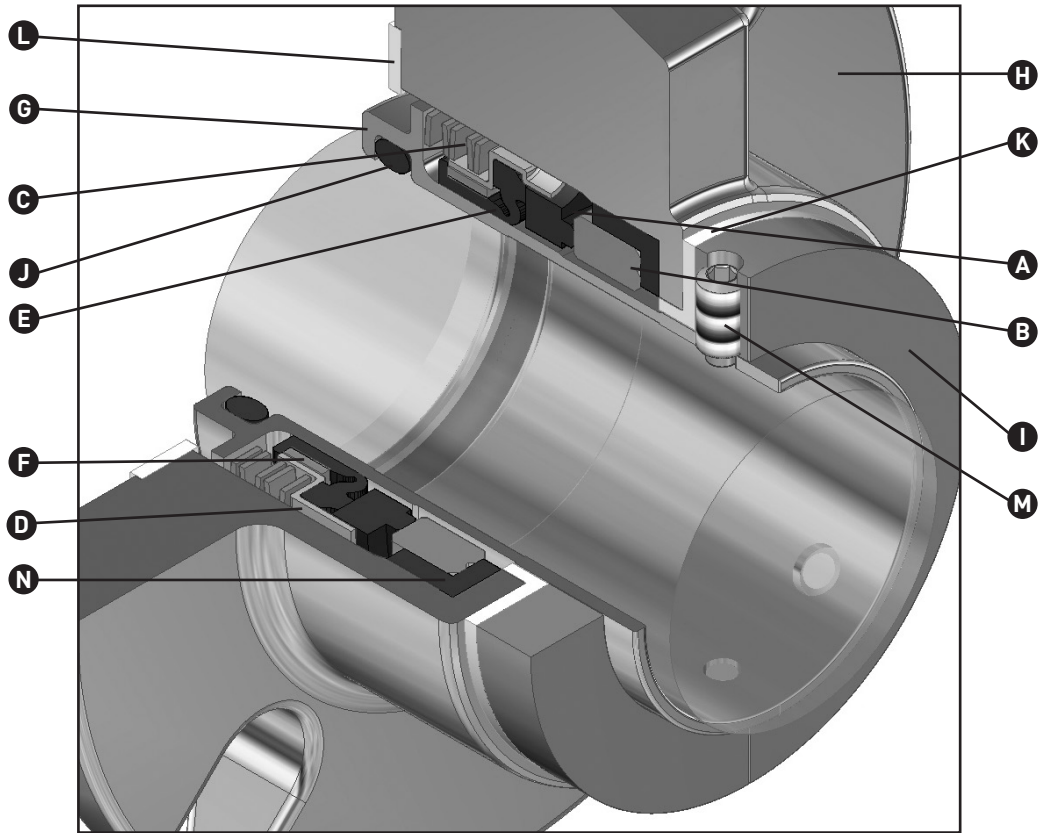


- A – Primary ring
- B – Mating ring
- C – Spring
- D – Retainer
- E – Bellows
- F – Drive band
- G – Sleeve
- H – Gland
- I – Collar
- J – O-ring
- K – Spacer
- L – Gasket
- M – Set screw
- N – Cup



Product Description

Type 4111 single-use seal is a general purpose seal targeted for low-duty applications. With its stainless steel construction, it provides a service range well beyond that which is possible with comparably priced seals of other metallurgical construction. It is recommended for use in sealing centrifugal and rotary pumps, and similar rotary shaft equipment.

Design Features

- Non-clogging crest to crest wave spring
- Positive mechanical drive
- Self-aligning automatically adjusts for shaft end play and runout
- Fits ANSI B73.1M, and DIN 24960 seal chambers
- Robust non-pusher elastomer bellows design prevents sleeve fretting damage caused by pusher O-ring design in abrasive applications

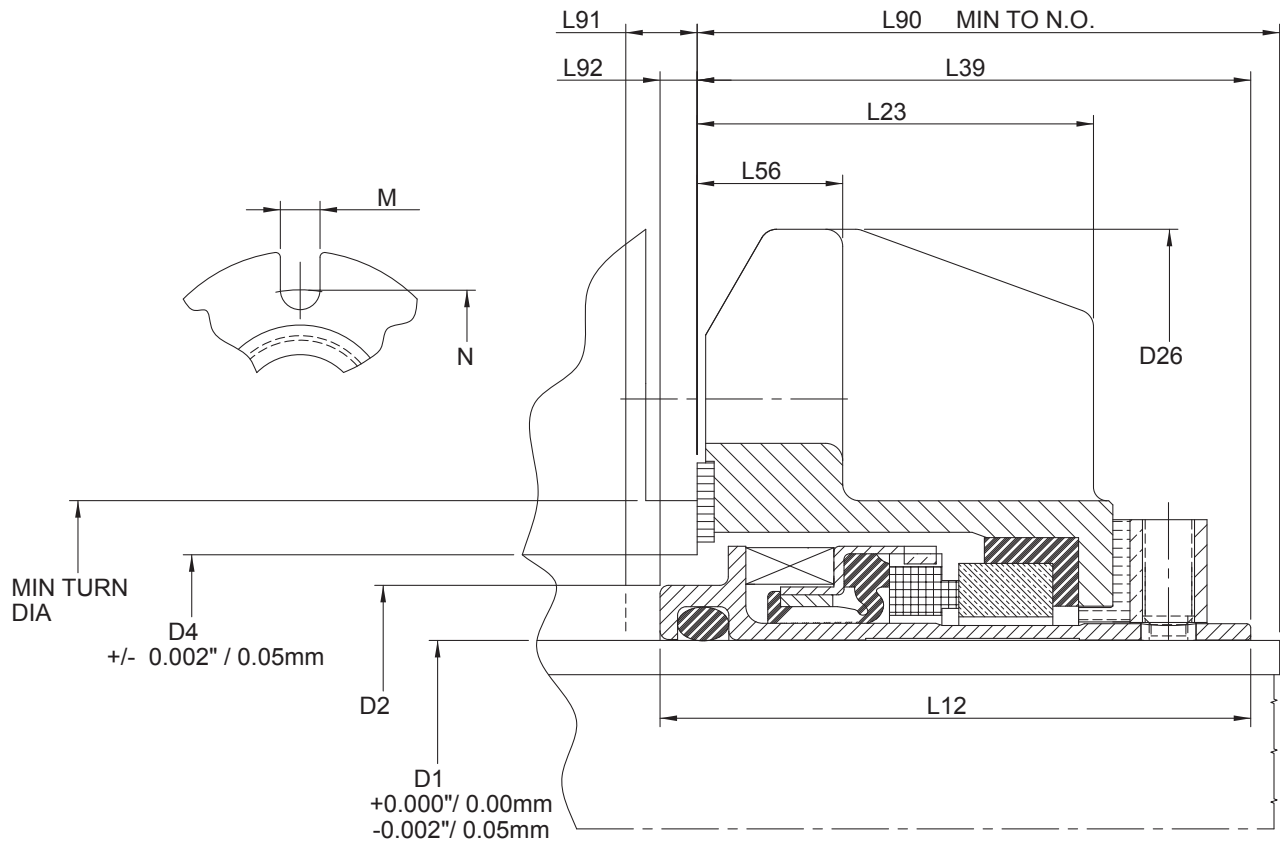
Performance Capabilities

- Temperature: -40°C to 107°C / -40°F to 225°F
- Pressure: Up to 10.3 bar(g) / 150 psi(g)
- Speed: Up to 3,600 rpm
- End play/axial float allowance: 0.13 mm / 0.005"
- Runout/out of squareness: 0.05 mm / 0.002"

TYPE 4111

SINGLE-USE ELASTOMER BELLOWS CARTRIDGE SEAL

Type 4111 Typical Arrangement / Dimensional Data

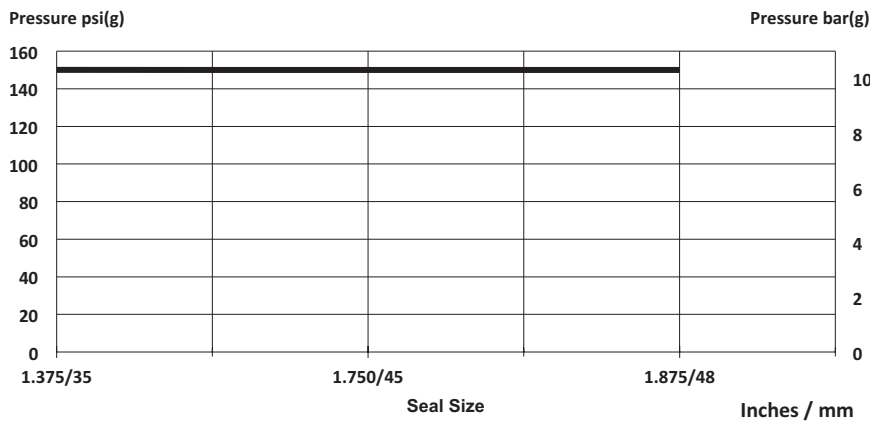


Type 4111 Dimensional Information

Seal size	Inch size range (all dimensions in inches)													
	D1	D2	D4	Min turn	D26	L12	L23	L39	L56	L90	L91	L92	M	N
1.375 in	1.375	1.777	2.000	2.343	4.375	2.155	1.446	2.019	0.531	2.125	0.260	0.135	0.525	3.338
1.750 in	1.750	2.176	2.480	2.843	5.250	2.229	1.487	2.112	0.593	2.187	0.242	0.117	0.563	3.875
1.875 in	1.875	2.300	2.625	2.968	5.250	2.229	1.487	2.112	0.593	2.187	0.242	0.117	0.563	3.875

Seal size	Metric size range (all dimensions in mm)													
	D1	D2	D4	Min turn	D26	L12	L23	L39	L56	L90	L91	L92	M	N
35 mm	35.00	45.14	50.80	59.51	111.13	54.74	36.73	51.28	13.49	53.98	6.60	3.43	13.34	84.79
45 mm	45.00	55.27	62.99	72.21	133.35	56.62	37.77	53.64	15.06	55.55	6.15	2.97	14.30	98.43
48 mm	48.00	58.42	66.68	75.39	133.35	56.62	37.77	53.64	15.06	55.55	6.15	2.97	14.30	98.43

Type 4111 Basic Pressure Rating



1. Lubricating liquid is defined as having lubricating properties of gasoline or better.
2. Pressure capabilities to 10 bar(g) /150 psi(g) are based on lubricating oil service, carbon vs. silicon carbide.

The Basic Pressure Rating is for a standard seal, as shown in the typical arrangement, when installed according to the criteria given in the data sheet and generally accepted industrial practices.

The Basic Pressure Rating assumes stable operation at 3,600 rpm in a clean, cool, lubricating and non-volatile liquid.

When used with multiplier factors, the Basic Pressure Rating can be adjusted to provide a conservative estimate of the Dynamic Pressure Rating. For process services outside this range or a more accurate assessment of the Dynamic Pressure Rating, contact John Crane for more information.

Multiplier Factors

Selection Consideration		Multiplier Factor
Speed	Up to 3,600 rpm	x 1.0
Sealed fluid lubricity	Gasoline/petrol, kerosene or better Water or aqueous solution	x 1.0 x 0.70
Sealed fluid temperature	From 80°C to 107°C/175°F to 225°F	x 0.90
Seal face material combination	Carbon vs. silicon carbide Silicon carbide vs. silicon carbide	x 1.00 x 0.80

Example for determining Pressure Rating Limits:

Seal: 1.875" diameter Type 4111

Product: Water

Face material: Silicon carbide vs. silicon carbide

Temperature: 85°C/185°F

Using the Pressure Rating Limits graph, the maximum pressure would be 10.3 bar(g)/150 psi(g).

From the multiplier factors chart, the multipliers for the specific service requirements to determine the maximum operating pressure for the application.

$$10.3 \text{ bar(g)/150 psi(g)} \times 0.7 \times 0.9 \times 0.8 = 5.2 \text{ bar(g)/75.6 psi(g)}$$

The maximum operating pressure of this 1.875" Type 4111 seal is 5.2 bar(g)/75.6 psi(g).

Materials of Construction

Materials of Construction	
Primary ring	Carbon or silicon carbide
Mating ring	Silicon carbide
Cartridge hardware	316 stainless steel
Secondary seals	Fluoroelastomer
Spring	316 stainless steel
Gasket/spacer	PTFE



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