SAN DIEGO SEAL, INC.

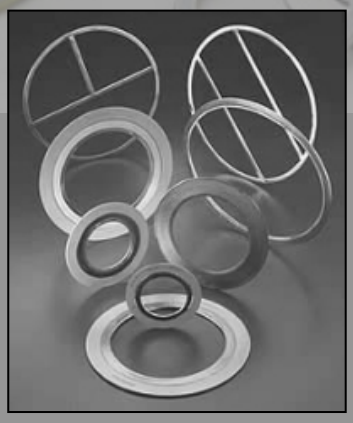
INDUSTRIAL and MARINE PRODUCT SOLUTIONS

METAL and SEMI-METALLIC GASKETS

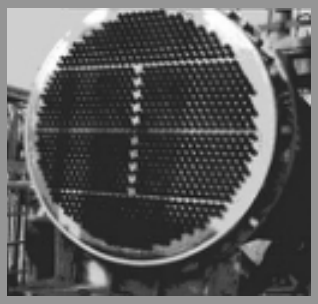
TYPES OF GASKETS

- SPIRAL WOUND GASKETS
- GRAPHITE with CORRUGATED METAL CORE
- EXPANDED PTFE with CORRUGATED METAL CORE
- HIGH PRESSURE GRAPHITE SEALS
- CAMMPROFILE
- HEAT EXCHANGER GASKETS
- JACKETED
- DOUBLE JACKETED
- SOLID METAL

APPLICATIONS



- HEAT EXCHANGERS
- PRESSURE VESSELS
- MANHOLE COVERS
- HANDHOLE
- VALVE BONNETS
- PIPE FLANGES



SAN DIEGO SEAL, INC.

INDUSTRIAL and MARINE PRODUCT SOLUTIONS

BOILER GASKETS

- Commercial boiler gaskets
- Handhole & Manhole Gaskets
- Boiler Head Gaskets
- Boiler pipe flange gaskets
- Boiler ring gaskets
- Boiler full face gaskets
- Sight Glass Gaskets
- Topog-E Boiler Gaskets
- Spiral Wound Boiler Gaskets
- Blue-Max Boiler Gaskets
- Ceramic Boiler Gaskets
- Ceramic Fiber Strips for Boilers
- McDonnell Miller Gaskets
- Molded EPDM Boiler Gaskets
- Fiberglass Tape for Boilers
- Fiberglass Rope for Boilers
- Hi-temperature Boiler Gaskets
- Low-temperature Boiler Gaskets

Applications:

Steam pressure vessels
Hot water heaters
Demineralizers
Steam humidifiers
Dryer cans in paper mills
Refrigeration units
Filtering units
Liquid treatment vessels
Compressed air tanks
Water purifiers
Water towers
Water softeners
Deaerators
Make-up tanks

TYPES OF MATERIAL AVAILABLE

GRAPHITE

- DIE CUT
- DIE FORMED
- CORRUGATED

SPIRAL WOUND

CERAMIC

- ROPE
- TAPE
- TADPOLE
- DIE FORMED

FIBERGLASS / FIBERGLASS-PTFE

- ROPE
- TAPE
- TADPOLE
- DIE FORMED

METAL

- JACKETED
- CORRUGATED

MOLDED EPDM RUBBER

EXPANDED PTFE

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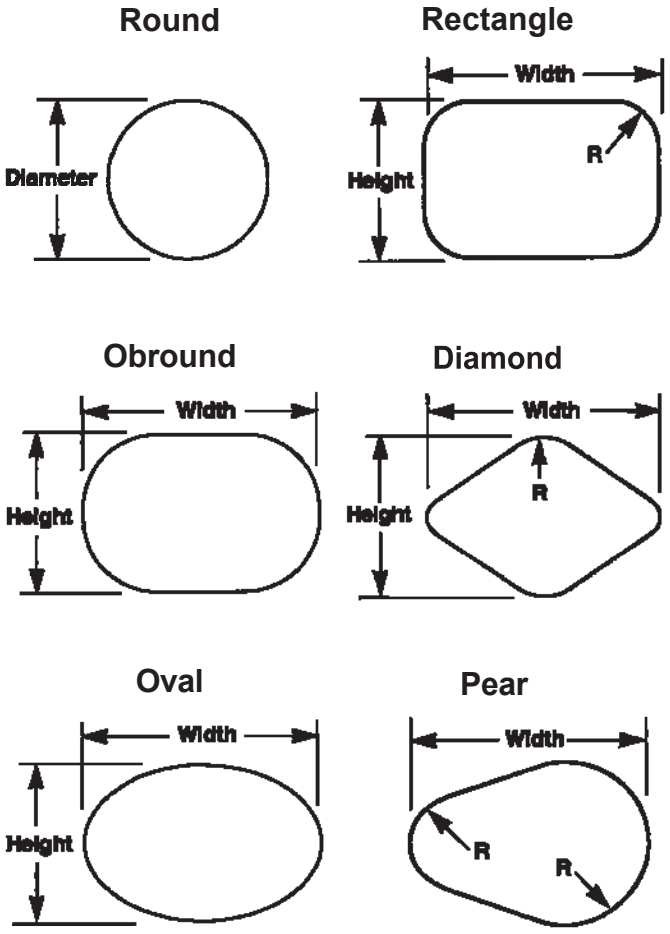
HANDHOLE GASKETS

For Boiler Handhole and Tubecap Assemblies

- Fits most standard boilers (specify maximum operating pressure when ordering)
- Available in thicknesses of 0.125" (special), 0.175" (standard) and 0.250" (special—for pitted surfaces)

Style HH Configurations



Boiler Gasket Dimensions

Manufacturer and Model No.	Shape	Nominal I.D. Dimensions (Inches)	Flange Width (Inches)
Babcock and Wilcox			
#40 (207)	Diamond	3-3/8 x 3-3/4	3/16
#48 (208)	Oval	3-13/16 x 4-3/4	7/32
#24 (211)	Oval	4-1/2 x 5-1/2	7/32
#47	Round	2-1/32	3/16
#70	Round	3-9/32	3/16
#28 (212)	Rectangle	4-13/16 x 5	7/32
Badenhausen (See Riley Stoker)			
Cleaver-Brooks	Obround	3-9/32 x 4-17/32	3/8
Combustion Engr.			
29N-L839	Diamond	3-3/8 x 4-1/4	1/4
4N-L740	Round	3-1/8	1/4
5N-L902	Round	3-5/8	1/4
Foster Wheeler			
2 3/4 (1003)	Obround	2-25/32 x 3-13/32	7/32
3 15/16 (1005)	Oval	4-3/16 x 5-3/16	5/16
Heine	Round	3-5/8	3/8
Keeler	Obround	3 x 4	3/8
Oilfield	Oval	3 x 4	3/8
	Oval	3-1/2 x 4-1/2	3/8
Riley Stoker W-C2	Obround	3-23/32 x 5-23/32	11/32
Springfield	Oval	3-17/32 x 4-17/32	5/16
Union	Oval	3 x 4	3/8
	Pear	4-1/4 x 5-1/4	3/8
Vogt	Oval	4-1/4 x 5-1/8	7/32 (new)
Wickes			
	Pear	4-1/8 x 5-1/8	9/32
D2300	Oval	3 x 4	5/16
D2301	Oval	3-1/2 x 4-1/2	5/16

Ordering Information

When ordering, specify:

- Make and model of boiler and/or equipment, if available
- Gasket style and configuration
- Dimensions of gasket (thickness, flange seating width, and shape)
- Maximum operating pressure and temperature
- Type of metal and filler materials

WARNING:
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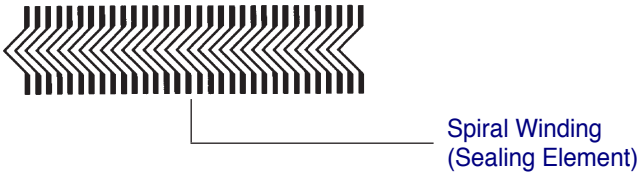
MC and MCR Gaskets

For Manhole Cover Assemblies

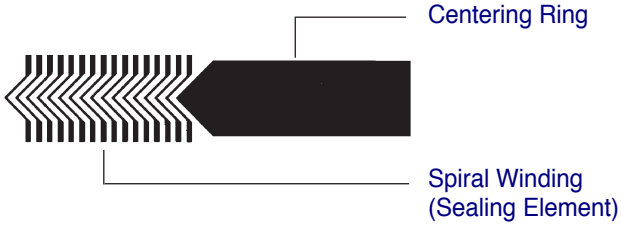
MC Gasket (manhole cover)

- Spiral winding only, containing preformed metal and soft filler material

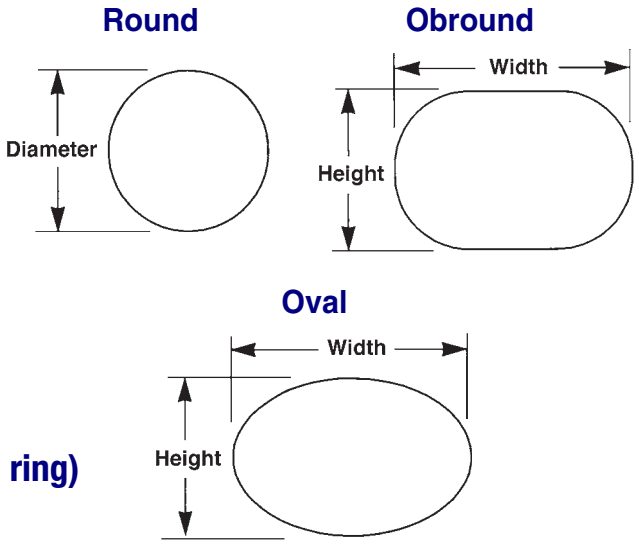


MCR Gasket (manhole cover with centering ring)

- Centering ring accurately locates the gasket on the flange face, provides additional radial strength, and acts as a compression limiter
- Spiral winding (sealing element) consists of pre-formed metal and soft filler material



MC and MCR Configurations



Style	Nominal I.D. Dimensions (Inches)	Thickness (Inches)	Flange Width (Inches)
MC Oval	11 x 15	0.175	3/4
MC Oval	11 x 15	0.175	15/16
MC Oval	11 x 15	0.175	1-1/4
MC Oval	12 x 16	0.250	15/16
MCR Oval	12 x 16	0.250	13/16
MC Oval	12 x 16	0.175	3/4
MC Oval	12 x 16	0.175	15/16
MC Oval	12 x 16	0.175	1-1/4
MC Oval	12 x 16	0.250	1-1/4
MC Round	16-1/16	0.175	3/4

Dimensions of MC and MCR Gaskets

Notes:

1. For pitted and rough flange surfaces, specify a gasket thickness of 0.250".
2. Orders for special cover assemblies should be accompanied by a dimensional drawing showing the minimum width of seating surfaces and other essential dimensions.
3. Style MC oval and obround gaskets are available in 0.175" and 0.250" thickness and in varying widths as shown above.
4. Orders for non-standard gaskets should also include a sketch or drawing of the cover assembly with all dimensions shown.

Ordering Information

When ordering, specify:

- Make and model of boiler and/or equipment if available
- Gasket style and configuration
- Dimensions of gasket (thickness, flange seating width, and shape)
- Maximum operating pressure and temperature
- Type of metal and filler materials

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Corrugated Metal Gasket

The superior technology of gaskets ensures excellent sealing performance and reliability, even in the most difficult applications. Each of the three styles combines a corrugated metal core with a compressible sealing element of various materials, for resistance to a wide range of harsh conditions, including extreme temperature, corrosive chemicals, and thermal cycling.

Applications

- Valves
- Pumps
- Flanges
- Heat exchangers
- Vessels

CG Gasket (Style 905-FG)

With flexible graphite sealing element

- Accommodates a wide range of temperatures
- Seals effectively during thermal cycling
- Fire safe—passed API 6FB fire tests
- Chemically resistant
- Long service life

CEP Gasket (Style 905-E)

With ePTFE sealing element

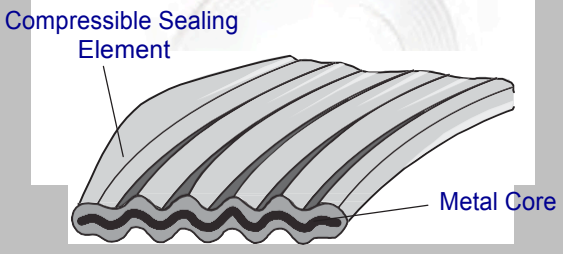
- Chemically inert
- Forms a tight seal under low bolt load
- Conforms to minor sealing surface imperfections
- Withstands temperatures to 500°F (260°C)

Gasket (Style 905G-E)

With graphite and ePTFE sealing element

- Combines fire safety with chemical resistance
- Conforms to minor sealing surface imperfections
- Rigid yet compressible

Construction



Standard Metals

- 316L Stainless

Also Available

- 304 Stainless
- Carbon steel
- INCONEL® 600
- INCONEL® 625
- INCOLOY® 800
- INCOLOY® 825
- HASTELLOY® C276
- MONEL® 400

Sealing Elements

- Flexible graphite
- ePTFE
- Combination graphite and ePTF

Engineering Data

	GRAPHITE	ePTFE and G.E.T.™
Temperature,		
Minimum:	-400°F (-240°C)	-400°F (-240°C)
Max. in atmosphere:	850°F (454°C)	500°F (260°C)
Max. in steam:	1,200°F (650°C)	500°F (260°C)
Max. continuous:	850°F (454°C)	500°F (260°C)
Pressure, max.:	1,000 psig (70 bar)	
P x T, max.		
1/16" thickness:	700,000 (25,000)†	–
1/8" thickness:	400,000 (13,500)	250,000 (8,500)

† P x T max. = psig x °F (bar x °C)

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INCOLOY® is a registered trademark of Inco Alloys International, Inc.
HASTELLOY® is a registered trademark of Haynes International.
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CAMMPROFILE GASKET

Benefits

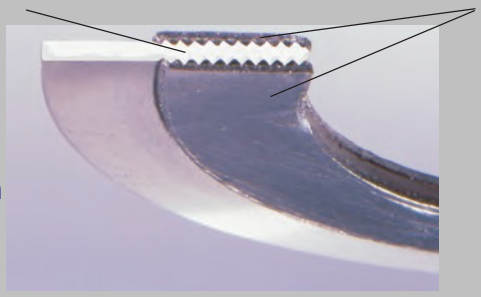
- Accommodates standard ASME flanges as well as weaker and non-circular flanges
- Seals less-than-perfect flanges
- Handles pressures from vacuum to Class 2500
- Performance replacement for jacketed heat ex- changer gaskets
- Fire safe—passed API 6FB fire tests
- Available in heat shield configuration for high temp applications above 850ºF (454ºC) (see page D-6)

Applications

- Valves
- Pumps
- Flanges
- Heat exchangers
- Vessels

Serrated solid metal core

- Solid metal core resists cold flow, overcompression and blowout
- Rigid core provides exceptional stability, even in large sizes, and facititates 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

Cammprofile Styles	Construction		Centering Ring		Flange			
	Parallel Root	Convex Root	Integral	Floating	Male/Female	Tongue/Groove	Flat Face	Raised Face
942A	●				●	●		●
942 AR	●		●				●	●
942 AR2	●			●			●	●
942 AC		●			●	●		●
942 ARC		●	●				●	●
946ARC2		●		●			●	●

- **Parallel root core** is standard design
- **Convex root core** compensates for weaker flanges and resulting flange rotation
- **Integral centering ring** ensures optimum gasket positioning
- **Floating centering ring** allows for expansion and contraction during thermal cycling

Gasket Style	Gasket Factor "M"	Gasket Factor "Y" (psi)
Cammprofile gasket	4.00	1,000*

Note: When designing a flange, a "Y" value of 4,000 psi is suggested.

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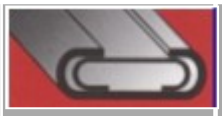
JACKETED GASKET STYLES

Single J acket
The most basic form of jacketed gasket, with coverage on one face and both edges.

Single J acket w ith Overlap
Where full coverage is needed and flange is narrow relative to gasket ID.

Double J acket
Where full coverage is needed and flange is wide relative to gasket ID.



Double J acket w ith Double Shell
Stronger and more rigid than double jacket gasket.

Double Gasket Corrugated
Corrugations create a labyrinth seal across the gasket face.

SOLID GASKET STYLES

Flat Solid
Cut from sheet metal, these gaskets can be of unlimited size and shape. Mating surfaces need to be perfectly aligned and flat for metal gaskets to provide good seals.

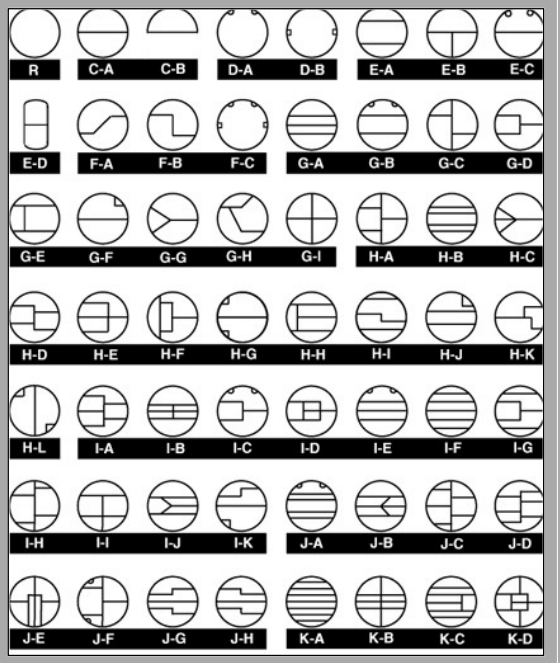
Profiled and Serrated
A solid gasket with surface grooves facilitating a good seal with lower seating stresses. These styles can be jacketed to protect the flange surfaces.

Corrugated
Made from thin metal, these gaskets provide a seal at low seating stress. They may be surface-treated with ceramic, non-asbestos or flexible graphite, or they may be used with a PTFE envelope.

METALS:
STAINLESS STEEL
COPPER
SOFT IRON
BRASS
MONEL!
INCONEL!
(OTHER MATERIALS ON REQUEST)

FI LLERS:
NON-ASBESTOS
FLEXIBLE GRAPHITE
CERAMIC
PTFE
CORRUGATED METAL

STANDARD SHAPES FOR HEAT EXCHANGER GASKETS



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