Steel sleepers
Lower lifetime cost and more efficient logistics

Technical Data Sheet
RAIL

Steel sleepers from British Steel are designed for use in a wide range of applications, from metre gauge railways to mainline passenger and heavy haul freight routes.

British Steel has a long and proud history of supplying steel sleepers worldwide, with strict quality assurance processes in place to ensure every delivery will have a long life in service.

Our steel sleepers are manufactured from hot rolled steel produced at our Scunthorpe steelworks, and comply with all major standards (UIC, AREMA, AS etc).

We’ve exported more than 850,000 steel sleepers over the last 15 years, to numerous countries around the world for use in both metre gauge (1,000mm/1,067mm) and standard gauge (1,435mm) railways.

Working in partnership to meet customer needs
British Steel works in partnership with customers to understand the needs of the rail sector and develop innovative and value-adding products to directly address those needs.

In-house product development work, including extensive cyclic load and lateral resistance testing of finished sleepers, has resulted in a range of steel profiles that ensures efficient sleeper designs and a track which holds its alignment even under the most intensive traffic conditions.

Our steel sleepers can be adapted to suit all types of rail profiles and fastening systems required by our customers.

Our wide range of steel sleeper profiles are each designed to give an efficient solution to the duty loads imposed by railway traffic.

From low axle load narrow gauge railways up to heavy freight routes, our range of steel sleepers will accommodate all types of traffic, rail profile and fastening type.

Durable solution for track installations
Once installed, steel sleepers don’t rot and are resistant to insect attack. Steel sleepers also survive well in wet tropical climates where wood decays rapidly.

Our steel sleepers can be laid onto existing ballast. The sleeper profile and spade ends interact with the ballast bed to produce a highly stable track support requiring only minimal quantities of fresh imported ballast to complete the installation.

Ease of transportation
Steel sleepers are stackable and light enough to be manually handled on site or moved in bundles by a forklift. Road vehicles can carry 3 times more steel sleepers than concrete sleepers, meaning lower logistics costs.

We export our steel sleepers in standard 20ft containers, with sleepers stacked in bundles of 10. Typical container loading is 300-400 standard gauge sleepers and 450-600 metric gauge sleepers.
Less ballast required
Our steel sleepers require less ballast than traditional concrete sleepers, leading to reduced track construction and renewal costs. Also benefiting from a smaller carbon footprint, our steel sleepers are recyclable, making it easier to hit your sustainability targets.

Steel sleepers need less depth of ballast than concrete sleepers, because the body of ballast within the sleeper provides the necessary support to distribute the load.

Rigorous testing for product performance
The effectiveness of our steel sleepers is assured by our comprehensive laboratory testing procedures which cover stringent criteria such as fatigue resistance, lateral stability and electrical resistance. Pads and insulators for our steel sleepers are tested in accordance with EN 13145-5:2002, ensuring very high electrical resistance and compliance with track circuit signalling requirements.

In-track performance
British Steel has been producing steel sleepers for over 50 years, with many of those sleepers still in service today.

Our steel sleepers have enabled railways around the world to transport heavier loads with reduced maintenance costs due to the excellent track stability properties they provide.

Over the last 25 years, our steel sleepers have been used extensively across the UK. During this time, their use on lower category routes and single track lines has become the default solution for track renewal due to the significant cost savings achieved compared to using concrete sleepers.

The use of steel sleepers has allowed typical production rates of 300m during a midweek night "no trains period" possession.

Technical support
Our technical team is available to provide advice and support, helping you to optimise your steel sleeper selections. Steel sleepers can be matched precisely to rail sizes, gauges, inclinations, axle loads and a host of other variables to ensure that every sleeper we deliver provides optimum performance throughout its service life.

Steel sleeper property table
The table below indicates the standard mechanical properties for British Steel’s steel sleeper range.

<table>
<thead>
<tr>
<th>Principle dimensions (mm)</th>
<th>202</th>
<th>300</th>
<th>402</th>
<th>436</th>
<th>600</th>
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<tbody>
<tr>
<td>Rail seat thickness</td>
<td>mm</td>
<td>7.5/12.0</td>
<td>12.0</td>
<td>10.0</td>
<td>12.0</td>
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<tr>
<td>Rail seat width</td>
<td>mm</td>
<td>160</td>
<td>160</td>
<td>168</td>
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<tr>
<td>Leg thickness</td>
<td>mm</td>
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<tr>
<td>Section width</td>
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<td>254</td>
<td>260</td>
<td>260</td>
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<tr>
<td>Section height</td>
<td>mm</td>
<td>82</td>
<td>92</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Section properties</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Moment of inertia ( I_{xx} )</td>
<td>cm³</td>
<td>200.0</td>
<td>283.3</td>
<td>426.0</td>
<td>432.8</td>
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<tr>
<td>Section modulus ( I_{yy} )</td>
<td>cm³</td>
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<td>42.3</td>
<td>62.8</td>
<td>65.8</td>
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<td>Height of neutral axis from base</td>
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<td>67.0</td>
<td>67.1</td>
<td>68.4</td>
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<tr>
<td>Plate weight</td>
<td>kg/m</td>
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<td>28.36</td>
<td>28.54</td>
<td>31.69</td>
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