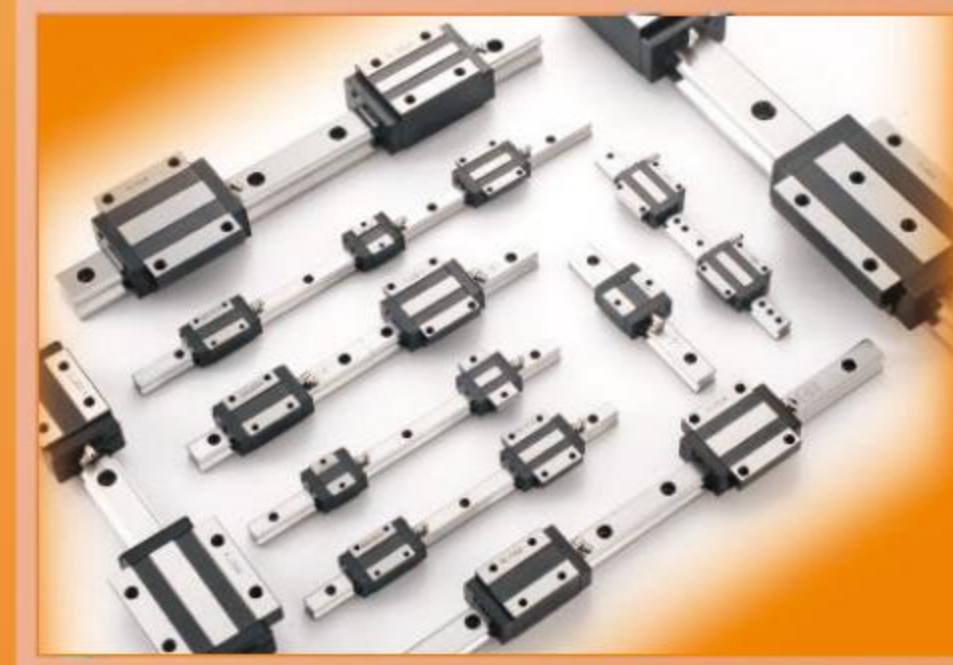




# 产品目录



深圳市嘉景机电有限公司

地址：深圳市宝安区石岩镇料坑村民生三路嘉一达科技园11栋

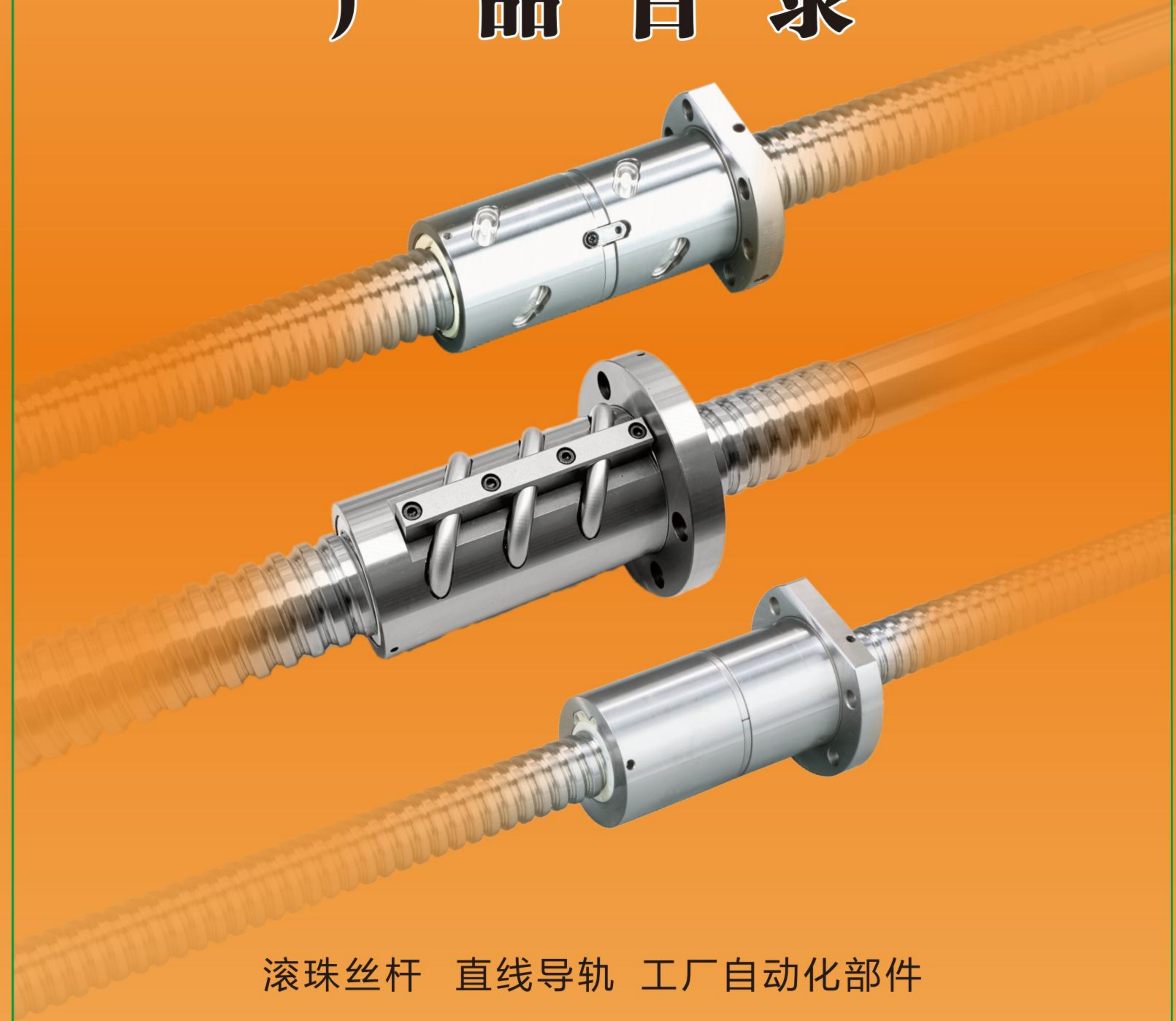
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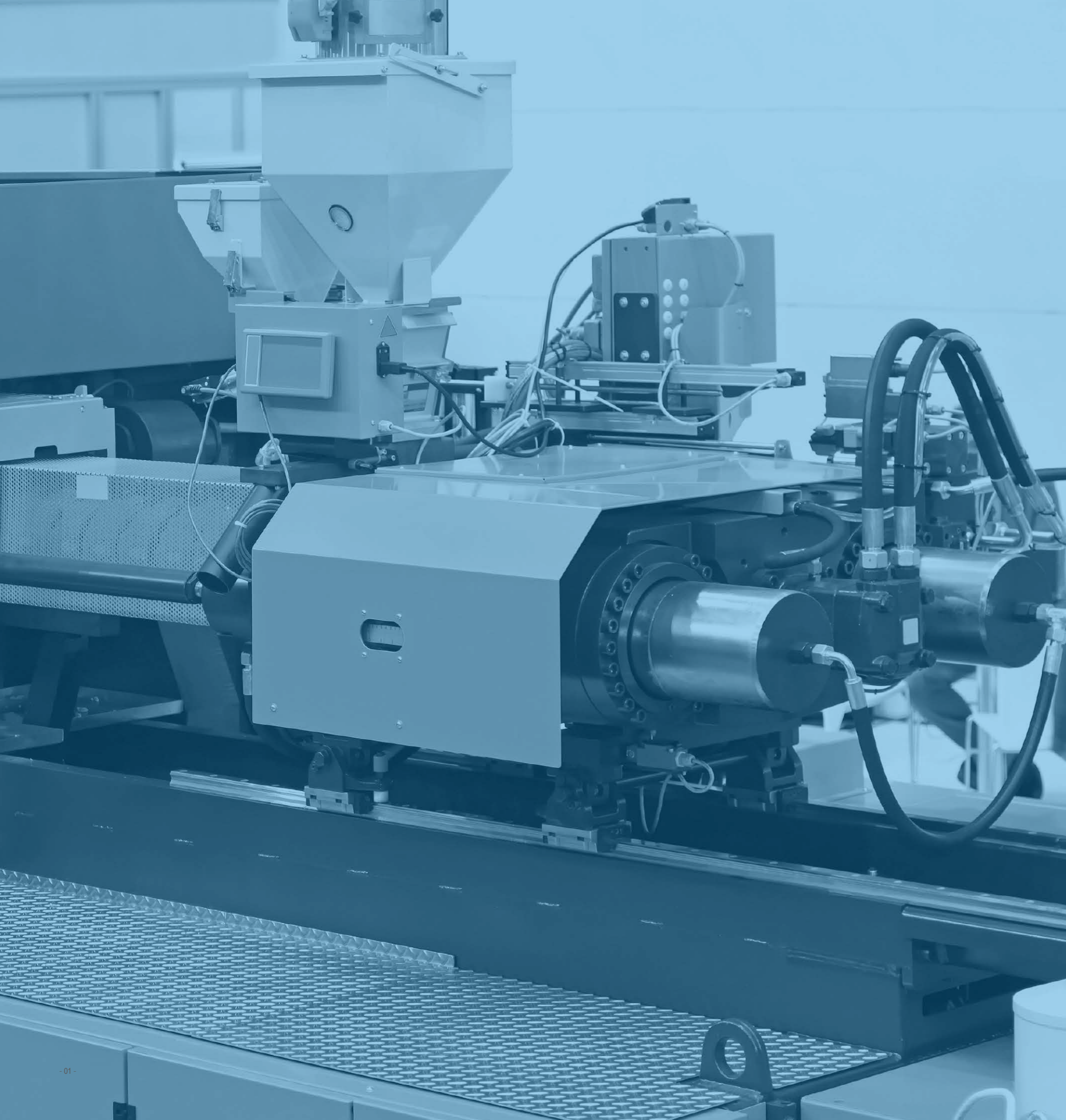
E-mail: jiajing@szsjj.com



滚珠丝杆 直线导轨 工厂自动化部件

深圳市嘉景机电有限公司

SHENZHEN KAIJING MECHANICAL AND ELECTRICAL CO., LTD.



## SFZ(V)系列 Series

小导程也可实现最高 800mm/s 的高速进给

Up to 800 mm/s of feedrate at a low lead

## SFZ(C)系列 Series

大导程最高可实现 1600mm/s 的高速进给

Up to 1600 mm/s of feedrate at a high lead

## SFZ(G)系列 Series

可提供轴径  $\phi 50\sim\phi 140\text{mm}$ 、导程 14~50mm 丰富的系列组合

A diversified portfolio of products with shaft diameters of 50 mm to 140 mm and leads of 14 mm to 50 mm

### 用途示例

Application Examples

用途 Application	注塑成型机 Injection molding machine	压铸机 Diecasting machine	伺服冲压机 Servo punching machine	折弯机 Bending machine	冲床 Punch press	粉末冲压机 Powder punching machine	升降装置 Lifting device	压入机 Press
SFZ(V)	●	○	●	●	○	●	○	●
SFZ(C)	●	●			○		○	
SFZ(G)	○	○	○	○	○	○	○	○

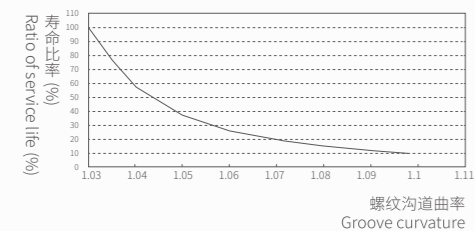
# 7 Product Advantages 大产品优势

## 高负载设计 Heavy-Duty Design

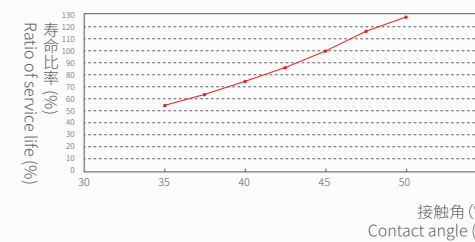
SKK高负载驱动用滚珠丝杠，采用将钢球径设计为导程允许的最大化，增加有效负载钢球，并使用最大化沟槽形状等增加负载容量的高负载设计。

SKK ball screws for heavy-duty drives adopt designs dedicated to heavy-duty applications, in which the steel ball diameter and the groove shape are maximized and the number of load-bearing balls is increased to improve the loading capacity.

沟道曲率与寿命的关系  
Groove curvature vs service life



接触角与寿命的关系  
Contact angle vs service life



## 专用高负荷材料及热处理

### Dedicated Heavy-Duty Materials and Thermal Treatment

在丝杠运行时，钢球沟道接触面为主要接触面，对强度要求较高。SKK高负荷驱动用滚珠丝杠系列的丝杠轴和螺母均采用特殊材料制成，并采用国际先进的高频感应淬火设备对丝杠进行热处理，严格控制淬硬层深度和一致性，使产品达到预期的寿命。

In a running ball screw, the surface of the ball raceway is the main contact surface, which requires a high strength. SKK ball screws for heavy-duty drives use shafts and nuts made of special materials and have undergone thermal treatment with world-leading high-frequency induction hardening machines. The thermal treatment process strictly controls the depth of hardening zone and consistency of products to ensure the expected service life.

## Steel Ball Retainer 钢球保持器

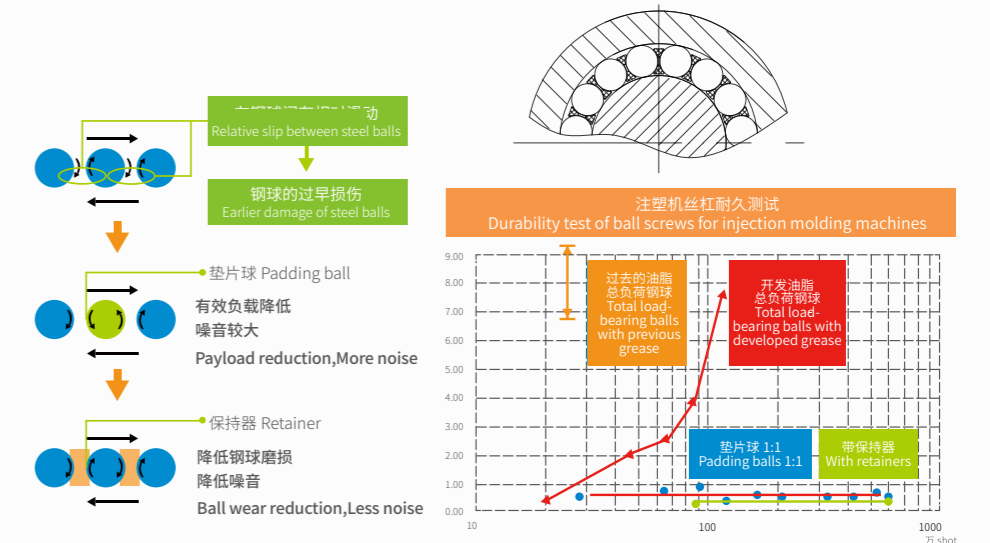
丝杠运行过程中，钢球间互相摩擦会造成耐久性的降低，SKK在钢球之间装入树脂保持器，大幅提高扭转载荷作用下丝杠的耐久性。采用高强度树脂保持器，避免钢球间直接摩擦接触，有效降低钢球磨损与发热，避免钢球间的相互撞击，减少了噪音的产生。保持器材料升级，耐冲击强度性能较老产品提升 60%，耐瞬时高温热变形能力提升 70% 以上。

During the operation of ball screw, its durability will be reduced due to friction between steel balls.

SKK uses resin retainers between steel balls to significantly increase the durability of ball screws under torsional load.

The high strength resin retainers can separate the steel balls, which reduces the wear and heat. Additionally, a quieter operation can be achieved without the collision noise.

Made from updated materials, the impact strength of the retainer is improved by 60% and the heat deflection temperature (HDT) by 70%.

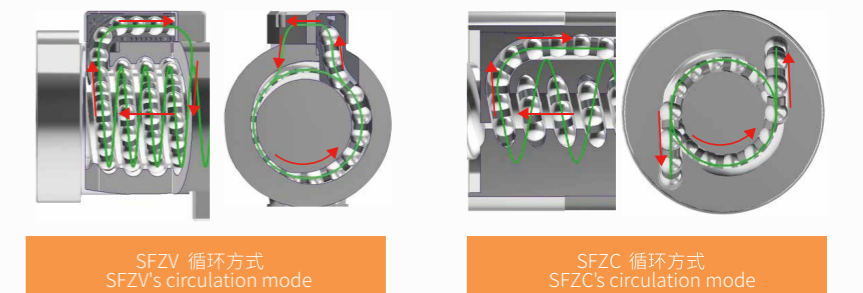


## 高 d · n 值循环设计

### Circulation Design with a High d · n Value

钢球沿着丝杠轴的切线方向顺畅运转，降低钢球对循环部的冲击。将作为丝杠产品评价高速性能指标的 d · n 值（轴径 × 转速）提高到以往插管循环方式的 2 倍以上。

The circulation design of SKK heavy-duty ball screws enables steel balls to run smoothly in the direction tangent to the screw shaft. Compared with the common circulation mode using bend tubes, this design provides over two times greater d · n value (shaft diameter x rotary speed), which is the speed indicator of ball screws.

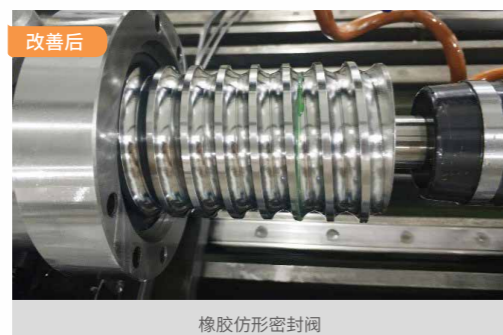


## 高导程设计 High-Lead Design

SKK高负荷系列滚珠丝杠可实现超高导程（轴径、导程比为 1:1）和高  $d \cdot n$  值规格，实现高速进给  
SKK heavy-duty ball screws have an ultra-high lead (the ratio between the shaft diameter and the lead is 1:1).  
The high lead and high  $d \cdot n$  value help achieve a high feedrate.

## 高密封性 High Tightness

配置特殊的密封圈，可有效防止润滑脂飞溅，润滑脂的保持性能大幅提高。仿形密封结构，更贴合丝杠轴螺旋轨道表面，防尘、锁脂能力显著提升；  
The O ring seal structure is more suitable for the spiral track surface of the screw shaft, significantly improving dustproof and grease trapping ability for the device.



## 静音化 Low Noise

让钢球沿着沟槽切线方向顺畅运转，降低循环部对钢球的冲击，有效降低滚珠丝杠工作时的噪音水平。  
As steel balls run smoothly in the direction of the grooves, the collisions between steel balls are reduced at the reverser, allowing a quiet operation of the ball screw.



## 滚珠丝杠的寿命

通常通过寿命计算得到的计算寿命是指由于疲劳剥落产生的寿命。

滚珠丝杠的疲劳寿命可以通过基本额定动载荷 (Ca) 进行推算。

### • 基本额定动载荷 (Ca)

基本额定动载荷是指一组相同滚珠丝杠在相同运转时, 其中 90% 能在达到 100 万转 (  $10^6 rev$  ) 之前不会因为滚动疲劳引起剥落的轴向负载。

### • 疲劳寿命

$$L_{10} = \left( \frac{Ca}{f_w \times F_a} \right)^3 \times 10^6$$

$$L_t = \frac{L_{10}}{60n}$$

$$L_s = \frac{l \times L_{10}}{10^6}$$

$L_{10}$ : 额定疲劳寿命 [rev]

$L_t$ : 寿命时间 [h]

$L_s$ : 运行距离寿命 [km]

$Ca$ : 基本额定动载荷 [N]

$F_a$ : 轴向载荷 [N]

$n$ : 转速 [ $min^{-1}$ ]

$l$ : 导程 [mm]

$f_w$ : 载荷系数

$f_w=1.0 \sim 1.2$  几乎没有振动、冲击

$f_w=1.2 \sim 1.5$  有稍微大的振动、冲击

$f_w=1.5 \sim 3.0$  有强烈振动、冲击

## Service Life of Ball Screws

Generally, the service life of a ball screw is the fatigue life, which identifies how long it works before a complete failure due to fatigue spalling.

The fatigue life of ball screws can be calculated based on the basic dynamic load rating (Ca).

### • Basic dynamic load rating (Ca)

The basic dynamic load rating is the axial load that will not cause fatigue spalling before 90% of a group of ball screws rotating in the same direction complete 1 million revolutions ( rev).

### • Fatigue life

$$L_{10} = \left( \frac{Ca}{f_w \times F_a} \right)^3 \times 10^6$$

$$L_t = \frac{L_{10}}{60n}$$

$$L_s = \frac{l \times L_{10}}{10^6}$$

$L_{10}$ : rated fatigue life [rev]

$L_t$ : service life [h]

$L_s$ : distance-measured life [km]

$Ca$ : basic dynamic load rating [N]

$F_a$ : axial load [N]

$n$ : rotary speed [ $min^{-1}$ ]

$l$ : lead [mm]

$f_w$ : load factor

$f_w=1.0-1.2$ : no vibration or shock

$f_w=1.2-1.5$ : little high vibration and shock

$f_w=1.5-3.0$ : strong vibration and shock

## 额定基本静负荷

额定基本静负荷  $Coa$  是在承受最大应力的接触部分处, 钢球转动面与钢球永久变形量的总和相当于钢球直径的 1/10000 倍的轴方向静止负荷。该数值在尺寸表上作为  $Coa$  来记载

该额定基本静负荷  $Coa$  的数值是在研讨静止状态或回转数十分低 ( $10min^{-1}$  以下) 时的负荷条件时使用, 可是一般使用情况下该永久变形量没什么问题。此时螺纹沟部分的最大容许负荷  $F_{a max}$  可以利用下述计算式计算

$$F_{a max} = \frac{Coa}{f_s} \quad N \dots\dots(7.7)$$

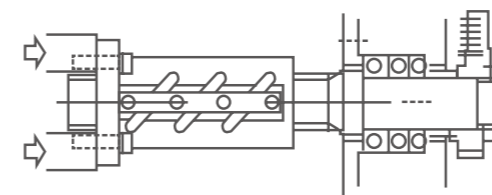
$f_s$ : 静态安全系数静的安全系数

$f_s=1-2$ : 正常运转时

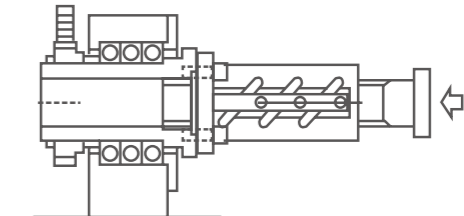
## 关于滚珠丝杠的安装条件

滚珠丝杠安装时, 安装用螺栓承受拉伸方向载荷的情况, 请注意计算螺栓是否满足强度要求。另外, 需要注意滚珠丝杠与导向机构之间不要产生偏心。

轴向屈曲载荷和影响危险转速的安装间距根据安装方法不同而不同, 必须根据使用条件选择适当的安装方法。



轴旋转, 螺母固定方式  
Nut fastening in shaft rotation mode



螺母旋转, 轴固定方式  
Shaft fastening in nut rotation mode

## 润滑的注意事项

滚珠丝杠使用时, 必须要填充润滑剂。

润滑剂随着使用时间的增加, 性能和状况会劣化, 润滑性能降低。

并且, 由于行程内的运动, 螺母内的润滑剂也会逐渐排出, 同时使用环境会造成润滑剂的污染, 请定期供给润滑剂。

## 使用温度

随着滚珠丝杠的使用温度变高, 润滑剂的油膜强度降低, 容易导致润滑不良。

最高使用温度请在  $70^{\circ}C$  (螺母外径温度) 以下使用。在容易产生高温的环境或条件下使用时, 请与 SKK 协商。

## Basic Static Load Rating $Coa$

The basic static load rating  $Coa$  is the axial load at which the amount of permanent deformation (ball raceway) occurring at the maximum stress contact point the ball and raceway surfaces is 1/10000 times the ball diameter. These values are listed under  $Coa$  in the dimension tables.

The basic static load rating  $Coa$  values apply to investigation of stationary state or extremely low revolution load conditions (less than  $10min^{-1}$ ).

However, in most cases the amount of permanent deformity causes absolutely no problems under use conditions.

The maximum permissible load  $F_{a max}$  for the screw groove in these instances can be found by using the following formula:

$$F_{a max} = \frac{Coa}{f_s} \quad N \dots\dots(7.7)$$

$f_s$ : Statistical safety factor

$f_s=1-2$ : For normal operation

## Ball Screw Installation Requirements

Before installing ball screws, calculate the tensile load on the fastening bolts and make sure that the strength of fastening bolts is high enough. In addition, prevent deviation of ball screws against the guide mechanism.

The axial buckling load and the installation spacing that affects the dangerous rotary speed vary depending on the installation method of ball screws. Select an appropriate installation method based on the operation conditions.

## Cautions for Lubrication

Ball screws must be filled with lubricants when running.

The performance of lubricants deteriorates as time passes.

In addition, the lubricant inside a nut is gradually discharged while the nut is moving within the working stroke.

Lubricants can also be contaminated by substances in the environment. Therefore, inject lubricants to ball screws periodically.

## Operating Temperature

When the operating temperature rises, the strength of the lubricant oil film decreases, which may cause deterioration of the lubrication performance.

Keep the highest operating temperature below  $70^{\circ}C$  (temperature at the outer surface of the nut). Consult SKK if you need to use ball screws in an environment easily exposed to high temperature.

# SFZ(V) 系列 Series

小导程也可实现最高 800mm/s 的高速进给

Up to 800 mm/s of feedrate at a low lead



## 1 Specifications 规格

### 循环方式 Circulation mode

钢球沿着丝杠轴切线方向顺畅运转，实现了传统插管循环方式 2 倍以上的运行速，噪音有效下降 1/2。  
Steel balls run smoothly in the direction tangent to the shaft. Compared with the common circulation mode using bend tubes, this circulation design achieves two times faster speed and reduces the noise by 1/2.

## SFZ(V)容许 $d \cdot n$ 值和最高进给速度 Acceptable SFZ(V) $d \cdot n$ value and highest feedrate

导程 10、16mm: 容许  $d \cdot n$  值  $\leq 150000$

导程 20、25mm: 容许  $d \cdot n$  值  $\leq 140000$

$d \cdot n$  值: 轴径  $d$ [mm]  $\times$  转速  $n$ [ $\text{min}^{-1}$ ]

Lead of 16 mm: acceptable  $d \cdot n$  value  $\leq 150,000$

Leads of 20 mm and 25 mm: acceptable  $d \cdot n$  value  $\leq 140,000$

$d \cdot n$  value: shaft diameter  $d$  [mm]  $\times$  rotary speed  $n$  [ $\text{min}^{-1}$ ]

轴径、导程的组合和最高进给速度 Feedrates under various combinations of shaft diameters and leads					
轴径 Shaft Diameter (mm)	导程 Lead (mm)				
	10	16	20	25	50
50	500	800	933	-	-
63	-	635	741	926	-
80	-	500	583	729	1042
100	-	400	467	583	833
120	-	-	-	486	-

Unit: [mm/s]

## 精度等级 Precision level

将 JIS B 1192 (2018) 的 Ct5 和 Ct7 作为标准精度  
Ct5 and Ct7 defined in JIS B 1192 (2018) are used as the standard precision.

## 轴向游隙 Axial internal clearance

标准规格轴向游隙小于 0.05mm  
The standard axial internal clearance is smaller than 0.05 mm.

## 特殊规格 Special specifications

为提升载荷容量而需要变更循环数以及需要对法兰尺寸有特殊要求时，请与 SKK 联系。  
Contact SKK if you want to change the number of cycles to increase the loading capacity or have special requirements for flange dimensions.

## 2 Cautions for Design 设计上的注意点

在设计丝杠轴端时，如不将轴的一端设计为通螺纹，或轴端尺寸小于钢球沟底径，将无法组装螺母，烦请注意。  
In a ball screw design, the nut cannot be mounted on the ball screw if the shaft does not have full threads at one end or the shaft-end size is smaller than the bottom diameter of the raceway.

## 3 Selection of Ball Screw Models 关于滚珠丝杠的选型

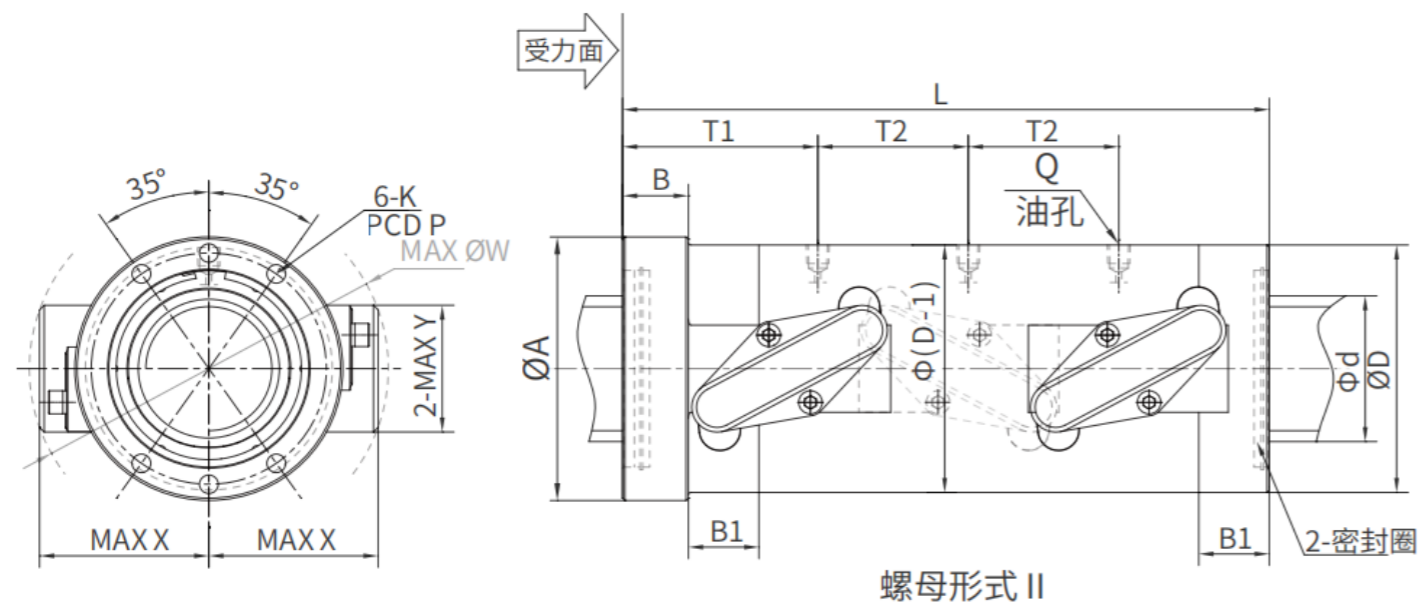
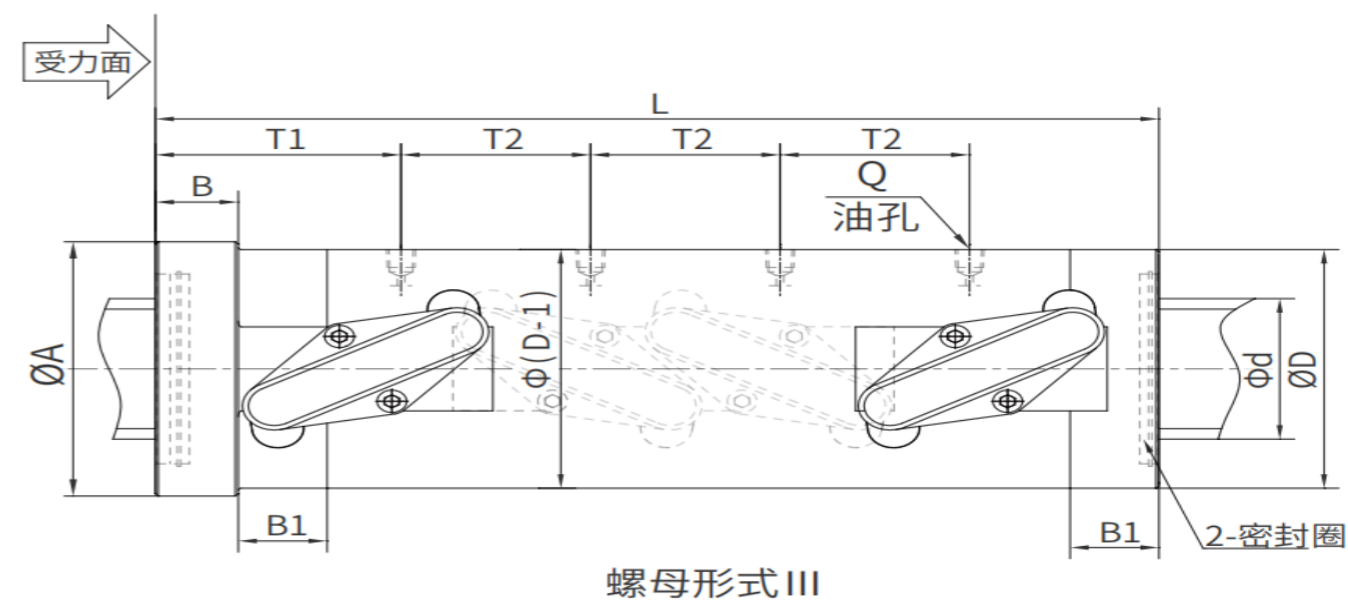
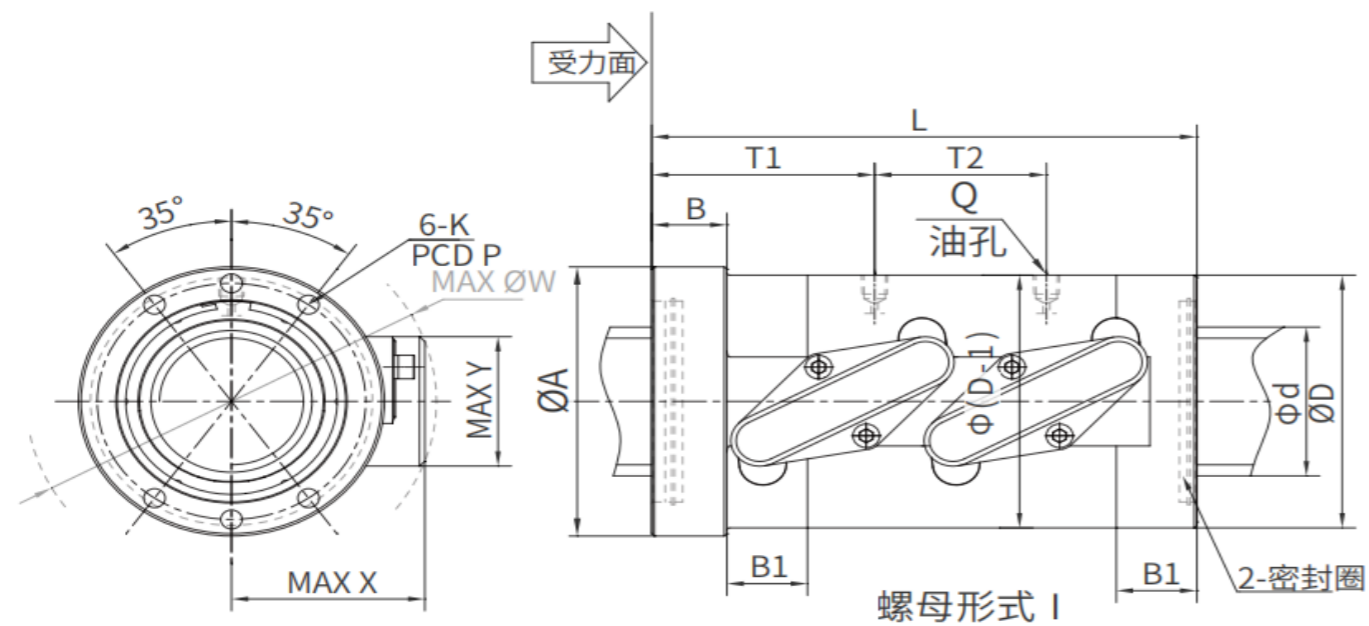
有关寿命、使用条件、润滑等请参照 P8-P9 页  
For the service life, conditions for use, and lubrication of ball screws, see page 7-8.

## 4 Cautions for Use 使用上的注意点

使用温度：推荐在 60°C 以下使用  
We recommend that you use the ball screws in an environment below 60° C.

# Specifications

## 规格尺寸



螺母型号 Nut nominal number	轴公称外径 d Screw shaft nom. O/D	公称导程 L Nom. Lead	钢球直径 Diameter	螺母类型 Type of nut	循环数 (卷 × 列 × 条) Number of circuits (wind × row × number of threads)	基本额定载荷 Basic load rating (kN)		允许轴向负荷 * (kN) Allowed axial load	螺母尺寸 Nut Size												
						额定动载荷 Ca	额定静载 荷 Coa		A	B	B1	D	L	K	T1	T2	P	Q	X	Y	W
SFZ(V)5010FD	50	10	9/32	II	2.5×3×1	174	510	69.8	90	25	30	78	155	M8	51	30	75	Rc1/8	52	47	100
SFZ(V)5014FD		14	3/8	II	2.5×3×1	256	685	96.0	114	28	30	95	202	M8	69	42	97	Rc1/8	54	46	110
SFZ(V)5016FC		16	1/2	I	2.5×2×1	261	605	80.4	100	28	30	95	180	M8	66.5	48	86	Rc1/8	66	50	136
SFZ(V)5016FD		16	1/2	II	2.5×3×1	370	910	120.1	100	28	30	95	228	M8	66.5	48	86	Rc1/8	66	50	136
SFZ(V)5020FD		20	1/2	II	2.5×3×1	370	910	119.6	129	28	30	95	268	M8	83.5	60	112	Rc1/8	66	50	136
SFZ(V)6316FN	63	16	1/2	II	3.5×3×1	545	1570	216.6	114	28	30	105	275	M8	83	64	100	Rc1/8	72.5	56	155
SFZ(V)6316FY		16	1/2	III	3.5×4×1	700	2090	235.2	114	28	30	105	339	M8	83	64	100	Rc1/8	72.5	56	155
SFZ(V)6320FD		20	5/8	II	2.5×3×1	555	1420	191.1	125	32	30	117	252	M10	80	60	105	Rc1/8	80	62	167
SFZ(V)6320FK		20	5/8	III	2.5×4×1	710	1900	226.4	125	32	30	117	252	M10	80	60	105	Rc1/8	80	62	167
SFZ(V)6325FJ		25	5/8	I	3.5×2×1	510	1300	174.0	140	35	30	117	300	M10	92	100	120	Rc1/8	80	60	166
SFZ(V)6325FN		25	5/8	II	3.5×3×1	725	1950	261.2	140	35	30	117	400	M10	92	100	120	Rc1/8	80	60	166
SFZ(V)8016FD	80	16	3/8	II	2.5×3×1	320	1120	144.1	130	30	30	115	224	M8	68	48	115	Rc1/8	68	64	147
SFZ(V)8016FJ		16	1/2	II	3.5×2×1	430	1330	180.3	143	37	30	120	202	M10	92	64	124	Rc1/8	78	60	165
SFZ(V)8016FN		16	1/2	II	3.5×3×1	610	1990	269.5	143	37	30	120	282	M10	92	64	124	Rc1/8	78	60	165
SFZ(V)8016FY		16	1/2	III	3.5×4×1	785	2650	360.6	143	37	30	120	346	M10	92	64	124	Rc1/8	78	60	165
SFZ(V)8020FJ		20	5/8	I	3.5×2×1	575	1630	227.4	143	37	40	130	245	M10	105.5	80	124	Rc1/8	88	64	187
SFZ(V)8020FN		20	5/8	II	3.5×3×1	815	2450	341.0	143	37	40	130	345	M10	105.5	80	124	Rc1/8	88	64	187
SFZ(V)8020FY		20	5/8	III	3.5×4×1	1040	3250	454.7	143	37	40	130	425	M10	105.5	80	124	Rc1/8	88	64	187
SFZ(V)8025FD		25	3/4	II	2.5×3×1	805	2220	284.2	150	40	40	145	333	M10	99	75	131	Rc1/8	95	72	203
SFZ(V)8025FK		25	3/4	III	2.5×4×1	1030	2960	379.0	150	40	40	145	408	M10	99	75	131	Rc1/8	95	72	203
SFZ(V)8050F2B		50	3/4	II	3.5×1×2	730	2000	266.6	225	40	40	165	290	φ18	238.5	/	190	Rc1/8	99	82	205
SFZ(V)10016FD	100	16	1/2	II	2.5×3×1	520	1840	241.1	160	40	40	145	235	M10	79.5	48	140	Rc1/8	89	77	192
SFZ(V)10016FK		16	1/2	II	2.5×4×1	665	2450	321.4	160	40	40	145	283	M10	79.5	48	140	Rc1/8	89	77	192
SFZ(V)10020FN		20	5/8	II	3.5×3×1	915	3100	420.4	168	40	40	145	343	M10	107	80	144	Rc1/8	97	78	206
SFZ(V)10020FY		20	5/8	III	3.5×4×1	1170	4150	560.6	168	40	40	145	423	M10	107	80	144	Rc1/8	97	78	206
SFZ(V)10025FJ		25	3/4	I	3.5×2×1	825	2510	343.0	180	40	40	159	393	M12	123.5	100	160	Rc1/8	108	81	228
SFZ(V)10025FN		25	3/4	II	3.5×3×1	1170	3750	514.5	180	40	40	159	418	M12	123.5	100	160	Rc1/8	108	81	228
SFZ(V)10025FY		25	3/4	III	3.5×4×1	1500	5000	686.0	180	40	40	159	518	M12	123.5	100	160	Rc1/8	108	81	228
SFZ(V)10050F2C		50	3/4	II	2.5×2×2	1130	3500	485	223	32	40	165	381	φ18	156.5	150	190	Rc1/8	105	86	221
SFZ(V)12020FD	120	20	5/8	II	2.5×3×1	760	2750	359.7	185	40	40	173	287	M12	98	60	163	Rc1/8	109	88	229
SFZ(V)12020FK		20	5/8	III	2.5×4×1	975	3650	480.2	185	40	40	173	347	M12	98	60	163	Rc1/8	109	88	229
SFZ(V)12025FN		25	3/4	II	3.5×3×1	1270	4500	602.7	188	40	40	173	420	M12	123.5	100	169	Rc1/8	115	92	245
SFZ(V)12025FY		25	3/4	III	3.5×4×1	1630	5950	803.6	188	40	40	173	520	M12	123.5	100	169	Rc1/8	115	92	245

注:

1. 无密封圈的螺母长度比带密封圈的短 5mm, 请与 SKK 联系。
2. 需要在超过容许轴向载荷的情况下使用时, 请与 SKK 联系。
3. 全部为右旋螺纹。如果需要左旋螺纹的丝杠, 请与 SKK 联系。
4. 容许轴向载荷是为轴向间隙为 0.050 时的数值。请注意, 如轴向间隙及安装条件改变, 容许轴向载荷也会改变。
5. \*: 卧式全电注塑机如图示受力方向时, 推荐使用此列数据, 其他受力形式或行业应用请与我司联系。



# SFZ(C)系列 Series

大导程最高可实现 1600mm/s 的高速进给

Up to 1600 mm/s of feedrate at a high lead



## 1 Specifications 规格

### 循环方式：端部导流循环式

End-cap circulation

采用获得好评的端部导流循环方式，可实现最高 1600mm/s 的高速进给。且循环零部件无突出部分，运转平衡性能良好。

With a widely commended end-cap circulation system, it can achieve a highest feedrate of 1600 mm/s. And the smooth circulating parts facilitate balanced operation.

## 容许 $d \cdot n$ 值和最高进给速度

Acceptable  $d \cdot n$  value and highest feedrat

容许  $d \cdot n$  值  $\leq 120000$

$d \cdot n$  值：轴径  $d$ [mm]  $\times$  转速  $n$ [ $\text{min}^{-1}$ ]

acceptable  $d \cdot n$  value  $\leq 120,000$

$d \cdot n$  value: shaft diameter  $d$  [mm]  $\times$  rotary speed  $n$  [ $\text{min}^{-1}$ ]

轴径 Shaft Diameter (mm)	导程 Lead (mm)		
	32	40	50
50	1280	1600	-
63	1016	1270	-
80	-	1000	1250

Unit: [mm/s]

## 精度等级 Precision level

将 JIS B 1192 (2018) 的 Ct5 和 Ct7 作为标准精度

Ct5 and Ct7 defined in JIS B 1192 (2018) are used as the standard precision.

## 轴向游隙 Axial internal clearance

标准规格轴向游隙小于 0.05mm

The standard axial internal clearance is smaller than 0.05mm.

## 特殊规格 Special specifications

为提升载荷容量而需要变更循环数以及需要对法兰尺寸有特殊要求时，请与 SKK 联系。

Contact SKK if you want to change the number of cycles to increase the loading capacity or have special requirements for flange dimensions.

## 2 Cautions for Design 设计上的注意点

在设计丝杠轴端时，如不将轴的一端设计为通螺纹，或轴端尺寸小于钢球沟底径，将无法组装螺母，烦请注意。

In a ball screw design, the nut cannot be mounted on the ball screw if the shaft does not have full threads at one end or the shaft-end size is smaller than the bottom diameter of the raceway.

## 3 Selection of Ball Screw Models 关于滚珠丝杠的选型

有关寿命、使用条件、润滑等请参照 P8-P9 页

For the service life, conditions for use, and lubrication of ball screws, see page 7-8.

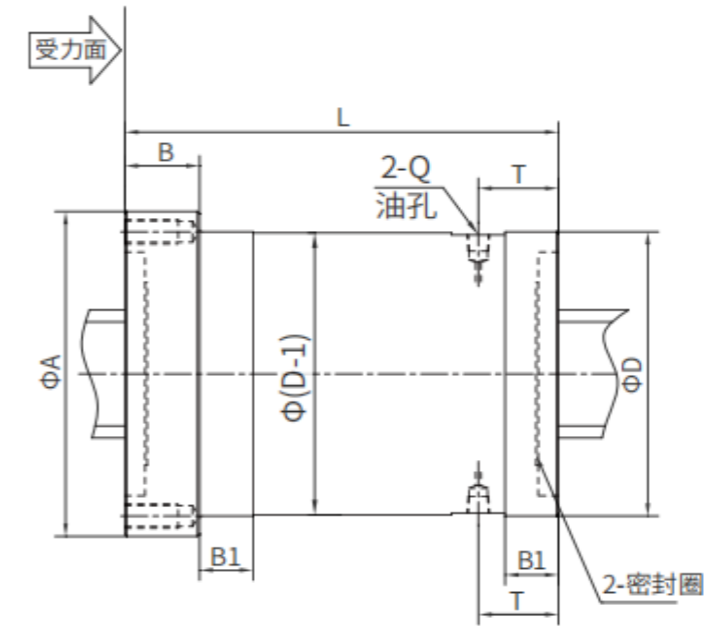
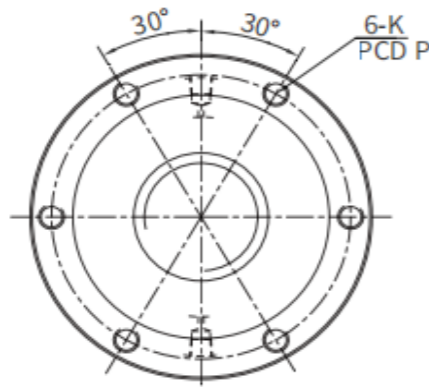
## 4 Cautions for Use 使用上的注意点

使用温度：推荐在 60°C 以下使用

We recommend that you use the ball screws in an environment below 60° C.

# Specifications

## 规格尺寸



螺母型号 Nut nominal number	轴公称外径 d Screw shaft nom. O/D	公称导程 L Nom. Lead	钢球直径 Diameter	循环数 (卷 × 列 × 条) Number of circuits (wind × row × number of threads)	基本额定载荷 Basic load rating (kN)		允许轴向负荷 * (kN) Allowed axial load	螺母尺寸 Nut Size								
					额定动载荷 Ca	额定静载荷 Coa		A	B	B1	D	L	K	T	P	Q
SFZ(C)5032F2P	50	32	3/8	1.7×1×2	119	284	40.2	96	20	25	94	97	M8	12	82	Rc1/8
SFZ(C)5032F2P		32	1/2	1.7×1×2	172	375	50.0	116	20	25	114	106	M10	19	98	Rc1/8
SFZ(C)5032F2Q		32	1/2	2.7×1×2	257	600	82.3	116	20	25	114	138	M10	19	98	Rc1/8
SFZ(C)5040F2P		40	1/2	1.7×1×2	170	375	52.4	165	30	25	115	119	φ14	45.5	140	Rc1/8
SFZ(C)5040F2Q		40	1/2	2.7×1×2	253	595	82.3	165	30	25	115	159	φ14	45.5	140	Rc1/8
SFZ(C)5040F2M		40	1/2	3.7×1×2	330	815	114.2	165	30	25	115	199	φ14	45.5	140	Rc1/8
SFZ(C)5050F2Q	63	50	1/2	2.7×1×2	249	585	84.8	165	30	25	115	187	φ14	46	140	Rc1/8
SFZ(C)5050F2M		50	1/2	3.7×1×2	325	800	114.2	165	30	25	115	237	φ14	46	140	Rc1/8
SFZ(C)6332F2Q		32	1/2	2.7×1×2	291	755	105.8	190	32	30	140	144	φ14	47	165	Rc1/8
SFZ(C)6332F2M		32	1/2	3.7×1×2	380	1040	147.0	190	32	30	140	176	φ14	47	165	Rc1/8
SFZ(C)6340F2P		40	5/8	1.7×1×2	258	590	78.4	160	35	30	140	163	M12	50	140	Rc1/8
SFZ(C)6340F2Q		40	5/8	2.7×1×2	385	935	127.4	160	35	30	140	163	M12	50	140	Rc1/8
SFZ(C)6340F2M	40	5/8	3.7×1×2	505	1280	176.4	160	35	30	140	203	M12	50	140	Rc1/8	
SFZ(C)8040F2Q	80	40	5/8	2.7×1×2	435	1180	167.6	198	35	40	160	203	φ14	51.5	178	Rc1/8
SFZ(C)8040F2M		40	5/8	3.7×1×2	570	1620	231.3	198	35	40	160	203	φ14	51.5	178	Rc1/8
SFZ(C)8050F2Q		50	3/4	2.7×1×2	560	1460	195.0	250	40	40	175	195	φ22	47	210	Rc1/8
SFZ(C)8050F2M		50	3/4	3.7×1×2	730	2000	266.6	250	40	40	175	235	φ22	47	210	Rc1/8

# SFZ(G)系列 Series

可提供轴径  $\phi 50\sim\phi 140\text{mm}$ 、导程 14~50mm 丰富的系列组合

A diversified portfolio of products with shaft diameters of 50 mm to 140 mm and leads of 14 mm to 40 mm



## 1 Specifications 规格

### 容许 $d \cdot n$ 值和最高进给速度

Acceptable  $d \cdot n$  value and highest feedrate

最大容许  $d \cdot n$  值  $\leq 100000$

其中，导程 40、50 的  $d \cdot n$  值  $\leq 70000$ ，14032 的  $d \cdot n$  值  $\leq 50000$

$d \cdot n$  值：轴径  $d[\text{mm}] \times$  转速  $n[\text{min}^{-1}]$

Maximum acceptable  $d \cdot n$  value  $\leq 100000$   
 Leads of 40 mm and 50 mm: acceptable  $d \cdot n$  value  $\leq 70000$ ;  
 leads of 14032 mm: acceptable  $d \cdot n$  value  $\leq 50000$   
 $d \cdot n$  value: shaft diameter  $d[\text{mm}] \times$  rotation speed  $n[\text{min}^{-1}]$

### 精度等级 Precision level

将 JIS B 1192 (2018) 的 Ct5 和 Ct7 作为标准精度  
 Ct5 and Ct7 defined in JIS B 1192 (2018) are used as the standard precision.

### 轴向游隙 Axial internal clearance

标准规格轴向游隙小于 0.05mm  
 The standard axial internal clearance is smaller than 0.05 mm.

### 特殊规格 Special specifications

为提升载荷容量而需要变更循环数以及需要对法兰尺寸有特殊要求时，请与 SKK 联系。  
 Contact SKK if you want to change the number of cycles to increase the loading capacity or have special requirements for flange dimensions.

轴径、导程的组合和最高进给速度 Feedrates under various combinations of shaft diameters and leads							
导程 Lead (mm)	14	16	20	25	32	40	50
轴径 Shaft Diameter (mm)							
50	467	533	667	833	1067	933	-
63	-	423	370	463	593	688	-
80	-	333	300	365	467	583	729
100	-	-	300	292	-	-	583
120	-	-	194	243	-	-	-
140	-	-	-	-	190	-	-

Unit: [mm/s]

## 2 Cautions for Design 设计上的注意点

在设计丝杠轴端时，如不将轴的一端设计为通螺纹，或轴端尺寸小于钢球沟底径，将无法组装螺母，烦请注意。  
 In a ball screw design, the nut cannot be mounted on the ball screw if the shaft does not have full threads at one end or the shaft-end size is smaller than the bottom diameter of the raceway.

## 3 Selection of Ball Screw Models 关于滚珠丝杠的选型

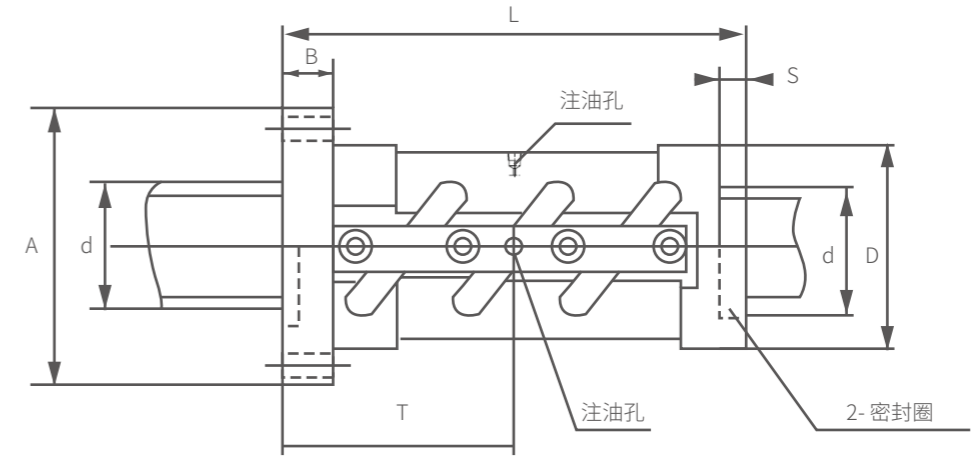
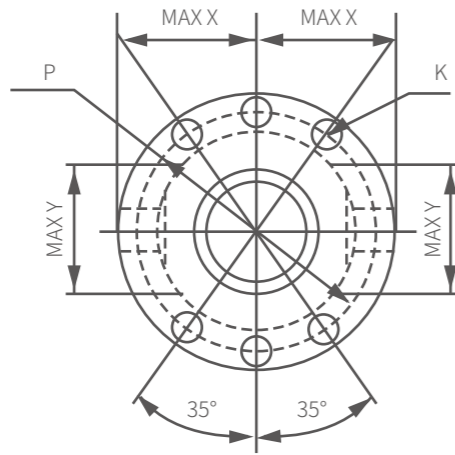
有关寿命、使用条件、润滑等请参照 P8-P9 页  
 For the service life, conditions for use, and lubrication of ball screws, see page 7-8.

## 4 Cautions for Use 使用上的注意点

使用温度：推荐在 60°C 以下使用  
 We recommend that you use the ball screws in an environment below 60° C.

# Specifications

## 规格尺寸



螺母型号 Nut nominal number	轴公称外径 d Screw shaft nom. O/D	公称导程 L Nom. Lead	循环数 (卷 × 列) Number of circuits (wind × row)	基本额定载荷 Basic load rating (kN)		允许轴向负荷 * (kN) Allowed axial load	螺母尺寸 Nut Size									
				额定动载荷 Ca	额定静载荷 Coa		D	A	B	L	S	P	K	X	Y	T
SFZ(G)5014FC	50	14	2.5×2	169	425	47.5	80	126	28	143	114	102	Φ11	55	59	104
SFZ(G)6316FC	63	16	2.5×2	275	705	80.3	116	157	32	168	13	137	Φ11	71	76	78.5
SFZ(G)6316FD		16	2.5×3	390	1060	120.4	105	139	28	212	16	122	Φ9	71	76	117
SFZ(G)8016FK	80	16	2.5×4	560	1790	204.0	130	180	32	262	16	156	M12	77	97	120
SFZ(G)8020FD		20	2.5×3	580	1660	186.7	130	170	27	250	16	150	Φ11	80	101	123
SFZ(G)10025FD	100	25	2.5×3	650	2100	231.0	167	207	40	317	25	187	Φ11	99	121	158
SFZ(G)10050F2B		50	3.5×1 (×2)	780	2350	269.4	165	244	32	281	19	210	Φ22	107	120	117.5
SFZ(G)12020FX	120	20	2.5×6	1290	5100	559.5	173	213	40	449	20	194	Φ11	108	118	250
SFZ(G)14025FX	140	25	3.5×5	2000	8200	910.8	252	329	80	618	19	291	Φ22	121	154	334.25
SFZ(G)14032FX		32	2.5×5	2250	8000	900	222	284	80	658	28	230	M30	146	163	375