

Elster® Quantometer Q/Q75

Short pattern Turbine Flow Meters for non-fiscal applications

Applications

Medium:

Natural gas, Air, Methane, Nitrogen, other non-corrosive gases

Verticals:

Heavy Industry, Petrochemicals, Steel, Power, Minerals, Heating

Function:

In-plant Allocation Metering, Volume Input for Controls, Consumption Monitoring for Burners, Boilers, Furnaces etc.

Brief information

Honeywell Elster Quantometers are highly reliable turbine gas meters, which are used in many industrial applications to determine the actual flow rate as well as consumption over a period of time fulfilling requirements of industrial, non-fiscal metering. The Q/Q75 offering is mainly used for heavier industrial applications where the Q Type is available for sizes up to DN150/6" and the Q75 cover the range from DN200/8" to DN600/24". For light industrial applications Quantometers QA/QAe are recommended.

For fiscal applications Honeywell offers fiscally approved meters e.g. TRZ2 and SM-RI-X turbine meters and the RABO rotary gas meter.

Operating principle

The gas flowing through the meter sets a turbine wheel in motion. The number of revolutions of the wheel is proportional to the volume that has passed through the meter. The volume is registered by a mechanical 8-digit roller counter in the meter index.

The metering principle is proven over decades also in fiscal applications. Design, materials and assembly process meet the highest standards.

The need for metering

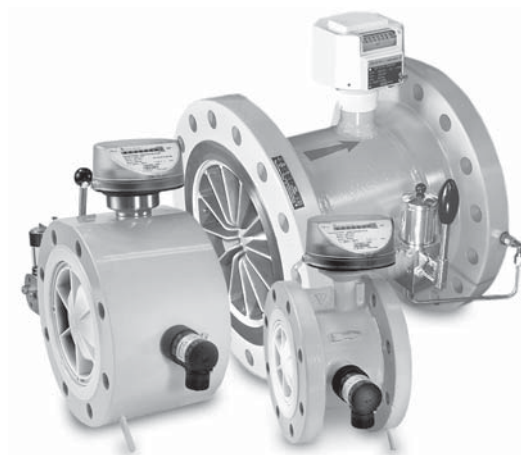
Energy efficiency is a key metric in almost every company today. Quantometers are used to meter the consumption of boilers, heaters, furnaces and other major consumers in any industrial or commercial plant. By knowing the exact consumption data production and heating processes can be controlled more precisely and overall energy efficiency can be improved significantly. Data from quantometers is also used for internal cost allocation between cost centers.

Installation requirements

Honeywell recommends 3DN of straight upstream piping for accurate metering as well as 2DN outlet in the same nominal size as the meter.

A filter must be installed upstream of the meter if particles e.g. rust are expected in the gas flow to ensure long lifetime of the instrument.

Up to DN150/6" the meters can be installed in horizontal or vertical position. Installation of meters DN200/8" and above must be in horizontal position. The exact flow direction is defined during the ordering process and marked on the housing.



FEATURES & BENEFITS

- Compact Dimensions (short pattern)
- High performance to price ratio
- Meter sizes G65 to G16.000
- Flow ranges 6 – 25.000 m³/h
- Measuring range up to 1:20
- Meter size DN50 (2") to DN 600 (24")
- Meter body material: Cast Iron or Steel
- Temperature range: -10°C to +60°C (others on request)
- Flange connections acc. to EN or ASME
- Protection class IP67 (suitable for outdoor installation)
- Index: 8-digits mechanical roller counter
- Two low frequency outputs as standard
- High metering accuracy
- Approvals: DVGW, ATEX, PED



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Index variants

The Q Type Quantometer the S1 index is used which is also installed on the fiscal TRZ2 turbine meter.

The Q75 meter utilizes the same index (Type MI-2) as the SM-RI-X turbine meter.

Both index variants share the following features:

- 8-digit mechanical counter
- Rotatable up to 355°
- Absolute ENCODER as an option for digital transfer of meter reading to electronic devices



S1 Index



MI-2 Index

Pulse Outputs

Low frequency (LF)

Q/Q75 turbine meters are fitted with two LF outputs as a standard. In addition an anti-tampering switch enables users to monitor possible manipulations caused by the use of external magnets.

The LF pulses are generated through Reed switches in the IN-S10 plug-in pulser known from other meters in the Elster product line. The number of pulses is in direct relation to the actual volume in m³ which has flown through the meter. The maximum frequency at Q_{max} is 0,5 Hz.

The standard IN-S10 pulser is fitted with a 2,5m oped ended 6-wire cable.

Optionally pulsers with one (type IN-S11) or two (type IN-S12) 6-pin flange plugs and Binder type connection sockets can be supplied.

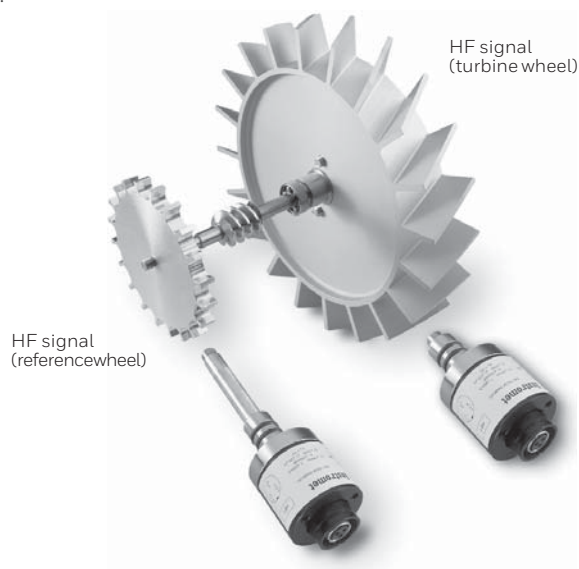
High frequency (HF)

High frequency pulsers are optional and can be used for control or regulation purposes. The HF pulsers offer a much higher resolution than the LF pulses and e.g. can be transformed into a 4-20 mA signal with a external converter.

The Q type can be installed with a A1R type pulser, the Q75 uses a pulser called BI-ISM-Y1. Both pick up the revolutions from the turbine wheel through a proximity switch.

Connection / Pin Assignments

The terminal connection pins for the different pulsers can be found in the manual.



Measurement Uncertainty

Elster® Quantometers Type Q/Q75 fulfil the following error limits after factory calibration:

- ± 1.5% for 0.2Q_{max} to Q_{max}
- ± 3.0% for Q_{min} to 0.2Q_{max}

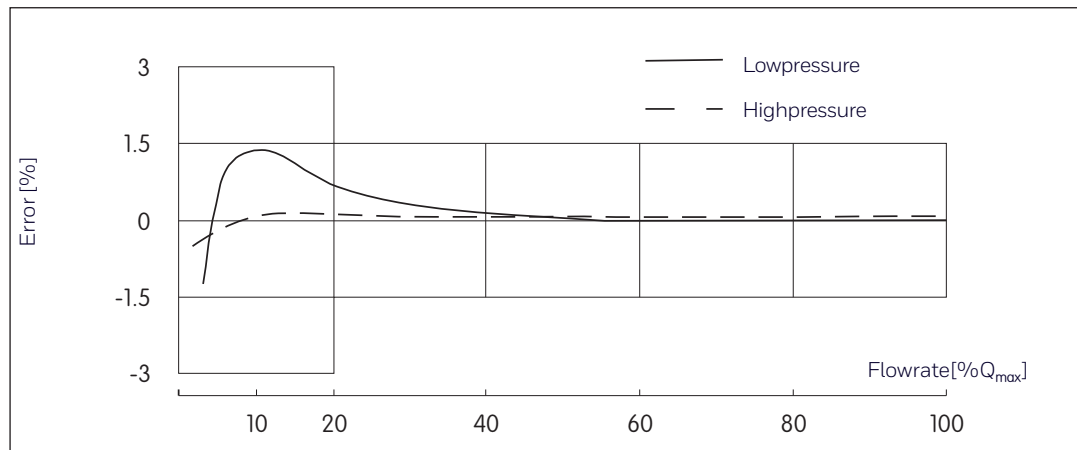


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Typical error curve of a turbine gas meter

Technical Data

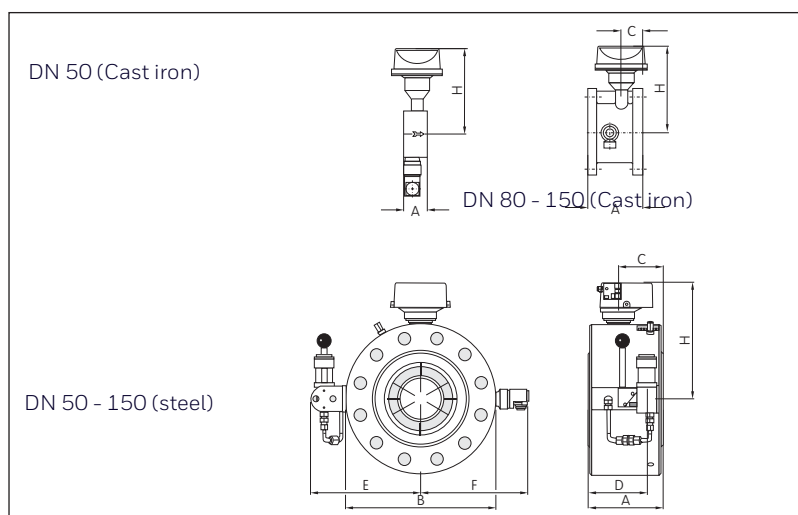
Diameter [mm / inch]	Model	Measuring Range			Pressure loss* [mbar]	Pulse Rate [Imp/m³]		"HF-Frequency [Hz @ Q _{max}]
		G-Size	Q _{min} [m³/h]	Q _{max} [m³/h]		LF	HF	
50 / 2"	Q	65	6	100	12	10	28500	792
80 / 3"	Q	100	10	160	2	1	10500	467
		160	13	250	5,3	1	10500	729
		250	20	400	13,6	1	10500	1167
		400	20	400	5,8	1	6630	733
100 / 4"	Q	400	32	650	13,1	1	6630	1192
		650	32	650	2,6	1	2560	451
150 / 6"	Q	650	50	1000	6,5	1	2560	694
		1000	80	1600	16,8	1	2560	1111
		1600	50	1000	1,5	0,1	770	214
200 / 8"	Q75	1000	80	1600	2,5	0,1	1180	524
		1600	130	2500	5,5	0,1	1060	736
		2500	80	1600	1,5	0,1	825	367
250 / 10"	Q75	1600	130	2500	3,5	0,1	1320	917
		2500	200	4000	8,5	0,1	1200	1333
		4000	130	2500	1,5	0,1	810	563
300 / 12"	Q75	2500	200	4000	4	0,1	1270	1411
		4000	320	6500	9	0,1	1175	2122
		6500	200	4000	1,5	0,1	660	733
400 / 16"	Q75	4000	320	6500	4	0,1	1055	1905
		6500	500	10000	9	0,1	890	2472
		10000	320	6500	1,5	0,1	530	957
500 / 20"	Q75	6500	500	10000	4	0,1	865	2403
		10000	800	16000	9	0,1	770	3422
		16000	500	10000	1,5	0,01	470	1306
600 / 24"	Q75	10000	800	16000	4	0,01	720	3200
		16000	1300	25000	9	0,01	650	4514

* at Q_{max} with natural gas @ 0.8 kg/m³ density [atmospheric pressure]

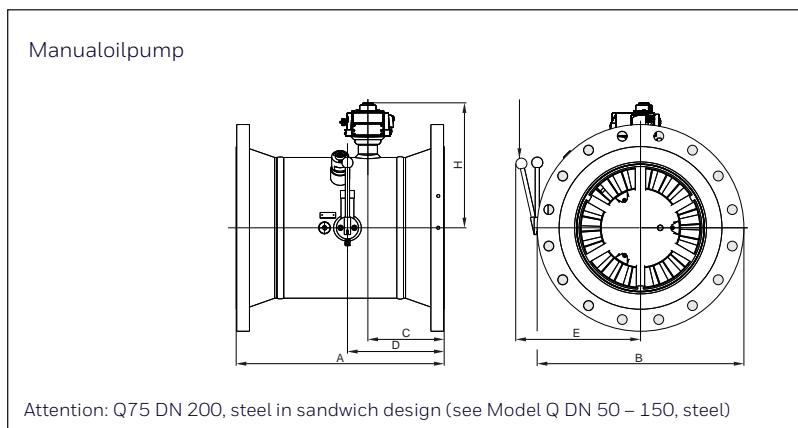
Weights and Dimensions Q/Q75

Diameter	Model	Body material	Design	Dimensions							Weight [kg]		
				A	B	C	D	E	F	H	ANSI 150	ANSI 300	ANSI 600
50 / 2"	Q	Cast Iron	Sand-wich	60 / 150	As per flange class dimension	75	-	-	143	170	4	n/a	n/a
		Steel	Flanged	150		75	75	198	134	165	14	15	16
80 / 3"	Q	Cast Iron	Flanged	120		52	-	-	158	190	13	n/a	n/a
		Steel	Sand-wich	120		52	74	185	180	193	24	27	26
100 / 4"	Q	Cast Iron	Flanged	150		57	-	-	170	200	15	n/a	n/a
		Steel	Sand-wich	150		57	104	217	211	230	38	48	53
150 / 6"	Q	Cast Iron	Flanged	175 / 180		76	-	-	195	225	28	n/a	n/a
		Steel	Sand-wich	175 / 180		73	138	260	253	272	56	77	96
200 / 8"	Q75	Cast Iron	Flanged	200		69	100	338	-	353	42	n/a	n/a
		Steel	Sand-wich	200		69	100	338	-	353	90	120	152
250 / 10"	Q75	Steel	Flanged	375		140	167	327	-	315	74	110	200
300 / 12"	Q75	Steel	Flanged	450		172	224	352	-	338	136	182	264
400 / 16"	Q75	Steel	Flanged	600		221	280	294	-	380	250	310	430
500 / 20"	Q75	Steel	Flanged	750		335	365	445	-	431	412	562	742
600 / 24"	Q75	Steel	Flanged	900		350	380	495	-	482	657	907	1107

Model Q



Model Q75



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