Shaft Collar - Overview

■About I.D. Tolerances

Features · MISUMI Shaft Collars have oversized bore diameter (except some products) to prevent shafts from being scratched during insertion.
· Combination of MISUMI Shafts (standard g6, f8 and h5) with MISUMI Shaft Collars are recommended.

■Product Variations

Features · 212 total product types consisting of 119 industry standard products and 93 MISUMI original products are available. (Including material variations)
· Compact Type has small width (B dim.) and O.D. (D_1 dim.) helpful in space saving designs.

■Material Variations

Features · In addition to the industry standard material 1045 Carbon Steel, 304 Stainless Steel, 2017 Aluminum Alloy, threaded inserts integrated 2017 Aluminum Alloy and plastic products are offered.
· Aluminum and plastic collars are lighter in weight but the threads cut directly in the materials may be damaged by repetitive screw tightening and loosening, therefore Threaded Insert Integrated Types are recommended. P.236
· Specific Gravity 1045 Carbon Steel: 7.9, 304 Stainless Steel: 8.0, 2017 Aluminum Alloy: 2.8, Polyacetal: 1.4, MC Nylon: 1.1

■Set Screw

Feature · Reasonably priced.

Page		P.229, 230			P.241		P.257	P.258
Series		Standard			2-Hole / 2-Tapped	4-Hole / 4-Tapped	Threaded Bore	Key Relief Groove
Thickness		Standard	Wide	Compact	Standard	Standard	Standard	Standard
Photo								
M Material	S Surface Treatment							
1045 Carbon Steel	Black Oxide Coating	•	•	•	•	•	•	•
	Electroless Nickel Plating	•	•	•	•	•	•	•
304 Stainless Steel	-	•	•	•	•	•	•	-
2017 Aluminum Alloy	-	•	-	-	-	-	-	-
	Clear Anodize	•	-	-	-	-	-	-
	Black Anodize	•	-	-	-	-	-	-

■Clamp

Feature · Shaft damage from tightening can be avoided.

Page		P.231, 232, P.236		P.235		P.243	P.244	P.242		P.255	P.257	P.258
Series		Standard		Urethane		2-Hole / 2-Tapped	3-Hole / 3-Tapped	2 Counterbored Holes	3 Counterbored Holes	2-Flats	Threaded Bore	Key Relief Groove
Thickness		Standard	Compact	Standard	Compact	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Photo												
M Material	S Surface Treatment											
1045 Carbon Steel	Black Oxide Coating	•	•	•	•	•	•	•	•	•	•	•
	Electroless Nickel Plating	•	•	•	•	•	•	•	•	•	•	•
304 Stainless Steel	-	•	•	•	•	•	•	•	•	•	•	-
2017 Aluminum Alloy	Threaded Inserts	•	-	-	-	-	-	-	-	-	-	-
	-	•	-	-	-	-	-	-	-	-	-	-
	Clear Anodize	•	-	-	-	-	-	-	-	-	-	-
	Black Anodize	•	-	-	-	-	-	-	-	-	-	-
Polyacetal	Threaded Inserts	•	-	-	-	-	-	-	-	-	-	-
	-	•	-	-	-	-	-	-	-	-	-	-
MC Nylon	Threaded Inserts	•	-	-	-	-	-	-	-	-	-	-

■Split

Feature · Post assembly installation and removal are possible, making for easy maintenance.
· Shaft damage from tightening can be avoided.

Page		P.233, 234, P.236		P.234	P.235		P.245
Series		Standard		Balanced	Urethane		2-Hole / 2-Tapped
Thickness		Standard	Compact	Standard	Standard	Compact	Standard
Photo							
M Material	S Surface Treatment						
1045 Carbon Steel	Black Oxide Coating	•	•	•	•	•	•
	Electroless Nickel Plating	•	•	•	•	•	•
304 Stainless Steel	-	•	•	•	•	•	•
2017 Aluminum Alloy	Threaded Inserts	•	-	-	-	-	-
	-	•	-	-	-	-	-
	Clear Anodize	•	-	-	-	-	-
	Black Anodize	-	-	-	-	-	-
Polyacetal	Threaded Inserts	•	-	-	-	-	-
	-	•	-	-	-	-	-
MC Nylon	Threaded Inserts	•	-	-	-	-	-

■For Bearing Mounting

Feature · For bearing inner ring retention.
· Requires no dedicated tools, and economical compared to bearing nuts.

Page		P.237, 238		P.239, 240	
Series		Set Screw, Short Shoulder / Long Shoulder		Clamp, Short Shoulder / Long Shoulder	
Thickness		Standard	Compact	Standard	Compact
Photo					
M Material	S Surface Treatment				
1045 Carbon Steel	Black Oxide Coating	•	•	•	•
	Electroless Nickel Plating	•	•	•	•
304 Stainless Steel	-	•	•	•	•
2017 Aluminum Alloy	Threaded Inserts	-	-	-	-
	-	-	-	-	-
	Clear Anodize	•	-	•	-
	Black Anodize	-	-	•	-
Polyacetal	Threaded Inserts	-	-	-	-
	-	-	-	-	-
MC Nylon	Threaded Inserts	-	-	-	-

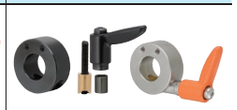
■For Sensor Bracket Mounting

Feature · Tap sizes and hole pitches for direct mounting of sensor brackets are offered. 2017 Aluminum Alloy (aluminum) is recommended for weight reduction requirements. (Specific Gravity 2017 Aluminum Alloy: 2.8, 1045 Carbon Steel: 7.9, 304 Stainless Steel: 8.0)

Page		P.251, 252					P.253, 254				P.255		
Series		D Cut					Side Mounting Holes				2-Flats		
		Set Screw	Clamp		Split		Clamp		Split		Cut Surface Mount Hole, Clamp	Side Mount Holes, Clamp	Cut Surface Mount Hole, Split
Thickness		Standard	Standard	Compact	Standard	Compact	Standard	Compact	Standard	Compact	Standard	Standard	Standard
Photo													
M Material	S Surface Treatment												
1045 Carbon Steel	Black Oxide Coating	•	•	•	•	•	•	•	•	•	•	•	•
	Electroless Nickel Plating	•	•	•	•	•	•	•	•	•	•	•	•
304 Stainless Steel	-	•	•	•	•	•	•	•	•	•	•	•	•
2017 Aluminum Alloy	Black Oxide Coating	-	•	•	•	•	-	-	-	-	-	-	-

■Others

Feature · Less force is required for tightening. No constraints on tightening sequence.

Page		P.247		P.248	
Series		Wedge Type		Wedge Type with Clamp Lever	
		2-Hole / 2-Tapped	3-Hole / 3-Tapped	Cut Surface Mounting Holes	Side Mounting Holes
Photo					
M Material	S Surface Treatment				
1045 Carbon Steel	Black Oxide Coating	•	•	•	•
	Electroless Nickel Plating	•	•	•	•
304 Stainless Steel	-	•	•	•	•

Feature · MISUMI original products are offered in consideration for on-site operability.

Page		P.249, 250					P.256	P.256	
Series		Clamp Lever					Hinged	One-Touch	
		Standard	Cut Surface Mounting Holes		Side Mounting Holes			Standard	Mounting Holes
Thickness		Standard	Standard	Compact	Standard	Compact	Standard	Standard	Standard
Photo									
M Material	S Surface Treatment								
1045 Carbon Steel	Black Oxide Coating	•	•	•	•	•	•	-	-
	Electroless Nickel Plating	•	•	•	•	•	•	-	-
304 Stainless Steel	-	•	•	•	•	•	•	-	-
2017 Aluminum Alloy	Clear Anodize	-	-	-	-	-	-	•	•

■Tightening Torque of Clamp Type Shaft Collars

■Definition of Max. Thrust Load

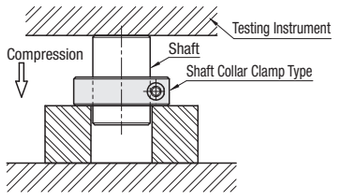
The shaft collar is tightened to torque value shown in the chart below, then compressive load is applied with the tester. The compressive load where the shaft begins to move is defined as the Max. Thrust Load.

Nominal	Tightening Torque (N·m)	
	1045 Carbon Steel / 304 Stainless Steel	2017 Aluminum Alloy
M2.6	0.94	-
M3	1.61	1.61
M4	3.71	3.71
M5	7.54	7.54
M6	12.87	7.54
M8	31.2	12.87
M10	61.75	12.87
M16	267	-

■Testing Conditions

1. Shaft: MISUMI Hardened Shaft (SFJ) **P.101**
2. Testing Instrument: Universal Tester
3. Tightening Torque: Select Tightening Torque from the tables on the right depending on the conditions of use.
4. Condition of Antirust Oil: Wiped with a cloth as arrived.

■Testing Method



■About Screw Tightening

Aluminum or plastic threads may be damaged by repetitive tightening and loosening of the screw.

■Clamp Type

Formula for Weight: Weight (g) = Volume (cm^3) x Specific Gravity P.1933
Specific Gravity 2017 Aluminum Alloy: 2.8, 1045 Carbon Steel: 7.9, 304 Stainless Steel: 8.0

Dimension			Max. Thrust Load (kN)			Weight (g)
D (I.D.)	B (Width)	M	SCS, SCSJ (1045 Carbon Steel, Black Oxide Coating)	SSCS (304 Stainless Steel)	SCSA (2017 Aluminum Alloy)	SCS, SCSJ (1045 Carbon Steel)
3	*8	3	0.5	0.5	0.4	11
4	8	3	0.5	0.5	0.3	14
5	*6	2.6	0.7	0.4	-	8
	8	3	1.1	0.7	0.6	17
	10	4	1.3	1.0	-	26
6	*6	2.6	0.7	0.4	-	10
	8	3	1.1	0.5	0.4	17
	10	4	1.8	1.0	-	21
8	*6	2.6	0.9	0.3	-	14
	8	3	0.6	0.6	0.1	26
	10	4	2.2	1.1	0.3	32
	12	5	3.3	1.5	-	58
	15	6	5.1	1.2	-	71
10	*6	2.6	0.7	0.3	-	17
	8	3	1.2	0.4	-	36
	10	4	2.0	1.0	0.3	45
	12	5	5.1	0.9	-	55
	15	6	3.9	2.1	-	95
12	*6	2.6	0.7	0.3	-	16
	8	3	1.1	0.8	-	34
	10	4	2.8	0.8	0.5	43
	12	5	4.0	1.2	-	52
	15	6	10.0	3.6	-	92
13	*8	3	1.1	0.8	-	28
	10	4	2.0	0.7	0.7	43
	12	5	5.9	1.3	-	67
	15	6	4.6	1.6	-	90
15	*8	3	1.5	0.6	-	31
	10	4	1.5	1.1	1.4	54
	12	5	5.1	1.8	-	69
	15	6	5.6	1.4	-	119

Dimension			Max. Thrust Load (kN)			Weight (g)
D (I.D.)	B (Width)	M	SCS, SCSJ (1045 Carbon Steel, Black Oxide Coating)	SSCS (304 Stainless Steel)	SCSA (2017 Aluminum Alloy)	SCS, SCSJ (1045 Carbon Steel)
16	*8	3	2.1	1.1	-	29
	10	5	7.1	2.9	1.6	55
	12	5	5.4	2.3	2.4	67
	15	6	10.2	1.5	-	116
18	*10	5	6.5	1.8	-	75
	12	5	5.1	2.3	-	89
	15	6	9.4	1.6	-	148
20	*8	3	2.2	0.8	-	38
	10	5	5.8	2.7	1.4	69
	12	5	6.4	1.7	3.4	84
	15	6	10.4	3.0	3.0	140
25	*10	4	3.6	1.8	-	66
	12	5	8.8	2.6	2.1	98
	15	6	8.8	3.6	2.0	164
	20	6	10.0	1.2	-	284
30	*12	5	8.4	2.8	-	111
	15	6	8.9	2.2	2.4	185
	20	8	15.0	4.0	-	318
35	*12	5	6.4	2.4	-	124
	15	6	9.9	2.7	1.8	207
40	*12	5	7.0	3.1	-	139
	18	8	21.3	6.0	6.3	348
50	*18	8	18.0	4.5	-	415
	22	10	35.8	11.8	6.7	604
60	22	10	21.0	-	-	698
80	32	16	90.0	-	-	1954
100	36	16	120.0	-	-	2639

Note 1. * marked are Compact Types only. (SCSJ and SSCSJ)
2. These values are merely test results, and not guaranteed by the manufacturer.
3. Use optimum tightening torques depending on the condition of use by users.