## 4.19.1 Metric Form Specification Sheet For ASME Section VIII, Division 2 Bellows Expansion Joints, Metric Units

Date:_____/_____/_____

Applicable ASME Code Edition:_____

Vessel Manufacturer:_____

Vessel Owner:_____

Installation Location:_____

Expansion Joint Overall Length:_____ mm

1. Item Number:_____
2. Drawing/Tag/Serial/Job Number:_____
3. Quantity:_____
4. Size: _____ OD _____ID mm

5. Internal Pressure: Design _____ MPa
6. External Pressure: Design _____ MPa
7. Vessel Manufacturer Hydrotest Pressure Internal _____ MPa External _____ MPa

8. Temperature Design _____ °C Operating _____ °C Upset _____ °C
9. Vessel Rating MAWP _____ MPa MDMT _____ °C Installed Position: ☐ Horz. ☐ Vert.
10. Design Movements [Note (1)]:

    Axial Compression: (−)_____mm Axial Extension: (+)_____mm Lateral:_____ mm Angular: _____ deg

11. Specified Number of Cycles: _____
12. Design Torsion: Moment _____ N-mm or Twist Angle: _____ deg

13. Shell Material: _____ Bellows Material: _____
14. Shell Thickness: _____ mm Shell Corrosion Allowance: Internal:_____ mm External:_____ mm
15. Shell Radiography: ☐ Spot ☐ Full
16. End Preparation: ☐ Square Cut ☐ Outside Bevel ☐ Inside Bevel ☐ Double Bevel (Describe in Line 24 if special)
17. Heat Exchanger Tube Length Between Inner Tubesheet Faces: _____ mm

18. Maximum Bellows Spring Rate: ☐ No ☐ Yes – _____ N/mm
19. Internal Liner: ☐ No ☐ Yes – Material_____
20. Drain Holes in Liner: ☐ No ☐ Yes – Quantity/Size:_____
21. Liner Flush with Shell ID: ☐ No ☐ Yes – Telescoping Liners? ☐ No ☐ Yes
22. External Cover: ☐ No ☐ Yes – Material:_____
23. Pre-Production Approvals Required: ☐ No ☐ Yes – Drawings / Bellows Calculations / Weld Procedures

24. Additional Requirements (i.e., bellows pre-set, ultrasonic examination, etc.):

NOTE:

(1) For multiple movements, design movements (line 10) can be replaced by operating movements, which should then be described under "Additional Requirements" (line 24). For each one of them, axial compression or axial extension, lateral deflection and angular rotation at each extremity of cycle, together with the specified number of cycles, should be indicated. When known, the order of occurrence of the movements should also be indicated.