

MSS SP-70-2006

Gray Iron Gate Valves Flanged and Threaded Ends

Standard Practice
Developed and Approved by the
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This MSS Standard Practice was developed under the consensus of the MSS Technical Committee 106 and the Coordinating Committee. The content of this Standard Practice is the result of the efforts of competent and concerned volunteers to provide an effective, clear, and non-exclusive specification that will benefit the industry as a whole. This MSS Standard Practice is intended as a basis for common practice by the manufacturer, the user, and the general public. The existence of an MSS Standard Practice does not in itself preclude the manufacture, sale, or use of products not conforming to the Standard Practice. Mandatory conformance is established only by reference in a code, specification, sales contract, or public law, as applicable.

Unless otherwise specifically noted in this MSS SP, any standard referred to herein is identified by the date of issue that was applicable to the referenced standard(s) at the date of issue of this MSS SP. See Annex C.

In this Standard Practice all notes, annexes, and figures are construed to be essential to the understanding of the message of the standard, and are considered part of the text unless noted as 'supplemental.' All footnotes appearing in this document are construed as 'supplemental' where their information does not modify the text to which they refer.

U.S. customary units in this SP are the standard, the metric units are for reference only.

Non-toleranced dimensions in this Standard Practice are nominal, and, unless otherwise specified, shall be considered "for reference only".

This document has been substantially revised from the previous 1998 edition. It is suggested that if the user is interested in knowing what changes have been made, that direct page by page comparison should be made of this document.

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FOREWORD

The 1998 edition of MSS SP-70, in addition to various editorial changes, includes changes to: provide a more complete metric version for reference use, delete the Class 800 Pressure-Temperature rating, and expand Annex C to include ISO references.

The 2006 edition of MSS SP-70 included the following changes: 1) deleted ASTM A 536 and ASTM A 395 materials, since valves made of these materials will now be included in SP-128, 2) deleted PN designations since these were easily confused with designations used in international standards that were based on other material specifications and pressure-temperature rating procedures, 3) added minimum wall thickness requirements, that were previously omitted, in order to qualify the Class 125 and Class 250 ratings designations used in this Standard Practice, 4) added Type IV valves with illustrations, and 5) replaced the terminology “cast” iron with “gray” iron.

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GRAY IRON GATE VALVES FLANGED AND THREADED ENDS

1. SCOPE

1.1 This Standard Practice covers gray iron gate valves with flanged or threaded ends.

1.2 This Standard Practice covers valves in sizes and pressure-temperature ratings specified herein for general purpose service.

1.3 This Standard Practice also includes, directly or by reference, stipulations on chemical and physical properties of materials, and dimensions of end connections in common use.

2. VALVE DESIGNATION, CLASSES AND SIZES

2.1 **Valve Types** Valve types covered herein are illustrated in Figures A1, A2, A3, A4, A5, A6, A7 and A8 in Annex A.

Type I — Solid Wedge Disc
Type II — Split Wedge Disc
Type III — Double Disc, Parallel Seat
Type IV — Resilient Seat

Note: The valve sketches herein are for the purpose of illustration and nomenclature only. They are not intended to exclude any design meeting this Standard Practice.

2.2 **Construction Designations**

Designation NT—Non-Rising Stem, Threaded End
NF—Non-Rising Stem, Flanged End
OT—Outside Screw and Yoke,
Threaded End
OF—Outside Screw and Yoke,
Flanged End

2.3 **Trims**

- (a) All Bronze
- (b) All Iron
- (c) Bronze with Ferrous Stem
- (d) Resilient Seating

2.4 **Classes**

125
250

2.5 **Sizes**

- (a) $2 \leq \text{NPS} \leq 48$ flanged end
- (b) $2 \leq \text{NPS} \leq 6$ threaded end

3. PRESSURE-TEMPERATURE RATINGS

3.1 Pressure-temperature ratings for the various classes of valves are shown in Table 1. Metric units (bar) are shown in Table B1 in Annex B. The ratings specified are for valves with metal-to-metal seating surfaces. Pressure-temperature ratings for valves with non-metallic seat materials shall be limited to reflect the physical characteristics of these materials at each temperature, and may be lower but in no case higher than the values shown in Tables 1 and B1.

3.2 The temperature shown for the corresponding rating shall be the metal temperature of the pressure retaining parts. It shall be assumed that the metal temperature will be the temperature of the contained fluid. Use of a pressure rating at a metal temperature other than that of the contained fluid shall be the responsibility of the user.

4. MATERIAL

4.1 **General** This Standard Practice covers minimum physical and chemical requirements. Users are cautioned against applications with fluids that may react chemically with any material used in these valves. Consultation with the manufacturer is advised to determine suitability in cases of doubt.

4.1.1 **Body and Bonnet** Body and Bonnet shall be gray iron in accordance with ASTM A 126 Class B.

4.1.2 **Seating Material** Metal-to-metal seating surfaces shall be brass or bronze for bronze mounted valves; gray iron or other ferrous material for all-iron valves. Other materials suitable for the intended service may be furnished when agreed upon between purchaser and manufacturer.

4.1.3 **Stems** Stem material shall be brass or bronze, either cast or wrought for bronze mounted valves, or wrought steel for all-iron valves.

4.1.4 **Handwheels** Handwheels may be ductile iron, malleable iron or steel at the manufacturer's option.