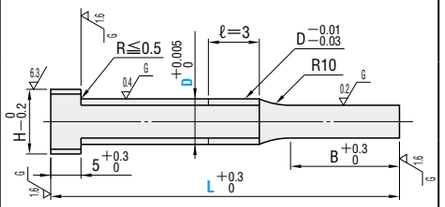
CARBIDE KEY FLAT SHANK SHOULDER PUNCHES

—NORMAL・TiCN COATING—

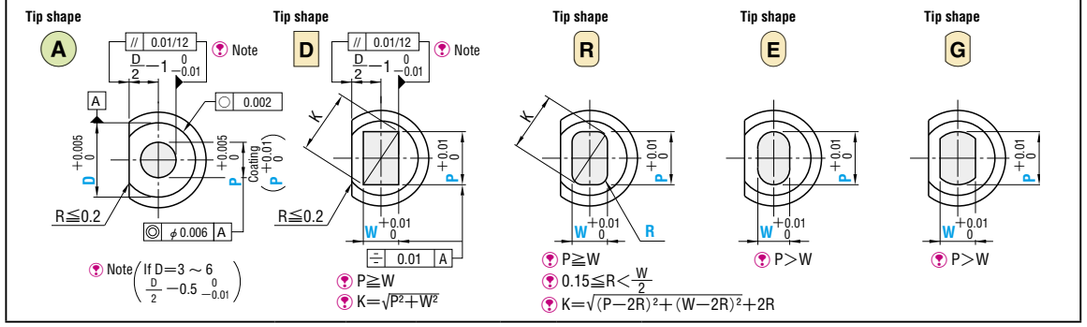
PRODUCTS DATA P.1604

Type	Shank diameter D T tolerance	M / H	Catalog No. Type	Tip shape	B Tip length
RoHS	$D^{+0.005}_{0}$	V30 (HIP) 88 ~ 89HRA	G—WP	A D R E G	S
			TiCN coating GH—WP		L
		Super fine grain 90 ~ 92HRA	G—WXP (D3 ~ 6)		Tip length (B) L>S
			TiCN coating GH—WXP (D3 ~ 6)		

The tip shape can be selected from tip shapes A ~ G in the figure below.



The tip end of a TiCN coating punch is ground before the coating is applied.
Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.



Catalog No. Type	Tip shape	B Tip length	D	L					0.001mm increments Ⓐ min.	0.01mm increments DREG P・Kmax.	W max.	P・Wmin.	R R	B	H
G—WP	A D R E G	S	3	40	50	60	70		1.000 ~ 1.800	—	—	—	0.15≦R<W/2 (R only)	8	5
			4	40	50	60	70		1.000 ~ 2.800	3.97	2.80	1.50			7
			5	40	50	60	70		2.000 ~ 3.800	4.97	3.80	1.50			8
			6	40	50	60	70		2.000 ~ 4.800	5.97	4.80	1.50			9
G—WXP (D3 ~ 6)			8	(40)	50	60	70	80	3.000 ~ 5.800	7.97	5.80	2.00		13	11
—TiCN coating—			10	(40)	50	60	70	80	3.000 ~ 7.800	9.97	7.80	2.50			13
			13	(40)	50	60	70	80	6.000 ~ 10.800	12.97	10.80	3.00			16
			16	(40)	50	60	70	80	10.000 ~ 13.800	15.97	13.80	4.00		19	19
GH—WP		L	3		50	60	70		1.000 ~ 1.800	—	—	—		13	5
			4		50	60	70		1.000 ~ 2.800	3.97	2.80	2.00			7
			5		50	60	70		2.000 ~ 3.800	4.97	3.80	2.00			8
			6		50	60	70		2.000 ~ 4.800	5.97	4.80	2.00			9
GH—WXP (D3 ~ 6)			8		50	60	70	80	3.000 ~ 5.800	7.97	5.80	2.50		19	11
			10		50	60	70	80	3.000 ~ 7.800	9.97	7.80	2.50			13
			13		50	60	70	80	6.000 ~ 10.800	12.97	10.80	3.00			16
			16			60	70	80	10.000 ~ 13.800	15.97	13.80	4.00		25	19

L (40)···B=8 If full length is (40), tip length is 8mm in all cases.
DREG:P・K>D−0.05···ℓ=0 If P・K>D−0.05 for a shaped punch, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.

D=3 ~ 6···a=0.5 If D dimension is 3 ~ 6, a is 0.5mm.
D=8 ~ 16···a=1 When D dimension is 8 ~ 16, a is 1mm.

P dimension increments···With TiCN coating, increments are 0.01mm. (If used with PKC alteration, 0.001mm increments can be selected.)

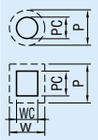
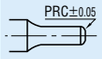
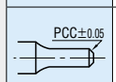
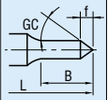
Order

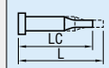
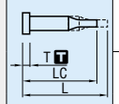
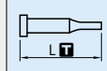
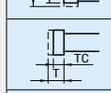
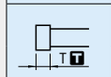
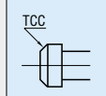
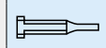
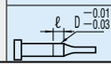
Catalog No.	L	P	W	R (R only)
G—WPAS 10	60	P7.770		

Days to Ship Quotation

Alterations

Catalog No.	L (LC・LCT・LMT)	P (PC)	W (WC)	R	(BC・HC・TC, etc.)
G—WPAS 8	50	PC2.950			BC15

	Alteration	Code	Ⓐ	DREG	1Code
Alterations to tip		PC WC	Tip dimension change PC≧Pmin./2 0.001mm increments With coating, 0.01mm increments PC≧Pmin./2≧1.00 Coating cannot be used for D3・4. P(PC) / Bmax.: 0.500 ~ 0.999 / 4; 1.000 ~ 1.999 / 13; 2.000 ~ 2.999 / 19; 3.000 ~ 3.999 / 30; 4.000 ~ 5.999 / 40; 6.000 ~ / 45	Tip dimension change PC, WC ≧Wmin.×2/3≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) P(PC)・W(WC) / Bmax.: 1.000 ~ 1.999 / 8; 2.000 ~ 2.499 / 13; 2.500 ~ 3.999 / 19; 4.000 ~ / 25	Quotation
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 25mm longer than tip length BC.	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 30mm longer than tip length BC.	
		SC	Tip roughness change 0.2 G ⇨ 0.08 GL With TiCN coating, the base material is finished before the coating is applied.		
		PRC	Rounding of tip side edge 0.3≦PRC≦1 0.1mm increments PRC≦(P−0.2)/2 Cannot be combined with PCC・GC.	—	
		PCC	Chamfering to tip side edge 0.3≦PCC≦1 0.1mm increments PCC≦(P−0.2)/2 Cannot be combined with PRC・GC.	—	
		GC	20°≦GC<90° 1° increments Tip length B≧f+2 f=P/2×tan(90°−GC°) When combined with SC, tip edges are rounded. Cannot be used for P≦1.000. Cannot be combined with LKC・LKZ・LCT・LMT・PRC・PCC.	—	
		PKC	Tip tolerance change Normal $P^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$ Coating $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ Coating cannot be used for D16.	Tip tolerance change (P・W dimensions can be selected in 0.001mm increments.) $P・W^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ Cannot be used with coating.	
		PKV	Tip tolerance change Normal $P^{+0.005}_{0}$ ⇨ ±0.002 Coating $P^{+0.01}_{0}$ ⇨ ±0.005 P dimension increment remains the same.	Tip tolerance change $P・W^{+0.01}_{0}$ ⇨ ±0.005 Cannot be used with coating. P dimension increment remains the same.	

	Alteration	Code	Ⓐ	DREG	1Code
Alterations to full length		LC	Full length change 25+B(BC)≦LC<L 0.1mm increments If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length−25mm). (If combined with LKC・LKZ, 0.01mm increments can be selected.)	Full length change 30+B(BC)≦LC<L 0.1mm increments If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length−30mm).	Quotation
		LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes (Ⓐ) are the same as for LC. TKC Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ + LC Full length change + Full length tolerance change $L^{+0.3}_{0}$ ⇨ $^{+0.1}_{0}$		
		LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes (Ⓐ) are the same as for LC. TKM Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ + LC Full length change + Full length tolerance change $L^{+0.3}_{0}$ ⇨ $^{+0.1}_{0}$		
		LKC	Full length tolerance change $L^{+0.3}_{0}$ ⇨ $^{+0.05}_{0}$		
		LKZ	Full length tolerance change $L^{+0.3}_{0}$ ⇨ $^{+0.01}_{0}$	Cannot be used with TiCN coating.	
Alterations to head		WKC	Addition of double key flats in parallel		
		HC	Head diameter change D≦HC<H 0.1mm increments		
		TC	Head thickness change 2≦TC<5 0.1mm increments (If combined with TKC, 0.01mm increments can be selected.) Full length L is shortened by (5−TC). If combined with LC・LCT・LMT, full length is equal to LC.		
		TKC	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$		
		TKM	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$		
		TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.1mm increments 0.5≦TCC≦(H−D)/2 If H≦5, then TCC is 0.5.		
Alterations to shank		SKF	Single key flat on shank, configurable size SKF $^{0}_{-0.01}$ Ⓐ P≦2(SKF−0.1) 0.1mm increments DREG W≦2(SKF−0.1) 0.1mm increments 0.3≦SKF≦D/2−0.1 Cannot be combined with WKC.		
		NDC	No press-in lead ℓ=3⇨ℓ=0		

Price Quotation