

Oil Free Bushings Copper Alloy Shouldered I.D.E7/O.D.r6

Oil Free Bushings Dimensional Drawing Product Drawings (Unit: mm)

DC-MUFZ



DC-MUFZU



Calculation of life (wear) of oilless bushings

The life of oilless bushing depends on the wear amount. The calculation of wear amount varies greatly with the surface pressure, sliding speed, movement pattern, lubrication condition, surface roughness of matching shaft and other conditions.

From the viewpoint that the wear amount is proportional to the load and sliding distance, the formula is usually used to calculate the wear amount. Please consider it as a standard for model selection.

Calculate wear amount (mm) $W = K^{*1} \times P \times V \times T$

Wear Ratio K	:	mm/(N/mm² · m/s · Hr)
Design Surface Pressure P	:	N/mm²
Sliding Speed V	:	m/s
Wear Time T	:	Hr-hr

※1 General Standard of wear ratio

Lubrication conditions	mm/(N/mm ² · m/s · Hr)	mm/(kgf/cm ² · m/min · Hr)
Unlubricated	$3 \times 10^{-3} \sim 6 \times 10^{-4}$	$1 \sim 5 \times 10^{-6}$
Regular Lubrication	$3 \times 10^{-4} \sim 6 \times 10^{-5}$	$1 \sim 5 \times 10^{-7}$
Grease	$3 \times 10^{-5} \sim 6 \times 10^{-6}$	$1 \sim 5 \times 10^{-8}$

Example of Calculation

In case of bearings with inner diameter of 20 mm and length of 10mm, load of 1000N when unlubricated, rotational speed 2r/min and friction time of 100 hours

$$\begin{aligned}
 W &= K \times P \times V \times T \\
 &= \text{Specific Wear rate} \times \frac{\text{Load}}{\text{inner diameter} \times \text{length}} \times \frac{\pi \times \text{inner diameter} \times \text{length}}{1000} \times \text{Service time} \\
 &= \frac{3}{1000} \times \frac{1000}{20 \times 10} \times \frac{\pi \times 20 \times 2}{1000 \times 60} \times 100 \\
 &= 0.00314(\text{mm})
 \end{aligned}$$

Oil Free Bushings Specification Table

Lubrication Conditions	Regular Lubrication	Unlubricated
Allowable Maximum Load	20.3(68.6)N/mm ²	
	2072(700)kgf/cm ²	
Maximum Allowable Speed	0.7m/s	0.35m/s
	42m/min	21m/min

The Allowable Static Surface Pressure is Indicated In ()

Basic Specifications

- **Metal Type** - High-Tensile Brass Alloy
- **Lubrication** - Unlubricated / Regular Lubrication
- **Mounting Hole Fits** - H7
- **Max. Allowable PV Value Range (N/mm² · m/s)** - 1.1~2.0
- **Maximum Allowable Velocity (m/s)** - 0.35
- **Mounting Shaft Fit** - d8 / e7 / g6 / f8
- **Type** - Shouldered
- **Max. Allowable Surface Pressure P (N/mm²)** - 20.3
- **Environment** - Standard / In Oil
- **Operating Temperature Range (°C)** - -40:150

