

General Specification for Civil Engineering Works**2020 Edition****AMENDMENT NO. 3/2022****VOLUME 1****SECTION 1 GENERAL****APPENDIX 1.1****STANDARDS**

- (a) Appendix 1.1 **Add the following standards:**
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| BS EN 1011-2:2001 | Welding. Recommendations for welding of metallic materials. Arc welding of ferritic steels |
| BS EN 10164:2018 | Steel products with improved deformation properties perpendicular to the surface of the product. Technical delivery conditions |
| PD 6695-1-10 | Recommendations for the design of structures to BS EN 1993-1-10 |

VOLUME 2**SECTION 18 STEELWORK****CONSTITUENT PRODUCTS**

- (b) Clause 18.15 **Add “to BS EN 10164” after “deformation properties” and “The guidance on suitable precautions given in BS EN 1011-2 and PD 6695-1-10 shall be followed.” after the last sentence of sub-clause (3).**
- (c) Clause 18.17 **Replace “, but class K0 assemblies may also be used” with “of all k-classes (K2, K1 and K0)”.**
- (d) Clause 18.19 **Replace the numbering of sub-clause “(1)(2nd)” with “(2)”, “(2)” with “(3)”, “(3)” with “(4)” and “(4)” with “(5)”.**

Add “fully” after “nuts” and add “Lubricant coatings which are permanently liquid and could risk contamination of faying surfaces shall

not be used.” **after the last sentence of sub-clause (1)(b).**

Delete “bolt” after “class 10.9” in sub-clause (2).

Replace “bolts” with “bolting assemblies” and add “a mechanical process such as” after “shall be by” in sub-clause (3).

(e) Clause 18.20 **Replace “carrying” with “subject to”.**

PREPARATION AND ASSEMBLY

(f) Clause 18.30 **Replace “introduce permanent notches” with “introduction of permanent stress concentrating details. Any filling of permitted temporary holes by welding shall be subject to qualification of the procedure(s) and the welder(s) using the preparation(s) and material thickness(es) to be used in production, and to specific testing.” in sub-clause (2).**

Add the following new sub-clause after sub-clause (2):

(3) A record of the details of any connections for temporary components shall be provided and shall form part of the execution documentation (see Clause 4.2.4 of BS EN 1090:Part 2 and Clause 18.10).

(g) Clause 18.31 **Replace the numbering of sub-clause “(1)” with “(2)” and “(2)” with “(3)”.**

Add the following new sub-clause before sub-clause (2):

(1) Trial assembly shall be undertaken where required by the Engineer or as specified in the Contract.

Replace “at that time” with “during the trial assembly” in sub-clause (2).

Add “, where applicable” after “into account” in sub-clause (3).

Replace “to” with “shall” and “dead weight deflections” with “self-weight stresses, where the unstressed camber profile is being checked” in sub-clause (3)(a).

Delete “re-establishment of the” after “correct”, add “shall be re-established” after “assembly parts” and add “including correct relative levels of bearing” after “trial assembly” in sub-clause (3)(b).

Delete “control of, or allowance for,” before “differential temperature”, replace “distributions” with “distribution”, add “shall be controlled or allowed for” after “the steelwork” and delete “and” after “when surveys are made;” in sub-clause (3)(c).

Replace “.” with “shall be used;” in sub-clause (3)(d).

Add the following new sub-clauses after sub-clause (3)(d):

- (e) all shop welding and bolting shall be complete;
- (f) every bolt hole shall be proved with a bolt of identical size to those to be used at the site;
- (g) lack of fit between components shall not be corrected by bolt tensioning; and
- (h) the position and level of all bearings and primary control points shall be surveyed at the trial erection.

WELDING

- (h) Clause 18.34 **Replace “Where” with “For”, “are used in the roof of a preparation, a” with “, the”, “be produced for this specific condition” with “include the special deposition conditions and the tests stated in Clause 18.34 (6)”, and delete the last two sentences of sub-clause (3).**

Replace sub-clauses (4), (5) and (6) with the following:

- (4) The tolerances on cross section and length of the tack weld and any subsequent profiling requirements, such as feathering of ends, shall be specified in the WPS.
- (5) To qualify the procedure for a tack weld where it is to be incorporated in the joint, the maximum permitted cross section of tack weld shall be used in the qualification test. The positions of the ends of the tack weld shall be marked on the test piece.
- (6) Macroscopic examination and hardness testing shall be carried out within the tack weld length. This test is not required if the original test for qualifying the complete weld includes the tack weld tested as described in this paragraph.

- (i) Clause 18.39 **Delete the last sentence of sub-clause (1), sub-clauses (1)(a) and (1)(b).**

Add the following new sub-clause after sub-clause (1)

- (2) For the assembly of hollow section components where access to the joint for welding is restricted, a pre-production welding test conforming to BS EN ISO 15613 shall be conducted using the tolerances on preparation and fit-up that give the most restricted access, to demonstrate that the required penetration can be achieved.

MECHANICAL FASTENING

- (j) Clause 18.51 **Replace the numbering of sub-clause “(1)(2nd)” with “(4)” and “(2)(2nd)” with “(5)”.**

Add “tolerance” after “If this”, “the cover plate(s) shall be removed and corrective” after “is exceeded,” and replace “used” with “installed” in sub-clause (1).

Replace “If necessary, bolts can be partially slackened to enable shims to be inserted. The shims shall not be loose in the final snug tight stage. In the event of a tapering gap, a purpose machined tapered steel shim may be used. As an alternative, flat (parallel) steel shims of not less than 0.1 mm and of not more than 0.2 mm thick shall be inserted to refusal in steps until the gap in the contact zone is filled, followed by retightening to the snug tight stage.” with “The following shall apply” in sub-clause (2).

Add the following new sub-clauses under sub-clause (2):

- (a) If necessary, bolts can be partially slackened to enable shims to be inserted.
- (b) The shims shall not be loose in the final snug tight stage.
- (c) In the event of a tapering gap, use of a purpose machined tapered steel shim is permitted.
- (d) As an alternative to Clause 18.51(2)(c), flat (parallel) steel shims of not less than 0.1mm and of not more than 0.2mm thick shall be inserted to refusal, in steps until the gap in the contact zone is filled, followed by retightening to the snug tight stage.
- (e) If sealing of the joint is required, the remaining gaps shall be filled with a corrosion protection medium compatible with the corrosion protection to be applied to the joint after final tightening of the bolting assemblies.

Replace sub-clause (4)(a) with the following:

- (a) the k-class of the bolting assemblies shall comply with Clause 18.17;

SURFACE TREATMENT

- (k) Clause 18.64 **Add the sub-clause numbering (1) to the paragraph and the following new sub-clause after sub-clause (1):**
 - (2) Where spaces are to be fully enclosed by sealing welds to prevent the ingress of moisture, weld imperfections involving surface breaking voids otherwise permitted under the welding specification shall be sealed using an appropriate weld repair.
- (l) Clause 18.65 **Add “or after welding” after “by cutting” in sub-clause (1).**

INSPECTION, TESTING AND CORRECTION

- (m) Clause 18.72 **Replace the numbering of sub-clause “(4)” with “(3)” and “(5)” with “(4)”.**

Add the following sub-clause after sub-clause (2)(b).

- (c) inspection and sample testing of the mechanical fasteners in accordance with BS EN ISO 3269 to confirm that the dimensional characteristics and mechanical, physical and functional properties comply with the product standard to which the mechanical fasteners have been manufactured.

- (n) Clause 18.81 **Replace the numbering of sub-clause “(2)(2nd)” with “(3)”.**

APPENDIX 18.1**PREPARATION OF STEELWORK SURFACES**

- (o) Clause 18.1.3 **Replace “carried out in accordance with Clause 6.1 of BS EN ISO 2063” with “to BS EN ISO 8501:Part 1” in sub-clause (3).**

APPENDIX 18.2**PAINTING OF STEELWORK**

- (p) Clause 18.2.1 **Replace the numbering of sub-clause “(3)(2nd)” with “(4)” and “(4)” with “(5)”.**

- (q) Table 18.1 **Replace Table 18.1 with the following:**

Bolt diameter d (mm)	12	14	16	18	20	22	24	27	30	36
Torque value M (Nm)	40	60	80	110	160	210	270	340	460	810

- (r) Table 18.2 **Replace the bolt diameter (mm) of “16 to 22” in the second cell of the first column with “12 to 22”.**

Replace the bolt diameter (mm) of “24 to 30” in the third cell of the first column with “24 to 36”.

ACKNOWLEDGEMENTS

- (s) **Replace “August 2014” with “April 2021” in sub-clause (1)**

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27 September 2022**