Content

1. **ERIKS operating companies**
ECON gate 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 gate valves are designed according to EN 1984 and should be used in accordance with EN 1092-1 pressure-temperature rating. Further information can be found in our latest catalogue or see our website www.eriks.com ECON gate valves are provided with casted marking according to EN 19. The marking makes the identification of the valve easier and contains:
   - size (DN)
   - pressure rating
   - body and bonnet material marking
   - ECON logo
   - heat numbers
   - tag plate
   - CE marking when applicable

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 gate complete closed and the valves should be protected against external forces, influence and destruction of the painting layer as well. The purpose of the painting layer is to protect the valve against rust during transport and storage. In order to prevent condensate formation the temperature and humidity in the storage room should be taken care of. The valves should be stored in an unpolluted space and should also be protected against all atmospheric circumstances. It is not allowed to fit lifting devices to connection holes, handwheel or stem.

5. **Function**
ECON gate valves are designed to stop the flow of a medium. The valve is closed by turning the handwheel clockwise; don't use tools to increase the torque on the handwheel.
The valves can only be used with the wedge fully open or closed; please don't use a gate valve for regulating the medium.

6. **Application**
The ECON gate valves are widely used for steam, hot and cold water, oil, air, gas etc.for shut off or connection of pipelines. The valves are designed for standard operating conditions. If the conditions exceed these requirement e.g. aggressive or abrasive media, the customer should state the higher requirements when ordering. The installation designer is responsible for the gate valve selection, suitable for the working conditions. The valves are unsuitable, without written

permission of an ERIKS company, to be applied for hazardous media as referred into Regulation (EC) No 1272/2008.

7. Installation

During the assembly of the gate 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 standard installation position for the gate valves is with the stem vertical and in upright position.
- the interior of the valve and pipeline must be free from foreign particles.
- valve cannot be lifted through handwheel and transportation.
- the valve with flanges should be assembled in the pipeline in the closed position, for a correct functioning, the valve must be stress free connected to the pipeline, supports must be arranged to prevent any additional stress, caused by the weight of the valve or the pipeline.
- steam line systems should be designed to prevent water accumulation.
- install pipelines so that damaging transverse, excessive vibrations, bending and tensional forces are avoided.
- bolted joints on the pipeline must not cause additional stress resulted from excessive tightening, user shall select proper bolts, gaskets according the working temperature, working pressure and medium.
- equally fasten the bolts and nuts in the there for standard order.
- for easy operating, the clear distance around the handwheel shall be not less than 100 mm.
- before plant startup, especially after repairs carried out, flash out the pipeline, of course with a fully opened gate.
- the trapezoidal thread of the stem and stem screw shall be lubricated frequently.

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:

- keep always 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 gearbox, stem and thread bush well greased (lubrication nipple).
- 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, gearbox etc. to maintain all operating functions.
- check if all bolts and 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. nuts, 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.
- the thickness of body and bonnet must be checked to ensure safety operation at an interval of at least three months.

- after removal from the production line, open and close the valve, to guarantee depressurized cavity.

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 in 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 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 3 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	Flange 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 nuts of gland flange
	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 bonnet flange	-Bonnet bolts loose -Bonnet gasket failure	-Proper tighten bonnet nuts -Replace bonnet gasket
Operating failure	-Packing too tight -Thread of stem nut over worn -Stem bended	-Loosen gland flange nuts -Replace stem nut -Rectify or replace stem
Body and bonnet broken and leaking	-Water hammer -Broken because of freezing	-Careful operation to prevent suddenly stopping Pumping and rapidly shutting -Drain the water in the winter when valve is not used
Wedge failed to open	-Wedge blocked in the body -Stem is overheated and blocks the wedge	-Don't use too much force -When the valve is closed and the pipeline is over-heated, rotate the handwheel somewhat counter clockwise for unload at interval

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.