

Title: Shell Opening Reinforcement

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Purpose: To clarify the existing wording of the standard. And to allow shell alternate shell fittings.

Source: Email from B. Mistry 04/02/07

Revision: Rev 5

Impact: Minimal

Background:

- A) The Email requested that API address the following questions:
 - (1) Is purchaser approval required if nozzles are reinforced per API-620 including all attachment welds, which may not comply with 3.7.2.8 and Fig.3.4A and 3-5 and associated tables?
 - (2) Is full fillet weld on outside of reinforcing pad required even if you prove by strength analysis following API-620 and ASME Sect. VIII Div.1 that full fillet is not required? (see 3.7.2.7)
- B) During the SCAST Spring 2008 meeting it was felt that alternative shaped shell openings should be handled in this section
- C) After the Spring meeting, several of the SCAST members carried on an Email conversation that influenced the composition of this revision

Proposal: For increased clarity of this section, provide guidance for alternative shaped shell openings and to answer the email questions, it is proposed to modify section 5.7.1.8 as shown below.

Note: text to be changed or added is **highlighted** below; the **highlights** are for this ballot only and are not intended for inclusion in the publication. Proposed deleted text is not shown for clarity.

Existing Standard	Proposed Change
5.7.1.8 With the approval of the Purchaser , the shape and dimensions of the shell reinforcing plates , illustrated in Figures 5-7A, 5-7B, and 5-8 and dimensioned in the related tables, may be altered as long as the thickness, length, and width dimensions of the proposed shapes meet the area, welding, and spacing requirements outlined in 5.7.2 and 5.7.3. Reinforcement and welding of shell openings that comply with API Std 620 are acceptable alternatives. This statement of permissible alternatives of shell opening reinforcement does not apply to flush-type cleanout fittings and flush-type shell connections.	5.7.1.8 The shape and dimensions of the shell opening reinforcement , illustrated in Figures 5-7A, 5-7B, and 5-8 and dimensioned in the related tables may be altered as long as the reinforcement meets the area, welding, and weld spacing requirements outlined in 5.7.2 and 5.7.3. For reinforcing plates greater than 1/2" thick, with approval of the Purchaser , reinforcement and welding of shell openings that comply with API Std 620 are acceptable These statements of permissible alternatives of shell openings and reinforcement do not apply to flush-type cleanout fittings or flush-type shell connections or similar configurations .

Rationale: It is felt that the revised wording clarifies the text and answers the Emailed questions as follows:

- (1) Purchaser approval is NOT required when deviating from API 650 figures as long as the reinforcement area and weld spacing are maintained.
- (2) Alternate shaped opening reinforcement and welding are now specifically allowed if the installed fitting complies with API 620 and the reinforcing plate is greater than 1/2".
- (3) Full fillet welds are still required for reinforcing plates 1/2" thick and less.

Notes: None

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