

Needle valve

**RKV**

quality as tradition.





Water treatment



Water transmission



Water distribution network



Sewage network and treatment



Dams and hydropower



Desalination



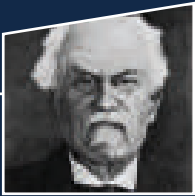
Industrial water applications

# Table of contents

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About us	4
Features & Application	6
Proven engineering for diverse tasks	8
SKG slider crank gearbox	14
Coating	15
Model and dimensioning	16
Types of cylinders	18
Calculation and service	19
Actuation	20
Quality and Testing	22
After-Sales and services	25
Main components material	28
Dimensions and weights	30

# About us



**1871**

Foundation of ERHARD by Johannes Erhard



**1962**

Start of production at the new plant in Oettingen (Bavaria)



**1998**

Takeover of ERHARD by Deutsche Armaturen AG



**2002**

Investment of EUR 4.5 million at the Heidenheim plant: new production halls to optimize processes



**2008**

Fujairah II project in the United Arab Emirates: Inauguration of the new powder and wet coating plant and the new enameling and combined blasting plant



**1904**

Takeover of the company by nephew Josef Waldenmaier



**1986**

ERHARD buys the Daun plant (from Mark Controls)



**2001**

ERHARD is acquired by TYCO Waterworks EMEA



**2007**

Ankara water supply project: second largest order in the company's history



**2010**

Company takeover by Triton and foundation of TALIS

# Even after more than 150 years, ERHARD is still one of the world's leading manufacturers of water fittings.

For more than 150 years, the name ERHARD has stood for quality, solution expertise and high performance. What began in 1871 in a small workshop in Heidenheim has developed over the decades into a highly specialized company with an extremely responsible task: protecting water and ensuring the water supply in places all over the world.

We are a leading supplier in the standard area of pipe network fittings for drinking water and waste water and also specialize in the development and production of large valves and customer-specific special solutions. As a company with a long tradition in Heidenheim, we are still at home in the beautiful district town in eastern Württemberg and develop solutions for the entire water cycle from here.



## 2010

ERHARD produces a butterfly valve DN 3600 for a new coal-fired power plant in Karlsruhe



## 2017

Launch of the new ERHARD logistics center in the immediate vicinity of the company headquarters



## 2020

Merger of SCHMIEDING Armaturen GmbH into ERHARD and takeover of the SCHMIEDING range of products within TALIS



## 2023

Further investments in machinery, buildings and digitalization at the Heidenheim plant in 2022/2023 amounting to ~€ 8 million



## 2013

Opening of Valve Academy in Heidenheim



## 2018

Investments at the Heidenheim plant: new production machines to optimize the production flow of ROCO Wave butterfly valves



## 2021

Anniversary. 150 years ERHARD



## 2023

Acquisition durch Hawle Austria Group

# RKV

## Needle valve



The RKV Needle valve is the right valve to use whenever pressure heads or flow rates need to be safely and reliably reduced and controlled. They are used for two main tasks:

- By restricting the cross-section, a change in flow rate, flow velocity and pressure is forced, which results in higher stress in the valve. The valve must therefore be designed so that potential cavitation cannot cause any damage whatsoever.
- To be able to control the pressure and flow precisely and finely, the control valve's control characteristics must be as linear as possible over the whole operating range. Thanks to their well thought out and tested design, The RKV Needle valves fulfil these requirements to the greatest possible degree and are therefore the ideal valves for numerous control tasks.



## Applications



Water treatment



Water transmission



Water distribution network



Sewage network and treatment



Dams and hydropower



Desalination



Industrial water applications

## Uses

- **Water transmission and distribution:** Linked to the large control insert available in standard the RKV could be used in different type of control circuits for distribution (pressure control, flow control, reservoir control).
- **Dams and hydropower:** For small, medium and large installations. In the bottom outlet of a dam with special air-admission option.
- **Industrial water applications:** Often installed in different industries where the pressure control and flow of water are required. The different control mode and the technical support team permit to advice the most adapted solution for the application.
- **Sewage network and treatment:** Air-flow control valve for activated sludge basins in sewage treatment plants.  
By providing a full control range, The Needle Valve is very often used to control air admission in sludge basins.

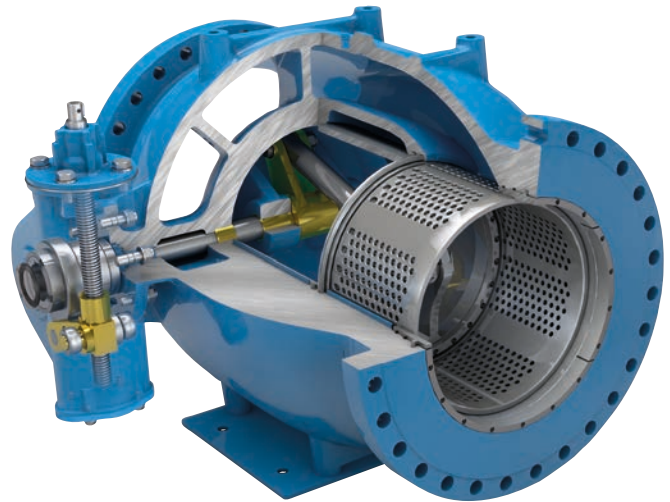
## Advantages



- **Efficiency:** Optimised flow performance and flow guiding with best hydraulic performance when fully open for optimum energy efficiency and savings.
- **Precise flow control:** With a control range up to 96% the RKV guarantee an optimal flow control thanks to the mechanism of the SKG slider crank. More than the optimisation of the regulation range SKG slider crank allow a slow closing speed to avoid hammer shock risk.
- **Prevent cavitation damage:** Thanks to a large control insert range from standard to customised specially design to localised cavitation in a non-risky area for the engine. In addition to the 70+ years experience and proven site operation, Erhard continuously conducts hydraulic tests and numerical fluid simulations to further optimize cavitation control. ERHARD confirm is expert position in the control of extreme application.
- **Durability:** The different design choice such as at least 4 guiding, main gasket in cavitation free area or shaft protected from water stagnation, permit to guarantee long life of the valve. Long-lasting, high-quality components and superior 250µm epoxy coating without any interruption ensure also a long duration.

## Characteristics

- Optimised flow performance and flow guiding for practical Zeta values, minimum pressure losses when fully opened.
- Control inserts for safe and reliable pressure reduction to prevent cavitation damage in every application: seat ring, vaned ring, slotted cylinder, perforated cylinder and other special inserts.
- Wide range of pressure ratings, nominal sizes and designs. Adapted solutions for numerous special applications.
- Perfect adaptation to all installation situations with a standardised connection for all types of actuators.
- SKG gearbox or Auma gears with unique slider crank mechanism optimise the linear control range and protects against water hammer by gradually slowed closing.
- Proven design, reliability and experience: more than 100 years of experience with needle valve.
- 100% tested according to DIN EN 12266 and DIN EN 1074.
- Made in Germany



## Technical data



- **Size**  
DN 100 - DN 2000 PN 10-40 Higher pressure rate available on request as CLASS 900 (PN160)
- **Flange Drilling**  
PN 10 to PN 40 acc.  
to EN 1092-2 ANSI available on request
- **Medium Temperature**  
0°C to 70°C
- **Coating:**  
Epoxy 250 µm

## Approvals

- NSF, ACS, DVGW for material and coating

## Options / Variants

- **Coating:**  
250µm EKB fusion bonded epoxy colour blue
- **Materials**
  - Body:** Ductile cast iron EN-JS1050
  - Piston guide:** DN 100-150 Stainless steel  
DN 200-300 Bronze  
DN 350-2000 Brass
  - Cylinder:** Stainless steel
  - Seals:** EPDM, KTW and W270 – or NBR, others on request
  - Shaft, Piston:** stainless steel
  - Gearbox body:** grey cast iron EN-JL1040
  - Gearbox crank:** ductile cast iron EN-JS1050
  - Gearbox stem:** ferritic Cr-Ni steel
  - Stem nut:** special brass
- **Cylinder options:**
  - Standard:** Seat ring, Vaned ring, Slotted cylinder, Perforated cylinder
  - Customised:** Special cylinder (slotted or perforated), Throttle ring especially for energy recovery systems, Control attachments for pump test rig, Control inserts for bottom outlets
- Different type of actuators from float control through hydraulic and pneumatic actuator to electric actuator

# Proven engineering for diverse tasks



Needle valves have been part of ERHARD's extensive product range for more than 100 years. This experience is reflected in thousands of installed valves which have proven their worth in daily use. Product innovations developed by ERHARD have therefore often been copied and today form the standard in the needle valve market. But only the combination of well thought through details and decades development, production, installation and maintenance experience results in the perfect original, the ERHARD RKV needle valve.

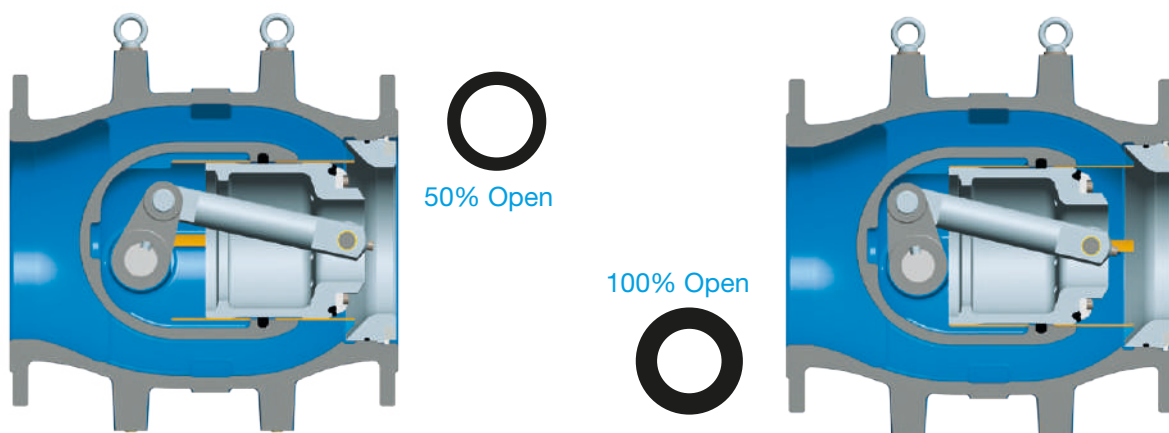
## The principle of the needle valve

The cross-section in the valve is reduced to control pressure ratings and flow rates. But while asymmetrical cross-sections result in gate valves or valves (e. g. if the gate valve is closed from above), in the needle valve a ring-shaped cross-section always exists in every position, which therefore, depending of the cylinder type, enables a linear control curve over a wide range.

Initially the cross-section is steadily reduced from the inlet up to the restrictor cross-section and the flow is guided along in a geometrically optimised shape on the teardrop shaped internal body. A sliding piston is axially guided inside the internal body for flexible and precise change in cross-section. This movement results from conversion of the rotary movement of the actuator shaft by the internal slider crank mechanism and ensures a defined ring-shaped crosssection in every position. Depending on the intended use, various control inserts are mounted on the piston, which split the flow into individual flow filaments for conversion of the energy. Water is guided through slots or perforations in a specific way intended to dissipate the energy in the safest possible way for the valve and the equipment installed downstream of the valve.



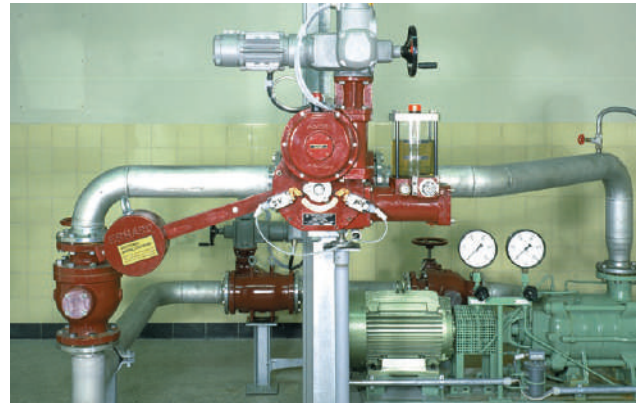
Improper continuous use of butterfly valves as a control valve can result in dramatic material damage, as in this valve opened by 5° after a year in seawater.



The design of the ERHARD RKV needle valve ensures a ring-shaped cross-section in every piston position and therefore safe, reliable energy conversion in the middle of the valve, which significantly minimises the effects of cavitation.



ERHARD needle valves can be used for numerous tasks – from the bottom outlet valve of dams through to complex control tasks.



### Designs for every purpose

ERHARD RKV needle valves, depending on their nominal size, are available as a one-piece type or a multipart type. Depending on the tasks to be fulfilled, a suitable control insert can be used: from a seat ring and a vaned ring to slotted cylinder and perforated cylinder through to other special types of control inserts.

ERHARD RKV needle valves can be used in numerous control applications, e. g.

- Downstream pressure control
- Upstream pressure control
- Reservoir control
- Flow control

Attention must also be paid to venting, depending on the positioning of the needle valve. For example, if it is positioned directly at the end of a pipe in a bottom outlet or a turbine bypass and is equipped with a vaned ring or a seat ring, the energy conversion takes place by splitting up the water jet and intensive mixing with the ambient air, so that separate venting is not necessary. Your ERHARD team will provide you with competent and comprehensive design advice.

### Example of specific case:

- 100 bar to 1 bar in one valve with suitable cavitation protection technology.
- Very high precision flow control going as low as 0,1 liter / sec at 50 bar pressure difference and more
- Very fast actuation going below 0.5sec open to close
- customized inserts for liner and nonlinear Kv performance
- Complex multistage inserts tailor-made to fit the toughest operating conditions in the water industry.
- Continues R&D in Erhard laboratories to further optimize current designs and to develop new solutions.
- Class 900 (PN160)
- Erhard is involved in many cases with consultants during the hydraulic study to provide valve characteristics and other useful data that will assist the designers.



Depending on the nominal size and design, ERHARD RKV needle valves are available as single or multipart types.



**Experts in  
extreme  
conditions**

Needle Valve

**RKV**

DN150 up to 2000, PN10-40

quality as tradition.

For more than 70 years, ERHARD has been the expert in needle valves with high-quality components and features adapted to your needs even for extreme conditions - trust the expert.

Designed to meet highest demands in terms of performance and versatility for a wide variety of applications – quality made in Germany.

**Expertise**

For customized solutions, trust the expertise of ERHARD for preventing cavitation damage. We provide adapted solutions for every application.

**Performance**

The exactly adapted regulating range based on adaptable cylinder with a reliable operation linked to a securely guided piston.

**Durability**

Uninterrupted corrosion protection at least 250 µm epoxy coating acc. GSK optimised guiding element ensure long service life and clean water.

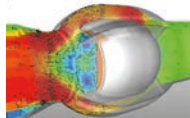
# RKV

## Needle Valve

### Proven engineering

#### Customized solutions

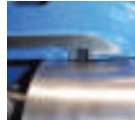
- A large number of actuator options are available, electric, pneumatic, hydraulic, weight loaded
- Innovative and customer-focused product development
- In-house research institute for product testing



### 3D simulations

#### Engineering know-how

- Simulations of the flow performance with state-of-the-art 3D CAD systems confirm the optimized flow pattern



### Low-wear sealing

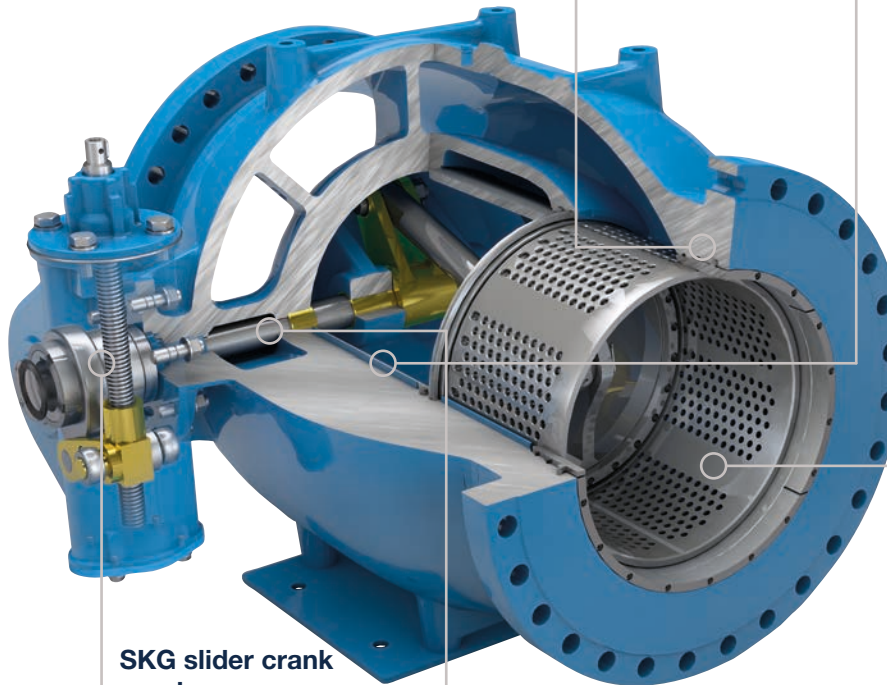
#### High durability

- Wide main seal in hydraulically non-critical and cavitation-free zone
- Main seal in stainless steel chamber safely enclosed
- All sealing systems are designed to minimize wear

### Piston guiding

#### High durability and stability

- Piston is precisely guided by at least 4 guides
- Allows any installation position
- Designed for stability and long service life



### Expert in cavitation control

#### Pressure control expert

- Wide range of cylinders
- Technical expert able to advice the design that fits best to your application



### SKG slider crank gearbox

#### Performance and reliability

- Perfect linear control range
- A large stroke for an optimal control
- Precise regulation even at the smallest flow



### Bearing system

#### Safe and tight

- Maintenance-free self-lubricating bushes
- Additional shaft seal to protect corrosion and stagnant water



### Uninterrupted corrosion protection

#### High durability

- Internal and External Coating Epoxy at least 250 µm acc. GSK

quality as tradition.

Scan the QR Code & discover the product in AR



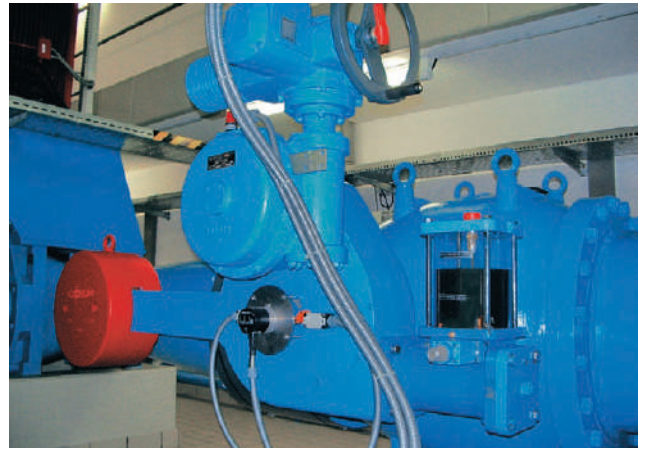
# The perfect solution even for special requirements



ERHARD RKV needle valves are suitable for classic uses such as the bottom outlet control and safety devices in turbines and pipes and could be customized to cover a wide range of application:

- Shut-off device in pipes with high operating pressure and high flow velocities
- Pump start-up valve
- Return flow prevention for pumps with drop weight
- Safety overflow valve for removing impermissible pressure increases in the pipe system (free of auxiliary power)
- Turbine bypass
- Pump recirculation bypass
- Filling valve for high pressures and pipe discharging in the open air or for large pipelines
- Flushing/purging valve
- Pump test rig
- Air flow rate control in aeration tanks
- Industrial applications





An ERHARD needle valve with ingenious control engineering was installed in the secondary turbine outlet during the modernisation of a River Danube power station. The valve operates autonomously via its own medium control and if the turbines are shut down, pressure surges and therefore risk to the plant are reliably avoided.

In storage operation of large drinking water supply plants, geodetic energy is often available virtually free of charge. Reliable valves suitable for use with drinking water are necessary in the parts of the plant in which energy recovery is possible. An example of the use of ERHARD valves for these application cases is a needle valve DN 600 PN 16 with weight-loaded hydraulic actuator and magnetic clutch. Up to 1,200 l/s have to be safely controlled upstream of the turbine and must be stopped reliably and without surges if the turbine is shut down. In this application case, ERHARD proves to be a competent partner for the project planning and design of valves.



# SKG slider crank gearbox



## Perfectly adapted to the valve dynamics

ERHARD Needle valve can be equipped with a unique slider crank gearbox (SKG), which is the ideal solution for reliable opening and closing, as its movement kinematics are optimally adjusted to the needs of the needle valve.

The high precision SKG gearbox is developed and manufactured at ERHARD.



System safety



Energy efficiency



Suitability for underground installation



### Standardized ISO Connections

The SKG gearbox input and output flange connections are standardized according to DIN ISO 5210/5211 allowing full flexibility for all actuation methods



### Adjustable end stop on the spindle

The robust, adjustable end stop on the spindle ensures that no forces are being exerted on the housing parts during operation. The inner parts are made of bronze and stainless steel, ensuring a long life time.



### Mechanical position indicator with sight glass

The mechanical position indicator with a pointer directly connected to the valve shaft is visible through a sight glass in the gear box. The sight glass is made of impact resistant polycarbonate (PC) and thus suitable for chamber or underground installations.



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# Coating

## Perfect protection for every field of application

Corrosion protection for long lasting valves and clean water is a key technology of ERHARD butterfly valves.

Epoxy coating represents the classic coating solution, being a proven technology suitable for the most common requirements. EKB is physiologically non-hazardous and has confirmed test certificates for drinking water, among others, from the DVGW Research Centre TZW Karlsruhe, from the Hygiene Institute of Gelsenkirchen and the WRAS (WRc) in Great Britain.

Further customized coatings are available for special requirements, such as the EPC coating (Epoxy-Polymer-Ceramic) with ceramic reinforcing fillers, which is particularly suitable for abrasive media or sea water.



Epoxy coating at the ERHARD plant in Heidenheim/Germany

## EKB fusion bonded epoxy coating



ERHARD works using the latest technologies and complies with the test conditions of the Quality Association for “Heavy Duty Corrosion Protection of Powder Coated Valves and Fittings” (GSK). The standard thickness is at least 250 µm, layer thicknesses up to 500 µm are possible.

ERHARD covers two coating processes for fusion bonded epoxy coating:

- Electrostatic powder coating in accordance with the GSK Quality Association (RAL-GZ 662).  
The epoxy resin coating provided in the powder coating process is one of the most often used corrosion protection processes. During this process, the coating is applied in a precisely defined thickness and melted on at exactly 210 °C.
- Wet electrostatic coating, applying the liquid epoxy resin material directly onto the valve.  
With large valves, EKB is applied in a wet process in a two-layer structure:  
A cathodic basic protection is followed by an electrostatic wet coating using a low-solvent two component epoxy resin.  
In the heat channel, the final bonding to the heavy corrosion protection takes place according to DIN 30677-2.

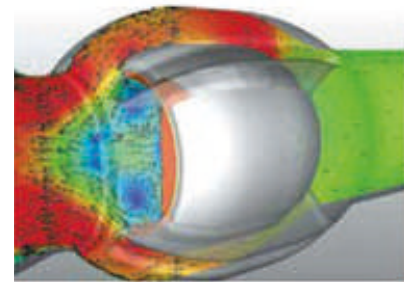
The RKV needle valve contribute to an overall optimized system for a lowest energy consumption when the valve is fully open to an adapted pressure and flow in regulation mode. The energy consumption and flow is also submit to the cylinder which must be choosen in fonction of the application. The choice of size and cylinder are decisive for an optimal behaviour of the global system and take place with 2 main elements, the hydraulic performances and the cavitation risk. Special calculations are necessary for special uses (e. g. as bottom outlet, pump bypass, turbine inlet or bypass valve); our engineers would be pleased to perform these calculations for you.

## Designed for best hydraulic performance:

Key figures are Kv and ζ (zeta) values

- The Kv-factor of a valve indicates the water flow in m³/h at a pressure drop across the valve of 1 kg /cm² at 5-30°C when the valve is 100% open.
- The head loss coefficient z (zeta), also referred to as pressure loss coefficient or resistance coefficient is a dimensionless measure in fluid mechanics reflecting the resistance in a certain hydraulic element. This resistance depends on the geometry of the system.
- The zeta value can be derived from the Kv value and vice versa. High Kv factors and low zeta values mean reduced pressure losses and thus, smaller pump capacities.

DN	Seat ring		Vaned ring		Slotted cylinder	
	z (zeta)	Kv m³/h	z (zeta)	Kv m³/h	z (zeta)	Kv m³/h
100	1	400	1,2	365	3,1	230
125	2,7	380	2,9	366	8,3	220
150	1,6	711	2,4	580	7,3	330
200	1,3	1402	1,6	1.260	7,6	580
250	1,9	1812	2,5	1.580	8,5	860
300	1,4	3039	1,9	2.610	7,6	1.310
350	*	*	1,5	4.000	6,5	1.900
400	*	*	1,5	5.220	6,5	2.510
450	*	*	1,5	6.610	6,5	3.180
500	*	*	1,5	8.160	6,5	3.920
600	*	*	1,5	11.700	6,5	5.650
700	*	*	1,5	16.000	6,5	7.680
800	*	*	1,4	21.600	6,5	10.040
900	*	*	1,4	27.300	6,5	12.700
1000	*	*	1,3	35.000	*	*
1200	*	*	1,1	54.900	*	*
1400	*	*	1,1	74.700	*	*
1600	*	*	1	102.300	*	*
1800	*	*	1	129.500	*	*



$$K_v = \frac{Q}{\sqrt{\Delta p}} \quad \zeta(zeta) = \frac{d^4}{626,3 \cdot K_v^2}$$

Kv-factor is defined in VDI/VDE Richtlinien No. 2173

Q = Water flowrate

Δp = Differential pressure

d = Nominal diameter

v = Flow speed

Note: Special calculations incorporating the precise installation situation are necessary for the designs marked with an asterisk (\*);

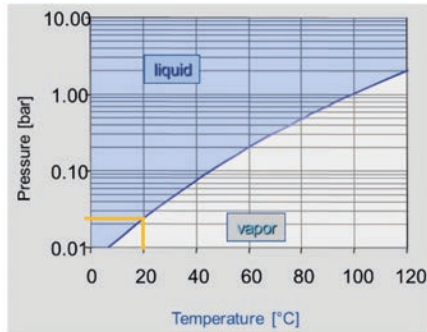
we would be pleased to perform these calculations for you based on your application data. All values have been determined under practical conditions in ERHARD's in-house test centre.

## Flow speeds:

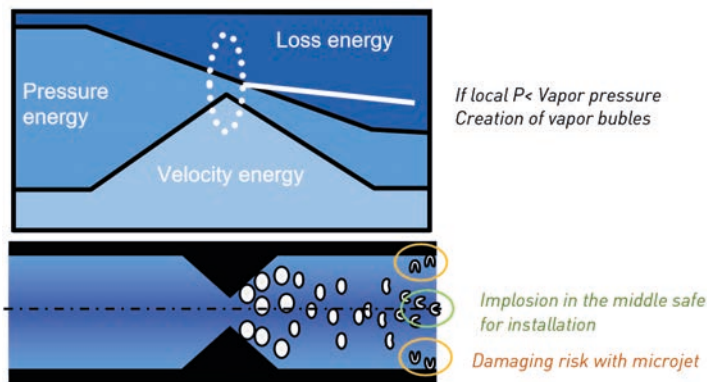
Following needed application RKV valve could be adapted with different accessories like air admission so as to extend the admissible flow velocity to the application need. To ensure perfect operation, for velocities above 1.5m/s we recommend a straight pipe section of at least 3-5 x DN upstream and 5-10 x DN downstream of the valve, within which there must be no fittings or valves.

## Regulation range

RKV Valve are designed for an optimal regulation range between 10 to 85% of opening. Some extension of this regulation range is possible but need to be controlled during the design phase with the technical support team.



Water vapor pressure curve  
At 20°C Vaporisation pressure 0.025bar



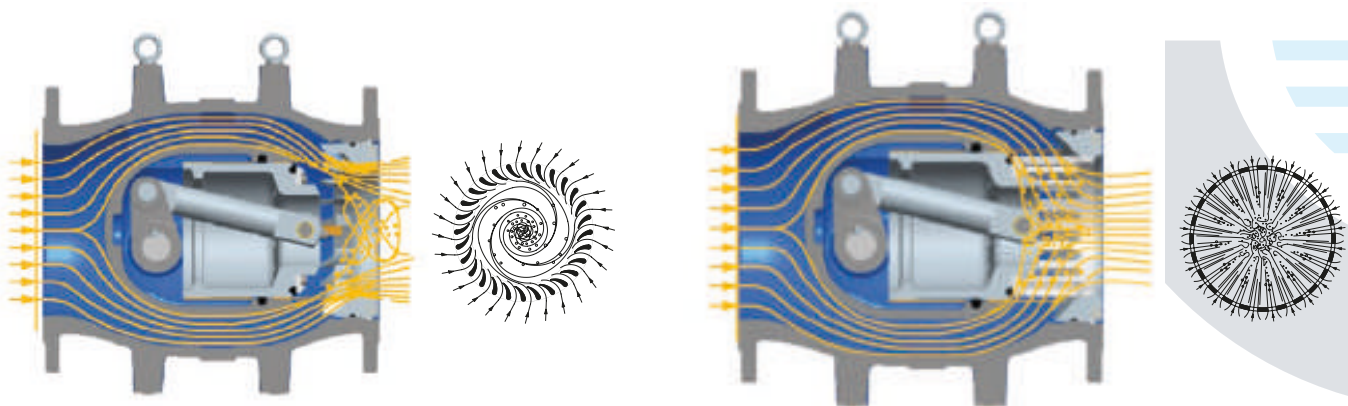
Creation of cavitation with flow restriction area

## Cavitation under control

Depending on the pressure and velocity conditions, turbulence and cavitation zones can occur in pipes and fittings which can cause vibrations, oscillations and, under certain operating conditions, can even cause material damage.

Cavitation occurs if vapour bubbles form and implode in the pipe. According to Bernoulli's law, the total energy of a flowing medium is always the same; and therefore, the sum of the potential, pressure, velocity (kinetic) and lost (dissipated) energy is constant. If the flow velocity now increases at a constriction, e. g. a needle valve, the pressure energy simultaneously falls. If the pressure falls below the medium's saturation vapour pressure, vapour bubbles form which further deform after the constriction. Downstream of the constriction the velocity reduces again, and the pressure increases, so that the bubbles finally implode. The microjet produced as a result can hit components with high velocities and remove component material where they impact. Therefore, a decisive factor for use of the needle valve is for the energy conversion to take place in the middle of the valve, which is ensured by the design of the flow profile and special control inserts.

### Cylinder specially designed to centralize the cavitation in the middle of the pipeline



Vaned ring  
For average pressure differences and in back pressure

Slotted and perforated cylinder  
For high pressure differences

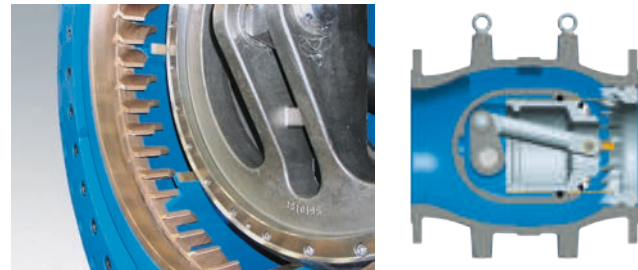
# The cylinder to control cavitation



RKV Valve are designed for an optimal regulation range between 10 to 85% of opening. Some extension of this regulation range is possible but need to be controlled during the design phase with the technical support team.

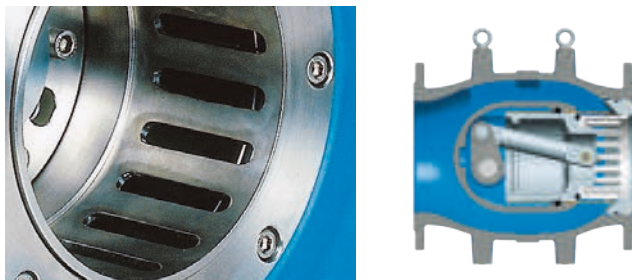
## Safe and reliable pressure reduction and cavitation under control

ERHARD control valves are fitted with a seat ring as a basic standard: this is the suitable solution for low pressure loss coefficients (K-values) or for the medium air. For most of all other applications, it makes sense to use special control inserts matched to the respective operating conditions; the design of these inserts is only one example of ERHARD's extensive know-how for control tasks. They ensure that the velocity increase which occurs when the cross-section is changed do not result in cavitation damage. Choice of the correct control insert depends on the operating conditions, the differential pressure and the resulting cavitation behaviour. We would be pleased to advise you.



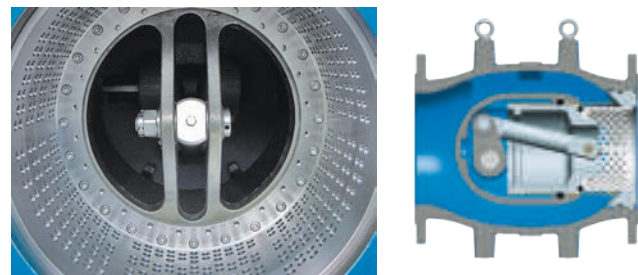
### Vaned ring

The vaned ring is a ring with uniformly arranged blades, which split the flow into individual flow filaments just before the discharge and due to their shape set them in a spiral movement. The outer flow is pressed against the wall of the outlet part or the downstream pipe so that the cavitation bubbles which occur do not come anywhere near the wall, but instead are bundled together to form a "pigtail" in the middle of the pipe. There they are dissipated without causing any damage. Vaned ring are used for a dynamic head ratio of 0.6 or higher.



### Slotted cylinder

Slotted cylinders, on the other hand, are the suitable design for high pressure differences. This attachment extends the end piston in a similar way to a pipe and is especially designed to the specific operating conditions. The water jets flowing from the outside to the inside through the slots are split up at the slots and reach a high velocity. Then, in the material free centre of the cylinder, they collide with the jets emerging from the slots on the opposite side. On collision part of the kinetic energy is converted into pressure energy. The cavitation bubbles occurring at the slots and dragged along with the jets are dissipated by this increase in pressure in the centre of the flow without causing any damage.



### Perforated cylinder

The perforated cylinder, which functions in the same way as the slotted cylinder.

Other control inserts available

- Special slotted cylinder
- Special perforated cylinder
- Throttle ring
- Control inserts for bottom outlets

# Calculation and service

Our team support you from the planning and design to the commissioning and maintenance:

## Planning and design

- Individual advice
- Calculation and advice on optimal solutions

## The following data is required

- Flow rates  $Q_{max}$  and  $Q_{min}$ .
- Upstream pressure of the valve (for  $Q_{max}/Q_{min}$ )
- Dynamic heads on any available point of the range
- Downstream pressure of the valve (for  $Q_{max}/Q_{min}$ )
- Area of use (control device, bottom outlet, etc.)
- Required actuator type
- Operating mode (continuous or short-term operation, etc.)
- In-house laboratory for product tests and trials

## Installation and commissioning

- On-site assembly and installation
- Training and instruction

## Maintenance and repair

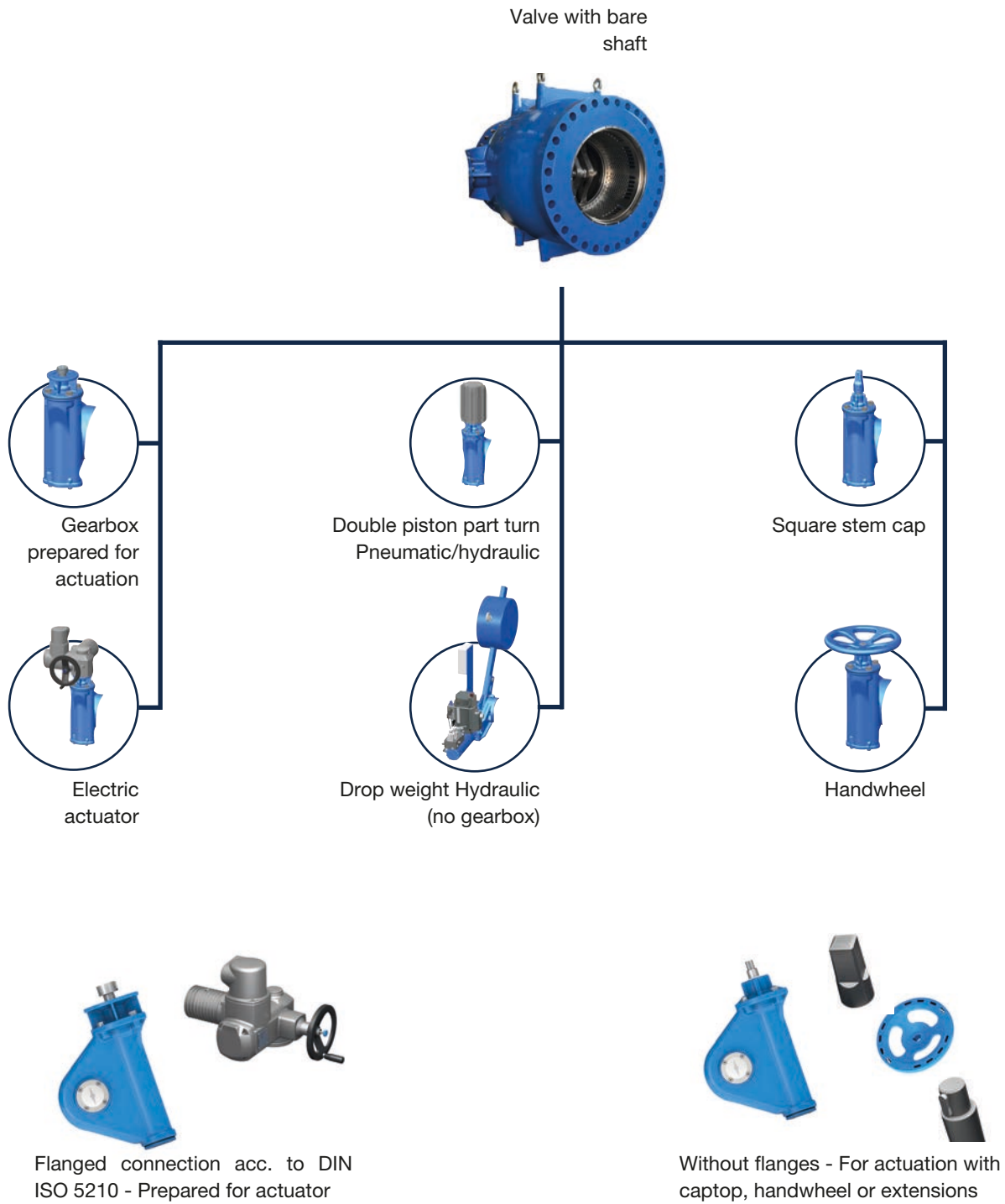
- Inspections and services
- Fast spare part supply
- Repairs on site or in our Heidenheim factory



ERHARD Team could provide detailed calculation report

## Overview of actuation methods

The actuation design is always adapted to the application and specific need.





- Without exception, 100% of ERHARD valves are tested according to DIN EN 12266, or as per customer requirements. Additionally, ERHARD conducts tests above industry standards.
- Type tests are conducted according to DIN EN 1074 (2500 cycles endurance resistance).

## Testing pressures

Pressure values of testing / body test			
	PN 6	PN 10	PN 16
acc. EN 12266	9 bar	15 bar	24 bar
acc. EN 1074	12 bar	17 bar	25 bar

## Testing durations

Duration values of testing / body test		
DN of valves	EN 12266	ERHARD
≤ DN 150	60 s	300 s
DN 150 - DN 300	120 s	300 s
DN 350 - DN 500	300 s	300 s
> DN 500	300 s	600 s

## Approvals

A cutting-edge traceability system, applied from the reception of raw materials to product supply, together with an exhaustive control of processes, guarantees the top quality of our products.

ERHARD valves are suitable for potable water and they are approved by the most prestigious organisations all over the world.



## Certified processes

In addition, the TÜV certification according to DIN EN ISO 9001 and industry-specific certifications guarantee the highest quality and efficiency of all ERHARD processes and thus also of our valves.

(DIN ISO 9001:2015; DGRL 2014/68/EU Modul H; KTA 1401; AD-WO/2014/68/EU)



## KTA 1401

## Prequalifications and audits

- ERHARD is prequalified at renowned utility companies such as Thüga, Innogy, Berliner Wasserbetriebe and Bodensee-Wasserversorgung.
- Country registration procedures such as SPAN (Malaysia) and yearly audits such as for IGH (Croatia) and BULGARKONTROLA (Bulgaria) are part of our Quality Management routine.
- Regular audits according to customer specifications demonstrate suitability in terms of quality, know-how and performance.



## Own research institute

ERHARD has the infrastructure to test the quality of its products and validate the results directly. Testing grounds, laboratories and immediate testing results for our product engineering processes on site, enable us to provide the highest quality of our products. In our own research institute at ERHARD, we can test valves up to DN 1200. E.g. we can measure and carry out flow characteristics, endurance tests, corrosion tests, torque detection and much more.





# After-Sales and services

## Abstract of our Service-range:

- Original spare parts
- Spare parts
- Repairs in our factory
- Technical on-site maintenance
- Product trainings
- Inspections
- Maintenance
- Revisions
- Commissioning
- Trainings of maintenance instructions

### Personal and telephone service advise

The ERHARD specialists will be happy to inform you in a personal meeting about the comprehensive portfolio of technical services. Experienced service technicians will also be happy to answer your questions by phone and thus ensure shorter downtimes. You can reach the right contact person under the following phone / fax numbers:

### Complaint acceptance

Tel.: +49 7321 320-398

### Repairs in our factory in Heidenheim

Tel.: +49 7321 320-325

### Spare parts

Tel.: +49 7321 320-530

### On-site maintenance

Tel.: +49 7321 320-398

### Technical questions to delivered products

Tel.: +49 7321 320-313

### Requests of service performance

Fax: +49 7321 320-550

## Revision and repair in our factory



## Service contracts and warranty

You have the statutory warranty claim for ERHARD products. With a maintenance contract tailored to your needs, you can extend the warranty individually.

Talk to us, we will be happy to advise you.

## Reference project: Wendefurther Dam

The heavyweight (needle valve) with a nominal width of two meters and a weight of 40 tons was sent by heavy goods vehicle on the two-day journey from the Harz to Heidenheim. In addition to the repair, the overall construction was also optimized by specialists from ERHARD



The needle valve DN 2000 has been revised at ERHARD in August 2009 after the valve had been working continuously since the dam was commissioned in 1967.

# A large range of product adapted to your needs of control



Needle valves are only one product variant of control valves from ERHARD Range. There are two more types for basic applications:

- Valves controlled by their own medium, which obtain their actuation energy from the flowing medium, e. g. pressure reducing, pressure retention and floating valves, the Hydrobloc PREMIUM range.
- Valves controlled by external energy, which are actuated electrically, pneumatically, hydraulically, manually or by potential energy as, apart from the needle valve, the REV control valve.

All fulfil the requirements in an optimum way:

- Control characteristics to control large flow ranges
- Removal of pressure differences without generation of cavitation damage
- Low vibrations and quiet energy conversion



## ERHARD REV control valve

The REV control valve is suitable for all throttling and regulation tasks in nominal sizes DN 50 to DN 150. The main component is the fixed slotted cylinder in which the control piston is moved and covers or releases the slot areas depending on the control position.

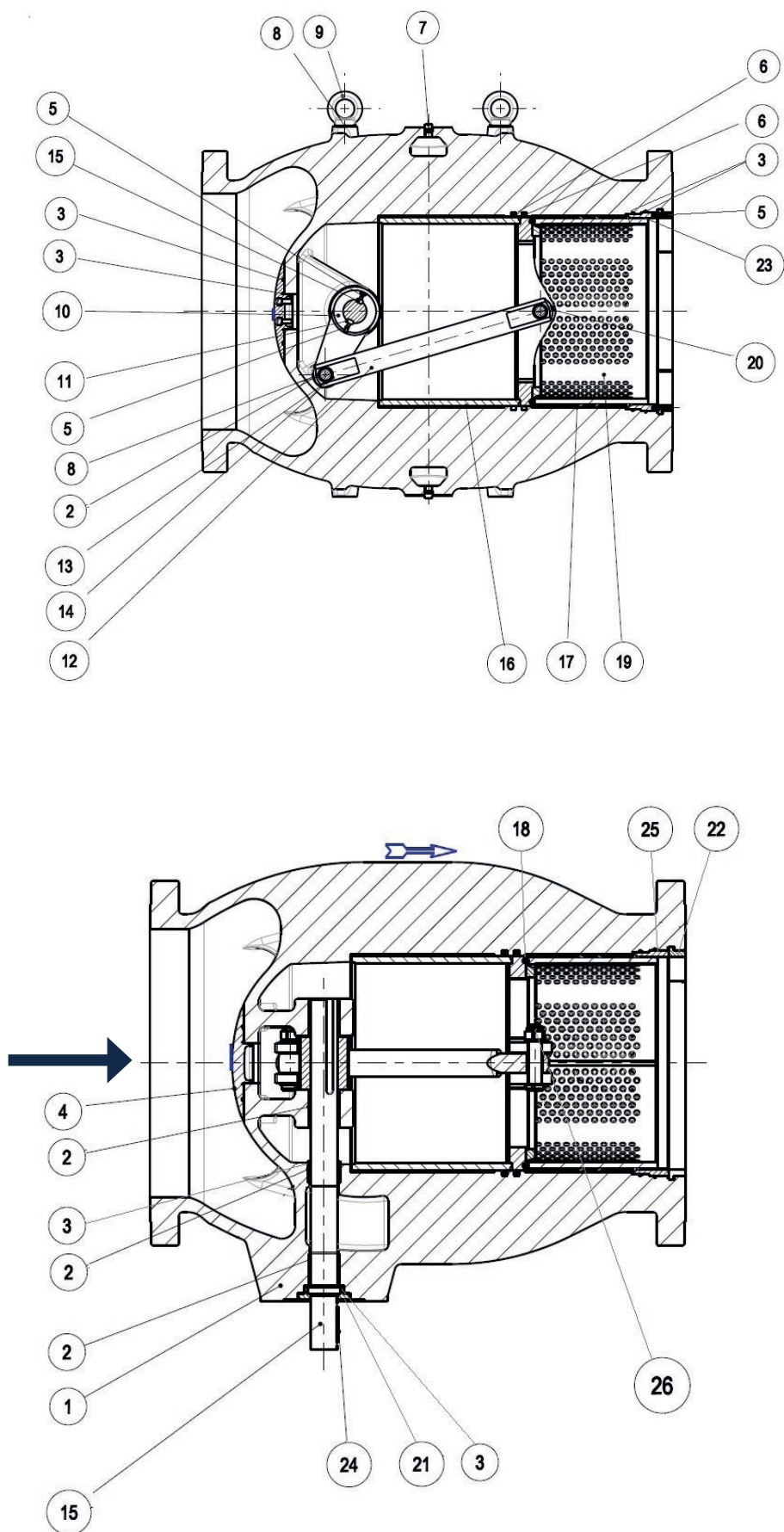
The REV control valve is used particularly where flexible control is necessary, in conjunction with electronic controllers, pressure gauges, flow meters or float switches, or simpler with a handwheel.

### ERHARD cone outlet valve

The cone outlet valve is a special variant of control valve and the ideal fitting for using under extreme conditions. Thanks to its excellent hydraulic features, the cone outlet valve can be used to control a large amount of water with the smallest possible diameter. The head loss coefficient of a cone outlet valve is even lower than a control valve for free discharge applications. The typical applications for this control valve are dam water level control, emergency and environmental applications. Diameters range up to DN2000 and more upon request.



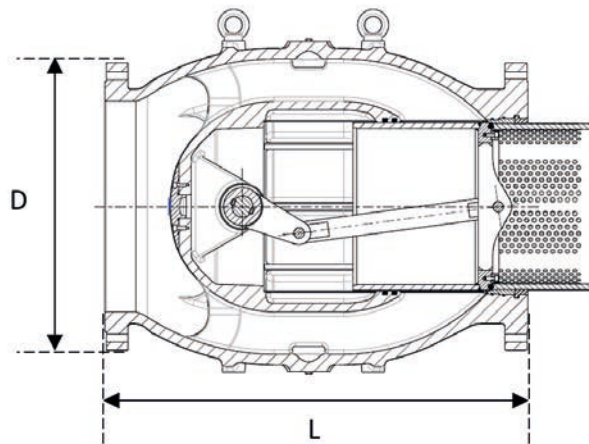
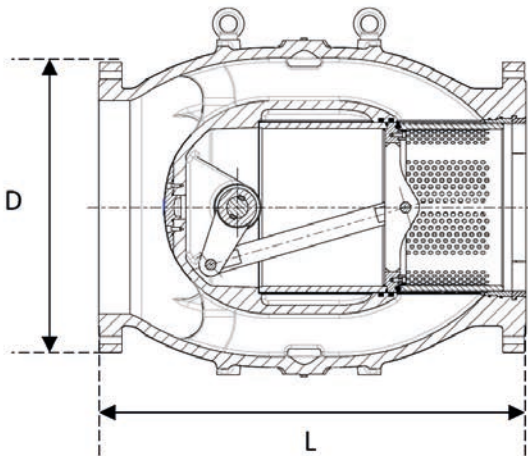
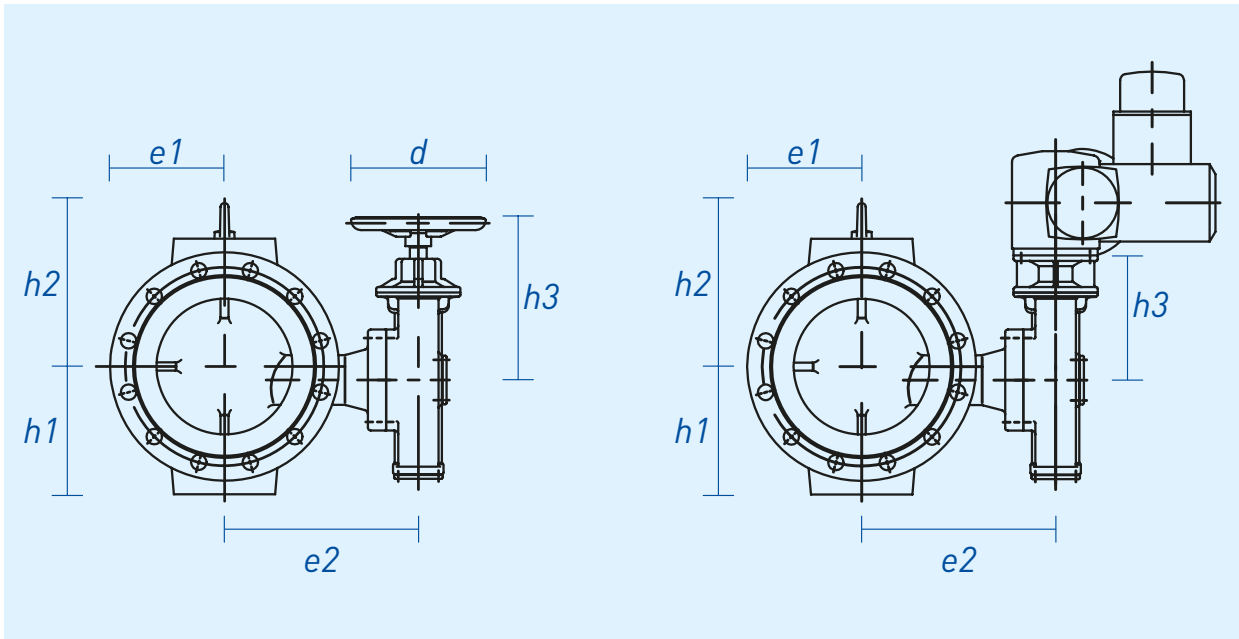
# Main components material



Pos.	Description	Material - Standard	Optional	Spare Part	Water contact
1	Body	EN-GJS-500-7			
	Coating	Epoxy coating 250µm	EPC Multilayer fusion and wet epoxy up to 500µ		x
2	Bush	CC483K			x
3	O-ring	EPDM			x
4	Cover	EN-GJS-500-7			
	Coating	Epoxy coating 250µm	EPC Multilayer fusion and wet epoxy up to 500µ		x
5	Hexagon socket head cap screw	DN 100-300 A4 DN 350-1400 A2			x
6	Sealing ring				x
7	Screw plug				x
8	Washer	1.4301			x
9	Eyebolt	1.1141			
10	Gearbox crank	DN 100-300 1.4469 DN 350-1400 A351 Gr.CF8M			
11	Parallel key	DN 100-300 1.4401 DN 350-1400 1.4301			
12	Piston rod	DN 100-300 1.4401 DN 350-1400 1.4301			
13	Bolt	DN 100-300 A4 DN 350-1400 A2			
14	Castle nut	DN 100-300 A4 DN 350-1400 A2			
15	Drive shaft	DN 100-300 1.4462 DN 350-1400 1.4057			
16	Piston welded				x
17	Guide	DN 100-150 Stainless steel DN 200-300 Bronze DN 350-2000 Brass			x
18	Profile ring	EPDM		x	x
19	Perforated cylinder				x
20	Hexagon screw	DN 100-300 A4 DN 350-1400 A2			x
21	Retaining cage	CC483K			x
22	Retaining ring	1.4301			x
23	Seat ring	1.4404			x
24	Parallel key	1.0503			
25	Bracket	1.4401			x
26	Split pin	1.0038			x

In case of specific need of material please consult us.

# Dimensions and weights



PN 10

DN	L	D	h1	h2	h3 Handwheel	h3 Electric actuator	e1	e2	Handwheel turn number (Open/closed)	Weight [kg]
200	400	340	195	248	244	165	152	288	20	120
250	450	400	234	296	314	233	188	365	25	190
300	500	455	266	322	314	233	224	402	25	260
350	700	505	280	342	360	292	280	420	43	425
400	800	565	310	372	365	297	310	460	42	570
450	900	615	340	411	404	331	335	510	36	780
500	1000	670	415	462	409	336	370	558	43	875
600	1200	780	500	548	517	416	440	645	43	1660
700	1400	895	535	644	566	465	510	720	57	2125
800	1600	1015	640	729	571	470	588	875	52	4450
900	1800	1115	700	828	531	430	655	860	58	4250
1000	2000	1230	830	937	531	430	513	996	60	7650
1200	2400	1455	950	1118	570	465	870	1110	78	8200

PN 16

DN	L	D	h1	h2	h3 Handwheel	h3 Electric actuator	e1	e2	Handwheel turn number (Open/closed)	Weight [kg]
100	325	220	142	187	222	154	99	214	15	60
125	325	250	142	187	222	154	99	214	15	60
150	350	285	158	203	222	144	116	231	15	75
200	400	340	195	248	244	165	152	288	20	120
250	450	400	234	296	314	233	188	365	25	190
300	500	455	266	322	314	233	224	402	25	260
350	700	520	280	342	360	292	280	420	43	450
400	800	580	310	372	365	297	310	460	42	595
450	900	640	340	411	404	331	335	510	36	826
500	1000	715	415	462	409	336	370	558	43	945
600	1200	840	500	548	517	416	440	645	43	1780
700	1400	910	535	644	566	465	510	720	57	2175
800	1600	1025	640	729	571	470	588	875	52	4475
900	1800	1125	700	828	531	430	655	860	58	4310
1000	2000	1255	830	937	531	430	513	996	60	7750
1200	2400	1485	950	1118	570	465	870	1110	78	8350

PN 25

DN	L	D	h1	h2	h3 Handwheel	h3 Electric actuator	e1	e2	Handwheel turn number (Open/closed)	Weight [kg]
100	325	235	142	187	222	154	99	214	15	60
125	325	270	142	187	222	154	99	214	15	60
150	350	300	158	203	222	144	116	231	15	75
200	400	360	195	248	244	165	152	288	20	120
250	450	425	234	296	314	233	188	365	25	190
300	500	485	266	322	314	233	224	402	25	260
350	700	555	280	342	360	292	280	420	43	450
400	800	620	310	372	365	297	310	460	42	595
450	900	670	340	411	404	331	335	510	36	826
500	1000	730	415	462	409	336	370	558	43	1000
600	1200	845	500	548	517	416	440	645	43	1800
700	1400	960	535	644	566	465	510	720	57	2265
800	1600	1085	640	729	571	470	588	875	52	4500
900	1800	1185	700	828	531	430	655	860	58	4500
1000	2000	1320	830	937	531	430	513	996	60	8000
1200	2400	1530	950	1118	570	465	870	1110	78	8500



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PBR\_EH7350\_NEEDLE\_VALVE\_EN rev.0  
Subject to change without notice.