

Flow - piston valve design



Characteristics

System	Flow - piston valve design
Evaluation	Display Switching
Nominal widths	DN 8..200
Range	1..1250 l/min
Media	Water Oils Gases Aggressive media
Pressure	Max. 100 bar
Temperature	-20..+350 °C
Approvals	ATEX, GL, TÜV

Applications

- Industrial metering and monitoring technology
- Cooling systems
- Lubrication circuits
-  applications
-  applications
-

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Product Information

Sensors and Instrumentation

Function and benefits

A piston rests in the valve seat of a housing and is moved vertically through the flowing medium, whereby the travel of the piston is proportional to the flow value.

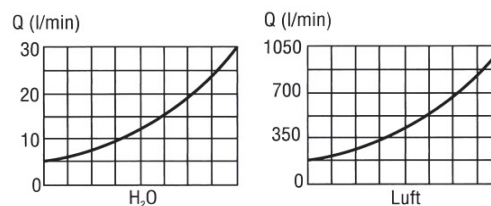
Since the piston works against the force of a support spring, the device can be installed independently of the position and have a secure reset function if the volume flow is lagging.

The devices are designed by standard for liquid media and the functional data is specified for water.

Some devices can also be used for viscous and gaseous media.

For the viscosities it must be observed that the measurements decrease as the viscosity increases according to the tendency of the table below.

The functional ratio for air and gases in relation to water is approx 1:35, which means 1 l/min water corresponds to approximately 35 Sl/min air at 20 °C. Feel free to contact us for advice for this application.



	Water	Viscosity mm²/s				
		30	60	115	220	
MP	4	4.0	4.0	3.0	2.0	l/min
	8	8.0	7.0	6.0	4.0	
	10	10.0	9.0	8.5	8.0	
	20	19.0	18.0	17.5	17.0	
VD	4	2.0	0.8	0.6	0.3	
	8	6.0	4.0	3.0	1.5	
	10	9.0	8.0	6.0	3.0	
	20	18.0	17.0	14.0	10.0	
VM	4	4.0	4.0	3.0	2.5	
	8	8.0	8.0	7.5	6.0	
	10	10.0	9.0	7.0	6.0	
	20	19.0	18.0	17.0	14.0	
TZ1	4	4.0	4.0	3.5	3.0	
	8	8.0	7.5	7.0	6.0	
	10	10.0	9.5	9.0	8.0	
	20	20.0	19.0	18.5	18.0	

Device overview

Device		Switch	Connection	Materials	Range l/min	Pressure resistance in bar	Medium temperature	Displays	Switching	Page
MP		-	Female thread G 1/4..G 3	Red bronze	1.5..600	PN 16..200	-20..+100 °C	analog	-	5
FF		Reed switch	Female thread G 1/4..G 1 1/2	Red bronze	0.4..90 adjusted	PN 16..200	-20..+110 °C	-	normally open / nor- mally closed 230 VAC, 1A, 50 VA	7
FM		Micro switch	Female thread G 1/4..G 1 1/2	Red bronze	0.4..12 adjusted	PN 200	-20..+90 °C	-	Changeover 250 VAC, 6 A	9
G		Reed switch	Female thread G 1/4..G 1 1/2	Red bronze	0.015..0.4 adjusted	PN 16	-20..+80 °C	-	normally closed 250 VAC, 1A, 50 VA	11
VD		Reed switch	Female thread G 1/4..G 3	Red bronze	1..600	PN 16..25	-20..+120 °C	-	Changeover 250 VAC, 1.5 A, 50 VA	13
		Reed switch	Female thread G 1/2..G 2	Stainless steel	1..200	PN 100	-20..+120 °C	-	Changeover 250 VAC, 1.5 A, 50 VA	15
		Reed switch	flange	Red bronze	1..200	PN 16	-20..+120 °C	-	Changeover 250 VAC 1.5 A, 50 VA	17
		Reed switch	flange	Stainless steel	2..950	PN 40	-20..+120 °C	-	Changeover 250 VAC 1.5 A, 50 VA	19
		Reed switch	flange	Grey bronze	2..1600	PN 16	Max. 120 °C	-	Changeover 250 VAC 1.5 A, 50 VA	21
		Reed switch	flange	steel	2..1600	PN 40	-20..+120 °C	-	Changeover 250 VAC 1.5 A, 50 VA	24
A-V1		ATEX switching head I M1 Ex ia I / II 1G Ex ia IIC T4 / II 1D Ex iaD 20 T135					-20..+120 °C	-	Changeover 15..36 V, 1.5 A, 50 W	26
VM		Micro switch	Female thread G 1/4..G 3	Red bronze	1..600	PN 16..100	-20..+90 °C	-	Changeover 250 V AC, 5 A	27
		Micro switch	Female thread G 1/2..G 1	Stainless steel	2..250	PN 100	-20..+90 °C	-	Changeover 250 V AC, 5 A	29
		Micro switch	Flange	Grey bronze	5..4000	PN 16	-20..+70 °C	-	Changeover 250 V AC, 6 A	31
A-V2		ATEX switching head I M1 Ex ia I / II 1G Ex ia IIC T4 / II 1D Ex iaD 20 T135					-20..+90 °C	-	Changeover 15..36 V, 1.5..5 A	33

Product Information

Sensors and Instrumentation

Device	Switch	Connection	Materials	Range l/min	Pressure resistance in bar	Medium temperature	Displays	Switching	Page
A-V3 	ATEX switching head II 2G Ex d IIC T6					-20..+90 °C	-	Changeover 250 V AC, 5 A	34
VI-...GR 	Inductiv Proximity switch	Female thread G ¹ / ₄ .. G3	Red bronze /POM	1..600	PN 16	-20..+60 °C	-	-	35
VDO 	Reed switch	Female thread G ¹ / ₄ .. G 3	Red bronze	2..600	PN 16..100	-20..+120 °C	analog	Changeover 250 V AC, 1.5 A, 50 VA	37
TX 	Micro switch	Flange DN 15..200	Cast steel	2..1250	PN 40	-20..+350 °C	analog	Changeover 250 V AC, 6 A	39
PD 	Micro switch	adhesive fitting DN 15..80	PVC	2..500	PN 10	-20..+70 °C	-	Changeover 250 V AC, 1,5 A, 50 VA	41
	Micro switch	Flange DN 15..80	PVC	2..500	PN 10	-20..+70 °C	-	Changeover 250 V AC, 1,5 A, 50 VA	43
	Micro switch	Solvent cement socket DN 15..50	PVC	2..200	PN 10	-20..+70 °C	-	Changeover 250 V AC, 1,5 A, 50 VA	45
TZ1 	Micro switch or poten- tiometer	Female thread G ¹ / ₄ .. G3	Red bronze	2..600	PN 16..100	-20..+90 °C	analog	Changeover 250 V AC, 5 A	47
		Female thread G ¹ / ₂ .. G 2	Stainless steel	2..250	PN 100	-20..+90 °C	analog	2 x normally open 2 x normally closed 250 V AC, 0,6 A, 50 VA	49
	Additional devices for TZ1					-20..+90 °C	analog		51

Options	● Plug DIN 43650-A / ISO 4400	52
Accessories	● Type ZV / ZE (Filter)	52

Errors and technical modifications reserved.

Product Information

Flow Indicator MP-...GR



- No electrical supply required
- Insensitive to dirt
- Also for dark or dirty media
- Rotatable scale, easy to read
- No glass parts under load from pressure or media

Characteristics

The volume flow raises a disc against a spring force. Via a tappet, the disc actuates a magnet which is coupled to a hermetically sealed display ring.

Technical data

Switch/sensor	without	
Nominal width	DN 8..80	
Process connection	female thread G 1/4 ..G 3	
Range	1.5..600 l/min	for details see table "Ranges"
Q _{max.}	to 600 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	G 1/4..G 1/2	- PN 100 bar
	G 3/4..G 1	- PN 25 bar
	G 1 1/4 .. G 1 1/2	- PN 16 bar
Medium temperature	-20..+100 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and gases available on request)	
Electrical data	none	
Materials medium-contact	Rg 5 / Rg 6 nickelled, CW614N, 1.4310, hard ferrite, NBR	
Non-medium-contact materials	Acrylic, CW614N, NBR	
Weight	see table "Dimensions and weights"	
Installation location	Standard: horizontal inwards flow; display downwards not recommended; other installation positions are possible; the installation position affects the switching point and range.	

Ranges

Details in the table correspond to horizontal inwards flow with increasing flow rate.

● = Standard ○ = Option

G	Nominal width		Display range l/min H ₂ O	Q _{max.} recommended	Types
G 1/4	DN 8	●	1.5 - 6	6	MP-008GR006
		○	2.5 - 10	10	MP-008GR010
G 3/8	DN 10	○	1.5 - 6	6	MP-010GR006
		●	2.5 - 10	10	MP-010GR010
G 1/2	DN 15	○	1.5 - 6	6	MP-015GR006
		○	2.5 - 10	10	MP-015GR010
		●	5.0 - 20	20	MP-015GR020
G 3/4	DN 20	○	2.5 - 10	10	MP-020GR010
		○	5.0 - 20	20	MP-020GR020
		●	10.0 - 40	40	MP-020GR040
G 1	DN 25	○	2.5 - 10	10	MP-025GR010
		○	5.0 - 20	20	MP-025GR020
		●	10.0 - 40	40	MP-025GR040
G 1 1/4	DN 32	○	12.0 - 60	60	MP-032GR060
		●	20.0 - 100	100	MP-032GR100
G 1 1/2	DN 40	●	30.0 - 150	150	MP-040GR150
G 2	DN 50	○	50.0 - 250	250	MP-050GR150
		●			MP-050GR250
G 2 1/2	DN 65	○	80.0 - 400	400	MP-065GR250
		●			MP-065GR400
G 3	DN 80	○	120.0 - 600	600	MP-080GR400
		●			MP-080GR600

Special ranges are available.

Dimensions and weights

G	Types	H	L	SW	X	Weight kg
G 1/4	MP-008GR...	130	68	29	12	1.1
G 3/8	MP-010GR...				13	
G 1/2	MP-015GR...					
G 3/4	MP-020GR...	133	73	32	11	1.2
G 1	MP-025GR...	136	87	41	12	1.4
G 1 1/4	MP-032GR...	150	98	52	13	2.0
G 1 1/2	MP-040GR...	154	113	59	14	2.6
G 2	MP-050GR...	184	137	72	17	4.2
G 2 1/2	MP-065GR...	200	160	85	26	5.6
G 3	MP-080GR...		148	100	23	8.3

Product Information

Flow Switch FF-...GR

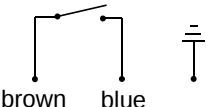


- Adjusted switching value
- Highly reproducible
- Insensitive to dirt

Characteristics

The volume flow raises a piston (fitted with a magnet) out from a valve seat against a spring force. The piston actuates a hermetically separated reed switch.

Technical data

Switch	reed switch	
Nominal width	DN 8..40 (DN 50..80 available on request)	
Process connection	female thread G 1/4 ..G 1 1/4	
Adjustment range	0.4..90 l/min	for details see table "Ranges"
Q _{max.}	to 150 l/min	
Tolerance	±3 % of the switching value, minimum ±0.3 l/min	
Pressure resistance	G 1/4..G 1/2	- PN 200 bar
	G 3/4..G 1	- PN 25 bar
	G 1 1/4..G 1 1/2	- PN 16 bar
Medium temperature	DN 8..15	-20..+110 °C
	≥DN 20	-20..+ 90 °C
Ambient temperature	-20..+70 °C	
Media	water (oils available on request)	
Wiring	normally open (n.o.) no. 0.212	
		
Wiring	optionally, normally closed no. 0.214 (not all adjustment ranges are possible, please enquire)	
		
Switching voltage	max. 230 V AC	
Switching current	max. 1 A	
Switching capacity	max. 50 VA	
Protection class	1 - PE connection	
Ingress protection	IP 65	
Electrical connection	cable 1.8 m	

Materials medium-contact	Rg 5 nickelled, 1.4310, CW614N nickelled, NBR, hard ferrite
Non-medium-contact materials	PA, PVC
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

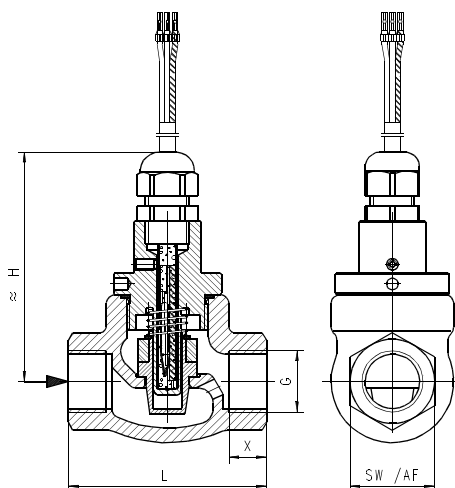
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	DN	Switching point l/min H ₂ O Choose between	Types	Q _{max.} recommended
G $\frac{1}{4}$	DN 8	0.4 - 9	FF-008GR009	10
G $\frac{3}{8}$	DN 10	0.4 - 10	FF-010GR010	15
G $\frac{1}{2}$	DN 15	0.4 - 12	FF-015GR012	20
G $\frac{3}{4}$	DN 20	0.6 - 25	FF-020GR025	40
G 1	DN 25	1.5 - 40	FF-025GR040	60
G $1\frac{1}{4}$	DN 32	2.0 - 60	FF-032GR060	100
G $1\frac{1}{2}$	DN 40	3.0 - 90	FF-040GR090	150

Special ranges are available

Dimensions and weights

G	Types	H	L	SW	X	Weight kg
G 1/4	FF-008GR...	68	79	29	12	0.6
G 3/8	FF-010GR...				13	
G 1/2	FF-015GR...					
G 3/4	FF-020GR...	73	90	32	11	0.7
G 1	FF-025GR...	87		41	14	1.0
G 1 1/4	FF-032GR...	98		52	14	1.5
G 1 1/2	FF-040GR...	113		59		2.0



Product Information

Sensors and Instrumentation

Flow Switch FM-...GR

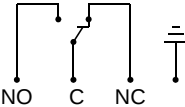


- Adjusted switching value
- Highly reproducible
- Insensitive to dirt
- High switching power

Characteristics

The volume flow raises a piston (fitted with a magnet) out from a valve seat against a spring force. The piston uses a magnetic coupling to actuate a hermetically separated micro switch.

Technical data

Switch	micro switch	
Nominal width	DN 8..15 (DN 20..80 available on request)	
Process connection	female thread G 1/4..G 1/2	
Adjustment range	0.4..12 l/min	for details see table "Ranges"
Q _{max.}	to 20 l/min	
Tolerance	±3 % of the switching value, minimum ±0.3 l/min	
Pressure resistance	PN 200 bar	
Medium temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	Water (oils and gases available on request)	
Wiring	changeover no. 0.450	
		
Switching voltage	max. 250 V AC	
Switching current	max. 6 A	
Protection class	1 - PE connection	
Ingress protection	IP 65	
Electrical connection	plug-in connection on the microswitch 2.8 x 0.5, cable screw gland Pg 9. optionally DIN 43650-A plug	
Materials medium-contact	Rg 5 nickelled, 1.4310, CW614N nickelled, CW614N, NBR, hard ferrite	
Non-medium-contact materials	PS, PA	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

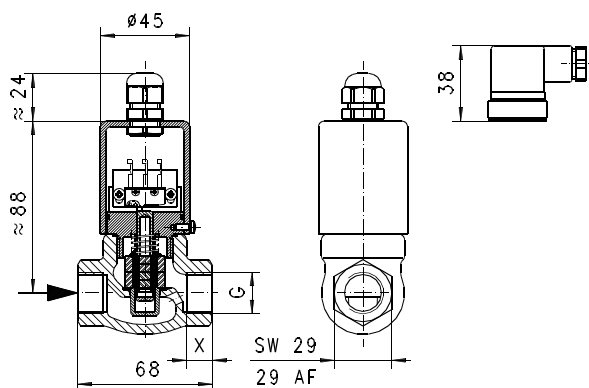
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	DN	Switching point l/min H ₂ O Choose between	Types	Q _{max.} recommended
G 1/4	DN 8	0.4 - 9	FM-008GR009	10
G 3/8	DN 10	0.4 - 10	FM-010GR010	15
G 1/2	DN 15	0.4 - 12	FM-015GR012	20

Special ranges are available

Dimensions and weights

G	Types	X	Weight kg
G 1/4	FF-008GR...	12	0.65
G 3/8	FF-010GR...		
G 1/2	FF-015GR...	13	0.60



Product Information

Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Ordering code

1. 2. 3. 4.
FM -

1. Nominal width	
008	DN 8 - G $\frac{1}{4}$
010	DN 10 - G $\frac{3}{8}$
015	DN 15 - G $\frac{1}{2}$
2. Process connection	
G	female thread
3. Connection material	
R	red bronze
4. Switching point H ₂ O can be set as desired between	
009	0.4 - 9 l/min
010	0.4 - 10 l/min
012	0.4 - 12 l/min

Options

- Nominal width DN 20..80
- Adjustment for oil or gas
- Special values
- Plug DIN 43650-A / ISO 4400
- Signal lamp red or red / green in the plug

Ordering information

- Specify direction of flow, medium, and switching point.
- For oils, state viscosity, temperature and designation (e.g. ISO VG 68) (enquire about range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (enquire about range).

Product Information

Flow Switch G-...GR



- Adjusted switching value
- Small switching point

Characteristics

Balls fitted with magnets rise in proportion to the flow against the magnetic force of an opposite-poled magnet and actuate a reed contact.

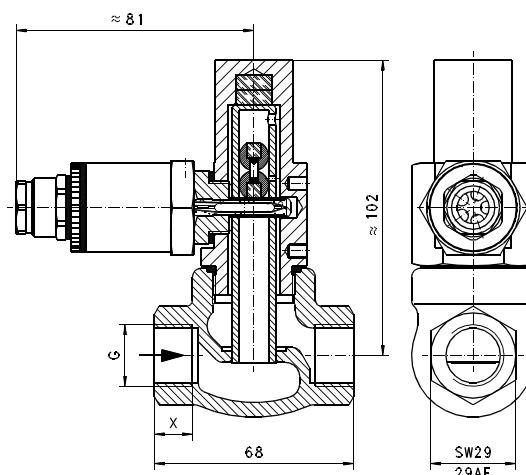
Technical data

Switch	reed switch
Nominal width	DN 8..15
Process connection	female thread G 1/4..G 1/2
Adjustment range	0.15..0.4 l/min horizontal inwards flow with decreasing flow rate
Q _{max. recommended}	G 1/4 - 4 l/min G 3/8 - 8 l/min G 1/2 - 12 l/min
Tolerance	±10 % of full scale value
Pressure resistance	PN 16 bar
Medium temperature	-20..+80 °C
Ambient temperature	-20..+70 °C
Media	water (oils up to 20 mm ² /s, and gases on request)
Wiring	normally closed (n.c.) no. 0.214
Switching voltage	max. 250 V AC
Switching current	max. 1 A
Switching capacity	max. 50 VA
Protection class	1 - PE connection
Ingress protection	IP 65
Electrical connection	Standard: cable screw gland Pg 11, optionally DIN 43650-A / ISO 4400 plug
Materials medium-contact	Rg 5 nickelled, CW614N nickelled, POM, Klingersil C-4400, hard ferrite
Non-medium-contact materials	CW614N, NBR
Weight	0.6 kg
Installation location	Standard: horizontal inwards flow; switching head upwards

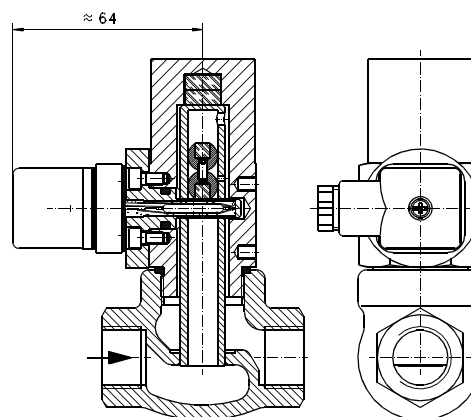


Dimensions and weights

G	Types	X
G 1/4	G-008..	12
G 3/8	G-010..	
G 1/2	G-015..	13



optionally DIN 43650-A / ISO 4400 plug



Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series. The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Product Information

Ordering code

Standard device

1. 2. 3.
G -

1. Nominal width	
008	DN 8 - G $\frac{1}{4}$
010	DN 10 - G $\frac{3}{8}$
015	DN 15 - G $\frac{1}{2}$
2. Process connection	
G	female thread
3. Connection material	
R	red bronze

Options

- Transformer
- Adjustment for oil or gas
- Special values

Ordering information

- Specify direction of flow, medium, and switching point.
- For oils, state viscosity, temperature and designation (e.g. ISO VG 68) (enquire about range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (enquire about range).

Product Information

Sensors and Instrumentation

Flow Switch VD-...GR

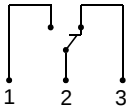


- Highly reproducible
- Precise, stepless adjustment of the switching value
- Insensitive to dirt
- Short installation length

Characteristics

The volume flow raises a piston (fitted with a magnet) out from a valve seat against a spring force. The piston actuates a hermetically separated reed switch.

Technical data

Switch	reed switch	
Nominal width	DN 8..80	
Process connection	female thread G 1/4..G 3	
Switching range	1..600 l/min	for details see table "Ranges"
Q _{max.}	to 720 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	G 1/4..G 1 - PN 25 bar G 1 1/4..G 3 - PN 16 bar	
Medium temperature	-20..+120 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and gases available on request)	
Wiring	changeover no. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switching capacity	max. 50 VA	
Protection class	2 - safety insulation	
Ingress protection	IP 44, optionally IP 65	
Connection	plug DIN 43650-A / ISO 4400	
Materials medium-contact	Rg 5 / Rg 6 nickelled, POM, 1.4310, CW614N, NBR, hard ferrite	
Non-medium-contact materials	ABS, PA	

Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	Nominal width	Switching range l/min H ₂ O	Q _{max.} recommended	Type
G 1/4	DN 8	1 - 10 4 - 20	15	VD-008GR010
G 3/8	DN 10		25	VD-008GR020
			20	VD-010GR010
			30	VD-010GR020
G 1/2	DN 15		20	VD-015GR010
			30	VD-015GR020
G 3/4	DN 20		20	VD-020GR010
			40	VD-020GR020
		10 - 40 20 - 60	60	VD-020GR040
			80	VD-020GR060
G 1	DN 25	1 - 10 4 - 20	20	VD-025GR010
			40	VD-025GR020
			60	VD-025GR040
			85	VD-025GR060
G 1 1/4	DN 32	10 - 40 20 - 60	90	VD-032GR040
			100	VD-032GR060
			145	VD-032GR100
			200	VD-032GR150
G 1 1/2	DN 40	20 - 60 30 - 100	100	VD-040GR060
			150	VD-040GR100
			220	VD-040GR150
			290	VD-050GR200
G 2	DN 50	100 - 200 180 - 330	250	VD-050GR150
			290	VD-050GR200
G 2 1/2	DN 65		400	VD-065GR200
			475	VD-065GR330
G 3	DN 80	300 - 600	600	VD-080GR330
			720	VD-080GR600

Special ranges are available

Product Information

Sensors and Instrumentation

Flow Switch VD-...GK

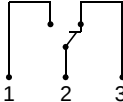


- Highly reproducible
- Precise, stepless adjustment of the switching value
- Insensitive to dirt
- Short installation length

Characteristics

The volume flow raises a piston (fitted with a magnet) out from a valve seat against a spring force. The piston actuates a hermetically separated reed switch.

Technical data

Switch	reed switch	
Nominal width	DN 15..50	
Process connection	female thread G 1/2..G 1	
Switching range	1..200 l/min	for details see table "Ranges"
Q _{max.}	to 290 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 100 bar	
Medium temperature	-20..+120 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils, gases and aggressive media available on request)	
Wiring	changeover no. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switching capacity	max. 50 VA	
Protection class	2 - safety insulation	
Ingress protection	IP 44, optionally IP 65	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4305, 1.4571, 1.4310, FKM, hard ferrite PTFE-coated	
Non-medium-contact materials	ABS, PA	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

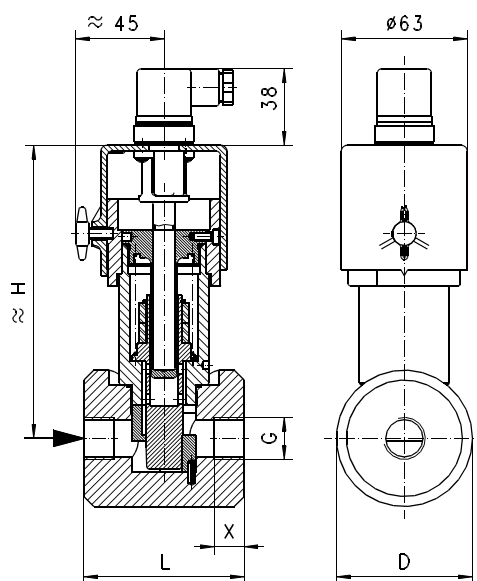
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	Nominal width	Switching range l/min H ₂ O	Q _{max.} recommended	Type
G 1/2	DN 15	1 - 10	20	VD-015GK010
			30	VD-015GK020
G 3/4	DN 20	4 - 20	40	VD-020GK020
				VD-020GK040
G 1	DN 25	10 - 40	60	VD-025GK040
				VD-025GK060
G 1 1/4	DN 32	20 - 60	100	VD-032GK060
		20 - 100	145	VD-032GK100
G 1 1/2	DN 40	30 - 100	150	VD-040GK100
		50 - 150	220	VD-040GK150
G 2	DN 50		250	VD-050GK150
		100 - 200	290	VD-050GK200

Special ranges are possible

Dimensions and weights

G	Types	H	L	D	X	Weight kg
G 1/2	VD-015GK	166	80	68	15	2.8
G 3/4	VD-020GK				16	2.6
G 1	VD-025GK				18	2.5
G 1 1/4	VD-032GK	180	95	78	24	3.7
G 1 1/2	VD-040GK	186	105	88	25	4.8
G 2	VD-050GK	194	120	102	27	7.0



Product Information

Flow switch VD-...FR

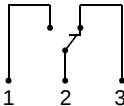


- Highly reproducible
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 180° scale / setting diagram

Characteristics

Mechanical flow switch, for fluid or gaseous media, with no-contact triggering of an adjustable Reed contact. Robust construction in gunmetal material.

Technical data

Switch	Reed switch	
Nominal width	DN 15..100	
Process connection	flange	
Switching range	1..200 l/min	For details see table "Ranges"
Q _{max.}	up to 950 l/min	
Hysteresis	Depending on the switching value, minimum 0.3 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 16 bar	
Medium temperature	-20..+120 °C	
Ambient temperature	-20..+70 °C	
Media	Water (oils, gases and aggressive media available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switch performance	max. 50 VA	
Protection class	2 - Safety insulation	
Ingress protection	IP 44	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310.gunmetal Rg5, POM, CW614N, NBR, hardferrite	

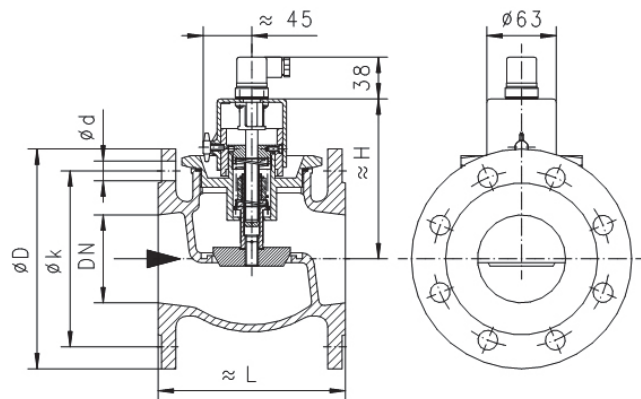
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max.} recom- mended	
VD-015FR...	DN 15	2 - 8	4 - 20	20	30
VD-020FR...	DN 20	4 - 20	10 - 40	40	55
VD-025FR...	DN 25	10 - 40	20 - 60	60	80
VD-032FR...	DN 32	20 - 60	30 - 100	100	135
VD-040FR...	DN 40	30 - 100	50 - 200	150	270
VD-050FR...	DN 50	50 - 200	100 - 250	270	340
VD-065FR...	DN 65	100 - 250	150 - 300	400	
VD-080FR...	DN 80	150 - 300	300 - 450	600	
VD-100FR...	DN 100	200 - 400	350 - 500	950	

Dimensions and weights



Flange size DIN 2501 PN 16
Sealing bar DIN 2526 form C

Types	H mm	L mm	D mm	k mm	d mm	Weight kg
VD-015FR...	180	65	95	65	4x14	2.0
VD-020FR...	152	80	105	75	4x14	2.5
VD-025FR...	164	90	115	85	4x14	2.8
VD-032FR...	160	95	140	100	4x18	4.1
VD-040FR...	160	110	150	110	4x18	5.0
VD-050FR...	160	125	165	125	4x18	6.5
VD-065FR...	160	150	185	145	4x18	9.1
VD-080FR...	160	170	200	160	8x18	11.6
VD-100FR...	250	205	220	180	8x18	22.0

Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet.
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Ordering code

1. 2. 3. 4. 5.
VD -

1. Nominal width											
015	DN 15										
020	DN 20										
025	DN 25										
032	DN 32										
040	DN 40										
050	DN 50										
065	DN 65										
080	DN 80										
100	DN 100										
2. Process connection											
F	flange										
3. Connection material											
R	Gunmetal										
4. Adjustment range H ₂ O for horizontal inwards flow											
008	2 - 8 l/min										•
020	4 - 20 l/min										•
040	10 - 40 l/min										•
060	20 - 60 l/min										•
100	30 - 100 l/min										•
200	50 - 200 l/min										•
250	100 - 250 l/min										•
300	150 - 300 l/min										•
400	200 - 400 l/min										•
450	300 - 450 l/min										•
500	350 - 500 l/min										•
5. Optionally for ATEX											
A	For ATEX A-V1 switching head (The switching head is ordered in addition)										•

Options

- Signal lamp
- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Protection class IP 65
- Metal cap
- Germanischer Lloyd (Type VR)
- Switching ranges for oil or gas
- Special values
- Selected hysteresis
- Rhodium contact (250 VAC, 0,5 A, 30 VA)

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils, state viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Flow switch VD-...FK

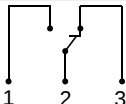


- Highly reproducible
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 180° scale / setting diagram

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable Reed contact. Robust construction in stainless steel material.

Technical data

Switch	Reed switch		
Nominal width	DN 15..150		
Process connection	flange		
Adjustment range	2 ..950 l/min	For details see table "Ranges"	
Q _{max.}	up to 2000 l/min		
Hysteresis	Depending on the switching value, minimum 0.3 l/min		
Tolerance	±5 % of full scale value		
Pressure resistance	PN 40 bar		
Medium temperature	-20..+120 °C		
Ambient temperature	-20..+70 °C		
Media	Water, oils (gases and aggressive media available on request)		
Wiring	Transformer No. 0.213		
Switching voltage	max. 250 V AC		
Switching current	max. 1.5 A		
Switch performance	max. 50 VA		
Protection class	2 - Safety insulation		
Ingress protection	IP 44		
Connection	Plug DIN 43650-A / ISO 4400		
Materials medium-contact	1.4408, Stainless steel, 1.4571, POM, 1.4310, 1.4571, Viton, Klingerit, hard ferrite		

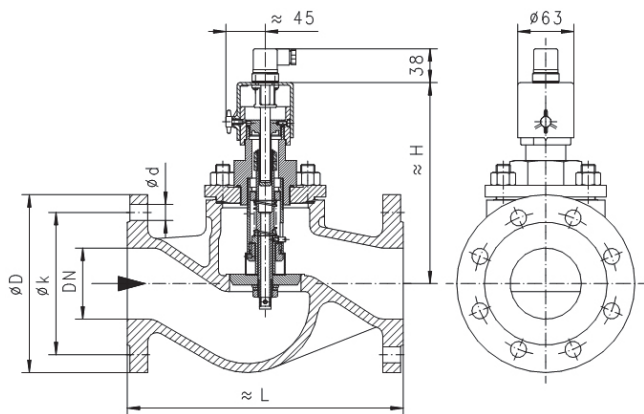
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max.} recommended	
VD-015FK...	DN 15	2 - 8	4 - 20	20	30
VD-020FK...	DN 20	4 - 20	10 - 40	40	55
VD-025FK...	DN 25	10 - 40	20 - 60	60	80
VD-032FK...	DN 32	20 - 60	30 - 100	100	135
VD-040FK...	DN 40	30 - 100	50 - 200	150	270
VD-050FK...	DN 50	50 - 200	100 - 250	270	340
VD-065FK...	DN 65	100 - 250	150 - 300	400	
VD-080FK...	DN 80	150 - 300	300 - 450	600	
VD-100FK...	DN 100	200 - 400	350 - 500	950	
VD-150FK...	DN 150	600 - 750	700 - 950	2000	

Dimensions and weights



Overall length DIN 3202, range F1

Flange DIN 2545 PN 40

Flange size DIN 2501 PN 40

Sealing bar DIN 2526 form C

Types	H mm	L mm	D mm	k mm	d mm	Weight kg
VD-015FK...	180	130	95	65	4x14	3.3
VD-020FK...	180	150	105	75	4x14	5.4
VD-025FK...	190	160	115	85	4x14	5.8
VD-032FK...	190	180	140	100	4x18	7.2
VD-040FK...	210	200	150	110	4x18	8.8
VD-050FK...	220	230	165	125	4x18	10.4
VD-065FK...	230	290	185	145	8x18	16.5
VD-080FK...	240	310	200	160	8x18	19.7
VD-100FK...	260	350	235	190	8x22	26.0
VD-150FK...	330	480	300	250	8x26	57.0

Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet.
- Include a filter if the media are dirty (use magnetic filter for fer-ritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, induc-tive and lamp loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Ordering code

1. 2. 3. 4. 5.
VD - F K

1. Nominal width											
015	DN 15										
020	DN 20										
025	DN 25										
032	DN 32										
040	DN 40										
050	DN 50										
065	DN 65										
080	DN 80										
100	DN 100										
150	DN 150										
2. Process connection											
F	flange										
3. Connection material											
K	stainless steel										
4. Adjustment range H ₂ O for horizontal inwards flow											
008	2 - 8 l/min										●
020	4 - 20 l/min									●	●
040	10 - 40 l/min									●	●
060	20 - 60 l/min									●	●
100	30 - 100 l/min									●	●
200	50 - 200 l/min									●	●
250	100 - 250 l/min									●	●
300	150 - 300 l/min									●	●
400	200 - 400 l/min									●	●
450	300 - 450 l/min									●	●
500	350 - 500 l/min									●	●
750	600 - 750 l/min									●	●
950	700 - 950 l/min									●	●
5. Optionally for ATEX											
A	For ATEX A-V1 switching head (The switching head is ordered in addition)										

Options

- Signal lamp
- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Protection class IP 65
- Metal cap
- Germanischer Lloyd (Type VR)
- Switching ranges for oil or gas
- Special values
- Selected hysteresis
- Rhodium contact (250 VAC, 0,5 A, 30 VA)

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils, state viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Product Information

Sensors and Instrumentation

Flow switch VD-...FT

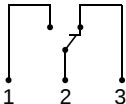


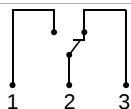
- Highly reproducible
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 180° scale / setting diagram

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable Reed contact.
Robust construction in cast steel material.

Technical data

Switch	Reed switch	
Nominal width	DN 15..300	
Process connection	flange	
Adjustment range	2..1600 l/min	For details see table "Ranges"
Q _{max.}	up to 8000 l/min	
Hysteresis	Depending on the switching value, minimum 0.3 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 40 bar	
Medium temperature	-20..+120 °C	
Ambient temperature	-20..+70 °C	
Media	Water, oils (gases and aggressive media available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switch performance	max. 50 VA	
Protection class	2 - Safety insulation	
Ingress protection	IP 44	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310, Cast steel GSC 25, CW614N, POM, NBR, Klingerit, hardferrite	



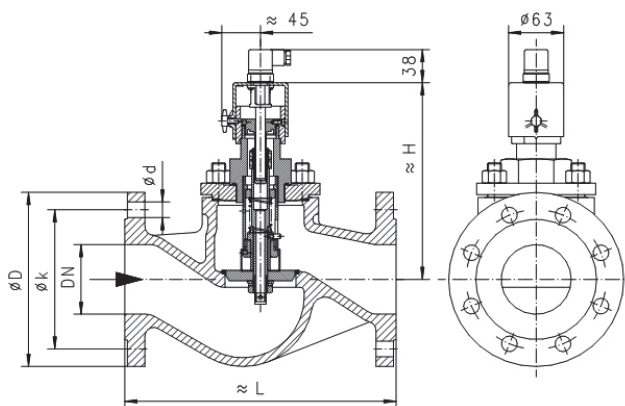
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max.} recom- mended	
VD-015FT...	DN 15	2 - 8	4 - 20	20	30
VD-020FT...	DN 20	4 - 20	10 - 40	40	55
VD-025FT...	DN 25	10 - 40	20 - 60	60	80
VD-032FT...	DN 32	20 - 60	30 - 100	100	135
VD-040FT...	DN 40	30 - 100	50 - 200	150	270
VD-050FT...	DN 50	50 - 200	100 - 250	270	340
VD-065FT...	DN 65	100 - 250	150 - 300	400	
VD-080FT...	DN 80	150 - 300	300 - 450	600	
VD-100FT...	DN 100	200 - 400	350 - 500	950	
VD-150FT...	DN 150	600 - 750	700 - 950	2000	
VD-200FT...	DN 200	850 - 1050	1050 - 1250	4000	
VD-250FT...	DN 250	1100 - 1300	1200 - 1400	6000	
VD-300FT...	DN 300	1300 - 1500	1400 - 1600	8000	

Dimensions and weights



Overall length DIN 3202, range F1
Flange DIN 2545 PN 40
Flange size DIN 2501 PN 40
Sealing bar DIN 2526 form C

Types	H mm	L mm	D mm	k mm	d mm	Weight kg
VD-015FT...	180	130	95	65	4x14	4.0
VD-020FT...	180	150	105	75	4x14	4.4
VD-025FT...	190	160	115	85	4x14	6.3
VD-032FT...	190	180	140	100	4x18	8.2
VD-040FT...	210	200	150	110	4x18	11.1
VD-050FT...	220	230	165	125	4x18	12.8
VD-065FT...	230	290	185	145	8x18	23.5
VD-080FT...	240	310	200	160	8x18	29.0
VD-100FT...	260	350	235	190	8x22	36.0
VD-150FT...	330	480	300	250	8x26	85.0

VD-200FT...	390	600	375	320	12x30	152.0
VD-250FT...	450	730	450	385	12x33	212.0
VD-300FT...	490	850	515	450	16x33	309.0

Note

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Ordering code

VD -

1.	2.	3.	4.	5.
	F	T		

1. Nominal width					
015	DN 15				
020	DN 20				
025	DN 25				
032	DN 32				
040	DN 40				
050	DN 50				
065	DN 65				
080	DN 80				
100	DN 100				
150	DN 150				
200	DN 200				
250	DN 250				
300	DN 300				
2. Process connection					
F	flange				
3. Connection material					
T	Cast steel				
Adjustment range H₂O for horizontal inwards flow					
008	2 - 8 l/min				
020	4 - 20 l/min				
040	10 - 40 l/min				
060	20 - 60 l/min				
100	30 - 100 l/min				
200	50 - 200 l/min				
250	100 - 250 l/min				
300	150 - 300 l/min				
400	200 - 400 l/min				
450	300 - 450 l/min				
500	350 - 500 l/min				
750	600 - 750 l/min				
950	700 - 950 l/min				
1050	850 - 1050 l/min				
1250	1050 - 1250 l/min				
1300	1100 - 1300 l/min				
1400	1200 - 1400 l/min				
1500	1300 - 1500 l/min				
1600	1400 - 1600 l/min				
5. Optionally for ATEX					
A	For ATEX A-V1 switching head (The switching head is ordered in addition)				

Product Information

Sensors and Instrumentation

Options

- Other signal lamp
- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Protection class IP 65
- Metal cap
- Germanischer Lloyd (Type VR)
- Switching ranges for oil or gas
- Special values
- Selected hysteresis
- Rhodium contact (250 VAC, 0,5 A, 30 VA)

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils, state viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Product Information

Sensors and Instrumentation

Flow switch VD-...FG

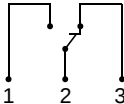


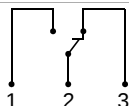
- Highly reproducible
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 180° scale / setting diagram

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable Reed contact. Robust construction in stainless steel material.

Technical data

Switch	Reed switch	
Nominal width	DN 15 – 100	
Process connection	flange	
Adjustment range	2..1600 l/min	For details see table "Ranges"
Q _{max.}	up to 8000 l/min	
Hysteresis	Depending on the switching value, minimum 0.3 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 40 bar	
Medium temperature	Max. -20..+120 °C	
Ambient temperature	-20..+70 °C	
Media	Water, oils (gases and aggressive media available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switch performance	max. 50 VA	
Protection class	2 - Safety insulation	
Ingress protection	IP 44, optionally IP 65	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310, Greyguss GG25, Ms58, POM, Ms58,, NBR, Klingerit, hard ferrite	
Non-medium-contact materials	ABS	



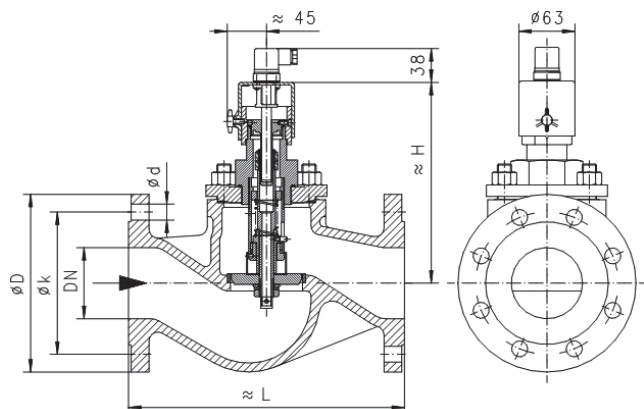
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max.} recommended	
VD-015FG...	DN 15	2- 8	4- 20	20	30
VD-020FG...	DN 20	4- 20	10- 40	40	55
VD-025FG...	DN 25	10- 40	20- 60	60	80
VD-032FG...	DN 32	20- 60	30- 100	100	135
VD-040FG...	DN 40	30- 100	50- 200	150	270
VD-050FG...	DN 50	50- 200	100- 250	270	340
VD-065FG...	DN 65	100- 250	150- 300	400	
VD-080FG...	DN 80	150- 300	300- 450	600	
VD-100FG...	DN 100	200- 400	350- 500	950	
VD-150FG...	DN 150	600- 750	700- 950	2000	
VD-200FG...	DN 200	850-1050	1050-1250	4000	
VD-250FG...	DN 250	1100-1300	1200-1400	6000	
VD-300FG...	DN 300	1300-1500	1400-1600	8000	

Dimensions and weights



Types	H mm	L mm	D mm	k mm	d mm	Weight kg
VD-015FK...	180	130	95	65	4x14	3.3
VD-020FK...	180	150	105	75	4x14	5.4
VD-025FK...	190	160	115	85	4x14	5.8
VD-032FK...	190	180	140	100	4x18	7.2
VD-040FK...	210	200	150	110	4x18	8.8
VD-050FK...	220	230	165	125	4x18	10.4
VD-065FK...	230	290	185	145	8x18	16.5
VD-080FK...	240	310	200	160	8x18	19.7
VD-100FK...	260	350	235	190	8x22	26.0
VD-150FK...	330	480	300	250	8x26	57.0
VD-200FG...	390	600	340	295	12x22	124,0
VD-250FG...	450	730	405	355	12x26	202,0
VD-300FG...	490	850	460	410	12x26	237,0

Product Information

Sensors and Instrumentation

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet.
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Ordering code

VD - 1. 2. 3. 4. 5.

1. Nennweite	
015	DN 15
020	DN 20
025	DN 25
032	DN 32
040	DN 40
050	DN 50
065	DN 65
080	DN 80
100	DN 100
150	DN 150
200	DN 200
250	DN 250
300	DN 300
2. Anschlussart	
F	Flansch
3. Anschlusswerkstoff	
G	Grauguss
4. Verstellbereich H₂O für horizontale Anströmung	
008	2 - 8 l/min
020	4 - 20 l/min
040	10 - 40 l/min
060	20 - 60 l/min
100	30 - 100 l/min
200	50 - 200 l/min
250	100 - 250 l/min
300	150 - 300 l/min
400	200 - 400 l/min
450	300 - 450 l/min
500	350 - 500 l/min
750	600 - 750 l/min
950	700 - 950 l/min
1050	850 - 1050 l/min
1250	1050 - 1250 l/min
1300	1100 - 1300 l/min
1400	1200 - 1400 l/min
1500	1300 - 1500 l/min
1600	1400 - 1600 l/min
5. Optional für ATEX	
A	Für Schaltkopf ATEX A-V1 (Der Schaltkopf wird zusätzlich bestellt)



Options

- Signal lamp

- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Protection class IP 65
- Germanischer Lloyd (Type VR)
- Special values
- Rhodium contact (250 VAC, 0,5 A, 30 VA)

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils, state viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Product Information

Switching Head A-V1

For devices VD-

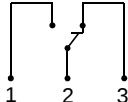
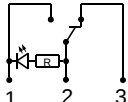


- I M1 Ex ia I Ma
- II 1G Ex ia IIC T4 Ga
- II 1D Ex ia IIIC T135°C Da

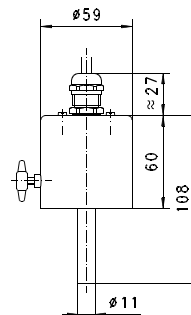
Characteristics

Intrinsically safe switching head with reed switch and ATEX approval, for the VD range of devices, for use in intrinsically safe power circuits.

Technical data

Switch	reed switch
Medium temperature	-20...+120 °C
Ambient temperature	-20...+50 °C
Weight	0.5 kg additionally
Without diode	
Wiring	changeover no. 0.213
	
Switching voltage	max. 30 V
Switching current	max. 1.5
Switching capacity	max. 50 W
With diode	
Wiring	changeover with diode no. 0.208
	
Switching voltage	max. 15 V, 28 V or 36 V
Switching current	max. 1.5 A
Switching capacity	max. 50 W
Protection class	3 - protective extra low voltage
Ingress protection	IP 65
Connection	cable 2.5 m, other cable lengths optionally available

Dimensions



Handling and operation

Note

- For use only in intrinsically safe power circuits; provide a suitable isolating amplifier.
- Cable lengths max. 5 m.
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.

Ordering code

The base device is ordered, e.g. VD-015GR020A with switching head e.g. A-V1-1.

A-V1 -

1. Wiring - switching voltage		
1	wiring no. 0.213 - 30 V	
2	wiring no. 0.208 - 15 V	
3	wiring no. 0.208 - 28 V	
4	wiring no. 0.208 - 36 V	

Use for devices

Switching head	Device type
A-V1	VD-...

Product Information

Sensors and Instrumentation

Flow Switch VM-...GR

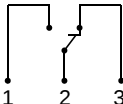


- Highly reproducible
- Precise, stepless adjustment of the switching value
- High switching power
- Insensitive to dirt
- Short installation length

Characteristics

The volume flow raises a disc unit with magnet against a spring force. A magnetic coupling actuates a hermetically separated micro switch.

Technical data

Switch	micro switch	
Nominal width	DN 8..80	
Process connection	female thread G 1/4..G 3	
Switching range	1..600 l/min	for details see table "Ranges"
Q _{max.}	to 720 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	G 1/4..G 1/2 - PN 100 bar	
	G 3/4..G 1 - PN 25 bar	
	G 1 1/4..G 3 - PN 16 bar	
Medium temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and gases available on request)	
Wiring	changeover no. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 5 A	
Protection class	2 - safety insulation	
Ingress protection	IP 65 (optional IP 44)	
Connection	plug DIN 43650-A / ISO 4400	
Materials medium-contact	Rg 5 / Rg 6 nickelled, POM, 1.4310, CW614N, NBR, hard ferrite	
Non-medium-contact materials	ABS, PA	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

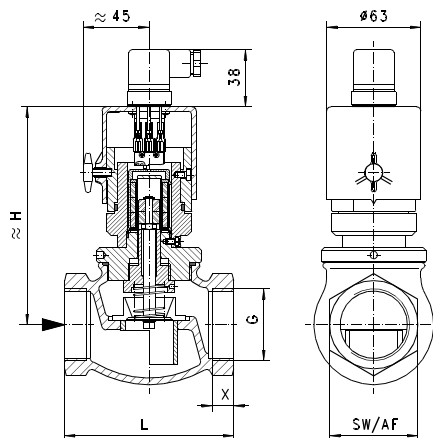
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	Nominal width	Switching range l/min H ₂ O	Q _{max.} recom- mended	Types
G 1/4	DN 8	1 - 5	8	VM-008GR005
		3 - 12	15	VM-008GR012
G 3/8	DN 10	2 - 6	10	VM-010GR006
		3 - 12	15	VM-010GR012
G 1/2	DN 15	2 - 6		VM-015GR006
		4 - 20	30	VM-015GR020
G 3/4	DN 20	4 - 12	20	VM-020GR012
		10 - 40	50	VM-020GR040
G 1	DN 25	10 - 60	70	VM-025GR060
G 1 1/4	DN 32	20 - 100	120	VM-032GR100
G 1 1/2	DN 40	30 - 150	180	VM-040GR150
G 2	DN 50	50 - 250	300	VM-050GR250
G 2 1/2	DN 65	50 - 400	480	VM-065GR400
G 3	DN 80	100 - 600	720	VM-080GR600

Special ranges are available

Dimensions and weights

G	Types	H	L	SW	X	Weight kg
G 1/4	VM-008GR	144	68	29	12	1.2
G 3/8	VM-010GR					1.3
G 1/2	VM-015GR				13	1.4
G 3/4	VM-020GR					1.5
G 1	VM-025GR		73	32	11	1.7
G 1 1/4	VM-032GR	155	87	41	12	2.3
G 1 1/2	VM-040GR	156	98	52	13	2.3
G 2	VM-050GR	164	113	59	14	3.0
G 2 1/2	VM-065GR	164	137	72	17	4.3
G 3	VM-080GR	195	160	85	26	5.8
			148	100	23	7.0



Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads.
Capacitive and inductive loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Ordering code

1. 2. 3. 4. 5.
VM -

1. Nominal width	
008	DN 8 - G 1/4
010	DN 10 - G 3/8
015	DN 15 - G 1/2
020	DN 20 - G 3/4
025	DN 25 - G 1
032	DN 32 - G 1 1/4
040	DN 40 - G 1 1/2
050	DN 50 - G 2
065	DN 65 - G 2 1/2
080	DN 80 - G 3
2. Process connection	
G	female thread
3. Connection material	
R	red bronze
4. Switching range H ₂ O for horizontal inwards flow	
005	1 - 5 l/min
006	2 - 6 l/min
012	3 - 12 l/min
	4 - 12 l/min
020	3 - 20 l/min
	4 - 20 l/min
040	10 - 40 l/min
060	10 - 60 l/min
100	20 - 100 l/min
150	30 - 150 l/min
250	50 - 250 l/min
400	50 - 400 l/min
600	100 - 600 l/min
5. Optional for ATEX	
A	for switching head ATEX A-V2 or A-V3 (The switching head is ordered in addition)

Options

- Special plugs, Tuchel / Harting
- Signal lamp red or red / green in the plug DIN 43650-A
- Other signal lamp
- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Metal cap
- Gold contact microswitch 125 V AC / 30 V DC, 100 mA
- Germanischer Lloyd
- Switching ranges for oil or gas
- Special values

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils. State viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Product Information

Sensors and Instrumentation

Flow Rate Monitor VM-...GK

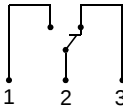


- Highly reproducible
- Precise, stepless adjustment of the switching value
- High switching power
- Insensitive to dirt
- Short installation length

Characteristics

Mechanical flow switch, for fluid or gaseous media, with no-contact triggering of an adjustable micro switch.

Technical data

Switch	micro switch	
Nominal width	DN 15..50	
Process connection	female thread G 1/2..G 2	
Switching range	2..250 l/min	for details see table "Ranges"
Q _{max.}	to 300 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 100 bar	
Medium temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils, gases and aggressive media available on request)	
Wiring	changeover no. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 6 A	
Protection class	2 - safety insulation	
Ingress protection	IP 65	
Connection	plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4305, 1.4571, 1.4310, FKM, hard ferrite PTFE-coated	
Non-medium-contact materials	ABS, PA	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

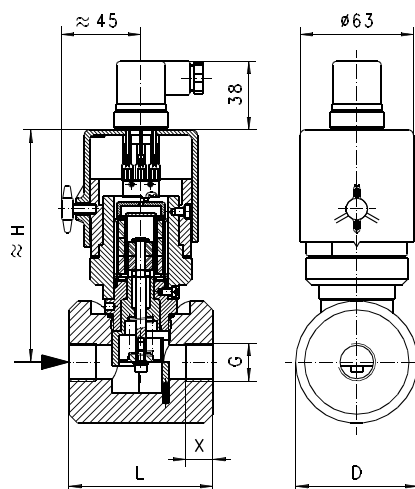
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	Nominal width	Switching range l/min H ₂ O	Q _{max.} recom- mended	Type
G 1/2	DN 15	2 - 6	15	VM-015GK006
		4 - 20	30	VM-015GK020
G 3/4	DN 20	4 - 12	40	VM-020GK012
		10 - 40	50	VM-020GK040
G 1	DN 25	10 - 60	70	VM-025GK060
G 1 1/4	DN 32	20 - 100	120	VM-032GK100
G 1 1/2	DN 40	30 - 150	180	VM-040GK150
G 2	DN 50	50 - 250	300	VM-050GK250

Special ranges are available

Dimensions and weights

G	Types	H	L	D	X	Weight kg
G 1/2	VM-015GK	139	80	68	15	2.8
G 3/4	VM-020GK				16	2.6
G 1	VM-025GK				18	2.5
G 1 1/4	VM-032GK	141	95	78	24	3.5
G 1 1/2	VM-040GK	152	105	88	25	4.5
G 2	VM-050GK	154	120	102	27	6.7



Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive and inductive loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Ordering code

1. 2. 3. 4. 5.
VM -

1. Nominal width	
015	DN 15 - G 1/2
020	DN 20 - G 3/4
025	DN 25 - G 1
032	DN 32 - G 1 1/4
040	DN 40 - G 1 1/2
050	DN 50 - G 2
2. Process connection	
G	female thread
3. Connection material	
K	stainless steel
4. Switching range H ₂ O for horizontal inwards flow	
006	2 - 6 l/min
012	4 - 12 l/min
020	4 - 20 l/min
040	10 - 40 l/min
060	10 - 60 l/min
100	20 - 100 l/min
150	30 - 150 l/min
250	50 - 250 l/min
5. Optionally for ATEX	
A	for switching head ATEX A-V2 or A-V3 (The switching head is ordered in addition)

Options

- Special plugs, Tuchel / Harting
- Signal lamp red or red / green in the plug DIN 43650-A
- Other signal lamp
- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Metal cap
- Gold contact microswitch 125 V AC / 30 V DC, 100 mA
- Germanischer Lloyd
- Switching ranges for oil or gas
- Special values

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils. State viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Product Information

Flow switch VM-...FG

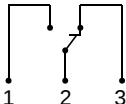


- Highly reproducible
- High switching capacity
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 170° scale / setting diagram

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable microswitch. Robust construction in grey iron material.

Technical data

Switch	Microswitch	
Nominal width	DN 15.0.50	
Process connection	flange	
Adjustment range	5..4000 l/min	For details see table "Ranges"
Q _{max.}	up to 5000 l/min	
Hysteresis	Depending on the switching value, minimum 3 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 16 bar	
Medium temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	Water, oils (gases and aggressive media available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 5 A	
Protection class	2 - Safety insulation	
Ingress protection	IP 44	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310, grey iron GG25, CW614N, NBR, Klingerit, hard ferrite	

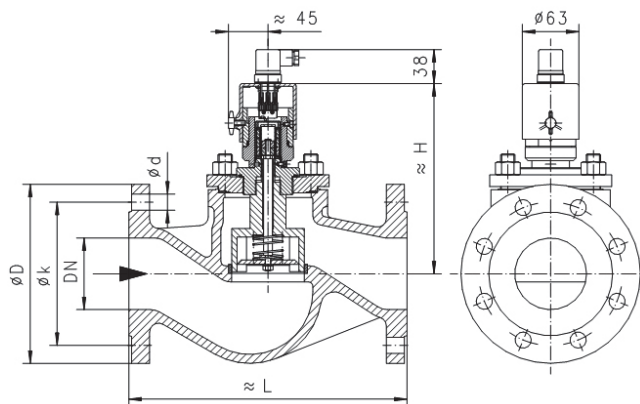
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

Type	Nominal width	Adjustment range l/min H ₂ O	Q _{max.} recommended
VM-015FG020	DN 15	5- 20	30
VM-020FG040	DN 20	10- 40	60
VM-025FG060	DN 25	20- 60	80
VM-032FG100	DN 32	30- 100	135
VM-040FG150	DN 40	50- 150	200
VM-050FG250	DN 50	100- 250	350
VM-065FG400	DN 65	150- 400	500
VM-080FG600	DN 80	200- 600	800
VM-100FG1000	DN 100	350- 1000	1250
VM-150FG2000	DN 150	700- 2000	2500
VM-200FG4000	DN 200	1000- 4000	5000

Dimensions and weights



Overall length DIN 3202, range F1
Flange DIN 2533 PN 16
Flange size DIN 2501 PN 16
Sealing bar DIN 2526 form C

Types	H mm	L mm	D mm	X mm	Weight kg
VM-015FG020	170	130	95	65	3.2
VM-020FG040	170	150	105	75	4.2
VM-025FG060	178	160	115	85	4.7
VM-032FG100	178	180	140	100	6.6
VM-040FG150	189	200	150	110	8.0
VM-050FG250	192	230	165	125	11.2
VM-065FG400	209	290	185	145	13.8
VM-080FG600	224	310	200	160	21.0
VM-100FG1000	241	350	220	180	30.5

Product Information

Switching Head A-V2

For devices VM-

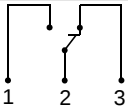
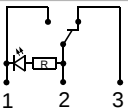


- I M1 Ex ia Ma
- II 1G Ex ia IIC T4 Ga
- II 1D Ex ia IIIC T135°C Da

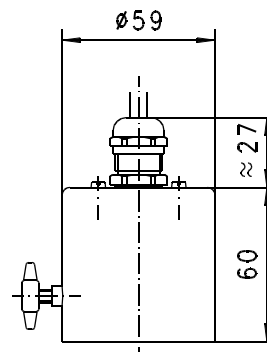
Characteristics

Intrinsically safe switching head with reed switch and ATEX approval, for the VM range of devices, for use in intrinsically safe power circuits.

Technical data

Switch	micro switch
Medium temperature	-20..+90 °C
Ambient temperature	-20..+50 °C
Weight	0.5 kg additionally
Without diode	
Wiring	changeover no. 0.213
	
Switching voltage	max. 30 V
Switching current	max. 1.5 A
Switching capacity	max. 50 W
Protection class	3 -protective extra low voltage
With diode	
Wiring	changeover with diode No. 0.208
	
Switching voltage	max. 15 V, 28 V or 36 V
Switching current	max. 1.5 A
Switching capacity	max. 50 W
Protection class	3 - protective extra low voltage
Ingress protection	IP 65
Electrical connection	cable 2.5 m, other cable lengths optionally available

Dimensions



Handling and operation

Note

- For use only in intrinsically safe power circuits; provide a suitable isolating amplifier.
- Cable lengths max. 5 m.
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.

Ordering code

The base device is ordered, e.g. VM-015GR020A with switching head e.g. A-V2-1.

1.
A-V2 - ☐

1.	Wiring - switching voltage
1	wiring no. 0.213 - 30 V
2	wiring no. 0.208 - 15 V
3	wiring no. 0.208 - 28 V
4	wiring no. 0.208 - 36 V

Use for devices

Switching head	Device type
A-V2	VM-...



Product Information

Switching Head A-V3

For devices VM-



- II 2G Ex d IIC T6

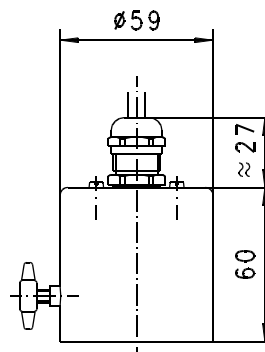
Characteristics

Switching head with pressure-resistant encapsulation and ATEX approval for the VM range of devices.

Technical data

Switch	micro switch
Medium temperature	-20...+90 °C
Ambient temperature	-20...+50 °C
Weight	0.5 kg additionally
Wiring	changeover no. 0.283
Switching voltage	max. 250 V AC
Switching current	max. 5 A
Protection class	2 - safety insulation
Ingress protection	IP 65
Electrical connection	cable 2.5 m, other cable lengths optionally available

Dimensions



Handling and operation

Note

- Cable lengths max. 5 m.
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.

Ordering code

The base device is ordered, e.g. VM-015GR020A with switching head e.g. A-V3-1.

A-V3 - 1

1. Wiring	
1	No. 0.283

Use for devices

Switching head	Device type
A-V3	VM-...



Product Information

Flow switch Indumat VI-...GR



- For media with ferritic components
- Highly reproducible
- Precise, stepless adjustment of the switching value
- Insensitive to dirt

Characteristics

Mechanical flow switch, for fluid or gaseous media, with no-contact triggering of an adjustable proximity switch. Robust construction with the materials gunmetal / POM.

Technical data

Switch	Inductive proximity switch.	
Nominal width	DN 8..80	
Process connection	Female thread G ¹ / ₄ . G3	
Adjustment range	1..600 l/m / H ₂ O	For details see table "Ranges"
Q _{max.}	up to 720 l/min	
Tolerance	±5 % of full scale value	
From the full scale value pressure resistance	PN 16 bar	
Medium temperature	-20..+60 °C	
Ambient temperature	-20..+70 °C	
Media	Water, oils (air and gas on request)	
Voltage range	10..30 V DC	
Current requirement	< 10 mA	
Max. load current	100 mA	
Voltage drop	< 3 V	
Cable	2 m	
Ingress protection	IP 67	
Materials medium-contact	Rg5/Rg6 nickelled, POM, 1.4305, CW614N 1.4310	
Non-medium-contact materials	ABS, NBR	
Weight	see table "Dimensions and weights"	
Installation location	Switching head facing downward must be avoided. The installation position can affect the adjustment range!	

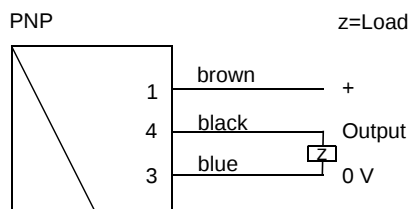
Ranges

For switching ranges, the details in the table correspond to horizontal inwards flow and decreasing flow rate; for display ranges they correspond to horizontal inwards flow and increasing flow rate.

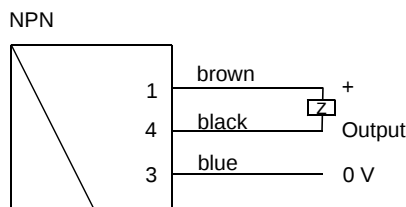
Type	Nominal width	Adjustment range l/min H ₂ O	Q _{max. rec.} l/min H ₂ O
VI-008GR010.	DN 8	1 - 10	20
VI-010GR010.	DN 10	1 - 10	25
VI-015GR020.	DN 15	4 - 20	30
VI-020GR040.	DN 20	10 - 40	40
VI-025GR060.	DN 25	20 - 60	60
VI-032GR100.	DN 32	30 - 100	100
VI-040GR150.	DN 40	50 - 150	150
VI-050GR200.	DN 50	50 - 200	250
VI-065GR330.	DN 65	180 - 330	400
VI-080GR600.	DN 80	300 - 600	720

Wiring

Wiring 0.319



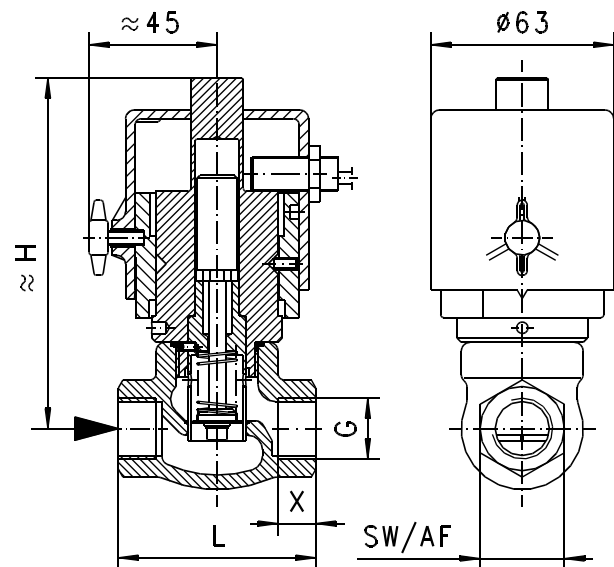
Optional



Before the electrical installation, it must be ensured that the supply voltage corresponds to the data sheet.
The use of shielded cabling is recommended.

Product Information

Dimensions and weights



Types	H mm	L mm	SW mm	X mm	Weight kg
VI-008GR010.	121	68	29	12	1.0
VI-010GR010.				13	
VI-015GR010.				13	
VI-020GR010.	122	73	32	11	1.1
VI-025GR010.		87	41	12	1.3
VI-032GR010.	133	98	52	13	2.1
VI-040GR010.	134	113	59	14	2.8
VI-050GR010.	142	137	72	17	4.0
VI-065GR010.	172	160	85	26	5.5
VI-080GR010.		148	100	23	7.0

Handling and programming

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Ordering code

VI- 1. 2. 3. 4. 5.

○=Option

1. Nominal width	
008	DN 8 - G ¹ / ₄
010	DN 10 - G ³ / ₈
015	DN 15 - G ¹ / ₂
020	DN 20 - G ³ / ₄
025	DN 25 - G1
032	DN 32 - G1 ¹ / ₄
040	DN 40 - G1 ¹ / ₂
050	DN 50 - G2
065	DN 65 - G2 ¹ / ₂
080	DN 80 - G3
2. Process connection	
G	Female thread
3. Housing material	
R	Rg5 / Rg6
4. Adjustment range for horizontal inwards flow	
010	1 - 10
020	4 - 20
040	10 - 40
060	20 - 60
100	30 - 100
150	50 - 150
200	50 - 200
330	180 - 330
600	300 - 600
5. Switching output	
P	PNP
N	NPN

Option

- Housing in stainless steel design

Ordering information

- Specify low direction, material and adjustment range.
- For viscous media, state viscosity, temperature and medium (e.g. ISO VG 68) (enquire about metering range).
- For gases, specify pressure (relative or absolute), temperature and medium (e.g. air) (enquire about range).

Product Information

Sensors and Instrumentation

Flow Switch / Indicator VDO-...GR

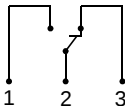


- No glass parts under load from pressure or media
- Monitor and display
- Highly reproducible
- Precise, stepless adjustment of the switching value
- Insensitive to dirt
- Short installation length

Characteristics

The volume flow raises a piston (fitted with a magnet) out from a valve seat against a spring force. The piston actuates a hermetically separated reed switch and a hermetically separated display ring.

Technical data

Switch	reed switch	
Nominal width	DN 8..80	
Process connection	female thread G 1/4..G 3	
Switching range	2..600 l/min	for details see table "Ranges"
Q _{max.}	to 720 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	G 1/4..G 1/2 - PN 100 bar	
	G 3/4..G 1 - PN 25 bar	
	G 1 1/4 ..G 3 - PN 16 bar	
Medium temperature	-20..+120 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and gases available on request)	
Wiring	changeover no. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switching capacity	max. 50 VA	
Protection class	2 - safety insulation	
Ingress protection	IP 44, optionally IP 65	
Connection	plug DIN 43650-A / ISO 4400	
Materials medium-contact	Rg 5 / Rg 6 nickelled, POM, 1.4310, CW614N, NBR, hard ferrite	
Non-medium-contact materials	ABS, PA, acrylic XT	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

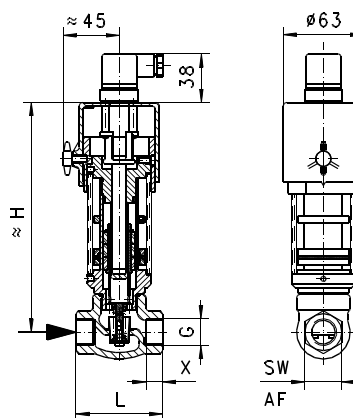
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	Nominal width	Switching range l/min H ₂ O	Q _{max.} recommended	Type
G 1/4	DN 8	2 - 10	15	VDO-008GR010
G 3/8	DN 10			VDO-010GR010
G 1/2	DN 15			VDO-015GR010
G 3/4	DN 20	4 - 20	20	VDO-015GR020
			30	VDO-015GR020
			40	VDO-020GR020
G 1	DN 25	10 - 40	60	VDO-020GR040
			85	VDO-025GR060
			100	VDO-032GR060
G 1 1/4	DN 32	20 - 60	145	VDO-032GR100
			150	VDO-040GR100
			220	VDO-040GR150
G 1 1/2	DN 40	30 - 100	250	VDO-050GR100
			290	VDO-050GR200
			400	VDO-065GR200
G 2	DN 50	100 - 200	475	VDO-065GR330
			600	VDO-080GR330
			720	VDO-080GR600
G 2 1/2	DN 65	180 - 330		
G 3	DN 80	400 - 600		

Special ranges are available

Dimensions and weights

G	Types	H	L	SW	X	Weight kg
G 1/4	VD-008GR	183	68	29	12	1.3
G 3/8	VD-010GR				13	1.4
G 1/2	VD-015GR					
G 3/4	VD-020GR	184	73	32	11	1.5
G 1	VD-025GR	188	87	41	12	1.7
G 1 1/4	VD-032GR	190	98	52	13	2.2
G 1 1/2	VD-040GR	195	113	59	14	2.9
G 2	VD-050GR	203	137	72	17	4.2
G 2 1/2	VD-065GR	224	160	85	26	5.8
G 3	VD-080GR		148	100	23	7.8



Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.
- Remove the transport lock (white plastic screw in acrylic body) before starting operation. Then seal the threaded hole with the sticker (included in the shipment).

Adjustment

To adjust the switching point, the fixing screw for the switching head must be loosened. The switching head can then be rotated. Turning to the right increases the switching point, and vice-versa. Then retighten the fixing screw.



Display

- The display is rotatable.



Ordering code

VDO - 1. 2. 3. 4.
VDO -

1. Nominal width											
008	DN 8 - G 1/4										
010	DN 10 - G 3/8										
015	DN 15 - G 1/2										
020	DN 20 - G 3/4										
025	DN 25 - G 1										
032	DN 32 - G 1 1/4										
040	DN 40 - G 1 1/2										
050	DN 50 - G 2										
065	DN 65 - G 2 1/2										
080	DN 80 - G 3										
2. Process connection											
G		female thread									
3. Connection material											
R		red bronze									
4. Switching range H ₂ O for horizontal inwards flow											
010	1 - 10 l/min									•	•
020	4 - 20 l/min									•	•
040	10 - 40 l/min									•	•
060	20 - 60 l/min									•	•
100	30 - 100 l/min									•	•
150	50 - 150 l/min									•	•
200	100 - 200 l/min									•	•
330	180 - 330 l/min									•	•
600	400 - 600 l/min									•	•

Options

- Special plugs, Tuchel / Harting
- Signal lamp red or red / green in the plug DIN 43650-A
- Other signal lamp
- Ingress protection IP 65
- Temperature display 0..120 °C
- Temperature monitoring 40..90 °C
- Temperature resistant up to 150 °C
- Metal cap
- Rhodium contact 250 V AC, 0.5 A, 30 VA
- Housing made from stainless steel
- Flange housing made from grey iron, gun metal, cast steel, or stainless steel
- Switching ranges for oil or gas
- Special values
- Internal parts are brass or stainless steel
- Damping for gas monitoring

Ordering information

- Specify direction of flow, medium, and switching range.
- For oils. State viscosity, temperature and designation (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Product Information

Sensors and Instrumentation

Flow Switch / Indicator TX-...FT

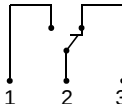


- Monitor and display
- Media temperature up to 350 °C
- Highly reproducible
- Insensitive to dirt
- DIN flange housing

Characteristics

The volume flow raises a disc unit with tappet rod and magnet against a spring force. This actuates a hermetically separated micro switch and a hermetically separated display

Technical data

Switch	micro switch	
Nominal width	DN 15..200	
Process connection	flange DIN 2545 PN 40	
Switching range	2..1250 l/min	for details see table "Ranges"
Q _{max.}	to 4,000 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 40 bar	
Medium temperature	-20..+350 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils available on request)	
Wiring	changeover no. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 6 A	
Protection class	2 - safety insulation	
Ingress protection	IP 44	
Connection	plug DIN 43650-A / ISO 4400 or cable screw gland with 2.5 m cable	
Materials medium-contact	cast steel GGS 25, 1.4571, 1.4301, 1.4305, 1.4310, Sigriflex V20011Z3I, hard ferrite, FKM	
Non-medium-contact materials	Acrylic (XT), PA, POM, CW614N nickelled, steel coated with Rilsan	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and display range.

Ranges

Details in the table correspond to horizontal inwards flow with decreasing flow rate.

Nominal width	Switching range l/min H2O	Q _{max.} recommended	Type
DN 15	2 - 8	20	TX-015FT0008
	4 - 20	30	TX-015FT0020
DN 20	10 - 40	40	TX-020FT0020
		55	TX-020FT0040
DN 25	20 - 60	60	TX-025FT0040
		80	TX-025FT0060
DN 32	30 - 100	100	TX-032FT0060
		135	TX-032FT0100
DN 40	50 - 200	150	TX-040FT0100
		270	TX-040FT0200
DN 50	100 - 250	340	TX-050FT0200
			TX-050FT0250
DN 65	150 - 300	400	TX-065FT0250
			TX-065FT0300
DN 80	300 - 450	600	TX-080FT0300
			TX-080FT0450
DN 100	200 - 400	950	TX-100FT0400
			TX-100FT0500
DN 150	600 - 750	2000	TX-150FT0750
			TX-150FT0950
DN 200	850 - 1050	4000	TX-200FT1050
			TX-200FT1250

Special ranges are available

Dimensions and weights

DN	Types	H	L	D	k	d	Weight kg
15	TX-015FT	370	130	95	65	4 x 14	6.0
20	TX-020FT		150	105	75		6.5
25	TX-025FT	380	160	115	85	4 x 18	8.5
32	TX-032FT		180	140	100		10.5
40	TX-040FT	390	200	150	110	8 x 18	13.0
50	TX-050FT		230	165	125		15.5
65	TX-065FT	410	290	185	145	8 x 22	25.5
80	TX-080FT	430	310	200	160		31.0
100	TX-100FT	450	350	235	190	8 x 26	38.0
150	TX-150FT	510	480	300	250		87.0
200	TX-200FT	580	600	375	320	12 x 30	154.0

Flow switch Novafix PD-...TH

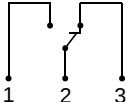


- Adhesive fitting DN 15, DN 80
- Highly reproducible
- Insensitive to dirt
- Precise setting of the switching valve by means of rotation

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable Reed contact.
Robust construction in PVC material.

Technical data

Switch	Reed switch	
Nominal width	DN 15..80	
Process connection	Adhesive fitting	
Adjustment range	2..500 l/min	For details see table "Ranges"
Q _{max.}	up to 600 l/min	
Hysteresis	Depending on the switching value, minimum 1 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 10 bar	
Medium temperature	-20..+60 °C	
Ambient temperature	-20..+60 °C	
Media	Water (oils and gases available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switch performance	max. 50 VA	
Protection class	2 - Safety insulation	
Ingress protection	IP 44	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310, Delta Tone/sial coated, PVC, Viton, hard ferrite	
Non-medium-contact materials	ABS	

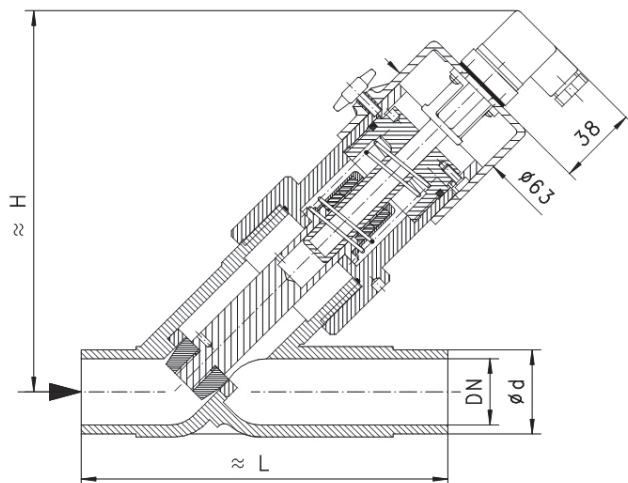
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max. rec.} l/min H ₂ O	
PD-015TH...	DN 15	2 - 8	4 - 20	20	30
PD-020TH...	DN 20	4 - 20	10 - 40	40	60
PD-025TH...	DN 25	10 - 40	20 - 60	60	90
PD-032TH...	DN 32	20 - 60	30 - 100	100	130
PD-040TH...	DN 40	30 - 100	50 - 150	150	180
PD-050TH...	DN 50	50 - 150	100 - 200	250	
PD-065TH...	DN 65	100 - 200	150 - 330	400	
PD-080TH...	DN 80	150 - 300	330 - 500	600	

Dimensions and weights

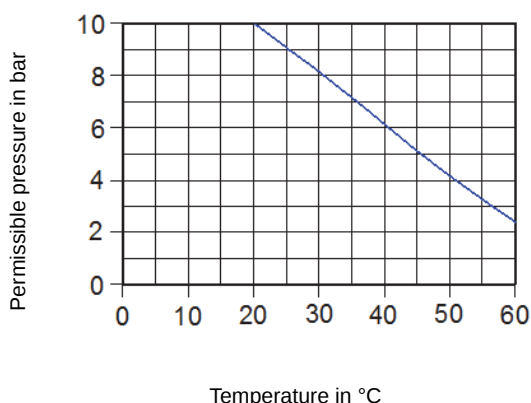


Types	d mm	H mm	L mm	Weight kg
PD-015TH...	20	170	124	0.60
PD-020TH...	25	174	144	0.65
PD-025TH...	32	186	154	0.90
PD-032TH...	40	196	174	1.00
PD-040TH...	50	194	194	1.20
PD-050TH...	63	194	224	1.45
PD-065TH...	75	240	284	2.10
PD-080TH...	90	240	300	3.20

Product Information

Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.
- Remove the transport lock (white plastic screw in acrylic glass body) before commissioning. Then close the threaded hole with the sticker included in the scope of supply.
- Do not exceed permissible pressure depending on the temperature (see diagram)



Ordering code

1. 2. 3. 4.
PD- T H

○=Option

1. Nominal width	
015	DN 15
020	DN 20
025	DN 25
032	DN 32
040	DN 40
050	DN 50
065	DN 65
080	DN 80
2. Process connection	
T	Adhesive fitting
3. Connection material	
H	PVC
Adjustment range H ₂ O for horizontally decreasing inwards flow	
4.	
008	2 - 8 l/min
020	4 - 20 l/min
040	10 - 40 l/min
060	20 - 60 l/min
100	30 - 100 l/min
150	50 - 150 l/min
200	100 - 200 l/min
300	150 - 300 l/min
330	150 - 330 l/min
500	330 - 500 l/min

Options

- Signal lamp
- Protection class IP 65
- Glue socket and flange design
- Adjustment ranges with oil and gas
- Selected hysteresis
- Rhodium contact
- Special values
- Metal cap

Ordering information

- Specify low direction, material and adjustment range.
- For viscous media, state viscosity, temperature and medium (e.g. ISO VG 68) (enquire about metering range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request display range).

Product Information

Sensors and Instrumentation

Flow switch Novafix PD-...FH

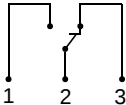


- Highly reproducible
- Insensitive to dirt
- Precise setting of the switching valve by means of rotation

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable Reed contact.
Robust construction in PVC material.

Technical data

Switch	Reed switch	
Nominal width	DN 15..80	
Process connection	flange	
Adjustment range	2..500 l/min	For details see table "Ranges"
Q _{max.}	up to 600 l/min	
Hysteresis	Depending on the switching value, minimum 1 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 10 bar	
Medium temperature	-20..+60 °C	
Ambient temperature	-20..+70 °C	
Media	Water (oils and gases available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switch performance	max. 50 VA	
Protection class	2 - Safety insulation	
Ingress protection	IP 44	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310, Delta Tone/sial coated, PVC, Viton, hard ferrite	
Non-medium-contact materials	ABS	
Weight	see table "Dimensions and weights"	

Installation location

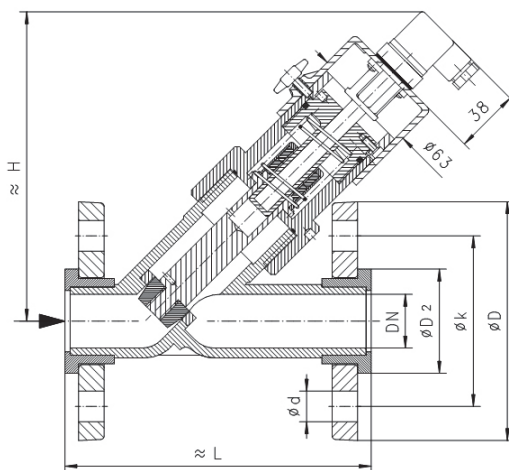
Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max. rec.} l/min H ₂ O	
PD-015FH...	DN 15	2 - 8	4 - 20	20	30
PD-020FH...	DN 20	4 - 20	10 - 40	40	60
PD-025FH...	DN 25	10 - 40	20 - 60	60	90
PD-032FH...	DN 32	20 - 60	30 - 100	100	130
PD-040FH...	DN 40	30 - 100	50 - 150	150	180
PD-050FH...	DN 50	50 - 150	100 - 200	250	
PD-065FH...	DN 65	100 - 200	150 - 330	400	
PD-080FH...	DN 80	150 - 300	330 - 500	600	

Dimensions and weights



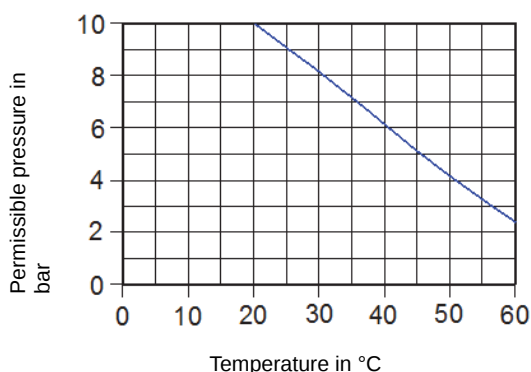
Seal surface up to DN 50 smooth
from DN 65 grooved

Types	H mm	L mm	D mm	D2 mm	k mm	d mm	Weight kg
PD-015FH...	170	130	95	34	65	4xØ14	0.9
PD-020FH...	174	150	105	41	75	4xØ14	1.1
PD-025FH...	186	160	115	50	85	4xØ14	1.3
PD-032FH...	196	180	140	61	100	4xØ18	1.6
PD-040FH...	194	200	150	73	110	4xØ18	2.0
PD-050FH...	194	230	165	90	125	4xØ18	2.6
PD-065FH...	240	290	185	106	145	4xØ18	3.6
PD-080FH...	240	310	200	125	160	8xØ18	4.8

Product Information

Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.
- Remove the transport lock (white plastic screw in acrylic glass body) before commissioning. Then close the threaded hole with the sticker included in the scope of supply.
- Do not exceed permissible pressure depending on the temperature (see diagram)



Ordering code

1. 2. 3. 4.
PD-

○=Option

1. Nominal width	
015	DN 15
020	DN 20
025	DN 25
032	DN 32
040	DN 40
050	DN 50
065	DN 65
080	DN 80
2. Process connection	
F	flange
3. Connection material	
H	PVC
4. Adjustment range H ₂ O for horizontally decreasing inwards flow	
008	2 - 8 l/min
020	4 - 20 l/min
040	10 - 40 l/min
060	20 - 60 l/min
100	30 - 100 l/min
150	50 - 150 l/min
200	100 - 200 l/min
300	150 - 300 l/min
330	150 - 330 l/min
500	330 - 500 l/min

Options

- Signal lamp
- Protection class IP 65
- Adjustment ranges with oil and gas
- Selected hysteresis
- Rhodium contact
- Special values
- Metal cap

Ordering information

- Specify low direction, material and adjustment range.
- For viscous media, state viscosity, temperature and medium (e.g. ISO VG 68) (enquire about metering range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request display range).

Flow switch Novafix PD-...MH

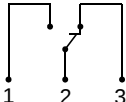


- Highly reproducible
- Insensitive to dirt
- Precise setting of the switching valve by means of rotation

Characteristics

Mechanical flow switch, for fluid media, with no-contact triggering of an adjustable Reed contact.
Robust construction in PVC material.

Technical data

Switch	Microswitch	
Nominal width	DN 15..50	
Process connection	Glue socket	
Adjustment range	2..200 l/min	For details see table "Ranges"
Q _{max.}	up to 250 l/min	
Hysteresis	Depending on the switching value, minimum 1 l/min	
Tolerance	±5 % of full scale value	
Pressure resistance	PN 10 bar	
Medium temperature	-20..+60 °C	
Ambient temperature	-20..+60 °C	
Media	Water (oils and gases available on request)	
Wiring	Transformer No. 0.213	
Switching voltage	max. 250 V AC	
Switching current	max. 1.5 A	
Switch performance	max. 50 VA	
Protection class	2 - Safety insulation	
Ingress protection	IP 44	
Connection	Plug DIN 43650-A / ISO 4400	
Materials medium-contact	1.4310, Delta Tone/sial coated, PVC, Viton, hard ferrite	
Non-medium-contact materials	ABS	

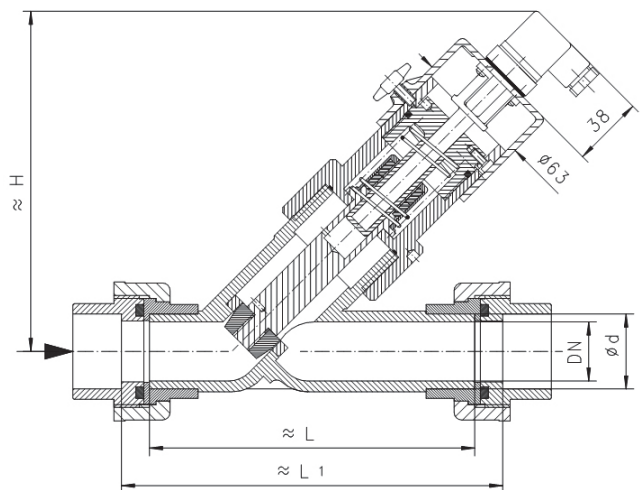
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range l/min H ₂ O		Q _{max. rec.} l/min H ₂ O	
PD-015MH...	DN 15	2 - 8	4 - 20	20	30
PD-020MH...	DN 20	4 - 20	10 - 40	40	60
PD-025MH...	DN 25	10 - 40	20 - 60	60	90
PD-032MH...	DN 32	20 - 60	30 - 100	100	130
PD-040MH...	DN 40	30 - 100	50 - 150	150	180
PD-050MH...	DN 50	50 - 150	100 - 200	250	

Dimensions and weights

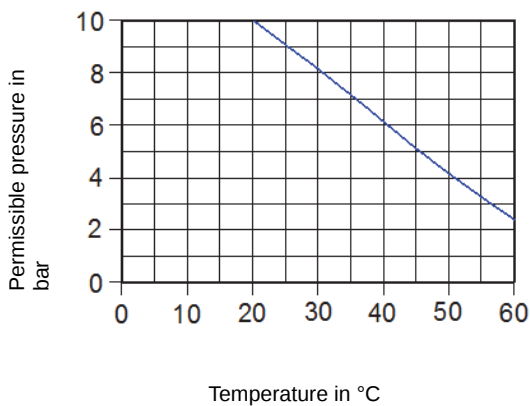


Types	d mm	H mm	L mm	L ₁ mm	Weight kg
PD-015MH...	20	170	124	150	0.9
PD-020MH...	25	174	144	170	1.1
PD-025MH...	32	186	154	180	1.3
PD-032MH...	40	196	174	204	1.6
PD-040MH...	50	194	194	228	2.0
PD-050MH...	63	194	224	266	2.6

Product Information

Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.
- Remove the transport lock (white plastic screw in acrylic glass body) before commissioning. Then close the threaded hole with the sticker included in the scope of supply.
- Do not exceed permissible pressure depending on the temperature (see diagram)



Ordering code

1. 2. 3. 4.
PD- M H

○=Option

1. Nominal width	
015	DN 15
020	DN 20
025	DN 25
032	DN 32
040	DN 40
050	DN 50
2. Process connection	
M	Screw connection with glue socket
3. Connection material	
H	PVC
4. Adjustment range H ₂ O for horizontally decreasing inwards flow	
008	2 - 8 l/min
020	4 - 20 l/min
040	10 - 40 l/min
060	20 - 60 l/min
100	30 - 100 l/min
150	50 - 150 l/min
200	100 - 200 l/min

Options

- Signal lamp
- Protection class IP 65
- Adjustment ranges with oil and gas
- Selected hysteresis
- Rhodium contact
- Special values
- Metal cap

Ordering information

- Specify low direction, material and adjustment range.
- For viscous media, state viscosity, temperature and medium (e.g. ISO VG 68) (enquire about metering range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request display range).

Product Information

Flow Meter TZ1-...GR

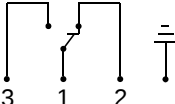


- Large analog display
- Monitor and display
- Simple adjustment by means of drag indicator
- Insensitive to dirt
- Short installation length

Characteristics

The volume flow raises a piston out from a valve seat against a spring force. The piston actuates the display movement by means of a magnetic coupling.

Technical data

Switch	optionally micro switch	
Nominal width	DN 8..80	
Process connection	female thread G 1/4..G 3	
Metering range	2..600 l/min	for details see table "Ranges"
Q _{max.}	to 600 l/min	
Tolerance	±3 % of full scale value	
Pressure resistance	G 1/4..G 1/2 - PN 100 bar	
	G 3/4..G 1 - PN 25 bar	
	G 1 1/4.. - PN 16 bar	
	G 3	
Medium temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and gases available on request)	
Wiring	changeover no. 0.342	
Switching voltage	max. 250 V AC	
Switching current	max. 5 A	
Protection class	2 - safety insulation	
Ingress protection	IP 65	
Connection	plug DIN 43650-A / ISO 4400	
Materials medium-contact	Rg 5 / Rg 6 nickelled, CW614N, 1.4310, NBR, hard ferrite	
Non-medium-contact materials	CW614N chromed, steel chromed, Acrylic, NBR	
Weight	see table "Dimensions and weights"	

Installation location

Standard: horizontal inwards flow; display downwards not recommended; other installation positions are possible; the installation position affects the switching point and display range.

Ranges

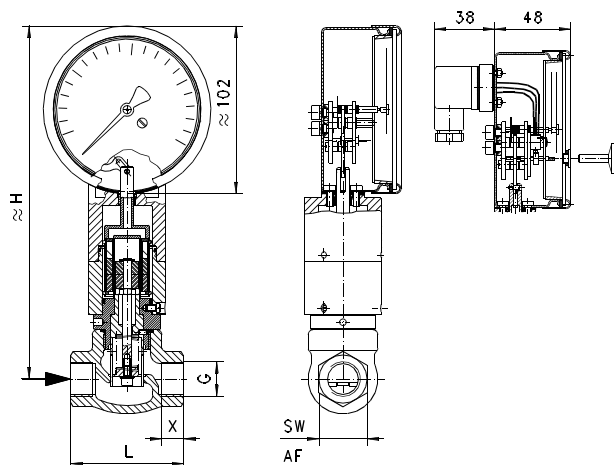
Details in the table correspond to horizontal inwards flow with increasing flow rate.

G	Nominal width	Metering range l/min H ₂ O	Q _{max.} recommended	Type
G 1/4	DN 8	2 - 6	8	TZ1-008GR006
		3 - 12	12	TZ1-008GR012
G 3/8	DN 10	2 - 6	10	TZ1-010GR006
		3 - 12	12	TZ1-010GR012
G 1/2	DN 15	2 - 6	20	TZ1-015GR006
		4 - 20		TZ1-015GR020
G 3/4	DN 20		40	TZ1-020GR020
		10 - 40		TZ1-020GR040
G 1	DN 25	10 - 60	60	TZ1-025GR060
G 1 1/4	DN 32	10 - 100	100	TZ1-032GR100
G 1 1/2	DN 40	10 - 150	150	TZ1-040GR150
G 2	DN 50	20 - 250	250	TZ1-050GR250
G 2 1/2	DN 65	30 - 400	400	TZ1-065GR400
G 3	DN 80	30 - 600	600	TZ1-080GR600

Special ranges are available

Dimensions and weights

G	Types	H	L	SW	X	Weight kg
G 1/4	TZ1-008GR	212	68	29	12	1.6
G 3/8	TZ1-010GR					
G 1/2	TZ1-015GR				13	
G 3/4	TZ1-020GR	213	73	32	11	1.7
G 1	TZ1-025GR	216	87	41	12	2.0
G 1 1/4	TZ1-032GR	226	98	52	13	2.6
G 1 1/2	TZ1-040GR	228	113	59	14	3.1
G 2	TZ1-050GR	236	137	72	17	6.4
G 2 1/2	TZ1-065GR	268	160	85	26	7.5
G 3	TZ1-080GR		148	100	23	8.7



Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive and inductive loads must be operated using a protective circuit.

Adjustment

The micro switch (optional) is adjusted by means of the knurled adjusting screw provided. The screw allows the drag indicator to be set to the desired switching value. The value displayed corresponds to a switching point for a decreasing flow rate.



Ordering code

1. 2. 3. 4. 5.
TZ1

○=Option

1. Additional devices											
-	only analog display										
M-	with integrated micro switch										
P-	○ with potentiometer	see „Additional devices for TZ1”									
M2-	○ with 2 x normally open (n.o.)										
M3-	○ with 2 x normally closed (n.c.)										
2. Nominal width											
008	DN 8 - G 1/4										
010	DN 10 - G 3/8										
015	DN 15 - G 1/2										
020	DN 20 - G 3/4										
025	DN 25 - G 1										
032	DN 32 - G 1 1/4										
040	DN 40 - G 1 1/2										
050	DN 50 - G 2										
065	DN 65 - G 2 1/2										
080	DN 80 - G 3										
3. Process connection											
G	female thread										
4. Connection material											
R	red bronze										
5. Metering range H ₂ O for horizontal inwards flow											
006	2 - 6 l/min									•	•
012	3 - 12 l/min									•	•
020	4 - 20 l/min									•	•
040	10 - 40 l/min									•	
060	10 - 60 l/min									•	
100	10 - 100 l/min									•	
150	10 - 150 l/min									•	
250	20 - 250 l/min									•	
400	30 - 400 l/min									•	
600	30 - 600 l/min									•	

Options

- Gold contact micro switch
 - min: 5 V DC, 1 mA
 - max: 125 V AC, 30 V DC, 1 A
- Special Harting plug
- Metering ranges for oil or gas
- Special values

Ordering information

- Specify direction of flow, medium, and metering range.
- For oils. State viscosity, temperature and designation (e.g. ISO VG 68) (enquire about metering range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request metering range)

Product Information

Sensors and Instrumentation

Flow Meter TZ1-...GK

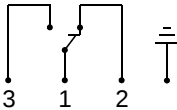


- Large analog display
- Monitor and display
- Simple adjustment by means of drag indicator
- Insensitive to dirt
- Short installation length

Characteristics

The volume flow raises a disc unit (fitted with a magnet) out from a valve seat against a spring force. The magnet actuates the display movement by means of a magnetic coupling.

Technical data

Switch	optionally micro switch		
Nominal width	DN 15..50		
Process connection	female thread G 1/2..G 2		
Metering range	2..250 l/min	for details see table "Ranges"	
Q _{max.}	to 250 l/min		
Tolerance	±3 % of full scale value		
Pressure resistance	PN 100 bar		
Medium temperature	-20..+90 °C		
Ambient temperature	-20..+70 °C		
Media	water (oils, gases and aggressive media available on request)		
Wiring	changeover no. 0.342 		
Switching voltage	max. 250 V AC		
Switching current	max. 5 A		
Protection class	2 - safety insulation		
Ingress protection	IP 65		
Electrical connection	plug DIN 43650-A / ISO 4400		
Materials medium-contact	1.4305, 1.4571, 1.4310, NBR, hard ferrite PTFE-coated		
Non-medium-contact materials	CW614N chromed, steel chromed, acrylic, FKM		
Weight	see table "Dimensions and weights"		

Installation location

Standard: horizontal inwards flow; display downwards not recommended; other installation positions are possible; the installation position affects the switching point and display range.

Ranges

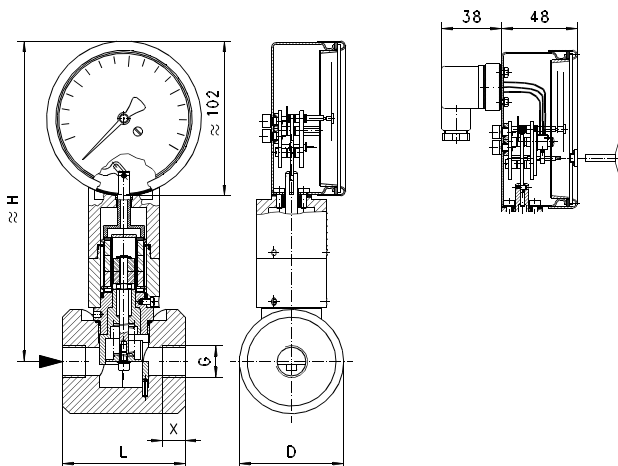
Details in the table correspond to horizontal inwards flow with increasing flow rate.

G	Nominal width	Metering range l/min H ₂ O	Q _{max.} recommended	Type
G 1/2	DN 15	2 - 6	8	TZ1-015GK006
		4 - 20	20	TZ1-015GK020
G 3/4	DN 20		40	TZ1-020GK020
		5 - 40		TZ1-020GK040
G 1	DN 25	10 - 60	60	TZ1-025GK060
G 1 1/4	DN 32	10 - 100	100	TZ1-032GK100
G 1 1/2	DN 40	10 - 150	150	TZ1-040GK150
G 2	DN 50	20 - 250	250	TZ1-050GK250

Special ranges are available

Dimensions and weights

G	Types	H	L	D	X	Weight kg
G 1/2	TZ1-015GK	210	80	68	15	2.9
G 3/4	TZ1-020GK				16	2.8
G 1	TZ1-025GK				18	2.7
G 1 1/4	TZ1-032GK		95	78	24	3.4
G 1 1/2	TZ1-040GK	223	105	88	25	3.7
G 2	TZ1-050GK	225	120	102	27	5.1



Product Information

Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switched on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive and inductive loads must be operated using a protective circuit.

Adjustment

The micro switch (optional) is adjusted by means of the knurled adjusting screw provided. The screw allows the drag indicator to be set to the desired switching value. The value displayed corresponds to a switching point for a decreasing flow rate.



Ordering code

TZ1 1. 2. 3. 4. 5.

○=Option

1. Additional devices					
-	only analog display				
M-	with integrated micro switch				
P- ○	with potentiometer				see „Additional devices for TZ1“
M2- ○	with 2 x normally open (n.o.)				
M3- ○	with 2 x normally closed (n.c.)				
2. Nominal width					
015	DN 15 - G 1/2				
020	DN 20 - G 3/4				
025	DN 25 - G 1				
032	DN 32 - G 1 1/4				
040	DN 40 - G 1 1/2				
050	DN 50 - G 2				
3. Process connection					
G	female thread				
4. Connection material					
K	stainless steel				
5. Metering range H ₂ O for horizontal inwards flow					
006	2 - 6 l/min				●
020	4 - 20 l/min				● ●
040	5 - 40 l/min				●
060	10 - 60 l/min			●	
100	10 - 100 l/min			●	
150	10 - 150 l/min		●		
250	20 - 250 l/min	●			

Options

- Gold contact micro switch Goldkontakt
 - min: 5 V DC, 1 mA
 - max: 125 V AC, 30 V DC, 1 A
- Special Harting plug
- Metering ranges for oil or gas
- Special values

Ordering information

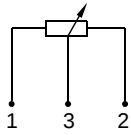
- Specify direction of flow, medium, and metering range.
- For oils. State viscosity, temperature and designation (e.g. ISO VG 68) (enquire about metering range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request metering range)

Product Information

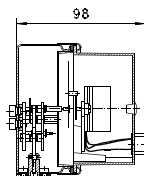
Additional Devices for TZ1

TZ1P - 10 kOhm potentiometer

Technical data

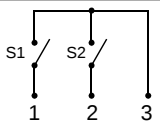
Switch/sensor	potentiometer
Wiring	no. 0.269
	
Switching voltage	max. 50 V DC
Switching current	max. 100 mA
Switching capacity	max. 1.5 W
Protection class	2 - safety insulation
Additional Tolerance	±3 %
resistance tolerance	±1 %
Linearity tolerance	±0,3 %
Ingress protection	IP 60
Electrical connection	plug Hirschmann G 4
Additional Weight	0.3 kg

Dimensions

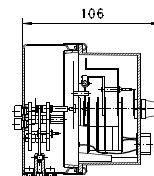


TZ1M2 - 2-pole normally open (n.o.)

Technical data

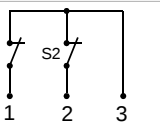
Switch/sensor	micro switch
Wiring	2 x normally open (n.o.) no. 0.268
	
Switching voltage	max. 250 V AC
Switching current	max. 0.6 A
Switching capacity	max. 50 VA
Protection class	2 -safety insulation
Ingress protection	IP 60
Electrical connection	plug Hirschmann G 4
Additional Weight	0.3 kg

Dimensions

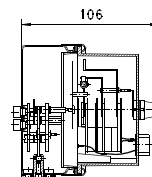


TZ1M3 - 2-pole normally closed (n.c.)

Technical data

Switch/sensor	Micro switch
Wiring	2 x normally closed (n.c.) wiring 0.285
	
Switching voltage	max. 250 V AC
Switching current	max. 0.6 A
Switching capacity	max. 50 VA
Protection class	2 -safety insulation
Ingress protection	IP 60
Electrical connection	plug Hirschmann G 4
Additional Weight	0.3 kg

Dimensions



Product Information

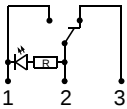
Sensors and Instrumentation

Options

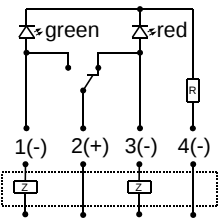
Plug DIN 43650-A / ISO 4400 with diodes



Diode red

Wiring	changeover with diode No. 0.208	
Switching voltage	max. 12 V AC, 24 V AC, 48 V AC, 115 V DC or 230 V DC (when ordering please state)	

Red / green diode

Wiring	changeover with diode No. 0.347	
Switching voltage	max. 12 V AC, 24 V AC, 48 V AC, 115 V DC or 230 V DC (when ordering please state)	

Accessories

Filter

Type ZV



Type ZE



The HONSBURG filters are offered for the protection of the devices from dirt or as independent components for coarse and fine filtration of liquids.

For more information, see additional product information.

Product Information

Product Overview

„Industrial Sensors and Instrumentation“

Temperature
 Flow
 Level / Filling Height
 Analysis
 Humidity
 Pressure
 Weighing Instruments



„Process Instrumentation “Hygienic Design“

GHMadapt
 Temperature
 Flow
 Level / Filling Height
 Analysis



Sensors and Instrumentation

“Laboratory Instrumentation“



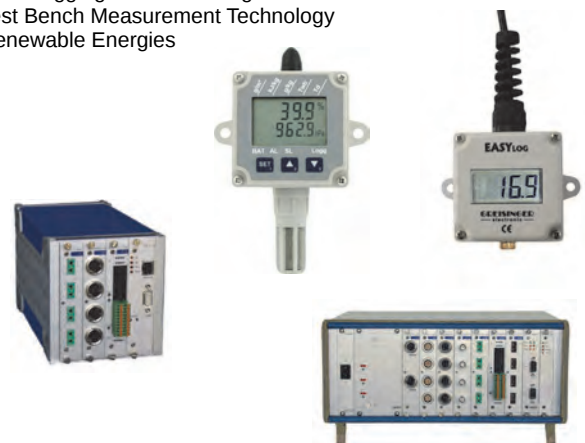
„Industrial Electronics“

Displays / Controller
 Transmitter / Signal conditioning
 Isolating converters
 Safety and Monitoring Devices
 Power Electronics
 Calibration and Testing



“Measuring Data Acquisition“

Data Logging and Monitoring
 Test Bench Measurement Technology
 Renewable Energies



... professional Instruments “MADE IN GERMANY”