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AEROSPACE MATERIAL SPECIFICATION

AMS2310™ REV. G

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Superseding AMS2310F

Qualification Sampling and Testing of Steels for Transverse Tensile Properties

RATIONALE

AMS2310G results from a Five-Year Review and update of this specification that revises the minimum thickness for rectangular bars (3.1, 3.2.1) and clarification of sampling (3.1.1).

1. SCOPE

This specification covers procedures for sampling and testing aircraft-quality, special aircraft-quality, and premium aircraft-quality steels requiring transverse tensile property testing.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A370 Mechanical Testing of Steel Products

3. TECHNICAL REQUIREMENTS

3.1 Sampling

Samples shall be selected as in 3.1.1 through 3.1.6. Samples shall be full cross-sections taken from the largest size billet or bar for which the steel is to be qualified but before reduction to under 5 inches (127 mm) in diameter or 4.00 inches (102 mm) between parallel sides. Each sample, except those from individual billets or bars, shall be identified with its location in the ingot/remelt ingot and, when known, the ingot number and the ingot position in the heat. Specimens prepared as in 3.2 and tested as in 3.3 shall meet the specified requirements.

3.1.1 Heat Qualification

When the product of an entire heat is to be qualified, samples shall be taken as follows; sampling is different for heats made from top poured ingots/electrodes and from bottom poured ingots/electrodes:

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3.1.1.1 Pouring Sequence Known

When the pouring sequence is known and traceability of billets or bars to ingot/remelt ingot position has been maintained, samples shall be taken from one end of billets or bars representing the following positions:

3.1.1.2 For Heats Produced from Top Poured Ingots/Electrodes

3.1.1.2.1 One or Two Ingot/Electrodes Per Heat

Top and bottom of each ingot/remelted ingot.

3.1.1.2.2 Three to Nine Ingots/Electrodes Per Heat

Top and bottom of the first and last ingot/remelted ingot in the pouring sequence.

3.1.1.2.3 Ten or More Ingots/Electrodes Per Heat

Top and bottom of the first, middle, and last ingot/remelted ingot in the pouring sequence.

3.1.1.3 For Heats Produced from Bottom Poured Ingots/Electrodes

For each plate (cluster) poured per heat, a top and a bottom of resulting ingots or remelted ingots.

3.1.2 Partial Heat Qualification

When the product of only some ingots/electrodes from a heat is to be qualified, samples shall be taken from one end of billets or bars representing the positions in those ingots or remelted ingots specified in 3.1.1.1 when pouring sequence is known. When only a portion of an ingot or remelted ingot is to be qualified, samples shall be taken from one end of billets or bars representing the top and bottom of that portion of the ingot or remelted ingot.

3.1.3 Billet or Bar Qualification

If the product of an entire heat is not qualified as in 3.1.1, or the product of a portion of a heat is not qualified as in 3.1.2, or if traceability to ingot/remelt ingot position has not been maintained, samples shall be taken from both ends of each billet or bar to be qualified.

3.1.4 Multiple Size Qualifications

If the product of a heat or portion of a heat is qualified at one size, that heat or portion of a heat will be considered qualified for any size of smaller cross-sectional area without additional testing if the results of the original tests meet the requirements specified for the smaller size, unless purchaser specifies that each size be tested for qualification.

3.1.5 Products from a heat qualified to the requirements of a specification requiring premium aircraft-quality steel may be supplied, without retesting, to a specification requiring aircraft-quality or special aircraft-quality steel of the same basic composition.

3.1.6 When the material specification requires that samples be forged to specific size for qualification, or when specified by purchaser, the steel shall be forged to that size before cutting samples.

3.2 Specimen Preparation

The samples obtained as in 3.1 shall be heat treated as specified in the material specification. Tensile specimens shall be prepared from the heat treated samples as specified in 3.2.1 or 3.2.2 and tested as in 3.3.