WedgeLock retainer, available from Dayton Progress, are designed for applications where the quick interchangeability of ball lock is desired but conditions demand greater accuracy and rigidity.
Product Applications

The Dayton WedgeLock™ Precision Retaining System utilizes a unique wedge-shaped locking mechanism to hold punches and matrices in place more rigidly and accurately than conventional ball lock systems, yet allows tools to be changed without disassembling the die. Dayton’s WedgeLock™ system has a wide range of applications in the metal stamping, forming, and fabricating industries.

Available system components include: Multi-Position and Single Position Retainers (bases); Punches (Jektole®, regular, blade, blanks, and pilots); and Matrixes (including blanks). WedgeLock™ systems are available in a variety of configurations—standard or custom-designed—and include combination retainers that accommodate WedgeLock™, Ball Lock, and headed punches.

Ordering Information

When ordering a retainer base (single or multi-position), you are asked to specify the size and shape of the wedge and hole types and sizes. On multi-position retainers, you are asked to specify all dimensions from the datum on both the X and Y axes. Base alterations are also available on multi-position retainers. For additional information, see p. 4. Details for specifying wedge locations and determining space requirements are also shown in the drawings and charts on p. 4.

Punches and matrices can be ordered as part of a single or multi-position WedgeLock™ system. Catalog pages contain specific instructions on how to order individual products. In addition, all punch and matrix pages include drawings and engineering charts which show product shapes, dimensions, materials, and other information. You are asked to specify quantity, type, shank and length codes (for example), and other applicable data.

Positive Locking Mechanism

Opposing Angled Planes

Ball Lock retainers—the accepted industry standard when quick interchangeability is desired—have some limitations due to the “slip-fit” design of the mechanism and the amount and type of contact with the retainer. The WedgeLock™ design provides maximum contact between the punch and the wedge, as shown in the drawing in the left-hand column and the enhanced cutaway at the bottom.

The opposing angled planes of the WedgeLock™ system offer more surface contact and create a positive “lock” against the wall of the retainer. This positive lock minimizes lateral deflection, maintains the accuracy and rigidity of the punch, and allows punch replacement without disassembling the die.

Flexibility

The Dayton WedgeLock™ system can be incorporated into both single-hole or multi-hole retaining systems. In addition, the WedgeLock™ system can be used equally well in applications in which round punches or blade punches are used.

Because of its unique design flexibility, the WedgeLock™ system, offers manufacturers a precision hold on the punch, plus the ability to quickly change out the tool.
## WedgeLock™ Retainers

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRP</td>
<td>Multi-Position Retainers</td>
</tr>
<tr>
<td>WR</td>
<td>Single Position Retainers</td>
</tr>
<tr>
<td>WRX</td>
<td>Round Shank / Blade Type</td>
</tr>
<tr>
<td>WRO</td>
<td></td>
</tr>
<tr>
<td>WRR</td>
<td></td>
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<tr>
<td>WRK</td>
<td></td>
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</tbody>
</table>

## WedgeLock™ Punches

<table>
<thead>
<tr>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>WJ</td>
<td>Jektole® Punches</td>
</tr>
<tr>
<td>WP</td>
<td>Regular Punches</td>
</tr>
<tr>
<td>WB</td>
<td>Blade Punches</td>
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</table>

## WedgeLock™ Pilots

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<tbody>
<tr>
<td>WPT</td>
<td>Pilots</td>
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<tr>
<td>WPA</td>
<td>Pilots</td>
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## Press Fit & WedgeLock™ Matrixes & Blanks

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>KD</td>
<td>Headless Matrix</td>
</tr>
<tr>
<td>WD</td>
<td>Headless w/Seat Matrix</td>
</tr>
<tr>
<td>KH</td>
<td>Headed Matrix</td>
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</table>

## WedgeLock™ Alterations

<table>
<thead>
<tr>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WJB &amp; WPB</td>
<td>Punch Blanks</td>
</tr>
</tbody>
</table>

Retainer alterations are available only on Multi-Position Retainers. For additional information, see p. 4.

All products with wedge seat are standard for 1.375 thick retainers. Other thicknesses must be specified at time of order.
**WedgeLock™ Multi-Position Retainers**

**Wedge Locations**

*Note: Radial location of wedge will determine alignment of shape for punch.*

Location = α°

**HOW TO ORDER**

Specify: Qty. Code AxB Special Size (optional)

Example: 2 WRP 3070 3.00 x 6.50

**Multi-Position™ Retainers**

<table>
<thead>
<tr>
<th>Hole No.</th>
<th>Component</th>
<th>Location</th>
<th>Wedge Hole</th>
<th>P</th>
<th>W</th>
<th>R</th>
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<tbody>
<tr>
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<tr>
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<td>.250</td>
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<td>1.00</td>
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<tr>
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<td>25</td>
<td>.098</td>
<td>.250</td>
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</tbody>
</table>

**Space Requirements**

*Note: Extreme pressure is exerted on the wall and retainer, and the area immediately adjacent to the wedge is vulnerable to movement. To avoid fracture or an unsafe "lock," keep tooling outside the indicated "Safe Zone." Double the "Safe Zone" to outside edges of the retainer.

**Clearance Holes**

Clearance holes or tapped holes can be detailed as shown in the order form.

Holes are drilled through the retainer, unless otherwise specified.

Location: ±0.010

Diameter: ±0.030

**Notches**

Notches to clear other tooling can be added to any side of the retainer. Notches are saw cut ±0.03.

**Angles**

As with notches, angles can be added to clear other tooling in the die. Angles are saw cut ±0.03.

**Special Shapes per Print**

Specify screw and dowel size and location.

See page 6 & 7

See bottom of page 7

Special shapes per print

**Standard Alterations**

**Standard Jackscrew Hole**

Jackscrews make it easier to pull retainers from the dowels.

**Special Size**

Any amount of material can be removed from the sides of the retainer for a custom-size retainer.

Edges are saw cut ±0.3.
WedgeLock™ Single Position Retainers

**How to Order**

Specify: Qty. Type D Code P (or P&W)

Example: 4 WRX 87 P 885

* Note G=.6075

WedgeLock™ Single Position Retainer sets include:

- 1 Wedge
- 1 Backing Plate
- 4 Screws
- 2 Threaded Dowels
- 3 Backing Plate Screws

**Round Shank Style Retainer for WJ_ and WP_ Punches**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>D</th>
<th>L1</th>
<th>L</th>
<th>W</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>F</th>
<th>N</th>
<th>Mounting Screws (4)</th>
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</thead>
<tbody>
<tr>
<td>WRX</td>
<td>50</td>
<td>2500</td>
<td>.5100</td>
<td>.1250</td>
<td>.750</td>
<td>2.062</td>
<td>1.750</td>
<td>.562</td>
<td>438</td>
<td>1.000</td>
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<tr>
<td></td>
<td>62</td>
<td>501</td>
<td>.6350</td>
<td>.1250</td>
<td>.812</td>
<td>2.125</td>
<td>1.875</td>
<td>.625</td>
<td>500</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>6351</td>
<td>.7600</td>
<td>.1875</td>
<td>.875</td>
<td>2.312</td>
<td>2.000</td>
<td>.688</td>
<td>562</td>
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<tr>
<td></td>
<td>87</td>
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<td>.8850</td>
<td>.1875</td>
<td>1.000</td>
<td>2.500</td>
<td>2.250</td>
<td>.750</td>
<td>625</td>
<td>1.125</td>
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<tr>
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<td>100</td>
<td>8851</td>
<td>1.0100</td>
<td>2.500</td>
<td>1.062</td>
<td>2.625</td>
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<td>.812</td>
<td>588</td>
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<td>875</td>
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<td>1.5100</td>
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<td>1.500</td>
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<td>1.000</td>
<td>1.1875</td>
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Other sizes available on request.

**Blade Punch Style Retainer**

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<th>Max. Shape P/G</th>
<th>Min. Shape W</th>
<th>L1</th>
<th>L</th>
<th>W</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>F</th>
<th>N</th>
<th>Mounting Screws (4)</th>
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</thead>
<tbody>
<tr>
<td>WRX</td>
<td>50</td>
<td>.2500</td>
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<td>.750</td>
<td>2.062</td>
<td>1.750</td>
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<td>438</td>
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<td>.625</td>
<td>.1250</td>
<td>½&quot; - 18</td>
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<td></td>
<td>62</td>
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<td>.1250</td>
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<td>.750</td>
<td>.3125</td>
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<td>.8850</td>
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<td>2.500</td>
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<td>.750</td>
<td>625</td>
<td>1.125</td>
<td>.875</td>
<td>.3125</td>
<td>½&quot; - 16</td>
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<td>1.2600</td>
<td>2.500</td>
<td>1.250</td>
<td>3.000</td>
<td>2.500</td>
<td>.875</td>
<td>875</td>
<td>1.375</td>
<td>1.0000</td>
<td>.3125</td>
<td>½&quot; - 16</td>
</tr>
<tr>
<td></td>
<td>150</td>
<td>1.2601</td>
<td>1.5100</td>
<td>2.500</td>
<td>1.500</td>
<td>3.500</td>
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<td>1.031</td>
<td>1.000</td>
<td>1.1875</td>
<td>.3750</td>
<td>½ - 13</td>
<td></td>
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</table>

Other shapes and sizes available per print. * .250W recommended minimum to maintain maximum wedge strength.
The Engineered Clearance

Perforating punch-to-matrix clearances in metal stamping dies have been universally expressed as a percentage of stock thickness, and for clarity should be articulated as percent per side (Δ=clearance per side).

Standard practice has called for Δ ≈ 5%, and is commonly known as “regular clearance.” Regular clearance has been applied almost universally to all applications involving the perforation of ferrous materials.

Jektole®, the Engineered Clearance, is approximately twice regular clearance, i.e., Δ 10-12%. This means greater productivity, improved maintenance, and a better return on your tooling investment.

In addition, clearances of up to Δ 50% are not uncommon with some hard materials. Clearance tests have been performed by Dayton Progress to prove that increasing the clearance does not lessen hole quality—a common thought by some designers and engineers. Dayton clearance tests do, in fact, prove that the Jektole® Engineered Clearance provides many advantages and benefits.

### Jektole® Components

**Punch**

<table>
<thead>
<tr>
<th>Shank</th>
<th>Point Length B*</th>
<th>Min. XP</th>
<th>Min. WX</th>
<th>Max. PI-G</th>
<th>Min. D</th>
<th>Max. D</th>
<th>Min. P</th>
<th>Std. Shank Dia.</th>
<th>Std. P</th>
<th>Std. G</th>
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<td>1.87</td>
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<td>1.58</td>
<td>1.87</td>
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<td>.625</td>
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<td>1.250</td>
</tr>
<tr>
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<td>75</td>
<td>1.00</td>
<td>1.25</td>
<td>1.55</td>
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<td>.750</td>
<td>.750</td>
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</tbody>
</table>

**Set Screw**

**Spring**

**Jektole Pin RC 44-48**

### Standard Jektole® Data

**DIMENSION**

<table>
<thead>
<tr>
<th>J6</th>
<th>J9</th>
<th>J12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std. Shank Dia.</td>
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<tr>
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<td>4.750</td>
<td>2.000</td>
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<tr>
<td>Point Hole Dia.</td>
<td>C</td>
<td>.063</td>
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<tr>
<td>Shank Hole Dia.</td>
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<td>.172</td>
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<tr>
<td>Pin Extension</td>
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<td>.060</td>
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<tr>
<td>Keeper Key No.</td>
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</table>

* * * * * * * *

**Jektole® Design Limits**

**DIMENSION**

<table>
<thead>
<tr>
<th>J6</th>
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<th>J12</th>
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</thead>
<tbody>
<tr>
<td>Min. Shank Dia.</td>
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<td>.158</td>
</tr>
<tr>
<td>Max. Point Lgh.</td>
<td>B</td>
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</table>

**Universal Jektole® Components**

**EJECTOR PINS**

<table>
<thead>
<tr>
<th>J6</th>
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</thead>
<tbody>
<tr>
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<td>Pin Diameter</td>
<td>D</td>
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<tr>
<td>Head Diameter</td>
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<td>SPRINGS</td>
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<td>J6</td>
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<td>Outside Dia.</td>
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<tr>
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<tr>
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<td>Lbs.</td>
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<td></td>
<td>J6</td>
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<tr>
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<tr>
<td>Screw Length</td>
<td>L</td>
<td>.190</td>
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</tbody>
</table>
### WedgeLock™ Regular Punches

#### HOW TO ORDER

**Specify:** Qty. Type D Code L (or P&W) Dimension Steel

**Example:** 9 WPL 100 E350 P.872, W.401 A2

**Note:** The standard location of a wedge is 0° or perpendicular to the P axis.

#### Standard Alterations

See p. 11 for additional ordering instructions.

#### Material / Tolerances

- **Steel:** A2, M2, RC 60-63
- **Round P:** ±0.0005
- **Shape P, W:** ±0.0005
- **D:** ±0.002
- **D > 1.00:** ±0.0002

### Round Shank Style

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Basic Body</th>
<th>Min. P</th>
<th>Max. P</th>
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</thead>
<tbody>
<tr>
<td>WBX</td>
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</tbody>
</table>

### Blade Punch Style

<table>
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<th>Basic Body</th>
<th>Min. W*</th>
<th>Min. P</th>
<th>Max. P/G</th>
</tr>
</thead>
<tbody>
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<td>WB</td>
<td>6</td>
<td>0.1250</td>
<td>0.5100</td>
<td>0.9400</td>
</tr>
</tbody>
</table>

### Standard Alterations

- **W:** See Standard Alterations on page 11 for minimum XP & XW limits.
- **Point lengths must leave a minimum Shank length of 1.37.**

---

### WedgeLock™ Blade Punches

#### HOW TO ORDER

**Specify:** Qty. Type D Code L (or P&W) Dimension Steel

**Example:** 9 WBO 87 300 P.8760 W.2500 A2

**Note:** The standard location of a wedge is 0° or perpendicular to the P axis.

#### Material

- **Steel:** A2, M2, RC 60-63
- **Round P:** ±0.0005
- **Shape P, W:** ±0.0005

#### Blade Punch Style

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Basic Body</th>
<th>Min. W*</th>
<th>Min. P</th>
<th>Max. P/G</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB</td>
<td>6</td>
<td>0.1250</td>
<td>0.5100</td>
<td>0.9400</td>
</tr>
</tbody>
</table>

**Special shapes per print**

**For economy and maximum strength, put shape on round shank product whenever possible. See WP_ and WJ_.**

---

<table>
<thead>
<tr>
<th>Round Shank Style</th>
<th>Blade Punch Style</th>
<th>DAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WBX</strong></td>
<td><strong>WB</strong></td>
<td><strong>L</strong></td>
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<tr>
<td>50</td>
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<td>200</td>
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* 2300 W recommended minimum

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www.daytonlamina.com
**WedgeLock™ Punch Blanks**

**Jektole®/Regular**

### HOW TO ORDER

| Specify: Qty. Type D Code L Steel |
|----------------|---------|--------|----|---|---|
| Example: 9 WJB 37 B225 A2 |

### Standard Alterations

See p. 11 for additional ordering instructions.

### Material / Tolerances

Steel: A2, M2, RC 60-63

- D= +.0004
- D>1.00= +.0002 +.0008

### Type Shank Point Length B L

#### WJB

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#### WPB

| Shank | B | C | D | E | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425 | 450 | 475 | 500 | 525 | 550 | 575 | 600 | 625 | 650 | 675 | 700 | |
|-------|---|---|---|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| .2500 | | | | | | | | | | | | | | | | | | | | | | | |
| .3125 | | | | | | | | | | | | | | | | | | | | | | | |
| .3750 | | | | | | | | | | | | | | | | | | | | | | | |
| .4375 | | | | | | | | | | | | | | | | | | | | | | | |
| .5000 | | | | | | | | | | | | | | | | | | | | | | | |
| .6250 | | | | | | | | | | | | | | | | | | | | | | | |
| .7500 | | | | | | | | | | | | | | | | | | | | | | | |
| 1.0000 | | | | | | | | | | | | | | | | | | | | | | | |
| 1.2500 | | | | | | | | | | | | | | | | | | | | | | | |
| 1.5000 | | | | | | | | | | | | | | | | | | | | | | | |

WJB point lengths must leave a minimum shank length of 1.50

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Dayton Progress Corporation

www.daytonlamina.com
**WedgeLock™ Regular Pilots**

**Material / Tolerances**

Steel: A2, M2, RC 60-63

Round P = .0005 G 0005 P to D

D = +.0002 +.0004

D > 1.00 = +.0006

**WedgeLock™ Positive Pick-Up Pilots**

**Material / Tolerances**

Steel: A2, M2, RC 60-63

Round P = .0005 G 0005 P to D

D = +.0002 +.0004

D > 1.00 = +.0006

**Standard Alterations**

See p. 11 for additional ordering instructions.

**WedgeLock™ Positive Pick-Up Pilots**

**Material / Tolerances**

Steel: A2, M2, RC 60-63

Round P = .0005 G 0005 P to D

D = +.0002 +.0004

D > 1.00 = +.0006

**Standard Alterations**

See p. 11 for additional ordering instructions.

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**WedgeLock™ Positive Pick-Up Pilots**

**Material / Tolerances**

Steel: A2, M2, RC 60-63

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D = +.0002 +.0004

D > 1.00 = +.0006

**Standard Alterations**

See p. 11 for additional ordering instructions.
Press Fit & WedgeLock™ Matrixes

HOW TO ORDER

Specify: Qty. Type D L P (or P&W) Steel
Example: 5 KDR 87 137 P.394, W.209 A2
3 WDO 100 137 P.650, W.150 M2

Note: The standard location of a key flat or wedge seat is 0° or perpendicular to the P axis.

KDU, KDE WDU, WDE* Headless

KHE, KHE* Headed

Press Fit & WedgeLock™ EDM Matrix Blanks

*Note: WedgeLock headless matrix available as a standard in 1.37 overall length. Change ‘K’ prefix to ‘W’ for product call-out.
Matrix will be the same as Kommercial product but with a wedge seat suitable for WRP or WRT retainers.
Standard Alterations—Punches & Matrixes

Standard Alterations
Punches and matrices are available in sizes other than those listed in the front of the catalog.

Jektole®, Regular, Blade, & Punch Blanks

XP, XW  P & W Dimensions Smaller than Standard

XP  P Dimension Smaller than Standard

XW  XW Dimensions Smaller than Standard

XB  XB Point Length Longer than Standard

X3B  X3B Point Length Longer than Standard

SBR Straight Before Radius
To determine Length of Radius Blend (LRB)
1. Calculate (D-P)/2.
2. Find (D-P)/2 value on left side of chart.
3. Follow line over to intersection point on radius blend line.
4. Read LRB value on bottom of chart.

Example:
D = 375  P = 175
(D-P)/2 = (375–175)/2 = 100
Following the .100 line on chart over the radius blend line shows the LRB to be approximately .300.

Regular & Positive Pick-Up Pilots

XP  P Dimension Larger than Standard

XB, XBB  Point Length Longer than Standard

X3B  X3B Point Length Longer than Standard

Alterations apply to both Positive Pick-Up & Regular Pilots.

Matrixes

XP  P Dimension Larger than Standard

XL  Overall Length Shortened

Stock removal does not alter land length on WD__.

Min. overall length:
Headless = .25  Head type = .25+T

LL  Precision Overall Length

Same as XL except overall length is held to ±.001.

XN  DayTride® A unique wear-resistant surface treatment for M2 only.

XNT DAYTiN® Titanium Nitride coating for extra wear on M2 only.
Dayton Progress Corporation
500 Progress Road
P.O. Box 39
Dayton, OH 45449-0039 USA

Dayton Progress Detroit
34488 Doreka Dr.
Fraser, MI 48026

Dayton Progress Portland
1314 Meridian St.
Portland, IN 47371 USA

Dayton Progress Canada, Ltd.
861 Rowntree Dairy Road
Woodbridge, Ontario L4L 5W3

Dayton Progress Mexico, S. de R.L. de C.V.
Access II Number 5, Warehouse 9
Benito Juarez Industrial Park
Querétaro, Qro. Mexico 76130

Dayton Progress, Ltd.
G1 Holly Farm Business Park
Honiley, Kenilworth
Warwickshire CV8 1NP UK

Dayton Progress Corporation of Japan
2-7-35 Hashimotodai, Midori-Ku
Sagamihara-Shi, Kanagawa-Ken
252-0132 Japan

Dayton Progress GmbH
Adenauerallee 2
61440 Oberursel/TS, Germany

Dayton Progress Perfuradores Lda
Zona Industrial de Casal da Areia Lote 17
Cós, 2460-392 Alcobaca, Portugal

Dayton Progress SAS
105 Avenue de l'Epinette
BP 128
Zone Industrielle
77107 Meaux Cedex, France

Dayton Progress Czech sro
Hala G
Pražská 707
CZ-294 71 Benátky nad Jizerou
Czech Republic

Global leader in providing fabrication and stamping solutions