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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

### 3. Requirements for maintenance staff

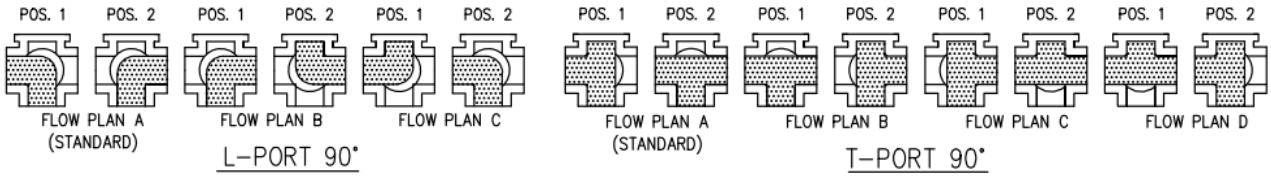
The staff assigned to assembly, operating and maintenance tasks should be qualified to carry out such jobs and, in any circumstance, ensure personal safety

### 4. Transport and storage

During transport and storage, the valves should be protected against external forces and 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, to prevent condensate formation.

### 5. Function

The ECON 3-way ball valves Fig.1635 are designed for diverting (L-port) and mixing (T-port). Don't use tools to increase the torque on the lever for operation. The ball valves are not designed for throttling operations.
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 valve Fig.1635 is generally applicable for compressed air, HVAC and water systems up to maximum 32 bar. 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 maters, which maters 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 ERIKS 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. For any further information please contact the ERIKS company that has supplied the valves. Contact information can be found on www.eriks.com
i. Make sure the pipeline must be flushed clean prior to operation.

## 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 in mind and take all personal safety precautions.

During maintenance, the following rules must be observed:

- always keep personal safety precautions in mind 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.
- check the valve on all possible leaking possibilities.
- dust, grease and medium residual, must be frequently removed from the valve body and all moving parts, such as stem to maintain all operating functions.
- check if all nuts, are still fastened.
- the thickness of body and bonnet must be checked to ensure safety operation at an interval of at least three months.

## 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.
- unfortunately, it is not possible to replace the seat rings or stem sealing, this because of the design of the ball valves.
- after replacement of the ball valve it is necessary to check the valve operation and tightness of all connections. Leakage test should be carried out.

## 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 open | Stuffing box seal too tight | Slacken nut |
| | Wrong direction of rotation | Turn counterclockwise to open |
| | Ball seat damaged by foreign particles. | Replace the ball valve |
| Leakage across the stem | Stuffing box gland slack | Tighten stuffing box gland, if necessary, replace the ball valve |
| Leakage across 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 dirt screen |
| Operating failure | Packing too tight | Loosen gland nut |

## 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.