**Grippers, Toggle Pads & Tooling Balls**

For an index of fixturing components, see page 2246.

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**Serrated Grippers**

- **Standard Round Gripper**
- **Counterbored Square Gripper**

Boost the gripping power of chuck jaws, clamps, and other fixturing devices by attaching these grippers. Made of hardened tool steel. Tolerances for (A) and (B) dimensions: +0.003" to -0.005".

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**Hex Head Adjustable Carbide-Tipped Serrated Grippers**

Because they have a fully threaded body, these grippers can be mounted to a fixture and adjusted to the height of the workpiece. They have a serrated hex head that provides a larger gripping area than round or square heads. Made of steel alloy.

**Toolmaker's Construction Ball**

They mount from the front using a standard cap screw (not included). They also have flat notches on the side for set screw mounting.

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**Toggle Pads**

**Standard**—Their threaded hole (except where noted) allows fast mounting and replacement. They mount from the rear using a standard cap screw (not included). They also have flat notches on the side for set screw mounting.

**Counterbored**—They mount from the front using a socket-head cap screw (not included).

<table>
<thead>
<tr>
<th>Size Ht. (A)</th>
<th>Thread Size (B)</th>
<th>Round Carbide-Tipped Steel</th>
<th>Round Carbide-Tipped Square</th>
<th>Size Ht. (A)</th>
<th>Thread Size (B)</th>
<th>Round Carbide-Tipped Steel</th>
<th>Round Carbide-Tipped Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/16&quot; x 1/8&quot;</td>
<td>5/32&quot;-28</td>
<td>8490SA24</td>
<td>8490SA24</td>
<td>1/8&quot; x 5/32&quot;</td>
<td>5/32&quot;-28</td>
<td>8490SA24</td>
<td>8490SA24</td>
</tr>
<tr>
<td>1/16&quot; x 1/16&quot;</td>
<td>1/8&quot;-14</td>
<td>8490SA24</td>
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</tr>
</tbody>
</table>

**Toolmaker's Construction Ball**

Not only do these balls help you determine hole centerlines and distances between hole centerlines, but they also serve as a precision reference point for critical machining operations. They are formed in one piece from heat-treated, hardened, and ground steel so that the ball won’t dislodge from the shank. They have a satin finish. Balls and shanks are concentric within +.0002". Tolerances for (A) and (C) dimensions are ±.0002". Rockwell C scale hardness is 62–65.

Choose from standard tooling, shoulder tooling, and toolmaker’s construction balls.

**Screw—**Slightly undersized for temporary mounting. Tolerance for (B) dimension is +0.0005" to -0.0004".

**Press-Fit—**Slightly oversized for permanent mounting. Tolerance for (B) dimension is +0.0005" to -0.0000".

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**Tooling and Construction Balls**

**Toolmaker's Construction Ball**

They mount from the front using a standard cap screw (not included). They also have flat notches on the side for set screw mounting.

**Counterbored**—They mount from the front using a socket-head cap screw (not included).

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**McMASTER-CARR**

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