

**Comparison of BS and BS EN for steel materials**

**Appendix**

This table only highlights the comparison of BS and BS EN on steel materials, which are relevant to plan approval.

<b>Title of BS</b>	<b>BS</b>	<b>BS EN/other standards</b>	<b>Title of BS EN/other standards</b>
Specification for weldable structural steels	BS 4360: 1986 (Superseded, Withdrawn)	BS EN 10025: 1-6: 2004 (Current)	Hot rolled products of structural steels  Part 1: General technical delivery conditions  Part 2: Technical delivery conditions for non-alloy structural steels  Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels  Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels  Part 5: Technical delivery conditions for

		<p>BS EN 10025-6 : 2004 +A1 : 2009</p>	<p>structural steels with improved atmospheric corrosion resistance</p> <p>Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition</p>
		<p>BS EN 10210-1: 2006 (Current)</p>	<p>Hot finished structural hollow sections of non-alloy and fine grain structural steels</p> <p>Part 1: Technical delivery requirements</p>
		<p>BS EN 10164: 2004 (Current)</p>	<p>Steel products with improved deformation properties perpendicular to the surface of the product – Technical</p>

		BS EN 10219-1: 2006 (Current)	delivery conditions  Cold formed welded structural hollow sections of non-alloy and fine grain steels Part 1: Technical delivery requirements
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**Comparison of BS and BS EN for DT of steel materials**

This table only highlights the comparison of BS and BS EN on Destructive Testing of steel materials, which are relevant to plan approval.

<b>Title of BS</b>	<b>BS</b>	<b>BS EN/other standards</b>	<b>Title of BS EN/other standards</b>
Method for tensile testing of metals (including aerospace materials)	BS 18:1987 (Superseded, Withdrawn)	BS EN 10002-1:2001 (withdrawn)  and  ISO 6892: 1998 (withdrawn) both standard are replaced by	Tensile testing of metallic materials. Part 1: Method of test at ambient temperature  Metallic materials – Tensile testing at ambient temperature
	New	BS EN ISO 6892-1: 2009 (Current)	Metallic materials – Tensile testing Part 1: Method of test at ambient temperature

Methods for notched bar tests. Part 2: The Charpy V-notch impact test on metals	BS 131-2:1972 (Superseded, Withdrawn)	BS EN 10045-1: 1990 <b>(Superseded, Withdrawn)</b>  Replaced by	Charpy impact test on metallic materials. Part 1: Test method (V- and U-notches)
		<b>BS EN ISO 148-1: 2010 (Current)</b>	<b>Metallic materials – Charpy pendulum impact test. Part 1: Test method</b>
Method for Brinell hardness test and for verification of Brinell hardness testing machines	BS 240: 1986 (Superseded, Withdrawn)	BS EN ISO 6506: 1-3: 2005 (Current)	Metallic materials. Brinell hardness test.  Part 1: Test method.  Part 2: Verification and calibration of testing machines  Part 3: Calibration of reference blocks
Method for Vickers hardness test and for verification of Vickers hardness testing machines	BS 427:1990 (Superseded, Withdrawn)	BS EN ISO 6507: 1-3: 2005 (Current)	Metallic materials. Vickers hardness test. Part 1: Test method.  Part 2: Verification and calibration of testing



Part 1: Specification for hot rolled sections	(Superseded, Withdrawn)	(Current)	sections. Tolerances on shape and dimensions.
	-	BS EN 10055: 1996 (Current)	Hot rolled steel equal flange tees with radiused root and toes. Dimensions and tolerances on shape and dimensions.
Hot rolled structural steel sections Part 4: Equal and unequal angles	BS 4848-4:1972 (Superseded, Withdrawn)	BS EN 10056-1: 1999 (Current)	Specification for structural steel equal and unequal angles. Part 1: Dimensions.
		BS EN 10056-2: 1993 (Current)	Specification for structural steel equal and unequal angles. Part 2: Tolerances on shape and dimensions.
Hot rolled structural steel sections Part 2: Specification for hot-finished hollow sections	BS 4848-2: 1991 (Superseded, Withdrawn)	BS EN 10210-2: 1997 (withdrawn)  Replaced by BS EN 10210-2: 2006 (current)	Hot finished structural hollow sections of non-alloy and fine grain structural steels. Part 2: Tolerances, dimensions and sectional properties.
	-	BS EN 10279:2000	Hot rolled steel

		(Current)	channels. Tolerances on shape, dimension and mass.
Specification for welded cold formed steel structural hollow sections	BS 6363:1983 (Superseded, Withdrawn)	BS EN 10219-2: 1997 withdrawn  Replaced by BS EN 10219-2: 2006 (current)	Cold formed welded structural sections of non-alloy and fine grain steels. Part 2: Tolerances, dimensions and sectional properties.

#### Comparison of BS and BS EN on Corrosion Protection

This table only highlights the comparison of BS and BS EN on Corrosion Protection of steel, which are relevant to plan approval.

Title of BS	BS	BS EN/other standards	Title of BS EN/other standards
	-	BS EN ISO 11124-1:1997 (Current)	Preparation of steel substrates before application of paints and related products. Specifications for metallic blast-cleaning abrasives. Part 1: General introduction and classification.
	-	BS EN ISO 11124-2:1997 (Current)	Preparation of steel substrates before application of paints and related products.

			Specifications for metallic blast-cleaning abrasives. Part 2: Chilled iron.
Specification for chilled iron shot and grit	BS 2451: 1963 (Superseded, Withdrawn)	BS EN ISO 11124-3: 1997 (Current)	Preparation of steel substrates before application of paints and related products. Specifications for metallic blast-cleaning abrasives. Part 3: High carbon cast-steel shot and grit.
		BS EN ISO 11124-4: 1997 (Current)	Preparation of steel substrates before application of paints and related products. Specifications for metallic blast-cleaning abrasives. Part 4: Low carbon cast-steel shot.
Specification for sherardized coatings on iron and steel articles	BS 4921: 1973 (Withdrawn, superseded)	BS 4921: 1988 (Current)	Specification for sherardized coatings on iron and steel.
Specification for metallic zinc-rich priming paint (organic media)	BS 4652: 1971 (Withdrawn, superseded)	BS 4652: 1995 (Current)	Specification for zinc-rich priming paint (organic media)

<p>Specification for sprayed metal coatings. Part 1: Protection of iron and steel by aluminium and zinc against atmospheric corrosion</p>	<p>BS 2569-1: 1964 (Withdrawn, superseded)</p>	<p>BS EN 22063: 1994 (Superseded, Withdrawn) by  BS EN ISO 2063: 2005 (Current)</p>	<p>Metallic and other inorganic coatings. Thermal spraying. Zinc, aluminium and their alloys.  Thermal spraying. Metallic and other inorganic coatings. Zinc, aluminium and their alloys.</p>
<p>Specification for hot-dip galvanized coatings on iron and steel articles</p>	<p>BS 729 : 1971 (Superseded, Withdrawn)</p>	<p>BS EN ISO 1461: 1999 (Withdrawn)</p>	<p>Hot-dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.</p>

		BS EN ISO 1461: 2009 (Current)	Hot-dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods. (ISO 1461 : 2009)
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### Comparison of BS and BS EN for Welding consumables

This table only highlights the comparison of BS and BS EN on welding consumables, which are relevant to plan approval.

Title of BS	BS	BS EN/other standards	Title of BS EN/other standards
Covered carbon and carbon manganese steel electrodes for manual metal-arc welding	BS 639:1986 (Superseded, Withdrawn)	BS EN 499: 1995 (Superseded, Withdrawn) by  BS EN ISO 2560: 2005 (withdrawn) replaced by BS EN ISO 2560 : 2009 (Current)	Welding consumables- Covered electrodes for manual metal arc welding of non-alloy and fine grain steels – Classification  Welding consumables- Covered electrodes for manual metal arc welding of non-alloy and fine grain steels - Classification
Filler rods and wires for	BS 2901-1: 1983	BS EN 440: 1995	Welding consumables-

<p>gas-shielded arc welding. Part 1: Ferritic steels</p>	<p>(Superseded, Withdrawn)</p>	<p>(withdrawn)  Replaced by BS EN ISO 14341: 2008 <b>(Revised, Withdrawn)</b>  BS EN ISO 14341: 2011 <b>(Current)</b></p>	<p>Wire electrodes and deposits for gas shielded metal arc welding of non-alloy and fine grain steels – Classification.  Welding consumables. Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels. Classification</p>
<p>Specification for electrode wires and fluxes for the submerged arc welding of carbon steel and medium-tensile steel</p>	<p>BS 4165: 1984 (Superseded, Withdrawn)</p>	<p>BS EN 756: 2004 <b>(Superseded, Withdrawn)</b>  Replaced by</p>	<p>Welding consumables- Solid wires, solid wire-flux and tubular cored electrode-flux combinations for submerged arc welding of non-alloy and fine grain steels – Classification</p>
		<p><b>BS EN ISO 14171: 2010 (Current)</b></p>	<p>Welding consumables – Solid wire electrodes, tubular cored electrodes and electrode/flux combinations for submerged arc welding of non alloy and fine grain</p>

			<b>steels – Classification</b>
Specification for carbon and carbon-manganese steel tubular cored welding electrodes	BS 7084: 1989 (Revised, Withdrawn)	BS EN 758: 1997 (Superseded, Withdrawn)  Replaced by  BS EN ISO 17632 : 2008 (Current)	Welding consumables- Tubular cored electrodes for metal arc welding with and without a gas shield of non-alloy and fine grain steels – Classification  Welding consumables- Tubular cored electrodes for gas shielded and non-gas shielded metal arc welding of non-alloy and fine grain steels – Classification”

**Comparison of BS and BS EN for Welding Standard, Procedure, Coordination and Welder**

This table only highlights the comparison of BS and BS EN on Welding Standard, Procedure, Coordination and Welder, which are relevant to plan approval.

<b>Title of BS</b>	<b>BS</b>	<b>BS EN/other standards</b>	<b>Title of BS EN/other standards</b>
Specification for arc welding of carbon and carbon manganese steels	BS 5135:1984 (Superseded, Withdrawn)	BS EN 1011-1:1998 (Revised, Withdrawn)  Replaced by	Welding. Recommendations for welding of metallic materials. General guidance for arc welding

		BS EN 1011-1: 2009 (Current)	Welding. Recommendations for welding of metallic materials. General guidance for arc welding
		BS EN 1011-2:2001 (Current)	Welding. Recommendations for welding of metallic materials. Arc welding of ferritic steels

Specification for approval testing of welding procedures. Part 1: Fusion welding of steel.	BS 4870-1:1981 (Superseded, Withdrawn)	BS EN ISO 15614-1: 2004 (+ A1 : 2008) (Current)	Specification and qualification of welding procedures for metallic materials. Welding procedure test. Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys
Part 3: Arc welding of tube to tube-plate joints in metallic materials	BS 4870-3:1985 (Superseded, Withdrawn)	BS EN ISO 15614-8:2002 (Current)	Specification and qualification of welding procedures for metallic materials – welding procedure test Part 8: Welding of tubes to tube-plate joints
Part 4: Specification for automatic fusion welding of metallic materials, including welding operator approval	BS 4870-4:1988 (Superseded, Withdrawn)	BS EN 1418: 1998 (Current)	Welding personnel. Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials.
	-	BS EN 719: 1994	Welding co-ordination.

		<p>(Superseded, Withdrawn)</p> <p>Replaced by</p> <p>BS EN ISO 14731 : 2006 (Current)</p>	Tasks and responsibilities
	-	<p>BS EN 729-2: 1995 (Superseded, Withdrawn) Replaced by</p> <p>BS EN ISO 3834-2: 2005 (Current)</p>	<p>Quality requirements for welding. Fusion welding of metallic materials. Comprehensive quality requirements.</p> <p>Quality requirements for fusion welding of metallic materials. Part 2: Comprehensive quality requirements.</p>
	-	<p>BS EN 729-3: 1995 (Superseded, Withdrawn) by</p>	<p>Quality requirements for welding. Fusion welding of metallic materials. Part 3: Standard quality requirements.</p>

		BS EN ISO 3834-3:2005 (Current)	Quality requirements for fusion welding of metallic materials. Part 3: Standard quality requirements
	-	BS EN 729-4:1995 (Superseded, Withdrawn) by  BS EN ISO 3834-4:2005 (Current)	Quality requirements for welding. Fusion welding of metallic materials. Part 4: Elementary quality requirements.  Quality requirements for fusion welding of metallic materials. Part 4: Elementary quality requirements
Specification for approval testing of welders to approved welding procedures. Fusion welding of steel	BS 4871-1:1982 (Superseded, Withdrawn)	BS EN 287-1:2004 (Current)	Qualification test of welders. Fusion welding. Part 1: Steels
Specification for	BS 4871-3:1985		

approval testing of welders to approved welding procedures. Part 3: Arc welding of tube to tube-plate joints in metallic materials	(Current)		
Specification for approval testing of welders when welding procedure approval is not required Part 1: Fusion welding of steel	BS 4872-1: 1982 (Current)		

### Comparison of BS and BS EN for DT of welds

This table only highlights the comparison of BS and BS EN on Destructive Testing of welds, which are relevant to plan approval.

Title of BS	BS	BS EN/other standards	Title of BS EN/other standards
Methods of destructive testing, fusion welded joints and weld metal in steel	BS 709:1983 (Superseded, Withdrawn)	BS EN 875: 1995  <b>(Superseded, Withdrawn) Replaced by</b>  BS EN ISO 9016: 2011 <b>(Current)</b>	Destructive tests on welds in metallic materials. Impact tests. Test specimen location, notch orientation and examination.  Destructive tests on welds in metallic materials. Impact tests. Test specimen

	location, notch orientation and examination
<p>BS EN 876: 1995 (Superseded, Withdrawn) Replaced by</p>	<p>Destructive tests on welds in metallic materials. Longitudinal tensile test on weld metal in fusion welded joints.</p>
<p>BS EN ISO 5178: 2011 (Current)</p>	<p>Destructive tests on welds in metallic materials. Longitudinal tensile test on weld metal in fusion welded joints</p>
<p>BS EN 895: 1995 (Superseded, Withdrawn) Replaced by</p>	<p>Destructive tests on welds in metallic materials. Transverse tensile test.</p>
<p>BS EN ISO 4136: 2011 (Current)</p>	<p>Destructive tests on welds in metallic materials. Transverse tensile test</p>
<p>BS EN 910: 1996 (Superseded, Withdrawn)</p>	<p>Destructive tests on welds in metallic materials. Bend tests.</p>

		<p style="text-align: center;"><b>Replaced by</b></p> <p><b>BS EN ISO 5173: 2010</b> <b>(Current)</b></p>	<p><b>Destructive tests on welds in metallic materials - Bend tests.</b></p>
		<p>BS EN 1043-1: 1996 (Current)</p>	<p>Destructive tests on welds in metallic materials. Hardness testing. Part 1: Hardness test on arc welded joints.</p>
		<p>BS EN 1320: 1997 (Current)</p>	<p>Destructive test on welds in metallic materials. Fracture tests.</p>
		<p>BS EN 1321: 1997 (Current)</p>	<p>Destructive test on welds in metallic materials. Macroscopic and microscopic examination of welds</p>

**Comparison of BS and BS EN for NDT of welds**

This table only highlights the comparison of BS and BS EN on Non-Destructive Testing of welds, which are relevant to plan approval.

<b>Title of BS</b>	<b>BS</b>	<b>BS EN/other standards</b>	<b>Title of BS EN/other standards</b>
Code of practice. Visual	BS 5289:1976	BS EN 970:1997	Non-destructive

inspection of fusion welded joints.	(Superseded, Withdrawn)	(Superseded, Withdrawn) Replaced by  BS EN ISO 17637:2011 (Current)	examination of fusion welds – Visual examination  Non-destructive testing of welds. Visual testing of fusion-welded joints
Method for penetrant flaw detection.	BS 6443:1984 (Superseded, Withdrawn)	BS EN 571-1:1997 (Current)	Non-destructive testing – Penetrant testing Part 1: General principles
Method for magnetic particle flaw detection	BS 6072:1981 (Current, Obsolescent, Superseded)	BS EN 1290:1998 (withdrawn) replaced by  BS EN ISO 17638 : 2009 (Current)  BS EN ISO 9934-1:2001 (Current)	Non-destructive examination of welds – Magnetic particle examination of welds  Non-destructive testing of welds – Magnetic particle testing  Non-destructive testing. Magnetic particle testing. Part 1: General

			principles.
Method for ultrasonic examination of welds Part 1: Methods for manual examination of fusion welds in ferritic steels	BS 3923-1:1986 (Superseded, Withdrawn)	BS EN 1714:1998 <b>(Superseded, Withdrawn) Replaced by</b>  <b>BS EN ISO 17640:2010 (Current)</b>	Non-destructive testing of welded joints – Ultrasonic testing of welded joints  <b>Non-destructive testing of welds. Ultrasonic testing. Techniques, testing levels, and assessment</b>
Radiographic examination of fusion welded butt joints in steel.  Part 1: Methods for steel 2 mm up to and including 50 mm thick  Part 2: Methods for steel over 50 mm up to and including 200 mm thick	BS 2600-1 & 2:1983 (Superseded, Withdrawn)	BS EN 1435:1997 (Current)	Non-destructive examination of welds. Radiographic examination of welded joints.

### Comparison of BS and BS EN for Fastener, Nut and Washer

This table only highlights the comparison of overdue and new standards for Fastener, Nut and Washer, which are relevant to plan approval.

Title of BS	BS	BS EN/other standards	Title of BS EN/other standards
		BS EN ISO 4014: 2001 (Revised, Withdrawn)  BS EN ISO 4014: 2011 (Current)	Hexagon head bolts. Product grades A and B  Hexagon head bolts. Product grades A and B
		BS EN ISO 4016: 2001 (Revised, Withdrawn)  BS EN ISO 4016: 2011 (Current)	Hexagon head bolts. Product grade C  Hexagon head bolts. Product grade C
		BS EN ISO 4017: 2001 (Revised, Withdrawn)  BS EN ISO 4017: 2011 (Current)	Hexagon head screws. Product grades A and B  Hexagon head screws. Product grades A and B
		BS EN ISO 4018: 2001 (Revised, Withdrawn)  BS EN ISO 4018: 2011 (Current)	Hexagon head screws. Product grade C  Hexagon head screws. Product grade C

### Comparison of BS and BS EN on Matching Bolt, Nut and Washer & HSFG Bolt

This table only highlights the comparison of BS and BS EN on Matching Bolt, Nut and Washer & HSFG Bolt

Grade	Title of BS	BS	BS EN/other standard	Title of BS EN/Other standards
4.6	Specification for ISO metric black hexagon bolts, screws and nuts. Metric units.	Bolt BS 4190:2001 (Current)	BS EN ISO 4018:2001 (Current)	Hexagon head screws. Product grade C
		Specification for holding down bolts BS 7419:1991 (Current)	BS EN ISO 4016:2001 (Current)	Hexagon head bolts. Product grade C
	Specification for ISO metric black hexagon bolts, screws and nuts. Metric units	Nut BS 4190:2001 (Current) (Grade 4)	BS EN ISO 4034:2001 (Current)	Hexagon nuts. Product grade C
	Specification for metal washers for general engineering purposes. Metric series.	Washer BS 4320:1968 (Current)	BS EN ISO 7091:2000 (Current)	Plain washers. Normal series. Product grade C

8.8	Specification for ISO metric black hexagon bolts, screws and nuts.	Bolt BS 4190:2001 (Current)	BS EN ISO 4017:2001 (Current)	Hexagon head screws. Product grades A and B
	Specification for holding down bolts	BS 7419:1991 (Current)	BS EN ISO 4014:2001 (Current)	Hexagon head bolts. Product grades A and B
	Specification for ISO metric black hexagon bolts, screws and nuts.	Nut BS 4190:2001 (Current) (Grade 8)	BS EN ISO 4032:2001 (Current)	Hexagon nuts, style 1. Product grades A and B
	Specification for metal washers for general engineering purposes. Metric series.	Washer BS 4320:1968 (Current)	BS EN ISO 7091:2000 (Current)	Plain washers. Normal series. Product grade C
10.9	Specification for ISO metric black hexagon bolts, screws and nuts.	Bolt BS 4190:2001 (Current)	BS EN ISO 4017:2001 (Current)	Hexagon head screws. Product grades A and B
			BS EN ISO 4014:2001 (Current)	Hexagon head bolts. Product grades A and B

	Specification for ISO metric black hexagon bolts, screws and nuts.	Nut BS 4190:2001 (Current) (Grade 10)	BS EN ISO 4032:2001 (Current)	Hexagon nuts, style 1. Product grades A and B
	Specification for metal washers for general engineering purposes. Metric series.	Washer BS 4320:1968 (Current)	BS EN ISO 7091:2000 (Current)	Plain washers. Normal series. Product grade C
HSFG Bolt	Specification for high strength friction grip bolts and associated nuts and washers for structural engineering. Part 1: General grade  Specification for the use of high strength friction grip bolts in structural steelwork. Metric series. Part 1: General	General grade BS 4395-1: 1969 (Current, Superseded)  BS 4604-1: 1970 (Current)	BS EN 14399- Part 1 to 6 :2005 (Current)	High-strength structural bolting assemblies for preloading.  Part 1: General requirements  Part 2: Suitability test for preloading  Part 3: System HR. Hexagon bolt and nut assemblies  Part 4: System HV. Hexagon bolt and

	grade			nut assemblies  Part 5: Plain washers  Part 6: Plain chamfered washers
HSFG Bolt	<p>Specification for high strength friction grip bolts and associated nuts and washers for structural engineering. Part 2: Higher grade bolts and nuts and general grade washers</p> <p>Specification for the use of high strength friction grip bolts in structural steelwork. Metric series. Part 2: Higher grade (parallel shank)</p>	<p>Higher grade BS 4395-2: 1969 (Current, Superseded)</p> <p>BS 4604-2: 1970 (Current)</p>	BS EN 14399-Part 1 to 6 :2005 (Current)	<p>High-strength structural bolting assemblies for preloading.</p> <p>Part 1: General requirements</p> <p>Part 2: Suitability test for preloading</p> <p>Part 3: System HR. Hexagon bolt and nut assemblies</p> <p>Part 4: System HV. Hexagon bolt and nut assemblies</p> <p>Part 5: Plain washers</p>

				Part 6: Plain chamfered washers
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Notes: Any bolt assemblies which seize when being tightened shall be replaced.

(1) Nuts for galvanized or sheradized 8.8 bolts shall be class/grade 10.

(2) Nuts for sheradized 10.9 bolts shall be class/grade 12.