

SECTION 15130

MISCELLANEOUS VALVES

PART 1 GENERAL

1.01 SCOPE

- A. The Contractor shall furnish and install miscellaneous valves as required, complete and operable, including all appurtenances and accessories.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 15100 - Valves, General

PART 2 PRODUCTS

2.01 AIR RELEASE VALVES (MANUAL) AND FLUSHING VALVE OUTLETS

- A. The air release valve and flushing valve assemblies shall be installed in accordance with the details shown in the Department Standard Details. The following products shall be used to construct the assemblies:

Corporation Stops	1-1/2 inch, ballcorp corporation stop, AY McDonald, Ford, Cambridge Brass or approved equal (rating of 300 psi)
Angle Valves for Manual Air Release	2-inch straight ball valve with lever, see Std. Detail WS 1.60
Flushing Valve Outlet Angle Valve	2-inch Bronze angle valve with lever, see Std. Detail WS 1.61
2-inch Schedule 80 PVC	Schedule 80 PVC threaded at both ends

- B. Taps into ductile iron pipe for air release and flushing valve assemblies shall be AWWA Tapered thread only, and the Contractor shall provide suitable equipment for this purpose as approved by the Engineer. After the tap has been made, and the corporation stop installed on a pipe conveying potable water, the inside of the pipe around the stop and the exposed exterior surfaces of the stop shall be heavily coated with Carboline Super Hi-Gard 891 White 1898, or approved equal.
- C. The installation of air release valves shall include excavation, tapping the ductile iron pipe, corporation stop, angle valve, PVC pipe and fittings, complete with valve boxes and covers, set in concrete, backfilling and compaction, and all other appurtenant items and work in accordance with the Department Standard Detail WS 1.60.
- D. The installation of the flushing valve outlets shall include excavation, tapping the ductile

iron plug, angle valve, PVC pipe and fittings, concrete thrust block, complete with valve boxes and cover, set in concrete, backfilling and compaction, and all other appurtenant items and work in accordance with the Department Standard Detail WS 1.61.

2.02 SEWAGE AUTOMATIC AIR RELEASE VALVE

- A. Sewage automatic air-release valves shall be of the type that automatically releases accumulated air, gas or vapor under pressure during system operation and shall be of the size shown on the approved Plans or Standard Details. The internal mechanism shall be the compound lever type to permit the valve to open under pressure to vent pockets of entrapped air, gas or vapor as they accumulate. The compound mechanism shall be activated by a stainless steel concave float to lift the Buna-N needle or orifice button to control the air release orifice. Linkage shall be stainless steel. The air release valves shall be designed for a maximum working pressure of 150 psi. The valves shall be supplied with a 2-inch stainless steel shut-off ball valve, blow-off assembly and a ½-inch quick-disconnect back flushing connection with shut off valve. The valve shall have a straight flow body with automatic orifice, corrosion resistant internal mechanisms that include a stainless steel float rod and inlets to enable back flushing and drainage.
- B. Automatic air release valves (for sewage) are listed in the MD-WASD Pre-Approved Products List Sheet 4.7.

2.03 BRONZE BALL/CORPORATION STOPS, 2 INCHES AND SMALLER, FOR WATER SERVICE

- A. Corporation stops shall be bronze with male inlet iron pipe threads and female outlet iron pipe threads and shall conform to AWWA C800. Components in contact with water shall be bronze (ASTM B584, Alloys C89833 or C89836). Components not in contact with water shall be bronze (ASTM B62 or ASTM B584, Alloys C83600, C89833, or C89836). Bronze alloys having a maximum lead content of 0.25%, a maximum zinc content of 7.0%, and a minimum copper content of 80% may be substituted for the bronze alloys specified above. Minimum pressure rating shall be 300 psi. Stops shall be Ford Ballcorp Type FB 1700, A.Y McDonald, or equal. Stops shall have an outlet fitting to adapt from iron pipe thread to copper tubing.
- B. Corporation stops are listed in the MD-WASD Pre-Approved Products List Sheet 8.3.

2.04 BRONZE ANGLE METER STOPS FOR WATER SERVICE

- A. Angle meter stops shall be bronze and marked NL for no lead. Components in contact with water shall be bronze (ASTM B584, Alloys C89833 or C89836). Components not in contact with water shall be bronze (ASTM B62 or ASTM B584, Alloys C83600, C89833, or C89836). Bronze alloys having a maximum zinc content of 7.0%, and a minimum copper content of 80% may be substituted for the bronze alloys specified above. Minimum pressure rating of the Meter Valve shall be 300 psi.
- B. Meter Valves for Water Service are listed in the MD-WASD Pre-Approved Products List Sheet 8.5.

2.05 STAINLESS STEEL BALL VALVES – USED FOR AUTOMATIC AIR RELEASE VALVES

- A. Ball valves used for sewer applications shall be stainless steel full port type with threaded NTP ends. The valve shall be designed to ASME B 16.34 with a locking lever. The minimum pressure rating shall be 150 psi. Valve materials shall be as follows: valve body, gland, seat ring, stem, and ball of AISI Type 316 stainless steel. Bushing, packing, seat ring gasket, and seat shall be TFE. Thrust washer shall be glass-filled TFE. Stainless steel ball valve shall be FNW 2PC Full Port 1000 CWP (Ferguson Supply Brand) or approved equal.

2.06 FULL PORT THREADED BRONZE BALL VALVES 2 INCHES AND SMALLER

- A. Ball valves, 2 inches and smaller, for water service shall have a pressure rating of at least 600 psi WOG at a temperature of 100°F. Provide full port ball and body design. Valves shall comply with MSS SP-110 and constructed of bronze. Bronze alloys having a maximum lead content of 0.25%, a maximum zinc content of 7.0%, and a minimum copper content of 80% may be substituted for the bronze alloys specified above. Valves shall have threaded ends (ASME B1.20.1), non-blowout stems, and have plastic-coated lever actuators. Provide locking lever handle.
- B. Manual air release valves for water shall use a 2-inch straight ball valve with lever.

2.07 PLASTIC BALL VALVE

- A. Plastic ball valves shall be used at all PVC pipe installations where required, and be made of polyvinyl chloride (PVC). All valves shall have manual operators, unless otherwise specified or shown.
- B. Construction: All plastic ball valves shall have union ends or flanged ends to ANSI B.16.5, class 150, for easy removal. The balls shall have full size ports and Teflon seats. All body seals, union O-ring seals, and stem seals shall be Viton. The valves shall be suitable for a maximum working non-shock pressure of 150 psi at a temperature of 105°F. Body, ball, and stem shall be PVC conforming to ASTM D1784, Type 1, Grade 1. Seats shall be Teflon. O-ring seals shall be Viton. Valve ends shall be of the double-union design. Ends shall be socket welded except where threaded or flanged-end valves are specifically shown in the drawings. Valves shall have handle for manual operation.
- C. Suppliers or Equal: NIBCO Inc., (Chemtrol), Watts Regulator Company, ITT Engineered Valves.

2.08 PRESSURE AUTOMATIC AIR RELEASE VALVE

- A. The pressure automatic air-release valves shall be installed at locations selected by the Engineer of Record to automatically release accumulated air and other gases with the line under pressure. The internal mechanism shall be the compound lever type to permit the valve to open under pressure to vent pockets of entrapped air or gas as they accumulate. Valve shall be selected with orifice sized for venting at an acceptable discharge rate over the entire pressure range the main will be operated. It shall have sealing faces of an adjustable BUNA-N rubber valve and stainless steel. Valves which use a needle valve to seal the orifice shall not be acceptable. Valve shall have a 2-inch NPT screwed inlet connection and shall have cast iron body with stainless steel float and inner mechanisms. For valves where bolts thread into the housing (i.e. bonnet-to-body bolts), bolts shall be stainless steel. Valves shall be supplied with a 1-inch vacuum check

valve on the outlet to eliminate the possibility of air entering the system when the pressure decreases or if a vacuum is drawn. The valves shall also be supplied with a 2-inch bronze isolation shut-off ball valve.

2.09 SERVICE SADDLES

- A. Install service saddles for taps into 6-inch and smaller ductile iron mains. Service pipe saddle shall fit to the maximum O.D. of the saddle's range. When the saddle is used on pipe to the minimum pipe size of the range, the saddle shall extend 180 degrees around the pipe. Straps shall have ends chamfered and be provided with Class 2 fit, National Coarse Threads. Valve gaskets shall be self-sealing neoprene.
- B. Saddles are listed in the MD-WASD Pre-Approved Products List Sheet 7.0.

2.10 SMALL PRESSURE REDUCING VALVES (AIR AND WATER)

- A. General: Small air and water pressure reducing valves shall be of the spring-loaded diaphragm type with a minimum pressure rating of 250 psi, with bronze body, nickel alloy or stainless steel seat, and threaded ends. Each valve shall be furnished with built-in or separate strainer and union ends.

2.11 GLOBE VALVES

- A. The globe valves for pipe 3 inches and smaller shall be handwheel operated, shall have ends threaded to American Tapered Pipe Thread (NPT) Standard, shall be designed for 150-pound working pressure and shall be bronze body equal to Crane Company No. 1, Nibco Inc., or approved equal.

2.12 GATE VALVES (SMALL)

- A. Gate valves, smaller than 3-inches in size, unless otherwise noted on the approved Plans, shall be minimum 125 psi, bronze body, double disc, rising stems with heavy duty bronze handwheels. Valve shall have a full bore able to allow passage of a drill of the nominal valve size and be used in place of a corp. stop for tapping the main. James Jones Co. Model J-372, Stockham, Bermaid or approved equal. Ends should be as shown or indicated on the Plans. Each valve shall open by turning the handwheel counterclockwise. Valves shall be designed for at least 125 psi working pressure. Valves with reduced bores or appreciably lighter in weight than those specified will not be acceptable.
- B. See Section 15120, "Gate Valves", for gate valves not specified above.

2.13 PRESSURE RELIEF VALVE

- A. The pressure relief valve shall maintain constant upstream pressure by by-passing or relieving excess pressure, and shall maintain close pressure limits without causing surges. It shall be adjustable with bronze body and stainless steel trim. Pressure relief valve shall be Cash-Acme type K-10, with a 5 to 75 psi adjustment range, Bell & Gossett, or approved equal.

2.14 BACKFLOW PREVENTER VALVES

- A. General: Backflow preventers shall work on the reduced pressure principle. They shall consist of two (2) spring-loaded check valves, automatic differential pressure relief valve, drain valves and shut-off valves. The body material shall be bronze or cast iron for a working pressure of not less than 150 psi, with bronze or stainless steel trim. Drain lines with air gaps shall be provided.
- B. See MD-WASD Pre-Approved Products List for backflow prevention devices.

PART 3 EXECUTION

3.01 GENERAL

- A. All valves shall be installed in accordance with provisions of Section 15100, "Valves, General." Care shall be taken that all valves are well supported on each end of the valve.
- B. Installation of both manual and automatic air release valves shall be in accordance with the Standard Details.
- C. All valves shall be installed in accordance with the Standard Details and manufacturer's recommendations.
- D. All air and vacuum release valves installed in pump stations shall have piped outlets to the nearest acceptable drain, firmly supported, and installed in such a way as to avoid splashing and wetting of floors.

END OF SECTION