New and revised codes & standards

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BS EN PUBLICATIONS

BS EN ISO 21904-1:2020
Health and safety in welding and allied processes. Equipment for capture and separation of welding fume. General requirements
supersedes BS EN ISO 15012-4:2016

BS EN ISO 23386:2020
Building information modelling and other digital processes used in construction. Methodology to describe, author and maintain properties in interconnected data dictionaries
no current standard is superseded

BS IMPLEMENTATIONS

BS ISO 4992-1:2020
Steel castings. Ultrasonic testing. Steel castings for general purposes
supersedes BS ISO 4992-1:2006

BS ISO 4992-2:2020
Steel castings. Ultrasonic testing. Steel castings for highly stressed components
supersedes BS ISO 4992-2:2006

BS ISO 21455:2020
Mobile elevating work platforms. Operator's controls. Actuation, displacement, location and method of operation
no current standard is superseded

BRITISH STANDARDS REVIEWED AND CONFIRMED

BS EN ISO 15609-4:2009
Specification and qualification of welding procedures for metallic materials. Welding procedure specification. Laser beam welding

BS EN 1011-1:2009
Welding. Recommendations for welding of metallic materials. General guidance for arc welding

BRITISH STANDARDS WITHDRAWN

BS EN ISO 15012-4:2016
Health and safety in welding and allied processes. Equipment for capture and separation of welding fume. General requirements
Superseded by BS EN ISO 21904-1:2020

BS ISO 4992-1:2006
Steel castings. Ultrasonic examination. Steel castings for general purposes
Superseded by BS ISO 4992-1:2020

BS ISO 4992-2:2006
Steel castings. Ultrasonic examination. Steel castings for highly stressed components
Superseded by BS ISO 4992-2:2020

BRITISH STANDARDS UNDER REVIEW

BS EN 14399-1:2015
High-strength structural bolting assemblies for preloading. General requirements

BS EN 14399-2:2015
High-strength structural bolting assemblies for preloading. Suitability for preloading

BS EN 14399-3:2015
High-strength structural bolting assemblies for preloading. System HR. Hexagon bolt and nut assemblies

BS EN 14399-4:2015
High-strength structural bolting assemblies for preloading. System HV. Hexagon bolt and nut assemblies

BS EN 14399-5:2015
High-strength structural bolting assemblies for preloading. Plain washers

BS EN 14399-6:2015
High-strength structural bolting assemblies for preloading. Plain chamfered washers

BS EN 10034:1993
Structural steel I and H sections. Tolerances on shape and dimensions

NEW WORK STARTED

EN ISO 9606
Qualification test of welders. Fusion welding
will supersede BS EN ISO 9606-1:2017

ISO 21928-2
Sustainability in buildings and civil engineering works. Sustainability indicators. Framework for the development of indicators for civil engineering works
will supersede None

AD 443: The use of fully threaded bolts

SCI has been surprised to hear of the use of fully threaded bolts being questioned, as these have been in common use – and have been the standard bolt used – for very many years.

The potential advantage of partially threaded bolts is that they obviously have a slightly higher shear resistance if the shear plane is in the unthreaded length. The disadvantages of calculating precise unthreaded lengths, which must be neither too long nor too short, and relating each bolt length to specific connections, far outweigh the increased resistance. On site, multitudinous bags of different bolt lengths give ample opportunity to install the wrong bolts. In contrast, a standard M20 x 60 mm fully threaded bolt may be used in the vast majority of site connections.

The use of fully threaded bolts was recommended in the first "Green Book" of 2002[1] and the Eurocode version of 2014[2].

Concerns with fully threaded bolts may relate to the supposed increased in bearing deformation, if the threads engage with the steel rather than the unthreaded shank. Investigations of the behaviour of fully threaded bolts were reported by Graham Owens in 1992[3]. Although fully threaded bolts in bearing show a lower initial stiffness, the bearing strength actually increases slightly, due to the constraint offered when the threads dig into the plate material. The deformation in bearing of a fully threaded bolt is slightly more than that of a plain shank, but the increase is not relevant when bolts are already in 2 mm oversize holes.

If designers are concerned about deformation in a joint, the issue does not concern whether fully threaded or unthreaded bolts are specified – the difference in performance is insignificant. If deformation in the joint must be avoided, preloaded assemblies must be specified.

It should be noted that shear and tension resistances quoted (in the Blue Book, for example) always use the cross section in the threaded length as the basis of the resistance calculations – and are therefore safe.

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1. *Joints in steel construction. Simple connections* (P212), SCI and BCSA, 2002
2. *Joints in steel construction. Simple joints to Eurocode 3* (P358), SCI and BCSA, 2014
3. Owens, G, W., *The use of fully threaded bolts for connections in structural steelwork for buildings.* The Structural Engineer, Volume 70, September 1992