

Ameritube LLC
1000 N. Hwy 77, Hillsboro TX 76645

Revision Level:
B

Procedure No.
SOP 403

Revision Date:
10/28/15

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Tensile Testing

This Document expires one day after printing
Last Printed: October 29, 2015

Date
09/27/2013
10/28/2015

Description Of Change
Initial Release
Revised SOP #, Added WO copy

<i>Signature</i>	<i>Rev. Level</i>
Shawn Franks	-
Nick Girard	B



Procedure Approval:

Company Title:

Date:

Quality Manager

9/27/2013

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1. Scope

The scope of this procedure is to provide for a system and instructions, and to assign responsibilities for initiating, requesting, implementing, and checking the effectiveness of tensile testing. This procedure applies to the testing of materials for conformance to tensile strength stated in ASTM Standards for Metals Test Methods and Analytical Procedures Vol 03.01E8-98.

- 1.1 These test methods cover the tensile testing of metallic materials in any form at room temperature, specifically, the methods of determination of yield strength, yield point elongation, tensile strength, elongation, and reduction of area.
- 1.2 Quality Assurance is responsible for collecting the samples, compiling and reviewing the pertinent information. At a minimum, Quality Assurance reviews:
 - 1.2.1 Tensile strength and yield of material;
 - 1.2.2 Tensile testing result reports;
 - 1.2.3 Provide Material Test Reports (MTR) to customers;
 - 1.2.4 Customer specification on tests; and
 - 1.2.4 Preparation of test materials.
- 1.3 Tensile Testing is conducted when the material is finished with the final anneal unless otherwise specified by customer purchase order.

2. Operation of Tensile Tester

- 2.1 Prepare the test sample of eight (8) inches, deburred and free from all mechanical blemishes, do not grind the test area for it may cause a reduction in the strength of the material.
- 2.2 Select the appropriate jaws for the tube diameter.
- 2.3 Mark a line, using a marker, two (2) inches from both ends of an eight (8) inch test sample for a total of four (4) inches in between the marks.
- 2.4 Insert plugs into each end of the tube, so the tube does not crush during testing. The plugs should fit snug
- 2.5 Adjust the jaws with the Raise and Lower switch on the control panel to put a small amount of tension on the tube.
- 2.6 On the electronic analysis, select zero (0) to zero out the unit
- 2.7 Select Setup- then option three (3), verify. Option one (1) states x- Section Area Hit Enter –Input the Area (Sq in) from the Tensile Test Work order and hit Enter. Then input the Length of 4.00, this is the distance in-between the two (2) lines marked on the tube and hit Enter.
- 2.8 Select Esc to exit out of setup.
- 2.9 Turn the Load Control Speed knob in the center of the control panel to six (6) or (7).
- 2.10 Start the tester. After the specimen breaks, make sure that it broke in the middle. If not, preform the test again. Remove both ends from that tester and butt the broken ends together. Measure the marked lines and record the new measurement. The electronic unit will ask for the dimension after pull. Input the dimension and hit Enter.
- 2.11 Record all the necessary data the work order calls for from the electronic unit in the spaces provided.

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Tensile Testing

Work Order Date **10/29/2015**

Purchase Order # **2845-2222**

Customer

Metal Type

Annealing Batch #

Holtec International

Material	C70606	OD	0.998
Standard	SB-111	Wall	0.047

Hardness

Work instructions

1. Select the appropriate Jaws for the tube diameter.
2. Mark a line using a marker two (2) inches from each end of an eight (8) inch test sample for a total of four (4) inches in between the
3. Insert plugs into each end of the tube so the tube won't crush during testing, the plugs should fit snug.
4. Insert tube into the jaws making sure the four (4) inch area is visible in between the clamping jaws.
5. Turn the raise and lower switch on the control panel to lower to put a small amount of tension on the tube.
6. On the analysis blue box select zero (0) to zero (0) the unit.
7. Select setup- then option three (3) verify option 1) states x - section area hit enter - Then input the Area (SqIn) from below and hit enter - Then input the length of 4.00 this is the distance in between the two (2) lines marked on the tube and hit enter.
8. Select Esc to exit out of setup.
9. Turn knob in center of the control panel to read six (6) or seven (7) this controls the speed of pull.
10. Hit the start button on the control panel to begin the test.
11. After the specimen breaks make sure it broke in the middle and remove both ends from the jaws and cut the broke ends, end to end to measure the distance from line to line that was marked on the tube. The blue analysis box will ask for the dimension after pull Input that dimension and hit enter.
12. Record the PK Ld. And PSI in the spaces provided.

Date	Operator ID	Tag #	Area (SqIn)	Length before pull	Length after pull	PK (Psi)	PK Requirement	Yield (Psi)	Yield Requirement	Elongation
			0.140							
			0.140							

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.