



ASSESSMENT

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Date
2014-11-11

Reference
4P05323

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Assessment of butterfly valve structural analysis report

Introduction

SP Technical Research Institute of Sweden has been commissioned by Högfors Oy to assess the document entitled Valve Calculation Revision B, dated 2014-11-04. This document covers the following valve dimensions: DN200, DN250, DN300, DN350, DN400, DN450, DN500, DN600, DN700, DN800, DN900, DN1000, DN1200, DN1400.

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Assessment

The calculations of the structural integrity of the valves have been reviewed and are correct assuming that the loads and boundary conditions discussed in the report have been correctly applied in the finite element models and that the analytical equations shown in the report have been correctly applied to the calculations for all of the valve sizes.

The analysis uses a failure criteria that is borrowed from the EN13445-3:2009+C5:2013 for unfired pressure vessels. This failure criteria states that the nominal design stress for test conditions shall not exceed the minimum yield strength or 0.2% proof strength at test temperature, as given in the technical specification for the material, divided by the safety factor 1.05.

In the calculations, a load partial safety factor of 1.35 has been applied to the loads given in EN 488:2011. This factor is based on the EN 1990:2002/A1:2005/AC:2010 Eurocode – Basis of structural design for the ultimate limit state with consequence class CC1.

Based on the review of the information presented in the document, the butterfly valves covered in the report should be able to withstand the loads outlined in the EN 488:2011.

Note that only the structural integrity of the valves has been investigated. This assessment does not give any information regarding the leak tightness or the opening and closing torques, which are all necessary when determining whether or not the valves fulfil the requirements of the EN 488:2011.

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