

Miniature Metric Ball Screws

Best-In-Class Load Capacity, Long Life and High Accuracy
For Space-Conscious Applications



Why Choose Thomson Miniature Metric Ball Screws?

Thomson miniature metric ball screw assemblies are precision manufactured to operate efficiently, quietly and smoothly. They deliver best-in-class load capacity while providing ideal solutions for small-footprint applications required in laboratory, robotics and medical markets. Thomson's state-of-the-art production facilities ensure consistent product performance and industry leading delivery.

Better Load Capacity in a Smaller Package

- Design maximizes load capacity by optimizing return system
- Quiet and smooth performance
- Enables flexible ball nut mounting configurations and rapid prototyping

Improved Value

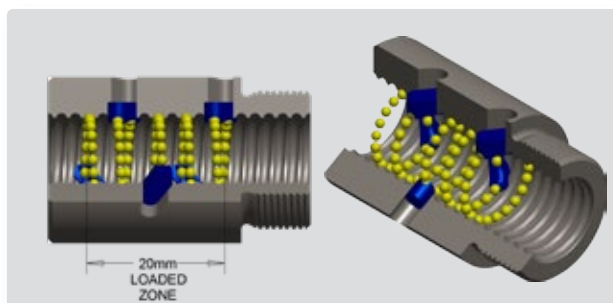
- Precision screws to +/- 52 $\mu\text{m}/300\text{ mm}$ (T7) accuracy class standard
- State-of-the-art manufacturing provides lower cost and improved performance
- Higher load capacity equates to longer life

Genuine Thomson Quality and Innovation

- Proprietary thread form and processing equal superior quality and performance
- Expert technical and application support

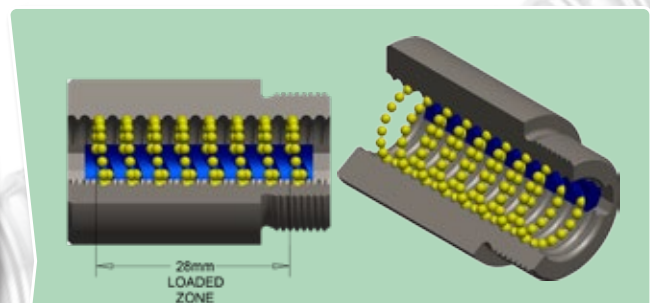
Optimized Ball Nut Design

The challenge for Thomson's engineers was to optimize the design of the ball nut. The solution was the unique multi-liner return system that provides smoother operation and, as illustrated in the example below, more load capacity.



Typical Return System – Single Liner

- Fixed position secured by press or adhesive
- Does not allow full ball complement
- 5 circuits, 105 balls, up to 4.7 kN static capacity



Thomson Multi-Liner Return System

- Floats axially to compensate for misalignment
- Maximizes number of circuits and loaded balls
- 9 circuits, 189 balls, up to 13.1 kN static capacity

MINI. STRONG. PRECISE.

Product Overview

Standard Configuration

- Screw diameters from 8 to 12 mm
- Screw lengths up to 3,000 mm
- Ball nuts with threaded, flanged or cylindrical mounting interface
- Carbon steel construction
- Internal ball return system
- Performance repeatability (0.05 mm backlash)

Optional Configurations

- Thin dense chrome coating
- Black oxide coating
- Ball nut without wipers
- +/- 12 µm/300 mm lead accuracy (P3)
- +/- 23 µm/300 mm lead accuracy (P5)
- Preload options



Ordering Key

Miniature Metric Ball Screw/Nut Assembly																							
1	2	3	4	5	6	7a	7b	7c	8a	8b	8c	9	10	11									
KGS	-	10	02	-	P5	-	RH	/	0	/	0	0	X	/	0	0	X	/	350	/	KGF-D-EE	/	S
1. Ball Screw Assembly KGS = Metric Ball Screw Assembly			4. Lead Accuracy P5 = 23 µm / 300 mm T7 = 52 µm / 300 mm			7. Screw End 1 a. End machining 0 = No machining; Cut to length X = Custom machining b. Shaft extension 0 = No end machining X = Custom shaft extension c. Bearing mount install X = No bearing mount			9. Overall Screw Length [mm] xxxx = Overall screw length (mm)			10. Nut Style KGF-D-EE = Flanged; Rubber wiper KGF-D-KK = Flanged; Polymer wiper KGM-D-EE = Cylindrical; Rubber wiper KGM-D-KK = Cylindrical; Polymer wiper KGM-G-EE = Threaded; Rubber wiper KGM-G-00 = Threaded; No wiper			11. Modifier List S = Standard M = Modified (additional description required)								
2. Nominal Diameter 08 = 8 mm 10 = 10 mm 12 = 12 mm			5. Thread Direction RH = Right hand thread			8. Screw End 2 Refer to 7. Screw End 1 a, b, c (both ends must be specified)			3. Threaded Lead 02 = 2 mm 25 = 2.5 mm 03 = 3 mm 05 = 5 mm			6. Preload 0 = No preload											



Miniature Metric Ball Screw Assemblies – General Specifications

Features and Benefits



- Precision screws
- Screw diameters from 8 to 12 mm
- Thomson Return System

Product Availability

Diameter [mm]	Lead [mm]			
	2	2.5	3	5
8		●		●
10	●		●	
12	●			

- Cost-effective and space-saving solution
- Flexible solution for non-standard mounting
- Integrated wipers and lube port

Performance Specifications

Nominal Diameter	Lead	Ball Screw P/N	Screw Material	Performance Data					
				Modified Dynamic Load Rating ⁽¹⁾ (C _{dm})		Modified Static Load Rating* (C _{0dm})		Max. Axial Backlash	Standard Lead Accuracy
				[kN]	[lbf]	[kN]	[lbf]		
[mm]	[mm]								
8	2.5	SRT0825X280	AISI 1566	2.1	472	2.2	494	0.05	± 23
8	5	SRT0805X280	AISI 1566	2.5	562	2.8	629		± 23
10	2	SRT1002X3000	CF53	3.7	831	4.6	1034		± 52
10	3	SRT1003X3000	CF53	5.2	1169	6.9	1551		± 52
12	2	SRT1202X3000	CF53	5.9	1326	8.9	2000		± 52

(1) Based on 1 million revolutions.

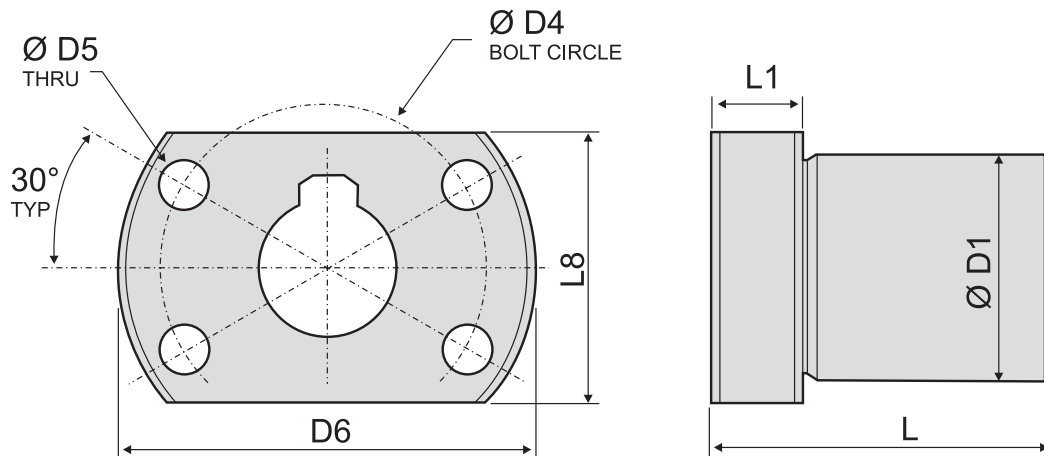
* Load rating calculations comply with ISO 3408-5.

Dimensional Screw and Nut Specifications

Nominal Diameter	Lead	Screw Specifications						Nut Specifications	
		Major Diameter		Minor Diameter		Max. Length	Weight	Number of Circuits	Ball Diameter
		[mm]	[in]	[mm]	[in]				
[mm]	[mm]								
8	2.5	8.0	0.315	6.83	0.269	280	0.39	3	1.588
8	5	8.0	0.315	6.83	0.269	280	0.39	2.8	1.588
10	2	9.8	0.386	8.3	0.328	3000	0.59	4	1.588
10	3	9.7	0.383	8.0	0.313	3000	0.58	6	1.588
12	2	11.8	0.465	10.3	0.407	3000	0.86	6	1.588

Miniature Metric Ball Nuts – Technical Specifications

KGF-D Flanged Nut



Dimensional Specifications

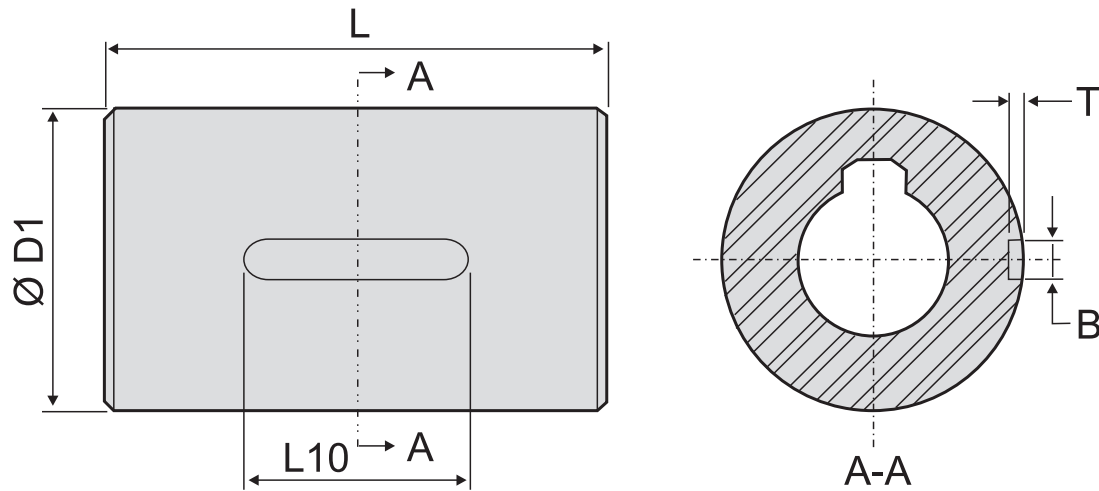
Nominal Diameter	Lead	Ball Nut Length (L)	Ball Nut P/N	Nut Material	Dimensions*					
					D1 (g6)	D4	D5	D6	L1	L8
[mm]	[mm]	[mm]			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
8	2.5	18	KGF-D-0825-RH-M-EE	ESP 65	16	22	3.4	28	6	19
8	5	23	KGF-D-0805-RH-K-KK	ESP 65	16	22	3.4	28	6	19
10	2	24	KGF-D-1002-RH-M-EE	ESP 65	19	28	4.5	36	6	23
10	3	29	KGF-D-1003-RH-M-EE	ESP 65	19	28	4.5	36	6	23
12	2	34	KGF-D-1202-RH-M-EE	ESP 65	24	32	4.5	40	8	26

* Flange dimensions comply with ISO 3408-2.



Miniature Metric Ball Nuts – Technical Specifications

KGM-D Cylindrical Nut

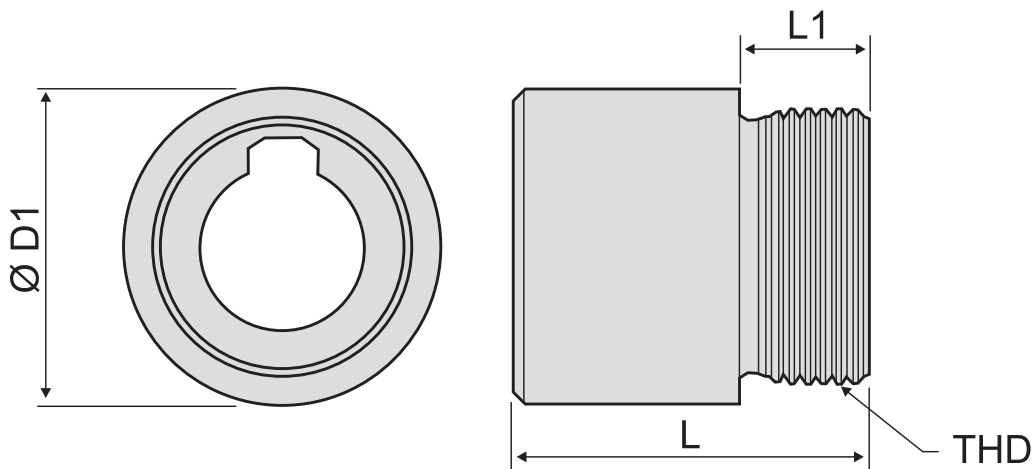


Dimensional Specifications

Nominal Diameter	Lead	Ball Nut Length (L)	Ball Nut P/N	Nut Material	Dimensions		
					D1 (g6)	B × T (P9)	L10
[mm]	[mm]	[mm]			[mm]	[mm]	
8	2.5	18	KGM-D-0825-RH-M-EE	ESP 65	16	3 × 2	8
8	5	23	KGM-D-0805-RH-K-KK	ESP 65	16	3 × 2	8
10	2	24	KGM-D-1002-RH-M-EE	ESP 65	19	3 × 2	10
10	3	29	KGM-D-1003-RH-M-EE	ESP 65	19	3 × 2	13
12	2	34	KGM-D-1202-RH-M-EE	ESP 65	24	3 × 2	18

Miniature Metric Ball Nuts – Technical Specifications

KGM-G Threaded Nut



Dimensional Specifications

Nominal Diameter	Lead	Ball Nut Length (L)	Ball Nut P/N	Nut Material	Dimensions		
					D1 (h12)	THD	L1
[mm]	[mm]	[mm]					
8	2.5	18	KGM-G-0825-RH-M-00⁽¹⁾	ESP 65	16	M15 x 1	8
10	2	24	KGM-G-1002-RH-M-EE	ESP 65	19	M17 x 1	8
10	3	29	KGM-G-1003-RH-M-EE	ESP 65	19	M18 x 1	9
12	2	34	KGM-G-1202-RH-M-EE	ESP 65	24	M20 x 1	10

(1) No wiper option available.

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