SP180-H/MA

Gas Sample Probe Series SP®

Electrically heated, compact version with protection cover and test gas connection as standard
SP180-H/MA for special applications aboard ships

Special Features

- **DNV Type Approval Certificate VI-7-2 for application aboard ships**
- **Sampling of dust-loaded process gases**
- **Small volume, fast response time**
- **Self-regulating electrical heating**
- **Alarm contact for low temperature**
- **With test gas connection according to EN 14181 (test gas feeding via filter element)**
- **Easy mounting and maintenance**
- **Sample tube made of Hastelloy® optional**

Application

The M&C gas sample probe version SP180-H/MA is suitable for continuous gas sampling. The compact design requires only limited space. The gas sample probe has a DNV Type Approval Certificate for special application aboard ships.

Description

The design of the M&C probe version SP180-H/MA guarantees easy mounting, safe operation and problem-free maintenance.

Changing of the external filter element does not require tools or disassembling of the gas sample line. To change the filter element, the complete filter assembly can be removed out of the probe head.

The gaskets can easily be checked for leaks, the filter housing is easy to clean, and the sample tube can be removed without dismounting the entire sample probe. These are only a few advantages of the M&C probe.

The 0.1 micron glass fiber filter is placed in a heated stainless steel filter housing. Other filter element materials are available on request. The compact design and the new all-round heat insulation and protection cover ensures an optimized heat distribution, as well as a safe operation by keeping the temperature above the dew point in the filter or flange area.

Specially designed self-regulating heating elements are heating the gas sample probe to 180 °C [356 °F] within the range of 110 V to 240 V without switching.

There is no external temperature controller or temperature limitation necessary. A separate thermo switch (< 160 °C [< 320 °F], NO) is built-in to monitor low temperatures. The terminals of the electrical connections are inside a junction box.

The gas sample probe SP180-H/MA is equipped with a calibration gas connection according to EN 14181 (regulation for calibration of emission measuring systems). With this standard feature, calibration gas can enter the gas sample probe via the filter element.

Please select the sample tube, which is right for your application, from the table in this data sheet.

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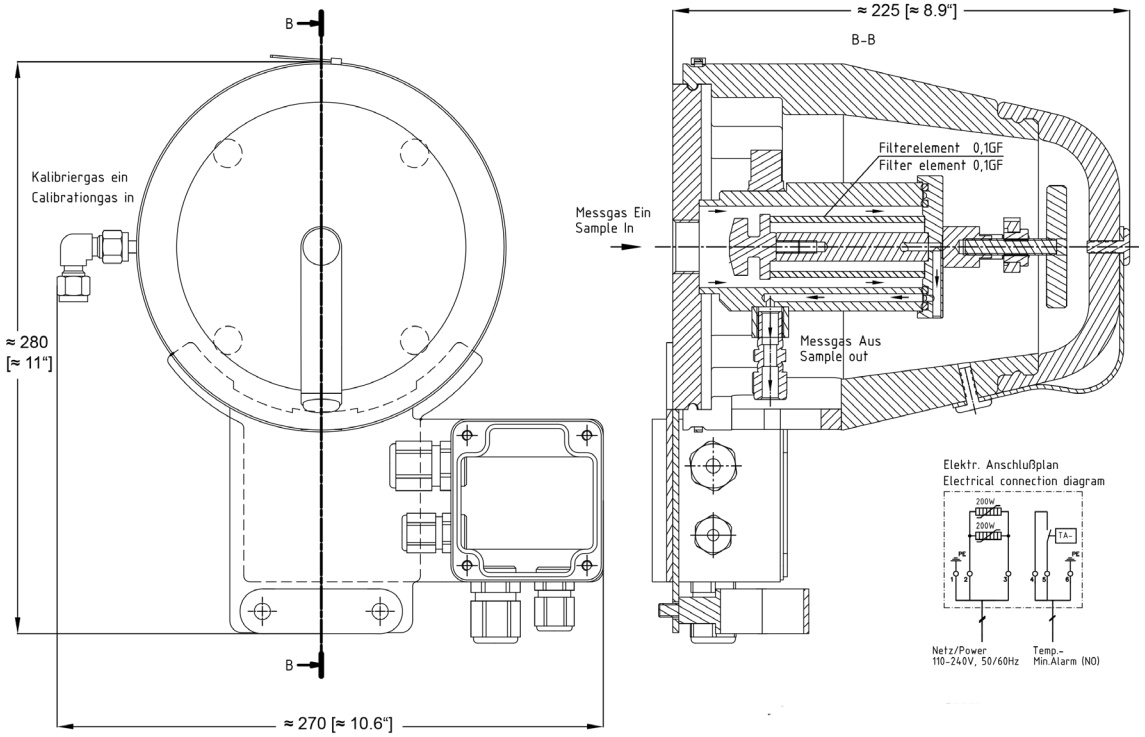
Technical Data

Series SP®	Version SP180-H/MA	Version SP180-H/MA SS
Part No.	02S1860	02S1865
DNV Type Approval Certificate	TAA00002J3	
Protection cover	Yes	
Outdoor mounting	Not for mounting on open deck	
Degree of protection	IP66 EN 60529	
DNV: Location classes	Temperature D, Humidity B, Vibration B, EMC A, Enclosure B	
Ambient temperature	-25 to +60 °C [-13 to +140 °F]	
Vibration/Shock for sample tubes (optional)	4 g, classified acc. to GL (Germanischer Lloyd) (GL-2012 VI section 7, Tab 3.16, characteristic curve 2a)	
Sample pressure	0.4 to 1.5 bar abs.	
Sample temperature	Max. 600 °C [1112 °F]*	
Gas flow rate	Max. 500 Nl/h	
Dust load	Max. 1 g/m³*	
Filter chamber volume	70 ml	
Filter element	Type S-0,1GF, filter porosity 0.1 µm, fiber (other filter elements on request)	
Probe heating	+180 °C [356 °F] self-regulating	
Ready for operation	After 2 hours	
Low temperature alarm contact, alarm point	< 160 °C [< 320 °F], NO	
Low temperature alarm contact, contact rating	250 V - 3 A AC, 30 V - 3 A DC	
Connection sample outlet	1/4" NPT female with Swagelok® tube connector for 6 mm tube (DN 4/6)	
Connection calibration gas	Swagelok® tube connector for 6 mm tube (DN 4/6), connection including sealing plug	
Power supply	110 V up to 240 V, 50/60 Hz	
Power consumption	Start up: 400 VA, during operation: 100 VA, fuse 6 A	
Terminal box	Aluminium	Stainless steel VA
Electrical connection	Terminals max. 2.5 mm², 1 x M 20, 1 x M 16 cable glands	
Electrical equipment standard	EN 61010, EN 60335-1	
Flammability test protection cover	Needle-flame test method IEC 60695-11-5:2005, severity level: 30 s	
Mounting flange	DN 65 PN 6, Form B stainless steel 316Ti	
Material of sample contacting parts	Stainless steel 316/316Ti, FKM, glass fiber	
Dimensions (W x H x D)	Approx. 270 (with calibration gas connection) x 280 x 225 mm [≈ 10.6" x 11" x 8.9"]	
Weight	Approx. 7.5 kg [≈ 16.5 lbs]	

* Standard, other versions on request.
Swagelok® is a registered trademark for tube fittings by Swagelok Company, USA.
Please note: Nl/h and Nl/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.

ΔP and T90 at flow of:	100	200	500	Nl/h
ΔP pressure loss with new filter element 0,1 GF	< 4	7	15	mbar
T90 time-without sample tube/prefilter	4.0	2.5	< 1.0	s

Dimensions SP180-H/MA



Dimensions in
mm [inches]

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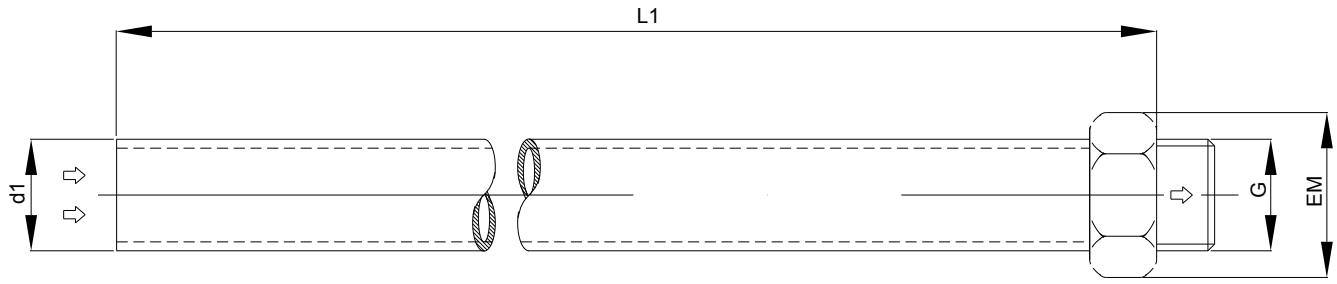
Option: Sample Tubes



Classified according to GL (Germanischer Lloyd) GL-2012 VI section 7, Tab 3.16, characteristic curve 2b)

M&C Probe Sample Tube Type	Part No.	Max. Temperature °C	Material Tube/Connection	Length "L1" mm	Connection Thread "G"	Tube ø d1 outer/inner mm	Connection ø a "EM" mm
SP180M/HC/400	92S0040	600 [1112 °F]	Hastelloy®	400 [≈ 15.75"]	G 3/4" male	27/20	40
SP180M/HC/600	92S0060	600 [1112 °F]	Hastelloy®	600 [≈ 23.62"]	G 3/4" male	27/20	40
SP180M/HC/800	92S0080	600 [1112 °F]	Hastelloy®	800 [≈ 31.5"]	G 3/4" male	27/20	40

Hastelloy® is the brand name of a nickel-based alloy from Haynes International.