PSG Basic Probe

Application

The heated gas sampling probes **PSG Basic Probe** are used for continuous extractive gas analysis. They enable continuously trouble-free representative sampling of hot, predominantly low or medium dust and water vapor loaded gases - high dust load with additional options. Typical applications are emission measurement, process monitoring, control and optimization.

Technology

The intelligent design with optimum gas guidance enables the filtration of sample gas at the outer 212 cm^2 filtration surface (largest worldwide) as well as quick and easy filter change without tools and dismounting of the heated sample line. Easy maintenance of the **PSG Basic Probe** is enabled due to its newly space-saving bracket design, which also can be used to lift a sticking filter housing lid. The holohedral tight high-performance ring heater in combination with the tight thick-walled glass fiber insulation jacket ensures a homogeneous heating of the complete **PSG Basic Probe** up to 250 °C. The self-regulated version has a factory setting of 160 °C (standard) up to 180 °C. Regulated temperature enables up to 250 °C and is recommended especially in case of high (acid) dew point or to avoid salification (especially if sample gas includes low acidic / alkaline components as NH_3 leading to ammonium carbonate): Sophisticated **PSG Basic Probe** design - long lifetime.

Functions

Extreme large filter surface & homogeneous heating ensures that dust will always be separated reliably in the **PSG Basic Probe** without condensation of water vapor thus avoiding blocking of the filter. Due to large filters with 0.1 resp. 0.3 µm porosity the **PSG Basic Probe** can be used for applications with up to 3 g/m^3 dust and 10 g/m^3 with pre-filter or single stage back purge. The 0.3 µm surface coated SiC ceramic filter enables best thermal & chemical resistance also for tough applications. The standard calibration resp. test gas connection enables the use of the **PSG Basic Probe** within emission monitoring systems acc. to EU Regulations 2000/76/EG & 2001/80/EG: TI Air (TA Luft), 13th & 17th BImSchV (large combustion plants, waste incineration). **PSG Basic Probe** design allow small, medium or high dust contents.

- ✔ Extreme low maintenance due to the largest active filter surface on the market
- ✔ 4-fold less maintenance than any other filter: 100 mg/m3 dust =>2 years interval
- ✔ Controlled filter heating up to 250 °C or self-regulated heating: 160 °C to 180 °C
- ✔ Filter change without tools and sample line dismounting
- ✔ Corrosion resistant realized with stainless steel SS 1.4571 / Fitting SS 316
- ✔ Calibration & back purge connection
- ✔ Temperature alarm contact included
- ✔ Compact protective housing for outdoor installation under rough conditions
- ✔ Sampling of low and medium dust - high dust load with additional measures

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PSG Perfect Sample Gas

Technical Data

Process gas sampling Conditions			
Pressure	50…6000 hPa (mbar)		
Sample Gas Temperature	Up to 600 °C	Tube:	SS 1.4571
Sample Gas Temperature	Up to 900 °C	Standard Tube: High resistant Tube:	SS 1.4893 Hastelloy C4
Sample Gas Temperature	Up to 1300 °C	Tube:	Kanthal APM
Ambient temperature	250 W heater: -30 … 50 °C // 350 W heater: -50 … 50 °C		
Flow	30…500 l/h, referred to 1013 hPa and 0 °C		
Pressure drop	Approx. 0.6 hPa at 100 l/h		
Standard Basic with standard filter unit	Dust concentration:		Maintenance:
	< 100 mg/m³		Any 2 years
	< 1 g/m³		Twice a year
	< 3 g/m³		Any 3 months
High Dust Content			
1-stage back purge or Pre-Filter PF	> 3 up to < 10 g/m³		Option
Connections			
Sample gas	G1/4" f (DIN ISO 228/1)		
Test gas (standard) / tubing (option)	G1/4" f (DIN ISO 228/1) / 6 mm Tube		
Filter Heating			
Type Content	Heating sleeve incl. PT100	230/ 115 V_{AC}, 50...60 Hz	250 W
		230/ 115 V_{AC}, 50...60 Hz	350 W
	Ring heater self-regulating	230/ 115 V_{AC}, 48…62 Hz	2 x 100 W
Isolation	Removable insulation jacket, heating sleeve only		
	Additional insulation protective housing, heating sleeve only, for ambient temperature:		-30 … +60 °C
Temperature, self-regulating	Standard: 160 °C		Alarm: 140 °C
Temperature, regulated	Up to 250 °C; acid dew point, salification to be evaluated		Alarm: 20 °C below setting
Temperature control	PID-controller ST49 incl. solid state relays for	DIN-rail-mounting	Heating sleeve only
	With controller in connection box, heating sleeve only		
Temperature sensor	PT100 (only heating sleeve)		
Filter Properties			
Filter with Surface of 212 cm^2	Ceramic, silicon carbide (SiC)		Standard
	Glass fiber: if no acidic components to be measured		Special
Porosity	SiC ceramic: 0.3 µm // Borosilicate Glass fiber: 0.1 µm		
Tightness	10^{-4} hPa l/s		
Dead volume	ca. 280 ml		
Dimensions	50/20 x 135 mm		
Protective Housing			
Dimensions	250 x 205 x 270 mm (L x B x T)		
Material	Stainless steel SS 304		
Ambient temperature	-20 °C … +60 °C; Option: -30 °C … +60 °C		Add. measures
Weight	Approx.14 kg		Complete probe
For heating with thermostat control	With adapted connection box		
Without protective housing	With adapted connection box		
Without protective housing, for heating with thermostat control	With adapted connection box		
Protection class connection box	IP67 EN 60529		
Mounting			
Flange	DN 65, PN 6, 4-hole, form B according to DIN 2527		
Installation angle	10° - 35° inclination to horizontal position		Recommended
Materials in contact with sample gas			
Housing, gas connections / flange	Stainless steel SS 1.4571 // Fitting: stainless steel SS 316		
Gaskets	FPM as standard:		Up to 200 °C
	FFKM as corrosion resistant version:		Up to 250 °C
Filter material	Silicon Carbide (SiC)		Standard
	Borosilicate Glass (fiber)		Special
Pressure reduction valve at probe outlet	to prevent pressure peaks during back purge, 6 mm O.D. tube connection		Option

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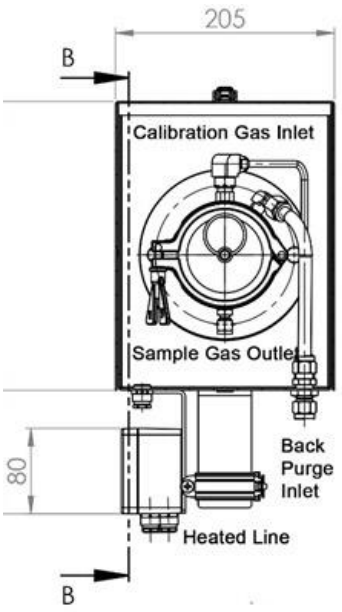
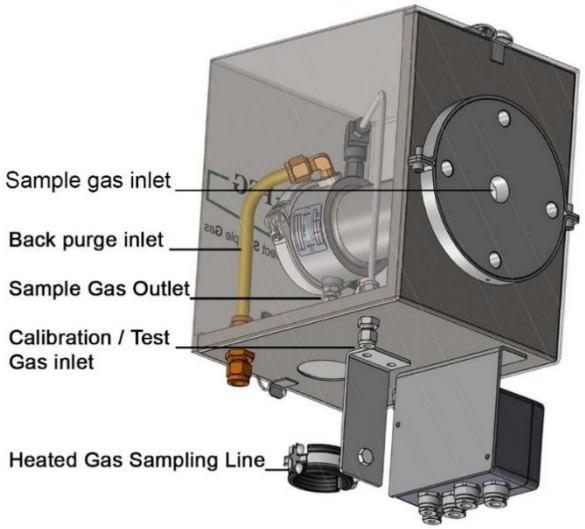
PSG Basic Filter

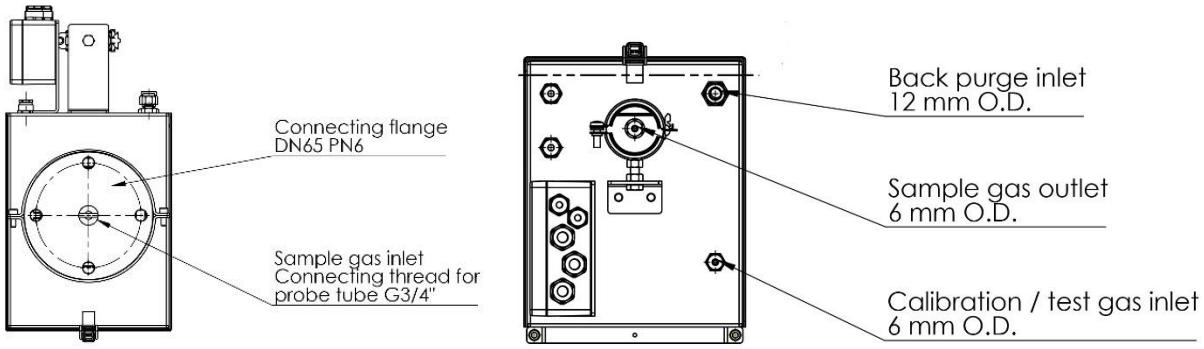


Calibration & Sample Gas flow through



Dimensions in mm

PSG Basic with Back Purge and Calibration Gas Inlet



Dimensions in mm

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PSG Perfect Sample Gas

Options for PSG Basic, PSG Plus and Plus DSBP

Heating sleeve incl. PT100
Part No. 53500018

PID-controller ST49 & solid-state relay (25A) with heat sink for DIN-rail-mounting, heating sleeve only
Part No. 50078850

Removable insulation jacket
Part No. 80060544B
resp. 80060593P

Ring heater selfregulating
Part No. 53500019

Gas Sampling Tubes – see also: PDS PSG ST, Part No. 80060022

Length: 1000 mm // Extension: 100 mm

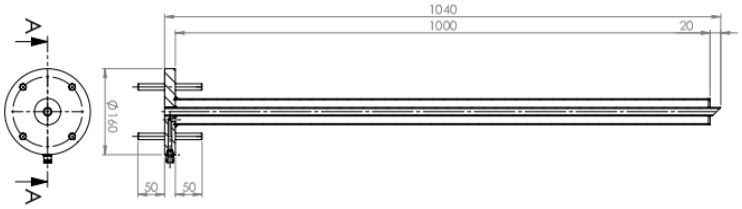
Assembly consisting of:
Part No. 80060526, 80060492 and 80060493

Length: 220 / 520 mm

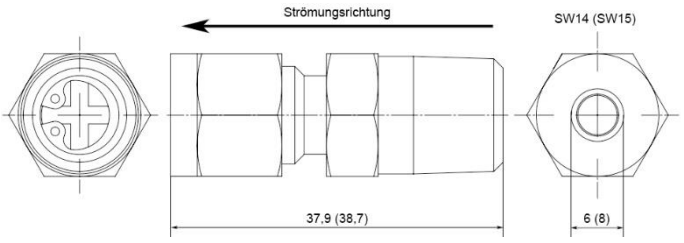
Gas Sampling Pre-Filter – see also: PDS PSG PF
Part No. 80060492 (for L = 220 mm)
resp. 80060572 (for L = 520 mm)

Length: 1000 mm; Extension 100 mm

Part No. 80060526



Heated Gas Sampling Tube – see also: PDS PSG HT, Part No. 80060671



Pressure Reduction Valve – see also PDS PSG PR
Part No. 80060195 (Ø = 6 mm), resp. 80060675 (Ø = 8 mm)

Dimensions in mm

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