

Duralon® Straight Sleeve Bearing Product Overview



Bearing Construction

The bearing consists of a self-lubricating woven Teflon fiber and polyester liner supported by a filament wound continuous fiberglass fiber and epoxy resin matrix.

Size range

Standard and special inch and metric sizes are available from 1/8" to 26" inside diameter

Bore shapes

Many bore shapes are available including round, square, hex, spherical, helical hex and threaded. Other custom shapes are also available.

Load Capacity

Typical dynamic loads: 4,000 to 30,000 psi

Ultimate strength: 77,000 psi (for 1/8" wall section)

Motion

The bearings work well in oscillatory, pivot, linear sliding and slow speed full rotation.

Friction

Duralon® bearings offer low-friction operation. Friction decreases with increasing load. Friction coefficients vary from .16 @500 psi to .07 @ 20,000 psi.

Self-lubricated

The bearing operates self-lubricated by Teflon® transfer to the shaft surface caused by relative movement between the shaft and bearing liner under load. Lubrication can be used if desired. Consult a Rexnord engineer for approved lubricants.

Electrical Properties

The filament wound back-up material is an electrical insulator. Its dielectric strength is about 300 volts per mil. Since the back-up material is electrically non-conducting, electrolytic or galvanic action will not take place between it and the housing or the shaft.

Chemical Properties

Duralon® bearings are typically resistant to most chemicals. Due to the wide range of exposures, specific conditions must be checked. Consult a Rexnord engineer for specific chemicals.

Mechanical Properties (1)

	Modulus (PSI)	Ultimate Strength (PSI)
Axial Compression	.8 x 10 ⁶	20,000
Hoop tension	2.7 x 10 ⁶	35,000
Bending	1.5 x 10 ⁶	25,000
Torsion (45° helix angle)	1.5 x 10 ⁶	27,000
Interlaminar shear	-----	3,000 – 5,000

(1) Mechanical properties of the filament wound back-up material are derived from the modulus of elasticity of the individual materials, and the construction. The values shown have been developed using standard tests for cylindrical shapes.

Other Mechanical Properties (2)

Impact resistance (notch)	.41 ft-lb/in
Specific gravity	1.9
Spring rate	3.467 x 10 ⁶ lb / in
Ultimate strength	77,000 psi

(2) Values applicable for temperatures ranging from -65°F to + 250°F. Values shown are for .125" wall thickness. Consult a Rexnord engineer for other wall thicknesses.

Temperature Ranges

	Continuous		Intermittent
	Min °F	Max °F	Max °F
Standard Resin	-65° (3)	325°	400°
High Temperature resin	-65° (3)	400°	450°

(3) Duralon® bearings can be used in cryogenic applications. Consult a Rexnord engineer.

Thermal Properties(4)

	Duralon®	Aluminum	Steel
Expansion (in / in / °F)			
Axial direction	15.0 x 10 ⁻⁶	13.3 x 10 ⁻⁶	6.0 x 10 ⁻⁶
Hoop direction	7.0 x 10 ⁻⁶	13.3 x 10 ⁻⁶	6.0 x 10 ⁻⁶
Conductivity (BTU in / Ft ² °F Hr)	1.4	610 - 1100	95 - 185

(4) Comparative values of the coefficient of expansion for the filament wound back-up material, aluminum and steel are given in table 2. The similarity between steel and Duralon in the hoop direction should be noted. A higher value for thermal expansion is realized in the axial direction because of the fiberglass filament orientation.