PetroMarys

Metallic Gasket Data Sheet

Kammprofile Gasket

BENEFITS

- Seals less-than-perfect flanges
- Performance replacement for jacketed heat exchanger gaskets
- Fire safe —passed API 6FB fire tests
- Available with High-temperature reinforced graphite facing

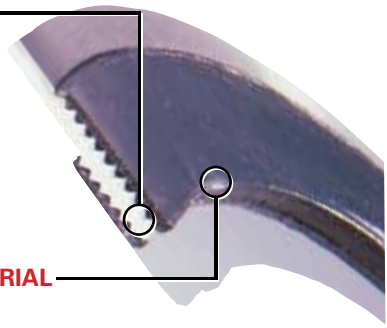
APPLICATIONS

- Accommodates standard ASME flanges as well as weaker and non-circular flanges
- Economical replacement for jacketed heat exchanger gaskets
- Handles pressures from vacuum to Class 2500
- Withstands temperatures from cryogenics to 1,832°F (1,000°C)

SERRATED SOLID METAL CORE

- Solid metal core resists cold flow, over compression and blowout
- Rigid core provides exceptional stability, even in large sizes, and facilitates handling and installation
- Available in wide variety of metals

SOFT, DEFORMABLE SEALING MATERIAL



- Under compression, fills seating surface imperfections to form a tight connection
- Seals under low stress—ideal for weaker flanges
- Withstands extreme fluctuations in temperatures and pressures

STYLE SELECTION GUIDE

Kammprofile Styles	Centering Ring		Flange			
	Integral	Floating	Male/Female	Tongue/Groove	Flat Face	Raised Face
642 A*			•	•	•	•
642 AR	•					•
642 AR2		•				•

*Available without sealing element

» Parallel root core is standard design

» Integral centering ring ensures optimum gasket positioning

» Floating centering ring allows for expansion and contraction during thermal cycling

Sealing Element	Max. Temperature	
Graphite facing (high temp)	500˚F	260˚C
Flex. Graphite	850˚F	454˚C
PTFE	500˚F	260˚C

Kammprofile Gaskets

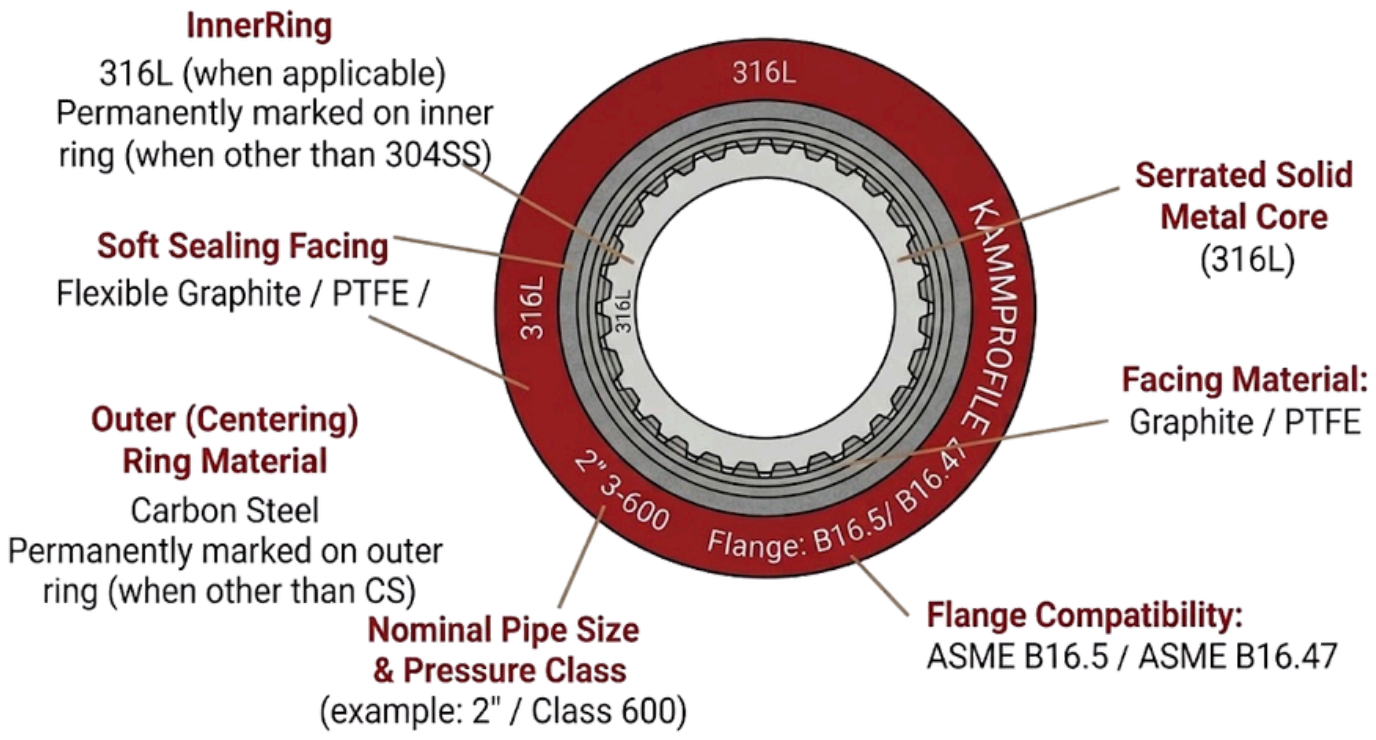
FLANGE COMPATIBILITY: ASME B16.5 & ASME B16.47

Kammprofile gaskets consist of a precision-machined solid metal core with concentric serrations, bonded on both sides with a soft, deformable sealing layer. This combination provides the strength of a metallic gasket with the sealing efficiency of a soft gasket, ensuring reliable performance even on imperfect or low-load flange conditions.

The serrated metal core concentrates the compressive load across the sealing surface, while the facing material flows into flange imperfections to create a tight, leak-resistant seal. This design minimizes the risk of blowout, over-compression, and mechanical failure, while maintaining stability during installation and operation.

Kammprofile gaskets are widely used as a high-performance and economical replacement for jacketed heat exchanger gaskets. They are suitable for use with standard ASME flanges as well as weaker or non-circular flanges, offering excellent sealing under low stress conditions.
The gasket performs reliably across a wide range of operating environments—from vacuum conditions up to Class 2500 pressures—and withstands temperatures ranging from cryogenic levels to approximately 1000°C. Facing materials such as flexible graphite or PTFE can be selected to meet specific chemical compatibility and fire-safe requirements, including compliance with API 6FB fire testing when applicable.

GASKET IDENTIFICATION MARKINGS REQUIRED BY ASME B16.5 & ASME B16.47



Metallic Gasket Specifications

TEMPERATURE LIMITS FOR COMMON METALS (ASME B16.20)

Material	Minimum °F	Minimum °C	Maximum °F	Maximum °C	Abbreviation	Guide Ring Edge Color Code
304 Stainless Steel	-320	-195	1,400	760	304	Yellow
316L Stainless Steel	-150	-100	1,400	760	316L	Green
317L Stainless Steel	-150	-100	1,400	760	317L	Maroon
321 Stainless Steel	-320	-195	1,400	760	321	Turquoise
347 Stainless Steel	-320	-195	1,700	925	347	Blue
Carbon Steel	-40	-40	1,000	540	CRS	Silver
20Cb-3 (Alloy 20)	-300	-185	1,400	760	A-20	Black
HASTELLOY® B 2	-300	-185	2,000	1,090	HAST B	Brown
HASTELLOY® C 276	-300	-185	2,000	1,090	HAST C	Beige
INCOLOY® 800	-150	-100	1,600	870	IN 800	White
INCOLOY® 825	-150	-100	1,600	870	IN 825	White
INCONEL® 600	-150	-100	2,000	1,090	INC 600	Gold
INCONEL® 625	-150	-100	2,000	1,090	INC 625	Gold
INCONEL® X750	-150	-100	2,000	1,090	INX	No Color
MONEL® 400	-200	-130	1,500	820	MON	Orange
Nickel 200	-320	-195	1,400	760	NI	Red
Titanium	-320	-195	2,000	1,090	TI	Purple

STANDARD THICKNESSES

Winding	Ring(s) Inner & Outer
0.125"	3/32"
0.175"	1/8"
0.250"	3/16"
0.285"	3/16"

TEMPERATURE LIMITS FOR FILLER MATERIAL (ASME B16.20)

Material	Minimum °F	Minimum °C	Maximum COT °F	Maximum COT °C	Abbreviation	Guide Ring Edge Stripe Color Code
Ceramic	-350	-212	2,000	1,090	CER	Light Green
Flexible Graphite	-350	-212	850	454	F.G.	Gray
PTFE	-400	-24	500	260	PTFE	White
Graphite facing (high temp)	-	0 -	1,832	1,000	4122	Light Blue

STANDARD TOLERANCES***

For non-ASME windings

Gasket Diameter	I.D.	O.D.
Up to 1" 1" to	+1/64"-0	+0-1/32"
24" 24" to 36"	+1/32"-0	+0-1/32"
36" to 60" 60"	+3/64"-0	+0-1/16"
and above	+1/16"-0	+0-1/16"
	+3/32"-0	+0-3/32"

For spiral wound gaskets not otherwise specified.

Gasket Thickness	Tolerance	Width Limits Minimum	Width Limits Maximum	Compressed Thickness
0.125"**	±0.005"	3/16"	1"†† 1-	0.090- 0.100"
0.175"**	±0.005"	1/4"	1/2"†† 1-	0.125- 0.135"
0.250"**	±0.005"	5/16"	1/2"†† 1-	0.180- 0.200"
0.285"**	±0.005"	5/16"	1/2"††	0.200- 0.220"

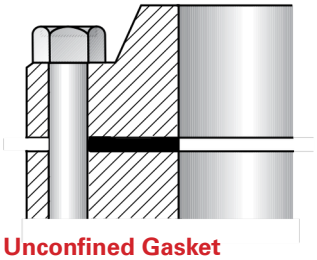
NOTE:

Thickness tolerance is ±0.005" on spiral wound gaskets, except +0.010"-0.005" on gaskets with:

- Less than 1" ID and greater than 26"ID
- PTFE filler
- Flange widths of 1" or greater

Spiral wound gaskets can be made to large maximum widths if required. Call PetroMarys for details.

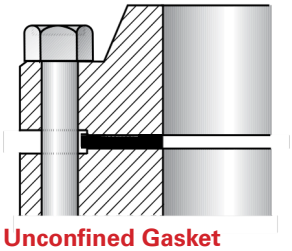
Flange Types



Unconfined Gasket

- Mating faces of both flanges are flat
- Gasket may be ring type, or full face, which covers the entire face both inside and outside the bolts (ring gaskets are not acceptable in many flat face flanges) due to flange materials of construction

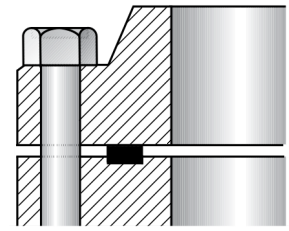
RAISED FACE



Unconfined Gasket

- Flange sealing surface is reduced to achieve higher seating stress
- Gasket is usually ring type, contained entirely within bolt circle

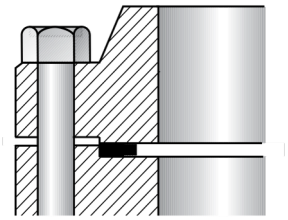
GROOVE TO FLAT



Fully Confined Gasket

- One flange face is flat, the other is recessed
- For applications requiring accurate control of gasket compression
- Only resilient gaskets are recommended—spiral wound, hollow metal O-ring, pressure-actuated, and metal-jacketed gaskets

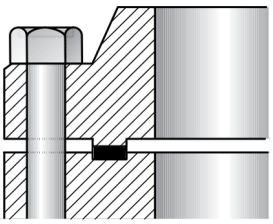
MALE-FEMALE



Semi-Confined Gasket

- Depth of female (recessed) face normally equal to or less than height of male (raised) face, to prevent metal-to-metal contact during gasket compression
- Recessed O.D. normally is not more than 1/16" larger than the O.D. of the male face
- Joint must be pried apart for disassembly

TONGUE AND GROOVE



Fully Confined Gasket

- Groove depth is equal to or less than tongue height
- Groove usually not over 1/16" wider than tongue
- Gasket dimensions will match tongue dimensions
- Joint must be pried apart for disassembly

Selection of Metals

The chemical resistance of gaskets are governed by their materials of construction. The selection is generally based on chemical resistance, heat resistance and cost. The most popular metals include:

- Carbon Steel
- Stainless Steel 304
- Stainless Steel 316
- INCONEL® 600*
- Nickle 200
- HASTELLOY C® 276
- MONEL® 400‡
- INCONEL® 625*
- INCOLOY® 825*
- INCONEL® 750

The selection of a metal to be used in a gasket that is suitably resistant to corrosive media or to high temperature involves many considerations. PetroMarys recommends that designers contact the manufacturers of alloyed material, who conduct laboratory corrosive tests and in-plant corrosion testing.

CONCENTRATION OF CORROSIVE AGENTS

Dilute solutions are not necessarily less corrosive than those of full strength, and the reverse is often the case. Probably the most familiar example of this is the action of sulfuric acid on iron; concentrations over 90% acid may be handled by iron without much difficulty, but below this concentration, the rate of attack will increase rapidly with an increase in dilution.

PURITY OF CORROSIVE AGENTS

Purity, in this instance, means the absence of contaminating amounts of other corrosive compounds. For example, the corrosive attack by compounds that are derivatives of an acid: in the pure state these compounds may be relatively inert, but if contaminated by any carry-over of free acid they must be handled more carefully.

TEMPERATURE

Besides its effects upon the mechanical properties of the gasket, the temperature of the corrosive agent will have a marked influence upon the rate of attack.

FORMS OF CORROSION

- General corrosion
- Galvanic corrosion
- Concentration cell or crevice corrosion
- Chemical pitting
- Intergranular corrosion
- Effects of stress on corrosion
  - › Corrosion fatigue
  - › Stress corrosion cracking

CORROSIVE ENVIRONMENTS

- Atmospheric corrosion
- Corrosion by water, acids
- Corrosion by alkalies, salts, fluorine
- Corrosion by chlorines and hydrogen
- Corrosion by chlorides

PetroMarys Metallic Gaskets

PetroMarys is a leading supplier of Metallic Gaskets, backed by the extensive expertise and experience of its skilled workforce.

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