KLINGER

مصنع الإتحاد لموانع التسرب
AL-ETIHAD GASKET FACTORY

CONNECT
WITH **QUALITY**

Approved by

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Plant # 30008581

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Vendor # 506745

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Saudi Electricity Company

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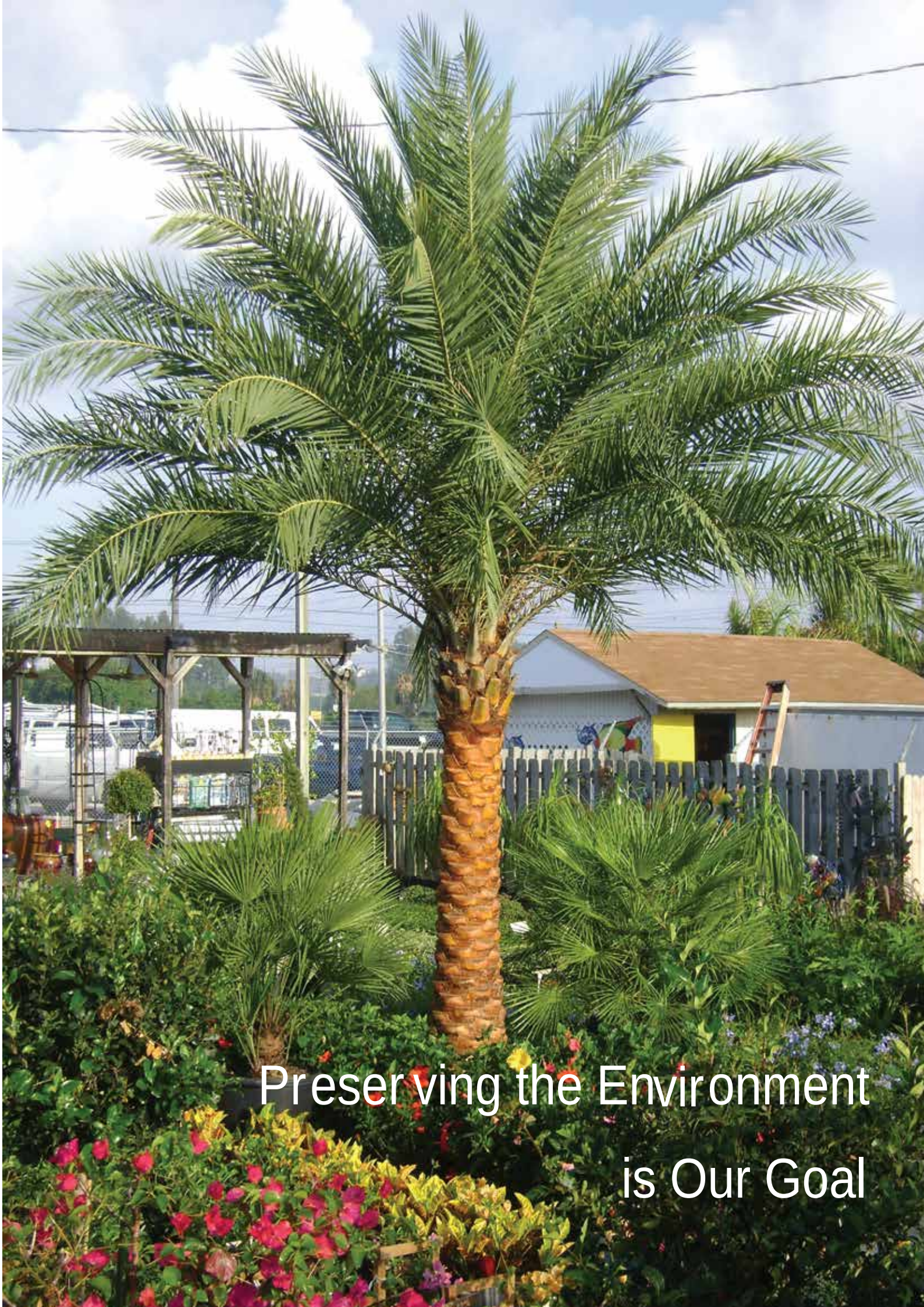
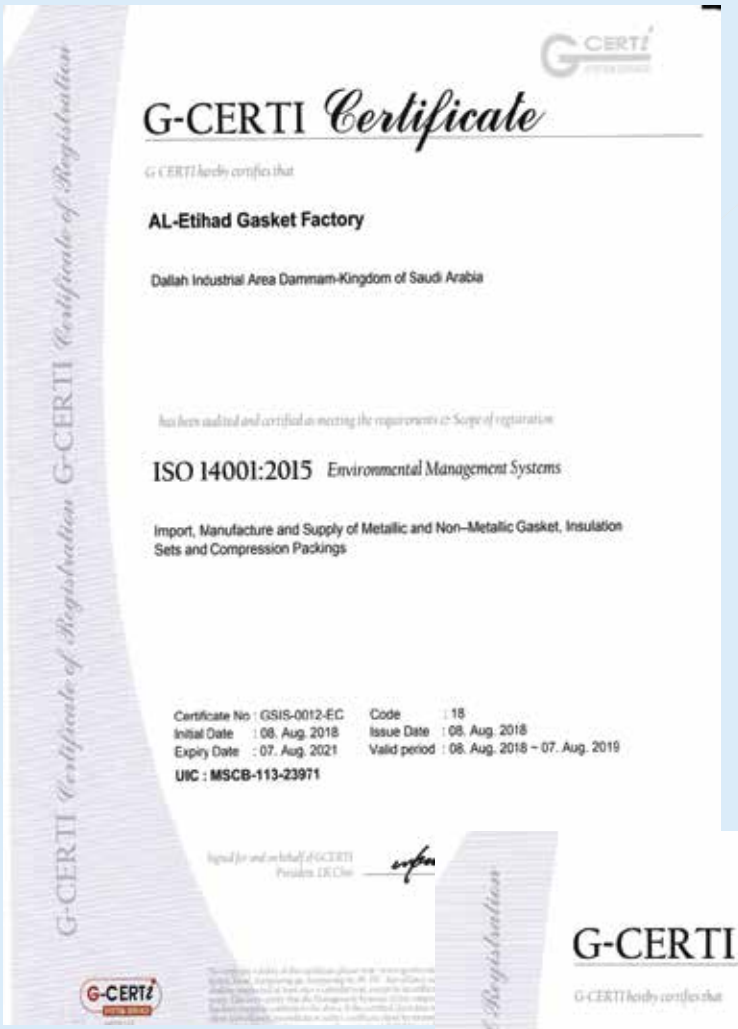
KLINGER

مصنع الإتحاد لموانع التسرب

AL-ETIHAD GASKET FACTORY

Contents


Preserving the Environment
is Our Goal



G-CERTI Certificate

G-CERTI hereby certifies that

AL-Etihad Gasket Factory

Dallah Industrial Area Dammam-Kingdom of Saudi Arabia

has been audited and certified as meeting the requirements & Scope of registration

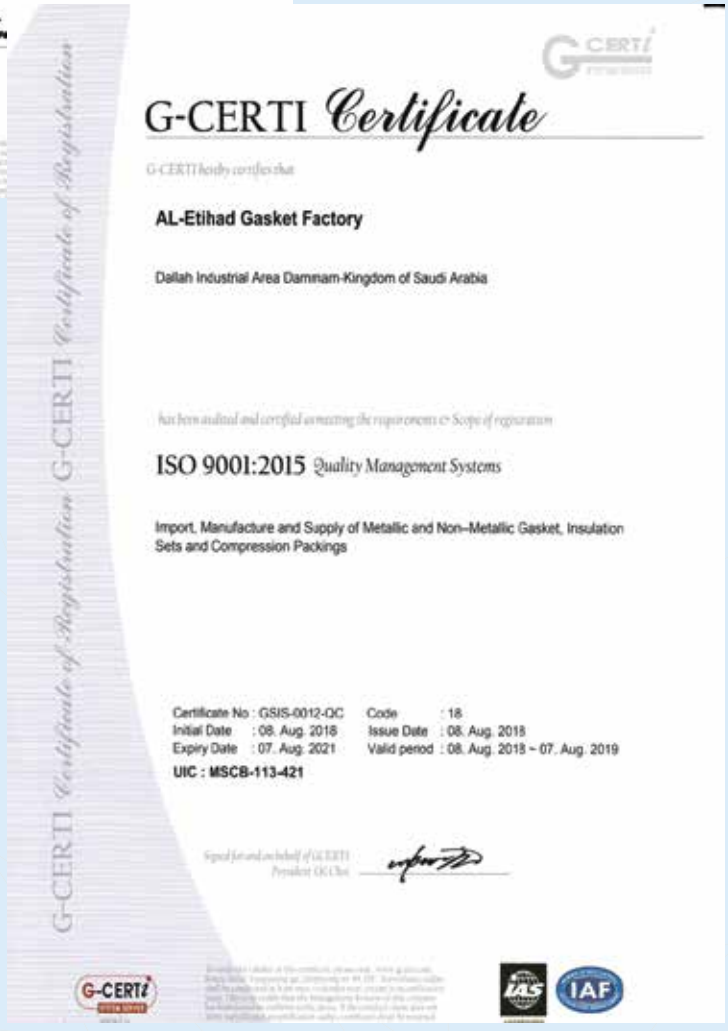
ISO 14001:2015 *Environmental Management Systems*

Import, Manufacture and Supply of Metallic and Non–Metallic Gasket, Insulation Sets and Compression Packings

Certificate No : GSIS-0012-EC
Initial Date : 08. Aug. 2018
Expiry Date : 07. Aug. 2021
Code : 18
Issue Date : 08. Aug. 2018
Valid period : 08. Aug. 2018 ~ 07. Aug. 2019
UIC : MSCB-113-23971

Signed for and on behalf of G-CERTI
President OC Chm

G-CERTI Certificate of Registration



G-CERTI Certificate

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ISO 9001:2015 *Quality Management Systems*

Import, Manufacture and Supply of Metallic and Non–Metallic Gasket, Insulation Sets and Compression Packings

Certificate No : GSIS-0012-QC
Initial Date : 08. Aug. 2018
Expiry Date : 07. Aug. 2021
Code : 18
Issue Date : 08. Aug. 2018
Valid period : 08. Aug. 2018 ~ 07. Aug. 2019
UIC : MSCB-113-421

Signed for and on behalf of G-CERTI
President OC Chm

G-CERTI Certificate of Registration

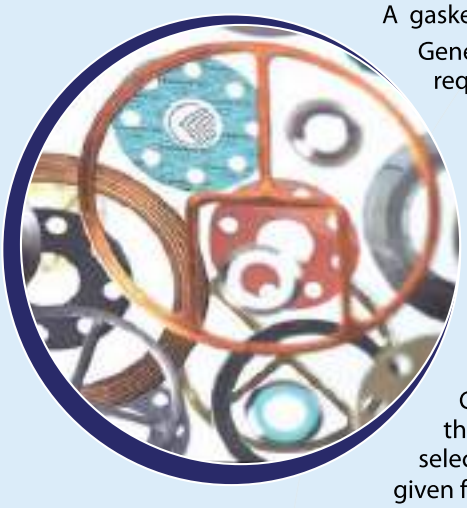
Introduction

Many challenges in the oil and gas, water, and Power industries in Saudi Arabia can only be met with the highest quality Gaskets and Sealing products . KLINGER has been at the forefront of the sealing industry since 1886. KLINGER is the world's leading developer and manufacturer of quality sealing products for the oil and gas, petrochemical, aerospace and defense, utilities, pharmaceuticals and chemical industries.

KLINGER and United Business Petroleum Company decided to join hands to establish, Al-etihad Gasket Factory, AGF, a world class sealing products manufacturing facility in Saudi Arabia. Our state of the art manufacturing plant, analytical software, and modern machinery will allow us to offer the finest quality Gaskets and sealing accessories at a very aggressive lead times and competitive prices.

We are currently producing the following products; Soft Cut Gaskets, Sheets, Spiral Wound Gaskets, Kamm profile, and Ring Joints. In addition, to huge quantity of stock at your disposal. You are invited you to visit our website at (www.al-etihad.com.sa).

PRESSURE CAPABILITY GUIDELINES



A gasket must be suitable for the internal pressure being sealed. Generally, as the internal pressure rises, the assembly stress required to seal the application increases and therefore higherpressure applications require a gasket material capable of withstanding high assembly loads. This is the major reason why semi-metallic and metallic gaskets are selected for high pressure applications.

The chart below provides a guide to the suitability of our materials in standard ANSI flanges. The guidelines reflect common custom and practices for size 1 2/" to 24" inclusively. It should be noted that the ability to withstand assembly load is also dependent on the temperature of the application.

Generally the higher the application temperature, the lower the pressure a gasket can withstand and therefore gasket selection must be checked with the pressure/temperature graphs given for each material.

Materials	Class 150 (20 Bar)	Class 300 (50 Bar)	Class 600 (100 Bar)	Class 900 (155 Bar)	Class 1500 (260 Bar)	Class 2500 (430 Bar)
Rubber, Statite	✓	×	×	×	×	×
KLINGERSIL C-8200	✓	✓	×	×	×	×
KLINGERSIL C-4324, C-4400	✓	✓	×	×	×	×
KLINGER Quantum, KLINGERtop-sil-ML1, KLINGERSIL C-4430, C-4500, top-graph-2000	✓	✓	✓	×	×	×
top-chem-2000	✓	✓	✓	×	×	×
top-chem-2003	✓	✓	×	×	×	×
Graphite Laminates	✓	✓	✓	×	×	×
Semi- Metallics	✓	✓	✓	✓	✓	✓

LIMITATIONS IN STEAM

Steam duty is one of the most common and one of the most difficult gasket applications. It is problematic for many reasons including:

1. Steam is a powerful hydrolyser capable of changing the nature of many polymers and fibres.
2. Saturated steam has a distinct temperature/pressure relationship. Steam pressure increases

with temperature, this increased pressure must be counteracted by increased gasket stress. However the maximum stress of a gasket material decreases with increased temperature.

3. Many materials can harden in steam leading in some cases to embrittlement.

When discussing temperature limits in steam, only approximate guidelines can be offered because of considerations such as:-

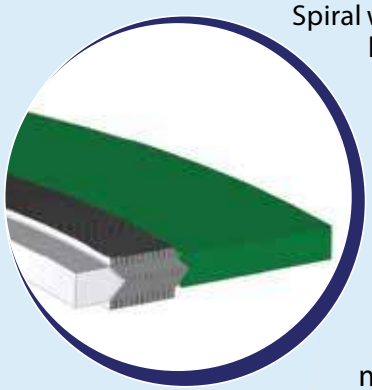
- Flange design (e.g. spigot and recess is far better than raised face)
- Gasket thickness (the thinner the better)
- Service life required
- Assembly procedures
- Maintenance procedures
- The degrees of acceptable embrittlement of the gasket
- The use of jointing compounds on assembly (not recomended)

If the gasket is to be subjected to non-static loading and stress fluctuations due to temperature and pressure cycling, it is advisable to select a gasket material which is not prone to embrittlement with increasing temperature (e.g. Graphite Laminates or top-chem-2000). In cyclic loading conditions we recommend a minimum surface stress of 30MPa.

Bearing this in mind we suggest the following guidelines for maximum steam tempertures for Klinger materials:

Material Type	Material	Recommended Maximum Steam Temperature
Semi-Metallic	Metallic element / Graphite	550°C
Graphite Laminate	Graphite Laminate PSM-AS, SLS	460°C
Premium Modified PTFE	top-chem-2000	260°C
High Temperature Compressed Fibre	KLINGER Quantum	350°C
Multi-layer Compressed Fibre	top-sil-ML1	250°C
Premium Compressed Fibre	KLINGERSIL C-4430, C-4500, top-graph-2000	200°C
Standard Compressed Fibre	KLINGERSIL C-4400, C-4324	150°C

The above values are for guidance only. Higher temperatures can be accommodated if the service is static or the gasket is highly loaded. Conversely, the temperatures should be reduced if the conditions are cyclic or if sufficient load cannot be guaranteed. If in doubt please consult Klinger Technical Department.



Spiral wound gaskets have the ability to recover under the action of fluctuating loads caused by process fluid pressure and temperature changes, flange face temperature variations, flange rotation, bolt stress relaxation and creep.

The gasket sealing element consists of a pre-formed metallic winding strip with layers of a softer, more compressible sealing material which, during compression, is densified and flows to fill imperfections in the flange surfaces when the gasket is seated. The metal strip holds the filler giving the gasket mechanical resistance and resilience.

Maxiflex gaskets can be manufactured from a range of filler materials according to different service conditions :

Filler Material	Maximum Temperature	ASME B16.20 Colour Coding
Graphite	500°C	Grey Stripe
PTFE	260°C	White Stripe
Mica	1000°C	Light Green Stripe
Mica and Graphite	900°C	-

Winding Material	Maximum Temperature	ASME B16.20 Colour Coding
Carbon Steel	500°C	Silver
304 Stainless Steel	650°C	Yellow
316L Stainless Steel	800°C	Green
Duplex UN S31803	800°C	N/A
347 Stainless Steel	870°C	Blue
321 Stainless Steel	870°C	Turquoise
Monel 400	800°C	Orange
Nickel 200	600°C	Red
Titanium Gr 2	500°C	Purple
Hastelloy B-2/B-3	700°C	Brown
Hastelloy C-276	700°C	Beige
Inconel 600	1000°C	Gold
Inconel 625	1000°C	Gold
Inconel X-750	1000°C	N/A
Incoloy 825	600°C	N/A
Zirconium	500°C	N/A
Super Duplex	600°C	N/A
254 SMO	600°C	N/A
Titanium Gr7	500°C	N/A
Hastelloy C-22	700°C	N/A
Hastelloy C-22	700°C	N/A
Hastelloy G-31	800°C	N/A
Alloy 20	600°C	N/A

Please note:

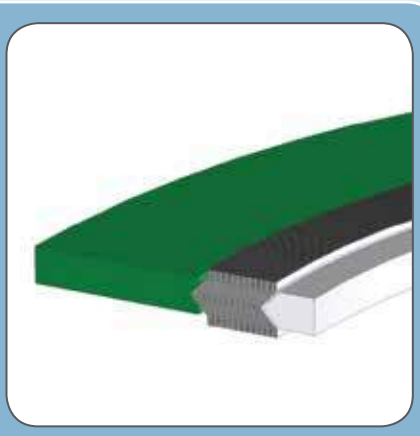
These temperatures given above are guidelines only and do not apply in all fluids, Please contact Technical Department for advice.

MAXIFLEX SPIRAL WOUND GASKETS

Maxiflex Spiral Wound Gaskets are available in a range of configurations and materials. Below are the most common gasket types.

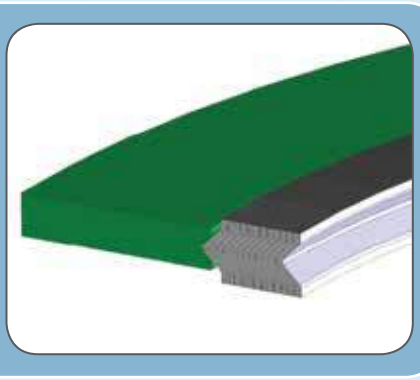
Type CRIR

- Maxiflex spiral wound sealing element
- Solid metal inner & outer ring
- Suitable for high pressure and temperature applications
- Raised face or flat flanges
- Prevents turbulence and erosion damage to flange
- prevent damage to the gasket bore and inner windings
- Inner ring acts as a heat shield
- Inner ring acts as corrosion barrier
- Wide choice of materials for filler and metal strip
- General and critical duties



Type CRIR

- Maxiflex spiral wound sealing element
- Solid metal outer ring used as a centering device and compression stop.
- Used mainly on raised face and flat face flanges
- Wide choice of materials for filler and metal strip
- General Duties

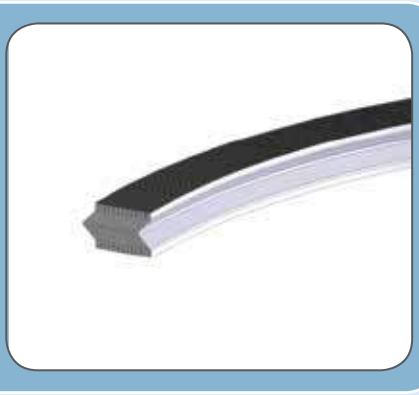


Type CRIR

- Maxiflex spiral wound sealing element
- Solid metal inner ring
- High pressure & high temperature capability
- Male to female flanges
- Wide choice of materials for filler and metal strip
- General and critical duties

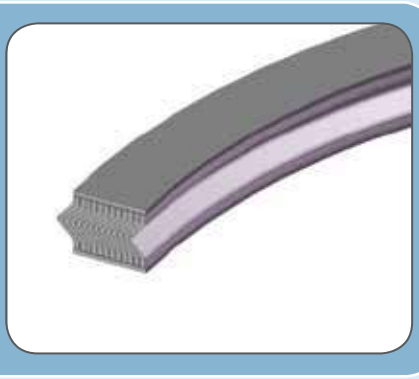
Type R

- Maxiflex spiral wound sealing element
- Wide choice of materials for filler and metal strip
- Suitable for high pressure and temperature applications
- Recommended flanges-tongue & groove, male to
- female and flat face to recess
- General and critical duties



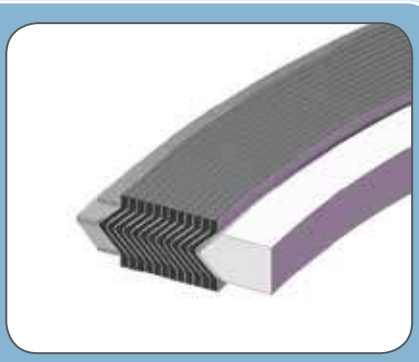
Type R Graflex Faced

- Maxiflex spiral wound sealing element
- Convered with 0.5mm Graflex facings
- Used on manhole covers
- Low bolt load applications
- Used in tongue & groove, male to female and
- flat face to recess flanges



Type HTX (fxorheate changer applications)

- Maxiflex spiral wound sealing element
- A combination of inner and outer rings
- The inner ring could have pass bars or could carry either a metal clad or soft gasket with pass bars
- Manufactured to customer designs
- Wide choice of materials for filler and metal strip
- Manufacture with thin outer windings to create stable, large diameter gaskets for narrow heat exchanger applications



Graphite Filled

Applications:

- Used for a wide range of media including steam, oil, hydrocarbons and many chemicals
- Used for applications requiring high integrity sealing performance

Typical Properties:

- High pressure gasket designed for raised face and flat face applications
- Excellent tightness properties even under fluctuating load Easy to handle and install
- Inner ring protects windings against media and adds stability at higher pressures and for larger gasket diameters.

Typical Speci cations:

Material :	Sealing element :	Graphite/316L
	Centering ring :	Carbon steel
	Inner ring :	316L
Max. temperature :	500°C.	
Max. pressure	>400 bar.	
Suitability	For flanges to ASME B16.5, DIN standards and BS 10, can also be manufactured in custom sizes.	

Winding strip and inner & outer guide rings are available in a wide range of metallic materials shown on page 42.

PTFE Filled

Applications:

- Used for applications demanding outstanding chemical resistance

Typical Properties:

- High integrity gasket designed for raised and flat face applications
- Resistant to virtually all chemicals
- Robust and easy to handle and install
- Inner rings must be used with PTFE sealing material
- Inner ring protects windings against media and adds stability at higher pressures

Typical Specifications:

Material :	Sealing element :	PTFE/316L
	Centering ring :	Carbon steel
	Inner ring :	316L
Max. temperature :	260°C.	
Max. pressure	100 bar.	
Suitability	For flanges to ANSI B16.5, DIN standard, BS 10 can also be manufactured to suit custom flanges	

Winding strip and inner & outer guide rings are available in a wide range of metallic materials shown on page 42.

Mica Filled

Applications:

- High temperature and high pressure applications

Typical Properties:

- High pressure gasket designed for raised face and flat face applications
- Excellent tightness properties even under fluctuating load
- Easy to handle and install
- Inner ring protects windings against media and adds stability at higher pressures and for larger gasket diameters.

Typical Specifications:

Material :	Sealing element :	Mica/ Inconel 600
	Centering ring ::	Inconel 600
	Inner ring :	Inner ring :
Max. temperature :	1000°C.	
Max. pressure	>100 bar.	
Suitability	For flanges to ANSI B16.5, DIN standard, BS 10 can also be manufactured to suit custom flanges	

Winding strip and inner & outer guide rings are available in a wide range of metallic materials shown on page 42.

Dimensions to suit ANSItSandard Flanges

Class 150 ASME B16.20

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
12/ "	48 x 32 x 19 x 14	3 "	137 x 121 x 102 x 81	14 "	451 x 406 x 372 x 349
34/ "	57 x 40 x 25 x 21	4 "	175 x 149 x 127 x 106	16 "	514 x 464 x 422 x 400
1 "	67 x 48 x 32 x 27	5 "	197 x 178 x 156 x 132	18 "	549 x 527 x 475 x 449
1 14/ "	76 x 60 x 48 x 38	6 "	222 x 210 x 183 x 157	20 "	607 x 578 x 526 x 500
1 12/ "	86 x 70 x 54 x 44	8 "	279 x 264 x 233 x 216	24 "	718 x 686 x 629 x 603
2 "	105 x 86 x 70 x 56	10 "	340 x 318 x 287 x 268		
2 12/ "	124 x 99 x 83 x 67	12 "	410 x 375 x 340 x 318		

Class 300 ASME B16.20

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
12/"	54 x 32 x 19 x 14	3 "	149 x 121 x 102 x 81	14 "	486 x 406 x 372 x 349
34/"	67 x 40 x 25 x 21	4 "	181 x 149 x 127 x 106	16 "	540 x 464 x 422 x 400
1 "	73 x 48 x 32 x 27	5 "	216 x 178 x 156 x 132	18 "	597 x 527 x 475 x 449
1 14/"	83 x 60 x 48 x 38	6 "	251 x 210 x 183 x 157	20 "	654 x 578 x 526 x 500
1 12/"	95 x 70 x 54 x 44	8 "	308 x 264 x 233 x 216	24 "	775 x 686 x 629 x 603
2 "	111 x 86 x 70 x 56	10 "	362 x 318 x 287 x 268		
2 12/"	130 x 99 x 83 x 67	12 "	422 x 375 x 340 x 318		

Class 600 ASME B16.20

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
12/"	54 x 32 x 19 x 14	3 "	149 x 121 x 102 x 79	14 "	492 x 406 x 362 x 343
34/"	67 x 40 x 25 x 21	4 "	194 x 149 x 121x 103	16 "	565 x 464 x 413 x 390
1 "	73 x 48 x 32 x 27	5 "	241x 178 x 148 x 128	18 "	613 x 527 x 470 x 438
1 14/"	83 x 60 x 48 x 38	6 "	267 x 210 x 175 x 155	20 "	683 x 578 x 521 x 489
1 12/"	95 x 70 x 54 x 44	8 "	321 x 264 x 226 x 206	24 "	791 x 686 x 629 x 591
2 "	111 x 86 x 70 x 56	10 "	400 x 318 x 275 x 255		
2 12/"	130 x 99 x 83 x 67	12 "	457 x 375 x 327 x 307		

Class 900 ASME B16.20

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
12/"	64 x 32 x 19 x 14	3 "	168 x 121 x 95 x 79	14 "	521 x 400 x 356 x 321
34/"	70 x 40 x 25 x 21	4 "	207 x 149 x 121 x 103	16 "	575 x 457 x 413 x 375
1 "	80 x 48 x 32 x 27	5 "	248 x 178 x 148 x 128	18 "	638 x 521 x 464 x 425
1 14/"	89 x 60 x 40 x 33	6 "	289 x 210 x 175 x 155	20 "	699 x 572 x 521 x 483
1 12/"	99 x 70 x 48 x 41	8 "	359 x 257 x 222 x 197	24 "	838 x 679 x 629 x 591
2 "	143 x 86 x 59 x 52	10 "	435 x 311 x 276 x 246		
2 12/"	165 x 99 x 70 x 64	12 "	499 x 368 x 324 x 292		

Class 1500 ASME B16.20

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
12/"	64 x 32 x 19 x 14	3 "	175 x 121 x 92 x 79	14 "	578 x 400 x 362 x 321
34/"	70 x 40 x 25 x 21	4 "	210 x 149 x 118 x 98	16 "	641 x 457 x 406 x 368
1 "	80 x 48 x 32 x 27	5 "	254 x 178 x 143 x 124	18 "	705 x 521 x 464 x 425
1 14/"	89 x 60 x 48 x 33	6 "	283 x 210 x 171 x 147	20 "	756 x 572 x 514 x 476
1 12/ "	99 x 70 x 48 x 41	8 "	353 x 257 x 216 x 197	24 "	902 x 679 x 616 x 578
2 "	143 x 86 x 59 x 52	10 "	435 x 311 x 267 x 246		
2 12/"	165 x 99 x 70 x 64	12 "	521 x 368 x 324 x 292		

Class 2500 ASME B16.20

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
12/"	70 x 32 x 19 x 14	2	146 x 86 x 59 x 52	6 "	318 x 210 x 171 x 147
34/"	76 x 40 x 25 x 21	2 12/"	168 x 99 x 70 X 64	8 "	387 x 257 x 216 x 197
1 "	86 x 48 x 32 x 27	3 "	197 x 121 x 92 x 79	10 "	476 x 311 x 270 x 246
1 14/"	105 x 60 x 40 x 33	4 "	235 x 149 x 118 x 98	12 "	549 x 368 x 318 x 292
1 12/"	118 x 70 x 48 x 41	5 "	279 x 178 x 143 x 124		

Class 150 ASME B16.4 7 Series A

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
26 "	775 x 705 x 673 x 654	38"	1111 x 1019 x 978 x 959	50"	1435 x 1334 x 1283 x 1264
28 "	832 x 756 x 724 x 705	40"	1162 x 1070 x 1029 x 1010	52"	1492 x 1384 x 1334 x 1314
30 "	883 x 806 x 775 x 756	42"	1219 x 1124 x 1080 x 1060	54"	1549 x 1435 x 1384 x 1359
32 "	940 x 861 x 826 x 806	44"	1276 x 1178 x 1130 x 1111	56"	1607 x 1486 x 1435 x 1410
34 "	991 x 911 x 876 x 857	46"	1327 x 1229 x 1181 x 1162	58"	1664 x 1537 x 1486 x 1461
36 "	1048 x 969 x 927 x 908	48"	1384 x 1280 x 1232 x 1213	60"	1715 x 1588 x 1537 x 1511

Class 300 ASME B16.47 Series A

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
26"	835 x 737 x 686 x 654	38"	1054 x 1016 x 978 x 953	50"	1378 x 1346 x 1295 x 1245
28"	899 x 787 x 737 x 705	40"	1115 x 1070 x 1022 x 1003	52"	1429 x 1403 x 1346 x 1321
30"	953 x 845 x 794 x 756	42"	1165 x 1121 x 1073 x 1054	54"	1492 x 1454 x 1397 x 1353
32"	1007 x 902 x 851 x 806	44"	1219 x 1181 x 1130 x 1105	56"	1543 x 1505 x 1454 x 1403
34"	1057 x 953 x 902 x 857	46"	1273 x 1229 x 1178 x 1153	58"	1594 x 1562 x 1511 x 1448
36"	1118 x 1007 x 956 x 908	48"	1324 x 1286 x 1235 x 1210	60"	1645 x 1613 x 1562 x 1524

Class 600 ASME B16.47 Series A

Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
26"	867 x 737 x 686 x 648	38"	1105 x 1041 x 991 x 953	50"	1448 x 1372 x 1321 x 1270
28"	914 x 787 x 737 x 699	40"	1156 x 1099 x 1048 x 1010	52"	1499 x 1422 x 1372 x 1321
30"	972 x 845 x 794 x 756	42"	1219 x 1156 x 1105 x 1067	54"	1556 x 1480 x 1429 x 1378
32"	1022 x 902 x 851 x 813	44"	1270 x 1213 x 1162 x 1111	56"	1613 x 1530 x 1480 x 1429
34"	1073 x 953 x 902 x 864	46"	1327 x 1264 x 1213 x 1162	58"	1664 x 1588 x 1537 x 1473
36"	1130 x 1007 x 956 x 918	48"	1391 x 1321 x 1270 x 1219	60"	1734 x 1645 x 1594 x 1530

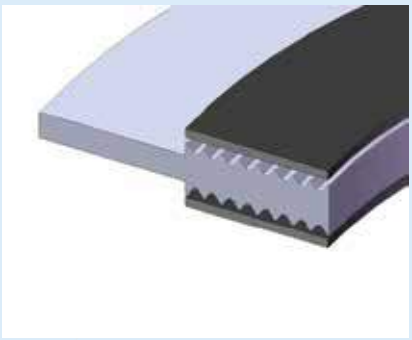
Class 900 ASME B16.47 Series A

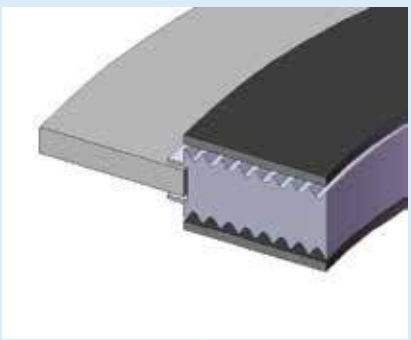
Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)	Nominal Size	Dimensions (mm)
26"	883 x 737 x 686 x 660	34"	1137 x 953 x 902 x 864	42"	1302 x 1200 x 1149x 1111
28"	946 x 787 x 737 x 711	36"	1200 x 1010 x 959 x 921	44"	1369 x 1257 x 1207 x 1156
30"	1010 x 845 x 794 x 768	38"	1200 x 1086 x 1035 x 1010	46"	1435 x 1321 x 1270x 1219
32"	1073 x 902 x 851 x 813	40"	1251 x 1149 x 1099 x 1060	48"	1486 x 1372 x 1321 x 1270

Klinger Maxiprofile Type 109

Applications:
• Used for a wide range of applications including steam, oil , hydrocarbon and can also be tailored to suit more aggressive chemicals • Used for applications requiring a high-integrity seal such as chlorine • Especially suited to use in heat exchangers
Typical Properties:
• High pressure gasket with a wide seating stress range • Excellent tightness even at low bolt loads • Reusable metallic core can be refaced after service • Available facings include: Graphite, PTFE, KLINGERSIL and Soft-chem

Typical Specifications:	
Core material :	316L - 3.0, 4.0, 5.0mm
Facing material:	Graphite - 0.5mm
Facing density:	1 g/cm^3 (alternative 0.7g/cm^3)
Max. temperature :	550ºC
Max. pressure	>400 bar
Suitability	For flanges to ASME B16.5, DIN standards and BS 10, can also be manufactured in custom sizes.
Style:	**Description:**
LA 1	Lateral profiled joint with guide ring for raised and flat face applications
LA 2	Lateral profiled joint without guide ring for male and female, tongue and groove and grooved flanges
LA 3	Lateral profiled joint with floating guide ring for raised and flat face applications
CA1, 2 & 3	Convex profiled joints in the same style as LA 1, 2 and 3. The convex profile is designed to assist sealing in low bolt load applications





Metallic cores are available in a wide range of metallic materials shown on page 62.

The Klinger Maxiprofile is a composite gasket which utilises a serrated metal core with a soft facing material.

The metal core is a machined on each contact face with concentric serrations which provide high pressure areas, ensuring that the soft coating flows into any imperfections in the flange even at relatively low bolt loads. The result is a gasket which combines the benefits of soft cut materials with the advantages of seal integrity associated with metallic gaskets.

Facing Material	Maximum Temperature
Graphite	550ºC
PTFE	260ºC
Mica	1000ºC
KLINGERSIL® C-4430	250ºC

Expanded graphite is the most common facing material used for Maxiprofile gaskets. However, other materials can be used, such as PTFE for chemically aggressive duties or mica for high temperature duties.

Core Material	Maximum Temperature
Inconel 600	1000°C
Inconel 625	1000°C
Incoloy 825	600°C
Zirconium	500°C
Super Duplex	600°C
254 SMO	600°C
Titanium Gr7	500°C
Hastelloy C-22	700°C
Hastelloy G-31	800°C
Alloy 20	600°C

Maxiprofile gaskets can also be manufactured from a range of core materials according to media compatibility and temperature considerations.

Core Material	Maximum Temperature
316L Stainless Steel	800°C
304 Stainless Steel	650°C
Duplex UN S31803	800°C
347 Stainless Steel	870°C
321 Stainless Steel	870°C
Monel 400	800°C
Nickel 200	600°C
Titanium Gr 2	500°C
Hastelloy B-2/B-3	700°C
Hastelloy C-276	700°C

KLINGER SIL

KLINGER SIL

Introduction

KLINGERSIL® is a range of specially formulated non-asbestos fibre based materials designed to meet the highest standards of performance for a wide range of indutrial applications. Based on high performance inorganic or organic fibres blended with elastomeric compounds, KLINGERSIL® gaskets provide a long term sealing solution even under the most exacting operating conditions.

General Properties of KLINGERSIL® Materials

- Capable of sealing a wide range of industrial applications
- Easy to handle and install
- Excellent bolt stress retention properties
- Excellent sealing performance
- Easy to remove due to Klinger's proprietary anti-stick coating
- Economical

Applications (Dependent on grade)

- Temperatures from –196°C up to 425°C
- Pressures up to 100 bar
- Oils, solvents, gases, steam and many dilute acids and alkalis
- Controlled swell grades available for applications of low bolt load
- Food processing
- Potable water
- Automotive
- Valves and pumps

Options Available

- PTFE envelope and eyelet gaskets available
- KLINGERSIL C-4400 can be supplied in a colourless version, KLINGERSIL C-4400 L. The standard green and the colourless version are both KTW approved and are suitable for food processing operations.
- KLINGERSIL C-4430 and C-4500 can be supplied as K-versions for use in power stations. Their chloride and fluoride contents conform to the Siemens KWU standard.
- KLINGERSIL C4409 and C-4509 are reinforced with expanded metal made form carbon steel. Gaskets reinforced with stainless steel C-4409 L and C-4509 L are also available.

KLINGERSIL C-4430

Glass fibre with NBR binder

Applications:

- Used for oil, steam, hydrocarbons, oxygen and potable water applications
- Premium quality material for many industrial sealing applications.
- Excellent resistance to hot water and steam.

Properties:

- Good steam resistance
- Resistant to oils, fuels, hydrocarbons etc.
- WRAS approved for use in hot and cold potable water
- Fire-safe
- Available in sheet form and as cut gaskets
- 3xA anti-stick finish on both sides

Typical Specifications:

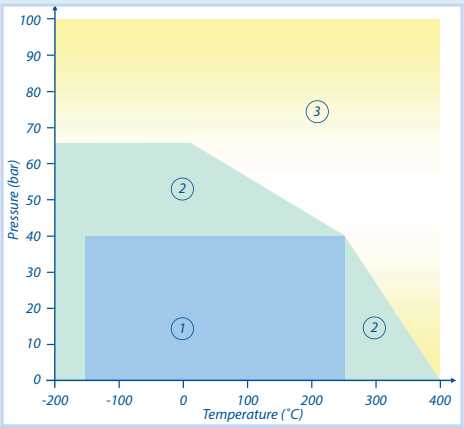
Colour :	Green- one side, white one side
Compressibility (ASTM F36J) :	9%
Recovery (ASTM F36J) :	50%
Stress relaxation	
DIN 52913: 50MPa, 16h/175°C :	39 N/mm²
DIN 52913: 50MPa, 16h/300°C :	35 N/mm²
BS 7531: 40MPa, 16h/300°C :	31 N/mm²
Klinger hot/cold compression	
Decrease in thickness at 23°C	8%
Decrease in thickness at 300°C	11%
Gas leakage (DIN 3535/6) :	<1.0ml/min
Thickness increase after immersion in:	
Oil JRM 903, 5h/150°C	3%
Fuel B, 5h/23°C	5%
Density :	1.75g/cm³
(Based on 2.0mm thick sample)	

Tests and Certifications:

- BS 7531 Grade X
- Fire-safe BS 5146
- WRAS Approval
- DIN-DGVW
- BAM U W28 for use with oxygen 130bar / 90°C
- KTW
- Germanischer Lloyd
- TA-Luft (Clean Air) certificate acc. VDI 2440

Availability:

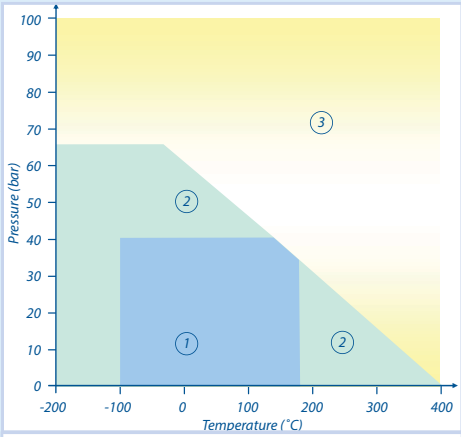
- Sheeting (m): 2.0 x 1.5*, 4.0 x 1.5, 2.0 x 2.0, 1.5 x 1.0
  (* Denotes standard sheet size)
- Thickness (mm): 0.25, 0.4, 0.5, 0.75, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0
- Also available with re-inforcements:
  KLINGERSIL C-4438, mild steel mesh



Pressure/Temperature Graph:

Area 1: Usually satisfactory to use without reference.
Area 2: Usually satisfactory, but suggest you refer to Klinger for advice.
Area 3: Caution: May be suitable but essential that you refer to Klinger for advice.

KLINGERSIL C-4400



Pressure/Temperature Graph:

Area 1: Usually satisfactory to use without reference.
Area 2: Usually satisfactory, but suggest you refer to Klinger for advice.
Area 3: Caution: May be suitable but essential that you refer to Klinger for advice.

Aramid fibre with NBR binder

Applications:

- Used for oil, steam, hydrocarbons, oxygen and water
- Premium quality material for many industrial sealing applications.
- Excellent resistance to hot water and steam.

Properties:

- Good resistance to oils, fuels, hydrocarbons
- Very successful in internal combustion engine applications
- Available in sheet form and as cut gaskets
- 3xA anti-stick finish on both sides

Typical Specifications:

Colour :	Green
Compressibility (ASTM F36J) :	11%
Recovery (ASTM F36J) :	55%
Stress relaxation (DIN 52913)	
DIN 52913: 50MPa, 16h/175°C :	32 N/mm²
DIN 52913: 50MPa, 16h/300°C :	25 N/mm²
BS 7531: 40MPa, 16h/300°C :	23 N/mm²
Klinger hot/cold compression	
Decrease in thickness at 23°C	10%
Decrease in thickness at 300°C	20%
Gas leakage (DIN 3535/6) :	<0.02ml/min
Thickness increase after immersion in:	
Oil JRM 903, 5h/150°C	3%
Fuel B, 5h/23°C	5%
Thermal conductivity:	0.4-0.42W/mK
Density :	1.6g/cm³
(Based on 2.0mm thick sample)	

Tests and Certifications:

- BS 7531 Grade Y
- BS F 130 Type A
- HTB
- DIN-DGVW
- BAM U W28 for use with oxygen 130bar/ 80 Bar
- KTW
- Germanischer Lloyd
- TA-Luft (Clean Air) certificate acc. VDI 2440

Availability:

- Sheeting (m): 2.0 x 1.5*, 4.0 x 1.5, 2.0 x 2.0, 1.5 x 1.0
  (* Denotes standard sheet size)
- Thickness (mm): 0.25, 0.4, 0.5, 0.75, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0
- Also available with re-inforcements:
  KLINGERsil C-4408, mild steel mesh

KLINGERSIL C-4324

Aramid & Glass fibre with NBR binder

Applications:

- Used for oils, hydrocarbons, low-pressure steam and water applications.

Properties:

- Good resistance to oils, fuels, hydrocarbons
- An economic grade for general industrial services
- Available in sheet form and as cut gaskets
- 3xA anti-stick finish on both sides

Typical Specifications:

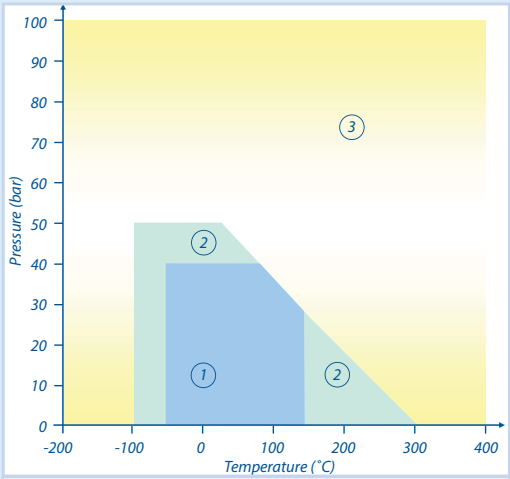
Colour :	Green one side, black one side
Compressibility (ASTM F36J) :	12%
Recovery (ASTM F36J) :	55%
Stress relaxation	
DIN 52913: 50MPa, 16h/300°C :	20 N/mm^2
BS 7531: 40MPa, 16h/300°C :	23 N/mm^2
Klinger hot/cold compression	
Decrease in thickness at 23°C	10%
Decrease in thickness at 300°C	25%
Gas leakage (DIN 3535/6) :	<0.1ml/min
Thickness increase after immersion in:	
Oil JRM 903, 5h/150°C	0-5%
Fuel B, 5h/23°C	0-10%
Density :	1.85g/cm^3
(Based on 2.0mm thick sample)	

Tests and Certifications:

- BS 7531 Grade Y
- DIN-DGVW
- KTW
- WRAS Approved
- Germanischer Lloyd

Availability:

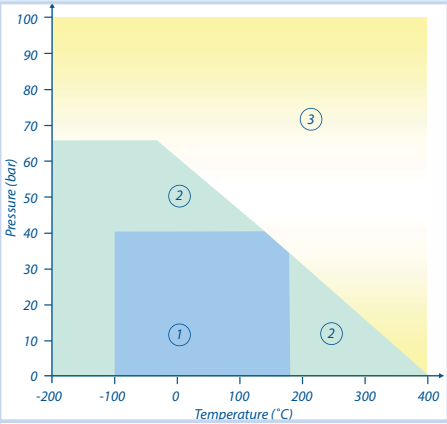
- Sheeting (m): 2.0 x 1.5*, 4.0 x 1.5, 1.5 x 1.0
  (* Denotes standard sheet size)
- Thickness (mm): 0.4, 0.5, 0.75, 1.0, 1.5, 2.0, 3.0



Pressure/Temperature Graph:

Area 1: Usually satisfactory to use without refer ence.
Area 2: Usually satisfactory, but suggest you refer to Klinger for advice.
Area 3: Caution: May be suitable but essential that you refer to Klinger for advice.

KLINGERSIL C-4300



Pressure/Temperature Graph:

Area 1: Usually satisfactory to use without refer ence.
Area 2: Usually satisfactory, but suggest you refer to Klinger for advice.
Area 3: Caution: May be suitable but essential that you refer to Klinger for advice.

Aramid fibre with NBR binder

Applications:

- Used in a wide range of media including oils, hydrocarbons, alkalis and steam

Properties:

- Good resistance steam
- Good resistance to alkaline applications
- Excellent load-bearing characteristics
- Good resistance to oils, fuels, hydrocarbons
- Available in sheet form and as cut gaskets
- 3xA anti-stick finish on both sides

Typical Specifications:

Colour :	Black
Compressibility (ASTM F36J) :	12%
Recovery (ASTM F36J) :	60%
Stress relaxation (DIN 52913)	
DIN 52913: 50MPa, 16h/175°C :	35 N/mm^2
DIN 52913: 50MPa, 16h/300°C :	32 N/mm^2
BS 7531: 40MPa, 16h/300°C :	30 N/mm^2
Klinger hot/cold compression	
Decrease in thickness at 23°C	10%
Decrease in thickness at 300°C	15%
Gas leakage (DIN 3535/6) :	<1.0ml/min
Thickness increase after immersion in:	
Oil JRM 903, 5h/150°C	3%
Fuel B, 5h/23°C	5%
Density :	1.6g/cm^3
(Based on 2.0mm thick sample)	

Tests and Certifications:

- BS 7531 Grade X
- Firesafe APL6 FA, DIN ISO 10497
- DIN-DGVW
- BAM U W28 for use with oxygen 130bar/ 80 Bar
- KTW
- Germanischer Lloyd
- TA-Luft (Clean Air) certificate acc. VDI 2440

Availability:

- Sheeting (m): 2.0 x 1.5*, 4.0 x 1.5, 1.5 x 1.0
  (* Denotes standard sheet size)
- Thickness (mm): 0.4, 0.5, 0.75, 1.0, 1.5, 2.0, 3.0,
- Available with expended steel reinforcement : C-4509
- Available with stainless steel reinforcement : C-4509L

KLINGER PSM-AS

Exfoliated graphite with tanged insert

Applications:

- Used for a wide range of industrial sealing applications including steam, hot water, thermal oils and hydrocarbons
- Premium quality material for many industrial sealing applications.
- Excellent resistance to hot water and steam.

Properties:

- Excellent resistance to steam
- Resistant to virtually all media
- Outstanding resistance to high and low temperature
- Maximum temp. 460°C (in oxidising atmospheres) 3000°C (in non- oxidising atmospheres)
- High compressibility
- Good leakage properties
- Unlimited storage life
- Available in sheet form and as cut gaskets
- Anti-stick finish on both sides

Typical Specifications:

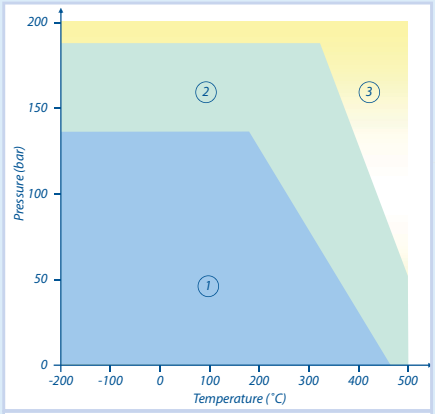
Colour :	Grey
Compressibility (ASTM F36J) :	35%
Recovery (ASTM F36J) :	20%
Stress relaxation	
DIN 52913: 50MPa, 16h/300°C :	48 N/mm^2
BS 7531: 40MPa, 16h/300°C :	38 N/mm^2
Leachable chloride :	40ppm
Graphite purity :	>98%
Insert :	316, 0.1mm
Gas leakage (DIN 3535/6) :	<1.0ml/min
Thickness increase after immersion in	
Oil JRM 903, 5h/150°C :	<2%
Density :	1.0g/cm^3
(Based on 1.5mm thick sample)	

Tests and Certifications:

- Fire-safe API 6FB
- WRAS Approval
- DIN-DGVW
- BAM U W28 for use with oxygen 130 bar / 200°C
- KTW
- Germanischer Lloyd

Availability:

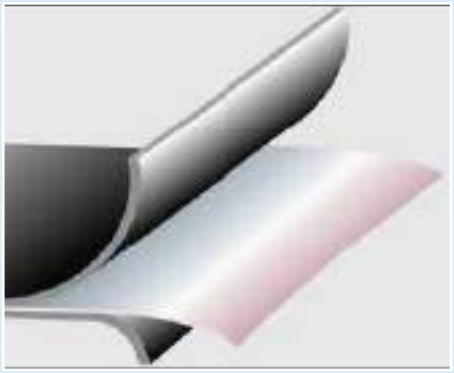
- Sheeting (m): 1.0 x 1.0*, 1.5 x 1.5
  (* Denotes standard sheet size)
- Thickness (mm): 0.8, 1.0, 1.5, 2.0, 3.0
- Also available with re-inforcements:
  KLINGER SLS, stainless steel foil (shown on page 140)
  KLINGER SLN, with Nickel foil insert
  KLINGER SML, with polyester insert

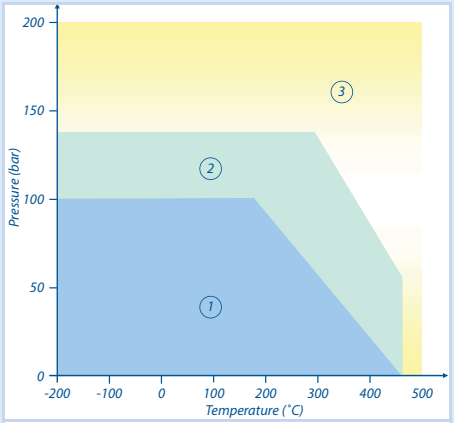


Pressure/Temperature Graph:

Area 1: Usually satisfactory to use without refer ence.
Area 2: Usually satisfactory, but suggest you refer to Klinger for advice.
Area 3: Caution: May be suitable but essential that you refer to Klinger for advice.

KLINGER SLS-AS





Pressure/Temperature Graph:

Area 1: Usually satisfactory to use without refer ence. -

Area 2: Usually satisfactory, but suggest you refer to Klinger for advice.

Area 3: Caution: May be suitable but essential that you refer to Klinger for advice.

Exfoliated graphite with foil insert

Applications:

- Used for a wide range of industrial sealing applications including steam, hot water, thermal oils and hydrocarbons
- Premium quality material for many industrial sealing applications.
- Excellent resistance to hot water and steam.

Properties:

- Excellent resistance to steam
- Resistant to virtually all media
- Outstanding resistance to high and low temperature
- Maximum temperature 460°C (in oxidising atmospheres) 3000°C (in non-oxidising atmospheres)
- High compressibility
- Good leakage properties
- Unlimited storage life
- Available in sheet form and as cut gaskets
- Anti-stick finish on both sides

Typical Specifications:

Colour :	Grey
Compressibility (ASTM F36J) :	40%
Recovery (ASTM F36J) :	15%
Stress relaxation	
DIN 52913: 50MPa, 16h/300°C :	48 N/mm^2
BS 7531: 40MPa, 16h/300°C :	38 N/mm^2
Leachable chloride :	40ppm
Graphite purity :	>98%
Insert :	316, 0.05mm
Gas leakage (DIN 3535/6) :	<1.0ml/min
Thickness increase after immersion in	
Oil JRM 903, 5h/150°C :	<2%
Density :	1.0g/cm^3
(Based on 1.5mm thick sample)	

Tests and Certifications:

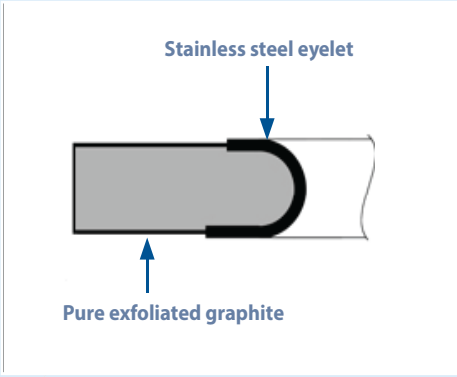
- WRAS Approval
- DIN-DGVW
- BAM U W28 for use with oxygen 130bar / 200°C
- KTW
- Germanischer Lloyd

Availability:

- Sheeting (m): 1.0 x 1.0*, 1.5 x 1.5 (* Denotes standard sheet size)
- Thickness (mm): 0.45, 0.8, 1.0, 1.5, 2.0, 3.0
- Also available with other re-inforcements:
  KLINGER PSM-AS, stainless steel insert (shown on page 139)
  KLINGER SLN, with Nickel foil insert
  KLINGER SML, with polyester insert

PSM-AS with eyelet

Exfoliated graphite with tanged insert and eyelet



Applications:

- Used for a wide range of industrial sealing applications including steam, hot water, thermal oils and hydrocarbons

Properties:

- Excellent resistance to chemicals and high-temperatures
- Protects gasket inner edge against polymerisation and chemical attack
- Reduced potential for process contamination
- Excellent handling characteristics
- Improved blow out resistance
- "Anti-stick" finish

Typical Specifications:

Colour :	Grey
Compressibility (ASTM F36J) :	35%
Recovery (ASTM F36J) :	20%
Stress relaxation	
DIN 52913: 50MPa, 16h/300°C :	48 N/mm^2
Graphite purity :	>98%
Insert :	316, 0.1mm
Gas leakage (DIN 3535/6) :	<0.5ml/min

Availability:

- Thickness (mm): 0.45, 0.8, 1.0, 1.5, 2.0, 3.0
- Also available with other re-inforcements:
  KLINGER SLS-AS, stainless steel insert (shown on page 139)
  KLINGER SLN, with Nickel foil insert
  KLINGER SML, with polyester insert

Applications

- High and low temperatures
- Aggressive media
- Low bolt loads
- Sealing of damaged flange surfaces
- Hot oil equipment
- Liquid gas plants
- Heat exchangers
- Glass, enamel flanges
- Nuclear power plants
- Cylinder head and manifold gaskets for engines and compressors

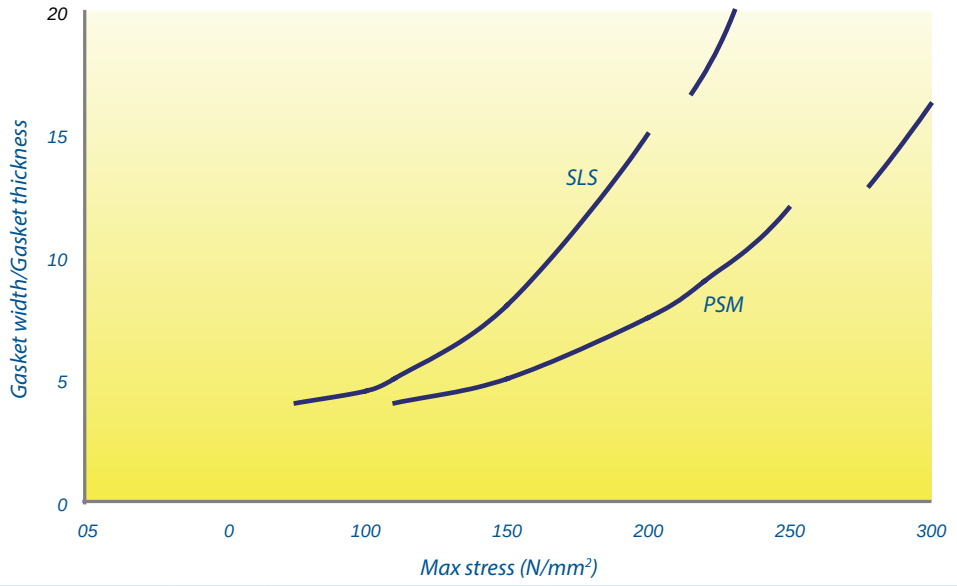
Reinforcements available

- Tanged Stainless steel 316
- Stainless steel 316 foil
- Tanged Hastelloy B2
- Nickel foil
- Polyester foil
- Other inserts are available on request.

* Denotes standard materials

Width to Thickness Ratio of Graphite

The graph below shows the maximum stress of Klinger Graphite materials plotted against the width to thickness ratio of the gasket, for further information see page 25.



Top-Chem

KLINGERtop-chem is a range of modified PTFE based materials which offer the chemical resistance of PTFE with increased mechanical strength and resistance to cold and hot flow under compressive loading. Additional compounds such as silica, barium sulphate or silicon carbide, allow the materials to be used at higher temperatures and compressive loads than would typically be expected for standard PTFE products.

KLINGERtop-chem-2000

KLINGERtop-chem-2000 is a heavy duty modified PTFE material, which has been engineered to cater for a wide range of applications. The exceptional mechanical strength of the material enables it to withstand high temperatures and pressures, whilst providing unparalleled creep-resistance. This material has excellent chemical resistance and can be used in strongly acidic and alkaline applications. It is the only PTFE based material with fire-safe certification (API 6FA).

KLINGERtop-chem-2003

KLINGERtop-chem-2003 has been designed to offer high compressibility combined with outstanding chemical resistance. The result is a material which is suitable for practically all media including both strongly acidic and strongly alkaline environments and which is able to maintain a tight seal even at low bolt loads. The highly compressible nature of KLINGERtop-chem 2003 allows the material to be used on glass and rubber lined flanges. The material has excellent mechanical properties at low and medium temperatures and loads.

KLINGERtop-chem-2005 and 2006

KLINGERtop-chem-2005 and 2006 have been developed to offer an econonical alternative to KLINGERtop-chem-2000 and KLINGERtop-chem-2003 for less demanding applications. Both materials

Dimensions to suit ANSI Standard Flanges

ASME B16.21 Class 150

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
1/2	48 x 21	89 x 21	4	16	60
3/4	57 x 27	95 x 27	4	16	70
1	67 x 33	108 x 33	4	16	79
1 1/4	76 x 42	117 x 42	4	16	89
1 1/2	86 x 48	127 x 48	4	16	98
2	105 x 60	152 x 60	4	19	121
2 1/2	124 x 73	178 x 73	4	19	140
3	137 x 89	191 x 89	4	19	152
3 1/2	162 x 102	216 x 102	8	19	178
4	175 x 114	229 x 114	8	19	191
5	197 x 141	254 x 141	8	22	216
6	222 x 168	279 x 168	8	22	241
8	279 x 219	343 x 219	8	22	298
10	340 x 273	406 x 273	12	25	362
12	410 x 324	483 x 324	12	25	432
14	451 x 356	533 x 356	12	29	476
16	514 x 406	597 x 406	16	32	540
18	549 x 457	635 x 457	16	32	578
20	606 x 508	699 x 508	20	32	635
24	718 x 610	813 x 610	20	35	749

ASME B16.21 Class 300

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
1/2	54 x 21	95 x 21	4	16	67
3/4	67 x 27	117 x 27	4	19	83
1	73 x 33	124 x 33	4	19	89
1 1/4	83 x 42	133 x 42	4	19	98
1 1/2	95 x 48	156 x 48	4	22	114
2	111 x 60	165 x 60	8	19	127
2 1/2	130 x 73	191 x 73	8	22	149
3	149 x 89	210 x 89	8	22	168
3 1/2	165 x 102	229 x 102	8	22	184
4	181 x 114	254 x 114	8	22	200
5	216 x 141	279 x 141	8	22	235
6	251 x 168	318 x 168	12	22	270
8	308 x 219	381 x 219	12	25	330
10	362 x 273	445 x 273	16	29	387
12	422 x 324	521 x 324	16	32	451
14	486 x 356	584 x 356	20	32	514
16	540 x 406	648 x 406	20	35	572
18	597 x 457	711 x 457	24	35	629
20	654 x 508	775 x 508	24	35	686
24	775 x 610	914 x 610	24	41	813

ASME B16.21 Class 600

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
1/2	54 x 21	95 x 21	4	16	67
3/4	67 x 27	117 x 27	4	19	83
1	73 x 33	124 x 33	4	19	89
1 1/4	83 x 42	133 x 42	4	19	98
1 1/2	95 x 48	156 x 48	4	22	114
2	111 x 60	165 x 60	8	19	127
2 1/2	130 x 73	191 x 73	8	22	149
3	149 x 89	210 x 89	8	22	168
3 1/2	162 x 102	229 x 102	8	25	184
4	194 x 114	273 x 114	8	25	216
5	241 x 141	330 x 141	8	29	267
6	267 x 168	356 x 168	12	29	292
8	321 x 219	419 x 219	12	32	349
10	400 x 273	508 x 273	16	35	432
12	457 x 324	559 x 324	20	35	489
14	492 x 356	603 x 356	20	38	527
16	565 x 406	686 x 406	20	41	603
18	613 x 457	743 x 457	20	44	654
20	683 x 508	813 x 508	24	44	724
24	791 x 610	940 x 610	24	51	838

ASME B16.47 A Class 150

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
22 (550)	660 x 559	749 x 559	20	35	692
26 (650)	775 x 660	870 x 660	24	35	806
28 (700)	832 x 711	927 x 711	28	35	864
30 (750)	883 x 762	984 x 762	28	35	914
32 (800)	940 x 813	1060 x 813	28	41	978
34 (850)	991 x 864	1111 x 864	32	41	1029
36 (900)	1048 x 914	1168 x 914	32	41	1086
38 (950)	1111 x 965	1238 x 965	32	41	1149
40 (1000)	1162 x 1016	1289 x 1016	36	41	1200
42 (1050)	1219 x 1067	1346 x 1067	36	41	1257
44 (1100)	1276 x 1118	1403 x 1118	40	41	1314
46 (1150)	1327 x 1168	1454 x 1168	40	41	1365
48 (1200)	1384 x 1219	1511 x 1219	44	41	1422
50 (1250)	1435 x 1270	1568 x 1270	44	48	1480
52 (1300)	1492 x 1321	1626 x 1321	44	48	1537
54 (1350)	1549 x 1372	1683 x 1372	44	48	1594
56 (1400)	1607 x 1422	1746 x 1422	48	48	1651
58 (1450)	1664 x 1473	1803 x 1473	48	48	1708
60 (1500)	1715 x 1524	1854 x 1524	52	48	1759

ASME B16.47 A Class 300

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
22 (550)	705 x 559	838 x 559	24	41	743
26 (650)	835 x 660	972 x 660	28	44	876
28 (700)	899 x 711	1035 x 711	28	44	940
30 (750)	953 x 762	1092 x 762	28	48	997
32 (800)	1007 x 813	1149 x 813	28	51	1054
34 (850)	1057 x 864	1207 x 864	28	51	1105
36 (900)	1118 x 914	1270 x 914	32	54	1168
38 (950)	1054 x 965	1168 x 965	32	41	1092
40 (1000)	1115 x 1016	1238 x 1016	32	44	1156
42 (1050)	1165 x 1067	1289 x 1067	32	44	1207
44 (1100)	1219 x 1118	1353 x 1118	32	48	1264
46 (1150)	1273 x 1168	1416 x 1168	28	51	1321
48 (1200)	1324 x 1219	1467 x 1219	32	51	1372
50 (1250)	1378 x 1270	1581 x 1321	32	54	1429
52 (1300)	1429 x 1321	1657 x 1372	32	54	1480
54 (1400)	1492 x 1372	1683 x 1372	28	60	1579
56 (1450)	1543 x 1422	1708 x 1422	28	60	1600
58 (1500)	1594 x 1473	1759 x 1473	32	60	1651
60 (1550)	1645 x 1524	1810 x 1524	32	60	1702

ASME B16.47 A Class 600

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
22 (550)	733 x 559	870 x 559	24	48	778
26 (650)	867 x 660	1016 x 660	28	51	914
28 (700)	914 x 711	1073 x 711	28	54	965
30 (750)	972 x 762	1130 x 762	28	54	1022
32 (800)	1022 x 813	1194 x 813	28	60	1080
34 (850)	1073 x 864	1245 x 864	28	60	1130
36 (900)	1130 x 914	1314 x 914	28	67	1194
38 (950)	1105 x 965	1270 x 965	28	60	1162
40 (1000)	1156 x 1016	1321 x 1016	32	60	1213
42 (1050)	1219 x 1067	1403 x 1067	28	67	1283
44 (1100)	1270 x 1118	1454 x 1118	32	67	1334
46 (1150)	1327 x 1168	1511 x 1168	32	67	1391
48 (1200)	1391 x 1219	1594 x 1219	32	73	1461
50 (1250)	1448 x 1270	1670 x 1270	28	79	1524
52 (1300)	1499 x 1321	1721 x 1321	32	79	1575
54 (1350)	1556 x 1372	1778 x 1372	32	79	1632
56 (1400)	1613 x 1422	1854 x 1422	32	86	1695
58 (1450)	1664 x 1473	1905 x 1473	32	86	1746
60 (1500)	1721 x 1524	1994 x 1524	28	92	1822

ASME B16.47 B Class 150

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
26 (650)	725 x 660	786 x 660	36	22	745
28 (700)	776 x 711	837 x 711	40	22	795
30 (750)	827 x 762	887 x 762	44	22	846
32 (800)	881 x 813	941 x 813	48	22	900
34 (850)	935 x 864	1005 x 864	40	25	957
36 (900)	987 x 914	1057 x 914	44	25	1010
38 (950)	1045 x 965	1124 x 965	40	29	1070
40 (1000)	1095 x 1016	1175 x 1016	44	29	1121
42 (1050)	1146 x 1067	1226 x 1067	48	29	1172
44 (1100)	1197 x 1118	1276 x 1118	52	29	1222
46 (1150)	1256 x 1168	1341 x 1168	40	32	1284
48 (1200)	1307 x 1219	1392 x 1219	44	32	1335
50 (1250)	1357 x 1270	1443 x 1270	48	32	1386
52 (1300)	1408 x 1321	1494 x 1321	52	32	1437
54 (1350)	1464 x 1372	1549 x 1372	56	32	1492
56 (1400)	1514 x 1422	1600 x 1422	60	32	1543
58 (1450)	1580 x 1473	1675 x 1473	48	35	1611
60 (1500)	1630 x 1524	1726 x 1524	52	35	1662

ASME B16.47 B Class 300

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
26 (650)	772 x 660	867 x 660	32	35	803
28 (700)	826 x 711	921 x 711	36	35	857
30 (750)	886 x 762	991 x 762	36	38	921
32 (800)	940 x 813	1054 x 813	32	41	978
34 (850)	994 x 864	1108 x 864	36	41	1032
36 (900)	1048 x 914	1172 x 914	32	44	1089
38 (950)	1099 x 965	1222 x 965	36	44	1140
40 (1000)	1149 x 1016	1273 x 1016	40	44	1191
42 (1050)	1200 x 1067	1334 x 1067	36	48	1245
44 (1100)	1251 x 1118	1384 x 1118	40	48	1295
46 (1150)	1318 x 1168	1461 x 1168	36	51	1365
48 (1200)	1368 x 1219	1511 x 1219	40	51	1416
50 (1250)	1419 x 1270	1562 x 1270	44	51	1467
52 (1300)	1470 x 1321	1613 x 1321	48	51	1518
54 (1350)	1556 x 1372	1673 x 1372	48	51	1578
56 (1400)	1594 x 1422	1765 x 1422	36	60	1651
58 (1450)	1673 x 1473	1827 x 1473	40	60	1713
60 (1500)	1705 x 1524	1878 x 1524	40	60	1764

ASME B16.47 B Class 600

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
26	765 x 660	889 x 660	28	44	806
28	819 x 711	953 x 711	28	48	864
30	879 x 762	1022 x 762	28	51	927
32	933 x 813	1086 x 813	28	54	984
34	997 x 864	1162 x 864	24	60	1054
36	1048 x 914	1213 x 914	28	60	1105

Dimensions to suit DIN Standard Flange PN10

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
10	45 x 18	90 x 18	4	14	60
15	50 x 22	95 x 22	4	14	65
20	60 x 28	105 x 28	4	14	75
25	70 x 35	115 x 35	4	14	85
32	82 x 43	140 x 43	4	18	100
40	92 x 49	150 x 49	4	18	110
50	107 x 61	165 x 61	4	18	125
65	127 x 77	185 x 77	8	18	145
80	142 x 90	200 x 90	8	18	160
100	162 x 115	220 x 115	8	18	180
125	192 x 141	250 x 141	8	18	210
150	218 x 169	285 x 169	8	22	240
200	273 x 220	340 x 220	8	22	295
250	328 x 274	395 x 274	12	22	350
300	378 x 325	445 x 325	12	22	400
350	438 x 356	505 x 356	16	22	460
400	489 x 407	565 x 407	16	26	515
450	539 x 458	615 x 458	20	26	565
500	594 x 508	670 x 508	20	26	620
600	695 x 610	780 x 610	20	30	725
700	810 x 712	895 x 712	24	30	840
800	917 x 813	1015 x 813	24	33	950
900	1017 x 915	1115 x 915	28	33	1050
1000	1124 x 1016	1230 x 1016	28	36	1160
1100	1231 x 1120	1340 x 1120	32	39	1270
1200	1341 x 1220	1455 x 1220	32	39	1380
1400	1548 x 1420	1675 x 1420	36	42	1590
1500	1658 x 1520	1785 x 1520	36	42	1700
1600	1772 x 1620	1915 x 1620	40	48	1820
1800	1972 x 1820	2115 x 1820	44	48	2020
2000	2182 x 2020	2325 x 2020	48	48	2230

PN16

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
10	45 x 18	90 x 18	4	14	60
15	50 x 22	95 x 22	4	14	65
20	60 x 28	105 x 28	4	14	75
25	70 x 35	115 x 35	4	14	85
32	82 x 43	140 x 43	4	18	100
40	92 x 49	150 x 49	4	18	110
50	107 x 61	165 x 61	4	18	125
65	127 x 77	185 x 77	8	18	145
80	142 x 90	200 x 90	8	18	160
100	162 x 115	220 x 115	8	18	180
125	192 x 141	250 x 141	8	18	210
150	218 x 169	285 x 169	8	22	240
200	273 x 220	340 x 220	12	22	295
250	329 x 274	405 x 274	12	26	355
300	384 x 325	460 x 325	16	26	410
350	444 x 356	520 x 356	16	26	470
400	495 x 407	580 x 407	16	30	525
450	555 x 458	640 x 458	20	30	585
500	617 x 508	715 x 508	20	33	650
600	734 x 610	840 x 610	20	36	770
700	804 x 712	910 x 712	24	36	840
800	911 x 813	1025 x 813	24	39	950
900	1011 x 915	1125 x 915	28	39	1050
1000	1128 x 1016	1255 x 1016	28	42	1170
1100	1228 x 1120	1355 x 1120	32	42	1270
1200	1342 x 1220	1485 x 1220	32	48	1390
1400	1542 x 1420	1685 x 1420	36	48	1590
1500	1654 x 1520	1820 x 1520	36	56	1710
1600	1764 x 1620	1930 x 1620	40	56	1820
1800	1964 x 1820	2130 x 1820	44	56	2020
2000	2168 x 2020	2345 x 2020	48	62	2230

PN25

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
10	45 x 18	90 x 18	4	14	60
15	50 x 22	95 x 22	4	14	65
20	60 x 28	105 x 28	4	14	75
25	70 x 35	115 x 35	4	14	85
32	82 x 43	140 x 43	4	18	100
40	92 x 49	150 x 49	4	18	110
50	107 x 61	165 x 61	4	18	125
65	127 x 77	185 x 77	8	18	145
80	142 x 90	200 x 90	8	18	160

PN25 (continued)

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
100	162 x 115	220 x 115	8	18	180
125	192 x 141	250 x 141	8	18	210
150	218 x 169	285 x 169	12	22	240
200	273 x 220	340 x 220	12	22	295
250	329 x 274	405 x 274	12	26	355
300	384 x 325	460 x 325	16	26	410
350	444 x 356	520 x 356	16	26	470
400	514 x 407	620 x 407	16	36	550
450	564 x 458	670 x 458	20	36	600
500	624 x 508	730 x 508	20	36	660
600	731 x 610	845 x 610	20	39	770
700	833 x 712	960 x 712	24	42	875
800	942 x 813	1085 x 813	24	48	990
900	1042 x 915	1185 x 915	28	48	1090
1000	1154 x 1016	1320 x 1016	28	56	1210
1100	1254 x 1120	1420 x 1120	32	56	1310
1200	1364 x 1220	1530 x 1220	32	56	1420
1400	1578 x 1420	1755 x 1420	36	62	1640
1500	1688 x 1520	1865 x 1520	36	62	1750
1600	1798 x 1620	1975 x 1620	40	62	1860
1800	2000 x 1820	2195 x 1820	44	70	2070
2000	2230 x 2020	2425 x 2020	48	70	2300

PN40

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
10	45 x 18	90 x 18	4	14	60
15	50 x 22	95 x 22	4	14	65
20	60 x 28	105 x 28	4	14	75
25	70 x 35	115 x 35	4	14	85
32	82 x 43	140 x 43	4	18	100
40	92 x 49	150 x 49	4	18	110
50	107 x 61	165 x 61	4	18	125
65	127 x 77	185 x 77	8	18	145
80	142 x 90	200 x 90	8	18	160
100	168 x 115	235 x 115	8	22	190
125	194 x 141	270 x 141	8	26	220
150	224 x 169	300 x 169	8	26	250
200	290 x 220	375 x 220	12	30	320
250	352 x 274	450 x 274	12	33	385
300	417 x 325	515 x 325	16	33	450
350	474 x 356	580 x 356	16	36	510
400	546 x 407	660 x 407	16	39	585

PN40 (continued)

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
400	546 x 407	660 x 407	16	39	585
450	571 x 458	685 x 458	20	39	610
500	628 x 508	755 x 508	20	42	670
600	747 x 610	890 x 610	20	48	795
700	852 x 710	995 x 710	24	48	900
800	974 x 820	1140 x 820	24	56	1030
900	1084 x 910	1250 x 910	28	56	1140
1000	1194 x 1010	1360 x 1010	28	56	1250

Gaskets for use with BS10 Flanges Table A

Nominal Bore	IBC Gasket	Full Face gasket			
	OD x ID (mm)	OD x ID (mm)	Number of Bolt Holes	Hole Diameter (mm)	Bolt P.C.D. (mm)
1/2"	52 x 21	95 x 21	4	14	67
3/4"	59 x 27	102 x 27	4	14	73
1	68 x 34	114 x 34	4	14	83
1 1/4"	73 x 43	121 x 43	4	14	87
1 1/2"	84 x 48	133 x 48	4	14	98
2	97 x 60	152 x 60	4	18	114
2 1/2"	110 x 76	165 x 76	4	18	127
3	129 x 89	184 x 89	4	18	146
3 1/2"	148 x 102	203 x 102	4	18	165
4	160 x 114	216 x 114	4	18	178
5	192 x 140	254 x 140	4	18	210
6	217 x 168	279 x 168	4	18	235
7	243 x 194	305 x 194	8	18	260
8	275 x 219	337 x 219	8	18	292
9	306 x 244	368 x 244	8	18	324
10"	333 x 273	406 x 273	8	22	356
12"	384 x 324	457 x 324	8	22	406
13"	416 x 356	489 x 356	8	22	438
14"	445 x 381	527 x 381	8	25	470
15"	470 x 406	552 x 406	8	25	495
16"	495 x 432	578 x 432	12	25	521
17"	527 x 457	610 x 457	12	25	552
18"	559 x 483	641 x 483	12	25	584
19"	584 x 508	673 x 508	12	25	610
20"	616 x 533	705 x 533	12	25	641
21"	648 x 559	737 x 559	12	25	673
22"	670 x 584	762 x 584	12	29	699
23"	695 x 610	787 x 610	12	29	724
24"	727 x 635	826 x 635	12	29	756

Metallic Ring Joints

Type R Octagonal

Applications:
• Used for high pressure applications.
Typical Properties:
• High integrity seal at high pressures • Suitable for flat and round bottom groove flanges

Typical Specifications:	
Material :	Soft Iron
Max. temperature :	400ºC
Max. pressure:	Up to Class 2500
Availability:	Manufactured to ASME B16.20
	Also available in a range of alloys shown on page 78.

Type R OctagonalR TJ Dimensions to ASME B16.20

Ring Number	Nominal Size	Class	Pitch Diameter	Width	Height
R-11	1/2"	300, 600	1.344	0.250	0.440
R-12	1/2"	900, 1500	1.563	0.313	0.560
R-13	3/4"	300, 600	1.688	0.313	0.560
R-13	1/2"	2500	1.688	0.313	0.560
R-14	3/4"	900, 1500	1.750	0.313	0.560
R-15	1 "	150	1.875	0.313	0.560
R-16	1 "	300, 600, 900, 1500	2.000	0.313	0.560
R-16	3/4"	2500	2.000	0.313	0.560
R-17	1.1/4"	150	2.250	0.313	0.560
R-18	1.1/4"	300, 600, 900, 1500	2.375	0.313	0.560
R-18	1 "	2500	2.375	0.313	0.560
R-19	1.1/2"	150	2.563	0.313	0.560
R-20	1.1/2"	300, 600, 900, 1500	2.688	0.313	0.560
R-21	1.1/4"	2500	2.844	0.438	0.690
R-22	2 "	150	3.250	0.313	0.560
R-23	2 "	300, 600	3.250	0.438	0.690
R-23	1.1/2"	2500	3.250	0.438	0.690
R-24	2 "	900, 1500	3.750	0.438	0.690
R-25	2.1/2"	150	4.000	0.313	0.560
R-26	2.1/2"	300, 600	4.000	0.438	0.690
R-26	2 "	2500	4.000	0.438	0.690
R-27	2.1/2"	900, 1500	4.250	0.438	0.690
R-28	2.1/2"	2500	4.375	0.500	0.750
R-29	3 "	150	4.500	0.313	0.560

Type R Octagonal RTJ Dimensions to ASME B16.20

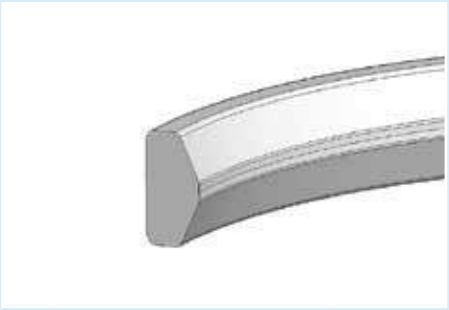
Ring Number	Nominal Size	Class	Pitch Diameter	Width	Height	Width of Flat	Radius
R-30	3" (1)	300	4.625	0.438	0.630	0.305	0.06
R-31	3 "	300, 600, 900	4.875	0.438	0.630	0.305	0.06
R-32	3 "	2500	5.000	0.500	0.690	0.341	0.06
R-33	3.1/2"	150	5.188	0.313	0.500	0.206	0.06
R-34	3.1/2"	300, 600	5.188	0.438	0.630	0.305	0.06
R-35	3 "	1500	5.375	0.438	0.630	0.305	0.06
R-36	4 "	150	5.875	0.313	0.500	0.206	0.06
R-37	4 "	300, 600, 900	5.875	0.438	0.630	0.305	0.06
R-38	4 "	2500	6.188	0.625	0.810	0.413	0.06
R-39	4 "	1500	6.375	0.438	0.630	0.305	0.06
R-40	5 "	150	6.750	0.313	0.500	0.206	0.06
R-41	5 "	300, 600, 900	7.125	0.438	0.630	0.305	0.06
R-42	5 "	2500	7.500	0.750	0.940	0.485	0.06
R-43	6 "	150	7.625	0.313	0.500	0.206	0.06
R-44	5 "	1500	7.625	0.438	0.630	0.305	0.06
R-45	6 "	300, 600, 900	8.313	0.438	0.630	0.305	0.06
R-46	6 "	1500	8.313	0.500	0.690	0.341	0.06
R-47	6 "	2500	9.000	0.750	0.940	0.485	0.06
R-48	8 "	150	9.750	0.313	0.500	0.206	0.06
R-49	8 "	300, 600, 900	10.625	0.438	0.630	0.305	0.06
R-50	8 "	1500	10.625	0.625	0.811	0.413	0.06
R-51	8 "	2500	11.000	0.875	1.060	0.583	0.06
R-52	10 "	150	12.000	0.313	0.500	0.206	0.06
R-53	10 "	300, 600, 900	12.750	0.438	0.630	0.305	0.06
R-54	10 "	1500	12.750	0.625	0.811	0.413	0.06
R-55	10 "	2500	13.500	1.125	1.380	0.780	0.09
R-56	12 "	150	15.000	0.313	0.500	0.206	0.06
R-57	12 "	300, 600, 900	15.000	0.438	0.630	0.305	0.06
R-58	12 "	1500	15.000	0.875	1.060	0.583	0.06
R-59	14 "	150	15.625	0.313	0.500	0.206	0.06
R-60	12 "	2500	16.000	1.250	1.500	0.879	0.09
R-61	14 "	300, 600	16.500	0.438	0.630	0.305	0.06
R-62	14 "	900	16.500	0.625	0.810	0.413	0.06
R-63	14 "	1500	16.500	1.000	1.250	0.681	0.09
R-64	16 "	150	17.875	0.313	0.500	0.206	0.06
R-65	16 "	300, 600	18.500	0.438	0.630	0.305	0.06
R-66	16 "	900	18.500	0.625	0.810	0.413	0.06
R-67	16 "	1500	18.500	1.125	1.380	0.780	0.09
R-68	18 "	150	20.375	0.313	0.500	0.206	0.06
R-69	18 "	300, 600	21.000	0.438	0.630	0.305	0.06
R-70	18 "	900	21.000	0.750	0.940	0.485	0.06
R-71	18 "	1500	21.000	1.125	1.380	0.780	0.09
R-72	20 "	150	22.000	0.313	0.500	0.206	0.06
R-73	20 "	300, 600	23.000	0.500	0.690	0.341	0.06
R-74	20 "	900	23.000	0.750	0.940	0.485	0.06
R-75	20 "	1500	23.000	1.250	1.500	0.879	0.09
R-76	24 "	150	26.500	0.313	0.500	0.206	0.06

Type R Octogonal RTJ Dimensions to ASME B16.20

Ring Number	Nominal Size	Class	Pitch Diameter	Width	Height	Width of Flat	Radius
R-77	24 "	300, 600	27.250	0.625	0.810	0.413	0.06
R-78	24 "	900	27.250	1.000	1.250	0.681	0.09
R-79	24 "	1500	27.250	1.375	1.630	0.977	0.09
R-80	22 "	150	24.250	0.313	0.500	0.206	0.06
R-81	22 "	300, 600	25.000	0.563	0.750	0.377	0.06
R-82	1 "	10000	2.250	0.438	0.630	0.305	0.06
R-84	1.1/2"	10000	2.500	0.438	0.630	0.305	0.06
R-85	2 "	10000	3.125	0.500	0.690	0.341	0.06
R-86	2.1/2"	10000	3.563	0.625	0.810	0.413	0.06
R-87	3 "	10000	3.938	0.625	0.810	0.413	0.06
R-88	4 "	10000	4.875	0.750	0.940	0.485	0.06
R-89	3.1/2"	10000	4.500	0.750	0.940	0.485	0.06
R-90	5 "	10000	6.125	0.875	1.060	0.583	0.06
R-91	10 "	10000	10.250	1.250	1.500	0.879	0.06
R-92	-	-	9.000	0.438	0.630	0.305	0.06
R-93	26 "	300, 600	29.500	0.750	0.940	0.485	0.06
R-94	28 "	300, 600	31.500	0.750	0.940	0.485	0.06
R-95	30 "	300, 600	33.750	0.750	0.940	0.485	0.06
R-96	32 "	300, 600	36.000	0.875	1.060	0.583	0.06
R-97	34 "	300, 600	38.000	0.875	1.060	0.583	0.06
R-98	36 "	300, 600	40.250	0.875	1.060	0.583	0.06
R-99	8 "	2000, 3000	9.250	0.438	0.630	0.305	0.06
R-100	26 "	900	29.500	1.125	1.380	0.780	0.09
R-101	28 "	900	31.500	1.250	1.500	0.879	0.09
R-102	30 "	900	33.750	1.250	1.500	0.879	0.09
R-103	32 "	900	36.000	1.250	1.500	0.879	0.09
R-104	34 "	900	38.000	1.375	1.630	0.977	0.09
R-105	36 "	900	40.250	1.375	1.630	0.977	0.09

Type RX

Applications:	
• Used for high pressure applications.	
Typical Properties:	
• High integrity seal at high pressures • Suitable for flat bottom groove flanges	
Typical Specifications:	
Material :	Soft Iron
Max. temperature :	400ºC
Max. pressure:	Up to Class 5000
Availability:	Manufactured to ASME B16.20
	Also available in a range of alloys shown on page 78.

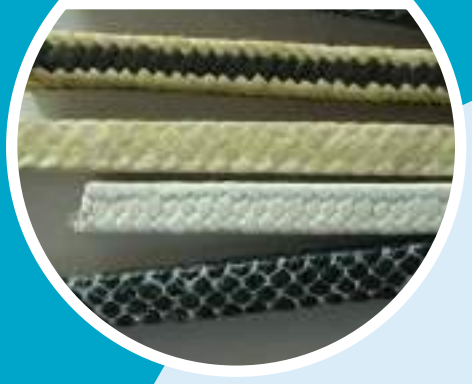


Type RX RTJ Dimensions to ASME B16.20

Nominal Size	Ring Number	Class	Outside Diameter	Width	Width of Flat	Height of out-side bevel	Height of Ring	Radius	Hole Size
RX-20	1.1/2"	5000	3.000	0.344	0.182	0.125	0.750	0.06	-
RX-23	2 "	2000	3.672	0.469	0.254	0.167	1.000	0.06	-
RX-24	2 "	3000, 5000	4.172	0.469	0.254	0.167	1.000	0.06	-
RX-25	3.1/8"	5000	4.313	0.344	0.182	0.125	0.750	0.06	-
RX-26	2.1/2"	2000	4.406	0.469	0.254	0.167	1.000	0.06	-
RX-27	2.1/2"	3000, 5000	4.656	0.469	0.254	0.167	1.000	0.06	-
RX-31	3 "	2000, 3000	5.297	0.469	0.254	0.167	1.000	0.06	-
RX-35	3 "	5000	5.797	0.469	0.254	0.167	1.000	0.06	-
RX-37	4 "	2000, 3000	6.297	0.469	0.254	0.167	1.000	0.06	-
RX-39	4 "	5000	6.797	0.469	0.254	0.167	1.000	0.06	-

Nominal Size	Ring Number	Class	Outside Diameter	Width	Width of Flat	Height of out-side bevel	Height of Ring	Radius	Hole Size
RX-41	5 "	2000, 3000	7.547	0.469	0.254	0.167	1.000	0.06	-
RX-44	5 "	5000	8.047	0.469	0.254	0.167	1.000	0.06	-
RX-45	6 "	2000, 3000	8.734	0.469	0.254	0.167	1.000	0.06	-
RX-46	6 "	5000	8.750	0.531	0.263	0.188	1.125	0.06	-
RX-47	8" (1)	5000	9.656	0.781	0.407	0.271	1.625	0.06	-
RX-49	8 "	2000, 3000	11.047	0.469	0.254	0.167	1.000	0.06	-
RX-50	8 "	5000	11.156	0.656	0.335	0.208	1.250	0.06	-
RX-53	10 "	2000, 3000	13.172	0.469	0.254	0.167	1.000	0.06	-
RX-54	10 "	5000	13.281	0.656	0.335	0.208	1.250	0.06	-
RX-57	12 "	2000, 3000	15.422	0.469	0.254	0.167	1.000	0.06	-
RX-63	14 "	5000	17.391	1.063	0.582	0.333	2.000	0.09	-
RX-65	16 "	2000	18.922	0.469	0.254	0.167	1.000	0.06	-
RX-66	16 "	3000	18.031	0.656	0.335	0.208	1.250	0.06	-
RX-69	18 "	2000	21.422	0.469	0.254	0.167	1.000	0.06	-
RX-70	18 "	3000	21.656	0.781	0.407	0.271	1.625	0.09	-
RX-73	20 "	2000	23.469	0.531	0.263	0.208	1.250	0.06	-
RX-74	20 "	3000	23.656	0.781	0.407	0.271	1.625	0.09	-
RX-99	8" (1)	2000, 3000	9.672	0.469	0.254	0.167	1.000	0.06	-
RX-201	1.3/8"	5000	2.026	0.226	0.126	0.057	0.445	0.02	-
RX-205	1.13/16"	5000	2.453	0.219	0.120	0.072	0.437	0.02	-
RX-210	2.9/16"	5000	3.844	0.375	0.213	0.125	0.750	0.03	-
RX-215	4.1/16"	5000	5.547	0.469	0.210	0.167	1.000	0.06	-

Insulation Sets



PTFE Packing

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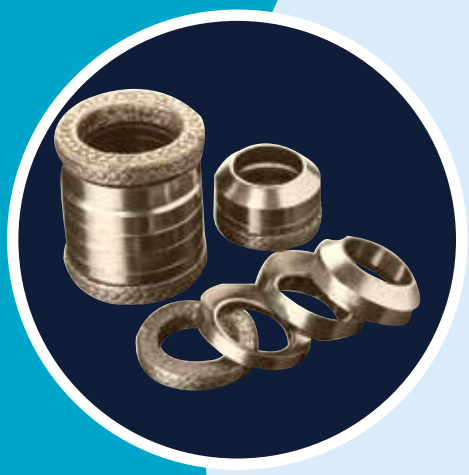
AL-ETIHAD GASKET FACTORY



Graphite & Carbon Packing

Syntetic Fibre Packings

Hybrid Packing


المواد الخام
RAW MATERIALS


SAFETY FIRST


KLINGER


KLINGER

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AL-ETIHAD GASKET FACTORY

We aim to provide our customer with the most innovative and professional services together with our business partners all over the world which facilitate the demands in the fast growing economy of the kingdom of Saudi Arabia.

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