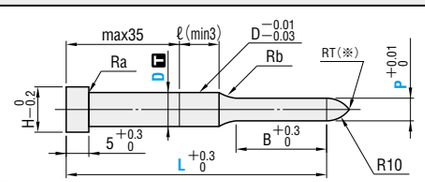
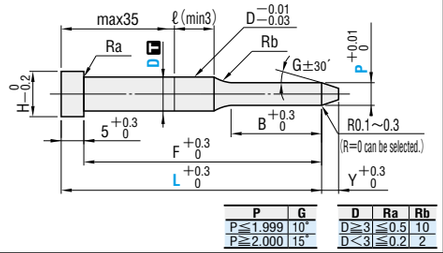
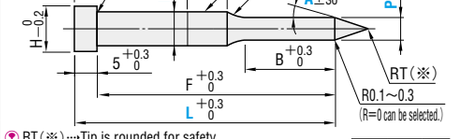
PILOT PUNCHES
—TiCN COATING・HW COATING—

PRODUCTS DATA
P.1604・1605

Type	Shank diameter D T tolerance	M H	Catalog No. Type	Catalog No. 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 SKH51 61～64HRC Surface 3000HV	H—HSTA HW—HSTA	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, 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 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  For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$	D_{m5}	Equivalent to SKH51 61～64HRC Surface 3000HV	H—HTPA HW—HTPA		 P D G P≦1.999 10° P≧2.000 15° D≧3 ≦0.5 10 D＜3 ≦0.2 2
		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  For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$	D_{m5}	Equivalent to SKH51 61～64HRC Surface 3000HV	H—HATA HW—HATA		 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≧3 ≦0.5 10 D＜3 ≦0.2 2
		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

Catalog No. Type	B tip length	D	L	0.01mm increments min. P max.	A	B	H	Y
(D_{m5}) TiCN coating / HW coating	S	1.6	42 52 62	1.00～ 1.59		6	2.6	1
M Equivalent to SKH51 H—HSTA / HW—HSTA		2.0	42 52 62	1.00～ 1.99		8	3	
H—HTPA / HW—HTPA		2.5	42 52 62	1.00～ 2.49			3.5	2
H—HATA / HW—HATA		3	42 52 62 72 82 (92)	1.00～ 2.99	(10)	10	5	
M Powdered high-speed steel H—PSTA / HW—PSTA		4	42 52 62 72 82 (92)	1.00～ 3.99	(15)		7	
H—PTPA / HW—PTPA		5	42 52 62 72 82 (92)	2.00～ 4.99	(20)		8	3
H—PATA / HW—PATA		6	42 52 62 72 82 (92)	2.50～ 5.99			9	
		8	(42) 52 62 72 82 (92)	3.00～ 7.99	25	15	11	5
($D^{+0.005}_{0}$) TiCN coating / HW coating		10	(42) 52 62 72 82 (92) (102)	3.00～ 9.99			13	
M Equivalent to SKH51 AH—HSTA / AHW—HSTA		13	(42) 52 62 72 82 (92) (102)	6.00～ 12.99	30		16	8
AH—HTPA / AHW—HTPA		16	(42) 52 62 72 82 (92) (102)	10.00～ 15.99		21	19	
AH—HATA / AHW—HATA		20	(42) 52 62 72 82 (92) (102)	13.00～ 19.99			23	
M Powdered high-speed steel AH—PSTA / AHW—PSTA		25	(42) 52 62 72 82 (92) (102)	18.00～ 24.99			28	
AH—PTPA / AHW—PTPA	L	1.6	42 52 62	1.00～ 1.59		8	2.6	1
AH—PATA / AHW—PATA		2.0	42 52 62	1.00～ 1.99		10	3	
		2.5	42 52 62	1.00～ 2.49		13	3.5	2
		3	52 62 72 82 (92)	1.00～ 2.99	(10)	15	5	
		4	52 62 72 82 (92)	1.00～ 3.99	(15)		7	
		5	52 62 72 82 (92)	2.00～ 4.99	(20)		8	3
		6	52 62 72 82 (92)	2.50～ 5.99			9	
		8	52 62 72 82 (92)	3.00～ 7.99	25	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	30		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		21	5	2
		4	52 62 72 82 (92)	1.20～ 3.99	(10)		7	
		5	62 72 82 (92)	2.00～ 4.99	(15)	27	8	3
		6	62 72 82 (92)	2.50～ 5.99			9	
		8	62 72 82 (92)	3.00～ 7.99	(20)	32	11	5
		10	62 72 82 (92) (102)	3.00～ 9.99			13	
		13	62 72 82 (92) (102)	6.00～ 12.99	25		16	8
		16	72 82 (92) (102)	10.00～ 15.99		42	19	
		20	72 82 (92) (102)	13.00～ 19.99	30		23	
		25	72 82 (92) (102)	18.00～ 24.99			28	

P (42)…If full length L is (42), tip length B is 10mm in all cases.
P (92) (102)…L92 and 102 can be used for tip R types and tapered tip types only.
P 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

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

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PC	Tip diameter change PC≧$\frac{Pmin.}{2}$≧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≧$\frac{Pmin.}{2}$≧1.00 0.01mm increments (If combined with PKC, 0.001mm increments can be selected.) P 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	
	BC	Tip length change 2≦BC≦Bmax. 0.1mm increments P 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.	
	SC	Lapping of tip P 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 (P dimension can be selected in 0.001mm increments.) ⊗ Cannot be used for D＞13.		

Price Quotation

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to full length	LC	Full length change 25+B (BC)≦LC＜L 0.1mm increments P 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 (P) are the same as for LC. TKC + LC Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ / Full length change		
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increments, and notes (P) are the same as for LC. TKM + LC Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ / 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 $^{0}_{-0.04}$ ～ 0 relative to the retainer surface. ⊗ Cannot be used for $D^{+0.005}_{0}$ types.		Quotation
	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.) P 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		

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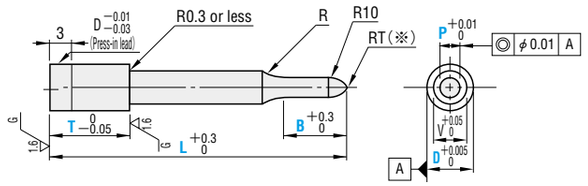
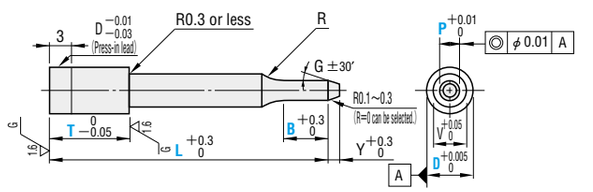
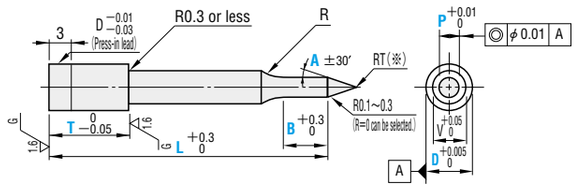
FLANGE STOPPER PILOT PUNCHES

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

PRODUCTS DATA P.1604・1605・1609

Type	M H	Catalog No.	Shape
—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	

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

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

P	G
P≦1.99	10°
P≧2.00	15°

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

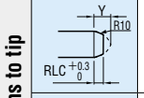
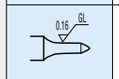
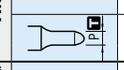
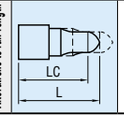
Catalog No.	L	P	A	T	B	(RT=0 R=0)
PSTHAL 5	62	P3.00		T20	B5	RT0
H—PATHAL 6	52	P2.03	A15	T13	B4	

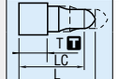
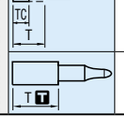
A Can be used for sharp tip angle types only.
RT=0 only can be selected. (Can be used for tip R types with P<8 and sharp tip angle types.)
R=0 only can be selected. (Can be used for tapered tip types and sharp tip angle types.)

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

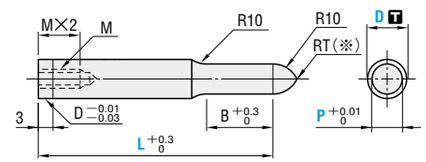
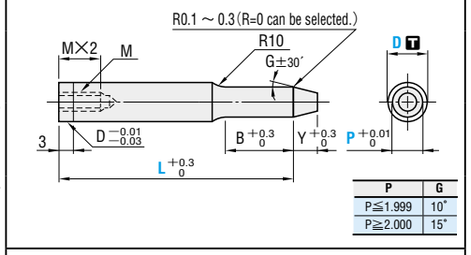
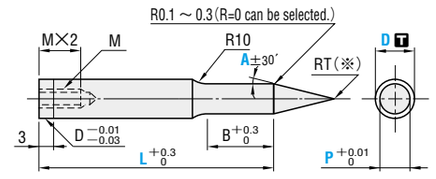
Alteration		Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		RLC	Tip R is cut flat. 2≦RLC<Y<8 Y=√P(10—P/4) 0.1mm increments	—	Quotation
		SC	Lapping of tip (?) P dimension tolerance and increment remain the same. ⊗ R=0 and RT=0 cannot be selected. (?) The base material 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	Quotation
		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 −0.05 ⇨ 0 −0.02 + LC Full length change		
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	
		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		 P: P≦1.999 10°; P≧2.000 15°
		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	Tip length (B) X>L>S Tapped large-diameter type S・L only	
		Powdered high-speed steel 64～67HRC	PATMA		
	$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	A—ATMA		
		Powdered high-speed steel 64～67HRC	A—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.) (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

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, TPMA, ATMA / A—STMA, A—TPMA, 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		
		16	(42) 52 62 72 82 (92) (102)	10.00～15.99		21		6	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		
		16	62 72 82 (92) (102)	10.00～15.99		27		6	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, PTPMA, PATMA / A—PSTMA, A—PTPMA, A—PATMA	X (Tapped large-diameter type not available)	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		
		16	72 82 (92) (102)	10.00～15.99		42		6	
		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.

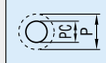
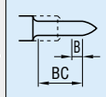
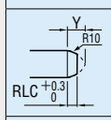
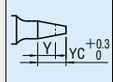
Order

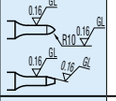
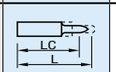
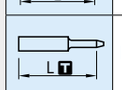
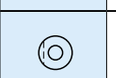
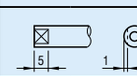
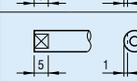
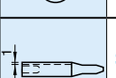
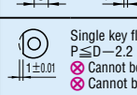
Catalog No.	L	P	A	(RT=0 R=0)
A—STMAS 6	72	P5.02		RT0
PTPMAS 6	52	P4.97		
A—ATMAL 10	52	P3.40	A15	R0

- 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) 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) 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.	

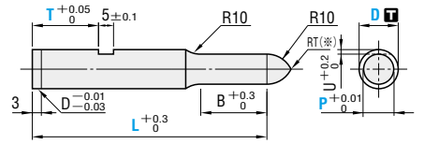
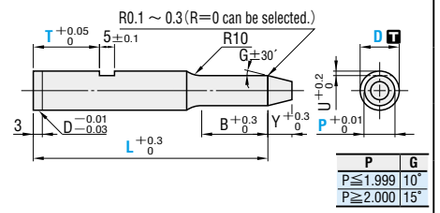
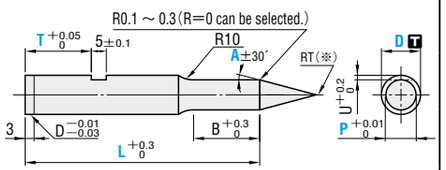
Alteration		Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		PKC	Tip diameter P+0.01 0 tolerance change ⇨ +0.005 0 ▼P dimension can be selected in 0.001mm increments.		Quotation
		SC	Lapping of tip ▼P dimension tolerance remains the same. ⊗ R=0 and RT=0 cannot be selected.		
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

PRESS NEW Printed in Red

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	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 SKH51 61～64 HRC	N—HSTKA NW—HSTKA	H—HSTKA HW—HSTKA		 (※)•••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
		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	 P≦1.999 10° P≧2.000 15°
		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		 (※)•••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®)
		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	

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

(42)•••B=10 If full length L is (42), tip length B is 10mm in all cases.
(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.
(10)•••If P≧6.0, A10 cannot be selected. (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

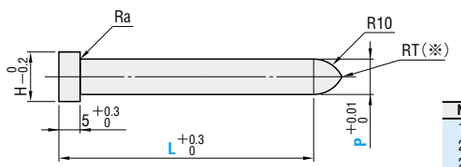
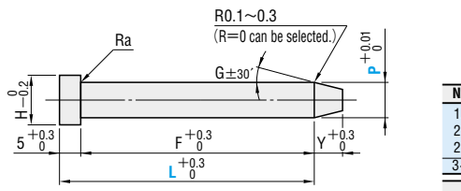
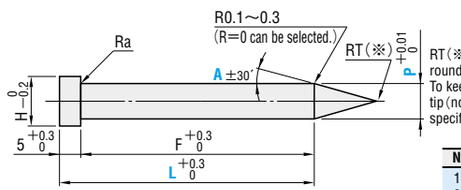
Catalog No.	L(LC・LCT)	P(PC)	A	T	(RT=0 R=0)	(BC・YC…etc.)
AN—PSTKAS 8	82	PC1.50		T20.0		YC1.0

Alteration	Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip	PC	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. P(PC) / Bmax.: 0.500～0.999 10; 1.000～1.999 20; 2.000～3.999 35; 4.000～5.999 45; 6.000～ (60)	Tip diameter change PC≧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～ (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. 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.		
Alterations to full length	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.		Quotation
	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).		
	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: 4～5 UK 0.7; 6 1.2; 8～16 1.7		

Price Quotation

PILOT PUNCHES

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.

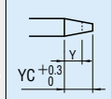
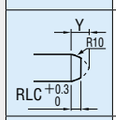
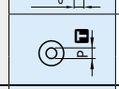
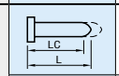
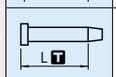
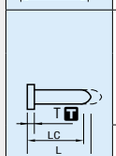
Order

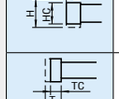
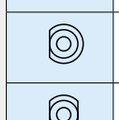
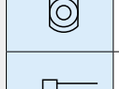
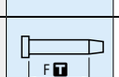
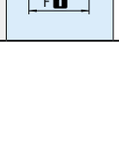
Catalog No.	L	P	A	(RT=0 R=0)
STC 6	72	P5.02		RT0
PATTC 8	42	P7.03	A15	

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

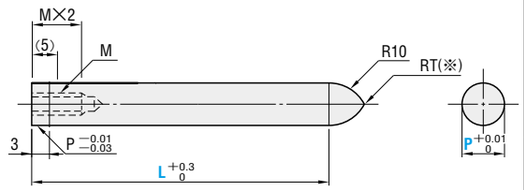
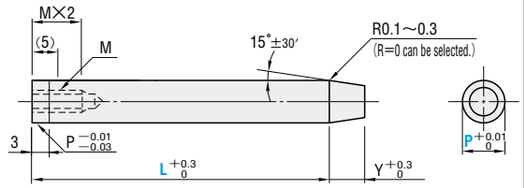
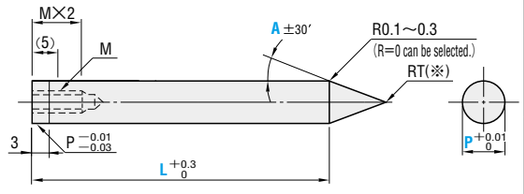
Alteration		Code	Tip R type	Tapered tip and sharp tip angle types	1Code
Alterations to tip		YC	——	Tip taper length change ・P<2.0 1≦YC≦PX2.83−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	Quotation
		RLC	Tip R is cut flat. 2≦RLC< Y < 8 Y = √P(10−P/4) 0.1mm increments	——	
		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 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(Y) 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(Y) 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.) Y 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

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	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	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	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
	16		13.00～ 16.00			
	20		16.00～ 20.00			
	25		20.00～ 25.00			
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						

(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	—	Tip taper length change 1≦YC≦PX1.86−0.3≦18 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗Cannot be used for sharp tip angle types.	Quotation
	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.		
	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. ▽With TiCN coating, the base material is finished before the coating is applied. ▽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.	Lapping range (B): P 6.000～9.999 → (B) 19; 10.000～ → (B) 25	

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

Price Quotation