

# SCI Series 8155L, 8156L, 8170L & 8171L 2-Piece Forged Brass Ball Valve Installation, Operation and Maintenance Instructions



**Series 8155L Threaded,  
Lead-Free Brass Ball Valve**



**Series 8156L Sweat-  
End, Lead-Free  
Brass Ball Valve**



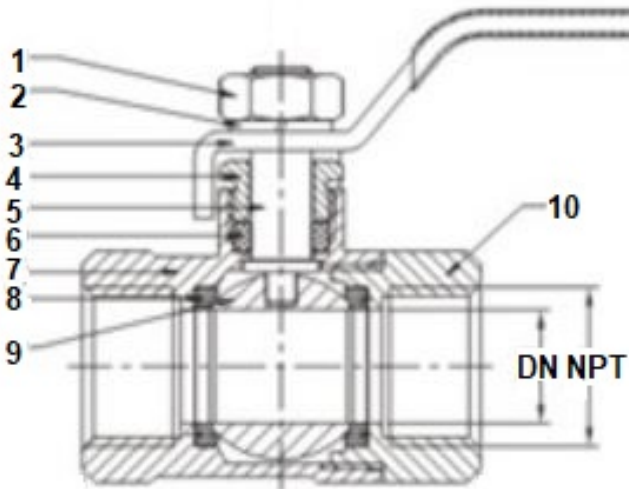
**Series 8170L  
Threaded, Lead-Free  
Brass Ball Valve**



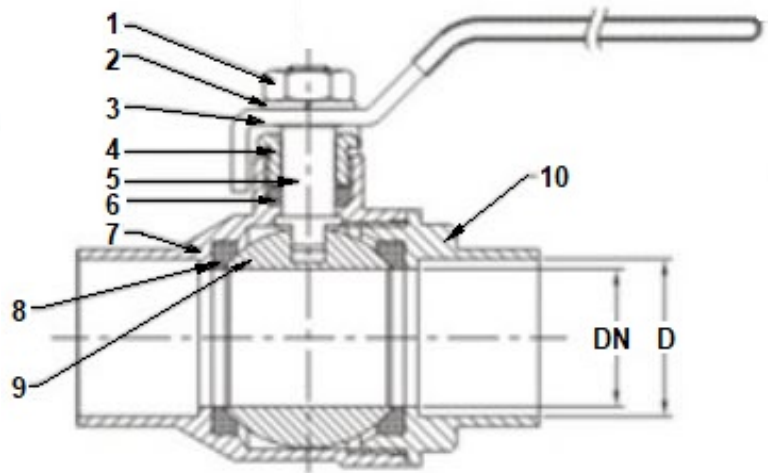
**Series 8171L Sweat-  
End, Lead-Free  
Brass Ball Valve**

**Figure 1** – SCI Series 8155L, 8156L, 8170L & 8171L 2-Piece Brass Ball Valve

**Series 8155L and 8170L Threaded-End Valves**



**Series 8156L and 8171L Sweat-End Valves**



**Table 1** – SCI Series 8155L, 8156L, 8170L & 8171L List of Materials (See Figure 1 for items illustrated)


Item No.	Part Description	Material
1	Handle Nut	Forged Steel ASTM-AISI 1010
2	Handle Lock washer	Steel with Chrome/Zinc Alloy
3	Handle	Forged Steel ASTM A283-D
4	Packing Nut	Brass ASTM B16, C36000
5	Stem	Brass ASTM B36, C28000
6	Stem Packing	PTFE
7	Body	Forged Brass ASTM B124, C37700
8	Seat Ring (2)	PTFE
9	Ball	Chrome Plated Brass ASTM B36, C28000
10	Body End Cap	Brass ASTM B36, C28000

## **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. For threaded-end valves, use a suitable joint compound or PTFE tape on pipe threads of the body (7) and end cap (10) for ease of fit-up and to seal the threads. However, it is recommended to install the valve with the handle (3) above the flow axis (in horizontal pipe) for optimum access and operation of the valve by the user.

### **Sweat-End Valves:**

Caution must be taken with sweat end valves to prevent heat damage to the soft elastomer seats (8) in the valve when the valve is brazed to the piping.

 **CAUTION** – The valve body (7) and ends (10) should only be brazed to adjacent piping with the valve ball (9) in the fully open position to avoid heat buildup which would damage the valve internals and seats (8).

## **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 lever handle (3) for manual operation. The valve body (7) also contains travel stops at fully open and closed positions.

To open the valve, turn the handle (3) counterclockwise. The handle (3) should be in-line or parallel to the axis of the pipe.

To close the valve, turn the handle (3) clockwise. The handle (3) 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:**

 **DANGER** – Do not attempt to perform maintenance on valves in pressurized lines. Doing so may result in severe injury or death 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 maintenance.

### **Valve Maintenance:**

#### **Stem Packing (6) Adjustment:**

If leakage is evident from the stem packing (6) area, tighten the packing nut (4) beneath the handle (3) about 1/8 of a turn. If the leakage persists, repeat the tightening sequence again. If the leakage cannot be corrected by tightening the packing nut (4), replacement of the stem packing (6) may be necessary.


#### **Seat (8) and Stem Packing (6) Replacement:**

To perform replacement of any internal valve components, the valve must be removed from the pipeline (unscrewed from piping if a threaded valve or un-brazed if a valve with sweat connections) and moved to a suitable and clean work location.

Turn the valve to the open position and remove the handle nut (1), washer (2) and the handle (3). Loosen and remove the packing nut (4) from the valve body (7).

Loosen and remove the body end cap (10) from the body (7) by unscrewing it and place it on a suitable work surface. Remove the downstream seat (8) from the valve.

Using the handle (3) if necessary, turn the ball to the closed position, and remove the ball (9) from the body (7) with a rolling motion away from the tang on the stem (5). Handle the ball (9) with care to avoid damaging its surface. Remove the upstream seat (8) from the body (7) which is behind the ball.

 **CAUTION** – Damaging the ball surface by dropping, denting, or scratching the ball surface will make it difficult for the ball or seats to shutoff leading to excessive leakage through the valve.

Push downwards on the top of the stem (5) to slide it down through the stem packing (6) and remove the stem from inside the body (7) bore. Remove the stem packing (6) or rings using a packing hook or sharp object to catch and pull the packing. **Use caution** not to scratch or nick the inside of the packing body / cavity inside the body (7) which may cause additional leakage.

ASC recommends that all soft elastomer parts – including seats (8), and packing (6) be replaced with new parts if available in a kit (contact sales). If kits are not available, a new replacement valve assembly will be required.

#### **Valve Reassembly:**

Make sure all the valve components are clean and undamaged before assembly. A light application of thread lubricant (e.g., Never-Seez or equivalent) on the body (7) to end cap (10) threads is recommended when tightening these parts.

Insert the inner seat (8) inside the body (7) and insert up to its shoulder – concave side toward the ball. Insert the stem (5) into the valve body (7) and upwards through its stem bore until the shoulder is seated in the bore.

Slide the stem packing or rings (6) over the top of the stem (5) and into the packing bore in the body (7). Take care not to damage or scratch or gouge the stem packing on the threads of the stem (5). Install the packing nut (4) and tighten finger tight (initially).

Place the stem in the “closed” position and install the ball carefully into the body (7) cavity by rolling the stem (5) tang into the ball (9) slot.

Install the downstream seat (8) into the body end cap (10) with the concave side toward the ball. Thread the end cap (10) into the body (7) and turn to tighten snug initially.

Tighten the packing nut (4) to the torque value given in Table 2 below. Then replace the handle (3), lock washer (2) and handle nut (1) – torquing these until the handle is secure.

Finally, tighten the end cap (10) to the body (7) using a suitable wrench or pipe wrench to ensure the valve body joint is tight. The following tests are recommended before reinstalling the valve into the pipeline and to ensure tightness of the valve body and seats:

- A pressurized shell test at 150% of the valve pressure rating (e.g., 900psi for a 600psi WOG rated valve) with water for 60seconds – with no leakage allowable. Or as a minimum, a shell test at 80psi with air for the same duration may be performed – with no external leakage permitted.
- A seat test of the valve with the ball (9) in the CLOSED position at 110% of the rated pressure (e.g., 675psi for 600psi WOG rated valve) with water for 30 seconds – with no leakage allowable. An alternate test using 80psig air may also be performed for the same duration – with no leakage.

See the section on Valve Installation for re-installation of the valve back into the pipeline.

**Table 2** – SCI Series 8155L, 8156L, 8170L & 8171L Ball Valve Torques (See Figure 1 for items illustrated)

Valve Size	Packing Nut (4) Torque, in inch-lbs
1/4" – 3/8"	35
1/2"	35
3/4" – 1"	80
1-1/4" – 2"	115
2-1/2"	250
3" – 4"	350