DINGS'

Precision Motion Specialist

BALL SCREW
PRODUCT CATALOG

Jiangsu DINGS' Intelligent Control Technology Co., Ltd.

dingsmotion.com

Founded in 2008, Jiangsu DINGS' Intelligent Control Technology Co., Ltd. is guided by the philosophy,
"Quality stems from responsibility, and details determine success."

As a global leader in precision linear motion, DINGS' delivers a comprehensive portfolio of precision stepper, DC and BLDC motors, voice coil motors, lead and ball screw linear actuators, PMSM motors for eco-mobility, and advanced motion controllers — setting new benchmarks in the global motion control market.

SCALE

300+	Advanced Machining Equipment	
40+	Automated Assembly Lines	
100+	Precision Testing & Analysis Systems	
140+	Patents & Intellectual Properties	

GROWTH

2008	Company Founded & DINGS' Brand Established
2010	DINGS' Motion USA Established
2016	DINGS' Korea Established
2019	Joined LEILI Group
2021	Changzhou Intelligent Manufacturing Plant Established Listed on China NEEQ Market
2022	Korea R&D Center Established
2023	Listed on Beijing Stock Exchange [Stock Code: 920593] DINGS' Korea Converted to Corporate Entity DINGS' Japan Established
2024	New Headquarters & Plant Established DINGS' Motion Europe Established
2025	Thailand Manufacturing Facility Established

CERTIFICATIONS

ISO 9001 — Quality
ISO 14001 — Environmental
ISO 45001 — Health & Safety
ISO 13485 — Medical Device Quality
ISO/IEC 17025 — Laboratory Accreditation
IATF16949 — Automotive Quality
IPMS — Intellectual Property
CE — Safety Standards
RoHS COMPLIANT — Environmental Standards - RoHS
REACH NPS — Environmental Standards - REACH

PRODUCT WARRANTY

Warranty period: 1 year from shipment.

Free repair is provided for defects in materials or workmanship under normal use.

Warranty does not apply to:

- Warranty expiration or damaged/lost nameplates
- Improper installation or operating conditions
- Unauthorized disassembly or modification
- Repairs conducted outside of official service channels
- Force majeure, including natural disasters

DINGS' is committed to quality, reliability, and responsibility
— delivering high-performance motion solutions built on precision engineering.

DINGS'
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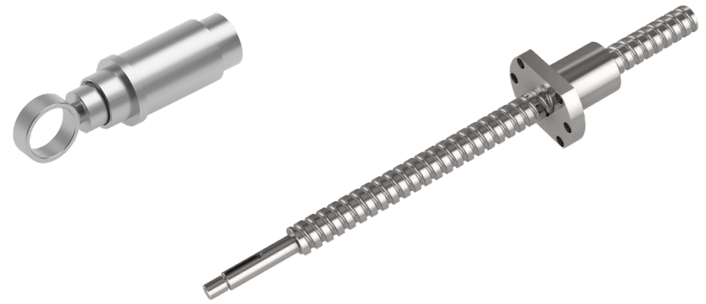
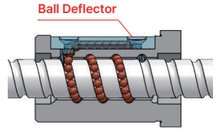
Content

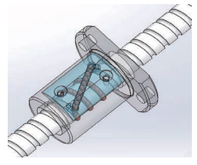


1. Ball Screw Structure

Deflector Type

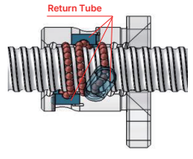
The deflector type uses a deflector or an integrated guide structure installed inside the nut to redirect the ball path and achieve recirculation. Compared with the return tube type, the nut outer diameter can be designed smaller. With a single-circuit design, it provides high load capacity and smooth operation.

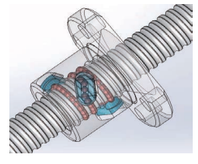




Return Tube Type

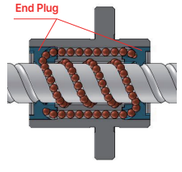
In the return tube type, the balls travel along the raceway between the screw shaft and the nut while carrying the axial load. They then move to an adjacent raceway through the return tube and re-enter the load zone, forming a continuous circulation path.

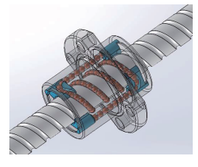




End Deflector Type

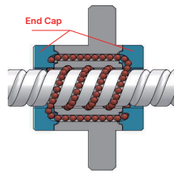
The end deflector type uses an end deflector installed inside the nut to guide the balls into the nut body, allowing them to circulate continuously along raceways in the same direction. Compared with the deflector type, the nut can be designed with a more compact radial dimension, making it particularly suitable for medium lead applications.

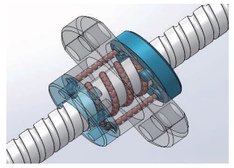




End Cap Type

In the end cap type, the balls move along the raceway between the screw shaft and the nut.They are then guided through end caps installed at both ends of the nut and return to the starting point through an internal passage inside the nut body, forming a closed-loop circulation system.





2. Production Range of Ball Screws

DINGS' ball screws are available in nominal screw shaft diameters from Ø4 mm to Ø25 mm. The table below shows the reference maximum shaft lengths by accuracy grade. Actual lengths may vary depending on shaft-end configuration, material, and series. For details, please contact our sales engineers.

Maximum Overall Length of Precision Ball Screws

Unit: mm

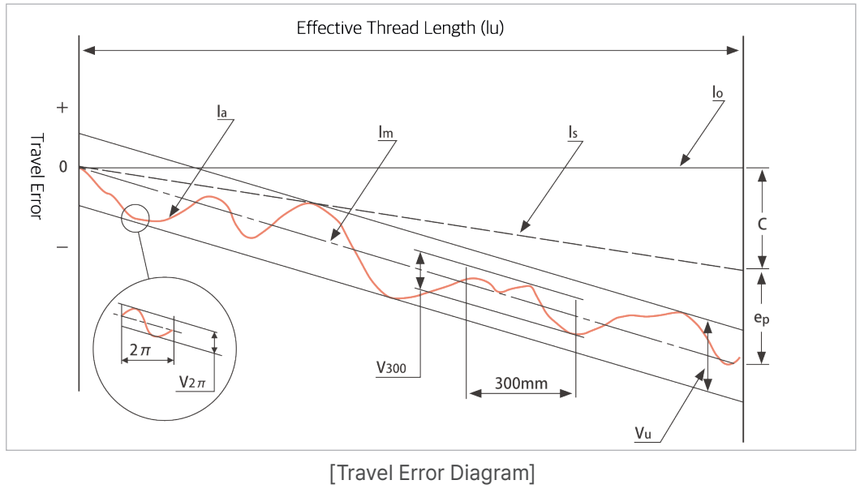
Nominal Dia. \ Accuracy Grade	C3 (Ground)	C5 (Ground)	C7 (Rolled)	C10 (Rolled)
4	160	170	400	400
6	240	250	600	600
8	330	400	600	600
10	420	450	600	600
12	510	550	600	600
14	600	700	600	600

Notes

For lengths exceeding the maximum production limit, please contact our sales engineers.
For rolled ball screws, the maximum length includes 25 mm of incomplete thread at each end.

3. Lead Accuracy of Ball Screws

The lead accuracy of a ball screw refers to the representative deviation and variation of the travel error relative to the effective nut travel or the effective threaded length of the screw shaft. It also includes the variation measured over any 300 mm length of the effective thread and over one revolution (2π rad).



[Travel Error Diagram]

Nominal Travel (l_o) The axial travel for any number of revolutions based on the nominal lead.

Standard Lead (Phs) A lead compensated from the nominal lead to account for predicted deformation due to temperature rise and applied load.

Target Value of Representative Travel (c) The target value obtained by presetting the standard travel with a positive or negative offset.

Standard Travel (l_s) The travel for any number of revolutions based on the standard lead.

Actual Travel (l_a) The actual axial displacement of the nut relative to an arbitrary rotation angle of the screw shaft.

Representative Travel (l_m) A straight line representing the trend of the actual travel, determined from the actual travel curve using the least-squares method or a similar approximation.

Representative Travel Error (e_p) The difference between the representative travel and the standard travel corresponding to the effective travel or effective threaded length.

Variation (V_u) The max. amplitude of the actual travel between two lines parallel to the representative travel line.

Variation over 300 mm (V_{300}) The maximum amplitude of the actual travel over any 300 mm of the effective threaded section.

Variation over One Revolution ($V_{2\pi}$) The max. amplitude of the actual travel over one revolution (2π rad) of the effective threaded section.

Allowable Representative Travel Error ($\pm e_p$) and Variation (V_u)

Unit: mm

Accuracy Grade			C3		C5	
Effective Threaded Length (mm)	Over	Up to	$\pm e_p$	V_u	$\pm e_p$	V_u
	-	100	8	8	18	18
	100	200	10	8	20	18
	200	315	12	8	23	18
	315	400	13	10	25	20
	400	500	15	10	27	20
	500	630	16	12	30	23
	630	800	18	13	35	25
	800	1000	21	13	40	27

Permissible Variation (V_{300}) and ($V_{2\pi}$) per 300 mm and One Revolution for Precision Ball Screws

Unit : μm

Precision Grade	C3		C5	
Item	V_{300}	$V_{2\pi}$	V_{300}	$V_{2\pi}$
Permissible Value	8	6	18	8

Variation (V_{300}) for C7 and C10 over 300 mm

Unit : μm

Precision Grade	C7	C10
V_{300}	52	210

The representative travel error (e_p) for C7 and C10 is calculated using the following formula:

$$e_p = \pm \frac{lu}{300} \times V_{300}$$

lu : Effective thread length (mm)

4. Material, Heat Treatment, and Hardness

The standard material, heat treatment, and hardness of DINGS' ball screws are shown in the table below. Values may vary slightly depending on the series and model; please refer to the specifications provided by DINGS'.

Component	Material	Heat Treatment	Thread Surface Hardness
Screw Shaft	SUJ2 (JIS G 4105)	Induction hardening	HRC 58–62
	S55C (JIS G 4105)	Induction hardening	HRC ≥58
	SUS440C	Quenched and tempered	HRC ≥55
Ball Nut	SCM420H (JIS G 4105)	Carburized and hardened	HRC 58–62
	SUS440C	Quenched and tempered	HRC ≥55

Note: S55C material is used for rolled ball screws, while SUJ2 material is used for ground ball screws.

5. Axial Clearance and Preload

Axial Clearance

In general, a standard single-nut ball screw has a small axial clearance between the screw shaft and the nut. When an axial load is applied, the sum of this axial clearance and the elastic displacement caused by the load increases the clearance, resulting in backlash.

To eliminate such backlash, the axial clearance of the ball screw must be made negative by applying elastic deformation in advance between the screw shaft and the nut—this method is referred to as preload.

The combinations of axial clearance and accuracy grades for DINGS' ball screws are shown in the table below.

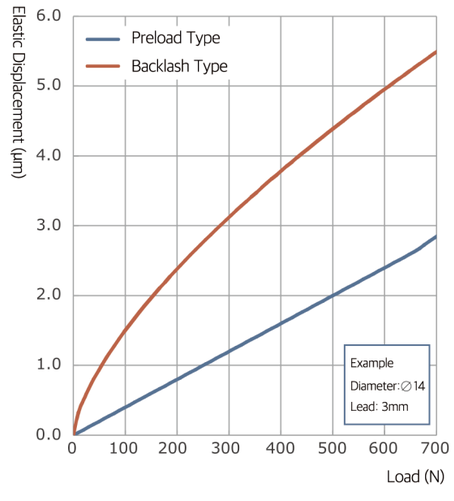
Axial Clearance / Accuracy Grade	Z (Preload)	T (≤0.005 mm)	S (≤0.02 mm)	N (≤0.05 mm)
C3	●	●	●	●
C5		●	●	●
C7			●	●
C10			●	●

Effect of Preload

Applying preload not only eliminates axial clearance in ball screws, but also reduces axial displacement caused by axial loads, thereby increasing stiffness.

The figure below illustrates the difference in elastic displacement under axial load between a clearance-type ball screw and a preloaded (zero-clearance) ball screw (theoretical values). As shown, preload reduces elastic displacement, resulting in improved stiffness.

Elastic Displacement Curves for Clearance-Type and Preloaded Specifications



Appropriate Preload Amount

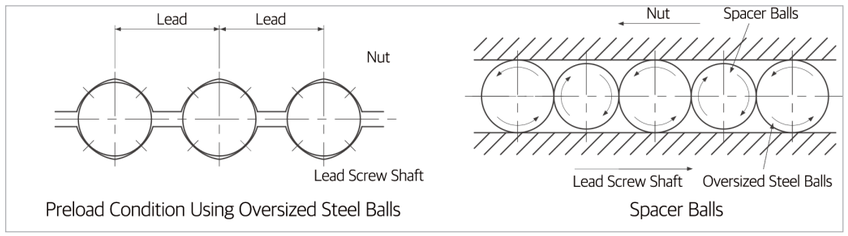
The preload amount should be determined based on the required stiffness or allowable backlash. However, applying preload may result in the following effects:

1. Increased dynamic torque
2. Reduced positioning accuracy due to heat generation and temperature rise
3. Shortened service life

Therefore, the preload amount should be set as low as possible while meeting performance requirements.

Preload Methods

Ball screws are generally preloaded using the double-nut preload method, in which spacers (shims) are inserted between two nuts. Leveraging the characteristics of miniature ball screws, DINGS' ball screws adopt a large-ball preload method, where steel balls slightly larger than the clearance between the screw shaft and the nut are inserted. This method completely eliminates clearance using only a single nut, maintaining a compact structure. In addition, spacer balls slightly smaller than the preload balls are alternately used to prevent deterioration of motion performance.



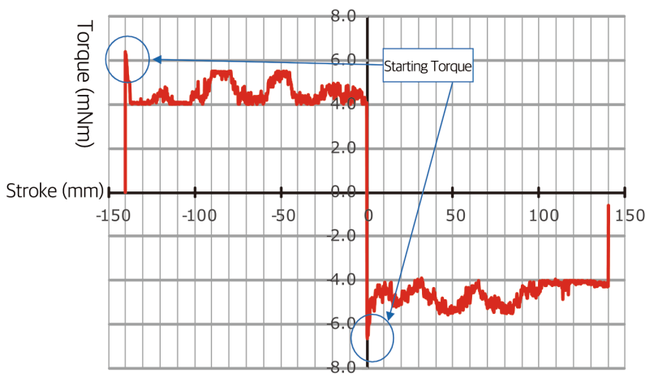
Preload Condition Using Oversized Steel Balls　　Spacer Balls

Preload Management

Direct measurement and control of ball screw preload are difficult. Therefore, preload is typically managed by converting it to preload running torque and controlling it through torque measurement. The preload running torque value is specified in the specification drawing.

To ensure proper preload (zero axial clearance), running torque is always measured under defined conditions. As a result, differences in lubrication and operating conditions may cause variations in measured torque. Please also note that starting torque (the torque required to initiate motion) is slightly higher than the running torque.

Torque Measurement Example



Note: The torque variation illustrated is intentionally exaggerated for explanatory purposes.

6. Rust Prevention and Lubrication

Rust Prevention

DINGS' ball screws are coated with rust-preventive oil for long-term storage. Before use, remove the oil with clean refined kerosene and apply lubricating oil or grease. Grease can be applied prior to shipment upon request; however, long-term storage with grease may cause rust.

Note: The rust-preventive oil is for corrosion protection only and provides no lubrication. Using the ball screw without removing this oil may reduce service life and cause increased torque or abnormal heat generation.

Lubrication

Lubrication is essential when using ball screws. Insufficient lubrication may cause increased torque and shortened service life. Proper lubrication suppresses temperature rise due to friction, loss of mechanical efficiency, and accuracy degradation caused by wear. Ball screws can be lubricated with grease or oil. Grease lubrication: Lithium soap–based grease is generally recommended. Oil lubrication: ISO VG 32–68 (turbine oil) is recommended.

Selecting the appropriate lubricant according to the application is particularly important. For miniature ball screws, grease churning resistance may increase torque. DINGS' provides proprietary greases optimized for ball screw performance: MSG No.1 (NLGI No.1) for low-speed positioning applications requiring smooth motion, and MSG No.2 (NLGI No.2) for high-speed and general-purpose applications.

Recommended Lubricants

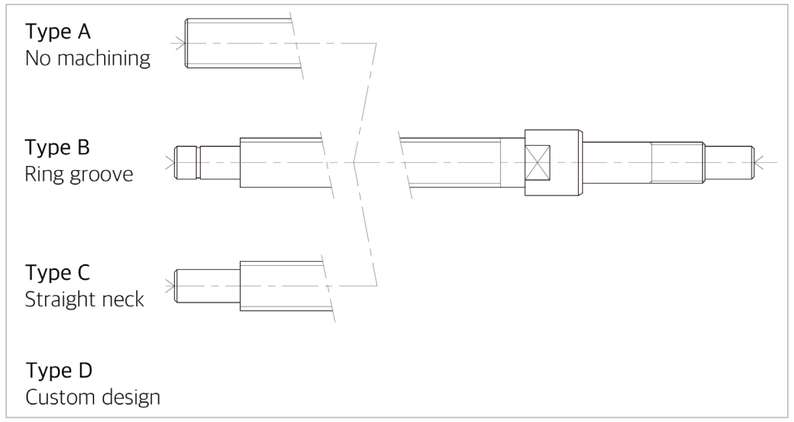
Lubricant Type	Category	Product Name
Grease	Lithium-based grease	AFG Grease
Lubricating Oil	Slideway oil or turbine oil	Super Multi 68

Inspection and Replenishment

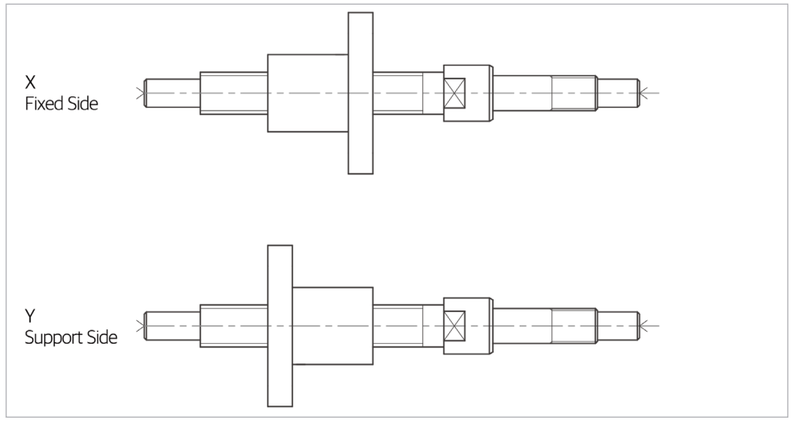
When using grease lubrication, inspections should be conducted every 2–3 months; when using oil lubrication, inspections should be conducted weekly. During inspection, check the lubricant quantity and contamination, and replenish as necessary. When adding new grease, remove old and discolored grease as thoroughly as possible.

Lubrication Method	Inspection Interval	Inspection Items	Replenishment / Replacement Interval
Automatic Intermittent Lubrication	Weekly	Oil quantity, contamination	Replenish appropriately at each inspection based on reservoir capacity
Grease	Initial operation: 2–3 months	Contamination, chips, foreign matter	Typically replenished once per year; adjust based on inspection results and remove discolored old grease
Oil Bath	Before daily operation	Oil level	Adjust appropriately according to consumption

7. Support-side Shaft End Machining Type



8. Nut Flange Orientation



Instructions for Use

During storage, keep the product in its original packaging. Do not open or damage the internal packaging, as this may allow foreign matter to enter or cause corrosion, resulting in degraded performance.

Operating Instructions

1. Do not disassemble the product. Disassembly may cause foreign matter intrusion, loss of accuracy, or accidents.
2. Do not attempt reassembly. Incorrect reassembly may damage the ball screw. Please return the product to DINGS' for paid repair and reassembly.
3. Handle with care. The screw shaft or nut may detach due to their own weight, posing a risk of injury. If detachment occurs, circulation components may be damaged, affecting performance. In such cases, we recommend sending the product to DINGS' for professional inspection and paid repair.
4. Avoid dropping the product. Dropping may cause scratches or damage to circulation components, shaft outer diameter, or steel balls, potentially resulting in impaired operation such as rough or uneven motion.

Precautions for Use

Warning – Risk of Personal Injury
Failure to follow these warnings may result in serious injury or death.

Disassembly Prohibited

Do not disassemble the ball screw shaft, ball nut, or any internal components. Disassembly may cause the internal balls or circulation components to unexpectedly fall out or be ejected. This may result in serious personal injury, contamination, loss of functionality, or damage to the circulation components.

Ball Nut Removal Prohibited

Do not remove the ball nut from the ball screw shaft. Removing the nut may cause the balls to fall out or be ejected, creating a potential hazard that may result in serious personal injury or product damage. If disassembly is required, please contact DINGS' for the proper procedure.

Overtravel

Excessive movement of the ball nut (overtravel) may cause ball dropout, damage to circulation components, or indentation of the ball raceway, resulting in poor operation. Continued use under such conditions may lead to premature wear or component failure. Overtravel must be avoided.

If overtravel occurs, immediately stop operation and contact DINGS' for inspection (paid service).

Abnormal Operation

If abnormal noise, vibration, increased resistance, jamming, or irregular otion is observed during operation, stop the system immediately. Continued operation under such conditions may cause sudden failure, loss of control, or unsafe motion, which may lead to serious injury.

Ball or Rolling Element Dropout

If any ball or rolling element falls out of the ball screw, stop using the product immediately. Do not operate the product under this condition. Contact DINGS' for inspection and repair.

Warning – Equipment Damage / Reduced Service Life
Failure to follow these precautions may result in product damage, malfunction, or reduced service life.

Handling and Impact

The ball screw and ball nut are heavy and precision-machined components. Avoid dropping the product or applying impact loads. Dropping or impact may cause serious personal injury and internal damage that may not be visible externally.

Operating Instructions & Precaution

- **Dust Protection**

  The ball screw can be used in contaminated environments if appropriate protection measures are applied. Install protective covers or equivalent measures to prevent foreign matter or chips from entering the ball screw. For information on improving contamination resistance in your operating environment, please contact the DINGS' sales team.

- **Lubrication**

  Check the lubrication condition before use. Insufficient lubrication may cause the ball screw to lose functionality in a short time. Rust-preventive oil is not a lubricant. Before operation, remove the rust-preventive oil with refined kerosene or an equivalent cleaner, then apply lubricant (grease or oil). Under normal operating conditions, inspect the grease every 2–3 months. If the grease becomes contaminated during operation, remove the old grease and apply new grease.

- **Allowable Speed and Axial Load**

  Allowable axial load and rotational speed vary depending on the size, material, ccuracy grade, mounting method, and operating conditions of the ball screw. Exceeding the allowable limits may result in abnormal wear, excessive heat generation, or premature failure. It is recommended to consult DINGS' regarding the operating conditions during the design stage.

- **Operating Temperature**

  The maximum operating temperature is typically below 80 °C.
  Operation above this temperature may result in the following:

  1. Degradation of ball circulation performance
  2. Damage or failure of circulation components
  3. Reduction in hardness of heat-treated parts

  For applications requiring operation above 80 °C, please contact a DINGS' sales engineer in advance.

- **Eccentric Load**

  The ball screw is designed to generate axial thrust and cannot withstand radial loads or moment loads. If radial, bending, or moment loads are applied to the ball nut, the load acting on the balls becomes uneven, which may significantly reduce service life. Eccentricity between the bearing support and the nut housing during installation may also result in eccentric loading. Proper alignment must be ensured during installation.

- **Reciprocating (Short Stroke) Motion**

  When repeated forward and reverse motion occurs within a short stroke range, dynamic torque may increase due to ball compression and elastic deformation. This may lead to increased friction, heat generation, and accelerated wear. To mitigate these effects, it is recommended to periodically operate the ball screw over the full stroke range.

Notice
To prevent ball nut overtravel or disengagement from the threaded section, O-rings may be installed during transportation or handling.
Be sure to remove the O-rings before operating the product.

DINGS
Precision Motion Specialist

BALL SCREW SERIES OVERVIEW

Ball Screw Dimension Table

Nominal Diameter		Lead		Lead Code	Outer Diameter (Reference)		Root Diameter (Reference)		Left-hand Thread Option		Standard Stock	
Imperial (inch)	Metric (mm)	Imperial (inch)	Metric (mm)		Imperial (inch)	Metric (mm)	Imperial (inch)	Metric (mm)	C5	C7	Ground[1] (mm)	Rolled[2] (mm)
0.157	4	0.039	1	0401	0.157	4	0.13	3.3	YES	-	55R80 65R80 72R90 100R120	400max
		0.079	2	0402	0.157	4	0.13	3.3	YES	-	35R60 50R70 95R120	400max
0.236	6	0.039	1	0601	0.236	6	0.209	5.3	YES	-	50R80 70R100 90R120 110R140 150R180	400max
		0.079	2	0602	0.236	6	0.193	4.9	YES	-	90R120 130R160 150R180	400max
		0.236	6	0606	0.236	6	0.197	5	YES	-	50R80 70R100 120R150 130R160 160R190 220R250	400max
		0.394	10	0610	0.236	6	0.197	5	YES	-	160R190	400max

1. Effective stroke / screw length notation
Example: 55R80 indicates an effective stroke of 55 mm and a total screw length of 80 mm.

2. Rolled C7 shaft-end limitation
For rolled C7 ball screws, the shaft-end diameter must not exceed the root diameter of the screw.

Notes
For lengths exceeding the maximum production limit, please contact our sales engineers.

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Ball Screw Dimension Table

Nominal Diameter		Lead		Lead Code	Outer Diameter (Reference)		Root Diameter (Reference)		Left-hand Thread Option		Standard Stock	
Imperial (inch)	Metric (mm)	Imperial (inch)	Metric (mm)		Imperial (inch)	Metric (mm)	Imperial (inch)	Metric (mm)	C5	C7	Ground[1] (mm)	Rolled[2] (mm)
0.315	8	0.039	1	0801	0.315	8	0.287	7.3	YES	-	90R120 93R140 130R160 210R240	600max
		0.079	2	0802	0.315	8	0.28	7.1	YES	-	90R120 130R160 140R170 210R240 270R305	600max
		0.197	5	0805	0.315	8	0.264	6.7	YES	-	90R120 110R140 140R170 170R200 210R240 400R450	600max
		0.315	8	0808	0.315	8	0.264	6.7	YES	-	90R120 140R170 160R190 217R247 260R305 315R345	600max
		0.394	10	0810	0.315	8	0.264	6.7	YES	-	140R170 200R240 200R300 210R240 275R305 320R350	600max
		0.472	12	0812	0.315	8	0.264	6.7	YES	-	100R130 160R190	600max
0.394	10	0.079	2	1002	0.394	10	0.354	9	YES	-	110R130 110R140 210R240	600max
0.472	12	0.079	2	1202	0.472	12	0.437	11.1	YES	-	140R180 150R180 190R220	600max
		0.079	5	1205	0.472	12	0.402	10.2	YES	-	140R180 150R180 190R220 300R350	600max

1. Effective stroke / screw length notation
Example: 55R80 indicates an effective stroke of 55 mm and a total screw length of 80 mm.

2. Rolled C7 shaft-end limitation
For rolled C7 ball screws, the shaft-end diameter must not exceed the root diameter of the screw.

Notes
For lengths exceeding the maximum production limit, please contact our sales engineers.

[FBG · FBR] Flanged Single Nut - type 2

Part Number Construction

Example	FBG	06	01	D	X	-	60	R	90	C3	Z	-	001
	①	②	③	④	⑤		⑥	⑦	⑧	⑨	⑩		⑪

① Series

FBG = Flanged single nut (ground)
FBR = Flanged single nut (rolled)

② Screw Diameter (mm)

06 = 6mm

③ Lead (mm)

01 = Standard ball lead, 1 mm
01K = Non-standard ball lead, 1 mm

④ Ball Return Type

D = Deflector Type
S = End Deflector type
T = Return Tube type
C = End-cap type

⑤ Custom Option (Non-standard)

⑥ Threaded Section Length (mm)

Decimal point is indicated by "_"

⑦ Thread Direction

R = Right-hand
L = Left-hand
LR = Right- & Left-hand

⑧ Total Screw Length (mm)

Decimal point is indicated by "_"

⑨ Accuracy Grade

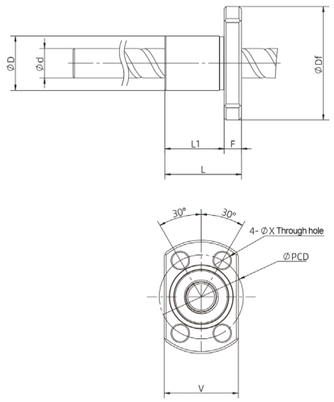
C3 = JIS Standard C3
C5 = JIS Standard C5
C7 = JIS Standard C7
C10 = JIS Standard C10

⑩ Axial Clearance

Z = Preload
T = ≤ 0.005 mm
S = ≤ 0.02 mm
N = ≤ 0.05 mm

⑪ Custom Serial Number

Mechanical Dimension



Nut Type	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Screw Diameter D (mm / inch)	4 (0.16)	4 (0.16)	4 (0.16)	6 (0.24)	6 (0.24)	6 (0.24)	6 (0.24)	6 (0.24)	6 (0.24)	6 (0.24)	8 (0.31)	8 (0.31)	8 (0.31)	8 (0.31)	8 (0.31)	10 (0.394)	10 (0.394)	12 (0.47)	12 (0.47)
Lead (mm / inch)	1 (0.04)	1 (0.04)	2 (0.08)	1 (0.04)	1 (0.04)	1 (0.04)	2 (0.08)	2 (0.08)	2 (0.08)	6 (0.24)	1 (0.04)	1 (0.04)	2 (0.08)	2 (0.08)	5 (0.2)	2 (0.08)	2 (0.08)	2 (0.08)	2 (0.08)
Nut Diameter D (mm / inch)	9 (0.354)	10 (0.394)	11 (0.433)	11 (0.433)	12 (0.472)	12 (0.472)	15 (0.591)	12 (0.472)	15 (0.591)	12 (0.472)	13 (0.511)	14 (0.551)	15 (0.591)	14 (0.551)	18 (0.709)	17 (0.669)	18 (0.709)	19 (0.748)	20 (0.787)
Nut Overall Length L (mm / inch)	13 (0.511)	12 (0.472)	19 (0.748)	15.5 (0.610)	15 (0.591)	15 (0.591)	17 (0.669)	16 (0.63)	17 (0.669)	22 (0.866)	16 (0.63)	16 (0.63)	18 (0.709)	16 (0.63)	28 (1.102)	19 (0.748)	28 (1.102)	19 (0.748)	28 (1.102)
Mounting Length L1 (mm / inch)	10 (0.394)	9 (0.354)	15 (0.591)	12 (0.472)	11.5 (0.453)	11.5 (0.453)	13 (0.512)	12.5 (0.492)	13 (0.512)	18 (0.709)	12 (0.472)	12 (0.472)	14 (0.551)	12 (0.472)	24 (0.945)	14 (0.551)	23 (0.906)	14 (0.551)	23 (0.906)
Flange Diameter Df (mm / inch)	19 (0.748)	20 (0.787)	23 (0.906)	23 (0.906)	24 (0.945)	24.5 (0.965)	29 (1.142)	24 (0.945)	29 (1.142)	24 (0.945)	26 (1.024)	27 (1.063)	28 (1.102)	27 (1.063)	31 (1.22)	33 (1.299)	34.5 (1.358)	36 (1.417)	37 (1.457)
Flange Thickness F (mm / inch)	3 (0.118)	3 (0.118)	4 (0.157)	3.5 (0.138)	3.5 (0.138)	3.5 (0.138)	4 (0.157)	3.5 (0.138)	4 (0.157)	4 (0.157)	4 (0.157)	4 (0.157)	4 (0.157)	4 (0.157)	4 (0.157)	5 (0.197)	5 (0.197)	5 (0.197)	5 (0.197)
Mounting Hole Diameter X (mm / inch)	2.9 (0.114)	2.9 (0.114)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	4.5 (0.177)	4.5 (0.177)	4.5 (0.177)	4.5 (0.177)
Bolt Circle Diameter (PCD) (mm / inch)	14 (0.551)	15 (0.591)	17 (0.669)	17 (0.669)	18 (0.709)	20 (0.787)	22 (0.866)	18 (0.709)	23 (0.906)	18 (0.709)	20 (0.787)	21 (0.827)	22 (0.866)	21 (0.827)	25 (0.984)	26 (1.024)	27 (1.063)	28 (1.102)	29 (1.142)
Nut Flat Width V (mm / inch)	13 (0.512)	14 (0.551)	15 (0.591)	15 (0.591)	16 (0.63)	16 (0.63)	19 (0.748)	16 (0.63)	19 (0.748)	16 (0.63)	17 (0.669)	18 (0.709)	19 (0.748)	18 (0.709)	20 (0.787)	22 (0.866)	22 (0.866)	23 (0.906)	24 (0.945)
Basic Dynamic Load Rating Ca (N)	560	560	420	680	680	680	880	880	880	870	780	780	1300	1300	1850	1450	1450	1600	1600
Basic Static Load Rating Coa (N)	790	790	570	1200	1200	1200	1500	1500	1500	1450	1650	1650	2300	2300	3000	3000	3000	3700	3700

DINGS
Precision Motion Specialist
[FBG · FBR] Flanged Single Nut - type 2

[FBG · FBR] Flanged Single Nut - type 1

Part Number Construction

Example	FBG	06	01	D	X	-	60	R	90	C3	Z	-	001
	①	②	③	④	⑤		⑥	⑦	⑧	⑨	⑩		⑪

① Series

FBG	=	Flanged single nut (ground)
FBR	=	Flanged single nut (rolled)

② Screw Diameter (mm)

06	=	6mm

③ Lead (mm)

01	=	Standard ball lead, 1 mm
01K	=	Non-standard ball lead, 1 mm

④ Ball Return Type

D	=	Deflector Type
S	=	End Deflector type
T	=	Return Tube type
C	=	End-cap type

⑤ Custom Option (Non-standard)

⑥ Threaded Section Length (mm)

Decimal point is indicated by "_"

⑦ Thread Direction

R	=	Right-hand
L	=	Left-hand
LR	=	Right- & Left-hand

⑧ Total Screw Length (mm)

Decimal point is indicated by "_"

⑨ Accuracy Grade

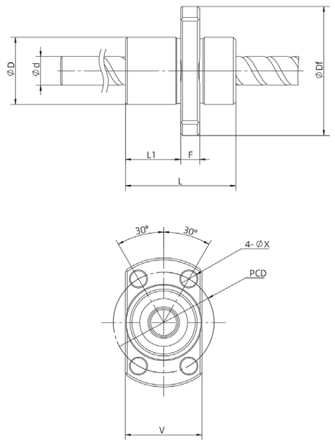
C3	=	JIS Standard C3
C5	=	JIS Standard C5
C7	=	JIS Standard C7
C10	=	JIS Standard C10

⑩ Axial Clearance

Z	=	Preload
T	=	≤ 0.005 mm
S	=	≤ 0.02 mm
N	=	≤ 0.05 mm

⑪ Custom Serial Number

Mechanical Dimension



Nut Type	1	1	1	1	1	1
Screw Diameter D (mm / inch)	6 (0.24)	6 (0.24)	8 (0.31)	8 (0.31)	8 (0.31)	12 (0.472)
Lead (mm / inch)	6 (0.24)	10 (0.39)	8 (0.31)	10 (0.39)	12 (0.47)	5 (0.197)
Nut Diameter D (mm / inch)	14 (0.551)	14 (0.551)	18 (0.709)	18 (0.709)	18 (0.709)	24 (0.945)
Nut Overall Length L (mm / inch)	17.2 (0.677)	23 (0.906)	21.5 (0.846)	24 (0.945)	28 (1.102)	30 (1.181)
Mounting Length L1 (mm / inch)	8 (0.315)	11.5 (0.453)	11.5 (0.453)	13 (0.512)	18 (0.709)	15 (0.591)
Flange Diameter Df (mm / inch)	27 (1.063)	27 (1.063)	31 (1.22)	31 (1.22)	31 (1.22)	40 (1.575)
Flange Thickness F (mm / inch)	4 (0.157)	4 (0.157)	4 (0.157)	4 (0.157)	4 (0.157)	10 (0.39)
Mounting Hole Diameter X (mm / inch)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	3.4 (0.134)	4.5 (0.177)
Bolt Circle Diameter (PCD) (mm / inch)	21 (0.827)	21 (0.827)	25 (0.984)	25 (0.984)	25 (0.984)	32 (1.260)
Nut Flat Width V (mm / inch)	16 (0.63)	16 (0.63)	20 (0.787)	20 (0.787)	20 (0.787)	30 (1.181)
Basic Dynamic Load Rating Ca (N)	870	950	2200	2200	2200	4100
Basic Static Load Rating Coa (N)	1450	1600	3800	3900	4000	7400

[CBG · CBR] Cylindrical Single Nut

Part Number Construction

Example	CBG	06	01	D	X	-	60	R	90	C3	Z	-	001
	①	②	③	④	⑤		⑥	⑦	⑧	⑨	⑩		⑪

① Series

CBG	=	Cylindrical single nut (ground)
CBR	=	Cylindrical single nut (rolled)

② Screw Diameter (mm)

06	=	6mm

③ Lead (mm)

01	=	Standard ball lead, 1 mm
01K	=	Non-standard ball lead, 1 mm

④ Ball Return Type

D	=	Deflector Type
S	=	End Deflector type
T	=	Return Tube type
C	=	End-cap type

⑤ Custom Option (Non-standard)

⑥ Threaded Section Length (mm)

Decimal point is indicated by "_"

⑦ Thread Direction

R	=	Right-hand
L	=	Left-hand
LR	=	Right- & Left-hand

⑧ Total Screw Length (mm)

Decimal point is indicated by "_"

⑨ Accuracy Grade

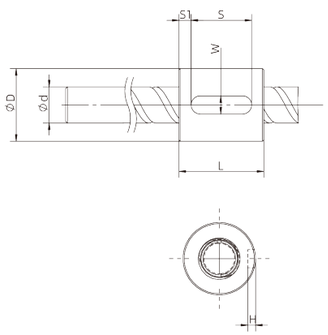
C3	=	JIS Standard C3
C5	=	JIS Standard C5
C7	=	JIS Standard C7
C10	=	JIS Standard C10

⑩ Axial Clearance

Z	=	Preload
T	=	≤ 0.005 mm
S	=	≤ 0.02 mm
N	=	≤ 0.05 mm

⑪ Custom Serial Number

Mechanical Dimension



Screw Diameter D (mm / inch)	4 (0.157)	6 (0.236)
Lead (mm / inch)	1 (0.039)	1 (0.039)
Nut Diameter D (mm / inch)	9 (0.354)	13 (0.512)
Nut Overall Length L (mm / inch)	10 (0.394)	14 (0.551)
Keyway Position Dimension (S1) (mm / inch)	-	2 (0.079)
Keyway Length (S) (mm / inch)	-	10 (0.394)
Keyway Width (W) (mm / inch)	-	3 (0.118)
Keyway Depth (H) (mm / inch)	-	1.8 (0.071)
Basic Dynamic Load Rating Ca (N)	560	680
Basic Static Load Rating Coa (N)	790	1200

[MBG · MBR] Metric Thread Single Nut

Part Number Construction

Example: MBG 06 01 D X - 60 R 90 C3 Z - 001

① Series
- MBG = Metric threaded single nut (ground)
- MBR = Metric threaded single nut (rolled)

② Screw Diameter (mm)
- 06 = 6mm

③ Lead (mm)
- 01 = Standard ball lead, 1 mm
- 01K = Non-standard ball lead, 1 mm

④ Ball Return Type
- D = Deflector Type
- S = End Deflector type
- T = Return Tube type
- C = End-cap type

⑤ Custom Option (Non-standard)

⑥ Threaded Section Length (mm)

Decimal point is indicated by "_"

⑦ Thread Direction
- R = Right-hand
- L = Left-hand
- LR = Right- & Left-hand

⑧ Total Screw Length (mm)

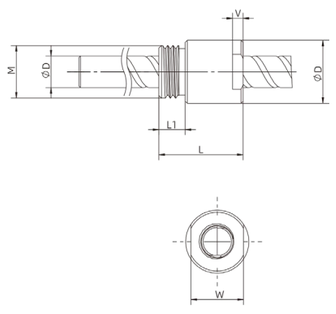
Decimal point is indicated by "_"

⑨ Accuracy Grade
- C3 = JIS Standard C3
- C5 = JIS Standard C5
- C7 = JIS Standard C7
- C10 = JIS Standard C10

⑩ Axial Clearance
- Z = Preload
- T = ≤ 0.005 mm
- S = ≤ 0.02 mm
- N = ≤ 0.05 mm

⑪ Custom Serial Number

Mechanical Dimension



Screw Diameter D (mm / inch)	4 (0.157)	6 (0.236)	6 (0.236)	8 (0.315)	10 (0.394)
Lead (mm / inch)	1 (0.039)	1 (0.039)	2 (0.079)	2 (0.079)	2 (0.079)
Nut Diameter D (mm / inch)	10 (0.394)	12 (0.472)	12 (0.472)	16 (0.63)	19.5 (0.768)
Nut Overall Length L (mm / inch)	16.5 (0.65)	16 (0.63)	16 (0.63)	27 (1.063)	22 (0.866)
Thread Size M (mm)	M8X0.75	M10×0.75	M10X1	M14X0.75	M17X1
Thread Length L1 (mm / inch)	5 (0.197)	5 (0.197)	5 (0.197)	5 (0.197)	8.2 (0.323)
Wrench Flat Width W (mm / inch)	9 (0.354)	10 (0.394)	10 (0.394)	14 (0.551)	-
Wrench Flat Depth V (mm / inch)	1.5 (0.059)	2 (0.079)	2 (0.079)	4 (0.157)	-
Basic Dynamic Load Rating Ca (N)	560	680	880	1300	1500
Basic Static Load Rating Coa (N)	790	1200	1500	2300	2900

[KBG · KBR] Square Single Nut

Part Number Construction

Example: KBG 06 01 D X - 60 R 90 C3 Z - 001

① Series
- KBG = Square-type single nut (ground)
- KBR = Square-type single nut (rolled)

② Screw Diameter (mm)
- 06 = 6mm

③ Lead (mm)
- 01 = Standard ball lead, 1 mm
- 01K = Non-standard ball lead, 1 mm

④ Ball Return Type
- D = Deflector Type
- S = End Deflector type
- T = Return Tube type
- C = End-cap type

⑤ Custom Option (Non-standard)

⑥ Threaded Section Length (mm)

Decimal point is indicated by "_"

⑦ Thread Direction
- R = Right-hand
- L = Left-hand
- LR = Right- & Left-hand

⑧ Total Screw Length (mm)

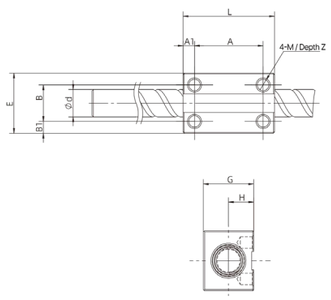
Decimal point is indicated by "_"

⑨ Accuracy Grade
- C3 = JIS Standard C3
- C5 = JIS Standard C5
- C7 = JIS Standard C7
- C10 = JIS Standard C10

⑩ Axial Clearance
- Z = Preload
- T = ≤ 0.005 mm
- S = ≤ 0.02 mm
- N = ≤ 0.05 mm

⑪ Custom Serial Number

Mechanical Dimension



Screw Diameter D (mm / inch)	6 (0.236)	8 (0.315)	8 (0.315)
Lead (mm / inch)	1 (0.039)	1 (0.039)	1 (0.039)
Nut Overall Length L (mm / inch)	20 (0.787)	20 (0.787)	22 (0.866)
Nut Width E (mm / inch)	13 (0.512)	14 (0.551)	15 (0.591)
Nut Height G (mm / inch)	11 (0.433)	13 (0.512)	13 (0.512)
Mounting Hole Size B1 (mm / inch)	2.5 (0.098)	3 (0.118)	1.5 (0.059)
Mounting Hole Pitch B (mm / inch)	8 (0.315)	8 (0.315)	12 (0.472)
Mounting Hole Size A1 (mm / inch)	2.5 (0.098)	2.5 (0.098)	2.5 (0.098)
Mounting Hole Pitch A (mm / inch)	15 (0.591)	15 (0.591)	17 (0.669)
Tapped Hole M / Depth Z	M3 / Depth3.5	M2.5×0.45 / Depth 3	M2.5×0.45 / Depth 3
Basic Dynamic Load Rating Ca (N)	680	780	780
Basic Static Load Rating Coa (N)	1200	1650	1650

DINGS'
Precision Motion Specialist

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