

Locating Pins Shape Selection Table

Shape Selection Table of Locating Pins for Jigs/Surface Treatment Features

Locating Pin Types I –Standard Shape–

There are five guide part shapes of locating pins: "Round Tapered", "Tapered", "Sphere", "Flat", and "Tip Shape Selectable" Each type has four kinds of mounting: "Standard", "Female Thread", "Male Thread" and "Set Screw". Shapes can be selected depending on to the work and locating method.

* "Set Screw" is not available for Round Tapered.

Mounting Shape

Standard

Female Thread

Male Thread

Set Screw

Circumference Groove

Notch

Set Screw Flat

Guide Part Shape

Round Tapered

Tapered

Sphere

Flat

Tip Shape Selection

R

Tapered

Taper R

Locating Pins Details of Shape by Guide Part

Guide Part Shape	Shapes						Specified	
	Guide Part Diameter		Guide Part Shape		Shoulder		Dimension Specified	Dia. Tolerance · Dim. Specified
	Large Head	Small Head	Round	Diamond	Not provided	Provided		
Round Taper	P.835~838	P.839	P.835~840	—	P.835~840	—	P.835 · 839	P.837 · 840
Taper	P.841~850 · 856	P.851~856	P.841~856	—	P.841~856	P.879~886	P.841~848 P.851~854 · 856	P.849 · 855
Sphere	P.857~862 · 868	P.863~868	P.857~868	—	P.857~868	—	P.857~860 P.863~866 · 868	P.861 · 867
Flat	P.869~874 · 878	P.875~878	P.869~878	—	P.869~878	—	P.869~872 P.874~876 · 878	P.873 · 877
Tip Shape Selectable	P.887~892	—	P.887~892	P.887~889 · 891 · 892	P.887~890 · 892	P.891	P.887~892	—

Locating Pin Types II –Other Shapes–

Type	Typical Shapes	Features	Page
Small Diameter Locating Pins		Locating pins with 4mm or less pin diameter. Selectable among 4 types of tip shape. Resin pin with core rod that has improved strength is available.	P.903 P.906
Height Adjusting Pins		Used for locating height direction Hexagonal shape, excellent in mounting, has variation such as round & width across, male & female thread, and resin type.	P.921 P.926
Adjusting Support Pins		Suitable for locating at higher position. Besides height, locating horizontal direction is also possible.	P.927 P.922

Locating Pins Female Thread Notes on strength of under-head part

List of Female Thread Pilot Hole

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

✦ Pilot hole depth is indicator for reference.

Types of Locating Pins for Jigs

Basic Shape Product Name	Head Shape	Retaining Part Shape	Features	
	—	Male Thread Female Thread Knuckle Mounting Type	(1) Used when removal of panel from the jig is difficult due to distortion of panel after welding. (2) By pulling out the pin, the work can be removed easily.	Used by combining the locating pin for jig and holder. Used by combining the cylinder with work difficult to detach.
	Round	Male Thread Female Thread Knuckle Mounting Type	Integration of pin and holder reduces the cost of assembling.	
	Round Diamond	Nut Set Screw [Circumference Groove]	Used for locating the work. Point Taper, Taper R and Tip Angle are available.	
	Round Diamond	Nut Set Screw [Circumference Groove] Bolt Fixing	(1) Addition of radius to the edge makes smooth insertion and extraction of work. (2) To prevent damage, radius is added on top and bottom of shoulder.	
	Round Diamond	Nut Set Screw [Circumference Groove]	High precision of Shoulder thickness at ±0.05 enables locating horizontal and height directions.	
	—	—	By using in combination with locating pin for jig, enables locating the height direction. * Shoulder thickness tolerance ±0.05	
	Round Diamond	Set Screw [Circumference Groove] Set Screw [Notch]	Since the retaining part is short, it can be used for thin locator. * Notch shape is available from 10mm L dimension.	
	Round	Female Thread	Nut can be confirmed by making the pin diameter smaller than pilot hole of work and bigger than inner diameter of nut. * Use by mounting to work detecting unit P.980 or mounting directly to cylinder are possible.	Used to detect weld nut availability.
	Round	Nut Set Screw [Notch]	Mount fiber sensor to the pin and detect nut availability + location of work is possible.	
	Round	Nut Set Screw [Circumference Groove]	Straight part B dimension is available up to maximum 50.	
	Round	Nut Set Screw [Circumference Groove]	One pin can locate work for different diameter coaxially.	
	Round Diamond	Female Thread	Used when locator is thin or no space.	
	Oval	Nut Set Screw [Circumference Groove]	· When pilot hole of work is oval · By combined use of round pin and oval pin, the detachment of work is easy.	
	Round Diamond	Nut Set Screw [Circumference Groove]	Spot welding can be used in locating work. Excellence in insulation reduces abrasion of pin due to spark.	

Dicoat®Treated

This treatment provides a high surface hardness of 3200 to 3800HV using the vanadium carbide (VC) layer produced by the TD process.

"TD Process Treatment and Sales", licensed at Toyota Central Research Institute, enables MISUMI a consistent process flow from manufacture of locating pin to TD process treatment, thus guaranteeing the precision of dimension.

Developed by Toyota Central Research Institute, a general research institution of the Toyota Group, the TD process is a "diffusion surface hardening method" that makes a specific element (carbide) diffusely penetrate metal to form a highly wear-resistant layer on the metal surface. For this unique process, international patents have been granted in Japan, the U.S.A. and Europe. Since put to practical use in 1970 by the Toyota Group, it has been widely used in surface press dies, die casting molds, cutting tools, jigs and machine parts.

Features and Effects of Dicoat®

- Wear Resistance**
The vanadium carbide layer of 4 to 70μm thick provides a surface hardness as high as 3200 to 3800HV and exhibits excellent wear resistance to almost all kinds of materials.
- Toughness**
Covering with vanadium carbide does not affect the toughness of the base material. Tempered at high temperature, the base material is so tough that it is not easily broken.

■Screw strength class of Dicoat and TiCN Treatment is 8.8.
For Tightening Torque, refer to P.2849.

TiCN Treatment

TiCN treatment is a kind of coating based on PVD method (physical vapor deposition). TiCN coating excels in high hardness and wear resistance. In addition, as it is processed in high vacuum with original temperature 500°C or lower, when re-hardening temperature is over 500°C, the hardness of basic material decreases, or thermal deformation and partly coating might occur. MISUMI conducts consistent process flow from manufacture to coating and guarantees the dimension after coating and precision.

Feature of TiCN Treatment

- Wear Resistance**
The surface hardness of TiCN coating is 3000HV and excellent in wear resistance.
 - Small Friction Coefficient**
Friction coefficient of TiCN is small about 0.4μ and excellent in sliding property.
- ✦Dicoat TiCN Treatment is applied only on the head surface.

