

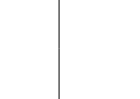


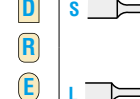

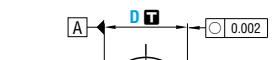
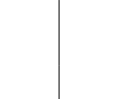

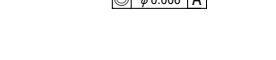



CARBIDE PUNCHES WITH KEY GROOVES

Type	Shank diameter D Tolerance	M H	Catalog No.		The tip shape can be selected from tip shapes A ~ G in the figure below.
			Type	Tip shape B Tip length	
  For shank diameter tolerance D T, select either m5 or +0.005/0.	D _{m5}	V30 (HIP) 88 ~ 89HRA	WK	A	 Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.
—Lapping—   For shank diameter tolerance D T, select either m5 or +0.005/0.	D _{+0.005/0}	V30 (HIP) 88 ~ 89HRA	A-WK	D	 Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.
—Lapping—   For shank diameter tolerance D T, select either m5 or +0.005/0.	D _{m5}	V30 (HIP) 88 ~ 89HRA	L-WK	E	 Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.
—Lapping—   For shank diameter tolerance D T, select either m5 or +0.005/0.	D _{+0.005/0}	V30 (HIP) 88 ~ 89HRA	AL-WK	G	 Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.

Type	Tip shape	Tip length	D	L				0.001mm increments		0.01mm increments		Lmm increments	T	B	U Key groove depth
								A	D R E G	R					
								min. P max.	P · Kmax.	P · Wmin.					
(D _{m5}) WK W XK (D3 ~ 6)	A	S	3	40	50	60	1.000 ~ 2.990	—	—	—	0.15 ≤ R < W/2 (R only)	T _{≥5.0}	8	0.5	
			4	40	50	60	70	1.000 ~ 3.990	3.97	1.50					
			5	40	50	60	70	2.000 ~ 4.990	4.97	1.50					
			6	40	50	60	70	2.000 ~ 5.990	5.97	1.50					
			8	(40)	50	60	70	80	3.000 ~ 7.990	7.97					2.00
			10	(40)	50	60	70	80	3.000 ~ 9.990	9.97					2.50
—Lapping— L-WK L-W XK (D3 ~ 6)	E	L	3	50	60	—	1.000 ~ 2.990	—	—	—	0.15 ≤ R < W/2 (R only)	T _{≥5.0}	13	1.5	
			4	50	60	70	1.000 ~ 3.990	3.97	2.00						
			5	50	60	70	2.000 ~ 4.990	4.97	2.00						
			6	50	60	70	2.000 ~ 5.990	5.97	2.00						
			8	50	60	70	80	3.000 ~ 7.990	7.97	2.50					
			10	50	60	70	80	3.000 ~ 9.990	9.97	2.50					
	G		13	50	60	70	80	6.000 ~ 12.990	12.97	3.00	0.15 ≤ R < W/2 (R only)	T _{≥5.0}	19	1.5	
			16	(40)	50	60	70	80	10.000 ~ 15.990	15.97					4.00
			3	50	60	—	1.000 ~ 2.990	—	—	—					
			4	50	60	70	1.000 ~ 3.990	3.97	2.00						

Ⓛ (40) → B=8 If full length is (40), tip length is 8mm in all cases.
 Ⓢ If no key groove is required, select T=L.

Order **Catalog No.** — L — P — W — R (R only) — T Ⓢ If no key groove is required, select T=L.
 A-WKAS 8 — 70 — P6.500 — T20

Days to Ship **Quotation**

Alterations **Catalog No.** — L (LC-LCT) — P (PC) — W (WC) — R — T — (BC-KC-KD, etc.)
 A-WKAS 8 — LC65.5 — P6.500 — T20 — PKC

Alteration	Code	A	D R E G	1Code
Alterations to tip	PC WC	Tip dimension change PC ≥ Pmin./2 0.001mm increments 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 ≥ P min. × 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.	
	PRC ± 0.05	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1mm increments PRC ≤ (P-0.2)/2 Cannot be combined with PCC-GC.	—	
	PCC ± 0.05	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°) With lapping, tip edges are rounded. Cannot be used for P ≤ 1.000. Cannot be combined with LKC-LKZ-PRC-PCC.	—	
	PKC PKV	Tip tolerance change P +0.005 → +0.003 Tip tolerance change P +0.005 → ±0.002 P dimension increment remains the same.	Tip tolerance change (P-W dimensions can be selected in 0.001mm increments) P · W +0.01 → +0.005 P · W +0.01 → +0.005 Tip tolerance change P · W +0.01 → ±0.005 P dimension increment remains the same.	

Price **Quotation**

Alteration	Code	A	D R E G	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).	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). (If combined with LKC-LKZ, 0.01mm increments can be selected.)	Quotation
	LCT	TKC T dimension tolerance change T +0.05 → -0.02	LC Full length tolerance change L +0.3 → +0.1	
	LKC	Full length tolerance change L +0.3 → +0.05	—	
	LKZ	Full length tolerance change L +0.3 → +0.01	—	
Others	KC	—	Key flat position 90° change 1° increments	Quotation
	NKC	—	No key flat	
	KD	—	Key groove 90° 180° position change 1° increments	
	WKD	Ⓢ Addition of double key grooves in parallel	Ⓢ Double key grooves in parallel. Can be combined with KD.	
	TKC	T dimension tolerance change T +0.05 → -0.02	—	
	UK	Key groove depth change D UK 4-5 0.7 6 1.2 8-16 1.7 Cannot be used for D3.	—	
SKK	Single key flat on shank Ⓢ D3 ~ 6 P ≤ D-1.2 W ≤ D-1.2 (Machining width 0.5) Ⓢ D8 ~ P ≤ D-2.2 W ≤ D-2.2 (Machining width 1) Cannot be combined with KC-KD-WKD.	—		



Fixing keys for punches with key grooves
 P.245

CARBIDE PUNCHES