

**GENERAL SPECIFICATION
FOR CIVIL ENGINEERING WORKS**

2006 Edition

AMENDMENT NO. 3/2010 (April)

VOLUME 1

CONTENT

- (a) Clause 1.05 **Rename as “British Standards, European Standards adopted as British Standards, Codes of Practice and other standards”**

SECTION 1

GENERAL

- (b) Clause 1.05 **Rename the title as “*British Standards, European Standards adopted as British Standards, Codes of Practice and other standards*”**

- (c) Clause 1.05 **Replace the clause with following:-**

(1) Unless otherwise stated in the Contract, reference in this GS to British Standards, European Standards adopted as British Standards, British Standard Codes of Practice and similar standards shall be to that edition of the document stated in Appendix 1.1 of this Section.

(2) Later editions of British Standards, European Standards adopted as British Standards, British Standard Codes of Practice and other similar standards, or standards which are considered to be equivalent, shall not apply unless approved by the Engineer. The Engineer shall not be bound to give or withhold his approval until the Contractor has provided him with a legal copy of the relevant standard for information. If approval is obtained, the Contractor shall provide two legal copies of the document for use by the Engineer.

APPENDIX 1.1 STANDARDS

- (d) Delete references **Delete the following standards from Section 1.1.1:-**

BS 1449: Part 1: 1983 Specification for carbon and carbon-manganese plate, sheet and strip

BS 1449: Part 2: 1983	Specification for stainless and heat-resisting steel plate, sheet and strip
BS 6105: 1981	Specification for corrosion-resistant stainless steel fasteners
BS 6323: Part 1: 1982 (1990)	General requirements
BS 6323: Part 8: 1982 (1990)	Specific requirements for longitudinally welded stainless steel tubes

(e) New reference

Add the following standard to Section 1.1.1:-

BS 1449-1.1: 1991	Steel plate, sheet and strip. Carbon and carbon-manganese plate, sheet and strip. General specification
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(f) New references

Add the following standards to Section 1.1.8:-

BS EN 10029: 1991	Specification for tolerances on dimensions, shape and mass for hot rolled steel plates 3 mm thick or above
BS EN 10048: 1997	Hot rolled narrow steel strip. Tolerances on dimensions and shape
BS EN 10051: 1991 + A1: 1997	Continuously hot-rolled uncoated plate, sheet and strip of non-alloy and alloy steels. Tolerances on dimensions and shape
BS EN 10084: 2008	Case hardening steels. Technical delivery conditions
BS EN 10085: 2001	Nitriding steel. Technical delivery conditions
BS EN 10087: 1999	Free cutting steels. Technical delivery conditions for semi-finished products, hot rolled bars and rods
BS EN 10088-2: 2005	Stainless steels. Technical delivery conditions for sheet/plate and strip of corrosion resisting

steels for general purposes

BS EN 10095: 1999	Heat resisting steels and nickel alloys
BS EN 10149-3: 1996	Specification for hot-rolled flat products made of high yield strength steels for cold forming. Delivery conditions for normalized or normalized rolled steels
BS EN 10250-4: 2000	Open steel die forgings for general engineering purposes. Stainless steels
BS EN 10296-1: 2003	Welded circular steel tubes for mechanical and general engineering purposes. Technical delivery conditions. Non-alloy and alloy steel tubes
BS EN 10296-2: 2005	Welded circular steel tubes for mechanical and general engineering purposes. Technical delivery conditions. Stainless steel
PD 970: 2005	Wrought steels for mechanical and allied engineering purposes. Requirements for carbon, carbon manganese and alloy hot worked or cold finished steels

(g) Delete references **Delete the following standards from Section 1.1.9:-**

BS EN ISO 3506: Part 1: 1998	Mechanical properties of corrosion-resistant stainless-steel fasteners. Bolts, screw and studs
BS EN ISO 3506: Part 2: 1998	Mechanical properties of corrosion-resistant stainless-steel fasteners. Nuts

(h) New references **Add the following standards to Section 1.1.9:-**

BS EN ISO 3506-1: 2009	Mechanical properties of corrosion-resistant stainless-steel fasteners. Bolts, screw and studs
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BS EN ISO 3506-2: 2009 Mechanical properties of corrosion-resistant stainless-steel fasteners. Nuts

BS EN ISO 9445: 2006 Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths. Tolerances on dimensions and form

SECTION 5 DRAINAGE WORKS

(i) Clause 5.17

Replace the sub-clause (2) with following:-

(2) Stainless steel bolts and nuts shall comply with BS EN ISO 3506-1&2, steel Grade A4 and property Class 80. Washers shall be Grade 1.4401 in the softened condition complying with BS EN 10029, BS EN 10048, BS EN 10051 + A1, BS EN 10095 and BS EN ISO 9445.

(j) Clause 5.29

Replace the items (b) and (g) of sub-clause (1) with following:-

(b) Stems shall be stainless steel complying with BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970, Grade 1.4401.

(g) Adjustable wedges shall be phosphor bronze complying with BS 2874, Grade PB 102 or stainless steel complying with BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970, Grade 1.4401.

(k) Clause 5.30

Replace the sub-clause (5) with following:-

(5) Chains for chain operated gate valves shall be mild steel complying with BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970 and hot-dip galvanized in accordance with BS EN ISO1461. The chains shall be continuous.

(l) Clause 5.33

Replace the sub-clause (3) with following:-

(3) The bodies and covers of small and large orifice valves shall be cast iron complying with BS 1452, Grade 220. The trim and float shall be stainless steel complying with BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970, Grade 1.4401.

SECTION 11 MISCELLANEOUS ROADWORKS

(m) Clause 11.29 **Replace the 1st and 2nd paragraphs with following:-**

Stainless steel for pedestrian guard-railing shall be Grade 1.4401 and shall comply with the following:

Technical delivery conditions
for sheet/plate and strip of
corrosion resisting steels
for general purposes : BS EN 10088-2

(n) Clause 11.39 **Replace the sub-clause (1) with following:-**

(1) Beams for untensioned beam barriers shall be formed from steel plates complying with BS 1449-1.1, type BHR, and BS EN 10149-3, Grade S315NC.

(o) Clause 11.43 **Replace the sub-clause (1) with following:-**

(1) Washers for untensioned beam barriers shall be black mild steel and shall comply with BS 4320, Form E, F or G. Washers shall be manufactured from steel complying with BS 1449-1.1 and BS EN 10149-3, Grade S315NC.

SECTION 12 TRAFFIC SIGNS, ROAD MARKINGS AND ROAD STUDS

(p) Clause 12.06 **Replace the 1st and 2nd paragraphs with following:-**

Stainless steel for traffic signs shall be Grade 1.4401 and shall comply with the following:

Technical delivery conditions
for sheet/plate and strip of
corrosion resisting steels
for general purposes : BS EN 10088-2

(q) Clause 12.08 **Replace the 8th paragraph of sub-clause (1) with following:-**

Mechanical properties
of corrosion-resistant
stainless-steel fasteners.

Bolts, screws and studs : BS EN ISO 3506-1

Mechanical properties of
corrosion-resistant stainless
steel fasteners. Nuts : BS EN ISO 3506-2

VOLUME 2

SECTION 18

STEELWORK

(r) Clause 18.12

Replace the clause with following:

(1) Wrought stainless steel shall comply with BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970, Grade 1.4401.

(2) Flat rolled stainless steel shall comply with BS EN 10029, BS EN 10048, BS EN 10051 + A1, BS EN 10095 and BS EN ISO 9445, Grade 1.4401 in the softened condition.

(3) Stainless steel tubes shall comply with BS EN 10296-1 and BS EN 10296-2.

(4) Stainless steel bolts and nuts shall comply with BS EN ISO 3506-1&2, steel Grade A4 and property class 80. Stainless steel washers shall comply with BS EN 10029, BS EN 10048, BS EN 10051 + A1, BS EN 10095 and BS EN ISO 9445, Grade 1.4401 in the softened condition. The dimensions and tolerances of bolts and nuts shall comply with BS 3692. The dimensions and tolerances of tapered washers shall comply with BS 3410 and the dimensions and tolerances of flat washers shall comply with BS 4320, Form C.

SECTION 19

HANDRAILING, LADDERS, STAIRS AND FLOORING

(s) Clause 19.08

Replace the clause with following:

Stainless steel for handrailing, ladders, stairs and flooring shall be Grade 1.4301 complying with BS EN 10029, BS EN 10048, BS EN 10051 + A1, BS EN 10095 and BS EN ISO 9445. Stainless steel tubes shall be longitudinally welded tubes complying with BS EN 10296-2. Tubes for

handrails shall be polished.

(t) Clause 19.10

Replace the 7th paragraph of sub-clause (1) with following:

Stainless steel fasteners : BS EN ISO 3506-1&2

SECTION 20

BRIDGEWORKS

(u) Clause 20.16

Replace the clause with following:

Dowel bars for bridge bearings shall be stainless steel of Grade 1.4401, BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970.

SECTION 21

MARINE WORKS

(v) Clause 21.19

Replace the items (f) and (g) with following:

(f) Stainless steel washers shall be Grade 1.4401 austenitic steel complying with BS EN 10029, BS EN 10048, BS EN 10051 + A1, BS EN 10088-2, BS EN 10095 and BS EN ISO 9445. The dimensions and tolerances of stainless steel washers shall comply with BS 4320.

(g) Stainless steel for chains, railings, cat ladders, pumphouse screens and screen guides, mooring eyes and other marine fittings shall be Grade 1.4401 austenitic steel complying with the following:

Technical delivery conditions
for sheet/plate and strip of
corrosion resisting steels
for general purposes : BS EN 10088-2

Specification for
stainless and
heat-resisting steel
plate, sheet and strip : BS EN 10029,
BS EN 10048,
BS EN 10051 + A1,
BS EN 10095,
BS EN ISO 9445

SECTION 22 WATER SUPPLY PIPEWORKS

(w) Clause 22.27 **Replace the clause with following:**

Extension keys, clamps and its associated bolts, nuts and washers for valves shall be Grade 1.4401 stainless steel complying with BS EN 10084, BS EN 10085, BS EN 10087, BS EN 10095, BS EN 10250-4 and PD 970.

SECTION 24 BUILDING WORKS

(x) Clause 24.181 **Replace the sub-clause (5) with following:**

(5) Stainless steel shall be of the 18/9 chromium nickel group. Stainless steel plate, sheet and strip shall comply with BS EN 10029, BS EN 10048, BS EN 10051 + A1, BS EN 10095 and BS EN ISO 9445 and shall be Finish No. 2B for mill finish and Finish No. 2J for polished finish. Stainless steel tubes for structural and general engineering purposes shall comply with BS EN 10296-2, and shall have the same finish as for plate, sheet and strip.

**Quality Management & Standards Unit
Civil Engineering and Development Department
15 April 2010**