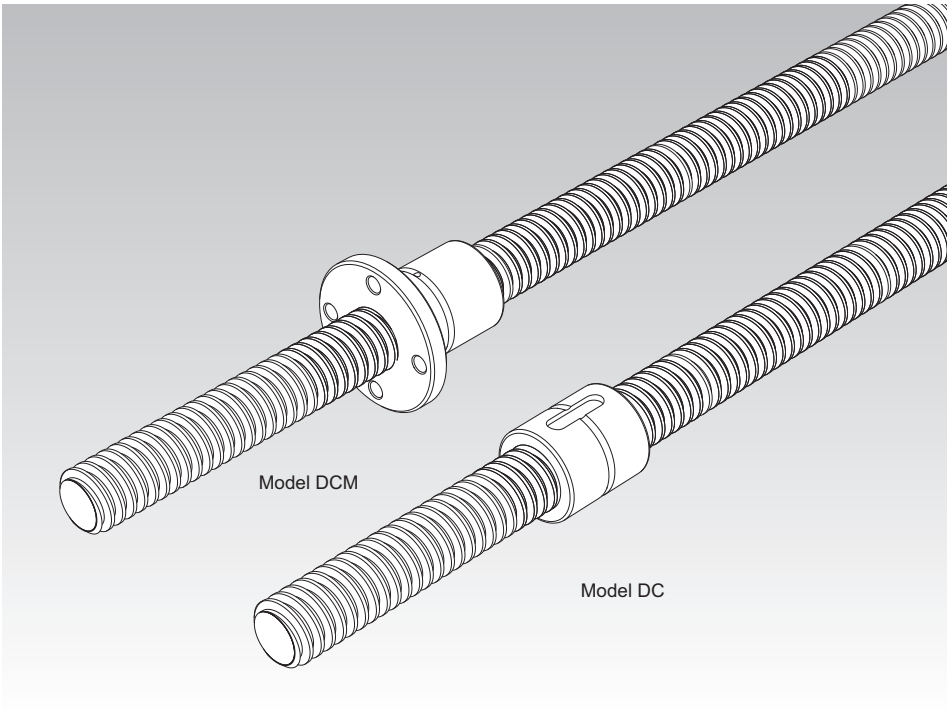
Features of the Lead Screw Nut



Structure and Features

The lead Screw Nut models DCM and DC are manufactured to meet the standards for the 30° trapezoidal threads. They use a special alloy (see **A16-3**) for the nuts and have a precision male thread, formed through die casting, as the core. As a result, these bearings achieve less unevenness in accuracy and higher accuracy and wear resistance than the machined lead screw nuts.
For the screw shafts to be used with this product, the rolled shafts are available as the standard.
In addition, cut screw shafts are also available according to the application. Contact THK for details.

Features of the Special Rolled Shafts

The dedicated rolled shafts with the standardized lengths are available for the Lead Screw Nut.

[Increased Wear Resistance]
The shaft teeth are formed by cold gear rolling, and the tooth surface is hardened to over 250 HV and is mirror-finished. As a result, the shafts are highly wear-resistant and achieve significantly smooth motion when used in combination with screw nuts.

[Improved Mechanical Properties]
Inside the teeth of the rolled shaft, a fiber flow occurs along the contour of the tooth surface of the shaft, making the structure around the teeth roots dense. As a result, the fatigue strength is increased.

[Additional Machining of the Shaft End Support]
Since each shaft is rolled, additional machining of the support bearing of the shaft end can easily be performed by lathing or milling.

High Strength Zinc Alloy

The high strength zinc alloy used in the lead screw nuts is a material that is highly resistant to seizure and the wear and has a high load carrying capacity. Information on mechanical properties, physical properties, and wear resistance is presented below.
＊The figures shown are target values—these figures are not guaranteed.

[Mechanical Properties]

Table1

Item	Description
Tensile strength	275 N/mm^2 to 314 N/mm^2
Tensile yield strength (0.2%)	216 N/mm^2 to 245 N/mm^2
Compressive strength	539 N/mm^2 to 686 N/mm^2
Compressive yield strength (0.2%)	294 N/mm^2 to 343 N/mm^2
Fatigue strength	132 N/mm^2×10^7 (Schenk bending test)
Charpy impact	0.098 N·m/mm^2 to 0.49 N·m/mm^2
Elongation	1 % to 5 %
Hardness	120 HV to 145 HV

[Physical Properties]

Table2

Item	Description
Specific gravity	6.8
Specific heat	460 J/ (kg·K)
Melting point	390 ℃
Thermal expansion coefficient	24×10^{-6}

[Wear Resistance]

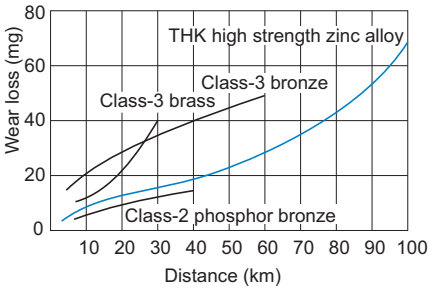


Fig.1 Wear Resistance of the High Strength Zinc Alloy

Table3 [Test conditions: Amsler wear-tester]

Item	Description
Test piece rotational speed	185 min^{-1}
Load	392 N
Lubricant	Dynamo oil