

Chapter 3 Seal Selection



3.1 Seal function factors

Ambient

1. Temperature & range
2. Ultra-violet, Infra-red
3. Pressure
4. Dust
5. Other chemical activity

Housing

1. Finish
2. Eccentricity
3. Interference tolerance

Medium

1. Viscosity
2. Viscosity index
3. Temperature
4. Pressure
5. Chemical activity
6. Breakdown products
7. Contaminants

Shaft

1. Speed
2. Eccentricity
3. Diameter
4. Finish
5. Axial movement
6. Material

Operation

1. Cycles per day
2. Run hours per cycle
3. Down time

Design

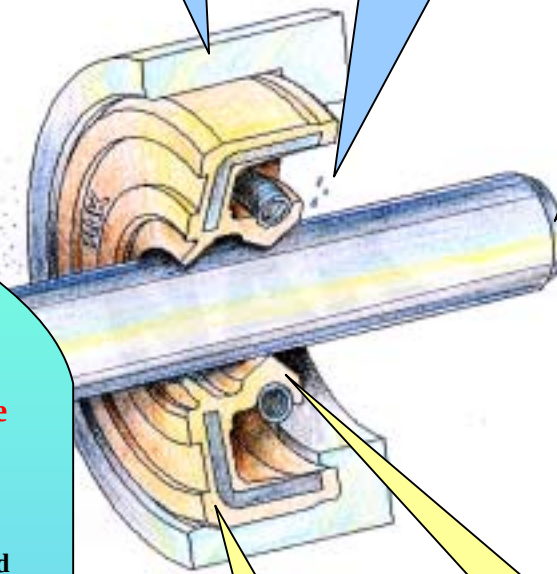
1. Radial load
2. Overall configuration
3. Lip length
4. Interference

Material

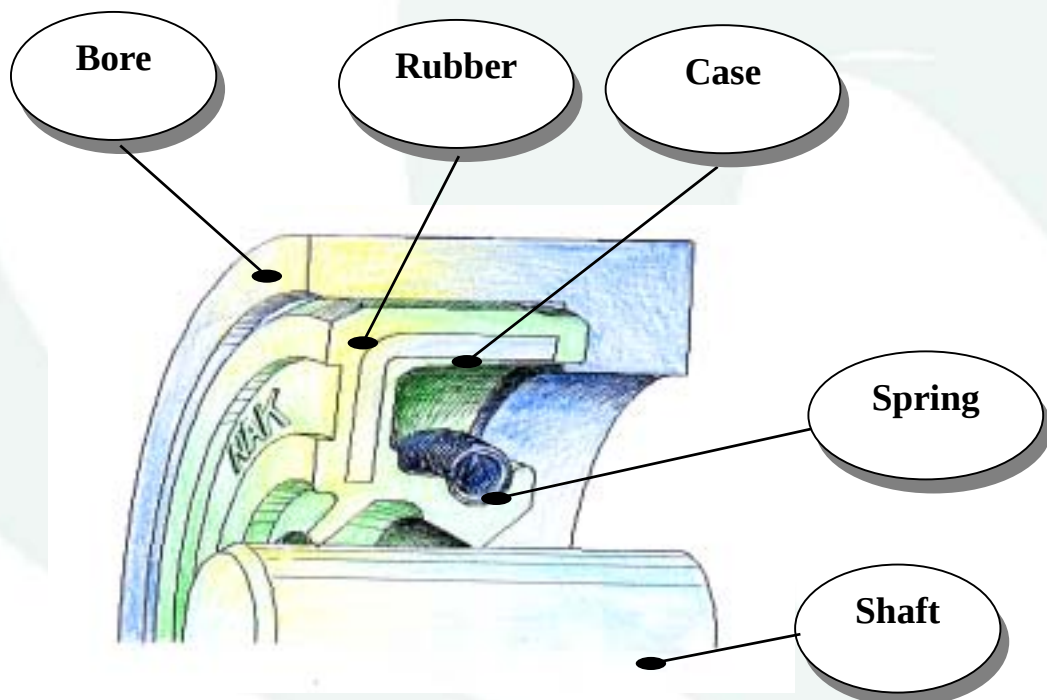
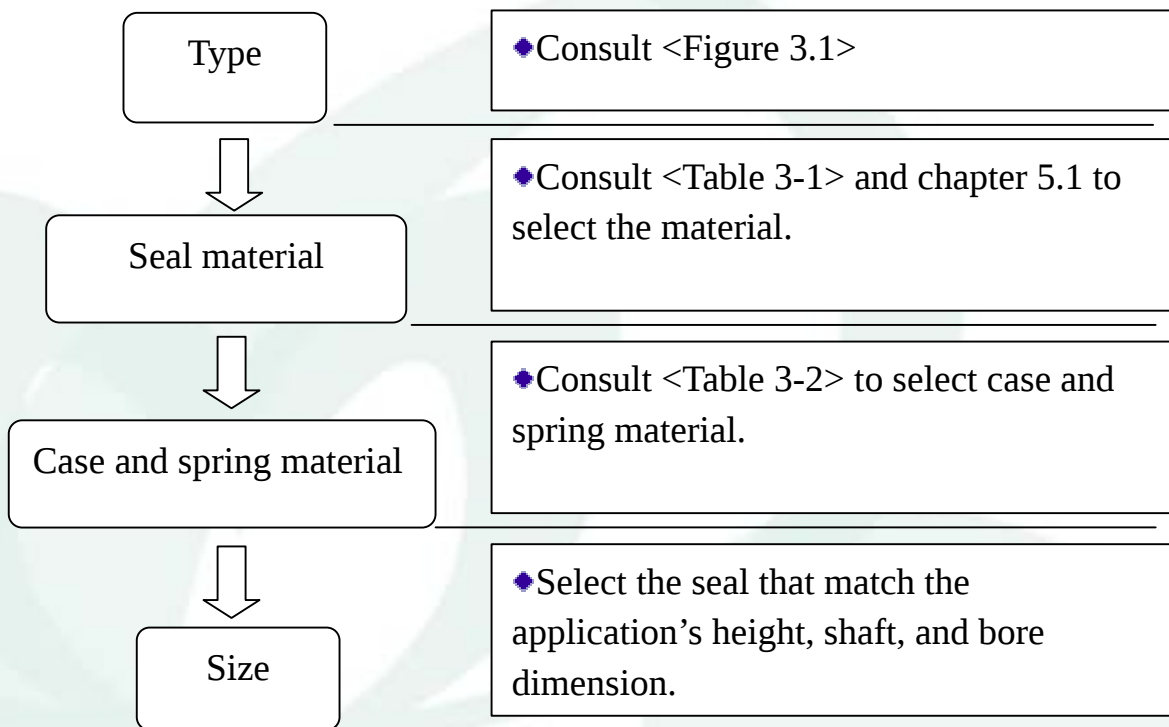
1. Abrasion resistance
2. Oil resistance
3. Heat resistance

Dynamic effects causing leakage

1. Thermal expansion
2. Cracking of the element of compound
3. Deterioration & degradation of compound
4. Excessive softening or stiffening of compound
5. Corrosion of the shaft
6. Lubricant breakdown
7. Fatigue
8. Nicking, cutting and pitting
9. Stick-slip
10. Vibration
11. Wear



3.2 Seal selection procedure



3.3 Flow chart for seal type selection<Figure3-1>:

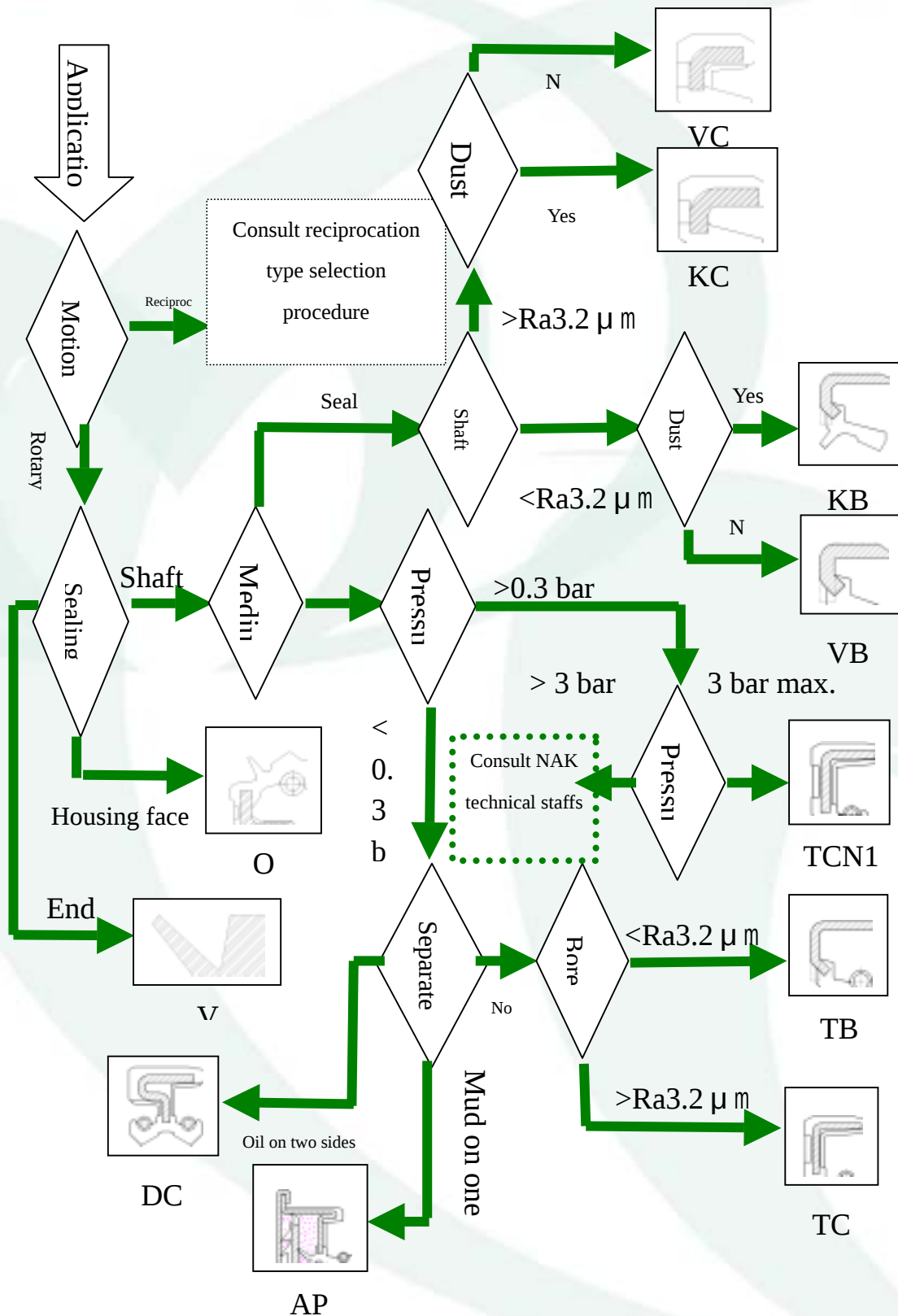


Table 3-1>Lip material selection by types

Type	Lip Material												
	NK701	NKC11	NK825	NK801	NK901	PK701	PK801	HK704	HK801	HK804	VN701	VNC01	VN801
A, B	●							●					●
C, G	●							●					●
M, Z	●							●					●
J, H	●							●					●
P, L	●							●					●
X, X1	●							●					●
E, G1	●							●					●
O, U	●							●					●
BC/BG	●							●					●
N				●						●			●
D	●							●				●	
AP	●							●					●
ST	●												●
F	●												●
EC	●												
MES					●								
TC4			●										
CNB		●							●	●			

<Table 3-2> Spring and case material selection by types

Type Material	The rest types	N, N1, N2, N3	CNB	F
Spring	SAE 1070	SAE 1080	SAE 30304	SAE 30304
Case	SAE 1008	SAE 1008	SAE 1008	SAE 1008

Remark: Please fill out the design sheet and consult technical staffs when the application is special.