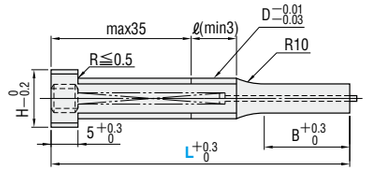
KEY FLAT SHANK JECTOR PUNCHES
—RW COATING・DLC COATING—

PRODUCTS DATA P.1605～1609

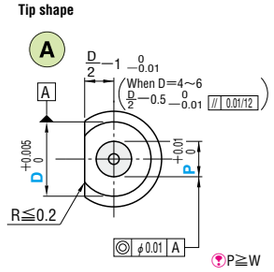
- For details of jector holes, refer to Jector Punch Blanks. P.236
- For details of jector pins, refer to Jector Pin Sets. P.241

Calculating the projection length of the jector pin (reference value) P.241

Type	Shank diameter D T tolerance	M H	Catalog No. Type	Tip shape	B Tip length	The tip shape can be selected from Tip shape A～G in the figure below.
—RW coating— RoHS  —DLC coating— 	$D^{+0.005}_{0}$	Powdered high-speed steel 64～67HRC Surface 3000HV	GRW—PJ GRW—PJV	A D R E G	S L	
		Powdered high-speed steel 64～67HRC Surface 3000HV～	GN—PJ GN—PJV —Foundation WPC®— GNW—PJ GNW—PJV		Tip length (B) L>S	

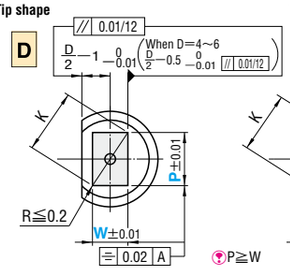
The tip edge of a RW coating or DLC foundation WPC® are very slightly rounded.
The tip end is ground before the coating is applied.

Tip shape A



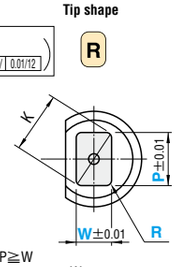
P≧W
R=0 can be selected. (However,RW coating and Foundation WPC® cannot be used.)
$K=\sqrt{P^2+W^2}$

Tip shape D



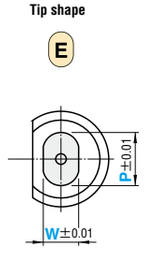
P≧W
$0.15 \leqq R < \frac{W}{2}$
$K=\sqrt{(P-2R)^2+(W-2R)^2}+2R$

Tip shape R



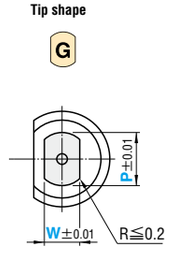
P>W

Tip shape E



P>W

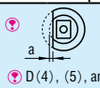
Tip shape G



P>W

Catalog No. Type	Tip shape	B Tip length	D	L	0.01mm increments Ⓐ min.P max.	Ⓓ Ⓡ Ⓔ Ⓖ P-Kmax.	Ⓓ Ⓡ Ⓔ Ⓖ Wmax.	Ⓓ Ⓡ Ⓔ Ⓖ P-Wmin.	Ⓡ R	B	H
—RW coating— GRW—PJ Spring reinforced type (D8～25) GRW—PJV	A D R E G	S	(4)	40 50 60 70 80	1.00～ 2.80	3.97	2.80	1.00	$\frac{W}{2}$ (Ⓡ only) $0.15 \leqq R < \frac{W}{2}$	8	7
			(5)	40 50 60 70 80	2.00～ 3.80	4.97	3.80	2.00			8
			(6)	40 50 60 70 80	2.00～ 4.80	5.97	4.80	2.00			9
			8	(40) 50 60 70 80 90 100	3.00～ 5.80	7.97	5.80	3.00		13	11
			10	(40) 50 60 70 80 90 100	3.00～ 7.80	9.97	7.80	3.00			13
			13	(40) 50 60 70 80 90 100	6.00～ 10.80	12.97	10.80	6.00			16
			16	(40) (50) 60 70 80 90 100	10.00～ 13.80	15.97	13.80	6.00		19	19
			20	(40) (50) 60 70 80 90 100	13.00～ 17.80	19.97	17.80	6.00			23
			25	(40) (50) 60 70 80 90 100	18.00～ 22.80	24.97	22.80	6.00			28
—DLC coating— GN—PJ Spring reinforced type (D8～25) GN—PJV		L	(4)	50 60 70 80	1.00～ 2.80	3.97	2.80	2.00		13	7
			(5)	50 60 70 80	2.00～ 3.80	4.97	3.80	2.00			8
			(6)	50 60 70 80	2.00～ 4.80	5.97	4.80	2.00			9
			8	50 60 70 80 90 100	3.00～ 5.80	7.97	5.80	3.00		19	11
			10	50 60 70 80 90 100	3.00～ 7.80	9.97	7.80	3.00			13
			13	50 60 70 80 90 100	6.00～ 10.80	12.97	10.80	6.00			16
—DLC foundation WPC®— GNW—PJ Spring reinforced type (D8～25) GNW—PJV			16	60 70 80 90 100	10.00～ 13.80	15.97	13.80	6.00		25	19
			20	60 70 80 90 100	13.00～ 17.80	19.97	17.80	6.00			23
			25	60 70 80 90 100	18.00～ 22.80	24.97	22.80	6.00			28

The spring constants of GRW—PJV, GN—PJV, and GNW—PJV are twice those of GRW—PJ, GN—PJ, and GNW—PJ respectively.
L(40)⋯B=6 If full length is (40), tip length is 6 mm in all cases.
L(50)⋯B=13 If full length is (50), tip length is 13mm in all cases.
Ⓓ Ⓡ Ⓔ Ⓖ: 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=4～6⋯a=0.5 When D dimension is 4 ～ 6, dimension a is 0.5mm.
D=8～25⋯a=1 When D dimension is 8 ～ 25, dimension a is 1mm.
D(4), (5), and (6) are specifications available for GRW—PJ, GN—PJ, and GNW—PJ only. Spring reinforced types are available for D8～25 only.

Order

Catalog No.	L	P	W	R (Ⓡonly)
GRW—PJDS 6	60	P3.00	W2.80	

Days to Ship: Quotation

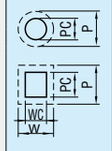
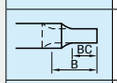
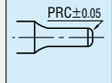
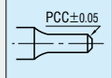
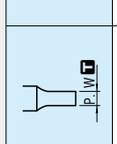
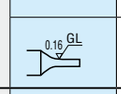
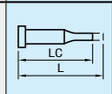
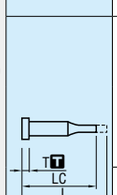
■Effect of spring reinforced type
The spring constant is twice that of a standard type jector punch. The large spring load results in more effective scrap removal.

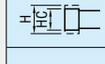
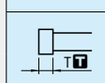
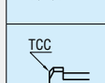
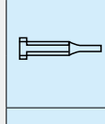
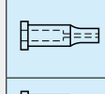
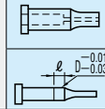
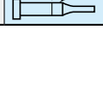
■Effects of RW coating
Effective for press processing of ultra-high-tensile material and thick plate high-tensile material thanks to its superior wear resistance, peeling resistance and heat resistance. See the product data for details. P.1607

■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

Alterations

Catalog No.	L (LC・LCT・LMT)	P (PC)	W (WC)	R	(BC・HC・TC...etc.)
GNW—PJDS 6	LC58	P3.00	W2.80		HC8

Alterations		Code	Ⓐ	Ⓓ Ⓡ Ⓔ Ⓖ	1Code
Alterations to tip		PC WC	Tip dimension change PC ≧ PCmin. 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.) D / PCmin: 4 1.000; 5 1.800; 6 1.800; 8 2.500; 10 2.800; 13 5.000; 16 8.000; 20 9.000; 25 9.000	Tip dimension change PC・WC≧PC・WCmin. 0.01mm increments ⊗ Cannot be used for D4. D / PC・WCmin: 5 1.80; 6 1.80; 8 2.50; 10 2.80; 13 5.00; 16 5.00; 20 5.00; 25 5.00	Quotation
		BC	Tip length change (shorter than standard) 2≦BC<B 0.1 mm increments		
		PRC	Rounding of tip side edge 0.3≦PRC≦1 0.1 mm increments (?) PRC≦(P−d1−0.5)/2 d1 dimension P.236 ⊗ Cannot be combined with PCC. For RW coating and DLC foundation WPC®,the tolerance is PRC±0.1.	——	
		PCC	Chamfering to tip side edge 0.3≦PCC≦1 0.1 mm increments (?) PCC≦(P−d1−0.5)/2 d1 dimension P.236 ⊗ Cannot be combined with PRC. RW coating and DLC foundation WPC® cannot be used.	——	
		PKC	Tip tolerance change $P^{+0.01}_{0} \Rightarrow {}^{+0.005}_{0}$ (?) (P dimension can be selected in 0.001 mm increments.)	Tip tolerance change $P・W\pm0.01 \Rightarrow {}^{+0.01}_{0}$	
			⊗ RW coating cannot be used.		
		SC	Lapping of tip (?) P dimention tolerance and increments are the same. ⊗ Cannot be combined with for substrate WPC® treatment. ⊗ Tip Ⓓ shape corner R=0 cannot be selected.		
Alterations to full length		LC	Full length change (reduction in tip length) LC<L 0.1 mm increments (?) Tip length B is reduced by (L−LC). (If combined with LKC・LKZ, 0.01 mm increments can be selected.) (?) Projection length of jector pin is 2 mm.		
		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 $T^{+0.3}_{0} \Rightarrow {}^{+0.02}_{0}$) + LC (+Full length change) + (Full length tolerance change $L^{+0.3}_{0} \Rightarrow {}^{+0.1}_{0}$)		
		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 $T^{+0.3}_{0} \Rightarrow {}^{0}_{-0.02}$) + LC (+Full length change) + (Full length tolerance change $L^{+0.3}_{0} \Rightarrow {}^{+0.1}_{0}$)		
		LKC	Full length tolerance change	$L^{+0.3}_{0} \Rightarrow {}^{+0.05}_{0}$	

Alterations		Code	Ⓐ	Ⓓ Ⓡ Ⓔ Ⓖ	1Code
Alterations to head		WKC	Addition of double key flats in parallel		Quotation
		HC	Head diameter change D≦HC<H 0.1 mm increments		
		TC	Head thickness change 3.5≦TC<5 0.1 mm increments (If combined with TKC・TKM・LCT・LMT, 0.01mm increments can be selected.) (?) Full length L is shortened by (5−TC). If combined with LC・LCT・LMT, full length remains as specified.		
		TKC	Head thickness tolerance change $T^{+0.3}_{0} \Rightarrow {}^{+0.02}_{0}$		
		TKM	Head thickness tolerance change $T^{+0.3}_{0} \Rightarrow {}^{0}_{-0.02}$		
		TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.1 mm 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 / Ⓓ Ⓡ Ⓔ Ⓖ W≦2(SKF−0.1) 0.1mm increments D4～6 D/2−0.5≦SKF≦D/2−0.1 D8～25 D/2−1.0≦SKF≦D/2−0.1 ⊗ Cannot be combined with WKC.		
		AC	The jector pin is removed to create an air path and the side vent hole is plugged from the inside by inserting a resin (ABS) ring.		
		NC	The jector pin is removed. ⊗ Cannot be combined with AC.		
		NDC	No press-in lead $\ell \geqq 3 \Rightarrow \ell=0$		

Price: Quotation