

**PERFORMANCE SPECIFICATIONS****Four Step Specification Process**

- Specify all of Section 1.; this describes the internal mechanism.
- Select body style(s) needed and specify required paragraph(s), Section 2.
- Select optional strainer(s) and specify required paragraph(s), Section 3.
- Select optional accessories and specify required paragraph(s), Section 4.

**1. General Specifications**

- 1.1. Automatic flow control valve cartridges shall automatically control flow rates with  $\pm 5\%$  accuracy over an operating pressure differential range of at least 14 times the minimum required for control. Four operating pressure ranges shall be available with the minimum range requiring less than 3 PSID to actuate the mechanism.
- 1.2. Valve internal control mechanism shall consist of a stainless steel one-piece cartridge with segmented port design and full travel linear coil spring.
- 1.3. Manufacturer shall be able to provide certified independent laboratory tests verifying accuracy of performance. (Consult the factory for details).
- 1.4. All flow control valve cartridges shall be warranted by the manufacturer for five years from date of sale.

**2. Body Styles****2.1. Isolator™ Series Valve (IY, IR)**

- 2.1.1. Isolator series valves, sizes 1/2" through 1-1/2", shall have a ASTM brass alloy body, rated at no less than 400PSI/250°F. Isolator series valves, sizes 1-1/2" Large through 3", shall have a CAST brass alloy body, rated at no less than 275PSI/250°F. These sizes shall be constructed in a one-piece body to include a handle ball valve, a flow control cartridge assembly, dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes combined with a manual air vent, and a union end which will accept various end pieces. The IY shall include a removable 20 mesh stainless steel strainer. Available flow rates shall be from 0.25 GPM to 160.0 GPM.
- 2.1.2. The body design shall allow inspection or removal of cartridge or strainer without disturbing piping connections.
- 2.1.3. The body design shall allow inspection or repair of handle operated stem without disturbing piping connections. The repairable stem shall include two Teflon seals and one EPDM o-ring for protection against chemicals and modulating temperature.
- 2.1.4. The valve shall come fully assembled and be permanently marked to show direction of flow; shall have a body tag to indicate flow rate and model number.

**2.2. K Valve**

- 2.2.1. K Valve shall consist of forged brass bodies from 1/2" to 3" and stainless steel cartridge assembly. (Optional housing material to meet CA1953 for low lead brass shall be available for 1/2" and 3/4" valves.) The K Valve shall be rated for 400 PSI/250°F. Valves shall be provided with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes combined with a manual air vent.

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2.2.2. The body design shall allow inspection or removal of cartridge without disturbing piping connections.

2.2.3. The valve shall come fully assembled and be permanently marked to show direction of flow; shall have a body tag to indicate flow rate and model number.

### 2.3. Combination Valves

2.3.1. Combo Valve, size 1/2" and 3/4", shall be brass alloy body (ASTM B584) rated at no less than 300 PSI/250°F; shall include two union ends with interchangeable end pieces for either inlet or outlet of valve body; shall be available with flow rates from 0.33 GPM to 16.0 GPM.

2.3.2. Combo Valve, size 1" shall be brass alloy body (ASTM B584) rated at no less than 300 PSI/250°F; shall include two union ends with interchangeable end pieces for either inlet or outlet of valve body; shall be available with flow rates from 3.0 GPM to 44.0 GPM.

2.3.3. Combo Valve, size 1-1/4" and 1-1/2", shall be brass alloy body (ASTM B584) rated at no less than 300 PSI/250°F; shall include two union ends with interchangeable end pieces for either inlet or outlet of valve body; shall be available with flow rates from 3.0 GPM to 44.0 GPM.

2.3.4. Combo Valves, sizes 1-1/2 through 2" shall be gray iron (ASTM A 126-61T Class 30) rated at no less than 300 PSI/275°F. These sizes shall include removable threaded flange end connections and handle ball valve as standard equipment. Shall be available with flow rates from 14.0 GPM to 150.0 GPM.

2.3.5. Dual pressure or pressure/temperature test valves for verifying accuracy of flow performance shall be provided for all valve sizes.

### 2.4. Wafer Style Valves

2.4.1. Class 150 Wafer valves shall consist of a gray iron (ASTM A126-61T, Class 30) body and stainless steel flow control cartridge assemblies; shall be rated at 200 PSI/250°F; shall be mechanically compatible with ANSI B16.5-1968 150 lb. steel flanges; valve shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow, shall have body tag to indicate model number and flow rate; shall have single or multiple, parallel-installed stainless steel cartridge assemblies to provide rated flow rate; shall include all plated steel studs required for installation; shall be available in 3", 4", 6", 8", 10", 12", 14", 16", 18", 20", and 24" sizes, with flow rates from 14.0 GPM to 11,000.0 GPM.

2.4.2. Class 300 Wafer valve shall consist of a ductile iron (ASTM A536-65T, Class 60-45-18) body and stainless steel flow control cartridge assemblies; shall be rated at 500 PSI/400°F; 3" to 20" shall be mechanically compatible with ANSI B16.5-1968 300 lb. steel flanges, 30" shall be mechanically compatible with MSS-SP-44 300 lb. steel flanges; valve shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow, shall have body tag to indicate model number and flow rate; shall have single or multiple, parallel-installed stainless steel cartridge assemblies to provide rated flow rate; shall include all plated steel studs required for installation; shall be available in 3", 4", 6", 8", 14", 20" and 30" sizes, with flow rates from 14.0 GPM to 12,750.0 GPM.

- 2.5. Grooved End Valves shall consist of steel pipe, schedule 40 or greater, and stainless steel flow control cartridge assembly (assembled with grooved end clamp on 1" to 3" sizes); shall be rated at 400PSI/200°F; shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall have grooved ends compatible with Victaulic grooved end clamps; shall be permanently marked to show direction of flow, shall have body tag to indicate model number and flow rate; shall be available in 1-1/4" through 20" sizes with flow rates from 3.0 GPM to 6,800.0 GPM.
- 2.6. Flange End
- 2.6.1. Class 150 Flange End Valves shall consist of steel pipe with flange ends, and stainless steel flow control cartridge assembly; 230PSIG/300°F shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall have flange ends compatible with ANSI B 16.5-1968 150 lb. Steel flanges; shall be permanently marked to show direction of flow, shall have body tag to indicate model number and flow rate; shall be available in 2" through 20" sizes with flow rates from 14.0 GPM to 6,800.0 GPM.
- 2.6.2. Class 300 Flange End Valves shall consist of steel pipe with flange ends, and stainless steel flow control cartridge assembly; 655PSIG/300°F shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall have flange ends compatible with ANSI B 16.5-1968 300 lb. Steel flanges; shall be permanently marked to show direction of flow, shall have body tag to indicate model number and flow rate; shall be available in 2" through 20" sizes with flow rates from 14.0 GPM to 6,800.0 GPM.
- 2.7. Threaded Iron Valves
- 2.7.1. Miniature threaded iron valve shall consist of ductile iron (A445-70, Class 60-40-18) body and stainless steel flow control cartridge assembly; shall be rated at 450 PSI/200°F; shall have female NPT end connections; shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow; shall have body tag to indicate flow rate and model number; shall be available in 1/2", 3/4", 1", 1-1/4" and 1-1/2" sizes, with flow rates from 0.33 GPM to 34.0 GPM.
- 2.7.2. Threaded flange valves shall consist of gray iron (ASTM A126-61T, Class 30) body and stainless steel flow control cartridge assembly; shall be rated at 300 PSI/275°F shall have female NPT threaded flange end connections; shall be supplied with plated steel studs and nuts; shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow; shall have body tag to indicate model number and flow rate; shall be available in 1/2", 2" and 2-1/2" sizes, with flow rates from 14.0 GPM to 150.0 GPM.
- 2.7.3. Threaded high capacity valves shall consist of gray iron (ASTM A126-61T, Class 30) body and stainless steel flow control cartridge assembly; shall be rated at 200 PSI/250°F; shall have female NPT threaded end connections; shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow, shall have body tag to indicate model number and flow rate; shall be available in 3" size, with flow rates from 14.0 GPM to 450.0GPM.

### 3. Strainers

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- 3.1. Isolator™S (Combination Union Ball Valve and Y-Strainer)
  - 3.1.1. Strainer shall be Y-type configuration made of brass. Maximum pressure rating of 400 PSI. Strainer shall include a union end which will accept various end pieces.
  - 3.1.2. The body design shall allow inspection or removal of 20 mesh stainless steel strainer without disturbing piping connections.
  - 3.1.3. The body design shall allow inspection or repair of handle operated stem without disturbing piping connections. The repairable stem shall include two Teflon seals and one EPDM o-ring for protection against chemicals and modulating temperature.
  - 3.1.4. A pressure/temperature test valve and manual air vent shall be standard.
  - 3.1.5. Isolator S shall be offered with blow down option.
- 3.2. Y-Strainer
  - 3.2.1. 1/2" through 2" strainer shall be Y-type configuration made of brass. 2-1/2", 3", 4", and 6" Y-strainer shall be made of iron (ASTM A126-61T, Class 30) Maximum pressure rating of 300 PSI.
  - 3.2.2. The body design shall allow inspection or removal of 20 mesh stainless steel strainer without disturbing piping connections.
  - 3.2.3. Y-Strainer shall be offered with blow down and pressure/temperature test valve options.
4. Ball Valves
  - 4.1. Isolator™B
    - 4.1.1. Ball Valve shall be made of brass. Maximum pressure rating of 400 PSI. Ball Valve shall include a union end which will accept various end pieces.
    - 4.1.2. The body design shall allow inspection or repair of handle operated stem without disturbing piping connections. The repairable stem shall include two Teflon seals and one EPDM o-ring for protection against chemicals and modulating temperature.
    - 4.1.3. A pressure/temperature test valve, manual air vent and drain valve shall be offered.
5. Accessories
  - 5.1. Meter kit shall be provided as either a permanently mounted or as a single-hose portable or double-hose portable kit; pressure gauge with 4-1/2" dial shall have range of -14.7 to 150 PSI; portable kits shall be available with end connections for either pressure only or pressure/temperature test valves and shall include carrying cases; all kits shall include flow rate chart for determining flow rate.
  - 5.2. Identification tags shall be available for all valves; tags shall be indelibly marked with flow rate, model number, zone identification: tags shall be 3" x 3" aluminum.
  - 5.3. Pressure/temperature test valves or pressure only test valves shall be available at 1/4" NPT for measuring pressure or temperature in fluid systems.
  - 5.4. Hoses
    - 5.4.1. All hoses shall be equipped with swivel end connections at terminal unit. All end connections shall be crimped to meet stated pressure ratings. Serrated/slip fit connections are not acceptable.

**5.4.2. Flame Retardant Hoses**

5.4.2.1. Hose materials shall be stainless steel braided over an EPDM liner.

5.4.2.2. Hoses shall meet or exceed the ASTM-D380-83 standard and withstand working pressures of 1/2": 300 PSI, 3/4": 300 PSI, 1"-1-1/4": 250 PSI, 1-1/2": 210 PSI, 2": 188 PSI, @ 200°F; Burst Pressure: 1/2": 1500 PSI, 3/4": 1200 PSI, 1", 900 PSI, 1-1/4": 750 PSI, 1-1/2" – 2": 500 PSI.

5.4.2.3. Hoses shall meet or exceed flame retardant testing per standards UL #723, NEPA #225, ANSI 2.5, UBC 42-1, and ASTM-E84A. after ten minutes and produce less than 5% smoke as compared to Red Oak flooring (100%)

**5.4.3. Insulated Hoses**

5.4.3.1. Hose materials shall be high quality polyethylene pipe insulation over a stainless steel braided inner core and withstand working pressure of of 375 PSI (1/2"), 300 PSI (3/4", 1", 1-1/4") at 211°F and 300 PSI (1-1/2", 2") at 200°F.