

# Ball Screw Support Units

## Outline

### MSU Series

KSS provides the customer with suitable Support Units for end journal of Miniature Ball Screws. MSU series have features of light weight & compact compared to existing series. Our Support Units fit the standard end journal profile of KSS Ball Screws. Please try and use them as well as Ball Screws.

## Compact Support Units

**Light weight (more than 50% down)**

Comparison to our current model



This type of Support Unit has features of light-weight & compact profile compared to our conventional Support Units. KSS believes this type is suitable for Miniature Ball Screws.

### ●Features

- By eliminating extra shape of Housing, and minimizing pitch of mounting holes, light-weight & compact design Support Units became reality.
- Pre-load controlled Angular Contact Bearings are installed, so Rigidity can be kept high.
- Reasonable price has been achieved with reducing number of components, because oil seals have been eliminated by using shielded type Angular Contact Bearings.
- Angular Contact Bearings are made from stainless steel and low contamination Grease is applied, so Support Units can be used in clean-environment.
- Ultra-compact size ( $\phi 3$ ) is standardized, it would be suitable for Ultra Miniature Ball Screws.
- Pillow & Flange type are standardized for both fixed & supported side, so wide variety of choices are available.

### ●Variation

Compact Support Units(MSU series) provide 2 choices of Housing type, which are Pillow type and Flange type. Fixed side and supported side Units are standardized for each type. In case of Pillow type, it became light-weight & more compact compared to our conventional type.

Pillow type



Flange type

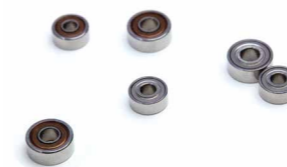


### ●Specifications

Angular Contact Bearings built in Compact Support Units(MSU series) are made from stainless steel and low contamination Grease is applied. Other components of Support Units are also made from stainless steel or are coated by black finishing. These series can be used in clean-environment.

### [Ball Bearings for MSU Sries]

#### Angular Contact Ball Bearings



This series is the Angular Contact Ball Bearings built in fixed side of Compact Support Units(MSU series). This can be provided as a set of DF or DB configuration only. (Refer to dimension table in page E115-E116)

#### Deep Groove Bearings

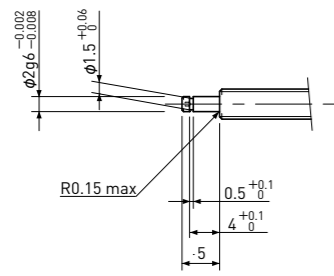


This series is the Deep Groove Ball Bearings built in supported side of Compact Support Units(MSU series). This type can be provided as a Bearing itself. (Refer to dimension table in page E117-E118)

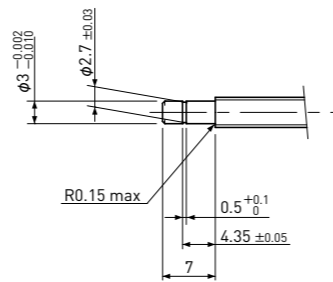
● Standardized end-journal profile

KSS Support Units are designed to fit standard end-journal profile of KSS Miniature Ball Screws. Table below shows KSS Support Units list corresponding to standard end-journal profile.

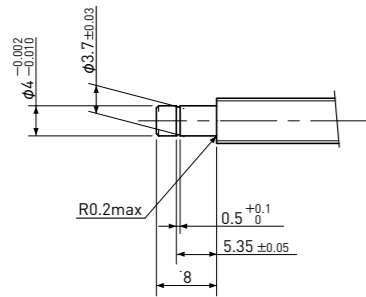
[Supported side]



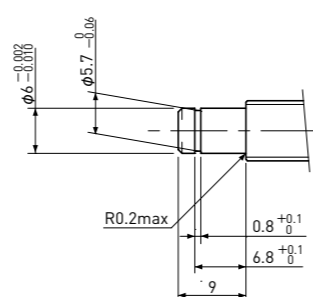
| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 2$        | MSU-3CS / MSU-3GS  |



| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 3$        | MSU-4CS / MSU-4GS  |



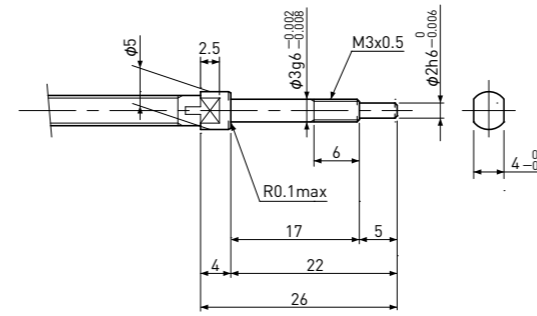
| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 4$        | MSU-5CS / MSU-5GS  |



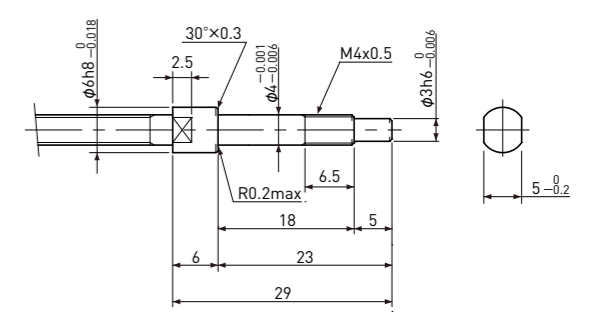
| Brg. Inner dia. | Support Unit model                     |
|-----------------|--|
| $\phi 6$        | MSU-6CS / MSU-6GS<br>MSU-8CS / MSU-8GS |

Note) Request for Supported side Support Units with  $\phi 8$  and  $\phi 10$  as well as standard design, please ask KSS representative.

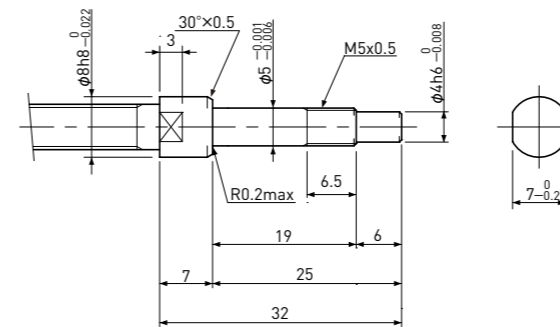
[Fixed side]



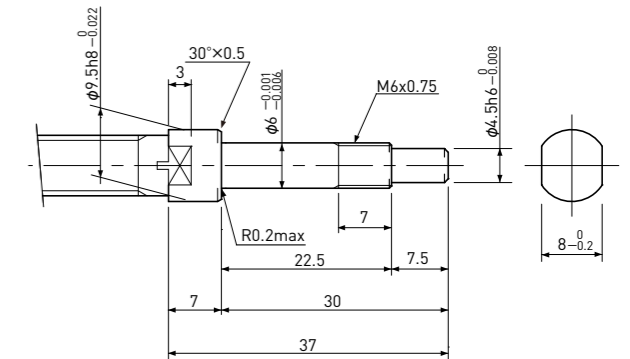
| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 3$        | MSU-3C / MSU-3G    |



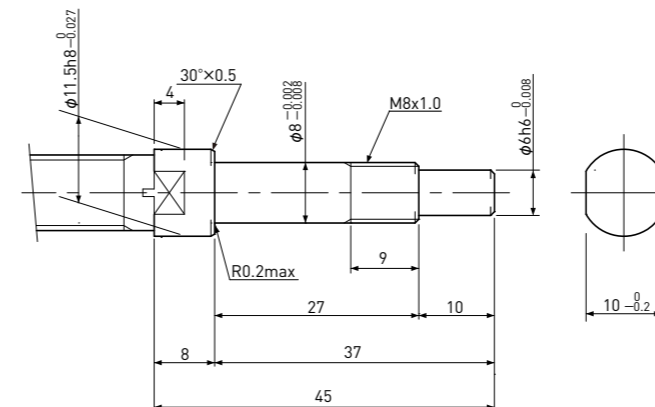
| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 4$        | MSU-4C / MSU-4G    |



| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 5$        | MSU-5C / MSU-5G    |



| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 6$        | MSU-6C / MSU-6G    |



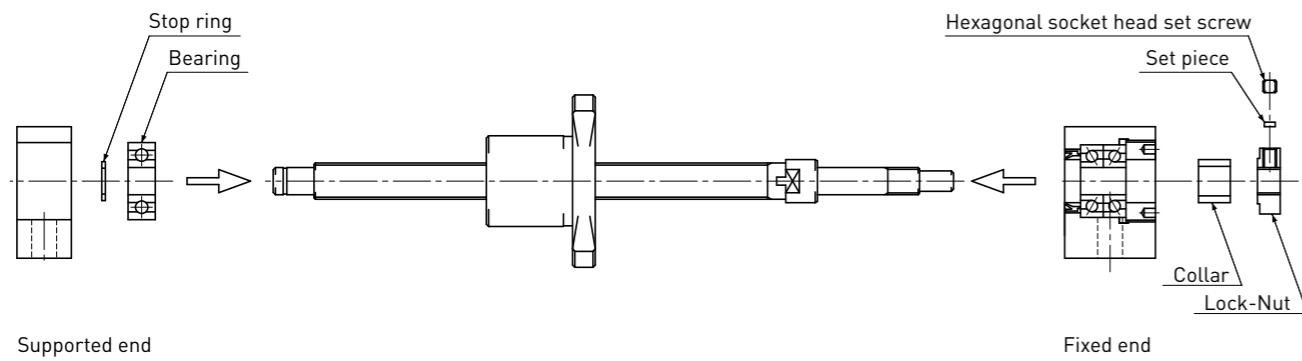
| Brg. Inner dia. | Support Unit model |
|-----------------|--------------------|
| $\phi 8$        | MSU-8C / MSU-8G    |

Note) Request for fixed side Support Units with  $\phi 10$  and  $\phi 12$  as well as standard design, please ask KSS representative.

● Mounting procedure

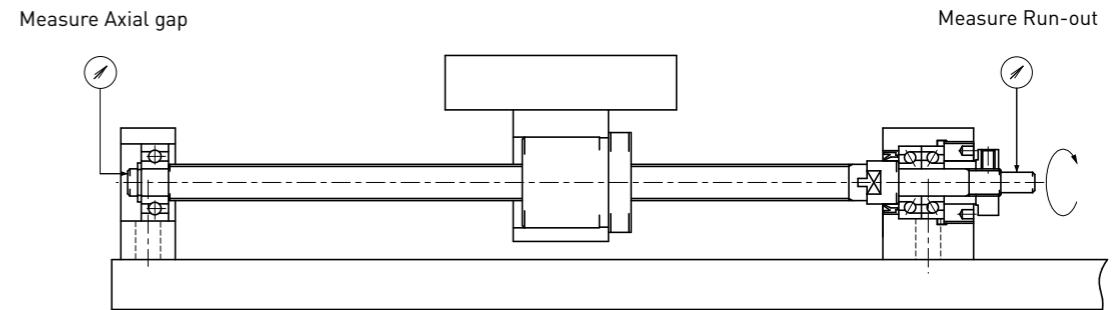
1. Assembling Support Unit

- 1) Mount the fixed end Support Unit onto the Ball Screw.
  - Note 1) Do not disassemble the Support Unit.
- 2) Tighten the Lock-Nut after inserting into the fixed end Support Unit, and secure using the set piece and hexagonal socket head set screw.
  - Note 1) Make sure that the set piece is not allowed to curl.
- 3) Mount the supported end Bearing, secure with the stop ring, and fit into the Housing.



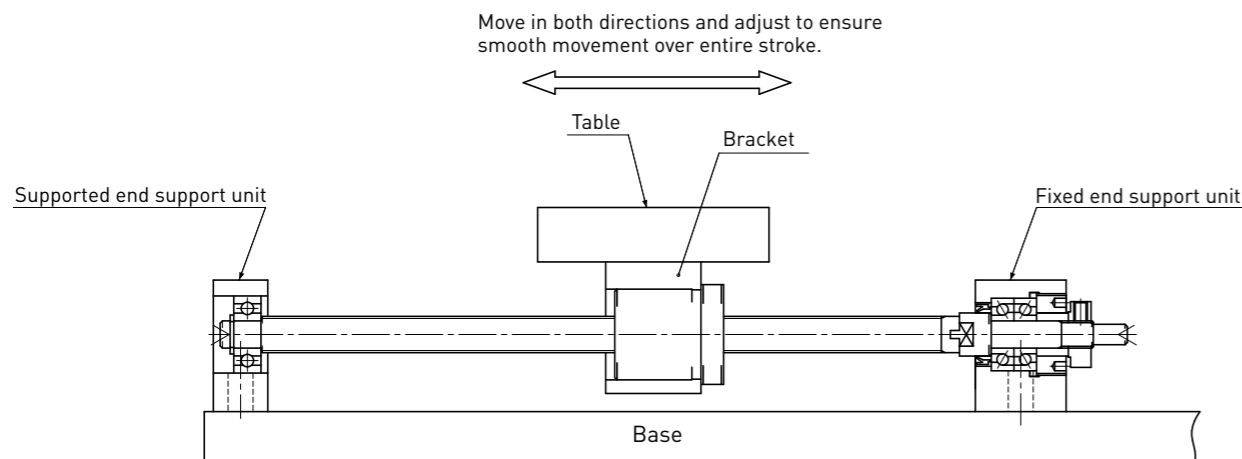
3. Mounting the supported end Housing on the base and checking accuracy

- 1) Move the table toward the supported end Housing and center it. Move the table in both directions and adjust to ensure smooth movement over entire length. Secure loosely to the base.
- 2) Check the Run-out and Axial gap at the Ball Screw Shaft end using a dial gauge, and fully tighten the Nut, fixed end Support Unit and supported end Housing.



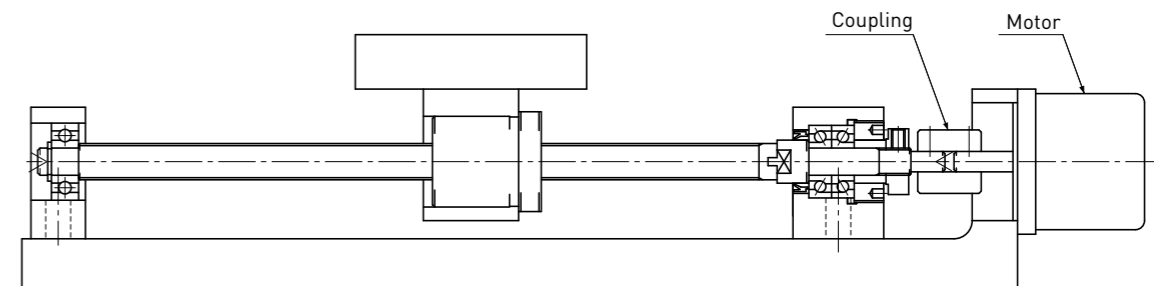
2. Mounting the table on the Ball Screw Nut and mounting the Support Unit on the base

- 1) Insert the Ball Screw Nut into the table or Bracket, which is attached to the table, and loosely tighten.
- 2) Loosely tighten the fixed end Support Unit to the base.
  - Note 1) Move the table toward the Support Unit and center it. Adjust to ensure that the table moves smoothly.



4. Connecting to the Motor

- 1) Secure the Motor to the main Unit.
- 2) Connect the Motor to the Ball Screw using the coupling.
- 3) Run in thoroughly.



Note) Instruction above is for Pillow type and Block type Support Units, In case of Flange type Support Units, the same procedure can be applicable.