

PILOT PUNCHES

PILOT PUNCHES



Product name Catalog No.	PILOT PUNCHES	PILOT PUNCHES —Lapping—	PILOT PUNCHES —TiCN coating·HW coating—	PILOT PUNCHES —Dicoat® treatment—
Page	195	197	199	199



PILOT PUNCHES WITH LOCATING DOWEL HOLES —Normal·TiCN coating·HW coating—	PILOT PUNCHES —Configurable type— —Normal·Dicoat® treatment—	FLANGE STOPPER PILOT PUNCHES	TAPPED PILOT PUNCHES —Normal·TiCN coating·HW coating—	PILOT PUNCHES WITH KEY GROOVES
203	205	206	207	209



STRAIGHT PILOT PUNCHES	STRAIGHT PILOT PUNCHES —Lapping—	STRAIGHT PILOT PUNCHES —TiCN coating—	TAPPED STRAIGHT PILOT PUNCHES	STRAIGHT PILOT PUNCHES WITH KEY GROOVES	PILOT PUNCHES FOR FIXING TO STRIPPER PLATES
211	213	215	217	219	221



PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Lapping—	PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —TiCN coating·HW coating—	FOR FIXING TO STRIPPER PLATES SHAPED PILOT PUNCHES	PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Straight type— —Lapping·TiCN coating—
221	223	225	227



PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Tip R and taper combined type, minus head tolerance— —Normal·Lapping·Coating·HW coating—	STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Tip R and taper combined type, minus head tolerance— —Normal·Lapping·Coating—	PILOT PUNCHES, MOVABLE TYPE —Headed type— —Normal·Lapping·Coating—	PILOT PUNCHES, MOVABLE TYPE —Normal·Lapping·Coating—
229	230	231	232
		233	234



PILOT PUNCHES —Fixed tip diameter type—	PILOT EJECTOR BUSHINGS MEG
235	236

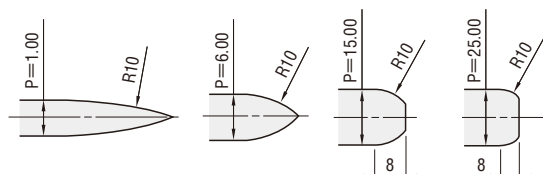
Pilot punch list

Shank type	Tip shape		Shank diameter tolerance	Standard (Normal)	Lapping	TiCN coating	HW coating	Dicoat® treatment								
Standard		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	STA [□] A—STA [□]	P.195	L—STA [□] AL—STA [□]	P.197	H—HSTA [□] AH—HSTA [□] H—PSTA [□] AH—PSTA [□]	P.199	HW—HSTA [□] AHW—HSTA [□] HW—PSTA [□] AHW—PSTA [□]	P.199	T—STA [□] AT—STA [□]	P.201			
		SKH51	Dm5 D ^{+0.005} ₀	HSTA [□] A—HSTA [□]										L—HSTA [□] AL—HSTA [□]		
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PSTA [□] A—PSTA [□]										L—PSTA [□] AL—PSTA [□]		
		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	TPA [□] A—TPA [□]	P.195	L—TPA [□] AL—TPA [□]	P.197	H—HTPA [□] AH—HTPA [□] H—PTPA [□] AH—PTPA [□]	P.199	HW—HTPA [□] AHW—HTPA [□] HW—PTPA [□] AHW—PTPA [□]	P.199	T—TPA [□] AT—TPA [□]	P.201			
		SKH51	Dm5 D ^{+0.005} ₀	HTPA [□] A—HTPA [□]										L—HTPA [□] AL—HTPA [□]		
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PTPA [□] A—PTPA [□]										L—PTPA [□] AL—PTPA [□]		
		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	ATA [□] A—ATA [□]	P.195	L—ATA [□] AL—ATA [□]	P.197	H—HATA [□] AH—HATA [□] H—PATA [□] AH—PATA [□]	P.199	HW—HATA [□] AHW—HATA [□] HW—PATA [□] AHW—PATA [□]	P.199	T—ATA [□] AT—ATA [□]	P.201			
		SKH51	Dm5 D ^{+0.005} ₀	HATA [□] A—HATA [□]										L—HATA [□] AL—HATA [□]		
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PATA [□] A—PATA [□]										L—PATA [□] AL—PATA [□]		
With locating dowel hole	R	Equivalent to SKD11	Dm5	STA [□] C	P.203		H—STA [□] C	P.203	HW—STA [□] C	P.203	T—STA [□] C	P.203				
	Taper	Equivalent to SKD11	Dm5	TPA [□] C									H—TPA [□] C	HW—TPA [□] C	T—TPA [□] C	
	Sharp angle	Equivalent to SKD11	Dm5	ATA [□] C									H—ATA [□] C	HW—ATA [□] C		
Configurable type	Taper	Equivalent to SKD11	Dm5	RTP RTPE	P.205					T—RTP T—RTPE	P.205					
Flange stopper	R	Powdered high-speed steel	D ^{+0.005} ₀	PSTHAL	Alteration SC	P.206	H—PSTHAL	P.206								
	Taper	Powdered high-speed steel	D ^{+0.005} ₀	PTPHAL									H—PTPHAL			
	Sharp angle	Powdered high-speed steel	D ^{+0.005} ₀	PATHAL									H—PATHAL			
Tapped		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	STMA [□] - STMLA [□] A—STMA [□]	P.207		H—PSTMA [□] AH—PSTMA [□]	P.207	HW—PSTMA [□] AHW—PSTMA [□]	P.207						
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PSTMA [□] A—PSTMA [□]												
		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	TPMA [□] - TPMLA [□] A—TPMA [□]												
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PTPMA [□] A—PTPMA [□]	P.207	Alteration SC	P.208	H—PTPMA [□] AH—PTPMA [□]	P.207	HW—PTPMA [□] AHW—PTPMA [□]	P.207					
		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	ATMA [□] - ATMLA [□] A—ATMA [□]									P.207			
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PATMA [□] A—PATMA [□]												
	With key groove		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	STKA [□] A—STKA [□]	P.209		H—HSTKA [□] AH—HSTKA [□] H—PSTKA [□] AH—PSTKA [□]	P.209							
			SKH51	Dm5 D ^{+0.005} ₀	HSTKA [□] A—HSTKA [□]											
			Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PSTKA [□] A—PSTKA [□]											
		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	TPKA [□] A—TPKA [□]	P.209	Alteration SC	P.210	H—HTPKA [□] AH—HTPKA [□] H—PTPKA [□] AH—PTPKA [□]	P.209							
		SKH51	Dm5 D ^{+0.005} ₀	HTPKA [□] A—HTPKA [□]												
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PTPKA [□] A—PTPKA [□]												
		Equivalent to SKD11	Dm5 D ^{+0.005} ₀	ATKA [□] A—ATKA [□]	P.209		H—HATKA [□] AH—HATKA [□] H—PATKA [□] AH—PATKA [□]	P.209								
		SKH51	Dm5 D ^{+0.005} ₀	HATKA [□] A—HATKA [□]												
		Powdered high-speed steel	Dm5 D ^{+0.005} ₀	PATKA [□] A—PATKA [□]												
Straight		Equivalent to SKD11	—	STC	P.211	L—STC L—HSTC L—PSTC	P.213	H—HSTC H—PSTC	P.215							
		SKH51	—	HSTC												
		Powdered high-speed steel	—	PSTC												
		Equivalent to SKD11	—	TTC	P.211	L—TTC L—HTTC L—PTTC	P.213	H—HTTC H—PTTC	P.215							
		SKH51	—	HTTC												
		Powdered high-speed steel	—	PTTC												
Tapped straight		Equivalent to SKD11	—	ATTC	P.211	L—ATTC L—HATTC L—PATTC	P.213	H—HATTC H—PATTC	P.215							
		SKH51	—	HATTC												
		Powdered high-speed steel	—	PATTC												
		Equivalent to SKD11	—	STMC	P.217	Alteration SC	P.218	H—PSTMC	P.217							
		Powdered high-speed steel	—	PSTMC												
		Equivalent to SKD11	—	TTC												
	Powdered high-speed steel	—	PTMC	P.217		H—PTMC	P.217									
	Equivalent to SKD11	—	ATMC													
	Powdered high-speed steel	—	PATMC													

Shank type		Tip Shape	Material	Shank diameter tolerance	Standard (Normal)	Lapping		TiCN coating	HW coating	Dicoat® treatment			
Straight with key groove		R	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	STKC HSTKC PSTKC	P.219	Alteration SC P.220	H—HSTKC H—PSTKC	P.219				
		Taper	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	TTKC HTTKC PTTKC	P.219		H—HTTKC H—PTTKC	P.219				
		Sharp angle	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	ATTKC HATKC PATKC	P.219		H—HATKC H—PATKC	P.219				
For fixing to stripper plate		R	Equivalent to SKD11 SKH51 Powdered high-speed steel	D _{m5} D ^{+0.005} ₀ D _{m5} D ^{+0.005} ₀ D _{m5} D ^{+0.005} ₀	SPTP A—SPTP HTFPR A—HTFPR PTFPR A—PTFPR	P.221	P.221	L—SPTP AL—SPTP L—HTFPR AL—HTFPR L—PTFPR AL—PTFPR	H—HTFPR AH—HTFPR H—PTFPR AH—PTFPR	P.223	HW—HTFPR AHW—HTFPR HW—PTFPR AHW—PTFPR	P.223	
		Taper	Equivalent to SKD11 SKH51 Powdered high-speed steel	D _{m5} D ^{+0.005} ₀ D _{m5} D ^{+0.005} ₀ D _{m5} D ^{+0.005} ₀	TPTP A—TPTP HTFPT A—HTFPT PTFPT A—PTFPT	P.221		L—TPTP AL—TPTP L—HTFPT AL—HTFPT L—PTFPT AL—PTFPT	H—HTFPT AH—HTFPT H—PTFPT AH—PTFPT	P.223	HW—HTFPT AHW—HTFPT HW—PTFPT AHW—PTFPT	P.223	
		Sharp angle	Equivalent to SKD11 SKH51 Powdered high-speed steel	D _{m5} D ^{+0.005} ₀ D _{m5} D ^{+0.005} ₀ D _{m5} D ^{+0.005} ₀	APT A—APT HTFPA A—HTFPA PTFPA A—PTFPA	P.221		L—APT AL—APT L—HTFPA AL—HTFPA L—PTFPA AL—PTFPA	H—HTFPA AH—HTFPA H—PTFPA AH—PTFPA	P.223	HW—HTFPA AHW—HTFPA HW—PTFPA AHW—PTFPA	P.223	
		Taper	Equivalent to SKD11	D _{m5} D ^{+0.005} ₀	TPDP TPEP A—TPDP A—TPEP	P.225							
	For fixing to stripper plate —Straight type—		R	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	SPT HTFR PTFR	P.227	P.227	L—SPT L—HTFR L—PTFR	H—HTFR H—PTFR	P.227		
			Taper	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	TPT HTFT PTFT	P.227		L—TPT L—HTFT L—PTFT	H—HTFT H—PTFT	P.227		
			Sharp angle	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	APT HTFA PTFA	P.227		L—APT L—HTFA L—PTFA	H—HTFA H—PTFA	P.227		
For fixing to stripper plate —R and taper combined type, minus head tolerance		R & Taper	Equivalent to SKD11 SKH51 Powdered high-speed steel	D _{m5} D _{m5} D _{m5}	SPTPF L—HTFPRF PTFPRF	P.229	P.229	L—SPTPF L—HTFPRF L—PTFPRF	H—HTFPRF H—PTFPRF	P.229	HW—HTFPRF HW—PTFPRF	P.229	
		R & Taper	Equivalent to SKD11 SKH51 Powdered high-speed steel	— — —	SPTF HTFRF PTFRF	P.230	P.230	L—SPTF L—HTFRF L—PTFRF	H—HTFRF H—PTFRF	P.230			
Movable, headed		Sharp angle	Equivalent to SKD11 SKH51 Powdered high-speed steel	D _{g6} D _{g6} D _{g6}	UPTH HUPTH PUPTH	P.231	P.231	L—UPTH L—HUPTH L—PUPTH	H—HUPTH H—PUPTH	P.232			
		R & Taper	Equivalent to SKD11 SKH51 Powdered high-speed steel	D _{g6} D _{g6} D _{g6}	UPTHF HUPTHF PUPTHF	P.231	P.231	L—UPTHF L—HUPTHF L—PUPTHF	H—HUPTHF H—PUPTHF	P.232			
Movable		Sharp angle	Equivalent to SKD11	D _{g6} D ^{−0.005} _{−0.010} D _{g6}	UPT A—UPT HUPT	P.233	P.233	L—UPT AL—UPT L—HUPT	H—HUPT AH—HUPT	P.234			
			SKH51	D _{g6} D ^{−0.005} _{−0.010} D _{g6}	A—HUPT PUPT			AL—HUPT L—PUPT	H—PUPT AH—PUPT				
			Powdered high-speed steel	D _{g6} D ^{−0.005} _{−0.010} D _{g6}	A—PUPT			AL—PUPT					
			R & Taper	Equivalent to SKD11	D _{g6} D ^{−0.005} _{−0.010} D _{g6}	UPTF A—UPTF HUPTF	P.233	P.233	L—UPTF AL—UPTF L—HUPTF	H—HUPTF AH—HUPTF	P.234		
				SKH51	D _{g6} D ^{−0.005} _{−0.010} D _{g6}	A—HUPTF PUPTF			AL—HUPTF L—PUPTF	H—PUPTF AH—PUPTF			
				Powdered high-speed steel	D _{g6} D ^{−0.005} _{−0.010} D _{g6}	A—PUPTF			AL—PUPTF				
	Fixed tip diameter type		R	Equivalent to SKD11	D _{m5}	STAZ	P.235						

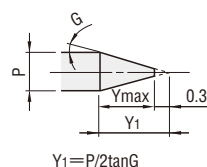
■ Shape of tip R

Shape of tip R changes depending on P dimension.

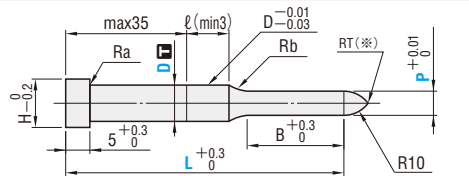
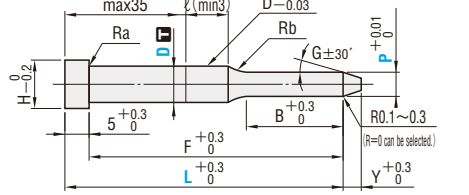
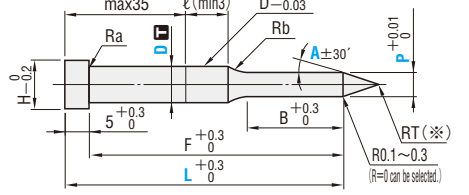


■ Allowable range for alteration YC

- $1 \leq YC \leq Y_{max} \leq 18$
- $Y_{max} = P/2 \tan G - 0.3$
- If $P < 2.0$, $G = 10$
 - $\dots Y_{max} = P \times 2.83 - 0.3$
- If $P \geq 2.0$, $G = 15$
 - $\dots Y_{max} = P \times 1.86 - 0.3$
- If combined with alteration GC,
 - $\dots Y_{max} = P/2 \tan GC - 0.3$



PILOT PUNCHES

Type	Shank diameter D Tolerance	M H	Catalog No.		Shape
			Type	B tip length	
—Tip R type—  Shape of tip changes depending on P dimension. P.194 For shank diameter tolerance D, select either m5 or +0.005/0.	Dm5	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	STA (D3~25)		RT (※) → If P < 8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P ≥ 8, tip end is flat. P.1082) For the length of tip R, refer to the products data "Punch R length". P.1082
			HSTA		
			PSTA		
	D+0.005/0	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A—STA (D3~25)		
			A—HSTA		
			A—PSTA		
—Tapered tip type—  For shank diameter tolerance D, select either m5 or +0.005/0.	Dm5	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	TPA (D3~25)		P, G, D, Ra, Rb, Y
			HTPA		
			PTPA		
	D+0.005/0	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A—TPA (D3~25)		
			A—HTPA		
			A—PTPA		
—Sharp tip angle type—  For shank diameter tolerance D, select either m5 or +0.005/0.	Dm5	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	ATA (D3~25)		RT (※) → The tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
			HATA		
			PATA		
	D+0.005/0	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A—ATA (D3~25)		
			A—HATA		
			A—PATA		

Catalog No.		L		0.01mm increments		A	B	H	Y
Type	B tip length	D		min.	P max.				
(Dm5) M Equivalent to SKD11 (D3~25) STA TPA ATA M SKH51 HSTA HTPA HATA M Powdered high-speed steel PSTA PTPA PATA		1.6	42 52 62		0.30 ~ 1.59	(10) (15) (20) 25 30	(6)	2.6	(1)
		2.0	42 52 62		0.50 ~ 1.99		8	3	
		2.5	42 52 62		1.00 ~ 2.49		10	3.5	2
		3	42 52 62 72 82 (92)		1.00 ~ 2.99		10	5	
		4	42 52 62 72 82 (92)		1.00 ~ 3.99		10	7	
		5	42 52 62 72 82 (92)		2.00 ~ 4.99		10	8	3
		6	42 52 62 72 82 (92)		2.50 ~ 5.99		10	9	
		8	(42) 52 62 72 82 (92) (102) (112)		3.00 ~ 7.99		15	11	5
		10	(42) 52 62 72 82 (92) (102) (※)		3.00 ~ 9.99		15	13	
		13	(42) 52 62 72 82 (92) (102) (※)		6.00 ~ 12.99		15	16	
		16	(42) 52 62 72 82 (92) (102) (※)		10.00 ~ 15.99		15	19	8
		20	(42) 52 62 72 82 (92) (102) (※)		13.00 ~ 19.99		15	23	
		25	(42) 52 62 72 82 (92) (102) (※)		18.00 ~ 24.99		15	28	
		1.6	42 52 62		0.50 ~ 1.59		8	2.6	(1)
		2.0	42 52 62		0.50 ~ 1.99		10	3	
		2.5	42 52 62		1.00 ~ 2.49		13	3.5	2
(D+0.005/0) M Equivalent to SKD11 (D3~25) A—STA A—TPA A—ATA M SKH51 A—HSTA A—HTPA A—HATA M Powdered high-speed steel A—PSTA A—PTPA A—PATA		3	52 62 72 82 (92)		1.00 ~ 2.99	(10) (15) (20) 25 30	15	5	2
		4	52 62 72 82 (92)		1.00 ~ 3.99		15	7	
		5	52 62 72 82 (92)		2.00 ~ 4.99		15	8	3
		6	52 62 72 82 (92)		2.50 ~ 5.99		15	9	
		8	52 62 72 82 (92) (102) (112)		3.00 ~ 7.99		21	11	5
		10	52 62 72 82 (92) (102) (※)		3.00 ~ 9.99		21	13	
		13	52 62 72 82 (92) (102) (※)		6.00 ~ 12.99		21	16	
		16	62 72 82 (92) (102) (※)		10.00 ~ 15.99		21	19	8
		20	62 72 82 (92) (102) (※)		13.00 ~ 19.99		21	23	
		25	62 72 82 (92) (102) (※)		18.00 ~ 24.99		21	28	
		3	52 62 72 82 (92)		1.20 ~ 2.99		21	5	2
		4	52 62 72 82 (92)		1.20 ~ 3.99		27	7	
		5	62 72 82 (92)		2.00 ~ 4.99		27	8	3
		6	62 72 82 (92)		2.50 ~ 5.99		27	9	
		8	62 72 82 (92) (102) (112)		3.00 ~ 7.99		32	11	5
		10	62 72 82 (92) (102) (※)		3.00 ~ 9.99		32	13	
		13	62 72 82 (92) (102) (※)		6.00 ~ 12.99		32	16	
		16	72 82 (92) (102) (※)		10.00 ~ 15.99		32	19	8
		20	72 82 (92) (102) (※)		13.00 ~ 19.99		32	23	
		25	72 82 (92) (102) (※)		18.00 ~ 24.99		32	28	

- (L (42) → If full length L is (42), tip length B is 10mm in all cases.
 (L (92) (102) (112) → L92, L102 and L112 can be used for tip R types and tapered tip types only.
 (L (102) (112) → L102 and L112 of D8 can be used for SKD11 with Dm5 only.
 (P > D—0.03 → ℓ=0 If P > D—0.03, D=0.03 (press-in lead) is not included.
 (※) For D10~25 types with L exceeding 102, refer to Pilot Punches with Locating Dowel Holes on P.203. (Can be used for SKD11 with Dm5 only.)
- (B (6) → If P < 0.5, tip length B is at 2mm. (A (10) → If P ≥ 6.0, A10 cannot be selected.
 (Y (1) → If P < 0.5, Y dimension is 0.5mm. (A (15) → If P ≥ 15.0, A15 cannot be selected.
 (A (20) → If P ≥ 20.0, A20 cannot be selected.



Order

Catalog No. — L — P — A — $\left(\frac{RT=0}{R=0}\right)$

A—STAS 6 — 72 — P5.02 — RT0

PTPAS 6 — 52 — P4.97

ATAS 6 — 52 — P2.60 — A15 — R0

A Can be used for sharp tip angle types only.

RT=0 only can be selected. (Can be used for tip R types with $P < 8$ and sharp tip angle types.)

R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

Quotation



Alterations

Catalog No. — L (LC-LCT-LMT) — P (PC) — A — $\left(\frac{RT=0}{R=0}\right)$ — (BC·HC·TC, etc.)

A—STAS 8 — LC7 6 — PC1.50

— HC10.0

Alterations to tip

Alterations to full length

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code																																
	PC	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 0.3$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 0.3$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax=YCmax.																																	
	BC	<table border="1"> <thead> <tr> <th>P (PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr><td>0.300~0.499</td><td>2</td></tr> <tr><td>0.500~0.999</td><td>10</td></tr> <tr><td>1.000~1.999</td><td>20</td></tr> <tr><td>2.000~3.999</td><td>35</td></tr> <tr><td>4.000~5.999</td><td>45</td></tr> <tr><td>6.000~</td><td>60</td></tr> </tbody> </table>	P (PC)	Bmax.	0.300~0.499	2	0.500~0.999	10	1.000~1.999	20	2.000~3.999	35	4.000~5.999	45	6.000~	60	<table border="1"> <thead> <tr> <th>P (PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr><td>0.300~0.499</td><td>2</td></tr> <tr><td>0.500~0.999</td><td>8</td></tr> <tr><td>1.000~1.199</td><td>15</td></tr> <tr><td>1.200~1.999</td><td>20</td></tr> <tr><td>2.000~2.999</td><td>30</td></tr> <tr><td>3.000~3.999</td><td>35</td></tr> <tr><td>4.000~5.999</td><td>45</td></tr> <tr><td>6.000~</td><td>60</td></tr> </tbody> </table>	P (PC)	Bmax.	0.300~0.499	2	0.500~0.999	8	1.000~1.199	15	1.200~1.999	20	2.000~2.999	30	3.000~3.999	35	4.000~5.999	45	6.000~	60	
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	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments		Quotation																																
	YC		Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.08$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq Lmax. + 8$ 0.1mm increments Cannot be used for sharp tip angle types. Cannot be used for P0.300~0.499.																																	
	PKC	Tip diameter tolerance change $P + 0.01 \Rightarrow +0.005$ 0 (P dimension can be selected in 0.001 mm increments.)																																		
	LC	Full length change $25 + B(BC) \leq LC < L$ 0.1mm increments (If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length—25mm).)																																		
	LKC		Full length tolerance change $L + 0.3 \Rightarrow +0.05$ 0																																	



Price

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (☹) are the same as for LC. TKC Head thickness tolerance change $T + 0.3 \Rightarrow +0.02$ 0	Full length change	
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (☹) are the same as for LC. TKM Head thickness tolerance change $T + 0.3 \Rightarrow 0$ 0	Full length change	
Alterations to head	KC		Addition of single key flat to head	
	WKC		Addition of double key flats in parallel	
	RC		Head thickness is machined to a tolerance of $-0.04 \sim 0$ relative to the retainer surface. Cannot be used for $D + 0.005$ types.	Quotation
	HC		Head diameter change $D \leq HC < H$ 0.1mm increments	
	TC		Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) Full length L is shortened by $(5 - TC)$. If combined with LC, full length is equal to LC.	
	TKC		Head thickness tolerance change $T + 0.3 \Rightarrow +0.02$ 0	
	TKM		Head thickness tolerance change $T + 0.3 \Rightarrow 0$ 0	
Alterations to shank	FKC		F dimension tolerance change $F + 0.3 \Rightarrow +0.05$ 0 Cannot be combined with LKC.	
	NDC		No press-in lead $\ell \geq 3 \Rightarrow \ell = 0$	

PILOT PUNCHES

— LAPPING —

Type	Shank diameter D  Tolerance		Catalog No.		Shape
			Type	tip length ^B tip length	
— Tip R·lapping — 	D _{m5}	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	L—STA (D3~25)		
			L—HSTA		
			L—PSTA		
	D+0.005/0		AL—STA (D3~25)		
			AL—HSTA		
			AL—PSTA		
— Tapered tip·Lapping — 	D _{m5}	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	L—TPA (D3~25)		
			L—HTPA		
			L—PTPA		
	D+0.005/0		AL—TPA (D3~25)		
			AL—HTPA		
			AL—PTPA		
— Sharp tip angle·Lapping — 	D _{m5}	Equivalent to SKD 11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	L—ATA (D3~25)		
			L—HATA		
			L—PATA		
	D+0.005/0		AL—ATA (D3~25)		
			AL—HATA		
			AL—PATA		

Shape of tip changes depending on P dimension.  P.194		
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Catalog No.		B tip length		D		L		0.001mm increments		A	B	H	Y
Type								min.	P max.				
M Equivalent to SKD11 (D _{m5}) M SKH51 M Powdered high-speed steel	L—STA L—TPA L—ATA L—HSTA L—HTPA L—HATA L—PSTA L—PTPA L—PATA		S	1.6	42	52	62		0.300 ~ 1.590	(10)	8	2.6	(1)
				2.0	42	52	62		0.500 ~ 1.990				
				2.5	42	52	62		1.000 ~ 2.490				
				3	42	52	62	72	82	(92)			
				4	42	52	62	72	82	(92)			
				5	42	52	62	72	82	(92)			
				6	42	52	62	72	82	(92)			
				8	(42)	52	62	72	82	(92)			
				10	(42)	52	62	72	82	(92)			
				13	(42)	52	62	72	82	(92)			
				16	(42)	52	62	72	82	(92)			
				20	(42)	52	62	72	82	(92)			
				25	(42)	52	62	72	82	(92)			
				30	(42)	52	62	72	82	(92)			
				35	(42)	52	62	72	82	(92)			
M Equivalent to SKD11 (D+0.005/0) M SKH51 M Powdered high-speed steel	AL—STA AL—TPA AL—ATA AL—HSTA AL—HTPA AL—HATA AL—PSTA AL—PTPA AL—PATA		L	1.6	42	52	62		0.500 ~ 1.990	(10)	10	3	(1)
				2.0	42	52	62		0.500 ~ 1.990				
				2.5	42	52	62		1.000 ~ 2.490				
				3	52	62	72	82	(92)				
				4	52	62	72	82	(92)				
				5	52	62	72	82	(92)				
				6	52	62	72	82	(92)				
				8	52	62	72	82	(92)				
				10	52	62	72	82	(92)				
				13	52	62	72	82	(92)				
				16	62	72	82	92	(102)				
				20	62	72	82	92	(102)				
				25	62	72	82	92	(102)				
				30	62	72	82	92	(102)				
				35	62	72	82	92	(102)				

- (1) L (42) → If full length L is (42), tip length B is 10mm in all cases. (2) B (6) → If P < 0.5, tip length B is 2mm. (3) A (10) → If P ≥ 6.0, A10 cannot be selected.
 (4) L (92) (102) → L92 and 102 can be used for tip R types and tapered tip types only. (5) Y (1) → If P < 0.5, Y dimension is 0.5mm. (6) A (15) → If P ≥ 15.0, A15 cannot be selected.
 (7) L (102) → L102 of D8 can be used for SKD11 with D_{m5} only. (8) A (20) → If P ≥ 20.0, A20 cannot be selected.
 (9) P > D - 0.03 → L = 0 If P > D - 0.03, D = 0.03 (press-in lead) is not included.



Order

Catalog No. — L — P — A

AL—STAS 6 — 72 — P5.020

L—PTPAS 6 — 52 — P4.970

L—ATAS 6 — 52 — P2.600 — A15

Ⓜ A Can be used for sharp tip angle types only.



Days to Ship

Quotation



Alterations



Catalog No. — L (LC·LCT·LMT) — P (PC) — A — (BC·HC·TC, etc.)

L—STAS 8 — LCT76 — PC1.50 — HC10.0

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code																																
Alterations to tip	PC	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 0.3$ 0.01mm increments	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 0.3$ 0.01mm increments ♡ Ymax.=YCmax.	Quotation																																
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4.000~5.999	45																																			
6.000~	60																																			
BC	Tip length change $2 \leq BC \leq Bmax.$ 0.1mm increments ♡ Full length L must be at least 25mm longer than tip length BC.																																			
RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10-P/4)}$ 0.1mm increments																																			
YC		Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq Lmax. + 8$ 0.1mm increments ♡ Cannot be used for sharp tip angle types. ♡ Cannot be used for P0.300~0.499.																																		
Alterations to full length	LC	Full length change $25 + B(BC) \leq LC < L$ 0.1mm increments ♡ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length—25mm).																																		
	LKC		Full length tolerance change $L + 0.3 \begin{matrix} \Rightarrow \\ 0 \end{matrix} + 0.05 \begin{matrix} \Rightarrow \\ 0 \end{matrix}$																																	



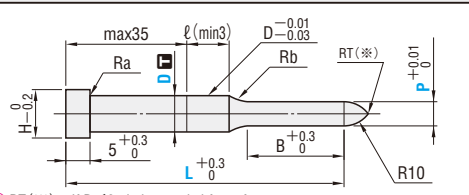
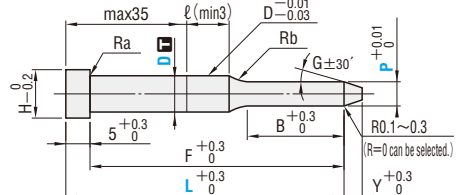
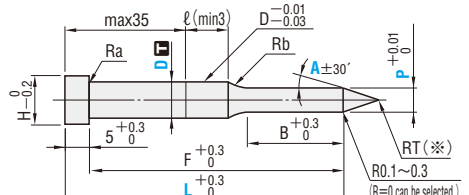
Price

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (Ⓜ) are the same as for LC. Head thickness tolerance change + Full length change $T + 0.3 \begin{matrix} \Rightarrow \\ 0 \end{matrix} + 0.02 \begin{matrix} \Rightarrow \\ 0 \end{matrix}$	LC	
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (Ⓜ) are the same as for LC. Head thickness tolerance change + Full length change $T + 0.3 \begin{matrix} \Rightarrow \\ 0 \end{matrix} - 0.02 \begin{matrix} \Rightarrow \\ 0 \end{matrix}$	LC	
Alterations to head	KC	Addition of single key flat to head		Quotation
	WKC	Addition of double key flats in parallel		
	RC	Head thickness is machined to a tolerance of $-0.04 \sim 0$ relative to the retainer surface. Ⓜ Cannot be used for $D^{+0.005} \begin{matrix} \Rightarrow \\ 0 \end{matrix}$ types.		
	HC	Head diameter change $D \leq HC < H$ 0.1mm increments		
	TC	Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) Ⓜ Full length L is shortened by (5—TC). If combined with LC, full length is equal to LC.		
	TKC	Head thickness tolerance change $T + 0.3 \begin{matrix} \Rightarrow \\ 0 \end{matrix} + 0.02 \begin{matrix} \Rightarrow \\ 0 \end{matrix}$		
	TKM	Head thickness tolerance change $T + 0.3 \begin{matrix} \Rightarrow \\ 0 \end{matrix} - 0.02 \begin{matrix} \Rightarrow \\ 0 \end{matrix}$		
Alterations to shank	FKC		F dimension tolerance change $F + 0.3 \begin{matrix} \Rightarrow \\ 0 \end{matrix} + 0.05 \begin{matrix} \Rightarrow \\ 0 \end{matrix}$ Ⓜ Cannot be combined with LKC.	
	NDC	No press-in lead $\ell \geq 3 \Rightarrow \ell = 0$		

PILOT PUNCHES

—TiCN COATING·HW COATING—

Type	Shank diameter D Tolerance	M H	Catalog No.		Shape
			Type	tip length B	
—Tip R type— 	Dm5	SKH51 61~64HRC Surface 3000HV	H—HSTA HW—HSTA		
			H—PSTA HW—PSTA		
	D+0.005 0	SKH51 61~64HRC Surface 3000HV	AH—HSTA AHW—HSTA		
			AH—PSTA AHW—PSTA		
—Tapered tip type— 	Dm5	SKH51 61~64HRC Surface 3000HV	H—HTPA HW—HTPA		
			H—PTPA HW—PTPA		
	D+0.005 0	SKH51 61~64HRC Surface 3000HV	AH—HTPA AHW—HTPA		
			AH—PTPA AHW—PTPA		
—Sharp tip angle type— 	Dm5	SKH51 61~64HRC Surface 3000HV	H—HATA HW—HATA		
			H—PATA HW—PATA		
	D+0.005 0	SKH51 61~64HRC Surface 3000HV	AH—HATA AHW—HATA		
			AH—PATA AHW—PATA		

Catalog No.		Type	B tip length	D	L				0.01mm increments		A	B	H	Y	
					min. P max.										
M SKH51	TiCN coating	HW coating		1.6	42	52	62			1.00 ~ 1.59	(10)	6	2.6	1	
				2.0	42	52	62			1.00 ~ 1.99		8	3		
				2.5	42	52	62			1.00 ~ 2.49			3.5		
				3	42	52	62	72	82	(92)		1.00 ~ 2.99	5	2	
				4	42	52	62	72	82	(92)		1.00 ~ 3.99	7		
				5	42	52	62	72	82	(92)		2.00 ~ 4.99	8	3	
	Powdered high-speed steel	HW coating		6	42	52	62	72	82	(92)	2.50 ~ 5.99	(20)	9		
				8	(42)	52	62	72	82	(92)	3.00 ~ 7.99				
				10	(42)	52	62	72	82	(92)	3.00 ~ 9.99	25	11	5	
				13	(42)	52	62	72	82	(92)	6.00 ~ 12.99	15	13		
				16	(42)	52	62	72	82	(92)	10.00 ~ 15.99		16		
				20	(42)	52	62	72	82	(92)	13.00 ~ 19.99	21	19	8	
M SKH51	TiCN coating	HW coating		1.6	42	52	62			1.00 ~ 1.59	(10)	8	2.6	1	
				2.0	42	52	62			1.00 ~ 1.99		10	3		
				2.5	42	52	62			1.00 ~ 2.49		13	3.5	2	
				3		52	62	72	82	(92)		1.00 ~ 2.99		5	
				4		52	62	72	82	(92)		1.00 ~ 3.99	15	7	
				5		52	62	72	82	(92)		2.00 ~ 4.99		8	3
	Powdered high-speed steel	HW coating		6		52	62	72	82	(92)	2.50 ~ 5.99	(20)	9		
				8		52	62	72	82	(92)	3.00 ~ 7.99	25	11	5	
				10		52	62	72	82	(92)	3.00 ~ 9.99	30	13		
				13		52	62	72	82	(92)	6.00 ~ 12.99		16		
				16		62	72	82	(92)	10.00 ~ 15.99		19			
				20		62	72	82	(92)	13.00 ~ 19.99	27	23	8		
M SKH51	TiCN coating	HW coating		1.6						1.00 ~ 1.59	(10)	21	5	2	
				2.0						1.00 ~ 1.99			7		
				2.5						1.00 ~ 2.49			8	3	
				3		52	62	72	82	(92)		1.00 ~ 2.99		9	
				4		52	62	72	82	(92)		1.00 ~ 3.99	15	11	5
				5		62	72	82	(92)	2.00 ~ 4.99			13		
	Powdered high-speed steel	HW coating		6		62	72	82	(92)	2.50 ~ 5.99	(15)	27	9	3	
				8		62	72	82	(92)	3.00 ~ 7.99	(20)		11		
				10		62	72	82	(92)	3.00 ~ 9.99		32	13	5	
				13		62	72	82	(92)	6.00 ~ 12.99	25	16			
				16		72	82	(92)	10.00 ~ 15.99	30	19				
				20		72	82	(92)	13.00 ~ 19.99		42	23	8		
25		72	82	(92)	18.00 ~ 24.99			28							

Ⓛ (42) → If full length L is (42), tip length B is 10mm in all cases.

Ⓛ (92) (102) → L92 and 102 can be used for tip R types and tapered tip types only.

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

ⓐ (10) → If P ≥ 6.0, A10 cannot be selected.

ⓐ (15) → If P ≥ 15.0, A15 cannot be selected.

ⓐ (20) → If P ≥ 20.0, A20 cannot be selected.



Order

Catalog No. — L — P — A — $\left(\begin{smallmatrix} RT=0 \\ R=0 \end{smallmatrix}\right)$
H—HSTAS 6 — 72 — P5.02 — RT0



Days to Ship

Quotation

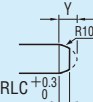
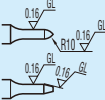
- ① A Can be used for sharp tip angle types only.
- ② RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)
- ③ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Alterations

Catalog No. — L(LC-LCT-LMT) — P(PC) — A — $\left(\begin{smallmatrix} RT=0 \\ R=0 \end{smallmatrix}\right)$ — (BC·HC·TC, etc.)
H—PSTAS 8 — LMT76 — PC1.50 — HC10.0

Alterations to tip

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code																								
	PC	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) ④ Ymax = YCmax.																									
	BC	<table border="1"> <thead> <tr> <th>P(PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr> <td>1.000~1.999</td><td>20</td></tr> <tr> <td>2.000~3.999</td><td>35</td></tr> <tr> <td>4.000~5.999</td><td>45</td></tr> <tr> <td>6.000~</td><td>50</td></tr> </tbody> </table>	P(PC)	Bmax.	1.000~1.999	20	2.000~3.999	35	4.000~5.999	45	6.000~	50	<table border="1"> <thead> <tr> <th>P(PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr> <td>1.000~1.199</td><td>15</td></tr> <tr> <td>1.200~1.999</td><td>20</td></tr> <tr> <td>2.000~2.999</td><td>30</td></tr> <tr> <td>3.000~3.999</td><td>35</td></tr> <tr> <td>4.000~5.999</td><td>45</td></tr> <tr> <td>6.000~</td><td>50</td></tr> </tbody> </table>	P(PC)	Bmax.	1.000~1.199	15	1.200~1.999	20	2.000~2.999	30	3.000~3.999	35	4.000~5.999	45	6.000~	50	
P(PC)	Bmax.																											
1.000~1.999	20																											
2.000~3.999	35																											
4.000~5.999	45																											
6.000~	50																											
P(PC)	Bmax.																											
1.000~1.199	15																											
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2.000~2.999	30																											
3.000~3.999	35																											
4.000~5.999	45																											
6.000~	50																											
	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10-P/4)}$ 0.1mm increments	—	Quotation																								
	YC	—	Tip taper length change • P<2.0 $1 \leq YC \leq P \times 2.83 - 0.3$ • P≥2.0 $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq Lmax. + 8$ 0.1mm increments ④ Cannot be used for sharp tip angle types.																									
	SC	Lapping of tip ④ P dimension tolerance remains the same. The base material is finished before the coating is applied. ④ R=0 and RT=0 cannot be selected. ④ Cannot be used with HW coating.																										
	PKC	Tip diameter tolerance change $P + 0.01 \Rightarrow +0.005$ ④ (P dimension can be selected in 0.001mm increments.) ④ Cannot be used for D>13. ④ HW coating cannot be used.																										



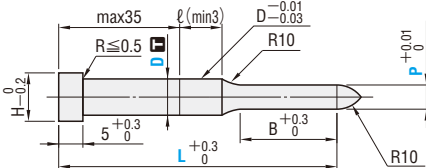
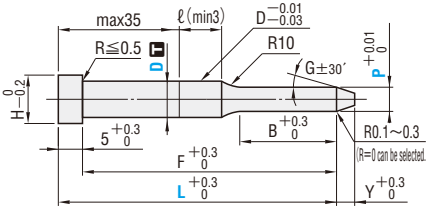
Price

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	Full length change $25 + B(BC) \leq LC < L$ 0.1mm increments ④ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length—25mm).		
	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (④) are the same as for LC. TKC + Full length change $T + 0.3 \Rightarrow +0.02$ 0 0		
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (④) are the same as for LC. TKM + Full length change $T + 0.3 \Rightarrow 0$ 0 -0.02		
Alterations to head	KC	Addition of single key flat to head		
	WKC	Addition of double key flats in parallel		Quotation
	RC	Head thickness is machined to a tolerance of -0.04 ~ 0 relative to the retainer surface. ④ Cannot be used for D + 0.005 0 types.		
	HC	Head diameter change $D \leq HC < H$ 0.1mm increments		
	TC	Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) ④ Full length L is shortened by (5—TC). If combined with LC, full length is equal to LC.		
	TKC	Head thickness tolerance change $T + 0.3 \Rightarrow +0.02$ 0 0		
	TKM	Head thickness tolerance change $T + 0.3 \Rightarrow 0$ 0 -0.02		
Shank	NDC	No press-in lead $\ell \geq 3 \Rightarrow \ell = 0$		

PILOT PUNCHES

—DICOAT® TREATMENT—

Type	Shank diameter D  tolerance		Catalog No.		Shape						
			Type	B tip length							
—Tip R·DiCoat® treatment—  	D _{m5}	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—STA	  							
			T—PSTA								
	D ⁺ +0.005 0	Equivalent to SKD11 60~63 HRC Surface 3000 HV	AT—STA								
			AT—PSTA								
—Tapered tip·DiCoat® treatment—  	D _{m5}	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—TPA								
			T—PTPA								
	D ⁺ +0.005 0	Equivalent to SKD11 60~63 HRC Surface 3000 HV	AT—TPA								
			AT—PTPA								
For shank diameter tolerance D  , select either m5 or $+0.005/0$.					Tip length (B) X>L>S						
					<table><tr><th>P</th><th>G</th></tr><tr><td>P≤1.99</td><td>10</td></tr><tr><td>P≥2.00</td><td>15</td></tr></table>	P	G	P≤1.99	10	P≥2.00	15
P	G										
P≤1.99	10										
P≥2.00	15										

Catalog No.			L								0.01mm increments		B	H	Y
Type	B tip length	D									min.	P max.			
M Equivalent to SKD11 (D_{ms}) T—STA T—TPA 	S	3	42	52	62	72				1.00 ~ 2.99	10	5	2		
		4	42	52	62	72				1.00 ~ 3.99		7			
		5	42	52	62	72				2.00 ~ 4.99		8			
		6	42	52	62	72				2.50 ~ 5.99		9			
		8	(42)	52	62	72	82	92			3.00 ~ 7.99	15	11	5	
		10	(42)	52	62	72	82	92	102				3.00 ~ 9.99		13
		13	(42)	52	62	72	82	92	102				6.00 ~ 12.99	16	
		(16)	(42)	52	62	72	82	92	102				10.00 ~ 15.99	19	8
		(20)	(42)	52	62	72	82	92	102			13.00 ~ 19.99	23		
	(25)	(42)	52	62	72	82	92	102			18.00 ~ 24.99	28			
	M Powdered high-speed steel T—PSTA T—PTPA 	L	3		52	62	72				1.00 ~ 2.99	15	5	2	
			4		52	62	72				1.00 ~ 3.99		7		
			5		52	62	72				2.00 ~ 4.99		8		
			6		52	62	72				2.50 ~ 5.99		9		
			8		52	62	72	82	92			3.00 ~ 7.99	21	11	5
10				52	62	72	82	92	102			3.00 ~ 9.99		13	
13				52	62	72	82	92	102			6.00 ~ 12.99		16	
(16)					62	72	82	92	102			10.00 ~ 15.99		19	8
(20)					62	72	82	92	102			13.00 ~ 19.99	23		
(25)			62	72	82	92	102			18.00 ~ 24.99	28				
M Equivalent to SKD11 (D^{+0.005}₀) AT—STA AT—TPA 	X	3		52	62	72				2.00 ~ 2.99	21	5	2		
		4		52	62	72				2.00 ~ 3.99		7			
		5			62	72				2.00 ~ 4.99		8			
		6			62	72				2.50 ~ 5.99		9			
		8			62	72	82	92			3.00 ~ 7.99	32	11	5	
		10			62	72	82	92	102				3.00 ~ 9.99		13
		13			62	72	82	92	102				6.00 ~ 12.99	16	
		(16)				72	82	92	102				10.00 ~ 15.99	19	8
		(20)				72	82	92	102			13.00 ~ 19.99	23		
	(25)				72	82	92	102			18.00 ~ 24.99	28			

① D=(16), (20), and (25) are specifications available for shank diameter tolerance Dm5 only.

② L(42)→B=10 If full length is (42), tip length B is 10mm.

③ P>D-0.03→ℓ=0 If P>D-0.03, D-0.01/0.03 (press-in lead) is not included.



Order

Catalog No. — L — P — (R=0)

T—STAS 10 — 72 — P6.48

T—PTPAL 8 — 82 — P3.50 — R0

⚡ (R=0) only can be selected. (Can be used for tapered tip types.)



Days to Ship

Quotation



Alterations

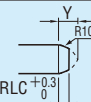


Catalog No. — L(LC·LCT·LMT) — P(PC) — (R=0) — (BC·HC·TC, etc.)

T—STAS 10 — LC75 — PC2.25 — BC13

Alterations to tip

Alterations to full length

Alteration	Code	Tip R type	Tapered tip	1Code																												
   	PC	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01mm increments <table border="1"> <thead> <tr> <th>P(PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr><td>1.00~1.19</td><td>15</td></tr> <tr><td>1.20~1.99</td><td>17</td></tr> <tr><td>2.00~2.99</td><td>27</td></tr> <tr><td>3.00~3.99</td><td>32</td></tr> <tr><td>4.00~5.99</td><td>42</td></tr> <tr><td>6.00~</td><td>47</td></tr> </tbody> </table>	P(PC)	Bmax.	1.00~1.19	15	1.20~1.99	17	2.00~2.99	27	3.00~3.99	32	4.00~5.99	42	6.00~	47	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01mm increments ⚡ $Y_{max} = Y_{Cmax}$. (Refer to YC) <table border="1"> <thead> <tr> <th>P(PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr><td>1.00~1.19</td><td>15</td></tr> <tr><td>1.20~1.99</td><td>17</td></tr> <tr><td>2.00~2.99</td><td>27</td></tr> <tr><td>3.00~3.99</td><td>32</td></tr> <tr><td>4.00~5.99</td><td>42</td></tr> <tr><td>6.00~</td><td>47</td></tr> </tbody> </table>	P(PC)	Bmax.	1.00~1.19	15	1.20~1.99	17	2.00~2.99	27	3.00~3.99	32	4.00~5.99	42	6.00~	47	
P(PC)	Bmax.																															
1.00~1.19	15																															
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3.00~3.99	32																															
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1.00~1.19	15																															
1.20~1.99	17																															
2.00~2.99	27																															
3.00~3.99	32																															
4.00~5.99	42																															
6.00~	47																															
BC	Tip length change $2 \leq BC \leq B_{max}$ ⚡ Full length L must be at least 25mm longer than tip length BC.	0.1mm increments																														
RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—																														
YC	—	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq L_{max} + 8$ 0.1mm increments																														
 	LC	Full length change $25 + B(BC) \leq LC < L$ 0.1mm increments ⚡ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length—25mm).																														
	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (⚡) are the same as for LC.																														
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (⚡) are the same as for LC.																														

Quotation

Quotation

Alteration	Code	Tip R type	Tapered tip	1Code
Alterations to head	KC	—	Addition of single key flat to head	
	WKC	—	Addition of double key flats in parallel	
	RC	—	Head thickness is machined to a tolerance of $-0.04 \sim 0$ relative to the retainer surface. ⚡ Cannot be used for $D_{+0.005}^0$ types.	
	HC	—	Head diameter change $D \leq HC < H$ 0.1mm increments	
	TC	—	Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) ⚡ Full length L is shortened by $(5 - TC)$. If combined with LC, full length is equal to LC.	
	TKC	—	Head thickness tolerance change $T +0.3 \Rightarrow +0.02$ $0 \quad 0$	
Alterations to shank	TKM	—	Head thickness tolerance change $T +0.3 \Rightarrow 0$ $0 \quad -0.02$	
	NDC	—	No press-in lead $\ell \geq 3 \Rightarrow \ell = 0$	

Quotation

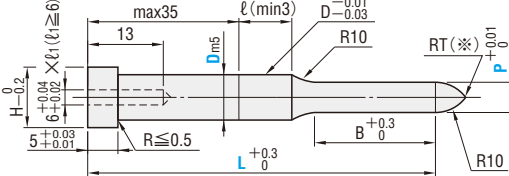
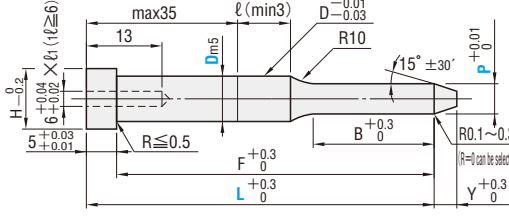
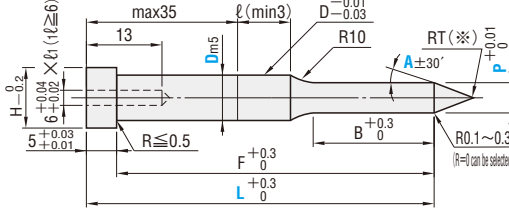


Price

Quotation

PILOT PUNCHES WITH LOCATING DOWEL HOLES

—NORMAL·TiCN COATING·HW COATING·DICOAT® TREATMENT—

Type	Shank diameter D Tolerance	M H	Catalog No.			Shape
			Type	tip length B	With dowel hole	
—Tip R type— 	D _{m5}		Equivalent to SKD11 60~63 HRC STA			 MS6—25 RT (※) → If P < 8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with HW coating.) (If P ≥ 8, tip end is flat.  P.1082) For the length of tip R, refer to the products data "Punch R length".  P.1082
			Equivalent to SKD11 60~63 HRC Surface 3000 HV TiCN coating H—STA			
			Equivalent to SKD11 60~63 HRC Surface 3000 HV HW coating HW—STA			
			Equivalent to SKD11 60~63 HRC Surface 3000 HV Dicoat® treatment T—STA			
—Tapered tip type— 	D _{m5}		Equivalent to SKD11 60~63 HRC TPA			 MS6—25 RT (※) → If P < 8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with HW coating.) (If P ≥ 8, tip end is flat.  P.1082) For the length of tip R, refer to the products data "Punch R length".  P.1082
			Equivalent to SKD11 60~63 HRC Surface 3000 HV TiCN coating H—TPA			
			Equivalent to SKD11 60~63 HRC Surface 3000 HV HW coating HW—TPA			
			Equivalent to SKD11 60~63 HRC Surface 3000 HV Dicoat® treatment T—TPA			
—Sharp tip angle type— 	D _{m5}		Equivalent to SKD11 60~63 HRC ATA			 MS6—25 RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with HW coating.)
			Equivalent to SKD11 60~63 HRC Surface 3000 HV TiCN coating H—ATA			
			Equivalent to SKD11 60~63 HRC Surface 3000 HV HW coating HW—ATA			

Catalog No.			D	L	0.01mm increments		A	B	H	Y
Type	^B tip length	With dowel hole			min.	max.				
—Normal— STA TPA ATA		C	10	(42) 52 62 72 82 92 102 112 122 (132) (142)	3.00 ~ 9.99	(10)	15	13	8	
			13		6.00 ~ 12.99	(15)		16		
			16		10.00 ~ 15.99	(20)		19		
			20		13.00 ~ 19.99	25		23		
			25		18.00 ~ 24.99	30		28		
—TiCN coating— H—STA H—TPA H—ATA			10	52 62 72 82 92 102 112 122 (132) (142)	3.00 ~ 9.99	(10)	21	13	5	
			13	6.00 ~ 12.99	(15)	16		8		
			16	10.00 ~ 15.99	(20)	19				
			20	13.00 ~ 19.99	25	23				
			25	18.00 ~ 24.99	30	28				
—Dicoat® treatment— T—STA T—TPA			10	62 72 82 92 102 112 122 (132) (142)	3.00 ~ 9.99	(10)	32	13	5	
			13		6.00 ~ 12.99	(15)		16	8	
			16		10.00 ~ 15.99	(20)		19		
			20		13.00 ~ 19.99	25		23		
			25		18.00 ~ 24.99	30		28		
—HW coating— HW—STA HW—TPA HW—ATA			10	72 82 92 102 112 122 (132) (142)	3.00 ~ 9.99	(10)	42	13	8	
		13	6.00 ~ 12.99		(15)	16				
		16	10.00 ~ 15.99		(20)	19				
		20	13.00 ~ 19.99		25	23				
		25	18.00 ~ 24.99		30	28				

⚠ L (42) → B=10 If full length L is (42), tip length B is 10mm in all cases.

⚠ L (132) (142) → L132 and 142 can be used for tip R types and tapered tip types only.

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

⚠ A (10) → If P ≥ 9.0, A10 cannot be selected.

⚠ A (15) → If P ≥ 15.0, A15 cannot be selected.

⚠ A (20) → If P ≥ 20.0, A20 cannot be selected.

PRODUCTS DATA

P.1089-1094-1095



Order

Catalog No. — L — P — A — (RT=0)
R=0

STASC 10 — 72 — P5.50
H—ATASC 10 — 62 — P3.80 — A20 — R0

⚡ A Can be used for sharp tip angle types only.

⚡ RT=0 only can be selected. (Can be selected for tip R types with P<8 and sharp tip angle types.)

⚡ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

Quotation



Alterations



Catalog No. — L(LC) — P(PC) — A — (RT=0)
R=0 — (BC·YC·HC, etc.)

STASC 16 — 72 — PC8.505

— PKC

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code																						
Alterations to tip	PC	Tip diameter change $PC \geq \frac{P_{min}}{2}$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) <table><tr><th>P(PC)</th><th>Bmax.</th></tr><tr><td>1.500~1.999</td><td>20</td></tr><tr><td>2.000~3.999</td><td>35</td></tr><tr><td>4.000~5.999</td><td>45</td></tr><tr><td>6.000~</td><td>(60)</td></tr></table>	P(PC)	Bmax.	1.500~1.999	20	2.000~3.999	35	4.000~5.999	45	6.000~	(60)	Tip diameter change $PC \geq \frac{P_{min}}{2}$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) ⚡ Ymax.=YCmax. <table><tr><th>P(PC)</th><th>Bmax.</th></tr><tr><td>1.500~1.999</td><td>20</td></tr><tr><td>2.000~2.999</td><td>30</td></tr><tr><td>3.000~3.999</td><td>35</td></tr><tr><td>4.000~5.999</td><td>45</td></tr><tr><td>6.000~</td><td>(60)</td></tr></table>	P(PC)	Bmax.	1.500~1.999	20	2.000~2.999	30	3.000~3.999	35	4.000~5.999	45	6.000~	(60)	
	P(PC)	Bmax.																								
	1.500~1.999	20																								
	2.000~3.999	35																								
	4.000~5.999	45																								
6.000~	(60)																									
P(PC)	Bmax.																									
1.500~1.999	20																									
2.000~2.999	30																									
3.000~3.999	35																									
4.000~5.999	45																									
6.000~	(60)																									
BC	Tip length change $2 \leq BC \leq Bmax.$ ⚡ Full length L must be at least 30mm longer than tip length BC. ⚡ For TiCN coating or HW coating, Bmax.=50. For Dicoat® treatment, Bmax.=47	0.1mm increments																								
RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10-P/4)}$ 0.1mm increments	—																								
YC	—	Tip taper length change $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq Lmax. + 8$ 0.1mm increments ⚡ Cannot be used for sharp tip angle types.																								
	PKC	Tip diameter tolerance change $P + \frac{0.01}{0} \Rightarrow \frac{+0.005}{0}$ ⚡ (P dimension can be selected in 0.001mm increments.) ⚡ TiCN coating cannot be used for D>13. HW coating or Dicoat® treatment cannot be used.																								



Price

Quotation

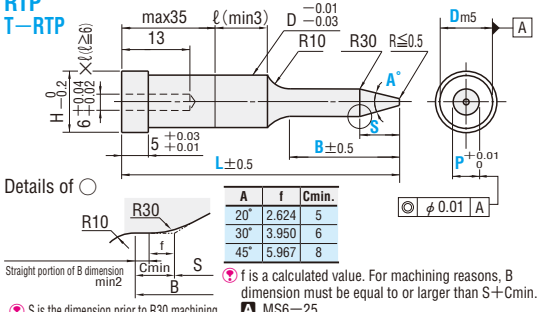
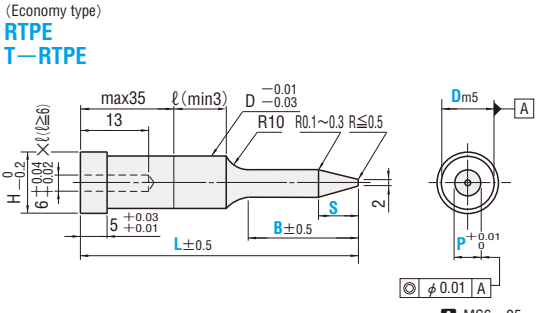
Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	Full length change $30+B(BC) \leq LC < L$ 0.1mm increments ⚡ If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length—30mm).		
	LKC		Full length tolerance change $L + 0.3 \Rightarrow +0.05$ 0 ⚡ TiCN coating, HW coating, and Dicoat® treatment cannot be used.	
Alterations to head	HC	Head diameter change $D \leq HC < H$ 0.1mm increments		Quotation
	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.		
	KC	Addition of single key flat to head		
	WKC	Addition of double key flats in parallel		
Shank	FKC		F dimension tolerance change $F + 0.3 \Rightarrow +0.05$ 0 ⚡ TiCN coating, HW coating, and Dicoat® treatment cannot be used. ⚡ Cannot be combined with LKC.	
	NDC	No press-in lead $\ell \geq 3 \Rightarrow \ell = 0$		
Others	TPC	Dowel pin change MS6—25 that comes with the product is changed to MSTP6—25 (tapped type).		

PILOT PUNCHES

—CONFIGURABLE TYPE—

PRODUCTS DATA

P.1089

Type	Shank diameter D Tolerance	M H	Catalog No.	Shape
—Normal— 	RoHS Dm5	Equivalent to SKD 11 60~63HRC	RTP	RTP T—RTP 
—Dicoat® treatment— 	RoHS Dm5	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—RTP	
—Normal— 	RoHS Dm5	Equivalent to SKD 11 60~63HRC	RTPE	RTPE T—RTPE 
—Dicoat® treatment— 	RoHS Dm5	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—RTPE	

H	Catalog No.	1mm increments	0.01mm increments	1mm increments	1mm increments	A	Base unit price 1~9 pieces
Type	D	L	min. P max.	B	S		RTP T—RTP
13	(10)		6.00~ 9.99			20	70≤L≤100 100<L≤150
16	13		6.00~ 12.99			30	
19	16	70~(200)	8.00~ 15.99	20~(100)	10~50	45	
23	20		11.00~ 19.99		S≤B—Cmin.		
28	25		16.00~ 24.99				
35	(32)		18.00~ 31.99				

⚠ The center hole remains at the tip end. ⚠ Because the center hole is required, the flat surface on the end of the tip must be 2 mm or larger. P—2Stan(A/2)≥2 ⚠ (L—35)≥B≥(S+Cmin.)
 ✖ D(10) (32)→Cannot be used for T—RTP. ⚠ L(200)→For RTP with D10 and T—RTP, L must not exceed 150. ⚠ B(100)→If D=10, B must not exceed 50.

H	Catalog No.	1mm increments	0.01mm increments	1mm increments	1mm increments	A	Base unit price 1~9 pieces
Type	D	L	min. P max.	B	S		RTPE T—RTPE
13	(10)		6.00~ 9.99			8~45	70≤L≤100 100<L≤150
16	13		6.00~ 12.99			S≤B—2	
19	16	70~150	8.00~ 15.99	10~50			
23	20		11.00~ 19.99				
28	25		16.00~ 24.99				
35	(32)		18.00~ 31.99				

⚠ (L—35)≥B≥(S+2) ✖ D(10) (32)→Cannot be used for T—RTPE.



Order

Catalog No.	L	P	B	S	A
RTP 20	160	P15.20	B43	S20	A30
RTPE 20	150	P15.20	B43	S20	
T—RTP 20	120	P15.20	B43	S20	A30



Days to Ship

Quotation



Alterations

Catalog No.	L	P	B	S	A	(HC-TC-LKC, etc.)
RTP 20	160	P15.20	B43	S20	A30	HC22.0
RTPE 20	150	P15.20	B43	S20		HC22.0



Price

Quotation

Alteration	Code	Spec.	1Code
Alterations to head			
	HC	Head diameter change D≤HC<H 0.1mm increments	Quotation
	TC	Head thickness change 2≤TC<5 0.1mm increments	
	KC	Addition of single key flat to head	

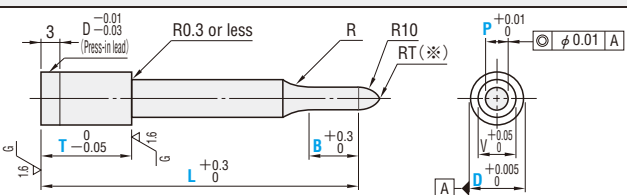
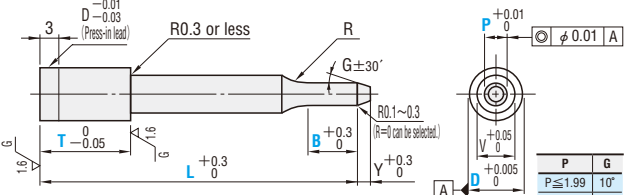
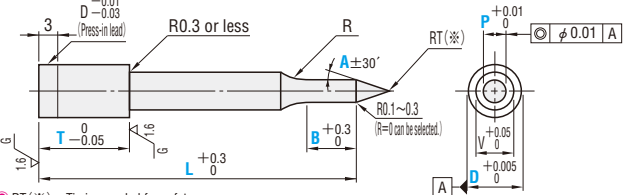
Alteration	Code	Spec.	1Code
Length			
	LKC	Full length tolerance change L±0.5→L±0.05 ✖ Cannot be used with Dicoat® treatment. ⚠ If used with LKC, 0.1mm increments can be selected for L dimension. ⚠ Shape of tip R remains unchanged.	Quotation
Shank			
	NDC	No press-in lead ℓ≥3⇒ℓ=0	
Others			
	TPC	Dowel pin change Provided MS6—25 is changed to MSTP6—25 (tapped type).	

FLANGE STOPPER PILOT PUNCHES

—NORMAL·TiCN COATING—

PRODUCTS DATA

P.1084

Type	M H	Catalog No.	Shape
—Tip R type— 	RoHS Powdered high-speed steel 64~67HRC Powdered high-speed steel 64~67HRC Surface hardness 3000 HV	PSTHAL H—PSTHAL	 * RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. * For the length of tip R, refer to the products data "Punch R length". P.1082
—Tapered tip type— 	RoHS Powdered high-speed steel 64~67HRC Powdered high-speed steel 64~67HRC Surface hardness 3000 HV	PTPHAL H—PTPHAL	 * RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
—Sharp tip angle type— 	RoHS Powdered high-speed steel 64~67HRC Powdered high-speed steel 64~67HRC Surface hardness 3000HV	PATHAL H—PATHAL	 * RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.

Catalog No.	Type	D	L	0.01mm increments min. P max.	A	T	1mm increments B	V	Y	R
Normal	PSTHAL	4	42	0.50 (1.00) ~ 2.00	10	13 16 20 25	2 ~ 6	2	1	2~3
	PTPHAL	5	42	1.00 ~ 3.00	15	13 16 20 25	2 ~ 8	3	2	
	PATHAL	6	42	1.50 ~ 4.00	20	13 16 20 25	2 ~ 10	4		10
TiCN coating	H—PSTHAL	8	52 62 (72)	2.00 ~ 6.00	25	13 16 20 25	2 ~ 13	6	3	
	H—PTPHAL		52 62 (72)		30	13 16 20 25	2 ~ 10			
	H—PATHAL		52 62 (72)			13 16 20 25	2 ~ 13			

⚡ L (62) (72) → L62 of D5 and L72 of D6-8 can be used for tip R types and tapered tip types only. ⚡ P (1.00) → For TiCN coating, Pmin. is 1.00.



Order

Catalog No.

PSTHAL 5 — 62 — P3.00 — T20 — B5 — RT0
H—PATHAL 6 — 52 — P2.03 — A15 — T13 — B4

⚡ A Can be used for sharp tip angle types only.

⚡ RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)

⚡ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Price

Quotation



Days to Ship

Quotation



Alterations

Catalog No.

PSTHAL 5 — L (LC-LCT) — P — A — T (TC) — B — (RT=0 R=0) — (PKC-LKC, etc.)

PSTHAL 5 — LC60 — P3.00 — TC15.0 — B5 — PKC

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	RLC	Tip R is cut flat. 2≤RLC<Y<8 Y=√(P(10—P)/4) 0.1mm increments		
	SC	Lapping of tip ⚡ P dimension tolerance and increment remain the same. ⚡ R=0 and RT=0 cannot be selected. ⚡ With TiCN coating, the base material is finished before coating is applied.		
	PKC	Tip diameter tolerance change P +0.01 ⇄ +0.005 0 ⚡ P dimension can be selected in 0.001mm increments. ⚡ Cannot be used with TiCN coating.		
Alterations to full length	LC	Full length change 40<LC<L 0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) ⚡ If LC<50, T and TC must be 20 or less. ⚡ If LC<50 with D6-8, the allowable range of B is 2~10.		

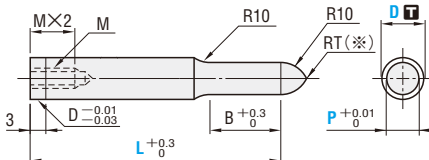
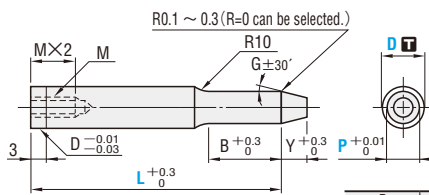
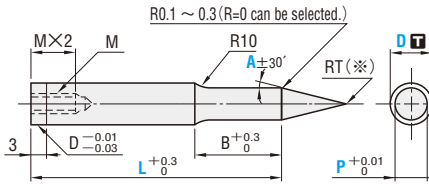
Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LKC		Full length tolerance change L +0.3 ⇄ +0.05 0 ⚡ Cannot be used with TiCN coating.	
	LCT		Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (⚡) are the same as for LC.	
	TKC		Head thickness tolerance change T -0.05 ⇄ -0.02	
Alterations to head	TC		T dimension change 13<TC<25 0.1mm increments ⚡ If L<50, the allowable range is 13<TC<20. ⚡ The full length L remains the same.	
	TKC		Head thickness tolerance change T -0.05 ⇄ -0.02	

Quotation

TAPPED PILOT PUNCHES

—NORMAL·TiCN COATING·HW COATING—

Type	Shank diameter D 		Catalog No.		B tip length	Shape						
			Type	TiCN coating HW coating Surface 3,000HV								
—Tip R type— 		D _{m5}	Equivalent to SKD11 60~63HRC STMA Tapped large-diameter type (D16~25) STMLA	—		⚠ RT (※) → If P < 8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with HW coating.) (If P ≥ 8, the tip end is flat.  P.1082) ⚠ For the length of tip R, refer to the products data “Punch R length”.  P.1082						
			Powdered high-speed steel 64~67HRC PSTMA	H—PSTMA HW—PSTMA								
	D ^{+0.005} ₀	Equivalent to SKD11 60~63HRC A—STMA	—	—								
			Powdered high-speed steel 64~67HRC A—PSTMA	AH—PSTMA AHW—PSTMA								
—Tapered tip type— 		D _{m5}	Equivalent to SKD11 60~63HRC TPMA Tapped large-diameter type (D16~25) TPMLA	—		R0.1 ~ 0.3 (R=0 can be selected.) <table><tr><th>P</th><th>G</th></tr><tr><td>P ≤ 1.999</td><td>10°</td></tr><tr><td>P ≥ 2.000</td><td>15°</td></tr></table>	P	G	P ≤ 1.999	10°	P ≥ 2.000	15°
			P	G								
	P ≤ 1.999	10°										
	P ≥ 2.000	15°										
Powdered high-speed steel 64~67HRC PTPMA	H—PTPMA HW—PTPMA											
D ^{+0.005} ₀	Equivalent to SKD11 60~63HRC A—TPMA	—	—									
		Powdered high-speed steel 64~67HRC A—PTPMA	AH—PTPMA AHW—PTPMA									
—Sharp tip angle type— 		D _{m5}	Equivalent to SKD11 60~63HRC ATMA Tapped large-diameter type (D16~25) ATMLA	—		R0.1 ~ 0.3 (R=0 can be selected.) ⚠ RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with HW coating.)						
			Powdered high-speed steel 64~67HRC PATMA	H—PATMA HW—PATMA								
	D ^{+0.005} ₀	Equivalent to SKD11 60~63HRC A—ATMA	—	—								
			Powdered high-speed steel 64~67HRC A—PATMA	AH—PATMA AHW—PATMA								

Catalog No.										0.01mm increments		A	B	Y	M			
Type	B tip length	D	L							min.	P max.				Standard type	Large- diameter		
Equivalent to SKD11	—Normal— (D _{m5}) (D ₀ ^{+0.005})		5	42	52	62	(72)				2.00 ~ 4.99	(10) (15) (20) (25) (30)	10	3	3	—		
	6		42	52	62	(72)				2.50 ~ 5.99	15		5	4				
	8		(42)	52	62	72	82	(92)						3.00 ~ 7.99	5			
	10		(42)	52	62	72	82	(92)	(102)				3.00 ~ 9.99	6				
	13		(42)	52	62	72	82	(92)	(102)				6.00 ~ 12.99					
	16		(42)	52	62	72	82	(92)	(102)				10.00 ~ 15.99					
	20		(42)	52	62	72	82	(92)	(102)				13.00 ~ 19.99	21	8		6	
	25	(42)	52	62	72	82	(92)	(102)			18.00 ~ 24.99							
	—Tapped large-diameter type— (D16~25)			5		52	62	(72)				2.00 ~ 4.99	(10) (15) (20) (25) (30)	15	3	3	—	
		6			52	62	(72)				2.50 ~ 5.99	21		5	4			
	8			52	62	72	82	(92)			3.00 ~ 7.99				5			
	10			52	62	72	82	(92)	(102)					3.00 ~ 9.99	6			
	13			52	62	72	82	(92)	(102)					6.00 ~ 12.99				
	16				62	72	82	(92)	(102)					10.00 ~ 15.99				
	20					62	72	82	(92)	(102)				13.00 ~ 19.99	27	8		6
	25					62	72	82	(92)	(102)			18.00 ~ 24.99					
Powdered high-speed steel	—Normal—		5		52	62	(72)				2.00 ~ 4.99	(10) (15) (20) (25) (30)	27	3	3	—		
			6		52	62	(72)				2.50 ~ 5.99		32	5	4			
			8		62	72	82	(92)			3.00 ~ 7.99				5			
			10		62	72	82	(92)	(102)					3.00 ~ 9.99	6			
			13		62	72	82	(92)	(102)					6.00 ~ 12.99				
			16			72	82	(92)	(102)					10.00 ~ 15.99				
			20				72	82	(92)	(102)			13.00 ~ 19.99	42	8		6	
		25					72	82	(92)	(102)			18.00 ~ 24.99					
	—TiCN coating—			5		52	62	(72)				2.00 ~ 4.99	(10) (15) (20) (25) (30)	27	3	3	—	
		6			52	62	(72)				2.50 ~ 5.99	32		5	4			
		8			62	72	82	(92)			3.00 ~ 7.99				5			
		10			62	72	82	(92)	(102)					3.00 ~ 9.99	6			
		13			62	72	82	(92)	(102)					6.00 ~ 12.99				
		16				72	82	(92)	(102)					10.00 ~ 15.99				
	20					72	82	(92)	(102)			13.00 ~ 19.99		42	8	6		
	25					72	82	(92)	(102)			18.00 ~ 24.99						
—HW coating—			16			72	82	(92)	(102)			10.00 ~ 15.99	(10) (15) (20) (25) (30)	32	5	4	—	
			20				72	82	(92)	(102)								13.00 ~ 19.99
			25					72	82	(92)	(102)							18.00 ~ 24.99

⚠ L (42) → B=10 If full length L is (42), tip length B is 10mm in all cases.

⚠ L (72) (92) (102) → L72 of D5-6 and L92-102 of D8~25 can be used for tip R types and tapered tip types only.

⚠ A (10) → If P ≥ 6.0, A10 cannot be selected. ⚠ A (15) → If P ≥ 15.0, A15 cannot be selected. ⚠ A (20) → If P ≥ 20.0, A20 cannot be selected.

PRODUCTS DATA

P.1094-1095



Order

Catalog No. — L — P — A — (RT=0 / R=0)

A—STMAS 6 — 72 — P5.02 — RT0

PTPMAS 6 — 52 — P4.97

A—ATMAL 10 — 52 — P3.40 — A15 — R0

⚠ A Can be used for sharp tip angle types only.

⚠ RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)

⚠ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

Quotation



Alterations



Catalog No. — L (LC) — P (PC) — A — (RT=0 / R=0) — (BC·YC, etc.)

TPMAS 13 — 82 — P8.24

— KC—LKC

Alterations to tip

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code														
	PC	Tip diameter change $PC \geq \frac{P_{min.}}{2}$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) <table border="1"> <tr> <th>P (PC)</th><th>Bmax.</th></tr> <tr> <td>1.000~1.999</td><td>20</td></tr> <tr> <td>2.000~3.999</td><td>35</td></tr> <tr> <td>4.000~5.999</td><td>45</td></tr> <tr> <td>6.000~</td><td>(60)</td></tr> </table>	P (PC)	Bmax.	1.000~1.999	20	2.000~3.999	35	4.000~5.999	45	6.000~	(60)	Tip diameter change $PC \geq \frac{P_{min.}}{2}$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) ⚠ Ymax.=YCmax.					
P (PC)	Bmax.																	
1.000~1.999	20																	
2.000~3.999	35																	
4.000~5.999	45																	
6.000~	(60)																	
	BC	Tip length change $2 \leq BC \leq Bmax.$ 0.1mm increments ⚠ Full length L must be at least +30mm longer than tip length BC. ⚠ For TiCN or HW coating, Bmax.=50	<table border="1"> <tr> <th>P (PC)</th><th>Bmax.</th></tr> <tr> <td>1.000~1.199</td><td>15</td></tr> <tr> <td>1.200~1.999</td><td>20</td></tr> <tr> <td>2.000~2.999</td><td>30</td></tr> <tr> <td>3.000~3.999</td><td>35</td></tr> <tr> <td>4.000~5.999</td><td>45</td></tr> <tr> <td>6.000~</td><td>(60)</td></tr> </table>	P (PC)	Bmax.	1.000~1.199	15	1.200~1.999	20	2.000~2.999	30	3.000~3.999	35	4.000~5.999	45	6.000~	(60)	
P (PC)	Bmax.																	
1.000~1.199	15																	
1.200~1.999	20																	
2.000~2.999	30																	
3.000~3.999	35																	
4.000~5.999	45																	
6.000~	(60)																	
	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10-P/4)}$ 0.1mm increments	—															
	YC	—	Tip taper length change • P<2.0 $1 \leq YC \leq P \times 2.83 - 0.3$ • P≥2.0 $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ L (LC) + YC ≤ Lmax. +8 0.1mm increments ⚠ Cannot be used for sharp tip angle types.															
				Quotation														



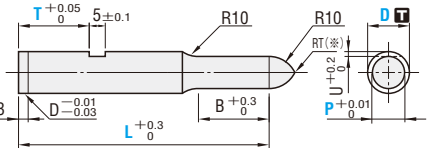
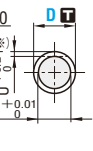
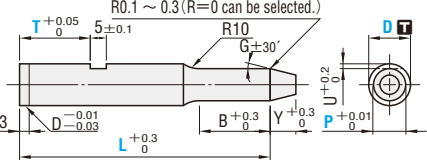
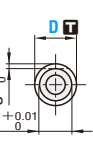
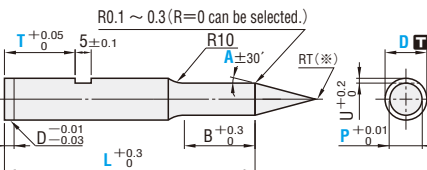
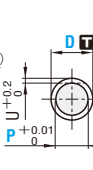
Price

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PKC	Tip diameter $P+0.01$ tolerance change $0 \rightarrow +0.005$ ⚠ P dimension can be selected in 0.001mm increments. ⚠ TiCN coating cannot be used for D>13. HW coating cannot be used.		
	SC	Lapping of tip ⚠ P dimension tolerance remains the same. ⚠ R=0 and RT=0 cannot be selected. ⚠ With TiCN coating, the base material is finished before coating is applied. ⚠ Cannot be used with HW coating.		
	LC	Full length change $30 + B(BC) \leq LC < L$ 0.1mm increments ⚠ If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length—30mm).		
Alterations to full length	LKC	—	Full length tolerance change $L+0.3 \rightarrow +0.05$ ⚠ TiCN coating or HW coating cannot be used.	Quotation
Alterations to head	KC	—	Addition of single key flat ⚠ Cannot be used for D5.	
	WKC	—	Addition of double key flats in parallel ⚠ Cannot be used for D5.	
Shank	SKC	Single key flat on shank $P \leq D - 2.2$ 1 ± 0.01 ⚠ Cannot be combined with KC·WKC. ⚠ Cannot be used for D5-6. ⚠ Express A cannot be used with TiCN or HW coating.		

PILOT PUNCHES WITH KEY GROOVES

—NORMAL·TiCN COATING—

Type	Shank diameter D  tolerance		Catalog No.		B tip length	Shape						
			Normal	TiCN coating Surface 3000HV								
—Tip R type—  Shape of tip changes depending on P dimension.  P.194 For shank diameter tolerance D  , select either m5 or $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$.	D _{m5}	 Equivalent to SKD11 60~63HRC  SKH51 61~64 HRC Powdered high-speed steel 64~67HRC	STKA	—	 	 RT (※) ... If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P≥8, tip end is flat.  P.1082)  For the length of tip R, refer to the products data "Punch R length".  P.1082						
			HSTKA	H—HSTKA								
			PSTKA	H—PSTKA								
	D $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$		Equivalent to SKD11 60~63HRC	A—STKA			—					
			SKH51 61~64 HRC	A—HSTKA			AH—HSTKA					
			Powdered high-speed steel 64~67HRC	A—PSTKA			AH—PSTKA					
—Tapered tip type—  For shank diameter tolerance D  , select either m5 or $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$.	D _{m5}	 Equivalent to SKD11 60~63HRC  SKH51 61~64 HRC Powdered high-speed steel 64~67HRC	TPKA	—	 	<table><tr><th>P</th><th>G</th></tr><tr><td>P≤1.999</td><td>10°</td></tr><tr><td>P≥2.000</td><td>15°</td></tr></table>	P	G	P≤1.999	10°	P≥2.000	15°
			P	G								
			P≤1.999	10°								
	P≥2.000		15°									
	HTPKA		H—HTPKA									
	PTPKA		H—PTPKA									
D $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$	Equivalent to SKD11 60~63HRC	A—TPKA	—									
	SKH51 61~64 HRC	A—HTPKA	AH—HTPKA									
	Powdered high-speed steel 64~67HRC	A—PTPKA	AH—PTPKA									
—Sharp tip angle type—  For shank diameter tolerance D  , select either m5 or $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$.	D _{m5}	 Equivalent to SKD11 60~63HRC  SKH51 61~64 HRC Powdered high-speed steel 64~67HRC	ATKA	—	 	 RT (※) ... Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.						
			HATKA	H—HATKA								
			PATKA	H—PATKA								
	D $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$		Equivalent to SKD11 60~63HRC	A—ATKA			—					
			SKH51 61~64 HRC	A—HATKA			AH—HATKA					
			Powdered high-speed steel 64~67HRC	A—PATKA			AH—PATKA					

Catalog No.								0.01mm increments		A	0.1mm increments		B	Y	U		
Type	B tip length	D	L				min. P max.		T								
M Equivalent to SKD11 (D _{m5}) (D ^{+0.005} ₀)		—Normal— STKA A—STKA TPKA A—TPKA ATKA A—ATKA	3	42	52	62	(72)	1.00~ 2.99		(10)	T>5.0	10	2	0.5			
			4	42	52	62	(72)	1.00~ 3.99		(15)							
			5	42	52	62	(72)	2.00~ 4.99		20			3	1.0			
			6	42	52	62	(72)	2.50~ 5.99		25							
			8	(42)	52	62	72	82	(92)	3.00~ 7.99			30	5	1.5		
			10	(42)	52	62	72	82	(92)	(102)			3.00~ 9.99			21	
			13	(42)	52	62	72	82	(92)	(102)			6.00~ 12.99				
M SKH51		—TiCN coating— H—HSTKA AH—HSTKA H—HTPKA AH—HTPKA H—HATKA AH—HATKA	16	(42)	52	62	72	82	(92)	(102)	10.00~ 15.99			T>5.0	15	2	0.5
			3		52	62	(72)	1.00~ 2.99		(10)	3	1.0					
			4		52	62	(72)	1.00~ 3.99		(15)			5			1.5	
			5		52	62	(72)	2.00~ 4.99		20	8						
			6		52	62	(72)	2.50~ 5.99		25			27				
			8		52	62	72	82	(92)	3.00~ 7.99							
			10		52	62	72	82	(92)	(102)	3.00~ 9.99						
M Powdered high-speed steel		—Normal— PSTKA A—PSTKA PTPKA A—PTPKA PATKA A—PATKA —TiCN coating— H—PSTKA AH—PSTKA H—PTPKA AH—PTPKA H—PATKA AH—PATKA	13		52	62	72	82	(92)	(102)	6.00~ 12.99			T>5.0	21	2	0.5
			16		62	72	82	(92)	(102)	10.00~ 15.99			3				
			3		52	62	(72)	1.20~ 2.99		(10)	27	5				1.5	
			4		52	62	(72)	1.20~ 3.99		(15)			8				
			5		62	(72)	2.00~ 4.99		20	32	8						
			6		62	(72)	2.50~ 5.99		25			42					
			8		62	72	82	(92)	3.00~ 7.99								
10		62	72	82	(92)	(102)	3.00~ 9.99										
13		62	72	82	(92)	(102)	6.00~ 12.99										
16			72	82	(92)	(102)	10.00~ 15.99										

⚠ L (42) ... B=10 If full length L is (42), tip length B is 10mm in all cases.

⚠ L (72) (92) (102) ... L72 with D3~6 and L92~102 with D8~16 can be used for tip R types and tapered tip types only.

⚠ A (10) ... If P ≥ 6.0, A10 cannot be selected. ⚠ A (15) ... If P ≥ 15.0, A15 cannot be selected.



Order

Catalog No.	L	P	A	T	(RT=0) (R=0)
A-STKAS 6	72	P5.02		T20.0	RT0
PTPKAS 6	52	P4.97		T15.0	
H-HATKAL 10	62	P5.01	A15	T16.0	R0

- If no key groove is required, select T=L.
- A can be used for sharp tip angle types only.
- RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)
- R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

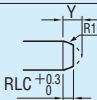
Quotation



Alterations

Catalog No.	L (LC-LCT)	P (PC)	A	T	(RT=0) (R=0)	(BC·YC, etc.)
A-STKAS 8	82	PC1.50		T20.0		YC1.0

Alterations to tip

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code																										
	PC	Tip diameter change $PC \geq \frac{P_{min}}{2}$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) ✗ TiCN coating cannot be used for PC < 1 <table border="1"> <thead> <tr> <th>P(PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr><td>0.500~0.999</td><td>10</td></tr> <tr><td>1.000~1.999</td><td>20</td></tr> <tr><td>2.000~3.999</td><td>35</td></tr> <tr><td>4.000~5.999</td><td>45</td></tr> <tr><td>6.000~</td><td>(60)</td></tr> </tbody> </table>	P(PC)	Bmax.	0.500~0.999	10	1.000~1.999	20	2.000~3.999	35	4.000~5.999	45	6.000~	(60)	Tip diameter change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) ✗ Ymax.=YCmax. <table border="1"> <thead> <tr> <th>P(PC)</th><th>Bmax.</th></tr> </thead> <tbody> <tr><td>1.000~1.199</td><td>15</td></tr> <tr><td>1.200~1.999</td><td>20</td></tr> <tr><td>2.000~2.999</td><td>30</td></tr> <tr><td>3.000~3.999</td><td>35</td></tr> <tr><td>4.000~5.999</td><td>45</td></tr> <tr><td>6.000~</td><td>(60)</td></tr> </tbody> </table>	P(PC)	Bmax.	1.000~1.199	15	1.200~1.999	20	2.000~2.999	30	3.000~3.999	35	4.000~5.999	45	6.000~	(60)	
P(PC)	Bmax.																													
0.500~0.999	10																													
1.000~1.999	20																													
2.000~3.999	35																													
4.000~5.999	45																													
6.000~	(60)																													
P(PC)	Bmax.																													
1.000~1.199	15																													
1.200~1.999	20																													
2.000~2.999	30																													
3.000~3.999	35																													
4.000~5.999	45																													
6.000~	(60)																													
	BC	Tip length change $2 \leq BC \leq Bmax.$ ✗ Full length L must be at least 30mm longer than tip length BC. ✗ For TiCN coating, Bmax.=50.	0.1mm increments																											
	YC	—	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ L (LC) + YC ≤ Lmax. + 8 0.1mm increments ✗ Cannot be used for sharp tip angle types.																											
	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—																											
	PKC	Tip diameter tolerance change $P + 0.01 \rightarrow +0.005$ 0 ✗ P dimension can be selected in 0.001mm increments. ✗ TiCN coating cannot be used for D > 13.																												

Quotation

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code							
Alterations to tip	SC	Lapping of tip ❗ P dimension tolerance remains the same. ❗ With TiCN coating, the base material is finished before the coating is applied. ❗ R=0 and RT=0 cannot be selected.									
Alterations to full length	LC	Full length change $30+B (BC) \leq LC < L$ 0.1mm increments ❗ If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length-30mm).									
	LKC	Full length tolerance change $L + 0.3 \rightarrow +0.05$ 0 ❗ Cannot be used with TiCN coating.		Quotation							
	LCT	TKC LC Head thickness tolerance change $T + 0.05 \rightarrow 0$ -0.02	Full length change								
	WKD	⊙ Addition of double key grooves in parallel									
Alterations to key groove	TKC	T dimension tolerance change $T + 0.05 \rightarrow 0$ -0.02									
	UK	Key groove depth change ❗ Cannot be used for D3.	<table><tr><td>D</td><td>UK</td></tr><tr><td>4-5</td><td>0.7</td></tr><tr><td>6</td><td>1.2</td></tr><tr><td>8-16</td><td>1.7</td></tr></table>	D	UK	4-5	0.7	6	1.2	8-16	1.7
D	UK										
4-5	0.7										
6	1.2										
8-16	1.7										

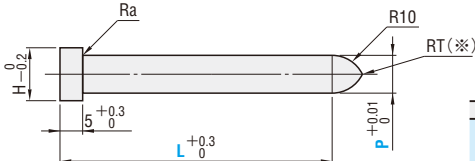
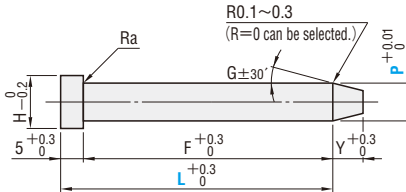
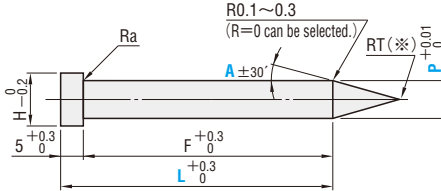
Quotation



Price

Quotation

STRAIGHT PILOT PUNCHES

Type	M H	Catalog No.	Shape														
— Tip R type —  Shape of tip changes depending on P dimension.  P.194	RoHS Equivalent to SKD11 60~63 HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	STC (No.3~25) HSTC PSTC	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td rowspan="3">R≦0.2</td></tr><tr><td>2.0</td></tr><tr><td>2.5</td></tr><tr><td>3~</td><td>R≦0.5</td></tr></table> ⚠ RT (※) → If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P≧8, tip end is flat.  P.1082) ⚠ For the length of tip R, refer to the products data “Punch R length”.  P.1082	No.	Ra	1.6	R≦0.2	2.0	2.5	3~	R≦0.5						
No.	Ra																
1.6	R≦0.2																
2.0																	
2.5																	
3~	R≦0.5																
— Tapered tip type — 	RoHS Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	TTC (No.3~25) HTTC PTTC	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td rowspan="3">R≦0.2</td></tr><tr><td>2.0</td></tr><tr><td>2.5</td></tr><tr><td>3~</td><td>R≦0.5</td></tr></table><table><tr><th>P</th><th>G</th></tr><tr><td>1,000~1,999</td><td>10°</td></tr><tr><td>2,000~</td><td>15°</td></tr></table>	No.	Ra	1.6	R≦0.2	2.0	2.5	3~	R≦0.5	P	G	1,000~1,999	10°	2,000~	15°
No.	Ra																
1.6	R≦0.2																
2.0																	
2.5																	
3~	R≦0.5																
P	G																
1,000~1,999	10°																
2,000~	15°																
— Sharp tip angle type — 	RoHS Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	ATTC (No.3~25) HATTC PATTC	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td rowspan="3">R≦0.2</td></tr><tr><td>2.0</td></tr><tr><td>2.5</td></tr><tr><td>3~</td><td>R≦0.5</td></tr></table> RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.	No.	Ra	1.6	R≦0.2	2.0	2.5	3~	R≦0.5						
No.	Ra																
1.6	R≦0.2																
2.0																	
2.5																	
3~	R≦0.5																

Catalog No.		L						0.01mm increments	A	Y	H
Type	No.							min. P max.			
Equivalent to SKD11 (No.3~25) STC TTC ATTC	1.6	42	52	62				1.00 ~ 1.60	(10)	2	2.6
	2.0	42	52	62				1.00 ~ 2.00			3
	2.5	42	52	62				1.50 ~ 2.50			3.5
	3	42	52	62	72	82	(92)	2.00 ~ 3.00			5
	4	42	52	62	72	82	(92)	3.00 ~ 4.00			7
SKH51 HSTC HTTC HATTC	5	42	52	62	72	82	(92)	4.00 ~ 5.00	(15)	3	8
	6	42	52	62	72	82	(92)	5.00 ~ 6.00			9
	8	42	52	62	72	82	(92) (102)	6.00 ~ 8.00	25	5	11
	10	42	52	62	72	82	(92) (102)	8.00 ~ 10.00			13
Powdered high-speed steel PSTC PTTC PATTC	13	42	52	62	72	82	(92) (102)	10.00 ~ 13.00	30	8	16
	16	42	52	62	72	82	(92) (102)	13.00 ~ 16.00			19
	20	42	52	62	72	82	(92) (102)	16.00 ~ 20.00			23
	25	42	52	62	72	82	(92) (102)	20.00 ~ 25.00			28

⚠ L (102) → L102 with No.8 can be used only for SKD11.

⚠ L (92) (102) → L92 and 102 can be used for tip R types and tapered tip types only.

⚠ A (10) → If P ≥ 6.0, A10 cannot be selected. ⚠ A (15) → If P ≥ 15.0, A15 cannot be selected.

⚠ A (20) → If P ≥ 20.0, A20 cannot be selected.



Order

Catalog No. — L — P — A — $\begin{pmatrix} RT=0 \\ R=0 \end{pmatrix}$ STC 6 — 72 — P5.02
PATTC 8 — 42 — P7.03 — A15 — RT0

⚠ A Can be used for sharp tip angle types only.

⚠ RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)

⚠ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



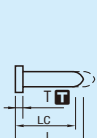
Days to Ship

Quotation

Alterations

Catalog No. — L (LC·LCT·LMT) — P — A — $\begin{pmatrix} RT=0 \\ R=0 \end{pmatrix}$ — (YC·HC·TC, etc.)

PSTC 10 — LC65 — P8.50 — HC12

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	 YC	—	Tip taper length change • $P < 2.0$ • $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ • $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ L (LC) + YC $\leq$ Lmax. +8 0.1mm increments ⚠ Cannot be used for sharp tip angle types.	
	 RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—	
	 PKC	Tip diameter tolerance change $P + 0.01 \Rightarrow +0.005$ 0 ⚠ P dimension can be selected in 0.001mm increments.		
Alterations to full length	 LC	Full length change $25 \leq LC < L$ 0.1mm increments		
	 LKC	Full length tolerance change $L + 0.3 \Rightarrow +0.05$ 0		
	 LCT LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (⚠) are the same as for LC. TKC + LC Head thickness tolerance change $T + 0.3 \Rightarrow +0.02$ 0 Full length change TKM + LC Head thickness tolerance change $T + 0.3 \Rightarrow 0$ -0.02 Full length change		

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head	 HC	Head diameter change $P \leq HC < H$ 0.1mm increments		
	 TC	Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) ⚠ Full length L is shortened by (5 - TC). If combined with LC, full length is equal to LC.		
	 KC	Addition of single key flat to head		
	 WKC	Addition of double key flats in parallel		
	 TKC TKM	Head thickness tolerance change $T + 0.3 \Rightarrow +0.02$ 0 Head thickness tolerance change $T + 0.3 \Rightarrow 0$ -0.02		
Shank	 FKC	—	F dimension tolerance change $F + 0.3 \Rightarrow +0.05$ 0 ⚠ Cannot be combined with LKC.	

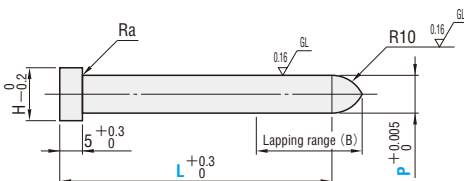
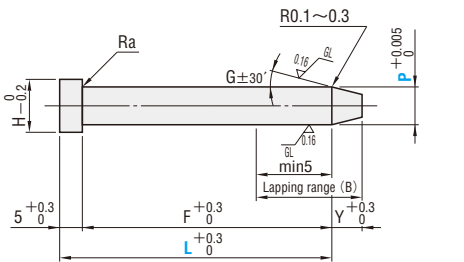
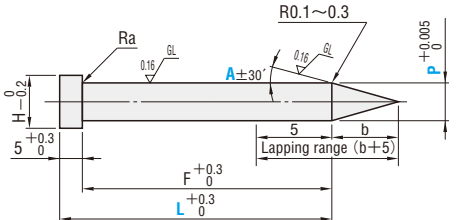
Quotation

Price

Quotation

STRAIGHT PILOT PUNCHES

—LAPPING—

Type		M H	Catalog No.	Shape																						
—Tip R type—	RoHS																									
			Equivalent to SKD11 60~63HRC L—STC (No.3~25)	 Lapping range (B) <table><tr><th>P</th><th>(B)</th></tr><tr><td>1.000~2.999</td><td>13</td></tr><tr><td>3.000~9.999</td><td>19</td></tr><tr><td>10.000~</td><td>25</td></tr></table> ⚠ If $L < (B) + 20$, (B) is adjusted to $L - 20$. <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>$R \leq 0.2$</td></tr><tr><td>2.0</td><td>2.5</td></tr><tr><td>3~</td><td>$R \leq 0.5$</td></tr></table>	P	(B)	1.000~2.999	13	3.000~9.999	19	10.000~	25	No.	Ra	1.6	$R \leq 0.2$	2.0	2.5	3~	$R \leq 0.5$						
P	(B)																									
1.000~2.999	13																									
3.000~9.999	19																									
10.000~	25																									
No.	Ra																									
1.6	$R \leq 0.2$																									
2.0	2.5																									
3~	$R \leq 0.5$																									
			SKH51 61~64HRC L—HSTC																							
			Powdered high-speed steel 64~67HRC L—PSTC																							
Shape of tip changes depending on P dimension.  P.194				⚠ For the length of tip R, refer to the products data “Punch R length”.  P.1082																						
—Tapered tip type—	RoHS																									
			Equivalent to SKD11 60~63HRC L—TTC (No.3~25)	 Lapping range (B) <table><tr><th>P</th><th>(B)</th></tr><tr><td>1.000~2.999</td><td>13</td></tr><tr><td>3.000~9.999</td><td>19</td></tr><tr><td>10.000~</td><td>25</td></tr></table> ⚠ If $L < (B) + 20$, (B) is adjusted to $L - 20$. <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>$R \leq 0.2$</td></tr><tr><td>2.0</td><td>2.5</td></tr><tr><td>3~</td><td>$R \leq 0.5$</td></tr></table> <table><tr><th>P</th><th>G</th></tr><tr><td>1.000~1.999</td><td>10°</td></tr><tr><td>2.000~</td><td>15°</td></tr></table>	P	(B)	1.000~2.999	13	3.000~9.999	19	10.000~	25	No.	Ra	1.6	$R \leq 0.2$	2.0	2.5	3~	$R \leq 0.5$	P	G	1.000~1.999	10°	2.000~	15°
P	(B)																									
1.000~2.999	13																									
3.000~9.999	19																									
10.000~	25																									
No.	Ra																									
1.6	$R \leq 0.2$																									
2.0	2.5																									
3~	$R \leq 0.5$																									
P	G																									
1.000~1.999	10°																									
2.000~	15°																									
			SKH51 61~64HRC L—HTTC																							
			Powdered high-speed steel 64~67HRC L—PTTC																							
—Sharp tip angle type—				RoHS																						
			Equivalent to SKD11 60~63HRC L—ATTC (No.3~25)	 Lapping range (b+5) <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>$R \leq 0.2$</td></tr><tr><td>2.0</td><td>2.5</td></tr><tr><td>3~</td><td>$R \leq 0.5$</td></tr></table>	No.	Ra	1.6	$R \leq 0.2$	2.0	2.5	3~	$R \leq 0.5$														
No.	Ra																									
1.6	$R \leq 0.2$																									
2.0	2.5																									
3~	$R \leq 0.5$																									
			SKH51 61~64HRC L—HATTC																							
			Powdered high-speed steel 64~67HRC L—PATTC																							

Catalog No.		L						0.001mm increments	A	Y	H
Type	No.							min. P max.			
Equivalent to SKD11 (No.3~25) L—STC L—TTC L—ATTC	1.6	42	52	62				1.000~ 1.600		2	2.6
	2.0	42	52	62				1.000~ 2.000			3
	2.5	42	52	62				1.500~ 2.500			3.5
	3	42	52	62	72	82	(92)	2.000~ 3.000			5
SKH51 L—HSTC L—HTTC L—HATTC	4	42	52	62	72	82	(92)	3.000~ 4.000	(10)	3	7
	5	42	52	62	72	82	(92)	4.000~ 5.000	(15)		8
	6	42	52	62	72	82	(92)	5.000~ 6.000	(20)		9
	8	42	52	62	72	82	(92) (102)	6.000~ 8.000	25		11
Powdered high-speed steel L—PSTC L—PTTC L—PATTC	10	42	52	62	72	82	(92) (102)	8.000~ 10.000	30	5	13
	13	42	52	62	72	82	(92) (102)	10.000~ 13.000			16
	16	42	52	62	72	82	(92) (102)	13.000~ 16.000			19
	20	42	52	62	72	82	(92) (102)	16.000~ 20.000			23
	25	42	52	62	72	82	(92) (102)	20.000~ 25.000			28

⚠ L (102) → L102 with No.8 can be used only for SKD11.

⚠ L (92) (102) → L92 and 102 can be used for tip R types and tapered tip types only.

⊗ A (10) → If $P \geq 6.0$, A10 cannot be selected. ⊗ A (15) → If $P \geq 15.0$, A15 cannot be selected.

⊗ A (20) → If $P \geq 20.0$, A20 cannot be selected.



Order

Catalog No. — **L** — **P** — **A**

L—STC 10 — 72 — P8.200

L—HATC 2.5 — 52 — P1.600 — A15

☞ **A** Can be used for sharp tip angle types only.

Days to Ship

Quotation

Alterations

Catalog No. — **L**(LC·LCT·LMT) — **P** — **A** — (YC·HC·TC, etc.)

L—PSTC 10 — LC65 — P8.500 — HC12

	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code		
Alterations to tip	 YC $+0.3/0$	YC	—	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq L_{max} + 8$ 0.1mm increments ☞ Cannot be used for sharp tip angle types.	Quotation		
	 RLC $+0.3/0$	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—			
Alterations to full length	 LC L	LC	Full length change $25 \leq LC < L$ 0.1mm increments	Quotation			
	 LKC L	LKC	—			Full length tolerance change $L + 0.3/0 \Rightarrow +0.05/0$	
	 LCT L	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (☞) are the same as for LC.			LC Full length change	
	 LMT L	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (☞) are the same as for LC.			LC Full length change	

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head	 HC	Head diameter change $P \leq HC < H$ 0.1mm increments	Quotation	
	 TC	Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) ☞ Full length L is shortened by $(5 - TC)$. If combined with LC, full length is equal to LC.		
	 KC	Addition of single key flat to head		
	 WKC	Addition of double key flats in parallel		
	 TKC	Head thickness tolerance change $T + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow +0.02 \begin{matrix} 0 \\ 0 \end{matrix}$		
Shank	 TKM	Head thickness tolerance change $T + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow -0.02 \begin{matrix} 0 \\ 0 \end{matrix}$		
	 FKC	—	F dimension tolerance change $F + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow +0.05 \begin{matrix} 0 \\ 0 \end{matrix}$ ☞ Cannot be combined with LKC.	

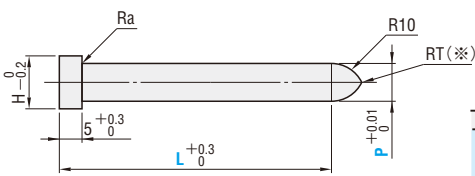
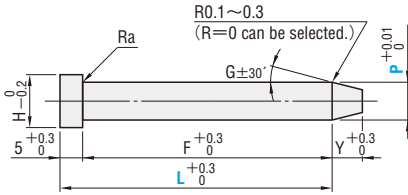
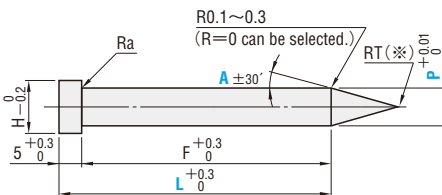


Price

Quotation

STRAIGHT PILOT PUNCHES

—TiCN COATING—

Type	M H	Catalog No.	Shape																
—Tip R type— RoHS 	SKH51 61~64HRC Surface 3000HV	H—HSTC	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>$R\leq 0.2$</td></tr><tr><td>2.0</td><td></td></tr><tr><td>2.5</td><td></td></tr><tr><td>3~</td><td>$R\leq 0.5$</td></tr></table>	No.	Ra	1.6	$R\leq 0.2$	2.0		2.5		3~	$R\leq 0.5$						
No.	Ra																		
1.6	$R\leq 0.2$																		
2.0																			
2.5																			
3~	$R\leq 0.5$																		
	Powdered high-speed steel 64~67HRC Surface 3000HV	H—PSTC	⚠ RT(※)→If $P<8$, tip is rounded for safety. To keep the sharp tip (no rounding), specify $RT=0$. (If $P\geq 8$, tip end is flat.  P.1082) ⚠ For the length of tip R, refer to the products data “Punch R length”.  P.1082																
—Tapered tip type— RoHS 	SKH51 61~64HRC Surface 3000HV	H—HTTC	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>$R\leq 0.2$</td></tr><tr><td>2.0</td><td></td></tr><tr><td>2.5</td><td></td></tr><tr><td>3~</td><td>$R\leq 0.5$</td></tr></table> <table><tr><th>P</th><th>G</th></tr><tr><td>1.00~1.99</td><td>10°</td></tr><tr><td>2.00~</td><td>15°</td></tr></table>	No.	Ra	1.6	$R\leq 0.2$	2.0		2.5		3~	$R\leq 0.5$	P	G	1.00~1.99	10°	2.00~	15°
No.	Ra																		
1.6	$R\leq 0.2$																		
2.0																			
2.5																			
3~	$R\leq 0.5$																		
P	G																		
1.00~1.99	10°																		
2.00~	15°																		
	Powdered high-speed steel 64~67HRC Surface 3000HV	H—PTTC																	
—Sharp tip angle type— RoHS 	SKH51 61~64HRC Surface 3000HV	H—HATTC	 RT(※)→Tip is rounded for safety. To keep the sharp tip (no rounding), specify $RT=0$. <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>$R\leq 0.2$</td></tr><tr><td>2.0</td><td></td></tr><tr><td>2.5</td><td></td></tr><tr><td>3~</td><td>$R\leq 0.5$</td></tr></table>	No.	Ra	1.6	$R\leq 0.2$	2.0		2.5		3~	$R\leq 0.5$						
No.	Ra																		
1.6	$R\leq 0.2$																		
2.0																			
2.5																			
3~	$R\leq 0.5$																		
	Powdered high-speed steel 64~67HRC Surface 3000HV	H—PATTC																	

Catalog No.		L						0.01mm increments	A	Y	H
Type	No.							min. P max.			
M SKH51 H—HSTC H—HTTC H—HATTC M Powdered high-speed steel H—PSTC H—PTTC H—PATTC	1.6	42	52	62				1.00~ 1.60	(10)	2	2.6
	2.0	42	52	62				1.00~ 2.00			3
	2.5	42	52	62				1.50~ 2.50			3.5
	3	42	52	62	72	82	(92)	2.00~ 3.00			5
	4	42	52	62	72	82	(92)	3.00~ 4.00			7
	5	42	52	62	72	82	(92)	4.00~ 5.00	(15)	3	8
	6	42	52	62	72	82	(92)	5.00~ 6.00			9
	8	42	52	62	72	82	(92)	6.00~ 8.00	25	5	11
	10	42	52	62	72	82	(92) (102)	8.00~ 10.00			13
	13	42	52	62	72	82	(92) (102)	10.00~ 13.00	30	8	16
	16	42	52	62	72	82	(92) (102)	13.00~ 16.00			19
	20	42	52	62	72	82	(92) (102)	16.00~ 20.00			23
	25	42	52	62	72	82	(92) (102)	20.00~ 25.00			28

- ⚠ L(92) (102)→L92 and 102 can be used for tip R types and tapered tip types only.
 ⚠ A(10)→If P≥6.0, A10 cannot be selected. ⚠ A(15)→If P≥15.0, A15 cannot be selected.
 ⚠ A(20)→If P≥20.0, A20 cannot be selected.



Order

Catalog No. — L — P — A — $\begin{matrix} RT=0 \\ R=0 \end{matrix}$

H—PSTC 6 — 72 — P5.02 — RT0

H—HATTC 8 — 42 — P7.03 — A15

⚡ A Can be used for sharp tip angle types only.

⚡ RT=0 only can be selected. (Can be used for tip R types with $P < 8$ and sharp tip angle types.)

⚡ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

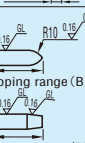
Quotation



Alterations

Catalog No. — L (LC-LCT-LMT) — P — A — $\begin{matrix} RT=0 \\ R=0 \end{matrix}$ — (YC·HC·TC, etc.)

H—PSTC 10 — LC65 — P8.50 — KC

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code								
Alterations to tip		YC	—	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ L (LC) + YC $\leq$ Lmax. + 8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.								
		RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—								
		SC	Lapping of tip ⚡ P dimension tolerance remains the same. ⚡ With TiCN coating, the base material is finished before the coating is applied. Lapping range (B) <table><tr><th>P</th><th>(B)</th></tr><tr><td>1.00~2.99</td><td>13</td></tr><tr><td>3.00~9.99</td><td>19</td></tr><tr><td>10.00~</td><td>25</td></tr></table>	P	(B)	1.00~2.99	13	3.00~9.99	19	10.00~	25	⚡ If $L < (B) + 20$, (B) is adjusted to $(L - 20)$. ⊗ R=0 and RT=0 cannot be selected. ⚡ Lapping range for straight portion is min.5mm.
P	(B)											
1.00~2.99	13											
3.00~9.99	19											
10.00~	25											
Alterations to full length		LC	Full length change $25 \leq LC < L$ 0.1mm increments									
		LCT	TKC Head thickness tolerance change $T + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow +0.02$	LC Full length change								
		LMT	TKM Head thickness tolerance change $T + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow -0.02$	LC Full length change								

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head	HC	Head diameter change $P \leq HC < H$ 0.1mm increments ⚡ $2.6 \leq HC < H$		
	TC	Head thickness change $4 \leq TC < 5$ 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) ⚡ Full length L is shortened by $(5 - TC)$. If combined with LC, full length is equal to LC.		
	KC	Addition of single key flat to head		
	WKC	Addition of double key flats in parallel		
	TKC	Head thickness tolerance change $T + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow +0.02$		
	TKM	Head thickness tolerance change $T + 0.3 \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow -0.02$		

Quotation



Price

Quotation

TAPPED STRAIGHT PILOT PUNCHES

—NORMAL・TiCN COATING—

Type	M H	Catalog No.	Shape
— Tip R type —	RoHS	Equivalent to SKD11 60~63HRC STMC Powdered high-speed steel 64~67HRC PSTMC Powdered high-speed steel 64~67HRC TiCN coating H—PSTMC Surface 3000HV	⑤ ----Coating is not applied to a 5 mm length from the tip end. (TiCN coating) RT (※) ----If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P≥8, tip end is flat. P.1082) ① For the length of tip R, refer to the products data “Punch R length”. P.1082
Shape of tip changes depending on P dimension. P.194			
— Tapered tip type —	RoHS	Equivalent to SKD11 60~63HRC TTMC Powdered high-speed steel 64~67HRC PTTMC Powdered high-speed steel 64~67HRC TiCN coating H—PTTMC Surface 3000HV	⑤ ----Coating is not applied to a 5 mm length from the tip end. (TiCN coating)
— Sharp tip angle type —	RoHS	Equivalent to SKD11 60~63HRC ATTMC Powdered high-speed steel 64~67HRC PATMC Powdered high-speed steel 64~67HRC TiCN coating H—PATMC Surface 3000HV	⑤ ----Coating is not applied to a 5 mm length from the tip end. (TiCN coating) RT (※) ----Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.

Catalog No.		L	0.01mm increments min. P max.	A	Y	M
Type	No.					
 Equivalent to SKD11 —Normal— STMC TTMC ATTMC	8	42 52 62 72 (82) (92)	6.00~ 8.00	(15)	5	3
	10		8.00~ 10.00			4
	13		10.00~ 13.00	(20)	8	6
 Powdered high-speed steel —TiCN coating— PSTMC PTTMC PATMC	16		13.00~ 16.00	25		
	20		16.00~ 20.00	30		
	25		20.00~ 25.00			

 L (82) (92)→L82 and 92 can be used for tip R types and tapered tip types only.

 A (15)→If P≥15.0, A15 cannot be selected.  A (20)→If P≥20.0, A20 cannot be selected.



Order

Catalog No. — L — P — A — $\begin{pmatrix} RT=0 \\ R=0 \end{pmatrix}$

STMC 8 — 72 — P6.20 — RT0
H—PATMC 10 — 62 — P8.50 — A15

⚡ A Can be used for sharp tip angle types only.

⚡ RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)

⚡ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

Quotation

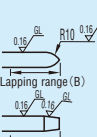


Alterations



Catalog No. — L (LC) — P — A — $\begin{pmatrix} RT=0 \\ R=0 \end{pmatrix}$ — (YC, etc.)

STMC 10 — LC65 — P8.50 — YC1

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code					
Alterations to tip	 YC +0.3	YC	Tip taper length change $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq L_{max} + 8$ 0.1mm increments ⚡ Cannot be used for sharp tip angle types.						
	 PKC	Tip tolerance change $P + 0.01 \Rightarrow +0.005$ 0 0 ⚡ P dimension can be selected in 0.001mm increments. ⚡ Cannot be used with TiCN coating.							
	 RLC +0.3	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments		Quotation				
	 Lapping range (B) Lapping range (B)	SC	Lapping of tip ⚡ P dimension tolerance remains the same. ⚡ With TiCN coating, the base material is finished before the coating is applied. Lapping range (B) <table><thead><tr><th>P</th><th>(B)</th></tr></thead><tbody><tr><td>6.000~9.999</td><td>19</td></tr><tr><td>10.000~</td><td>25</td></tr></tbody></table> ⚡ If $L < (B) + 20$, (B) is adjusted to $(L - 20)$. ⚡ R=0 and RT=0 cannot be selected. ⚡ Lapping range of straight part is min. 5mm.	P		(B)	6.000~9.999	19	10.000~
P	(B)								
6.000~9.999	19								
10.000~	25								

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	—	Full length change $25 \leq LC < L$ 0.1mm increments	Quotation
	LKC	—	Full length tolerance change $L + 0.3 \Rightarrow +0.05$ 0 0 ⚡ Cannot be used with TiCN coating.	
Alterations to shank	KC	—	Addition of single key flat	
	WKC	—	Addition of double key flats in parallel	
	NDC	—	No press-in lead $\ell = 3 \Rightarrow \ell = 0$	

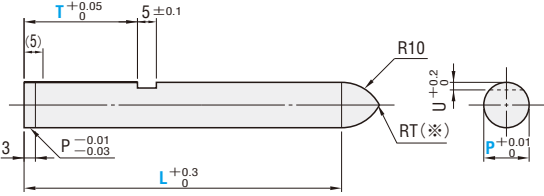
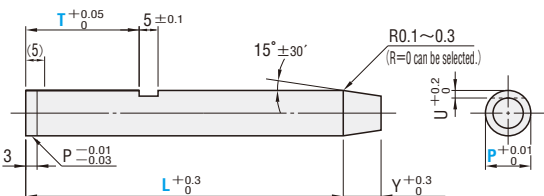
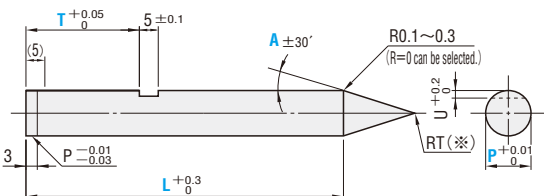


Price

Quotation

STRAIGHT PILOT PUNCHES WITH KEY GROOVES

—NORMAL·TiCN COATING—

Type		Catalog No.	Shape
—Tip R type—  Shape of tip changes depending on P dimension. 	RoHS	Equivalent to SKD11 60~63HRC	  (5)→Coating is not applied to a 5 mm length from the tip end. (TiCN coating)  RT (※)→If $P < 8$, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If $P \geq 8$, tip end is flat. )  For the length of tip R, refer to the products data “Punch R length”. 
		SKH51 61~64HRC	
		SKH51 61~64HRC Surface 3000HV	
		Powdered high-speed steel 64~67HRC	
		Powdered high-speed steel 64~67HRC Surface 3000HV	
—Tapered tip type— 	RoHS	Equivalent to SKD11 60~63HRC	  (5)→Coating is not applied to a 5 mm length from the tip end. (TiCN coating)
		SKH51 61~64HRC	
		SKH51 61~64HRC Surface 3000HV	
		Powdered high-speed steel 64~67HRC	
		Powdered high-speed steel 64~67HRC Surface 3000HV	
—Sharp tip angle type— 	RoHS	Equivalent to SKD11 60~63HRC	  (5)→Coating is not applied to a 5 mm length from the tip end. (TiCN coating)  RT (※)→Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
		SKH51 61~64HRC	
		SKH51 61~64HRC Surface 3000HV	
		Powdered high-speed steel 64~67HRC	
		Powdered high-speed steel 64~67HRC Surface 3000HV	

Catalog No.			L		0.01mm increments	A	0.1mm increments	Y	U	
Type	No.	min. P max.			T					
 Equivalent to SKD11 —Normal— STKC TTKC ATTKC	 SKH51 —Normal— HSTKC HTTKC HATKC	—TiCN coating—	3	42 52 62 (72)	2.00~ 3.00	(10) (15) 20 25 30	T>5.0	2	0.5	
			4	42 52 62 (72)	3.00~ 4.00			3		
			5	42 52 62 (72)	4.00~ 5.00				1.0	
			6	42 52 62 (72)	5.00~ 6.00					
 Powdered high-speed steel —Normal— PSTKC PTTKC PATKC	—TiCN coating—		8	42 52 62 72 (82) (92)	6.00~ 8.00	20 25 30		T>5.0	5	1.5
			10	42 52 62 72 (82) (92)	8.00~ 10.00				8	
			13	42 52 62 72 (82) (92)	10.00~ 13.00					
			16	42 52 62 72 (82) (92)	13.00~ 16.00					

 L (72) (82) (92)→L72 of No.3~6 and L82/92 of No.8~16 can be used for tip R types and tapered tip types only.

 A (10)→If $P \geq 6.00$, A10 cannot be selected.  A (15)→If $P \geq 15.0$, A15 cannot be selected.



Order

Catalog No. — L — P — A — T — (RT=0
R=0)
STKC 6 — 72 — P5.02 — T20.0
H—HATKC 4 — 62 — P3.80 — A15 — T16.0 — R0

- ⚠ A Can be used for sharp tip angle types only.
- ⚠ If no key groove is required, select T=L.
- ⚠ RT=0 only can be selected. (Can be selected for tip R types with P<8 and sharp tip angle types.)
- ⚠ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

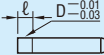
Quotation



Alterations

Catalog No. — L (LC·LCT) — P — A — T — (RT=0
R=0) — (YC, etc.)
PSTKC 10 — LC65 — P8.50 — T20.0 — YC1

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—	Quotation
	YC	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ $L(LC) + YC \leq L_{max} + 8$ 0.1mm increments ⚠ Cannot be used for sharp tip angle types.	—	
	SC	Lapping of tip ⚠ P dimension tolerance remains the same. ⚠ With TiCN coating, the base material is finished before the coating is applied. Lapping range (B) Lapping range (B)	—	
	PKC	Tip tolerance change $P + 0.01 \Rightarrow +0.005$ ⚠ P dimension can be selected in 0.001mm increments. ⚠ Cannot be used with TiCN coating.	—	

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code						
Alterations to full length	 LC	Full length change $25 \leq LC < L$ 0.1mm increments		Quotation						
	 LKC	—	Full length tolerance change $L + 0.3 \Rightarrow +0.05$ $0 \Rightarrow 0$ ⊗ Cannot be used with TiCN coating.							
	 LCT	Changes to key groove tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (⊗) are the same as for LC. Key groove tolerance change + Full length change $T + 0.05 \Rightarrow 0$ $0 \Rightarrow -0.02$								
Alterations to key groove	 WKD	 Addition of double key grooves in parallel		Quotation						
	 TKC	T dimension tolerance change $T + 0.05 \Rightarrow 0$ $0 \Rightarrow -0.02$								
	 UK	Key groove depth change ⊗ Cannot be used for No.3	<table><tr><th>No.</th><th>UK</th></tr><tr><td>4~5</td><td>0.7</td></tr><tr><td>6</td><td>1.2</td></tr><tr><td>8~16</td><td>1.7</td></tr></table>		No.	UK	4~5	0.7	6	1.2
No.	UK									
4~5	0.7									
6	1.2									
8~16	1.7									
Shank	 NDC	No press-in lead $\ell = 3 \Rightarrow \ell = 0$								

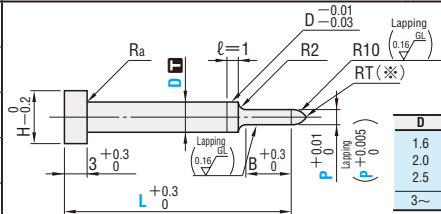
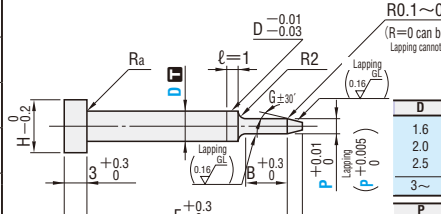
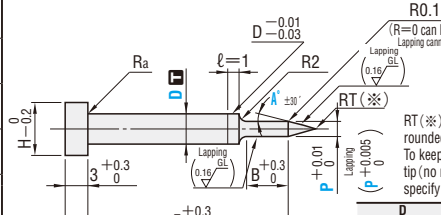


Price

Quotation

PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

—NORMAL • LAPPING—

Type	Shank diameter D	M	Catalog No.		Shape
			Normal	Lapping	
—Tip R • normal— 	D _{m5}	Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	SPTP	L—SPTP	 RT (※) → If P < 8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P ≥ 8 for tip R type, the tip end is flat. P.1082) For the length of tip R, refer to the products data "Punch R length". P.1082
—Tip R • lapping— 			HTFPR	L—HTFPR	
Shape of tip changes depending on P dimension. P.194 For shank diameter tolerance D, select either m5 or $+0.005/0$.			PTFPR	L—PTFPR	
—Tapered tip • Normal— 	D _{m5}	Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	TPTP	L—TPTP	 R0.1~0.3 (R=0 can be selected.) Lapping cannot be used.
—Tapered tip • Lapping— 			HTFPT	L—HTFPT	
For shank diameter tolerance D, select either m5 or $+0.005/0$.			PTFPT	L—PTFPT	
—Sharp tip angle • Normal— 	D _{m5}	Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	APT	L—APT	 R0.1~0.3 (R=0 can be selected.) Lapping cannot be used. RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
—Sharp tip angle • Lapping— 			HTFPA	L—HTFPA	
For shank diameter tolerance D, select either m5 or $+0.005/0$.			PTFPA	L—PTFPA	

Catalog No.				0.1mm increments	0.01mm increments (0.001mm increments for lapping)	A	B	Y	H
Type		D	L	min. P max.					
—Normal—		1.6	10.0 ~ 40.0	0.30~ 1.59	(10)	(4)	(1)	2.6	
(D _{m5})	(D ₀ ^{+0.005})	2.0		0.50~ 1.99				3	
—Lapping—		2.5		1.00~ 2.49				3.5	
(D _{m5})	(D ₀ ^{+0.005})	3		1.00~ 2.99				5	
M Equivalent to SKD11		4		2.00~ 3.99				7	
SPTP	A—SPTP	L—SPTP		AL—SPTP				20	
TPTP	A—TPTP	L—TPTP		AL—TPTP				25	
APT	A—APT	L—APT		AL—APT				30	
M SKH51		5		2.00~ 4.99				8	
HTFPR	A—HTFPR	L—HTFPR		AL—HTFPR				9	
HTFPT	A—HTFPT	L—HTFPT		AL—HTFPT				11	
HTFPA	A—HTFPA	L—HTFPA		AL—HTFPA				13	
M Powdered high-speed steel		10		7.00~ 9.99				16	
PTFPR	A—PTFPR	L—PTFPR		AL—PTFPR				19	
PTFPT	A—PTFPT	L—PTFPT	AL—PTFPT						
PTFPA	A—PTFPA	L—PTFPA	AL—PTFPA						

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

⚠ ℓ < 12, tip length B is 2mm.

⚠ B (4) → If P < 0.5, tip length B is at 2mm.

⚠ A (10) → If P ≥ 2.00, A10 cannot be selected.

⚠ Y (1) → If P < 0.5, Y dimension is 0.5mm.



Catalog No.	L	P	A	(RT=0 R=0)
SPTP 3	28.0	P2.48		
APT 4	32.0	P3.50	A15	RT0
TPT 5	25.0	P2.06		R0

⚠ A Can be used for sharp tip angle types only.

⚠ RT=0 only can be selected. (Can be used for tip R types with P < 8 and sharp tip angle types. However lapping cannot be used.)

⚠ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types. However lapping cannot be used.)



Days to Ship

Quotation



Alterations

Catalog No. — L — P — A(AC) — $\left(\frac{R}{R=0}\right)$ — (BC·YC·GC, etc.)

PTFPA 3 — 28.0 — P2.48 — AC18 — BC3.0

Alterations to tip

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code										
	BC	Tip length change $2 \leq BC \leq B_{max}$ 0.1mm increments ⊗ Cannot be used with P0.300~0.499. ⊕ Full length L must be at least 8mm longer than tip length BC.	<table border="1"> <thead> <tr> <th>P</th><th>Bmax.</th></tr> </thead> <tbody> <tr> <td>0.500~0.999</td><td>8</td></tr> <tr> <td>1.000~1.999</td><td>15</td></tr> <tr> <td>1.200~1.999</td><td>20</td></tr> <tr> <td>2.000~</td><td>24</td></tr> </tbody> </table>	P	Bmax.	0.500~0.999	8	1.000~1.999	15	1.200~1.999	20	2.000~	24	
P	Bmax.													
0.500~0.999	8													
1.000~1.999	15													
1.200~1.999	20													
2.000~	24													
	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	—											
	YC	—	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ 0.1mm increments ⊗ Cannot be used for sharp tip angle types. ⊗ Cannot be used with P0.300~0.499.	Quotation										
	GC	—	Tip angle change $1.000 \leq P \leq 1.999$...5° ≤ GC < 10° $2.000 \leq P \leq 5.999$...5° ≤ GC < 15° ⊕ Can be used with D2.5~D6. $YC \leq P/2 \tan GC - 0.3 \leq 18$ ⊗ Cannot be used for sharp tip angle types.											
	AC	—	Tip angle change $15^\circ < AC \leq 45^\circ$ 1° increments ⊗ Cannot be used for tapered tip types.											
	PKC	Tip diameter $P + 0.01$ tolerance change $\begin{matrix} 0 \\ 0 \end{matrix} \rightarrow \begin{matrix} +0.005 \\ 0 \end{matrix}$ ⊗ Cannot be used with lapping. ⊕ P dimension can be selected in 0.001mm increments.												



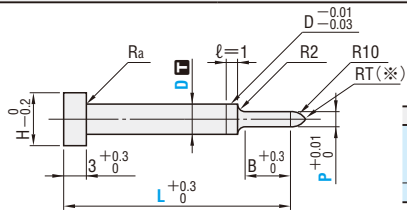
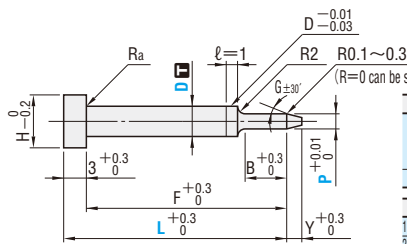
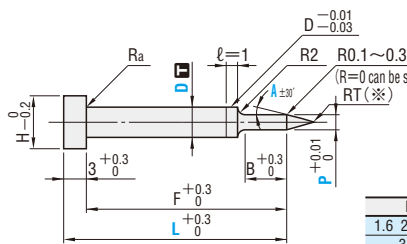
Price

Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
	LKC			
	HC			
	TC			
	KC			
	WKC			
	TKC			Quotation
	TKM			
	TNK			
	FKC			
	NDC			

PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

—TiCN COATING · HW COATING—

Type	Shank diameter D 		Catalog No.		Shape																
			TiCN coating	HW coating																	
—Tip R type— 	D _{m5}	SKH51 61~64HRC Surface hardness 3000HV	H—HTFPR	HW—HTFPR	 <table border="1" data-bbox="1144 394 1254 500"><thead><tr><th>D</th><th>Ra</th></tr></thead><tbody><tr><td>1.6</td><td></td></tr><tr><td>2.0</td><td>R≤0.2</td></tr><tr><td>2.5</td><td></td></tr><tr><td>3~</td><td>R≤0.5</td></tr></tbody></table> ⚠ RT (※) → If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. ⚠ Cannot be used with HW coating. (If P≥8 for tip R type, tip end is flat.  P.1082) ⚠ For the length of tip R, refer to the products data 'Punch R length.'  P.1082	D	Ra	1.6		2.0	R≤0.2	2.5		3~	R≤0.5						
		D	Ra																		
	1.6																				
	2.0	R≤0.2																			
2.5																					
3~	R≤0.5																				
Powdered high-speed steel 64~67HRC Surface hardness 3000HV	H—PTFPR	HW—PTFPR																			
D _{+0.005/0}	SKH51 61~64HRC Surface hardness 3000HV	AH—HTFPR	AHW—HTFPR																		
	Powdered high-speed steel 64~67HRC Surface hardness 3000HV	AH—PTFPR	AHW—PTFPR																		
—Tapered tip type— 	D _{m5}	SKH51 61~64HRC Surface hardness 3000HV	H—HTFPT	HW—HTFPT	 <table border="1" data-bbox="1144 683 1254 838"><thead><tr><th>D</th><th>Ra</th></tr></thead><tbody><tr><td>1.6</td><td></td></tr><tr><td>2.0</td><td>R≤0.2</td></tr><tr><td>2.5</td><td></td></tr><tr><td>3~</td><td>R≤0.5</td></tr></tbody></table> <table border="1" data-bbox="1144 780 1254 838"><thead><tr><th>P</th><th>G</th></tr></thead><tbody><tr><td>1,000~1,999</td><td>10°</td></tr><tr><td>2,000~</td><td>15°</td></tr></tbody></table> ⚠ RT (※) → If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. ⚠ Cannot be used with HW coating.	D	Ra	1.6		2.0	R≤0.2	2.5		3~	R≤0.5	P	G	1,000~1,999	10°	2,000~	15°
		D	Ra																		
	1.6																				
	2.0	R≤0.2																			
2.5																					
3~	R≤0.5																				
P	G																				
1,000~1,999	10°																				
2,000~	15°																				
Powdered high-speed steel 64~67HRC Surface hardness 3000HV	H—PTFPT	HW—PTFPT																			
D _{+0.005/0}	SKH51 61~64HRC Surface hardness 3000HV	AH—HTFPT	AHW—HTFPT																		
	Powdered high-speed steel 64~67HRC Surface hardness 3000HV	AH—PTFPT	AHW—PTFPT																		
—Sharp tip angle type— 	D _{m5}	SKH51 61~64HRC Surface hardness 3000HV	H—HTFPA	HW—HTFPA	 <table border="1" data-bbox="1144 1051 1254 1108"><thead><tr><th>D</th><th>Ra</th></tr></thead><tbody><tr><td>1.6</td><td></td></tr><tr><td>2.0</td><td>R≤0.2</td></tr><tr><td>2.5</td><td></td></tr><tr><td>3~</td><td>R≤0.5</td></tr></tbody></table> ⚠ RT (※) → If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. ⚠ Cannot be used with HW coating.	D	Ra	1.6		2.0	R≤0.2	2.5		3~	R≤0.5						
		D	Ra																		
	1.6																				
	2.0	R≤0.2																			
2.5																					
3~	R≤0.5																				
Powdered high-speed steel 64~67HRC Surface hardness 3000HV	H—PTFPA	HW—PTFPA																			
D _{+0.005/0}	SKH51 61~64HRC Surface hardness 3000HV	AH—HTFPA	AHW—HTFPA																		
	Powdered high-speed steel 64~67HRC Surface hardness 3000HV	AH—PTFPA	AHW—PTFPA																		

Catalog No.				0.1mm increments	0.01mm increments	A	B	Y	H
Type				D	L	min. P max.			
—TiCN coating—  SKH51		—HW coating—  SKH51		1.6	10.0~40.0	1.00~ 1.59	(10) 15 20 25 30	4	2.6
(D _{m5})	(D _{+0.005/0})	(D _{m5})	(D _{+0.005/0})	2.0		1.00~ 1.99			3
				2.5		1.00~ 2.49			3.5
				3		1.00~ 2.99			5
				4		2.00~ 3.99			7
				5		2.00~ 4.99			8
 Powdered high-speed steel	(D _{m5})	 Powdered high-speed steel	(D _{+0.005/0})	6		2.50~ 5.99			9
				8		5.00~ 7.99			11
				10		7.00~ 9.99			13
				13		10.00~ 12.99			16
				16		13.00~ 15.99			19

Ⓜ P>D-0.03...→ℓ=0 if P>D-0.03, D_{-0.01/-0.03} (press-in lead) is not included.

Ⓜ If L<12, tip length B is 2mm.

Ⓜ An extremely thin coating layer is also formed on the shank.

Ⓜ A(10) → If P≥2.00, A10 cannot be selected.



Order

Catalog No. — L — P — A — (RT=0
R=0)

AH—PTFPR 6 — 30.2 — P4.50 — RT0

H—PTFPA 4 — 32.0 — P3.50 — A15

HW—PTFPA 4 — 32.0 — P3.50 — A15

Ⓜ A Can be used for sharp tip angle types only.

Ⓜ RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)

Ⓜ R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)



Days to Ship

Quotation



Alterations



Catalog No. — L — P — A(AC) — (R) — (RT) — (BC·YC·GC, etc.)
H—PTFPA 3 — 28.0 — P2.48 — AC18 — BC3.0

Alterations to tip

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code						
	BC	Tip length change $2 \leq BC \leq B_{max} \leq L/2$ 0.1mm increments Full length L must be at least 8mm longer than tip length BC.	<table border="1"> <tr> <th>P</th><th>Bmax.</th></tr> <tr> <td>1.000~1.199</td><td>15</td></tr> <tr> <td>1.200~</td><td>20</td></tr> </table>	P	Bmax.	1.000~1.199	15	1.200~	20	
P	Bmax.									
1.000~1.199	15									
1.200~	20									
	RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10-P/4)}$ 0.1mm increments	—							
	YC	—	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ 0.1mm increments ⊗ Cannot be used for sharp tip angle types.							
	GC	—	Tip angle change $1.000 \leq P \leq 1.999$ ••• $5^\circ \leq GC < 10^\circ$ $2.000 \leq P \leq 5.999$ ••• $5^\circ \leq GC < 15^\circ$ ⊕ Can be used for D2.5~ D6. $YC \leq P/2 \tan GC - 0.3 \leq 18$ ⊗ Cannot be used for sharp tip angle types. ⊗ Cannot be used with HW coating.	Quotation						
	AC	—	Tip angle change $15^\circ < AC \leq 45^\circ$ 1° increments ⊗ Cannot be used for tapered tip types.							
	SC	Lapping of tip ⊕ P dimension tolerance remains the same. The base material is finished before the coating is applied. ⊗ R=0 and RT=0 cannot be selected. ⊗ Cannot be used with HW coating.								
	PKC	Tip diameter tolerance change $P +0.01 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} +0.005 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$ ⊕ P dimension can be selected in 0.001mm increments. ⊗ Cannot be used for D>13. ⊗ Cannot be used with HW coating.								



Price

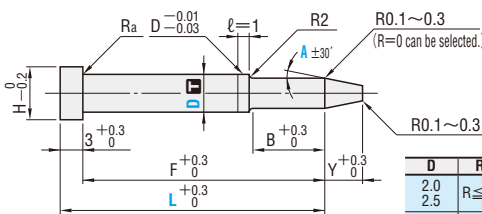
Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
	HC	Head diameter change $D \leq HC < H$ 0.1mm increments		
	TC	Head thickness change $2 \leq TC < 3$ 0.1mm increments Ⓜ The full length remains as specified.		
	KC	Addition of single key flat to head		
	WKC	Addition of double key flats in parallel		
	TKC	Head thickness tolerance change $T +0.3 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} -0.02 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$	Head thickness tolerance change $T +0.3 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} +0.02 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$ (F $+0.3 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} +0.1 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$)	Quotation
	TKM	Head thickness tolerance change $T +0.3 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} -0.02 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$	Head thickness tolerance change $T +0.3 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} -0.02 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$ (F $+0.3 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix} +0.1 \begin{smallmatrix} \rightarrow \\ 0 \end{smallmatrix}$)	
	NDC	No press-in lead $\ell = 1 \Rightarrow \ell = 0$		
	TNK	Addition of undercut (Cut of 0.2 or less)		

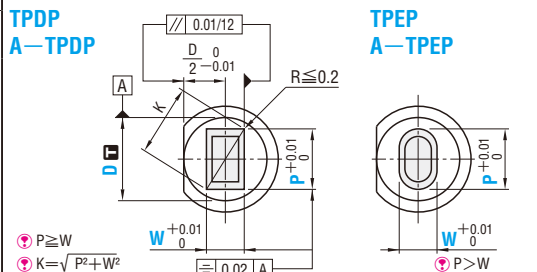
SHAPED PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

Type	Shank diameter D 	 	Catalog No.	Shape
	RoHS	D_{m5}	Equivalent to SKD11 60~63HRC	TPDP TPEP
		D $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$	Equivalent to SKD11 60~63HRC	A—TPDP A—TPEP

For shank diameter tolerance D  select either m5 or $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$.



D	Ra
2.0	R _a ≤ 0.2
2.5	R _a ≤ 0.2
3~	R _a ≤ 0.5



$\textcircled{P} P \geq W$
 $\textcircled{K} K = \sqrt{P^2 + W^2}$

Catalog No.		0.1mm increments	0.01mm increments		A	B	Y	H
Type	D	L	P·K max.	P·W min.				
TPDP TPEP	2.0	12.0 ~ 32.0	1.95	0.30	5 10 15	4	(4)	3
	2.5		2.45	0.50				3.5
A—TPDP A—TPEP	3		2.95	0.70				5
	4		3.95	1.00				7

 Y(4) ...May be 4 or less depending on P·W·A.



Order

Catalog No. — **L** — **P** — **W** — **A** — (R)

TPDP 2.0 — 15.5 — P1.40 — W1.25 — A5
A—TPDP 3 — 15.0 — P2.50 — W1.50 — A10 — R0

 Only R=0 can be selected.



Days to Ship

Quotation



Price

Quotation



Alterations



Catalog No. — L — P — W — A — (R) — (BC·YC·HC, etc.)

TPDP 2.0 — 15.5 — P1.40 — W1.25 — A5

— BC3—HC2.5

Alteration	Code	Spec.	1Code										
Alterations to tip	 BC	Tip length change $2 \leq BC \leq BC_{max}$ 0.1mm increments ⊗ Cannot be used with P0.30~0.40 ⚡ Full length L must be at least 8mm longer than tip length BC. <table><tr><th>P·W</th><th>BCmax.</th></tr><tr><td>0.50~0.99</td><td>8</td></tr><tr><td>1.00~1.19</td><td>15</td></tr><tr><td>1.20~1.99</td><td>20</td></tr><tr><td>2.00~</td><td>24</td></tr></table>	P·W	BCmax.	0.50~0.99	8	1.00~1.19	15	1.20~1.99	20	2.00~	24	
	P·W	BCmax.											
	0.50~0.99	8											
1.00~1.19	15												
1.20~1.99	20												
2.00~	24												
 YC	Tip taper length change $1 \leq YC \leq 4$ ⚡ $YC \leq \frac{W}{2 \tan A} - 0.2$ 0.1mm increments												
 PKC	Tip diameter tolerance change $P \cdot W \begin{matrix} +0.01 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.005 \\ 0 \end{matrix}$												
Alterations to full length	 LKC	Full length tolerance change $L \begin{matrix} +0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.05 \\ 0 \end{matrix}$											

Quotation

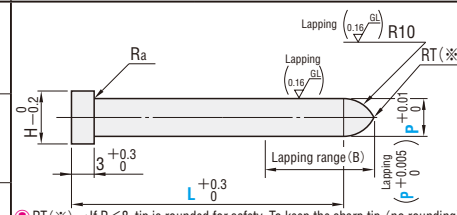
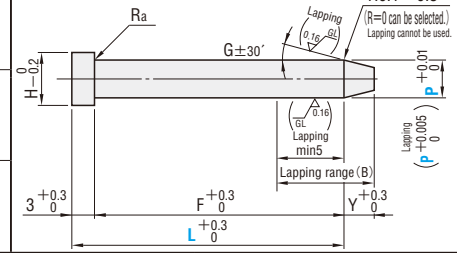
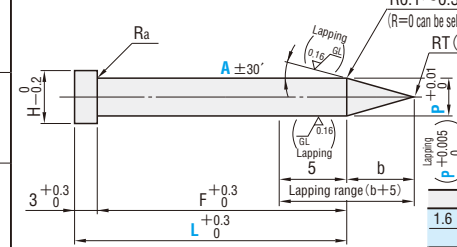
Quotation

Alteration	Code	Spec.	1Code
Alterations to head	 HC	Head diameter change $D \leq HC < H$ 0.1mm increments	
	 TC	Head thickness change $2 \leq TC < 3$ 0.1mm increments ⚡ The full length remains as specified.	
	 WKC	Addition of double key flats in parallel	
	 TKC	Head thickness tolerance change $T \begin{matrix} +0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.02 \\ 0 \end{matrix}$	
	 TKM	Head thickness tolerance change $T \begin{matrix} +0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} 0 \\ -0.02 \end{matrix}$	
Alterations to shank	 FKC	F dimension tolerance change ⚠ Cannot be combined with LKC. $F \begin{matrix} +0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.05 \\ 0 \end{matrix}$	
	 NDC	No press-in lead $\ell = 1 \Rightarrow \ell = 0$	
	 TNK	Addition of undercut (Cut of 0.2 or less)	

Quotation

PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

—STRAIGHT · NORMAL · LAPPING · TiCN COATING—

Type	M H	Catalog No.			Shape																						
		Normal	Lapping	TiCN coating Surface hardness 3000HV																							
—Tip R type—  Shape of tip changes depending on P dimension. P.194	RoHS	Equivalent to SKD11 60~63HRC	SPT	L-SPT	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>R≤0.2</td></tr><tr><td>2.0</td><td>R≤0.2</td></tr><tr><td>2.5</td><td>R≤0.2</td></tr><tr><td>3~</td><td>R≤0.5</td></tr></table> Lapping range (B) <table><tr><th>P</th><th>(B)</th></tr><tr><td>0.500~2.999</td><td>13</td></tr><tr><td>3.000~</td><td>19</td></tr></table> RT (※) → If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P≥8 for tip R type, the tip end is flat. P.1082) For the length of tip R, refer to the products data "Punch R length". P.1082	No.	Ra	1.6	R≤0.2	2.0	R≤0.2	2.5	R≤0.2	3~	R≤0.5	P	(B)	0.500~2.999	13	3.000~	19						
	No.	Ra																									
	1.6	R≤0.2																									
2.0	R≤0.2																										
2.5	R≤0.2																										
3~	R≤0.5																										
P	(B)																										
0.500~2.999	13																										
3.000~	19																										
SKH51 61~64HRC	HTFR	L-HTFR	H-HTFR																								
Powdered high-speed steel 64~67HRC	PTFR	L-PTFR	H-PTFR																								
—Tapered tip type— 	RoHS	Equivalent to SKD11 60~63HRC	TPT	L-TPT	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>R≤0.2</td></tr><tr><td>2.0</td><td>R≤0.2</td></tr><tr><td>2.5</td><td>R≤0.2</td></tr><tr><td>3~</td><td>R≤0.5</td></tr></table> Lapping range (B) <table><tr><th>P</th><th>G</th></tr><tr><td>0.500~1.999</td><td>10"</td></tr><tr><td>2.000~</td><td>15"</td></tr></table> Lapping range (B) <table><tr><th>P</th><th>(B)</th></tr><tr><td>0.500~2.999</td><td>13</td></tr><tr><td>3.000~</td><td>19</td></tr></table> R0.1~0.3 (R=0 can be selected.) Lapping cannot be used.	No.	Ra	1.6	R≤0.2	2.0	R≤0.2	2.5	R≤0.2	3~	R≤0.5	P	G	0.500~1.999	10"	2.000~	15"	P	(B)	0.500~2.999	13	3.000~	19
	No.	Ra																									
	1.6	R≤0.2																									
2.0	R≤0.2																										
2.5	R≤0.2																										
3~	R≤0.5																										
P	G																										
0.500~1.999	10"																										
2.000~	15"																										
P	(B)																										
0.500~2.999	13																										
3.000~	19																										
SKH51 61~64HRC	HTFT	L-HTFT	H-HTFT																								
Powdered high-speed steel 64~67HRC	PTFT	L-PTFT	H-PTFT																								
—Sharp tip angle type— 	RoHS	Equivalent to SKD11 60~63HRC	APT	L-APT	 <table><tr><th>No.</th><th>Ra</th></tr><tr><td>1.6</td><td>R≤0.2</td></tr><tr><td>2.0</td><td>R≤0.2</td></tr><tr><td>2.5</td><td>R≤0.2</td></tr><tr><td>3~</td><td>R≤0.5</td></tr></table> RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.	No.	Ra	1.6	R≤0.2	2.0	R≤0.2	2.5	R≤0.2	3~	R≤0.5												
	No.	Ra																									
	1.6	R≤0.2																									
2.0	R≤0.2																										
2.5	R≤0.2																										
3~	R≤0.5																										
SKH51 61~64HRC	HTFA	L-HTFA	H-HTFA																								
Powdered high-speed steel 64~67HRC	PTFA	L-PTFA	H-PTFA																								

Catalog No.			0.1mm increments		0.01mm increments (0.001mm increments for lapping)		A	Y	H	
Type		No.	L		min. P max.					
M Equivalent to SKD11 —Normal— SPT TPT APT		1.6	10.0~40.0		0.50 (1.00) ~1.60		(10)	(2)	2.6	
—Lapping— L-SPT L-TPT L-APT		2.0			1.00~ 2.00				3	
		2.5			1.50~ 2.50				3.5	
		3			2.00~ 3.00				5	
		4			3.00~ 4.00				7	
M SKH51 —Normal— HTFR HTFT HTFA		5			4.00~ 5.00		20	3	8	
—Lapping— L-HTFR L-HTFT L-HTFA		6			5.00~ 6.00		25		9	
		8			6.00~ 8.00		30		11	
M Powdered high-speed steel —Normal— PTFR PTFT PTFA		10			8.00~ 10.00		20	5	13	
—Lapping— L-PTFR L-PTFT L-PTFA		13			10.00~ 13.00				8	16
		16			13.00~ 16.00					19

* P(1.00) → For TiCN coating, Pmin. is 1.00. * Y(2) → If P ≤ 0.8, Y dimension is 0.8mm. * A(10) → If P ≥ 2.00, A10 cannot be selected.



Order

Catalog No.	L	P	A	RT=0 R=0
PTFR 6	18.2	P5.80		RT0
APT 3	32.0	P3.00	A15	
TPT 6	18.3	P5.73		

* A Can be used for sharp tip angle types only.

* RT=0 only can be selected. (Can be used for tip R types with P < 8 and sharp tip angle types. However lapping cannot be used.)

* R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types. However lapping cannot be used.)



Days to Ship

Quotation



Alterations



Catalog No. — **L** — **P** — **A(AC)** — $\left(\frac{RT=0}{R=0}\right)$ — (YC·GC·HC, etc.)
APT 6 — 20.0 — P5.02 — AC18

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		RLC	Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10-P/4)}$ 0.1mm increments	—
		YC	Tip taper length change • $P < 2.0$ $1 \leq YC \leq P \times 2.83 - 0.3$ • $P \geq 2.0$ $1 \leq YC \leq P \times 1.86 - 0.3 \leq 18$ 0.1mm increments ✗ Cannot be used for sharp tip angle types.	—
		GC	Tip angle change $1.000 \leq P \leq 1.999$...• $5^\circ \leq GC < 10^\circ$ $2.000 \leq P \leq 5.999$...• $5^\circ \leq GC < 15^\circ$ ✗ Can be used with P1.000~5.999. ✗ Can be used for No.2.5~No.6. $YC \leq P/2$ and $GC - 0.3 \leq 1$ ✗ Cannot be used for sharp tip angle types.	Quotation
		AC	Tip angle change $15^\circ < AC \leq 45^\circ$ 1° increments ✗ Cannot be used for tapered tip types.	—
		SC	Lapping of tip ✗ Can be used with TiCN coating only. ✗ P dimension tolerance remains the same. The base material is finished before the coating is applied. ✗ R=0 and RT=0 cannot be selected.	—

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head		PKC	Tip diameter tolerance change $P + 0.01 \begin{smallmatrix} \Rightarrow \\ 0 \end{smallmatrix} + 0.005$ ✗ P dimension can be selected in 0.001mm increments ✗ Lapping cannot be used. ✗ TiCN coating cannot be used for $P > 13$.	—
		LKC	Full length tolerance change $L + 0.3 \begin{smallmatrix} \Rightarrow \\ 0 \end{smallmatrix} + 0.05$	—
		HC	Head diameter change $P \leq HC < H$ 0.1mm increments ✗ With TiCN coating, $2.6 \leq P \leq HC < H$	—
		TC	Head thickness change $2 \leq TC < 3$ 0.1mm increments (If combined with TKC/TKM, 0.01mm increments can be selected.) ✗ The full length remains as specified. ✗ Cannot be used with TiCN coating.	—
		KC	Addition of single key flat to head	Quotation
		WKC	Addition of double key flats in parallel	
		TKC	Head thickness tolerance change $T + 0.3 \begin{smallmatrix} \Rightarrow \\ 0 \end{smallmatrix} + 0.02$ Head thickness tolerance change $\begin{pmatrix} T + 0.3 \Rightarrow +0.1 \\ 0 \end{pmatrix}$	
		TKM	Head thickness tolerance change $T + 0.3 \begin{smallmatrix} \Rightarrow \\ 0 \end{smallmatrix} - 0.02$ Head thickness tolerance change $\begin{pmatrix} T + 0.3 \Rightarrow +0.1 \\ 0 \end{pmatrix}$	
Shank		TNK	Addition of undercut (Cut of 0.2 or less) ✗ Can be used for $P \geq 1.00$.	—
		FKC	F dimension tolerance change $F + 0.3 \begin{smallmatrix} \Rightarrow \\ 0 \end{smallmatrix} + 0.05$ ✗ Cannot be combined with LKC.	—



Price

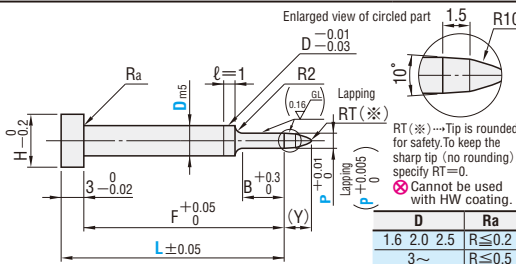
Quotation

PILOT PUNCHES — FOR FIXING TO STRIPPER PLATE —

— TIP R AND TAPER COMBINED TYPE · MINUS HEAD TOLERANCE · NORMAL LAPPING TiCN COATING · HW COATING —

PRODUCTS DATA

P.1094-1095

Type		Catalog No.				Shape						
		Normal	Lapping	TiCN coating Surface hardness 3000HV	HW coating Surface hardness 3000HV							
 	Equivalent to SKD11 60~63HRC	SPTPF	L-SPTPF	—	—	 <table><tr><th>D</th><th>Ra</th></tr><tr><td>1.6 2.0 2.5</td><td>R≤0.2</td></tr><tr><td>3~</td><td>R≤0.5</td></tr></table>	D	Ra	1.6 2.0 2.5	R≤0.2	3~	R≤0.5
D	Ra											
1.6 2.0 2.5	R≤0.2											
3~	R≤0.5											
SKH51 61~64HRC	HTFPRF	L-HTFPRF	H-HTFPRF	HW-HTFPRF								
Powdered high-speed steel 64~67HRC	PTFPRF	L-PTFPRF	H-PTFPRF	HW-PTFPRF								

Catalog No.		0.1mm increments		0.01mm increments (0.001mm increments for lapping)		B	H
Type		D	L	min. P max.			
Normal	Lapping	TiCN coating	HW coating				
M Equivalent to SKD11	SPTPF	L-SPTPF					2.6
M SKH51	HTFPRF	L-HTFPRF	H-HTFPRF	HW-HTFPRF			3.0
M Powdered high-speed steel	PTFPRF	L-PTFPRF	H-PTFPRF	HW-PTFPRF			3.5
							5
							7
							8
							9
							11

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

⚡ B(4)→If L<12, tip length B is 2mm.

⚡ The coating process also forms an extremely thin coating layer on the shank.

⚡ (Y)→Tip Y length=0.6+√(P-0.2) (40.2-P)/4



Order

Catalog No.	L	P	(RT=0)
SPTPF 2.0	28.0	P1.90	RT0
HTFPRF 2.5	35.0	P2.20	

⚡ RT=0 only can be selected. (However, lapping and HW coating cannot be used).



■ Features ● These pilot punches for fixing to stripper plates were developed for use with press dies that are used with thin workpieces.
● The under-head dimension F is highly accurate and the tip is smoothly rounded.



Alterations

Catalog No.	L	P	(RT=0)	(BC, etc.)
SPTPF 3	28.0	P2.48		TC2.5



Days to Ship

Quotation

Alteration	Code	Spec.	1Code
Alterations to tip	PC	Tip diameter change PC≥Pmin./2≥1.00 0.01mm increments (With lapping, 0.001mm increments) (If combined with PKC, 0.001mm increments can be selected.)	
	BC	Tip length change 2≤BC≤Bmax. 0.1mm increments ⚡ Full length L must be at least 8mm longer than tip length BC.	
	RLC	Tip R is cut flat. 3≤RLC<Ymax. 0.1mm increments ⚡ RT=0 cannot be selected.	
	SC	Lapping of tip ⚡ Can be used with TiCN coating only. ⚡ P dimension increment remains the same. The base material is finished before the coating is applied. ⚡ RT=0 cannot be selected. ⚡ Cannot be used with HW coating.	
	PKC	Tip diameter tolerance change P+0.01→+0.005 0 ⚡ Cannot be used with lapping HW coating. ⚡ P dimension can be selected in 0.001mm increments.	

Quotation

Alteration	Code	Spec.	1Code
Full length	LKC	Full length tolerance change L±0.05→+0.05 0 ⚡ F dimension tolerance F+0.05→±0.05	
	HC	Head diameter change D+0.1≤HC<H 0.1mm increments	
Alterations to head	TC	Head thickness change 2≤TC<3 0.1mm increments ⚡ The full length remains as specified.	
	KC	Addition of single key flat to head	
	WKC	Addition of double key flats in parallel	
	TNK	Addition of undercut (Cut of 0.2 or less)	
Others	NDC	No press-in lead ℓ=1→ℓ=0	

Quotation



Price

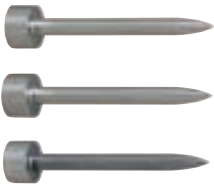
Quotation

STRAIGHT PILOT PUNCHES — FOR FIXING TO STRIPPER PLATE —

— TIP R AND TAPER COMBINED TYPE, MINUS HEAD TOLERANCE · NORMAL LAPPING TiCN COATING —

PRODUCTS DATA

P.1094

Type	M H	Catalog No.			Shape
		Normal	Lapping	TiCN coating Surface hardness 300HV	
	RoHS	Equivalent to SKD11 60~63HRC	SPTF	L-SPTF	—
	SKH51	61~64HRC	HTFRF	L-HTFRF	H-HTFRF
	Powdered high-speed steel	64~67HRC	PTFRF	L-PTFRF	H-PTFRF

— Straight type —

Enlarged view of circled part

RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.

No.	Ra
1.6 2.0 2.5	R≤0.2
3~	R≤0.5

Catalog No.		No.	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	H
Type					
Normal	Lapping				
SPTF	L-SPTF	1.6		1.00~1.60	2.6
HTFRF	L-HTFRF	2.0		1.00~2.00	3.0
PTFRF	L-PTFRF	2.5		1.50~2.50	3.5
		3		2.00~3.00	5
		4		3.00~4.00	7
		5		4.00~5.00	8
		6		5.00~6.00	9
		8		6.00~8.00	11

(Y) → Tip Y length = $0.6 + \sqrt{(P-0.2)(40.2-P)/4}$



Order

Catalog No. — L — P — (RT=0)

SPTF 2.0 — 28.0 — P1.90 — RT0

PTFRF 2.5 — 35.0 — P2.20

⚠ RT=0 only can be selected. (However, lapping cannot be used.)

■ Features ● These pilot punches for fixing to stripper plates were developed for use with press dies that are used with thin workpieces.
● The under-head dimension F is highly accurate and the tip is smoothly rounded.



Days to Ship

Quotation

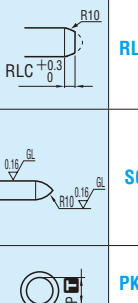


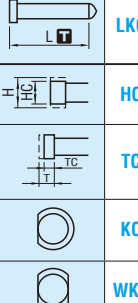
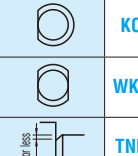
Alterations

Catalog No. — L — P — (RT=0) — (RLC·HC·TC, etc.)

SPTF 3 — 28.0 — P2.48

— TC2.5

Alteration	Code	Spec.	1Code
	RLC	Tip R is cut flat. $3 \leq RLC < Y_{max}$. 0.1mm increments ⊗ RT=0 cannot be selected.	
	SC	Lapping of tip ⚠ Can be used with TiCN coating only. ⚠ P dimension increment remains the same. The base material is finished before the coating is applied. ⊗ RT=0 cannot be selected.	
	PKC	Tip diameter tolerance change $P +0.01/-0 \Rightarrow +0.005/0$ ⊗ Cannot be used with lapping. ⚠ P dimension can be selected in 0.001mm increments.	

Alteration	Code	Spec.	1Code
	LKC	Full length tolerance change $L \pm 0.05 \Rightarrow +0.05/0$ ⚠ F dimension tolerance $F +0.05/-0 \Rightarrow \pm 0.05$	
	HC	Head diameter change $2.6 \leq P + 0.1 \leq HC < H$ 0.1mm increments	
	TC	Head thickness change $2 \leq TC < 3$ 0.1mm increments ⚠ The full length remains as specified. ⊗ Cannot be used with TiCN coating.	
	KC	Addition of single key flat to head	
	WKC	Addition of double key flats in parallel	
	TNK	Addition of undercut (Cut of 0.2 or less)	



Price

Quotation

PILOT PUNCHES, MOVABLE TYPE

— HEADED TYPE, NORMAL · LAPPING —

Type	Shank diameter D _g tolerance	M	Catalog No.		Shape
			Normal	Lapping	
— Sharp tip angle type — RoHS	D _{g6}	Equivalent to SKD11 60~63HRC	UPTH	L-UPTH	
		SKH51 61~64HRC	HUPTH	L-HUPTH	
		Powdered high-speed steel 64~67HRC	PUPTH	L-PUPTH	
— Tip R and taper combined type — RoHS	D _{g6}	Equivalent to SKD11 60~63HRC	UPTHF	L-UPTHF	
		SKH51 61~64HRC	HUPTHF	L-HUPTHF	
		Powdered high-speed steel 64~67HRC	PUPTHF	L-PUPTHF	

H	Catalog No.		L				0.01mm increments 0.001mm increments for lapping	0.1mm increments
	Type	D	L is the dimension under the head.				min. P max.	B
6	— Normal — UPTH UPTHF	3	42	52	62	72	1.00~2.50	2.0~25.0
	— Lapping — L-UPTH L-UPTHF	4	42	52	62	72	1.50~3.50	
8	HUPTH HUPTHF	5	42	52	62	72	2.00~4.50	
	L-HUPTH L-HUPTHF	6	42	52	62	72	2.50~5.50	
10	PUPTH PUPTHF	8	42	52	62	72	3.00~7.50	

⚡ (Y) → Tip Y length = $0.6 + \sqrt{(P-0.2)(40.2-P)/4}$



Order

Catalog No. — L — P — B — (RT=0)

UPTH 4 — 52 — P2.55 — B2.5
L-HUPTHF 6 — 62 — P3.00 — B8.0 — RT0

⚡ (RT=0) only can be selected. ⚡ Can be used for tip R and taper combined types. However lapping cannot be used.)



Days to Ship

Quotation



Price

Quotation



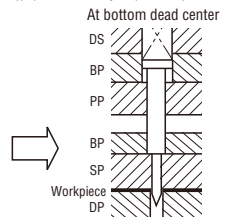
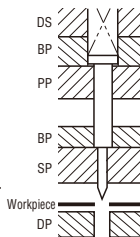
Alterations

Catalog No. — L (LC) — P (PC) — B — (RT=0) — (GC·PKC, etc.)

UPTH 8 — LC70 — P5.882 — B20 — GC30 — PKC



- Features
- A large spring is used, providing a large load and allowing these punches to be used for high-speed operations.
- Because they include heads, the punches will not fall out even if the stripper plate is removed during trial operation or adjustment.



Alteration	Code	Spec.	1Code
	PC	Tip diameter change Sharp tip angle type PC ≥ Pmin./2 ≥ 0.5 Tip R and taper combined type PC ≥ Pmin./2 ≥ 1.0 0.01mm increments (With lapping, 0.001mm increments) (If combined with PKC, 0.001mm increments can be selected.) ⚡ If PC0.5~0.99, Bmax. is 8mm.	
	GC	Tip angle change 15° < GC ≤ 45° 1° increments ⚡ Cannot be used for tip R and taper combined types.	
	RC	Rounding to tip Tip is rounded to R10. ⚡ Cannot be used for tip R and taper combined types.	
	RLC	Tip R is cut flat. 3 ≤ RLC < Ymax. 0.1mm increments ⚡ RT=0 cannot be selected. ⚡ Cannot be used for sharp tip angle types. ⚡ P < 1 cannot be selected.	

Alteration	Code	Spec.	1Code
	PKC	Tip diameter tolerance change P +0.01 → +0.005 ⚡ P dimension can be selected in 0.001mm increments. ⚡ Cannot be used with lapping	
	BKC	Tip length tolerance change B +0.3 → +0.05	
	LC	Full length change B + 15 ≤ LC < L 0.1mm increments	
	HC	Head diameter change D ≤ HC < H 0.1mm increments	
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments	

PILOT PUNCHES, MOVABLE TYPE

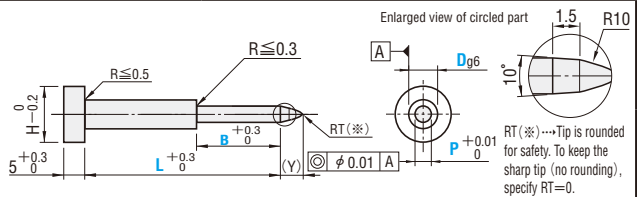
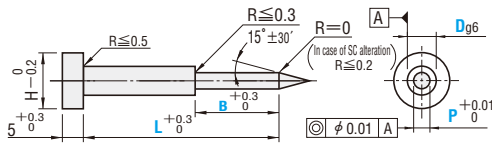
—Headed type, TiCN coating—

PRODUCTS DATA

P.1094

Type	Shank diameter D _{g6} tolerance		Catalog No.	Shape
—Sharp tip angle type— RoHS	D _{g6}		SKH51 61~64HRC Surface hardness 3000HV	H—HUPTH
			Powdered high-speed steel 64~67HRC Surface hardness 3000 HV	
				H—PUPTH
—Tip R and taper combined type— RoHS	D _{g6}		SKH51 61~64HRC Surface hardness 3000HV	H—HUPTHF
			Powdered high-speed steel 64~67HRC Surface hardness 3000 HV	
				H—PUPTHF

Add alterations to tip according to specifications.



H	Catalog No.		L		0.01mm increments	0.1mm increments	Base unit price 1~9 pieces						
	Type	D	🔗 L is the dimension under the head.		min. P max.	B	H—HUPTH	H—PUPTH	H—HUPTHF	H—PUPTHF			
6	H—HUPTH H—HUPTHF H—PUPTH H—PUPTHF	3	42	52	62	72	1.00~2.50	2.0~25.0 and B≤L/2					
		4	42	52	62	72	1.50~3.50						
8		5	42	52	62	72	2.00~4.50						
		6	42	52	62	72	2.50~5.50						
10		8	42	52	62	72	82	3.00~7.50					

Quotation

With TiCN coating, an extremely thin coating layer is also formed on the shank. (Y) → Tip Y length = 0.6 + √(P-0.2) (40.2-P)/4

Order Catalog No. — L — P — B — (RT=0)
H—PUPTH 4 — 52 — P2.55 — B2.5
H—HUPTHF 6 — 62 — P3.00 — B8.0 — RT0

RT=0 only can be selected. (Can be used for tip R and taper combined types. However alteration SC cannot be used.)



Example

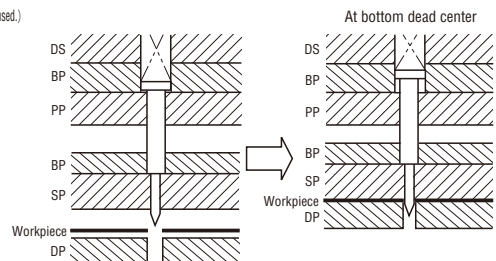
Features

- A large spring is used, providing a large load and allowing these punches to be used for high-speed operations.
- Because they include heads, the punches will not fall out even if the stripper plate is removed during trial operation or adjustment.

Days to Ship **Quotation**

Price **Quotation**

Alterations Catalog No. — L (LC) — P (PC) — B — (RT=0) — (GC·PKC, etc.)
H—HUPTH 8 — LC70 — P5.88 — B20 — GC30 — PKC



Alteration	Code	Spec.	1Code
	PC	Tip diameter change PC ≥ Pmin./2 ≥ 1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	
	GC	Tip angle change 15° < GC ≤ 45° 1° increments ✗ Cannot be used for tip R and taper combined types.	
	RC	Rounding to tip Tip is rounded to R10. ✗ Cannot be used for tip R and taper combined types.	
	RLC	Tip R is cut flat. 3 ≤ RLC ≤ Ymax. 0.1mm increments ✗ RT=0 cannot be selected. ✗ Cannot be used for sharp tip angle types.	
	BKC	Tip length tolerance change B +0.3/0 → +0.05/0 P dimension can be selected in 0.01mm increments. ✗ Cannot be combined with RC.	

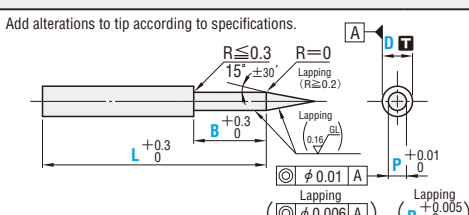
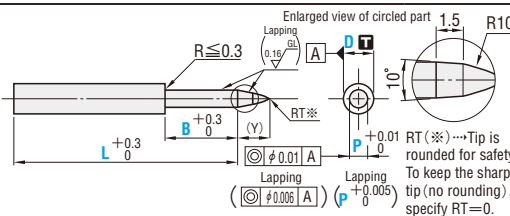
Quotation

Alteration	Code	Spec.	1Code
	SC	Lapping of tip P dimension tolerance remains the same. The base material is finished before the coating is applied. ✗ RT=0 cannot be selected.	
	PKC	Tip diameter tolerance change P +0.01/0 → +0.005/0 P dimension can be selected in 0.001mm increments.	
	LC	Full length change B +15 ≤ LC < L 0.1mm increments	
	HC	Head diameter change D ≤ HC < H 0.1mm increments	
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments	

Quotation

MOVABLE PILOT PUNCHES

—NORMAL • LAPPING—

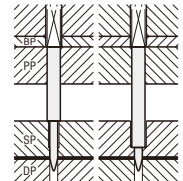
Type	Shank diameter D Tolerance	M H	Catalog No.		Shape
—Sharp tip angle type— RoHS	D _{g6}		Normal	Lapping	Add alterations to tip according to specifications. 
			Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	UPT (D3~8) HUPT PUPT	L-UPT (D3~8) L-HUPT L-PUPT
			Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A-UPT (D3~8) A-HUPT A-PUPT	AL-UPT (D3~8) AL-HUPT AL-PUPT
			Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A-UPTF (D3~8) A-HUPTF A-PUPTF	AL-UPTF (D3~8) AL-HUPTF AL-PUPTF
—Tip R and taper combined types— RoHS	D _{g6}		Normal	Lapping	Enlarged view of circled part 1.5 R10 
			Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	UPTF (D3~8) HUPTF PUPTF	L-UPTF (D3~8) L-HUPTF L-PUPTF
			Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A-UPTF (D3~8) A-HUPTF A-PUPTF	AL-UPTF (D3~8) AL-HUPTF AL-PUPTF
			Equivalent to SKD11 60~63HRC SKH51 61~64HRC Powdered high-speed steel 64~67HRC	A-UPTF (D3~8) A-HUPTF A-PUPTF	AL-UPTF (D3~8) AL-HUPTF AL-PUPTF

Catalog No.		D	L				0.01mm increments (0.001mm increments for lapping)	0.1mm increments
Type	Type		min. P max.				B	B
—Normal—	—Lapping—		2.0	32	42		0.50 (1.00) ~1.50	
(D _{g6}) (D _{-0.005/-0.010}) (D _{g6}) (D _{-0.005/-0.010})		2.5	32	42			1.00~2.00	
UPT A-UPT L-UPT AL-UPT		3		42	52	62	72	1.00~2.50
UPTF A-UPTF L-UPTF AL-UPTF		4		42	52	62	72	1.50~3.50
HUPT A-HUPT L-HUPT AL-HUPT		5		42	52	62	72	2.00~4.50
HUPTF A-HUPTF L-HUPTF AL-HUPTF		6		42	52	62	72	2.50~5.50
PUPT A-PUPT L-PUPT AL-PUPT		8		42	52	62	72	3.00~7.50
PUPTF A-PUPTF L-PUPTF AL-PUPTF								

(Y) B (23) → If P < 1.0, then B ≤ 8. (Y) P (1.00) → For tip R and taper combined types, Pmin. is 1.00.
 (Y) (Y) → Tip Y length = 0.6 + √(P - 0.2) (40.2 - P) / 4



Example



Order

Catalog No. — L — P — B — (RT=0)
UPTF 8 — 72 — P5.88 — B20.0 — RT0

(Y) RT=0 only can be selected. (Y) Can be used for tip R and taper combined types. However lapping cannot be used.



Days to Ship

Quotation



Price

Quotation



Alterations

Catalog No. — L (LC) — P (PC) — B — (RT=0) — (GC • RC • PKC • BKC)
UPT 8 — LC70 — P5.88 — B20.0 — GC30 — PKC

Alteration	Code	Spec.	1Code
  	PC	Tip diameter change Sharp tip angle type PC ≥ Pmin./2 ≥ 0.5 Tip R and taper combined types PC ≥ Pmin./2 ≥ 1.0 0.01mm increments (With lapping, 0.001mm increments) (If combined with PKC, 0.001mm increments can be selected.) (Y) If PC 0.5~0.99, Bmax. is 8mm.	Quotation
	GC	Tip angle change 15° < GC ≤ 45° 1° increments (Y) Cannot be used for tip R and taper combined types.	
	RC	Rounding to tip Tip is rounded to R10. (Y) Cannot be used for tip R and taper combined types.	

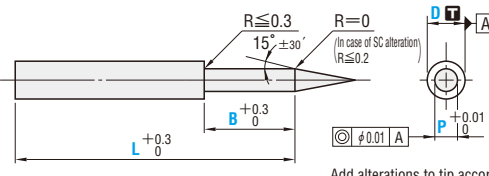
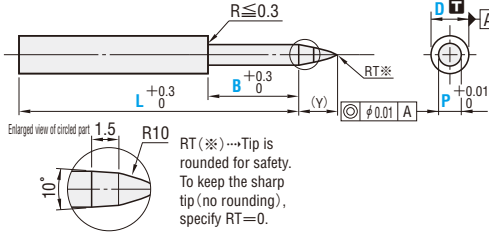
Alteration	Code	Spec.	1Code
  	RLC	Tip R is cut flat. 3 ≤ RLC < Ymax. 0.1mm increments (Y) RT=0 cannot be selected. (Y) Cannot be used for sharp tip angle types. (Y) P < 1 cannot be selected.	Quotation
	PKC	Tip diameter tolerance change P +0.01/-0.005 (Y) P dimension can be selected in 0.001mm increments. (Y) Cannot be used with lapping.	
	BKC	Tip length tolerance change B +0.3/-0.05 (Y) B dimension can be selected in 0.01mm increments. (Y) Cannot be combined with RC.	
Length	LC	Full length change B+9 ≤ LC < L 0.1mm increments	

MOVABLE PILOT PUNCHES

—TiCN COATING—

PRODUCTS DATA

P.1094

Type	Shank diameter D Tolerance		Catalog No.	Shape
—Sharp tip angle type— 	D _{g6}	SKH51 61~64HRC Surface hardness 3000HV	H—HUPT	 $R \leq 0.3$ $15^\circ \pm 30^\circ$ $R=0$ (In case of SC alteration) $R \leq 0.2$ $L +0.3/0$ $B +0.3/0$ $P +0.01/0$ $\phi 0.01$ A Add alterations to tip according to specifications.
		Powdered high-speed steel 64~67HRC Surface hardness 3000HV	H—PUPT	
	D $\begin{smallmatrix} -0.005 \\ -0.010 \end{smallmatrix}$	SKH51 61~64HRC Surface hardness 3000HV	AH—HUPT	
		Powdered high-speed steel 64~67HRC Surface hardness 3000HV	AH—PUPT	
—Tip R and taper combined types— 	D _{g6}	SKH51 61~64HRC Surface hardness 3000HV	H—HUPTF	 $R \leq 0.3$ $L +0.3/0$ $B +0.3/0$ $P +0.01/0$ $\phi 0.01$ A Enlarged view of circled part: 1.5 $R10$ 10° RT (※) → Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
		Powdered high-speed steel 64~67HRC Surface hardness 3000HV	H—PUPTF	
	D $\begin{smallmatrix} -0.005 \\ -0.010 \end{smallmatrix}$	SKH51 61~64HRC Surface hardness 3000HV	AH—HUPTF	
		Powdered high-speed steel 64~67HRC Surface hardness 3000HV	AH—PUPTF	

Catalog No.		L					0.01mm increments	0.1mm increments
Type	D						min. P max.	B
M SKH51	H—HUPT	2.0	32	42			1.00 ~ 1.50	2.0 ~ 23.0 (B ≤ L/2)
	H—HUPTF	2.5	32	42			1.00 ~ 2.00	
	AH—HUPT	3		42	52	62	1.00 ~ 2.50	
	AH—HUPTF	4		42	52	62	1.50 ~ 3.50	
M Powdered high-speed steel	H—PUPT	5		42	52	62	2.00 ~ 4.50	
	H—PUPTF	6		42	52	62	2.50 ~ 5.50	
	AH—PUPT	8		42	52	62	3.00 ~ 7.50	
	AH—PUPTF			42	52	62		

With TiCN coating, an extremely thin coating layer is also formed on the shank. (Y) → Tip Y length = $0.6 + \sqrt{(P-0.2)(40.2-P)/4}$



Order

Catalog No. — L — P — B — (RT=0)

H—PUPT 8 — 72 — P5.88 — B20.0

H—HUPTF 6 — 62 — P4.50 — B8.0 — RT0

※ RT=0 only can be selected. (Can be used for tip R and taper combined types. However alteration SC cannot be used.)



Days to Ship

Quotation



Price

Quotation



Alterations

Catalog No. — L(LC) — P(PC) — B — (RT=0) — (GC·RC·SC, etc.)

H—PUPT 8 — LC70 — P5.88 — B20.0

— BKC

Alteration	Code	Spec.	1Code														
Alterations to tip		PC Tip diameter change $PC \geq P_{min.}/2 \geq 1.00$ 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	 Quotation														
		GC Tip angle change $15^\circ < GC \leq 45^\circ \quad 1^\circ$ ⊗ Cannot be used for tip R·taper combined types.															
		RC Rounding to tip Tip is rounded to R10. ⊗ Cannot be used for tip R and taper combined types.															
		RLC Tip R is cut flat. $3 \leq RLC < Y_{max}$ 0.1mm increments ⊗ RT=0 cannot be selected. ⊗ Cannot be used for sharp tip angle types.															
		<table><tr><th>P(PC)</th><th>Ymax.</th></tr><tr><td>1.000~1.499</td><td>3</td></tr><tr><td>1.500~2.499</td><td>4</td></tr><tr><td>2.500~3.499</td><td>5</td></tr><tr><td>3.500~4.999</td><td>6</td></tr><tr><td>5.000~6.999</td><td>7</td></tr><tr><td>7.000~7.500</td><td>8</td></tr></table>	P(PC)	Ymax.	1.000~1.499	3	1.500~2.499	4	2.500~3.499	5	3.500~4.999	6	5.000~6.999	7	7.000~7.500	8	
P(PC)	Ymax.																
1.000~1.499	3																
1.500~2.499	4																
2.500~3.499	5																
3.500~4.999	6																
5.000~6.999	7																
7.000~7.500	8																

Alteration	Code	Spec.	1Code
	SC	Lapping of tip ※ P dimension tolerance remains the same. The base material is finished before the coating is applied. ※ RT=0 cannot be selected.	
	BKC	Tip length tolerance change $B +0.3/0 \Rightarrow +0.05/0$ ※ B dimension can be selected in 0.01mm increments. ※ Cannot be combined with RC.	
	PKC	Tip diameter tolerance change $P +0.01/0 \Rightarrow +0.005/0$ ※ P dimension can be selected in 0.001mm increments.	
	LC	Full length change $B+9 \leq LC < L$ 0.1mm increments	

PILOT PUNCHES

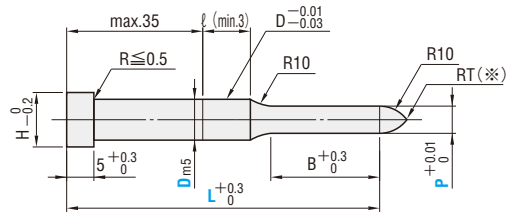
— FIXED TIP DIAMETER —

RoHS

STAZ



Shape of tip changes depending on P dimension. **P.194**



⚠ RT(※)→If P<8, tip is rounded for safety. To keep the sharp tip(no rounding), specify RT=0. (If P≥8, tip end is flat. **P.1082**)

⚠ For the length of tip R, refer to the products data "Punch R length". **P.1082**

M Equivalent to SKD11

H 60~63HRC

Catalog No.		L	P	B	H	Base unit price 1~9 pieces
Type	D					
STAZ	3	(42) 52 62 72	1.5 2.0 2.5	15	5	Quotation
	4		2.0 2.5 3.0 3.5		7	
	5		3.0 3.5 4.0 4.5		8	
	6		4.0 4.5 5.0 5.5		9	
	8	52 62 72 82	6.0 7.0	21	11	
	10		8.0 9.0		13	

⚠ L(42)→B=10 If full length is (42), tip length B is 10mm.



Order

Catalog No. — L — P — (RT=0)

STAZ 6 — 62 — P4.5 — RT0

STAZ10 — 72 — P8.0

⚠ [RT=0] only can be selected. (Can be used with P<8.)



Days to Ship

Quotation



Price

Quotation



Alterations

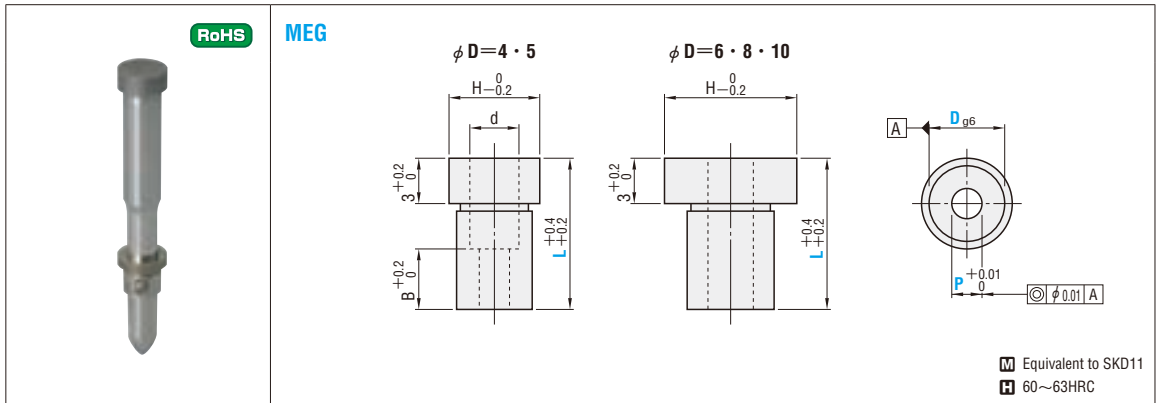


Catalog No. — L — P — (HC·TC, etc.)

STAZ 6 — 62 — P4.5 — TC4.0

Alteration	Code	Spec.	1Code
Alterations to tip		Tip R is cut flat. $2 \leq RLC < Y < 8$ $Y = \sqrt{P(10 - P/4)}$ 0.1mm increments	Quotation
	RLC		
Alterations to head		Head diameter change $D \leq HC < H$ 0.1mm increments	
	HC		
		Head thickness change $2 \leq TC < 5$ 0.1mm increments ⚠ Full length L is shortened by (5 - TC).	
	TC		
Alterations to head		Addition of single key flat to head	
	KC		
Alterations to head		Addition of double key flats in parallel	
	WKC		
Shank		No press-in lead $\ell \geq 3 \Rightarrow \ell = 0$	
	NDC		

PILOT EJECTOR BUSHINGS



Catalog No.		L	0.01mm increments	B	d	H	Base unit price
Type	D		min. P max.				1~9 pieces
MEG	4	10	1.00 ~ 2.00	2	2.4	5	Quotation
	5		1.00 ~ 3.00	4	3.2	6	
	6		2.50 ~ 4.00	10	—	9	
	8		3.00 ~ 6.00			11	
	10		5.00 ~ 8.00			13	



Order

Catalog No. — L — P
 MEG 5 — 10 — P2.00



Days to Ship

Quotation



Price

Quotation

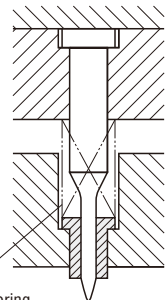


Alterations

Catalog No. — L — P — (HC・PKC・PC)
 MEG 5 — 10 — P2.00 — PKC



Example



- When punching a thin material with progressive dies, the pilot ejector bushing prevents the material from biting into the pilot punch.
- Round wire coil spring
P.965

Alteration	Code	Spec.	1Code
Alterations to guide	PKC	Tip diameter tolerance change $P +0.01 \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$	Quotation
	PC	Guide diameter change $2.5 \leq PC < P$ 0.01mm increments ⊗ Cannot be used for D4~6.	
Alterations to head	HC	Head diameter change $D \leq HC < H$ 0.1mm increments	