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1. ERIKS operating companies

ECON needle 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 needle valves are designed according the information in our latest catalogue or see our website www.eriks.com and should be used in accordance with the applicable pressure-temperature rating as stated on this website. Needle 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 and bonnet material marking
- arrow, indicating medium flow direction
- heat numbers (when required)
- 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

Transport and storage should always be carried out with the disc complete closed and the valves should be protected against external forces. 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.

5. Function

ECON needle valves are designed to stop the flow of a medium. The valve is closed by turning the hand wheel clockwise; don't use tools to increase the torque on the handwheel.

The valves can also be used for throttling the media.

6. Application

The ECON needle valves are for accurate regulation of 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

During the assembly of the needle valves, the following rules should be observed:

- make sure before an assembly that the valves were not damaged during the transport or storage.
- make sure that applied valves are suitable for working conditions, medium used in the plant and the right system connections, according to pressure and temperature limits.
- to take off dust caps if the valves are provided with them.
- the interior of the valve and pipeline must be free from foreign particles.
- the valves should be installed in the pipeline, with the arrow in the medium flow direction.
- the valves should be assembled in the pipeline in closed position, make sure the wire ends of the pipe and the valve are according to the same standard and also free from pollution. Clamp the valve only on the surfaces on the side of the valve body during assembly.
- when necessary, use a thread sealant, PTFE tape for low temperature applications and Grafoil for high temperature applications.
- steam line systems should be designed to prevent water accumulation.
- install pipelines so that damaging transverse, excessive vibrations, bending and tensional forces are avoided.
- before plant startup, especially after repairs carried out, flash out the pipeline.

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 should 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.
- keep the stem and thread bush well greased.
- 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.
- check if all nuts, are still fastened.
- if there is a leakage across the stem, gradually tighten the stuffing box sealing, evenly in increments by means of the hex. nut, until leaking stops.
- if required repack the stuffing box gasket, for safety reasons we recommend that the valves only can be repacked when depressurized, drained and ventilated.
- when cutting the new stuffing box packing from the roll, make sure that the ends are cut with a slant. Standard PTFE stuffing box or special, graphite stuffing box.

9. Service and repair

All service and repair jobs should be carried out by authorized staff, using suitable tools and user shall use valve packing, gasket, bolt and nut of the same size and material as the original one.

- welding (repair) and drilling of the valve is forbidden.
- it is forbidden to open the bonnet or replace the bolt, nut or packing when the valve is under pressure.
- before reassembling the bonnet, remember that the bearing surface must be cleaned and a new gasket must be inserted.
- tighten the hexagon nuts evenly crosswise in the there for standard order.
- after replacement of packing, gasket, bolt or nut, it is necessary to check the valve operation and tightness of all connections. Tightness test should be carried out.
- after installation, the valve should be checked and maintained periodically at least every three months, depending on the medium.

10. Troubleshooting

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

Problem	Possible cause	Corrective measures
No flow	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	Stem dry	Grease stem
	Stuffing box packing too tight	Slacken nut of gland
	Wrong direction of rotation	Turn anti-clockwise to open
Leakage across the stem	Stuffing box gland slack	Tighten stuffing box gland, if necessary renew stuffing box packing
Leakage across valve seat	Valve not properly closed	Pull handwheel tight without tools
	Seat damaged by foreign particles	Replace valve, or repair the seat
	Medium contaminated	Clean valve and install dirt screen
Leakage between body and bonnet	Thread of the body or bonnet over worn	Replace needle valve
Operating failure	Packing too tight	Loosen gland nut
	Thread of stem nut over worn	Replace stem nut
	Stem bended	Rectify or replace stem
Body and bonnet broken and leaking	Water hammer	Careful operation, to prevent suddenly stopping pumping and rapidly shutting
	Broken because of freezing	Drain the water in the winter when valve is not used, or use proper isolation

11. Removal

All 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.