



BALL SCREW CATALOGUE



Balls Screw

Contents

Contents		
Features of Ball Screw	4	Rolled Ball Screw TBSh series 46
Ball Screw Selection Procedure	6	Rolled Ball Screw TSFV series (BNF) 47
Ball Screw Selection Procedure	7	Rolled Ball Screw TDFV series (BNFN) 48
Accuracy	8	Rolled Ball Screw SFVS series (BNF) 49
Shaft end machining	9	Rolled Ball Screw DFVS series (BNFN) 50
Axial clearance and preload	10	Rolled Ball Screw TSCH series 51
Preload torque	11	Rolled Ball Screw TSCL series 52
Preload torque	12	Rolled Ball Screw SFB series (BTK) 53
Mounting methods	13	Rolled Ball Screw BNT series 54
Axial Load	14	Rolled Ball Screw SFC series 55
Speed	15	Rolled Ball Screw SFD series (TSFI-D) 56
Nut Design	16	Rolled Ball Screw TSFK series 57
Nut Design	17	Nominal Model Code of Ball Screw 58
Service Life Design	18	Precision Ground Ball Screw TSFU series (DIN 69051 B) 59
Service Life Design	19	Precision Ground Ball Screw TSFU series (DIN 69051 B) 60
Rigidity	20	Precision Ground Ball Screw TDFU Series (DIN 69051 B) 61
Rigidity	21	Precision Ground Ball Screw TDFU Series (DIN 69051 B) 62
Positioning Accuracy	22	Precision Ground Ball Screw TOFI/TOFU series 63
Torque of ball screw	23	Precision Ground Ball Screw TOFI/TOFU series 64
Torque of ball screw	24	Precision Ground Ball Screw ZSFI/ZOFI series 65
Lubricating and Nozzle	25	Precision Ground Ball Screw ZSFI/ZOFI series 66
Dust Proof / Prevention	26	Precision Ground Ball Screw TSFAX series 67
Rolled screws	27	Precision Ground Ball Screw TSFAX series 68
Rolled screws	28	Precision Ground Ball Screw TSFA series (DIN 69051 B) 69
Nominal Model Code of Ball Screw	29	Precision Ground Ball Screw TSFA series (DIN 69051 B) 70
Rolled Ball Screw Specifications	30	Precision Ground Ball Screw TSFS series (DIN 69051 B) 71
Nominal Model Code of Ball Screw	31	Precision Ground Ball Screw TSFS series (DIN 69051 B) 72
Rolled Ball Screw Specifications	32	Precision Ground Ball Screw TDFS series (DIN 69051 B) 73
Rolled Ball Screw TSFU series (DIN 69051 B)	33	Precision Ground Ball Screw TDFS series (DIN 69051 B) 74
Rolled Ball Screw TDFU series (DIN 69051 B)	34	Precision Ground Ball Screw KSSR/XSHR series 75
Rolled Ball Screw TSFI series	35	Precision Ground Ball Screw KSSR/XSHR series 76
Rolled Ball Screw TDFI series	36	Precision Ground Ball Screw TSCH series 77
Rolled Ball Screw TSFS series	37	
Rolled Ball Screw TDFS series	38	
Rolled Ball Screw XSSR series	39	
Rolled Ball Screw KSSR/XSHR series	40	
Rolled Ball Screw TSFY series (Single Lead)	41	
Rolled Ball Screw TSFY series (Double Lead)	42	
Rolled Ball Screw TOFI/TOFU series	43	
Rolled Ball Screw TSFK series	44	
Rolled Ball Screw TBSh series	45	

Precision Ground Ball Screw TSCH series	78
Precision Ground Ball Screw TSFY series (Single Lead)	79
Precision Ground Ball Screw TSFY series (Single Lead)	80
Precision Ground Ball Screw TSFY series (Double Lead)	81
Precision Ground Ball Screw TSFY series (Double Lead)	82
Precision Ground Ball Screw TSFK series	83
Precision Ground Ball Screw TSFK series	84
Precision Ground Ball Screw TBSH series	85
Precision Ground Ball Screw TBSH series	86
Precision Ground Ball Screw TSCI series	87
Precision Ground Ball Screw TSCI series	88
Precision Ground Ball Screw SFB series (BTK)	89
Precision Ground Ball Screw SFB series (BTK)	90
Precision Ground Ball Screw BNT series	91
Precision Ground Ball Screw BNT series	92
Precision Ground Ball Screw SFC	93
Precision Ground Ball Screw SFC	94
Precision Ground Ball Screw SFD series (TSFI-D)	95
Precision Ground Ball Screw SFD series (TSFI-D)	96
Precision Ground Ball Screw TSFKX series	97
Precision Ground Ball Screw TSFKX series	98
Precision Ground Ball Screw SFTE series	99
Precision Ground Ball Screw SFTE series	100
Support Unit of Ball Screw	101
Support Unit of Ball Screw	102
Installation procedure	103
Installation procedure	104
BK Series	105
BF Series	106
FK Series	107
FK Series	108
FF Series	109
EK Series	110
EK Series	111
EF Series	112
WBK Series	113
WBK Series	114
Shaft end machining	115
Shaft end machining	116
Shaft end machining	117
Shaft end machining	118
Lock Nut	119

Features of Ball Screw

Ground and rolled screw stock, High quality and low price and With complete accessories

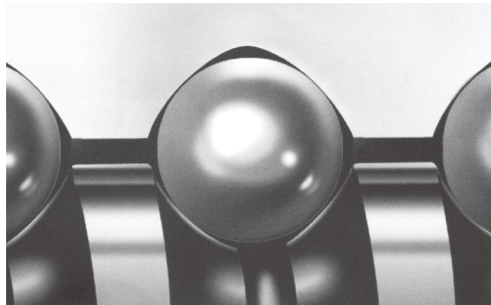
For equipment that does not require high positioning accuracy as the Ground screw, the rolled screw is suitable for achieving the same driving effect, which can meet the user's high efficiency and high life performance requirements. DTK MOTION uses the most advanced technology to significantly reduce the production cost and sales price of products, achieve stock preparation, and greatly shorten the lead time.

C3, C5, C7, C9 grade precision ball screw with a large stock, can quickly respond to customer purchase demand. Provide ball screw peripheral accessories for customers to choose, such as screw Support Unit of Ball Screw, Lock nut, Coupling, etc.

High Rigidity, Preload and Prepressure simple adjustment

- Gothic arch groove makes the clearance between the steel ball and the groove is minimum, eliminate axial and radial clearance by preloading adjustment to achieve no clearance.

- By adjusting the preload of the nut, the rigidity satisfying the user's conditions can be obtained conveniently.

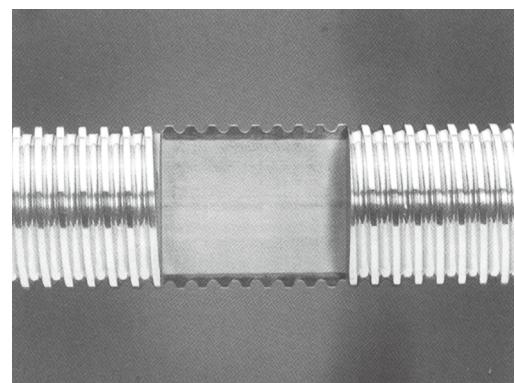


Gothic Arch Groove

High durability and long service life

The use of high-purity alloy steel as the raw material makes the product have excellent durability and stability, and obtain a long service life

Name	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° - 62°
Rolled Screw	S55C (CF53)	Induction hardening	HRC58° - 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° - 62°
Steel Ball	SUJ2	Roller furnace hardening	HRC 62° UP

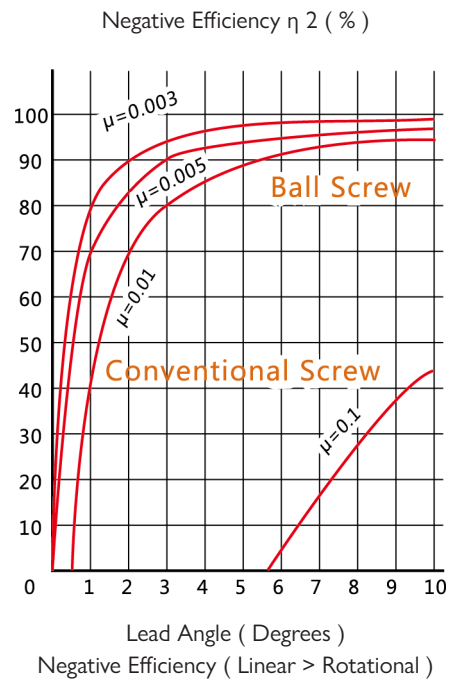
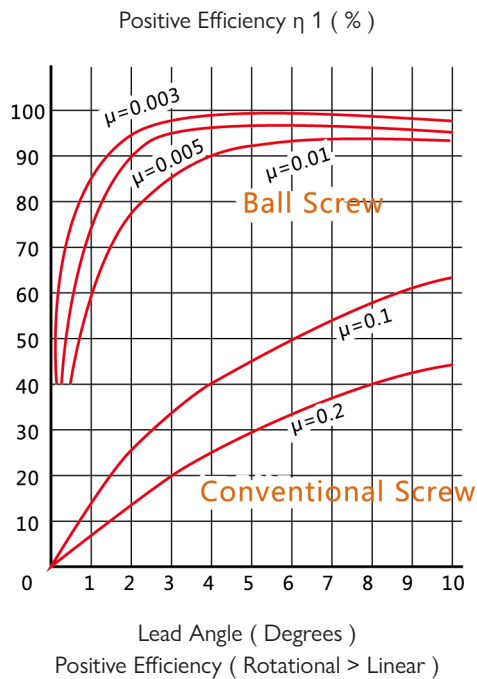


Heat Treatment

High Precision and High Efficiency

DTK MOTION on the basis of years of accumulated production experience, through rigorous quality assurance system to strengthen the management of materials, manufacturing, inspection and delivery of each link, to ensure the high precision and high life of ball screw.

The high efficiency of ball screw is vastly superior than conventional screws as shown in Fig. It takes less than 30% torque to make the linear motion into rotary motion



- Calculate the driving torque of the ball screw to obtain the required thrust:

$$T = \frac{F_a \cdot l}{2\pi \cdot \eta_1}$$

T : Driving torque (N x mm)

F_a : Friction resistance on guide surface (N)

$$F_a = \mu \times mg$$

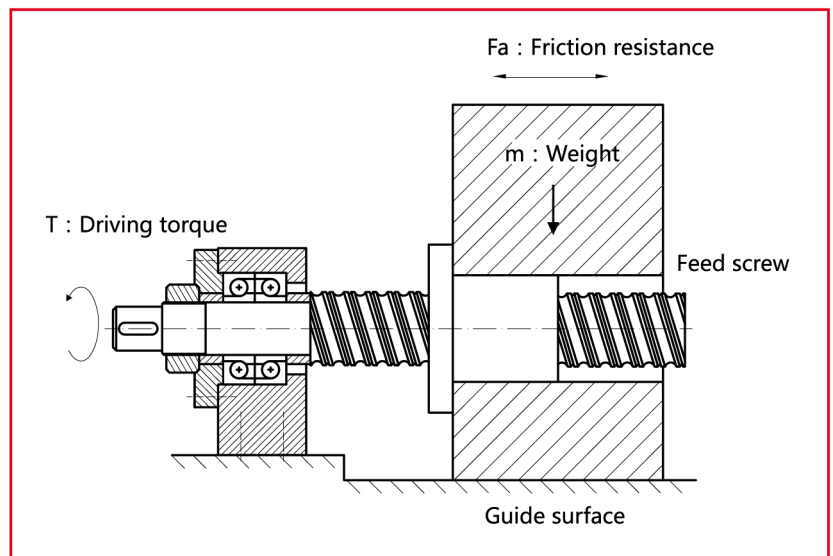
μ : Coefficient of friction on the guide surface

g : Gravitational Acceleration (9,8m/s²)

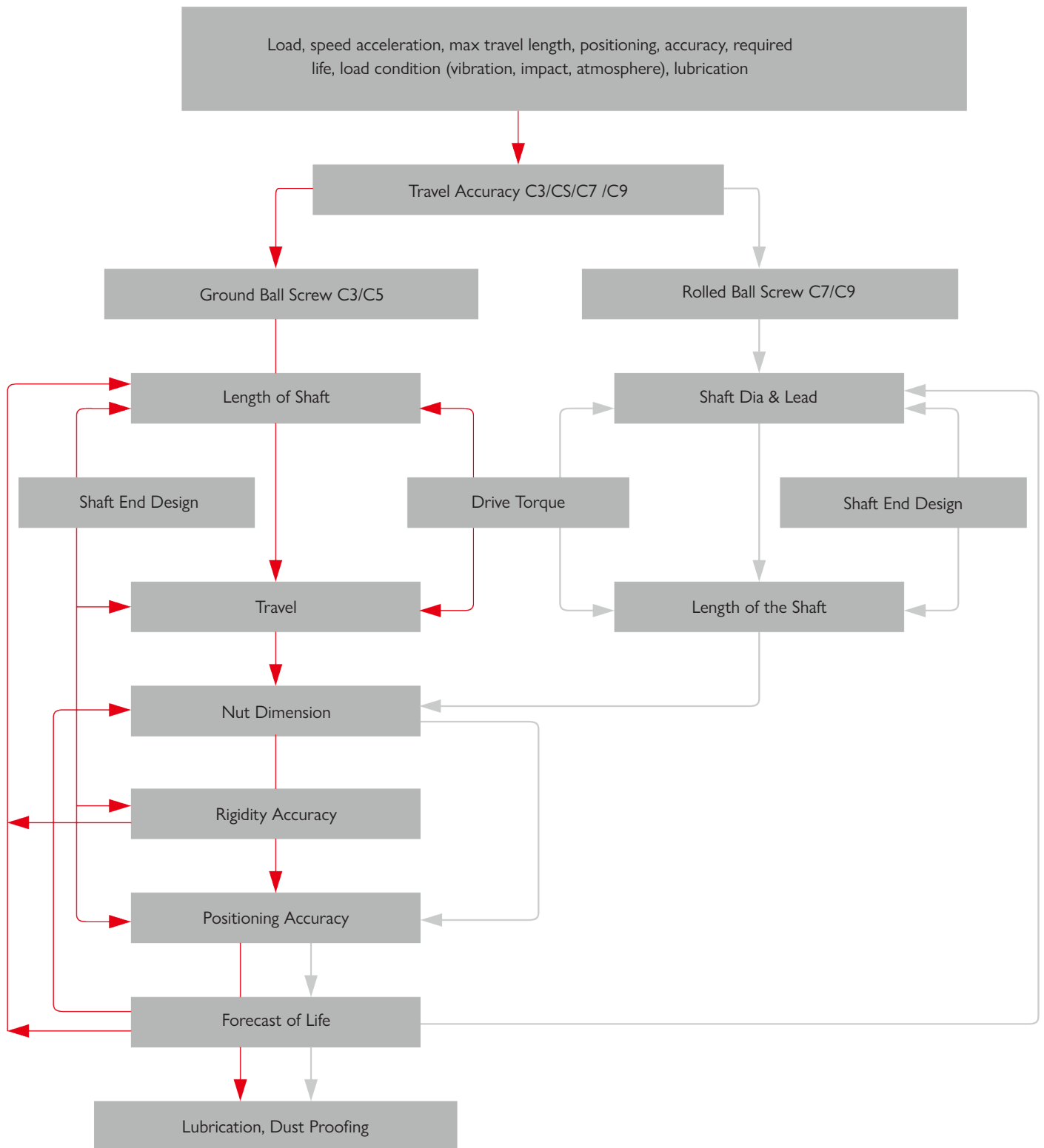
m : Weight (Kg)

l : Lead of feed screw (mm)

η_1 : Positive efficiency of feed screw



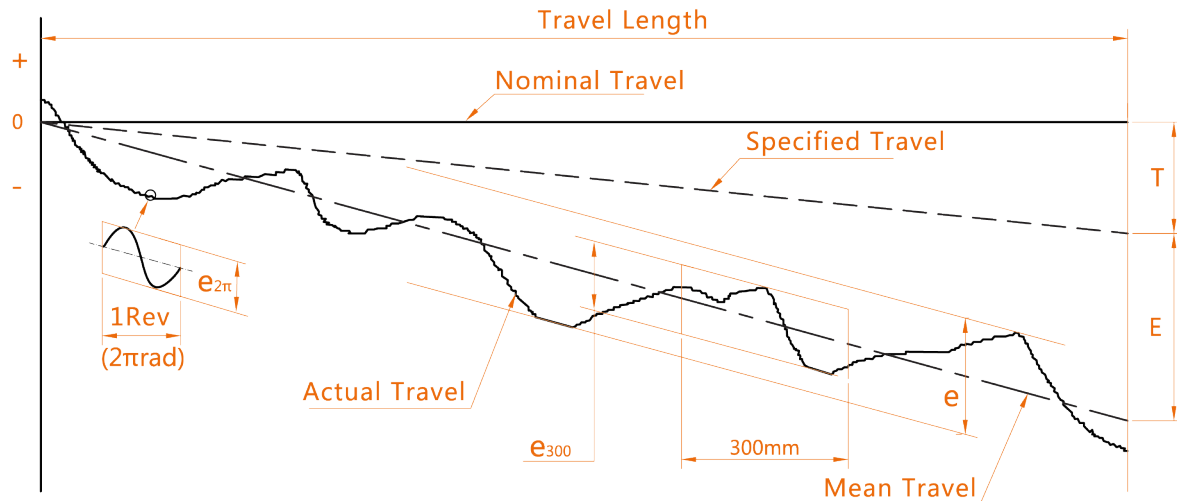
Ball Screw Selection Procedure



Ball Screw Selection Procedure

Ground grade (C3 ~ C5) lead accuracy of the ball screw, according to the Japanese Industrial Standard JIS to four characteristic index (symbol E, e, e300, e2rc) predetermined

Rolled grade (C7 ~ C9) ball screw according to any 300mm running distance error within the effective length of the thread indicates its accuracy



Terms	Reference	Definition	Allowable
Cumulative Benchmark Lead		Same as Mean Travel, But depending on the purpose, Take the value of the corrected cumulative nominal lead.	
Travel Compensation	T	Travel compensation is the deduction between specified and nominal travel in the useful travel. A slightly smaller value compared with nominal travel is often selected by customer, to compensate for an expected elongation caused by temperature rise or external load. Therefore "T" is usually a negative value.	
Actual Travel		Actual travel is the axial displacement of the nut relative to the screw shaft.	
Mean Travel		Mean travel is the linear best fit line of actual. This could be obtained by the least squares method. This line represents the tendency of actual travel.	
Mean Travel Deviation	E	Cumulative represents the difference between the lead and the cumulative reference lead.	Table 1
Travel Variations	e e ₃₀₀ e _{2π}	Travel variations is the coverage of 2 lines drawn parallel to the mean travel.	Table 1
		Maximum width of variation within the travel length.	Table 2
		Actual width of variation for the length of 300mm taken anywhere within the travel length. Wobble error, actual width of variation for one revolution (2π radian)	Table 2



Accuracy

Table1 Mean Travel Deviation ($\pm E$) and Travel Variation (e)

Unit : μm

	Grade		C0		C1		C2		C3		C5		C7	C9
	over	under	$\pm E$	e	$\pm E$	e	$\pm E$	e	$\pm E$	e	$\pm E$	e	e	e
Travel Length (mm)	0	100	3	3	3.5	5	5	7	8	8	18	18	± 50 /300mm	± 150 /300mm
	100	200	3.5	3	4.5	5	7	7	10	8	20	18		
	200	315	4	3.5	6	5	8	7	12	8	23	18		
	315	400	5	3.5	7	5	9	7	13	10	25	20		
	400	500	6	4	8	5	10	7	15	10	27	20		
	500	630	6	4	9	6	11	8	16	12	30	23		
	630	800	7	5	10	7	13	9	18	13	35	25		
	800	1000	8	6	11	8	15	10	21	15	40	27		
	1000	1250	9	6	13	9	18	11	24	16	46	30		
	1250	1600	11	7	15	10	21	13	29	18	54	35		
	1600	2000			18	11	25	15	35	21	65	40		
	2000	2500			22	13	30	18	41	24	77	46		
	2500	3150			26	15	36	21	50	29	93	54		
	3150	4000			30	18	44	25	60	35	115	65		
	4000	5000					52	30	72	41	140	77		
	5000	6300					65	36	90	50	170	93		
	6300	8000							110	60	210	115		
	8000	10000									260	140		
	10000	12500									320	170		

Note : The values in this table are in accordance with DIN 69051 and JIS B 1192.

Table 2 Variation per 300mm (e_{300}) and Wobble Error ($e_{2\pi}$) (JIS B 1192)

Unit : μm

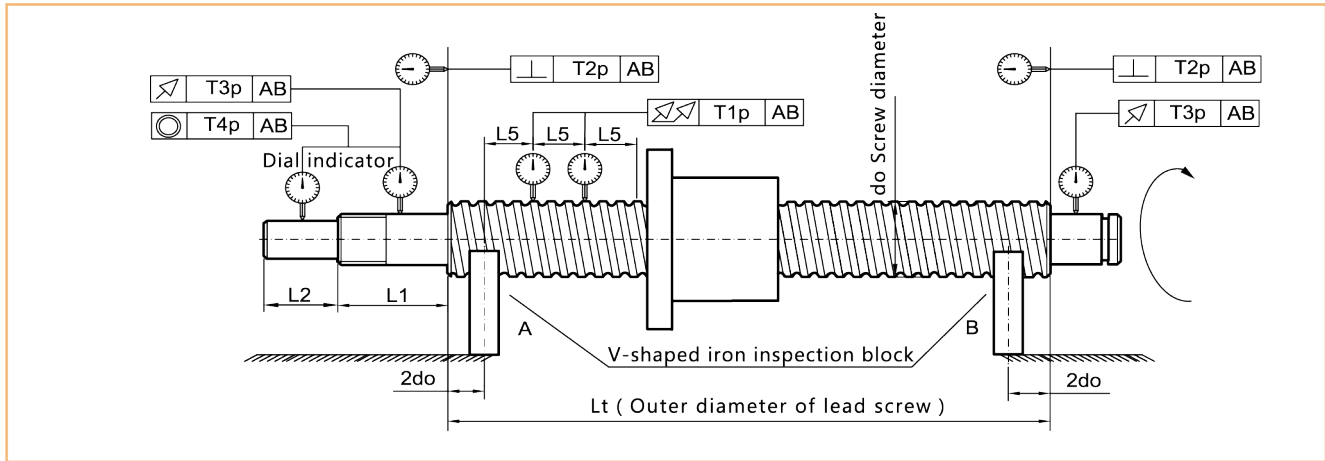
Grade	C0	C1	C2	C3	C5	C7	C9
e_{300}	3.5	5	7	8	18	50	150
$e_{2\pi}$	2.5	4	5	6	8	-	-

Table 3 Use and Grade

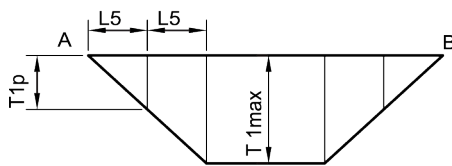
Use	Grade	Note
Accurate positioning G	C3/C5	Comply with international standard ISO
Drive mechanism F	C7/C9	Comply with international standard ISO

Shaft end machining

Ordinary precision screws are selected with high-level machining accuracy, it will first increase machining costs and reduce the life of the screws. It is recommended that the user select the form and location tolerance value on the processing drawing according to the lead accuracy level in the table below.



It is extremely important to select the correct screw processing accuracy to meet the requirements of the product. The following table combines the form and location tolerance chart of the ball screw mounting reference surface to help you select the reasonable form and location tolerance value required according to the screw accuracy.



Straightness error

T1p Straightness error with reference to AB within effective screw length Lt					
Screw diameter do[mm]		L5 [mm]	T1p[μm] DTK Accuracy grade		
Above	To		C3	C5	C7/C9
6	12	80	20	25	40
12	25	160			
25	50	315			
50	100	630			
Length diameter ratio Lt/do			T1max[μm] DTK Accuracy grade		
Above	To		C3	C5	C7/C9
	40		40	50	80
40	60		60	80	120
60	80		100	120	200
80	100		160	200	320

T2p The verticality of the bearing position relative to the lead screw AB (end face run-out error)					
Screw diameter do[mm]		T2p[μm] DTK Accuracy grade			
Above	To	C3	C5	C7/C9	
6	63	4	5	6	
63	100	5	6	8	

T3p Radial circular run-out of the bearing position relative to the lead screw AB (yaw error)					
Screw diameter do[mm]		Datum length	T3p[μm] L1 ≤ Lr DTK Accuracy grade		
Above	To	Lr	C3	C5	C7/C9
6	20	80	11	16	40
20	50	125	14	20	50
50	100	200	18	26	63
When the actual shaft diameter length $L_1 >$ reference length L_r , the actual reference value $t_{3a} \leq T_{3p} \frac{L_1}{L_r}$					

T4p Concentricity of the lead screw drive end with respect to the screw AB (the end of the motor connecting shaft)					
Screw diameter do[mm]		Datum length	T4p[μm] L2 ≤ Lr DTK Accuracy grade		
Above	To	Lr	C3	C5	C7/C9
6	20	80	6	7	12
20	50	125	7	9	16
50	100	200	9	11	20
When the driving end length $L_2 >$ reference length L_r , the actual reference value $t_{4a} \leq T_{4p} \frac{L_2}{L_r}$					

Note: 1) When the ratio of the length to the dia meter of the ball screw is less than 40, it allows the measurement method of the two apex & center hole.
 2) When the ratio of the length to the dia meter of the ball screw is greater than 40, it is allowed to use more than two V-shaped iron inspection blocks for testing.
 3) The nuts are all manufactured by the original factory in Taiwan and are produced by fully automatic nut machining center. The accuracy of the dimensions, form and location tolerances conforms to the relevant requirements of German DIN 69051 and Japanese JIS B1192.

Axial clearance and preload

In order to ensure the running accuracy and service life of the nut, the preload adjustment of nuts with different levels of accuracy is limited. For specific values, please refer to Table 1.

- P0 preload belongs to stock standard preload accuracy, there is clearance in the axial direction, please refer to Table 2 for specific values;
 - P1 preload belongs to the light gap-less preload assembly (zero clearance), which is the ideal assembly state of the ball screw. Customers are recommended to use it.
 - P2 preload belongs to the medium gap-less preload assembly, which is suitable for high precision equipment. Due to the deformation of the steel ball, the service life will be reduced;
 - P3 preload belongs to the heavy preload assembly, suitable for ultra-precision equipment, only limited to grinding Class es and C3 ball screws.
- DTK specially reminds: If the ordinary screw is selected with excessive high preload, please note that it will greatly affect the service life of the lead screw. It is recommended to select the model marking and ordering according to this specification. Pre-loaded screws above Class P2 ensure no axial clearance (zero back clearance), and there is pre-stress on the nut, which is suitable for CNC tool machine selection.

Table 1 : Reference table of ball screw lead precision grade and preload precision grade

Unit : mm

screw Lead accuracy grade	Lead accuracy grade e_{300}	Preload accuracy grade
C9(Rolled Ball Screw)	± 0.150	Standing stock is Class P0, the maximum allowable preload of DTK is P0
C7(Rolled Ball Screw)	± 0.050	Standing stock is Class P0, the maximum allowable preload of DTK is P0
C5(Ground Ball Screw)	± 0.018	The standard delivery is Class P1, the maximum allowable preload of DTK is P3
C3(Ground Ball Screw)	± 0.008	The standard delivery is Class P1, the maximum allowable preload of DTK is P3

Note 1: If the user does not make a request when ordering, the actual delivery will be carried out according to the standard grade of the preload in this table

Table 2 : Axial play clearance in the Axial Direction of Rolled and Ground Ball Screw

Unit : mm

Nominal Diameter	C7/C9 Grade P0 pag	C7/C9 Grade P1 pag	C3/C5 Grade P1 pag	C3/C5 Grade P2 pag
ø6-ø16	+0.015~+0.001	0~ -0.002	0~ -0.003	-0.003~ -0.005
ø20-ø50	+0.025~+0.001	0~ -0.004	0~ -0.005	-0.005~ -0.008
ø63-ø125	+0.045~+0.001	0~ -0.006	0~ -0.008	-0.008~ -0.012

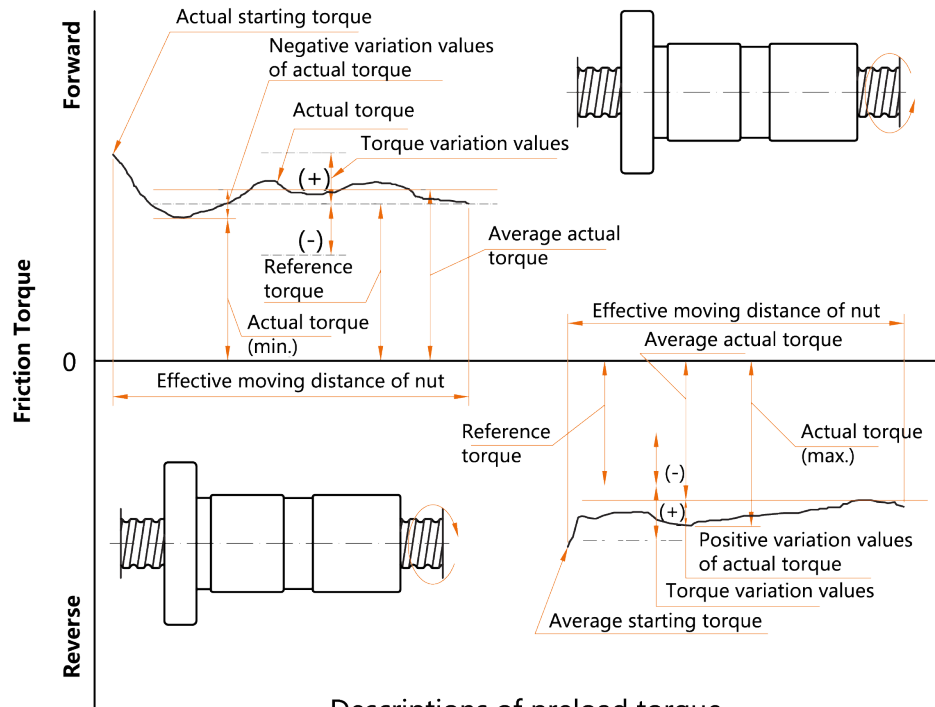
Table 3 : The reference spring force of (P2)

Unit : Kg

Model No.	Spring Force Single Nut	Spring Force Double Nut
1605	0.1 ~ 0.3	0.3 ~ 0.6
2005	0.1 ~ 0.3	0.3 ~ 0.6
2505	0.2 ~ 0.5	0.3 ~ 0.6
3205	0.2 ~ 0.5	0.5 ~ 0.8
4005	0.2 ~ 0.5	0.5 ~ 0.8
2510	0.2 ~ 0.5	0.5 ~ 0.8
3210	0.3 ~ 0.6	0.5 ~ 0.8
4010	0.3 ~ 0.6	0.5 ~ 0.8
5010	0.3 ~ 0.6	0.8 ~ 1.2
6310	0.6 ~ 1.0	0.8 ~ 1.2
8010	0.6 ~ 1.0	0.8 ~ 1.2

Preload torque

Ball Screw preloading torque to JIS B 1192-1997 as benchmark for management



Descriptions of preload torque

- Preload dynamic torque**

The dynamic torque required for continuously rotating the screws shaft or the nuts under unload condition and the preload has applied to the ball screws

- Reference torque**

The targeted preload dynamic torque

- Actual Torque**

The actual torque measured preload dynamic torque of the ball screws

- Torque variation values**

The variation values of the targeted preload torque variation rates are specified generally based on JIS standard as indicated

- Torque variation rate**

The variation ratio of reference torque

Preload torque

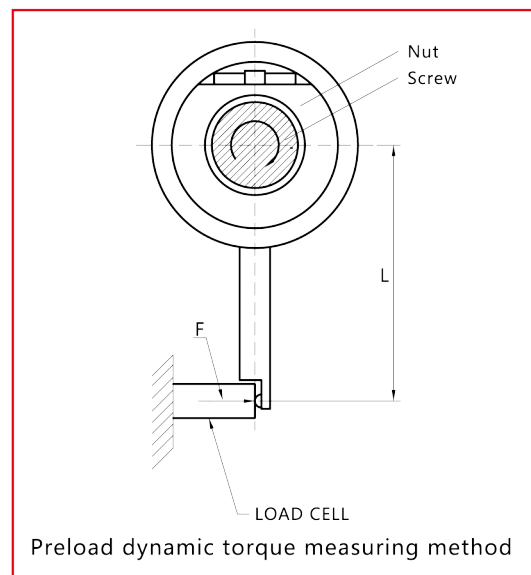
Measurement Conditions

The measure condition as indicated in Fig, the preload dynamic torque will be the multiplication of F (The farce to make the nut stay stili during rotating the screw) and L (The arm of farce).

$$T_p = F \times L$$

Measure Conditions

- 1 - Measurment is executed under the condition of unattached with scraper.
- 2 - The rotating speed during measurement maintains at 100 rpm.
- 3 - According to JSK2001(industrial lubrication oil viscosity standard), the lubrication oil used should be in compliance with ISO VG68.



$$T_{op} = 0.05(\tan\beta)^{-0.5} \frac{F_{a0} \cdot l}{2\pi}$$

$$\tan\beta = \frac{l}{\pi \cdot d_m}$$

Reference torque (N•mm)		Effective threading length mm										
		Below 4000								4000~10000		
		Slenderness 1 : below 40				40 < Slenderness < 60				-		
		Grade				Grade				Grade		
Over	Incl	C0	C1	C2、 3	C5	C0	C1	C2、 3	C5	C1	C2、 3	C5
200	400	±30%	±35%	±40%	±50%	±40%	±40%	±50%	±60%	-	-	-
400	600	±25%	±30%	±35%	±40%	±35%	±35%	±40%	±45%	-	-	-
600	1000	±20%	±25%	±30%	±35%	±30%	±30%	±35%	±40%	-	±40%	±45%
1000	2500	±15%	±20%	±25%	±30%	±25%	±25%	±30%	±35%	-	±35%	±40%
2500	6300	±10%	±15%	±20%	±25%	±20%	±20%	±25%	±30%	-	±30%	±35%
6300	10000	-	±15%	±15%	±20%	-	-	±20%	±25%	-	±25%	±30%

Mounting methods

It's important to consider mounting method during your selection of ball screw specification. If you have special requirement related with mounting method, please consult DTK MOTION

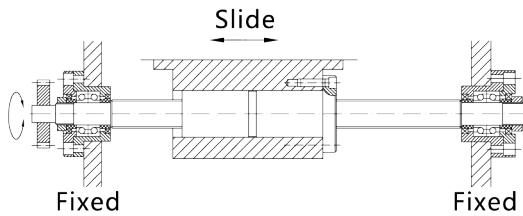


Fig 1

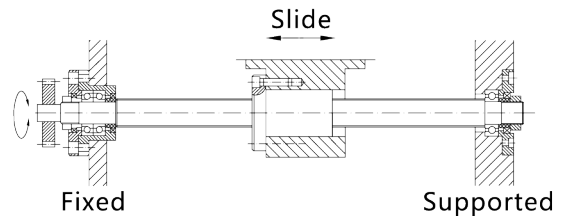


Fig 2

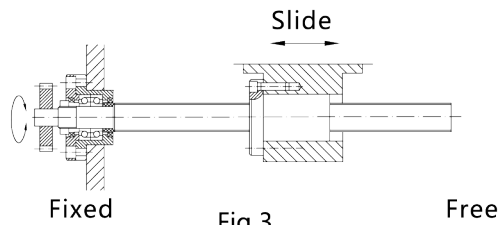


Fig 3

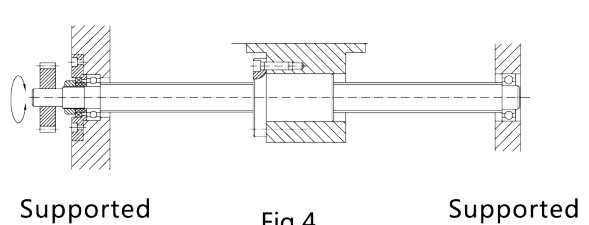


Fig 4

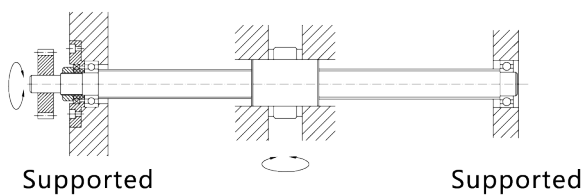


Fig 5

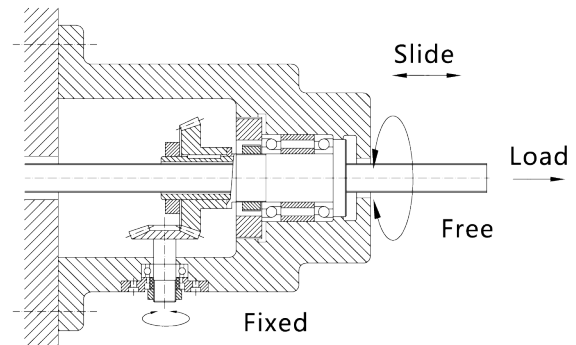


Fig 6

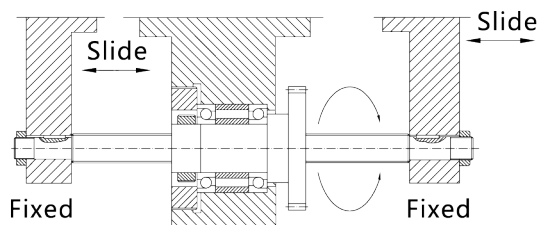


Fig 7

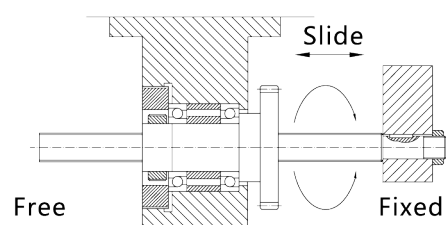
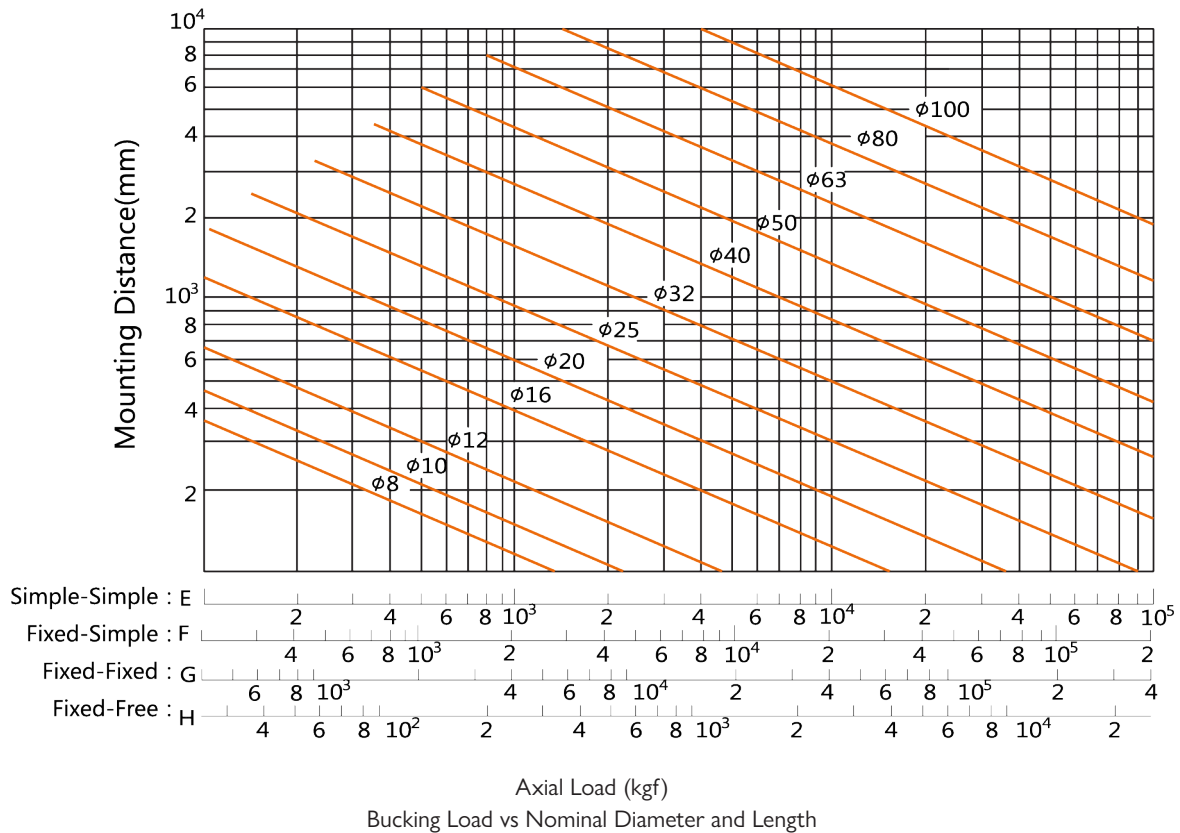


Fig 8

Axial Load



Buckling Load

The safety of the screw shaft against buckling needs to be checked when the shaft is expected to receive buckling loads.

Select the graduation of allowable axial load according to the method of ball screw support method.

P: Buckling Load kgf

α : Safety Factor ($\alpha=0.5$)

E: Vertical elastic modules ($E=2.1 \times 10^4$ kgf/mm²)

I: Min. secondary moment of screw shaft sectional area

dr: Screw shaft root diameter (mm)

L: Mounting distance (mm)

m, N: Coefficient determined from mounting method of ball screw

$$P = \alpha \times \frac{N \cdot \pi^2 \cdot E \cdot I}{L^2} = m \frac{dr^4}{L^2} \times 10^4$$

$$I = \frac{\pi}{64} dr^4 (\text{mm}^4)$$

Simple - Simple	m = 1,3	N = 0,25
Fixed - Simple	m = 10,2	N = 2
Fixed - Fixed	m = 20,3	N = 4
Fixed - Free	m = 5,1	N = 1

Allowable Tensile/Buckling Load

With shorter mounting distance, please calculate the two items describe in below.

P: Allowable Tensile/Buckling Load (kgf)

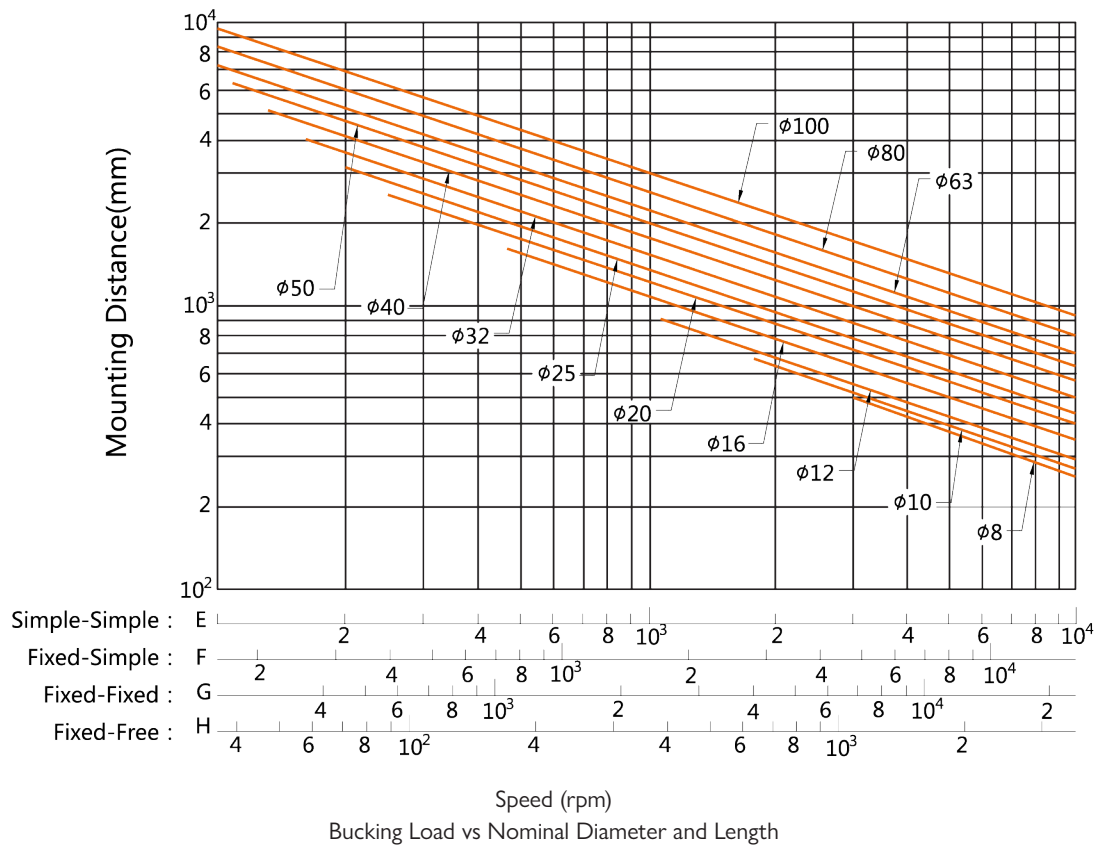
σ : Allowable tensile compressive stress ($\sigma=147\text{MPa}$)

A: Sectional area of screw shaft root bottom diameter (mm²)

dr: Screw shaft root diameter (mm)

$$P_2 = \sigma \cdot A = \frac{\sigma \cdot \pi \cdot dr^2}{4} = 11.8 dr^2$$

Speed



Dangerous speed

To prevent the screw's natural frequency attain resonance which will occur critical speed, it's necessary to look into the ball screw allowable rotation speed (Below 80% of the Critical Speed) More detail of allowable rotation speed classified though screw diameter please refer to Fig

$$N = \alpha \cdot \frac{60 \lambda^2}{2\pi L^2} \sqrt{\frac{E \cdot I \cdot g}{\gamma \cdot A}} = f \frac{dr}{L^2} \times 10^7 \text{ (min}^{-1} \text{)}$$

$$I = \frac{\pi}{64} dr^4 \quad A = \frac{\pi}{4} dr^2$$

Dm x n value

The allowable rotation speed is regulated also by the Dm x N value (Dm : diameter of central circle of steel ball, N : Revolution speed, rpm) which expresses the peripheral speed.

Ground Ball Screw Inner circulation nut $Dm \cdot N \leq 70000$

Ground Ball Screw Outer circulation nut $Dm \cdot N \leq 100000$

Ground Ball Screw End circulation nut $Dm \cdot N \leq 160000$

Rolled Ball Screw, the nut is about 80% of the same nut size

N: Dangerous speed (min⁻¹)

α: Safty factor (α=0.8)

E: Verticle elastic modules (E=2.1×104kgf/mm²)

I: Minimum secondary torque of axial section plane (mm)

dr: Screw shaft root diameter (mm)

g: Acceleration of gravity (g=9.8×103mm/s²)

γ: Density (γ=7.8×10-6kgf/mm³)

A: Screw shaft sectional area (mm²)

L: Mounting distance (mm)

f, λ: Coefficient determined from the ball screw mounting method

Simple - Simple	m = 1,3	N = 0,25
Fixed - Simple	m = 10,2	N = 2
Fixed - Fixed	m = 20,3	N = 4
Fixed - Free	m = 5,1	N = 1

f your requirement about the product will exceed the limitation, please contact with DTK MOTION to discuss the detailed solution for the ideal product.

When ε, the ratio of screw length and shaft diameter has exceed- ed 70, please contact us to arrange the special arrangement for production.

Nut Design

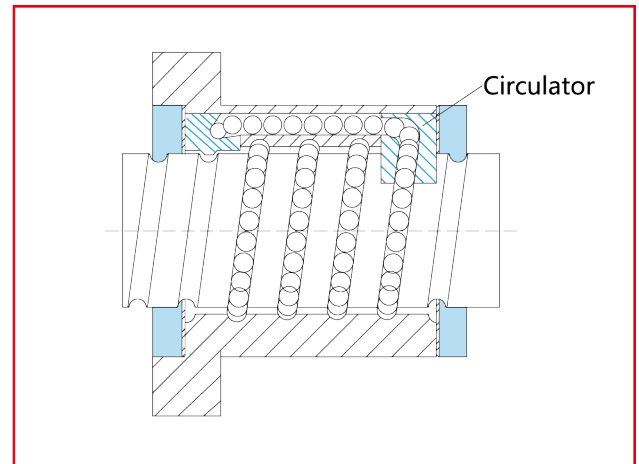
Selection of Nut

1. Series : When making selection of series, please take demanded accuracy, intended delivery time,dimensions(the outside diameter of screw, ratio of lead/ the outside diameter of screw) preload and etc into consideration.
2. Circulation type: Selection of circulation type : Please consider the efficiency of screw nut's mounting space. The advantage of each circulation type will be specified in figure
3. Number of loop circuits : Performance and service life should be considered when selecting number of loop circuits.
4. Oil hole : Oil holes are provided for the precision ball screws, please use them during machine assembling and regular furnishing.

Circulation type	Single Nut	Double Nuts	Characteristic
Inner Circulation	TSFU TSFI TSFK TBSH TSCI SFB SFZ BNT SFC SFD	TDFU TDFI DFZ	<ul style="list-style-type: none"> • Delicated diameter of screw takes only little space. • Suitable for conventional lead, the most traditional structure • Suitable for non - high speed, non - heavy duty general purpose
Outer Circulation	TBSH		<ul style="list-style-type: none"> • Suitable for nuts with large mounting space • Suitable for use under heavy load
End Circulation	TSFS TSFV SFVS TSFH TSCH XSSR TSFY KSSR SFTE	TDFS TDFV DFVS	<ul style="list-style-type: none"> • Suitable for large nut structure form of lead • Suitable for the purpose of the high speed, low noise

Nut Types - S/V/VS/H

With this type of circulator at both ends, the running steel ball is taken from the groove of the screw shaft into the through-hole of the nut, and then returns to the groove through the throughhole to perform infinite loop motion. This type of steel ball will run along the direction of the thread, coupled with the sound insulation and dust-proof design of the two ends of the steel ball, the noise during operation will be minimized. In addition, the installation space of the S-type nut is relatively smaller than other types of nut, so it is especially suitable for high speed and light load design.

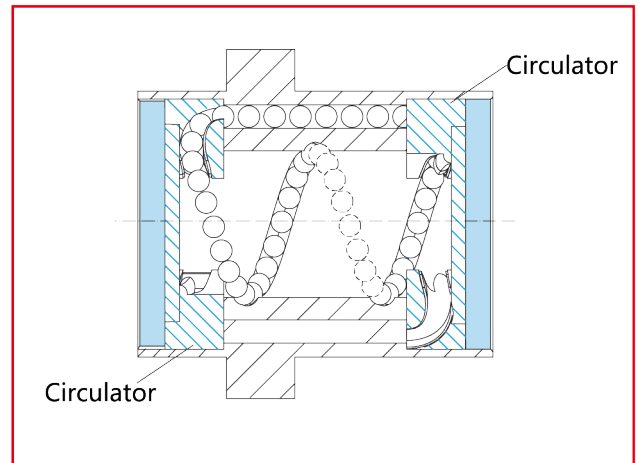


Nut Design

Y/TE-Type Nut (End circulation)

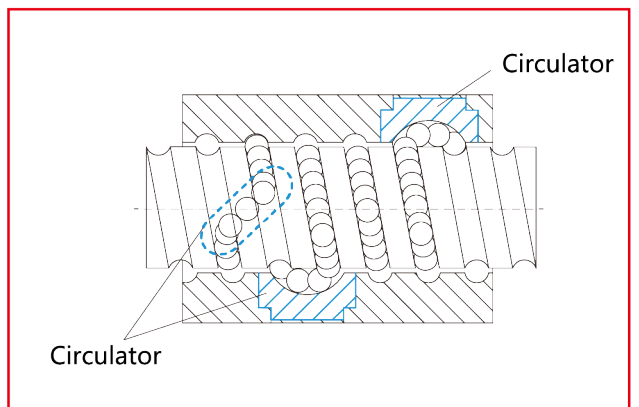
This type of circulation method is similar to the S-type. In addition to retaining the advantages of the S-type circulation design, the strengthening of the circulation reflux structure increases the high rigidity and high-speed function. Because the raceway is designed with double teeth, the bearing capacity is double that of S

- type, which can be applied to high-speed and heavy load structures. In addition, this structure can also choose metal reflow device, which is more suitable for high temperature, high speed and high dust environment.



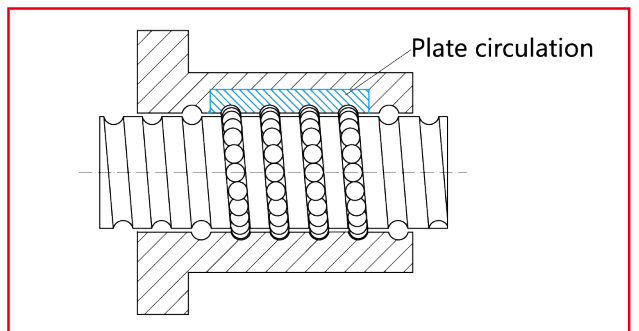
U/I/B/C/D/Z-Type Nut (Inner circulation)

In these types of nuts, by using the internal circulator which makes the ball pass over the crest diagonally, the ball will return to the starting point. Normally, one roll of balls will fit with one circulation. As fig specified, these types of nuts need at least one side which is completely tooth passing, which is applicable for smaller shaft diameter.



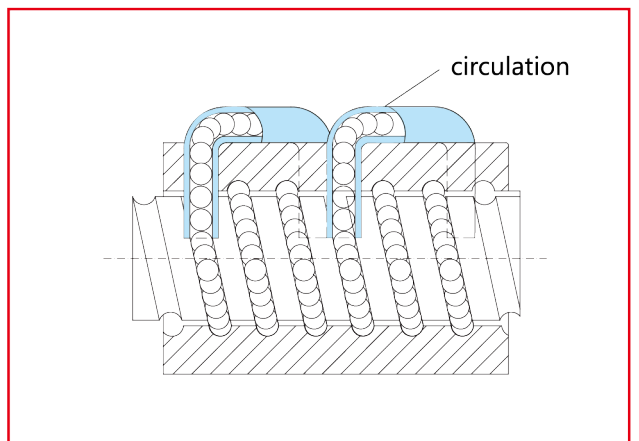
K-Type Nut (plate inserted circulation)

It applies the similar circulation as that of i-type, but circulation takes place in key slots of identical angle for different circulation.



BSH-Type Nut (Tubular external circulation)

Using outer circulation, the special design of circulator allows the balls to roll along the thread direction. By so, the smoothness of circulation is increased and meanwhile decrease the mutual collision. It's a suitable type for high speed and heavy loading.



Service Life Design

The life of the ball screw

When the ball screw is subjected to external load motion, it continuously receives cyclic stress on the rolling surface or steel ball. When the stress value reaches a certain limit, fatigue damage occurs on the rolling surface, and fish scale-like peeling occurs on part of the surface. This phenomenon is called surface peeling. The life of the ball screw refers to the total number of revolutions of the ball screw until the first surface peeling due to the rolling fatigue of the material occurs on either the rolling surface or the steel ball.

Regarding the working life of the ball screw, even if the ball screw manufactured by the same method is used under the same motion conditions, its life will be greatly different. Therefore, as a benchmark for the life of ball screw, the following rated life is used: The so-called rated life refers to the total number of revolutions that can be achieved when 90% of the same batch of ball screws are operated separately under the same conditions without surface peeling (scaly peeling on the metal surface).

Basic Static Load Rating Coa

The basic load rating is an axial static load which will produce a permanent deformation at contact points of the steel balls to ball grooves equal to 0.01% of ball diameter.

Basic Dynamic Load Rating Ca

The basic dynamic load rating is an axial load which allow 90% of a group of identical ball screws (rotated under the same condition) to rotate without flaking for 10⁶ revolutions. This basic dynamic load rating is shown in the table of dimensions.

Relation between load and service:



L: Service life

P: Load

Calculation of Service Life

The fatigue life is generally expressed by the total number of revolutions. The total rotation hours or total travel distance may also be used to express service life. The fatigue life is calculated as follow :

Rated fatigue life

$$L = \left(\frac{C_a}{F_a \cdot f_w} \right)^3 \times 10^6$$

Life in hours

$$L_t = \frac{L}{60N} = \frac{L \cdot l}{2 \times 60 \times n \times L_s}$$

Life in travel distance

$$L_s = \frac{L \cdot l}{10^6}$$

L: Rated fatigue life (rev)

L_t: Life in hours (h)

L_s: Life in travel distance (Km)

C_a: Basic dynamic load rating (kgf)

F_a: Axial load (kgf)

f_w: Load Coefficient N (Table 1)

N: Rotating speed (min-1)

n: Rotating speed (min-1)

l: Lead (mm)

Table 1 Load Factor f_w

Vibration and impact	Velocity (V)	f _w
Minor	Very Low V ≤ 0.25m/s	1~1.2
Little	Low 0.25 < V ≤ 1m/s	1.2~1.5
Moderate	Medium 1 < V ≤ 2m/s	1.5~2
Heavy	High V > 2m/s	2~3.5

Table 2 Service Life in Different Application.

Working machines	20000 h
General industrial machines	10000 h
Automatic control machines	15000 h
Measurement machines	15000 h

Service Life Design

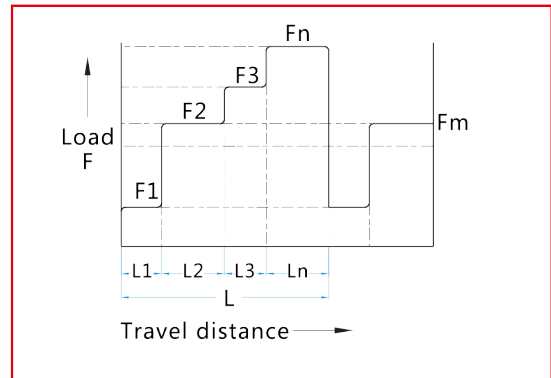
Average load

The following three cases are used to calculate the axial average load.

When the load and rotate speed are divided into complex number of stages

$$F_m = \left(\frac{F_1^3 \cdot n_1 \cdot t_1 + F_2^3 \cdot n_2 \cdot t_2 + \dots + F_n^3 \cdot n_n \cdot t_n}{n_1 \cdot t_1 + n_2 \cdot t_2 + \dots + n_n \cdot t_n} \right)^{\frac{1}{3}}$$

Axial Load (N)	Rotating Speed (min ⁻¹)	Time
F ₁	n ₁	t ₁
F ₂	n ₂	t ₂
•	•	•
•	•	•
F _n	n _n	t _n



Travel Distance:

$$L = L_1 + L_2 + L_3 + \dots + L_n$$

Replace distance with
rotate speed and time

$$L = n_1 \times t_1$$

$$L = n_2 \times t_2$$

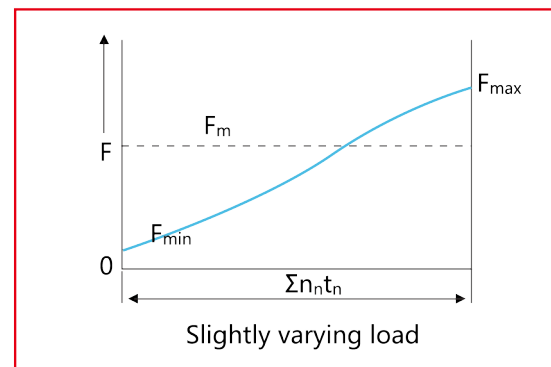
$$L = N_n \times t_n$$

When the rotate speed is constant and the load changes almost linearly

$$F_m = \frac{1}{3} (F_{min} + 2F_{max})$$

F_{max} = Maximal axial load (kgf)

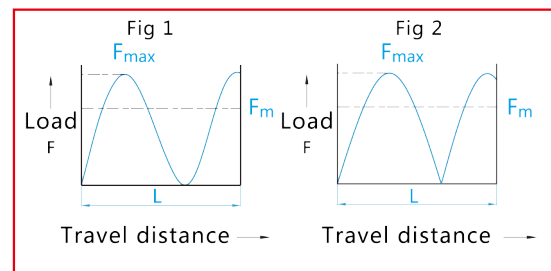
F_{min} = Minimal axial load (kgf)



When load changes according to sine curve

$$F_m \cong 0.65 F_{max} \quad \dots \dots \dots \text{Fig 1}$$

$$F_m \cong 0.75 F_{max} \quad \dots \dots \dots \text{Fig 2}$$



Factor of Safety fs

Basic dynamic load rating (Ca)

$$Ca = F_m \times f_s$$

Basic static load rating (Ca)

$$Coa = F_{max} \times f_s$$

Usage	Operation	fs
Machine Tool	Normal Operation	1 - 1.3
	Operation with impact and vibration	2 - 3
Industrial Machine	Normal operation	1 - 1.5
	Operation with impact and vibration	2.5 - 7

Rigidity

In order to improve the overall positioning accuracy of the machine, the overall rigidity of each component of the entire transmission system needs to be comprehensively considered.

Axial rigidity of the feed screw system K

$$\delta = \frac{F_a}{K}$$

$$\frac{1}{K} = \frac{1}{K_S} + \frac{1}{K_N} + \frac{1}{K_B} + \frac{1}{K_H}$$

δ : Axial flexural displacement (μm)

F_a : Axial load (kgf) borne by the transmission screw system (kgf)

K : Axial elastic deformation (kgf/ μm)

K_S : Axial rigidity of screw shaft (kgf/ μm)

K_N : Axial rigidity of nut (kgf/ μm)

K_B : Axial rigidity of support shaft (kgf/ μm)

K_H : Axial rigidity of installation (kgf/ μm)

Axial rigidity K_S

Fixed-Simple

$$K_S = \frac{A \cdot E}{1000 \cdot L}$$

A : Cross-sectional area of the screw shaft
tooth root diameter (mm^2)

$$A = \frac{\pi}{4} d_r^2$$

d_r : Bottom diameter of screw shaft (mm)

E = Longitudinal elastic modulus

($E = 2.1 \times 10^4 \text{ kgf} \cdot \text{mm}^2$)

L : Distance between installations (mm)

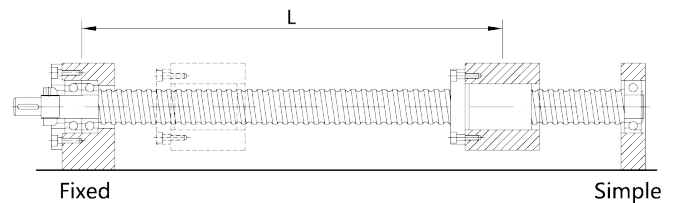


Fig 1

Fixed-Fixed

$$K_S = \frac{A \cdot E \cdot L}{1000 \cdot a \cdot b}$$

When the position of $a = b = L/2$,
the value of K_S is the smallest,
the axial elastic displacement is maximum.

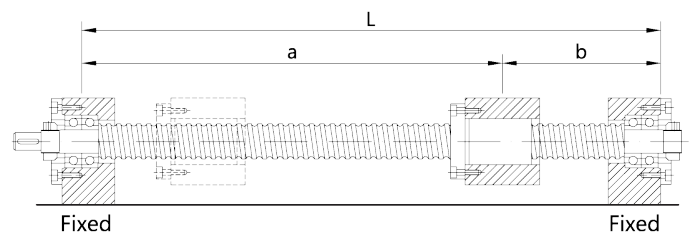


Fig 2

$$K_S = \frac{4A \cdot E}{1000L}$$

Rigidity

Axial rigidity K

Gap type

When an axial load of 30% of the basic dynamic rated load (Ca) is applied, the theoretical axial rigidity value K is described in the dimension table of each corresponding model. This value does not include the rigidity of related mounting parts such as nut supports. Generally, please use 80% of the values in the table as the standard.

When the axial load is not equal to 30% of the basic dynamic rated load (Ca), the rigidity value is obtained from the following formula.

$$K_N = K \left(\frac{F_a}{0.3Ca} \right)^{\frac{1}{3}} \times 0.8$$

K_n : Axial Rigidity (kgf/μm)
 K: Rigidity Values (kgf/μm)
 F_a : Axial Load (kgf)
 Ca: Basic Dynamic Load Rating (kgf)

Preload Type

When a preload of 10% of the basic dynamic rated load (Ca) is applied, the theoretical axial rigidity value K is described in the dimension table of each corresponding model. This value does not include the rigidity of related mounting parts such as nut supports. In general, use approximately 80% of the values in the table as a benchmark.

When the preload is not equal to 10% of the basic dynamic rated load (Ca), the rigidity value is obtained from the following formula.

$$K_N = K \left(\frac{F_{ao}}{0.1Ca} \right)^{\frac{1}{3}} \times 0.8$$

K_n : Axial Rigidity (kgf/μm)
 K: Rigidity Values (kgf/μm)
 F_a : Axial Load (kgf)
 Ca: Basic Dynamic Load Rating (kgf)

Axial rigidity K

The rigidity of the ball screw support bearing varies depending on the bearings used. The formula for calculating the rigidity of the typical angular contact ball bearing is as follows

$$K_B = \frac{3F_{ao}}{\delta_{ao}}$$

$$\delta_{ao} = \frac{0.45}{\sin \alpha} \left(\frac{Q^2}{D_a} \right)^{\frac{1}{3}}$$

$$Q = \frac{F_{ao}}{Z \sin \alpha}$$

K_B : Axial Rigidity (kgf/μm)
 F_{ao} : Setting load of support bearings (kgf)
 δ_{ao} : Axial displacement (μm)
 Q: Axial load (kgf)
 D_a : Steel Ball diameter (mm)
 α : Angle of contact (°)
 Z: Amount of steel ball

Axial rigidity of nut and bearing mounting parts

Due to the rigidity of the installation site has a large impact on the positioning accuracy of the entire transmission system, it should be fully considered at the design stage.

Positioning Accuracy

Factors that affecting positioning accuracy

Among the factors that cause feed accuracy errors, lead accuracy and feed system rigidity are the key points for review, while other factors such as heat deformation due to temperature rise as well as assembly accuracy for the guiding surface, etc. should also be considered.

Accuracy Selection

the recommended application ranges for various ball screws accuracy classes based on different.

Countermeasure Against Thermal Displacement Thermal displacement of the screw shaft results in deterioration of the position accuracy. The magnitude of the thermal displacement is calculated as follows:

$$\Delta L = \rho \times \Delta t \times L$$

ΔL : Thermal displacement (mm)

ρ : Coefficient of thermal expansion ($12 \times 10^{-6} / ^\circ\text{C}$)

Δt : Temperature rise (deg) at screw shaft ($^\circ\text{C}$)

L: Effective length of screw thread (mm)

Namely, the screw shaft develops elongation of $12\mu\text{m}$ per 1m when the temperature rises by 1°C . The ball screw, which lead has been machined to high accuracy, may fail to meet high level requirements because of the thermal displacement due to temperature rise. As high speed is applied during ball screw usage, the heat will rise as well and cause more influence.

The thermal displacement countermeasures for ball screws include the following :

1. Control of heat generation

- Optimization of preload
- Correct selection and supply of lubricant
- Increase in ball screw lead, with reduced rotation speed
- Hollow screw shaft to allow cooling fluid to flow through
- Cooling of screw shaft exterior with cooling oil or air

2. Avoid influence of temperature rise

- Warming up the machine through high speed to attain the stable temperature. Operates after the temperature become stable.
- Pre-tension on screw shaft
- Preset a negative value on target value of the cumulative lead.
- Use the closed loop for positioning

Torque of ball screw

Driving Torque

Driving torque T_s of the transmission shaft T_s

$$T_s = T_P + T_D + T_F \quad (\text{in fixed speed})$$

$$T_s = T_G + T_P + T_D + T_F \quad (\text{when accelerating})$$

TG: Acceleration torque

TP: Load torque

TD: Preload torque

TF: Friction torque

Acceleration TG

$$T_G = J\alpha \quad (\text{kgf} \times \text{cm})$$

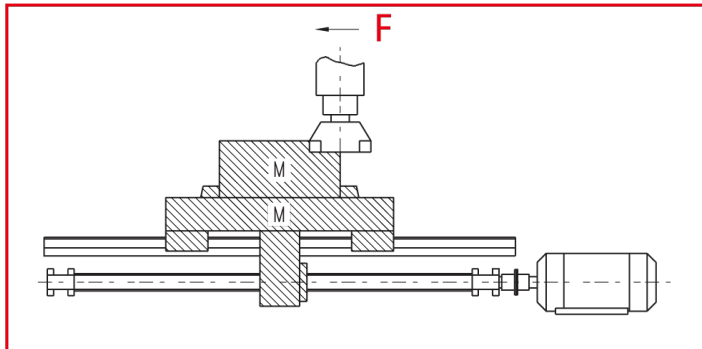
$$\alpha = \frac{2\pi n}{60\Delta t} \quad (\text{rad/s}^2)$$

J: Moment of inertia ($\text{kgf} \cdot \text{cm} \cdot \text{s}^2$)

α : Angular acceleration (rad/s^2)

n: Revolutions (min^{-1})

Δt : Starting time (sec)



Moment of Inertia of load

$$J = J_{BS} + J_{CU} + J_W + J_M$$

J_{BS} : Moment of inertia Ball screws shaft

J_{CU} : Moment of inertia Coupler

J_W : Moment of inertia Linear motion part

J_M : Moment of inertia Roller shaft part of motor shaft

Lead torque TP

$$T_P = \frac{P \times L}{2\pi\eta_1} \quad (\text{kgf} \times \text{cm})$$

$$T_P = \frac{P \times L \times \eta_2}{2\pi} \quad (\text{kgf} \times \text{cm})$$

$$P = F + \mu Mg$$

P: Axial load (kgf)

L: Load (cm)

η_1 : Positive efficiency

The efficiency when rotating motion is altered to linear motion

F: Cutting force (kgf)

μ : Friction

M: Mass of moving object (kg)

g: Acceleration of gravity (9.8m/s^2)

η_2 : Reverse efficiency

The efficiency when linear motion returns to rotating motion

Preload torque TD

$$T_D = \frac{K \times P_{PL} \times L}{\sqrt{\tan \alpha} \times 2\pi} \quad (\text{kgf} \times \text{cm})$$

K: Internal coefficient (0.05 is usually adopted)

P_{PL} : Preload (kgf)

L: Lead (cm)

α : Lead angle

Friction torque TF

$$T_F = T_B + T_O + T_J \quad (\text{kgf} \times \text{cm})$$

T_B : Friction torque of bracing shaft

T_O : Friction torque of free shaft

T_J : Friction torque motor shaft

The friction torque of the bracing shaft would be affected by the volume of lubrication oil. Besides, be careful with the excessive tight end seal may lead to unexpected over friction torque or temperature rise.

Conversion formula for moment of inertia of load

$$\alpha = \frac{1}{32} \rho \pi D^4 L \quad (\text{kg} \cdot \text{m}^2)$$

$$= \frac{\pi r}{32g} D^4 L$$

$$= \frac{m D^4}{8}$$

ρ : Density (7.8×10^3) (kg/m^3)

γ : Specific weight of materials

D: Cylinder diameter (m)

L: Cylinder length (m)

m: Mass of the linear motion part (kg)

Torque of ball screw

Shaft end strength of ball screw

When the screw shaft of a ball screw transmits torque, it must receive torsional and deflection loads, so the strength of the screw shaft must be considered.

Torsional screw shaft

When a torsional load acts on the shaft end of the ball screw shaft, calculate the shaft diameter of the screw shaft end according to the following formula:

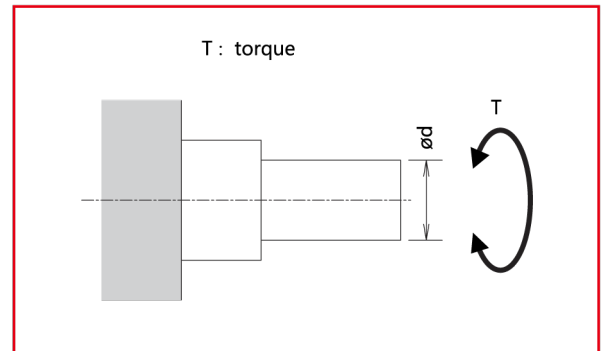
$$T = \tau a + Z_p \text{ and } Z_p = \frac{T}{\tau a}$$

T: Max. torque (kgf·mm)

τa : Allowable torsional stress of the screw shaft (4.9kgf/mm²)

Z_p : Polar section coefficient (mm³)

$$Z_p = \frac{\pi \cdot d^3}{16}$$



Deflection screw shaft

When a deflection load acts on the shaft end of the ball screw shaft, calculate the shaft diameter of the screw shaft end according to the following formula:

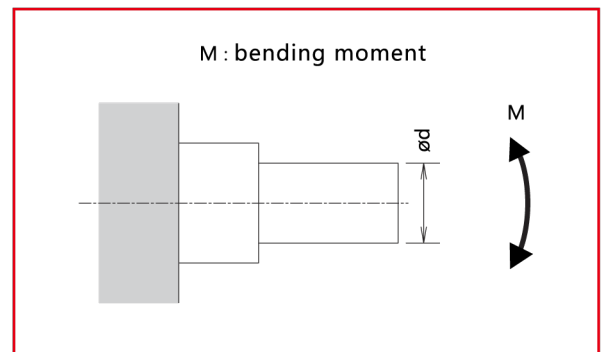
$$M = \sigma \cdot Z \text{ and } Z = \frac{M}{\sigma}$$

M: Max. bending moment (kgf·mm)

σ : Allowable bending stress of the screw shaft (9.8kgf/mm²)

Z: Section factor (mm³)

$$Z = \frac{\pi \cdot d^3}{32}$$



When subjected to both torsional stress and deflection

When the torsional load and deflection load are applied to the shaft end of the ball screw shaft at the same time, the equivalent deflection moment (M_e) and the equivalent torsion moment (T_e) should be considered, then, respectively calculate the diameter of the screw shaft and calculate the (degree of) thickness of the screw shaft, whichever is greater

Equivalent bending moment

$$M_e = \frac{M + \sqrt{M^2 + T^2}}{2} = \frac{M}{2} \left\{ 1 + \sqrt{1 + \left(\frac{T}{M} \right)^2} \right\}$$

$$M_e = \sigma \cdot Z$$

Equivalent torque moment

$$T_e = \sqrt{M^2 + T^2} = M \cdot \sqrt{1 + \left(\frac{T}{M} \right)^2}$$

$$T_e = \tau a \cdot Z_p$$

Lubricating and Nozzle

Lubrication

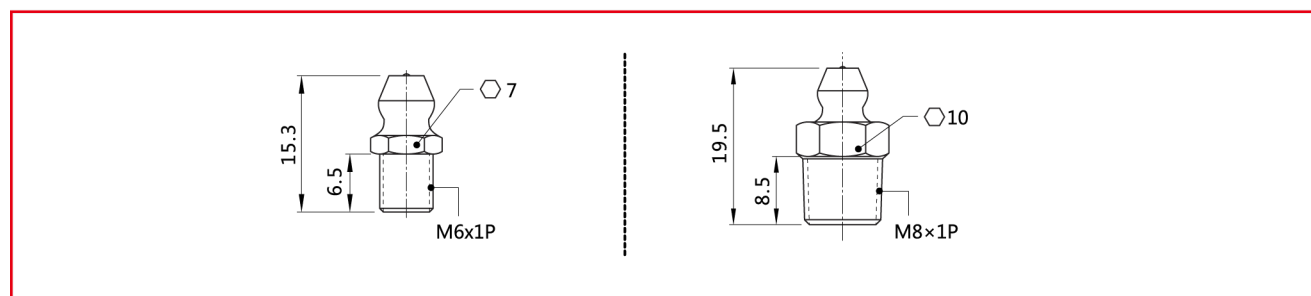
Adequate lubrication must be provided when ball screw is used, insufficient lubrication will result in collision of metal, which leads to increase of friction and detrition, thus cause failure or shortening the service life.

When lubricating the ball screw with grease, use lithium soap-based grease base oil with dynamic viscosity of 30 to 140 mm²/s (40 °C), and when lubricating with oil, use a lubricant type that registered as ISO VG 32 ~ 100.

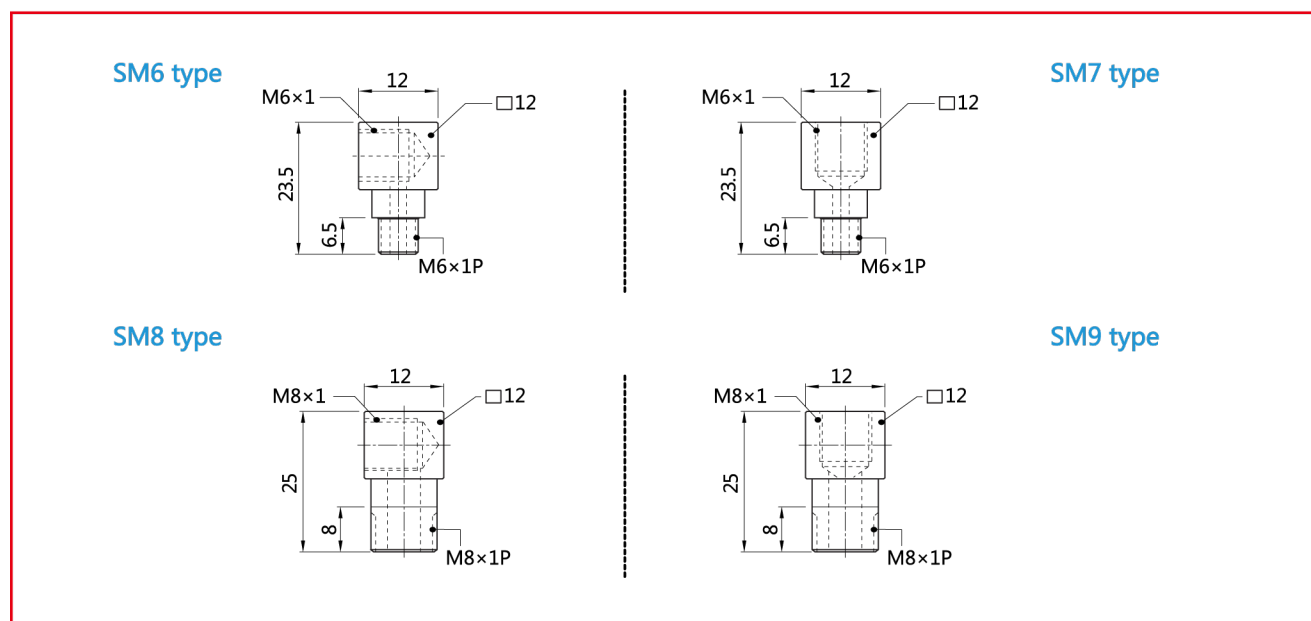
Generally, when used in high-speed applications, which are concerned about the thermal displacement of the screw shaft or used in a low-temperature environment, a lubricant with a low base oil viscosity is recommended. On the contrary, when under low speed, high temperature or shaking, large load, etc., it is recommended to use a lubricant with a higher base oil viscosity.

Method	Interval	Check Item	Replenish or Change Interval
Auto. Periodical oil supply	Weekly	Oil level, contamination	Add at each check, as required depending on tank level
Grease	Initially 2~3 months	Contamination on entry of chip	replenish yearly or according to the inspection result.
Oil bath	Daily	Oil level	To be determined according to consumption

Standard Nipples



Tubing Connector

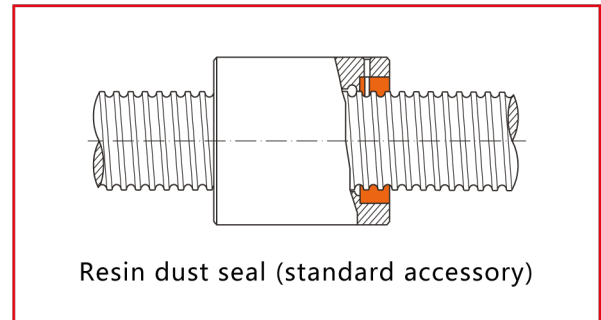


Dust Proof / Prevention

Standard dust protection

Any foreign matter or water, if entering to the ball screw, may increase friction and cause damage. Therefore, it is recommended to choose the dustproof device.

Conventional products are already equipped with resin dust seals.



Cautions About Use of Ball Screws

Inspection and storage

After receiving the product, please accept it according to the drawings or samples. After passing the acceptance, if it is not used temporarily, please restore the original packaging and store it at room temperature. For long-term storage, if the grinding-grade screw cannot be placed horizontally, it must be hung vertically to prevent bending and deformation.

Avoid collision!

The ball screw has been adjusted to the preload level according to the drawings before leaving the factory. Please avoid products hysteresis phenomenon caused by collision during transportation or installation.

Do not disassemble!

The product is installed as an integral component, do not disassemble it by yourself. In case of special circumstances, please call us in time.

Installation conditions

Be sure to install the product in an environment where foreign matter such as dust and iron filings cannot penetrate into the product, and clean the entire product before installation.

Lubrication maintenance

Before commissioning, please add lubricant according to the use environment, and regularly lubricate, but avoid mixing lubricants with different physical properties.

Rolled screws

Rolled screws are made through thread roller. Generally rolled screw has a smoother operation while lowering friction and backlash. Therefore, it gradually replaced the traditional ACME screws and trapezoidal screws. Moreover, rolled screws can eliminate axial play by preloading nut with a cost effective pricing compare to ground screw.

The Features of our Rolled Ball Screw

- Lead Accuracy Up to Grade C7

Unit: μm

Accuracy Grade	C7	C9
e_{300}	± 50	± 150

- Precision Ground Ball Nut

High Precision Ball Nut are interchangeable between ground and rolled screws.

- Available to ship separately

Ball screw and ball nuts can be shipped separated ensure shortest delivery time. The ball nuts are standardized with P0 preloaded, preload value can be adjusted through reballing.

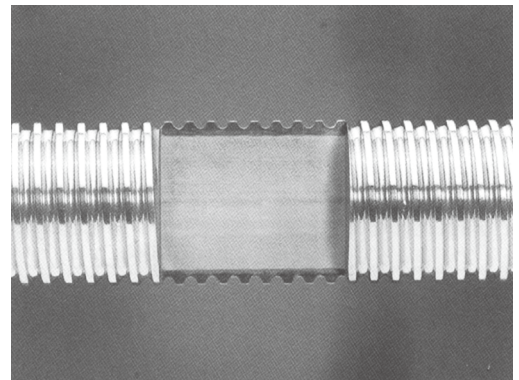
Rolled Ball Screw preload

The standard preload of rolling ball screws is level P0. If level P1 preload is required, please mark it when ordering.

Rolling grade ball screw material

- High purity high carbon steel is used as the raw material, so that the product has excellent durability and stability, and obtains a longer service life.

Name	Material	Heat Treatment	Hardness
Rolled Screw	S55C	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62° UP



Heat Treatment

Rolled screws

Nominal Model Code of Ball Screw

- Nominal Model Code of Shaft

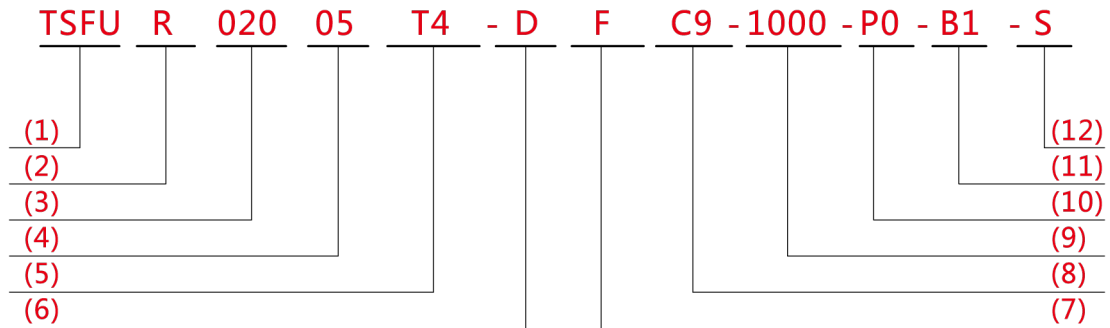
①	②	③	④	⑤	⑥	⑦	⑧
SC	R	025	05	F	C7	-	870 - Y
① Type of Screw Shaft		④ Lead			⑦ Overall Length of Shaft		
SC: Standard type nut		Unit : mm			Unit : mm		
SS: Mute type nut							
② Threading Direction		⑤ Product Code			⑧ Screw shaft end processing		
R: Right		F: Rolled			Y : processing - : Without processing		
L : Left							
③ Nominal Diameter		⑥ Accuracy Grade					
Unit : mm		C7/C9					

- Example of ordering nut s separately

①	②	③	④	⑤	⑥	⑦
TSFU	R	025	05	T4	D	- P0
① Nominal Model		② Threading Direction		⑤ Number of Turns (Turn-Row)		
TS	TS : Single nut	R: Right		Turn: T:1		
	TD : Double nut	L : Left		A:1.5 (or 1.7/1.8)		
F	F : With flange			B:2.5/2.8		
	C : Without flange	③ Nominal Diameter		C:3.5		
U	U : U type nut	Unit : mm		D:4.8		
	I : I type nut			e x . : (2.5 × 2 = B2)		
	S : S type nut	④ Lead		⑥ Flange Type		
	E : TE type nut	Unit : mm		N: Not cutting		
	Y : Y type nut			S: Single cutting		
	K : K type nut			D: Double cutting		
⑦ Axial Clearance and Preload Value				K: Four cutting		
P0:Standard stock preloading is generally not marked.						

Nominal Model Code of Ball Screw

- Nominal Model Code of Nut



(1) Nominal Model

TS: Single nut
TD: Double nut

F: With flange
c: Without flange

U Cycle structure refer to the table on the left

(2) Threading Direction

R: Right L: Left

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)

Turn: T=1 A=1.5/1.7/1.8 B=2.5/2.7/2.8 C=3.5/3.8 D=4.8 E=5.8 ex: (B2=2.5x2)

(6) Flange Type

N: Not cutting S: Single cutting D: Double cutting K: Four cutting -: No flange

(7) Product Code

F: Rolled

(8) Accuracy Grade

C7/C9

(9) Overall Length of Shaft

(10) Axial Clearance and Preload Value

P0 P1 (When ordering nuts separately, prepress P0 for standard stock, no other prepress can be selected.)

(11) Number of Nut

B1: one nut B2: two nuts B3: three nuts

(12) Optional accessory

S: Tubing Connector SM6/SM8

F: Special sealing requirements

Code	Nut model	Code	Nut model
U	TSFU/TDFU	S	TSFS/TDFS/SFVS/DFVS
I	TSFI/TDFI	B	SFB
V	TSFV/TDFV	K	TSFK
Y	TSFY	H	TSFH
E	SFTE	C	SFC
Z	SFZ/DFZ	D	SFD
Special form nut : TBSH/TSCI/TSCH/XSSR/KSSR/BNT			

Note: ball screws can be ordered separately for nuts and screws. If ordering only nuts, only the nut model is required.



Rolled Ball Screw Specifications

- Rolled Ball Screw Specifications

Model No.	d	I	Da	Threading Direction	Number of Grooves	Type of Nut	Overall Length of Shaft
SCR00601	6	1	0.8	R	1	TSFK	1000
SCR00801	8	1	0.8	R	1	TSFK	1000
SCR00802	8	2	1.2	R	1	TSFK	1000
SCR00802.5	8	2.5	1.2	R	1	TSFK/TBSH	1000
SCR01002	10	2	1.2	R	1	TSFK/TBSH	3000
SCR01004	10	4	2	R	1	TSFK/TBSH	3000
SCR01202	12	2	1.2	R	1	TSFK	3000
SCR01204	12	4	2.5	R/L	1	U/K/TBSH	3000
SCR01205	12	5	2.5	R	1	TSFK	3000
SCR01210	12	10	2.5	R	1	XSVR	3000
SCR01220	12	20	2.5	R	4	TSFY/S/XSSR	3000
SCR01402	14	2	1.2	R	1	TSFK	3000
SCR01404	14	4	2.5	R	1	TSFK/TBSH	3000
SCR01604	16	4	2.381	R	1	U/I/TBSH/TSCI/Z	3000
SCR01605	16	5	3.175	R/L	1	U/I/TBSH/TSCI/B/BNT/C/D/Z	3000
SCR01610	16	10	3.175	R/L	2	U/I/TBSH/C/D/Z	3000
SCR01616	16	16	2.778	R	4	TSFY/SFTE	3000
SCR01632	16	32	2.778	R	4	TSFY	3000
SCR02004	20	4	2.381	R	1	U/I/TSCI	3000
SCR02005	20	5	3.175	R/L	1	U/I/TBSH/TSCI/B/BNT/C/D/Z	3000
SCR02020	20	20	3.175	R	4	TSFY/SFTE	3000
SCR02040	20	40	3.175	R	8	TSFY/S	3000
SCR02504	25	4	2.381	R	1	U/I/TSCI	6000
SCR02505	25	5	3.175	R/L	1	U/I/TBSH/TSCI/B/BNT/C/D/Z	6000
SCR02510	25	10	4.762	R/L	1	U/I/TBSH/TSCI/B/BNT/D	6000
SCR02510	25	10	6.35	R	1	V	6000
SCR02525	25	25	3.969	R	4	TSFY/SFTE	6000
SCR02550	25	50	3.969	R	8	TSFY	6000

Note: Those marked ■ can provide left-hand thread products.

Nominal Model Code of Ball Screw

- Rolled Ball Screw Specifications

	Model No.	d	I	Da	Threading Direction	Number of Grooves	Type of Nut	Overall Length of Shaft
	SCR03204	32	4	2.381	R	1	U/I/TSCI	6000
■	SCR03205	32	5	3.175	R/L	1	U/I/TSCI/C/D/Z	6000
■	SCR03210	32	10	6.35	R/L	1	U/I/V/TSCI/B/D/Z	6000
	SCR03232	32	32	4.762	R	4	TSFY/SFTE	6000
	SCR03264	32	64	4.762	R	8	TSFY	6000
■	SCR04005	40	5	3.175	R/L	1	U/I/TSCI/Z	6000
■	SCR04010	40	10	6.35	R/L	1	U/I/V/TSCI/D/Z	6000
	SCR04020	40	20	6.35	R	1	TSFV	6000
	SCR04040	40	40	6.35	R	4	TSFY/SFTE	6000
	SCR04080	40	80	6.35	R	8	TSFY	6000
■	SCR05010	50	10	6.35	R/L	1	U/I/V/TSCI/D/Z	6000
	SCR05020	50	20	9.525	R	1	TSFV	6000
	SCR05050	50	50	7.938	R	4	TSFY/SFTE	6000
	SCR050100	50	100	7.938	R	8	TSFY	6000
	SCR06310	63	10	6.35	R	1	U/I/V/TSCI/Z	7000
	SCR06320	63	20	9.525	R	1	U/I/V/A	7000
	SCR08010	80	10	6.35	R	1	U/I/V/TSCI/Z	7000
	SCR08020	80	20	9.525	R	1	U/IV/Z	7000

Note: Those marked ■ can provide left-hand thread products.



Rolled Ball Screw Specifications

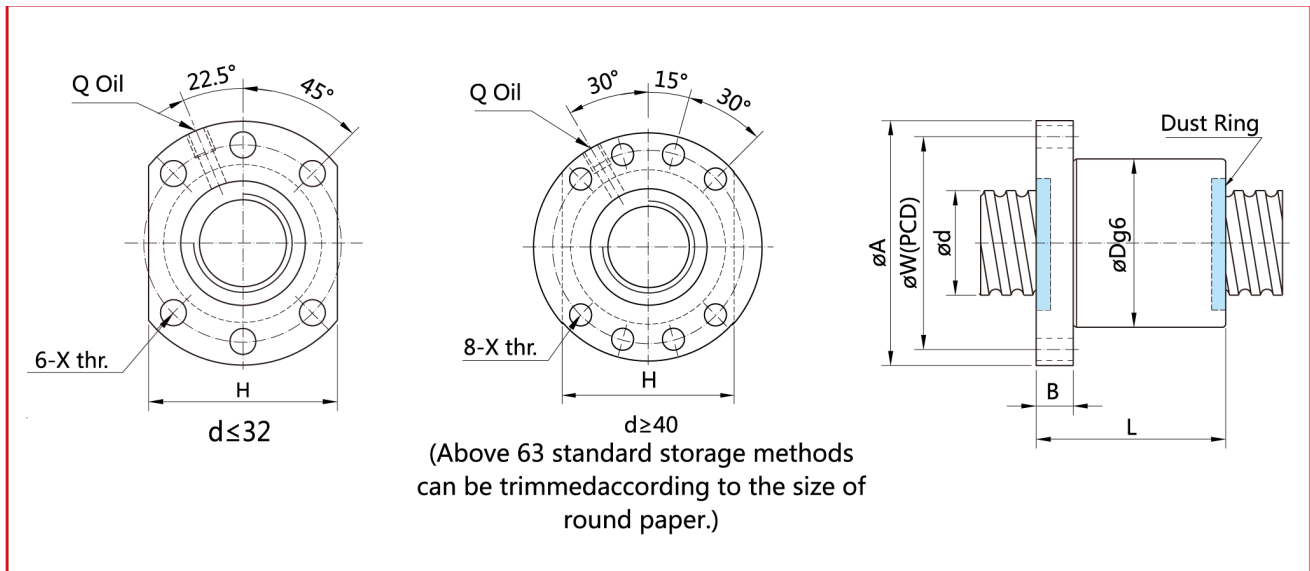
- Mute-Type Specifications

Model No.	d	I	Da	Threading Direction	Number of Grooves	Type of Nut	Overall Length of Shaft
SSR1205	12	5	2.5	R	1	S/A/VS/TSCH/H/TBSH/XSSR/KSSR	3000
SSR1210	12	10	2.5	R	1	S/A/VS/XCH/TSCH/H/XSSR/KSSR	3000
SSR1605	15	5	2.778	R	1	S/A/VS/TSCH/H/XSSR/KSSR	3000
SSR1610	15	10	2.778	R	2	S/A/VS/TSCH/H/XSSR/KSSR	3000
SSR1616	15	16	2.778	R	4	S/TSCH/H	3000
SSR1620	15	20	2.778	R	4	S/VS/TSCH/H/XSSR/KSSR	3000
■ SCR2005	20	5	3.175	R	1	S/VS/TSCH/H	3000
SSR2010	20	10	3.175	R	2	S/VS/TSCH/H/XSSR/KSSR	3000
■ SCR2020	20	20	3.175	R	4	S/VS/TSCH/H/XSSR/KSSR	3000
■ SCR2505	25	5	3.175	R	1	S/VS/H	6000
SSR2510	25	10	3.175	R	2	S/TSCH/H	6000
SSR2525	25	25	3.175	R	4	S/VS/TSCH/H	6000
■ SCR3205	32	5	3.175	R	1	S/VS/H	6000
SSR3210	31	10	3.969	R	1	S/TSCH/H	6000
SSR3220	31	20	3.969	R	2	S/TSCH/H	6000
SSR3232	31	32	3.969	R	4	S/TSCH/H	6000
■ SCR4005	40	5	3.175	R	1	TSFS/SFVS	6000
SSR4010	38	10	6.35	R	1	TSFS	6000
SSR4020	38	20	6.35	R	2	TSFS	6000
SSR4040	38	40	6.35	R	4	TSFS	6000
■ SCR5005	50	5	3.175	R	1	TSFS/SFVS	6000
SSR5010	48	10	6.35	R	1	TSFS	6000
SSR5020	48	20	6.35	R	2	TSFS	6000
SSR5050	48	50	6.35	R	4	TSFS	6000

Note: The specifications marked with ■ in the table are common specifications for standard screws and silent screws.

Rolled Ball Screw TSFU series (DIN 69051 B)

- The flange double cutting, Conventional standard stock



Unit : mm

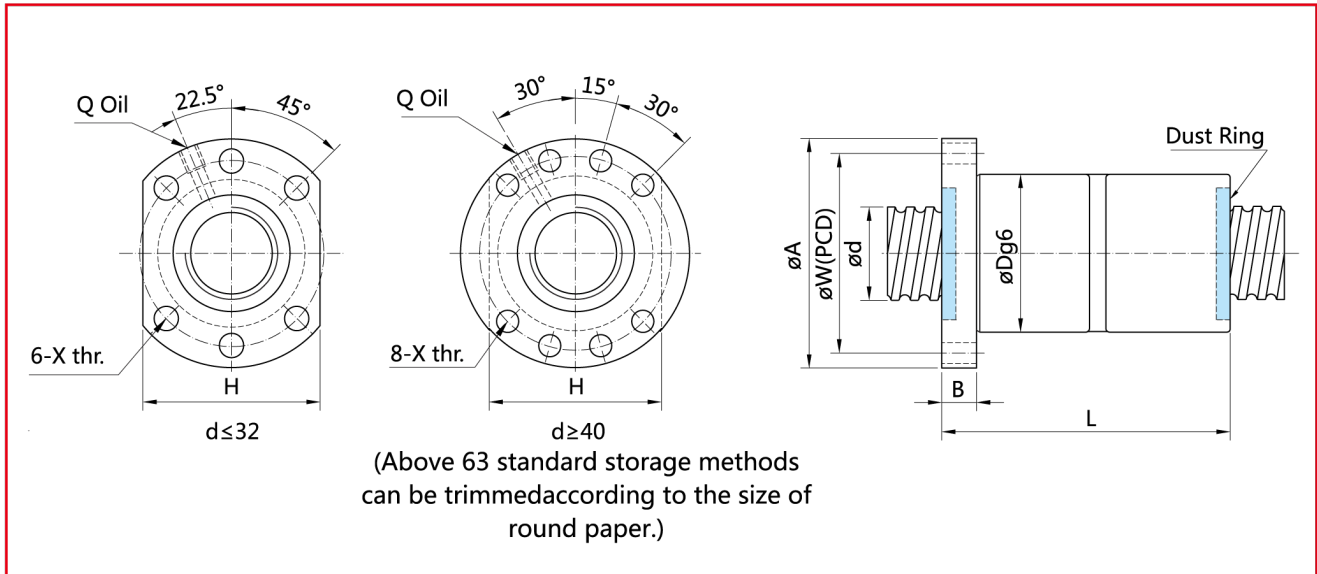
Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
■ XFU01204-T3	12	4	2.5	22	40	8	35	32	30	4.5	M6	1×3	682	1418	26
■ TSFU01204-T4		4	2.5	24	40	10	40	32	30	4.5	M6	1×4	907	1889	26
■ TSFU01604-T4	16	4	2.381	28	48	10	40	38	40	5.5	M6	1×4	979	2412	32
■ TSFU01605-T4		5	3.175	28	48	10	50	38	40	5.5	M6	1×4	1386	3058	32
■ TSFU01610-T3		10	3.175	28	48	10	57	38	40	5.5	M6	1×3	1109	2407	26
■ TSFU02004-T4	20	4	2.381	36	58	10	42	47	44	6.6	M6	1×4	1072	2993	38
■ TSFU02005-T4		5	3.175	36	58	10	51	47	44	6.6	M6	1×4	1557	3881	39
■ TSFU02504-T4	25	4	2.381	40	62	10	42	51	48	6.6	M6	1×4	1188	3802	43
■ TSFU02505-T4		5	3.175	40	62	10	51	51	48	6.6	M6	1×4	1731	4911	45
■ TSFU02510-T4		10	4.762	40	62	12	85	51	48	6.6	M6	1×4	2961	7302	50
■ TSFU03204-T4	32	4	2.381	50	80	12	44	65	62	9	M6	1×4	1304	4846	51
■ TSFU03205-T4		5	3.175	50	80	12	52	65	62	9	M6	1×4	1930	6351	54
■ TSFU03210-T4		10	6.350	50	80	12	90	65	62	9	M6	1×4	4813	12216	61
■ TSFU04005-T4	40	5	3.175	63	93	14	55	78	70	9	M8	1×4	2118	7996	63
■ TSFU04010-T4		10	6.350	63	93	14	93	78	70	9	M8	1×4	5407	15508	73
■ TSFU05010-T4	50	10	6.350	75	110	16	93	93	85	11	M8	1×4	6012	19622	94
■ TSFU06310-T4	63	10	6.350	90	125	18	98	108	(95)	11	M8	1×4	6728	25367	135
■ TSFU06320-T4		20	9.525	95	135	20	149	115	(100)	13.5	M8	1×4	11453	36662	109
■ TSFU08010-T4	80	10	6.350	105	145	20	98	125	(110)	13.5	M8	1×4	7356	31963	153
■ TSFU08020-T4		20	9.525	125	165	25	154	145	(130)	13.5	M8	1×4	12921	47757	138

Note: (1) Those marked ■ can provide left-hand thread products.

- (2) The above specifications can be ordered with metal circulators, which can withstand high-speed impact and high temperature of (-40°C~120°C), and can also increase the life of the nut in harsh environments such as dust. The metal circulator is a special order product, if you need it, please contact us.

Rolled Ball Screw TDFU series (DIN 69051 B)

- The flange double cutting, Conventional standard stock



Unit : mm

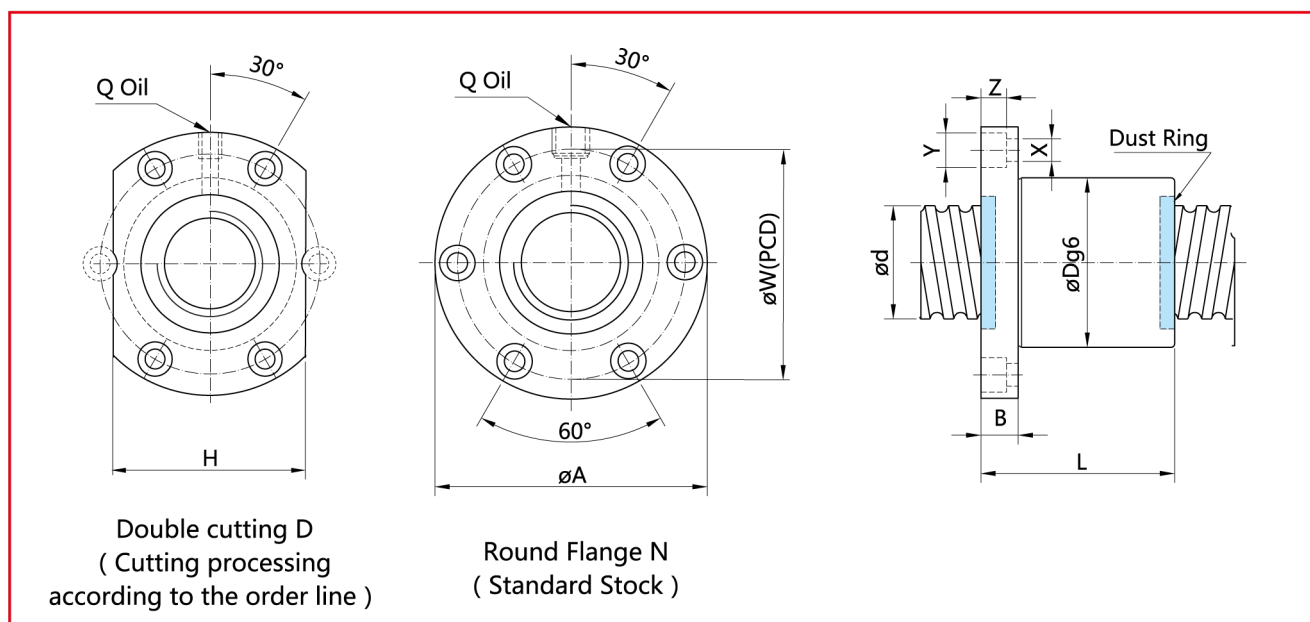
Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
TDFU01604-T4	16	4	2.381	28	48	10	80	38	40	5.5	M6	1×4	979	2412	43
TDFU01605-T4		5	3.175	28	48	10	100	38	40	5.5	M6	1×4	1386	3058	44
TDFU01610-T3		10	3.175	28	48	10	118	38	40	5.5	M6	1×3	1109	2407	35
TDFU02004-T4	20	4	2.381	36	58	10	80	47	44	6.6	M6	1×4	1072	2993	51
TDFU02005-T4		5	3.175	36	58	10	101	47	44	6.6	M6	1×4	1557	3881	53
TDFU02504-T4	25	4	2.381	40	62	10	80	51	48	6.6	M6	1×4	1188	3802	60
TDFU02505-T4		5	3.175	40	62	10	101	51	48	6.6	M6	1×4	1731	4911	62
TDFU02510-T4		10	4.762	40	62	12	145	51	48	6.6	M6	1×4	2961	7302	67
TDFU03204-T4	32	4	2.381	50	80	12	80	65	62	9	M6	1×4	1304	4846	71
TDFU03205-T4		5	3.175	50	80	12	102	65	62	9	M6	1×4	1930	6351	74
TDFU03210-T4		10	6.350	50	80	12	162	65	62	9	M6	1×4	4813	12216	82
TDFU04005-T4	40	5	3.175	63	93	14	105	78	70	9	M8	1×4	2118	7996	87
TDFU04010-T4		10	6.350	63	93	14	165	78	70	9	M8	1×4	5407	15508	99
TDFU05010-T4	50	10	6.350	75	110	16	171	93	85	11	M8	1×4	6012	19622	117
TDFU06310-T4	63	10	6.350	90	125	18	182	108	(95)	11	M8	1×4	6728	25367	139
TDFU06320-T4		20	9.525	95	135	20	290	115	(100)	13.5	M8	1×4	11453	36662	152
TDFU08010-T4	80	10	6.350	105	145	20	182	125	(110)	13.5	M8	1×4	7356	31963	156
TDFU08020-T4		20	9.525	125	165	25	295	145	(130)	13.5	M8	1×4	12921	47757	187

Note: (1) Those marked ■ can provide left-hand thread products.

(2) The above specifications can be ordered with metal circulators, which can withstand high-speed impact and high temperature of (-40°C~120°C), and can also increase the life of the nut in harsh environments such as dust. The metal circulator is a special order product, if you need it, please contact us.

Rolled Ball Screw TSFI series

- Round flange, Conventional standard stock



Unit : mm

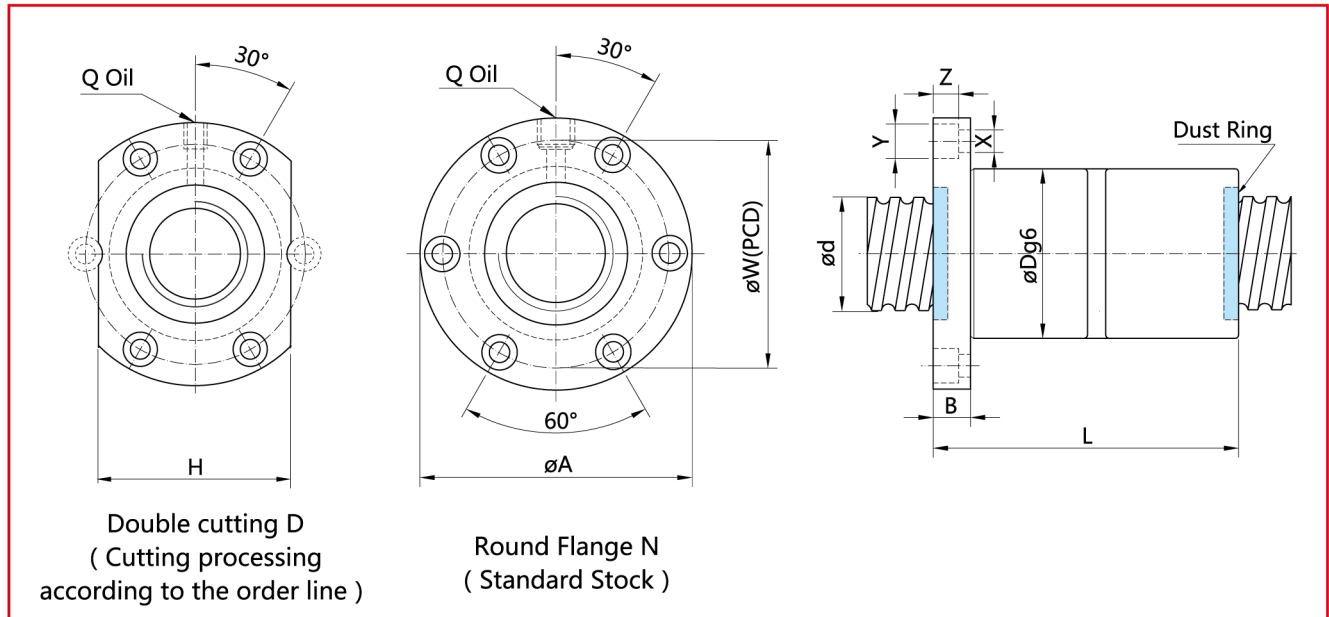
Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
■ TSFI01204-T4	12	4	2.5	24	42	10	40	32	28	4.5	8	4.5	M6	1×4	907	1889	26
■ TSFI01604-T4	16	4	2.381	30	49	10	45	39	34	4.5	8	4.5	M6	1×4	979	2412	32
■ TSFI01605-T4		5	3.175	30	49	10	50	39	34	4.5	8	4.5	M6	1×4	1386	3058	33
■ TSFI01610-T3		10	3.175	34	58	10	57	45	34	5.5	9.5	5.5	M6	1×3	1109	2407	27
■ TSFI02004-T4	20	4	2.381	34	57	11	46	45	40	5.5	9.5	5.5	M6	1×4	1072	2993	37
■ TSFI02005-T4		5	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	1×4	1557	3881	39
■ TSFI02504-T4	25	4	2.381	40	63	11	46	51	46	5.5	9.5	5.5	M6	1×4	1188	3802	43
■ TSFI02505-T4		5	3.175	40	63	11	51	51	46	5.5	9.5	5.5	M8	1×4	1731	4911	45
■ TSFI02510-T4		10	4.762	46	72	12	85	58	52	6.5	11	6.5	M6	1×4	2961	7302	51
■ TSFI03204-T4	32	4	2.381	46	72	12	47	58	52	6.5	11	6.5	M6	1×4	1304	4846	49
■ TSFI03205-T4		5	3.175	46	72	12	52	58	52	6.5	11	6.5	M8	1×4	1930	6351	52
■ TSFI03210-T4		10	6.35	54	88	15	90	70	62	9	14	8.5	M8	1×4	4813	12216	62
■ TSFI04005-T4	40	5	3.175	56	90	15	55	72	64	9	14	8.5	M8	1×4	2118	7996	59
■ TSFI04010-T4		10	6.35	62	104	18	93	82	70	11	17.5	11	M8	1×4	5407	15508	72
■ TSFI05010-T4	50	10	6.35	72	114	18	93	92	82	11	17.5	11	M8	1×4	6012	19622	83
■ TSFI06310-T4	63	10	6.35	85	131	22	98	107	-	14	20	13	M8	1×4	6728	25367	95
■ TSFI06320-T4		20	9.525	95	145	28	157	118	-	14	20	13	M8	1×4	11453	36662	112
■ TSFI08010-T4	80	10	6.35	105	150	22	98	127	-	14	20	13	M8	1×4	7356	31963	109
■ TSFI08020-T4		20	9.525	118	166	28	157	140	-	14	20	13	M8	1×4	12921	47757	138

Note: (1) Those marked ■ can provide left-hand thread products.

(2) The above specifications can be ordered with metal circulators, which can withstand high-speed impact and high temperature of (-40°C~120°C), and can also increase the life of the nut in harsh environments such as dust. The metal circulator is a special order product, if you need it, please contact us.

Rolled Ball Screw TDFI series

- Round flange, Conventional standard stock



Unit : mm

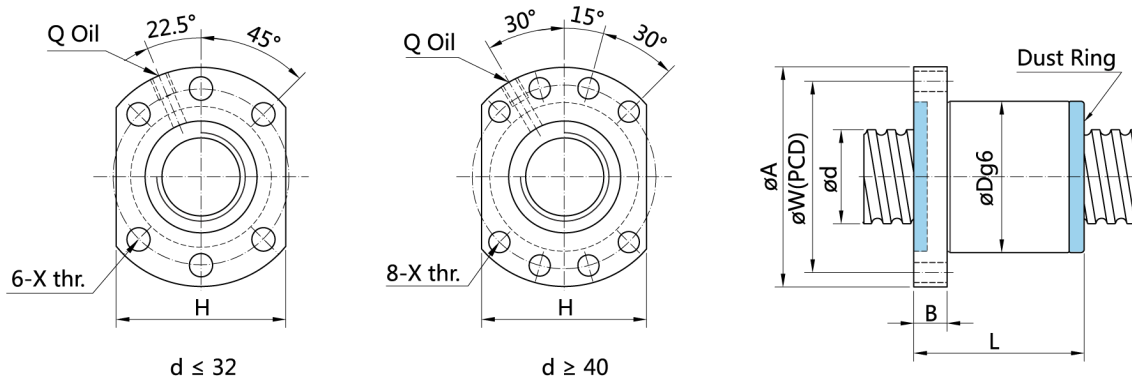
Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
■ TDFI01604-T4	16	4	2.381	30	49	10	80	39	34	4.5	8	4.5	M6	1×4	979	2412	44
■ TDFI01605-T4		5	3.175	30	49	10	100	39	34	4.5	8	4.5	M6	1×4	1386	3058	44
■ TDFI02004-T4	20	4	2.381	34	57	11	80	45	40	5.5	9.5	5.5	M6	1×4	1072	2993	51
■ TDFI02005-T4		5	3.175	34	57	11	101	45	40	5.5	9.5	5.5	M6	1×4	1557	3881	52
■ TDFI02504-T4	25	4	2.381	40	63	11	80	51	46	5.5	9.5	5.5	M6	1×4	1188	3802	60
■ TDFI02505-T4		5	3.175	40	63	11	101	51	46	5.5	9.5	5.5	M8	1×4	1731	4911	62
■ TDFI02510-T4		10	4.762	46	72	12	145	58	52	6.5	11	6.5	M6	1×4	2961	7302	68
■ TDFI03204-T4	32	4	2.381	46	72	12	80	58	52	6.5	11	6.5	M6	1×4	1304	4846	69
■ TDFI03205-T4		5	3.175	46	72	12	102	58	52	6.5	11	6.5	M8	1×4	1930	6351	72
■ TDFI03210-T4		10	6.350	54	88	15	162	70	62	9	14	8.5	M8	1×4	4813	12216	83
■ TDFI04005-T4	40	5	3.175	56	90	15	105	72	64	9	14	8.5	M8	1×4	2118	7996	84
■ TDFI04010-T4		10	6.350	62	104	18	165	82	70	11	17.5	11	M8	1×4	5407	15508	99
■ TDFI05010-T4	50	10	6.350	72	114	18	171	92	82	11	17.5	11	M8	1×4	6012	19622	115
■ TDFI06310-T4	63	10	6.350	85	131	22	182	107	-	14	20	13	M8	1×4	6728	25367	152
■ TDFI06320-T4		20	9.525	95	145	28	298	118	-	14	20	13	M8	1×4	11453	36662	135
■ TDFI08010-T4	80	10	6.350	105	150	22	182	127	-	14	20	13	M8	1×4	7356	31963	156
■ TDFI08020-T4		20	9.525	118	166	28	298	140	-	14	20	13	M8	1×4	12921	47757	187

Note: (1) Those marked ■ can provide left-hand thread products.

- (2) The above specifications can be ordered with metal circulators, which can withstand high-speed impact and high temperature of (-40°C~120°C), and can also increase the life of the nut in harsh environments such as dust. The metal circulator is a special order product, if you need it, please contact us.

Rolled Ball Screw TSFS series

- The flange double cutting, Conventional standard stock



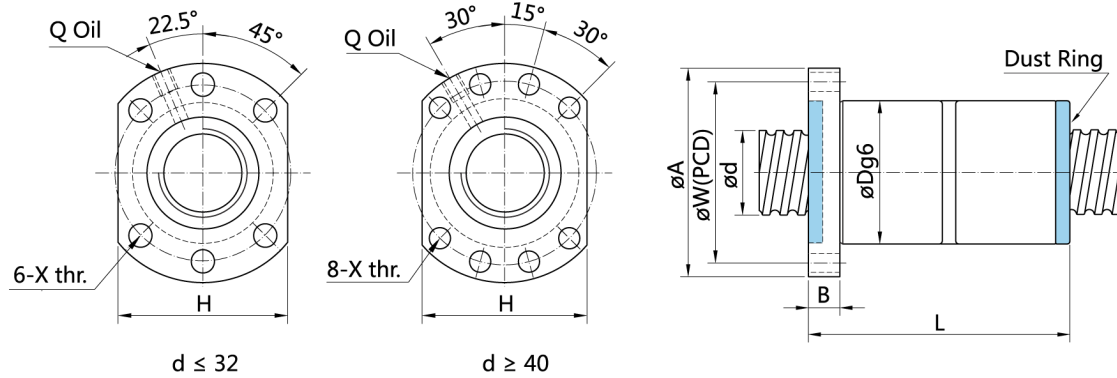
Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		κ kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
TSFS01205-B1	12	5	2.5	24	40	10	30	32	30	4.5	M6	2.8×1	666	1321	19
TSFS01210-B1		10	2.5	24	40	10	45	32	30	4.5	M6	2.8×1	647	1292	19
TSFS01220-A1		20	2.5	24	40	10	54.5	32	30	4.5	M6	1.8×1	390	684	17
TSFS01605-C1	15	5	2.778	28	48	10	37	38	40	5.5	M6	3.8×1	1118	2513	30
TSFS01610-B1		10	2.778	28	48	10	47	38	40	5.5	M6	2.8×1	845	1827	23
TSFS01616-A1		16	2.778	28	48	10	45	38	40	5.5	M6	1.8×1	558	1143	14
TSFS01616-B1		16	2.778	28	48	10	61	38	40	5.5	M6	2.8×1	814	1775	22
TSFS01620-A1		20	2.778	28	48	10	57	38	40	5.5	M6	1.8×1	560	1176	14
TSFS02005-C1	20	5	3.175	36	58	10	37	47	44	6.6	M6	3.8×1	1490	3687	37
TSFS02010-C1		10	3.175	36	58	10	57	47	44	6.6	M6	3.8×1	1522	3839	40
TSFS02020-A1		20	3.175	36	58	10	54	47	44	6.6	M6	1.8×1	770	1764	19
TSFS02020-B1		20	3.175	36	58	10	74	47	44	6.6	M6	2.8×1	1124	2740	29
TSFS02040-A1		40	3.175	36	58	10	90	47	44	6.6	M6	1.8×1	687	1293	24
TSFS02505-C1	25	5	3.175	40	62	10	37	51	48	6.6	M6	3.8×1	1656	4664	43
TSFS02510-C1		10	3.175	40	62	12	57	51	48	6.6	M6	3.8×1	1645	4640	45
TSFS02525-A1		25	3.175	40	62	12	65	51	48	6.6	M6	1.8×1	850	2206	22
TSFS02525-B1		25	3.175	40	62	12	90	51	48	6.6	M6	2.8×1	1239	3428	34
TSFS03205-C1	32	5	3.175	50	80	12	37	65	62	9	M6	3.8×1	1847	6034	51
TSFS03210-C1	31	10	3.969	50	80	12	60	65	62	9	M6	3.8×1	2468	7263	55
TSFS03220-B1		20	3.969	50	80	12	80	65	62	9	M6	2.8×1	1915	5490	43
TSFS03232-A1		32	3.969	50	80	12	82	65	62	9	M6	1.8×1	1265	3434	27
TSFS03232-B1		32	3.969	50	80	12	114	65	62	9	M6	2.8×1	1846	5337	42
TSFS04005-C1	40	5	3.175	63	93	15	37	78	70	9	M8	3.8×1	2026	7597	60
TSFS04010-C1	38	10	6.350	63	93	14	62.5	78	70	9	M8	3.8×1	5043	13951	67
TSFS04020-B1		20	6.350	63	93	14	86	78	70	9	M8	2.8×1	3967	10723	54
TSFS04040-A1		40	6.350	63	93	15	104.5	78	70	9	M8	1.8×1	2593	6656	34
TSFS04040-B1		40	6.350	63	93	15	144.5	78	70	9	M8	2.8×1	3788	10349	52
TSFS05005-C1	50	5	3.175	75	110	15	37	93	85	11	M8	3.8×1	2215	9550	68
TSFS05010-C1	48	10	6.350	75	110	18	68	93	85	11	M8	3.8×1	5646	17860	79
TSFS05020-C1		20	6.350	75	110	18	108	93	85	11	M8	3.8×1	5757	18493	87
TSFS05050-A1		50	6.350	75	110	18	125	93	85	11	M8	1.8×1	2954	8757	42
TSFS05050-B1		50	6.350	75	110	18	175	93	85	11	M8	2.8×1	4316	13618	65

Note: Those marked ■ are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

Rolled Ball Screw TDFS series

- The flange double cutting, Conventional standard stock



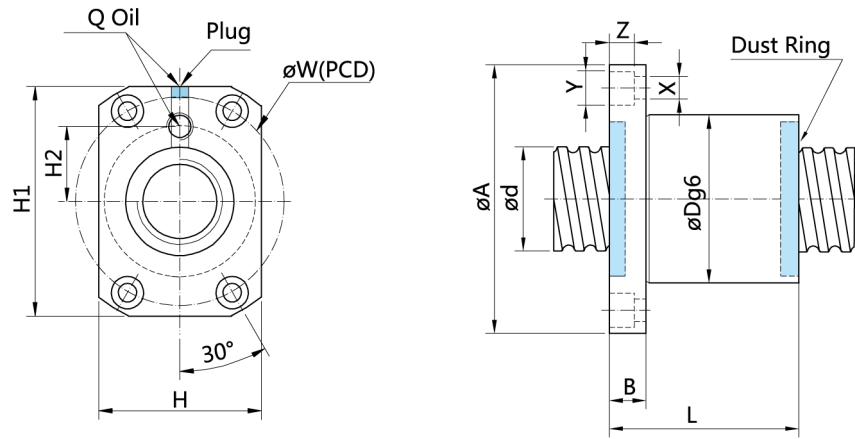
Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
TDFS01605-C1	15	5	2.778	28	48	10	72	38	38	5.5	M6	3.8×1	1118	2513	41
TDFS01610-B1		10	2.778	28	48	10	92	38	38	5.5	M6	2.8×1	845	1827	31
TDFS02005-C1	20	5	3.175	36	58	10	72	47	47	6.6	M6	3.8×1	1490	3687	50
TDFS02010-C1		10	3.175	36	58	10	112	47	47	6.6	M6	3.8×1	1522	3839	53
TDFS02505-C1	25	5	3.175	40	62	10	72	51	51	6.6	M6	3.8×1	1656	4664	59
TDFS02510-C1		10	3.175	40	62	12	112	51	51	6.6	M6	3.8×1	1645	4640	61
TDFS03205-C1	32	5	3.175	50	80	12	72	65	65	9	M6	3.8×1	1847	6034	71
TDFS03210-C1		10	3.969	50	80	12	115	65	65	9	M6	3.8×1	2468	7263	75
TDFS03220-B1		20	3.969	50	80	12	160	65	65	9	M6	2.8×1	1915	5490	58
TDFS04005-C1	40	5	3.175	63	93	15	72	78	78	9	M8	3.8×1	2026	7597	83
TDFS04010-C1		10	6.350	63	93	14	122.5	78	78	9	M8	3.8×1	5043	13951	91
TDFS04020-B1		20	6.350	63	93	14	166	78	78	9	M8	2.8×1	3967	10723	73
TDFS05005-C1	50	5	3.175	75	110	15	73	93	93	11	M8	3.8×1	2215	9550	96
TDFS05010-C1		10	6.350	75	110	18	133	93	93	11	M8	3.8×1	5646	17860	109
TDFS05020-C1		20	6.350	75	110	18	207.5	93	93	11	M8	3.8×1	5757	18493	116

Note: Those marked ■ are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

Rolled Ball Screw XSSR series

- K-flange with four cut edges, conventional standard stock



(Standard Stock)

The oil hole is on the front of the flange,
and the side oil hole is plugged.

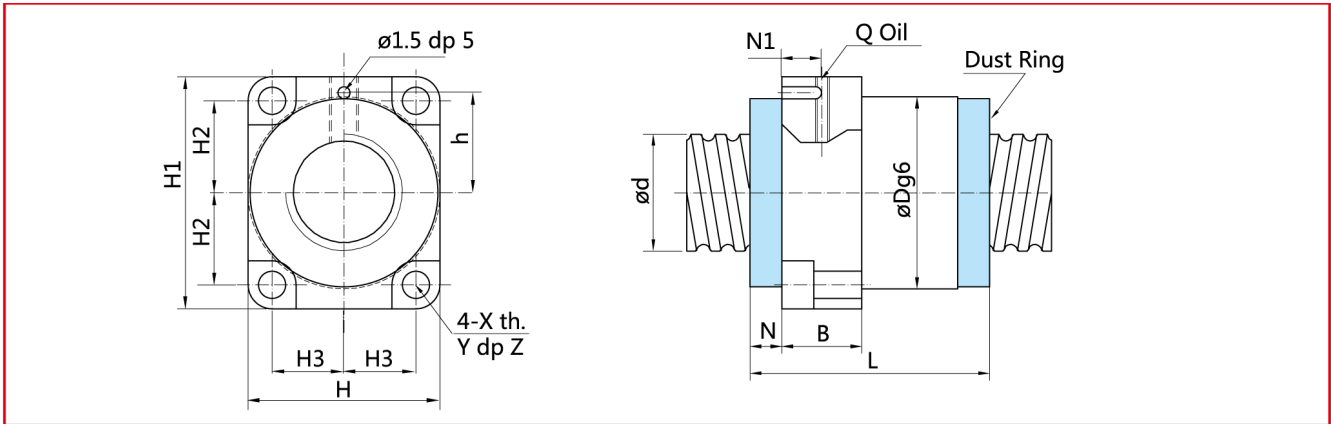
Unit : mm

Model No.	d	l	Da	Dimension														Load Rating (kgf)		κ kgf/μm
				D	A	B	L	W	H	H1	H2	X	Y	Z	Q	n	Ca	Coa		
XSSR01205-B1	12	5	2.5	30	50	10	31	40	32	45	17.25	4.5	8	4.5	M6	2.8×1	666	1321	19	
XSSR01210-B1		10	2.5	30	50	10	46	40	32	45	17.25	4.5	8	4.5	M6	2.8×1	647	1292	19	
XSSR01220-A1		20	2.5	30	50	10	55	40	32	45	17.25	4.5	8	4.5	M6	1.8×1	390	684	17	
XSSR01605-C1 (1505)	15	5	2.778	34	58	10	38	45	34	50	18	5.5	9.5	5.5	M6	3.8×1	1118	2513	30	
XSSR01610-B1 (1510)		10	2.778	34	58	10	48	45	34	50	18	5.5	9.5	5.5	M6	2.8×1	845	1827	23	
XSSR01620-A1 (1520)		20	2.778	34	58	10	58	45	34	50	18	5.5	9.5	5.5	M6	1.8×1	560	1176	14	
XSSR02005-C1	20	5	3.175	46	74	13	38	59	46	66	24	6.6	11	6.5	M6	3.8×1	1490	3687	37	
XSSR02010-C1		10	3.175	46	74	13	58	59	46	66	24	6.6	11	6.5	M6	3.8×1	1522	3839	40	
XSSR02020-A1		20	3.175	46	74	13	55	59	46	66	24	6.6	11	6.5	M6	1.8×1	770	1764	19	
XSSR02040-A1		40	3.175	46	74	13	90	59	46	66	24	6.6	11	6.5	M6	1.8×1	687	1293	24	

Note: Those marked ■ are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

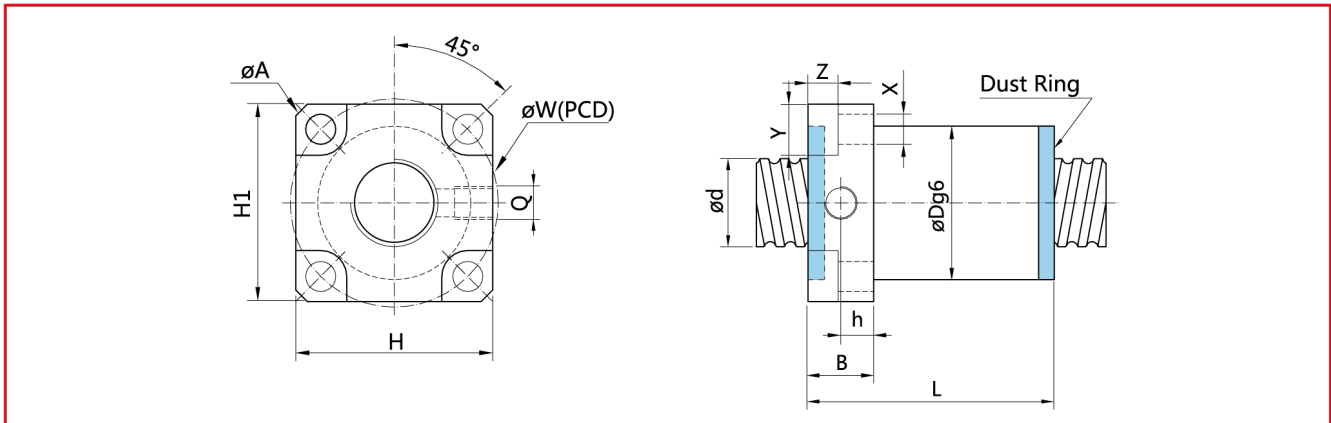
Rolled Ball Screw KSSR/XSHR series

- K-flange with four cut edges, smallest volume series can change the external dimensions according to customer requirements



Unit : mm

Model No.	d	l	Da	Dimension															Load Rating (kgf)		κ kgf/μm
				D	B	N	L	H	H1	H2	H3	h	N1	X	Y	Z	Q	n	Ca	Coa	
KSSR01205-B1	12	5	2.5	24	10	3.8	29.6	24	29	11.5	9	12.5	4	3.4	6	4	M4	2.8×1	666	1321	19
KSSR01210-B1	12	10	2.5	24	10	4	45	24	29	11.5	9	12.5	5	3.4	6	4	M4	2.8×1	647	1292	19
KSSR01605-C1	15	5	2.778	28	10	3.8	36.6	28	38	15	10	17	5	4.5	8	4.5	M4	3.8×1	1118	2513	30
KSSR01610-B1	15	10	2.778	28	11	4	47	28	38	15	10	17	5	4.5	8	4.5	M4	2.8×1	845	1827	23
KSSR01620-A1	15	20	2.778	28	11	4	57	28	38	15	10	17	5	4.5	8	4.5	M4	1.8×1	560	1176	14



Unit : mm

Model No.	d	l	Da	Dimension														Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	H1	X	Y	Z	Q	h	n	Ca	Coa		
XSHR01210-B1	12	10	2.5	24	41	5	45	32	36	36	4.5	/	/	/	/	2.8×1	647	1292	19	
XSHR01610-B1	15	10	2.778	28	48	12	47	38	36	36	5.5	9.5	5.5	M6	7	2.8×1	845	1827	23	
XSHR01616-A1	15	16	2.778	28	48	12	45	38	36	36	5.5	9.5	5.5	M6	7	1.8×1	558	1143	14	
XSHR01620-A1	15	20	2.778	28	48	12	57	38	36	36	5.5	9.5	5.5	M6	7	1.8×1	560	1176	14	
XSHR02010-C1	20	10	3.175	36	58	12	57	47	44	44	6.6	11	6.3	M6	7	3.8×1	1522	3839	40	
XSHR02020-A1	20	20	3.175	36	58	12	54	47	44	44	6.6	11	6.3	M6	7	1.8×1	770	1764	29	

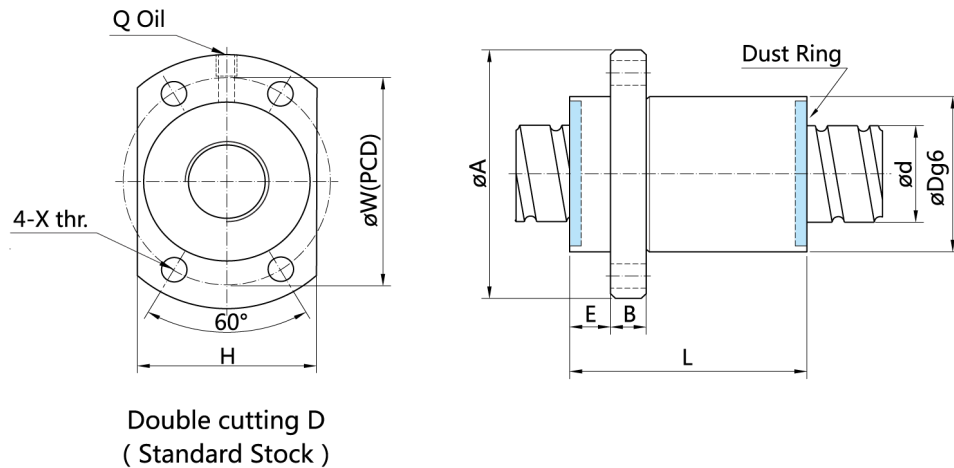
Note:(1) Except for the 1210 specification, the rest of the series include oil injection holes.

(2) Model XSHR1616-A1 uses the SSR1616 screw.

(3)The outer diameter, flange size, number of steel balls and nut length of this series of nuts can be produced according to customer requirements.The minimum number of special custom nuts above is 200.

Rolled Ball Screw TSFY series (Single Lead)

- The flange double cutting Conventional standard stock



Unit : mm

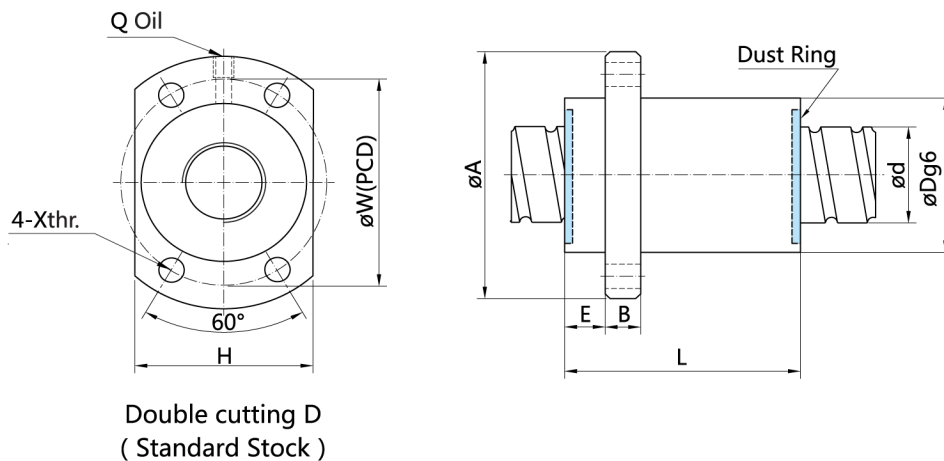
Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
TSFY01616-A2	16	16	2.778	32	53	10	10	45	42	34	4.5	M6	1.8×2	1079	2557	31
TSFY01616-B2		16	2.778	32	53	10	10	61	42	34	4.5	M6	2.8×2	1574	3974	47
TSFY02020-A2	20	20	3.175	39	62	13	10	54	50	41	5.5	M6	1.8×2	1393	3521	37
TSFY02020-B2		20	3.175	39	62	13	10	74	50	41	5.5	M6	2.8×2	2035	5474	56
TSFY02525-A2	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8×2	2081	5501	45
TSFY02525-B2		25	3.969	47	74	15	12	89	60	49	6.6	M6	2.8×2	3039	8553	69
TSFY03232-A2	32	32	4.762	58	92	17	12	80	74	60	9	M6	1.8×2	3029	8698	58
TSFY03232-B2		32	4.762	58	92	17	12	112	74	60	9	M6	2.8×2	4425	13525	88
TSFY04040-A2	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8×2	4839	14070	70
TSFY04040-B2		40	6.35	73	114	19.5	15	139	93	75	11	M6	2.8×2	7073	21882	106
TSFY05050-A2	50	50	7.938	90	135	21.5	20	125	112	92	14	M6	1.8×2	7228	21982	86
TSFY05050-B2		50	7.938	90	135	21.5	20	175	112	92	14	M6	2.8×2	10566	34190	131

Note: (1) This series has no double nuts.

(2) The normal use environment is -20°C ~ + 80°C, please contact our sales staff if it exceeds this temperature range.

Rolled Ball Screw TSFY series (Double Lead)

- The flange double cutting Conventional standard stock



Unit : mm

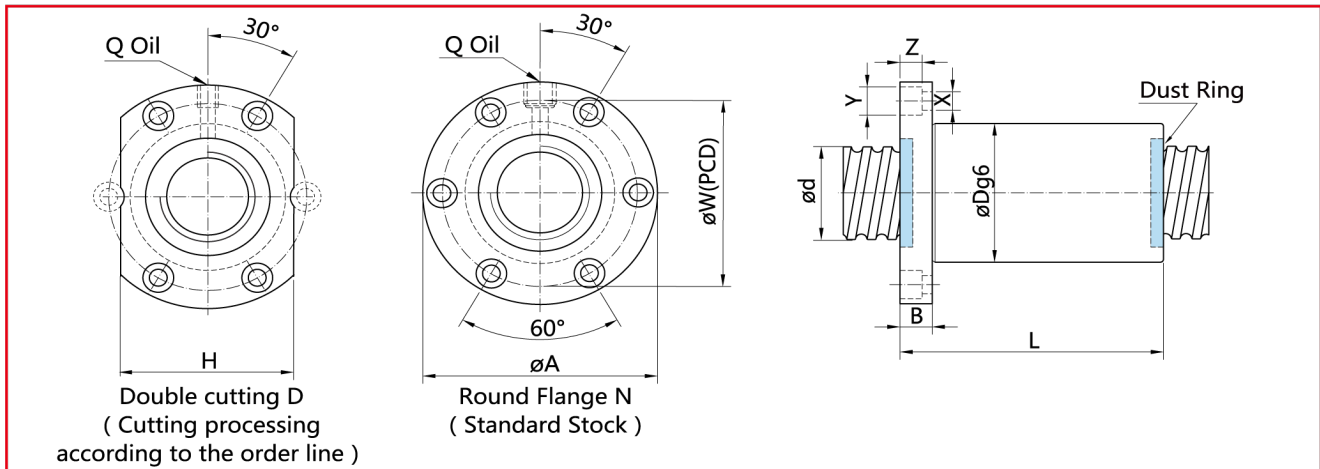
Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
TSFY01220-A2	12	20	2.5	24	40	4	10	54	32	24	4.5	M6	1.8×2	782	1723	22
TSFY01632-T2	16	32	2.778	32	53	10	10	42.5	42	34	4.5	M6	0.8×2	499	1122	11
TSFY01632-A2		32	2.778	32	53	10	10	74.5	42	34	4.5	M6	1.8×2	995	2517	23
TSFY02040-T2	20	40	3.175	39	62	13	10	50	50	41	5.5	M6	0.8×2	659	1603	15
TSFY02040-A2		40	3.175	39	62	13	10	90	50	41	5.5	M6	1.8×2	1317	3598	30
TSFY02550-T2	25	50	3.969	47	74	15	12	60	60	49	6.6	M6	0.8×2	983	2502	19
TSFY02550-A2		50	3.969	47	74	15	12	110	60	49	6.6	M6	1.8×2	1967	5621	32
TSFY03264-T2	32	64	4.762	58	92	17	12	77	74	60	9	M6	0.8×2	1382	3579	22
TSFY03264-A2		64	4.762	58	92	17	12	141	74	60	9	M6	1.8×2	2767	8449	46
TSFY04080-T2	40	80	6.35	73	114	19.5	15	90	93	75	11	M6	0.8×2	2281	6395	29
TSFY04080-A2		80	6.35	73	114	19.5	15	170	93	75	11	M6	1.8×2	4574	14378	50
TSFY050100-T2	50	100	7.938	90	135	21.5	20	111	112	92	14	M6	0.8×2	3406	9988	35
TSFY050100-A2		100	7.938	90	135	21.5	20	211	112	92	14	M6	1.8×2	6832	22463	72

Note: (1) This series has no double nuts.

(2) The normal use environment is -20 °C~ + 80 °C, please contact our sales staff if it exceeds this temperature range.

Rolled Ball Screw TOFI/TOFU series

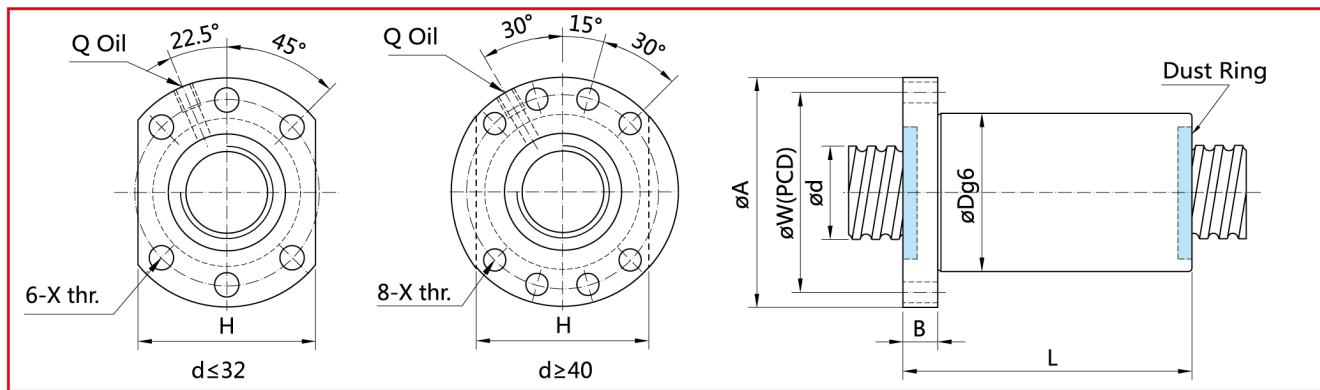
- TOFI-Nut preload can be adjusted series, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
TOFI01605-T8	16	5	3.175	30	49	10	77	39	34	4.5	8	4.5	M6	1×8	1386	3058	44
TOFI02005-T8	20	5	3.175	34	57	11	87	45	40	5.5	9.5	5.5	M6	1×8	1557	3881	52
TOFI02505-T8	25	5	3.175	40	63	11	88	51	46	5.5	9.5	5.5	M8	1×8	1731	4911	62
TOFI02510-T8		10	4.762	46	72	12	132	58	52	6.5	11	6.5	M6	1×8	2961	7302	68
TOFI03205-T8	32	5	3.175	46	72	12	89	58	52	6.5	11	6.5	M8	1×8	1930	6351	72
TOFI03210-T8		10	6.35	54	88	15	147	70	62	9	14	8.5	M8	1×8	4813	12216	83
TOFI04005-T8	40	5	3.175	56	90	15	92	72	64	9	14	8.5	M8	1×8	2118	7996	84
TOFI04010-T8		10	6.35	62	104	18	150	82	70	11	17.5	11	M8	1×8	5407	15508	99
TOFI05010-T8	50	10	6.35	72	114	18	150	92	82	11	17.5	11	M8	1×8	6012	19622	115
TOFI06310-T8	63	10	6.35	85	131	22	155	107	95	14	20	13	M8	1×8	6728	25367	135

- TOFU-The flange double cutting, Conventional standard stock

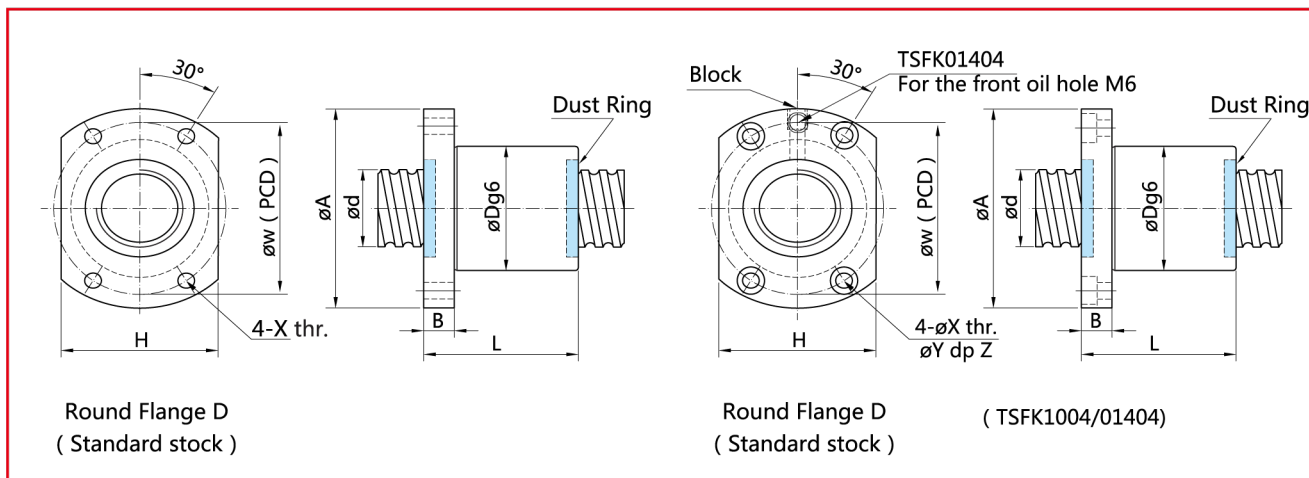


Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa			
TOFU01605-T8	16	5	3.175	28	48	10	77	38	40	5.5	M6	1×8	1386	3058	44		
TOFU02005-T8	20	5	3.175	36	58	10	87	47	44	6.6	M6	1×8	1557	3881	52		
TOFU02505-T8	25	5	3.175	40	62	10	88	51	48	6.6	M6	1×8	1731	4911	62		
TOFU02510-T8		10	4.762	40	62	12	132	51	48	6.6	M6	1×8	2961	7302	68		
TOFU03205-T8	32	5	3.175	50	80	12	89	65	62	9	M6	1×8	1930	6351	72		
TOFU03210-T8		10	6.35	50	80	12	147	65	62	9	M6	1×8	4813	12216	83		
TOFU04005-T8	40	5	3.175	63	93	14	92	78	70	9	M8	1×8	2118	7996	84		
TOFU04010-T8		10	6.35	63	93	14	150	78	70	9	M8	1×8	5407	15508	99		
TOFU05010-T8	50	10	6.35	75	110	16	150	93	85	11	M8	1×8	6012	19622	115		
TOFU06310-T8	63	10	6.35	90	125	18	155	108	95	11	M8	1×8	6728	25367	135		

Rolled Ball Screw TSKF series

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	I	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
TSFK00601-T3	6	1	0.8	12	24	3.5	15	18	16	3.4	-	-	-	1×3	116	229	9
TSFK00801-T4	8	1	0.8	14	27	4	16	21	18	3.4	-	-	-	1×4	166	408	14
TSFK00802-T3		2	1.2	14	27	4	16	21	18	3.4	-	-	-	1×3	227	463	13
TSFK00802.5-T3		2.5	1.2	16	29	4	26	23	20	3.4	-	-	-	1×3	226	462	13
TSFK01002-T3	10	2	1.2	18	35	5	28	27	22	4.5	-	-	-	1×3	248	574	15
TSFK01004-T3		4	2	26	46	10	34	36	28	4.5	8	4.5	M6	1×3	473	910	17
TSFKA01004-T3		4	2	26	46	5	34	36	28	4.5	-	-	-	1×3	473	910	17
TSFK01202-T4	12	2	1.2	20	37	5	28	29	24	4.5	-	-	-	1×4	339	911	22
TSFK01204-T3		4	2.5	24	40	6	33	32	25	3.5	-	-	-	1×3	709	1276	26
TSFK01205-T3		5	2.5	22	37	8	39	29	24	4.5	-	-	-	1×3	707	1273	19
SFK01402-T4	14	2	1.2	21	40	6	23	31	26	5.5	-	-	-	1×4	359	1058	30
TSFK01404-T4		4	2.5	26	46	10	45	36	28	4.5	8	4.5	M6	1×4	866	1935	30

Note:(1)The values of the length "L" in the above table are the lengths of nuts with ZZ seals,

(2)Those marked ■ can provide left-hand thread products.

(3)The size of this series of nuts can be customized according to customer requirements, and the minimum quantity is 200.

(4) TSKF01004/TSFK01404 in the table is designed with oil holes,

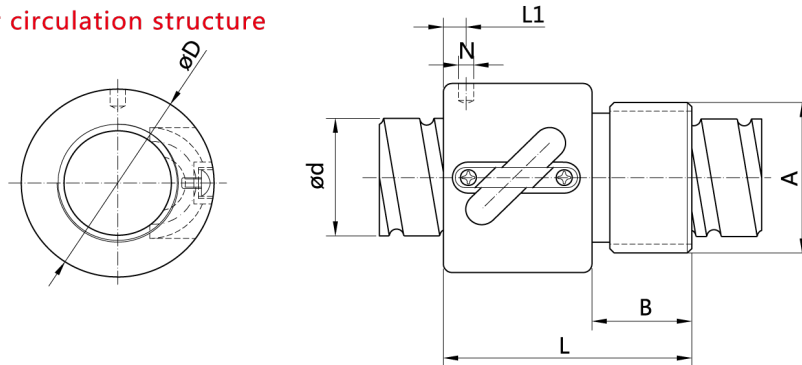
TSFK01004/TSFK01404 flange mounting holes are countersunk holes.

The remaining models do not include oil holes and countersunk holes. If necessary, please contact us.

Rolled Ball Screw TBSH series

- Threaded connections without flanges, Conventional standard stock

Intubation Outer circulation structure

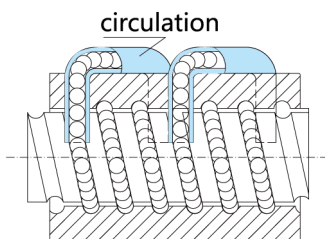


Unit : mm

Model No.	d	l	Da	Dimension								Load Rating (kgf)		K kgf/ μ m
				D(g6)	A	B	L	L1	N \times dp	Q	n	Ca	Coa	
TBSH0082.5-B1	8	2.5	1.2	17.5	M15 \times 1P	7.5	23.5	10	$\phi 3 \times 2$	/	2.5 \times 1	194	386	11
TBSH01002-C1	10	2	1.2	19.5	M17 \times 1P	7.5	22	3	$\phi 3.2 \times 2$	/	3.5 \times 1	282	669	17
TBSH01004-B1		4	2	25	M20 \times 1P	10	34	3	$\phi 3 \times 3$	/	2.5 \times 1	405	759	14
TBSH01205-C1	12	5	2.5	25.5	M20 \times 1P	10	39	16.25	$\phi 3 \times 3$	/	3.5 \times 1	806	1654	24

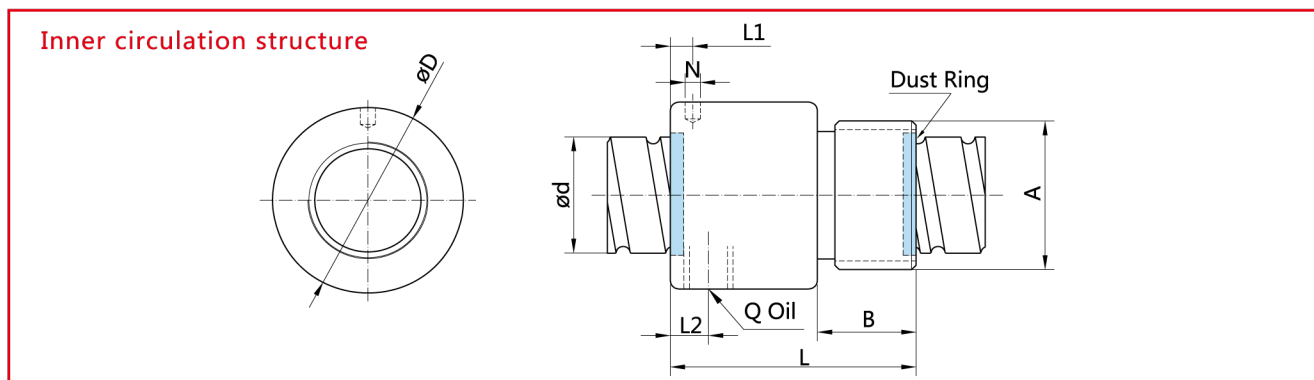
Note: This series has no dust ring and no oil hole.

- Tubular external circulation



Rolled Ball Screw TBSH series

- Threaded connections without flanges, Conventional standard stock



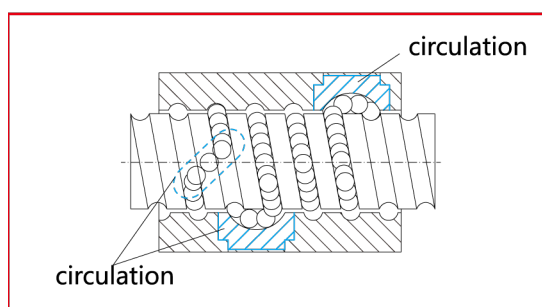
Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D(g6)	A	B	L	L1	N×dp	L2	Q	n	Ca	Coa	
■ TBSH01204-T3	12	4	2.5	25.5	M20×1P	10	34	13	ø3×3	-	-	1×3	709	1276	23
■ TBSH01404-T3	14	4	2.5	32.1	M25×1.5P	10	35	11	ø3×3	-	-	1×3	753	1614	26
■ TBSH01604-T3	16	4	2.381	29	M22×1.5P	8	32	5	ø3.2×3	-	-	1×3	765	1810	24
■ TBSH01605-T3		5	3.175	32.5	M26×1.5P	12	42	19.25	ø3×3	-	-	1×3	1083	2295	25
■ TBSH01610-T2		10	3.175	32	M26×1.5P	12	50	3	ø4×3	-	-	1×2	785	1607	14
■ TBSH02005-T3	20	5	3.175	38	M35×1.5P	15	45	20.3	ø3×4	-	-	1×3	1217	2912	30
■ □TBSH02505-T4	25	5	3.175	43	M40×1.5P	19	69	32.11	ø3×4	8	M6	1×4	1731	4911	37
■ □TBSH02510-T4		10	4.762	43	M40×1.5P	19	84	10	ø6×4	8	M6	1×4	2961	7302	41
■ □TBSH03205-T4	32	5	3.175	52	M48×1.5P	19	60	8	ø6×4	7	M6	1×4	1930	6351	54
■ □TBSH03210-T4		10	6.35	52	M48×1.5P	19	93	8	ø6×4	12	M6	1×4	4813	12216	61
■ □TBSH04010-T4	40	10	6.35	65	M60×1.5P	27	102	8	ø6×4	12	M8	1×4	5407	15508	73
■ □TBSH05010-T4	50	10	6.35	78	M72×1.5P	29	104	8	ø6×4	12	M8	1×4	6012	19622	94

Note: (1) Those marked ■ can provide left-hand thread products.

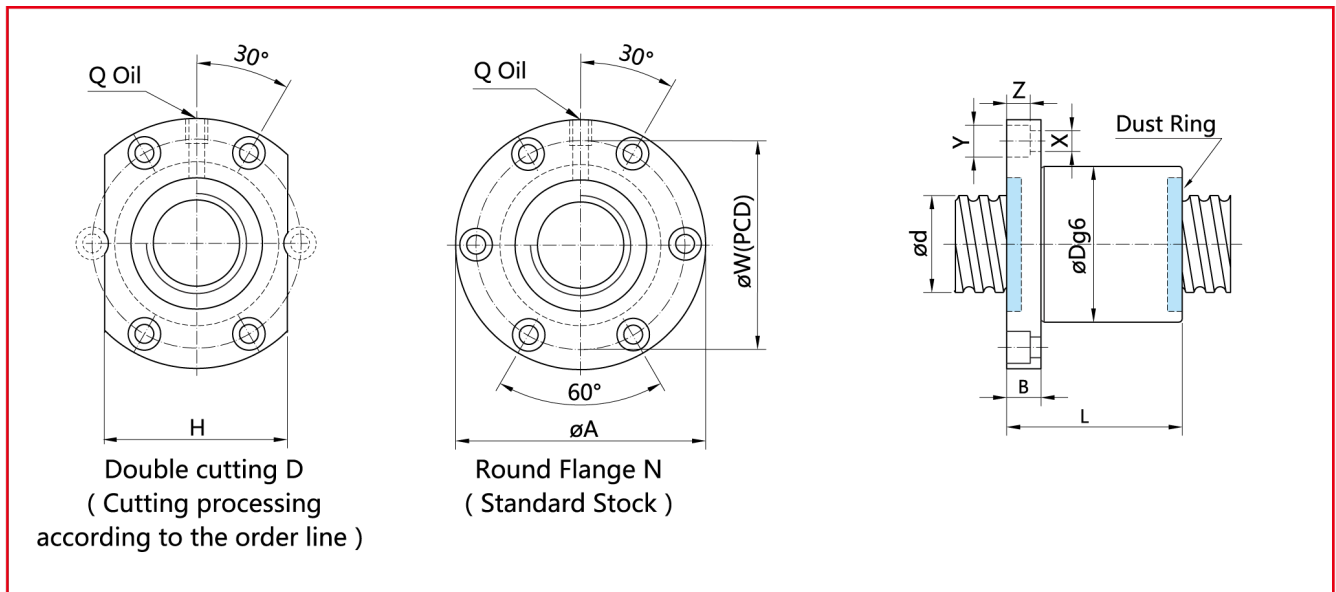
(2) Except for the specifications marked with □, other nut standard products below 2505 are delivered without dust ring.

- Inner circulation



Rolled Ball Screw TSFV series (BNF)

- Round flange, Conventional standard stock



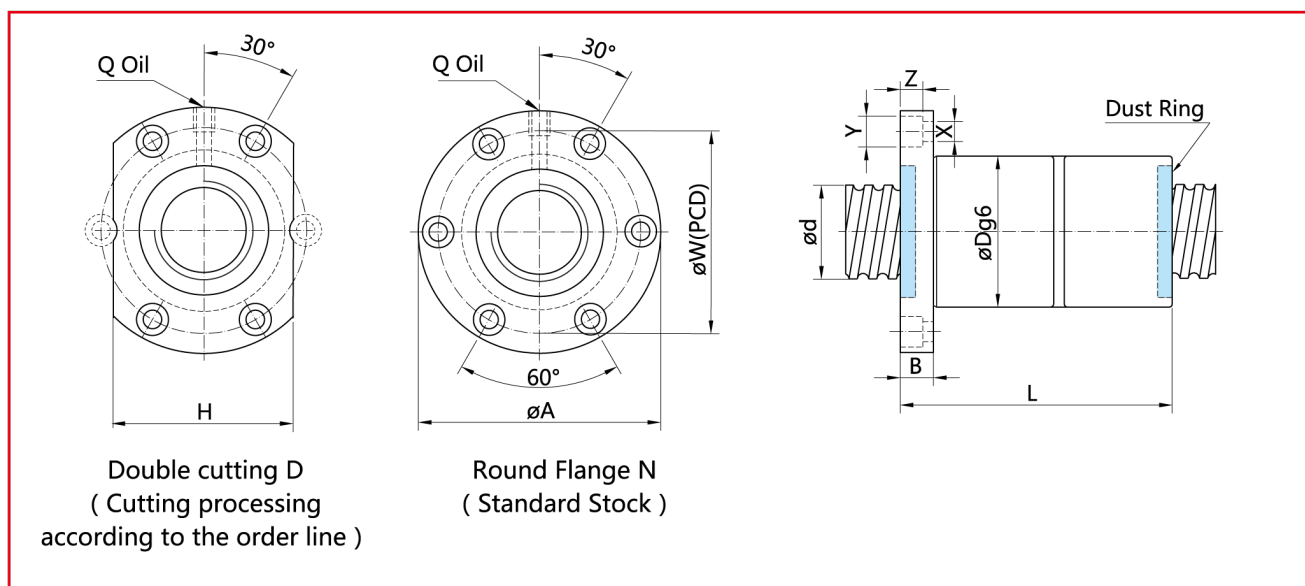
Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		κ kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
TSFV02510-B1	25	10	6.35	68	102	15	55	84	82	9	14	8.5	M8	2.7×1	3047	6554	37
TSFV03210-C1	32	10	6.35	74	108	15	69	90	82	9	14	9	M8	3.8×1	4496	11719	76
TSFV03220-B1		20	6.35	74	108	16	89	90	82	9	14	8.5	M8	2.7×1	3517	8652	46
TSFV04010-C1	40	10	6.35	82	124	18	69	102	94	11	17.5	11	M8	3.8×1	5053	14880	90
TSFV04020-B1		20	6.35	82	124	18	89	102	90	11	17.5	11	M8	2.7×1	3943	10901	56
TSFV05010-C1	50	10	6.35	93	135	16	69	113	98	11	17.5	11	M8	3.8×1	5618	18830	106
TSFV05020-B1		20	9.525	105	152	28	111	128	110	14	20	13	M8	2.7×1	7344	19708	68
TSFV06310-C1	63	10	6.35	108	154	22	79	130	110	14	20	13	M8	3.8×1	6288	24344	126
TSFV06320-B1		20	9.525	122	180	28	111	150	130	18	26	17.5	M8	2.7×1	8171	24750	80
TSFV08010-C1	80	10	6.35	130	176	22	79	152	132	14	20	13	M8	3.8×1	6874	30675	145
TSFV08020-C1		20	9.525	143	204	28	131	172	148	18	26	18	M8	3.8×1	12082	45837	168
TSFV08020-C2		20	9.525	143	204	28	251 (240)	172	148	18	26	18	M8	3.8×2	22433	90729	260

Note: The nut models of this series are all reinforced plastic material circulators with high wear resistance. R screws

Rolled Ball Screw TDFV series (BNFN)

- Round flange, Conventional standard stock



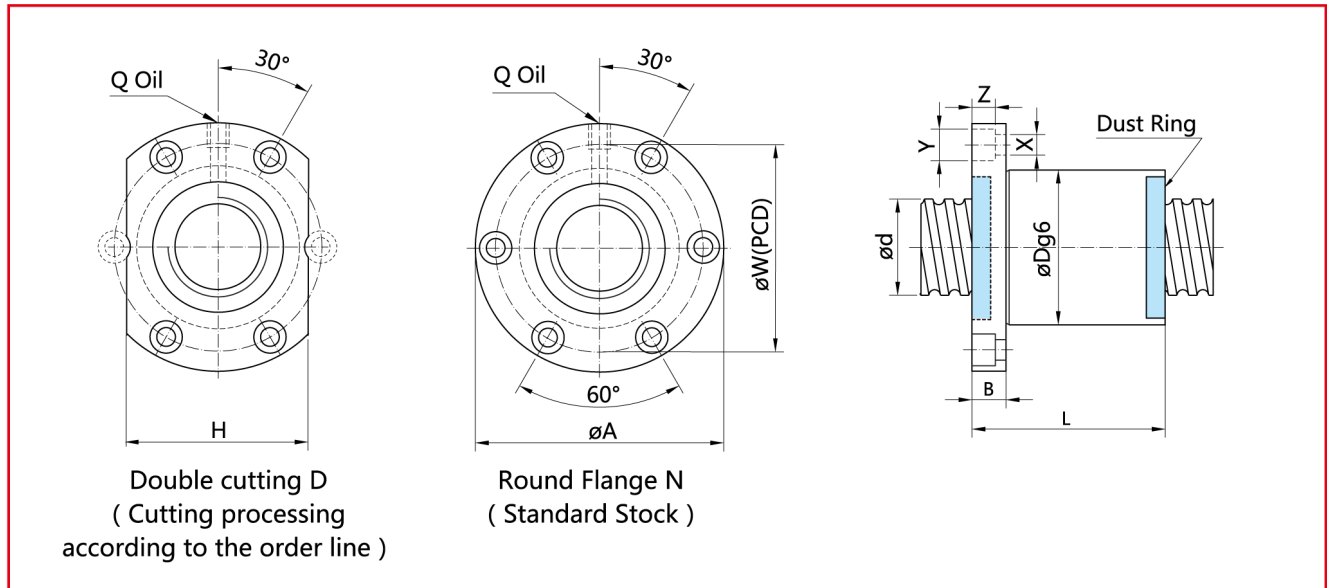
Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
TDFV02510-B1	25	10	6.35	68	102	15	105	84	82	9	14	8.5	M8	2.7×1	3047	6554	49
TDFV03210-C1	32	10	6.35	74	108	15	134	90	82	9	14	9	M8	3.8×1	4496	11719	101
TDFV03220-B1		20	6.35	74	108	16	169	90	82	9	14	8.5	M8	2.7×1	3517	8652	61
TDFV04010-C1	40	10	6.35	82	124	18	134	102	94	11	17.5	11	M8	3.8×1	5053	14880	121
TDFV04020-B1		20	6.35	82	124	18	169	102	90	11	17.5	11	M8	2.7×1	3943	10901	74
TDFV05010-C1	50	10	6.35	93	135	16	134	113	98	11	17.5	11	M8	3.8×1	5618	18830	144
TDFV05020-B1		20	9.525	105	152	28	211	128	110	14	20	13	M8	2.7×1	7344	19708	90
TDFV06310-C1	63	10	6.35	108	154	22	149	130	110	14	20	13	M8	3.8×1	6288	24344	172
TDFV06320-B1		20	9.525	122	180	28	211	150	130	18	26	17.5	M8	2.7×1	8171	24750	107
TDFV08010-C1	80	10	6.35	130	176	22	149	152	132	14	20	13	M8	3.8×1	6874	30675	201
TDFV08020-C1		20	9.525	143	204	28	251	172	148	18	26	18	M8	3.8×1	12082	45837	226

Note: The nut models of this series are all reinforced plastic material circulators with high wear resistance. R screws

Rolled Ball Screw SFVS series (BNF)

- Round flange, Conventional standard stock



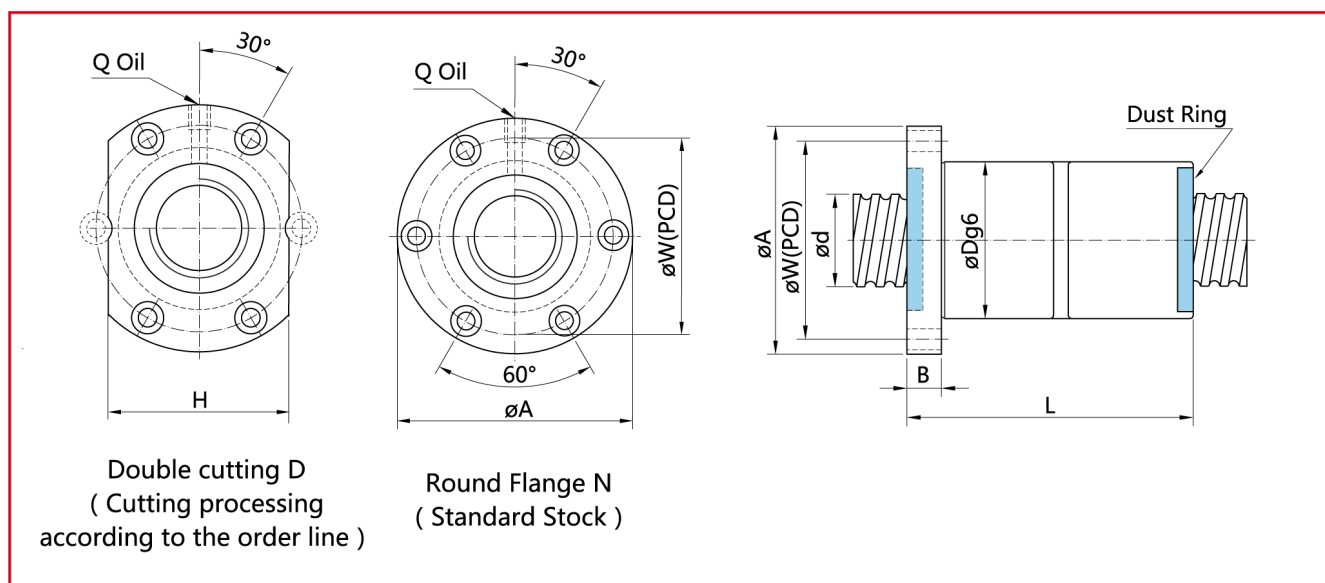
Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
SFVS01205-B1	12	5	2.5	30	50	10	30	40	32	4.5	8	4.5	M6	2.8×1	666	1321	19
SFVS01210-B1		10	2.5	30	50	10	45	40	32	4.5	8	4.5	M6	2.8×1	647	1292	19
SFVS01605-C1	15	5	2.778	40	63	11	37	51	42	5.5	9.5	5.5	M6	3.8×1	1118	2513	30
SFVS01610-B1		10	2.778	40	63	11	47	51	42	5.5	9.5	5.5	M6	2.8×1	845	1827	23
SFVS01620-A1		20	2.778	40	63	11	57	51	42	5.5	9.5	5.5	M6	1.8×1	560	1176	14
SFVS02005-C1	20	5	3.175	44	67	11	37	55	52	5.5	9.5	5.5	M6	3.8×1	1490	3687	37
SFVS02010-C1		10	3.175	46	74	13	57	59	46	6.6	11	6.5	M6	3.8×1	1522	3839	40
SFVS02020-B1		20	3.175	46	74	13	74	59	46	6.6	11	6.5	M6	2.8×1	1124	2740	29
SFVS02505-C1	25	5	3.175	50	73	11	37	61	52	5.5	9.5	5.5	M8	3.8×1	1657	4665	43
SFVS02525-B1		25	3.175	50	73	13	90	61	52	5.5	9.5	5.5	M8	2.8×1	1239	3428	34
SFVS03205-C1	32	5	3.175	58	85	12	37	71	64	6.6	11	6.5	M8	3.8×1	1847	6034	51
SFVS04005-C1	40	5	3.175	67	101	15	37	83	72	9	14	8.5	M8	3.8×1	2026	7597	60
SFVS05005-C1	50	5	3.175	80	114	15	37	96	82	9	14	8.5	M8	3.8×1	2215	9550	68

Note: Those marked ■ are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

Rolled Ball Screw DFVS series (BNFN)

- Round flange, Conventional standard stock



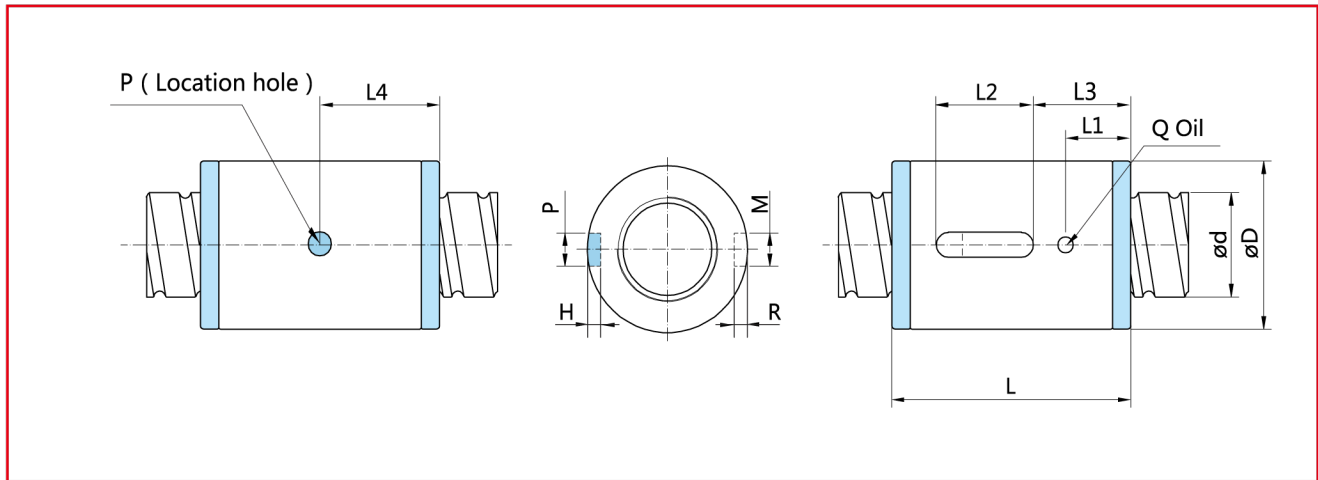
Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		κ kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
DFVS01605-C1	15	5	2.778	40	63	11	72	51	42	5.5	9.5	5.5	M6	3.8×1	1118	2513	41
DFVS01610-B1		10	2.778	40	63	11	92	51	42	5.5	9.5	5.5	M6	2.8×1	845	1827	31
DFVS02005-C1	20	5	3.175	44	67	11	72	55	52	5.5	9.5	5.5	M6	3.8×1	1490	3687	50
DFVS02010-C1		10	3.175	46	74	13	112	59	46	6.6	11	6.5	M6	3.8×1	1522	3839	53
DFVS02505-C1	25	5	3.175	50	73	11	72	61	52	5.5	9.5	5.5	M8	3.8×1	1657	4665	59
DFVS03205-C1	32	5	3.175	58	85	12	72	71	64	6.6	11	6.5	M8	3.8×1	1847	6034	71
DFVS04005-C1	40	5	3.175	67	101	15	72	83	72	9	14	8.5	M8	3.8×1	2026	7597	83
DFVS05005-C1	50	5	3.175	80	114	15	73	96	82	9	14	8.5	M8	3.8×1	2215	9550	96

Note: Those marked ■ are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

Rolled Ball Screw TSCH series

- Dual-purpose nut key-groove and location hole



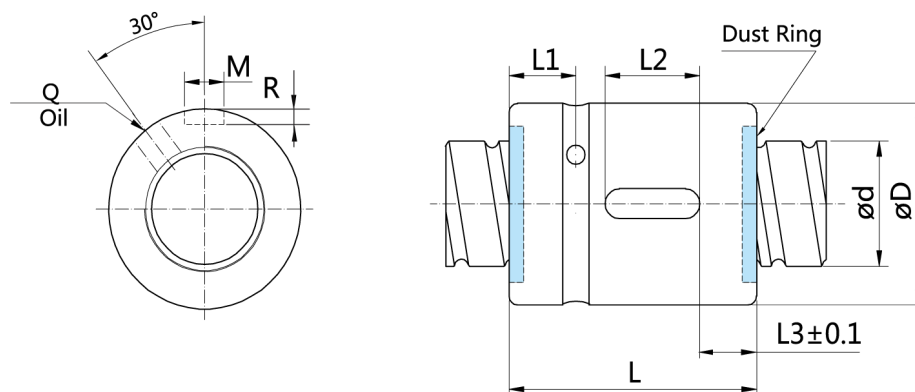
Unit : mm

Model No.	d	I	Da	Dimension												Load Rating (kgf)		κ kgf/μm
				D	L	L1	L2	L3	M	R	Q	P	H	L4	n	Ca	Coa	
TSCH01205-B1	12	5	2.5	24	29.6	6.3	12	8.8	3	1.5	1.5	∅6	3	14.8	2.8×1	666	1321	19
XCH01210-A1		10	2.5	24	35	9	12	12	3	1.5	1.5	∅6	3	17.5	1.8×1	444	832	19
TSCH01210-B1		10	2.5	24	45	10	15	15	3	1.5	1.5	∅6	3	22.5	2.8×1	647	1292	19
TSCH01220-A1		20	2.5	24	54	12	20	17	3	1.5	1.5	∅6	3	27	1.8×1	390	684	17
TSCH01605-C1	15	5	2.778	28	36.6	7.8	15	11.8	5	3	3	∅8	3	18.3	3.8×1	1118	2513	30
TSCH01610-B1		10	2.778	28	47	10.5	20	15	5	3	3	∅8	3	23.5	2.8×1	845	1827	23
TSCH01616-A1		16	2.778	28	45	7	20	12.5	5	3	3	∅8	3	22.5	1.8×1	558	1143	18
TSCH01620-A1		20	2.778	28	57	11	20	18	5	3	3	∅8	3	28.5	1.8×1	560	1176	23
TSCH01630-A1		30	2.778	28	73	14	20	26.5	5	3	3	∅8	3	36.5	1.8×1	509	1006	10
TSCH02005-E1	20	5	3.175	36	46.6	8	20	13.3	5	3	3	∅8	3	23.3	5.8×1	2140	5625	60
TSCH02010-C1		10	3.175	36	57	8	20	17.5	5	3	3	∅8	3	28.5	3.8×1	1522	3839	40
TSCH02020-A1		20	3.175	36	54	8	20	17.5	5	3	3	∅8	3	27	1.8×1	770	1764	19
TSCH02040-A1		40	3.175	36	89	17	30	29.5	5	3	3	∅8	3	47	1.8×1	687	1293	24
TSCH02510-C1	25	10	3.175	40	57	11	20	18.5	5	3	3	∅8	3	28.5	3.8×1	1645	4640	45
TSCH02525-A1		25	3.175	40	65	13.75	20	22.5	5	3	3	∅8	3	32.5	1.8×1	850	2206	22
TSCH02550-A1		50	3.175	40	115	20	30	42.5	5	3	3	∅8	3	57.5	1.8×1	1662	5430	30
TSCH03210-C1	31	10	3.969	50	60	12.5	20	30	5	3	3	∅8	3	30	3.8×1	2468	7263	55
TSCH03220-B1		20	3.969	50	80	15	20	30	5	3	3	∅8	3	40	2.8×1	1915	5490	43
TSCH03232-A1		32	3.969	50	82	17	20	31	5	3	3	∅8	3	41	1.8×1	1265	3434	27

Note:(1)Those marked ■ are common SCR standard screws, and other models need to be equipped with mute type SSR screws.
(2)The size of this series of nuts can be customized according to customer requirements, and the minimum quantity is 200.

Rolled Ball Screw TSCI series

- Key-groove connections type without flanges, Conventional standard stock



When ordering the left-hand nut,
the position of the oil hole is opposite to that shown in the figure.

Unit : mm

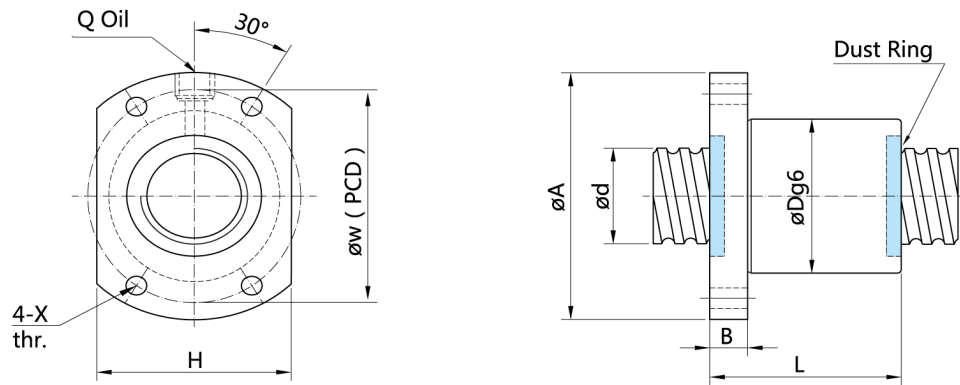
Model No.	d	I	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	L	L1	L2	L3	M	R	Q	n	Ca	Coa	
TSCI01202-T4	12	2	1.2	24	30	4	12	9	3	1.5	Ø3	1×4	339	911	22
TSCI01204-T3		4	2.5	24	35	5	12	11.5	3	1.5	Ø3	1×3	682	1418	26
XCI01604-T4	16	4	2.381	28	45	7	20	12.5	5	2	Ø3	1×4	979	2412	32
TSCI01604-T4		4	2.381	30	40	9	15	12.5	3	1.5	Ø3	1×4	979	2412	32
TSCI01605-T4		5	3.175	30	45	9	20	12.5	5	3	Ø3.5	1×4	1386	3058	33
TSCI02004-T4	20	4	2.381	34	40	9	15	12.5	3	1.5	Ø3.5	1×4	1072	2993	37
TSCI02005-T4		5	3.175	34	45	9	20	12.5	5	3	Ø3.5	1×4	1557	3881	39
TSCI02504-T4	25	4	2.381	40	40	9	15	12.5	3	1.5	Ø3.5	1×4	1188	3802	43
TSCI02505-T4		5	3.175	40	45	9	20	12.5	5	3	Ø3.5	1×4	1731	4911	45
TSCI02510-T4		10	4.762	46	85	13	30	27.5	5	3	Ø3.5	1×4	2961	7302	51
TSCI03204-T4	32	4	2.381	46	40	9	15	12.5	3	1.5	Ø3.5	1×4	1304	4846	49
TSCI03205-T4		5	3.175	46	45	9	20	12.5	5	3	Ø3.5	1×4	1930	6351	52
TSCI03210-T4		10	6.35	54	85	13	30	27.5	5	3	Ø3.5	1×4	4813	12216	62
TSCI04005-T4	40	5	3.175	56	45	9	20	12.5	5	3	Ø3.5	1×4	2118	7996	59
TSCI04010-T4		10	6.35	62	85	13	30	27.5	5	3	Ø3.5	1×4	5407	15508	72
TSCI05010-T4	50	10	6.35	72	85	13	30	27.5	5	3	Ø3.5	1×4	6012	19622	83
TSCI06310-T4	63	10	6.35	85	85	13	30	27.5	6	3.5	Ø3.5	1×4	6728	25367	95
TSCI08010-T4	80	10	6.35	105	85	13	30	27.5	8	4.5	Ø3.5	1×4	7356	31963	109

Note:(1)Those marked ■ can provide left-hand thread products.

(2)The size of this series of nuts can be customized according to customer requirements, and the minimum quantity is 200.

Rolled Ball Screw SFB series (BTK)

- Special custom nuts, can change the external dimensions according to customer requirements



Flange size can be produced according to customer requirements

Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
■ SFB01204-T4	12	4	2.5	24	40	10	40	32	30	4.5	M6	1×4	907	1889	26
■ SFB01605-T3	16	5	3.175	34	54	10	43	44	40	4.5	M6	1×3	1035	2289	33
■ SFB01610-T3		10	3.175	34	54	10	57	44	40	4.5	M6	1×3	1109	2407	27
■ SFB02005-T3	20	5	3.175	40	60	10	43	50	46	4.5	M6	1×3	1163	2906	39
■ SFB02505-T3	25	5	3.175	43	67	10	44	55	50	5.5	M6	1×3	1293	3678	45
■ SFB02510-T4		10	4.762	60	96	15	85	78	72	9	M6	1×4	2961	7302	51
■ SFB03210-T4	32	10	6.35	67	103	15	90	85	78	9	M6	1×4	4813	12216	62

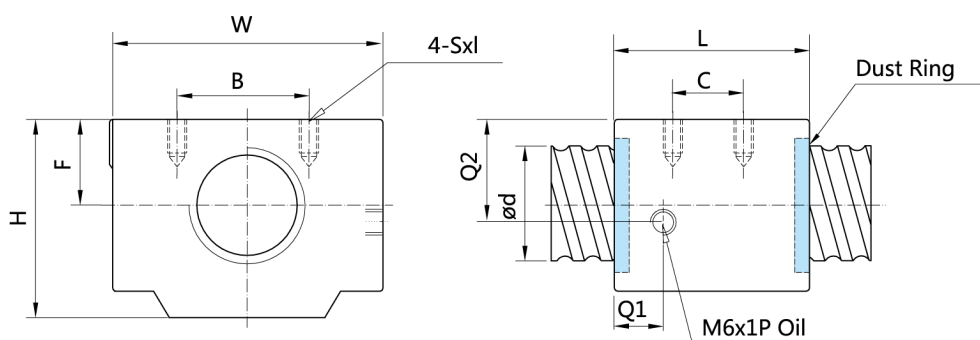
Note:(1)Outer diameter of this series nut / flange size / number of steel ball turns / nut length

Can be produced according to customer requirements, the minimum quantity is 200.

(2)Those marked ■ can provide left-handed thread products.

Rolled Ball Screw BNT series

- Nut integrated structure



The surface of the nut is blackened and rust-proof

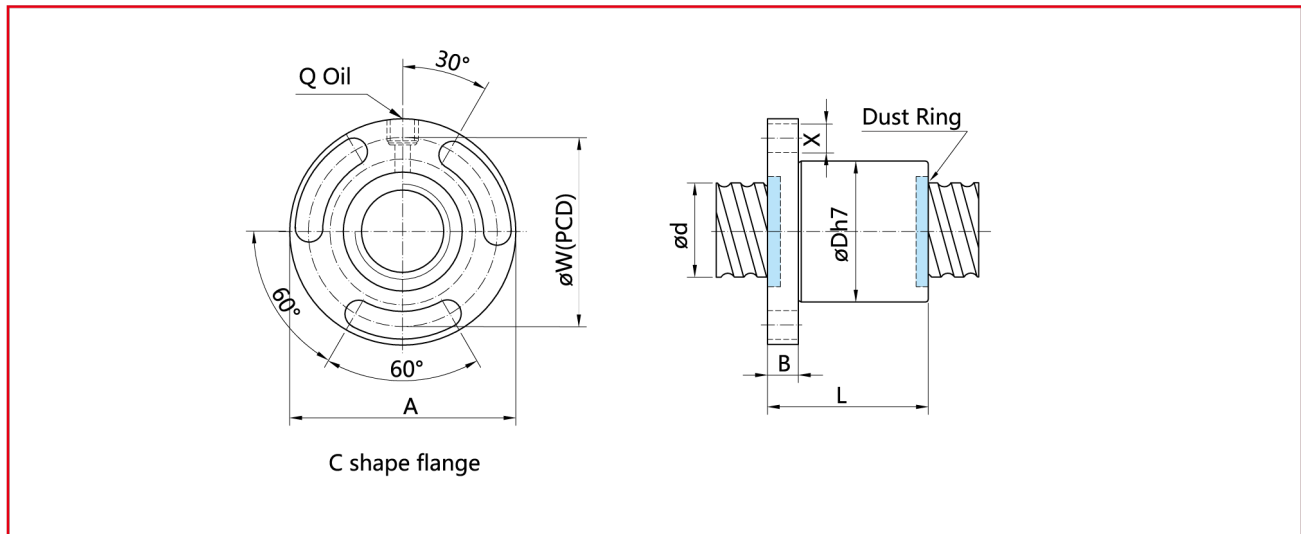
Unit : mm

Model No.	d	I	Da	Dimension											Load Rating (kgf)		K kgf/μm
				W	H	F	L	B	C	S	I	Q1	Q2	n	Ca	Coa	
BNTR01605-T3	16	5	3.175	42	32.5	16	41	32	22	M5	8	14	18	1×3	1035	2289	33
■ BNTL01605-T3	16	5	3.175	42	32.5	16	41	32	22	M5	8	14	18	1×3	1035	2289	33
BNTR02005-T3	20	5	3.175	48	39	17	41	35	22	M6	10	14	20	1×3	1163	2906	39
■ BNTL02005-T3	20	5	3.175	48	39	17	41	35	22	M6	10	14	20	1×3	1163	2906	39
BNTR02505-T3	25	5	3.175	60	45	20	41	40	22	M8	10	14	25	1×3	1293	3678	45
■ BNTL02505-T3	25	10	3.175	60	45	20	41	40	22	M8	10	14	25	1×3	1293	3678	45
BNTR02510-T3	25	10	4.762	60	53	23	78	40	60	M8	10	20	23	1×3	2216	5472	51
■ BNTL02510-T3	25	10	4.762	60	53	23	78	40	60	M8	10	20	23	1×3	2216	5472	51

Note:(1)Those marked ■ can provide left-hand thread products.

Rolled Ball Screw SFC series

- Nut preload can be adjusted series



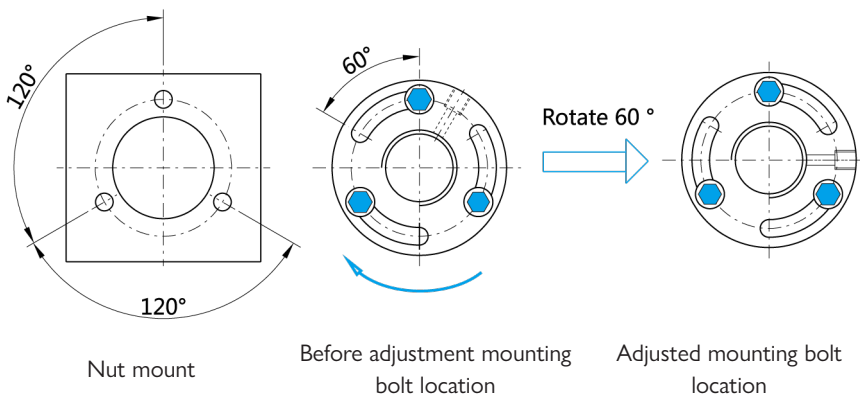
Unit : mm

Model No.	d	I	Da	Dimension								Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	X	Q	n	Ca	Coa	
■ SFC01204-T4	12	4	2.5	24	42	10	40	32	4.5	M6	1×4	907	1889	26
■ SFC01605-T4	16	5	3.175	30	49	10	50	39	4.5	M6	1×4	1386	3058	33
■ SFC01610-T3		10	3.175	30	49	10	57	39	4.5	M6	1×3	1109	2407	27
■ SFC02005-T4	20	5	3.175	34	57	11	51	45	5.5	M6	1×4	1557	3881	39
■ SFC02505-T4	25	5	3.175	40	63	11	51	51	5.5	M8	1×4	1731	4911	45
■ SFC02510-T4		10	4.762	46	72	12	85	58	6.5	M6	1×4	2961	7302	51
■ SFC03205-T4	32	5	3.175	46	72	12	52	58	6.5	M8	1×4	1930	6351	52
■ SFC03210-T4		10	6.35	54	88	15	90	70	9	M8	1×4	4813	12216	62

Note:(1)Those marked ■ can provide left-hand thread products.

(2)This series can realize the micro-adjustment of the preload of the nut by adjusting the bolt angle of the mounting hole.

- Schematic diagram of bolt angle adjustment of nut mounting hole

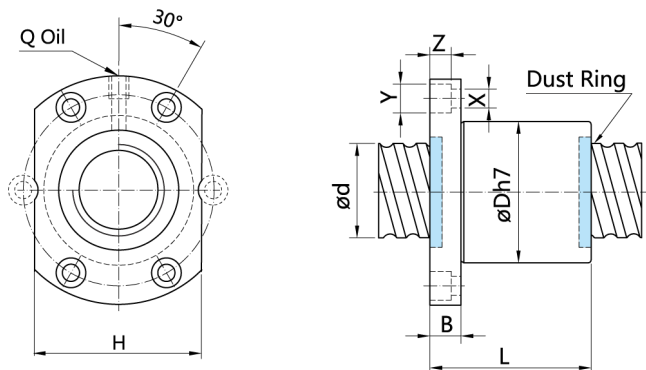


C type flange nut adjustment instructions:

- Can be used to fine-tune the starting position of the centering of the left and right rotation nuts.
- When fixing nuts, it is recommended to use bolts and flat washers together.
- Can be used between the nut flange fastening bolt and the nut seat. The installation angle is adjusted so that the preload of the nut can be adjusted slightly.

ex.: when the lead is 5mm, the flange fastening bolt rotates at an angle of 60°, The nut can achieve a linear displacement of 0.83mm.

Rolled Ball Screw SFD series (TSFI-D)



Double cutting D
(TSFI round flanges in stock,
Cutting processing according to the order line)

Unit : mm

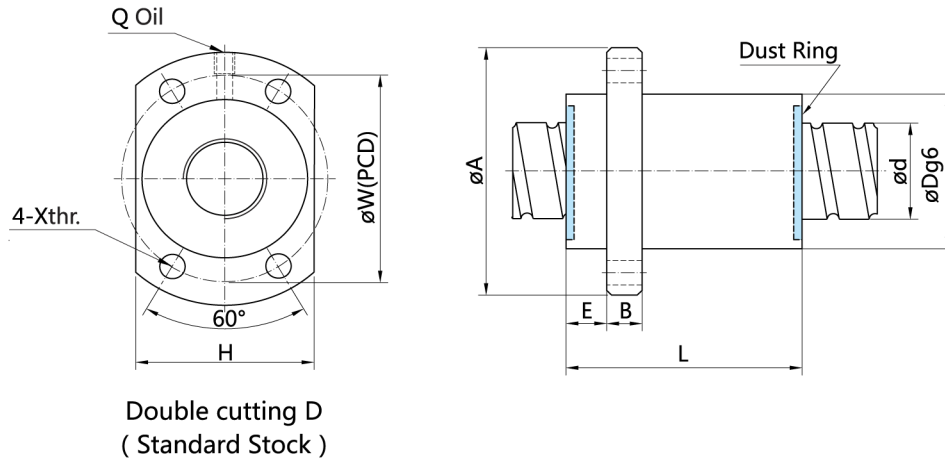
Model No.	d	I	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
■ SFD01204-T4	12	4	2.5	24	42	10	40	32	28	4.5	8	4.5	M6	1×4	907	1889	26
■ SFD01605-T4	16	5	3.175	30	49	10	50	39	34	4.5	8	4.5	M6	1×4	1386	3058	33
■ SFD01610-T3	16	10	3.175	30	49	10	57	39	34	4.5	8	4.5	M6	1×3	1109	2407	27
■ SFD02005-T4	20	5	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	1×4	1557	3881	39
■ SFD02505-T4	25	5	3.175	40	63	11	51	51	46	5.5	9.5	5.5	M8	1×4	1731	4911	45
■ SFD02510-T4	25	10	4.762	46	72	12	85	58	52	6.5	11	6.5	M6	1×4	2961	7302	51
■ SFD03205-T4	32	5	3.175	46	72	12	52	58	52	6.5	11	6.5	M8	1×4	1930	6351	52
■ SFD03210-T4	32	10	6.35	54	88	15	90	70	62	9	14	8.5	M8	1×4	4813	12216	62
■ SFD04010-T4	40	10	6.35	62	104	18	93	82	70	11	17.5	11	M8	1×4	5407	15508	72
■ SFD05010-T4	50	10	6.35	72	114	18	93	92	82	11	17.5	11	M8	1×4	6012	19622	83

Note:(1)Those marked ■ can provide left-hand thread products.

(2)Except for the SFD01610-T3 specification, the other models are interchangeable with TSFI series nuts.

Rolled Ball Screw TSFK series

- The flange double cutting, Conventional standard stock



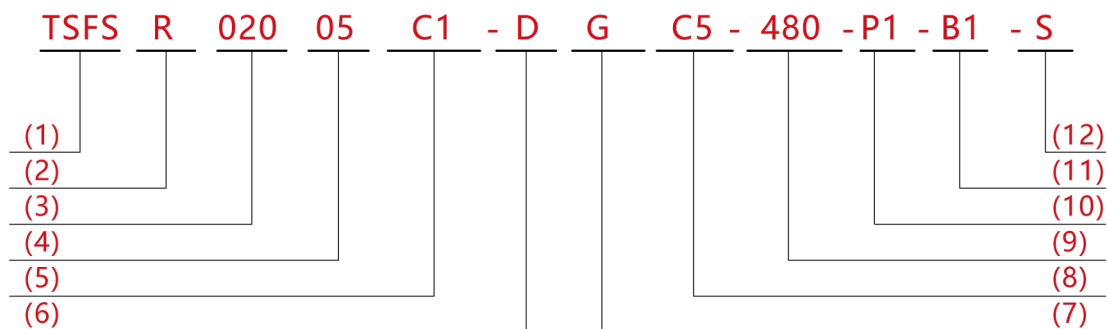
Unit : mm

Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
SFTE01616-A2	16	16	2.778	32	53	10	10	45	42	34	4.5	M6	1.8×2	1079	2557	31
SFTE02020-A2	20	20	3.175	39	62	13	10	52	50	41	5.5	M6	1.8×2	1393	3521	37
SFTE02525-A2	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8×2	2081	5501	45
SFTE03232-A2	32	32	4.762	58	92	16	12	82	74	60	9	M6	1.8×2	3029	8698	58
SFTE04040-A2	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8×2	4839	14070	70
SFTE05050-A2	50	50	7.938	90	135	21.5	20	117	112	92	14	M6	1.8×2	7228	21982	86

Note:(1)This series is a metal circulator

(2)It can be used in harsh environments with high temperature (-40 °C ~ + 120 °C), high speed and high impact force.

Nominal Model Code of Ball Screw



(1) Nominal Model

TS: Single nut
 TD: Double nut

F: With flange
 c: Without flange

U Cycle structure refer to the table on the right

(2) Threading Direction

R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)

Turn: T=1 A=1.5/1.7/1.8 B=2.5/2.7/2.8 C=3.5/3.8 D=4.8 E=5.8 ex: (B2=2.5x2)

(6) Flange Type

N: Not cutting S: Single cutting D: Double cutting K: Four cutting -: No flange

(7) Product Code

G: Ground F: Rolled

(8) Accuracy Grade

C1, C2, C3, C5, C7, C9

(9) Overall Length of Shaft

(10) Axial Clearance and Preload Value

P0, P1, P2, P3 (When ordering nuts separately, the standard stock preload level P0 should be selected, and other preloads cannot be selected)

(11) Number of Nut

B1: one nut B2: two nuts B3: three nuts

(12) Optional accessory

S: Tubing Connector SM6/SM8

F: Special sealing requirements

Code	Nut model	Code	Nut model
U	TSFU/TDFU	S	TSFS/TDFS/SFVS/DFVS
I	TSFI/TDFI	B	SFB
V	TSFV/TDFV	K	TSFK
Y	TSFY	H	TSFH
E	SFTE	C	SFC
Z	SFZ/DFZ	D	SFD
Special form nut : TBSh/TSCI/TSCH/XSSR/KSSR/BNT			

Note: ball screws can be ordered separately for nuts and screws. If ordering only nuts, only the nut model is required.

Precision Ground Ball Screw TSFU series (DIN 69051 B)

- Nominal Model Code of Ball Screw

TSFU **R** **020** **05** **T4** - **D** **G** **C5** - **600** - **P1** - **B1** - **S**
(1) **(2)** **(3)** **(4)** **(5)** **(6)** **(7)** **(8)** **(9)** **(10)** **(11)** **(12)**

(1) Nominal Model TSFU: Single nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T4=1×4)

(6) Flange Type
N: Not cutting D: Double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5

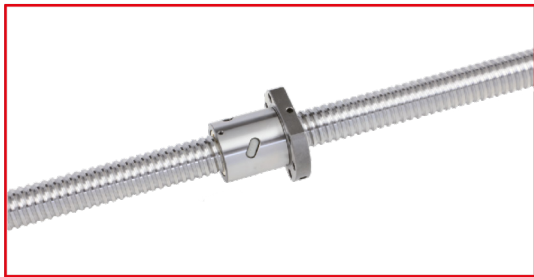
(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P1, P2, P3

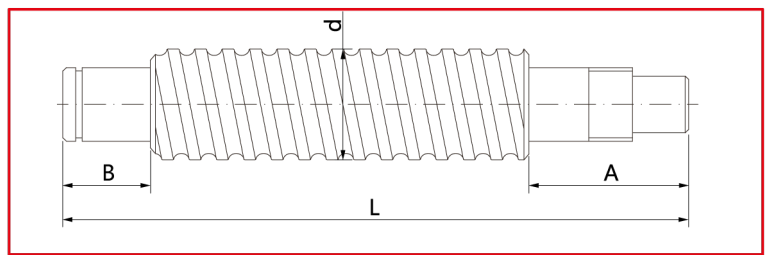
(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

(12) Optional accessory
S: Tubing Connector

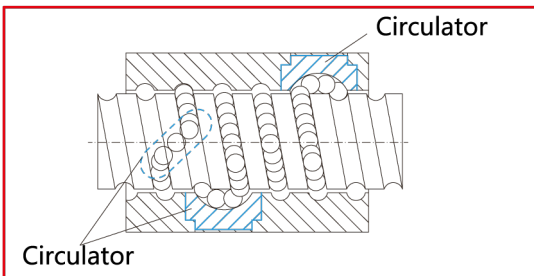
- Nut Form



- Screw Parameters



- Nut Structure



In this type, the steel balls circulate along cycle grooves of the inner circulator, return to the original position over the outer diameter of the screw shaft, and perform infinite cycle motion. Generally, one roll of steel balls is circulated once.

- DIN German standard size for inner circulation
- Steel balls are arranged evenly and load is moderate
- Material and heat treatment method

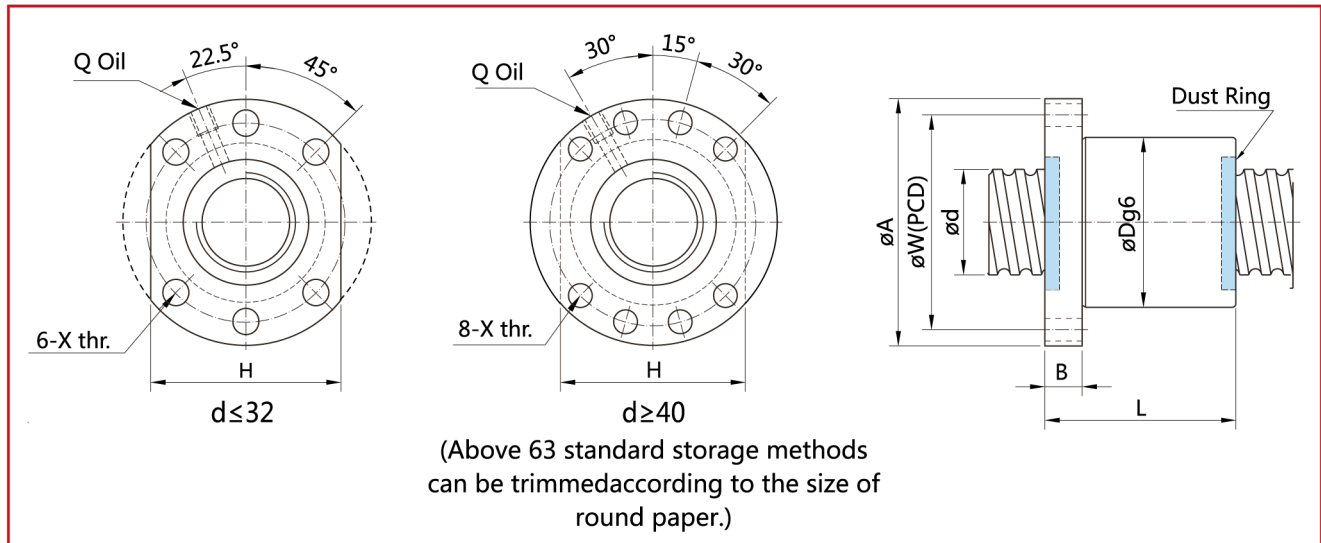
Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SCR01204	12	4	R/L	1	480	720
SCR01604	16	4	R	1	640	960
SCR01605	16	5	R/L	1	640	960
SCR01610	16	10	R/L	1	640	960
SCR02004	20	4	R	1	800	1200
SCR02005	20	5	R/L	1	800	1200
SCR02504	25	4	R	1	1000	1500
SCR02505	25	5	R/L	1	1000	1500
SCR02510	25	10	R/L	1	1000	1500
SCR03204	32	4	R	1	1280	1920
SCR03205	32	5	R/L	1	1280	1920
SCR03210	32	10	R/L	1	1280	1920
SCR04005	40	5	R/L	1	2400	3200
SCR04010	40	10	R/L	1	2400	3200
SCR05010	50	10	R/L	1	3000	4000
SCR05020	50	20	R	1	3000	4000
SCR06310	63	10	R	1	3780	5040
SCR06320	63	20	R	1	3780	5040
SCR08010	80	10	R	1	4800	6400
SCR08020	80	20	R	1	4800	6400
SCR10020	100	20	R	1	6000	8000
STR10020	100	20	R	1	6000	8000
STR12520	125	20	R	1	7500	10000

Note: If the customer needs more than the length in the table, please contact us

Precision Ground Ball Screw TSFU series (DIN 69051 B)

- The flange double cut ting, Conventional standard stock



Unit: mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
■ TSFU01204-T4	12	4	2.5	24	40	10	40	32	30	4.5	M6	1×4	907	1889	26
■ TSFU01604-T4	16	4	2.381	28	48	10	40	38	40	5.5	M6	1×4	979	2412	32
■ TSFU01605-T4		5	3.175	28	48	10	50	38	40	5.5	M6	1×4	1386	3058	32
■ TSFU01610-T3		10	3.175	28	48	10	57	38	40	5.5	M6	1×3	1109	2407	26
■ TSFU02004-T4	20	4	2.381	36	58	10	42	47	44	6.6	M6	1×4	1072	2993	38
■ TSFU02005-T4		5	3.175	36	58	10	51	47	44	6.6	M6	1×4	1557	3881	39
■ TSFU02504-T4	25	4	2.381	40	62	10	42	51	48	6.6	M6	1×4	1188	3802	43
■ TSFU02505-T4		5	3.175	40	62	10	51	51	48	6.6	M6	1×4	1731	4911	45
■ TSFU02510-T4		10	4.762	40	62	12	85	51	48	6.6	M6	1×4	2961	7302	50
■ TSFU03204-T4	32	4	2.381	50	80	12	44	65	62	9	M6	1×4	1304	4846	51
■ TSFU03205-T4		5	3.175	50	80	12	52	65	62	9	M6	1×4	1930	6351	54
■ TSFU03210-T4		10	6.350	50	80	12	90	65	62	9	M6	1×4	4813	12216	61
■ TSFU04005-T4	40	5	3.175	63	93	14	55	78	70	9	M8	1×4	2118	7996	63
■ TSFU04010-T4		10	6.350	63	93	14	93	78	70	9	M8	1×4	5407	15508	73
■ TSFU05010-T4	50	10	6.350	75	110	16	93	93	85	11	M8	1×4	6012	19622	94
■ TSFU05020-T4		20	7.144	75	110	16	138	93	85	11	M8	1×4	7157	22603	94
■ TSFU06310-T4	63	10	6.350	90	125	18	98	108	(95)	11	M8	1×4	6728	25367	135
■ TSFU06320-T4		20	9.525	95	135	20	149	115	(100)	13.5	M8	1×4	11453	36662	109
■ TSFU08010-T4	80	10	6.350	105	145	20	98	125	(110)	13.5	M8	1×4	7356	31963	153
■ TSFU08020-T4		20	9.525	125	165	25	154	145	(130)	13.5	M8	1×4	12921	47757	138
■ TSFU10020-T4	100	20	9.525	150	202	30	180	170	(155)	17.5	M8	1×4	14323	60718	162
■ TSFUT10020-T4		20	12.7	160	212	30	185	185	(165)	17.5	M10	1×4	17808	68108	165
■ TSFU12520-T4	125	20	12.7	175	226	30	185	200	(180)	17.5	M10	1×4	23214	90642	192

Note:(1)Those marked ■ can provide left-hand thread products.

(2)The above specifications can be ordered with metal circulators, which can withstand high-speed impact and high temperature of (-40°C~120°C), and can also increase the life of the nut in harsh environments such as dust.

The metal circulator is a special order product, if you need it, please contact us.

Precision Ground Ball Screw TDFU Series (DIN 69051 B)

- Nominal Model Code of Ball Screw

TDFU **R** **020** **05** **T4** - **D** **G** **C5** - **600** - **P1** - **B1** - **S**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TDFU: Double nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T4=1×4)

(6) Flange Type
N: Not cutting D: Double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5

(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P1, P2, P3

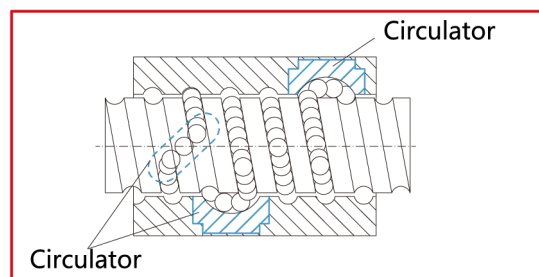
(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

(12) Optional accessory
S: Tubing Connector

- Nut Form



- Nut Structure



In this type, the steel balls circulate along cycle grooves of the inner circulator, return to the original position over the outer diameter of the screw shaft, and perform infinite cycle motion. Generally, one roll of steel balls is circulated once.

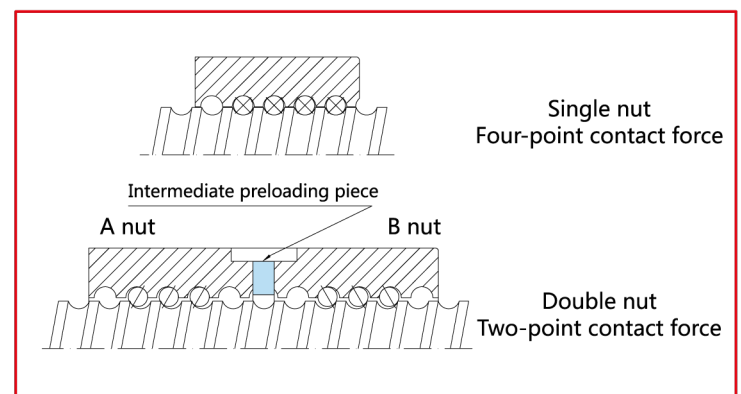
- DIN German standard size for inner circulation
- Steel balls are arranged evenly and load is moderate
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters

Double nuts and single nuts can use the same specifications and types of screws, please refer to single nut for details.

- Nut stress condition

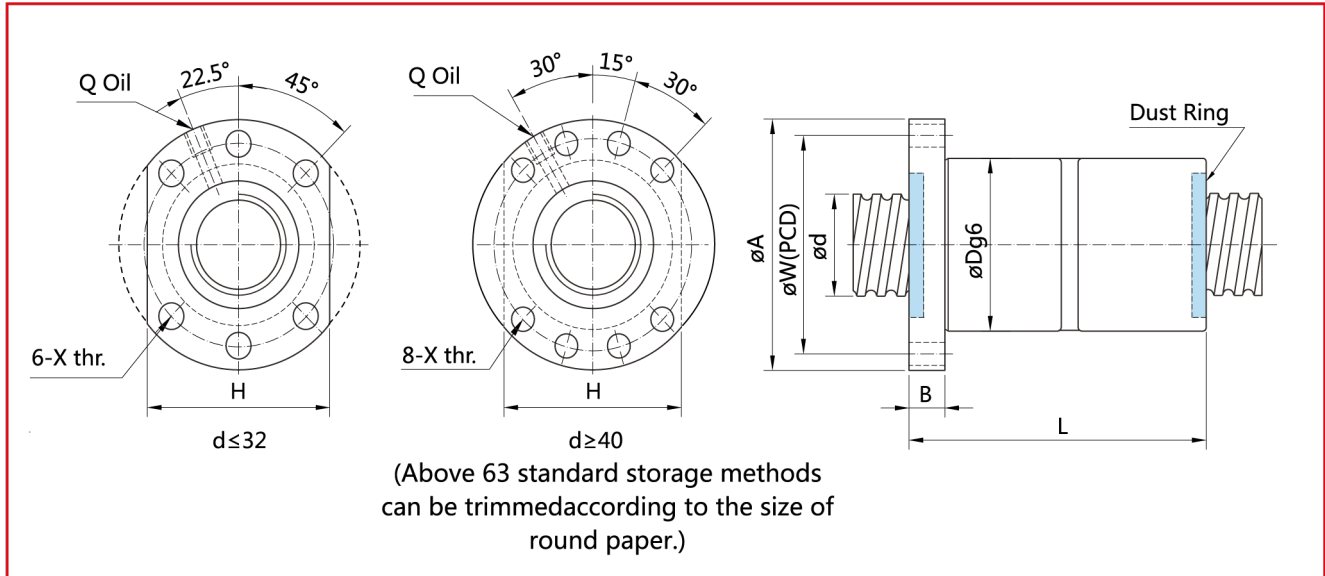


By adjusting the thickness of the intermediate preloading piece, the A and B nuts move axially, and the balls therein contact the nut and the screw at a certain angle and generate a preload, so as to eliminate the axial clearance and pretension.

This method can be used to eliminate the gap between the screw and the nut by adjusting the thickness of the intermediate washer when the screw is worn after a long time use.

Precision Ground Ball Screw TDFU Series (DIN 69051 B)

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
■ TDFU01604-T4	16	4	2.381	28	48	10	80	38	40	5.5	M6	1×4	979	2412	43
■ TDFU01605-T4		5	3.175	28	48	10	100	38	40	5.5	M6	1×4	1386	3058	44
■ TDFU01610-T3		10	3.175	28	48	10	118	38	40	5.5	M6	1×3	1109	2407	35
TDFU02004-T4	20	4	2.381	36	58	10	80	47	44	6.6	M6	1×4	1072	2993	51
TDFU02005-T4		5	3.175	36	58	10	101	47	44	6.6	M6	1×4	1557	3881	53
■ TDFU02504-T4	25	4	2.381	40	62	10	80	51	48	6.6	M6	1×4	1188	3802	60
TDFU02505-T4		5	3.175	40	62	10	101	51	48	6.6	M6	1×4	1731	4911	62
■ TDFU02510-T4		10	4.762	40	62	12	145	51	48	6.6	M6	1×4	2961	7302	67
■ TDFU03204-T4	32	4	2.381	50	80	12	80	65	62	9	M6	1×4	1304	4846	71
TDFU03205-T4		5	3.175	50	80	12	102	65	62	9	M6	1×4	1930	6351	74
TDFU03210-T4		10	6.350	50	80	12	162	65	62	9	M6	1×4	4813	12216	82
■ TDFU04005-T4	40	5	3.175	63	93	14	105	78	70	9	M8	1×4	2118	7996	87
■ TDFU04010-T4		10	6.350	63	93	14	165	78	70	9	M8	1×4	5407	15508	99
■ TDFU05010-T4	50	10	6.350	75	110	16	171	93	85	11	M8	1×4	6012	19622	117
■ TDFU05020-T4		20	7.144	75	110	16	280	93	85	11	M8	1×4	7157	22603	126
■ TDFU06310-T4	63	10	6.350	90	125	18	182	108	(95)	11	M8	1×4	6728	25367	139
TDFU06320-T4		20	9.525	95	135	20	290	115	(100)	13.5	M8	1×4	11453	36662	152
TDFU08010-T4	80	10	6.350	105	145	20	182	125	(110)	13.5	M8	1×4	7356	31963	156
TDFU08020-T4		20	9.525	125	165	25	295	145	(130)	13.5	M8	1×4	12921	47757	187
TDFU10020-T4	100	20	9.525	150	202	30	340	170	(155)	17.5	M8	1×4	14323	60718	222
TDFUT10020-T4		20	12.7	160	212	30	355	185	(165)	17.5	M10	1×4	17808	68108	228
TDFU12520-T4	125	20	12.7	175	226	30	355	200	(180)	17.5	M10	1×4	23214	90642	269

Note:(1)Those marked ■ can provide left-hand thread products.

(2)The above specifications can be ordered with metal circulators, which can withstand high-speed impact and high temperature of (-40°C~120°C), and can also increase the life of the nut in harsh environments such as dust.

The metal circulator is a special order product, if you need it, please contact us.

Precision Ground Ball Screw TOFI/TOFU series

- Nominal Model Code of Ball Screw

TOFI R 025 05 T8 - N G C3 - 825 - P2
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Nominal Model TOFI: One-piece double nut
TOFU: One-piece double nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T8=1×8)

(6) Flange Type
N: Not cutting D: Double cutting S: Single Cutting

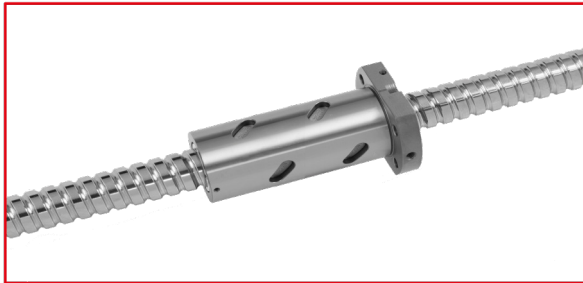
(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5

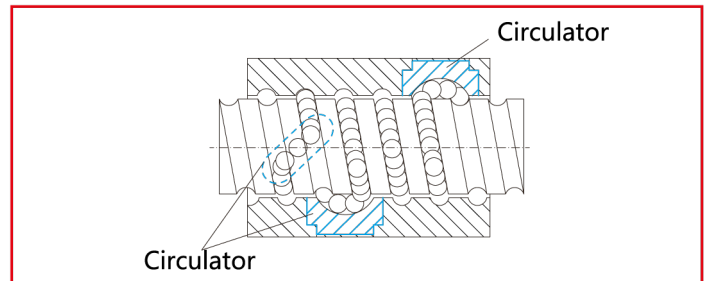
(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P1, P2, P3

- Nut Form



- Nut Structure

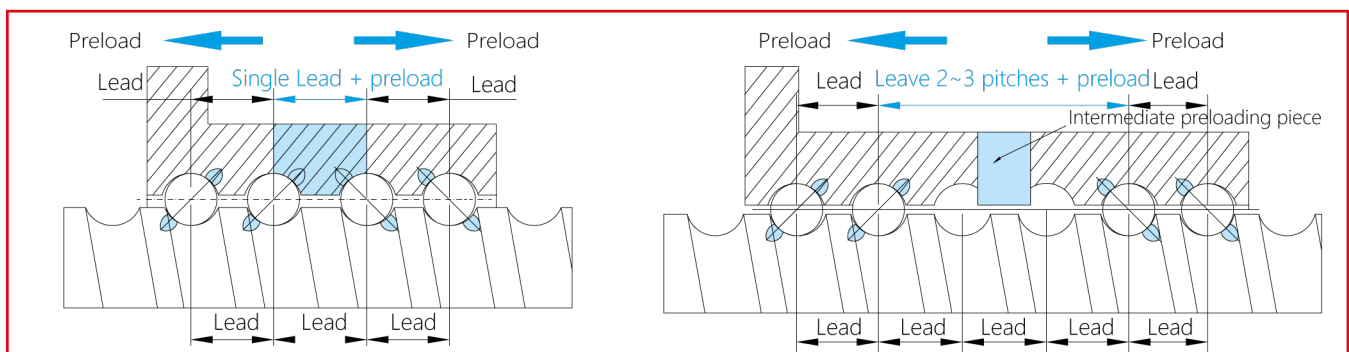


- Screw Parameters

The variable integrated double nut and the TSFI/TSFU type single nut can use the same specification and model of the screw.
For detailed parameters, please refer to the TSFI/TSFU type single nut.

In this type, the steel balls circulate along cycle grooves of the inner circulator, return to the original position over the outer diameter of the screw shaft, and perform infinite cycle motion. Generally, one roll of steel balls is circulated once.

- Comparison of the integrated double nut with displacement lead and the double nut with standard adjusting piece



Deformation Integrated double nut size

The displacement integrated double nut is to change the pitch in the middle of the nut to give the left and right threads Phase difference, by changing the size of the middle pitch to make the axial gap meet the pre-tightening requirements. Generally, there are three rows of steel balls on the left and right, a total of six rows of steel balls, to achieve lightweight and integration.
Advantages of the variable one-piece double nut:

- Due to the manufacturing process, the pre-pressure adjustment of the nut has been realized before leaving the factory.
- There will be no contact angle deviation caused by the standard double nut adjustment piece, and high rigidity, Smooth rotation and high precision with high lead period error.
- The length of the nut can be shortened, which can realize light weight and integration.

Standard adjuster double nut

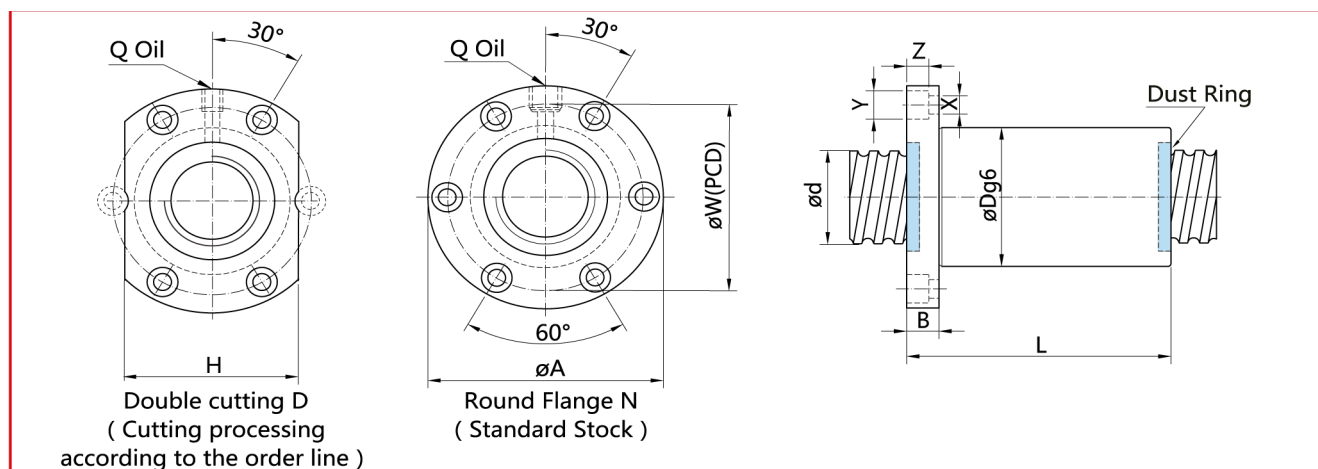
The standard adjusting piece double nut is to add an adjusting piece in the middle of the nut to give the left and right threads a phase difference. Increase or decrease the thickness of the adjusting piece to make the axial clearance meet the pre-tightening requirement.

Disadvantages of standard adjusting piece double nut:

- The standard adjusting piece double nut needs to leave 2~3 pitches in the left and right nuts to install all the adjusting piece. As a result, the total length of the nut will increase.
- In use, you need to pay attention to the tilt of the nut caused by the flatness of the adjustment piece and the verticality of the nut. And the deviation of the contact angle, which affects the rotation performance of the nut, and makes the lead, The cycle error accuracy becomes lower.

Precision Ground Ball Screw TOFI/TOFU series

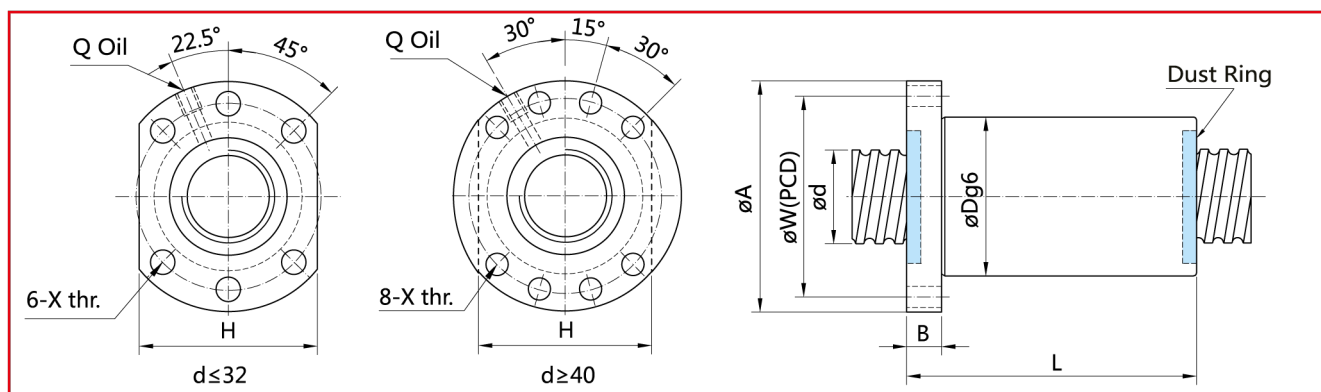
- TOFI-Nut preload can be adjusted series, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
TOFI01605-T8	16	5	3.175	30	49	10	77	39	34	4.5	8	4.5	M6	1×8	1386	3058	44
TOFI02005-T8	20	5	3.175	34	57	11	87	45	40	5.5	9.5	5.5	M6	1×8	1557	3881	52
TOFI02505-T8	25	5	3.175	40	63	11	88	51	46	5.5	9.5	5.5	M8	1×8	1731	4911	62
TOFI02510-T8		10	4.762	46	72	12	132	58	52	6.5	11	6.5	M6	1×8	2961	7302	68
TOFI03205-T8	32	5	3.175	46	72	12	89	58	52	6.5	11	6.5	M8	1×8	1930	6351	72
TOFI03210-T8		10	6.35	54	88	15	147	70	62	9	14	8.5	M8	1×8	4813	12216	83
TOFI04005-T8	40	5	3.175	56	90	15	92	72	64	9	14	8.5	M8	1×8	2118	7996	84
TOFI04010-T8		10	6.35	62	104	18	150	82	70	11	17.5	11	M8	1×8	5407	15508	99
TOFI05010-T8	50	10	6.35	72	114	18	150	92	82	11	17.5	11	M8	1×8	6012	19622	115
TOFI06310-T8	63	10	6.35	85	131	22	155	107	95	14	20	13	M8	1×8	6728	25367	135

- TOFI-Nut preload can be adjusted series, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa			
TOFU01605-T8	16	5	3.175	28	48	10	77	38	40	5.5	M6	1×8	1386	3058	44		
TOFU02005-T8	20	5	3.175	36	58	10	87	47	44	6.6	M6	1×8	1557	3881	52		
TOFU02505-T8	25	5	3.175	40	62	10	88	51	48	6.6	M6	1×8	1731	4911	62		
TOFU02510-T8		10	4.762	40	62	12	132	51	48	6.6	M6	1×8	2961	7302	68		
TOFU03205-T8	32	5	3.175	50	80	12	89	65	62	9	M6	1×8	1930	6351	72		
TOFU03210-T8		10	6.35	50	80	12	147	65	62	9	M6	1×8	4813	12216	83		
TOFU04005-T8	40	5	3.175	63	93	14	92	78	70	9	M8	1×8	2118	7996	84		
TOFU04010-T8		10	6.35	63	93	14	150	78	70	9	M8	1×8	5407	15508	99		
TOFU05010-T8	50	10	6.35	75	110	16	150	93	85	11	M8	1×8	6012	19622	115		
TOFU06310-T8	63	10	6.35	90	125	18	155	108	95	11	M8	1×8	6728	25367	135		

Precision Ground Ball Screw ZSFI/ZOFI series

- TOFI-Nut preload can be adjusted series, Conventional standard stock

ZSFI R 040 10 T4 - D G C5 - 800 - P1 - LA
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

(1) Nominal Model ZSFI: Safety single nut
ZOFI: Integrated safety double nutnut

(2) Threading Direction
R: Right L: Left

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T4=1×4 T8=1×8)

(6) Flange Type
N: full circle flange D: double trimming

(7) Product Code G: Ground

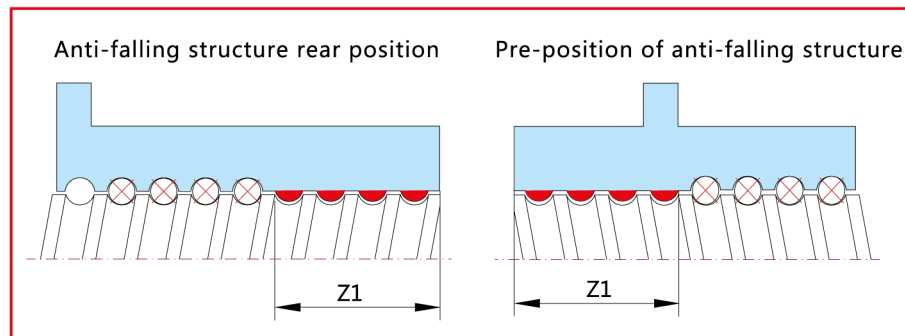
(8) Accuracy Grade Ground: C3/C5/C7

(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P0, P1, P2

(11) LA: Post-installation of anti-falling structure
LB: Pre-position of anti-falling structure

- Single nut structure



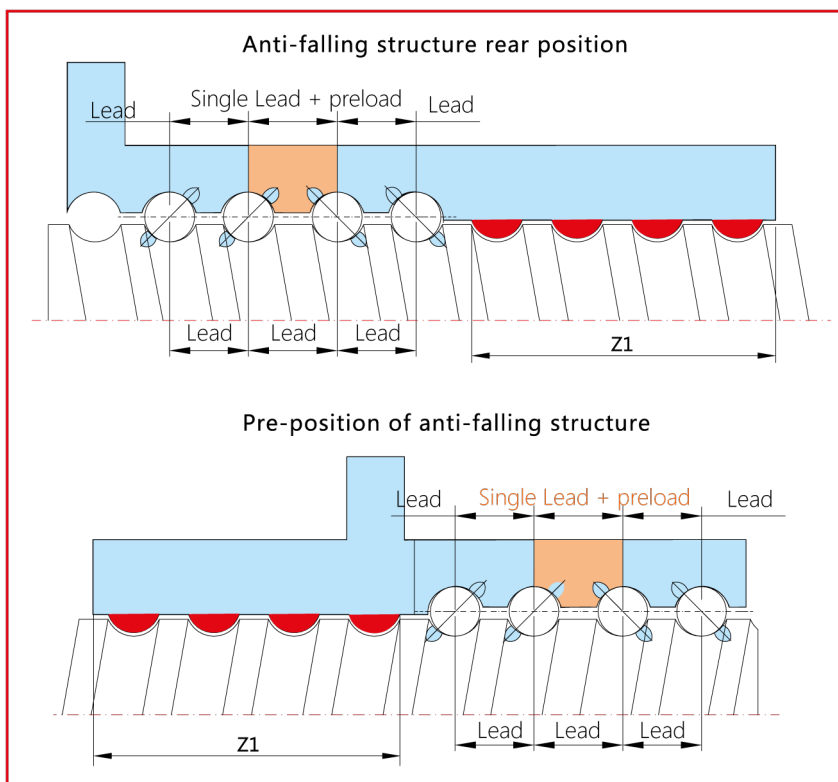
Structural features of single nut:

When the screw rod is used vertically, it can prevent the machine from sliding down and falling down quickly when the nut fails or the steel ball falls off, and it can play a safe and slow role in sliding down.

Application scope:

1. Expensive equipment, to prevent the nut from falling and damaging the equipment .
2. Medical institutions, to prevent personal injury caused by falling equipment.
3. It replaces the trapezoidal screw mechanism and plays a safe buffering role.

- Displacement and lead integrated double nut structure



Structural features of displacement lead integrated double nuts:

1. The rigidity of integral double nut is better than that of gasket double nut structure.
2. The latest 8-row steel ball design comes with pre-tightening force before leaving the factory to avoid later adjustment.

Application scope:

1. Expensive equipment, to prevent the nut from falling and damaging the equipment.
2. Medical institutions, to prevent personal injury caused by falling equipment .
3. It replaces the trapezoidal screw mechanism and plays a safe buffering role.

- Description of anti-falling safety nut

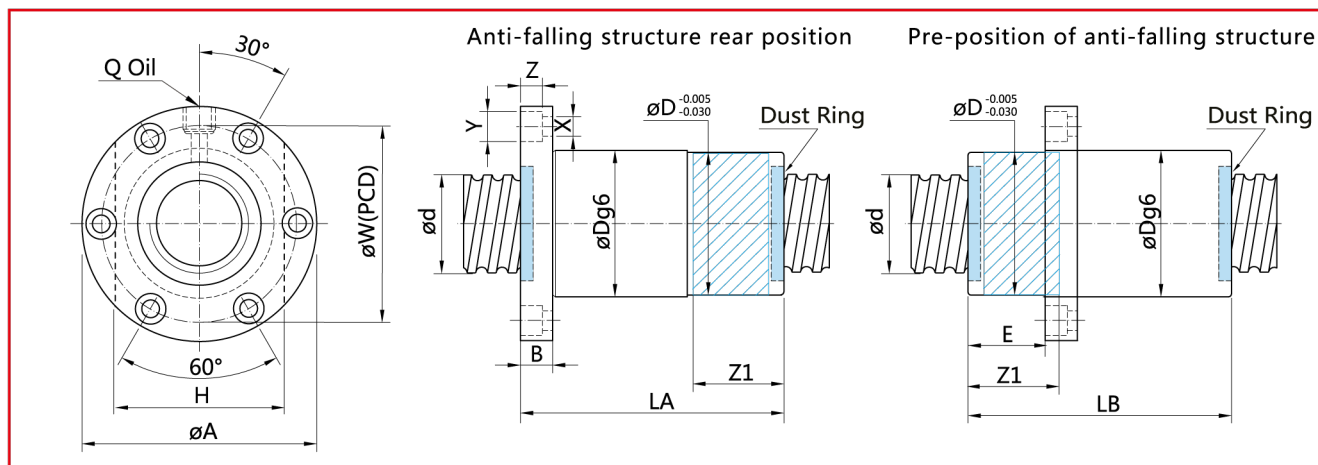
Anti-falling structure refers to adding a thread structure at the front or back end of the nut, which can generate sliding friction with the screw when the nut steel ball fails, thus ensuring the machine connected with the nut to slowly slide down and avoiding greater losses and personal injury accidents. The thread clearance between the anti-falling safety nut and the screw is 0.1-0.2 mm,

- Screw size

The anti-fall safety nut and TSFI/TSFU single nut can use the same specifications and models of screws. Please refer to TSFI/TSFU single nut for detailed parameters.

Precision Ground Ball Screw ZSFI/ZOFI series

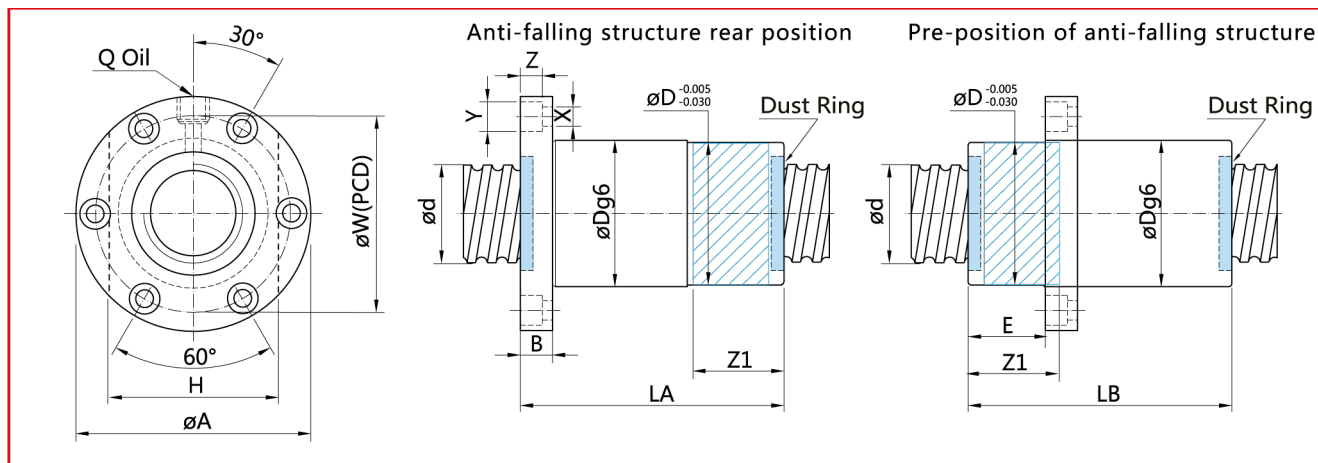
- TOFI-Nut preload can be adjusted series, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension														Load Rating (kgf)		K kgf/μm
				D	A	B	LA	Z1	LB	E	W	H	X	Y	Z	Q	n	Ca	Coa	
ZSFI03205-T4	32	5	3.175	46	72	12	77	27	72	20	58	52	6.5	11	6.5	M8	1×4	1930	6351	52
ZSFI03210-T4	32	10	6.35	54	88	15	137	48	130	40	70	62	9	14	8.5	M8	1×4	4813	12216	62
ZSFI04005-T4	40	5	3.175	56	90	15	80	27	75	20	72	64	9	14	8.5	M8	1×4	2118	7996	59
ZSFI04010-T4	40	10	6.35	62	104	18	140	48	133	40	82	70	11	17.5	11	M8	1×4	5407	15508	72
ZSFI05010-T4	50	10	6.35	72	114	18	140	48	133	40	92	82	11	17.5	11	M8	1×4	6012	19622	83
ZSFI06310-T4	63	10	6.35	85	131	22	145	48	138	40	107	95	14	20	13	M8	1×4	6728	25367	95

- TOFI-Nut preload can be adjusted series, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension														Load Rating (kgf)		K kgf/μm
				D	A	B	LA	Z1	LB	E	W	H	X	Y	Z	Q	n	Ca	Coa	
ZOFI03205-T8	32	5	3.175	46	72	12	107	27	102	20	58	52	6.5	11	6.5	M8	1×8	1930	6351	74
ZOFI03210-T8	32	10	6.35	54	88	15	187	48	180	40	70	62	9	14	8.5	M8	1×8	4813	12216	82
ZOFI04005-T8	40	5	3.175	56	90	15	110	27	105	20	72	64	9	14	8.5	M8	1×8	2118	7996	84
ZOFI04010-T8	40	10	6.35	62	104	18	190	48	183	40	82	70	11	17.5	11	M8	1×8	5407	15508	99
ZOFI05010-T8	50	10	6.35	72	114	18	190	48	183	40	92	82	11	17.5	11	M8	1×8	6012	19622	115
ZOFI06310-T8	63	10	6.35	85	131	22	195	48	188	40	107	95	14	20	13	M8	1×8	6728	25367	135

Precision Ground Ball Screw TSFAX series

- Nominal Model Code of Ball Screw

SFA X 012 10 A1 - D G C5 - 410 (R200+L200) - P1 - B2
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nut combination SFAX (SFAL+SFAR)

(2) Threading Direction
X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
A=1.8 B=2.8 C=3.8 (A1=1.8×1)

(6) Flange Type
D: double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C5/C7

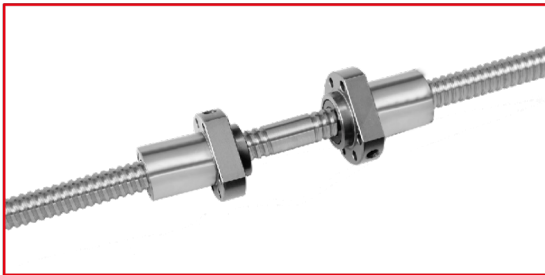
(9) Overall Length of Shaft (mm)

(10) Left and right handed thread length (mm)
R is the length of the right-handed screw
L is the length of the left-handed screw

(11) Axial Clearance and Preload Value
P0, P1

(12) Number of Nut
B2: two nuts

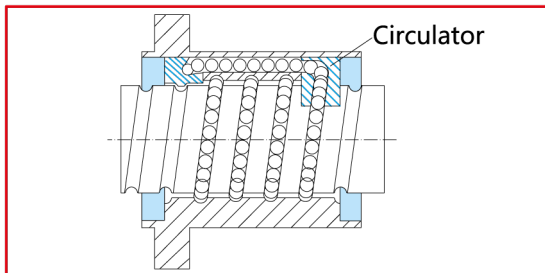
- Nut Form



- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Nut Structure



- Screw Parameters

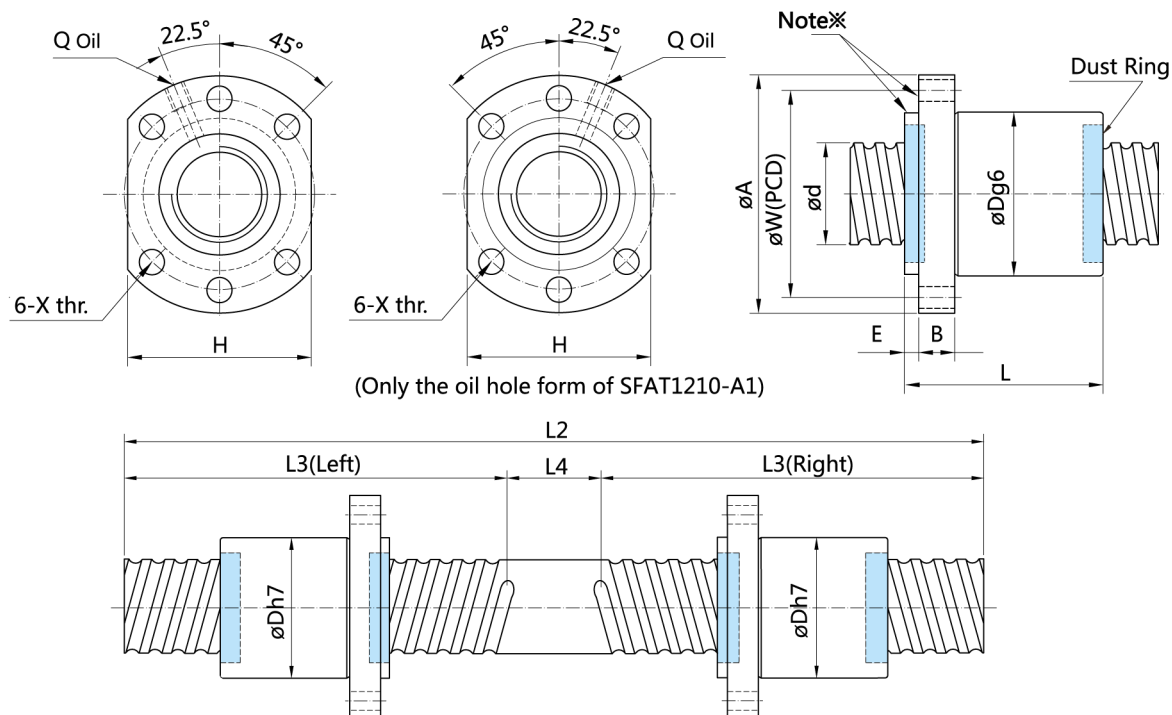
Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft					
					GC5			GC7		
					L2	L3	L4	L2	L3	L4
SSR01205	12	5	R+L	1	710	350	10	910	450	10
SSR01210	12	10	R+L	1	710	350	10	910	450	10
SSR01605	15	5	R+L	1	1210	600	10	1610	800	10
SSR01610	15	10	R+L	1	1210	600	10	1610	800	10
SCR02005	20	5	R+L	1	1610	800	10	2010	1000	10
SSR02010	20	10	R+L	1	1610	800	10	2010	1000	10

Note:

- (1) L4 has a minimum of 10mm, and you can order an extended value.
- (2) L2 / L3 / L4 can be produced according to the customer's drawings.
- (3) If you need more than the length in the table, please contact us.

Precision Ground Ball Screw TSFAX series



The left-handed and right-handed thread of the entire grinding-grade screw is processed in one operation, rather than a docking process.

Note ※ The boss is a non-working surface, please contact DTK MOTION if you have special use requirements.

Unit : mm

Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
■ TSFA01205-B1	12	5	2.5	24	40	5	10	30	32	30	4.5	M6	2.8×1	666	1321	19
■ TSFA01210-A1	12	10	2.5	24	40	5	10	32	32	30	4.5	M6	1.8×1	416	830	18
■ SFAT1210-A1	12	10	2.5	24	40	无	12	32	32	30	4.5	M6	1.8×1	416	830	18
■ TSFA01210-B1	12	10	2.5	24	40	5	10	42	32	30	4.5	M6	2.8×1	647	1292	19
■ TSFA01605-C1	15	5	2.778	28	48	5	10	31	38	40	5.5	M6	3.8×1	1118	2513	30
■ TSFA01610-B1	15	10	2.778	28	48	5	10	42	38	40	5.5	M6	2.8×1	845	1827	23
■ □ TSFA02005-C1	20	5	3.175	36	58	7	10	33	47	44	6.6	M6	3.8×1	1490	3687	37
■ TSFA02010-C1	20	10	3.175	36	58	7	10	52	47	44	6.6	M6	3.8×1	1522	3839	40

Note:

- (1) The marked ■ person can provide left-handed thread products.
- (2) The marked "□" is a common SCR standard screw, and other models need to be equipped with SSR silent screws.
- (3) The SFAT1210-A1 oil hole in the table is located on the right side of the nut flange

Precision Ground Ball Screw TSFA series (DIN 69051 B)

- Nominal Model Code of Ball Screw

TSFA R 016 05 C1 - D G C5 - 560 - P1 - B1 - S
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TSFA: Single nut

(2) Threading Direction
L: Left R: Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
A=1.8 B=2.8 C=3.8 (A1=1.8×1)

(6) Flange Type
D: double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5/C7

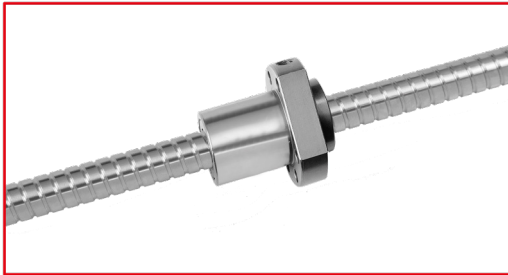
(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P0, P1, P2

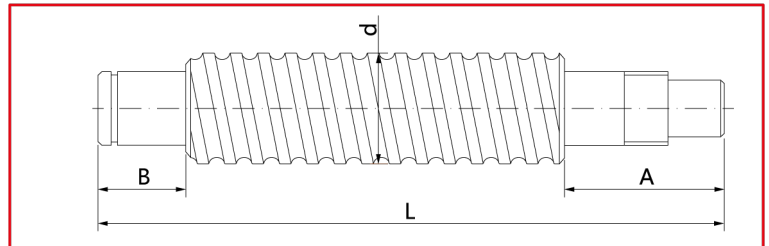
(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

(12) Optional accessory
S: Tubing Connector

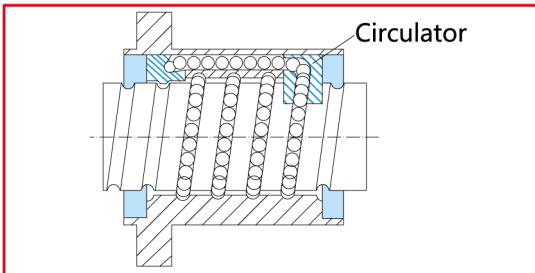
- Nut Form



- Screw Parameters



- Nut Structure



In this type, the running steel balls are drawn from the groove of the screw shaft into the through hole of the nut through the circulator at both ends, and then return to the groove through the through hole to perform infinite cycle motion.

- End plug circulation high-speed silent-type size
- Small size, light load and low noise
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

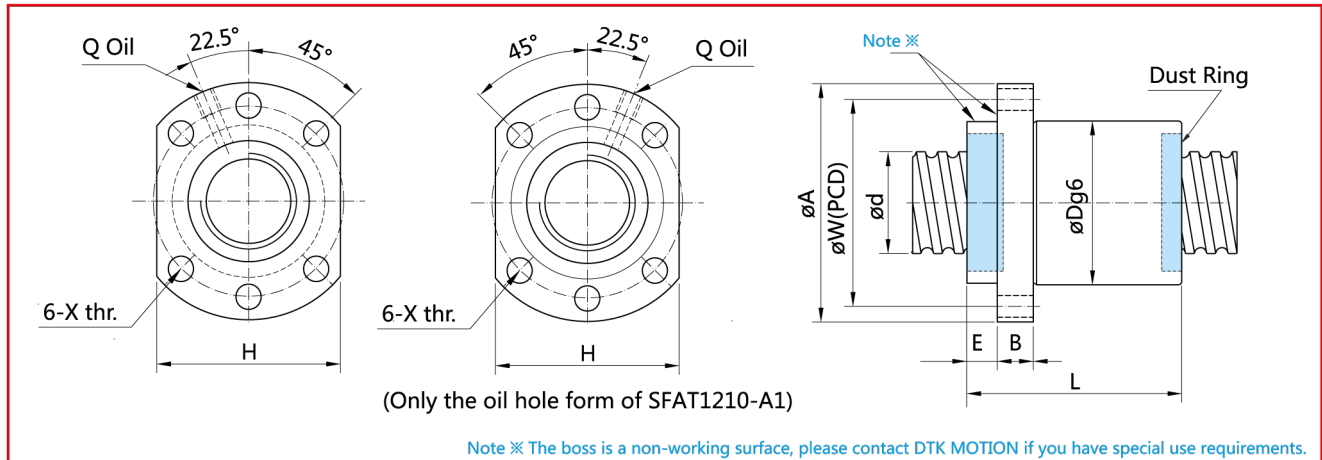
Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft GC5	Overall Length of Shaft GC7
SSR01205	12	5	R	1	720	960
SSR01210	12	10	R	1	720	960
SSR01605	15	5	R	1	960	1280
SSR01610	15	10	R	1	960	1280
SSR01616	15	16	R	1	960	1280
SSR01620	15	20	R	1	960	1280
SCR02005	20	5	R	1	1200	1680
SSR02010	20	10	R	1	1200	1680
SSR02020	20	20	R	1	1200	1680
SCR02505	25	5	R	1	1500	2000
SSR02510	25	10	R	1	1500	2000
SSR02525	25	25	R	1	1500	2000

Note: If the customer needs more than the length in the table, please contact us.

Precision Ground Ball Screw TSFA series (DIN 69051 B)

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
■ TSFA01205-B1	12	5	2.5	24	40	5	10	30	32	30	4.5	M6	2.8×1	666	1321	19
■ TSFA01210-A1		10	2.5	24	40	5	10	32	32	30	4.5	M6	1.8×1	416	830	18
■ SFAT1210-A1		10	2.5	24	40	无	12	32	32	30	4.5	M6	1.8×1	416	830	18
■ TSFA01210-B1		10	2.5	24	40	5	10	42	32	30	4.5	M6	2.8×1	647	1292	19
■ TSFA01605-C1	15	5	2.778	28	48	5	10	31	38	40	5.5	M6	3.8×1	1118	2513	30
■ TSFA01610-B1		10	2.778	28	48	5	10	42	38	40	5.5	M6	2.8×1	845	1827	23
■ TSFA01616-A1		16	2.778	28	48	5	10	43	38	40	5.5	M6	1.8×1	558	1143	14
■ TSFA01616-B1		16	2.778	28	48	5	10	59	38	40	5.5	M6	2.8×1	814	1775	22
■ TSFA01620-A1		20	2.778	28	48	5	10	50	38	40	5.5	M6	1.8×1	560	1176	14
■ □ TSFA02005-C1	20	5	3.175	36	58	7	10	33	47	44	6.6	M6	3.8×1	1490	3687	37
■ TSFA02010-C1		10	3.175	36	58	7	10	52	47	44	6.6	M6	3.8×1	1522	3839	40
■ TSFA02020-A1		20	3.175	36	58	7	10	52	47	44	6.6	M6	1.8×1	770	1764	19
■ TSFA02020-B1		20	3.175	36	58	7	10	72	47	44	6.6	M6	2.8×1	1124	2740	29
■ TSFA02505-C1	25	5	3.175	40	62	7	10	33	51	48	6.6	M6	3.8×1	1656	4664	43
■ TSFA02510-C1		10	3.175	40	62	7	12	52	51	48	6.6	M6	3.8×1	1645	4640	45
■ TSFA02525-A1		25	3.175	40	62	7	12	60	51	48	6.6	M6	1.8×1	850	2206	22
■ TSFA02525-B1		25	3.175	40	62	7	12	85	51	48	6.6	M6	2.8×1	1239	3428	34

Note:

- (1) The marked ■ person can provide left-handed thread products.
- (2) The marked "□" is a common SCR standard screw, and other models need to be equipped with SSR silent screws.
- (3) The SFAT1210-A1 oil hole in the table is located on the right side of the nut flange

Precision Ground Ball Screw TSFS series (DIN 69051 B)

- Nominal Model Code of Ball Screw

TSFS R 020 05 C1 - D G C5 - 600 - P1 - B1 - S
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TSFS: Single nut

(2) Threading Direction
R: Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
A=1.8 B=2.8 C=3.8 (A1=1.8×1)

(6) Flange Type
D: double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5

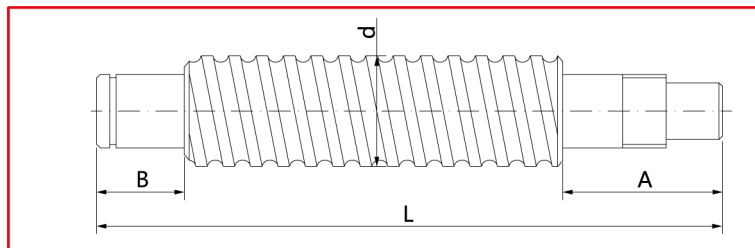
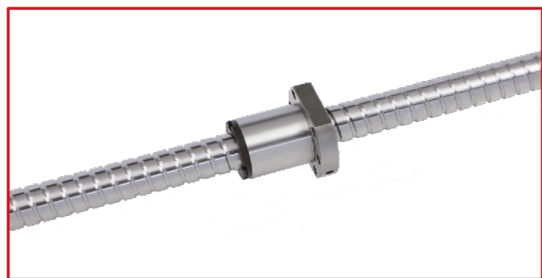
(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P1, P2, P3

(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

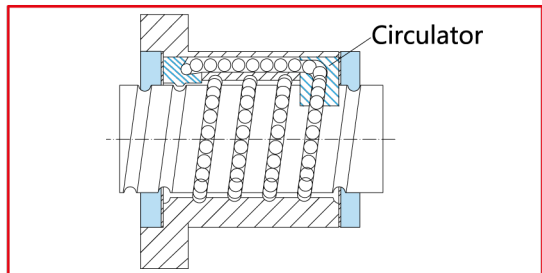
(12) Optional accessory
S: Tubing Connector

- Nut Form



Unit : mm

- Nut Structure



In this type, the running steel balls are drawn from the groove of the screw shaft into the through hole of the nut through the circulator at both ends, and then return to the groove through the through hole to perform infinite cycle motion.

- End plug circulation high-speed silent-type size
- Small size, light load and low noise
- Material and heat treatment method

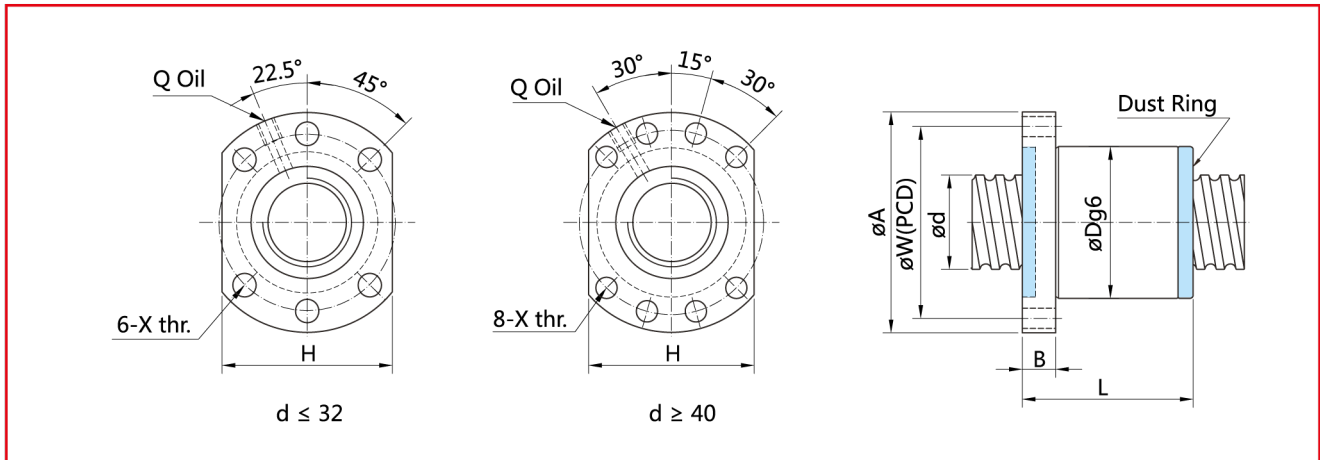
Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SSR01205	12	5	R	1	480	720
SSR01210	12	10	R	1	480	720
SSR01220	12	20	R	1	480	720
SSR01605	15	5	R	1	640	960
SSR01610	15	10	R	1	640	960
SSR01616	15	16	R	1	640	960
SSR01620	15	20	R	1	640	960
SSR01630	15	30	R	1	640	960
SCR02005	20	5	R	1	800	1200
SSR02010	20	10	R	1	800	1200
SSR02020	20	20	R	1	800	1200
SSR02040	20	40	R	1	800	1200
SCR02505	25	5	R	1	1000	1500
SSR02510	25	10	R	1	1000	1500
SSR02525	25	25	R	1	1000	1500
SSR02550	25	50	R	1	1000	1500
SCR03205	32	5	R	1	1280	1920
SSR03210	31	10	R	1	1280	1920
SSR03220	31	20	R	1	1280	1920
SSR03232	31	32	R	1	1280	1920
SCR04005	40	5	R	1	2400	3200
SSR04010	38	10	R	1	2400	3200
SSR04020	38	20	R	1	2400	3200
SSR04040	38	40	R	1	2400	3200
SCR05005	50	5	R	1	3000	4000
SSR05010	48	10	R	1	3000	4000
SSR05020	48	20	R	1	3000	4000
SSR05050	48	50	R	1	3000	4000

Note: If the customer needs more than the length in the table, please contact us.

Precision Ground Ball Screw TSFS series (DIN 69051 B)

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	I	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
TSFS01205-B1	12	5	2.5	24	40	10	30	32	30	4.5	M6	2.8×1	666	1321	19
TSFS01210-B1		10	2.5	24	40	10	45	32	30	4.5	M6	2.8×1	647	1292	19
TSFS01220-A1		20	2.5	24	40	10	54.5	32	30	4.5	M6	1.8×1	390	684	17
TSFS01605-C1	15	5	2.778	28	48	10	37	38	40	5.5	M6	3.8×1	1118	2513	30
TSFS01610-B1		10	2.778	28	48	10	47	38	40	5.5	M6	2.8×1	845	1827	23
TSFS01616-A1		16	2.778	28	48	10	45	38	40	5.5	M6	1.8×1	558	1143	14
TSFS01616-B1		16	2.778	28	48	10	61	38	40	5.5	M6	2.8×1	814	1775	22
TSFS01620-A1		20	2.778	28	48	10	57	38	40	5.5	M6	1.8×1	560	1176	14
TSFS01630-A1		30	2.778	28	48	10	73.5	38	40	5.5	M6	1.8×1	509	1006	10
TSFS02005-C1	20	5	3.175	36	58	10	37	47	44	6.6	M6	3.8×1	1490	3687	37
TSFS02010-C1		10	3.175	36	58	10	57	47	44	6.6	M6	3.8×1	1522	3839	40
TSFS02020-A1		20	3.175	36	58	10	54	47	44	6.6	M6	1.8×1	770	1764	19
TSFS02020-B1		20	3.175	36	58	10	74	47	44	6.6	M6	2.8×1	1124	2740	29
TSFSR2040-A1		40	3.175	36	58	10	90	47	44	6.6	M6	1.8×1	687	1293	24
TSFS02505-C1	25	5	3.175	40	62	10	37	51	48	6.6	M6	3.8×1	1656	4664	43
TSFS02510-C1		10	3.175	40	62	12	57	51	48	6.6	M6	3.8×1	1645	4640	45
TSFS02525-A1		25	3.175	40	62	12	65	51	48	6.6	M6	1.8×1	850	2206	22
TSFS02525-B1		25	3.175	40	62	12	90	51	48	6.6	M6	2.8×1	1239	3428	34
TSFS02550-A1		50	3.175	40	62	12	115.5	51	48	6.6	M6	1.8×1	1662	5430	30
TSFS03205-C1	32	5	3.175	50	80	12	37	65	62	9	M6	3.8×1	1847	6034	51
TSFS03210-C1	31	10	3.969	50	80	12	60	65	62	9	M6	3.8×1	2468	7263	55
TSFS03220-B1		20	3.969	50	80	12	80	65	62	9	M6	2.8×1	1915	5490	43
TSFS03232-A1		32	3.969	50	80	12	82	65	62	9	M6	1.8×1	1265	3434	27
TSFS03232-B1		32	3.969	50	80	12	114	65	62	9	M6	2.8×1	1846	5337	42
TSFS04005-C1	40	5	3.175	63	93	15	37	78	70	9	M8	3.8×1	2026	7597	60
TSFS04010-C1	38	10	6.350	63	93	14	62.5	78	70	9	M8	3.8×1	5043	13951	67
TSFS04020-B1		20	6.350	63	93	14	86	78	70	9	M8	2.8×1	3967	10723	54
TSFS04040-A1		40	6.350	63	93	15	104.5	78	70	9	M8	1.8×1	2593	6656	34
TSFS04040-B1		40	6.350	63	93	15	144.5	78	70	9	M8	2.8×1	3788	10349	52
TSFS05005-C1	50	5	3.175	75	110	15	37	93	85	11	M8	3.8×1	2215	9550	68
TSFS05010-C1	48	10	6.350	75	110	18	68	93	85	11	M8	3.8×1	5646	17860	79
TSFS05020-C1		20	6.350	75	110	18	108	93	85	11	M8	3.8×1	5757	18493	87
TSFS05050-A1		50	6.350	75	110	18	125	93	85	11	M8	1.8×1	2954	8757	42
TSFS05050-B1		50	6.350	75	110	18	175	93	85	11	M8	2.8×1	4316	13618	65

Note: Those marked "□" are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

Precision Ground Ball Screw TDFS series (DIN 69051 B)

- Nominal Model Code of Ball Screw

TDFS R 032 10 C1 - D G C5 - 1000 - P1 - B1 - S
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TDFS: Double nut

(2) Threading Direction
R: Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
B=2.8 C=3.8 (B1=2.8×1)

(6) Flange Type
D: double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5

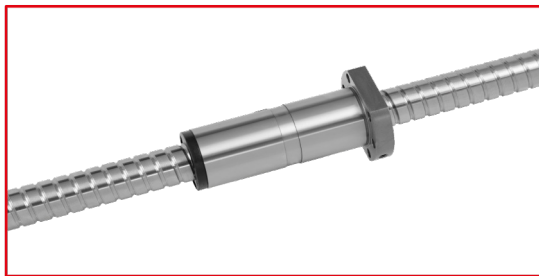
(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P1, P2, P3

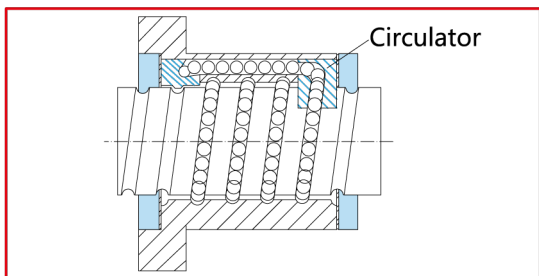
(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

(12) Optional accessory
S: Tubing Connector

- Nut Form



- Nut Structure

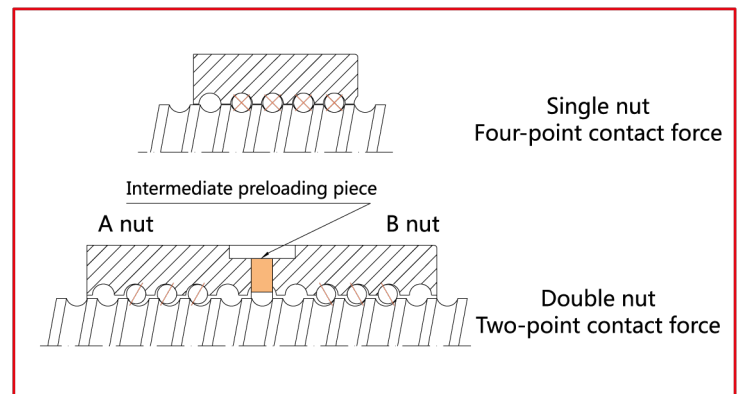


Using outer circulation, the special design of circulator allows the balls to roll along the thread direction.

- End plug circulation high-speed silent-type size
- Small size, light load and low noise
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters

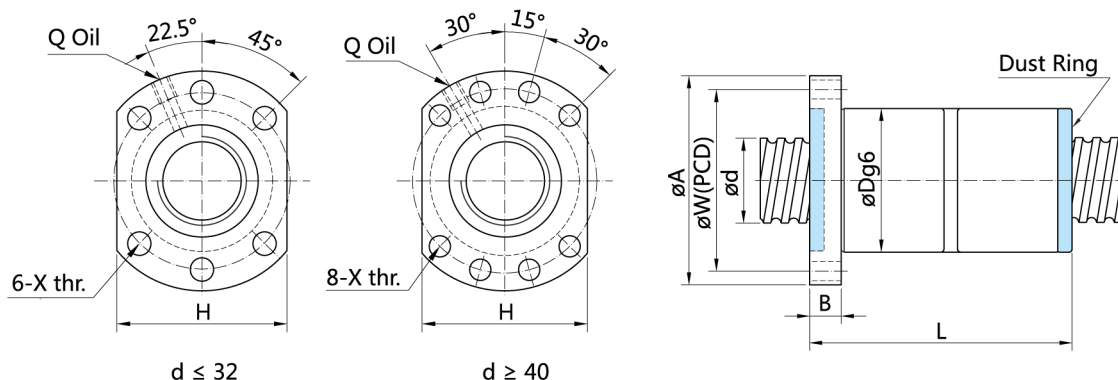


By adjusting the thickness of the intermediate preloading piece, the A and B nuts move axially, and the balls therein contact the nut and the screw at a certain angle and generate a preload, so as to eliminate the axial clearance and pretension.

This method can be used to eliminate the gap between the screw and the nut by adjusting the thickness of the intermediate washer when the screw is worn after a long time use.

Precision Ground Ball Screw TDFS series (DIN 69051 B)

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		κ kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
TDFS01605-C1	15	5	2.778	28	48	10	72	38	40	5.5	M6	3.8×1	1118	2513	41
TDFS01610-B1		10	2.778	28	48	10	92	38	40	5.5	M6	2.8×1	845	1827	31
<input type="checkbox"/> TDFS02005-C1	20	5	3.175	36	58	10	72	47	44	6.6	M6	3.8×1	1490	3687	50
TDFS02010-C1		10	3.175	36	58	10	112	47	44	6.6	M6	3.8×1	1522	3839	53
<input type="checkbox"/> TDFS02505-C1	25	5	3.175	40	62	10	72	51	48	6.6	M6	3.8×1	1656	4664	59
TDFS02510-C1		10	3.175	40	62	12	112	51	48	6.6	M6	3.8×1	1645	4640	61
<input type="checkbox"/> TDFS03205-C1	32	5	3.175	50	80	12	72	65	62	9	M6	3.8×1	1847	6034	71
TDFS03210-C1		10	3.969	50	80	12	115	65	62	9	M6	3.8×1	2468	7263	75
TDFS03220-B1		20	3.969	50	80	12	160	65	62	9	M6	2.8×1	1915	5490	58
<input type="checkbox"/> TDFS04005-C1	40	5	3.175	63	93	15	72	78	70	9	M8	3.8×1	2026	7597	83
TDFS04010-C1		10	6.350	63	93	14	122.5	78	70	9	M8	3.8×1	5043	13951	91
TDFS04020-B1		20	6.350	63	93	14	166	78	70	9	M8	2.8×1	3967	10723	73
<input type="checkbox"/> TDFS05005-C1	50	5	3.175	75	110	15	72	93	85	11	M8	3.8×1	2215	9550	96
TDFS05010-C1		10	6.350	75	110	18	133	93	85	11	M8	3.8×1	5646	17860	109
TDFS05020-C1		20	6.350	75	110	18	207.5	93	85	11	M8	3.8×1	5757	18493	116

Note: Those marked "□" are common SCR standard screws, and other models need to be equipped with mute type SSR screws.

Precision Ground Ball Screw KSSR/XSHR series

- Nominal Model Code of Ball Screw

KSS R 012 10 A1 - K G C5 - 500 - P1
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

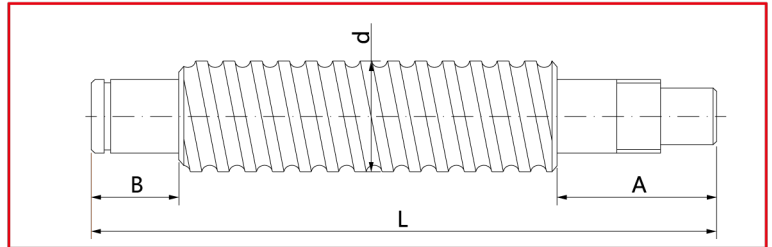
- (1) Nominal Model KSS/XSH: Single nut
- (2) Threading Direction
R: Right
- (3) Nominal Diameter (mm)
- (4) Lead (mm)
- (5) Number of Turns (Turn Row)
A=1.8 B=2.8 C=3.8 (A1=1.8×1)
- (6) Flange Type
K: Four cutting

- (7) Product Code G: Ground
- (8) Accuracy Grade Ground: C5/C7
- (9) Overall Length of Shaft (mm)
- (10) Axial Clearance and Preload Value
P0, P1

- Nut Form

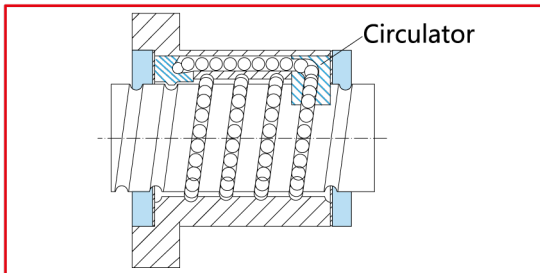


- Screw Parameters



Unit : mm

- Nut Structure



In this type, the running steel balls are drawn from the groove of the screw shaft into the through hole of the nut through the circulator at both ends, and then return to the groove through the through hole to perform infinite cycle motion.

- Standard end circulation structure, smallest volume series
- Dedicated to linear modules
- Material and heat treatment method

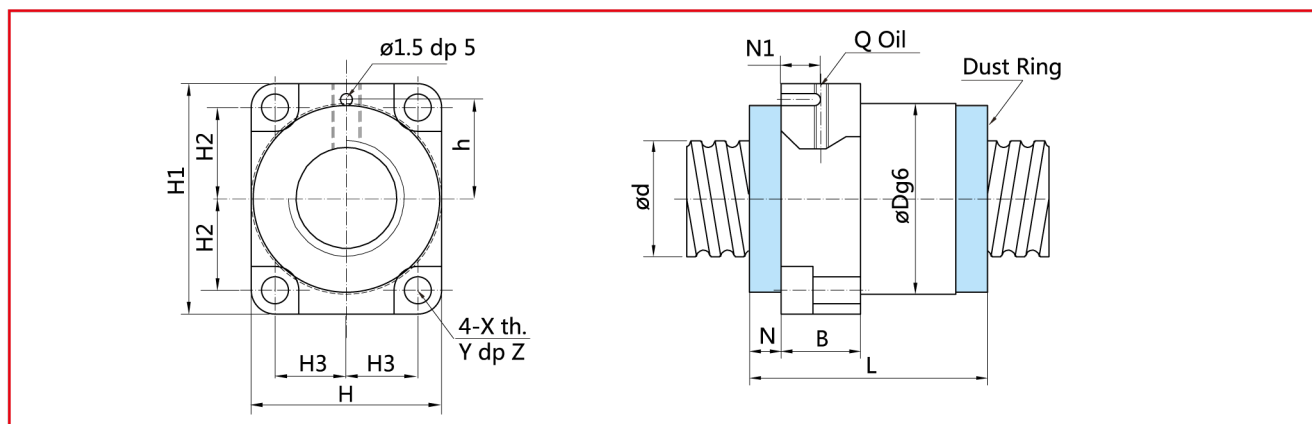
Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC5	GC7
SSR01205	12	5	R	1	720	960
SSR01210	12	10	R	1	720	960
SSR01605	15	5	R	1	960	1280
SSR01610	15	10	R	1	960	1280
SSR01616	15	16	R	1	960	1280
SSR01620	15	20	R	1	960	1280
SSR02010	20	10	R	1	1200	1600
SSR02020	20	20	R	1	1200	1600

Note: If the customer needs more than the length in the table, please contact us.

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

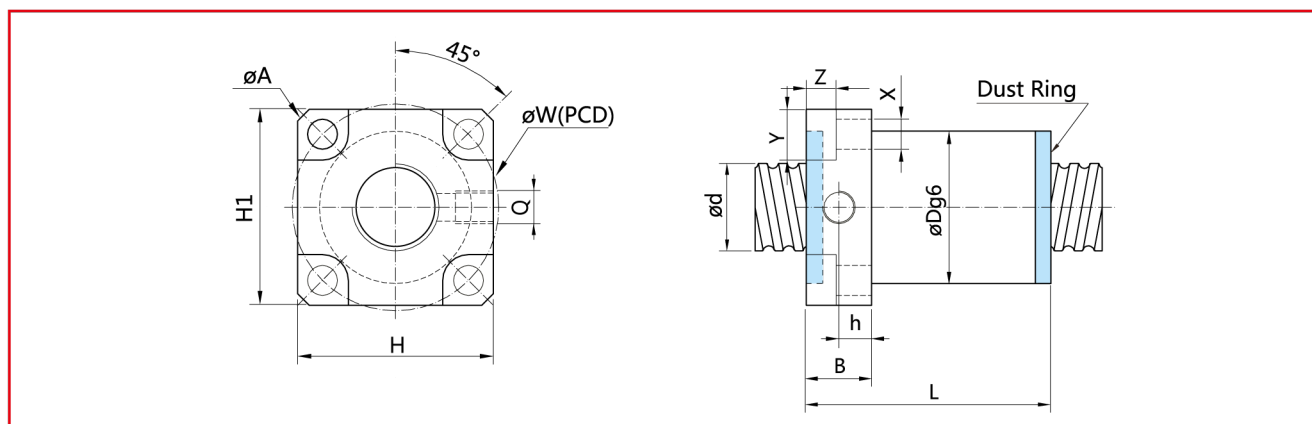
Precision Ground Ball Screw KSSR/XSHR series

- K-flange with four cut edges, smallest volume series
can change the external dimensions according to customer requirements



Unit : mm

Model No.	d	l	Da	Dimension																	Load Rating (kgf)		K kgf/μm
				D	B	N	L	H	H1	H2	H3	h	N1	X	Y	Z	Q	n	Ca	Coa			
KSSR01205-B1	12	5	2.5	24	10	3.8	29.6	24	29	11.5	9	12.5	4	3.4	6	4	M4	2.8×1	666	1321	19		
KSSR01210-B1	12	10	2.5	24	10	4	45	24	29	11.5	9	12.5	5	3.4	6	4	M4	2.8×1	647	1292	19		
KSSR01605-C1	15	5	2.778	28	10	3.8	36.6	28	38	15	10	17	5	4.5	8	4.5	M4	3.8×1	1118	2513	30		
KSSR01610-B1	15	10	2.778	28	11	4	47	28	38	15	10	17	5	4.5	8	4.5	M4	2.8×1	845	1827	23		
KSSR01620-A1	15	20	2.778	28	11	4	57	28	38	15	10	17	5	4.5	8	4.5	M4	1.8×1	560	1176	14		



Unit : mm

Model No.	d	l	Da	Dimension														Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	H1	X	Y	Z	Q	h	n	Ca	Coa		
XSHR01210-B1	12	10	2.5	24	41	5	45	32	36	36	4.5	/	/	/	/	2.8×1	647	1292	19	
XSHR01610-B1	15	10	2.778	28	48	12	47	38	36	36	5.5	9.5	5.5	M6	7	2.8×1	845	1827	23	
XSHR01616-A1	15	16	2.778	28	48	12	45	38	36	36	5.5	9.5	5.5	M6	7	1.8×1	558	1143	14	
XSHR01620-A1	15	20	2.778	28	48	12	57	38	36	36	5.5	9.5	5.5	M6	7	1.8×1	560	1176	14	
XSHR02010-C1	20	10	3.175	36	58	12	57	47	44	44	6.6	11	6.3	M6	7	3.8×1	1522	3839	40	
XSHR02020-A1	20	20	3.175	36	58	12	54	47	44	44	6.6	11	6.3	M6	7	1.8×1	770	1764	29	

Note:

- Except for the 1210 specification, the rest of the series include oil injection holes.
- The outer diameter, flange size, number of steel balls and nut length of this series of nuts can be produced according to customer requirements. The minimum number of special custom nuts above is 200.

Precision Ground Ball Screw TSCH series

- Nominal Model Code of Ball Screw

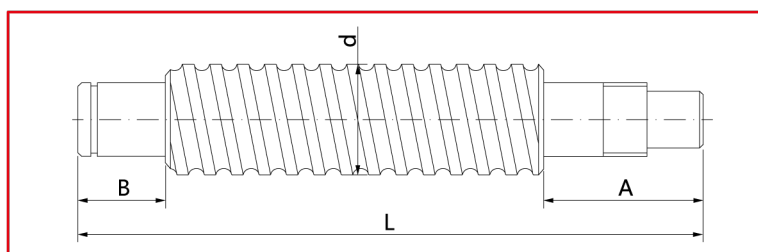
TSCH **R** **020** **10** **B1** - **G** **C5** - **800** - **P1** - **B1**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

- (1) Nominal Model TSCH: Single nut
- (2) Threading Direction
R: Right
- (3) Nominal Diameter (mm)
- (4) Lead (mm)
- (5) Number of Turns (Turn Row) (A1=1.8×1)
A=1.8 B=2.8 C=3.8 D=4.8 E=5.8
- (6) Product Code G: Ground
- (7) Accuracy Grade Ground: C3/C5/C7
- (8) Overall Length of Shaft (mm)
- (9) Axial Clearance and Preload Value
P1, P2, P3
- (10) Number of Nut
B1: one nut B2: two nuts B3: three nuts

- Nut Form

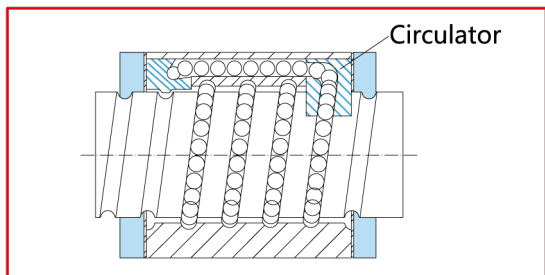


- Screw Parameters



Unit : mm

- Nut Structure



In this type, the running steel balls are drawn from the groove of the screw shaft into the through hole of the nut through the circulator at both ends, and then return to the groove through the through hole to perform infinite cycle motion.

- Dual-purpose nut without flange key-groove and mounting hole
- Dedicated to linear modules
- Material and heat treatment method

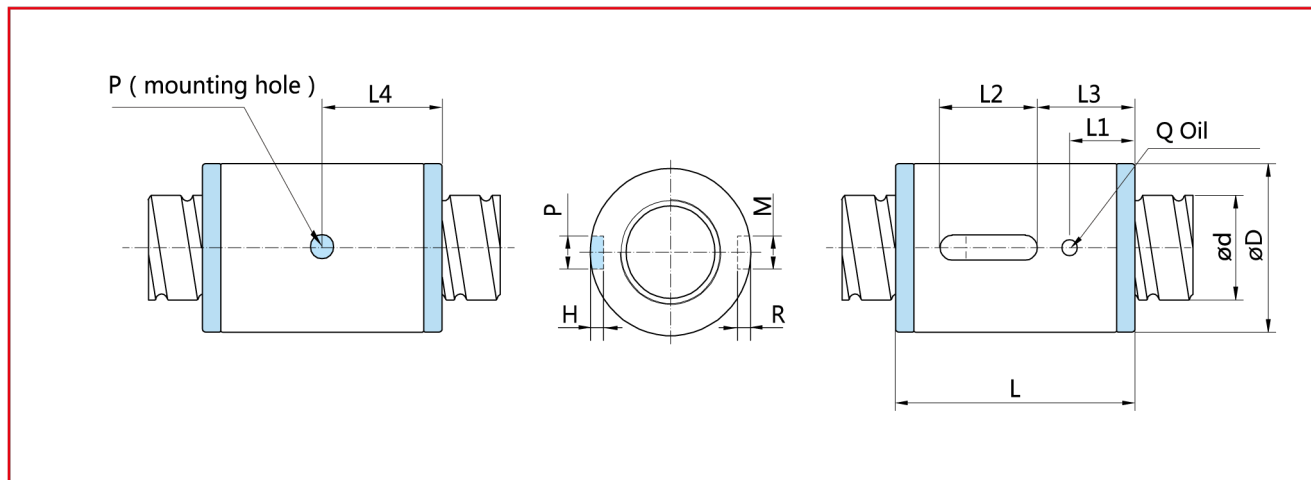
Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SSR01205	12	5	R	1	480	720
SSR01210	12	10	R	1	480	720
SSR01220	12	20	R	1	480	720
SSR01605	15	5	R	1	640	960
SSR01610	15	10	R	1	640	960
SSR01616	15	16	R	1	640	960
SSR01620	15	20	R	1	640	960
SSR01630	15	30	R	1	640	960
SCR02005	20	5	R	1	800	1200
SSR02010	20	10	R	1	800	1200
SSR02020	20	20	R	1	800	1200
SSR02040	20	40	R	1	800	1200
SSR02510	25	10	R	1	1000	1500
SSR02525	25	25	R	1	1000	1500
SSR02550	25	50	R	1	1000	1500
SSR03210	31	10	R	1	1280	1920
SSR03220	31	20	R	1	1280	1920
SSR03232	31	32	R	1	1280	1920

Note: If the customer needs more than the length in the table, please contact us.

Precision Ground Ball Screw TSCH series

- Dual-purpose nut for keyway and mounting hole



Unit : mm

Model No.	d	I	Da	Dimension												Load Rating (kgf)		K kgf/μm
				D	L	L1	L2	L3	M	R	Q	P	H	L4	n	Ca	Coa	
TSCH01205-B1	12	5	2.5	24	29.6	6.3	12	8.8	3	1.5	3	ø6	3	14.8	2.8×1	666	1321	19
XCH01210-A1		10	2.5	24	35	9	12	12	3	1.5	3	ø6	3	17.5	1.8×1	444	832	19
TSCH01210-B1		10	2.5	24	45	10	15	15	3	1.5	3	ø6	3	22.5	2.8×1	647	1292	19
TSCH01220-A1		20	2.5	24	54	12	20	17	3	1.5	3	ø6	3	27	1.8×1	390	684	17
TSCH01605-C1	15	5	2.778	28	36.6	7.8	15	11.8	5	3	3	ø8	3	18.3	3.8×1	1118	2513	30
TSCH01610-B1		10	2.778	28	47	10.5	20	15	5	3	3	ø8	3	23.5	2.8×1	845	1827	23
TSCH01616-A1		16	2.778	28	45	7	20	12.5	5	3	3	ø8	3	22.5	1.8×1	558	1143	18
TSCH01620-A1		20	2.778	28	57	11	20	18	5	3	3	ø8	3	28.5	1.8×1	560	1176	23
TSCH01630-A1		30	2.778	28	73	14	20	26.5	5	3	3	ø8	3	36.5	1.8×1	509	1006	10
TSCH02005-E1	20	5	3.175	36	46.6	7.8	20	13.3	5	3	3	ø8	3	23.3	5.8×1	2140	5625	60
TSCH02010-C1		10	3.175	36	57	8	20	17.5	5	3	3	ø8	3	28.5	3.8×1	1522	3839	40
TSCH02020-A1		20	3.175	36	54	8	20	17.5	5	3	3	ø8	3	27	1.8×1	770	1764	19
TSCH02040-A1		40	3.175	36	89	17	30	29.5	5	3	3	ø8	3	47	1.8×1	687	1293	24
TSCH02510-C1	25	10	3.175	40	57	11	20	18.5	5	3	3	ø8	3	28.5	3.8×1	1645	4640	45
TSCH02525-A1		25	3.175	40	65	13.75	20	22.5	5	3	3	ø8	3	32.5	1.8×1	850	2206	22
TSCH02550-A1		50	3.175	40	115	20	30	42.5	5	3	3	ø8	3	57.5	1.8×1	1662	5430	30
TSCH03210-C1	31	10	3.969	50	60	12.5	20	30	5	3	3	ø8	3	30	3.8×1	2468	7263	55
TSCH03220-B1		20	3.969	50	80	15	20	30	5	3	3	ø8	3	40	2.8×1	1915	5490	43
TSCH03232-A1		32	3.969	50	82	17	20	31	5	3	3	ø8	3	41	1.8×1	1265	3434	27

Note:

- (1) Those marked "□" are common SCR standard screws, and other models need to be equipped with mute type SSR screws.
- (2) The size of this series of nuts can be customized according to customer requirements, and the minimum quantity is 200.

Precision Ground Ball Screw TSFY series (Single Lead)

- Nominal Model Code of Ball Screw (Single Lead)

SFY **R** **025** **25** **B1** - **D** **G** **C7** - **600** - **P1** - **B1** - **S**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TSFY: Single nut (one teeth)

(2) Threading Direction
R: Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
A=1.8 B=2.8 (A2=1.8×2)

(6) Flange Type
D: Double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C5

(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P0, P1 *

(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

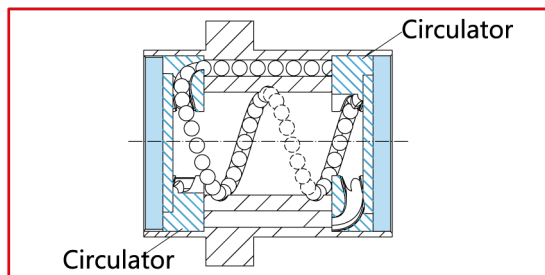
(12) Optional accessory
S: Tubing Connector

* When selecting a large lead screw for preload, in order to avoid high-speed temperature rise, it is recommended that the maximum selection not exceed level P1.

- Nut Form



- Nut Structure

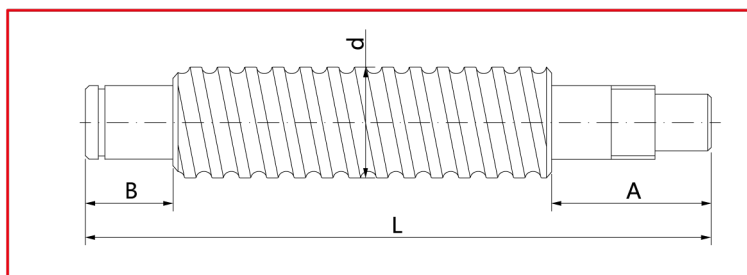


This type of circulation method is similar to the S-type. In addition to retaining the advantages of the S-type circulation design, the raceway nest is designed with two gripper. Reinforcement of the circulating reflux structure enhances high rigidity and high speed.

- End-cycle high-speed large lead
- Strengthen dust-proof structure
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters



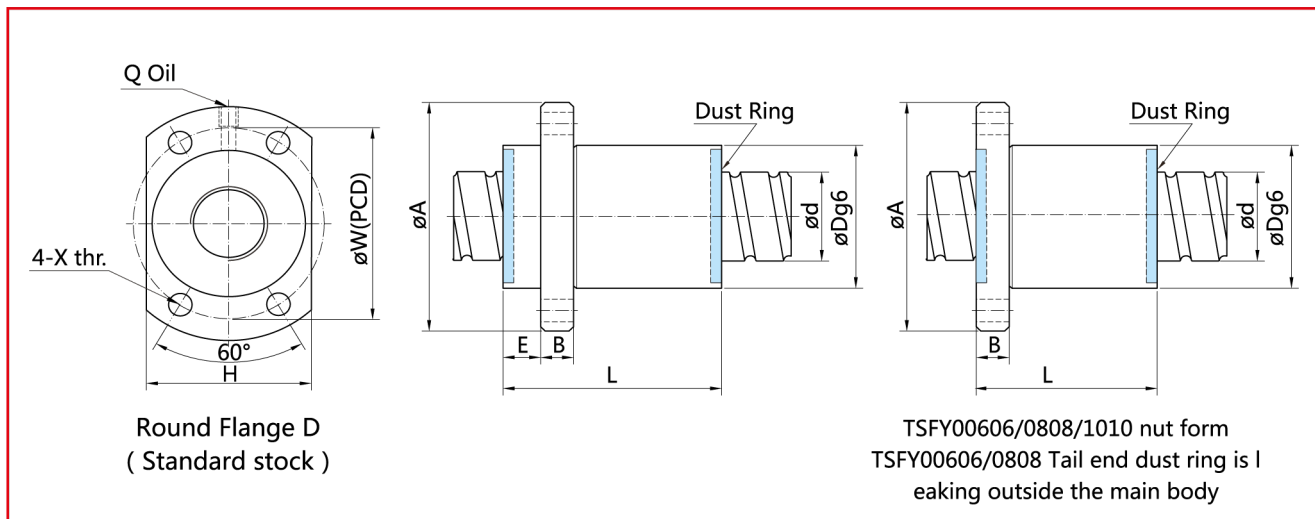
Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft GC5
SCR00606	06	6	R	1	360
SCR00808	08	8	R	1	480
SCR01010	10	10	R	1	600
SCR01616	16	16	R	2	960
SCR02020	20	20	R	2	1200
SCR02525	25	25	R	2	1500
SCR03232	32	32	R	2	1850
SCR04040	40	40	R	2	1850
SCR05050	50	50	R	2	1850

Note: SSR/SER type screw has one Grooves, if you need more than the length in the table, please contact us.

Precision Ground Ball Screw TSFY series (Single Lead)

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
TSFY00606-A1	6	6	1.2	14	27	/	4	21	21	16	3.4	-	1.8×1	108	162	10
TSFY00808-A1	8	8	2	18	31	/	4	26	25	20	3.4	-	1.8×1	237	360	14
TSFY01010-A1	10	10	2	26	46	/	10	32.5	36	28	4.5	M6	1.8×1	263	442	17
TSFY01616-A2	16	16	2.778	32	53	10	10	45	42	34	4.5	M6	1.8×2	1079	2557	31
TSFY01616-B2		16	2.778	32	53	10	10	61	42	34	4.5	M6	2.8×2	1574	3974	47
TSFY02020-A2	20	20	3.175	39	62	13	10	54	50	41	5.5	M6	1.8×2	1393	3521	37
TSFY02020-B2		20	3.175	39	62	13	10	74	50	41	5.5	M6	2.8×2	2035	5474	56
TSFY02525-A2	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8×2	2081	5501	45
TSFY02525-B2		25	3.969	47	74	15	12	89	60	49	6.6	M6	2.8×2	3039	8553	69
TSFY03232-A2	32	32	4.762	58	92	17	12	80	74	60	9	M6	1.8×2	3029	8698	58
TSFY03232-B2		32	4.762	58	92	17	12	112	74	60	9	M6	2.8×2	4425	13525	88
TSFY04040-A2	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8×2	4839	14070	70
TSFY04040-B2		40	6.35	73	114	19.5	15	139	93	75	11	M6	2.8×2	7073	21882	106
TSFY05050-A2	50	50	7.938	90	135	21.5	20	125	112	92	14	M6	1.8×2	7228	21982	86
TSFY05050-B2		50	7.938	90	135	21.5	20	175	112	92	14	M6	2.8×2	10566	34190	131

Note: The normal use environment is -20°C ~ + 80°C, please contact our sales staff if it exceeds this temperature range.

Precision Ground Ball Screw TSFY series (Double Lead)

- Nominal Model Code of Ball Screw (Double Lead)

TSFY R 020 40 T2 - D G C5 - 500 - P1 - B1 - S
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TSFY: Single nut

(2) Threading Direction
R: Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
A=1.8 T=0.8 (T2=0.8×2)

(6) Flange Type
D: Double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C5

(9) Overall Length of Shaft (mm)

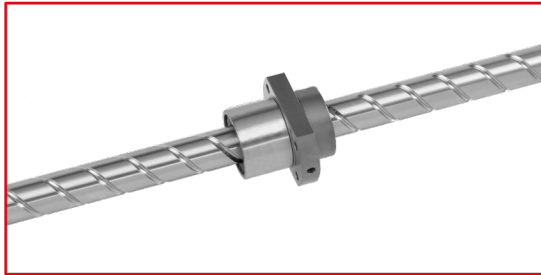
(10) Axial Clearance and Preload Value
P0, P1 *

(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

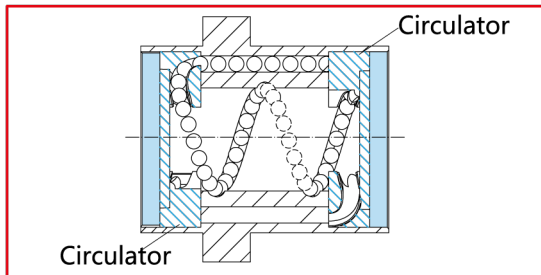
(12) Optional accessory
S: Tubing Connector

* When selecting a large lead screw for preload, in order to avoid high-speed temperature rise, it is recommended that the maximum selection not exceed level P1.

- Nut Form



- Nut Structure

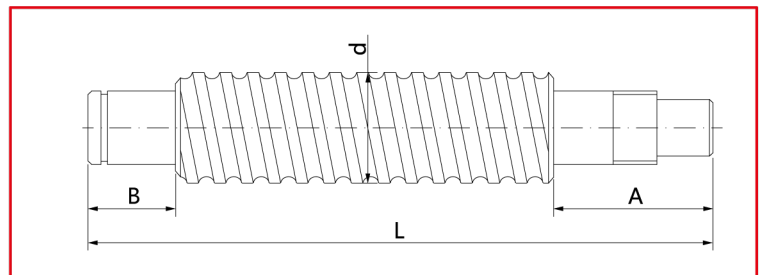


This type of circulation method is similar to the S-type. In addition to retaining the advantages of the S-type circulation design, the raceway nest is designed with two gripper. Reinforcement of the circulating reflux structure enhances high rigidity and high speed.

- End-cycle high-speed large lead
- Strengthen dust-proof structure
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters



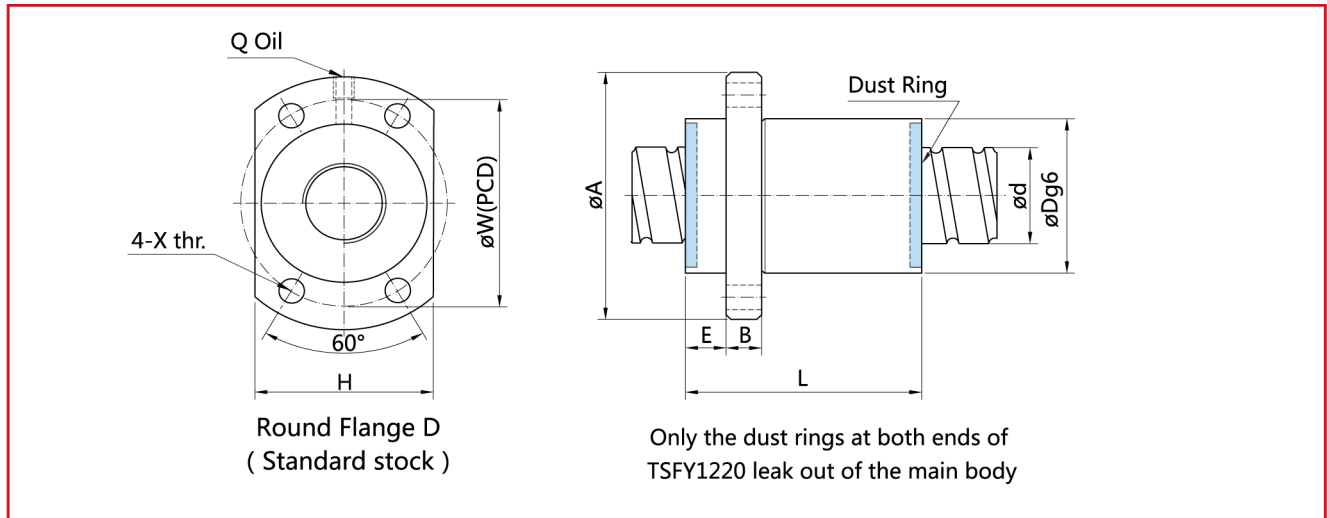
Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of ShaftGC5
SCR01220	12	20	R	2	720
SCR01632	16	32	R	2	960
SCR02040	20	40	R	2	1200
SCR02550	25	50	R	2	1500
SCR03264	32	64	R	2	1850
SCR04080	40	80	R	2	1850
SCR050100	50	100	R	2	1850

Note: If you need more than the length in the table, please contact us.

Precision Ground Ball Screw TSFY series (Double Lead)

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	I	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
TSFY01220-A2	12	20	2.5	24	40	4	10	54	32	24	4.5	M6	1.8×2	782	1723	22
TSFY01632-T2	16	32	2.778	32	53	10	10	42.5	42	34	4.5	M6	0.8×2	499	1122	11
TSFY01632-A2		32	2.778	32	53	10	10	74.5	42	34	4.5	M6	1.8×2	995	2517	23
TSFY02040-T2	20	40	3.175	39	62	13	10	50	50	41	5.5	M6	0.8×2	659	1603	15
TSFY02040-A2		40	3.175	39	62	13	10	90	50	41	5.5	M6	1.8×2	1317	3598	30
TSFY02550-T2	25	50	3.969	47	74	15	12	60	60	49	6.6	M6	0.8×2	983	2502	19
TSFY02550-A2		50	3.969	47	74	15	12	110	60	49	6.6	M6	1.8×2	1967	5621	32
TSFY03264-T2	32	64	4.762	58	92	17	12	77	74	60	9	M6	0.8×2	1382	3579	22
TSFY03264-A2		64	4.762	58	92	17	12	141	74	60	9	M6	1.8×2	2767	8449	46
TSFY04080-T2	40	80	6.35	73	114	19.5	15	90	93	75	11	M6	0.8×2	2281	6395	29
TSFY04080-A2		80	6.35	73	114	19.5	15	170	93	75	11	M6	1.8×2	4574	14378	50
TSFY050100-T2	50	100	7.938	90	135	21.5	20	111	112	92	14	M6	0.8×2	3406	9988	35
TSFY050100-A2		100	7.938	90	135	21.5	20	211	112	92	14	M6	1.8×2	6832	22463	72

Note:

- (1) This series has no double nuts.
- (2) The normal use environment is -20°C ~ + 80°C, please contact our sales staff if it exceeds this temperature range.

Precision Ground Ball Screw TSKF series

- Nominal Model Code of Ball Screw

TSFK **R** **010** **02** **T3** **- D** **G** **C5** **- 200** **- P1** **- B1**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

(1) Nominal Model TSKF: Single nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T3=1×3)

(6) Flange Type
D: Double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C3/C5/C7

(9) Overall Length of Shaft (mm)

(10) Axial Clearance and Preload Value
P0, P1 *

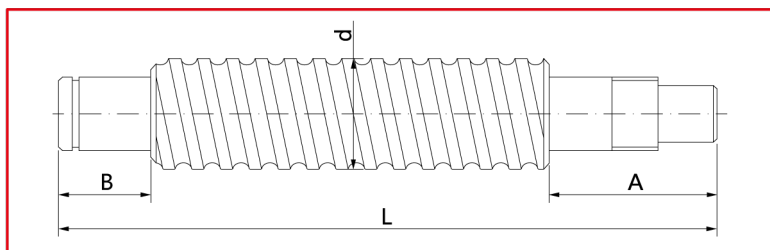
(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

* When the preload of the miniature lead screw is selected, because the load and vibration are not large, it is recommended that the maximum selection not exceed level P1.

- Nut Form

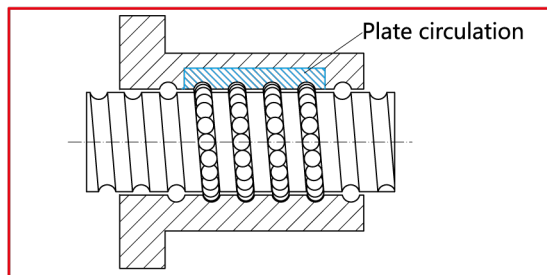


- Screw Parameters



Unit : mm

- Nut Structure



This type of circulator is a plug-in structure, and its circulation principle is the same as that of the SFI type, but when different circulation beads are returned, the steel ball return positions are located on the key grooves of the inner wall of the nut at the same angle.

- Miniature inner circulation
- Compact structure, suitable for micro equipment
- Material and heat treatment method

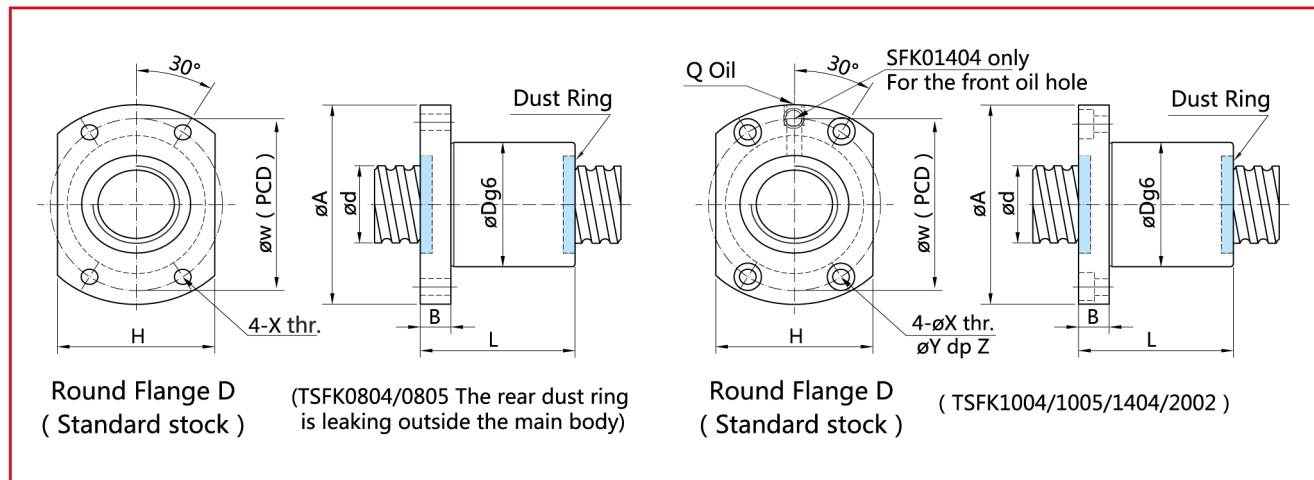
Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SCR00401	4	1	R	1	130	160
SCR00601	6	1	R	1	180	240
SCR00602	6	2	R	1	180	240
SCR00801	8	1	R/L	1	320	480
SCR00802	8	2	R/L	1	320	480
SCR00802.5	8	2.5	R	1	320	480
SCR00804	8	4	R	1	320	480
SCR00805	8	5	R	1	320	480
SCR01002	10	2	R/L	1	400	600
SCR01004	10	4	R/L	1	400	600
SCR01005	10	5	R	1	400	600
SCR01202	12	2	R/L	1	480	720
SCR01204	12	4	R/L	1	480	720
SCR01205	12	5	R	1	480	720
SCR01402	14	2	R/L	1	560	840
SCR01404	14	4	R	1	560	840
SCR01602	16	2	R/L	1	640	960
SCR02002	20	2	R	1	800	1200

Note: If you need more than the length in the table, please contact us.

Precision Ground Ball Screw TSKF series

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
TSFK00401-T2	4	1	0.8	10	20	3	12	15	14	2.9	-	-	-	1×2	69	102	5
TSFK00601-T3	6	1	0.8	12	24	3.5	15	18	16	3.4	-	-	-	1×3	116	229	9
TSFK00602-T3		2	1.2	12	24	4	17	18	16	3.4	-	-	-	1×3	149	243	9
TSFK00801-T4	8	1	0.8	14	27	4	16	21	18	3.4	-	-	-	1×4	166	408	14
TSFK00802-T3		2	1.2	14	27	4	16	21	18	3.4	-	-	-	1×3	227	463	13
TSFK00802.5-T3		2.5	1.2	16	29	4	26	23	20	3.4	-	-	-	1×3	226	462	13
TSFK00804-B1		4	2	18	31	4	23.5	25	20	3.4	-	-	-	2.8×1	345	541	14
TSFK00805-B1		5	2	18	31	4	27	25	20	3.4	-	-	-	2.8×1	346	544	14
TSFK01002-T3	10	2	1.2	18	35	5	28	27	22	4.5	-	-	-	1×3	248	574	15
TSFK01004-T3		4	2	26	46	10	34	36	28	4.5	8	4.5	M6	1×3	473	910	17
TSFKA01004-T3		4	2	26	46	5	34	36	28	4.5	-	-	-	1×3	473	910	17
TSFK01005-B1		5	2	26	46	10	27.5	36	28	4.5	8	4.5	M6	2.8×1	378	664	17
TSFK01202-T4	12	2	1.2	20	37	5	28	29	24	4.5	-	-	-	1×4	339	911	22
TSFK01204-T3		4	2.5	24	40	6	33	32	25	3.5	-	-	-	1×3	709	1276	26
TSFK01205-T3		5	2.5	22	37	8	39	29	24	4.5	-	-	-	1×3	707	1273	19
TSFK01402-T4	14	2	1.2	21	40	6	23	31	26	5.5	-	-	-	1×4	359	1058	24
TSFK01404-T4		4	2.5	26	46	10	45	36	28	4.5	8	4.5	M6	1×4	866	1935	30
TSFK01602-T4	16	2	1.2	25	43	10	40	35	29	5.5	-	-	M6	1×4	379	1206	26
TSFK02002-T6	20	2	1.2	50	80	15	55	65	68	6.5	10.5	6	M6	1×6	587	2290	48

Note:

- The length "L" in the above table is the length of the nut with ZZ seal, except TSKF0401 does not contain a seal.
- Note ■ Markers can provide left-hand thread products.
- The size of this series of nuts can be customized according to customer requirements. The minimum quantity is 200.
- TSFK1004/1005/1404/1602/2002 in the table is designed with oil holes, TSKF1004/1005/1404/2002 flange mounting holes are countersunk holes. The remaining models do not include oil holes and countersunk holes. If necessary, please contact us.
- The TSKF0804/0805/1005 in the table is the end plug circulation structure, and the rest of the models are the plug-in circulation structure.

Precision Ground Ball Screw TBSH series

- Nominal Model Code of Ball Screw

TBSH **R** **010** **02** **C1** - **G** **C5** - **400** - **P1** - **B1**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Nominal Model TBSH: Single nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T3=1×3) B1=2,5×1 C1=3,5×1

(6) Product Code G: Ground

(7) Accuracy Grade Ground: C3/C5/C7

(8) Overall Length of Shaft (mm)

(9) Axial Clearance and Preload Value
P0, P1, P2*

(10) Number of Nut
B1: one nut B2: two nuts B3: three nuts

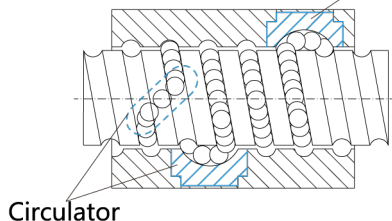
* When the preload of the miniature lead screw is selected, because the load and vibration are not large, it is recommended that the maximum selection not exceed level P1.

- Nut Form



- Nut Structure

♦ Inner circulation structure Circulator

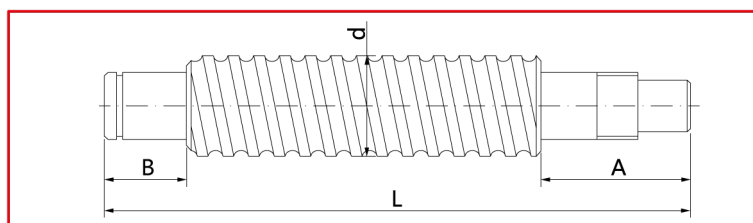


This type of circulator is a plug-in structure, and its circulation principle is the same as that of the SFI type, but when different circulation beads are returned, the steel ball return positions are located on the key grooves of the inner wall of the nut at the same angle.

- Threaded connections without flanges
- There are two types of structure: outer circulation and inner circulation
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters



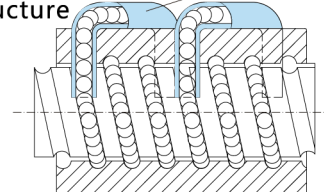
Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SCR00802.5	8	2.5	R	1	320	480
SCR01002	10	2	R	1	400	600
SCR01004	10	4	R	1	400	600
■ SCR01204	12	4	R/L	1	480	720
SSR01205	12	5	R	1	480	720
SCR01404	14	4	R	1	560	840
SCR01604	16	4	R	1	640	960
■ SCR01605	16	5	R/L	1	640	960
■ SCR01610	16	10	R/L	1	640	960
■ SCR02005	20	5	R/L	1	800	1200
■ SCR02505	25	5	R/L	1	1000	1500
■ SCR02510	25	10	R/L	1	1000	1500
■ SCR03205	32	5	R/L	1	1280	1920
■ SCR03210	32	10	R/L	1	1280	1920
■ SCR04010	40	10	R/L	1	2400	3200
■ SCR05010	50	10	R/L	1	3000	4000

Note:

- Those marked ■ can provide left-hand thread products.
- If you need more than the length in the table, please contact us.

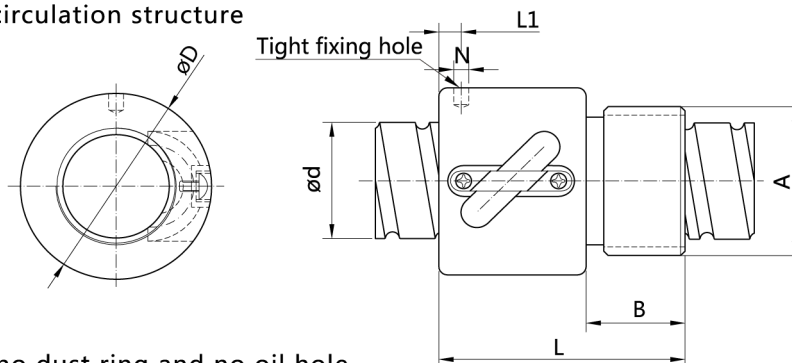
♦ Intubation Outer circulation structure Circulator



Precision Ground Ball Screw TBSH series

- Threaded connections without flanges, Conventional standard stock

Intubation Outer circulation structure

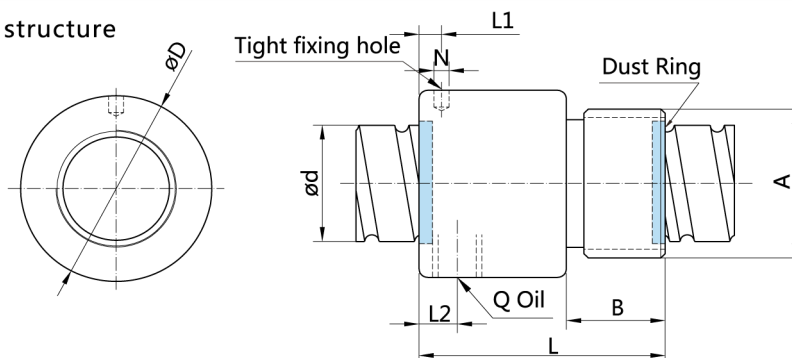


☆ This series has no dust ring and no oil hole.

Unit : mm

Model No.	d	l	Da	Dimension								Load Rating (kgf)		K kgf/ μ m
				D(g6)	A	B	L	L1	N \times dp	Q	n	Ca	Coa	
TBSH0082.5-B1	8	2.5	1.2	17.5	M15 \times 1P	7.5	23.5	10	ϕ 3 \times 2	/	2.5 \times 1	194	386	11
TBSH01002-C1	10	2	1.2	19.5	M17 \times 1P	7.5	22	3	ϕ 3.2 \times 2	/	3.5 \times 1	282	669	17
TBSH01004-B1		4	2	25	M20 \times 1P	10	34	3	ϕ 3 \times 3	/	2.5 \times 1	405	759	14
TBSH01205-C1	12	5	2.5	25.5	M20 \times 1P	10	39	16.25	ϕ 3 \times 3	/	3.5 \times 1	806	1654	24

Inner circulation structure



Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D(g6)	A	B	L	L1	N×dp	L2	Q	n	Ca	Coa	
TBSH01204-T3	12	4	2.5	25.5	M20×1P	10	34	13	ø3×3	-	-	1×3	709	1276	23
TBSH01404-T3	14	4	2.5	32.1	M25×1.5P	10	35	11	ø3×3	-	-	1×3	753	1614	26
TBSH01604-T3	16	4	2.381	29	M22×1.5P	8	32	5	ø3.2×3	-	-	1×3	765	1810	24
TBSH01605-T3		5	3.175	32.5	M26×1.5P	12	42	19.25	ø3×3	-	-	1×3	1083	2295	25
TBSH01610-T2		10	3.175	32	M26×1.5P	12	50	3	ø4×3	-	-	1×2	785	1607	14
TBSH02005-T3	20	5	3.175	38	M35×1.5P	15	45	20.3	ø3×4	-	-	1×3	1217	2912	30
□TBSH02505-T4	25	5	3.175	43	M40×1.5P	19	69	32.11	ø3×4	8	M6	1×4	1731	4911	37
□TBSH02510-T4		10	4.762	43	M40×1.5P	19	84	10	ø6×4	8	M6	1×4	2961	7302	41
□TBSH03205-T4	32	5	3.175	52	M48×1.5P	19	60	8	ø6×4	7	M6	1×4	1930	6351	54
□TBSHR3210-T4		10	6.35	52	M48×1.5P	19	93	8	ø6×4	12	M6	1×4	4813	12216	61
□TBSHR4010-T4	40	10	6.35	65	M60×1.5P	27	102	8	ø6×4	12	M8	1×4	5407	15508	73
□TBSH05010-T4	50	10	6.35	78	M72×1.5P	29	104	8	ø6×4	12	M8	1×4	6012	19622	94

Note:

- Those marked ■ can provide left-hand thread products
- Except for the specifications marked with □, other nut standard products below 2505 are delivered without dust ring.

Precision Ground Ball Screw TSCI series

- Nominal Model Code of Ball Screw

TSCI **R** **025** **10** **T4** - **G** **C5** - **600** - **P1** - **B1**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Nominal Model TSCI: Single nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row) (T4=1×4)
T=1

(6) Product Code G: Ground

(7) Accuracy Grade Ground: C3/C5

(8) Overall Length of Shaft (mm)

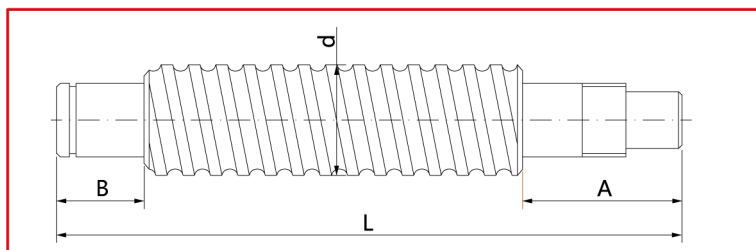
(9) Axial Clearance and Preload Value
P1, P2, P3

(10) Number of Nut
B1: one nut B2: two nuts B3: three nuts

- Nut Form

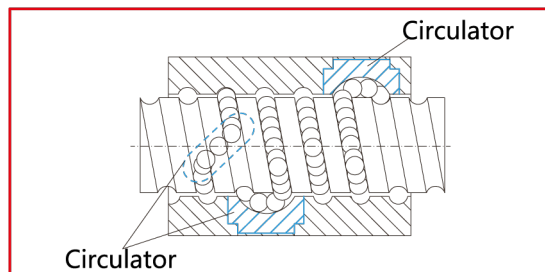


- Screw Parameters



Unit : mm

- Nut Structure



In this type, the steel balls circulate along cycle grooves of the inner circulator, return to the original position over the outer diameter of the screw shaft, and perform infinite cycle motion. Generally, one roll of steel balls is circulated once.

- Key-groove connections type without flanges
- Save installation space
- Material and heat treatment method

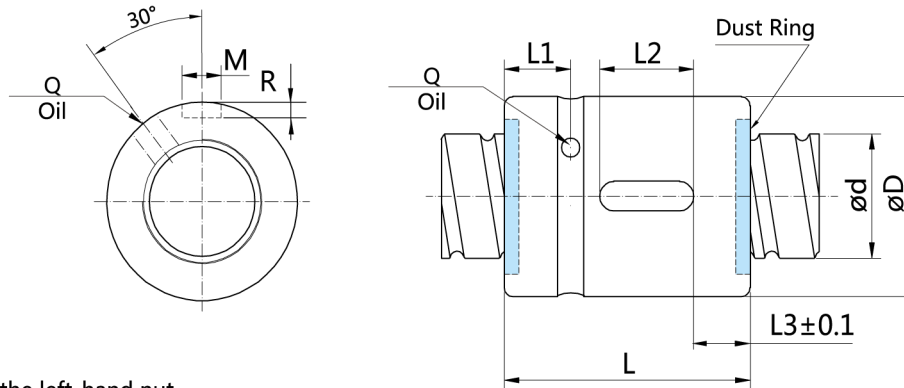
Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SCR01202	12	2	R/L	1	480	720
SCR01204	12	4	R/L	1	480	720
SCR01602	16	2	R	1	640	960
SCR01604	16	4	R	1	640	960
SCR01605	16	5	R/L	1	640	960
SCR02004	20	4	R	1	800	1200
SCR02005	20	5	R/L	1	800	1200
SCR02504	25	4	R	1	1000	1500
SCR02505	25	5	R/L	1	1000	1500
SCR02510	25	10	R/L	1	1000	1500
SCR03204	32	4	R	1	1280	1920
SCR03205	32	5	R/L	1	1280	1920
SCR03210	32	10	R/L	1	1280	1920
SCR04005	40	5	R/L	1	2400	3200
SCR04010	40	10	R/L	1	2400	3200
SCR05010	50	10	R/L	1	3000	4000
SCR06310	63	10	R	1	3780	5040
SCR08010	80	10	R	1	4800	6400

Note: If you need more than the length in the table, please contact us.

Precision Ground Ball Screw TSCI series

- Key-groove connections type without flanges, Conventional standard stock



When ordering the left-hand nut, the position of the oil hole is opposite to that shown in the figure.

Unit : mm

Model No.	d	I	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	L	L1	L2	L3	M	R	Q	n	Ca	Coa	
■ TSCI01202-T4	12	2	1.2	24	30	4	12	9	3	1.5	ø3	1×4	339	911	22
■ TSCI01204-T3		4	2.5	24	35	5	12	11.5	3	1.5	ø3	1×3	682	1418	26
TSCI01602-T4	16	2	1.2	28	40	5	20	10	5	2	ø3	1×4	379	1206	26
XCI01604-T4		4	2.381	28	45	7	20	12.5	5	2	ø3	1×4	979	2412	32
TSCI01604-T4		4	2.381	30	40	9	15	12.5	3	1.5	ø3	1×4	979	2412	32
TSCI01605-T4		5	3.175	30	45	9	20	12.5	5	3	ø3.5	1×4	1386	3058	33
TSCI02004-T4	20	4	2.381	34	40	9	15	12.5	3	1.5	ø3.5	1×4	1072	2993	37
TSCI02005-T4		5	3.175	34	45	9	20	12.5	5	3	ø3.5	1×4	1557	3881	39
TSCI02504-T4	25	4	2.381	40	40	9	15	12.5	3	1.5	ø3.5	1×4	1188	3802	43
TSCI02505-T4		5	3.175	40	45	9	20	12.5	5	3	ø3.5	1×4	1731	4911	45
TSCI02510-T4		10	4.762	46	85	13	30	27.5	5	3	ø3.5	1×4	2961	7302	51
TSCI03204-T4	32	4	2.381	46	40	9	15	12.5	3	1.5	ø3.5	1×4	1304	4846	49
TSCI03205-T4		5	3.175	46	45	9	20	12.5	5	3	ø3.5	1×4	1930	6351	52
TSCI03210-T4		10	6.35	54	85	13	30	27.5	5	3	ø3.5	1×4	4813	12216	62
TSCI04005-T4	40	5	3.175	56	45	9	20	12.5	5	3	ø3.5	1×4	2118	7996	59
TSCI04010-T4		10	6.35	62	85	13	30	27.5	5	3	ø3.5	1×4	5407	15508	72
TSCI05010-T4	50	10	6.35	72	85	13	30	27.5	5	3	ø3.5	1×4	6012	19622	83
TSCI06310-T4	63	10	6.35	85	85	13	30	27.5	6	3.5	ø3.5	1×4	6728	25367	95
TSCI08010-T4	80	10	6.35	105	85	13	30	27.5	8	4.5	ø3.5	1×4	7356	31963	109

Note:

- (1) Those marked ■ can provide left-hand thread products
- (2) The size of this series of nuts can be customized according to customer requirements, and the minimum quantity is 200.

Precision Ground Ball Screw SFB series (BTK)

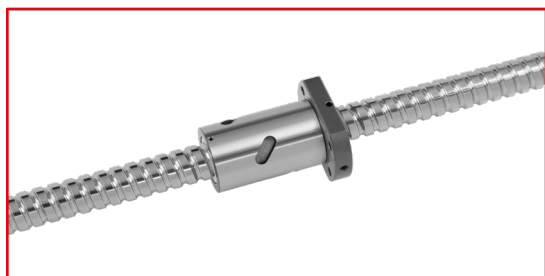
- Nominal Model Code of Ball Screw

SFB **R** **016** **05** **T3** - **D** **G** **C5** - **800** - **P1** - **B1** - **S**
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

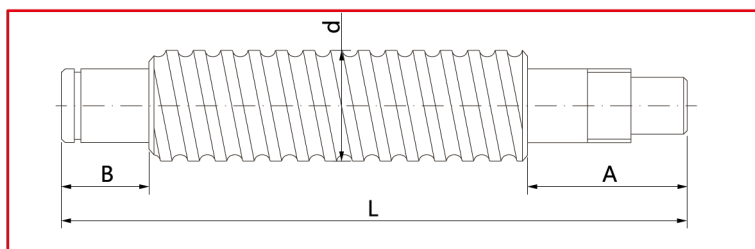
- (1) Nominal Model SBF: Single nut
- (2) Threading Direction
R: Right L: Left X: Left and Right
- (3) Nominal Diameter (mm)
- (4) Lead (mm)
- (5) Number of Turns (Turn Row)
T=1 (T3=1×3)
- (6) Flange Type
D: Double cutting

- (7) Product Code G: Ground
- (8) Accuracy Grade Ground: C3/C5/C7
- (9) Overall Length of Shaft (mm)
- (10) Axial Clearance and Preload Value
P1, P2, P3
- (11) Number of Nut
B1: one nut B2: two nuts B3: three nuts
- (12) Optional accessory
S: Tubing Connector

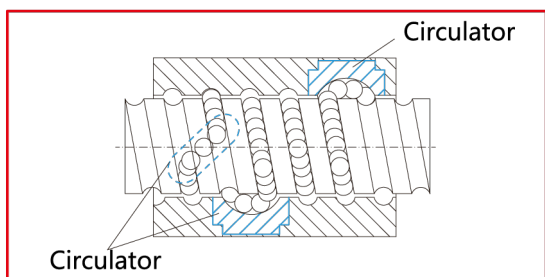
- Nut Form



- Screw Parameters



- Nut Structure



In this type, the steel balls circulate along cycle grooves of the inner circulator, return to the original position over the outer diameter of the screw shaft, and perform infinite cycle motion. Generally, one roll of steel balls is circulated once.

- Inner loop structure, nuts can be customized according to customer drawings.
- Evenly arranged steel balls with moderate load
- Material and heat treatment method

Unit : mm

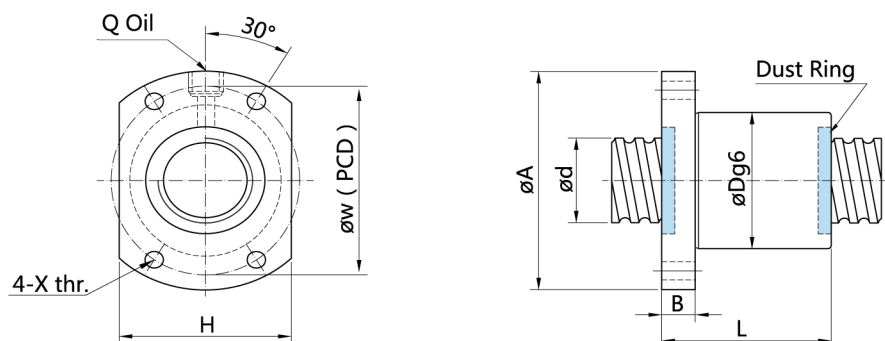
Model No.	d	l	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC3	GC5
SCR01204	12	4	R/L	1	480	720
SCR01605	16	5	R/L	1	640	960
SCR01610	16	10	R/L	1	640	960
SCR02005	20	5	R/L	1	800	1200
SCR02505	25	5	R/L	1	1000	1500
SCR02510	25	10	R/L	1	1000	1500
SCR03210	32	10	R/L	1	1280	1920

Note: If you need more than the length in the table, please contact us.

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Precision Ground Ball Screw SFB series (BTK)

- Special custom nuts,
can change the external dimensions according to customer requirements



Flange size can be produced
according to customer requirements

Unit : mm

Model No.	d	l	Da	Dimension									Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca	Coa	
■ SFB01204-T4	12	4	2.5	24	40	10	40	32	30	4.5	M6	1×4	907	1889	26
■ SFB01605-T3	16	5	3.175	34	54	10	43	44	40	4.5	M6	1×3	1035	2289	33
■ SFB01610-T3		10	3.175	34	54	10	57	44	40	4.5	M6	1×3	1109	2407	27
■ SFB02005-T3	20	5	3.175	40	60	10	43	50	46	4.5	M6	1×3	1163	2906	39
■ SFB02505-T3	25	5	3.175	43	67	10	44	55	50	5.5	M6	1×3	1293	3678	45
■ SFB02510-T4		10	4.762	60	96	15	85	78	72	9	M6	1×4	2961	7302	51
■ SFB03210-T4	32	10	6.35	67	103	15	90	85	78	9	M6	1×4	4813	12216	62

Note:

- Outer diameter of this series nut / flange size / number of steel ball turns / nut length
Can be produced according to customer requirements, the minimum quantity is 200.
- Marking ■ Markers can provide left-handed thread products.

Precision Ground Ball Screw BNT series

- Nominal Model Code of Ball Screw

BNT R 025 05 T3 - G C5 - 630 - P1 - B1
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Nominal Model BNT: Single nut

(2) Threading Direction
R: Right L: Left X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T4=1×4)

(7) Product Code G: Ground (Default all-in-one)

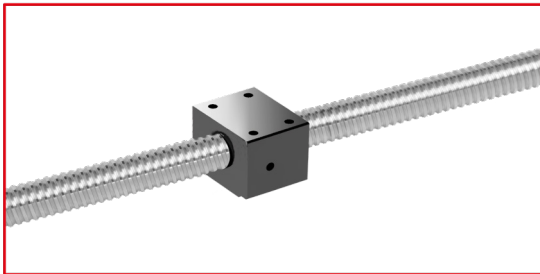
(8) Accuracy Grade Ground: C5/C7

(9) Overall Length of Shaft (mm)

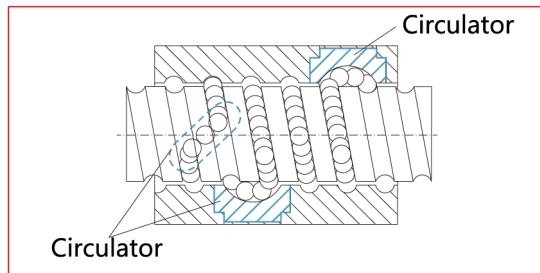
(10) Axial Clearance and Preload Value
P0, P1

(11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

- Nut Form



- Nut Structure



In this type, the steel balls circulate along cycle grooves of the inner circulator, return to the original position over the outer diameter of the screw shaft, and perform infinite cycle motion. Generally, one roll of steel balls is circulated once.

- Standard size of inner circulation for quick and easy assembly
- Square nut structure without flanges
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters

Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC5	GC7
SCR01605	16	5	R+L	1	960	1280
SCR02005	20	5	R+L	1	1200	1600
SCR02505	25	5	R+L	1	1500	2000
SCR02510	25	10	R+L	1	1500	2000

Note: If you need more than the length in the table, please contact us.

- Compound mode

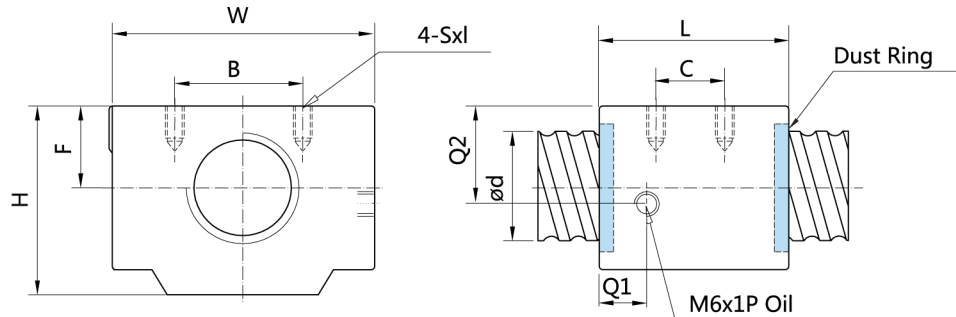
Commonly used left and right screw combinations areas follows:

	BNTX (BNTL+BNTR)
	SFCX (SFCL+SFCR) SFDX (SFDL+SFDR) SFCDX (SFCL+SFDR)
	BNTCX (BNTL+SFCR) BNTDX (BNTL+SFDR)

Note: Please confirm the direction of the nut before ordering.
Unless otherwise specified, the flanges are installed inward.

Precision Ground Ball Screw BNT series

- Nut integrated structure



The surface of the nut is blackened and rust-proof

Unit : mm

Model No.	d	I	Da	Dimension											Load Rating (kgf)		κ kgf/μm
				W	H	F	L	B	C	S	I	Q1	Q2	n	Ca	Coa	
BNTR01605-T3	16	5	3.175	42	32.5	16	41	32	22	M5	8	14	18	1×3	1035	2289	33
■ BNTL01605-T3	16	5	3.175	42	32.5	16	41	32	22	M5	8	14	18	1×3	1035	2289	33
BNTR02005-T3	20	5	3.175	48	39	17	41	35	22	M6	10	14	20	1×3	1163	2906	39
■ BNTL02005-T3	20	5	3.175	48	39	17	41	35	22	M6	10	14	20	1×3	1163	2906	39
BNTR02505-T3	25	5	3.175	60	45	20	41	40	22	M8	10	14	25	1×3	1293	3678	45
■ BNTL02505-T3	25	5	3.175	60	45	20	41	40	22	M8	10	14	25	1×3	1293	3678	45
BNTR02510-T3	25	10	4.762	60	53	23	78	40	60	M8	10	20	23	1×3	2216	5472	51
■ BNTL02510-T3	25	10	4.762	60	53	23	78	40	60	M8	10	20	23	1×3	2216	5472	51

Note: Those marked ■ can provide left-hand thread products.

Precision Ground Ball Screw SFC

- Nominal Model Code of Ball Screw

SFC X 025 05 T4 - N G C5 - 630 (R300+L300) - P1 - B2
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

- (1) Nut combination SFCX (SFCL+SFCR)
SFDX (SFDL+SFDR)
BNTX (BNTL+BNTR)
SFCDX (SFCL+SFDR)
BNTCX (BNTL+SFCR)

- (2) Threading Direction
R: Right L: Left X: Left and Right

- (3) Nominal Diameter (mm)

- (4) Lead (mm)

- (5) Number of Turns (Turn Row)
T=1 (T4=1×4)

- (6) Flange Type
N: Not cutting

- (7) Product Code G: Ground

- (8) Accuracy Grade Ground: C5/C7

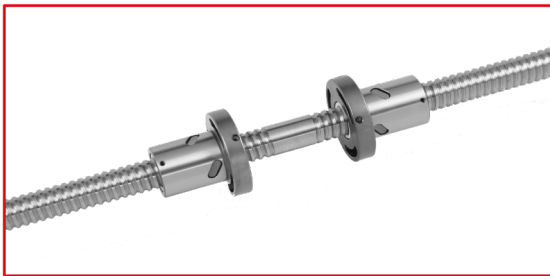
- (9) Overall Length of Shaft (mm)

- (10) Left and right handed thread length (mm)
R is the length of the right-handed screw
L is the length of the left-handed screw

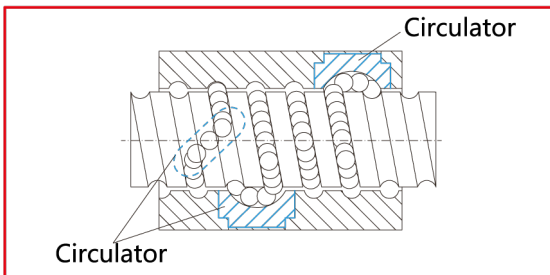
- (11) Axial Clearance and Preload Value
P0, P1

- (12) Number of Nut
B2: Two nuts

- Nut Form



- Nut Structure



- Left and right handed screw features In this type
1. The left-handed and right-handed thread of the entire grinding-grade screw is processed in one operation. Concentricity, accuracy, life and consistency of starting point of thread hole are high.
2. It realizes two driving effects by driving one screw .
3. It is suitable for miniature semiconductor automation equipment.
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters

Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft					
					GC5			GC7		
					L2	L3	L4	L2	L3	L4
SCX01204	12	4	R+L	1	710	350	10	910	450	10
SCX01605	16	5	R+L	1	1210	600	30	1610	800	30
SCX01610	16	10	R+L	1	1210	600	30	1610	800	30
SCX02005	20	5	R+L	1	1610	800	30	2010	1000	30
SCX02505	25	5	R+L	1	2010	1000	30	2510	1250	30
SCX03205	32	5	R+L	1	2410	1200	30	3210	1600	30

Note:

- L4 has a minimum of 10mm, and you can order an extended value.
- L2 / L3 / L4 can be produced according to the customer's drawings.
- If you need more than the length in the table, please contact us.

- Compound mode

Commonly used left and right screw combinations areas follows:

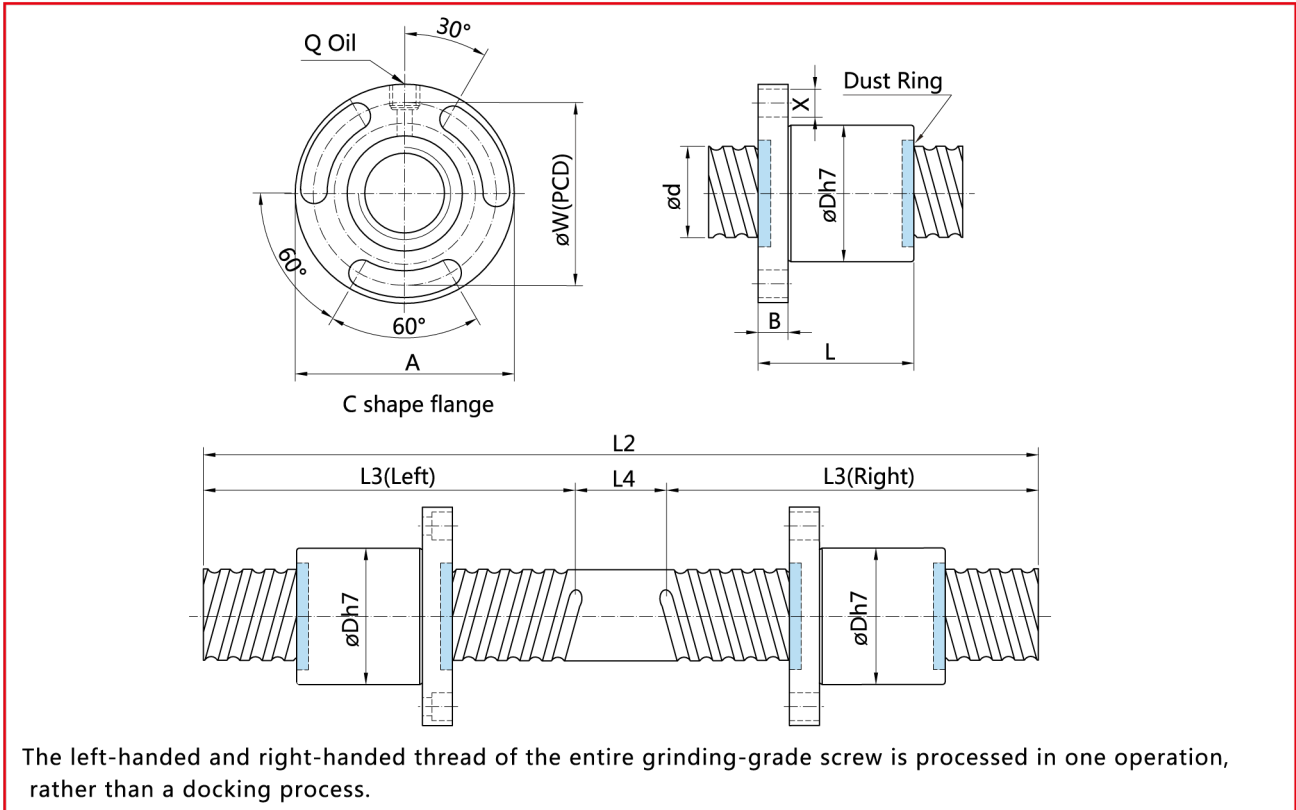
 L R	BNTX (BNTL+BNTR)
 L R	SFCX (SFCL+SFCR) SFDX (SFDL+SFDR) SFCDX (SFCL+SFDR)
 L R	BNTCX (BNTL+SFCR) BNTDX (BNTL+SFDR)

Note: Please confirm the direction of the nut before ordering.

Unless otherwise specified, the flanges are installed inward.

Precision Ground Ball Screw SFC

- Nut preload can be adjusted series



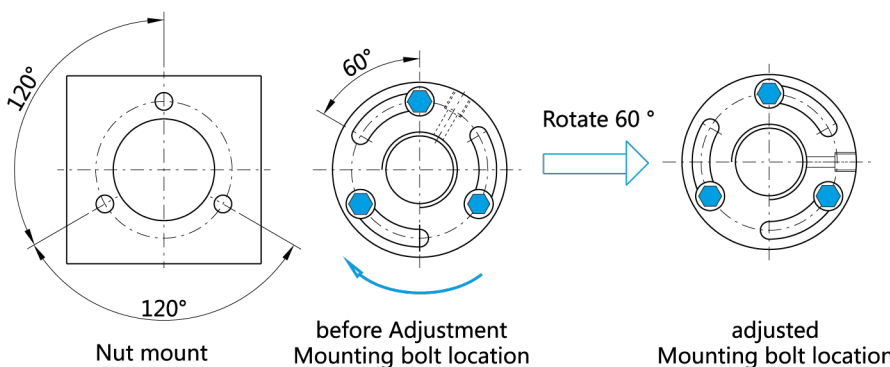
Unit : mm

Model No.	d	I	Da	Dimension								Load Rating (kgf)		κ kgf/μm
				D	A	B	L	W	X	Q	n	Ca	Coa	
■ SFC01204-T4	12	4	2.5	24	42	10	40	32	4.5	M6	1×4	907	1889	26
■ SFC01605-T4	16	5	3.175	30	49	10	50	39	4.5	M6	1×4	1386	3058	33
■ SFC01610-T3		10	3.175	30	49	10	57	39	4.5	M6	1×3	1109	2407	27
■ SFC02005-T4	20	5	3.175	34	57	11	51	45	5.5	M6	1×4	1557	3881	39
■ SFC02505-T4	25	5	3.175	40	63	11	51	51	5.5	M8	1×4	1731	4911	45
■ SFC02510-T4		10	4.762	46	72	12	85	58	6.5	M6	1×4	2961	7302	51
■ SFC03205-T4	32	5	3.175	46	72	12	52	58	6.5	M8	1×4	1930	6351	52
■ SFC03210-T4		10	6.35	54	88	15	90	70	9	M8	1×4	4813	12216	62

Note:

- (1) Those marked ■ can provide left-hand thread products.
- (2) This series can realize the micro-adjustment of the preload of the nut by adjusting the bolt angle of the mounting hole.

- Schematic diagram of bolt angle adjustment of nut mounting hole



C type flange nut adjustment instructions:

1. Can be used to fine-tune the starting position of the centering of the left and right rotation nuts.
2. When fixing nuts, it is recommended to use bolts and flat washers together.
3. Can be used between the nut flange fastening bolt and the nut seat. The installation angle is adjusted so that the preload of the nut can be adjusted slightly. ex.: when the lead is 5mm, the flange fastening bolt rotates at an angle of 60°, The nut can achieve a linear displacement of 0.83mm

Precision Ground Ball Screw SFD series (TSFI-D)

- Nominal Model Code of Ball Screw

SFD X 025 05 T4 - D G C5 - 630 (R300+L300) - P1 - B2
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

- (1) Nut combination SFCX (SFCL+SFCL) SFDX (SFDL+SFDR) BNTX (BNTL+BNTR) SFCDX (SFCL+SFDR) BNTDX (BNTL+SFDR)

- (2) Threading Direction R: Right L: Left X: Left and Right

- (3) Nominal Diameter (mm)

- (4) Lead (mm)

- (5) Number of Turns (Turn Row) T=1 (T4=1×4)

- (6) Flange Type D: Double cutting

- (7) Product Code G: Ground

- (8) Accuracy Grade Ground: C5/C7

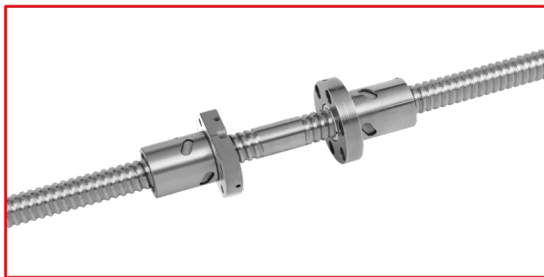
- (9) Overall Length of Shaft (mm)

- (10) Left and right handed thread length (mm) R is the length of the right-handed screw L is the length of the left-handed screw

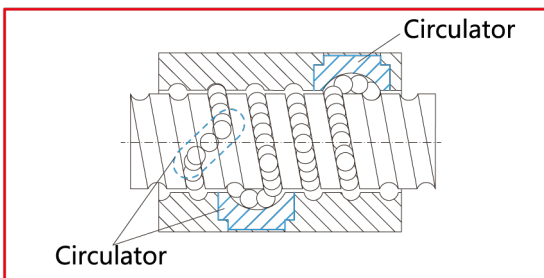
- (11) Axial Clearance and Preload Value P0, P1

- (12) Number of Nut B2: Two nuts

- Nut Form



- Nut Structure



- Left and right handed screw features In this type
- 1. The left-handed and right-handed thread of the entire grinding-grade screw is processed in one operation. Concentricity, accuracy, life and consistency of starting point of thread hole are high.
- 2. It realizes two driving effects by driving one screw .
- 3. It is suitable for miniature semiconductor automation equipment.
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters

Unit : mm

Model No.	d	I	Threading Direction	Number of Grooves	Overall Length of Shaft					
					GC5			GC7		
					L2	L3	L4	L2	L3	L4
SCX01204	12	4	R+L	1	710	350	10	910	450	10
SCX01605	16	5	R+L	1	1210	600	30	1610	800	30
SCX01610	16	10	R+L	1	1210	600	30	1610	800	30
SCX02005	20	5	R+L	1	1610	800	30	2010	1000	30
SCX02505	25	5	R+L	1	2010	1000	30	2510	1250	30
SCX02510	25	10	R+L	1	2010	1000	30	2510	1250	30
SCX03205	32	5	R+L	1	2410	1200	30	3210	1600	30
SCX03210	32	10	R+L	1	2410	1200	30	3210	1600	30
SCX04010	40	10	R+L	1	3210	1600	30	4010	2000	30
SCX05010	50	10	R+L	1	4010	2000	30	5010	2500	30

Note:

- 1)L4 has a minimum of 10mm, and you can order an extended value.
- 2) L2 / L3 / L4 can be produced according to the customer's drawings.
- 3) If you need more than the length in the table, please contact us.

- Compound mode

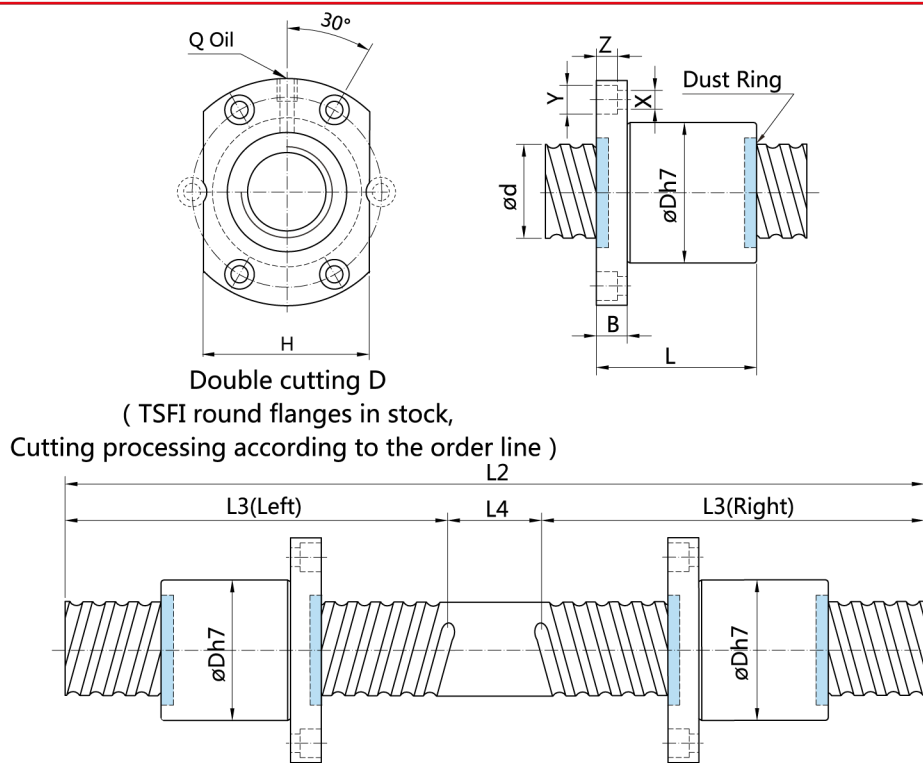
Commonly used left and right screw combinations areas follows:

	BNTX (BNTL+BNTR)
	SFCX (SFCL+SFCL) SFDX (SFDL+SFDR) SFCDX (SFCL+SFDR)
	BNTCX (BNTL+SFCL) BNTDX (BNTL+SFDR)

Note: Please confirm the direction of the nut before ordering.

Unless otherwise specified, the flanges are installed inward.

Precision Ground Ball Screw SFD series (TSFI-D)



The left-handed and right-handed thread of the entire grinding-grade screw is processed in one operation, rather than a docking process.

Unit : mm

Model No.	d	I	Da	Dimension											Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	
■ SFD01204-T4	12	4	2.5	24	42	10	40	32	28	4.5	8	4.5	M6	1×4	907	1889	26
■ SFD01605-T4	16	5	3.175	30	49	10	50	39	34	4.5	8	4.5	M6	1×4	1386	3058	33
■ SFD01610-T3	16	10	3.175	30	49	10	57	39	34	4.5	8	4.5	M6	1×3	1109	2407	27
■ SFD02005-T4	20	5	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	1×4	1557	3881	39
■ SFD02505-T4	25	5	3.175	40	63	11	51	51	46	5.5	9.5	5.5	M8	1×4	1731	4911	45
■ SFD02510-T4	25	10	4.762	46	72	12	85	58	52	6.5	11	6.5	M6	1×4	2961	7302	51
■ SFD03205-T4	32	5	3.175	46	72	12	52	58	52	6.5	11	6.5	M8	1×4	1930	6351	52
■ SFD03210-T4	32	10	6.35	54	88	15	90	70	62	9	14	8.5	M8	1×4	4813	12216	62
■ SFD04010-T4	40	10	6.35	62	104	18	93	82	70	11	17.5	11	M8	1×4	5407	15508	72
■ SFD05010-T4	50	10	6.35	72	114	18	93	92	82	11	17.5	11	M8	1×4	6012	19622	83

Note:

(1) Those marked ■ can provide left-hand thread products.

(2) Except for the SFD01610-T3 specification, the other models are interchangeable with TSFI series nuts.

Precision Ground Ball Screw TSFKX series

- Nominal Model Code of Ball Screw

TSFK X 010 02 T3 - D G C7 - 530 (R200+L300) - P0 - B2
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

(1) Nominal Model TSFK: Single nut

(2) Threading Direction
X: Left and Right

(3) Nominal Diameter (mm)

(4) Lead (mm)

(5) Number of Turns (Turn Row)
T=1 (T4=1×4)

(6) Flange Type
D: Double cutting

(7) Product Code G: Ground

(8) Accuracy Grade Ground: C5/C7

(9) Overall Length of Shaft (mm)

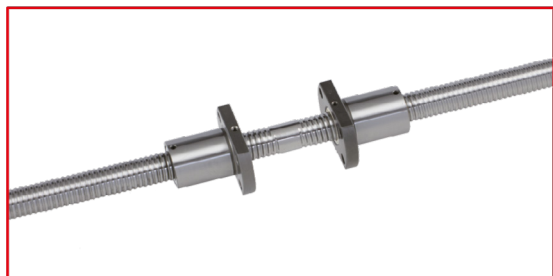
(10) Left and right handed thread length (mm)
R is the length of the right-handed screw
L is the length of the left-handed screw

(11) Axial Clearance and Preload Value
P0, P1 *

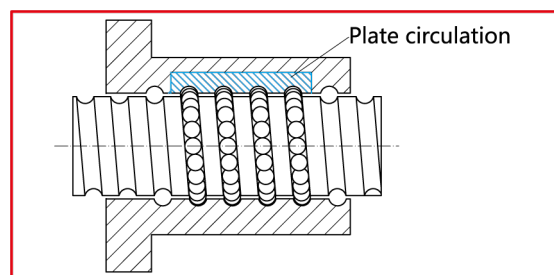
(12) Number of Nut
B2: two nuts

* When the preload of the miniature lead screw is selected, because the load and vibration are not large, it is recommended that the maximum selection not exceed level P1.

- Nut Form



- Nut Types



- The left-handed and right-handed thread of the entire grinding-grade screw is processed in one operation. Concentricity, accuracy, life and consistency of starting point of thread hole are high.
 - It realizes two driving effects by driving one screw.
 - It is suitable for miniature semiconductor automation equipment.
- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

- Screw Parameters

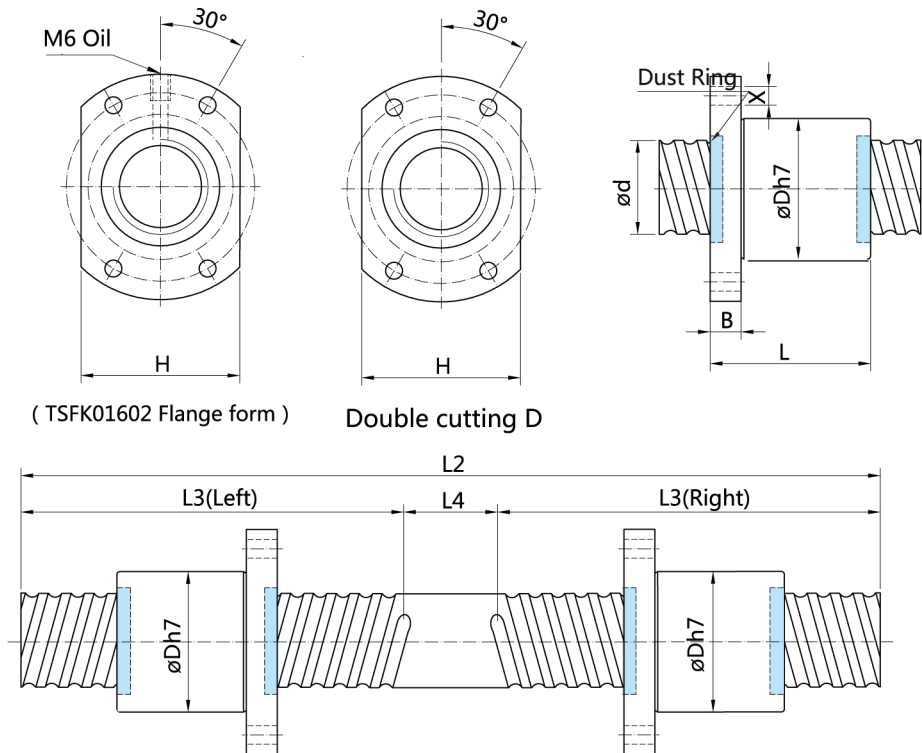
Unit : mm

Model No.	d	l	Threading Direction	Number of Grooves	Overall Length of Shaft					
					GC5			GC7		
					L2	L3	L4	L2	L3	L4
SCX00801	8	1	R+L	1	410	200	10	510	250	10
SCX00802	8	2	R+L	1	410	200	10	510	250	10
SCX01002	10	2	R+L	1	510	250	10	610	300	10
SCX01004	10	4	R+L	1	510	250	10	610	300	10
SCX01202	12	2	R+L	1	710	350	10	910	450	10
SCX01204	12	4	R+L	1	710	350	10	910	450	10
SCX01402	14	2	R+L	1	910	450	10	1110	550	10
SCX01602	16	2	R+L	1	1210	600	10	1610	800	10

Note:

- L4 has a minimum of 10mm, and you can order an extended value.
- L2 / L3 / L4 can be produced according to the customer's drawings.
- If you need more than the length in the table, please contact us.

Precision Ground Ball Screw TSKFX series



The left-handed and right-handed thread of the entire grinding-grade screw is processed in one operation, rather than a docking process. Unless otherwise specified, the flanges are installed inwards.

Unit : mm

Model No.	d	l	Da	Dimension								Load Rating (kgf)		K kgf/μm
				D	A	B	L	W	H	X	n	Ca	Coa	
■ TSKF0801-T4	8	1	0.8	14	27	4	16	21	18	3.4	1×4	166	408	14
■ TSKF0802-T3	8	2	1.2	14	27	4	16	21	18	3.4	1×3	227	463	13
■ TSKF01002-T3	10	2	1.2	18	35	5	28	27	22	4.5	1×3	248	574	15
■ TSFKA01004-T3	10	4	2	26	46	5	34	36	28	4.5	1×3	473	910	17
■ TSKF01202-T4	12	2	1.2	20	37	5	28	29	24	4.5	1×4	339	911	22
■ TSKF01204-T3	12	4	2.5	24	40	6	33	32	25	3.5	1×3	709	1276	26
■ TSKF01402-T4	14	2	1.2	21	40	6	23	31	26	5.5	1×4	359	1058	24
■ TSKF01602-T4	16	2	1.2	25	43	10	40	35	29	5.5	1×4	379	1206	26

Note:

- (1) Those marked ■ can provide left-hand thread products.
- (2) Please confirm the direction of the nut before ordering. Unless otherwise specified, the flanges are installed inward.
- (3) The size of this series of nuts can be customized according to customer requirements, and the minimum quantity is 200.
- (4) TSKF1004/TSFK1602 is designed with M6 oil holes, The TSKF01004 flange mounting hole is a countersunk hole , and the other models have no oil holes and countersunk holes. If necessary, please contact us.

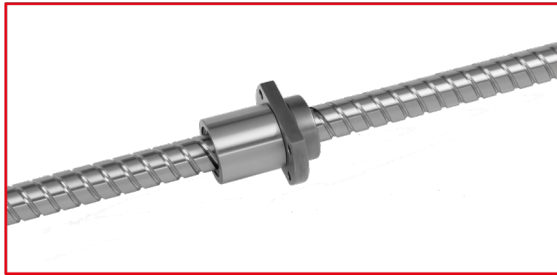
Precision Ground Ball Screw SFTE series

- Nominal Model Code of Ball Screw

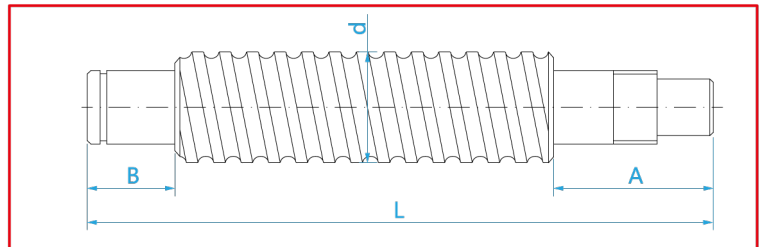
SFTE R 032 32 A2 - D G C7 - 600 - P0 - B1
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

- (1) Nominal Model SFTE: Single nut
Metal circulator, high temperature resistance and high speed, can be used in harsh
- (2) Threading Direction
R: Right
- (3) Nominal Diameter (mm)
- (4) Lead (mm)
- (5) Number of Turns (Turn Row)
A=1.8 (A2=1.8×2)
- (6) Flange Type
D: Double cutting
- (7) Product Code G: Ground
- (8) Accuracy Grade Ground: C5/C7
- (9) Overall Length of Shaft (mm)
- (10) Axial Clearance and Preload Value
P0, P1
- (11) Number of Nut
B1: one nut B2: two nuts B3: three nuts

- Nut Form

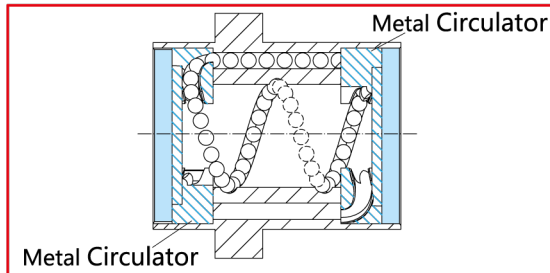


- Screw Parameters



Unit : mm

- Nut Types



This type of circulation method is similar to the S-type. In addition to retaining the advantages of the S-type circulation design, the circulator is made of metal. Both ends of the dust sheet using thin And elastic rubber material is more to strengthen the effect of hanging brush.

Above design To high speed, high temperature resistance and harsh environment of high dustproof function.

- End-cycle high-speed large lead
- Dm·N value can reach 70000

Model No.	d	l	Threading Direction	Number of Grooves	Overall Length of Shaft	
					GC5	GC7
SCR01616	16	16	R	2	960	1280
SCR02020	20	20	R	2	1200	1600
SCR02525	25	25	R	2	1500	2000
SCR03232	32	32	R	2	1920	2560
SCR04040	40	40	R	2	2400	3200
SCR05050	50	50	R	2	3000	4000

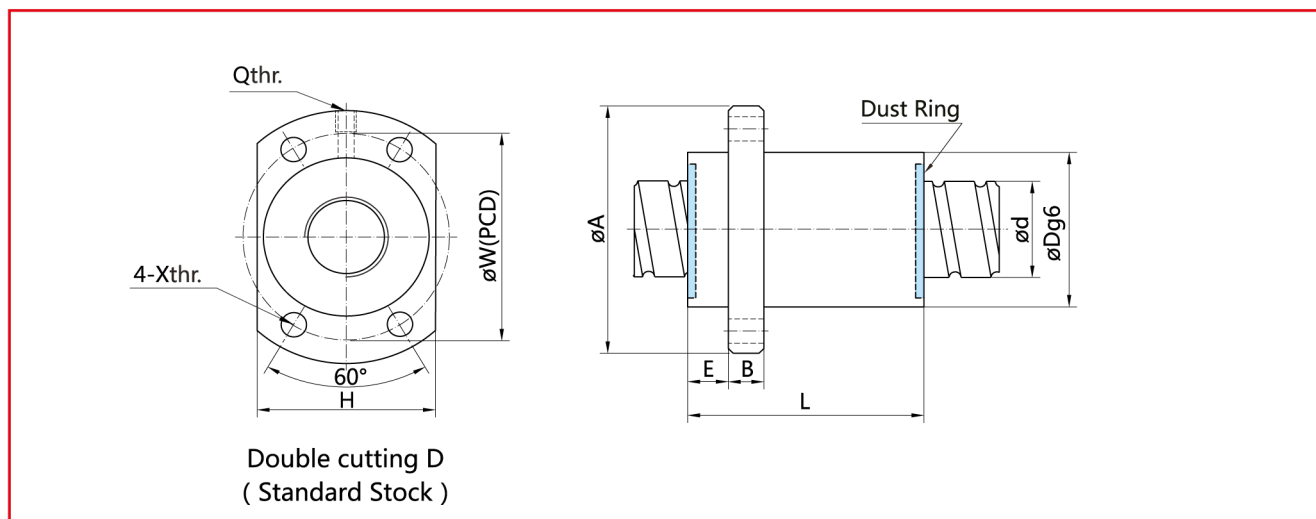
Note: If you need more than the length in the table, please contact us.

- Material and heat treatment method

Item	Material	Heat Treatment	Hardness
Ground Screw	50CrMo4 (SCM450)	Induction hardening	HRC58° ~ 62°
Nut	SCM415H (SCM420H)	Carburizing hardening	HRC58° ~ 62°
Steel Ball	SUJ2	roller furnace hardening	HRC62°UP

Precision Ground Ball Screw SFTE series

- The flange double cutting, Conventional standard stock



Unit : mm

Model No.	d	l	Da	Dimension										Load Rating (kgf)		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca	Coa	
SFTE01616-A2	16	16	2.778	32	53	10	10	45	42	34	4.5	M6	1.8×2	1079	2557	31
SFTE02020-A2	20	20	3.175	39	62	11.5	10	55	50	41	5.5	M6	1.8×2	1393	3521	37
SFTE02525-A2	25	25	3.969	47	74	13	12	57	60	49	6.6	M6	1.8×2	2081	5501	45
SFTE03232-A2	32	32	4.762	58	92	16	12	82	74	60	9	M6	1.8×2	3029	8698	58
SFTE04040-A2	40	40	6.35	73	114	19	15	100	93	75	11	M6	1.8×2	4839	14070	70
SFTE05050-A2	50	50	7.938	90	135	21.5	20	125	112	92	14	M6	1.8×2	7228	21982	86

Note:

(1) This series is a metal circulator

(2) It can be used in harsh environments with high temperature (-40°C~ + 120°C), high speed and high impact force.

Support Unit of Ball Screw

Support Unit of Ball Screw style

Fixed End		Simple End	
BK		BF	
FK		FF	
FK40		FF40	
EK		EF	
WBK		Lock Nut	

Support Unit of Ball Screw

Types of Support and Suggested Diameter of Ball Screw

Fixed End Model				Simple End Model			Suggested Diameter
-	EK6	-	-	FF6	EF6	-	ø4, ø6
FK8	EK8	-	-	-	EF8	-	ø8, ø10, ø12
FK10	EK10	BK10	-	FF10	EF10	BF10	ø10, ø12, ø14, ø15
FK12	EK12	BK12	-	FF12	EF12	BF12	ø14, ø15, ø16
FK15	EK15	BK15	WBK15	FF15	EF15	BF15	ø18, ø20
FK17	-	BK17	WBK17	FF17	-	BF17	ø20, ø25
FK20	EK20	BK20	WBK20	FF20	EF20	BF20	ø25, ø28
FK25	EK25	BK25	WBK25	FF25	EF25	BF25	ø32, ø36
FK30		BK30	WBK30	FF30		BF30	ø36, ø40
-		BK35	WBK35	-		BF35	ø40, ø45, ø50
FK40		BK40	WBK40	FF40		BF40	ø50, ø55
		BK50				BF50	ø63

Bearing Model and Function

Fixed End				Simple End			
Fixed End	Bearing Model	Axial		Simple End	Bearing Model	Radial	
		Ca (kgf)	K kgf/μm			Ca (kgf)	Coa (kgf)
EK6	706ATYDF	273	2.9	EF6, FF6	606ZZ	231	88
EK8, FK8	708ATYDF	450	5.4	EF8	606ZZ	231	88
BK10, EK10, FK10	7000ATYDF	620	9.6	BF10, EF10, FF10	608ZZ	335	142
BK12, EK12, FK12	7001ATYDF	679	10.6	BF12, EF12, FF12	6000ZZ	465	200
BK15, EK15, FK15	7002ATYDF	775	11.5	BF15, EF15, FF15	6002ZZ	570	289
BK17, FK17	7203ATYDF	1397	12.7	BF17, FF17	6203ZZ	979	469
BK20	7004ATYDF	1295	14.2	BF20	6004ZZ	958	515
EK20, FK20	7204ATYDF	1820	15.8	EF20, FF20	6204ZZ	1300	702
BK25, EK25, FK25	7205ATYDF	2060	19.4	BF25, EF25, FF25	6205ZZ	1430	800
BK30, FK30	7206ATYDF	2856	19.8	BF30, FF30	6206ZZ	1989	1152
BK35	7207ATYDF	3794	26	BF35	6207ZZ	2621	1560
BK40, FK40	7208ATYDF	4498	27.5	BF40	6208ZZ	2968	1815
BK50	7210ATYDF	5033	31.4	BF50	6210ZZ	3143	1967

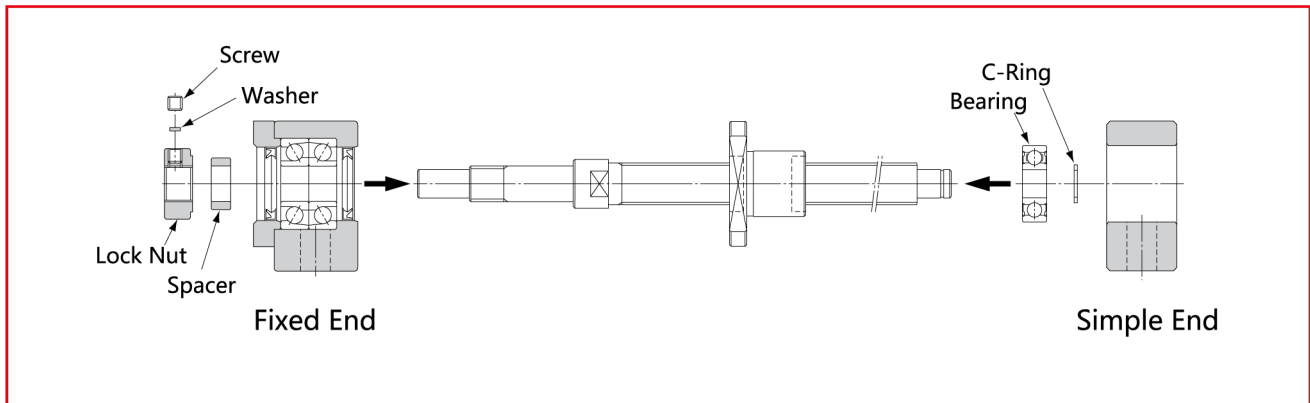
WBK series bearing model

Support base model	Model of special bearing for screw support	Support base model	Model of special bearing for screw support
WBK15	15TAC47TNP4SU	WBK30	30TAC62TNP4SU
WBK17	17TAC47TNP4SU	WBK35	35TAC72TNP4SU
WBK20	20TAC47TNP4SU	WBK40	40TAC72TNP4SU
WBK25	25TAC62TNP4SU		

Installation procedure

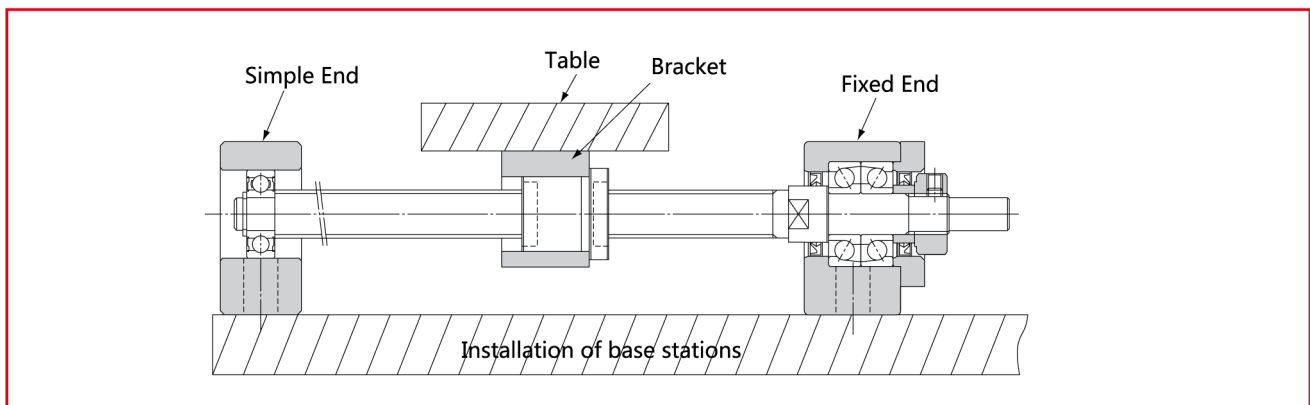
Installing Ball Screw with Support Units

- (1) Assemble the fixed end Support Unit with the screw shaft.
- (2) After inserting the fixed end Support Unit, secure the lock nut by using the fasten set piece and the hexagonal socket-head set screws.
- (3) Attach the floated end bearing to the screw shaft and secure the bearing with the C-ring.
- (4) Do not disassemble the Support Unit.
- (5) When assembling the screw shaft to the Support Unit, make sure that the dimension between machine ends and bearing are matched.
- (6) Please contact TBI for special condition of mounting methods.



Assemble the Nut Bracket

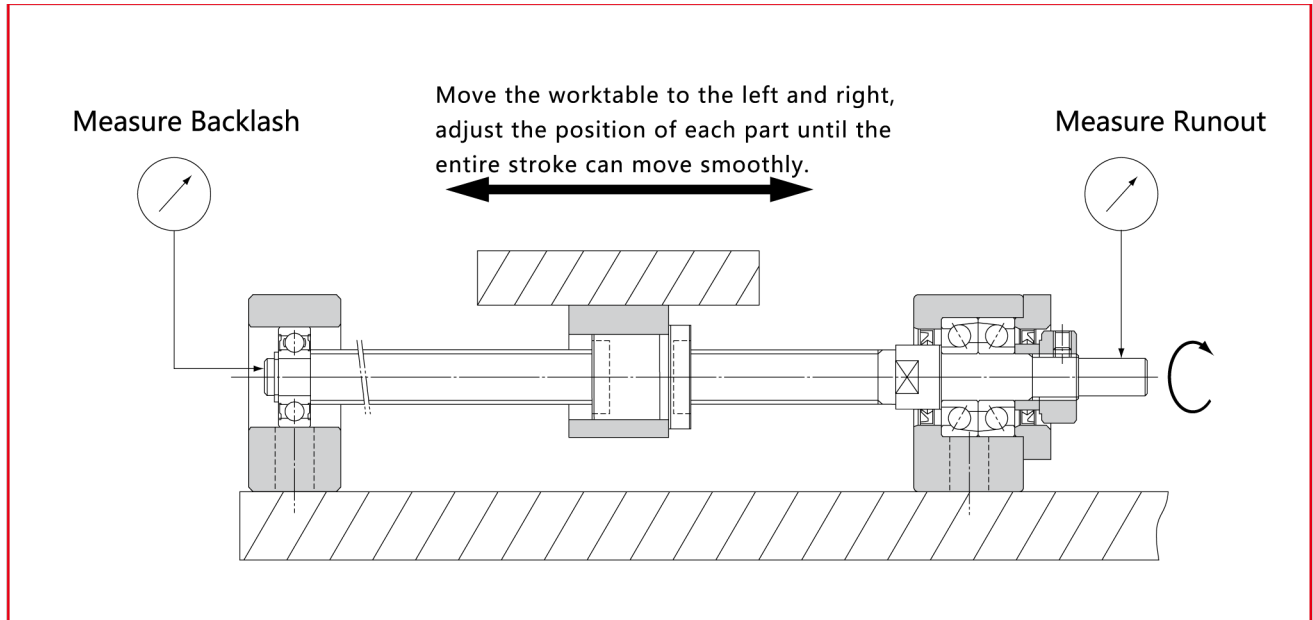
- (1) Fix the ball screw to the bracket(temporarily).
- (2) Assemble the fixed end Support unit with bearing.
- (3) Ensure the parallelism between reference surface(linear guide) and ball screw, then fix both end and floated end.
- (4) Move the table toward fixed and floated end to ensure the smoothness of the ball screw then fasten it to the bracket.



Installation procedure

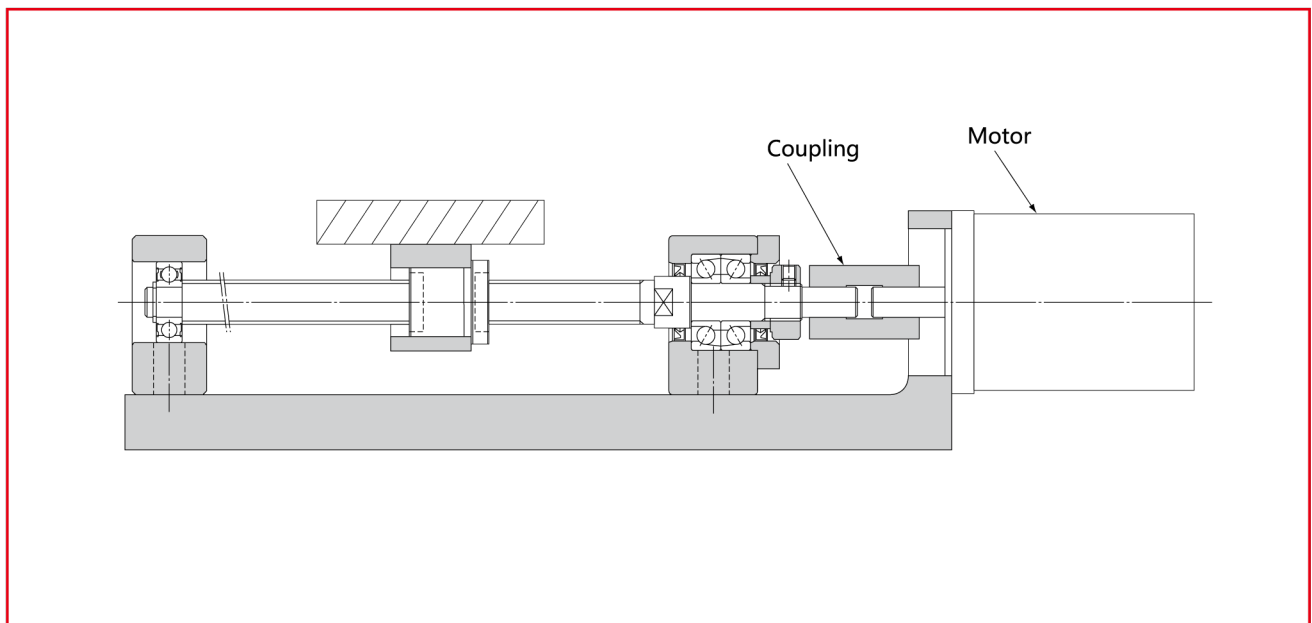
Checking Geometric Accuracy

- (1) Measure the runout of fixed side support unit and the axial backlash of support side support unit.



Connect Ball Screw Motor

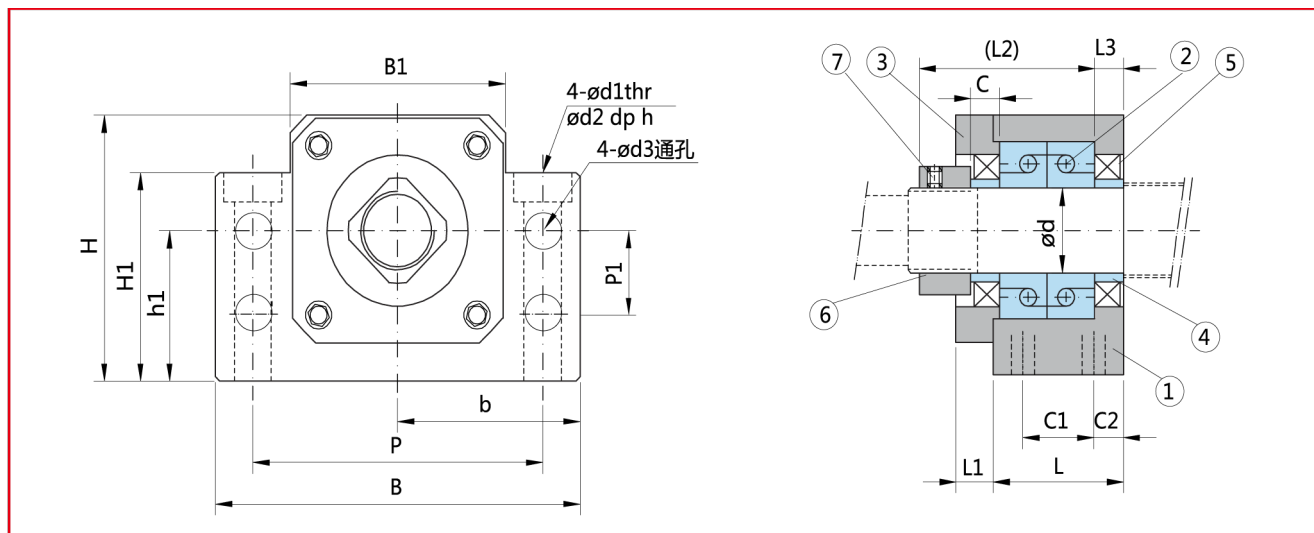
- (1) Mount the motor bracket to the base.
- (2) Connect the motor and the ball screw with a coupling (Careful with accuracy while mounting).
- (3) Completed run test.



BK Series

BK Series (Fixed End)

- It is mainly used when horizontally mounting the ball screw.
- BK fixed-end support already contains RN series lock nuts and 2 bearings.
- Blackened surface, suitable for general working environment.



BK-type parts list

Code	①	②	③	④	⑤	⑥	⑦
Items	Housing	Bearing	Lid	Spacer	Seal	Lock Nut	Screw with Washer
pcs	1	1 SET	1	2	2	1	2

Unit : mm

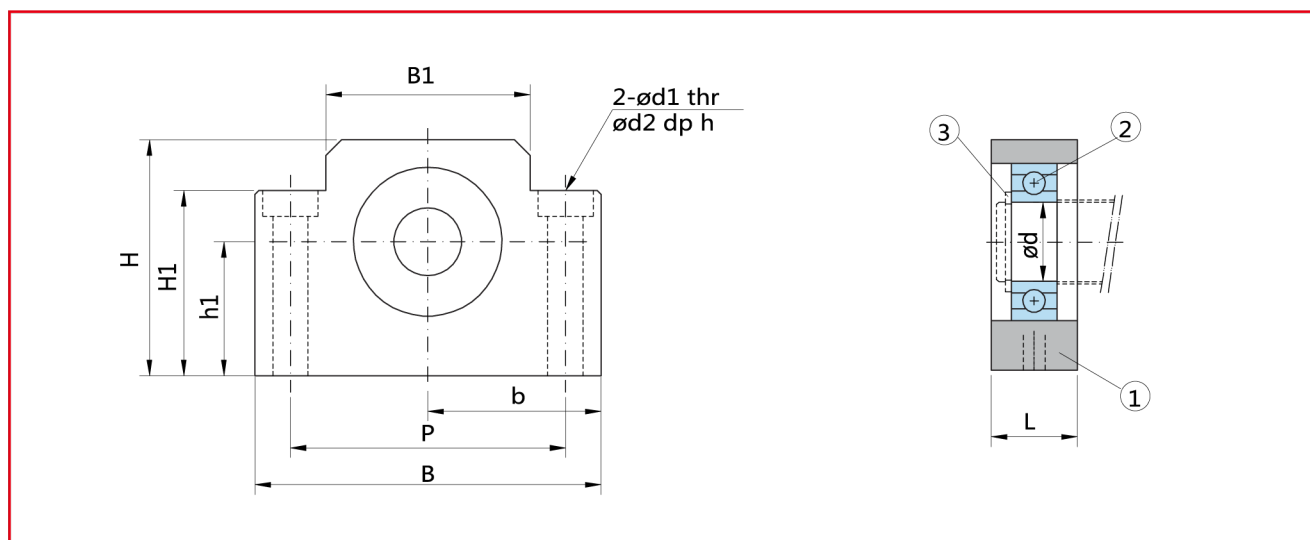
Model No.	d	L	L1	L2	L3	B	H	b	h1	B1	H1	P	P1	C1	C2	d1	d2	d2	h	C
BK 10	10	25	5	29.5	5	10	39	30	22	34	32.5	46	15	13	6	6.6	10.8	5.5	5	5.5
BK 12	12	25	5	29.5	5	12	43	30	25	35	32.5	46	18	13	6	6.6	10.8	5.5	1.5	5.5
BK 15	15	27	6	32	6	15	48	35	28	40	38	54	18	15	6	6.6	11	5.5	6.5	6
BK 17	17	35	9	44	7	17	64	43	39	50	55	68	28	19	8	9	14	6.6	8.5	7
BK 20	20	35	8	43	8	20	60	44	34	52	50	70	22	19	8	9	14	6.6	8.5	8
BK 25	25	42	12	54	9	25	80	53	48	64	70	85	33	22	10	11	17.5	9	11	9
BK 30	30	45	14	61	9	30	89	64	51	76	78	102	33	23	11	14	20	11	13	9
BK 35	35	50	14	67	12	35	96	70	52	88	79	114	35	26	12	14	20	11	13	12
BK 40	40	61	18	76	15	40	110	80	60	100	90	130	37	33	14	18	26	14	17.5	15
BK 50	50	65	15	88	18	50	120	90	65	110	100	150	42	37	14	18	26	14	20	18

Note: C in the table is the length dimension of the steel shaft spacer

BF Series

BF Series (Simple End)

- It is mainly used when horizontally mounting the ball screw.
- BF support end is used together with BK fixed end.
- Blackened surface, suitable for general working environment.



BE-type parts list

Code	①	②	③
Items	Housing	Bearing	C-Ring
pcs	1	1	1

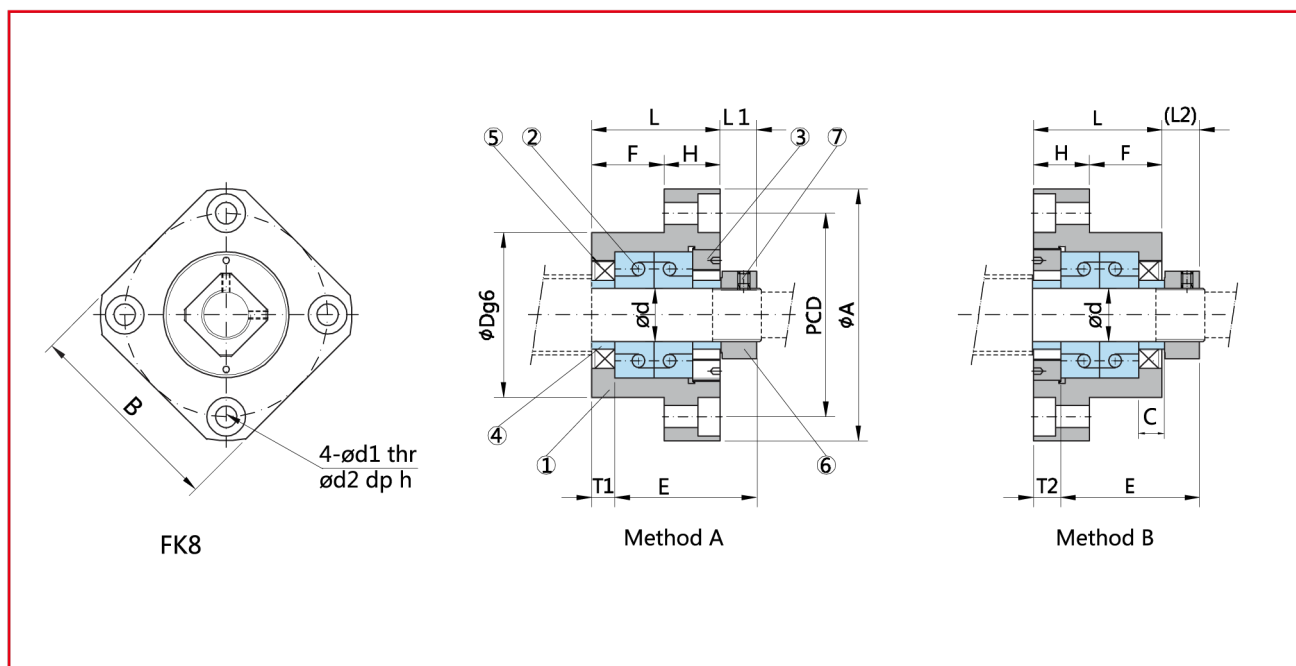
Unit : mm

Model No.	d	L	B	H	b	h1	B1	H1	P	P1	d1	d2	d3	h
BF 10	8	20	60	39	30	22	34	32.5	46	15	6.6	10.8	5.5	5
BF 12	10	20	60	43	30	25	35	32.5	46	18	6.6	10.8	5.5	1.5
BF 15	15	20	70	48	35	28	40	38	54	18	6.6	11	5.5	6.5
BF 17	17	23	86	64	43	39	50	55	68	28	9	14	6.6	8.5
BF 20	20	26	88	60	44	34	52	50	70	22	9	14	6.6	8.5
BF 25	25	30	106	80	53	48	64	70	85	33	11	17.5	9	11
BF 30	30	32	128	89	64	51	76	78	102	33	14	20	11	13
BF 35	35	32	140	96	70	52	88	79	114	35	14	20	11	13
BF 40	40	37	160	110	80	60	100	90	130	37	18	26	14	17.5
BF 50	50	37	180	120	90	65	110	100	150	42	18	26	14	17.5

FK Series

FK Series (Fixed End)

- It is mainly used when installing ball screw in a vertical position.
- FK fixed-end support already contains RN series lock nuts and 2 bearings.
- Blackened surface, suitable for general working environment.



FK-type parts list

Code	①	②	③	④	⑤	⑥	⑦
Items	Housing	Bearing	Lid	Spacer	Seal	Lock Nut	Screw with Washer
pcs	1	1 SET	1	2	2	1	2

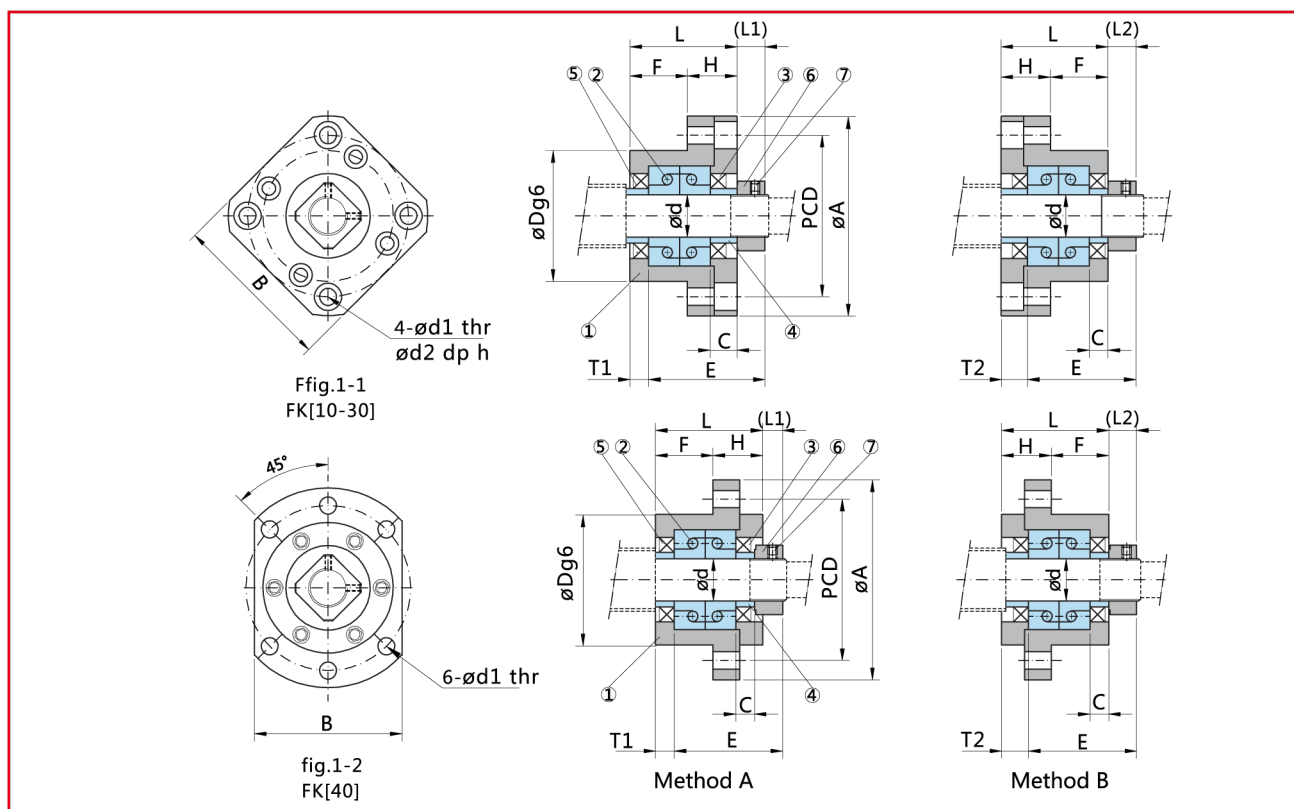
Model No.	d	L	H	F	E	D(g6)	A	PCD	B	Method A		Method B		d1	d2	h	C
										L1	T1	L2	T2				
FK8	8	23	9	14	26	28	43	35	35	7	4	8	5	3.4	6.5	4	5.5

Note: C in the table is the length dimension of the steel shaft spacer

FK Series

FK Series (Fixed End)

- It is mainly used when installing ball screw in a vertical position.
- FK fixed-end support already contains RN series lock nuts and 2 bearings.
- Blackened surface, suitable for general working environment.



FK-type parts list

Code	①	②	③	④	⑤	⑥	⑦
Items	Housing	Bearing	Lid	Spacer	Seal	Lock Nut	Screw with Washer
pcs	1	1 SET	1	2	2	1	2

Unit : mm

Model No.	d	L	H	F	E	D(g6)	A	PCD	B	Method A		Method B		d1	d2	h	C	Figure No.
										L1	T1	L2	T2					
FK 10	10	27	10	17	29.5	34	52	42	42	7.5	5	8.5	6	4.5	8	4	5.5	fig 1-1
FK 12	12	27	10	17	29.5	36	54	44	44	7.5	5	8.5	6	4.5	8	4	5.5	
FK 15	15	32	15	17	36	40	63	50	52	10	6	12	8	5.5	9.5	6	10	
FK 17	17	45	22	23	47	50	77	62	61	11	9	14	12	6.6	11	10	10	
FK 20	20	52	22	30	50	57	85	70	68	8	10	12	14	6.6	11	10	11	
FK 25	25	57	27	30	59	63	98	80	79	13	10	20	17	9	15	13	14	
FK 30	30	62	30	32	61	75	117	95	93	11	12	17	18	11	17.5	15	9	fig 1-2
FK 40	40	74	32	42	77	120	176	150	128	19	16	25	22	14	-	-	16	

FF Series

FF Series (Simple End)

- It is mainly used when installing ball screw in a vertical position.
- support end is used together with F fixed end.
- Blackened surface, suitable for general working environment.

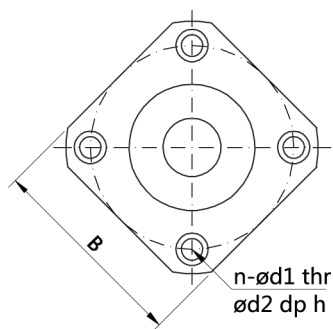


fig.2-1
FF[6-30]

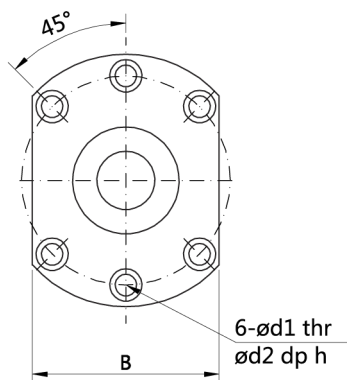
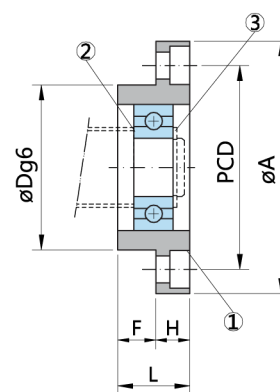


fig.2-2
FF[40]



FF-type parts list

Code	①	②	③
Items	Housing	Bearing	C-Ring
pcs	1	1	1

Unit : mm

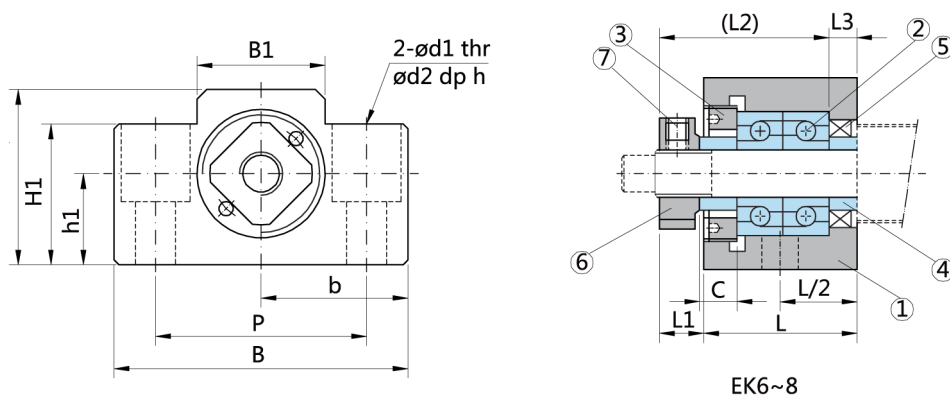
Model No.	d	L	H	F	D (g6)	A	PCD	B	d1	d2	h	Figure No.
FF 6	6	10	6	4	22	36	28	28	3.4	6.5	4	fig 2-1
FF 10	8	12	7	5	28	43	35	35	3.4	6.5	4	
FF 12	10	15	7	8	34	52	42	42	4.5	8	4	
FF 15	15	17	9	8	40	63	50	52	5.5	9.5	5.5	
FF 17	17	20	11	9	50	77	62	61	6.6	11	6.5	
FF 20	20	20	11	9	57	85	70	68	6.6	11	6.5	
FF 25	25	24	14	10	63	98	80	79	9	14	8.5	
FF 30	30	27	18	9	75	117	95	93	11	17.5	11	fig 2-2
FF 40	40	36	18	18	120	176	150	128	14	20	13	

Note: C in the table is the length dimension of the steel shaft spacer

EK Series

EK Series (Fixed End)

- It is mainly used when horizontally mounting the ball screw.
- EK fixed-end support already contains RN series lock nuts and 2 bearings.
- Blackened surface, suitable for general working environment.



EK-type parts list

Code	①	②	③	④	⑤	⑥	⑦
Items	Housing	Bearing	Lid	Spacer	Seal	Lock Nut	Screw with Washer
pcs	1	1 SET	1	2	2	1	2

Unit : mm

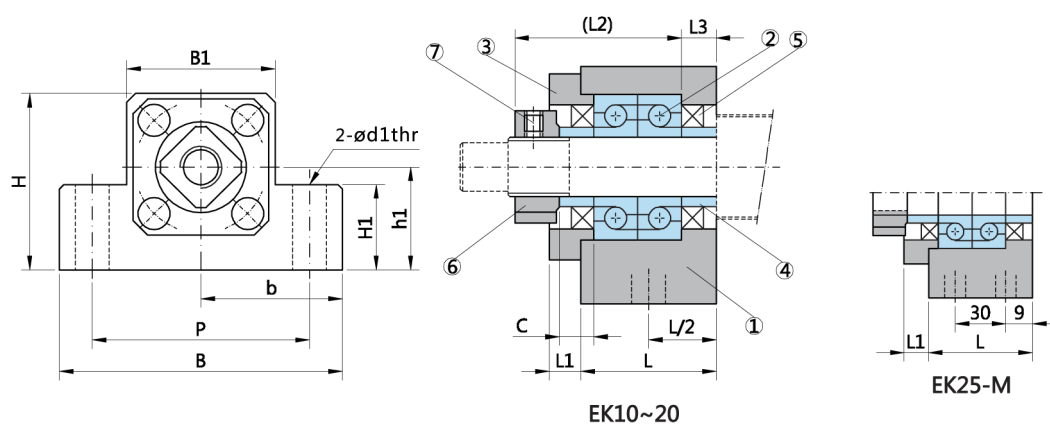
Model No.	d	L	L1	L2	L3	B	H	b ±0.02	h1 ±0.02	B1	H1	P	d1	d2	h	C
EK 6	6	20	5.5	22	3.5	42	25	21	13	18	20	30	5.5	9.5	11	5
EK 8	8	23	7	26	4	52	32	26	17	25	26	38	6.6	11	12	5.5

Note: C in the table is the length dimension of the steel shaft spacer

EK Series

EK Series (Fixed End)

- It is mainly used when horizontally mounting the ball screw.
- EK fixed-end support already contains RN series lock nuts and 2 bearings.
- Blackened surface, suitable for general working environment.



EK-type parts list

Code	①	②	③	④	⑤	⑥	⑦
Items	Housing	Bearing	Lid	Spacer	Seal	Lock Nut	Screw with Washer
pcs	1	1 SET	1	2	2	1	2

Unit : mm

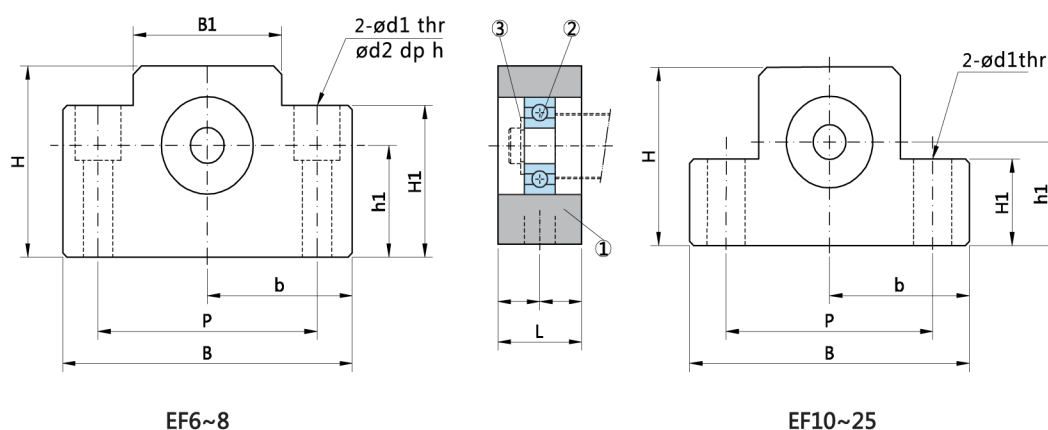
Model No.	d	L	L1	L2	L3	B	H	b ±0.02	h1 ±0.02	B1	H1	P	d1	C
EK 10	10	24	6	29.5	6	70	43	35	25	36	24	52	9	5.5
EK 12	12	24	6	29.5	6	70	43	35	25	36	24	52	9	5.5
EK 15	15	25	6	36	5	80	49	40	30	41	25	60	11	10
EK 20	20	42	10	50	10	95	58	47.5	30	56	25	75	11	11
EK 25	25	48	12	60	14	105	68	52.5	35	66	25	85	11	15

Note: C in the table is the length dimension of the steel shaft spacer

EF Series

EF Series (Simple End)

- It is mainly used when horizontally mounting the ball screw.
- EF support end is used together with EK fixed end.
- Blackened surface, suitable for general working environment.



EF-type parts list

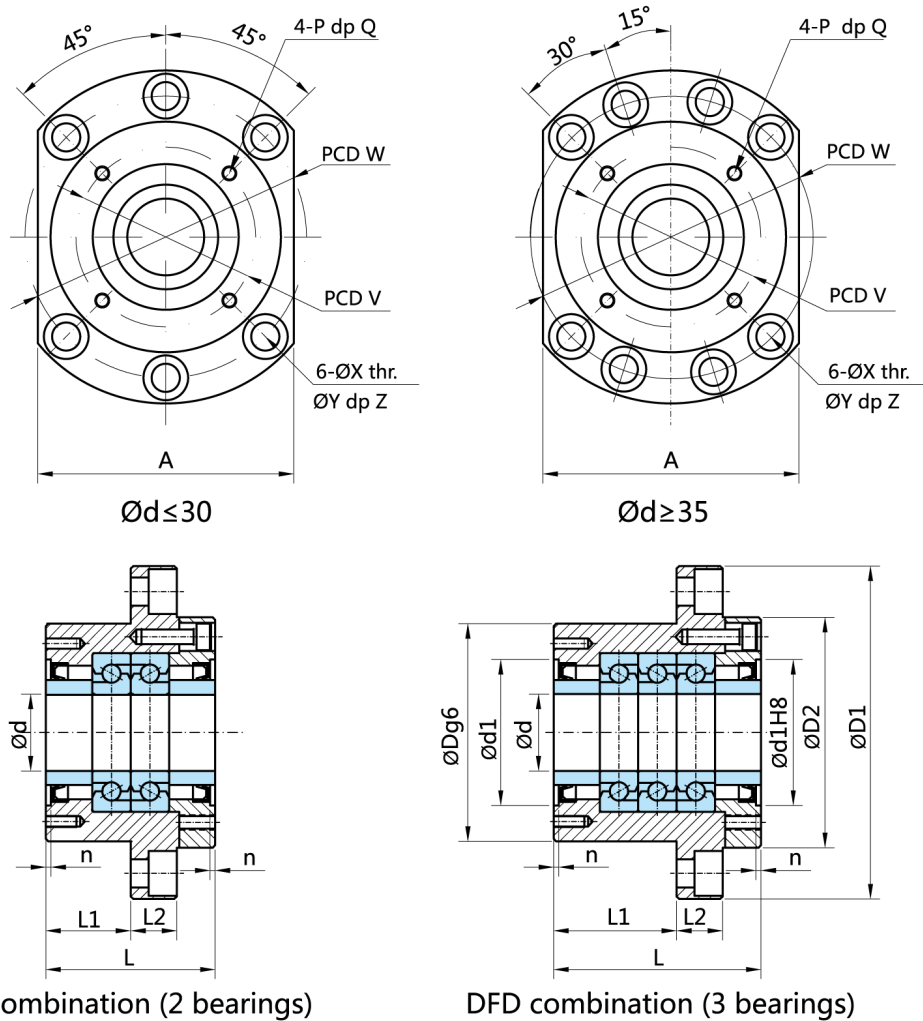
Code	①	②	③
Items	Housing	Bearing	C-Ring
pcs	1	1	1

Unit : mm

Model No.	d	L	B	H	b ±0.02	h1 ±0.02	B1	H1	P	d1	d2	h
EF 6	6	12	42	25	21	13	18	20	30	5.5	9.5	11
EF 8	6	14	52	32	26	17	25	26	38	6.6	11	12
EF 10	8	20	70	43	35	25	36	24	52	9	-	-
EF 12	10	20	70	43	35	25	36	24	52	9	-	-
EF 15	15	20	80	49	40	30	41	25	60	9	-	-
EF 20	20	26	95	58	47.5	30	56	25	75	11	-	-
EF 25	25	30	105	68	52.5	35	66	25	85	11	-	-

WBK Series

WBK type special bearing for heavy load and high speed lead screw



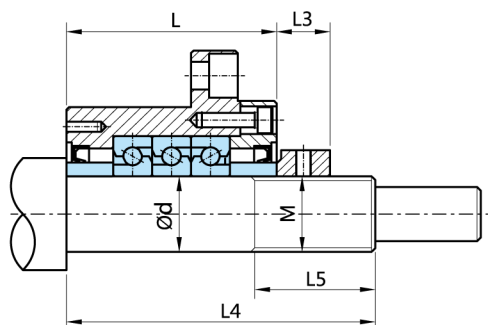
Unit : mm

Support Model	Assembly size																
	d	D g6	D1	D2	L	L1	L2	A	W	X	Y	Z	d1	n	V	P	Q
WBK15DF	15	70	106	72	60	32	15	80	88	9	14	8.5	45	3	58	M5	10
WBK17DF	17	70	106	72	60	32	15	80	88	9	14	8.5	45	3	58	M5	10
WBK20DF	20	70	106	72	60	32	15	80	88	9	14	8.5	45	3	58	M5	10
WBK25DF	25	85	130	90	66	33	18	100	110	11	17	11	57	4	70	M6	12
WBK25DFD	25	85	130	90	81	48	18	100	110	11	17	11	57	4	70	M6	12
WBK25DFF	25	85	130	90	96	63	18	100	110	11	17	11	57	4	70	M6	12
WBK30DF	30	85	130	90	66	33	18	100	110	11	17	11	57	4	70	M6	12
WBK30DFD	30	85	130	90	81	48	18	100	110	11	17	11	57	4	70	M6	12
WBK30DFF	30	85	130	90	96	63	18	100	110	11	17	11	57	4	70	M6	12
WBK35DF	35	95	142	102	66	33	18	106	121	11	17	11	69	4	80	M6	12
WBK35DFD	35	95	142	102	81	48	18	106	121	11	17	11	69	4	80	M6	12
WBK35DFF	35	95	142	102	96	63	18	106	121	11	17	11	69	4	80	M6	12
WBK40DF	40	95	142	102	66	33	18	106	121	11	17	11	69	4	80	M6	12
WBK40DFD	40	95	142	102	81	48	18	106	121	11	17	11	69	4	80	M6	12
WBK40DFF	40	95	142	102	96	63	18	106	121	11	17	11	69	4	80	M6	12

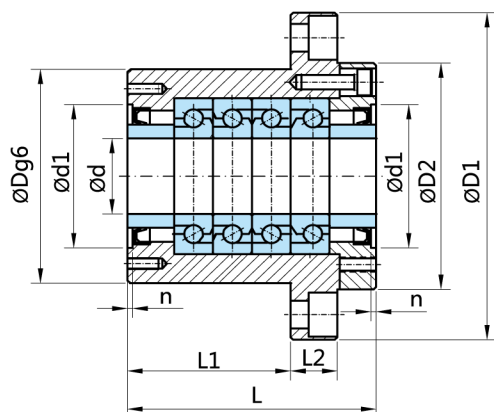
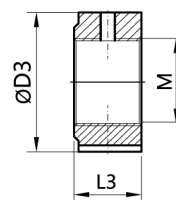
WBK Series

WBK type special bearing for heavy load and high speed lead screw

Dimensional drawing of the installation site



The screw Nut



DFF combination (4 bearings)



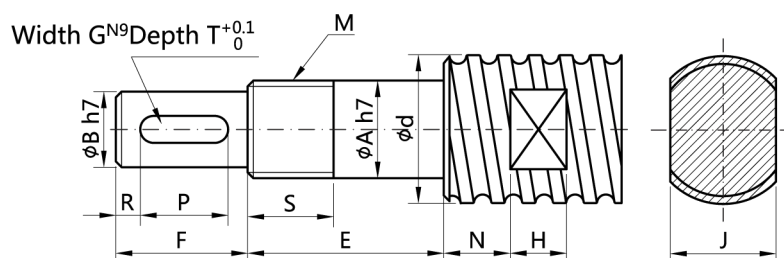
Unit : mm

Support Model	Ca (kgf)	limit Axial load (kgf)	Preload (kgf)	Axial rigidity (kgf/μm)	Starting torque (kgf-cm)	the screw Nut			Weight (kg)	Support installation part		
						M	D3	L3		d	L4	L5
WBK15DF	2240	2710	220	75	1~1.9	M15×1	30	14	1.97	15	81	23
WBK17DF	2240	2710	220	75	1~1.9	M17×1	37	18	1.97	17	81	23
WBK20DF	2240	2710	220	75	1~1.9	M20×1	40	18	1.97	20	81	23
WBK25DF	2910	4150	320	100	1.6~2.9	M25×1.5	45	20	3.3	25	89	26
WBK25DFD	4700	8300	440	150	2.2~4	M25×1.5	45	20	3.85	25	104	26
WBK25DFF	4700	8300	640	200	2.8~5	M25×1.5	45	20	4.4	25	119	26
WBK30DF	2980	4400	340	105	1.7~3	M30×1.5	50	20	3.4	30	89	26
WBK30DFD	4850	8800	460	155	2.2~4	M30×1.5	50	20	3.7	30	104	26
WBK30DFF	4850	8800	680	205	2.9~5.2	M30×1.5	50	20	4.4	30	119	26
WBK35DF	3150	5100	390	120	1.9~3.5	M35×1.5	55	22	3.75	35	92	30
WBK35DFD	5150	10200	530	175	2.5~4.6	M35×1.5	55	22	4.4	35	107	30
WBK35DFF	5150	10200	780	240	3.3~6	M35×1.5	55	22	5	35	122	30
WBK40DF	3250	5300	400	125	2~3.7	M40×1.5	60	22	3.65	40	92	30
WBK40DFD	5250	10600	540	185	2.6~4.8	M40×1.5	60	22	4.3	40	107	30
WBK40DFF	5250	10600	800	245	3.4~6.2	M40×1.5	60	22	5	40	122	30

Shaft end machining

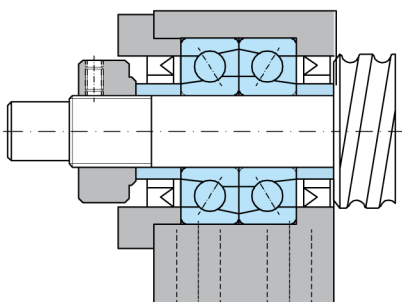
BK Suggest Dimension of End Machining

- This type of bearing can accurately position the lead screw in the axial and radial directions, and can control the deviation caused by the screw rotating at high speed.
- The spindle head connected to the motor can be machined with machining key slot and coupling, the standard key slots or forelock keys can also be used. Please provide relevant drawings.
- The thread part shall be linear cutting, and cutting beyond the wrench table to facilitate the tightening and installation of the lock nut. The customer does not need to design the inner hexagon hole of the end face or the milling square of the spindle head.
- Both ends of a single lead screw are fixed and supported at the same time, which can effectively improve the running accuracy of the lead screw, while the installation accuracy requirements are correspondingly increased, please note.



- Installation example of fixed end support

BK



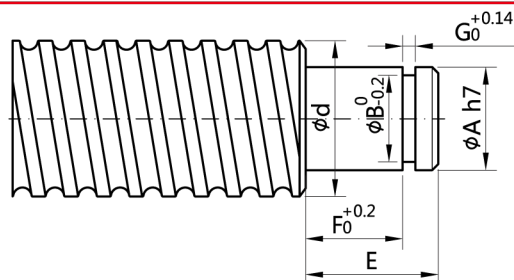
Unit : mm

Fixed Model No.	Screw diameter d	Bearing level diameter A(h7)	Processing size			Nominal thread		Screw wrench steps			Motor spindle head key slot			
			B(h7)	E	F	M	S	J	N	H	G	T	P	R
BK10	12/14/15	10	8	36	15	M10×1	12	10	5	7	2	1.2	9	3
BK12	15/16	12	10	36	15	M12×1	12	13	6	8	3	1.8	9	3
BK15	20	15	12	40	20	M15×1	12	16	6	9	4	2.5	12	4
BK17	20/25	17	15	53	23	M17×1	17	18	7	10	5	3	15	4
BK20	25	20	17	53	25	M20×1	15	21	8	11	5	3	17	4
BK25	32	25	20	66	30	M25×1.5	20	27	9	13	6	3.5	20	5
BK30	40	30	25	73	38	M30×1.5	25	32	10	15	8	4	26	6
BK35	40	35	30	82	45	M35×1.5	26	36	12	15	8	4	30	6
BK40	50	40	35	94	50	M40×1.5	30	41	14	19	10	5	40	5
BK50	63	50	40	109	60	M50×1.5	35	57	16	24	14	5.5	45	5

Shaft end machining

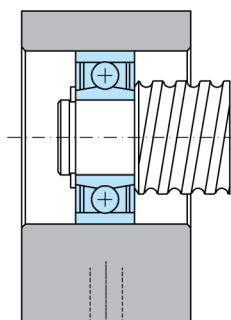
BF Suggest Dimension of End Machining

- This type of support is only positioning the screw in the radial direction, and there is no positioning in the axial direction, but has a telescopic amount.
- If the axial positioning of the screw is strict, it is recommended to use a fixed-end support at both ends.
- When the screw stroke is long and the accuracy is not high, the support end support can be selected on one or both sides.



- Installation example of support ing end support

BF



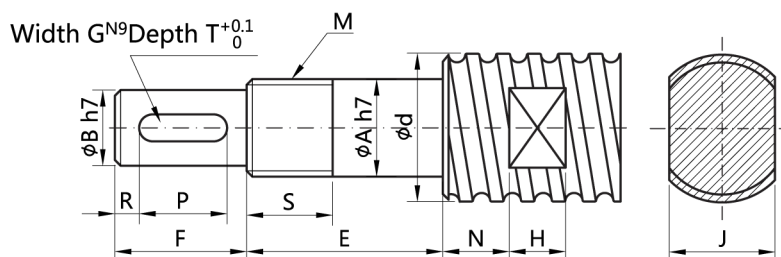
Unit : mm

Simple Model No.	Screw diameter d	Bearing level diameter A(h7)	Processing size			
			E	$B \begin{pmatrix} 0 \\ 0.2 \end{pmatrix}$	F	G
BF10	12/14/15	8	10	7.6	7	0.9
BF12	15/16	10	11	9.6	8	1.15
BF15	20	15	13	14.3	9	1.15
BF17	20/25	17	16	16.2	12	1.15
BF20	25	20	16	19	12	1.35
BF25	32	25	20	23.9	15	1.35
BF30	40	30	21	28.6	16	1.75
BF35	40	35	22	33	17	1.75
BF40	50	40	23	38	18	1.95
BF50	63	50	26	48	20	2.3

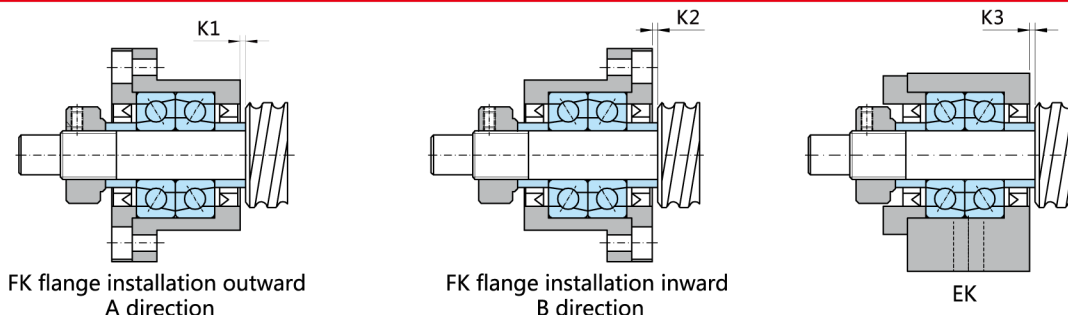
Shaft end machining

FK/EK Suggest Dimension of End Machining

- This type of bearing can accurately position the lead screw in the axial and radial directions, and can control the deviation caused by the screw rotating at high speed.
- The spindle head connected to the motor can be machined with machining key slot and coupling, the standard key slots or forelock keys can also be used. Please provide relevant drawings.
- The thread part shall be linear cutting, and cutting beyond the wrench table to facilitate the tightening and installation of the lock nut. The customer does not need to design the inner hexagon hole of the end face or the milling square of the spindle head.
- Both ends of a single lead screw are fixed and supported at the same time, which can effectively improve the running accuracy of the lead screw, while the installation accuracy requirements are correspondingly increased, please note.



- Installation example of fixed end support



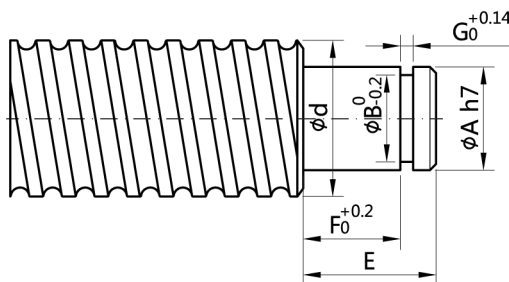
Unit : mm

Fixed Model No.		Screw diameter d	Bearing level diameter A(h7)	Processing size			Nominal thread		Screw wrench steps			Motor spindle head key slot				Installation position		
				B(h7)	E	F	M	S	J	N	H	G	T	P	R	K1	K2	K3
-	EK6	8/10	6	4	28	8	M6×0.75	8	5	4	4	-	-	-	-	-	-	1.5
FK8	EK8	10/12	8	6	32	9	M8×1	10	8	5	5	-	-	-	-	1.5	0.5	1.5
FK10	EK10	14/15	10	8	36	15	M10×1	12	10	5	7	2	1.2	9	3	0.5	-0.5	-0.5
FK12	EK12	15/16	12	10	36	15	M12×1	12	13	6	8	3	1.8	9	3	0.5	-0.5	-0.5
FK15	EK15	20	15	12	48	20	M15×1	13	16	6	9	4	2.5	12	4	4	2	5
FK17	-	20/25	17	15	59	23	M17×1	17	18	7	10	5	3	15	4	1	-2	-
FK20	EK20	25	20	17	64	25	M20×1	17	21	8	11	5	3	17	4	1	-3	1
FK25	EK25	32	25	20	76	30	M25×1.5	22	27	10	13	6	3.5	20	5	5	-2	0
FK30	-	40	30	25	73	38	M30×1.5	25	32	10	15	8	4	26	6	-3	-9	-
FK40	-	50	40	35	95	45	M40×1.5	30	46	14	20	10	5	40	5	0	-6	-

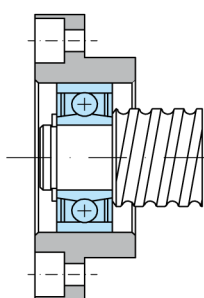
Shaft end machining

FF/EF Suggest Dimension of End Machining

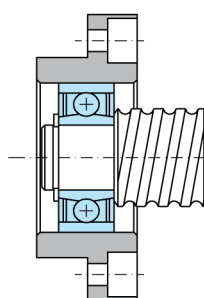
- This type of support is only positioning the screw in the radial direction, and there is no positioning in the axial direction, but has a telescopic amount.
- If the axial positioning of the screw is strict, it is recommended to use a fixed-end support at both ends.
- When the screw stroke is long and the accuracy is not high, the support end support can be selected on one or both sides.



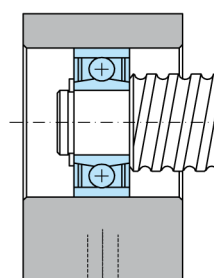
- Installation example of support ing end support



FF
(flange installation outward)



FF
(flange installation inward)



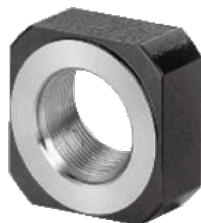
EF

Unit : mm

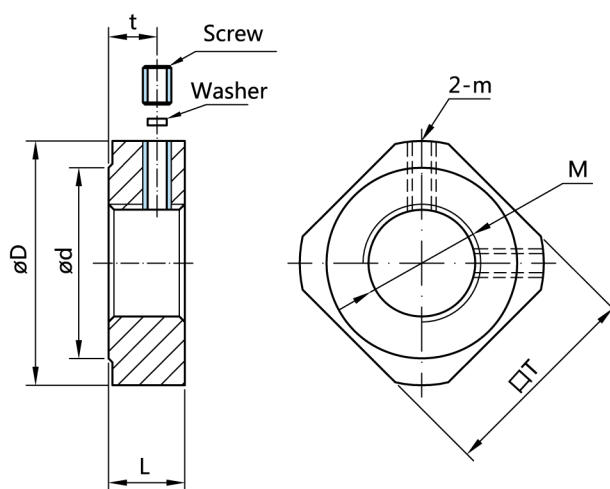
Simple Model No.		Screw diameter d	Bearing level diameter A(h7)	Processing size			
				E	B $\begin{pmatrix} 0 \\ -0.2 \end{pmatrix}$	F	G
FF6	EF6	8/10	6	9	5.7	6	0.8
-	EF8	10/12	6	9	5.7	6	0.8
FF10	EF10	12/14/15	8	10	7.6	7	0.9
FF12	EF12	15/16	10	11	9.6	8	1.15
FF15	EF15	20	15	13	14.3	9	1.15
FF17	-	20/25	17	16	16.2	12	1.15
FF20	EF20	25	20	19	19	14	1.35
FF25	EK25	32	25	20	23.9	15	1.35
FF30	-	40	30	21	28.6	16	1.75
FF40	-	50	40	23	38	18	1.95

Lock Nut

RN square lock nut (for BK / FK / EK standard series bearings)



Code	Items	pcs
1	Lock Nut	1
2	Screw	2
3	Brass gasket	2



Unit : mm

Model No.	M	D	d	L	t	T	m
RN06	M6X0.75	14.5	10	5	2.7	12	M3
RN08	M8X1	17	13	6.5	4	14	M3
RN10	M10X1	20	15	8	5	16	M4
RN12	M12X1	22	17	8	5	19	M4
RN15	M15X1	25	21	9	5	22	M5
RN17	M17X1	30	21	13	9	24	M5
RN20	M20X1	35	26	11	7	30	M5
RN25	M25X1.5	43	33	15	10	35	M5
RN30	M30X1.5	48	39	20	14	40	M6
RN35	M35X1.5	60	47	21	14	50	M8
RN40	M40X1.5	62	48	25	18	50	M8
RN50	M50X1.5	75	60	30	20	65	M8



Cavaria con Premezzo
21044 - Varese - ITALY
Via per Cedrate, 476 - P.O. 10
Tel. +39 0331 214511

www.chiaravalli.com

