

Information Bulletin No. IB05-008

December 16, 2005

VARIANCE

(VA05-015)

Variance to Section 2(2)(c) of the Design, Construction and Installation of Boilers and Pressure Vessels Regulations (AR 227/1975)

In accordance with Section 38(1) of the Safety Codes Act, a variance is hereby issued to allow an intermediate value (2415 kPa, 85 litres) and straight-line interpolation in Section 2(2)(c) of the Design, Construction and Installation of Boilers and Pressure Vessels Regulations.

Until further notice otherwise, pressure vessels that meet the conditions listed below do not require an inspection/certification permit as provided in Section 2(2) of the Design, Construction and Installation of Boilers and Pressure Vessels Regulations.

Conditions for a pressure vessel to be exempted from the requirement to have an inspection/certification permit, under Section 2(2)(c) of the Design, Construction and Installation of Boilers and Pressure Vessels Regulations, are that the vessel:

1. does not have a quick actuating closure,
2. is not required by the ASME Boiler and Pressure Vessel Code to be fully radiographed,
3. is not designed and constructed in accordance with Section VIII, Division 2 or 3 of the ASME Boiler and Pressure Vessel Code, and
4. is below the volume-pressure limits as shown below.

The volume-pressure limits, as shown in Figure 1, are:

- 150 litres in volume and 1725 kPa design pressure, or
- 85 litres in volume and 2415 kPa design pressure, or
- 42.5 litres in volume and 4140 kPa design pressure, or
- any intermediate combination of volume and pressure obtained by straight line interpolation between adjacent pairs of value.

Background

The volume-pressure limits were based on consideration of the stored energy in the pressure vessel. Section 2(2)(c) of Design, Construction and Installation of Boilers and Pressure Vessels Regulations deals with exemption from inspection/certification permit for any pressure vessel for use in Alberta. Paragraph U-1(j) of the ASME Code Section VIII Division 1 provides rules for miniature pressure vessels. The 1996 Addenda of the ASME Code Section VIII Division 1 brought in an intermediate value of 350 psi (2.4 MPa) in design pressure and 3 cu ft (0.08 m³) in volume and permitted straight-line interpolation.

Figure 1 is not identical to the limits established for miniature pressure vessels, but the variance ensures that miniature pressure vessels as defined in Paragraph U-1(j) of ASME Code Section VIII Division 1, 2004, will continue to be exempt from the requirement to have an inspection/certification permit. This variance does not make any change in requirements for Manufacturers that have an ABSA-accepted quality program to construct miniature pressure vessels. Manufacturers are reminded that they must follow the requirements of the ASME Code when constructing miniature pressure vessels.

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Figure 1 – Pressure Vessel Pressure-Volume Exemption Curve

