



Original
Installation and Operating Instructions
Hawle E2 Valve
with Flange Outlet, System 2000 or PE Spigot Ends

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A) General

An E2 valve is also referred to as a "fitting" in this manual.

A1 Symbols

Notes are highlighted by symbols in this manual.

	<p>Danger/Caution/Warning ...points to a dangerous situation that can lead to death or severe injuries of persons.</p>
	<p>Note ...provides information that must be considered in any event.</p>
	<p>Information ...provides useful tips and recommendations.</p>

If these notes as well as cautionary hints and warnings are not observed, this can lead to dangers and render the manufacturer's warranty void.

A2 Intended Use

The valve is intended to shut off or allow the flow of media (drinking water for human consumption) inside a pipe after installation within certain permitted pressure and temperature limits.

The upper temperature limit is 40°C, the maximum operating pressure is marked on the housing **and the model plate provided on the fitting itself.**

The media must flow without any vibrations and/or pressure surges and the environment may not pose a hazard for the fitting itself.

The valve must preferably be installed with the drive positioned vertically to the top. For horizontal installations, an attached drive must be supported accordingly.

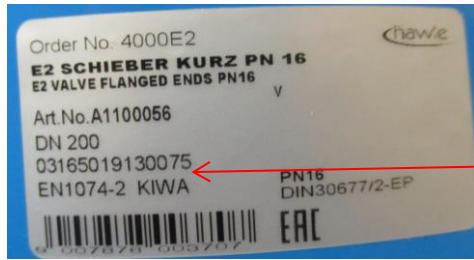
Please observe the following regarding installation and operation of the valve:

- These original Installation and Operating Instructions



The manufacturer, Hawle Armaturenwerke GmbH, does not assume responsibility in the event this "Intended Use" Section is not adhered to.

A3 Labeling

Every valve is labeled as follows

	DN XXX: (mm) Nominal Width
	PN XX: (bar) Pressure Class of Housing
	Serial Number: Year of Manufacture, individual Hawle Works Number

The type plate should not be covered up so that the installed fitting remains identifiable.

	<p>The indicated "Max. MOP" is the maximum permissible operating pressure.</p>
	<p>In case of further inquiries to the manufacturer, Hawle Armaturenwerke GmbH, the "Serial Number" according to the type plate must be indicated.</p>

A4 Transport, Storage and Handling


Note:

Additional information may be contained in the instruction manual of the drive, which must also be adhered to.

Transport and Storage:

The valve must be kept in the factory packaging in an opened condition until installation. The fittings must be stored in clean and dry rooms and be protected from dirt, moisture and other contamination.


The valve may not continuously be exposed to direct sunlight as the coating is not resistant to UV radiation. If intermediate storage outdoors is required, package the valve in thick plastic foil for protection from dirt.

	<p>The fitting was packaged in accordance with the ordering conditions. In the event of any transport damage, please notify the shipping company in writing.</p>
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Handling:



If lifting gear has to be used, only flexible belts may be employed. These must be fitted to the housing itself. The lifting gear must be designed for the weight of the valve.
Starting with DN250, the eyebolts provided on the valve may be used.

	<p>Never fasten any belts:</p> <ul style="list-style-type: none"> • To the drive, hand wheel • Transversely through the opening of an opened valve
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B) Installation and Functional Check

	<p>These instructions contain safety information regarding foreseeable risks during installation of the fitting into a (piping) system. It is the responsibility of the user to adhere to these instructions in addition to being mindful of any local risks. Observance of all system requirements is considered a prerequisite.</p>
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B1 Safety Instructions for Installation

	<ul style="list-style-type: none"> • The installation of fittings into the system may only be performed by specialist personnel. Specialists in accordance with these instructions are persons that can properly assess and implement the working operations they are entrusted with due to their training, knowledge and professional experience and are capable of recognizing and eliminating possible dangers. • The intended function of a fitting after installation (and the drive, if available) must correspond to the <Intended Use>, which is described in Section A2.
	<p>1. A valve fitted at the end of a line must be secured using a safety device so that operating personnel and other persons cannot come too close to an opened valve and that they are protected from injury due to the escaping medium in the event of an opened valve.</p> <p>Risk to life and limb of user in case of non-compliance. Every other use of the fitting is the user's own risk.</p>

B2 Earthworks Requirements for E2 Valve with Flange

It must be ensured that

- the installation conforms to the "Intended Use", see Section A2. **The information on the type plate must be observed – see Section A4**
- the pipe section is clear of any vibrations and pressure surges during operation and that no pipe forces can deform the valve housing in such a manner that opening/closing and/or the leak-tightness/proper functioning of the valve is adversely affected.
- the environment poses no risk for the fitting or drive.
- the flanges, pipe and fitting are emptied and free of any dirt particles.
- the valve is mounted in such a manner that it always remains tight to the outside.
- the valve is protected from heat radiation, if it is installed in the vicinity of a heat source, which exceeds the permissible temperature for the valve (and its drive).
- in particular, the sealing surfaces of the counterflange fully cover the sealing strips of the valve on both sides. The data sheet of the corresponding valve type provides exact and detailed information regarding flange dimensions, see Hawle Catalog.
- the instructions for connecting the mounted drive to local controls are observed.

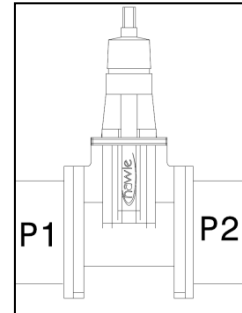
- the pipe section is depressurized during installation.
- additional information provided in the instructions of the drive are observed, particularly those referring to the adjustment of the OPEN and CLOSED positions prior to the installation of the fitting into the pipe section.

B3 Pressure, Direction of Flow and Installation Location

With the fitting **opened** ($P1=P2$), the pressure must be limited to the value indicated as max. permissible pressure on the type plate.

With the fitting **closed**, the differential pressure $P = P1-P2$ may not exceed the value. (Fig. 2)

Fig. 2



B4 Supporting the Fitting in Special Cases

The weight of the module and drive of the fitting can cause deformations and functional problems, particularly in case of installation into oblique or vertical lines. To avoid this, the valve and drive must then be supported on part of the building site.

If vibrations and/or pipe forces are transmitted by the pipeline, which could adversely affect the functioning of the valve, the valve must also be supported.

Details and execution of this support are the responsibility of the user.

B5 Installation Steps

It must be ensured in accordance with Fig. 3 that

- the valve and the two opposing pipe ends are flush
- and the sealing surfaces of valve and
- pipeline flange are exactly parallel.

If this is not observed, the valve could be damaged through erosion and/or dead spaces can form in front of or behind the fitting where deposits may collect, which could prevent tight closure of the fitting and cause corrosion on the valve itself.

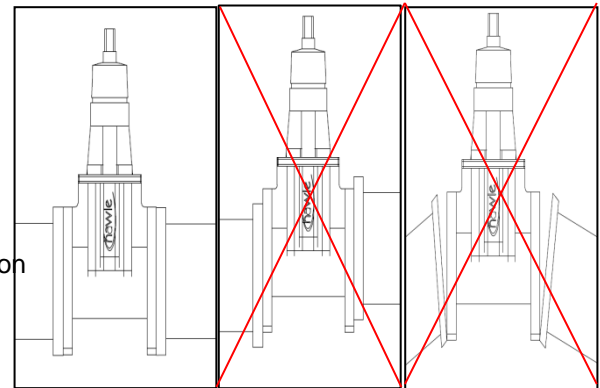


Fig. 3

1. Insert flange seals between valve and counterflanges and center them exactly. The sealing must cover the working strip for the flange seal fully.
2. Lightly grease the flange screws: this makes it easier to tighten and later loosen the nuts.

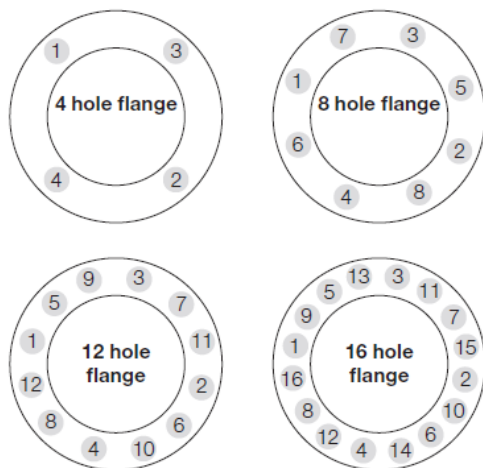


Use screw dimensions in accordance with HAWLE catalog sheet and depending on used counterflanges.

3. First hand-tighten the screws all around, then tighten them evenly in a crosswise fashion (see Fig. 4 and Catalog).
4. Consider the following tightening torques for galvanized St 4.8 steel screws (non-lubricated):

Screw dimension	Max. tightening torque per screw (Nm)
M12	32
M16	90
M20	140
M24	200
M27	250
M30	300

Sequence Of bolt assembly



An opening/closing functional test must be performed in the end. The instruction manual of the drive must be followed.

- It must be possible to open and close valves with hand wheel using normal manual force.
- When connecting the drive, follow the instruction manual of the drive manufacturer:
- the drive must correctly move the valve to the OPEN and CLOSED positions using the corresponding control signals.

Fig. 4

5. For the E2 Valve System 2000, the instruction manual supplied with the System 2000 Socket must be observed for pipe connections.
6. For E2 Valves with PE Spigot Ends, follow the processing instructions of the corresponding pipe manufacturer for pipe connections.
7. If the pipeline has to be flushed clean, the valve must be opened 100 %.



Valves that are supplied with drives by Hawle are correctly adjusted for their end positions from the factory. This setting should not be changed as long as the valve is functioning properly.



Only for valves with electric drive:

It must be ensured that the drive is deactivated when closing by the signal of the torque switch.

It must be ensured that the drive is deactivated when opening by the signal of the limit switch.

The signal of a torque switch should be used within the final stop area for fault messages. Too high forces may damage the valve.

Further information is provided in the instruction manual of the electric drive.

B6 Pressure Testing prior to/during Commissioning

Every valve was subjected to a final inspection by Hawle in accordance with EN12266-1. The testing conditions for a pipeline section apply for pressure testing of a fitting within a system, but with the following restrictions:

- The testing pressure of a fitting may not exceed a value of "1.5 x max. working pressure" (in accordance with fitting type plate, see Section A4). The wedge must be in the opened position.
- A closed valve may not be loaded with more than "1.1 x max. working pressure" so that the wedge is not overloaded.

B7 Removal of Fitting

Note:

The information provided in the instruction manual of the drive must also be followed.

The same safety instructions as for the pipe section apply and, if available, also for the drive and control system. These instructions must also be followed when removing the fitting.

Remove the valve with the following steps:

1. First depressurize and fully empty all pipe sections.
2. Then disconnect all electrical supply lines (only for drive).
3. Only use the fastening methods stated in Section A4.



The valve may only be removed from the pipeline, if:

- the pipe section is entirely depressurized and empty,
- all electrical supply lines have been disconnected (drive).

Risk to life and limb of persons in the vicinity of the fitting if these warnings are not heeded by the user.

4. Take care when pulling out the fitting: Do not damage the flange sealing surfaces.
5. Observe Section A4 for transport and storage.

C) Operating and Maintenance

Note:

Additional information may be provided by the instruction manual of the drive.

The planner of the system must perform a comprehensive risk analysis in accordance with MRL 2006/42/EG.

To this end, Hawle Armaturenwerke GmbH will provide the following documents:



- Installation and Operating instructions,
- an instruction manual for the drive regarding notes on connection to the control system.



This instruction manual contains safety instructions regarding foreseeable risks when using the fitting in an industrial setting.

It is the responsibility of the planner/operator to adhere to these instructions in addition to being mindful of any plant-related risks.

C1 Warning Instructions for Operation and Maintenance

	<ul style="list-style-type: none"> • The function of the fitting must correspond to the <Intended Use>, which is described in Section A2. • The operating conditions must match the information on the type plate of the valve, see Section A3. • Necessary work on the fitting itself may only be performed by specialist personnel. Specialists in accordance with these instructions are persons that can properly assess and implement the working operations they are entrusted with due to their training, knowledge and professional experience and are capable of recognizing and eliminating possible dangers. • The valve should be checked periodically during operation to guarantee the safety of the personnel. During maintenance or repair operations, the valve must be deactivated as stated in Section B7: The pipe sections on either side of the fitting must be depressurized and emptied prior to starting any work.
	<ol style="list-style-type: none"> 1. Actuation of a valve with drive is only permitted: <ul style="list-style-type: none"> • After it has been connected to the pipeline. 2. If a valve was installed as an end valve in a system section, a suitable safety device must prevent access to the moving parts of the valve and protect the personnel from escaping media. <p>Risk to life and limb of user in case of non-compliance. Every other use of the fitting is the user's own risk.</p>

C2 Automated Operation

A manually actuated valve is closed by turning a hand wheel in the clockwise direction and opened by turning in the opposite direction.

A valve with drive actuation is operated using control signals. Valves that are supplied with a drive from the factory are supplied in a correctly adjusted and configured manner. This configuration should not be changed as long as the fitting works as intended.

Valves with rare actuation:

In order to maintain functionality of a valve, it should be actuated with a full stroke at least once a year.

C3 Maintenance

As long as the valve seals correctly, the only required maintenance is a visual check of the leak-tightness of the housing in suitable intervals.

C4 Troubleshooting

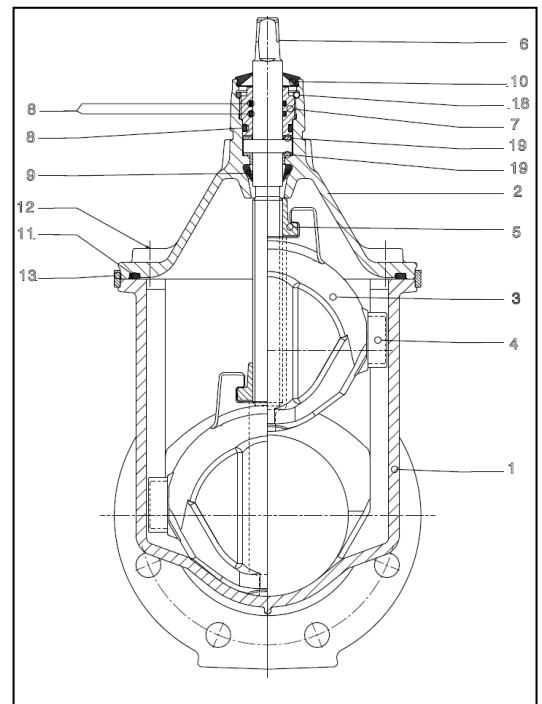
Problem	Cause	Remedy
Leakage of flange connection	Incorrect length of flange screws Flange screws not properly tightened Valve not centered correctly Flange sealing surfaces between pipeline/fitting not exactly parallel Flange sealing not correctly centered Incorrect flange sealing material	See this Instruction Manual, Section B5
Leakage in valve opening	Wedge not closing 100 % Damaged wedge	See supplied drive instruction manual Replace wedge
Plate does not open/close 100 %	Drive fault Drive circuit fault (provided end switch or mechanical stop) Wedge leaking due to deposits Wedge mechanically damaged Wedge nut worn	See supplied drive instruction manual Replace wedge nut Relubricate spindle

If replacement parts are used for maintenance/repairs that are not original Hawle replacement parts and/or the instructions regarding operation, maintenance and repairs are not observed by the user, Hawle Armaturenwerke GmbH will not provide a warranty for damages to the fitting.

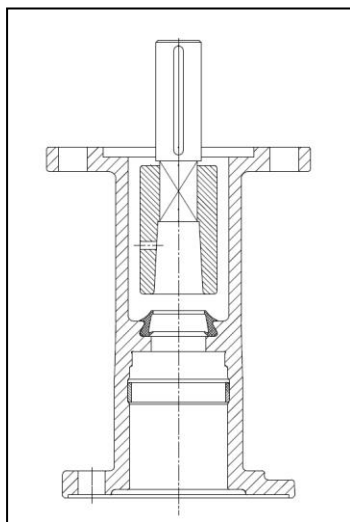


C5 Parts List

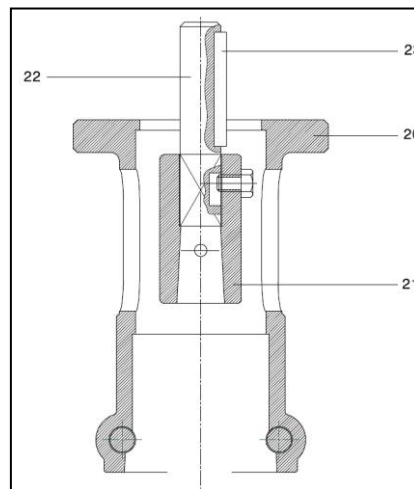
Item	Part	Material
1	Body	GJS 400
2	Bonnet	GJS 400
3	Wedge	GJS 400 externally vulcanized elastomer
4	Wedge guide	POM
5	Wedge nut	Brass
6	Spindle	Steel
7	O-ring bush	Elastomer
8	O-rings, lip seals	Elastomer
9	Back seal	Elastomer
10	Wiper ring	Elastomer
11	Bonnet gasket	Elastomer
12	Allen screws	8.8
13	Edge protection	PE
14	Ball bearing from DN250	Steel
15	Centering ring	POM
16	Centering flange	GJS 400
17	Centering flange gasket	Elastomer
18	Retaining ring	POM
19	Sealing compound	POM



From DN250

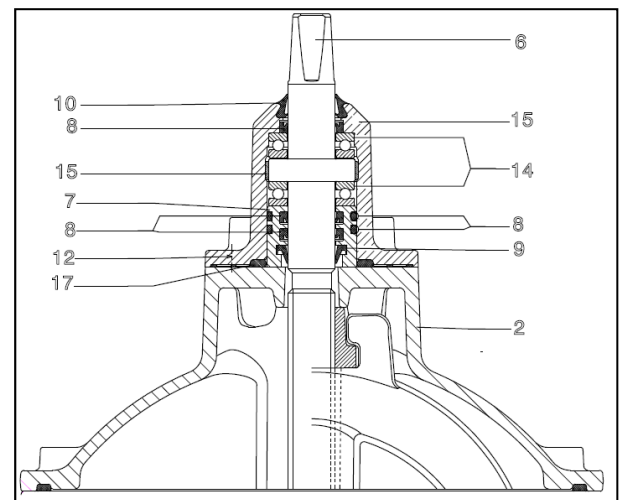


DN250-600



DN50-200

Item	Part	Material
20	Adapter	GJS 400
21	Spindle sleeve	GJS 400
22	Pin	Steel
23	Feather key	Steel



C6 Modification of a standard valve DN50-200 with an adapter for an electric actuator



1. E2 valve for operation by hand.



2. Place the retaining ring into the slot. The gap in the retaining ring and the locking rib have to be aligned.



3. Mount the lantern on the upper body. The locking rib and the recess in the lantern define the mounting position.



4. Mount the lantern onto the upper body, all the way to the end stop.



5. The recess in the retaining ring and the hole in the lantern fixture have to be aligned with each other.



6. Attach the lantern to the upper body with the included bolts. Maximum tightening torque: 80Nm





7. Attach the spindle socket and the spigot onto the spindle in the lantern.



8. Completely mounted lantern.

C7 Modification of a standard valve DN250-600 with an adapter for an electric actuator



1. Remove the wax sealing from the centering flange screws.



2. Loosen the inner hex bolts and remove them.



3. Remove the centering flange.



4. In case the upper ball bearing or the bearing ring remains in the central flange, take them out.



5. Mount the adapter incl. the POM centering ring and the scraper ring on the upper part



6. Fasten the lantern with the supplied bolts



7. Mount the spindle socket with spigot into the square cap



C8 Modification of a standard valve DN250-600 with an adapter for an electric actuator (use newly coated spindle)



1. Remove the wax sealing from the centering flange screws.



2. Loosen the inner hex bolts and remove them.



3. Remove the centering flange.



4. In case the upper ball bearing or the bearing ring remains in the central flange, take them out.

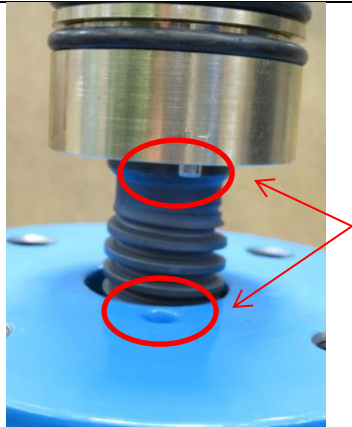


5. Unscrew the spindle with the ball bearing and the o-ring bracket by rotating them clockwise



6. Mount the ball bearing and the o-ring bracket on the newly-coated spindle (in the same order as with the original spindle)

Screw in the spindle into the wedge nut by rotating it counterclockwise.



7. Locking pin of the o-ring bracket has to be placed into the recess on the upper body.



8. Mount the adapter incl. the POM centering ring and the scraper ring on the upper part



9. Fasten the lantern with the supplied bolts



10. Mount the spindle socket with spigot into the square cap

Vöcklabruck, 05.04.2017
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