## Product Dimensions and Weights

### DIN 94 / ISO 1234 Specifications

#### Metric DIN 94 Split Pins (Cotter Pins)

![Diagram of Metric DIN 94 Split Pins](image)

<table>
<thead>
<tr>
<th>Nominal Diameter</th>
<th>1</th>
<th>1.5</th>
<th>2</th>
<th>2.5</th>
<th>3.2</th>
<th>4</th>
<th>5</th>
<th>6.3</th>
<th>8</th>
<th>10</th>
<th>13</th>
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<tbody>
<tr>
<td><strong>D</strong> Min Max</td>
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</tr>
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<td>2.5</td>
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<td><strong>B</strong></td>
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<td>16</td>
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<tr>
<td><strong>C</strong></td>
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<td>5.1</td>
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<td>8</td>
<td>10.3</td>
<td>13.1</td>
<td>16.6</td>
<td>1.7</td>
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</table>

All measurements are in mm
### Metric DIN 94 Split Pins (Cotter Pins)

Split Pins (Cotter Pins) are common used fasteners that hold assemblies together. Made of soft metal wire looped on itself so the two resulting tines can be inserted into a pre-drilled hole and bent to keep it in place. Cotter pins are typically made of soft metal allowing for easy installation and removal. However, this also makes them poor locking devices when strong shear forces are expected. Aspen Fasteners offers over 500,000 unique fastener products from stock in inch and metric standard in a variety of materials and finishes. The following sizes DIN 93 Single Tab Safety Lock Washers are available for immediate shipping from stock: Diameters ranging from M1 to M13 up to 140mm long in steel as well as stainless steel A2 and A4. View parts by clicking on the following link: [Metric DIN 94 Split Pins (Cotter Pins)]

<table>
<thead>
<tr>
<th>Nominal Diameter (mm)</th>
<th>1</th>
<th>1.5</th>
<th>2</th>
<th>2.5</th>
<th>3.2</th>
<th>4</th>
<th>5</th>
<th>6.3</th>
<th>8</th>
<th>10</th>
<th>13</th>
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<tbody>
<tr>
<td><strong>L (mm)</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
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<td>12</td>
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<td>20.80</td>
<td>36.70</td>
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<td>22.90</td>
<td>41.20</td>
<td>64.10</td>
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<td>112</td>
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DIN (Deutsches Institut für Normung - German Institute for Standardization) standards are issued for a variety of components including industrial fasteners as Metric DIN 85 Slotted Pan Head Machine Screws. The DIN standards remain common in Germany, Europe and globally even though the transition to ISO standards is taking place. DIN standards continue to be used for parts which do not have ISO equivalents or for which there is no need for standardization. The ISO equivalent of DIN 94 Split Pins (Cotter Pins) is ISO 1234.

1) **Mechanical properties of stainless steel for metric DIN 94 Split Pins (Cotter Pins)**

Stainless steels can be divided into three groups of steel - austenitic, ferritic and martensitic. Austenitic steel is by far the most common type (>90% of commercial fasteners). The steel groups and strength classes are designated by a four-digit sequence of letters and numbers (eg A2-70) as shown in the following table. DIN EN ISO 3506 governs screws and nuts made from stainless steel.

<table>
<thead>
<tr>
<th>Steel group</th>
<th>Steel grade</th>
<th>Strength class</th>
<th>Tensile strength N/mm²</th>
<th>Tensile strength PSI</th>
<th>Dia range</th>
<th>Nut Load N/mm²</th>
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<tbody>
<tr>
<td>Austenitic</td>
<td>A2 and A4</td>
<td>50</td>
<td>500</td>
<td>70,000</td>
<td>&lt;=M39</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
<td>700</td>
<td>100,000</td>
<td>&lt;=M20</td>
<td>700</td>
</tr>
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<td></td>
<td></td>
<td>80</td>
<td>800</td>
<td>118,000</td>
<td>&lt;=M20</td>
<td>800</td>
</tr>
</tbody>
</table>

The tensile stress is calculated with reference to the tensile stress area (see DIN EN ISO 3506-1979). Nuts to be paired with same grade of stainless steel screws.

<table>
<thead>
<tr>
<th>Steel group</th>
<th>Property Strength class</th>
<th>Made From</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austenitic</td>
<td>50</td>
<td>A1, A2</td>
<td>Soft; cold worked, turned and soft pressed fasteners</td>
</tr>
<tr>
<td></td>
<td>70</td>
<td>A2, A4</td>
<td>Cold worked, normal strength formed fasteners</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>A2, A4</td>
<td>Extreme cold worked, high strength, special applications</td>
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</table>
## Chemical composition of stainless steel metric DIN 94 Split Pins (Cotter Pins)

<table>
<thead>
<tr>
<th>Grade</th>
<th>USA Grade</th>
<th>Material designation</th>
<th>Material no.</th>
<th>C %</th>
<th>Si ≤ %</th>
<th>Mn ≤ %</th>
<th>Cr %</th>
<th>Mo %</th>
<th>Ni %</th>
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</thead>
<tbody>
<tr>
<td>A 2</td>
<td>304</td>
<td>X 5Cr Ni 1810</td>
<td>1.4301</td>
<td>≤ 0.07</td>
<td>1.0</td>
<td>2.0</td>
<td>17.5 to 19.5</td>
<td>-</td>
<td>8.0 to 10.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X 2 Cr Ni 1811</td>
<td>1.4306</td>
<td>≤ 0.03</td>
<td>1.0</td>
<td>2.0</td>
<td>18.0 to 20.0</td>
<td>-</td>
<td>10 to 12.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X 8 Cr Ni 19/10</td>
<td>1.4303</td>
<td>≤ 0.07</td>
<td>1.0</td>
<td>2.0</td>
<td>17.0 to 19.0</td>
<td>-</td>
<td>11.0 to 13.0</td>
</tr>
<tr>
<td>A 4</td>
<td>316</td>
<td>X 5 Cr Ni Mo 1712</td>
<td>1.4401</td>
<td>≤ 0.07</td>
<td>1.0</td>
<td>2.0</td>
<td>16.5 to 18.5</td>
<td>2.0 to 2.5</td>
<td>10.0 to 13.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X 2 Cr Ni Mo 1712</td>
<td>1.4404</td>
<td>≤ 0.03</td>
<td>1.0</td>
<td>2.0</td>
<td>16.5 to 18.5</td>
<td>2.0 to 2.5</td>
<td>10 to 13</td>
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</tbody>
</table>

## Chemical composition of steel metric DIN 94 Split Pins (Cotter Pins)

<table>
<thead>
<tr>
<th>PROPERTY CLASS</th>
<th>MATERIAL AND TREATMENT</th>
<th>CHEMICAL COMPOSITION LIMITS %</th>
<th>TEMPERING TEMP °C MIN.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td></td>
<td>min.</td>
<td>max.</td>
</tr>
<tr>
<td>4.6, 4.8, 5.8, 6.8</td>
<td>Low or medium carbon steel</td>
<td>-</td>
<td>0.55</td>
</tr>
<tr>
<td>8.8</td>
<td>Medium carbon steel quenched, tempered</td>
<td>0.25</td>
<td>0.55</td>
</tr>
<tr>
<td>9.8</td>
<td>Medium carbon steel quenched, tempered</td>
<td>0.25</td>
<td>0.55</td>
</tr>
<tr>
<td>10.9</td>
<td>Medium carbon steel additives e.g. boron, Mn, Cr or Alloy steel - quenched, tempered</td>
<td>0.20</td>
<td>0.55</td>
</tr>
<tr>
<td>12.9</td>
<td>Alloy steel - quenched, tempered</td>
<td>0.20</td>
<td>0.50</td>
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</table>
4) **Mechanical properties of steel for metric DIN 94 Split Pins (Cotter Pins)**

<table>
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<th>MECHANICAL PROPERTY</th>
<th>PROPERTY CLASS</th>
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</tr>
<tr>
<td>Tensile Strength (Rm, N/mm²)</td>
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<td></td>
<td>min.</td>
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<tr>
<td>Vickers Hardness</td>
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<td>max</td>
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<tr>
<td>Brinell Hardness</td>
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<td></td>
<td>max</td>
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<td>Rockwell Hardness</td>
<td>min.</td>
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</tr>
<tr>
<td></td>
<td>max.</td>
</tr>
<tr>
<td>Yield Stress Rel. N/mm²</td>
<td>nom.</td>
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<td></td>
<td>min.</td>
</tr>
<tr>
<td>Stress at permanent set limit N/mm²</td>
<td>nom.</td>
</tr>
<tr>
<td></td>
<td>min.</td>
</tr>
</tbody>
</table>

**Disclaimer**

Dimensional data and technical information for Metric DIN 94 Split Pins (Cotter Pins) was obtained from publicly available sources and not acquired through standards agencies. It has been completed and compiled for reference purposes only; where discrepancies are found they are subject to change without notice. Aspen Fasteners makes no warranties or representations regarding the accuracy and validity of the compiled information and data. Contact the relevant standards authorities for accurate and detailed information.