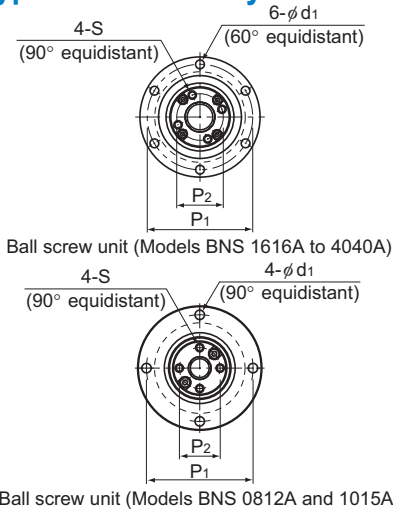


BNS-A Compact Type: Linear-Rotary Motion  
No Preload

|          |        |
|----------|--------|
| DN value | 70,000 |
|----------|--------|



Ball screw unit

| Model No. | Screw shaft outer diameter | Screw shaft inner diameter | Lead | Ball screw dimensions |                 |                                |                       |                |                 |                |                |                |
|-----------|----------------------------|----------------------------|------|-----------------------|-----------------|--------------------------------|-----------------------|----------------|-----------------|----------------|----------------|----------------|
|           |                            |                            |      | Basic load rating     |                 | Ball center-to-center diameter | Thread minor diameter | Outer diameter | Flange diameter | Overall length | D <sub>3</sub> | D <sub>4</sub> |
|           |                            |                            |      | C <sub>a</sub>        | C <sub>0a</sub> |                                |                       |                |                 |                |                |                |
|           | d                          | db                         | Ph   | kN                    | kN              | dp                             | dc                    | g6             | D <sub>1</sub>  | L <sub>1</sub> | h7             | H7             |
| BNS 0812A | 8                          | —                          | 12   | 1.1                   | 1.8             | 8.4                            | 6.6                   | 32             | 44              | 28.5           | 22             | 19             |
| BNS 1015A | 10                         | —                          | 15   | 1.7                   | 2.7             | 10.5                           | 8.3                   | 36             | 48              | 34.5           | 26             | 23             |
| BNS 1616A | 16                         | 11                         | 16   | 3.9                   | 7.2             | 16.65                          | 13.7                  | 48             | 64              | 40             | 36             | 32             |
| BNS 2020A | 20                         | 14                         | 20   | 6.1                   | 12.3            | 20.75                          | 17.5                  | 56             | 72              | 48             | 43.5           | 39             |
| BNS 2525A | 25                         | 18                         | 25   | 9.1                   | 19.3            | 26                             | 21.9                  | 66             | 86              | 58             | 52             | 47             |
| BNS 3232A | 32                         | 23                         | 32   | 13                    | 29.8            | 33.25                          | 28.3                  | 78             | 103             | 72             | 63             | 58             |
| BNS 4040A | 40                         | 29                         | 40   | 21.4                  | 49.7            | 41.75                          | 35.2                  | 100            | 130             | 88             | 79.5           | 73             |

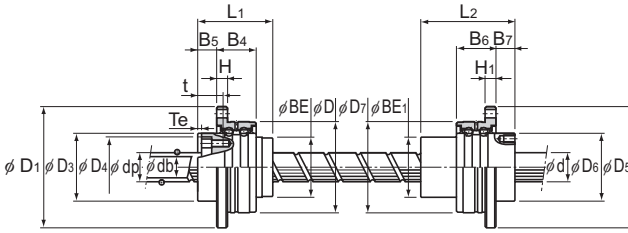
Ball spline

| Model No. | Ball spline dimensions |                |                                                    |                     |                 |                |                 |                |                |                 |
|-----------|------------------------|----------------|----------------------------------------------------|---------------------|-----------------|----------------|-----------------|----------------|----------------|-----------------|
|           | Basic load rating      |                | Static permissible moment<br>M <sub>k</sub><br>N·m | Basic torque rating |                 | Outer diameter | Flange diameter | Overall length | D <sub>6</sub> | BE <sub>1</sub> |
|           | C                      | C <sub>0</sub> |                                                    | C <sub>T</sub>      | C <sub>0T</sub> |                |                 |                |                |                 |
|           | kN                     | kN             |                                                    | N·m                 | N·m             |                |                 |                |                |                 |
|           |                        |                |                                                    |                     |                 | g6             | D <sub>5</sub>  | L <sub>2</sub> | h7             |                 |
| BNS 0812A | 1.5                    | 2.6            | 5.9                                                | 2                   | 2.9             | 32             | 44              | 25             | 24             | 16              |
| BNS 1015A | 2.7                    | 4.9            | 15.7                                               | 3.9                 | 7.8             | 36             | 48              | 33             | 28             | 21              |
| BNS 1616A | 7.1                    | 12.6           | 67.6                                               | 31.4                | 34.3            | 48             | 64              | 50             | 36             | 31              |
| BNS 2020A | 10.2                   | 17.8           | 118                                                | 56.8                | 55.8            | 56             | 72              | 63             | 43.5           | 35              |
| BNS 2525A | 15.2                   | 25.8           | 210                                                | 105                 | 103             | 66             | 86              | 71             | 52             | 42              |
| BNS 3232A | 20.5                   | 34             | 290                                                | 180                 | 157             | 78             | 103             | 80             | 63             | 52              |
| BNS 4040A | 37.8                   | 60.5           | 687                                                | 418                 | 377             | 100            | 130             | 100            | 79.5           | 64              |

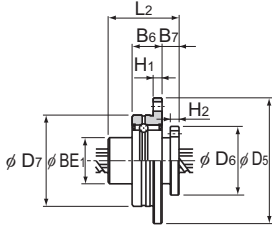
Model number coding

BNS2020A +500L C5

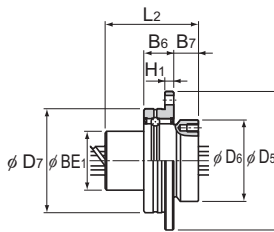
Model number      Overall shaft length (in mm)      Accuracy symbol<sup>1</sup>



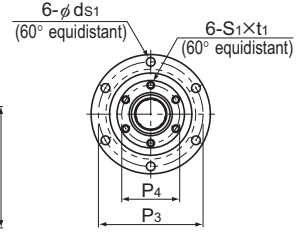
Ball screw unit  
(Models BNS 0812A to 4040A) (Models BNS 1616A to 4040A)



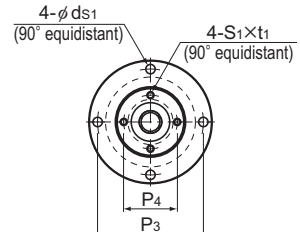
Ball spline  
(Model BNS 0812A)



Ball spline  
(Models BNS 1015A)



Ball spline  
(Models BNS 1616A to 4040A)



Ball spline  
(Models BNS 0812A and 1015A)

Unit: mm

|  | BE | H  | B <sub>4</sub> | B <sub>5</sub> | Te  | P <sub>1</sub> | P <sub>2</sub> | S    | t    | d <sub>1</sub> | Support bearing basic load rating |                 | Nut inertial moment   | Screw shaft inertial moment | Nut mass | Shaft mass | Permissible rotational speed |
|--|----|----|----------------|----------------|-----|----------------|----------------|------|------|----------------|-----------------------------------|-----------------|-----------------------|-----------------------------|----------|------------|------------------------------|
|  |    |    |                |                |     |                |                |      |      |                | Ca                                | C <sub>0a</sub> |                       |                             |          |            |                              |
|  | 19 | 3  | 10.5           | 7              | 1.5 | 38             | 14.5           | M2.6 | 10   | 3.4            | 0.8                               | 0.5             | 3.00×10 <sup>-6</sup> | 3.16×10 <sup>-9</sup>       | 0.08     | 0.35       | 3,500                        |
|  | 23 | 3  | 10.5           | 8              | 1.5 | 42             | 18             | M3   | 11.5 | 3.4            | 0.9                               | 0.7             | 8.00×10 <sup>-6</sup> | 7.71×10 <sup>-9</sup>       | 0.15     | 0.52       | 3,500                        |
|  | 32 | 6  | 21             | 10             | 2   | 56             | 25             | M4   | 13.5 | 4.5            | 8.7                               | 10.5            | 3.50×10 <sup>-5</sup> | 3.92×10 <sup>-8</sup>       | 0.31     | 0.8        | 4,200                        |
|  | 39 | 6  | 21             | 11             | 2.5 | 64             | 31             | M5   | 16.5 | 4.5            | 9.7                               | 13.4            | 8.50×10 <sup>-5</sup> | 9.37×10 <sup>-8</sup>       | 0.54     | 1.21       | 3,370                        |
|  | 47 | 7  | 25             | 13             | 3   | 75             | 38             | M6   | 20   | 5.5            | 12.7                              | 18.2            | 2.12×10 <sup>-4</sup> | 2.20×10 <sup>-7</sup>       | 0.88     | 1.79       | 2,690                        |
|  | 58 | 8  | 25             | 14             | 3   | 89             | 48             | M6   | 21   | 6.6            | 13.6                              | 22.3            | 5.42×10 <sup>-4</sup> | 5.92×10 <sup>-7</sup>       | 1.39     | 2.96       | 2,100                        |
|  | 73 | 10 | 33             | 16.5           | 3   | 113            | 61             | M8   | 24.5 | 9              | 21.5                              | 36.8            | 1.72×10 <sup>-3</sup> | 1.43×10 <sup>-6</sup>       | 3.16     | 4.51       | 1,670                        |

Unit: mm

|  | H <sub>1</sub> | B <sub>6</sub> | B <sub>7</sub> | H <sub>2</sub> | P <sub>3</sub> | P <sub>4</sub> | S <sub>1</sub> ×t <sub>1</sub> | ds <sub>1</sub> | Support bearing basic load rating |                | Nut inertial moment   | Nut mass |
|--|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------------|-----------------|-----------------------------------|----------------|-----------------------|----------|
|  |                |                |                |                |                |                |                                |                 | C                                 | C <sub>0</sub> |                       |          |
|  | 3              | 10.5           | 6              | 3              | 38             | 19             | M2.6×3                         | 3.4             | 0.69                              | 0.24           | 3.00×10 <sup>-6</sup> | 0.08     |
|  | 3              | 10.5           | 9              | —              | 42             | 23             | M3×4                           | 3.4             | 0.77                              | 0.3            | 8.00×10 <sup>-6</sup> | 0.13     |
|  | 6              | 21             | 10             | —              | 56             | 30             | M4×6                           | 4.5             | 6.7                               | 6.4            | 4.40×10 <sup>-5</sup> | 0.35     |
|  | 6              | 21             | 12             | —              | 64             | 36             | M5×8                           | 4.5             | 7.4                               | 7.8            | 9.90×10 <sup>-5</sup> | 0.51     |
|  | 7              | 25             | 13             | —              | 75             | 44             | M5×8                           | 5.5             | 9.7                               | 10.6           | 2.20×10 <sup>-4</sup> | 0.79     |
|  | 8              | 25             | 17             | —              | 89             | 54             | M6×10                          | 6.6             | 10.5                              | 12.5           | 5.17×10 <sup>-4</sup> | 1.25     |
|  | 10             | 33             | 20             | —              | 113            | 68             | M6×10                          | 9               | 16.5                              | 20.7           | 1.61×10 <sup>-3</sup> | 2.51     |

