TURBINSKI GASNI MERAČ
Fluxi 2000/TZ

Gasni merači sa turbinom su protočni merači. proticanje gasa okreće kolo turnine tako da je brzina obrtanja kola turbine proporcionalna linearnoj brzini gasa. kretanje se mehanički prenosi do brojila uz pomoć magnetne spojnice.

- PTB odobren sa samo 2 DN ravne ulazne cevi, 0 (nula) DN izlazne cevi čak i kod velikih ometanja
- Iznad zahteva svih trenutnih evropskih i međunarodnih standarda
- Smanjen gubitak pritiska kod mreža sa niskim pritiskom
- izvrsno ponašanje pri visokom pritisku
- IP 67 zaštita brojila

PRIMENA

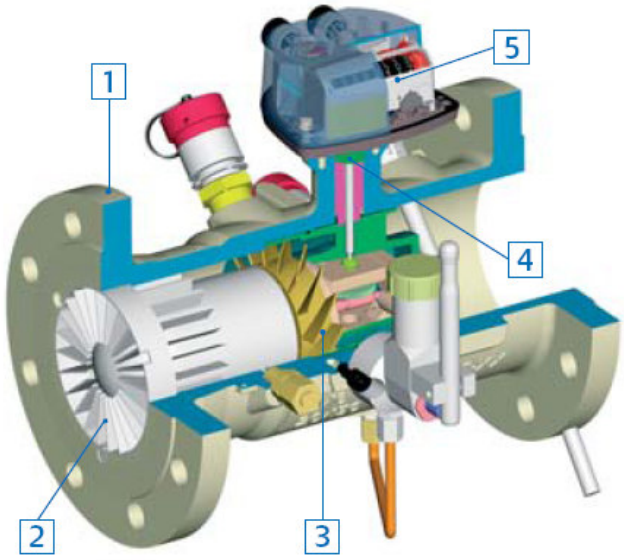
Fluxi 2000/TZ merači su konstruisani da mere prirodni gas, razne filtrirane gasove kao i sve ne korozivne gasove. Koriste se za gasove sa srednjim i visokim intezitetom protoka pri malom, srednjem i visokom pritisku.

Fluxi 2000/TZ merači prilagođeni su za upotrebu na svim instalacijama za transport i distribuciju gasa.

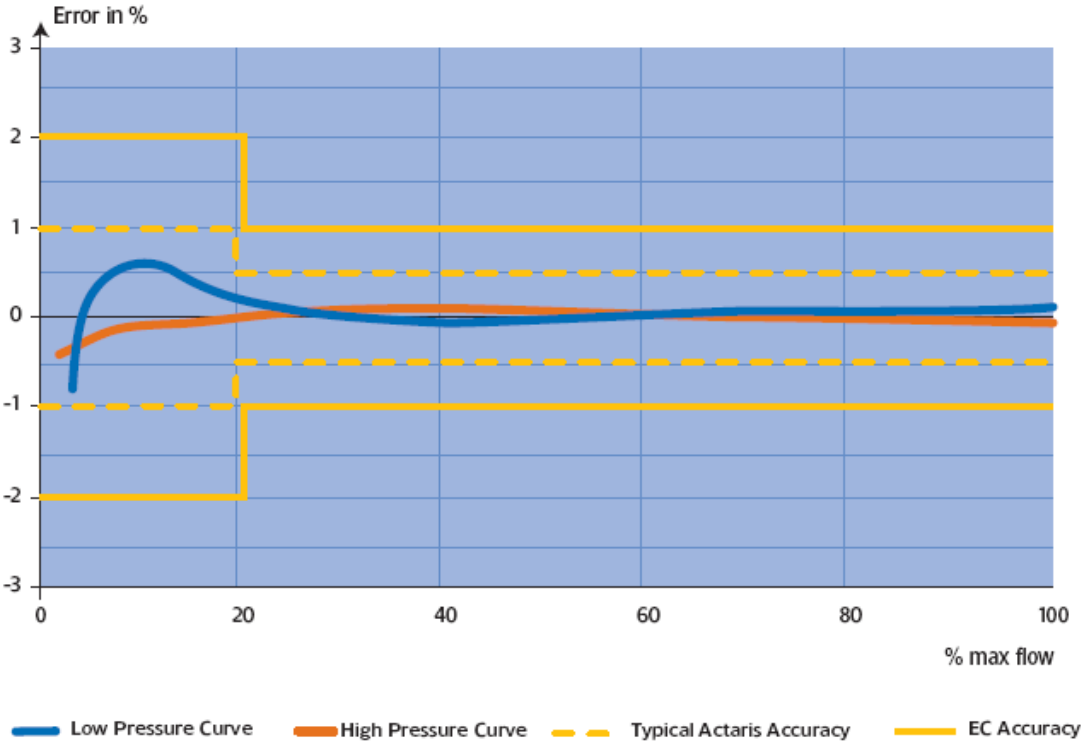
OPIS

Fluxi 2000/TZ merač je sastavljen iz pet osnovnih delova:

- kućišta (1),
- pojačivača protoka koji stabiliše i ubrzava protok gasa pre dolaska do kola turbine (2),
- merne jedinice uključujući i kolo turbine (3),
- magnetne spojnice koja prenosi kretanje kola turbine do brojila (4),
- brojla koje registruje protok gasa (5).



Osobine		
Merne norme	EC (PTB), 1.33-3271.51-ROM-E04.	
Sigurnosne norme	L.C.I.E. 06 ATEX 6031 X U saglasnosti sa uredbom 94/9EC	
Protok	od 8 m³/h do 10000 m³/h, G 65 do G 6500	
Nazivni prečnici	od DN50 do DN500 mm (2" do 20")	
Maksimalni radni pritisak	do 100 bar u zavisnosti kućišta, materijala i poklopca	
Ugradnja	Fluxi 2000/TZ merač može biti ugrađen i horizontalno i vertikalno, za DN50 do DN300, i horizontalni za DN400 i DN500.	
Kućište	Kovani čelik, liveni čelik ili zavareni čelik. U saglasnosti sa uredbom za rad opreme pod pritiskom 97/23EC	
Temperaturni opseg	Okolina:	-30℃ do +60℃
	Gas:	-30℃ do +60℃
	Temperatura skladištenja:	-40℃ do +70℃



Characteristics

A) Technical data sheet Rangeability and pulse values

						With correction gears 32/40 (correction 0%)						
G size	DN (mm)	Max Flow (m^3/h)	Range ability	1 Imp LF & Cyble (m^3/Imp)	Freq LF Qmax (HZ)	1 Imp MF (dm^3/Imp)	Freq MF Qmax (HZ)	1 Imp HF2 (dm^3/Imp)	Freq HF2 Qmax (HZ)	1 Imp HF3 (dm^3/Imp)	Freq HF3 Qmax (HZ)	RPM Qmax (Rot/min)
G65	50	100	10	0.1	0.28	5.2766	5.26	-	-	0.00868	3200	15999
G100	80	160	20	1	0.04	23.07692	1.93	0.07593	585	0.03797	1171	5853
G160		250	20 or 30		0.07	23.07692	3.01	0.07593	915	0.03797	1829	9146
G250		400	20 or 30		0.11	39.11111	2.84	0.12869	863	0.06434	1727	8634
G160	100	250	20	1	0.07	23.07692	3.01	0.06271	1107	0.06271	1107	4153
G250		400	20 or 30		0.11	23.07692	4.81	0.06271	1772	0.06271	1772	6644
G400		650	20 or 30		0.18	39.11111	4.62	0.10628	1699	0.10628	1699	6371
G400	150	650	20	1	0.18	23.07692	7.82	0.15385	1174	0.15385	1174	3521
G650		1000	20 or 30		0.28	23.07692	12.04	0.15385	1806	0.15385	1806	5417
G1000		1600	20 or 30		0.44	39.11111	11.36	0.26074	1705	0.26074	1705	5114
G650	200	1000	20	10	0.03	230.7692	1.2	0.37661	738	0.37661	738	2213
G1000		1600	20 or 30		0.04	230.7692	1.93	0.37661	1180	0.37661	1180	3540
G1600		2500	20 or 30		0.07	391.1111	1.78	0.63829	1088	0.63829	1088	3264
G1000	250	1600	20	10	0.04	230.7692	1.93	0.5787	768	0.5787	768	1920
G1600		2500	20 or 30		0.07	230.7692	3.01	0.5787	1200	0.5787	1200	3000
G2500		4000	20 or 30		0.11	391.1111	2.84	0.9808	1133	0.9808	1133	2832
G1600	300	2500	20	10	0.07	218.1818	3.18	0.85763	810	0.85763	810	1735
G2500		4000	20 or 30		0.11	218.1818	5.09	0.85763	1296	0.85763	1296	2776
G4000		6500	20 or 30		0.18	391.1111	4.62	1.53739	1174	1.53739	1174	2517
G2500	400	4000	20	10	0.11	218.1818	5.09	2.04673	543	2.04673	543	1163
G4000		6500	20 or 30		0.18	218.1818	8.28	2.04673	882	2.04673	882	1890
G6500		10000	20 or 30		0.28	391.1111	7.1	3.66896	757	3.66896	757	1622
G4000	500	6500	20 or 30	10	0.18	218.1818	8.28	2.04673	882	2.04673	882	1890
G6500		10000	20 or 30		0.28	391.1111	7.1	3.66896	757	3.66896	757	1622

Body materials and approximate weight (Kg)

DN (mm)	Length of body (mm)	ISO PN 10-16	ISO PN 20	ISO PN 25	ISO PN 40	ISO PN 50	ISO PN 110	ANSI 150	ANSI 300	ANSI 600
50	150	A(1) 8	A(1) B(1) 8	A(1) 8	A(1) 8	B(2) 11	B(2) 11	A(1) B(1) 8	B(2) 11	B(2) 11
80	240	AB 19	AB 19	AB 19	AB 19	B 30	B 37	AB 19	B 30	B 37
100	300	AB 22	AB 22	B 25	B 25	B 45	B 55	AB 22	B 45	B 55
150	335	A(3) 46	A(3) 46	-	-	-	-	A(3) 46	-	-
150	450	AB 54	AB 54	B 54	B 54	B 80	B 95	AB 54	B 80	B 95
200	600	AB 83	AB 83	B 83	B 110	B 130	B 150	AB 83	B 130	B 150
250	750	B 120	B 120	B 120	B 140	B 220	B 245	B 120	B 220	B 245
300	900	B 190	B 190	B 190	B 220	B 265	B 265	B 190	B 265	B 295
400	1200	B 440	B 440	B 440	B 490	B 680	B 740	B 440	B 680	B 740
500	1500	B 580	B 580	B 580	B 640	B 770	B 950	B 580	B 770	B 950

A: Ductile iron EN-GJS-400-18LT (GGG40.3)
B: Steel (Cast steel G5 or welded steel)
(1) HF2 not available,1 thermowell only
(2) HF2 not available
(3) HF2 and thermowells not available

Note: for the pressure and temperature range of the body material, please check your National Rules

C) Dimensions (mm)

DN	L	L short*	A	A short*	B	B short*	C	D	E
50	150	-	60	-	45	-	125	150	175
80	240	-	96	-	60	-	150	170	180
100	300	-	124	-	82	-	175	180	195
150	450	335	185	92	122	101	205	215	205
200	600	-	240	-	175	-	230	245	240
250	750	-	275	-	273	-	300	275	270
300	900	-	360	-	300	-	300	300	300
400	1200	-	450	-	540	-	350	355	350
500	1500	-	470	-	820	-	390	385	383

** Short version, same length as for the former NM1 meter*

B) Pressure loss of the Fluxi 2000/TZ meters

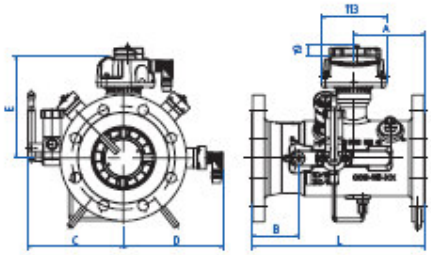
G size	DN (mm)	Max. Flow (m^3/h)	Pressure losses of the Fluxi 2000/TZ meter (mbar) Standard ΔPr	With integrated flow conditioner ΔPr
			ρ=0.83kg/m³. T=0°C. Qmax	ρ=0.83kg/m³. T=0°C. Qmax
G65	50	100	9.1	-
G100	80	160	2.4	-
G160		250	5.9	
G250		400	12.8	
G160	100	250	2.2	-
G250		400	5.4	
G400		650	11.8	
G400	150	650	2.7	-
G650		1000	6.6	
G1000		1600	13.8	
G650	200	1000	1.6	2.6
G1000		1600	4.0	6.3
G1600		2500	8.7	13.7
G1000	250	1600	2.1	3.3
G1600		2500	5.0	8.0
G2500		4000	11.0	17.3
G1600	300	2500	2.0	3.2
G2500		4000	5.0	7.8
G4000		6500	9.5	17.0
G2500	400	4000	1.8	2.8
G4000		6500	4.4	6.8
G6500		10000	9.5	14.9
G4000	500	6500	4.4	6.8
G6500		10000	9.5	14.9

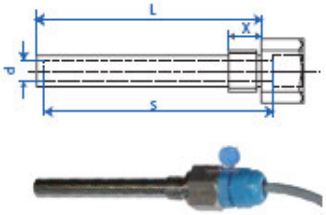
Calculation of pressure loss:

$$\Delta p = \Delta pr \times \frac{\rho n}{0.83} \times (Pb + 1) \times \left[\frac{q}{Qmax}\right]^2 \times \left[\frac{273}{(273+Tb)}\right]$$

Where:

- Δp: Pressure loss in the calculated conditions
- Δp_r: Pressure loss in the reference conditions
- ρn: Gas density (kg/m^3) at 0°C and 1013 mbar
- Pb: Operating pressure (Bar gauge)
- q: Flow rate (m^3/h)
- Qmax: Maximum flow rate (m^3/h)
- Tb: Gas temperature (°C)





▶ Thermowell fitted with sealing holes

D) Thermowells sizes

DN	Thread	Order Number with PG screw. o-ring	d bore mm	d Cable mm	Max. Setting Depth (S) Sensor (mm)	L mm	X mm
50(LP)/80/100	G 1/4 A	E952-014-04	7.5	4-8	60	59	12
50(HP)/150/200	G 1/4 A	E952-014-14	7.5	4-8	90	93	12
250/500	G 1/2 A	E952-014-05	8	4-8	150	147	14

E) Transmitter characteristics

Intrinsic safety approval: L.C.I.E. 06 ATEX 6031 X
Intrinsic safety level: ⟨Ex⟩ II 1/2 G EEx ia IIB/IIC T5 c T6

Low Frequency pulse transmitter (LF):
The LF transmitter consists of 2 dry Reed switches, normally open, and controlled by a magnet situated in the first drum of the totaliser. The LF connections are without polarity.

Characteristics of LF transmitter:

- Hermetically sealed contacts
- Maximum terminal voltage: 30 Volt and maximum current according to EN50020.
- Maximum temperature: +60°C
- Minimum pulse time: 0.4 sec
- Cyble sensor:
  It conforms to CENELEC standard EN50020 with:
  - Ui ≤ 14,3 Volt
  - Ii ≤ 50 mA

Anti-tampering transmitter (AT):
This consists of one dry Reed switch, normally closed. Attempts at magnetic tampering will open the contact. The electrical characteristics are the same as those for the LF transmitter.

Inductive transmitters (MF and HF):
They are inductive sensors actuated by a toothed disc. The frequency is proportional to the instantaneous flow. The polarity of the connections is indicated on the name plate of the meter.

Characteristics of transmitters:

- Proximity detector conform to EN50227 (and NAMUR) standards
- They conform to CENELEC standards (EN50014 and 50020) with
  - Ui ≤ 15 Volt
  - Ii ≤ 50 mA
  - Pi ≤ 120 mW
- Maximum temperature: + 60°C

F) Installation

Each meter is delivered with binder plugs for the installed transmitters and oil when an oil pump is installed. Please refer to the instruction manual supplied with the meter.
The advice given therein will ensure optimal use of the Fluxi 2000/TZ meter over the years.