

Selecting Rubber Sleeves

This information is intended to introduce the multitude of considerations that exist when determining sleeve selection and anticipated performance. In all cases, the end user is responsible for determining the suitability of a sleeve material for a specific application. Actual operating conditions and materials can greatly affect sleeve performance.

A sampling of factors to consider when selecting rubber sleeves follows:

- Will the sleeve be exposed to fluids, oil, water, solvents, or chemical solutions?
- Will the sleeve be exposed to gases, liquid vapors, ozone, or high or low temperatures?
- Will the sleeve be involved in food or drug processing?
- When working with oils, inks, and solvents, determine in detail the brand, type, and grade of fluid.
- Give consideration to the fact that lubricating oils may be present in compressed air systems.

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Common Name	Available Types	Chemical Definition	Compression Set	Abrasion Resistance	Tear Resistance	Solvent Resistance	Oil Resistance	Temperature Usage	General Properties
Buna N, Nitrile, NBR	B60	Butadiene Acrylonitrile	Good	Excellent	Good	Good to Excellent	Good to Excellent	0 (F) to 190 (F)	General purpose oil resistant polymer. Inherently resistant to hydraulic fluids, lubricating oils, and transmission fluid. Good tensile strength. Should not be used for Acetone and MEK.
EPDM	E30 E60	Ethylene Propylene Diene Monomer	Fair	Good	Fair	Poor	Poor	-30 (F) to 275 (F)	Excellent resistance to water, acids, alkalis, steam, gas permeability, and ozone. Fairly good in ketones and alcohols.
Natural Rubber, NR	R60 R60W	Polyisoprene	Excellent	Excellent	Excellent	Poor	Poor	-40 (F) to 150 (F)	Good low temperature properties. Usable for ketones and alcohols.
Neoprene®, CR	N60	Polychloroprene	Good	Excellent	Good	Fair	Fair	-10 (F) to 225 (F)	Excellent flex fatigue with low compression set. Flame resistance. Suitable for petroleum based oils, animals/vegetable fats, and geases.
Silicone, VMQ	I20 I35 NSF150 I60	Polysiloxane	Good to Excellent	Fair to Poor	Poor	Poor	Fair to Poor	-70 (F) to 425 (F)	Extreme temperature range stability. Low temperature flexibility. Some cases suitable for food and medical applications.
Viton®, FKM, Fluorel®	V65	Fluorinated Hydrocarbon	Good	Good	Good	Excellent	Excellent	0 (F) to 450 (F)	Good for severe environments with oil, due to their long useful service life with oil gasoline, hydraulic fluids, and hydrocarbon solvents. Outstanding resistance to a wide range of solvents, including petroleum based. Very low compression set, even at high temperatures. Not recommended for use with ketones.