Reliable Precision
ERU® Knife Gate Valve K1

ERHARD ERU® Knife Gate Valve K1:
Robust, resilient-seated knife gate valves made from cast iron for isolation and control functions. Numerous design options available.
Can be used as wafer-type or end-of-line valve.

Expertise by Erhard.

DN 50 – 600 | PN 4 – 10

The ERU® K1 – tried and tested hundreds of thousands of times.

Knife gate valves like the ERU® K1 are among the most-used valves, not only in the wastewater sector. They are also used to regulate other liquids as well as solid and gaseous media. An important advantage of the gate valve design is the fully free passage when the valve is open. The pressure losses are therefore very low. The ERU® K1 also has a free flush invert – so that solids cannot stick to it.

ERU® K1 properties

The ERU® K1 is a resilient-seated knife-gate valve with cast iron body (GG 25) and fully distinctive flange. "K1" stands for face-to-face dimension to EN 558, Basic line 20 The ERU® K1 can be used as an intermediate flange or terminal gate valve without counterflange. The maximum working pressure up to 10 bar, the seal is bi-directional, sealing from both sides. All cast iron components have an epoxy coating (EKB) more than 250 µm thick. This fulfils the requirements of the heavy-duty corrosion protection quality association (Gütegemeinschaft schwerer Korrosionsschutz - GSK). An ATEX-coated design is available for use in potentially explosive atmospheres.

Outside stem thread

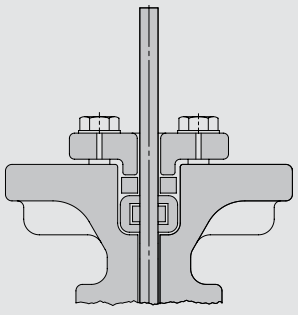
As the stem thread of the ERU® K1 is not exposed to the flowing medium, mineral deposits are avoided. The ERU® K1 is available with rising stem and stem extension for use in flooding.

Fields of application and media

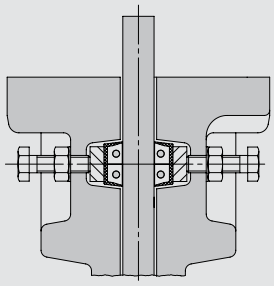
The ERU® K1 is used in all kinds of different areas for isolating and controlling fluids, solids and gaseous media.

- Sewage treatment plants: Sewage, sludge and faeces as well as air and return sludge flow control
- Biogas plants: Slurry, fermented substrates, dirt particles, fibrous fractions
- Mining, power stations, steel industry: Scale-forming water, carbon-water mixtures, coal dust
- Sugar industry: Beet washing plants, syrups, juices
- Chemical industry: viscous pastes, colloids, granulates, swelling agents, chemically contaminated sewage
- Food industry, breweries: Washing and rinsing equipment, conveying systems for grain, vegetables, mash

Versatile: The ERU® K1 is available in numerous designs.



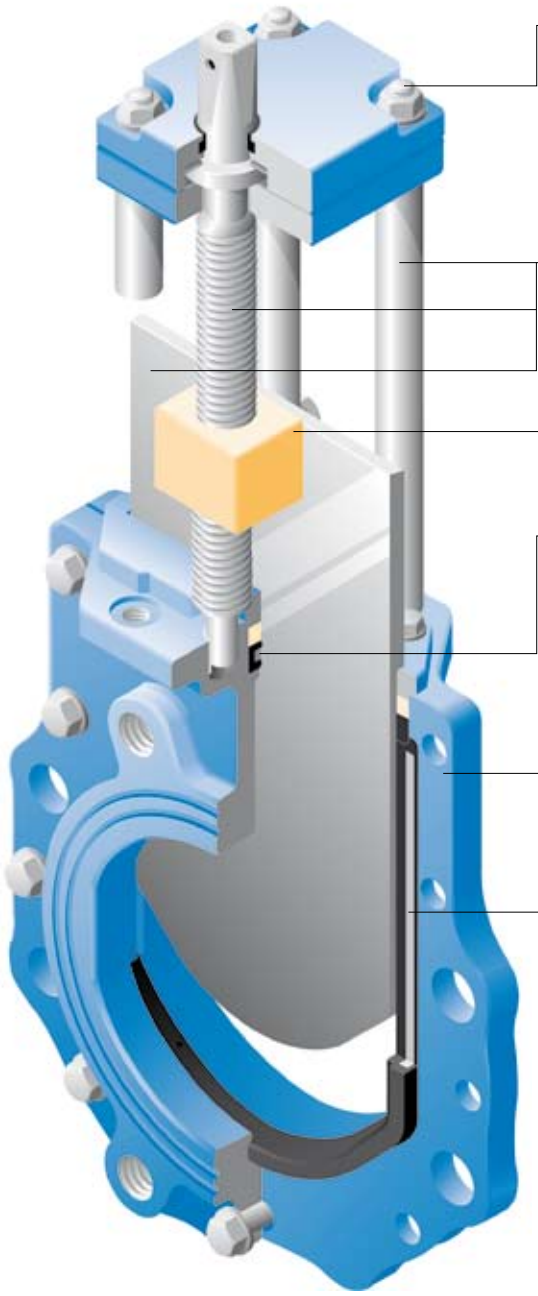
Gate seals DN 50 - 300



Gate seals DN 350 - 600

Structure and materials at a glance

- DN 50 – DN 350: PN 10
- DN 400 – DN 600: PN 4 (PN 10 on request)
- < 60°C for fluids
- < 100°C for dry gaseous media



Handwheel

Screws, nuts and washers made of stainless steel A2 (standard)

Stem, stud bolt and gate made of stainless steel

Stem nut made of brass

Transverse seal profile made of elastomer with inlaid guide strips made of PTFE sintered bronze for cleaning the gate

Body parts made of lamellar cast iron EN-JS 1040

Patented, particularly robust U-shaped sealing element made of vulcanised elastomer (NBR or EPDM) with steel core

Durable, maintenance and user-friendly

ERHARD has been producing the ERU® K1 for 20 years. More than a quarter million units have been installed to date and reliably fulfil their task. Due to its 250 µm thick epoxy resin coating, the ERU® K1 is particularly resistant to corrosion. The patented U-shaped sealing element with steel core ensures reliable sealing at up to 10 bar gauge working pressure, if necessary, it can be replaced without removing the gate valve. Thanks to the rolled threaded stem, the ERU® K1 can be actuated easily, even at maximum working pressure.

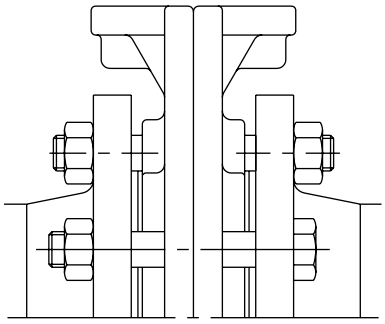
Advantages of the ERU® K1

- Can be used as an intermediate flange or terminal gate valve – robust design, use without reduction of the pressure rating
- Sealing on both sides – high functional safety in both flow directions, low torques
- 250 µm thick epoxy coating for lasting corrosion protection in accordance with the heavy-duty corrosion protection quality association (Gütegemeinschaft schwerer Korrosionsschutz - GSK)
- Low operating torques – smaller drives, especially for pneumatics
- Free flush invert – settling of particles is prevented by the design
- The transverse seal can be replaced without removing the gate valve
- Transverse seal adjustable – ideal adjustments to the operating conditions
- Easy conversion from handwheel to electric drive possible – flexibility even in case of change in use

Installation as wafer-type or end-of-line valve

Wafer-type valve

DN	DIN	Pitch circle Ø	Flange outer Ø	Threaded hole	Depth of thread	Hex screw DIN EN 24018 Qty	Hex screw DIN EN 24018 Size x Length[1]	Hex bolt DIN EN 24016 Qty	Hex bolt DIN EN 24016 Size x Length[1]	Hex nut DIN EN 24034 Qty	Hex nut DIN EN 24034 Size
50		125	165	M16	10	8	M16x30	–	–	–	–
65		145	185	M16	12	8	M16x30	–	–	–	–
80	2533	160	200	M16	13	8	M16x35	4	M16x110	4	M16
100	2533	180	220	M16	15	8	M16x35	4	M16x120	4	M16
125	2533	210	250	M16	15	8	M16x40	4	M16x130	4	M16
150	2533	240	285	M20	15	8	M20x40	4	M16x130	4	M20
200	2532	295	340	M20	16	8	M20x40	4	M20x140	4	M20
250	2532	350	395	M20	17	16	M20x45	4	M20x150	4	M20
300	2532	400	445	M20	20	16	M20x45	4	M20x160	4	M20
350	2532	460	505	M20	30	20	M20x45	6	M20x160	6	M20
400	2532	515	565	M24	32	20	M24x55	6	M24x200	6	M24
500	2532	620	670	M24	38	28	M24x65	6	M24x220	6	M24
600	2532	725	780	M27	55	28	M27x80	6	M27x250	6	M27



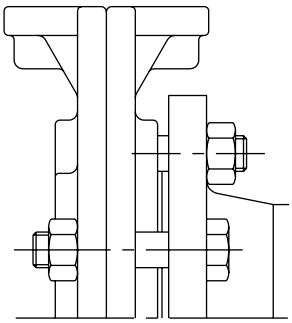
If used as a wafer-type valve, the ERU® K1 is installed between two flanges of the pipe and is fixed by screws from flange to flange and screws in the blind holes of the body.

To prevent strain in the gate, ensure that the counterflanges are plane-parallel and concentric with each other and all screws and/or bolts are uniformly tightened. The pipe must never be pulled towards the gate. Should the spacing for the gate be too large, the difference must be compensated for using suitable flange seals.

End-of-line valve – use at full operating pressure

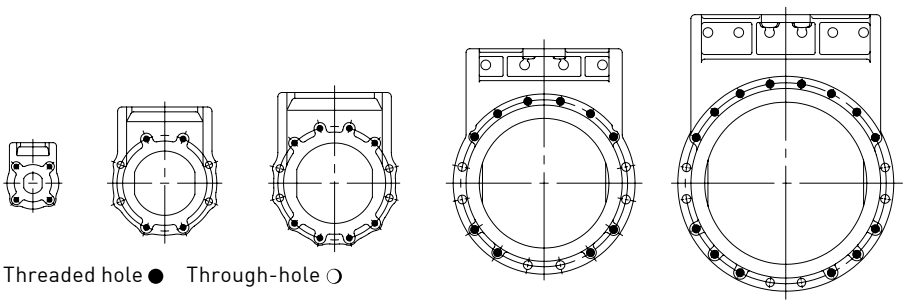
50		125	165	M16	10	4	M16x30	–	–	–	–
65		145	185	M16	12	4	M16x30	–	–	–	–
80	2533	160	200	M16	13	4	M16x35	4	M16x80	4	M16
100	2533	180	220	M16	15	4	M16x35	4	M16x85	4	M16
125	2533	210	250	M16	15	4	M16x40	4	M16x90	4	M16
150	2533	240	285	M20	15	4	M20x40	4	M16x95	4	M20
200	2532	295	340	M20	16	4	M20x40	4	M20x100	4	M20
250	2532	350	395	M20	17	8	M20x45	4	M20x110	4	M20
300	2532	400	445	M20	20	8	M20x45	4	M20x120	4	M20
350	2532	460	505	M20	30	10	M20x45	6	M20x120	4	M20[2]
400	2532	515	565	M24	32	10	M24x55	–	–	–	–
500	2532	620	670	M24	38	14	M24x55	–	–	–	–
600	2532	725	780	M27	55	14	M27x80	–	–	–	–

[1] *Screw lengths apply to welding neck flanges to DIN 2632, PN 10 and flat seals DIN 2690, 3 mm thick.*
[2] *DN 350 only suitable as end-of-line gate valve up to < 6 bar working pressure without counterflange.*
> 6 bar working pressure with counterflange ring.



Types

DN 50 – 65 DN 80 – 150 DN 200 – 300 DN 350 – 400 DN 500 – 600



Threaded hole ● Through-hole ❍

Installation note:
In media with coarse solid fractions (e.g. large sand fraction) the gate valve should be installed with the stem as upright as possible in horizontal pipes. The gate valve should be positioned with stem tilted by max. approx. 30° from the vertical.

Minimum 250 µm for heavy-duty corrosion protection

Brief specifications
Materials and finishes

- **Corrosion protection of the body parts:** EKB epoxy coating, colour "blue"
- **Body parts:** lamellar cast iron EN-JL1040
- **Gate:** stainless steel 1.4301
- **Profile seal elastically prestressed/adjustable:** Elastomer/PTFE
- **U-shaped sealing element:** steel reinforced elastomer
- **Stem:** stainless steel 1.4021.05
- **Stem nut:** brass
- **Connectors:** stainless steel A2, DIN-ISO 3506

Alternative materials and designs are available on request.
Special colours are offered on request.

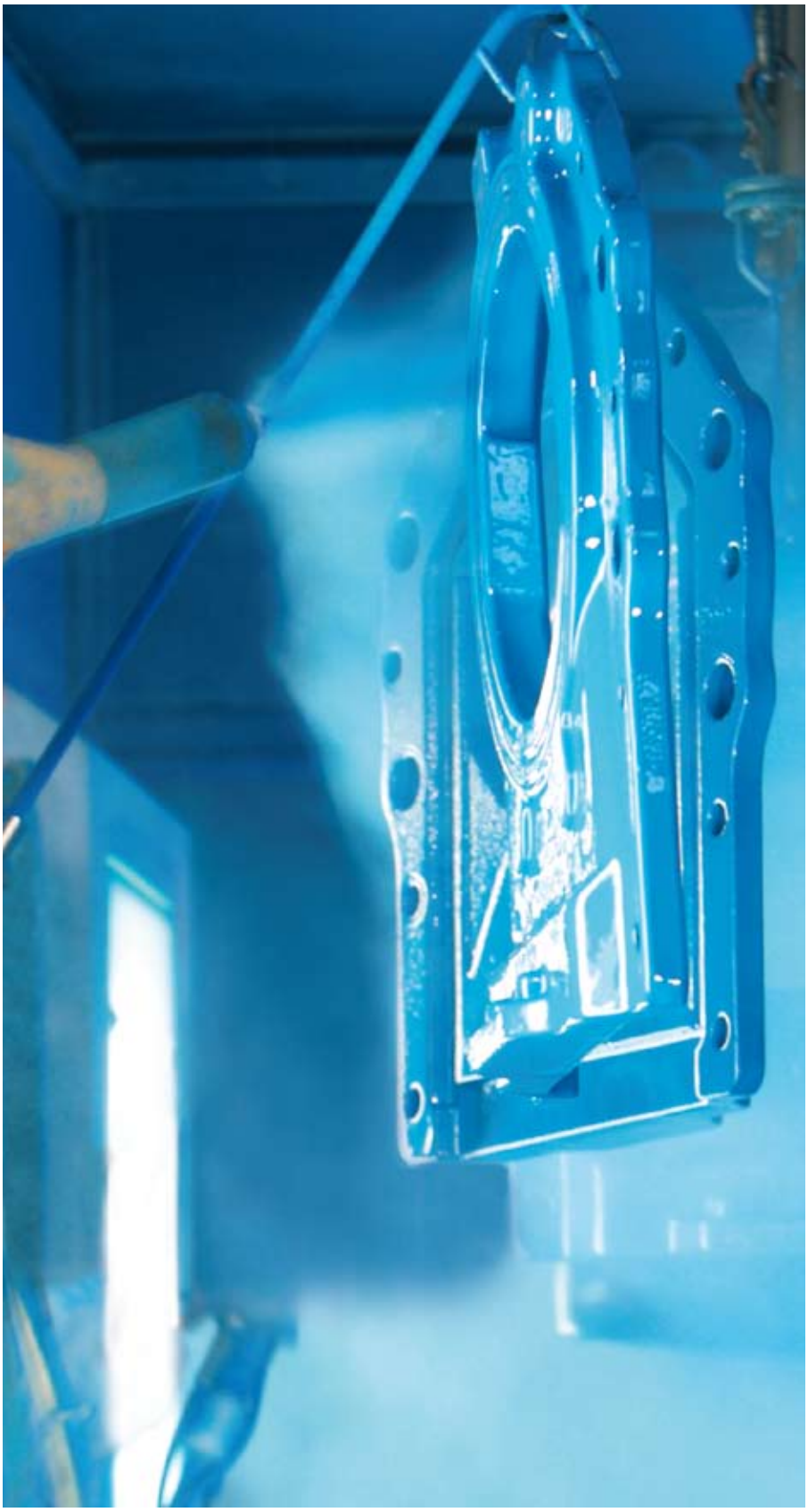
Heavy-duty corrosion protection

All cast iron parts of the ERU® K1 have an epoxy coating at least 250 µm thick. This ensures heavy-duty corrosion protection in accordance with RAL-GZ 662 (GSK).

RAL GÜTEZEICHEN
SCHMELZER KORROSIONSSCHUTZ VON ARMATUREN UND FORMSTÜCKEN

Explosion protection in accordance with ATEX

Optionally, an additional special conductive coating is available. The valve then fulfils the requirements of the ATEX Directives.



ERU® K1 design versions

ERU® K1 with handwheel

ERU® K1 with pneumatic drive

ERU® K1 with electric drive

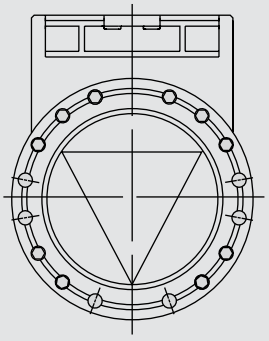
ERU® K1 with hand lever

The modular system of the ERU® K1 knife gate valve enable further design options:

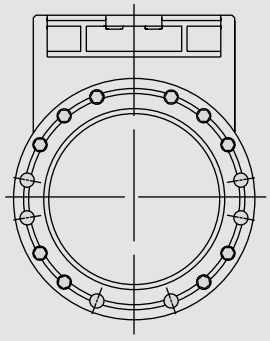
- With built-on electric limit switches for displaying the end positions
- With triangular or pentagonal control orifice for control purposes
- With pneumatic drive and built-on control valve
- With pneumatic drive and built-on positioner
- With extensions:
  - Non-rising stem extension
  - Tie rod and slide rod drive for submersible design
- With attachments:
  - Bearing bracket
  - Wall bracket
  - Headstocks
  - Protruding headstocks
  - Mounting column

The ERU® K1 can be converted to all drive options without dismantling from the pipe.

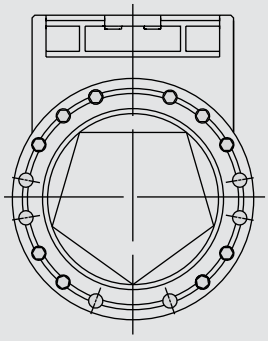
For accident prevention to EN 292 and EN 294, guards can be mounted on request for the stroke area of the gate to prevent accidental contact.



Triangular control orifice



Normal design



Pentagonal control orifice

Control of the flow rate

Control orifices are used to control the liquid or gaseous medium flowing through. In most cases, a triangular control orifice is used. They enable more precise metering compared to a pentagonal control orifice or a shut-off gauge. If a smaller flow rate has to be set, the pentagonal control orifice or normal design is the right solution.

The ERU® K1 ideal for biogas plants

Biogas plants set high valve engineering requirements

Sustainable, environmentally compatible energy generation is the topic of our age. Biogas plants are pioneering in this respect, because they operate efficiently and use renewable raw materials for a neutral CO_2 balance. The ERU® K1 is ideally suited to isolating or controlling fermenting substrates or other material flows.

Insensitive to aggressive media

Aggressive gases such as ammonia and hydrogen sulphide, which are produced during the fermentation processes in biogas plants increase the risk of corrosion. By using corrosion-resistant stainless steel and a powder coating for heavy-duty corrosion protection in accordance with GSK, the ERU® K1 is designed for these extreme conditions.

Preventing deposits

As the fermentation substrates contain solids and fibrous constituents, there is an increased risk of deposits in biogas plants. This could have a negative effect on the sealing or, in the worst case, cause blockages. The solution: The ERU® K1 has an absolutely free flush invert and therefore does not provide any surface for deposits to settle. The guides of the gate are shaped in such a way that any deposits are flushed out by the high flow velocity during opening and closing.

Pneumatic drives for automated control

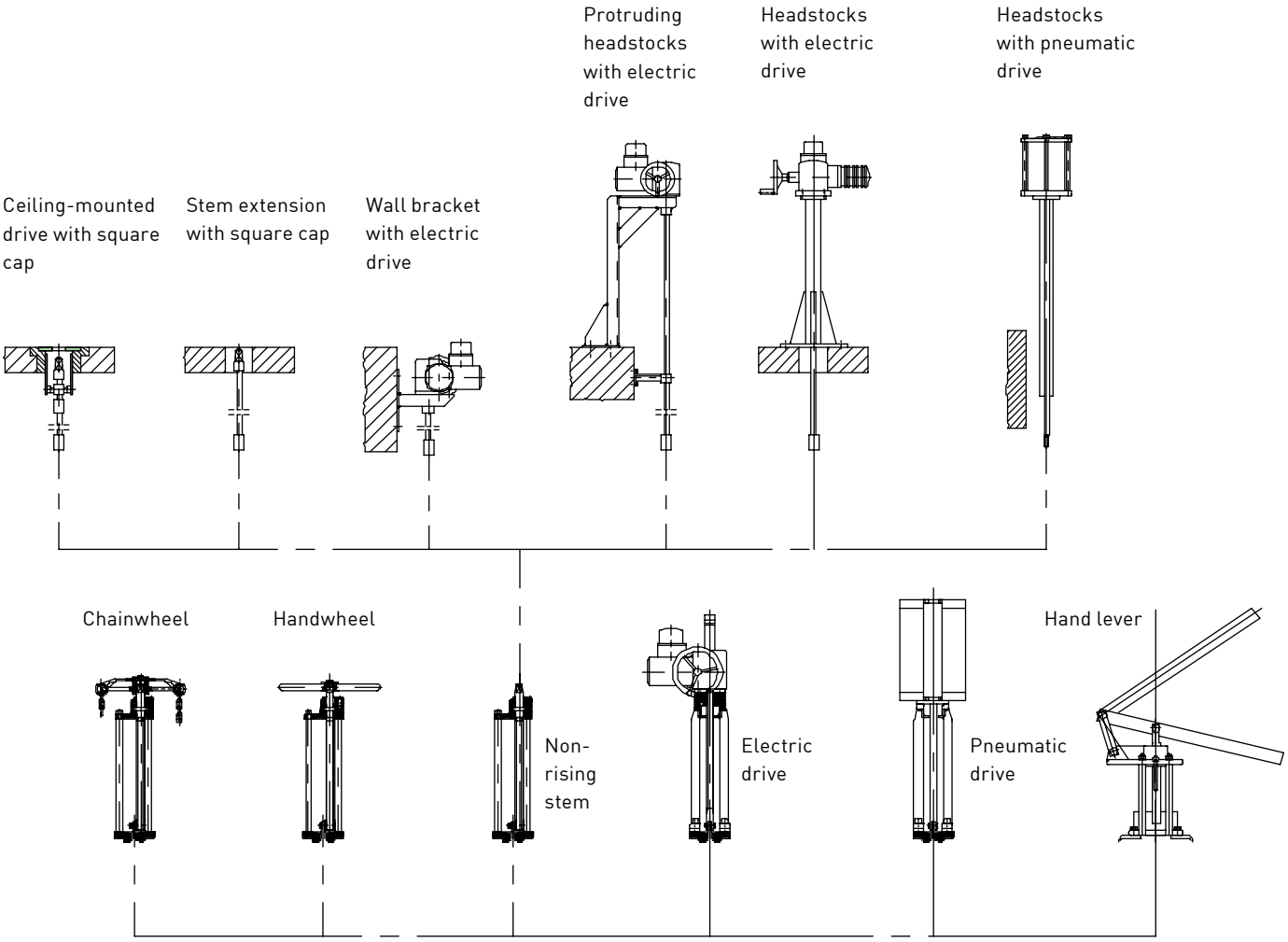
The ERU® K1 is available as an option with pneumatic drive and built-in control valve (see page on left). This enables automated, pneumatic process control to be implemented in the biogas plant.

Safe, reliable sealing

The U-shaped sealing element with steel core in the ERU® K1 enables safe, reliable sealing in both flow directions up to 10 bar working pressure.

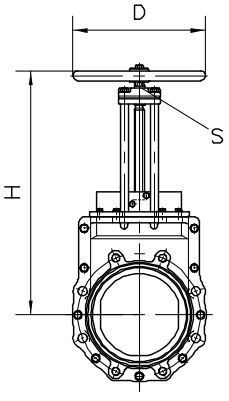
Automated control with pneumatic valves type ERU® K1

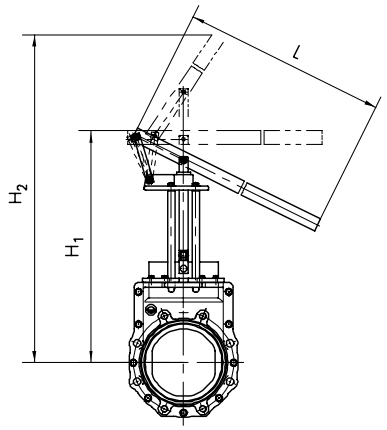
ERU® K1 system



Design with non-rising stem and handwheel

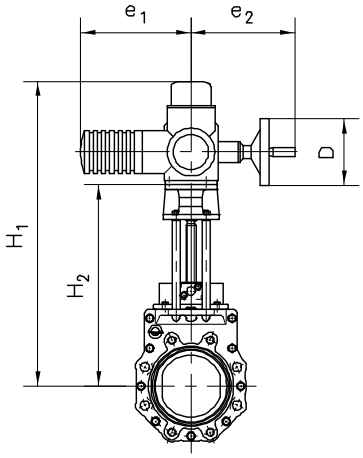
Size	Face-to-face dimension	Height	Handwheel	Rev. per stroke	Square	Weight
DN	**L**	**H**	**D**		**S**	
	mm	mm	mm		mm	approx. kg
50	43	323	200	12	14	10
65	46	348	200	16	14	11
80	46	378	200	20	14	13
100	52	416	225	25	17	17
125	56	456	225	31	17	20
150	56	509	250	30	19	26
200	60	600	320	40	19	39
250	68	713	320	50	19	64
300	78	832	400	60	24	93
350	78	935	400	70	24	135
400	102	1016	400	80	24	165
500	127	1265	500	84	27	255
600	154	1442	500	100	27	370





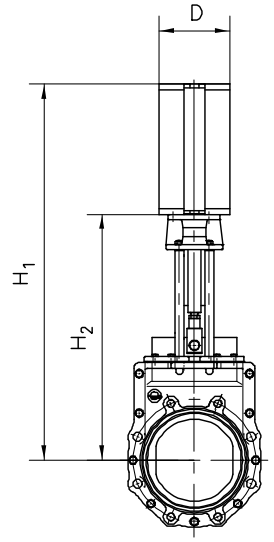
Design with hand lever, working pressure 2 bar

Size	Face-to-face dimension	Height closed	Height open			Weight
DN	**L**	**H_1**	**H_2**	**L_1**	**L_2**	
	mm	mm	mm	mm	mm	approx. kg
50	43	336	568	520	80	10
65	46	370	667	590	90	11
80	46	408	741	650	100	13
100	52	458	889	850	130	17
125	56	510	1025	910	140	21
150	56	564	1204	980	150	29
200	60	690	1754	1137	153	41



Size	Face-to-face dimension	Height				Hand wheel Ø	Rev. per stroke	Drive type	Closing time in sec. for drive speed 1/min				Weight
DN	**L**	**H_1**	**H_2**	**e_1**	**e_2**	**DN**							approx.
	mm	mm	mm	mm	mm	mm			22	32	45	63	kg
50	43	599	311	62	237	140	12	SA07.1	34	23	17	12	32
65	46	624	336	62	237	140	16	SA07.1	44	30	22	16	33
80	46	654	366	62	237	140	20	SA07.1	55	38	27	19	35
100	52	687	399	62	237	140	25	SA07.1	68	47	33	24	39
125	56	727	439	62	237	140	31	SA07.1	85	59	42	30	42
150	56	779	491	68	237	160	30	SA07.5	82	56	40	29	48
200	60	879	591	68	237	160	40	SA07.5	109	75	53	38	61
250	68	1089	712	80	237	160	50	SA07.5	136	94	67	48	88
300	78	1198	821	80	237	160	60	SA07.5	164	113	80	57	112
350	78	1305	808	65	247	200	58	SA10.1	158	108	87	55	160
400	102	1405	908	65	247	200	80	SA10.1	218	150	107	76	207
500	127	1715	1118	65	247	200	83	SA10.1	227	156	111	80	285
600	154	2075	1322	90	285	315	100	SA14.1	273	188	133	95	459

Electric drives can also be installed rotated through 90°.



Design with Festo-Copac pneumatic drive

Size	Face-to-face dimension	Height	Cylinder	Control. connect	Cylinder capacity at 6 bar	Cylinder cover	Weight
DN	**L**	**H**	**D**	**d1**	**Nl**	**E**	
	mm	mm	mm	DIN ISO228		mm	approx. kg
50	43	461	80	G 1/4	1.8	108	13
65	46	501	80	G 1/4	2.3	108	14
80	46	550	100	G 1/4	4.4	131	18
100	52	603	100	G 1/4	5.5	131	21
100	52	613	125	G 1/4	8.6	163	22
125	56	668	100	G 1/4	6.9	131	24
125	56	678	125	G 1/4	10.8	163	25
150	56	755	125	G 1/4	12.9	163	31
150	56	755	160	G 1/4	21.2	199	34
200	60	905	160	G 1/4	28.2	199	59
200	60	945	250	G 1/4	68.8	308	61
250	68	1076	160	G 1/4	35.3	199	82
250	68	1116	250	G 1/4	86	308	84
300	78	1235	160	G 1/4	42.3	199	114
300	78	1275	250	G 1/4	103.2	308	116
350	78	1312	250	G 1/4	120.4	308	162
400	102	1462	250	G 1/4	137,6	308	207
500	127	1772	250	G 1/4	172	308	275
600	154	2083	320	G 1/4	337.8	378	470

Always at your side – ERHARD Service

Merely delivering a product is not enough, especially where complex technical installations are involved. So we at ERHARD are on hand to help you with advice and support in all life-cycle phases. Highly qualified teams at our head office in Heidenheim and representatives throughout the whole of Germany and in more than 50 countries on five continents work together with you to draw up first-class solutions.

Planning and design

Individual advice from our experienced engineers and technicians begins during the project phase. This way, through dialogue with the customer, optimum solutions are produced, regardless of whether they use series products or require special tailor-made designs.

These "tailor-made" packages in particular are the reason why ERHARD products are frequently used for difficult applications and installation situations.

Our own test centre is also available for material tests, project-specific investigations as well as for testing and analysing materials and components.

Installation and commissioning

If necessary, ERHARD employees install the valves in your plant and systems and, together with your employees, put them into service. This naturally also includes training and instructing skilled personnel using detailed operating instructions and training documents.

Maintenance and repair

ERHARD is available with services to assist you during the long service life of the valve too.
Regular inspections and maintenance ensures that the valves reliably function at all times. If problems should occur, repairs can be carried out quickly on site. Spare parts required for this are quickly available, even years after commissioning. In addition, our technicians in the Heidenheim factory are available for major repair work. We also provide these services for other manufacturers' brands.

ERHARD –
Expertise through tradition

It was 1871 when the brass caster Johannes Erhard started his business in the small Swabian town of Heidenheim an der Brenz.

Since then, with our valves, we at ERHARD have been helping to ensure that water is available wherever it is needed: in private households, in public facilities, in agriculture or in industrial plant.

Proverbial Swabian inventiveness, the most recent technical findings and experience acquired over 135 years ensure that, with innovative solutions and our wide range of products, we can provide suitable systems for every task. Modern machinery, state of the art and environmentally friendly production methods as well as high-quality materials enable ERHARD to supply technically advanced, fully developed products with worldwide reputation:

- Gate valves (Multamed 2, ERU® K1, ECO)
- Butterfly valves
- Hydrants
- Service clamps
- Needle valves and fixed cone discharge valves
- Pressure and flow control valves
- Air valves
- Ball valves
- Non-return valves
- Diaphragm valves
- Flow indicators
- Penstocks (WAGU)

ERHARD ECO Knife Gate Valves

ERHARD Multamed gate valve 2 Plus

ERHARD hydrants

ERHARD needle valves also for ventilation control

ERHARD diaphragm valve

ERHARD ball valve

ERHARD BEV air valve for wastewater and sewage

ERHARD SWING check valve

ERHARD check valve

ERHARD WAGU CL

ERHARD WAGU PRO

ERHARD WAGU GK

ERHARD –
Water is our passion.

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