

Calorimeter

CWD HT





Datasheet

CWD HT

Calorimeter for direct and continuous determination of gas quality with increased accuracy

The combustion calorimeters of the CWD (Calorimetry, Wobbe index, Specific Gravity) series are used to determine gas quality and the associated measured variables:

- Calorific value and heating value
- Wobbe index
- Specific density
- CARI, air requirement

The CWD HT is designed for gases with a high moisture content, specifically gases with dew points of up to 60 °C, e.g. from wood gasification. For this purpose, the right chamber of the system is heated to 65 °C.

The direct and continuous determination of gas quality using combustion calorimeters is a proven measurement principle with high accuracy that has been established for more than 60 years. During the combustion of a defined gas volume, all gas components are thermally converted. The released energy is proportional to the Wobbe index. At the same time, the specific density of the gas is measured, allowing the calorific value to be calculated from these two parameters.

The detection of unexpected or unknown gas components enables reliable operation particularly under conditions of rapidly changing gas composition and high dew points, as the heated system chamber reliably prevents condensation and ensures stable measurement conditions—for example when measuring moisture-laden residual gases from chemical processes or substitute gases in the steel industry.

In addition, the system provides a high level of safety during process shutdowns or interruptions of the gas supply, as the flame is extinguished within a maximum of 10 seconds.

Typical measuring ranges CWD HT (others on request)

Application	Wobbe measuring range [MJ/m³] start	Wobbe measuring range [MJ/m³] end	Accuracy [%]
Natural gas	30	60	1 Measured value
Liquid gas air	60 30	85 60	1 FSR
Liquid gas air extended measuring range	30	80	1 FSR
Biogas	14,5	25	1 FSR
Mixed gas	Various mixed gases – details available on request		
Coke oven gas	19	29	1 FSR
Refinery gas	25	70	1 FSR
Combustible gas	0	75	2 FSR
	0	30	1 FSR
	5	60	1 FSR
	20	40	1 FSR
	0	30	1 FSR
Flare gas	10	40	1 FSR
	0	118	2 FSR
	0	90	
7,5	60		

Technical specifications CWD HT

Weight	approx. 100 kg
Dimensions H x W x D (mm)	1000 x 900 x 400
Protection class	IP50
Ambient temperature	5 °C–45 °C
Permitted temperature change	≤ 5 °C per hour
Ambient humidity	0–95 % relative
External pressure	800–1100 hPa (0.8–1.1 bar)
Gas inlet pressure	20–40 mbar
Process gas inlet	1, additional optional
Test gas inlet	1 per measuring range
Relative gas humidity	Dew point ≤ 60 °C
Voltage	240 VAC, 50/60 Hz; 110 VAC, 60 Hz
Max. power consumption	200 VA
Interfaces	4x analog (additional optional) 6x SPDT (additional optional), Buses optional
T90 display time	≤ 10 sec



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