



## Design and applications

Wherever a robust and reliable unit for the indication of momentary values and the monitoring of flows in pipelines is required in plant engineering, the valve-type flowmeter is the right choice as a reliable device for the measurement of fluids.

Both meters from the KLA product range are based on the same principle. Inside the meter a valve moves up and down in analogy to the amount of fluid flowing through.

In the KLA Standard version, a magnet directly transfers the flap movement to an externally mounted pointer, that indicates the flow quantity on a resopal disk.

In the KLA GS version, the quantity is directly indicated by the flap. The flap-type flowmeter is equipped with hard glass screens at front and back. The flow rate is taken from a scale engraved to the front hard glass screen.

Beside this indication of the flow rate, the low-cost variant of the meter also provides a direct visual display.

For photo-technical reasons, the scale on the glass screen is in this case printed in black. However, the inscription is actually in white.

For process control, the measuring unit can be equipped with limit value switches and an electrical output.



- robust unit for vertical and horizontal installation
- suitable for measuring flows of H<sub>2</sub>O, with NBR-lining for acids and alkaline solutions
- wide measuring range per nominal width
- low pressure loss
- designed for easy maintenance
- optional limit value switch and output 0/4-20 mA
- almost viscosity independent
- large choice of material
- CE 0085BN0050



**Kirchner und Tochter**

A. Kirchner & Tochter GmbH Dieselstraße 17 · D-47228 Duisburg  
Phone: +49 2065 9609-0 · Fax: +49 2065 9609-22 Internet: [www.kt-web.de](http://www.kt-web.de) · e-mail: [info@kt-web.de](mailto:info@kt-web.de)

# Flap-type flowmeter



# KLA

## Technical data

Connection	acc. to DIN 2501 optional: ASA 150 lbs
Pressure ranges	PN 10 (Standard) in special design PN 6 cast steel PN 25
Connection sizes	DN 15 – 200 / 1/2" – 8"
Installation length	see table
Corrosion protection	Epoxy resin, traffic blue, RAL 5017, baked
Rubber lining	NR-isoprene quality
Temperature resistance <sup>1)</sup>	Standard max. 100 °C with rubber lining max. 90 °C special design up to 250 °C
Measuring range	normally 1:10
Uncertainty of measurement	5% FS
Degree of protection	following IP 54, switch IP 53

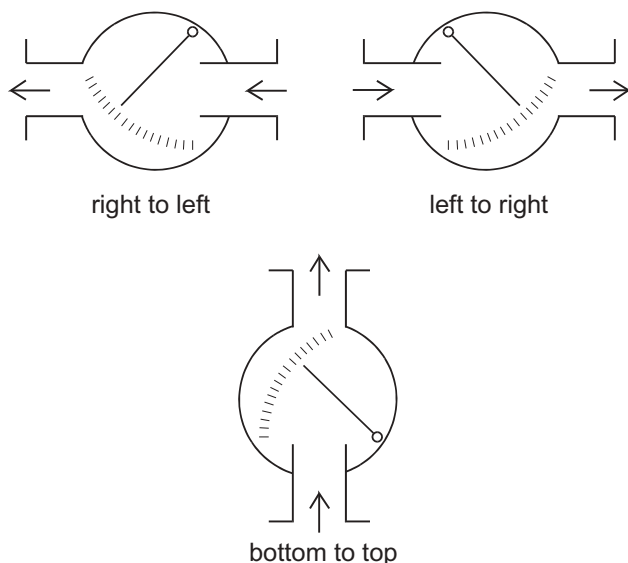
<sup>1)</sup> The medium to be measured must not freeze.

## Installation

At installation, the connecting flanges of the KLA must be fitted with appropriate gaskets. These gaskets are not included in the scope of delivery.

Flaps and valves may be installed before and after the meter at a distance of at least 2 times the diameter.

Flow directions:



## Options

### Limit value switch

	Inductive limit value switch	
Designation	SJ 3,5 N	SJ 3,5 E2
Properties	adjustable, bistabile	adjustable, bistabile
Switching function	Break or make cont.	Break or make cont.
Switching voltage(max.)	8 V DC	10 – 30 V DC
Temperature resistance	-25 °C to 100 °C	-25 °C to 100 °C
max. no. of contacts	4	4
Ex-protection	with KFAEx1	

### Analogue output

For the realization of a remote indication or for process control purposes, each flap-type flowmeter can be equipped with a torsion angle measuring transducer for an electrical output of 0/4-20 mA.

If the signals are to be processed, the following linearizing possibilities are available:

- The output signal is linearized by the programming of checkpoints in the PLC.
- The non-linear output signal is transmitted to a digital remote control with linearizer function.

Technical data of torsion angle measuring transducer		
Type	F 25 RM (up to DN 65)	F 25 ZM
Supply	24 VDC, max. 36 mA	24 VDC, max. 36 mA
Output	0/4–20 mA, 3-wire optionally 2-wire to max. 750 Ω	0/4–20 mA, 3-wire optionally 2-wire to max. 750 Ω
Temperature resistance	Standard: -25 to +80 °C Special design to +130 °C	Standard: -25 to +80 °C Special design to +130 °C



### Measuring ranges

DN	Measuring range m <sup>3</sup> /h H <sub>2</sub> O horizontal flow	Measuring range m <sup>3</sup> /h H <sub>2</sub> O vertical flow	max. operating pressure standard version in bar	max. operating pressure unit with display on glass in bar
15	0.5 – 2 0.6 – 6	0.3 – 2 0.6 – 6	10	10
20	0.2 – 1.5 0.6 – 6	0.3 – 2 0.6 – 6	10	10
25	0.2 – 1.5 0.6 – 6	0.3 – 2 0.6 – 6	10	10
32	0.5 – 5 3 – 30	0.5 – 5 2.5 – 25	10	9
40	0.5 – 5 3 – 30	0.5 – 5 2.5 – 25	10	9
50	0.5 – 5 3 – 30	0.5 – 5 2.5 – 25	10	9
65	1.2 – 12 5 – 50	1.5 – 15 4 – 40	10	10
80	1 – 10 7 – 70	1 – 10 5 – 50	10	10
100	1.5 – 15 12 – 120	1.5 – 15 10 – 100	10	10
125	2 – 20 14 – 140	2 – 20 12 – 120	10	7
150	3.5 – 35 20 – 200	3. – 35 14 – 140	10	6.5
200	8 – 80 25 – 250 <sup>1)</sup>	15 – 150 22 – 220	10	---

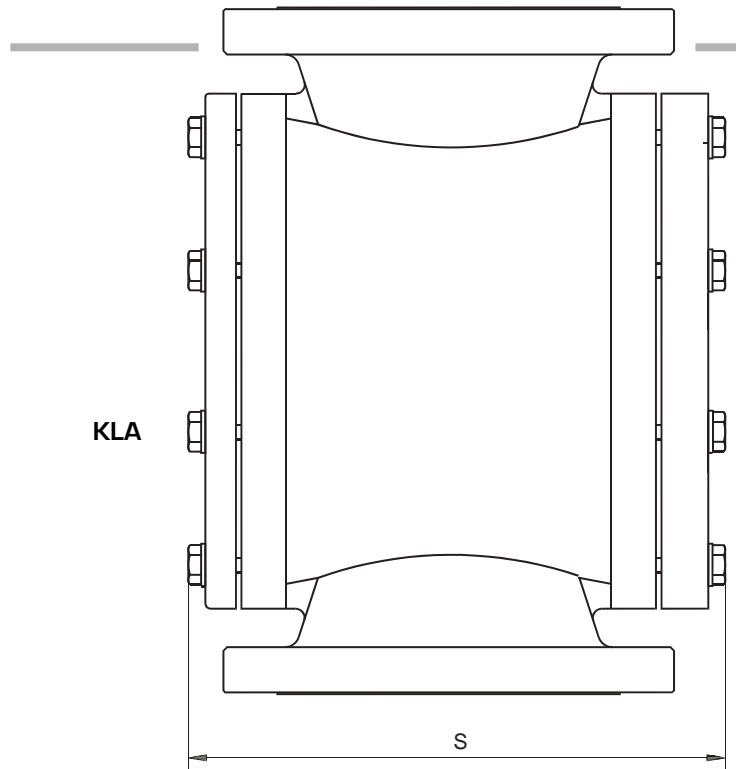
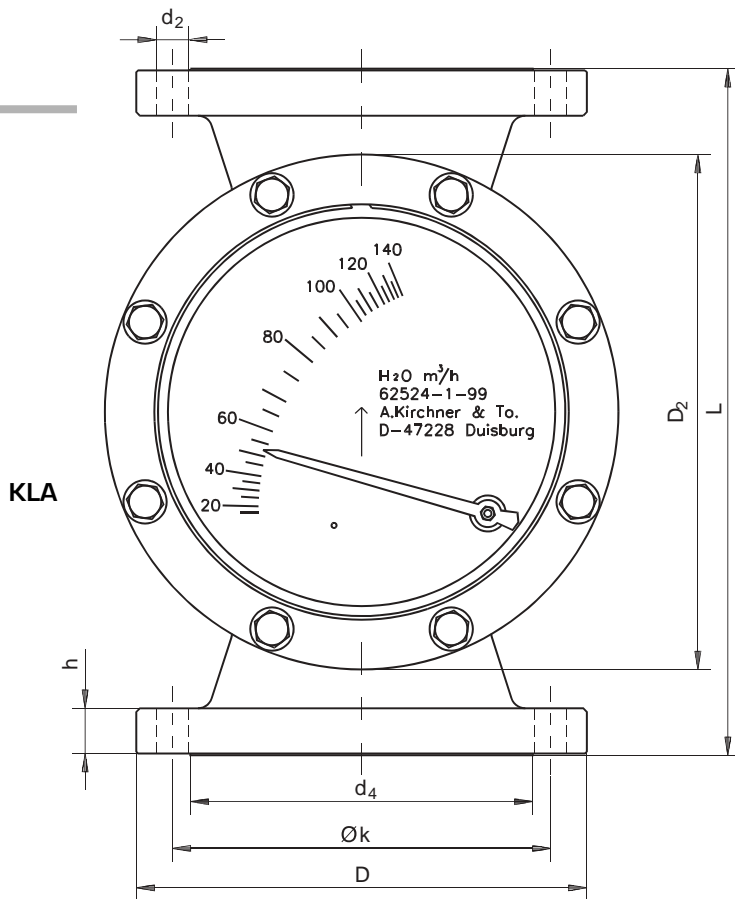
The table shows the minimum and maximum measuring range, all intermediate measuring ranges on request.  
Pressure loss 20 - 30 mbar, depending on quantity.

<sup>1)</sup> Special design: 30-300 m<sup>3</sup>/h

### Material combinations: Fitting and measuring parts

Type/fitting	Valve	Bearing	Disc	Blind flange	Seal	DN
<b>KLA Standard</b>						
Cast iron	1.4571	1.4571	1.4301	Cast iron/steel	NBR	15 – 150
Cast iron	Rg 5	1.4571	1.4301	Cast iron/steel	NBR	32 – 150
Welded steel	Rg 5	1.4571	1.4301	Steel	NBR	200
<b>KLA GS</b>				<b>Ring</b>		
Cast iron	1.4571	1.4571	Glass	Steel	NBR	15 – 25
Cast iron	Rg 5	1.4571	Glass	Steel	NBR	32 – 150
<b>KLA rubber lined design</b>				<b>Blind flange</b>		
Cast iron, rubber lined	1.4571	1.4571	1.4571	Cast iron/steel rubber lined	SiI-C8200	32 – 150
Cast iron, rubber lined	Hastelloy C4	Hastelloy C4	VA-Teflon	Cast iron/steel rubber lined	SiI-C8200	32 – 150
Cast iron, rubber lined	Teflon	Hastelloy C4	VA-Teflon	Cast iron/steel rubber lined	SiI-C8200	80 – 150
Cast iron, rubber lined	Teflon	Teflon	VA-Teflon	Cast iron/steel rubber lined	SiI-C8200	80 – 150

Other seals, rubber linings (e.g. drinking water approval) or cast qualities, such as cast steel, nodular cast iron, cast bronze, cast VA and Hastelloy as well as RG-5 and gunmetal on request.



## Dimensions and weights

DN	Dimensions				L	D <sub>2</sub>	d <sub>2</sub> in mm	Number of screws	Standard/GS S <sup>1)</sup>	Weight kg
	D	Ø k	d <sub>4</sub>	H						
15	95	65	45	16	170	119	M12	4	145/132	8
20	105	75	58	16	170	119	M12	4	145/132	8,5
25	115	85	68	16	170	119	Ø 14	4	145/132	8,5
32	140	100	78	21	240	165	Ø 18	4	176/186	16
40	150	110	88	21	240	165	Ø 18	4	176/186	16
50	165	125	102	21	240	165	Ø 18	4	176/186	17
65	185	145	122	21	280	185	Ø 18	4	201/217	22
80	200	160	138	22	320	225	Ø 18	8	214/227	34
100	220	180	158	24	350	245	Ø 18	8	267/278	43
125	250	210	188	24	380	285	Ø 18	8	299/310	58
150	285	240	212	24	380	295	Ø 22	8	299/310	64
200	340	295	268	27	550	370	Ø 22	12	386/ ---	104

All dimensions in mm

<sup>1)</sup> On meters with torsion angle measuring transducer S for DN 40 - 65 increases by 56 mm, from DN 80 by 36 mm.