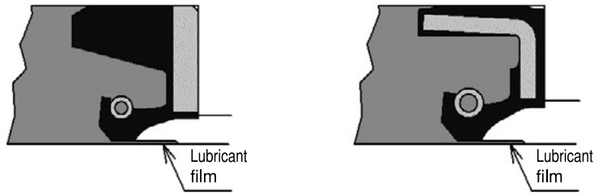
1. Lubricant sealing

SGW, DYA and SW are used as lubricants (grease, oil and etc) seal, and designed to be touching shaft with low surface pressures to prevent shafy wear. Lubricant is allowed passing through the seal surface slightly so as to form lubricant film between seal lip and shaft.

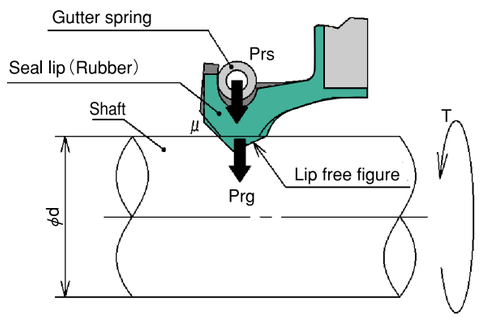


2. Rotation torque

Rotation torque is depended on the following factors.

◆Seal lip pressure (+Spring pressure)
◆Rubber material and friction coefficient of shaft material
◆Shaft diameter
◆Lubricated condition

Formula parameters
Prg (N) : Bonding force from seal lip
Prs (N) : Bonding force from gutter spring
d (M) : Shaft diameter
μ : Dynamic friction coefficient between shaft and seal lip

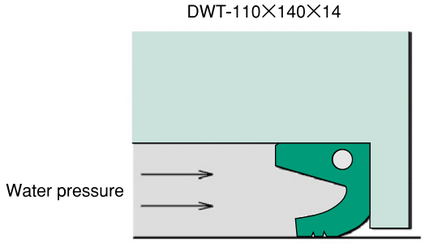


Rotation torque is calculated by following formula.

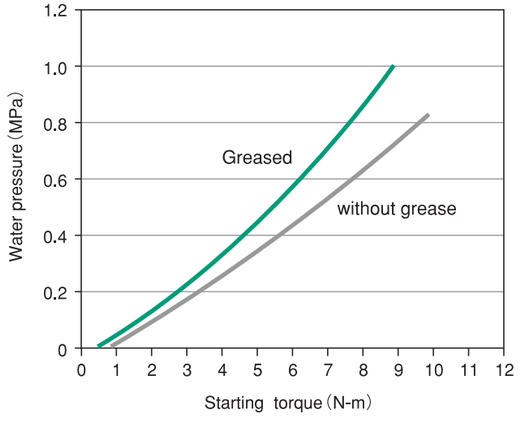
$$\text{Rotation torque} \quad : \quad T = \mu \times (p_{rg} + p_{rs}) \times \frac{d}{2} \ (\text{N·m})$$

(For your reference) Rubber-Steel coefficient of friction.
Lubricated…0.1～0.4
Without Lubrication…0.5～1.5
※ Friction coefficient is a changeable value according to different shaft surface roughness, lubricant, pressure, temperature, rotation speed, etc.

DWT-110×140×14



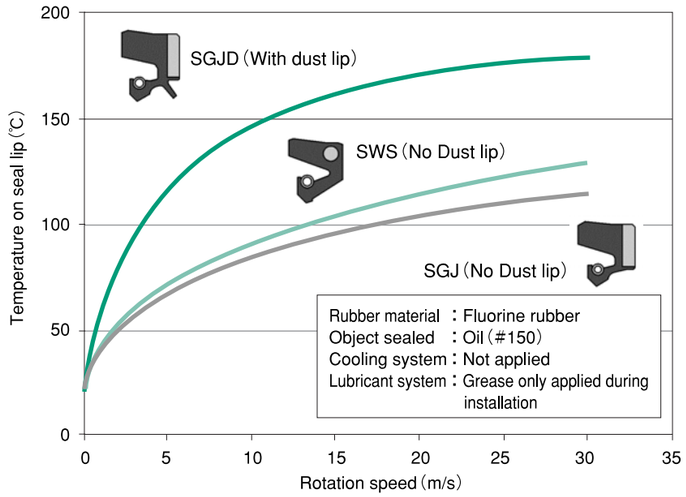
■Dust wiper`s starting torque-water pressure curve



3. Temperature

Heat is generated during rotation, the temperature occurred on seal lip is related to the object been sealed, running time, section shape of seal (with or without dust lip), lubrication and cooling system, however the graph shown bellowed could be an example for seal selection reference.

■Temperature curve on seal lip related to rotation speed

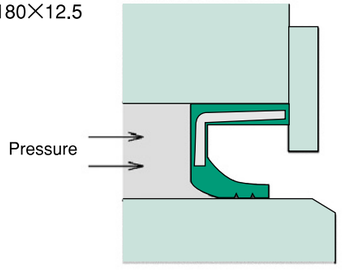


4. Back pressure sustained

When the object had been sealed, there is pressure accumulated from back side to the lip direction, sealing ability then could be evaluated from back pressure sustained, however leak happens if the pressure grows up beyond seal persisting ability. The value changed according to conditions on section shape of seal, shaft rotation, viscosity and consistency of the object.

■Test type and size

DWT-140×170×13
DYS-140×170×13
DY-140×170×14
SWS-140×170×14
DWS-135×165×12
SW-155×180×12.5



■Back pressure sustained (Measured when shaft is fixed) Back pressure sustained (Mpa)