Features of "High Hardness Stainless Steel" - New Material for Locating Pins

MISUMI's new material is "Corrosion Resistant", "Hard", and "Economical"

High Corrosion Resistance

* Reference: Antirust Performance Comparison Test

■Salt Water Spray Testing Method (Conforms to JIS Z2371)

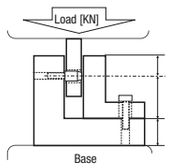
	High Hardness Stainless Steel	EN 1.4305 Equiv.	EN 1.4301 Equiv.	EN 1.4125 Equiv.	EN 1.2510 Equiv.
Before Test					
48hr					
96hr					

■Result: High Hardness Stainless Steel has corrosion resistance equivalent to that of EN 1.4305 Equiv.

High Hardness and Strength

■Shearing Testing Method

Locating Pins (same size as JPBB8-10) are set on the fixtures and a load is applied with Universal Tester to measure the shearing load.



Material	Shear Load	Hardness
High Hardness Stainless Steel	42KN	35HRC~
EN 1.2510 Equiv.	65KN	60~63HRC
EN 1.4301 Equiv.	27KN	10~20HRC
EN 1.4125 Equiv.	56KN	50~55HRC

1.6 times stronger than SUS304!

High Hardness Stainless Steel INFORMATION

Note that High Hardness Stainless Steel contains Mn and dissolves by acid.
High Hardness Stainless Steel is weakly magnetic (magnetic permeability: 1.10 ≤ μs < 1.15).

List of Various Shapes for New "High Hardness Stainless Steel" Products

Locating Pins
Diameter: Min. 2Ø ~ Max. 10Ø

Product Name	Large Head Tapered, Configurable	Configurable Taper Angle / D and P Selectable Tolerance	Sphere Large Head, Configurable
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Configurable Taper Angle, D and P Selectable Tolerance	Large Flat Head, Configurable	Small Head Tapered, Configurable	Straight, Tapered, Sphere
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Small Diameter Locating Pin
Diameter: Min. 0.5Ø ~ Max. 7Ø

Product Name	Straight	Small Head
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Technical Data on Locating Pins

① Recommended Tightening Torque for Locating Pins Screw Type

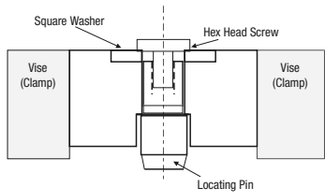
For Threaded/Tapped Locating Pins, the recommended torque (reference) is determined by our testing method.
Tightening with the torque greater than the recommended value may cause damage. Be sure to tighten the pins with the torque smaller than recommended.

■Recommended Torque Testing Method

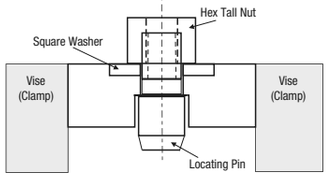
Locating Pins are set on the fixtures and the torque of Strength Class 10.9 is applied to nuts and screws. When the period of 24 hours elapses after tightening, no damage was confirmed.

Using locking materials or lock washers on threads may cause excessive tightening force that is greater than the torque to be applied. The recommended torque cannot be applied at the above case.

Tap Testing Fixture Diagram



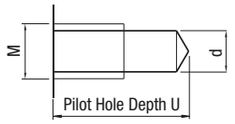
Thread Testing Fixture Diagram



■List of Recommended Tightening Torque

Strength Class	10.9
Unit	kgf · cm
M	Tightening Torque
M 3	147
M 4	333
M 5	676
M 6	1156
M 8	2803
M10	5557
M12	9702
M14	15484
M16	24108
M18	33124
M20	46942

② Locating Pins Tapped Depth



List of Tapped Pilot Hole

Thread Dia.	M2	M2.6	M3	M4	M5	M6	M8	M10
Pilot Hole Dia. d	1.8	2.3	2.6	3.4	4.3	5.1	6.9	8.6
Pilot Hole Depth U	8	8.5	9.5	12	14.5	17	21	24

Pilot hole depth is for reference.
Strength of the under-head part will be decreased when the length of locating pin mounting shank is shorter than pilot hole depth U.

Change Data on Locating Pins for Fixtures

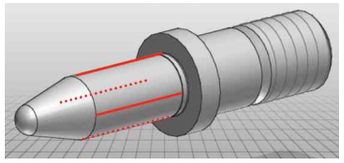
Alterations for wear grooves (MK) newly added

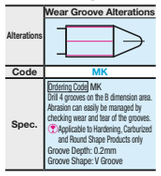
To meet the customers' request!

We do not know when to replace because we cannot manage abrasion properly...

<Alteration Details>
Add 4 grooves of 0.2 mm deep onto the insertion guide (B dimension) area.
Usage wear can be tracked and the accuracy of the fixture can be retained easily.

Wear Groove Image Figure * The red line indicates a groove.





* Not applicable to some products.

B dimension is selectable from 2 mm

To meet the customers' request!

We want to make insertion/extraction easier...

<Details>
Selectable lower limit for the insertion guide (B dimension) area has been expanded from **5mm** to **2mm**.Easy insertion and extraction.
* Not applicable to some products.

Reduced Shoulder Surface Finish Relief

To meet the customers' request!

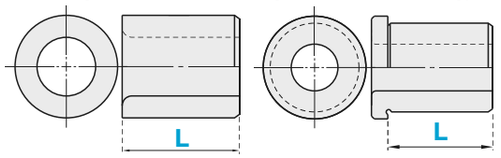
The groove is so large that the workpiece gets stuck on shoulder...

<Details>
As same as Precision Type, Standard Grade has been modified to R0.2 and Slot Width 0.5 to 1 mm (right figure).
* Applicable to all Shouldered Type.

Change/Technical Data on Bushings for Locating Pins

Expanded Configurable Type L Configurable Range

Expanded L Configurable Range for Configurable, Straight/Shouldered Type!
It can be configured at 1 mm increment according to the thickness of the mounting part.



■L Configurable Range

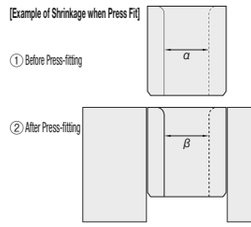
Conventional Range
12.0~60.0
* Straight O.D. Ø15

Expanded Range
5.0~60.0

Reduced I.D. of Bushings for Locating Pins

Bushings for Locating Pins shrink when being Press Fit.
The degree of shrinkage varies depending on the materials used for the mounting part and the D dimension tolerance of bushings.

[Example of Shrinkage when Press Fit]



β Dimension (Mounting Hole H7)

	D dim. Tolerance	
Mounting Material	m6	p6
Steel	α×99.93%	α×99.90%
Aluminum	α×99.96%	α×99.93%

The above data is not applicable to Thin Wall Type (P.1679~1682). The above data is for reference.