

COMBINATION AIR RELEASE DEGASSING (CARD) VALVES INSTALLATION AND MAINTENANCE MANUAL

SPECIFICATIONS:

The CARD series air valves are available in 3 pipe sizes, 1", 2" and 4" NPT or socket.
Maximum inlet pressure is 150 PSIG
Maximum Hydrostatic test pressure is 225 PSIG
The minimum Specific Gravity of the fluid shall be greater than or equal to 0.9
Optional cover for outlet to prevent debris from entering valve.

1. MATERIALS:

- A. **WETTED PARTS:** Either PVC or CPVC plastic, and EPDM or FKM elastomer.
There are no metals in the valves. All parts of the valves are wetted while in service.
- B. **CAUTION:** Plastic materials will degrade in ultra-violet (UV) light or sunlight.

INSTALLATION:

NOTE: There are many places in a pipeline where air valves are needed. An excellent source of information regarding placement of air valves can be found in the American Water Works Association (AWWA) Manual M51, chapter 3. In the absence of this specification manual the valve is usually installed in the highest section of the pipeline.

The Combination Air Release Degassing (CARD) valves are available in threaded NPT or socket connections. When solvent cementing the valve into a pipeline use extreme caution to avoid allowing solvent cement or primer to get inside of the valve. If it does, it could cause the valve to malfunction. The CARD valves **MUST** be oriented in the vertical position with the inlet on the bottom. If not oriented this way the valve will not perform its duty. Occasionally, small amounts of liquid may be released from either the large or small port. This may happen just as the orifice is closing. The cap is provided with a threaded NPT port in case this needs to be piped to a safe location.

Threaded Connections: A suitable thread sealant (e.g. PTFE tape) should be applied to male tapered threads to assure a "leak-tight" seal. The assembly need only be made "hand-tight" followed by a quarter (1/4) turn with a strap wrench. Do not over tighten or use pipe wrenches on plastic pipe and components.

Caution: PTFE tape will "string" as pipe threads are joined. Loose "strings" could lay across the seating surface and prevent the valve from completely closing. To avoid this problem, clean out the old tape, and do not apply tape to the first thread.

Caution: Connection should be made only to plastic fitting; metal pipe should only be installed with an intervening plastic nipple. Metal pipe and straight threaded pipe tend to cut, stretch, and distort the plastic bodies, which could result in failure.

Caution: Important to note that because Series CARD is a normally-open valve, it should not be used in applications requiring a normally-closed vacuum breaker such as Series VBM/VBS.

Important Note on use with Salt Solutions & Other Liquids that may Precipitate Solids:

Should the CARD valve be installed in liquids which have the possibility of precipitating solids out of solution, it is recommended to periodically clean the CARD in warm or cold water to remove debris and/or precipitated salts from the orifice and the seat. To disassemble use an appropriate spanner wrench inserted into the three holes in the top of the valve, unscrew and remove the float/seat assembly. Then clean and re-assemble the CARD.

Maintenance:

It is further recommended to keep a spare seal kit on hand. When the CARD is disassembled for cleaning, examine the small and large elastomer seats, and the O-rings for elasticity and general overall condition. If lack of elasticity or general wear is evident, replace the seals.

REPLACEMENT OF THE SEAL KIT:

The CARD valves have (4) elastomeric seals inside. There are (2) O-rings, a small seat disc, and a large seat disc. These can be replaced in the field if necessary, using the appropriate CARD spanner wrench (see table*) to loosen the CARD "cap."

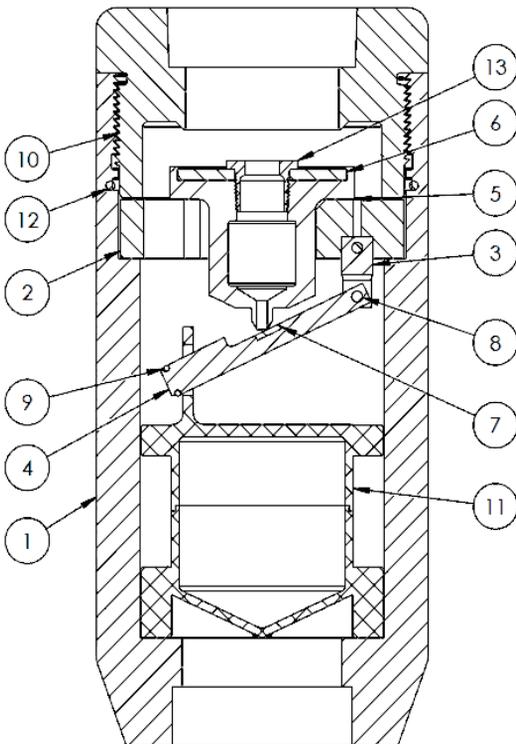
CAUTION; Never attempt to open the valve while it is pressurized. This could result in injury or death. Always make certain the system is de-pressurized, before servicing the valve. Also be certain that maintenance personnel will not be subjected to chemicals which may be in the valve or pipeline.

Refer to the illustration on page 3.

1. Opening the CARD valves

- a. Opening the CARD valves entails removing the threaded cap. On the 1" CARD100, the cap can be removed using a spanner wrench available in hardware stores or online venues such as McMaster-Carr. The holes in which the spanner is inserted are 5/16" (.31") diameter. The thread is a Right-Hand thread.
- b. On the 2" CARD200 valve there are 3 holes which allow a special factory wrench to remove the cap. There are also (2) 3/8" NPT holes on the side of the cap. (2) 3/8" NPT metal pipes can be inserted to remove the cap. **Use caution because excessive force can damage the NPT holes in the cap.**
- c. On the 4" CARD400, the same configuration as the 2" CARD200 is used, except the pipe threads are 1/2" NPT. **Use caution because excessive force can damage the NPT holes in the cap.**
- d. Once the cover is removed (item 10), the poppet (item 5) can be lifted out of the valve.

2. Within this poppet is the large seat disc (item 6). This must be very carefully pried out of the poppet. Because the poppet and other parts are made of plastic which can be permanently damaged by a metal screwdriver, it is recommended that the seats be removed by the use of a wood "orange stick" or other softer than metal material. The large elastomer seat is held in place in the poppet by a ledge around the poppet and a hex head plug. Item 13 must be removed to remove the seat. To install a new seat simply lay it into the poppet and work the edges of the disc under the ledge with your finger nail or a wooden stick.
3. The remains of the inner parts can be removed from the valve by lifting out the main seat holder (item 2). All of the rest of the parts are attached to it. The small seat disc (item 7) is simply removed from the lever (item 4) and replaced with a new one. The small O-ring (item 9) does not perform a sealing function but simply keeps the float (item 11) from falling off of the lever (item 4). It is recommended that this be replaced when replacing the other seals.
4. Inspect all of the parts for damage and it is recommended that the parts be rinsed in water especially if any crystallization of chemical has occurred. Shake the float to assure it has no leaks, whereby liquid may be inside. If so, it MUST be replaced.
5. The inner parts can be replaced into the valve as they were removed. Replace the large O-ring (item 12) on the cap of the valve. The cover must be tightened enough that it will not come loose from vibration etc. Tighten it "hand tight" and then one more half turn.



ITEM	DESCRIPTION	QTY.
1	THREADED BODY	1
2	MAIN SEAT HOLDER	1
3	PIN	1
4	LEVER	1
5	POPPET	1
6	LARGE SEAT DISK	1
7	SMALL SEAT DISK	1
8	HINGE PIN	2
9	O-RING	1
10	CAP	1
11	FLOAT ASSY	1
12	O-RING	1
13	HEX HEAD PLUG	1

*CARD Spanner Wrench	
Valve	Plast-O-Matic Item #
CARD100	T1212
CARD 200	T1224
CARD400	T1223