

FORM TEXP-1 TUBE EXPANDING PROCEDURE SPECIFICATION (TEPS)

1	Company Name:	By:
2	Tube Expanding Procedure Specification No.	Date
3	Revision No.	Date
4	Expanding Process(es)	Driver Type(s)

JOINTS

5	Measurement and Control of Tube Hole	Tube Pitch
6	Tube Hole Diameter and Tolerance	Maximum Tube to Hole Clearance Before Expanding
7	Ratio Tube Diameter/Tube Wall Thickness	Minimum Ratio Drilling Pitch/Tube Diameter
8	Maximum % Wall Reduction	Minimum % Wall Reduction
9	Maximum Permissible Deviation from Specified Hole Diameter	Maximum Permissible % of Holes that Deviate
10	Details of Tube End Hole Enhancement and/or Tube End Enhancement	Minimum Ratio Tubesheet Thickness/Tube Diameter
11	Method of Fixing Tubes in Position	Length of Expansion
12	Setback from Front Tubesheet Face Before Start of Expanding	Setback from Rear Tubesheet Face After Expanding
13	Method of Removing Weld Droop	Method of Tube End and Hole Cleaning
14	Other Joint Details:	

EXPANDING EQUIPMENT

15	Manufacturer(s), Model No.(s), Range of Tube Diameters and Thicknesses, Maximum Torque Output or Pressure.		
16	Expanding Tool Model and Description		
17	Expanded Length per Application of Expanding Mandrel	No. of Applications/ Expanded Length	
18	Torque or Pressure Calibration System and Frequency	Explosive Charge and No.(s) of Applications	

PROPERTIES

19	Range of Tube Elastic Modulus	Range of Plate Elastic Modulus
20	Range of Tube Yield Stress (mill test report values)	Min. Max.
21	Range of Tubesheet Yield Stress (mill test report values)	Min. Max.
22	Minimum Tubesheet Yield Stress/Tube Yield Stress NOTE: Values below 0.6 require shear load testing.	

TUBES

23	Diameter Range	Thickness Range	Maximum Ratio Tube Diameter/Thickness
24	Material Specifications		

TUBESHEETS

25	Thickness Range	Minimum Ratio of Tubesheet Thickness to Tube Diameter
26	Material Specifications	
27	REMARKS:	