

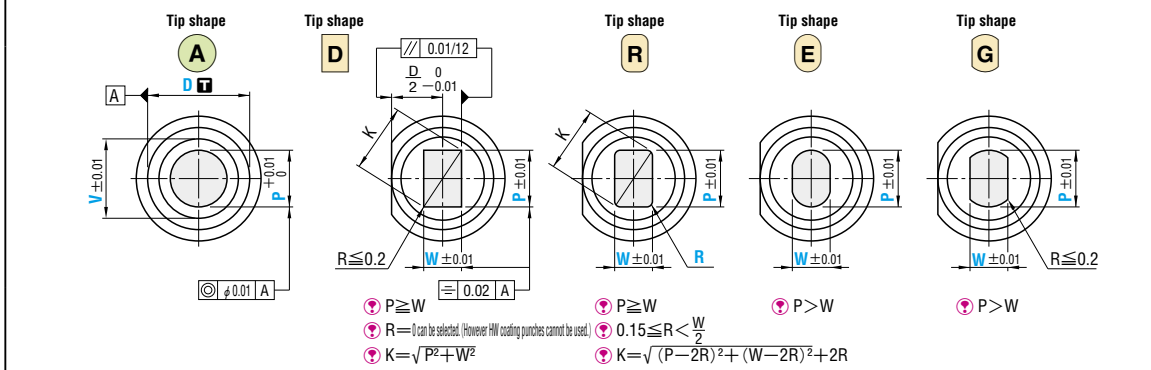
DOUBLE-STEPPED SHOULDER PUNCHES FOR HEAVY LOAD

— FINISHED FOR RETAINERS, NORMAL · TiCN COATING · HW COATING —



Type	Shank diameter D tolerance	Material	Catalog No.		The tip shape can be selected from [Tip shape] A~G in the figure below.
			Type	Tip shape	
—Normal—	Dm5	Equivalent to SKH51 61~64HRC Surface 3000HV	Normal APTW	A	
			TiCN coating H—APTW HW coating HW—APTW		
	D+0.005/0	Equivalent to SKH51 61~64HRC Surface 3000HV	Normal APTW	D	<ul style="list-style-type: none"> The tip end of a TiCN coating punch is ground before the coating is applied. The tip edge of an HW coating punch is very slightly rounded.
		Powdered high-speed steel 64~67HRC Surface 3000HV	TiCN coating AH—APTW HW coating AHW—APTW	E	

For shank diameter tolerance D, select either m5 or +0.005/0.



Type	Tip shape	D	L	0.01mm increments		Diagonal Kmax.	0.01mm increments		V	0.1mm increments		H
				A			R			F		
				P	B		P-W	R		P	Fmax.	
(Dm5) Normal APTW APHTW	A	5	50-60-70-80	1.50~1.999	2.0~20.0	4.96	1.00~1.49	2.0~8.0	B+f+2<F≤Fmax. & A: F≤L-35 DREG : F≤L-40	20	10	
				2.00~3.999	2.0~35.0		1.50~1.99					2.0~13.0
TiCN coating H—APTW H—APHTW	D	6	50-60-70-80	1.50~1.999	2.0~20.0	5.96	1.00~1.49	2.0~8.0	: F≤L-40	35	11	
				2.00~3.999	2.0~35.0		1.50~1.99					2.0~13.0
HW coating HW—APTW HW—APHTW	R	8	50-60-70-80-90-100	1.50~1.999	2.0~20.0	7.96	1.00~1.49	2.0~8.0	: F≤L-40	45	13	
				2.00~3.999	2.0~35.0		1.50~1.99					2.0~13.0
(D+0.005/0) Normal A—APTW A—APHTW	E	10	50-60-70-80-90-100	1.50~1.999	2.0~20.0	9.96	1.25~1.49	2.0~8.0	: F≤L-40	60	15	
				2.00~3.999	2.0~35.0		1.50~1.99					2.0~13.0
TiCN coating AH—APTW AH—APHTW	G	13	50-60-70-80-90-100	3.00~3.999	2.0~35.0	12.96	1.50~1.99	2.0~13.0	: F≤L-40	45	18	
				4.00~5.999	2.0~45.0		2.00~3.49					2.0~19.0
HW coating AHW—APTW AHW—APHTW	G	16	50-60-70-80-90-100	6.00~12.98	2.0~60.0	15.96	3.50~4.99	2.0~25.0	: F≤L-40	60	21	
				6.00~12.98	2.0~60.0		5.00~12.96					2.0~30.0
	G	20	50-60-70-80-90-100	5.00~5.999	2.0~45.0	19.96	2.00~3.49	2.0~19.0	: F≤L-40	60	25	
				6.00~15.98	2.0~60.0		3.50~4.99					2.0~25.0
	G	25	50-60-70-80-90-100	6.50~19.98	2.0~60.0	24.96	2.50~3.49	2.0~19.0	: F≤L-40	60	30	
				6.50~19.98	2.0~60.0		3.50~4.99					2.0~25.0

If V>D-0.03 → ℓ=0 If V>D-0.03, D-0.01 (press-in lead) is not included.

Order	Catalog No.	L	P	W	B	V	F	R (R only)
	APTWA 10	80	P 9.50		B30	V 9.80	F35	
	A-APHTWR 13	80	P10.50	W7.34	B25	V12.00	F35	R0.5

Days to Ship **Quotation**

Alterations Catalog No. — L(LC) — P — W — B — V — F — R(R only) — (K·WKC, etc.)
 APTWA 10 — LC72 — P4.80 — B10 — V6.80 — F25 — SKC

Alteration	Code	A	DREG	1Code
Alterations to tip	SC	Lapping of tip P dimension tolerance and increment are the same. The base material is finished before coating is applied. R=0 cannot be selected for the tip D corner. Cannot be used with HW coating.		
	PRC	Rounding of tip side edge 0.3≤PRC≤1 0.1 mm increments PRC≤(P-0.2)/2 Cannot be combined with PCC. HW coating, the tolerance is PRC±0.1		
	PCC	Chamfering to tip side edge 0.3≤PCC≤1 0.1 mm increments PCC≤(P-0.2)/2 Cannot be combined with PRC. HW coating, the tolerance is PCC±0.1		
	PKC	Tip tolerance change P+0.01 → +0.005 0 → 0 (P dimension can be selected in 0.01 mm increments.) TiCN coating or HW coating cannot be used for D>13.	Tip tolerance change P·W±0.01 → +0.01 0 → 0	
	VKC	Tip tolerance change V±0.01 → +0.005 0 → 0 (V dimension can be selected in 0.01 mm increments.) TiCN coating or HW coating cannot be used for D>13.	Tip tolerance change P·W±0.01 → +0.01 0 → 0	
Alterations to full length	LC	Full length change 40+F≤LC<L 0.1mm increment (If combined with LKC-LKZ, 0.01mm increments can be selected.)		
	LKC	Full length tolerance change L+0.3 → +0.05 0 → 0		
	LKZ	Full length tolerance change L+0.3 → +0.01 0 → 0 Cannot be used with TiCN coating or HW coating.		

Price **Quotation**

For dimension f, refer to the punch R lengths in [Products Data] on P.1592, and verify the following.
 A: (V-P)/2=X
 DREG : (V-W)/2=X

Alteration	Code	A	DREG	1Code
Alterations to head	KC	Addition of single key flat to head	Key flat 90°-180° position change 1° increments	
	WKC	Addition of double key flats in parallel	Double key flats in parallel Can be combined with KC.	
	KFC	Double key flats at 0° and a selected angle 1° increments	Double key flats at 0° and a selected angle 1° increments	
	NKC	No key flat	No key flat	
Alterations to shank	SKC	Single key flat on shank D5-6 V≤D-1.2 (Machining width 0.5) D8~ V≤D-2.2 (Machining width 1) Cannot be combined with KC-WKC-KFC.		
	NDC	No press-in lead ℓ≥3 → ℓ=0		

PUNCHES

Quotation