

## FineLine Rolled Ball Screws — Metric Series



**FineLine Rolled Ball Screw Assemblies** are designed and manufactured to provide high level performance at an affordable price. Ball screws are manufactured using Thomson's patented, German-engineered Precision Screw Forming (PSF) Technology, which provides high accuracy (23 microns/300mm standard) with the manufacturing efficiency of rolled processes. Ball nuts are manufactured with one of two ball return systems (button or end return) made with reinforced steel, making them extremely durable and ideal for high speed, high load, and/or high temperature applications. Each nut comes standard with an integral plastic wiper to protect against chips or other debris. FineLine Rolled Ball Screws are ideal for machining centers, factory automation, packaging, and injection molding applications.

Need a quote or have a question about an application?  
Contact us in North America at:

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## FineLine Rolled Ball Screws — ZG Style Ball Nuts

Standard Lead Accuracy:  $\pm 23\mu\text{m}/300\text{mm}$



ZG Style Nut

### Internal Return Threaded Ball Nut and Screw

- Flexible solution for non-standard mounting
- Integral wiper<sup>(4)</sup> included as standard
- Available in three preload classes (Type Z1, Z2, Z3)
  - Z1 – light preload to 2%
  - Z2 – no preload, clearance held to max .18mm
  - Z3 – no preload, clearance held to max .05mm

Nominal Diameter (size)	Lead	Ball Screw P/N <sup>(1) (2)</sup>	Ball Nut P/N	Available Preload Types	Performance Data					Screw Specifications <sup>(3)</sup>			
					Dynamic Load Capacity ( $C_{am}$ )		Static Load Capacity ( $C_o$ )		Max. Axial Backlash	Major Diameter	Minor Diameter	Max. Length <sup>(5)</sup>	Screw Weight
					(kN)	(lbf)	(kN)	(lbf)					
12	4	7832770-P5	7832771	Z1, Z2, Z3	3.5	787	4.0	899	0.07	11.6	9.7	3000	0.7
16	5	7832776-P5	7832778	Z1, Z2, Z3	12.1	2,720	14.5	3,260	0.09	15.6	15.6	3000	1.2
20	5	7832779-P5	7832781	Z1, Z2, Z3	14.8	3,327	20.7	4,654	0.09	19.6	12.7	4000	2.0
25	5	7832786-P5	7832788	Z1, Z2, Z3	20.4	4,586	33.7	7,576	0.09	24.6	16.7	5000	3.3
25	10	7832790-P5	7832792	Z1, Z2, Z3	19.9	4,474	31.8	7,149	0.09	24.6	24.6	5000	3.3
32	5	7832795-P5	7832797	Z1, Z2, Z3	23.3	5,238	45.5	10,229	0.09	31.6	31.6	6000	5.6
32	10	7832798-P5	7832800	Z1, Z2, Z3	33.8	7,599	52.0	11,690	0.15	31.6	31.6	6000	5.3
40	5	7832804-P5	7832806	Z1, Z2, Z3	26.3	5,912	59.2	13,309	0.09	39.6	39.6	6000	9.0
40	10	7832808-P5	7832810	Z1, Z2, Z3	78.6	17,670	136.2	30,619	0.18	39.6	39.6	6000	8.3
50	10	7832817-P5	7832819	Z1, Z2, Z3	97.8	21,986	213.2	47,929	0.18	49.5	49.5	6000	13.5
63	10	7832822-P5	7832824	Z1, Z2, Z3	109.7	24,662	275.6	61,957	0.18	62.5	62.5	6000	22.0
80	10	7832827-T7	7832829	Z2	121.9	27,404	375.0	84,303	0.18	79.5	73.9	6000	36.4
80	20	7832830-T7	7832832	Z2	213.7	48,044	496.0	111,511	0.18	79.5	69.9	6000	36.4

(1) FineLine Ball Screws, Ball Nuts and End Blocks can be sold together as assemblies or separately as components (preloaded ball nuts sold only as an assembly).

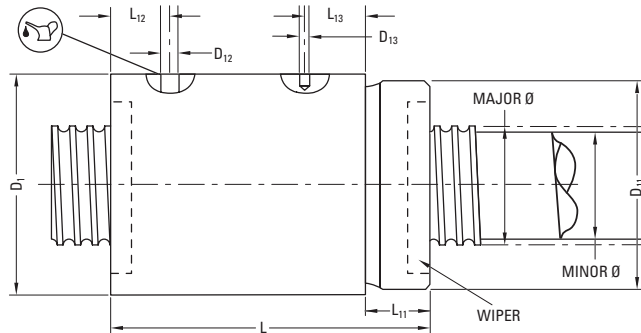
(2) All ball screws and nuts are right-hand thread.

(3) Dimensional information on bearing supports and standard end machining is available on page 148.

(4) Wiper not included on 12 x 4 ball nut.

(5) Max. length includes 150mm on each end usable for end machining only. Max. travel length equals table value minus 300mm. Ends are hardened.

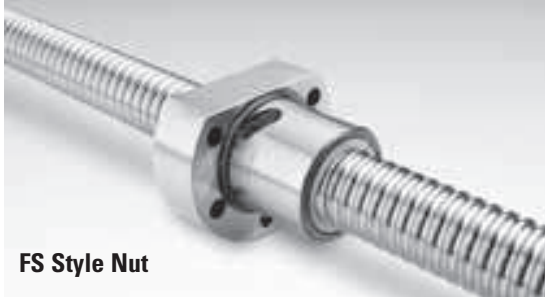
## FineLine Rolled Ball Screws — ZG Style Ball Nuts



Nominal Diameter (size)	Lead	Nut Specifications (mm)									
		D <sub>1</sub>	D <sub>11</sub>	D <sub>12</sub>	D <sub>13</sub>	L	L <sub>11</sub>	L <sub>12</sub>	L <sub>13</sub>	Nut Weight	Ball Diameter
(mm)	(mm)	h12			±0.1	±1	-0.5	±2	±2	(kg)	(mm)
12	4	25.0	M 20 x 1.0	3.0	—	34.0	10.0	12.0	—	0.10	1.984
16	5	32.0	M 30 x 1.5	M 6 x 1	4	57.5	16.5	10.5	22.0	0.22	3.500
20	5	38.0	M 35 x 1.5	M 6 x 1	4	57.5	16.5	10.5	22.0	0.30	3.500
25	5	42.0	M 40 x 1.5	M 6 x 1	4	63.5	17.0	10.5	23.0	0.37	3.500
25	10	42.0	M 40 x 1.5	M 6 x 1	4	61.0	17.0	10.0	21.0	0.38	3.500
32	5	52.0	M 48 x 1.5	M 6 x 1	5	65.5	19.0	10.5	23.0	0.55	3.500
32	10	52.0	M 48 x 1.5	M 6 x 1	5	85.0	19.0	12.0	43.0	0.65	5.556
40	5	58.0	M 56 x 1.5	M 8 x 1	5	67.5	19.0	12.0	22.5	0.60	3.500
40	10	65.0	M 60 x 2.0	M 8 x 1	6	105.5	27.0	13.0	43.0	1.25	7.144
50	10	78.0	M 72 x 2.0	M 8 x 1	6	118.0	29.0	13.0	53.0	1.95	7.144
63	10	92.0	M 85 x 2.0	M 8 x 1	6	118.0	29.0	13.0	53.0	2.40	7.144
80	10	120.0	M 110 x 2.0	M 8 x 1	8	126.0	34.0	15.5	53.0	4.90	7.144
80	20	120.0	M 110 x 2.0	M 8 x 1	8	187.0	39.0	18.0	83.0	4.90	12.700

## FineLine Rolled Ball Screws — FS Style Ball Nuts

Standard Lead Accuracy:  $\pm 23\mu\text{m}/300\text{mm}$



**FS Style Nut**

### Internal Return Flanged Ball Nut and Screw

- Compact package utilizing shortest nut length possible
- Integral wiper and flange included as standard
- Available in three preload classes (Type Z1, Z2, Z3)
  - Z1 – light preload to 2%
  - Z2 – no preload, clearance held to max .18mm
  - Z3 – no preload, clearance held to max .05mm

Nominal Diameter (size)	Lead	Ball Screw P/N <sup>(1) (2)</sup>	Ball Nut P/N	Available Preload Types	Performance Data					Screw Specifications <sup>(3)</sup>			
					Dynamic Load Capacity ( $C_{am}$ )		Static Load Capacity ( $C_0$ )		Max. Axial Backlash	Major Diameter	Minor Diameter	Max. Length <sup>(4)</sup>	Screw Weight
					(kN)	(lbf)	(kN)	(lbf)					
20	5	<b>7832779-P5</b>	<b>7832782</b>	Z1, Z2, Z3	11.1	2,495	15.1	3,395	0.09	19.6	16.7	4000	2.0
20	20	<b>7832783-P5</b>	<b>7832785</b>	Z2, Z3	11.5	2,585	17.5	3,934	0.09	19.6	16.7	4000	1.9
25	5	<b>7832786-P5</b>	<b>7832789</b>	Z1, Z2, Z3	13.1	2,945	20.2	4,541	0.09	24.6	21.7	5000	3.3
25	10	<b>7832790-P5</b>	<b>7832938</b>	Z1, Z2, Z3	22.9	5,148	141.2	31,743	0.09	24.6	21.7	5000	3.3
32	10	<b>7832798-P5</b>	<b>7832801</b>	Z1, Z2, Z3	26.4	5,935	39.0	8,768	0.15	31.6	27.1	6000	5.3
40	5	<b>7832804-P5</b>	<b>7832807</b>	Z1, Z2, Z3	21.7	4,878	47.4	10,656	0.09	39.6	36.7	6000	9.0
40	20	<b>7832811-P5</b>	<b>7832813</b>	Z2, Z3	39.7	8,925	74.0	16,636	0.15	39.6	35.2	6000	7.6
40	40	<b>7832814-P5</b>	<b>7832816</b>	Z2, Z3	29.8	6,699	45.4	10,206	0.18	39.6	34.0	6000	8.4

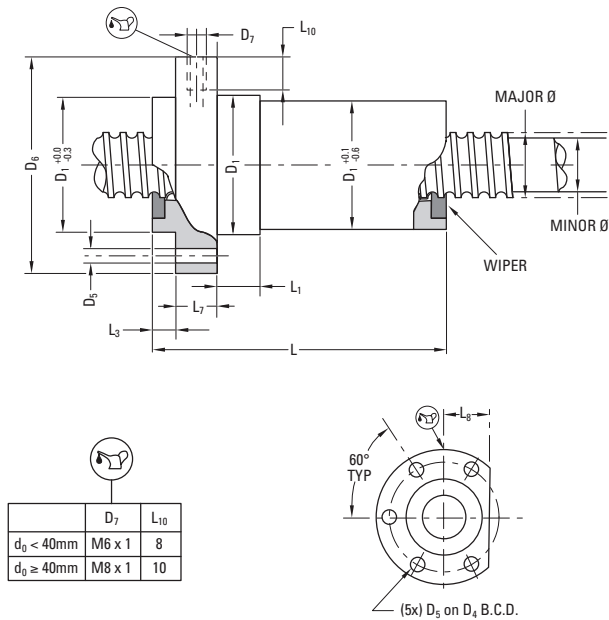
(1) FineLine Ball Screws, Ball Nuts and End Blocks can be sold together as assemblies or separately as components (preloaded ball nuts sold only as an assembly).

(2) All ball screws and nuts are right-hand thread.

(3) Dimensional information on bearing supports and standard end machining is available on page 148.

(4) Max. length includes 150mm on each end usable for end machining only. Max. travel length equals table value minus 300mm. Ends are hardened.

### FineLine Rolled Ball Screws — FS Style Ball Nuts



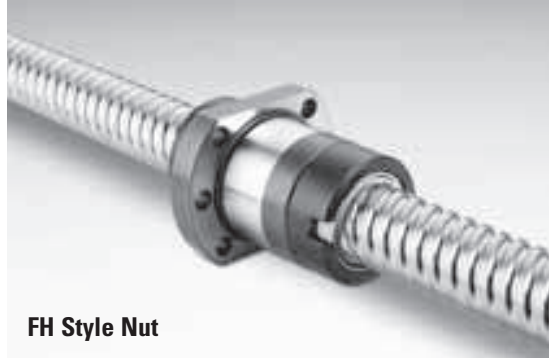
Nominal Diameter (size)	Lead	Nut Specifications (mm)										
		D <sub>1</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	L	L <sub>1</sub>	L <sub>3</sub>	L <sub>7</sub>	L <sub>8</sub>	Nut Weight	Ball Diameter
(mm)	(mm)	g6		H13	h13				h13		(kg)	(mm)
20	5	33.0	45.0	6.6	58	48.0	12.0	0.0	15.0	22.0	0.35	3.500
20	20	40.0	50.0	6.6	63	56.5	15.0	0.0	20.0	21.0	0.45	3.500
25	5	38.0	50.0	6.6	63	53.0	11.0	0.0	20.0	21.0	0.37	3.500
25	10	40.0	51.0	6.6	62	51.0	9.0	16.0	10.0	48.0	0.50	3.500
32	10	50.0	65.0	9.0	80	72.0	12.0	0.0	12.0	28.5	0.80	5.556
40	5	56.0	68.0	6.6	80	53.0	12.0	0.0	19.0	30.0	1.20	3.500
40	20	75.0	93.0	11.0	110	62.0	15.0	0.0	16.0	42.5	1.60	5.556
40	40	72.0	93.0	11.0	110	106.0	16.0	0.0	16.0	42.5	2.40	7.144

## FineLine Rolled Ball Screws — FK/FH Style Ball Nuts

Standard Lead Accuracy:  $\pm 23\mu\text{m}/300\text{mm}^{(1)}$



FK Style Nut



FH Style Nut

### Internal Return Flanged Ball Nut and Screw

- Two nut styles (FK & FH) provide optimal performance in low and high lead assemblies
- Integral wiper and flange included as standard
- Available in three preload classes (Type Z1, Z2, Z3)
  - Z1 – light preload to 2%
  - Z2 – no preload, clearance held to max .18mm
  - Z3 – no preload, clearance held to max .05mm

Nominal Diameter (size)	Lead	Nut Type	Ball Screw P/N <sup>(2)</sup> (3)	Ball Nut P/N	Available Preload Types	Performance Data				Screw Specifications <sup>(4)</sup>				
						Dynamic Load Capacity ( $C_{am}$ )		Static Load Capacity ( $C_o$ )		Max. Axial Backlash	Major Diameter	Minor Diameter	Max. Length <sup>(5)</sup>	Screw Weight
						(kN)	(lbf)	(kN)	(lbf)					
12	5	FK	7832772-T7	7832773	Z1, Z2, Z3	5.6	1,259	6.2	1,393	0.07	11.6	9.7	3000	0.7
16	5	FK	7832776-P5	7832777	Z1, Z2, Z3	9.5	2,136	10.9	2,450	0.09	15.6	12.7	3000	1.2
20	5	FK	7832779-P5	7832780	Z1, Z2, Z3	11.5	2,585	15.5	3,485	0.09	19.6	16.7	4000	2.0
20	20	FH	7832783-P5	7832784	Z2, Z3	11.5	2,585	17.5	3,934	0.09	19.6	16.7	4000	1.9
25	5	FK	7832786-P5	7832787	Z1, Z2, Z3	13.1	2,945	20.2	4,541	0.09	24.6	21.7	5000	3.3
25	10	FH	7832790-P5	7832791	Z2, Z3	22.9	5,148	141.2	31,743	0.09	24.6	21.7	5000	3.3
25	25	FH	7832793-P5	7832794	Z2, Z3	13.0	2,923	22.6	5,081	0.09	24.6	21.7	5000	3.3
32	5	FK	7832795-P5	7832796	Z1, Z2, Z3	19.3	4,339	36.3	81,606	0.09	31.6	28.7	6000	5.6
32	10	FK	7832798-P5	7832799	Z1, Z2, Z3	26.4	5,935	39.0	8,768	0.15	31.6	27.1	6000	5.3
32	20	FH	7832802-P5	7832803	Z2, Z3	47.2	10,611	83.2	18,704	0.15	31.6	27.1	6000	5.3
32	32	FH	7833301-P5	7833300	Z2, Z3	18.0	4,047	34.7	7,800	0.18	31.6	27.1	6000	5.3
40	5	FK	7832804-P5	7832805	Z1, Z2, Z3	26.3	5,912	59.2	13,309	0.09	39.6	36.7	6000	9.0
40	10	FK	7832808-P5	7832809	Z1, Z2, Z3	64.9	14,590	109.0	24,504	0.18	39.6	34.0	6000	8.3
40	20	FH	7832811-P5	7832812	Z2, Z3	52.2	11,735	103.6	23,290	0.15	39.6	35.2	6000	7.6
40	40	FH	7832814-P5	7832815	Z2, Z3	59.7	13,421	108.9	24,482	0.18	39.6	34.0	6000	8.4
50	10	FK	7832817-P5	7832818	Z1, Z2, Z3	66.4	14,927	134.3	30,192	0.18	49.5	43.0	6000	13.5
50	20	FH	7832820-P5	7832821	Z2, Z3	78.8	17,715	188.7	42,421	0.16	49.5	44.6	6000	13.6
63	10	FK	7832822-P5	7832823	Z1, Z2, Z3	93.8	21,087	229.7	51,639	0.18	62.5	56.9	6000	22.0
63	20	FH	7832825-P5	7832826	Z2, Z3	103.1	23,178	270.8	60,878	0.18	62.5	56.9	6000	22.0
80	10	FK	7832827-T7	7832828	Z1, Z2, Z3	121.9	27,404	374.9	84,281	0.18	79.5	73.9	6000	36.4
80	20	FH	7832830-T7	7832831	Z2, Z3	176.4	39,700	375.0	84,300	0.18	79.5	69.9	6000	36.4

(1) 12mm and 80mm nominal diameter screws are  $\pm 52\mu\text{m}/300\text{mm}$ .

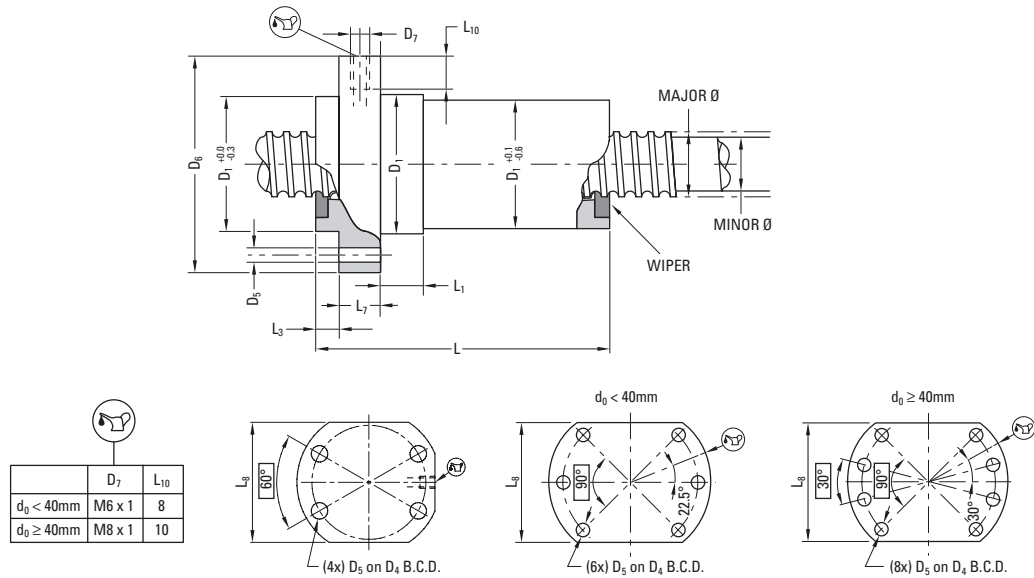
(2) FineLine Ball Screws, Ball Nuts and End Blocks can be sold together as assemblies or separately as components (preloaded ball nuts sold only as an assembly).

(3) All ball screws and nuts are right-hand thread.

(4) Dimensional information on bearing supports and standard end machining is available on page 148.

(5) Max. length includes 150mm on each end usable for end machining only. Max. travel length equals table value minus 300mm. Ends are hardened.

### FineLine Rolled Ball Screws — FK/FH Style Ball Nuts



Nominal Diameter (size)	Lead	Nut Specifications (mm)										Nut Weight (kg)	Ball Diameter (mm)
		D <sub>1</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	L	L <sub>1</sub>	L <sub>3</sub>	L <sub>7</sub>	L <sub>8</sub>			
(mm)	(mm)	g6		H13	h13				h13	h13	(kg)	(mm)	
12	5	24.0	32.0	4.6	40.0	46.5	10.0	5.5	8.0	26.0	0.1	2.381	
16	5	28.0	38.0	5.5	48.0	48.5	10.0	5.5	10.0	40.0	0.3	3.500	
20	5	36.0	47.0	6.6	58.0	48.5	10.0	5.5	10.0	44.0	0.4	3.500	
20	20	36.0	47.0	6.6	58.0	59.0	20.0	14.0	10.0	44.0	0.5	3.500	
25	5	40.0	51.0	6.6	62.0	49.0	10.0	6.0	10.0	48.0	0.4	3.500	
25	10	40.0	51.0	6.6	62.0	51.0	9.0	16.0	10.0	48.0	0.5	3.500	
25	25	40.0	51.0	6.6	62.0	71.0	20.0	15.5	10.0	48.0	0.6	3.500	
32	5	50.0	65.0	9.0	80.0	57.0	10.0	6.0	12.0	62.0	0.7	3.500	
32	10	50.0	65.0	9.0	80.0	73.0	16.0	6.0	12.0	62.0	0.8	5.556	
32	20	56.0	71.0	9.0	86.0	83.0	25.0	19.0	22.0	68.0	1.4	5.556	
32	32	56.0	71.0	9.0	86.0	42.0	12.0	9.0	12.0	68.0	0.8	3.969	
40	5	63.0	78.0	9.0	93.0	66.0	10.0	7.0	14.0	70.0	1.2	3.500	
40	10	63.0	78.0	9.0	93.0	88.5	16.0	7.0	14.0	70.0	1.4	7.144	
40	20	63.0	78.0	9.0	93.0	83.0	25.0	19.5	14.0	70.0	1.6	5.556	
40	40	70.0	85.0	9.0	100.0	104.0	25.0	21.0	14.0	77.0	2.4	7.144	
50	10	75.0	93.0	11.0	110.0	92.0	16.0	7.0	16.0	85.0	2.0	7.144	
50	20	75.0	93.0	11.0	110.0	85.0	16.0	22.0	16.0	85.0	2.2	6.400	
63	10	90.0	108.0	11.0	125.0	103.5	16.0	7.0	18.0	95.0	3.0	7.144	
63	20	95.0	115.0	13.5	135.0	86.0	18.0	24.0	20.0	100.0	3.8	7.144	
80	10	105.0	125.0	13.5	145.0	121.0	16.0	9.0	20.0	110.0	3.9	7.144	
80	20	125.0	145.0	13.5	165.0	160.5	25.0	9.0	25.0	130.0	3.9	7.144	