DTX-LG V202506

DTX-LG

DTX-LG Technology Development Co., Ltd.

Email: info@dtx-lg.com
Website:www.dtx-lg.com

Address：
North side of the first floor of Building 1, No. 588, Changping Road, Huangdai Town, Xiangcheng District, Suzhou City,China

TikTok

DTX-LG

LINEAR SYSTEMS

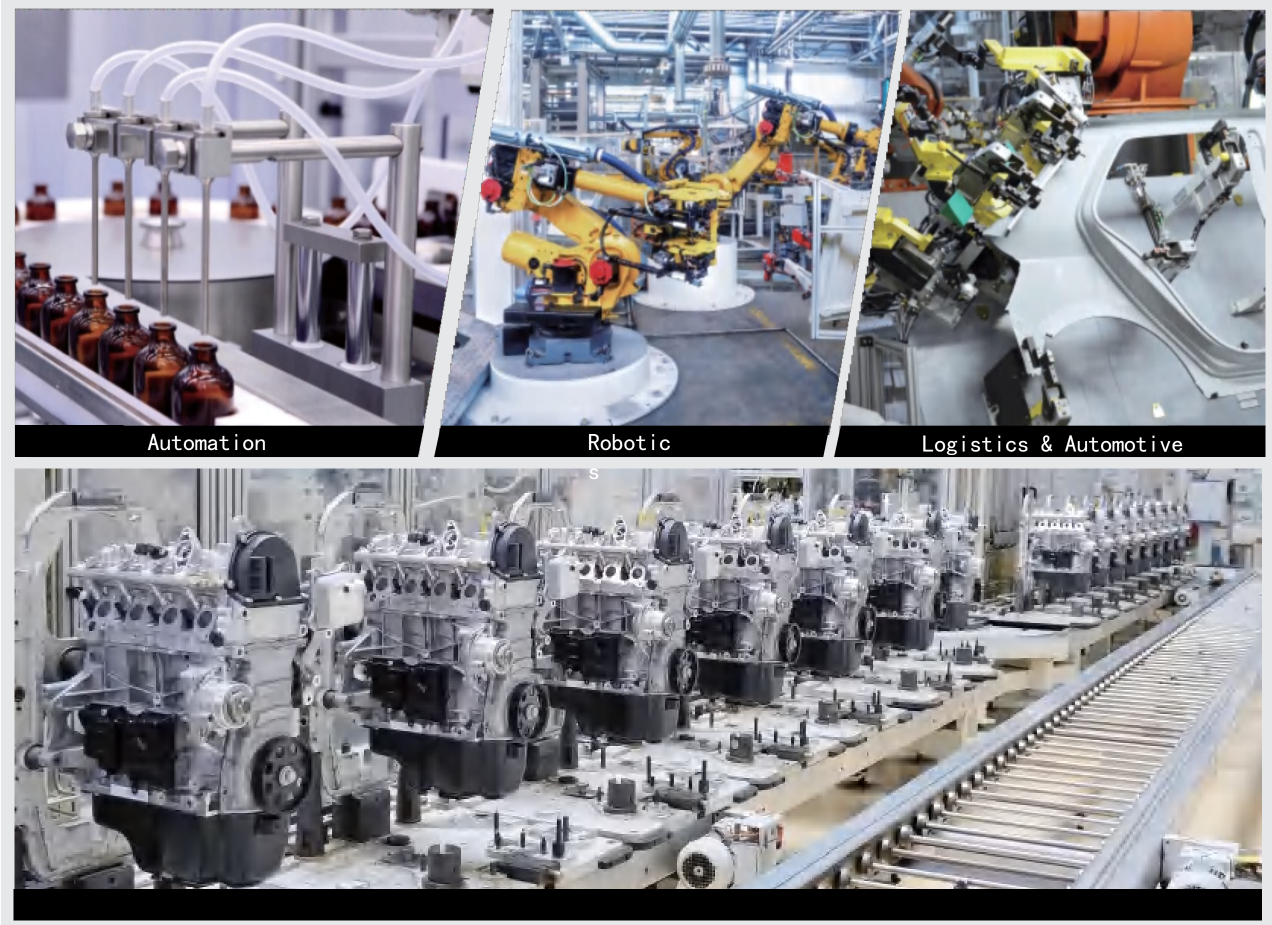
Brand Introduction

Since 1990,founded in 2015, DTX-LG is a professional manufacturer of transmission components, including linear guides, ball screws, modules, and more. In 2021, we established a 32,000 m² operations center in Suzhou, integrating R&D, production, and sales. With advanced facilities, including 12 three-sided grinding lines, 8 raceway grinding lines, and automated inspection systems, our annual capacity reaches 200,000 sets, with sales exceeding 28,000,000USD.

DTX-LG provides tailored solutions for industries such as laser processing, lithium batteries, photovoltaics, and new energy vehicles, addressing needs for corrosion resistance, high speed, heavy load, and dust protection. Our guides achieve SP-level precision, offer 30% higher load capacity, operate from -40°C to 260°C, and support acceleration up to 5 m/s with a service life of 2,000– 5,000 km.

Today, our products are widely applied by leading companies worldwide, helping solve industry challenges and earning broad recognition.

DTX-LG Linear Motion Application



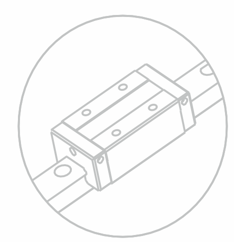
CONTENTS

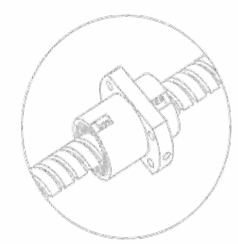
1.About DTX-LG product

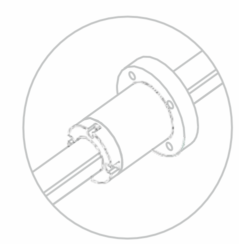
1.1 The Feature of DTX Linear Guide——p003
1.2 The Procedure of Select Linear Guide——p004
1.3 Basic Load Rating——p05
1.4 Service Life——p006
1.5 Workload——p007
1.6 Friction——p011
1.7 Lubrication——p012
1.8 For Butt-joint Rail——p012
1.9 Linear Guide Configuration——p013
1.10 Linear Guides Installation——p014

2.DTX-LG Product Series

2.1 SG Series-Heavy load linear guide ——p018
2.2 SE Series- Low profile linear guide——p041
2.3 SM Series-Miniature Linear Guide——p043
2.4 SR Series-Roller Linear Guide——p057
2.5 Ball Screw ——p077







1.1 Features of DTX MOTION Linear Guide

● High Accuracy

Linear Guide has little firiction, only a small driving foree is needed to move the load. Lowfriction helps the temperature rising effect to stay low, Thus, the friction is decreased and theaccuracy can be maintained for a long period than tradition slide system.

● High Rigidity

The design of Linear Gjuide features an equal load rating in all directions that provide sufficientrigidity load in all directions, self-aligning capability to absorb installation-error. Moreover, asuficient preload can be achieved to increase rigidity and makes it suitable for any kind ofinstallation.

● Easy for Maintenanee

Compared with high-skill required serapping process oftraditional slide system, the LinearGuide can offer high precision even if the mounting surface is machined by milling or grinding.Moreover, the interchangeability of Linear Gjuide gives a convenience for installation and futuremaintenance.

● High Speed

Linear Guide block, rail and ball apply by contact point ofrolling system. Due to thecharacteristic of low firiction, the required driving force is much lower than that in other systems,thus the power consumption is low, Moreover the temperature rising effeet is lower even underhigh speed operation.

1.2 The Procedure of Select Linear Guide

Selection of Linear Guide

- Application equipment
- Internal space restrictions
- Precision requirements
- Rigidity requirements
- Load method
- Travel distance
- Operating speed, acceleration
- Frequency of use
- Operating environment
- Required service life

Linear Guide Series

- SG series: Grinding machines, milling machines, lathes, drilling machines, comprehensive processing machines, electrical discharge machining machines, cutting machines, precision measuring instruments, woodworking machines, handling machines, transportation devices.
- SE series: industrial automation machines, semiconductor machinery, laser engraving machines, packaging machines.
- SM series: printers, robotic arms, electronic equipment, semiconductor devices.
- SR/CG series: CNC machining machine, heavy chip machining machine, CNC grinder, injection molding machine, large gantry machine tool.

Accuracy & Grades

- C,H,P,SP,UP The level depends on the accuracy requirements of the equipment

Select the correct Type

- Select based on experience
- Load state
- If used in conjunction with ball screws, the specifications of the linear guide used should be similar to the outer diameter of the screw. For example, if the outer diameter of the screw is 32mm, a similar specification of 2should be selected.

Caculate the Applied load

Calculated the equivalent Load

Calculated the statie safety factor

Calculate The service life

Lubrica ti on selec ti on

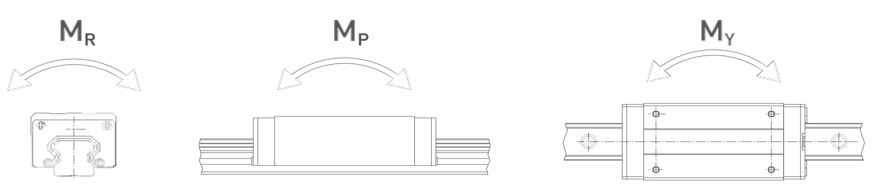
Linear guide selection complete.

Basic Load rating and Service Life of Linear Guide

When determining a model that would suit your service conditions for a linear motion system, the load carrying capacity and service life of the model must be considered. To consider the load carrying capacity you should know the static safety factor of the model calculation based on the basic static load rating. Service life can be assessed by calculating the nominal life based on the basic dynamic load rating and checking to see if the obtained value meet your requirements.
The service life of a linear motion system refers to the total running distance that the linear motion system travels until flaking (the disintegration of a metal surface in scale-like pieces) occurs there to as a result of the rolling fatigue of the material caused by repeated stress on raceways and rolling elements.
Basic Load Rating : There are two basic load ratings for linear motion systems : basic static load rating (Co), which sets the static permissible limits, and basic dynamic load rating (C).

1.3 Basic Permissible Moment (MX, MY, MZ)

When a Linear Guide gets a force that makes the balls distorted to 1/10,000 of their diameter, we call the force as basic staticpermissible moment. Values of MX, MY, MZ are shown on Fig 1.3.1, which suggest 3 axis of moment on a Linear Guide slide



Static safety factor
When linear guides are used in slow motion or low-frequency applications, the static safety factor must be considered. Depending on thespecific application conditions, diferent safety factors must be applied when calculating thestaic load, especially when the guide issubjected to impact loads, in which case a larger safety factor should be used.

Table | Static Safety Factor Usage

Load conditions	f_{sl}、f_{sm} lower limit
General operating conditions	1.0~3.0
Impact and vibration during operation	3.0~5.0

$$f_{SL}=\frac{C_0}{P} \quad \text{or} \quad f_{SM}=\frac{M_0}{M} \quad \cdots\cdots \quad \textbf{Eq.}1.1$$

$$f_s = \frac{C0}{P} \quad \frac{M_0}{M}$$

f_s : static safety factor
C_0 : basic static load rating (kg)
M_0 : static permissible moment (kg-mm)
P : calculated load (kg)
M : calculated moment (kg-mm)

A linear motion system may possibly receive an unpredictable external force due to vibration and impact while it is at rest or ismoving or due to inertia resulting from start and stop. It is therefore necessary to consider the static safety factor against operatingloads like these. The static safety factor (fs) indicates the ratio of a linear motion system load carrying capacity(basic static loadrating CO)to the load exerted there on.
To calculate the applied load on Linear Guide, mean load and static safety factor must be obtained in advance. In the workingenyironment with high intensity while start and stop, cantilever or cuting, a unexpected heayy load may occurs. therefore themaximum load must be acquired. Datum values of static safety factor are shown below,

1.4 Servive Life

1.4.1 Service Life (L）

Even when identical linear guideways in a group are manufactured in the same way or applied under the same condition, the service life may be varied. Thus, the service life is used as an indicator for determining the servicelife of a linear guideway system, The nominal life (L) is defined as the total running distance that 90% of identical linear guideways in a group, when they are applied under the same conditions, can work without developing flaking.

1.4.2 Basie Dynamic Load Rating(C)

Basic dynamic load rating (C) can be used to calculate the service life when linear guideway system response to a load. The basic dynamic load rating (C) is defined as a load in a given direction and with a given magnitude that when a group of linear guideways operate under the same conditions. As the rolling element is a ball, the nominal life of the linear guideway is 50km, Moreover, as the rolling element is a roller, the nominal life is 100 km.

1.4.3 Calculation ofNominal ife

The service lives of linear motion system more or less various from system to system even if they are manufactured to the same specifications and remain in service under the same operating conditions. Hence, a guideline for determining the service life of a linear motion system is based on nominal life, which is defined as follows. The nominal life refers to the total running distance that 90% of identical linear motion systems in a group, when interlocked with one another under the same conditions, can achieve without developing flaking. The nominal life (L) of a linear motion system can be obtained from the basic dynamic load rating (C) and load imposed (Pc) using the following equations.

$$L=\left|\frac{C}{P}\right|^3 50km=\left(\frac{C}{P}\right)^3 \cdot 31mile \quad \cdots\cdots \quad \textbf{Eq.}1.2$$

L: Rated service life
C: Basic Dynamic Load
P: Working Rated Load

(2) When considering environmental factors affecting the use of linear guides, their service life may vary depending on the state of motion, surface hard ness ofthe ballraceway, and system temperature.

$$L=\left|\frac{f_h \cdot f_t \cdot C}{f_w \cdot P_c}\right|^3 50km=\left|\frac{f_h \cdot f_t \cdot C}{f_w \cdot P_c}\right|^3 \cdot 31mile \quad \cdots\cdots \quad \textbf{Eq.}1.3$$

L：Service Life
f_h：Hardness Coefficient
C: Basic Dynamic Load Rated
f_r：Temperature Coefficient
P_c：Working Lload
f_w：Load c Coefficient

1.4.4 The service life of the Linear Guide can be obtained using the following equation

$$L = \left(\frac{f_h.\ f_t.\ f_c}{f_w} . \frac{C_3}{P_C} . \ 50\,km \right.$$

(2)【f_t:Temperature factor)

For Linear Guide used at ambient temperatures over 100'C, a temperature factor corresponding to the ambient temperature, selected from the diagram below, must be taken into consideration. In addition, please note that selected Linear Guide itself must be a model with high-temperature specifications.

Temperature

°C	100	150	200	250	
f_t	1.0	0.9	0.8	0.7	0.6

(3)【f_w:Load factor)

In general, machines in reciprocal motion are likely to cause vibration and impact during operation, and it is particularly difficult to determine the magnitude of vibration that develops during high-speed operation as well as that of impact during repeated starting and stopping in normal use. Therefore, where the effects ofspeed and vibration are estimated to be significant divide the basic dynamic-load rating (C) by a load factor selected from the table below.

Table2 Load Coefficeient

Load condition	Operating speed	f_w
No impact force and smooth	V≤15m/m in	1-1.2
Minimal impact force	15m/m in<V≤60m/m in	1.2-1.5
Normal load force	60m/m in<V≤120m/m in	1.5-2.0
Subject to impact force and vibration	V>120m/m in	2.0-3.5

1.4.5 Conversion of service life into time

Convert service life distance into service life time based on operating speed and frequency

$$L_h = \frac{L \cdot 10^3}{V_e \cdot 60} = \frac{\left(\frac{C}{P}\right)^3 \cdot 50 \cdot 10^3}{V_e \cdot 60}\ \text{hr} \quad \cdots\cdots \text{Eq.1.4}$$

L_h: Service life time (hr)
L: Service life (km)
V_e: Operating speed (m/min)
C/P: Load ratio

1.5 Workload

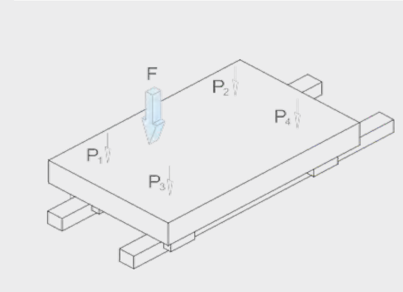
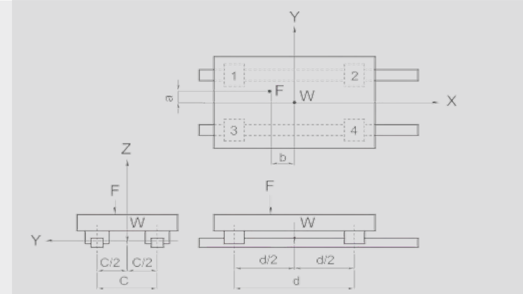
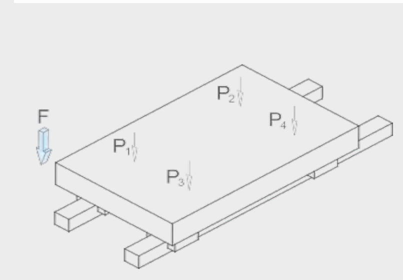
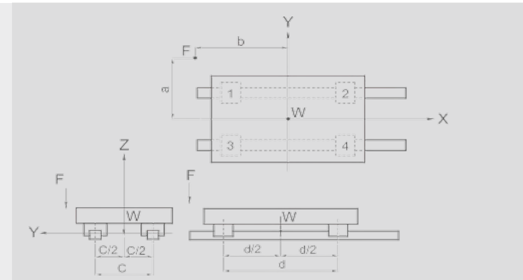
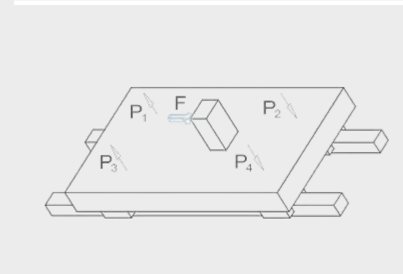
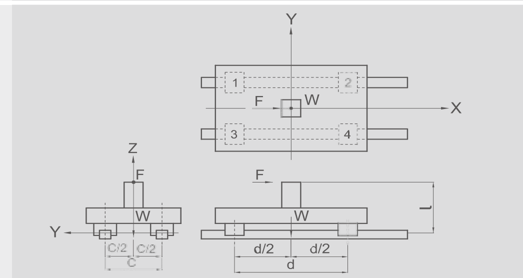
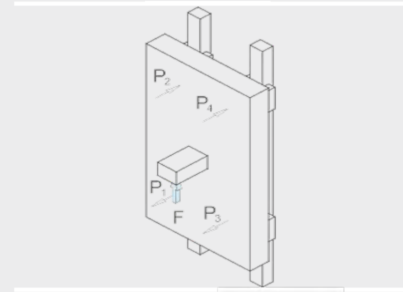
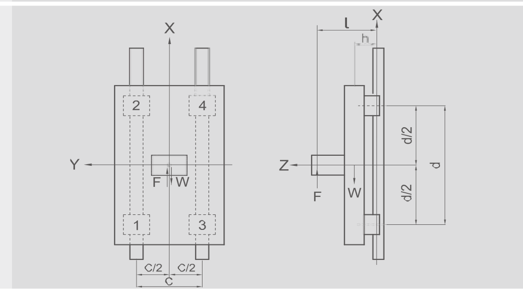
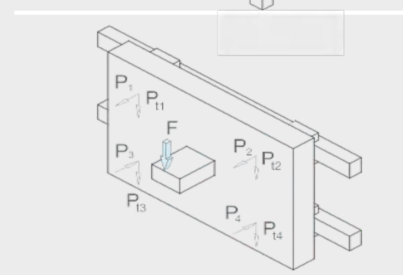
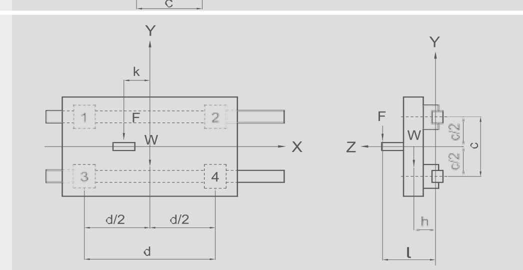
1.5.1 Workload Calculation

The load applied to the Linear Guide, varies with the external force exerted thereon, such as the location of the center of gravity of an object been moved, the location of the thrust developed, inertia due to acceleration and deceleration during starting and stopping, and the machining resistance. To select the correct type of Linear Guide, the magnitude of applied loads must be determined in consideration of the above conditions to calculate accurate applied load.

To obtain the magnitude of an applied load and the service life in hours, the operating conditions of the Linear Guide system must first be set.

(1) Load on a single slider

Table 3 Load Calculation Example

Linear guide configuration diagram	Force distribution diagram	Load on a single slider
		$P_1=\frac{W}{4}+\frac{F}{4}+\frac{F\cdot a}{2c}+\frac{F\cdot b}{2d}$ $P_2=\frac{W}{4}+\frac{F}{4}+\frac{F\cdot a}{2c}-\frac{F\cdot b}{2d}$ $P_3=\frac{W}{4}+\frac{F}{4}-\frac{F\cdot a}{2c}+\frac{F\cdot b}{2d}$ $P_4=\frac{W}{4}+\frac{F}{4}-\frac{F\cdot a}{2c}-\frac{F\cdot b}{2d}$
		$P_1=\frac{W}{4}+\frac{F}{4}+\frac{F\cdot a}{2c}+\frac{F\cdot b}{2d}$ $P_2=\frac{W}{4}+\frac{F}{4}+\frac{F\cdot a}{2c}-\frac{F\cdot b}{2d}$ $P_3=\frac{W}{4}+\frac{F}{4}-\frac{F\cdot a}{2c}+\frac{F\cdot b}{2d}$ $P_4=\frac{W}{4}+\frac{F}{4}-\frac{F\cdot a}{2c}-\frac{F\cdot b}{2d}$
		$P_1=P_3=\frac{W}{4}-\frac{F\cdot l}{2d}$ $P_2=P_4=\frac{W}{4}+\frac{F\cdot l}{2d}$
		$P_1\sim P_4=-\frac{W\cdot h}{2d}+\frac{F\cdot l}{2d}$
		$P_1\sim P_4=-\frac{W\cdot h}{2c}-\frac{F\cdot l}{2c}$ $P_{t1}=P_{t3}=\frac{W}{4}+\frac{F}{4}+\frac{F\cdot k}{2d}$ $P_{t2}=P_{t4}=\frac{W}{4}+\frac{F}{4}-\frac{F\cdot k}{2d}$

Note: W: Weight
F: External force

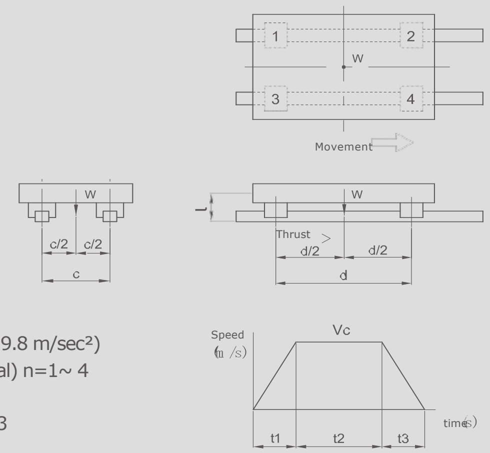
P_n: Load slider radial, reverse radial) n=1~4
P_m: Load slider lateral) n-1~4

a, b, k: Distance from external force to geometric center
c: Guide rail span d: Slider span

1: Distance from external force to drive source
h: Distance from center of gravity to drive source

(2)Inertial force load

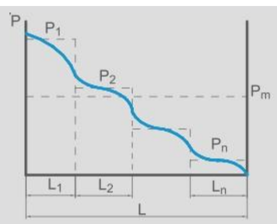
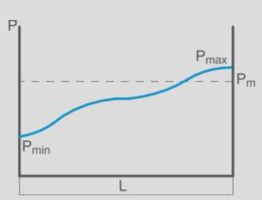
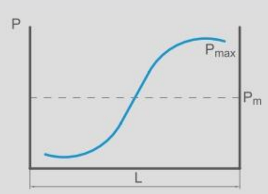
Table 4 Calculation Example ofInertial Force Load

Example of considering acceleration and deceleration	The force borne by a single slider
 F: Drive thrust (N) W: Device weight (N) g: Gravitational acceleration (9.8 m/sec²) Pn: Load (radial, reverse radial) n=1~ 4 V c: Speed t_n : Time constant n = 1 ~3 c, d, 1: Distance	Isokinetic $P_1 \sim P_4 = \frac{W}{4}$ accelerate $P_1 = P_3 = \frac{W}{4} + \frac{1}{2} \cdot \frac{W}{g} \cdot \frac{V_c}{t1} \cdot \frac{L}{d}$ $P_2 = P_4 = \frac{W}{4} - \frac{1}{2} \cdot \frac{W}{g} \cdot \frac{V_c}{t1} \cdot \frac{L}{d}$ decelerate $P_1 = P_3 = \frac{W}{4} - \frac{1}{2} \cdot \frac{W}{g} \cdot \frac{V_c}{t3} \cdot \frac{L}{d}$ $P_2 = P_4 = \frac{W}{4} + \frac{1}{2} \cdot \frac{W}{g} \cdot \frac{V_c}{t3} \cdot \frac{L}{d}$

1.5.2 Average load calculation

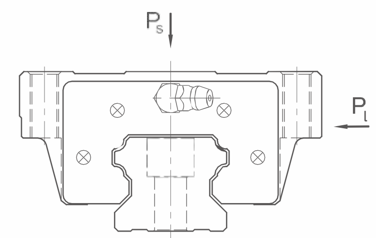
The load borne by the slider during operation is sometimes not equal. For example, in the operation of a conveying device, when it moves forward, it bears the additional weight of the goods, and when it returns, it only bears the weight of the device itself. The load changes in a stepped manner, so the average load during operation must be calculated to calculate the service life. The definition of average load is the equivalent load value that is equal to the lifespan under load variation conditions.

Table 5 Calculation Example of Average Load

Types of load changes	Types of load changes
Step by step change 	$P_m = \sqrt[3]{1/L(P_1^3 \cdot L_1 + P_2^3 \cdot L_2 + \ldots + P_n^3 \cdot L_n)}$ P_m: Average load P_n: Variable load L: Total running distance L_n: Operating distance under P_n load
Monotonic variation 	$P_m = 1/3\,(P_{min} + 2 \cdot P_{max})$ Pm: Average load P_{min}: Minimum load P_{max}: Maximum load
Sinusoidal variation 	$P_m = 0.65 \cdot P_{max}$ P_m: Average load P_{max}: Maximum load

1.5.3 Calculation of Equivalent Load in Two Directions

DTX-LG linear guides can withstand loads in four directions: up, down, left, and right. Therefore, when using linear guides, it is possible to be subjected to both vertical loads and lateral loads imultaneously. The equivalent load can be calculated using the following formula.



SG/SE/SM/SR/ series

$P_e = P_s + P_l$ ······ Eq.1.5

SM series

$P_s > P_l \quad P_e = P_s + 0.5 \cdot P_l$ ······ Eq.1.6

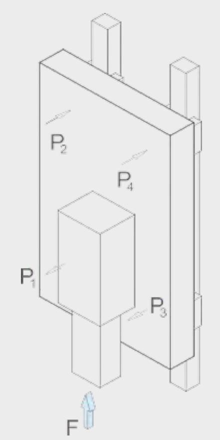
$P_l > P_s \quad P_e = P_l + 0.5 \cdot P_s$ ······ Eq.1.7

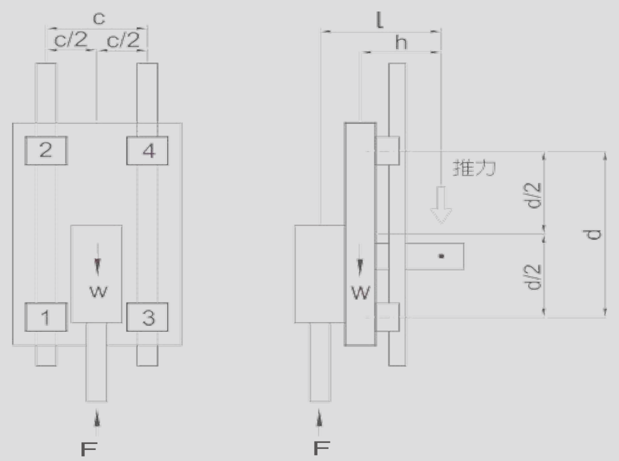
1.5.4 Calculation example of service life of linear guide rail

Based on experience, select the type and specifications of the linear guide rail, estimate the maximum working load of a single slider according to actual usage, calculate the load ratio between the dynamic rated load and the working load, and calculate its service life.

Table 6. Calculation Example ofService Life

Specifications for the use of linear guides	Device dimensions	Condition
Type：SGH 30CA C:38.74kN C_0:52.19kN Preload：Z0	d:600mm c:400mm h:200mm I:250mm	Equipment weight (W): 15 kN Drilling force (F): 1 kN System temperature: Room temperature Load condition: Normal load





- Calculation of load bearing capacity of slider

$$P_1 \sim P_4 = + \frac{W \times h}{2d} - \frac{F \times l}{2d} = + \frac{15 \times 200}{2 \times 600} - \frac{1 \times 250}{2 \times 600} = 2.29\,(kN)$$

$$P_{max} = |P_1 \sim P_4| = 2.29\,(kN)$$

- Since Z0 preload is selected,P_c=P_{max}=2.29(kN)
  Note: Choosing heavier preloads (such as Billion A and ZB) may increase
- rigidity, but it will reduce its service life Calculation of lifespan L

$$L = \left(\frac{f_h \times f_t \times C}{f_w \times P_c}\right)^3 \times 50 = \left(\frac{1 \times 1 \times 38.74}{2 \times 2.29}\right)^3 \times 50 = 30{,}258\ (km)$$

1.6 Friction

The construction of Linear Guide are block, rail and motion system which has rolling elements, such as balls and rollers, placed between two raceways. The rolling motion that rolling elements give rise to reduce the frictional resistance to 1/20 th to 1/40 th of that in a slide guide. Static friction, in particular, is much lower in a linear motion system than in other system, and there is little difference between static and dynamic friction, so that stick-slip does not occur. Therefore, Linear Guide could apply in various precision motion system. Frictional resistance in a linear motion system varies with the type of linear motion system, the magnitude of the preload, the viscosity resistance of the lubricant used the load exerted on the system, and other factors. Table shows Friction of Linear Guide.

$$F = \mu \cdot W + S \qquad \text{Eq.1.8}$$

F: Friction force (kN)
S: Resistance of oil scraper (kN)
μ: Coefficient of friction
W: Vertical load in motion (kN)

1.7 Lubrication

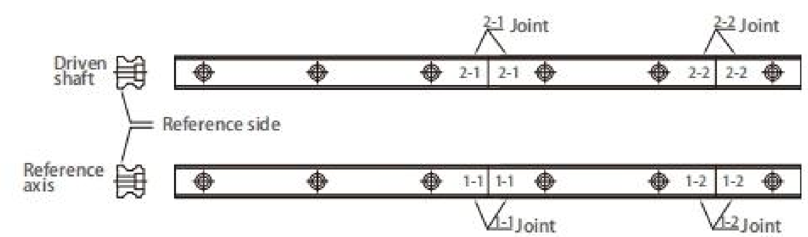
Lubrication is essential to linear motion system. Without lubrication, the friction of rolling parts increases and might be the main factor of service life shortening.

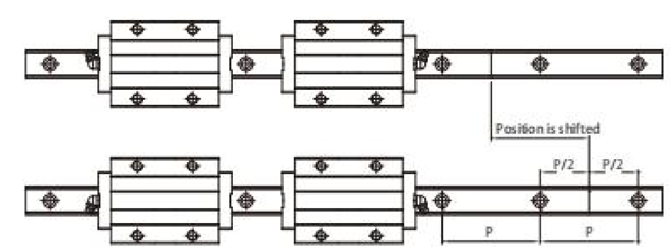
A Lubricant :
(1)Reduces friction on moving parts, thereby to prevent wearing due to raise in temperature.
(2)Forms an oil film on rolling surfaces, thus decreasing stress that develops on the surfaces and safeguarding the system
against rolling fatigue.
(3)Covers metal surfaces with an oil film, thereby preventing rust.
To tap the full function of a linear motion system, lubrication is essential to meet the system service conditions.

Classification of Lubricants
Primarily grease and sliding surface oil are used as lubricants for linear motion systems. In general a lubricant must :
(1)Form a strong oil film.
(2)Reduce wear as much as possible.
(3)Have high wear resistance.
(4)Have high thermal stability.
(5)Be non-corrosive.
(6)Be highly rust-preventive.
(7)Be free from dust and some moisture.
(8)Be free from significant fluctuations in consistency against repeated agitation of grease.

1.8 For Butt-joint Rail

Accuracy may deviate at joints when carriages pass the joint simultaneously. Therefore, the joints should be interlaced for avoiding such accuracy problem.

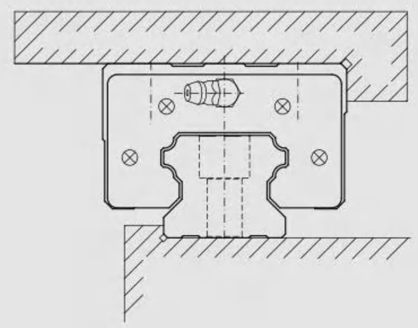




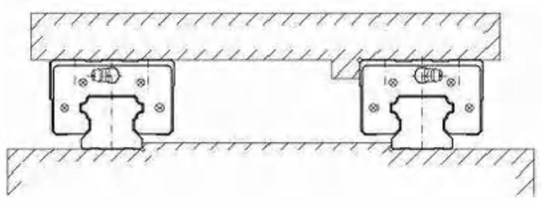
1.9 Linear Guide Configuration

Linear guides can withstand loads in the up, down, left, and right directions, so linear guide assemblies can be configured according to the machine structure and working load direction.

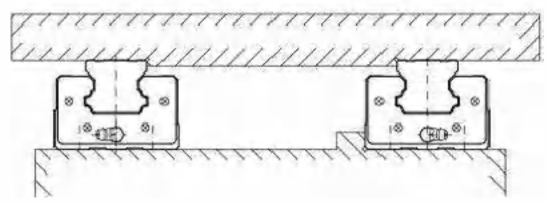
Single guide with bearing surface configuration



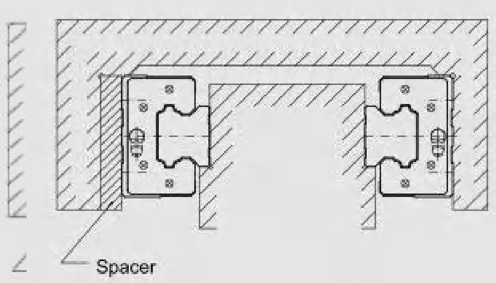
Horizontal Configuration.



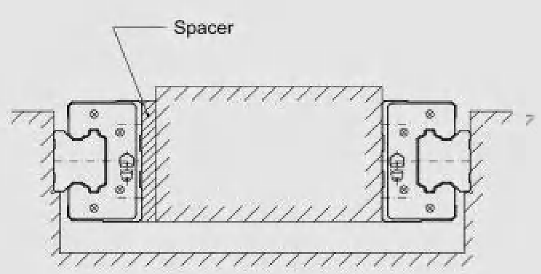
Upside down Configuration.



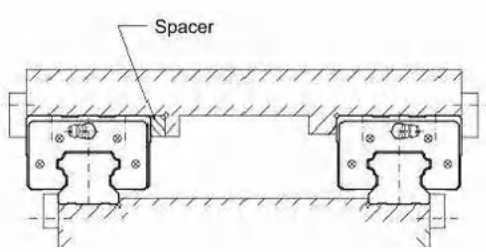
Vertical Configuration.

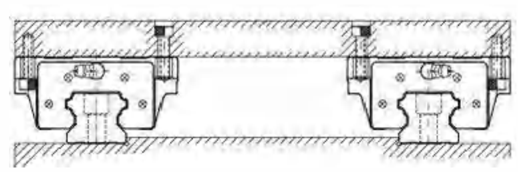


Back-to-back configuration



Common Fastening Method of Linear Guide





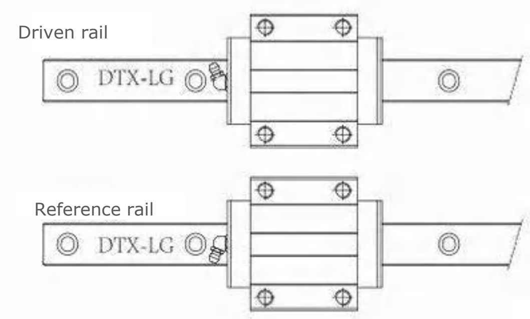
A Setting Where the Host Machine is Subjected to Impact and VibrationCommon

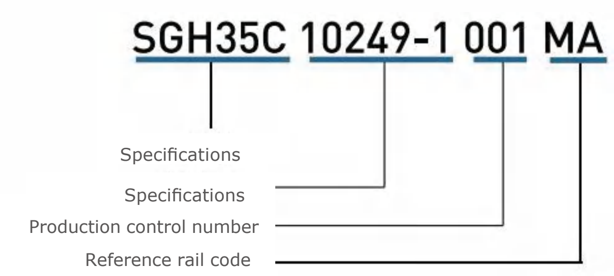
1.10 Linear Guides Installation

Linear guides must be installed according to the operating cond itions of the machine, such as the degree of vibration and impact force, the required Traveling accuracy, and machine restrictions.

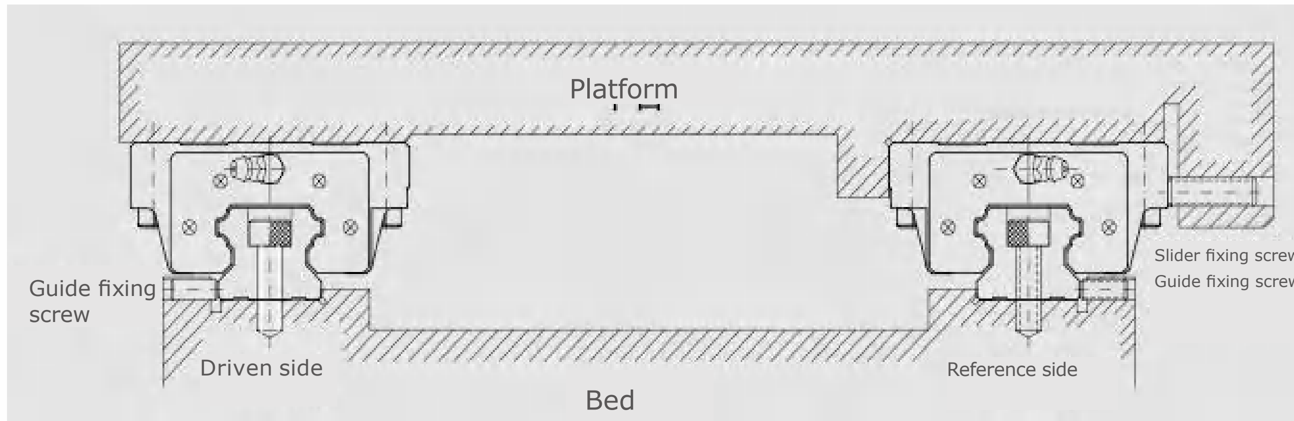
1.10.1 Reference Rail and Driven Rail

When non-interchangeable linear guides are used in pairs, attention should be paid to the difference between reference rail and driven rail. The reference rail has a higher accuracy on the ref erence surface on the side than the driven rail and can be used as the mounting surface for the bed. The reference rail is marked with MA, as shown in the figure.





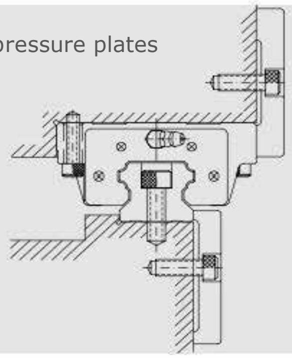
1.10.2 Beds are subject to vibration and impact forces and require high rigidity and high accuracy installation



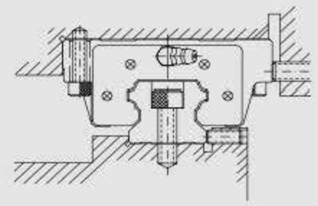
Mounting the Linear Guide

Mounting Procedures

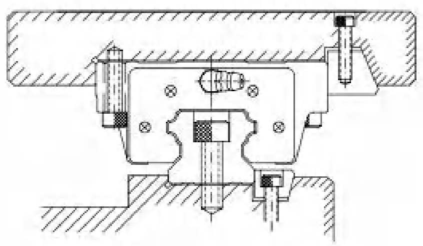
Fixing with pressure plates



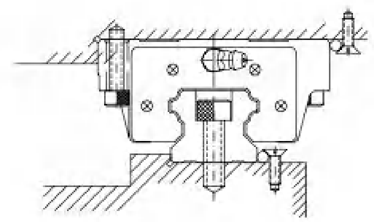
Fixing with fixed screws



Fixing with taper

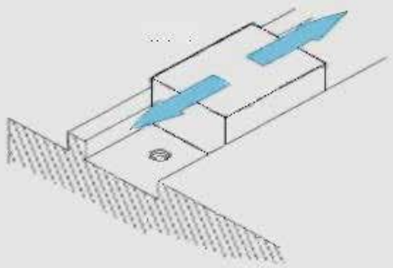


Fixing with needle roller

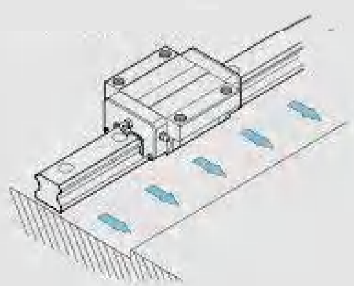


(2) Guide installation

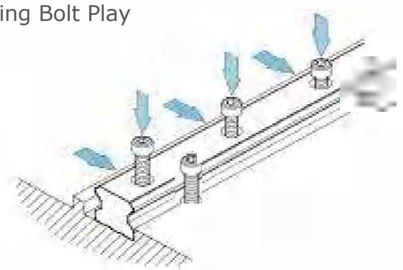
1 Clean the Mounting surface.



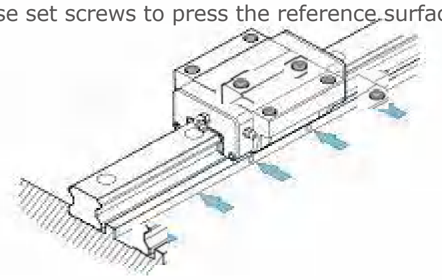
2 Holding an Linear Guide rail against the Reference Surface



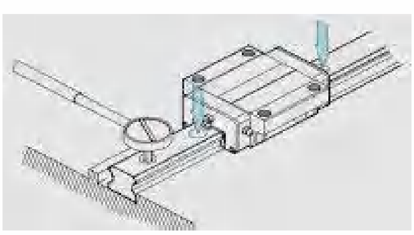
3 Checking Bolt Play



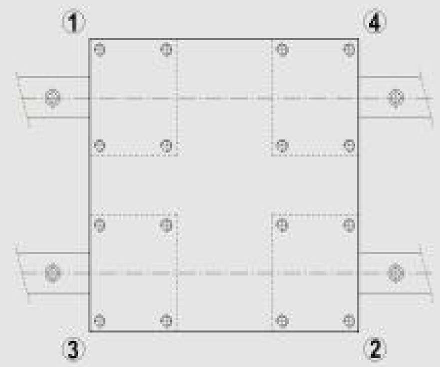
4 Use set screws to press the reference surface of the guide



5 Full Tightening of Mounting Bolts



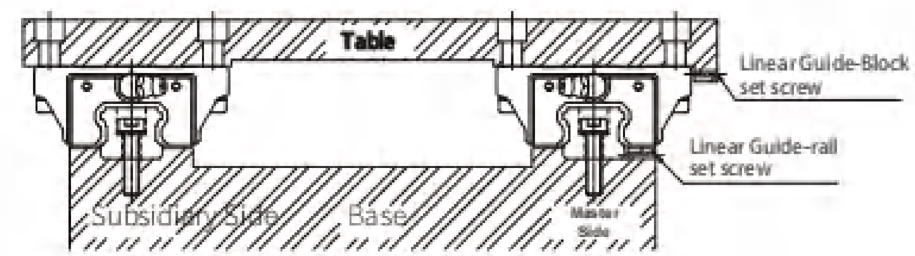
(3) Slider installation



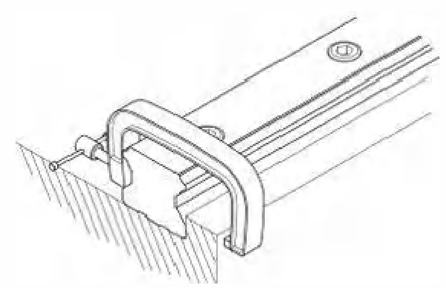
- Use assembly screws to roughly secure the load platform to the slider.
- Use fixing screws to secure the reference surface on the slider side to the assembly surface on the platform side to determine the position of the slider.
- Tighten the assembly screws to secure the load platform to the slider in a diagonal sequence from 1 to 4.

1.10.3 Installation of guides without lateral fixing screws

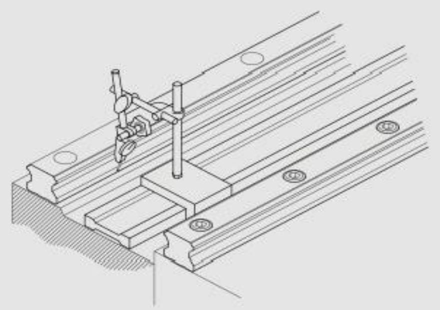
Mounting the Linear Guide on a Machine Susceptible to Vibration and Impact



Mounting the Master Linear Guide Rail

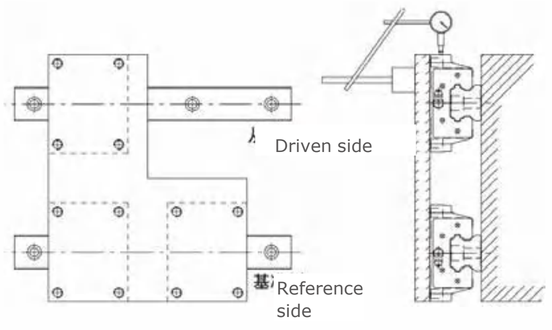


After temporarily tightening the mounting bolts, use a small device or the like to firmly press the rail to the side, against the reference section. Fully tighten the mounting bolts. Repeat this for each mounting bolt in sequence.



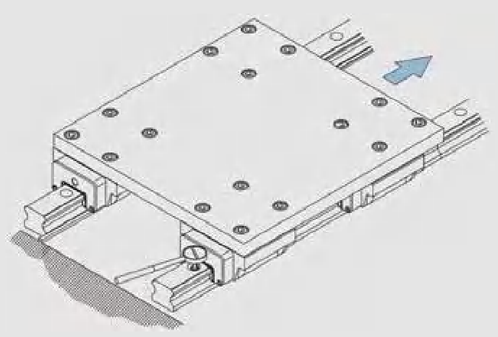
Use a Straight Edge

Position a straight edge between the two rails then confirm parallelism with a dial gauge. Using the straight edge as areference to confimm subsidiary rail straightness fom one end to the other, tightening the mounting bolts in sequence as you go.



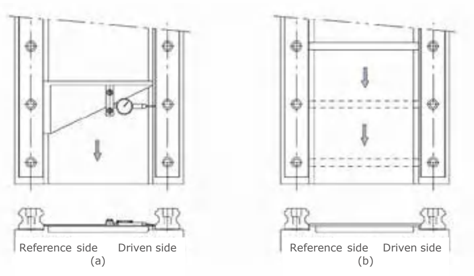
Move thes Table

Fasten two Linear Guide blocks on the master side to the table(or a temporary measurement table). Temporary fasten the subsidiary Linear Guide rail and block to the base and table.From the dial-gauge stand, with a dial gauge contact the subsidiary rail Linear Guide block side, move the table from the rail end and check the parallelism between the block and the subsidiary Linear Guide rail, fastening the bolts on sequences as you go.



Compare to the Master Linear Guide Rail

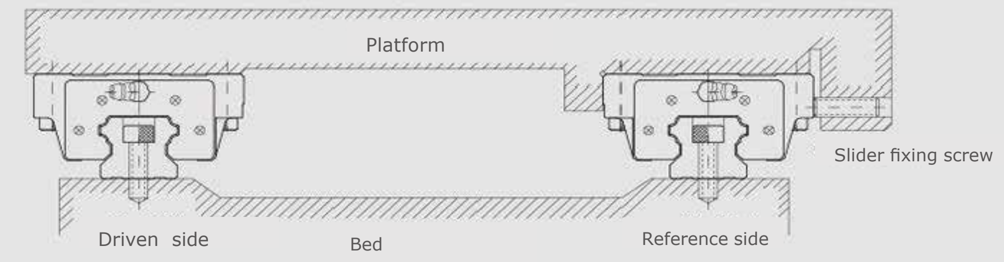
Make sure the master Linear Guide rail is properly installed,Temporarily fasten the subsidiary Linear Guide railin place.Place a table on the Linear Guide blocks mountedon the master rail and on the temporarily fastened subsidiary Linear Guide rail. Fully tighten the mounting bolts on the two Linear Guide blocks on the subsidiary rail. With there maining Linear Guide block on the subsidiary rail temporarily fastened, correct the position of the subsidiary Linear Guide rail, fully tightening its mounting bolts insequence as you go.



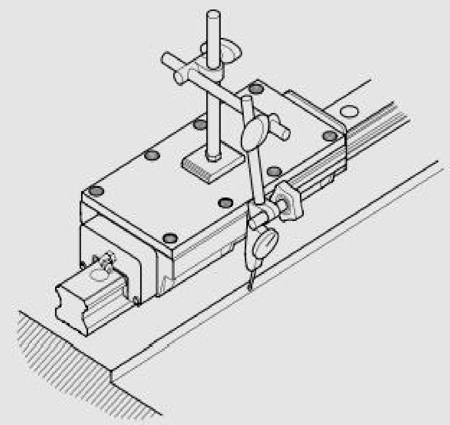
Method Using a Jig

Using a jig as shown in (Fig 1.1 1.17) confirm parallelism between the master-rail-side reference surface and that of thesubsidiary rail at each mounting hole, and fully tighten themounting bolt there.

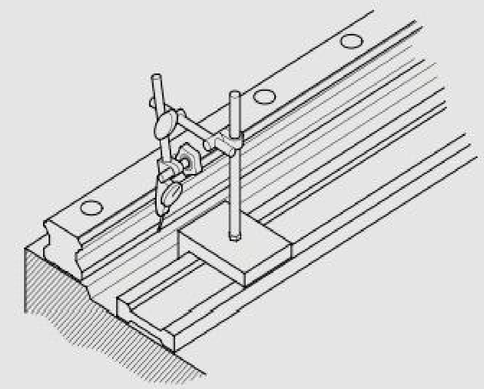
1.10.4 Installation of the Linear Guide without a Reference Section for the Master Linear Guide Rail.



Installation of the reference side guide



Mounting the Master Linear Guide Rail Use a Temporary Reference Surface from end to end to acquire Linear Guide rail straightness. For this method, however, two Linear Guide block must be fastened together, positioned on the top of each other while attached to a measurement plate



Use a Straight Edge

After temporarily tightening the mounting bolts, use a dial gauge to check the straightness of the Linear Guide-rail-side reference surface from end to end, fully tightening the mounting bolts in sequence as you go, To mount the subsidiary Linear Guide rail, follow the procedures specified in the second paragraph on the previous page.

2.1 SG Series
Heavy-Duty Ball Linear Guide

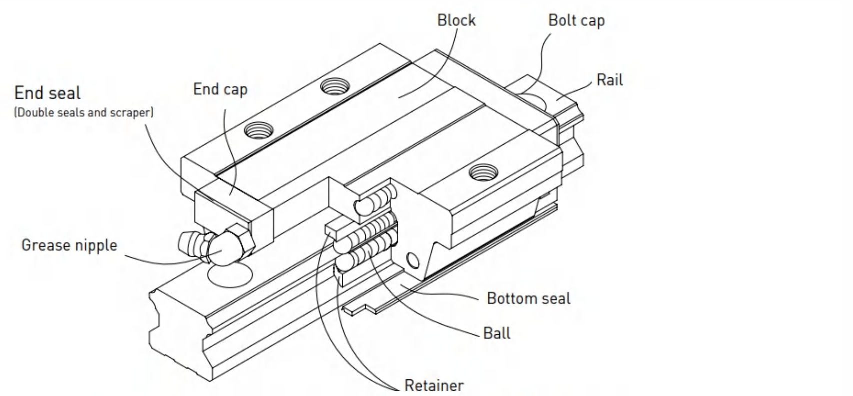
The SG series linear guides an effort to meet customer's requirement, DTX-LG offers several different types of guides. Except for DTX-LG develop SG series with self lubrication system which is designed for environment with high contamination and series for small machines and semiconductor industry.

2.1.1 SG Series Linear Guide Features
(1) Self-aligning capability
The combination of DF (45°-45°) fom the are groove allows for selfaligning capability during installation, Through the elastic deformation of steel balls and the transfer of contact points, even ifthe installation surface is slightly misaligned, it can be absorbed by the intermal linear guide slider, producing a self-aligning effect and achieving high-accuracy, stable, and smooth movement.

(2) Interchangeability
Due to strict control of manufacturing accuracy, the dimensions of linear guides can be maintained at a certain level, and the sliders are designed with retainers to prevent the steel balls from falling out, Therefore, some series have interchangeable accuracy, and customers can order guides or sliders as needed, or store guides and sliders separately to reduce storage space.

(3) High rigidity in all directions
The use of four rows of cireular are grooves, combined with four rows of steel balls with a contact angle of 45 degrees, allows the steel balls to achieve an ideal two-point contact structure that can withstand loads from above, below, and both sides. Ifnecessary, preload can be applied to increase rigidity.

2.1.2 The Structure of SG Series



- Rolling circulation system: Block, Rail, End Cap and Retainer
- Lubrication system: Grease Nipple and Piping Joint
- Dust protection system: End seal, Bottom Seal, Bolt Cap, Double Seals and Scraper

2.1.3 The Characteristies of SG Series

Smooth Movement- DTX circulation system of Linear Guide block is designed to perform smooth movement.
High Stability/Rigidity- Linear Guide block is designed under DTX's exelusive patent that can increases depth of material to improvethe strength capacity, prevent deflection and provide high rigidity.
DTX the exclusive contact point design promotes high rigidity, Moreover, self-aligning balanees load rating in all directions, This design also improves performance in running accuracy and service life of the Lincar Guide.Easy Installation with interchangeability- Linear Gjuide is easy for installation even without fixture. The desien of seal is able to combine with side seal or inner seal to save material.

(1) Nominal Model Code for Assembled Sets

SG W 25 C A E 2 R 1600 E ZA P II + DD/E2/RC

- SG Series
- Block Type
  W:Flange type
  H:Square type
  L:Square type Long
- Size:15,20,25,30,35,45,55,65
- Load type
  C:Heavy load
  H:Extra heavy load
- Block fixing Type
  A:From the above
  B:From bottom type
  C:Both
- E: Special Requested
  No Mark:Standard
- Number of Block Assembled on single Rail
- Rail Type
  R:Standard
  T:From Bottom
- Rail Length(mm)
- E:Special Requested of Rail
  No mark:Standard
- Accuracy Grade C/H/P/SP/UP
- Two Rails Per Axis
- Dust Proof Type
- E2:Self-lubricating
  SE:Metal Cap
- RC: Reinforced Cap

Note:1.One Rail Per Axis, do not write anything.
Two Rails Per Axis Mark II
2.Dust proof configuration
Without Mark-Standard Dustproof
ZZ:End Seal+Metal Scraper
KK:Double End Seals+Metal Scraper
DD:Double End Seals.

(2) Nominal Model Code for Interchangeable Block models
○ Interchangeable Type of Blocks

SG W 25 C A E ZA P + ZZ/E2

- SG Series
- Block Type
  W:Flange type
  H:Square type
  L:Square Type Low Assembled
- Size:15,20,25,30,35,45,55,65
- Block Type
  C:standard Load
  H:Heavy Load
- Block Fixing method
  A:From Bottom
  C:Both
- E:Special Requested Block
  No mark:Standard Block
- Preload:Z0/ZA/ZB
- Accuracy Grade:C/H/P
- Dusty Proof
- E2: Self-lubricating
  SE:Metal Cap

○ Interchangeable guide product model

SG R 25 R 1200 E P + RC

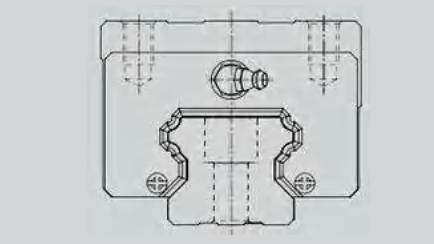
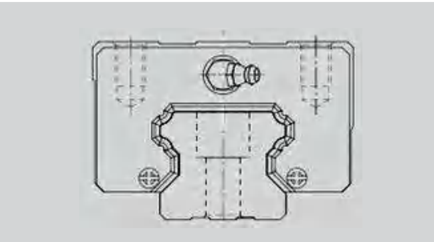
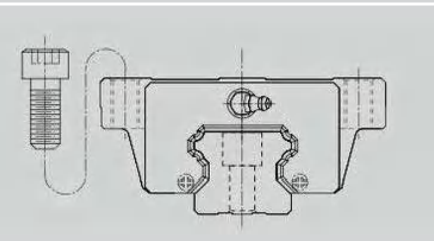
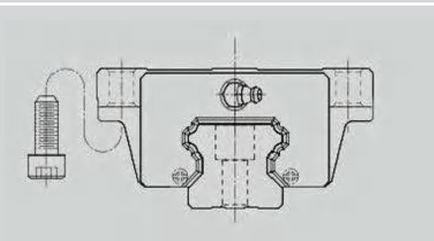
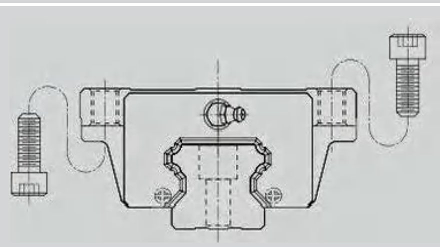
- SG Series
- Single-track guide
- Size:15,20,25,30,35,45,55,65
- Guide fixing method
  R:Upper lock
  T:Lower lock
- Rail length(mm)
- E:Special processing of guides
  No mark:No special processing of guides
- Accuracy:C/H/P
- RC:Reinforced bolt cover

SG Series
Heavy-Duty Ball Linear Guide

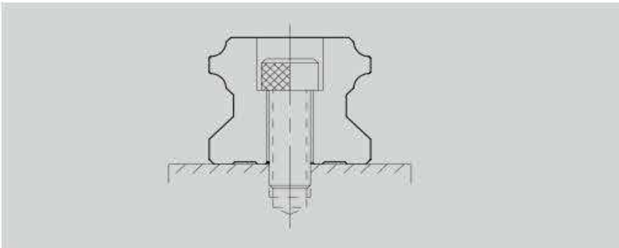
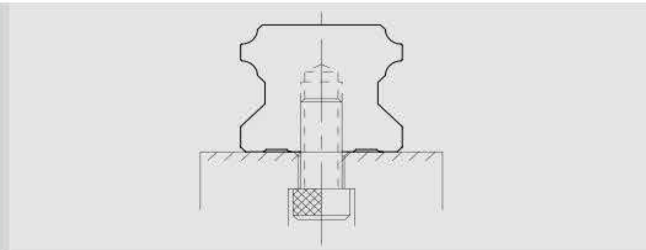
2.1.4 SG Series Model
(1) Slider types

DTX-LG ofers two types of linear guides: flange type and square type. The square type linear guides are divided into H-type and L-type.
The L-type is a low-assembly linear guide based on the H-type, with the same assembly height as the flange type linear guide.

Table 2.1.1 Slider types

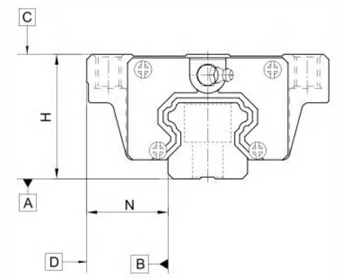
Type	Spec	Shape	Height (mm)	Rail length (mm)	Equipment
Square type	SGH-CA SGH-HA		28 ↓ 90	100 ↓ 4000	○Machining centers Machine tools ○Accuracy machining equipment ○Heavy-duty cutting machines ○Marble cutting machines ○Grinding machines ○Injection molding machines ○Presses ○Automation equipment ○Transportation equipment ○Measuring instruments
	SGL-CA SGL-HA		24 ↓ 70	100 ↓ 4000	
Flange type	SGW-CA SGW-HA		24 ↓ 90	100 ↓ 4000	
	SGW-CB SGW-HB		24 ↓ 90	100 ↓ 4000	
	SGW-CC SGW-HC		24 ↓ 90	100 ↓ 4000	

Mounting Type of Linear Rail

Mounting from Top	Mounting from bottom
	

2.1.5 Accuracy Standards

The accuracy standards of SG-Series range, from normal (N), high (H), precision (P), super-precision (SP) and ultra-precision (UP).
It allows our user to choose according to the accuracy standards of the equipment.



Accuracy of non-interchangeable guideways

Table 2.1.3 Assembly accuracy table Unit: mm

Model	SG-15,20				
Accuracy grade	Normal grade (C)	High grade (H)	Accuracy grade (P)	Supper grade (SP)	Ultra grade (UP)
Dimensional tolerance of height H	±0.1	±0.3	$^{0}_{-0.03}$	$^{0}_{-0.015}$	$^{0}_{-0.08}$
Dimensional tolerance of height N	±0.1	±0.3	$^{0}_{-0.03}$	$^{0}_{-0.015}$	$^{0}_{-0.08}$
Variation of height H	0.02	0.01	0.006	0.004	0.003
Variation of width N	0.02	0.01	0.006	0.004	0.003
Running parallelism of block surfaceC to surface A	Traveling parallelism (see Table 2.1.11)				
Running parallelism of block surfaceD to surface B	Traveling parallelism (see Table 2.1.11)				

Table 2.1.4 Assembly accuracy table Unit: mm

Model	SG-25,30,35				
Accuracy grade	Normal grade (C)	High grade (H)	Accuracy grade (P)	Supper grade (SP)	Ultra grade (UP)
Dimensional tolerance of height H	±0.1	±0.04	$^{0}_{-0.04}$	$^{0}_{-0.02}$	$^{0}_{-0.01}$
Dimensional tolerance of width N	±0.1	±0.04	$^{0}_{-0.04}$	$^{0}_{-0.02}$	$^{0}_{-0.01}$
Variation ofheight H	0.02	0.015	0.007	0.005	0.003
Variation of width N	0.03	0.015	0.007	0.005	0.003
Running parallelism of block surfaceC to surface A	Traveling parallelism (see Table 2.1.11)				
Running parallelism of block surfaceD to surface B	Traveling parallelism (see Table 2.1.11)				

SG Series

Heavy-Duty Linear Guide

Table 2-1-5 Assembly accuracy table Unit: mm

Model	SG - 45, 55				
Accuracy grade	Normal grade [C]	High grade [H]	Accuracy grade [P]	Supper grade [SP]	Ultra grade [UP]
Dimensional tolerance of height H	±0.1	±0.05	0 -0.05	0 -0.03	0 -0.02
Dimensional tolerance of width N	±0.1	±0.05	0 -0.05	0 -0.03	0 -0.02
Variation of height H	0.03	0.015	0.007	0.005	0.003
Variation of height H	0.03	0.02	0.01	0.007	0.005
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.1.11)				
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.1.11)				

Table 2-1-6 Assembly accuracy table Unit: mm

Model	SG - 65				
Accuracy grade	Normal grade [C]	High grade [H]	Accuracy grade [P]	Supper grade [SP]	Ultra grade [UP]
Dimensional tolerance of height H	±0.1	±0.07	0 -0.07	0 -0.05	0 -0.03
Dimensional tolerance of width N	±0.1	±0.07	0 -0.07	0 -0.05	0 -0.03
Variation of height H	0.03	0.02	0.01	0.007	0.005
Variation of height H	0.03	0.025	0.015	0.01	0.007
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.1.11)				
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.1.11)				

(2) Interchangeable linear guide accuracy

Table 2-1-7 Single part accuracy table Unit: mm

Model	SG - 15, 20		
Accuracy grade	Normal grade [C]	High grade [H]	Accuracy grade [P]
Dimensional tolerance of height H	±0.1	±0.03	±0.015
Dimensional tolerance of width N	±0.1	±0.03	±0.015
Variation of height H	0.02	0.01	±0.006
Variation of height H	0.02	0.01	±0.006
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.1.11)		
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.1.11)		

Table 2-1-7 Single part accuracy table Unit: mm

Model	SG - 25, 30, 35		
Accuracy grade	Normal grade [C]	High grade [H]	Accuracy grade [P]
Dimensional tolerance of height H	±0.1	±0.04	±0.02
Dimensional tolerance of width N	±0.1	±0.04	±0.02
Variation of height H	0.02	0.015	±0.007
Variation of height H	0.03	0.015	±0.007
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.1.11)		
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.1.11)		

Table 2.1.9 Single part accuracy table Unit: mm

Model	SG - 45, 55		
Accuracy grade	Normal grade [C]	High grade [H]	Accuracy grade [P]
Dimensional tolerance of height H	±0.1	±0.05	±0.025
Dimensional tolerance of width N	±0.1	±0.05	±0.025
Variation of height H	0.03	0.015	±0.007
Variation of height H	0.03	0.02	±0.01
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.1.11)		
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.1.11)		

Table 2.1.10 Single part accuracy table Unit: mm

Model	SG - 45, 55		
Accuracy grade	Normal grade [C]	High grade [H]	Accuracy grade [P]
Dimensional tolerance of height H	±0.1	±0.07	±0.035
Dimensional tolerance of width N	±0.1	±0.07	±0.035
Variation of height H	0.03	0.02	±0.01
Variation of height H	0.03	0.025	±0.015
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.1.11)		
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.1.11)		

(3) Accuracy of Running Parallelism

Rail Length (mm)	Accuracy grade (μm)C	H	P	SP	UP
～100	12	7	3	2	
100 ～ 200	14	9	4	2	2
200 ～ 300	15	10	5	3	2
300 ～ 500	17	12	6	3	2
500 ～700	20	13	7	4	2
700 ～900	22	15	8	5	3
900 ～1,100	24	16	9	6	3
1,100 ～1,500	26	18	11	7	4
1,500 ～1,900	28	20	13	8	4
1,900 ～2,500	31	22	15	10	5
2,500 ～3,100	31	25	18	11	6
3,100 ～3,600	36	27	20	14	7
3,600 ～4,000	37	28	21	15	7

SG Series

Heavy-Duty Ball Linear Guide

2-1-6 Preload

(1)Determining the M agnitude of a Preload

Using larger rolling elements helps strengthen the entire rigidity oftheblock while there exists clearance within ball circulation.Increasing preload would decrease the vibration and reduce the corrosioncaused by running back and forth. However, it would also add the workloadwithin those rolling elements, The greater the preload is, the greater theinner workload is, Therefore, choosing preload has to consider the effectcarefully between vibration and preload.

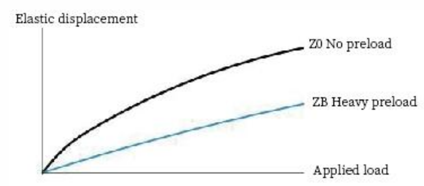


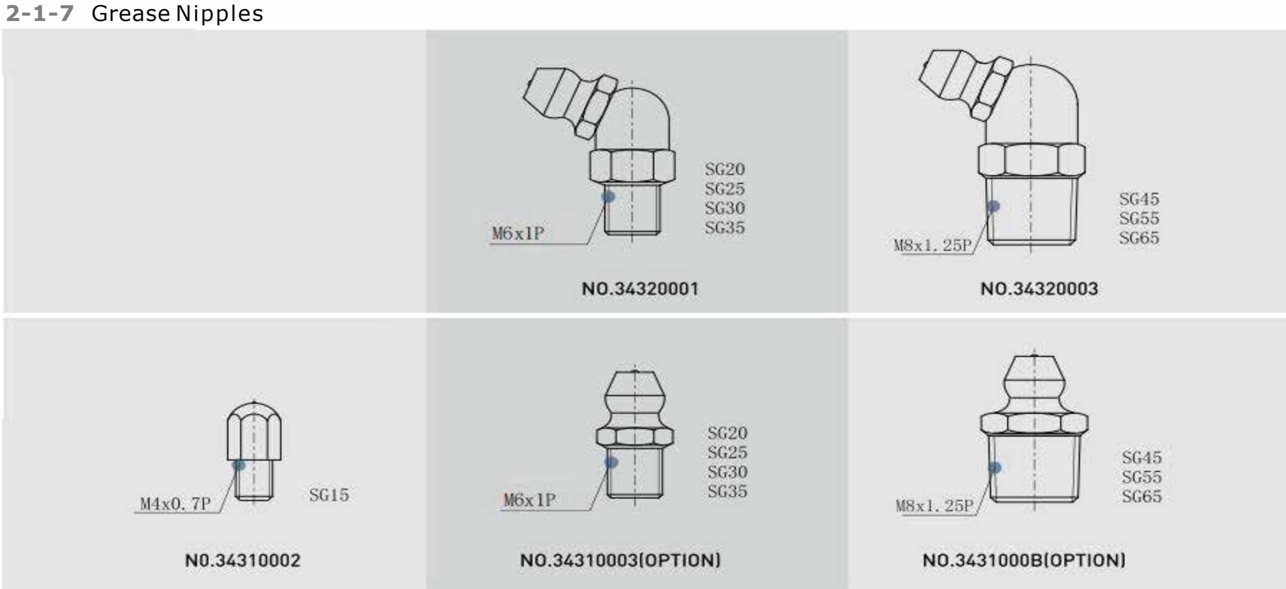
Table 2-1-12 Preload grades

Preload grade	Mar k	Preload	Conditions of use	Scope of application
No preload	Z0	0-0.02C	Fixed load direction and lowimpact, low accuracyreguirerents	Conveyor systems, automatie packaging machines, automated industrialmachinery, XY axes for general industrial machinery, welding machines,fusing machines, tool exchange devices
Medlum paeload	ZA	0.05-0.07C	Light load and high accuracyrequirements	Z-axis of general industrial machinery, electrical discharge machines, NClathes, precision XY platforms, measuring instruments, machining centers,vertical machining centers, industrial robots, automatic coating machines,and various high-speed material supply devices.
Heavy preload	ZB	0.10-0.12C	Rigidity requirements, vibrationand impact in the operatingenvlronment	Machining centers, grinding machines, NC lathes, vertical or horizontalmilling machines, Z-axis ofmachine tools, heavy cutting machines

Grade	Interchangeable linear guide (single part)	Non-interchangeable linear guide (combined parts)
Preload grade	Z0, ZA	Z0, ZA, ZB

Note: Preload C is the dynamic rated load.

2-1-7 Grease Nipples



Mounting Location of Grease Nipples

The standard location of the grease nipple is at both ends of the block, but the nipple can be mounted at each side of blockFor lateral installation, we recommend that the nipple be mounted at the non-reference side, otherwise please contact us. It ispossible to perform lubrication by using the oil-piping joint.

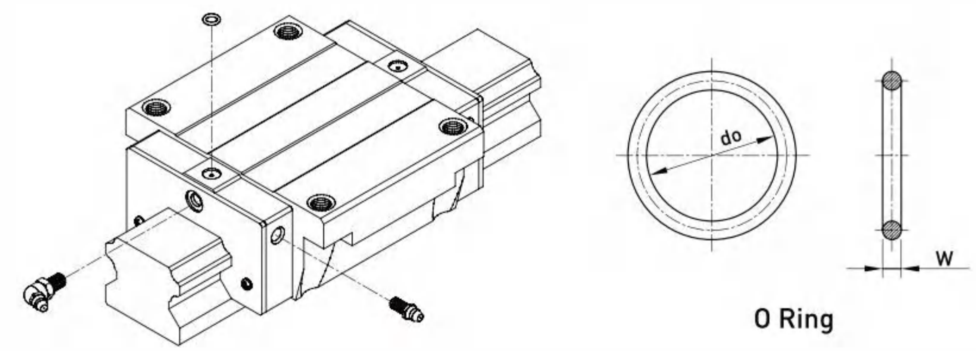
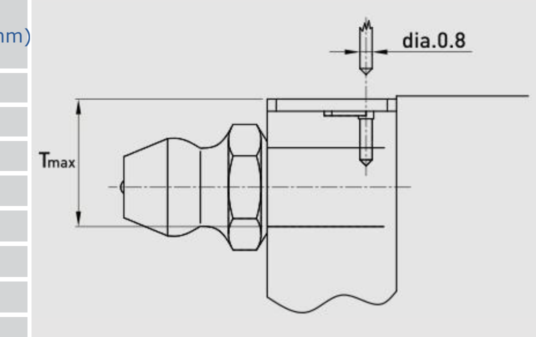


Table 2-1-13 Grease Nipples

Specification	O - Ring specification		Maximum allowable perforation depth T_{max} (mm)
	do(mm)	W(mm)	
SG 15	2.5±0.15	1.5±0.15	3.75
SG 20	4.5±0.15	1.5±0.15	5.7
SG 25	4.5±0.15	1.5±0.15	5.8
SG 30	4.5±0.15	1.5±0.15	6.3
SG 35	4.5±0.15	1.5±0.15	8.8
SG 45	4.5±0.15	1.5±0.15	8.2
SG 55	4.5±0.15	1.5±0.15	11.8
SG 65	4.5±0.15	1.5±0.15	10.8



The Lubricant Amount for a Block Filled

Table 2-1-14 Blocks

Specification	Heavy load (cm^3)	Extra heavy load (cm^3)
SG 15	1	-
SG 20	2	3
SG 25	5	6
SG 30	7	8

Specification	Heavy load (cm^3)	Extra heavy load (cm^3)
SG 35	10	12
SG 45	17	21
SG 55	26	33
SG 65	50	61

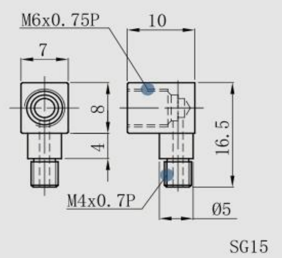
Lubrication frequency

Check the grease every 100 km or every 3-6 months

SG Series
Heavy-Duty Ball Linear Guide

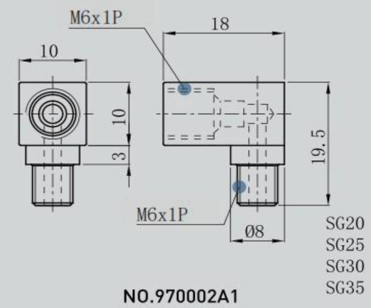
○ Types of Lubrication Coupler

LF-64



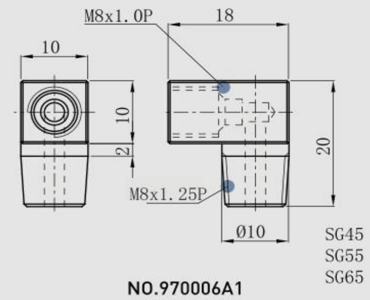
NO.97000EA1

LF-76



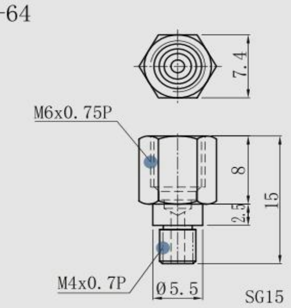
NO.970002A1

LF-78



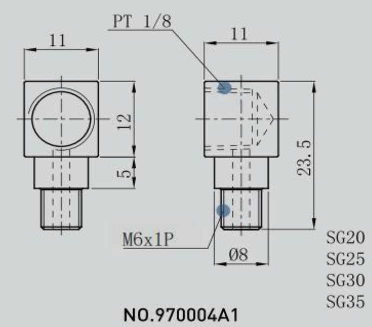
NO.970006A1

SF-64



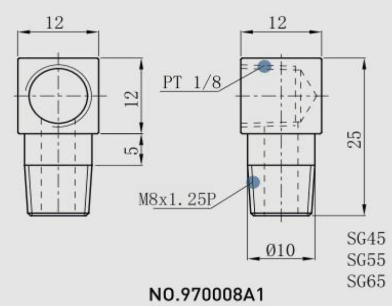
NO.97001TA1

LF-86



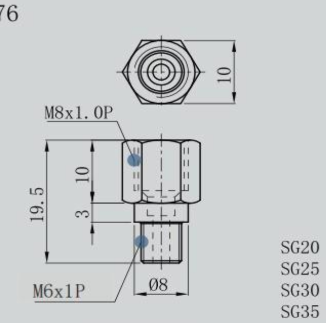
NO.970004A1

LF-88



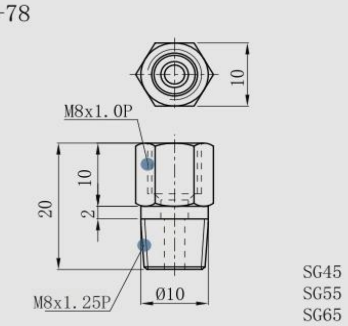
NO.970008A1

SF-76



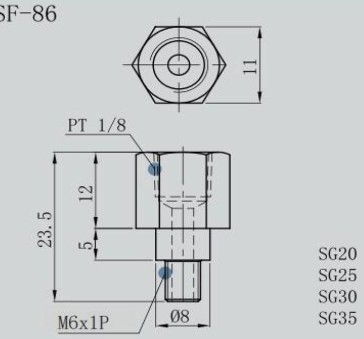
NO.970001A1

SF-78



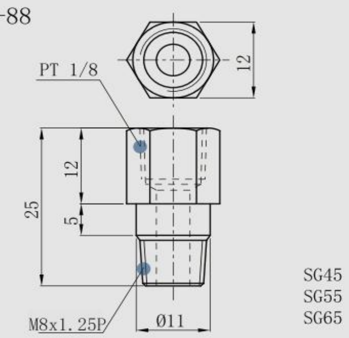
NO.970005A1

SF-86



NO.970003A1

SF-88



NO.970007A1

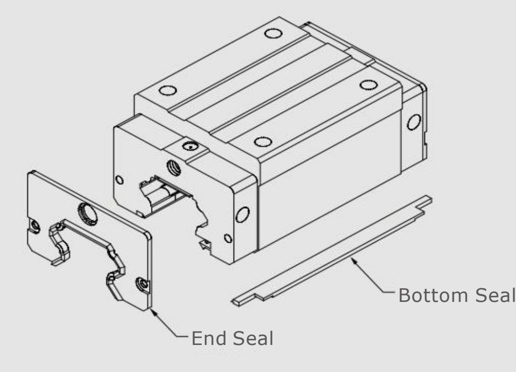
○ Oil supply rateTable 2-1-15 Oil supply rate

Table 2-1-15 Oil supply rate

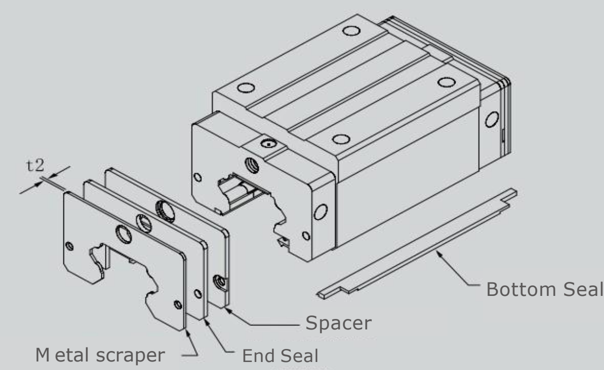
Specification	Oil supply rate	Specification	Oil supply rate
SG 15	0.2	SG 35	0.3
SG 20	0.2	SG 45	0.4
SG 25	0.3	SG 55	0.5
SG 30	0.3	SG 65	0.6

2.1.8 Dust protection
(1) Standard dust protection equipment code

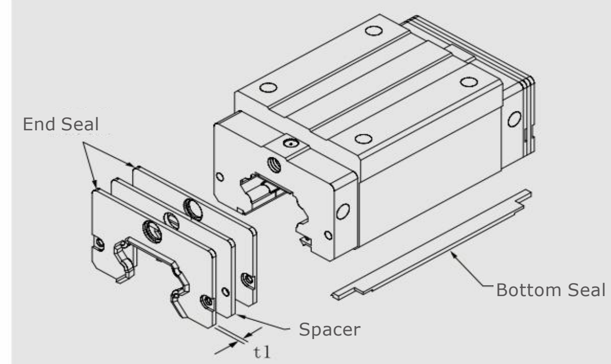
For use in general operating environments without special requirements. If you require the following dust-proof accessories, please add the code after the product model number.



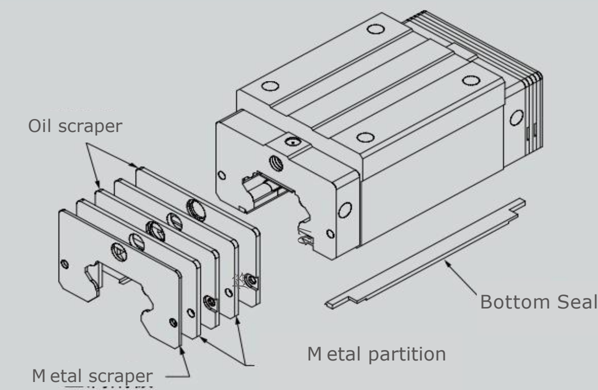
No Mark Standard Type of Block



ZZ End Seal＋Metal Scaper



DD Double End Seal

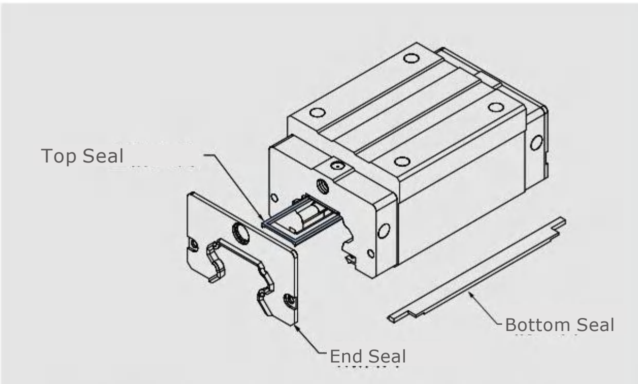


Double End Seales＋Metal Scraper

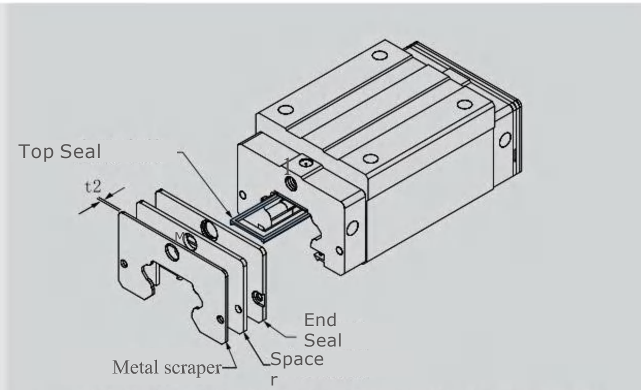
Note: SG 20/SG 25/SG 65 without metd partition configuratio

SG Series
Heavy-Duty Ball Linear Guide

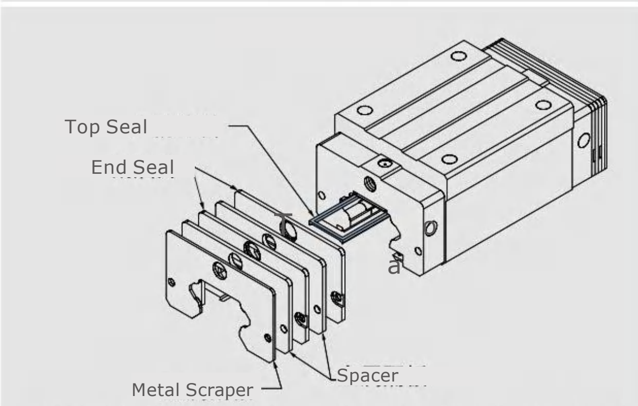
(2) High D ust Proof A



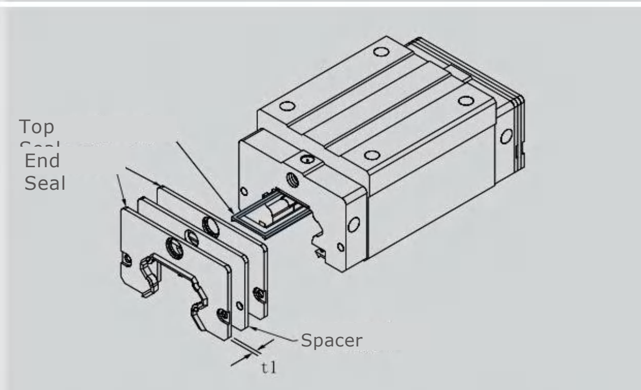
SH End Seal + Top & Bottom Seal



ZH End Seal +Top / Bottom Seal +Metal Scraper



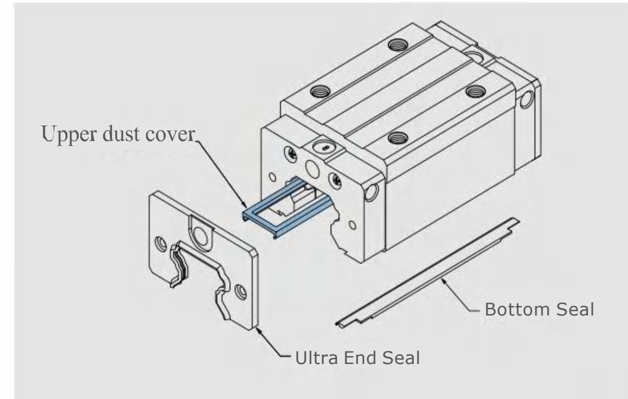
KH Double End Seal + Top Seal + Metal Scraper



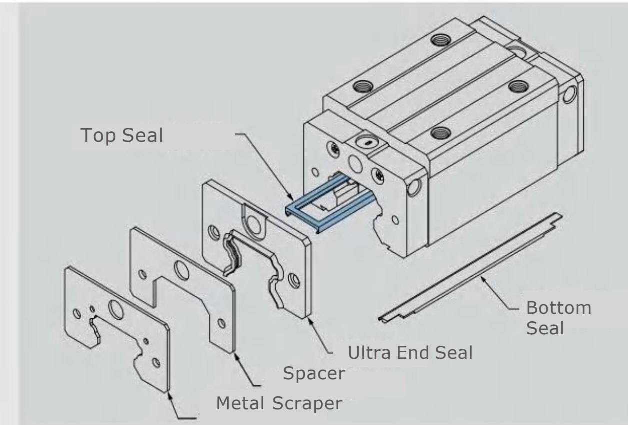
DH Double End Seal + Top Seal

Note: 1. Currently, the available specifications for high dust protection accessories are SG 20(CH), 25(C/H), 30(C/H), 35(C/H),. and 45C.
2. The resistance value is approximately 0.6 to 1.2 kgf higher than that of general parts.
3. If customers require higher dust protection functionality, please contact DTX-LG.

(3) Ultra-high dust protection accessory



SW Ultra End Seal +Top Seal



ZW Ultra End Seal +Top / Bottom Seal +Meta Scraper

Note: 1.Curently avalable specifications for high dust protection accessores imclude SG15(C/H), SG20(CH), SG25(C/H), SG30(CH). SG35(C/H), and SG45(C/H)
2. Resistance values are approximately 1.5-4.0 kgf higher than standard components.
3.SG15 is only available with an oil scraper (ultra-high dust protection).

(4) Dust prevention equipment description

- Oil scraper and bottom dust cover

Prevent iron filings or dust particles from entering the slider, damaging the surface of the ball track and reducing the service life of the linear guide.

- Block Length ofDust Proof Accessories

Specification	Increased thickness(t1)(mm)	Specification	Increased thickness(t1)(mm)
SG 15 SS	3	SG 35 ES	3.2
SG 20 ES	3.5	SG 45 ES	4.5
SG 25 ES	3.5	SG 55 ES	4.5
SG 30 ES	3.2	SG 65 ES	6

- Metal scraper

Can isolate high-temperature iron filings or processing sparks and remove large impurities.

Table 2-1-17 Metal scraper thickness

Specification	Increased thickness(t2)(mm)	Specification	Increased thickness(t2)(mm)
SG 15 SC	1.5	SG 35 SC	1.5
SG 20 SC	1.5	SG 45 SC	1.5
SG 25 SC	1.5	SG 55 SC	1.5
SG 30 SC	1.5	SG 65 SC	1.5

- Upper dust cover

Effectively prevent dust from entering the slider interior from the upper surface of the guide or bolt holes.

SG Series
HHeavy-Duty Ball Linear Guide

● Rail Cap

Once the Linear Guide is operating in a cutting machine, dust and foreign matter that enter the Linear Guide may cause abnormal wear and shorten the service life.

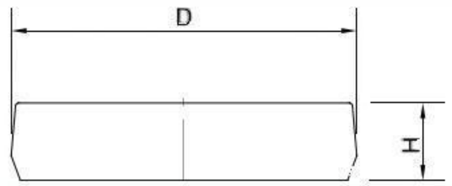


Table 2.1-18

Guide specification	Installation screw	Diameter (D) [mm]	Thickness (H) [mm]	Guide specification	Installation screw	Diameter[D] [mm]	Thickness(H) [mm]
SGR15	M4	7.65	1.1	SGR35	M8	14.20	3.5
SGR20	M5	9.65	2.5	SGR45	M12	20.25	4.5
SGR25	M6	11.15	2.5	SGR55	M14	23.25	5.0
SGR30	M8	14.20	3.5	SGR65	M16	26.35	5.0

(5)Dust Proof Accessories of Total slider length

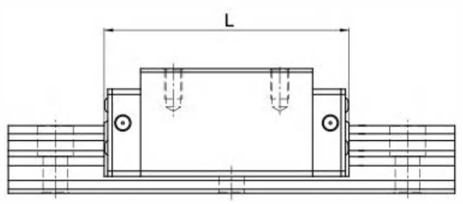


Table 2-1-19 Dust protection code for total slider length

Unit: mm

Specification	Dust protection code for total slider length (L)					
	SS/SH	ZZ/ZH	DD/DH	KK/KH	SW	ZW
SG15C	61.4(618)	69.0 (69.4)	68.0 (68.4)	75.6 (76.0)	63.2 (63.2)	71.0(71.4)
*SG20C	77.5 (79.3)	82.5 (84.5)	82.5 (84.3)	87.5 (89.5)	78.5 (79.3)	86.3 (88.3)
*SG20H	92.2(94.0)	97.2 (99.2)	97.5 (99.0)	102.2 (104.2)	93.2 (94.0)	101.0(103.0)
*SG25C	84.0(85.0)	89.0 (91.0)	89.0 (90.0)	94.0 (96.0)	85.0(86.0)	92.8 (94.8)
*SG25H	104.6 (105.6)	109.6(11.6)	109.6 (110.6)	114.6 (116.6)	105.6 (106.6)	113.4 (115.4)
*SG30C	97.4 (99.4)	105.4(107.4)	104.8(106.8)	112.8(110.8)	99.0 (101.0)	107.2 (110.4)
*SG30H	120.4(122.4)	128.4 (130.4)	127.8 (29.8)	135.8 (133.8)	122.0 (124.0)	130.2 (133.4)
*SG35C	112.4(14.4)	120.4 (122.4)	119.8 (121.8)	127.8 (29.8)	115.2(116.0)	123.4 (125.4)
*SG35H	138.2(140.2)	146.2(148.2)	145.6 (147.6)	153.6 (155.6)	141.0(141.8)	149.2 (151.2)
*SG45C	139.4 (139.4)	150.0(150.0)	149.4 (149.4)	160.0 (160.0)	140.0 (140.0)	148.8(151.6)
SG45H	171.2(71.2)	181.8 (81.8)	181.2(181.2)	1918 (191.8)	171.8 (171.8)	180.6 (183.4)
SG55C	166.7(66.7)	177.1 (77.1)	177.1(177.1)	1875 (1875)	-	-
SG55H	204.8(204.8)	215.2 (215.2)	215.2 (215.2)	225.5 (225.6)	-	-
SG65C	200.2(200.2)	208.2(208.2)	209.2 (209.2)	217.2 (217.2)	-	-
SG65H	259.6(259.6)	267.6(267.6)	268.6(268.6)	276.6 (276.6)	-	-

Note: 1. Items marked with an asterisk (*) indicate that this specification provides dust protection for SH, /ZH, /DH, and KH. 2. ( ) indicates the maximum length of the slider, including screws, oil scraper lips, etc.

2.1.9 Friction force

This Friction Value is the Maximum R esistance of a single End Seal.

Table 2.1.20 SG Series End Seal resistance

Specification	Oil scraper resistance N (kgf)	Specification	Oil scraper resistance N (kgf)
SG15	1.18 (0.12)	SG35	3.04 (0.31)
SG20	1.57 (0.16)	SG45	3.83 (0.39)
SG25	1.96 (0.2)	SG55	4.61 (0.47)
SG30	2.65 (0.27)	SG65	5.79 (0.59)

2.1.10 Installation flat error

SG Series is a circular arc two-point contact linear guide. Its self-aligning feature can absorb slight errors in the mounting surface without affecting the smoothness of linear motion. The table below shows the allowable error values for the mounting surface:

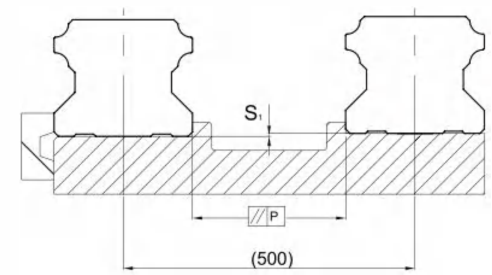


Table 2.1.21 **Allowable parallelism error [P]**

Unit: μm

Specification	Preload		
	Z0 Preload	**ZA Preload**	**ZB Preload**
SG15	25	18	13
SG20	25	20	18
SG25	30	22	20
SG30	40	30	27
SG35	50	35	30
SG45	60	40	35
SG55	70	50	45
SG65	80	60	55

Table 2.1.22 **Allowable vertical and horizontal leveling error(S_1J**

Unit: μm

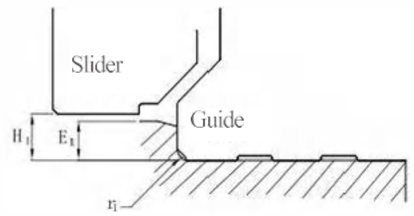
Specification	Preload		
	Z0 Preload	**ZA Preload**	**ZB Preload**
SG15	130	85	35
SG20	130	85	50
SG25	130	85	70
SG30	170	110	90
SG35	210	150	120
SG45	250	170	140
SG55	300	210	170
SG65	350	250	200

Note: The allowable value is proportional to the distance between axes.

SG Series
Heavy load ball linear guide

2.1.11 Installation Precautions
(1) Shoulder Heights and Chamfers

Improper shoulder heights and chamfers of mounting surfaces will cause deviations in accuracy and rail or block interference with the chamfered part. When recommended shoulder heights and chamfers are used, problems with installation accuracy should be eliminated.



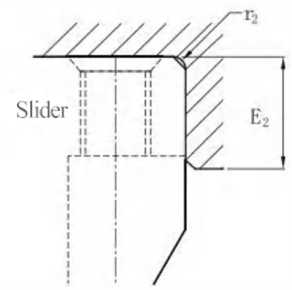


Table 2.1.23 **Shoulder height and chamfer**

Specifications	Maximum fillet radius at guide end r_1 (mm)	Maximum fillet radius at slider end r_2 (mm)	Shoulder height at guide end E_1 (mm)	Shoulder height at slider end E_2 (mm)	Net height for slider travel H_1 (mm)
SG15	0.5	0.5	3.0	4.0	4.3
SG20	0.5	0.5	3.5	5.0	4.6
SG25	1.0	1.0	5.0	5.0	5.5
SG30	1.0	1.0	5.0	5.0	6.0
SG35	1.0	1.0	6.0	6.0	7.5
SG45	1.0	1.0	8.0	8.0	9.5
SG55	1.5	1.5	10.0	10.0	13.0
SG65	1..5	1..5	10.0	10.0	15.0

(2) Torque values for guide assembly screws

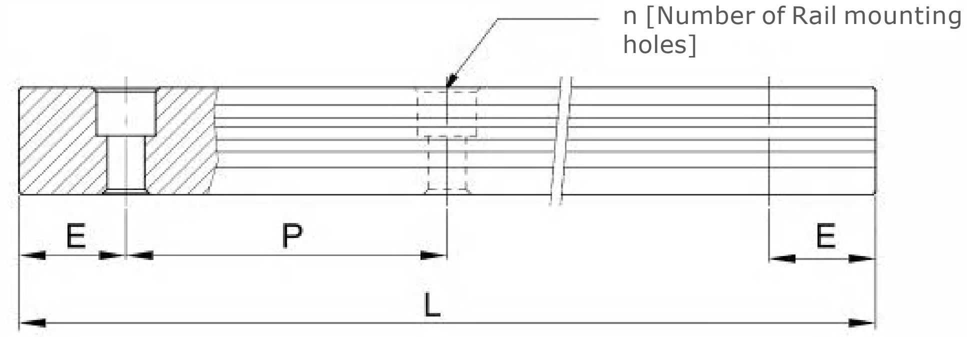
Whether the guide is locked tightly against the reference surface during installation has a significant impact on the accuracy of the linear guide, Therefore, in order to ensure that each serew is locked tightly, it is recommended to use the following torque values to lock the assembly serews.

Table 2.1.24 Torque values

Specifications	Screw specifications	Torque valuesN-cm lkgf-cm)		
		Iron material	Casting material	Aluminum alloy material
SG 15	M4×0,7P×16L	M4×0,7P×16L	274(28)	206(21)
SG 20	M5×0.8P×16L	M5×0.8P×16L	588(60)	441(45)
SG 25	M6×1P× 20L	M6×1P× 20L	921(94)	686(70)
SG 30	M8×1.25P×25L	M8×1.25P×25L	2010(205)	1470(150)
SG 35	M8×1.25P×25L	M8×1.25P×25L	2010(205)	1470(150)
SG45	M12×1.75P×35L	M12×1.75P×35L	7840(800)	5880(600)
SG 55	M14×2P×45L	M14×2P×45L	10500(1100)	7840(800)
SG 65	M16×2P×50L	M16×2P×50L	13100(1350)	9800(1000)

2.1.12 The Standard Length and Maxima Length of Linear Rail

DTX-LG offer our eustomers standard and customized rail length to meet the requirement of our customers, TX sueeests that when ordering eustomized rail length, to prevent unstable running performance after mounting, the end cap value G should be no greater than 1/2F.



L= (n-1) xP+2xE **Eq.2.1**

L: Total length of Rail (mm)
n: Number of Mounting Holes
P: Distanee Between Any Two Holes (mm)
E: Distance from the Center of the Last Hole to the Edge (mm)

Table 2.1.25 Rail length

Unit: mm

Item	SG15	SG20	SG25	SG30	SG35	SG45	SG55	SG65
Standard length L(n)	1603)	220(4)	220(4)	280(4)	280(4)	5706)	7807)	1,2709)
	220(4)	2805)	2805)	4406)	4406)	8859)	1,0209)	1,570(1)
	2805)	3406)	3406)	6008)	6008)	1,200(2)	1,260(1)	2,02004)
	3406)	4608)	4608)	76010)	76010)	1,620(6)	1.500(3)	2,620(8)
	4608)	640(1)	640(1)	1,00003)	1,00003)	2,04020)	1.980(7)	
	640(1)	820(4)	820(4)	1,64021)	1,64021)	2,46024)	2.58022)	
	820(4)	1,000(7)	1,000(7)	2,04026)	2,04026)	2,98529)	2.94025)	
		1,24021)	1,24021)	2,52032)	2,52032)			
			1,60027)	3,000(38)	3,000(68)			
Spacing (P)	60	60	60	80	80	105	120	150
Standard end distance (Es)	20	20	20	20	20	22.5	30	35
Maximum length of standard end distance	4.00067)	4.00067)	4.00067)	3.96050)	3.96050)	3.93038)	3.90033)	3.97027)
Maximum length	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000

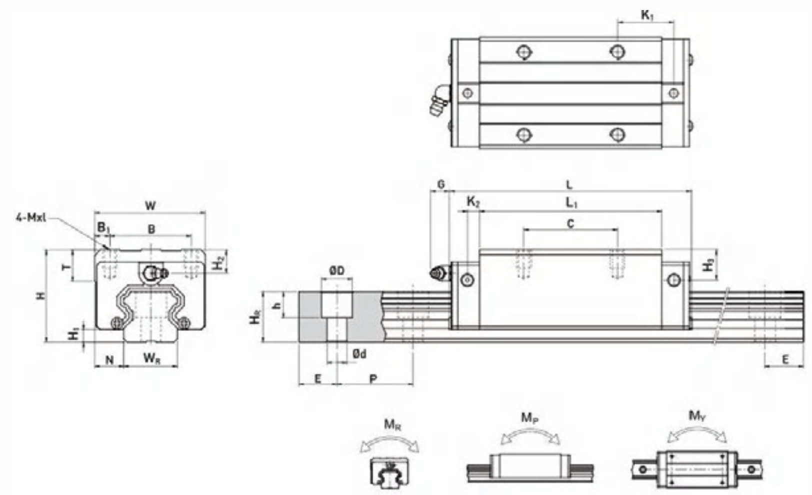
Note: 1. The general tolerance for the E dimension of the guide is 0.5 to -0.5 mm. The tolerance for the E dimension of the guide rail connect end distance is more stringent at 0 to - 0.3 mm.
2. The maximum length of the standard end distance refers to the maximum length of the guide rail where both the left and right end distances are standard end distances.
3. If the customer requires a different E dimension, please contact DTX-LG.

SG Series

Heavy Load Linear guide

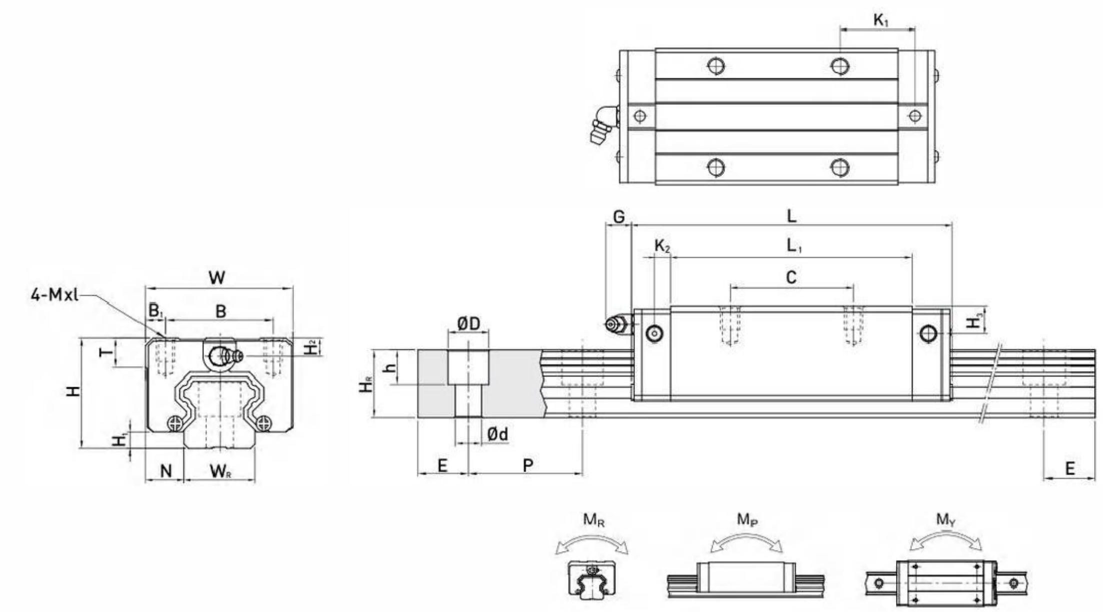
2.1.13 SG Series Linear Guides DiaChart

（1）SGH-CA/SGH-HA



Model	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_t	L	K_1	K_2	G	Mxl	T	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_V kN·m	Silder kg	Guide kg/m
SGH 15CA	28	4.3	9.5	34	26	4	26	39.4	61.4	10	4.85	5.3	M4×5	6	7.95	7.7	15	15	7.5	5.3	4.5	60	20	M4×16	14.7	23.47	0.12	0.10	0.10	0.18	1.45
SGH 20CA	30	4.6	12	44	32	6	36	50.5	77.5	12.25	6	12	M5×6	8	6	6	20	17.5	9.5	8.5	6	60	20	M5×16	27.1	36.68	0.27	0.20	0.20	0.30	2.21
SGH 20HA							50	65.2	92.2	12.6															32.7	47.96	0.35	0.35	0.35	0.39	
SGH 25CA	40	5.5	12.5	48	35	6.5	35	58	84	15.7	6	12	M6×8	8	10	9	23	22	11	9	7	60	20	M6×20	34.9	52.82	0.42	0.33	0.33	0.51	3.21
SGH 25HA							50	78.6	104.6	18.5															42.2	69.07	0.56	0.57	0.57	0.69	
SGH 30CA	45	6	16	60	40	10	40	70	97.4	20.25	6	12	M8×10	8.5	9.5	13.8	28	26	14	12	9	80	20	M8×25	48.5	71.87	0.66	0.53	0.53	0.88	4.47
SGH 30HA							60	93	120.4	21.75															58.6	93.99	0.88	0.92	0.92	1.16	
SGH 35CA	55	7.5	18	70	50	10	50	80	112.4	20.6	7	12	M8×12	10.2	16	19.6	34	29	14	12	9	80	20	M8×25	64.6	93.88	1.16	0.81	0.81	1.45	6.30
SGH 35HA							72	105.8	138.2	22.5															77.9	122.7	1.54	1.40	1.40	1.92	
SGH 45CA	70	9.5	20.5	86	60	10	60	97	139.4	23	10	12.9	M10×17	16	18.5	30.5	45	38	20	17	14	105	22.5	M12×35	103.8	146.7	1.98	1.55	1.55	2.73	0.41
SGH 45HA							80	128.8	171.2	28.9															125.3	191.85	2.63	2.68	2.68	3.61	
SGH 55CA	80	132	3.5	100	75	12.5	75	117.7	166.7	27.35	11	12.9	M12×18	17.5	22	29	53	44	23	20	16	120	30	M14×45	153.2	211.23	3.69	2.64	2.64	4.17	15.08
SGH 55HA							95	155.8	204.8	36.4															184.9	287.48	4.88	4.57	4.57	5.49	
SGH 65CA	90	15	31.5	26	76	25	70	144.2	200.2	43.1	14	12.9	M16×20	25	15	15	63	53	26	22	18	150	35	M16×50	213.2	287.48	6.65	4.27	4.27	4.00	21.18
SGH 65HA							120	203.6	259.6	47.8															277.8	420.17	9.38	7.38	7.38	9.82	

(2)SGL-CA/SGL-HA

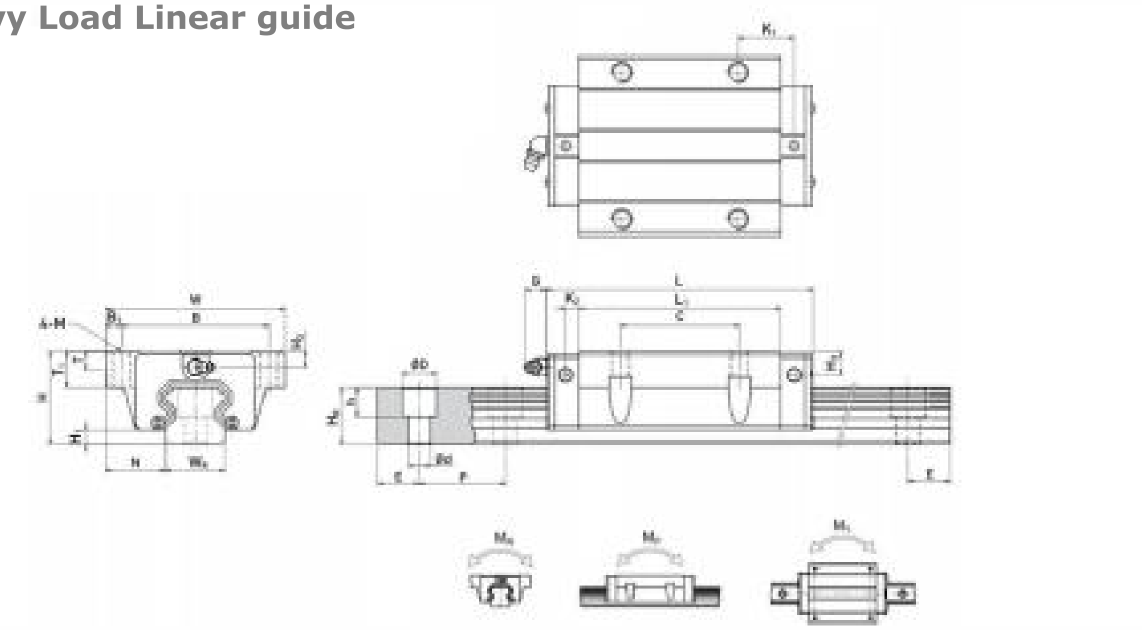


Model	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_t	L	K_1	K_2	G	Mxl	T	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_V kN·m	Silder kg	Guide kg/m
SGL 15CA	24	4.3	9.5	34	26	4	26	39.4	61.4	10	4.85	5.3	M4×4	6	3.95	3.7	15	15	7.5	5.3	4.5	60	20	M4×16	14.7	23.47	0.12	0.10	0.10	0.14	1.45
SGL 25CA	36	5.5	12.5	48	35	6.5	35	58	84	15.7	6	12	MG×6	8	6	5	23	22	11	9		60	20	MG×20	34.9	52.82	0.42	0.33	0.33	0.42	3.21
SGL 25HA							50	78.6	104.6	18.5															42.2	69.07	0.56	0.57	0.57	0.57	
SGL 30CA	42	6	16	60	40	10	40	70	97.4	20.25	6	12	M8×10	8.5	6.5	10.8	28	26	14	12	9	80	20	M8×25	48.5	71.87	0.66	0.33	0.53	0.78	4.47
SGL 30HA							60	93	120.4	21.75															58.6	93.99	0.88	0.92	0.92	1.03	
SGL 35CA	48	7.5	18	70	50	10	50	80	112.4	20.6	6	12	M8×12	0.2	9	2.6	34	29	14	12	9	80	20	M8×25	64.6	93.88	1.16	0.81	0.81	1.14	6.30
SGL 35HA							72	105.8	138.2	22.5															77.9	122.7	1.54	1.40	1.40	1.52	
SGL 45CA	60	9.5	20.5	86	60	13	60	97	139.4	23	7	12.9	M10×17	16	8.5	20.5	45	38	20	17	14	105	22.5	M12×35	103.8	146.7	1.98	1.55	1.55	2.08	10.41
SGL 45HA							80	128.8	171.2	28.9															125.3	191.85	2.63	2.68	2.68	2.75	
SGL 55CA	70	13	23.5	100	75	12.5	75	117.7	166.7	27.35	10	12.9	M12×18	17.5	12	19	53	44	23	20	16	120	30	M14×45	153.2	211.23	3.69	2.64	2.64	3.25	15.08
SGL 55HA							95	155.8	204.8	36.4															184.9	276.23	4.88	4.57	4.57	4.27	

Note: 1kgf=9.81N

SG Series

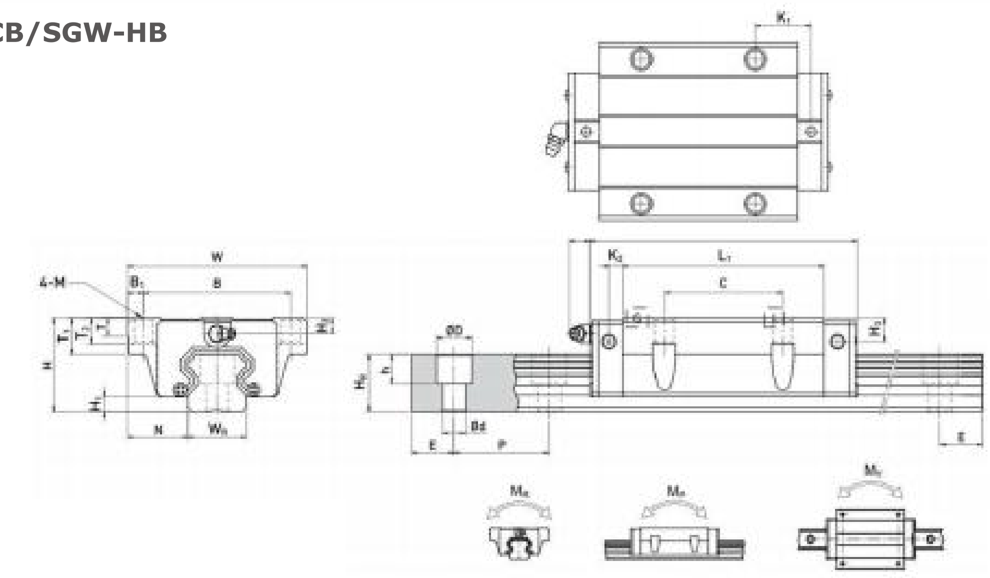
Heavy Load Linear guide



Model	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_t	L	K_1	K_2	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_Y kN·m	Silder kg	Guide kg/m
SGW 15CA	24	4.3	16	47	38	4.5	30	39.4	61.4	8	4.85	5.3	M5	6	8.9	3.95	3.7	15	15	7.5	5.3	4.5	60	20	M4×16	14.7	23.47	0.12	0.10	0.10	0.17	1.45
SGW 20CA	30	4.6	21.5	63	53	5	40	50.5	77.5	10.25	6	12	M6	8	10	6	6	20	17.5	9.5	8.5	6	60	20	M5×16	27.1	36.68	0.27	0.20	0.20	0.40	2.2
SGW 20HA								65.2	92.2	17.6																32.7	47.96	0.35	0.35	0.35	0.52	
SGW 25CA	36	5.5	23.5	70	27	5.5	45	58	84	10.7	6	12	M8	8	14	6	5	23	22	1	9	7	60	20	M6×20	34.9	52.82	0.42	0.33	0.33	0.59	3.21
SGW 25HA								78.6	104.6	21																42.2	69.07	0.56	0.57	0.57	0.80	
SGW 30CA	42	6	31	90	72	9	52	70	97.4	14.25	6	12	M10	8.5	16	6.5	10.8	28	26	14	12	9	80	20	M×25	48.5	71.87	0.66	0.53	0.53	1.09	4.47
SGW 30HA								93	120.4	25.75																58.6	93.99	0.88	0.92	0.92	1.44	
SGW 35CA	48	7.5	33	100	82	9	62	80	112.4	14.6	7	12	M10	10.1	18	9	2.6	34	29	14	12	9	80	20	M8×25	64.6	93.88	1.16	0.81	0.81	1.56	6.30
SGW 35HA								105.8	138.2	27.5																77.9	122.7	1.54	1.40	1.40	2.06	
SGW 45CA	60	9.5	37.5	120	100	10	80	97	139.4	13	10	12.9	M12	15.1	22	8.5	20.5	45	38	20	17	14	105	22.5	M12×35	103.8	146.7	1.98	1.55	1.55	2.79	10.41
SGW 45HA								128.8	171.2	28.9																125.3	191.85	2.63	2.68	2.68	3.69	
SGW 55CA	70	13	43.5	140	116	12	95	117.7	166.7	17.35	11	12.9	M14	17.5	26.5	12	19	53	44	23	20	16	120	30	M14×45	153.2	211.23	3.69	2.64	2.64	4.52	15.08
SGW 55HA								155.8	204.8	36.4																184.9	287.48	4.88	4.57	4.57	5.96	
SGW 65CA	90	15	53.5	170	142	14	110	144.2	200.2	23.1	14	12.9	M16	25	37.5	15	15	63	53	26	22	18	150	35	M16×50	213.2	287.48	6.65	4.27	4.27	9.17	21.18
SGW 65HA								203.6	259.6	52.8																277.8	420.17	9.38	7.38	7.38	12.89	

Note:1kgf=9.81N

(4)SGW-CB/SGW-HB



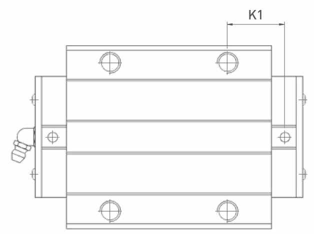
Model	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_t	L	K_1	K_2	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_Y kN·m	Silder kg	Guide kg/m
SGW 15CB	24	4.3	16	47	38	4.5	30	39.4	61.4	8	4.85	5.3	04.5	6	8.9	3.95	3.7	15	15	7.5	5.3	4.5	60	20	M4×16	14.7	23.47	0.12	0.10	0.10	0.17	1.45
SGW 20CB	30	4.6	21.5	63	53	5	40	50.5	77.5	10.25	6	12	06	8	10	6	6	20	17.5	9.5	8.5	6	60	20	M5×16	27.1	36.68	0.27	0.20	0.20	0.40	2.2
SGW 20HB								65.2	92.2	17.6																32.7	47.96	0.35	0.35	0.35	0.52	
SGW 25CB	36	5.5	23.5	70	57	6.5	45	58	84	10.7	6	12	07	8	14	6	5	23	22	11	9	7	60	20	M6×20	34.9	52.82	0.42	0.33	0.33	0.59	3.21
SGW 25HB								78.6	104.6	21																42.2	69.07	0.56	0.57	0.57	0.80	
SGW 30CB	42	6	31	90	72	9	52	70	97.4	14.25	6	12	08	8.5	16	6.5	10.8	28	26	14	12	9	80	20	M×25	48.5	71.87	0.66	0.53	0.53	1.09	4.47
SGW 30HB								93	120.4	25.75																58.6	93.99	0.88	0.92	0.92	1.44	
SGW 35CB	48	7.5	33	100	82	9	62	80	112.4	14.6	7	12	09	10	18	9	12.6	34	29	14	12	9	80	20	M8×25	64.6	93.88	1.16	0.81	0.81	1.56	6.30
SGW 35HB								105.8	138.2	27.5																77.9	122.7	1.54	1.40	1.40	2.06	
SGW 45CB	60	9.53	7.51	20	00	10	80	97	139.4	13	10	12.9	011	15	22	8.5	20.5	45	38	20	17	14	105	22.5	M12×35	103.8	146.7	1.98	1.55	1.55	2.79	10.41
SGW 45HB								128.8	171.2	28.9																125.3	191.85	2.63	2.68	2.68	3.69	
SGW 55CB	70	13	43.5	140	16	12	95	117.7	166.7	17.35	11	12.9	014	17.5	26.5	12	19	53	44	23	20	16	120	30	M14×45	153.2	211.23	3.69	2.64	2.64	4.52	15.08
SGW 55HB								155.8	204.8	36.4																184.9	287.48	4.88	4.57	4.57	5.96	
SGW 65CB	90	15	53.5	170	142	14	110	144.2	200.2	23.1	14	12.9	016	25	37.5	15	15	63	53	26	22	18	150	35	M16×50	213.2	287.48	6.65	4.27	4.27	9.17	21.18
SGW 65HB								203.6	259.6	52.8																277.8	420.17	9.38	7.38	7.38	12.89	

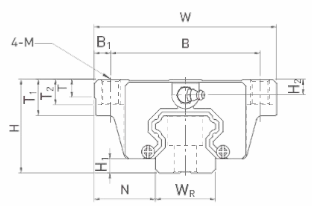
Note: 1kgf=9.81N

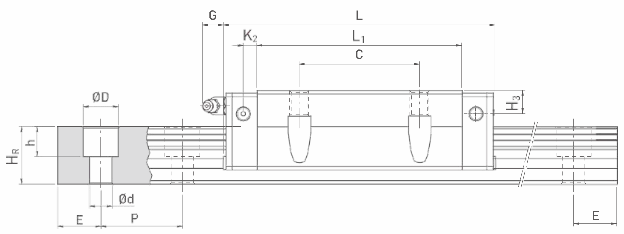
SG Series

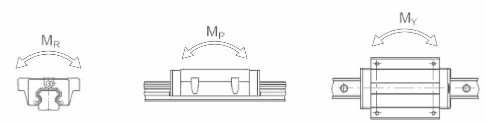
Heavy load ball linear guide

(5]SGW-CC/SGW-HC





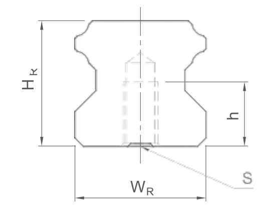


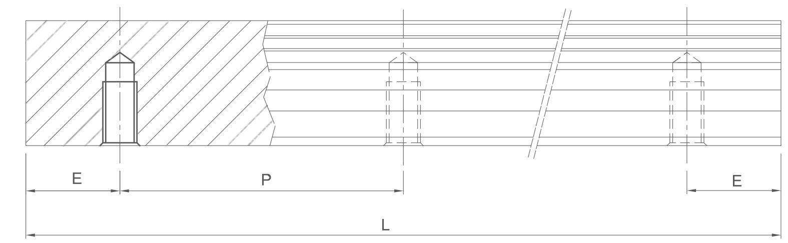


Model	Compinent size (mm)			Slider size (mm)														Guide size (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_t	L	K_1	K_2	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_V kN·m	Silder kg	Guide kg/m
SGW 15CC	24	4.3	16	47	38	4.5	30	39.4	61.4	8	4.85	5.3	M5	6	8.9	3.95	3.7	15	15	7.5	5.3	4.5	60	20	M4×16	14.7	23.47	0.12	0.10	0.10	0.17	1.45
SGW 20CC	30	4.6	21.5	63	53	5	40	50.5	77.5	10.25	6	12	M6	8	10	6	6	20	17.5	9.5	8.5	6	60	20	M5×16	27.1	36.68	0.27	0.20	0.20	0.40	2.2
SGW 20HC								65.2	92.2	17.6																32.7	47.96	0.35	0.35	0.35	0.52	
SGW 25CC	36	5.5	23.5	70	27	5.5	45	58	84	10.7	6	12	M8	8	14	6	5	23	22	1	9	7	60	20	M6×20	34.9	52.82	0.42	0.33	0.33	0.59	3.21
SGW 25HC								78.6	104.6	21																42.2	69.07	0.56	0.57	0.57	0.80	
SGW 30CC	42	6	31	90	72	9	52	70	97.4	14.25	6	12	M10	8.5	16	6.5	10.8	28	26	14	12	9	80	20	M8×25	48.5	71.87	0.66	0.53	0.53	1.09	4.47
SGW 30HC								93	120.4	25.75																58.6	93.99	0.88	0.92	0.92	1.44	
SGW 35CC	48	7.5	33	100	82	9	62	80	112.4	14.6	7	12	M10	10.1	18	9	2.6	34	29	14	12	9	80	20	M8×25	64.6	93.88	1.16	0.81	0.81	1.56	6.30
SGW 35HC								105.8	138.2	27.5																77.9	122.7	1.54	1.40	1.40	2.06	
SGW 45CC	60	9.5	37.5	120	100	10	80	97	139.4	13	10	12.9	M12	15.1	22	8.5	20.5	45	38	20	17	14	105	22.5	M12×35	103.8	146.7	1.98	1.55	1.55	2.79	10.41
SGW 45HC								128.8	171.2	28.9																125.3	191.85	2.63	2.68	2.68	3.69	
SGW 55CC	70	13	43.5	140	116	12	95	117.7	166.7	17.35	11	12.9	M14	17.5	26.5	12	19	53	44	23	20	16	120	30	M14×45	153.2	211.23	3.69	2.64	2.64	4.52	15.08
SGW 55HC								155.8	204.8	36.4																184.9	287.48	4.88	4.57	4.57	5.96	
SGW 65CC	90	15	53.5	170	142	14	110	144.2	200.2	23.1	14	12.9	M16	25	37.5	15	15	63	53	26	22	18	150	35	M16×50	213.2	287.48	6.65	4.27	4.27	9.17	21.18
SGW 65HC								203.6	259.6	52.8																277.8	420.17	9.38	7.38	7.38	12.89	

Note:1kgf=9.81N

(6)SGR-T Locking Type Guide Rail Dimension Table



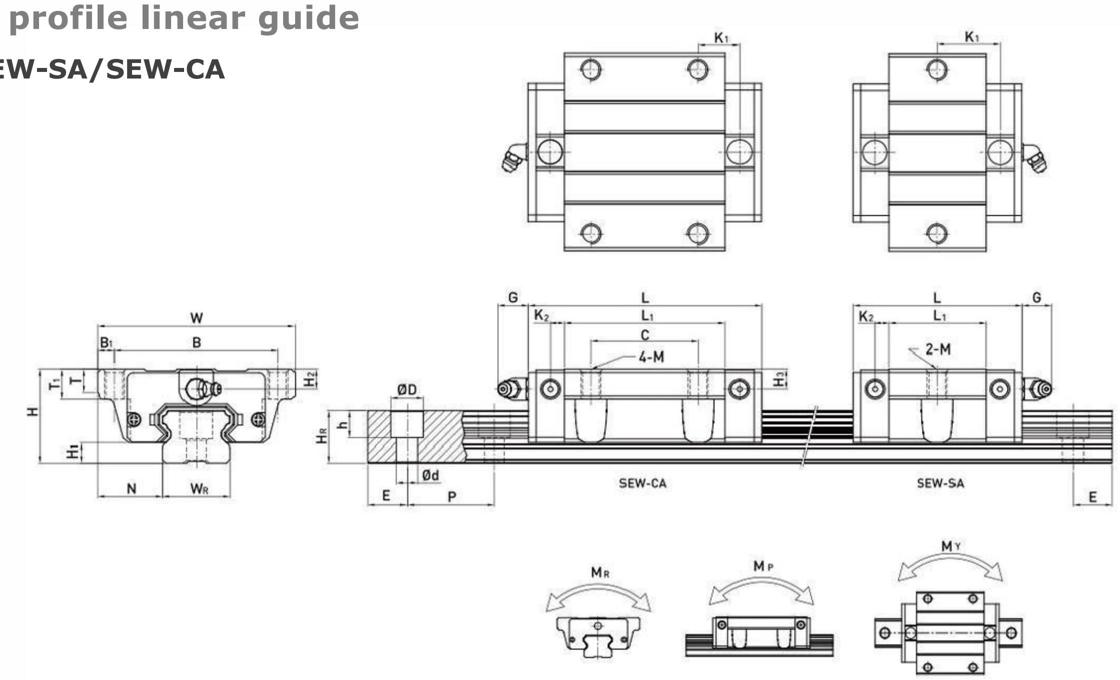


Model	Guide size(mm)						Weight
	W_R	H_R	S	h	P	E	
SGR15T	15	15	M5×0.8P	8	60	20	1.48
SGR20T	20	17.5	M6×1P	10	60	20	2.29
SGR25T	23	22	M6×1P	12	60	20	3.35
SGR30T	28	26	M8×1.25P	15	80	20	4.67
SGR35T	34	29	M8×1.25P	17	80	20	6.51
SGR45T	45	38	M12×1.75P	24	105	22.5	10.87
SGR55T	44	33	M14×2P	24	120	30	15.67
SGR65T	64	53	M20×2.5P	30	150	35	21.73

2.2 SG Series

Low profile linear guide

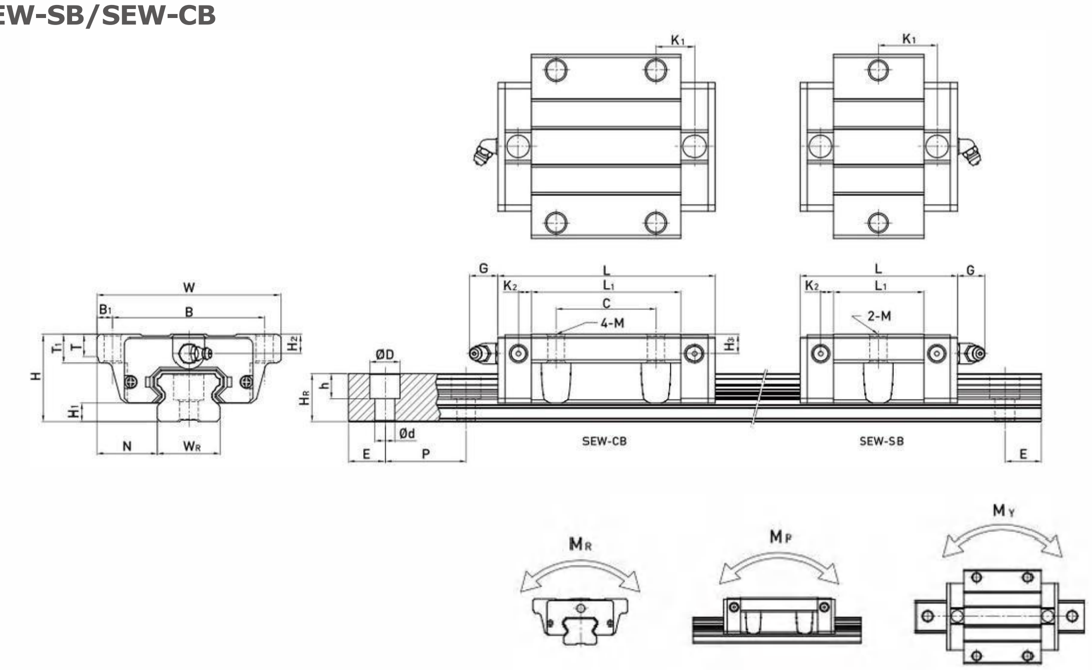
(2)SEW-SA/SEW-CA



Model	Compinent size (mm)			Slider size (mm)														Guide size (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	K_2	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_Y kN·m	Silder kg	Guide kg/m
SEW 15SA	24	4.5	18.5	52	41	5.5	–	23.1	40.1	14.8	3.5	5.7	M5	5	7	5.5	6	15	12.5	7.5	5.3	4.5	60	20	M4×16	5.35	9.40	0.08	0.04	0.04	0.12	1.25
SEW 15CA							26	39.8	56.8	10.15																7.83	16.19	0.13	0.10	0.10	0.21	
SEW 20SA	28	6	19.5	59	49	5	–	29	50	18.75	4.15	12	M6	7	9	6	5	20	15.5	9.5	8.5	6	60	20	M5×16	7.23	12.74	0.13	0..06	0.06	0.19	2.08
SEW 20CA							32	48.1	69.1	12.3																10.31	21.13	0.22	0.16	0.16	0.32	
SEW 25SA	33	7	25	73	60	6.5	–	35.5	59.1	21.9	4.55	12	M8	7.5	10	8	8	23	18	11	9	7	60	20	M6×20	11.40	19.50	0.23	0.12	0.12	0.35	2.67
SEW 25CA							35	59	82.6	16.15																16.27	32.40	0.38	0.32	0.32	0.59	
SEW 30SA	42	10	31	90	72	9	–	41.5	69.5	26.75	6	12	M10	7	10	8	9	28	23	14	12	9	80	20	M8×25	16.42	28.10	0.40	0.21	0.21	0.62	4.35
SEW 30CA							40	70.1	98.1	21.05																23.70	47.46	0.68	0.55	0.55	1.04	
SEW 35SA	48	11	33	100	82	9	–	45	75	28.5	7	12	M10	10	13	8.5	8.5	34	27.5	14	12	9	80	20	M8×25	22.66	37.38	0.56	0.31	0.31	0.84	6.14
SEW 35SC							50	78	108	20																33.35	64.84	0.98	0.69	0.69	1.45	

Note:1kgf=9.81N

(3) SEW-SB/SEW-CB



Model	Compinent size (mm)			Slider size (mm)														Guide size (mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	K_2	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN·m	M_P kN·m	M_Y kN·m	Silder kg	Guide kg/m
SEW 15SB	24	4.5	18.5	52	41	5.5	–	23.1	40.1	14.8	3.5	5.7	M5	5	7	5.5	6	15	12.5	7.5	5.3	4.5	60	20	M4×16	5.35	9.40	0.08	0.04	0.04	0.12	1.25
SEW 15CB							26	39.8	56.8	10.15																7.83	16.19	0.13	0.10	0.10	0.21	
SEW 20SB	28	6	19.5	59	49	5	–	29	50	18.75	4.15	12	M6	7	9	6	5	20	15.5	9.5	8.5	6	60	20	M5×16	7.23	12.74	0.13	0..06	0.06	0.19	2.08
SEW 20CB							32	48.1	69.1	12.3																10.31	21.13	0.22	0.16	0.16	0.32	
SEW 25SB	33	7	25	73	60	6.5	–	35.5	59.1	21.9	4.55	12	M8	7.5	10	8	8	23	18	11	9	7	60	20	M6×20	11.40	19.50	0.23	0.12	0.12	0.35	2.67
SEW 25CB							35	59	82.6	16.15																16.27	32.40	0.38	0.32	0.32	0.59	
SEW 30SB	42	10	31	90	72	9	–	41.5	69.5	26.75	6	12	M10	7	10	8	9	28	23	14	12	9	80	20	M8×25	16.42	28.10	0.40	0.21	0.21	0.62	4.35
SEW 30CB							40	70.1	98.1	21.05																23.70	47.46	0.68	0.55	0.55	1.04	
SEW 35SB	48	11	33	100	82	9	–	45	75	28.5	7	12	M10	10	13	8.5	8.5	34	27.5	14	12	9	80	20	M8×25	22.66	37.38	0.56	0.31	0.31	0.84	6.14
SEW 35SB							50	78	108	20																33.35	64.84	0.98	0.69	0.69	1.45	

Note:1kgf=9.81N

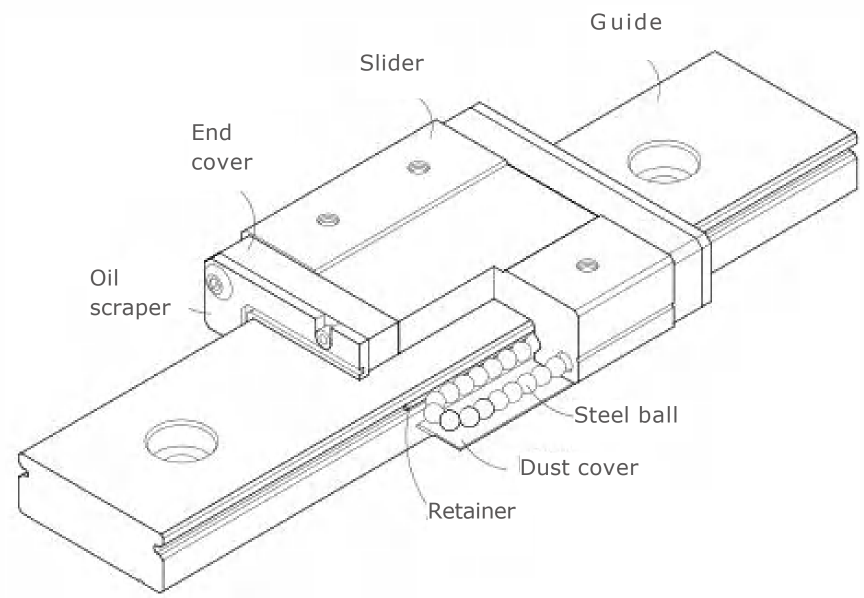
2.2 SG Series

Miniature Ball Linear Guides

2.3.3 Features of SMW Small Wide Linear Guides

1. The widened guide design greatly improves torque load capacity and can be used on a single axis.
2.The Gothic four-point contact design can withstand loads in all directions and is highly rigid.
3.The slider is equipped with a micro-miniature retaining wire, so the steel ball will not fall out when the slider is removed.

2.3.4 SMW Series Body Structure



O Rolling circulation system: Slider, guide, end cover, steel ball, retainer

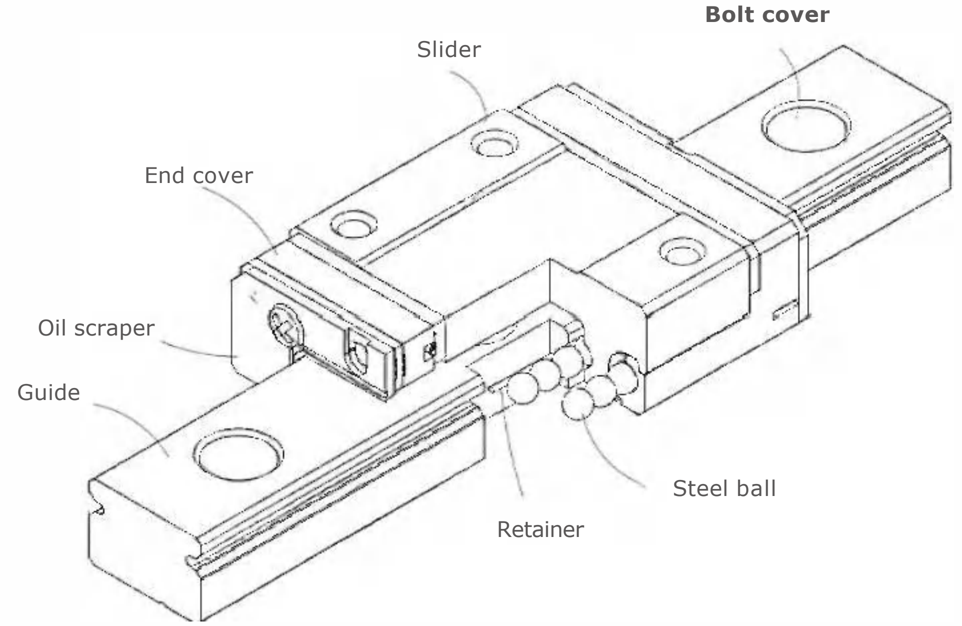
O Lubrication system: SMW15 end cover is equipped with an oil nozzle for customer oil injection, while SMW7, 9, 12 have oil injection holes reserved on the side of the end cover, allowing oil or grease to be injected into the slider for lubrication.

O Dust-proof system: Oil scraper, dust cover (Optional for 9, 12, 15 specifications), bolt cover (12,15 specifications).

2.3.5 Features of SMN-0 Series Small Linear Guides

1. Compact size and lightweight design, with part of the slide block body made of resin material, reducing weight by approximately 20%.
2 Gothic-type four-point contact design, capable of withstanding loads from all directions, featuring high rigidity and precision.
3. Steel ball retainer design, enabling interchangeability within specified precision limits.
4. Modular recirculation system design.

2-3-6 SMN-0 Series Body Structure



O Rolling circulation system: Slider, guide, end cap, steel balls, retainer

O Lubrication System: SM N15-0 features an oil port on the end cap side for customer lubrication, while SMN5-0, MGN7-0, MGN9-0, SMN12-0 have oil injection holes reserved on the end cover side, allowing oil or grease to be injected into the slider interior for lubrication.

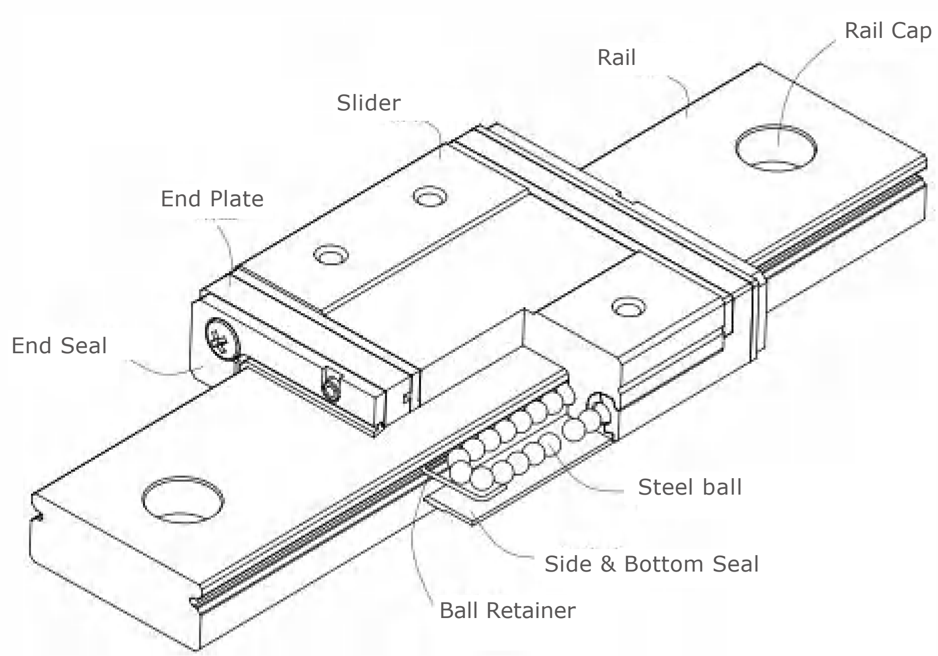
O Dust protection system: Oil scrapers, dust cover (optional for 9, 12, and 15 specifications), and bolt covers (for 12 and 15 specifications).

SM Series

2.3.7 Miniature Linear of SMW Series

The stainless bottom seal is the innovative new design of SMW series. It prevents effectively the abnormal chips getting into the ball track from the bottom side of the block and keep the good running performance and extend the service life of the slider because the friction is low by keeping some small backlash between the slider and rail. Standard end seals provide extreme protection from dust, metal scrapers to maintain long service life and shorten maintenance period. Unique low friction seal lips provide best smoothness and lower friction.

2.3.8 SMW Series Structure



2.3.9 The Characteristics of SMW Series

The SMN and SMW series Standard end seals provide extreme protection from dust, metal scrapers to maintain long service life and shorten maintenance period. Unique low friction seal lips provide best smoothness and lower friction.

2-3-10 High Loading and Moment Capacity Performance

Miniature Linear Guide series uses two row circulation with Gothic 45° contact angle on the rail groove to achieve equal load capacity in four directions. Larger steel balls are used to enhance the loading and torsion resistance performance in limited space.

SM Series

Nominal Model Code of SM Type

(1)Non-interehangeable Type

SMN 12 C E 2 R1600 E Z1 P M II + U/RC/-0

- SMN/SMW Series
- Size: 5,7,9,12,15
- Block TypeC: Standard type H: Long Type
- E: Special Requested No mark: Standard
- Number of Block Per Axis
- Rail Length
- E : Special Requested of Rail No mark: Standard Rail
- **Preload: ZF,Z0,Z1**
- Accuracy:C/H/P
- **Material3: No mark, M,HC,NC**
- Numember ofRail Per Axis
- Dusty Proof
- RC: Reinforced bolt cover
- **0: External return module**

Note:
1. Single Rail Per Axis used, do not write anything;I Two Rails Per Axis
2. Dust covers are available for $MN and $MW specifications 9, 12, and 15.3. MaterialM: Stainless steelHC: SteelNC: Surface Coating Black orChrome plating

(2) Interchangeable L inear guide

SMN 12 C E Z1 P M + U/-0

- SMN/SMW Series
- Size: 5,7,9,12,15
- Block TypeC: Standard type H: Long Type
- E: Special Requested No mark: Standard
- Preload:ZF.Z0,Z1
- **Accuracy:C,H,P**
- Slider material: No M ark: Steel material M: Stainless Steel
- **Dust Proof 1**
- **0: External return module**

Note: 1. Dust Proof Available for SMN and SM 5 /9 /12, and 15.
2. SM 5 only has an external return flow module design.

Single-track guide product model

SMN R 12 R1000 E P M + RC

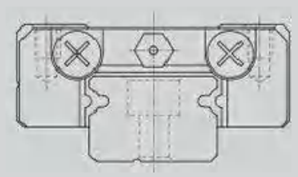
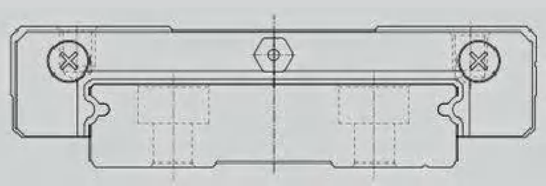
- SMN/SMW Series
- Single-trick guide
- Size: 5,7,9,12,15
- **Guide length(mm)**
- E: Special Requested No mark: Standard
- **Accuracy:C,H,P**
- Guide material: No mark: General steel material M: Stainless steel material
- **RC: Reinforced bolt cover (Only SMN 12 and 1s are available)**

2.3.11 SM Series Types

(1) Slider type

DTX-LG offers two types of linear guides, standard and wide, for customer selection.

Specifications

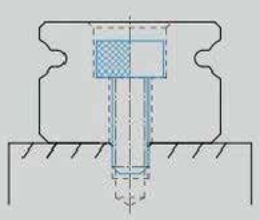
Type	Model	Drawing	Size	Length	Applications
Standard	SMN-C SMN-H		8 ↓ 15	100 ↓ 2000	O Printers O Robotic arms O Electronic instruments and equipment O Semiconductor equipment
Wide	SMW-C SMW-H		9 ↓ 15	100 ↓ 2000	

(2) Rail Type

DTX-LG provides upper lock hole rails for easy installation .

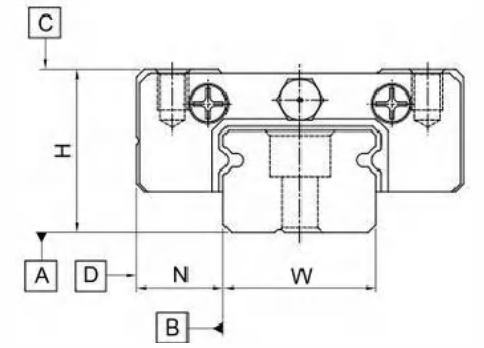
Table 2-3-2 Rail Type

upper lock screw hole



SM Series

Miniature Ball Linear Guides



2.3.12 Accuracy grade

Miniature Linear Guide TH-series provides P, H, N three accuracy grades for customer to choose.

(1) Non-interchangeable linear guide accuracy

The combination height H is measured f om the centerofthe upper reference surface ofthe slider, and the combination width N is measured from the centerof the side reference surface of the slider.

Table 2.4.3 Accuracy table — **Unit: mm**

Accuracy grade	Normal grade [C]	High grade (H)	Accuracy grade [P]
Dimensional error for height H	±0.04	±0.02	±0.01
Allowable dimensional error for width N	±0.04	±0.025	±0.015
Variation of heights H	0.03	0.015	0.007
Variation of width N	0.03	0.02	0.01
Running parallelism of block surface C to surface A	Traveling parallelism (see Table 2.4.5)		
Running parallelism of block surface D to surface B	Traveling parallelism (see Table 2.4.5)		

(2) Interchangeable linear guide accuracy

Interchangeable linear guide accuracy refers to the assembled height and width accuracy when the slide block is assembled on a single guide rail, which is the same as non-interchangeable linear guide accuracy. However, if assembled on different guide rails, due to guide rail height errors, the paired height and width accuracy is slightly inferior to non-interchangeable linear guide accuracy, while the walking parallelism accuracy is the same as that of non-interchangeable linear guides.

Table 2.3.4 Interchangeable linear guide accuracy table — **Unit: mm**

Accuracy grade		Normal grade (C)	High grade (H)	Accuracy grade (P)
Allowable dimensional error for height H		±0.04	±0.02	±0.01
Allowable dimensional error for width N		±0.04	±0.025	±0.015
Single pair	Relative error between heights H	0.03	0.015	0.007
	Relative error between widths N	0.03	0.02	0.01
Relative error between multiple paired heights H		0.07	0.04	0.02
Traveling parallelism of slider C relative to guide A surface		Traveling parallelism (see Table 2.4.5)		
Traveling parallelism of slider D relative to guide B surface		Traveling parallelism (see Table 2.4.5)		

(3) Traveling parallelism accuracy

The traveling parallelism of guide C to A and D to B is related to the guide accuracy and length. The values are listed in the table below.

Table 2.3.5 Traveling parallelism

Guide length (mm)	Accuracy grade(μm) [C]	[H]	[P]	Guide length (mm)	Accuracy grade(μm) [C]	[H]	[p]
Below 50	12	6	2	1,000~1,200	25	18	11
50~80	13	7	3	1,200~1,300	25	18	11
80~125	14	8	3.5	1,300~1,400	26	19	12
125~200	15	9	4	1,400~1,500	27	19	12
200~250	16	10	5	1,500~1,600	28	20	13
250~315	17	11	5	1,600~1,700	29	20	14
315~400	18	11	6	1,700~1,800	30	21	14
400~500	19	12	6	1,800~1,900	30	21	15
500~630	20	13	7	1,900~2,000	31	22	15
630~800	22	14	8	2,000~	32	22	16
800~1,000	23	16	9				

2.3.13 Preload

SMN/SMW series offers three types of preload forces: normal clearance, no preload, and light preload.

Table 2.3.6 Preload grade

Preload grade	Mark	Preload	Applicable accuracy
Normal clearance	ZF	Accuracy clearance 4~10μm	
No preload	70	0	C~P
Light preload	Z1	0.02C	C~P

Note: In preload, C indicates dynamic rated load

2.3.14Dust protection

Standard dust protection sliders are equipped with oil scrapers at both ends to prevent dust or impurities from entering the slider interior, which could affect the service life and accuracy of the linear guide. The dust cover is installed at the bottom of the slider to prevent dust or impurities from entering the slider interior through the gaps at the bottom. If customers prefer to use a dust cover, they can add the code +U after the model number. Specifications 5 and 7 have a very sm$_1$ a)ll gap (H between the slider and the bottom support surface and do not provide an optional dust cover. However, specifications 9, 12, and 15 do offer an optional dust cover. When selecting a dust cover, customers should note that the slider c$_1$le)arance (H

will decrease. When side support surfaces are used, the height of the side support surfaces must not exceed the clearance value (H_1) to prevent the sliders from interfering with the side support surfaces during operation.

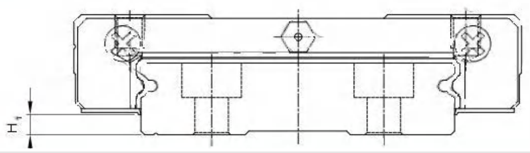


Table 2-3-7 Installation surface clearance H_1 for dust cover slider

Model	Dust cover	H_1 mm	Model	Dust cover	H_1 mm
SMN7	–	-	SMW7	—	-
SMN9	●	1	SMW9	●	1.9
SMN12	●	2	SMW12	●	2.4
SMN15	●	3	SMW15	●	2.4
SMN5-0	-	-	SMV5-0	-	-
SMN7-0	-	-	SMN7-0	-	-
SMN9-0	●	1.2	SMN9-0	●	1.95
SMN12-0	●	2	SMW12-0	●	2..45
SMN15-0	●	3	SMW15-0	●	2.45

SM Series
Miniature Ball Linear Guides

2.3.15 Installation surface error

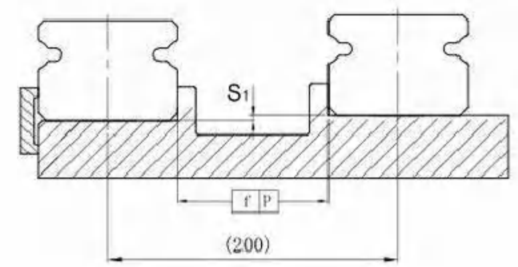


Table 2.3.8 Allowable parallelism error[P] Unit: μm

Specifications	Preload ZFPreload	Z0Preload	Z1Preload
SM5	2	2	2
SM7	3	3	3
SM9	4	4	3
SM12	9	9	5
SM15	10	10	6

Table 2.3.9 Allowable vertical leveling error (S1) Unit: μm

Specifications	Preload ZFPreload	Z0Preload	Z1Preload
SM5	20	20	2
SM7	25	25	3
SM9	35	35	6
SM12	50	50	12
SM15	60	60	20

Note: The tolerance value is proportional to the distance between the axes.

Table 2.3.10 Flatness of installation surface Unit: mm

Specifications	Flatness error
SM5	0.015/200
SM7	0.025/200
SM9	0.035/200
SM12	0.050/200
SM15	0.060/200

Note: The above values apply to ZF/Z0 preload levels. If using Z1 level or two or more rails (including two), it is recommended to use less than 50% of the above values.

2.3-.6 Installation Precautions

o Installation shoulder height and chamfer

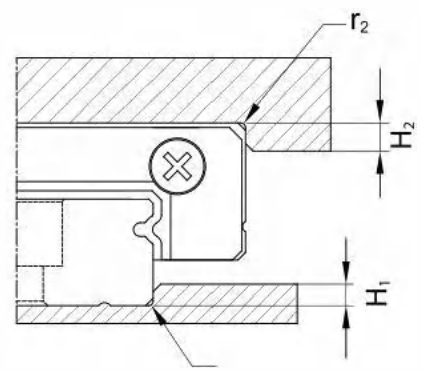


Table 2.3.11 Shoulder height and chamfer

Specifications	Maximum chamfer radius of shoulder r_1 (mm)	Maximum chamfer radius of shoulder r_2 (mm)	Guide shoulder height H_1 (mm)	Slider shoulder height H_2 (mm)
SMN5	0.1	0.2	1.2	2
SMN7	0.2	0.2	1.2	3
SMN9	0.2	0.3	1.7	3
SMN 12	0.3	0.4	1.7	4
SMN 15	0.5	0.5	2.5	5
SMW5	0.1	0.2	1.2	2
SMW7	0.2	0.2	1.7	3
SMW9	0.3	0.3	2.5	3
SMW 12	0.4	0.4	3	4
SMW 15	0.4	0.8	3	5

Torque values for guide assembly serews
Whether the guide is locked tightly against the reference surface during installation has a significant impacton the accuracy of the linearguide, Therefore,in order to ensure that each screw is locked tightly,it is recommended to use the fol lowing torque va lues to lock the assem bly screws.

Table 2-3-12 Torque values

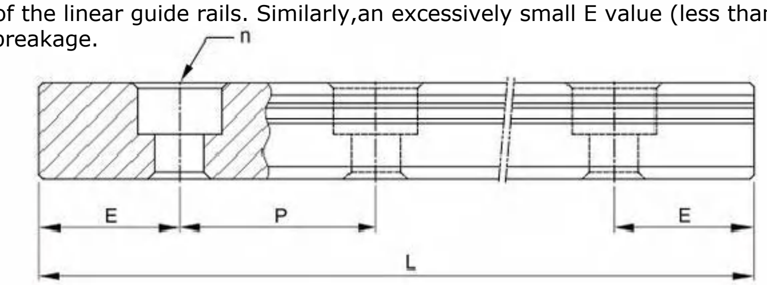
Specifications	Screwspecifications	Torque values Nc-m (kgf-cm)		
		Iron material	Casting material	Aluminum alloy material
SMN5	M2 ×0.4P ×6L	57(5.9)	39.2(4)	29.4(3)
SMN7	M2 ×0.4P ×6L	57(5.9)	39.2(4)	29.4(3)
SMN9	M3 ×0.5P ×8L	186(19)	127(13)	98(10)
SMN12	M3 ×0.5P ×8L	186(19)	127(13)	98(10)
SMN15	M3 ×0.5P ×10L	186(19)	127(13)	98(10)
SMW5	M2.5 ×0.45P ×7L	118(12)	78.4(8)	58.8(6)
SMW7	M3 ×0.5P ×6L	186(19)	127(13)	98(10)
SMW9	M3 ×0.5P ×8L	186(19)	127(13)	98(10)
SMW12	M4 ×0.7P ×8L	392(40)	274(28)	206(21)
SMW15	M4 ×0.7P ×10L	392(40)	274(28)	206(21)

Note:1kgf=9.81N

SM Series
Miniature Ball Linear Guides

2.3.17 Standard length and maximum length of single guide

Standard-length guide rails are stocked to meet customer requirements. When ordering non-standard length guide rails, the end face distance Eshould preferably not exceed 1/2P to prevent instability at the ends of the guide rail safter assembly,which coulde reduce the precision of the linear guide rails. Similarly,an excessively small E value (less than Emin] should not be used to avoid bolt hole breakage.



$$L=(n-1)\times P+2\times E \quad \text{Eq.2.4}$$

L: Total length of guide (mm)
n: Number of bolt holes
P: Distance between bolt holes (mm)
E: Distance from bolt holes to end face (mm)

Table 2.3.13 Rail length **Unit: mm**

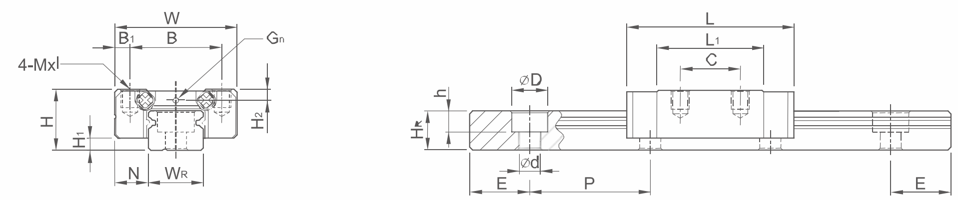
Specifications	SMNR5	SMNR7	SMNR9	SMNR12	SMNR15	SMWR5	SMWR7	SMWR9	SMWR12	SMWR15
Standard length L(n)	40(3)	40(3)	55(3)	70(3)	70(2)	50（3）	80（3）	80（3）	110(3)	110(3)
	55(4)	55(4)	75(4)	95(4)	110(3)	70（4）	110（4）	110（4）	150(4)	150(4)
	70(5)	70(5)	95(5)	120(5)	150(4)	90（5）	140（5）	140（5）	190(5)	190(5)
	100(7)	85(6)	115(6)	145(6)	190(5)	110（6）	170（6）	170（6）	230(6)	230(6)
	130(9)	100(7)	135(7)	170(7)	230(6)	130（7）	200（7）	200（7）	270(7)	270(7)
	161(11)	130(9)	155(8)	195(8)	270(7)	150（8）	260（9）	230（8）	310(8)	310(8)
			175(9)	220(9)	310(8)	170（9）		260（9）	350(9)	350(9)
			195(10)	245(10)	350(9)			290（10）	390(10)	390(10)
			275(14)	270(11)	390(10)			350（14）	430(11)	430(11)
			375(19)	320(13)	430(11)			500（19）	510（13）	510（13）
				370(15)	470(12)			710（224）	590（15）	590（15）
				470(19)	550(14)			860（29）	750（19）	750（19）
				570(23)	670(17)				910（23）	910（23）
				695(28)	870(22)				1070（27）	1070（27）
Spacing (P)	15	15	20	25	40	20	30	30	40	40
Standard end distance (Es)	5	5	75	10	15	5	10	10	15	15
Maximum length of standard end distance	250(17)	595(40)	1195（60）	1995（80）	1990（50）	250（13）	590（20）	1970（66）	1990（50）	1990（50）
Maximum length	2504	600	12005	2000	2000	2504	6006	2000	2000	2000

Note:
1. The general tolerance for the E dimension of the guide rail is 0.5 to -0.5 mm, while the tolerance for the E dimension of the guide rail joint end distance is more stringent at 0 to-0.3 mm.
2. The maximum length of the standard end distance refers to the maximum length ofthe guide rail where both the left and right end distances arestandard end distances.
3.SMNR5 and SMWR5 are onlyavailablein stainless steel.
4. The maximum length for SMN R9 stainless steel guides is 1200 mm;the maximum length for SMNR9 standard steel guides is 1000 mm.
5. The maximum length for SMWR7 stainless steel guides is 600 mm; the maximum length for SMWR7 standard steel guides is 2000 mm.
6. Ifcustomersrequire different E values, please contact DTX-LG.

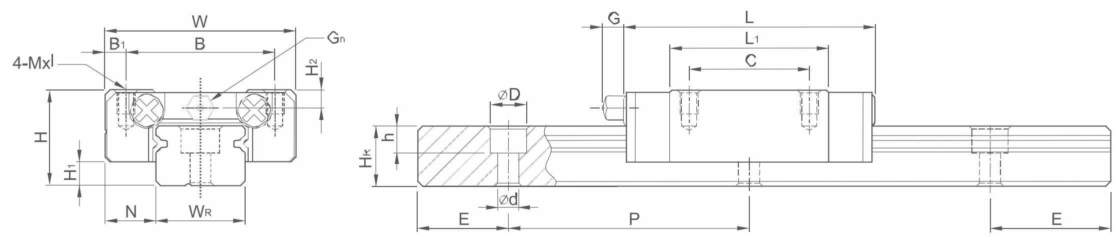
SMN/SMWSeries linearguide size table

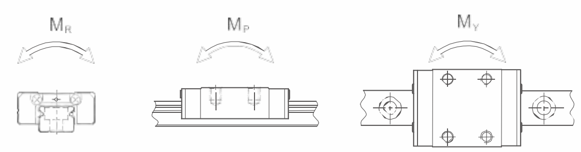
（1）SMN-C/SMN-H

SMN7,SMN9,SMN12



SWN15





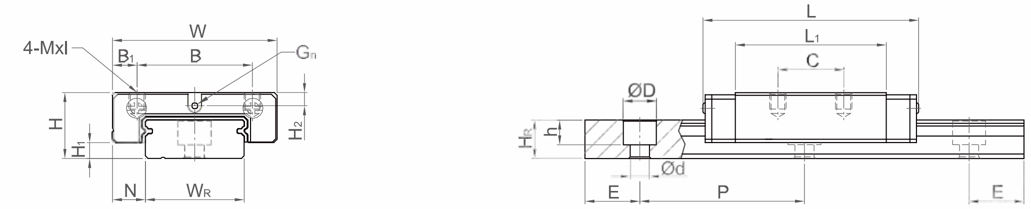
Model	Component size (mm)		Slider size(mm)										Guide size(mm)							Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H1	N	W	B	B1	C	L1	L	G	Gn	M×l	H2	WR	HR	D	h	d	P	E	(mm)	C(kN)	C0 (kN)	MR N-m	MP N-m	MY N-m	Slider kg	Guide Kg/m
SMN7C	8	1.5	5	17	12	2.5	8	13.5	22.5	-	⌀ 1.2	M2×2.5	1.5	7	4.8	4.2	2.3	2.4	15	5	M2×6	0.98	1.24	4.70	2.84	2.84	0.010	0.22
SMN7H							13	21.8	30.8													1.37	1.96	7.64	4.80	4.80	0.015	
SMN9C	10	2	5.5	20	15	2.5	10	18.9	28.9	-	⌀ 1.4	M3×3	1.8	9	6.5	6	3.5	3.5	20	7.5	M3×8	1.86	2.55	11.76	7.35	7.35	0.016	0.38
SMN9H							16	29.9	39.9													2.55	4.02	19.60	18.62	18.62	0.026	
SMN12C	13	3	7.5	27	20	3.5	15	21.7	34.7	-	⌀ 2	M3×3.5	2.5	12	8	6	4.5	3.5	25	10	M3×8	2.84	3.92	25.48	13.72	13.72	0.034	0.65
SMN12H							20	32.4	45.4													3.72	5.88	38.22	36.26	36.26	0.054	
SMN15C	16	4	8.5	32	25	3.5	20	26.7	42.1	-	M3	M3×4	3	15	10	6	4.5	3.5	40	15	M3×10	4.61	5.59	45.08	21.56	21.56	0.059	1.06
SMN15H							25	43.4	58.8													6.37	9.11	73.5	57.82	57.82	0.092	

Note:1kgf=9.81N

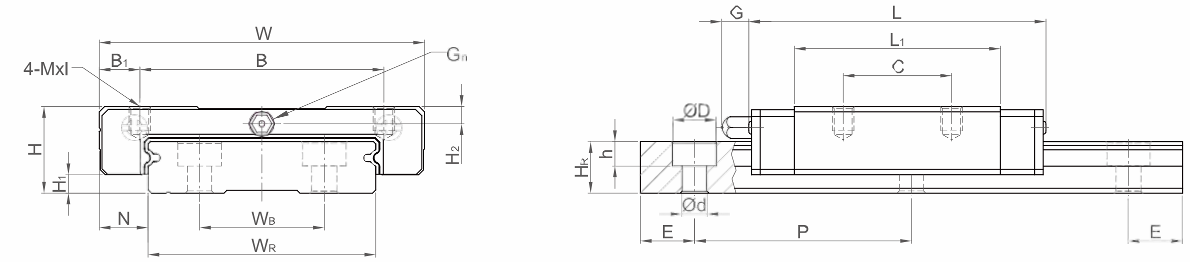
Miniature Ball Linear Guides

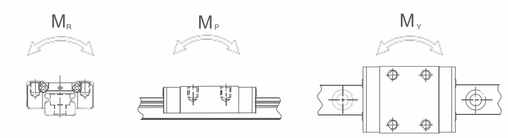
（2）SMN-C/SMN-H

SMW7,SMW9,SMW12



SWW15



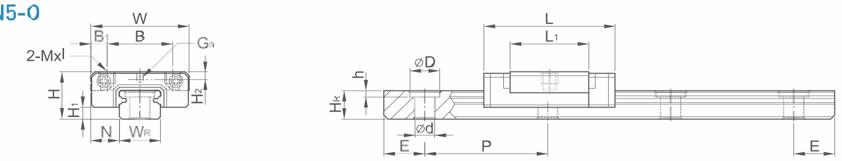


Model	Component size (mm)		Slider size(mm)										Guide size(mm)								Guide fixing bolt size	Basic dynamice rated load	Basic static rated load	Permissible static moment			Weight	
	H	H1	N	W	B	B1	C	L1	L	G	Gn	M×l	H2	WR	WB	HR	D	h	d	P	E	(mm)	C(kN)	C0 (kN)	MR N-m	MP N-m	MY N-m	Slider kg	Guide Kg/m
SMN7C	9	1.9	5.5	25	19	3	10	21	31.2	-	⌀ 1.2	M3×3	1.85	14	-	5.2	6	3.2	3.5	30	10	M3×6	1.37	2.06	15.70	7.14	7.14	0.020	0.51
SMN7H							19	30.8	41														1.77	3.14	23.45	15.53	15.53	0.029	
SMN9C	12	2.9	6	30	21	4,5	12	27.5	39.3	-	⌀ 1.2	M3×3	2.4	18	-	7	6	4.5	3.5	30	10	M3×8	2.75	4.12	40.12	18.96	18.96	0.040	0.91
SMN9H					23	3,5	24	38.5	50.7														3.43	5.89	54.54	34.00	34.00	0.057	
SMN12C	14	3.4	8	40	28	6	15	31.3	46.1	-	⌀ 1.2	M3×3.6	2.8	24	-	8.5	8	4.5	4.5	40	15	M4×8	3.92	5.59	70.34	27.80	27.80	0.071	1.49
SMN12H							28	45.6	60.4														5.10	8.24	102.70	57.37	57.37	0.103	
SMN15C	16	3.4	9	60	45	7.5	20	38	54.8	5.2	M3	M4×4.2	3.2	42	23	9.5	8	4.5	4.5	40	15	M4×10	6.77	9.22	199.34	56.66	56.66	0.143	2.86
SMN15H							35	57	73.8														8.93	13.38	299.01	122.60	122.60	0.215	

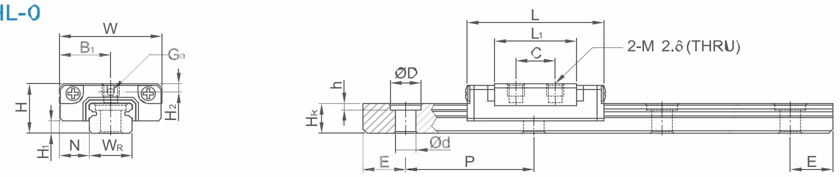
Note:1kgf=9.81N

(3) SMN-C-0 / SMN-H-0

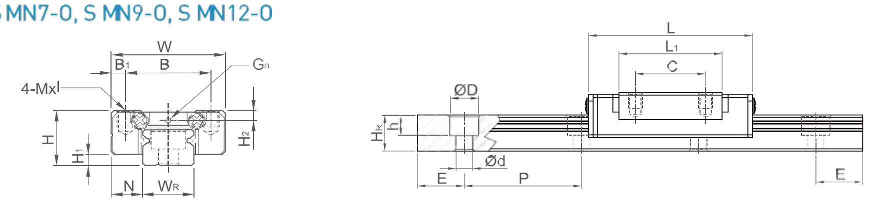
SMN5-0



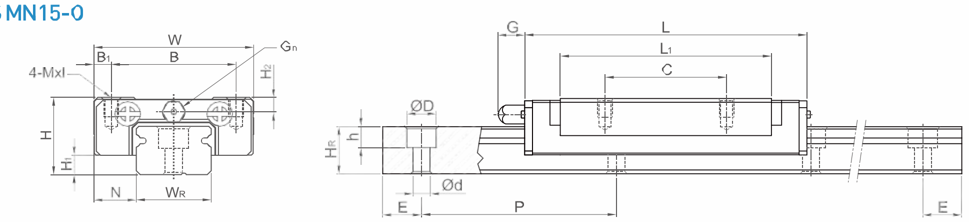
SMN5HL-0

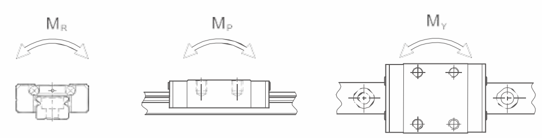


SMN7-0, SMN9-0, SMN12-0



SMN15-0



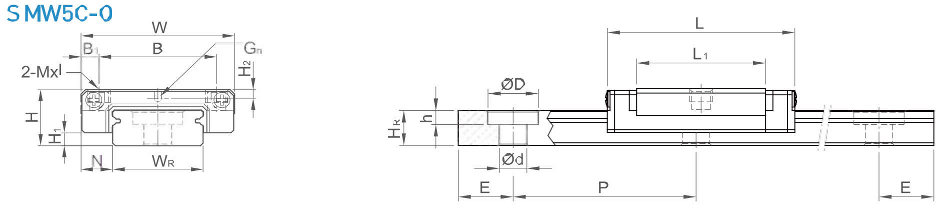


Model	Component size (mm)			Slider size(mm)								Guide size(mm)								Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H1	N	W	B	B1	C	L1	L	G	Gn	M×l	H2	WR	HR	D	h	d	P	E	(mm)	C(kN)	C0 (kN)	MR N-m	MP N-m	MY N-m	Slider kg	Guide Kg/m
SMN5C-0	6	1.5	3.5	12	8	2	-	9.6	16	-	0.8	M2×1.5	1	5	3.6	3.6	0.8	2.4	15	5	M2×6	0.54	0.84	2	1.3	1.3	0.003	0.15
SMN5H-0					8	2	-	12.6	19			M2×1.5										0.67	1.08	2.6	2.3	2.3	0.004	
SMN5HL-0					-	6	7	12.6	19			M2.6×THRU										0.67	1.08	5.6	2.3	2.3	0.004	
SMN7C-0	8	1.5	5	17	12	2.5	8	13.5	22.5	-	⌀ 1.2	M2×2.5	1.5	7	4.8	4.2	2.3	2.4	15	5	M2×6	0..98	1.24	4.70	2.84	2.84	0.008	0.22
SMN7H-0					12	2.5	13	21.8	30.8			M2×2.5										1.37	1.96	7.64	4.80	4.80	0.012	
SMN9C-0	10	2.2	5.5	20	15	2.5	10	19.4	30	-	⌀ 1.4	M3×3	1.8	9	6.5	6	3.5	3.5	20	7.5	M3×8	2.01	2.84	13.05	8.97	8.97	0.012	0.38
SMN9H-0					15	2.5	16	29.3	39.9			M3×3										2.5	3.93	19.71	21.47	21.47	0.02	
SMN12C-0	13	3	7.5	27	20	3.5	15	22	35	-	⌀ 2	M3×3.5	2.5	12	8	6	4.5	3.5	25	10	M3×8	2.84	3.92	24.48	13.72	13.72	0.025	0.65
SMN12H-0					20	3.5	20	34.6	47.6			M3×3.5										4.27	5.9	38.4	37.49	37.49	0.047	
SMN15C-0	16	4	8.5	32	25	3.5	20	36.7	41.3	4.50	M3	M3×4	3	15	10	6	4.5	3.5	40	15	M3×10	4.61	5.59	45.08	21.56	21.56	0.057	1.06
SMN15H-0					25	3.5	25	43.4	28			M3×4										6.37	9.11	73.5	57.82	57.82	0.088	

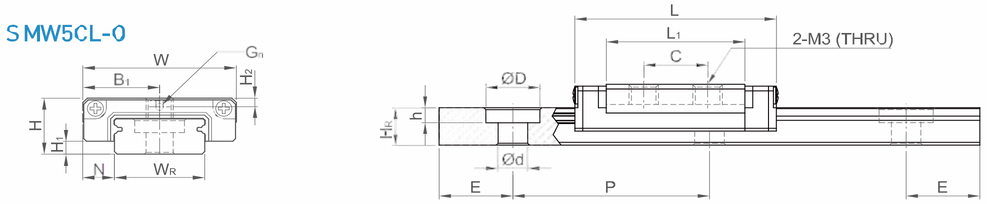
Note:1kgf=9.81N

(4) SMW-C-0 / SMW-H-0

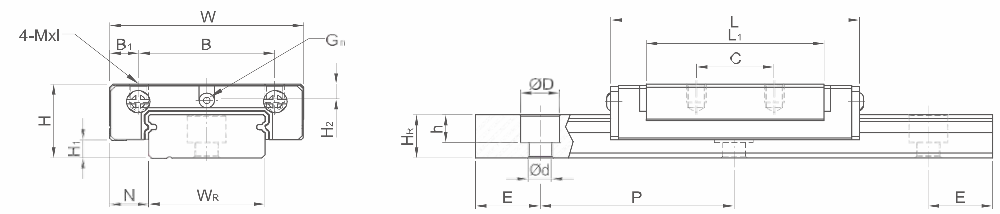
SMW5C-0



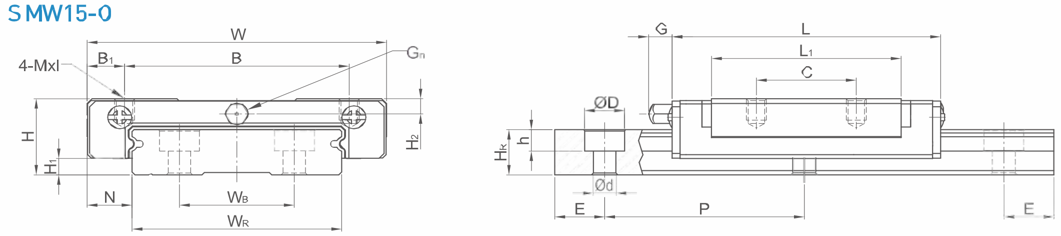
SMW5CL-0

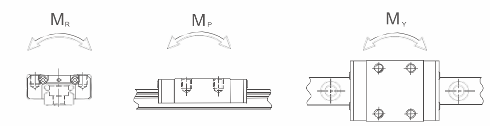


SMW7-0, SMW9-0, SMW12-0



SMW15-0





Model	Component size (mm)			Slider size(mm)								Guide size(mm)								Guide fixing bolt size	Basic dynamic rated load	Basic static rated load	Permissible static moment			Weight	
	H	H1	N	W	B	B1	C	L1	L	G	Gn	M×l	H2	WR	HR	D	h	d	P	E	(mm)	C(kN)	C0 (kN)	MR N-m	MP N-m	MY N-m	Slider kg	Guide Kg/m
SMW5C-0	6.5	1.5	3.5	17	13	2	-	14.1	20.5	-	⌀ 0.8	M2.5×1.5	1	-	4	5.5	1.6	3	20	5	M2.5×7	0.68	1.18	5.5	2.7	2.7	0.006	0.34
SMW5CL-0					-	8.5	6.5	14.1	20.5			M3×THRU										0.68	1.18	5.5	2.7	2.7	0.006	
SMW7C-0	9	1.9	5.5	25	19	3	10	21	31.2	-	⌀ 1.2	M3×3	1.85	-	5.2	6	3.2	3.5	30	10	M3×6	1.37	2.06	15.70	7.14	7.14	0.018	0.51
SMW7H-0					19	3	19	30.8	41			M3×3										1.77	3.14	23.45	15.53	15.53	0.026	
SMW9C-0	12	2.95	6	30	21	4.5	12	27.5	39.7	-	⌀ 1.2	M3×3	2.65	-	7	6	4.5	3.5	30	10	M3×8	2.75	4.12	40.12	18.96	18.96	0.038	0.91
SMW9H-0					23	3.5	24	38.5	50.7			M3×3										3.43	5.89	54.54	34.00	34.00	0.053	
SMW12C-0	14	3.45	8	40	28	6	15	31.3	45.1	-	⌀ 1.2	M3×3.6	2.8	-	8.5	8	4.5	4.5	40	15	M4×8	2.92	5.59	70.34	27.8	27.8	0.066	1.49
SMW12H-0					28	6	28	45.6	59.4			M3×3.6										5.1	8.24	102.7	57.37	57.37	0.093	
SMW15C-0	16	3.45	9	60	45	7.5	20	38	53.8	5.2	M3	M4×4.2	3.2	23	9.5	8	4.5	4.5	40	15	M4×10	6.77	9.22	199.34	56.66	56.66	0.138	2.86
SMW15H-0					45	7.5	35	57	72.8			M4×4.2										8.93	13.38	299.01	122.60	122.60	0.200	

Note:1kgf=9.81N

SR Series
Roller Linear Guide

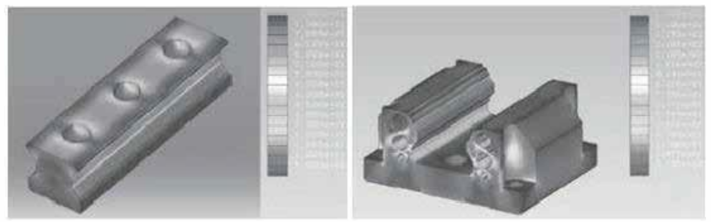
2.4 SR Series—Roller Linear Guide

2.4.1 Features of SR Series Linear Guides

The DTX rollor series as the rolling elements instead of steel balls. The roller series offers super high rigidity and vary high load capacities. The RG series is designed with a 45-degree angle of contact. Elastic deformation of the linear contact surface, during load, is greatly reduced thereby offering greatar rigidtky and high load capacities in all 4 load directions. The RG series linear guideway offers high performance for high precision manufacturing and achieving longer service lifs.

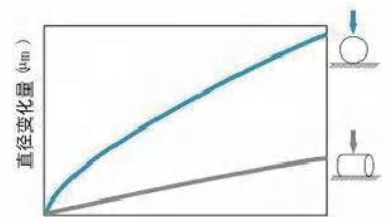
(1) Optimized Design

FEM analysis was performed to determine the optimal structure of the block and the rail. The unique design of the circulation path allows the RG series linear guideway to offer smoother linear motion.



(2) Ultra-high rigidity in all four directions

The RG series is a type of linear guideway that uses rollers as the rolling elements. Rollers have a greater contact area than balls so that the roller guideway features higher load capacity and greater rigidity. The figure shows the rigidity of a roller and a ball with equal volume.



(3) Super high load capacity.

Super high load capacity With the four rows of rollers arranged at a contact angle of 45-degrees, the RG series linear quideway has equal load ratings in the radial, reverse radial and lateral directions. The RG series has a higher load capacity in a smaller size than conventional, ball-type linear guideways.

(4) Operating life increased

Compare with the ball element, the contact pressure of rolling element is distributed on the line region. Therefore.stress concentration was reduced siginificantly and the RG series offers longer running life. The nominal life of RG series can be calculated by using Eq.

O Without considering the impact of environmental factors, the service life is calculated as follows.

$$L = \left(\frac{C}{P}\right)^{\frac{10}{3}} \cdot 100km = \left(\frac{C}{P}\right)^{\frac{10}{3}} \cdot 62mile \quad \text{... Eq2.5}$$

O When considering environmental factors affecting the use of linear guides, their service life may vary depending on the state of motion, surface hardness of the ball raceway, and system temperature.

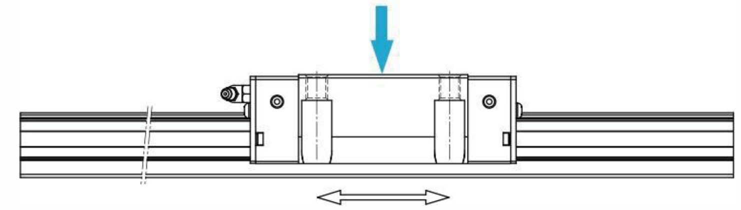
$$L = \left(\frac{f_h \cdot f_t \cdot C}{f_w \cdot P}\right)^{\frac{10}{3}} \cdot 100km = \left(\frac{f_h \cdot f_t \cdot C}{f_w \cdot P}\right)^{\frac{10}{3}} \cdot 62mile \quad \text{... Eq2.6}$$

L: Service life P: Work load
C: Basic dynamic rated load

f_h: Hardness coefficient
f_T: Temperature coefficient f_W: Load coefficient

Among them, the hardness coefficient, temperature coefficient, and load coefficient are the same as those of ball linear guides. Compared with ball linear guides, SR series has ultra-heavy load capacity and can significantly extend service life.

(5)Nominal life time test

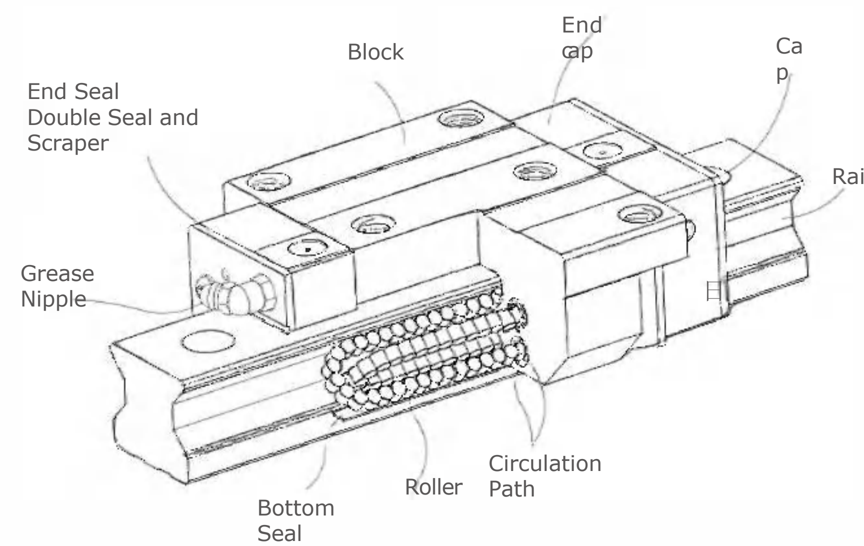


TestSystem

Table 2.4.1 Test data

Test piece 1: SRH35CA Preload grade: ZA Movement speed: 60m/min Acceleration: 1G Stroke: 0.55 m Lubricating grease: Refill every 100km Additional load: 15 kN Operating distance: 1,135km	Test results: The nominal life of RGH35CA is 1000kmAfter traveling 1135km, fatigue flaking did not appear onthe surface of the raceway or rollers. 
Tested model 2:RGW 35CC Preload: ZA class Max. Speed:120m/ min Acceleration:1G Stroke:2m Lubrication: oil feed rate:0.3cm/hr External load: 0kN Traveling distance: 15000km	Test results: Fatigue flaking did not appear on the surface of theraceway or rollers after traveling 15000km. 

2.4.2 SR Body Structure



- O Rolling circulation system: Slider, guide rail, end cover, return module, roller
- O Lubrication system: Oil nozzle, oil pipe connector
- O Dust protection system: Oil scraper, bottom dust cover, guide rail bolt cover, metal scraper

SR Series
Roller High Rigidity Type Linear Guide

2.4.3 Module Number Of SR Series

SR series linear guideways are classified into non-interchangeable and interchangeable types. The sizes of these two types are the same as one another. he man diference is that the interchangeable type of blocks and ralls can befreely exchanged and they can maintain P-class accuracy. Because of strict dimensional control, the interchangeable type linear quideways are a wise choice for customers when rails do not need to be matched for an axis. The model number of the RG series identifies the size, type, accuracy class, preload class, etc.

(1)Non-Interchangeable Type

SR W 35 C C E 2 R 1640 E ZA P II + KK/E2/RC

- SR Series
- W:Flang Type H:Squire Type
- Size of Block
- Load Type C:Heavy Load
- Block Mounting A:Mounting from Top C:Top or Bottom
- E:Special Block None:Standard
- No. of Block Per Axis
- Rail Mounting Type R: Mounting From Top T: Bottom
- E: SpecialRail No mark:Standard Rail Length(mm)
- Accuracy:H,P,SP,UP Preload: Z0,ZA,ZB
- **Number of Rails Per Set**
- Dust protection **E2: Self-lubricating**
- RC: **Reinforced Cap**

Note: 1. If only one single-axis guide is used, do not write anything; if two are used, mark as II; if three are used, mark as III, and so on.
2.In the dustproof configuration, no mark indicates the standard dustproof configuration with an oil scraper and dustproof plate.
ZZ: Oil scraper with dust cover and metal scraper.
KK: Double oil scraper with dust cover and metal scraper.
DD: Double oil scraper with dust cover.
3. Slider type L is a pre-assembled square H-shaped slider, and its combination height is the same as that of the flange type of the same size.

（2）Interchangeable linear guide product models

○ **Interchangeable slider product model**

SR W 25 C C E ZA P + ZZ/E2

- SR Series
- Slider type W: Flange type H: Square type L: (low)²
- Size: 15,20,25,30,35,45,55,65
- Load type C : **Heavy load H: Extra heavy load**
- Slider fixing method A:Upper lock C:Upper or lower lock
- E: Special processing of sliders No mark: Sliders without special processing
- Preload: Z0,ZA
- Accuracy:H,P
- Dust protection²
- E2: Self-lubricating

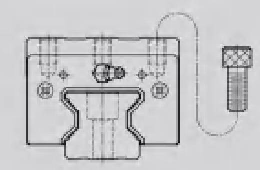
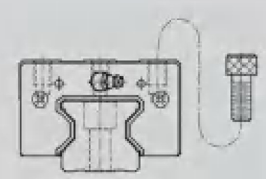
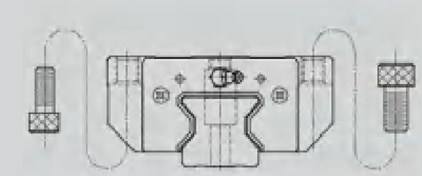
○ **Interchangeable guide product model**

SR R 25 R 1200 E P + RC

- **SR Series**
- Rail
- Size: 15,20,25,30,35,45,55,65
- Rail Mounting Type R: From Top T: From Bottom
- Rail Length
- E:Special Rail None:Standard Rail
- Class
- Accuracy: H / P
- RC:Reinforced Cap

2.4.4 Block Type

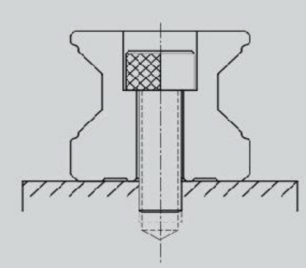
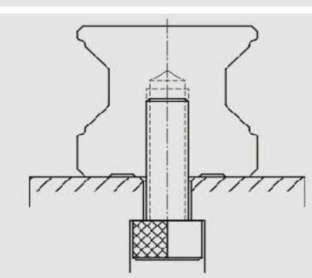
SR series offers two types of quide blocks, flange and square type. Because of the low assembly height and large mounting surface, the flange type is excellent for heavy moment load applications

Type	Model	Shape	Height (mm)	Guide Length (mm)	Application
Square type	SRH-CA SRH-HA		28 ↓ 90	100 ↓ 4000	○ Automated equipment ○ Heavy-duty handling equipment ○ CNC machining centers ○ Heavy-duty cutting machines ○ CNC grinding machines ○ Injection molding machines ○ Electrical discharge machines ○ Large gantry machine tools ○ Work machines with high rigidity and heavy load requirements
Square type	SRL-CA SRL-HA		24 ↓ 70	100 ↓ 4000	
Flange type	SRW-CC SRW-HC		24 ↓ 90	100 ↓ 4000	

(2) SR Rail type

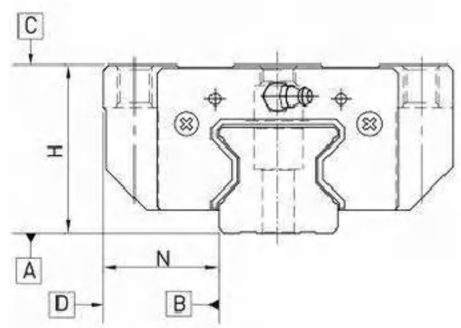
In addition to the standardTop Mounting Type, lock bolt hole guide, SR series also offers the Bottom Mounting Type Rail..

Table 2.4.3 Rails type

Mounting From Top	Mounting From Bottom
	

SR Series
Roller Linear Guide

The accuracy of the SR series can be classified into four classes: (H)precision / (P) / Super precision (SP) / and Ultra precision (UP). Customers may choose the class by referencing the Accuracy requirements of the applied equipment.



(1) Accuracy of Non-interchangeable Linear guide

Table 2.4.4 Assembly accuracy Standard

Unit: mm

Model	SR-15,20			
Accuracy Classes	High (H)	Precision [P]	Super Precision(SP)	Ultra Precision(UP)
Dimensional Tolerance of height H	±0.003	0 -0.03	0 -0.015	0 -0.008
Dimensional Tolerance of width N	±0.003	0 -0.03	0 -0.015	0 -0.008
Variation of Heights H	0.01	0.006	0.004	0.003
Variation of Widths N	0.001	0.006	0.004	0.003
Running Parallelism of Block surface C To SurfaceA	(See Table 2.4.12)			
Running Parallelism of Block surface D To Surface B	(See Table 2.4.12)			

Table 2.4.5 Assembly Standard

Unit: mm

Model	SR-25,30,35			
Accuracy Classes	High (H)	Precision [P]	Super Precision(SP)	Ultra Precision(UP)
Dimensional Tolerance of height H	±0.04	0 -0.04	0 -0.02	0 -0.01
Dimensional Tolerance of width N	±0.04	0 -0.04	0 -0.02	0 -0.01
Variation of Heights H	0.015	0.007	0.005	0.003
Variation of Widths N	0.015	0.007	0.005	0.003
Running Parallelism of Block surface C To SurfaceA	Traveling parallelism (see Table 2.4.12)			
Running Parallelism of Block surface D To Surface B	Traveling parallelism (see Table 2.4.12)			

Table 2.4.6 Accuracy Standard

Unit: mm

Model	SR-45,55			
Accuracy Classes	High (H)	Precision [P]	Super Precision(SP)	Ultra Precision(UP)
Dimensional Tolerance of height H	±0.05	0 -0.05	0 -0.03	0 -0.02
Dimensional Tolerance of Width N	±0.05	0 -0.05	0 -0.03	0 -0.02
Variation of Heights H	0.015	0.007	0.005	0.003
Variation of Width N	0.02	0.01	0.007	0.005
Running Parallelism of Block surface C To SurfaceA	Traveling parallelism (see Table 2.4.12)			
Running Parallelism of Block surface D To Surface B	Traveling parallelism (see Table 2.4.12)			

Table 2.4.7 Assembly Accuracy Standard

Unit: mm

Model	SR-65			
Accuracy Classes	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of Height H	±0.07	-0.07	0 -0.05	0 -0.03
Dimensional tolerance of width N	±0.07	0 -0.07	0 -0.05	0 -0.03
Variation of Heights H	0.01	0.01	0.007	0.05
Variation of Width N	0.01	0.015	0.01	0.007
Running Parallelism of Block surface C To Surface A	Traveling parallelism (see Table 2.4.12)			
Running Parallelism of Block surface D To Surface B	Traveling parallelism (see Table 2.4.12)			

(2) Interchangeable Linear Guide Acuracy Standard

Unit: mm

Model	SR-15,20	
Accuracy Classes	High (H)	Precision (P)
Dimensional tolerance of Height H	±0.03	±0.015
Dimensional tolerance of Width N	±0.03	±0.015
Variation of Heights H	0.01	0.006
Variation of Width N	0.01	0.006
Running Parallelism of Block surface C To Surface A	(See Table 2.4.12)	
Running Parallelism of Block surface D To Surface B	(See Table 2.4.12)	

Table 2.4.9 Accuracy Standard

Unit: mm

Model	SR-25,30,35	
Accuracy Classes	High (H)	Precision (P)
Dimensional tolerance of Height H	±0.04	±0.025
Dimensional tolerance of Width N	±0.04	±0.025
Variation of Heights H	0.015	0.007
Variation of Width N	0.015	0.01
Running Parallelism of Block surface C To Surface A	(See Table 2.4.12)	
Running Parallelism of Block surface D To Surface B	(See Table 2.4.12)	

Table 2.4.10 Accuracy Standard

Unit: mm

Model	SR-45,55	
Accuracy Classes	High (H)	Precision (P)
Dimensional tolerance of Height H	±0.05	±0.025
Dimensional tolerance of Width N	±0.05	±0.025
Variation of Heights H	0.015	0.007
Variation of Width N	0.02	0.01
Running Parallelism of Block surface C To Surface A	(See Table 2.4.12)	
Running Parallelism of Block surface D To Surface B	(See Table 2.4.12)	

SR Series
Roller Linear Guide

Table 2.4.12 Accuracy Standard

Unit: mm

Model	SR-65	
Accuracy Classes	High (H)	Precision (P)
Dimensional Tolerance of height H	±0.07	±0.035
Dimensional Tolerance of width N	±0.07	±0.035
Variation of Heights H	0.02	0.01
Variation of Width N	0.025	0.015
Running Parallelism of Block surface C to A	(See Table 2.4.12)	
Running Parallelism of Block surface D to B	(See Table 2.4.12)	

(3) Accuracy of Running parallelism

Table 2.4.12 Accuracy of Running parallelism

Rail Length (mm)	Accuracy grade (um)			
	H	P	SP	UP
~100	7	3	2	2
100~200	9	4	2	2
200~300	10	5	3	2
300~500	12	6	3	2
500~700	13	7	4	2
700~900	15	8	5	3
900~1,100	16	9	6	3
1,100~1,500	18	11	7	4
1,500~1,900	20	13	8	4
1,900~2,500	22	15	10	5
2,500~3,100	25	18	11	6
3,100~3,600	27	20	14	7
3,600~4,000	28	21	15	7

2.4.6 Preload

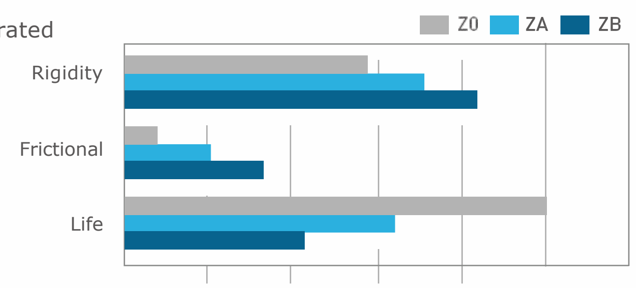
A preload can be applied to each guideway using oversized rollers. Generally, a linear motion quideway has negativeclearance between the raceway and rollers to improve stiffness and maintain high precision, The RG series linear guideway offers three standard preloads for various applications and conditions.

Table 2.4.6 Preload

Preload grade	Mark	Preload	Condition
Light preload	Z0	0.002C~0.04C	Certain load direction, lowimpact, low precision required
Medium preload	ZA	0.07C~0.09C	High rigidity required, high precision required
Heavy preload	ZB	0.12C~0.14C	Super high rigidity required, with vibration and impact

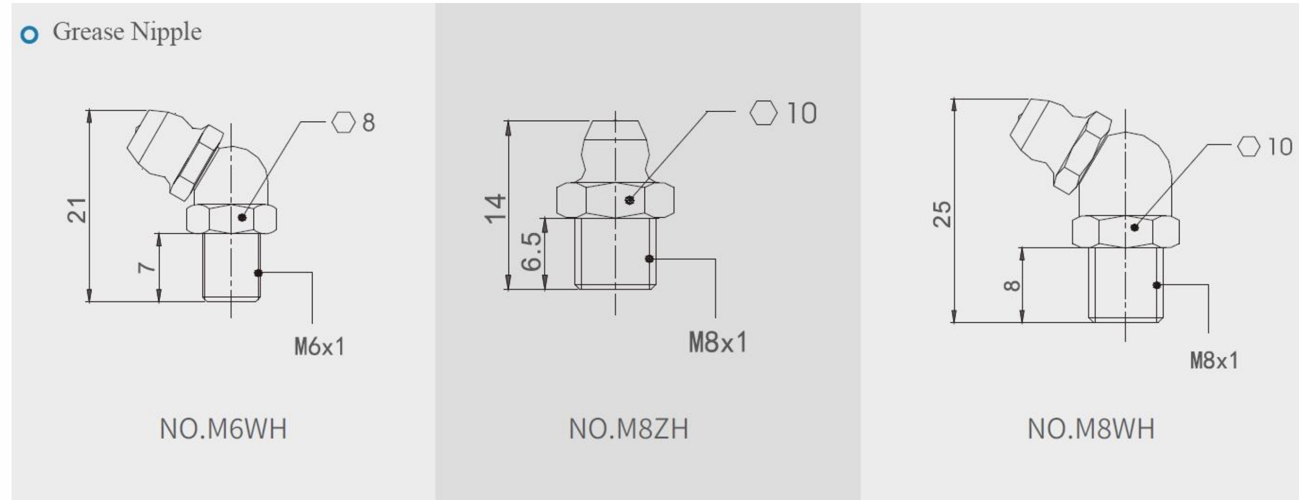
Note: 1. "C " in the column detones basic dynamic load rated

The figure shows the relationship between the rigidity, friction and nominal life. A preload no larger than ZA would be recommended for smaller model sizes to avoid over-preload affecting the life of the guideway.



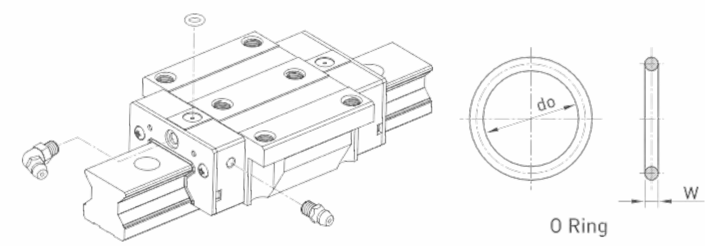
2.4.7 Lubrication

(1) Grease



Mounting Location

(1)The standard location of the grease fitting is at either end of the block.
(2)Alternatively, the nipple may be mounted on the side of the block. For side installation, contact DTX to pre-drillthe block at the desired location.
(3)Mounting the nipple on the top of the block requires an adaptor or o-ring depending on different series. DTXwill pre-drill the holes to accommodate the application's requirement. For non-standard location, please contact DTX.
(4)Oil piping joints may also be used at these locations for lubrication. For customers who need to lubricate from thetop on a standard block, HIWIN will pre-tap the block and add a recessed o-ring. Please contact DTX for moreinformation.



The Amount for a block filled with grease

Table 2.9.16 The oil amount for a block filled with grease

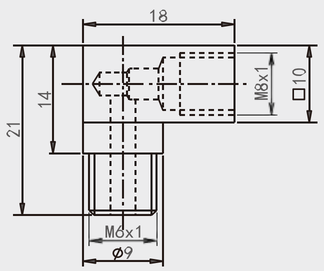
Size	Heavy load(cm³)	Super heavy load(cm³)	Size	Heavy load(cm³)	Super heavy load(cm³)
SR15	3	-	SR35	12	14
SR20	5	6	SR45	19	23
SR25	7	8	SR55	28	35
SR30	9	10	SR65	52	63

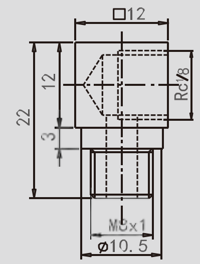
Frequency Replenishment

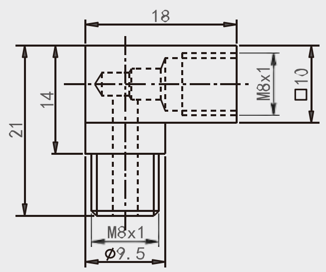
Check the grease every 100 km, or every 3 to 6 months.

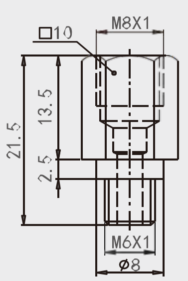
SR Series
Roller Linear Guide

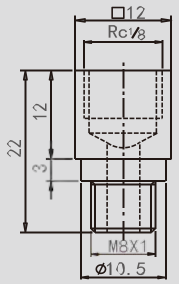
(2) Oil
The Recommended viscosity of oil is about 32 to 150cSt. If you need to use oil type lubrication please inform DTX
Type of oil pip ing joint

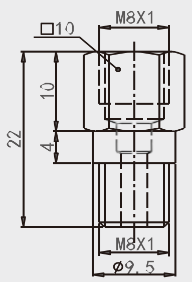

NO.M6WM

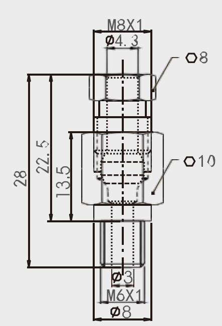

NO.M8WT

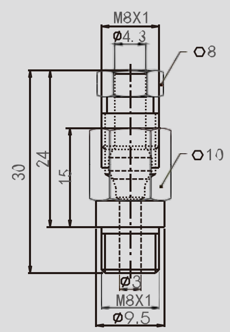

NO.M8WM

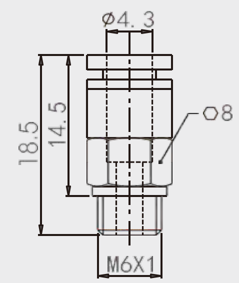

NO.M6ZM

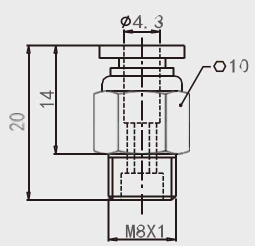

NO.M8ZT

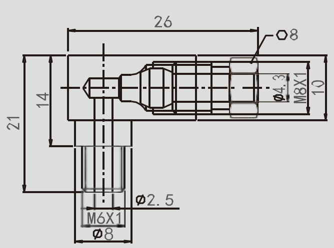

NO.M8ZM

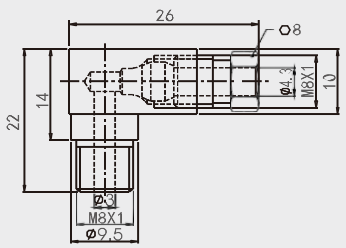

NO.Ø4-M6
Copper pipe straight connector


NO.Ø4-08
Copper pipe straight connector


NO.PCØ4-M6
Quick-plug air pipe connector


NO.PC04-M6
Quick-plug air pipe connector

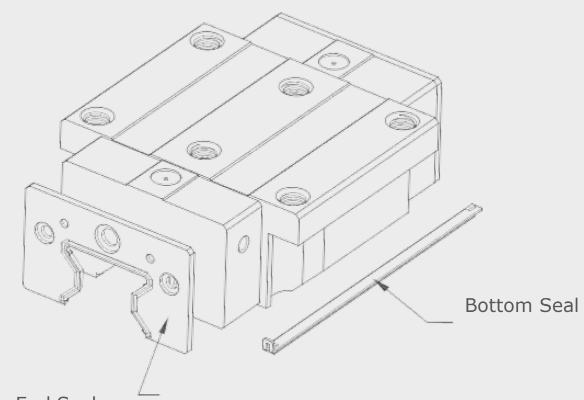

NO.Ø4-M6
Copper pipe elbow connector


NO.Ø4-M8
Copper pipe elbow connector

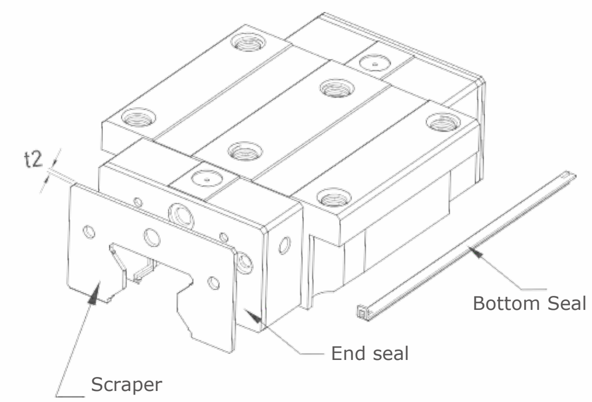
Oil feeding rate
Table 2.4.16 Oil suppl y rate

Size	Feeding rate
SR15	0.14
SR20	0.14
SR25	0.167
SR30	0.2
SR35	0.23
SR45	0.3
SR55	0.367
SR65	0.433

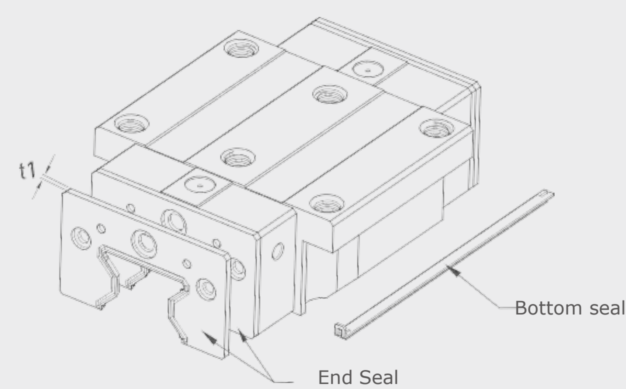
2.4.8 Dustproof Accessories
(1) Accessories code
Table 2.4.17



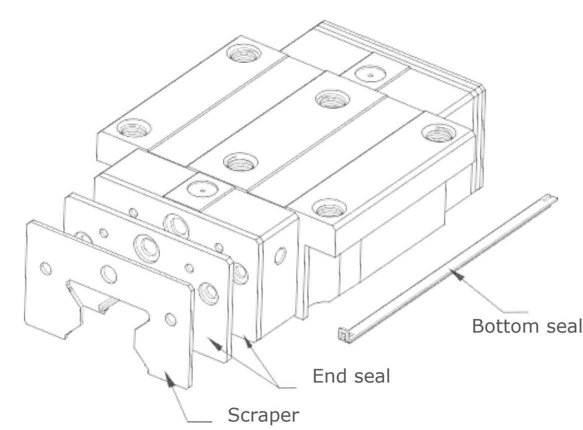
No symbol : Standard (End seal +Bottom seal



ZZ: End seal + Bottom seal + Scraper



DD: Double seal + Bottom seal



KK : Double seal + Bottom seal + Scraper

SR Series
Roller Linear Guide

Dust proof Description

End Seal and Bottom Seal
To prevent life reduction caused by iron chips or dust entering the block.

Double Seasl
Enhances the wiping effect, foreign matter can be completely wiped off.

Table 2.4.18 Dimension of Seal

Size	Thickness(t1) (mm)	Size	Thickness(t1) (mm)
SR15ES	2.2	SR35ES	2.5
SR20ES	2.2	SR45ES	3.6
SR25ES	2.2	SR55ES	3.6
SR30ES	2.4	SR65ES	4.4

(4) Scraper
The scraper removes high-temperature iron chips and larger foreign objects.

Table 2.4.19 Dimensions ofScraper

Size	Thickness(t2) (mml	Size	Thickness(t2) (mm)
SR15SC	1.0	SR35SC	1.5
SR20 SC	1.0	SR45SC	1.5
SR 25 SC	1.0	SR55SC	1.5
SR30 SC	1.5	SR65SC	1.5

(5) Bolt caps for rail mounting holes
Caps are used to cover the mounting holes to prevent chips or otherforeign objects from collecting in the holes. The caps will be enclosedin each rail package

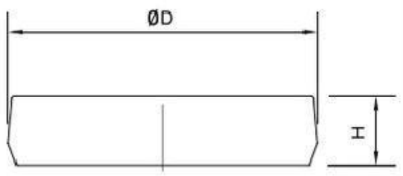


Table 2.4.20 Dimensions of bolt caps for rail mounting holes

Rail size	Bolt Size	Diamater(D) (mm)	Thickness (H) (mm)	Rail size	Bolt Size	Diamater (D) (mm)	Thickness (H) (mm)
SRR15	M4	7.65	1.1	SRR35	M8	14.20	3.3
SRR20	M5	9.65	2.2	SRR45	M12	20.25	4.6
SRR25	M6	11.15	2.5	SRR55	M14	23.5	5.5
SRR30	M8	14.20	3.3	SRR65	M16	26.6	5.5

(6) Dimensions of Block equipped with Dusty proof parts

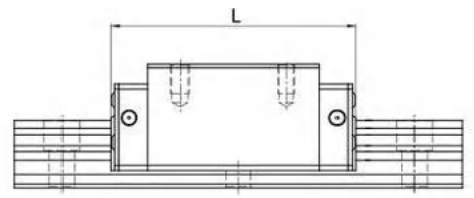


Table 2.4.21 Overall Block Length

Unit: mm

Size	Overall block length(L) SS	ZZ	DD	KK
SR15C	68.0(70.4)	70.0(74.4)	72.4(748)	74.4(78.8)
SR20C	86.0(88.4)	88.0(92.4)	90.4(92.8)	92.4(96.8)
SR20H	106.0(108.4)	108.0(112.4)	110.4(112.8)	112.4(116.8)
SR25C	97.9(101.5)	99.9(105.9)	1023 (105.9)	104.3(110.3)
SR25H	114.4(118)	116.4(122.4)	118.8 (122.4)	120.8(126.8)
SR30C	109.8(113.4)	112.8(118.8)	114.6(118.2)	117.6(123.6)
SR30H	131.8(135.4)	134.8(140.8)	136.6(140.2)	139.6(145.6)
SR35C	124.0(129.4)	127.0 (135.0)	129.0(134.4)	132.0(140.0)
SR35H	151.5(156.9)	154.5 (162.5)	156.5(161.9)	1595 (167.5)
SR45C	153.2(156.4)	156.2(164.2)	160.4(163.6)	163.4(171.4)
SR45H	187.01(90.2)	190.0(198.0)	194.2(197.4)	197.2(205.2)
SR55C	183.7(186.9)	186.7(194.7)	190.9(194.1)	193 9(201.9)
SR55H	232.0(235.2)	235.0(243.0)	239.2(242.4)	242.2(2502)
SR65C	232.0(236.0)	235.0(245.0)	240.8(2448)	243.8(253 8)
SR65H	295.0(299.0)	298.0(308.0)	303.8 (307.8)	306.8(316 8)

Note: Note : The marking of "( )" denotes the maximum block length with screws, lips of end seals, etc.

2.4.9 Friction

The maximum value of resistance per end seal are show as below

Table 24.22 Series resistance

Size	Resistance N(kgf)	Size	Resistance N(kgf)
SR15	1.96(0.2)	SR35	3.53(0.36)
SR20	2.45(0.25)	SR45	4.21(0.43)
SR25	2.74(0.28)	SR55	5.09(0.52)
SR30	3.31(0.31)	SR65	6.66(0.68)

SR Series
Roller Linear Guide

2-4-10 Accuracy Tolerance of Mounting surface

(1) The accuracy tolerance of rail-mounting surface As long as the accuracy requirements of the mounting surfaces shown in the following tables are met, the high accuracy, high rigidity and long life of the SR series linear quideway will be maintained without any di fficulty.

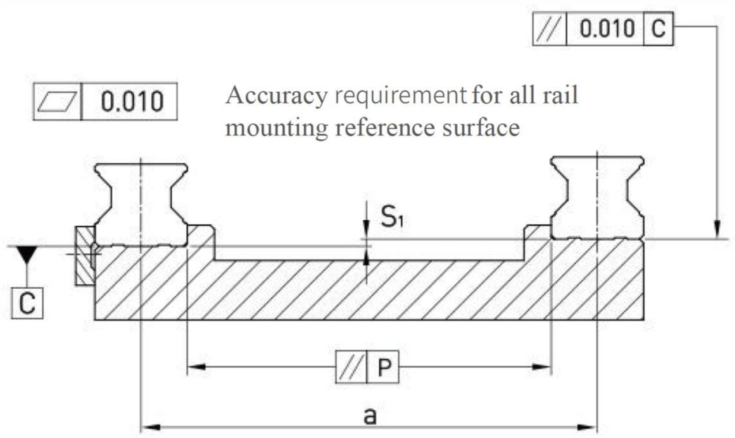


Table 2-4-23 Max. Parallelism Tolerance (P)

	Preload classes		
Size	Light Preload	Medium preload(ZA)	Heavy preload(ZB)
SR15	5	3	3
SR20	8	6	4
SR25	9	7	5
SR30	11	8	6
SR35	14	10	7
SR45	17	13	9
SR55	21	14	11
SR65	27	18	14

o **Parallelism error of bearing surface (S_1)**

$$S_1 = a \times K$$

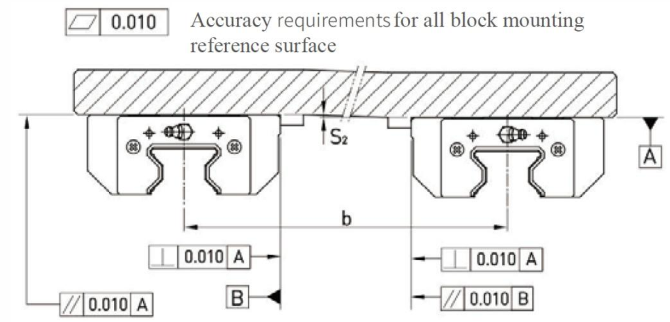
1: Maximum allowable height error
a: Spacing between paired guides
K: Height error coefficient

Table 2-4-24 Height error coefficient

	Preload grade		
Specifications	Light preload(Z0)	Medium preload(ZA)	Heavy preload(ZB)
K	2.2×10-4	1.7×10-4	1.2×10-4

[2] The accuracy tolerance of block-mounting surface

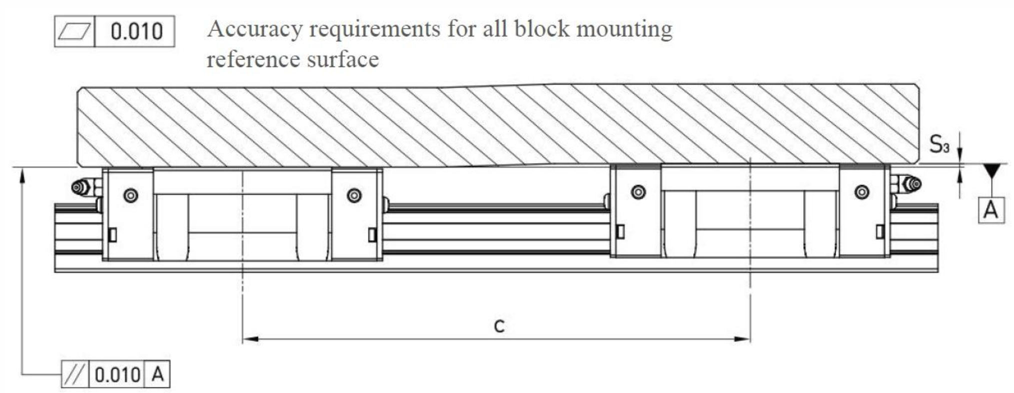
o The tolerance of the height of reference surface when two or more pieces areused in parallel (Sz)



$$S_2 = b \times 4.2 \times 10\text{-}5$$

S_2: Maximum permissible error in height
b: Spacing between paired sliders

o The tolerance of heightof reference surface when two or more pieces are used in paralles



$$S_3 = C \times 4.2 \times 10^{-5}$$

S_3 : Max. tolerance of height
c : Distance between paired blocks

2-9-11 Cautions for Installation

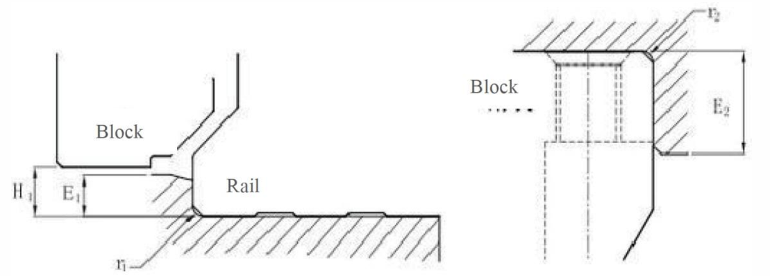


Table 2-4-25

Size	Max. radius of fillets r1(mm)	Max. radius of fillets r2(mm)	Shoulder height beside the rail E_1 (mm)	Shoulder height beside the rail E_2 (mm)	Clearance under block H_2 (mm)
SR15	0.5	0.5	4	4	4
SR20	0.5	0.5	5	5	5
SR25	1.0	1.0	5	5	5.5
SR30	1.0	1.0	5	5	6
SR35	1.0	1.0	6	6	6.5
SR45	1.0	1.0	8	8	8
SR55	1.5	1.5	10	10	10
SR65	1.5	1.5	10	10	12

(2) Tightening Torque of Mounting Bolts

Improper tightening of mounting bolts will seriously influence the accuracy of a linear guideway. The following tightening torque for the different sizes of bolt is recommended.

Table 2-4-26 Tightening Torque of Mounting Bolts or Rail Installation

		Torque N-cm (kgf-cm)		
Size material	Bolt Size	Iron	Casting	Aluminum
SR15	M4×0.7P×16L	392（40）	274（28）	206（21）
SR20	M5×0.8P×20L	883（90）	588（60）	441（45）
SR25	M6×1P×20L	1373（140）	921（94）	686（70）
SR30	M8×1.25P×25L	3041（310）	2010（205）	1470（150）
SR35	M8×1.25P×25L	3041（310）	2010（205）	1470（150）
SR45	M12×1.75P×35L	11772（1200）	7840（800）	5880（600）
SR55	M14×2P×45L	15696（1600）	10500（1100）	7840（800）
SR65	M14×2P×50L	19620（2000）	13100（1350）	9800（1000）

2-4-12 Standard and Maximum length of Rail

DTX- offers a number of standard rail lengths, Standard raillengths feature end mounting hole placements set topredeterminedvalues (E). For non-standard rail lengths, be sure to specify the E-value to be no greater than 1/2 the pitch (P) dimension. An E.value greater than this will result in unstable rail ends.

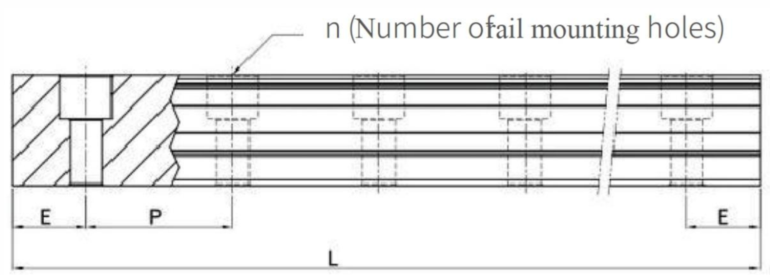


Table 2-4-27 Rail length

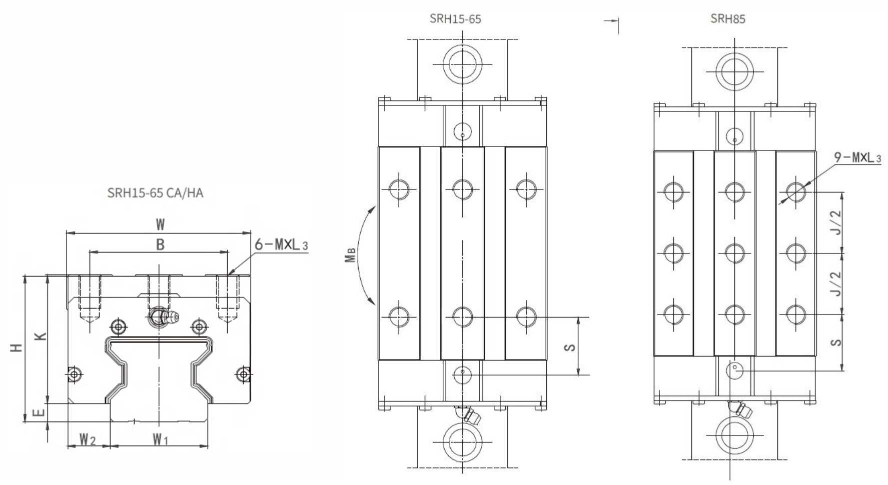
Item	SRR15	SRR20	SRR25	SRR30	SRR35	SRR45	SRR55	SRR65
Standard length L(n)	160(5)	220(7)	220(7)	280(7)	280(7)	570(11)	780(13)	1270(17)
	220(7)	280(9)	280(9)	440(11)	440(11)	885(17)	1020(17)	1570(21)
	340(11)	340(11)	340(11)	600(15)	600(15)	1200(23)	1260(21)	2020(27)
	460(15)	460(15)	460(15)	760(19)	760(19)	1620(31)	1500(25)	2620(35)
	580(19)	640(21)	640(21)	1000(25)	1000(25)	2040(39)	1980(33)	
	700(23)	820(27)	820(27)	1640(41)	1640(41)	2460(47)	2580(43)	
	940(31)	1000(33)	1000(33)	2040(51)	2040(51)	2985(57)	2940(49)	
	1120(37)	1180(39)	1240(41)	2520(63)	2520(63)	3090(59)	3060(51)	-
	1360(45)	1360(45)	1600(53)	3000(75)	3000(75)	-	-	-
Pitch (P)	30	30	30	40	40	52.5	60	75
Distance to End(Es)	20	20	20	20	20	22.5	30	35
Max.standard Length	4000(133)	4000(133)	4000(133)	4000(100)	4000(100)	3982(76)	3960(66)	3970(53)
Max. Length	4000	4000	4000	4000	4000	4000	4000	4000

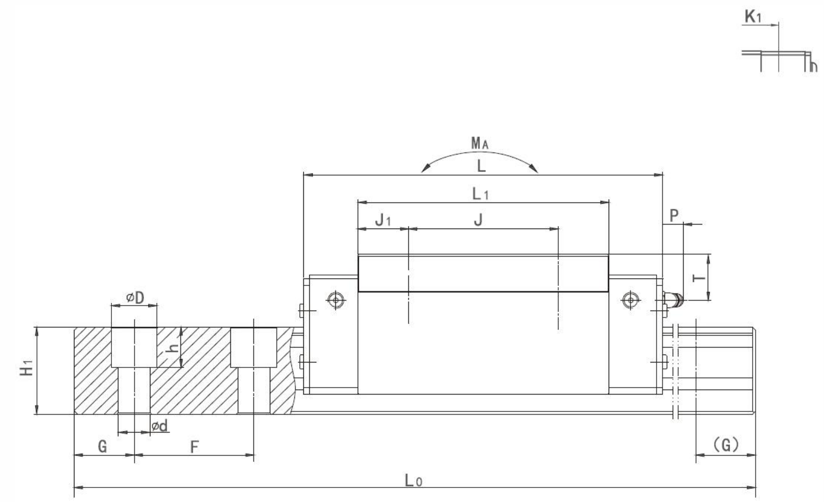
1.Tolerance of E value for standard rail is 0.5--0.5 mm. Tolerance of E value for jointed rail is 0~-0.3 mm.
2.Maximum standard length means the max. rail length with standard E value on both sides.
3.If different E value is needed, please contact DTX

SG Series
Roller Linear Guide

2-9-13 SR series linear guide size table

SRH-CA/SRH-HA





SR Series Size CA Rectangular Slide Block HA Extended Rectangular Slide Block

Model No.	Assembled			Slider size									
	H	H_1	N	W	B×J	L	L_1	J_1	P	T	S	K	Mounting hole M×L2	Mounting hole M×L3
SRH15CA	28	4	9.5	34	26×26	68	45	9.5	6		13.7	24	M4×8	M4×8
SRH20CA	34	5	12	44	32×36	88.5	57.5	10.75	6		15.8	29	M5×8	M5×8
SRH20HA					32×50	108.5	77.5	13.75			18.8			
SRH25CA	40	5.5	12.5	48	35×35	98	64.6	14.8	10		21.8	34.5	M6×9	M6×9
SRH25HA					35×50	114.4	81	15.5			22.5			
SRH30CA	45	6.5	16	60	40×40	109.5	71.5	15.75	10	9.3	22.75	38.5	M8×10	M8×10
SRH30HA					40×60	134	96	18			25			
SRH35CA	55	6.5	18	70	50×50	126	81	15.5	10	15	23.2	48.5	M8×12	M8×12
SRH35HA					50×72	153	108	18			25.7			
SRH45CA	70	9	20.5	86	60×60	155	105	22.5	15	19	28.8	61	M10×18	M10×18
SRH45HA					60×80	190	140	30			36.3			
SRH55CA	80	10	23.5	100	75×75	180	126	25.5	15	23	34.2	70	M12×18	M12×18
SRH55HA					75×95	234	180	42.5			51.2			
SRH65CA	90	13	31.5	126	76×70	223	160	45	15	17	55	77	M16×20	M16×20
SRH65HA					76×120	290	227	53.5			63.5			
SRH85	110	16	40.5	166	120×140	350	275	67.5	15	17	77.5	94	M18×25	M18×25

Note:HI refers to the size without the protective plate; H1 refers to the size with the protective plate

Model No.	Guide size							Basic rated load		Rated torque value			Oil nozzie	Weight	
	Guide wiclth w1	H1¹	H1²	Hole spacing F	Mounting bolt holed×D×h	Reference G	Max.length Lomax	Dynamic load C(KN)	Static load C0 (KN)	M_A (N·m)	M_B (N·m)	M_C (N·m)	Standard	Slider (kg)	Guide (kg/m)
SRH15CA	15	16.5	-	30	4.5×7.5×6	20	4000	11.7	25.2	198	198	246	M4ZH	0.22	1.55
SRH20CA	20	21	-	30	6×9.5×8.5	20	4000	22.5 28.4	49.9 68.1	490 721	490 721	598 815	M4ZH	0.51 0.61	2.58
SRH20HA								22.5 28.4	49.9 68.1	490 721	490 721	598 815		0.58 0.72	2.58
SRH25CA	23	24	24.2	30	7×11×9	20	4000	31.5	59.8	670	670	800	M6WH	0.62	3.3
SRH25HA								38.8	73.5	1100	1100	1040		0.77	
SRH30CA	28	28	28.2	40	9×14×12	20	4000	42.5	77.4	1060	1060	1420	M6WH	0.91	4.6
SRH30HA								53.7	103.8	1800	1800	1920		1.19	
SRH35CA	34	31	31.2	40	9×14×12	20	4000	63.7	109.7	1484	1484	2312	M6WH	1.58	6.3
SRH35HA								81.1	148	2677	2677	3179		2.04	
SRH45CA	45	38	38.3	52.5	14×20×17	22.5	4000	99.1	181.3	3790	3790	5260	M8WH	3.14	10.13
SRH45HA								125.4	245	5900	5900	7100		4.13	
SRH55CA	53	43.5	43.8	60	16×23×20	30	4000	157.3	275.3	5640	5640	8870	M8WH	5.04	13.5
SRH55HA								210.6	397	11030	11030	12600		7.1	
SRH65CA	63	55	55.3	75	18×26×22	35	4000	267	487	13410	13410	19930	M8WH	7.35	20.9
SRH65HA								352.3	696	27100	27100	28460		10.49	
SRH85	85	71	71.3	90	24×35×28	45	4000	499.8	1078	49600	49600	57700	M8WH	22.3	36.5

The rated dynamic load C in the table is calculated based on 50 km. If100 km is used as the basis, please divide thevaluesin the table by1.23

SG Series
Roller Linear Guide

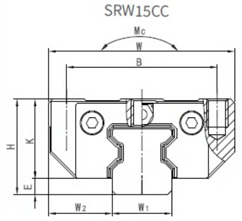
(3)SRW-CC/SRW-HC

LGRSeries Size CC(Slotted Type Slide Block) HC(Extended Slotted Type slide Block)

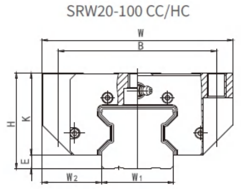
Basic No.	Assembled size			Slider size												
	Height H	E	W2	Width W	Slider mounting hole spacing B×J		Slider Length L	L1	J1	P	T	S	K	Mounting hole M×L2		Mounting hole M×L3
SRW15CC	24	4	16	47	38×30	68	45	7.5	26	6	3.9	11.7	20	M5×8	4.2	M5×7
SRW20CC	30	5	21.5	63	53×40	88.5	57.5	8.75	35	6	4.4	13.8	25	M6×10	5.4	M6×8.5
SRW20HC						108.5	77.5	18.75				23.8				
SRW25CC	36	5.5	23.5	70	57×45	98	64.6	9.8	40	10	5.5	16.8	30.5	M8×10	6.8	M8×5.3
SRW25HC						114.4	81	18				25				
SRW30CC	42	6.5	31	90	72×52	109.5	71.5	9.75	44	10	6.3	16.75	35.5	M10×11	8.5	M10×5.5
SRW30HC						134	96	22				29				
SRW35CC	48	6.5	33	100	82×62	126	81	9.5	52	10	8	17.2	41.5	M10×13	8.5	M10×6
SRW35HC						153	108	23				30.7				
SRW45CC	60	9	37.5	120	100×80	155	105	12.5	60	15	9	18.8	51	M12×15	10.5	M12×9
SRW45HC						190	140	30				36.3				
SRW55CC	70	10	43.5	140	116×95	180	126	15.5	70	15	13	24.2	60	M14×18	12.5	M14×11.5
SRW55HC						234	180	42.5				51.2				
SRW65CC	90	13	53.5	170	142×110	223	160	25	82	15	17	35	77	M16×23	14.5	M16×16.5
SRW65HC						290	227	58.5				68.5				
SRW85CC	110	16	65	215	185×140	350	275	67.5	–	15	17	77.5	94	M20×35	17.5	M20×19.5
SRW100CC	120	15	75	250	220×200	397	302	51	–	15	18	61	105	M20×35	17.5	M20×18

Note:H1 represents the without the protective belt plate;h1 represents the without the protective belt plate

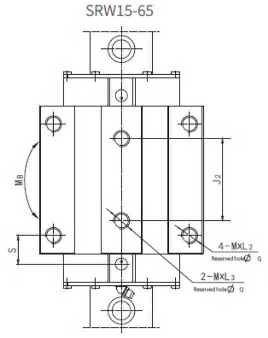
SRW15CC



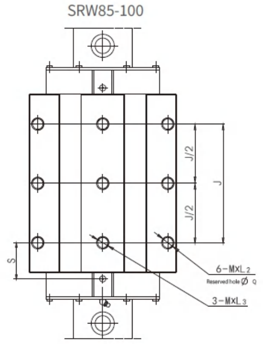
SRW20-100 CC/HC



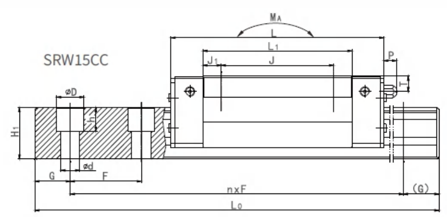
SRW15-65



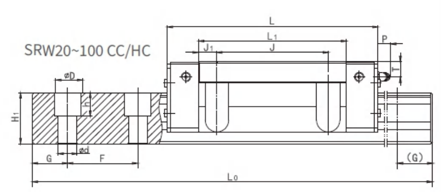
SRW85-100



SRW15CC

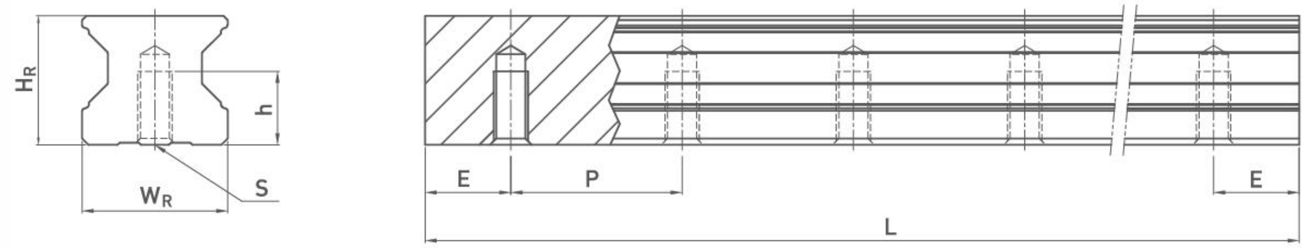


SRW20~100 CC/HC



Model No.	Guide size							Basic rated load		Rated torque value			Oil nozzie	Weight	
	Guide wiclth w1	H1¹	H1²	Hole spacing F	Mounting bolt holed×D×h	Reference G	Max.length Lomax	Dynamic load C(KN)	Static load C0 (KN)	M_A (N·m)	M_B (N·m)	M_C (N·m)	Standard	Slider (kg)	Guide (kg/m)
SRW15CC	15	16.5	-	30	4.5×7.5×6	20	4000	11.7	25.2	198	198	246	M4ZH	0.24	1.55
SRW20CC	20	21	-	30	6×9.5×8.5	20	4000	22.5 28.4	49.9 68.1	490 721	490 721	598 815	M4ZH	0.65	2.58
SRW20HC								22.5 28.4	49.9 68.1	490 721	490 721	598 815		0.82	
SRW25CC	23	24	24.2	30	7×11×9	20	4000	31.5	59.8	670	670	800	M6WH	0.73	3.3
SRW25HC								38.8	73.5	1100	1100	1040		0.93	
SRW30CC	28	28	28.2	40	9×14×12	20	4000	42.5	77.4	1060	1060	1420	M6WH	1.15	4.6
SRW30HC								53.7	103.8	1800	1800	1920		1.56	
SRW35CC	34	31	31.2	40	9×14×12	20	4000	63.7	109.7	1484	1484	2312	M6WH	1.74	6.3
SRW35HC								81.1	148	2677	2677	3179		2.34	
SRW45CC	45	38	38.3	52.5	14×20×17	22.5	4000	99.1	181.3	3790	3790	5260	M8WH	3.32	10.13
SRW45HC								125.4	245	5900	5900	7100		4.47	
SRW55CC	53	43.5	43.8	60	16×23×20	30	4000	157.3	275.3	5640	5640	8870	M8WH	5.53	13.5
SRW55HC								210.6	397	11030	11030	12600		7.95	
SRW65CC	63	55	55.3	75	18×26×22	35	4000	267	487	13410	13410	19930	M8WH	10.01	20.9
SRW65HC								352.3	696	27100	27100	28460		14.59	
SRW85CC	85	71	71.3	90	24×35×28	45	4000	499.8	1078	49600	49600	57700	M8WH	29	36.5
SRW100CC	100	82	-	105	26×39×32	50	4000	712.5	1485.2	79000	79000	94000	M8WH	40	50

(4)SRR-T Lower lock guide size table



Model	Guide size (mm)						Weight
	W_R	H_R	S	h	P	E	(kg/m)
SRR15T	15	16.5	M 5×0.8P	8	30	20	1.86
SRR20T	20	21	M 6×1P	10	30	20	2.76
SRR25T	23	23.6	M 6×1P	12	30	20	3.36
SRR30T	28	28	M 8×1.25P	15	40	20	4.82
SRR35T	34	30.2	M 8×1.25P	17	40	20	6.48
SRR45T	45	38	M 12×1.75P	24	52.5	22.5	10.83
SRR55T	53	44	M 14×2P	24	60	30	15.15
SRR65T	63	53	M 20×2.5P	30	75	35	21.24

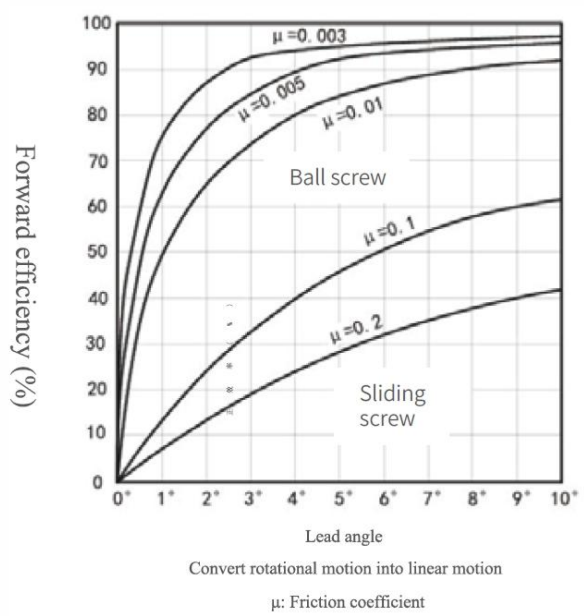
2.5 DSCR

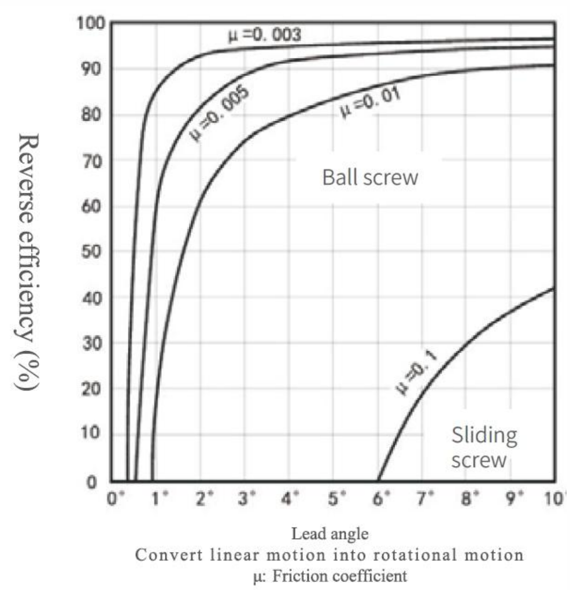
Precision Ground Ball Screw Series

Features of DTX-LG Ball Screw Assemblies

1.High Reliability

DTX MOTION applies stringent quality control standards on every production process. With proper lubrication and use, trouble-free operation for an extended period of time is possible.





2.Smooth Operation

he hioh elicienev of bal serew is vastly superior than conventonal serews as shown in big ... t takes ess than 30%o toraue to make the ineal motion into rotary motion.

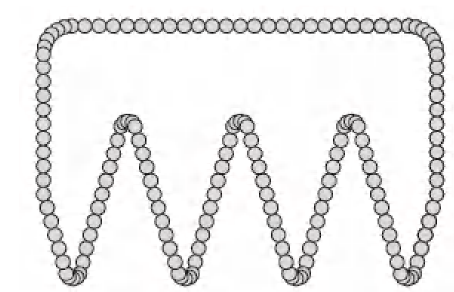
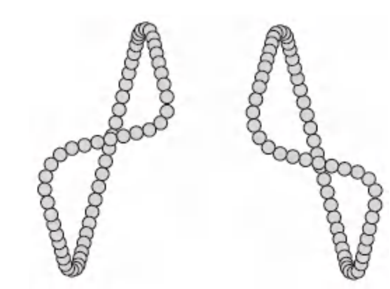
3.High Rigidity and Preload

As shown in below, the ballserew of'TBl MOTION is designed with Gothic arch groove, which makes the screw easy to rotate even using minimumaxial play. To make the rigidity more appropriate to using condition,you can change the preload between one or two screw nuts to reduce axial play.

4. High Durability

the most durable ball screws manufactured. (See Table1.1.1 & Fig1.1.5) D'TX MOTION Rigidly selected materials, intensive heat treating and processing techniques, backed by years of experience, have resulted ir

Structure of DTX-LG Ball Screw
Nut Types U, I - Type Nut

Circulation mode	External ball circulation nuts	Interal ball circulation nuts
Schematic diagram		
Structural characteristics	The ball leaves the surface of the lead screw duringthe reverse cycle.	The ball remains in contact with the surface of the lead screw throughout the cycle.
Features	1.High speed, low noise, 2. Suitable for large and medium pitch specifications; 3. DN value up to 120,000.	1. Small outer diameter of nut installation; 2. Suitable for medium and small loads, medium and small leadspecifications; 3. DN value up to 80,000.
Applicable industries	1.High-speed industries, such as gantry milling machines,drilling and tapping machines, and other equipment; 2.High-speed medium-load industries, such as machiningcenters and high-speed turning and milling composites,	1. edium- and low-speed industries, such as CNC lathes andother equipment; 2. Micro-feed, low-speed machine tools, such as internal andexternal nut grinding machines, wire cutting machines, andelectric discharge machines.

Nut Design Ball

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 intoconsideration.

(2) Circulation type

Selection of circulation type : Please consider the efficiency of screwnut's mounting space. The advantage of each circulation type will bespecified in Table1.6.1.

(3)Number of loop circuits

Performance and service life should be considered when selectingnumber of loop circuits.

(4)Shape offlanges (FLANGE)

Please make selection based on the available space for the installationof nuts.

(5) Oil hole are provided for the precision ball screws, please use themduring machine assembling and regular furnishing.

Nut Types U, I - Type Nut

these types of nuts, by using the internal circulator which makesthe ball pass over the crest diagonally, the ball will return to thestarting point. Normally, one roll of balls will fit with onecirculation. As figure 1.6.1 specified, these types of nuts need atleast one side which is completely threading, which is applicablefor smaller shaft diameter.

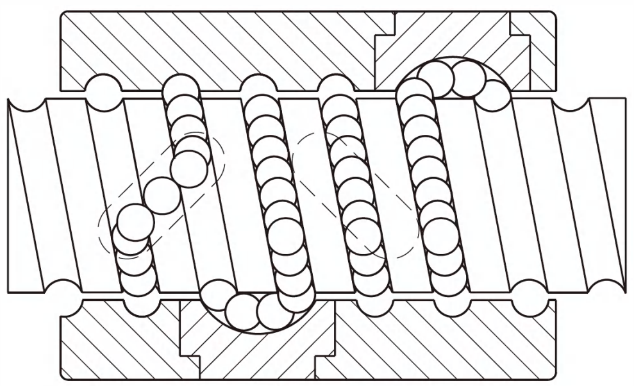


Fig 1.6.1 U, I - Type Nut

K Type Nut

It applies the similar circulation as that of I-type, but circulation takesplace in key slots of identical angle for different circulation. (see Fig1.6.2)

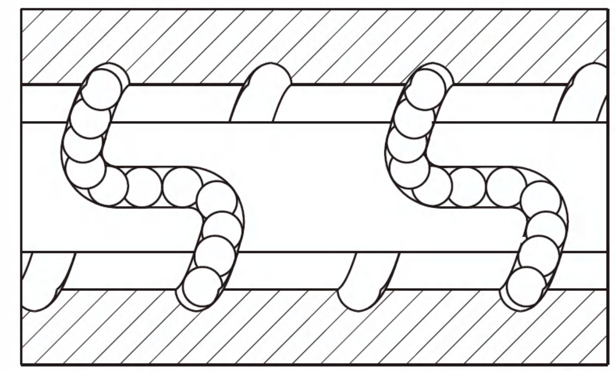


Fig 1.6.2 K - Type Nut

Y, YA, A, J, B - Type Nut

By using thin and flexible dust cap on both side, the performance of wipinghad been enhanced.Moreover, the enhancement of circulation structureincrease both the function of high rigidity and speed.

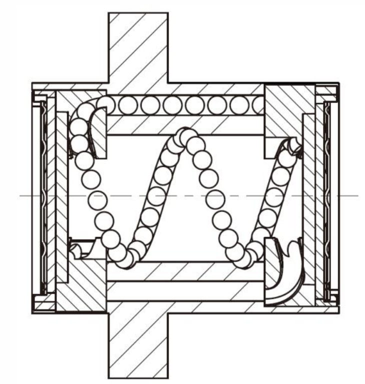


Fig 1.6.4 Y, YA, A, J - Type nut

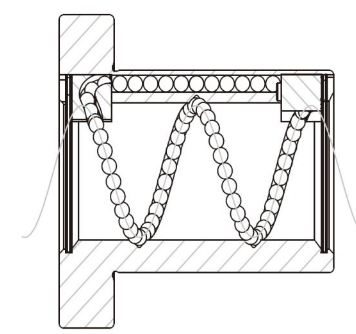


Fig 1.6.5 B - Type Nut

Ball screw assembly selection flowchart

- 1.Accuracy design
  - Determine the applicable application and working conditions
  - Determine travel deviation and variation
- 2. Ball screw design
  - Selection of ball screw lead and shaft diameter
  - Selection of ball screw assembly method
- 3. Ball nut design
  - Calculation of ultimate load and allowable speed
  - Selection of ball nut model
- 4. Rigidity, preload, and travel compensation value
  - Determination of ball screw assembly preload, trave! compensationvalue.and pre-tension force
  - Verification of ball screw assembly accuracy
- 5. Service life
  - alculation of ball screw assembly service life
- 6. Drive torque
  - Motor selection calculation
- 7.Precautions
  - Precautions for using ball screw assembly

Accuracy Selection

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.

Application		Shaft	Accuracy grade					
			�	�	�	� �	�	
CNC machines	Lathe	X	O	O O	O	O O		
		Z			O	O O	O	
	Milling machine Boring machine	x、Y	O	O O	O	O O		
		Z		O	O O	O	O	
	Machining center	x、Y	O	O O	O	O		
		Z		O	O O	O		
	Drilling machine	x、Y			O	O O	O	
		Z					O	O
	Grinding machine	x、Y	O	O O	O			
		Z	O	O O	O			
	Electrical discharge machine	x、Y	O	O O	O			
		Z		O	O O	O		
	Wire cutting machine	x、Y	O	O O	O			
		Z		O	O O	O		
	Laser processing machine	X 、Y			O	O		
		Z			O	O		
	Punching machine	x、Y			O	O		
	Woodworking machine	—				O	O O	
	General machinery	—			O	O O	O	

Countermeasure Against Thermal Displacement

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

$$\triangle \ell = \alpha \cdot \triangle t \cdot L$$

$\triangle \ell$: Thermal displacement
α : Coefficient of thermal expansion
$\triangle t$: Temperature rise (deg) at screw shaft
L : Effective length of screw thread

Namely, the screw shaft develops elongation of 12 jum per 1 m when the temperature rises by 1°C. The ballscrew, which lead has been machined to high accuracy, may fail to meet high level requirments because of thethermal displacement due to temperature rise. As high speed is applied during ball screw usage, the heat will rise aswell and cause more influence

The thermal displacement countermeasures for ball screws include the following:

(1)Control of heat generation
(2)Forced cooling
- Optimization of preload
- Correct selection and supply of lubricant
- Increase in ball screw lead, with reduced rotation speed
- eHollow screw shaft to allow cooling fluid to flow through
- Cooling of screw shaft exterior with cooling oil or air

(3)Aviod influence of temperature rise
Warming up the machine through high speed to attain the stable
Temperature:
- perates after the temperature become stable
- Pre-tension on screw shaf
- Preset a negative value on target value of the cumulative leadUse the closed loop for positioning

Service Life of Ball Screws

Even the ball screw is used under correct conditions, it would still fail after a period time of usageFrom the beginning to the unusable condition of ball screw, this period of time is called servicelife of ball screw, which is generally classified into the fatique life when delamination phenomenonoccurs and the accuracy deterioration life caused by wear-out, etc.

Basic Static Load Rating Coa

The basic load rating is an axial static load which will produce a permanent deformation at contactpoints 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 10" revolutions. This basic dynamicload rating is shown in the table of dimensions.Relation between load and service life

$L = \left(\frac{C}{P}\right)^3$ L : Service life P : Load

Fatigue Life

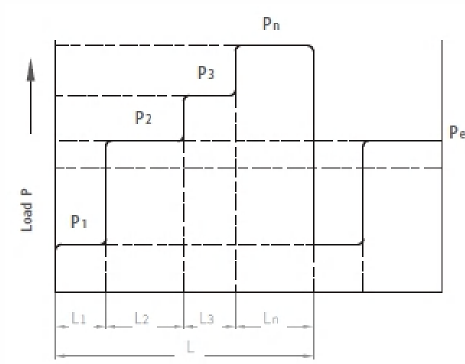
Average load Pe
(1) When axial load keeps changing, please calcuate in order the average load for the equivalentfatigue life under different load condition changes. (see Table 1.9.1)

$$P_e = \left(\frac{P_1^3 n_1 t_1 + P_2^3 n_2 t_2 + \ldots + P_n^3 n_n t_n}{n_1 t_1 + n_2 t_2 + \ldots + n_n t_n}\right)^{\frac{1}{3}} \text{(kgf)}$$

Axial Load (kgf)	Rotating Speed (min^{-1})	Time(%)
P1	n1	t1
P2	n2	t2
.	.	.
.	.	.
.	.	.
Pn	nn	tn

But, $t_1 + t_2 + t_3 + \ldots + t_n = 100$

Usage	Life in hours (h)
Working machines	20000
General industrial machines	10000
Automatic control machines	15000
Measurement machines	15000



$$P_e = \frac{2P_{max} + P_{min}}{3} \text{ (kgf)}$$

P_{max} : Maximal axial load (kgf) P_{min} : Minimal axial load (kgf)

(2) n load changes according to sine curve (see Fig 1.9.2)

$P_e ≒ 0.65\ P_{max}$ ..... (Fig A)

$P_e ≒ 0.75\ P_{max}$ ..... (Fig B)

Fig A

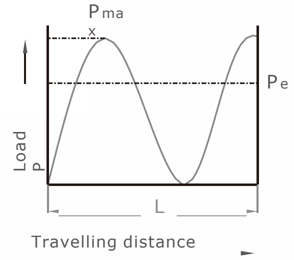
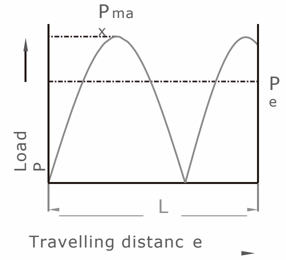


Fig B



Calculation f 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 :

$$L = \left(\frac{C_a}{P_a \times f_w}\right)^3 \times 10^6 \qquad L_t = \frac{L}{60n} \qquad L_s = \frac{L \times \ell}{10^6}$$

Where

L : Rated fatigue life (rev)

L_s : Life in travel distance (km)

P_a : Axial load (kgf)

f_w : Load Coefficient

(Required coefficient to operate)

L_t : Life in hours (h)

C_a : Basic dynamic load rating (kgf)

n : Rotating speed (rpm)

ℓ : Lead (mm)

Load Factor (fw)

Vibration and impact	Velocity (V)	fw
Minor	V ≦ 0.25 m/sVery Low	1~1.2
Little	0.25 < V ≦ 1m/s Low	1.2~1.5
Moderate	1 < V ≦ 2 m/sMedium	1.5~2
Heavy	V > 2 m/sHigh	2~3.5

Factor of Safety (fs)

Usage	Operation	fs
Machine tool	Normal operation	1.0 ~ 1.3
	Operation with impact and vibration	2.0 ~ 3.0
Industrial machine	Normal operation	1.0 ~ 1.5
	Operation with impact and vibration	2.5 ~ 7.0

Basic Dynamic Load Rating C_a

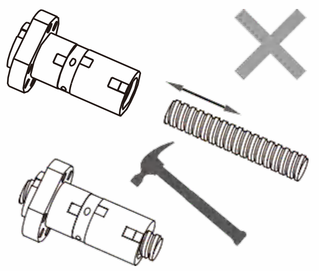
$C_a = P_e \cdot f_s$

Basic Static Load Rating C_{0a}

$C_{0a} = P_{max} \cdot f_s$

Cautions About Use of Ball Screws

Ball screw assemblies are delicate components, Therefore, extra care must be taken to prevent the ball track from damagesthat caused by edged component or tools. Meanwhile, to prevent steel ball fall out of the nut through the disassembly ofscrew and nut or over stroke, please be candfit operating, if the steel ball falls out, please contact with DTX MOTIONfor further instruction. (Do not attempt to reassemble, which might cause permanent damage to the ball screw.)



If disassemble isequiredplese use atrarsfer pipe whichas minor diameter thahe screwdiameter to transfer the nut to prevent falling out of the steel balls.

Lubrication

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

Lubricants applied to ball screws can be divided into 2 types, namely lubricating oil and consistentgrease. in general speaking, in respect of maintenance, consistent grease will lead tofncreasedynamic friction torque linearly along with increase of rotating speed, hence oil lubrication isdeemed the better way when speed exceeds 3-5 m/min; however, don't forget the factat therebeen examples that using grease has been capable of achieving speed of 10 m/mapestththe equipment.

In terms of equipments, there are some cheaper lubricant that can be used. in general, to fullyutilize the function of ball screw, lubricating oil of 5 m/minute is thedtash to choose.Infigure 1.10.1, we provide the standard of lubricating oil inspection and supplement interval. Beforereplenishing, please clean up the previous grease to continue.

Inspection of lubrication and interval of refil

Method	Interval	Check Item	Replenish or Change Interval
Auto. Periodial 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

Dust Proof/ Prevention

Any foreign matter or water, if entering to the ball screw, may increase friction and causefdaaagaple, the entryof chips or cutting oil may be expected with machine tools accordingvtlthemvironment. Where entry of foreignmatter is anticipated, use a bellows or telescopic apsleown in Fig 1.10.2, to cover the screw shaft completely.

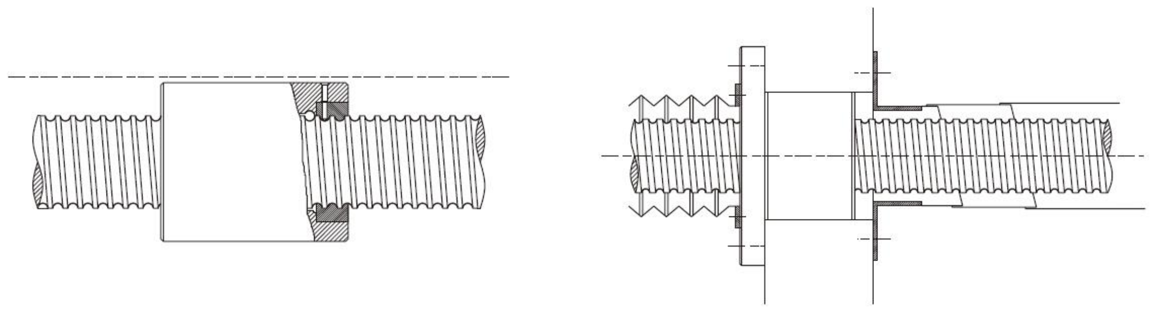


Fig 1.10.2 Dust proof Method by Telescopic Cover and Bellows

Offset Load

When offset load phenomenon occurs, screw life and noise tend to be directly affectewpwldiahsually beaccompanied with hand feel of rough running, As the smoothness ofsafthnd assembled ball screw might bediferent. in addition to single shaft's accuracy, the pffsrtomenon was mostly occurred by failed assemble accuracywhich is shown in Fig 1.10.3.

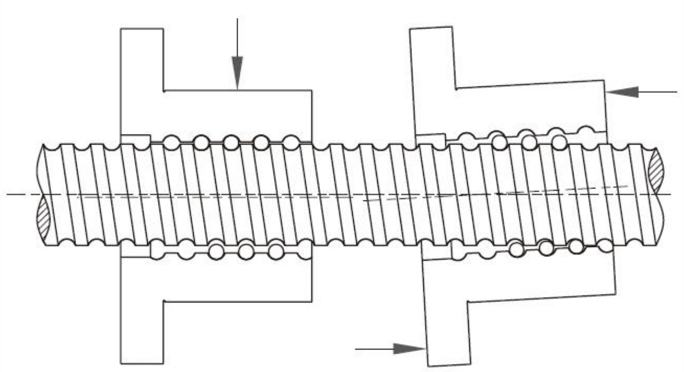


Fig 1.10.3 Offset Load

Cautions About Use of Ball Screws

Assembling the Ball Screws

If rolled ball nut is shipped un-assembled pldasdflov the procedure as below.

Procedure

(1) Remove the band.

(2) Attached the mandrel towards machine ends.

(3) Rotate the ball nut into the screw along the thread.

(4) Ensure that the ball nut is fully inserted before remove the mandrel.

Machining Specifications

(1) For the Ball Screws with internal or end cap type circulation ball nut, it is required to have at.eastone end with complete thread to the end of screw, it is also required to have the journal areais with diameter to be smaller than the diameter of thread root as Fig 1.10.4 shown.

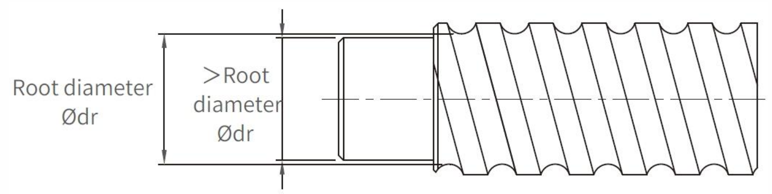


Fig 1.10.4 For Internal Circulation

ends 1ournal purpose.lhe unhardened area will be labeled

(2) The thread on screw shaft are hardened by induction hardening. It shall cause about 10~20 mm at both

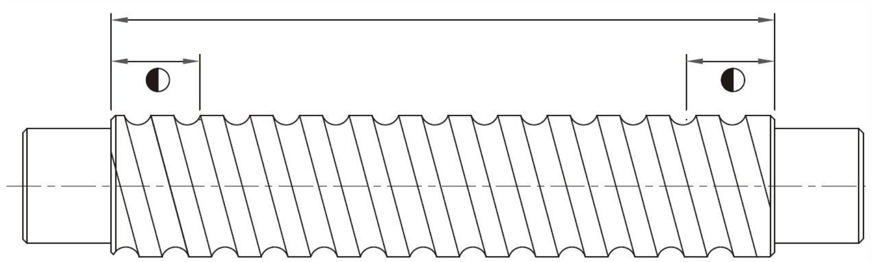


Fig 1.10.5 Harden Area

Table 2.1.1 Ground Ball Screw Specifications ⌀ 04~32

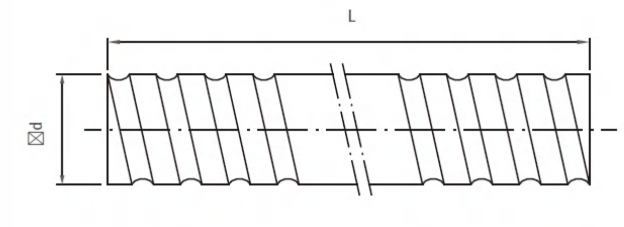


Fig 2.1.1 Screw Shaft Nominial Diameter

Model No.			Accuracy Grade	Threading Direction R : Right L : Left	Number of Grooves	Standard Code of Shaft	Type of Nut
Ød	I	Da					
4	1	0.8	C7, C5, C3	R	1	SCR00401	K
6	1	0.8	C7, C5, C3	R	1	SCR00601	K
	6	1.2	C7, C5, C3	R	1	SCR00606	J
8	1	0.8	C7, C5, C3	R/L	1	SCR00801	K
	2	1.2	C7, C5, C3	R/L	1	SCR00802	K
	2.5	1.2	C7, C5, C3	R	1	SCR0082.5	K, BSH
	8	1.2	C7, C5, C3	R	1	SCR00808	J
10	2	1.2	C7, C5, C3	R/L	1	SCR01002	K, BSH
	4	2	C7, C5, C3	R	1	SCR01004	K, BSH
12	2	1.2	C7, C5, C3	R/L	1	SCR01202	K
	4	2.5	C7, C5, C3	R	1	SCR01204	U, BSH
	5	2.5	C7, C5, C3	R	1	SCR01205	K
	5	2.5	C7, C5, C3	R	1	SSR01205	V, BSH, A, B
	10	2.5	C7, C5, C3	R	1	SCR01210-B	V
14	2	1.2	C7, C5, C3	R/L	1	SCR01402	K
	4	2.5	C7, C5, C3	R	1	SCR01404	K, BSH
15	10	3.175	C7, C5, C3	R	1	SCR01510	V
	20	3.175	C7, C5, C3	R	1	SCR01520	V
16	4	2.381	C7, C5, C3	R	1	SCR01604(N)	I, U, BSH
	5	3.175	C7, C5, C3	R/L	1	SCR01605	V, NI, NU, BSH
	10	3.175	C7, C5, C3	R/L	1	SCR01610	V, NI, NU, BSH
	16	2.778	C7, C5, C3	R	2	SCR01616	Y, YA
	32	2.778	C7, C5, C3	R	2	SCR01632	Y, YA
20	2	1.2	C7, C5, C3	R	1	SCR02002	K
	4	2.381	C7, C5, C3	R	1	SCR02004(N)	I, U
	5	3.175	C7, C5, C3	R/L	1	SCR02005	V, NI, NU, BSH, A, B
	10	3.969	C7, C5, C3	R	1	SCR02010	V
	20	3.175	C7, C5, C3	R	1	SCR02020, SSR02020	V, A, B
	20	3.175	C7, C5, C3	R	2	SCR02020, SSR02020	Y, YA
	40	3.175	C7, C5, C3	R	2	SCR02040	Y, YA
25	2	1.2	C7, C5, C3	R	1	SCR02502	K
	4	2.381	C7, C5, C3	R	1	SCR02504(N)	I, U
	5	3.175	C7, C5, C3	R/L	1	SCR02505	V, NI, NU, BSH, A, B
	6	3.969	C7, C5, C3	R	1	SCR02506	V, U
	8	4.762	C7, C5, C3	R	1	SCR02508	V, U
	10	4.762	C7, C5, C3	R/L	1	SCR02510-A	NI, NU, BSH
	10	6.35	C7, C5, C3	R	1	SCR02510-B	V
	25	3.969	C7, C5, C3	R	2	SCR02525	Y, YA
	50	3.969	C7, C5, C3	R	2	SCR02550	Y, YA
32	4	2.381	C7, C5, C3	R	1	SCR03204(N)	V, I, U
	5	3.175	C7, C5, C3	R/L	1	SCR03205	V, NI, NU, A, B
	6	3.969	C7, C5, C3	R	1	SCR03206	V, U
	8	4.762	C7, C5, C3	R	1	SCR03208	V, U
	10	6.35	C7, C5, C3	R/L	1	SCR03210	V, NI, NU
	20	6.35	C7, C5, C3	R	1	SCR03220	V
	32	4.762	C7, C5, C3	R	2	SCR03232	Y, YA
	64	4.762	C7, C5, C3	R	2	SCR03264	Y, YA

Standard Specifications ⌀ 40~80

Unit : mm

Model No.			Accuracy Grade	Threading Direction R : Right L : Left	Number of Grooves	Standard Code of Shaft	Type of Nut
Ød	I	Da					
40	5	3.175	C7, C5, C3	R / L	1	SCR04005	V, NI, NU, A
	6	3.969	C7, C5, C3	R	1	SCR04006	V, U
	8	4.762	C7, C5, C3	R	1	SCR04008	V, U
	10	6.35	C7, C5, C3	R / L	1	SCR04010	V, NI, NU
	20	6.35	C7, C5, C3	R	1	SCR04020	V
	40	6.35	C7, C5, C3	R	2	SCR04040	Y, YA
	80	6.35	C7, C5, C3	R	2	SCR04080	YA
50	5	3.175	C7, C5, C3	R	1	SCR05005	V, A
	10	6.35	C7, C5, C3	R / L	1	SCR05010	V, NI, NU
	20	7.144	C7, C5, C3	R	1	SCR05020	NU
	20	9.525	C7, C5, C3	R	1	SCR05020	V
	50	7.938	C7, C5, C3	R	2	SCR05050	Y, YA
	100	7.938	C7, C5, C3	R	2	SCR050100	Y, YA
63	10	6.35	C7, C5, C3	R	1	SCR06310	V, NI, NU
	20	9.525	C7, C5, C3	R	1	SCR06320	V, NU
80	10	6.35	C7, C5, C3	R	1	SCR08010	V, NI, NU
	20	9.525	C7, C5, C3	R	1	SCR08020	V, NU

H/A/J/B-type Specifications Ø16~50

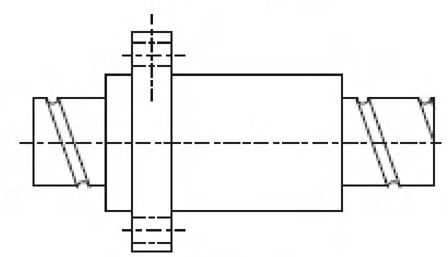
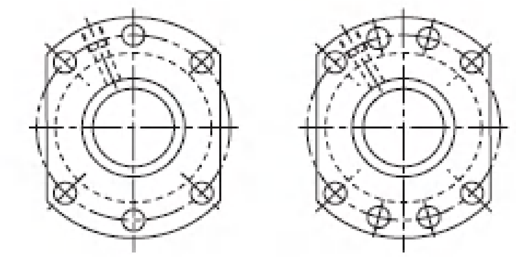
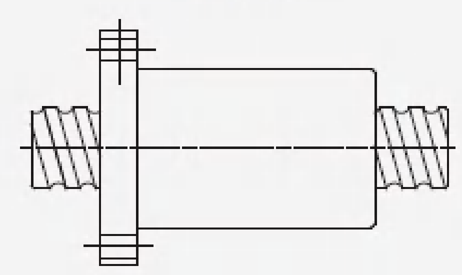
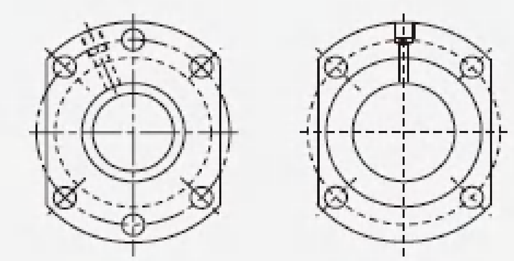
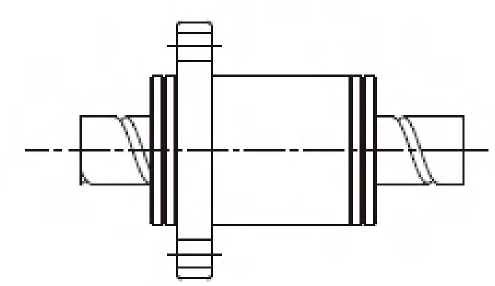
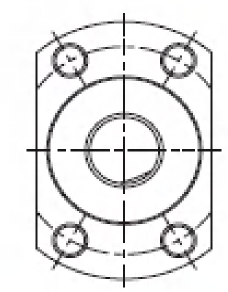
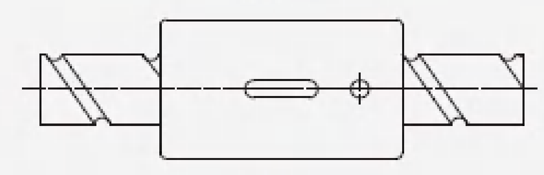
Unit : mm

Model No.			Accuracy Grade	Threading Direction R : Right L : Left	Number of Grooves	Type-H Code of Shaft	Type of Nut
Ød	I	Da					
12	10	2.5	C7, C5, C3	R	1	SSR01210	A, B
16	5	2.778	C7, C5, C3	R	1	SSR01605	A, B
	10	2.778	C7, C5, C3	R	1	SSR01610	A, B
	16	2.778	C7, C5, C3	R	1	SSR01616	A, B
	20	2.778	C7, C5, C3	R	1	SSR01620	A, B
	30	2.778	C7, C5, C3	R	1	SSR01630	A
20	10	3.175	C7, C5, C3	R	1	SSR02010	A, B
25	10	3.175	C7, C5, C3	R	1	SSR02510	A, B
	25	3.175	C7, C5, C3	R	1	SSR02525	A, V, B
32	10	3.969	C7, C5, C3	R	1	SSR03210	A, B
	20	3.969	C7, C5, C3	R	1	SSR03220	A, B
	32	6.35	C7, C5, C3	R	1	SSR03232	A
40	10	6.35	C7, C5, C3	R	1	SSR04010	A
	20	6.35	C7, C5, C3	R	1	SSR04020	A
	40	6.35	C7, C5, C3	R	1	SSR04040	A
50	10	6.35	C7, C5, C3	R	1	SSR05010	A
	20	6.35	C7, C5, C3	R	1	SSR05020	A
	50	6.35	C7, C5, C3	R	1	SSR05050	A

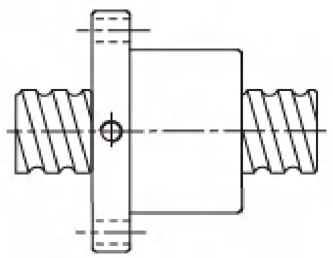
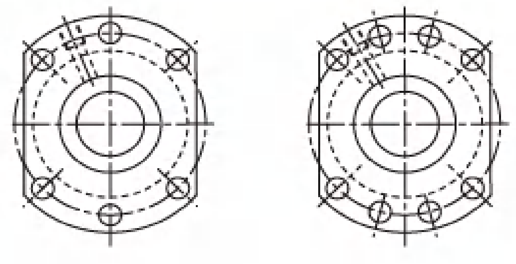
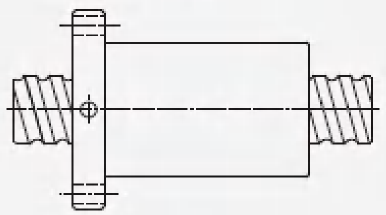
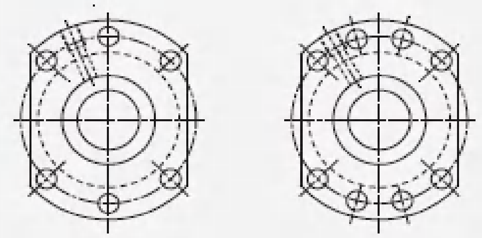
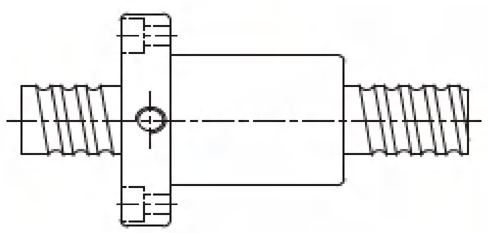
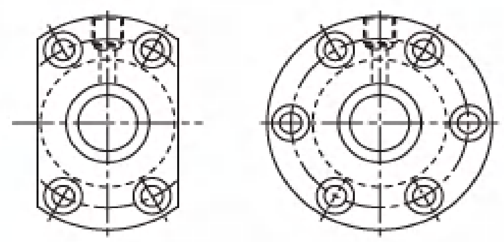
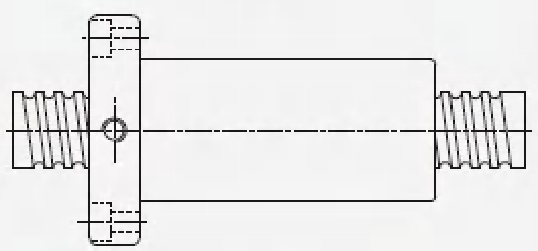
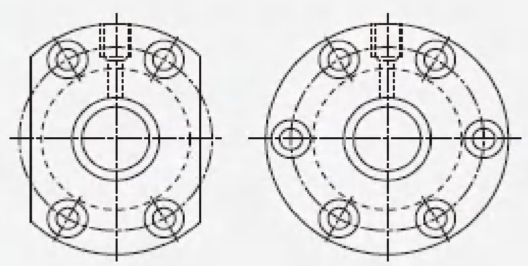
※The information is for specifications, if customized products are needed please contact DTXMOTION

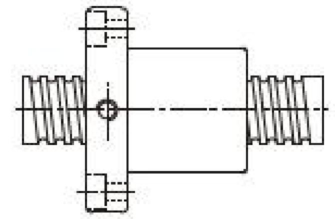
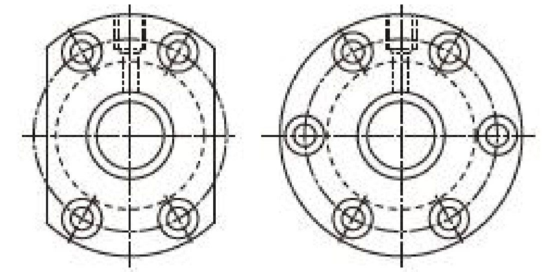
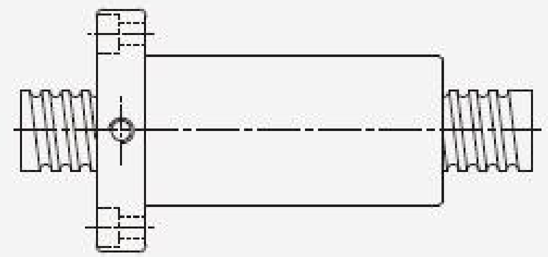
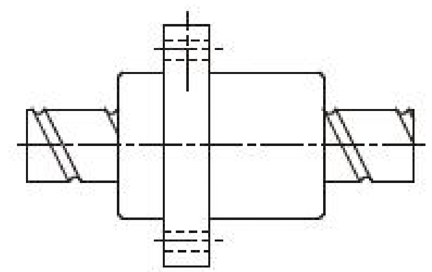
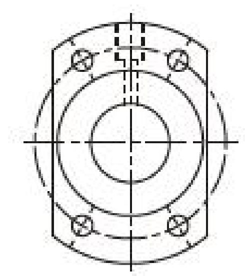
Precision Ground Ball Screw Series

DSFB (DIN 69051 FORM B) Series Specifications

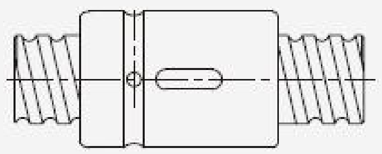
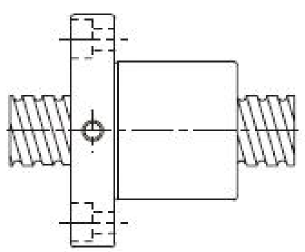
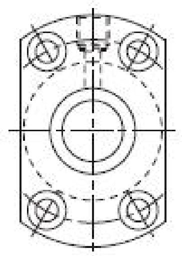
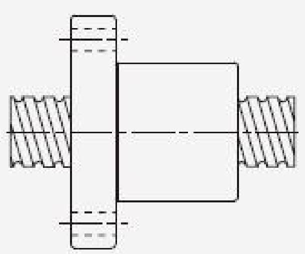
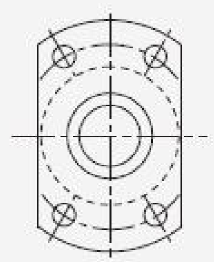
	Nut Type	Flange Type
A (High Speed/Strong dust-proof type)	SFA (DIN)  C44	 d≤32 d≥40
B (High-speed reinforced silent and dust-proof type)	SFB (DIN)  C45	 d≤32 1205/1210
J (Low Noise/Strong dust-proof type)	SFJ (DIN)  C46	
CNH (A solution for slide table)	SCNH  C47	No-Flange

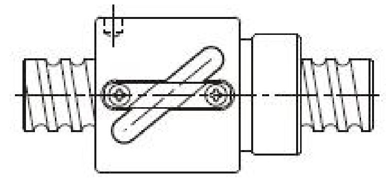
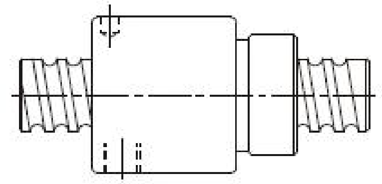
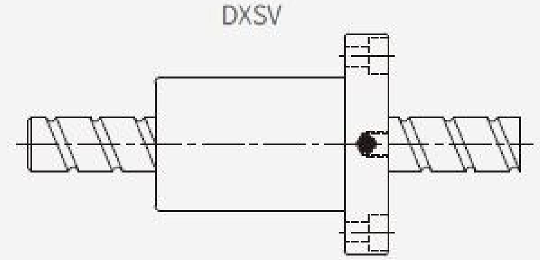
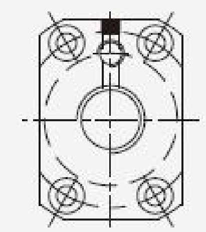
DTXMOTON Nut of Precision Ground Ball Screw Type

	Nut Type	Flange Type
NU/U (Strong dust-proof type)	SFNU/SFU (DIN)  C48	 d≤32 d≥40
OFU (OFF set double nut)	OFU (DIN)  C49	
NI/I (Strong dust-proof type)	SFNI/SFI  C50	
OFI (OFF set double nut)	OFI  C51	

	Nut Type	Flange Type
V (High Load External Circulation type)	SFV  C52	
OFV (OFF set double nut)	OFV  C53	
Y/YA (High DM-N Rating)	SFY/SFYA  C54, 55	

Precision Ground Ball Screw Series

	Nut Type	Flange Type
CNI/I (Standard)	DSCNI/DSCI  C56	No-Flange
K (Miniature type)	DSFK  C57	 (DSFK 01004) (DSFK 02002) (DSFK 02502)
	DSFK  C57	

	Nut Type	Flange Type
BSH	DBSH  d⩽12  d⩾14 C58	No-Flange
XSV (Design for factory automation)	DXSV  C59~63	

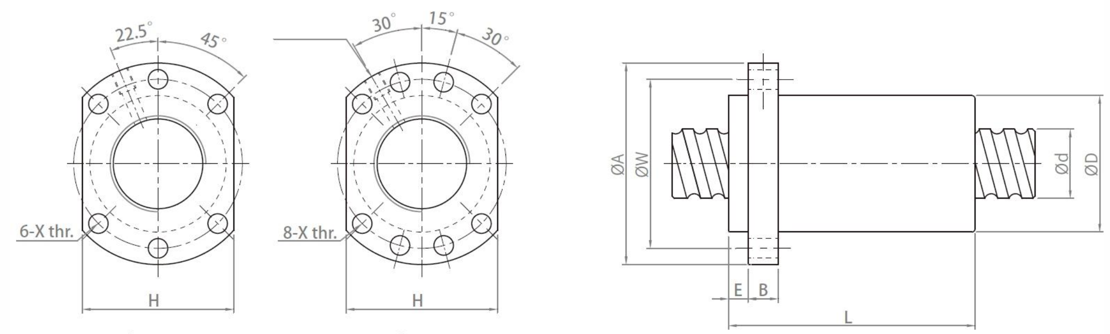
※The information is for specifications. If customized products are needed, please contact DTX MOTION.

Preload Chart

Preload	I, U-type	A, J, B-type	Y, YA-type	V-type	BSH-type	K-type
P0						
P1	√	√	√	√	√	√
P2	√	√	√	√	√	
P3	√	√	√	√	√	
P4				√		

Precision Ground Ball Screw Series

DSFA (DIN 69051 FORM B) Series Specification

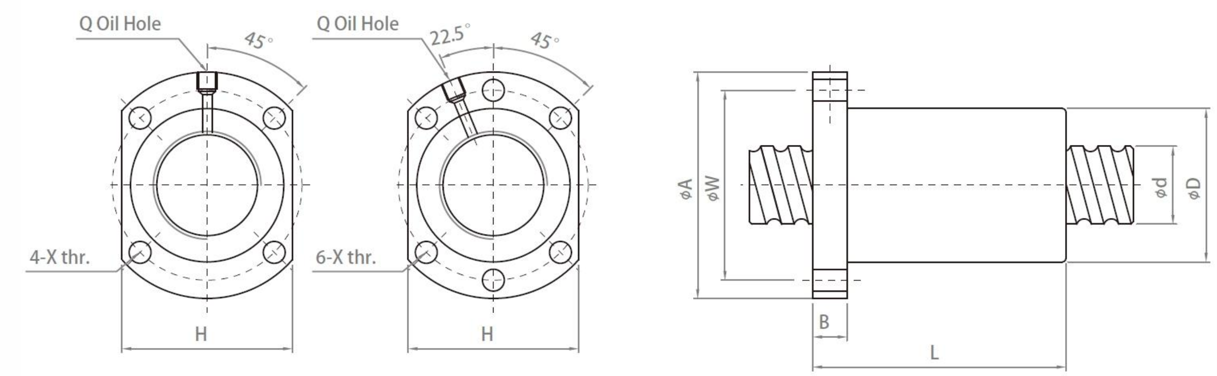


d≦32 d≧40

Unit : mm

Model No.	d	I	Da	Dimension										Load Rating		K
				D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFA01205-2.8	12	5	2.5	24	40	5	10	30	32	30	4.5		2.8×1	661	1316	19
DSFA01210-2.8		10	2.5	24	40	5	10	42	32	30	4.5		2.8×1	642	1287	19
DSFA01605-3.8	15	5	2.778	28	48	5	10	31	38	40	5.5	M6	3.8×1	1112	2507	30
DSFA01610-2.8		10	2.778	28	48	5	10	42	38	40	5.5	M6	2.8×1	839	1821	23
DSFA01616-1.8		16	2.778	28	48	5	10	43	38	40	5.5	M6	1.8×1	552	1137	14
DSFA01616-2.8		16	2.778	28	48	5	10	59	38	40	5.5	M6	2.8×1	808	1769	22
DSFA01620-1.8		20	2.778	28	48	5	10	50	38	40	5.5	M6	1.8×1	554	1170	14
DSFA01630-1.8		30	2.778	28	48	7	10	70	38	40	5.5	M6	1.8×1	534	1195	14
DSFA02005-3.8	20	5	3.175	36	58	7	10	33	47	44	6.6	M6	3.8×1	1484	3681	37
DSFA02010-3.8		10	3.175	36	58	7	10	52	47	44	6.6	M6	3.8×1	1516	3833	40
DSFA02020-1.8		20	3.175	36	58	7	10	52	47	44	6.6	M6	1.8×1	764	1758	19
DSFA02020-2.8		20	3.175	36	58	7	10	72	47	44	6.6	M6	2.8×1	1118	2734	29
DSFA02505-3.8	25	5	3.175	40	62	7	10	33	51	48	6.6	M6	3.8×1	1650	4658	43
DSFA02510-3.8		10	3.175	40	62	7	12	52	51	48	6.6	M6	3.8×1	1638	4633	45
DSFA02525-1.8		25	3.175	40	62	7	12	60	51	48	6.6	M6	1.8×1	843	2199	22
DSFA02525-2.8		25	3.175	40	62	7	12	85	51	48	6.6	M6	2.8×1	1232	3421	34
DSFA03205-3.8	32	5	3.175	50	80	9	12	35	65	62	9	M6	3.8×1	1839	6026	51
DSFA03210-3.8	31	10	3.969	50	80	9	12	53	65	62	9	M6	3.8×1	2460	7255	55
DSFA03220-2.8		20	3.969	50	80	9	12	72	65	62	9	M6	2.8×1	1907	5482	43
DSFA03232-1.8		32	3.969	50	80	9	12	78	65	62	9	M6	1.8×1	1257	3426	27
DSFA03232-2.8		32	3.969	50	80	9	12	110	65	62	9	M6	2.8×1	1838	5329	42
DSFA04005-3.8	40	5	3.175	63	93	9	14	39	78	70	9	M8	3.8×1	2018	7589	60
DSFA04010-3.8	38	10	6.35	63	93	9	14	57	78	70	9	M8	3.8×1	5035	13943	67
DSFA04020-2.8		20	6.35	63	93	9	14	78	78	70	9	M8	2.8×1	3959	10715	54
DSFA04040-1.8		40	6.35	63	93	9	14	96	78	70	9	M8	1.8×1	2585	6648	34
DSFA04040-2.8		40	6.35	63	93	9	14	136	78	70	9	M8	2.8×1	3780	10341	52
DSFA05005-3.8	50	5	3.175	75	110	10.5	15	42	93	85	11	M8	3.8×1	2207	9542	68
DSFA05010-3.8	48	10	6.35	75	110	10.5	18	57	93	85	11	M8	3.8×1	5638	17852	79
DSFA05020-3.8		20	6.35	75	110	10.5	18	98	93	85	11	M8	3.8×1	5749	18485	87
DSFA05050-1.8		50	6.35	75	110	10.5	18	117	93	85	11	M8	1.8×1	2946	8749	42
DSFA05050-2.8		50	6.35	75	110	10.5	18	167	93	85	11	M8	2.8×1	4308	13610	65

DSFB (DIN 69051 FORM B) Series Specifications

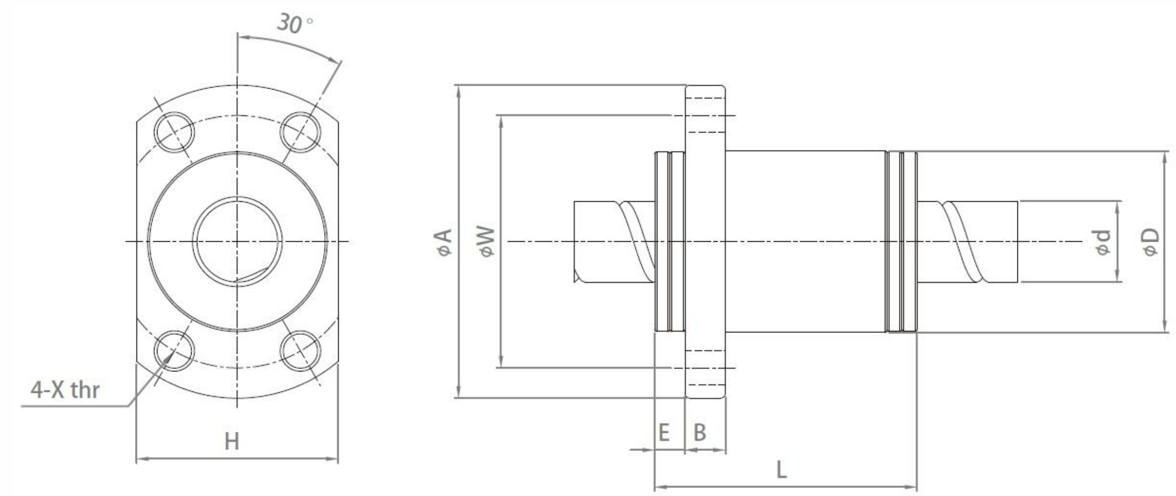


1205/1210 d≦32

Unit : mm

Model No.	d	I	Da	Dimension									Load Rating		K
				D	A	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFB01205-2.8	12	5	2.5	24	40	10	30	32	30	4.5	M6	2.8x1	661	1316	19
DSFB01210-2.8		10	2.5	24	40	10	42	32	30	4.5	M6	2.8x1	642	1287	19
DSFB01605-3.8	15	5	2.778	28	48	10	31	38	40	5.5	M6	3.8x1	1112	2507	30
DSFB01610-2.8		10	2.778	28	48	10	42	38	40	5.5	M6	2.8x1	839	1821	23
DSFB01616-1.8		16	2.778	28	48	10	43	38	40	5.5	M6	1.8x1	552	1137	14
DSFB01616-2.8		16	2.778	28	48	10	59	38	40	5.5	M6	2.8x1	808	1769	22
DSFB01620-1.8		20	2.778	28	48	10	50	38	40	5.5	M6	1.8x1	554	1170	14
DSFB02005-3.8	20	5	3.175	36	58	10	33	47	44	6.6	M6	3.8x1	1484	3681	37
DSFB02010-3.8		10	3.175	36	58	10	52	47	44	6.6	M6	3.8x1	1516	3833	40
DSFB02020-1.8		20	3.175	36	58	10	52	47	44	6.6	M6	1.8x1	764	1758	19
DSFB02020-2.8		20	3.175	36	58	10	72	47	44	6.6	M6	2.8x1	1118	2734	29
DSFB02505-3.8	25	5	3.175	40	62	10	33	51	48	6.6	M6	3.8x1	1650	4658	43
DSFB02510-3.8		10	3.175	40	62	12	52	51	48	6.6	M6	3.8x1	1638	4633	45
DSFB02525-1.8		25	3.175	40	62	12	60	51	48	6.6	M6	1.8x1	843	2199	22
DSFB02525-2.8		25	3.175	40	62	12	85	51	48	6.6	M6	2.8x1	1232	3421	34
DSFB03205-3.8	32	5	3.175	50	80	12	35	65	62	9	M6	3.8x1	1839	6026	51
DSFB03210-3.8	31	10	3.969	50	80	12	53	65	62	9	M6	3.8x1	2460	7255	55
DSFB03220-2.8		20	3.969	50	80	12	72	65	62	9	M6	2.8x1	1907	5482	43
DSFB03232-1.8		32	3.969	50	80	12	78	65	62	9	M6	1.8x1	1257	3426	27
DSFB03232-2.8		32	3.969	50	80	12	110	65	62	9	M6	2.8x1	1838	5329	42

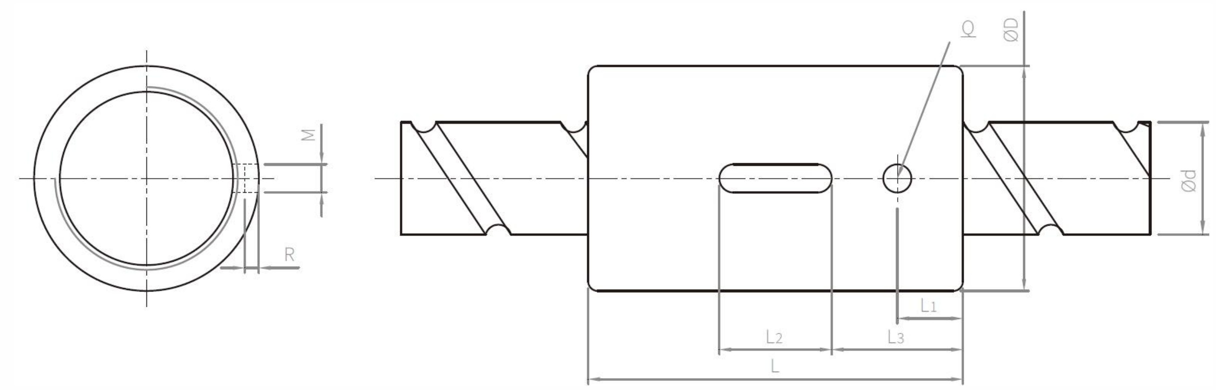
DSFJ(DIN 69051 FORM B) Series Specifications



Unit : mm

Model No.	d	I	Da	Dimension										Load Rating		K
				D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFJ00606-1.8	6	6	1.2	14	27	3	4	21	21	16	3.4	-	1.8x1	78	122	4
DSFJ00808-1.8	8	8		18	31	3	4	26	25	20	3.4	-	1.8x1	89	164	5

DSCNH Series Specifications

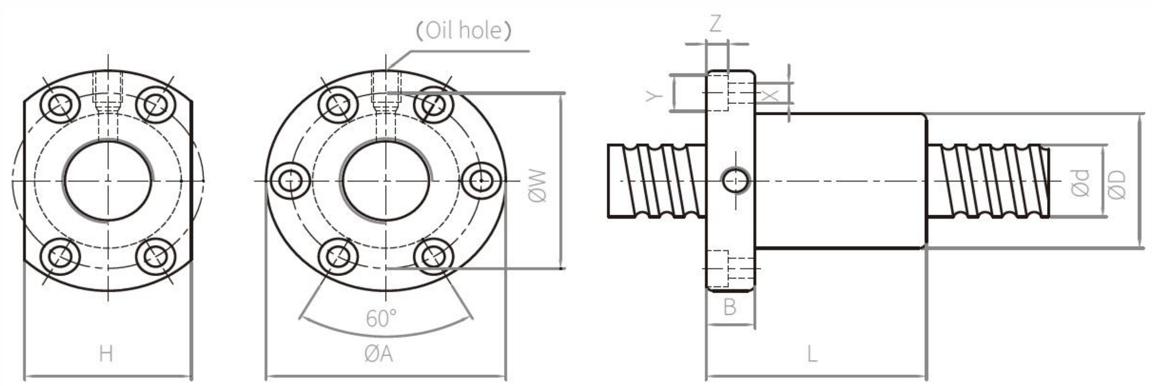


Unit : mm

Model No.	d	I	Da	Dimension									Load Rating		K
				D	L	L1	L2	L3	M	R	Q	N	Ca (kgf)	C0a (kgf)	kgf/μm
DSCNH01205-4.8	12	5	2.5	24	40	7	12	14	3	1.5	3	4.8×1	1011	2105	34
DSCNH01210-2.8		10	2.5	24	45	8	15	15	3	1.5	3	2.8×1	642	1287	19
DSCNH01210-1.8		10	2.5	24	40	10.5	12	14	3	1.5	3	1.8×1	439	827	33
DSCNH01605-5.8	15	5	2.778	28	45	7	20	12.5	5	3	3	5.8×1	1599	3827	49
DSCNH01610-2.8		10	2.778	28	45	7	20	12.5	5	3	3	2.8×1	839	1821	23
DSCNH01616-1.8		16	2.778	28	45	7	20	12.5	5	3	3	1.8×1	552	1137	18
DSCNH01620-1.8		20	2.778	28	58	10	20	19	5	3	3	1.8×1	554	1170	14
DSCNH02005-5.8	20	5	3.175	36	47	8	20	13.5	5	3	3	5.8×1	2134	5619	60
DSCNH02010-3.8		10	3.175	36	55	8	20	17.5	5	3	3	3.8×1	1516	3833	40
DSCNH02020-1.8		20	3.175	36	55	8	20	17.5	5	3	3	1.8×1	764	1758	19

Precision Ground Ball Screw Series

DSFNU/DSFU (DIN 69051 FORM B) Series Specifications



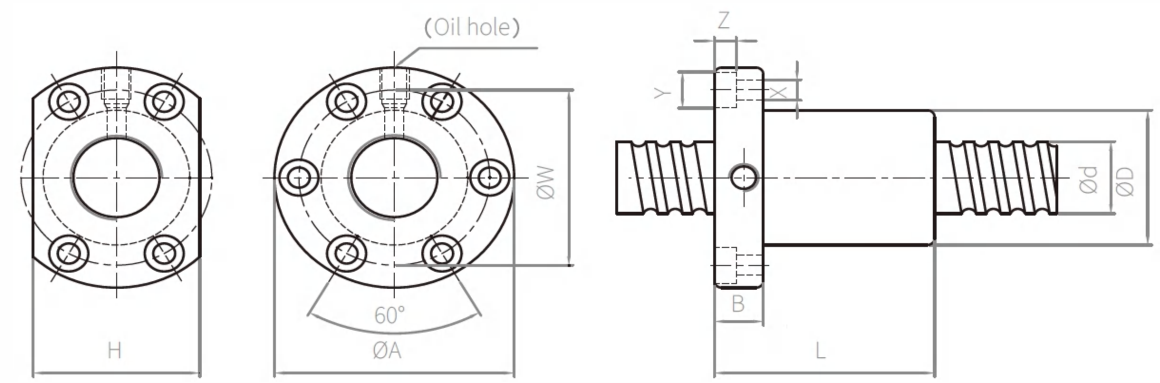
Unit : mm

Model No.	d	I	Da	Dimension									Load Rating		K
				D	A	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFNU01605-4☆	16	5	3.175	28	48	10	45	38	40	5.5	M6	1x4	1380	3052	32
DSFNU01610-3☆		10	3.175	28	48	10	57	38	40	5.5	M6	1x3	1103	2401	26
DSFNU02005-4☆	20	5	3.175	36	58	10	51	47	44	6.6	M6	1x4	1551	3875	39
DSFNU02502-4☆	25	5	3.175	40	62	10	51	51	48	6.6	M6	1x4	1724	4904	45
DSFNU02510-4☆		10	4.762	40	62	12	80	51	48	6.6	M6	1x4	2954	7295	50
DSFNU03205-4☆	32	5	3.175	50	80	12	52	65	62	9	M6	1x4	1922	6343	54
DSFNU03210-4☆		10	6.35	50	80	12	85	65	62	9	M6	1x4	4805	12208	61
DSFNU04005-4☆	40	5	3.175	63	93	14	55	78	70	9	M8	1x4	2110	7988	63
DSFNU04010-4☆		10	6.35	63	93	14	88	78	70	9	M8	1x4	5399	15500	73
DSFNU05010-4☆	50	10	6.35	75	110	16	88	93	85	11	M8	1x4	6004	19614	85
DSFNU05020-4	50	20	7.144	75	110	16	138	93	85	11	M8	1x4	7142	22588	94
DSFNU06310-4	63	10	6.35	90	125	18	93	108	95	11	M8	1x4	6719	25358	99
DSFNU06320-4	63	20	9.525	95	135	20	149	115	100	13.5	M8	1x4	11444	36653	112
DSFNU08010-4	80	10	6.35	105	145	20	93	125	110	13.5	M8	1x4	7346	31953	109
DSFNU08020-4	80	20	9.525	125	165	25	154	145	130	13.5	M8	1x4	12911	47747	138
DSFU01204-4	12	4	2.5	24	40	10	40	32	30	4.5		1x4	902	1884	26
DSFU01604-4	16	4	2.381	28	48	10	40	38	40	5.5	M6	1x4	973	2406	32
DSFU02004-4	20	4	2.381	36	58	10	42	47	44	6.6	M6	1x4	1066	2987	38
DSFU02504-4	25	4	2.381	40	62	10	42	51	48	6.6	M6	1x4	1180	3795	43
DSFU02506-4		6	3.969	40	62	10	54	51	48	6.6	M6	1x4	2318	6057	47
DSFU02508-4		8	4.762	40	62	10	63	51	48	6.6	M6	1x4	2963	7313	49
DSFU03204-4	32	4	2.381	50	80	12	44	65	62	9	M6	1x4	1296	4838	51
DSFU03206-4		6	3.969	50	80	12	57	65	62	9	M6	1x4	2632	7979	57
DSFU03208-4		8	4.762	50	80	12	65	65	62	9	M6	1x4	3387	9622	60
DSFU04006-4	40	6	3.969	63	93	14	60	78	70	9	M6	1x4	2873	9913	66
DSFU04008-4		8	4.762	63	93	14	67	78	70	9	M6	1x4	3712	11947	70
DSFU10020-4	100	20	9.525	150	202	30	180	170	155	17.5	M8	1x4	14303	60698	162

※☆Left helix available

※ Standard ball nut SFU 01204-4 is assembled without wiper.

DSFNI/DSFI Series Specifications

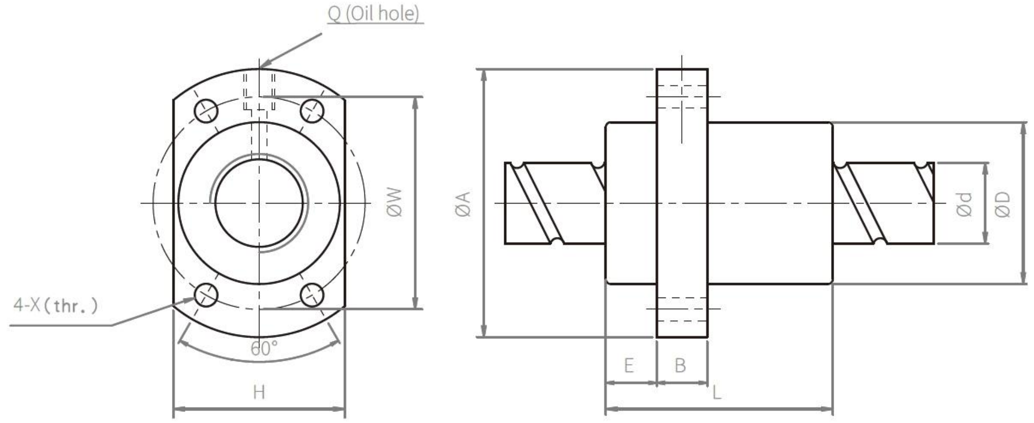


Unit : mm

Model No.	d	I	Da	Dimension											Load Rating		K
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFNI01605-4☆	16	5	3.175	30	49	10	45	39	34	4.5	8	4.5	M6	1x4	1380	3052	33
		10	3.175	34	58	10	57	45	34	5.5	9.5	5.5	M6	1x3	1103	2401	27
DSFNI02005-4☆	20	5	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	1x4	1551	3875	39
DSFNI02505-4☆	25	5	3.175	40	63	11	51	51	46	5.5	9.5	5.5	M8	1x4	1724	4904	45
DSFNI02510-4☆		10	4.762	46	72	12	80	58	52	6.5	11	6.5	M6	1x4	2954	7295	51
DSFNI03205-4☆	32	5	3.175	46	72	12	52	58	52	6.5	11	6.5	M8	1x4	1922	6343	52
DSFNI03210-4☆		10	6.35	54	88	15	85	70	62	9	14	8.5	M8	1x4	4805	12208	62
DSFNI04005-4☆	40	5	3.175	56	90	15	55	72	64	9	14	8.5	M8	1x4	2110	7988	59
DSFNI04010-4☆		10	6.35	62	104	18	88	82	70	11	17.5	11	M8	1x4	5399	15500	72
DSFNI05010-4☆	50	10	6.35	72	114	18	88	92	82	11	17.5	11	M8	1x4	6004	19614	83
DSFNI06310-4	63	10	6.35	85	131	22	93	107	95	14	20	13	M8	1x4	6719	25358	95
DSFNI08010-4	80	10	6.35	105	150	22	93	127	115	14	20	13	M8	1x4	7346	31953	109
DSFI01604-4	16	4	2.381	30	49	10	45	39	34	4.5	8	4.5	M6	1x4	973	2406	32
DSFI02004-4	20	4	2.381	34	57	11	46	45	40	5.5	9.5	5.5	M6	1x4	1066	2987	37
DSFI02504-4☆	25	4	2.381	40	63	11	46	51	46	5.5	9.5	5.5	M6	1x4	1180	3795	43
DSFI03204-4	32	4	2.381	46	72	12	47	58	52	6.5	11	6.5	M6	1x4	1296	4838	49

Precision Ground Ball Screw Series

DSFY Series Specifications

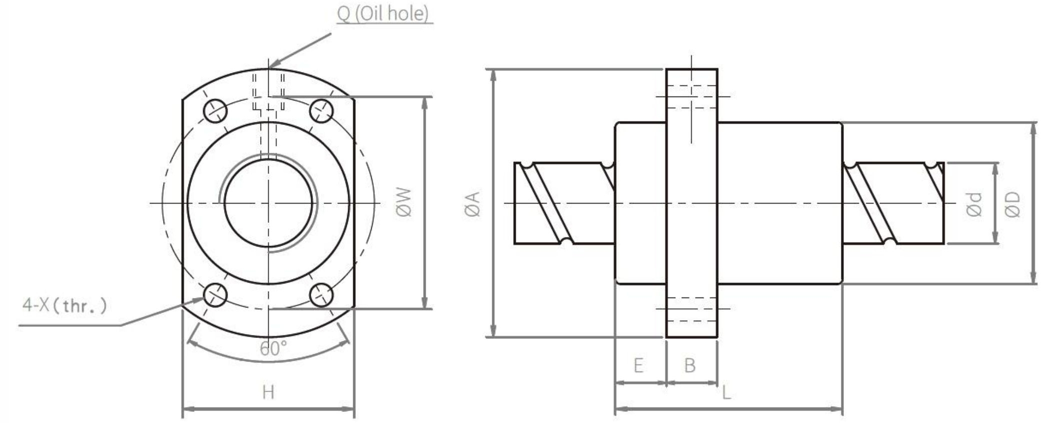


Unit : mm

Large Lead Model No.	d	I	Da	Dimension D	A	E	B	L	W	H	X	Q	n	Load Rating Ca (kgf)	C0a (kgf)	K kgf/μm
DSFY01616-5.6	16	16	2.778	32	53	10.1	10	61	42	34	4.5	M6	2.8x2	1568	3968	47
DSFY02020-3.6	20	20	3.175	39	62	13	10	52	50	41	5.5	M6	1.8x2	1387	3515	37
DSFY02020-5.6		20	3.175	39	62	13	10	72	50	41	5.5	M6	2.8x2	2029	5468	56
DSFY02525-3.6	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8x2	2074	5494	45
DSFY02525-5.6		25	3.969	47	74	15	12	89	60	49	6.6	M6	2.8x2	3032	8546	69
DSFY03232-5.6	32	32	4.762	58	92	17	12	110	74	60	9	M6	2.8x2	4417	13517	88
DSFY04040-3.6	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8x2	4831	14062	70
DSFY04040-5.6		40	6.35	73	114	19.5	15	139	93	75	11	M6	2.8x2	7065	21874	106
DSFY05050-3.6	50	50	7.938	90	135	21.5	20	117	112	92	14	M6	1.8x2	7220	21974	86

Twin Lead Model No.	d	I	Da	Dimension D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	K kgf/μm
DSFY01632-1.6	16	32	2.778	32	53	10.1	10	42.5	42	34	4.5	M6	0.8x2	493	1116	11
DSFY01632-3.6		32	2.778	32	53	10.1	10	74.5	42	34	4.5	M6	1.8x2	989	2511	23
DSFY02040-3.6		40	3.175	39	62	13	10	88	50	41	5.5	M6	1.8x2	1311	3592	30
DSFY02550-1.6	25	50	3.969	47	74	15	12	58	60	49	6.6	M6	0.8x2	976	2495	19
DSFY02550-3.6		50	3.969	47	74	15	12	108	60	49	6.6	M6	1.8x2	1960	5614	32
DSFY03264-1.6	32	64	4.762	58	92	17	12	71	74	60	9	M6	0.8x2	1374	3571	22
DSFY03264-3.6		64	4.762	58	92	17	12	135	74	60	9	M6	1.8x2	2759	8441	46
DSFY050100-1.6	50	100	7.938	90	135	21.5	20	111	112	92	14	M6	0.8x2	3398	9980	35
DSFY050100-3.6		100	7.938	90	135	21.5	20	211	112	92	14	M6	1.8x2	6824	22455	72

DSFYA Series Specifications



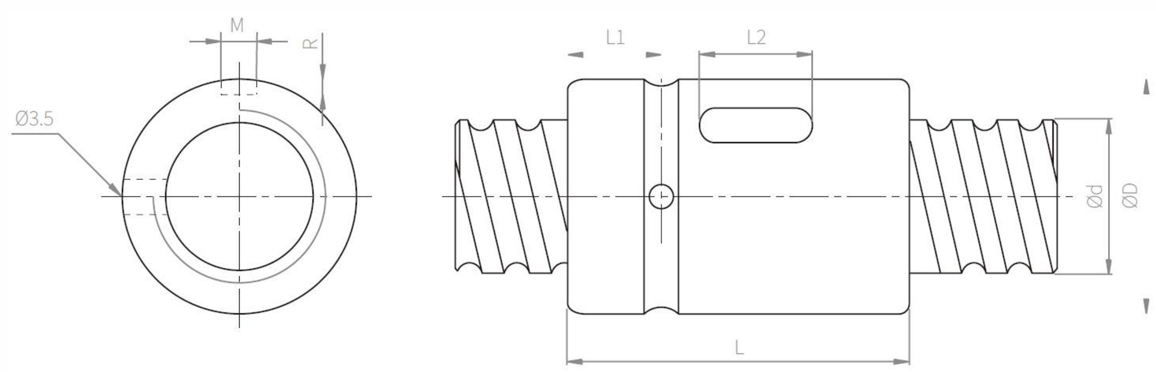
Unit : mm

Large Lead Model No.	d	I	Da	Dimension D	A	E	B	L	W	H	X	Q	n	Load Rating Ca (kgf)	C0a (kgf)	K kgf/μm
DSFYA01616-3.6	16	16	2.778	32	53	10.1	10	45	42	34	4.5	M6	1.8*2	1073	2551	31
DSFYA01616-5.6	16	16	2.778	32	53	10.1	10	61	42	34	4.5	M6	2.8*2	1568	3968	47
DSFYA02020-3.6	20	20	3.175	39	62	13	10	52	50	41	5.5	M6	1.8*2	1387	3515	37
DSFYA02020-5.6	20	20	3.175	39	62	13	10	72	50	41	5.5	M6	2.8*2	2029	5468	56
DSFYA02525-3.6	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8*2	2074	5494	45
DSFYA02525-5.6	25	25	3.969	47	74	15	12	89	60	49	6.6	M6	2.8*2	3032	8546	69
DSFYA03232-3.6	32	32	4.762	58	92	17	12	78	74	60	9	M6	1.8*2	3021	8690	58
DSFYA03232-5.6	32	32	4.762	58	92	17	12	110	74	60	9	M6	2.8*2	4417	13517	88
DSFYA04040-3.6	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8*2	4831	14062	70
DSFYA04040-5.6	40	40	6.35	73	114	19.5	15	139	93	75	11	M6	2.8*2	7065	21874	106
DSFYA05050-3.6	50	50	7.938	90	135	21.5	20	117	112	92	14	M6	1.8*2	7220	21974	86
DSFYA05050-5.6	50	50	7.938	90	135	21.5	20	167	112	92	14	M6	2.8*2	10558	34182	131

Twin Lead Model No.	d	I	Da	Dimension D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	K kgf/μm
DSFYA01632-1.6	16	32	2.778	32	53	10.1	10	42.5	42	34	4.5	M6	0.8*2	493	1116	11
DSFYA01632-3.6	16	32	2.778	32	53	10.1	10	74.5	42	34	4.5	M6	1.8*2	989	2511	23
DSFYA02040-1.6	20	40	3.175	39	62	13	10	48	50	41	5.5	M6	0.8*2	653	1597	15
DSFYA02040-3.6	20	40	3.175	39	62	13	10	88	50	41	5.5	M6	1.8*2	1311	3592	30
DSFYA02550-1.6	25	50	3.969	47	74	15	12	58	60	49	6.6	M6	0.8*2	976	2495	19
DSFYA02550-3.6	25	50	3.969	47	74	15	12	108	60	49	6.6	M6	1.8*2	1960	5614	32
DSFYA03264-1.6	32	64	4.762	58	92	17	12	71	74	60	9	M6	0.8*2	1374	3571	22
DSFYA03264-3.6	32	64	4.762	58	92	17	12	135	74	60	9	M6	1.8*2	2759	8441	46
DSFYA04080-1.6	40	80	6.35	73	114	19.5	15	90	93	75	11	M6	0.8*2	2273	6387	29
DSFYA04080-3.6	40	80	6.35	73	114	19.5	15	170	93	75	11	M6	1.8*2	4566	14370	50
DSFYA050100-1.6	50	100	7.938	90	135	21.5	20	111	112	92	14	M6	0.8*2	3398	9980	35
DSFYA050100-3.6	50	100	7.938	90	135	21.5	20	211	112	92	14	M6	1.8*2	6824	22455	72

Precision Ground Ball Screw Series

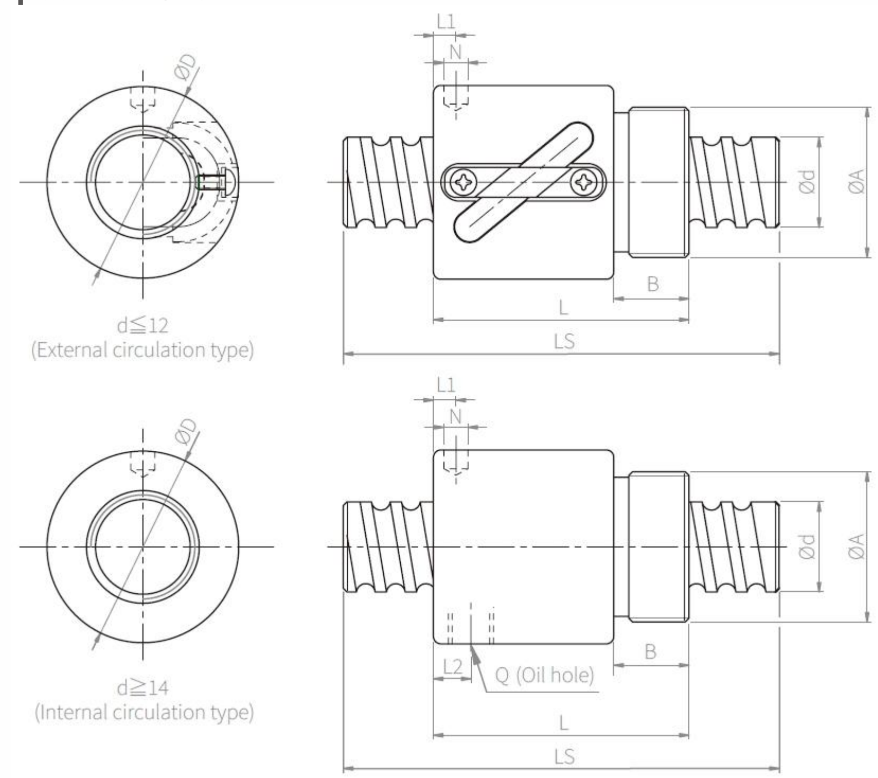
DSCNIDSCI Series Specifications



Unit : mm

Model No.	d	I	Da	Dimension							Load Rating		K kgf/μm
				D	L	L1	L2	M	R	n	Ca (kgf)	C0a (kgf)	
DSCNI 01605-4	16	5	3.175	30	45	9	20	5	3	1x4	1380	3052	33
DSCNI 02005-4	20	5	3.175	34	45	9	20	5	3	1x4	1551	3875	39
DSCNI 02505-4	25	5	3.175	40	45	9	20	5	3	1x4	1724	4904	45
DSCNI 02510-4		10	4.762	46	85	13	30	5	3	1x4	2954	7295	51
DSCNI 03205-4	32	5	3.175	46	45	9	20	5	3	1x4	1922	6343	52
DSCNI 03210-4		10	6.35	54	85	13	30	5	3	1x4	4805	12208	62
DSCNI 04005-4	40	5	3.175	56	45	9	20	5	3	1x4	2110	7988	59
DSCNI 04010-4		10	6.35	62	85	13	30	5	3	1x4	5399	15500	72
DSCNI 05010-4	50	10	6.35	72	85	13	30	5	3	1x4	6004	19614	83
DSCNI 06310-4	63	10	6.35	85	85	13	30	6	3.5	1x4	6719	25358	95
DSCNI 08010-4	80	10	6.35	105	85	13	30	8	4.5	1x4	7346	31953	109
DSCNI 01604-4	16	4	2.381	30	40	9	15	3	1.5	1x4	973	2406	32
DSCNI 02004-4	20	4	2.381	34	40	9	15	3	1.5	1x4	1066	2987	37
DSCNI 02504-4	25	4	2.381	40	40	9	15	3	1.5	1x4	1180	3795	43
DSCNI 03204-4	32	4	2.381	46	40	9	15	3	1.5	1x4	1296	4838	49

DBSH Series Specifications



Unit : mm

Model No.	d	I	Da	Dimension									Ca (kgf)	C0a (kgf)	K kgf/μm
				D	A	B	L	L1	N	L2	Q	n			
DBSH0082.5-2.5	8	2.5	1.2	17.5	M15x1P	7.5	23.5	10	3	—	—	2.5x1	189	381	11
DBSH01002-3.5	10	2	1.2	19.5	M17x1P	7.5	22	3	3.2	—	—	3.5x1	277	664	17
DBSH01004-2.5		4	2	25	M20x1P	10	34	3	3	—	—	2.5x1	400	754	14
DBSH01204-3.5	12	4	2.5	25.5	M20x1P	10	34	13	3	—	—	3.5x1	804	1649	23
DBSH01205-3.5		5	2.5	25.5	M20x1P	10	39	16.25	3	—	—	3.5x1	801	1644	24
DBSH01404-3	14	4	2.5	32.1	M25x1.5P	10	35	11	3	—	—	1x3	748	1609	26
DBSH01604-3	16	4	2.381	29	M22x1.5P	8	32	4	3.2	—	—	1x3	759	1804	24
DBSH01605-3		5	3.175	32.5	M26x1.5P	12	42	19.25	3	—	—	1x3	1077	2289	25
DBSH01610-2		10	3.175	32	M26x1.5P	12	50	3	4	3	M4	1x2	779	1601	14
DBSH02005-3	20	5	3.175	38	M35x1.5P	15	45	20.3	3	—	—	1x3	1211	2906	30
DBSH02505-4	25	5	3.175	43	M40x1.5P	19	69	32.11	3	8	M6	1x4	1724	4904	37
DBSH02510-4		10	4.762	43	M40x1.5P	19	84	8	6	8	M6	1x4	2954	7295	41

※ Standard ball nut from 08~016 is assembled without wiper.

2.6 Rolled Ball Screw

Standard Specifications 040~80

Rolled screws are made through thread rddkerally rolled screw has a smoother operationwhile lowering friction and backlash. Therefore, it gradually replaced the traditional ACME screwsand trapezoidal screws. Morepvelled screws can eliminate axial play by preloading nut with acost effective pricing compare to ground screw.

The Features of DTX MOTION Rolled Ball Screw

1.Lead Accuracy Up to Grade C5 C7 and C10 Screws have been Standardized. C5 on request.

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

3. Available to ship separately Ball screw and ball nuts can be shipped separated ensure shortest delivery time. The ball nuts arestandardized with Po preloaded, preload value can be adjusted through reballing.

Nominal Model Code of Rolled Ball Screws

Nominal Model Code of Shaft

DS C	R	025	05	F	C7	1000	+	N3
①	②	③	④	⑤	⑥	⑦		⑧

①

Type of Screw Shaft
SC : standard
SS : For H, NH type nut

④

Lead
Unit : mm

⑦

Overall Length of Shaft
Unit : mm

②

Threading Direction
R : Right
L : Left

⑤

Product Code
F : Rolled

⑧

Shaft Surface Treatment
□ : Standard
B1 : Black Oxidation
N1 : Hard Chrome Plating
P : Phosphating
N3 : Nickel Plating
N4 : Raydent
N5 : Chrome Plating

③

Nominal Diameter
Unit : mm

⑥

Accuracy Grade
C5, C7, C10

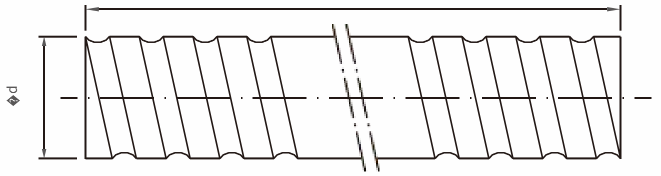


Fig 2.3.1 Screw Shaft Nominal Diameter

Rolled Ball Screw Specifications 06~32

Unit : mm

Model No.			Accuracy Grade	Threading Direction	Number of Grooves	Standard Code of Shaft	Type of Nut	Overall Length of Shaft
d	I	Da		R : Right L : Left				
6	1	0.8	C10, C7, C5	R	1	SCR00601	K	1000
	6	1.2	C10, C7, C5	R	2	SCR00606	J	1000
8	1	0.8	C10, C7, C5	R	1	SCR00801	K	1000
	2	1.2	C10, C7, C5	R	1	SCR00802	K	
	2.5	1.2	C10, C7, C5	R	1	SCR0082.5	K, BSH	
	8	1.2	C10, C7, C5	R	4	SCR00808	J	1000
10	2	1.2	C10, C7, C5	R	1	SCR01002	K, BSH	3000
	4	2	C10, C7, C5	R	1	SCR01004	K, BSH	
12	2	1.2	C10, C7, C5	R	1	SCR01202	K	3000
	4	2.5	C10, C7, C5	R	1	SCR01204	U, BSH	
	5	2.5	C10, C7, C5	R	1	SCR01205	K	
	5	2.5	C10, C7, C5	R	1	SSR01205	V, BSH, A, B	
	10	2.5	C10, C7, C5	R	1	SCR01210-B	V	
	20	2.5	C10, C7, C5	R	4	SCR01220	Y	
14	2	1.2	C10, C7, C5	R	1	SCR01402	K	3000
	4	2.5	C10, C7, C5	R	1	SCR01404	K, BSH	3000
16	4	2.381	C10, C7, C5	R	1	SCR01604(N)	V, I, U, BSH	3000
	5	3.175	C10, C7, C5	R/L	1	SCR01605	NI, NU, BSH	
	10	3.175	C10, C7, C5	R	1	SCR01610	V, NI, NU, BSH	
	16	2.778	C10, C7, C5	R	4	SCR01616	YA	
	32	2.778	C10, C7, C5	R	8	SCR01632	Y, YA	
20	4	2.381	C10, C7, C5	R	1	SCR02004(N)	I, U	3000
	5	3.175	C10, C7, C5	R/L	1	SCR02005	V, NI, NU, BSH, A, B	
	20	3.175	C10, C7, C5	R	4	SCR02020, SSR02020	V, Y, YA, A, B	
	40	3.175	C10, C7, C5	R	8	SCR02040	YA	
25	4	2.381	C10, C7, C5	R	1	SCR02504(N)	I, U	6000
	5	3.175	C10, C7, C5	R/L	1	SCR02505	V, NI, NU, BSH, A, B	
	10	4.762	C10, C7, C5	R	1	SCR02510-A	NI, NU, BSH	
	25	3.969	C10, C7, C5	R	4	SCR02525	Y, YA	
	50	3.969	C10, C7, C5	R	8	SCR02550	Y, YA	
32	4	2.381	C10, C7, C5	R	1	SCR03204(N)	V, I, U	6000
	5	3.175	C10, C7, C5	R/L	1	SCR03205	V, NI, NU, A	
	10	6.35	C10, C7, C5	R/L	1	SCR03210	V, NI, NU	
	32	4.762	C10, C7, C5	R	4	SCR03232	YA	
	64	4.762	C10, C7, C5	R	8	SCR03264	Y, YA	

※ The information is for standard production, if required accuracy grade C5 or other needs, please contact TBI MOTION

※ If the extended tvpe in yA nut is needed, please contact TBI MOTION.

Rolled Ball Screw

Standard Specifications 040~80

Unit : mm

Model No. d	Model No. I	Model No. Da	Accuracy Grade	Threading Direction R : Right L : Left	Number of Grooves	Standard Code of Shaft	Type of Nut	Overall Length of Shaft
40	5	3.175	C10, C7, C5	R/L	1	SCR04005	V, NI, NU, A	6000
	10	6.35	C10, C7, C5	R/L	1	SCR04010	V, NI, NU	
	20	6.35	C10, C7, C5	R	1	SCR04020	V	
	40	6.35	C10, C7, C5	R	4	SCR04040	Y, YA	
	80	6.35	C10, C7, C5	R	8	SCR04080	YA	
50●	5	3.175	C10, C7, C5	R	1	SCR05005	V, A	6000
	10	6.35	C10, C7, C5	R/L	1	SCR05010	V, NI, NU	
	20	9.525	C10, C7, C5	R	1	SCR05020	V	
	50	7.938	C10, C7, C5	R	4	SCR05050	Y, YA	
	100	7.938	C10, C7, C5	R	8	SCR050100	Y, YA	
63●	10	6.35	C10, C7, C5	R	1	SCR06310	V, NI, NU	7000
	20	9.525	C10, C7, C5	R	1	SCR06320	V, NU	
80●	10	6.35	C10, C7, C5	R	1	SCR08010	V, NI, NU	7000
	20	9.525	C10, C7, C5	R	1	SCR08020	V, NU	

H/A/J/B-Type Specifications 016~50

Unit : mm

Model No. d	Model No. I	Model No. Da	Accuracy Grade	Threading Direction R : Right L : Left	Number of Grooves	Type-H Code of Shaft	Type of Nut	Overall Length of Shaft
12	10	2.5	C10, C7, C5	R	2	SSR01210	A, B	3000
16	5	2.778	C10, C7, C5	R	1	SSR01605	A, B	3000
	10	2.778	C10, C7, C5	R	2	SSR01610	A, B	
	16	2.778	C10, C7, C5	R	4	SSR01616	A, B	
	20	2.778	C10, C7, C5	R	4	SSR01620	A, B	
20	10	3.175	C10, C7, C5	R	2	SSR02010	A, B	3000
25	10	3.175	C10, C7, C5	R	2	SSR02510	A,V,B	6000
	25	3.175	C10, C7, C5	R	4	SSR02525	A, B	
32	10	3.969	C10, C7, C5	R	1	SSR03210	A,B	6000
	20	3.969	C10, C7, C5	R	2	SSR03220	A, B	
	32	3.969	C10, C7, C5	R	4	SSR03232	A, B	
40	10	6.35	C10, C7, C5	R	1	SSR04010	A	6000
	20	6.35	C10, C7, C5	R	2	SSR04020	A	
	40	6.35	C10, C7, C5	R	4	SSR04040	A	
50●	10	6.35	C10, C7, C5	R	1	SSR05010	A	6000
	20	6.35	C10, C7, C5	R	2	SSR05020	A	
	50	6.35	C10, C7, C5	R	4	SSR05050	A	

※The information is for standard production, if required accuracy grade C5 or other needs, please contact DTX MOTION
※ Please contact TBI MOTION if the marked types (●) are required.
※ If the extended type in YA nut is needed, please contact DTX MOTION.

Nominal Model Code of Nut

D	SF U	R	025	05	T4	D	+	N3
①	②	③	④	⑤	⑥	⑦		⑧

①

Product Code

②

Nominal Model	
S	S : Single nut
F	F : With flange
	C : Without flange
U	NI : NI type nut
	NU : NU type nut
	A : A type nut
	J : J type nut
	B : B type nut
	NH : NH nut (A solution for slide table)
	Y : Y type nut
	YA : YA type nut
	V : V type nut
	U : U type nut
	K : K type nut

③

Threading Direction
R : Right
L : Left

④

Nominal Diameter
Unit : mm

⑤

Lead
Unit : mm

⑧

Nut Surface Treatment
S : Standard
B1 : Black Oxidation
N1 : Hard Chrome Plating
P : Phosphating
N3 : Nickel Plating
N4 : Raydent
N5 : Chrome Plating

⑥

Number of Turns (Turn·Row)
Turn : T : 1
A : 1.5 (or 1.7/1.8)
B : 2.5/2.8
C : 3.5
D : 4.8
E : 5.8
ex : (2.5 ╳2 = B2)

⑦

Flange Type
N : Not cutting
S : Single cutting
D : Double cutting

Rolled Ball Screw

The standard preloading for Rolled Ball Screw is P0. If PI preloading is required, please contact DTX MOTION .

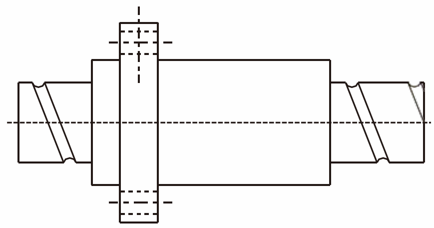
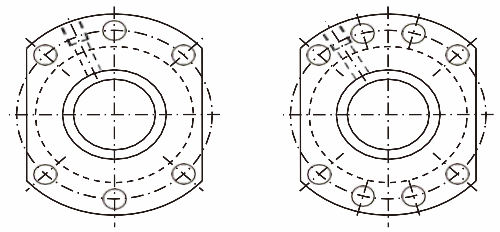
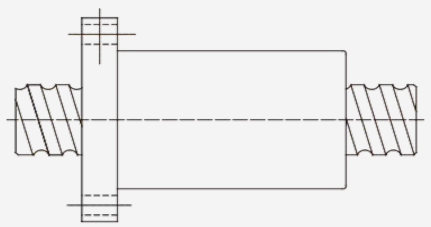
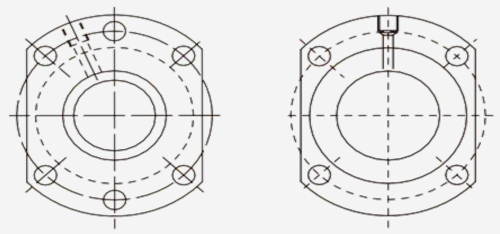
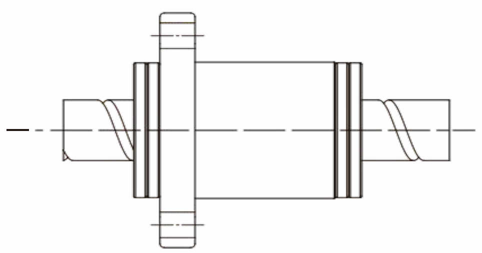
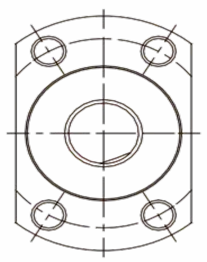
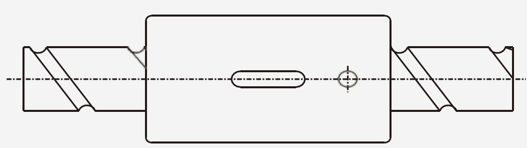
Table2.3.4 Accuracy grade of rolled ball screw

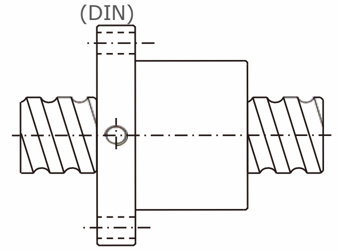
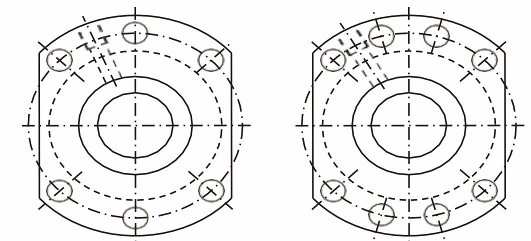
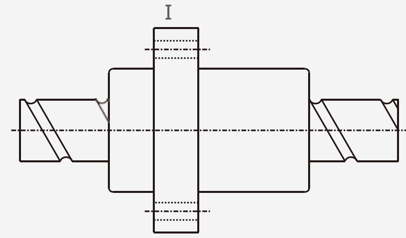
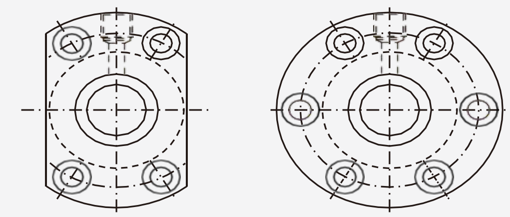
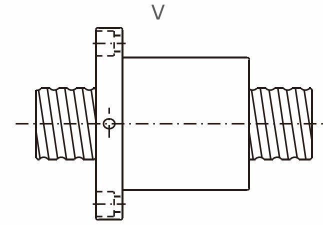
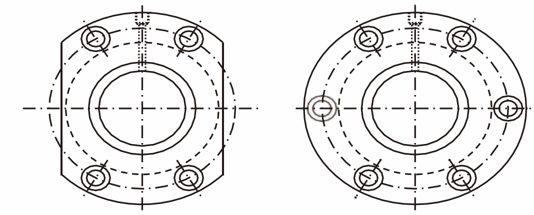
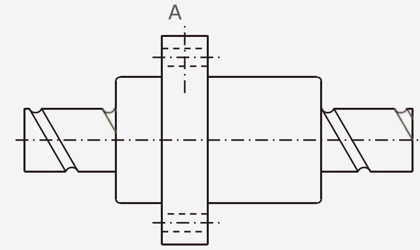
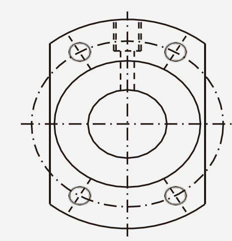
Unit : mm

Grade		Rolled C5	Rolled C7	Rolled C10
e_{300}	ISO, DIN	23	52	210
	JIS	18	50	210
	DTX MOTION	23	50	210

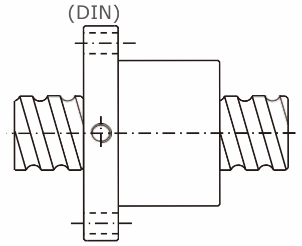
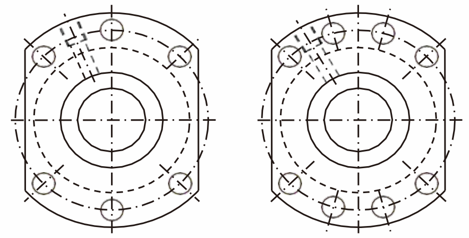
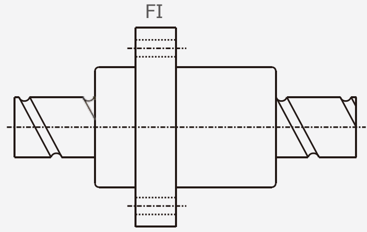
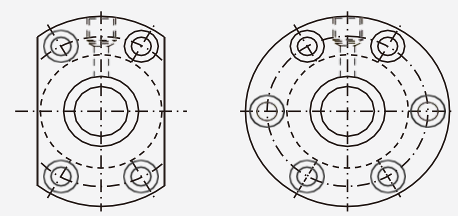
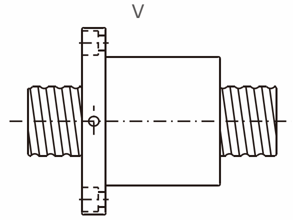
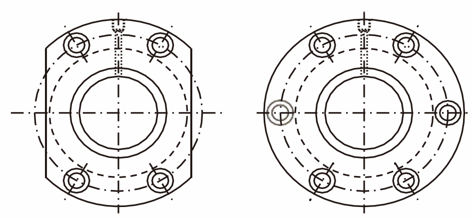
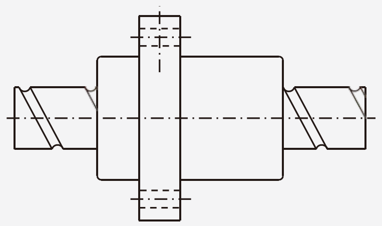
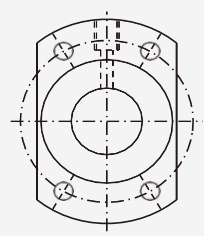
Rolled Ball Screw Series

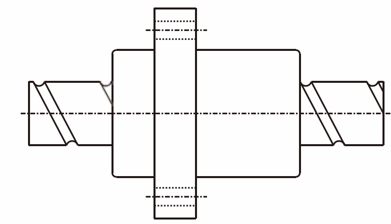
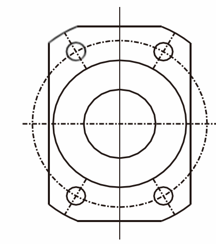
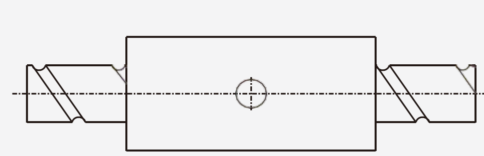
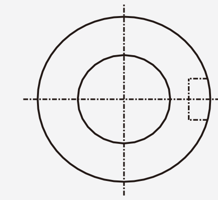
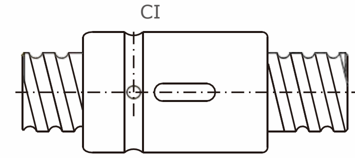
DTX MOTION Nut of Rolled Ball Screw Type

	Nut Type	Flange Type
A (High Speed/Strong dust-proof type)	SFA (DIN)  C72	 d≤32 d≥40
B (High-speed reinforced silent and dust-proof type)	SFB (DIN)  C73	 d≤32 1205/1210
J (Low Noise/Strong dust-proof type)	SFJ (DIN)  C74	
CNH (A solution for slide table)	SCNH  C75	No-Flange

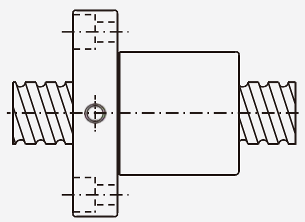
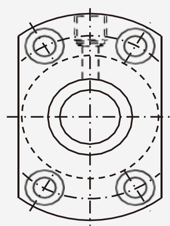
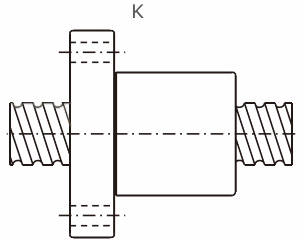
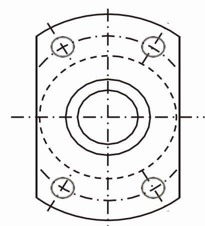
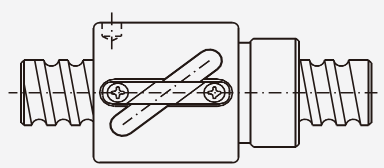
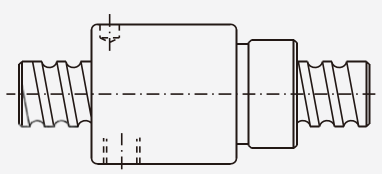
	Nut Type	Flange Type
NU/U (Strong dust-proof type)	SFNU/ SFU (DIN)  C76	 d≤32 ≥40
NI/I (Strong dust-proof type)	SFNI/SFI  C77	
V (High Load External Circulation type)	SFV  C78	
Y/YA (High DM-N Rating)	SFY/SFYA  C79, 80	

DTX Rolled Ball Screw Series

	Nut Type	Flange Type
NU/U (Strong dust-proof type)	SFNU/ SFU (DIN)  C7 6	 d≤3 2 d≥4 0
NI/I (Strong dust-proof type)	SFNI/S FI  C7 7	
V (High Load External Circulation type)	SF V  C7 8	
Y/Y A (High DM-N Rating)	SFY/SFY A  C79, 80	

	Nut Type	Flange Type
XS Y (Miniature type)	XS Y  C8 1	
XCY A	XCY A  C8 1	
CNI /I (Standard)	SCNI/S CI  C8 2	No-Flange

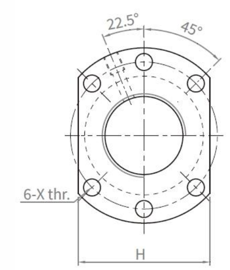
DTX Rolled Ball Screw Series

	Nut Type	Flange Type
K (Miniature type)	SF K  C8 3	 (SFK 01004) (SFK 02002) (SFK 02502)
	SF K  C83	
BSH	BS H  d≤1 2  d≥1 4 C84	No-Flange

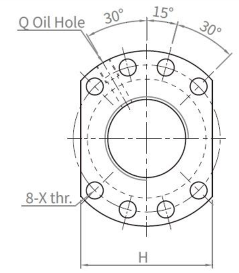
※The information is for specifications, if customized products are needed please contact DTX MOTION .

Rolled Ball Screw Series

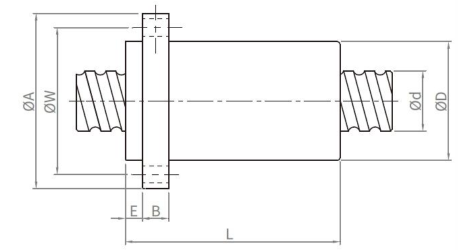
DSFA (DIN 69051 FORM B) Series Specifications



d≦32



d≧40

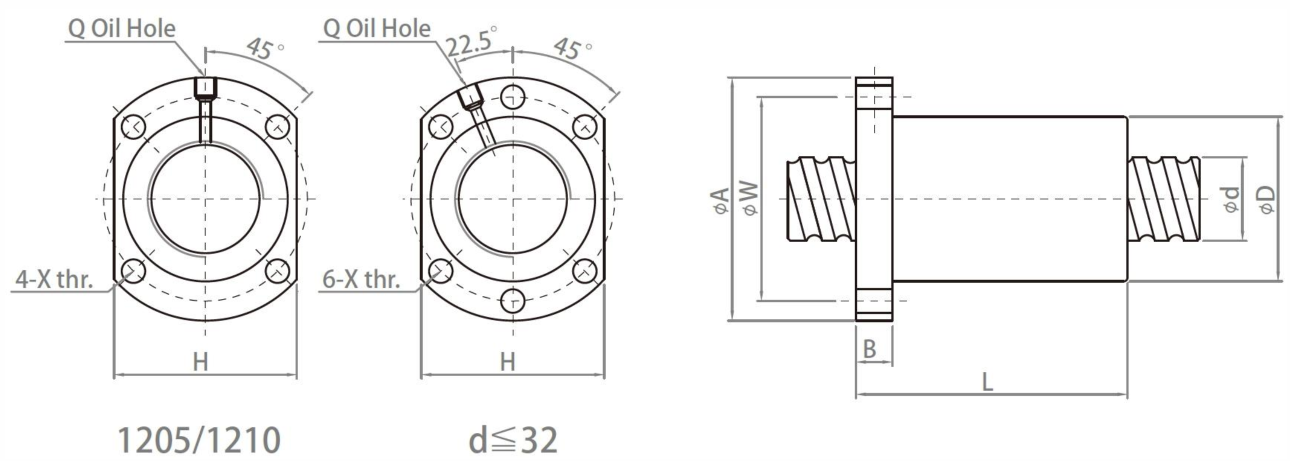


Model No.	d	l	Da	Dimension D	A	E	B	L	W	H	X	Q	n	Load Rating Ca (kgf)	C0a (kgf)	K kgf/μm
DSFA01205-2.8	12	5	2.5	24	40	5	10	30	32	30	4.5	–	2.8×1	661	1316	19
DSFA01210-2.8		10	2.5	24	40	5	10	42	32	30	4.5	–	2.8×1	642	1287	19
DSFA01605-3.8	15	5	2.778	28	48	5	10	31	38	40	5.5	M6	3.8×1	1112	2507	30
DSFA01610-2.8		10	2.778	28	48	5	10	42	38	40	5.5	M6	2.8×1	839	1821	23
DSFA01616-1.8		16	2.778	28	48	5	10	43	38	40	5.5	M6	1.8×1	552	1137	14
DSFA01616-2.8		16	2.778	28	48	5	10	59	38	40	5.5	M6	2.8×1	808	1769	22
DSFA01620-1.8		20	2.778	28	48	5	10	50	38	40	5.5	M6	1.8×1	554	1170	14
DSFA02005-3.8	20	5	3.175	36	58	7	10	33	47	44	6.6	M6	3.8×1	1484	3681	37
DSFA02010-3.8		10	3.175	36	58	7	10	52	47	44	6.6	M6	3.8×1	1516	3833	40
DSFA02020-1.8		20	3.175	36	58	7	10	52	47	44	6.6	M6	1.8×1	764	1758	19
DSFA02020-2.8		20	3.175	36	58	7	10	72	47	44	6.6	M6	2.8×1	1118	2734	29
DSFA02505-3.8	25	5	3.175	40	62	7	10	33	51	48	6.6	M6	3.8×1	1650	4658	43
DSFA02510-3.8		10	3.175	40	62	7	12	52	51	48	6.6	M6	3.8×1	1638	4633	45
DSFA02525-1.8		25	3.175	40	62	7	12	60	51	48	6.6	M6	1.8×1	843	2199	22
DSFA02525-2.8		25	3.175	40	62	7	12	85	51	48	6.6	M6	2.8×1	1232	3421	34
DSFA03205-3.8	32	5	3.175	50	80	9	12	35	65	62	9	M6	3.8×1	1839	6026	51
DSFA03210-3.8	31	10	3.969	50	80	9	12	53	65	62	9	M6	3.8×1	2460	7255	55
DSFA03220-2.8		20	3.969	50	80	9	12	72	65	62	9	M6	2.8×1	1907	5482	43
DSFA03232-1.8		32	3.969	50	80	9	12	78	65	62	9	M6	1.8×1	1257	3426	27
DSFA03232-2.8		32	3.969	50	80	9	12	110	65	62	9	M6	2.8×1	1838	5329	42
DSFA04005-3.8	40	5	3.175	63	93	9	14	39	78	70	9	M8	3.8×1	2018	7589	60
DSFA04010-3.8	38	10	6.35	63	93	9	14	57	78	70	9	M8	3.8×1	5035	13943	67
DSFA04020-2.8		20	6.35	63	93	9	14	78	78	70	9	M8	2.8×1	3959	10715	54
DSFA04040-1.8		40	6.35	63	93	9	14	96	78	70	9	M8	1.8×1	2585	6648	34
DSFA04040-2.8		40	6.35	63	93	9	14	136	78	70	9	M8	2.8×1	3780	10341	52
DSFA05005-3.8 ●	50	5	3.175	75	110	10.5	15	42	93	85	11	M8	3.8×1	2207	9542	68
DSFA05010-3.8 ●	48	10	6.35	75	110	10.5	18	57	93	85	11	M8	3.8×1	5638	17852	79
DSFA05020-3.8 ●		20	6.35	75	110	10.5	18	98	93	85	11	M8	3.8×1	5749	18485	87
DSFA05050-1.8 ●		50	6.35	75	110	10.5	18	117	93	85	11	M8	1.8×1	2946	8749	42
DSFA05050-2.8 ●		50	6.35	75	110	10.5	18	167	93	85	11	M8	2.8×1	4308	13610	65

※Please contact DTX MOTION if the marked types (•) are required.

Rolled Ball Screw Series

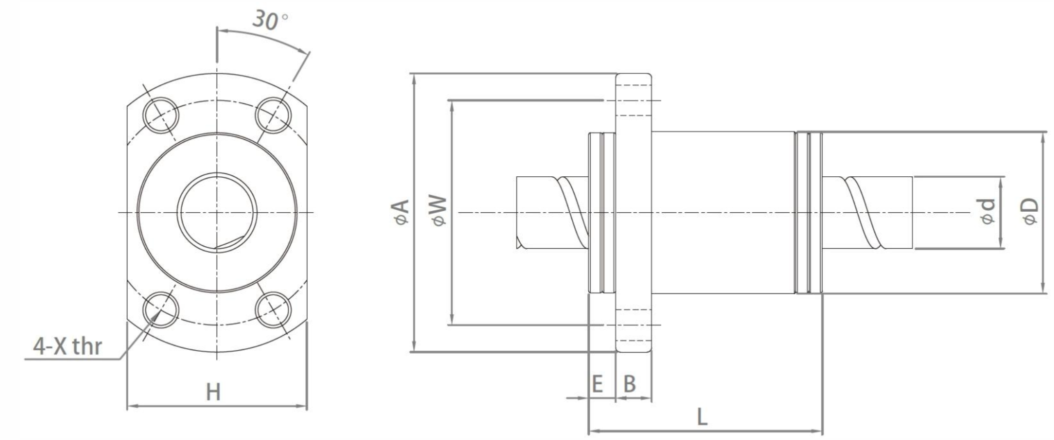
DSFB (DIN 69051 FORM B) Series Specifications



Unit : mm

Model No.	d	I	Da	Dimension									Load Rating		K kgf/μm
				D	A	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	
DSFB01205-2.8	12	5	2.5	24	40	10	30	32	30	4.5	M6	2.8x1	661	1316	19
DSFB01210-2.8		10	2.5	24	40	10	42	32	30	4.5	M6	2.8x1	642	1287	19
DSFB01605-3.8	15	5	2.778	28	48	10	31	38	40	5.5	M6	3.8x1	1112	2507	30
DSFB01610-2.8		10	2.778	28	48	10	42	38	40	5.5	M6	2.8x1	839	1821	23
DSFB01616-1.8		16	2.778	28	48	10	43	38	40	5.5	M6	1.8x1	552	1137	14
DSFB01616-2.8		16	2.778	28	48	10	59	38	40	5.5	M6	2.8x1	808	1769	22
DSFB01620-1.8		20	2.778	28	48	10	50	38	40	5.5	M6	1.8x1	554	1170	14
DSFB02005-3.8	20	5	3.175	36	58	10	33	47	44	6.6	M6	3.8x1	1484	3681	37
DSFB02010-3.8		10	3.175	36	58	10	52	47	44	6.6	M6	3.8x1	1516	3833	40
DSFB02020-1.8		20	3.175	36	58	10	52	47	44	6.6	M6	1.8x1	764	1758	19
DSFB02020-2.8		20	3.175	36	58	10	72	47	44	6.6	M6	2.8x1	1118	2734	29
DSFB02505-3.8	25	5	3.175	40	62	10	33	51	48	6.6	M6	3.8x1	1650	4658	43
DSFB02510-3.8		10	3.175	40	62	12	52	51	48	6.6	M6	3.8x1	1638	4633	45
DSFB02525-1.8		25	3.175	40	62	12	60	51	48	6.6	M6	1.8x1	843	2199	22
DSFB02525-2.8		25	3.175	40	62	12	85	51	48	6.6	M6	2.8x1	1232	3421	34
DSFB03205-3.8	32	5	3.175	50	80	12	35	65	62	9	M6	3.8x1	1839	6026	51
DSFB03210-3.8	31	10	3.969	50	80	12	53	65	62	9	M6	3.8x1	2460	7255	55
DSFB03220-2.8		20	3.969	50	80	12	72	65	62	9	M6	2.8x1	1907	5482	43
DSFB03232-1.8		32	3.969	50	80	12	78	65	62	9	M6	1.8x1	1257	3426	27
DSFB03232-2.8		32	3.969	50	80	12	110	65	62	9	M6	2.8x1	1838	5329	42

DSFJ (DIN 69051 FORM B) Series Specifications

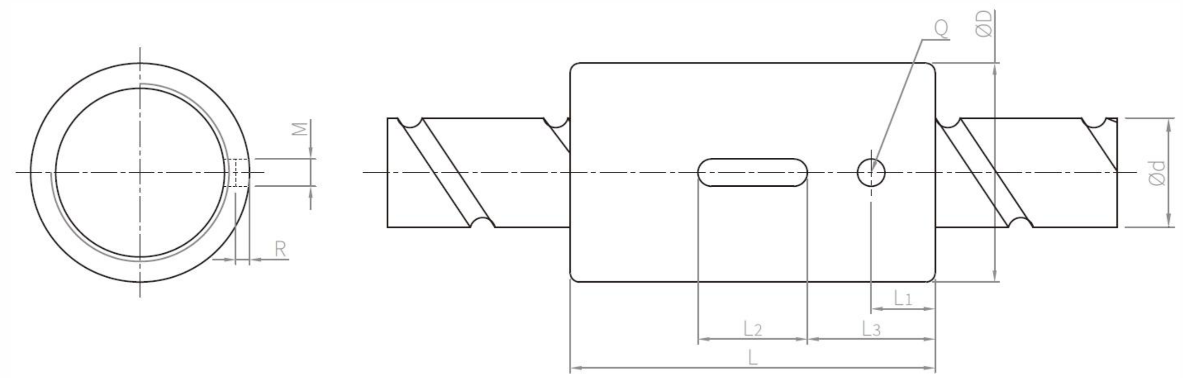


Unit : mm

Model No.	d	I	Da	Dimension										Load Rating		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	
DSFJ00606-1.8	6	6	1.2	14	27	3	4	21	21	16	3.4	-	1.8x1	78	122	4
DSFJ00808-1.8	8	8		18	31	3	4	26	25	20	3.4	-	1.8x1	89	164	5

Rolled Ball Screw Series

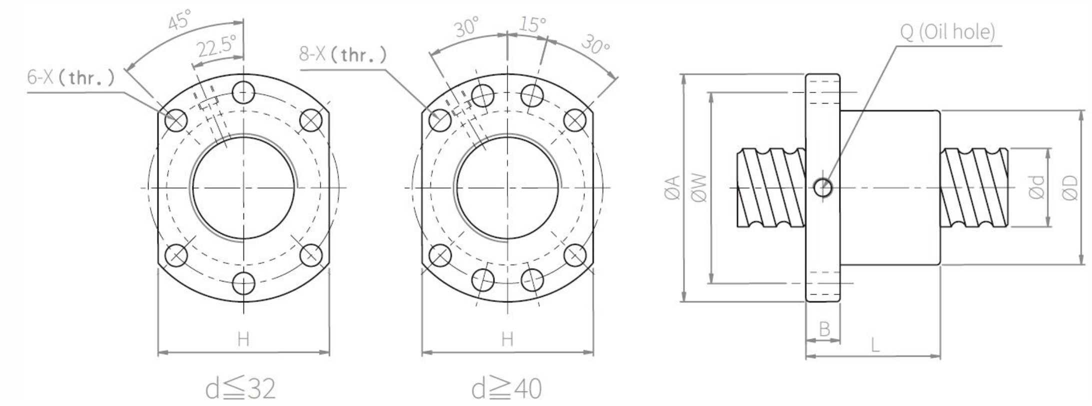
DSCNH Series Specifications



Unit : mm

Model No.	d	I	Da	Dimension D	L	L1	L2	L3	M	R	Q	n	Load Rating Ca (kgf)	C0a (kgf)	K kgf/μm
DSCNH01205-4.8	12	5	2.5	24	40	7	12	14	3	1.5	3	4.8x1	1051	2255	34
DSCNH01210-2.8		10	2.5	24	45	8	15	15	3	1.5	3	2.8x1	642	1287	19
DXCNH01210-1.8		10	2.5	24	40	10.5	12	14	3	1.5	3	1.8x1	439	827	33
DSCNH01605-5.8	15	5	2.778	28	45	7	20	12.5	5	3	3	5.8x1	1599	3827	49
DSCNH01610-2.8		10	2.778	28	45	7	20	12.5	5	3	3	2.8x1	839	1821	23
DSCNH01616-1.8		16	2.778	28	45	7	20	12.5	5	3	3	1.8x1	552	1137	18
DSCNH01620-1.8		20	2.778	28	58	10	20	19	5	3	3	1.8x1	554	1170	14
DSCNH02005-5.8	20	5	3.175	36	47	8	20	13.5	5	3	3	5.8x1	2134	5619	60
DSCNH02010-3.8		10	3.175	36	55	8	20	17.5	5	3	3	3.8x1	1516	3833	40
DSCNH02020-1.8		20	3.175	36	55	8	20	17.5	5	3	3	1.8x1	764	1758	19

DSFNU/SFU (DIN 69051 FORM B) Series Specifications



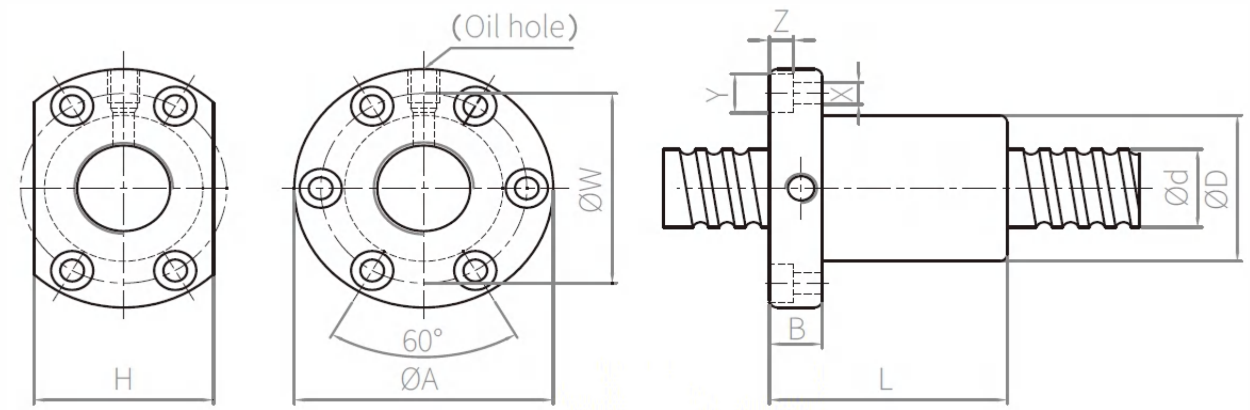
Unit : mm

Model No.	d	I	Da	Dimension D	A	B	L	W	H	X	Q	n	Load Rating Ca (kgf)	C0a (kgf)	K kgf/μm
DSFNU01605-4☆	16	5	3.175	28	48	10	45	38	40	5.5	M6	1x4	1380	3052	32
DSFNU01610-3		10	3.175	28	48	10	57	38	40	5.5	M6	1x3	1103	2401	26
DSFNU02005-4☆	20	5	3.175	36	58	10	51	47	44	6.6	M6	1x4	1551	3875	39
DSFNU02505-4☆	25	5	3.175	40	62	10	51	51	48	6.6	M6	1x4	1724	4904	45
DSFNU02510-4		10	4.762	40	62	12	80	51	48	6.6	M6	1x4	2954	7295	50
DSFNU03205-4☆	32	5	3.175	50	80	12	52	65	62	9	M6	1x4	1922	6343	54
DSFNU03210-4☆		10	6.35	50	80	12	85	65	62	9	M6	1x4	4805	12208	61
DSFNU04005-4☆	40	5	3.175	63	93	14	55	78	70	9	M8	1x4	2110	7988	63
DSFNU04010-4☆		10	6.35	63	93	14	88	78	70	9	M8	1x4	5399	15500	73
DSFNU05010-4☆●	50	10	6.35	75	110	16	88	93	85	11	M8	1x4	6004	19614	85
DSFNU06310-4 ●	63	10	6.35	90	125	18	93	108	95	11	M8	1x4	6719	25358	99
DSFNU06320-4 ●	63	20	9.525	95	135	20	149	115	100	13.5	M8	1x4	11444	36653	112
DSFNU08010-4 ●	80	10	6.35	105	145	20	93	125	110	13.5	M8	1x4	7346	31953	109
DSFNU08020-4 ●	80	20	9.525	125	165	25	154	145	130	13.5	M8	1x4	12911	47747	138
DSFNU01204-4	12	4	2.5	24	40	10	40	32	30	4.5		1x4	902	1884	26
DSFNU01604-4	16	4	2.381	28	48	10	40	38	40	5.5	M6	1x4	973	2406	32
DSFNU02004-4	20	4	2.381	36	58	10	42	47	44	6.6	M6	1x4	1066	2987	38
DSFNU02504-4	25	4	2.381	40	62	10	42	51	48	6.6	M6	1x4	1180	3795	43
DSFNU03204-4	32	4	2.381	50	80	12	44	65	62	9	M6	1x4	1296	4838	51
DSFNU10020-4 ●	100	20	9.525	150	202	30	180	170	155	17.5	M8	1x4	14303	60698	162

※☆ Left helix available ※P lease contact DTX MOTION if the marked types (●) are required.
※Standard ball nut SFU01204-4is assembled without wiper.

Rolled Ball Screw Series

DSFNI/DSFI Series Specifications



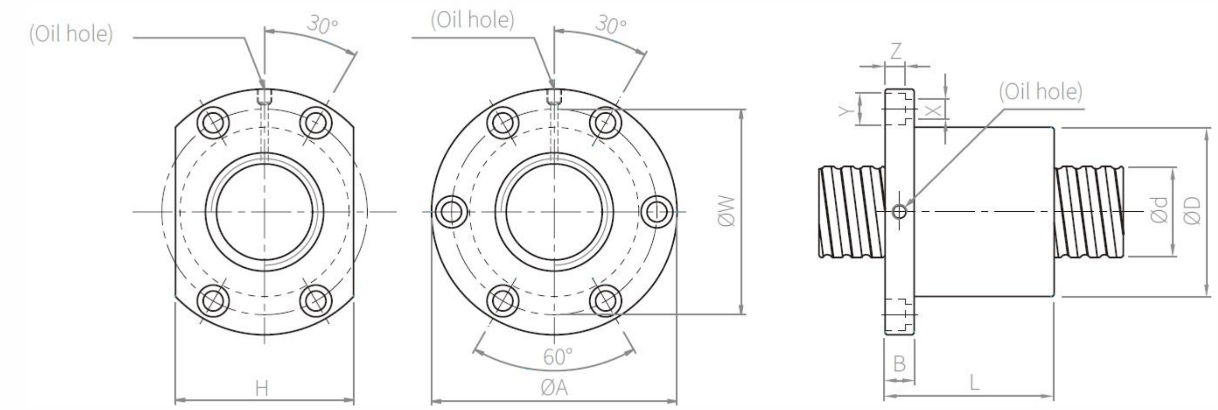
Unit : mm

Model No.	d	I	Da	Dimension											Load Rating		K
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFNI01605-4☆	16	5	3.175	30	49	10	45	39	34	4.5	8	4.5	M6	1x4	1380	3052	33
DSFNI01610-3		10	3.175	34	58	10	57	45	34	5.5	9.5	5.5	M6	1x3	1103	2401	27
DSFNI02005-4☆	20	5	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	1x4	1551	3875	39
DSFNI02505-4☆	25	5	3.175	40	63	11	51	51	46	5.5	9.5	5.5	M8	1x4	1724	4904	45
DSFNI02510-4		10	4.762	46	72	12	80	58	52	6.5	11	6.5	M6	1x4	2954	7295	51
DSFNI03205-4☆	32	5	3.175	46	72	12	52	58	52	6.5	11	6.5	M8	1x4	1922	6343	52
DSFNI03210-4☆		10	6.35	54	88	15	85	70	62	9	14	8.5	M8	1x4	4805	12208	62
DSFNI04005-4☆	40	5	3.175	56	90	15	55	72	64	9	14	8.5	M8	1x4	2110	7988	59
DSFNI04010-4☆		10	6.35	62	104	18	88	82	70	11	17.5	11	M8	1x4	5399	15500	72
DSFNI05010-4☆ ●	50	10	6.35	72	114	18	88	92	82	11	17.5	11	M8	1x4	6004	19614	83
DSFNI06310-4 ●	63	10	6.35	85	131	22	93	107	95	14	20	13	M8	1x4	6719	25358	95
DSFNI08010-4 ●	80	10	6.35	105	150	22	93	127	115	14	20	13	M8	1x4	7346	31953	109
DSFNI01604-4	16	4	2.381	30	49	10	45	39	34	4.5	8	4.5	M6	1x4	973	2406	32
DSFNI02004-4	20	4	2.381	34	57	11	46	45	40	5.5	9.5	5.5	M6	1x4	1066	2987	37
DSFNI02504-4	25	4	2.381	40	63	11	46	51	46	5.5	9.5	5.5	M6	1x4	1180	3795	43
DSFNI03204-4	32	4	2.381	46	72	12	47	58	52	6.5	11	6.5	M6	1x4	1296	4838	49

※Please contact DTX MOTION if the marked types (•) are required.

Rolled Ball Screw Series

DSFV Series Specifications



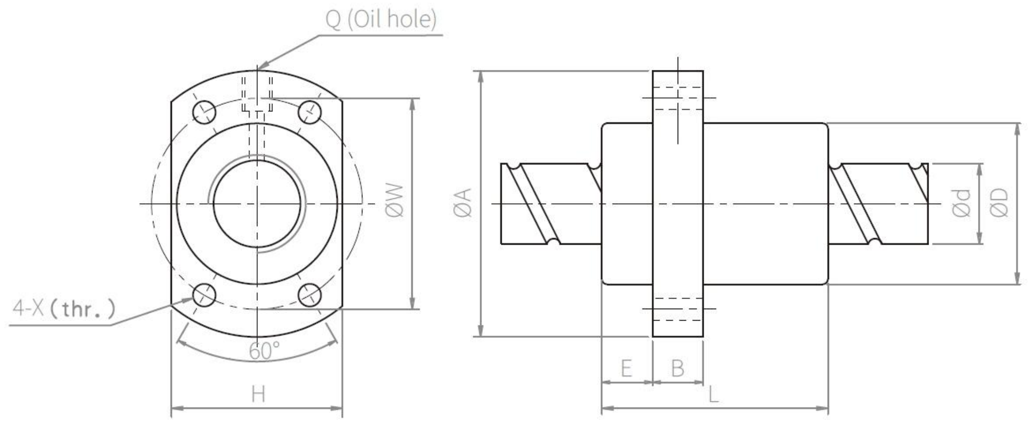
Unit : mm

Model No.	d	I	Da	Dimension											Load Rating		K
				D	A	B	L	W	H	X	Y	Z	Q	n	Ca (kgf)	C0a (kgf)	kgf/μm
DSFV01205-2.8	12	5	2.5	30	50	10	42	40	32	4.5	8	4.5	M6	2.8x1	661	1316	19
DSFV01210-2.7		10	2.5	30	50	10	53	40	32	4.5	8	4.5	M6	2.7x1	623	1241	18
DSFV01605-4.8	16	5	3.175	40	63	11	58	51	42	5.5	9.5	5.5	M6	4.8x1	1614	3662	40
DSFV01610-2.7		10	3.175	40	63	11	56	51	42	5.5	9.5	5.5	M6	2.7x1	1008	2161	24
DSFV02005-4.8	20	5	3.175	44	67	11	57	55	52	5.5	9.5	5.5	M6	4.8x1	1814	4650	47
DSFV02020-1.8		20	3.175	46	74	13	70	59	46	6.6	11	6.5	M6	1.8x1	764	1758	19
SFV02505-4.8	25	5	3.175	50	73	11	55	61	52	5.5	9.5	5.5	M8	4.8x1	2017	5884	56
DSFV02525-1.8		25	3.175	50	73	13	83	61	52	5.5	9.5	5.5	M8	1.8x1	843	2199	22
DSFV03204-4.8	32	4	2.381	54	81	12	50	67	64	6.6	11	6.5	M6	4.8x1	1517	5806	62
DSFV03205-4.8		5	3.175	58	85	12	56	71	64	6.6	11	6.5	M8	4.8x1	2249	7612	66
DSFV03210-4.8		10	6.35	74	108	15	96	90	82	9	14	9	M8	4.8x1	5620	14649	76
DSFV04005-4.8	40	5	3.175	67	101	15	59	83	72	9	14	8.5	M8	4.8x1	2468	9586	76
DSFV04010-4.8		10	6.35	82	124	18	100	102	94	11	17.5	11	M8	4.8x1	6316	18600	90
DSFV04020-2.7		20	6.35	82	124	18	100	102	90	11	17.5	11	M8	2.7x1	3935	10893	56
DSFV05005-4.8 ●	50	5	3.175	80	114	15	60	96	82	9	14	8.5	M8	4.8x1	2698	12053	87
DSFV05010-4.8 ●		10	6.35	93	135	16	93	113	98	11	17.5	11	M8	4.8x1	7023	23537	106
DSFV05020-2.7 ●		20	9.525	105	152	28	121	128	110	14	20	13	M8	2.7x1	7336	19700	68
DSFV06310-4.8 ●	63	10	6.35	108	154	22	105	130	110	14	20	13	M8	4.8x1	7860	30430	126
DSFV06320-2.7 ●		20	9.525	122	180	28	120	150	130	18	26	17.5	M8	2.7x1	8162	24741	80
DSFV08010-4.8 ●	80	10	6.35	130	176	22	105	152	132	14	20	13	M8	4.8x1	8593	38344	145
DSFV08020-4.8 ●		20	9.525	143	204	28	180	172	148	18	26	18	M8	4.8x1	15103	57296	168
DSFV08020-7.6 ●		20	9.525	143	204	28	240	172	148	18	26	18	M8	3.8x2	22423	90719	260

※Please contact DTX MOTION if the marked types (•) are required.

Rolled Ball Screw Series

DSFY Series Specifications



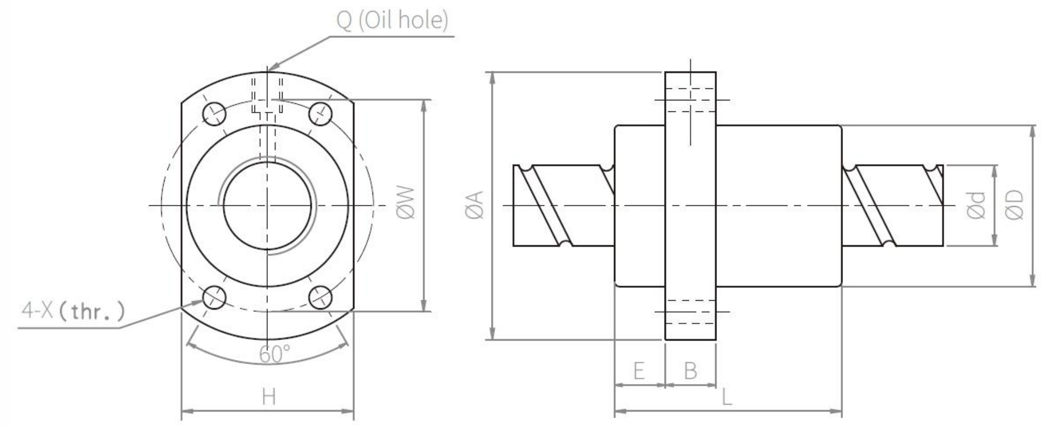
Unit : mm

Large Lead Model No.	d	I	Da	Dimension										Load Rating		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	
DSFYA02020-3.6	20	20	3.175	39	62	13	10	52	50	41	5.5	M6	1.8x2	1387	3515	37
DSFYA02525-3.6	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8x2	2074	5494	45
DSFYA04040-3.6	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8x2	4831	14062	70
DSFYA05050-3.6 ●	50	50	7.938	90	135	21.5	20	117	112	92	14	M6	1.8x2	7220	21974	86
Twin Lead Model No.	**d**	**I**	**Da**	**Dimension**										**Ca (kgf)**	**C0a (kgf)**	**K kgf/μm**
				D	A	E	B	L	W	H	X	Q	n			
DSFYA01632-1.6	16	32	2.778	32	53	10.1	10	42.5	42	34	4.5	M6	0.8x2	493	1116	11
DSFYA02550-1.6	25	50	3.969	47	74	15	12	58	60	49	6.6	M6	0.8x2	976	2495	19
DSFYA03264-1.6	32	64	4.762	58	92	17	12	71	74	60	9	M6	0.8x2	1374	3571	22
DSFYA050100-1.6 ●	50	100	7.938	90	135	21.5	20	111	112	92	14	M6	0.8x2	3398	9980	35

※Please contact DTX MOTION if the marked types (•) are required.

Rolled Ball Screw Series

DSFYA Series Specifications



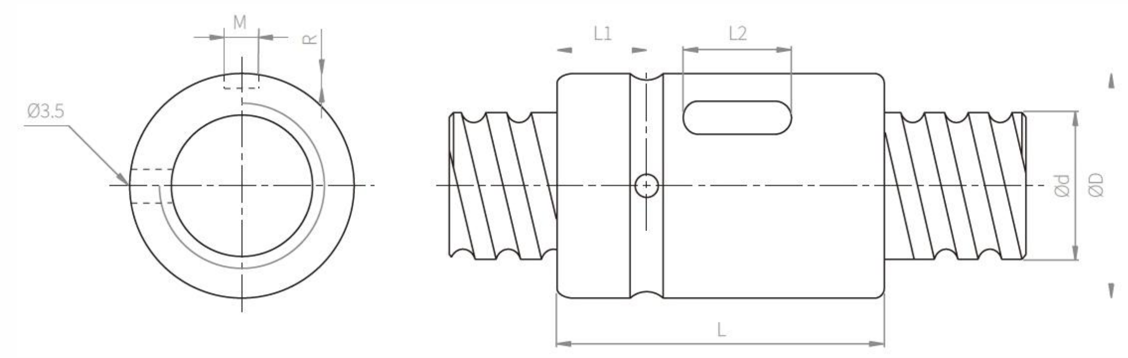
Unit : mm

Large Lead Model No.	d	I	Da	Dimension										Load Rating		K kgf/μm
				D	A	E	B	L	W	H	X	Q	n	Ca (kgf)	C0a (kgf)	
DSFYA01616-3.6	16	16	2.778	32	53	10.1	10	45	42	34	4.5	M6	1.8*2	1073	2551	31
DSFYA02020-3.6	20	20	3.175	39	62	13	10	52	50	41	5.5	M6	1.8*2	1387	3515	37
DSFYA02525-3.6	25	25	3.969	47	74	15	12	64	60	49	6.6	M6	1.8*2	2074	5494	45
DSFYA03232-3.6	32	32	4.762	58	92	17	12	78	74	60	9	M6	1.8*2	3021	8690	58
DSFYA04040-3.6	40	40	6.35	73	114	19.5	15	99	93	75	11	M6	1.8*2	4831	14062	70
DSFYA05050-3.6	50	50	7.938	90	135	21.5	20	117	112	92	14	M6	1.8*2	7220	21974	86
Twin Lead Model No.	**d**	**I**	**Da**	**Dimension**										**Ca (kgf)**	**C0a (kgf)**	**K kgf/μm**
				D	A	E	B	L	W	H	X	Q	n			
DSFYA01632-1.6	16	32	2.778	32	53	10.1	10	42.5	42	34	4.5	M6	0.8*2	493	1116	11
DSFYA02024-1.6	20	40	3.175	39	62	13	10	48	50	41	5.5	M6	0.8*2	653	1597	15
DSFYA02550-1.6	25	50	3.969	47	74	15	12	58	60	49	6.6	M6	0.8*2	976	2495	19
DSFYA03264-1.6	32	64	4.762	58	92	17	12	71	74	60	9	M6	0.8*2	1374	3571	22
DSFYA04080-1.6	40	80	6.35	73	114	19.5	15	90	93	75	11	M6	0.8*2	2273	6387	29
DSFYA050100-1.6	50	100	7.938	90	135	21.5	20	111	112	92	14	M6	0.8*2	3398	9980	35

※Please contact DTX MOTION if the marked types (•) are required.

Rolled Ball Screw Series

DSCNI Series Specifications



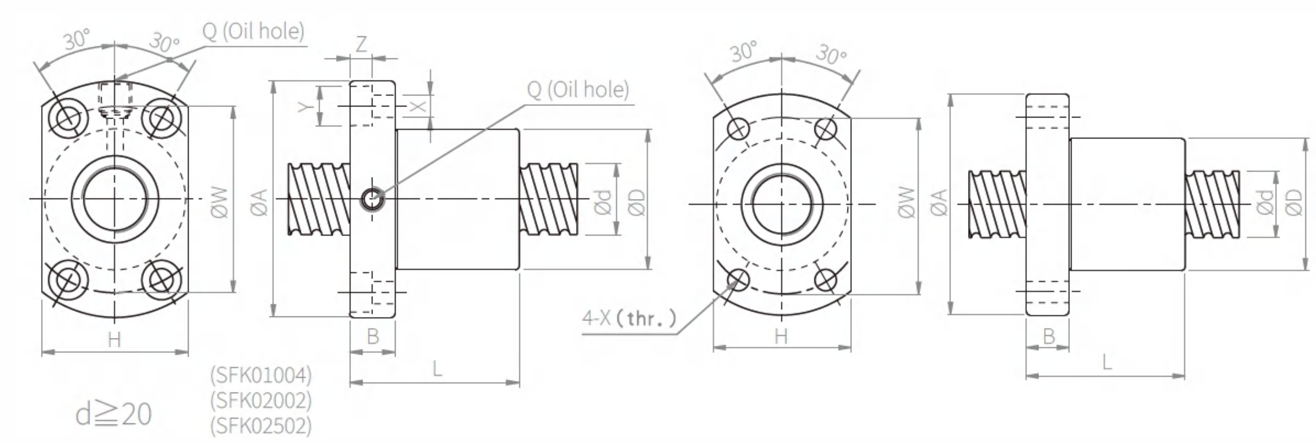
Unit : mm

Model No.	d	I	Da	Dimension D	L	L1	L2	M	R	n	Load Rating Ca (kgf)	C0a (kgf)	K kgf/μm
DSCNI 01605-4	16	5	3.175	30	45	9	20	5	3	1x4	1380	3052	33
DSCNI 02005-4	20	5	3.175	34	45	9	20	5	3	1x4	1551	3875	39
DSCNI 02505-4	25	5	3.175	40	45	9	20	5	3	1x4	1724	4904	45
DSCNI 02510-4		10	4.762	46	85	13	30	5	3	1x4	2954	7295	51
DSCNI 03205-4	32	5	3.175	46	45	9	20	5	3	1x4	1922	6343	52
DSCNI 03210-4		10	6.35	54	85	13	30	5	3	1x4	4805	12208	62
DSCNI 04005-4	40	5	3.175	56	45	9	20	5	3	1x4	2110	7988	59
DSCNI 04010-4		10	6.35	62	85	13	30	5	3	1x4	5399	15500	72
DSCNI 05010-4	● 50	10	6.35	72	85	13	30	5	3	1x4	6004	19614	83
DSCNI 06310-4	● 63	10	6.35	85	85	13	30	6	3.5	1x4	6719	25358	95
DSCNI 08010-4	● 80	10	6.35	105	85	13	30	8	4.5	1x4	7346	31953	109
DSCI 01604-4	16	4	2.381	30	40	9	15	3	1.5	1x4	973	2406	32
DSCI 02004-4	20	4	2.381	34	40	9	15	3	1.5	1x4	1066	2987	37
DSCI 02504-4	25	4	2.381	40	40	9	15	3	1.5	1x4	1180	3795	43
DSCI 03204-4	32	4	2.381	46	40	9	15	3	1.5	1x4	1296	4838	49

※Please contact DTX MOTION if the marked types (●) are required.

Rolled Ball Screw Series

DSFK Series Specifications



Unit : mm

Model No.	d	I	Da	Dimension D	A	B	L	W	H	X	Y	Z	Q	n	Ca (kgf)	C0a (kgf)	K kgf/μm
DSFK00601	6	1	0.8	12	24	3.5	15	18	16	3.4	-	-	-	1x3	111	224	9
DSFK00801	8	1	0.8	14	27	4	16	21	18	3.4	-	-	-	1x4	161	403	14
DSFK00802		2	1.2	14	27	4	18	21	18	3.4	-	-	-	1x3	222	458	13
DSFK0082.5		2.5	1.2	16	29	4	26	23	20	3.4	-	-	-	1x3	221	457	13
DSFK01002	10	2	1.2	18	35	5	28	27	22	4.5	-	-	-	1x3	243	569	15
DSFK01004		4	2	20	37	6	34	29	28	4.5	-	-	-	1x3	468	905	17
DSFK01202	12	2	1.2	20	37	5	28	29	24	4.5	-	-	-	1x4	334	906	22
DSFK01205		5	2.5	22	37	8	39	29	24	4.5	-	-	-	1x3	702	1409	17
DSFK01402	14	2	1.2	21	40	6	23	31	26	5.5	-	-	-	1x4	354	1053	24
DSFK01404		4	2.5	25	42	10	45	35	29	4.5	-	-	-	1x4	957	2155	16
DSFK01004	10	4	2	26	46	10	34	36	28	4.5	8	4.5	M6x1	1x3	468	905	17
DSFK01404	14	4	2.5	26	46	10	45	36	28	4.5	8	4.5	M6x1	1x4	957	2145	16

※ Type K standard ball Nut is available for with or without wiper, please contact DTX sales representatives.

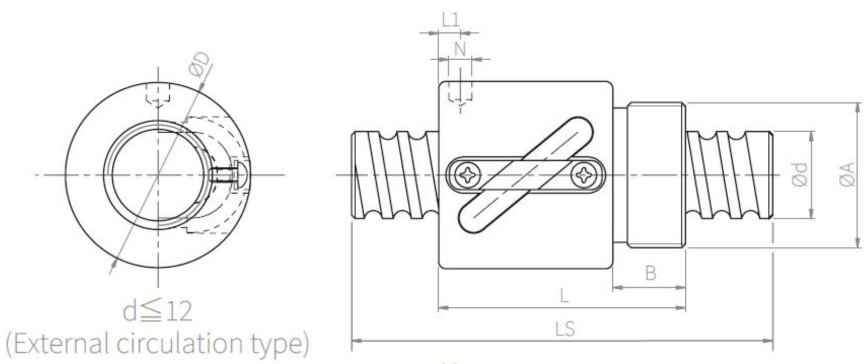
Unit : mm

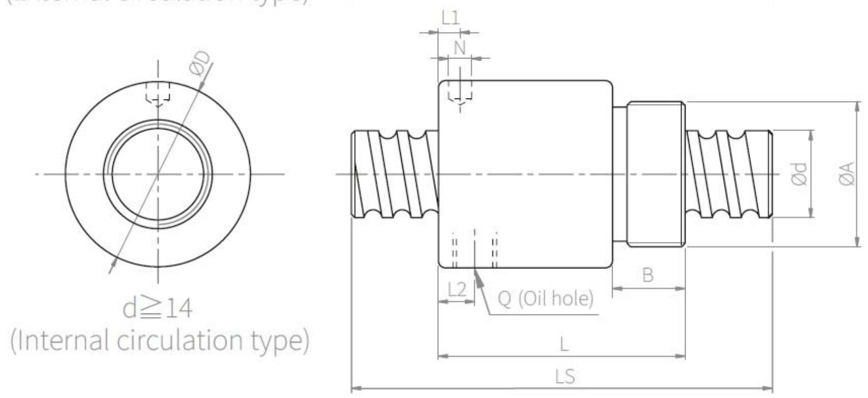
Model No.	d	I	Da	Dimension D	A	B	L	W	H	X	Y	Z	Q	n	Ca (kgf)	C0a (kgf)	K kgf/μm
DXSUR01204T3D-02	12	4	2.5	24	40	6	28	32	25	3.5	—	—	—	1x3	454	722	—

※Standard ball nut XSUR01204T30-02 is assembled without wiper.

Rolled Ball Screw Series

DBSH Series Specifications





Unit : mm

Model No.	d	I	Da	Dimension									Ca (kgf)	C0a (kgf)	K kgf/μm
				D	A	B	L	L1	N	L2	Q	n			
DBSH0082.5-2.5	8	2.5	1.2	17.5	M15x1P	7.5	23.5	10	3	—	—	2.5x1	189	381	11
DBSH01002-3.5	10	2	1.2	19.5	M17x1P	7.5	22	3	3.2	—	—	3.5x1	277	664	17
DBSH01004-2.5		4	2	25	M20x1P	10	34	3	3	—	—	2.5x1	400	754	14
DBSH01204-3.5	12	4	2.5	25.5	M20x1P	10	34	13	3	—	—	3.5x1	804	1649	23
DBSH01205-3.5		5	2.5	25.5	M20x1P	10	39	16.25	3	—	—	3.5x1	801	1644	24
DBSH1404-3	14	4	2.5	32.1	M25x1.5P	10	35	11	3	—	—	1x3	748	1609	26
DBSH1604-3	16	4	2.381	29	M22x1.5P	8	32	4	3.2	—	—	1x3	759	1804	24
DBSH1605-3		5	3.175	32.5	M26x1.5P	12	42	19.25	3	—	—	1x3	1077	2289	25
DBSH01610-2		10	3.175	32	M26x1.5P	12	50	3	4	3	M4	1x2	779	1601	14
DBSH02005-3	20	5	3.175	38	M35x1.5P	15	45	20.3	3	—	—	1x3	1211	2906	30
DBSH02505-4	25	5	3.175	43	M40x1.5P	19	69	32.11	3	8	M6	1x4	1724	4904	37
DBSH02510-4		10	4.762	43	M40x1.5P	19	84	8	6	8	M6	1x4	2954	7295	41

※Standard ballnut from 08~016 is assembled without wiper.

Interchangeable With Various Brands

DTX	HIWIN	SSD	CSK	ABBA	TBI	CPC	AMT	SBC	THK	IKO	广东新会
SGW15CA	HGW15CA	DGW15CA	LMG15C	BRH15A	TRH15FL	HR15FN B/S	MSA15A	SBG15FL	HSR15A	LWH(HT)15B	/
SGW20CA	HGW20CA	DGW20CA	LMG20C	BRH20A	TRH20FL	HR20FN B/S	MSA20A	SBG20FL	HSR20A	LWH(HT)20B	LG20EA(FA)
SGW20HA	HGW20HA	DGW20HA	LMG20LC	BRH20AL	TRH20FE	HR20FL B/S	MSA20LA	SBG20FLL	HSR20LA	LWH(HT)G20B	/
SGW25CA	HGW25CA	DGW25CA	LMG25C	BRH25A	TRH25FL	HR25FN B/S	MSA25A	SBG25FL	HSR25A	LWH(HT)25B	LG25EA(FA)
SGW25HA	HGW25HA	DGW25HA	LMG25LC	BRH25AL	TRH25FE	HR25FL B/S	MSA25LA	SBG25FLL	HSR25LA	LWH(HT)G25B	LG25HEA(FA)
SGW30CA	HGW30CA	DGW30CA	LMG30C	BRH30A	TRH30FL	HR30FN B/S	MSA30A	SBG30FL	HSR30A	LWH(HT)30B	LG30EA(FA)
SGW30HA	HGW30HA	DGW30HA	LMG30LC	BRH30AL	TRH30FE	HR30FL B/S	MSA30LA	SBG30FLL	HSR30LA	LWH(HT)G30B	LG30HEA(FA)
SGW35CA	HGW35CA	DGW35CA	LMG35C	BRH35A	TRH35FL	HR35FN B/S	MSA35A	SBG35FL	HSR35A	LWH(HT)35B	LG35EA(FA)
SGW35HA	HGW35HA	DGW35HA	LMG35LC	BRH35AL	TRH35FE	HR35FL B/S	MSA35LA	SBG35FLL	HSR35LA	LWH(HT)G35B	LG35HEA(FA)
SGW45CA	HGW45CA	DGW45CA	LMG45C	BRH40A	TRH45FL	HR45FN B/S	MSA45A	SBG45FL	HSR45A	LWH(HT)45B	LG45EA(FA)
SGW45HA	HGW45HA	DGW45HA	LMG45LC	BRH40AL	TRH45FE	HR45FL B/S	MSA45LA	SBG45FLL	HSR45LA	LWH(HT)G45B	LG45HEA(FA)
SGW55HA	HGW55HA	DGW55HA	LMG55	BRH55A	TRH55FL	HR55FN B/S	MSA55A	SBG55FL	HSR55A	LWH(HT)55B	LG55EA(FA)
SEH15CA	EGH15CA	DEH15CA	LMG15T	BRS15B	TRS15VN	AR15MN B/S	MSB15S	SBS15SL	SR15W	LWES15	LG15NAA
SEH15SA	EGH15SA	DEH15SA	LMG15ST	BRS15BS	TRS15VS	AR15MS B/S	MSB15TS	/	SR15V	LWESC15	/
SEH20CA	EGH20CA	DEH20CA	LMG20T	BRS20B	TRS20VN	AR20MN B/S	MSB20S	SBS20SL	SR20W	LWES20	/
SEH20SA	EGH20SA	DEH20SA	LMG20ST	BRS20BS	TRS20VS	AR20MS B/S	MSB20TS	/	SR20V	LWESC20	/
SEH25CA	EGH25CA	DEH25CA	LMG25T	BRS25B	TRS25VN	AR25MN B/S	MSB25S	SBS25SL	SR25W	LWES25	LG25AA
SEH25SA	EGH25SA	DEH25SA	LMG25ST	BRS25BS	TRS25VS	AR25MS B/S	MSB25TS	/	SR25V	LWESC25	
SEH30CA	EGH30CA	DEH30CA	LMG30T	BRS30B	TRS30VN	AR30MN B/S	MSB30S	SBS30SL	SR30W	LWESC30	LG30AA
SEH30SA	EGH30SA	DEH30SA	LMG30ST	BRS30BS	TRS30VS	AR30MS B/S	MSB30TS	/	SR30V	/	
SEH35CA	EGH35CA	DEH35CA	LMG35T	BRS35B	TRS35VN	AR35MN B/S	MSB35S	SBS35SL	SR35W	LWESC35	LG35AA
SEH35SA	EGH35SA	DEH35SA	LMG35ST	BRS35BS	TRS35VS	AR35MS B/S	MSB35TS	/	SR35V	/	/
SEH45CA	EGH45CA	DEH45CA	LMG45T	BRS45B	TRS45VN	AR45MN B/S	MSB45S	SBS45SL	SR45W	/	/
SEH45SA	EGH45SA	DEH45SA	LMG45ST	BRS45BS	TRS45VS	AR45MS B/S	MSB45TS	/	SR45V	/	/
SGH15CA	HGH15CA	DGH15CA	LMG15H	BRH15B	TRH15VL	HR15MN B/S	MSA15S	SBG15SL	HSR15R	LWHD15B	/
SGH20CA	HGH20CA	DGH20CA	LMG20H	BRH20B	TRH20VL	HR20MN B/S	MSA20S	SBG20SL	HSR20R	/	LG20AN
SGH20HA	HGH20HA	DGH20HA	LMG20LH	BRH20BL	TRH20VE	HR20ML B/S	MSA20LS	SBG20SLL	HSR20LR	/	/
SGH25CA	HGH25CA	DGH25CA	LMG25H	BRH25B	TRH25VL	HR25MN B/S	MSA25S	SBG25SL	HSR25R	LWHD25B	LG25AN
SGH25HA	HGH25HA	DGH25HA	LMG25LH	BRH25BL	TRH25VE	HR25ML B/S	MSA25LS	SBG25SLL	HSR25LR	LWHDG25B	LG25HAN
SGH30CA	HGH30CA	DGH30CA	LMG30H	BRH30B	TRH30VL	HR30MN B/S	MSA30S	SBG30SL	HSR30R	LWHD30B	LG30AN
SGH30HA	HGH30HA	DGH30HA	LMG30LH	BRH30BL	TRH30VE	HR30ML B/S	MSA30LS	SBG30SLL	HSR30LR	LWHDG30B	LG30HAN
SGH35CA	HGH35CA	DGH35CA	LMG35H	BRH35B	TRH35VL	HR35MN B/S	MSA35S	SBG35SL	HSR35R	LWHD35B	LG35AN
SGH35HA	HGH35HA	DGH35HA	LMG35LH	BRH35BL	TRH35VE	HR35ML B/S	MSA35LS	SBG35SLL	HSR35LR	LWHDG35B	LG35HAN
SGH45CA	HGH45CA	DGH45CA	LMG45H	BRH45B	TRH45VL	HR45MN B/S	MSA45S	SBG45SL	HSR40R	LWHD45B	LG45AN
SGH45HA	HGH45HA	DGH45HA	LMG45LH	BRH45BL	TRH45VE	HR45ML B/S	MSA45LS	SBG45SLL	HSR40LR	LWHDG45B	LG45HAN