

Technical Data Combination Probe KS2D_{NOx}



Fig. 1 Combination Probe KS2D_{NOx}

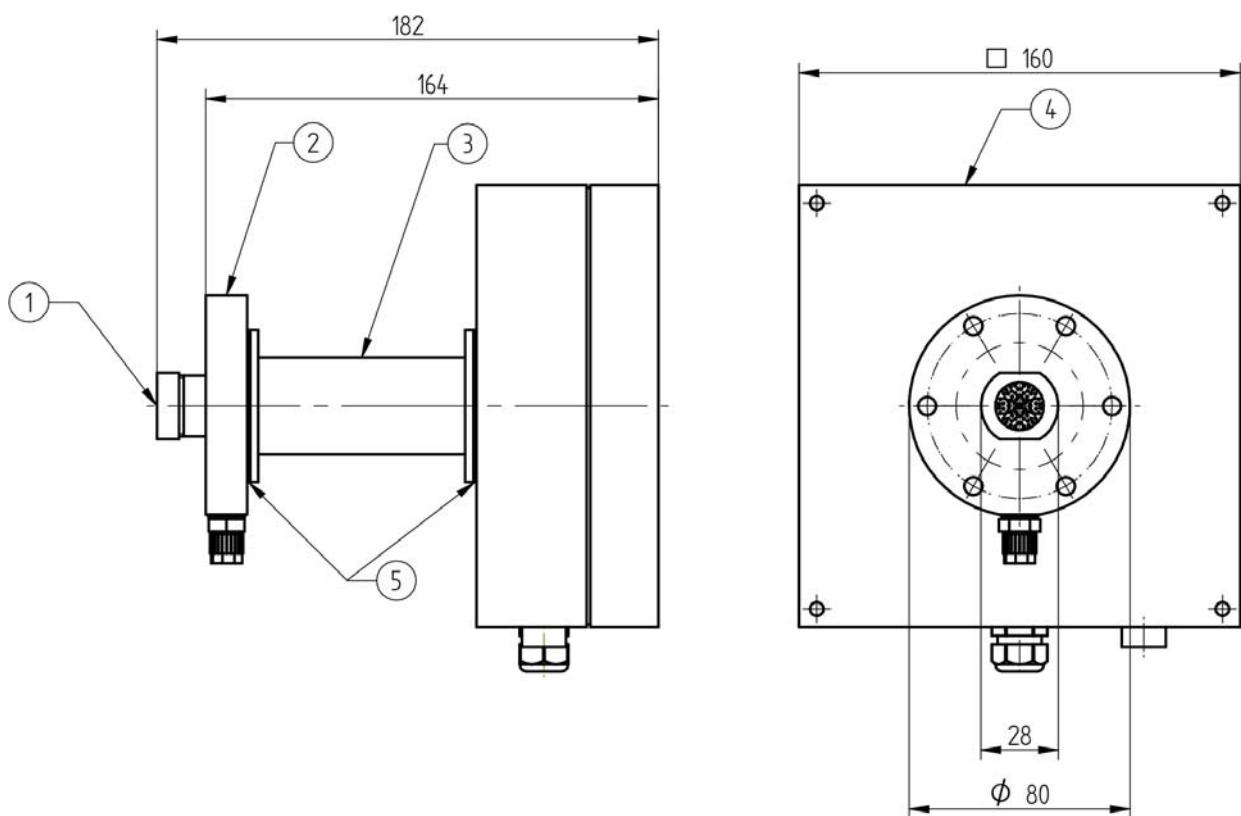


Fig. 2 Dimensional drawing Combination Probe KS2D_{NOx}

- 1 Filter cap
- 2 Probe flange with hose connection for calibrating gas
- 3 Intermediate piece
- 4 Connection housing
- 5 Seals for intermediate piece

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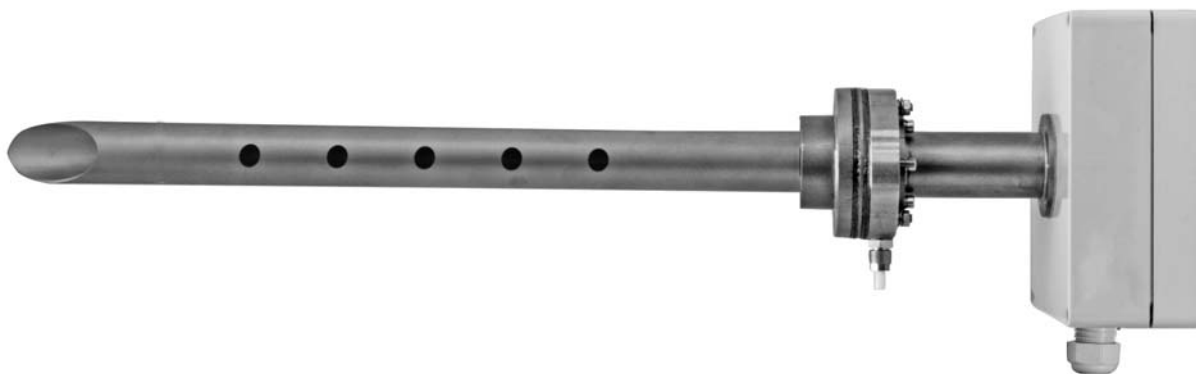


Fig. 3 Combination Probe KS2D_{NOx} with gas extraction device (GED) 500 mm / 19.69" in

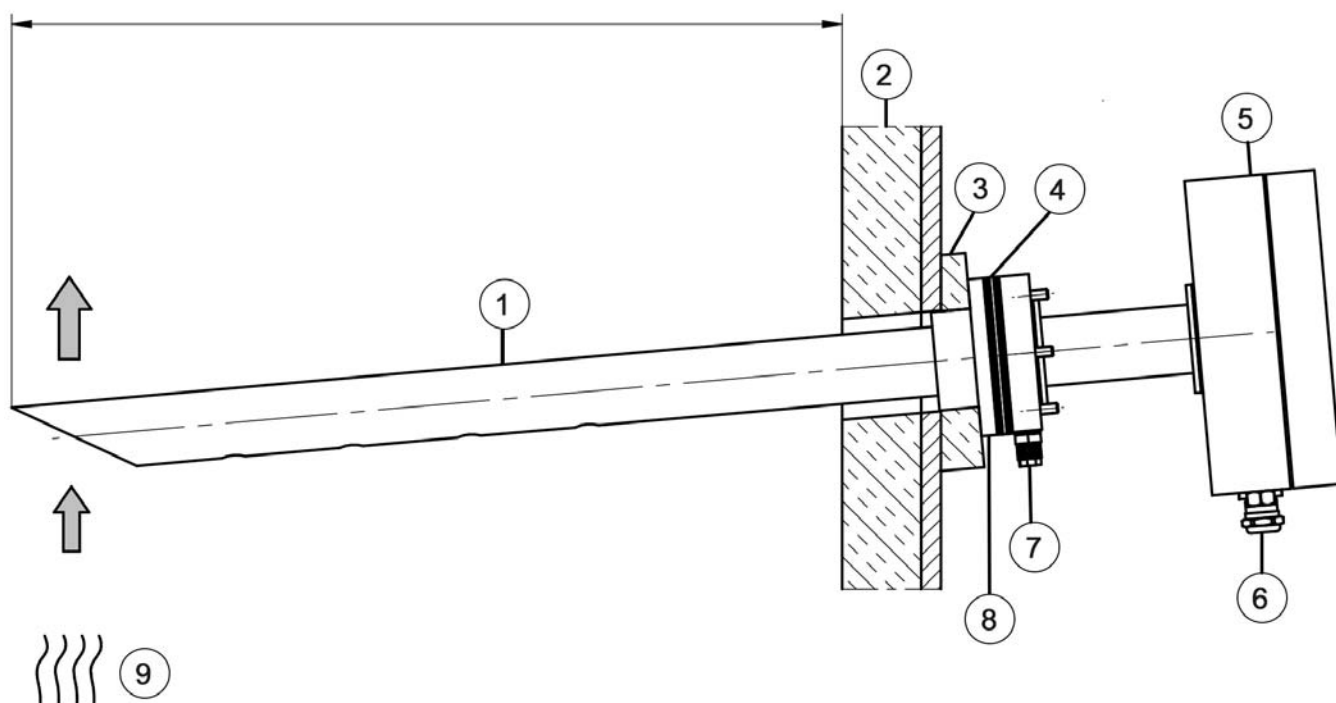


Fig. 4 Dimensional drawing Combination Probe KS2D_{NOx} with gas extraction device (GED)

- 1 Gas extraction device (GED) type 655R1422
- 2 Boiler wall (here internal insulation)
- 3 Distance and angle adapter (optional)
- 4 Graphite sealing 656P0263
- 5 Combination probe KS2D_{NOx} type 640R0010
- 6 Connecting cable, length 2 m
- 7 Hose connection 4/6 mm for calibrating gas
- 8 Counter flange 655R1450
- 9 Flow direction

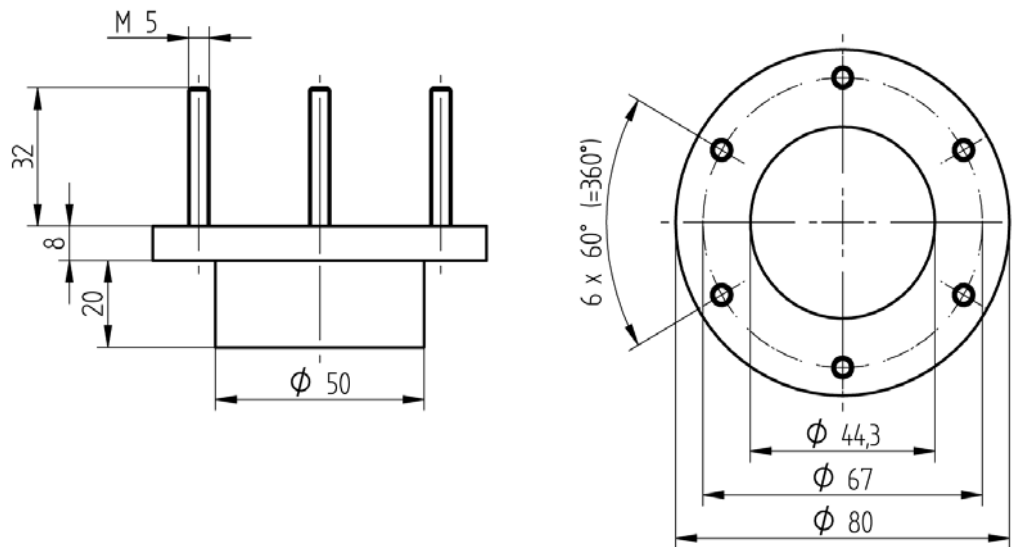


Fig. 5 Counter flange 655R1450

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Technical Data	
Dimension (WxHxD)	176 x 160 x 182 mm / 6.93" x 6.30" x 7.17" in
Weight	1,850 g / 4.08 lb
Material probe housing	1.4571 / 1.4404
Material connection housing	Polycarbonat
Range of measuring	O₂ 0 ... 21 vol. % (adjustable 0 ... 25 vol.%)
	NO_x 0 ... 100 ppm or 0 ... 200 mg/Nm ³ (factory setting) 0 ... 1,000 ppm or 0 ... 2,000 mg/Nm ³
Measurement accuracy	O₂ ± 8 % of measured value – not better than ± 0.5 vol. % after previous adjustment with reference measurement
	NO_x ± 13 % of measured value – not better than ± 3 ppm or 6 mg/Nm ³ after previous adjustment with reference measurement
Response time	O₂ t ₆₀ : < 10 s
	NO_x t ₆₀ : < 10 s
Offset to environment	O₂ < 0.3 vol. %
	NO_x < 2 ppm or < 4 mg/Nm ³
Drift	O₂ < 0.1 vol. %/week
	NO_x < 1 ppm/week
Influence of the installation position	None, if KS2D _{NOx} is installed according to the information in the operating instructions.
Influence of the mains voltage	None, if KS2D _{NOx} is installed according to the information in the operating instructions.
Influence of leakage	None, if KS2D _{NOx} is mounted and operated according to the information in the operating instructions.
Heating consumption	15 W (typical for nominal measurement operation with ambient temperature)
Measuring principle	Zirconium dioxide cell (ZrO ₂) combined pumping- and Nernstian cell for O ₂ ; pumping cell for NO _x
Heating time	Stand-by with restricted measuring accuracy after approx. 3 min.
	Ready for measuring and calibration with specified measuring accuracy after approx. 7 min.
Service life	> 1 year by using fuel oil
	> 2 year by using natural gas
Connection	
Electrical Connection	Terminal block with Push-in-connection, max. 2,5 mm ² / 13 AWG Shield support via EMV-cable gland M16, Ø 5-9 mm / 0.2-0.35 "in
Recommended cable length	max. 40 m / 131.23 ft to the NT1
Recommended connection cable	5x0,75 mm ² / 10x18 AWG, shielded

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Operating Condition	
Mounting / measuring gas extraction device	Directly in exhaust gas channel / in situ
Leakage	$q_L \leq 100 \text{ cm}^3/\text{h}^*$
Mounting position	up to 85° against vertical (see Fig. 6.2)
Permissible Fuels	Residue-free, gaseous hydrocarbons, light fuel oil, heavy fuel oil (HFO), lignite and coal, biomass (according to design)
Permissible measuring gas humidity	100 %, condensing
Permissible measuring gas speed	< 16 m/s (higher measurement speed increases the measurement error). Current safety measures can be deployed. (Measured at measuring gas temperature 25 °C / 77 °F.)

* According to DIN V 18160-1:2006-01 leakage towards environment through housing and fastening.

Environmental Conditions

Permissible Temperature Range

Operation	Measuring gas temperature at GED	< 550 °C / 1,022 °F
	at probe head (filter cap)	< 450°C / 842 °F
	in connection housing	-40 ... +80 °C / -40 ... +176 °F (nominal) +80 ... +85 °C / +176 ... +185 °F (2000 h) +85 ... +105 °C / +185 ... +221 °F (500 h)
Transport		-40 ... +75 °C / -40 ... +167 °F and relative humidity 0 ... 60 %
Storage		-40 ... +75 °C / -40 ... +167 °F and relative humidity 0 ... 60 % for maximum 10 month
Degree of protection	DIN EN 40050	IP65 (in installed condition)

NOTICE

The limits of the technical data must be strictly adhered to.

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Order Information

Description / type	Order-no.
Combination Probe KS2D _{NOx} with calibration gas connection and connection housing IP65, incl. seal and mounting material	640R0010

Gas Extraction Device, incl. seal

Description / type	Order-no.
Gas Extraction Device for HT-/ FT/ NO _x probes, up to 750 °C / 1,382 °F, length 200 mm / 7.87" in	655R1420
Gas Extraction Device for HT-/ FT/ NO _x probes, up to 750 °C / 1,382 °F, length 350 mm / 13.78" in	655R1421
Gas Extraction Device for HT-/ FT/ NO _x probes, up to 750 °C / 1,382 °F, length 500 mm / 19.69" in	655R1422
Gas Extraction Device for HT-/ FT/ NO _x probes, up to 750 °C / 1,382 °F, length 1,000 mm / 39.37" in	655R1423

Counter flange

Description / type	Order-no.
Counter flange for HT-/ FT/ Ex-/ NO _x probes with tube 50x2, length 20 mm / 0.78" in, 1.4404	655R1450

The information in this publication is subject to technical changes.



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