# CARBIDE PILOT PUNCHES

**CARBIDE PILOT PUNCHES**



| Product name / Catalog No. | CARBIDE PILOT PUNCHES —NORMAL— | —LAPPING— | —TiCN COATING— | CARBIDE PILOT PUNCHES WITH KEY GROOVES —NORMAL— | —MINUS D TOLERANCE— |
|---|---|---|---|---|---|
| Page | 561 | | 563 | 565 | 567 |

| CARBIDE STRAIGHT PILOT PUNCHES —NORMAL— | —LAPPING— | —TiCN COATING— | CARBIDE STRAIGHT PILOT PUNCHES WITH KEY GROOVES —NORMAL— | CARBIDE PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —NORMAL— | —LAPPING— | —TiCN COATING— |
|---|---|---|---|---|---|---|
| 569 | | | 570 | 571 | | 572 |



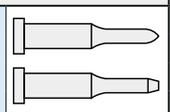
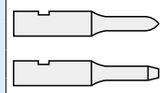
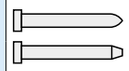
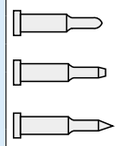
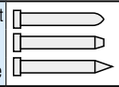
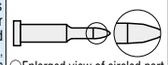
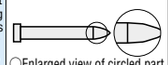
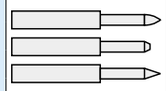
| CARBIDE STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —NORMAL— | —LAPPING— | —TiCN COATING— | CARBIDE STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —TIP R AND TAPER COMBINED TYPE, MINUS HEAD TOLERANCE— —NORMAL— | —LAPPING— | —TiCN COATING— |
|---|---|---|---|---|---|
| 573 | | 574 | 575 | | |

| CARBIDE STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES —TIP R AND TAPER COMBINED TYPE, MINUS HEAD TOLERANCE— —NORMAL— | —LAPPING— | —TiCN COATING— | MOVABLE CARBIDE PILOT PUNCHES —NORMAL— | —LAPPING— | —TiCN COATING— |
|---|---|---|---|---|---|
| 576 | | | 577 | | |



# CARBIDE PILOT PUNCHES LIST



| Shank type | | M | Tip shape | Shank diameter tolerance | Standard | | Lapping | | TiCN coating | |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbide standard punches |  | V30 (HIP) | R | $D_{m5}$ | WSTA□ | P.561 | L—WSTA□ | P.561 | H—WSTA□ | P.563 |
| | | | | $D^{+0.005}_{0}$ | A—WSTA□ | | AL—WSTA□ | | AH—WSTA□ | |
| | | | Taper | $D_{m5}$ | WTPA□ | | L—WTPA□ | | H—WTPA□ | |
| | | | | $D^{+0.005}_{0}$ | A—WTPA□ | | AL—WTPA□ | | AH—WTPA□ | |
| Carbide punches with key grooves |  | V30 (HIP) | R | $D_{m5}$ | WKSTA□ | P.565 | Alteration SC | P.566 P.568 | | |
| | | | | $D^{+0.005}_{0}$ | A—WKSTA□ | | | | | |
| | | | | $D^{-0.001}_{-0.006}$ | B—WKSTA□ | P.567 | | | | |
| | | | Taper | $D_{m5}$ | WKTPA□ | P.565 | | | | |
| | | | | $D^{+0.005}_{0}$ | A—WKTPA□ | | | | | |
| | | | | $D^{-0.001}_{-0.006}$ | B—WKTPA□ | P.567 | | | | |
| Carbide straight punches |  | V30 (HIP) | R | — | WSTC | P.569 | L—WSTC | P.569 | H—WSTC | P.569 |
| | | | Taper | — | WTTC | | L—WTTC | | H—WTTC | |
| Carbide straight punches with key grooves |  | V30 (HIP) | R | — | WKSTC | P.570 | Alteration SC | P.570 | | |
| | | | Taper | — | WKTTC | | | | | |
| Carbide punches for fixing to stripper plate |  | V30 (HIP) | R | $D_{m5}$ | WSPTP | P.571 | L—WSPTP | P.571 | H—WSPTP | P.572 |
| | | | | $D^{+0.005}_{0}$ | A—WSPTP | | AL—WSPTP | | AH—WSPTP | |
| | | | Taper | $D_{m5}$ | WTPTP | | L—WTPTP | | H—WTPTP | |
| | | | | $D^{+0.005}_{0}$ | A—WTPTP | | AL—WTPTP | | AH—WTPTP | |
| | | | Sharp angle | $D_{m5}$ | WAPTP | | L—WAPTP | | H—WAPTP | |
| | | | | $D^{+0.005}_{0}$ | A—WAPTP | | AL—WAPTP | | AH—WAPTP | |
| Carbide straight punches for fixing to stripper plate |  | V30 (HIP) | R | — | WSPT | P.573 | L—WSPT | P.573 | H—WSPT | P.574 |
| | | | Taper | — | WTPT | | L—WTPT | | H—WTPT | |
| | | | Sharp angle | — | WAPT | | L—WAPT | | H—WAPT | |
| Carbide punches for fixing to stripper plates, tip R and taper combined type, minus head tolerance ○Enlarged view of circled part |  | V30 (HIP) | R & Taper | $D_{m5}$ | WSPTPF | P.575 | L—WSPTPF | P.575 | H—WSPTPF | P.575 |
| Carbide straight punches for fixing to stripper plates Tip R and taper combined type, minus head tolerance ○Enlarged view of circled part |  | V30 (HIP) | R & Taper | — | WSPTF | P.576 | L—WSPTF | P.576 | H—WSPTF | P.576 |
| Movable carbide punches |  | V30 (HIP) | R | $D_{g6}$ | WSUPT | P.577 | L—WSUPT | P.577 | H—WSUPT | P.577 |
| | | | | $D^{-0.005}_{-0.010}$ | A—WSUPT | | AL—WSUPT | | AH—WSUPT | |
| | | | Taper | $D_{g6}$ | WTUPT | | L—WTUPT | | H—WTUPT | |
| | | | | $D^{-0.005}_{-0.010}$ | A—WTUPT | | AL—WTUPT | | AH—WTUPT | |
| | | | Sharp angle | $D_{g6}$ | WUPT | | L—WUPT | | H—WUPT | |
| | | | | $D^{-0.005}_{-0.010}$ | A—WUPT | | AL—WUPT | | AH—WUPT | |

**■Shank diameter tolerance $D_{m5}$**

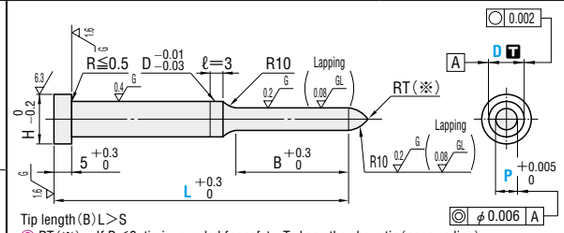
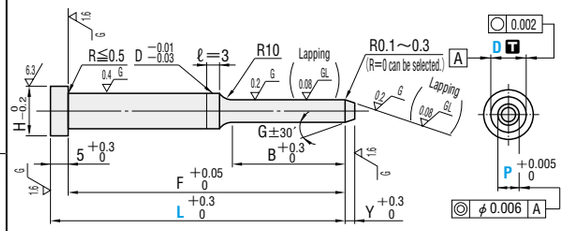
| D | Tolerance (Unit: mm) |
|---|---|
| 1.6 | +0.006 +0.002 |
| 2.0 | |
| 2.5 | |
| 3 | |
| 4 | +0.009 +0.004 |
| 5 | |
| 6 | |
| 8 | +0.012 +0.006 |
| 10 | |
| 13 | +0.015 +0.007 |
| 16 | |

**■Shank diameter tolerance $D_{g6}$**

| D | Tolerance (Unit:mm) |
|---|---|
| 1.6 | −0.002 −0.008 |
| 2.0 | |
| 2.5 | |
| 3 | |
| 4 | −0.004 −0.012 |
| 5 | |
| 6 | |
| 8 | −0.005 −0.014 |
| 10 | |
| 13 | −0.006 −0.017 |
| 16 | |

# CARBIDE PILOT PUNCHES



| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS<br>  <br>—Tip R・lapping—<br>  <br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5 | V30 (HIP)<br>88 ~ 89HRA | WSTAS<br>WSTAL<br>Lapping<br>L—WSTAS<br>L—WSTAL |  <br>Tip length (B) L>S<br>RT (※) ···· If P<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. (However if P≧8, tip end is flat. P.1592)<br>For the length of tip R, refer to the products data "Punch R length". P.1592<br>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.<br>RT=0 with lapping cannot be selected. |
| | $D^{+0.005}_{0}$ | | A—WSTAS<br>A—WSTAL<br>Lapping<br>AL—WSTAS<br>AL—WSTAL | |
| —Tapered tip type— RoHS<br>  <br>—Tapered tip・lapping—<br>  <br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5 | V30 (HIP)<br>88 ~ 89HRA | WTPAS<br>WTPAL<br>Lapping<br>L—WTPAS<br>L—WTPAL |  <br>Tip length (B) L>S<br>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.<br>RT=0 with lapping cannot be selected.<br>P: 1.000~1.999 G: 10°<br>P: 2.000~ G: 15° |
| | $D^{+0.005}_{0}$ | | A—WTPAS<br>A—WTPAL<br>Lapping<br>AL—WTPAS<br>AL—WTPAL | |

| Catalog No. Type | D | L | | | | | 0.001mm increments min. P max. | B | H | Y |
|---|---|---|---|---|---|---|---|---|---|---|
| S (Dm5) ($D^{+0.005}_{0}$)<br>WSTAS A—WSTAS<br>WTPAS A—WTPAS<br>—Lapping—<br>L—WSTAS AL—WSTAS<br>L—WTPAS AL—WTPAS | 3 | 42 | 52 | 62 | | | 1.000 ~ 2.990 | 10 | 5 | 2 |
| | 4 | 42 | 52 | 62 | 72 | | 1.000 ~ 3.990 | | 7 | |
| | 5 | 42 | 52 | 62 | 72 | | 2.000 ~ 4.990 | | 8 | 3 |
| | 6 | 42 | 52 | 62 | 72 | | 2.000 ~ 5.990 | | 9 | |
| | 8 | (42) | 52 | 62 | 72 | 82 | 3.000 ~ 7.990 | 15 | 11 | 5 |
| | 10 | (42) | 52 | 62 | 72 | 82 | 3.000 ~ 9.990 | | 13 | |
| | 13 | (42) | 52 | 62 | 72 | 82 | 6.000 ~ 12.990 | | 16 | 8 |
| | 16 | (42) | 52 | 62 | 72 | 82 | 10.000 ~ 15.990 | 21 | 19 | |
| L (Dm5) ($D^{+0.005}_{0}$)<br>WSTAL A—WSTAL<br>WTPAL A—WTPAL<br>—Lapping—<br>L—WSTAL AL—WSTAL<br>L—WTPAL AL—WTPAL | 3 | | 52 | 62 | | | 1.000 ~ 2.990 | 15 | 5 | 2 |
| | 4 | | 52 | 62 | 72 | | 1.000 ~ 3.990 | | 7 | |
| | 5 | | 52 | 62 | 72 | | 2.000 ~ 4.990 | | 8 | 3 |
| | 6 | | 52 | 62 | 72 | | 2.000 ~ 5.990 | | 9 | |
| | 8 | | 52 | 62 | 72 | 82 | 3.000 ~ 7.990 | 21 | 11 | 5 |
| | 10 | | 52 | 62 | 72 | 82 | 3.000 ~ 9.990 | | 13 | |
| | 13 | | 52 | 62 | 72 | 82 | 6.000 ~ 12.990 | | 16 | 8 |
| | 16 | | | 62 | 72 | 82 | 10.000 ~ 15.990 | 27 | 19 | |

L (42) ··· B=10 If full length is (42), tip length is 10mm in all cases.
P>D−0.03 ··· ℓ=0 If P>D−0.03, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.

**Order**

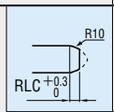
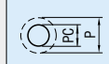
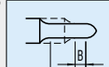
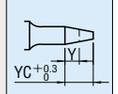
| Catalog No. | L | P | (RT=0 / R=0) |
|---|---|---|---|
| WSTAL 6 | 62 | P4.500 | RT0 |
| WTPAS 6 | 52 | P3.850 | |

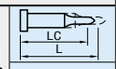
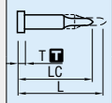
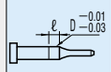
RT=0 only can be selected: Can be used for tip R types with P<8 (except lapping).
R=0 only can be selected for tapered tip types (except lapping).

**Days to Ship** Quotation

**Alterations**

| Catalog No. | L (LC・LCT・LMT) | P (PC) | (RT=0 / R=0) | (BC・HC・TC, etc.) |
|---|---|---|---|---|
| WSTAL 6 | LC65.0 | P4.500 | | PKC |

| Alteration | Code | | | 1Code |
|---|---|---|---|---|
| **Alterations to tip** | | | | |
|  | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10−P/4)<br>0.1mm increments<br>Can be used for P<8. | — | Quotation |
|  | PC | Tip diameter change<br>PC≧Pmin./2<br>0.001mm increments<br>P / Bmax.: 0.500~0.999 / 6; 1.000~1.999 / 15; 2.000~2.999 / 21; 3.000~3.999 / 32; 4.000~5.999 / 42; 6.000~ / 47 | Tip diameter change<br>PC≧Pmin./2≧1.000<br>0.001mm increments<br>P / Bmax.: 1.000~1.499 / 15; 1.500~1.999 / 15; 2.000~2.499 / 21; 2.500~2.999 / 21; 3.000~3.499 / 32; 3.500~3.999 / 32; 4.000~4.999 / 42; 5.000~5.999 / 42; 6.000~ / 47 | |
|  | BC | Tip length change<br>2≦BC≦Bmax.<br>Full length L must be at least 25mm longer than tip length BC. | 0.1mm increments | |
|  | YC | — | Tip taper length change<br>・If P<2.0,<br>1≦YC≦P×2.83−0.3<br>・If P≧2.0,<br>1≦YC≦P×1.86−0.3≦12<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments | |
|  | PKC | Tip diameter tolerance change | $P^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$ | |
| | PKV | Tip diameter tolerance change | $P^{+0.005}_{0}$ ⇨ ±0.002 | |

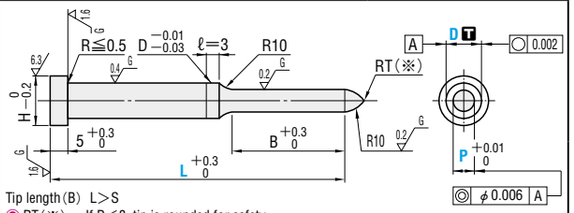
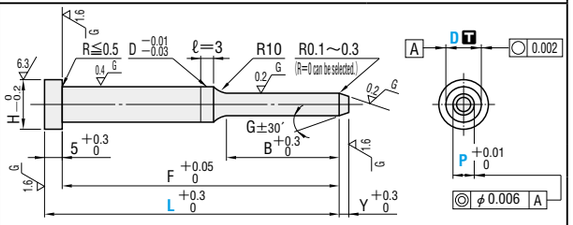
| Alteration | Code | | 1Code |
|---|---|---|---|
| **Alterations to full length** | | | |
|  | LC | Full length change 25+B(BC)≦LC<L 0.1mm increments<br>If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length−25mm). | |
|  | LCT | Changes to head thickness tolerance and full length are processed using a single code.<br>The allowable range of change, increment, ordering process, and notes (※) are the same as for LC.<br>**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.<br>The allowable range of change, increment, ordering process, and notes (※) are the same as for LC.<br>**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 | |
|  | HC | Head diameter change<br>D≦HC<H<br>0.1mm increments | |
|  | TC | Head thickness change 2≦TC<5<br>0.1mm increments (If combined with TKC・TKM・LCT・LMT, 0.01mm increments can be selected.)<br>Full length L is shortened by (5−TC).<br>If combined with LC・LCT・LMT, full length remains as specified. | |
|  | 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

# CARBIDE PILOT PUNCHES
—TiCN COATING—

PRODUCTS DATA P.1604



| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS  For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5 | V30(HIP) 88～89HRA Surface 3000HV | H—WSTAS<br>H—WSTAL |  Tip length(B) L>S<br>RT(※)··· If P<8, tip is rounded for safety.<br>To keep the sharp tip(no rounding), specify RT=0.(However if P≧8, tip end is flat. P.1592)<br>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.<br>For the length of tip R, refer to the products data "Punch R length". P.1592 |
| | $D^{+0.005}_{0}$ | | AH—WSTAS<br>AH—WSTAL | |
| —Tapered tip type— RoHS  For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5 | V30(HIP) 88～89HRA Surface 3000HV | H—WTPAS<br>H—WTPAL |  Tip length(B) L>S<br>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.<br>P: 1.00～1.99 G: 10°; 2.00～ G: 15° |
| | $D^{+0.005}_{0}$ | | AH—WTPAS<br>AH—WTPAL | |

| Catalog No. Type | D | L | | | | | 0.01mm increments min. | P | max. | B | H | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S (Dm5) H—WSTAS | 3 | 42 | 52 | 62 | | | 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 | | 2.00 ～ | | 5.99 | | 9 | |
| ($D^{+0.005}_{0}$) AH—WSTAS | 8 | (42) | 52 | 62 | 72 | 82 | 3.00 ～ | | 7.99 | 15 | 11 | 5 |
| | 10 | (42) | 52 | 62 | 72 | 82 | 3.00 ～ | | 9.99 | | 13 | |
| H—WTPAS AH—WTPAS | 13 | (42) | 52 | 62 | 72 | 82 | 6.00 ～ | | 12.99 | | 16 | 8 |
| | 16 | (42) | 52 | 62 | 72 | 82 | 10.00 ～ | | 15.99 | 21 | 19 | |
| L (Dm5) H—WSTAL | 3 | | 52 | 62 | | | 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 | | 2.00 ～ | | 5.99 | | 9 | |
| ($D^{+0.005}_{0}$) AH—WSTAL | 8 | | 52 | 62 | 72 | 82 | 3.00 ～ | | 7.99 | 21 | 11 | 5 |
| | 10 | | 52 | 62 | 72 | 82 | 3.00 ～ | | 9.99 | | 13 | |
| H—WTPAL AH—WTPAL | 13 | | 52 | 62 | 72 | 82 | 6.00 ～ | | 12.99 | | 16 | 8 |
| | 16 | | | 62 | 72 | 82 | 10.00 ～ | | 15.99 | 27 | 19 | |

L(42)··· B=10 If full length is(42), tip length is 10mm in all cases.
P>D−0.03 ··· ℓ=0 If P>D−0.03, D $^{-0.01}_{-0.03}$ (press-in lead) is not included.
If used with PKC alteration, P dimension can be selected in 0.001mm increments.

**Order**

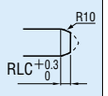
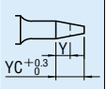
| Catalog No. | — | L | — | P | — | (RT=0 / R=0) |
|---|---|---|---|---|---|---|
| H—WSTAS 5 | — | 42 | — | P2.50 | | |
| H—WSTAL 8 | — | 62 | — | P4.50 | — | RT0 |
| AH—WTPAS 10 | — | 72 | — | P4.20 | — | R0 |

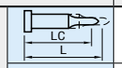
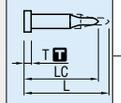
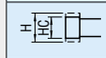
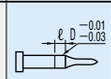
RT=0 only can be selected for tip R types with P<8(except lapping).
R=0 only can be selected for tapered tip types(except lapping).

**Days to Ship** Quotation

**Alterations**

| Catalog No. | — | L(LC·LCT·LMT) | — | P(PC) | — | (RT=0 / R=0) | — | (BC·HC·TC, etc.) |
|---|---|---|---|---|---|---|---|---|
| H—WSTAL 6 | — | LC65.0 | — | P4.50 | — | RT0 | — | TKC |

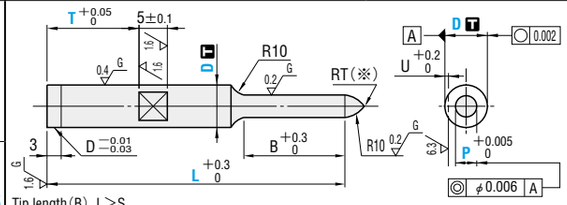
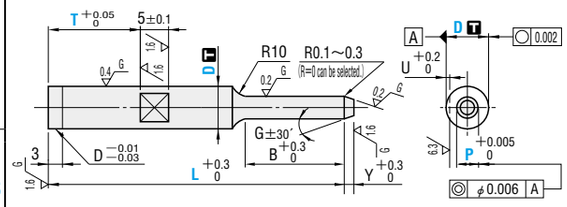
| Alteration | Code | | | 1Code |
|---|---|---|---|---|
| Alterations to tip:  | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10−P/4)<br>0.1mm increments<br>Can be used for P<8. | — | Quotation |
|  | PC | Tip diameter change<br>PC≧Pmin./2≧1.00<br>0.01mm increments<br>(If combined with PKC, 0.001mm increments can be selected.)<br>Cannot be used for D3·4.<br>P / Bmax.: 1.00～1.99 / 15; 2.00～2.99 / 21; 3.00～3.99 / 32; 4.00～ / 41 | Tip diameter change<br>PC≧Pmin./2≧1.00<br>0.01mm increments<br>(If combined with PKC, 0.001mm increments can be selected.)<br>Cannot be used for D3·4.<br>P / Bmax.: 1.00～1.49 / 15; 1.50～1.99 / 15; 2.00～2.49 / 21; 2.50～2.99 / 21; 3.00～3.49 / 32; 3.50～3.99 / 32; 4.00～4.99 / 41; 5.00～ / 41 | |
|  | BC | Tip length change<br>2≦BC≦Bmax.≦L/2 0.1mm increments<br>Full length L must be at least 25mm longer than tip length BC. | | |
|  | YC | — | Tip taper length change<br>·If P<2.0,<br>1≦YC≦P×2.83−0.3<br>·If P≧2.0,<br>1≦YC≦P×1.86−0.3≦12<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments | |
|  | PKC | Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$<br>P dimension can be selected in 0.001mm increments.<br>Cannot be used for D>13. | | |
| | PKV | Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ ±0.005<br>P dimension increment remains the same. | | |
|  | SC | Tip roughness change 0.2 G ⇨ 0.08 GL<br>The base material is finished before the coating is applied.<br>RT=0 and R=0 cannot be selected. | | |

| Alteration | Code | | 1Code |
|---|---|---|---|
| Alterations to full length:  | LC | Full length change 25+B(BC)≦LC<L 0.1mm increments<br>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.<br>The allowable range of change, increment, ordering process, and notes(💡) are the same as for LC.<br>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.<br>The allowable range of change, increment, ordering process, and notes(💡) are the same as for LC.<br>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 | |
|  | HC | Head diameter change<br>D≦HC<H<br>0.1mm increments | |
|  | TC | Head thickness change 2≦TC<5<br>0.1mm increments(If combined with TKC·TKM·LCT·LMT, 0.01mm increments can be selected.)<br>Full length L is shortened by(5−TC).<br>If combined with LC·LCT·LMT, full length remains as specified. | |
|  | 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

# CARBIDE PILOT PUNCHES WITH KEY GROOVES



| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS  For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5 | V30(HIP) 88～89HRA | WKSTAS WKSTAL |  Tip length(B) L>S ⚲ RT(※)··· If P<8, tip is rounded for safety. To keep the sharp tip(no rounding), specify RT=0. (However 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 ⚲ Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function. |
| | $D^{+0.005}_{0}$ | | A—WKSTAS A—WKSTAL | |
| —Tapered tip type— RoHS  For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5 | V30(HIP) 88～89HRA | WKTPAS WKTPAL |  Tip length(B) L>S ⚲ Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function. |
| | $D^{+0.005}_{0}$ | | A—WKTPAS A—WKTPAL | |

| P | G |
|---|---|
| 1.000～1.999 | 10° |
| 2.000～ | 15° |

| Catalog No. Type | D | L | | | | | 0.001mm increments min. P max. | 0.1mm increments T | B | Y | U |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S (Dm5) ($D^{+0.005}_{0}$) WKSTAS A—WKSTAS WKTPAS A—WKTPAS | 3 | 42 | 52 | 62 | | | 1.000 ～ 2.990 | T>5.0 | 10 | 2 | 0.5 |
| | 4 | 42 | 52 | 62 | 72 | | 1.000 ～ 3.990 | | | | |
| | 5 | 42 | 52 | 62 | 72 | | 2.000 ～ 4.990 | | | 3 | |
| | 6 | 42 | 52 | 62 | 72 | | 2.000 ～ 5.990 | | | | 1.0 |
| | 8 | (42) | 52 | 62 | 72 | 82 | 3.000 ～ 7.990 | | 15 | 5 | 1.5 |
| | 10 | (42) | 52 | 62 | 72 | 82 | 3.000 ～ 9.990 | | | | |
| | 13 | (42) | 52 | 62 | 72 | 82 | 6.000 ～ 12.990 | | | 8 | |
| | 16 | (42) | 52 | 62 | 72 | 82 | 10.000 ～ 15.990 | | 21 | | |
| L (Dm5) ($D^{+0.005}_{0}$) WKSTAL A—WKSTAL WKTPAL A—WKTPAL | 3 | | 52 | 62 | | | 1.000 ～ 2.990 | T>5.0 | 15 | 2 | 0.5 |
| | 4 | | 52 | 62 | 72 | | 1.000 ～ 3.990 | | | | |
| | 5 | | 52 | 62 | 72 | | 2.000 ～ 4.990 | | | 3 | |
| | 6 | | 52 | 62 | 72 | | 2.000 ～ 5.990 | | | | 1.0 |
| | 8 | | 52 | 62 | 72 | 82 | 3.000 ～ 7.990 | | 21 | 5 | 1.5 |
| | 10 | | 52 | 62 | 72 | 82 | 3.000 ～ 9.990 | | | | |
| | 13 | | 52 | 62 | 72 | 82 | 6.000 ～ 12.990 | | | 8 | |
| | 16 | | | 62 | 72 | 82 | 10.000 ～ 15.990 | | 27 | | |

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

**Order**

| Catalog No. | L | P | T | (RT=0 / R=0) |
|---|---|---|---|---|
| WKSTAL 6 | 62 | P4.500 | T10 | |
| WKTPAS 5 | 52 | P2.015 | T8 | R0 |

⚲ If no key groove is required, select T=L.
⚲ RT=0 only can be selected: Can be used for tip R types withP<8(except lapping).
⚲ R=0 only can be selected: Can be used for tapered tip types(except lapping).

**Days to Ship** Quotation

**Alterations**

| Catalog No. | L (LC·LCT) | P (PC) | T | (RT=0 / R=0) | (BC·YC·WKD···etc.) |
|---|---|---|---|---|---|
| WKSTAL 6 | LC65.0 | P4.500 | T8 | | PKC |

| Alterations | Code | | | 1Code |
|---|---|---|---|---|
| Alterations to tip: RLC | RLC | Tip R is cut flat. Allowable range of change 2≦RLC<√P(10−P/4) 0.1mm increments ⚲ Can be used for P<8. | — | Quotation |
| PC | PC | Tip diameter change PC≧Pmin./2 0.001mm increments (P / Bmax.: 0.500～0.999 / 6; 1.000～1.999 / 15; 2.000～2.999 / 21; 3.000～3.999 / 32; 4.000～5.999 / 42; 6.000～ / 47) | Tip diameter change PC≧Pmin./2≧1.000 0.001mm increments (P / Bmax.: 1.000～1.499 / 15; 1.500～1.999 / 15; 2.000～2.499 / 21; 2.500～2.999 / 21; 3.000～3.499 / 32; 3.500～3.999 / 32; 4.000～4.999 / 42; 5.000～5.999 / 42; 6.000～ / 47) 0.1mm increments | |
| BC | BC | Tip length change 2≦BC≦Bmax. ⚲ Full length L must be at least 25mm longer than tip length BC. | | |
| YC | YC | — | Tip taper length change ·If P<2.0, 1≦YC≦P×2.83−0.3 ·If P≧2.0, 1≦YC≦P×1.86−0.3≦12 L(LC)+YC≦Lmax.+8 0.1mm increments | |
| PKC | PKC | Tip diameter tolerance change $P^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$ | | |
| PKV | PKV | Tip diameter tolerance change $P^{+0.005}_{0}$ ⇨ ±0.002 | | |
| SC | SC | Tip roughness change 0.2 G ⇨ 0.08 GL ⊗ RT=0 and R=0 cannot be selected. | | |

| Alterations | Code | | 1Code |
|---|---|---|---|
| Alterations to full length: LC | 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). | Quotation |
| LCT | LCT | Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes(⚲) are the same as for LC. TKC: T dimension 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 | |
| UK | UK | Key groove depth change ⊗ Cannot be used for D3. (D / UK: 4·5 / 0.7; 6 / 1.2; 8～16 / 1.7) | |
| TKC | TKC | T dimension tolerance change $T^{+0.05}_{0}$ ⇨ $^{0}_{-0.02}$ | |

**Price** Quotation

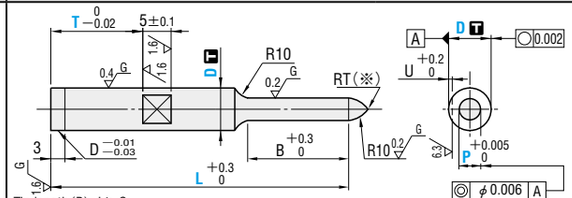
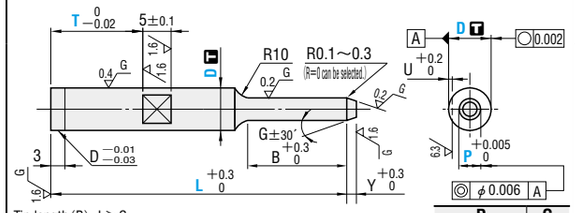
■Fixing keys for punches with key grooves P.245

PSKB PSKBH 
PSKS PSKJ 
PSK PSKP PSKH 
PSKW 

# CARBIDE PILOT PUNCHES WITH KEY GROOVES

## —MINUS D TOLERANCE—



| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS  | $D^{-0.001}_{-0.006}$ | V30(HIP) 88~89HRA | B—WKSTAS<br>B—WKSTAL |  Tip length(B) L>S<br>RT(※)⋯ If P<8, tip is rounded for safety.To keep the sharp tip(no rounding), specify RT=0. (However if P≧8, tip end is flat. P.1592)<br>For the length of tip R, refer to the products data "Punch R length". P.1592<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| —Tapered tip type— RoHS  | $D^{-0.001}_{-0.006}$ | V30(HIP) 88~89HRA | B—WKTPAS<br>B—WKTPAL |  Tip length(B) L>S<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |

| P | G |
|---|---|
| 1.000~1.999 | 10° |
| 2.000~ | 15° |

| Catalog No. Type | D | L | | | | | 0.001mm increments min. P max. | 0.1mm increments T | B | Y | U |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  B—WKSTAS B—WKTPAS | 3 | 42 | 52 | 62 | | | 1.000 ~ 2.990 | T>5.0 | 10 | 2 | 0.5 |
| | 4 | 42 | 52 | 62 | 72 | | 1.000 ~ 3.990 | | | | |
| | 5 | 42 | 52 | 62 | 72 | | 2.000 ~ 4.990 | | | 3 | |
| | 6 | 42 | 52 | 62 | 72 | | 2.000 ~ 5.990 | | | | 1.0 |
| | 8 | (42) | 52 | 62 | 72 | 82 | 3.000 ~ 7.990 | | 15 | 5 | 1.5 |
| | 10 | (42) | 52 | 62 | 72 | 82 | 3.000 ~ 9.990 | | | | |
| | 13 | (42) | 52 | 62 | 72 | 82 | 6.000 ~ 12.990 | | | 8 | |
| | 16 | (42) | 52 | 62 | 72 | 82 | 10.000 ~ 15.990 | | 21 | | |
|  B—WKSTAL B—WKTPAL | 3 | | 52 | 62 | | | 1.000 ~ 2.990 | T>5.0 | 15 | 2 | 0.5 |
| | 4 | | 52 | 62 | 72 | | 1.000 ~ 3.990 | | | | |
| | 5 | | 52 | 62 | 72 | | 2.000 ~ 4.990 | | | 3 | |
| | 6 | | 52 | 62 | 72 | | 2.000 ~ 5.990 | | | | 1.0 |
| | 8 | | 52 | 62 | 72 | 82 | 3.000 ~ 7.990 | | 21 | 5 | 1.5 |
| | 10 | | 52 | 62 | 72 | 82 | 3.000 ~ 9.990 | | | | |
| | 13 | | 52 | 62 | 72 | 82 | 6.000 ~ 12.990 | | | 8 | |
| | 16 | | | 62 | 72 | 82 | 10.000 ~ 15.990 | | 27 | | |

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

**Order**

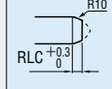
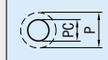
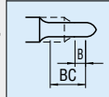
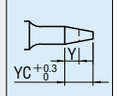
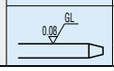
| Catalog No. | L | P | T | RT=0 / R=0 |
|---|---|---|---|---|
| B—WKSTAL 6 | 62 | P4.500 | T10 | RT0 |
| B—WKTPAS 6 | 42 | P2.105 | T8 | |

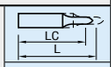
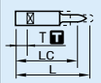
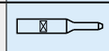
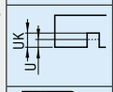
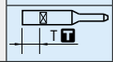
If no key groove is required, select T=L.
RT=0 only can be selected: Can be used for tip R types with P<8(except lapping).
R=0 only can be selected: Can be used for tapered tip types(except lapping).

**Days to Ship** Quotation

**Alterations**

Catalog No. — L(LC·LCT) — P(PC) — T — (RT=0 / R=0) — (BC·YC·WKD⋯etc.)
B—WKSTAL 6 — LC65.5 — P4.500 — T10 — PKC

| Alterations | Alteration | Code | | | 1Code |
|---|---|---|---|---|---|
| Alterations to tip |  | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10−P/4)<br>0.1mm increments<br>Can be used for P<8. | — | Quotation |
| |  | PC | Tip diameter change<br>PC≧Pmin./2<br>0.001mm increments<br>P: 0.500~0.999 / 1.000~1.999 / 2.000~2.999 / 3.000~3.999 / 4.000~5.999 / 6.000~<br>Bmax.: 6 / 15 / 21 / 32 / 42 / 47 | Tip diameter change<br>PC≧Pmin./2≧1.000<br>0.001mm increments<br>P: 1.000~1.499 / 1.500~1.999 / 2.000~2.499 / 2.500~2.999 / 3.000~3.499 / 3.500~3.999 / 4.000~4.999 / 5.000~5.999 / 6.000~<br>Bmax.: 15 / 15 / 21 / 21 / 32 / 32 / 42 / 42 / 47 | |
| |  | BC | Tip length change<br>2≦BC≦Bmax.<br>Full length L must be at least 25mm longer than tip length BC. | 0.1mm increments | |
| |  | YC | — | Tip taper length change<br>・If P<2.0,<br>1≦YC≦P×2.83−0.3<br>・If P≧2.0,<br>1≦YC≦P×1.86−0.3≦12<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments | |
| |  | PKC | Tip diameter tolerance change $P^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$ | | |
| | | PKV | Tip diameter tolerance change $P^{+0.005}_{0}$ ⇨ ±0.002 | | |
| |  | SC | Tip roughness change 0.2 G ⇨ 0.08 GL<br>RT=0 and R=0 cannot be selected. | | |

| Alterations | Alteration | Code | | 1Code |
|---|---|---|---|---|
| Alterations to full length |  | LC | Full length change 25+B(BC)≦LC<L 0.1mm increments<br>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, increment, ordering process, and notes(⚲) are the same as for LC.<br>RTC: T dimension tolerance change $^{0}_{-0.02}$ ⇨ $T^{+0.05}_{0}$ + LC: Full length change | Quotation |
| Alterations to key groove |  | WKD | Addition of double key grooves in parallel | |
| |  | UK | Key groove depth change<br>Cannot be used for D3.<br>D: 4·5 / 6 / 8~16<br>UK: 0.7 / 1.2 / 1.7 | |
| |  | RTC | T dimension tolerance change $T^{0}_{-0.02}$ ⇨ $^{+0.05}_{0}$ | |

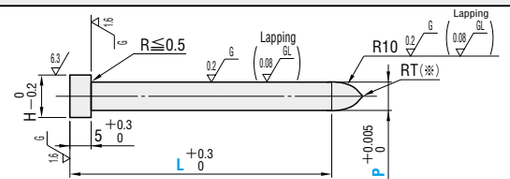
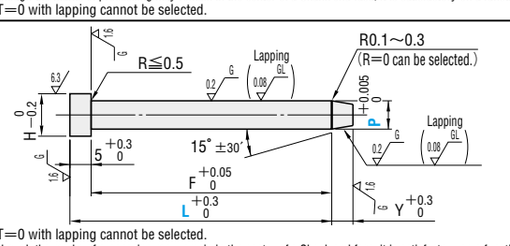
**Price** Quotation

■Fixing keys for punches with key grooves P.245

PSKB PSKBH  PSKS PSKJ  PSK PSKP PSKH  PSKW 

# CARBIDE STRAIGHT PILOT PUNCHES

PRODUCTS DATA P.1604

| Type | M H | Catalog No. | Shape |
|---|---|---|---|
| —Tip R type— RoHS<br>—Tip R·lapping—<br>—TiCN coating— | V30(HIP) 88~89HRA | WSTC<br>Lapping<br>L—WSTC |  <br>RT(※)···· If P<8, tip is rounded for safety. To keep the sharp tip(no rounding), specify RT=0. (However if f P≧8, tip end is flat. P.1592)<br>For the length of tip R, refer to the products data "Punch R length". P.1592<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.<br>RT=0 with lapping cannot be selected. |
| | V30(HIP) 88~89HRA Surface 3000HV | TiCN coating<br>H—WSTC | |
| —Tapered tip type— RoHS<br>—Tapered tip·lapping—<br>—TiCN coating— | V30(HIP) 88~89HRA | WTTC<br>Lapping<br>L—WTTC |  <br>RT=0 with lapping cannot be selected.<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| | V30(HIP) 88~89HRA Surface 3000HV | TiCN coating<br>H—WTTC | |

| Catalog No. Type | No. | L | | | | 0.001mm increments (With coating, 0.01mm increments) min. P max. | Y | H |
|---|---|---|---|---|---|---|---|---|
| (Tip R type) WSTC (Tapered tip type) WTTC | 3 | 42 | 52 | 62 | | 2.000 ~ 3.000 | 2 | 5 |
| | 4 | 42 | 52 | 62 | 72 | 3.000 ~ 4.000 | | 7 |
| —Lapping— L—WSTC L—WTTC | 5 | 42 | 52 | 62 | 72 | 4.000 ~ 5.000 | 3 | 8 |
| | 6 | 42 | 52 | 62 | 72 | 5.000 ~ 6.000 | | 9 |
| —TiCN coating— H—WSTC H—WTTC | 8 | 42 | 52 | 62 | 72 | 6.000 ~ 8.000 | 5 | 11 |
| | 10 | 42 | 52 | 62 | 72 | 8.000 ~ 10.000 | | 13 |

P dimension increments ···· For TiCN coating, increments are 0.01mm. (If used with PKC alteration, 0.001mm increments can be selected.)

**Order**

| Catalog No. | — | L | — | P | — | (RT=0 / R=0) |
|---|---|---|---|---|---|---|
| WSTC 3 | — | 42 | — | P2.490 | | |
| WTTC 3 | — | 42 | — | P2.490 | — | R0 |

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

**Price** Quotation

**Days to Ship** Quotation

**Alterations**

Catalog No. — L(LC·LCT·LMT) — P — (RT=0 / R=0) — (HC·TC, etc.)
WTTC 3 — LC45.0 — P2.490 — YC3

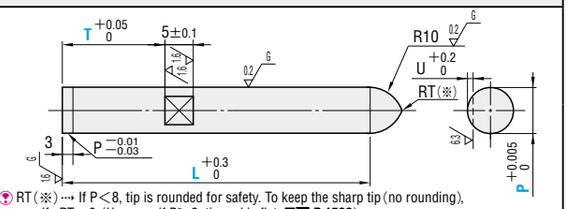
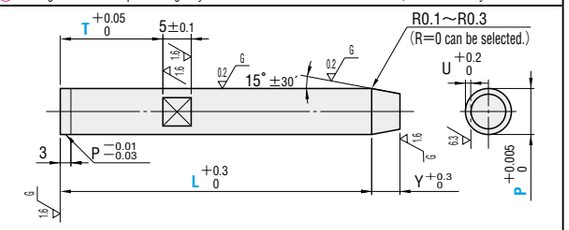
| | Alteration | Code | | | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10—P/4)<br>0.1mm increments<br>Can be used for P<8. | — | Quotation |
| | | PKC | Tip diameter tolerance change P dimension can be selected in 0.001mm increments.<br>·Normal P +0.005 0 ⇨ +0.003 0<br>·Lapping<br>·TiCN coating P +0.01 0 ⇨ +0.005 0 | | |
| | | PKV | Tip diameter tolerance change P dimension increment remains the same.<br>·Normal P +0.005 0 ⇨ ±0.002<br>·Lapping<br>·TiCN coating P +0.01 0 ⇨ ±0.005 | | |
| | | YC | — | Tip taper length change<br>1≦YC≦P×1.86—0.3≦12<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments | |
| | | SC | Tip roughness change 0.2 G ⇨ 0.08 GL<br>The base material is finished before the coating is applied.<br>Can be used for coating type only.<br>RT=0 and R=0 cannot be selected. | | |
| Full length | | LC | Full length change<br>32≦LC<L<br>0.1mm increments | | |

| | Alteration | Code | | 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, increment, ordering process, and notes() are the same as for LC.<br>TKC + LC<br>Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 — Full length change | Quotation |
| | | LMT | Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes() are the same as for LC.<br>TKM + LC<br>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 | |
| | | HC | Head diameter change<br>P≦HC<H 0.1mm increments | |
| | | TC | Head thickness change 2≦TC<5 TiCN coating 4≦TC<5<br>0.1mm increments<br>(If combined with TKC·TKM·LCT·LMT, 0.01mm increments can be selected.)<br>Full length L is shortened by (5—TC).<br>If combined with LC·LCT·LMT, full length remains as specified. | |
| | | TKC | Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 | |
| | | TKM | Head thickness tolerance change T +0.3 0 ⇨ 0 —0.02 | |



# CARBIDE STRAIGHT PILOT PUNCHES WITH KEY GROOVES



| Type | M H | Catalog No. | Shape |
|---|---|---|---|
| —Tip R type— RoHS | V30(HIP) 88~89HRA | WKSTC |  <br>RT(※)···· If P<8, tip is rounded for safety. To keep the sharp tip(no rounding), specify RT=0. (However if P≧8, tip end is flat. P.1592)<br>For the length of tip R, refer to the products data "Punch R length". P.1592<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| —Tapered tip type— RoHS | V30(HIP) 88~89HRA | WKTTC |  <br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |

| Catalog No. Type | No. | L | | | | 0.001mm increments min. P max. | 0.1mm increments T | Y | U |
|---|---|---|---|---|---|---|---|---|---|
| WKSTC WKTTC | 3 | 42 | 52 | 62 | | 2.000 ~ 3.000 | T≧5.0 | 2 | 0.5 |
| | 4 | 42 | 52 | 62 | 72 | 3.000 ~ 4.000 | | | |
| | 5 | 42 | 52 | 62 | 72 | 4.000 ~ 5.000 | | 3 | |
| | 6 | 42 | 52 | 62 | 72 | 5.000 ~ 6.000 | | | 1.0 |
| | 8 | 42 | 52 | 62 | 72 | 6.000 ~ 8.000 | | 5 | 1.5 |
| | 10 | 42 | 52 | 62 | 72 | 8.000 ~ 10.000 | | | |

**Order**

| Catalog No. | — | L | — | P | — | T | — | (RT=0 / R=0) |
|---|---|---|---|---|---|---|---|---|
| WKSTC 3 | — | 42 | — | P2.490 | — | T10.0 | — | RT0 |
| WKTTC 3 | — | 42 | — | P2.490 | — | T10.0 | | |

If no key groove is required, select T=L.
RT=0 only can be selected: Can be used for tip R types (except lapping).
R=0 only can be selected: Can be used for tapered tip types (except lapping).

**Price** Quotation

**Days to Ship** Quotation

**Alterations**

Catalog No. — L(LC·LCT) — P — T — (RT=0 / R=0) — (YC, etc.)
WKTTC 3 — LC45.0 — P2.490 — T10.0 — YC3

| | Alteration | Code | | | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10—P/4)<br>0.1mm increments<br>Can be used for P<8. | — | Quotation |
| | | PKC | Tip diameter tolerance change P +0.005 0 ⇨ +0.003 0 | | |
| | | PKV | Tip diameter tolerance change P +0.005 0 ⇨ ±0.002 | | |
| | | SC | Lapping of tip<br>P dimension tolerance remains the same.<br>Lapping range(B)<br>P (B)<br>2.00 ~ 2.99 13<br>3.00 ~ 9.99 19<br>10.00 25<br>If L<(B)+20, (B) is adjusted to (L—20).<br>RT=0 cannot be selected for tip R types.<br>R=0 cannot be selected for tapered tip types. | | |

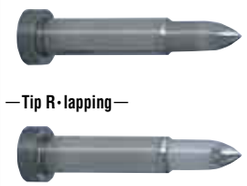
| | Alteration | Code | | | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | | YC | — | Tip taper length change<br>1≦YC≦P×1.86—0.3≦12<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments | |
| Alterations to full length | | LC | Full length change<br>32≦LC<L<br>0.1mm increments | | |
| | | LCT | T dimension tolerance and full length changes are processed using a single code. The allowable range of change, increment, ordering process, and notes() are the same as for LC.<br>TKC + LC<br>T dimension tolerance change T +0.05 0 ⇨ 0 —0.02 — Full length change | | Quotation |
| Alterations to key groove | | WKD | Addition of double key grooves in parallel | Addition of double key grooves in parallel | |
| | | TKC | T dimension tolerance change T +0.05 0 ⇨ 0 —0.02 | | |
| | | UK | Key groove depth change<br>Cannot be used for No.3<br>No. UK<br>4·5 0.7<br>6 1.2<br>8 ~ 10 1.7 | | |

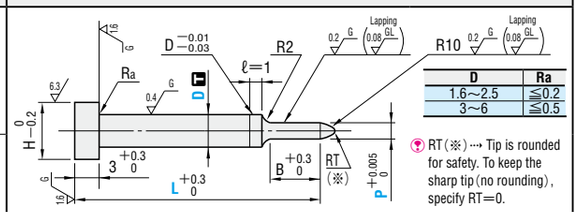
■Fixing keys for punches with key grooves P.245

PSKB PSKBH  PSKS PSKJ  PSK PSKP PSKH  PSKW 

# CARBIDE PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS<br>—Tip R・lapping—<br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5<br>$D^{+0.005}_{0}$ | V30 (HIP) 88~89HRA | WSPTP Lapping L—WSPTP<br>A—WSPTP Lapping AL—WSPTP | |





| D | Ra |
|---|---|
| 1.6~2.5 | ≦0.2 |
| 3~6 | ≦0.5 |

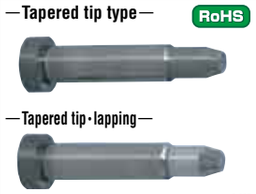
RT(※)···Tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0.

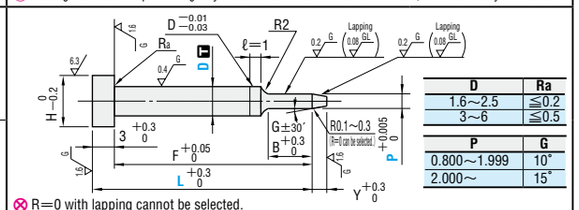
For the length of tip R, refer to the products data "Punch R length". P.1592

⊗ RT=0 with lapping cannot be selected.

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tapered tip type— RoHS<br>—Tapered tip・lapping—<br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5<br>$D^{+0.005}_{0}$ | V30 (HIP) 88~89HRA | WTPTP Lapping L—WTPTP<br>A—WTPTP Lapping AL—WTPTP | |





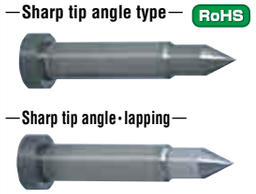
| D | Ra |
|---|---|
| 1.6~2.5 | ≦0.2 |
| 3~6 | ≦0.5 |

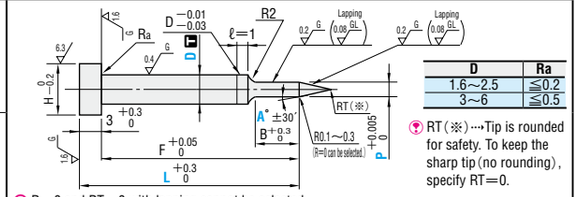
| P | G |
|---|---|
| 0.800~1.999 | 10° |
| 2.000~ | 15° |

⊗ R=0 with lapping cannot be selected.

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Sharp tip angle type— RoHS<br>—Sharp tip angle・lapping—<br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5<br>$D^{+0.005}_{0}$ | V30 (HIP) 88~89HRA | WAPTP Lapping L—WAPTP<br>A—WAPTP Lapping AL—WAPTP | |





| D | Ra |
|---|---|
| 1.6~2.5 | ≦0.2 |
| 3~6 | ≦0.5 |

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

⊗ R=0 and RT=0 with lapping cannot be selected.

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Catalog No. Type | D | 0.1mm increments L | 0.001mm increments min. P max. | A | B | Y | H |
|---|---|---|---|---|---|---|---|
| (Dm5) ($D^{+0.005}_{0}$)<br>WSPTP A—WSPTP<br>WTPTP A—WTPTP<br>WAPTP A—WAPTP<br>—Lapping—<br>L—WSPTP AL—WSPTP<br>L—WTPTP AL—WTPTP<br>L—WAPTP AL—WAPTP | 1.6 | 10.0 ~ 32.0 | 0.800~1.599 | (10) | 4 | 1 | 2.6 |
| | 2.0 | | 1.000~1.990 | 15 | | | 3 |
| | 2.5 | | 1.000~2.490 | 20 | | 2 | 3.5 |
| | 3 | 10.0 ~ 40.0 | 1.000~2.990 | 25 | | | 5 |
| | 4 | | 2.000~3.990 | 30 | | | 7 |
| | 5 | | 2.000~4.990 | | | 3 | 8 |
| | 6 | | 2.500~5.990 | | | | 9 |

P>D−0.03 ··· ℓ=0 If P>D−0.03, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.

⊗ A(10) ··· P<2.000 If P≧2.000, A=10 cannot be selected.

Price **Quotation**

**Order**

| Catalog No. | L | P | A | RT=0 / R=0 |
|---|---|---|---|---|
| WAPTP 6 | 29.0 | P4.071 | A15 | |
| WTPTP 6 | 20.0 | P5.020 | | R0 |

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

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

**Days to Ship** **Quotation**

**Alterations**

| Catalog No. | L | P | A(AC) | RT=0 / R=0 | (HC・TC, etc.) |
|---|---|---|---|---|---|
| WAPTP 6 | 20.0 | P5.020 | AC18 | | HC6—PKC |

| Alteration | | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | RLC $^{+0.3}_{0}$, R10 | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10−P/4)<br>0.1mm increments | —— | Quotation |
| | BC, B | BC | Tip length change<br>2≦BC≦Bmax.<br>0.1mm increments<br>Full length L must be at least 8mm longer than tip length BC. | P / Bmax.<br>0.800~1.999 / 15<br>2.000~ / 21 | |
| | AC, L | AC | —— | Tip angle change<br>15° <AC≦45°<br>1° increments<br>⊗ Cannot be used for tapered tip types. | |

| Alteration | | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | P | PKC | Tip diameter tolerance change $P^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$ | | Quotation |
| | | PKV | Tip diameter tolerance change $P^{+0.005}_{0}$ ⇨ ±0.002 | | |
| | Y, $YC^{+0.3}_{0}$ | YC | —— | Tip taper length change<br>・If P<2.0,<br>1≦YC≦P×2.83−0.3<br>・If P≧2.0,<br>1≦YC≦P×1.86−0.3<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments<br>⊗ Cannot be used for sharp tip angle types. | |
| Alterations to head | HC, H | HC | Head diameter change<br>D≦HC<H<br>0.1mm increments | | |
| | | KC | Addition of single key flat to head | | |
| | | WKC | Addition of double key flats in parallel | | |
| | TC, T | TC | Head thickness change 2≦TC<3<br>0.1mm increments (If combined with TKC・TKM, 0.01mm increments can be selected.)<br>The full length remains as specified. | | |
| | T | TKC | Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ | | |
| | | TKM | Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ | | |
| Others | ℓ, $D^{-0.01}_{-0.03}$ | NDC | No press-in lead ℓ=1 ⇨ ℓ=0 | | |



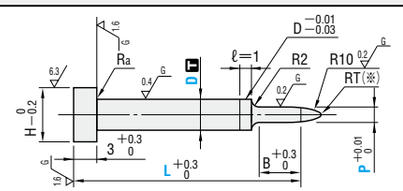
# CARBIDE PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

## —TiCN COATING—

PRODUCTS DATA P.1604



| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS<br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5<br>$D^{+0.005}_{0}$ | V30 (HIP) 88~89HRA Surface 3000HV | H—WSPTP<br>AH—WSPTP | |



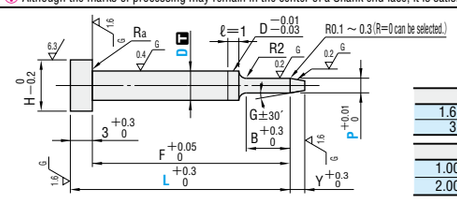
| D | Ra |
|---|---|
| 1.6 ~ 2.5 | ≦0.2 |
| 3 ~ 6 | ≦0.5 |

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

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

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tapered tip type— RoHS<br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5<br>$D^{+0.005}_{0}$ | V30 (HIP) 88~89HRA Surface 3000HV | H—WTPTP<br>AH—WTPTP | |

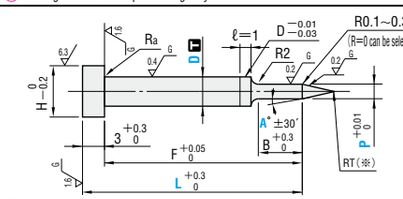


| D | Ra |
|---|---|
| 1.6 ~ 2.5 | ≦0.2 |
| 3 ~ 6 | ≦0.5 |

| P | G |
|---|---|
| 1.00 ~ 1.99 | 10° |
| 2.00 ~ | 15° |

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Sharp tip angle type— RoHS<br>For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$. | Dm5<br>$D^{+0.005}_{0}$ | V30 (HIP) 88~89HRA Surface 3000HV | H—WAPTP<br>AH—WAPTP | |



| D | Ra |
|---|---|
| 1.6 ~ 2.5 | ≦0.2 |
| 3 ~ 6 | ≦0.5 |

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

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Catalog No. Type | D | 0.1mm increments L | 0.01mm increments min.P max. | A | B | Y | H |
|---|---|---|---|---|---|---|---|
| (Dm5) ($D^{+0.005}_{0}$)<br>H—WSPTP AH—WSPTP<br>H—WTPTP AH—WTPTP<br>H—WAPTP AH—WAPTP | 1.6 | 10.0 ~ 32.0 | 1.00 ~ 1.59 | (10) | 4 | 1 | 2.6 |
| | 2.0 | | 1.00 ~ 1.99 | 15 | | | 3 |
| | 2.5 | | 1.00 ~ 2.49 | 20 | | 2 | 3.5 |
| | 3 | 10.0 ~ 40.0 | 1.00 ~ 2.99 | 25 | | | 5 |
| | 4 | | 2.00 ~ 3.99 | 30 | | | 7 |
| | 5 | | 2.00 ~ 4.99 | | | 3 | 8 |
| | 6 | | 2.50 ~ 5.99 | | | | 9 |

P>D−0.03 ··· ℓ=0 If P>D−0.03, $D^{-0.01}_{-0.03}$ (press-in lead) is not included.

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

⊗ A(10) ··· P<2.00 If P≧2.00, A=10 cannot be selected. If used with PKC alteration, P dimension can be selected in 0.001mm increments.

Price **Quotation**

**Order**

| Catalog No. | L | P | A | RT=0 / R=0 |
|---|---|---|---|---|
| H—WAPTP 6 | 29.0 | P4.00 | A15 | R0—RT0 |
| H—WSPTP 6 | 20.0 | P5.02 | | |

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

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

**Days to Ship** **Quotation**

**Alterations**

| Catalog No. | L | P | A(AC) | RT=0 / R=0 | (HC・TC, etc.) |
|---|---|---|---|---|---|
| H—WAPTP 6 | 20.0 | P5.02 | AC18 | | HC7 |

| Alteration | | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | R10, $RLC^{+0.3}_{0}$ | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10−P/4)<br>0.1mm increments | —— | Quotation |
| | BC, B | BC | Tip length change<br>2≦BC≦Bmax.≦L/2<br>0.1mm increments<br>Full length L must be at least 8mm longer than tip length BC. | P / Bmax.<br>1.00 ~ 1.99 / 15<br>2.00 ~ / 16 | |
| | P | PKC | Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$<br>P dimension can be selected in 0.001mm increments. | | |
| | | PKV | Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ ±0.005<br>P dimension increment remains the same. | | |
| | 0.08 GL | SC | Tip roughness change 0.2 G ⇨ 0.08 GL<br>The base material is finished before the coating is applied.<br>⊗ R=0 and RT=0 cannot be selected. | | |
| | AC, L | AC | —— | Tip angle change<br>15° <AC≦45°<br>1° increments<br>⊗ Cannot be used for tapered tip types. | |

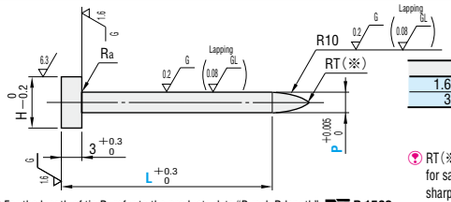
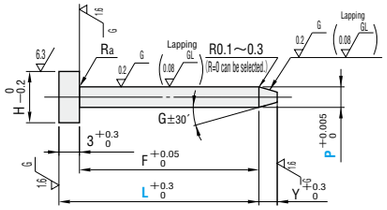
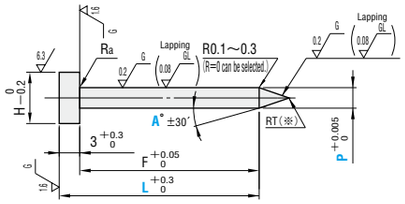
| Alteration | | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip | $YC^{+0.3}_{0}$, Y | YC | —— | Tip taper length change<br>・If P<2.0,<br>1≦YC≦P×2.83−0.3<br>・If P≧2.0,<br>1≦YC≦P×1.86−0.3<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments<br>⊗ Cannot be used for sharp tip angle types. | |
| Alterations to head | HC, H | HC | Head diameter change<br>D≦HC<H<br>0.1mm increments | | Quotation |
| | | KC | Addition of single key flat to head | | |
| | | WKC | Addition of double key flats in parallel | | |
| | TC, T | TC | Head thickness change 2≦TC<3<br>0.1mm increments (If combined with TKC・TKM, 0.01mm increments can be selected.)<br>The full length remains as specified. | | |
| | T | TKC | Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{+0.02}_{0}$ | | |
| | | TKM | Head thickness tolerance change $T^{+0.3}_{0}$ ⇨ $^{0}_{-0.02}$ | | |
| Others | ℓ, $D^{-0.01}_{-0.03}$ | NDC | No press-in lead ℓ=1 ⇨ ℓ=0 | | |

# CARBIDE STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

## —TiCN COATING—

PRODUCTS DATA P.1604



| Type | M/H | Catalog No. | Shape |
|---|---|---|---|
| —Tip R type— RoHS  —Tip R・lapping—  | V30(HIP) 88～89HRA | WSPT<br>Lapping L—WSPT |  For the length of tip R, refer to the products data "Punch R length". P.1592<br>⊗ RT=0 with lapping cannot be selected.<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| —Tapered tip type— RoHS  —Tapered tip, lapping—  | V30(HIP) 88～89HRA | WTPT<br>Lapping L—WTPT |  ⊗ R=0 with lapping cannot be selected.<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| —Sharp tip angle type— RoHS  —Sharp tip angle・lapping—  | V30(HIP) 88～89HRA | WAPT<br>Lapping L—WAPT |  ⊗ R=0 and RT=0 with lapping cannot be selected.<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |

| Shape: No. | Ra |
|---|---|
| 1.6 ～ 2.5 | ≦0.2 |
| 3 ～ 6 | ≦0.5 |

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

| Shape: No. | Ra |
|---|---|
| 1.6 ～ 2.5 | ≦0.2 |
| 3 ～ 6 | ≦0.5 |

| P | G |
|---|---|
| 0.600 ～ 1.999 | 10° |
| 2.000 ～ | 15° |

| Shape: No. | Ra |
|---|---|
| 1.6 ～ 2.5 | ≦0.2 |
| 3 ～ 6 | ≦0.5 |

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

| Catalog No. Type | No. | 0.1mm increments L | 0.001mm increments min. P max. | A | Y | H |
|---|---|---|---|---|---|---|
| (Tip R type) WSPT (Tapered tip type) WTPT (Sharp tip angle type) WAPT | 1.6 | 10.0 ～ 32.0 | 0.600 ～ 1.600 | (10) | (1) | 2.6 |
| | 2.0 | | 1.000 ～ 2.000 | | | 3 |
| | 2.5 | | 1.500 ～ 2.500 | 15 | 2 | 3.5 |
| —Lapping— L—WSPT L—WTPT L—WAPT | 3 | 10.0 ～ 40.0 | 2.000 ～ 3.000 | 20 | | 5 |
| | 4 | | 3.000 ～ 4.000 | 25 | | 7 |
| | 5 | | 4.000 ～ 5.000 | 30 | 3 | 8 |
| | 6 | | 5.000 ～ 6.000 | | | 9 |

⊗ A(10) ··· P<2.000 If P≧2.000, A=10 cannot be selected.
Y(2) ··· If P≦0.8, Y dimension is 0.8mm.

P Price **Quotation**

**Order**

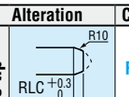
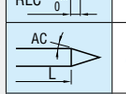
Catalog No. — L — P — A — (RT=0 / R=0)

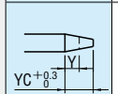
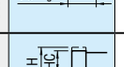
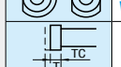
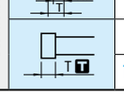
WAPT 6 — 25.0 — P5.990 — A30 — RT0—R0
WTPT 6 — 20.0 — P5.020

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

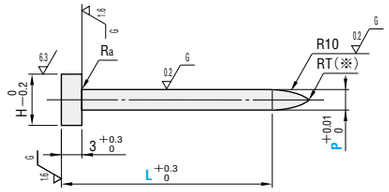
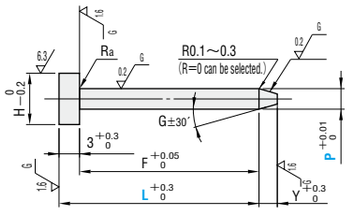
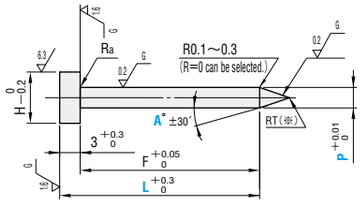
**Days to Ship** **Quotation**

**Alterations** Catalog No. — L — P — A(AC) — (R) — (RT) — (HC・TC, etc.)
WAPT 6 — 20.0 — P5.020 — AC18

| | Alteration | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip |  | RLC | Tip R is cut flat. Allowable range of change 2≦RLC<√P(10—P/4) 0.1mm increments | ——— | Quotation |
| |  | AC | ——— | Tip angle change 15°<AC≦45° 1° increments ⊗ Cannot be used for tapered tip types. | |
| |  | PKC | Tip diameter tolerance change P +0.005 0 ⇨ +0.003 0 | | |

| | Alteration | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip |  | PKV | Tip diameter tolerance change P +0.005 0 ⇨ ±0.002 | | Quotation |
| |  | YC | ——— | Tip taper length change ・If P<2.0, 1≦YC≦P×2.83—0.3 ・If P≧2.0, 1≦YC≦P×1.86—0.3 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types. | |
| Alterations to head |  | HC | P≦HC<H 0.1mm increments | | |
| |  | KC | Addition of single key flat to head | | |
| | | WKC | Addition of double key flats in parallel | | |
| |  | 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. | | |
| |  | TKC | Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 | | |
| | | TKM | Head thickness tolerance change T +0.3 0 ⇨ 0 —0.02 | | |



| Type | M/H | Catalog No. | Shape |
|---|---|---|---|
| —Tip R type— RoHS  | V30(HIP) 88～89HRA Surface 3000HV | H—WSPT |  For the length of tip R, refer to the products data "Punch R length". P.1592<br>Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| —Tapered tip type— RoHS  | V30(HIP) 88～89HRA Surface 3000HV | H—WTPT |  Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |
| —Sharp tip angle type— RoHS  | V30(HIP) 88～89HRA Surface 3000HV | H—WAPT |  Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function. |

| Shape: No. | Ra |
|---|---|
| 1.6 ～ 2.5 | ≦0.2 |
| 3 ～ 6 | ≦0.5 |

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

| Shape: No. | Ra |
|---|---|
| 1.6 ～ 2.5 | ≦0.2 |
| 3 ～ 6 | ≦0.5 |

| P | G |
|---|---|
| 0.800 ～ 1.999 | 10° |
| 2.000 ～ | 15° |

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Shape: No. | Ra |
|---|---|
| 1.6 ～ 2.5 | ≦0.2 |
| 3 ～ 6 | ≦0.5 |

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

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Catalog No. Type | No. | 0.1mm increments L | 0.01mm increments min. P max. | A | Y | H |
|---|---|---|---|---|---|---|
| H—WSPT | 1.6 | 10.0 ～ 32.0 | 1.00 ～ 1.60 | (10) | 1 | 2.6 |
| | 2.0 | | 1.00 ～ 2.00 | | | 3 |
| | 2.5 | | 1.50 ～ 2.50 | 15 | 2 | 3.5 |
| H—WTPT | 3 | 10.0 ～ 40.0 | 2.00 ～ 3.00 | 20 | | 5 |
| | 4 | | 3.00 ～ 4.00 | 25 | | 7 |
| H—WAPT | 5 | | 4.00 ～ 5.00 | 30 | 3 | 8 |
| | 6 | | 5.00 ～ 6.00 | | | 9 |

⊗ A(10) ··· P<2.00 If P≧2.00, A=10 cannot be selected.
If used with PKC alteration, P dimension can be selected in 0.001mm increments.

P Price **Quotation**

**Order**

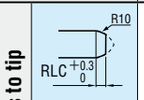
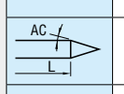
Catalog No. — L — P — A — (RT=0 / R=0)

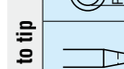
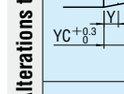
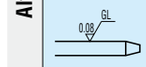
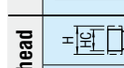
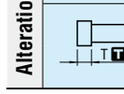
H—WAPT 6 — 25.0 — P5.99 — A30
H—WSPT 6 — 20.0 — P5.02 — RT0

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) — (HC・TC, etc.)
H—WAPT6 — 20.0 — P5.02 — AC18

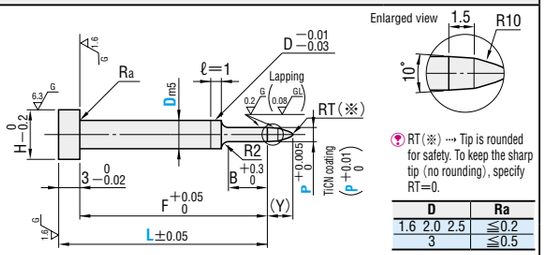
| | Alteration | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip |  | RLC | Tip R is cut flat. Allowable range of change 2≦RLC<√P(10—P/4) 0.1mm increments | ——— | Quotation |
| |  | AC | ——— | Tip angle change 15°<AC≦45° 1° increments ⊗ Cannot be used for tapered tip types. | |
| |  | 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 |  | PKV | Tip diameter tolerance change P +0.01 0 ⇨ ±0.005 P dimension increment remains the same. | | Quotation |
| |  | YC | ——— | Tip taper length change ・If P<2.0, 1≦YC≦P×2.83—0.3 ・If P≧2.0, 1≦YC≦P×1.86—0.3 L(LC)+YC≦Lmax.+8 0.1mm increments ⊗ Cannot be used for sharp tip angle types. | |
| |  | SC | Tip roughness change 0.2 G ⇨ 0.08 GL The base material is finished before the coating is applied. ⊗ RT=0 and R=0 cannot be selected. | | |
| Alterations to head |  | HC | 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 | | |
| | | TKM | Head thickness tolerance change T +0.3 0 ⇨ 0 —0.02 | | |

# CARBIDE PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

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

PRODUCTS DATA P.1604

| Type | M H | Catalog No. Normal | Lapping | TiCN coating Surface hardness 3000HV | Shape |
|---|---|---|---|---|---|
|  | V30(HIP) 88~89HRA | WSPTPF | L—WSPTPF | H—WSPTPF |  |



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

| D | Ra |
|---|---|
| 1.6 2.0 2.5 | ≦0.2 |
| 3 | ≦0.5 |

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Catalog No. Type | | | D | 0.1mm increments L | 0.001mm increments (With coating, 0.01mm increments) min. P max. | B | H |
|---|---|---|---|---|---|---|---|
| Normal WSPTPF | Lapping L—WSPTPF | TiCN coating H—WSPTPF | 1.6 | 10.0 ~ 32.0 | 0.800(1.00) ~ 1.599 | 4 | 2.6 |
| | | | 2.0 | | 1.000 ~ 1.999 | | 3.0 |
| | | | 2.5 | | 1.500 ~ 2.499 | | 3.5 |
| | | | 3 | 10.0 ~ 40.0 | 2.000 ~ 2.999 | | 5 |

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.
(Y) ··· Tip Y length=$0.6+\sqrt{(P-0.2)(39.8-P)/4}$
P(1.00) ··· For TiCN coating is Pmin 1.00.

**Order**

| Catalog No. | L | P | (RT=0) |
|---|---|---|---|
| WSPTPF 2.0 | 28.0 | P1.900 | RT0 |
| H—WSPTPF 2.5 | 30.0 | P2.20 | |

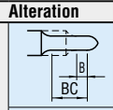
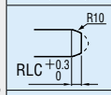
RT=0 only can be selected. (However, lapping cannot be used.)

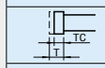
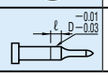
■Features
- These pilot punches for fixing to stripper plates were developed for use with press dies that are used with thin workpieces.
- The under-head dimension F is highly accurate and the tip is smoothly rounded.

**Days to Ship** Quotation

**Alterations**

| Catalog No. | L | P | (RT=0) | (BC·HC·TC, etc.) |
|---|---|---|---|---|
| WSPTPF3 | 28.0 | P2.500 | RT0 | HC4.0 |

| | Alteration | Code | Spec. | 1Code |
|---|---|---|---|---|
| Alterations to tip |  | BC | Tip length change 2≦BC≦Bmax. 0.1mm increments (P 0.800~1.999: Bmax. 15; 2.000~2.999: 21) Full length L must be at least 8mm longer than tip length BC. | Quotation |
| |  | RLC | Tip R is cut flat. 3≦RLC<Ymax. 0.1mm increments (P 0.800~1.499: Ymax. 3; 1.500~2.499: 4; 2.500~2.999: 5) | |
| |  | PKC | Tip diameter tolerance change ·Normal ·Lapping P +0.005 0 ⇨ +0.003 0 ·TiCN coating P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. | |
| | | PKV | Tip diameter tolerance change ·Normal ·Lapping P +0.005 0 ⇨ ±0.002 ·TiCN coating P +0.01 0 ⇨ ±0.005 P dimension increment remains the same. | |
| |  | SC | Tip roughness change 0.2 G ⇨ 0.08 GL The base material is finished before the coating is applied. Can be used for coating types only. ⊗RT=0 and R=0 cannot be selected. | |

| | 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 | Quotation |
| 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. | |
| |  | KC | Addition of single key flat to head | |
| |  | WKC | Addition of double key flats in parallel | |
| Others |  | NDC | No press-in lead ℓ≧1 ⇨ ℓ=0 | |

**Price** Quotation

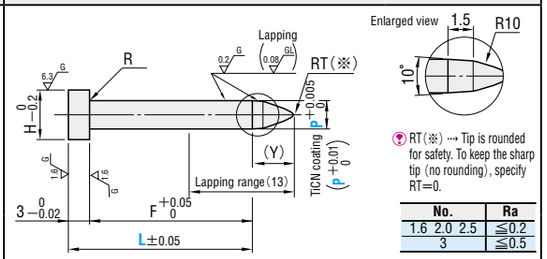


# CARBIDE STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES

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

PRODUCTS DATA P.1604



| Type | M H | Catalog No. Normal | Lapping | TiCN coating Surface hardness 3000HV | Shape |
|---|---|---|---|---|---|
|  | V30(HIP) 88~89HRA | WSPTF | L—WSPTF | H—WSPTF |  |



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

| No. | Ra |
|---|---|
| 1.6 2.0 2.5 | ≦0.2 |
| 3 | ≦0.5 |

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Catalog No. Type | | | No. | 0.1mm increments L | 0.001mm increments (With coating, 0.01mm increments) min. P max. | H |
|---|---|---|---|---|---|---|
| Normal WSPTF | Lapping L—WSPTF | TiCN coating H—WSPTF | 1.6 | 10.0 ~ 32.0 | 0.800(1.00) ~ 1.600 | 2.6 |
| | | | 2.0 | | 1.000 ~ 2.000 | 3.0 |
| | | | 2.5 | | 1.500 ~ 2.500 | 3.5 |
| | | | 3 | 10.0 ~ 40.0 | 2.000 ~ 3.000 | 5 |

(Y) ··· Tip Y length=$0.6+\sqrt{(P-0.2)(39.8-P)/4}$ P(1.00) ··· For TiCN coating is Pmin 1.00.

**Order**

| Catalog No. | L | P | (RT=0) |
|---|---|---|---|
| WSPTF2.0 | 28.0 | P1.900 | RT0 |
| L—WSPTF2.5 | 30.0 | P2.205 | |

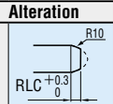
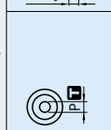
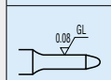
RT=0 only can be selected. (However, lapping cannot be used.)

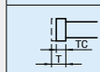
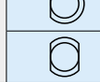
■Features
- These pilot punches for fixing to stripper plates were developed for use with press dies that are used with thin workpieces.
- The under-head dimension F is highly accurate and the tip is smoothly rounded.

**Days to Ship** Quotation

**Alterations**

| Catalog No. | L | P | (RT=0) | (RSC·HC·TC···etc.) |
|---|---|---|---|---|
| WSPTF 3 | 28.0 | P2.480 | RT0 | HC4.0—PKC |

| | Alteration | Code | Spec. | 1Code |
|---|---|---|---|---|
| Alterations to tip |  | RLC | Tip R is cut flat. 3≦RLC<Ymax. 0.1mm increments (P 0.800~1.499: Ymax. 3; 1.500~2.499: 4; 2.500~3.000: 5) | Quotation |
| |  | PKC | Tip diameter tolerance change ·Normal ·Lapping P +0.005 0 ⇨ +0.003 0 ·TiCN coating P +0.01 0 ⇨ +0.005 0 P dimension can be selected in 0.001mm increments. | |
| | | PKV | Tip diameter tolerance change ·Normal ·Lapping P +0.005 0 ⇨ ±0.002 ·TiCN coating P +0.01 0 ⇨ ±0.005 P dimension increment remains the same. | |
| |  | SC | Tip roughness change 0.2 G ⇨ 0.08 GL The base material is finished before the coating is applied. Can be used for coating types only. ⊗RT=0 and R=0 cannot be selected. | |

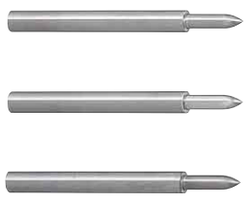
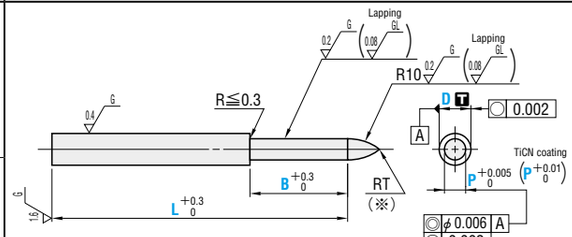
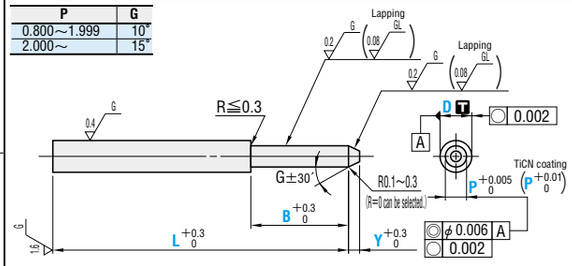
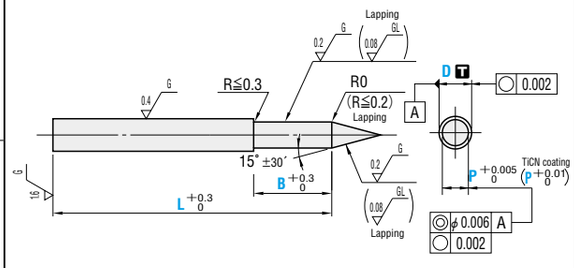
| | Alteration | Code | Spec. | 1Code |
|---|---|---|---|---|
| Full length |  | LKC | Full length tolerance change L±0.05 ⇨ +0.05 0 F dimension tolerance F +0.05 0 ⇨ ±0.05 | Quotation |
| Alterations to head |  | HC | Head diameter change 2.6≦P+0.1≦HC<H 0.1mm increments | |
| |  | TC | Head thickness change 2≦TC<3 0.1mm increments The full length remains as specified. ⊗Cannot be used with TiCN coating. | |
| |  | KC | Addition of single key flat to head | |
| |  | WKC | Addition of double key flats in parallel | |

**Price** Quotation

# MOVABLE CARBIDE PILOT PUNCHES

PRODUCTS DATA P.1604



| Type | Shank diameter D T tolerance | M H | Catalog No. | Shape |
|---|---|---|---|---|
| —Tip R type— RoHS  | Dg6 | V30 (HIP) 88～89HRA | WSUPT —Lapping— L—WSUPT —TiCN coating— H—WSUPT |  |
| | $D^{-0.005}_{-0.010}$ | | A—WSUPT —Lapping— AL—WSUPT —TiCN coating— AH—WSUPT | |
| —Tapered tip type— RoHS  | Dg6 | | WTUPT —Lapping— L—WTUPT —TiCN coating— H—WTUPT |  |
| | $D^{-0.005}_{-0.010}$ | | A—WTUPT —Lapping— AL—WTUPT —TiCN coating— AH—WTUPT | |
| —Sharp tip angle type— RoHS  | Dg6 | V30 (HIP) 88～89HRA Surface 3000HV | WUPT —Lapping— L—WUPT —TiCN coating— H—WUPT |  |
| | $D^{-0.005}_{-0.010}$ | | A—WUPT —Lapping— AL—WUPT —TiCN coating— AH—WUPT | |

For the length of tip R, refer to the products data "Punch R length". P.1592
RT=0 with lapping cannot be selected.
RT (※) ⇢ If R<8, tip is rounded for safety. To keep the sharp tip (no rounding), specify RT=0. P.1592
Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| P | G |
|---|---|
| 0.800～1.999 | 10° |
| 2.000～ | 15° |

RT=0 with lapping cannot be selected.
Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

Although the marks of processing may remain in the center of a Shank end face, it is satisfactory on a function.

| Catalog No. Type | | | | D | 0.1mm increments L | | | | | 0.001mm increments (With coating, 0.01mm increments) min. P max. | 0.1mm increments B | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (Tip R) | (Tapered tip) | (Sharp tip angle) | 3 | 42 | 52 | 62 | | | 1.000 ～ 2.500 | 5≦B≦23 TiCN coating 5≦B≦L/2≦23 | 2 |
| (Dg6) ($D^{-0.005}_{-0.010}$) | WSUPT A—WSUPT | WTUPT A—WTUPT | WUPT A—WUPT | 4 | 42 | 52 | 62 | 72 | | 1.500 ～ 3.500 | | |
| —Lapping— (Dg6) (D−0.005/−0.010) | L—WSUPT AL—WSUPT | L—WTUPT AL—WTUPT | L—WUPT AL—WUPT | 5 | 42 | 52 | 62 | 72 | | 2.000 ～ 4.500 | | 3 |
| —TiCN coating— (Dg6) (D−0.005/−0.010) | H—WSUPT AH—WSUPT | H—WTUPT AH—WTUPT | H—WUPT AH—WUPT | 6 | 42 | 52 | 62 | 72 | | 2.500 ～ 5.500 | | |
| | | | | 8 | 42 | 52 | 62 | 72 | 82 | 3.000 ～ 7.500 | | 5 |

P dimension increment⇢If coated, 0.001mm increments can be selected for alteration PKC.

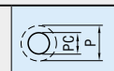
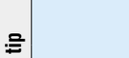
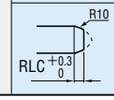
**Order**

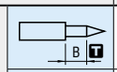
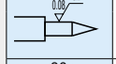
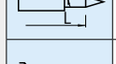
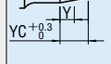
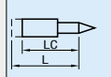
| Catalog No. | L | P | B |
|---|---|---|---|
| WUPT 6 | 62 | P4.320 | B20 |

**Days to Ship** Quotation

**Alterations**

| Catalog No. | L (LC) | P (PC) | B | (PKC, etc.) |
|---|---|---|---|---|
| WUPT 6 | LC60 | PC2.000 | B20 | PKC GC30 |

| Alterations | Alteration | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip |  | PC | PC≧Pmin./2 0.01mm increments<br>If PC is 0.500 ～ 0.999, Bmax. is 8mm.<br>•—Coating type—<br>P≧Pmin./2≧1.00 0.01mm increments | | Quotation |
| |  | PKC | Tip diameter tolerance change<br>•Normal P +0.005/0 ⇨ +0.003/0<br>•Lapping<br>•TiCN coating P +0.01/0 ⇨ +0.005/0<br>P dimension can be selected in 0.001mm increments. | | |
| | | PKV | Tip diameter tolerance change<br>•Normal P +0.005/0 ⇨ ±0.002<br>•Lapping<br>•TiCN coating P +0.01/0 ⇨ ±0.005<br>P dimension increment remains the same. | | |
| |  | RLC | Tip R is cut flat.<br>Allowable range of change<br>2≦RLC<√P(10−P/4)<br>0.1mm increments | —— | |

| Alterations | Alteration | Code | Tip R type | Tapered tip and sharp tip angle types | 1Code |
|---|---|---|---|---|---|
| Alterations to tip |  | BKC | —— | Tip length tolerance change<br>B +0.3/0 ⇨ +0.05/0 | |
| |  | SC | Tip roughness change<br>The base material is finished before the coating is applied.<br>Can be used for coating types only.<br>R=0 ⇢ R≦0.2 | | |
| |  | GC | —— | Tip angle change<br>15°<GC≦45°<br>1° increments<br>Cannot be used for tapered tip types. | Quotation |
| |  | YC | —— | Tip taper length change<br>•If P<2.0,<br>1≦YC≦P×2.83−0.3<br>•If P≧2.0,<br>1≦YC≦P×1.86−0.3≦12<br>L(LC)+YC≦Lmax.+8<br>0.1mm increments<br>Cannot be used for sharp tip angle types. | |
| Alterations to full length |  | LC | Full length change<br>B+9≦LC<L 0.1mm increments | | |

**Price** Quotation

**Example**

■Features
① No height adjustment is required after regrinding.
② Because it is possible to remove the pilot punch without disassembling the die, the number of steps required for regrinding can be reduced.
③ Even if a misfeed occurs, because the pilot punches themselves are moveable, it is possible to prevent the punch from biting into the workpiece or being broken.