

**1.03-025S/020S**

**AIR AND VACUUM RELEASE VALVES**

**Sewage:**

All force mains and other pressure non-treated mains shall have air and vacuum release valves installed as indicated on the plans. The body of these valves shall be conical shaped to maintain maximum air gap with the spring loaded float and seal plug connection combining to prohibit contact between the sewage and the seal. The valve shall have a double float design with the upper float being enclosed in the upper section of the valve and shall be made of polypropylene. The lower float shall be in the main body of the valve and shall be constructed of 316 stainless steel or foam polypropylene. The body, cover flange, and lower flange shall be constructed of 316 stainless steel, and shall have a funnel shaped lower body to automatically drain sewage back into the system. All internal metal parts are to be made from corrosion resistant 316 stainless steel, with all operating parts in the upper and lower sections to be non-metallic plastic materials. The hinge for operation for the opening and closing of the seal on the orifice shall be made of EPDM rubber. The rolling resilient seal shall provide smooth positive opening, closing, and leak free sealing over the fluctuation of pressure differentials. The working pressure shall be 250 psi and tested to 360 psi. All hardware shall be of stainless steel bolts and nuts, and the entire valve, except the upper outlet, shall be constructed of 316 stainless steel. All valves shall be equipped for backflushing maintenance with easy connection or disassembly. Valves with a total weight of more than 55 pounds shall be anchored to relieve the excessive weight to the saddle and PVC pipe. Those valves weighing less than 55 pounds will not be required to be anchored. The connection on all pipelines shall be the following sizing with an isolation valve of the same size:

8-inch and smaller	2-inch threaded
12-inch through 14-inch	3-inch flange
16-inch through 24-inch	4-inch flange
30-inch through 48-inch	6-inch flange
54-inch and larger	8-inch flange

All air and vacuum combination release valves shall be model ARI D-020S, ARI D-025SS, or approved equal, and the automatic air release valves shall be ARI model S-020S or approved equal. All valves shall be installed in accordance with manufacturer recommendations and shall have an isolation valve connection for control. All ARVs shall have ISO 9002 certification in order to be supplied on this project.

**1.03-023**

**LARGE DIAMETER PIPING AIR VALVES:**

**Sewage:**

All force mains and other pressure non-treated mains shall have air and vacuum release valves installed as indicated on the plans. The body of these valves shall be conical shaped to maintain maximum air gap with the spring loaded float and seal plug connection combining to prohibit contact between the sewage and the seal. The spring load feature shall be designed to minimize the “slamming” effects due to surges in the system, and the quick opening and closing of the valve. All internal metal parts of the valve shall be constructed of 316 stainless steel. The body of the valve shall be constructed completely of 316 stainless steel and all other materials will not be acceptable. The valve shall be capable of all three functions of an ARV; automatic air release, vacuum intake protection, and kinetic protection features during the filling and draining process. The valve shall be a one body design with the hinge located in the upper housing to prohibit raw sewage from contact. The lower body shall be funnel-shaped to allow solids to easily slide back

into the force main and be carried away. The valve height shall be no more than 26-inches and weight no more than 55 pounds. The large orifice shall have a minimum square inch area of 7½-inches. The valves shall be ARI D-023SS or approved equal by the designed engineer and owner. All valves shall have a minimum 316 stainless steel flange opening connection of 3-inches. The valve shall come equipped with a 1-inch stainless steel ball valve for test and drainage. The working pressure shall be a minimum of 250 psi with test design of 360 psi.