



PASSIVE FIRE PROTECTION

AD 384

Welding in cold-formed zones

This AD note provides guidance/clarification related to the issue of welding in the cold-formed zones of structural hollow sections.

For historical reasons, there are concerns regarding the possible strain ageing caused by welding and hence the reduction in impact toughness in the corners of rectangular hollow sections (RHS). Consequently, EN 1993-1-8⁽¹⁾ includes restrictions on welding in the corner area (Clause 4.14 and Table 4.2). These restrictions do not apply if heat-treatment has been performed on cold-formed sections, to produce sections with compatible metallurgical properties to hot finished sections (EN 10210⁽²⁾).

Cold-formed RHS according to EN 10219⁽³⁾ do not automatically satisfy the requirement of Table 4.2 of EN 1993-1-8, for welding in the corners. The internal corner radius "r" in Table 4.2 is more stringent than EN 10219.

However, EN 10219 hollow sections satisfying the EN 1993-1-8 criteria for welding in cold-formed corners are available on the European market. These materials can be welded without concerns regarding the possible reduction in impact toughness of hollow section corners.

Thus, if the conditions in Table 4.2 of EN 1993-1-8 are met, which is the case for some EN 10219 product, welding in the corners and adjacent cold-formed zones is automatically permitted.

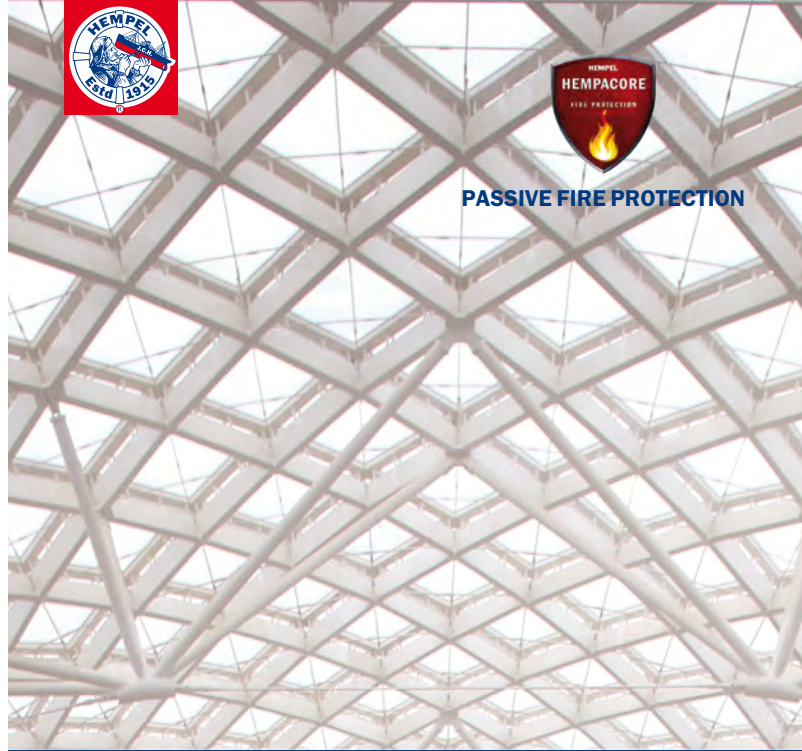
For other EN 10219 product which does not meet the geometric conditions in Table 4.2, but satisfies the chemical analysis given in the table, welding in the corners and adjacent cold-formed zones is also permitted.

In other cases, welding in this area is only allowed if it can be shown by tests that welding can be permitted for that particular application.

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References:

- (1) BS EN 1993-1-8:2005 Eurocode 3: Design of steel structures. Design of joints (incorporating corrigenda December 2005, September 2006, July 2009 and August 2010)
- (2) BS EN 10210-1:2006 Hot finished structural hollow sections of non-alloy and fine grain steels. Technical delivery conditions (2006)
BS EN 10210-2:2006 Hot finished structural hollow sections of non-alloy and fine grain steels. Tolerances, dimensions and sectional properties (2006)
- (3) BS EN 10219-1:2006 Cold formed welded structural hollow sections of non-alloy and fine grain steels. Technical delivery conditions (2006)
BS EN 10219-2:2006 Cold formed welded structural hollow sections of non-alloy and fine grain steels. Tolerances, dimensions and sectional properties (2006)



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