

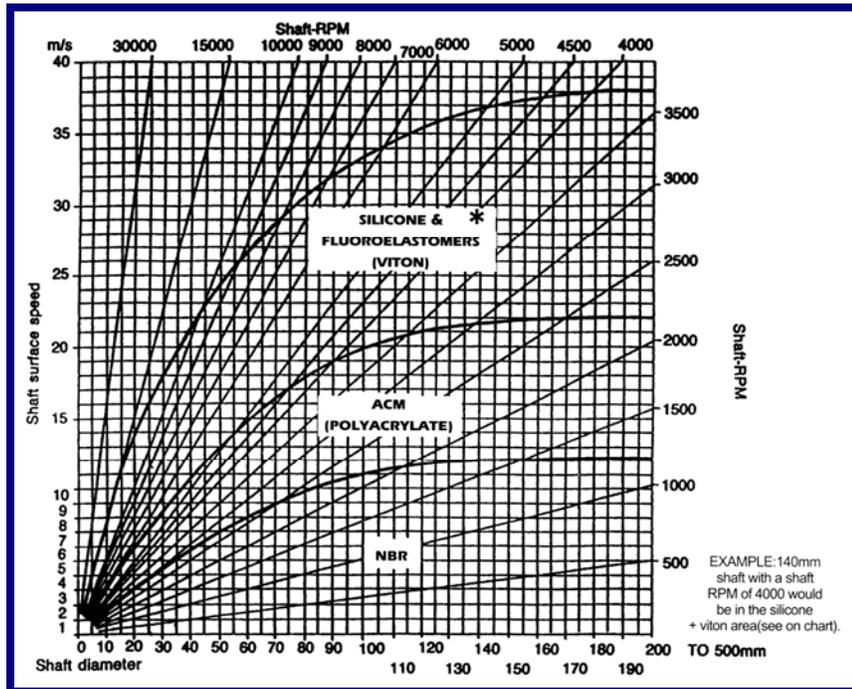
ISO 9001:2000	SEAL SPECIFICATIONS			
Base Polymer	Nitrile	Polyacrylate	Silicon	Fluoroelastomer
Material Code	N	P	S	V
Temperature Range*	-40 F - 250 F. -35 C - 120 C	-20 F - 300 F. -30 C - 150 C	-80 F - 400 F. -60 C - 200 C	-30 F - 400 F. -35 C - 200 C
Oil Resistance	E	E	G	E
Acid Resistance		F	F	E
Alkali Resistance	G	X	X	Fluoroelastomer
Water Resistance		G	G	G
Heat Resistance				E
Cold Resistance	G	E	E	Fluoroelastomer
Wear Resistance	E	G	G	
Ozone Resistance	G	E	E	E
ASTM D2000 Spec.	2BG715B1434EO14 EO34EF11EF21	2DH710A26B16 B36EO16EO36	2GE807A19B37 EO16EO36G11	2HK710A1-10B38

**\*MAXIMUM TEMPERATURE LIMITS DEPEND ON OTHER OPERATING CONDITIONS**

SEAL ENGINEERING CODES	
Designation Letter	
Average	
E	Excellent
G	Good for most applications
F	Fair. Can be used if no other materials are available.
X	Not recommended

ISO 9001:2000	CASE AND SPRING MATERIAL			
Specifications			Notes	
SAE Number	AISI Number	Application	Cost	Suggestion
<b>CASE</b>				
1008-1010	1008-1010	General	Low	—
30304	304	Special corrosion Resistance condition	High	Using a fully rubber-covered design with carbon steel case can reduce cost.
<b>SPRING</b>				
1070-1080	1070-1080	General	Low	—
30304	304	Special corrosion Resistance condition	High	
C521OR	C521O	Special corrosion Aging Resistance	Higher	

ISO 9001:2000	LIP MATERIALS AND FLUIDS			
Type of Fluid to be Used	Nitrile N	Polyacrylate P	Silicon S	Fluoroelastomer V
Engine Oil	E	E	G	E
Gear Oil			X	
Turbine Oil No. 2	G	G	G	E
Machine Oil No. 2			F	
Automatic Transmission Fluid				
Petroleum-base Lubricating Oil	E	E	F	E
Gasoline				E
Light Oil/Kerosene	F	X	X	G
Cutting Oil		G	F	
Grease	E	E	E	E
E.P. Lubricants	G	E	X	E
Water-Glycol				G
Alcohol	E	X	G	F
20% Hydrochloric Acid Solution			F	
30% Sulfuric Acid Solution	F	F	X	E



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ISO 9001:2000	LIP ADVANTAGES AND DISADVANTAGES				
Base Polymer	Nitrile	Polyacrylate	Silicon	Fluoroelastomer	
	N	P	S	V	
Advantage	Good resistance to petroleum oils, water, silicone oils, greases, and glycol base fluids	Good resistance to mineral oil, hypoid gear oil, and fuels	Good resistance to heat up to 180 degree C	Good resistance to oils and fuels compared to other types of rubber	
	Good resistance to abrasion, cold flow, and tearing	Good resistance to heat up to 150 Degree C in oil	Best resistance to cold compared to other rubber types	The only highly elastic rubber that is resistant against aromatic and chlorinated hydrocarbons	
	—	—	—	Good resistance to weather and ozone	Excellent resistance to weather and ozone
				Excellent resistance to weather and ozone	
				Excellent resistance to acid	
				Low swelling in water	
Disadvantage	Poor resistance to ozone and weather aging	Not usable in contact with water and water solutions	Poor resistance against aromatic oils and oxidized mineral oils	Poor resistance to polaric solvents	
	—	Poor resistance against polar and aromatic fluid and chlorinated hydrocarbons	Sensitive to hydrolysis	High compression set in hot water	
		Limited cold flexibility	Poor tensile strength	Limited cold flexibility	
		Limited tensile strength	Poor resistance to tearing	Limited tensile strength	
		Poor resistance to tearing	Poor resistance to diffusion	Limited resistance to tearing	