


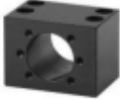




Ball Screws and Related Products

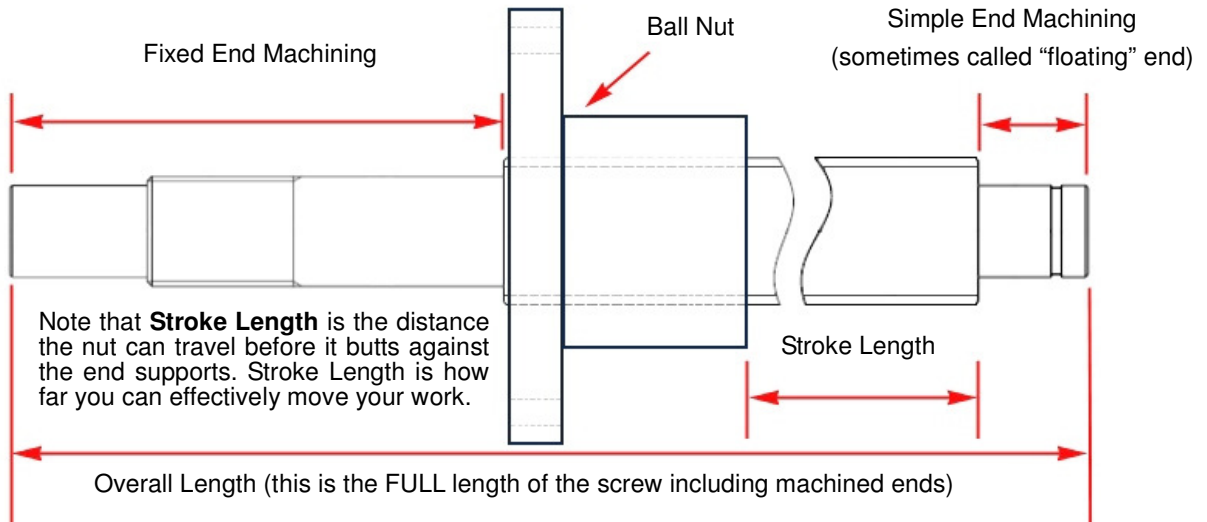
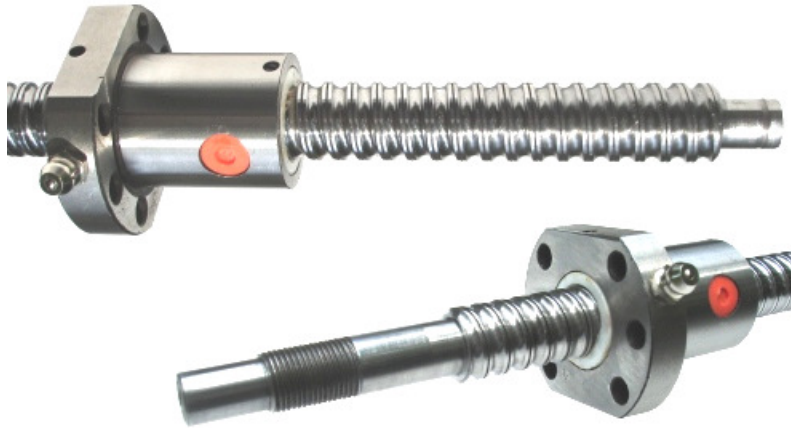
Technical Catalog



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Precision Rolled Ball Screws



Typical part number: **RM1605-0350-0200-FS**

RM16 = Series identifier and diameter (in mm)

05 = Lead for screw in mm (one turn moves nut this far)

0350 = Overall length of screw in mm (end to end)

0200 = Stroke length in mm (nut travel max.)

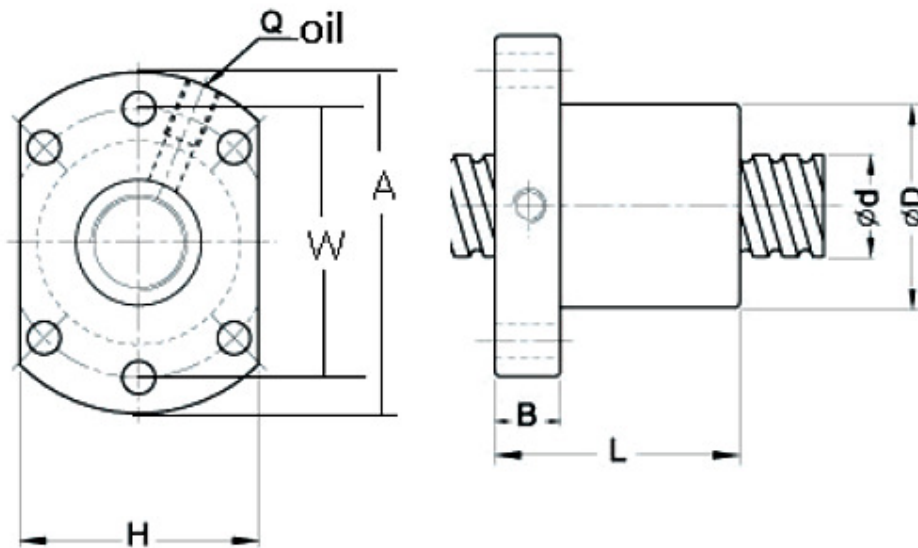
FS = Fixed & simple end machining

Our stock program includes these parts/sizes

| | |
|---------------------|---------------------|
| RM1605-0350-0200-FS | RM1610-0350-0200-FS |
| RM1605-0450-0300-FS | RM1610-0450-0300-FS |
| RM1605-0550-0400-FS | RM1610-0550-0400-FS |
| RM1605-0650-0500-FS | RM1610-0650-0500-FS |
| RM1605-0750-0600-FS | RM1610-0750-0600-FS |
| RM1605-0850-0700-FS | RM1610-0850-0700-FS |
| RM1605-0950-0800-FS | RM1610-0950-0800-FS |
| RM1605-1150-1000-FS | RM1610-1150-1000-FS |
| RM1605-1350-1200-FS | RM1610-1350-1200-FS |
| RM1605-1550-1400-FS | RM1610-1550-1400-FS |

Contact us for custom screws!

Ballnut/Ball Screw Tech Data



Note: ball nuts are supplied with non-removable flange as shown

| Material Type | Dia. d | Lead | Ball Dia. | D | A | B | L | W | X | H | Oil Q | # of Circuits | Dyn. kgf Ca | Sta. kgf Coa | Rigidity Kg/um K |
|---------------|--------|------|-----------|----|----|----|----|----|-----|----|-------|---------------|-------------|--------------|------------------|
| RM1605 | 16 | 5 | 3.175 | 28 | 48 | 10 | 50 | 38 | 5.5 | 40 | M6 | 4 | 780 | 1790 | 20 |
| RM1610 | 16 | 10 | 3.175 | 28 | 48 | 10 | 44 | 38 | 5.5 | 40 | M6 | 3 | 680 | 1310 | 15 |
| RM2005 | 20 | 5 | 3.175 | 36 | 58 | 10 | 50 | 47 | 6.6 | 44 | M6 | 4 | 1130 | 2380 | 25 |
| RM2010 | 20 | 10 | 3.175 | 36 | 58 | 12 | 46 | 47 | 6.6 | 44 | M6 | 3 | 1516 | 3833 | 21 |
| RM2505 | 25 | 5 | 3.175 | 40 | 62 | 10 | 50 | 51 | 6.6 | 48 | M6 | 4 | 1280 | 3110 | 35 |
| RM2510 | 25 | 10 | 4.762 | 40 | 62 | 12 | 85 | 51 | 6.6 | 48 | M6 | 4 | 1944 | 3877 | 33 |

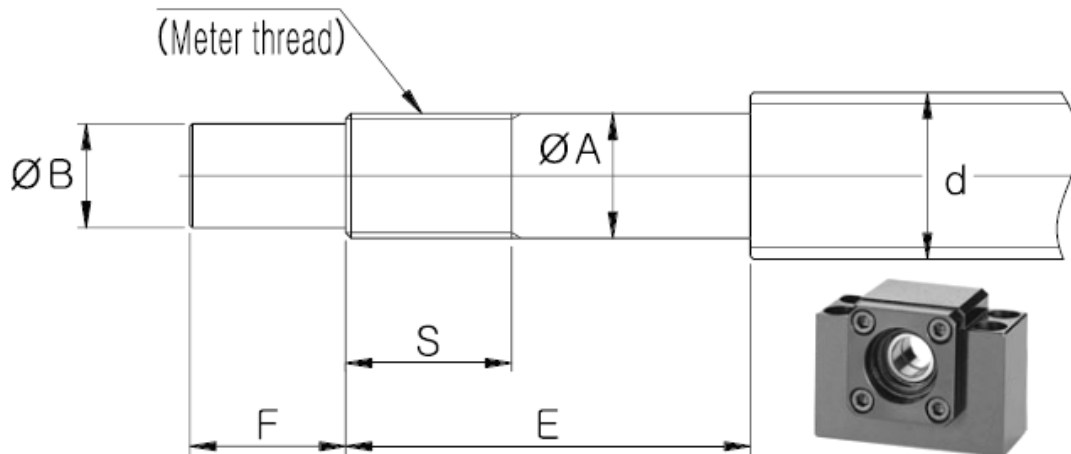
Class 7 accuracy rated.

Precision Rolled Screw Runout: +/- 0.050/300mm or 0.002"/12".

Ballnut: Single ballnut with zero backlash defined as <0.015mm or <0.0006".

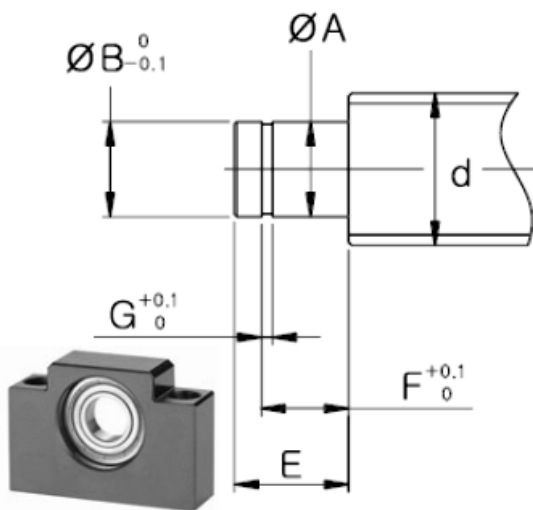
Typical/Recommended End Machining

“A” Type Fixed End (BK/FK style mount)



All dimensions in MM

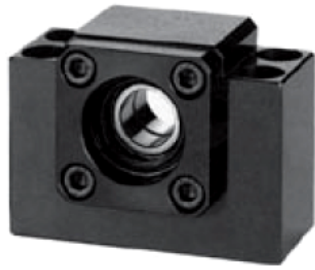
| Support PN | Screw \varnothing d | Bearing \varnothing A | Motor Coupling B | E | F | M | S |
|------------|----------------------------|------------------------------|-----------------------|-----|-----|-----------|-----|
| BK10/FK10 | 12/14/15 | 10 | 8 | 36 | 15 | M10 x 1 | 16 |
| BK12/FK12 | 14/15/16 | 12 | 10 | 36 | 15 | M12 x 1 | 14 |
| BK15/FK15 | 18/20 | 15 | 12 | 40 | 20 | M15 x 1 | 12 |
| BK20/FK20 | 25/28 | 20 | 17 | 53 | 25 | M20 x 1.5 | 15 |
| BK25/FK25 | 32/36 | 25 | 20 | 65 | 30 | M25 x 1.5 | 18 |
| BK30/FK30 | 36/40 | 30 | 25 | 72 | 38 | M30 x 1.5 | 25 |
| BK35 | 45 | 35 | 30 | 81 | 45 | M35 x 1.5 | 28 |
| BK40 | 50 | 40 | 35 | 93 | 50 | M40 x 1.5 | 35 |



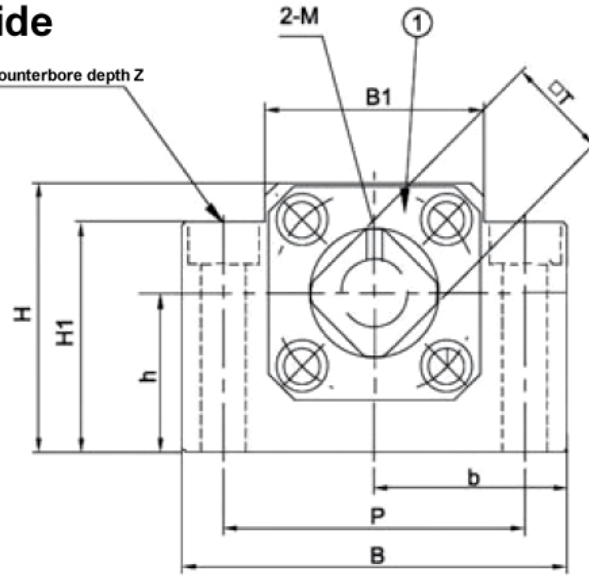
“B” Type Simple End (BF style mount)

| Support PN | Screw \varnothing d | Bearing \varnothing A | E | Snap Ring Flute | | |
|------------|----------------------------|------------------------------|-----|-----------------|-------|------|
| | | | | B | F | G |
| BF10 | 12/14/15 | 8 | 10 | 7.6 | 7.9 | 0.9 |
| BF12/FF12 | 14/15/16 | 10 | 11 | 9.6 | 9.15 | 1.15 |
| BF15/FF15 | 18/20 | 15 | 13 | 14.3 | 10.15 | 1.15 |
| BF20/FF20 | 25/28/30 | 20 | 19 | 19 | 15.35 | 1.35 |
| BF25/FF25 | 28/30/36 | 25 | 20 | 23.9 | 16.35 | 1.35 |
| BF30/FF30 | 36/40 | 30 | 21 | 28.6 | 17.75 | 1.75 |
| BF35 | 40/45 | 35 | 22 | 33 | 18.75 | 1.75 |
| BF40 | 50 | 40 | 23 | 38 | 19.75 | 1.95 |

BK Fixed Side



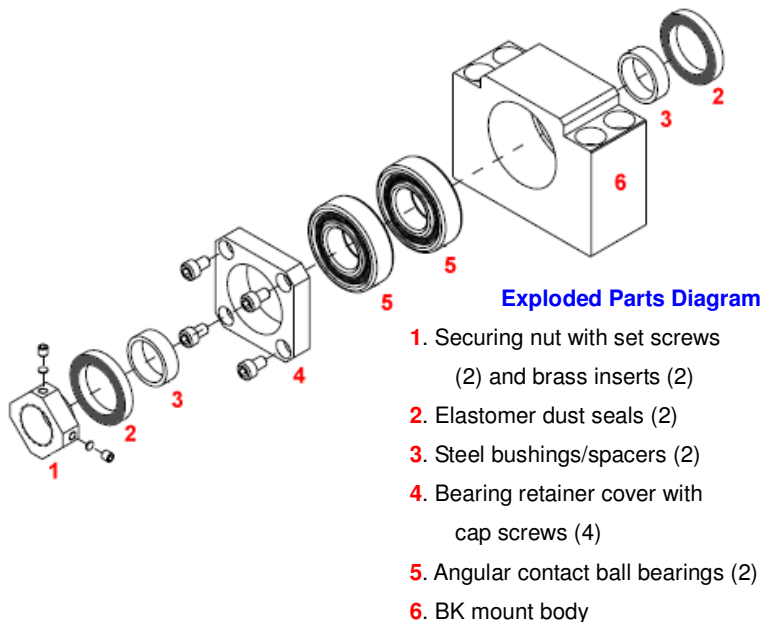
4-X drill $\varnothing Y$ counterbore depth Z



Dimensions in MM

| Model | $\varnothing d1$ | L | L1 | L2 | L3 | B | B1 | H | H1 | b | h | P | C1 | C2 | X | Y | Z | M | T |
|-------|------------------|----|----|------|----|-----|----|-----|------|----|----|-----|----|----|------|------|------|----|----|
| BK10 | 10 | 25 | 6 | 29.5 | 5 | 60 | 34 | 39 | 32.5 | 30 | 22 | 46 | 13 | 6 | 6.3 | 10.5 | 5 | M3 | 16 |
| BK12 | 12 | 25 | 6 | 29.5 | 5 | 60 | 34 | 42 | 32.5 | 30 | 25 | 46 | 13 | 6 | 6.3 | 10.5 | 5.5 | M3 | 19 |
| BK15 | 15 | 27 | 6 | 32 | 6 | 70 | 38 | 47 | 38 | 35 | 28 | 54 | 15 | 6 | 6.3 | 10.5 | 6.5 | M3 | 22 |
| BK17 | 17 | 35 | 10 | 44 | 7 | 86 | 48 | 63 | 55 | 43 | 39 | 68 | 19 | 8 | 8.7 | 14 | 8.6 | M4 | 24 |
| BK20 | 20 | 35 | 6 | 43 | 8 | 88 | 50 | 59 | 50 | 44 | 34 | 70 | 19 | 8 | 8.7 | 14 | 8.5 | M4 | 30 |
| BK25 | 25 | 42 | 6 | 54 | 9 | 106 | 62 | 79 | 70 | 53 | 48 | 85 | 22 | 10 | 10.7 | 17.5 | 10.5 | M5 | 35 |
| BK30 | 30 | 45 | 6 | 61 | 9 | 128 | 74 | 88 | 78 | 64 | 51 | 102 | 23 | 11 | 13.7 | 20 | 13 | M6 | 40 |
| BK35 | 35 | 50 | 10 | 67 | 12 | 140 | 86 | 95 | 79 | 70 | 52 | 114 | 26 | 12 | 13.7 | 20 | 13 | M8 | 50 |
| BK40 | 40 | 61 | 10 | 76 | 15 | 160 | 98 | 109 | 90 | 80 | 60 | 130 | 33 | 14 | 17.7 | 26 | 17.5 | M8 | 50 |

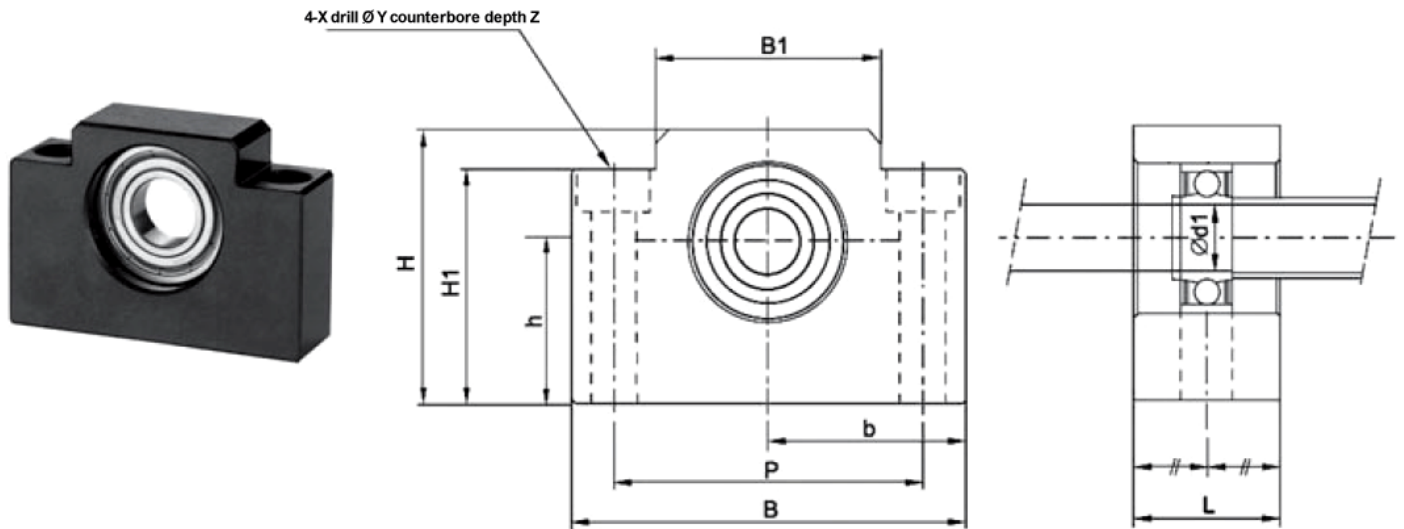
Note: BK mounts come complete with two bearing spacer bushings, locking nut, set screws for locking nut and brass inserts to be installed under set screws to protect ball screw threads. See diagram below.



Load Ratings/Speed Information

| Model | Static Load (kgf) | Dynamic Load (kgf) | Max Speed (rpm) |
|-------|-------------------|--------------------|-----------------|
| BK10 | 266 | 133 | 16,800 |
| BK12 | 305 | 153 | 15,400 |
| BK15 | 350 | 175 | 13,300 |
| BK17 | 610 | 305 | 11,200 |
| BK20 | 670 | 335 | 10,500 |
| BK25 | 1,050 | 525 | 8,400 |
| BK30 | 1,510 | 755 | 7,000 |
| BK35 | 1,870 | 1,202 | 4,200 |
| BK40 | 2,340 | 1,504 | 3,710 |

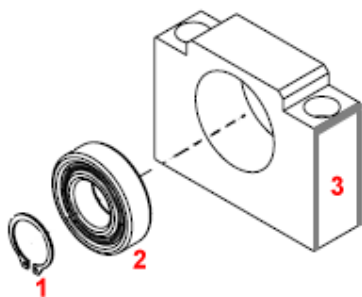
BF Floating or Simple Side



Dimensions in MM

| Model | $\varnothing d1$ | L | B | B1 | H | H1 | P | X | Y | Z | b | h | Snap Ring |
|-------|------------------|----|-----|-----|-----|------|-----|------|------|------|----|----|-----------|
| BF10 | 8 | 20 | 60 | 34 | 39 | 32.5 | 46 | 6.3 | 10.8 | 5 | 30 | 22 | S08 |
| BF12 | 10 | 20 | 60 | 34 | 43 | 32.5 | 46 | 6.3 | 10.8 | 5.5 | 30 | 25 | S10 |
| BF15 | 15 | 20 | 70 | 40 | 48 | 38 | 54 | 6.3 | 11 | 6.5 | 35 | 28 | S15 |
| BF17 | 17 | 23 | 86 | 50 | 64 | 55 | 68 | 8.7 | 14 | 8.6 | 43 | 39 | S17 |
| BF20 | 20 | 26 | 88 | 52 | 60 | 50 | 70 | 8.7 | 8.7 | 8.6 | 44 | 34 | S20 |
| BF25 | 25 | 30 | 106 | 64 | 80 | 70 | 85 | 10.7 | 10.7 | 11 | 53 | 48 | S25 |
| BF30 | 30 | 32 | 128 | 76 | 89 | 78 | 102 | 13.7 | 13.7 | 13 | 64 | 51 | S30 |
| BF35 | 35 | 32 | 140 | 88 | 96 | 79 | 114 | 13.7 | 13.7 | 13 | 70 | 52 | S35 |
| BF40 | 40 | 37 | 160 | 100 | 110 | 90 | 130 | 17.7 | 17.7 | 17.7 | 80 | 60 | S40 |

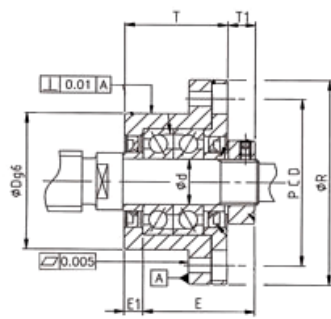
Note: FF mounts are supplied with circlip to secure ball screw to bearing.



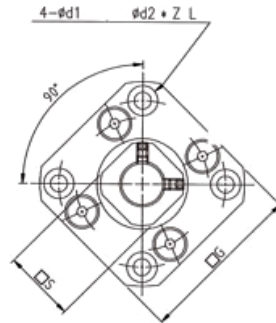
Exploded Parts Diagram

1. Circlip/snap ring retaining fastener
2. Sealed ball bearing
3. BF mount body

FK Fixed Side



Install type A

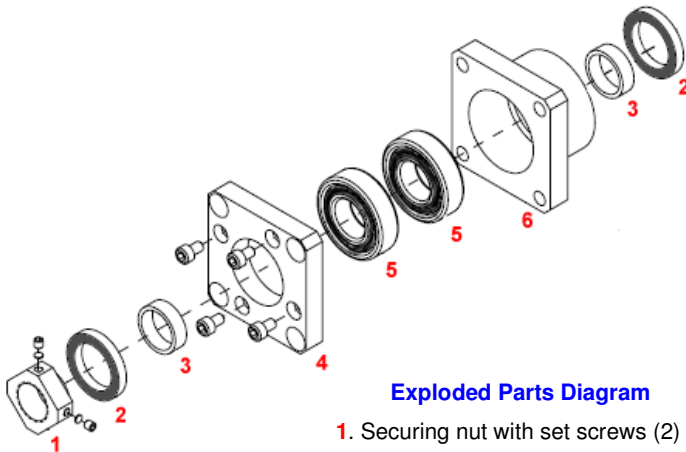


Install type B

| Model | d1 | L | H | F | E | Dg6 | A | PCD | B | L1 | T1 | X | Y | Z |
|-------|----|------|----|------|------|-----|-----|-----|----|-----|-----|-----|------|----|
| FK5 | 5 | 16.5 | 6 | 10.5 | 18.5 | 20 | 34 | 26 | 26 | 5.5 | 3.5 | 3.4 | 6.5 | 4 |
| FK6 | 6 | 20 | 7 | 13 | 22 | 22 | 36 | 28 | 28 | 5.5 | 3.5 | 3.4 | 6.5 | 4 |
| FK8 | 8 | 23 | 9 | 14 | 26 | 28 | 43 | 35 | 35 | 7 | 4 | 3.4 | 6.5 | 4 |
| FK10 | 10 | 27 | 10 | 17 | 29.5 | 34 | 52 | 42 | 42 | 7.5 | 5 | 4.5 | 8 | 4 |
| FK12 | 12 | 27 | 10 | 17 | 29.5 | 36 | 54 | 44 | 44 | 7.5 | 5 | 4.5 | 8 | 4 |
| FK15 | 15 | 32 | 15 | 17 | 36 | 40 | 63 | 50 | 52 | 10 | 6 | 5.5 | 9.5 | 6 |
| FK20 | 20 | 52 | 22 | 30 | 50 | 57 | 85 | 70 | 68 | 8 | 10 | 6.6 | 11 | 10 |
| FK25 | 25 | 57 | 27 | 30 | 60 | 63 | 98 | 80 | 79 | 13 | 10 | 9 | 15 | 13 |
| FK30 | 30 | 62 | 30 | 32 | 61 | 75 | 117 | 95 | 93 | 11 | 12 | 11 | 17.5 | 15 |

Yellow shaded area above indicates sizes we do not stock but can obtain as special order in QUANTITY

Note: FK mounts come complete with two bearing spacer bushings, locking nut, two set screws for locking nut and two brass inserts to be installed under set screws to protect ball screw threads.



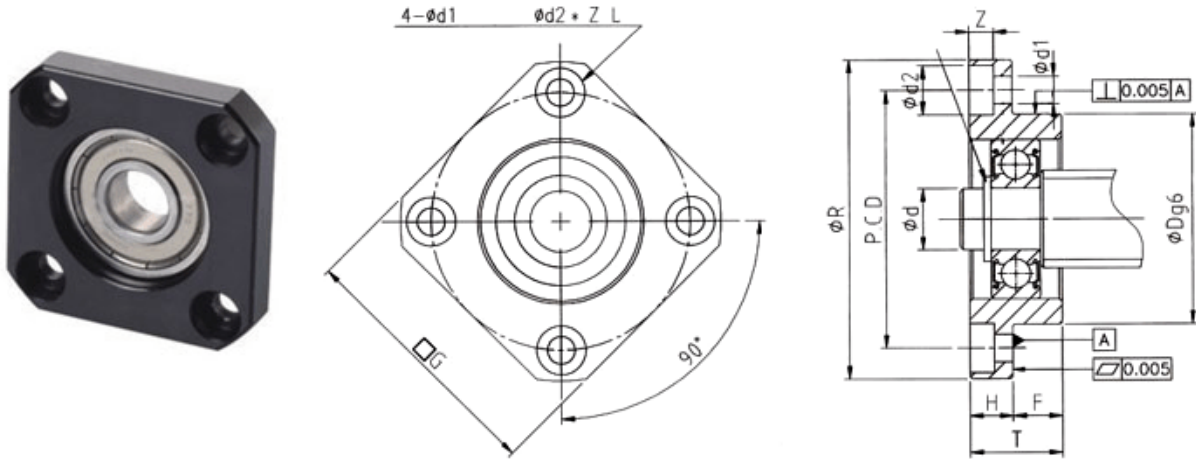
Exploded Parts Diagram

1. Securing nut with set screws (2) and brass inserts (2)
2. Elastomer dust seals (2)
3. Steel bushings/spacers (2)
4. Bearing retainer cover with cap screws (4)
5. Angular contact ball bearings (2)
6. FK mount body

Load Ratings/Speed Information

| Model | Static Load (kgf) | Dynamic Load (kgf) | Max Speed (rpm) |
|-------|-------------------|--------------------|-----------------|
| FK10 | 266 | 133 | 16,800 |
| FK12 | 305 | 153 | 15,400 |
| FK15 | 350 | 175 | 13,300 |
| FK17 | 610 | 305 | 11,200 |
| FK20 | 845 | 423 | 9,300 |
| FK25 | 1,050 | 525 | 8,400 |
| FK30 | 1,510 | 755 | 7,000 |

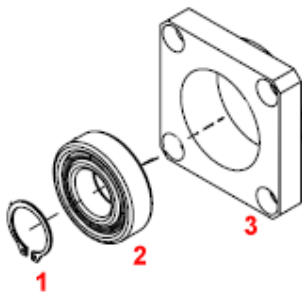
FF Simple or Floating Side



| Model | d1 | L | H | F | E | Dg6 | A | PCD | B | X | Y | Z |
|-------|----|----|----|----|----|-----|-----|-----|----|-----|------|-----|
| FF6 | 6 | 10 | 6 | 4 | 22 | 22 | 36 | 28 | 28 | 3.4 | 6.5 | 4 |
| FF10 | 8 | 12 | 7 | 5 | 28 | 34 | 43 | 35 | 35 | 4.5 | 6.5 | 4 |
| FF12 | 10 | 15 | 7 | 8 | 34 | 36 | 52 | 42 | 42 | 4.5 | 8 | 4 |
| FF15 | 15 | 17 | 9 | 8 | 40 | 40 | 63 | 50 | 52 | 5.5 | 9.5 | 5.5 |
| FF20 | 20 | 20 | 11 | 9 | 57 | 57 | 85 | 70 | 68 | 6.6 | 11 | 6.5 |
| FF25 | 25 | 24 | 15 | 10 | 63 | 63 | 98 | 80 | 79 | 9 | 14 | 8.5 |
| FF30 | 30 | 27 | 18 | 9 | 75 | 75 | 117 | 95 | 93 | 11 | 17.5 | 11 |

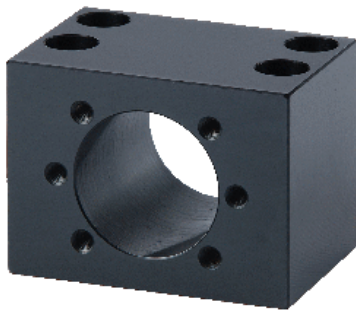
Yellow shaded area above indicates sizes we do not stock but can obtain as special order in QUANTITY

Note: FF mounts are supplied with circlip to secure ball screw to bearing.

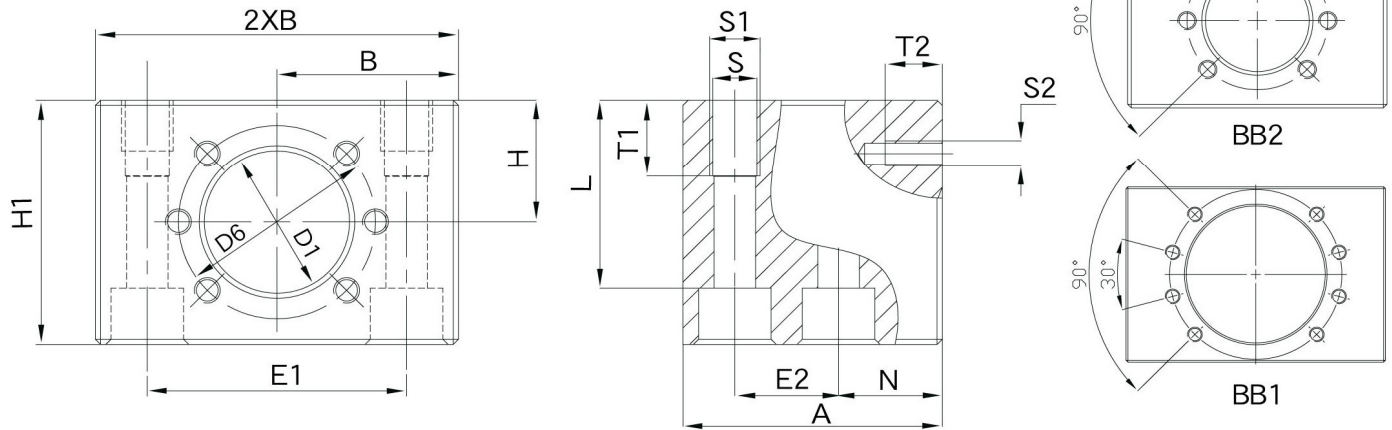


Exploded Parts Diagram

1. Circlip/snap ring retaining fastener
2. Sealed ball bearing
3. FF mount body



MGD Style Ball Screw Nut Bracket

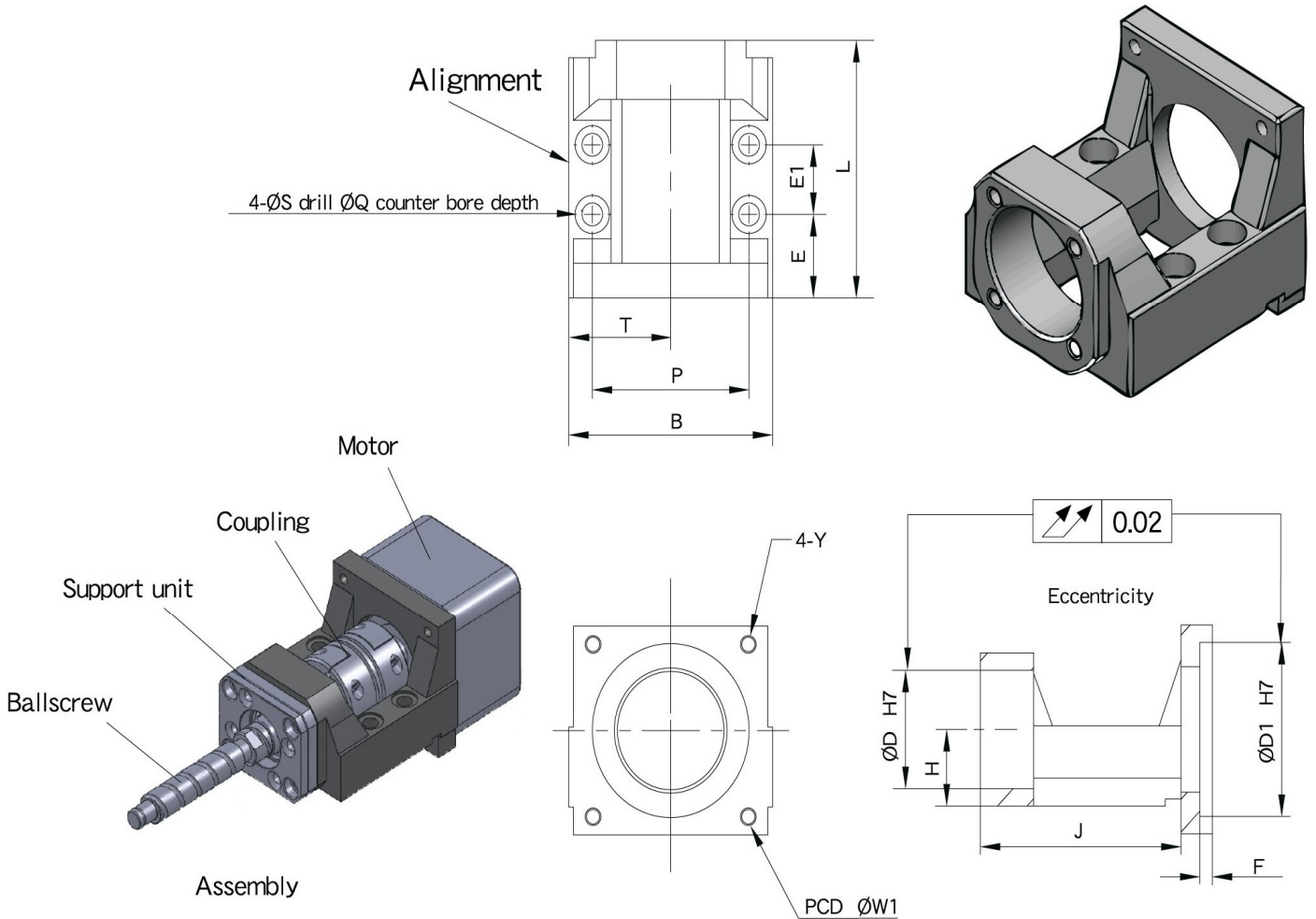


Unit : mm

| Model No. | Size $d_0 \times P$ | $D1 \pm 0.1$ | D6 | A | $B \pm 0.1$ | $H \pm 0.1$ | H1 | E1 | E2 | N | S | S1 | T1 | S2 | T2 | ISO4762 | L | Weight (Kgs) | | |
|-----------|------------------------|-------------------------|------|----|-------------|-------------|----|----|--------|--------|------|-----|-----|----|----|---------|-----|--------------|----|------|
| MGD 16 | 16x5 16x16 | 16x10 | 28.4 | 38 | 50 | 35 | 24 | 48 | 50±0.1 | 20±0.1 | 20 | 8.4 | M10 | 15 | M5 | 10 | BB2 | M8 | 37 | 0.91 |
| MGD 20 | 20x5 20x20 | 20x20 | 36.4 | 47 | 55 | 37.5 | 28 | 56 | 55±0.1 | 23±0.1 | 22 | 8.4 | M10 | 15 | M6 | 11 | BB2 | M8 | 45 | 1.18 |
| MGD 25 | 25x5 25x25 | 25x10 | 40.4 | 51 | 55 | 40 | 30 | 60 | 60±0.1 | 23±0.1 | 22 | 8.4 | M10 | 15 | M6 | 11 | BB2 | M8 | 49 | 1.33 |
| MGD32S | 32x5 32x20 | 32x10 32x32 | 50.4 | 65 | 70 | 45 | 35 | 70 | 70±0.1 | 45±0.1 | 12.5 | 14 | M12 | 20 | M8 | 14 | BB2 | M12 | - | 2.5 |
| MGD 32 | | | | | | 50 | | | 75±0.1 | 30±0.1 | 27 | | M16 | | | | | M12 | 52 | 2.77 |
| MGD 40 | 40x5 40x12 40x20 | 40x10 40x16 40x40 | 63.4 | 78 | 80 | 60 | 42 | 84 | 90±0.1 | 35±0.1 | 31 | 15 | M18 | 25 | M8 | 17 | BB1 | M14 | 66 | 3.61 |

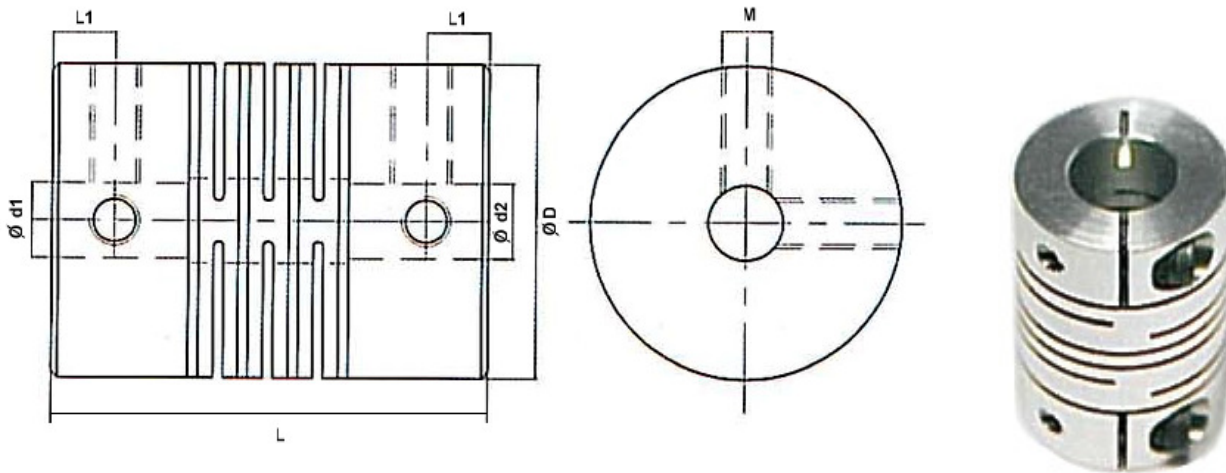
MBA Style Motor Brackets

These brackets make it easy to build a ball screw assembly by combining common motors, flexible motor couplings and ball screw end supports. Save both time and money...and get a precision result FAST.



| Model | D1 | W1 | Y | D | L | H ±0.02 | B | P | T | S | Q | E | E1 | F | J | Wt. (kgs) | Fixed Side | Support Side |
|----------|------|------|----|----|-----|------------|----|----|------|-----|----|----|----|---|-----|--------------|---------------|-----------------|
| MBA12-C | 38.1 | 66.7 | M4 | 36 | 74 | 25 | 65 | 50 | 32.5 | 6.6 | 11 | 24 | 20 | 5 | 65 | 0.71 | FK12 | BF12 |
| MBA12-D | 50 | 70 | M5 | 36 | 74 | 25 | 65 | 50 | 32.5 | 6.6 | 11 | 24 | 20 | 5 | 65 | 0.71 | FK12 | BF12 |
| MBA15-C | 38.1 | 66.7 | M4 | 40 | 82 | 28 | 70 | 55 | 35 | 6.6 | 11 | 24 | 28 | 5 | 73 | 1.4 | FK15 | BF15 |
| MBA-15-D | 50 | 70 | M5 | 40 | 84 | 28 | 70 | 55 | 35 | 6.6 | 11 | 25 | 28 | 5 | 74 | 1.4 | FK15 | BF15 |
| MBA-15-E | 70 | 90 | M6 | 40 | 94 | 28 | 88 | 70 | 44 | 8.5 | 14 | 30 | 28 | 6 | 82 | 1.4 | FK15 | BF15 |
| MBA-15-F | 73 | 98.4 | M6 | 40 | 92 | 28 | 88 | 70 | 44 | 8.5 | 14 | 29 | 28 | 6 | 81 | 1.4 | FK15 | BF15 |
| MBA20-D | 50 | 70 | M5 | 57 | 113 | 34 | 88 | 70 | 44 | 8.5 | 14 | 29 | 42 | 5 | - | 1.61 | FKA20 | BF20 |
| MBA20-E | 70 | 90 | M6 | 57 | 113 | 34 | 88 | 70 | 44 | 8.5 | 14 | 29 | 42 | 6 | 102 | 1.61 | FKA20 | BF20 |
| MBA20-F | 70 | 90 | M5 | 57 | 113 | 34 | 88 | 70 | 44 | 8.5 | 14 | 29 | 42 | 6 | 102 | 1.61 | FKA20 | BF20 |

DR1-C Flexible Motor Couplings (stainless steel construction)



The DR1-C flexible motor coupling line provides an economical way to connect motors to ball screws and other shafts via clamping pressure applied by two set screws. Durable stainless steel construction. These couplings offer higher torque ratings than similar couplings manufactured from aluminum.

Specifications and sizes (mm) [note that 6.35mm = 1/4"]

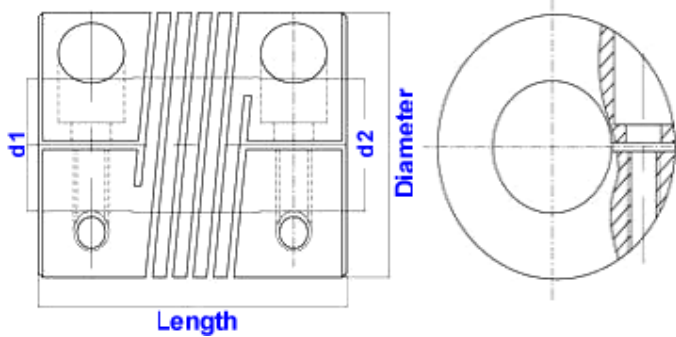
| Part # | Length (L) | Diameter (D) | d1 | d2 | Rated Torque Max Torque | Eccentricity Error | Shaft Angle |
|---------------------|------------|--------------|----|------|----------------------------|-----------------------|-------------|
| DR1-C-25X30-5X6.35 | 30 | 25 | 5 | 6.35 | 1.5 N.m. 3.0 N.m. | ±0.2mm | ≤2° |
| DR1-C-25X30-6X6.35 | 30 | 25 | 6 | 6.35 | 1.5 N.m. 3.0 N.m. | ±0.2mm | ≤2° |
| DR1-C-25X30-10X6 | 30 | 25 | 10 | 6 | 1.5 N.m. 3.0 N.m. | ±0.2mm | ≤2° |
| DR1-C-25X30-10X6.35 | 30 | 25 | 10 | 6.35 | 1.5 N.m. 3.0 N.m. | ±0.2mm | ≤2° |
| DR1-C-25X30-10X8 | 30 | 25 | 10 | 8 | 1.5 N.m. 3.0 N.m. | ±0.2mm | ≤2° |

All DR1-C couplings rated for 15,000 max. RPM.

Note: We will be adding additional sizes in this style.

Special sizes can be supplied via special order (minimum quantities apply).

BR Flexible Motor Couplings



The BR flexible motor coupling line provides an economical way to connect motors to ball screws and other shafts via clamping pressure applied by two set screws. We stock an extensive range of couplings that account for most common bore sizes; special sizes can be provided as a special order (minimum quantities apply).

Specifications and sizes (mm) [note that 6.35mm = 1/4"]

| Part # | Length | Diameter | d1 | d2 | Rated Torque Max Torque | Eccentricity Error | Shaft Angle |
|------------------|--------|----------|----|------|----------------------------|-----------------------|-------------|
| BR-20X25-5X5 | 25 | 20 | 5 | 5 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-20X25-8X5 | 25 | 20 | 8 | 5 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-5X6.35 | 30 | 25 | 5 | 6.35 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-6X6 | 30 | 25 | 6 | 6 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-8X6 | 30 | 25 | 8 | 6 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-8X6.35 | 30 | 25 | 8 | 6.35 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-10X5 | 30 | 25 | 10 | 5 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-10X6 | 30 | 25 | 10 | 6 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-10X6.35 | 30 | 25 | 10 | 6.35 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-10X8 | 30 | 25 | 10 | 8 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-12X5 | 30 | 25 | 12 | 5 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-12X6.35 | 30 | 25 | 12 | 6.35 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |
| BR-25X30-12X8 | 30 | 25 | 12 | 8 | 0.5 N.m. 1.0 N.m. | ±0.2mm | ≤2° |