

SECTION 21 05 23 - GENERAL-DUTY VALVES FOR FIRE PROTECTION PIPING**PART 1 - GENERAL****1.01 SUMMARY**

- A. Section Includes:
1. Iron butterfly valves with indicators.
 2. Check valves.
 3. Iron OS&Y gate valves.
 4. NRS gate valves.
 5. Indicator posts.
 6. Trim and drain valves.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of valve.

PART 2 - PRODUCTS**2.01 GENERAL REQUIREMENTS FOR VALVES**

- A. UL Listed: Valves shall be listed in UL's "Online Certifications Directory" under the headings listed below and shall bear UL mark:
1. Main Level: HAMV - Fire Main Equipment.
 - a. Level 1: HCBZ - Indicator Posts, Gate Valve.
 - b. Level 1: HLOT - Valves.
 - 1) Level 3: HLUG - Ball Valves, System Control.
 - 2) Level 3: HLXS - Butterfly Valves.
 - 3) Level 3: HMER - Check Valves.
 - 4) Level 3: HMRZ - Gate Valves.
 2. Main Level: VDGT - Sprinkler System & Water Spray System Devices.
 - a. Level 1: VQGU - Valves, Trim and Drain.
- B. FM Global Approved: Valves shall be listed in its "Approval Guide," under the headings listed below:
1. Automated Sprinkler Systems:
 - a. Indicator posts.
 - b. Valves.
 - 1) Gate valves.
 - 2) Check valves.
 - a. Single Check Valves
 - c. Miscellaneous valves.
- C. Source Limitations for Valves: Obtain valves for each valve type from single manufacturer.
- D. ASME Compliance:
1. ASME B16.1 for flanges on iron valves.
 2. ASME B1.20.1 for threads for threaded-end valves.
 3. ASME B31.9 for building services piping valves.

- E. AWWA Compliance: Comply with AWWA C606 for grooved-end connections.
- F. NFPA Compliance: Comply with NFPA 24 for valves.
- G. Valve Pressure Ratings: Not less than the minimum pressure rating indicated or higher as required by system pressures.
- H. Valve Sizes: Same as upstream piping unless otherwise indicated.
- I. Valve Actuator Types:
 - 1. Worm-gear actuator with handwheel for quarter-turn valves, except for trim and drain valves.
 - 2. Handwheel: For other than quarter-turn trim and drain valves.
 - 3. Handlever: For quarter-turn trim and drain valves NPS 2-inch and smaller.

2.02 IRON BUTTERFLY VALVES WITH INDICATORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Globe Fire Sprinkler Corporation.
 - 2. NIBCO INC.
 - 3. Tyco Fire Products LP.
 - 4. Victaulic Company.
- B. Description:
 - 1. Standard: UL 1091 and FM Global standard for indicating valves, (butterfly or ball type), Class Number 112.
 - 2. Minimum Pressure Rating: 175 psig.
 - 3. Body Material: Cast or ductile iron with nylon, EPDM, epoxy, or polyamide coating.
 - 4. Seat Material: EPDM.
 - 5. Stem: Stainless steel.
 - 6. Disc: Ductile iron, nickel plated and EPDM or SBR coated.
 - 7. Actuator: Worm gear or traveling nut.
 - 8. Supervisory Switch: Internal or external.
 - 9. Body Design: Grooved-end connections.

2.03 CHECK VALVES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Globe Fire Sprinkler Corporation.
 - 2. Mueller Co.
 - 3. NIBCO INC.
 - 4. Reliable Automatic Sprinkler Co., Inc. (The).
 - 5. Tyco Fire Products LP.
 - 6. Victaulic Company.
 - 7. Viking Corporation.
- B. Description:
 - 1. Standard: UL 312 and FM Global standard for swing check valves, Class Number 1210.
 - 2. Minimum Pressure Rating: 175 psig.
 - 3. Type: Single swing check.
 - 4. Body Material: Cast iron, ductile iron, or bronze.
 - 5. Clapper: Bronze, ductile iron, or stainless steel with elastomeric seal.
 - 6. Clapper Seat: Brass, bronze, or stainless steel.
 - 7. Hinge Shaft: Bronze or stainless steel.
 - 8. Hinge Spring: Stainless steel.
 - 9. End Connections: Flanged, grooved, or threaded.

2.04 IRON OS&Y GATE VALVES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Hammond Valve.
 - 2. Mueller Co.
 - 3. NIBCO INC.
 - 4. Victaulic Company.
- B. Description:
 - 1. Standard: UL 262 and FM Global standard for fire-service water control valves (OS&Y- and NRS-type gate valves).
 - 2. Minimum Pressure Rating: 175 psig.
 - 3. Body and Bonnet Material: Cast or ductile iron.
 - 4. Wedge: Cast or ductile iron, or bronze with elastomeric coating.
 - 5. Wedge Seat: Cast or ductile iron, or bronze with elastomeric coating.
 - 6. Stem: Brass or bronze.
 - 7. Packing: Non-asbestos PTFE.
 - 8. Supervisory Switch: External.
 - 9. End Connections: Grooved.

2.05 NRS GATE VALVES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Mueller Co.
 - 2. NIBCO INC.
 - 3. Victaulic Company.
- B. Description:
 - 1. Standard: UL 262 and FM Global standard for fire-service water control valves (OS&Y- and NRS-type gate valves).
 - 2. Minimum Pressure Rating: 175 psig.
 - 3. Body and Bonnet Material: Cast or ductile iron.
 - 4. Wedge: Cast or ductile iron with elastomeric coating.
 - 5. Wedge Seat: Cast or ductile iron, or bronze with elastomeric coating.
 - 6. Stem: Brass or bronze.
 - 7. Packing: Non-asbestos PTFE.
 - 8. Supervisory Switch: External.
 - 9. End Connections: Grooved.

2.06 INDICATOR POSTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. American Cast Iron Pipe Company.
 - 2. Clow Valve Company; a subsidiary of McWane, Inc.
 - 3. Kennedy Valve Company; a division of McWane, Inc.
 - 4. Mueller Co.
 - 5. NIBCO INC.
- B. Description:
 - 1. Standard: UL 789 and FM Global standard for indicator posts.
 - 2. Type: Underground or Wall.
 - 3. Base Barrel Material: Cast or ductile iron.
 - 4. Extension Barrel: Cast or ductile iron.
 - 5. Cap: Cast or ductile iron.
 - 6. Operation: Wrench or Handwheel.

2.07 TRIM AND DRAIN VALVES

A. Angle Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fire Protection Products, Inc.
 - b. NIBCO INC.
 - c. United Brass Works, Inc.
2. Description:
 - a. Pressure Rating: 175 psig.
 - b. Body Material: Brass or bronze.
 - c. Ends: Threaded.
 - d. Stem: Bronze.
 - e. Disc: Bronze.
 - f. Packing: Asbestos free.
 - g. Handwheel: Malleable iron, bronze, or aluminum.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS FOR VALVE INSTALLATION

- A. Comply with requirements in the following Sections for specific valve installation requirements and applications:
1. Section 211100 "Facility Fire Suppression Water-Service Piping" for application of valves in fire-suppression water service piping outside the building.
 2. Section 211200 "Fire Suppression Standpipes" for application of valves in fire-suppression standpipes.
 3. Section 211313 "Wet-Pipe Sprinkler Systems" for application of valves in wet-pipe, fire-suppression sprinkler systems.
 4. Section 211316 "Dry-Pipe Sprinkler Systems" for application of valves in dry-pipe, fire-suppression sprinkler systems.
- B. Install listed fire-protection shutoff valves supervised-open, located to control sources of water supply except from fire-department connections. Install permanent identification signs indicating portion of system controlled by each valve.
- C. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water-supply sources.
- D. Install valves having threaded connections with unions at each piece of equipment arranged to allow easy access, service, maintenance, and equipment removal without system shutdown. Provide separate support where necessary.
- E. Install valves in horizontal piping with stem at or above the pipe center.
- F. Install valves in position to allow full stem movement.
- G. Install valve tags. Comply with requirements in Section 210553 "Identification for Fire-Suppression Piping and Equipment" for valve tags and schedules and signs on surfaces concealing valves; and the NFPA standard applying to the piping system in which valves are installed. Install permanent identification signs indicating the portion of system controlled by each valve.
- H. Install listed fire-protection shutoff valves supervised-open, located to control sources of water supply except from fire-department connections.

END OF SECTION