HORIBA

Sample gas conditioning

combined use with stack emmission gas analyzers

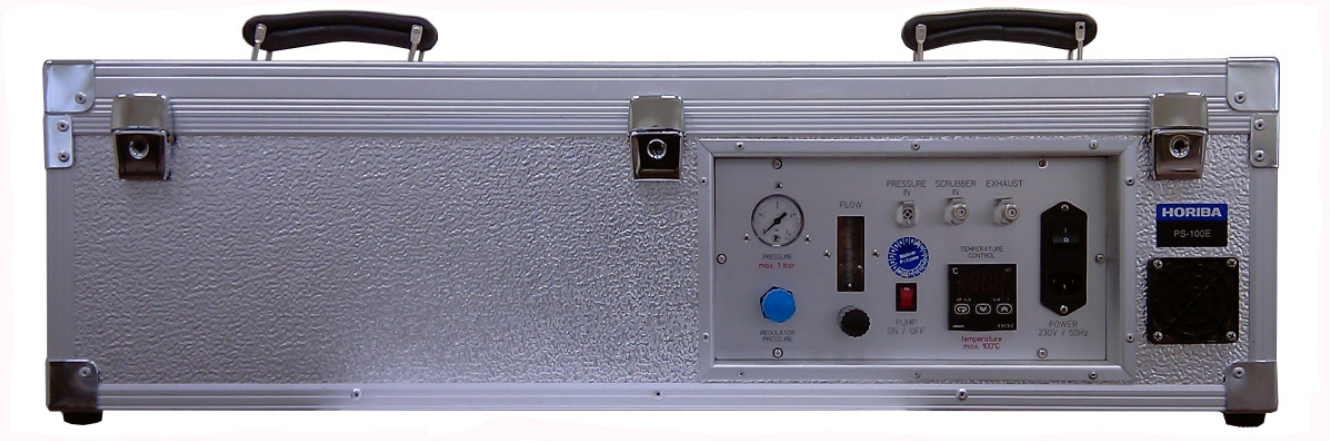
Portable Permeation Dryer

PS-100E

CE marking compliant

The HORIBA permeation dryer PS-100E is designed as a compact and portable sample gas conditioning system in combination with the multi-component gas analyzer PG-250.

Due to European Reference Standard DIN EN 14792, the use of Permeation Dryers is obligate, if the NO2 concentration in sample gases exceeds 10% of the total present NOX components. In conclusion HORIBA has developed the Portable Permeation Dryer, Model PS-100E, which is approved according to the above reference standard (TÜV Report No. 936/ 21206693/C dated June 18th, 2008; issued by TÜV Rhineland, Cologne). It serves as a sample gas conditioning unit of Stack Emission Gases.



Applications:

- In case of gas components which are water-soluble or easily washed out together with the condensate (Nitrogen Dioxide / NO2 and Sulfur Dioxide / SO2).
- Measurements according to DIN EN 14792, where permeation dryers are mandatory if the NO2 concentration grows beyond 10% of total NOx-value.
- The compact design requires only small installation space.
- Easy maintenance.

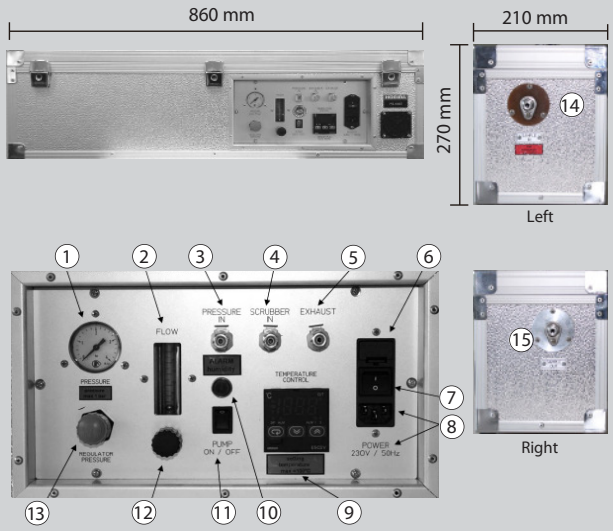
Function:

- The installed permeation dryer is operated with dry purge gas, running in inverted direction flow
- Due to the difference in partial pressure between sample and purge gas humidity is driven out of the sample by equalization.
- The water is extracted from the sample gas through a semi permeable membrane and transported into an outer tube filled with the purge gas. This process does not have a distinguishably effect on the sample gas composition.
- The sample gas enters a heated filter (approx. 100°C), separating all particles larger than 2 µm. After filtration the sample gas proceeds to the permeation dryer, equipped a temperature gradient. To optimize performance, the temperature of the dryer can be adjusted according to the sample gas inlet temperature in the range from 40 to 100 °C. As purge gas instrument air, nitrogen, or other dry gases (dew point -40 °C) are suitable. The flow rate of the purge gas depends on the operating temperature of the dryer..
- For short-term measurements the purge gas can be provided by the internal pump, avoiding external supplies. It is dehumidified by an externally installed cartridge, e.g. with molecular sieve. To connect different gas analyzers, the purge gas flow can be adjusted. If larger flow rates are required (for instance long-term measurements or presence of HCl) the purge gas must be supplied externally at the “Pressure IN” inlet. Instrument air with a dew point of -40 °C is now obligate. The flow rate for the purge gas is adjusted internally with the pressure regulator and the needle valve with flow meter.

Specifications

Model	PS-100E
Application	Portable sample gas conditioning for multi-component gas analyzer PG-250 (according to DIN EN 14792)
Sample gas flow rate	max. 2 l/min
Sample gas inlet temperature	max. 120 °C
Dryer type	Permeation Dryer
Gas inlet dew point	+ 60°C at gas outlet dew point - 20°C
Filter type	Universal filter type FSS-2T with PTFE volume filter element of 2 µm
Temperature control	40 - 100 °C with PID controller
Purge gas	Internal: - by built-in pump - external dryer cartridge External: - by pressure regulator - by needle valve - by flow meter Fitting for sample gas: 6 mm Swagelok-fitting
Fitting for purge gas	6 mm PVC-fitting
Power supply	230 V ac 50 Hz (other supply optional)
Dimensions (L x H x D)	860 x 270 x 210 mm
Weight	13 kg
Conforming standards	CE marking, DIN EN 14792

External dimensions



Names of parts	Notes
① Manometer	
② Flow Meter	
③ Pressure IN*	With air pressure, the coupling has to go removed
④ Connection for Silicagel cartridge**	With internal pump connection has to go removed.
⑤ Exhaust	
⑥ Fuse	
⑦ ON / OFF	
⑧ Power ON / OFF	
⑨ Temperature regulator (max. 100°C)	
⑩ OPTION: Alarm humidity	
⑪ Pump ON / OFF	
⑫ Flow regulator	
⑬ Pressure regulator	
⑭ Sample IN	Maximum Temperature at 120°C
⑮ Sample OUT	

⚠ Please read the manual before using this product to assure safe and proper handling of the product.

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