



brands you trust.



STOCKHAM® - Iron Valves

**CRANE**®

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## Key Features & Applications



### Key Features & Benefits

- ❶ Fully rated to ASME and MSS-SP Standards
- ❷ Full Pressure Class Offering: Class 125, Class 150, Class 250, and Class 300
- ❸ Complete size range availability from 2" through 24"

### Typical Applications

- Commercial Plumbing and HVAC
- Institutional HVAC
- Industrial Plumbing and HVAC
- Utility Applications

# Iron Valve Selection Guide and Figure Number Index

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| STOCKHAM®<br>Figure No.                                   | Catalog<br>Page No. | Pressure<br>Class               | Stem:<br>RS or NRS | Body/Trim<br>IBBM, Ductile | Bonnet/Cap:<br>BB, TB,<br>Clamp | End<br>Connections | Disc            |
|-----------------------------------------------------------|---------------------|---------------------------------|--------------------|----------------------------|---------------------------------|--------------------|-----------------|
| <b>Iron Body Gate Valves</b>                              |                     |                                 |                    |                            |                                 |                    |                 |
| G-608                                                     | 7                   | 125                             | NRS                | IBBM                       | BB                              | THD                | SW              |
| G-612                                                     | 8                   | 125                             | NRS                | IBBM                       | BB                              | FLG                | SW              |
| G-613                                                     | 9                   | 125                             | NRS                | AI                         | BB                              | FLG                |                 |
| G-620                                                     | 10                  | 125                             | RS, OS&Y           | IBBM                       | BB                              | THD                |                 |
| G-623                                                     | 11                  | 125                             | RS, OS&Y           | IBBM                       | BB                              | FLG                |                 |
| G-624                                                     | 12                  | 125                             | RS, OS&Y           | AI                         | BB                              | FLG                |                 |
| G-675                                                     | 13                  | 125/150                         | RS                 | Ductile Iron               | Clamp                           | THD                |                 |
| F-661                                                     | 14                  | 250                             | NRS                | IBBM                       | BB                              | FLG                |                 |
| F-667                                                     | 15                  | 250                             | RS, OS&Y           | IBBM                       | BB                              | FLG                |                 |
| <b>Iron Body Globe Valves</b>                             |                     |                                 |                    |                            |                                 |                    |                 |
| G-512                                                     | 16                  | 125                             | RS, OS&Y           | IBBM                       | BB                              | FLG                | BRZ             |
| F-532                                                     | 18                  | 250                             | RS, OS&Y           | IBBM                       | BB                              | FLG                | BRZ             |
| <b>Iron Body Angle Valves</b>                             |                     |                                 |                    |                            |                                 |                    |                 |
| G-515                                                     | 17                  | 125                             | RS, OS&Y           | IBBM                       | BB                              | FLG                | BRZ             |
| <b>Iron Body Stop Check Valves</b>                        |                     |                                 |                    |                            |                                 |                    |                 |
| F-540                                                     | 19                  | 250 (straight flow)             | RS, OS&Y           | IBBM                       | BB                              | FLG                | BRZ             |
| F-541                                                     | 20                  | 250 (90° angle flow)            | RS, OS&Y           | IBBM                       | BB                              | FLG                | BRZ             |
| <b>Iron Body Swing Check Valves</b>                       |                     |                                 |                    |                            |                                 |                    |                 |
| G-927                                                     | 25                  | 125                             |                    | IBBM                       | BC                              | THD                | BRZ             |
| G-931                                                     | 26                  | 125                             |                    | IBBM                       | BC                              | FLG                | BRZ             |
| G-933                                                     | 27                  | 125                             |                    | AI                         | BC                              | FLG                | Iron            |
| G-931 L&W                                                 | 28                  | 125 w/outside<br>lever & weight |                    | IBBM                       | BC                              | FLG                | BRZ             |
| F-947                                                     | 29                  | 250                             |                    | IBBM                       | BC                              | FLG                | BRZ             |
| G-975                                                     | 30                  | 300 Y-Pattern                   |                    | Ductile Iron               | SC                              | THD                | Iron            |
| <b>Wafer Check Valves</b>                                 |                     |                                 |                    |                            |                                 |                    |                 |
| WG-961                                                    | 31                  | 200 CWP                         |                    |                            |                                 | Wafer              | SS or AL<br>BRZ |
| WG-970                                                    | 32                  | 125                             |                    |                            |                                 | Wafer              | AL BRZ          |
| <b>International Iron Valves (Gate, Globe, and Check)</b> |                     |                                 |                    |                            |                                 |                    |                 |
| G-623-I                                                   | 33                  | 125                             | RS, OS&Y           | IBBM                       | BB                              | FLG                |                 |
| G-612-I                                                   | 34                  | 125                             | NRS                | IBBM                       | BB                              | FLG                | SW              |
| G-512-I                                                   | 35                  | 125                             | RS, OS&Y           | IBBM                       | BB                              | FLG                | BRZ             |
| G-931-I                                                   | 36                  | 125                             |                    | IBBM                       | BC                              | FLG                | BRZ             |

## Cross Reference for Commonly Used Valves & Materials

### IRON VALVES

| GATE                             | CRANE® | NIBCO   | Milwaukee | Powell | Walworth | Stockham® |
|----------------------------------|--------|---------|-----------|--------|----------|-----------|
| Class 125 NRS                    | 461    | F-619   | F2882 A   | 1787   | W719F    | G-612     |
| Class 125 OS&Y                   | 465 ½  | F-617-0 | F2885 A   | 1793   | W726F    | G-623     |
| Class 250 OS&Y                   | 7 ½E   | F-667-0 | F2894 A   | 1797   | W786F    | F-667     |
| <b>GLOBE</b>                     |        |         |           |        |          |           |
| Class 125                        | 351    | F-718-B | F2981 A   | 241    | W906F    | G-512     |
| <b>SWING CHECK</b>               |        |         |           |        |          |           |
| Class 125                        | 373    | F-918-B | F2974 A   | 559    | W928F    | G-931     |
| <b>STOP CHECK</b>                |        |         |           |        |          |           |
| Class 250 Straight-Way Y-Pattern | 28E    | ----    | -----     | -----  | ----     | F-540     |
| Class 250 Angle Y-Pattern        | 30E    | F-869-B | -----     | -----  | ----     | F-541     |

### BRONZE VALVES

| GATE                   | CRANE® | NIBCO    | Milwaukee | Stockham® |
|------------------------|--------|----------|-----------|-----------|
| Class 125 RS-Threaded  | 428    | T-111    | 148       | B-100     |
| Class 125 NRS-Threaded | 438    | T-113    | 105       | B-103     |
| Class 125 RS-Solder    | 1330   | S-111    | 149       | B-108     |
| Class 125 NRS-Solder   | 1320   | S-113    | 115       | B-104     |
| Class 150 Union Bonnet | 431UB  | T-134    | 1151      | B-120     |
| Class 300 SS Trim      | 634E   | T-174-SS | 1184      | B-145     |
| <b>GLOBE</b>           |        |          |           |           |
| Class 125              | 1      | T-211-B  | 502       | B-16      |
| Class 300 SS Trim      | 382P   | T-275    | 593A      | B-74      |
| <b>CHECK</b>           |        |          |           |           |
| Class 125 Threaded     | 37     | T-413-BY | 509       | B-319Y    |
| Class 125 Solder       | 1340   | S-413-B  | 1509      | B-309Y    |
| Class 300 Swing Check  | 76E    | T-473-B  | 507       | B-375     |
| Class 300 Lift Check   | 366E   | ----     | -----     | B-367     |

## Materials

### CAST IRON - ASTM A126, CLASS B

| Used primarily for valve pressure retaining parts.<br>Recommended to 450 °F (232 °C). |         |         |
|---------------------------------------------------------------------------------------|---------|---------|
| Chemical Requirements                                                                 | Minimum | Maximum |
| Sulphur %                                                                             | –       | 0.15    |
| Phosphorus %                                                                          | –       | 0.75    |
| Tensile Requirements                                                                  | Minimum | Maximum |
| Tensile Strength, psi                                                                 | 31,000  | –       |
| Transverse Test Load, lbs.                                                            | 3,300   | –       |
| Deflection @ Center, in.                                                              | 0.12    |         |

### BRONZE

|                  |
|------------------|
| ASTM B584 C84400 |
| ASTM B584 C86400 |
| ASTM B61 C92200  |
| ASTM B16 C36000  |
| ASTM B62 C83600  |

### DUCTILE IRON - ASTM A536, 65-45-12

| Chemical Requirements | Minimum %         | Maximum % |
|-----------------------|-------------------|-----------|
| Carbon (C)            | 3.5               | 3.9       |
| Manganese (Mn)        | 0.15              | 0.35      |
| Silicone (Si)         | 2.25              | 2.75      |
| Sulphur (S)           | 0.01              | 0.025     |
| Phosphorus (P)        |                   | 0.05      |
| Tensile Requirements  | Minimum           | Maximum   |
| Tensile Strength, psi | 65,000<br>Minimum |           |
| Yield Strength, psi   | 45,000<br>Minimum |           |
| Elongation (in 2")    | 12%               |           |

## Overview

Stockham® iron body valves are proven performers in mechanical systems of commercial buildings throughout America. Chemical plants, steel mills, shipyards, refineries, pulp and paper mills, and utilities have also found that Stockham® iron body valves do the job better and longer for their many general services.

### QUALITY MANAGEMENT

Stockham® is committed to a philosophy of total quality management. It begins with design, to comply with pertinent MSS and ASME Standards. Continuous improvements are applied in a process to improve materials and services to meet or exceed customer needs.

### MATERIALS

The iron used as the basic valve material conforms to the chemical and physical requirements of the American Society of Testing and Materials A-126 Class B for Cast Iron Valves.

### RATED WORKING PRESSURES

The pressure-temperature ratings of Stockham® iron body valves in this catalog section are as follows:

| Temp.<br>°F | PRESSURE (PSIG)        |       |                        |       |
|-------------|------------------------|-------|------------------------|-------|
|             | Class 125<br>Cast Iron |       | Class 250<br>Cast Iron |       |
|             | Sizes                  | Sizes | Sizes                  | Sizes |
|             | 2-12                   | 14-24 | 2-12                   | 14-2  |
| -20 to 100  | 200                    | 150   | 500                    | 300   |
| 150         | 200                    | 150   | 500                    | 300   |
| 200         | 190                    | 135   | 460                    | 280   |
| 225         | 180                    | 130   | 440                    | 270   |
| 250         | 175                    | 125   | 415                    | 260   |
| 275         | 170                    | 120   | 395                    | 250   |
| 300         | 165                    | 110   | 375                    | 240   |
| 325         | 155                    | 105   | 355                    | 230   |
| 350         | 150                    | 100   | 335                    | 220   |
| 375         | 145                    |       | 315                    | 210   |
| 400         | 140                    |       | 290                    | 200   |
| 425         | 130                    |       | 270                    |       |
| 450         | 125                    |       | 250                    |       |
| 500         |                        |       |                        |       |
| 600         |                        |       |                        |       |
| 650         |                        |       |                        |       |

The temperature shown for a corresponding pressure rating is the temperature of the pressure containing shell of the component. In general, this temperature is the same as that of the contained fluid. Composition disc valves are excluded from these ratings.

### DESIGN

#### GATE VALVES-CLASSES 125 and 250

**Stem**—All stems are designed for ample strength and are machined to function easily. Backseats are provided on OS&Y valves.

**Packing Gland Assembly**—Glands and gland flanges have a ball and socket joint which assures alignment. It provides for proper packing compression without binding against the stem.

**Gasket**—Aramid fibers with SBR binder.

**Packing**—Braided flexible graphite with corrosion inhibitor or as specified with specific item.

**Disc**—Strong, solid wedge discs have disc guides for precision seating with minimum friction against body seats.

**Yoke and Bonnet**—One-piece yoke bonnets are utilized on 12" and smaller size OS&Y valves. Larger sizes have separate yokes and bonnets.

**Stuffing Box**—NRS valves have stuffing boxes assembled to bonnets to accommodate the packing gland assembly.

**Seat Ring**—Buttress-type seat rings are bottom-seated with accurately machined faces to match disc faces.

**Handwheel or Operating Nut**—Handwheels have large diameters for good leverage on operating nuts, a 2" square may be furnished on any NRS valve if specified.

### Cv Coefficients\*

(For estimating purposes only)

| Size | Gate   | Globe | Swing Check |
|------|--------|-------|-------------|
| 2    | 327    | 50    | 131         |
| 2½   | 480    | 74    | 192         |
| 3    | 742    | 114   | 297         |
| 4    | 1314   | 202   | 526         |
| 5    | 2129   | 327   | 852         |
| 6    | 3175   | 487   | 1270        |
| 8    | 5691   | 873   | 2276        |
| 10   | 8970   | 1376  | 3588        |
| 12   | 13351  | —     | 5340        |
| 14   | 16277  | —     | 6511        |
| 16   | 21562  | —     | 8625        |
| 18   | 28715  | —     | 11486       |
| 20   | 35760  | —     | 14304       |
| 24   | 52165  | —     | 20866       |
| 30   | 82563  | —     | —           |
| 36   | 119910 | —     | —           |

\*Fully open. C<sub>v</sub>=GPM @ 1 PSI ΔP, 60°F Water

The above values for Swing Check Valves are correct only when the valve is fully open. This corresponds to a velocity of 6 ft./sec. for water flow.

## Overview

**Yoke Bushing**—Yoke bushings on OS&Y valves have Acme threads for stem engagement; and handwheels fit snugly over bushings. Handwheels are securely locked to yoke bushings with locknuts. A bolted yoke cap secures the yoke bushing to the yoke.

**Body**—Body sections are evenly distributed for maximum strength. Dimensions and drilling of end flanges of cast iron valves conform to the ASME Standard B16.1 for Classes 125 and 250 Cast Iron Flanges. Face-to-face dimensions comply with ASME Standard B16.10.

### DESIGN:

#### **GLOBE AND ANGLE VALVES-OUTSIDE SCREW AND YOKE-CLASSES 125 and 250**

**Stem**—Stems are machined with Acme threads which fully engage the yoke bushing threads at all times.

**Packing Gland Assembly**—Glands and gland flanges have a ball and socket joint which assures alignment and proper packing compression.

**Packing**—Braided flexible graphite with corrosion inhibitor or as specified with specific item.

**Backseat Bushing**—Bushings are threaded into bonnets, providing beveled seats for backseating on stem shoulders.

**Disc**—Bronze discs are furnished in Class 125 and 250 globe and angle valves, which are regrindable. Disc nuts thread into disc. The Class 250 nonreturn stop-check valve conforms to ASME boiler codes and utilizes a dashpot and piston design to cushion the disc action.

**Yoke Bonnet**—One-piece yoke bonnets are fastened to bodies with capscrews.

**Seat Rings**—Seat rings are bottom-seated and are readily renewable.

**Handwheel**—Handwheels have large diameters for ample leverage.

**Yoke Bushing**—Accurate Acme threads engage stem threads. Set screws fasten yoke bushings to yoke.

**Body**—Bodies are designed with uniform sections evenly distributed for maximum strength. Dimensions and drilling of end flanges on flanged valves conform to the ASME Standard B16.1 for Classes 125 and 250 Cast Iron Flanges. Face-to-face dimensions comply with the ASME Standard B16.10.

### DESIGN:

#### **SWING CHECK VALVES-CLASSES 125 and 250**

**Cap**—Caps are bolted to bodies.

**Hinge**—Hinges are precisely drilled for assembly with discs.

**Hinge Pin**—Pins are located by side plugs, screwed into bodies.

**Disc**—Disc faces are accurately machined for tight seal with seat rings.

**Seat Ring**—Buttress design of renewable seat rings provides bottom seating and good strength.

**Body**—Dimensions and drilling of end flanges on flanged valves conform to ASME Standard B16.1 for Classes 125 and 250 Cast Iron Flanges. Face-to-face dimensions comply with ASME B16.10.

### Figure G-931 L&W:

Swing Check valves sized 2"-12" come standard with an adjustable lever arm which can be orientated in any position in 15° increments. These valves can be installed in horizontal lines or in vertical lines with upward flow. 14"-24" valves must be specified at the time of inquiry and order with the installation orientation for horizontal or vertical-upward flow.

**ACCESSORIES**—Stockham® iron body valves may be furnished with motor operators, gearings, bypasses, floorstands, extension stems, lever and weight attachment or other accessories.

**MARKING**—Numerals indicate the size and pressure class. Cast arrows indicate direction of flow on check, globe, and angle valves.

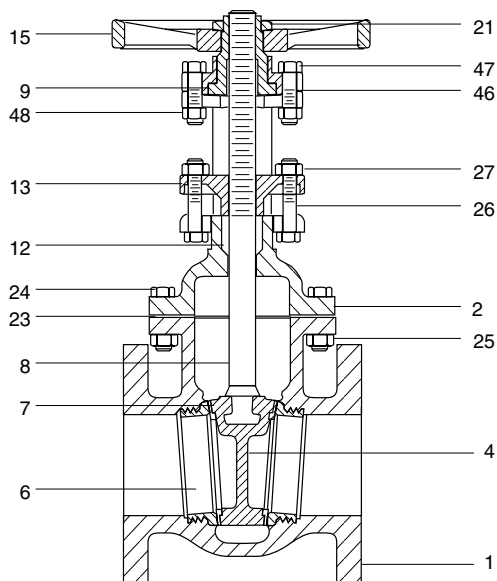
**TESTING AND INSPECTION**—Before shipment, each valve is individually tested under pressure for soundness of castings and tight closure to MSS Standards.

**FINISH**—External cast iron parts are coated with a durable black finish.

**WEIGHTS AND DIMENSIONS**—Dimensions and weights shown in this catalog section are furnished for estimating purposes only and are subject to change without notice. It is our intent to maintain basic dimensional requirements of accepted standards.

# Class 125 • Bolted Bonnet • OS&Y • Bronze Trim • Flanged

## G-623 Gate Valve



### Dimensions and Weights

Inches (millimeters) - Pounds (kilograms)

| Valve Size | Dimensions |       |       | WT     |
|------------|------------|-------|-------|--------|
|            | B          | C     | M     |        |
| 2          | 14.75      | 8.00  | 7.00  | 33     |
|            | (375)      | (203) | (178) | (15)   |
| 2 1/2      | 16.06      | 8.00  | 7.50  | 47     |
|            | (408)      | (203) | (191) | (21)   |
| 3          | 17.38      | 8.00  | 8.00  | 58     |
|            | (441)      | (203) | (203) | (26)   |
| 4          | 21.44      | 10.00 | 9.00  | 97     |
|            | (545)      | (254) | (229) | (44)   |
| 5          | 25.81      | 10.00 | 10.00 | 135    |
|            | (656)      | (254) | (254) | (61)   |
| 6          | 30.31      | 12.00 | 10.50 | 162    |
|            | (770)      | (305) | (267) | (73)   |
| 8          | 37.75      | 14.00 | 11.50 | 280    |
|            | (959)      | (356) | (292) | (126)  |
| 10         | 49.41      | 18.00 | 13.00 | 502    |
|            | (1255)     | (457) | (330) | (228)  |
| 12         | 56.81      | 18.00 | 14.00 | 670    |
|            | (1442)     | (457) | (356) | (304)  |
| 14         | 64.88      | 20.00 | 15.00 | 1093   |
|            | (1648)     | (508) | (381) | (496)  |
| 16         | 75.25      | 22.00 | 16.00 | 1425   |
|            | (1911)     | (559) | (406) | (647)  |
| 18         | 82.00      | 22.00 | 17.00 | 1738   |
|            | (2083)     | (559) | (432) | (789)  |
| 20         | 90.62      | 24.00 | 18.00 | 2085   |
|            | (2302)     | (610) | (457) | (946)  |
| 24         | 105.38     | 30.00 | 20.00 | 3183   |
|            | (2677)     | (762) | (508) | (1445) |

## Materials of Construction

| No. | Description          | Material                                           | ASTM                    |
|-----|----------------------|----------------------------------------------------|-------------------------|
| 1   | Body                 | Cast Iron                                          | A126 Class B            |
| 2   | Bonnet               | Cast Iron                                          | A126 Class B            |
| 4   | Disc                 | Bronze (2")                                        | B61 C92200              |
|     |                      | Bronze (2 1/2" & 3")                               | B584 C84400             |
|     |                      | Cast Iron (4" - 24")                               | A126 Class B            |
| 6   | Body Seat Ring       | Bronze                                             | B584 C84400             |
| 7   | Disc Seat Ring       | Bronze                                             | B584 C84400             |
| 8   | Stem                 | Manganese Bronze (2" - 12")                        | B584 C86400             |
|     |                      | Brass (14" - 36")                                  |                         |
| 9   | Yoke Sleeve          | Manganese Bronze (2" - 12")                        | B584 C86400             |
|     |                      | Ductile Iron (14" - 24")                           | A536 Gr. 65-45-12       |
| 10  | Gland*               | Bronze (10" & 12")                                 | B584 C84400             |
|     | Gland Flange*        | Ductile Iron (10" & 12")                           | A536 Gr. 65-45-12       |
| 12  | Packing              | Braided Flexible Graphite with Corrosion Inhibitor |                         |
| 15  | Handwheel            | Ductile Iron                                       | A536 Gr. 65-45-12       |
| 21  | Handwheel Nut        | Sintered Nickel Steel (2" - 8")                    | B484 Gr. 2 CL B Type II |
|     |                      | Ductile Iron (10" - 24")                           | A536 Gr. 65-45-12       |
| 23  | Bonnet Gasket        | Aramid Fibers with SBR Binder                      |                         |
| 24  | Bonnet Bolt          | Carbon Steel                                       | A307 Gr. B              |
| 25  | Bonnet Bolt Nut      | Carbon Steel                                       | A563 Gr. A              |
| 26  | Gland Bolt           | Carbon Steel (2" - 12")                            | A307 Gr. B              |
| 26  | Gland Eyebolt*       | Carbon Steel (14" - 24")                           |                         |
| 27  | Gland Bolt Nut       | Carbon Steel                                       | A563 Gr. A              |
| 46  | Yoke Cap             | Ductile Iron (2" - 8")                             | A536 Gr. 65-45-12       |
|     |                      | Cast Iron (10" - 12")                              | A126 Class B            |
| 47  | Yoke Cap Bolt        | Carbon Steel (2" - 12")                            | A307 Gr. B              |
| 48  | Yoke Cap Bolt Nut    | Carbon Steel (2" - 12")                            | A563 Gr. A              |
| 49  | Stem Collar Seat*    | Brass (14" - 24")                                  |                         |
| 50  | Disc Pin*            | Brass (14" - 24")                                  |                         |
| 51  | Yoke Bolt*           | Carbon Steel (14" - 24")                           |                         |
| 52  | Yoke Bolt Nut*       | Carbon Steel (14" - 24")                           |                         |
| 53  | Yoke to Bonnet Bolt* | Carbon Steel (14" - 24")                           |                         |
| 54  | Backseat Bushing*    | Brass (14" - 24")                                  |                         |
| 55  | Eyebolt Pin*         | Carbon Steel (14" - 24")                           |                         |
| 56  | Yoke*                | Cast Iron (14" - 24")                              |                         |

\* Not shown

See page 5 for Pressure Temperature Ratings

### Industry Standards

MSS SP-70, Type 1

