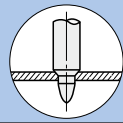

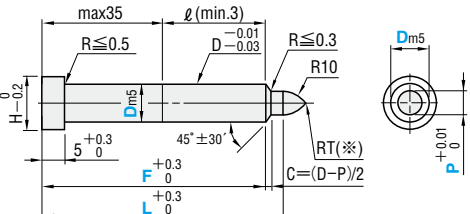

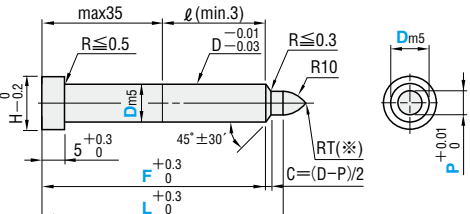

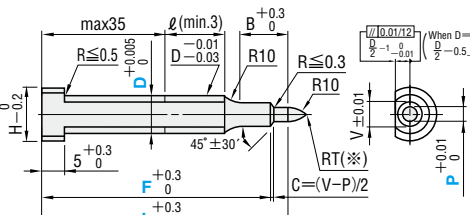

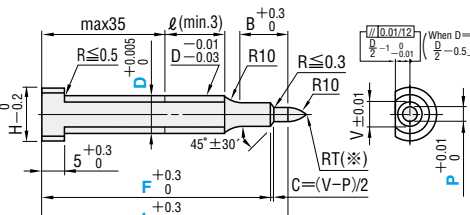

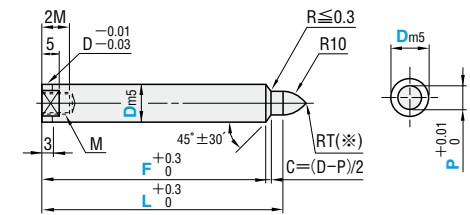

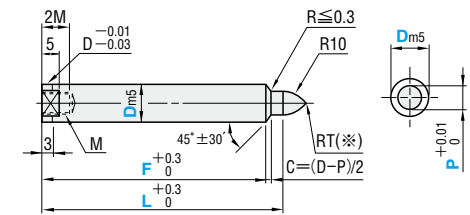


CHAMFERING PUNCHES

—PILOT TIP, TiCN COATING · DLC COATING—



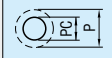


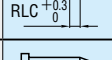
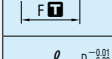
PRODUCTS DATA
P.1605-1609

Type	S	M	H	Catalog No.	Shape
—Shoulder— —TiCN coating— 	TiCN coating Surface treatment 3000HV	Equivalent to SKH51 61 ~ 64HRC	H	H — HSRMUA	 <p>⚠ The tip end of a TiCN coating punch is ground before the coating is applied. ⚠ RT(※)→If P<8, tip is rounded for safety. ⚠ To keep the sharp tip (no rounding), specify RT=0. (Cannot be used for foundation WPC®) ⚠ For the length of tip R, refer to the products data "Punch R length". P.1592</p>
				H — PSRMUA	
—DLC coating— 	DLC coating Surface treatment 3000HV	Equivalent to SKH51 61 ~ 64HRC	H	—DLC coating— N — HSRMUA —Foundation WPC®— NW — HSRMUA	 <p>⚠ The tip end of a TiCN coating punch is ground before the coating is applied. ⚠ RT(※)→If P<8, tip is rounded for safety. ⚠ To keep the sharp tip (no rounding), specify RT=0. (Cannot be used for foundation WPC®) ⚠ For the length of tip R, refer to the products data "Punch R length". P.1592</p>
				—DLC coating— N — PSRMUA —Foundation WPC®— NW — PSRMUA	
—Key flat shank— —TiCN coating— 	TiCN coating Surface treatment 3000HV	Equivalent to SKH51 61 ~ 64HRC	GH	H — HSRMUA	 <p>⚠ The tip end of a TiCN coating punch is ground before the coating is applied. ⚠ RT(※)→If P<8, tip is rounded for safety. ⚠ To keep the sharp tip (no rounding), specify RT=0. (Cannot be used for foundation WPC®) ⚠ For the length of tip R, refer to the products data "Punch R length". P.1592</p>
				H — PSRMUA	
—DLC coating— 	DLC coating Surface treatment 3000HV	Equivalent to SKH51 61 ~ 64HRC	GH	—DLC coating— GN — HSRMUA —Foundation WPC®— GNW — HSRMUA	 <p>⚠ The tip end of a TiCN coating punch is ground before the coating is applied. ⚠ RT(※)→If P<8, tip is rounded for safety. ⚠ To keep the sharp tip (no rounding), specify RT=0. (Cannot be used for foundation WPC®) ⚠ For the length of tip R, refer to the products data "Punch R length". P.1592</p>
				—DLC coating— GN — PSRMUA —Foundation WPC®— GNW — PSRMUA	
—Tapped— —TiCN coating— 	TiCN coating Surface treatment 3000HV	Powdered high-speed steel 64 ~ 67HRC	H	H — MRHMUA	 <p>⚠ The tip end of a TiCN coating punch is ground before the coating is applied. ⚠ RT(※)→If P<8, tip is rounded for safety. ⚠ To keep the sharp tip (no rounding), specify RT=0. (Cannot be used for foundation WPC®) ⚠ For the length of tip R, refer to the products data "Punch R length". P.1592</p>
				H — MRHMUA	
—DLC coating— 	DLC coating Surface treatment 3000HV	Powdered high-speed steel 64 ~ 67HRC	H	—DLC coating— N — MRHMUA —Foundation WPC®— NW — MRHMUA	 <p>⚠ The tip end of a TiCN coating punch is ground before the coating is applied. ⚠ RT(※)→If P<8, tip is rounded for safety. ⚠ To keep the sharp tip (no rounding), specify RT=0. (Cannot be used for foundation WPC®) ⚠ For the length of tip R, refer to the products data "Punch R length". P.1592</p>
				—DLC coating— N — MRHMUA —Foundation WPC®— NW — MRHMUA	

Order Catalog No. — L — P — F
 H—HSRMUA 5 — 60.0 — P4.0 — F37.0
 GN—PSRMUA 10 — 70.0 — P6.6 — F65.0



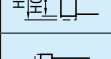
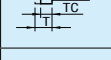
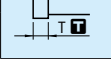
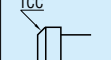

Alterations Catalog No. — L — P — F — (PKC...etc.)
 H—HSRMUA 5 — 55.0 — P2.40 — F51.0 — PKC

Days to Ship **Quotation**

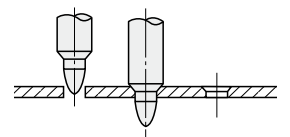
Alterations	Code	Spec.	1Code
	PC	Tip dimension change PC ≥ $\frac{P_{min}}{2} \geq 1.00$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Quotation
	PKC	Tip tolerance change P +0.01 → +0.005 0 0 0 (P dimension can be selected in 0.001mm increments.) ⚠ TiCN coating cannot be used for D>13.	
	RLC	Tip R is cut flat. 2 ≤ RLC < √P(10-P/4) 0.1mm increments ⚠ Can be used for P<8.	
	FKC	F dimension tolerance change F +0.3 → +0.05 0 0 0	
	NDC	No press-in lead ℓ ≥ 3 → ℓ = 0 ⚠ Cannot be used for tapped types.	

Effects of DLC coating
 Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. **P.1609**

P Price **Quotation**

Alterations	Code	Spec.	1Code
	KC	Addition of single key flat ⚠ Cannot be used for D5 tapped types. ⚠ Cannot be used for key flat shank types.	Quotation
	WKC	Addition of double key flats in parallel ⚠ Cannot be used for D5 tapped types. ⚠ Cannot be used for key flat shank types.	
	HC	Head diameter change D ≤ HC < H 0.1mm increments ⚠ Cannot be used for tapped types.	
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments (If combined with TKC-TKM, 0.01mm increments can be selected.) ⚠ The full length remains as specified. ⚠ Cannot be used for tapped types.	
	TKC	Head thickness tolerance change T +0.3 → +0.02 0 0 0 ⚠ Cannot be used for tapped types.	Quotation
	TKM	Head thickness tolerance change T +0.3 → 0 0 0 0 ⚠ Cannot be used for tapped types.	
	TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.5 ≤ TCC ≤ (H-D)/2 ⚠ If H ≤ 5, then TCC is 0.5. ⚠ Cannot be used for tapped types.	

EX Example



Chamfering is done after punching.
 Chamfering can be done in two operations.

B	H	V	M	Catalog No.		D	0.1mm increments		0.01mm increments		0.1mm increments		
				Type			L		min. P	max.	F		
—	5	—	—	Shoulder —TiCN coating— H — HSRMUA H — PSRMUA —DLC coating— N — HSRMUA N — PSRMUA —DLC coating foundation WPC®— NW — HSRMUA NW — PSRMUA	3	30.0 ~ 90.0	28 ≤ F ≤ L - C - 2.0	1.00 ~ 2.00	2.00 ~ 4.00	P	L-F	20 or less 35 or less 45 or less 50 or less	
	4							1.00 ~ 3.00	2.00 ~ 5.00				
	6							2.00 ~ 4.00	3.00 ~ 7.00				
	8							3.00 ~ 9.00	6.00 ~ 12.00				
	10							3.00 ~ 9.00	10.00 ~ 15.00				
	13							3.00 ~ 9.00	13.00 ~ 19.00				
	16							3.00 ~ 9.00	18.00 ~ 24.00				
	19							3.00 ~ 9.00	1.00 ~ 1.80				2.00 ~ 2.80
	23							3.00 ~ 9.00	2.00 ~ 3.80				3.00 ~ 4.80
	28							3.00 ~ 9.00	3.00 ~ 6.80				6.00 ~ 9.80
8	7	2.8	—	Key flat shank —TiCN coating— GH — HSRMUA GH — PSRMUA —DLC coating— GN — HSRMUA GN — PSRMUA —DLC coating foundation WPC®— GNW — HSRMUA GNW — PSRMUA	4	40.0 ~ 90.0	29 ≤ F ≤ L - C - 2.0 and B ≥ L - F + 2.0	1.00 ~ 1.80	2.00 ~ 2.80	P	L-F	20 or less 35 or less 45 or less 50 or less	
	8							2.00 ~ 3.80	3.00 ~ 4.80				
	11							3.00 ~ 4.80	6.00 ~ 9.80				
	13							3.00 ~ 6.80	10.00 ~ 12.80				
	16							3.00 ~ 6.80	13.00 ~ 16.80				
13	13	7.8	—	Key flat shank —TiCN coating— GH — HSRMUA GH — PSRMUA —DLC coating— GN — HSRMUA GN — PSRMUA —DLC coating foundation WPC®— GNW — HSRMUA GNW — PSRMUA	5	50.0 ~ 100.0	28 ≤ F ≤ L - C - 2.0	2.00 ~ 4.00	2.00 ~ 5.00	P	L-F	20 or less 35 or less 45 or less 50 or less	
	8							2.00 ~ 5.00	3.00 ~ 7.00				
	11							3.00 ~ 7.00	6.00 ~ 12.00				
	16							3.00 ~ 9.00	10.00 ~ 15.00				
	23							3.00 ~ 9.00	13.00 ~ 19.00				
19	19	13.8	—	Key flat shank —TiCN coating— GH — HSRMUA GH — PSRMUA —DLC coating— GN — HSRMUA GN — PSRMUA —DLC coating foundation WPC®— GNW — HSRMUA GNW — PSRMUA	6	30.0 ~ 90.0	28 ≤ F ≤ L - C - 2.0	2.00 ~ 4.00	2.00 ~ 5.00	P	L-F	20 or less 35 or less 45 or less 50 or less	
	23							2.00 ~ 5.00	3.00 ~ 7.00				
	28							3.00 ~ 7.00	6.00 ~ 12.00				
	—							3.00 ~ 9.00	10.00 ~ 15.00				
	—							3.00 ~ 9.00	13.00 ~ 19.00				