

CARBIDE PUNCHES WITH KEY GROOVES AND AIR HOLES

—MINUS D TOLERANCE—



Type	Shank diameter D Tolerance	Material	Catalog No.	Shape
 RoHS	D ^{-0.001} _{-0.006}	 V30 (HIP) 88 ~ 89HRA Super fine grain (HIP) 90 ~ 92HRA	B—WJKAS B—WJKAL	 Tip length (B) L > S
			B—WXJKAS B—WXJKAL (D4 ~ 6)	
—Lapping— RoHS	D ^{-0.001} _{-0.006}	 V30 (HIP) 88 ~ 89HRA Super fine grain (HIP) 90 ~ 92HRA	BL—WJKAS BL—WJKAL	 Tip length (B) L > S
			BL—WXJKAS BL—WJKAL (D4 ~ 6)	
—TiCN coating— RoHS	D ^{-0.001} _{-0.006}	 V30 (HIP) 88 ~ 89HRA Surface 3000HV Super fine grain (HIP) 90 ~ 92HRA Surface 3000HV	BH—WJKAS BH—WJKAL	 Tip length (B) L > S * The tip end is ground before the coating is applied.
			BH—WXJKAS BH—WJKAL (D4 ~ 6)	

Type	Tip shape	Tip length	D	L			0.001mm increments		T	B	d ₁	S	d ₂	U Key groove depth			
				min.	P	max.	0.1mm increments	0.1mm increments									
B—WJK B—WXJK (D4 ~ 6)	S	A	4	40	50	60	1.500	~	3.990	T ≥ 5.0	8	0.5	20	1.2	0.5		
				50	60	70	2.000	~	4.990					2.1			
				60	70	80	2.000	~	5.990					2.6			
				(40)	50	60	70	80	3.000					~		7.990	3.4
				(40)	50	60	70	80	3.000					~		9.990	4.4
				(40)	50	60	70	80	6.000					~		12.990	4.4
—Lapping— BL—WJK BL—WXJK (D4 ~ 6)	A	L	4	50	60	70	1.500	~	3.990	T ≥ 5.0	13	0.5	20	1.2	0.5		
				50	60	70	2.000	~	4.990					2.1			
				50	60	70	2.000	~	5.990					2.6			
				50	60	70	80	3.000	~					7.990		3.4	
				50	60	70	80	3.000	~					9.990		4.4	
				50	60	70	80	6.000	~					12.990		4.4	
—TiCN coating— BH—WJK BH—WXJK (D4 ~ 6)	L	L	4	50	60	70	1.500	~	3.990	T ≥ 5.0	19	0.5	20	1.2	0.5		
				50	60	70	2.000	~	4.990					2.1			
				50	60	70	2.000	~	5.990					2.6			
				50	60	70	80	3.000	~					7.990		3.4	
				50	60	70	80	3.000	~					9.990		4.4	
				50	60	70	80	6.000	~					12.990		4.4	
	L	L	4	50	60	70	1.500	~	3.990	T ≥ 5.0	19	0.5	20	1.2	0.5		
				50	60	70	2.000	~	4.990					2.1			
				50	60	70	2.000	~	5.990					2.6			
				50	60	70	80	3.000	~					7.990		3.4	
				50	60	70	80	3.000	~					9.990		4.4	
				50	60	70	80	6.000	~					12.990		4.4	
	L	L	4	50	60	70	1.500	~	3.990	T ≥ 5.0	25	0.5	20	1.2	0.5		
				50	60	70	2.000	~	4.990					2.1			
				50	60	70	2.000	~	5.990					2.6			
				50	60	70	80	3.000	~					7.990		3.4	
				50	60	70	80	3.000	~					9.990		4.4	
				50	60	70	80	6.000	~					12.990		4.4	

* With TiCN coating, P dimension can be selected in 0.01mm increments. (If used with PKC alteration, 0.001mm increments can be selected.)
 * If L is (40) or (50), tip length B and S dimension are as follows.

D	L	(40)	D	L	(50)
8 ~ 16	B=8 S=17	16	B=13 S=24		

* Air hole of super fine grain type is straight. S and d₂ dimensions do not exist.

* If no key groove is required, select T=L.

Order **Catalog No.** — L — P — T If no key groove is required, select T=L.
 B—WJKAL16 — 70 — P12.000 — T20

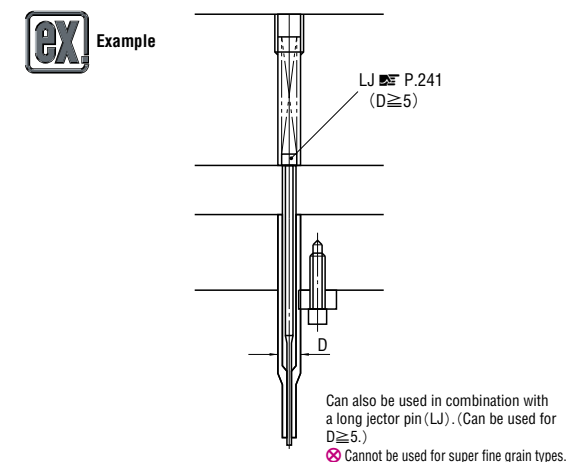
Days to Ship **Quotation**

Alterations **Catalog No.** — L(LC-LCX) — P(PC) — T — (BC-WKD, etc.)
 B—WJKAL16 — LC65.5 — P12.000 — T20 — PKC

Alteration	Code	Spec.	1Code
Alterations to tip	PC	Tip dimension change PC ≥ PCmin. 0.001mm increments * Cannot be used for D4.	Quotation
	BC	Tip length change 2 ≤ BC < B 0.1mm increments	
	SC	Tip roughness change * Can be only used with coating. * The base material is finished before the coating is applied.	
	PRC ± 0.05	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1mm increments * PRC ≤ (P - d ₁ - 0.5) / 2 * Cannot be combined with PCC.	
	PCC ± 0.05	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1mm increments * PCC ≤ (P - d ₁ - 0.5) / 2 * Cannot be combined with PRC.	
	PKC	Tip tolerance change Normal-lapping P ^{+0.005} ₀ ⇔ ^{+0.003} ₀ Coating P ^{+0.01} ₀ ⇔ ^{+0.005} ₀	
Alterations to key groove	PKV	Tip tolerance change (* P dimension increment remains the same.) Normal-lapping P ^{+0.005} ₀ ⇔ ±0.002 Coating P ^{+0.01} ₀ ⇔ ±0.005	

Price **Quotation**

Alteration	Code	Spec.	1Code
Alterations to full length	LC	Full length change LC < L 0.1mm increments (If combined with LKC-LKZ, 0.01mm increments can be selected.) * B and S dimensions are shortened accordingly.	Quotation
	LCX	Full length change with the same tip length B 25 + B (BC) ≤ LCX < 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.)	
Alterations to key groove	LKC	Full length tolerance change L ^{+0.3} ₀ ⇔ ^{+0.05} ₀	Quotation
	LKZ	Full length tolerance change L ^{+0.3} ₀ ⇔ ^{+0.01} ₀ * Cannot be used with TiCN coating.	
Alterations to key groove	WKD	Addition of double key grooves in parallel	Quotation
	RTC	T dimension tolerance change T ⁰ _{-0.02} ⇔ ^{+0.05} ₀	
Alterations to key groove	UK	Key groove depth change D UK 4-5 0.7 6 1.2 8-16 1.7 * Can be used for super fine grain types only.	Quotation
	SKC	Single key flat on shank D ⁰ _{-0.5-0.01} A * D4 ~ 6 P ≤ D - 1.2 (Machining width 0.5) * D8 ~ P ≤ D - 2.2 (Machining width 1) * Cannot be combined with WKD.	



Fixing keys for punches with key grooves
 P.245

