



EN 13284-1: 2017

The new EN 13284-1 November 2017 (released in February 2018) replaces the 2001 version.

What is the significance of the new EN 13284-1 for purchasing emission measurement equipment? Are the devices of Paul Gothe GmbH according to the new specifications?

What is to be considered:

1. As in the 2001 version, a **filtration temperature** of 160 °C is recommended. This is discussed in a new Annex H.
Solution Paul Gothe GmbH: The filter heaters have these performances. The surface temperatures of the built-in high-performance cartridge heaters can be heated up to 500 °C.
2. **Pitot tubes** for gas velocity measurement in the context of the setting of isokinetic conditions shall comply with the requirements of EN ISO 16911-1 (section: 7.1).
Solution Paul Gothe GmbH: Our Pitot tubes are always conformed to EN ISO 16911-1, including those in combination probes. Information about the further requirements can be found on our homepage site *News*.
3. Further requirements regarding the **sampling nozzle** (Section 7.2.3): The uncertainty of the area at the inlet of the sampling nozzle must be less than 5%. Therefore, nozzles should have an inside diameter of more than 8 mm.
Solution Paul Gothe GmbH: Our nozzles have a high manufacturing accuracy, so that even nozzles with openings smaller than 8 mm fulfilled the requirement for the uncertainty of the area. For nozzles with openings of 8 mm and smaller, individual certificates can now be requested.
4. A **shut-off valve** for closing the gas flow must be installed on the pump (section 7.2.5).
Solution Paul Gothe GmbH: We have the matching ball valves for easy mounting at the suction side of the pump.
5. Specification of the **requirements for the volumetric gas meter** for dry gas. The gas meter must comply with an expanded uncertainty of 5.0%, with associated absolute pressure and temperature measurements, each with an expanded uncertainty of 2.0% each.
Solution Paul Gothe GmbH: The gas meters have an uncertainty of less than 2%. The indicator for temperature have class 1 (accuracy 1 °C), the vacuum gauge the class 1.6 (accuracy: 10 hPa) and fulfilled these requirements. Please note: Accuracy of temperature in Kelvin: 273 + t and pressure based on 1013 hPa.
6. **Handling of the filters** (Section 9.2 Note 1): The combination of filter and filter holder protects the filter from structural damage that may occur during handling and from influences due to environmental conditions.
Solution Paul Gothe GmbH: Our filter holders with the matching support ring have always fulfilled these requirements.
7. In Section 9.3 it is pointed out that the preferred method is based on **combined probes** (probe with Pitot tube and thermocouple). Only for stationary processes may be used a simple probe.
Solution Paul Gothe GmbH: Our combination probes have been fulfilling these requirements for a long time.
8. Section 9.4 defines the **leak test**.
Solution Paul Gothe GmbH: With our manual system, consisting of pump, flow meter and gas meter, it is no problem to carry out this test. Matching closing caps for the probe entrance can be ordered. The ITES (automatic control unit) has an automated procedure for the leak test. If suitable seals are used, the leaks are significantly lower than the permitted 2%.
9. In section 9.5 it is stipulated that the parameters used to determine the gas velocity should be recorded every 5 minutes and also when using the gas meter, the temperature and pressure must be recorded every 5 minutes.
Solution Paul Gothe GmbH: With the automatic control ITES these data are automatically logged and saved as Excel readable file.

We are available for further information, please get in contact with us: service@paulgothe.de
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