Date	*Description Of Change*	*Signature*	*Rev. Level*
10/26/2015	*Initial Release*	*Nicholas Girard*	*-*
3/8/2017	*Typo in 2.1.2. "18" in length" is stated when test specimen should be 8" in length.* 2.2.8. Record your observations.	*Josh Green*	*B*

Procedure Approval:	**Company Title:** Quality Manager	**Date:** 9/27/2013

1. Scope

1 Procedure

1.1 Preoperational Checks and Preparation:

1.1.1 Obtain test specimen from finishing and clean the surface of any dirt, burs, chipping, debris & oil both inside and out. Test specimen should be 8” in length according to SB-111.

1.1.2 Clear pressing zone of any material or hazards that might corrupt data produced from testing. Examples include debris or chipped pressing blocks that would cause additional abrasions to the test specimen.

1.1.3 Obtain “flattening block” which is exactly 2” in diameter for conducting tests.

1.1.4 Determine flattened caliper setting by multiplying the average wall length by three. The work order / work instructions provided by quality staff or management also calculate this value.

1.2 Operation

1.2.1 Collect 8” specimen from finishing

1.2.2 Using a digital caliper, allocate 2 inches and twist the holding knob to hold the measurement.

1.2.3 Placing one end of the caliper on the end of the specimen, score the tube at the predetermined 2” mark on both ends.

1.2.4 Measure to the center of the specimen and score the tube one inch away from both sides of the dividing line.

1.2.5 Each test specimen shall be flattened using a hydraulic press at these (3) three places along the length, each new test zone to be rotated on its axis 1/3 turn. Each turn represents a new plain of testing, so as to maximize the data collected on the tubes mechanical properties.

1.2.6 Each plain should be slowly flattened by one stroke of the press, observation of the specimen should be free of cracks or ruptures, based oFf observations of the unaided eye.

1.2.7 A tube is “flattened,” according the ASME SB-111, when a caliper set to three times the average wall length may pass freely over each test zone without touching or hanging up.

1.2.8 Write down your observations on the work order provided. In the event of failed observations, denote your findings and request a new test specimen to be provided after reporting to your superior.

Flattening Test

Work Order Date	**10/29/2015**
Purchase Order #	**P256-395**
Customer	
Energy & Process	

Metal Type				
Material	C70600	**O.D.**	0.375	**Annealing Batch #**
Standard	SB-111	**Wall**	0.035	

Work instructions

1. From each heat cut an (8") Inch test specimen to be flattened.

2. Each test specimen shall be flattened in a press at (3) three places along the length, each new place to be rotated on its axis 1/3 turn, the flattened area shall be 2" in length.

3. The flattened test piece shall allow a micrometer or caliper set at (3x) times the material wall thickness to pass freely over the flattened area.

4. Evaluate each flattened tube without magnification for signs of cracks.

5. Input the results in the spaces provided below, If surface flaws are observed list the total number of pieces associated in the heat provided.

Date	Operator ID	TAG #	Micrometer/Caliper Setting	PIECES		Comments
				FAILED	PASSED	
		3646	0.105			
		3646	0.105			
		3646	0.105			

SAFETY FIRST

OPERATOR! YOU WERE ASSIGNED THIS WORK TO BE COMPLETED TO THE BEST OF YOUR ABILITY. BY ACCEPTING THIS WORK ASSIGNMENT YOU CONFIRM THAT YOU UNDERSTAND ALL THE REQUIREMENTS PROCEDURES AND SAFETY RULES.