

Custody Transfer 101

Theory and Application

Presentation to the GASNZ Industry Forum
November 2017



Innovative Gas Measurement Solutions

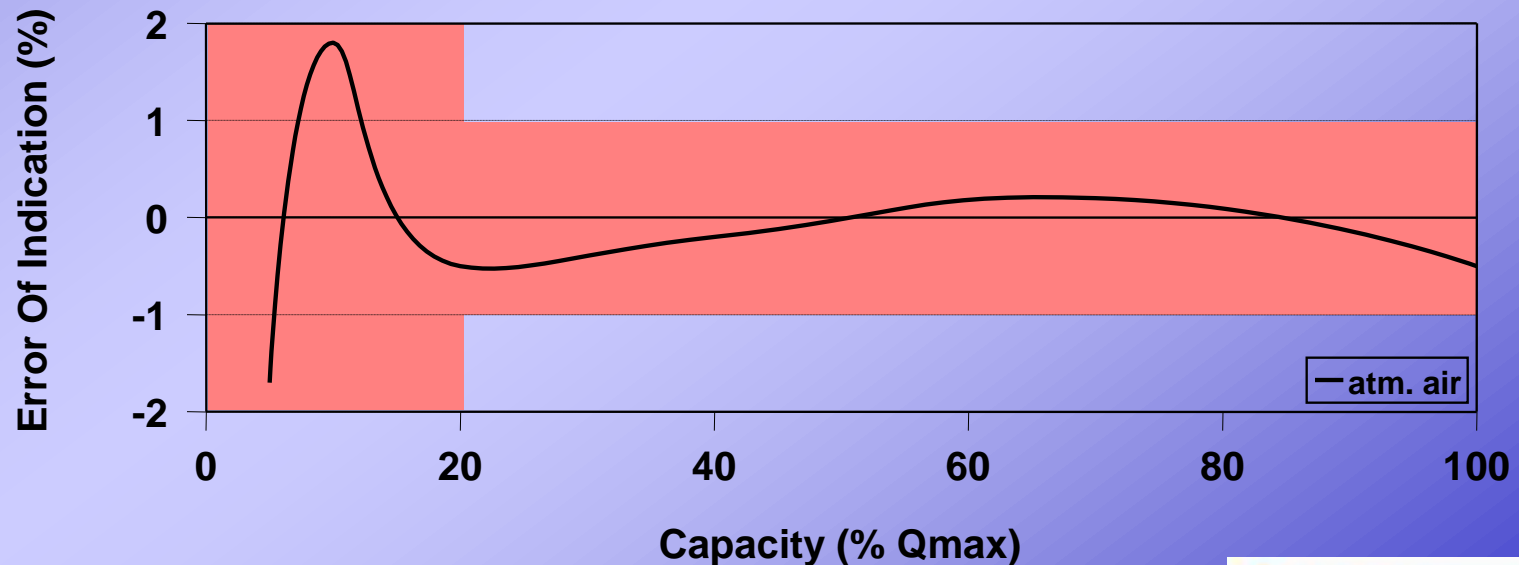
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DE-REGULATED ENERGY MARKET



NZS 5259 SPECIFICATIONS

Qmin / Qt	: 0.05 Qmax / 0.2 Qmax
ACCURACY	: +/- 1% (Qt - Qmax) / +/- 2% (Qmin - Qt)
REPEATABILITY	: 0.1% Span (Qt - Qmax)



**G160 (250 m³/h) AT 1 bar OPERATING
PRESSURE SHOWS AFTER 16 YEARS:**

17,520,000 Nm³

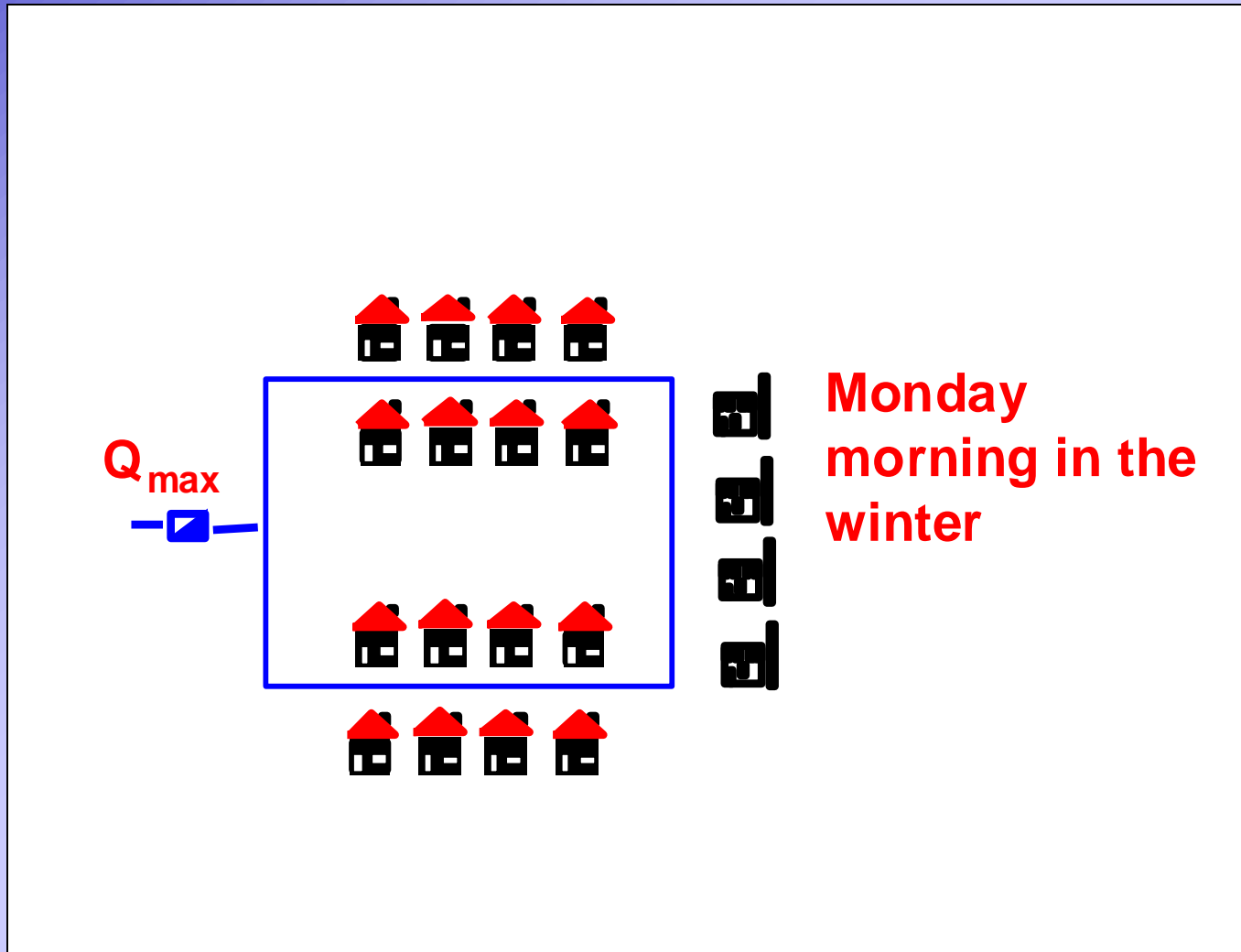
CONSEQUENCE OF 1% ERROR AT A YEARLY GAS CONSUMPTION OF 25% Q_{max}

AFTER 1 YEAR IN OPERATION

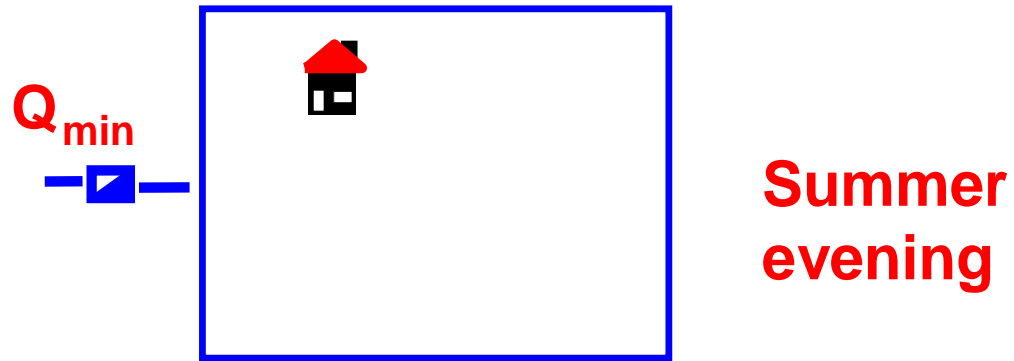
G-VALUE	PRESSURE 0,02 bar	PRESSURE 1 bar	PRESSURE 4 bar	PRESSURE 8 bar
G65 (100 m ³ /h)	2200	4400	11000	20000
G100 (160 m ³ /h)	3600	7000	18000	32000
G160 (250 m ³ /h)	5700	11000	28000	51000
G250 (400 m ³ /h)	9200	18000	45000	81000
G400 (650 m ³ /h)	15000	29000	72000	130000

ERROR EXPRESSED IN Nm³

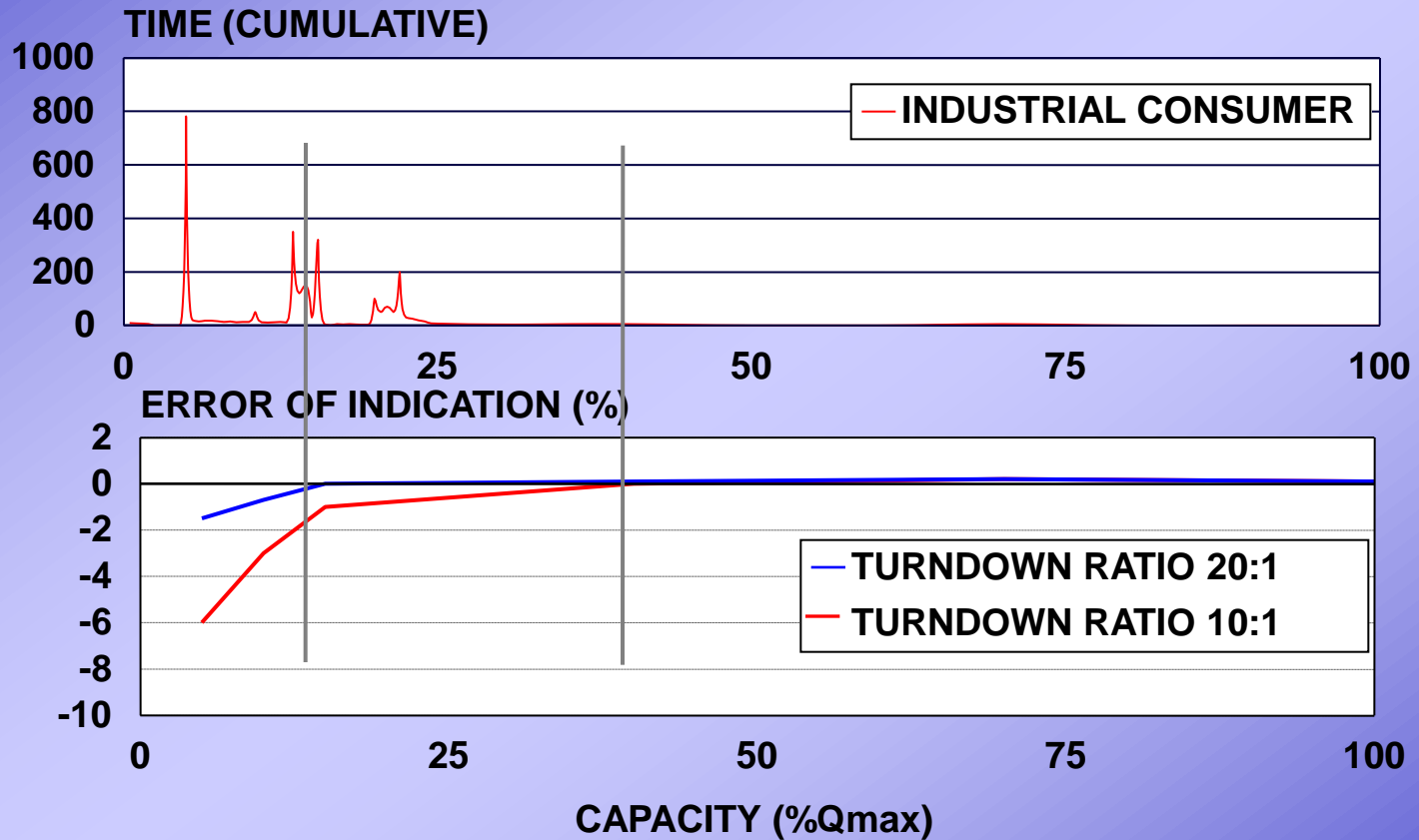
Turn Down Ratio



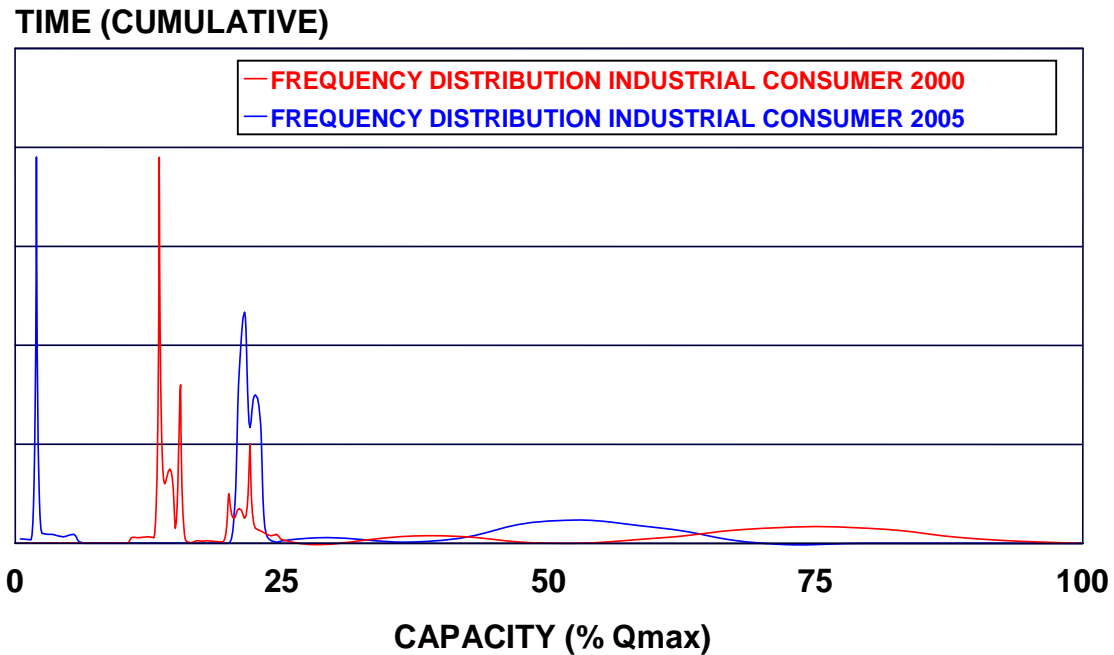
Turn Down Ratio



Turn Down Ratio



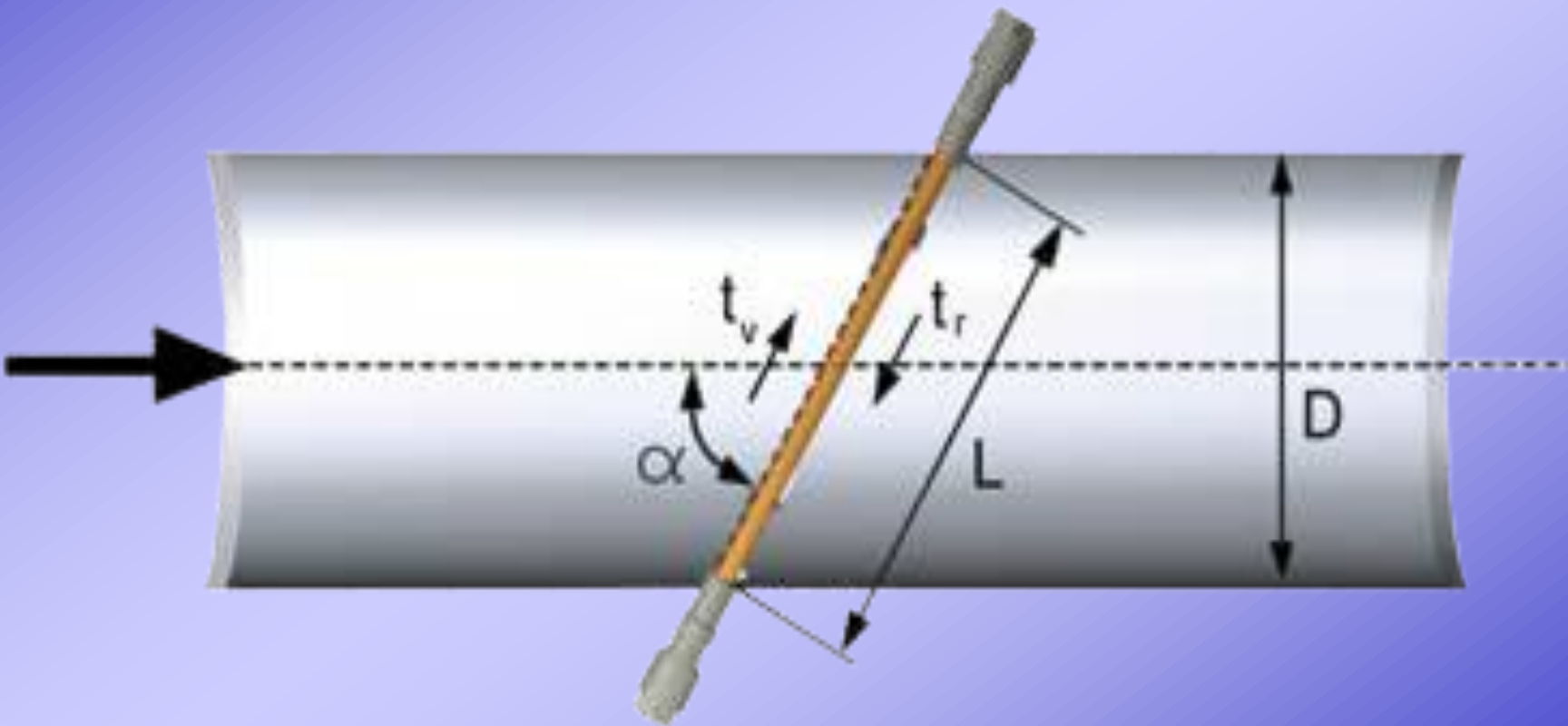
Turn Down Ratio



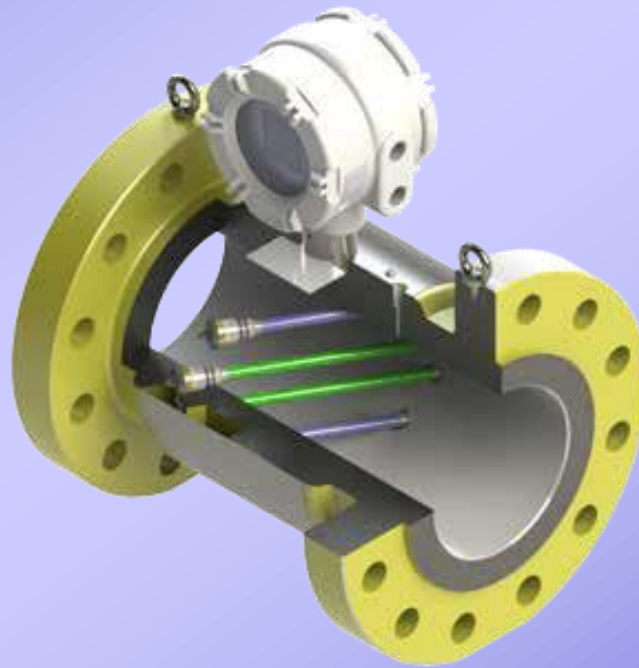
Ultrasonic Gas Flow Meter



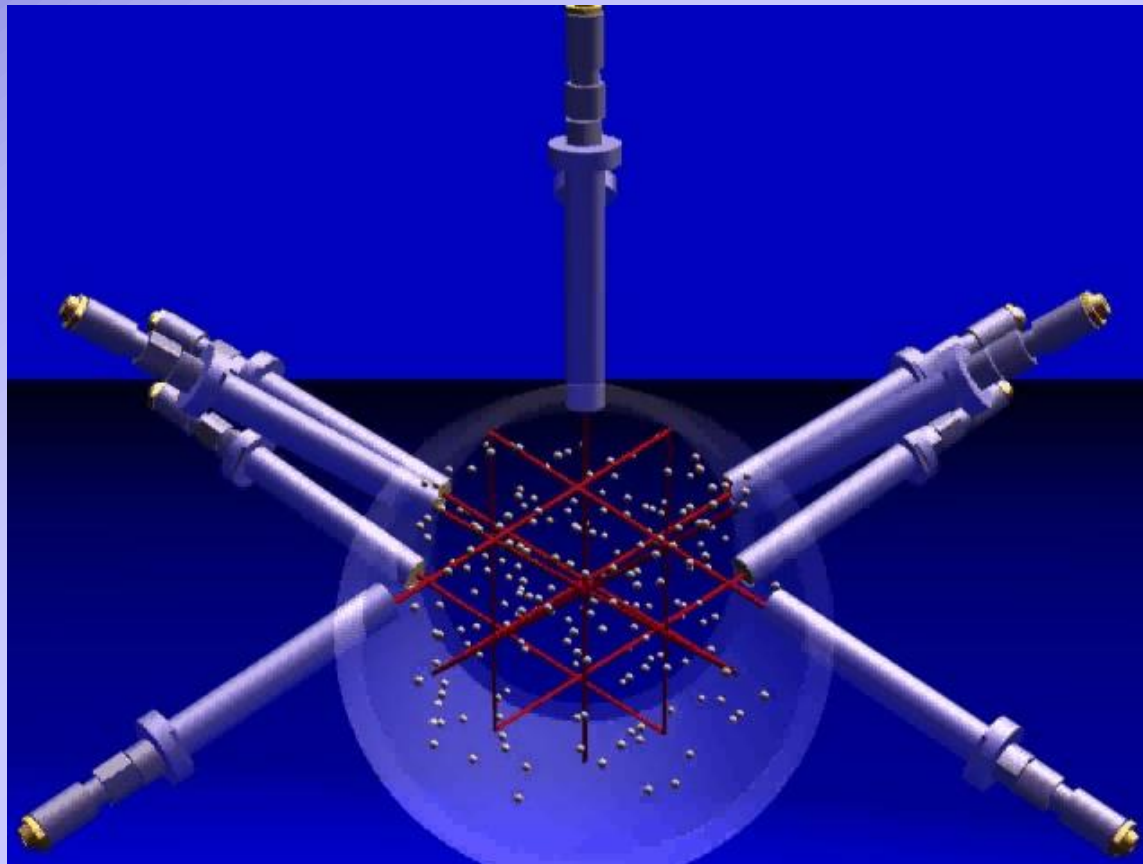
Ultrasonic Meter Principle



Multiple Paths



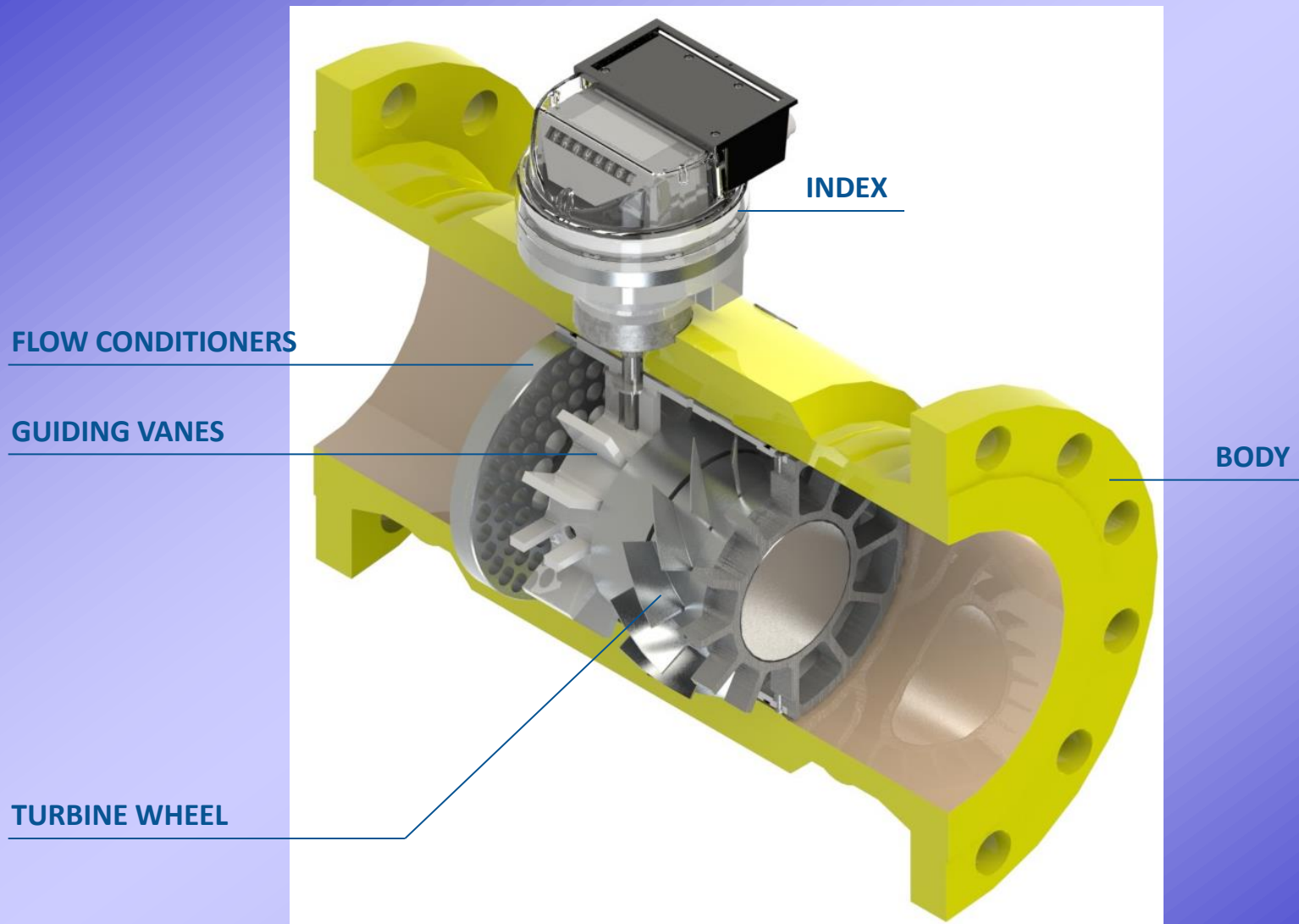
Qsonic 5



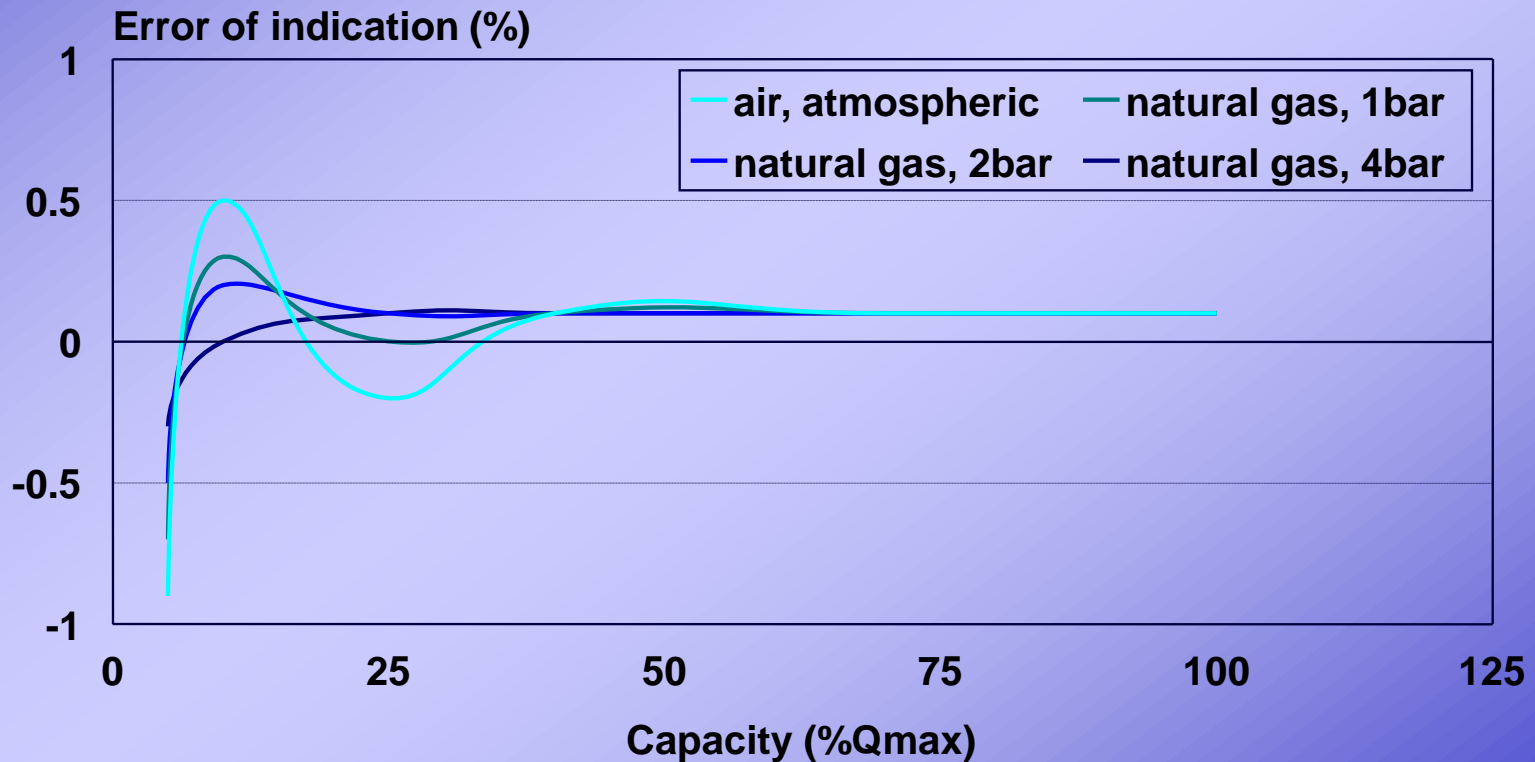
TURBINE GAS METERS



OPERATING PRINCIPLE



Pressure effect (optimized turbine meter)



CARTRIDGE

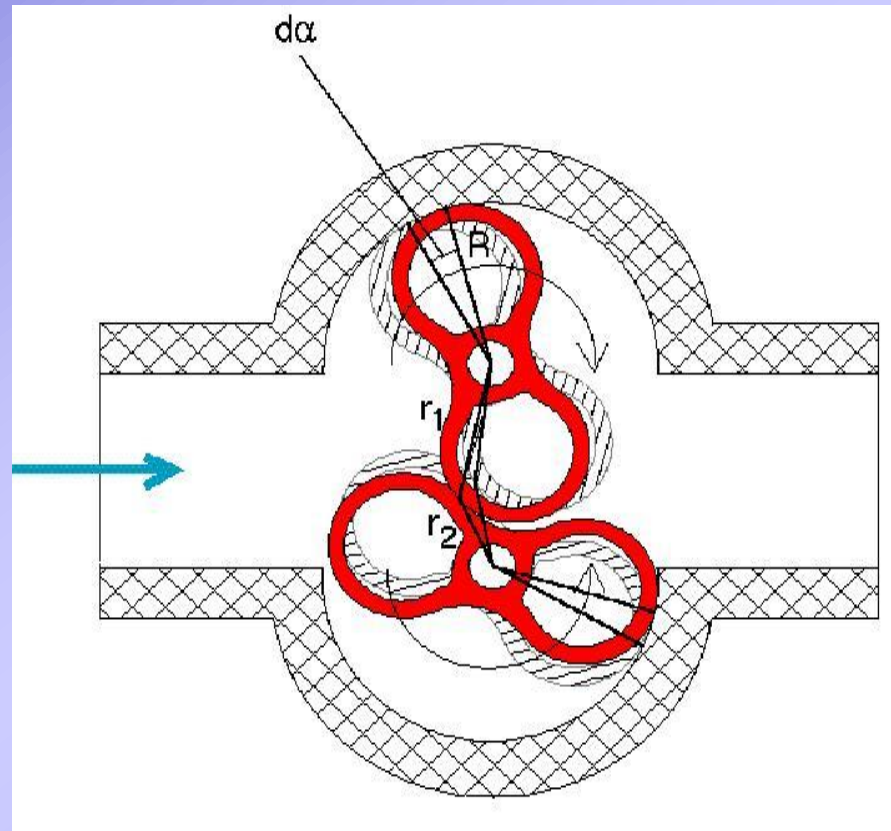


ROTARY METER



G6 (1 1/2") – G650 (6")

How a rotary meter measures:



Domestic Diaphragm Meter



Electronic Volume Corrector



Questions ?

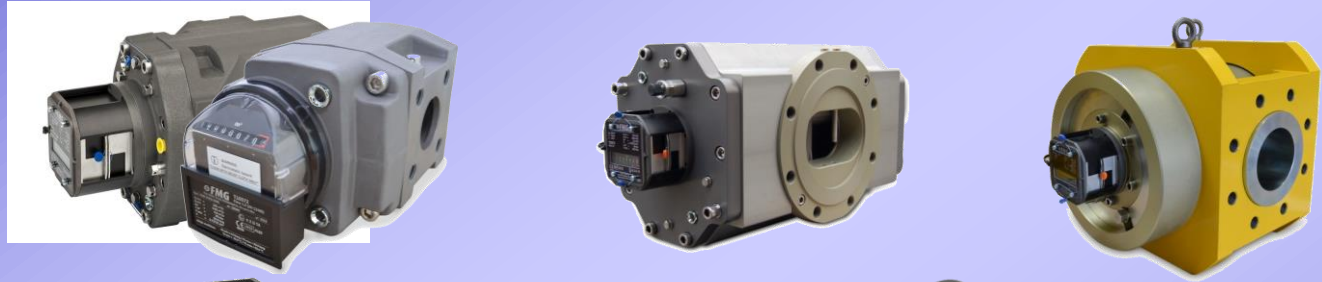


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FMG Products

- ROTARY METERS



- TURBINE METERS



- EVCD / FLOW COMPUTERS



- TEST BENCHES / MASTER METERS

