

Support Units Overview

Support Units Lineup

C-VALUE Part

New release!

Shape	Type	Product Name						Features
		Fixed Side [Part Number]			Support Side [Part Number]			
		Bearing used	Part Number	Image	Bearing used	Part Number	Image	
Square	Standard	Oversea manufactured Angular Contact Bearing Class P5	C-BSW		Oversea manufactured Radial Bearing	C-BUN		(Industry Standard Product) Suitable for assembly with C-VALUE ball screw*. For medium-low operation frequency, medium-low positioning precision usage. 20% reduced from existing products! Further 5% reduction when ordering in Sets.
	Standard Narrow Pitch	Oversea manufactured Angular Contact Bearing Class P5	C-BSFW		Oversea manufactured Radial Bearing	C-BUFN		
Round	Standard	Oversea manufactured Angular Contact Bearing Class P5	C-BRW		Oversea manufactured Radial Bearing	C-BUR		

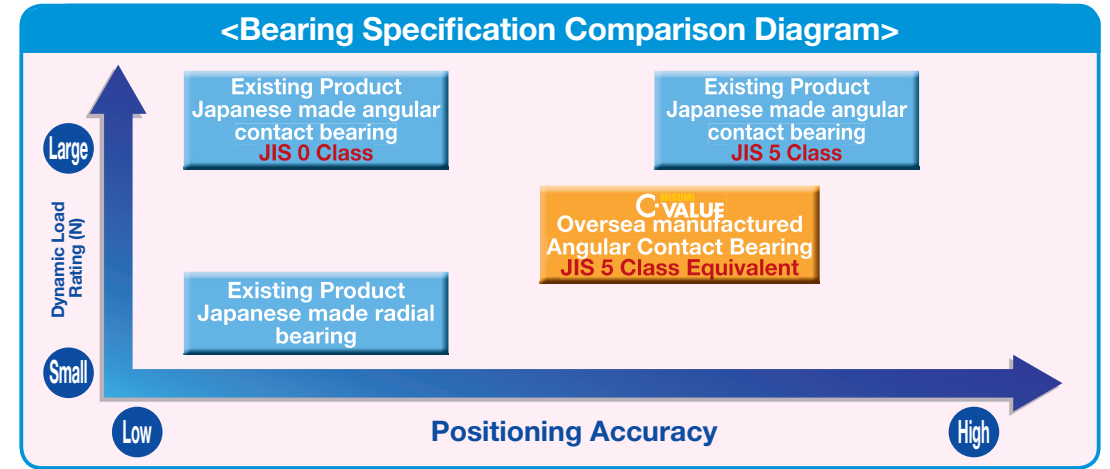
* Excludes C-BSFW15,20, C-BUFN15,20.

Existing Part

Shape	Type	Product Name						Features
		Fixed Side [Part Number]			Support Side [Part Number]			
		Bearing used	Part Number	Image	Bearing used	Part Number	Image	
Square	Standard	Japanese Made Angular Contact Bearing Class P5	BSW BSWN BSWR		Japanese Made Radial Bearing	BUN BUNM BUNR		Industry Standard
	Economy	Japanese Made Angular Contact Bearing Class P0	BSWE BSWEM BSWER		-	-	-	Angular Contact Bearing Class P0 is used
	Radial	Japanese Made Radial Bearing	BSWZ BSWZM		-	-	-	Radial Bearing used.
	Compact	Japanese Made Angular Contact Bearing Class P0	BSQ BSQM		Japanese Made Radial Bearing	BUQ BUQM		Easy to use in a limited width space. Suitable for small devices.
	Low Profile	Japanese Made Angular Contact Bearing Class P5	BSV BSVM		Japanese Made Radial Bearing	BUV BUVM		Lower profile linear motion units can be made. Recommended to use together with Compact Nut. (BSSC in P.687~)
	Narrow Pitch	Japanese Made Angular Contact Bearing Class P5	BSA BSAM		Japanese Made Radial Bearing	BUA BUAM		Easy to use in a limited width space. Suitable for small devices.
	With Damper	Japanese Made Angular Contact Bearing Class P5	BSWD		Japanese Made Radial Bearing	BUND		Unnecessary to design a damper mechanism.
	[Fixed Side] With Dowel Holes [Support Side] With Retaining Ring	Japanese Made Angular Contact Bearing Class P5	BSWG BSWGN		Japanese Made Radial Bearing	BTN BTNM		[BSWG/BSWGN] Easy locating of the housing. [BTN, BTNM] Easy to assemble while preventing the bearing from falling off.
	AC Servo Motor Bracket	Japanese Made Angular Contact Bearing Class P5	BJS BJSJ		-	-	-	Ball screws and motors shaft centering are secured by only mounting and aligning a motor with a build-in pilot.
	Round	Standard	Japanese Made Angular Contact Bearing Class P5	BRW BRWN BRWR		Japanese Made Radial Bearing	BUR BURM BURR	
Economy		Japanese Made Angular Contact Bearing Class P0	BRWE BRWEM BRWER		-	-	-	Angular Contact Bearing Class P0 is used.
Radial		Japanese Made Radial Bearing	BRWZ BRWZM		-	-	-	Radial Bearing used.

Specification Differences between Existing Parts and Parts C-VALUE

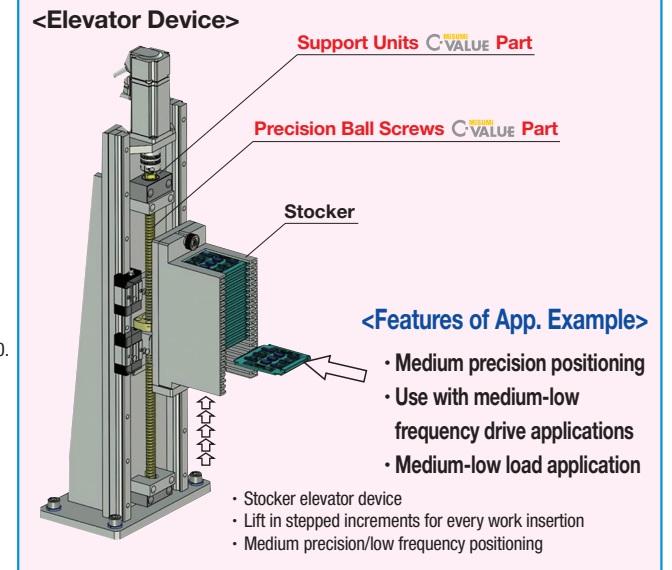
- C-VALUE parts have different bearing load rating from the existing products.
- Select the ball screw suitable for the usage criteria, otherwise it will affect the device's lifespan performance and its positioning performance.



Selection Points

- We recommend C-VALUE support units be used together with C-VALUE ball screws.
- Consider using for devices requiring medium precision positioning, medium load application or medium-low operation frequency.
- Consider using existing parts for high precision positioning, high load application, or high operation frequency.

Support Units C-VALUE Part App. Example



<Combination of Ball Screws and Support Units>

Ball Screw Root Dia.	Support Units		
	Shape	Fixed Side	Support Side
Precision C-BSS	Square	C-BSW C-BSFW*	C-BUN C-BUFN*
Rolled C-BSSC	Round	C-BRW	C-BUR

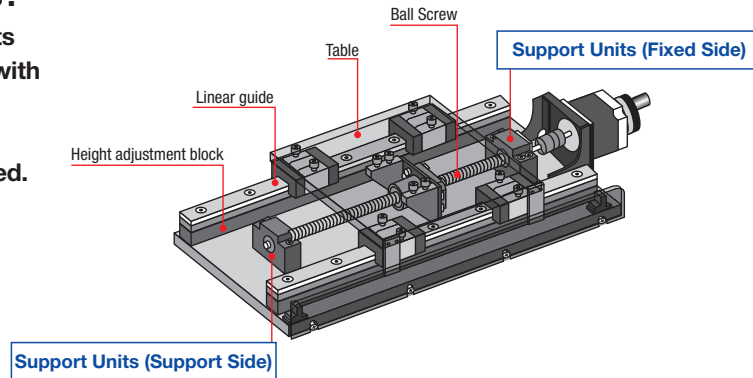
* Excludes C-BSFW15,20, C-BUFN15,20.

Overview of Support Units

Technique and Structure

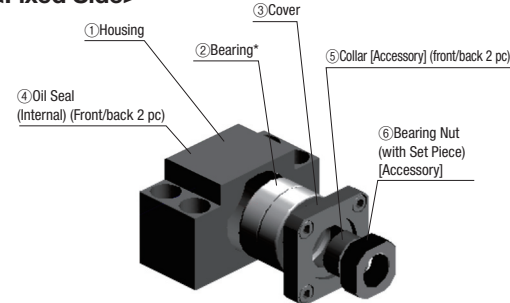
What are Support Units?

- Dedicated bearing components that are always used as a set with ball screws.
- Angular contact bearings that receive large axial load are used.



Structure of Support Units

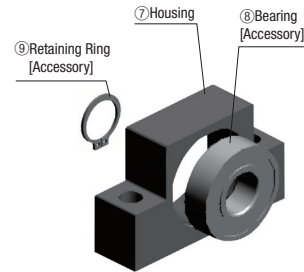
<Fixed Side>



Performance	Number	Part Name	Package Unit
Fixed Side	①	Housing	Main Body Package
	②	Bearing*	
	③	Cover	
	④	Oil Seal	Accessory Package
	⑤	Collar 2 pcs.	
	⑥	Bearing Nut	

*Accuracy differs among bearing type. For details, refer to the next page.

<Support Side>

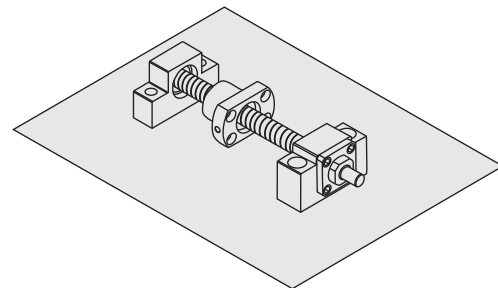


Performance	Number	Part Name	Package Unit
Support Side	⑦	Housing	Main Body Package
	⑧	Bearing	
	⑨	Retaining Ring	Accessory Package

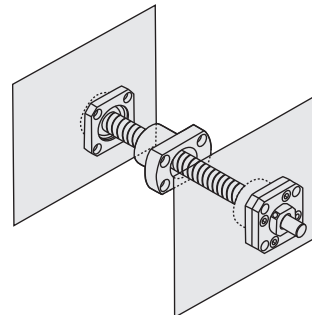
***Do not disassemble the unit of fixed side ① to ④, as they must remain as assembled units!**

Shape of Support Units and Mounting Examples

Square



Round

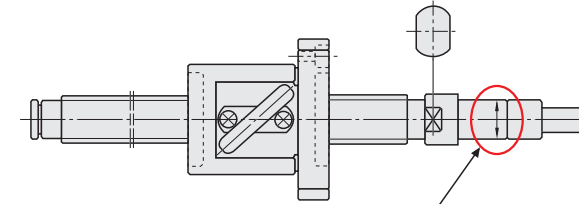


Combination with MISUMI Ball Screws

Combination of Ball Screws and Support Units

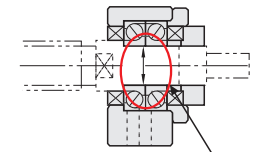
When selecting Support Units for Ball Screws, note that it can be combined if dimensions of bearing installation part on Fixed Side of the Ball Screw [Fig. 1] and bearing I.D. of the Support Unit [Fig. 2] are the same.

[Fig. 1] <Example of Ball Screw BSS1505>



Bearing Installation Part on Ball Screw Fixed Side

[Fig. 2] <Example of Support Unit BSW12>



Support Units Bearing I.D.

Ball Screw Part Number	Accuracy Grade C3	BSX0601	-	BSX0801 BSX0802 BSX1002	-	BSX1202 BSX1205	BSX1505	-	-	-
	Accuracy Grade C5	-	BSS1002 C-BSS1002	BSS0802 BSS1202	BSS1004 BSS1205 BSS1204 BSS1210	BSS1010	Step ① BSS15□□ C-BSS15□□	BSS20□□ C-BSS20□□	BSS25□□ C-BSS25□□	-
Accuracy Grade C7	BSST0802	BSSE1002 BSST1004	BSSE0802 BSSE1202	BSSE1004 BSSE1205 BSSE1210 BSST1204	-	BSSE15□□ BSST15□□	BSSE20□□ BSST20□□	BSSE25□□ BSST25□□	-	
Accuracy Grade C10	BSSR08□□ BSSZ08□□ BSSC08□□ C-BSSC08□□	BSSR10□□ BSSZ10□□ BSSC10□□ C-BSSC10□□	-	BSSR12□□ BSSZ12□□ BSSC12□□ C-BSSC12□□	BSSR14□□ BSSZ14□□	BSSR15□□ BSSZ15□□ BSSC15□□ C-BSSC15□□	BSSR20□□ BSSZ20□□ BSSC20□□ C-BSSC20□□	BSSR25□□ BSSZ25□□ BSSC25□□ C-BSSC25□□	BSSR32□□ BSSZ32□□	
Fixed Side Shaft Dia. of Ball Screws (Bearing Installation Part)	∅6	∅8		∅10		Step ② ∅12	∅15	∅20	∅25	
Support Units (Bearing I.D.)	No.6	No.8S	No.8	No.10S	No.1022 No.10	Step ③ No.12	No.152□ No.15*	No.20*	No.25	
	No.6L	-	-	-	-	-	-	-	-	

[Example]

- Step ①** Confirm that shaft diameter of the Ball Screw is 15.
- Step ②** Confirm that dimension of the bearing installation part on fixed side of the Ball Screw is ∅12.
- Step ③** Determine that corresponding bearing I.D. of the Support Unit is No.12.

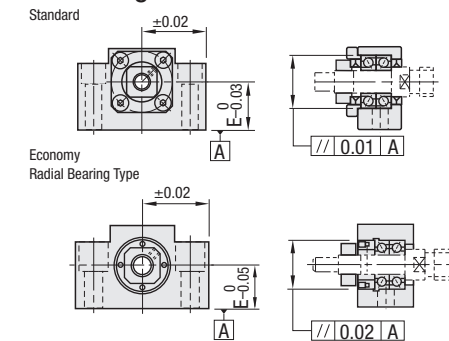
* Except C-BSFW15,20, C-BUFN15,20

Combination of Fixed Side and Support Side Support Units

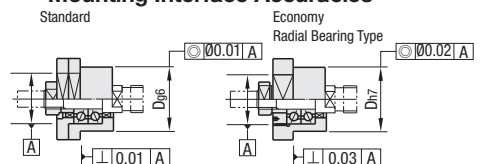
Type	Type	Fixed Side	Page	Support Side	Page
Square	Standard	BSW	P.761	BUN	P.762
		BSWN		BUNM	
		BSWR		BUNR	
	C-VALUE	C-BSW	P.763/765	C-BUN	P.764/766
		C-BSFW*		C-BUFN*	
	Economy	BSWE	P.775	BUN	P.762
		BSWEM		BUNM	
	Radial Bearing Type	BSWZ	P.775	BUN	P.762
		BSWZM		BUNM	
	Compact	BSQ	P.771	BUQ	P.772
BSQM		BUQM			
Low Profile Type	BSV	P.771	BUV	P.772	
	BSVM		BUVM		
Narrow Mounting Hole Pitch Type	BSA	P.771	BUA	P.772	
	BSAM		BUAM		
with Dowel Holes	BSWG	P.773	BUN	P.762	
	BSWGN		BUNM		
with Damper	BSWD	P.773	BUN	P.774	
	BSWD		BUNM		
Round	Standard	BRW	P.767	BUR	P.768
		BRWN		BURM	
		BRWR		BURR	
	C-VALUE	C-BRW	P.769	C-BUR	P.770
		C-BRW		C-BUR	
	Economy	BRWE	P.776	BUR	P.768
BRWEM		BURM			
BRWER		BURR			
Radial Bearing Type	BRWZ	P.776	BUR	P.768	
	BRWZM		BURM		

* Excludes C-BSFW15,20, C-BUFN15,20.

Support Units - Square (Fixed Side) Mounting Interface Accuracies



Support Units - Round (Fixed Side) Mounting Interface Accuracies



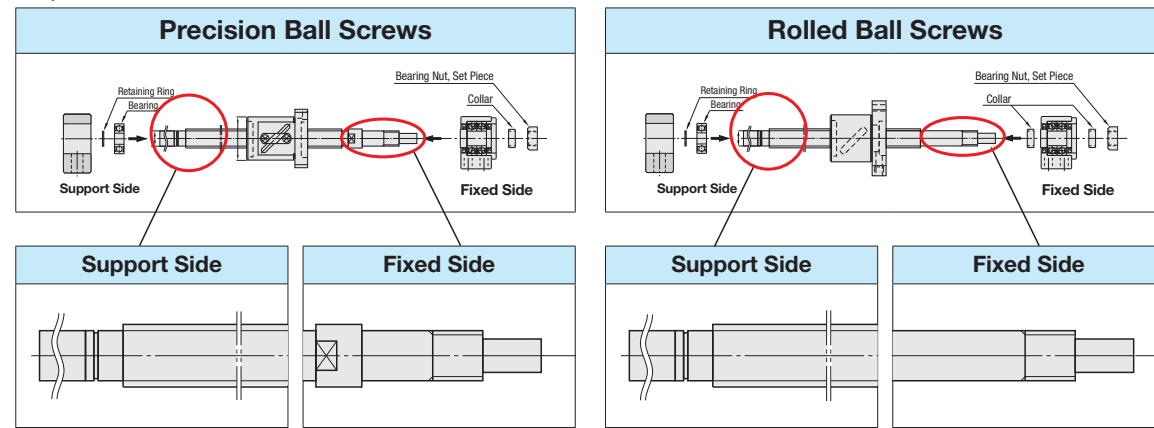
Support unit: For the customer using non-MISUMI ball screws

It is possible to use MISUMI support units in combination with non-MISUMI standard ball screws.

Selection Procedure Select the MISUMI support unit using the following procedure.

Step ① Check the ball screw specifications

Check the specifications of the customers' ball screw. It is necessary to machine the shaft ends in the following shape.



* The support side generally has the same shaft end dimensions for both precision and rolled types.

Step ② Selection of Compatible Support Units

Check the shaft end dimensions of the customers' ball screw and select a support unit from the following compatibility chart.

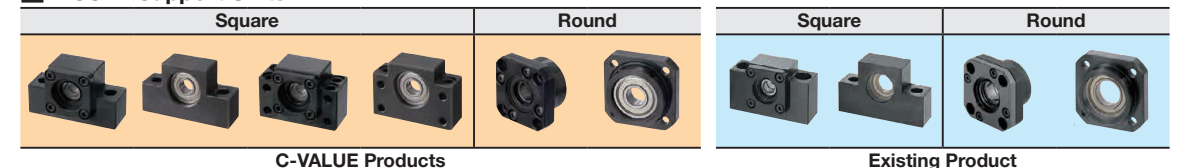
• Ball Screw/Support Unit Compatibility Chart

Ball Screws Shaft Dia.	Ball screw shaft end machining dimensions			Recommended Support Unit			Support Units Shaft End Assembly Diagram			
	Support side (common for precision/rolled)	Precision Ball Screws Fixed Side	Rollled Ball Screws Fixed Side	Support Side	Page	Fixed Side	Page	Support Side	Precision Ball Screws Fixed Side	Rollled Ball Screws Fixed Side
08				Square BUN6 P.762 C-BUN6 P.764		Square BSW6 P.761 C-BSW6 P.763				
010				Square BUN8 P.762 C-BUN8 P.764		Square BSW8 P.761 C-BSW8 P.763				
010				Square BUN10 P.762 C-BUN10 P.764		Square BSW10 P.761 C-BSW10 P.763				

• Ball Screw/Support Unit Compatibility Chart

Ball Screws Shaft Dia.	Ball screw shaft end machining dimensions			Recommended Support Unit			Support Units Shaft End Assembly Diagram			
	Support side (common for precision/rolled)	Precision Ball Screws Fixed Side	Rollled Ball Screws Fixed Side	Support Side	Page	Fixed Side	Page	Support Side	Precision Ball Screws Fixed Side	Rollled Ball Screws Fixed Side
014				Square BUN12 P.762 C-BUN12 P.766		Square BSW12 P.761 C-BSW12 P.763				
015				Square BUN15 P.762 C-BUN15 P.766		Square BSW15 P.761 C-BSW15 P.763				
016				Square BUN16 P.762 C-BUN16 P.766		Square BSW16 P.761 C-BSW16 P.763				
018				Square BUN18 P.762 C-BUN18 P.766		Square BSW18 P.761 C-BSW18 P.763				
020				Square BUN20 P.762 C-BUN20 P.766		Square BSW20 P.761 C-BSW20 P.763				
025				Square BUN25 P.762 C-BUN25 P.766		Square BSW25 P.761 C-BSW25 P.763				
028				Square BUN28 P.762 C-BUN28 P.766		Square BSW28 P.761 C-BSW28 P.763				
030				Square BUN30 P.762 C-BUN30 P.766		Square BSW30 P.761 C-BSW30 P.763				
032				Square BUN32 P.762 C-BUN32 P.766		Square BSW32 P.761 C-BSW32 P.763				
036				Square BUN36 P.762 C-BUN36 P.766		Square BSW36 P.761 C-BSW36 P.763				

• MISUMI Support Units



C-VALUE Products

Existing Product

Critical Bearing Performances

Bearing Type	Existing Product			C-VALUE Products		
	Japanese made JIS 5 Class Angular Contact Bearing			Japanese made JIS 5 Class Angular Contact Bearing		
	Type	BSW/BRW/BSA/BSV/BSWG/BSWD/BSJ	Bearing Type	Type	BSW/BRW/BSA/BSV/BSWG/BSWD/BSJ	Bearing Type
d	Allowable Axial Load (N)	Basic Dynamic Load Rating (N)	Bearing Type	Allowable Axial Load (N)	Basic Dynamic Load Rating (N)	Bearing Type
6	1040	2670	70M6DF/P5	720	1880	70M6DF/P5
8	1450	4400	70M8DF/P5	1010	3090	70M8DF/P5
10	2730	6100	7000DF/P5	1910	4260	7000DF/P5
12	3040	6650	7001DF/P5	2120	4660	7001DF/P5
15	3370	7600	7002DF/P5	2350	5320	7002DF/P5
20	8260	17900	7204DF/P5	5780	12490	7204DF/P5
25	9960	20200	7205DF/P5	-	-	-

Bearing Type	JIS 0 Class Angular Contact Bearing			Radial Bearing		
	BSWE/BSQ/BRWE			BSWZ/BRWZ		
	Type	BSWE/BSQ/BRWE	Bearing Type	Type	BSWZ/BRWZ	Bearing Type
d	Allowable Axial Load (N)	Basic Dynamic Load Rating (N)	Bearing Type	Allowable Axial Load (N)	Basic Dynamic Load Rating (N)	Bearing Type
6	-	-	-	780	2190	606ZZ
8	-	-	-	1300	3350	608ZZ
10	2730	6100	7000DF/Standard Grade	2300	4550	6000ZZ
12	3040	6650	7001DF/Standard Grade	2600	5100	6001ZZ
15	3370	7600	7002DF/Standard Grade	2900	5600	6002ZZ
20	8260	17900	7204DF/Standard Grade	8100	12800	6204ZZ
25	9960	20200	7205DF/Standard Grade	-	-	-

Bearing's Accuracies

Outer Ring

Unit: μm

Nominal Bearing O.D.	Flat Surface Average O.D. Dim. Difference	Radial Run-out		Axial Play	
		Kea	Sea	Class 5	Class 0
D	ΔDmp	Class 5	Class 0	Class 5	Class 0
mm	mm	more than	or Less	more than	or Less
over	or Less	more than	or Less	more than	or Less
6	18	0	-5	0	-8
18	30	0	-6	0	-9
30	50	0	-7	0	-11
50	80	0	-9	0	-13

Inner Ring

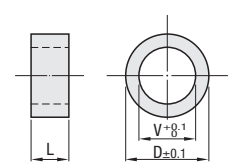
Unit: μm

Nominal Bearing I.D.	Flat Surface Average I.D. Dim. Difference	Radial Run-out		Axial Play	
		Kia	Sia	Class 5	Class 0
d	Δdmp	Class 5	Class 0	Class 5	Class 0
mm	mm	more than	or Less	more than	or Less
over	or Less	more than	or Less	more than	or Less
2.5	10	0	-5	0	-8
10	18	0	-5	0	-8
18	30	0	-6	0	-10

Both radial run-out and axial play stand for measurement method of bearing rotational accuracy.

Since Inner Ring Radial Run-out (Kia), Outer Ring Radial run-out (Kea), Inner Ring Axial Play (Sia), and Outer Ring Axial Play (Sea) are all different, contact us for more detail.

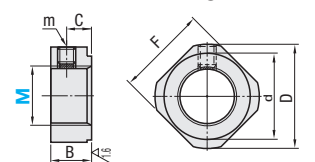
Included Collar Size



*For 8S and 10S, the I.D. of oil seal is smaller than the previous 8S and 10S versions. Use it in accordance with ball screw fixed side dimensions.

Existing Product	No	D	V	L
	6	9.5	6	5
8S	10	8	5.5	
8	11.5	8	5.5	
10S	12	10	5.5	
10	14	10	5.5	
12	15	12	5.5	
15S	20	15	10	
15	25	20	11	
20	31	25	14	
C-VALUE	6	9.5	6	5
	8S	10	8	5.5
	8	11.5	8	5.5
	10S	12	10	5.5
	10	14.5	10	5.5
	12	15.5	12	5.5
C-BSW C-BRW	15S	19.5	15	10
	15	20	15	10
	20	25	20	11
	20	25	20	11
	10S	12	10	5
	10	14.5	10	5
C-BSFW	12	15.5	12	5
	15	19.5	15	6
	15	19.5	15	6
	20	27.5	20	8

Included Bearing Nut Size

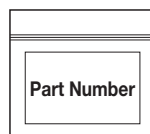


⚠ Tighten the set screw after inserting the Thread Protector.
⚠ For Thread Protector specification details, see P2-212
⚠ S45C Thermal Refined excels in durability.

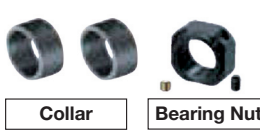
Existing Product	No	M	Fine Thread	B	m	d	D
	6	6	M6*0.75	5.5	M3	10	14.5
8	8	M8*1.0	6.5	M3	13	17	
10	10	M10*1.0	8	M4	16	20	
12	12	M12*1.0	8	M4	17	22	
15	15	M15*1.0	10	M4	21	25	
20	20	M20*1.0	13	M4	26	35	
25	25	M25*1.0	15	M5	33	43	
C-VALUE	6	6	M6*0.75	5	M3	10	14.5
	8	8	M8*1.0	6.5	M3	13	17
	10	10	M10*1.0	8	M3	15	20
	12	12	M12*1.0	8	M3	17	22
	15	15	M15*1.0	8	M3	21	25
	20	20	M20*1.0	11	M4	26	35

Cautions on Accessories

Accessory packaging



Accessory contents <fixed side>



⚠ When used together with a MISUMI ball screw, there is one accessory collar spare.

Accessory contents <support side>



Assembly of Support Units

Installing Support Units incorrectly would cause degradation of accuracies and service life expectancy. Considerable care must be taken during installation.

① Pre-Installing Preparation

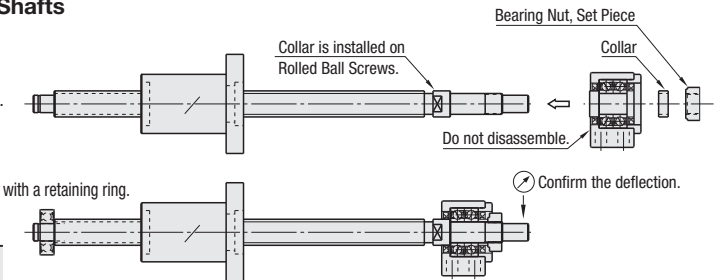
Find a sufficient work area that is as dust-free and moisture-free as possible. Make sure there is little variation in temperature. Choose a clean location and prepare necessary tools on a workbench.

② Inspection of Shafts and Support Units

Confirm that there is no dust, foreign substance or burr on the shaft and on bearing I.D. If burrs are recognized, remove them with a oilstone etc. and brush or wipe off chips thoroughly.

③ Installing Support Units to Ball Screw Shafts

- Prepare a Ball Screw and a Support Unit.
- Insert fixed side shaft end into the Support Unit.
- Cautions on Insertion
 - Insert the shaft straight not to interfere with the Support Unit.
 - Also, watch for curled back oil seal lip.
 - Apply some grease for smooth insertion.
- Temporarily tighten the bearing nut.
- Install a radial bearing on ball screw support side. Secure the bearing with a retaining ring.
- Maintain tip run-out to be as small as possible.

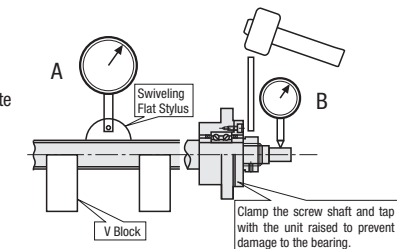


M	Nut Tightening Torque (N·cm)	M	Nut Tightening Torque (N·cm)
4	160	12	1370
5	200	15	2350
6	245	20	4700
8	490	25	8430
10	930		

⚠ Value is for reference only.

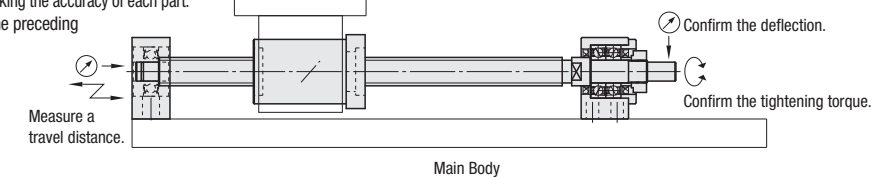
④ Precautions on Installation of Bearing Nut

- Lightly tighten the bearing nut.
 - Tighten to 1/3 of the recommended torque (see table).
- Place the screw shaft on a set of V-blocks, place a dial indicator at A or B as shown, and rotate the shaft while seeking for a position where the largest indicator deflection is observed.
- Using a hammer or other appropriate tools as shown, lightly tap the bearing nut at the aforementioned angular position until the indicator reading becomes minimum.
- Divide the recommended torque on the table into two to three steps while repeating the step ③ up to full recommended tightening torque.



⑤ Installation of Support Side Bearing Unit and Accuracy Check

- Move the carriage toward the support side bearing unit and align.
- Reciprocate the carriage so that it travels smoothly throughout the whole stroke.
- Fully tighten the mounting screws while checking the accuracy of each part.
- If the outcome is not satisfactory, repeat the preceding steps until smooth motion is obtained.



Precautions on Support Unit Installation

When inserting ball screws into fixed side support units, some cases will be slip-fit and others may be light press-fit cases.

If the fit appears to be a light-press, do not force the bearing onto the screw shaft in a tilted manner, and do not strike the bearing inner ring as well as support unit housing. In case if there is any interference between the screw shaft and the bearing inner ring, gently press the bearing using a spacer corresponding with the inner ring by either a press or a jack. It is necessary to ease shock to the bearing as much as possible. Furthermore, do not bend the screw shaft. If there is any interference between the screw shaft and the bearing inner ring, do not insert the ball screw forcibly. Remove the screw at once and correct the swell on the shaft, then try reassembling.

