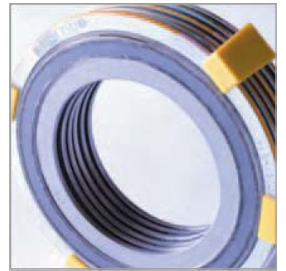


DURLON[®] GASKET MATERIAL



Triangle Fluid Controls Ltd.



The Durlon[®] Spiral Wound Gasket

Superior Manufacturing • Quality Performance

Triangle Fluid Controls Ltd. (TFC)

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

Innovative Product Development

TFC'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.*

Safe, Reliable, Versatile

- Widest possible range of service applications - fewer styles means less inventory
- Boost to process safety - fewer styles reduces chances of installing the wrong gasket
- Unvarying performance on the job - gasket materials are manufactured to ISO 9001:2000 quality standards and are subjected to continuous testing and rigid quality control

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 Wound

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® SWGs are manufactured according to ASME B16.20 standards. Quality Assurance complies with 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



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.



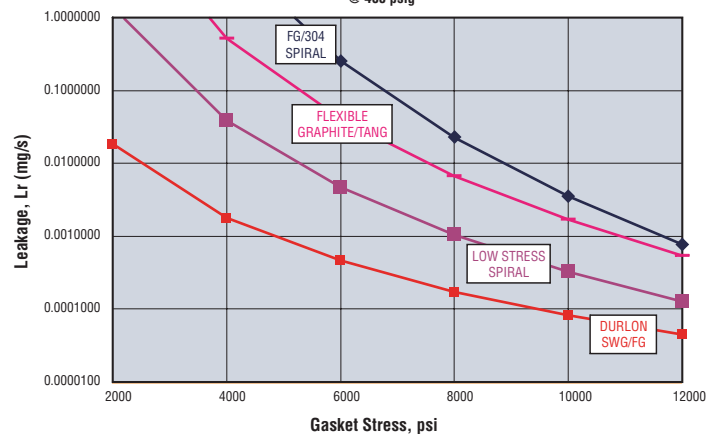
TEST RESULTS

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

| y psi | a | Gs psi |
|----------|-------|-----------|
| 6500 | 0.594 | 0.1 |
| | 0.590 | 0.1 |
| | 0.405 | 1.0 |

Leakage vs. Gasket Stress

@ 400 psig



Dimensions for DURLON® Style D, DR & DRI Spiral Wound Gaskets to be used with ASME B16.5 Flanges to ASME B16.20

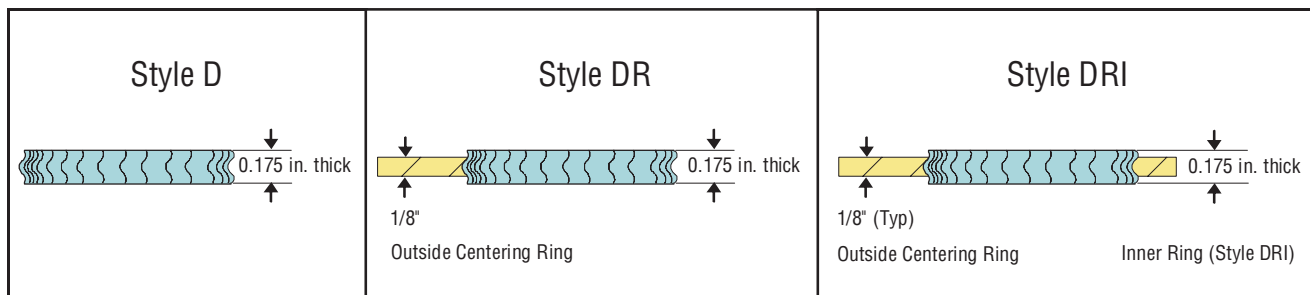
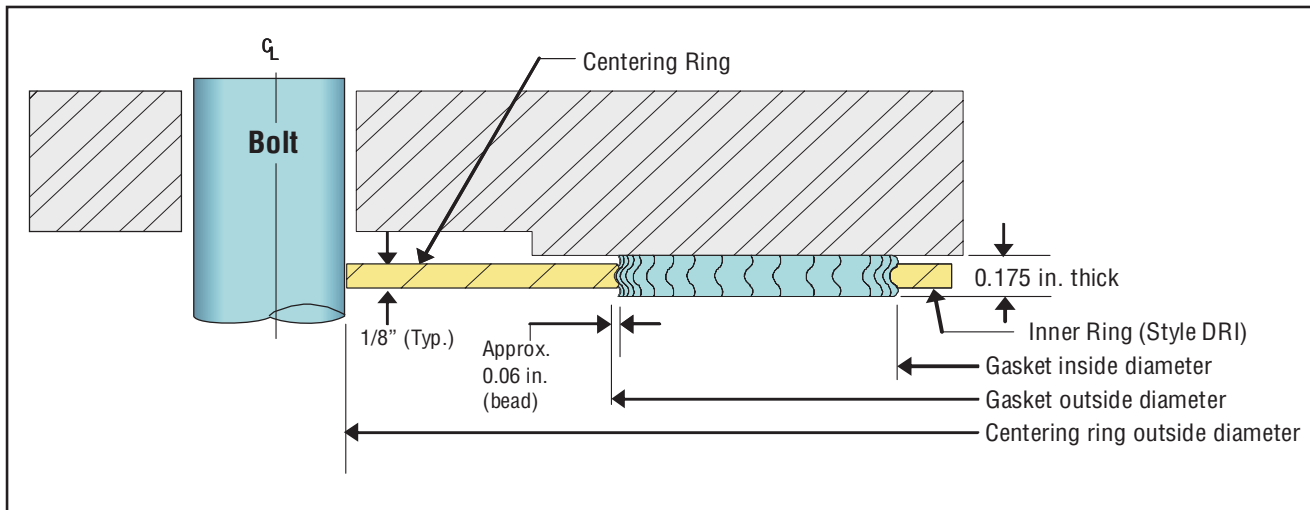
| Nominal Pipe Size | Outside Diameter of Gasket | | Inside Diameter of Gasket | | | | | | Outside Diameter of Centering Ring | | | | | | Inside Diameter of Inner Ring | | | | |
|-------------------|----------------------------|-----------------------|---------------------------|-----------|-----------|-----------|------------|------------|------------------------------------|-----------|-----------|-----------|------------|------------|-------------------------------|-----------|-----------|------------|------------|
| | 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 Triangle Fluid Controls. 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 for 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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269 University Ave
Belleville, Ont., K8N 5A2
CANADA
T: 613-968-1100
F: 613-968-1099
E: info@trianglefluid.com

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Color Coding Guidelines for Spiral Wound Gaskets

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

Detach here for reference use.

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.



 **Triangle Fluid Controls Ltd.**

269 University Ave
Belleville, Ont., K8N 5A2
CANADA

T: 613-968-1100
F: 613-968-1099
E: info@trianglefluid.com

Pulp & Paper
Utilities/Power Plant
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Liquid Connections
Air Connections
Gauging Devices
Manway Covers
Safety Valves
Bottom Outlet Valves
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Filter Screens
Stainless Piping
Storage Tanks
Blenders
Cooling Vessels
Homogenizer
Loading/Unloading Systems



Triangle Fluid Controls Ltd.

Our Company

Triangle Fluid Controls is market-driven and technology-based, serving customers throughout the *world* with innovative fluid sealing products.

Our People

TFC 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. 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.

TFC recognizes that today more emphasis is being placed on fugitive emissions via the Clean Air Act in Canada and 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.

Welded Durlon

Our innovative welding process allows us to provide 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

TFC's Quality Policy

We will strive to provide our customers and industry with quality products and superior service. We will accomplish this by:

- Our commitment to understanding and meeting or exceeding our customers expectations and requirements;
- Continual improvement of our products, services and processes; and
- Remembering that we are here because of our customers!



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269 University Ave
Belleville, Ont., K8N 5A2
CANADA

T: 613-968-1100
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E: info@trianglefluid.com

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