

MSS SP-71-2018

**Gray Iron
Swing Check Valves,
Flanged and Threaded Ends**

Standard Practice
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U.S. customary units in this Standard Practice are the standard; the SI (metric) units are for reference only.

Substantive changes in this 2018 edition are “flagged” by parallel bars as shown on the margins of this paragraph. The specific detail of the change may be determined by comparing the material flagged with that in the previous 2011 edition.

Non-toleranced dimensions in this Standard Practice are nominal unless otherwise specified.

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Originally Approved: February 1970

Originally Published: March 1970

Current Edition Approved: February 2018

Current Edition Published: October 2018

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Printed in U.S.A.

FOREWORD

The 1997 edition of MSS SP-71, in addition to various editorial changes, includes changes to: 1) provide a more complete metric version for reference use; 2) delete the Class 800 Pressure-Temperature rating; and 3) expand Annex C to include ISO references.

The 2005 edition of MSS SP-71 added minimum wall requirements that were previously omitted. The addition of the minimum wall thickness requirements were necessary to qualify the valves for Class 125 and Class 250 pressure-temperature designation/rating as defined in ASME B16.1 and Table 1 of this MSS Standard Practice. This edition also deleted the PN designations, which were easily confused with designations in international standards that are based on other material specifications and pressure-temperature rating procedures. ISO references were deleted from Annex C.

The 2011 edition of MSS SP-71, in addition to various editorial and formatting updates, clarifies the leakage rate in Section 7.4 and updates the organizations and references in Annex C.

This 2018 edition of MSS SP-71, in addition to various editorial and formatting updates, includes changes to: (1) increase the flanged-end valve size in Section 2.4(a) to NPS 48 (DN 1200), which also impacted end flange requirements in Section 5.4 regarding Class 125 full and clear waterway valves; (2) remove the previous edition's unintended section on glands (4.1.6) and bolting (4.1.5) as per the 2013 Errata Sheet, which was incorporated into this latest edition; (3) revise Section 5 (Design) closure assembly requirements; (4) update valve-type drawings in Annex; (5) revise Table B1 (now 1M) and update pressure-temperature ratings; (6) include SI (metric) and DN equivalencies; and (7) update the organizations and references in Annex C. The next review period will address inclusion of face-to-face requirements in Section 5.4(b) involving Class 250 Clear Waterway valves among other proposals.

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Manufacturers Standardization Society of the Valve and Fittings Industry

GRAY IRON SWING CHECK VALVES, FLANGED AND THREADED ENDS

1. SCOPE

1.1 This Standard Practice covers gray iron swing check valves with flanged and threaded ends for general purpose service. The use of swing check valves in steeply inclined or vertical lines requires special consideration.

1.2 This Standard Practice also includes, directly or by reference, stipulations on chemical and mechanical 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 through A4 in Annex A^(a). Swing check valves, of the full waterway type when fully opened, shall have a flow area of not less than the area of a circle having a diameter equal to the nominal pipe size. The clearway type shall allow the disc assembly to swing above the waterway when fully opened.

Type I — Full Waterway, Metal-to-Metal Seat (*See Figure A1*)

Type II — Full Waterway, Composition-to-Metal Seat (*See Figure A2*)

Type III — Clear Waterway, Metal-to-Metal Seat (*See Figure A3*)

Type IV — Clear Waterway, Composition-to-Metal Seat (*See Figure A4*)

2.2 **Trims**

- a) Copper Alloy
- b) Ferrous
- c) Stainless Steel
- d) Resilient or Non-Metallic

2.3 **Classes**

- a) Class 125
- b) Class 250

2.4 **Sizes**

- a) $2 \leq \text{NPS} \leq 48$ ($50 \leq \text{DN} \leq 1200$) flanged end
- b) $2 \leq \text{NPS} \leq 6$ ($50 \leq \text{DN} \leq 150$) threaded end

NOTE: (a) The figures in Annex A are for the purpose of illustration and nomenclature only. They are not intended to exclude any design meeting this Standard Practice.