

Technical Data Combination Probe KS1D-Ex^{''''}

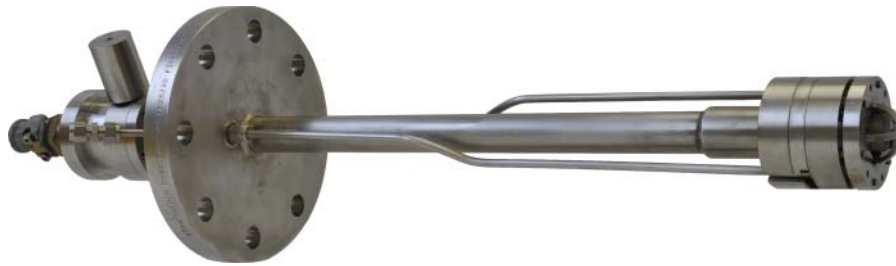


Fig. 1-1 KS1D-Ex ...

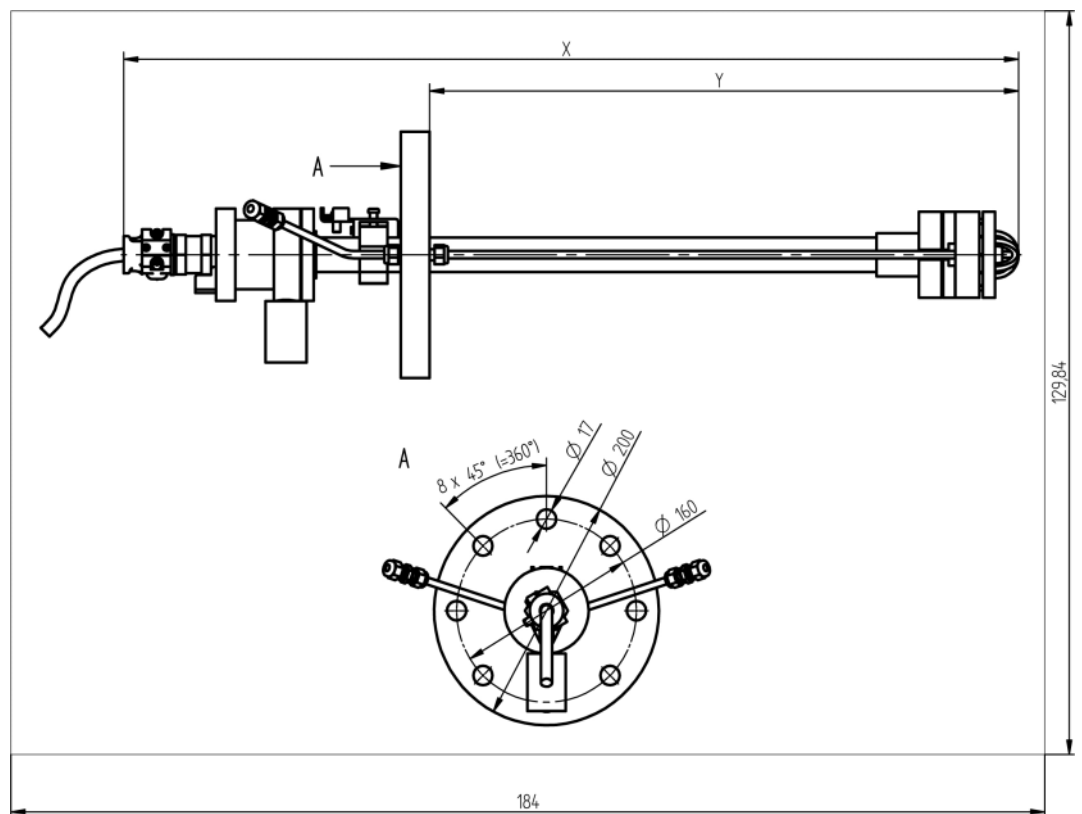


Fig. 1-2 Dimensional drawing KS1D-Ex ...

	Length [mm] (in.)
x	770 / 1130 (30.3 / 44.5)
y	500 / 860 (19.7 / 33.9) (immersion depth)

Characteristics

Measuring range	O ₂ : 0 ... 18 Vol. % O ₂ with restriction 0 ... 21 Vol. % O ₂
	CO _e : 0 ... 10.000 ppm CO _e
Measurement accuracy	O ₂ : ± 5 % of the measured value, after previous calibration with test gas, - not better than ± 0,2 Vol. %
	CO _e : ± 25 % of the measured value - no more precise than ± 10 ppm on natural gas combustion, after previous calibration under operating plant conditions with a CO-reference measurement in measuring range 0 ... 100 ppm

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Characteristics

Response time t_{60} (60 % of end value)	$O_2 \leq 20$ s
	$CO \leq 10$ s
Cross sensitivity	to SO_2 , NH_3 , NO , propane and aromatic hydrocarbons
Pressure influence of measuring gas	change of -1,6 mV/100 mbar
Probe internal resistance R_i at air with 20 °C and 22 W heating power (new probe)	15 ... 30 Ω – O_2 -electrode 15 ... 30 Ω – CO/H_2 -electrode
Probe output voltage	O_2 -electrode: 150 mV ... -30 mV \Leftrightarrow 0 ... 21 Vol. % O_2 resolution: 0,1 mV
	CO/H_2 -electrode: -30 ... 800 mV \Leftrightarrow 0 ... 000 ppm CO_e resolution: 1 mV
Heating power consumption	10 ... 25 W – depending on measuring gas temperature (at T_{Gas} 350 °C approx. 18 W)
Power supply voltage heating current	AC/DC bei P_H 18 VA \rightarrow 11,4 V bei P_H 20 VA \rightarrow 12,34 V bei P_H 25 VA \rightarrow 14,8 V
Heating current bei P_H 20 VA	approx. 1,3 A approx. 5 A short-term at heat up PTC-characteristics
Insulation resistance	> 30 M Ω between heater and probe connection
Durability	\geq 3 years by using natural gas
Weight in [kg] [lb]	10,8 (23,8) to 500 mm length 13 to (28,6) 860 mm
Electrical connection	Connecting cable 2 m
Material	Probe body 1.4571 Mounting flange 1.4571 Sintered metal prefilter 1.4404 CrV-steel
Measurement principle	Zirconium dioxide cell (ZrO_2) potentiometric (voltage probe)
Heating-up time	20 min up to operating temperature
Firing-rate point	Possible with installed conditions and running combustion
Test pressure sintered metal prefilter	26 bar (g)

Operating condition

Mounting / measuring-gas extraction device	Directly in exhaust gas channel / in situ
Mounting position	horizontal via vertical
Permissible fuels	Residue-free, gaseous hydrocarbons, light fuel oil, heavy fuel oil, coal, wood Direct measurements in fuel gases are not possible
Permissible continuous flue gas temperature	\leq 450 °C (842 °F)
Reference air supply	via instrument air on site approx. 80 l/h
Flange adapter	DN80 PN40

Environmental conditions

Ambient temperature	-20 ... +60 °C
Protection class	IP65
Ex-zone 1	Type of protection II 2 G EEx d IIB + H2 T3
Ex-zone 2	Type of protection II 3 G EEx nc IIB + H2 T3

Order Information

Combination Probe KS1D-Ex for simultaneous measurement of oxygen (O₂) and unburnt residue (CO/H₂) for flue gas temperatures up to 450 °C (842 °F), response time t₍₆₀₎ O₂: < 20 s , CO_e: < 10 s with test gas connector, IP65

Description / Type	Order no.
Combination Probe KS1D-Ex, for Ex zone 1, type of protection II 2G EEx d IIB + H2T3 immersion depth from flange 500 mm (19.7 in.) Cable length 2 m (6.6 ft.)	656R4000
Combination Probe KS1D-Ex, for Ex-Zone 1, type of protection II 2G EEx d IIB + H2T3 immersion depth from flange 860 mm (33.8 in.) Cable length 2 m (6.6 ft.)	656R4005
Combination Probe KS1D-Ex, for Ex zone 2, type of protection II 3G EEx nc IIB+ H2T3 immersion depth from flange 500 mm (19.7 in.) Cable length 2 m (6.6 ft.)	656R4010
Combination Probe KS1D-Ex, for Ex zone 2, type of protection II 3G EEx nc IIB+ H2T3 immersion depth from flange 860 mm (33.8 in.) Cable length 2 m (6.6 ft.)	656R4015

Additional required: Lambda Transmitter LT2, configuration for KS1D in type "EX1" or "EX2"
 (for mounting in non Ex-area)
 Order no. 657R102 / KS1D / 7EX1 / ... or 657R102 / KS1D / 8EX2 / ...
 Counter flange, order no. 650R4050 / R4051
 Flange seal, order no. 650R4052
 Probe connection unit, order no. 650P4026 or 657R1071

The information in this publication is subject to technical changes.

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