

Common Materials

In the standard construction, our Oil Seals are made from oil and grease resistant rubber based on NBR (Perbunan).

This material has very good running properties and excellent wear resistance. For high shaft speeds, large radial tolerances and good chemical resistance a range of other rubber materials is available.

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Choice of material for Oil Seal

Rubber type	Material Code ISO 1629	Heat resistance
Nitrile High wear resistance good running properties for general use	NBR	-35 °C tot + 100 °C
Polyacrylate Better heat, oil and chemical resistance than NBR It is recommended for use in oil which contains load bearing additives such as EP gear oils	ACM	-20 °C tot + 130 °C
Viton® High level of chemical resistance High temperature resistance	FPM	-15 °C tot + 180 °C
Silicone Wide temperature range Commonly used in low temperature applications Very prone to mechanical damage during fitting	MVQ	-50 °C tot + 150 °C
Polytetrafluoroethylene Chemical resistant Low coefficient of friction poor elastic properties not wear resistant if used by dynamic applications	PTFE	-80 °C tot + 200 °C
Leather Recommended for abrasive applications. Good running properties, due to the impregnated seal lip. Can be used on shafts which have a surface roughness outside the range for rubber seals Not suitable for water.		-40 °C tot + 90 °C

Max. Temperature (°C) of the sealing medium

Elastomer	Min. temp.	Motor oil	Gearbox oil SAE	ATF oil	Hypoid oil	Grease	Fuel	Water	Logen	Brake fluids
NBR	-35	100	80	100	80	90	90	-	-	-
ACM	-20	130	120	130	120	*	*	-	-	-
MVQ	-50	150	130	*	-	*	*	-	-	-
FPM	-15	180	150	170	150	*	150	100	100	*

- For these media the elastomer is not resistant

* Within these groups, there are media which can be sealed by the elastomer in question, although these media could have a disadvantageous influence on the elastomer.

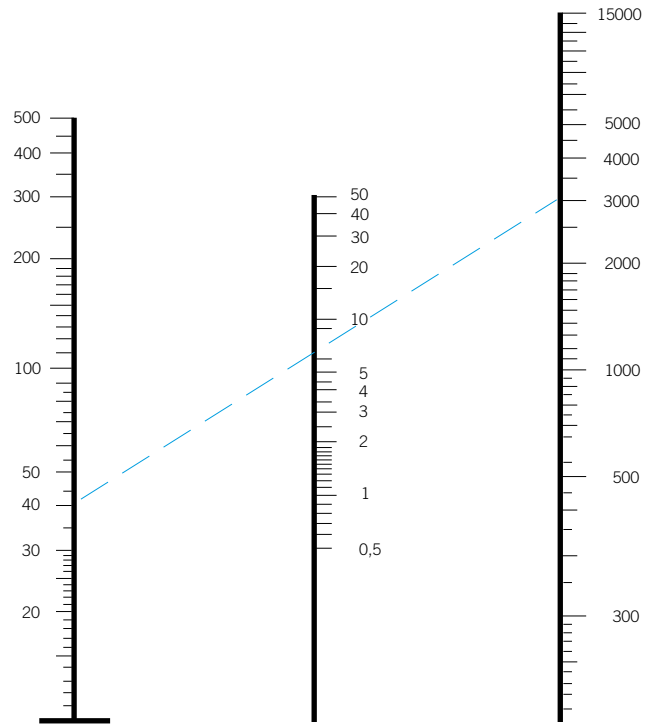
The choice of the right elastomer

Next points are important

1. Under lip temperature caused by friction
2. Shaft speed
3. Temperature of the medium
4. Chemical influence of the medium
5. Pressure on the seal

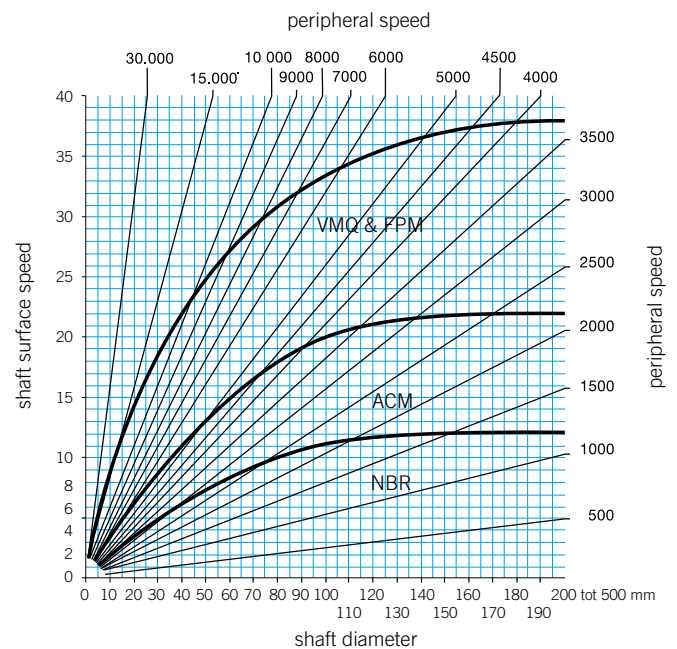
The following table may help to determine the peripheral speed at a given shaft diameter and rotational speed.

Example: the peripheral speed of a shaft of 40 mm diameter with a speed of 3000 revolutions per minute is 6.5 metres per second.



Allowable peripheral speeds and surface speeds

Shaft speeds which may be permitted, related to the rubber material in the case of non-pressure conditions (with good lubricating mineral oil and a good flow of lubricant), is shown in the next figure.



* Oil will convey the heat better than grease