

Standard Operating Procedure Borescoping	SOP No. 7.006
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1 Purpose

- 1.1 To establish a standard procedure for remote videoprobe examination of manual and orbital/automatic gas tungsten arc welding (GTAW) and materials (e.g. pipe / tube).

2 Scope

- 2.1 This procedure applies to the material requiring examination as per project specifications.

3 Responsibility

- 3.1 The Quality Control Examiner (QCE) shall perform the following procedures listed below.

4 Procedures

- 4.1 Obtain a borescope and video tape (VHS) recorder with a character generator. The borescope probe should have a centering device to assist in keeping the probe a constant distance from ID of the weld.
- 4.2 If works relate to pharmaceutical industries, review SOP 7.002 (Quality Control Examination for Pharmaceutical Material) if works relate to semiconductor industries, review SOP 7.003 (Quality Control Examination for Semiconductor Material).
- 4.3 Borescoping frequency on internal surface of stainless steel tubing and welds:
 - 4.3.1 Initial borescoping examination will be 20% of random examination on stainless steel (tubing) or welds within the whole project.
 - 4.3.2 If a defect is found from the first 20% random examination, increase the examination frequency to 50% of the whole project.
 - 4.3.3 If a defect is found from the 50% random examination, increase the examination frequency to 100% of the whole project.

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4.3.4 If awarded project has been committed to performed weld examination based on customer/project requirements, step 4.3.1 to 4.3.3 will be waived and QCE shall follow customer/project QCE requirement to perform weld examination. Otherwise, QCE shall follow Therma's standard borescoping frequency as described above (step 4.3.1 to 4.3.3).

4.4 Receiving and examination of piping / tubing

4.4.1 Using character generator, identify the following information and record on video tape:

4.4.1.1 Project

4.4.1.2 Date

4.4.1.3 Purchase Order (PO) Number

4.4.1.4 Heat Number

4.4.1.5 Log Number, Entry Number

4.4.2 Insert probe head into tubing. Position and move head to examine the entire length of the seam weld.

4.4.3 While drawing out the probe, rotate to examine for surface anomalies.

4.4.4 Log findings on Form FN 7.002.1 (Material Examination Log).

4.4.5 After completion of tubing examination, cap off all openings of the tube with appropriated plastic end protection as example "Caplug" that is manufactured by Protective Industries, Inc.

4.5 Weld inspection

4.5.1 Using character generator, identify the following information and record on video tape:

4.5.1.1 Project

4.5.1.2 Date

4.5.1.3 Weld Number

4.5.1.4 Fabrication Drawing Number

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4.5.1.5 Log Number, Entry Number

4.5.2 Insert probe into tubing and locate weld. Start video tape recorder and rotate probe to view the entire circumference of weld.

4.5.3 Log findings on Form FN 5.005.1 (Weld & Coupon Log) and Form FN 5.005.5 (Orbital Weld Log) at the back of fabrication/isometric drawing.

4.5.4 After completion of weld examination, cap off all openings of the spool assemblies with appropriated plastic end protection.

4.6 If the material being examined is at the prefabrication area, notify the prefab foreman. If the material is in the field, notify the field foreman of the results.

5 Review and Approval

5.1 No approval is necessary.

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Document Approval


Process Systems Manager

3-8-12
Date


Engineering Manager

3/06/12
Date


Quality Assurance Manager

3/6/12
Date

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