

TOPAS PMG / PMH

Hydraulic sensor

Hot water

Applications

The hydraulic sensors form part of a heat meter and operate according to the multiple-jet measuring principle.



Features

- Insensitive to turbulences
- Correct mounting ensures high accuracy and long-term stability
- No inlet or outlet paths required

Benefits

- The dial can be turned through 360° for ease of reading
- Available with a reed, inductive or optoelectronic pulser
- Accurate flow measurement significantly increases the value of the system

Архангельск (8182)63-90-72
Астана +7(7172)727-132
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48

Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41

Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78

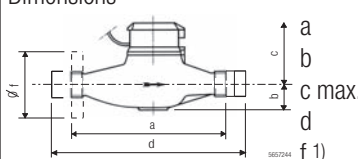
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Product range

TOPAS PMG



- Multi-jet turbine meters with dry-type registers
- Type approval as hydraulic sensors for hot water meters conforming to Directive 2004/22/EC (EN 1434)
- Accuracy class 3 and ambient temperature class C according to EN 1434
- Suitable for horizontal mounting
- Brass housing with threaded connections according to ISO 228-1
- Nominal pressure PN 16
- Maximum temperature 90 °C / 120 °C / 130 °C
- No inlet or outlet paths required

Nominal diameter	DN	mm inches	15 1/2	20 3/4	25 1	32 1 1/4	40 1 1/2	50 2
With reed pulser RH 1 (1 litre), Tmax	Art. No.		94246	94247	94248	94249	94351	94354
With inductive pulser IH, Tmax	Art. No.		89686	89687	89688	89689	94228	94229
Maximum flow rate	qs	m ³ /h	3	5	7	12	20	30
Permanent flow rate	qp	m³/h	1.5	2.5	3.5	6	10	15
Minimum flow rate	qi	m ³ /h	0.031	0.031	0.07	0.075	0.2	0.2
Starting flow at approx.		m ³ /h	0.014	0.014	0.022	0.022	0.045	0.045
Max. pressure loss at qp		bar	0.15	0.2	0.22	0.22	0.2	0.2
Flowrate at $\Delta p = 1$ bar		m ³ /h	4.5	5.2	9.5	12.7	25.6	32.5
Measuring range	qp/qi		50	80	50	80	50	80
Smallest readable volume		litre	0.1	0.1	0.1	0.1	0.1	0.1
Recording capacity		m ³ /h	99'999	99'999	99'999	99'999	99'999	99'999
Thread size: Body	G...B	inches	3/4	1	1 1/4	1 1/2	2	2 3/8
Thread size: Connector	R...	inches	1/2	3/4	1	1 1/4	1 1/2	2
Body surface finish			lacquered					
Weight without connections		kg	1	1.8	2.8	2.8	5	7
Dimensions								
			mm	165	190	260	260	300
			mm	35	37	40	40	60
			mm	76	84	93	93	102
			mm	260	285	375	375	440
			mm	-	105	115	140	150

1) Diameter with threaded flange

Pressure loss curves: page 9

TOPAS PMGF (downpipe) and PMGS (riser pipe)



- Multi-jet turbine meters with dry-type registers
- Type approval as hydraulic sensors for hot water meters conforming to Directive 2004/22/EC (EN 1434)
- Accuracy class 3 and ambient temperature class C according to EN 1434
- Suitable for vertical mounting
- Brass housing with threaded connections according to ISO 228-1
- Nominal pressure PN 16
- Maximum temperature 90 °C / 120 °C / 130 °C
- No inlet or outlet paths required

Nominal diameter	DN	mm inches	20 3/4	25 1	32 1 1/4	40 1 1/2
PMGF (downpipe)						
With reed pulser	Art. No.		94250	94251	94252	94352
RH 1 (1 litre),						
Tmax		°C	130	130	130	120
With inductive	Art. No.		94616	94617	94618	94237
pulser IH,						
Tmax		°C	90	90	90	90
PMGS (riser pipe)						
mit Reed-pulser	Art. No.		94253	94254	94255	94353
RH1 (1 litre),						
Tmax		°C	130	130	130	120
With inductive	Art. No.		89694	89695	89696	94245
pulser IH						
Tmax		°C	90	90	90	90
Maximum flow rate	qs	m³/h	3.1	4.4	6.3	12.5
Permanent flow rate	qp	m³/h	2.5	3.5	5	10
Minimum flow rate	qi	m³/h	0.031	0.07	0.1	0.2
Starting flow at approx.		m³/h	0.014	0.022	0.022	0.045
Max. pressure loss at qp	PMGF	bar	0.22	0.18	0.26	0.23
Max. pressure loss at qp	PMGS	bar	0.18	0.14	0.14	0.23
Flowrate at $\Delta p = 1 \text{ bar}$	PMGF	m³/h	5.4	8.6	10.3	22.2
Flowrate at $\Delta p = 1 \text{ bar}$	PMGS	m³/h	6	9.7	13.6	20.8
Measuring range	qp/qi		80	50	50	50
Smallest readable volume		litre	0.1	0.1	0.1	0.1
Recording capacity		m³/h	99'999	99'999	99'999	99'999
Thread size: Body	G...B	inches	1	1 1/4	1 1/2	2
Thread size: Connector	R...	inches	3/4	1	1 1/4	1 1/2
Body surface finish			lacquered			
Weight without connections		kg	1.8	2.8	2.9	7
Dimensions						
	a	mm	105	150	150	200
	b	mm	25	30	30	50
	c	mm	126	148	148	200
	d	mm	200	265	265	340

Pressure loss curves: page 9

TOPAS PMH



- Multi-jet turbine meters with dry-type registers
- Better than class B
- Error tolerance $\pm 3\%$ of measured value in upper range $Q_t \leq Q \leq Q_{max}$ and $\pm 5\%$ in lower range $Q_{min} \leq Q \leq Q_t$
- Suitable for horizontal mounting
- Spheroidal graphite iron body with flange connections
- Nominal pressure 40 bar
- Maximum temperature 130 °C
- No inlet or outlet paths required

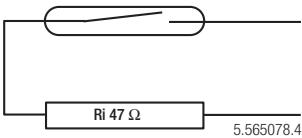
Nominal diameter	DN	mm inches	20 3/4	25 1	40 ¹⁾ 1 1/2
Standard	Art. No.		92270	92271	92272
With reed pulser RH 1 (1 litre)	Art. No.		89670	89674	-
With inductive pulser IN	Art. No.		89672	89675	-
Maximum flow rate	Q _{max}	m ³ /h	5	7	20
Nominal flow rate	Q_n	m³/h	2.5	3.5	10
Transitional flow rate	Q _t	m ³ /h	0.2	0.28	0.8
Minimum flow rate	Q _{min}	m ³ /h	0.03	0.07	0.2
Starting flow at approx.		m ³ /h	0.014	0.022	0.15
Max. pressure loss at Q _n		bar	0.2	0.12	0.022
Flowrate at $\Delta p = 1$ bar		m ³ /h	5.4	10	55
Smallest readable volume		litre	0.1	0.1	0.1
Recording capacity		m ³ /h	100'000	100'000	1'000'000
Body surface finish			lacquered		
Weight		kg	6.5	8.5	21
Dimensions					
		a	190	260	300
		b	55	61	75
		c	63	76	155

¹⁾ Pulsers RD 02, OD AM or OD 04 must be ordered separately.

Pressure loss curves: page 10

Pulsers

Reed pulser RH 1



Switch type

Switch voltage

Switch current

Quiescent current

Switch power

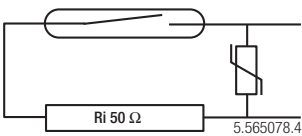
Ambient temperature

Protection

Connection

- Reed contact tube protected with an inert gas filling
- max. 48 VAC or DC
- max. 50 mA (internal resistance 47 Ω / 0,5 W)
- Contact open
- max. 2 W
- -10 ... +70 °C
- IP 65
- Fixed mounting cable, length 3 m

Reed pulser RD 02 for PMH 40



Switch type

Contact protection

Switch voltage

Switch current

Quiescent current

Switch power

Pulse duration

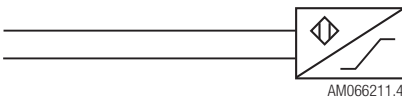
Ambient temperature

Protection

Connection

- Reed contact tube protected with an inert gas filling
- With protective resistor (50 Ω) and varistor
- max. 48 VAC or DC
- max. 200 mA
- Contact open
- max. 4 W
- Depends on flowrate; continuous contact is possible
- -10 ... +70 °C
- IP 68
- Fixed mounting cable, length 3 m

Inductive pulser IH



Switch type

Switch voltage

Switch current

Quiescent current

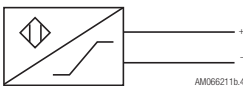
Ambient temperature

Protection

Connection

- Inductive proximity switch conforming to EN 50227
- 5 ... 15 VDC
- >3 mA (at 8 V, 1 k Ω)
- <1.35 mA (at 8 V, 1 k Ω)
- -10 ... +70 °C
- IP 65
- Fixed mounting cable, length 3 m

Inductive pulser IN



Switch type

Switch voltage

Residual ripple

Switch current

Quiescent current

Switch power

ON-time

Ambient temperature

Protection

Connection

- Slot initiator according to EN 50227
- 5 ... 15 VDC
- max. 5 %
- max. 50 mA (internal resistance 47 Ω / 0,5 W)
- Contact open
- max. 2 W
- 50 % $\pm$ 10 %
- -10 ... +70 °C
- IP 65
- Fixed mounting cable, length 3 m

Optoelectronic pulser OD AM and OD 04 for PMH 40

Switch type	• IR reflex light barrier to EN 50227
Switch voltage	• 8.2 VDC
Switch current	• <1.2 mA
Quiescent current	• >2.1 mA
Forward/reverse flow	• This is integrated in OD 04 by means of an additional current recognition threshold at 1.5 mA
	• OD AM has an integrated forward/reverse flow recognition feature and it only emits forward flow pulses (jitter suppression)
Ambient temperature	• -10 ... +70 °C
Protection	• IP 68
Connection	• Fixed mounting cable, length 3 m

Pulse values for TOPAS PMG und PMGF/S

Nominal diameter	DN	mm	15	20	25	32	40	50
		inches	1/2	3/4	1	1 1/4	1 1/2	2
Reed pulser RH 1		l/pulse	1	1	1	1	1	1
Inductive pulser IH		ml/pulse	12.95	12.95	21.51	26.80 ¹⁾	65.34	66.96

¹⁾ PMGF/S = 21.51

Pulse values for TOPAS PMH

Nominal diameter	DN	mm	20	25	40
		inches	3/4	1	1 1/2
Reed pulser RH 1		l/pulse	1	1	-
Reed pulser RD 02		l/pulse	-	-	100
Inductive pulser IN		l/pulse	1	1	-
Optoelectronic pulser OD AM		l/pulse	-	-	1
Optoelectronic pulser OD 04		l/pulse	-	-	10

Installation notes

Piping

Ensure that all measuring and auxiliary instruments can be easily operated and values read off. Measuring instruments must be installed so that the dial is horizontal and facing upwards. The layout of the piping must ensure that all measuring instruments are filled with liquid at all times and that no air bubbles or pockets can occur. All consumption values are to be registered by the flowmeter. TOPAS vane wheel counters require no straight inlet or outlet paths.

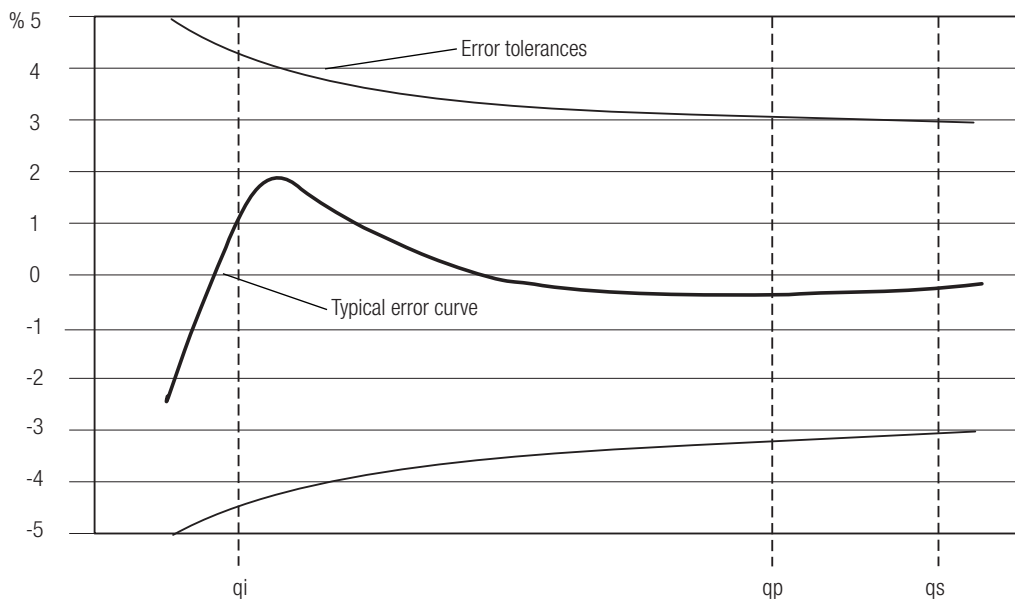
Dimensioning flowmeters and accessories

Flowmeters are dimensioned according to the flowrate and not according to the diameter of the piping. The diameter of the piping should be changed if necessary, or pipe reducers used. Flowmeters and peripherals should be dimensioned with regard to the maximum operating conditions of the system:

- flowrate
- operating pressure
- operating temperature
- ambient temperature

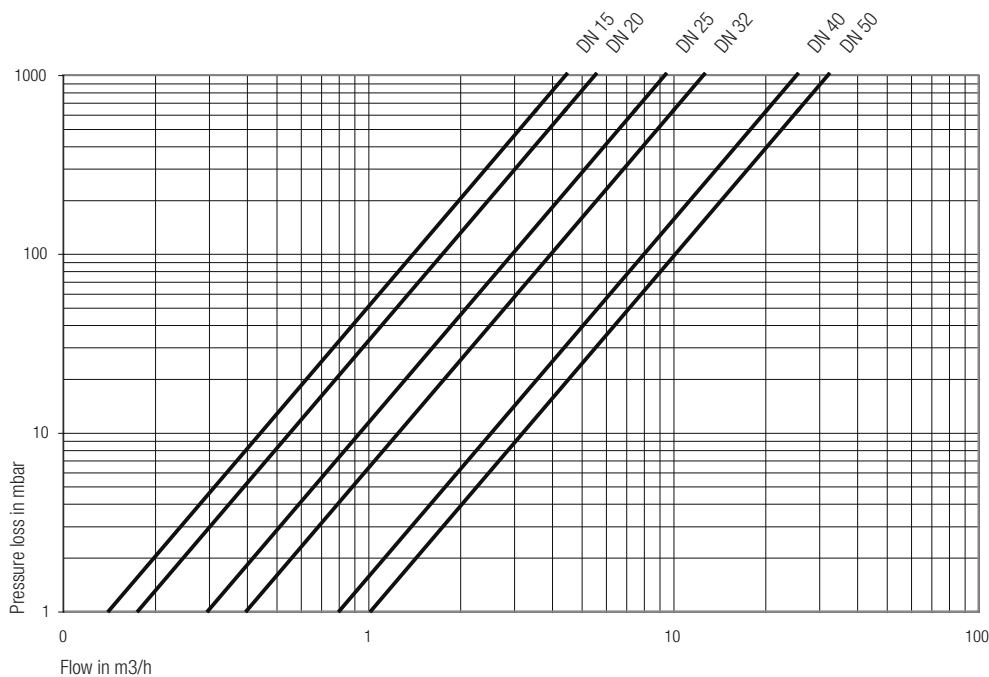
Measurement error limits

Hydraulic sensor: accuracy class 3 to EN 1434

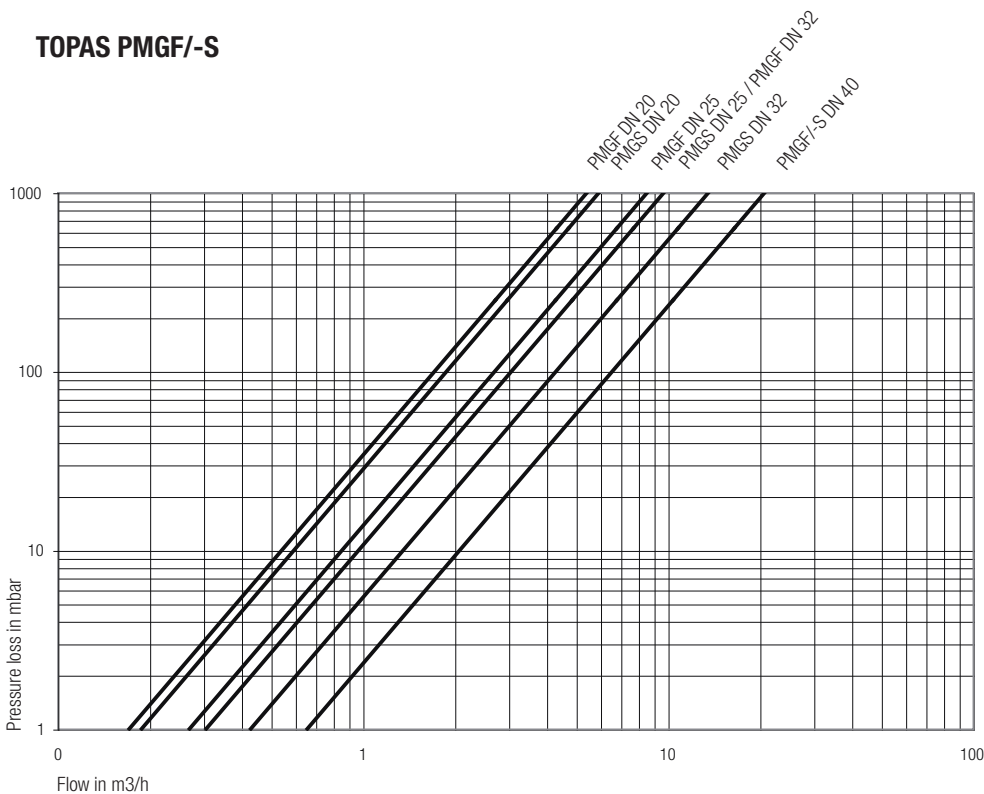


Pressure loss curves

TOPAS PMG



TOPAS PMGF/-S



Архангельск (8182)63-90-72	Калининград (4012)72-03-81	Нижний Новгород (831)429-08-12	Смоленск (4812)29-41-54
Астана +7(7172)727-132	Калуга (4842)92-23-67	Новокузнецк (3843)20-46-81	Сочи (862)225-72-31
Белгород (4722)40-23-64	Кемерово (3842)65-04-62	Новосибирск (383)227-86-73	Ставрополь (8652)20-65-13
Брянск (4832)59-03-52	Киров (8332)68-02-04	Орел (4862)44-53-42	Тверь (4822)63-31-35
Владивосток (423)249-28-31	Краснодар (861)203-40-90	Оренбург (3532)37-68-04	Томск (3822)98-41-53
Волгоград (844)278-03-48	Красноярск (391)204-63-61	Пенза (8412)22-31-16	Тула (4872)74-02-29
Вологда (8172)26-41-59	Курск (4712)77-13-04	Пермь (342)205-81-47	Тюмень (3452)66-21-18
Воронеж (473)204-51-73	Липецк (4742)52-20-81	Ростов-на-Дону (863)308-18-15	Ульяновск (8422)24-23-59
Екатеринбург (343)384-55-89	Магнитогорск (3519)55-03-13	Рязань (4912)46-61-64	Уфа (347)229-48-12
Иваново (4932)77-34-06	Москва (495)268-04-70	Самара (846)206-03-16	Челябинск (351)202-03-61
Ижевск (3412)26-03-58	Мурманск (8152)59-64-93	Санкт-Петербург (812)309-46-40	Череповец (8202)49-02-64
Казань (843)206-01-48	Набережные Челны (8552)20-53-41	Саратов (845)249-38-78	Ярославль (4852)69-52-93