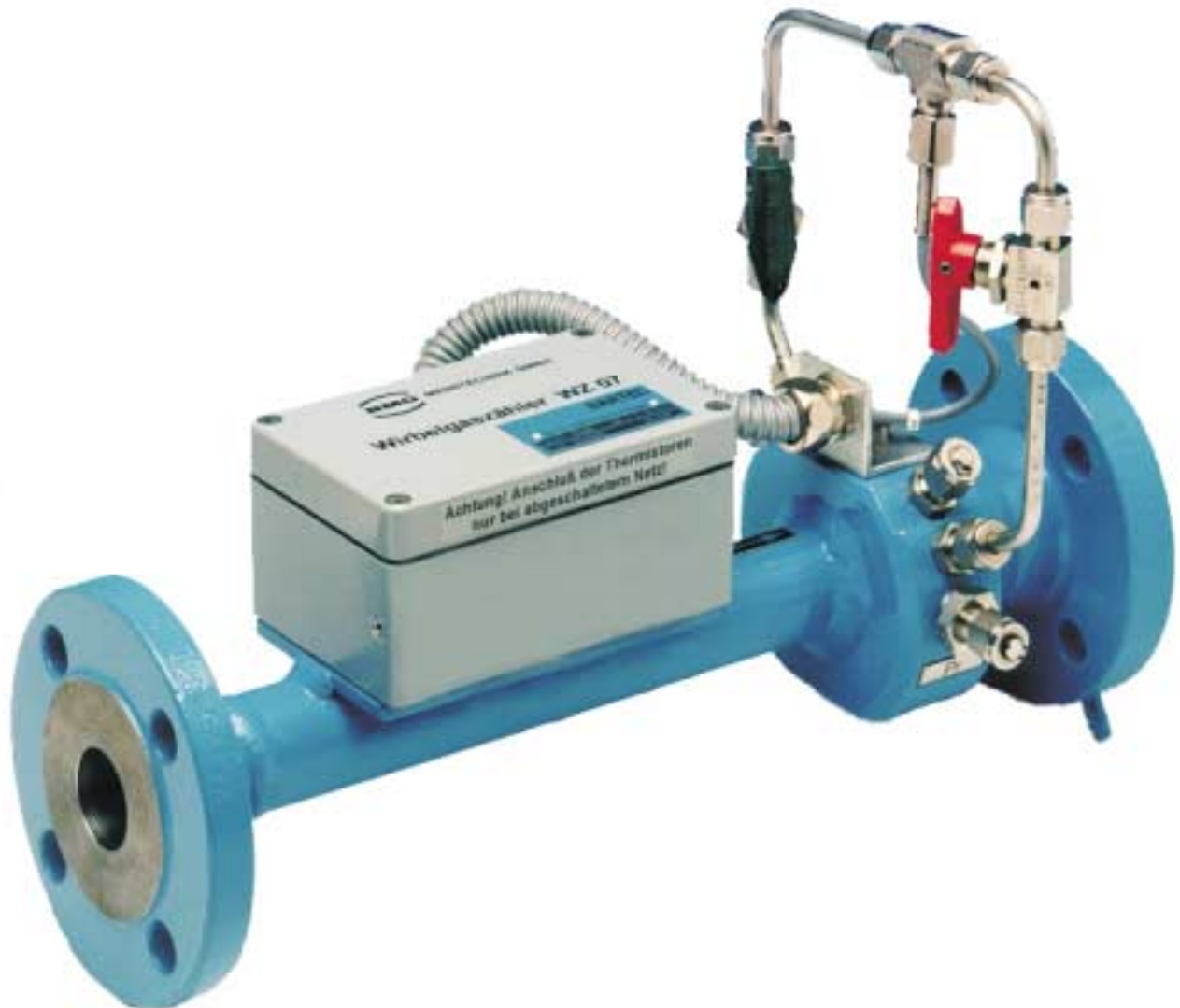


# Vortex-Meter - Compact Design WZ 07



**RMG Meßtechnik GmbH**

P.O.Box 280 · D-35502 Butzbach  
Phone +49(0)6033- 897-0 · Fax +49(0)6033-897-130  
E-Mail: messtechnik@rmg.de • Internet: <http://www.rmg.de>



Publication 3.191-E

Reliability in gas supply-  
single-sourced across the board!

## Description

The **vortex flow meter, WZ 07** has the same meter elements and equipment as the **vortex meter type WBZ 08**. See publication No. 3.181-E.

The meter element is integrated within a pipe, see figure 1. This combines compact dimensions, simple installation and maintenance with a high accuracy.

The system is optimised for the volume measurement of all energy and industrial gases. The vortex meter is approved for use with oxygen and in hazardous areas. In combination with integrators and Flow-Computers, a functional safety of the complete metering system can be optimized.

## Features

Due to the simple design, absence of moving parts and digital reading, the vortex meter is a flow meter of high operational safety and accuracy.

Advantages are:

- wide rangeability (1/50)
- high overload capacity
- independent of position
- unaffected by vibration and pressure shock
- excellent repeatability
- maintenance without shutting down the line
- more insensitive to contamination than any other system - self cleaning
- intrinsically safe

## Technical Data

Fluid:	Gas
Flow range:	see table 1
Accuracy:	±1% of metering value for DN 25-150, DN 200-400 with additional inlet pipe, DN 500-750 with additional inlet and outlet pipe
Output signals:	Square wave pulse direct proportional to flow rate, open collector, NAMUR, pulse: U = 8V
Power supply:	230V AC, 50Hz - 24V DC
Max. pressure:	320bar
Operating Temp. limits:	-40°C to +120°C
Material:	Steel / stainless steel
Approved by PTB for use in hazardous areas:	intrinsically safe
Sensor:	EEx ia IIC T 4

## Flow ranges

Table 1

DN	Q <sub>b min</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Q <sub>n min</sub> <sup>2)</sup> [m <sup>3</sup> /h]	Q <sub>max</sub> [m <sup>3</sup> /h]	Meter factor <sup>3)</sup> [l/m <sup>3</sup> ]
25	1.5	20	30	56 000
40	2	35	100	15 000
50	4	40	200	8 000
80	10	70	600	2 500
100	15	85	1 200	1 100
150	30	130	2 500	320
200	80	170	5 000	140
250	130	210	8 000	70
300	200	260	12 000	40
400	320	320	18 000	20
500	500	500	30 000	10
600	800	800	50 000	5
750	1 500	1 500	80 000	2

1) Absolute minimum flow rate

2) Minimum flow rate linear (at atmospheric conditions)

3) rounded values

$$Q_{a \min} \approx \frac{Q_{n \min}}{p_b}$$

Example for DN 40:

1 bar: Q<sub>a min</sub> = 35 m<sup>3</sup>/h (table)

5 bar: Q<sub>a min</sub> = 35/5 m<sup>3</sup>/h = 7 m<sup>3</sup>/h [>2 m<sup>3</sup>/h]

35 bar: Q<sub>a min</sub> = 35/35 m<sup>3</sup>/h = [1 m<sup>3</sup>/h] <2 m<sup>3</sup>/h

Q<sub>a min</sub> (table) = 2 m<sup>3</sup>/h

Pressure drop due to formula:

$$\Delta p = 1900 \cdot \rho \cdot \frac{Q_a^2}{DN^4}$$

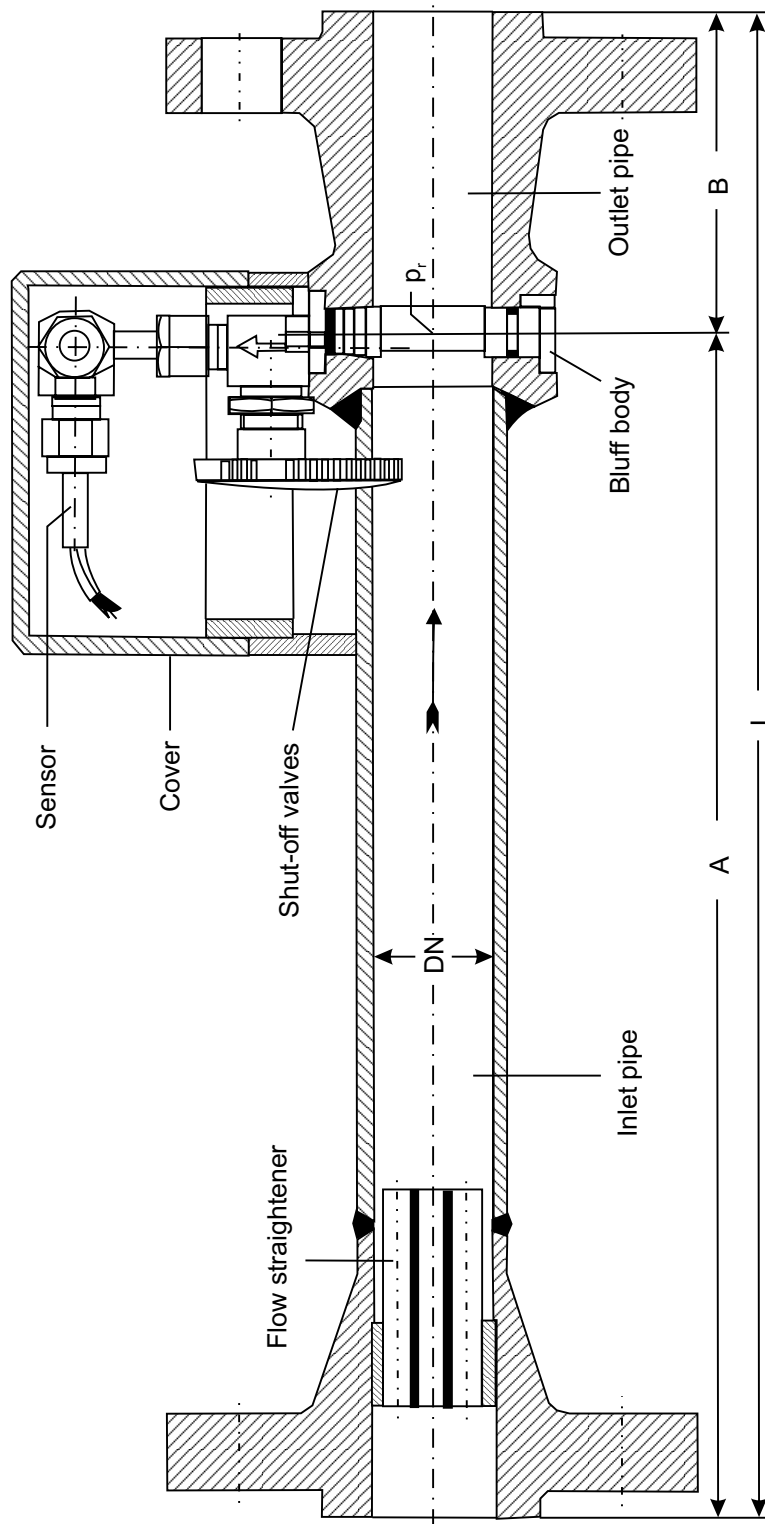
pressure drop Δp [mbar]  
flow rate Q<sub>a</sub> [m<sup>3</sup>/h]  
size DN [mm]  
density ρ [kg/m<sup>3</sup>]

## Dimensions [mm]

Table 2

DN	A	B	L
25	275	75	350
40	440	120	560
50	550	150	700
80	880	240	1 120
100	1 100	300	1 400
150	1 650	450	2 100
200	1 400	600	2 000
250	1 750	750	2 500
300	2 100	900	3 000
400	2 800	1 200	4 000
500	2 800	1 200	4 000
600	2 800	1 200	4 000
750	2 800	1 200	4 000

Modifications can be carried out to suit customers requirements.

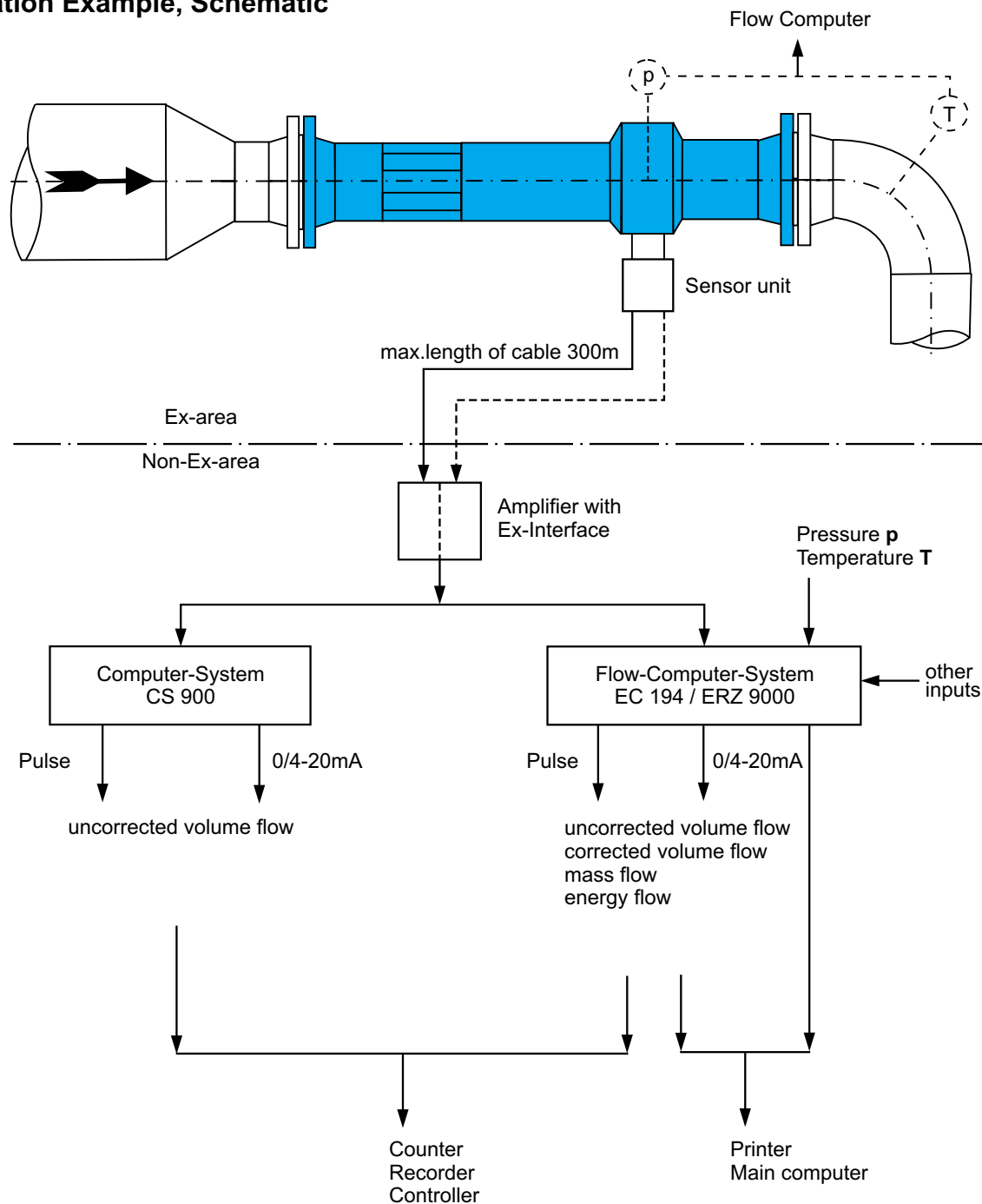


Bluff body is welded in pipe for sizes  $\geq$  DN 200



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## Application Example, Schematic



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Subject to technical changes