

FW1- ... GP, FW1- ... GM, FW3, FW4V, FWJ- ... GM, FX

Датчики протока поршневого типа

GHM MESSTECHNIK



Технические характеристики

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Flow Switch FW1-...GP



- Economical design
- High switching power
- Insensitive to dirt

Characteristics

Mechanical flow switch, for fluid media, with spring-supported piston and magnetic triggering of a reed switch. Robust construction in POM material.

Technical data

Switch	reed switch		
Nominal width	DN 15..25		
Process connection	female thread G 1/2..G 1 (note: for plastic parts it is not possible to guarantee trueness of calibration; further process connections available on request)		
Switching range	1..11 l/min	for details see table "Ranges"	
Pressure loss	0.2..0.8 bar at Q _{max.}		
Q_{max.}	to 30 l/min		
Tolerance	±10 % of full scale value		
Pressure resistance	PN 10 bar		
Media temperature	-20..+90 °C		
Ambient temperature	-20..+70 °C		
Media	water (oil available on request)		
Wiring	normally open (n.o.) No. 0.378		
Switching voltage	max. 230 V AC		
Switching current	max. 0.5 A		
Switching capacity	max. 50 VA		
Protection class	2 - safety insulation		
Ingress protection	IP 67		
Electrical connection	for round plug connector M12x1, 4-pole		
Materials medium-contact	POM GV, POM, 1.4310, hard ferrite		
Non-medium-contact materials	PC, 1.4301, 1.4305		
Weight	see table "Dimensions and weights"		
Installation location	Standard: horizontal inwards flow; 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.

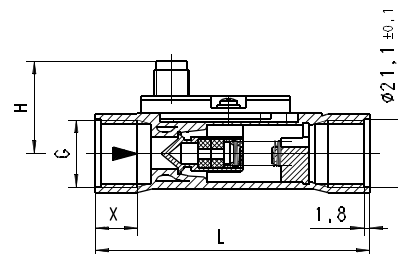
G	DN	Switching range l/min H ₂ O	Q _{max.} recom- mend- ed	Pressure loss bar at Q _{max.} H ₂ O
G 1/2	DN 15	1 - 6	20	0.8
G 3/4	DN 20	1 - 11	30	0.2
G 1	DN 25			

Special ranges are available.

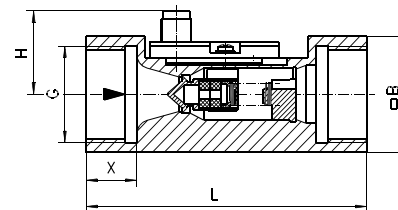
Dimensions and weights

G	Types	L	H	B	SW	X	Weight kg
G 1/2	FW1-015GP	85	30	-	27	12	0.05
G 3/4	FW1-020GP	100	36	36	-	18	0.15
G 1	FW1-025GP		38	40			0.20

FW1-015GP



FW1-020..025GP



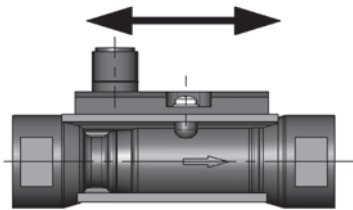
Handling and Operation

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 switch 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

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



Ordering code

FW1 - 1. 2. 3. 4.

1. Nominal width			
015	DN 15 - G 1/2		
020	DN 20 - G 3/4		
025	DN 25 - G 1		
2. Process connection			
G	female thread		
3. Connection material			
P	POM		
4. Switching range H ₂ O for horizontal inwards flow			
006	1 - 6 l/min		●
011	1 - 11 l/min	●	●

Options

- Switching value for oil
- Special values
- Cable outlet 3 m

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 FW1-...GM



- Economical design
- High switching point
- Insensitive to dirt

Characteristics

Mechanical flow switch, for fluid media, with spring-supported piston and magnetic triggering of a reed switch. Robust construction in brass and POM.

Technical data

Switch	reed switch	
Nominal width	DN 8..25	
Process connection	female thread G 1/4..G 1 (further process connections available on request)	
Switching range	1..11 l/min	for details see table "Ranges"
Pressure loss	0.2..0.8 bar at Q _{max.}	
Q_{max.}	to 30 l/min	
Tolerance	±10 % of full scale value	
Pressure resistance	PN 100 bar optionally up to PN 800 bar	
Media temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils and aggressive media available on request)	
Wiring	normally open (n.o.) No. 0.378	
Switching voltage	max. 230 V AC	
Switching current	max. 0.5 A	
Switching capacity	max. 50 VA	
Protection class	2 - safety insulation	
Ingress protection	IP 67	
Electrical connection	for round plug connector M12x1, 4-pole	
Materials medium-contact	CW614N nickelled, CW614N, POM, 1.4310, hard ferrite	
Non-medium-contact materials	PC, 1.4301, 1.4305	
Weight	see table "Dimensions and weights"	
Installation location	Standard: horizontal inwards flow; 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.

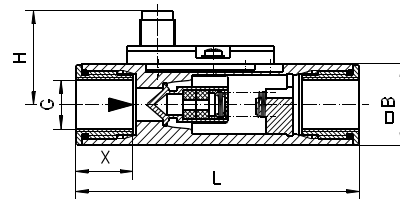
G	DN	Switching range l/min H ₂ O	Q _{max.} recommended	Pressure loss bar at Q _{max.} H ₂ O
G 1/4	DN 8	1 - 6	8	0.2
G 3/8	DN 10		10	0.3
G 1/2	DN 15		20	0.8
G 3/4	DN 20	1 - 11	30	0.2
G 1	DN 25			

Special ranges are available.

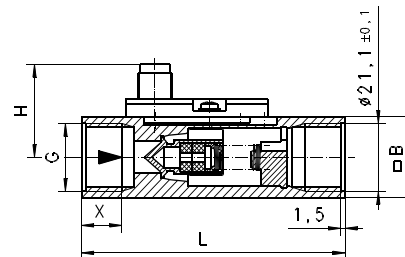
Dimensions and weights

G	Types	L	H	B	X	Weight kg
G 1/4	FW1-008GM	89	30	25	18	0.35
G 3/8	FW1-010GM					0.30
G 1/2	FW1-015GM	85	36	36	18	0.75
G 3/4	FW1-020GM	100				0.85
G 1	FW1-025GM		38	40		

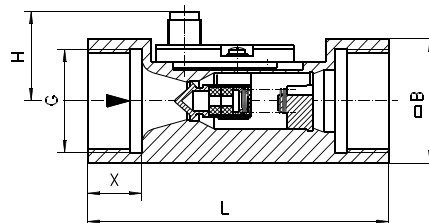
FW1-008..010GM



FW1-015GM



FW1-020..025GM



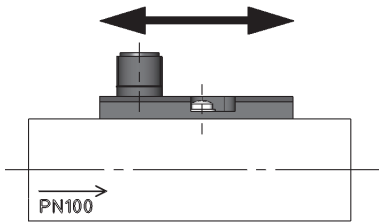
Handling and Operation

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 switch 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

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



Ordering code

FW1 - 1. 2. 3. 4.
 G M

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
2. Process connection	
G	female thread
3. Connection material	
M	brass
4. Switching range H ₂ O for horizontal inwards flow	
006	1 - 6 l/min
011	1 - 11 l/min

Options

- Switching value for oil
- Special values
- Cable outlet 3 m
- Pressure stages PS 500 and PS 800 for DN 15

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 FW3



- Compact construction
- Insensitive to dirt

Characteristics

Mechanical flow switch, for fluid media, with spring-supported piston and magnetic triggering of a reed switch. Robust construction in brass.

Technical data

Switch	reed switch	
Nominal width	DN 8	
Process connection	female thread G 1/4 (further process connections available on request)	
Adjustment range	0.4..2.5 l/min	for details see table "Ranges"
Pressure loss	up to 1.9 bar at Q _{max.}	
Q_{max.}	2.5..6 l/min	
Tolerance	±10 % of the full scale value, minimum 0.3 l/min	
Pressure resistance	PN 100 bar	
Media temperature	-20..+90 °C	
Ambient temperature	-20..+70 °C	
Media	water (oils available on request)	
Wiring	normally open (n.o.) No. 0.378	
Switching voltage	max. 230 V AC	
Switching current	max. 0.5 A	
Switching capacity	max. 50 VA	
Protection class	2 - safety insulation	
Ingress protection	IP 67	
Electrical connection	for round plug connector M12x1, 4-pole	
Materials medium-contact	<i>Brass construction:</i> CW614N nickelled, POM, 1.4310, hard ferrite	<i>Stainless steel construction:</i> 1.4305, POM, 1.4310, hard ferrite
Non-medium-contact materials	PC, 1.4301, 1.4305	
Weight	0.25 kg	
Installation location	Standard: horizontal inwards flow; other installation positions are possible; the installation position affects the switching point.	

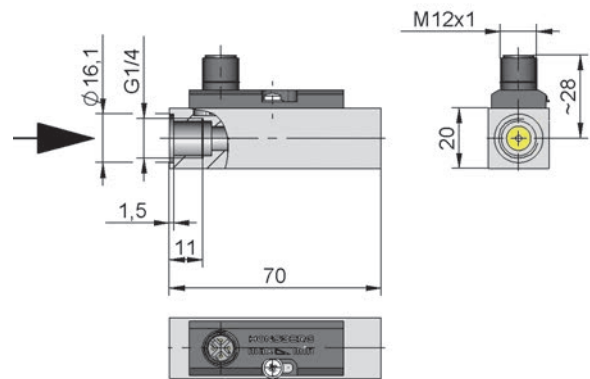
Ranges

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

Switching value l/min H ₂ O Choose between	Q _{max.} recommended	Pressure loss bar at Q _{max.} H ₂ O
0.4 - 0.6	2.5	1.3
0.7 - 1.4	4.0	1.0
1.5 - 2.5	6.0	1.9

Special ranges are available.

Dimensions



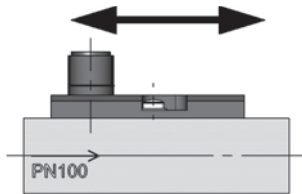
Handling and Operation

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 switch 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

As delivered, the device has been set up; if readjustment is required, loosen the screw slightly, twist the switching head to the desired position, and then retighten the screw.



Ordering code

FW3 -

○=program option

1. Nominal width	
008	DN 8 - G 1/4
2. Process connection	
G	female thread
3. Connection material	
M	brass
K	<input type="radio"/> stainless steel
4. Switching value selectable in the range for H₂O for horizontal inwards flow (specify switching value when ordering)	
006	0.4 - 0.6 l/min
014	0.7 - 1.4 l/min
025	1.5 - 2.5 l/min

Options

- Switching value for oil
- Special values
- Cable outlet 3 m

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 FW4V-015GM

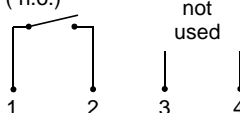


- Bidirectional flow switching
- Viscosity stabilised
- Compact design

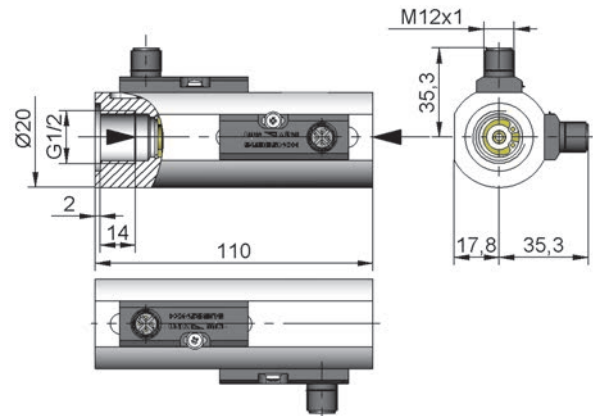
Characteristics

Mechanical flow switch, for viscous media, with spring-supported piston and magnetic triggering of a reed switch.

Technical data

Sensor	reed switch
Nominal width	DN 15
Process connection	female thread G 1/2
Switching point	1 l/min the switching point is suitable for horizontally decreasing flows.
Pressure loss	8 bar at Q _{max.}
Q_{max.}	10 l/min
Tolerance	±10 %
Viscosity stability	at 30..330 mm ² /s ±10 %, min ± 0.5 l/min
Pressure resistance	PS 300 bar
Media temperature	-20 °C..+90 °C
Ambient temperature	-20 °C..+70 °C
Media	oils
Wiring	normally opened (n.o.) No. 0.378 
Switching voltage	max. 230 V AC
Switching current	max. 0.5 A
Switching capacity	max. 50 VA
Protection class	2 - safety insulation
Ingress protection	IP 67
Electrical connection	for round plug connector M12x1, 4-pole
Materials medium-contact	CW614N nickelled, 1.4310, hard ferrite
Non-medium-contact materials	PC, 1.4305
Weight	0.95 kg
Installation location	Standard: horizontal inwards flow; other installation positions are possible; the installation position affects the switching point.

Dimensions



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 switch 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

The setting of the switching points to 1 l/min is carried out in the factory.

Ordering code

FW4V - 1. 015 2. G 3. M 4. 001

1. Nominal width	015	DN 15 - G 1/2
2. Process connection	G	female thread
3. Connection material	M	brass
4. Switching point H₂O for horizontal inwards flow	001	1 l/min

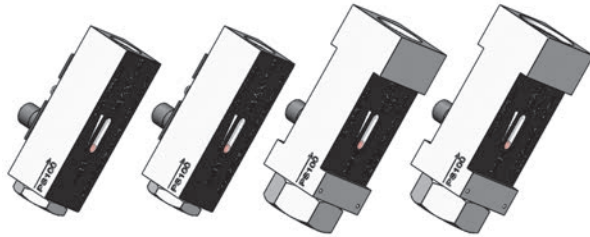
Options

- Special values
- Cable outlet 3 m

Ordering information

- Specify direction of flow, medium, and switching value .
- For viscous media specify viscosity, temperature, and medium (e.g. ISO VG 68) (enquire about switching range).

Flow switch FWJ-...GM



- Flow rate display
- Solid construction
- Metal switching head

Characteristics

Mechanical flow switch for fluid media, with spring-supported piston and magnetic triggering of a reed switch and a display separated from the medium. Robust construction in brass

Technical data

Switch	Reed switch		
Nominal width	DN 8 – 20		
Process connection	Female thread G1/4, G 3/8, G1/2, G3/4 (further process connections available on request)		
Switching range	1 - 16l/min	For details see table "Ranges"	
Pressure loss	~1 bar at Q _{max.}		
Q_{max.}	to 40 /min		
Tolerance	±10 % of full scale value		
Pressure resistance	PS 100 bar		
Medium temperature	-20...+90 °C		
Ambient temperature	-20...+70 °C		
Media	Water		
Wiring	normally No. 0.378	opened	not (n.o.) used
Switching voltage	max. 230 V AC		
Switching current	max. 0.5 A		
Switch performance	max. 50 VA		
Protection class	2 - Safety insulation		
Ingress protection	IP 67		
Electrical connection	For round plug connector M12x1, 4-pole		
Materials medium-contact	CW614N nickelled, CW614N, CW602N , 1.4310 hard ferrite		
Non-medium-contact materials	AISI or POM, 1.4301, 1.4305		
Weight	see table "Dimensions and weights"		

Installation location	Standard: horizontal inwards flow; other installation positions are possible; the installation position affects the switching/display range.
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Ranges

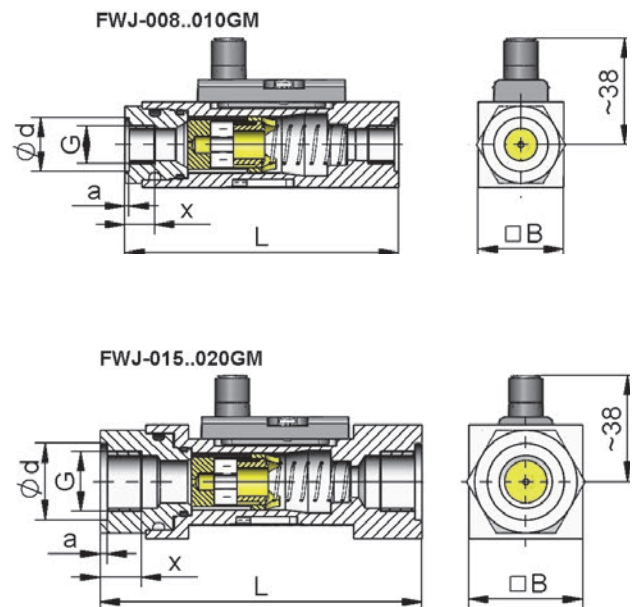
Details in the table correspond to horizontal inwards flow with decreasing flow rate.

G	DN	Switching range l/min H ₂ O	Display l/min H ₂ O	Q _{max.} recommended l/min for ranges	
				1 - 4 / 2 - 10	8 - 16
G 1/4	DN 8	1 - 5	1 - 6	18	20
G 3/8	DN 10			20	30
G 1/2	DN 15	2 - 10	2 - 12	25	40
G 3/4	DN 20	8 - 16	6 - 20	25	40

Special ranges available on request

Dimensions and weights

G	Types	L	B	X	Ød	a	SW	Weight kg
G 1/4	FWJ-008GM	96	30	10.5	19	1.5	27	0.61
G 3/8	FWJ-010GM	96	30	11.0	23	2	27	0.58
G 1/2	FWJ-015GM	113	40	14.5	27	2.5	36	1.09
G 3/4	FWJ-020GM	113	40	14.5	33	2.5	36	1.01



Product Information

Sensors and Instrumentation

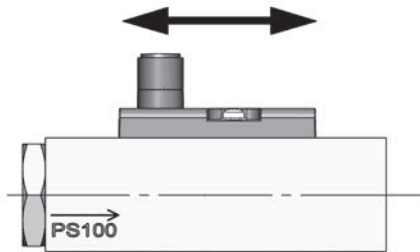
Handling and operation

Note

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

Adjustment

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



Ordering code

1. 2. 3. 4. 5.
FWJ G M

1. switching head		
-	no switching head	
K2 -	Plastic switching head	
K4 -	AlSi switching head	
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	
3. Process connection		
G	Female thread	
4. Connection material		
M	Brass	
5. Switching range H₂O for horizontal inwards flow		
004	1 - 4 l/min	• • •
010	2 - 10 l/min	• • •
016	8 - 16 l/min	• • •



FWJ-



FWJK2-



FWJK4-

Options

- Switching value for oil
- Special values
- Cable outlet

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 FX



- Adjusted switching value
- Integrated filter
- High switching power
- Optional flow limiter in the outlet piece

Characteristics

Mechanical flow switch, for fluid media, with magnetic triggering of a reed switch. Plastic housing with integrated filter.

Technical data

Switch	reed switch	
Nominal width	DN 15	
Process connection	male thread G 1/2 A (note: For plastic parts it is not possible to guarantee trueness of calibration)	
Switching range	0.4..12 l/min	for details see table "Ranges"
Pressure loss	0.75..1.1 bar at Q _{max.}	
Q_{max.}	12 l/min	
Tolerance	±15 % of full scale value	
Pressure resistance	PN 10 bar	
Media temperature	-20..+70 °C (80 °C at 6 bar)	
Ambient temperature	-20..+70 °C	
Media	water	
Wiring	normally open (n.o.) No. 0.372	
Switching voltage	max. 230 V AC	
Switching current	max. 1 A	
Switching capacity	max. 50 VA	
Protection class	2 - safety insulation	
Ingress protection	IP 65	
Electrical connection	cable 0.5 m	
Materials medium-contact	POM GV, CW614N, CuSn8, hard ferrite, NBR, Nylon type FXF with additional spring 1.4310	
Non-medium-contact materials	PVC	
Weight	without spring	0.14 kg
	with spring	0.15 kg
Installation location	Standard: All mounting positions except entry above are possible, the mounting position has influence on the switching point.	
Filter	25 µm	

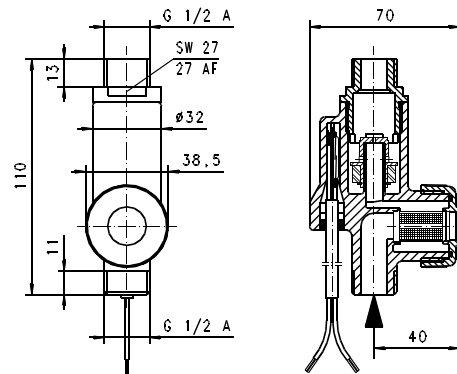
Ranges

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

G	Spring	Switching value l/min H ₂ O Choose between	Q _{max.} recommended	Pressure loss bar at Q _{max.} H ₂ O	Type
G 1/2 A	no	0.4 - 5	12	0.75	FX-01 5AP
	yes	2.0 - 12	15	1.10	FXF-0 15AP

Special ranges are available.

Dimensions



Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switch 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

FX 1. 2. **015** 3. **A** 4. **P**

1. Spring-supported	
-	without spring support
F-	with spring support
2. Nominal width	
015	DN 15 - G 1/2 A
3. Process connection	
A	male thread
4. Connection material	
P	POM

Ordering information

- Specify direction of flow, medium, and switching value.
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching value).
- Integrated flow limiter

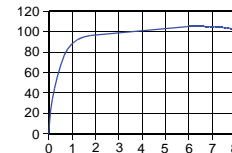
Options

Integrated flow limiter

Characteristics

Mechanical flow limiter for fluid media. From a pre-pressure greater than 2 bar, the flow rate is controlled to the desired volume flow.

Flow value%
of controlled value



Technical data

Controlled values	3 l/min	5 l/min	6 l/min
	8 l/min	10 l/min	12 l/min
Differential pressure	2..10 bar		
Tolerance	±15 %		
Medium temperature	0..65 °C		
Ambient temperature	0..65 °C		
Medium	water		
Materials	POM, NBR		
Weight	0.05 kg additionally		

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
 Астрахань (8512)99-46-04 Иркутск (395)279-98-46 Москва (495)268-04-70 Ростов-на-Дону (863)308-18-15 Тверь (4822)63-31-35
 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
 Брянск (4832)59-03-52 Калуга (4842)92-23-67 Нижний Новгород (831)429-08-12 Санкт-Петербург (812)309-46-40 Тюмень (3452)66-21-18
 Владивосток (423)249-28-31 Кемерово (3842)65-04-62 Новокузнецк (3843)20-46-81 Саратов (845)249-38-78 Ульяновск (8422)24-23-59
 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
 Вологда (8172)26-41-59 Краснодар (861)203-40-90 Омск (3812)21-46-40 Симферополь (3652)67-13-56 Хабаровск (4212)92-98-04
 Воронеж (473)204-51-73 Красноярск (391)204-63-61 Орел (4862)44-53-42 Смоленск (4812)29-41-54 Челябинск (351)202-03-61
 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