

MSS SP-53-1999
Reaffirmed 2007

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

**Magnetic Particle
Examination Method**

Standard Practice
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| FOREWORD |

This Standard Practice provides methods and acceptance standards for magnetic particle examination of ferritic steel valves, flanges, fittings and other piping components by use of dry magnetic powder or wet magnetic particles. It is applicable to examination of repairs as well as to initial examination of castings and forgings.

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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 3.0 provide uniform procedures which will produce satisfactory and consistent results upon which the acceptance standards of Table 1 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.

1.3 This Standard Practice includes the examination of pressure containing castings and forgings.

2. **DEFINITIONS**

2.1 **Pressure Containing Piece** – A piece whose failure would permit the contained fluid to escape to the atmosphere. For valves the body and bonnet (cover) and end pieces (of multi-piece valve bodies, e.g., ball valves) shall be considered the pressure containing pieces.

2.2 **Indication** – A detectable magnetic particle accumulation resulting from a distortion of the magnetic field.

2.3 **Linear Indication** – An indication in which the length is more than three times the width.

2.4 **Rounded Indication** – An indication which is circular or elliptical with its length less than three times its width.

2.5 **Standard Definitions** – See ASTM E 1316 Terminology for Nondestructive Examination.

3. **PROCEDURE**

3.1 All exterior and accessible interior surfaces of the pressure containing parts shall be examined by the magnetic particle method. Examination may occur prior to machining or after machining at the manufacturer's option. This Standard Practice may also be used for examination of other parts when mutually agreed upon by the manufacturer and the purchaser.