DM Series

For accurate PM content measurement system in different industries

Overview

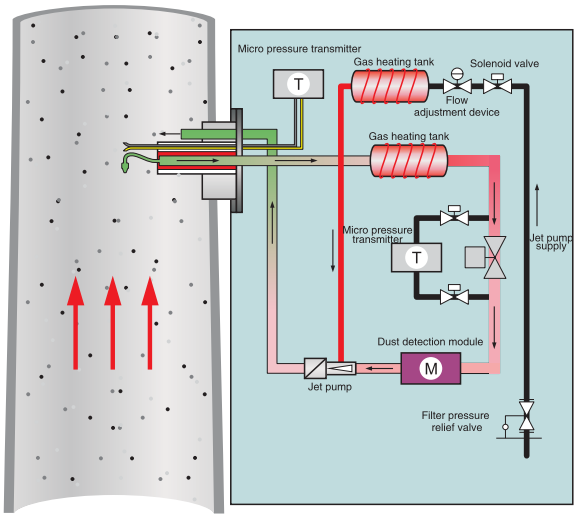
DM-3 dust monitor is a self-developed high-temperat ure heat tracing extraction dust monitor, based on years of technology research and development for dust detection. Different from conventional in-situ scattering dust monitor, DM-3 extracts dust from flue (stack) in uniform speed to dust measurement module with full-process high temperature heat tracing for measurement. It owns features of low detection limit (as low as 0.05mg/m3), no interference by moisture, high measurement accuracy, and etc. It applies to low temperature and high humidity dust conditions of super clean emission and after wet desulphurization.

Principle

Under negative pressure effect of jet pump, dust in stack enters measurement module after being heated by tracing sampling probe. Heat tracing will be in the whole process of extraction, measurement and emission to eliminate moisture interference and prevent dust from blocking the gas path if encountering condensate water. The dust after being heated enters measurement module, where laser forward scattering principle is used to measure dust concentration. After measurement, the exhaust gas goes into the stack again.

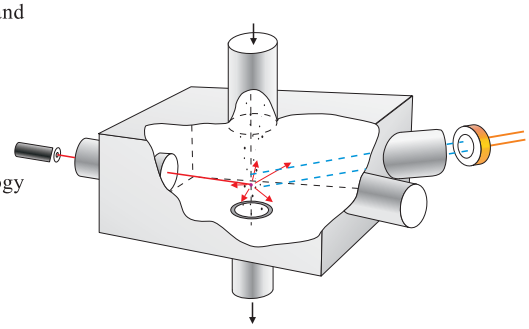
DM-3 employs magnetic valve and control unit to realize automatic purging of gas path and measurement module. Automatic zeroing shall be performed termly. After maintenance, close laser device and insert calibration module for manual zeroing and calibration.

Micro differential pressure transmitter and pitot tube is used to measure gas velocity in stack and feedback to flow-control device at the same time. It can realize isokinetic sampling and isokinetic flue dust extraction for measurement of pitot tube by changing jet gas flow to control extraction velocity



Feature

- Adopt laser forward scattering method to detect dust concentration; low detection limit.
- Full-process heat tracing, which heats water vapor to gaseous state to prevent dust from caking and blocking gas path when encountering water. Thus it applies to high humidity occasion.
- Pitot tube isokinetic sampling method meets the technical condition of dust sampling
- Support automatic purging to clean gas path and avoid dust blocking
- Support automatic zeroing technology under high temperature and automatic calibration technology of all optical paths
- Support on−site manual span calibration
- Support automatic double range switching



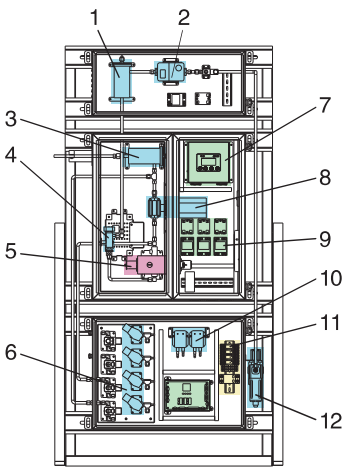
DM Series

Low and medium concentration dust measurement

Specification

Technical parameter	DM–3 Extraction Dust monitor
Measurement Data	
Measuring Principle	Laser forward scattering
Concentration Range	0 ~ 20mg/m^3, 0 ~ 50mg/m^3 (customizable)
Detection Lower Limit	0.05mg/m^3
Indication Error	±20%
Indication Error Repeatability	±10%
Response Time	2s (optional)
Laser Device	650nm, 20mW
Measurement Condition	
Sampling Head Diameter	6mm, 8mm, 10mm, 12mm (customize according to working condition)
Heat Tracing Temperature	120℃ ~ 180℃
Medium Temperature	<300℃
Ambient Temperature	–20℃ ~ +50℃
Compressed Air	No water and oil, ⩾0.4MPa, gas consumption 100L/min
Purging Time	Purge 3min (concentration data keeps), interval period 4h (adjust according to working condition)
Velocity Range	(2 ~ 40)m/s
Preheating Time	15min
Input, Output and Interface	
Analog Output	4–20mA, maximum load 500Ω
Communication Interface	RS485, RS232 (optional)
General Information	
Weight	103kg
Dimension	1620mm (H) * 850mm (L) * 264mm (D)
Power	1500W
Supply	220VAC

Composition



1	Jet gas heating tank
2	Flow controller
3	Sample gas heating tank
4	Jet pump
5	Measurement module
6	Solenoid valve
7	Control and display unit
8	High temperature ball value
9	Thermostat
10	Micro differential pressure transmitter
11	Terminal block
12	Filter pressure relief valve

The extraction dust monitor is composed by jet gas control unit (1, 2), measurement unit (3, 4, 5, 8, 9), control & display unit (7), and gas path control unit (6,10, 11, 12). The flue gas inside stack is extracted to measurement unit in constant speed by gas path control unit. Measurement unit is with full–process high temperature tracing to eliminate influence from moisture to dust measurement. Actual concentration signal is processed and displayed by control &display unit. The gas control unit is able to achieve flue gas isokinetic extraction and reflect real dust concentration through velocity measurement inside stack, extraction velocity measurement of gas path, and velocity valve adjustment.

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