

## 5. Friction

Linear Ball Bearings have a very low static coefficient of friction, virtually identical to the dynamic coefficient of friction. This results in low and uniform motion in any condition of load and speed without stick-slip.

$$F = \mu \cdot W + f \dots \dots \dots (4)$$

$F$  = Friction force [N]

$\mu$  = Friction coefficient [-]

$f$  = Seal drag [N]

$w$  = Load [N]

The magnitude of the friction force is affected by several factors. The type of bearing, the operating conditions, the type and quantity of the lubricant, the presence or lack of seals all impact the overall frictional behavior. Standard seals can add between 2 and 5 N to the overall friction force. The magnitude of the coefficient of friction depends upon the operating conditions such as load, moments and/or preload. Table 5.1 shows the dynamic coefficient of friction for each type of bearing under normal operating condition ( $P/C \leq 0.2$ ) and proper assembly.

**Table 5.1 Friction coefficient**

Type of bearing	Friction coefficient
KH	0.004 to 0.006
KB / SW..G	0.002 to 0.003