THE VALVE SPECIALISTS
OF SCANDINAVIA

MESON

3-WAY BALL VALVE USER MANUAL

PRODUCT INFORMATION

Valve Name:	Ball valve, 3-way
Nominal Diameter:	DN15-200
Nominal Pressure:	PN40
Material (Body & Ball):	Stainless steel / Acid proof stainless steel
Material (Sealing):	PTFE
Working temperature:	(-30°C to +200°C)

Valve type		End connection	Size													
			8	10	15	20	25	32	40	50	65	80	100	125	150	200
3-WAY	Flanged	T-port			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		L-port			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Male	T-port	✓	✓	✓	✓	✓	✓	✓	✓						
		L-port	✓	✓	✓	✓	✓	✓	✓	✓						
	Female	T-port	✓	✓	✓	✓	✓	✓	✓	✓						
		L-port	✓	✓	✓	✓	✓	✓	✓	✓						
	M/F	T-port	✓	✓	✓	✓	✓	✓	✓	✓						
		L-port	✓	✓	✓	✓	✓	✓	✓	✓						

Variations and options may vary from type to type.
Chart is subject for change without prior notification

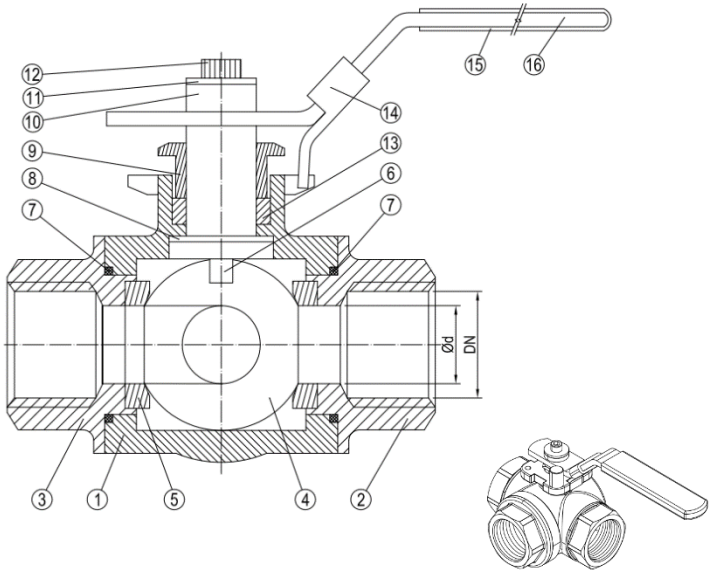
APPLICATION

The Ball valves are bi-directional shut off valves that allow flow in either direction. In these valves, line pressure forces the floating ball towards the downstream seat to effect bubble-tight sealing. Ball valves utilize quarterturn operation and anti-static stem. When applicable the top flange is according to ISO 5211. Can be installed in horizontal position or in vertical position. Low head losses.

Ball valves are offered in cast/forged construction. Valves has end connections like flanged, socket weld, threaded (BSPT/NPT) ends. The single piece, two piece & three piece body constructions are available in fire safe design.

VIEW TYPICAL BALL VALVE

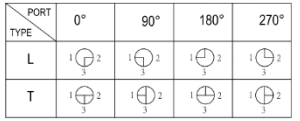
ITEM	
1	BODY
2	END CAP
3	END CAP
4	BALL
5	BALL SEAT
6	STEM
7	END SEALS
8	THRUST WASHER
9	GLAND NUT
10	HANDLE WASHER
11	WASHER
12	HANDLE NUT
13	STEM PACKING
14	LOCKING DEVICE
15	HANDLE COVER
16	HANDLE



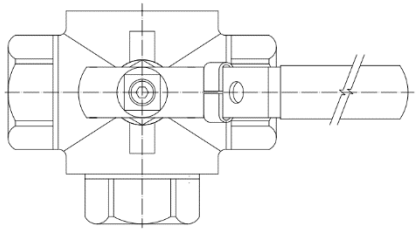
PORT CONFIGURATION

3-way ball valves have 3 connections points for piping, this allows for routing of media from 1 line to another. This function is referenced to the port configuration.

L-port: Allows for input and output of media in 90° interval in reference to the valve ports.



T-port: Can allow for input and output of media in 90° interval and thus mimics the L-port. It can also allow the usage of all 3 ports of the valve, This depends on the position of the valve ball in relationship to the valve ports.



SHIPMENT

Orientation of the valve may be either horizontal or vertical depending on the shipped valve dimensions. Please check the packing slip attached to the container before opening the same. The valves and accessories shall be examined for any damages that might have happened during transportation and handling.

OPERATING INSTRUCTIONS

To ensure that the operational life is maximized the valve is to be used within the rated range and according to the design parameters. The internal construction can be understood by reviewing each specific data sheet found at www.mesongroup.com or by reviewing the example section view earlier in this document.

Bear in mind that it is not good practice to leave a ball valve in the partially opened position as this may cause damage and seat life may be reduced. Any media which may solidify, crystallise or polymerise should not be allowed to stand in the ball cavity since this is detrimental to valve performance and life.

Ball valves have quarterturn operation, closing in a clockwise direction.

The operating mechanism can be achieved by manually turning the lever or by use of an actuation solution such as,

Gearbox, manual hand wheel, with open/close indicator, for mounting on centric operating valves. With horizontally fitted hand wheel shaft. Per standard for mounting in non-exposed environment

Electric, is fitted on the gearbox unit or directly mounted on valve. The actuator drives the gear unit which in turn rotates the shaft. For electric actuators, it is recommends to strictly adhere to the instructions as per actuator's manual.

Pneumatic/hydraulic, Pneumatic/hydraulic actuators are fitted directly on the valve, emergency gear unit is available as option with declutchable function to allow manual operation. It is recommended to strictly adhere to the instructions as per actuator manual.

INSTALLATION INSTRUCTIONS

It is recommended to remove all foreign particles from the pipeline by flushing it with a suitable fluid. Foreign particles may affect the sealing properties of the ball valve if they are inserted into the seals of the valve.

Remove the end protectors if provided.

Gasket contact faces of the valve and pipe flanges shall be inspected thoroughly for scratches / defects. Scratches, if any, shall be corrected by grinding the surfaces or by rubbing with emery sheet.

After cleaning, operate the valve for at least two complete cycles before installing. Ensure that the valve is in fully open position during installation.

The pipes must be properly aligned and provisions made to minimize stresses from external load/thermal expansion.

The fasteners on the valves might have loosened or relaxed during transportation or long storage. It is highly recommended that all fasteners (Body-connector joint, Stem Nut, lever nut, gear unit/actuator) shall be retightened to the required torque provided in appendix.

The standard valve shall be mounted in any convenient position, preferably with easy access to the packing gland nut, actuator, and positioner.

The valve may be installed with flow in either direction. It may be positioned horizontally, vertically or at a gradient without impairing the operation of the valve.

For actuated valves, please refer to the actuator manufacturer's recommendations for the valve's orientation to ensure optimal performance.

Valves should be placed in a partially open position prior to working on a valve or removing it from service to vent pressure or drain product that may be trapped in the body cavity.

When removing threaded end valves from the line, apply wrenches in the same manner used for installation and NOT to the valve body section or opposite side tailpiece as this may result in breaking loose the thread tailpiece to body joint.

Standard valves may be installed in either direction.

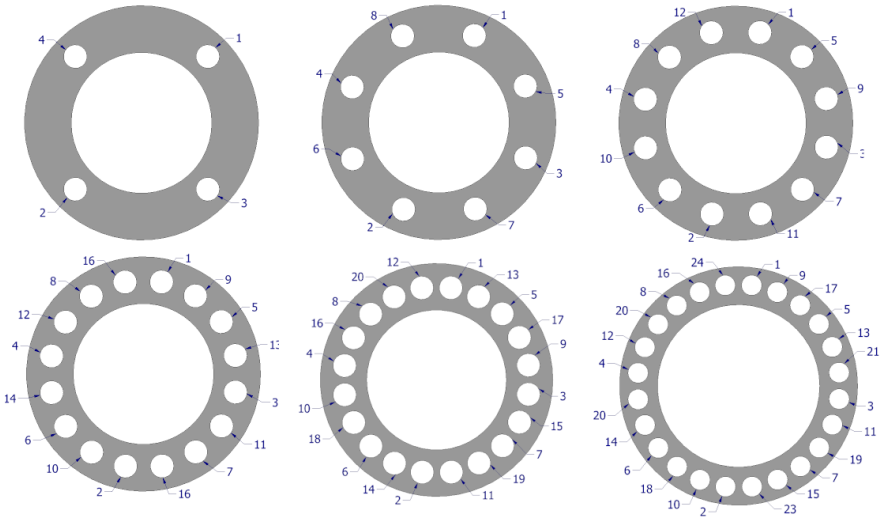
FLANGED END

Clean valve flanges and companion flanges and remove protective grease from the valve flanges. Clean the valve interiors adjacent piping priors to mounting of the valve pipe joint.

Align the bolt holes of the valve end flange and pipe flange.

Ensure that the valve is in fully open position during installation

Insert the gasket and tighten the bolts. Flange bolts shall be tightened evenly. Using suitable device, in cross rotation to prevent damage to the flange. Crosswise bolt tightening to ensure a fixed installation, other bolt tightening may affect the installation.



Bolt torque to be used

Thread size	8.8	10.9	12.9
M5	5,7	8,1	9,7
M6	9,8	14	17
M8	24	33	40
M10	47	65	79
M12	81	114	136
M16	197	277	333
M20	385	541	649
M24	665	935	1120
M30	1310	1840	2210
M36	2280	3210	3850

SCREWED END

Valves with screwed ends shall be treated as a single unit and shall not be dismantled when installing in pipeline.

Verify correct thread sizes on the valve ends and mating pipes.

Before installing, make sure that the threads on the mating pipe are free from grit, dirt or burrs.

Clean both the mating parts before assembly.

Use an anti-seize thread sealant to seal and prevent galling.

When tightening the valve apply a pipe wrench or spanner with flat jaws on octagon ends to the connector closest to the pipe being worked, using standard piping practices

Sealant shall be applied only to the pipe or male threads.

MAINTENANCE

Soft seated valve products may wear over time resulting in loosening at component boundaries. If leakage is detected, tighten according to the steps and torque values outlined below. If tightening does not correct the problem, it is time to replace your seats, seals and gaskets.

The following activities can be carried out during the routine maintenance of the valves.

- Operate the valve 3 times to ensure function of the valve
- Check for any leak through the Stem seals
- Check for any leak through the Seat
- Check for any leak through the Gasket
- Check Operators for smooth and complete operation
- If the valve is left un-operated for a long period of time it shall be operated 5 times every month to ensure function

CONTACT INFORMATION

These valves are designed and manufactured by Meson AB with head office in Sweden where you can also get technical and commercial support.

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