



Applicant's Guide for submitting production valve samples for new construction under the National Board Capacity Certification Program

1.0 Scope

- 1.1 This document contains guidelines and requirements for current and prospective NB/ASME (V, UV, HV) certificate holders for submitting production samples of new valves to an ASME/NB certified lab, as required by ASME Boiler and Pressure Vessel Code Sections I PG-73.4 and XIII 3.4. For guidelines and requirements for valves submitted for VR or T/O verification testing please refer to NB-553.

2.0 Valves submitted for production capacity certification (Section I PG-73.4.3 and XIII 3.4.2)

2.1 Sizes, Set Pressures, and Configurations

2.1.1 Connections/Special Fittings

2.1.1.1 If valve designs have connection types other than ASME/ANSI flanges or American NPT Threaded connections, the lab where the valves are being tested shall be consulted and if required the applicant shall provide test fittings/adapters.

2.1.1.2 For valves designs that have ASME/ANSI flanged connections, it is preferable that valves be submitted with valve bodies that have an inlet flange rating of at least Class 300# to maximize the pressure range that can be submitted for testing.

2.1.2 Configurations

2.1.2.1 For pilot valve certifications with multiple pilot types (pop, modulating, etc.) each sample shall have a different pilot type.

2.1.2.2 If different options are available (plain cap vs. lifting lever, soft vs. metal seat, conventional vs. bellows) it is preferable that the valves submitted have a mix of options. All liquid valves submitted shall have either a closed cap or packed lever.

2.1.3 Valves Certified by Single-Device or Three-Device Method

2.1.3.1 These designs will include only one orifice size and one set pressure. If there is more than one inlet size, then two different inlet sizes should be submitted. One valve will be selected for the Single Valve Method.

2.1.4 Valves Certified by Four-Device Method

2.1.4.1 These designs will include one orifice size available over a range of set pressures. If there is more than one inlet size, two different inlet sizes should be submitted as well as a low and high set pressure.

2.1.5 Valves Certified by Coefficient of Discharge Method

2.1.5.1 These designs include a range of orifice sizes and set pressures in the scope of certification. Two different sizes, one smaller and one larger, and a low and higher set pressure should be submitted. The larger orifice valve should typically be the lower set pressure due to limitations of the testing laboratory. The sizes and set pressures should be consistent with the applicant's scope and typical production specifications, but also be within the laboratory's testing capabilities.

2.1.6 Variable Restricted Lift Certifications

2.1.6.1 A valve type with variable restricted lift shall have a lift submitted that is in the range of 75% of full lift down to the minimum for that valve size.

2.2 Code Sections/Designators

2.2.1 V-Designated Service (Section I) Only

2.2.1.1 Applicants submitting valve designs that are only certified for Section I service, both valves shall be V-Designated valves. Blowdown for steam service shall be set to not exceed the specified maximum value at the applicant's facility as permitted by PG-73.4.3 (a).

2.2.2 Dual V and UV-Designated Service (Section I and XIII)

2.2.2.1 Applicants submitting valve designs that are certified for both Sections I (V) steam service and XIII (UV) steam/air/gas, both valves submitted shall be Section I (V) steam service valves (the overpressure requirements for Section I steam service are more stringent – note that Section I par. PG-73.4.3(a) requires blowdown to be set by the applicant at their facility). Blowdown adjustment to Section XIII requirements may be needed at the test laboratory (manufacturers only) (Reference ASME Section XIII, 3.4.2.3(a)).

2.2.2.2 Applicants submitting valve designs that are certified for both Sections I (V) and XIII (UV) liquid only service, the valves submitted shall be one for each code section. The main differences are that Section I mandates a drain hole and lifting lever at all times (unless designated for PTFH service, where the drain is not required, and the lift lever is prohibited.) Since the fluid is hot water the lifting lever should be a closed design.

2.2.3 UV-Designated Service (Section XIII) Only

2.2.3.1 Applicants submitting valve designs that are only certified for Section XIII UV-Designated valves for compressible fluids, one valve submitted shall be set on steam and one valve set on air. If the certification is for air and gas service only, then both valves will be set on air (Ref.: ASME Section XIII, Table 3.6.3.1-1).

2.2.3.2 When selecting Section XIII UV-Designated valves for incompressible fluids both valves must be set on water or another suitable liquid (Reference ASME Section XIII, Table 3.6.3.1-1).

2.2.3.3 Valves certified under CC2787 (multiple media) shall be tested using manufacturer's testing procedures and specified media. Where the manufacturer's procedure allows for either air or water to be used, it is preferable that one valve be tested on air and one valve be tested on water. Where steam is one of the media to be marked on the valve, the valve shall be tested on steam. In all cases only two primary valves will be required and will be tested on all marked media at the certified flow laboratory.

2.3 HV-Designated Service (Section XIII) Only

2.3.1 Applicants submitting valve designs that are only certified for low pressure steam heating boilers (15 psi), the valves may be set on steam or air (Reference ASME Section XIII, Table 3.6.3.1-1). The laboratory certification testing will be conducted on steam.

2.3.2 Applicants submitting valve designs that are only certified for hot water boiler service, the valves may be set on water, steam, or air (Ref: ASME Section XIII, Table 3.6.3.1-1). Laboratory set pressure test medium may be specified by the applicant (steam if not specified) and capacity testing will be conducted on steam.

2.3.3 Applicants submitting valve designs that are pressure-temperature relief valves, the opening pressure is determined with room temperature water (Ref: ASME Section XIII, par. 7.8(a)) using the manufacturer's testing procedure. Set pressure measurement at the laboratory will be based on the pressure at the valve inlet when the flow rate through the valve is 40 cubic

centimeters/minute. Laboratory capacity tests will be performed using steam. The manufacturer shall supply a dummy thermal element during assembly or may disable the element at the time of flow testing.

3.0 Valves may be requested for the sole purpose shop review quality control demonstration per Section I PG-73.4.2 and XIII 3.4.1(c) (Note this only applies if valves are not already being submitted for capacity certification testing).

3.1 One pressure relief device shall be produced for each Code Designator the applicant has applied for with a minimum of two valves. If valves are being submitted for capacity certification to the applicable Code Designator, additional devices for the shop review demonstration are not required. Devices submitted solely for shop review demonstration that will not be used for capacity certification do not have to meet requirements specific to capacity certification (ex: Sect. I 6% blowdown or Sect. XIII blowdown adjustment). These devices shall have their control elements positioned to manufacturer's standards (Ref. Section I PG-73.5.2 or XIII 3.4.2.1).

3.2 The requirements of 2.1.1 shall apply for non-standard connections.

4.0 Spare and Replacement Valves

4.1 Applicants submitting spare valves shall notify the National Board **prior to confirming the visit date.** Notification after a visit date is confirmed may be cause for additional charges to be incurred or not being able to accommodate the request to submit spare valves. Spare valves shall be the same size as the corresponding primary valve. Set pressures for spares shall include one valve at the same set pressure, and one valve with the set pressure close to but different from the original set pressure. For replacement valves, the same requirements for spares apply except one replacement shall be identical to the valve that failed.

4.2 New valves which were previously tested and failed to meet test requirements, may be resubmitted if the applicant's quality system makes provisions for returning valves into controlled stores inventory. Valves which met testing requirements may not be resubmitted.