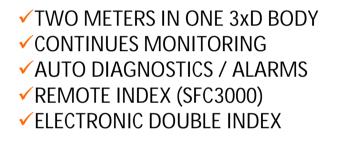
TURBINE METERS SERIES ETTM

DN150 – DN300 (6" - 12")
PN16 – PN100, ANSI150 – ANSI600
20 – 6500 m³/h (135 – 230,000 acfh)
EXCHANGEABLE CARTRIDGE
OIML, MID, PED, ATEX APPROVED

The FMG series of Electronic Twin Turbine meters is the most accurate and advanced turbine meter ever developed. The functional and quality level reaches that of the serial comparison of two separate turbine meters as is in use at high pressure border stations throughout Europe. By a continuous comparison of the two - fully independent - turbine wheels, the smallest deviation can be monitored. A remote index (SFC3000 Flow Computer), controls the performance during the life time of the meter and will inform the parties involved of the metrological status. The SFC3000 will also directly correct the reading for all measurement errors.







The Electronic Twin Turbine can also be equipped with a battery powered electronic index showing the reading of both wheels (both wheels can be used for billing purposes). The counter system of this electronic index does not need to be powered and as such has infinite life time.

Technical Data	imperial	T27	T35	T60	T35	T60	T90	
	metric	G400	G650	G1000	G650	G1000	G1600	
Nominal Pipe Size	in.	6	6	6	8	8	8	
	mm	150	150	150	200	200	200	
Base Rating (Qmax)	acfh	27000	35000	60000	35000	60000	90000	
	m³/h	650	1000	1600	1000	1600	2500	
Rangeability atmopheric air	ratio	20	20	20	20	20	20	
Rangeability >8 bar natural gas	ratio	30	30	30	30	30	30	
Rangeability >16 bar natural gas	ratio	50	50	50	50	50	50	
Accuracy Qmin to 20% Qmax		% better than 2% (typical better than 1%)						
Accuracy 20% Qmax to Qmax		% better than 1% (typical better than 0,5%)						
Accuracy Qmin to Qmax (after linearisation)		% better than 0,15%						
Repeatability	%							
Temperature Range	deg.F	+14 to + 131 (-13 to +131 on request)						
	deg.C	-10 to + 55 (-25 to +55 on request)						
Average Differential @	in. w.c.	2,0	3,1	5,5	2,0	3,1	5,5	
100% Flow Natural Gas 1barg	kPa	500	800	1400	500	800	1400	
Flange-to-Flange	in.	17-3/4	17-3/4	17-3/4	23-5/8	23-5/8	23-5/8	
	mm	450	450	450	600	600	600	
Flange Connection	ANSI			150#RF, 300	0#RF,600#RF			
	DIN	PN10, PN16, PN25, PN40, PN64, PN100						
Net Weight Steel ANSI150, PN16	lbs.	110	110	110	183	183	183	
	kg	50	50	50	83	83	83	
Net Weight Steel ANSI300, PN25/40	lbs.	176	176	176	240	240	240	
	kg	80	80	80	109	109	109	
Net Weight Steel ANSI600, PN64/100	lbs.	198	198	198	310	310	310	
	kg	90	90	90	141	141	141	
Technical Data	imperial	T60	T90	T140	T90	T140	T230	
Technical Data	imperial metric	T60 G1000	T90 G1600	T140 G2500	T90 G1600	T140 G2500	T230 G4000	
Technical Data Nominal Pipe Size								
	metric	G1000	G1600	G2500	G1600	G2500	G4000	
	metric in.	G1000 10	G1600 10	G2500 10	G1600 12	G2500 12	G4000 12	
Nominal Pipe Size	metric in. mm	G1000 10 250	G1600 10 250	G2500 10 250	G1600 12 300	G2500 12 300	G4000 12 300	
Nominal Pipe Size	metric in. mm acfh	G1000 10 250 60000	G1600 10 250 90000	G2500 10 250 140000	G1600 12 300 90000	G2500 12 300 140000	G4000 12 300 230000	
Nominal Pipe Size Base Rating (Qmax)	metric in. mm acfh m³/h	G1000 10 250 60000 1600	G1600 10 250 90000 2500	G2500 10 250 140000 4000	G1600 12 300 90000 2500	G2500 12 300 140000 4000	G4000 12 300 230000 6500	
Nominal Pipe Size Base Rating (Qmax) Rangeability atmopheric air	metric in. mm acfh m³/h ratio	G1000 10 250 60000 1600 20	G1600 10 250 90000 2500 20	G2500 10 250 140000 4000 20	G1600 12 300 90000 2500 20	G2500 12 300 140000 4000 20	G4000 12 300 230000 6500 20	
Nominal Pipe Size Base Rating (Qmax) Rangeability atmopheric air Rangeability >8 bar natural gas	metric in. mm acfh m³/h ratio ratio	G1000 10 250 60000 1600 20 30	G1600 10 250 90000 2500 20 30 30 50	G2500 10 250 140000 4000 20 30 50	G1600 12 300 90000 2500 20 30	G2500 12 300 140000 4000 20 30 30 50	G4000 12 300 230000 6500 20 30	
Nominal Pipe Size Base Rating (Qmax) Rangeability atmopheric air Rangeability >8 bar natural gas Rangeability >16 bar natural gas	metric in. mm acfh m ³ /h ratio ratio ratio	G1000 10 250 60000 1600 20 30	G1600 10 250 90000 2500 20 30 50 bette	G2500 10 250 140000 4000 20 30 50 r than 2% (typ	G1600 12 300 90000 2500 200 30 50	G2500 12 300 140000 4000 20 30 30 50	G4000 12 300 230000 6500 20 30	
Nominal Pipe Size Base Rating (Qmax) Rangeability atmopheric air Rangeability >8 bar natural gas Rangeability >16 bar natural gas Accuracy Qmin to 20% Qmax	metric in. mm acfh m³/h ratio ratio ratio	G1000 10 250 60000 1600 20 30	G1600 10 250 90000 2500 20 30 50 bette	G2500 10 250 140000 4000 20 30 50 r than 2% (typ than 1% (typi	G1600 12 300 90000 2500 20 30 50 ical better that	G2500 12 300 140000 4000 20 30 30 50	G4000 12 300 230000 6500 20 30	
Nominal Pipe Size Base Rating (Qmax) Rangeability atmopheric air Rangeability >8 bar natural gas Rangeability >16 bar natural gas Accuracy Qmin to 20% Qmax Accuracy 20% Qmax to Qmax	metric in. mm acfh m³/h ratio ratio ratio	G1000 10 250 60000 1600 20 30	G1600 10 250 90000 2500 20 30 50 bette	G2500 10 250 140000 4000 20 30 50 r than 2% (typi than 1% (typi better th	G1600 12 300 90000 2500 20 30 50 ical better than cal better than	G2500 12 300 140000 4000 20 30 30 50	G4000 12 300 230000 6500 20 30	
Nominal Pipe SizeBase Rating (Qmax)Rangeability atmopheric airRangeability >8 bar natural gasRangeability >16 bar natural gasAccuracy Qmin to 20% QmaxAccuracy 20% Qmax to QmaxAccuracy Qmin to Qmax (after linearisation)	metric in. mm acfh m³/h ratio ratio ratio % %	G1000 10 250 60000 1600 20 30	G1600 10 250 90000 2500 20 30 50 bette better	G2500 10 250 140000 4000 20 30 50 r than 2% (typi than 1% (typi better th better th	G1600 12 300 2500 20 30 50 ical better than cal better than an 0,15%	G2500 12 300 140000 4000 20 30 50 50 n 1%) 0,5%)	G4000 12 300 230000 6500 20 30	
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Nominal Pipe Size Base Rating (Qmax) Rangeability atmopheric air Rangeability >8 bar natural gas Rangeability >16 bar natural gas Accuracy Qmin to 20% Qmax Accuracy 20% Qmax to Qmax Accuracy Qmin to Qmax (after linearisation) Repeatability	metric in. mm acfh m³/h ratio ratio ratio % % % % %	G1000 10 250 60000 1600 20 30	G1600 10 250 90000 2500 20 30 50 bette better	G2500 10 250 140000 4000 20 30 50 r than 2% (typ than 1% (typi better th better th to + 131 (-13 t	G1600 12 300 90000 2500 20 30 50 ical better than cal better than cal better than an 0,15% nan 0,1% co +131 on requ	G2500 12 300 140000 20 30 20 30 50 10 50	G4000 12 300 230000 6500 20 30	
Nominal Pipe SizeBase Rating (Qmax)Rangeability atmopheric airRangeability >8 bar natural gasRangeability >16 bar natural gasAccuracy Qmin to 20% QmaxAccuracy 20% Qmax to QmaxAccuracy Qmin to Qmax (after linearisation)RepeatabilityTemperature Range	metric in. mm acfh m³/h ratio ratio ratio k % % % % % % % % % % % % % % % % % %	G1000 10 250 60000 1600 20 30 50	G1600 10 250 90000 2500 20 30 50 bette better +14 -10	G2500 10 250 140000 4000 20 30 50 r than 2% (typ than 1% (typi better th better th to + 131 (-13 t 0 to + 55 (-25 t	G1600 12 300 90000 2500 20 30 50 ical better than cal better than an 0,15% nan 0,1% to +131 on reque	G2500 12 300 140000 4000 20 30 50 0,5%)	G4000 12 300 230000 6500 20 30 30 50	
Nominal Pipe SizeBase Rating (Qmax)Rangeability atmopheric airRangeability >8 bar natural gasRangeability >16 bar natural gasAccuracy Qmin to 20% QmaxAccuracy 20% Qmax to QmaxAccuracy Qmin to Qmax (after linearisation)RepeatabilityTemperature RangeAverage Differential @	metric in. mm acfh m³/h ratio ratio ratio cratio % % % % % % % % % % % % % % % % % % %	G1000 10 250 60000 1600 20 30 50 50	G1600 10 250 90000 2500 20 30 50 bette better +14 -10 3,1	G2500 10 250 140000 4000 20 30 50 r than 2% (typ than 1% (typi better th better th better th to + 131 (-13 t 0 to + 55 (-25 t 5,5	G1600 12 300 90000 2500 20 30 50 ical better than cal better than an 0,15% han 0,1% to +131 on reque 2,0	G2500 12 300 140000 4000 20 30 50 0,5%)	G4000 12 300 230000 6500 20 30 30 50	
Nominal Pipe SizeBase Rating (Qmax)Rangeability atmopheric air Rangeability >8 bar natural gas Rangeability >16 bar natural gasAccuracy Qmin to 20% Qmax Accuracy 20% Qmax to QmaxAccuracy Qmin to 20% Qmax RepeatabilityAccuracy Differential @Average Differential @100% Flow Natural Gas 1barg	metric in. mm acfh m³/h ratio ratio ratio % 6 % % % % % % % % % % % % % % % % %	G1000 10 250 60000 1600 20 30 50	G1600 10 250 90000 2500 20 30 50 bette better +14 -10 3,1 800	$\begin{array}{c} \text{G2500} \\ 10 \\ 250 \\ 140000 \\ 4000 \\ 20 \\ 30 \\ 50 \\ r than 2% (typic than 1% (typic th$	G1600 12 300 90000 2500 20 30 50 ical better than cal better than cal better than an 0,15% to +131 on reque 2,0 500	G2500 12 300 140000 4000 20 30 50 50 11%) 0,5%)	G4000 12 300 230000 6500 20 30 30 50	
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Nominal Pipe SizeBase Rating (Qmax)Rangeability atmopheric airRangeability >8 bar natural gasRangeability >16 bar natural gasRangeability >16 bar natural gasAccuracy Qmin to 20% QmaxAccuracy 20% Qmax to QmaxAccuracy Qmin to Qmax (after linearisation)RepeatabilityTemperature RangeAverage Differential @100% Flow Natural Gas 1bargFlange-to-FlangeFlange ConnectionNet Weight Steel ANSI150, PN16Net Weight Steel ANSI300, PN25/40	metric in. mm acfh m³/h ratio ratio ratio ratio %	G1000 10 250 60000 20 30 50 50 20 20 500 29-1/2 750 29-1/2 750 312 142 394 179	G1600 10 250 90000 2500 20 30 50 bette better 414 -10 3,1 800 29-1/2 750 PN10 312 142 394 179	G2500 10 250 140000 4000 20 30 50 r than 2% (typi better th better th better th to + 131 (-13 t b to + 55 (-25 t 5,5 1400 29-1/2 750 150#RF, 300 , PN16, PN25, 312 142 394 179	G1600 12 300 90000 2500 20 30 50 ical better than an 0,15% to +131 on reque 2,0 500 35-7/16 900 0#RF,600#RF PN40, PN64, P 469 213 576 262	G2500 12 300 140000 4000 20 30 50 14000 4000 30 50 10 10 10 10 10 10 10 10 10 1	G4000 12 300 230000 6500 20 30 50 50 50 50 50 50 50 50 50 50 50 50 50	

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ETTM FEN001 rev.3

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