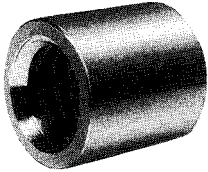
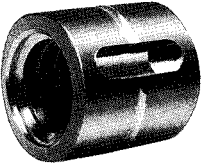


Nut Types

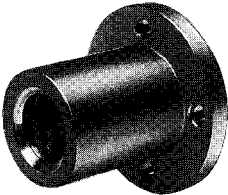
● Right & Left Hand Screw (Standard Stock Items)



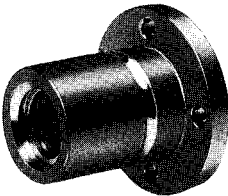
R : TMS Series
L : TMS-L Series



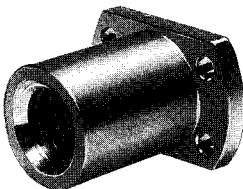
R : TMS-OH Series
L : TMS-L OH Series



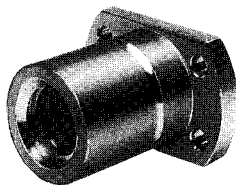
R : TMF Series
L : TMF-L Series



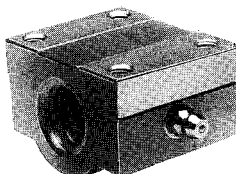
R : TMF-OH Series
L : TMF-L OH Series



R : TMK Series
L : TMK-L Series



R : TMK-OH Series
L : TMK-L OH Series



R : TMH Series
L : TMH-L Series

R : Right Hand Screw
L : Left Hand Screw

Table 146 : TM Series Classification

Nut Shape	No Oil Port	Oil Port Installed
Straight Type	TMS	TMS-OH
Round Flange Type	TMF	TMF-OH
Cut Flange Type	TMK	TMK-OH
Box Type		TMH

〈Note〉 The oil port of TMH series is equipped with a tapped hole for the A-MT6 grease nipple.

〈Note〉 Left Hand Screw (ex) TMF20L-OH

Standard Screw Shaft

Table 147 : Standard Screw Shaft Table

Type	Screw Shaft Length (mm)			
	500	1000	1500	2000
TM10	○	○		
TM12	○	○		
TM14	○	○		
TM16	○	○	○	○
TM18	○	○	○	○
TM20	○	○	○	○
TM22	○	○	○	○
TM25	○	○	○	○
TM28	○	○	○	○
TM32	○	○	○	○
TM36	○	○	○	○
TM40	○	○	○	○

〈Note〉 Screw Shaft's Numbering Example:
Right Hand: TM20×1500
Left Hand: TM20L×1500

Standard Precision

Table 148 : Screw Shaft Precision Units : mm

Single Pitch Error (MAX)	±0.02
Accumulative Pitch Error (MAX)	±0.15/300

Materials

Table 149 : Material List

Nut	BC6 (JISH5111)
Screw Shaft	S45C (JISG4051)

Lubrication




When using the  TM series, periodic lubrication is necessary under the following, listed service conditions, due to the sliding contact between the nut and the screw shaft. The  TM-OH series is equipped with an oil port and the TMH series is equipped with a tapped hole for a grease nipple to make periodic lubrication easy. For other series that are not provided with oil ports, periodically apply either grease or oil to their screw shafts.

Table 150 : Lubricant Selection List

Service Conditions	Proper Lubricant
High Speed, Light Load	Turbine Oil 90
Medium Speed, Medium Load	Turbine Oil 140~180, Lithium Soap Group Grease 2nd Grade
Low Speed, Heavy Load	Lithium Soap Group Grease 2nd~3rd Grade

Fitting

To assure a proper clearance fit between the housing and nut of the  TM series, machine finish the housing's inside diameter to within an H8 tolerance.

Size Selection

The size of the TM series can be decided by either the PV value or by the acting thrust load whose value is equal to or less than the rated thrust load F_a kgf.

- F_a : Rated thrust load (kgf); See the value in our catalogue
- P_{max} : Maximum allowable contact surface pressure = 1 kgf/mm²
- PV_{max} : Maximum PV value = 2.5kgf/mm² · m/min
- F : Acting thrust load (kgf)
- P : Acting contact surface pressure (kgf/mm²)
- V : Sliding Speed (m/min)
- α : Lead angle (deg.)
- $S/2$: Nut contact area which is half the theoretical contact area of the flank surface of the nut thread.
- n : Rotational frequency (rpm)
- d_0 : Screw pitch circle diameter (mm); See the value in our catalogue
- β : Flank angle = 15°
- μ : TM series friction factor (0.1 ~ 0.3)

When adequately lubricated:
0.15 for start-up, 0.10 during operation
When inadequately lubricated:
0.20 for start-up, 0.15 during operation

○ Acting contact surface pressure : P

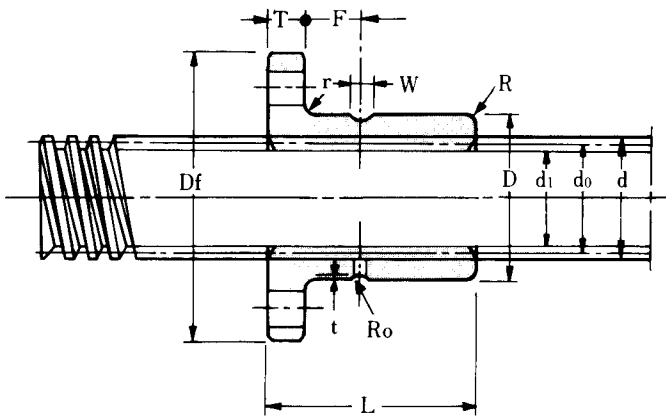
$$P = F/(S/2) \quad (\text{kgf/mm}^2) \quad (1)$$

○ Sliding Speed : V

$$V = (\pi \cdot d_0 \cdot n) / (\cos \alpha \times 10^3) \quad (\text{m/min}) \quad (2)$$

○ Driving Torque : T

$$T = (F \cdot d_0 / 2) \cdot (\cos \beta \cdot \tan \alpha + \mu) / (\cos \beta - \mu \tan \alpha) \quad (\text{kgf} \cdot \text{mm}) \quad (3)$$



TMF-OH

Screw Shaft Model No.	Screw Shaft Major Dimensions (mm)				Weight (kgf/m)
	d	d ₀	d ₁	α°	
TM10	10	9	7.5	4°03'	0.6
TM12	12	11	9.5	3°19'	0.8
TM14	14	12.5	10.5	4°22'	1.0
TM16	16	14.5	12.5	3°46'	1.3
TM18	18	16	13.5	4°33'	1.6
TM20	20	18	15.5	4°03'	2.0
TM22	22	19.5	16.5	4°40'	2.3
TM25	25	22.5	19.5	4°03'	3.1
TM28	28	25.5	22.5	3°34'	4.0
TM32	32	29	25.5	3°46'	5.2
TM36	36	33	29.5	3°19'	6.7
TM40	40	37	33.5	2°57'	8.4