TimkenSteel has been manufacturing and improving alloy steel for nearly 100 years. We continually seek ways to meet customer needs through a variety of enhancements in product development, expanded manufacturing capabilities and value-added services.

Advancements in our manufacturing process allow us to produce 9Cr and 13Cr steel to meet a variety of customers’ needs for quench and temper applications. We make these types of materials more readily available to help our global customers reduce lead times.

**Tube Size Capabilities (Hot Finished)**

```
<table>
<thead>
<tr>
<th>Sizes</th>
<th>Annealed</th>
<th>Quench and Temper*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
</tr>
<tr>
<td>O.D.</td>
<td>Max.</td>
<td>9.00</td>
</tr>
<tr>
<td></td>
<td>Min.</td>
<td>4.50</td>
</tr>
<tr>
<td>Wall</td>
<td>Max.</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Min.</td>
<td>0.50</td>
</tr>
<tr>
<td>O.D. : Wall</td>
<td>Max.</td>
<td>9:1</td>
</tr>
</tbody>
</table>
```

*Quench and Temper Properties (L-80):*
- Yield: 80,000 - 95,000 psi
- Tensile: 95,000 psi minimum
- Quad Hardness: 22 HRC maximum (through wall) or as specified
- Elongation: 15% minimum in either 1.40 inches (35.6 mm) or 2.00 inches (50.8 mm)
- CVN Impacts: per API 5CT

**Tube Notes:**
- 9Cr and 13Cr (420M) grades only
- ASTM A-519 tolerances apply to hot rolled and annealed tubing
- TimkenSteel tolerances apply for quench and temper tubing
- Minimum order quantity: 16,000 lbs. (7.3 metric tonnes)
- Please inquire for additional sizes and other quench and temper properties
Bar Size Capabilities (Rough Turned or Peeled)

<table>
<thead>
<tr>
<th>Grades</th>
<th>Size</th>
<th>Annealed</th>
<th>Quench and Temper*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
</tr>
<tr>
<td>9Cr, 410</td>
<td>Max.</td>
<td>11.00</td>
<td>279.4</td>
</tr>
<tr>
<td>13Cr (420M)</td>
<td>Max.</td>
<td>11.00</td>
<td>279.4</td>
</tr>
<tr>
<td>9Cr, 410,</td>
<td>Min.</td>
<td>3.00</td>
<td>76.2</td>
</tr>
<tr>
<td>13Cr (420M)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Quench and Temper Properties (L-80):*
- Yield: 80,000 - 95,000 psi
- Tensile: 95,000 psi minimum
- Hardness: 22 HRC maximum
- Elongation: 15% minimum

Bar Notes:
- 9Cr, 410 and 13Cr (420M) grades only
- We provide all sizes rough turned or peeled
- Minimum order quantity: 20,000 lbs. (9 metric tonnes)
- We do not guarantee sound centers on hot rolled bar sizes greater than 8.00 inches (203.2 mm) O.D.
- Please inquire for additional sizes and other quench and temper properties

Our engineers are experts in both materials and applications, so we can work closely with each customer to deliver flexible solutions related to our products as well as their applications and supply chains. We believe few others in our industry can consistently deliver that kind of customization and responsiveness.

We manufacture alloy steel, as well as carbon and micro-alloy steel, with an annual melt capacity of approximately two million tons.

General Information – Tube and Bar Product:
- We will advise customers of lengths and lead times at time of inquiry.

We provide value-added services through TimkenSteel Material Services. We link the mill to the customer through this operation focused on hole-making, hole-finishing and turning of bars and tubes up to 54 feet (16 m) long.

Answering Customers’ Toughest Challenges
TimkenSteel customizes every product and service we deliver to meet customers’ specific needs. Our focus is on improving performance by addressing the toughest challenges, whether that requires a special bar quality (SBQ) steel bar or seamless mechanical tube, a precision steel component, honing, drilling or thermal-treatment services or a supply chain solution.

For more information on TimkenSteel and other value-added services and products, call 866.284.6536 (USA) or +44 1455 826320 (international).

Also, please visit our website at www.timkensteel.com.