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## SERIES H3DM

### Installation, Operation, and Maintenance Manual

This manual is intended as a guide to assist in the installation, operation, and maintenance of the Howell H3DM direct mount ball valve. For best performance the process application of the H3DM 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 H3DM has an identification tag located on the bottom 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 H3DM 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 H3DM 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. This is particularly important with weld-end valves. Keep the valve in the open position until total installation is completed and line has been flushed to remove any debris.

#### For Threaded Valves

- Apply suitable sealant or Teflon tape on the pipe threads.
- A pipe wrench can only be used on the valve's hexagon end caps. Tightening on the body or handle may cause damage to the valve.

#### For Weld-End valves

- Temporarily align the valve into the line by tack welding the end caps.
- Lift out the centre valve section by loosening the body bolts.
- Remove the #5 gasket from the end caps before welding.
- Finish the welding of the end caps to the piping.
- Reinstall the centre valve section and the #5 gaskets when the end caps have cooled. Ensure the body bolts are tightened as per bolting instructions.

#### Maintenance

The three piece construction of the Howell H3DM series allows for maintenance of parts. The body bolts can be loosened in order to remove the centre valve section. If the valve is installed it is possible to remove the centre valve section without disrupting the piping alignment. To do this remove all the body bolts except for 2 that are opposite of each other on the same corner of the valve. When these 2 bolts are slightly loosened, the centre valve section can then be swung out.

- In general ball valves don't require regular maintenance or internal lubrication during service. The valves are manufactured with a silicone free lubricant.
- The H3DM has a live loaded stem design with Belleville washers for high cycle life. Slight stem packing wear can be resolved by tightening the packing nut. Worn out stem packing wear 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.

#### WARNING

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

### 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.
- To protect the surface of the ball, place the valve with the body end connection down.
- 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 are assembled correctly. If there is restriction there may be parts incorrectly positioned and causing interference.

### 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

Valve Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Bolt Size	M6	M6	5/16"	5/16"	5/16"	3/8"	3/8"	7/16"	1/2"	5/8"	3/4"
Bolt Length (mm)	48	48	48	52	62	73	86	102	150	175	210
Bolt Torque (in-lbs)	87	87	87	104	104	130	147	277	608	608	825

Stem Packing Nut Torque (in-lbs)	43	43	56	56	87	87	104	104	191	217	260
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### Actuator Installation

The H3DM 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.

Valve Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"
ISO 5211 Pad	F03/F04	F03/F04	F03/F04	F03/F04	F04/05	F04/05
Max. Torque (in-lbs)	283/1106	283/1106	283/1106	283/1106	283/1106	283/1106
Break Away Torque (in-lbs)	35	35	44	71	106	133

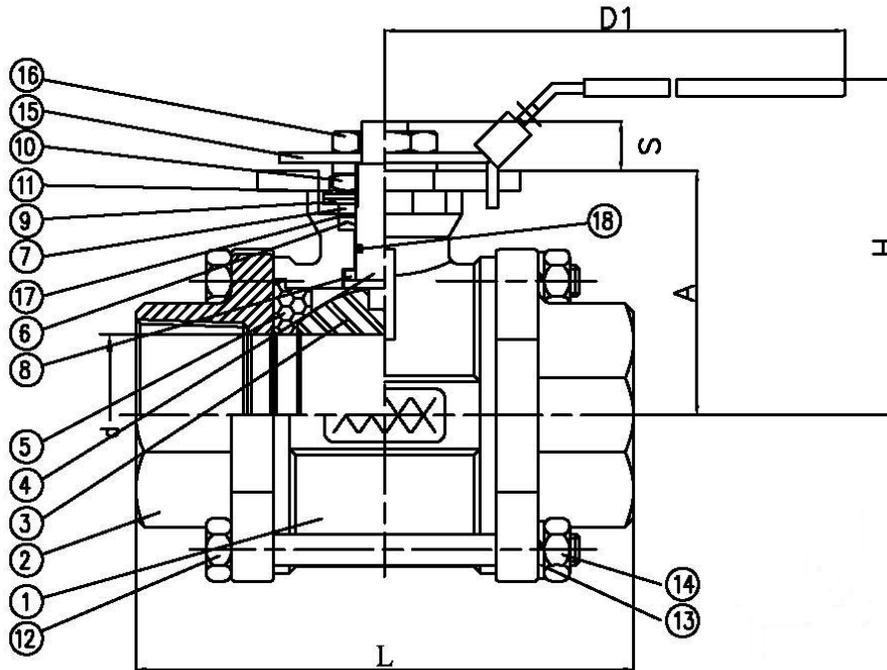
Valve Size	1-1/2"	2"	2-1/2"	3"	4"
ISO 5211 Pad	F05/07	F05/07	F07/F10	F07/F10	F07/F10
Max. Torque (in-lbs)	1106/2212	1106/2212	2212/4425	2212/4425	2212/4425
Break Away Torque (in-lbs)	186	354	451	611	752

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

## Storage

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

## 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	2
3	Ball	ASTM A351 CF8M	ASTM A351 CF8M	1
4	Stem	316 SS	316 SS	1
* 5	Seat	RPTFE / 15% G.F.	RPTFE / 15% G.F.	2
* 6	Stem Packing	RPTFE / 15% G.F.	RPTFE / 15% G.F.	1
7	Gland Bush	304 SS	304 SS	1
* 8	Thrust Washer	RPTFE / 15% G.F.	RPTFE / 15% G.F.	1
9	Belleville Washer	SUS304-CSP	SUS304-CSP	1
10	Handle Nut	304 SS	304 SS	1
11	Stop	304 SS	304 SS	1
12	Bolts	ASTM 193 B8	ASTM 193 B8	4-6
13	Bolt Washers	304 SS	304 SS	4-6
14	Bolt Nuts	ASTM 194 B8	ASTM 194 B8	4-6
15	Handle	304 SS	304 SS	1
16	Handle Nut	304 SS	304 SS	1
* 17	Thrust Washer	RPTFE / 25% G.F.	RPTFE / 25% G.F.	1
* 18	O-Ring	Viton	Viton	1

\* included in repair kit with lock saddle

The H3DM direct mount ball valve is one of many products available from Howell. Please contact Howell if you require further information or have additional questions.