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1. ERIKS operating companies

ECON ball valves are being delivered by several ERIKS operating companies on a worldwide basis. In this manual these will be referred to as 'ERIKS', the individual terms of delivery of the ERIKS operating company having executed the order are applicable.

2. Product description

The ECON ball valves are designed according the information on our website www.eriks.com and should be used in accordance with the applicable pressure-temperature rating as stated on this website. Ball valves are provided with marking, according to EN 19. The marking makes the identification of the valve easier and contains:

- size (inch)
- pressure rating class
- body material marking
- ECON logo and figure number
- heat numbers

3. Requirements for maintenance staff

The staff assigned to assembly, operating and maintenance tasks should be qualified to carry out such jobs and in any circumstance, ensure personal safety

4. Transport and storage

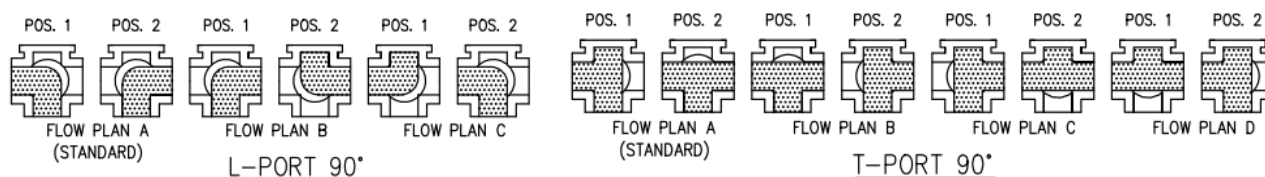
During transport and storage the valves should be protected against external forces and other influences. The valves should be stored in an unpolluted space and should also be protected against all atmospheric circumstances. There should be taken care of the temperature and humidity in the room, in order to prevent condensate formation.

During storage and transport the protective plastic caps on the thread, should not be removed.

5. Function

The ECON 3-way ball valves Fig.7760 are designed for diverting (L-port) and mixing (T-port) of clean fluids and gasses. The ECON 3-way ball valves are not designed for applications were 100% leak tightness is required and not for throttling operations. Don't use tools to increase the torque on the lever for operation.

ECON 3-way valves can only be used for the below mentioned flow plans. Other flow plans are not recommended and may lead to leakage over the ball seats! Also putting pressure on the ports which are not part of the flow plans shown below, may lead to leakage over the ball seats.



6. Application

The ECON ball valves are used for industrial systems (clean gasses and liquids). The valves are designed for standard operating conditions. For the use of extreme conditions e.g. aggressive or abrasive media, it is recommended to mention this at the ordering stage, to verify whether the valve is suitable. The installation designer is responsible for the valve selection, suitable for the working conditions. The valves are unsuitable, without written permission of an ERIKS company, to apply for hazardous media as referred into regulation (EC) No 1272/2008.

7. Installation

- a. Remove the protective plastic cap on 3-threaded end, and clean or flush the valves.
- b. Prior to mounting, flush and/or clean the pipeline to remove all accumulated extraneous matters, which matters shall damage to the seats and ball surface.
- c. Make sure that the flow direction, which direction mark is shown on the handle is correct. Please see flow plans for possible flow directions.
- d. Use conventional sealant (e.g. Teflon) on the threads.
- e. Apply pipe wrench on the end cap of valve only while tightening. Tightening by using the valve body or handle can seriously damage the valve. Please check the website for installation diameter.
- f. Unions to be installed before each end for easy installation and disassembly of the valve.
- g. The pipeline shall be free of tension after installation.
- h. Make sure the pipeline is flushed clean prior to operation.

Mounting of actuators

- i. This valve can be operated by actuator. Before mounting the actuator the stem (gland) nut (12) has to be secured by the stop-lock-cap (13). Then the actuator can be directly mounted on ISO 5211 mounting pad without any adapter or bracket. Make sure the mounted actuator must not cause a thrust load on the valve stem (5).
- j. Operating torque requirements will vary depending on the length of time between cycle, media in the system line. See Table A for operating torque values (clean cold water, max pressure differential 1000 psig).

Table A: Torque value

Size		In-lb	N.m
NPS	DN		
1/4"-3/8"	8-10	80	9
1/2"	15	80	9
3/4"	20	88	10
1"	25	115	15
1-1/4"	32	195	22
1-1/2"	40	265	30
2"	50	442	50

8. Maintenance

Before starting any service jobs, make sure that the medium supply to the pipeline is cut off, pressure was decreased to ambient pressure, the pipeline is completely cleaned and ventilated and the plant is cooled down. Always keep safety instructions into account and take all personal safety precautions.

During maintenance, the following rules should be observed:

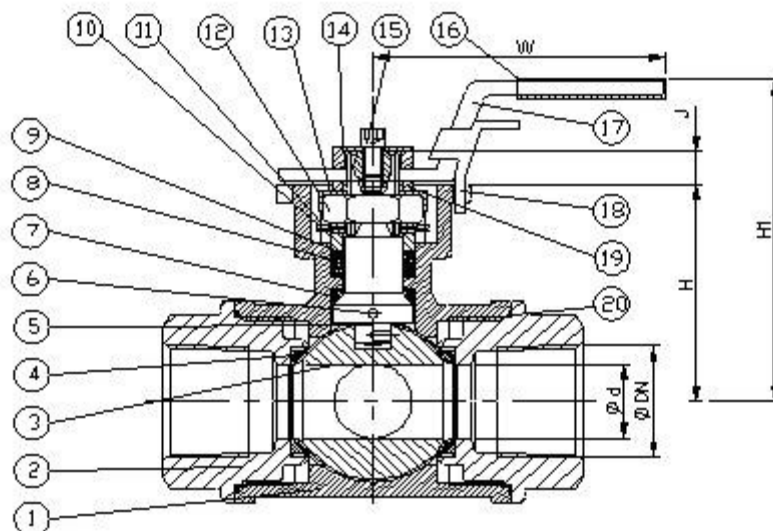
- keep always personal safety precautions into account and always use appropriate protection e.g. clothing, masks, gloves etc.
- be alert that the temperature still can be very high or low and can cause burns.
- be alert that the ball valve can trap pressurized fluids in the ball cavity, when in closed position.
- check the valve on all possible leaking possibilities.
- dust, grease and medium residual, must be frequently cleaned of the valve body and all moving parts, such as stem to maintain all operating functions.
- the valve must be checked regularly to ensure safe operation. An interval of three months is to be advised.

Long life and maintenance-free of valves can be maintained under normal working conditions and in accordance with pressure/temperature and corrosion data chart.

9. Service and repair

All service and repair jobs should be carried out by authorized staff, using suitable tools and user shall use genuine valve parts.

- welding repair and drilling of the valve is forbidden.
- take care that the stem nut (12) is not tighten too much. Normally the leakage can be stopped by simply turning the stem nut (12) by 30° to 60°.
- it's not possible to replace the seat rings or stem sealing, because spare parts are not available.
- after installation it is necessary to check the ball valve operation and tightness of all connections. Leakage test should be carried out.
- in use, the valve should be checked regularly. An interval of 3 months is to be advised.



10. Troubleshooting

It is essential that the safety regulations are observed when identifying the fault.

Problem	Possible cause	Corrective measures
No flow	The ball valve is closed	Open the ball valve
	Dust caps were not removed	Remove dust caps
Little flow	Valve not completely open	Open valve completely
	Piping system clogged	Check piping system
Valve difficult to operate	Stuffing box seal too tight	Loosen nut (12) or replace valve
	Wrong direction of rotation	Turn counter clockwise to open
	Seats damaged by foreign particles.	Replace the ball valve
	Expanded medium behind the ball	Cool down the ball valve
Leakage along the stem	Stem nut/gland not tight enough	Tighten stem nut (12), or replace the ball valve
Leakage along valve seat	Valve not properly closed	Pull lever tight, without tools
	Seat damaged by foreign particles	Replace the ball valve
	Medium contaminated	Clean valve and install strainer

11. Removal

Dismantled and rejected valves cannot be disposed with household waste. The valves are made of materials which can be re-used and should be delivered to designated recycling centers.

General warning:

General note for products which may be used for seawater:

Although our products can be used in seawater systems it should always be noted that, in case of installation in a piping system made of materials which are frequently used because of their excellent seawater resistance (e.g. Cunifer), large potential differences may occur possibly causing corrosion which could permanently damage the proper functioning and integrity of our product. A combination of different materials should always be mentioned prior to the purchase of our products in order for us to give the best possible advise on a safe functioning.