
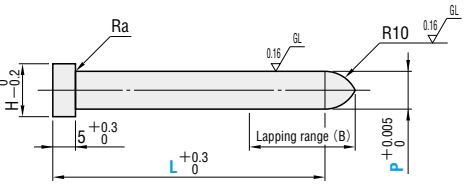

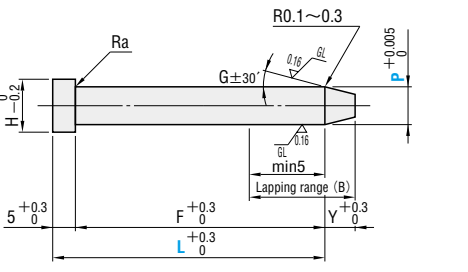

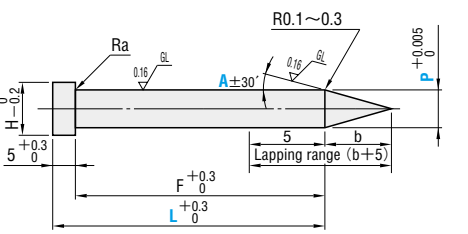



# STRAIGHT PILOT PUNCHES

—LAPPING—

Type	M H	Catalog No.	Shape																		
—Tip R type— 	<b>RoHS</b>	Equivalent to SKD11 60~63HRC <b>L—STC</b> (No.3~25)	 <p>Lapping range (B)</p> <table border="1"> <tr><th>P</th><th>(B)</th></tr> <tr><td>1.000~2.999</td><td>13</td></tr> <tr><td>3.000~9.999</td><td>19</td></tr> <tr><td>10.000~</td><td>25</td></tr> </table> <p>⊕ If L &lt; (B) + 20, (B) is adjusted to L-20.</p> <table border="1"> <tr><th>No.</th><th>Ra</th></tr> <tr><td>1.6</td><td>R ≤ 0.2</td></tr> <tr><td>2.0</td><td></td></tr> <tr><td>2.5</td><td></td></tr> <tr><td>3~</td><td>R ≤ 0.5</td></tr> </table> <p>⊕ Over effective lapping range(B), P<sup>0.1</sup> ⊕ For the length of tip R, refer to the products data "Punch R length". <b>P.1592</b></p>	P	(B)	1.000~2.999	13	3.000~9.999	19	10.000~	25	No.	Ra	1.6	R ≤ 0.2	2.0		2.5		3~	R ≤ 0.5
	P	(B)																			
	1.000~2.999	13																			
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1.6	R ≤ 0.2																				
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Equivalent to SKH51 61~64HRC <b>L—HSTC</b>																					
Powdered high-speed steel 64~67HRC <b>L—PSTC</b>																					
Shape of tip changes depending on P dimension. <b>P.250</b>																					
—Tapered tip type— 	<b>RoHS</b>	Equivalent to SKD11 60~63HRC <b>L—TTC</b> (No.3~25)	 <p>Lapping range (B)</p> <table border="1"> <tr><th>P</th><th>(B)</th></tr> <tr><td>1.000~2.999</td><td>13</td></tr> <tr><td>3.000~9.999</td><td>19</td></tr> <tr><td>10.000~</td><td>25</td></tr> </table> <p>⊕ If L &lt; (B) + 20, (B) is adjusted to L-20.</p> <table border="1"> <tr><th>No.</th><th>Ra</th></tr> <tr><td>1.6</td><td>R ≤ 0.2</td></tr> <tr><td>2.0</td><td></td></tr> <tr><td>2.5</td><td></td></tr> <tr><td>3~</td><td>R ≤ 0.5</td></tr> </table> <p>⊕ Over effective lapping range(B), P<sup>0.1</sup></p>	P	(B)	1.000~2.999	13	3.000~9.999	19	10.000~	25	No.	Ra	1.6	R ≤ 0.2	2.0		2.5		3~	R ≤ 0.5
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Powdered high-speed steel 64~67HRC <b>L—PTTC</b>																					
—Sharp tip angle type— 	<b>RoHS</b>	Equivalent to SKD11 60~63HRC <b>L—ATTC</b> (No.3~25)	 <p>Lapping range (b+5)</p> <table border="1"> <tr><th>No.</th><th>Ra</th></tr> <tr><td>1.6</td><td>R ≤ 0.2</td></tr> <tr><td>2.0</td><td></td></tr> <tr><td>2.5</td><td></td></tr> <tr><td>3~</td><td>R ≤ 0.5</td></tr> </table> <p>⊕ Over effective lapping range(B), P<sup>0.1</sup></p>	No.	Ra	1.6	R ≤ 0.2	2.0		2.5		3~	R ≤ 0.5								
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	1.6	R ≤ 0.2																			
2.0																					
2.5																					
3~	R ≤ 0.5																				
Equivalent to SKH51 61~64HRC <b>L—HATTC</b>																					
Powdered high-speed steel 64~67HRC <b>L—PATTC</b>																					







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








⊕ L(102)→L102 with No.8 can be used only for SKD11.  
 ⊕ L(92)(102)→L92 and 102 can be used for tip R types and tapered tip types only.  
 ⊗ A(10)→If P ≥ 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
<b>Alterations to tip</b>		<b>YC</b>	Tip taper length change · P < 2.0 1 ≤ YC ≤ P × 2.83 - 0.3 · P ≥ 2.0 1 ≤ YC ≤ P × 1.66 - 0.3 ≤ 18 L(LC) + YC ≤ Lmax + 8 0.1mm increments ⊗ Cannot be used for sharp tip angle types.	
		<b>RLC</b>	Tip R is cut flat. 2 ≤ RLC < Y < 8 Y = √P(10-P/4) 0.1mm increments	
<b>Alterations to full length</b>		<b>LC</b>	Full length change 25 ≤ LC < L 0.1mm increments	<b>Quotation</b>
		<b>LKC</b>	Full length tolerance change L +0.3 0 ⇔ +0.05 0	
		<b>LCT</b>	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. <b>TKC</b> Head thickness tolerance change T +0.3 0 ⇔ +0.02 0	
		<b>LMT</b>	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. <b>TKM</b> Head thickness tolerance change T +0.3 0 ⇔ -0.02 0	

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

**Price**  **Quotation**