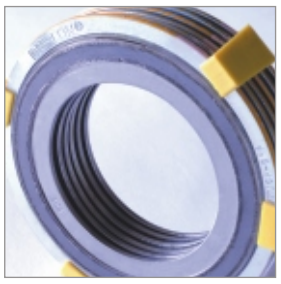
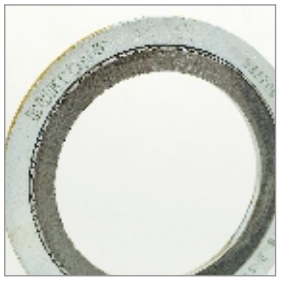
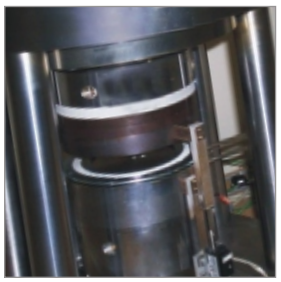
DURLON® GASKET MATERIAL

gasket resources incorporated







The Durlon® Spiral Wound Gasket

Superior Manufacturing · Quality Performance

Gasket Resources Inc. (GRI)

GRI is a market-driven and technology based company, serving customers throughout the world with innovative fluid sealing products and services. GRI serves a wide range of end-user customers whose success depends on the reliable performance of their equipment and piping systems.

Innovative Product Development

GRI's product development and quality assurance teams are tirelessly working on the next innovative Durlon® solution. Durlon® sealing products have been designed, tested and proven before they are introduced in the field so that they perform well every day—providing reliability, cost savings and process safely improvements in a wide range of demanding applications.

Our recent product solutions have included the Durlon® **RCA™ Gasket** (Reduced Contact Area) which provides a leak-free gasket in very low bolt stress applications in metallic and FRP or similar non-metallic flanges. And the **Identa-Seal™** program, which offers color coding by grade of Genuine Viton®, eliminating material mix-ups caused by too many black elastomers and inferior look-alikes. The Durlon® **Identa-Seal™** products have been proven to perform equivalent to Genuine Viton® black compounds—*taking the guesswork out of material identification.*

GRI also held a leading position in the MTI (Material Technology Institute) Flange Make-Up Training Program. The Flange Make-Up Training Rig project earned an Engineering Excellence Award Nomination and has proven to be an effective method for GRI to educate pipefitters and contractors on "flange make-up" best practices—improving reliability—saving from costly downtime and improving process safety.

Introducing the Durlon® Metallic Division

The Durlon® CFG (Corrugated Flexible Graphite) will maintain a tight seal in a wide range of initial seating stresses. The CFG is fire safe, blow-out resistant and has excellent recovery properties. The CFG can be fabricated in special shapes for applications like heat exchanger gaskets and other equipment.

The Durlon®
Spiral Wou

Durlon® Spiral Wound Gaskets (SWG) are made with an alternating combination of a preformed engineered metal strip and a more compressible filler material which creates an excellent seal when compressed. The engineered shape of the metal strip acts as a spring under load, resulting in a very resilient seal under varying conditions.

The strip metallurgy and filler material can be selected to seal a wide range of applications. All Durlon® SWG styles have been engineered to precise manufacturing tolerances that allow for lower stress (bolt load) sealing compared to conventional spiral wound gaskets.

All Durlon® SWG are manufactured according to ASME B16.20 standards. Quality Assurance complies to API Specification Q1 and ISO 9001:2000.

M&Y Factors	m
Durlon SWG Type D, DR and DRI Graphite, Graphite/Mica, PTFE	2.8

ROTT Factors	Gb psi
Durlon SWG Type D, DR and DRI – Graphite	86
Durlon SWG Type D, DR and DRI – Graphite/Mica	90
Durlon SWG Type D, DR and DRI – PTFE	173

nd Gasket

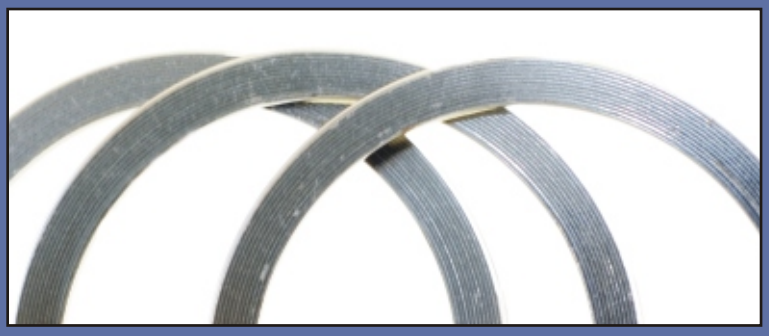
y psi	
6500	
a	**Gs psi**
0.594	0.1
0.590	0.1
0.405	1.0

TEST RESULTS

Durlon® SWG gaskets obtain their initial seat with very low seating stress and provide a tighter seal than typical low stress spiral wounds and other high temperature alternative gaskets.

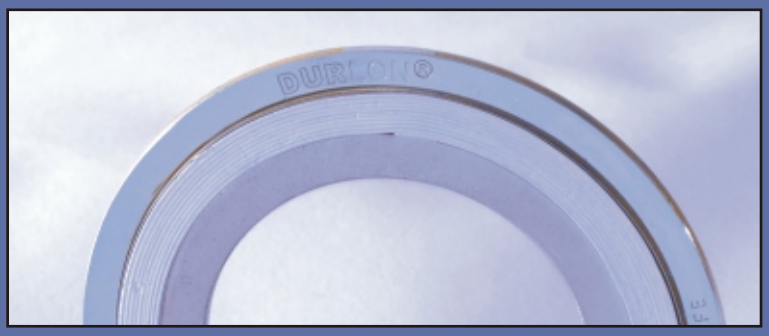
There are three styles of standard Durlon® Spiral Wound Gaskets:

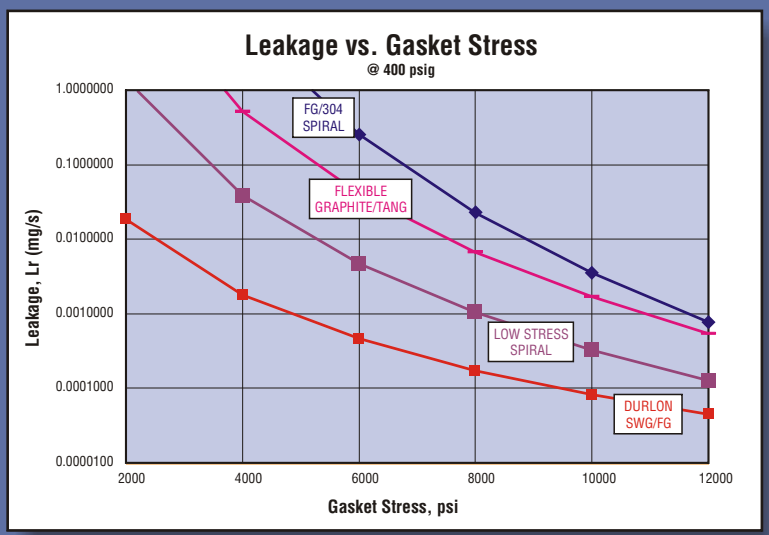
Style D- Sealing element



Style DR- Sealing element (D) centering ring (R) which acts as a compression stop

Style DRI- Sealing element (D) centering ring (R) and inner ring (I) which protects the sealing element from erosion, inward buckling and improves radial strength.





Dimensions for DURLON® Style D, DR & DRI Spiral Wound Gaskets to be used with ASME B16.5 Flanges

to ASME B16.20

Nominal Pipe Size	Outside Diameter of Gasket		Inside Diameter of Gasket						Outside Diameter of Centering Ring						Inside Diameter of Inner-Ring				
	Class 150, 300, 600	Class 900, 1500, 2500	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500	Class 150, 300	Class 600	Class 900	Class 1500	Class 2500
1/2"	1.25	1.25	0.75	0.75	0.75	---	0.75	0.75	1.88	2.13	2.13	---	2.50	2.75	0.56	0.56	---	0.56	0.56
3/4"	1.56	1.56	1.00	1.00	1.00	---	1.00	1.00	2.25	2.63	2.63	---	2.75	3.00	0.81	0.81	---	0.81	0.81
1"	1.88	1.88	1.25	1.25	1.25	---	1.25	1.25	2.63	2.88	2.88	---	3.13	3.38	1.06	1.06	---	1.06	1.06
1-1/4"	2.38	2.38	1.88	1.88	1.88	---	1.56	1.56	3.00	3.25	3.25	---	3.50	4.13	1.50	1.50	---	1.31	1.31
1-1/2"	2.75	2.75	2.13	2.13	2.13	---	1.88	1.88	3.38	3.75	3.75	---	3.88	4.63	1.75	1.75	---	1.63	1.63
2"	3.38	3.38	2.75	2.75	2.75	---	2.31	2.31	4.13	4.38	4.38	---	5.63	5.75	2.19	2.19	---	2.06	2.06
2-1/2"	3.88	3.88	3.25	3.25	3.25	---	2.75	2.75	4.88	5.13	5.13	---	6.50	6.63	2.62	2.62	---	2.50	2.50
3"	4.75	4.75	4.00	4.00	4.00	3.75	3.63	3.63	5.38	5.88	5.88	6.63	6.88	7.75	3.19	3.19	3.10	3.10	3.10
4"	5.88	5.88	5.00	5.00	4.75	4.75	4.63	4.63	6.88	7.13	7.63	8.13	8.25	9.25	4.19	4.04	4.04	3.85	3.85
5"	7.00	7.00	6.13	6.13	5.81	5.81	5.63	5.63	7.75	8.50	9.50	9.75	10.00	11.00	5.19	5.05	5.05	4.90	4.90
6"	8.25	8.25	7.19	7.19	6.88	6.88	6.75	6.75	8.75	9.88	10.50	11.38	11.13	12.50	6.19	6.10	6.10	5.80	5.80
8"	10.38	10.13	9.19	9.19	8.88	8.75	8.50	8.50	11.00	12.13	12.63	14.13	13.88	15.25	8.50	8.10	7.75	7.75	7.75
10"	12.50	12.25	11.31	11.31	10.81	10.88	10.50	10.63	13.38	14.25	15.75	17.13	17.13	18.75	10.56	10.05	9.69	9.69	9.69
12"	14.75	14.50	13.38	13.38	12.88	12.75	12.75	12.50	16.13	16.63	18.00	19.63	20.50	21.63	12.50	12.10	11.50	11.50	11.50
14"	16.00	15.75	14.63	14.63	14.25	14.00	14.25	---	17.75	19.13	19.38	20.50	22.75	---	13.75	13.50	12.63	12.63	---
16"	18.25	18.00	16.63	16.63	16.25	16.25	16.00	---	20.25	21.25	22.25	22.63	25.25	---	15.75	15.35	14.75	14.50	---
18"	20.75	20.50	18.69	18.69	18.50	18.25	18.25	---	21.63	23.50	24.13	25.13	27.75	---	17.69	17.25	16.75	16.75	---
20"	22.75	22.50	20.69	20.69	20.50	20.50	20.25	---	23.88	25.75	26.88	27.50	29.75	---	19.69	19.25	19.00	18.75	---
24"	27.00	26.75	24.75	24.75	24.75	24.75	24.25	---	28.25	30.50	31.13	33.00	35.50	---	23.75	23.25	23.25	22.75	---

Notes:
Inner rings are required for all PTFE filled gaskets and for NPS 24" Class 900 gaskets,
NPS 12" - 24" Class 1500 gaskets, and NPS 4" - 12" Class 2500 gaskets (highlighted in yellow).

Warning: For specific application recommendations consult GRI Technical Services. These materials should never be recommended when both temperature and pressure are at the maximum listed. Properties and applications shown are typical. No application should be undertaken by anyone without independent study and evaluation for suitability. Never use more than one gasket in one flange joint, and never reuse a gasket. Improper use or gasket selection could cause property damage and/or serious personal injury. Data reported in this brochure is a compilation of field testing, field service reports and/or in-house testing. While the utmost care has gone into publishing the information contained herein, we assume no responsibility errors. Specifications and information contained in this brochure are subject to change without notice. This edition cancels and obsoletes all previous editions.

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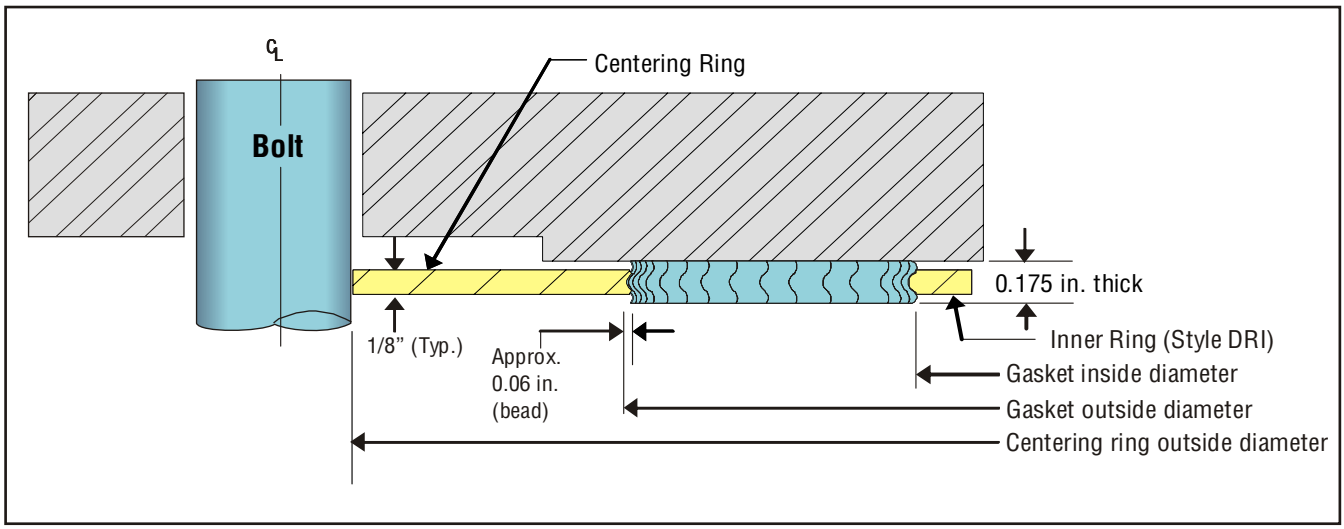

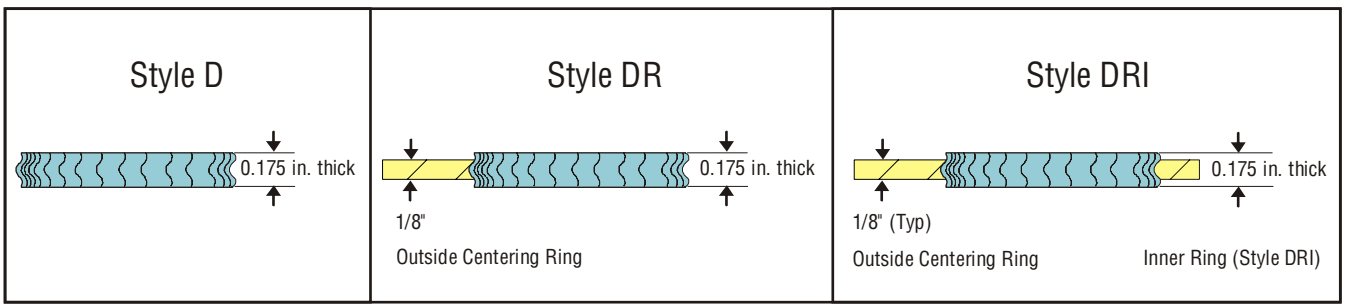

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Color Coding Guidelines for Spiral Wound Gaskets

Metalurgy

Material	Minimum F	Minimum C	Maximum F	Maximum C	Abbreviation	Guide Ring Color Code*
304 Stainless Steel	-320	-195	1,400	760	304	Yellow
316L Stainless Steel	-150	-100	1,400	760	316L	Green
317L Stainless Steel	-150	-100	1,400	760	317L	Maroon
321 Stainless Steel	-320	-195	1,400	760	321	Turquoise
347 Stainless Steel	-320	-195	1,700	925	347	Blue
Carbon Steel	-40	-40	1,000	540	CRS	Silver
20Cb-3 (Alloy 20)	-300	-185	1,400	760	A-20)	Black
HASTELLOY® B 2	-300	-185	2,000	1,090	HAST B	Brown
HASTELLOY® C 276	-300	-185	2,000	1,090	HAST C	Beige
INCOLOY® 800	-150	-100	1,600	870	IN 800	White
INCOLOY® 825	-150	-100	1,600	870	IN 825	White
INCONEL® 600	-150	-100	2,000	1,090	INC 600	Gold
INCONEL® 625	-150	-100	2,000	1,090	INCO 625	Gold
INCONEL® X750	-150	-100	2,000	1,090	INX	NO COLOR
MONEL® 400	-200	-130	1,500	820	MON	Orange
Nickel 200	-320	-195	1,400	760	NI	Red
Titanium	-320	-195	2,000	1,090	TI	Purple
						*ASME B 16.20 Standard

Filler Materials

Material*	Minimum F	Minimum C	Maximum COT F	Maximum COT C	Abbreviation	Stripe Color Code*
Ceramic	-350	-212	2,000	1,090	CER	Light Green
Flexible Graphite	-350	-212	950	510	F.G.	Gray
PTFE	-400	-240	500	260	PTFE	White
Mica Graphite	-350	-212	1100	590	MICA-GRA	Pink
						*ASME B 16.20 Standard

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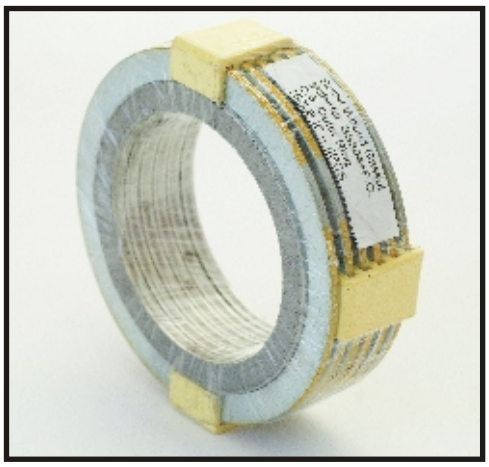
Durlon® Spiral Wound Gaskets are manufactured according to ASME B16.20 standards which stipulate that that an inner ring is required for all PTFE filled gaskets and for all class 900, 1500 and 2500 class gaskets.

Durlon® Style DR and DRI gasket centering rings are zinc electro-plated providing superior corrosion resistance compared to powder coatings. Zinc electro-plating (silver in color) also facilitates easier identification of the gasket as the plating does not fill in the identification markings as is prone to powder coatings.

Durlon® Spiral Wounds are packaged with the utmost care to prevent damage during shipping to the job site.



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GASKET RESOURCES INC.

Our Company

We are market-driven and technology-based, serving customers throughout the *world* with innovative fluid sealing products.

Our People

GRI regards people as its most important resource. We foster leadership, individual accountability, and teamwork. Our employees are professionals whose entrepreneurial behavior is result-oriented and guided by personal integrity. In return, our employees can count on opportunities for individual and professional development in an empowering working environment.

Our Sealing Products

Durlon® sealing products have the widest possible range of service applications, therefore, the number of different types of gaskets required to be inventoried can be greatly reduced. This impacts process safety because limiting the number of gasket styles reduces the chance of installing the wrong gasket in the wrong service.

For these reasons, more and more original equipment manufacturers and industrial consumers are specifying Durlon® gasket materials for their needs.

Durlon® products are used in virtually every industrialized corner of the world. Our gasket materials are manufactured to ISO 9001:2000 quality standards and are subjected to continuous testing and rigid quality control. And, our cutting and fabrication facility is ISO 9001:2000 certified. This ensures unvarying performance on the job.

Our state-of-the-art research and development facility is geared to meet the ever-changing demands required in today's variety of service conditions. Since their inception, DURLON® gasket materials have undergone many enhancements, each incorporating the latest technology to better meet the wide variety of industry's changing needs.

Gasket Resources Inc. recognizes that today more emphasis is being placed on fugitive emissions via the Clean Air Act in the U.S., and various regulations in other countries. Therefore one of our prime design objectives is to maximize the sealability of our gasket materials to meet fugitive emissions requirements.

INNOVATIVE DURLON® FABRICATION ADVANTAGES

Welded Durlon

Our innovative welding process enables GRI to manufacture large diameter gaskets with single piece construction.

- All of our 9000 series Filled PTFE products can be welded
- Gasket OD sizes 60" and above
- Cost effective alternative to conventional die cutting
- Retains the same physical properties as a die cut gasket
- Conforms to FDA regulations

Lathe Cut Durlon

All Filled PTFE Durlon® products can be provided lathe cut

- Cost effective alternative to conventional die cutting
- Eliminates costly center waste
- Cost effective large diameter gaskets
- Small cross sectional parts that cannot be die cut

Gasket Cutting Division

While GRI's distributors all have cutting capabilities, Gasket Resources compliments our distributors with a modern, ISO 9001:2000 certified, cutting facility and world class workmanship that can only come from experience. GRI is proud of our dedicated workforce that averages over 20 years of fabrication experience.

Our fabrication plant, located at our headquarters in Exton, PA, includes equipment not found at the most progressive fabrication facilities. These amenities include PTFE welding for large diameter gaskets over 60", Durlon® PTFE lathe cutting, computerized high speed die cutting equipment, all steel interchangeable ID/OD tooling for close tolerance ring gaskets and many more proprietary and innovative production related customer service assets.

If your Durlon® gasketing product is fabricated by Gasket Resources or our factory trained and dedicated distribution partners you are assured that you are receiving the very best value in the fluid sealing industry.

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