



Associated Gaskets

Spiral Wound Gaskets



About AG

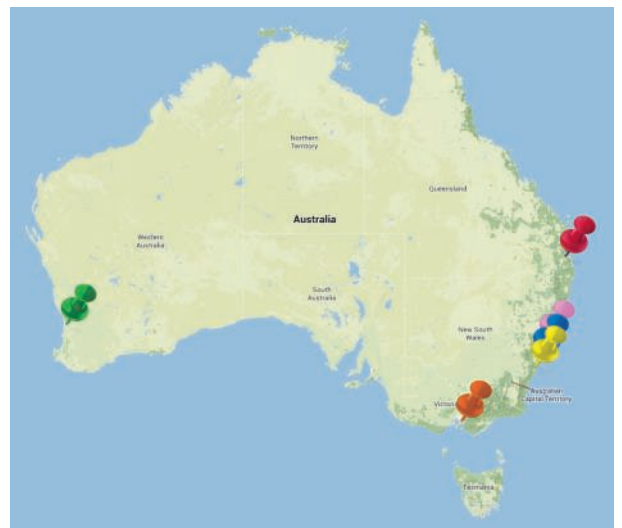
Associated Gaskets is a proudly Australian owned company that has been working since 1965 to provide our customers with the very best gaskets, seals, insulation and industrial solutions. Since our founding, we've been focused on coupling quality products with the very best service and this continues today. We combine huge stock holdings with comprehensive fabrication facilities so that we can deliver on the tightest schedules without compromise.

This brochure is focused on providing information on our huge range of spiral wound gaskets (SWGs). These semi-metallic gaskets have been trusted by industry for over 100 years and have been part of AG's range since our founding. Though new styles continue to be added for specialised applications, the old design continues to be used as its proven to be hard to beat the original spiral wound gasket on performance, reliability and economy. While we have made every attempt to ensure the information in this booklet is as accurate as possible, new standard updates continue to be issued and we therefore cannot warrant these figures.

We hope you find this brochure useful. If you would like more information on any gasket listed here, or any other product in our comprehensive range of gaskets, seals, thermal and electrical insulation, adhesives, sealants, technical sprays, technical liquids, safety products or industrial tapes, please don't hesitate to contact your local Associated Gaskets branch. We'll do whatever we can to assist.

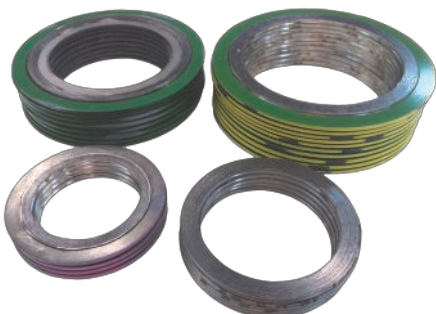
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Description	Page
Spiral Wound Gaskets Information	3
Available Styles of Spiral Wound Gaskets	4-6
Dimensions for Style W to suit Large Male and Female Joints	7
Style W Spiral Wound Gasket Tolerances	8
Dimensions for Style W to suit Large and Small Tongue and Groove Joints	8
Double Colour Coding for Spiral Wound Gaskets as per ASME B16.20	9
Limitations on Size and Thickness for Spiral Wound Gaskets	9
Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges	10-16
Spiral Wound Gasket Style WR and WRI Tolerances as per ASME B16.20 Specifications	17
Marking for Standard Spiral Wound Gaskets	17
Table for Minimum Pipe Wall Thickness that is suitable for use with Standard Inner Rings as per ASME B16.20	18
Table for Limitations on the Maximum ASME B16.5 Flange Bore for use with Standard ASME B16.20 Spiral Wound Gaskets	19
Dimensions for Style WR and WRI to suit AWWA C207 Class E Slip-On and Weld Neck Flanges	21-22
Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series A or MSS-SP-44 Flanges	23- 27
Tolerances for Large Spiral Wound Gaskets as per ASME B16.20 to be used with ASME B16.47 Series A Flanges	23- 27
Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series B or API-605 Flanges	28-32
Tolerances for Large Spiral Wound Gaskets as per ASME B16.20 to be used with ASME B16.47 Series B Flanges	28-32
Dimensions for Style WR and WRI to suit ASME/ANSI B16.5 and Slip-On Flanges	33-34
Dimensions for Style WR and WRI to suit Type A and B Flanges as per EN 1514-2	35
Dimensions for Style WR to suit British Standard BS 10 Weld Neck and Slip-On Flanges	36-38
Dimensions for Style WR and WRI as per British BS 3381 to suit BS 1560 and ASME/ANSI B16.5 Flanges	39-44
Dimensions for Style WR to suit French Standard NF-M-87621	45-46
Dimensions for Style WR to suit Japanese (JIS) Flanges	47-51
Dimensions for Style WR-RJ and WRI-RJ to suit Raised Face to RTJ Flanges	53-58

Spiral Wound Gaskets Information

Spiral Wound Gaskets (SWG) have been used for nearly 100 years due to their ability to seal high pressure flanges reliably and cost effectively. Over the years, the variety of styles, materials and constructions available has expanded so that today there's a spiral wound gasket designed to suit almost any sealing application. Since our founding in 1965, Associated Gaskets has been offering and supplying SWG and can now offer the benefit of our decades of experience to ensure you get the exact gasket you need for your environment.

Spiral Wound Gaskets can be manufactured from almost any metal that is both able to be welded and available in thin, strip form. This means that SWGs can be produced to withstand almost any corrosive medium or temperatures that range from cryogenic to approximately 1093°C (2000°F). SWGs can be used to seal pressures that range from vacuum through to standard 2500 pound pressure class flange ratings. They can also be produced in a variety of densities so that you can use a low density spiral for vacuum sealing or a high density gasket (with a seating stress of up to 207 MPa) for extremely demanding, high pressure applications.



Variable Density

Spiral Wound Gaskets are manufactured from alternate plies of preformed metal and a soft non-metallic filler. The metal strip is formed into a chevron configuration which allow superior resiliency and self-adjustment when compared with conventional gaskets. During the winding process, the alternating plies are maintained under pressure. Varying the pressure and/or the thickness of the filler material allows you to adjust the density of the resulting gasket. As a general rule, low winding pressure and thick fillers are used for low bolt load applications. SWGs with thin fillers and high pressure loads are used for high pressure, high bolt load sealing. This leads to the need for higher bolts loads to be applied to the gasket for high pressure applications.

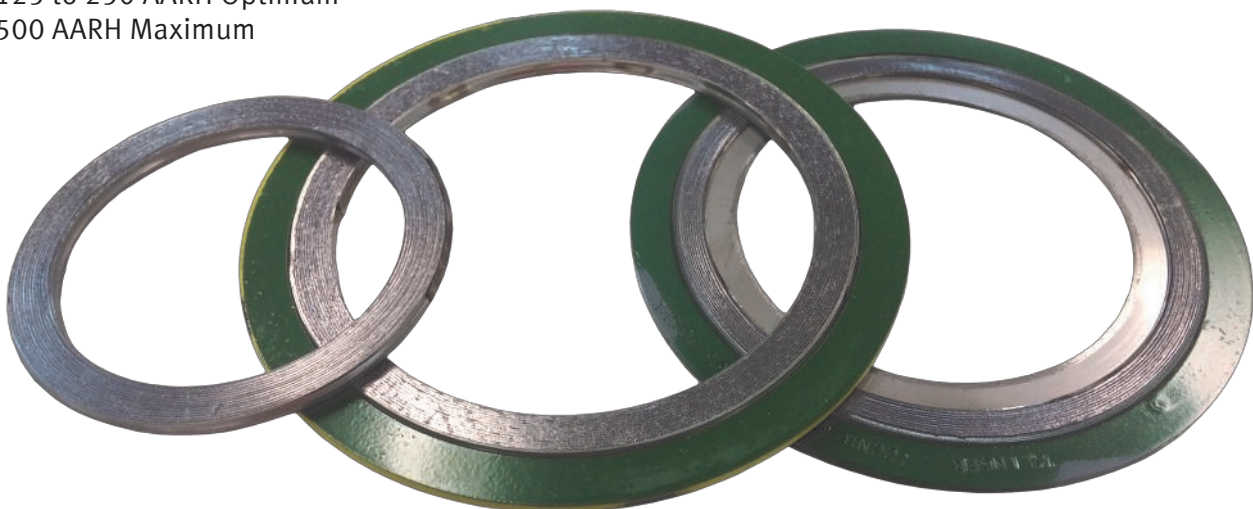
Available Sizes and Thicknesses

Associated Gaskets can provide spiral wound gaskets in nominal thicknesses of 1.6mm, 2.5mm, 3.2mm, 4.5mm, 6.4mm and 7.2mm. Please note this refers to the thickness of the windings and the filler, not any inner or outer ring that may be present. Of these, 4.5mm is by far the most common and is made using 0.18mm metal as standard. The table on page 9 provides information on the size range that each thickness can normally be produced in, the suggested compressed thickness of each and the maximum flange width.

Flange Surface Finish

Use of a SWG gives both the engineer and the user a wide tolerance for flange surface finishes that many other styles of metallic gaskets are unable to match. While they can be used with most commercially available flange surface finishes, experience has indicated that the appropriate flange surface finishes for spirals are:

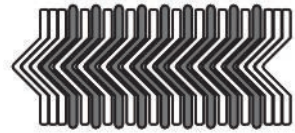
- 125 to 250 AARH Optimum
- 500 AARH Maximum



Available Styles of Spiral Wound Gaskets

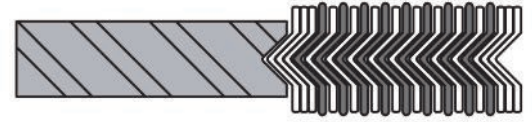
Style W

Style W Spiral Wound Gaskets are comprised of just the metallic windings and the soft, non-metallic filler. These can be produced in a wide range of sizes, shapes and thicknesses as well as variable densities to suit a variety of sealing requirements.



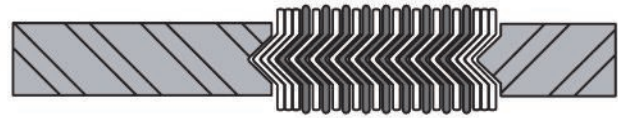
Style WR

Style WR SWGs consist of a spiral wound sealing component (basically Style W) with an added solid metal outer ring. The outer ring (or centring ring/guide ring as it is sometimes known) serves to centre the gasket on the flange, acts as an anti-blowout device, provides radial support for the spiral wound component and acts as a compression stop to prevent the windings and the filler from being crushed. Normally, the outer rings are manufactured from mild steel or stainless steel but can be produced from other metals when required.



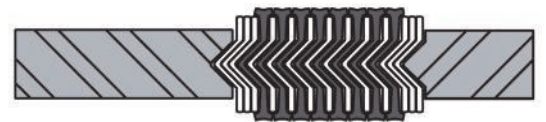
Style WRI

Style WRI gaskets are identical to Style WR except for the fact that WRI's feature an additional solid steel inner ring. Like the outer ring present on these and the WR, the inner ring on style WRI serves a number of purposes. These include providing radial support on the ID of the gasket to help prevent buckling or imploding whilst also serving as an additional compression limiter. The ID of a standard sized Style WRI SWG is normally slightly larger than the ID of the flange bore, minimising turbulence in process flow. Inner rings are normally supplied in the same material as the metallic windings.



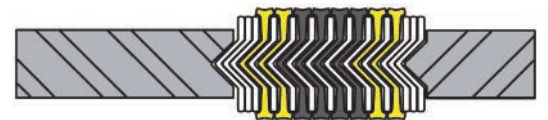
Style WRI-LC

Style WRI-LC gaskets are almost identical to our Style WRIs but provide a seal at relatively lower seating stress. This means that this design requires less bolt load to seat, yet still has the recovery of a standard spiral wound gasket. Style WRI-LC SWGs are typically made to suit Class 150 or Class 300 flanges where users are concerned about insufficient bolt loading. That said, WRI-LC can be produced in different densities so that they meet virtually any requirements. WRI-LC gaskets are produced using specially made machinery with electronic controls that ensure high quality welding precision with equal spacing, the correct number of plies on the gasket inside periphery, proper ratio of metal to filler, proper number of metal plies on the outside and spot welds on the start and finish of the windings.



Style WRI-HTG

Style WRI-HTG spiral wound gaskets combine the corrosion resistance of mica with the outstanding sealability offered by flexible graphite. The use of mica, in conjunction with the metal spiral windings, creates a barrier between any oxidising process conditions and/or external air and the graphite. While Inconel® X-750 is commonly used as the winding material on Style WRI-HTG gaskets, any alloy can be selected. The overall effective rating of the HTG configuration allows use in application up to 815°C (1500°F) though higher temperatures can also be tolerated when the gasket is designed in consultation with Associated Gaskets.

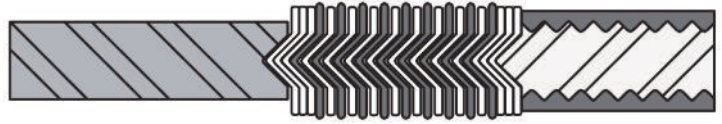


Available Styles of Spiral Wound Gaskets

Style WRI-LP

Style WRI-LP gaskets are a special type of SWG designed for sealing in highly corrosive environments.

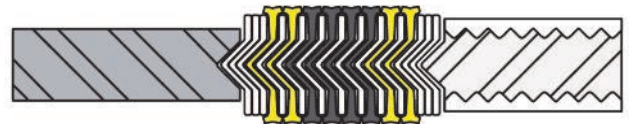
This type features a conventional outer ring and a “Kammpro” style LPI inner ring. This dual sealing design engages the raised face completely from the OD to the bore. The windings for Style WRI-LP can be constructed with the exact proportions of metal and filler specified by the user while the “Kammpro” inner ring metal can be ordered in any alloy. If carbon steel is selected for the inner ring, it can be given a protective PTFE coating for increased chemical resistance if the application requires. The “Kammpro” style inner ring is typically faced with 0.5mm expanded PTFE or graphite. Style WRI-LP gaskets have been granted widespread approval for Hydrofluoric Acid (HF) service, although this design can be used for sealing a whole variety of aggressive media. WRI-LP gaskets are available in a wide range of sizes and offer no metal contact with the media, excellent chemical resistance, a fire safe design and sizing to meet ASME B16.5 requirements (as well as custom sizing for specialised flanges).



Style Inhibitor

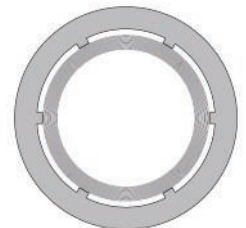
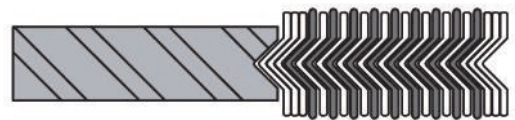
Inhibitor Spiral Wound Gaskets have been specially engineered to provide corrosion resistance in the most extreme conditions. This style combines a HTG filler

configuration with exceptionally high purity graphite and a “Kammpro” inner ring laminated with soft PTFE material. The design of Inhibitor style SWGs utilise the “Kammpro” inner ring to provide the primary sealing surface. The inner ring material and its covering layer are inert in terms of corrosion with dissimilar materials. This fire safe design incorporates the sealing integrity of high purity graphite in conjunction with mica on the ID and OD, preventing the entrance of further corrosive conditions to the media.



Style WR-AB

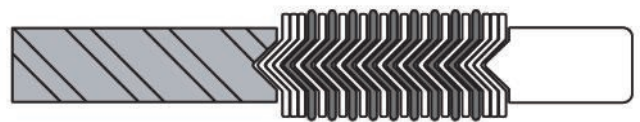
In some applications, inward buckling of a spiral wound gasket can be a concern. Usually, this concern is addressed through the selection of a Style WRI SWG (or more specialised variant) but this is not always an option due to cost or worries about bore intrusion. To provide another option, Style WR-AB spiral wound gaskets have been developed. By providing a space between the OD of the windings and the outer ring the potential for buckling to occur around the inside is reduced. This feature, combined with a reinforced inside circumference, helps to further minimise the likelihood of buckling of the spiral after installation.



Style WRI-HF

This style of SWG was developed especially for Hydrofluoric (HF) acid sealing applications. It consists of Monel® windings, PTFE filler, a carbon steel outer ring and a PTFE inner ring.

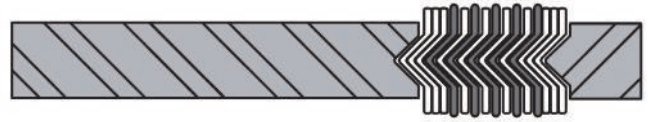
The carbon steel outer ring can be coated with a special HF acid detecting paint if desired to assist with fast identification of small leakages before they become something more damaging or hazardous. The PTFE inner ring on a Style WRI-HF reduces corrosion to the flanges between the bore of the pipe and the ID of the spiral wound sealing element.



Available Styles of Spiral Wound Gaskets

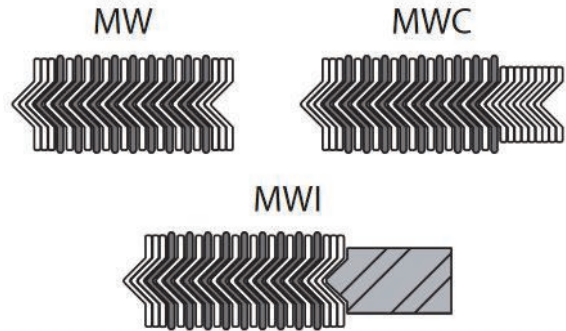
Style WRI-RJ

Style WRI-RJ gaskets are identical to Style WRI in construction but are specially sized to be used as replacement gaskets for flanges machined to accept oval or octagonal ring joint gaskets (RTJs). The sealing component is located between the ID of the groove machined in the flange and the flange bore. These are intended to be used as replacement parts or for hydro testing of the assembly without stressing the flange groove and are considered a maintenance item. In new installations, where spiral wound gaskets are intended to be used, raised face flanges should be specified.



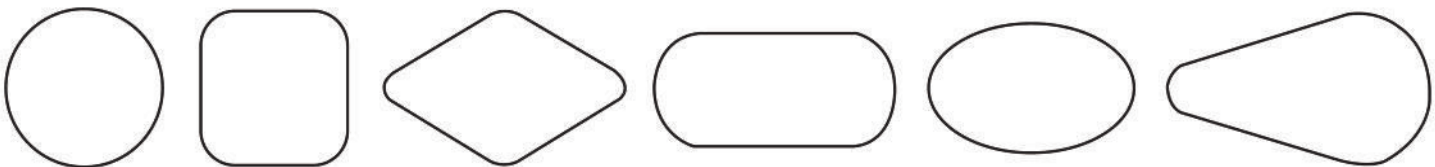
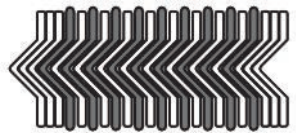
Style MW, MWC and MWI

These spiral wound gaskets are available in round, obround and oval shapes and are used for standard manhole cover plates. When spiral wound manhole gaskets with a straight side are required, it is necessary for there to be some curvature allowed due to the fact that spiral wound gaskets are wrapped under tension and therefore tend to buckle inwards when the gaskets are removed from the winding material. As a rule of thumb, the ratio of the long ID to the short ID should not exceed three to one.



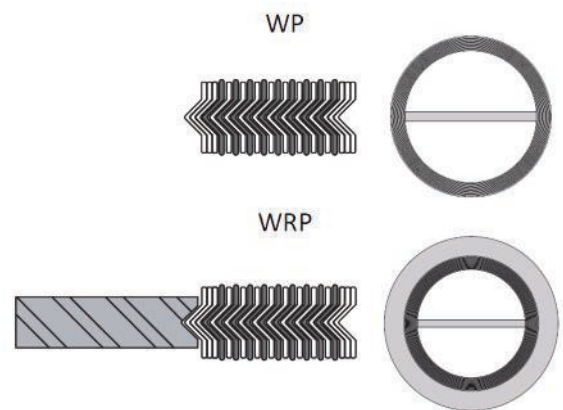
Style H

Style H SWGs are used on boiler hand hole and tube cap assemblies. These are available in round, square, rectangular, diamond, obround, oval and pear shapes. With decades of experience in producing gaskets to suit all kinds of equipment, AG has records of the sizing required for many common boiler makes and models, though custom sized Style H spirals can also be produced to suit your dimensioned drawing or sample cover plate.



Style WP and WRP

These gaskets are similar to Styles W and WR with the addition of a pass partition for use on shell and tube heat exchangers. Partitions are normally supplied in double-jacketed construction, made of the same material as the spiral wound component. The partition strips can be soft-soldered, tack welded or silver soldered to the spiral wound component. The double-jacketed partition strips are normally slightly thinner than the spiral wound component in order to maximise the bolt loading requirement needed to properly seat the gasket.



Style W Spiral Wound Gaskets

Style W Spiral Wound Gaskets consist of just windings and a flexible filler material with no inner or outer ring. These gaskets are available in a wide range of styles, different thicknesses and material combinations and are typically installed in the groove of confined groove type flanges.

When installed in confined groove type flanges, Style W Spiral Wound Gaskets are sized using the following formulas:

When confined on the Inside Diameter (ID) and Outside Diameter (OD) (Tongue and Groove):

Gasket ID = Groove ID + 1.5mm (1/16")

Gasket OD = Groove OD - 1.5mm (1/16")

When confined on the Outside Diameter (OD) (Male and Female):

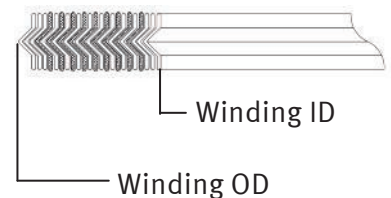
Gasket ID = Bore + 6.4mm Minimum (1/4")

Gasket OD = Recess OD - 1.5mm (1/16")



Dimensions for Style W to suit Large Male and Female Joints

Pipe Nominal Bore (NB)	Pressure Class					
	150,300,400,600		900,1500		2500	
	ID (mm)	OD (mm)	ID (mm)	OD (mm)	ID (mm)	OD (mm)
6	12.7	25.4	---	---	---	---
15	25.4	34.9	25.4	34.9	20.6	34.9
20	33.3	42.9	33.3	42.9	27	42.9
25	38.1	50.8	38.1	50.8	31.8	50.8
32	47.6	63.5	47.6	63.5	41.3	63.5
40	54	73	54	73	47.6	73
50	73	92.1	73	92.1	60.3	92.1
65	85.7	104.8	85.7	104.8	76.2	104.8
80	108	127	108	127	95.3	127
90	120.7	139.7	120.7	139.7	---	---
100	131.8	157.2	131.8	157.2	120.7	157.2
115	144.5	171.5	---	---	---	---
125	160.3	185.7	160.3	185.7	146.1	185.7
150	190.5	215.9	190.5	215.9	171.5	215.9
200	238.1	269.9	238.1	269.9	222.3	269.9
250	285.8	323.9	285.8	323.9	273.1	323.9
300	342.9	381	342.9	381	330.2	381
350	374.7	412.8	374.7	412.8		
400	431.8	469.9	431.8	469.9		
450	489	533.4	489	533.4		
500	533.4	584.2	533.4	584.2		
600	641.4	692.2	641.4	692.2		



Style W Spiral Wound Gasket Tolerances

Gasket Diameter	Inside Diameter	Outside Diameter
Up to 25.4mm	+1.2mm, 0.0mm	+0.0mm, -0.8mm
25.4mm to 610mm	+0.8mm, -0.0mm	+0.0mm, -0.8mm
610mm to 914mm	+1.6mm, -0.0mm	+0.0mm, -1.6mm
914mm to 1524mm	+1.6mm, -0.0mm	+0.0mm, -1.6mm
1524mm and above	+2.4mm, -0.0mm	+0.0mm, -2.4mm

Tolerance on thickness is +0.381mm, -0.00mm on special gaskets with:

- Less than 25.4mm ID or greater than 660.4mm ID.
- PTFE Fillers
- 25.4mm or larger flange width.

Otherwise, tolerance on thickness is +0.254mm, -0.00mm for most other sizes and materials.

Dimensions for Style W to suit Large and Small Tongue and Groove Joints

Large Tongue and Groove Joints

Pipe Nominal Bore (NB)	Pressure Class	
	150-2500*	
	ID (mm)	OD (mm)
15	25.4	34.9
20	33.3	42.9
25	38.1	50.8
32	47.6	63.5
40	54	73
50	73	92.1
65	85.7	104.8
80	108	127
90	120.7	139.7
100	131.8	157.2
125	160.3	185.7
150	190.5	215.9
200	238.1	269.9
250	285.8	323.9
300	342.9	381
350	374.7	412.8
400	425.5	469.9
450	489	533.4
500	533.4	584.2
600	641.4	692.2

Small Tongue and Groove Joints

Pipe Nominal Bore (NB)	Pressure Class	
	150-2500*	
	ID (mm)	OD (mm)
15	25.4	34.9
20	33.3	42.9
25	38.1	47.6
32	47.6	57.2
40	54	63.5
50	73	82.6
65	85.7	95.3
80	108	117.5
90	120.7	130.2
100	131.8	144.5
125	160.3	173
150	190.5	203.2
200	238.1	254
250	285.8	304.8
300	342.9	362
350	374.7	393.7
400	425.5	447.7
450	489	511.2
500	533.4	558.8
600	641.4	666.8

*2500# Pressure Class Only Up To 300NB Pipe

Double Colour Coding for Spiral Wound Gaskets as per ASME B16.20

Metallic Windings

Non-Metallic Fillers

304 SS	Yellow	Incoloy	White	PTFE	White Stripe
316L SS	Green	Titanium	Purple		
317L SS	Maroon	Alloy 20	Black	Ceramic	Light Green Stripe
347 SS	Blue	Carbon Steel	Silver		
321 SS	Turquoise	Hastelloy "B"	Brown	Flexible Graphite	Grey Stripe
Monel	Orange	Hastelloy "C"	Beige		
Inconel	Gold	Phos. Bronze	Copper	Phyllosilicate (HTG)	Light Blue Stripe
Nickel	Red				

Limitations on Size and Thickness for Spiral Wound Gaskets

Gasket Thickness		Maximum Inside Diameter*		Maximum Flange Width*		Suggested Compressed Thickness	
mm	Inches	mm	Inches	mm	Inches	mm	Inches
1.59	0.063	229	9	9.53	0.375	1.27 / 1.39	0.050 / 0.055
2.54	0.100	305	12	12.7	0.50	1.91 / 2.03	0.075 / 0.080
3.18	0.125	1016	40	19.05	0.75	2.29 / 2.54	0.090 / 0.100
4.45	0.175	1905	75	25.40	1.00	3.18 / 3.43	0.125 / 0.135
6.35	0.250	4064	160	31.75	1.25	4.57 / 5.08	0.180 / 0.200
7.24	0.285	4064	160	31.75	1.25	5.08 / 5.59	0.200 / 0.220

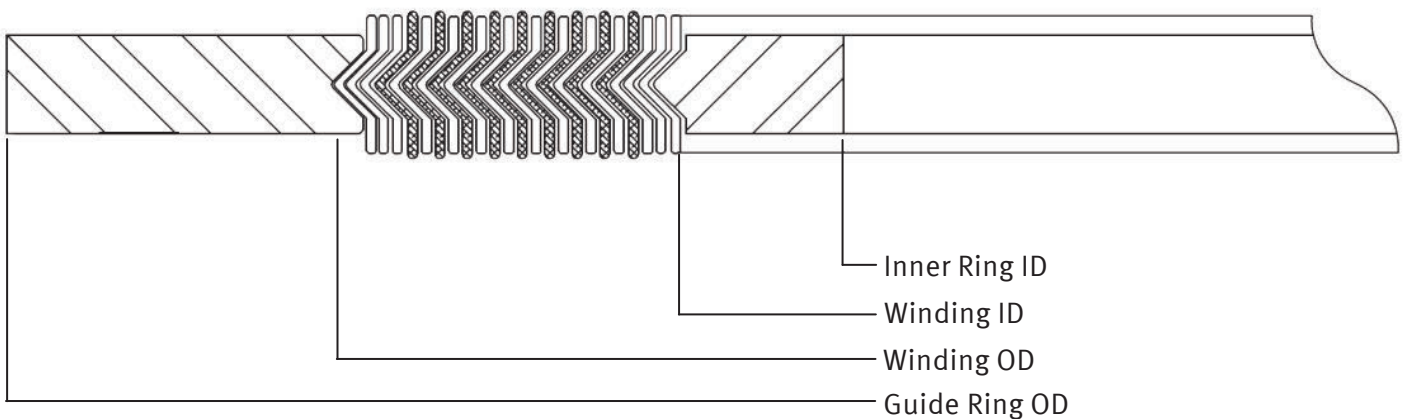
*These limitations are intended as a general guide only. Material used in the construction and the flange width of the gasket can affect the limitations presented.

Though not a limiting factor in production, it is also worth noting that packaging and transportation need to be considered for very large spiral wound gaskets.

Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 150			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	-	12.7	22.2	44.5
15	14.2	19.1	31.8	47.6
20	20.6	25.4	39.7	57.2
25	26.9	31.8	47.6	66.7
32	38.1	47.6	60.3	76.2
40	44.5	54	69.9	85.7
50	55.6	69.9	85.7	104.8
65	66.5	82.6	98.4	123.8
80	81	101.6	120.7	136.5
90*	88.9	114.3	133.4	161.9
100	106.4	127	149.2	174.6
125	131.8	155.6	177.8	196.9
150	157.2	182.6	209.6	222.3
200	215.9	233.4	263.5	279.4
250	268.2	287.3	317.5	339.7
300	317.5	339.7	374.7	409.6
350	349.3	371.5	406.4	450.9
400	400.1	422.3	463.6	514.4
450	449.3	474.7	527.1	549.3
500	500.1	525.5	577.9	606.4
600	603.3	628.7	685.8	717.6

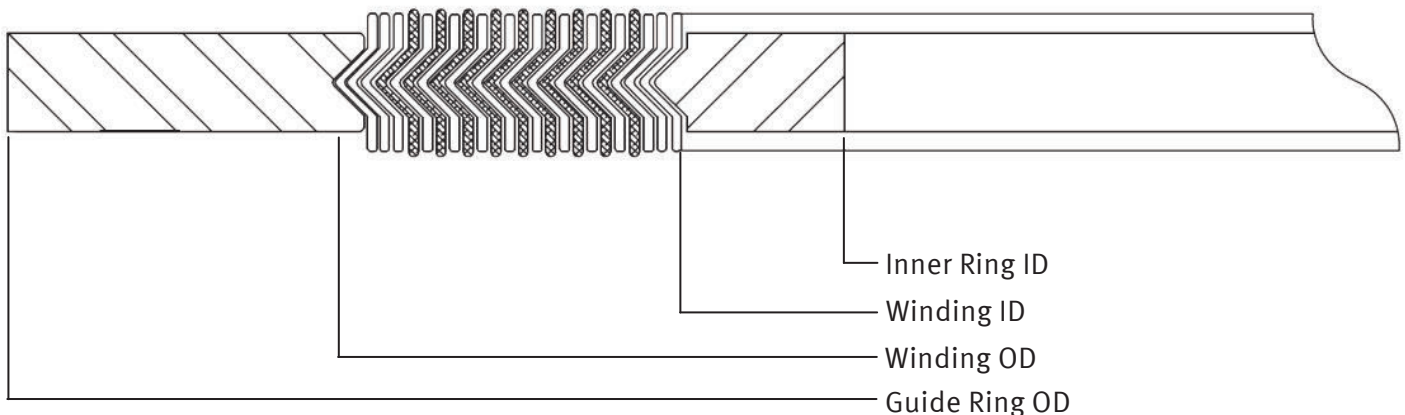
*Not listed in ASME B16.20



Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 300			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	---	12.7	22.2	44.5
15	14.2	19.1	31.8	54
20	20.6	25.4	39.7	66.7
25	26.9	31.8	47.6	73
32	38.1	47.6	60.3	82.6
40	44.5	54	69.9	95.3
50	55.6	69.9	85.7	111.1
65	66.5	82.6	98.4	130.2
80	81	101.6	120.7	149.2
90*	88.9	114.3	133.4	165.1
100	106.4	127	149.2	181
125	131.8	155.6	177.8	215.9
150	157.2	182.6	209.6	250.8
200	215.9	233.4	263.5	308
250	268.2	287.3	317.5	362
300	317.5	339.7	374.7	422.3
350	349.3	371.5	406.4	485.8
400	400.1	422.3	463.6	539.8
450	449.3	474.7	527.1	596.9
500	500.1	525.5	577.9	654.1
600	603.3	628.7	685.8	774.7

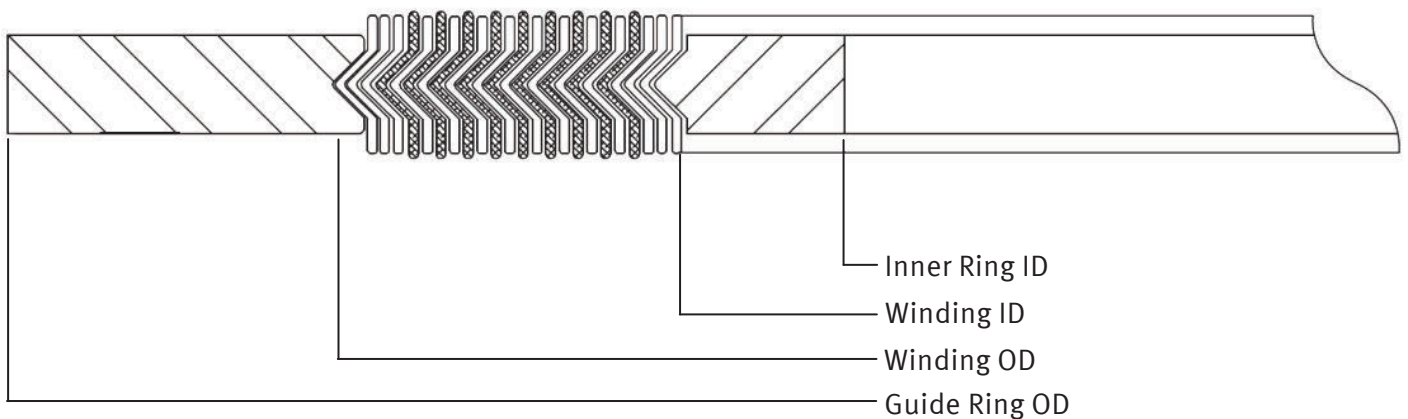
*Not listed in ASME B16.20



Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 400			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	---	12.7	22.2	44.5
15	14.2	19.1	31.8	54
20	20.6	25.4	39.7	66.7
25	26.9	31.8	47.6	73
32	38.1	47.6	60.3	82.6
40	44.5	54	69.9	95.3
50	55.6	69.9	85.7	111.1
65	66.5	82.6	98.4	130.2
80	81	101.6	120.7	149.2
90*	88.9	104.8	133.4	161.9
100	102.6	120.7	149.2	177.8
125	128.3	147.6	177.8	212.7
150	154.9	174.6	209.6	247.7
200	205.7	225.4	263.5	304.8
250	255.3	274.6	317.5	358.8
300	307.3	327	374.7	419.1
350	342.9	362	406.4	482.6
400	389.9	412.8	463.6	536.6
450	438.2	469.9	527.1	593.7
500	489	520.7	577.9	647.7
600	590.6	628.7	685.8	768.4

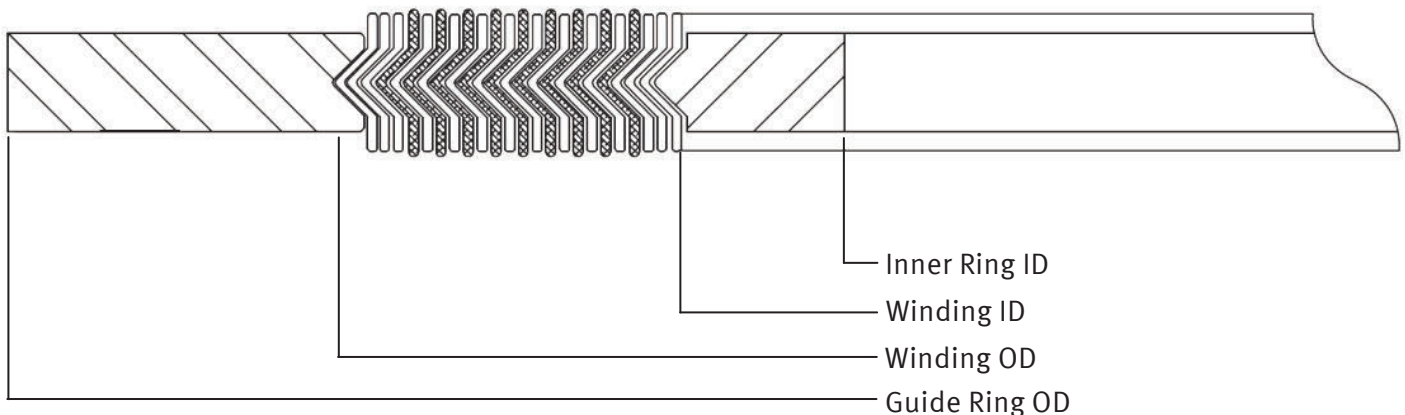
*Not listed in ASME B16.20



Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 600			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	---	12.7	22.2	44.5
15	14.2	19.1	31.8	54
20	20.6	25.4	39.7	66.7
25	26.9	31.8	47.6	73
32	38.1	47.6	60.3	82.6
40	44.5	54	69.9	95.3
50	55.6	69.9	85.7	111.1
65	66.5	82.6	98.4	130.2
80	81	101.6	120.7	149.2
90*	88.9	104.8	133.4	161.9
100	102.6	120.7	149.2	193.7
125	128.3	147.6	177.8	241.3
150	154.9	174.6	209.6	266.7
200	205.7	225.4	263.5	320.7
250	255.3	274.6	317.5	400.1
300	307.3	327	374.7	457.2
350	342.9	362	406.4	492.1
400	389.9	412.8	463.6	565.2
450	438.2	469.9	527.1	612.8
500	489	520.7	577.9	682.6
600	590.6	628.7	685.8	790.6

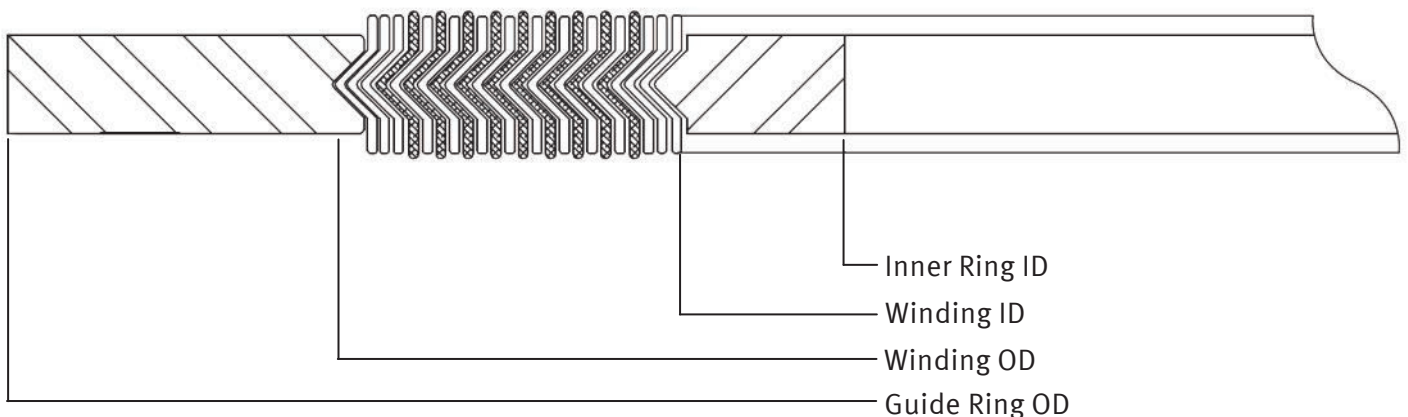
*Not listed in ASME B16.20



Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 900			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	---	---	---	---
15	14.2	19.1	31.8	63.5
20	20.6	25.4	39.7	69.9
25	26.9	31.8	47.6	79.4
32	33.3	39.7	60.3	88.9
40	41.4	47.6	69.9	98.4
50	52.3	58.7	85.7	142.9
65	63.5	69.9	98.4	165.1
80	78.7	95.3	120.7	168.3
90*	88.9	104.8	133.4	190.5
100	102.6	120.7	149.2	206.4
125	128.3	147.6	177.8	247.7
150	154.9	174.6	209.6	288.9
200	196.9	222.3	257.2	358.8
250	246.1	276.2	311.2	435
300	292.1	323.9	368.3	498.5
350	320.8	355.6	400.1	520.7
400	374.7	412.8	457.2	574.7
450	425.5	463.6	520.7	638.2
500	482.6	520.7	571.5	698.5
600**	590.6	628.7	679.5	838.2

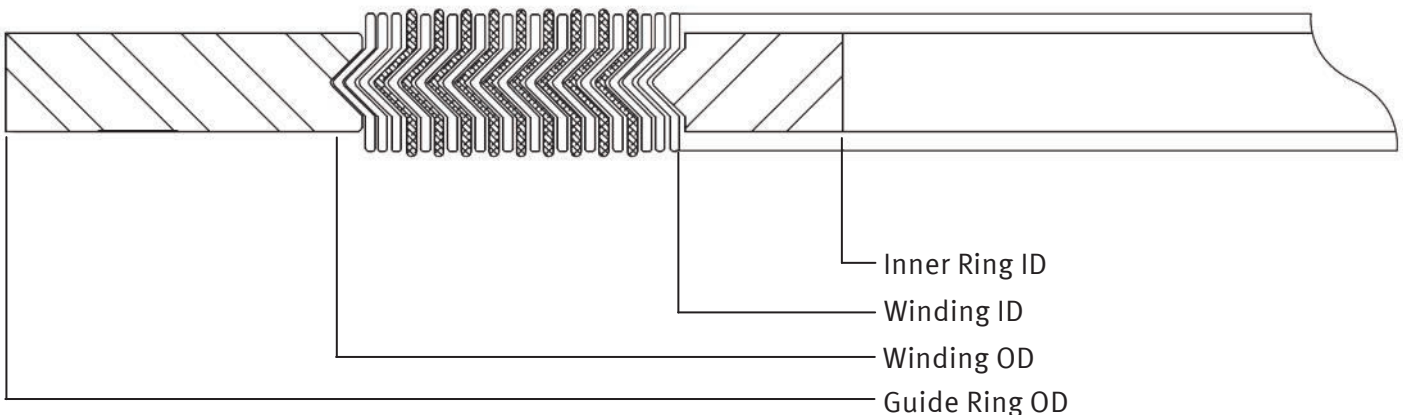
*Not listed in ASME B16.20 **Inner Rings Should Be Used



Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 1500			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	---	---	---	---
15	14.2	19.1	31.8	63.5
20	20.6	25.4	39.7	69.9
25	26.9	31.8	47.6	79.4
32	33.3	39.7	60.3	88.9
40	41.4	47.6	69.9	98.4
50	52.3	58.7	85.7	142.9
65	63.5	69.9	98.4	165.1
80	78.7	92.1	120.7	174.6
90*	88.9	104.8	133.4	187.3
100	97.8	117.5	149.2	209.6
125	124.5	142.9	177.8	254
150	147.3	171.5	209.6	282.6
200	196.9	215.9	257.2	352.4
250	246.1	266.7	311.2	435
300**	292.1	323.9	368.3	520.7
350**	320.8	362	400.1	577.9
400**	368.3	406.4	457.2	641.4
450**	425.5	463.6	520.7	704.9
500**	476.3	514.4	571.5	755.7
600**	577.9	616	679.5	901.7

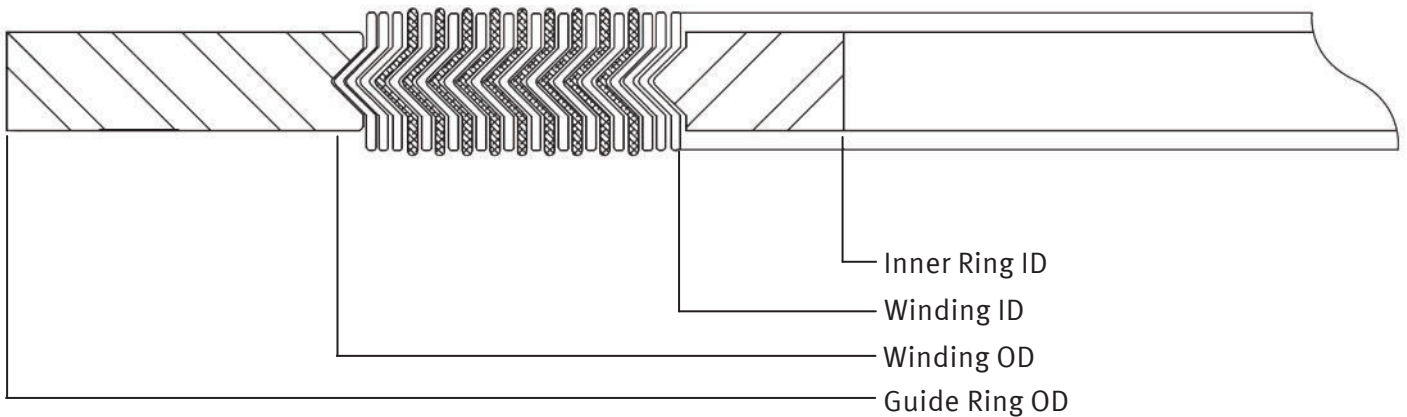
*Not listed in ASME B16.20 **Inner Rings Should Be Used



Dimensions for Style WR and WRI per ASME B16.20 to suit ASME B16.5 Flanges

Pipe Nominal Bore (NB)	Class 2500			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6*	---	---	---	---
15	14.2	19.1	31.8	69.9
20	20.6	25.4	39.7	76.2
25	26.9	31.8	47.6	85.7
32	33.3	39.7	60.3	104.8
40	41.4	47.6	69.9	117.5
50	52.3	58.7	85.7	146.1
65	63.5	69.9	98.4	168.3
80	78.7	92.1	120.7	196.9
90*	88.9	---	---	---
100**	97.8	117.5	149.2	235
125**	124.5	142.9	177.8	279.4
150**	147.3	171.5	209.6	317.5
200**	196.9	215.9	257.2	387.4
250**	246.1	269.9	311.2	476.3
300**	292.1	317.5	368.3	549.3

*Not listed in ASME B16.20 **Inner Rings Should Be Used



Spiral Wound Gasket Style WR and WRI Tolerances As per ASME B16.20 Specifications

- Winding thickness: $\pm 0.13\text{mm}$ ($\pm 0.005''$) measured across the metallic portion of the winding not including the filler.
- Winding outside diameter:
 - For sizes 15NB through 200NB: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
 - For sizes 250NB through 600NB: $+1.5\text{mm}$, -0.8mm ($+1/16''$, $-1/32''$)
- Winding inside diameter:
 - For sizes 15NB through 200NB: $\pm 0.4\text{mm}$ ($\pm 1/64''$)
 - For sizes 250NB through 600NB: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
- Guide ring outside diameter: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
- The guide ring and inner thickness shall be between 2.97mm ($0.117''$) and 3.33mm ($0.131''$)
- Inner ring inside diameter:
 - For sizes 15NB through 80NB: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
 - For sizes 100NB through 600NB: $\pm 1.5\text{mm}$ ($\pm 1/16''$)

Marking for Standard Spiral Wounds Gaskets

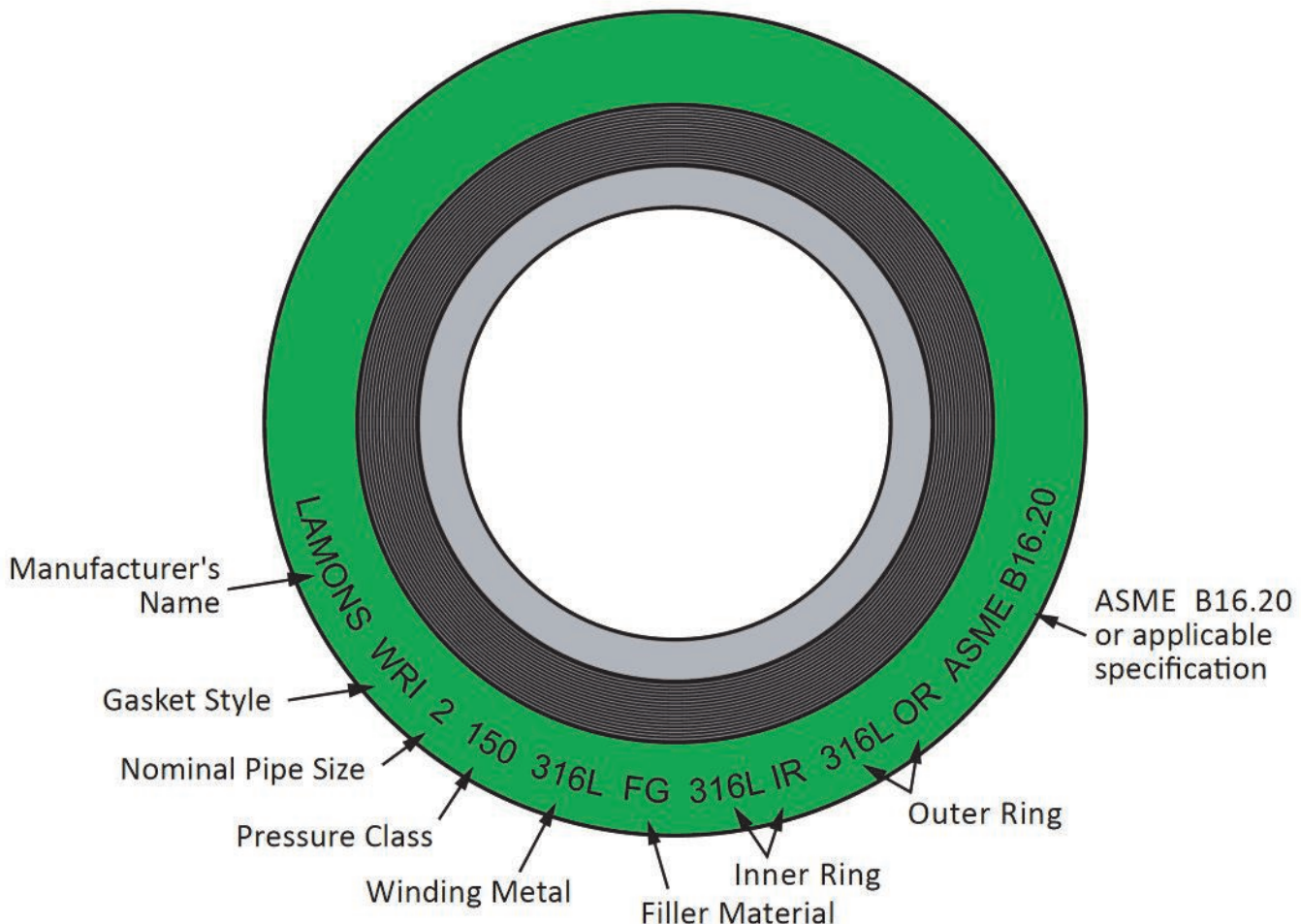


Table for Minimum Pipe Wall Thickness that is Suitable for use with Standard Inner Rings as per ASME B16.20

Pipe Nominal Bore (NB)	Pressure Class						
	150	300	400	600	900	1500	2500
15	Schedule 80						
20							
25							
32	Schedule 40						
40							
50							
65							
80							
90*							
100							
125						Schedule 105	
150							
200							
250							
300							
350							
400							
450							
500							
600							

General notes as per ASME B16.20.

- The pipe wall schedules identified represent the minimum pipe wall thickness suitable for use with inner rings for ASME B16.5 flanges (ref. ASME B 36.10M and B36.19M).
- Gaskets with inner rings should be used only with socket welding, lapped, welding neck and integral flanges.

* Not listed in ASME B16.20

Table for Limitations on the Maximum ASME B16.5 Flange Bore for use with Standard ASME B16.20 Spiral Wound Gaskets

Pipe Nominal Bore (NB)	Pressure Class						
	150	300	400	600	900 ¹	1500 ¹	2500 ¹
15	WN Flange Only ²		No Flanges use Class 600	WN Flange Only	No Flanges use Class 1500	WN Flange Only ²	
20							
25							
32	SO Flange ³ WN Flange ²			SO Flange ³ WN Flange ²			
40							
50	SO Flange ³ WN Flange, any bore			SO and WN Flange any bore			
65						WN Flange with SW bore (Includes nozzle ⁴ but excludes SO flange)	
80	SO and WN Flange any bore		WN Flange with Schedule 10S bore described in ASME B36.19M (Includes nozzle ⁴ but excludes SO flange)				
100							
125							
150							
200				WN Flange with Schedule 80 bore (excludes nozzle ⁴ and SO flanges ⁵)		No Flanges	
250							
300							
350							
400			WN Flange with Schedule 10S bore described in ASME B36.19M (excludes nozzle ⁴ and SO flanges ⁵)				
450							
500							
600							

Abbreviations:

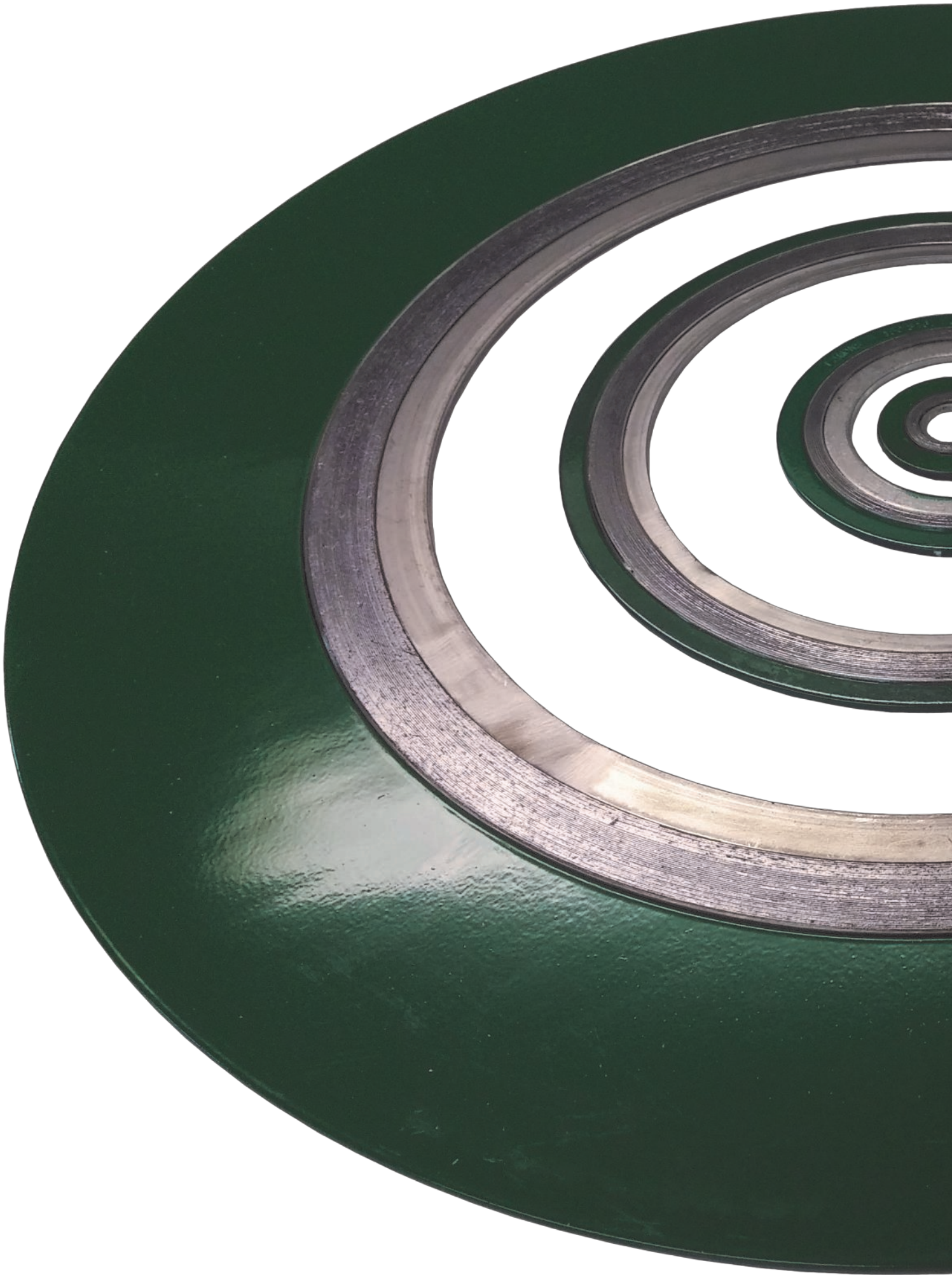
SO = Slip On and Threaded

WN = Weld Neck

SW = Standard Wall

General notes as per ASME B16.20 Specification.

1. Inner rings are required for class 900 600NB, class 1500 300NB through 600NB and class 2500 100NB through 300NB as per ASME B16.20. These inner rings may extend into the pipe bore a maximum of 1.5mm (1/16") under the worst combination of maximum bore, eccentric installation and additive tolerances.
2. In these sizes, the gasket is suitable for a welding neck flange with a standard wall bore, if the gasket and the flanges are assembled concentrically. This also applies to a nozzle. It is the users responsibility to determine if the gasket is satisfactory for a flange or any larger bore.
3. Gaskets in these sizes are suitable for slip on flanges only if the gaskets and flanges are assembled concentrically.
4. A nozzle is a long weld neck; the bore equals the flange nominal bore.
5. A 600NB gasket is suitable for nozzles.



Dimensions for Style WR and WRI to suit AWWA C207 Class E Slip-On and Weld Neck Flanges

Pipe Nominal Bore (NB)	Class 125			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
550	558.8	577.9	609.6	660.4
650	660.4	673.1	704.9	774.7
700	711.2	723.9	704.9	831.9
750	762	774.7	806.5	882.7
800	812.8	825.5	860.4	939.8
850	863.6	876.3	911.2	990.6
900	914.4	927.1	968.4	1047.8
950	965.2	977.9	1019.2	1111.3
1000	1016	1028.7	1070	1162.1
1050	1066.8	1079.5	1124	1219.2
1100	1117.6	1130.3	1177.9	1276.4
1150	1168.4	1181.1	1228.7	1327.2
1200	1219.2	1231.9	1279.5	1384.3
1250	1270	1282.7	1333.5	1435.1
1300	1320.8	1333.5	1384.3	1492.3
1350	1371.6	1384.3	1435.1	1549.4
1500	1524	1536.7	1587.5	1714.5
Pipe Nominal Bore (NB)	Class 175			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	660.4	673.1	704.9	739.8
700	711.2	723.9	755.7	790.6
750	762	774.7	806.5	847.7
800	812.8	825.5	857.3	898.5
850	863.6	876.3	911.2	952.5
900	914.4	927.1	962	1003.3
950	965.2	977.9	1012.8	1054.1
1000	1016	1028.7	1066.8	1104.9
1050	1066.8	1079.5	1117.6	1165.2
1100	1117.6	1130.3	1168.4	1216
1150	1168.4	1181.1	1219.2	1266.8
1200	1219.2	1231.9	1273.2	1317.6
1250	1270	1282.7	1327.2	1368.4
1300	1320.8	1333.5	1381.1	1425.6
1350	1371.6	1384.3	1431.9	1476.4
1500	1524	1536.7	1587.5	1552.6

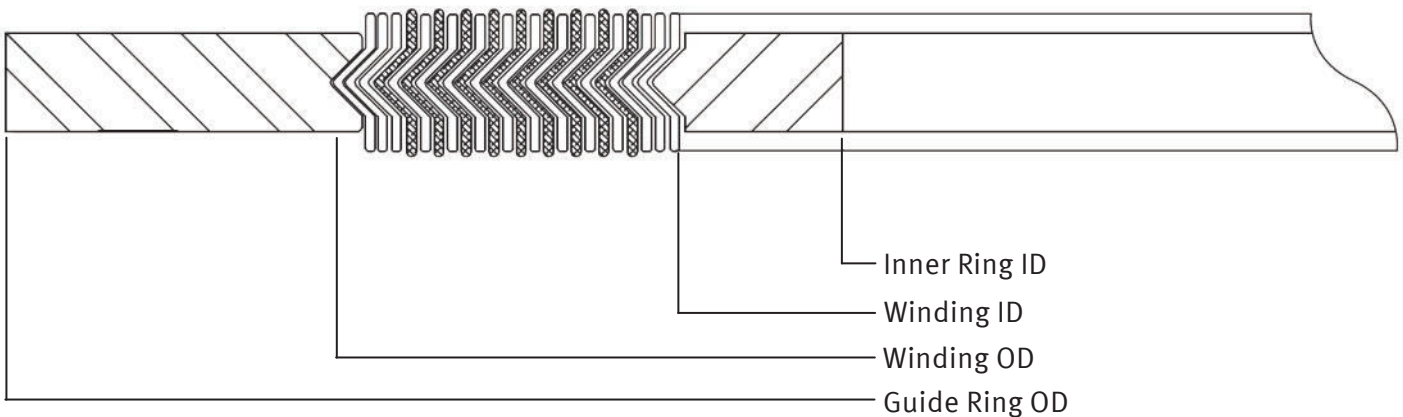
Dimensions for Style WR and WRI to suit AWWA C207 Class E Slip-On and Weld Neck Flanges

Pipe Nominal Bore (NB)	Class 250			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	660.4	673.1	704.9	831.9
700	711.2	723.9	755.7	895.4
750	762	774.7	806.5	952.5
800	812.8	825.5	860.4	1009.7
850	863.6	876.3	911.2	1060.5
900	914.4	927.1	968.4	1117.6
950	965.2	977.9	1019.2	1168.4
1000	1016	1028.7	1070	1225.6
1050	1066.8	1079.5	1124	1289.1
1100	1117.6	1130.3	1177.9	1346.2
1150	1168.4	1181.1	1228.7	1403.4
1200	1219.2	1231.9	1279.5	1492.3
Pipe Nominal Bore (NB)	Class 350			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	660.4	673.1	704.9	752.5
700	711.2	723.9	755.7	803.3
750	762	774.7	806.5	860.4
800	812.8	825.5	860.4	911.2
850	863.6	876.3	911.2	962
900	914.4	927.1	968.4	1025.5
950	965.2	977.9	1019.2	1076.3
1000	1016	1028.7	1070	1127.1
1050	1066.8	1079.5	1124	1184.3
1100	1117.6	1130.3	1177.9	1244.6
1150	1168.4	1181.1	1228.7	1295.4
1200	1219.2	1231.9	1279.5	1346.2
1300	1320.8	1333.5	1378	1457.3
1350	1371.6	1384.3	1435.1	1508.1
1500	1524	1536.7	1587.5	1660.5
1650	1676.4	1689.1	1739.9	1841.5

Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series A or MSS-SP-44 Flanges

Pipe Nominal Bore (NB)	Class 150			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
550*	---	577.9	609.6	660.4
650	654.1	673.1	704.9	774.7
700	704.9	723.9	755.7	831.9
750	755.7	774.7	806.5	882.7
800	806.5	825.5	860.4	939.8
850	857.3	876.3	911.2	990.6
900	908.1	927.1	968.4	1047.8
950	958.9	977.9	1019.2	1111.3
1000	1009.7	1028.7	1070	1162.1
1050	1060.5	1079.5	1124	1219.2
1100	1111.3	1130.3	1177.9	1276.4
1150	1162.1	1181.1	1228.7	1327.2
1200	1212.9	1231.9	1279.5	1384.3
1250	1263.7	1282.7	1333.5	1435.1
1300	1314.5	1333.5	1384.3	1492.3
1350	1358.9	1384.3	1435.1	1549.4
1400	1409.7	1435.1	1485.9	1606.6
1450	1460.5	1485.9	1536.7	1663.7
1500	1511.3	1536.7	1587.5	1714.5

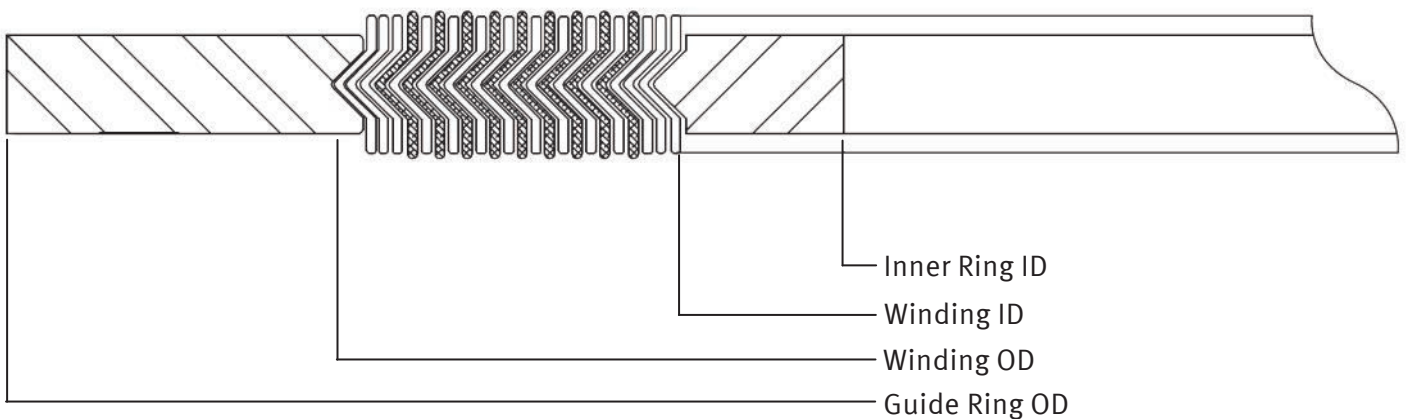
*Not listed in ASME B16.20



Dimensions for Style WR and WRI as per ASME B16.20
to suit ASME B16.47 Series A or MSS-SP-44 Flanges

Pipe Nominal Bore (NB)	Class 300			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
550*	---	577.9	628.7	704.9
650	654.1	685.8	736.6	835
700	704.9	736.6	787.4	898.5
750	755.7	793.8	844.6	952.5
800	806.5	850.9	901.7	1006.5
850	857.3	901.7	952.5	1057.3
900	908.1	955.7	1006.5	1117.6
950	952.5	977.9	1016	1054.1
1000	1003.3	1022.4	1070	1114.4
1050	1054.1	1073.2	1120.8	1165.2
1100	1104.9	1130.3	1181.1	1219.2
1150	1152.7	1177.9	1228.7	1273.2
1200	1209.8	1235.1	1285.9	1324
1250	1244.6	1295.4	1346.2	1378
1300	1320.8	1346.2	1397	1428.8
1350	1352.6	1403.4	1454.2	1492.3
1400	1403.4	1454.2	1505	1543.1
1450	1447.8	1511.3	1562.1	1593.9
1500	1524.0	1562.1	1612.9	1644.7

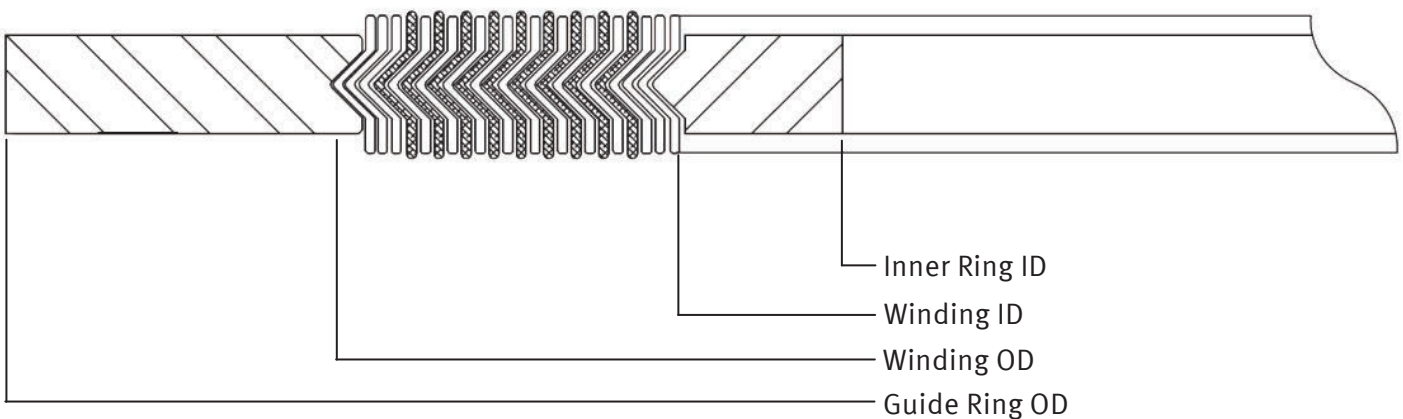
*Not listed in ASME B16.20



Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series A or MSS-SP-44 Flanges

Pipe Nominal Bore (NB)	Class 400			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
550*	---	577.9	628.7	701.7
650	660.4	685.8	736.6	831.9
700	711.2	736.6	787.4	892.2
750	755.7	793.8	844.6	946.2
800	812.8	850.9	901.7	1003.3
850	863.6	901.7	952.5	1054.1
900	917.7	955.7	1006.5	1117.6
950	952.5	971.6	1022.4	1073.2
1000	1000.3	1025.5	1076.3	1127.1
1050	1051.1	1076.3	1127.1	1177.9
1100	1104.9	1130.3	1181.1	1231.9
1150	1168.4	1193.8	1244.6	1289.1
1200	1206.5	1244.6	1320.8	1346.2
1250	1257.3	1295.4	1346.2	1403.4
1300	1308.1	1346.2	1397	1454.2
1350	1352.6	1403.4	1454.2	1517.7
1400	1403.4	1454.2	1505	1568.5
1450	1454.2	1505	1555.8	1619.3
1500	1517.7	1568.5	1619.3	1682.8

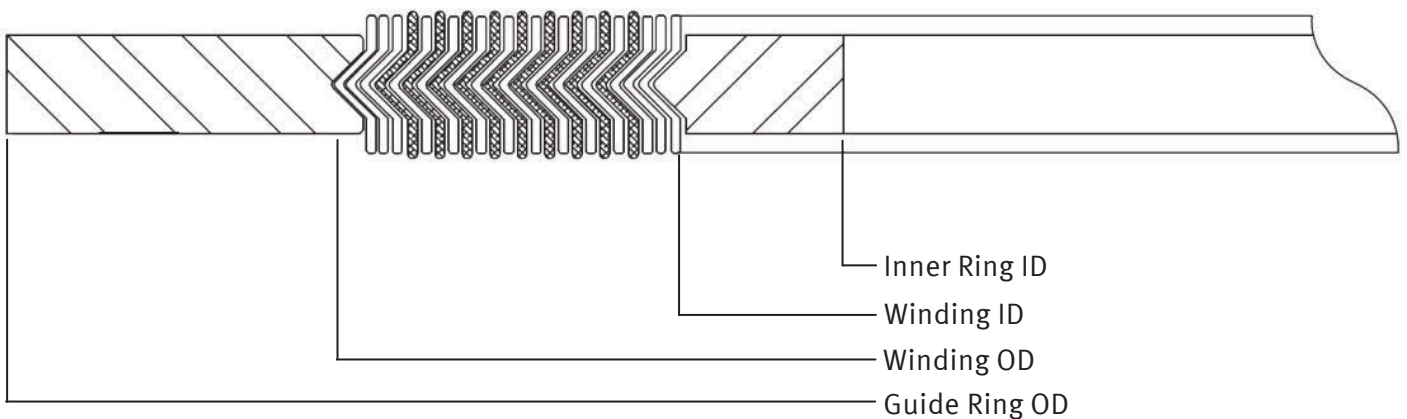
*Not listed in ASME B16.20



Dimensions for Style WR and WRI as per ASME B16.20
to suit ASME B16.47 Series A or MSS-SP-44 Flanges

Pipe Nominal Bore (NB)	Class 600			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
550*	---	577.9	628.7	733.4
650	647.7	685.8	736.6	866.8
700	698.5	736.6	787.4	914.4
750	755.7	793.8	844.6	971.6
800	812.8	850.9	901.7	1022.4
850	863.6	901.7	952.5	1073.2
900	917.7	955.7	1006.5	1130.3
950	952.5	990.6	1041.4	1104.9
1000	1009.7	1047.8	1098.6	1155.7
1050	1066.8	1104.9	1155.7	1219.2
1100	1111.3	1162.1	1212.9	1270
1150	1162.1	1212.9	1263.7	1327.2
1200	1219.2	1270	1320.8	1390.7
1250	1270	1320.8	1371.6	1447.8
1300	1320.8	1371.6	1422.4	1498.6
1350	1378	1428.8	1479.6	1555.8
1400	1428.8	1479.6	1530.4	1612.9
1450	1473.2	1536.7	1587.5	1663.7
1500	1530.4	1593.9	1644.7	1733.6

*Not listed in ASME B16.20



Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series A or MSS-SP-44 Flanges

Pipe Nominal Bore (NB)	Class 900			
	Inner Ring Inside Diameter (mm)**	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
550*	---	616	685.8	838.2
650	660.4	685.8	736.6	882.7
700	711.2	736.6	787.4	946.2
750	768.4	793.8	844.6	1009.7
800	812.8	850.9	901.7	1073.2
850	863.6	901.7	952.5	1136.7
900	920.8	958.9	1009.7	1200.2
950	1009.7	1035.1	1085.9	1200.2
1000	1060.5	1098.6	1149.4	1251
1050	1111.3	1149.4	1200.2	1301.8
1100	1155.7	1206.5	1257.3	1368.4
1150	1219.2	1270	1320.8	1435.1
1200	1270	1320.8	1371.6	1485.9

*Not listed in ASME B16.20

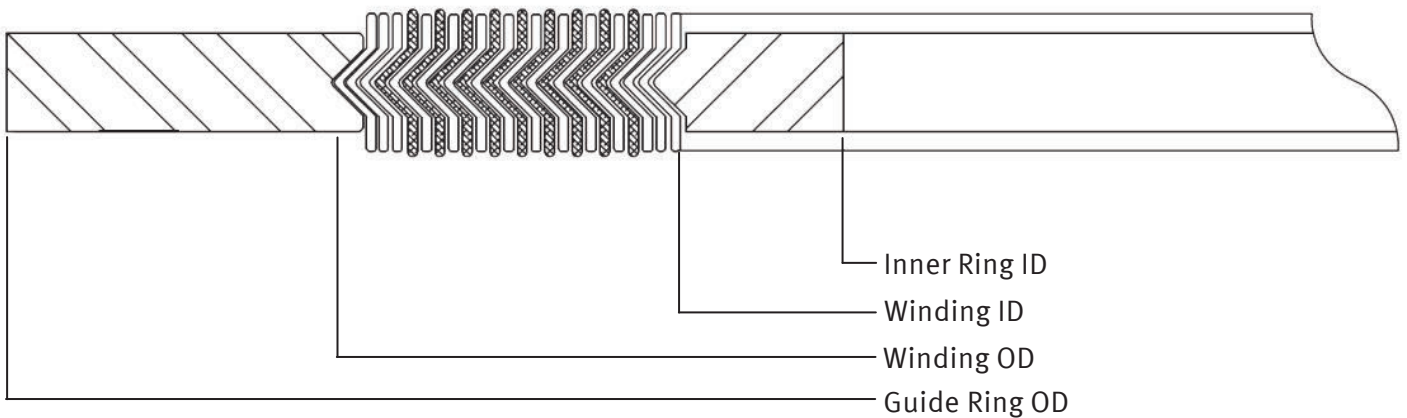
** Inner Rings are Required

Tolerances for Large Spiral Wounds Gaskets as per ASME B16.20 To be used with ASME B16.47 Series A Flanges

- Winding thickness: $\pm 0.13\text{mm}$ ($\pm 0.005''$) measured across the metallic portion of the winding not including the filler.
- Winding outside diameter:
 - For sizes 650NB through 1500NB: $\pm 1.5\text{mm}$ ($\pm 1/16''$)
- Winding inside diameter:
 - For sizes 650NB through 850NB: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
 - For sizes 900NB through 1500NB: $\pm 1.3\text{mm}$ ($\pm 3/64''$)
- Guide ring outside diameter: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
- The guide ring and inner thickness shall be between 2.97mm ($0.117''$) and 3.33mm ($0.131''$)
- Inner ring inside diameter: $\pm 3\text{mm}$ ($\pm 1/8''$)
- These inner rings are suitable for use with pipe walls 9.53mm ($0.38''$) or thicker.

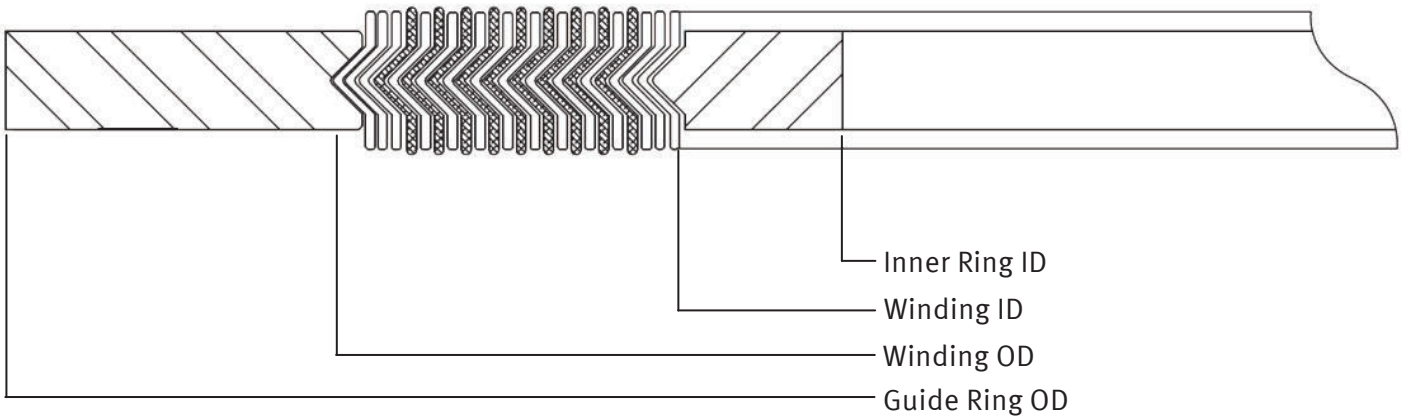
Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series B or API-605 Flanges

Pipe Nominal Bore (NB)	Class 150			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	654.05	673.1	698.5	725.5
700	704.9	723.9	749.3	776.3
750	755.7	774.7	800.1	827.1
800	806.5	825.5	850.9	881.1
850	857.3	876.3	908.1	935
900	908.1	927.1	958.9	987.4
950	958.9	974.7	1009.7	1044.6
1000	1009.7	1022.4	1063.6	1095.4
1050	1060.5	1079.5	1114.4	1146.2
1100	1111.3	1124	1165.2	1197
1150	1162.1	1181.1	1224	1255.7
1200	1212.9	1231.9	1270	1306.5
1250	1263.7	1282.7	1325.6	1357.3
1300	1314.5	1333.5	1376.4	1408.1
1350	1365.3	1384.3	1422.4	1463.7
1400	1422.4	1444.6	1478	1514.5
1450	1478	1500.6	1528.8	1579.6
1500	1535.2	1557.3	1585.9	1630.4



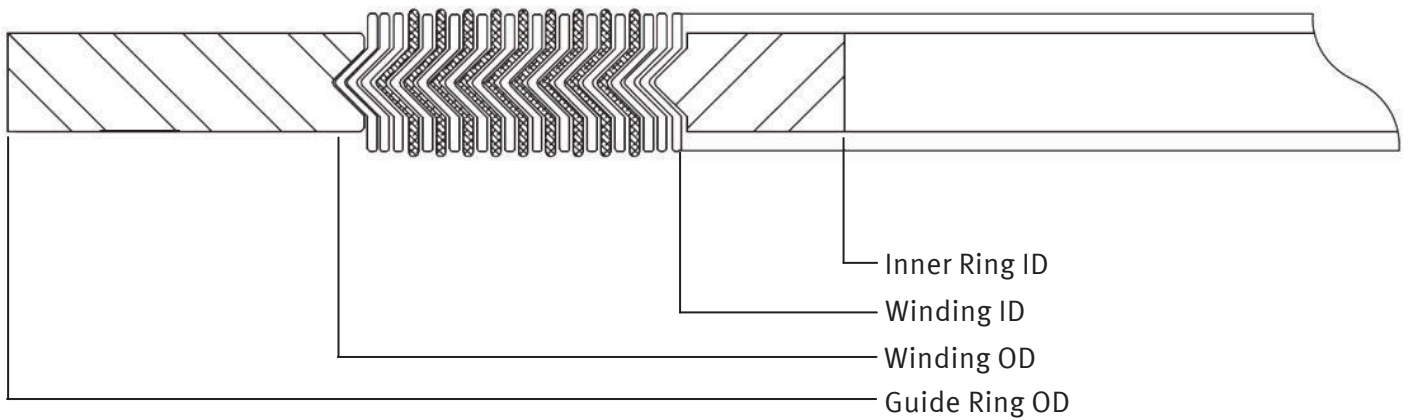
Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series B or API-605 Flanges

Pipe Nominal Bore (NB)	Class 300			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	654.05	673.1	711.2	771.5
700	704.9	723.9	762	825.5
750	755.7	774.7	812.8	885.8
800	806.5	825.5	863.6	939.8
850	857.3	876.3	914.4	993.8
900	908.1	927.1	965.2	1047.8
950	971.6	1009.7	1047.8	1098.6
1000	1022.4	1060.5	1098.6	1149.4
1050	1085.9	1111.3	1149.4	1200.2
1100	1124	1162.1	1200.2	1251
1150	1178.1	1216	1254.3	1317.6
1200	1155.7	1263.7	1311.3	1368.4
1250	1267	1317.6	1355.7	1419.2
1300	1317.8	1368.4	1406.5	1470
1350	1365.3	1403.4	1454.2	1530.4
1400	1428.8	1479.6	1524	1593.9
1450	1484.4	1535.1	1573.2	1655.8
1500	1557.3	1589.1	1630.4	1706.6



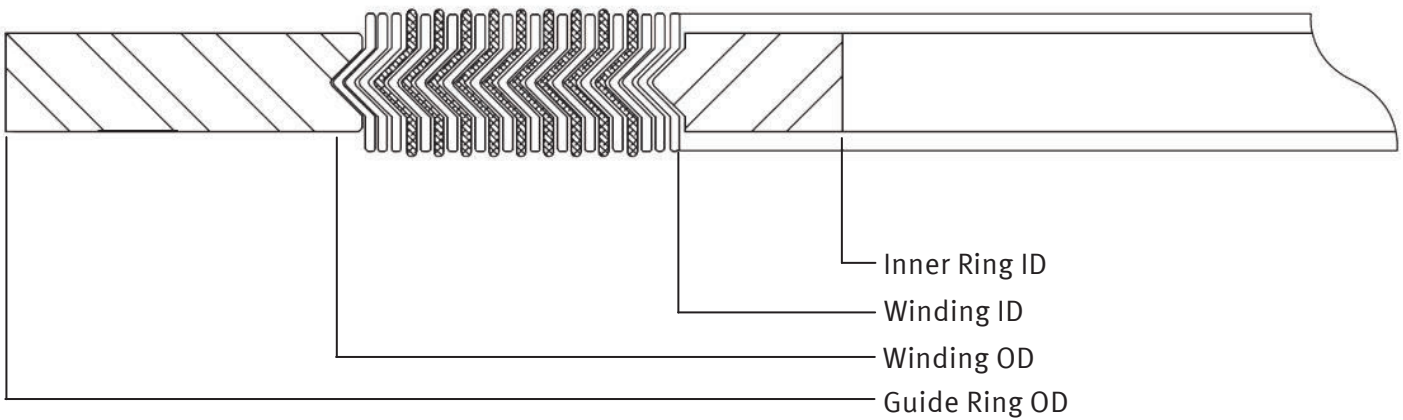
Dimensions for Style WR and WRI as per ASME B16.20
to suit ASME B16.47 Series B or API-605 Flanges

Pipe Nominal Bore (NB)	Class 400			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	654.05	666.8	698.5	746.1
700	701.8	714.4	749.3	800.1
750	752.6	765.2	806.5	857.3
800	800.1	812.8	860.4	911.2
850	850.9	866.8	911.2	962
900	898.7	917.6	965.2	1022.4
950	952.5	971.6	1022.4	1073.2
1000	1000.3	1025.5	1076.3	1127.1
1050	1051.1	1076.3	1127.1	1177.9
1100	1104.9	1130.3	1181.1	1231.9
1150	1168.4	1193.8	1244.6	1289.1
1200	1206.5	1244.6	1295.4	1346.2
1250	1257.3	1295.4	1346.2	1403.4
1300	1308.1	1346.2	1397	1454.2
1350	1352.6	1403.4	1454.2	1517.7
1400	1403.4	1454.2	1505	1568.5
1450	1454.2	1505	1555.8	1619.3
1500	1517.7	1568.5	1619.3	1682.8



Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series B or API-605 Flanges

Pipe Nominal Bore (NB)	Class 600			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	644.65	663.6	714.4	765.2
700	685.8	704.9	755.7	819.2
750	752.6	777.9	828.7	879.5
800	793.8	831.9	882.7	933.5
850	850.9	889	939.8	997
900	901.7	939.8	990.6	1047.8
950	952.5	990.6	1041.4	1104.9
1000	1009.7	1047.8	1098.6	1155.7
1050	1066.8	1104.9	1155.7	1219.2
1100	1111.3	1162.1	1212.9	1270
1150	1162.1	1212.9	1263.7	1327.2
1200	1219.2	1270	1320.8	1390.7
1250	1270	1320.8	1371.6	1447.8
1300	1320.8	1371.6	1422.4	1498.6
1350	1378	1428.8	1479.6	1555.8
1400	1428.8	1479.6	1530.4	1612.9
1450	1473.2	1536.7	1587.5	1663.7
1500	1530.4	1593.9	1644.7	1733.6



Dimensions for Style WR and WRI as per ASME B16.20 to suit ASME B16.47 Series B or API-605 Flanges

Pipe Nominal Bore (NB)	Class 900			
	Inner Ring Inside Diameter (mm)*	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
650	666.8	692.2	749.3	838.2
700	717.6	743	800.1	901.7
750	781.1	806.5	857.3	958.9
800	838.2	863.6	914.4	1016
850	895.4	920.8	971.6	1073.2
900	920.8	946.2	997	1124
950	1009.7	1035.1	1085.9	1200.2
1000	1060.5	1098.6	1149.4	1251
1050	1111.3	1149.4	1200.2	1301.8
1100	1155.7	1206.5	1257.3	1368.4
1150	1219.2	1270	1320.8	1435.1
1200	1270	1320.8	1371.6	1485.9

*** Inner Rings are Required**

Tolerances for Large Spiral Wounds Gaskets as per ASME B16.20 To be used with ASME B16.47 Series B Flanges

- Winding thickness: $\pm 0.13\text{mm}$ ($\pm 0.005''$) measured across the metallic portion of the winding not including the filler.
- Winding outside diameter:
 - For sizes 650NB through 1500NB: $\pm 1.5\text{mm}$ ($\pm 1/16''$)
- Winding inside diameter:
 - For sizes 650NB through 850NB: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
 - For sizes 900NB through 1500NB: $\pm 1.3\text{mm}$ ($\pm 3/64''$)
- Guide ring outside diameter: $\pm 0.8\text{mm}$ ($\pm 1/32''$)
- The guide ring and inner thickness shall be between 2.97mm ($0.117''$) and 3.33mm ($0.131''$)
- Inner ring inside diameter: $\pm 3\text{mm}$ ($\pm 1/8''$)
- These inner rings are suitable for use with pipe walls 9.53mm ($0.38''$) or thicker.

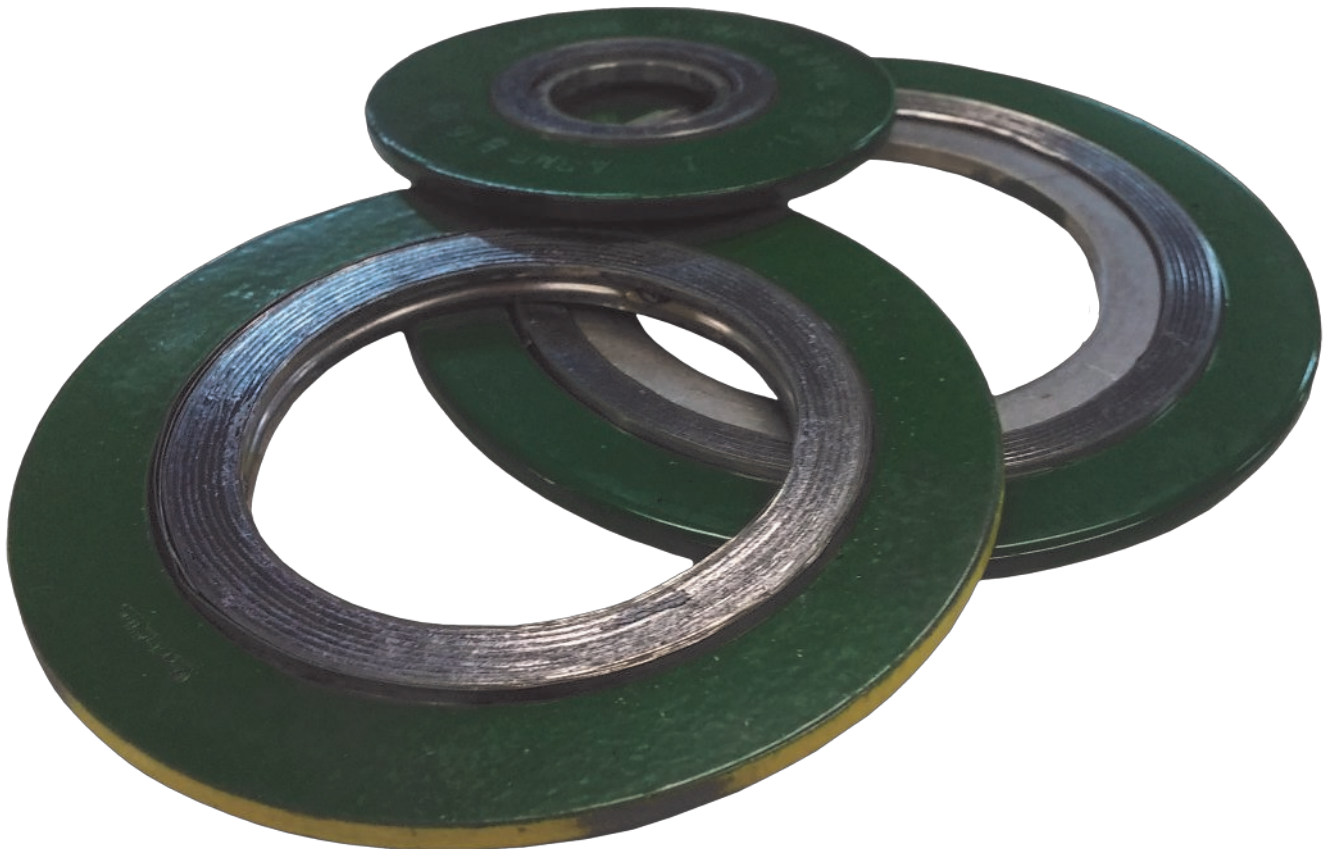
Dimensions for Style WR and WRI to suit ASME/ANSI B16.5 and Slip-On Flanges

Pipe Nominal Bore (NB)	Class 150			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6	---	14.3	22.2	44.5
15	14.3	23.8	31.8	47.6
20	20.6	30.2	39.7	57.2
25	27	36.5	47.6	66.7
32	34.9	47.6	60.3	76.2
40	41.3	54	69.9	85.7
Pipe Nominal Bore (NB)	Class 300			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6	---	14.3	22.2	44.5
15	14.3	23.8	31.8	54
20	20.6	30.2	39.7	66.7
25	27	36.5	47.6	73
32	34.9	47.6	60.3	82.6
40	41.3	54	69.9	95.3
Pipe Nominal Bore (NB)	Class 400			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6	---	14.3	22.2	44.5
15	14.3	23.8	31.8	54
20	20.6	30.2	39.7	66.7
25	27	36.5	47.6	73
32	34.9	47.6	60.3	82.6
40	41.3	54	69.9	95.3
Pipe Nominal Bore (NB)	Class 600			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
6	---	14.3	22.2	44.5
15	14.3	23.8	31.8	54
20	20.6	30.2	39.7	66.7
25	27	36.5	47.6	73
32	34.9	47.6	60.3	82.6
40	41.3	54	69.9	95.3

Dimensions for Style WR and WRI to suit ASME/ANSI B16.5 and Slip-On Flanges

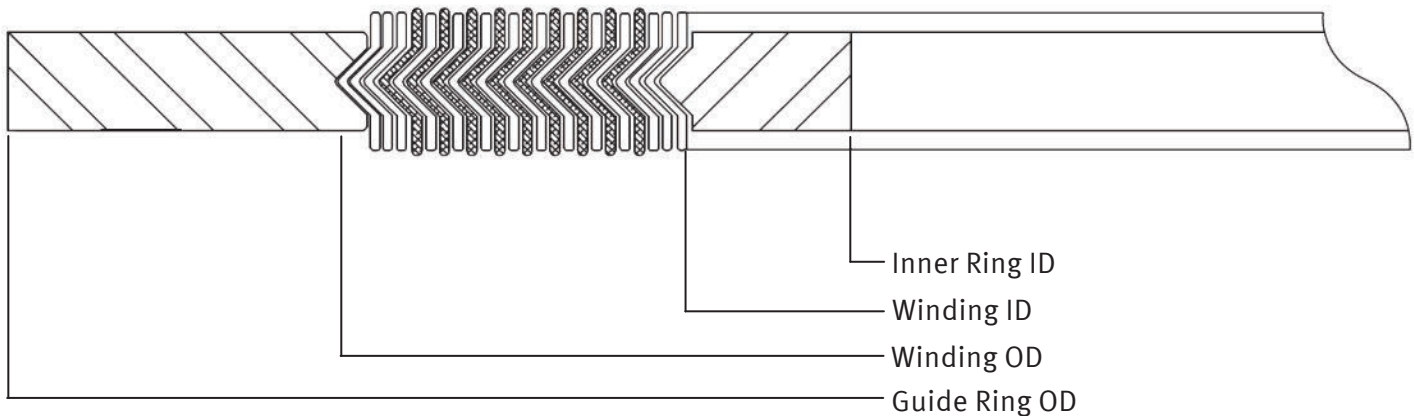
Pipe Nominal Bore (NB)	Class 900			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	23.8	31.8	63.5
20	20.6	30.2	39.7	69.9
25	27	36.5	47.6	79.4
32	34.9	47.6	60.3	88.9
40	41.3	54	69.9	98.4
Pipe Nominal Bore (NB)	Class 1500			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	23.8	31.8	63.5
20	20.6	30.2	39.7	69.9
25	27	36.5	47.6	79.4
32	34.9	47.6	60.3	88.9
40	41.3	54	69.9	98.4

Standard spiral wound gasket dimensions are not compatible with slip-on flanges, threaded flanges or lap joint flanges in certain sizes due to the larger bore on slip-on flanges.



Dimensions for Style WR and WRI to suit Type A and B Flanges as per EN 1514-2

DN	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)	Guide Ring Outside Diameter (mm)					
			PN10, PN25, PN40	PN63, PN100, PN160	PN 10	PN 25	PN 40	PN 63	PN 100	PN 160
10	18	24	34	34	46			56		
15	23	29	39	39	51			61		
20	28	34	46	---	61			---		
25	35	41	53	53	71			82		
32	43	49	61	---	82			---		
40	50	56	68	68	92			103		
50	61	70	86	86	107			113	119	
65	77	86	102	106	127			137	143	
80	90	99	115	119	142			148	154	
100	115	127	143	147	162	168		174	180	
125	140	152	172	176	192	194		210	217	
150	167	179	199	203	217	224		247	257	
200	216	228	248	252	272	284	290	309	324	
250	267	279	303	307	327	340	352	364	391	388
300	318	330	354	358	377	400	417	424	458	458
350	360	376	400	404	437	457	474	486	512	---
400	410	422	450	456	488	514	546	543	572	---
500	510	522	550	556	593	624	628	657	704	---
600	610	622	650	656	695	731	747	764	813	---
700	710	722	756	762	810	833	852	879	950	---
800	810	830	864	870	917	942	974	988	---	---
900	910	930	964	970	1017	1042	1084	1108	---	---
1000	1010	1030	1074	1080	1124	1154	1194	---	---	---



Dimensions for Style WR to suit British Standard BS 10 Weld Neck and Slip-On Flanges Table D and E

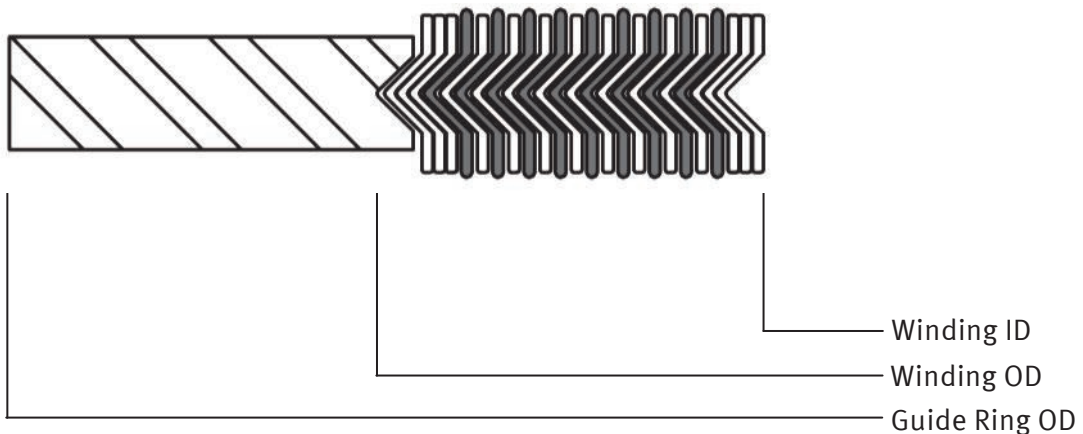
Pipe Nominal Bore (NB)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Gasket Outside Diameter (mm)	
			Table D	Table E
15	26.2	37.3	54	54
20	31.8	42.9	60.3	60.3
25	39.7	52.4	69.9	69.9
32	47.6	60.3	74.6	74.6
40	54	66.7	85.8	85.8
50	66.7	79.4	98.5	98.5
65	82.6	98.5	111.2	111.2
80	96.9	112.8	130.2	130.2
90	109.6	125.5	149.3	149.3
100	123.9	139.7	161.9	161.9
115	136.6	152.4	174.6	174.6
125	149.2	165.1	193.6	193.6
150	174.6	190.5	219	215.9
175	200	219	244.5	241.3
200	225.4	244.5	276.2	273
225	250.8	269.9	308	304.8
250	276.3	295.3	336.6	336.6
275	301.6	320.7	362	362
300	327	349.3	387.4	384.2
325	368.3	390.6	419.1	415.9
350	393.7	416	447.7	447.7
375	419.1	441.3	473	473
400	444.5	466.7	498.5	498.5
425	473	498.5	530.3	527
450	498.5	523.9	562	562
475	523.9	549.3	587.4	587.4
500	549.3	574.7	619.2	619.2
525	574.7	603.3	651	547.7
550	600	628.7	673.1	673.1
575	625.5	654	698.5	698.5
600	650.9	679.5	730.3	728.7

Dimensions for Style WR to suit British Standard BS 10 Weld Neck and Slip-On Flanges Table F, H, J, K and R

Pipe Nominal Bore (NB)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)				
			Table F	Table H	Table J	Table K	Table R
15	26.2	38.9	54	66.7	66.7	66.7	66.7
20	31.8	44.5	60.3	66.7	66.7	66.7	66.7
25	39.7	55.6	71.5	71.5	71.5	79.4	79.4
32	47.6	63.5	82.6	82.6	82.6	82.6	82.6
40	54	69.9	88.9	88.9	88.9	95.3	95.3
50	66.7	82.6	111.2	111.2	108	111.2	111.2
65	82.6	101.6	130.2	130.2	127	127	127
80	96.9	115.9	149.3	149.3	146	146	146
90	109.6	128.6	162	162	158.9	162	162
100	123.9	142.9	174.7	174.7	171.5	174.7	174.7
115	136.6	158.9	190.5	190.5	187.4	187.4	187.4
125	149.2	171.5	215.9	215.9	212.8	212.8	212.8
150	174.6	196.9	241.3	241.3	238.2	238.2	238.2
175	200	225.4	273	273	269.9	266.7	266.7
200	225.4	250.9	304.8	304.8	301.7	292.1	298.5
225	250.8	276.3	333.4	333.4	330.2	330.2	330.2
250	279.4	304.8	358.8	358.8	355.6	355.6	362
275	304.8	330.2	384.2	384.2	381	384.2	403.3
300	330.2	358.7	416	416	412.8	403.3	428.7
325	362	390.6	444.5	444.5	441.4	451	463.6
350	387.4	415.9	470	470	466.8	476.3	495.3
375	412.8	441.4	495.3	495.3	492.2	508	520.7
400	444.5	476.3	527	527	523.9	533.4	552.5
425	469.9	504.9	558.8	558.8	555.7	565.2	577.9
450	495.3	530.3	581	581	577.9	619.2	638.2
475	523.9	562	612.3	612.3	609.6	---	---
500	549.3	587.4	644.6	644.6	641.4	673.1	692.2
525	574.7	619.2	670	670	666.8	---	---
550	600	644.5	695.4	695.4	692.2	730.3	755.7
575	625.5	670	723.9	723.9	720.8	---	---
600	651	695.4	749.3	749.3	746.1	---	---

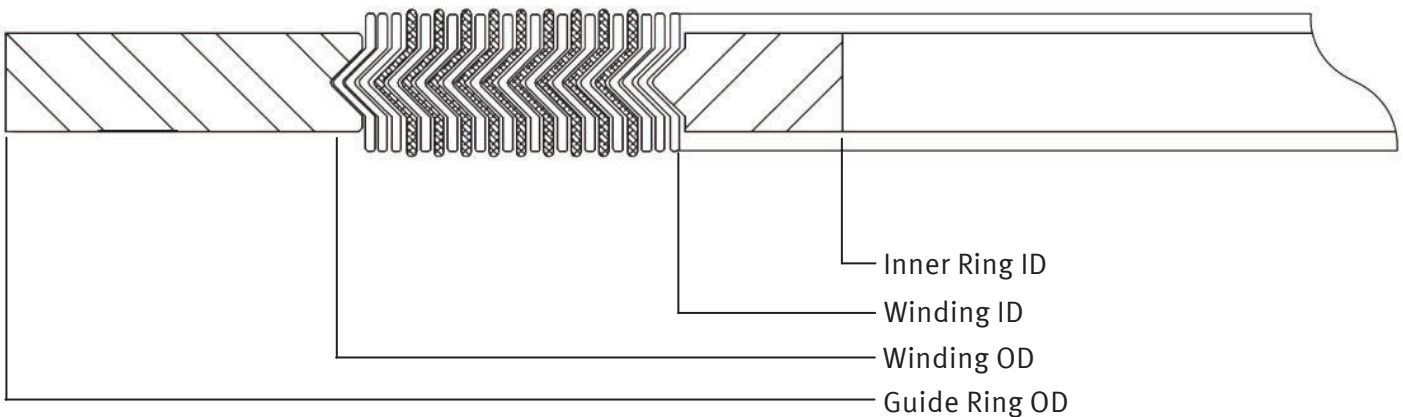
Dimensions for Style WR to suit British Standard BS 10 Weld Neck and Slip-On Flanges Table S

Pipe Nominal Bore (NB)	BS 10:1931		BS 10:1962		Guide Ring Outside Diameter (mm)
	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	
15	19.1	31.8	19.1	31.8	69.9
20	25.4	39.7	25.4	39.7	69.9
25	31.8	47.6	31.8	47.6	82.6
32	38.1	55.6	38.1	55.6	88.9
40	44.5	63.5	44.5	63.5	101.6
50	57.2	76.2	57.2	79.4	114.3
65	69.9	88.9	73	95.3	127
80	82.6	101.6	85.7	108	142.9
90	95.3	114.3	98.4	120.7	168.3
100	108	127	111.1	136.5	177.8
115	120.7	139.7	123.8	149.2	190.5
125	133.4	152.4	136.5	161.9	212.7
150	158.8	177.8	161.9	187.3	247.7
175	187.3	209.6	187.3	219.1	288.9
200	212.7	235	212.7	244.5	323.9
225	238.1	260.4	241.3	273.1	358.8
250	263.5	285.8	266.7	301.6	393.7
???	288.9	317.5	292.1	327	435
???	314.3	346.1	320.7	355.6	469.9
???	339.7	371.5	346.1	384.2	501.7
???	365.1	400.1	371.5	409.6	539.8
???	390.5	428.6	400.1	438.2	581
???	415.9	454	425.5	466.7	616



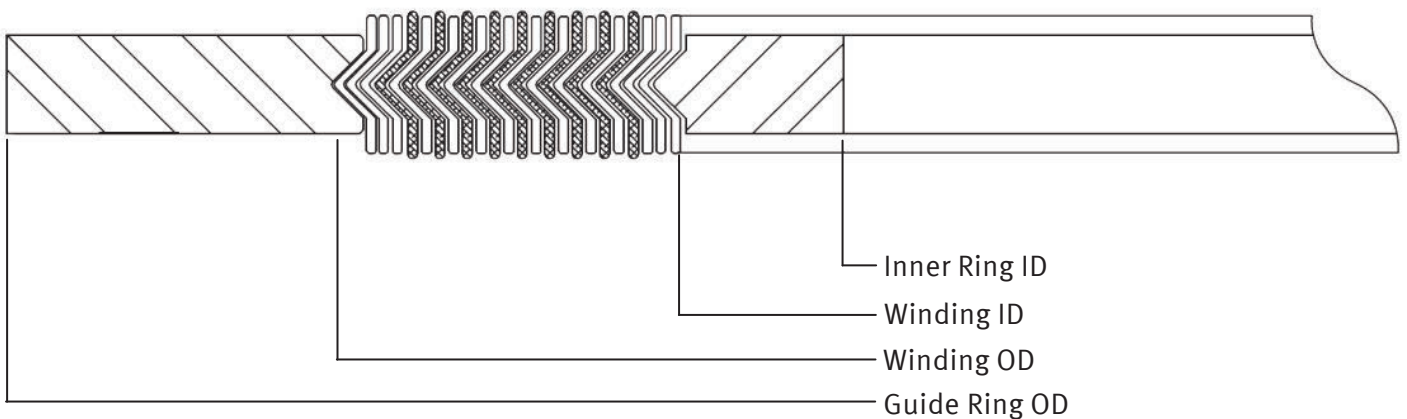
Dimensions for Style WR and WRI as per British BS 3381 to suit BS 1560 and ASME/ANSI B16.5 Flanges

Pipe Nominal Bore (NB)	Class 150			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	18.7	32.2	47.6
20	20.6	26.6	40.1	57.2
25	27	32.9	48	66.7
32	34.9	45.6	60.7	76.2
40	41.3	53.6	70.3	85.7
50	52.4	69.5	86.1	104.8
65	63.5	82.2	98.8	123.8
80	77.8	101.2	121.1	136.5
100	103.2	126.6	149.6	174.6
125	128.5	153.6	178.2	196.9
150	154	180.6	210	222.3
200	203.2	231.4	263.9	279.4
250	254	286.9	317.9	339.7
300	303.2	339.3	375.1	409.6
350	342.9	371.1	406.8	450.9
400	393.7	421.9	464	514.4
450	444.5	475.9	527.5	549.3
500	495.3	526.7	578.3	606.4
600	596.9	631.4	686.2	717.6



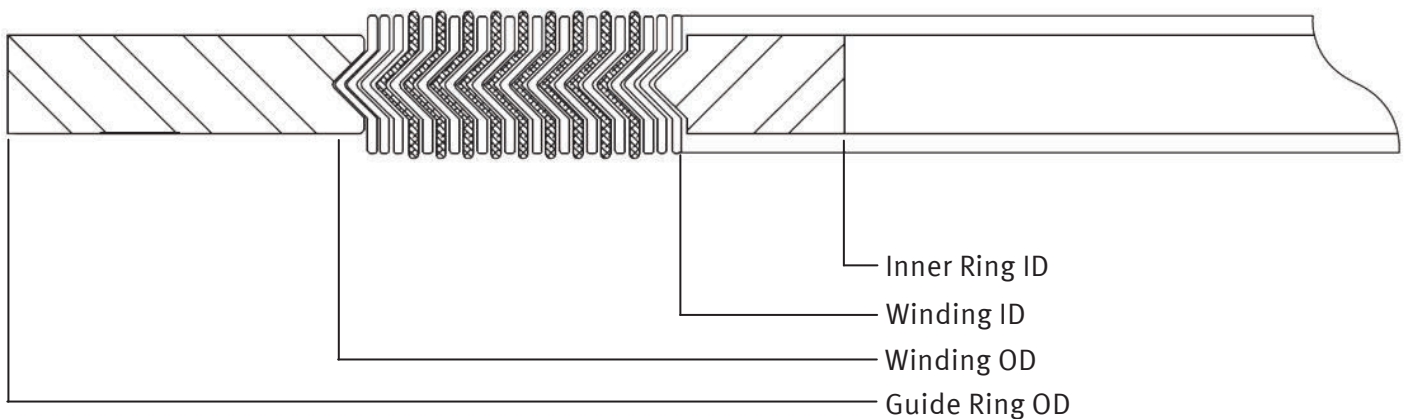
Dimensions for Style WR and WRI as per British BS 3381
to suit BS 1560 and ASME/ANSI B16.5 Flanges

Pipe Nominal Bore (NB)	Class 300			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	18.7	32.2	54
20	20.6	25	40.1	66.7
25	27	31.4	48	73
32	34.9	44.1	60.7	82.6
40	41.3	50.4	70.3	95.3
50	52.4	66.3	86.1	111.1
65	63.5	79	98.8	130.2
80	77.8	94.9	121.1	149.2
100	103.2	120.3	149.6	181
125	128.5	147.2	178.2	215.9
150	154	174.2	210	250.8
200	203.2	225	263.9	308
250	254	280.6	317.9	362
300	303.2	333	375.1	422.3
350	342.9	364.7	406.8	485.8
400	393.7	415.5	464	539.8
450	444.5	469.5	527.5	596.9
500	495.3	520.3	578.3	654.1
600	596.9	625.1	686.2	774.7



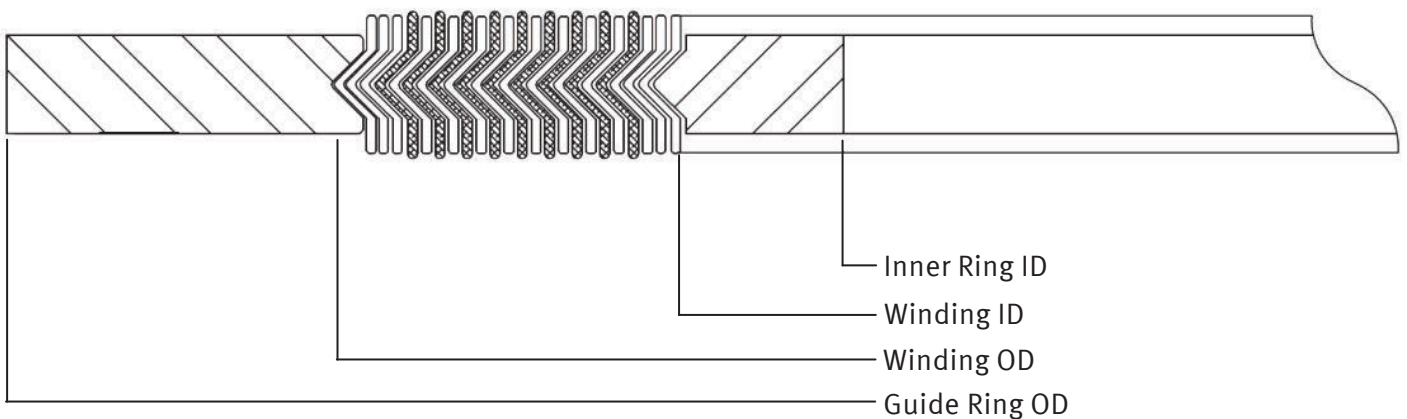
Dimensions for Style WR and WRI as per British BS 3381 to suit BS 1560 and ASME/ANSI B16.5 Flanges

Pipe Nominal Bore (NB)	Class 600			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	18.7	32.2	54
20	20.6	25	40.1	66.7
25	27	31.4	48	73
32	34.9	44.1	60.7	82.6
40	41.3	50.4	70.3	95.3
50	52.4	66.3	86.1	111.1
65	63.5	79	98.8	130.2
80	77.8	94.9	121.1	149.2
100	103.2	120.3	149.6	193.7
125	128.5	147.2	178.2	241.3
150	154	174.2	210	266.7
200	203.2	225	263.9	320.7
250	254	280.6	317.9	400.1
300	303.2	333	375.1	457.2
350	342.9	364.7	406.8	492.1
400	393.7	415.5	464	565.2
450	444.5	469.5	527.5	612.8
500	495.3	520.3	578.3	682.6
600	596.9	625.1	686.2	790.6



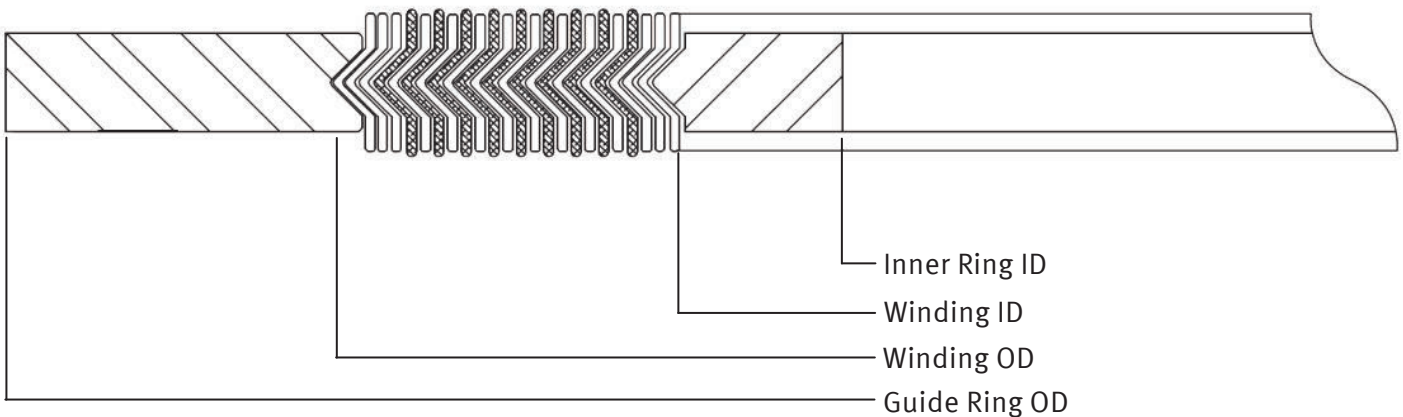
Dimensions for Style WR and WRI as per British BS 3381
to suit BS 1560 and ASME/ANSI B16.5 Flanges

Pipe Nominal Bore (NB)	Class 900			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	18.7	32.2	63.5
20	20.6	25	40.1	69.9
25	27	31.4	48	79.4
32	34.9	44.1	60.7	88.9
40	41.3	50.4	70.3	98.4
50	52.4	66.3	86.1	142.9
65	63.5	79	98.8	165.1
80	77.8	94.9	121.1	168.3
100	103.2	120.3	149.6	206.4
125	128.5	147.2	178.2	247.7
150	154	174.2	210	288.9
200	203.2	225	263.9	358.8
250	254	280.6	317.9	435
300	303.2	333	375.1	498.5
350	342.9	364.7	406.8	520.7
400	393.7	415.5	464	574.7
450	444.5	469.5	527.5	638.2
500	495.3	520.3	578.3	698.5
600	596.9	625.1	686.2	838.2



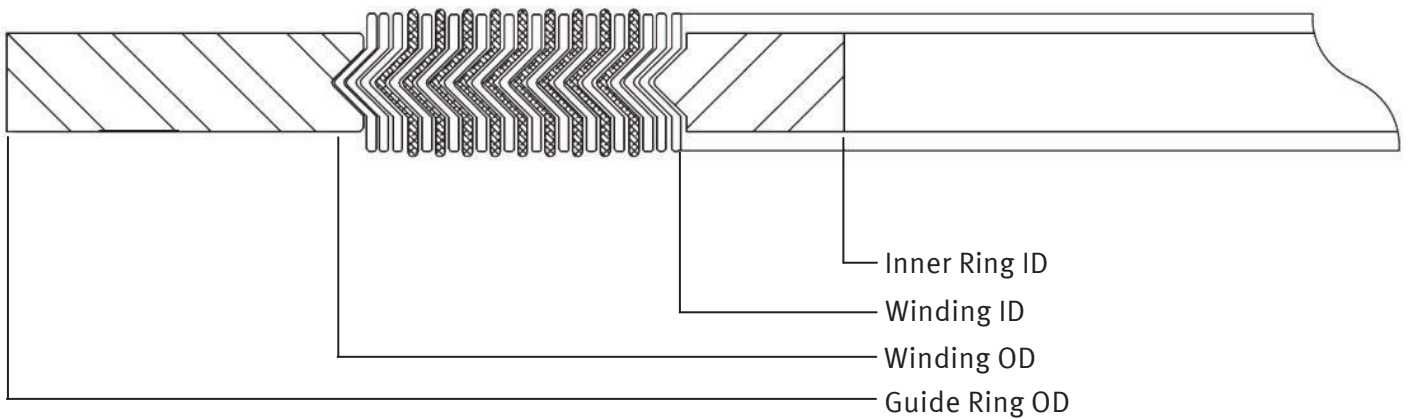
Dimensions for Style WR and WRI as per British BS 3381 to suit BS 1560 and ASME/ANSI B16.5 Flanges

Pipe Nominal Bore (NB)	Class 1500			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	18.7	32.2	63.5
20	20.6	25	40.1	69.9
25	27	31.4	48	79.4
32	34.9	44.1	60.7	88.9
40	41.3	50.4	70.3	98.4
50	52.4	66.3	86.1	142.9
65	63.5	79	98.8	165.1
80	77.8	94.9	121.1	174.6
100	103.2	120.3	149.6	209.6
125	128.5	147.2	178.2	254
150	154	174.2	210	282.6
200	203.2	225	263.9	352.4
250	254	280.6	317.9	435
300	303.2	333	375.1	520.7
350	342.9	364.7	406.8	577.9
400	393.7	415.5	464	641.4
450	444.5	469.5	527.5	704.9
500	495.3	520.3	578.3	755.7
600	596.9	625.1	686.2	901.7



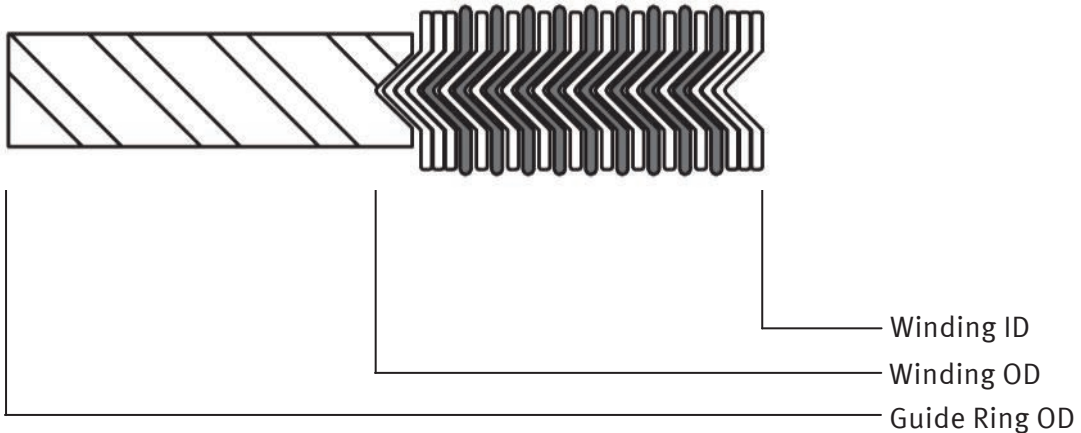
Dimensions for Style WR and WRI as per British BS 3381
to suit BS 1560 and ASME/ANSI B16.5 Flanges

Pipe Nominal Bore (NB)	Class 2500			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	14.3	18.7	32.2	69.9
20	20.6	25	40.1	76.2
25	27	31.4	48	85.7
32	34.9	39.3	60.7	104.8
40	41.3	47.2	70.3	117.5
50	52.4	58.3	86.1	146.1
65	63.5	69.5	98.8	168.3
80	77.8	91.7	121.1	196.9
100	103.2	117.1	149.6	235
125	128.5	142.5	178.2	279.4
150	154	171.1	210	317.5
200	203.2	215.5	263.9	387.4
250	254	269.5	317.9	476.3
300	303.2	323.5	375.1	549.6



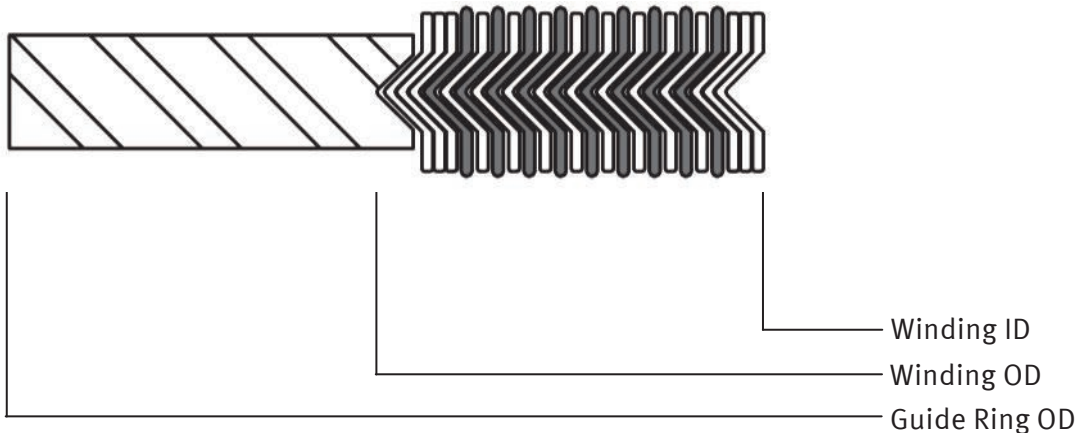
Dimensions for Style WR to suit French Standard NF-M-87621

Pipe Nominal Bore	Class 150			Class 300			Class 600		
	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	19	29	47	19	29	54	19	29	54
20	25	37	57	25	37	66	25	37	66
25	32	44	66	32	44	73	32	44	73
32	48	57	76	48	57	82	48	57	82
40	54	67	85	54	67	95	54	67	95
50	70	82	104	70	82	111	70	82	111
65	83	95	124	???	95	130	83	95	130
80	102	117	136	102	117	149	102	117	149
100	127	146	174	127	146	181	120	146	193
125	156	176	197	156	176	216	148	176	241
150	183	206	222	183	206	251	175	206	266
200	233	260	279	233	260	308	225	260	320
250	287	314	339	287	314	362	275	314	400
300	340	371	409	340	371	422	327	371	457
350	372	403	451	372	403	485	362	403	492
400	422	460	514	422	460	539	413	460	565
450	475	524	549	475	524	597	470	524	612
500	525	575	606	525	575	654	521	575	682
600	629	682	717	629	682	774	629	682	790



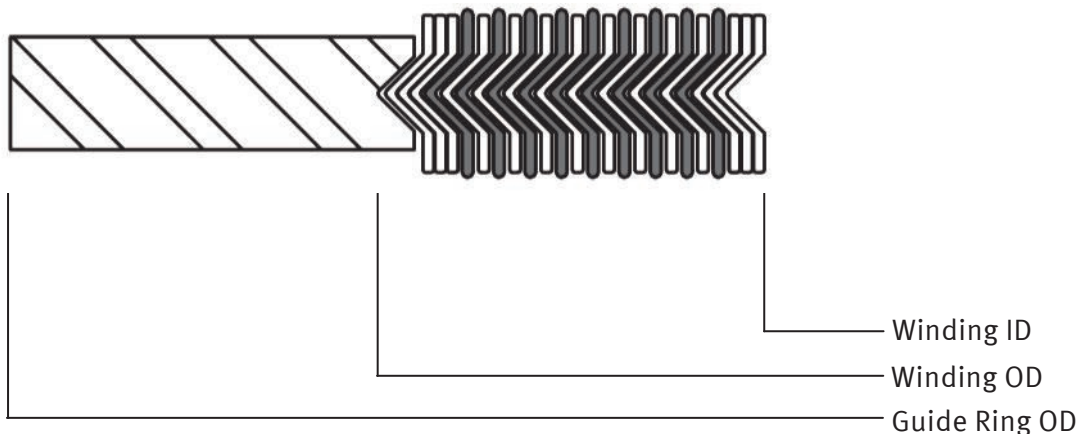
Dimensions for Style WR to suit French Standard NF-M-87621

Pipe Nominal Bore	Class 900			Class 1500			Class 2500		
	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	19	29	63	19	29	63	19	29	70
20	25	37	70	25	37	70	25	37	76
25	32	44	79	32	44	79	32	44	86
32	40	57	89	40	57	89	40	57	105
40	48	67	98	48	67	98	48	67	117
50	59	82	143	59	82	143	59	82	146
65	70	95	165	70	95	165	70	95	168
80	95	117	168	92	117	174	92	117	197
100	120	146	206	118	146	209	118	146	235
125	148	176	247	143	176	254	143	176	279
150	175	206	289	171	206	282	171	206	317
200	225	260	359	216	260	352	216	260	387
250	275	314	435	270	314	435	270	314	476
300	327	371	498	324	371	520	324	371	549
350	362	403	520	362	403	578	---	---	---
400	413	460	574	413	460	641	---	---	---
450	464	524	638	454	524	705	---	---	---
500	514	575	698	514	575	756	---	---	---
600	616	682	838	516	682	901	---	---	---



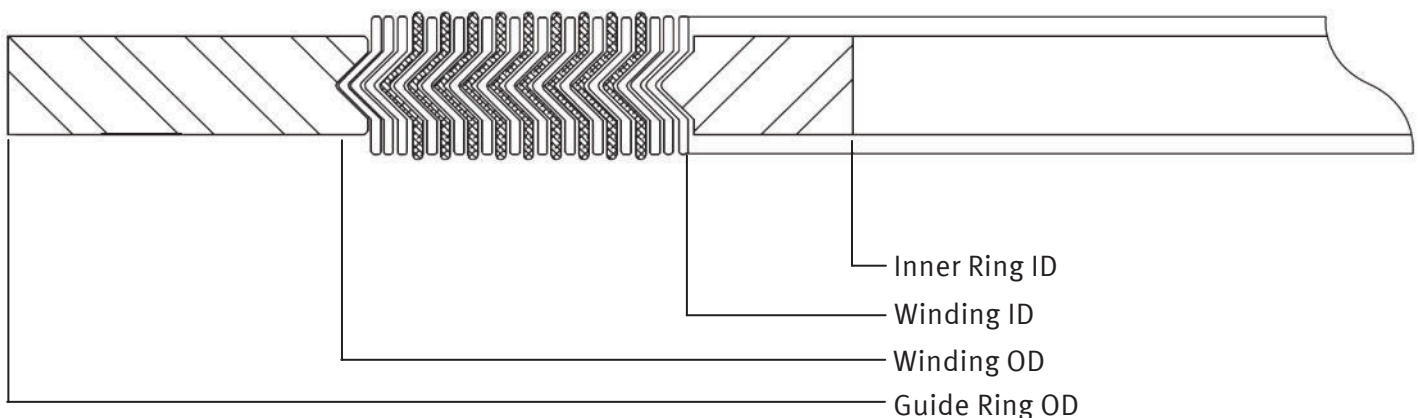
Dimensions for Style WR to suit Japanese (JIS) Flanges Pressure Rating of 10kgf/cm²

DN	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
10	24	37	52
15	28	41	57
20	34	47	62
25	40	53	74
32	51	67	84
40	57	73	89
50	69	89	104
65	87	107	124
80	98	118	134
90	110	130	144
100	123	<u>143</u>	159
125	148	173	190
150	174	199	220
175	201	226	245
200	227	252	270
225	252	277	290
250	278	310	332
300	329	361	377
350	366	406	422
400	417	457	484
450	468	518	539
500	518	568	594
550	569	619	650
600	620	670	700



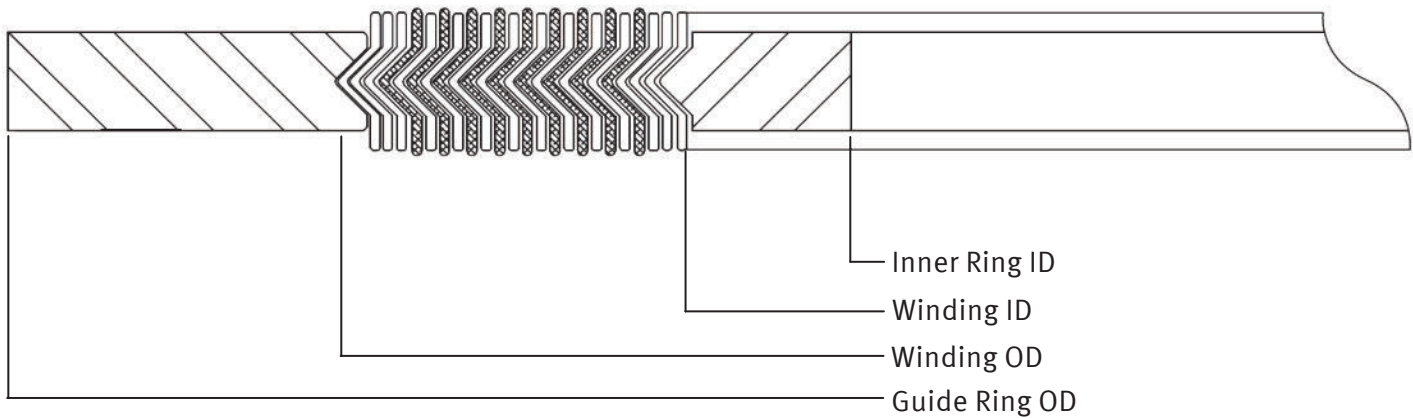
Dimensions for Style WR and WRI to suit Japanese (JIS) Flanges Pressure Rating of 16-20kgf/cm²

DN	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
10	18	24	37	52
15	22	28	41	57
20	28	34	47	62
25	34	40	53	74
32	43	51	67	84
40	49	57	73	89
50	61	69	89	104
65	77	87	107	124
80	89	99	119	140
90	102	114	139	150
100	115	127	152	165
125	140	152	177	202
150	166	182	214	237
175	---	---	---	---
200	217	233	265	282
225	---	---	---	---
250	268	288	328	354
300	319	339	379	404
350	356	376	416	450
400	407	432	482	508
450	458	483	533	573
500	508	533	583	628
550	559	584	634	684
600	610	635	685	734



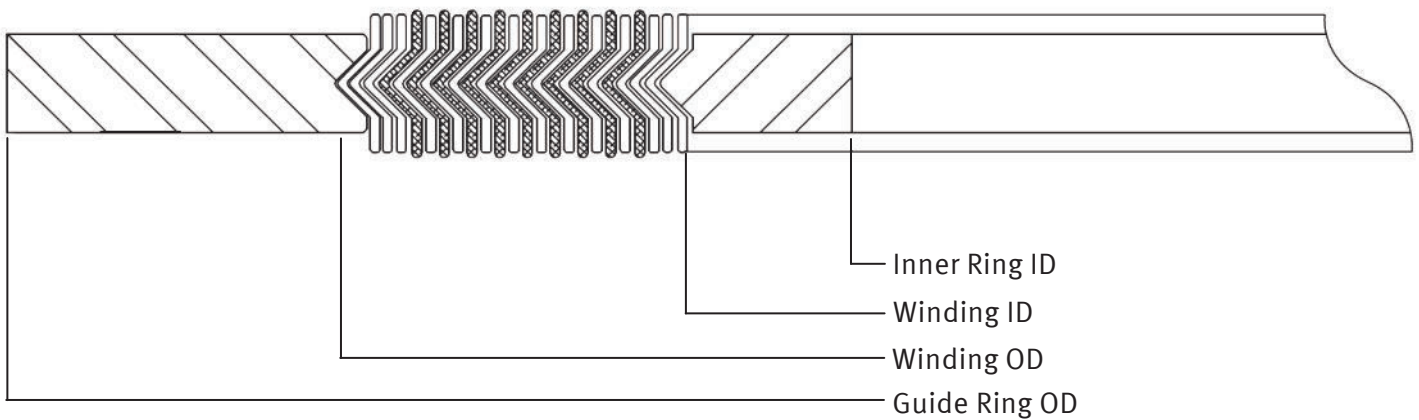
Dimensions for Style WR and WRI to suit Japanese (JIS) Flanges Pressure Rating of 30kgf/cm²

DN	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
10	18	24	37	59
15	22	28	41	64
20	28	34	47	69
25	34	40	53	79
32	43	51	67	89
40	49	57	73	100
50	61	69	89	114
65	68	78	98	140
80	80	90	110	150
90	92	102	127	162
100	104	116	141	172
125	128	140	165	207
150	153	165	197	249
200	202	218	250	294
250	251	271	311	360
300	300	320	360	418
350	336	356	396	463
400	383	403	453	524



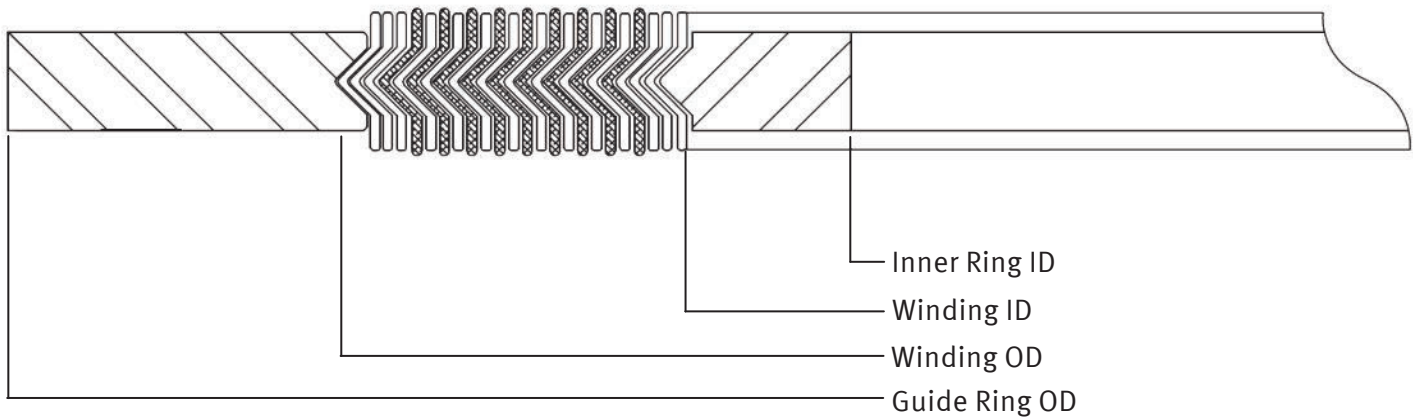
Dimensions for Style WR and WRI to suit Japanese (JIS) Flanges Pressure Rating of 40kgf/cm²

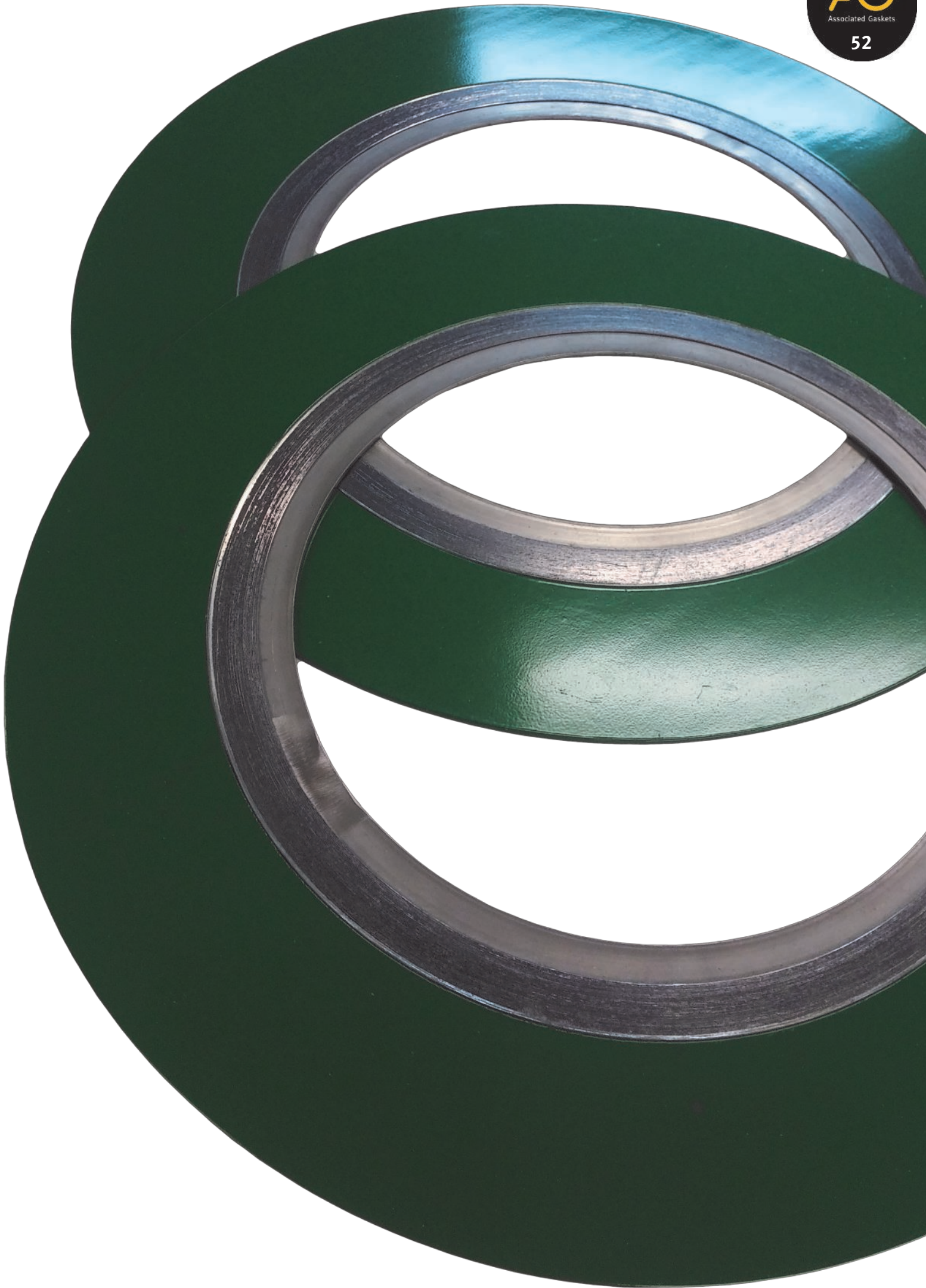
DN	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
10	15	21	34	59
15	18	24	37	64
20	23	29	42	69
25	29	35	48	79
32	38	44	60	89
40	43	51	67	100
50	55	63	79	114
65	68	78	98	140
80	80	90	110	150
90	92	102	127	162
100	104	116	141	182
125	128	140	165	224
150	153	165	197	265
200	202	218	250	315
250	251	271	311	378
300	300	320	360	434
350	336	356	396	479
400	383	403	453	531



Dimensions for Style WR and WRI to suit Japanese (JIS) Flanges Pressure Rating of 63kgf/cm²

DN	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
10	15	21	34	64
15	18	24	37	69
20	23	29	42	75
25	29	35	48	80
32	38	44	60	90
40	43	51	67	107
50	55	63	79	125
65	68	78	98	152
80	80	90	110	162
90	92	102	127	179
100	104	116	141	194
125	128	140	165	235
150	153	165	197	275
200	202	218	250	328
250	251	271	311	394
300	300	320	360	446
350	336	356	396	488
400	383	403	453	545

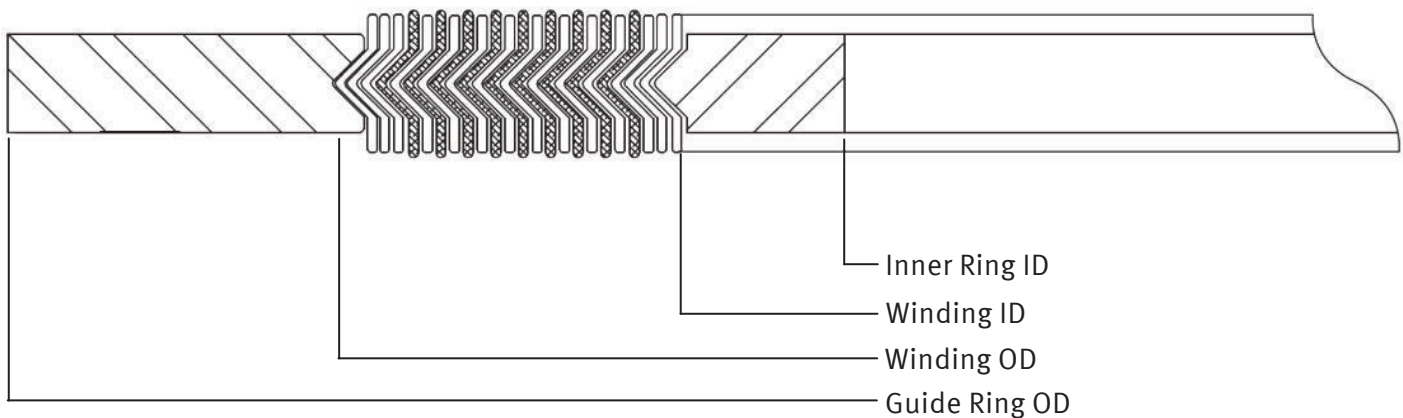




Style WR-RJ and WRI-RJ Gaskets

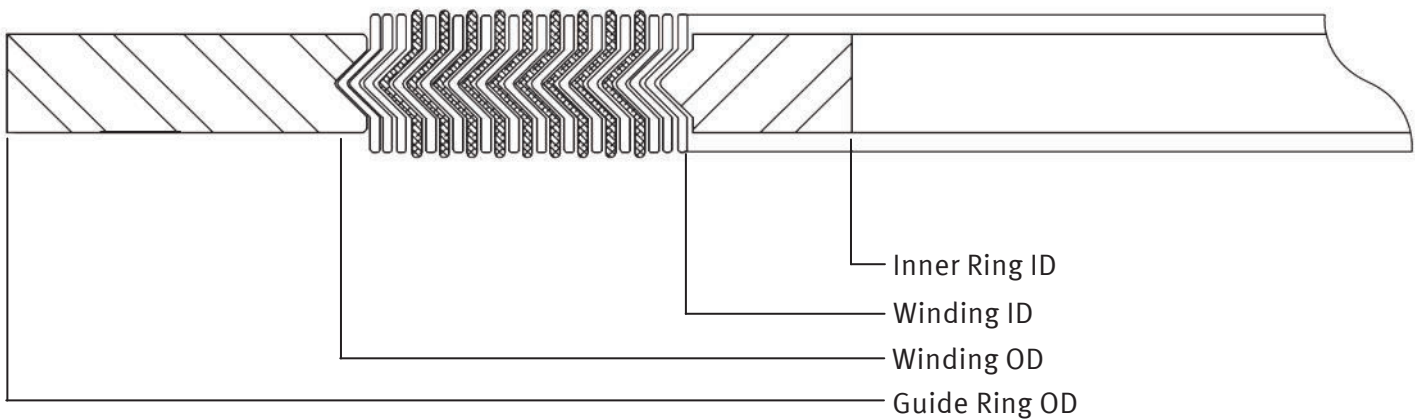
Dimensions for Style WR-RJ and WRI-RJ
to suit Raised Face to RTJ Flanges

Pipe Nominal Bore (NB)	Class 150			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
25	Contact AG for Sizing Information			
32	Inside Diameter of Inner Ring will Depend on Bore Schedule.	34.9	46	76.2
40		41.3	54	85.7
50		54	69.9	104.8
65		69.9	84.1	123.8
80		84.1	100	136.5
100		109.5	131.8	174.6
125		134.9	157.2	196.9
150		160.3	182.6	222.3
200		209.6	233.4	279.4
250		261.9	290.5	339.7
300		309.6	344.5	409.6
350		341.3	379.4	450.9
400		388.9	430.2	514.4
450		438.2	482.6	549.3
500		485.8	536.6	606.4
600		584.2	641.4	717.6



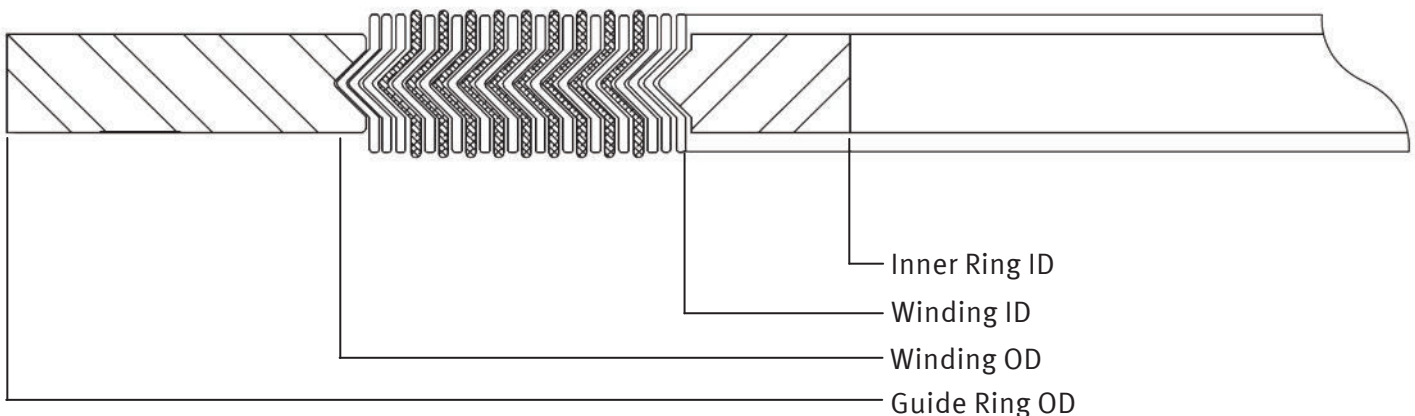
Dimensions for Style WR-RJ and WRI-RJ to suit Raised Face to RTJ Flanges

Pipe Nominal Bore (NB)	Class 300			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	Inside Diameter of Inner Ring will Depend on Bore Schedule.	14.3	23.8	54
20		20.6	31.8	66.7
25		27	39.7	73
32		33.3	47.6	82.6
40		39.7	55.6	95.3
50		54	68.3	111.1
65		69.9	84.1	130.2
80		84.1	100	149.2
100		109.5	131.8	181
125		134.9	163.5	215.9
150		163.5	193.7	250.8
200		209.6	252.4	308
250		261.9	304.8	362
300		327	362	422.3
350		362	400.1	485.8
400		412.8	450.9	539.8
450		463.6	514.4	596.9
500		514.4	563.6	654.1
600		616	668.3	774.7



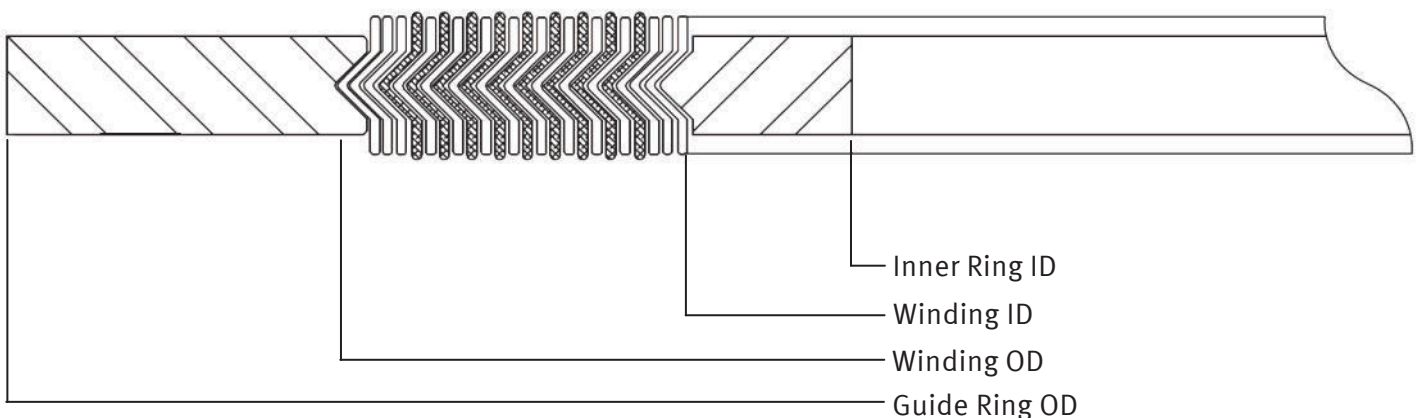
Dimensions for Style WR-RJ and WRI-RJ to suit Raised Face to RTJ Flanges

Pipe Nominal Bore (NB)	Class 400			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	Inside Diameter of Inner Ring will Depend on Bore Schedule.	14.3	23.8	54
20		20.6	31.8	66.7
25		27	39.7	73
32		33.3	47.6	82.6
40		39.7	55.6	95.3
50		54	68.3	111.1
65		69.9	84.1	130.2
80		84.1	100	149.2
100		109.5	131.8	177.8
125		134.9	163.5	212.7
150		163.5	193.7	247.7
200		209.6	252.4	304.8
250		261.9	304.8	358.8
300		327	362	419.1
350		362	400.1	482.6
400		412.8	450.9	536.6
450		463.6	514.4	593.7
500		514.4	563.6	647.7
600		616	668.3	768.4



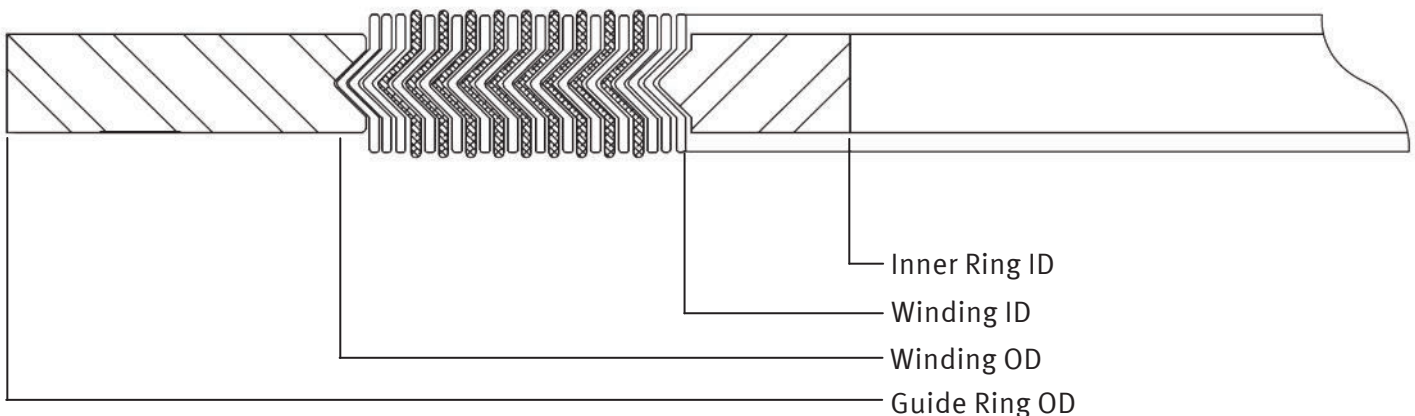
Dimensions for Style WR-RJ and WRI-RJ to suit Raised Face to RTJ Flanges

Pipe Nominal Bore (NB)	Class 600			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	Inside Diameter of Inner Ring will Depend on Bore Schedule.	14.3	23.8	54
20		20.6	31.8	66.7
25		27	39.7	73
32		33.3	47.6	82.6
40		39.7	55.6	95.3
50		54	68.3	111.1
65		69.9	84.1	130.2
80		84.1	100	149.2
100		109.5	131.8	193.7
125		134.9	163.5	241.3
150		163.5	193.7	266.7
200		209.6	252.4	320.7
250		261.9	304.8	400.1
300		327	362	457.2
350		362	400.1	492.1
400		412.8	450.9	565.2
450		463.6	514.4	612.8
500		514.4	563.6	682.6
600		616	668.3	790.6



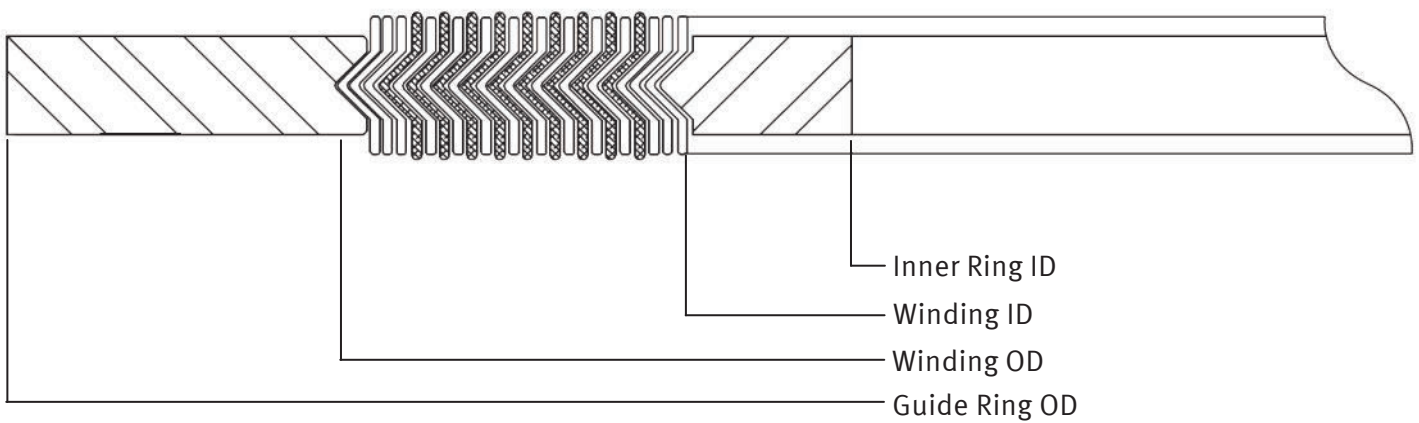
Dimensions for Style WR-RJ and WRI-RJ to suit Raised Face to RTJ Flanges

Pipe Nominal Bore (NB)	Class 900			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	Inside Diameter of Inner Ring will Depend on Bore Schedule.	14.3	27	63.5
20		20.6	33.3	69.9
25		27	39.7	79.4
32		33.3	49.2	88.9
40		39.7	57.2	98.4
50		57.2	81	142.9
65		65.1	92.1	165.1
80		81	106.4	168.3
100		103.2	131.8	206.4
125		134.9	163.5	247.7
150		160.3	193.7	288.9
200		209.6	252.4	358.8
250		261.9	304.8	435
300		327	362	498.5
350		350.8	395.3	520.7
400		395.3	446.1	574.7
450		449.3	506.4	638.2
500		500.1	557.2	698.5
600		589	658.8	838.2



Dimensions for Style WR-RJ and WRI-RJ to suit Raised Face to RTJ Flanges

Pipe Nominal Bore (NB)	Class 1500			
	Inner Ring Inside Diameter (mm)	Winding Inside Diameter (mm)	Winding Outside Diameter (mm)	Guide Ring Outside Diameter (mm)
15	Inside Diameter of Inner Ring will Depend on Bore Schedule.	14.3	27	63.5
20		20.6	33.3	69.9
25		27	39.7	79.4
32		33.3	49.2	88.9
40		39.7	57.2	98.4
50		57.2	81	142.9
65		65.1	92.1	165.1
80		81	119.1	174.6
100		103.2	144.5	209.6
125		128.6	176.2	254
150		152.4	192.1	282.6
200		200	247.7	352.4
250		249.2	301.6	435
300		303.2	354	520.7
350		341.3	385.8	577.9
400		381	431.8	641.4
450		438.2	495.3	704.9
500		487.4	544.5	755.7
600		584.2	647.7	901.7





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