

MSS SP-112-2010

Quality Standard for Evaluation
of
Cast Surface Finishes

Visual and Tactile Method

Standard Practice
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FOREWORD

One of the MSS Cast Surface Comparators, as described in Section 4 and Figure 1, is included with the purchase of the printed version of this Standard Practice because it is a necessary and normative part of the Standard Practice. However, the Comparator is a “necessary and normative” part of the Standard Practice whether purchased in printed form or electronically. Those purchasing this Standard Practice electronically may submit a receipt to MSS within 30 days of payment and receive a Comparator at no charge. Additional MSS Cast Surface Comparators may also be purchased via our web site or home office.

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QUALITY STANDARD FOR EVALUATION OF CAST SURFACE FINISHES VISUAL AND TACTILE METHOD

PURPOSE

- a) To establish an easy "sight and feel" method for the quality evaluation of cast surface finishes.
- b) To make available a Cast Surface Comparator with MSS surface rating numbers 1 through 10, to be used to monitor surface finish by a visual and tactile method.
- c) To provide guidance on surface finish by "sight and feel" to minimize misunderstanding which may occur between purchaser and manufacturer.

1. SCOPE

1.1 This surface quality Standard Practice provides criteria for the visual and tactile evaluation of cleaned AS-CAST surface finishes of components manufactured from castings.

1.2 This Standard Practice and its supporting MSS Cast Surface Comparator may be applied to surfaces formed by any casting method.

1.3 This Standard Practice provides visual and tactile criteria for evaluating casting surface finish and texture, which can be used to develop an acceptable quality level.

1.4 Cast surfaces on materials such as gray iron, ductile iron, bronze, and malleable iron may be compared with the use of this Standard Practice; however, it is not the intention of this Standard Practice to limit comparisons to only these types of materials.

1.5 This Standard Practice does not apply to machined surfaces or those surfaces that are intended to be machined.

1.6 This Standard Practice is limited to "sight and feel" by comparison without measurement. Luster and color are not part of this Standard Practice.

1.7 This Standard Practice is not intended for use on those castings where burn-in, slag, scabs, etc. so distort the surface that the comparator cannot be used and the casting may be rejected for other causes.

2. DEFINITIONS

Refer to ASME B46.1, "Surface Texture (Surface Roughness, Waviness, and Lay)".

3. CAST SURFACE FINISH

3.1 *General* There are many methods of measuring cast surface finishes to establish a criteria for quality acceptance limits. These are primarily by measurement or pictures. See the references listed in Annex A of this Standard Practice for other inspection methods; including ASTM A802, MSS SP-53, MSS SP-55, and MSS SP-93.

3.2 Cast Surface finishes involve texture, roughness, waviness, lay and flaws. For definitions and other actual measurement methods for various surface irregularities refer to ASME B46.1 or any of the other referenced standards.

3.3 The casting method and material used will influence the surface roughness. Consideration must be given to the actual acceptable surface finish and its final function. A mutual agreement should be made between purchaser and manufacturer.

3.4 The degree of roughness forms the criteria of this Standard Practice. Through the use of the MSS Cast Surface Comparator and its 10 three-dimensional surfaces, an acceptable cast surface finish can be agreed upon.

4. MSS CAST SURFACE COMPARATOR

4.1 The MSS Cast Surface Comparator is an economical, convenient "pocket size"