DURLON®
SEALING SOLUTIONS



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SEALING SOLUTIONS FOR

Pulp & Paper Industry



We succeed **when you succeed.**

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Our Vision

Evolution isn't a choice in today's business landscape; it's the only way to succeed.

Progress relies on everything moving forward, from people to machinery to production. Everything must flow.

As we engineer our way to a better world, we are breaking down barriers, making sure each process is in place, always reflecting and improving. We are experts at delivering the best sealing solutions to help our customers unlock their highest potential.

Our global community of industry-leading specialists drive our innovative production and materials to consistently raise the bar.

Whether subjected to the stresses of everyday use, specialized applications, high-temperature environments, or liquid and gas service, our products are engineered to provide reliable sealing integrity.

At Durlon®, we succeed when you succeed.

DURLON®
SEALING SOLUTIONS

Sealing Solutions for **Pulp and Paper**

Paper manufacturing involves several steps, and gaskets are used throughout to prevent leaks, reduce maintenance costs, and ensure a smooth and efficient operation. The typical flow process is as follows:

Preparation of the pulp:
The first step in paper manufacturing is the preparation of the pulp. The most common sources of pulp are wood chips and recycled paper. Wood logs are first debarked and chipped into small pieces. In the kraft pulping process, wood chips are cooked in a digester with white liquor containing primarily sodium hydroxide and sodium sulfide to dissolve lignin and separate the cellulose fibers. Recovered paper is sorted, repulped with water, cleaned, and, where required, deinked before further stock preparation.

In the pulping process, gaskets are used at flange joints, covers, housings, piping connections, and other bolted joints throughout pulping and stock-preparation equipment to help contain process liquids and chemicals.

Formation of the sheet:
After the pulp is prepared, it is sent to the paper machine where it is mixed with water to create a paper pulp. The pulp mixture is diluted with water and delivered through the headbox onto a moving forming fabric, where water drains away and the fibers form a continuous sheet. This process is called forming.
In the stock preparation process, gaskets are used in the seals of the pumps and mixers to prevent the escape of the pulp slurry.

Pressing:
After the sheet is formed, it is pressed between rollers to remove any remaining water and to improve the smoothness and uniformity of the sheet. The rollers also help to bond the fibers together.

Gaskets are used in associated piping, hydraulic systems, equipment covers, and bolted connections throughout the press section.

Drying:
After pressing, the paper sheet is passed through a series of steam-heated dryer cylinders to remove the remaining water and to dry the paper. The temperature and speed of the rollers are carefully controlled to ensure that the paper is dried evenly and without any wrinkles or tears.

Finishing:
After the paper is dried, it is wound onto large spools and taken to the finishing department. Here, the paper is cut into the desired size and weight, and it may be coated with a thin layer of clay or other material to improve its brightness and printability. The finished paper is then packed and shipped to customers.

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The paper-making process requires a large amount of water, and this water must be treated as required to meet applicable discharge or reuse requirements. In addition, the pulp and paper industry generates a significant amount of wastewater that contains various contaminants, including organic matter, chemicals, and solids. This wastewater must also be treated before it can be safely discharged.

To treat the water used in the paper making process, the pulp and paper industry uses a variety of technologies, such as sedimentation, flotation, and biological treatment. These technologies help to remove suspended solids, dissolved organic matter, and other contaminants from the water. Following treatment, water may be discharged in accordance with applicable permits and regulatory requirements or reused within the mill.

Similarly, the wastewater generated by the pulp and paper industry is treated using various technologies, such as biological treatment, chemical treatment, and physical treatment.

These technologies help to remove or reduce the levels of contaminants in the wastewater, reducing contaminant levels to meet applicable discharge or reuse requirements.





Innovative products
Unparalleled service

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Durlon® Compressed Non-Asbestos Gasket Sheets

What is Compressed Non-Asbestos (CNA) gasket material?
Compressed Non-Asbestos is a sealing material consisting of a blend of organic and inorganic chemically resistant fibers and fillers together with an elastomer binder. The type of binder used is a key factor to consider when choosing a Compressed Non-Asbestos sheet for gasketing applications.

Manufacturers of compressed non-asbestos sheet produce a variety of materials that differ in the type of fibers and binders used which are purpose-suited for specific applications. Some sheets are designed for general service applications, while others are designed for use in applications involving chemicals, oils, extreme temperatures, etc.

How does Compressed Non-Asbestos differ from elastomers?
An elastomer is a polymer which possesses an elastic property. Elastomers are polymeric materials capable of elastic deformation. Depending on the elastomer system, curing may involve sulfur, peroxides, or other crosslinking agents under controlled temperature and pressure. Natural and synthetic rubbers, such as styrene-butadiene rubber (SBR) and Buna-N (NBR), are elastomers.

Compressed Non-Asbestos, in contrast, is a material that combines organic and inorganic chemically resistant fibers and fillers. The elastomeric binder contributes flexibility and resilience, while the reinforcing fibers and fillers influence strength, temperature capability, chemical resistance, and sealing performance.

Why use Compressed Non-Asbestos sheets?
Compressed Non-Asbestos sheets have been developed to service a wide variety of sealing applications. These materials are an excellent choice for both general and severe service sealing applications.

Because Compressed Non-Asbestos sheets employ various combinations of fibers and binders, sheet manufacturers are able to produce a range of sheets with different mechanical specifications. Gaskets made from Compressed Non-Asbestos sheets have excellent sealing characteristics, bolt-load retention, heat, and chemical resistance. These types of gaskets are an excellent choice for applications involving water, air, steam, oils, acids, and general chemicals. Our high performance industrial non-metallic gasket material sheets - Compressed Non-Asbestos contain high-pressure and high-temperature aramid fiber materials that support a range of industrial sealing, thermal, and mechanical applications (petrochemical, chemical, steam, pulp & paper, pharmaceutical and potable water industries).

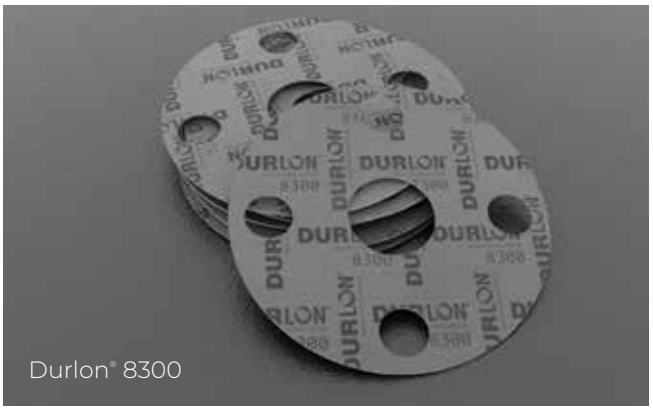
Durlon® Compressed Non-Asbestos products range from economical to premium grades with organic and inorganic chemically resistant fibers and fillers to meet the majority of general service industrial piping applications.

Enhanced Anti-Stick Formulation
Many gasket users have encountered problems with various compositions associated with flange adhesion for years.

Apart from the separation of flanges, surface imperfections can result from careless gasket removal. At elevated temperatures and pressures, there is a tendency for gasket materials to become embedded in the flange on opening. Sometimes disintegrated pieces stick to both flange mating surfaces, resulting in difficulty when removing the adhering gasket material in a safe, timely manner and without damaging the flanges. To overcome this problem, anti-stick technology is incorporated into the manufacturing process of the Compressed Non-Asbestos Durlon® products. This technology allows for improved separation from flange surfaces during removal, saving time and energy.

This new technology allows Durlon® CNA to be the best in the industry. Selected gasket and sheet materials have passed the MIL-G-24696 Navy Adhesion Test: 48 hours at 186°C (366°F).

Durlon® Product Recommendations



Durlon® 8300



Durlon® 8400



Durlon® 8500



Durlon® 9000

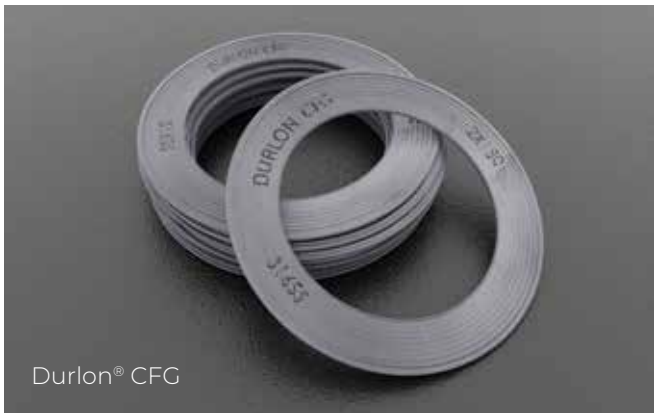


Durlon® 9200



Durlon® 9645


Durlon® SWG DRI



Durlon® CFG

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Physical Properties & Certifications

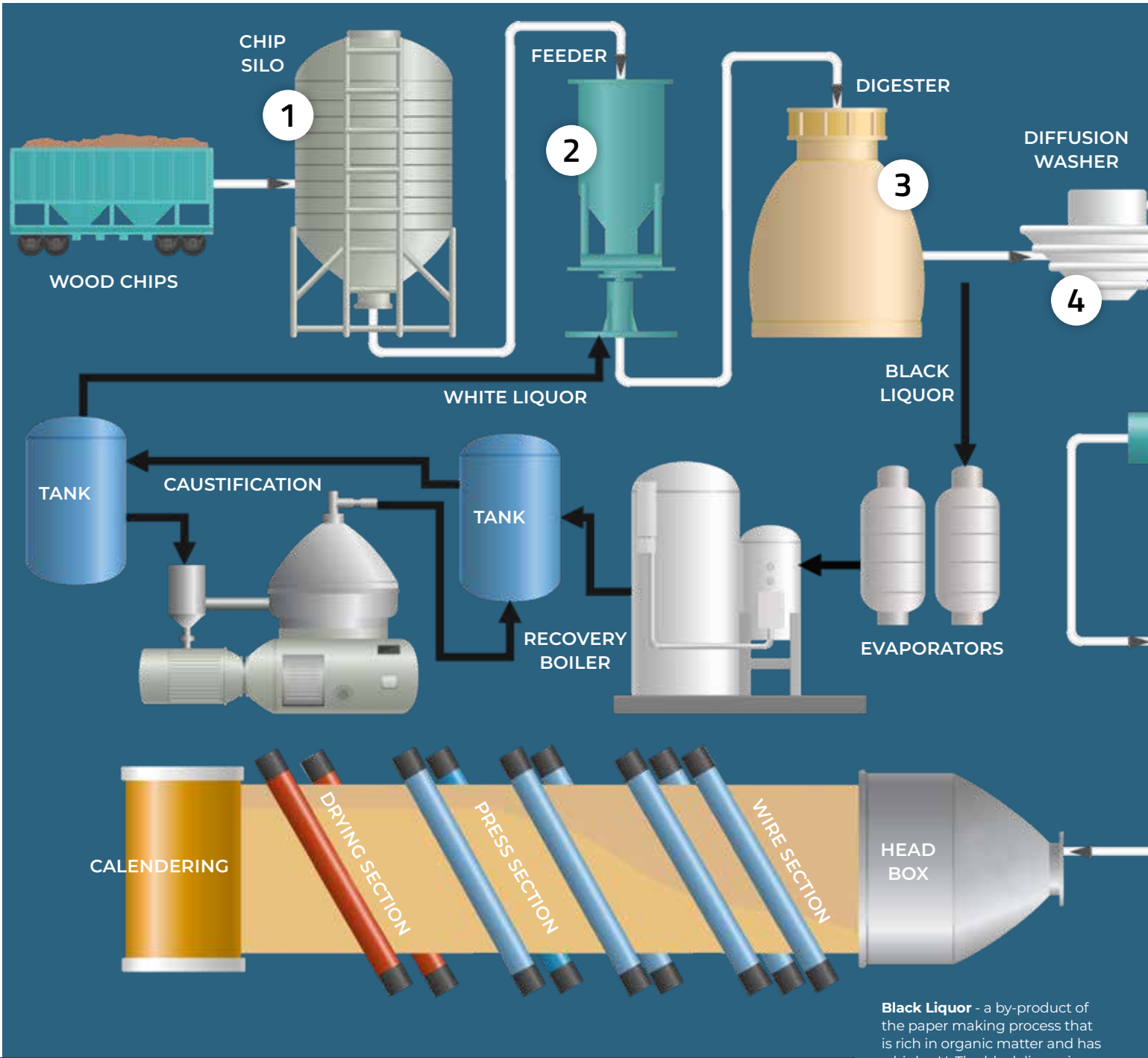
Physical Properties	8300	8400	8500	9000	9200	9645	SWG	CFG
Composition	Carbon NBR	Phenolic NBR	Aramid -Inorganic NBR	Inorganic Filler / Pure PTFE Resins	Barium Sulfate Filler / Pure PTFE Resins	Modified PTFE with rigid PTFE core	Spiral Wound Gasket	Corrugated Flexible Graphite Gasket
Color	Black	Gold	Green	Blue	Off White	White	Style: DRI	-
Temperature: Min Max Cont., Max	 -40°C (-40°F) 482°C (900°F) 343°C (650°F)	 -40°C (-40°F) 427°C (800°F) 290°C (554°F)	 -40°C (-40°F) 371°C (700°F) 287°C (548°F)	 -212°C (-350°F) 271°C (520°F) 260°C (500°F)	 -268°C (-450°F) 260°C (500°F) -	 -260°C (-436°F) 260°C (500°F) -	 -	 -200°C (-328°F) 650°C (1,200°F) 550°C (1,022°F)
Pressure, max, bar (psi)	139 (2,000)	103 (1,500)	103 (1,500)	103 (1,500)	83 (1,203)	60 (870)	-	207 (3,000)
Density, g/cm³ (lb/ft³)	1.6 (100)	1.7 (106)	1.7 (106)	2.2 (138)	-	1.3 (81)	-	-
Compressibility, %	8–16	8–16	8–16	8–16	4–10	>44	-	-
Recovery, %	50	50	50	40	40	>6.3	-	-
Creep Relaxation, %	18	25	20	30	15	<26	-	-
Tensile Strength, MPa (psi)	12.4 (1,800)	12.4 (1,800)	13.8 (2,000)	13.8 (2,000)	14 (2,030)	-	-	-
Sealability ASTM F2378 (Nitrogen)	0.05 mL/min	0.03 mL/min	0.03 mL/min	0.01 mL/min	-	-	-	-

Style	Certifications
8300	Passed API 6FB, 4th Edition Fire Test, California Proposition 65, RoHS and REACH Declaration
8400	California Proposition 65, RoHS and REACH Declaration
8500	California Proposition 65 and RoHS and REACH Declaration compliant, API 6FB Fire Test with avg. temperature >650°C, 30 minutes, 40 bar, 1 mL/(in·min) max allowable leakage, Conforms to the FDA requirements of 21 CFR 177.2600, ABS Tier 2 - PDA Issued.
9000	Passed API 6FA, 3rd Edition Fire Test, Meets USP Plastic Class VI requirements at 121°C (250°F), Conforms to FDA 21 CFR 177.1550, TA-Luft (VDI Guideline 2440) approved material, ABS-PDA & listed in Chlorine Institute Pamphlet 95, (EC) 1935/2004 & EU (10/2011) approved material.
9200	TA-Luft (VDI Guideline 2440), BAM Oxygen Service, ABS-PDA & Pamphlet 95, (EC) 1935/2004 & EU, Blow-Out & DVGW approved materials, and conforms to FDA requirements of 21 CFR 177.1550 for food and drug contact.
9645	Conforms to FDA 21 CFR 177.1550 for food and drug contact; material approved according to TA-Luft (VDI Guideline 2440).
SWG	TA-Luft (VDI Guideline 2440), Tested to API 6FB in a 6 in. Class 300 SWG FG
CFG	Passed API 6FB, 4th Edition Fire Test, RoHS and REACH Declaration compliant.

Note: ASTM properties are based on 1/16" sheet thickness, except ASTM F38 which is based on 1/32" sheet thickness. This is a general guide only and should not be the sole means of accepting or rejecting this material. The data listed here falls within the normal range of product properties, but should not be used to establish specification limits nor used alone as the basis of design. For applications above Class 300, contact our technical department.

Warning: Durlon® gasket materials should never be recommended when both temperature and pressure are at the maximum listed. Properties and applications stated are typical. No applications 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 injury. Data reported 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 within are subject to change without notice. This edition cancels and obsoletes all previous editions.

Pulp & Paper Production Process Flow Diagram



NOTE: This is a simplified representation of a typical pulp and paper production process showing the primary process flow. It does not show all process details, auxiliary equipment, instrumentation, or controls, but highlights the major equipment and process stages involved.

Black Liquor - a by-product of the paper making process that is rich in organic matter and has a high pH. The black liquor is collected and sent to the recovery process for the recovery of the chemicals.

White Liquor - a solution of sodium hydroxide and sodium sulfide that is used in the paper making process to separate wood fibers from each other.

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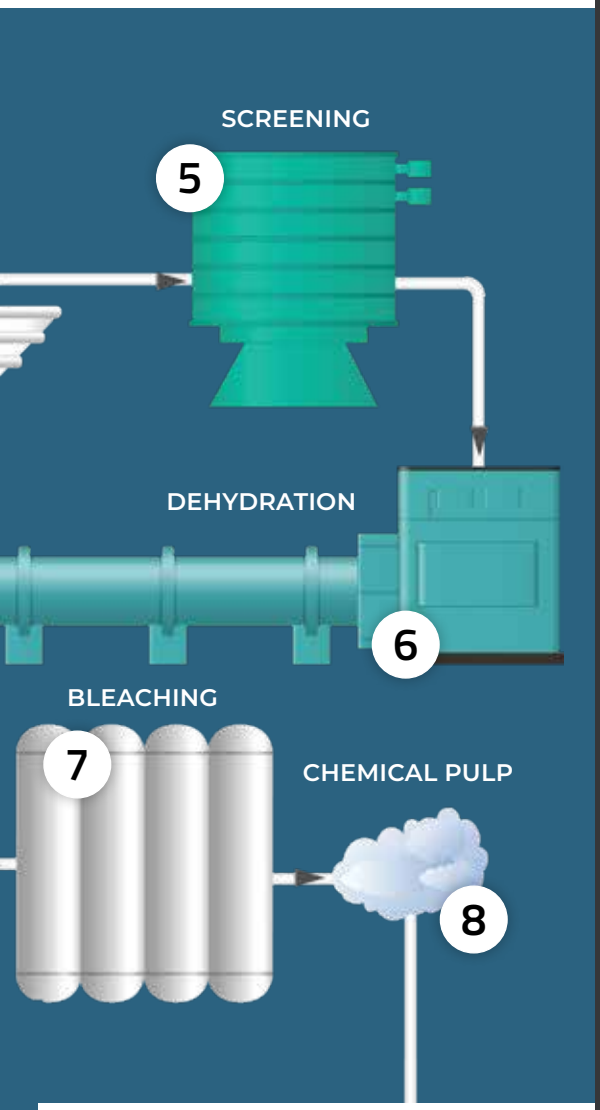

Durlon® Product List

1. 8300, 8500
2. 8300, 8500
3. 8400, 9000, 9200, 9600, Kammprofile
4. 8400, 9000, 9200, 9600
5. 8400, 9000, 9200, 9600
6. 8400, 9000, 9200, 9600
7. 9000, 9200, 9600, Durtec®
8. 8300, 8400, SWG, 9000, 9200, 9600

The pulp and paper production process involves the following stages:

1. CHIP SILO
Stores prepared wood chips before pulping.

2. FEEDER
Controls wood-chip flow into the digester.

3. DIGESTER
Cooks wood chips under pressure with white liquor to remove lignin and separate cellulose fibers.

4. DIFFUSION WASHER
Washes pulp to remove spent liquor, dissolved lignin, and soluble materials.

5. SCREENING
Removes knots, shives, bark, and other unwanted material.

6. DEHYDRATION
Removes excess water and increases pulp consistency.

7. BLEACHING
Removes residual lignin and increases pulp brightness using controlled bleaching stages.

8. CHEMICAL PULP
Prepared for paper and board production or shipment as market pulp.

Industrial Components Defined

CHEMICAL RECOVERY: Recovers kraft pulping chemicals for reuse and energy generation.

EVAPORATOR: Concentrates weak black liquor before recovery-boiler firing.

RECOVERY BOILER: Burns concentrated black liquor to recover energy and produce smelt for green liquor.

CAUSTIFICATION: Converts green liquor into regenerated white liquor using lime.

LIME KILN: Regenerates quicklime from lime mud for reuse in causticizing.

PAPER MAKING: Forms pulp into a continuous sheet and removes water before finishing.

HEAD BOX: Distributes pulp stock evenly across the forming section.

WIRE SECTION: Drains water and forms the fiber web.

PRESS SECTION: Removes additional water and consolidates the sheet.

DRYER SECTION: Uses steam-heated cylinders to remove remaining moisture.

COATING: Applies coatings to improve paper surface and performance.

CALENDERING: Controls sheet smoothness, thickness, and finish.



The core of the Durlon® brand is to provide fluid sealing solutions that make sense, both financially and strategically. We accomplish this through process-oriented design, sector-specific knowledge, and extensive testing. Our goal is to ensure performance and safety while operating under a quality management system registered to ISO 9001:2015.

At Durlon®, we offer specially developed sealing solutions tailored to your specific needs.

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