

FIGURE 345 - 355
BALL CHECK VALVE



TRUE UNION BALL CHECK VALVE

FNW recommends reading the following information prior to installing and using our valves, controls and other associated products.

WARNING:

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.



LIABILITY LIMITATIONS

- FNW guarantees its products against defective material and workmanship only.
- FNW assumes no responsibility for damage or injuries resulting from:
 - Improper installation, misapplication or abuse of any product.
 - Chemical incompatibility between its products and process fluids to which they are subjected. FNW has compatibility charts for reference, but customers should always test to determine application suitability.

INSTALLATION CONSIDERATIONS

- Pressure Rating: 150 PSI at 73°F.
 - Maximum recommended fluid velocity is eight feet per second. Higher flow rates can result in possible damage due to the water hammer effect.
- Temperature Range: PVC: 41°F–122°F (5°C–50°C), CPVC: 32°F–194°F (0°C–90°C)
 - Temperature effect on piping systems, including thermal expansion and contraction, should always be considered when systems are designed.
 - PVC and CPVC plastic products become brittle below 40°F. FNW recommends caution in their installation and use below this temperature.
- Systems should always be depressurized and drained prior to installing or maintaining FNW products.
- NEVER USE OR TEST WITH COMPRESSIBLE FLUIDS SUCH AS COMPRESSED AIR OR NITROGEN.
- DIRECT INSTALLATION OF METAL PIPE INTO PLASTIC CONNECTIONS IS NOT RECOMMENDED. Wherever installation of plastic valves into metal piping is necessary, it is recommended that a length of plastic pipe (at least 10 times the pipe diameter) be installed upstream and downstream of the plastic valve to compensate for differential thermal expansion rates between metal and plastic, transmittal of pipe vibration and pipe loading forces.
- When sizing electric or pneumatic actuators, consider that valve torque is affected by fluid chemistry, viscosity, flow rate and temperature. The operating torque requirements in the chart to the right are based upon testing of new valves using clean water at 70°F.

CV & WEIGHTS

Size (in.)	Cv	Weight (lbs)
1/2	10	0.44
3/4	26	0.71
1	37	0.99
1-1/4	40	2.54
1-1/2	80	2.25
2	152	3.9

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INSTALLATION

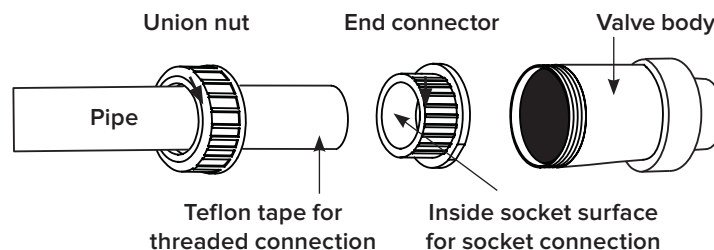
NOTES:

- Do not use the ball check valve with fluids that have suspended solids.
- Install the valve at least five pipe diameters from sources of turbulence, such as pumps, or direction-changing fittings, like elbows.
- Check valves are unidirectional and installed with the valve's flow arrow pointing in the direction of flow.
- Pipe must be supported upstream and downstream of the valve.

SOCKET CONNECTION

Solvent cementing of socket end connections to pipe should follow ASTM specifications D2855-87.

1. Cut the pipe square, then chamfer and deburr the pipe. Surfaces must be clean and free of dirt, moisture, oil and other foreign material.
2. Remove the union nut and end connector from the valve body, then slide the union nut, with threads facing the valve, onto the pipe.
3. Apply primer to the inside socket surface of the end connector and to the male pipe end to socket depth. Follow primer manufacturer's instructions for use. Never allow primer or cement to contact the valve ball or end connector O-ring sealing surfaces, as leaking may result.
4. Apply cement to the pipe and the inside of the socket while the surface is still wet with primer. Follow cement manufacturer's instructions for use.
5. Assemble the end connector to the pipe, rotating the end connector 1/4 turn in any direction as it is slipped to full depth onto the pipe. The end connector should be held in position for approximately 30 seconds to allow the connection to set. Full set time is a minimum of 30 minutes at 60° to 100°F.
6. After assembly, wipe off excess cement and allow the connection to cure, per cement manufacturer's instructions.
7. Hand-tighten the union nut on the valve, then using a strap wrench only (never use a pipe type wrench), tighten the connection an additional 1/2 to 3/4 of a turn past hand-tight.



THREADED CONNECTION

1. Wrap the threads of the pipe with 3 to 3-1/2 mil Teflon tape. The tape should be wrapped in a clockwise direction starting at the first full thread. Overlap each wrap by half the width of the tape. The wrap should be applied with sufficient tension to allow the threads of a single wrapped area to show through without cutting the tape. The wrap should continue for the full effective length of the thread. Pipe sizes 2" and greater will not benefit with more than a second wrap, due to the greater thread depth.
2. Thread the pipe into the end connection by hand.
3. Using a strap wrench only (never use a pipe wrench), tighten the connection an additional 1/2 to 1-1/2 turns past hand-tight. Tightening beyond this point may cause valve failure.
4. Hand-tighten the union nut on the valve. Using a strap wrench only (never use a pipe wrench), tighten the connection an additional 1/2 to 3/4 of a turn past hand-tight.

FIGURE 345 - 355

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DISASSEMBLY



HAZARD/CAUTION:

FNW recommends using extreme caution when working on this valve. The piping system must be depressurized and drained. Proper care must be taken. Consult MSDS (Material Safety Data Sheets) information regarding your specific application and media.

1. Loosen the union nut at the end of flow with a strap wrench until it separates with the end connector and O-ring. Remove the O-ring, taking care not to scratch the O-ring sealing surface. Check the O-ring for damage. Clean up all parts and replace the parts which need replacing. Place the parts in order to the left of the valve on a clean, hard surface.
2. Loosen the union nut at the beginning of flow with a strap wrench until it separates with the end connector. Remove the seat and seat carrier. Push the ball out from the end of flow side. Check all parts for damage. Clean up all parts and replace the parts which need replacing. Place the parts in order to the right of the valve on a clean, hard surface.
3. **Valve assembling (in reverse):**
 - Place the ball into the body. Apply slightly soapy water to the valve connection surfaces on the beginning flow side and the Step 2 parts. Place the parts in order into the body, pressing the sealing parts evenly into the body until there is a smooth fit. Hand-tighten the union nut and end connector only.
 - Apply slightly soapy water to the threads of the body on the end of flow side and the Step 1 parts. Press the O-ring evenly into the slot, to prevent creases and uneven sealing. Hand-tighten the union nut and end connector only.
4. Pressure test the valve. If leakage is found, depressurize the system. Then, using one wrench to hold the body of the valve stable, use the strap wrench to tighten the union nut connection no more than 1/4 of a turn.

