


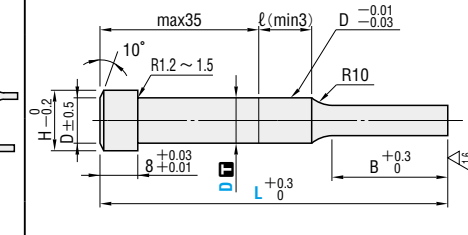
PUNCHES FOR HEAVY LOAD

— FINISHED FOR RETAINERS —

PRODUCTS DATA

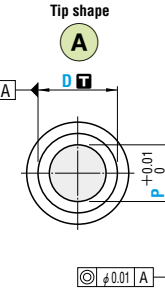
P.1611

Punch tip shear angle alterations P.232	1F	2F	3F	4F	5F	6F	7F
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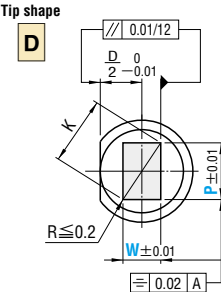
Type	Shank diameter D Tolerance	M H	Catalog No.			The tip shape can be selected from Tip shape A~G in the figure below.
			Type	Tip shape	B Tip length	
	D _{m5}	Equivalent to SKH51 61~64HRC	AP	A		
			APH	D		
	D ₀ ^{+0.005}	Equivalent to SKH51 61~64HRC	A-AP	E		
			A-APH	G		

For shank diameter tolerance D, select either m5 or ± 0.005 .

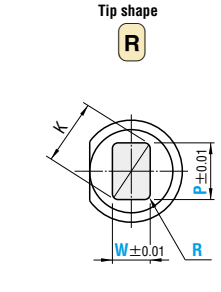
Tip shape A



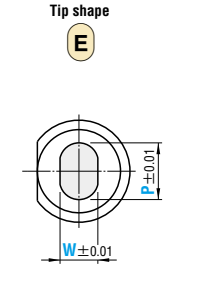
Tip shape D



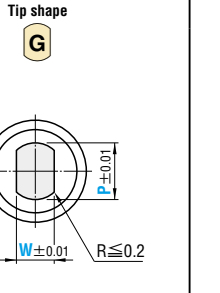
Tip shape R



Tip shape E



Tip shape G



Tip length (B) L > S
 Tip length (B) L > S
 Tip length (B) L > S
 Tip length (B) L > S
 Tip length (B) L > S

Type	Tip shape	B Tip length	D	0.01mm increments							0.01 mm R	B	H			
				L												
				A	D	R	E	G	R							
(D _{m5}) AP APH	S	5	50	60	70	80	90	100	2.00~4.99	4.97	1.20	0.15 ≤ R < W/2 (R only)	8	10		
		6	50	60	70	80	90	100	2.00~5.99	5.97	1.50		11			
		8	(50)	60	70	80	90	100	110	120	130		3.00~7.99	7.97	2.00	13
		10	(50)	60	70	80	90	100	110	120	130		3.00~9.99	9.97	2.50	15
		13	(50)	60	70	80	90	100	110	120	130		6.00~12.99	12.97	3.00	18
		16	(50)	60	70	80	90	100	110	120	130		10.00~15.99	15.97	4.00	21
		20	(50)	60	70	80	90	100	110	120	130		13.00~19.99	19.97	5.00	25
		25	(50)	60	70	80	90	100	110	120	130		18.00~24.99	24.97	6.00	30
		(D ₀ ^{+0.005}) A-AP A-APH	L	5	60	70	80	90	100	2.00~4.99	4.97		1.20	0.15 ≤ R < W/2 (R only)	13	10
				6	60	70	80	90	100	2.00~5.99	5.97		1.50		11	
8	60			70	80	90	100	110	120	130	3.00~7.99	7.97	2.00		13	
10	60			70	80	90	100	110	120	130	3.00~9.99	9.97	2.50		15	
13	60			70	80	90	100	110	120	130	6.00~12.99	12.97	3.00		18	
16	70			80	90	100	110	120	130	10.00~15.99	15.97	4.00	21			
20	70			80	90	100	110	120	130	13.00~19.99	19.97	5.00	25			
25	70			80	90	100	110	120	130	18.00~24.99	24.97	6.00	30			

L (50) → B=8 If the full length is (50), the tip length is 8mm in all cases.
 A: P > D - 0.03 → ℓ=0 If P > D - 0.03 for a round punch, D_{-0.01} (press-in lead) is not included.
 D R E G: P · K > D - 0.05 → ℓ=0 If P · K > D - 0.05 for a shaped punch, D_{-0.01} (press-in lead) is not included.

Order Catalog No. — L — P — W — R (R only)
 APAS 20 — 80 — P15.00

Days to Ship **Quotation**

Alterations Catalog No. — L(LC) — P(PC) — W(WC) — R — (BC-KC, etc.)
 APAS 20 — LC82 — PC12.00 BC13

Alteration	Code	A	D R E G	1Code
Alterations to tip	PC	Tip dimension change PC ≥ P _{min.} For D5-6, PC ≥ 1.50 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Tip dimension change PC ≥ P · W _{min.} For D5-6, PC ≥ 1.00 0.01 mm increments	Quotation
	WC	Tip length change 2 ≤ BC ≤ B _{max.} 0.1 mm increments Full length L must be at least 35mm longer than tip length BC.	Tip length change 2 ≤ BC ≤ B _{max.} 0.1 mm increments Full length L must be at least 40mm longer than tip length BC.	
	BC	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1 mm increments PRC ≤ (P - 0.2) / 2 Cannot be combined with PCC.	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1 mm increments PCC ≤ (P - 0.2) / 2 Cannot be combined with PRC.	
	PRC	Tip tolerance change P + 0.01 → +0.005 0 (P dimension can be selected in 0.001 mm increments.)	Tip tolerance change P · W ± 0.01 → +0.01 0	
	PCC			
	PKC			

Price **Quotation**

Alteration	Code	A	D R E G	1Code
Alterations to full length	LC	Full length change 35 + B (BC) ≤ LC < L 0.1 mm increments If difference between full length and tip length is 35mm or less, tip length is adjusted to (Full length - 35mm). (If combined with LKC-LKZ, 0.01 mm increments can be selected.)	Full length change 40 + B (BC) ≤ LC < L 0.1 mm increments If difference between full length and tip length is 40mm or less, tip length is adjusted to (Full length - 40mm).	
	LKC	Full length tolerance change	L + 0.3 → +0.05 0	
	LKZ	Full length tolerance change	L + 0.3 → +0.01 0	
Alterations to head	KC	Addition of single key flat to head	90° 0°/180° 270° Key flat position change 1° increments	
	WKC	Addition of double key flats in parallel	90° 0°/180° 270° Double key flats in parallel Can be combined with KC.	
	KFC	Double key flats at 0° and a selected angle 1° increments	90° 0°/180° 270° Double key flats at 0° and a selected angle 1° increments	Quotation
	NKC	—	No key flat	
Alterations to shank	SKC	Single key flat on shank A D5-6 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 · WKC · KFC.	D R E G A D5-6 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 · WKC · KFC.	
	NDC	No press-in lead	ℓ ≥ 3 → ℓ = 0	