

# Operating Instructions

## ERHARD Valves



Standard

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## 1. Safety aspects

### 1.1 Preface



Follow operating  
instructions!

Dear user,

prior to initial operation read these operating and maintenance instructions thoroughly to ensure safe and economical application.

The operating and maintenance instructions contain any information required for operation and maintenance of the valve.

These operating and maintenance instructions are part of the complete documentation.

Prior to commissioning the valve in the plant, any safety requirement has to be complied with.



This machine shall only be  
used by trained or  
thoroughly instructed staff  
over 18 years.

The valve shall only be operated by qualified and trained staff over 18 years.

If maintenance work is neglected or effected in an inexperienced manner, we will not in a position to fulfill our warranty obligation according to our terms and conditions of delivery.

Only original spare parts supplied by our company ensure best quality and exchangeability.

The manufacturer prohibits to carry out any modifications to the valve. If the user modifies the valve on its own, he may not be entitled any more to the manufacturer's warranty!

We reserve the right to technical modifications as against the data and representations contained in these Operating and Maintenance Instructions in case this should be necessary for improving the valves.



Warning

#### Warning

**We point out to the fact that in case of non-compliance with these Operating and Maintenance Instructions, we cannot be held liable for any damages or operating troubles resulting thereof.**

## 1.2 Basic safety instructions



The following chapter “Basic safety instructions“ has to be strictly observed in order to maintain health and safety of the operating and maintenance staff and to ensure operativeness of the valves. Non-compliance with these instructions may jeopardise the manufacturer’s duty of guarantee and warranty.

### 1.2.1 Adherence to operating instructions

Prior to unloading, transport, commissioning and maintenance of the valve the operating and maintenance instructions have to be thoroughly read and strictly observed.

In case of non-compliance with these Operating Instructions, we cannot be made liable for any damages or troubles resulting thereof.

In addition to the operating and maintenance instructions and the binding regulations concerning prevention of accidents applicable in the user’s country as well as at the place of installation also the approved technical rules for expert working and safety aspects have to be adhered to.

The staff must be familiar with the local rules concerning safety and prevention of accidents.

The technical data of the order are binding for the type of design. Modifications can only be considered if they are specified to us in time before starting production. Every ERHARD product is checked for completeness, performance, and tightness before leaving the factory.

### 1.2.2 Intended use

Due to their design and the materials used Erhard valves of standard design are approved for those media (concentration, pressure, temperature) which are indicated in the operating instructions specific to the product.

NBR (Perb):	water, grease and water containing oil, raw water, cooling water, potable water (only with KTW-D1-approval). Combustible and non-combustible gases; weak acids and lyes
EPDM	potable water(with KTW-D1+D2-approval and W270-approval). not approved for gas not suitable for grease and valves containing oil

Deviating operating instructions and fields of application are subject to the manufacturer’s approval!

### 1.2.3 Duties of the user

Whoever in the user's works is engaged in mounting, commissioning, operation and maintenance of this valve, is supposed to have read the complete Operating Instructions (especially any referenced basic safety instruction) and to have understood them. This particularly applies to staff who works only occasionally at the plant.



Follow operating instructions!

It is **strictly forbidden** to modify, remove, bridge or override the safety installations

Without prior written approval by the manufacturer do not carry out any modifications of the accessories and equipment surrounding the valve which may jeopardise safety! Changes at the valve effected on one's own authority do exclude the manufacturer's liability for any damages resulting thereof. This applies also to installation and setting of safety devices and valves as well as welding at supporting parts.

### 1.2.4 Dangers when handling the valve

ERHARD valves are designed to the state of the art and according to the approved safety rules. However, these valves can be a danger when handled by untrained staff in an inexperienced manner or when they are not used in accordance with their duty and purpose. This may cause threats to life and physical condition of the user or third persons or damages to the valve and other real property.

Access to the danger zone shall only be possible when the valve is out of operation and when it is ensured that the conveying units and the following hydr. units are shut down in order to avoid danger to the operating and maintenance staff.

Whoever in the user's works is engaged in mounting, dismantling or remounting, operation and service (inspection, maintenance, repair) of the valves, is supposed to have read the chapter "Basic notes on safety" and the complete Operating Instructions and to have understood them (UVV, VBG1 §14 and following). The user is recommended to have the person involved confirm this fact in writing in each particular case (UVV VBG1 §7, par.2).

Work at the valve as e.g. control, maintenance and repair work shall only be carried out when the plant has been secured and shut down and when energy to the valve/plant has been switched off.

Before removing safety devices and/or carrying out work on the valves, the pipe section must be made pressureless leaving no risk. Unauthorized, erroneous and unexpected operation as well as dangerous movements caused by stored energy (compressed air, pressurized water, hydraulic system) must be avoided.

The operating and maintenance instructions must always be available on site and be protected against oil and grease.

If necessary or specified by rules, use suitable personal protective equipment!

Any instructions concerning safety and dangers at the plant must be observed and they have to be maintained in legible condition and to be renewed, if necessary.

In case of changes to the valve or its operating performance which might affect safety aspects, the plant has to be stopped immediately and the trouble has to be advised to the corresponding department/person!

When maintenance and repair work at the valve has been finished prior to commissioning of the valve, check whether all safety devices and equipment have been remounted and make sure that they are operative.

If PLC (programmable logic control) software is included in the scope of supply, no changes must be carried out.

If work is carried out in the vicinity of the valve, which leads to soiling (e.g. concrete work, masonry, painting, sandblasting) the valve must be covered effectively.

### 1.2.5 Working conditions for operators (except for valves in chambers and for buried service)

Take care that there is sufficient place available for operation, mounting and maintenance work. Access to this valve has to be provided in such a way that this work can be carried out by using the appropriate technical means (tools, measuring instruments, etc.)

The user has to provide adequate instructions in order to ensure that the working place is clean and well arranged.



**WARNING**  
Observe the applicable rules concerning  
safety, and wear the necessary personal  
protective equipment.  
**Risk of injury!**

### 1.2.6 Safety and protecting equipment (graphics)



Gehör- und  
Kopfschutz  
benutzen

Use ear muffs and helmet



Schutz-  
handschuhe  
benutzen

Use protective gloves



Augenschutz  
benutzen

Use eye protection



Schutzschuhe  
benutzen

Wear safety boots

### 1.2.7 Personal protective equipment

If operating trouble or malfunctions occur at the valve (risk by substances acting on the valve), the endangered person – if necessary or specified by rules – has to use suitable personal protective equipment.

### 1.2.8 Presentation and explanation of the danger symbols on the valve

The corresponding pictograms and explanations are included in the relevant operating instructions specific to the product and/or in the corresponding threat analysis.

### 1.2.9 Safety measures during normal operation

When using the valves, observe the approved technical rules:

- DIN standards, DVGW prints, VDI rules, VDMA standards, etc. For plants which must be supervised, observe the relevant laws and regulations, e.g. trading regulations, regulations for prevention of accidents, steam boiler regulations, regulations for gas mains under high pressure, regulations for combustible liquids as well as technical regulation works TRD, SR, TRG, TRbF, TRGL, TRAC, UVV, AD instructions, etc.
- Fourth federal law on emissions (4. BImSchV), Technical instructions for protection against noise (TA Lärm) according to DIN 45 635, disposal of working media according to Directive of the Council 75/439/EWG
- Regulation concerning approval for discharging substances hazardous to waters into the collective sewage water system (VSG)
- Water resources law (WHG)
- Rules for accident prevention, which are specific to the country
- Safety regulations for hydraulic hose pipes ZH 1/74 of HVBG

### 1.2.10 Dangers caused by electric energy

A potential danger may arise when the valve is electrically connected.



Danger

**Danger**  
Work at electric installations should only be carried out by trained electricians and only when the current is switched off.  
Danger by electric voltage!

### 1.2.11 Particularly dangerous places

If the valve has been installed according to the instructions, there will be no immediate danger.

Vibrations may cause damage to seals and screwed connections. As a result, flow medium may escape! Depending on the kind of flow medium there may be a risk of fire or explosion caused by electric contact, open light or by smoking. Moreover, there may be a danger of poisoning (by inhalation - danger of life!), causticization, scalding and biological or microbiological hazards.

### 1.2.12 Safety instructions concerning maintenance, repair, trouble shooting



Warning

**Before carrying out work on the valve, the inspection valve has to be closed and the pipe section must be made pressureless.**

### 1.2.13 Modification of valve design

Prior to any change of the design by the user, the manufacturer has to give his approval. Otherwise, the warranty becomes void.

### 1.2.14 Valve cleaning and waste disposal for environmental protection (flow media and lubricating agents)

The valve can be cleaned with water and soap sud at a max. temperature of 40°C! When using high-pressure cleaning devices, maintain a minimum distance of 30 cm between the nozzle and the surface to be cleaned at 100 bars! For disposal of flow media and lubricating agents, see operating instructions specific to the product.

### 1.2.15 Noise level at the valve

Unacceptable noise at the valve only occurs if the given operating conditions are out of control (cavitation or water hammer)

### 1.2.16 Emissions (radiation, dust, etc.)

Depending on the flow medium, danger may arise during dismantling or maintenance. The user has to make sure that the corresponding substances can be collected and/or sucked off.

## 2 Transport

Transport has to be carried out carefully. Inexpert handling may cause damages to the valve. Prior to mounting, such damages are to be repaired in an appropriate manner.

Valves too heavy to be handled manually have to be transported by means of lifting gears suitable for the weight involved, e.g. broad belts. They have to be placed around the body, e.g. between the two connecting flanges. Valves with eyebolts or lugs have to be suspended at these devices in an appropriate manner.

It is not allowed to attach the lifting gears to the handwheel, the stem, the gearbox case or in the flange holes which would be contrary to the relevant safety regulations.



Warning

#### Warning

Follow the applicable safety regulations according to VGB 9a and wear the required personal protective equipment.  
Risk of injury!



### 3 Storage

Do not store the valves outdoors. During the storage period, the valves have to be protected against outside influences and impurities, e.g. by covering them with a tarpaulin. Store valves standing on their feet. Store valves without feet flat on their connecting flange by means of intermediate boards.

If long-time storage is required, the place of storage should be selected in such a way that the following conditions are met: frost-protected - cool - dry - dust-free - dark (for elastomer UV-light is inadmissible). If it is impossible to comply with these conditions, the valves must be packed to meet the above mentioned requirements, e.g. they have to be sealed inside dark plastic sheet.

The valves are designed for a storage temperature of  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ , deviating temperatures have to be taken from the operating instructions specific to the product.

### 4 Installation into the pipeline

Remove all packing material from the valve. Prior to installation, check the pipeline for impurities and foreign matters and clean it if necessary.

#### **Attention!**

It is important that all around the valve there is free access for operation and maintenance.

During installation of the valve, the distance between the pipe flanges should exceed the valve face-to-face dimension by at least 20 mm. Thus, the raised faces will not be damaged and the gaskets can be inserted. For use as flange seals steel-reinforced rubber seals are recommended, in case of slip-on flanges they are absolutely necessary (consider resistance to flow medium and temperature).

The mating pipe flanges must be plain-parallel and concentric.

Tighten the connecting bolts evenly, without distortion and crosswise, applying the required torques. The pipeline mustn't by any means be pulled up to the valve.

Valves can be installed in any position.

Exception: valves which are designed only for one specific position of installation and flow direction (reflux valve, check valve) or valves with limited application (see operating instructions of the valve) due to their actuating system (weight-loaded hydraulic actuator, etc.).

For valves of larger nominal sizes, robust stability has to be ensured, by supporting and tightening by means of bolting if necessary.

Should the valve be installed in a pedestrian area, there is a risk of stumbling! The valve or the pipeline area must be secured by attaching corresponding covers.

Tightness of connections or socket joint has to be supervised, too. If necessary, check connections or replace seals.

## 5 Initial Operation

After installation into the pipeline, check the valve for ease of operation moving it over the whole travel (OPEN – CLOSED) by means of the operating element. Auxiliary equipment (hand crank, attachable electric actuator, etc.) should be used for facilitating this action.

For electrically operated valves the operating gear has to be manually moved into central position prior to initial operation.

## 6 Maintenance

Performance and operating conditions of parts of the system have to be checked at regular intervals in accordance with DVGW print W392, paragraph 4.5. The corresponding intervals have to be taken from the operating instructions specific to the product.