

# PRECISION PUNCHES & DIES

## PRECISION PUNCHES & DIES



|              |                            |   |                                    |   |
|--------------|----------------------------|---|------------------------------------|---|
| Product name | PRECISION SHOULDER PUNCHES | PRECISION SHOULDER PUNCHES WITH AIR HOLES | PRECISION CARBIDE SHOULDER PUNCHES | PRECISION CARBIDE SHOULDER PUNCHES WITH AIR HOLES |
| Catalog No.  | —Normal— —Lapping—         | —Normal— —Lapping—                        | —Normal— —Lapping—                 | —Normal— —Lapping—                                |
| Page         | 491                        | 492                                       | 493                                | 494   |



|  |                                    |  |  |  |
|--|------------------------------------|--|--|--|
| PRECISION CARBIDE SHOULDER QUILL PUNCHES | PRECISION PUNCHES WITH KEY GROOVES | PRECISION PUNCHES WITH KEY GROOVES AND AIR HOLES | PRECISION CARBIDE PUNCHES WITH KEY GROOVES | PRECISION CARBIDE PUNCHES WITH KEY GROOVES AND AIR HOLES |
| —Normal— —Lapping—                       | —Normal— —Lapping—                 | —Normal— —Lapping—                               | —Normal— —Lapping—                         | —Normal— —Lapping—                                       |
| 495                                      | 497                                | 498  | 499  | 500  |



|                                  |  |                                 |  |                                    |
|----------------------------------|--|---------------------------------|--|------------------------------------|
| PRECISION FLANGE STOPPER PUNCHES | PRECISION CARBIDE FLANGE STOPPER PUNCHES | PRECISION CARBIDE BLOCK PUNCHES | PRECISION CARBIDE BLOCK PUNCHES WITH AIR HOLES | PRECISION CARBIDE STRAIGHT PUNCHES |
| —Normal— —Lapping—               | —Normal— —Lapping—                       |                                 |  |                                    |
| 501                              | 502                                      | 503                             | 505  | 507                                |



|   |                                 |   |  |
|---|---------------------------------|---|--|
| PRECISION CARBIDE STRAIGHT PUNCHES WITH AIR HOLES | PRECISION CARBIDE PILOT PUNCHES | PRECISION CARBIDE PILOT PUNCHES FOR FIXING TO STRIPPER PLATES | PRECISION CARBIDE STRAIGHT PILOT PUNCHES FOR FIXING TO STRIPPER PLATES |
| —Normal— —Lapping—                                | —Normal— —Lapping—              | —Normal— —Lapping—  | —Normal— —Lapping—   |
| 509   | 511                             | 512   | 512  |



|  |                                       |   |  |
|--|---------------------------------------|---|--|
| PRECISION ANGULAR BUTTON DIES —Fully tapered type— | PRECISION CARBIDE ANGULAR BUTTON DIES | PRECISION SCRAP RETENTION CARBIDE ANGULAR BUTTON DIES | PRECISION CARBIDE ANGULAR BUTTON DIES, NON-CLOGGING TYPE |
| 513  | 514                                   | 515   | 516  |

# PRECISION PUNCHES AND DIES LIST

—GUIDE—

## List of precision punches

| Shank type   | M   | Shank dia. tolerance   | Standard type    | Lapping                                  |
|--|---|--|------------------|--|
| Precision shoulder punches                                   | Equivalent to SKD11 Powdered high-speed steel | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$  | VSPA□<br>VPHA□   | P.491<br>L-VSPA□<br>L-VPHA□<br>P.491     |
| Precision shoulder punches with air holes                    | Equivalent to SKH51 Powdered high-speed steel | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$  | VSJA□<br>VPJA□   | P.492<br>L-VSJA□<br>L-VPJA□<br>P.492     |
| Precision carbide shoulder punches                           | V30 (HIP)<br>Super fine grain (HIP)           | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$  | VPA□<br>VXPA□    | P.493<br>L-VPA□<br>L-VXPA□<br>P.493      |
| Precision carbide shoulder punches with air holes            | V30 (HIP)<br>Super fine grain (HIP)           | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$  | VJA□<br>VXJA□    | P.494<br>L-VJA□<br>L-VXJA□<br>P.494      |
| Precision carbide quill shoulder punches                     | V30 (HIP)<br>Super fine grain (HIP)           | $L_{20\sim30} D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$<br>$L_{35\sim50} D \begin{smallmatrix} +0.003 \\ 0 \end{smallmatrix}$ | VPA□<br>VXPA□    | P.495<br>L-VPA□<br>L-VXPA□<br>P.495      |
| Precision punches with key grooves                           | Equivalent to SKD11 Powdered high-speed steel | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$  | VSKA□<br>VPKA□   | P.497<br>L-VSKA□<br>L-VPKA□<br>P.497     |
| Precision punches with key grooves and air holes             | Equivalent to SKH51 Powdered high-speed steel | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$  | VSKJA□<br>VPKJA□ | P.498<br>L-VSKJA□<br>L-VPKJA□<br>P.498   |
| Precision carbide punches with key grooves                   | V30 (HIP)<br>Super fine grain (HIP)           | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$  | VKA□<br>VXKA□    | P.499<br>L-VKA□<br>L-VXKA□<br>P.499      |
| Precision carbide punches with key grooves and air holes     | V30 (HIP)<br>Super fine grain (HIP)           | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$  | VJKA□<br>VXJKA□  | P.500<br>L-VJKA□<br>L-VXJKA□<br>P.500    |
| Precision flange stopper punches                             | Equivalent to SKD11 Powdered high-speed steel | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$  | VSPTAL<br>VPHTAL | P.501<br>L-VSPTAL□<br>L-VPHTAL□<br>P.501 |
| Precision carbide punches with flange stoppers               | Super fine grain (HIP)                        | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$  | VXPHAL           | P.502<br>L-VXPHAL<br>P.502               |
| Precision carbide punches with flange stoppers and air holes | Super fine grain (HIP)                        | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$  | VXJHAL           | P.502<br>L-VXJHAL<br>P.502               |

## List of precision carbide block punches

| Shank type  | M         | Type            | Standard |
|---|-----------|-----------------|----------|
| Precision carbide block punches                   | V30 (HIP) | Normal          | VZP□BL   |
|   |           | Tapped          | VZP□ML   |
|   |           | With key groove | VZP□KL   |
|   |           | Single flange   | VZP□FL   |
|   |           | Double flanges  | VZP□WL   |
| Precision carbide block punches with air holes    | V30 (HIP) | Normal          | VZJ□BL   |
|   |           | With key groove | VZJ□KL   |
|   |           | Single flange   | VZJ□FL   |
|   |           | Double flanges  | VZJ□WL   |
| Precision carbide straight punches                | V30 (HIP) | Normal          | VZPC□    |
|   |           | Tapped          | VZMC□    |
|   |           | With key groove | VZKC□    |
|   |           | Single flange   | VZFC□    |
|   |           | Double flanges  | VZWC□    |
| Precision carbide straight punches with air holes | V30 (HIP) | Normal          | VZJC□    |
|   |           | With key groove | VZJC□    |
|   |           | Single flange   | VZJFC□   |
|   |           | Double flanges  | VZJWC□   |

## List of precision carbide pilot punches

| Shank type  | M                                   | Tip shape | Shank dia. tolerance                                  | Standard        | Lapping                               |
|---|-------------------------------------|-----------|---|-----------------|---------------------------------------|
| Precision carbide pilot punches                                       | V30 (HIP)<br>Super fine grain (HIP) | Taper     | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$ | VTPA□<br>VXTPA□ | P.511<br>L-VTPA□<br>L-VXTPA□<br>P.511 |
| Precision carbide straight pilot punches for fixing to stripper plate | V30 (HIP)<br>Super fine grain (HIP) |           | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$ | VTPT□<br>VXTPT□ | P.512<br>L-VTPT□<br>L-VXTPT□<br>P.512 |
| Precision carbide straight pilot punches for fixing to stripper plate | V30 (HIP)<br>Super fine grain (HIP) |           | —   | VTPT□<br>VXTPT□ | P.512<br>L-VTPT□<br>L-VXTPT□<br>P.512 |

## List of precision angular button dies

| Button die type                          | M  | Outer diameter tolerance                              | Scrap retention         |                      | Non-clogging | Page             |
|--|--|---|-------------------------|----------------------|--------------|------------------|
|  |  |   | Without scrap retention | With scrap retention |              |                  |
| Precision Angular Fully tapered Headed   | D3~5 Equivalent to SKH51<br>D6~8 Equivalent to SKD11<br>Powdered high-speed steel<br>V40 (HIP) | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$ | VSAHD                   | P.513                |              |                  |
|  |  |   | VPAHD                   |                      |              |                  |
|  |  |   | VVAHD                   |                      |              |                  |
| Precision Angular Fully tapered Straight | D3~5 Equivalent to SKH51<br>D6~8 Equivalent to SKD11<br>Powdered high-speed steel<br>V40 (HIP) | $D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$ | VSASD                   | P.513                |              |                  |
|  |  |   | VPASD                   |                      |              |                  |
|  |  |   | VWASD                   |                      |              |                  |
| Precision carbide Angular Headed         | V40 (HIP)<br>Super fine grain (HIP)  | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$ | VAHD                    | P.514                | SR-VAHD      | P.515<br>SV-VAHD |
|  |  |   | VXAH                    |                      |              |                  |
| Precision carbide Angular Straight       | V40 (HIP)<br>Super fine grain (HIP)  | $D \begin{smallmatrix} +0.002 \\ 0 \end{smallmatrix}$ | VASD                    | P.514                | SR-VASD      | P.515<br>SV-VASD |
|  |  |   | VXASD                   |                      |              |                  |

## Precision carbide punches

| Accuracy standards             |  |
|--------------------------------|--|
| Roundness                      | $D$ (shank) $a \leq 0.0015$<br>$P$ (Tip) $P < 1.000$ $a \leq 0.0020$<br>$P \geq 1.000$ $a \leq 0.0015$ |
| Concentricity of shank and tip | $b \leq 0.003$   |

## Precision carbide pilot punches

| Accuracy standards             |  |
|--------------------------------|--|
| Roundness                      | $D$ (shank) $a \leq 0.0015$<br>$P$ (Tip) $P < 1.000$ $a \leq 0.0020$<br>$P \geq 1.000$ $a \leq 0.0015$ |
| Concentricity of shank and tip | $b \leq 0.003$   |

## Precision carbide block punches

| Accuracy standards |                |
|--------------------|----------------|
| Perpendicularity   | $a \leq 0.003$ |
| Parallelism        | $b \leq 0.003$ |
| Warpage            | $c \leq 0.003$ |
| Bending of tip     | $d \leq 0.003$ |

## Accuracy guarantee

PRECISION In order to ensure reliable use of our carbide punches by the customers, each and every product is measured both at the time of manufacture and also again after being left in a thermostatic chamber for a certain period of time after manufacture. These measurements are listed in the Quality Guarantee Certificate which is attached to the product.

## Quality Guarantee Certificate

品質保証書

精密超硬丸ペンチ・パイロットパンチ

| 項目   | 測定値            | 保証標準 (単位: μm)                  | ① | ② | ③ | ④ | ⑤ |
|------|----------------|--------------------------------|---|---|---|---|---|
| 寸法測定 | 外径             | $+0.002$                       |   |   |   |   |   |
|      | シャンク径(D)       | $(D=1.6\sim 3.2) \pm 0.005$    |   |   |   |   |   |
| 材料検査 | 先径             | $+0.002$                       |   |   |   |   |   |
|      | 先径             | $0$                            |   |   |   |   |   |
| 材料検査 | シャンク部と先径部のセンター | $0.003$ 以内                     |   |   |   |   |   |
|      | シャンク部 (D)      | $0.0015$ 以内                    |   |   |   |   |   |
| 材料検査 | 先径部 (P)        | $0.0015$ 以内                    |   |   |   |   |   |
|      | 先径部 (P)        | $(P=1.000\text{以上}) 0.0015$ 以内 |   |   |   |   |   |

このたびは、ミスマ精密超硬金型製造部にお買い求めいただき誠にありがとうございます。  
本製品はミスマ精密測定標準にもつき測定の結果、保証内容に適合していることを保証いたします。

株式会社 ミスマ

※ The Quality Guarantee Certificate is attached to carbide products only.  
The accuracy standards for steel products differ from the above. For further details, refer to the relevant pages.

# PRECISION SHOULDER PUNCHES

| Type     |                                       | Catalog No.  | Shape |
|----------|---------------------------------------|--|-------|
|          | Equivalent to SKD11<br>60~63HRC       | <b>VSPAS</b><br>VSPAL<br>Lapping<br>L-VSPAS<br>L-VSPAL |       |
| Lapping— | Powdered high-speed steel<br>64~67HRC | <b>VPHAS</b><br>VPHAL<br>Lapping<br>L-VPHAS<br>L-VPHAL |       |
|          |                                       |  |       |
|          |                                       |  |       |

| Catalog No.        |                               | D | L  |    |    |    |    |    |    | 0.001mm increments min. P max. |    | B | H |
|--------------------|-------------------------------|---|----|----|----|----|----|----|----|--------------------------------|----|---|---|
| Type               |                               |   | 40 | 45 | 50 | 55 | 60 | 65 | 70 |                                |    |   |   |
| <br>VSPAS<br>VPHAS | Lapping<br>L-VSPAS<br>L-VPHAS | 3 | 40 | 45 | 50 | 55 | 60 |    |    | 1.000 ~ 2.990                  | 8  | 5 |   |
|                    |                               | 4 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 1.000 ~ 3.990                  |    | 7 |   |
|                    |                               | 5 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 4.990                  |    | 8 |   |
|                    |                               | 6 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 5.990                  |    | 9 |   |
| <br>VSPAL<br>VPHAL | Lapping<br>L-VSPAL<br>L-VPHAL | 3 |    |    | 50 | 55 | 60 |    |    | 1.000 ~ 2.990                  | 13 | 5 |   |
|                    |                               | 4 |    |    | 50 | 55 | 60 | 65 | 70 | 1.000 ~ 3.990                  |    | 7 |   |
|                    |                               | 5 |    |    | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 4.990                  |    | 8 |   |
|                    |                               | 6 |    |    | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 5.990                  |    | 9 |   |

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

Order **Catalog No.** — **L** — **P**  
 VSPAS 4 — 50 — P2.000

Price **Quotation**

Days to Ship **Quotation**

Alterations **Catalog No.** — **L(LC)** — **P(PC)** — (BC·HC·TC, etc.)  
 VSPAS 4 — 50 — P2.000 — TC4-LKC-KFC150

| Alteration                        | Code  | Spec.  | 1Code   |   |             |   |  |             |   |  |             |    |  |        |    |
|-----------------------------------|---|--|---|---|-------------|---|--|-------------|---|--|-------------|----|--|--------|----|
| <b>Alterations to tip</b>         | PC  | Tip dimension change<br>PC ≥ Pmin./2<br>0.001mm increments   | <table border="1"> <tr><td>P</td><td>0.500~0.799</td><td>6</td></tr> <tr><td></td><td>0.800~0.999</td><td>8</td></tr> <tr><td></td><td>1.000~1.999</td><td>13</td></tr> <tr><td></td><td>2.000~</td><td>19</td></tr> </table> | P | 0.500~0.799 | 6 |  | 0.800~0.999 | 8 |  | 1.000~1.999 | 13 |  | 2.000~ | 19 |
|                                   | P   | 0.500~0.799  | 6   |   |             |   |  |             |   |  |             |    |  |        |    |
|                                   |   | 0.800~0.999  | 8   |   |             |   |  |             |   |  |             |    |  |        |    |
|                                   |   | 1.000~1.999  | 13  |   |             |   |  |             |   |  |             |    |  |        |    |
|                                   |   | 2.000~   | 19  |   |             |   |  |             |   |  |             |    |  |        |    |
| BC                                | Tip length change<br>2 ≤ BC ≤ Bmax<br>0.1mm increments<br>Ⓜ Full length L must be at least 25mm longer than tip length BC.  |  |   |   |             |   |  |             |   |  |             |    |  |        |    |
| PRC                               | Rounding of tip side edge<br>0.3 ≤ PRC ≤ 1<br>0.1mm increments<br>Ⓜ PRC ≤ (P - 0.2) / 2<br>Ⓧ Cannot be combined with PCC·GC.  |  |   |   |             |   |  |             |   |  |             |    |  |        |    |
| PCC                               | Chamfering to tip side edge<br>0.3 ≤ PCC ≤ 1<br>0.1mm increments<br>Ⓜ PCC ≤ (P - 0.2) / 2<br>Ⓧ Cannot be combined with PRC·GC.  |  |   |   |             |   |  |             |   |  |             |    |  |        |    |
| GC                                | 20° ≤ GC < 90° 1° increments<br>Tip length B ≥ f + 2<br>f = P/2 × tan(90° - GC°)<br>Ⓧ Cannot be used for P ≤ 1.000.<br>Ⓧ Cannot be combined with LKC·PRC·PCC.<br>Ⓜ Punches with lapping are rounded at the edges. |  |   |   |             |   |  |             |   |  |             |    |  |        |    |
| <b>Alterations to full length</b> | LC  | Full length change<br>25 + B (C) ≤ LC < L<br>0.1mm increments<br>(If combined with LKC, 0.01mm increments can be selected.)<br>Ⓜ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length - 25). |   |   |             |   |  |             |   |  |             |    |  |        |    |
|                                   | LKC   | Full length tolerance change<br>L +0.1 / 0 → +0.01 / 0   |   |   |             |   |  |             |   |  |             |    |  |        |    |

| Alteration                 | Code                              | Spec.  | 1Code |
|----------------------------|-----------------------------------|--|-------|
| <b>Alterations to head</b> | KC                                | Addition of single key flat to head  |       |
|                            | WKC                               | Addition of double key flats in parallel   |       |
|                            | KFC                               | Double key flats at 0° and a selected angle 1° increments<br>Ⓧ Cannot be combined with KC·WKC.   |       |
|                            | HC                                | Head diameter change<br>D ≤ HC < H<br>0.1mm increments   |       |
|                            | TC                                | Head thickness change<br>2 ≤ TC < T 0.1mm increments<br>Ⓜ Full length L is shortened by (T - TC).<br>If combined with LC, full length is equal to LC.      |       |
|                            | TCC                               | Chamfering of head<br>This improves the strength of the punch head.  P.1611<br>0.5 ≤ TCC ≤ (H - D) / 2<br>0.1mm increments<br>Ⓜ If H ≤ 5, then TCC is 0.5. |       |
|                            | SKC                               | Single key shaft on shank<br>P ≤ D - 1.2<br>(Machining width 0.5)<br>Ⓧ Cannot be combined with KC·WKC·KFC.   |       |
| NDC                        | No press-in lead<br>ℓ ≥ 3 → ℓ = 0 |  |       |

# PRECISION SHOULDER PUNCHES WITH AIR HOLES

| Type     |                                       | Catalog No.  | Shape |
|----------|---------------------------------------|--|-------|
|          | Equivalent to SKH51<br>61~64HRC       | <b>VSJAS</b><br>VSJAL<br>Lapping<br>L-VSJAS<br>L-VSJAL |       |
| Lapping— | Powdered high-speed steel<br>64~67HRC | <b>VPJAS</b><br>VPJAL<br>Lapping<br>L-VPJAS<br>L-VPJAL |       |
|          |                                       |  |       |
|          |                                       |  |       |

| Catalog No.        |                               | D | L    |    |    |    |    |    |    | 0.001mm increments min. P max. |    | B   | d1 | S   | d2 | H |
|--------------------|-------------------------------|---|------|----|----|----|----|----|----|--------------------------------|----|-----|----|-----|----|---|
| Type               |                               |   | 40   | 45 | 50 | 55 | 60 | 65 | 70 |                                |    |     |    |     |    |   |
| <br>VSJAS<br>VPJAS | Lapping<br>L-VSJAS<br>L-VPJAS | 4 | 40   | 45 | 50 | 55 | 60 |    |    | 1.500 ~ 3.990                  | 8  | 0.5 | 20 | 1.2 | 7  |   |
|                    |                               | 5 | (40) | 45 | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 4.990                  |    |     |    | 2.1 | 8  |   |
|                    |                               | 6 | (40) | 45 | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 5.990                  |    |     |    | 2.6 | 9  |   |
| <br>VSJAL<br>VPJAL | Lapping<br>L-VSJAL<br>L-VPJAL | 4 |      |    | 50 | 55 | 60 |    |    | 1.500 ~ 3.990                  | 13 | 0.5 | 20 | 1.2 | 7  |   |
|                    |                               | 5 |      |    | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 4.990                  |    |     |    | 2.1 | 8  |   |
|                    |                               | 6 |      |    | 50 | 55 | 60 | 65 | 70 | 2.000 ~ 5.990                  |    |     |    | 2.6 | 9  |   |

Ⓜ L(40) → S=17 If full length is (40), dimension S is 17mm. Ⓜ P > D - 0.03 → ℓ = 0 If P > D - 0.03, D<sub>-0.03</sub><sup>-0.01</sup> (press-in lead) is not included.

Order **Catalog No.** — **L** — **P**  
 VSJAL 6 — 50 — P5.105

Days to Ship **Quotation**

Price **Quotation**

Example



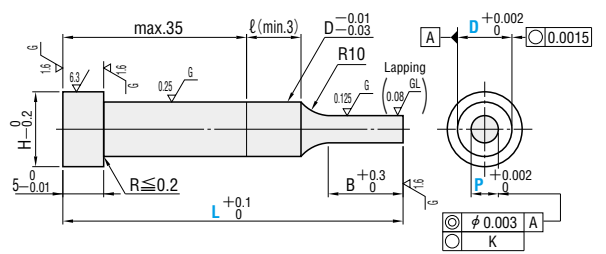

Can also be used in combination with a long locator pin. (Can be used for D ≥ 5.)

Alterations **Catalog No.** — **L(LC)** — **P(PC)** — (BC·HC·TC, etc.)  
 VSJAL 6 — 50 — P5.105 — TC4-LKC

| Alteration                        | Code   | Spec.   | 1Code  |   |   |        |   |       |  |   |       |  |
|-----------------------------------|--|---|--|---|---|--------|---|-------|--|---|-------|--|
| <b>Alterations to tip</b>         | PC   | Tip dimension change<br>PC ≥ PCmin.<br>0.001mm increments<br>Ⓧ Cannot be used for D4.   | <table border="1"> <tr><td>D</td><td>1</td><td>PCmin.</td></tr> <tr><td>5</td><td>1.800</td><td></td></tr> <tr><td>6</td><td>1.800</td><td></td></tr> </table> | D | 1 | PCmin. | 5 | 1.800 |  | 6 | 1.800 |  |
|                                   | D  | 1   | PCmin.   |   |   |        |   |       |  |   |       |  |
|                                   | 5  | 1.800   |  |   |   |        |   |       |  |   |       |  |
|                                   | 6  | 1.800   |  |   |   |        |   |       |  |   |       |  |
|                                   | BC   | Tip length change<br>2 ≤ BC < B<br>0.1mm increments   |  |   |   |        |   |       |  |   |       |  |
| PRC                               | Rounding of tip side edge<br>0.3 ≤ PRC ≤ 1<br>0.1mm increments<br>Ⓜ PRC ≤ (P - d1 - 0.5) / 2<br>Ⓧ Cannot be combined with PCC.   |   |  |   |   |        |   |       |  |   |       |  |
| PCC                               | Chamfering to tip side edge<br>0.3 ≤ PCC ≤ 1<br>0.1mm increments<br>Ⓜ PRC ≤ (P - d1 - 0.5) / 2<br>Ⓧ Cannot be combined with PRC. |   |  |   |   |        |   |       |  |   |       |  |
| <b>Alterations to full length</b> | LC   | Full length change LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>Ⓜ B and S dimensions are shortened by (L - LC). |  |   |   |        |   |       |  |   |       |  |
|                                   | LKC  | Full length tolerance change<br>L +0.1 / 0 → +0.01 / 0  |  |   |   |        |   |       |  |   |       |  |

| Alteration                 | Code | Spec.  | 1Code |
|----------------------------|------|--|-------|
| <b>Alterations to head</b> | KC   | Addition of single key flat to head  |       |
|                            | WKC  | Addition of double key flats in parallel   |       |
|                            | KFC  | Double key flats at 0° and a selected angle 1° increments<br>Ⓧ Cannot be combined with KC·WKC.   |       |
|                            | HC   | Head diameter change<br>D ≤ HC < H<br>0.1mm increments   |       |
|                            | TC   | Head thickness change<br>2 ≤ TC < 5 0.1mm increments<br>Ⓜ Full length L is shortened by (5 - TC).<br>If combined with LC, full length is equal to LC.      |       |
|                            | TCC  | Chamfering of head<br>This improves the strength of the punch head.  P.1611<br>0.5 ≤ TCC ≤ (H - D) / 2<br>0.1mm increments<br>Ⓜ If H ≤ 5, then TCC is 0.5. |       |
|                            | NDC  | No press-in lead<br>ℓ ≥ 3 → ℓ = 0  |       |

# PRECISION CARBIDE SHOULDER PUNCHES

| Type  | RoHS  | Catalog No.                          | Shape  |
|---|---|--------------------------------------|--|
|  |  | VPAS<br>VPAL<br>L—VPAS<br>L—VPAL     |  <p>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.</p> <p><math>P &lt; 1.000 \rightarrow K \leq 0.0020</math><br/><math>P \geq 1.000 \rightarrow K \leq 0.0015</math></p> |
|  |   | VXPAS<br>VXPAL<br>L—VXPAS<br>L—VXPAL |  |

| Catalog No.   | Type                         | D | L                    | 0.001mm increments min. P max. | B  | H |
|---------------|------------------------------|---|----------------------|--------------------------------|----|---|
| VPAS<br>VXPAS | Lapping<br>L—VPAS<br>L—VXPAS | 3 | 40 45 50 55 60       | 1.000 ~ 2.990                  | 8  | 5 |
|               |                              | 4 | 40 45 50 55 60 65 70 | 1.000 ~ 3.990                  |    | 7 |
|               |                              | 5 | 40 45 50 55 60 65 70 | 2.000 ~ 4.990                  |    | 8 |
|               |                              | 6 | 40 45 50 55 60 65 70 | 2.000 ~ 5.990                  |    | 9 |
| VPAL<br>VXPAL | Lapping<br>L—VPAL<br>L—VXPAL | 3 | 50 55 60             | 1.000 ~ 2.990                  | 13 | 5 |
|               |                              | 4 | 50 55 60 65 70       | 1.000 ~ 3.990                  |    | 7 |
|               |                              | 5 | 50 55 60 65 70       | 2.000 ~ 4.990                  |    | 8 |
|               |                              | 6 | 50 55 60 65 70       | 2.000 ~ 5.990                  |    | 9 |

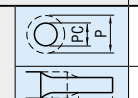
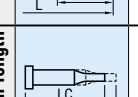
$P > D - 0.03 \rightarrow \ell = 0$  If  $P > D - 0.03$ ,  $D_{-0.03}$  (press-in lead) is not included.

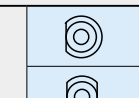
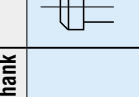
Order **Catalog No.** — **L** — **P**  
VPAS 4 — 50 — P2.000

Price **Quotation**



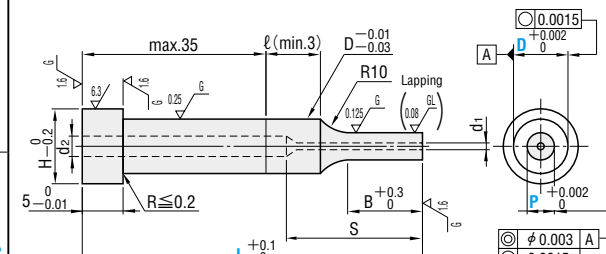

Days to Ship **Quotation**

Alterations **Catalog No.** — **L(LC)** — **P(PC)** — (BC·HC·TC, etc.)  
VPAS 4 — 50 — P2.000 — TC4—LKC

| Alteration                 | Code | Spec.   | 1Code   |
|----------------------------|------|---|---|
| Alterations to tip         | PC   | Tip dimension change<br>$PC \geq P_{min}/2$<br>0.001mm increments   | <br><b>Quotation</b> |
|                            | BC   | Tip length change<br>$2 \leq BC \leq B_{max}$<br>0.1mm increments<br>Full length L must be at least 25mm longer than tip length BC.   |   |
|                            | PRC  | Rounding of tip side edge<br>$0.3 \leq PRC \leq 1$<br>0.1mm increments<br>Cannot be combined with PCC·GC.   |   |
|                            | PCC  | Chamfering to tip side edge<br>$0.3 \leq PCC \leq 1$<br>0.1mm increments<br>Cannot be combined with PRC·GC.   |   |
|                            | GC   | $20^\circ \leq GC < 90^\circ$ 1° increments<br>Tip length $B \geq f + 2$<br>$f = P/2 \times \tan(90^\circ - GC^\circ)$<br>Cannot be used for $P \leq 1.00$ .<br>Cannot be combined with LC·PRC·PCC.<br>Punches with lapping are rounded at the edges.   |   |
| Alterations to full length | LC   | Full length change<br>$25 + B(C) \leq LC < L$<br>0.1mm increments<br>(If combined with LKC, 0.01mm increments can be selected.)<br>If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length—25mm).<br>LC30.1~LC34.9 (when combined with LKC, LC30.01~LC34.99), then $D_{-0.003}$ is $0$ . | <br><b>Quotation</b> |
|                            | LKC  | Full length tolerance change<br>$L +0.1_0 \rightarrow +0.01_0$  |   |

| Alteration           | Code | Spec.  | 1Code   |
|----------------------|------|--|---|
| Alterations to head  | KC   | Addition of single key flat to head<br>Cannot be combined with KFC.  | <br><b>Quotation</b> |
|                      | WKC  | Addition of double key flats in parallel<br>Cannot be combined with KFC.   |   |
|                      | KFC  | Double key flats at $0^\circ$ and a selected angle 1° increments<br>Cannot be combined with KC·WKC.  |   |
|                      | HC   | Head diameter change<br>$D \leq HC < H$<br>0.1mm increments  |   |
|                      | TC   | Head thickness change<br>$2 \leq TC < T$ 0.1mm increments<br>Full length L is shortened by (T—TC).<br>If combined with LC, full length is equal to LC.             |   |
|                      | TCC  | Chamfering of head.<br>This improves the strength of the punch head. P.1611<br>$0.5 \leq TCC \leq (H-D)/2$<br>0.1mm increments<br>If $H \leq 5$ , then TCC is 0.5. |   |
| Alterations to shank | SKC  | Single key flat on shank<br>$P \leq D - 1.2$<br>(Machining width 0.5)<br>Cannot be combined with KC·WKC·KFC.   | <br><b>Quotation</b> |
|                      | NDC  | No press-in lead<br>$\ell \geq 3 \rightarrow \ell = 0$   |   |

# PRECISION CARBIDE SHOULDER PUNCHES WITH AIR HOLES

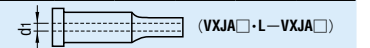
| Type  | RoHS  | Catalog No.                          | Shape   |
|---|---|--------------------------------------|---|
|  |  | VJAS<br>VJAL<br>L—VJAS<br>L—VJAL     |  <p>Air hole of super fine grain type is straight. S and d2 dimensions do not exist.</p> |
|  |   | VXJAS<br>VXJAL<br>L—VXJAS<br>L—VXJAL |   |

| Catalog No.   | Type                         | D | L                      | 0.001mm increments min. P max. | B  | d1  | S  | d2  | H |
|---------------|------------------------------|---|------------------------|--------------------------------|----|-----|----|-----|---|
| VJAS<br>VXJAS | Lapping<br>L—VJAS<br>L—VXJAS | 4 | 40 45 50 55 60         | 1.500 ~ 3.990                  | 8  | 0.5 | 20 | 1.2 | 7 |
|               |                              | 5 | (40) 45 50 55 60 65 70 | 2.000 ~ 4.990                  |    |     |    | 2.1 | 8 |
|               |                              | 6 | (40) 45 50 55 60 65 70 | 2.000 ~ 5.990                  |    | 2.6 | 9  |     |   |
|               |                              | 4 | 50 55 60               | 1.500 ~ 3.990                  |    | 1.2 | 7  |     |   |
| VJAL<br>VXJAL | Lapping<br>L—VJAL<br>L—VXJAL | 5 | 50 55 60 65 70         | 2.000 ~ 4.990                  | 13 | 0.5 | 20 | 2.1 | 8 |
|               |                              | 6 | 50 55 60 65 70         | 2.000 ~ 5.990                  |    |     |    | 2.6 | 9 |

$L(40) \rightarrow S=17$  If full length is (40), dimension S is 17mm.

$P > D - 0.03 \rightarrow \ell = 0$  If  $P > D - 0.03$ ,  $D_{-0.03}$  (press-in lead) is not included.

Air hole of super fine grain type is straight. S and d2 dimensions do not exist.

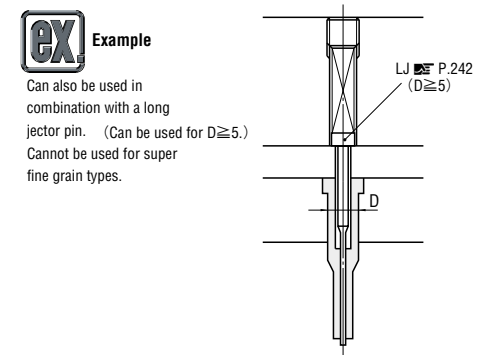


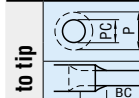
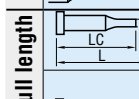
Order **Catalog No.** — **L** — **P**  
VJAL 6 — 50 — P5.105


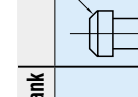
Days to Ship **Quotation**

Price **Quotation**

Alterations **Catalog No.** — **L(LC·LCX)** — **P(PC)** — (BC·HC·TC, etc.)  
VJAL 6 — 50 — P5.105 — TC4—LKC



| Alteration                 | Code | Spec.  | 1Code   |
|----------------------------|------|--|---|
| Alterations to tip         | PC   | Tip dimension change<br>$PC \geq P_{min}$ .<br>0.001mm increments<br>Cannot be used for D4.  | <br><b>Quotation</b> |
|                            | BC   | Tip length change<br>$2 \leq BC < B$<br>0.1mm increments   |   |
|                            | PRC  | Rounding of tip side edge<br>$0.3 \leq PRC \leq 1$<br>0.1mm increments<br>Cannot be combined with PCC.   |   |
|                            | PCC  | Chamfering to tip side edge<br>$0.3 \leq PCC \leq 1$<br>0.1mm increments<br>Cannot be combined with PRC.   |   |
|                            | LC   | Full length change<br>LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>B dimension and S dimension are shortened by (L—LC).  |   |
| Alterations to full length | LCX  | Full length change with no change to tip length B<br>$25 + B(BC) \leq LCX < L$ 0.1mm increments<br>If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length—25mm).<br>(If combined with LKC, 0.01mm increments can be selected.)<br>Cannot be used with V30. | <br><b>Quotation</b> |
|                            | LKC  | Full length tolerance change<br>$L +0.1_0 \rightarrow +0.01_0$   |   |

| Alteration           | Code | Spec.   | 1Code   |
|----------------------|------|---|---|
| Alterations to head  | KC   | Addition of single key flat to head<br>Cannot be combined with KFC.   | <br><b>Quotation</b> |
|                      | WKC  | Addition of double key flats in parallel<br>Cannot be combined with KFC.  |   |
|                      | KFC  | Double key flats at $0^\circ$ and a selected angle 1° increments<br>Cannot be combined with KC·WKC.   |   |
|                      | HC   | Head diameter change<br>$D \leq HC < H$<br>0.1mm increments   |   |
|                      | TC   | Head thickness change<br>$2 \leq TC < 5$ 0.1mm increments<br>Full length L is shortened by (5—TC).<br>If combined with LC, full length is equal to LC.          |   |
|                      | TCC  | Chamfering of head.<br>This improves the strength of the punch head. P.1611<br>$0.5 \leq TCC \leq (H-D)/2$ 0.1mm increments<br>If $H \leq 5$ , then TCC is 0.5. |   |
| Alterations to shank | SKC  | Single key flat on shank<br>$P \leq D - 1.2$<br>(Machining width 0.5)<br>Cannot be combined with KC·WKC·KFC.  | <br><b>Quotation</b> |
|                      | NDC  | No press-in lead<br>$\ell \geq 3 \rightarrow \ell = 0$  |   |

# PRECISION CARBIDE SHOULDER QUILL PUNCHES

| Type | RoHS                               | Catalog No.   | Shape  |   |   |   |   |     |          |      |          |     |          |      |          |
|------|------------------------------------|---|--|---|---|---|---|-----|----------|------|----------|-----|----------|------|----------|
|      |                                    | <b>VPAS</b><br><b>VPAL</b><br>Lapping<br>L—VPAS<br>L—VPAL     |  |   |   |   |   |     |          |      |          |     |          |      |          |
|      | V30 (HIP)<br>88~89HRA              |   |  |   |   |   |   |     |          |      |          |     |          |      |          |
|      |                                    | <b>VXPAS</b><br><b>VXPAL</b><br>Lapping<br>L—VXPAS<br>L—VXPAL |  |   |   |   |   |     |          |      |          |     |          |      |          |
|      | Super fine grain (HIP)<br>90~92HRA |   | <table border="1"> <thead> <tr> <th>L</th> <th>D</th> <th>D</th> <th>P</th> </tr> </thead> <tbody> <tr> <td>20~</td> <td>+0.002/0</td> <td>~1.5</td> <td>+0.005/0</td> </tr> <tr> <td>35~</td> <td>+0.003/0</td> <td>1.6~</td> <td>+0.002/0</td> </tr> </tbody> </table> | L | D | D | P | 20~ | +0.002/0 | ~1.5 | +0.005/0 | 35~ | +0.003/0 | 1.6~ | +0.002/0 |
| L    | D                                  | D   | P  |   |   |   |   |     |          |      |          |     |          |      |          |
| 20~  | +0.002/0                           | ~1.5  | +0.005/0   |   |   |   |   |     |          |      |          |     |          |      |          |
| 35~  | +0.003/0                           | 1.6~  | +0.002/0   |   |   |   |   |     |          |      |          |     |          |      |          |

| B   | H   | Catalog No.   |     | L                       | 0.001mm increments<br>min. P max. | Base unit price 1~4 pieces |                |                  |                    |
|-----|-----|---|-----|-------------------------|-----------------------------------|----------------------------|----------------|------------------|--------------------|
|     |     | Type  | D   |                         |                                   | VPAS<br>VPAL               | VXPAS<br>VXPAL | L—VPAS<br>L—VPAL | L—VXPAS<br>L—VXPAL |
| (4) | 2.0 | <br>Lapping<br><b>VPAS</b> L—VPAS<br>(D≥1.6)<br><b>VXPAS</b> L—VXPAS<br>(D≥1.6) | 1.0 | 20 25 30 35 40          | 0.150 ~ 0.990                     |                            |                |                  |                    |
|     | 2.6 |   | 1.1 | 20 25 30 35 40          | 0.150 ~ 1.090                     |                            |                |                  |                    |
|     |     |   | 1.2 | 20 25 30 35 40          | 0.150 ~ 1.190                     |                            |                |                  |                    |
|     |     |   | 1.3 | 20 25 30 35 40          | 0.150 ~ 1.290                     |                            |                |                  |                    |
|     |     |   | 1.4 | 20 25 30 35 40          | 0.150 ~ 1.390                     |                            |                |                  |                    |
|     |     |   | 1.5 | 20 25 30 35 40          | 0.150 ~ 1.490                     |                            |                |                  |                    |
| 4   | 3.0 |   | 1.6 | 20 25 30 35 40 45 50 60 | 0.300 ~ 1.590                     |                            |                |                  |                    |
| 8   | 3.5 |   | 2.0 | 20 25 30 35 40 45 50 60 | 0.500 ~ 1.990                     |                            |                |                  |                    |
|     |     |   | 2.5 | 20 25 30 35 40 45 50 60 | 1.000 ~ 2.490                     |                            |                |                  |                    |
| (6) | 2.0 | <br>Lapping<br><b>VPAL</b> L—VPAL<br>(D≥1.6)<br><b>VXPAL</b> L—VXPAL<br>(D≥1.6) | 1.0 | 20 25 30 35 40          | 0.250 ~ 0.990                     |                            |                |                  |                    |
|     | 2.6 |   | 1.1 | 20 25 30 35 40          | 0.250 ~ 1.090                     |                            |                |                  |                    |
|     |     |   | 1.2 | 20 25 30 35 40          | 0.250 ~ 1.190                     |                            |                |                  |                    |
|     |     |   | 1.3 | 20 25 30 35 40          | 0.250 ~ 1.290                     |                            |                |                  |                    |
|     |     |   | 1.4 | 20 25 30 35 40          | 0.250 ~ 1.390                     |                            |                |                  |                    |
|     |     |   | 1.5 | 20 25 30 35 40          | 0.250 ~ 1.490                     |                            |                |                  |                    |
| 6   | 3.0 |   | 1.6 | 30 35 40 45 50 60       | 0.500 ~ 1.590                     |                            |                |                  |                    |
| 8   | 3.5 |   | 2.0 | 30 35 40 45 50 60       | 0.800 ~ 1.990                     |                            |                |                  |                    |
| 13  | 3.5 |   | 2.5 | 30 35 40 45 50 60       | 1.000 ~ 2.490                     |                            |                |                  |                    |

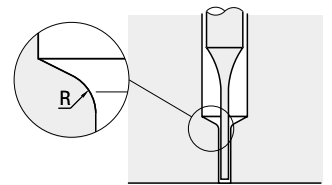
⚠ Tip length B varies depending on P dimension. ⚠ P>D-0.03 → ℓ=0 If P>D-0.03, D<sup>-0.01</sup>/<sub>-0.03</sub> (press-in lead) is not included.  
 ⚠ If P dimension is 0.150~0.249 for a tip S type, B dimension (4) is 3mm.  
 ⚠ If P dimension is 0.250~0.399 for a tip L type, B dimension (6) is 5mm.

Order Catalog No. — L — P  
 VPAS 1.0 — 20 — P0.200

Days to Ship **Quotation**

Price **Quotation**

- If P is 0.3 or less, pay particular attention to possible tip breakage.
- Take special care when measuring a punch with a micrometer.
  - Be sure to place the punch on a soft surface.
  - Always keep the punch tip joined to the punch guide when the punch is in use.
  - Be sure that the punch guide corners are rounded.



Alterations Catalog No. — L(LC) — P(PC) — (BC·HC·TC, etc.)  
 VPAS 1.0 — 20 — P0.200 — TC2—LKC

| Alteration                 | Code   | Spec.   | 1Code  |   |      |             |   |             |   |             |   |
|----------------------------|--|---|--|---|------|-------------|---|-------------|---|-------------|---|
| Alterations to tip         | PC   | Tip dimension change<br>D≥1.6 PC≥Pmin./2≥0.300<br>0.001mm increments<br>⚠ Cannot be used for D<1.6.   | <table border="1"> <thead> <tr> <th>P</th> <th>8max</th> </tr> </thead> <tbody> <tr> <td>0.300~0.499</td> <td>4</td> </tr> <tr> <td>0.500~0.799</td> <td>6</td> </tr> <tr> <td>0.800~0.999</td> <td>8</td> </tr> </tbody> </table> | P | 8max | 0.300~0.499 | 4 | 0.500~0.799 | 6 | 0.800~0.999 | 8 |
|                            | P  | 8max  |  |   |      |             |   |             |   |             |   |
|                            | 0.300~0.499  | 4   |  |   |      |             |   |             |   |             |   |
|                            | 0.500~0.799  | 6   |  |   |      |             |   |             |   |             |   |
|                            | 0.800~0.999  | 8   |  |   |      |             |   |             |   |             |   |
|                            | BC   | Tip length change<br>2≤BC<B<br>0.1mm increments   |  |   |      |             |   |             |   |             |   |
| PRC                        | Rounding of tip side edge<br>0.3≤PRC≤1<br>0.1 mm increments<br>⚠ PRC≤(P-0.2)/2<br>⚠ Cannot be combined with PCC·GC.  |   |  |   |      |             |   |             |   |             |   |
| PCC                        | Chamfering to tip side edge<br>0.3≤PCC≤1<br>0.1mm increments<br>⚠ PCC≤(P-0.2)/2<br>⚠ Cannot be combined with PRC·GC.   |   |  |   |      |             |   |             |   |             |   |
| GC                         | 20°≤GC<90° 1° increments<br>Tip length B≥f+2<br>f=P/2×tan(90°-GC°)<br>⚠ Cannot be used for P≤1.00.<br>⚠ Cannot be combined with LKC·PRC·PCC.<br>⚠ Punches with lapping are rounded at the edges. |   |  |   |      |             |   |             |   |             |   |
| Alterations to full length | LC   | Full length change<br>Lmin.<LC<L<br>0.1mm increments<br>(if combined with LKC, 0.01mm increments can be selected.)<br>⚠ For LC30.1~LC34.9<br>(if combined with LKC, LC30.01~LC34.99),<br>then D <sub>is</sub> is <sup>+0.003</sup> / <sub>0</sub> . |  |   |      |             |   |             |   |             |   |
|                            | LKC  | Full length tolerance change<br>L +0.1/0 ⇨ +0.01/0  |  |   |      |             |   |             |   |             |   |

**Quotation**

| Alteration           | Code | Spec.  | 1Code |
|----------------------|------|--|-------|
| Alterations to head  | KC   | Addition of single key flat to head<br>⚠ Cannot be combined with KFC.  |       |
|                      | WKC  | Addition of double key flats in parallel<br>⚠ Cannot be combined with KFC.   |       |
|                      | KFC  | Double key flats at 0° and a selected angle<br>1° increments<br>⚠ Cannot be combined with KC·WKC.  |       |
|                      | HC   | Head diameter change<br>D≤HC<H<br>0.1mm increments   |       |
|                      | TC   | Head thickness change 2≤TC<T 0.1mm increments<br>⚠ Full length L is shortened by (T-TC).<br>If combined with LC, full length is equal to LC. |       |
| Alterations to shank | TCC  | Chamfering of head<br>This improves the strength of the punch head.  P.1611<br>[Ordering method] TCC0.5<br>⚠ Cannot be used for H<2.6.       |       |
|                      | NDC  | No press-in lead ℓ≥3 ⇨ ℓ=0   |       |

**Quotation**



PRECISION PUNCHES & DIES

# PRECISION PUNCHES WITH KEY GROOVES

| Type      | RoHS                                  | Catalog No.                                     | Shape |
|-----------|---------------------------------------|---|-------|
| —Lapping— | Equivalent to SKD11<br>60~63HRC       | VSKAS<br>VSKAL<br>Lapping<br>L—VSKAS<br>L—VSKAL |       |
|           | Powdered high-speed steel<br>64~67HRC | VPKAS<br>VPKAL<br>Lapping<br>L—VPKAS<br>L—VPKAL |       |

| Catalog No. |   | D | L  |    |    |    |             |             | 0.001mm increments<br>min. P max. | 0.1mm increments<br>T | B   | U           |             |
|-------------|---|---|----|----|----|----|-------------|-------------|-----------------------------------|-----------------------|-----|-------------|-------------|
| Type        |   |   |    |    |    |    |             |             |                                   |                       |     |             |             |
| S           | Lapping<br>VSKAS L—VSKAS<br>VPKAS L—VPKAS | 3 | 40 | 45 | 50 | 55 | 60          | 1.000~2.990 | T ≥ 2.0                           | 8                     | 0.5 |             |             |
|             |   | 4 | 40 | 45 | 50 | 55 | 60          | 65          |                                   |                       |     | 70          | 1.000~3.990 |
|             |   | 5 | 40 | 45 | 50 | 55 | 60          | 65          |                                   |                       |     | 70          | 2.000~4.990 |
|             |   | 6 | 40 | 45 | 50 | 55 | 60          | 65          |                                   |                       |     | 70          | 2.000~5.990 |
| L           | Lapping<br>VSKAL L—VSKAL<br>VPKAL L—VPKAL | 3 |    | 50 | 55 | 60 | 1.000~2.990 | T ≥ 2.0     | 13                                | 0.5                   |     |             |             |
|             |   | 4 |    | 50 | 55 | 60 | 65          |             |                                   |                       | 70  | 1.000~3.990 |             |
|             |   | 5 |    | 50 | 55 | 60 | 65          |             |                                   |                       | 70  | 2.000~4.990 |             |
|             |   | 6 |    | 50 | 55 | 60 | 65          |             |                                   |                       | 70  | 2.000~5.990 |             |

☉ If no key groove is required, select T=L.

Order **Catalog No.** — L — P — T  
VPKAS 4 — 50 — P2.500 — T15.1

Price **Quotation**

☉ If no key groove is required, select T=L.

Days to Ship **Quotation**

Alterations **Catalog No.** — L(LC) — P(PC) — T — (BC-LKC-UK, etc.)  
VSKAS 3 — 40.0 — PC0.800 — T13.0

| Alteration         | Code  | Spec.  | 1Code |       |             |   |             |   |             |    |        |    |           |
|--------------------|---|--|-------|-------|-------------|---|-------------|---|-------------|----|--------|----|-----------|
| Alterations to tip | PC  | Tip dimension change<br>Pmin./2 ≤ PC < P<br>0.001mm increments<br><table border="1"> <tr><th>P</th><th>Bmax.</th></tr> <tr><td>0.500~0.799</td><td>6</td></tr> <tr><td>0.800~0.999</td><td>8</td></tr> <tr><td>1.000~1.999</td><td>13</td></tr> <tr><td>2.000~</td><td>19</td></tr> </table> | P     | Bmax. | 0.500~0.799 | 6 | 0.800~0.999 | 8 | 1.000~1.999 | 13 | 2.000~ | 19 | Quotation |
|                    | P   | Bmax.  |       |       |             |   |             |   |             |    |        |    |           |
|                    | 0.500~0.799   | 6  |       |       |             |   |             |   |             |    |        |    |           |
|                    | 0.800~0.999   | 8  |       |       |             |   |             |   |             |    |        |    |           |
|                    | 1.000~1.999   | 13   |       |       |             |   |             |   |             |    |        |    |           |
| 2.000~             | 19  |  |       |       |             |   |             |   |             |    |        |    |           |
| BC                 | Tip length change<br>2 ≤ BC ≤ Bmax.<br>0.1mm increments<br>☉ Full length L must be at least 25mm longer than tip length BC.   |  |       |       |             |   |             |   |             |    |        |    |           |
| PRC                | Rounding of tip side edge 0.3 ≤ PRC ≤ 1<br>0.1mm increments<br>☉ PRC ≤ (P - d1 - 0.5) / 2<br>☉ Cannot be combined with PCC·GC.  |  |       |       |             |   |             |   |             |    |        |    |           |
| PCC                | Chamfering to tip side edge 0.3 ≤ PCC ≤ 1<br>0.1mm increments<br>☉ PCC ≤ (P - d1 - 0.5) / 2<br>☉ Cannot be combined with PRC·GC.  |  |       |       |             |   |             |   |             |    |        |    |           |
| GC                 | 20° ≤ GC < 90° 1° increments<br>Tip length B ≥ f + 2<br>f = P/2 × tan(90° - GC°)<br>☉ Cannot be used for P ≤ 1.000.<br>☉ Punches with lapping are rounded at the edges. |  |       |       |             |   |             |   |             |    |        |    |           |

| Alteration                 | Code                     | Spec.   | 1Code     |    |     |     |   |     |           |
|----------------------------|--------------------------|---|-----------|----|-----|-----|---|-----|-----------|
| Alterations to full length | LC                       | Full length change 25 + B(C) ≤ LC < L<br>0.1mm increments (if combined with LKC, 0.01mm increments can be selected.)<br>☉ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length - 25mm). | Quotation |    |     |     |   |     |           |
|                            | LKC                      | Full length tolerance change<br>L + 0.1 → +0.01<br>0 → 0  |           |    |     |     |   |     |           |
| Alterations to key groove  | UK                       | Key groove depth change<br><table border="1"> <tr><th>D</th><th>UK</th></tr> <tr><td>4-5</td><td>0.7</td></tr> <tr><td>6</td><td>1.2</td></tr> </table>   | D         | UK | 4-5 | 0.7 | 6 | 1.2 | Quotation |
|                            | D                        | UK  |           |    |     |     |   |     |           |
| 4-5                        | 0.7                      |   |           |    |     |     |   |     |           |
| 6                          | 1.2                      |   |           |    |     |     |   |     |           |
|                            | ☉ Cannot be used for D3. |   |           |    |     |     |   |     |           |
| Alterations to shank       | SKC                      | Single key flat on shank<br>P ≤ D - 1.2<br>(Machining width 0.5)<br>☉ SKC alteration is added at a position symmetrically opposite to the key groove.   | Quotation |    |     |     |   |     |           |
|                            | NDC                      | No press-in lead<br>ℓ = 3 ⇔ ℓ = 0   |           |    |     |     |   |     |           |

# PRECISION PUNCHES WITH KEY GROOVES AND AIR HOLES

| Type      | RoHS                                  | Catalog No.   | Shape |
|-----------|---------------------------------------|---|-------|
| —Lapping— | Equivalent to SKH51<br>61~64HRC       | VSKJAS<br>VSKJAL<br>Lapping<br>L—VSKJAS<br>L—VSKJAL |       |
|           | Powdered high-speed steel<br>64~67HRC | VPKJAS<br>VPKJAL<br>Lapping<br>L—VPKJAS<br>L—VPKJAL |       |

| Catalog No. |   | D | L    |    |    |    |             |             | 0.001mm increments<br>min. P max. | 0.1mm increments<br>T | B   | d1  | S   | d2  | U           |             |
|-------------|---|---|------|----|----|----|-------------|-------------|-----------------------------------|-----------------------|-----|-----|-----|-----|-------------|-------------|
| Type        |   |   |      |    |    |    |             |             |                                   |                       |     |     |     |     |             |             |
| S           | Lapping<br>VSKJAS L—VSKJAS<br>VPKJAS L—VPKJAS | 4 | 40   | 45 | 50 | 55 | 60          | 1.500~3.990 | T ≥ 2.0                           | 8                     | 0.5 | 20  | 1.2 | 0.5 |             |             |
|             |   | 5 | (40) | 45 | 50 | 55 | 60          | 65          |                                   |                       |     |     |     |     | 70          | 2.000~4.990 |
|             |   | 6 | (40) | 45 | 50 | 55 | 60          | 65          |                                   |                       |     |     |     |     | 70          | 2.000~5.990 |
| L           | Lapping<br>VSKJAL L—VSKJAL<br>VPKJAL L—VPKJAL | 4 |      | 50 | 55 | 60 | 1.500~3.990 | T ≥ 2.0     | 13                                | 0.5                   | 20  | 1.2 | 0.5 |     |             |             |
|             |   | 5 |      | 50 | 55 | 60 | 65          |             |                                   |                       |     |     |     | 70  | 2.000~4.990 |             |
|             |   | 6 |      | 50 | 55 | 60 | 65          |             |                                   |                       |     |     |     | 70  | 2.000~5.990 |             |

☉ If no key groove is required, select T=L.

☉ L(40) ⇨ S=17 If full length is (40), S dimension is 17mm.

Order **Catalog No.** — L — P — T  
VPKJAL 4 — 60 — P2.013 — T13.0

Price **Quotation**

☉ If no key groove is required, select T=L.

Days to Ship **Quotation**

Alterations **Catalog No.** — L(LC) — P(PC) — T — (BC-LKC-UK, etc.)  
VPKJAS 5 — 50.0 — PC1.800 — T16.0

| Alteration                 | Code  | Spec.   | 1Code     |        |   |       |   |       |           |
|----------------------------|---|---|-----------|--------|---|-------|---|-------|-----------|
| Alterations to tip         | PC  | Tip dimension change<br>PC ≥ PCmin.<br><table border="1"> <tr><th>D</th><th>PCmin.</th></tr> <tr><td>5</td><td>1.800</td></tr> <tr><td>6</td><td>1.800</td></tr> </table> | D         | PCmin. | 5 | 1.800 | 6 | 1.800 | Quotation |
|                            | D   | PCmin.  |           |        |   |       |   |       |           |
|                            | 5   | 1.800   |           |        |   |       |   |       |           |
|                            | 6   | 1.800   |           |        |   |       |   |       |           |
| BC                         | Tip length change<br>2 ≤ BC < B<br>0.1mm increments   |   |           |        |   |       |   |       |           |
| PRC                        | Rounding of tip side edge 0.3 ≤ PRC ≤ 1<br>0.1mm increments<br>☉ PRC ≤ (P - d1 - 0.5) / 2<br>☉ Cannot be combined with PCC.   |   |           |        |   |       |   |       |           |
| PCC                        | Chamfering to tip side edge 0.3 ≤ PCC ≤ 1<br>0.1mm increments<br>☉ PCC ≤ (P - d1 - 0.5) / 2<br>☉ Cannot be combined with PRC. |   |           |        |   |       |   |       |           |
| Alterations to full length | LC  | Full length change LC < L<br>0.1mm increments (if combined with LKC, 0.01mm increments can be selected.)<br>☉ B and S dimensions are shortened by (L - LC).               | Quotation |        |   |       |   |       |           |
|                            | LKC   | Full length tolerance change<br>L + 0.1 → +0.01<br>0 → 0  |           |        |   |       |   |       |           |

| Alteration               | Code | Spec.   | 1Code |    |     |     |   |     |           |
|--------------------------|------|---|-------|----|-----|-----|---|-----|-----------|
| Alteration to key groove | UK   | Key groove depth change<br><table border="1"> <tr><th>D</th><th>UK</th></tr> <tr><td>4-5</td><td>0.7</td></tr> <tr><td>6</td><td>1.2</td></tr> </table> | D     | UK | 4-5 | 0.7 | 6 | 1.2 | Quotation |
| D                        | UK   |   |       |    |     |     |   |     |           |
| 4-5                      | 0.7  |   |       |    |     |     |   |     |           |
| 6                        | 1.2  |   |       |    |     |     |   |     |           |
| Shank                    | NDC  | No press-in lead<br>ℓ = 3 ⇔ ℓ = 0   |       |    |     |     |   |     |           |

# PRECISION CARBIDE PUNCHES WITH KEY GROOVES

# PRECISION CARBIDE PUNCHES WITH KEY GROOVES AND AIR HOLES

| Type | RoHS                   | Catalog No.                                     | Shape   |
|------|------------------------|---|---|
|      | RoHS                   | VKAS<br>VKAL<br>Lapping<br>L-VKAS<br>L-VKAL     | <p> <math>T \geq 2.0</math><br/>                     Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.                 </p> |
|      | Super fine grain (HIP) | VXKAS<br>VXKAL<br>Lapping<br>L-VXKAS<br>L-VXKAL |   |

| Type | RoHS                   | Catalog No.   | Shape   |
|------|------------------------|---|---|
|      | RoHS                   | VJKAS<br>VJKAL<br>Lapping<br>L-VJKAS<br>L-VJKAL     | <p> <math>T \geq 2.0</math><br/>                     Air hole of super fine grain type is straight. Dimensions S and d<sub>2</sub> do not exist.                 </p> |
|      | Super fine grain (HIP) | VXJKAS<br>VXJKAL<br>Lapping<br>L-VXJKAS<br>L-VXJKAL |   |

| Type   | Catalog No. |                      | L           | 0.001mm increments min. P max. | 0.1mm increments T | B   | U |
|--|-------------|----------------------|-------------|--------------------------------|--------------------|-----|---|
|  | D           | L                    |             |                                |                    |     |   |
| <br>VKAS<br>Lapping L-VKAS<br>VXKAS<br>Lapping L-VXKAS | 3           | 40 45 50 55 60       | 1.000~2.990 | T ≥ 2.0                        | 8                  | 0.5 |   |
|  | 4           | 40 45 50 55 60 65 70 | 1.000~3.990 |                                |                    |     |   |
|  | 5           | 40 45 50 55 60 65 70 | 2.000~4.990 |                                |                    |     |   |
|  | 6           | 40 45 50 55 60 65 70 | 2.000~5.990 |                                |                    |     |   |
| <br>VKAL<br>Lapping L-VKAL<br>VXKAL<br>Lapping L-VXKAL | 3           | 50 55 60             | 1.000~2.990 | T ≥ 2.0                        | 13                 | 0.5 |   |
|  | 4           | 50 55 60 65 70       | 1.000~3.990 |                                |                    |     |   |
|  | 5           | 50 55 60 65 70       | 2.000~4.990 |                                |                    |     |   |
|  | 6           | 50 55 60 65 70       | 2.000~5.990 |                                |                    |     |   |

| Type   | Catalog No. |                        | L           | 0.001mm increments min. P max. | 0.1mm increments T | B   | d <sub>1</sub> | S   | d <sub>2</sub> | U |
|--|-------------|------------------------|-------------|--------------------------------|--------------------|-----|----------------|-----|----------------|---|
|  | D           | L                      |             |                                |                    |     |                |     |                |   |
| <br>VJKAS<br>Lapping L-VJKAS<br>VXJKAS<br>Lapping L-VXJKAS | 4           | 40 45 50 55 60         | 1.500~3.990 | T ≥ 2.0                        | 8                  | 0.5 | 20             | 1.2 | 0.5            |   |
|  | 5           | (40) 45 50 55 60 65 70 | 2.000~4.990 |                                |                    |     |                |     |                |   |
|  | 6           | (40) 45 50 55 60 65 70 | 2.000~5.990 |                                |                    |     |                |     |                |   |
| <br>VJKAL<br>Lapping L-VJKAL<br>VXJKAL<br>Lapping L-VXJKAL | 4           | 50 55 60               | 1.500~3.990 | T ≥ 2.0                        | 13                 | 0.5 | 20             | 1.2 | 0.5            |   |
|  | 5           | 50 55 60 65 70         | 2.000~4.990 |                                |                    |     |                |     |                |   |
|  | 6           | 50 55 60 65 70         | 2.000~5.990 |                                |                    |     |                |     |                |   |

⊕ If P > D - 0.03, D<sub>-0.03</sub><sup>-0.01</sup> on tip side (press-in lead) is not included.

⊕ L(40) → S=17 If full length is (40), dimension S is 17mm.

⊕ If P > D - 0.03, D<sub>-0.03</sub><sup>-0.01</sup> on tip side (press-in lead) is not included.

⊕ Air hole of super fine grain type is straight.

Dimensions S and d<sub>2</sub> do not exist.

Order **Catalog No.** L P T  
VKAS 4 - 50 - P1.002 - T15.0

Price **Quotation**

Days to Ship **Quotation**

Alterations **Catalog No.** L(LC) P(PC) T (BC-LKC-UK, etc.)  
VKAS 4 - LC43 - P1.002 - T15.0 - LKC

| Alteration  | Code  | Spec.  | 1Code   |   |       |             |   |             |   |             |    |        |    |
|-------------|-------|--|---|---|-------|-------------|---|-------------|---|-------------|----|--------|----|
|             | PC    | Tip dimension change<br>PC ≥ Pmin./2 ≥ 0.500<br>0.001mm increments   | <table border="1"> <tr> <th>P</th> <th>Bmax.</th> </tr> <tr> <td>0.500~0.799</td> <td>6</td> </tr> <tr> <td>0.800~0.999</td> <td>8</td> </tr> <tr> <td>1.000~1.999</td> <td>13</td> </tr> <tr> <td>2.000~</td> <td>19</td> </tr> </table> | P | Bmax. | 0.500~0.799 | 6 | 0.800~0.999 | 8 | 1.000~1.999 | 13 | 2.000~ | 19 |
| P           | Bmax. |  |   |   |       |             |   |             |   |             |    |        |    |
| 0.500~0.799 | 6     |  |   |   |       |             |   |             |   |             |    |        |    |
| 0.800~0.999 | 8     |  |   |   |       |             |   |             |   |             |    |        |    |
| 1.000~1.999 | 13    |  |   |   |       |             |   |             |   |             |    |        |    |
| 2.000~      | 19    |  |   |   |       |             |   |             |   |             |    |        |    |
|             | BC    | Tip length change<br>2 ≤ BC ≤ Bmax. 0.1mm<br>Full length L must be at least 25mm longer than tip length BC.  |   |   |       |             |   |             |   |             |    |        |    |
|             | PRC   | Rounding of tip side edge<br>0.3 ≤ PRC ≤ 1<br>0.1 mm increments<br>PRC ≤ (P - 0.2) / 2<br>⊗ Cannot be combined with PCC·GC.                                  | <b>Quotation</b>  |   |       |             |   |             |   |             |    |        |    |
|             | PCC   | Chamfering to tip side edge<br>0.3 ≤ PCC ≤ 1<br>0.1 mm increments<br>PCC ≤ (P - 0.2) / 2<br>⊗ Cannot be combined with PRC·GC.                                |   |   |       |             |   |             |   |             |    |        |    |
|             | GC    | 20° ≤ GC < 90° 1° increments<br>Tip length B ≥ f + 2<br>f = P/2 × tan(90° - GC°)<br>⊗ Cannot be used for P ≤ 1.00.<br>⊗ Cannot be combined with LKC·PRC·PCC. |   |   |       |             |   |             |   |             |    |        |    |
|             | NDC   | No press-in lead<br>ℓ = 3 ⇔ ℓ = 0  |   |   |       |             |   |             |   |             |    |        |    |

| Alteration | Code | Spec.   | 1Code            |    |     |     |   |     |                  |
|------------|------|---|------------------|----|-----|-----|---|-----|------------------|
|            | LC   | Full length change 25+B(C) ≤ LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>⊕ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length - 25mm). | <b>Quotation</b> |    |     |     |   |     |                  |
|            | LKC  | Full length tolerance L +0.1 / 0 ⇔ +0.01 / 0 change   |                  |    |     |     |   |     |                  |
|            | UK   | Key groove depth change<br><table border="1"> <tr> <th>D</th> <th>UK</th> </tr> <tr> <td>4-5</td> <td>0.7</td> </tr> <tr> <td>6</td> <td>1.2</td> </tr> </table> ⊗ Cannot be used for D3.   | D                | UK | 4-5 | 0.7 | 6 | 1.2 | <b>Quotation</b> |
| D          | UK   |   |                  |    |     |     |   |     |                  |
| 4-5        | 0.7  |   |                  |    |     |     |   |     |                  |
| 6          | 1.2  |   |                  |    |     |     |   |     |                  |
|            | SKC  | Single key flat on shank<br>P ≤ D - 1.2<br>(Machining width 0.5)  |                  |    |     |     |   |     |                  |
|            | NDC  | No press-in lead<br>ℓ = 3 ⇔ ℓ = 0   | <b>Quotation</b> |    |     |     |   |     |                  |
|            | LC   | Full length change LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>⊕ B and S dimensions are shortened by (L - LC).   |                  |    |     |     |   |     |                  |

Fixing keys for punches with key grooves  
P.245



Order **Catalog No.** L P T  
VJKAL 5 - 55 - P2.500 - T20.0

Days to Ship **Quotation**

Price **Quotation**

Alterations **Catalog No.** L(LC-LC) P(PC) T (BC-LKC-UK, etc.)  
VJKAL 5 - 55 - P2.500 - T20.0 - BC10

| Alteration | Code | Spec.  | 1Code            |   |    |     |     |   |
|------------|------|--|------------------|---|----|-----|-----|---|
|            | PC   | Tip dimension change<br>PC ≥ PCmin.<br>0.001mm increments<br>⊗ Cannot be used for D4.  | <b>Quotation</b> |   |    |     |     |   |
|            | BC   | Tip length change<br>2 ≤ BC < B<br>0.1 mm increments   |                  |   |    |     |     |   |
|            | PRC  | Rounding of tip side edge<br>0.3 ≤ PRC ≤ 1 0.1 mm increments<br>PRC ≤ (P - d <sub>1</sub> - 0.5) / 2<br>⊗ Cannot be combined with PCC.   |                  |   |    |     |     |   |
|            | PCC  | Chamfering to tip side edge<br>0.3 ≤ PCC ≤ 1 0.1 mm increments<br>PCC ≤ (P - d <sub>1</sub> - 0.5) / 2<br>⊗ Cannot be combined with PRC.   |                  |   |    |     |     |   |
|            | LC   | Full length change LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>⊕ B and S dimensions are shortened by (L - LC).                                | <b>Quotation</b> |   |    |     |     |   |
|            | UK   | Key groove depth change<br><table border="1"> <tr> <th>D</th> <th>UK</th> </tr> <tr> <td>4-5</td> <td>0.7</td> </tr> <tr> <td>6</td> <td>1.2</td> </tr> </table> ⊗ Cannot be used for V30. |                  | D | UK | 4-5 | 0.7 | 6 |
| D          | UK   |  |                  |   |    |     |     |   |
| 4-5        | 0.7  |  |                  |   |    |     |     |   |
| 6          | 1.2  |  |                  |   |    |     |     |   |
|            | SKC  | Single key flat on shank<br>P ≤ D - 1.2<br>(Machining width 0.5)   | <b>Quotation</b> |   |    |     |     |   |
|            | NDC  | No press-in lead<br>ℓ = 3 ⇔ ℓ = 0  |                  |   |    |     |     |   |

Example

Can also be used in combination with a long jector pin (LJ). (Can be used for D ≥ 5.)  
Cannot be used for super fine grain types.

# PRECISION FLANGE STOPPER PUNCHES

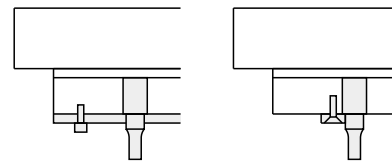
| Type          |             | Catalog No.                          | Shape |
|---------------|-------------|--------------------------------------|-------|
| —Lapping—<br> | <b>RoHS</b> | <b>VSPTAL</b><br>Lapping<br>L—VSPTAL |       |
|               |             | <b>VPHTAL</b><br>Lapping<br>L—VPHTAL |       |

| Catalog No. Type | D | L  |    | 0.001mm increments min. P max. | T  |    |    | 1mm increments B | V | R     |
|------------------|---|----|----|--------------------------------|----|----|----|------------------|---|-------|
|                  |   | 4  | 5  |                                | 6  | 7  | 8  |                  |   |       |
| VSPTAL L—VSPTAL  | 4 | 40 | 50 | 0.500 ~ 2.000                  | 13 | 16 | 20 | 2 ~ 6            | 2 | 2 ~ 3 |
|                  |   | 50 | 60 |                                | 13 | 16 | 20 |                  |   |       |
| VPHTAL L—VPHTAL  | 6 | 40 | 50 | 1.000 ~ 3.000                  | 13 | 16 | 20 | 2 ~ 10           | 3 | 10    |
|                  |   | 50 | 60 |                                | 70 | 13 | 16 |                  |   |       |
|                  | 8 | 40 | 50 | 2.000 ~ 6.000                  | 13 | 16 | 20 | 2 ~ 10           | 4 | 10    |
|                  |   | 50 | 60 |                                | 70 | 13 | 16 |                  |   |       |

Order Catalog No. — L — P — T — B  
 VPHTAL 5 — 60 — P3.000 — T20 — B5



Example of use for punch holder plate Example of use for punch fixing key



Days to Ship **Quotation**

Price **Quotation**

Alterations Catalog No. — L(LC) — P — T(TC) — B — (LKC, etc.)  
 VPHTAL 5 — 60 — P3.000 — TC15.0 — B5

| Alteration         | Code       | Spec.  | 1Code            |
|--------------------|------------|--|------------------|
| Alterations to tip | <b>PRC</b> | Rounding of tip side edge<br>0.3 ≤ PRC ≤ 1<br>0.1 mm increments<br>⊕ PRC ≤ (P-0.2)/2<br>⊗ Cannot be combined with PCC-GC.  | <b>Quotation</b> |
|                    | <b>PCC</b> | Chamfering to tip side edge<br>0.3 ≤ PCC ≤ 1<br>0.1 mm increments<br>⊕ PCC ≤ (P-0.2)/2<br>⊗ Cannot be combined with PRC-GC.  |                  |
|                    | <b>GC</b>  | 20° ≤ GC < 90° 1° increments<br>Tip length B ≥ f+2<br>f = P/2 × tan(90° - GC°)<br>⊗ Cannot be used for P ≤ 1.000.<br>⊗ Cannot be used for LKC-PRC-PCC.<br>⊕ Punches with lapping are rounded at the edges. |                  |

| Alteration                 | Code       | Spec.   | 1Code            |
|----------------------------|------------|---|------------------|
| Alterations to full length | <b>LC</b>  | Full length change<br>40 < LC < L<br>0.1 mm increments<br>(If combined with LKC, 0.01 mm increments can be selected.)<br>⊕ If LC < 50, T and TC are 20 or less.<br>⊕ If LC < 50 with D6·8, the allowable range of change for B is 2~10. | <b>Quotation</b> |
|                            | <b>LKC</b> | Full length tolerance change<br>L +0.1/0 ⇨ +0.01/0  |                  |
| Head                       | <b>TC</b>  | T dimension change<br>13 < TC < 25<br>0.1 mm increments<br>⊕ If L < 50,<br>the allowable range of change is 13 < TC < 20.<br>⊕ The full length L remains the same.  | <b>Quotation</b> |
| Shank                      | <b>NDC</b> | No press-in lead<br>ℓ = 3 ⇨ ℓ = 0   |                  |

# PRECISION CARBIDE FLANGE STOPPER PUNCHES

| Type                |             | Catalog No.                          | Shape  |
|---------------------|-------------|--------------------------------------|--|
| —Air hole type—<br> | <b>RoHS</b> | <b>VXPHAL</b><br>Lapping<br>L—VXPHAL | <p>Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.</p> |
|                     |             | <b>VXJHAL</b><br>Lapping<br>L—VXJHAL |  |

| Catalog No. Type                      | D | L  |    | 0.001mm increments min. P max. | T  |    |    | 1mm increments B | V | d1  | R     | Base unit price 1~4 pieces<br>VXPHAL L—VXPHAL<br>VXJHAL L—VXJHAL |
|---------------------------------------|---|----|----|--------------------------------|----|----|----|------------------|---|-----|-------|--|
|                                       |   | 4  | 5  |                                | 6  | 7  | 8  |                  |   |     |       |  |
| VXPHAL Lapping L—VXPHAL               | 4 | 40 | 50 | 0.500 ~ 2.000                  | 13 | 16 | 20 | 2 ~ 6            | 2 |     | 2 ~ 3 | <b>Quotation</b>   |
|                                       |   | 50 | 60 |                                | 13 | 16 | 20 |                  |   |     |       |  |
| VXPHAL Lapping L—VXPHAL               | 6 | 40 | 50 | 1.000 ~ 3.000                  | 13 | 16 | 20 | 2 ~ 8            | 3 |     | 10    | <b>Quotation</b>   |
|                                       |   | 50 | 60 |                                | 70 | 13 | 16 |                  |   |     |       |  |
| VXPHAL Lapping L—VXPHAL               | 8 | 40 | 50 | 2.000 ~ 6.000                  | 13 | 16 | 20 | 2 ~ 10           | 4 |     | 10    | <b>Quotation</b>   |
|                                       |   | 50 | 60 |                                | 70 | 13 | 16 |                  |   |     |       |  |
| With air hole VXJHAL Lapping L—VXJHAL | 5 | 40 | 50 | 1.000 ~ 3.000                  | 13 | 16 | 20 | 2 ~ 8            | 3 | 0.4 | 10    | <b>Quotation</b>   |
|                                       |   | 50 | 60 |                                | 13 | 16 | 20 |                  |   |     |       |  |
| With air hole VXJHAL Lapping L—VXJHAL | 6 | 40 | 50 | 1.500 ~ 4.000                  | 13 | 16 | 20 | 2 ~ 10           | 4 | 0.5 | 10    | <b>Quotation</b>   |
|                                       |   | 50 | 60 |                                | 70 | 13 | 16 |                  |   |     |       |  |
| With air hole VXJHAL Lapping L—VXJHAL | 8 | 40 | 50 | 2.000 ~ 6.000                  | 13 | 16 | 20 | 2 ~ 10           | 6 | 0.8 | 10    | <b>Quotation</b>   |
|                                       |   | 50 | 60 |                                | 70 | 13 | 16 |                  |   |     |       |  |

Order Catalog No. — L — P — T — B  
 VXPHAL 5 — 60 — P3.000 — T20 — B6

Days to Ship **Quotation**

Price **Quotation**

Alterations Catalog No. — L(LC) — P — T(TC) — B — (LKC, etc.)  
 VXPHAL 5 — LC55 — P3.000 — TC15.5 — B6 — LKC

| Alteration         | Code       | Spec.   | 1Code            |
|--------------------|------------|---|------------------|
| Alterations to tip | <b>PRC</b> | Rounding of tip side edge<br>0.3 ≤ PRC ≤ 1<br>0.1 mm increments<br>⊕ PRC ≤ (P-0.2)/2<br>⊗ Cannot be combined with PCC-GC.   | <b>Quotation</b> |
|                    | <b>PCC</b> | Chamfering to tip side edge<br>0.3 ≤ PCC ≤ 1<br>0.1 mm increments<br>⊕ PCC ≤ (P-0.2)/2<br>⊗ Cannot be combined with PRC-GC.   |                  |
|                    | <b>GC</b>  | 20° ≤ GC < 90° 1° increments<br>Tip length B ≥ f+2<br>f = P/2 × tan(90° - GC°)<br>⊗ Cannot be used for P ≤ 1.000.<br>⊗ Cannot be combined with LKC-PRC-PCC.<br>⊕ Punches with lapping are rounded at the edges. |                  |

| Alteration                 | Code       | Spec.   | 1Code            |
|----------------------------|------------|---|------------------|
| Alterations to full length | <b>LC</b>  | Full length change<br>40 < LC < L<br>0.1 mm increments (If combined with LKC, 0.01 mm increments can be selected.)<br>⊕ If LC < 50, T and TC are 20 or less.<br>⊕ If LC < 50 with D6·8, the allowable range of B is 2~10. | <b>Quotation</b> |
|                            | <b>LKC</b> | Full length tolerance change<br>L +0.1/0 ⇨ +0.01/0  |                  |
| Head                       | <b>TC</b>  | T dimension change<br>13 < TC < 25<br>0.1 mm increments<br>⊕ If L < 50,<br>the allowable range of change is 13 < TC < 20.<br>⊕ The full length L remains the same.  | <b>Quotation</b> |
| Others                     | <b>NDC</b> | No press-in lead<br>ℓ = 3 ⇨ ℓ = 0   |                  |

■ Fixing keys for punches with key grooves  
 P.245



# PRECISION CARBIDE BLOCK PUNCHES

|  |  | RoHS            | Tip machining limit   | Tip shape  | Tip shape                                 | Tip shape |
|--|--|-----------------|-----------------------|------------|---|-----------|
|  |  |                 |                       | D          | R   | E         |
|  |  |                 |                       | $P \geq W$ | $P \geq W$<br>$0.15 \leq R < \frac{W}{2}$ | $P > W$   |
|  | Shank dimensions V·H   | Normal          |                       | D VZPDBL   | R VZPRBL                                  | E VZPEBL  |
|  | V30 (HIP) 88~89HRA V·H 3~20  |                 |                       |            |   |           |
|  | Shank dimensions V·H   | Tapped          |                       | D VZPDML   | R VZPRML                                  | E VZPEML  |
|  | V30 (HIP) 88~89HRA V·H 8~20  |                 |                       |            |   |           |
|  | Shank dimensions V·H   | With key groove | Details of key groove | D VZPDKL   | R VZPRKL                                  | E VZPEKL  |
|  | V30 (HIP) 88~89HRA V·H 3~20  |                 |                       |            |   |           |
|  | Shank dimensions V·H   | Single flange   | Details of flange     | D VZPDFL   | R VZPRFL                                  | E VZPEFL  |
|  | V30 (HIP) 88~89HRA V·H 3~16<br>Cannot be used for products marked with ● in the specification table. |                 |                       |            |   |           |
|  | Shank dimensions V·H   | Double flanges  | Details of flange     | D VZPDWL   | R VZPRWL                                  | E VZPEWL  |
|  | V30 (HIP) 88~89HRA V·H 3~16<br>Cannot be used for products marked with ● in the specification table. |                 |                       |            |   |           |

| Type | Tip shape | Type                 | Shank and tip dimensions (mm) |    |    |    |    |    |    |    | L  | 0.1mm |       | B    |      |         | (a) | U   |   |   |   |   |   |   |   |   |   |
|------|-----------|----------------------|-------------------------------|----|----|----|----|----|----|----|----|-------|-------|------|------|---------|-----|-----|---|---|---|---|---|---|---|---|---|
|      |           |                      | 3                             | 4  | 5  | 6  | 8  | 10 | 13 | 16 |    | 20    | T     | L 40 | L 50 | L 60-70 |     |     | M |   |   |   |   |   |   |   |   |
| VZP  | D         | BL<br>KL<br>FL<br>WL | 3                             | 4  | 5  | 6  | 8  | 10 | 13 | 16 | 20 | 40    | T ≥ 2 | 13   | 13   | —       | —   | 1.0 |   |   |   |   |   |   |   |   |   |
|      |           |                      | 4                             | 5  | 6  | 8  | 10 | 13 | 16 | 20 |    |       |       |      |      |         |     |     |   |   |   |   |   |   |   |   |   |
|      |           |                      | 5                             | 6  | 8  | 10 | 13 | 16 | 20 | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — |   |   |
|      |           | 6                    | 8                             | 10 | 13 | 16 | 20 | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — |   |   |
|      |           | 8                    | 10                            | 13 | 16 | 20 | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — |   |   |
|      |           | 10                   | 13                            | 16 | 20 | —  | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — | — |   |
|      | E         | BL<br>KL<br>FL<br>WL | 8                             | 10 | 13 | 16 | 20 | —  | —  | —  | —  | 50    | T ≥ 2 | 19   | 19   | 4       | 6   | 8   |   |   |   |   |   |   |   |   |   |
|      |           |                      | 10                            | 13 | 16 | 20 | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — |   |   |   |
|      |           |                      | 13                            | 16 | 20 | —  | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — | — |   |
|      |           | 16                   | 20                            | —  | —  | —  | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — | — |   |
|      |           | 20                   | —                             | —  | —  | —  | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — | — | — |
|      |           | —                    | —                             | —  | —  | —  | —  | —  | —  | —  | —  |       |       |      |      |         |     |     | — | — | — | — | — | — | — | — | — |

**Order** (1) If tip is at center of shank

| Catalog No. | V  | H  | L  | 0.001mm increments |         |            | 0.1mm increments | K·F·WF |
|-------------|----|----|----|--------------------|---------|------------|------------------|--------|
|             |    |    |    | P                  | W       | R (R only) | T                |        |
| VZPEBL      | 20 | 08 | 60 | P18.000            | W 4.000 |            |                  |        |
| VZPEML      | 20 | 10 | 70 | P16.000            | W 9.000 |            |                  |        |
| VZPEKL      | 10 | 06 | 60 | P 8.000            | W 5.000 |            |                  |        |
| VZPEFL      | 16 | 13 | 60 | P15.000            | W12.000 |            |                  |        |
| VZPEWL      | 13 | 10 | 40 | P 8.000            | W 5.000 |            |                  |        |

— T25.5 — K0  
— F90  
— WF90

(2) If tip is not at center of shank

| Catalog No. | V  | H  | L  | 0.001mm increments |         |            | 0.1mm increments | K·F·WF | 0.001mm increments |
|-------------|----|----|----|--------------------|---------|------------|------------------|--------|--------------------|
|             |    |    |    | P                  | W       | R (R only) | T                |        | X-Y                |
| VZPEFL      | 16 | 13 | 50 | P15.000            | W12.000 |            |                  |        | X0.000 - Y0.500    |

### Key groove position · flange position change (KEY POSITION ≠ 0)

| With key groove | Single flange | Double flanges |
|-----------------|---------------|----------------|
|                 |               |                |

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

**Alterations** Catalog No. V H L(LC) P(PC)·W(WC)·R T K·F·WF (BC·HC·TC, etc.)


VZPEBL 20 08 60.0 P18.000-WC1.500 T K·F·WF LKC-WK

| Alteration                 | Code | Spec.   | 1Code   |     |      |             |   |             |    |             |    |             |    |        |
|----------------------------|------|---|---|-----|------|-------------|---|-------------|----|-------------|----|-------------|----|--------|
| Alterations to tip         | PC   | Tip dimension change<br>$PC \geq V \times 0.3 \geq 1,000$<br>$WC \geq H \times 0.15 \geq 0,500$<br>0.001mm increments   |   |     |      |             |   |             |    |             |    |             |    |        |
|                            | WC   |   | <table border="1"> <tr> <th>P·W</th> <th>Bmax</th> </tr> <tr> <td>0.500~0.999</td> <td>8</td> </tr> <tr> <td>1.000~1.999</td> <td>13</td> </tr> <tr> <td>2.000~2.999</td> <td>20</td> </tr> <tr> <td>3.000~4.999</td> <td>30</td> </tr> <tr> <td>5.000~</td> <td>35</td> </tr> </table> | P·W | Bmax | 0.500~0.999 | 8 | 1.000~1.999 | 13 | 2.000~2.999 | 20 | 3.000~4.999 | 30 | 5.000~ |
| P·W                        | Bmax |   |   |     |      |             |   |             |    |             |    |             |    |        |
| 0.500~0.999                | 8    |   |   |     |      |             |   |             |    |             |    |             |    |        |
| 1.000~1.999                | 13   |   |   |     |      |             |   |             |    |             |    |             |    |        |
| 2.000~2.999                | 20   |   |   |     |      |             |   |             |    |             |    |             |    |        |
| 3.000~4.999                | 30   |   |   |     |      |             |   |             |    |             |    |             |    |        |
| 5.000~                     | 35   |   |   |     |      |             |   |             |    |             |    |             |    |        |
| Alterations to full length | BC   | Tip length change<br>$2 \leq BC \leq Bmax$<br>0.1mm increments<br>$L \geq BC + 30$<br>Full length (L) must be at least 30mm longer than tip length (BC).  |   |     |      |             |   |             |    |             |    |             |    |        |
|                            | LC   | Full length change $30 + B(BC) \leq LC < L$<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>If difference between full length (LC) and tip length (B) is 30mm or less, tip length is adjusted to (Full length - 30).                                    |   |     |      |             |   |             |    |             |    |             |    |        |
| Alteration to key groove   | LKC  | Full length tolerance $L + 0.1$<br>change   |   |     |      |             |   |             |    |             |    |             |    |        |
|                            | WK   | Addition of key groove at symmetrically opposite position<br>An additional key groove is added at a position symmetrically opposite to the specified key groove.<br>$H - \{2 \times U(UK)\} \geq 2$ (K0, K180)<br>$V - \{2 \times U(UK)\} \geq 2$ (K90, K270)<br>Can be combined with UK. |   |     |      |             |   |             |    |             |    |             |    |        |
| Alteration to key groove   | UK   | Key groove depth change<br>$0.5 \leq UK \leq U + 0.2$<br>0.1mm increments<br>$H(V) - UK \geq 2$<br>Can be combined with WK.   |   |     |      |             |   |             |    |             |    |             |    |        |

| Alteration            | Code | Spec.  | 1Code |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|-----------------------|------|--|-------|----|----|----|----|----|--|--|--|-------|--|--|--|--|--|-------|--|--|--|--|--|-------|--|--|--|--|--|-------|--|--|--|--|--|-------|--|--|--|
| Alterations to flange | HC   | Flange width change<br>$0 \leq HC < 1.5$<br>0.1mm increments   |       |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       | TC   | Flange thickness change $2 \leq TC < 5$<br>0.1mm increments<br>Full length L is shortened by $(5 - TC)$ .<br>If combined with LC, full length is equal to LC.  |       |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       | FK   | Relief chamfering to flange top edge<br>Flange edge is chamfered to prevent flange breakage.<br>Cannot be used for normal, tapped, and types with key grooves.   |       |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
| Alterations to tap    | MC   | Tap diameter change<br><table border="1"> <tr> <th>H</th> <th>8</th> <th>10</th> <th>13</th> <th>16</th> <th>20</th> </tr> <tr> <td></td> <td></td> <td></td> <td>M4→M3</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>M6→M5</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>M8→M6</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>M8→M6</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>M8→M6</td> <td></td> <td></td> </tr> </table><br>The dimensions are $M \times 2 + 4m$ (reference level). | H     | 8  | 10 | 13 | 16 | 20 |  |  |  | M4→M3 |  |  |  |  |  | M6→M5 |  |  |  |  |  | M8→M6 |  |  |  |  |  | M8→M6 |  |  |  |  |  | M8→M6 |  |  |  |
|                       | H    | 8  | 10    | 13 | 16 | 20 |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       |      |  | M4→M3 |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       |      |  | M6→M5 |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       |      |  | M8→M6 |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       |      |  | M8→M6 |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       |      |  | M8→M6 |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
| Others                | VHM  | Shank tolerance change<br>$V-H + 0.003$<br>change  |       |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |
|                       | DC   | Addition of press-in lead<br>Press-in lead 3mm ( $H.V. - 0.01$ ) is added.<br>Cannot be used for flanged types.  |       |    |    |    |    |    |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |  |  |       |  |  |  |

# PRECISION CARBIDE BLOCK PUNCHES WITH AIR HOLES

RoHS



**•Tip machining limit**

| Tip shape | Tip shape               | Tip shape |
|-----------|-------------------------|-----------|
| <b>D</b>  | <b>R</b>                | <b>E</b>  |
| P ≥ W     | P ≥ W<br>0.15 ≤ R < W/2 | P > W     |

| M<br>H                | Shank dimensions<br>V·H   | —Normal—          |                 |                  |
|-----------------------|---|-------------------|-----------------|------------------|
|                       |   | D <b>VZJDBL</b>   | R <b>VZJRBL</b> | E <b>VZJEBL</b>  |
| V30 (HIP)<br>88~89HRA | V·H<br>4~20   |                   |                 |                  |
| M<br>E                | Shank dimensions<br>V·H   | —With key groove— |                 |                  |
| V30 (HIP)<br>88~89HRA | V·H<br>4~20   |                   | D <b>VZJDKL</b> | R <b>VZJRKL</b>  |
| M<br>H                | Shank dimensions<br>V·H   | —Single flange—   |                 |                  |
| V30 (HIP)<br>88~89HRA | V·H<br>4~16<br><small>Cannot be used for products marked with ● in the specification table.</small> |                   | D <b>VZJDFL</b> | R <b>VZJRF L</b> |
| M<br>H                | Shank dimensions<br>V·H   | —Double flanges—  |                 |                  |
| V30 (HIP)<br>88~89HRA | V·H<br>4~16<br><small>Cannot be used for products marked with ● in the specification table.</small> |                   | D <b>VZJDWL</b> | R <b>VZJRWL</b>  |

| Catalog No. |             | Shank and tip dimensions (mm) |    |     |   |   |    |    |    | L | T | B  |    |    | d1×S   |        |        | d2  | U   |       |
|-------------|-------------|-------------------------------|----|-----|---|---|----|----|----|---|---|----|----|----|--------|--------|--------|-----|-----|-------|
| Type        | Tip shape   | Type                          | 4  | 5   | 6 | 8 | 10 | 13 | 16 |   |   | 20 | 40 | 50 | 60-70  | 40     | 50     |     |     | 60-70 |
| VZJ         | D<br>R<br>E | BL                            | 4  | 1.5 | ○ | ○ | ○  | ○  | ○  | ○ | ○ | 40 | 13 | 13 | 0.5×17 |        |        | 1.2 | 1.0 |       |
|             |             |                               | 5  | 2.0 | ○ | ○ | ○  | ○  | ○  | ○ | ○ |    |    |    | ○      | 0.8×17 |        | 2.1 |     |       |
|             |             |                               | 6  | 2.0 | ○ | ○ | ○  | ○  | ○  | ○ | ○ |    |    |    | ○      | 0.8×20 |        | 2.6 |     |       |
|             |             |                               | 8  | 2.5 | ○ | ○ | ○  | ○  | ○  | ○ | ○ |    |    |    | ○      |        |        | 3.4 |     |       |
|             |             | KL                            | 10 | 3.0 | ○ | ○ | ○  | ○  | ○  | ○ | ○ | ○  | 50 | 19 | 1.2×17 |        | 1.2×27 |     | 4.4 | 1.5   |
|             |             |                               | 13 | 3.0 | ○ | ○ | ○  | ○  | ○  | ○ | ○ | ○  |    |    | 1.6×17 |        | 1.6×28 |     |     |       |
|             |             |                               | 16 | 4.0 | ○ | ○ | ○  | ○  | ○  | ○ | ○ | ○  |    |    | 1.9×17 |        | 1.9×28 |     |     |       |
|             |             |                               | 20 | 5.0 | ○ | ○ | ○  | ○  | ○  | ○ | ○ | ○  |    |    | 2.9×17 |        | 2.9×36 |     |     |       |

**Order** (1) If tip is at center of shank

| Catalog No. | V  | H  | L  | 0.001mm increments |         | 0.1mm increments |  | K·F·WF |  |
|-------------|----|----|----|--------------------|---------|------------------|--|--------|--|
| VZJEBL      | 20 | 08 | 60 | P18.000            | W 4.000 | T                |  | KO     |  |
| VZJEKL      | 10 | 06 | 60 | P 8.000            | W 5.000 |                  |  | F90    |  |
| VZJEFL      | 16 | 13 | 60 | P15.000            | W12.000 |                  |  | WF90   |  |
| VZJEWL      | 13 | 10 | 40 | P 8.000            | W 5.000 |                  |  |        |  |

(2) If tip is not at center of shank: Cannot be changed. (Cannot be manufactured.)

**Key groove position · flange position change (KEY POSITION ≠ 0)**

| With key groove | Single flange | Double flanges |
|-----------------|---------------|----------------|
| K0, K90         | F0, F90       | WF0, WF90      |

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

**Price** **Quotation**

**Alterations** Catalog No. V H L(LC-LCX) P-W-R T K·F·WF (BC-HC-TC, etc.)  
 VZJEBL 20 08 60.0 P18.000-W3.000 LKC-DC

| Alteration                 | Code | Spec.  | 1Code            |
|----------------------------|------|--|------------------|
| Alterations to tip         | BC   | Tip length change<br>2 ≤ BC < B<br>0.1mm increments  |                  |
| Alterations to full length | LC   | Full length change<br>LC < L 0.1mm increments<br>(If combined with LKC, 0.01mm increments can be selected.)<br>Tip length B is shortened by (L-LC).  | <b>Quotation</b> |
|                            | LCX  | Full length change with the same tip length B<br>30+B(BC) ≤ LCX < L 0.1mm increments<br>If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length - 30mm).<br>If combined with LKC, 0.01mm increments can be selected.<br>Cannot be used for flanged types. |                  |
|                            | LKC  | Full length tolerance L +0.1 → +0.01 change  |                  |
| Alteration to key groove   | UK   | Key groove depth change<br>0.5 ≤ UK ≤ U+0.2<br>0.1mm increments<br>H(V) - (UK+d2) ≥ 2<br>Can be used for types with key grooves.   |                  |

| Alteration            | Code | Spec.   | 1Code            |
|-----------------------|------|---|------------------|
| Alterations to flange | TC   | Flange thickness change 2 ≤ TC < 5<br>0.1mm increments<br>Full length L is shortened by (5-TC).<br>If combined with LC, full length is equal to LC. |                  |
|                       | HC   | Flange width change<br>0 ≤ HC < 1.5<br>0.1mm increments   |                  |
| Others                | VHM  | Shank tolerance change<br>V·H +0.003 → 0<br>-0.003  | <b>Quotation</b> |
|                       | DC   | Addition of press-in lead<br>Press-in lead 3mm (H.V. -0.01 to -0.03) is added.<br>Cannot be used for flanged types.                                 |                  |

# PRECISION CARBIDE STRAIGHT PUNCHES

**RoHS** • Tip machining limit

Tip shape: **D** (Normal), **R** (Rounded), **E** (Chamfered)

$P \geq W$  (D, R)  
 $P \geq W$  and  $0.15 \leq R < \frac{W}{2}$  (R)  
 $P > W$  (E)

| Material              | Tip dimension P·W | Normal   | Tapped   | With key groove                                | Single flange                                     | Double flanges                                 |
|-----------------------|-------------------|--|--|--|---|--|
| V30 (HIP)<br>88~89HRA | 2.000~20.000      | <b>D</b> VZPCD, <b>R</b> VZPCR, <b>E</b> VZPCE | <b>D</b> VZMCD, <b>R</b> VZMCR, <b>E</b> VZMCE | <b>D</b> VZKCD, <b>R</b> VZKCR, <b>E</b> VZKCE | <b>D</b> VZFC D, <b>R</b> VZFC R, <b>E</b> VZFC E | <b>D</b> VZWCD, <b>R</b> VZWCR, <b>E</b> VZWCE |
| V30 (HIP)<br>88~89HRA | 12.000~20.000     |  |  |  |   |  |
| V30 (HIP)<br>88~89HRA | 2.000~16.000      |  |  |  |   |  |
| V30 (HIP)<br>88~89HRA | 2.000~16.000      |  |  |  |   |  |

| Catalog No. | Type | Tip shape | L  | W           | P           | 2.000<br>5.000 | 5.001<br>10.000 | 10.001<br>16.000 | 16.001<br>20.000 | 0.1mm increments | T   | U |
|-------------|------|-----------|----|-------------|-------------|----------------|-----------------|------------------|------------------|------------------|-----|---|
| VZPC        | D    | R         | 40 | 2.000~3.000 | 3.001~4.000 | ○              | ○               | ○                | ●                | T $\geq$ 2       | 1.0 |   |
| VZKC        |      |           |    |             |             | ○              | ○               | ○                | ●                |                  |     |   |
| VZFC        |      |           |    |             |             | ○              | ○               | ○                | ●                |                  |     |   |
| VZWC        |      |           |    |             |             | ○              | ○               | ○                | ●                |                  |     |   |
|             |      |           |    |             |             | ○              | ○               | ○                | ●                |                  |     |   |

| Catalog No. | Type | Tip shape | L  | W             | P             | 12.000<br>16.000 | 16.001<br>20.000 | M | (a) |               |               |    |               |    |               |
|-------------|------|-----------|----|---------------|---------------|------------------|------------------|---|-----|---------------|---------------|----|---------------|----|---------------|
| VZMC        | D    | R         | 40 | 12.000~13.000 | 13.001~16.000 | ○                | ○                | 8 | 10  |               |               |    |               |    |               |
| VZMC        |      |           |    |               |               | R                | 50               |   |     | 13.001~16.000 | 16.001~20.000 | ○  | ○             |    |               |
|             |      |           |    |               |               |                  |                  |   |     |               |               | 60 | 16.001~20.000 | ○  | ○             |
|             |      |           |    |               |               |                  |                  |   |     |               |               |    |               | 70 | 16.001~20.000 |

Order: **Catalog No.** - L - P - W - R (R only) - T - K·F·WF

0.001mm increments

VZPCD - 60 - P14.280 - W9.280  
 VZMCR - 60 - P15.000 - W12.000 - R0.300  
 VZKCR - 60 - P14.280 - W9.280 - R0.500 - T25.5 - K0  
 VZFC E - 60 - P10.000 - W5.500 - F0  
 VZWC E - 60 - P12.010 - W8.050 - WFO

Days to Ship **Quotation**

Price **Quotation**

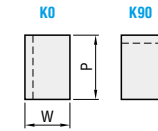
Alterations **Catalog No.** - L(LC) - P - W - R - T - K·F·WF - (HC·TC·LKC, etc.) - LKC

VZPCD - LC65.5 - P5.80 - W5.20

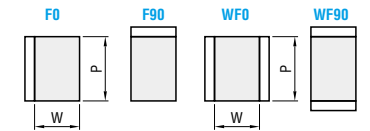
| Alteration                 | Code | Spec.   | 1Code            |
|----------------------------|------|---|------------------|
| Alterations to full length | LC   | Full length change<br>20 $\leq$ LC<L<br>0.1mm increments<br>(If combined with LKC, 0.01mm increments can be selected.)  |                  |
|                            | LKC  | Full length tolerance change<br>L+0.1 $\rightarrow$ +0.01   |                  |
| Alterations to key groove  | WK   | Addition of key groove at symmetrically opposite position<br>An additional key groove is added at a position symmetrically opposite to the specified key groove.<br>W - (2 $\times$ U (UK)) $\geq$ 2 (K0)<br>P - (2 $\times$ U (UK)) $\geq$ 2 (K90)<br>Can be combined with UK. | <b>Quotation</b> |
|                            | UK   | Key groove depth change<br>0.5 $\leq$ UK $\leq$ U+0.2<br>0.1mm increments<br>W(P) - UK $\geq$ 2<br>Can be combined with WK.   |                  |
| Alterations to flange      | HC   | Flange width change<br>0 $\leq$ HC<1.5<br>0.1mm increments  |                  |
|                            | TC   | Flange thickness change 2 $\leq$ TC<5<br>0.1mm increments<br>Full length L is shortened by (5-TC).<br>If combined with LC, full length is equal to LC.  |                  |
|                            | FK   | Relief chamfering to flange top edge<br>Flange edge is chamfered to prevent flange breakage.<br>Cannot be used for normal, tapped, and types with key grooves.  |                  |

| Alteration                  | Code | Spec.   | 1Code            |
|-----------------------------|------|---|------------------|
| Alterations to tap diameter | MC   | Tap diameter change<br>For change from M8 to M6<br>The dimensions are M $\times$ 2+4m (reference level).  |                  |
| Others                      | PHM  | Shank diameter tolerance<br>P·W+0.003 $\rightarrow$ P·W-0.003   | <b>Quotation</b> |
|                             | CCN  | Chamfering to shank (4 positions)<br>5 $\leq$ CCN $\leq$ L (LC) 1mm increments<br>Can be used for tip shape D only.<br>Flange side of flanged punch becomes CCN-T (TC). |                  |

## Key groove position specified



## Flange position specified



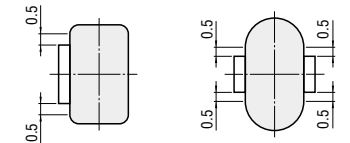
Tip shape E Can be selected for F0-WFO only.

For F90 or WF90, H dimension is as shown below.

Tip shape D : H=W


Tip shape R : 2 $\leq$ W-2R-1 H=W-2R-1

Flanged types (both single flange and double flanges) with shapes R·E are provided with 0.5 mm straight parts on each of the flange sides.



# PRECISION CARBIDE STRAIGHT PUNCHES WITH AIR HOLES

RoHS



**•Tip machining limit**

Tip shape **D**

$P \geq W$

Tip shape **R**

$P \geq W$   
 $0.15 \leq R < \frac{W}{2}$

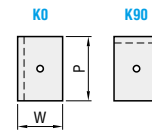
Tip shape **E**

$P > W$

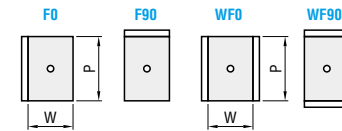
| Material           | Tip dimension P·W  | Normal          | Tip shape |          |          |
|--------------------|--|-----------------|-----------|----------|----------|
|                    |  |                 | D VZJCD   | R VZJCR  | E VZJCE  |
| V30 (HIP) 88~89HRA | P-W 4.000~20.000   |                 |           |          |          |
| Material           | Tip dimension P·W  | With key groove | Tip shape |          |          |
|                    |  |                 | D VZJKCD  | R VZJKCR | E VZJKCE |
| V30 (HIP) 88~89HRA | P-W 4.000~20.000   |                 |           |          |          |
| Material           | Tip dimension P·W  | Single flange   | Tip shape |          |          |
|                    |  |                 | D VZJFCD  | R VZJFCR | E VZJFCE |
| V30 (HIP) 88~89HRA | P-W 4.000~16.000<br><small>Cannot be used for products marked with ● in the specification table.</small> |                 |           |          |          |
| Material           | Tip dimension P·W  | Double flanges  | Tip shape |          |          |
|                    |  |                 | D VZJWCD  | R VZJWCR | E VZJWCE |
| V30 (HIP) 88~89HRA | P-W 4.000~16.000<br><small>Cannot be used for products marked with ● in the specification table.</small> |                 |           |          |          |

| Catalog No.                     | Type | Tip shape | L  | W           | P              |                |                |                 |                  |                  |                  | 0.1mm increments<br>T | d1×S   |      |         | d2     | U   |
|---------------------------------|------|-----------|----|-------------|----------------|----------------|----------------|-----------------|------------------|------------------|------------------|-----------------------|--------|------|---------|--------|-----|
|                                 |      |           |    |             | 4.000<br>5.000 | 5.001<br>6.000 | 6.001<br>8.000 | 8.001<br>10.000 | 10.001<br>13.000 | 13.001<br>16.000 | 16.001<br>20.000 |                       | L=40   | L=50 | L=60-70 |        |     |
| VZJC<br>VZJCC<br>VZJFC<br>VZJWC | D    | R         | 40 | 4.000~5.000 | ○              | ○              | ○              | ○               | ○                | ○                | ○                | T ≥ 2                 | 0.5×17 |      |         | 1.2    | 1.0 |
|                                 |      |           |    |             | ○              | ○              | ○              | ○               | ○                | ○                | 0.8×17           |                       | 0.8×20 | 2.6  |         |        |     |
|                                 |      |           |    |             | ○              | ○              | ○              | ○               | ○                | ○                | 1.2×17           |                       | 1.2×27 | 3.4  |         |        |     |
|                                 |      |           |    |             | ○              | ○              | ○              | ○               | ○                | ○                | 1.6×17           |                       | 1.6×28 | 4.4  | 1.5     |        |     |
|                                 |      |           |    |             | ○              | ○              | ○              | ○               | ○                | ○                | 1.9×17           |                       | 1.9×28 |      |         |        |     |
|                                 |      |           |    |             | ○              | ○              | ○              | ○               | ○                | ○                | 2.9×17           |                       | 2.9×24 |      |         | 2.9×36 |     |
|                                 |      |           |    |             | ○              | ○              | ○              | ○               | ○                | ○                | ○                |                       |        |      |         |        |     |

**Key groove position specified**



**Flange position specified**



- Tip shape **E**, can be selected for FO, WFO only.
- For F90 or WF90, H dimension is as shown below.

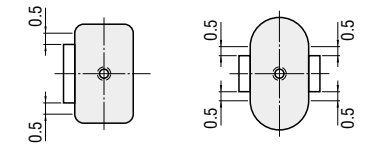
Tip shape **D**:  $H=W$   
 Tip shape **R**:  $2 \leq W-2R-1$   $H=W-2R-1$

- Flanged types (both single flange and double flanges) with shapes **R**·**E** are provided with 0.5 mm straight parts on each of the flange sides.

**Order**

Catalog No. — L — **0.001mm increments** — P — W — R (R only) — T ≥ 2 — K·F·WF

VZJCD — 60 — P14.281 — W9.281  
 VZJKCR — 60 — P14.281 — W9.281 — R0.500 — T25.5 — KO  
 VZJFCE — 60 — P13.182 — W6.502 — FO  
 VZJWCD — 60 — P14.280 — W14.280 — WF90



**Days to Ship** Quotation

**Price** Quotation

**Alterations**



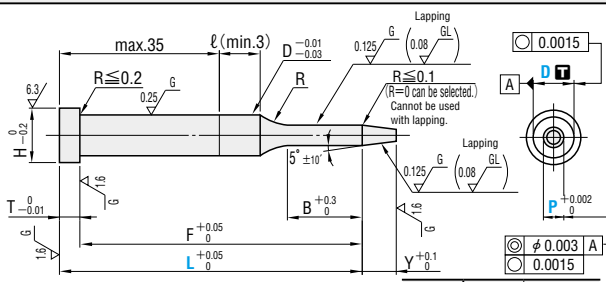

Catalog No. — L(LC·LCX) — P — W — R — T — K·F·WF — (HC·TC·LKC, etc.) — LKC

VZJCD — LC65.5 — P5.801 — W5.201 — LKC

| Alteration                 | Code | Spec.  | 1Code   |
|----------------------------|------|--|---|
| Alterations to full length | LC   | Full length change<br>LC < L<br>0.1mm increments<br>(If combined with LKC, 0.01mm increments can be selected.)<br>S dimension is shortened by (L-LC).  | <span style="border: 1px solid black; padding: 2px;">Quotation</span> |
|                            | LCX  | Full length change with the same S dimension<br>30 ≤ LCX < L<br>0.1mm increments<br>If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length-30mm).<br>(If combined with LKC, 0.01mm increments can be selected.)<br>Cannot be used for flanged types. |   |
|                            | LKC  | Full length tolerance change<br>$L +0.1$ $\Rightarrow$ $+0.01$   |   |
| Alteration to key groove   | UK   | Key groove depth change<br>$0.5 \leq UK \leq U + 0.2$<br>0.1mm increments<br>$W(P) - d_2(d_1) \geq 2$  |   |


| Alteration            | Code | Spec.  | 1Code   |
|-----------------------|------|--|---|
| Alterations to flange | TC   | Flange thickness change<br>$2 \leq TC < 5$<br>0.1mm increments<br>Full length L is shortened by (5-TC).<br>If combined with LC, full length is equal to LC.            | <span style="border: 1px solid black; padding: 2px;">Quotation</span> |
|                       | HC   | Flange width change<br>$0 \leq HC < 1.5$<br>0.1mm increments   |   |
|                       | FK   | Relief chamfering to flange top edge<br>Flange edge is chamfered to prevent flange breakage.<br>Cannot be used for normal, tapped, and types with key grooves.         |   |
| Others                | PHM  | Shank tolerance change<br>$P-W +0.003$ $\Rightarrow$ $0$ $\Rightarrow$ $-0.003$  |   |
|                       | CCN  | Chamfering to shank (4 positions)<br>$5 \leq CCN \leq L$ 1mm increments<br>Can be used for tip shape <b>D</b> only.<br>Flange side of flanged punch becomes CCN-T(TC). |   |

# PRECISION CARBIDE PILOT PUNCHES

| Type  | RoHS  | Catalog No.      | Shape  |
|---|---|------------------|--|
|  |  | VTPAS<br>VTPAL   |  |
|  |   | VXTPAS<br>VXTPAL |  |

| Type                       | D   | L   |     |    |    |    |    | 0.001mm increments |       | B     | H     | Y   | T     |       |   |
|----------------------------|-----|-----|-----|----|----|----|----|--------------------|-------|-------|-------|-----|-------|-------|---|
|                            |     | 2.0 | 2.5 | 3  | 4  | 5  | 6  | min.               | max.  |       |       |     |       |       |   |
| Lapping<br>VTPAS<br>VXTPAS | 2.0 | 22  | 27  | 32 | 37 | 42 | 47 | 52                 | 1.000 | ~     | 1.990 | 8   | 3.0   | 4     | 3 |
|                            | 2.5 | 22  | 27  | 32 | 37 | 42 | 47 | 52                 | 1.000 | ~     | 2.490 |     |       |       |   |
|                            | 3   |     |     | 42 | 47 | 52 | 57 | 62                 | 1.000 | ~     | 2.990 | 10  | 5     | 5     |   |
|                            | 4   |     |     | 42 | 47 | 52 | 57 | 62                 | 67    | 72    | 1.000 |     |       |       | ~ |
|                            | 5   |     |     | 42 | 47 | 52 | 57 | 62                 | 67    | 72    | 2.000 | ~   | 4.990 |       |   |
|                            | 6   |     |     | 42 | 47 | 52 | 57 | 62                 | 67    | 72    | 2.000 | ~   | 5.990 |       |   |
| Lapping<br>VTPAL<br>VXTPAL | 2.0 |     | 32  | 37 | 42 | 47 | 52 | 1.000              | ~     | 1.990 | 10    | 3.0 | 4     | 3     |   |
|                            | 2.5 |     | 32  | 37 | 42 | 47 | 52 | 1.000              | ~     | 2.490 |       |     |       |       |   |
|                            | 3   |     |     | 52 | 57 | 62 |    | 1.000              | ~     | 2.990 | 15    | 7   | 5     |       |   |
|                            | 4   |     |     | 52 | 57 | 62 | 67 | 72                 | 1.000 | ~     |       |     |       | 3.990 |   |
|                            | 5   |     |     | 52 | 57 | 62 | 67 | 72                 | 2.000 | ~     | 4.990 |     |       |       |   |
|                            | 6   |     |     | 52 | 57 | 62 | 67 | 72                 | 2.000 | ~     | 5.990 |     |       |       |   |

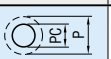
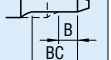
⚠ P>D-0.03 → ℓ=0 If P>D-0.03, D<sup>-0.01</sup>/<sub>-0.03</sub> (press-in lead) is not included.



 Order **Catalog No.** - L - P - (R)  
 VTPAS 4 - 42 - P1.998  
 VXTPAL 5 - 57 - P2.301 - R0  
 ⚠ Only R=0 can be selected (except lapping).

 Price **Quotation**



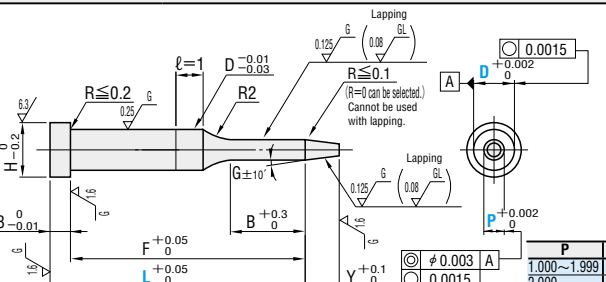

 Days to Ship **Quotation**



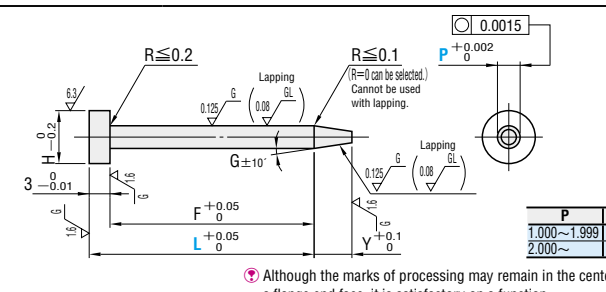

 Alterations **Catalog No.** - L(LC) - P(PC) - (R) - (BC-YC-HC-TC, etc.)  
 VTPAS 4 - LC45.0 - P1.998 - YC3.0

| Alteration  | Code | Spec.  | 1Code  |
|---|------|--|--|
|  | PC   | Tip diameter change<br>PC ≥ Pmin./2 ≥ 1.000<br>0.001mm increments  | ⚠ Y is Ymax.<br>P Bmax/Ymax<br>1.000~1.999 15 4<br>2.000~ 22 5 |
|   | BC   | Tip length change<br>D ≤ 2.5 2 ≤ BC < B<br>D ≥ 3 2 ≤ BC ≤ Bmax.<br>⚠ Full length L must be 25mm longer than tip length BC. 0.1mm increments  |  |
|  | YC   | Tip taper length change<br>1 ≤ YC ≤ Ymax<br>0.1mm increments   | P Ymax.<br>1.000~1.999 4<br>2.000~ 5                           |
|   | LC   | Full length change<br>D ≤ 2.5 22 < LC < 52<br>0.1mm increments<br>D ≥ 3 25 + B(BC) ≤ LC < L<br>0.1mm increments<br>⚠ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length - 25mm).<br>⚠ For LC32.1 ~ LC36.9, D <sup>-0.01</sup> / <sub>0</sub> is 0. |  |

| Alteration  | Code | Spec.  | 1Code   |
|---|------|--|---|
|  | HC   | Head diameter change<br>D ≤ HC < H<br>0.1mm increments | ⚠ Full length L is shortened by (T - TC).<br>If combined with LC, full length is equal to LC.           |
|   | TC   | Head thickness change 2 ≤ TC < T<br>0.1mm increments   |   |
|  | KC   | Addition of single key flat to head                    | ⚠ Full length L must be at least 8mm longer than tip length BC.<br>⚠ Cannot be used for straight types. |
|   | WKC  | Addition of double key flats in parallel               |   |
| Shank   | NDC  | No press-in lead<br>ℓ ≥ 3 → ℓ = 0                      |   |


# PRECISION CARBIDE PILOT PUNCHES FOR FIXING TO STRIPPER PLATE

| Type  | RoHS  | Catalog No. | Shape   |
|---|---|-------------|---|
|  |  | VTPTP       |  |
|  |   | VXTPTP      |   |

| Type  | RoHS  | Catalog No. | Shape   |
|---|---|-------------|---|
|  |  | VTPT        |  |
|  |   | VXTPT       |   |

| Type                       | D   | L                |                    | B | Y | H |               |
|----------------------------|-----|------------------|--------------------|---|---|---|---------------|
|                            |     | 0.1mm increments | 0.001mm increments |   |   |   |               |
| Lapping<br>VTPTP<br>VXTPTP | 2.0 | 12.0 ~ 32.0      | min. P max.        | 4 | 1 | 3 |               |
|                            | 2.5 |                  |                    |   |   |   | 0.500 ~ 1.990 |
|                            | 3   |                  |                    |   |   |   | 1.000 ~ 2.490 |
|                            | 4   |                  |                    |   |   |   | 1.000 ~ 2.990 |
|                            | 5   |                  |                    |   |   |   | 2.000 ~ 3.990 |
|                            | 6   |                  |                    |   |   |   | 2.000 ~ 4.990 |
| Straight<br>VTPT<br>VXTPT  | 2.0 | 12.0 ~ 23.0      | min. P max.        | 2 | 2 | 3 |               |
|                            | 2.5 |                  |                    |   |   |   | 1.000 ~ 2.500 |
|                            | 3   |                  |                    |   |   |   | 1.500 ~ 2.500 |
|                            | 4   |                  |                    |   |   |   | 2.000 ~ 3.000 |
|                            | 5   |                  |                    |   |   |   | 3.000 ~ 4.000 |
|                            | 6   |                  |                    |   |   |   | 4.000 ~ 5.000 |

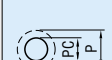
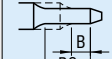
⚠ P>D-0.03 → ℓ=0 If P>D-0.03, D<sup>-0.01</sup>/<sub>-0.03</sub> (press-in lead) is not included.



 Order **Catalog No.** - L - P - (R)  
 VTPTP3 - 23.0 - P1.998  
 VTPT2.5 - 23.0 - P1.998 - R0  
 ⚠ Only R=0 can be selected (except lapping).

 Price **Quotation**

 Days to Ship **Quotation**

 Alterations **Catalog No.** - L - P(PC) - (R) - (BC-YC-HC-TC, etc.)  
 VTPTP 3 - 18 - PC0.900 - YC1.0

| Alteration  | Code | Spec.   | 1Code  |
|---|------|---|--|
|  | PC   | Tip diameter change<br>PC ≥ Pmin./2 ≥ 0.5<br>0.001mm increments           | ⚠ Y is Ymax.<br>P Bmax/Ymax<br>0.500~0.999 6 1<br>0.800~0.999 8 1<br>1.000~1.499 13 2<br>1.500~1.999 13 3<br>2.000~2.499 19 3<br>2.500~ 19 4 |
|   | BC   | Tip length change<br>2 ≤ BC ≤ Bmax.<br>0.1mm increments                   |  |
|  | YC   | Tip taper length change<br>1 ≤ YC ≤ Ymax.<br>0.1mm increments             | P Ymax.<br>1.000~1.499 2<br>1.500~2.499 3<br>2.500~ 4  |
|   | NDC  | No press-in lead<br>ℓ = 1 → ℓ = 0<br>⚠ Cannot be used for straight types. |  |

| Alteration  | Code | Spec.   | 1Code                                 |
|---|------|---|---------------------------------------|
|  | HC   | Head diameter change<br>D - P ≤ HC < H<br>0.1mm increments                | ⚠ Full length L remains as specified. |
|   | TC   | Head thickness change 2 ≤ TC < 3<br>0.1mm increments                      |                                       |
|  | KC   | Addition of single key flat to head                                       | ⚠ Full length L remains as specified. |
|   | WKC  | Addition of double key flats in parallel                                  |                                       |
| Shank   | NDC  | No press-in lead<br>ℓ = 1 → ℓ = 0<br>⚠ Cannot be used for straight types. |                                       |

# PRECISION ANGULAR BUTTON DIES

— FULLY TAPERED TYPE —

| Type       | Material   | Catalog No. | Shape |
|------------|--|-------------|-------|
| —Headed—   | RoHS<br>D3~5 SKH51<br>61~64HRC<br>D6~10<br>Equivalent to SKD11<br>60~63HRC | VSAHD       |       |
|            | Powdered high-speed steel<br>64~67HRC                                      | VPAHD       |       |
|            | Carbide V40 (HIP)<br>87~88HRA  | VWAHD       |       |
| —Straight— | RoHS<br>D3~5 SKH51<br>61~64HRC<br>D6~8<br>Equivalent to SKD11<br>60~63HRC  | VSASD       |       |
|            | Powdered high-speed steel<br>64~67HRC                                      | VPASD       |       |
|            | Carbide V40 (HIP)<br>87~88HRA  | VWASD       |       |

| Catalog No.                       |                                     | D  | L                   | 0.001mm increments |        | H | T | Base unit price for headed type |       |       | Base unit price for straight type |       |       |
|-----------------------------------|-------------------------------------|----|---------------------|--------------------|--------|---|---|---------------------------------|-------|-------|-----------------------------------|-------|-------|
| Type                              | Type                                |    |                     | min.               | P max. |   |   | VSAHD                           | VPAHD | VWAHD | VSASD                             | VPASD | VWASD |
| Headed<br>VSAHD<br>VPAHD<br>VWAHD | Straight<br>VSASD<br>VPASD<br>VWASD | 3  | 8 13 16 20 22 25 30 | 0.500 ~ 1.000      | 4      | 3 | 5 | 11                              | 13    |       |                                   |       |       |
|                                   |                                     | 4  |                     | 0.500 ~ 1.500      | 5      |   |   |                                 |       |       |                                   |       |       |
|                                   |                                     | 5  |                     | 0.500 ~ 2.500      | 6      |   |   |                                 |       |       |                                   |       |       |
|                                   |                                     | 6  |                     | 1.000 ~ 3.000      | 9      |   |   |                                 |       |       |                                   |       |       |
|                                   |                                     | 8  |                     | 1.000 ~ 4.000      | 11     |   |   |                                 |       |       |                                   |       |       |
| 10                                | 2.000 ~ 6.000                       | 13 |                     |                    |        |   |   |                                 |       |       |                                   |       |       |

☞ In some cases, a straight portion of up to 1 mm may be created at the shaped hole part.

Order **Catalog No.** — **L** — **P**  
**VSAHD 8** — **20** — **P3.300**

Days to Ship **Quotation**

☞ If L=8, press-in lead  $D_{-0.01}^{-0.01}$  is not included.  
 ☞ For VWAHD, press-in lead  $D_{-0.03}^{-0.01}$  is not included.  
 ☞ Relieve machining is not performed for VWAHD under-head.  
 Instead,  $R \leq 0.2$  in case of D3~5 and  $R \leq 0.5$  in case of D6~10.

Alterations **Catalog No.** — **L(LC)** — **P** — (HC-TC, etc.)  
**VSAHD 6** — **16** — **P2.475** — **HC8.0**

Price **Quotation**

| Alteration                 | Code | Spec.  | 1Code     |   |   |   |   |   |                   |
|----------------------------|------|--|-----------|---|---|---|---|---|-------------------|
| Alterations to full length | LC   | Full length change<br>$10 \leq LC < L$<br>0.01mm increments<br>☞ Press-in lead is shortened by (L-LC).   | Quotation |   |   |   |   |   |                   |
|                            | LKC  | Full length tolerance change<br>$L_{+0.05}^{-0.05} \rightarrow +0.01$<br>☞ Cannot be used for L < 16.  |           |   |   |   |   |   |                   |
| Alterations to head        | KC   | Addition of single key flat to head<br>☞ Cannot be used for straight types.  | Quotation |   |   |   |   |   |                   |
|                            | WKC  | Addition of double key flats in parallel<br>☞ Cannot be used for straight types.   |           |   |   |   |   |   |                   |
|                            | KFC  | Double key flats at 0° and a selected angle 1° increments<br>☞ Cannot be combined with KC-WKC.<br>☞ Cannot be used for L < 16.<br>☞ Cannot be used for straight types.   |           |   |   |   |   |   |                   |
| Alterations to head        | HC   | Head diameter change<br>$D \leq HC < H$<br>0.1mm increments ☞ Cannot be used for straight types.   | Quotation |   |   |   |   |   |                   |
|                            | TC   | Head thickness change $2 \leq TC < T$<br>0.01mm increments<br>☞ Full length L is shortened by (T-TC).<br>☞ If combined with LC, full length is equal to LC.<br>☞ Cannot be used for straight types.            |           |   |   |   |   |   |                   |
| Alterations to shank       | KM   | Addition of key groove to prevent lifting<br>☞ Cannot be used for headed types.<br>☞ Cannot be used for D < 6.   | Quotation |   |   |   |   |   |                   |
|                            |      | <table border="1"> <tr> <th>D</th> <th>h</th> <th>ℓ</th> </tr> <tr> <td>6</td> <td>1</td> <td><math>5 \leq \ell &lt; L</math></td> </tr> <tr> <td>8</td> <td>1.5</td> <td>0.1mm increments</td> </tr> </table> |           | D | h | ℓ | 6 | 1 | $5 \leq \ell < L$ |
| D                          | h    | ℓ  |           |   |   |   |   |   |                   |
| 6                          | 1    | $5 \leq \ell < L$  |           |   |   |   |   |   |                   |
| 8                          | 1.5  | 0.1mm increments   |           |   |   |   |   |   |                   |

**EX** Example

When a thin sheet of 0.5mm or less is punched using a button die with rear relief, scrap may be turned due to the level difference between the straight portion of shaped hole and the relief hole. As a result, the scrap may adhere to the die wall, resulting in scrap clogging.

- An angular relief hole tapered at a very slight angle from the end of the shaped hole prevents scraps from being turned, reducing trouble caused by scrap clogging.
- The effects of this non-clogging effect improves with shorter full length of button die relative to the P dimension.

# PRECISION CARBIDE ANGULAR BUTTON DIES

| Type       | Material                           | Catalog No. | Shape |
|------------|------------------------------------|-------------|-------|
| —Headed—   | RoHS<br>V40 (HIP)<br>87~88HRA      | VAHD        |       |
|            | Super fine grain (HIP)<br>90~92HRA | VXAH        |       |
| —Straight— | RoHS<br>V40 (HIP)<br>87~88HRA      | VASD        |       |
|            | Super fine grain (HIP)<br>90~92HRA | VXASD       |       |

| Catalog No.            |                           | D  | L              | 0.001mm increments |        | H | T |
|------------------------|---------------------------|----|----------------|--------------------|--------|---|---|
| Type                   | Type                      |    |                | min.               | P max. |   |   |
| Headed<br>VAHD<br>VXAH | Straight<br>VASD<br>VXASD | 3  | 13 16 20 22 25 | 0.500 ~ 1.000      | 4      | 3 | 5 |
|                        |                           | 4  |                | 0.500 ~ 1.500      | 5      |   |   |
|                        |                           | 5  |                | 0.500 ~ 2.500      | 6      |   |   |
|                        |                           | 6  |                | 1.000 ~ 3.000      | 9      |   |   |
|                        |                           | 8  |                | 1.000 ~ 4.000      | 11     |   |   |
| 10                     | 2.000 ~ 6.000             | 13 |                |                    |        |   |   |

Order **Catalog No.** — **L** — **P**  
**VAHD 6** — **20** — **P2.500**

Days to Ship **Quotation**

Price **Quotation**

Alterations **Catalog No.** — **L(LC)** — **P** — (BC-HC-TC, etc.)  
**VAHD 6** — **LC18** — **P2.500** — **LKC**

| Alteration                 | Code | Spec.  | 1Code     |   |   |   |   |   |                   |
|----------------------------|------|--|-----------|---|---|---|---|---|-------------------|
| Shaped hole                | BC   | Shaped hole depth change<br>$1 \leq BC \leq B_{max}$<br>0.1mm increments   | Quotation |   |   |   |   |   |                   |
|                            | LC   | Full length change for headed types<br>$L - 3 \leq LC < L$<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>Full length change for straight types<br>$8 \leq LC < L$<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) |           |   |   |   |   |   |                   |
| Alterations to full length | LKC  | Full length tolerance change<br>$L_{+0.1}^{-0.1} \rightarrow +0.01$<br>☞ Cannot be used for L < 16.  | Quotation |   |   |   |   |   |                   |
|                            | KC   | Addition of single key flat to head<br>☞ Cannot be used for straight types.  |           |   |   |   |   |   |                   |
|                            | WKC  | Addition of double key flats in parallel<br>☞ Cannot be used for straight types.   |           |   |   |   |   |   |                   |
| Alterations to head        | KC   | Addition of single key flat to head<br>☞ Cannot be used for straight types.  | Quotation |   |   |   |   |   |                   |
|                            | WKC  | Addition of double key flats in parallel<br>☞ Cannot be used for straight types.   |           |   |   |   |   |   |                   |
|                            | KFC  | Double key flats at 0° and a selected angle 1° increments<br>☞ Cannot be combined with KC-WKC.<br>☞ Cannot be used for L < 16.<br>☞ Cannot be used for straight types.   |           |   |   |   |   |   |                   |
| Alterations to shank       | KM   | Addition of key groove to prevent lifting<br>☞ Cannot be used for D < 6. ☞ Cannot be used for headed types.  | Quotation |   |   |   |   |   |                   |
|                            |      | <table border="1"> <tr> <th>D</th> <th>h</th> <th>ℓ</th> </tr> <tr> <td>6</td> <td>1</td> <td><math>5 \leq \ell &lt; L</math></td> </tr> <tr> <td>8</td> <td>1.5</td> <td>0.1mm increments</td> </tr> </table>   |           | D | h | ℓ | 6 | 1 | $5 \leq \ell < L$ |
| D                          | h    | ℓ  |           |   |   |   |   |   |                   |
| 6                          | 1    | $5 \leq \ell < L$  |           |   |   |   |   |   |                   |
| 8                          | 1.5  | 0.1mm increments   |           |   |   |   |   |   |                   |

PRECISION PUNCHES & DIES

| Type       | RoHS        | Catalog No.   | Shape |
|------------|-------------|---|-------|
| —Headed—   | <b>RoHS</b> | V40 (HIP)<br>87~88HRA<br><b>SR-VAHD</b>               |       |
|            |             | Super fine grain (HIP)<br>90~92HRA<br><b>SR-VXAH</b>  |       |
| —Straight— | <b>RoHS</b> | V40 (HIP)<br>87~88HRA<br><b>SR-VASD</b>               |       |
|            |             | Super fine grain (HIP)<br>90~92HRA<br><b>SR-VXASD</b> |       |

| Type     | D        | L             | 0.001mm increments<br>min. P max. | MT<br>(workpiece material thickness)<br>0.01mm increments             | C<br>(clearance)<br>0.001mm increments              | H  | T |
|----------|----------|---------------|-----------------------------------|---|---|----|---|
|          |          |               |                                   |   |   |    |   |
| Headed   | 3        | 13            | 0.800 ~ 1.000                     | MT ≥ 0.10<br>Select a workpiece material thickness of 0.10mm or more. | C ≥ 0.005<br>Select a clearance of 0.005mm or more. | 4  | 3 |
| Straight | 4        | 16            | 0.800 ~ 1.500                     |   |   | 5  |   |
|          | SR-VAHD  | SR-VASD       | 0.800 ~ 2.500                     |   |   | 6  |   |
| SR-VXAH  | SR-VXASD | 1.000 ~ 3.000 | 9                                 |   |   |    |   |
|          | 6        | 20            | 1.000 ~ 4.000                     |   |   | 11 |   |
|          | 8        | 22            | 2.000 ~ 6.000                     |   |   | 13 |   |

Can be used only for workpiece materials with tensile strengths up to 1177 N/mm<sup>2</sup> (120kgf/mm<sup>2</sup>).  
Workpiece material thickness and clearance are used as machining data for the scrap retention. Specify the shaped hole dimension (P) when selecting the button die finishing dimensions.

Order: **Catalog No.** SR-VAHD 6 - **L** 20 - **P** P2.500 - **MT** MT1.50 - **C** C0.105 **Price** **Quotation**

Days to Ship: **Quotation**

Alterations: **Catalog No.** SR-VAHD 6 - **L(LC)** LC18.5 - **P** P2.500 - **MT** MT1.50 - **C** C0.105 - **(BC-HC-TC, etc.)** LKC

| Alteration                 | Code | Spec.   | 1Code            |
|----------------------------|------|---|------------------|
| Shaped hole                | BC   | Shaped hole depth change<br>1 ≤ BC < 2<br>0.1mm increments  |                  |
| Alterations to full length | LC   | Full length change for headed types<br>10 ≤ LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>Full length change for straight types<br>8 ≤ LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) | <b>Quotation</b> |
|                            | LKC  | Full length tolerance change<br>L +0.1 → +0.01<br>Cannot be used for L < 16.  |                  |
| Alterations to head        | KC   | Addition of single key flat to head<br>Cannot be used for straight types. Cannot be combined with KFC.  | <b>Quotation</b> |
|                            | WKC  | Addition of double key flats in parallel<br>Cannot be used for straight types. Cannot be combined with KFC.   |                  |
|                            | KFC  | Double key flats at 0° and a selected angle 1° increments<br>Cannot be combined with KC-WKC.<br>Cannot be used for L < 16.<br>Cannot be used for straight types.  |                  |
|                            | HC   | Head diameter change<br>D ≤ HC < H<br>0.1mm increments<br>Cannot be used for straight types.  |                  |

| Alteration           | Code | Spec.  | 1Code            |
|----------------------|------|--|------------------|
| Head                 | TC   | Head thickness change 2 ≤ TC < T<br>0.1mm increments<br>Full length is shortened by (T-TC).<br>If combined with LC, full length is equal to LC.<br>Cannot be used for straight types.            |                  |
| Alterations to shank | ANF  | Angular angle change<br>0.4 ≤ ANF ≤ 1.2<br>0.2° increments<br>d ≤ d max.<br>d = P + 2((L-B) × tanANF)<br>P = B tanANF ≥ 0.6<br>P < 1.00 Cannot be used for D < 4.<br>Cannot be combined with KM. | <b>Quotation</b> |
|                      | KM   | Addition of key groove to prevent lifting<br>Cannot be used for D < 6. Cannot be used for headed types.<br>D h<br>6 1 5 ≤ ℓ < L<br>8 1.5<br>10 0.1mm increments<br>Cannot be combined with ANF.  |                  |

| Type       | RoHS        | Catalog No.   | Shape |
|------------|-------------|---|-------|
| —Headed—   | <b>RoHS</b> | V40 (HIP)<br>87~88HRA<br><b>SV-VAHD</b>               |       |
|            |             | Super fine grain (HIP)<br>90~92HRA<br><b>SV-VXAH</b>  |       |
| —Straight— | <b>RoHS</b> | V40 (HIP)<br>87~88HRA<br><b>SV-VASD</b>               |       |
|            |             | Super fine grain (HIP)<br>90~92HRA<br><b>SV-VXASD</b> |       |

| Type     | D        | L             | 0.001mm increments<br>min. P max. | V   | G   | H | T | Base unit price 1 ~ 4 pieces |         |         |          |     |   |   |               |
|----------|----------|---------------|-----------------------------------|-----|-----|---|---|------------------------------|---------|---------|----------|-----|---|---|---------------|
|          |          |               |                                   |     |     |   |   | SV-VAHD                      | SV-VXAH | SV-VASD | SV-VXASD |     |   |   |               |
| Headed   | 3        | 13            | 0.500 ~ 1.000                     | 0.4 | 0.2 | 4 | 3 | <b>Quotation</b>             |         |         |          |     |   |   |               |
| Straight | 4        | 16            | 0.500 ~ 1.500                     |     |     |   |   |                              |         |         |          |     |   |   |               |
|          | SV-VAHD  | SV-VASD       | 0.500 ~ 2.500                     |     |     |   |   |                              |         |         |          |     |   |   |               |
| SV-VXAH  | SV-VXASD | 1.000 ~ 3.000 | 0.8                               |     |     |   |   |                              |         |         |          | 0.3 | 9 | 5 |               |
|          | 6        | 20            |                                   |     |     |   |   |                              |         |         |          |     |   |   | 1.000 ~ 4.000 |
|          | 8        | 22            |                                   |     |     |   |   |                              |         |         |          |     |   |   | 2.000 ~ 6.000 |

Order: **Catalog No.** SV-VAHD 6 - **L** 20 - **P** P2.500 **Price** **Quotation**

Days to Ship: **Quotation**

Alterations: **Catalog No.** SV-VASD 6 - **L(LC)** LC18 - **P** P2.500 - **(BC-HC-TC, etc.)** LKC

Features: These non-clogging button dies are intended to be used in combination with a vacuum device such as a vacuum pump. A scrap vacuum unit (P.299) can be used as the vacuum device.  
When the vacuum device is operating, the air inlet hole near the shaped hole creates an airflow inside the button die. As a result, the scrap removal effect is higher than in button dies without air inlet holes.  
Non-clogging button dies [Products Data] P.1621

| Alteration                 | Code | Spec.   | 1Code            |
|----------------------------|------|---|------------------|
| Shaped hole                | BC   | Shaped hole depth change<br>1 ≤ BC < 2<br>0.1mm increments  |                  |
| Alterations to full length | LC   | Full length change for headed types<br>13 ≤ LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)<br>Full length change for straight types<br>8 ≤ LC < L<br>0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) | <b>Quotation</b> |
|                            | LKC  | Full length tolerance change<br>L +0.1 → +0.01<br>Cannot be used for L < 16.  |                  |
| Alterations to head        | KC   | Addition of single key flat to head<br>Cannot be used for straight types<br>Cannot be combined with KFC.  | <b>Quotation</b> |
|                            | WKC  | Addition of double key flats in parallel<br>Cannot be used for straight types.<br>Cannot be combined with KFC.  |                  |
|                            | KFC  | Double key flats at 0° and a selected angle 1° increments<br>Cannot be combined with KC-WKC.<br>Cannot be used for L < 16.<br>Cannot be used for straight types.  |                  |

| Alteration           | Code | Spec.  | 1Code            |
|----------------------|------|--|------------------|
| Head                 | HC   | Head diameter change<br>D ≤ HC < H<br>0.1mm increments   |                  |
|                      | TC   | Head thickness change 2 ≤ TC < T<br>0.1mm increments<br>Full length is shortened by (T-TC).<br>If combined with LC, full length is equal to LC.  |                  |
| Alterations to shank | ANF  | Angular angle change<br>0.2 ≤ ANF ≤ 1.2<br>0.2° increments<br>d ≤ d max.<br>d = P + 2((L-B) × tanANF)<br>P = B tanANF ≥ 0.6<br>P < 1.00 Cannot be used for D < 4.<br>Cannot be combined with KM.   | <b>Quotation</b> |
|                      | KM   | Addition of key groove to prevent lifting<br>Cannot be used for D < 6. Cannot be used for headed types.<br>D h<br>6 1 5 ≤ ℓ < L<br>8 1.5<br>10 0.1mm increments<br>KM is machined in a position symmetrically opposite to the air inlet.<br>Cannot be combined with ANF. |                  |