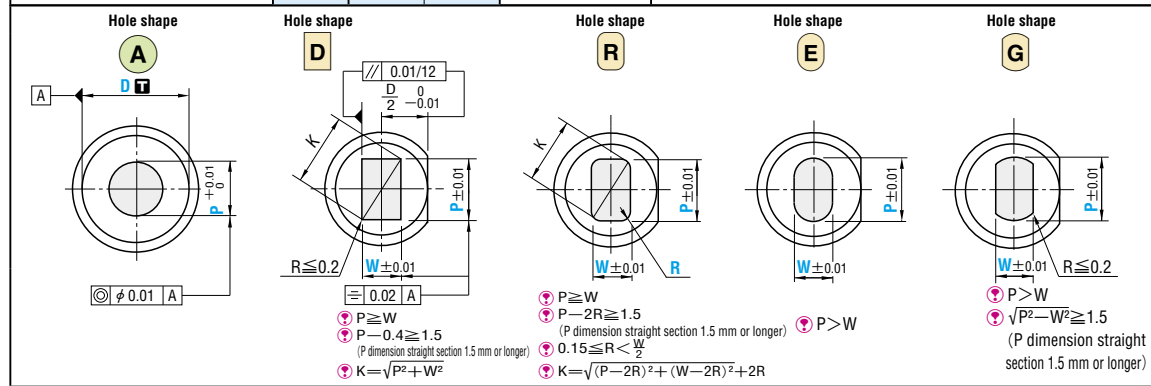


# SCRAP RETENTION ANGULAR BUTTON DIES

— HEADED —



| Headed type           | Shank diameter D tolerance         | M H  | D dimension | Catalog No. | The hole shape can be selected from A D R E G below. |
|-----------------------|------------------------------------|--|-------------|-------------|--|
|                       | D <sub>m5</sub>                    | Equivalent to SKH51 61~64HRC<br>Equivalent to SKD11 60~63HRC<br>Equivalent to SKD11 60~63HRC | D4~5        | SR-AHD      |  |
|                       |                                    |  | D6~25       | SR-AHD      |  |
|                       |                                    |  | D6~25       | SR-AHD      |  |
|                       |                                    |  | D4~25       | SR-PAHD     |  |
|                       |                                    |  | D6~25       | SR-PAHD     |  |
|                       |                                    |  | D4~25       | SR-PAHD     |  |
| D <sub>0</sub> +0.005 | Powdered high-speed steel 64~67HRC | Equivalent to SKH51 61~64HRC<br>Equivalent to SKD11 60~63HRC<br>Equivalent to SKD11 60~63HRC | D4~5        | SRA-AHD     |  |
|                       |                                    |  | D6~16       | SRA-AHD     |  |
|                       |                                    |  | D6~16       | SRA-AHD     |  |
|                       |                                    |  | D4~16       | SRA-PAHD    |  |
|                       |                                    |  | D6~16       | SRA-PAHD    |  |
|                       |                                    |  | D6~16       | SRA-PAHD    |  |



| D tolerance      | Catalog No.  | Type   | D   | L                      | 0.01mm increments |         |         |                         | MT (workpiece material thickness)                         | C (clearance)                           | H  | T  |
|------------------|--|--|-----|------------------------|-------------------|---------|---------|-------------------------|---|---|----|----|
|                  |  |  |     |                        | A                 | D R E G | R       | R                       |   |   |    |    |
| D m5             | Type   | Type   | D   | L                      | min.              | P max.  | P·Kmax. | P·Wmin.                 | 0.15 ≤ R < W/2 (R only)                                   | C ≥ 0.010                               | 5  | 3  |
|                  |  |  |     |                        | 4                 | 5       | 6       | 8                       |   |   |    |    |
| +0.009<br>+0.004 | SR-AHD SRA-AHD<br>SR-PAHD SRA-PAHD   | (Equivalent to SKH51)<br>(Powdered high-speed steel) | (4) | 8 13 16 20 22 25 30    | 1.00~1.50         | —       | —       | —                       | MT ≥ 0.15   | Select a clearance of 0.010 mm or more. | 5  | 3  |
|                  |  |  | (5) | 8 13 16 20 22 25 30    | 1.00~2.50         | —       | —       |                         |   |   |    |    |
| +0.005<br>0      | SR-AHD SRA-AHD<br>SR-PAHD SRA-PAHD   | (Equivalent to SKD11)                                | 6   | 16 20 22 25 30 35      | 1.00~3.00         | 3.00    | 1.00    | 0.15 ≤ R < W/2 (R only) | Select a workpiece material thickness of 0.15 mm or more. | C ≥ 0.010                               | 9  | 11 |
|                  |  |  | 8   | 16 20 22 25 30 35      | 1.00~4.00         | 4.00    | 1.00    |                         |   |   |    |    |
| +0.012<br>+0.006 | SR-AHD SRA-AHD<br>SR-AHDD SRA-AHDD<br>SR-AHDR SRA-AHDR<br>SR-AHDE SRA-AHDE<br>SR-AHDG SRA-AHDG           | (Powdered high-speed steel)                          | 8   | 16 20 22 25 30 35      | 1.00~4.00         | 4.00    | 1.00    | 0.15 ≤ R < W/2 (R only) | Select a workpiece material thickness of 0.15 mm or more. | C ≥ 0.010                               | 11 | 13 |
|                  |  |  | 10  | 16 20 22 25 30 35 (40) | 2.00~6.00         | 6.00    | 1.20    |                         |   |   |    |    |
| +0.015<br>+0.007 | SR-PAHD SRA-PAHD<br>SR-PAHDD SRA-PAHDD<br>SR-PAHDR SRA-PAHDR<br>SR-PAHDE SRA-PAHDE<br>SR-PAHDG SRA-PAHDG | (Powdered high-speed steel)                          | 13  | 16 20 22 25 30 35 (40) | 3.00~8.00         | 8.00    | 1.50    | 0.15 ≤ R < W/2 (R only) | Select a workpiece material thickness of 0.15 mm or more. | C ≥ 0.010                               | 13 | 16 |
|                  |  |  | 16  | 16 20 22 25 30 35 (40) | 5.00~10.00        | 10.00   | 2.00    |                         |   |   |    |    |
| +0.017<br>+0.008 | SR-PAHD SRA-PAHD<br>SR-PAHDD SRA-PAHDD<br>SR-PAHDR SRA-PAHDR<br>SR-PAHDE SRA-PAHDE<br>SR-PAHDG SRA-PAHDG | (Powdered high-speed steel)                          | 20  | 16 20 22 25 30 35      | 7.00~12.00        | 12.00   | 3.00    | 0.15 ≤ R < W/2 (R only) | Select a workpiece material thickness of 0.15 mm or more. | C ≥ 0.010                               | 16 | 19 |
|                  |  |  | 25  | 16 20 22 25 30 35      | 10.00~16.00       | 16.00   | 3.00    |                         |   |   |    |    |

\* D=(4) and (5) are specifications available for shape A (round) only. They are not available for shapes D R E G.  
 \* D=(20) and (25) are specifications available for shank diameter tolerance of D<sub>m5</sub> only.  
 \* L=(40) is a specification available for SR-AHD, SR-AHDD, SR-AHDR, SR-AHDE, and SR-AHDG only.  
 \* Can be used only for workpiece materials with tensile strengths up to 1177 N/mm<sup>2</sup> (120 kgf/mm<sup>2</sup>).  
 \* MT (workpiece material thickness) and C (clearance) are used as data for machining the scrap retention grooves.  
 \* Specify the shaped hole dimensions (P·W·R) when selecting the button die finishing dimensions.

|       |             |    |       |       |            |        |        |
|-------|-------------|----|-------|-------|------------|--------|--------|
| Order | Catalog No. | L  | P     | W     | R (R only) | MT     | C      |
|       | SR-AHDR13   | 25 | P6.20 | W2.00 | R0.20      | MT1.50 | C0.105 |

Days to Ship **Quotation**

|             |             |               |       |       |   |        |        |                  |
|-------------|-------------|---------------|-------|-------|---|--------|--------|------------------|
| Alterations | Catalog No. | L(LC-LCT-LMT) | P(PC) | W(WC) | R | MT     | C      | (BC-HC-TC, etc.) |
|             | SR-AHD6     | 16            | P2.47 |       |   | MT1.50 | C0.105 | HC8              |

| Alteration  | Code  | A  | D R E G   | 1Code  |  |
|---|---|--|---|--|--|
| Alterations to shaped hole  | PC<br>WC  | Shaped hole diameter change<br>min.: $W > WC \geq P \cdot W_{min.} \geq 1.00$<br>0.01 mm increments  |   |  |  |
|   |   | max.: $P < PC \leq P \cdot K_{max.} + 0.2$<br>0.01 mm increments   |   |  |  |
|   | BC  | Shaped hole depth change<br>$1.00 \sim 1.99$ 3<br>$2.00 \sim$ 4<br>$1 \leq BC \leq B_{max.}$<br>0.1 mm increments  | Shaped hole depth change<br>$1 \leq BC \leq 2$<br>0.1 mm increments                     |  |  |
|   |   | PKC  | Shaped hole diameter tolerance change<br>$P + 0.01 \rightarrow +0.005$<br>0             | Shaped hole diameter tolerance change<br>$P - W \pm 0.01 \rightarrow +0.01$<br>0 |  |
| Alterations to full length  | LC  | Full length change $10 \leq LC < L$<br>0.1 mm increments<br>(If combined with LKC·LKZ·CKC·MKC, then 0.01 mm increments can be selected.)<br>* Press-in lead is shortened by (L-LC).    |   |  |  |
|   | LKC   | Full length tolerance change<br>$+0.4 \rightarrow +0.05$<br>$+0.2 \rightarrow 0$   | * Cannot be used for L(LC) < 10.  |  |  |
|   | LKZ   | Full length tolerance change<br>$+0.4 \rightarrow +0.01$<br>$+0.2 \rightarrow 0$   | * Cannot be used for L(LC) < 16.  |  |  |
|   | CKC   | Changes to head thickness tolerance and full length tolerance are processed using a single code. Machining limits are the same as for TKC and LKC.<br>* Cannot be used for L(LC) < 16. |   |  |  |
|   |   | TKC<br>Head thickness tolerance change<br>$+0.3 \rightarrow +0.02$<br>0  | LKC<br>Full length tolerance change<br>$+0.4 \rightarrow +0.05$<br>$+0.2 \rightarrow 0$ |  |  |
|   | MKC   | Changes to head thickness tolerance and full length tolerance are processed using a single code. Machining limits are the same as for TKM and LKC.<br>* Cannot be used for L(LC) < 16. |   |  |  |
| TKM<br>Head thickness tolerance change<br>$+0.3 \rightarrow 0$<br>0 |   | LKC<br>Full length tolerance change<br>$+0.4 \rightarrow +0.05$<br>$+0.2 \rightarrow 0$  |   |  |  |
| LCT   | Changes to head thickness tolerance, full length, and full length tolerance are processed using a single code. The ordering process is the same as for LC. The machining limits and notes (*) are the same as for each individual alteration. |  |   |  |  |
|   | TKC<br>Head thickness tolerance change<br>+ 0.01 mm increments  | LC<br>Full length change<br>+ 0.01 mm increments   | LKC<br>Full length tolerance change<br>+ 0.01 mm increments                             |  |  |
| LMT   | Changes to head thickness tolerance, full length, and full length tolerance are processed using a single code. The ordering process is the same as for LC. The machining limits and notes (*) are the same as for each individual alteration. |  |   |  |  |
|   | TKM<br>Head thickness tolerance change<br>+ 0.01 mm increments  | LC<br>Full length change<br>+ 0.01 mm increments   | LKC<br>Full length tolerance change<br>+ 0.01 mm increments                             |  |  |

Price **Quotation**

| Alteration          | Code   | A   | D R E G  | 1Code  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|---------------------|--|---|--|--|---|--------|---|-----|---|-----|---|-----|---|-----|----|-----|----|-----|----|------|----|------|----|
| Alterations to head | HC   | Head diameter change<br>$D \leq HC < H$<br>0.1 mm increments  |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     | TC   | Head thickness change $2 \leq TC < T$ 0.1 mm increments<br>(If combined with TKC·TKM·CKC·MKC·LCT·LMT, 0.01 mm increments can be selected.)<br>* Full length L is shortened by (T-TC).<br>If combined with LC·LCT·LMT, full length remains as specified. |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     | KC   | Addition of single key flat to head<br>* Cannot be used for L(LC) < 16.   | Key flat<br>$180^\circ$ position change<br>1° increments |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     | WKC  | Addition of double key flats in parallel<br>* Can be combined with KC for shapes D R E G.<br>* Cannot be used for L(LC) < 16.   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     | KFC  | Double key flats at 0° and a selected angle<br>1° increments  |  | Key flat<br>$180^\circ$ position change<br>1° increments   |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     |  | Double key flats at 0° and a selected angle<br>1° increments  |  | Key flat<br>$180^\circ$ position change<br>1° increments   |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| TKC                 | Head thickness tolerance change<br>$+0.3 \rightarrow +0.02$<br>0   |   | * Cannot be used for L(LC) < 16.                         |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     | TKM<br>Head thickness tolerance change<br>$+0.3 \rightarrow 0$<br>0  |   | * Cannot be used for L(LC) < 16.                         |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| SKC                 | Single key flat on shank<br>* Can be used with $D \geq 8$ and $L(LC) \geq 20$<br>* Cannot be combined with KC·WKC·KFC·ANF. |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
|                     | ANF  | Angular angle change<br>$0.6 \leq ANF \leq 1.2$<br>0.2° increments<br>* $d \leq d_{max.}$<br>* $d = P + 2(L - d) \tan(ANF)$<br>* $P - B \tan(ANF) \geq 0.6$<br>* $W - B \tan(ANF) \geq 0.6$<br>* Cannot be used with P, W < 1.0.                        |  | <table border="1"> <tr> <th>D</th> <th>d max.</th> </tr> <tr> <td>4</td> <td>2.4</td> </tr> <tr> <td>5</td> <td>2.9</td> </tr> <tr> <td>6</td> <td>3.4</td> </tr> <tr> <td>8</td> <td>4.4</td> </tr> <tr> <td>10</td> <td>6.4</td> </tr> <tr> <td>13</td> <td>8.4</td> </tr> <tr> <td>16</td> <td>10.6</td> </tr> <tr> <td>20</td> <td>12.6</td> </tr> <tr> <td>25</td> <td>16.6</td> </tr> </table> | D | d max. | 4 | 2.4 | 5 | 2.9 | 6 | 3.4 | 8 | 4.4 | 10 | 6.4 | 13 | 8.4 | 16 | 10.6 | 20 | 12.6 | 25 |
| D                   |  | d max.  |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 4                   | 2.4  |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 5                   | 2.9  |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 6                   | 3.4  |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 8                   | 4.4  |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 10                  | 6.4  |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 13                  | 8.4  |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 16                  | 10.6   |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 20                  | 12.6   |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |
| 25                  | 16.6   |   |  |  |   |        |   |     |   |     |   |     |   |     |    |     |    |     |    |      |    |      |    |

Quotation

BUTTON DIES