SCI Series 9121 Threaded & 9122 Slip-On PVC Ball Valves

Installation, Operation and Maintenance Instructions

Series 9121 Threaded PVC Ball Valve

Series 9122 Slip-On PVC Ball Valve

Figure 1 – SCI Series 9121 & 9122 PVC Ball Valve

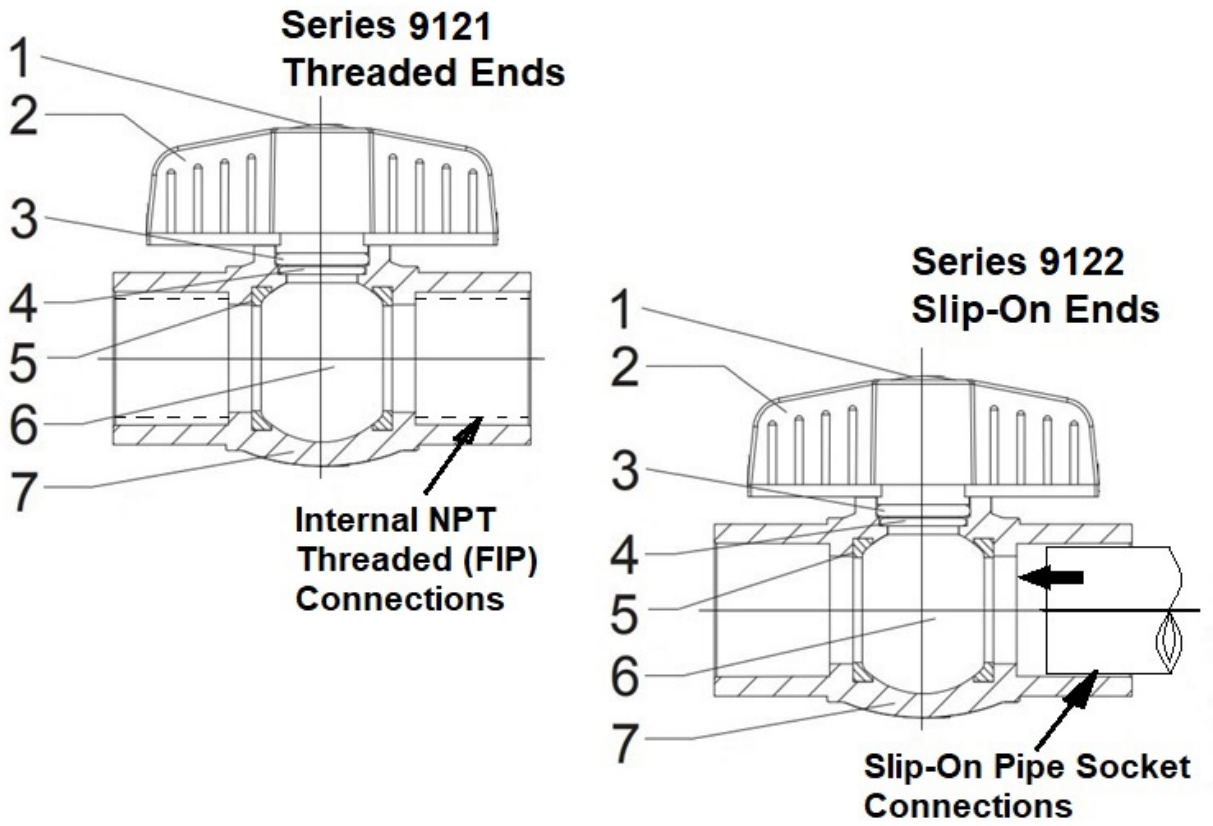

Table 1 – SCI Series 9121 & 9122 List of Materials (See Figure 1 for items illustrated)

Item No.	Part Description	Material
1	Cap	ABS Plastic
2	Handle	ABS Plastic
3	O-Ring	EPDM Rubber
4	O-Ring	EPDM Rubber
5	Seat Ring	Santoprene® (TPV) (1)
6	Ball	PVC Thermoplastic (PVC & ABS – 9122)
7	Body	PVC Thermoplastic

Notes: *(1) TPV is a Thermoplastic Vulcanizate, consisting of mostly EPDM rubber encapsulated in a PolyPropylene (PP) matrix under the trade name Santoprene ® (Monsanto, now Celanese).*

Valve Installation [See Figure 1 and Table 1 for part numbers listed in parentheses ( )]

These valves may be installed in the pipeline in any orientation or position using good piping practice. However, it is recommended to install the valve with the handle (2) above the flow axis (in horizontal pipe) for optimum access and operation of the valve by the user.

These valves are equipped with either threaded connections (Series 9121) or slip-on socket connections (Series 9122) for adhesive bonding to adjacent PVC piping.

⚠ **PRECAUTIONS FOR THREADED CONNECTIONS** – Caution should be taken to properly prepare the threaded pipe connections either with a liquid or paste-type thread sealant, or PTFE thread tape when assembling to the valve. For a liquid or paste-type thread sealant, it is recommended to use: Loctite 5438, Vibra-Tite 481, Hernon Powerseal 932, or other suitable sealant compatible with PVC and to follow the manufacturer's instructions for use and assembly. If a tape sealant is used on the pipe threads – the following precautions are recommended:

1. Use TFE tape with a thickness of 0.025 inches (25 mils) [0.64 mm] or greater.
2. The initial wrap should cover the entire thread-end.
3. For standard pipe threads – wrap the tape clockwise (looking at the end of the thread).
4. Use only 2 – 3 full wraps of tape if possible.

⚠ **PRECAUTIONS FOR SLIP-ON JOINTS** – Caution should be taken to properly prepare the same composition PVC thermoplastic piping for installation into the valve body (7). The ends of piping to be inserted and adhesive-bonded into the valve should be accurately cut square (90-deg) to the outside diameter of the pipe, and the ends de-burred by placing a 10 to 15-degree chamfer on each pipe end, preferably with a file and not just a deburring tool. The outside of the PVC pipe and inside valve socket connections must also be treated with the correct adhesive primer to help soften the surfaces to be bonded. Solvent cement must be applied immediately to the primed surfaces before they dry – using a 1/4 turn twisting motion of the pipe and socket to distribute the adhesive during installation.

⚠ **WARNING** – These valves constructed of PVC Thermoplastic should not be used for pressurized gases such as air or nitrogen. Nor should compressed air or gases be used to pressure-test, flush or clear the systems in which these valves are installed. Use of pressurized gases in the valve may result in explosion or fragmentation of the valve body or parts which could cause serious injury or death to adjacent personnel.

⚠ **WARNING** – Some lubricants – including vegetable oils – are known to cause stress cracking in thermoplastic materials like PVC. Lubricants are not normally required for use in this valve during installation. And any fluids containing lubricants should be checked for compatibility with PVC before valve installation.

Valve Operation [See Figure 1 and Table 1 for part numbers listed in parentheses ( )]

These are quarter-turn (90° rotation) ball valves which are typically fitted with a plastic tee-handle (2) for manual operation. The valve body (7) also contains travel stops at fully open and closed positions.

To open the valve, turn the handle (2) counterclockwise. The handle (2) should be in-line or parallel to the axis of the pipe.

To close the valve, turn the handle (2) clockwise. The handle (2) should be perpendicular to the axis of the pipe.

Valve Maintenance [See Figure 1 and Table 1 for part numbers listed in parentheses ( )]

Safety Precautions Prior to Performing Maintenance:

WARNING – Do not attempt to perform maintenance on these valves in pressurized lines. Doing so may result in severe injury or burns due to hot fluids if there is an uncontrolled release of system pressure.

Before removing a valve from the pipeline, determine which media may be flowing through the valve. The media may be corrosive, toxic, flammable or contaminated. When there is evidence of hazardous fluids having flowed through the valve, additional precautions should be taken to avoid contact with these fluids and additional precautions should be taken when handling the valves during removal. Review the Safety Data Sheet (SDS) for any hazardous flowing fluids for any additional precautions. As a minimum, the following additional precautions should be taken.

1. Always wear OSHA-approved Safety Eyewear or face shields.
2. Always wear protective gloves and overalls or a chemical-resistant apron.
3. Wear protective footwear (e.g., safety shoes).
4. Wear protective headgear as required for the work area (e.g., hard hat – if required).
5. Ensure that running water is easily accessible (e.g., to rinse fluids from hands or valve / parts).
6. Have a suitable fire extinguisher ready if working with flammable media.

Check pipeline gauges to ensure that no pressure exists on either the upstream or downstream sides of the valve before performing any maintenance.

Ensure that any trapped media is released from the valve and piping by operating the valve slowly to the half-open position. Then leave the valve in the fully open position during any maintenance – including removal of the entire valve from the system.

Valve Maintenance:

This type of molded-in-place thermoplastic valve is not designed to be dismantled to allow maintenance of its internal parts. So, the following conditions may warrant replacement of the entire valve with a new one:

1. There is excessive leakage out of the o-ring seals (3,4) beneath the handle (2).
2. Excessive leakage through the seats (5) when the valve is closed.
3. Excessive torque when attempting to open or close the valve with the handle (2).

Removal of valves with slip-on pipe connections from the system will typically involve cutting the valve from the pipe due to the nature of the adhesives used to secure it to the piping. See the valve installation section of this instruction for installation of a new valve – which may also require installation of an adapter(s) to make up the cut-off pipe.

It may be simpler to remove and replace valves which have threaded connections – provided the installation has sufficient room to move the adjacent piping to account for the wrench make-up of the pipe thread. The threaded ends of plastic or PVC pipe should be checked carefully for any thread damage or cracking before re-use. Otherwise, it may be necessary to cut out any sections with damaged threads and to replace them with an adapter(s) to make up the difference in length.