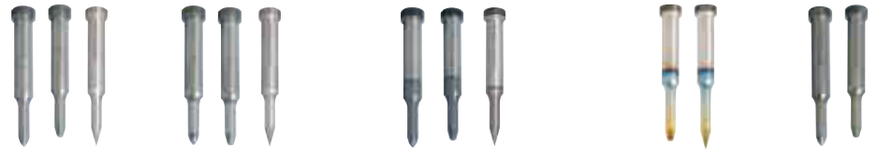
PILOT PUNCHES



PILOT PUNCHES

Product name / Catalog No.	PILOT PUNCHES	PILOT PUNCHES —Lapping—	PILOT PUNCHES —TiCN coating・HW coating—	PILOT PUNCHES —DLC coating—	PILOT PUNCHES —Dicoat® treatment—
Page	251	253	255	257	259

PILOT PUNCHES WITH LOCATING DOWEL HOLES —Normal・TiCN coating・HW coating・Dicoat® treatment・DLC coating—					PILOT PUNCHES —Configurable type— —Normal・Dicoat® treatment—		FLANGE STOPPER PILOT PUNCHES —Normal・TiCN coating・HW coating・DLC coating—				TAPPED PILOT PUNCHES —Normal・TiCN coating・HW coating・DLC coating—			
261	261	261	261	263	265	265	267	267	267	267	269	271	271	271

PILOT PUNCHES WITH KEY GROOVES —Normal・TiCN coating・HW coating・DLC coating—				STRAIGHT PILOT PUNCHES	STRAIGHT PILOT PUNCHES —Lapping—	STRAIGHT PILOT PUNCHES —TiCN coating・DLC coating—	
273	275	275	275	277	279	281	283

TAPPED STRAIGHT PILOT PUNCHES —Normal・TiCN coating・DLC coating—			STRAIGHT PILOT PUNCHES WITH KEY GROOVES —Normal・TiCN coating・DLC coating—			PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Normal—	PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Lapping—		PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —TiCN coating・HW coating・DLC coating—	
285	285	285	287	287	287	289	289	291	291	293

SHAPED PILOT PUNCHES FOR FIXING TO STRIPPER PLATES	PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Straight type— —Normal—		PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Lapping・TiCN coating・DLC coating—		PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Tip R and taper combined type, minus head tolerance— —Normal・Lapping・TiCN Coating・HW coating・DLC coating—				
295	297	297	297	299	301	301	303	303	303

STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —Tip R and taper combined type, minus head tolerance— —Normal・Lapping・TiCN Coating・DLC coating—				PILOT PUNCHES, MOVABLE TYPE —Headed type— —Normal・Lapping・TiCN Coating・HW coating・DLC coating—			PILOT PUNCHES, MOVABLE TYPE —Normal・Lapping・TiCN Coating・HW coating・DLC coating—					PILOT PUNCHES —Fixed tip diameter type—	PILOT EJECTOR BUSHINGS MEG
305	305	307	307	309	309	311	311	311	313	313	315	315	315	317	318

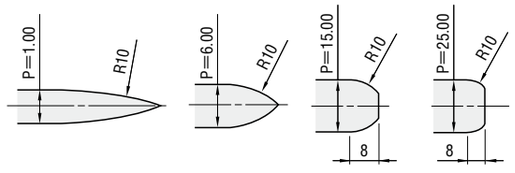
PILOT PUNCH LIST

Shank type	Tip shape	R	Shank diameter tolerance	Standard (Normal)		Lapping		TiCN coating		HW coating		Dicoat® treatment		DLC coating		DLC coating DLC faundation WPC®	
Standard	R	Equivalent to SKD11	D_{m5}	STA□	P.251	L—STA□	P.253		P.255	HW—HSTA□	P.255	T—STA□	P.259		P.257		P.257
			$D^{+0.005}_{0}$	A—STA□		AL—STA□						AT—STA□					
		Equivalent to SKH51	D_{m5}	HSTA□		L—HSTA□		H—HSTA□		HW—HSTA□				N—HSTA□		NW—HSTA□	
			$D^{+0.005}_{0}$	A—HSTA□		AL—HSTA□		AH—HSTA□		AHW—HSTA□				AN—HSTA□		ANW—HSTA□	
		Powdered high-speed steel	D_{m5}	PSTA□		L—PSTA□		H—PSTA□		HW—PSTA□		T—PSTA□		N—PSTA□		NW—PSTA□	
			$D^{+0.005}_{0}$	A—PSTA□		AL—PSTA□		AH—PSTA□		AHW—PSTA□		AT—PSTA□		AN—PSTA□		ANW—PSTA□	
	Taper	Equivalent to SKD11	D_{m5}	TPA□	P.251	L—TPA□	P.253		P.255	HW—HTPA□	P.255	T—TPA□	P.259		P.257		P.257
			$D^{+0.005}_{0}$	A—TPA□		AL—TPA□						AT—TPA□					
		Equivalent to SKH51	D_{m5}	HTPA□		L—HTPA□		H—HTPA□		HW—HTPA□				N—HTPA□		NW—HTPA□	
			$D^{+0.005}_{0}$	A—HTPA□		AL—HTPA□		AH—HTPA□		AHW—HTPA□				AN—HTPA□		ANW—HTPA□	
		Powdered high-speed steel	D_{m5}	PTPA□		L—PTPA□		H—PTPA□		HW—PTPA□		T—PTPA□		N—PTPA□		NW—PTPA□	
			$D^{+0.005}_{0}$	A—PTPA□		AL—PTPA□		AH—PTPA□		AHW—PTPA□		AT—PTPA□		AN—PTPA□		ANW—PTPA□	
	Sharp angle	Equivalent to SKD11	D_{m5}	ATA□	P.251	L—ATA□	P.253										
			$D^{+0.005}_{0}$	A—ATA□		AL—ATA□											
		Equivalent to SKH51	D_{m5}	HATA□		L—HATA□		H—HATA□		HW—HATA□				N—HATA□		NW—HATA□	
			$D^{+0.005}_{0}$	A—HATA□		AL—HATA□		AH—HATA□		AHW—HATA□				AN—HATA□		ANW—HATA□	
		Powdered high-speed steel	D_{m5}	PATA□		L—PATA□		H—PATA□		HW—PATA□				N—PATA□		NW—PATA□	
			$D^{+0.005}_{0}$	A—PATA□		AL—PATA□		AH—PATA□		AHW—PATA□				AN—PATA□		ANW—PATA□	
With locating dowel hole	R	Equivalent to SKD11	D_{m5}	STA□C	P.261			H—STA□C	P.261	HW—STA□C	P.261	T—STA□C	P.261	N—STA□C	P.263	NW—STA□C	P.263
	Taper	Equivalent to SKD11	D_{m5}	TPA□C	P.261			H—TPA□C	P.261	HW—TPA□C	P.261	T—TPA□C	P.261	N—TPA□C	P.263	NW—TPA□C	P.263
	Sharp angle	Equivalent to SKD11	D_{m5}	ATA□C	P.261			H—ATA□C	P.261	HW—ATA□C	P.261			N—ATA□C	P.263	NW—ATA□C	P.263
Configurable type	Taper	Equivalent to SKD11	D_{m5}	RTP	P.265							T—RTP	P.265				
				RTPE								T—RTPE					
Flange stopper	R	Powdered high-speed steel	$D^{+0.005}_{0}$	PSTHAL	P.267	Alteration SC	P.268	H—PSTHAL	P.267	HW—PSTHAL	P.267			N—PSTHAL		NW—PSTHAL	
	Taper	Powdered high-speed steel	$D^{+0.005}_{0}$	PTPHAL	P.267			H—PTPHAL	P.267	HW—PTPHAL	P.267			N—PTPHAL	P.267	NW—PTPHAL	P.267
	Sharp angle	Powdered high-speed steel	$D^{+0.005}_{0}$	PATHAL	P.267			H—PATHAL	P.267	HW—PATHAL	P.267			N—PATHAL		NW—PATHAL	
Tapped	R	Equivalent to SKD11	D_{m5}	STMA□	P.269	Alteration SC	P.270										
			$D^{+0.005}_{0}$	A—STMA□													
		Powdered high-speed steel	D_{m5}	PSTMA□				H—PSTMA□	P.271	HW—PSTMA□	P.271			N—PSTMA□	P.271	NW—PSTMA□	P.271
			$D^{+0.005}_{0}$	A—PSTMA□				AH—PSTMA□		AHW—PSTMA□				AN—PSTMA□		ANW—PSTMA□	
	Taper	Equivalent to SKD11	D_{m5}	TPMA□	P.269												
			$D^{+0.005}_{0}$	A—TPMA□													
		Powdered high-speed steel	D_{m5}	PTPMA□				H—PTPMA□	P.271	HW—PTPMA□	P.271			N—PTPMA□	P.271	NW—PTPMA□	P.271
			$D^{+0.005}_{0}$	A—PTPMA□				AH—PTPMA□		AHW—PTPMA□				AN—PTPMA□		ANW—PTPMA□	
	Sharp angle	Equivalent to SKD11	D_{m5}	ATMA□	P.269												
			$D^{+0.005}_{0}$	A—ATMA□													
		Powdered high-speed steel	D_{m5}	PATMA□				H—PATMA□	P.271	HW—PATMA□	P.271			N—PATMA□	P.271	NW—PATMA□	P.271
			$D^{+0.005}_{0}$	A—PATMA□				AH—PATMA□		AHW—PATMA□				AN—PATMA□		ANW—PATMA□	
With key groove	R	Equivalent to SKD11	D_{m5}	STKA□	P.273	Alteration SC	P.274										
			$D^{+0.005}_{0}$	A—STKA□													
		Equivalent to SKH51	D_{m5}	HSTKA□				H—HSTKA□	P.275	HW—HSTKA□	P.275			N—HSTKA□	P.275	NW—HSTKA□	P.275
			$D^{+0.005}_{0}$	A—HSTKA□				AH—HSTKA□		AHW—HSTKA□				AN—HSTKA□		ANW—HSTKA□	
		Powdered high-speed steel	D_{m5}	PSTKA□				H—PSTKA□		HW—PSTKA□				N—PSTKA□		NW—PSTKA□	
			$D^{+0.005}_{0}$	A—PSTKA□				AH—PSTKA□		AHW—PSTKA□				AN—PSTKA□		ANW—PSTKA□	
	Taper	Equivalent to SKD11	D_{m5}	TPKA□	P.273												
			$D^{+0.005}_{0}$	A—TPKA□													
		Equivalent to SKH51	D_{m5}	HTPKA□				H—HTPKA□	P.275	HW—HTPKA□	P.275			N—HTPKA□	P.275	NW—HTPKA□	P.275
			$D^{+0.005}_{0}$	A—HTPKA□				AH—HTPKA□		AHW—HTPKA□				AN—HTPKA□		ANW—HTPKA□	
		Powdered high-speed steel	D_{m5}	PTPKA□				H—PTPKA□		HW—PTPKA□				N—PTPKA□		NW—PTPKA□	
			$D^{+0.005}_{0}$	A—PTPKA□				AH—PTPKA□		AHW—PTPKA□				AN—PTPKA□		ANW—PTPKA□	
	Sharp angle	Equivalent to SKD11	D_{m5}	ATKA□	P.273												
			$D^{+0.005}_{0}$	A—ATKA□													
		Equivalent to SKH51	D_{m5}	HATKA□				H—HATKA□	P.275	HW—HATKA□	P.275			N—HATKA□	P.275	NW—HATKA□	P.275
			$D^{+0.005}_{0}$	A—HATKA□				AH—HATKA□		AHW—HATKA□				AN—HATKA□		ANW—HATKA□	
		Powdered high-speed steel	D_{m5}	PATKA□				H—PATKA□		HW—PATKA□				N—PATKA□		NW—PATKA□	
			$D^{+0.005}_{0}$	A—PATKA□				AH—PATKA□		AHW—PATKA□				AN—PATKA□		ANW—PATKA□	
Straight	R	Equivalent to SKD11	—	STC	P.277	L—STC	P.279		P.281						P.283		
		Equivalent to SKH51	—	HSTC		L—HSTC		H—HSTC						N—HSTC			
		Powdered high-speed steel	—	PSTC		L—PSTC		H—PSTC						N—PSTC			
	Taper	Equivalent to SKD11	—	TTC	P.277	L—TTC	P.279		P.281						P.283		
		Equivalent to SKH51	—	HTTC		L—HTTC		H—HTTC						N—HTTC			
		Powdered high-speed steel	—	PTTC		L—PTTC		H—PTTC						N—PTTC			
	Sharp angle	Equivalent to SKD11	—	ATTC	P.277	L—ATTC	P.279		P.281						P.283		
		Equivalent to SKH51	—	HATTC		L—HATTC		H—HATTC						N—HATTC			
		Powdered high-speed steel	—	PATTC		L—PATTC		H—PATTC						N—PATTC			
Tapped straight	R	Equivalent to SKD11	—	STMC	P.285	Alteration SC	P.286										
		Powdered high-speed steel	—	PSTMC				H—PSTMC	P.285					N—PSTMC	P.285		
	Taper	Equivalent to SKD11	—	TTMC	P.285												
		Powdered high-speed steel	—	PTTMC				H—PTTMC	P.285					N—PTTMC	P.285		
	Sharp angle	Equivalent to SKD11	—	ATTMC	P.285												
		Powdered high-speed steel	—	PATMC				H—PATMC	P.285					N—PATMC	P.285		

Shank type	Tip shape	R	Shank diameter tolerance	Standard (Normal)		Lapping		TiCN coating		HW coating		Dicoat® treatment		DLC coating		DLC coating DLC faundation WPC®	
Straight with key groove	R	Equivalent to SKD11	—	STKC	P.287	Alteration SC	P.288										
		Equivalent to SKH51	—	HSTKC				H—HSTKC	P.287							N—HSTKC	P.287
		Powdered high-speed steel	—	PSTKC				H—PSTKC								N—PSTKC	
	Taper	Equivalent to SKD11	—	TTKC	P.287												
		Equivalent to SKH51	—	HTTKC				H—HTTKC	P.287							N—HTTKC	P.287
		Powdered high-speed steel	—	PTTKC				H—PTTKC								N—PTTKC	
	Sharp angle	Equivalent to SKD11	—	ATTKC	P.287												
		Equivalent to SKH51	—	HATKC				H—HATKC	P.287							N—HATKC	P.287
		Powdered high-speed steel	—	PATKC				H—PATKC								N—PATKC	
For fixing to stripper plate	R	Equivalent to SKD11	D_{m5}	SPTP	P.289	L—SPTP	P.289										
			$D^{+0.005}_{0}$	A—SPTP		AL—SPTP											
		Equivalent to SKH51	D_{m5}	HTFPR		L—HTFPR		H—HTFPR	P.291	HW—HTFPR	P.291					N—HTFPR	P.293
			$D^{+0.005}_{0}$	A—HTFPR		AL—HTFPR		AH—HTFPR		AHW—HTFPR						AN—HTFPR	
		Powdered high-speed steel	D_{m5}	PTFPR		L—PTFPR		H—PTFPR		HW—PTFPR						N—PTFPR	
			$D^{+0.005}_{0}$	A—PTFPR		AL—PTFPR		AH—PTFPR		AHW—PTFPR						AN—PTFPR	
	Taper	Equivalent to SKD11	D_{m5}	TPTP	P.289	L—TPTP	P.289										
			$D^{+0.005}_{0}$	A—TPTP		AL—TPTP											
		Equivalent to SKH51	D_{m5}	HTFPT		L—HTFPT		H—HTFPT	P.291	HW—HTFPT	P.291					N—HTFPT	P.293
			$D^{+0.005}_{0}$	A—HTFPT		AL—HTFPT		AH—HTFPT		AHW—HTFPT						AN—HTFPT	
		Powdered high-speed steel	D_{m5}	PTFPT		L—PTFPT		H—PTFPT		HW—PTFPT						N—PTFPT	
			$D^{+0.005}_{0}$	A—PTFPT		AL—PTFPT		AH—PTFPT		AHW—PTFPT						AN—PTFPT	
	Sharp angle	Equivalent to SKD11	D_{m5}	APTP	P.289	L—APTP	P.289										
			$D^{+0.005}_{0}$	A—APTP		AL—APTP											
		Equivalent to SKH51	D_{m5}	HTFPA		L—HTFPA		H—HTFPA	P.291	HW—HTFPA	P.291					N—HTFPA	P.293
			$D^{+0.005}_{0}$	A—HTFPA		AL—HTFPA		AH—HTFPA		AHW—HTFPA						AN—HTFPA	
		Powdered high-speed steel	D_{m5}	PTFPA		L—PTFPA		H—PTFPA		HW—PTFPA						N—PTFPA	
			$D^{+0.005}_{0}$	A—PTFPA		AL—PTFPA		AH—PTFPA		AHW—PTFPA						AN—PTFPA	
For fixing to stripper plate —Shaped type—	Taper	Equivalent to SKD11	D_{m5}	TPDP	P.289												
			$D^{+0.005}_{0}$	TPEP													
				A—TPDP													
				A—TPEP													
For fixing to stripper plate —Straight type—	R	Equivalent to SKD11	—	SPT	P.297	L—SPT	P.297										
		Equivalent to SKH51	—	HTFR		L—HTFR		H—HTFR	P.297							N—HTFR	P.299
		Powdered high-speed steel	—	PTFR		L—PTFR		H—PTFR								N—PTFR	
	Taper	Equivalent to SKD11	—	TPT	P.297	L—TPT	P.297										
		Equivalent to SKH51	—	HTFT		L—HTFT		H—HTFT	P.297							N—HTFT	P.299
		Powdered high-speed steel	—	PTFT		L—PTFT		H—PTFT								N—PTFT	
	Sharp angle	Equivalent to SKD11	—	APT	P.297	L—APT	P.297										
		Equivalent to SKH51	—	HTFA		L—HTFA		H—HTFA	P.297							N—HTFA	P.299
		Powdered high-speed steel	—	PTFA		L—PTFA		H—PTFA								N—PTFA	
For fixing to stripper plate R and taper combined type, minus head tolerance (Enlarged view of circled part)	R & Taper	Equivalent to SKD11	D_{m5}	SPTPF	P.301	L—SPTPF	P.301										
		Equivalent to SKH51	D_{m5}	HTFPRF		L—HTFPRF		H—HTFPRF	P.303	HW—HTFPRF	P.303					N—HTFPRF	P.303
		Powdered high-speed steel	D_{m5}	PTFPRF		L—PTFPRF		H—PTFPRF		HW—PTFPRF						N—PTFPRF	
For fixing to stripper plate —Straight type— R and taper combined type, minus head tolerance (Enlarged view of circled part)	R & Taper	Equivalent to SKD11	—	SPTF	P.305	L—SPTF	P.305										
		Equivalent to SKH51	—	HTFRF		L—HTFRF		H—HTFRF	P.307							N—HTFRF	P.307
		Powdered high-speed steel	—	PTFRF		L—PTFRF		H—PTFRF								N—PTFRF	
Movable, headed	Sharp angle	Equivalent to SKD11	D_{g6}	UPTH	P.309	L—UPTH	P.309										
		Equivalent to SKH51	D_{g6}	HUPTH		L—HUPTH		H—HUPTH	P.312	HW—HUPTH	P.312					N—HUPTH	P.312
		Powdered high-speed steel	D_{g6}	PUPTH		L—PUPTH		H—PUPTH		HW—PUPTH						N—PUPTH	
	R & Taper	Equivalent to SKD11	D_{g6}	UPTHF	P.309	L—UPTHF	P.309										
		Equivalent to SKH51	D_{g6}	HUPTHF		L—HUPTHF		H—HUPTHF	P.312	HW—HUPTHF	P.312					N—HUPTHF	P.312
		Powdered high-speed steel	D_{g6}	PUPTHF		L—PUPTHF		H—PUPTHF		HW—PUPTHF						N—PUPTHF	
Movable	Sharp angle	Equivalent to SKD11	D_{g6}	UPT	P.313	L—UPT	P.313										
			$D^{-0.005}_{-0.018}$	A—UPT		AL—UPT											
		Equivalent to SKH51	D_{g6}	HUPT		L—HUPT		H—HUPT	P.315	HW—HUPT	P.315					N—HUPT	P.315
			$D^{-0.005}_{-0.018}$	A—HUPT		AL—HUPT		AH—HUPT		AHW—HUPT						AN—HUPT	
		Powdered high-speed steel	D_{g6}	PUPT		L—PUPT		H—PUPT		HW—PUPT						N—PUPT	
			$D^{-0.005}_{-0.018}$	A—PUPT		AL—PUPT		AH—PUPT		AHW—PUPT						AN—PUPT	
	R & Taper	Equivalent to SKD11	D_{g6}	UPTF	P.313	L—UPTF	P.313										
			$D^{-0.005}_{-0.018}$	A—UPTF		AL—UPTF											
		Equivalent to SKH51	D_{g6}	HUPTF		L—HUPTF		H—HUPTF	P.315	HW—HUPTF	P.315					N—HUPTF	P.315
			$D^{-0.005}_{-0.018}$	A—HUPTF		AL—HUPTF		AH—HUPTF		AHW—HUPTF						AN—HUPTF	
		Powdered high-speed steel	D_{g6}	PUPTF		L—PUPTF		H—PUPTF		HW—PUPTF						N—PUPTF	
			$D^{-0.005}_{-0.018}$	A—PUPTF		AL—PUPTF		AH—PUPTF		AHW—PUPTF						AN—PUPTF	
Fixed tip diameter type	R	Equivalent to SKD11	D_{m5}	STAZ	P.317												

■**Shape of tip R**

Shape of tip R changes depending on P dimension.



■**Allowable range for alteration YC**

1≦YC≦Ymax.≦18

Ymax.=P/2tanG−0.3

・If P<2.0, G=10

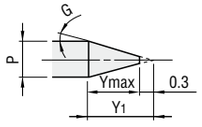
…→Ymax.=P×2.83−0.3

・If P≧2.0, G=15

…→Ymax.=P×1.86−0.3

・If combined with alteration GC,

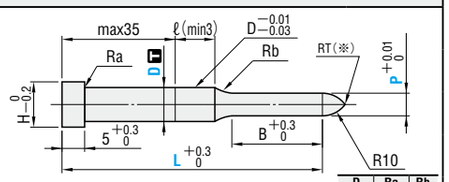
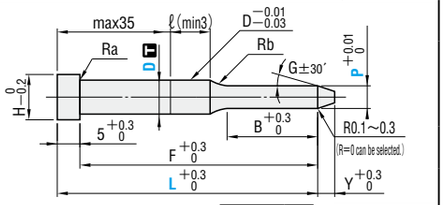
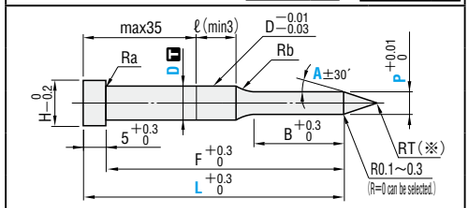
…→Ymax.=P/2tanGC−0.3



Y_1=P/2tanG

PILOT PUNCHES

PILOT PUNCHES

Type	Shank diameter D T tolerance	M H	Catalog No. Type	B tip length	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250 For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	Dm5	Equivalent to SKD 11 60～63HRC	STA (D3～25)	S 	
		Equivalent to SKH51 61～64HRC	HSTA		
		Powdered high-speed steel 64～67 HRC	PSTA		
	$D^{+0.005}_{0}$	Equivalent to SKD 11 60～63HRC	A—STA (D3～25)		
		Equivalent to SKH51 61～64HRC	A—HSTA		
		Powdered high-speed steel 64～67HRC	A—PSTA		
—Tapered tip type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	Dm5	Equivalent to SKD 11 60～63HRC	TPA (D3～25)	L 	
		Equivalent to SKH51 61～64HRC	HTPA		
		Powdered high-speed steel 64～67HRC	PTPA		
	$D^{+0.005}_{0}$	Equivalent to SKD 11 60～63HRC	A—TPA (D3～25)		
		Equivalent to SKH51 61～64HRC	A—HTPA		
		Powdered high-speed steel 64～67HRC	A—PTPA		
—Sharp tip angle type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	Dm5	Equivalent to SKD 11 60～63HRC	ATA (D3～25)	X 	
		Equivalent to SKH51 61～64HRC	HATA		
		Powdered high-speed steel 64～67HRC	PATA		
	$D^{+0.005}_{0}$	Equivalent to SKD 11 60～63HRC	A—ATA (D3～25)		
		Equivalent to SKH51 61～64HRC	A—HATA		
		Powdered high-speed steel 64～67HRC	A—PATA	Tip length (B) X>L>S	

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.1592)

For the length of tip R, refer to the products data "Punch R length". P.1592

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

P	G
P≦1.999	10°
P≧2.000	15°

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

Catalog No. Type	B tip length	D	L	0.01mm increments min. P max.	A	B	H	Y
(Dm5)	S	1.6	42 52 62	0.30～ 1.59	(10) (15) (20) 25 30	(6)	2.6	(1)
M Equivalent to SKD11 (D3～25) STA		2.0	42 52 62	0.50～ 1.99		8	3	
TPA		2.5	42 52 62	1.00～ 2.49			3.5	2
ATA		3	42 52 62 72 82 (92)	1.00～ 2.99		10	5	
		4	42 52 62 72 82 (92)	1.00～ 3.99			7	
M Equivalent to SKH51 HSTA		5	42 52 62 72 82 (92)	2.00～ 4.99			8	3
HTPA		6	42 52 62 72 82 (92)	2.50～ 5.99			9	
HATA		8	(42) 52 62 72 82 (92) (102) (112)	3.00～ 7.99		15	11	5
M Powdered high-speed steel PSTA		10	(42) 52 62 72 82 (92) (102) (※)	3.00～ 9.99			13	
PTPA		13	(42) 52 62 72 82 (92) (102) (※)	6.00～ 12.99			16	8
PATA		16	(42) 52 62 72 82 (92) (102) (※)	10.00～ 15.99		21	19	
		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	
($D^{+0.005}_{0}$)	L	1.6	42 52 62	0.50～ 1.59	(10) (15) (20) 25 30	8	2.6	(1)
M Equivalent to SKD11 (D3～25) A—STA		2.0	42 52 62	0.50～ 1.99		10	3	
A—TPA		2.5	42 52 62	1.00～ 2.49		13	3.5	2
A—ATA		3	52 62 72 82 (92)	1.00～ 2.99		15	5	
		4	52 62 72 82 (92)	1.00～ 3.99			7	
M Equivalent to SKH51 A—HSTA		5	52 62 72 82 (92)	2.00～ 4.99			8	3
A—HTPA		6	52 62 72 82 (92)	2.50～ 5.99			9	
A—HATA		8	52 62 72 82 (92) (102) (112)	3.00～ 7.99		21	11	5
M Powdered high-speed steel A—PSTA		10	52 62 72 82 (92) (102) (※)	3.00～ 9.99			13	
A—PTPA		13	52 62 72 82 (92) (102) (※)	6.00～ 12.99			16	8
A—PATA		16	62 72 82 (92) (102) (※)	10.00～ 15.99		27	19	
		20	62 72 82 (92) (102) (※)	13.00～ 19.99			23	
		25	62 72 82 (92) (102) (※)	18.00～ 24.99			28	
	X	3	52 62 72 82 (92)	1.20～ 2.99	(10) (15) (20) 25 30	21	5	2
		4	52 62 72 82 (92)	1.20～ 3.99			7	
		5	62 72 82 (92)	2.00～ 4.99		27	8	3
		6	62 72 82 (92)	2.50～ 5.99			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			13	
		13	62 72 82 (92) (102) (※)	6.00～ 12.99			16	8
		16	72 82 (92) (102) (※)	10.00～ 15.99		42	19	
		20	72 82 (92) (102) (※)	13.00～ 19.99			23	
		25	72 82 (92) (102) (※)	18.00～ 24.99			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, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.
(※)For D10～25 types with L exceeding 102, refer to Pilot Punches on P.203. (Can be used for SKD11 with Dm5 only.)
B(6)···If P<0.5, tip length B is at 2mm.
Y(1)···If P<0.5, Y dimension is 0.5mm.
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

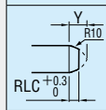
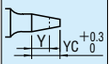
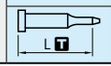
Catalog No.	—	L	—	P	—	A	—	(RT=0 / R=0)
A—STAS 6	—	72	—	P5.02			—	RT0
PTPAS 6	—	52	—	P4.97				
ATAS 6	—	52	—	P2.60	—	A15	—	R0

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.)

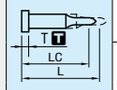
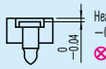
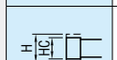
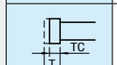
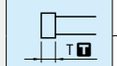
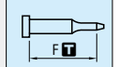
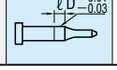
Days to Ship Quotation

Alterations

Catalog No.	—	L(LC·LCT·LMT)	—	P(PC)	—	A	—	(RT=0 / R=0)	—	(BC·HC·TC, etc.)
A—STAS 8	—	LC7 6	—	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≧ Pmin./2 ≧0.3 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) 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	Tip diameter change PC≧ Pmin./2 ≧0.3 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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	
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 25mm longer than tip length BC.		
		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	Quotation
		YC	——	Tip taper length change •P<2.0 1≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦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 +0.01/0 ⇨ +0.005/0 (P dimension can be selected in 0.001 mm increments.)		
Alterations to full length		LC	Full length change 25+B(BC)≦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 +0.3/0 ⇨ +0.05/0	

Price Quotation

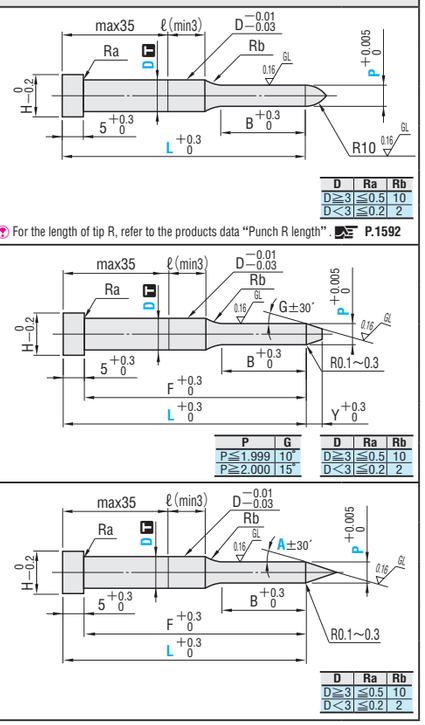
	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length		LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes(※) are the same as for LC. TKC Head thickness tolerance change T +0.3/0 ⇨ +0.02/0 + LC Full length change		Quotation
		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 +0.3/0 ⇨ 0/−0.02 + LC 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 −0.04～0 relative to the retainer surface. Cannot be used for $D^{+0.005}_{0}$ types.		
		HC	Head diameter change D≦HC<H 0.1mm increments		
		TC	Head thickness change 2≦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 +0.3/0 ⇨ +0.02/0		
		TKM	Head thickness tolerance change T +0.3/0 ⇨ 0/−0.02		
Alterations to shank		FKC	——	F dimension tolerance change F +0.3/0 ⇨ +0.05/0 Cannot be combined with LKC.	
		NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		

PILOT PUNCHES

PILOT PUNCHES
—LAPPING—

Type	Shank diameter D T tolerance	M H	Catalog No. Type	B tip length
—Tip R・Lapping— RoHS	Dm5	Equivalent to SKD 11 60～63HRC	L—STA (D3～25)	S, L, X
		Equivalent to SKH51 61～64HRC	L—HSTA	
		Powdered high-speed steel 64～67HRC	L—PSTA	
	$D^{+0.005}_{0}$	Equivalent to SKD 11 60～63HRC	AL—STA (D3～25)	
		Equivalent to SKH51 61～64HRC	AL—HSTA	
		Powdered high-speed steel 64～67HRC	AL—PSTA	
—Tapered tip・Lapping— RoHS	Dm5	Equivalent to SKD 11 60～63HRC	L—TPA (D3～25)	
		Equivalent to SKH51 61～64HRC	L—HTPA	
		Powdered high-speed steel 64～67HRC	L—PTPA	
	$D^{+0.005}_{0}$	Equivalent to SKD 11 60～63HRC	AL—TPA (D3～25)	
		Equivalent to SKH51 61～64HRC	AL—HTPA	
		Powdered high-speed steel 64～67HRC	AL—PTPA	
—Sharp tip angle・Lapping— RoHS	Dm5	Equivalent to SKD 11 60～63HRC	L—ATA (D3～25)	
		Equivalent to SKH51 61～64HRC	L—HATA	
		Powdered high-speed steel 64～67HRC	L—PATA	
	$D^{+0.005}_{0}$	Equivalent to SKD 11 60～63HRC	AL—ATA (D3～25)	
		Equivalent to SKH51 61～64HRC	AL—HATA	
		Powdered high-speed steel 64～67HRC	AL—PATA	Tip length (B) X>L>S

Shape of tip changes depending on P dimension. P.250
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.



D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

For the length of tip R, refer to the products data "Punch R length". P.1592

P	G
P≦1.999	10°
P≧2.000	15°

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

Catalog No. Type	B tip length	D	L							0.001mm increments min. P max.	A	B	H	Y
(Dm5)	S	1.6	42	52	62					0.300～ 1.590	(10) (15) (20) 25 30	(6)	2.6	(1)
M Equivalent to SKD11 (D3～25) L—STA		2.0	42	52	62					0.500～ 1.990		8	3	
L—TPA		2.5	42	52	62					1.000～ 2.490			3.5	2
L—ATA		3	42	52	62	72	82	(92)		1.000～ 2.990		10	5	
L—HSTA		4	42	52	62	72	82	(92)		1.000～ 3.990			7	
M Equivalent to SKH51 L—HTPA		5	42	52	62	72	82	(92)		2.000～ 4.990			8	3
L—HATA		6	42	52	62	72	82	(92)		2.500～ 5.990			9	
L—PSTA		8	(42)	52	62	72	82	(92)	(102)	3.000～ 7.990		15	11	5
M Powdered high-speed steel L—PTPA		10	(42)	52	62	72	82	(92)	(102)	3.000～ 9.990			13	
L—PATA		13	(42)	52	62	72	82	(92)	(102)	6.000～ 12.990			16	8
		16	(42)	52	62	72	82	(92)	(102)	10.000～ 15.990		21	19	
		20	(42)	52	62	72	82	(92)	(102)	13.000～ 19.990			23	
		25	(42)	52	62	72	82	(92)	(102)	18.000～ 24.990			28	
($D^{+0.005}_{0}$)	L	1.6	42	52	62					0.500～ 1.590		8	2.6	(1)
M Equivalent to SKD11 (D3～25) AL—STA		2.0	42	52	62					0.500～ 1.990		10	3	
AL—TPA		2.5	42	52	62					1.000～ 2.490		13	3.5	2
AL—ATA		3		52	62	72	82	(92)		1.000～ 2.990		15	5	
AL—HSTA		4		52	62	72	82	(92)		1.000～ 3.990			7	
M Equivalent to SKH51 AL—HTPA		5		52	62	72	82	(92)		2.000～ 4.990			8	3
AL—HATA		6		52	62	72	82	(92)		2.500～ 5.990			9	
AL—PSTA		8		52	62	72	82	(92)	(102)	3.000～ 7.990		21	11	5
M Powdered high-speed steel AL—PTPA		10		52	62	72	82	(92)	(102)	3.000～ 9.990			13	
AL—PATA		13		52	62	72	82	(92)	(102)	6.000～ 12.990			16	8
		16			62	72	82	(92)	(102)	10.000～ 15.990		27	19	
		20			62	72	82	(92)	(102)	13.000～ 19.990			23	
		25			62	72	82	(92)	(102)	18.000～ 24.990			28	
	X	3		52	62	72	82	(92)		1.200～ 2.990	(10) (15) (20) 25 30	21	5	2
		4		52	62	72	82	(92)		1.200～ 3.990			7	
		5			62	72	82	(92)		2.000～ 4.990		27	8	3
		6			62	72	82	(92)		2.500～ 5.990			9	
		8			62	72	82	(92)	(102)	3.000～ 7.990		32	11	5
		10			62	72	82	(92)	(102)	3.000～ 9.990			13	
		13			62	72	82	(92)	(102)	6.000～ 12.990			16	8
		16				72	82	(92)	(102)	10.000～ 15.990		42	19	
		20				72	82	(92)	(102)	13.000～ 19.990			23	
		25				72	82	(92)	(102)	18.000～ 24.990			28	

L(42)⇢If full length L is(42), tip length B is 10mm in all cases.
L(92)(102)⇢L92 and 102 can be used for tip R types and tapered tip types only.
L(102)⇢L102 of D8 can be used for SKD11 with Dm5 only.
P>D−0.03 ⇢ℓ=0　If P>D−0.03, $D^{-0.01}_{-0.03}$(press-in lead) is not included.
B(6)⇢If P<0.5, tip length B is 2mm.
Y(1)⇢If P<0.5, Y dimension is 0.5mm.
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
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≧ Pmin. 2 ≧0.3 0.01mm increments	Tip diameter change PC≧ Pmin. 2 ≧0.3 0.01mm increments Ymax.=YCmax.	Quotation
	BC	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. Tip length change 2≦BC≦Bmax. 0.1mm increments. Full length L must be at least 25mm longer than tip length BC.	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.	
	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	
	YC	——	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦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)≦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 0 ⇨ +0.05 0	

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 0 ⇨ +0.02 0 + LC 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 0 ⇨ 0 −0.02 + LC Full length change		
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 −0.04～0 relative to the retainer surface. Cannot be used for D +0.005 0 types.		
	HC	Head diameter change D≦HC<H 0.1mm increments		
	TC	Head thickness change 2≦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 0 ⇨ +0.02 0		
	TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02		
Alterations to shank	FKC	——	F dimension tolerance change F +0.3 0 ⇨ +0.05 0 Cannot be combined with LKC.	
	NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		

Price Quotation

PILOT PUNCHES

PILOT PUNCHES
—TiCN COATING・HW COATING—

PRODUCTS DATA P.1604・1605

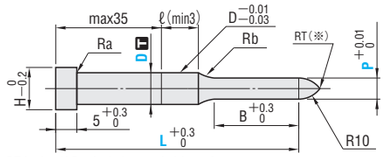
Type	Shank diameter D T tolerance	M H	Catalog No. Type	B tip length
—Tip R type— RoHS	D_{m5}	Equivalent to SKH51 61～64HRC Surface 3000HV	H—HSTA HW—HSTA	S L X
		Powdered high-speed steel 64～67HRC Surface 3000HV	H—PSTA HW—PSTA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface 3000HV	AH—HSTA AHW—HSTA	
		Powdered high-speed steel 64～67HRC Surface 3000HV	AH—PSTA AHW—PSTA	
—Tapered tip type— RoHS	D_{m5}	Equivalent to SKH51 61～64HRC Surface 3000HV	H—HTPA HW—HTPA	
		Powdered high-speed steel 64～67HRC Surface 3000HV	H—PTPA HW—PTPA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface 3000HV	AH—HTPA AHW—HTPA	
		Powdered high-speed steel 64～67HRC Surface 3000HV	AH—PTPA AHW—PTPA	
—Sharp tip angle type— RoHS	D_{m5}	Equivalent to SKH51 61～64HRC Surface 3000HV	H—HATA HW—HATA	
		Powdered high-speed steel 64～67HRC Surface 3000HV	H—PATA HW—PATA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface 3000HV	AH—HATA AHW—HATA	
		Powdered high-speed steel 64～67HRC Surface 3000HV	AH—PATA AHW—PATA	Tip length (B) X>L>S

Shape of tip changes depending on P dimension. P.250
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

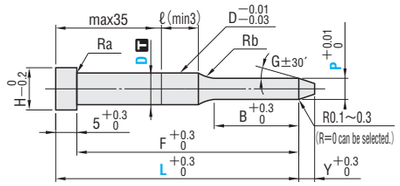
Shape



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.1592)

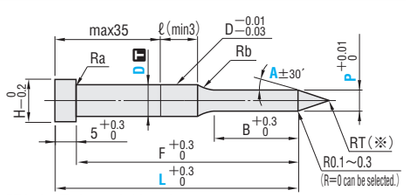
D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

For the length of tip R, refer to the products data "Punch R length". P.1592



P	G
P≦1.999	10°
P≧2.000	15°

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2



RT(※)…Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0.
(RT=0 cannot be selected with HW coating.)

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

Catalog No. Type	B tip length	D	L	0.01mm increments min. P max.	A	B	H	Y
(Dm5) TiCN coating / HW coating								
M Equivalent to SKH51: H—HSTA / HW—HSTA	S	1.6	42 52 62	1.00～ 1.59	(10) (15) (20) 25 30	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	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			7	
		5	42 52 62 72 82 (92)	2.00～ 4.99			8	3
		6	42 52 62 72 82 (92)	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	8
		16	(42) 52 62 72 82 (92) (102)	10.00～ 15.99		21	19	
		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: H—PSTA / HW—PSTA								
H—PTPA / HW—PTPA								
H—PATA / HW—PATA								
($D^{+0.005}_{0}$) TiCN coating / HW coating								
M Equivalent to SKH51: AH—HSTA / AHW—HSTA	L	1.6	42 52 62	1.00～ 1.59	(10) (15) (20) 25 30	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	
		3	52 62 72 82 (92)	1.00～ 2.99		15	5	2
		4	52 62 72 82 (92)	1.00～ 3.99			7	
		5	52 62 72 82 (92)	2.00～ 4.99			8	3
		6	52 62 72 82 (92)	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	8
		16	62 72 82 (92) (102)	10.00～ 15.99		27	19	
		20	62 72 82 (92) (102)	13.00～ 19.99			23	
		25	62 72 82 (92) (102)	18.00～ 24.99			28	
M Powdered high-speed steel: AH—PSTA / AHW—PSTA								
AH—PTPA / AHW—PTPA								
AH—PATA / AHW—PATA								
	X	3	52 62 72 82 (92)	1.20～ 2.99	(10) (15) (20) 25 30	21	5	2
		4	52 62 72 82 (92)	1.20～ 3.99			7	
		5	62 72 82 (92)	2.00～ 4.99		27	8	3
		6	62 72 82 (92)	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	8
		16	72 82 (92) (102)	10.00～ 15.99		42	19	
		20	72 82 (92) (102)	13.00～ 19.99			23	
		25	72 82 (92) (102)	18.00～ 24.99			28	

L(42)…If full length L is (42), tip length B is 10mm in all cases.
L(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.
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	—	(RT=0 / R=0)
H—HSTAS 6	—	72	—	P5.02			—	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(PC)	—	A	—	(RT=0 / R=0)	—	(BC・HC・TC, etc.)
H—PSTAS 8	—	LMT76	—	PC1.50					—	HC10.0

Alterations	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		PC	Tip diameter change PC≧ Pmin./2 ≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) P(PC) / Bmax.: 1.000～1.999 / 20; 2.000～3.999 / 35; 4.000～5.999 / 45; 6.000～ / 50	Tip diameter change PC≧ Pmin./2 ≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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	Quotation
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments (Full length L must be at least 25mm longer than tip length BC.)		
		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	—	
		YC	—	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments (Cannot be used for sharp tip angle 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 $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ (P dimension can be selected in 0.001mm increments.) Cannot be used for D>13.		

Alterations	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length		LC	Full length change 25+B(BC)≦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. TKC Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ + LC 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 $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ + LC Full length change		
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. Cannot be used for $D^{+0.005}_{0}$ types.		
		HC	Head diameter change D≦HC<H 0.1mm increments		
		TC	Head thickness change 2≦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 $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$		
		TKM	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$		
Shank		NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		

Price Quotation

PILOT PUNCHES

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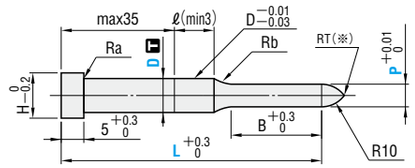
PILOT PUNCHES
—DLC COATING—

PRODUCTS DATA P.1609

Type	Shank diameter D T tolerance	M H	Catalog No. Type	Catalog No. B tip length
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250 For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	Dm5	Equivalent to SKH51 61~64HRC Surface3000HV~	N—HSTA NW—HSTA	S L X
		Powdered high-speed steel 64~67HRC Surface3000HV~	N—PSTA NW—PSTA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61~64HRC Surface3000HV~	AN—HSTA ANW—HSTA	
		Powdered high-speed steel 64~67HRC Surface3000HV~	AN—PSTA ANW—PSTA	
—Tapered tip type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$	Dm5	Equivalent to SKH51 61~64HRC Surface3000HV~	N—HTPA NW—HTPA	
		Powdered high-speed steel 64~67HRC Surface3000HV~	N—PTPA NW—PTPA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61~64HRC Surface3000HV~	AN—HTPA ANW—HTPA	
		Powdered high-speed steel 64~67HRC Surface3000HV~	AN—PTPA ANW—PTPA	
—Sharp tip angle type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$	Dm5	Equivalent to SKH51 61~64HRC Surface3000HV~	N—HATA NW—HATA	Tip length (B) X>L>S
		Powdered high-speed steel 64~67HRC Surface3000HV~	N—PATA NW—PATA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61~64HRC Surface3000HV~	AN—HATA ANW—HATA	
		Powdered high-speed steel 64~67HRC Surface3000HV~	AN—PATA ANW—PATA	

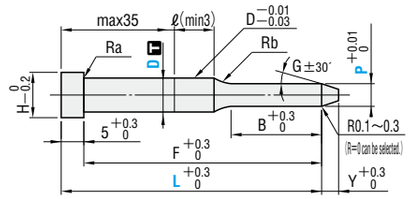
Shape



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 foundation WPC®.) (If P≧8, tip end is flat. P.1592)

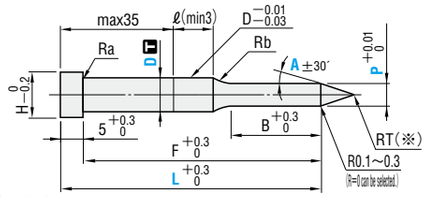
For the length of tip R, refer to the products data "Punch R length". P.1592

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2



P	G
P≦1.999	10°
P≧2.000	15°

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2



RT(※)···Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with foundation WPC®.)

D	Ra	Rb
D≧3	≦0.5	10
D<3	≦0.2	2

Catalog No. Type	B tip length	D	L							0.01mm increments min. P max.	A	B	H	Y
(Dm5) —Foundation WPC®—	S	1.6	42	52	62					1.00~ 1.59	(10) (15) (20) 25 30	6	2.6	1
M Equivalent to SKH51 N—HSTA NW—HSTA		2.0	42	52	62					1.00~ 1.99		8	3	
N—HTPA NW—HTPA		2.5	42	52	62					1.00~ 2.49			3.5	
N—HATA NW—HATA		3	42	52	62	72	82	(92)		1.00~ 2.99		10	5	2
M Powdered high-speed steel N—PSTA NW—PSTA		4	42	52	62	72	82	(92)		1.00~ 3.99			7	
N—PTPA NW—PTPA		5	42	52	62	72	82	(92)		2.00~ 4.99			8	3
N—PATA NW—PATA		6	42	52	62	72	82	(92)		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	8
		16	(42)	52	62	72	82	(92)	(102)	10.00~ 15.99		21	19	
		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	
($D^{+0.005}_{0}$) —Foundation WPC®—	L	1.6	42	52	62					1.00~ 1.59	(10) (15) (20) 25 30	8	2.6	1
M Equivalent to SKH51 AN—HSTA ANW—HSTA		2.0	42	52	62					1.00~ 1.99		10	3	
AN—HTPA ANW—HTPA		2.5	42	52	62					1.00~ 2.49		13	3.5	
AN—HATA ANW—HATA		3		52	62	72	82	(92)		1.00~ 2.99		15	5	2
M Powdered high-speed steel AN—PSTA ANW—PSTA		4		52	62	72	82	(92)		1.00~ 3.99			7	
AN—PTPA ANW—PTPA		5		52	62	72	82	(92)		2.00~ 4.99			8	3
AN—PATA ANW—PATA		6		52	62	72	82	(92)		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	8
		16			62	72	82	(92)	(102)	10.00~ 15.99		27	19	
		20			62	72	82	(92)	(102)	13.00~ 19.99			23	
		25			62	72	82	(92)	(102)	18.00~ 24.99			28	
	X	3		52	62	72	82	(92)		1.20~ 2.99	(10) (15) (20) 25 30	21	5	2
		4		52	62	72	82	(92)		1.20~ 3.99			7	
		5			62	72	82	(92)		2.00~ 4.99		27	8	3
		6			62	72	82	(92)		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	8
		16				72	82	(92)	(102)	10.00~ 15.99		42	19	
		20				72	82	(92)	(102)	13.00~ 19.99			23	
		25				72	82	(92)	(102)	18.00~ 24.99			28	

L(42)···If full length L is (42), tip length B is 10mm in all cases.
L(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.
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	—	(RT=0 / R=0)
N—PSTAS 6	—	72	—	P5.02			—	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

■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P.1609

Alterations

Catalog No.	—	L(LC·LCT·LMT)	—	P(PC)	—	A	—	(RT=0 / R=0)	— (BC·HC·TC…etc.)
N—PSTAS 8	—	LMT76	—	PC1.50			—		— HC10.0

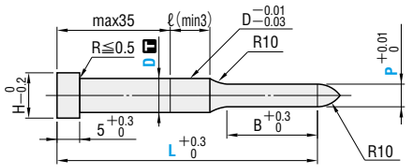
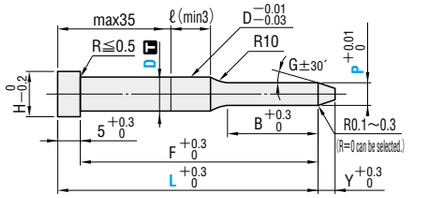
Alterations	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PC	Tip diameter change PC≧ Pmin./2 ≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) P(PC) / Bmax.: 1.000~1.999 / 20; 2.000~3.999 / 35; 4.000~5.999 / 45; 6.000~ / 50	Tip diameter change PC≧ Pmin./2 ≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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	Quotation
	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 25mm longer than tip length BC.		
	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√(P(10−P/4)) 0.1mm increments	——	
	YC	——	Tip taper length change ·P<2.0 1≦YC≦P×2.83−0.3 ·P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments Cannot be used for sharp tip angle 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 foundation WPC®.		
	PKC	Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ (P dimension can be selected in 0.001mm increments.)		

Alterations	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	Full length change 25+B(BC)≦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. TKC Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ + LC 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 $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ + LC Full length change		
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 ~ 0 relative to the retainer surface. Cannot be used for $D^{+0.005}_{0}$ types.		
	HC	Head diameter change D≦HC<H 0.1mm increments		
	TC	Head thickness change 2≦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 $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$		
	TKM	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$		
Shank	NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		

Price Quotation

PILOT PUNCHES
—DICOAT® TREATMENT—

PRODUCTS DATA P.1599

Type	Shank diameter D T tolerance	M H	Catalog No. Type	B tip length	Shape
—Tip R·Dicoat® treatment— RoHS Shape of tip changes depending on P dimension. P.250 For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—STA	S L X	 For the length of tip R, refer to the products data "Punch R length". P.1592
		Powdered high-speed steel 62~64 HRC Surface 3000 HV	T—PSTA		
	$D^{+0.005}_{0}$	Equivalent to SKD11 60~63 HRC Surface 3000 HV	AT—STA		
		Powdered high-speed steel 62~64 HRC Surface 3000 HV	AT—PSTA		
—Tapered tip·Dicoat® treatment— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—TPA		
		Powdered high-speed steel 62~64 HRC Surface 3000 HV	T—PTPA		
	$D^{+0.005}_{0}$	Equivalent to SKD11 60~63 HRC Surface 3000 HV	AT—TPA		
		Powdered high-speed steel 62~64 HRC Surface 3000 HV	AT—PTPA	Tip length (B) X>L>S	

P	G
P≦1.99	10°
P≧2.00	15°

Catalog No. Type	B tip length	D	L							0.01mm increments min. P max.	B	H	Y
M Equivalent to SKD11 (Dm5) 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	3
		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	8
		(16)	(42)	52	62	72	82	92	102	10.00~ 15.99	21	19	
		(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	3
		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	8
M Equivalent to SKD11 ($D^{+0.005}_{0}$) AT—STA AT—TPA		(16)			62	72	82	92	102	10.00~ 15.99	27	19	
		(20)			62	72	82	92	102	13.00~ 19.99		23	
		(25)			62	72	82	92	102	18.00~ 24.99		28	
M Powdered high-speed steel AT—PSTA AT—PTPA	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	27	8	3
		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	8
		(16)				72	82	92	102	10.00~ 15.99	42	19	
		(20)				72	82	92	102	13.00~ 19.99		23	
		(25)				72	82	92	102	18.00~ 24.99		28	

D=(16), (20), and (25) are specifications available for shank diameter tolerance D_{m5} only.
L(42)···B=10 If full length is (42), tip length B is 10mm.
P>D−0.03···ℓ=0 If P>D−0.03, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.

Order

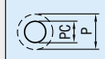
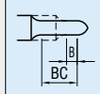
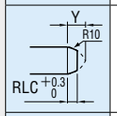
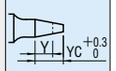
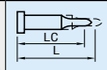
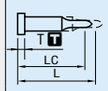
Catalog No.	L	P	(R=0)
T—STAS 10	72	P6.48	
T—PTPAL 8	82	P3.50	R0

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

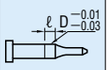
Days to Ship Quotation

Alterations

Catalog No.	L(LC·LCT·LMT)	P(PC)	(R=0)	(BC·HC·TC, etc.)
T—STAS 10	LC75	PC2.25		BC13

	Alteration	Code	Tip R type	Tapered tip	1Code
Alterations to tip		PC	Tip diameter change PC≧$\frac{P_{min.}}{2}$≧1.00 0.01mm increments	Tip diameter change PC≧$\frac{P_{min.}}{2}$≧1.00 0.01mm increments Ymax.=YCmax. (Refer to YC)	Quotation
		BC	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; 1.20~1.99 / 17; 2.00~2.99 / 27; 3.00~3.99 / 32; 4.00~5.99 / 42; 6.00~ / 47 Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 25mm longer than tip length BC.	
		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	
		YC	——	Tip taper length change ·P<2.0 1≦YC≦P×2.83−0.3 ·P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments	
Alterations to full length		LC	Full length change 25+B(BC)≦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. TKC Head thickness tolerance change T $^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ + LC 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 $^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ + LC Full length change		

Price Quotation

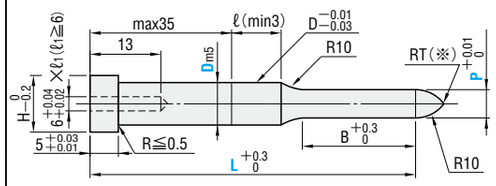
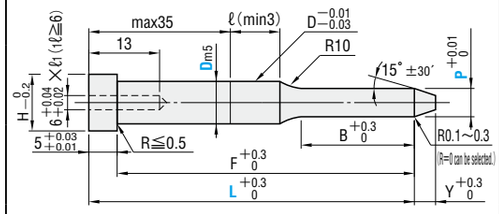
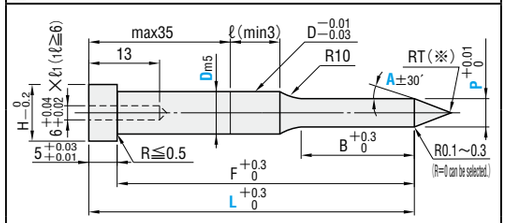
	Alteration	Code	Tip R type	Tapered tip	1Code
Alterations to head		KC	Addition of single key flat to head		Quotation
		WKC	Addition of double key flats in parallel		
		RC	Head thickness is machined to a tolerance of −0.04~0 relative to the retainer surface. Cannot be used for $D^{+0.005}_{0}$ types.		
		HC	Head diameter change D≦HC<H 0.1mm increments		
		TC	Head thickness change 2≦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 $^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$	
		TKM	Head thickness tolerance change	T $^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$	
Alterations to shank		NDC	No press-in lead	ℓ≧3 ⇨ ℓ=0	

PILOT PUNCHES

PILOT PUNCHES WITH LOCATING DOWEL HOLES

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

PRODUCTS DATA P.1089・1094・1095

Type	Shank diameter D T tolerance	M H	Catalog No. Type	B tip length	With dowel hole	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Dm5	Equivalent to SKD11 60～63 HRC	STA	S L X	C	
		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— RoHS	Dm5	Equivalent to SKD11 60～63 HRC	TPA			
		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— RoHS	Dm5	Equivalent to SKD11 60～63 HRC	ATA			
		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	Tip length (B) X>L>S		

A 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.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592

Catalog No. Type	B tip length	With dowel hole	D	L	0.01mm increments min. P max.	A	B	H	Y
—Normal— STA TPA ATA —TiCN coating— H—STA H—TPA H—ATA —Dicoat® treatment— T—STA T—TPA —HW coating— HW—STA HW—TPA HW—ATA	S	C	10	(42) 52 62 72 82 92 102 112 122 (132) (142)	3.00～ 9.99	(10)	15	13	5
			13		6.00～ 12.99	(15)		16	8
			16		10.00～ 15.99	(20)	21	19	
			20		13.00～ 19.99	25		23	
			25		18.00～ 24.99	30		28	
	L		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	62 72 82 92 102 112 122 (132) (142)	10.00～ 15.99	(20)	27	19	
			20		13.00～ 19.99	25		23	
			25		18.00～ 24.99	30		28	
	X		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	72 82 92 102 112 122 (132) (142)	10.00～ 15.99	(20)	42	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, $D^{-0.01}_{-0.03}$ (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.

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	PC	Tip diameter change PC≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) 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≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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)	Quotation
BC	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments. 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		
RLC	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10—P/4) 0.1mm increments	——	
YC	YC	——	Tip taper length change 1≦YC≦P×1.86—0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments. Cannot be used for sharp tip angle types.	
SC	SC	Lapping of tip. P dimension tolerance remains the same. The base material is finished before coating is applied. R=0 and RT=0 cannot be selected. Cannot be used with HW coating and Dicoat® treatment.		
PKC	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +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.		

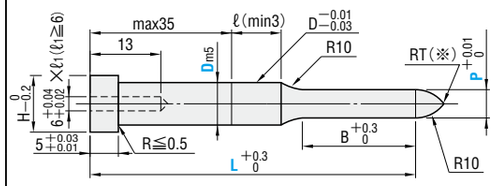
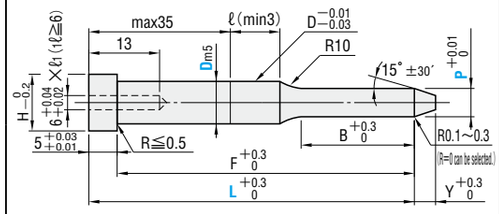
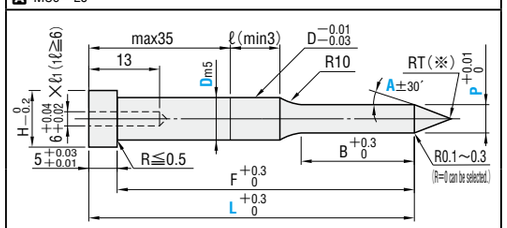
Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	Full length change 30+B(BC)≦LC<L 0.1mm increments. If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length—30mm).		Quotation
	LKC	——	Full length tolerance change L +0.3 0 ⇨ +0.05 0. TiCN coating, HW coating, and Dicoat® treatment cannot be used.	
Alterations to head	HC	Head diameter change D≦HC<H 0.1mm increments		
	TC	Head thickness change 2≦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 0 ⇨ +0.05 0. TiCN coating, HW coating, and Dicoat® treatment cannot be used. Cannot be combined with LKC.	
	NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		
Others	TPC	Dowel pin change MS6—25 that comes with the product is changed to MSTP6—25 (tapped type).		

Price Quotation

PILOT PUNCHES

PILOT PUNCHES WITH LOCATING DOWEL HOLES
—DLC COATING—

PRODUCTS DATA P.1609

Type	Shank diameter D T tolerance	M H	Catalog No. Type	B tip length	With dowel hole	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Dm5	Equivalent to SKD11 60~63 HRC Surface 3000 HV ~	N—STA	S L X	C	
		Equivalent to SKD11 60~63 HRC Surface 3000 HV ~	Foundation WPC® NW—STA			
—Tapered tip type— RoHS	Dm5	Equivalent to SKD11 60~63 HRC Surface 3000 HV ~	N—TPA			
		Equivalent to SKD11 60~63 HRC Surface 3000 HV ~	Foundation WPC® NW—TPA			
—Sharp tip angle type— RoHS	Dm5	Equivalent to SKD11 60~63 HRC Surface 3000 HV ~	N—ATA			
		Equivalent to SKD11 60~63 HRC Surface 3000 HV ~	Foundation WPC® NW—ATA	Tip length (B) X>L>S		

A 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 foundation WPC®.)
(If P≧8, tip end is flat. P.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592

A MS6—25
RT(※)···Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0.
(RT=0 cannot be selected with foundation WPC®.)

Type	B tip length	With dowel hole	D	L	0.01mm increments min. P max.	A	B	H	Y
N—STA N—TPA N—ATA —Foundation WPC®— NW—STA NW—TPA NW—ATA	S	C	10	(42) 52 62 72 82 92 102 112 122 (132) (142)	3.00~ 9.99	(10)	15	13	5
			13		6.00~ 12.99	(15)		16	8
			16		10.00~ 15.99	(20)	21	19	
			20		13.00~ 19.99	25		23	
			25		18.00~ 24.99	30		28	
	L		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	62 72 82 92 102 112 122 (132) (142)	10.00~ 15.99	(20)	27	19	
			20		13.00~ 19.99	25		23	
			25		18.00~ 24.99	30		28	
	X		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	72 82 92 102 112 122 (132) (142)	10.00~ 15.99	(20)	42	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, $D^{-0.01}_{-0.03}$ (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.

Order

Catalog No.	L	P	A	(RT=0 R=0)
N—STASC 10	72	P5.50		
N—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.)
N—STASC 16	72	PC8.505			PKC

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip: PC	PC	Tip diameter change PC≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) 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≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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)	Quotation
BC	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 30mm longer than tip length BC.		
RLC	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	
YC	YC	——	Tip taper length change 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments Cannot be used for sharp tip angle types.	
PKC	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 (P dimension can be selected in 0.001mm increments.)		

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	Full length change 30+B(BC)≦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 head	HC	Head diameter change D≦HC<H 0.1mm increments		
	TC	Head thickness change 2≦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		Quotation
	WKC	Addition of double key flats in parallel		
Shank	NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		
Others	TPC	Dowel pin change MS6—25 that comes with the product is changed to MSTP6—25 (tapped type).		

Price Quotation

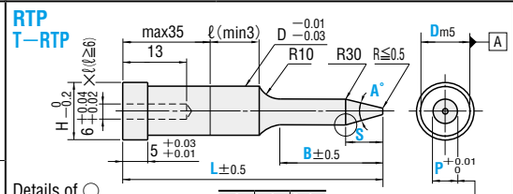
Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P.1609

PILOT PUNCHES

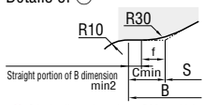
PILOT PUNCHES
—CONFIGURABLE TYPE—

PRODUCTS DATA P.1599

Type	Shank diameter D T 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	(Economy type) RTPE / T—RTPE
—Dicoat® treatment— RoHS	Dm5	Equivalent to SKD11 60～63 HRC Surface 3000 HV	T—RTPE	



Details of ○

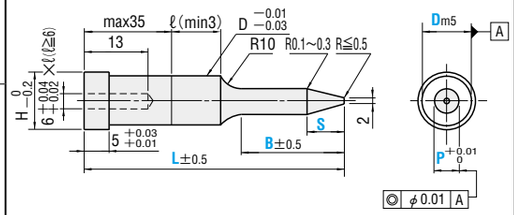


A	f	Cmin.
20°	2.624	5
30°	3.950	6
45°	5.967	8

f is a calculated value. For machining reasons, B dimension must be equal to or larger than S+Cmin.

S is the dimension prior to R30 machining.

A MS6—25



A MS6—25

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

The center hole remains at the tip end.
D(10)(32)···Cannot be used for T—RTP.
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(200)···For RTP with D10 and T—RTP, L must not exceed 150.
B(100)···If D=10, B must not exceed 50.
(L—35)≧B≧(S+Cmin.)

H	Catalog No. Type	D	1mm increments L	0.01mm increments min. P max.	1mm increments B	1mm increments S	Base unit price 1～9 pieces RTPE	T—RTPE 70≦L≦100	T—RTPE 100<L≦150
13	RTPE T—RTPE	(10)	70～150	6.00～ 9.99	10～50	8～45 S≦B—2	Quotation		
16		13		6.00～ 12.99					
19		16		8.00～ 15.99					
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

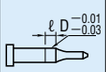
Days to Ship Quotation

Price 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

	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 Full length becomes the same size as specification size.	
		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).	

PILOT PUNCHES

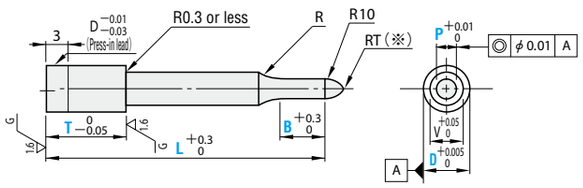
FLANGE STOPPER PILOT PUNCHES

—NORMAL・TiCN COATING・HW COATING・DLC COATING—

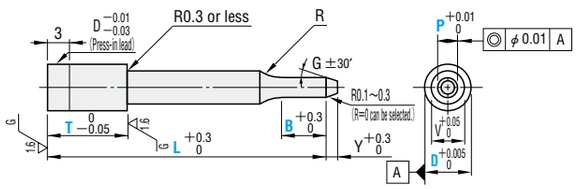
PRODUCTS DATA P.1604・1605・1609

Type	M/H	Catalog No.
—Tip R type— RoHS	Powdered high-speed steel 64～67HRC	PSTHAL
	Powdered high-speed steel 64～67HRC Surface hardness 3000 HV	H—PSTHAL HW—PSTHAL
	Powdered high-speed steel 64～67HRC Surface hardness 3000 HV ～	N—PSTHAL NW—PSTHAL
—Tapered tip type— RoHS	Powdered high-speed steel 64～67HRC	PTPHAL
	Powdered high-speed steel 64～67HRC Surface hardness 3000 HV	H—PTPHAL HW—PTPHAL
	Powdered high-speed steel 64～67HRC Surface hardness 3000 HV ～	N—PTPHAL NW—PTPHAL
—Sharp tip angle type— RoHS	Powdered high-speed steel 64～67HRC	PATHAL
	Powdered high-speed steel 64～67HRC Surface hardness 3000 HV	H—PATHAL HW—PATHAL
	Powdered high-speed steel 64～67HRC Surface hardness 3000 HV ～	N—PATHAL NW—PATHAL

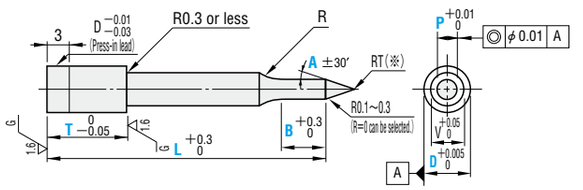
Shape



RT(※)···Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0. HW coating or foundation WPC® cannot be used.
For the length of tip R, refer to the products data "Punch R length". P.1592



P	G
P≦1.99	10°
P≧2.00	15°



RT(※)···Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0.HW coating or foundation WPC® cannot be used.

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

Order

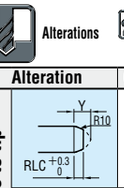
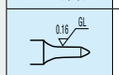
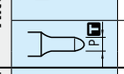
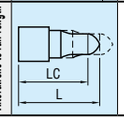
Catalog No.	L	P	A	T	B	(RT=0 / R=0)
PSTHAL 5	62	P3.00		T20	B5	RT0
H—PATHAL 6	52	P2.03	A15	T13	B4	

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.)

Days to Ship Quotation

Alterations

Catalog No. — L(LC・LCT) — P — A — T(TC) — B — (RT=0 / R=0) — (PKC・LKC...etc.)
PSTHAL 5 — LC60 — P3.00 — TC15.0 — B5 — PKC

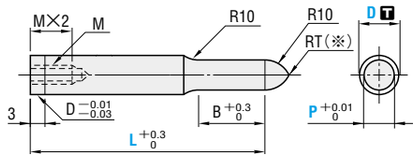
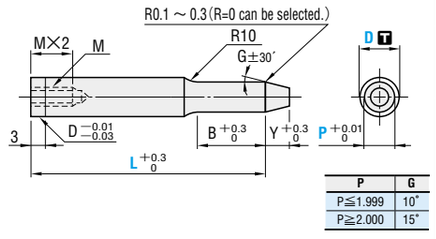
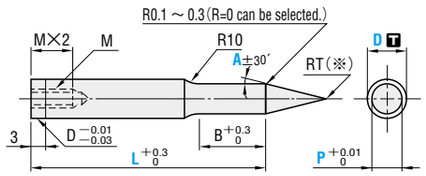
	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	Quotation
		SC	Lapping of tip P dimension tolerance and increment remain the same. R=0 and RT=0 cannot be selected. The base material is finished before coating is applied. HW coating and foundation WPC® cannot be used.		
		PKC	Tip diameter tolerancechange P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments.		
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.		

	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 ⇨ +0.05 0 Cannot be used with .TiCN coating, HW coating, DLC coating and foundation WPC® cannot be used	
		LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (P) are the same as for LC. TKC Head thickness tolerance change T 0 −0.05 ⇨ 0 −0.02 + LC Full length change		Quotation
Alterations to head		TC	T dimension change 13<TC<25 0.1mm increments If L<50, the available range is 13<TC<20. The full length L remains the same.		
		TKC	Head thickness tolerance change T 0 −0.05 ⇨ 0 −0.02		

Price Quotation

■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

TAPPED PILOT PUNCHES
—NORMAL —

Type	Shank diameter D T tolerance	M H	Catalog No. Type Normal	B tip length	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250 For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Equivalent to SKD11 60～63HRC	STMA Tapped large-diameter type (D16～25) STMLA	S L X	 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.1592) For the length of tip R, refer to the products data "Punch R length". P.1592
		Powdered high-speed steel 64～67HRC	PSTMA		
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—STMA		
		Powdered high-speed steel 64～67HRC	A—PSTMA		
—Tapered tip type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Equivalent to SKD11 60～63HRC	TPMA Tapped large-diameter type (D16～25) TPMLA		
		Powdered high-speed steel 64～67HRC	PTPMA		
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—TPMA		
		Powdered high-speed steel 64～67HRC	A—PTPMA		
—Sharp tip angle type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Equivalent to SKD11 60～63HRC	ATMA Tapped large-diameter type (D16～25) ATMLA		 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		
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—ATMA	Tip length (B) X>L>S Tapped large-diameter type S・L only	
		Powdered high-speed steel 64～67HRC	A—PATMA		

Catalog No. Type	B tip length	D	L	0.01mm increments min. P max.	A	B	Y	M Standard type	M Large-diameter
—Normal— (Dm5) ($D^{+0.005}_{0}$) M Equivalent to SKD11: STMA A—STMA; TPMA A—TPMA; ATMA A—ATMA	S	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					
		8	(42) 52 62 72 82 (92)	3.00～7.99		15	5	4	
		10	(42) 52 62 72 82 (92) (102)	3.00～9.99				5	
		13	(42) 52 62 72 82 (92) (102)	6.00～12.99			8	6	
		16	(42) 52 62 72 82 (92) (102)	10.00～15.99		21			8
		20	(42) 52 62 72 82 (92) (102)	13.00～19.99					
		25	(42) 52 62 72 82 (92) (102)	18.00～24.99					
—Tapped large-diameter type— (D16～25) STMLA TPMLA ATMLA	L	5	52 62 (72)	2.00～4.99	(10) (15) (20) 25 30	15	3	3	—
		6	52 62 (72)	2.50～5.99					
		8	52 62 72 82 (92)	3.00～7.99		21	5	4	
		10	52 62 72 82 (92) (102)	3.00～9.99				5	
		13	52 62 72 82 (92) (102)	6.00～12.99			8	6	
		16	62 72 82 (92) (102)	10.00～15.99		27			8
		20	62 72 82 (92) (102)	13.00～19.99					
		25	62 72 82 (92) (102)	18.00～24.99					
—Normal— M Powdered high-speed steel: PSTMA A—PSTMA; PTPMA A—PTPMA; PATMA A—PATMA	X	5	52 62 (72)	2.00～4.99	(10) (15) (20) 25 30	27	3	3	—
		6	52 62 (72)	2.50～5.99					
		8	62 72 82 (92)	3.00～7.99		32	5	4	
		10	62 72 82 (92) (102)	3.00～9.99				5	
		13	62 72 82 (92) (102)	6.00～12.99			8	6	
	(Tapped large-diameter type not available)	16	72 82 (92) (102)	10.00～15.99		42			
		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.

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

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PC	Tip diameter change PC≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) 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≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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)	Quotation
	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least+30mm longer than tip length BC.		
	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	—	
	YC	—	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PKC	Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ P dimension can be selected in 0.001mm increments.		Quotation
	SC	Lapping of tip P dimension tolerance remains the same. ⊗ R=0 and RT=0 cannot be selected.		
Alterations to full length	LC	Full length change 30+B(BC)≦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 $L^{+0.3}_{0}$ ⇨ $^{+0.05}_{0}$.	
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≦D−2.2 ⊗ Cannot be combined with KC・WKC. ⊗ Cannot be used for D5・6.		

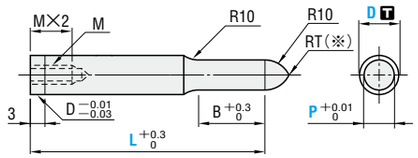
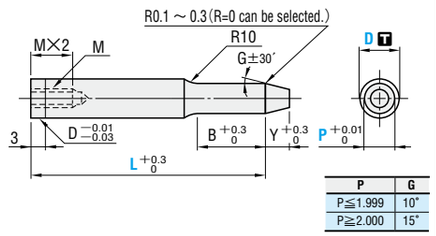
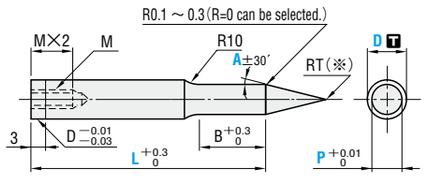
Price Quotation

PILOT PUNCHES

TAPPED PILOT PUNCHES

—TiCN COATING・HW COATING・DLC COATING—

PRODUCTS DATA P.1604・1605・1609

Type	Shank diameter D T tolerance	M H	Catalog No. Type: DLC coating DLC foundation WPC® Surface 3,000HV ～	Catalog No. Type: TiCN coating HW coating Surface 3,000HV	B tip length	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250 For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Powdered high-speed steel 64～67HRC	N—PSTMA NW—PSTMA	H—PSTMA HW—PSTMA	S L X	
	$D^{+0.005}_{0}$	Powdered high-speed steel 64～67HRC	AN—PSTMA ANW—PSTMA	AH—PSTMA AHW—PSTMA		
—Tapered tip type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Powdered high-speed steel 64～67HRC	N—PTPMA NW—PTPMA	H—PTPMA HW—PTPMA		
	$D^{+0.005}_{0}$	Powdered high-speed steel 64～67HRC	AN—PTPMA ANW—PTPMA	AH—PTPMA AHW—PTPMA		
—Sharp tip angle type— RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Powdered high-speed steel 64～67HRC	N—PATMA NW—PATMA	H—PATMA HW—PATMA	Tip length (B) X>L>S	
	$D^{+0.005}_{0}$	Powdered high-speed steel 64～67HRC	AN—PATMA ANW—PATMA	AH—PATMA AHW—PATMA		

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 foundation WPC®.) (If P≧8, the tip end is flat. P.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592

P	G
P≦1.999	10°
P≧2.000	15°

RT(※)…Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (RT=0 cannot be selected with HW coating foundation WPC®.)

Catalog No. Type	B tip length	D	L	0.01mm increments min. P max.	A	B	Y	M Standard type
(D_{m5}) ($D^{+0.005}_{0}$) —DLC coating— M Powdered high-speed steel N—PSTMA AN—PSTMA N—PTPMA AN—PTPMA N—PATMA AN—PATMA —DLC foundatin WPC®— NW—PSTMA ANW—PSTMA NW—PTPMA ANW—PTPMA NW—PATMA ANW—PATMA —TiCN coating— H—PSTMA AH—PSTMA H—PTPMA AH—PTPMA H—PATMA AH—PATMA —HW coating— HW—PSTMA AHW—PSTMA HW—PTPMA AHW—PTPMA HW—PATMA AHW—PATMA	S	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				
		8	(42) 52 62 72 82 (92)	3.00 ～ 7.99		15	5	4
		10	(42) 52 62 72 82 (92) (102)	3.00 ～ 9.99				5
		13	(42) 52 62 72 82 (92) (102)	6.00 ～ 12.99		21	8	6
		16	(42) 52 62 72 82 (92) (102)	10.00 ～ 15.99				
		20	(42) 52 62 72 82 (92) (102)	13.00 ～ 19.99				
		25	(42) 52 62 72 82 (92) (102)	18.00 ～ 24.99				
	L	5	52 62 (72)	2.00 ～ 4.99	(10) (15) (20) 25 30	15	3	3
		6	52 62 (72)	2.50 ～ 5.99				
		8	52 62 72 82 (92)	3.00 ～ 7.99		21	5	4
		10	52 62 72 82 (92) (102)	3.00 ～ 9.99				5
		13	52 62 72 82 (92) (102)	6.00 ～ 12.99		27	8	6
		16	62 72 82 (92) (102)	10.00 ～ 15.99				
		20	62 72 82 (92) (102)	13.00 ～ 19.99				
		25	62 72 82 (92) (102)	18.00 ～ 24.99				
	X	5	52 62 (72)	2.00 ～ 4.99	(10) (15) (20) 25 30	27	3	3
		6	52 62 (72)	2.50 ～ 5.99				
		8	62 72 82 (92)	3.00 ～ 7.99		32	5	4
		10	62 72 82 (92) (102)	3.00 ～ 9.99				5
		13	62 72 82 (92) (102)	6.00 ～ 12.99		42	8	6
		16	72 82 (92) (102)	10.00 ～ 15.99				
		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.

Order

Catalog No.	L	P	A	(RT=0 R=0)
AN—PSTMAS 6	72	P5.02		RT0
N—PTPMAS 6	52	P4.97		
AN—PATMAL 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.)
N—PTPMAS 13	82	P8.24			KC

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PC	Tip diameter change PC≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) 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≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax. 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)	Quotation
	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least+30mm longer than tip length BC.		
	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10—P/4) 0.1mm increments	——	
	YC	——	Tip taper length change ・P<2.0 1≦YC≦P×2.83—0.3 ・P≧2.0 1≦YC≦P×1.86—0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments Cannot be used for sharp tip angle types.	

Price Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PKC	Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ P dimension can be selected in 0.001mm increments. TiCN coating HW coating cannot be used for D>13.		Quotation
	SC	Lapping of tip P dimension tolerance remains the same. R=0 and RT=0 cannot be selected. The base material is finished before coating is applied. Cannot be used with HW coating・foundation WPC®.		
Alterations to full length	LC	Full length change 30+B(BC)≦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 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≦D—2.2 Cannot be combined with KC・WKC. Cannot be used for D5・6.		

Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P.1609

PILOT PUNCHES

PILOT PUNCHES WITH KEY GROOVES
—NORMAL—

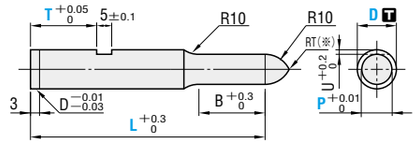
Type	Shank diameter D T tolerance	M H	Catalog No. Type Normal	B tip length
—Tip R type— RoHS	D_{m5}	Equivalent to SKD11 60～63HRC	STKA	S / L / X
		Equivalent to SKH51 61～64 HRC	HSTKA	
		Powdered high-speed steel 64～67HRC	PSTKA	
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—STKA	
		Equivalent to SKH51 61～64 HRC	A—HSTKA	
		Powdered high-speed steel 64～67HRC	A—PSTKA	
—Tapered tip type— RoHS	D_{m5}	Equivalent to SKD11 60～63HRC	TPKA	
		Equivalent to SKH51 61～64 HRC	HTPKA	
		Powdered high-speed steel 64～67HRC	PTPKA	
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—TPKA	
		Equivalent to SKH51 61～64 HRC	A—HTPKA	
		Powdered high-speed steel 64～67HRC	A—PTPKA	
—Sharp tip angle type— RoHS	D_{m5}	Equivalent to SKD11 60～63HRC	ATKA	
		Equivalent to SKH51 61～64 HRC	HATKA	
		Powdered high-speed steel 64～67HRC	PATKA	
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—ATKA	
		Equivalent to SKH51 61～64 HRC	A—HATKA	
		Powdered high-speed steel 64～67HRC	A—PATKA	Tip length (B) X>L>S

Shape of tip changes depending on P dimension. P.250
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

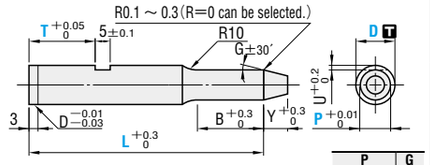
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

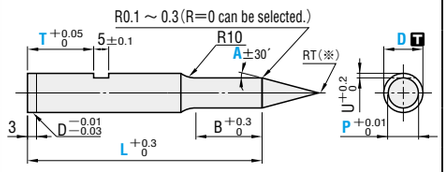
Shape



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.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592



P	G
P≦1.999	10°
P≧2.000	15°



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

Catalog No. Type	B tip length	D	L	0.01mm increments min. P max.	A	0.1mm increments T	B	Y	U
	S	3	42 52 62 (72)	1.00～ 2.99	(10) (15) 20 25 30	T>5.0	10	2	0.5
		4	42 52 62 (72)	1.00～ 3.99				3	1.0
		5	42 52 62 (72)	2.00～ 4.99					
		6	42 52 62 (72)	2.50～ 5.99					
		8	(42) 52 62 72 82 (92)	3.00～ 7.99			15	5	1.5
		10	(42) 52 62 72 82 (92) (102)	3.00～ 9.99					
		13	(42) 52 62 72 82 (92) (102)	6.00～ 12.99				8	
		16	(42) 52 62 72 82 (92) (102)	10.00～ 15.99			21		
(Dm5) / (D+0.005 0)	L	3	52 62 (72)	1.00～ 2.99	(10) (15) 20 25 30	T>5.0	15	2	0.5
M Equivalent to SKD11: STKA / A—STKA; TPKA / A—TPKA; ATKA / A—ATKA		4	52 62 (72)	1.00～ 3.99				3	1.0
		5	52 62 (72)	2.00～ 4.99					
M Equivalent to SKH51: HSTKA / A—HSTKA; HTPKA / A—HTPKA; HATKA / A—HATKA		6	52 62 (72)	2.50～ 5.99					
		8	52 62 72 82 (92)	3.00～ 7.99			21	5	1.5
		10	52 62 72 82 (92) (102)	3.00～ 9.99					
M Powdered high-speed steel: PSTKA / A—PSTKA; PTPKA / A—PTPKA; PATKA / A—PATKA		13	52 62 72 82 (92) (102)	6.00～ 12.99				8	
		16	62 72 82 (92) (102)	10.00～ 15.99			27		
	X	3	52 62 (72)	1.20～ 2.99	(10) (15) 20 25 30	T>5.0	21	2	0.5
		4	52 62 (72)	1.20～ 3.99					
		5	62 (72)	2.00～ 4.99			27	3	1.0
		6	62 (72)	2.50～ 5.99					
		8	62 72 82 (92)	3.00～ 7.99			32	5	1.5
		10	62 72 82 (92) (102)	3.00～ 9.99					
		13	62 72 82 (92) (102)	6.00～ 12.99				8	
		16	72 82 (92) (102)	10.00～ 15.99			42		

(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	

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

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PC	Tip diameter change PC≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Tip diameter change PC≧ Pmin./2 ≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax.	Quotation
	BC	Tip length change 2≦BC≦Bmax. Full length L must be at least 30mm longer than tip length BC.	0.1mm increments	
	YC	——	Tip taper length change •P<2.0 1≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	
	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments.		

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. ⊗ R=0 and RT=0 cannot be selected.		
Alterations to full length	LC	Full length change 30+B(BC)≦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).		Quotation
	LKC	——	Full length tolerance change L +0.3 0 ⇨ +0.05 0	
	LCT	TKC Head thickness tolerance change T +0.05 0 ⇨ 0 −0.02 + LC Full length change		
Alterations to key groove	WKD	Addition of double key grooves in parallel		
	TKC	T dimension tolerance change T +0.05 0 ⇨ 0 −0.02		
	UK	Key groove depth change ⊗ Cannot be used for D3. (D / UK: 4～5 / 0.7; 6 / 1.2; 8～16 / 1.7)		

Price Quotation

PILOT PUNCHES WITH KEY GROOVES

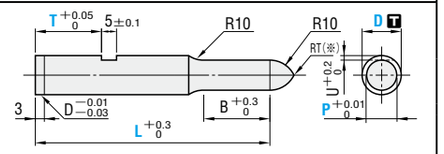
—TiCN COATING・HW COATING・DLC COATING—

PRODUCTS DATA P.1604・1605・1609

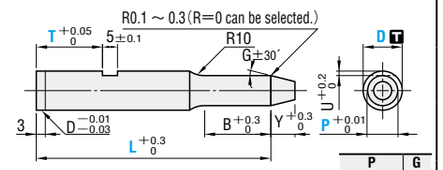
Type	Shank diameter D T tolerance	M H	Catalog No. Type: DLC coating DLC foundation WPC® Surface 3000HV ～	Catalog No. Type: TiCN coating HW coating Surface 3000HV	B tip length
—Tip R type— RoHS	D_{m5}	Equivalent to SKH51 61～64 HRC	N—HSTKA NW—HSTKA	H—HSTKA HW—HSTKA	
		Powdered high-speed steel 64～67HRC	N—PSTKA NW—PSTKA	H—PSTKA HW—PSTKA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64 HRC	AN—HSTKA ANW—HSTKA	AH—HSTKA AHW—HSTKA	
		Powdered high-speed steel 64～67HRC	AN—PSTKA ANW—PSTKA	AH—PSTKA AHW—PSTKA	
—Tapered tip type— RoHS	D_{m5}	Equivalent to SKH51 61～64 HRC	N—HTPKA NW—HTPKA	H—HTPKA HW—HTPKA	S
		Powdered high-speed steel 64～67HRC	N—PTPKA NW—PTPKA	H—PTPKA HW—PTPKA	L
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64 HRC	AN—HTPKA ANW—HTPKA	AH—HTPKA AHW—HTPKA	
		Powdered high-speed steel 64～67HRC	AN—PTPKA ANW—PTPKA	AH—PTPKA AHW—PTPKA	X
—Sharp tip angle type— RoHS	D_{m5}	Equivalent to SKH51 61～64 HRC	N—HATKA NW—HATKA	H—HATKA HW—HATKA	
		Powdered high-speed steel 64～67HRC	N—PATKA NW—PATKA	H—PATKA HW—PATKA	
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64 HRC	AN—HATKA ANW—HATKA	AH—HATKA AHW—HATKA	
		Powdered high-speed steel 64～67HRC	AN—PATKA ANW—PATKA	AH—PATKA AHW—PATKA	Tip length (B) X>L>S

Shape of tip changes depending on P dimension. P.250
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

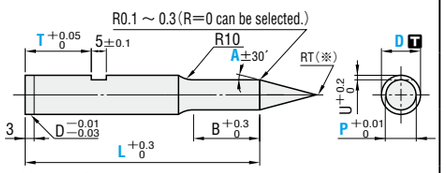
Shape



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・fountation WPC® (If P≧8, tip end is flat. P.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592



P	G
P≦1.999	10°
P≧2.000	15°



RT(※)•••Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0.
(RT=0 cannot be selected with HW coating・foundation WPC®)

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

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)
AN—HSTKAS 6	72	P5.02		T20.0	RT0
N—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

■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

Alterations

Catalog No.	L(LC・LCT)	P(PC)	A	T	(RT=0 R=0)	(BC・YC…etc.)
AN—PSTKAS 8	82	PC1.50		T20.0		YC1.0

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip: PC P	PC	Tip diameter change PC≧ Pmin./2 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) ⊗ TiCN coating cannot be used for PC<1	Tip diameter change PC≧ Pmin./2 ≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) Ymax.=YCmax.	Quotation
	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 30mm longer than tip length BC. For TiCN coating, Bmax.=50.		
	YC	——	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	
	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. ⊗ TiCN coating cannot be used for D>13.		

Tip R type (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)

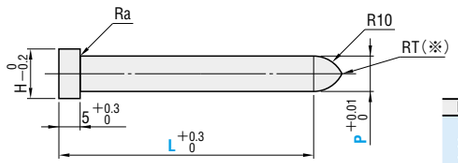
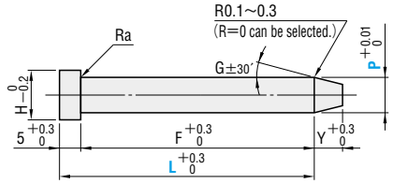
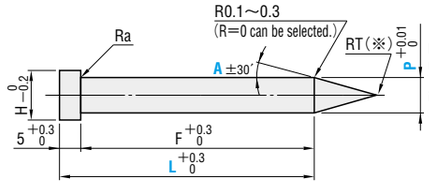
Tip R type (PC)	Bmax.
1.000～1.199	15
1.200～1.999	20
2.000～2.999	30
3.000～3.999	35
4.000～5.999	45
6.000～	(60)

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)≦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).		Quotation
	LCT	TKC Head thickness tolerance change T +0.05 0 ⇨ 0 −0.02 + LC Full length change		
Alterations to key groove	WKD	Addition of double key grooves in parallel		
	TKC	T dimension tolerance change T +0.05 0 ⇨ 0 −0.02		
	UK	Key groove depth change ⊗ Cannot be used for D3.		

D	UK
4～5	0.7
6	1.2
8～16	1.7

Price Quotation

STRAIGHT PILOT PUNCHES

Type	M H	Catalog No.	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Equivalent to SKD11 60～63 HRC	STC (No.3～25)	 No. / Ra: 1.6, 2.0, 2.5 — R≦0.2; 3～ — R≦0.5 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.1592) For the length of tip R, refer to the products data "Punch R length". P.1592
	Equivalent to SKH51 61～64HRC	HSTC	
	Powdered high-speed steel 64～67HRC	PSTC	
—Tapered tip type— RoHS 	Equivalent to SKD11 60～63HRC	TTC (No.3～25)	 No. / Ra: 1.6, 2.0, 2.5 — R≦0.2; 3～ — R≦0.5 P / G: 1.000～1.999 — 10°; 2.000～ — 15°
	Equivalent to SKH51 61～64HRC	HTTC	
	Powdered high-speed steel 64～67HRC	PTTC	
—Sharp tip angle type— RoHS 	Equivalent to SKD11 60～63HRC	ATTC (No.3～25)	 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
	Equivalent to SKH51 61～64HRC	HATTC	
	Powdered high-speed steel 64～67HRC	PATTC	

Catalog No. Type	No.	L								0.01mm increments min. P max.	A	Y	H
M Equivalent to SKD11 (No.3～25) STC TTC ATTC	1.6	42	52	62						1.00～ 1.60		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	(10)		7
M Equivalent to 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	(20)		9
	8	42	52	62	72	82	(92)	(102)		6.00～ 8.00	25	5	11
M Powdered high-speed steel PSTC PTTC PATTC	10	42	52	62	72	82	(92)	(102)		8.00～ 10.00	30		13
	13	42	52	62	72	82	(92)	(102)		10.00～ 13.00		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	—	(RT=0 / R=0)
STC 6	—	72	—	P5.02			—	RT0
PATTC 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 — (RT=0 / R=0) — (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	YC	——	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	Quotation
	RLC	RLC	Tip R is cut flat. 2≦RLC< Y < 8 Y = √P(10−P/4) 0.1mm increments	——	
	PKC	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments.		
Alterations to full length	LC	LC	Full length change 25≦LC<L 0.1mm increments		
	LKC	LKC	——	Full length tolerance change L +0.3 0 ⇨ +0.05 0	
	LCT	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 0 ⇨ +0.02 0 + LC: Full length change		
	LMT	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 0 ⇨ 0 −0.02 + LC: Full length change		

	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head	HC	HC	Head diameter change P≦HC<H 0.1mm increments		Quotation
	TC	TC	Head thickness change 2≦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	KC	Addition of single key flat to head		
	WKC	WKC	Addition of double key flats in parallel		
	TKC	TKC	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0		
	TKM	TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02		
Shank	FKC	FKC	——	F dimension tolerance change F +0.3 0 ⇨ +0.05 0 ⊗ Cannot be combined with LKC.	

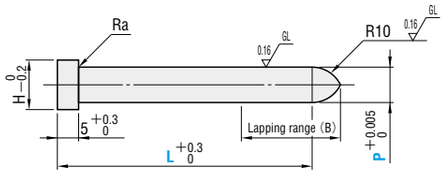
Price Quotation

PILOT PUNCHES

STRAIGHT PILOT PUNCHES
—LAPPING—

Type	M H	Catalog No.	Shape
—Tip R type— RoHS	Equivalent to SKD11 60～63HRC	L—STC (No.3～25)	
	Equivalent to SKH51 61～64HRC	L—HSTC	
	Powdered high-speed steel 64～67HRC	L—PSTC	

Shape of tip changes depending on P dimension. P.250



Lapping range (B)

P	(B)
1.000～2.999	13
3.000～9.999	19
10.000～	25

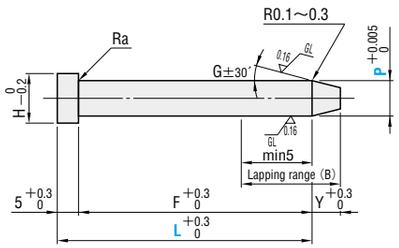
If L＜(B)＋20, (B) is adjusted to L−20.

No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Over effective lapping range(B), P$^{+0.1}_{0}$

For the length of tip R, refer to the products data "Punch R length". P.1592

Type	M H	Catalog No.	Shape
—Tapered tip type— RoHS	Equivalent to SKD11 60～63HRC	L—TTC (No.3～25)	
	Equivalent to SKH51 61～64HRC	L—HTTC	
	Powdered high-speed steel 64～67HRC	L—PTTC	



Lapping range (B)

P	(B)
1.000～2.999	13
3.000～9.999	19
10.000～	25

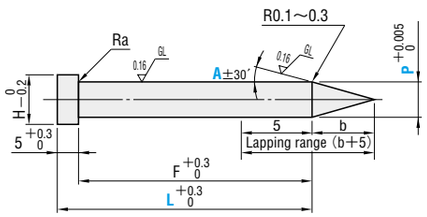
If L＜(B)＋20, (B) is adjusted to L−20.

No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

P	G
1.000～1.999	10°
2.000～	15°

Over effective lapping range(B), P$^{+0.1}_{0}$

Type	M H	Catalog No.	Shape
—Sharp tip angle type— RoHS	Equivalent to SKD11 60～63HRC	L—ATTC (No.3～25)	
	Equivalent to SKH51 61～64HRC	L—HATTC	
	Powdered high-speed steel 64～67HRC	L—PATTC	



No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Over effective lapping range(B), P$^{+0.1}_{0}$

Catalog No. Type	No.	L							0.001mm increments min. P	max.	A	Y	H
M 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
	4	42	52	62	72	82	(92)		3.000～	4.000	(10)		7
M Equivalent to SKH51 L—HSTC L—HTTC L—HATTC	5	42	52	62	72	82	(92)		4.000～	5.000	(15)	3	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	5	11
M Powdered high-speed steel L—PSTC L—PTTC L—PATTC	10	42	52	62	72	82	(92)	(102)	8.000～	10.000	30		13
	13	42	52	62	72	82	(92)	(102)	10.000～	13.000		8	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≧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

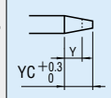
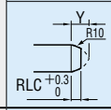
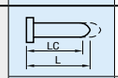
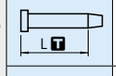
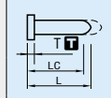
Catalog No.	—	L	—	P	—	A
L—STC 10	—	72	—	P8.200		
L—HATTC 2.5	—	52	—	P1.600	—	A15

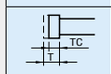
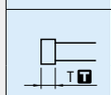
A Can be used for sharp tip angle types only.

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	——	Tip taper length change •P＜2.0 1≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)＋YC≦Lmax.＋8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	Quotation
		RLC	Tip R is cut flat. 2≦RLC＜Y＜8 Y＝√P(10−P/4) 0.1mm increments	——	
Alterations to full length		LC	Full length change 25≦LC＜L 0.1mm increments		
		LKC	——	Full length tolerance change L +0.3 0 ⇨ +0.05 0	
		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 0 ⇨ +0.02 0 ＋ LC 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 0 ⇨ 0 −0.02 ＋ LC Full length change		

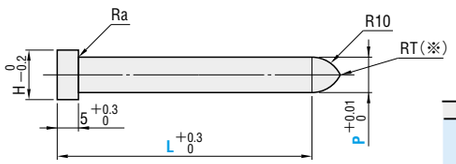
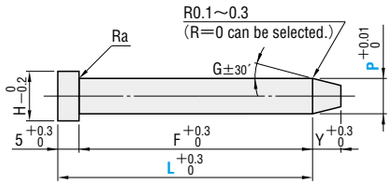
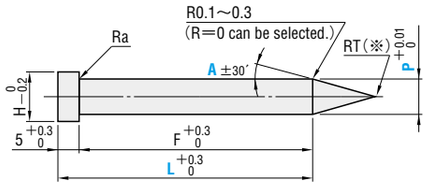
	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head		HC	Head diameter change P≦HC＜H 0.1mm increments		Quotation
		TC	Head thickness change 2≦TC＜5 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) (?) Full length L is 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 0 ⇨ +0.02 0		
		TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02		
Shank		FKC	——	F dimension tolerance change F +0.3 0 ⇨ +0.05 0 ⊗ Cannot be combined with LKC.	

Price Quotation

PILOT PUNCHES

STRAIGHT PILOT PUNCHES
—TiCN COATING—

PRODUCTS DATA P.1604

Type	M H	Catalog No.	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HSTC	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PSTC	
—Tapered tip type— RoHS	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HTTC	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PTTC	
—Sharp tip angle type— RoHS	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HATTC	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PATTC	

No.	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

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.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592

No.	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

P	G
1.00～1.99	10°
2.00～	15°

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

Catalog No. Type	No.	L	0.01mm increments min.	P max.	A	Y	H
M Equivalent to 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		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	(10)		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	(20)		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	30		13
	13	42 52 62 72 82 (92) (102)	10.00～	13.00		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	RT=0 / R=0
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	RT=0 / R=0	(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≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
	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 remains the same. The base material is finished before the coating is applied. Lapping range (B): P 1.00～2.99 (B) 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.		Quotation
Alterations to full length	LC	Full length change 25≦LC<L 0.1mm increments		
	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 0 ⇨ +0.02 0 + LC 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 0 ⇨ 0 −0.02 + LC Full length change		

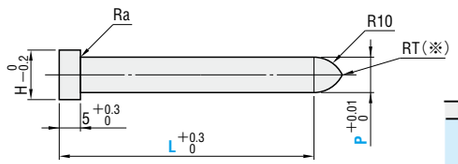
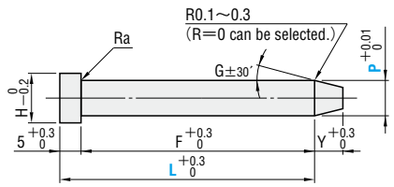
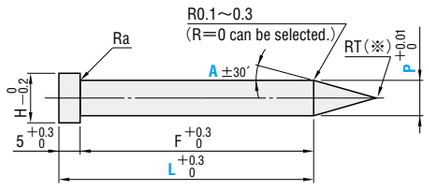
Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head	HC	Head diameter change P≦HC<H 0.1mm increments 2.6≦HC<H		
	TC	Head thickness change 4≦TC<5 0.1mm increments (If combined with LCT, LMT, TKC, and TKM, 0.01mm increments can be selected.) Full length L is shortened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

Price Quotation

PILOT PUNCHES

STRAIGHT PILOT PUNCHES
—DLC COATING—

PRODUCTS DATA P.1609

Type	M H	Catalog No.	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Equivalent to SKH51 61～64HRC Surface 3000HV～	N—HSTC	
	Powdered high-speed steel 64～67HRC Surface 3000HV～	N—PSTC	
—Tapered tip type— RoHS	Equivalent to SKH51 61～64HRC Surface 3000HV～	N—HTTC	
	Powdered high-speed steel 64～67HRC Surface 3000HV～	N—PTTC	
—Sharp tip angle type— RoHS	Equivalent to SKH51 61～64HRC Surface 3000HV～	N—HATTC	
	Powdered high-speed steel 64～67HRC Surface 3000HV～	N—PATTC	

No.	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

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.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592

No.	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

P	G
1.00～1.99	10°
2.00～	15°

No.	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

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

Catalog No. Type	No.	L	0.01mm increments min.	P max.	A	Y	H
M Equivalent to SKH51 N—HSTC N—HTTC N—HATTC / M Powdered high-speed steel N—PSTC N—PTTC N—PATTC	1.6	42 52 62	1.00～	1.60	(10) (15) (20) 25 30	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		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		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		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

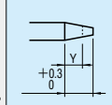
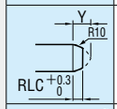
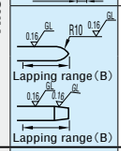
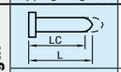
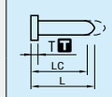
Catalog No.	L	P	A	(RT=0 / R=0)
N—PSTC 6	72	P5.02		RT0
N—HATTC 8	42	P7.03	A15	

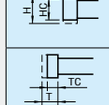
A Can be used for sharp tip angle types only.
RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)
R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)

Days to Ship Quotation

Alterations

Catalog No.	L(LC·LCT·LMT)	P	A	(RT=0 / R=0)	(YC·HC·TC...etc.)
N—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≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
	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 remains the same. the base material is finished before the coating is applied. Lapping range (B): P 1.00～2.99 (B) 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.		Quotation
Alterations to full length 	LC	Full length change 25≦LC<L 0.1mm increments		
	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 0 ⇨ +0.02 0 + LC 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 0 ⇨ 0 −0.02 + 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≦HC<H 0.1mm increments (?) 2.6≦HC<H		
	TC	Head thickness change 4≦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.		Quotation
	KC	Addition of single key flat to head		
	WKC	Addition of double key flats in parallel		
	TKC	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0		
	TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02		

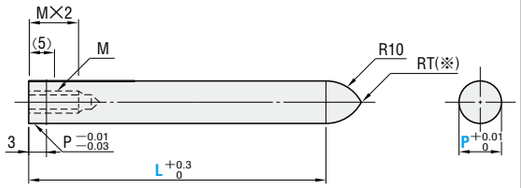
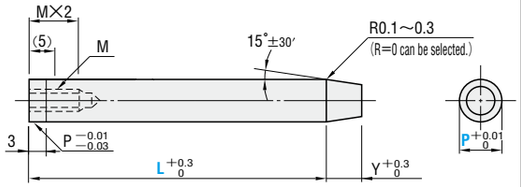
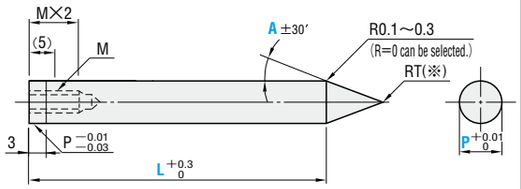
Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P.1609

Price Quotation

TAPPED STRAIGHT PILOT PUNCHES

—NORMAL・TiCN COATING・DLC COATING—

PRODUCTS DATA P.1604・1609

Type	M H	Catalog No.	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Equivalent to SKD11 60～63HRC	STMC	 (5)…Coating is not applied to a 5 mm length from the tip end. (TiCN coating・DLC 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.1592) For the length of tip R, refer to the products data "Punch R length". P.1592
	Powdered high-speed steel 64～67HRC	PSTMC	
	Powdered high-speed steel 64～67HRC Surface 3000HV	TiCN coating H—PSTMC	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	DLC coating N—PSTMC	
—Tapered tip type— RoHS	Equivalent to SKD11 60～63HRC	TTMC	 (5)…Coating is not applied to a 5 mm length from the tip end. (TiCN coating・DLC coating)
	Powdered high-speed steel 64～67HRC	PTTMC	
	Powdered high-speed steel 64～67HRC Surface 3000HV	TiCN coating H—PTTMC	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	DLC coating N—PTTMC	
—Sharp tip angle type— RoHS	Equivalent to SKD11 60～63HRC	ATTMC	 (5)…Coating is not applied to a 5 mm length from the tip end. (TiCN coating・DLC coating) RT(※)…Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
	Powdered high-speed steel 64～67HRC	PATMC	
	Powdered high-speed steel 64～67HRC Surface 3000HV	TiCN coating H—PATMC	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	DLC coating N—PATMC	

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

L(82)(92)…L82/92 can be used for tip R types and tapered tip types only.
A(15)…If P≧15.00, A15 cannot be selected. A(20)…If P≧20.0, A20 cannot be selected.

Order

Catalog No.	L	P	A	(RT=0 / R=0)
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 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	A	(RT=0 / R=0)	(YC…etc.)
STMC 10	LC65	P8.50			YC1

■**Effects of DLC coating**
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

Alterations	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip: YC +0.3 0	YC	—	Tip taper length change 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	Quotation
P	PKC	Tip tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. ⊗ Cannot be used with TiCN coating.		
Y R10 RLC +0.3 0	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	—	
0.16 GL R10 0.16 GL Lapping range (B) 0.16 Ra 0.16 GL 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): P 6.000～9.999 (B) 19; 10.000～ 25. 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.		

Alterations	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length: LC L	LC	Full length change 25≦LC<L 0.1mm increments		Quotation
Alterations to key groove	KC	5 1 Addition of single key flat to head		
	WKC	5 1 Addition of double key flats in parallel		
ℓ D −0.01 −0.03	NDC	No press-in lead ℓ=3 ⇨ℓ=0		

Price Quotation

PILOT PUNCHES

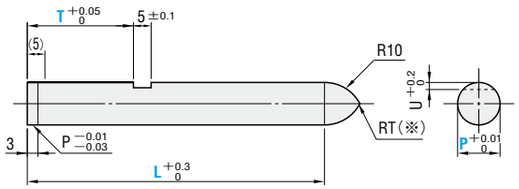
STRAIGHT PILOT PUNCHES WITH KEY GROOVES

—NORMAL・TiCN COATING・DLC COATING—

PRODUCTS DATA P.1604・1609

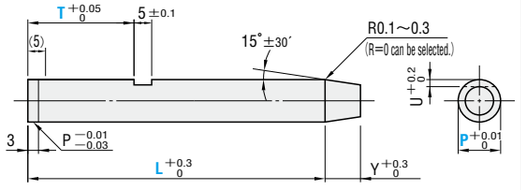
Type	M H	Catalog No.
—Tip R type— RoHS	Equivalent to SKD11 60～63HRC	STKC
	Equivalent to SKH51 61～64HRC	HSTKC
	Equivalent to SKH51 61～64HRC Surface 3000HV	TiCN coating H—HSTKC
	Equivalent to SKH51 61～64HRC	DLC coating N—HSTKC
	Powdered high-speed steel 64～67HRC	PSTKC
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV	TiCN coating H—PSTKC
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	DLC coating N—PSTKC
—Tapered tip type— RoHS	Equivalent to SKD11 60～63HRC	TTKC
	Equivalent to SKH51 61～64HRC	HTTKC
	Equivalent to SKH51 61～64HRC Surface 3000HV	TiCN coating H—HTTKC
	Equivalent to SKH51 61～64HRC	DLC coating N—HTTKC
	Powdered high-speed steel 64～67HRC	PTTKC
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV	TiCN coating H—PTTKC
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	DLC coating N—PTTKC
—Sharp tip angle type— RoHS	Equivalent to SKD11 60～63HRC	ATTKC
	Equivalent to SKH51 61～64HRC	HATKC
	Equivalent to SKH51 61～64HRC Surface 3000HV	TiCN coating H—HATKC
	Equivalent to SKH51 61～64HRC	DLC coating N—HATKC
	Powdered high-speed steel 64～67HRC	PATKC
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV	TiCN coating H—PATKC
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	DLC coating N—PATKC

Shape

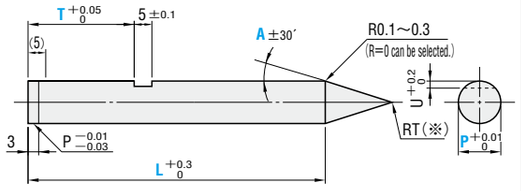


Shape of tip changes depending on P dimension. P.250

(5)…Coating is not applied to a 5 mm length from the tip end. (TiCN coating・DLC 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.1592)
For the length of tip R, refer to the products data "Punch R length". P.1592



(5)…Coating is not applied to a 5 mm length from the tip end. (TiCN coating・DLC coating)



(5)…Coating is not applied to a 5 mm length from the tip end. (TiCN coating・DLC coating)
RT(※)…Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0.

Catalog No. Type	No.	L	0.01mm increments min. P max.	A	0.1mm increments T	Y	U
M Equivalent to SKD11 —Normal— STKC TTKC ATTKC	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				
	5	42 52 62 (72)	4.00 ～ 5.00			3	
M Equivalent to SKH51 —Normal— HSTKC HTTKC HATKC / —TiCN coating— H—HSTKC H—HTTKC H—HATKC / —DLC coating— N—HSTKC N—HTTKC N—HATKC	6	42 52 62 (72)	5.00 ～ 6.00				1.0
	8	42 52 62 72 (82) (92)	6.00 ～ 8.00			5	1.5
M Powdered high-speed steel —Normal— PSTKC PTTKC PATKC / —TiCN coating— H—PSTKC H—PTTKC H—PATKC / —DLC coating— N—PSTKC N—PTTKC N—PATKC	10	42 52 62 72 (82) (92)	8.00 ～ 10.00				
	13	42 52 62 72 (82) (92)	10.00 ～ 13.00			8	
	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≧6.00, 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)
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

■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip: RLC +0.3 0	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	Quotation
YC +0.3 0	YC	——	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
Lapping range (B)	SC	Lapping of tip ♀ P dimension tolerance remains the same. ♀ With TiCN coating・DLC coating, the base material is finished before the coating is applied. Lapping range (B): P 2.000～2.999 (B) 13; 3.000～9.999 19; 10.000～ 25 ♀ 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.		
PKC	PKC	Tip tolerance change P +0.01 0 ⇨ +0.005 0 ⊗ Cannot be used with TiCN coating・DLC coating. ♀ P dimension can be selected in 0.001mm increments.		

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length: LC	LC	Full length change 25≦LC<L 0.1mm increments		Quotation
LKC	LKC	——	Full length tolerance change L +0.3 0 ⇨ +0.05 0 ⊗ Cannot be used with TiCN coating・DLC coating.	
LCT	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. TKC: Key groove tolerance change T +0.05 0 ⇨ 0 −0.02 + LC: Full length change		
Alterations to key groove: WKD	WKD	Addition of double key grooves in parallel		
TKC	TKC	T dimension tolerance change T +0.05 0 ⇨ 0 −0.02		
UK	UK	Key groove depth change ⊗ Cannot be used for No.3 (No. 4～5: UK 0.7; 6: 1.2; 8～16: 1.7)		
Shank: NDC	NDC	No press-in lead ℓ=3 ⇨ ℓ=0		

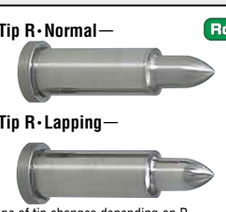
Price Quotation

PILOT PUNCHES

PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

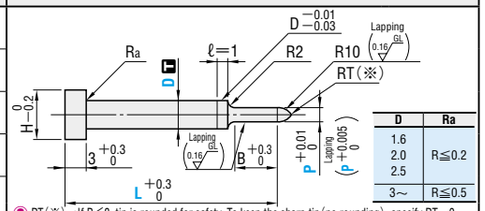
—NORMAL・LAPPING—

Type	Shank diameter D T tolerance	M H	Catalog No. Normal	Catalog No. Lapping
—Tip R・Normal— RoHS	D_{m5}	Equivalent to SKD11 60～63HRC	SPTP	L—SPTP
		Equivalent to SKH51 61～64HRC	HTFPR	L—HTFPR
		Powdered high-speed steel 64～67HRC	PTFPR	L—PTFPR
—Tip R・Lapping—	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—SPTP	AL—SPTP
		Equivalent to SKH51 61～64HRC	A—HTFPR	AL—HTFPR
		Powdered high-speed steel 64～67HRC	A—PTFPR	AL—PTFPR
—Tapered tip・Normal— RoHS	D_{m5}	Equivalent to SKD11 60～63HRC	TPTP	L—TPTP
		Equivalent to SKH51 61～64HRC	HTFPT	L—HTFPT
		Powdered high-speed steel 64～67HRC	PTFPT	L—PTFPT
—Tapered tip・Lapping—	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—TPTP	AL—TPTP
		Equivalent to SKH51 61～64HRC	A—HTFPT	AL—HTFPT
		Powdered high-speed steel 64～67HRC	A—PTFPT	AL—PTFPT
—Sharp tip angle・Normal— RoHS	D_{m5}	Equivalent to SKD11 60～63HRC	APTP	L—APTP
		Equivalent to SKH51 61～64HRC	HTFPA	L—HTFPA
		Powdered high-speed steel 64～67HRC	PTFPA	L—PTFPA
—Sharp tip angle・Lapping—	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—APTP	AL—APTP
		Equivalent to SKH51 61～64HRC	A—HTFPA	AL—HTFPA
		Powdered high-speed steel 64～67HRC	A—PTFPA	AL—PTFPA



Shape of tip changes depending on P dimension. P.250

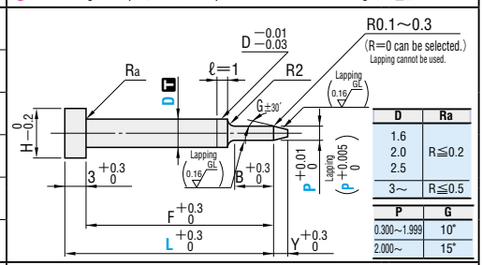
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.



D	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

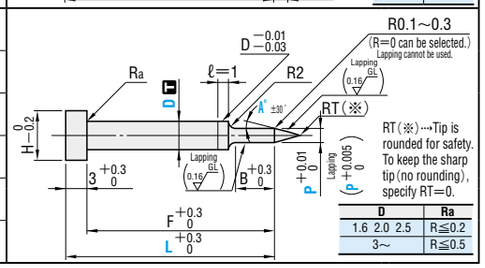
RT(※)…If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (If P≧8 for tip R type, the tip end is flat. P.1592)

For the length of tip R, refer to the products data "Punch R length". P.1592



D	Ra
1.6	R≦0.2
2.0	
2.5	
3～	R≦0.5

P	G
0.300～1.999	10°
2.000～	15°



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

D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Catalog No. Type	D	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	A	B	Y	H
—Normal— (D_{m5}) —Lapping— ($D^{+0.005}_{0}$)	1.6	10.0 ～ 40.0	0.30～ 1.59	(10) 15 20 25 30	(4)	(1)	2.6
	2.0		0.50～ 1.99				3
M Equivalent to SKD11	2.5		1.00～ 2.49			2	3.5
SPTP A—SPTP L—SPTP AL—SPTP	3		1.00～ 2.99				5
TPTP A—TPTP L—TPTP AL—TPTP							
APTP A—APTP L—APTP AL—APTP	4		2.00～ 3.99				7
M Equivalent to SKH51	5		2.00～ 4.99			3	8
HTFPR A—HTFPR L—HTFPR AL—HTFPR							
HTFPT A—HTFPT L—HTFPT AL—HTFPT	6		2.50～ 5.99				9
HTFPA A—HTFPA L—HTFPA AL—HTFPA	8		5.00～ 7.99			5	11
M Powdered high-speed steel	10		7.00～ 9.99				13
PTFPR A—PTFPR L—PTFPR AL—PTFPR							
PTFPT A—PTFPT L—PTFPT AL—PTFPT	13		10.00～ 12.99			8	16
PTFPA A—PTFPA L—PTFPA AL—PTFPA	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.
- 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.

Order

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

SPTP 3 — 28.0 — P2.48
APTP 4 — 32.0 — P3.50 — A15 — RT0
TPTP 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) — (RT=0 / R=0) — (BC・YC・GC, etc.)

PTFPA 3 — 28.0 — P2.48 — AC18 — BC3.0

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip: BC	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments. ⊗ Cannot be used with P0.300～0.499. Full length L must be at least 8mm longer than tip length BC.	P / Bmax.: 0.500～0.999 / 8; 1.000～1.199 / 15; 1.200～1.999 / 20; 2.000～ / 24	
RLC	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10—P/4) 0.1mm increments	—	
YC	YC	—	Tip taper length change ・P<2.0 1≦YC≦P×2.83—0.3 ・P≧2.0 1≦YC≦P×1.86—0.3≦18 0.1mm increments ⊗ Cannot be used for sharp tip angle types. ⊗ Cannot be used with P0.300～0.499.	Quotation
GC	GC	—	Tip angle change 1.000≦P≦1.999 …5°≦GC<10° 2.000≦P≦5.999 …5°≦GC<15° Can be used with D2.5～D6. YC≦P/2tan GC—0.3≦18 ⊗ Cannot be used for sharp tip angle types.	
AC	AC	—	Tip angle change 15°<AC≦45° 1° increments ⊗ Cannot be used for tapered tip types.	
PKC	PKC	Tip diameter tolerance change P $^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ ⊗ Cannot be used with lapping. P dimension can be selected in 0.001mm increments.		

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Length: L T	LKC	—	Full length tolerance change L $^{+0.3}_{0}$ ⇨ $^{+0.05}_{0}$	
Alterations to head: HC	HC	Head diameter change D≦HC<H 0.1mm increments		
TC	TC	Head thickness change 2≦TC<3 0.1mm increments (If combined with TKC/TKM, 0.01mm increments can be selected.) The full length remains as specified.		
KC	KC	Addition of single key flat to head		
WKC	WKC	Addition of double key flats in parallel		Quotation
TKC	TKC	Head thickness tolerance change T $^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$	Head thickness tolerance change (F $^{+0.3}_{0}$ ⇨ $^{+0.1}_{0}$)	
TKM	TKM	Head thickness tolerance change T $^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$	Head thickness tolerance change (F $^{+0.3}_{0}$ ⇨ $^{+0.1}_{0}$)	
TNK	TNK	Addition of undercut (Cut of 0.2 or less)		
Shank: F T	FKC	—	F dimension tolerance change F $^{+0.3}_{0}$ ⇨ $^{+0.05}_{0}$ ⊗ Cannot be combined with LKC.	
NDC	NDC	No press-in lead ℓ=1 ⇨ ℓ=0		

Price Quotation

PILOT PUNCHES

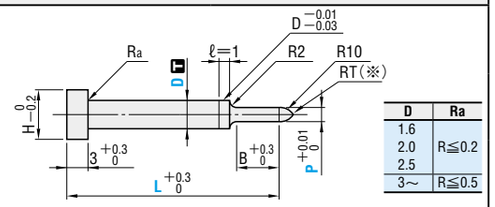
PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

—TiCN COATING・HW COATING —

PRODUCTS DATA P.1604・1605

Type	Shank diameter D T tolerance	M H	Catalog No. TiCN coating	Catalog No. HW coating
—Tip R type— RoHS	D_{m5}	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HTFPR	HW—HTFPR
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PTFPR	HW—PTFPR
	$D^{+0.005}_{0}$	Equivalent to 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— RoHS	D_{m5}	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HTFPT	HW—HTFPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PTFPT	HW—PTFPT
	$D^{+0.005}_{0}$	Equivalent to 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— RoHS	D_{m5}	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HTFPA	HW—HTFPA
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PTFPA	HW—PTFPA
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	AH—HTFPA	AHW—HTFPA
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	AH—PTFPA	AHW—PTFPA

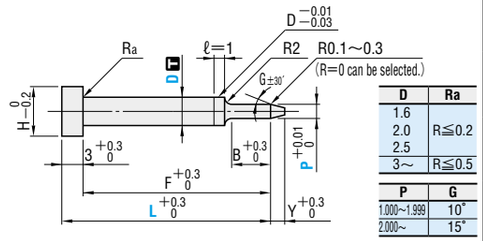
Shape of tip changes depending on P dimension. P.250
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.



D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

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.1592)
For the length of tip R, refer to the products data "Punch R length." P.1592

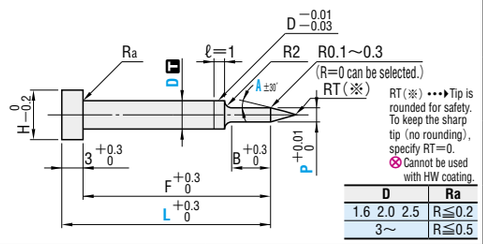
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.



D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

P	G
1.000～1.999	10°
2.000～	15°

For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.



RT(※)•••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 2.5	R≦0.2
3～	R≦0.5

Catalog No. Type —TiCN coating— (Dm5)	(D +0.005 0)	—HW coating— (Dm5)	(D +0.005 0)	D	0.1mm increments L	0.01mm increments min. P max.	A	B	Y	H
M Equivalent to SKH51		M Equivalent to SKH51		1.6	10.0～40.0	1.00～ 1.59	(10) 15 20 25 30	4	1	2.6
H—HTFPR	AH—HTFPR	HW—HTFPR	AHW—HTFPR	2.0		1.00～ 1.99				3
H—HTFPT	AH—HTFPT	HW—HTFPT	AHW—HTFPT	2.5		1.00～ 2.49			2	3.5
H—HTFPA	AH—HTFPA	HW—HTFPA	AHW—HTFPA	3		1.00～ 2.99				5
				4		2.00～ 3.99				7
				5		2.00～ 4.99			3	8
M Powdered high-speed steel		M Powdered high-speed steel		6		2.50～ 5.99				9
(Dm5)	(D +0.005 0)	(Dm5)	(D +0.005 0)	8		5.00～ 7.99			5	11
H—PTFPR	AH—PTFPR	HW—PTFPR	AHW—PTFPR	10		7.00～ 9.99				13
H—PTFPT	AH—PTFPT	HW—PTFPT	AHW—PTFPT	13		10.00～ 12.99			8	16
H—PTFPA	AH—PTFPA	HW—PTFPA	AHW—PTFPA	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

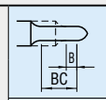
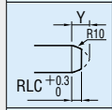
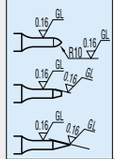
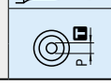
Catalog No.	L	P	A	(RT=0 / R=0)
AH—PTFPR 6	30.2	P4.50		RT0
H—PTFPA 4	32.0	P3.50	A15	
HW—PTFPA 4	32.0	P3.50	A15	

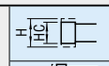
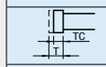
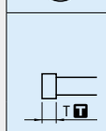
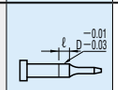
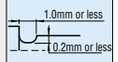
A Can be used for sharp tip angle types only.
RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)
R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)

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

	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		BC	Tip length change 2≦BC≦Bmax.≦L/2 0.1mm increments ✓ Full length L must be at least 8mm longer than tip length BC.	P / Bmax.: 1.000～1.199 / 15; 1.200～ / 20	
		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√(10−P/4) 0.1mm increments	—	
		YC	—	Tip taper length change •P<2.0 1≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	Quotation
		GC	—	Tip angle change 1.000≦P≦1.999 •••▸ 5°≦GC<10° 2.000≦P≦5.999 •••▸ 5°≦GC<15° ✓ Can be used for D2.5～D6.YC≦P/2tanGC−0.3≦18 ⊗ Cannot be used for sharp tip angle types. ⊗ Cannot be used with HW coating.	
		AC	—	Tip angle change 15°<AC≦45° 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 0 ⇨ +0.005 0 ✓ P dimension can be selected in 0.001mm increments. ⊗ Cannot be used for D>13.		

	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head		HC	Head diameter change D≦HC<H 0.1mm increments		
		TC	Head thickness change 2≦TC<3 0.1mm increments (If combined with TKC/TKM, 0.01mm increments can be selected.) ✓ 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 0 ⇨ +0.02 0	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 (F +0.3 0 ⇨ +0.1 0)	Quotation
		TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02 (F +0.3 0 ⇨ +0.1 0)	
Alterations to shank		NDC	No press-in lead ℓ=1 ⇨ ℓ=0		
		TNK	Addition of undercut (Cut of 0.2 or less)		

Price Quotation

PILOT PUNCHES

PILOT PUNCHES FOR FIXING TO STRIPPER PLATES
—DLC COATING—

PRODUCTS DATA P.1609

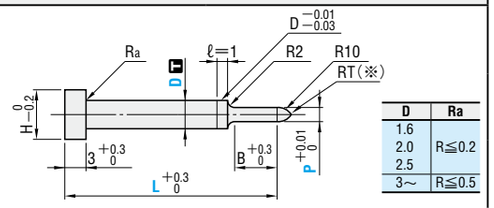
Type	Shank diameter D T tolerance	M H	Catalog No.
—Tip R type— RoHS	Dm5	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	N—HTFPR NW—HTFPR
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PTFPR NW—PTFPR
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	AN—HTFPR ANW—HTFPR
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	AN—PTFPR ANW—PTFPR
—Tapered tip type— RoHS	Dm5	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	N—HTFPT NW—HTFPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PTFPT NW—PTFPT
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	AN—HTFPT ANW—HTFPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	AN—PTFPT ANW—PTFPT
—Sharp tip angle type— RoHS	Dm5	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	N—HTFPA NW—HTFPA
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PTFPA NW—PTFPA
	$D^{+0.005}_{0}$	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	AN—HTFPA ANW—HTFPA
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	AN—PTFPA ANW—PTFPA

Shape of tip changes depending on P dimension. P.250
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

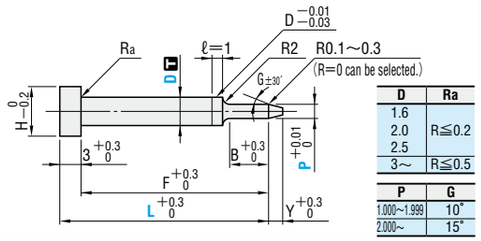
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

Shape



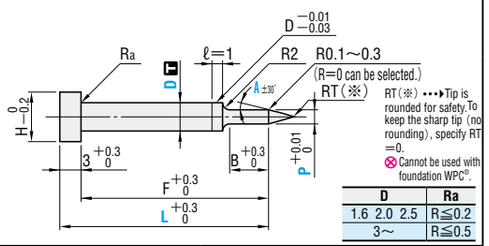
D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

RT(※)•••If P<8, tip is rounded for safety.To keep the sharp tip (no rounding), specify RT=0.
Cannot be used with foundation WPC®. (If P≧8 for tip R type, tip end is flat. P.1592)
For the length of tip R, refer to the products data "Punch R length." P.1592



D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

P	G
1.000～1.999	10°
2.000～	15°



RT(※) •••Tip is rounded for safety.To keep the sharp tip (no rounding), specify RT=0.
Cannot be used with foundation WPC®.

D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Catalog No. Type				D	0.1mm increments L	0.01mm increments min. P max.	A	B	Y	H
M Equivalent to SKH51 (Dm5)	($D^{+0.005}_{0}$)	—Foundation WPC®— M Equivalent to SKH51 (Dm5)	($D^{+0.005}_{0}$)	1.6	10.0～40.0	1.00～ 1.59	(10) 15 20 25 30	4	1	2.6
				2.0		1.00～ 1.99				3
				2.5		1.00～ 2.49			2	3.5
N—HTFPR	AN—HTFPR	NW—HTFPR	ANW—HTFPR	3		1.00～ 2.99				5
N—HTFPT	AN—HTFPT	NW—HTFPT	ANW—HTFPT	4		2.00～ 3.99				7
N—HTFPA	AN—HTFPA	NW—HTFPA	ANW—HTFPA	5		2.00～ 4.99			3	8
M Powdered high-speed steel (Dm5)	($D^{+0.005}_{0}$)	M Powdered high-speed steel (Dm5)	($D^{+0.005}_{0}$)	6		2.50～ 5.99				9
				8		5.00～ 7.99			5	11
N—PTFPR	AN—PTFPR	NW—PTFPR	ANW—PTFPR	10		7.00～ 9.99				13
N—PTFPT	AN—PTFPT	NW—PTFPT	ANW—PTFPT	13		10.00～ 12.99			8	16
N—PTFPA	AN—PTFPA	NW—PTFPA	ANW—PTFPA	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

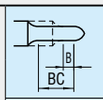
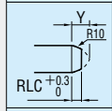
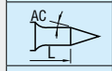
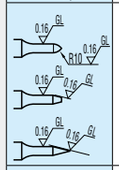
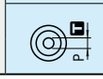
Catalog No. — L — P — A — (RT=0 / R=0)
AN—PTFPR 6 — 30.2 — P4.50 — RT0
N—PTFPA 4 — 32.0 — P3.50 — A15
NW—PTFPA 4 — 32.0 — P3.50 — A15

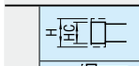
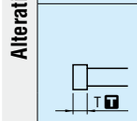
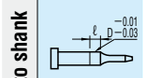
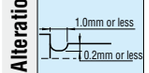
A Can be used for sharp tip angle types only.
RT=0 only can be selected.(Can be used for tip R types with P<8 and sharp tip angle types.)
R=0 only can be selected.(Can be used for tapered tip types and sharp tip angle types.)

Days to Ship Quotation

Alterations

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

	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		BC	Tip length change 2≦BC≦Bmax.≦L/2 0.1mm increments Full length L must be at least 8mm longer than tip length BC.	P / Bmax.: 1.000～1.199 / 15; 1.200～ / 20	
		RLC	Tip R is cut flat. 2≦RLC<Y<8 $Y=\sqrt{P(10-P/4)}$ 0.1mm increments	—	
		YC	—	Tip taper length change •P<2.0 1≦YC≦P×2.83−0.3 •P≧2.0 1≦YC≦P×1.86−0.3≦18 0.1mm increments Cannot be used for sharp tip angle types.	Quotation
		GC	—	Tip angle change 1.000≦P≦1.999 •••▸5°≦GC<10° 2.000≦P≦5.999 •••▸5°≦GC<15° Can be used for D2.5～D6.YC≦P/2tanGC−0.3≦18 Cannot be used for sharp tip angle types. Cannot be used with foundation WPC®.	
		AC	—	Tip angle change 15°<AC≦45° 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 foundation WPC®.		
		PKC	Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ P dimension can be selected in 0.001mm increments.		

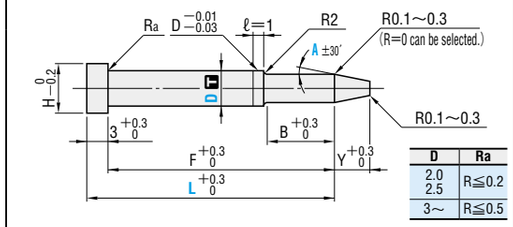
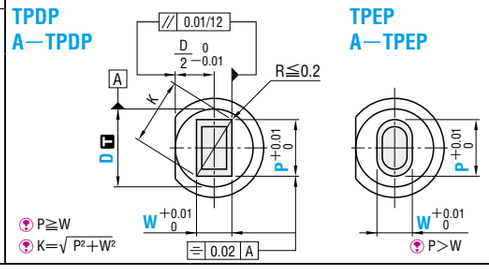
	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to head		HC	Head diameter change D≦HC<H 0.1mm increments		
		TC	Head thickness change 2≦TC<3 0.1mm increments (If combined with TKC/TKM, 0.01mm increments can be selected.) The full length remains as specified.		
		KC	Addition of single key flat to head		
		WKC	Addition of double key flats in parallel		
		TKC	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ ($F^{+0.3}_{0}$ ⇨ $^{+0.1}_{0}$)	Quotation
		TKM	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$	Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ ($F^{+0.3}_{0}$ ⇨ $^{+0.1}_{0}$)	
Alterations to shank		NDC	No press-in lead ℓ=1 ⇨ℓ=0		
		TNK	Addition of undercut (Cut of 0.2 or less)		

Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

Price Quotation

PILOT PUNCHES

SHAPED PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

Type	Shank diameter D T tolerance	M / H	Catalog No.	Shape
RoHS For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.	D_{m5}	Equivalent to SKD11 60～63HRC	TPDP TPEP	
	$D\ ^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—TPDP A—TPEP	

Catalog No. Type	D	0.1mm increments L	0.01mm increments P·K max.	P·W min.	A	B	Y	H
TPDP TPEP A—TPDP A—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
	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

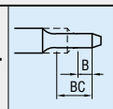
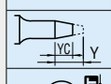
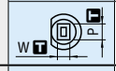
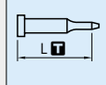
Only R=0 can be selected.

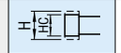
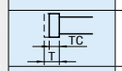
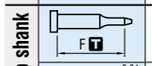
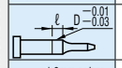
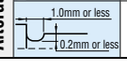
Days to Ship Quotation

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≦BC≦BCmax. 0.1mm increments ⊗ Cannot be used with P0.30～0.49. Full length L must be at least 8mm longer than tip length BC. (P·W / BCmax.: 0.50～0.99 / 8; 1.00～1.19 / 15; 1.20～1.99 / 20; 2.00～ / 24)	Quotation
		YC	Tip taper length change 1≦YC≦4 YC≦ W/2tanA −0.2 0.1mm increments	
		PKC	Tip diameter tolerance change P·W +0.01 0 ⇨ +0.005 0	
Alterations to full length		LKC	Full length tolerance change L +0.3 0 ⇨ +0.05 0	

	Alteration	Code	Spec.	1Code
Alterations to head		HC	Head diameter change D≦HC<H 0.1mm increments	
		TC	Head thickness change 2≦TC<3 0.1mm increments The full length remains as specified.	
		WKC	Addition of double key flats in parallel	Quotation
		TKC	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0	
		TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02	
Alterations to shank		FKC	F dimension tolerance change F +0.3 0 ⇨ +0.05 0 ⊗ Cannot be combined with LKC.	
		NDC	No press-in lead ℓ=1 ⇨ ℓ=0	
		TNK	Addition of undercut (Cut of 0.2 or less)	

PILOT PUNCHES

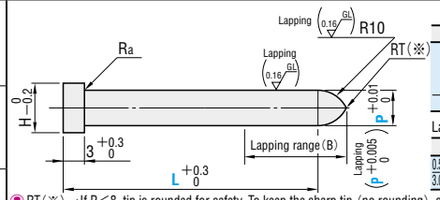
PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

—STRAIGHT・NORMAL・LAPPING・TiCN COATING—

PRODUCTS DATA P.1604

Type	M H	Catalog No. Normal	Lapping	TiCN coating Surface hardness 3000HV
—Tip R type— RoHS	Equivalent to SKD11 60～63HRC	SPT	L—SPT	—
	Equivalent to SKH51 61～64HRC	HTFR	L—HTFR	H—HTFR
Shape of tip changes depending on P dimension. P.250	Powdered high-speed steel 64～67HRC	PTFR	L—PTFR	H—PTFR
—Tapered tip type— RoHS	Equivalent to SKD11 60～63HRC	TPT	L—TPT	—
	Equivalent to 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	—
	Equivalent to SKH51 61～64HRC	HTFA	L—HTFA	H—HTFA
	Powdered high-speed steel 64～67HRC	PTFA	L—PTFA	H—PTFA

Shape



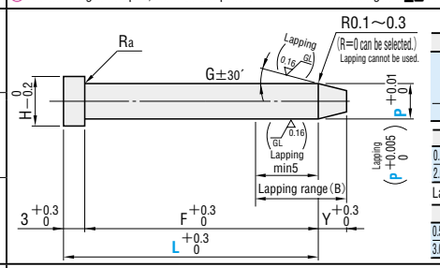
No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Lapping range (B)

P	(B)
0.500～2.999	13
3.000～	19

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.1592)

For the length of tip R, refer to the products data "Punch R length". P.1592

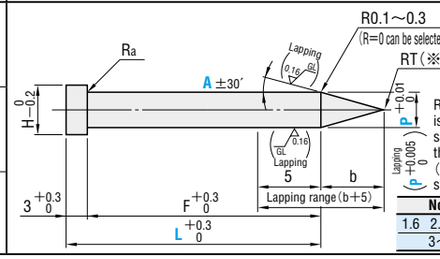


No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

P	G
0.500～1.999	10°
2.000～	15°

Lapping range (B)

P	(B)
0.500～2.999	13
3.000～	19



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. Type	No.	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	A	Y	H
M Equivalent to SKD11 —Normal— SPT TPT APT —Lapping— L—SPT L—TPT L—APT	1.6	10.0～40.0	0.50(1.00) ～1.60	(10) 15 20 25 30	(2)	2.6
	2.0		1.00～ 2.00			3
	2.5		1.50～ 2.50			3.5
	3		2.00～ 3.00			5
M Equivalent to SKH51 —Normal— HTFR HTFT HTFA —Lapping— L—HTFR L—HTFT L—HTFA —TiCN coating— H—HTFR H—HTFT H—HTFA	4		3.00～ 4.00			7
	5		4.00～ 5.00		3	8
	6		5.00～ 6.00			9
M Powdered high-speed steel —Normal— PTFR PTFT PTFA —Lapping— L—PTFR L—PTFT L—PTFA —TiCN coating— H—PTFR H—PTFT H—PTFA	8		6.00～ 8.00		5	11
	10		8.00～ 10.00			13
	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) — (RT=0 / R=0) — (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 +0.3 0	RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	—	Quotation
Y YC	YC	—	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
GC L	GC	—	Tip angle change 1.000≦P≦1.999 …5°≦GC<10° 2.000≦P≦5.999 …5°≦GC<15° Can be used with P1.000～5.999. Can be used for No.2.5～No.6. YC≦P/2tanGC−0.3≦1 ⊗ Cannot be used for sharp tip angle types.	
AC L	AC	—	Tip angle change 15°<AC≦45° 1° increments ⊗ Cannot be used for tapered tip types.	
SC	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. Please refer to P.277 for Lapping range.		

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Tip: P	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. ⊗ Lapping cannot be used. ⊗ TiCN coating cannot be used for P>13.		
Length: L T	LKC	—	Full length tolerance change L +0.3 0 ⇨ +0.05 0	
Alterations to head: H HC	HC	Head diameter change P≦HC<H 0.1mm increments With TiCN coating, 2.6≦P≦HC<H		
T TC	TC	Head thickness change 2≦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		
T	TKC	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 (F +0.3 0 ⇨ +0.1 0)	
	TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02 (F +0.3 0 ⇨ +0.1 0)	
Shank: 1.0mm or less 0.2mm or less	TNK	Addition of undercut (Cut of 0.2 or less) Can be used for P≧1.00.		
F T	FKC	—	F dimension tolerance change F +0.3 0 ⇨ +0.05 0 ⊗ Cannot be combined with LKC.	

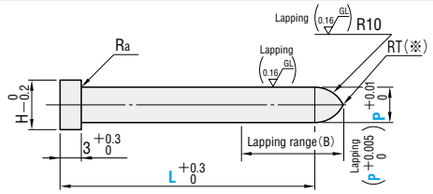
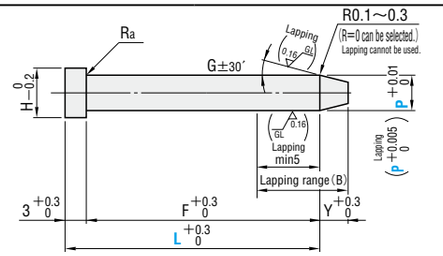
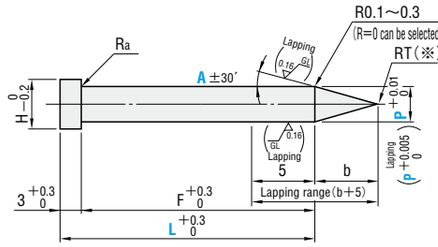
Price Quotation

PILOT PUNCHES

PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

—STRAIGHT・DLC COATING—

PRODUCTS DATA P.1609

Type	M H	Catalog No.	Shape
—Tip R type— RoHS Shape of tip changes depending on P dimension. P.250	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	N—HTFR	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PTFR	
—Tapered tip type— RoHS	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	N—HTFT	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PTFT	
—Sharp tip angle type— RoHS	Equivalent to SKH51 61～64HRC Surface hardness 3000HV～	N—HTFA	
	Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PTFA	

Shape 1:

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.1592)

For the length of tip R, refer to the products data "Punch R length". P.1592

No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Lapping range (B)

P	(B)
1.000～2.999	13
3.000～	19

Shape 2:

No.	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Lapping range (B)

P	(B)
1.000～1.999	13
3.000～	19

Shape 3:

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. Type	No.	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	A	Y	H
M Equivalent to SKH51 N—HTFR N—HTFT N—HTFA / M Powdered high-speed steel N—PTFR N—PTFT N—PTFA	1.6	10.0～40.0	1.00～1.60	(10) 15 20 25 30	2	2.6
	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
	5		4.00～5.00		3	8
	6		5.00～6.00			9
	8		6.00～8.00		5	11
	10		8.00～10.00			13
	13		10.00～13.00		8	16
	16		13.00～16.00			19

⊗ A(10)···If P≧2.00, A10 cannot be selected.

Order

Catalog No.	L	P	A	(RT=0 / R=0)
N—PTFR 6	18.2	P5.80		RT0
N—HTFT 6	18.3	P5.73		

■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P.1609

A Can be used for sharp tip angle types only.

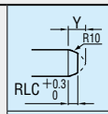
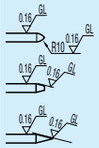
RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types. However lapping cannot be used.)

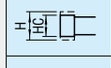
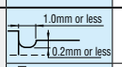
R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types. However lapping cannot be used.)

Days to Ship Quotation

Alterations

Catalog No.	L	P	A(AC)	(RT=0 / R=0)	(YC・GC・HC...etc.)
N—HTFA6	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≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	——	Quotation
		YC	——	Tip taper length change ・P<2.0 1≦YC≦P×2.83−0.3 ・P≧2.0 1≦YC≦P×1.86−0.3≦18 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
		GC	——	Tip angle change 1.000≦P≦1.999 ···5°≦GC<10° 2.000≦P≦5.999 ···5°≦GC<15° Can be used with P1.000～5.999. Can be used for No.2.5～No.6. YC≦P/tanGC−0.3≦18 ⊗ Cannot be used for sharp tip angle types.	
		AC	——	Tip angle change 15°<AC≦45° 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.		

	Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Tip		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments.		Quotation
Length		LKC	——	Full length tolerance change L +0.3 0 ⇨ +0.05 0	
Alterations to head		HC	Head diameter change 2.6≦P≦HC<H 0.1mm increments		
		KC	Addition of single key flat to head		
		WKC	Addition of double key flats in parallel		
		TKC	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 (F +0.3 0 ⇨ +0.1 0)	
		TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02 (F +0.3 0 ⇨ +0.1 0)	
Shank		TNK	Addition of undercut (Cut of 0.2 or less) Can be used for P≧1.00.		
		FKC	——	F dimension tolerance change F +0.3 0 ⇨ +0.05 0 ⊗ Cannot be combined with LKC.	

Price Quotation

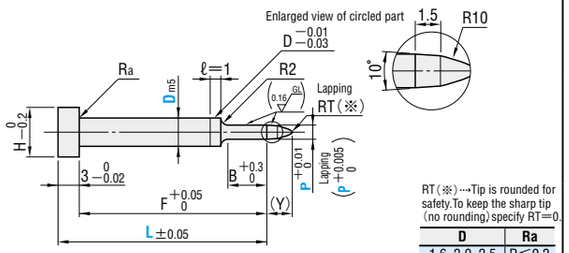
PILOT PUNCHES

PILOT PUNCHES —FOR FIXING TO STRIPPER PLATE—

—TIP R AND TAPER COMBINED TYPE・MINUS HEAD TOLERANCE ・NORMAL LAPPING—

Type	M H	Catalog No. Normal	Catalog No. Lapping
RoHS	Equivalent to SKD11 60～63HRC	SPTPF	L—SPTPF
	Equivalent to SKH51 61～64HRC	HTFPRF	L—HTFPRF
	Powdered high-speed steel 64～67HRC	PTFPRF	L—PTFPRF

Shape



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

D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Catalog No. Type	D	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	B	H
Normal / Lapping M Equivalent to SKD11 SPTPF / L—SPTPF M Equivalent to SKH51 HTFPRF / L—HTFPRF M Powdered high-speed steel PTFPRF / L—PTFPRF	1.6	10.0 ～ 40.0	1.00 ～ 1.59	(4)	2.6
	2.0		1.00 ～ 1.99		3.0
	2.5		1.50 ～ 2.49		3.5
	3		2.00 ～ 2.99		5
	4		2.00 ～ 3.99		7
	5		2.00 ～ 4.99		8
	6		2.50 ～ 5.99		9
	8		5.00 ～ 7.99		11

P>D—0.03…ℓ=0 If P>D—0.03, $D^{-0.01}_{-0.03}$ (press-in lead) is not included. B(4)…If L<12, tip length B is 2mm.
(Y)…Tip Y length=$0.6+\sqrt{(P-0.2)(40.2-P)/4}$

Order

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

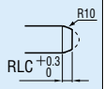
RT=0 only can be selected. (However, lapping cannot be used).

■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.

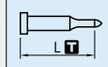
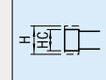
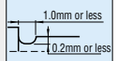
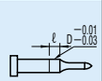
Days to Ship Quotation

Alterations

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

	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. P / Bmax.: 1.000～1.199 / 15; 1.200～1.999 / 20; 2.000～ / 24	
		RLC	Tip R is cut flat. 3≦RLC<Ymax. 0.1mm increments RT=0 cannot be selected. 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; 7.000～7.990 / 8	Quotation
		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 Cannot be used with lappingor HW coating. P dimension can be selected in 0.001mm increments.	

Price 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 ⇨±0.05	
Alterations to head		HC	Head diameter change D+0.1≦HC<H 0.1mm increments	
		TC	Head thickness change 2≦TC<3 0.1mm increments The full length remains as specified.	Quotation
		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	

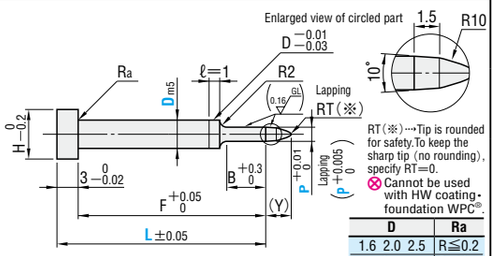
PILOT PUNCHES

PILOT PUNCHES —FOR FIXING TO STRIPPER PLATE—

—TIP R AND TAPER COMBINED TYPE・MINUS HEAD TOLERANCE・TiCN COATING・HW COATING・DLC COATING—

PRODUCTS DATA P.1604・1605・1609

Type	M H	Catalog No. DLC coating	DLC foundation WPC®	TiCN coating Surface hardness 3000HV	HW coating Surface hardness 3000HV	Shape
RoHS	Equivalent to SKH51 61～64HRC	N—HTFPRF	NW—HTFPRF	H—HTFPRF	HW—HTFPRF	
	Powdered high-speed steel 64～67HRC	N—PTFPRF	NW—PTFPRF	H—PTFPRF	HW—PTFPRF	



RT(※)…Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.
⊗ Cannot be used with HW coating・foundation WPC®.

D	Ra
1.6 2.0 2.5	R≦0.2
3～	R≦0.5

Catalog No. Type	D	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	B	H
DLC coating / DLC foundation WPC® M Equivalent to SKH51 N—HTFPRF NW—HTFPRF M Powdered high-speed steel N—PTFPRF NW—PTFPRF	1.6	10.0 ～ 40.0	1.00 ～ 1.59	(4)	2.6
	2.0		1.00 ～ 1.99		3.0
	2.5		1.50 ～ 2.49		3.5
	3		2.00 ～ 2.99		5
TiCN coating / HW coating M Equivalent to SKH51 H—HTFPRF HW—HTFPRF M Powdered high-speed steel H—PTFPRF HW—PTFPRF	4		2.00 ～ 3.99		7
	5		2.00 ～ 4.99		8
	6		2.50 ～ 5.99		9
	8		5.00 ～ 7.99		11

P>D−0.03…ℓ=0 If P>D−0.03, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.
The coating process also forms an extremely thin coating layer on the shank.
B(4)…If L<12, tip length B is 2mm.
(Y)…Tip Y length=$0.6+\sqrt{(P-0.2)(40.2-P)/4}$

Order

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

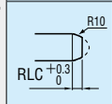
RT=0 only can be selected. (However, lapping and HW coating cannot be used).

■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.

Days to Ship Quotation

Alterations

Catalog No. — L — P — (RT=0) — (BC…etc.)
H—HTFPRF3 — 28.0 — P2.48 — — TC2.5

	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.)	Quotation
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments Full length L must be at least 8mm longer than tip length BC. P / Bmax.: 1.000～1.199 / 15; 1.200～1.999 / 20; 2.000～ / 24	
		RLC	Tip R is cut flat. 3≦RLC<Ymax. 0.1mm increments ⊗ RT=0 cannot be selected. 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; 7.000～7.990 / 8	
		SC	Lapping of tip 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・foundation WPC®.	
		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 ⊗ Lapping. P dimension can be selected in 0.001mm increments.	

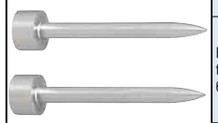
	Alteration	Code	Spec.	1Code
Full length		LKC	Full length tolerance change L±0.05⇨ +0.05 0 F dimension tolerance F +0.05 0 ⇨±0.05	
Alterations to head		HC	Head diameter change D+0.1≦HC<H 0.1mm increments	
		TC	Head thickness change 2≦TC<3 0.1mm increments The full length remains as specified.	Quotation
		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	

Price Quotation

■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P.1609

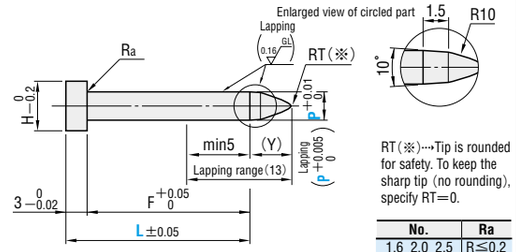
STRAIGHT PILOT PUNCHES —FOR FIXING TO STRIPPER PLATE—

—TIP R AND TAPER COMBINED TYPE, MINUS HEAD TOLERANCE・NORMAL LAPPING—

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

Shape

—Straight type—



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. Type	No.	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	H
Normal / Lapping M Equivalent to SKD11 SPTF / L—SPTF M Equivalent to SKH51 HTFRF / L—HTFRF M Powdered high-speed steel PTFRF / L—PTFRF	1.6	10.0 ～ 40.0	1.00～1.60	2.6
	2.0		1.00～2.00	3.0
	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.)

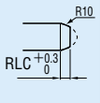
Days to Ship Quotation

■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

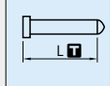
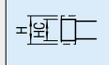
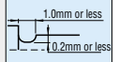
Catalog No. — L — P — (RT=0) — (RLC・HC・TC…etc.)

SPTF 3 — 28.0 — P2.48 — TC2.5

	Alteration	Code	Spec.	1Code
Alterations to tip		RLC	Tip R is cut flat. 3≦RLC<Ymax. 0.1mm increments ⊗ RT=0 cannot be selected.	Quotation
		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 ⊗ Cannot be used with lapping. P dimension can be selected in 0.001mm increments.	

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
7.000～8.000	8

Price Quotation

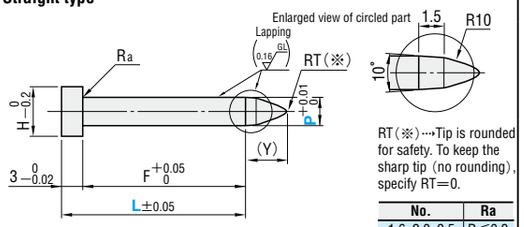
	Alteration	Code	Spec.	1Code
Full length		LKC	Full length tolerance change L±0.05⇨ +0.05 0 F dimension tolerance F +0.05 0 ⇨±0.05	
Alterations to head		HC	Head diameter change 2.6≦P+0.1≦HC<H 0.1mm increments	
		TC	Head thickness change 2≦TC<3 0.1mm increments The full length remains as specified.	Quotation
		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)	

PILOT PUNCHES

STRAIGHT PILOT PUNCHES —FOR FIXING TO STRIPPER PLATE—

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

PRODUCTS DATA P.1604・1605・1609

Type	M H	Catalog No. DLC coating	Catalog No. TiCN coating Surface hardness 3000HV	Shape
RoHS	Equivalent to SKH51 61～64HRC	N—HTFRF	H—HTFRF	—Straight type— 
	Powdered high-speed steel 64～67HRC	N—PTFRF	H—PTFRF	

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. Type	No.	0.1mm increments L	0.01mm increments (0.001mm increments for lapping) min. P max.	H
DLC coating: M Equivalent to SKH51 N—HTFRF; M Powdered high-speed steel N—PTFRF	1.6	10.0 ～ 40.0	1.00～1.60	2.6
	2.0		1.00～2.00	3.0
	2.5		1.50～2.50	3.5
	3		2.00～3.00	5
TiCN coating: M Equivalent to SKH51 H—HTFRF; M Powdered high-speed steel H—PTFRF	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

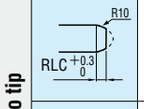
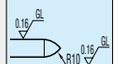
Catalog No.	L	P	(RT=0)
N—HTFRF 2.0	28.0	P1.90	RT0
H—PTFRF 2.5	35.0	P2.20	

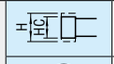
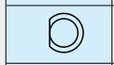
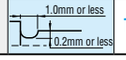
■Features
- These pilot punches for fixing to stripper plates were developed for use with press dies that are used with thin workpieces.
- The under-head dimension F is highly accurate and the tip is smoothly rounded.

Days to Ship Quotation

Alterations

Catalog No.	L	P	(RT=0)	(RLC・HC…etc.)
H—HTFRF3	28.0	P2.48		HC4

	Alteration	Code	Spec.	1Code
Alterations to tip		RLC	Tip R is cut flat. 3≦RLC<Ymax. 0.1mm increments ⊗ RT=0 cannot be selected. (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; 7.000～8.000 / 8)	Quotation
		SC	Lapping of tip ⓟ 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 ⇨ +0.005 0 ⓟ P dimension can be selected in 0.001mm increments.	

	Alteration	Code	Spec.	1Code
Full length		LKC	Full length tolerance change L±0.05⇨ +0.05 0 ⓟ F dimension tolerance F +0.05 0 ⇨±0.05	
Alterations to head		HC	Head diameter change 2.6≦P+0.1≦HC<H 0.1mm increments	Quotation
		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)	

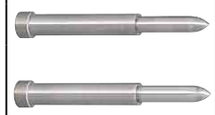
Price Quotation

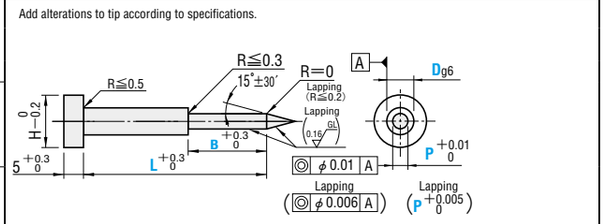
PILOT PUNCHES

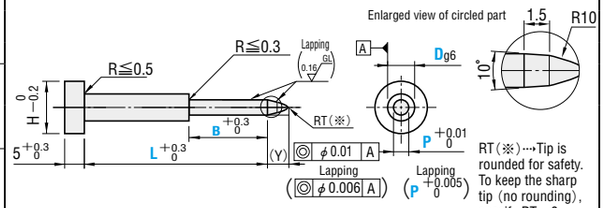
PILOT PUNCHES, MOVABLE TYPE

—HEADED TYPE, NORMAL·LAPPING—

Type	Shank diameter D T tolerance	M H	Catalog No. Normal	Catalog No. Lapping	Shape
—Sharp tip angle type— RoHS	D_{g6}	Equivalent to SKD11 60~63HRC	UPTH	L—UPTH	Add alterations to tip according to specifications.
		Equivalent to SKH51 61~64HRC	HUPTH	L—HUPTH	
		Powdered high-speed steel 64~67HRC	PUPTH	L—PUPTH	
—Tip R and taper combined type— RoHS		Equivalent to SKD11 60~63HRC	UPTHF	L—UPTHF	Enlarged view of circled part
		Equivalent to SKH51 61~64HRC	HUPTHF	L—HUPTHF	
		Powdered high-speed steel 64~67HRC	PUPTHF	L—PUPTHF	







H	Catalog No. Type —Normal—	Catalog No. Type —Lapping—	D	L (L is the dimension under the head.)					0.01mm increments (0.001mm increments for lapping) min. P max.	0.1mm increments B
6	UPTH UPTHF	L—UPTH L—UPTHF	3	42	52	62	72		1.00~2.50	2.0~25.0
			4	42	52	62	72		1.50~3.50	
8	HUPTH HUPTHF	L—HUPTH L—HUPTHF	5	42	52	62	72		2.00~4.50	
	PUPTH PUPTHF	L—PUPTH L—PUPTHF	6	42	52	62	72		2.50~5.50	
10			8	42	52	62	72	82	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)

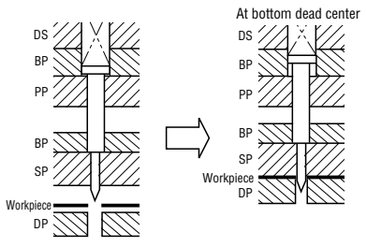
UPTH 4 — 52 — P2.55 — B2.5
L—HUPTHF 6 — 62 — P3.00 — B8.0 — RT0

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

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.



Alterations

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

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

	Alteration	Code	Spec.	1Code
Alterations to tip		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.	Quotation
		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.	

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
Alterations to tip		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. Cannot be used with lapping	Quotation
		BKC	Tip length tolerance change B +0.3 0 ⇨ +0.05 0 Cannot be combined with RC. B dimension can be selected in 0.01mm increments.	
Alterations to full length		LC	Full length change B+15≦LC<L 0.1mm increments	
Alterations to head		HC	Head diameter change D≦HC<H 0.1mm increments	
		TC	Head thickness change 2≦TC<5 0.1mm increments	

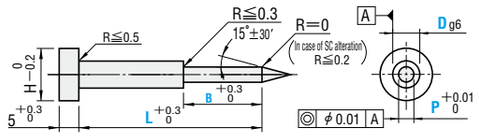
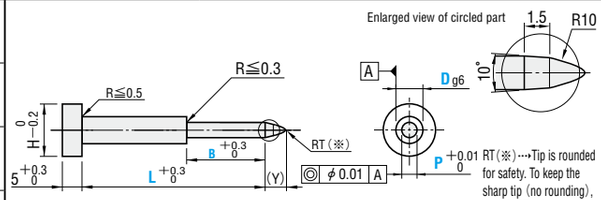
Price Quotation

PILOT PUNCHES

PILOT PUNCHES, MOVABLE TYPE

—HEADED TYPE, TiCN COATING・HW COATING・DLC COATING—

PRODUCTS DATA P.1604・1605・1609

Type	Shank diameter D T tolerance	M H	Catalog No.	Shape
—Sharp tip angle type— RoHS	D_{g6}	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HUPTH HW-HUPTH	Add alterations to tip according to specifications. 
		Equivalent to SKH51 61～64HRC	N—HUPTH NW—HUPTH	
		Powdered high-speed steel 64～67HRC Surface hardness 3000 HV	H—PUPTH HW—PUPTH	
		Powdered high-speed steel 64～67HRC Surface hardness 3000 HV～	N—PUPTH NW—PUPTH	
—Tip R and taper combined type— RoHS		Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HUPTHF HW-HUPTHF	
		Equivalent to SKH51 61～64HRC	N—HUPTHF NW—HUPTHF	
		Powdered high-speed steel 64～67HRC Surface hardness 3000 HV	H—PUPTHF HW—PUPTHF	
		Powdered high-speed steel 64～67HRC Surface hardness 3000 HV～	N—PUPTHF NW—PUPTHF	

Enlarged view of circled part

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

⊗Cannot be used with HW coating and foundation WPC®.

H	Catalog No. Type		D	L (L is the dimension under the head.)					0.01mm increments min. P max.	0.1mm increments B
6	—TiCN coating— H—HUPTH H—HUPTHF H—PUPTH H—PUPTHF	—DLC coating— N—HUPTH N—PUPTH N—HUPTHF N—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	—HW coating— HW—HUPTH HW—HUPTHF HW—PUPTH HW—PUPTHF	—DLC foundation WPC®— NW—HUPTH NW—PUPTH NW—HUPTHF NW—PUPTHF	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	

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—PUPTH 4	—	52	—	P2.55	—	B2.5		
H—HUPTHF 6	—	62	—	P3.00	—	B8.0	—	RT0

RT=0 only can be selected.

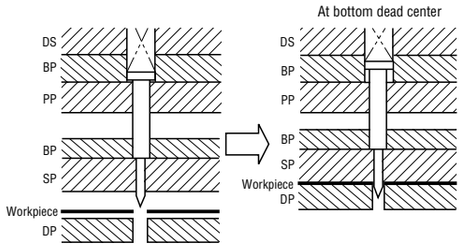
(Can be used for tip R and taper combined types.However alteration SC・HW coating・Foundation WPC® cannot be used.)

Days to Ship Quotation

Example

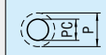
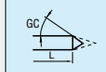
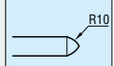
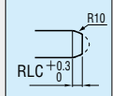
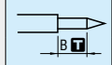
■Features

- 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.



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
Alterations to tip		PC	Tip diameter change PC≧Pmin./2≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Quotation
		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 B dimension can be selected in 0.01mm increments. ⊗Cannot be combined with RC.	

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
Alterations to tip		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. ⊗Cannot be used with HW coating and DLC foundation WPC®.	
		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments.	
Alterations to full length		LC	Full length change B+15≦LC＜L 0.1mm increments	Quotation
Alterations to head		HC	Head diameter change D≦HC＜H 0.1mm increments	
		TC	Head thickness change 2≦TC＜5 0.1mm increments	

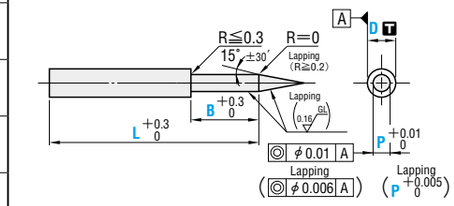
■Effects of DLC coating

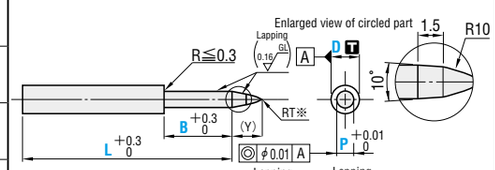
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

Price Quotation

MOVABLE PILOT PUNCHES
—NORMAL・LAPPING—

Type	Shank diameter D T tolerance	M H	Catalog No. Normal	Catalog No. Lapping	Shape
—Sharp tip angle type— RoHS	D_{g6}	Equivalent to SKD11 60～63HRC	UPT (D3～8)	L—UPT (D3～8)	Add alterations to tip according to specifications.
		Equivalent to SKH51 61～64HRC	HUPT	L—HUPT	
		Powdered high-speed steel 64～67HRC	PUPT	L—PUPT	
	$D^{-0.005}_{-0.010}$	Equivalent to SKD11 60～63HRC	A—UPT (D3～8)	AL—UPT (D3～8)	
		Equivalent to SKH51 61～64HRC	A—HUPT	AL—HUPT	
		Powdered high-speed steel 64～67HRC	A—PUPT	AL—PUPT	
—Tip R and taper combined types— RoHS	D_{g6}	Equivalent to SKD11 60～63HRC	UPTF (D3～8)	L—UPTF (D3～8)	Enlarged view of circled part
		Equivalent to SKH51 61～64HRC	HUPTF	L—HUPTF	
		Powdered high-speed steel 64～67HRC	PUPTF	L—PUPTF	
	$D^{-0.005}_{-0.010}$	Equivalent to SKD11 60～63HRC	A—UPTF (D3～8)	AL—UPTF (D3～8)	
		Equivalent to SKH51 61～64HRC	A—HUPTF	AL—HUPTF	
		Powdered high-speed steel 64～67HRC	A—PUPTF	AL—PUPTF	





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

Catalog No. Type	D	L	0.01mm increments (0.001mm increments for lapping) min. P max.	0.1mm increments B
—Normal— (D_{g6}): UPT, UPTF, HUPT, HUPTF, PUPT, PUPTF —Lapping— (D_{g6}): L—UPT, L—UPTF, L—HUPT, L—HUPTF, L—PUPT, L—PUPTF —Normal— ($D^{-0.005}_{-0.010}$): A—UPT, A—UPTF, A—HUPT, A—HUPTF, A—PUPT, A—PUPTF —Lapping— ($D^{-0.005}_{-0.010}$): AL—UPT, AL—UPTF, AL—HUPT, AL—HUPTF, AL—PUPT, AL—PUPTF	2.0	32 42	0.50 (1.00) ～1.50	2.0～(23.0)
	2.5	32 42	1.00～2.00	
	3	42 52 62 72	1.00～2.50	
	4	42 52 62 72	1.50～3.50	
	5	42 52 62 72	2.00～4.50	
	6	42 52 62 72	2.50～5.50	
	8	42 52 62 72 82	3.00～7.50	

B (23)…If P<1.0, then B≦8. P (1.00)…For tip R and taper combined types, Pmin. is 1.00.
(Y)…Tip Y length=$0.6+\sqrt{(P-0.2)(40.2-P)}/4$

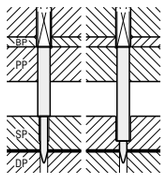
Order

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

Example



Alterations

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

Alterations	Alteration	Code	Spec.	1Code
Alterations to tip		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.) If PC0.5～0.99, Bmax. is 8mm.	Quotation
		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.	

Alterations	Alteration	Code	Spec.	1Code
Alterations to tip		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. 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	Quotation
		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. Cannot be used with lapping.	
		BKC	Tip length tolerance change B +0.3 0 ⇨ +0.05 0 B dimension can be selected in 0.01mm increments. Cannot be combined with RC.	
Length		LC	Full length change B+9≦LC<L 0.1mm increments	

Price Quotation

PILOT PUNCHES

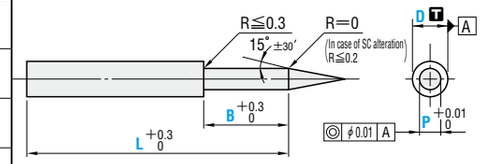
MOVABLE PILOT PUNCHES

—TiCN COATING・HW COATING・DLC COATING—

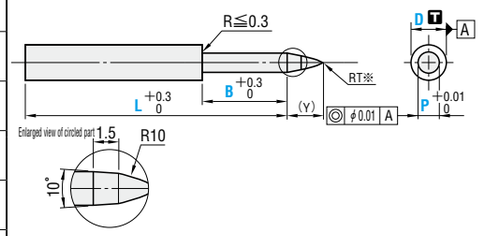
PRODUCTS DATA P.1604・1605・1609

Type	Shank diameter D T tolerance	M H	Catalog No.
—Sharp tip angle type— RoHS	D_{g6}	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HUPT HW—HUPT
		Equivalent to SKH51 61～64HRC	N—HUPT NW—HUPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PUPT HW—PUPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PUPT NW—PUPT
	$D^{-0.005}_{-0.010}$	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	AH—HUPT AHW—HUPT
		Equivalent to SKH51 61～64HRC	AN—HUPT ANW—HUPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	AH—PUPT AHW—PUPT
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	AN—PUPT ANW—PUPT
—Tip R and taper combined types— RoHS	D_{g6}	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	H—HUPTF HW—HUPTF
		Equivalent to SKH51 61～64HRC	N—HUPTF NW—HUPTF
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	H—PUPTF HW—PUPTF
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	N—PUPTF NW—PUPTF
	$D^{-0.005}_{-0.010}$	Equivalent to SKH51 61～64HRC Surface hardness 3000HV	AH—HUPTF AHW—HUPTF
		Equivalent to SKH51 61～64HRC	AN—HUPTF ANW—HUPTF
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV	AH—PUPTF AHW—PUPTF
		Powdered high-speed steel 64～67HRC Surface hardness 3000HV～	AN—PUPTF ANW—PUPTF

Shape



Add alterations to tip according to specifications.



RT(※)…Tip is rounded for safety.
To keep the sharp tip (no rounding), specify RT=0.
(RT=0 cannot be selected withHW coating・foundation WPC®.)

Catalog No. Type	D	L						0.01mm increments min. P max.	0.1mm increments B
M Equivalent to SKH51 TiCN coating / HW coating / —DLC coating— / —DLC foundation WPC®—	2.0	32	42					1.00～1.50	2.0～23.0 (B≦L/2)
	2.5	32	42					1.00～2.00	
H—HUPT / HW—HUPT / N—HUPT / NW—HUPT H—HUPTF / HW—HUPTF / N—HUPTF / NW—HUPTF AH—HUPT / AHW—HUPT / AN—HUPT / ANW—HUPT AH—HUPTF / AHW—HUPTF / AN—HUPTF / ANW—HUPTF	3		42	52	62	72		1.00～2.50	
	4		42	52	62	72		1.50～3.50	
M Powdered high-speed steel H—PUPT / HW—PUPT / N—PUPT / NW—PUPT H—PUPTF / HW—PUPTF / N—PUPTF / NW—PUPTF AH—PUPT / AHW—PUPT / AN—PUPT / ANW—PUPT AH—PUPTF / AHW—PUPTF / AN—PUPTF / ANW—PUPTF	5		42	52	62	72		2.00～4.50	
	6		42	52	62	72		2.50～5.50	
	8		42	52	62	72	82	3.00～7.50	

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

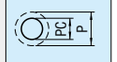
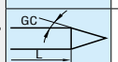
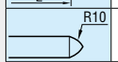
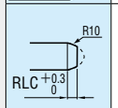
RT=0 only can be selected. (Can be used for tip R and taper combined types. However alteration SC・HW coating・foundation WPC® cannot be used.)

Days to Ship Quotation

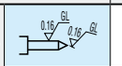
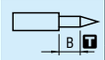
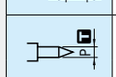
■Effects of DLC coating
Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal.See the product data for details. P.1609

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≧Pmin./2≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.)	Quotation
		GC	Tip angle change 15°＜GC≦45° 1° ⊗ 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≦RLC＜Ymax. 0.1mm increments ⊗ RT=0 cannot be selected. ⊗ Cannot be used for sharp tip angle types.	

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
Alterations to tip		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. ⊗ Cannot be used with HW coating and DLC foundation WPC®.	Quotation
		BKC	Tip length tolerance change B +0.3 0 ⇨ +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 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments.	
Length		LC	Full length change B+9≦LC＜L 0.1mm increments	

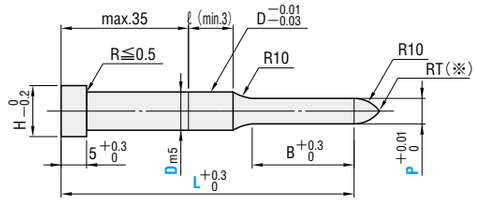
Price Quotation

PILOT PUNCHES
—FIXED TIP DIAMETER—

RoHS

Shape of tip changes depending on P dimension. P.250

STAZ



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.1592)

For the length of tip R, refer to the products data "Punch R length". P.1592

M Equivalent to SKD11
H 60~63HRC

Catalog No. Type	D	L	P	B	H	Base unit price 1~9 pieces
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		

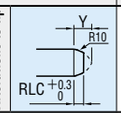
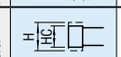
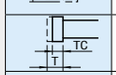
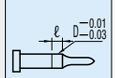
RT=0 only can be selected. (Can be used with P<8.)

Days to Ship Quotation

Price Quotation

Alterations

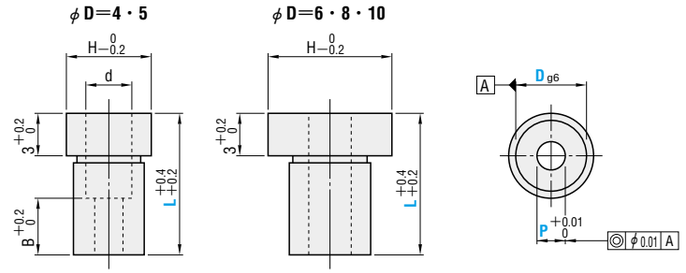
Catalog No.	—	L	—	P	—	(HC·TC, etc.)
STAZ 6	—	62	—	P4.5	—	TC4.0

	Alteration	Code	Spec.	1Code
Alterations to tip		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10−P/4) 0.1mm increments	
Alterations to head		HC	Head diameter change D≦HC<H 0.1mm increments	Quotation
		TC	Head thickness change 2≦TC<5 0.1mm increments Full length L is shortened by (5−TC).	
		KC	Addition of single key flat to head	
		WKC	Addition of double key flats in parallel	
Shank		NDC	No press-in lead ℓ≧3 ⇨ ℓ=0	

PILOT EJECTOR BUSHINGS

RoHS

MEG



M Equivalent to SKD11
H 60~63HRC

Catalog No. Type	D	L	0.01mm increments min. P max.	B	d	H	Base unit price 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

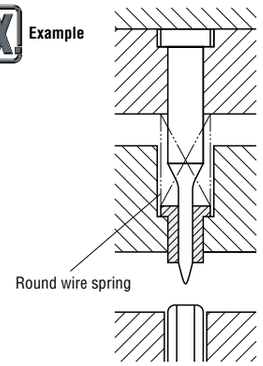
Price Quotation

Alterations

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

	Alteration	Code	Spec.	1Code
Alterations to guide		PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0	
		PC	Guide diameter change 2.5≦PC<P 0.01mm increments ⊗ Cannot be used for D4~6.	Quotation
Alterations to head		HC	Head diameter change D≦HC<H 0.1mm increments	

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.1405

PILOT PUNCHES