

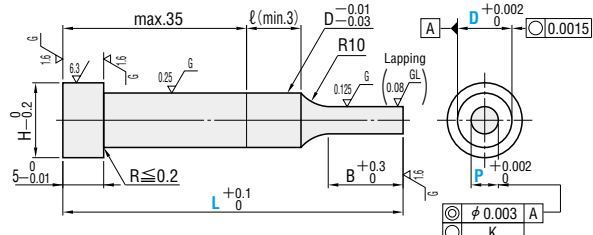





PRECISION CARBIDE SHOULDER PUNCHES

Type	RoHS	Catalog No.	Shape
		VPAS VPAL	 <p>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.</p> <p>$P < 1.000 \rightarrow K \leq 0.0020$ $P \geq 1.000 \rightarrow K \leq 0.0015$</p>
		L-VPAS L-VPAL	
		VXPAS VXPAL	
		L-VXPAS L-VXPAL	

Catalog No.	Type	D	L	0.001mm increments min. P max.	B	H
VPAS VXPAS	Lapping L-VPAS L-VXPAS	3	40 45 50 55 60	1.000 ~ 2.990	8	5
		4	40 45 50 55 60 65 70	1.000 ~ 3.990		7
		5	40 45 50 55 60 65 70	2.000 ~ 4.990		8
		6	40 45 50 55 60 65 70	2.000 ~ 5.990		9
VPAL VXPAL	Lapping L-VPAL L-VXPAL	3	50 55 60	1.000 ~ 2.990	13	5
		4	50 55 60 65 70	1.000 ~ 3.990		7
		5	50 55 60 65 70	2.000 ~ 4.990		8
		6	50 55 60 65 70	2.000 ~ 5.990		9

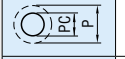
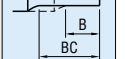
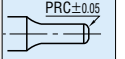
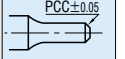
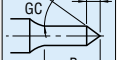
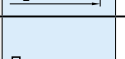

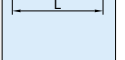
$P > D - 0.03 \rightarrow \ell = 0$ If $P > D - 0.03$, $D_{-0.03}$ (press-in lead) is not included.




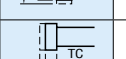
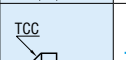
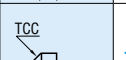
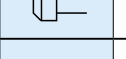
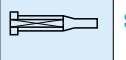
Order **Catalog No.** **L** **P**
VPAS 4 - 50 - P2.000

Price **Quotation**



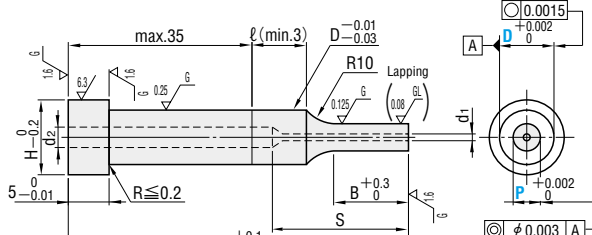



Days to Ship **Quotation**

Alterations **Catalog No.** **L(LC)** **P(PC)** (BC·HC·TC, etc.)
VPAS 4 - 50 - P2.000 - TC4-LKC

Alteration	Code	Spec.	1Code
Alterations to tip	PC	Tip dimension change $PC \geq P_{min}/2$ 0.001mm increments	     
	BC	Tip length change $2 \leq BC \leq B_{max}$ 0.1mm increments Full length L must be at least 25mm longer than tip length BC.	
	PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1mm increments PRC $\leq (P-0.2)/2$ Cannot be combined with PCC·GC.	
	PCC	Chamfering to tip side edge $0.3 \leq PCC \leq 1$ 0.1mm increments PCC $\leq (P-0.2)/2$ Cannot be combined with PRC·GC.	
	GC	$20^\circ \leq GC < 90^\circ$ 1° increments Tip length $B \geq f+2$ $f = P/2 \times \tan(90^\circ - GC^\circ)$ Cannot be used for $P \leq 1.00$. Cannot be combined with LKC·PRC·PCC. Punches with lapping are rounded at the edges.	
Alterations to full length	LC	Full length change $25+B(C) \leq LC < L$ 0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length-25mm). LC30.1~LC34.9 (when combined with LKC, LC30.01~LC34.99), then $D_{-0.003}$ is 0 .	 
	LKC	Full length tolerance change $L_{+0.1} \rightarrow +0.01$ 0	

Alteration	Code	Spec.	1Code
Alterations to head	KC	Addition of single key flat to head Cannot be combined with KFC.	    
	WKC	Addition of double key flats in parallel Cannot be combined with KFC.	
	KFC	Double key flats at 0° and a selected angle 1° increments Cannot be combined with KC·WKC.	
	HC	Head diameter change $D \leq HC < H$ 0.1mm increments	
	TC	Head thickness change $2 \leq TC < T$ 0.1mm increments Full length L is shortened by $(T-TC)$. If combined with LC, full length is equal to LC.	
Alterations to shank	TCC	Chamfering of head. This improves the strength of the punch head. P.1611 $0.5 \leq TCC \leq (H-D)/2$ 0.1mm increments If $H \leq 5$, then TCC is 0.5.	  
	SKC	Single key flat on shank $P \leq D - 1.2$ (Machining width 0.5) Cannot be combined with KC·WKC·KFC.	
	NDC	No press-in lead $\ell \geq 3 \rightarrow \ell = 0$	

PRECISION CARBIDE SHOULDER PUNCHES WITH AIR HOLES

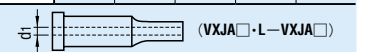
Type	RoHS	Catalog No.	Shape
		VJAS VJAL	 <p>Air hole of super fine grain type is straight. S and d2 dimensions do not exist.</p>
		L-VJAS L-VJAL	
		VXJAS VXJAL	
		L-VXJAS L-VXJAL	

Catalog No.	Type	D	L	0.001mm increments min. P max.	B	d1	S	d2	H
VJAS VXJAS	Lapping L-VJAS L-VXJAS	4	40 45 50 55 60	1.500 ~ 3.990	8	0.5	20	1.2	7
		5	(40) 45 50 55 60 65 70	2.000 ~ 4.990				2.1	8
		6	(40) 45 50 55 60 65 70	2.000 ~ 5.990		2.6		9	
		4	50 55 60	1.500 ~ 3.990		1.2		7	
VJAL VXJAL	Lapping L-VJAL L-VXJAL	5	50 55 60 65 70	2.000 ~ 4.990	13	0.5	20	2.1	8
		6	50 55 60 65 70	2.000 ~ 5.990				2.6	9

$L(40) \rightarrow S=17$ If full length is (40), dimension S is 17mm.

$P > D - 0.03 \rightarrow \ell = 0$ If $P > D - 0.03$, $D_{-0.03}$ (press-in lead) is not included.

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

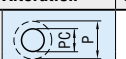
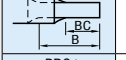
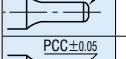
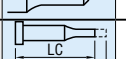

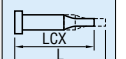







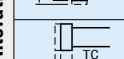
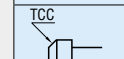
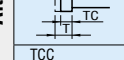
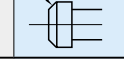
Order **Catalog No.** **L** **P**
VJAL 6 - 50 - P5.105

Days to Ship **Quotation**

Price **Quotation**

Alterations **Catalog No.** **L(LC·LCX)** **P(PC)** (BC·HC·TC, etc.)
VJAL 6 - 50 - P5.105 - TC4-LKC

Alteration	Code	Spec.	1Code
Alterations to tip	PC	Tip dimension change $PC \geq P_{min}$. 0.001mm increments Cannot be used for D4.	   
	BC	Tip length change $2 \leq BC < B$ 0.1mm increments	
	PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1mm increments PRC $\leq (P-d_1-0.5)/2$ Cannot be combined with PCC.	
	PCC	Chamfering to tip side edge $0.3 \leq PCC \leq 1$ 0.1mm increments PCC $\leq (P-d_1-0.5)/2$ Cannot be combined with PRC.	
Alterations to full length	LC	Full length change 0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) B dimension and S dimension are shortened by $(L-LC)$.	 
	LCX	Full length change with no change to tip length B $25+B(BC) \leq LCX < L$ 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, 0.01mm increments can be selected.) Cannot be used with V30.	
Alterations to shank	LKC	Full length tolerance change $L_{+0.1} \rightarrow +0.01$ 0	 

Alteration	Code	Spec.	1Code
Alterations to head	KC	Addition of single key flat to head Cannot be combined with KFC.	    
	WKC	Addition of double key flats in parallel Cannot be combined with KFC.	
	KFC	Double key flats at 0° and a selected angle 1° increments Cannot be combined with KC·WKC.	
	HC	Head diameter change $D \leq HC < H$ 0.1mm increments	
	TC	Head thickness change $2 \leq TC < 5$ 0.1mm increments Full length L is shortened by $(5-TC)$. If combined with LC, full length is equal to LC.	
Alterations to shank	TCC	Chamfering of head. This improves the strength of the punch head. P.1611 $0.5 \leq TCC \leq (H-D)/2$ 0.1mm increments If $H \leq 5$, then TCC is 0.5.	 
	SKC	Single key flat on shank $P \leq D - 1.2$ (Machining width 0.5) Cannot be combined with KC·WKC·KFC. Cannot be used with V30.	
Alterations to shank	NDC	No press-in lead $\ell \geq 3 \rightarrow \ell = 0$	