

SPIRAL WOUND GASKET

API 6A
Licence No.
6A-0722



Certification
ISO 9001 : 2015
ISO 14001 : 2015
OHSAS 45001 : 2018



“RISK FREE GASKETS, ON TIME”

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ABOUT US

Goodrich Gasket Private Limited is acknowledged as the market leader in manufacturing & supply of High - performance Industrial Static Sealing Products for the Global Processing Industries. Goodrich Gasket is currently manufacturing and supplying the entire range of Industrial Gaskets from its 25,000 Sq.m state of the art brand new facility at Chennai, India. Founded in 1987 the company has more than 3000 satisfied customers worldwide. "At Goodrich Gasket, we Design, Manufacture, Supply, Install, and give On-Site support for all of your Gasket needs and Concerns."

OUR STRENGTHS

- 24X7 operational facility to meet customer's emergency and shut down requirements.
- Proven track record with reliability and high Gasket Performance.
- Experience in manufacturing Gaskets for over three decades by investing in modern manufacturing technology.
- Complete control over all critical processes, including raw materials.
- Preferred Partner of reputed oil majors and EPC contractors.
- Highly skilled engineers for designing products with optimal performance & ability to design products with special requirements.
- Customized product development - working closely with the user groups.
- Quality Assurance Program - Approved by Major EPC, PMC & PSUs.
- Wide distribution network - Over 3000 Satisfied Customers Worldwide.
- Availability of Gaskets in various locations, including back up inventory at factories.

OUR CLIENTS

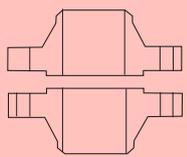
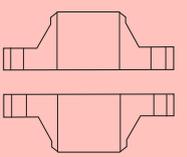
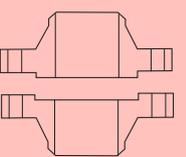
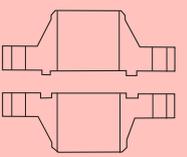
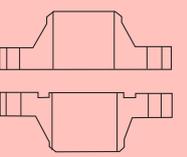
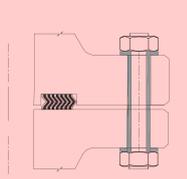
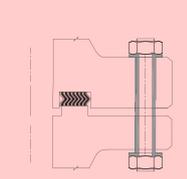
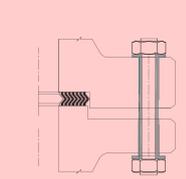
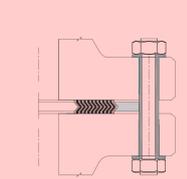
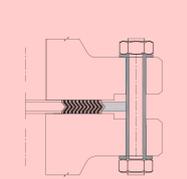
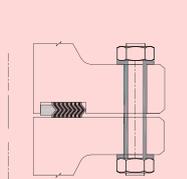
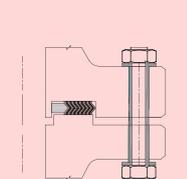
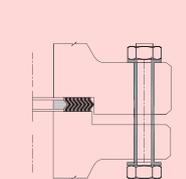
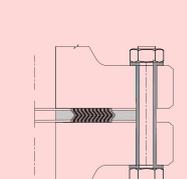
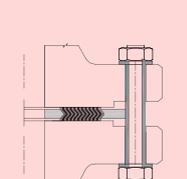


GOODRICH SPIRAL WOUND GASKET

OVERVIEW

Goodrich Gasket manufactures SPW gaskets by spirally winding a preformed metal strip and a filler on the outer periphery of metal winding mandrels which form a very effective seal when compressed between two flanges. A V-shaped crown centered in the metal strip acts as a spring, giving gaskets greater resilience under varying conditions. Filler and wire material can be changed to accommodate different chemical compatibility requirements.

Spiral wound gaskets are more resilient than any other type of metallic Gasket except for pressure sealing metal gaskets and, as a consequence, can compensate for flange movement that may occur due to temperature gradients, variations of pressure and vibration.

FLANGE SELECTION GUIDE					
Flange Face	 Raised Face	 Flat Face	 Male and Female	 Tongue and Groove	 Flat Face to Groove
Recommended Gasket Style For general duties	 Type R	 Type R	 Type R	 Type CG	 Type CG
Recommended Gasket Style For high pressure/ temperature duty, also for gaskets with PTFE filler, corrosive or fluctuating pressure or temperature service conditions.	 Type RIR	 Type RIR	 Type RIR	 Type CGI	 Type CGI

Applications and benefits of a spiral wound gasket

-  Accommodates a high variation in Temperature Range
-  Accommodates a high range in Pressure
-  Used in Pipelines, Valves, Pumps and Heat Exchangers

Industries Served

-  Petrochemical
-  Nuclear Energy
-  Oil and Gas
-  Offshore
-  Marine
-  Pumps and Valve

GOODRICH SPIRAL WOUND GASKET

Gasket Types

Goodrich Spiral Wound Gaskets including centering ring and inner ring are identified by Flange size (NPS), Pressure Class, and the appropriate flange standards (ASME B16.20, ASME B16.47 Ser. A & Sr. B)

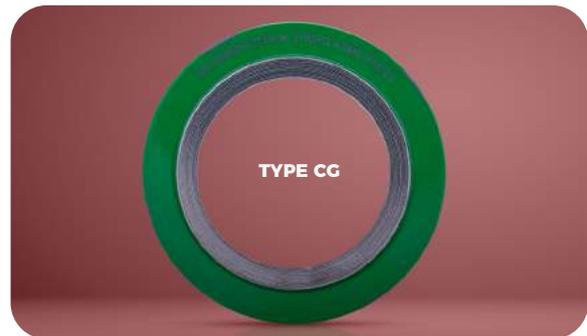
GOODRICH TYPE CGI

Goodrich Type CGI – The CGI style gasket has an inside metal ring in addition to an exterior metal ring, which constrains the sealing elements on both internal and external diameters. Gaskets in the CGI style are ideal for use on raised and flat faced flanged connections, as well as moderate to severe service conditions



GOODRICH TYPE CG

Goodrich Type-CG is engineered for ASME flanges with metal windings, filler material, and Outer-ring. Type-CG offers excellent general-purpose performance for raised face flanges. It's construction and consistent compressibility deliver superior safety and exceptional sealing performance.



GOODRICH TYPE RIR

Goodrich Type-RIR features a solid inner metal ring that acts as a compression stop and fills the annular space between the flange bore and the inside diameter. Designed to prevent accumulation of solids, reduce turbulent flow of process fluids and minimize erosion of flange faces. Suitable for male and female flanges.



GOODRICH TYPE R

Goodrich Type-R is a basic construction gasket, inner and outer diameters are reinforced with several piles of metal without filler to give greater stability and better compression characteristics. Suitable for tongue and groove or male and female or grooved to flat face assemblies.



GOODRICH SPIRAL WOUND GASKET

GOODRICH TYPE LOW STRESS

Goodrich - Low-Stress Spiral Wound Gasket strength, resilience, and blowout resistance of spiral wound gaskets with low bolt load for seating offering an alternative to both Class 150 and 300 services. Manufactured with high purity flexible graphite and PTFE filler, they offer optimum sealability for both standard Class 150 & 300 and non-standard, low-pressure flanges. The main advantage of low-stress gaskets is that they maintain flange stresses at allowable limits.

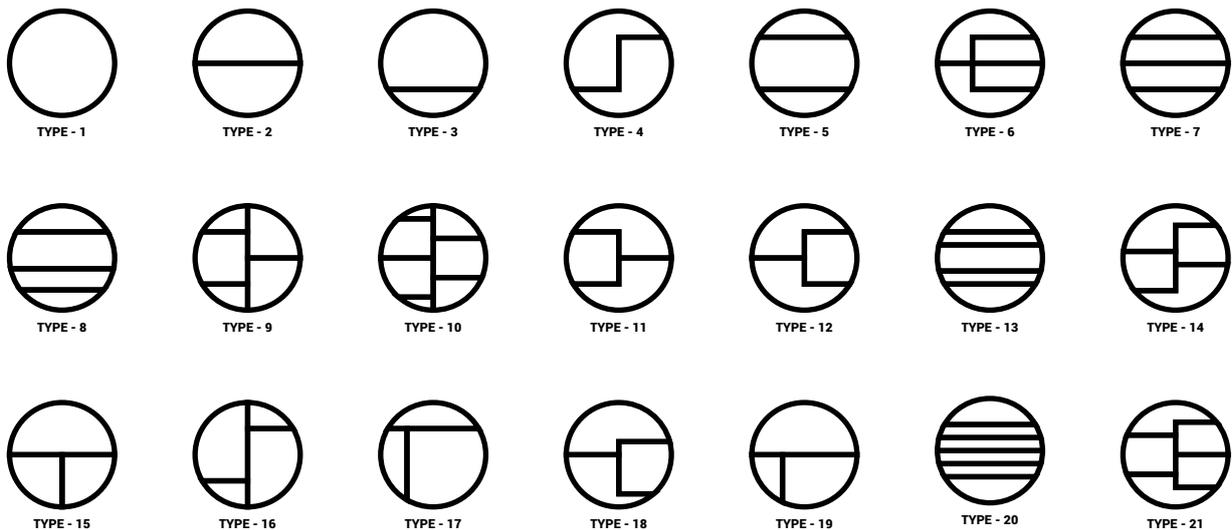
GOODRICH TYPE HE

Goodrich - Type HE (Heat Exchanger Gaskets) are used for heat exchangers where pass partition may be required. The outer portion is of standard spiral wound construction, whereas the rib partition is normally of single or double jacketed Type, which is securely fastened to the I.D. of the spiral wound portion.

GOODRICH TYPE HE-CGI

Goodrich - Type HE-CGI With Spiral Wound Gasket is a version of the type CGI spiral wound Gasket, designed for use in TEMA type heat exchanger flange systems. The conventional spiral wound construction additionally supports an outer wound steel nose, which is designed for precise Gasket positioning, in addition to an inner ring. It can also be ordered with a solid metal exterior.

Heat Exchange Gasket Configuration



Tolerances

Gasket Outside Diameter	Inside Diameter Tolerance	Outside Diameter Tolerance
Up to 36"	+1/16"/-0	+0/-1/16"
36" and above	+1/8"/-0	+0/-1/8"

Thickness: ±0.8mm **Rib Width:** ±0.4mm

GENERAL SPECIFICATION

SPW WOUND GASKET

- Goodrich Spiral-wound gaskets shall be constructed as alternate plies (circular layers counted as revolutions) of preformed metal windings and pliant fillers that are spirally wound. The metal strip in the winding shall be 0.15-mm (0.006-in.) to 0.23-mm (0.009-in.) thick. The filler material thickness shall be determined by the manufacturer.
- The inner windings shall have a minimum of three plies of the preformed metal strip without filler. The initial two plies shall have spot welds spaced 2 around the inner circumference.
- The minimum number of welds shall be three and the maximum distance between welds shall be 76 mm (3.0 in.). The outer windings, which shall have a minimum of three plies of preformed metal without filler, shall be spot-welded circumferentially with a minimum of three welds, the last of which shall be the terminal weld. The distance of the first weld from the terminal weld shall be no greater than 38 mm (1.5 in.). Up to four additional loose preformed metal windings beyond the terminal weld may be used to retain the gasket into the centering ring.
- All spiral-wound gaskets shall be furnished assembled into a centering ring. The centering ring thickness shall be from 2.97 mm (0.117 in.) to 3.33 mm (0.131 in.) and suitably grooved on the inside diameter to retain the gasket.

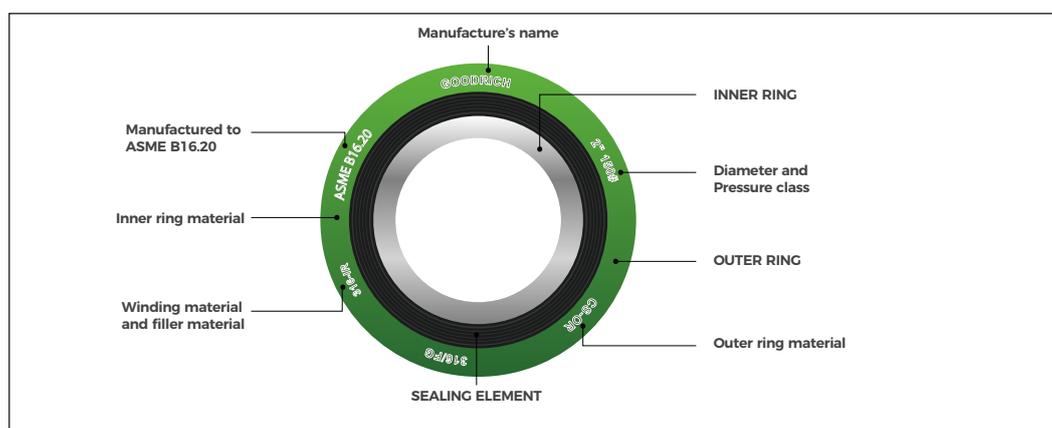
For all filler materials, inner rings shall be furnished in spiral-wound gaskets for

- NPS 24 and larger in Class 900
- NPS 12 and larger in Class 1500
- NPS 4 and larger in Class 2500

Inner rings are required for these gaskets due to high available bolt loads, which may result in outer ring damage. The inner ring thickness shall be from 2.97 mm to 3.33 mm (0.117 in. to 0.131 in.). Gaskets with inner rings should be used only with socket welding, lapped, welding neck, and integral flanges.

Spiral-wound gaskets NPS 1/2, NPS 3/4, and NPS 1 in Classes 150, 300, and 600 shall be designed so that uniform bolt stress of 172 MPa (25,000 psi), based on the nominal bolt root diameter, will compress the gasket to a thickness of 3.30 mm \pm 0.13 mm (0.130 in. \pm 0.005 in.). All other gasket sizes and classes shall be designed so that uniform bolt stress of 207 MPa (30,000 psi) will compress the gasket to a thickness of 3.30 mm \pm 0.13 mm (0.130 in. \pm 0.005 in.).

SPW IDENTIFICATION REQUIREMENTS



GOODRICH SPIRAL WOUND GASKET

TEMPERATURE LIMITS AND COLOR CODES FOR SPIRAL WOUND GASKETS

The gaskets are color-coded for easy identification based on ASME B16.20 and flange according to ASME B16.47 series A and B. The table below shows the operating temperatures with the gasket color codings.

MATERIAL OPERATING TEMPERATURE WITH COLOR CODES			
Gasket Material	Identification	Color coding	Temperature Range
	ASME B16.20	ASME B16.20	Minimum °F(°C) / Maximum °F(°C)
Carbon Steel	CRS	Silver	- 25/+500
SS304(L)	304	Yellow	- 200/+550
SS316(L)	316(L)	Green	- 100/+550
SS321	321	Turquoise	-200/+550
SS347	347	Blue	-200/+550
Nickel 200	NI200	Red	-100/+450
Nickel 201	NI201	Red	-100/+550
Monel® / Alloy 400	MON	Orange	-50/+600
Inconel® / Alloy 600	INC600	Gold	-100/+650
Inconel® / Alloy 625	INC625	Gold	-100/+800
Inconel® / Alloy X-750	INX	No colour	-100/+700
Incoloy® / Alloy 800	IN800	White	-100/+850
Incoloy® / Alloy 825	IN825	White	-200/+800
Hasteloy® / Alloy B2	HAST B	Brown	-100/+500
Hasteloy® / Alloy C276	HAST C	Beige	-100/+600
Titanium	TI	Purple	-100/+350
SOFT FILLER MATERIALS			
Graphite	FG	Gray stripe	- 250/ + 550
PTFE (Teflon®)	PTFE	White stripe	-240/+260
Ceramic	CER	Light green stripe	- 50/+1000
Vermiculite	-	Light Blue Stripe	- 50/+900

* other materials Available on request

Ordering Information

WHEN ORDERING PLEASE SPECIFY	EXAMPLE
Gasket style	Goodrich Type " CGI Spiral Wound Gasket
Nominal pipe size (NPS)	2"
Pressure rating	Class 300
Gasket standard	ASME B16.20
Winding materials	316/FG
Outer ring material	Carbon Steel
Inner ring material	316

* For Non-Standard gasket provide dimensions, drawings and MOC details

Gasket Thickness

INITIAL GASKET THICKNESS mm	RECOMMENDED COMPRESSED THICKNESS mm
1.6	1.3/ 1.4
2.5	1.9 / 2.0
3.2	2.3/ 2.5
4.5	3.2/ 3.4
6.4	4.6/ 5.1
7.2	5.1/ 5.6

* other thickness Available on request

TYPE ACCEPTANCE TEST SPIRAL WOUND GASKET

The Type Acceptance Test (TAT) is performed to verify the design, performance and technical integrity of the gaskets and manufacturing plant. The design of the gaskets shall meet the applicable international design standard as amended and supplemented by the applicable MESC SPE requirements

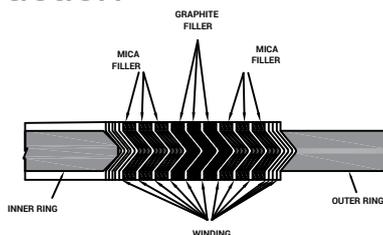
Goodrich Gasket Private Limited : Spiral Wound Gasket Designed to: MESC SPE 85/300 (February 2017) MESC SPE 85/203 (February 2017) MESC SPE 85/103 (February 2017)			Type Acceptance Testing in accordance to Shell MESC SPE 85/300 (February 2017), Carried out by Goodrich gasket testing Laboratories in period February 2018; with witness testing carried out by M/S. Lloyd's Register Asia during period February 2018 & Date : 24.02.2018		
Types Of Test	Clause No:	Description	Test method/ Specification	Result	Pass/ Na
Visual Examination	3.3.1	Visual Inspection	Visual Checking	No Significant Marks	Pass
Fugitive Emission	3.3.2	Leakage test at ambient & design temperature	Helium at a constant system pressure 600 PSI &	2.6×10^{-13} Pa.m ³ /S/mm, Emission levels significantly	Pass
Room Temperature Operation	3.3.4	Compression test at ambient temperature Compression test at 450° C Relaxation test at Ambient	EN 13555/ Gasket Characteristic Properties	Qs Max 160 MPa Qs Max 160 MPa PQR 1.00at 75 MPa PQR 1.00 at 75 MPa QSMIN (0.00001) 20 MPa	NA
High Temperature Operation	3.3.5	1. Temperature raised from ambient to 450°C at a rate of 100°C/hr 2. Increase Test pressure 600 Psi @ 450°C Hold for 01 hour 3. Decrease test temperature To ambient Temperature	<14.5 Psi	No detrimental effect on sealability observed during thermal cycling	Pass
Gasket Adhesion	3.3.13	Maximum adhesion force of 200 Lb applied @ ambient temp.	ASTM F 607	No tearing Pickoff of	Pass

FIRE RESISTANCE GASKET

Advantages

- Outstanding fire resistance
- Combination of graphite filler and mica layers give superior fire safety

Construction



BEFORE TEST

AFTER TEST

Specifications

- Temperature, max : 1562°F (850°C)
- Flange Class : 150 to 600 lb.
- Pipe diameters : 2" to 24" ; specials available

WARNING:

Properties/applications shown throughout this brochure are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. For specific application recommendations consult Goodrich. Failure to select the proper sealing products could result in property damage and/or serious personal injury.

Performance data published in this brochure has been developed from field testing, customer field reports and/or in-house testing.

While the utmost care has been used in compiling this brochure, we assume no responsibility for errors. Specifications subject to change without notice. This edition cancels all previous issues. Subject to change without prior notice.

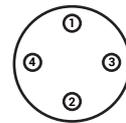
GOODRICH SPIRAL WOUND GASKET

Gasket Installation

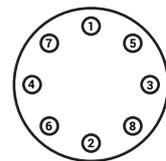
In a flanged connection, all components must be correct to achieve a seal. The most common cause of leaky gasketed joints is improper installation of gaskets

Bolting Procedures

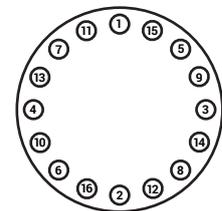
- Place the gasket on the flange surface to be sealed.
- Bring the opposing flange into contact with the gasket.
- Bolts must be new or in as-new condition. Clean the threads and lubricate them with a quality lubricant, such as an oil and graphite mixture.
- Place the bolts into the bolt holes.
- Finger-tighten the nuts.
- Follow the bolting sequence in the diagrams above.
- During the initial tightening sequence, do not tighten any bolts more than 30% of the recommended bolt stress. Doing so will cause cocking of the flange and the gasket will be crushed.
- Upon reaching the recommended torque requirements, do a circular bolt-to-bolt torque check to make certain that the bolts have been stressed evenly.
- Due to creep and stress relaxation, it is essential to prestress the bolts to ensure adequate stress load during operation.



4 - BOLT FLANGE



8 - BOLT FLANGE



16 - BOLT FLANGE

TORQUE TABLES

These tables were developed to be used with spiral wound gaskets. They are to be used only as a general guide. They should not be considered to contain absolute values due to the large number of uncontrollable variables involved with bolted joints.

All bolt torque values are based upon the use of new nuts (ASTM A194, GR 2H) and new bolts (ASTM A193, GR B7) of proper design, acceptable quality and approved materials of construction as well as metallurgy. It is also required that two hardened steel washers be used under the head of each nut and that a thread lubricant (i.e. oil and graphite) be used on the nuts, bolts and washers.

The flanges are assumed to be in good condition and in compliance with ASME B16.5 specifications. Special attention should be given to seating surface finish and flatness.

Only torque wrenches that have been calibrated should be used. The proper bolt tightening pattern must be followed with the desired ultimate torque value arrived at in a minimum of three equal increments. All bolts in the flange should then be checked in consecutive bolt-to-bolt order.

The contact dimensions listed are taken from the ID and OD of the windings, which are different from the ASME ring gasket dimensions.

No provisions have been made in these tables to account for vibration effects on the bolts. These tables are based on ambient conditions, without compensation for elevated temperatures.

Torque Table

SPIRAL WOUND

Spiral Wound Gasket CG

Nom. Pipe Size (inches)	No. of Bolts	Size of Bolts	150		300		400		600		900		1500		2500	
			Minimum Torque (ft.lbs)	Preferred Torque (ft.lbs)												
0.50	4	0.50	30	40	30	40	30	40	30	40	70	120	70	120	50	100
0.75	4	0.50	30	40	60	70	60	70	60	70	70	120	70	120	70	100
1	4	0.50	30	40	60	70	60	70	60	70	110	190	110	190	110	160
1.25	4	0.50	30	40	60	70	60	70	60	70	110	190	135	190	210	250
1.5	4	0.50	30	60	100	120	100	120	100	120	170	290	200	290	310	360
2	4	0.63	60	90	60	70	60	70	60	70	110	190	130	190	220	250
2.5	4	0.63	60	110	100	120	100	120	100	120	170	290	190	290	300	360
3	4	0.63	90	120	100	120	100	120	100	120	140	230	265	360	460	500
4	8	0.63	70	120	100	140	160	200	190	240	255	420	415	520		
5	8	0.75	100	160	110	160	210	260	280	360	360	600	585	800		
6	8	0.75	130	200	110	160	190	240	260	330	300	500	530	680		
8	8	0.75	180	200	180	260	310	400	400	510	485	800	845	1100		
10	12	0.88	170	320	250	290	340	440	500	590	505	800	1565	2000		
12	12	0.88	240	320	360	420	510	640	500	610	570	850				
14	12	1.00	300	490	360	420	500	890	680	800	630	940				
16	16	1.00	310	490	500	590	680	800	800	940	910	1290	Not Applicable Use CGI			
18	16	1.13	500	710	500	680	680	810	1100	1290	1570	2340				
20	20	1.13	430	710	500	740	800	940	1100	1290	1745	2570				
24	20	1.25	620	1000	800	1030	1500	1750	2000	2340						

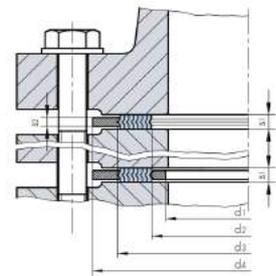
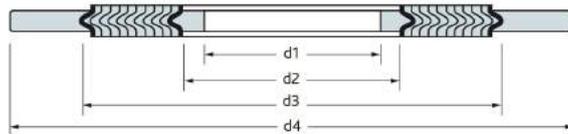
Spiral Wound Gasket CGI

Nom. Pipe Size (inches)	No. of Bolts	Size of Bolts	150		300		400		600		900		1500		2500	
			Minimum Torque (ft.lbs)	Preferred Torque (ft.lbs)												
0.50	4	0.50	30	50	30	40	30	40	30	40	70	120	70	120	50	100
0.75	4	0.50	30	50	60	80	60	80	60	80	70	120	70	120	63	100
1	4	0.50	30	60	60	80	60	80	60	80	110	190	110	190	110	160
1.25	4	0.50	30	60	60	80	60	80	60	80	110	190	140	190	210	250
1.5	4	0.50	30	60	100	140	100	140	100	140	170	290	200	290	310	360
2	4	0.63	60	120	60	80	60	80	60	80	110	190	130	190	220	250
2.5	4	0.63	60	120	100	140	100	140	100	140	170	290	190	290	300	360
3	4	0.63	90	120	100	150	100	150	100	150	140	230	270	360	460	500
4	8	0.63	70	120	100	200	160	320	190	320		420	420	520	710	800
5	8	0.75	100	200	110	200	210	320	280	490	360	600	590	800	1280	1500
6	8	0.75	130	200	110	200	190	320	260	460	300	500	530	680	1870	2200
8	8	0.75	180	200	180	320	310	490	400	700	485	800	850	1100	1780	2200
10	12	0.88	170	320	250	460	360	710	500	800	505	800	1570	2000	3040	4400
12	12	0.88	240	320	360	700	510	1000	500	850	560	850	1500	2200	4610	
14	12	1.00	300	490	360	610	500	870	680	950	630	940	2120	3180		
16	16	1.00	310	490	500	920	680	1250	800	1210	910	1290	2940	4400		
18	16	1.13	490	710	500	1000	680	1340	1100	1790	1570	2340	3950	5920		
20	20	1.13	430	710	500	1000	800	1430	1100	1640	1745	2570	5150	7720		
24	20	1.25	620	1000	800	1600	1500	2270	2000	2670	2945	5140	8340	12500		

Notes:

Torque values limit minimum and maximum gasket seating stresses based upon pressure class and certain operating conditions. (i.e: maximum pressure ratings for given pressure class, not hydrotest pressure). Extreme operating conditions such as high temperature may reduce bolt yield strength. Caution should be used in these applications. The above torque values are for general use only. For critical or extreme applications (high temperature/pressure) consult with Goodrich engineering department.

DIMENSIONAL CHART SPIRAL WOUND GASKET



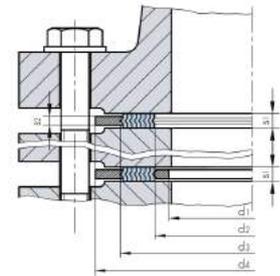
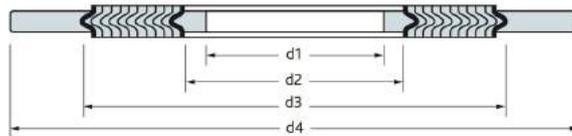
ASME B16.20

NOMINAL BORE	INNER RING ID						SEALING ELEMENT ID						SEALING ELEMENT OD						CENTERING RING OD									
	#150	#300	#400	#600	#900	#1500	#2500	#150	#300	#400	#600	#900	#1500	#2500	#150	#300	#400	#600	#900	#1500	#2500	#150	#300	#400	#600	#900	#1500	#2500
15	14.2	14.2	-	14.2	-	14.2	14.2	19.1	19.1	-	19.1	-	19.1	19.1	31.8	31.8	31.8	31.8	31.8	31.8	31.8	47.8	54.1	-	54.1	-	63.5	69.9
20	20.6	20.6	-	20.6	-	20.6	20.6	25.4	25.4	-	25.4	-	25.4	25.4	39.6	39.6	39.6	39.6	39.6	39.6	39.6	57.2	66.8	-	66.8	-	69.9	76.2
25	26.9	26.9	-	26.9	-	26.9	26.9	31.8	31.8	-	31.8	-	31.8	31.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	66.8	73.2	-	73.2	-	79.5	85.9
32	38.1	38.1	-	38.1	-	33.3	33.3	47.8	47.8	-	47.8	-	39.6	39.6	60.5	60.5	60.5	60.5	60.5	60.5	60.5	76.2	82.6	-	82.6	-	88.9	104.9
40	44.5	44.5	-	44.5	-	41.4	41.4	54.1	54.1	-	54.1	-	47.8	47.8	69.9	69.9	69.9	69.9	69.9	69.9	69.9	85.9	95.3	-	95.3	-	98.6	117.6
50	55.6	55.6	-	55.6	-	52.3	52.3	69.9	69.9	-	69.9	-	58.7	58.7	85.9	85.9	85.9	85.9	85.9	85.9	85.9	104.9	111.3	-	111.3	-	143	146.1
65	66.5	66.5	-	66.5	-	63.5	63.5	82.6	82.6	-	82.6	-	69.9	69.9	98.6	98.6	98.6	98.6	98.6	98.6	98.6	124	130.3	-	130.3	-	165.1	168.4
80	81	81	-	81	78.7	78.7	78.7	101.6	101.6	-	101.6	95.3	92.2	92.2	120.7	120.7	120.7	120.7	120.7	120.7	120.7	136.7	149.4	-	149.4	168.4	174.8	196.9
100	106.4	106.4	102.6	102.6	102.6	97.8	97.8	127	127	120.7	120.7	120.7	117.6	117.6	149.4	149.4	149.4	149.4	149.4	149.4	149.4	174.8	181.1	177.8	193.8	206.5	209.6	235
125	131.8	131.8	128.3	128.3	128.3	124.5	124.5	155.7	155.7	147.6	147.6	147.6	143	143	177.8	177.8	177.8	177.8	177.8	177.8	177.8	196.9	215.9	212.9	241.3	247.7	254	279.4
150	157.2	157.2	154.9	154.9	154.9	147.3	147.3	182.6	182.6	174.8	174.8	174.8	171.5	171.5	209.6	209.6	209.6	209.6	209.6	209.6	209.6	222.3	251	247.7	266.7	289.1	282.7	317.5
200	215.9	215.9	205.7	205.7	196.9	196.9	196.9	233.4	233.4	225.6	225.6	222.3	215.9	215.9	263.7	263.7	263.7	263.7	257.3	257.3	257.3	279.4	308.1	304.8	320.8	358.9	352.6	387.4
250	268.2	268.2	255.3	255.3	246.1	246.1	246.1	287.3	287.3	274.6	274.6	276.4	266.7	270	317.5	317.5	317.5	317.5	311.2	311.2	311.2	339.9	362	358.9	400.1	435.1	435.1	476.3
300	317.5	317.5	307.3	307.3	292.1	292.1	292.1	339.9	339.9	327.2	327.2	323.9	323.9	317.5	374.7	374.7	374.7	374.7	368.3	368.3	368.3	409.7	422.4	419.1	457.2	498.6	520.7	549.4
350	349.3	349.3	342.9	342.9	320.8	320.8	-	371.6	371.6	362	362	355.6	362	-	406.4	406.4	406.4	406.4	400.1	400.1	-	450.9	485.9	482.6	492.3	520.7	577.9	-
400	400.1	400.1	389.9	389.9	374.7	368.3	-	422.4	422.4	412.8	412.8	412.8	406.4	-	463.6	463.6	463.6	463.6	457.2	457.2	-	514.4	539.8	536.7	565.2	574.8	641.4	-
450	449.3	449.3	438.2	438.2	425.5	425.5	-	474.7	474.7	469.9	469.9	463.6	463.6	-	527.1	527.1	527.1	527.1	520.7	520.7	-	549.4	596.9	593.9	612.9	638.3	704.9	-
500	500.1	500.1	489	489	482.6	476.3	-	525.5	525.5	520.7	520.7	520.7	514.4	-	577.9	577.9	577.9	577.9	571.5	571.5	-	606.6	654.1	647.7	682.8	698.5	755.7	-
600	603.3	603.3t	590.6	590.6	590.6	577.9	-	628.7	628.7	628.7	628.7	628.7	616	-	685.8	685.8	685.8	685.8	679.5	679.5	-	717.6	774.7	768.4	790.7	838.2	901.7	-

NOTES

1. Unless otherwise indicated, dimensions are in millimeters.
2. Image shows a Spiral Wound gasket with Inner - and Outer ring.
3. d1 = Inside diameter when Inner ring is used.
4. d2 = Inside diameter sealing element when no Inner ring is used.
5. d3 = Outside diameter of sealing element.
6. d4 = Outside diameter of Outer ring.
7. Thickness of inner and outer ring.. 2.97 mm - 3.33 mm.
8. Thickness sealing element.. 4.45 mm.
9. Tolerance Outside diameter for NPS 1/2 through NPS 8 is ± 0.8 mm; for NPS 10 trough NPS 24 tolerance is + 1.5 mm - 0.8 mm.
10. ASME B16.20 does not cover class 400 flanges up to NPS 3 and class 900 flanges up to NPS 2.1/2.
11. There are no class 400 flanges NPS 1/2 thru NPS 3 (use Class 600), class 900 flanges NPS 1/2 thru NPS 2.1/2 (use Class 1500), or class 2500 flanges NPS 14 or larger.

DIMENSIONAL CHART SPIRAL WOUND GASKET



ASME B16.47 SERIES A

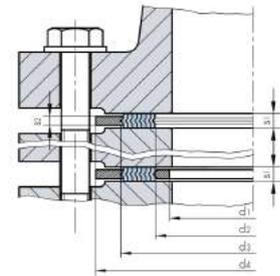
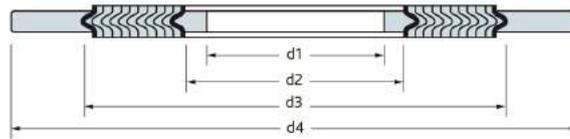
NOMINAL BORE	INNER RING ID					SEALING ELEMENT ID					SEALING ELEMENT OD					CENTERING RING OD				
	#150	#300	#400	#600	#900	#150	#300	#400	#600	#900	#150	#300	#400	#600	#900	#150	#300	#400	#600	#900
650	654.1	654.1	660.4	647.7	660.4	673.1	685.8	685.8	685.8	685.8	704.9	736.6	736.6	736.6	736.6	774.7	835.2	831.9	866.9	882.7
700	704.9	704.9	711.2	698.5	711.2	723.9	736.6	736.6	736.6	736.6	755.7	787.4	787.4	787.4	787.4	831.9	898.7	892.3	914.4	946.2
750	755.7	755.7	755.7	755.7	768.4	774.7	793.8	793.8	793.8	793.8	806.5	844.6	844.6	844.6	844.6	882.7	952.5	946.2	971.6	1009.7
800	806.5	806.5	812.8	812.8	812.8	825.5	850.9	850.9	850.9	850.9	860.6	901.7	901.7	901.7	901.7	939.8	1006.6	1003.3	1022.4	1073.2
850	857.3	857.3	863.6	863.6	863.6	876.3	901.7	901.7	901.7	901.7	911.4	952.5	952.5	952.5	952.5	990.6	1057.4	1054.1	1073.2	1136.7
900	908.1	908.1	917.7	917.7	920.8	927.1	955.8	955.8	955.8	958.9	968.5	1006.6	1006.6	1006.6	1009.7	1047.8	1117.6	1117.6	1130.3	1200.2
950	958.9	952.5	952.5	952.5	1009.7	977.9	977.9	971.6	990.6	1035.1	1019.3	1016	1022.4	1041.4	1085.9	1111.3	1054.1	1073.2	1104.9	1200.2
1000	1009.7	1003.3	1000.3	1009.7	1060.5	1028.7	1022.4	1025.7	1047.8	1098.6	1070.1	1070.1	1076.5	1098.6	1149.4	1162.1	1114.6	1127.3	1155.7	1251
1050	1060.5	1054.1	1051.1	1066.8	1111.3	1079.5	1073.2	1076.5	1104.9	1149.4	1124	1120.9	1127.3	1155.7	1200.2	1219.2	1165.4	1178.1	1219.2	1301.8
1100	1111.3	1104.9	1104.9	1111.3	1155.7	1130.3	1130.3	1130.3	1162.1	1206.5	1178.1	1181.1	1181.1	1212.9	1257.3	1276.4	1219.2	1231.9	1270	1368.6
1150	1162.1	1152.7	1168.4	1162.1	1219.2	1181.1	1178.1	1193.8	1212.9	1270	1228.9	1228.9	1244.6	1263.7	1320.8	1327.2	1273.3	1289.1	1327.2	1435.1
1200	1212.9	1209.8	1206.5	1219.2	1270	1231.9	1235.2	1244.6	1270	1320.8	1279.7	1286	1295.4	1320.8	1371.6	1384.3	1324.1	1346.2	1390.7	1485.9
1250	1263.7	1244.6	1257.3	1270	-	1282.7	1295.4	1295.4	1320.8	-	1333.5	1346.2	1346.2	1371.6	-	1435.1	1378	1403.4	1447.8	-
1300	1314.5	1320.8	1308.1	1320.8	-	1333.5	1346.2	1346.2	1371.6	-	1384.3	1397	1397	1422.4	-	1492.3	1428.8	1454.2	1498.6	-
1350	1358.9	1352.6	1352.6	1378	-	1384.3	1403.4	1403.4	1428.8	-	1435.1	1454.2	1454.2	1479.6	-	1549.4	1492.3	1517.7	1555.8	-
1400	1409.7	1403.4	1403.4	1428.8	-	1435.1	1454.2	1454.2	1479.6	-	1485.9	1505	1505	1530.4	-	1606.6	1543.1	1568.5	1612.9	-
1450	1460.5	1447.8	1454.2	1473.2	-	1485.9	1511.3	1505	1536.7	-	1536.7	1562.1	1555.8	1587.5	-	1663.7	1593.9	1619.3	1663.7	-
1500	1511.3	1524	1517.7	1530.4	-	1536.7	1562.1	1568.5	1593.9	-	1587.5	1612.9	1619.3	1644.7	-	1714.5	1644.7	1682.8	1733.6	-

NOTES

1. Unless otherwise indicated, dimensions are in millimeters.
2. Image shows a Spiral Wound gasket with Inner - and Outer ring.
3. d1 = Inside diameter when Inner ring is used.
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5. d3 = Outside diameter of sealing element.
6. d4 = Outside diameter of Outer ring.
7. Thickness of inner and outer ring.. 2.97 mm - 3.33 mm.
8. Thickness sealing element.. 4.45 mm.
9. Tolerance Outside diameter for NPS 1/2 through NPS 8 is ± 0.8 mm; for NPS 10 through NPS 24 tolerance is + 1.5 mm - 0.8 mm.
10. ASME B16.20 does not covers class 400 flanges up to NPS 3 and class 900 flanges up to NPS 2.1/2.
11. There are no class 400 flanges NPS 1/2 thru NPS 3 (use Class 600), class 900 flanges NPS 1/2 thru NPS 2.1/2 (use Class 1500), or class 2500 flanges NPS 14 or larger.

DIMENSIONAL CHART

SPIRAL WOUND GASKET



ASME B16.47 SERIES B

NOMINAL BORE	INNER RING ID - d1					SEALING ELEMENT ID - d2					SEALING ELEMENT OD - d3					CENTERING RING OD - d4				
	#150	#300	#400	#600	#900	#150	#300	#400	#600	#900	#150	#300	#400	#600	#900	#150	#300	#400	#600	#900
650	654.1	654.1	654.1	644.7	666.8	673.1	673.1	666.8	663.7	692.2	698.5	711.2	698.5	714.5	749.3	725.4	771.7	746.3	765.3	838.2
700	704.9	704.9	701.8	685.8	717.6	723.9	723.9	714.5	704.9	743	749.3	762	749.3	755.7	800.1	776.2	825.5	800.1	819.2	901.7
750	755.7	755.7	752.6	752.6	781.1	774.7	774.7	765.3	778	806.5	800.1	812.8	806.5	828.8	857.3	827	886	857.3	879.6	958.9
800	806.5	806.5	800.1	793.8	838.2	825.5	825.5	812.8	831.9	863.6	850.9	863.6	860.6	882.7	914.4	881.1	939.8	911.4	933.5	1016
850	857.3	857.3	850.9	850.9	895.4	876.3	876.3	866.9	889	920.8	908.1	914.4	911.4	939.8	971.6	935	993.9	962.2	997	1073.2
900	908.1	908.1	898.7	901.7	920.8	927.1	927.1	917.7	939.8	946.2	958.9	965.2	965.2	990.6	997	987.6	1047.8	1022.4	1047.8	1124
950	958.9	971.6	952.5	952.5	1009.7	974.9	1009.7	971.6	990.6	1035.1	1009.7	1047.8	1022.4	1041.4	1085.9	1044.7	1098.6	1073.2	1104.9	1200.2
1000	1009.7	1022.4	1000.3	1009.7	1060.5	1022.4	1060.5	1025.7	1047.8	1098.6	1063.8	1098.6	1076.5	1098.6	1149.4	1095.5	1149.4	1127.3	1155.7	1251
1050	1060.5	1085.9	1051.1	1066.8	1111.3	1079.5	1111.3	1076.5	1104.9	1149.4	1114.6	1149.4	1127.3	1155.7	1200.2	1146.3	1200.2	1178.1	1219.2	1301.8
1100	1111.3	1124	1104.9	1111.3	1155.7	1124	1162.1	1130.3	1162.1	1206.5	1165.4	1200.2	1181.1	1212.9	1257.3	1197.1	1251	1231.9	1270	1368.6
1150	1162.1	1178.1	1168.4	1162.1	1219.2	1181.1	1216.2	1193.8	1212.9	1270	1224	1254.3	1244.6	1263.7	1320.8	1255.8	1317.8	1289.1	1327.2	1435.1
1200	1212.9	1231.9	1206.5	1219.2	1270	1231.9	1263.7	1244.6	1270	1320.8	1270	1311.4	1295.4	1320.8	1371.6	1306.6	1368.6	1346.2	1390.7	1485.9
1250	1263.7	1267	1257.3	1270	-	1282.7	1317.8	1295.4	1320.8	-	1325.6	1355.9	1346.2	1371.6	-	1357.4	1419.4	1403.4	1447.8	-
1300	1314.5	1317.8	1308.1	1320.8	-	1333.5	1368.6	1346.2	1371.6	-	1376.4	1406.7	1397	1422.4	-	1408.2	1470.2	1454.2	1498.6	-
1350	1365.3	1365.3	1352.6	1378	-	1384.3	1403.4	1403.4	1428.8	-	1422.4	1454.2	1454.2	1479.6	-	1463.8	1530.4	1517.7	1555.8	-
1400	1422.4	1428.8	1403.4	1428.8	-	1444.8	1479.6	1454.2	1479.6	-	1478	1524	1505	1530.4	-	1514.6	1593.9	1568.5	1612.9	-
1450	1478	1484.4	1454.2	1473.2	-	1500.1	1535.2	1505	1536.7	-	1528.8	1573.3	1555.8	1587.5	-	1579.6	1655.8	1619.3	1663.7	-
1500	1535.2	1557.3	1517.7	1530.4	-	1557.3	1589	1568.5	1593.9	-	1586	1630.4	1619.3	1644.7	-	1630.4	1706.6	1682.8	1733.6	-

NOTES

1. Unless otherwise indicated dimensions are in millimeters.
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3. d1 = Inside diameter when Inner ring is used.
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8. Thickness sealing element.. 4.45 mm.
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11. There are no class 400 flanges NPS 1/2 thru NPS 3 (use Class 600), class 900 flanges NPS 1/2 thru NPS 2.1/2 (use Class 1500), or class 2500 flanges NPS 14 or larger.



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