# Gray Iron and Ductile Iron In-Line, Spring-Loaded, Center-Guided Check Valves

**Standard Practice**
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This MSS Standard Practice was developed under the consensus of the MSS Technical Committee 106 and the MSS 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.

> *"Other standards documents referred to herein are identified by the date of issue that was applicable to this Standard Practice at the date of issue of this Standard Practice. See Annex B. This Standard Practice shall remain silent on the applicability of those other standards of prior or subsequent dates of issue even though applicable provisions may not have changed. References contained herein which are bibliographic in nature are noted as 'supplemental' in the text."*

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 Standard Practice (See Annex B).

In this Standard Practice all notes, annexes, tables, 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 appendices, if included, that appear in this document are construed as "supplemental". Supplemental information does not include mandatory requirements for this Standard Practice.

> Substantive changes in this 2010 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 edition.

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



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# GRAY IRON AND DUCTILE IRON, IN-LINE, SPRING-LOADED, CENTER-GUIDED CHECK VALVES

## 1. SCOPE

1.1 This Standard Practice covers in-line, internally spring-loaded, center-guided check valves made of gray iron or ductile iron. These valves, having the feature of limiting fluid flow to one direction only, are intended for use with clean fluids (i.e. fluids that do not contain solids), including potable water, waterworks, and other industrial applications, in horizontal and vertical installations.

## 2. VALVE STYLES AND CLASSES

2.1 ***Valve styles*** The valve styles included in this Standard Practice are determined by the configuration of the body.

2.1.1 ***Wafer*** Wafer-style check valves have a single flange body with an outside diameter equal to that of the mating pipe flanges. The valve body may be designed with holes passing through the body (see Figure A1) or with threaded lugs. The size range for wafer-style check valves is NPS 2-10 (DN 50-250).

2.1.2 ***Compact Wafer*** Compact wafer-style valves have a reduced outside body diameter, or slots, to provide bolt clearance for long bolts or studs (see Figure A2). The size range for compact wafer-style check valves is NPS 2-10 (DN 50-250).

2.1.3 ***Globe*** Globe-style check valves have two integrally cast flanges and a rounded-center body section to provide increased flow area around the valve disc (see Figure A3). The size range of globe-style check valves is NPS 2-42 (DN 50-1050).

2.2 ***Flange Classes*** Valve end connections shall conform to the following requirements.

2.2.1 Wafer-style valves shall have bolt holes or threaded holes in accordance with ASME B16.1 for gray iron, Class 125 or 250 and in accordance with ASME B16.42 for ductile iron, Class 150 or 300.

2.2.2 Compact wafer-style valves shall have a reduced body diameter to accommodate flange bolts in accordance with ASME B16.1 for gray iron, Class 125 or 250 or ASME B16.42 for ductile iron, Class 150 or 300.

2.2.3 Globe-style flange dimensions shall be in accordance with ASME B16.1 for gray iron, Class 125 or 250 and in accordance with ASME B16.42 for ductile iron, Class 150 or 300. For sizes above NPS 24 (DN 600), ductile iron flange dimensions shall be in accordance with ASME B16.1.

2.2.5 ***Gaskets*** Full face or ring gaskets are required between the valve ends and the mating pipeline flanges to obtain a pressure tight joint.

## 3. PRESSURE AND TEMPERATURE RATINGS

3.1 The CWP ratings for various valve flange classes are specified in Table 1.

3.2 The check valves in this Standard Practice are intended for use in clean fluids with a temperature between 33ºF and 150ºF (1ºC and 65ºC). For elevated temperature installations, the manufacturer should be consulted.

## 4. MATERIALS

4.1 ***General*** This Standard Practice is intended to cover the minimum mechanical and chemical requirements for the items depicted in Figures A4, A5, and A6.