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## SERIES H51F

### Installation, Operation, and Maintenance Manual

This manual is intended as a guide to assist in the installation, operation, and maintenance of the Howell H51F fire safe ball valve. For best performance the process application of the H51F must be in accordance with the pressure and temperature ratings for the valve body and seals. Installation and valve operation must comply with municipal codes and regulations.

#### Identification

The Howell H51F has an identification tag located on the side of the valve that lists the series model, along with the body, seat and trim material. This tag identifies the valve and acts as a helpful reference if replacement parts need to be ordered.

#### Manual Operation

The Howell H51F series are quarter-turn valves where the lever handle can rotate 90 degrees. To close the ball valve, lift the locking device up and turn the lever handle clockwise. When the handle is at a right angle the valve is in the closed position. The valve is in the open position when the handle is parallel with the pipeline.

#### Valve Installation

The H51F valve can be installed in any direction using standard pipe fitting practice. Once installed the whole piping system should be pressure tested and the operating function of the valve tried about three times to ensure correct performance.

- Proper support for the weight of the pipeline is required to prevent stress and tension on the valve.
- Inspect to see if there are any foreign particles in the valve bore. The pipe end connections must be clean, and the lines need to be flushed to remove dirt, rust or other particles that could result in blockage or leaking.
- Put the ball in the open position to avoid possible damage to the sealing surfaces. Keep the valve in the open position until total installation is completed and the line has been flushed to remove any debris.
- It is important that the appropriate size flange fasteners and suitable gaskets are used based on the service application and in accordance with standard piping code.
- When installing automated valves make sure the ball is in the correct position.

#### Maintenance

The two piece, split body construction of the Howell H51F series allows for the maintenance of parts.

- In general ball valves don't require regular maintenance or internal lubrication during service. The valves are manufactured with a silicone free lubricant.
- The H51F has a live loaded stem design with Belleville washers for high cycle life. If required, slight stem packing wear can be resolved by tightening the packing nut. Do not over tighten since that will elevate the operating torque. Worn out stem packing must be replaced and the packing nut tightened as per torque data.
- With certain applications the longevity of the seat life can be prolonged by reversing the valve in the pipeline.

#### Bolting Instructions

The bolts need to be installed symmetrically with the proper torque evenly distributed on each bolt. Tighten one bolt snug, then the next bolt that is diagonally across. Repeat for all the bolts, turning the hex nuts in 1/4 turn increments until the correct torque setting is attained.

#### Storage

Proper storage is required if the ball valves are not for immediate usage. Keep the valves in the open position and leave the protective end covers on. The valves should be in a clean and waterproof area to safeguard against dirt and moisture.

#### WARNING

**Do not attempt to disassemble  
a valve while under pressure**

### Torque Table (in/lbs)

Size	1/2"	3/4"	1"	1-1/2"	2"	2-1/2"	3"	4"
Stem Packing Nut Torque	31	35	71	106	106	398	398	443

### Valve Disassembly

Appropriate protection like gloves and a face shield should be worn when maintenance and disassembly is performed. If harmful or flammable media was being used in the piping system the valve must be decontaminated prior to disassembly. Caution is needed when removing the valve from the pipeline since fluids can be trapped in the cavity of the valve.

- Relieve all pressure from the pipeline with the valve in the open position.
- Put the valve in a semi-open position and flush the pipeline to help remove any hazardous media.
- Cycle the valve open and close to depressurize the valve.
- The valve must be in the closed position before disassembly. The ball cannot be taken out from the body if the valve is an open or semi-open position.
- Provide support for the valve and ensure the pipeline is stabilized before disconnecting the flange bolts.
- Be prepared for possible leakage outside of the pipeline.
- Remove the valve and place with the flanged end down to protect the surface of the ball. Protect the facing of the flange to ensure it does not get scratched.
- Disconnect the valve body bolts symmetrically.
- Replace the ball if scratched or damaged.
- Howell replacement kits are available to replace the seat gaskets and thrust washers.
- Check the wall thickness of the valve body and cap. The minimum thickness must be maintained in according to EN12516-1, table 10.
- Reassemble the ball valve in the closed position making sure all parts are clean.
- Final inspection and testing after reassembly is required. Open and close the valve several times to make sure all the parts were assembled correctly. If there is restriction there may be parts incorrectly positioned and causing interference.

### Thrust Washer and Stem Packing Replacement

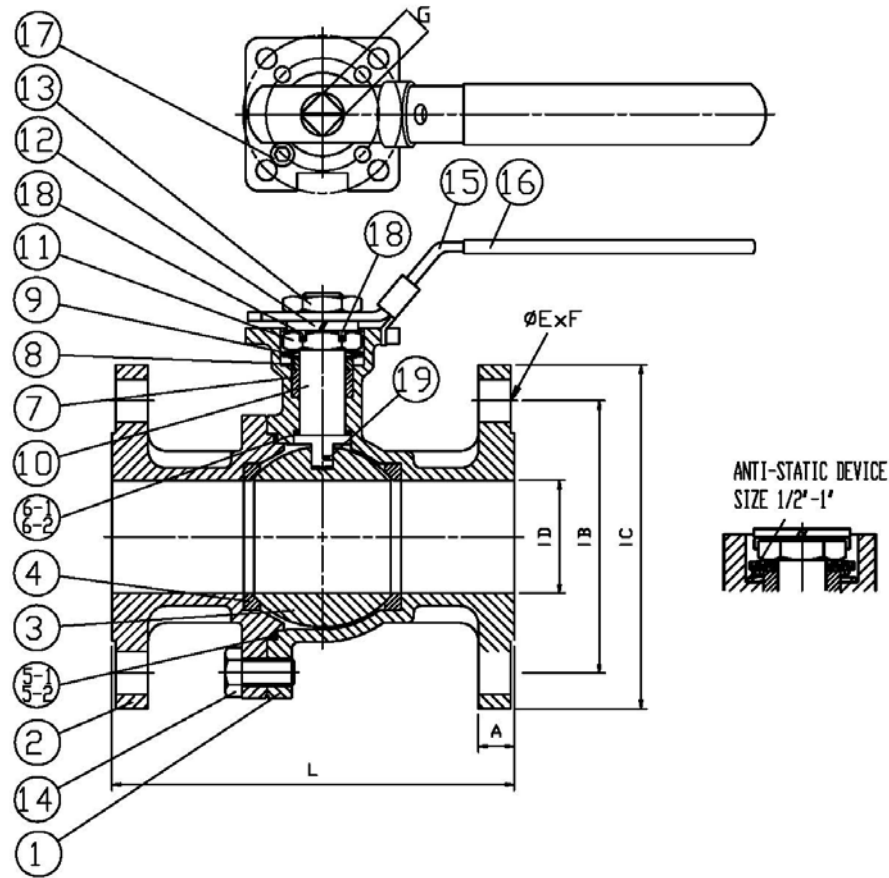
Before replacing the thrust washer and the packing, please follow all safety precautions and preparation instructions noted in the valve disassembly section.

- Undo the handle nut and take off the lever handle.
- Remove the lock saddle, packing nut, Belleville washers and gland.
- Unthread the valve body bolts symmetrically and lift off the body end along with one seat.
- Take out the body seal.
- Turn the valve stem so that the ball is in the closed position and then remove the ball from the body. If needed use a strap and lifting device to protect the ball from being scratched or damaged during removal.
- Remove the other seat
- To remove the valve stem, tap it from the top and take out from the inside of the body. The thrust washer should come out with the valve stem.
- The stem packing can then be removed.

The H51F fire safe ball valve is one of many products available from Howell. Please contact Howell if you require further information or have additional questions.



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**Parts List**

**MATERIALS LIST:**

Item	Part	For Stainless Steel Valve	For Carbon Steel Valve	Quantity
1	Body	ASTM A351 CF8M	ASTM A216 WCB	1
2	End Cap	ASTM A351 CF8M	ASTM A216 WCB	1
3	Ball	ASTM A351 CF8M/316	ASTM A351 CF8M/316	1
*4	Seat	RPTFE	RPTFE	2
*5-1	Gasket	PTFE	PTFE	1
*5-2	Gasket	Graphite	Graphite	1
*6-1	Thrust Washer	PTFE	PTFE	1
*6-2	Thrust Washer	Graphite	Graphite	1
*7	Stem Packing	Graphite	Graphite	1
8	Gland	304 SS	304 SS	1
9	Belleville Washer	301 SS	301 SS	2
10	Stem	ASTM A276 316	ASTM A276 316	1
11	Packing Nut	304 SS	304 SS	1
12	Spring Washer	304 SS	304 SS	1
13	Handle Nut	304 SS	304 SS	1
14	Bolts	ASTM A193 B8	ASTM A193 B7	4-8
15	Handle	304 SS	Zinc Plated Steel	1
16	Handle Grip	Vinyl	Vinyl	1
17	Stopper Nut	304 SS	Carbon Steel	1
*18	Lock Saddle	304 SS	304 SS	1
19	Anti-Static Device	304 SS	304 SS	1

\* included in repair kit

### Actuator Installation

The H51F ball valves have an ISO 5211 direct mounting pad that eliminates the extra cost of brackets and ensures accurate stem to actuator alignment. Howell actuators are available for each valve size. It is important to size the appropriate actuator based on the operational torque. If an overload of torque is applied by the actuator it may transfer the unintended load to the ball valve or piping joints. The setting of the input power or pressure of the actuator is not to exceed 1.5 times of the operational torque. Refer to the installation and operating manuals supplied with the actuator and accessories.

Size	* 1/2"	* 3/4"	1"	1-1/2"	2"	3"	4"
Mounting Pad	F03-F04	F03-F04	F04-F05	F05-F07	F05-F07	F07-F10	F10-F12
Break Away Torque (in/lbs)	89	106	133	345	416	788	956

\* Contact Howell for special mounting kit.

- When installing automated valves make sure the ball is in the correct position.