



Operating Instructions

ERHARD ECLI butterfly valve



Wafer

Lug

Flange

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Attention:

These operating instructions must always be used together with the standard operating instructions BA01D001!

1 Product description

1.1. Short description

ERHARD ECLI butterfly valve according to DIN EN 558, series 20, with following types:

Lug type (old short name LTED) for flange-mounting,

Wafer type (old short name A) for clamping, and

Flange type, with double flange,

resilient sealing, centralized positioning of the valve disc, with metallic annular body made of ductile cast iron, seamless coated with Epoxy, thickness mind. 150 µm. The valve disc is made of stainless steel or casted iron with Epoxy coating.

Type of drive:

- without operating unit
- hand lever with locking function and position indicator
- gearbox with handwheel
- electric actuator / rotary actuator
- pneumatic drive

Nominal size:

Lug type: DN 32 to DN 300

Wafer type: DN 32 to DN 700

Flange type: DN 350 to DN 1200

Nominal pressure: PN 10 and PN 16

Operating temperature range: -10° C to + 60° C

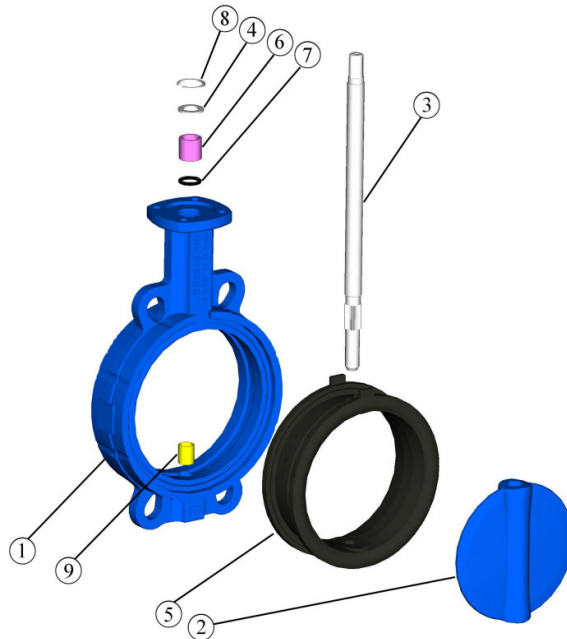
Medium: water, drinking water

Prod. No. 5120 Wafer type
 5125 Lug type
 5126 Flange type

1.2 Functional description

In the body (see drawing p. 2 pos. 1) a centric-mounted valve disc (2) is moved by means of the actuator installed via an output stem (3) leading to the outside. The pipe is shut off when the valve disc is placed at right angles to the flow direction. Thight closure is achieved by a seat ring (5) inserted into the valve body. The valve usually closes in clockwise direction.

1.3. Design features



Pos	Name
1	Body
2	Valve disc
3	Output stem
4	Disc
5	Seat ring
6	Bearing bush
7	O-ring
8	Snap ring
9	Bearing bush (2x)

2 Installation instructions

2.1 Installation in the pipe

Remove all packaging materials from the valve. Before installation, the pipe must be checked for soiling and foreign bodies and cleaned if necessary.

ATTENTION:

Ensure that the valve is accessible all the way round for operation and maintenance. If installed outdoors, protect the valve on site against direct exposure to weather conditions.

During installation of the valve, the distance between the pipe flanges should exceed the valve face-to-face dimension by at least 2 mm. Thus, the raised faces will not be damaged. The mating pipe flanges must be plain-parallel and concentric. Tighten the connecting bolts evenly (without distortion) and crosswise. The pipeline mustn't by any means be pulled up to the valve. If the flanges are welded to the pipeline during installation of the valve, at first point-weld them only and finish flange welding only after removal of the valve. The pipeline should not be welded at a distance of less than 60 cm to the installed valve, because otherwise you run the risk of damaging the resilient rubber seat.

Attention!

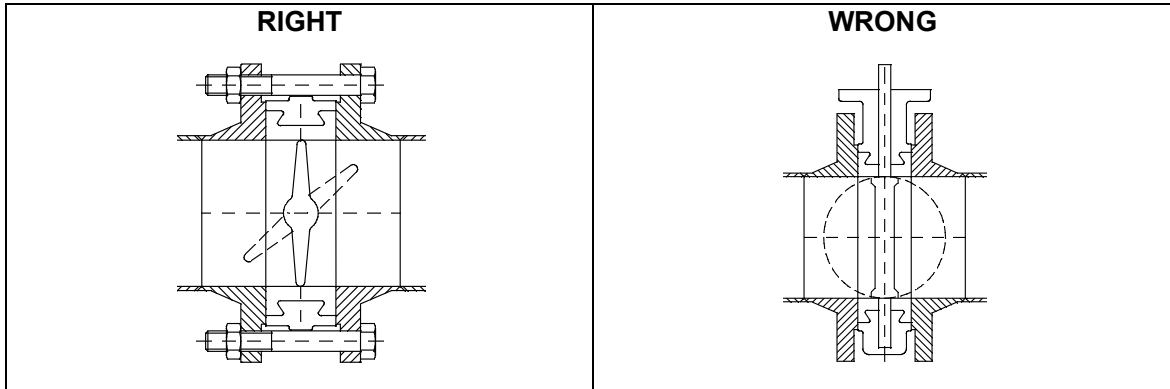
Where valves are installed in a pipe system, no welding work may be carried out on weld flanges or other pipe sections which are directly adjacent to the valve, since there is a risk of damage to the flexible seat.



ECLI wafer-type valves are not suitable for installation in the ground!

2.2. Installation position

ERHARD ECLI valves can be installed in horizontal position with full functionality, independent of the direction of flow. Installation in vertical position is permissible up to DN 300. In the case of media which tend to deposit solids installation with horizontal stem is recommended for all DN.



2.3 Installation without flange seal

The elastomer area covers all surfaces in contact with medium throughout the installation length, and projects a few millimetres beyond the body near the flange working strips as a sealing edge, so that there is no need for the flat seals otherwise used.

The ERHARD ECLI Butterfly Valves are centered in a simple way by the screw bolts across the outer centering edge and the 4 auxiliary holes (wafer type) and the threaded holes (Lug type) resp. The valve disc must be moved to check that it does not touch the pipe or the flange edge. If ease of movement is established over the whole 90° closing and opening path, the bolts must be tightened evenly cross-wise until the flanges are in contact with the wafer body. Then the ease of movement of the valve disc must be checked again. When the valve is installed correctly, the valve disc can be actuated over the whole opening and closing path.

3 Initial operation

After installation in the pipe, the valve must be checked for ease of movement by passing through the whole actuation path (open-closed) with the actuating element. Do not apply excessive force.

4 Operation and use

4.1 Allowable working pressure

When the ECLI valve is used between two pipes, the working pressure must not exceed the nominal pressure.

When used as an end-of-line valve, the following allowable working pressures apply.

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Size DN	Allowable working pressure (end-of-line valve)	
	Wafer type	Lug type / Flange type
DN 32 – 200	10 bar	16 bar
DN 250 – 400	6 bar	10 bar
DN 450 - 1600	1 bar	6 bar

4.2 Impermissible operating method

Avoid installation directly upstream from elbows, T-pieces, valves or similar disruptive installed parts. Do not exceed temperature limits of the operating fluids.

Do not exceed operating pressure limits.

The closed valve may only be loaded up to the nominal pressure.

Pneumatic drives must not be operated without exhaust throttle.

Do not extend the operating elements (e.g. by lever).

4.3 Vacuum compatibility

The use of ECLI flap is up to 0.5 bar suitable for a vacuum, this vacuum is dependent on the surrounding atmospheric pressure.

4.4 Operating frequency

The frequency of operations, which are approved for the ECLI flap, is at least 2,500 cycles in accordance with EN 1074-2.

5 Maintenance

5.1 Maintenance and inspection

ERHARD ECLI butterfly valves have maintenance-free bearing bushes. Drive elements in worm gears are protected by long-term lubrication. Monitoring of the functional ability and tightness should be carried out according to DVGW leaflet W392 at intervals of ≤ 4 years.



Before any work is done on the valve, the inspection valve must be closed and the pipe section depressurised.

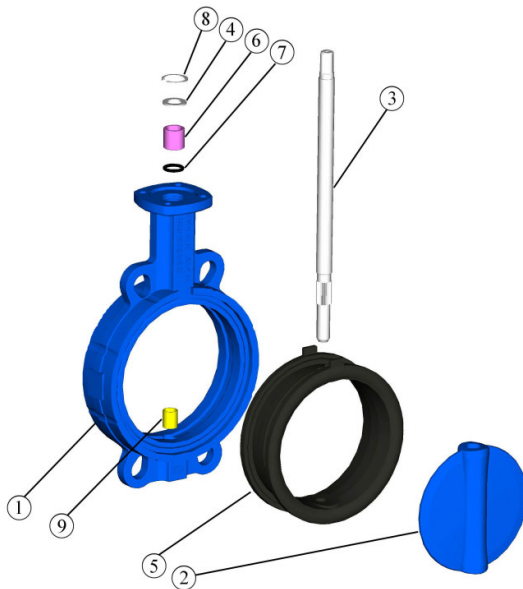
Check the outer state of the valve, including gears. Clean if necessary and repair the coating. Check tightness at the flanges. Check ease of movement of the valve and gears. Move manually over the whole stroke.

Then check tightness: move valve to closed position.

Check drop in pressure before or after the valve.

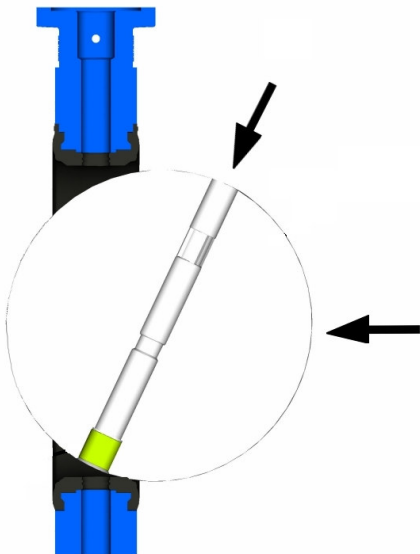
5.2 Repairs (replacement of the seat ring)

5.2.1 Remove the seat ring:



1. Set valve disc to the "open" position.
2. Remove the actuating element (after marking the position of the valve disc to the valve)
3. Remove snap ring (8) and disc (4).
4. Screw nut (7) off.
5. Pull stem (3) out. A slide hammer can be used if necessary.
6. Pull valve disc (2) out.
7. Deform the seat ring and pull the attachment bead out on one side. Now pull the whole seat ring out.
8. The bearing bushes (6) and (9, twice, in the upper and in the lower part) must remain in the housing.

5.2.2 Replacing the seat ring:



1. Check whether the bearing bush is positioned correctly in the body.
2. The outside of the seat ring and the inside of the body must not be lubricated.
3. Press the seat ring (5) into a heart shape and insert it into the body at an angle. Insert the all-round elastomer edge in the ring groove provided. The stem passages must be flush with the stem bore holes in the body. The seat ring must fit tight all the way round the diameter.
4. Lightly lubricate the following parts (silicone grease, grease must be suitable for the medium)
 - The inside of the seat ring (5), mainly at the passage points for the output stem.
 - The multi-gearing of the output stem (3).
5. Installation of the valve disc (2) in the "OPEN" position (gearing must be on the drive side)
6. Align the bore holes of the valve disc (2) and the body (1) to one another after sight.
7. Insert the output stem (3). The position of the square must be at 45° again.
8. Insert disc (4) and snap ring (8) again.
9. Mount the actuation element and set the end positions.

5.3 Inadmissible modes of operation

Installation directly upstream of elbows, T-pieces, Butterfly Valves or Check Valves or similar disturbing installation parts has to be prevented.

Do not exceed limiting values of the flow medium temperature.

Do not exceed limiting values of the working pressure.

Closed valve may only be charged up to the nominal pressure.

Extension of the operating elements, for example by means of levers, is not allowed.

6 Electric actuator

An electric actuator is mounted on the drive flange of the gearbox or valve. It is equipped in standard version with:

- torque and travel switch with one open and one close contact each,
- flashing indicator for run,
- thermo switch in the motor coil.

The valve will be

in closing direction: switched off travel distance dependent

in opening direction: switched off travel distance dependent.

The switching positions of the travel distance and torque switches are factory-set. The torque switches serve moreover as safety switch, e.g. in intermediate positions.

If the valve has been supplied without attached electro actuator, the travel distance switches must be adjusted after attaching the electro actuator. Please see also section "First time operation: new adjustment of the travel distance switches" (6.2).

The relevant safety regulations (VDE/TAB etc.) and instructions of the supplier of the electro actuator concerning transport, storage, first time operation and maintenance must be observed.

For electrical connection instructions of the supplier for electrical connection and terminal scheme must be observed. (Travel distance, torque and thermo switch, motor and heater if applicable).

Measure isolation resistance prior to installation of the motor. (In case it is below 500 K-Ohm it indicates moisture in the coil. The motor must be removed for drying purposes and be dried with a hot air blower or heated up in a heating chamber: max. permissible temperature 100°C).

The available power supply voltage should be compared with the type plate. After connection cover and cable gland on the electro rotary actuator must be tightened carefully and sealed.

6.1 Jogging operation and emergency mode



Attention:

If during operation of the valve a foreign part will be caught the torque switch will be triggered for the respective direction and turns off the motor. The time between trigger of the torque switch and separation of the motor from mains is determined by the signal travel time. If now a new command will be given to rotate into the original direction, without having rotated the valve sufficiently into the opposite direction, the torque will increase. If this procedure will be repeated several times the torque momentum will be summarized. The valve and its actuator components are not designed for such a failure.

We expressly want to point out that such a “jogging operation” is not permissible.

A jogging operation is permissible as follows:

If the torque switch has been triggered in intermediate position the valve must be rotated into the opposite direction until the torque switch is completely back in its off-position.

Only then it may be rotated into the direction in which the failure had occurred. In this way torques are reached which correspond to the set torque momentum of the torque switch. Moreover, the foreign part can be released and flood out from the seat section.

Operation in emergency mode (hand wheel):

If the valve will be operated with the hand wheel of the electro rotary actuator the torque switches have no safety function.

If a foreign part will be caught in the valve intermediate position, excessive force for operation - especially at gears with heavy reduction – may cause damages of the actuator components.

If a resistance will be detected during emergency manual operation some revolutions in counter direction must be performed before rotating into the direction in which the failure has been detected (flood out foreign part). Operate with special care, in no case use excessive force, repeat rinsing if required.

6.2 First time operation:

1. rotate valve into center intermediate position.
2. check pointer indication at the spindle gears by brief electrical operation and thus the rotational direction of the motor can be checked.
3. at wrong rotation direction change polarity of the motor.
4. double check rotation direction with the pointer by brief electrical actuation.
5. control switch off function of the torque and travel distance switch in both directions by manual actuating of the switch in center position.
6. change polarity of the motor, if required.
7. only after it has been made sure that rotation direction and switch off function is correct, travel valve over the complete distance.

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At wrong rotation direction the travel distance torque switches are without effect!

Readjustment of the travel distance switches:

1. Turn the valve disc by handwheel to the "open" position against the end stop (if present).
2. rotate back by one spindle revolution.
3. adjust travel distance switch "OPEN" according to operating instruction of the supplier of the electro rotary actuator.
4. Turn the valve disc by handwheel to the "close" position against the end stop (if present).
5. rotate back by one spindle revolution.
6. adjust travel distance switch "CLOSED" according to operating instruction of the supplier of the electro rotary actuator.

If these recommended measures will be ignored we cannot take over any liability for possibly occurring damages.