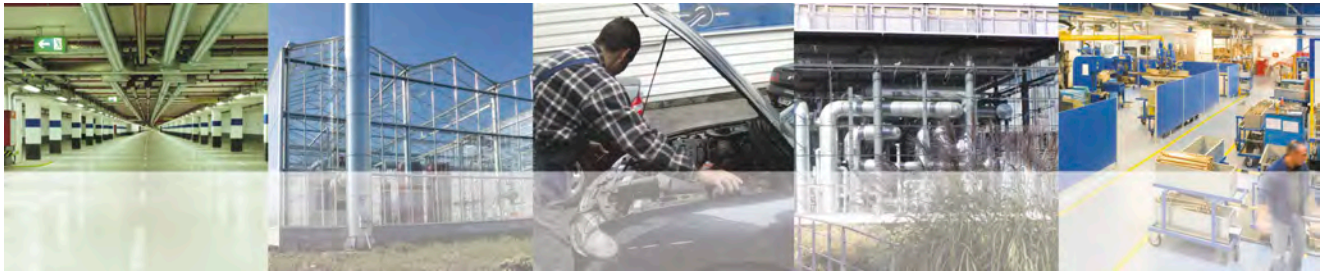




Product information
Flow – Piston Valve Design



Characteristics

System

- Flow - piston valve design

Evaluation

- Display, Switching

Nominal widths

- DN 8..200

Range

- 1..1250 l/min

Medien

- 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
- GL applications

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.

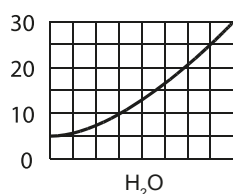
Since the piston works against the force of a support spring, the device can be installed independently of the position and have a secure reset function if the volume flow is lagging.

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

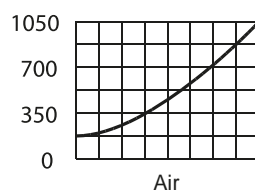
Some devices can also be used for viscous and gaseous media.

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

Q (l/min)



Q (l/min)



	Water	Viscosity mm ² /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 ¼ ..G 3	Red bronze	1,5..600	PN 16..200	-20..+100 °C	analog	-	5
FF	Reed switch	Innengewinde G ¼ ..G 1½	Red bronze	0,4..90 Justiert	PN 16..200	-20..+110 °C	-	normally open / normally closed 230 VAC, 1A, 50 VA	7
FM	Micro switch	Female thread G ¼ ..G 1½	Red bronze	0,4..12 Justiert	PN 200	20..+90 °C	-	Changeover 250 VAC, 6 A	9
G	Reed switch	Female thread G ¼ ..G 1½	Red bronze	0,015..0,4 Justiert	PN 16	20..+80 °C	-	normally closed 250 VAC, 1A, 50 VA	11
VD-...GR	Reed switch	Female thread G ¼ ..G 3	Red bronze	1..600	PN 16..25	20..+120 °C	-	Changeover 250 VAC 1,5 A, 50 VA	13
VD-...GK	Reed switch	Female thread G ½ ..G 2	Stainless steel	1..200	PN 100	20..+120 °C	-	Changeover 250 VAC 1,5 A, 50 VA	15
VD-...FK	Reed switch	flange	Stainless steel	2..950	PN 40	20..+120 °C	-	Changeover 250 VAC 1,5 A, 50 VA	17
VD-...FT	Reed switch	flange	Grey bronze	2..1600	PN 16	max. 20..+120 °C	-	Changeover 250 VAC 1,5 A, 50 VA	19
VD-...FG	Reed switch	flange	steel	2..1600	PN 40	20..+120 °C	-	Changeover 250 VAC 1,5 A, 50 VA	22
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	24
VM-...GR	Micro switch	Female thread G ¼ ..G 3	Red bronze	1..600	PN 16..100	-20..+90 °C	-	Changeover 250 V AC, 5 A	25
VM-...GK	Micro switch	Female thread G ½ ..G 1	Stainless steel	2..250	PN 100	-20..+90 °C	-	Changeover 250 V AC, 5 A	27
VM-...FG	Micro switch	flange	Grey bronze	5..4000	PN 16	-20..+70 °C	-	Changeover 250 V AC, 6 A	29
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	31
A-V3	ATEX switching head II 2G Ex d IIC T6					-20..+90 °C	-	Changeover 250 V AC, 5 A	32
VI-...GR	Inductive Proximity switch	Female thread G1¼ ..G 3	Red bronze / POM	1..600	PN 16	-20..+60 °C	-	-	33
VDO	Reed switch	Female thread G ¼ ..G 3	Red bronze	2..600	PN 16..100	-20..+120 °C	analog	Changeover 250 V AC, 1,5 A, 50 VA	35
TX	Micro switch	flange DN 15..200	Cast steel	2..1250	PN 40	-20..+350 °C	analog	Changeover 250 V AC, 6 A	37

Device overview

Device	Switch	Connection	Materials	Range l/min	Pressure resistance in bar	Medium temperature	Displays	Switching	Page
PD-...TH	Micro switch	adhesive fitting DN 15..80	PVC	2..500	PN 10	-20..+70 °C	-	Changeover 250 V AC, 1,5 A, 50 VA	39
PD-...FH	Micro switch	Flange DN 15..80	PVC	2..500	PN 10	-20..+70 °C	-	Changeover 250 V AC, 1,5 A, 50 VA	41
PD-...MH	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	43
UZ	Optional Micro switch	Innengewinde G ½ ..G 2	Stainless steel, brass	2..500	dynamic PN 6 bar static PN 16 bar	-20..+100 °C	-	Changeover 250 V AC, 5 A	45
TZ1	Micro switch or potentiometer	Female thread G¼ ..G3	Red bronze	2..600	PN 16..100	-20..+90 °C	analog	Changeover 250 V AC, 5 A	50
		Female thread G ½ ..G 2	Stainless steel	2..250	PN 100	-20..+90 °C	analog	Changeover 250 V AC, 5 A 2 x normally open 2 x normally closed	
	Additional devices for TZ1						-20..+90 °C	analog	250 V AC, 0,6 A, 50 VA
Option	○ Plug DIN 43650-A / ISO 4400								53
Accessories	○ Type ZV / ZE (Filter)								53

Errors and technical modifications reserved.

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 3	- 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.

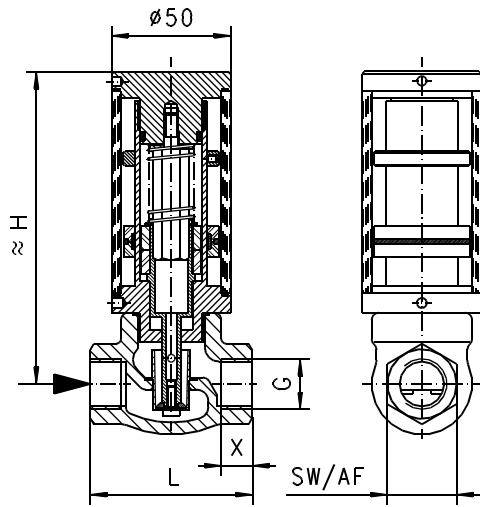
● = Standard ○ = Option

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
		○			MP-050GR150
G 2	DN 50	●	50.0 - 250	250	MP-050GR250
		○			MP-065GR250
G 2 1/2	DN 65	○			MP-065GR250
		●	80.0 - 400	400	MP-065GR400
G 3	DN 80	○			MP-080GR400
		●	120.0 - 600	600	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...					
G 1/2	MP-015GR...				13	
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
					23	
G 3	MP-080GR...		148	100	23	8.3

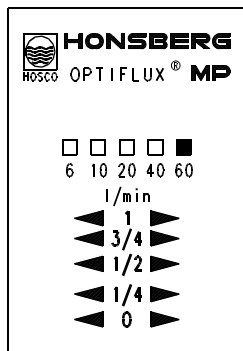


Handling and operation

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).
- 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).

Display



- The display is rotatable.

Ordering code

MP - 1. 2. 3. 4.
 MP - **G** **R**

●=Standard ○=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 - 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. Display range H ₂ O for horizontal inwards flow					
006	1.5 - 6 l/min			○	○
010	2.5 - 10 l/min			○	○
020	5.0 - 20 l/min			○	○
040	10.0 - 40 l/min			●	●
060	12.0 - 60 l/min			○	
100	20.0 - 100 l/min			●	
150	30.0 - 150 l/min			○	●
250	50.0 - 250 l/min			○	●
400	80.0 - 400 l/min			○	●
600	120.0 - 600 l/min			●	

Options

- Housing made from stainless steel
- Special ranges/special scaling

Ordering information

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

Flow Switch FF-...GR

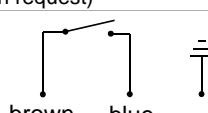
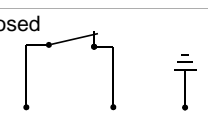


- Adjusted switching value
- Highly reproducible
- Insensitive to dirt

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 	
	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

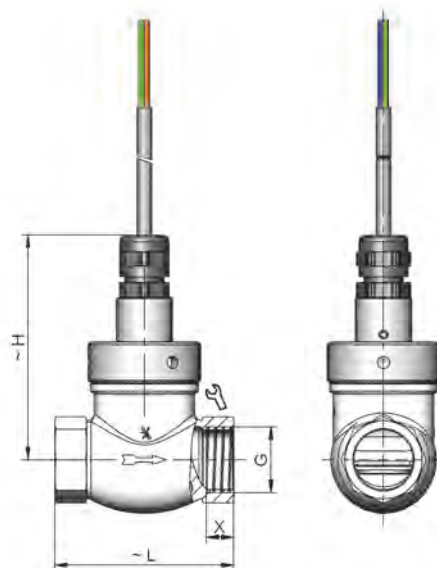
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	DN	Switching point l/min H ₂ O Choose between	Types	Q _{max.} recommended
G 1/4	DN 8	0.4 - 9	FF-008GR009	7
G 3/8	DN 10	0.4 - 10	FF-010GR010	10
G 1/2	DN 15	0.4 - 12	FF-015GR012	22
G 3/4	DN 20	0.6 - 25	FF-020GR025	38
G 1	DN 25	1.5 - 40	FF-025GR040	60
G 1 1/4	DN 32	2.0 - 60	FF-032GR060	100
G 1 1/2	DN 40	3.0 - 90	FF-040GR090	150

Special ranges are available

Dimensions and weights

G	Types	L	H	SW	X	Weight kg
G 1/4	FF-008GR...	68	80	29	12	0.6
G 3/8	FF-010GR...					
G 1/2	FF-015GR...				13	
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	95	52	14	1.5
G 1 1/2	FF-040GR...	113	95	59		2.0



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

FF - 1. 2. 3. 4. 5.
G **R**

○=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 - G 1
032	DN 32 - G 1 1/4
040	DN 40 - G 1 1/2
2. Process connection	
G	female thread
3. Connection material	
R	red bronze
4. Switching point H₂O can be set as desired between	
009	0.4 - 9 l/min
010	0.4 - 10 l/min
012	0.4 - 12 l/min
025	0.6 - 25 l/min
040	1.5 - 40 l/min
060	2.0 - 60 l/min
090	3.0 - 90 l/min
5. Wiring	
S	'normally open', no. 0.212
O	○ 'normally closed', no. 0.214 (please enquire about range)

Options

- 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).

Flow Switch FM-...GR

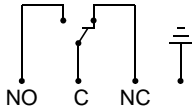


- Adjusted switching value
- Highly reproducible
- Insensitive to dirt
- High switching power

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. 5 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

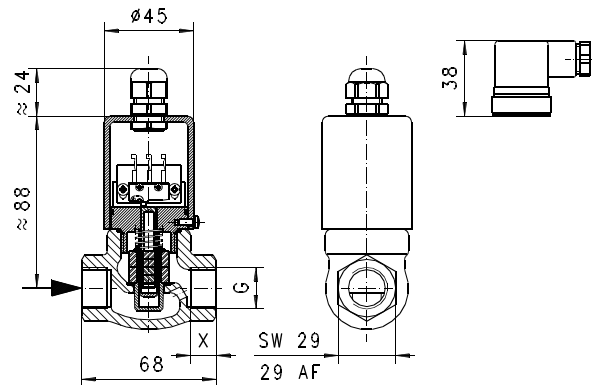
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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	FM-008GR...	12	0.65
G 3/8	FM-010GR...		
G 1/2	FM-015GR...	13	0.60



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

FM - 1. 2. 3. 4.

1. Nominal width	
008	DN 8 - G 1/4
010	DN 10 - G 3/8
015	DN 15 - G 1/2
2. Process connection	
G	female thread
3. Connection material	
R	red bronze
4. Switching point H₂O 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).

Flow Switch G-...GR

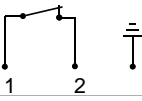


- Adjusted switching value
- Small switching point

Characteristics

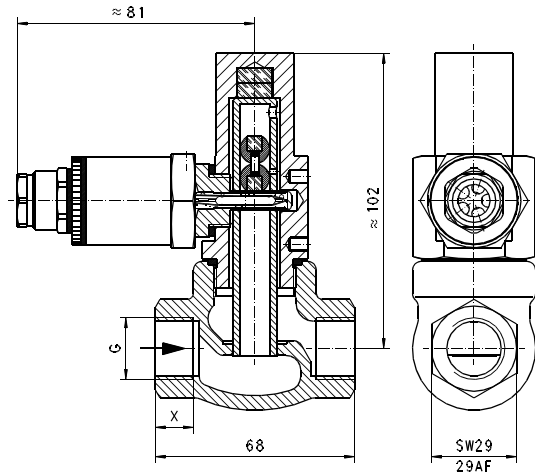
Balls fitted with magnets rise in proportion to the flow against the magnetic force of an opposite-poled magnet and actuate a reed contact.

Technical data

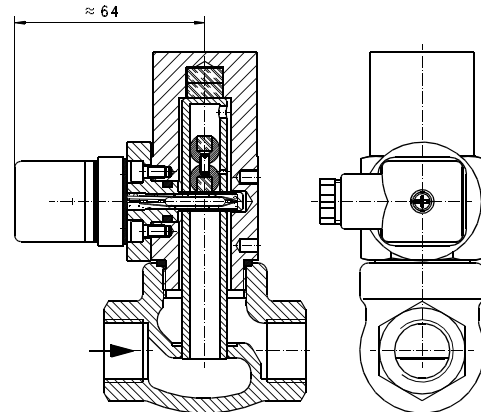
Switch	reed switch
Nominal width	DN 8..15
Process connection	female thread G 1/4..G 1/2
Adjustment range	0.15..0.4 l/min horizontal inwards flow with decreasing flow rate
Q_{max. recommended}	G 1/4 - 4 l/min G 3/8 - 8 l/min G 1/2 - 12 l/min
Tolerance	±10 % of full scale value
Pressure resistance	PN 16 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, Klingsil 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.

Ordering code

Standard device

G - 1. 2. 3.

1. Nominal width	
008	DN 8 - G 1/4
010	DN 10 - G 3/8
015	DN 15 - G 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).

Flow Switch VD-...GR

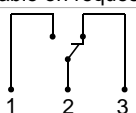


- Highly reproducible
- Precise, stepless adjustment of the switching value
- Insensitive to dirt
- Short installation length

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

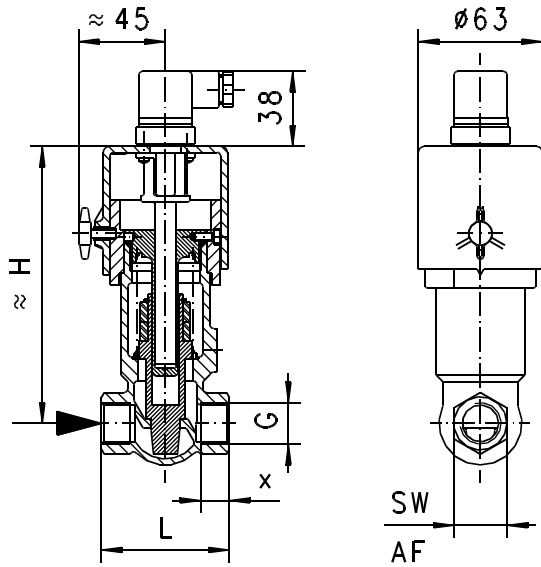
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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		
G 1/2	DN 15		30	VD-010GR020		
			20	VD-015GR010		
G 3/4	DN 20		30	VD-015GR020		
		20	VD-020GR010			
G 1	DN 25	10 - 40 20 - 60	40	VD-020GR020		
			60	VD-020GR040		
		1 - 10 4 - 20	80	VD-020GR060		
			20	VD-025GR010		
		G 1 1/4	DN 32	10 - 40 20 - 60	40	VD-025GR020
					60	VD-025GR040
G 1 1/2	DN 40	10 - 40 20 - 60	85	VD-025GR060		
			90	VD-032GR040		
		30 - 100 50 - 150	100	VD-032GR060		
			145	VD-032GR100		
		20 - 60 30 - 100	200	VD-032GR150		
			100	VD-040GR060		
G 2	DN 50	50 - 150	150	VD-040GR100		
			220	VD-040GR150		
G 2 1/2	DN 65	100 - 200 180 - 330	250	VD-050GR150		
			290	VD-050GR200		
G 3	DN 80	300 - 600	400	VD-065GR200		
			475	VD-065GR330		
			600	VD-080GR330		
			720	VD-080GR600		

Special ranges are available

Dimensions and weights

G	Types	H	L	SW	X	Weight kg	
G 1/4	VD-008GR	150	65	29	12	1.0	
G 3/8	VD-010GR						
G 1/2	VD-015GR						
G 3/4	VD-020GR						
G 1	VD-025GR						
G 1 1/4	VD-032GR	156	98	52	13	2.1	
G 1 1/2	VD-040GR				113	14	2.8
G 2	VD-050GR				137	17	4.0
G 2 1/2	VD-065GR				160	26	4.0
G 3	VD-080GR				148	23	7.0



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

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

VD - **G** **R**

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	300 - 600 l/min
5. Optionally for ATEX	
A	for switching head ATEX A-V1 (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
- Protection class 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
- Solid metal – Ms / VA
- GL certified (types VR)
- Switching ranges for oil or gas
- Special values
- Internal parts are brass or stainless steel

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-...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

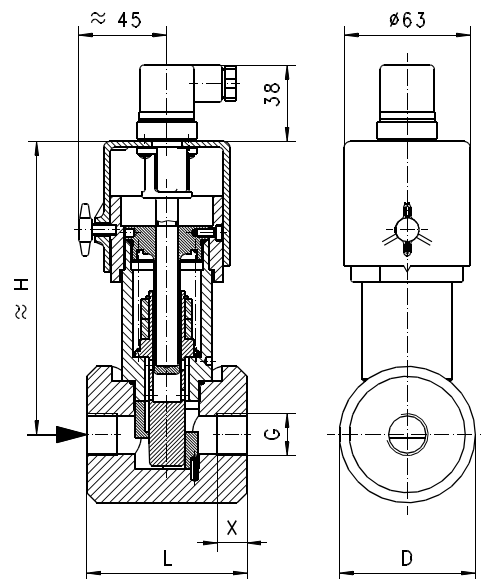
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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
			85	VD-025GK060
G 1 1/4	DN 32	20 - 60	100	VD-032GK060
			145	VD-032GK100
G 1 1/2	DN 40	30 - 100	150	VD-040GK100
			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	176	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



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

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

VD - **G** **K**

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 H₂O for horizontal inwards flow									
010	1 - 10 l/min								●
020	4 - 20 l/min								● ●
040	10 - 40 l/min								● ●
060	10 - 60 l/min								●
	20 - 60 l/min								●
100	20 - 100 l/min								●
	30 - 100 l/min								●
150	50 - 150 l/min								● ●
200	100 - 200 l/min								●
5. Optionally for ATEX									
A	for switching head ATEX A-V1 (The switching head is ordered in addition)								

Options

- Special plugs, Tichel / Harting
- Signal lamp red or red / green in the plug DIN 43650-A
- Other signal lamp
- Ingress protection P 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
- Solid metal – Ms / VA
- Switching ranges for oil or gas
- Special values
- Internal parts are brass or stainless steel

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	

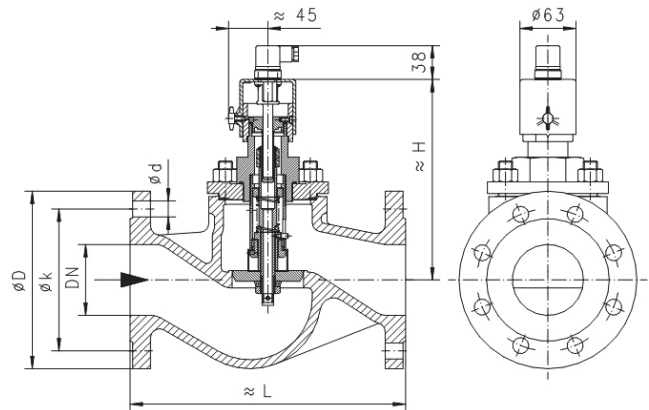
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

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

Type	Nominal width	Adjustment range		Q _{max.} recommended	
		l/min H ₂ O			
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	L	D	k	d	Weight
	mm	mm	mm	mm	mm	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

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 ferri-tic 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. F 3. K 4. 5.

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 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
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-...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	

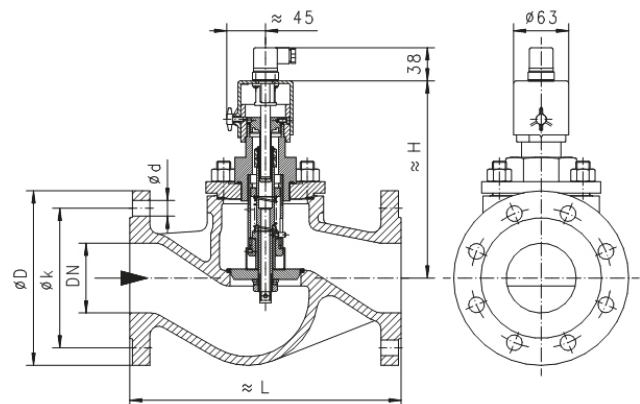
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

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

Type	Nominal width	Adjustment range		Q _{max.} recommended	
		l/min H ₂ O			
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	L	D	k	d	Weight
	mm	mm	mm	mm	mm	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

Handling and operation

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

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
150	DN 150
200	DN 200
250	DN 250
300	DN 300
2. Process connection	
F	flange
3. Connection material	
T	Cast steel
4. 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)

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).

Flow switch VD-...FG

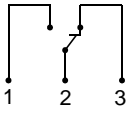


- Highly reproducible
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 180° scale / setting diagram

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 16 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	

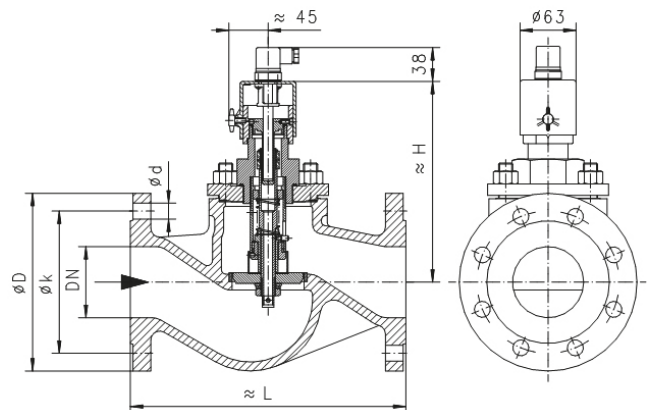
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

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

Type	Nominal width	Adjustment range		Q _{max.} recommended	
		l/min H ₂ O			
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	L	D	k	d	Weight
	mm	mm	mm	mm	mm	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

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.

VD - **F** **G**

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).

Switching Head A-V1

For devices VD-

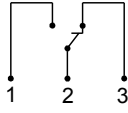
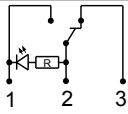


- I M1 Ex ia I Ma
- II 1G Ex ia IIC T4 Ga
- II 1D Ex ia IIIC T135°C Da

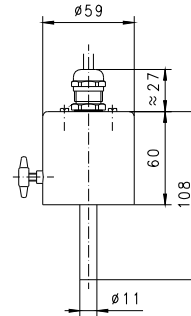
Characteristics

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.

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-...

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

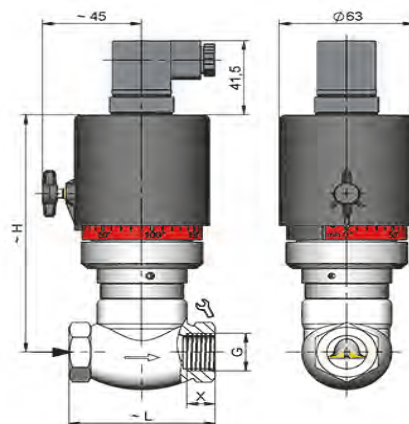
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	Nominal width	Switching range l/min H ₂ O	Q _{max.} recommended	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	30	VM-015GR006
		4 - 20		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	87	32	41	12	1.7
G 1 1/4	VM-032GR					155	98
G 1 1/2	VM-040GR	156	113	59	14	3.0	
G 2	VM-050GR	164	137	72	17	4.3	
G 2 1/2	VM-065GR	195	160	85	26	5.8	
G 3	VM-080GR	175	148	100	23	7.0	



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

VM - 1. 2. 3. 4. 5.
 VM - **G** **R**

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 H₂O 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).

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	
Non-medium-contact materials	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

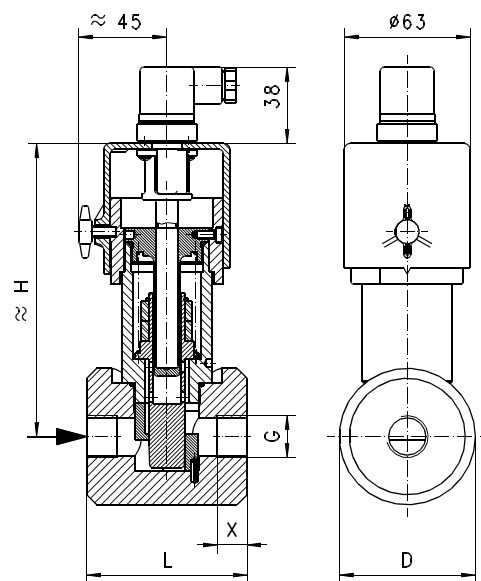
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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
			85	VD-025GK060
G 1 1/4	DN 32	20 - 60	100	VD-032GK060
			145	VD-032GK100
G 1 1/2	DN 40	30 - 100	150	VD-040GK100
			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	176	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



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

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

VD - **G** **K**

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 H₂O for horizontal inwards flow									
010	1 - 10 l/min								●
020	4 - 20 l/min								● ●
040	10 - 40 l/min								● ●
060	10 - 60 l/min								●
	20 - 60 l/min								●
100	20 - 100 l/min								●
	30 - 100 l/min								●
150	50 - 150 l/min								● ●
200	100 - 200 l/min								●
5. Optionally for ATEX									
A	for switching head ATEX A-V1 (The switching head is ordered in addition)								

Options

- Special plugs, Tichel / Harting
- Signal lamp red or red / green in the plug DIN 43650-A
- Other signal lamp
- Ingress protection P 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
- Solid metal – Ms / VA
- Switching ranges for oil or gas
- Special values
- Internal parts are brass or stainless steel

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 VM-...FG

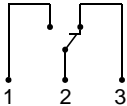


- Highly reproducible
- High switching capacity
- Insensitive to dirt
- DIN flange housing
- Precise setting of the switching valve by means of a 170° scale / setting diagram

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	

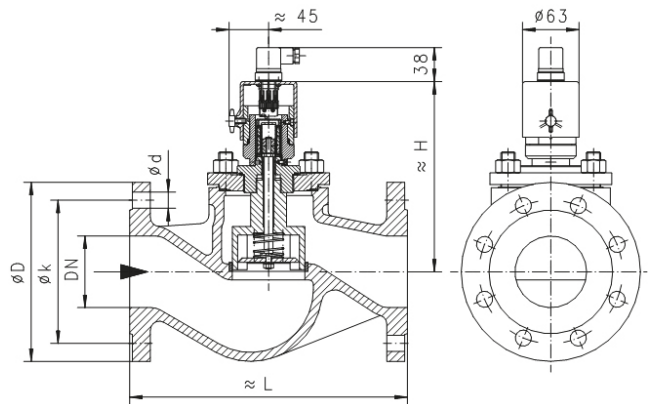
Non-medium-contact materials	ABS
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

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

VM-150FG2000	302	480	285	240	66.0
VM-200FG4000	360	600	340	295	124.0

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 and in-ductive 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

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

 VM - **F** **G**

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
2. Process connection	
F	flange
3. Connection material	
G	Grey iron
4. Adjustment range H₂O for horizontal inwards flow	
020	5 - 20 l/min
040	10 - 40 l/min
060	20 - 60 l/min
100	30 - 100 l/min
150	50 - 150 l/min
250	100 - 250 l/min
400	150 - 400 l/min
600	200 - 600 l/min
1000	350 - 1000 l/min
2000	700 - 2000 l/min
4000	1000 - 4000 l/min
5. Optionally for ATEX	
A	For switching heat ATEX A-V2 or A-V3 (The switching head is ordered in addition)

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
- Gold contact microswitch 125 V AC / 30 V DC, 100 mA
- Germanischer Lloyd (Type VR)
- Switching ranges for oil or gas
- Special values
- Selected hysteresis

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).

Switching Head A-V2

For devices VM-

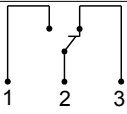
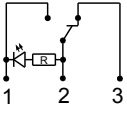


- I M1 Ex ia Ma
- II 1G Ex ia IIC T4 Ga
- II 1D Ex ia IIIC T135°C Da

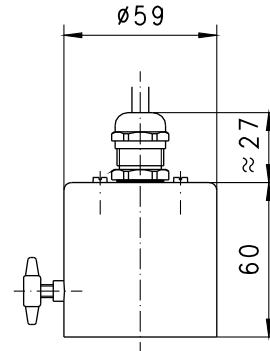
Characteristics

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.

A-V2 - 1.

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-...



Switching Head A-V3

For devices VM-



- II 2G Ex d IIC T6 Gb

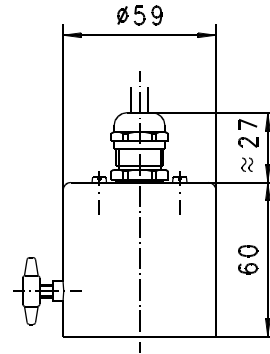
Characteristics

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-...



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!	

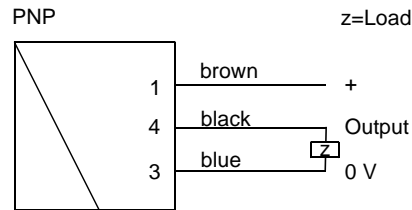
Ranges

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.

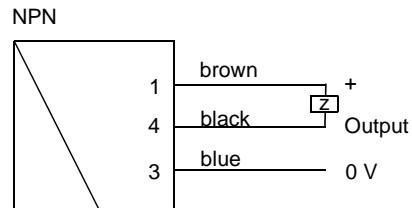
Type	Nominal width	Adjustment range l/min H ₂ O	Q _{max. rec.} l/min H ₂ O
VI-008GR010.	DN 8	1 - 10	20
VI-010GR010.	DN 10	1 - 10	25
VI-015GR020.	DN 15	4 - 20	30
VI-020GR040.	DN 20	10 - 40	40
VI-025GR060.	DN 25	20 - 60	60
VI-032GR100.	DN 32	30 - 100	100
VI-040GR150.	DN 40	50 - 150	150
VI-050GR200.	DN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

Wiring

Wiring 0.319

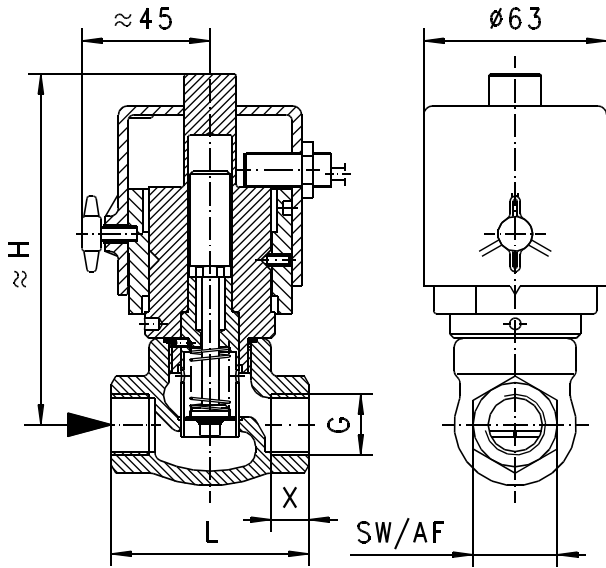


Optional



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

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).

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

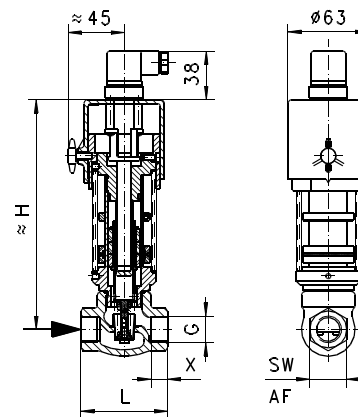
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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
G 1	DN 25	10 - 40	40	VDO-020GR020
			60	VDO-020GR040
G 1 1/4	DN 32	20 - 60	85	VDO-025GR060
			100	VDO-032GR060
G 1 1/2	DN 40	30 - 100	145	VDO-032GR100
			150	VDO-040GR100
G 2	DN 50	50 - 150	220	VDO-040GR150
			250	VDO-050GR100
G 2 1/2	DN 65	100 - 200	290	VDO-050GR200
			400	VDO-065GR200
G 3	DN 80	180 - 330	475	VDO-065GR330
			600	VDO-080GR330
		400 - 600	720	VDO-080GR600

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					
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



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. **G** 3. **R** 4.

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).

Flow Switch / Indicator TX-...FT



- Monitor and display
- Media temperature up to 300 °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..+300 °C	
Ambient temperature	-20..+40 °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, Sigraflex V20011Z3l, 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.

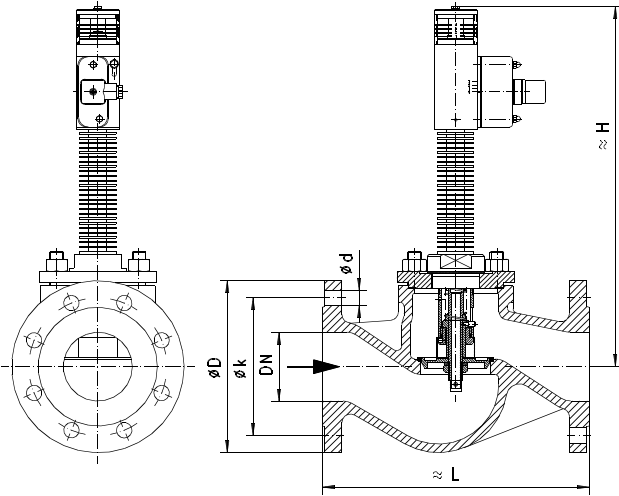
Nominal width	Switching range	Q _{max.} recommended	Type
	l/min H2O		
DN 15	2 - 8	20	TX-015FT0008
	4 - 20	30	TX-015FT0020
DN 20	10 - 40	40	TX-020FT0020
		55	TX-020FT0040
DN 25	20 - 60	60	TX-025FT0040
		80	TX-025FT0060
DN 32	30 - 100	100	TX-032FT0060
		135	TX-032FT0100
DN 40	50 - 200	150	TX-040FT0100
		270	TX-040FT0200
DN 50	100 - 250	340	TX-050FT0250
		400	TX-050FT0250
DN 65	150 - 300	600	TX-065FT0300
			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
			700 - 950
DN 200	850 - 1050	4000	TX-200FT1050
			1050 - 1250

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	4 x 18	13.0
50	TX-050FT		230	165	125		15.5
65	TX-065FT	410	290	185	145	8 x 18	25.5
80	TX-080FT	430	310	200	160	8 x 22	31.0
100	TX-100FT	450	350	235	190		38.0
150	TX-150FT	510	480	300	250	8 x 26	87.0
200	TX-200FT	580	600	375	320	12 x 30	154.0

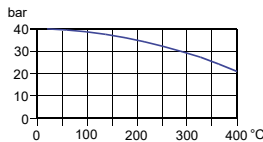
- Overall length DIN 3202, range F1
- Flange DIN 2545 PN 40
- Flange size DIN 2501 PN 40
- Sealing bar DIN 2526 form C



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.
- Stability to pressure depends on operating temperature



Adjustment

Loosen screw slightly, push the switching head into the desired position, and then retighten the screw.

Display

- The display is rotatable.



Ordering code

TX - 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		
2. Process connection			
F	flange		
3. Connection material			
T	cast steel		
4. Switching range H ₂ O for horizontal inwards flow			
0008	2 - 8 l/min		●
0020	4 - 20 l/min		● ●
0040	10 - 40 l/min		● ● ●
0060	20 - 60 l/min		● ● ● ●
0100	30 - 100 l/min		● ● ● ● ●
0200	50 - 200 l/min		● ● ● ● ● ●
0250	100 - 250 l/min		● ● ● ● ● ● ●
0300	150 - 300 l/min		● ● ● ● ● ● ● ●
0400	200 - 400 l/min		● ● ● ● ● ● ● ● ●
0450	300 - 450 l/min		● ● ● ● ● ● ● ● ● ●
0500	350 - 500 l/min		● ● ● ● ● ● ● ● ● ● ●
0750	600 - 750 l/min		● ● ● ● ● ● ● ● ● ● ● ●
0950	700 - 950 l/min		● ● ● ● ● ● ● ● ● ● ● ● ●
1050	850 - 1,050 l/min		● ● ● ● ● ● ● ● ● ● ● ● ● ●
1250	1050 - 1,250 l/min		● ● ● ● ● ● ● ● ● ● ● ● ● ● ●
5. Connection			
B	plug DIN 43650-A / ISO 4400		
K	cable screw gland with 2.5 m cable		

Options

- DIN 43650-A plug
- Signal lamp red or red/green in the plug DIN 43650-A
- Other signal lamp
- Stainless steel housing
- Switching ranges for oil
- 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).

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	

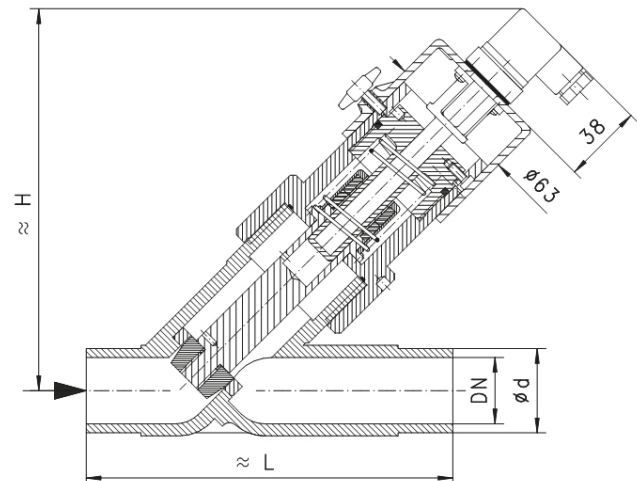
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range		Q _{max. rec.}	
		l/min H ₂ O		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	

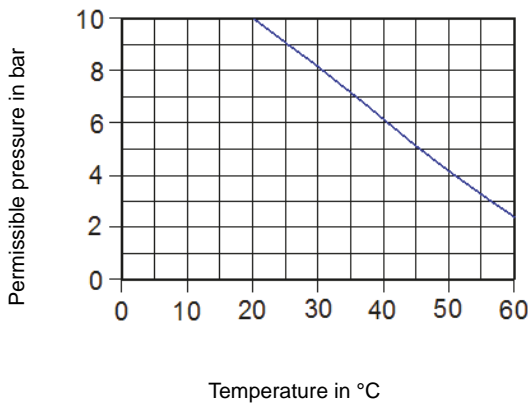
Dimensions and weights



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

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	
T	Adhesive fitting
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
- 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).

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"	

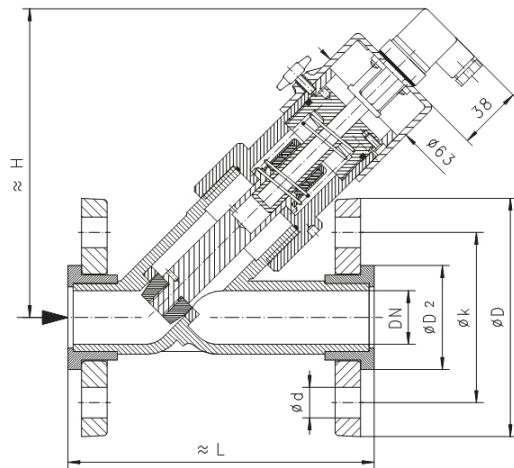
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.
------------------------------	---

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range		Q _{max. rec.}	
		l/min H ₂ O		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

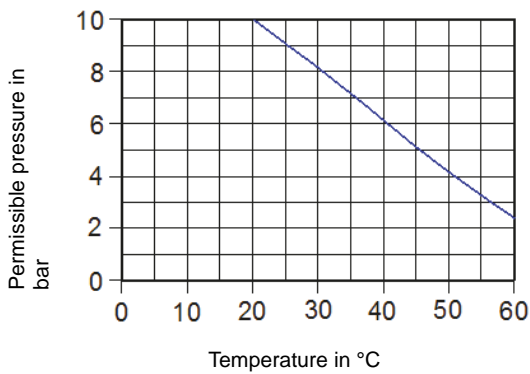


Seal surface up to DN 50 smooth
from DN 65 grooved

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

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
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

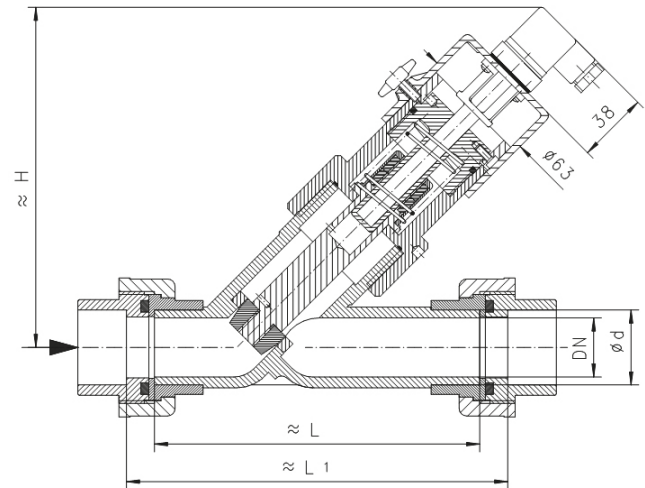
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range		Q _{max. rec.}	
		l/min H ₂ O		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	

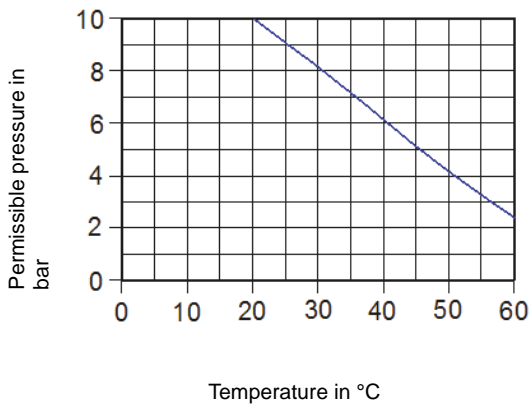
Dimensions and weights



Types	d	H	L	L ₁	Weight
	mm	mm	mm	mm	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

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

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

○=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 H₂O 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).

Flow Meter UZ

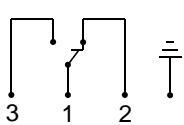


- Monitor and display
- Simple switching point adjustment by means of drag indicator
- Insensitive to dirt
- Suitable for media with ferritic particles.

Characteristics

With the UZ paddle flow display, the flow strength of the medium presses the paddle against a spring force. Hermetically separated by the bellows, the paddle's deflection is transmitted to a display micro switch. There is no magnet in the area of flow.

Technical data

Switch	optionally micro switch	
Nominal width	DN 15..50	
Process connection	female thread G 1/2..G 2	
Metering range	2..500 l/min	for details see table "Ranges"
Q_{max.}	to 600 l/min	
Tolerance	±3 % of full scale value	
Pressure resistance	Dynamic PN 6 bar	Static PN 16 bar
Medium temperature	-20..+100 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils 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	
Ingress protection	IP 65	
Electrical connection	plug DIN 43650-A / ISO 4400	

Materials medium-contact	<i>Brass construction:</i> CW614N nickelled, 1.4571, 1.4305 <i>Stainless steel construction:</i> 1.4571, 1.4305
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.

Flow from the left.

G	Nominal width	Metering range l/min H ₂ O	Q _{max.} recommended	Type
G 1/2	DN 15	3 - 50	60	UZ-015G.050
G 3/4	DN 20	4 - 60	100	UZ-020G.060
G 1	DN 25	10 - 100	200	UZ-025G.060
				UZ-025G.100
G 1 1/4	DN 32	20 - 200	300	UZ-032G.100
				UZ-032G.200
G 1 1/2	DN 40	10 - 300	400	UZ-040G.200
				UZ-040G.300
				UZ-040G.300
G 2	DN 50	20 - 300	600	UZ-050G.300
		30 - 500		UZ-050G.500

Special ranges are available

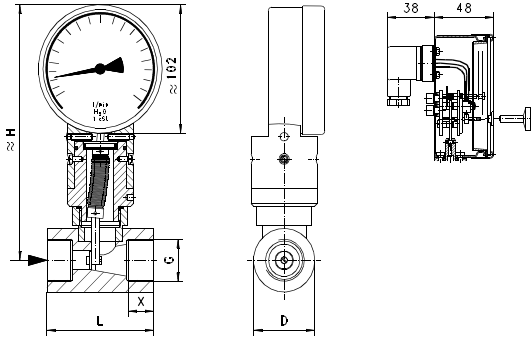
Optional: Flow from the right (please specify when ordering)

G	Nominal width	Metering range l/min H ₂ O	Q _{max.} recommended	Type
G 1/2	DN 15	2 - 35	60	UZ-015G.035
G 3/4	DN 20	4 - 45	100	UZ-020G.045
		6 - 70		UZ-020G.070
G 1	DN 25	4 - 50	200	UZ-025G.050
		10 - 100		UZ-025G.100
G 1 1/4	DN 32	20 - 200	300	UZ-032G.100
				UZ-032G.200
G 1 1/2	DN 40	10 - 300	400	UZ-040G.200
				UZ-040G.300
				UZ-040G.300
G 2	DN 50	60 - 300	600	UZ-050G.300
		100 - 500		UZ-050G.500

Special ranges are available

Dimensions and weights

G	Types	H	L	SW	X	Weight kg
G 1/2	UZ-015G.	201	70	30	16	2.0
G 3/4	UZ-020G.	206	74	36	18	
G 1	UZ-025G.	201	87	46	19	2.5
G 1 1/4	UZ-032G.	209	104	55	22	3.0
G 1 1/2	UZ-040G.	215	111	65	24	4.5
G 2	UZ-050G.	227	130	70	28	5.0



Handling and operation

Note

- Include straight calming section of 5 x DN in inlet and outlet
- If the media are dirty, install a filter.
- 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

UZ 1. 2. 3. **G** 4. 5.

○=Option

1. Additional devices									
-	only analog display								
M-	with integrated micro switch								
P-	○ with potentiometer								
M2-	○ with 2 x normally open (n.o.)								see „Additional devices for UZ“
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									
M	brass								
K	stainless steel								
5. Metering range H ₂ O for horizontal inwards flow									
035	from the right	2 - 35 l/min							●
045	from the right	4 - 45 l/min							●
050	from the left	3 - 50 l/min							●
	from the right	4 - 50 l/min						●	
060	from the left	4 - 60 l/min						●	●
070	from the right	6 - 70 l/min							●
100	from left/right	10 - 100 l/min						●	●
	from left/right	20 - 200 l/min						●	●
300	from left/right	10 - 300 l/min						●	
	from the left	20 - 300 l/min						●	
	from the right	60 - 300 l/min						●	
500	from the left	30 - 500 l/min						●	
	from the right	100 - 500 l/min						●	

Options

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

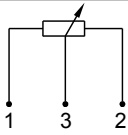
Ordering information

- 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)

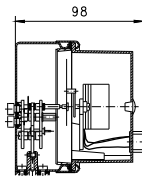
Additional Devices For UZ

UZP - 10 kOhm potentiometer

Technical data

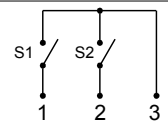
Switch/sensor	potentiometer
Wiring	no. 0.269 
Switching voltage	max. 50 V DC
Switching current	max. 100 mA
Switching capacity	max. 1.5 W
Protection class	2 - safety insulation
Additional Tolerance	±3 %
Resistance tolerance	±1 %
Linearity tolerance	±0,3 %
Ingress protection	IP 60
Electrical connection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

Dimensions

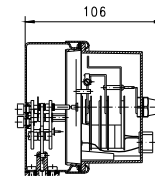


UZM2 - 2-pole normally open (n.o.)

Technical data

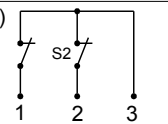
Switch/sensor	micro switch
Wiring	2 x normally open (n.o.) no. 0.268 
Switching voltage	max. 250 V AC
Switching current	max. 0.6 A
Switching capacity	max. 50 VA
Protection class	2 - safety insulation
Ingress protection	IP 60
Electrical connection	plug Hirschmann G 4
Additional Weight	0.3 kg

Dimensions

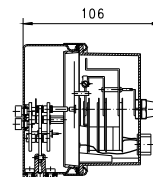


UZM3 - 2-pole normally open (n.o.)

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



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

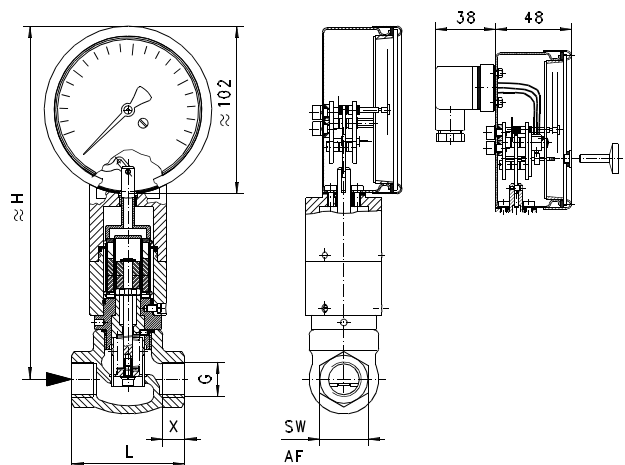
Details in the table correspond to horizontal inwards flow with increasing flow rate.

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					
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	245	148	100	23	8.7



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. **G** 4. **R** 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			
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)

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

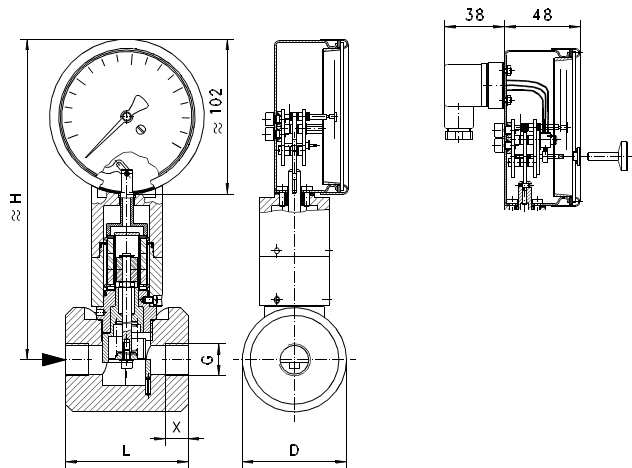
Details in the table correspond to horizontal inwards flow with increasing flow rate.

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	5 - 40	40	TZ1-020GK020
				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



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. **G** 4. **K** 5.

○=Option

1. Additional devices		see „Additional devices for TZ1“
-	only analog display	
M-	with integrated micro switch	
P-	○ with potentiometer	
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

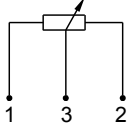
Ordering information

- 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)

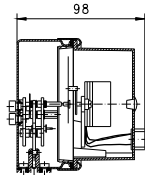
Additional Devices for TZ1

TZ1P - 10 kOhm potentiometer

Technical data

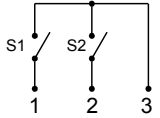
Switch/sensor	potentiometer
Wiring	no. 0.269 
Switching voltage	max. 50 V DC
Switching current	max. 100 mA
Switching capacity	max. 1.5 W
Protection class	2 - safety insulation
Additional Tolerance	±3 %
resistance tolerance	±1 %
Linearity tolerance	±0,3 %
Ingress protection	IP 60
Electrical connection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

Dimensions

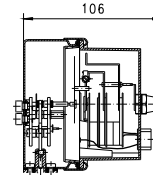


TZ1M2 - 2-pole normally open (n.o.)

Technical data

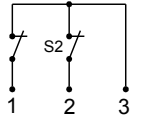
Switch/sensor	micro switch
Wiring	2 x normally open (n.o.) no. 0.268 
Switching voltage	max. 250 V AC
Switching current	max. 0.6 A
Switching capacity	max. 50 VA
Protection class	2 -safety insulation
Ingress protection	IP 60
Electrical connection	plug Hirschmann G 4
Additional Weight	0.3 kg

Dimensions

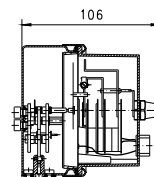


TZ1M3 - 2-pole normally closed (n.c.)

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



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)	

Filter

Type ZV



Type ZE



The HONSBERG 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.

contact us



Headquarter

GHM Messtechnik GmbH
GHM GROUP CORPORATE
Tenter Weg 2-8
42897 Remscheid | GERMANY
Phone +49 2191 9672-0
info@ghm-group.de
www.ghm-group.de

Centers of Competences

GHM Messtechnik GmbH
GHM GROUP – Greisinger
Hans-Sachs-Straße 26
93128 Regenstein | GERMANY
Phone +49 9402 9383-0
info@greisinger.de | www.greisinger.de

GHM Messtechnik GmbH
GHM GROUP – Honsberg
Tenter Weg 2-8
42897 Remscheid | GERMANY

GHM Messtechnik GmbH
GHM GROUP – Martens
Kiebitzhörn 18
22885 Barsbüttel | GERMANY

GHM Messtechnik GmbH
GHM GROUP – Imtron
Carl-Benz-Straße 11
88696 Owingen | GERMANY

Delta OHM S.r.l. a socio unico
GHM GROUP – Delta OHM
Via Marconi 5
35030 Caselle di Selvazzano
Padova (PD) | ITALY
Phone +39 049 8977150
info@deltaohm.com
www.deltaohm.com

Valco srl
GHM GROUP – VAL.CO
Via Rovereto 9/11
20014 S. Ilario di Nerviano
Milano (MI) | ITALY
Phone +39 0331 53 59 20
valco@valco.it
www.valco.it

GHM GROUP International

Austria
GHM Messtechnik GmbH
Office Austria
Breitenseer Str. 76/1/36
1140 Vienna | AUSTRIA
Phone +43 660 7335603
a.froestl@ghm-messtechnik.de

Brazil & Latin America
GHM Messtechnik do Brasil Ltda
Av. José de Souza Campos, 1073, cj 06
Campinas, SP
13025 320 | BRAZIL
Phone +55 19 3304 3408
info@grupoghm.com.br

Czech Republic / Slovakia
GHM Greisinger s.r.o.
Ovci hájek 2/2153
158 00 Prague 5
Nove Butovice | CZECH REPUBLIC
Phone +420 251 613828
Fax +420 251 612607
info@greisinger.cz | www.greisinger.cz

Denmark
GHM Maaleteknik ApS
Maarslet Byvej 2
8320 Maarslet | DENMARK
Phone +45 646492-00
Fax +45 646492-01
info@ghm.dk | www.ghm.dk

France
GHM GROUP France SAS
Parc des Pivoilles
9 Rue de Catalogne
69150 Décines-Charpieu (Lyon) | FRANCE
Phone +33 4 72 37 45 30
contact@ghm-group.fr

India
GHM Messtechnik India Pvt Ltd.
209 | Udyog Bhavan | Sonowala Road
Gregaon (E) | Mumbai - 400 063
INDIA
Phone +91 22 40236235
info@ghmgroup.in | www.ghmgroup.in

Italy for Greisinger & Delta OHM
GHM GROUP – Delta OHM
Via Marconi 5
35030 Caselle di Selvazzano
Padova (PD) | ITALY
Phone +39 049 8977150
a.casati@ghm-messtechnik.de

Italy for Honsberg, Martens, Valco
GHM GROUP – Valco
Via Rovereto 9/11
20014 S. Ilario di Nerviano
Milano (MI) | ITALY
Phone +39 0331 53 59 20
alessandro.perego@valco.it

Netherlands
GHM Meettechnik BV
Zeeltweg 30
3755 KA Eemnes | NETHERLANDS
Phone +31 35 53805-40
Fax +31 35 53805-41
info@ghm-nl.com | www.ghm-nl.com

South Africa
GHM Messtechnik SA (Pty) Ltd
16 Olivier Street
Verwoerdpark, Alberton 1453
SOUTH AFRICA
Phone +27 74 4590040
j.grobler@ghm-sa.co.za

...and more than
100 qualified distributors!



Visit us at: www.ghm-group.de