

Alumina Coated Pins



Locating Pins for Fixtures Height Adjusting Pins

Features: Suitable for spot welding since alumina coating excels in abrasion resistance and insulation. Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

Alumina Coated Pins

Threaded	Set Screw	Shape	M Material	S Surface Treatment	H Hardness
Z-LANA	Z-LATA	Round	Special Stainless (KCF (Special Stainless Steel))	Alumina Coating	Approx. 1300HV (Inside: Approx. 200HV)
Z-LAND	Z-LATD	Diamond			

Threaded

Set Screw

Surface Finish

RoHS

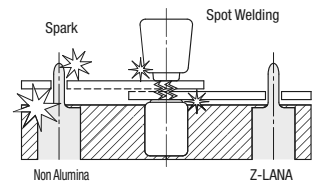
Part Number	Type	D _{h7}	P	B	L	L ₁	L ₂	H	d	R	Applicable Set Screw	W	Unit Price	
													Z-LANA	Z-LAND
8	Threaded (Round)	0	3.0~9.0	5~30	5 12 15	10	8	8	11	5	M5	1~2		
10	Set Screw (Round)	-0.022	5.0~12.0		10 12 15	12	10	8	13	7	M6	2~3		
10T	Threaded (Diamond)	0	5.0~12.0		10 12 15	18	5	8	13	7	M6	2~3		
12	Set Screw (Diamond)	0	9.0~13.0		12 15 18	15	12	10	15	9	M8	4		
16	Threaded (Diamond)	-0.027	13.0~16.0		15 18 20	18	12	10	19	13	M8	5		

W Dimension D₈: W=2 when P>5.0 D₁₀, 10T: W=3 when P>7.0

Ordering Example

Part Number: Z-LANA 10 - P7.8 - B6 - L10

Part Number: Z-LATD 10 - P11.5 - B20



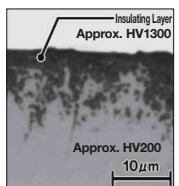
Suited for locating pins in spot welding. Pins prevent current from causing sparks during welding. Prevents pin wear from sparks and reduces the causes of positioning problems and workpiece appearance degradations.

Alterations

Part Number: Z-LANAS - P7.8 - B10 - L12 - SC

Alterations	Flat Position	Flat Machining	Wrench Flats	Tip Angle Change	Thread Dia.	Upper Relief Radius Change
		Shouldered / No Shoulder	Shouldered / No Shoulder			
Code	KC	KD	SC	RC	MC	RTC
Spec.	Ordering Code KC: Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD: Machining on one side. Applicable to Round Shape Type only.	Ordering Code SC: Adds wrench flats. Selection: H11 13 15 19; H1 8 11 13 17. Applicable to Round Shape Type only.	Ordering Code RC: Changes the tip angle. Selection: 60°, 90°, 120°.	Ordering Code MC: Changes the thread diameter. Selection: D/3-M<DM min 3. Applicable to Threaded only.	Ordering Code RTC: Changes R1 to R of the Selection below. Selection: R1 R2 R3. RTC<=(H-P)/2.

Alumina Coated Pin (Material: KCF (Special Stainless Steel)) Cross Section View



Insulating layer with depth of 5 ~ 10µm (approx. HV1300) is formed. Alumina coating excels in abrasion resistance and insulation compared to metal coating. *Contacts with pointed objects may cause conduction.

Characteristic Comparison (Reference)

	Special Stainless KCF (Special Stainless Steel) (Alumina Coated)	Stainless EN 1.4301 Equiv.	Ceramic A1203	Nylon	Bakelite (Paper Base)	Bakelite (Cloth Base)
Natural Resistance (Ω)	2x10 ⁸	72x10 ⁻⁶	10 ¹⁴	5x10 ¹²	10 ¹⁰	10 ¹²
Insulation Breakdown Voltage (V)	150	-	10 ⁴	1.9x10 ⁴	-	-
Tensile Strength (MPa)	421	520	-	88	80	100
Elongation (%)	10	40	-	50	2	2
Flexural Strength (MPa)	-	-	350	103	180	160
Vickers Hardness (HV)	Front 1300 Inside 200	200	1400	-	-	-
Insulation Properties	○	×	○	○	○	○
Heat Resistance	○	○	○	×	△	△
Machinability	○	○	×	○	○	○
Cost	○	○	×	○	○	○

Features: Locating of workpiece in both vertical and horizontal directions is possible.

Threaded

Type	Shape	M Material	H Hardness
HUPNA	Round	EN 1.7220 Equiv.	Hardened 35~40HRC
HUPND	Diamond		
THUPNA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (Depth: 0.7~0.8) Anti-carburizing on Threads
THUPND	Diamond		

Reference: sin15°=0.259, sin45°=0.707, tan15°=0.267, tan45°=1; sin30°=0.5, sin60°=0.866, tan30°=0.577, tan60°=1.732

Tip Shape

A Shape: Tapered, P-2Etan(A/2) ≥ 0.73

B Shape: Taper R, e=P/2tan(A/2)+R-(R/sin(A/2))

RoHS

Part Number	Type	Tip Shape	D _{h7}	P	B	L	T	H	A	E	L ₁	L ₂	d	R	W	Unit Price			
																HUPNA	HUPND	THUPNA	THUPND
6	Hardened (Round)	A	0	3.0~7.0	2~50	5 8 10	5.0~20.0	9~20	30	1~15	8	8	4	1	1~2				
8																			
10	Carburized (Round)	A	0	3.0~9.0	(B≤Px4)	(5) (8) 10 12 15	5.0~20.0	11~20	60	1~15	8	8	4	1.5	1~2				
10T																			
12	(Diamond)	B	0	4.5~12.0	(B≤Px4)	(5) (8) 10 12 15	5.0~20.0	13~25	90	1~15	10	8	7	2	1~3				
12																			
16	Carburized (Diamond)	B	0	12.1~20.0	(B≤Px4)	(8) 10 12 15 18	5.0~20.0	15~30	120	1~15	12	10	9	3	4				
16																			

W Dimension D₆, D₈: W=2 when P>5.0 D₁₀, D_{10T}: W=1 when P<5.0, W=3 when P>7.0 L dimension in () is applicable to Round Shape only. P+2≤H≤Px5

Set Screw

Type	Shape	M Material	H Hardness
HUPTA	Round	EN 1.7220 Equiv.	Hardened 35~40HRC
HUPTD	Diamond		
THUPTA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (Depth: 0.7~0.8) Anti-carburizing on Threads
THUPTD	Diamond		

Reference: sin15°=0.259, sin45°=0.707, tan15°=0.267, tan45°=1; sin30°=0.5, sin60°=0.866, tan30°=0.577, tan60°=1.732

Tip Shape

A Shape: Tapered, P-2Etan(A/2) ≥ 0.73

B Shape: Taper R, e=P/2tan(A/2)+R-(R/sin(A/2))

RoHS

Part Number	Type	Tip Shape	D _{h7}	P	B	L	T	H	A	E	L ₁	L ₂	d	R	W	Unit Price			
																HUPTA	HUPTD	THUPTA	THUPTD
6	Hardened (Round)	A	0	3.0~7.0	2~50	5 8 10	5.0~20.0	9~20	30	1~15	8	8	4	1	1~2				
8																			
10	Carburized (Round)	A	0	3.0~9.0	(B≤Px4)	(5) (8) 10 12 15	5.0~20.0	11~20	60	1~15	8	8	4	1.5	1~2				
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12																			
16	Carburized (Diamond)	B	0	12.1~20.0	(B≤Px4)	(8) 10 12 15 18	5.0~20.0	15~30	120	1~15	12	10	9	3	4				
16																			

W Dimension D₆, D₈: W=2 when P>5.0 D₁₀, D_{10T}: W=1 when P<5.0, W=3 when P>7.0 L dimension in () is applicable to Round Shape only. P+2≤H≤Px5

Ordering Example

Part Number: HUPNA A 10 - P4.8 - B10 - L10 - T20.0 - H20 - A60 - E5

Alterations

Part Number: HUPTAB10 - P6.0 - B10 - T10.0 - H15 - A30 - KD (Set Screw Shape B)

Alterations	Flat Position	Flat Machining	Wrench Flats	Thread Dia.
		Shouldered / No Shoulder	Shouldered / No Shoulder	
Code	KC	KD	SC	MC
Spec.	Ordering Code KC: Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD: Machining on one side. Selection: For 15.0~7.0: 3mm; For 17.1~20.0: 5mm. Applicable to Round Shape Type only.	Ordering Code SC: Adds wrench flats. Selection: SC-D SC-P SC-H2. Applicable to Round Shape Type only.	Ordering Code MC: Changes the thread diameter. Selection: D/3-M<D Min3. Relief at thread end is available. Applicable to Threaded only.



Locating of workpiece in both vertical and horizontal directions is possible.