

**MP, FF, FM, G, TX- ... FT, PD- ... TN,
PD- ... FN, PD- ... MN, TZ1- ... GK**

Датчики протока вентильного типа

GHM MESSTECHNIK



Технические характеристики

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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 1.5 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

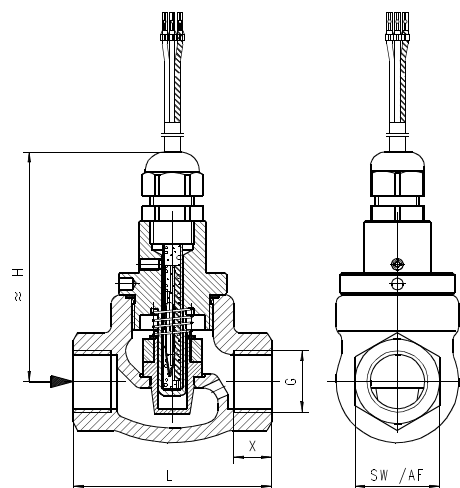
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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	10
G 3/8	DN 10	0.4 - 10	FF-010GR010	15
G 1/2	DN 15	0.4 - 12	FF-015GR012	20
G 3/4	DN 20	0.6 - 25	FF-020GR025	40
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	H	L	SW	X	Weight kg
G 1/4	FF-008GR...	68	79	29	12	0.6
G 3/8	FF-010GR...				13	
G 1/2	FF-015GR...				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		52	14	1.5
G 1 1/2	FF-040GR...	113		59	14	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 H ₂ O can be set as desired between	
009	0.4 - 9 l/min
010	0.4 - 10 l/min
012	0.4 - 12 l/min
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. 6 A	
Protection class	1 - PE connection	
Ingress protection	IP 65	
Electrical connection	plug-in connection on the microswitch 2.8 x 0.5, cable screw gland Pg 9. optionally DIN 43650-A plug	
Materials medium-contact	Rg 5 nickelled, 1.4310, CW614N nickelled, CW614N, NBR, hard ferrite	
Non-medium-contact materials	PS, PA	
Weight	see table "Dimensions and weights"	

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

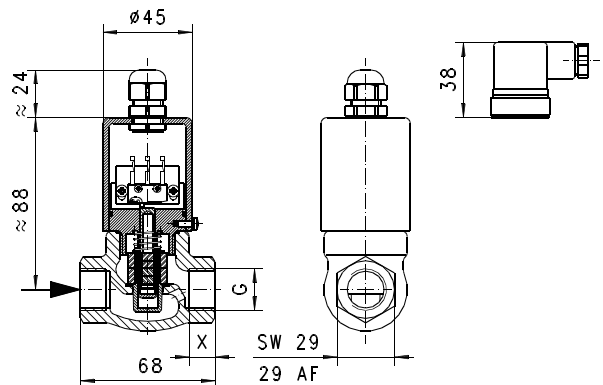
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

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

Special ranges are available

Dimensions and weights

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



Handling and operation

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

Ordering code

1. 2. 3. 4.
FM -

1. Nominal width	
008	DN 8 - G 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 H ₂ O can be set as desired between	
009	0.4 - 9 l/min
010	0.4 - 10 l/min
012	0.4 - 12 l/min

Options

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

Ordering information

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

Flow Switch G-...GR



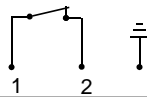
- Adjusted switching value
- Small switching point

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.

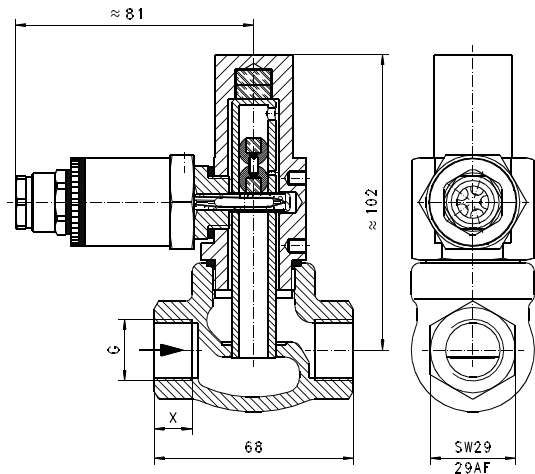
Technical data

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 9, optionally DIN 43650-A / ISO 4400 plug
Materials medium-contact	Rg 5 nickelled, CW614N nickelled, POM, Klingersil C-4400, hard ferrite
Non-medium-contact materials	CW614N, NBR
Weight	0.6 kg
Installation location	Standard: horizontal inwards flow; switching head upwards

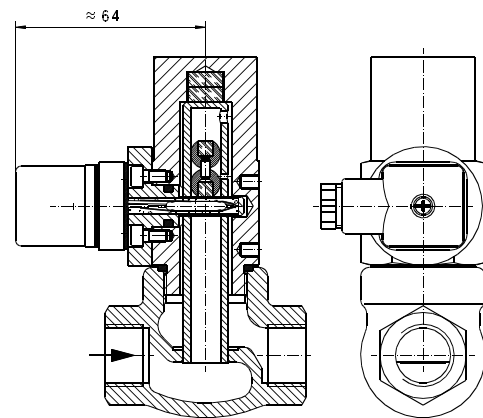


Dimensions and weights

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



optionally DIN 43650-A / ISO 4400 plug



Handling and operation

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

Ordering code

Standard device

G - 1. 2. 3. G R

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

Options

- Transformer
- Adjustment for oil or gas
- Special values

Ordering information

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

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 200 bar
	G 3/4..G 1	- PN 25 bar
	G 1 1/4 .. G 1 1/2	- PN 16 bar
Medium temperature	-20..+100 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and gases available on request)	
Electrical data	none	
Materials medium-contact	Rg 5 / Rg 6 nickelled, CW614N, 1.4310, hard ferrite, NBR	
Non-medium-contact materials	Acrylic, CW614N, NBR	
Weight	see table "Dimensions and weights"	
Installation location	Standard: horizontal inwards flow; display downwards not recommended; other installation positions are possible; the installation position affects the switching point and range.	

Ranges

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

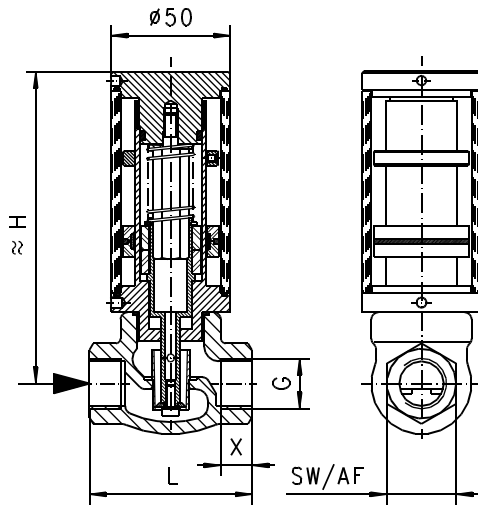
● = Standard ○ = Option

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

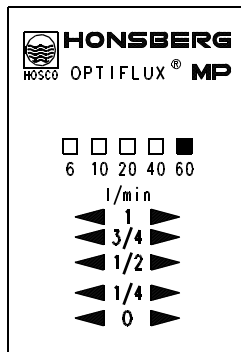


Handling and operation

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.
 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									●	

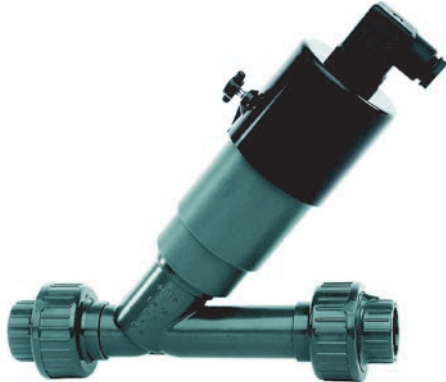
Options

- 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 Novafix PD-...MH



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

Characteristics

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

Technical data

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

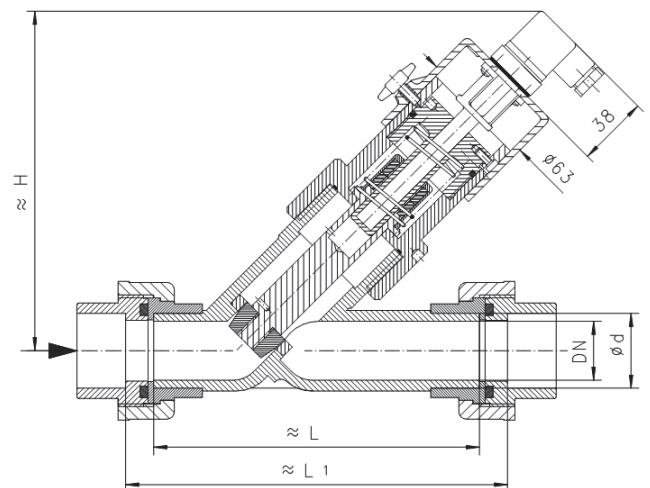
Weight	see table "Dimensions and weights"
Installation location	Standard: horizontal inwards flow; switching head not recommended underneath; other installation positions are possible; the installation position affects the switching point and range.

Ranges

The adjustment range is suitable for horizontally decreasing flows.

Type	Nominal width	Adjustment range		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



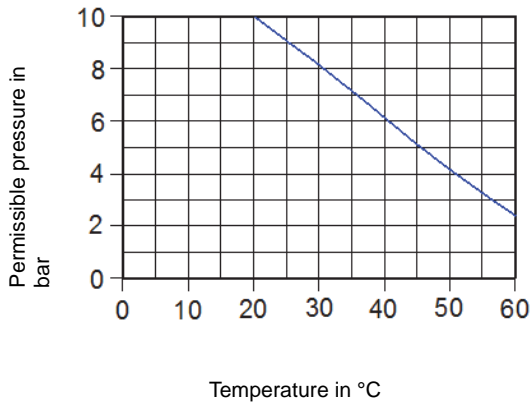
Types	d	H	L	L ₁	Weight
	mm	mm	mm	mm	kg
PD-015MH...	20	170	124	150	0.9
PD-020MH...	25	174	144	170	1.1
PD-025MH...	32	186	154	180	1.3
PD-032MH...	40	196	174	204	1.6
PD-040MH...	50	194	194	228	2.0
PD-050MH...	63	194	224	266	2.6

Product Information

Sensors and Instrumentation

Handling and operation

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



Ordering code

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

○=Option

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

Options

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

Ordering information

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

Flow Switch / Indicator TX-...FT

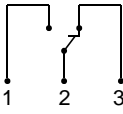


- Monitor and display
- Media temperature up to 350 °C
- Highly reproducible
- Insensitive to dirt
- DIN flange housing

Characteristics

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

Technical data

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

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

Ranges

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

Nominal width	Switching range	Q _{max.} recommended	Type
	l/min H ₂ O		
DN 15	2 - 8	20	TX-015FT0008
	4 - 20	30	TX-015FT0020
DN 20	10 - 40	40	TX-020FT0020
		55	TX-020FT0040
DN 25	20 - 60	60	TX-025FT0040
		80	TX-025FT0060
DN 32	30 - 100	100	TX-032FT0060
		135	TX-032FT0100
DN 40	50 - 200	150	TX-040FT0100
		270	TX-040FT0200
DN 50	100 - 250	340	TX-050FT0200
		400	TX-050FT0250
DN 65	150 - 300	600	TX-065FT0300
		950	TX-065FT0300
DN 80	200 - 400	950	TX-080FT0300
		1350	TX-080FT0450
DN 100	350 - 500	1350	TX-100FT0400
		1800	TX-100FT0500
DN 150	600 - 750	2000	TX-150FT0750
		2700	TX-150FT0950
DN 200	850 - 1050	4000	TX-200FT1050
		5400	TX-200FT1250

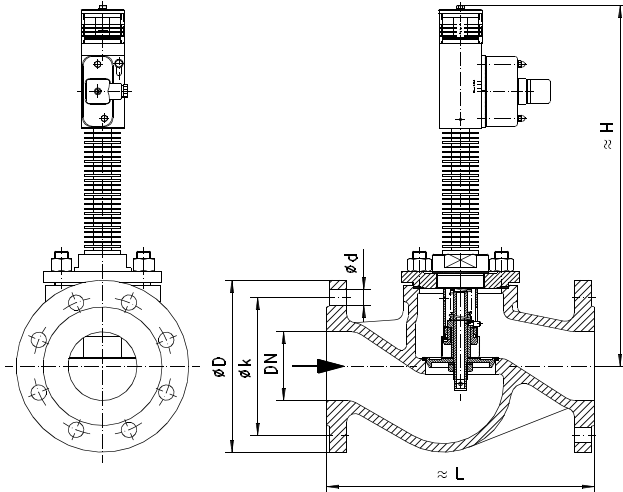
Special ranges are available

Dimensions and weights

DN	Types	H	L	D	k	d	Weight kg
15	TX-015FT	370	130	95	65	4 x 14	6.0
20	TX-020FT		150	105	75		6.5
25	TX-025FT	380	160	115	85	4 x 18	8.5
32	TX-032FT		180	140	100		10.5
40	TX-040FT	390	200	150	110	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		31.0
100	TX-100FT	450	350	235	190	8 x 22	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

Product Information

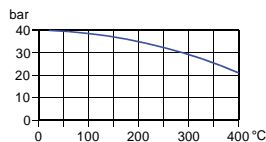
- Overall length DIN 3202, range F1
- Flange DIN 2545 PN 40
- Flange size DIN 2501 PN 40
- Sealing bar DIN 2526 form C



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

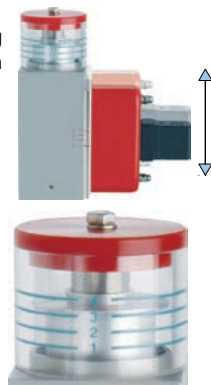


Adjustment

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 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.
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Ranges

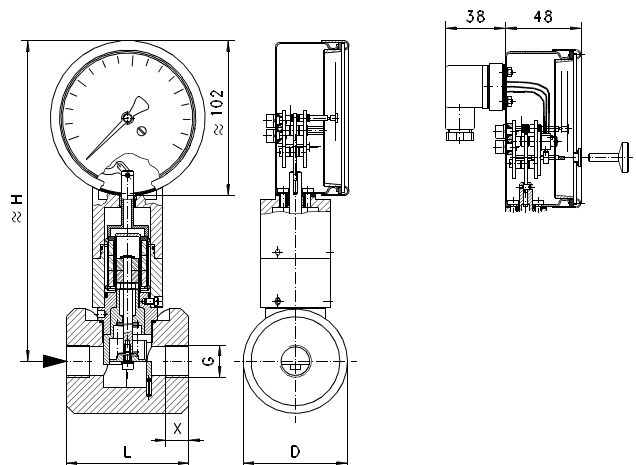
Details in the table correspond to horizontal inwards flow with increasing flow rate.

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

Options

- Gold contact micro switch 125 V AC / 30 V DC, 100 mA
- Special Harting plug
- Metering ranges for oil or gas
- Special values

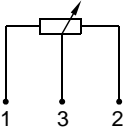
Ordering information

- 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)

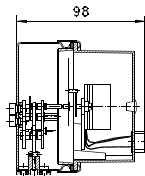
Additional Devices for TZ1

TZ1P - 10 kOhm potentiometer

Technical data

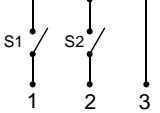
Switch/sensor	potentiometer
Wiring	no. 0.269
	
Switching voltage	max. 50 V DC
Switching current	max. 100 mA
Switching capacity	max. 1.5 W
Protection class	2 - safety insulation
Additional Tolerance	±3 %
resistance tolerance	±1 %
Linearity tolerance	±0,3 %
Ingress protection	IP 60
Electrical connection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

Dimensions

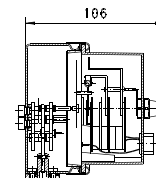


TZ1M2 - 2-pole normally open (n.o.)

Technical data

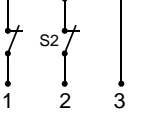
Switch/sensor	micro switch
Wiring	2 x normally open (n.o.) no. 0.268
	
Switching voltage	max. 250 V AC
Switching current	max. 0.6 A
Switching capacity	max. 50 VA
Protection class	2 -safety insulation
Ingress protection	IP 60
Electrical connection	plug Hirschmann G 4
Additional Weight	0.3 kg

Dimensions

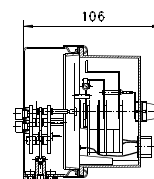


TZ1M3 - 2-pole normally closed (n.c.)

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



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.
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Ranges

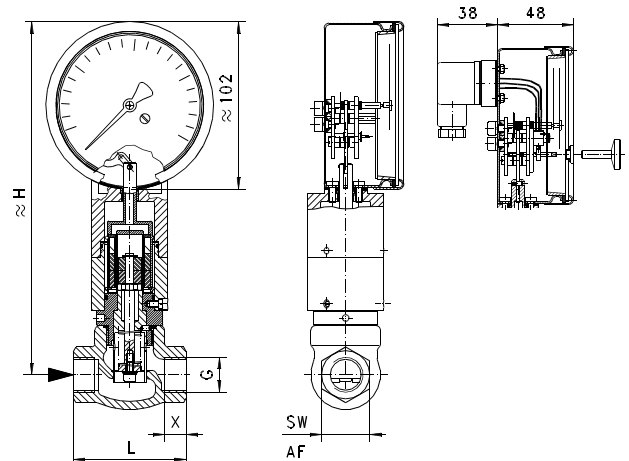
Details in the table correspond to horizontal inwards flow with increasing flow rate.

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				13	
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		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

1. 2. 3. 4. 5.
TZ1

○=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		
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 125 V AC / 30 V DC, 100 mA
- 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)

Архангельск (8182)63-90-72	Иваново (4932)77-34-06	Липецк (4742)52-20-81	Пенза (8412)22-31-16	Ставрополь (8652)20-65-13
Астана (7172)727-132	Ижевск (3412)26-03-58	Магнитогорск (3519)55-03-13	Пермь (342)205-81-47	Сургут (3462)77-98-35
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Барнаул (3852)73-04-60	Казань (843)206-01-48	Мурманск (8152)59-64-93	Рязань (4912)46-61-64	Томск (3822)98-41-53
Белгород (4722)40-23-64	Калининград (4012)72-03-81	Набережные Челны (8552)20-53-41	Самара (846)206-03-16	Тула (4872)74-02-29
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Волгоград (844)278-03-48	Киров (8332)68-02-04	Новосибирск (383)227-86-73	Севастополь (8692)22-31-93	Уфа (347)229-48-12
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Екатеринбург (343)384-55-89	Курск (4712)77-13-04	Оренбург (3532)37-68-04	Сочи (862)225-72-31	Череповец (8202)49-02-64
				Ярославль (4852)69-52-93

Киргизия (996)312-96-26-47 Казахстан (772)734-952-31 Таджикистан (992)427-82-92-69