis, animal and vegetable oils, neutral solutions.

CF 1100



CF1100 is a gasket made up of non-asbestos aramid fibres and NBR binder. It makes a particularly good multi-purpose gasket for use with hydrocarbons, water, drinking water, industrial process water, seawater, gases and low aggressive chemicals. It can be used on natural gas and drinking water pipelines.

CF 1100 Gr X



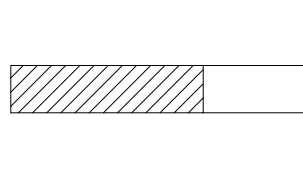
CF1100 Gr.X is a gasket made up of non-asbestos inorganic fibres and NBR binder.

It makes a particularly good multi-purpose gasket for use with hydrocarbons, water, drinking water, industrial process water, seawater, gases and low aggressive chemicals. It features excellent heat resistance, even in contact with steam, coupled with a good leakage rate. It can be used on natural gas and drinking water pipelines. It meets BS 7531 Grade X requirements.

Approvals:

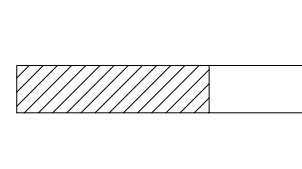
Fire safe API 6FB
VDI 2200/2440 Ta-Luft

CF 1200



CF1200 is a gasket made up of non-asbestos aramid fibres, laminated graphite, fillers and NBR binder. It is particularly suitable for applications involving fuels and lubricants, weak acids and alkalis, oils and saturated steam. You can order CF1200 with internal metal reinforcement consisting of an AISI 316 steel mesh.

CF 1300



CF1300 is a gasket made up of aramid fibres, carbon fibres and NBR binder. It stands out, above all, for its excellent resistance and sealing capacity at high temperatures.

It is particularly suitable for applications involving steam, gases, hydrocarbons, alkalis and acids. The seal continues to hold even in the event of a fire, which means it is recommended even for use with flammable fluids. It can be used on gas pipelines.

GRAPHITE-BASED FLAT GASKETS

2000

Temperature range (°C)	-200/+650	450*
Maximum pressure (bar)	250	40*
Max compression set value (MPa)	400	100*

* When dealing with higher values, please contact the technical department

Applications

Series 2000 gaskets are made up of expanded mineral graphite, reinforced with an AISI 316 steel tanged or flat core. Impregnated graphite stands out for the following properties: flexible, resistant to almost all chemicals, environmentally friendly, wide operating temperature range, resistant to aging, lasting stability under load and constant elastic recovery even with changes in temperature, does not generate creep or cold flow, resistant to high pressures, good thermal and electrical conductivity, easy to cut and punch.

Type options

Perforated type FF
Type IBC for RF flanges
Tongue and groove type
Custom design

Available sizes

1000x1000
1500x1500

Available thicknesses

1mm; 1.5mm; 2mm; 3mm; 4mm

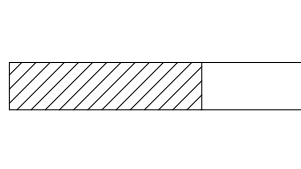
Manufactured to the following standards

ASME Code (B16.20; B16.47; B16.5)
UNI EN 1514-1
DIN 2690/ 2691

If order information is incomplete, products will be supplied:

In standard sizes according to current national or international standards (ASME or EN)
In 2mm thick version
Pressure rating PN10/40 – ANSI 150

CF 2000



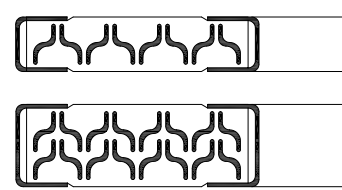
CF2000, with no tanged insert, is suitable for making gaskets for UNI and ANSI flanges, for glass/lined flanges, for emergency repairs, for flanges with complex shapes and for highly corrosive acids such as HCl. It is used as a filler for our CF4000 SPRING gaskets and as a facing for our CF6000 GROOVED METAL gaskets. It is used to make preformed ring gaskets and for corrugated tapes. Gaskets can be ordered impregnated with oxidation retardant and with an ash content of less than 0.15%.

Approvals:
BAM; DVGW

CF 2001G



SIGRASEAL



CF2001G, with a tanged insert, is suitable for an extensive range of applications, for making gaskets for UNI and ANSI flanges, for applications that can involve high working pressures, for flanges with complex shapes, for aggressive liquids, steam and heat transfer oil. Gaskets cut from sheets can have inner and outer eyelets. For increased mechanical strength, it can also come with a double tanged core: CF2002G.

Approvals:
BAM; DVGW; Fire Safe API607 Rev.04 with Exxon modification

UNIVERSAL PRO



HOCHDRUCK PRO



SIGRAFLEX MF



NUCLEAR GRADE



SIGRAFLEX UNIVERSAL PRO is made up of a reinforced layer of expanded graphite with purity >98% purity impregnated with oxidation retardant and a mechanically bonded 0.1mm-thick AISI 316L steel tanged core. It is particularly suitable for use with toxic, flammable or pollutant substances that demand low fugitive emission values. It features excellent oxidation resistance and good chemical resistance. Its good compensation and conformability properties mean it also adapts easily to existing flanges.

Approvals:

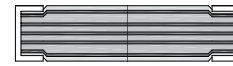
BAM; DVGW; VDI2200/2440 Ta-Luft; Fire Safe API607 Rev.04 with Exxon modification; VDI2200/Blow Out



SIGRAFLEX HOCHDRUCK PRO (SGL Carbon patent) is made up of 0.5mm-thick layers of high purity >99.85% expanded graphite impregnated with oxidation retardant and 0.05mm AISI 316L steel foils (adhesive free). It can be installed in applications involving surface pressures as high as 400 N/mm² and working pressures up to 250 bar. Its main properties are: extremely high pressure resistance, high blow-out resistance, high rigidity, compression stability, good long-term elastic recovery and resistance to wide range of temperatures.

Approvals:

BAM; DVGW; VDI2200/2440 Ta-Luft; Fire Safe API607 Rev.04 with Exxon modification; VDI2200/Blow Out



SIGRAFLEX MF (SGL Carbon patent) is made up of 0.5mm-thick layers of high purity >99.85% expanded graphite impregnated with oxidation retardant and 0.05mm AISI 316L steel foils. The surface is coated with a 0.05mm-thick layer of Dyneon 1700 modified PTFE. The various layers of material are bonded together (adhesives free, SGL Carbon patent). The gasket is fitted with both inner and outer AISI 316L steel eyelets. This matches the best leakage rate, making it particularly suitable for use with toxic, flammable, pollutant and carcinogenic substances, on systems requiring a reduction in fugitive emissions, on systems with fire safety requirements and where product contamination is not tolerated.

Approvals:

BAM; DVGW; VDI2200/2440 Ta-Luft; Fire Safe API607 Rev.04 with Exxon modification; VDI2200/Blow Out; FDA.

PTFE-BASED FLAT GASKETS

3000

Temperature range (°C)	-200/+260	120*
Maximum pressure (bar)	83	40*
Max compression set value (MPa)	200	100*

* When dealing with higher values, please contact the technical department

Applications

Series 3000 gaskets are made up of pure virgin PTFE. This material combines a number of qualities: excellent chemical resistance to a wide range of chemicals (acids, bases and solvents), a low friction coefficient and excellent dielectric properties. Extenders can be added to suit customer requirements and fluid properties, or the material can be modified to increase its chemical and physical properties. The main fields of application of series 3000 gaskets are: chemical and pharmaceutical industries, process lines with strong acids and bases (pH 0 – 14) and food industries.

Type options

Perforated type FF
Type IBC for RF flanges
Tongue and groove type
Custom design

Available sizes

1200x1200
1500x1500

Available thicknesses

0.5mm; 1mm; 2mm; 3mm; 4mm; 5mm;
Other thicknesses available on request

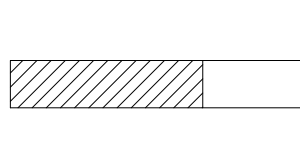
Manufactured to the following standards

ASME Code (B16.20; B16.47; B16.5)
UNI EN 1514-1
DIN 2690/ 2691

If order information is incomplete, products will be supplied:

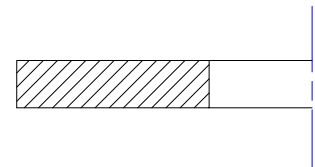
In standard sizes according to current national or international standards (ASME or EN)
In 2mm thick version
Pressure rating PN10/40 – ANSI 150

CF 3000



CF3000 is made up of pure virgin PTFE. These gaskets feature the following properties: excellent non-wetting performance. They do not give rise to chemical contamination; corrosion resistance: they resist aggressive chemicals in a wide temperature range; wear resistance: they are one of the materials with lower friction coefficients, which results in low abrasion. These properties are retained under a wide range of environmental conditions; long service life: they feature excellent resistance to aging, even when exposed to high temperatures and aggressive chemicals; resistance to dynamic stress, such as vibrations and bending, is also high.

CF 3024

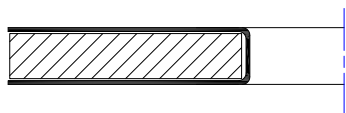
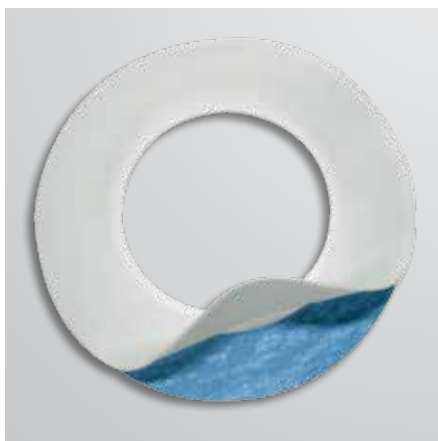


CF3024 is made entirely from multidirectionally expanded pure PTFE. With its excellent chemical and heat resistance, it can be used in a wide variety of applications in almost all areas of industry. The superior conformability of expanded PTFE means it can be applied for flanges that feature surface irregularities or damage, flanges that require low torque loads, and glass lined flanges. Its most common applications include: standard flanges, compressors, heat exchangers and manholes.

Approvals:

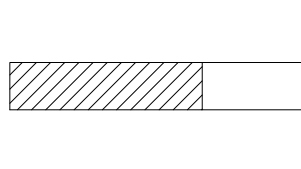
FDA; VDI2440/2440 Ta – Luft; Blow Out VDI2200; BAM

CF 3045



CF3045 is an envelope gasket comprising a 0.3-0.5mm-thick outer pure virgin PTFE casing. A non-asbestos or modified PTFE gasket is inserted inside. Gaskets can be ordered with a corrugated metal ring and environmentally friendly fiber glass fabric inside the envelope to allow the envelope to conform to flange surface irregularities. This special gasket adapts well to irregular surfaces, which are often encountered when dealing with non-metal, glass-lined flanges, even with high operating temperatures and working pressures and corrosive fluids.

CF 3070

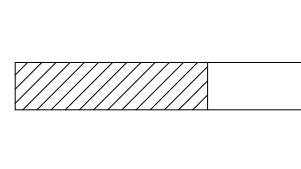


CF3070 is made up of glass microspheres modified PTFE. In addition to giving the material excellent resistance to all aggressive chemicals, except hydrofluoric acid, it also drastically reduces the main limitations typically associated with pure PTFE - creep and cold flow - producing high mechanical properties and high compressibility and elongation. It is suitable for an extensive range of fluids, strong acidic and basic substances, steam, hydrocarbons and chlorinated solvents. It can also be used on food and pharmaceutical industry plant lines given its excellent conformability even to flanges that are not perfectly flat.

Approvals:

FDA; VDI2440/2440 Ta – Luft; BAM

CF 3090



CF3090 is made up of silica-filled modified PTFE. In addition to giving the material excellent resistance to all aggressive chemicals, except hydrofluoric acid, it also drastically reduces the main limitations typically associated with pure PTFE - creep and cold flow. It is suitable for an extensive range of fluids, strong acidic and basic substances, steam, hydrocarbons, chlorinated solvents and chlorine.

Approvals:

FDA; VDI2440/2440 Ta – Luft; BAM

RUBBER GASKETS

ELASTOMER GASKETS

Temperature range (°C)	-30/+200	80*
Maximum pressure (bar)	10	5*
Max compression set value (MPa)	5	3*

* When dealing with higher values, please contact the technical department

Applications

Elastomer gaskets are mainly used in various fields of industry for non-heavy duty applications, such as: water, seawater, drinking water, oil, ozone, medium – low aggressive chemicals and foodstuffs. The main available rubber blends are made with natural (PARA), styrene (SBR), nitrile (NBR), chloroprene (NEOPRENE), fluorinated (VITON) and silicone rubber. Gaskets can also be ordered with fabric or metal internal reinforcement for increased resistance and stability under pressure.

Type options

Perforated type FF
Type IBC for RF flanges
Tongue and groove type
Custom design

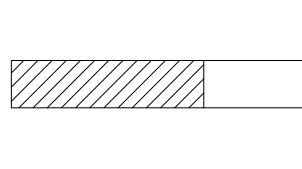
Manufactured to the following standards

UNI EN 1514-1
ASME Code (B16.20; B16.47; B16.5)

Available thicknesses

0.5mm; 1mm; 1.5mm; 2mm; 3mm;
4mm; 5mm 6mm; 8mm; 10mm
Other thicknesses available on request

SBR rubber

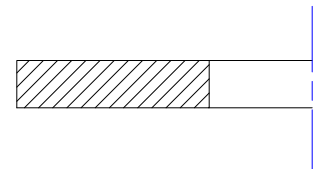


SBR (styrene) rubber gaskets offer good abrasion resistance and aging stability.

It is stable when exposed to substances such as hydrocarbons, saline solutions, air, water and weak organic and inorganic acids and bases.

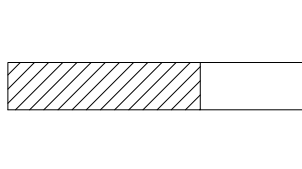
It is particularly suitable for non-heavy duty applications, where resistance to high temperatures and pressures is not such a priority. Maximum operating temperature 70 °C. Shore A hardness 70 ± 5.

NBR rubber



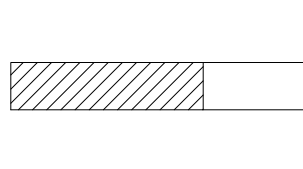
NBR (nitrile rubber) gaskets have good resistance to oils, mineral grease, vegetable fats and hydrocarbons. It has good mechanical properties. Maximum operating temperature 100 °C. Shore A hardness 72 ± 5.

NEOPRENE rubber



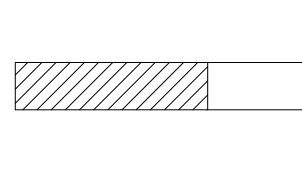
NEOPRENE rubber gaskets offer excellent resistance to ozone, weathering and aging. It also offers good resistance to vegetable and mineral oils and low-concentration solvents and acids; fairly good resistance to seawater. Excellent mechanical properties. Maximum operating temperature 100 °C. Shore A hardness 60 ± 5.
Approvals:
 VDI2440 Ta – Luft

EPDM rubber



EPDM (ethyl propylene diene) rubber gaskets have excellent resistance to weathering, ozone, diluted acids and chemicals in general. Good mechanical properties. Maximum operating temperature 120°C. Shore A hardness 70 ± 5
Approvals:
 VDI2440 Ta – Luft

FKM rubber



FKM (viton) fluorinated rubber gaskets feature excellent resistance to heat, oils at high temperatures, fuels and ozone; it can also be used in the chemical and pharmaceutical industry. It has excellent flame resistance and high chemical inertia; it has good mechanical properties. Maximum operating temperature is 200 °C. Shore A hardness 75 ± 5.

Spiral wound gaskets

Spiral wound CF 4000



**SERIES 4000
WITH NO RINGS**



**SERIES 4000
WITH INNER RING**



**SERIES 4000
WITH OUTER RING**



**SERIES 4000 WITH
INNER AND OUTER RING**

SPIRAL WOUND GASKETS



Temperature range (°C)	-200/+750	450*
Maximum pressure (bar)	250	100*
Max compression set value (MPa)	207	100*

* When dealing with higher values, please contact the technical department

Applications

The series 4000 SPRING spiral wound gaskets are made up of a strip of metal material formed into a special profile designed by CF Service and wound together with a strip of soft sealing material known as the filler. These gaskets are particularly suitable for use on chemical, petrochemical and refinery plants and power stations when dealing with high temperatures and pressures. They

can be fitted with or without center rings - (outer and inner rings) made from carbon steel material to stainless steels and alloys - to suit customer requirements and system specifications.

CF 4000

SPRING with no rings



Type options

Type IBC for RF flanges
Tongue and groove type
Custom design

Thicknesses (according to ASME B16.20)

Initial thickness (mm)	Compressed thickness (mm)
3.5	2.5 – 2.7
4.5	3.2 – 3.4
6.4	4.5
7.2	6.5

Available thicknesses

2.5mm; 3.5mm; 4.5mm; 6.4mm; 7.2mm

Manufactured to the following standards

ASME Code (B16.20; B16.47; B16.5)
UNI EN 1514-2

Graphite quality std

Ash content: ≤ 2 % (DIN 51903)***
Chloride content: ≤ 50 ppm (DIN 28090 – 2)
Sulphide content: < 700 ppm
Density: 1.0 g/cm³

*** <0.15% high-purity graphite on request

If order information is incomplete, products will be supplied:

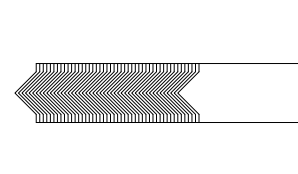
In standard sizes according to current national or international standards (ASME or EN)
Sealing element thickness 4.5mm.
Ring thickness 3mm.

Filler materials

Material	Maximum temperature	Maximum pressure
Graphite	550 °C	250 bar
Virgin PTFE	250 °C	100 bar
Non-asbestos	400 °C	100 bar
Mica	750 °C	150 bar

Metal materials

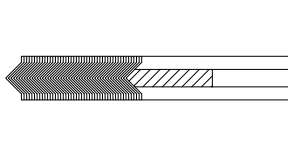
Material	Maximum temperature
AISI 304; 316; 316L; 316Ti; 321; 347	550 °C
Alloy 400; 600; 625; 800; 825	600 – 750 °C
Hastelloy C276; B2	450 °C
Titanium Gr.2	350 °C



CF4000 with no rings is mainly installed on standard tongue and groove type flanged connections for standard flanges (according to standard ASME B16.20 or EN 1514-2) or custom designed flanges for pressure vessels. For installation on heat exchangers, they can be fitted with pass partitions made based on the number and shape of the equipment header's partitions.

CF 4000

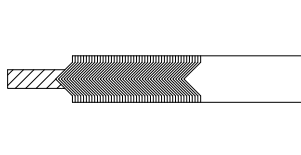
SPRING with inner ring



CF4000 with inner ring is mainly installed on male-female type flanged connections according to standard ASME B16.20 or EN 1514-2. The inner support ring increases blow-out resistance. They can be installed on high-pressure vessels and pipes.

CF 4000

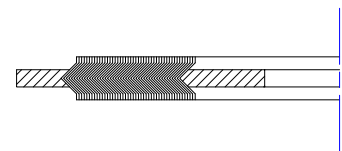
SPRING with outer ring



CF4000 with outer ring is mainly installed on RF type flanged connections (IBC type). The purpose of the outer ring is to centre the gasket inside the bolt circle. They are mainly used on medium-low-pressure pipes and vessels or for hydraulic testing. They can also be ordered to meet standards ASME B16.20 or EN 1514-2 or custom made to your specifications.

CF 4000

SPRING with inner and outer rings



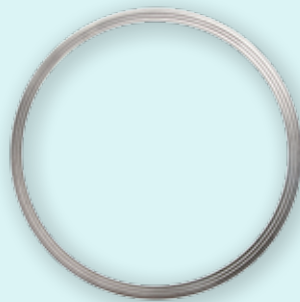
CF4000 with inner and outer rings is mainly installed on RF type flanged connections (IBC type). Because it features both an outer ring and inner ring, this gasket can be used on high-pressure pipelines. They can also be ordered to meet standards ASME B16.20 or EN 1514-2 or custom made to your specifications.
Approvals:
 VDI2200/2440 Ta-Luft; Fire safe API 6FB Third edition

Metal jacketed gaskets

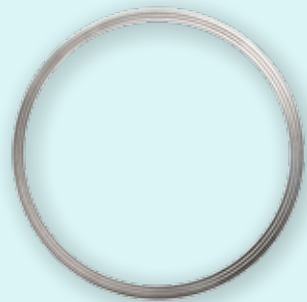
Metal jacketed CF 5000



SERIES 5000



SERIES 5003



SERIES 5035



SERIES 5060

METAL JACKETED GASKETS

5000

Temperature range (°C)	-200/+750	450*
Maximum pressure (bar)	150	40*
Max compression set value (MPa)	200	100*

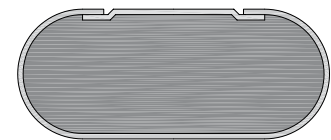
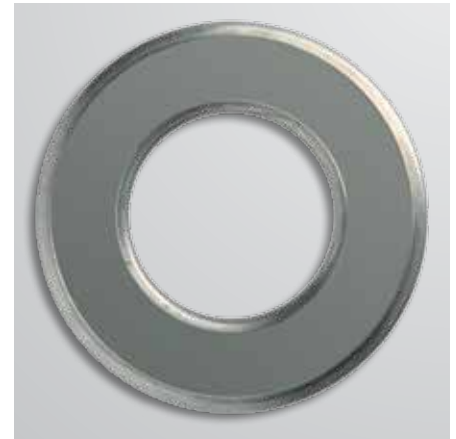
* When dealing with higher values, please contact the technical department

Applications

The series 5000 metal jacketed gaskets are widely used in chemical, petrochemical and refinery industries and are mainly installed on pressure vessels, such as heat exchangers, reactors and columns. To promote sealing on existing equipment, you can order gaskets with 2 layers of adhesive graphite applied on both sealing faces during the final stage of the manufacturing process. Series 5000 gaskets

can also be installed where the equipment's gasket seating features a nubbing (typically encountered in refineries). The gasket can also be ordered with a corrugated inner and outer profile.

CF 5000



Type options

Type IBC for RF flanges
Tongue and groove type
Custom design

Available thicknesses

Standard 3mm.
Other thicknesses available on request.

Manufactured to the following standards

ASME Code (B16.20; B16.47; B16.5)
UNI EN 1514-1
DIN 2690/ 2691

If order information is incomplete, products will be supplied:

In standard sizes according to current national or international standards (ASME or EN)
In 3mm thick version

Filler materials

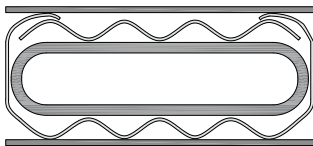
Material	Maximum temperature	Maximum pressure
Graphite	550 °C	150 bar
Virgin PTFE	250 °C	100 bar
Non-asbestos	400 °C	100 bar
Mica	750 °C	150 bar

Metal materials

Material	Maximum temperature
Fe Armco	450 °C
AISI 304; 316; 316L; 316Ti; 321; 347	550 °C
Alloy 400; 600; 625; 800; 825	600 – 750 °C
Hastelloy C276; B2	450 °C
Titanium Gr.2	350 °C

CF5000 is widely used in the chemical, petrochemical and refinery industry and, more specifically, is installed on heat exchangers, reactors and columns. For installation on heat exchangers, they can be fitted with pass partitions made based on the number and shape of the equipment header's partitions. In addition to their classic circular construction, series 5000 metal jacketed gaskets can also be produced in square, rectangular or oval shapes. These gaskets are mainly made in one piece within the size limitations of commercially available sheet metal; producing larger diameters involves welding.

CF 5033

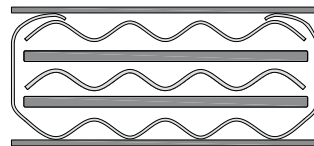


CF5033 is a metal jacketed gasket made up of tubular graphite wire packing of graphite with purity >98% and an outer corrugated jacket wrapped around the whole assembly. It has the same operating properties as standard metal jacketed gaskets, which means it can be used in their place with no need to recalculate flange stability in the event flange performance is tested. With the special graphite wire, the tubular packing conforms easily to the shape of the outer corrugated jacket, filling all the spaces, which can form where the partitions curve, for example.

Approvals:

VDI2200/2440 Ta-Luft

CF 5035

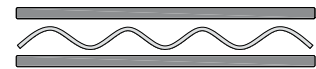
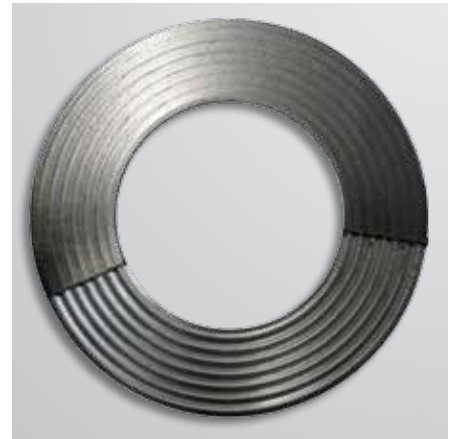


CF5035 is a reinforced double-jacketed corrugated gasket made up of a corrugated inner metal disc with a special concentric profile, two expanded graphite gaskets with controlled pre-compression and an outer corrugated jacket wrapped around the whole assembly. It reduces leakage through the sealing surfaces (labyrinth effect) and still offers remarkable elasticity and elastic recovery properties. The inner metal part reduces the chance of the filler being crushed and assures residual elasticity even when the gasket is subjected to high torque loads or temperature/pressure cycling.

Approvals:

VDI2200/2440 Ta-Luft; Fire safe API 6FB Third edition

CF 5060



CF5060 is a corrugated gasket made up of a corrugated AISI 316 steel disc with a special concentric profile sandwiched between two layers of expanded graphite. The special concentric shape of the metal part of the corrugated gaskets provides pressure peaks at the tops of the ridges, thus reducing the initial setup load and promoting a better seal with the same torque load.

Corrugated gaskets reduce leakage through the sealing surfaces (labyrinth effect).

They can withstand high temperatures and pressures; resistant to a wide variety of chemicals.

Camprofile gaskets

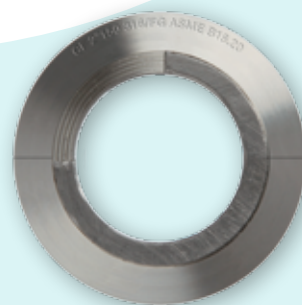
Camprofile CF 6000



SERIES 6000



**CF6000 METALGROOVED
WITH EXTERNAL ONE
PIECE RING**



**CF6000 METALGROOVED
WITH FLOATING RING**



**CF6000 METALGROOVED
CONVEX PROFILE**

CAMPROFILE GASKETS



Temperature range (°C)	-200/+750	450*
Maximum pressure (bar)	250	40*
Max compression set value (MPa)	600	200*

* When dealing with higher values, please contact the technical department

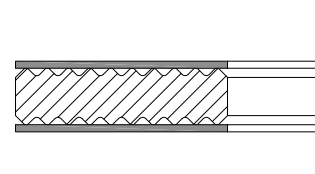
Applications

The series 6000 GROOVED METAL camprofile gaskets are made up of an inner metal disc machined with a special concentric cam profile and two facing materials that conform easily to the flanges and are applied on both faces or sealing surfaces. These gaskets are suitable for use on chemical, petrochemical and refinery plants and power stations. The concentric geometric shape of the metal core's profile provides pressure peaks at

the tops of the ridges, thus stopping all leakage through the sealing surfaces (labyrinth effect). The metal core means there is no chance of crushing, ensuring that the gasket can withstand even extremely high torque loads; it stops leakage through the seal and prevents blow out.

CF 6000

With no ring



Type options

Type IBC for RF flanges
Tongue and groove type
Custom design

Available thicknesses

Core: 2mm; 3mm; 4mm; 5mm
Filler: 0.5mm
Other thicknesses available on request

Manufactured to the following standards

ASME Code (B16.20; B16.47; B16.5)
UNI EN 1514-6

Graphite quality std

Ash content: ≤ 2 % (DIN 51903)***
Chloride content: ≤ 10 ppm (DIN 28090 – 2)
Sulphide content: < 700 ppm
Density: 1.0 g/cm³

*** <0.15% high-purity graphite on request

If order information is incomplete, products will be supplied:

In standard sizes according to current national or international standards (ASME or EN)
Thickness 4mm+0.5mm+0.5mm.

Filler materials

Material	Maximum temperature	Maximum pressure
Graphite	550 °C	250 bar
Virgin PTFE	250 °C	100 bar
Non-asbestos	400 °C	100 bar
Mica	750 °C	150 bar

Metal materials

Material	Maximum temperature
Fe Armco	450 °C
AISI 304; 316; 316L; 316Ti; 321; 347	550 °C
Alloy 400; 600; 625; 800; 825	600 – 750 °C
Hastelloy C276; B2	450 °C
Titanium Gr.2	350 °C

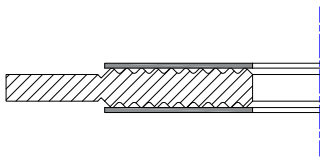
CF6000 GROOVED METAL without rings finds its main application in the chemical and petrochemical industry, in all applications involving very high temperatures and pressures. For installation on heat exchangers, they can be fitted with pass partitions (camprofile) made based on the number and shape of the equipment header's partitions. It can have a seamless construction (based on the size of commercially available sheet metal) or can be made from metal strips and subsequently TIG welded.

Approvals:

VDI2200/2440 Ta-Luft

CF 6000

With integral ring



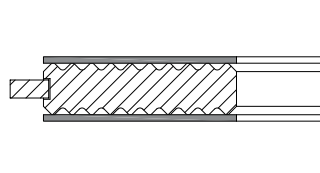
CF6000 GROOVED METAL with integral outer ring is mainly used on RF type flanges. These gaskets can be used in place of traditional spiral wound gaskets. For installation on heat exchangers, they can be fitted with pass partitions (camprofile) made based on the number and shape of the equipment header's partitions.

Approvals:

VDI2200/2440 Ta-Luft

CF 6000

With floating ring



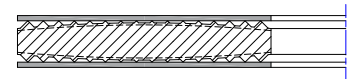
CF6000 GROOVED METAL with floating outer ring is mainly used on RF type flanges. The main purpose of the floating ring is to provide and promote easy seating of the gasket inside the bolt circle during the assembly and operation of the flanged connection. For installation on heat exchangers, they can be fitted with pass partitions (camprofile) made based on the number and shape of the equipment header's partitions.

Approvals:

VDI2200/2440 Ta-Luft

CF 6000

Convex



The Convex CF6000 GROOVED METAL gasket is made with a special convex profile that further helps effect the seal during the equipment's operation. It finds its main application in all equipment affected by possibly high pressure and temperature cycling, which can stress the flanged connection during operation. For installation on heat exchangers, they can be fitted with pass partitions (camprofile) made based on the number and shape of the equipment header's partitions.

Ring Joint

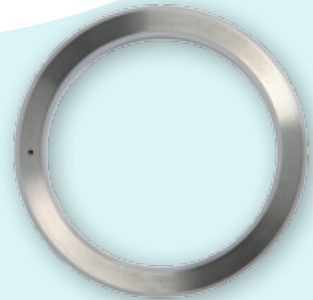
Ring Joint CF 7000



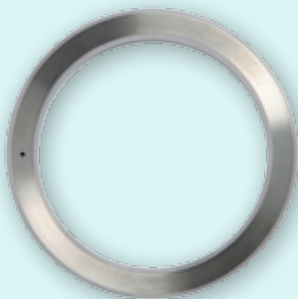
**SERIES 7000
TYPE R OVAL**



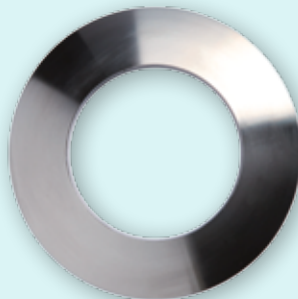
**SERIES 7000
TYPE R OCTAGONAL**



**SERIES 7000
BX**



**SERIES 7000
RX**



**SERIES 7000
LENS GASKETS**

RING JOINT GASKETS

7000

Temperature range (°C)	-200/+950	550*
Maximum pressure (bar)	1500	350*
Max compression set value (MPa)	650	400*

* When dealing with higher values, please contact the technical department

Applications

The series 7000 ring joint gaskets are mainly used in refineries, power stations, petrochemical industries, gas return systems and high-pressure valves. The series 7000 ring joint gaskets are produced by CF Service according to international standards ASME B16.20 (API 6A) in an oval design (type R to fit existing ring joint flanges) or octagonal design (type R for newly installed ring joint flanges), or can be custom designed to your specifications. The most common ring joint types are: type R (for ANSI B 16.5 and 16.47 flanges tab. A), type RX (for API 6A flanges) or type BX (for API 6BX flanges).

Type options

Type R oval and octagonal
Type BX or RX
Custom design

Manufactured to the following standards

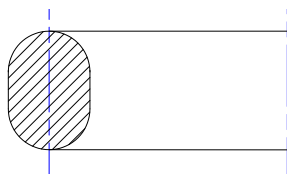
ASME Code B16.20; B16.47; API 6A;
API 6B; API 6BX; DIN 2696

Material hardness

Material	Maximum hardness	
	Brinell	Rockwell B
Soft Iron	90	56
Low Carbon Steel	120	68
F5	130	72
AISI 304	160	83
AISI 316	160	83
AISI 321	160	83
AISI 347	160	83
AISI 410	170	86

CF 7000

Type R oval

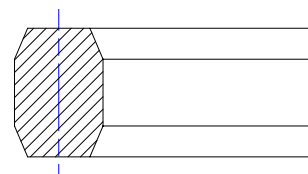
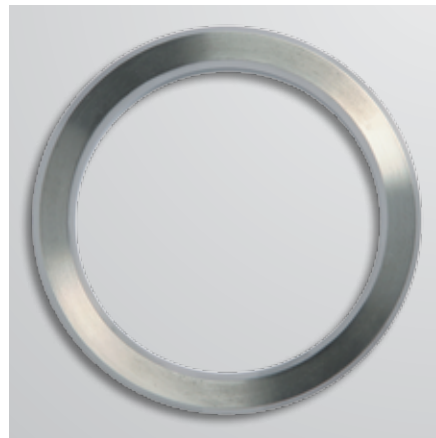


CF7000 is an oval ring joint type that is particularly suitable for installation on existing system flanges. It comes in various materials: Fe Armco/Soft Iron; Stainless steels 304, 316, 321, 347; Alloys 400, 600, 625, 800, 825; Hastelloy C276, B2. It can be produced in other materials on request. It is very common in refineries and in high-pressure pipelines.

The reference standards for these ring joint gaskets are ASME B16.20 and API 6A.

CF 7000

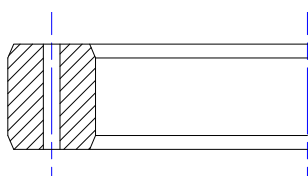
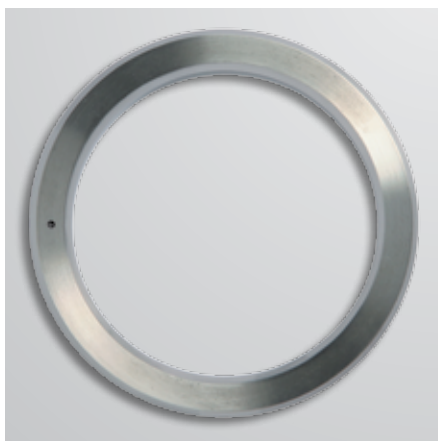
Type R octagonal



CF7000 is a ring joint type that is particularly suitable for installation on newly manufactured flanges, such as high-pressure valves. They come in various materials: Fe Armco/Soft Iron; Stainless steels 304, 316, 321, 347; Alloys 400, 600, 625, 800, 825; Hastelloy C276, B2. It can be produced in other materials on request. They are very common in refineries and in newly installed high-pressure pipelines. These gaskets are not recommended for installation on existing flanges with worn gasket seating. The reference standards for these ring joint gaskets are ANSI B16.5 and B16.47 A.

CF 7000

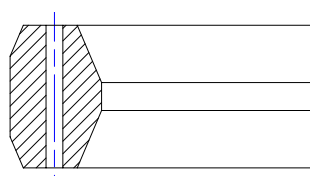
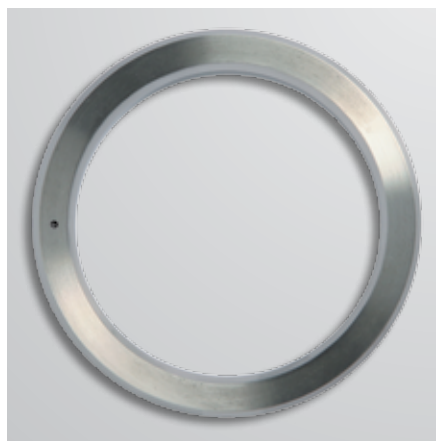
Type BX



CF7000 BX has been specially designed for installation on lines and vessels with working pressures in excess of 20000 psi (140 MPa). A hole is made to balance pressure. The reference standard for these ring joint gaskets is API 6A.

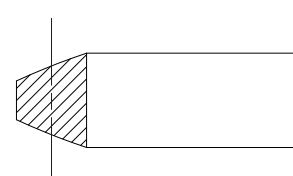
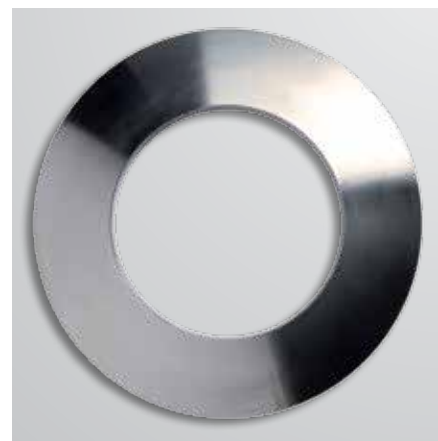
CF 7000

Type RX



CF7000 RX has been specially designed for installation on lines and vessels with working pressures in excess of 20000 psi (140 MPa). A hole is made to balance pressure. The reference standard for these ring joint gaskets is API 6A.

LENS GASKET



Lens gaskets are made from a solid stainless steel or alloy disc. They are used, above all, in fertilizer manufacturing industries, installed on non-return valves, shutoff valves and high-pressure valves. The design standard calls for gaskets to be made to DIN 2696.

Metallic gaskets

CF 8000



SERIES 8000

METALLIC GASKETS

8000

Temperature range (°C)	-200/+750	550*
Maximum pressure (bar)	1500	350*
Max compression set value (MPa)	650	400*

* When dealing with higher values, please contact the technical department

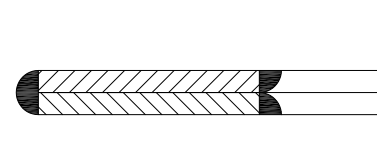
Applications

The series 8000 LIP SEAL gaskets (also known as weld rings) are mainly used in pressure vessels where a high-quality seal is required (e.g. Ta – Luft) in addition to a seal that will stay stable regardless of deformation and/or expansion while the equipment is operating. The profile is chosen to suit the type of flange movement during operation (axial and/or transverse movement). In the event hydraulic testing is required, series 8000 gaskets can be fitted with a special inner seal (O-ring or camprofile) so that testing can be carried out without having to weld the LIP SEAL. Once hydraulic

testing is complete, the gasket can be welded in place.

Series 8000 gaskets come in stainless steel or special alloys, depending on what material the flanged connection is made from and based on customer specifications.

CF 8001



CF8001 is the standard LIP SEAL version used mainly for diameters up to DN400. It can withstand only slight axial and transverse movements experienced by the flanged connection as a result of the material it is made from expanding. The surface finish of the flanges must be in the range 25 – 50 µm.

Type options

Type IBC for RF flanges
Tongue & Groove flanges
Flat flanges
Custom design

Manufactured to the following standards

ASME Code B16.20; B16.47; API 6A
DIN 2696; DIN 2695

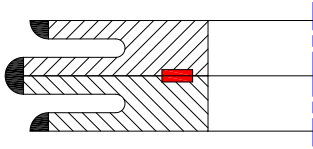
Metal materials

Material	Maximum temperature
AISI 304; 316; 316L; 316Ti; 321; 347	550 °C
Alloy 400; 600; 625; 800; 825	600 – 750 °C
Hastelloy C276; B2	450 °C
Titanium Gr.2	350 °C

Material hardness

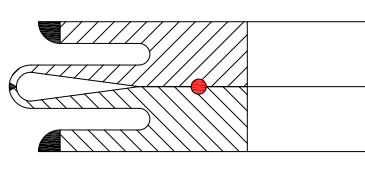
Material	Maximum hardness	
	Brinell	Rockwell B
Soft Iron	90	56
Low Carbon Steel	120	68
F5	130	72
AISI 304	160	83
AISI 316	160	83
AISI 321	160	83
AISI 347	160	83
AISI 410	170	86

CF 8002



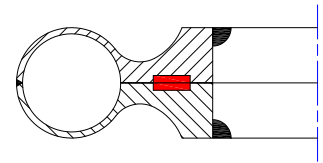
CF8002 allows the flanged connection to move axially and, to some extent, transversally during operation since the welds are applied on the outside of the gasket. This special arrangement also helps compensate for bolts becoming slack. A seal (O-ring or camprofile) is created inside and is used in the event the equipment is to undergo hydraulic testing. It is used for diameters over DN400. The surface finish of the flanges must be in the range 25 – 50 µm.

CF 8003



CF8003 is an optimized version of CF8002. It is used when the application involves transverse movement in addition to axial movement. A seal (O-ring or camprofile) is created inside and is used in the event the equipment is to undergo hydraulic testing. The surface finish of the flanges must be in the range 25 – 50 µm.

CF 8004



CF8004, unlike CF8001, CF8002 and CF8003, provides greater conformability in the event of significant flanged connection movement and deformation. It is particularly suitable for use in high-temperature applications or when dealing with considerable sudden changes in temperature. A seal (O-ring or camprofile) is created inside and is used in the event the equipment is to undergo hydraulic testing. It is mainly used on large diameters. The surface finish of the flanges must be in the range 25 – 50 µm.

Solid metal gaskets

CF 9000



SERIES 9000

SOLID METAL GASKETS WITH INSERTS



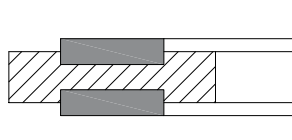
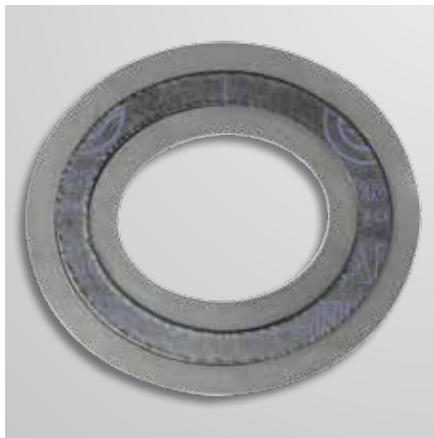
Temperature range (°C)	-200/+650	500*
Maximum pressure (bar)	420	100*
Max compression set value (MPa)	500	200*

* When dealing with higher values, please contact the technical department

Applications

Series 9000 solid metal gaskets with inserts are made up of a metal disc suitably machined to create two grooves (or slots) - one on each face - to accommodate two expanded graphite gaskets. These gaskets are used, above all, on equipment with critical operating temperatures and pressures. The special shape of the solid metal gaskets with inserts combines the lasting stability of the solid part with the compensation, conformability and elastic recovery properties of graphite, even on existing system flanges. In extreme cases, Sigraflex Hochdruck Pro gaskets with inner and outer eyelets can be used instead of the traditional expanded graphite insets. This special arrangement is applied when dealing with very high pressures, preventing blow out that can occur with non-reinforced expanded graphite. In addition, the high compressive strength of Sigraflex Hochdruck Pro means it can handle high loads.

9000



CF9000 is used, above all, on heat exchangers and other pressure vessels, with tongue & groove or custom-designed flanges. They can be used instead of traditional metal jacketed or camprofile gaskets when there are sealing problems as a result of damaged or non-parallel flanges.

Graphite quality standard

Ash content: ≤ 2 % (DIN 51903) ***
Chloride content: ≤ 50 ppm (DIN 28090 - 2)
Sulphide content: < 700 ppm
Density: 1.0 g/cm³

*** <0.15% high-purity graphite on request

Metal materials

Material	Maximum temperature
AISI 304; 316; 316L; 316Ti; 321; 347	550 °C
Alloy 400; 600; 625; 800; 825	600 – 950 °C
Hastelloy C276; B2	450 °C
Titanium Gr.2	350 °C

Static

Packings



**DISCONTINUOUS
ARAMID**



PTFE



GRAPHITE



**REINFORCED
GRAPHITE**



**GRAPHITE-FILLED
EXPANDED PTFE**

STATIC SEALS

PACKINGS

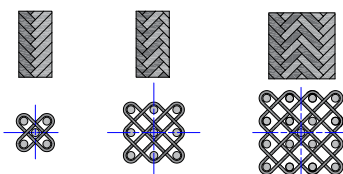
Temperature range (°C)	-200/+500	400*
Maximum pressure (bar)	400	30*
Max compression set value (MPa)	///	///

* When dealing with higher values, please contact the technical department

Applications

Packings are used in various fields of industry for protecting and insulating valve stems and motor shafts from the possible leakage of either liquid or gaseous fluids. The main materials used to make the packings are: graphite (excellent heat and chemical resistance), glass or ceramic fibres (for heat-resistant static seals), plant fibres such as ramie or hemp (for wear resistance) and synthetic fibres such as PTFE, aramid and acrylic fibres (for resistance to chemicals and corrosive substances). CF Service packings can be reinforced with metals such as stainless steel or Inconel for use in applications that demand high mechanical strength even at high temperature and pressures. CF Service packings can also be ordered impregnated with anti-friction agents.

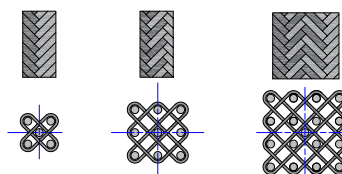
DISCONTINUOUS ARAMID



The discontinuous aramid fibre packing is cross-plaited from a yarn of discontinuous aramid fibres. It can be impregnated with a roughly 50-50% blend of PTFE and inert lubricant or with graphite powder, inert lubricant and corrosion inhibitor. They are particularly popular for use in refineries, chemical and petrochemical plants, power stations, in contact with medium aggressive chemicals, water, solvents, petroleum derivatives, greases and oils.

Density: 1.5 g/cm³
pH: 2 - 12
Temperature: -100°C +260 °C
Speed: 15 m/s
Pressure - rotary: 20 bar
Pressure - reciprocating: 30 bar

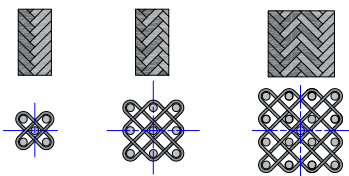
PTFE



PTFE packing is cross-plaited from a pure expanded PTFE yarn. Filling particles of highly refined minerals treated with mineral oil can be introduced during the production process (lubricated PTFE packing). The resulting packing is very pliable and flexible with a low friction coefficient and no shaft wear. The filling particles within the yarn improve the heat transfer properties as well as the absorption and long-term retention of the lubricant. PTFE packing can be fitted on rotary pumps, piston pumps, mixers, stirrers, guillotine valves and valves in all fields of industry. This type of packing meets FDA standards.

Density: 1.8 g/cm³
pH: 0 - 14
Temperature: -100°C +260 °C
Speed: 12 m/s
Pressure - rotary: 20 bar
Pressure - reciprocating: 30 bar

GRAPHITE

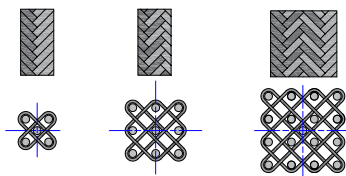
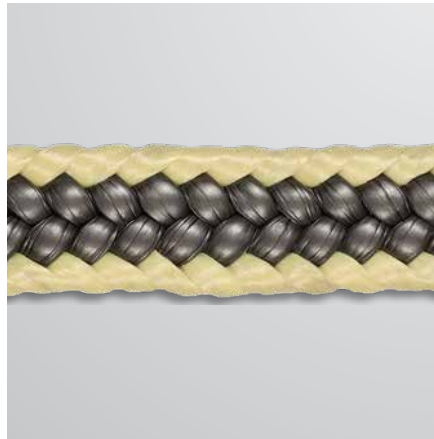


Graphite packing is plaited from pure expanded graphite filaments. It can also be reinforced with wire (e.g. stainless steel or alloy). This packing combines the benefits of a braid with the sealing efficiency typical of preformed graphite rings, i.e. resistance to high pressures and extrusion. Excellent thermal conductivity. It can be used in chemical and petrochemical plants, power stations, and for such applications as steam, water, gas, oil, process water and chemical solutions.

Density: 1.1 g/cm³
pH: 0 – 14
Temperature: -200°C +450 °C
Speed: 20 m/s
Pressure - rotary: 30 bar
Pressure - static: 300 bar
Pressure - static: 400 bar**
 **wire-reinforced version

GRAPHITE

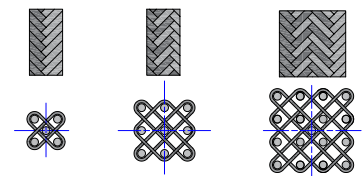
Reinforced on corners



This packing is cross-plaited from graphite-filled PTFE yarn (reinforced with pure aramid yarn corners) and lubricated with silicone oil. This packing combines the advantages of graphite-filled PTFE with the toughness and durability properties of aramid yarn. This union results in extremely low shaft wear and improved thermal conductivity compared to standard aramid packings. This packing is particularly suitable for applications on: reciprocating pumps, process valves, stirrers and for all other high-pressure applications. It can be used with a wide range of fluids: water (at both low and high temperatures), wastewater, steam, diluted acids, oils and solvents.

Density: 1.5 g/cm³
pH: 2 – 12
Temperature: -100 °C +280 °C
Speed: 20 m/s
Pressure - rotary: 30 bar
Pressure - reciprocating: 200 bar
Pressure - static: 200 bar

GRAPHITE-FILLEDEXPANDEDPTFE



Graphite-filled expanded PTFE packing is produced with pure expanded PTFE yarn, incorporating graphite and lubricated with silicone oil. The flexibility, chemical resistance, low friction coefficient and remarkable heat dissipation properties of PTFE + graphite make the packing one of the most versatile and widely used in the market. Given its extensive range of applications, it makes an effective replacement for many other packings, which leads to a considerable reduction in stock.

Density: 1.6 g/cm³
pH: 0 – 14
Temperature: -200°C +280 °C
Speed: 25 m/s
Pressure - rotary: 35 bar
Pressure - reciprocating: 100 bar
Pressure - static: 250 bar

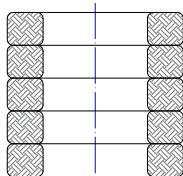
STATIC SEALS

PACKINGS

Temperature range (°C)	-200/+500	400*
Maximum pressure (bar)	400	30*
Max compression set value (MPa)	///	///

* When dealing with higher values, please contact the technical department

TA-LUFT PACKING RING SETS



The graphite packing ring set has been specially designed to reduce fugitive emissions from pump stuffing boxes and from valve stems. Easy to install, it can be fitted in either new or existing housings. The standard set comprises five sealing rings. The main fields of application are: chemical and petrochemical plants, refineries, process industry and power stations. This packing ring set works effectively on valves, even without live loading; it has a lower friction coefficient than traditional expanded graphite packing ring sets and conforms very well to the surfaces of the stuffing box housing.

pH: 0 – 14

Temperature: -200 °C + 500 °C

Speed: 2m/s

Pressure: 250 bar

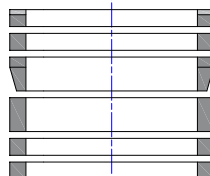
Approvals:

Ta – Luft VDI 2440

(21 bar; 2000 cycles; 400 °C)

Fire safe API 589 Rev.02

PREFORMED GRAPHITE PACKING RING SETS



Preformed graphite packing ring sets are produced with spiral expanded graphite tape suitably purified through mechanical, chemical and heat treatment processes, impregnated and moulded to produce a density that can range from 1.2 to 2.0 g/cm³ depending on duty.

They can be manufactured using special moulds custom made to suit the installation site and meet customer specifications. They are particularly popular for use in chemical and petrochemical industries, refineries, power stations, valves and centrifugal pumps. The preformed graphite packing ring sets can also be used where high temperatures are involved (450 °C in oxidizing environment).

pH: 0 – 14

Density: 1.2 – 2.0 g/cm³

Temperature: -200 °C +450 °C

Pressure: 250 bar

Approvals:

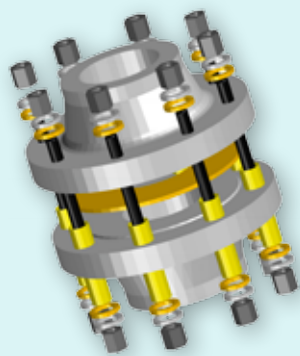
Ta – Luft VDI 2440

(21 bar; 2000 cycles; 400 °C)

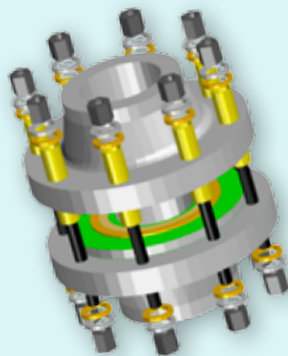
Fire safe API 589 Rev.02

Insulation solutions

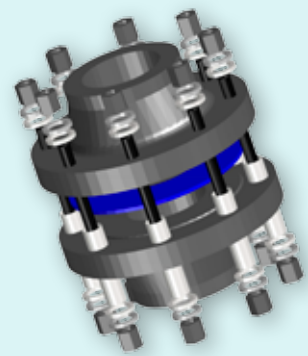
Insulation Kit, Insulation Kit FSA,
Anticorrosion Kit



INSULATION KIT



INSULATION KIT FSA



ANTICORROSION KIT

INSULATION KIT

Insulation kits are widely used for the electrical insulation of flanged couplings, even in critical conditions and in the presence of dangerous fluids. This type of kit consists of an insulating gasket, an insulating sleeve for each bolt, two insulating washers for each bolt and two steel washers (carbon or stainless steel) for each bolt. It can also be used for the prevention of galvanic corrosion.



HIGHLIGHTS

1. Ideal for electrically isolating flanges

Wide range of applications even at high temperatures and pressures

Technical Features

Isolating gasket profile



Kit composition:

The standard kit consists of:

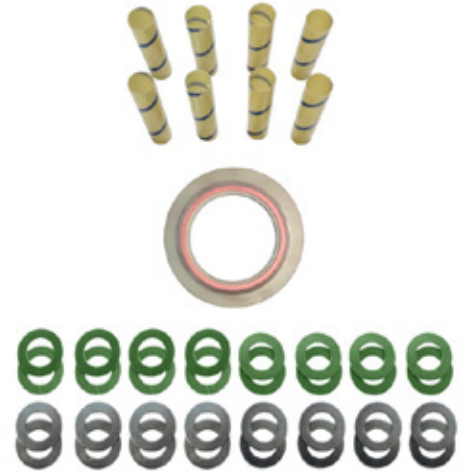
- N°2 Stainless Steel or Carbon Steel washers per each bolt
- N°2 insulating washers per each bolt
- N°1 insulating sleeve per each bolt
- N°1 insulating gasket (type GIK1, GIK2 o GIK3)

Test Method	GIK1	GIK2	GIK3
Compression resistance	65,000 psi	50,000 psi	25,000 psi
Dielectric strength	750 VPM	520 VPM	500 VPM
Temperature	-200°C +200 °C	Max 150°C	-50°C +100 °C
Pressure	Vacuum to a 700 bar	Max 80 bar	Max 40 bar
Water absorption	0.085%	0.10%	1.6%
Flexural strength	57,700 psi	55,000 psi	22,500 psi
Tensile strength	41,000 psi	35,000 psi	20,000 psi

INS. KIT F-FSA

Insulation kit type F-FSA is a seal kit designed for electrical flange isolation and/or general sealing applications: this kit is suitable for use in raised-face and full-face flanges up to ANSI class 2500 (or equivalent) and is excellent for isolating flanges made of dissimilar metals or where prevention of flange face corrosion is desired. The design of the type F-FSA seal incorporates 2 camprofile profile sealing barrier: inner barrier is made by modified silica filled ptfе, outer barrier is made by Mica. The rest of surface is covered with a layer of epoxy resin type NEMA G10. As a result of this advanced seal design, maintenance free flange isolation and flange face corrosion mitigation are achieved economically.

The core of type F-FSA is constructed of SS316L coated with high quality epoxy resin type NEMA G10 which exhibit excellent dielectric strength, high compressive strength and superior sealing characteristics.



HIGHLIGHTS

1. Ideal for installations with high pressure and temperature
2. Special CF engineered sealing profile
3. Fire Safe API 607 rev.04 Exxon mod. approval

Technical Features

- **Seal Material:** Inner barrier: SS316L camprofile profile covered with modified silica filled ptfе layer.
Outer barrier: SS316L camprofile profile covered with Mica layer.
- **Insulating washers, covered layer and sleeves:**
NEMA grade G-10 Glass-Reinforced Epoxy (GRE) laminate material:
Compressive Strength 65,000 PSI

Dielectric Strength 19.7 kV/mm
Max. Continuous Operating Temp 200° C
Water Absorption 0,5%
Flexural Strength 65,000 PSI
Tensile Strength 50,000 PSI (for short periods of service even up to + 315 ° C)

- **Pressure:** from vacuum up to 300 Bar
- **Steel washers:** SS316L
- **Approvals:**
Fire Safe API 607



Anticorrosion Kit

An important aspect, especially in the chemical industry, is the corrosive attack deriving from the normally used process substances such as strong acids and strong bases in which the pH reaches the limits of the 0 - 14 scale. In the vast majority of cases, however, it is not analyzed the effect that a fluid leak can cause to the remaining components of the flanged coupling such as tie rods, nuts and washers.

A valid alternative is to chemically isolate the elements that make up the flanged coupling. The Anticorrosion Kit has been designed to create a protective barrier using suitable materials between the flanged coupling elements and the fluid itself. Naturally, however, the selection of the most suitable gasket remains a decisive factor in the sealing efficiency of the flanged coupling. Safeguarding the remaining parts of the flanged coupling can drastically limit the flow and the extent of the loss by allowing maintenance technicians to intervene safely, limiting the extent of the damage as much as possible. The Anticorrosion Kit thus conceived, allows a dual purpose: to interrupt the flow of galvanic currents inside the line and / or equipment (in the case of flanged Inox / CS couplings) and to preserve the integrity of all its components from the chemical attack.



HIGHLIGHTS

1. Drastically reduces the effects of loss
2. It allows a safe maintenance intervention
3. Preserves the integrity of all flanged coupling elements

Technical Features

Kit standard "Anticorrosion Kit" made by:

- n°1 chemically insulating gasket
- n°1 virgin ptfe insulating sleeve per each bolt
- n°2 virgin ptfe insulating washers per each bolt
- n°2 Stainless Steel washers per each bolt

STANDARDS CROSS-REFERENCE TABLE FOR MAIN ALLOYS

Alloy Type	Material	Trade Name	USA		Germany	Europe EN 10088/3		USA ASTM			
			UNS	ASTM	Werkst Nr.	Name	No.	Bar	Tube	Coil	Sheet
Nickel	Nickel 200	Nickel 200	N02200		2.4660			B160	B163/B730	B162	B162
Nickel	Nickel 201	Nickel 201	N02201		2.4068			B160	B163/B730	B162	B162
Nickel Alloy	Alloy 400	Monel 400	N04400		2.436			B164	B163/B730	B127	B127
Nickel Alloy	Alloy 600	Inconel 600	N06600		2.4816			B166	B163/B516	B168	B168
Nickel Alloy	Alloy 601	Inconel 601	N06601		2.4851			B166	B163	B168	B168
Nickel Alloy	Alloy 625	Inconel 625	N06625		2.4856			B446	B444/B704	B443	B443
Nickel Alloy	Alloy 718	Inconel 718	N07718		2.4668			B637	B626	B670	B670
Nickel Alloy	Alloy 800	Incoloy 800	N08800		1.4876			B408	B163/B515	B409	B409
Nickel Alloy	Alloy 800H	Incoloy 800H	N08810		1.4958			B408	B163/B515	B409	B409
Nickel Alloy	Alloy 800HT	Incoloy 800HT	N08811		1.4959			B408	B163/B515	B409	B409
Nickel Alloy	Alloy 825	Incoloy 825	N08825		2.4858			B425	B163/B704	B424	B424
Nickel Alloy	Alloy C276	Hastelloy C-276	N10276		2.4819			B574	B622/B626	B575	B575
Nickel Alloy	Alloy C4	Hastelloy C-4	N06455		2.4610			B574	B622/B626	B575	B575
Nickel Alloy	Alloy C22	Hastelloy C-22	N6022		2.4602			B574	B622/B626	B575	B575
Nickel Alloy	Alloy B2/B3/B4	Hastelloy B2/B3/B4	N10665		2.4617			B335	B622/B626	B333	B333
Nickel Alloy	Alloy 59	Alloy 59	N06059		2.4605			B574	B622/B626	B575	B575
Nickel Alloy	Alloy C2000	Alloy C2000	N06200					B574	B622/B626	B575	B575
Nickel Alloy	CuNi 70/30	Cupronickel 70/30	C71500		2.0882				SB111		SB171
Nickel Alloy	CuNi 90/10	Cupronickel 90/10	C70600								
Legati		F5		A182 F5/4-6 Cr½Mo	1.7362	12CrMo20	1.7362				
Titanio	Titanio Gr.1		R50250		3.7025			B348	B338	B265	B265
Titanio	Titanio Gr.2		R50400		3.7035			B348	B338	B265	B265
Titanio	Titanio Gr.3		R50550		3.7055			B348			B265
Titanio	Titanio Gr.4		R50700		3.7065			B348		B265	B265
Titanio	Titanio Gr.5		R56400		3.7165			B348			
Titanio	Titanio Gr.7		R52400		3.7235			B348	B338	B265	B265
Titanio	Titanio Gr.9		R56320					B348	B338	B265	
Duplex	Duplex	SAF2205	S31803	ASTM F51	1.4462			A276	A789	A240	A240
Duplex	Duplex	SAF2205	S32205		1.4462			A276	A789	A240	A240
Duplex	Super Duplex	SAF2507	S32750	A182 F53	1.4410			A479	A789	A240	A240
Duplex	Super Duplex	Ferralium, SAF2507	S32760	A182 F55	1.4501	X2CrNiMoCuWN25.7.4	1.4501	A479	A789	A240	A240
Duplex	Duplex			A182 F11		12CrMo5					
Duplex	Duplex			A182 F12	1.7335	14CrMo3					
Duplex	254 SMO/6Mo	354	S31254	A182 F44	1.4547	X1CrNiMoCuN20-18-7	1.4547	A479/A276	A269	A240	A240
	Alloy 904/L	TP904L	N08904		1.4539			B649	B673	A240	B625
Inox	AISI304L	TP304L	S30403	304L	1.4307	X 2 Cr Ni 18-09	1.4307	A479/A276	A269	A240	A240
Inox	AISI304H	TP304H		304H	1.4301	X 5 Cr Ni 1810	1.4301				
Inox	AISI316L	TP316L	S31603	316L	1.4404	X 2 CrNiMo 17-12-2	1.4404	A479/A276	A269	A240	A240
Inox	AISI316Ti	TP316Ti	S31635	316Ti	1.4571	X 6 CrNiMoTi 17-12-2	1.4571				
Inox	AISI317L	TP317L	S31703	317L	1.4438	X 2 CrNiMo 18-15-4	1.4438	A479/A276	A269	A240	A240
Inox	AISI321	TP321	S32100	321	1.4541	X 6 CrNiTi 18-10	1.4541	A479/A276	A269	A240	A240
Inox	AISI347	TP347	S34700	347	1.4550	X 6 CrNiNb 18-10	1.4550	A479/A276	A269	A240	A240
Inox	AISI410	TP410	S41000	410	1.4006	X12Cr13	1.4006				
Inox	AISI420	TP420	S42000	420	1.4021	X20Cr13	1.4021				
Inox	AISI430	TP430	S43000	430	1.4016	X6Cr17	1.4016				
Acc. Carbonio	Carbon steel	Carbon steel		CS	1.0333						

CHEMICAL RESISTANCE CHART

- resistant
- ◐ partially resistant
- non resistant
- insufficient data

	VITON	CF1100	CF2000	CF2001G	UNIVERSAL PRO	HOCHDRUCK PRO	SIGRAFLEX MF	CF3000	CF3024	CF3070	CF3090	AISI 304	AISI 316L	AISI 321	ALLOY 600	MONEL 400	TITANIO	HASTELLOY C-276
Water	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alcohols																		
Methanol	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ethanol	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Glycol	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Isopropyl alcohol	●	●	●	●	◐	◐	◐	●	●	●	●	○	◐	○				
Aldehydes																		
Formaldehyde	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●
Acetaldehyde			●	●	●	●	●		●									
Benzaldehyde	○	●	●	●	●	●	●		●			●	●	●				
Ethers																		
Ethyl-methyl ether		●	●	●	●	●	●		●			●	●	●	●	●		●
Diethyl ether	○	●	●	●	●	●	●		●			●	●	●				
Dioxane	○	●	●	●	●	●	●	●	●	●	●	●	●	●				
Biphenyl ether		●	●	●	●	●	●		●			●	●	●				
Esters																		
Ethyl acrylic ester		●	●	●	●	●	●		●			●	●	●				
Ethyl butyl ester			●	●	●	●	●		●			●	●	●				
Amyl acetoacetics ester			●	●	●	●	●		●			●	●	●				
Ketones																		
Ethyl methyl ketone		●	●	●	●	●	●		●			●	●	●				
Dimethyl ketone		●	●	●	●	●	●		●			●	●	●	●	●		●
Methyl isobutyl ketone		●	●	●	●	●	●		●			●	●	●				
Hydrocarbons																		
Ethylene	●	●	●	●	●	●	●	●	●	●	●	○	◐	○				
Propylene	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Propane	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Benzene	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Isocotate	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Styrene	◐	●	●	●	●	●	●	●	●	●	●	◐	◐	◐				
Xylene	◐	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●
Halogenated hydrocarbons																		
Chloroform	◐	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●
Tetrachloromethane (carbon tetrachloride)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Freons	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chlorobenzene	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●
Organic acid																		
Acrylic acid	○	●	●	●	●	●	●	●	●	●	●	●	●	●				
Formic acid	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
Phenylacetic acid			●	●	●	●	●		●									
Acetic acid	◐	◐	●	●	●	●	●	●	●	●	●	○	◐		●	●	●	●
Hexachlorinephenylacetic acid			●	●	●	●	●		●						●	●	●	●
Maleic acid		●	●	●	●	●	●		●			●	●	●				
Chlorineacetic acid	○	●	●	●	●	●	●	●	●	●	●	◐	◐	◐			●	
Phthalic acid	◐	●	●	●	●	●	●	●	●	●	●						●	
Stearic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◐		●
Sulphonic acid			●	●	●	●	●		●									
Trichloroacetic acid	○	◐	●	●	●	●	●	●	●	●	●							
Tartaric acid	◐		●	●	●	●	●	●	●	●	●						●	
Amines																		
Aniline	◐	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
Dimethyloamine		●	●	●	●	●	●		●									
Trimethyloamine		●	●	●	●	●	●		●									
Other organic compounds																		
Acrylonitrile	○	●	●	●	●	●	●	●	●	●	●	●	●	●				
Dimethylsulfoxide		●	●	●	●	●	●		●									
Epichlorohydrin		●	●	◐	◐	◐	◐		●			○	○	○				
Mercaptans	○	●	●	●	●	●	●		●			●	●	●				
Nitrobenzene	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Phenol		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Carbon disulphide	◐	●	●	●	●	●	●	●	●	●	●	●	●	●		●		
Technical mixtures																		
Petrol	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydraulic oil	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Paraffin oil		●	●	●	●	●	●	●	●	●	●	●	●	●		●		●
Dissolvent for paints		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Engine oil		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Transformer oil	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oils - heat carriers	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

	VITON	CF1100	CF2000	CF2001G	UNIVERSAL PRO	HOCHDRUCK PRO	SIGRAFLEX MIF	CF3000	CF3024	CF3070	CF3090	AISI 304	AISI 316L	AISI 321	ALLOY 600	MONEL 400	TITANIO	HASTELLOY C-276	
Alkalis																			
Ammonia solution	○	●	●	◐	◐	◐	●	●	●	●	●	○	◐	●	●	●		●	
Caustic potassium solution (technical potassium carbonate)			●	◐	●	●	●		●			●	●	●					
Potassium hydroxide	○	●	◐	◐	◐	◐	●	●	●			●	●	●					
Sodium hydroxide	◐	◐	◐	◐	◐	◐	●	●	●	○	●	○	○	○	●	●		●	
Caustic sodium solution			●	●	●	●	●	●	●			●	●	●					
Aqueous salt solutions																			
Borates		●	●	●	●	●		●											
Bromides		●	●	◐	◐	◐		●				○	○	○					
Chlorides			●	●	◐	◐	●												
Chromates 20% concentration			○	○	○	○	○					○	○	○					
Fluorides			●	●	●	●	●		●										
Iodides			●	●	●	●	●		●										
Carbonates			●	●	●	●	●		●										
Nitrates			◐	◐	◐	◐	◐												
Nitrites			●	●	●	●	●		●										
Phosphates			●	●	●	●	●		●			●	●	●					
Sulphates			●	●	●	●	●		●										
Acids																			
Boric acid		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bromic acid		●	●	◐	◐	◐		●				○	○	○		◐			
Chlorosulfonic acid up to 20%		●	●	●	●	●	●		●										
Hydrofluoric acid		○	●	◐	◐	◐		●				○		○	○	◐		●	
Nitrohydrochloric acid (aqua regia)	◐	○	○	○	○	○	○	●	●	●	●	◐	◐	◐					
Mixed acid (nitric acid + sulfuric acid)			○	○	○	○	○	●	●	●	●	◐	◐	◐					
Oleum	◐	◐	○	○	○	○	○	●	●	●	●	◐	◐	◐		○			
Perchloric acid	●	◐	◐	◐	◐	◐	◐	●	●	●	●	◐	◐	◐				●	
Phosphoric acid	●	●	●	●	●	●	●	●	●	◐	◐	◐	◐	○	●	◐		●	
Nitric acid up to 20%	◐	◐	◐	◐	◐	◐	◐	●	●	●	●	◐	◐	◐	○	○		●	
Nitric acid 20% - 65%	◐	◐	◐	◐	◐	◐	◐	●	●	●	●	◐	◐	◐	○	○		●	
Hydrochloric acid	●	◐	●	○	○	○	○	●	●	●	●	○	○	○	○	◐		●	
Sulphuric acid up to 70%	◐	◐	◐	◐	◐	◐	◐	●	●	●	●	○	○	○	○	○		●	
Sulphuric acid 70% - 100%	◐	◐	◐	◐	◐	◐	◐	●	●	●	●	○	○	○	○	○		●	
Sulphurous acid	○	●	●	◐	◐	◐	◐	●	●	●	●	○	○	○	○	○	●	●	
Oxidizing molten salts																			
Potassium chlorate	◐		○	○	○	○		●				●	●	●			●		
Potassium nitrate	●		○	○	○	○		●	●	●	●	●	●	●	●	●	●	●	
Sodium peroxide	◐		○	○	○	○	●	●	●	●	●	●	●	●		●		●	
Non-oxidizing molten salts																			
Borics, sodium, potassium			●	●	●	●	●		●			●	●	●					
Calcium chloride	●		●	●	●	●	●	●	●	●	●	●	●	●			●	●	
Potassium hydrosulphide			●	●	●	●	●		●										
Gases / vapours																			
Ammonia	○	●	●	●	●	●	●	●	●	●	●	◐	◐	◐	●	●		●	
Bromine	●	●	○	○	○	○	○	●	●	●	●		○					●	
Hydrogen bromide		●	●	●	●	●	●	●	●	●	●	◐	◐	◐		◐			
Chlorine	◐	●	●	○	○	○	○	●	●	●	●	◐	◐	◐	◐	◐		◐	
Chlorine dioxide	●	○	○	○	○	○	○	●	●	●	●	○	○	○			◐		
Hydrogen chloride		●	●	●	●	●	●		●			○	○	○					
Fluorine	◐	○	○	○	○	○	○	◐	◐	○	○	●	●	●	●	●		●	
Hydrogen fluoride	○	○	●	●	●	●	●	○	◐	○	○	○	○	○	○	○			
Carbon oxide	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Carbon dioxide	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	
Air	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Oxygen	●	●	◐	◐	◐	◐	◐	●	●	●	●	●	●	●	●	●	●	●	
Sulphur dioxide	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◐	●	●	
Sulphur trioxide	●	◐	○	○	○	○	○	●	●	●	●	◐	◐	◐		◐			
Sulphur hexafluoride	◐	●	●	◐	◐	◐	◐					○	○	○					
Hydrogen sulphide	○	●	●	●	●	●	●	●	●	●	●	●	●	●		◐	●	●	
Nitrogen	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Nitrogen dioxide (dry)	○	●	◐	◐	◐	◐	◐		●			○	○	○					
Nitrogen oxides (dry)		●	◐	◐	◐	◐	◐		●			○	○	○					
Water steam	◐	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
Other inorganic media																			
Bleaching liquor	●	◐	●	◐	◐	◐	◐		●			○	○	○	○	◐	●	◐	
Hydrazine	○	●	●	●	●	●	●	●	●	●	●	●	●	●		◐		◐	
Sulphur		●	●	●	●	●	●	●	●	●	●	●	●	●	●	◐		●	
Hydrogen peroxide 85%	◐	◐	○	○	○	○	●	●	●	●	●	●	●	●	●	●		●	



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