



Fire Type-Test Certificate

Office: **Birmingham**

Date: **10 August 2021**

This Certificate is issued to CONCEPT 2 ENGINEERING LTD., Hey Lane, Scammonden, Huddersfield, HD3 3FW, to certify that the undersigned did carry out remote inspection on 22nd July 2021 in order to witness fire testing of the valve listed below. Testing was carried out on behalf of CRANE INSTRUMENTATION & SAMPLING INC., dba: HOKE INCORPORATED, in accordance with Testing Procedure TP-479 Rev. 0 and API 607: Seventh Edition: -

**LEVER OPERATED BALL VALVE WITH PEEK SEATS, DN 20 (3/4") Nom
RATED PRESSURE CLASS 2500 – DRAWING NO: 661567C-FT REV. 1
MANUFACTURED IN AUSTENITIC STEEL (ASTM A479 UNS S31600) BODY**

The valve was mounted in the test apparatus with the bore in a horizontal position, and flame environment thermocouples and calorimeter cubes located in position. The test apparatus was verified to comply with the requirements of the testing procedure and calibration of test equipment was also verified.

The valve was then subjected to a pressure test to a pressure in accordance with the requirements of paragraph 5.1 of the testing procedure.

The closed valve was then subjected to a 30 minute burn test with the pressure being maintained in accordance with paragraph 5.2 of the testing procedure. The average temperature of the thermocouples was maintained between 750°C and 1000°C, with no temperature reading less than 700°C during the burn period. The average temperature of the calorimeter cubes was 650°C within 15 minutes of the burn period and maintained with no temperature recorded of less than 560°C. The burner was then shut off, and the valve force cooled to below 100°C within the time specified in paragraph 5.4 of the testing procedure.

Through seat leakage (high test pressure) during the burn period, external leakage (high test pressure) during burn and cool-down periods, and final external leakage (high test pressure) after cool-down and subsequent valve operation (paragraph 5.6) were measured, and found to be in accordance with the standard.


The test valve was fully opened against test pressure as per paragraph 5.5 of the testing procedure and the maximum force noted.

The sizes qualified as per the standard are DN 20 (3/4") and below. Class rating qualified as per the standard is 2500. In accordance with paragraph 7.2.1 of API 607, the materials of construction of the pressure retaining envelope qualify other austenitic materials of construction within this generic classification

With regard to the satisfactory results of the above tests, and satisfactory review of the test report (TR-479), it is considered that the above referenced valve meets the requirements of approved Testing Procedure No. TP-479 Rev. 0 and API 607: Seventh Edition. Note – the above activities were carried out under remote inspection due to prevailing COVID-19 crisis.

Equipment Calibration: -

Pressure Transducer: Ident. No: PTX23 (0-1600 bar) – calibrated 26/05/21, due 26/05/22, certificate P00425, calibrated internally by C2E (not accredited to ISO 17025) using Aditel ADT681 (0-30000psi) master gauge, serial No. 211H13790026 calibrated by Chamois Metrology Limited (UKAS 0822), certificate 83702 refers.
K Type Thermocouples Nos: TC2003-06K – calibrated 23/03/20, 1st use 28/09/20, due 28/09/21, certificates 20-03-006 Rev 1; TC2003-03K – calibrated 23/03/20, 1st use 31/03/21, due 31/03/22, certificate 20-03-003; TC2003-05K – calibrated 23/03/20, 1st use 13/04/21, due 13/04/21, certificate 20-03-005; TC2011-03K – calibrated 05/11/20, 1st use 28/05/21, due 28/05/22, certificate 20-11-001; calibrated internally by C2E against an Isotech Semi Standard Thermocouples (Type R) serial Nos 341704/5 & 341704/4, Calibrated by Isothermal Technology (UKAS 0175), certificates 19-11-72 & 19-11-68 refer.



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