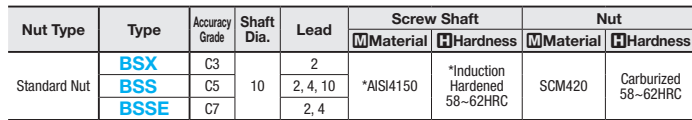


**Points of comparison between similar products | Consider using this product if the usage environment is a high-load, and high-frequency drive application.**



\*For 1002, screw shaft material SCM415 is carburized.

Technical drawing of a ball screw assembly. The side view shows a ball screw with a lead of 5 mm, a nut with a motion range Y, and a total length L. Dimensions include: 9, 0.8<sup>+0.1</sup>/<sub>0</sub>, 6.8<sup>+0.1</sup>/<sub>0</sub>, 0.002, Ø6.0<sup>+0.010</sup>/<sub>0</sub>, R0.2 or Less, C0.5, Ø5.7<sup>-0.06</sup>/<sub>0</sub>, Ø23<sup>-0.020</sup>/<sub>-0.027</sub>, A, B, 5, X, Ø10, W, Z=0.2, Ø8<sup>-0.006</sup>/<sub>-0.002</sub>, R0.2 or Less, C0.2, 3, 4, 4, 9, 10, M8x1.0, C0.5, Ø6.0<sup>+0.008</sup>/<sub>0</sub>, C0.5. The front view shows a square nut with a 31 mm side length, Ø31 outer diameter, Ø40 inner diameter, 4-Ø4.5 Through holes, and 45° chamfers. The arrow view X-X is indicated.

💡 **BSX1002** comes with felt seals.

Technical drawing of a mechanical assembly, showing a side view and an arrow view X-X.

**Side View Dimensions:**

- Overall length: 40
- Distance from left end to center of seal: 32
- Distance from center of seal to right end: 8
- Seal diameter:  $\varnothing 10$
- Seal width: 14
- Seal thickness:  $12 \pm 0.2$
- Seal diameter:  $\varnothing 10 \pm 0.005$
- Seal width: 5
- Seal thickness:  $5 \pm 0.005$
- Seal diameter:  $\varnothing 8 \pm 0.009$
- Seal width: 10
- Seal thickness:  $15 \pm 0.009$
- Seal diameter:  $\varnothing 8 \pm 0.009$
- Seal width: 10
- Seal thickness:  $15 \pm 0.009$
- Seal diameter:  $\varnothing 8 \pm 0.009$
- Seal width: 10
- Seal thickness:  $15 \pm 0.009$
- Seal diameter:  $\varnothing 8 \pm 0.009$
- Seal width: 10
- Seal thickness:  $15 \pm 0.009$

**Arrow View X-X Dimensions:**

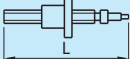
- Overall width: 30
- Overall height: 45
- Chamfer angle:  $30^\circ$
- Chamfer diameter:  $\varnothing 36$
- Chamfer diameter:  $\varnothing 47$
- Chamfer diameter:  $4 \times \varnothing 4.5$  Through
- Chamfer diameter:  $\varnothing 8$  Counterbore Depth 4.4

$$\text{kgf} = \text{N} \times 0.101972$$

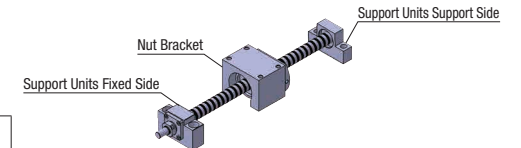

## Notes

 Filled with lithium soap based grease (Alvania Grease S2 made by Showa Shell Sekiyu K.K).  
 Cautions: Do not let the nuts overrun or remove the nuts from the screw shafts. It may cause the balls to fall out or damage the ball recirculation parts.  
 Various grease options are available. For price and specifications,  **P686**  BSX is not applicable.  
 For accuracy of Ball Screws, see **P2223** and **P2224**.  
 For details of Support Units, see **P753~P778**.  Use one of the support unit accessory collars on the fastening nut side.



| Alterations                                                                                                                                                                                                                                                                | Code | Spec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |   |          |      |     |                      |      |     |                      |      |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|----------|------|-----|----------------------|------|-----|----------------------|------|--|--|
| <p>No Machining on Support Side Shaft End</p>                                                                                                                                           | NC   | <p>No machining added on the support side shaft end.</p> <p><u>Ordering Code</u> NC</p>                                                                                                                                                                                                                                                                                                                                                                                 |      |   |          |      |     |                      |      |     |                      |      |  |  |
| <p>Ball Nut Orientation Reversed</p> <p>(Support Side) (Fixed Side)</p> <p>Std.</p>  <p>Revised</p>  | RLC  | <p>Changes the nut direction.</p> <p><u>Ordering Code</u> RLC</p>                                                                                                                                                                                                                                                                                                                                                                                                       |      |   |          |      |     |                      |      |     |                      |      |  |  |
| <p>No Retaining Ring Groove on Support Side Shaft End</p>                                                                                                                             | RNC  | <p>No Retaining Ring Groove on Support Side Shaft End.</p> <p><u>Ordering Code</u> RNC</p> <p>⚠ Combination with FC is not available.</p>                                                                                                                                                                                                                                                                                                                               |      |   |          |      |     |                      |      |     |                      |      |  |  |
| <p>Change Support Side Shaft End Machining</p>                                                                                                                                        | GC   | <p>Changes the machining on the support side.</p> <p>Q is selectable from 6 or 8. ⚠ Y dimension is shortened.</p> <p>G=1mm Increment</p> <p><u>Ordering Code</u> GC-Q8-G20</p> <p>⚠ <math>5 \leq G \leq Q \times 3</math> ⚠ Not applicable to 1002.</p>                                                                                                                                                                                                                 |      |   |          |      |     |                      |      |     |                      |      |  |  |
| <p>Change Support Side Shaft End Length</p>                                                                                                                                           | FC   | <p>Changes the length of the support side shaft end.</p> <p>FC=1mm Increment</p> <p><u>Ordering Code</u> FC20</p> <table border="1"> <thead> <tr> <th>Size</th><th>ℓ</th><th>FC Range</th></tr> </thead> <tbody> <tr> <td>1002</td><td>6.8</td><td><math>10 \leq FC \leq 20</math></td></tr> <tr> <td>1004</td><td>7.9</td><td><math>11 \leq FC \leq 20</math></td></tr> <tr> <td>1010</td><td></td><td></td></tr> </tbody> </table> <p>⚠ Y dimension is shortened.</p> | Size | ℓ | FC Range | 1002 | 6.8 | $10 \leq FC \leq 20$ | 1004 | 7.9 | $11 \leq FC \leq 20$ | 1010 |  |  |
| Size                                                                                                                                                                                                                                                                       | ℓ    | FC Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |   |          |      |     |                      |      |     |                      |      |  |  |
| 1002                                                                                                                                                                                                                                                                       | 6.8  | $10 \leq FC \leq 20$                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |   |          |      |     |                      |      |     |                      |      |  |  |
| 1004                                                                                                                                                                                                                                                                       | 7.9  | $11 \leq FC \leq 20$                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |   |          |      |     |                      |      |     |                      |      |  |  |
| 1010                                                                                                                                                                                                                                                                       |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |   |          |      |     |                      |      |     |                      |      |  |  |

⚠ Dimensions in ( ) are for 1002.



Support Units - Square

Support Units - Round

Nut Brackets - Block Type

| Ball Screw Part Number |                  |      | Recommended Support Unit |        |        |            |              |      |
|------------------------|------------------|------|--------------------------|--------|--------|------------|--------------|------|
| Type                   | Screw Shaft O.D. | Lead | Part Number              |        | Shape  | Fixed Side | Support Side | Page |
|                        |                  |      | Type                     | No.    |        |            |              |      |
| BSX                    | 10               | 02   | BRW                      | 8      | Round  | ○          | ○            | P767 |
|                        |                  |      | BUR                      | 6      |        |            |              | P768 |
|                        |                  |      | BSW                      | 8      | Square | ○          |              | P761 |
|                        |                  |      | BUN                      | 8      |        |            | ○            | P762 |
| BSS<br>BSSE            |                  | 02   | BRW                      | 8S     | Round  | ○          |              | P767 |
|                        |                  |      | BUR                      | 6      |        |            | ○            | P768 |
|                        |                  |      | BSW                      | 8S     | Square | ○          |              | P761 |
|                        |                  |      | BUN                      | 8      |        |            | ○            | P762 |
| BSS<br>BSSE            |                  | 04   | BRW                      | 10S    | Round  | ○          | ○            | P767 |
|                        |                  |      | BUR                      | 10     |        |            | ○            | P768 |
|                        |                  |      | BSW                      | 10S    | Square | ○          |              | P761 |
|                        |                  |      | BUN                      | 10     |        |            | ○            | P762 |
| BSS                    | 10               | BRW  | 10                       | Round  | ○      | ○          | P767         |      |
|                        |                  | BUR  | 10                       |        |        | ○          | P768         |      |
|                        |                  | BSW  | 10                       | Square | ○      |            | P761         |      |
|                        |                  | BUN  | 10                       |        |        | ○          | P762         |      |

| Ball Screw Part Number |                  |      | Recommended Nut Bracket |       |      |
|------------------------|------------------|------|-------------------------|-------|------|
| Type                   | Screw Shaft O.D. | Lead | Part Number             |       | Page |
|                        |                  |      | Type                    | No.   |      |
| BSX                    | 10               | 02   | BNFB                    | 1002X | -    |
| BSS                    |                  |      | BNFM                    | 1002S | P780 |
| BSSE                   |                  | 04   | BNFR                    | 1004S | P780 |
|                        |                  | 10   | BNFA                    | 1010S | P780 |

📌 A variety of materials and surface treatments for Nut Brackets are available.  
(P.780)