

## Materials for Cold Forming

<b>Carbon Steel</b>	Low Carbon 0.05 to 0.30%	<ul style="list-style-type: none"> <li>• Easily Cold Formed</li> <li>• Not Responsive to Heat Treatment</li> <li>• Typically Case Hardened for Wear Resistance</li> </ul>
	Medium Carbon 0.30 to 0.60%	<ul style="list-style-type: none"> <li>• Lower Carbon – Fairly Easily Cold Formed</li> <li>• Heat Treatable</li> <li>• Best Strength to Cost Ratio</li> </ul>
	High Carbon 0.60 to 2.00%	<ul style="list-style-type: none"> <li>• Rarely Cold Formed</li> </ul>
<b>Alloy Steel</b>	Specialty Elements Added to Improve: <ul style="list-style-type: none"> <li>• Strength</li> <li>• Hardenability</li> <li>• Toughness</li> <li>• Temp Resistance</li> <li>• Corrosion Resistance</li> </ul>	<ul style="list-style-type: none"> <li>• More Difficult to Cold Form</li> <li>• Heat Treatable</li> <li>• Greater End Use Safety Margin</li> <li>• Overall Processing is More Difficult</li> </ul>
<b>Stainless Steel</b>	400 Series (Straight Chromium)	<ul style="list-style-type: none"> <li>• Some More Cold Formable Than Others</li> <li>• Form Similar to Medium/High Alloy Steels</li> <li>• 300 Series More Challenging</li> <li>• Rapid Work Hardening Common</li> <li>• Mainly Fasteners</li> <li>• Poor Tool Life</li> </ul>
	300 Series (18-8 Stainless)	
<b>Alloy Copper</b>	<ul style="list-style-type: none"> <li>• Copper</li> <li>• Brass</li> <li>• Silicon Bronze</li> </ul>	<ul style="list-style-type: none"> <li>• Good Formability</li> <li>• Increased Strength Proportional to Cold Work</li> <li>• Resistance to Corrosion and Fatigue</li> <li>• Extensively Cold Formed</li> <li>• Anti-microbial Properties</li> </ul>
<b>Alloy Nickel</b>	M400	<ul style="list-style-type: none"> <li>• Not Heat Treatable</li> <li>• Rapid Work Hardening</li> <li>• Good Tensile Strength</li> <li>• Fasteners used in Aerospace, Oil &amp; Gas, Marine, and Chemical Applications</li> </ul>
	K500	

