Where brazing is permitted, the brazing filler material and fluxes shall conform to the rules covering identification in NB-2150 and to the requirements of (a), (b), and (c) below.

(a) The filler material used in brazing shall be a nonferrous metal or alloy with a solidus temperature above 800°F (425°C) and at least 500°F (260°C) above the highest temperature of the joint in service.

(b) The filler material shall melt and flow freely by capillary action within the desired temperature range, and, in conjunction with a suitable flux or controlled atmosphere, the filler material shall wet and adhere to the surfaces to be joined.

(c) Fluxes that are fluid and chemically active at the brazing temperature shall be used, when necessary, to prevent oxidation of the filler metal and the surfaces to be joined, and to promote free flowing of the filler material.

**NB-4520 BRAZING QUALIFICATION REQUIREMENTS**

**NB-4521 Brazing Procedure and Performance Qualification**

Qualification of the brazing procedure to be used and of the performance of brazers and brazing operators is required and shall comply with the requirements of Section IX, except as noted below.
**NB-4522 Valve Seat Rings**

Validation of the procedure qualification per Section IX, Table QB-451.5, Note (1) is not required for the furnace brazing of seat rings to bodies or bonnets of valves having inlet piping connections of NPS 4 (DN 100) and less.

**NB-4523 Reheated Joints**

In addition to the requirements of Section IX, the brazing procedure shall be set up as a new procedure specification and shall be completely requalified when the construction of the brazed components includes reheating of any portion of the completed brazed joint to a temperature that is within 300°F (165°C) of the solidus temperature of the filler metal.

**NB-4524 Maximum Temperature Limits**

The design temperature shall not exceed the upper temperature shown in the third column of Table NB-4524-1. For design temperatures below the temperature shown in the second column of Table NB-4524-1, no further testing beyond that required by Section IX is required. For design temperatures in the range shown in the third column of Table NB-4524-1, tests in addition to those required by Section IX are required. These tests shall be considered a part of the procedure qualification. For such design temperatures, two tension tests on production type joints are required, one at the design temperature and one at 1.05T, where T is the melting point of the filler metal.