

MSS SP-54-1999
Reaffirmed 2007

**Quality Standard for Steel Castings
and Forgings for
Valves, Flanges, and Fittings
and Other Piping Components**

**Radiographic
Examination Method**

Standard Practice
Developed and Approved by the
Manufacturers Standardization Society of the
Valve and Fittings Industry, Inc.
127 Park Street, NE
Vienna, Virginia 22180
Phone: (703) 281-6613
Fax: (703) 281-6671
E-mail: info@mss-hq.org



www.mss-hq.org

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FOREWORD

This Standard Practice provides methods and acceptance standards for the film method of radiographic examination of steel castings for valves, flanges, and fittings and other piping components. It is applicable to examination of repairs as well as to the initial examination of castings.

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**QUALITY STANDARD FOR STEEL CASTINGS AND FORGINGS FOR VALVES,
FLANGES, AND FITTINGS AND OTHER PIPING COMPONENTS**

1. **SCOPE**

1.1 The methods of Section 4 provide uniform procedures which will produce satisfactory and consistent results upon which the acceptance standards of Section 5 may be used.

1.2 This examination guide may be used on a voluntary basis or when specified in the inquiry, contract, or order and when mutually agreed upon by the manufacturer and the purchaser. It is difficult to rigidly interpret radiographs to a set of acceptance standards; consequently, there is a need for close cooperation between the manufacturer and the purchaser in applying radiographic acceptance standards.

2. **DEFINITIONS**

2.1 For definitions of terms relating to radiography see ASTM E 94 Appendix X1 and ASTM E 142 Paragraph 2.

3. **BASIS FOR USE**

3.1 Critical sections of pressure containing castings shall be radiographed. These sections will be selected by the valve or fitting manufacturer on the basis of previous experiences. These sections will be those which are critical in any one of three senses:

- a) Casting solidification
- b) Stress concentration
- c) Ability to contain pressure

3.2 Inspection guide ASTM E 94 includes radiographs of various types and degrees of discontinuities encountered in steel castings. Radiographs of castings up to 2 in. (51 mm) wall thickness shall be interpreted to ASTM E 446, from 2 in. up to 4½ in. (51 mm up to 114 mm) to ASTM E 186) and from 4½ in. to 12 in. (114 mm to 305 mm) to ASTM E 280.