

TBI MOTION BALL SCREW

2-3 Rolled Ball Screw

2-3-1 Rolled Screws

Rolled screws are made through thread roller. Generally rolled screw has a smoother operation while lowering friction and backlash. Therefore, it gradually replaced the traditional ACME screws and trapezoidal screws. Moreover, rolled screws can eliminate axial play by preloading nut with a cost effective pricing compare to ground screw.

2-3-2 The Features of TBI 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 are standardized with P0 preloaded, preload value can be adjusted through reballing.

2-3-3 Nominal Model Code of Rolled Ball Screws

Nominal Model Code of Shaft

SC R 025 05 F C7 - 1000 + N3

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| | | |
|--|-----------------------|---|
| ① | ④ | ⑦ |
| Type of Screw Shaft | Lead | Overall Length of Shaft |
| SC : standard SS : For H, NH type nut | Unit : mm | Unit : mm |
| ② | ⑤ | ⑧ |
| Threading Direction | Product Code | Shaft Surface Treatment |
| R : Right L : Left | F : Rolled | □ : Standard B1 : Black Oxidation N1 : Hard Chrome Plating P : Phosphating N3 : Nickel Plating N4 : Raydent N5 : Chrome Plating |
| ③ | ⑥ | |
| Nominal Diameter | Accuracy Grade | |
| Unit : mm | C5, C7, C10 | |

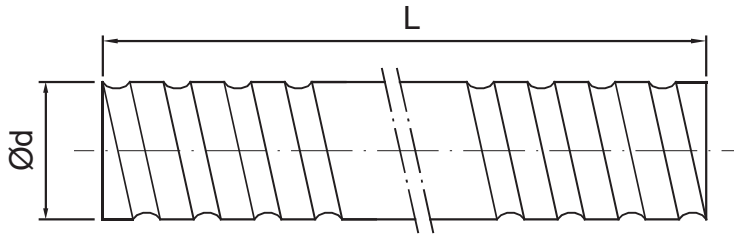


Fig 2.3.1 Screw Shaft Nominal Diameter

Table 2.3.1 Rolled Ball Screw Specifications Ø6~32

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 | R | 1 | SCR00601 | K | 1000 |
| | 1 | 0.8 | C10, C7, C5 | R | 1 | SCR00801 | K | |
| 8 | 2 | 1.2 | C10, C7, C5 | R | 1 | SCR00802 | K | 1000 |
| | 2.5 | 1.2 | C10, C7, C5 | R | 1 | SCR0082.5 | K, BSH | |
| 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-A | V, U, BSH, H | |
| | 10 | 2.5 | C10, C7, C5 | R | 2 | SCR01210-B | V | |
| | 20 | 2.5 | C10, C7 | R | 4 | SCR01220 | Y | |
| 14 | 2 | 1.2 | C10, C7, C5 | R | 1 | SCR01402 | K | 1800 |
| | 4 | 2.5 | C10, C7 | R | 1 | SCR01404 | 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 | V, NI, NU, BSH | |
| | 10 | 3.175 | C10, C7, C5 | R | 2 | SCR01610 | V, NI, NU, BSH | |
| | 16 | 2.778 | C10, C7, C5 | R | 4 | SCR01616 | Y | |
| | 32 | 2.778 | C10, C7 | R | 8 | SCR01632 | Y | |
| 20 | 4 | 2.381 | C10, C7, C5 | R | 1 | SCR02004(N) | V, I, U | 3000 |
| | 5 | 3.175 | C10, C7, C5 | R/L | 1 | SCR02005 | V, NI, NU, BSH, H | |
| | 20 | 3.175 | C10, C7, C5 | R | 4 | SCR02020 | V, Y, H | |
| | 40 | 3.175 | C10, C7 | R | 8 | SCR02040 | Y | |
| 25 | 4 | 2.381 | C10, C7 | R | 1 | SCR02504(N) | I, U | 6000 |
| | 5 | 3.175 | C10, C7, C5 | R/L | 1 | SCR02505 | V, NI, NU, BSH, H | |
| | 10 | 4.762 | C10, C7, C5 | R | 1 | SCR02510-A | NI, NU, BSH | |
| | 10 | 6.35 | C10, C7, C5 | R | 1 | SCR02510-B | V | |
| | 25 | 3.969 | C10, C7, C5 | R | 4 | SCR02525 | Y | |
| | 50 | 3.969 | C10, C7 | R | 8 | SCR02550 | Y | |
| 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, M, H | |
| | 10 | 6.35 | C10, C7, C5 | R/L | 1 | SCR03210 | V, NI, NU | |
| | 32 | 4.762 | C10, C7 | R | 4 | SCR03232 | Y | |
| | 64 | 4.762 | C10, C7 | R | 8 | SCR03264 | Y | |

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2-3 Rolled Ball Screw

Table2.3.2 Standard Specifications Ø40~80

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 | | | | |
| 40 | 5 | 3.175 | C10, C7, C5 | R/L | 1 | SCR04005 | V, NI, NU, H | 6000 |
| | 10 | 6.35 | C10, C7 | R/L | 1 | SCR04010 | V, NI, NU | |
| | 20 | 6.35 | C10, C7 | R | 2 | SCR04020 | V | |
| | 40 | 6.35 | C10, C7 | R | 4 | SCR04040 | Y | |
| | 80 | 6.35 | C10, C7 | R | 8 | SCR04080 | Y | |
| 50 | 5 | 3.175 | C10, C7, C5 | R | 1 | SCR05005 | V, H | 6000 |
| | 10 | 6.35 | C10, C7, C5 | R/L | 1 | SCR05010 | V, NI, NU | |
| | 20 | 9.525 | C10, C7 | R | 1 | SCR05020 | V | |
| | 50 | 7.938 | C10, C7 | R | 4 | SCR05050 | Y | |
| | 100 | 7.938 | C10, C7 | R | 8 | SCR050100 | Y | |
| 63 | 10 | 6.35 | C10, C7, C5 | R | 1 | SCR06310 | V, NI, NU | 7000 |
| | 20 | 9.525 | C10, C7 | R | 1 | SCR06320 | V, NU | |
| 80 | 10 | 6.35 | C10, C7, C5 | R | 1 | SCR08010 | V, NI, NU | 7000 |
| | 20 | 9.525 | C10, C7 | R | 1 | SCR08020 | V, NU | |

Table2.3.3 H-Type Specifications Ø16~50

Unit : mm

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

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

Nominal Model Code of Nut

G SFU R 025 05 T4 D + N3

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①

Product Code

②

| Nominal Model | | Threading Direction | Number of Turns (Turn·Row) |
|---------------|---|-------------------------|----------------------------|
| S | S : Single nut | R : Right | Turn : T : 1 |
| | D : Double nut | L : Left | A : 1.5 (or 1.7/1.8) |
| F | F : With flange | | B : 2.5/2.8 |
| | C : Without flange | ④ | C : 3.5 |
| U | NI : NI type nut | Nominal Diameter | D : 4.8 |
| | NU : NU type nut | Unit : mm | ex : (2.5 × 2 = B2) |
| | H : H type nut | | |
| | NH : NH nut (A solution for slide table) | ⑤ | ⑦ |
| | Y : Y type nut | Unit : mm | N : Not cutting |
| | V : V type nut | | S : Single cutting |
| | U : DIN nut | | D : Double cutting |
| | M : M type nut | | |
| | K : K type nut | | |

⑧

Nut Surface Treatment

| |
|--------------------------|
| S : Standard |
| B1 : Black Oxidation |
| N1 : Hard Chrome Plating |
| P : Phosphating |
| N3 : Nickel Plating |
| N4 : Raydent |
| N5 : Chrome Plating |

2-3-4 Preload of Rolled Ball Screw

The standard preloading for Rolled Ball Screw is P0. If P1 preloading is required, please contact **TBI MOTION**.

Table2.3.4 Rolled screw accuracy

Unit : μm

| Accuracy Grade | C5 (DIN) | C7 | C10 |
|----------------|----------|----|-----|
| e300 | 23 | 50 | 210 |

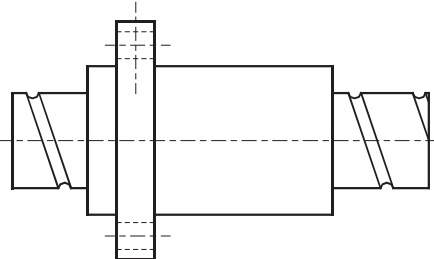
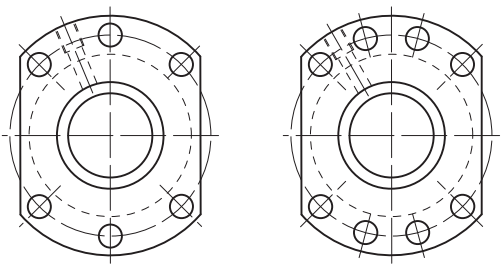
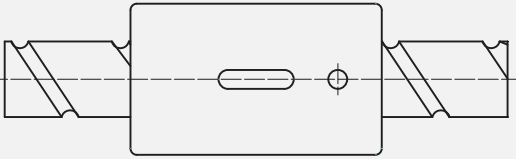
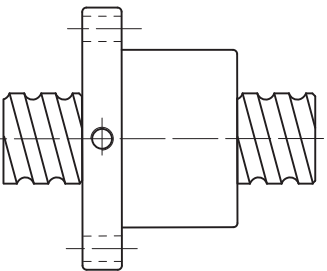
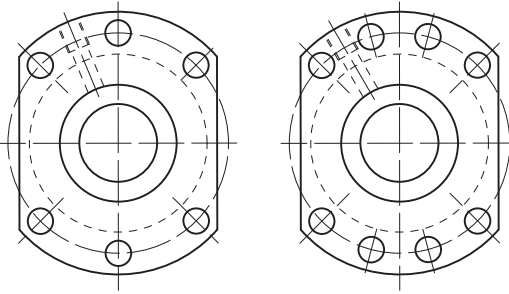
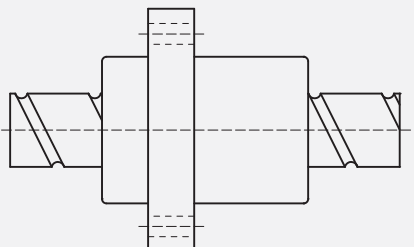
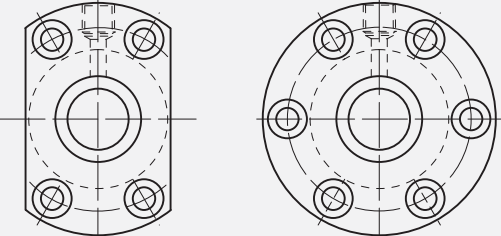
C

Ball Screw

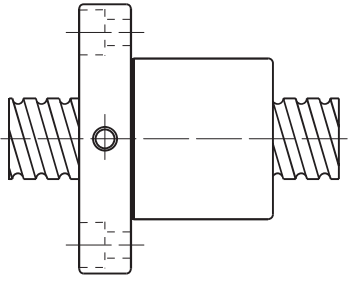
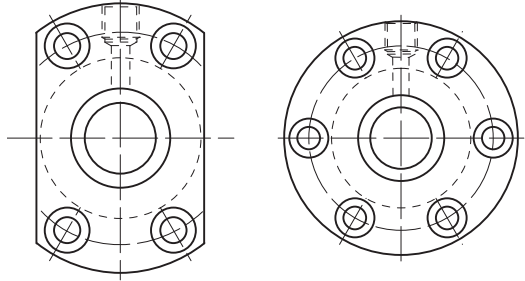
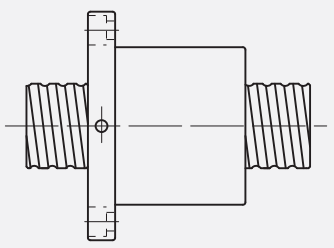
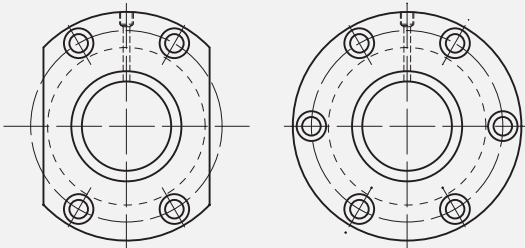
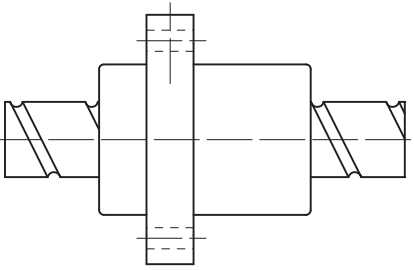
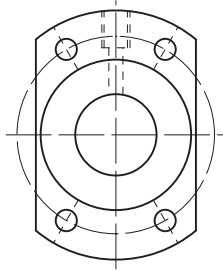
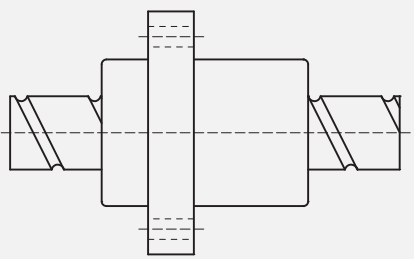
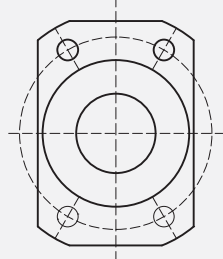
TBI MOTION BALL SCREW

2-4 Rolled Ball Screw Series

2-4-1 TBI MOTION Nut of Rolled Ball Screw Type

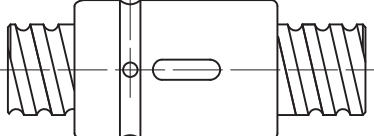
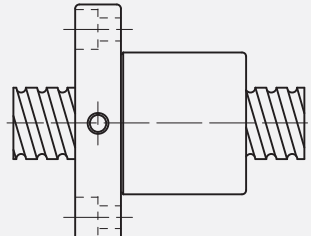
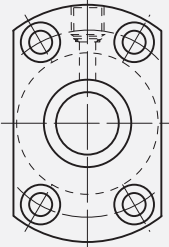
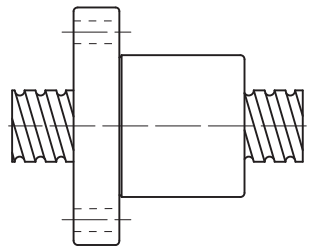
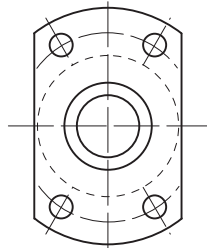
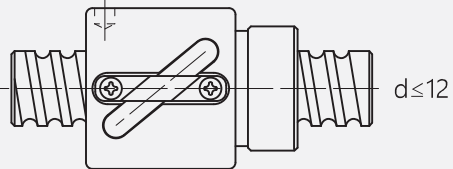
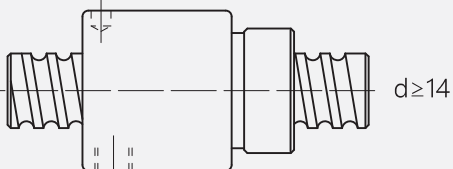
| | Nut Type | Flange Type |
|---|---|---|
| NH/H (A solution for slide table/High Speed/Strong dust-proof type) | SFNH/SFH(DIN)  C69 |  $d \leq 32$ $d \geq 40$ |
| HN (A solution for slide table) | SCNH  C70 | No-Flange |
| NU/U (Strong dust-proof type) | SFNU/ SFU(DIN)  C71 |  $d \leq 32$ $d \geq 40$ |
| NI/I (Strong dust-proof type) | SFNI/SFI  C72 |  |



| | Nut Type | Flange Type |
|---|---|---|
| Σ (Design for Milling) | <p>SFM</p>  <p>C72</p> |  |
| ∇ (High Load External Circulation type) | <p>SFV</p>  <p>C73</p> |  |
| ∠ (High DM-N Rating) | <p>SFY</p>  <p>C74</p> |  |
| XS (Miniature type) | <p>XSX</p>  <p>C75</p> |  |

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2-4 Rolled Ball Screw Series

| | Nut Type | Flange Type |
|-----------------------|---|--|
| CNI/I (Standard) | <p>SCNI/SCI</p>  <p>C76</p> | No-Flange |
| K (Miniature type) | <p>SFK</p>  <p>C77</p> |  <p>(SFK 01004) (SFK 02002) (SFK 02502)</p> |
| | <p>SFK</p>  <p>C77</p> |  |
| BSH | <p>BSH</p>  <p>$d \leq 12$</p>  <p>$d \geq 14$</p> <p>C78</p> | No-Flange |

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