

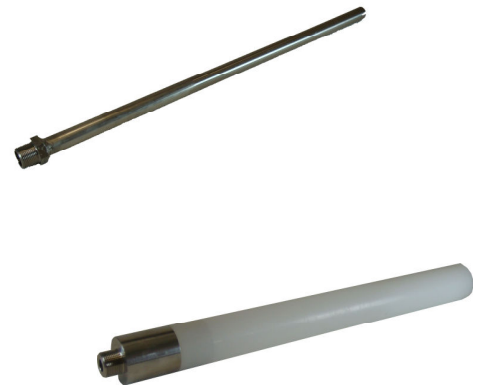
ANKERSMID Sample tubes - unheated

for sample probes series ASP 1xx/3xx/4xx/5xx/6xx

Application

These sample tubes are used in combination with the Ankersmid ASP probes in order to sample the gas in the optimal section of the gas-stream. For a typical installation of the probe-tip, a position in the middle third of the gas stream is advised.

For dust concentrations higher than 2g/m^3 , we advise fitting a pre-filter in combination with an extension tube.



* Pictures may vary

Description

Ankersmid sample tubes are selected according to specific applications. Influencing process parameter are the gas composition, water vapour saturation, dust loading, process temperature, pressure and the gas velocity.

Among the standard length (typically 1m) other lengths are available on request.

Sample tubes/extension tubes with volume displacers are available for applications with low sample gas flow to decrease the retention time.

For gas sampling downstream a wet scrubber with a high content of water the demistor tube ADT, equipped with an integrated demister for liquid drop collection, as available.

The connection thread enables an easy mounting to the gas sample probes.

- **Used for dust loading up to 2g/m^3**
- **Sampling after wet scrubber up to 90°C**
- **Sampling gases up to max. 1400°C**
- **Different materials**
- **Available in lengths up to 2500mm, others on request**

Additional sampling accessories

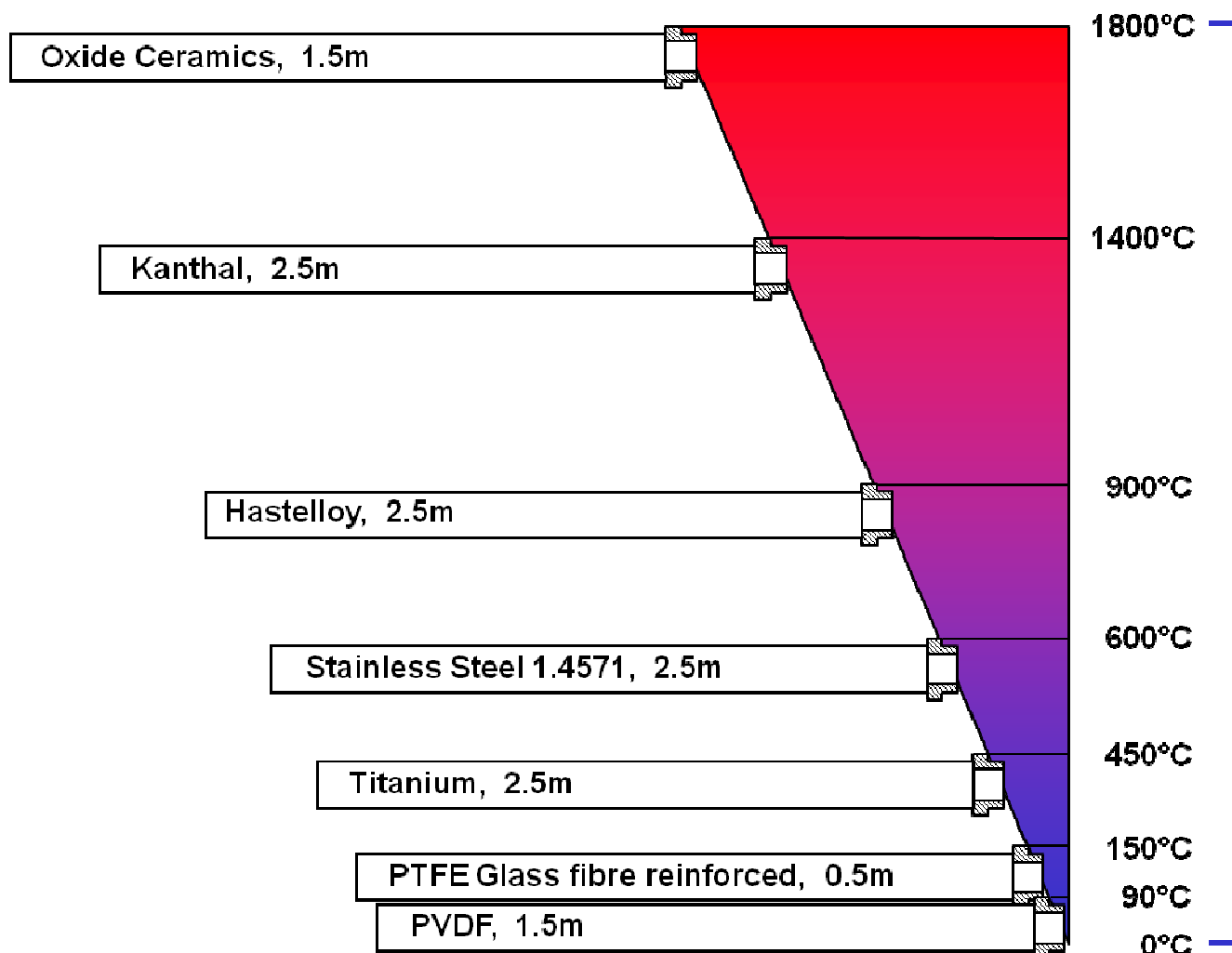
For high dust loading:
Top-filter series ATF

For lower deviation of dew point on process side:
Heated sample tubes series AST 05x, AST 10x, AST 15x, AST 20x



ANKERSMID Sample tubes - unheated

for sample probes series ASP 1xx/3xx/4xx/5xx/6xx



Maximum sample tube temperature is depending on the horizontal length inside this temperature zone

Application	Tube type	Max. T [°C]	Material	Connection	Outer diameter
After wet scrubber or high dew point	ADT 080 (Demistor tube)	90°C	PTFE	G ¾"o	40-70
Temp < 150°C	AST 411-412- 413	150°C	PTFE	G ¾"o	22
Temp < 600°C	AST 051- 404	600°C	SS316	G ¾"o	22
Temp < 900°C	AST 431-432-433-434	900°C	Hastelloy C®	G ¾"o	22
Temp < 1400°C	AST 435	1400°C	Kanthal®	G ¾"o	20
HCl or high corrosive gas	AST 421-422-423-424	450°C	Titanium	G ¾"o	22

ANKERSMID Sample tubes - heated

AST 05x/10x/15x/20x series

Application

The electrically heated Ankersmid sample probe tube AST 05x-10x-15x-20x are used in extractive sampling systems to avoid cooling and condensation of the sample.

Condensation, in combination with a high dust load, can result in blockage of the probe. This is to be strictly avoided as sample gases may be absorbed into the condensate after cooling and will be undetectable. An extra stainless filter can be mounted on top of the tube in case of very high dust levels ($> 10 \text{ g/m}^3$).

Description

This electrically heated sample tube is available in 4 standard lengths:

0.5, 1, 1.5 and 2.0 meter (other lengths on request).

As for all Ankersmid probes, the standard flange is a DN65 PN6. Adapter flanges for most common process connections can be provided if required.

If needed, it is possible to affix a non-heating sample probe or pre-filter to the tip of the heated tube.

Inside the sample tube a thermocouple type J (Fe-CuNi) is integrated. As a standard it is installed in combination with the digital controller, the user has a freely programmable set point and alarm.

Optional available is a 2-way Modbus/ RS485 communication that combines signals from all installed Ankersmid controllers, so that digital communication with the control room is possible.

Additional sampling accessories

For high dust loading:
Top-filter series ATF



- **Different lengths available**
- **Completely heated sample tube**
- **Digital controller**
- **Easy mounting**
- **Optional: Modbus/RS485**

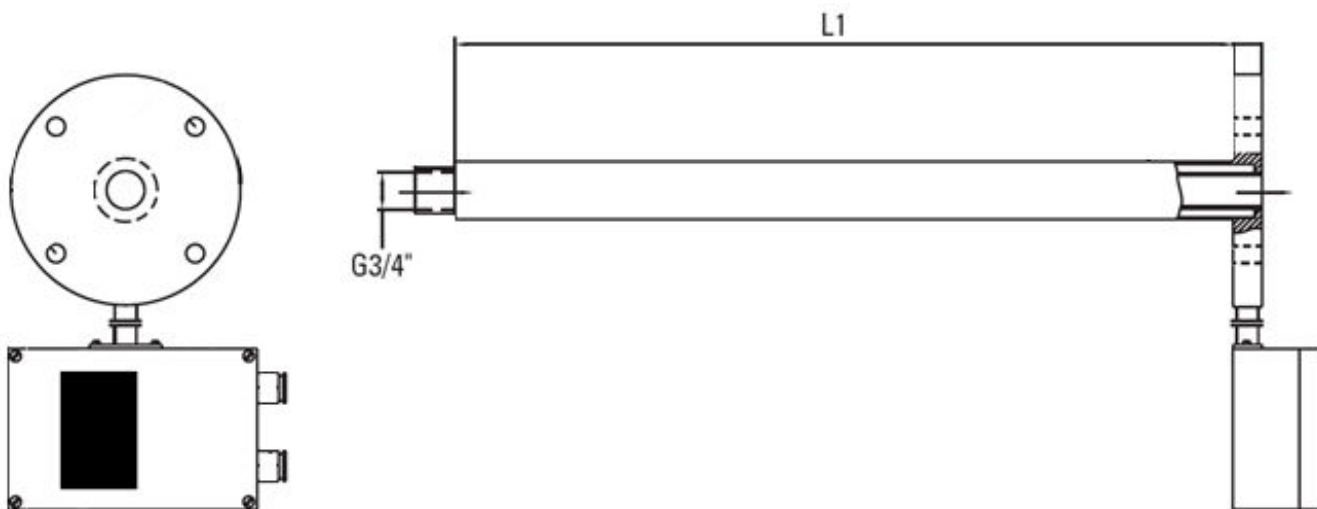


ANKERSMID Sample tubes - heated

Technical data

AST 05x/10x/15x/20x series

Series AST Type	AST 050	AST 100	AST 150	AST 200
Temperature sensor	Thermo-couple type J (Fe-CuNi)			
AST 004	With integrated electronic controller ATC 144, incl. high/low alarm			
RS 485 / Modbus interface	Optional			
Probe tube length L1	500mm	1000mm	1500mm	2000mm
Sample temperature max.	500°C	500°C	450°C	400°C
Operating temperature max. (pre-adjusted at 180°C)	200°C	200°C	200°C	200°C
Top-filter	Optional			
Sample gas inlet connection	G3/4"i			
Dust loading	max. 2g/m ³			
Sample pressure max.	5 bar g			
Ambient temperature	-20°C to +70°C			
Storage temperature	-30°C to +70°C			
Ready for operation	Approx. 0,5h			
Power supply	230VAC, 500W 115VAC, 500W	230VAC, 800W 115VAC, 800W	230VAC, 1200W 115VAC, 1200W	230VAC, 1500W 115VAC, 1500W
Electrical connection	2 x 2.5mm ² + 2.5mm ²			
Electrical standard	EN 61010, EN60519-1			
Degree of protection	IP54 EN 60529			
Mounting flange	DN65 PN6			
Material of gas wetted parts	Stainless steel 316			





ANKERSMID Sample tubes - heated

AST 30x series – for portable heated sample probes

Application

The electrically heated portable sample probe tubes series AST 30x are used in extractive portable sampling systems to avoid cooling and condensation of the sample.

Condensation, in combination with a high dust load, can result in blockage of the probe. This is to be strictly avoided as sample gases may be absorbed into the condensate after cooling and will be undetectable. An extra stainless filter can be mounted on top of the tube in case of very high dust levels ($> 10 \text{ g/m}^3$).

Description

This electrically heated sample tube is available as standard with 1m length (other lengths on request).

To fit all portable Ankersmid probes, the heated tube has a G3/8"m thread connection.

If needed, it is possible to affix a non-heating sample probe or pre-filter to the tip of the heated tube.

A capillary switch controller is included to adjust the operating temperature up to max. 200°C.

Additional sampling accessories

For high dust loading:
Top-filter series ATF



- **Different lengths available**
- **Completely heated sample tube**
- **Integrated capillary controller**
- **Easy mounting**
- **Especially for portable applications**

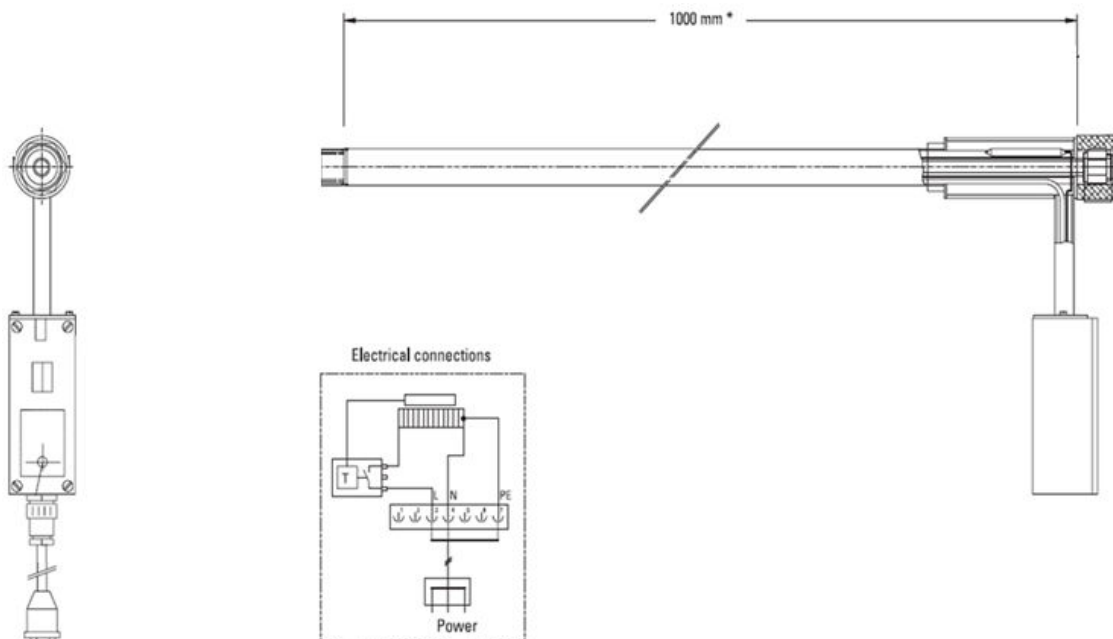


ANKERSMID Sample tubes - heated

Technical data

AST 30x series – for portable heated sample probes

Series AST Type	AST 301	AST 302	AST 303
Temperature controller	Capillary controller		
Probe tube length L1	1000mm	2000mm	1500mm
Sample temperature max.	500°C		
Operating temperature max.	200°C		
Top-filter	Optional		
Sample gas inlet connection	G3/8" f		
Dust loading	Max. 2g/m ³		
Sample pressure max.	5 bar g		
Ambient temperature	-20°C to +70°C		
Storage temperature	-30°C to +70°C		
Ready for operation	Approx. 1h		
Power supply	230VAC (115VAC optional)		
Power consumption	500W	1200W	1200W
Electrical connection	Cable 1,5m with 7-pin plug		
Electrical standard	EN 61010, EN60519-1		
Degree of protection	IP54 EN 60529		
Outlet connection	G 3/8" m		
Outer diameter	28mm		
Material of gas wetted parts	Stainless steel 316		





ANKERSMID Top-Filter
ATF 18x/50x series

Application

The Ankersmid top-filters are used together with gas sample probes series ASP for continuous gas sampling in processes with increased dust loading. These extra stainless filters can be mounted on top of the sample tubes in case of very high dust levels ($> 10 \text{ g/m}^3$).

Description

The large active surface of the Ankersmid top-filter guarantees a long operating time. Even in case the flow rate of the sample gas is increased, there is only a small difference pressure on the filter matrix between clean gas and crude gas side.

Therefore, the solid particles do not get into the filter's pore structure. They are deposited as filter cake on the filter's surface and cause a prolonged operating time in its property as top-filter. The Ankersmid top-filters series ATF are selected according to the specific application.

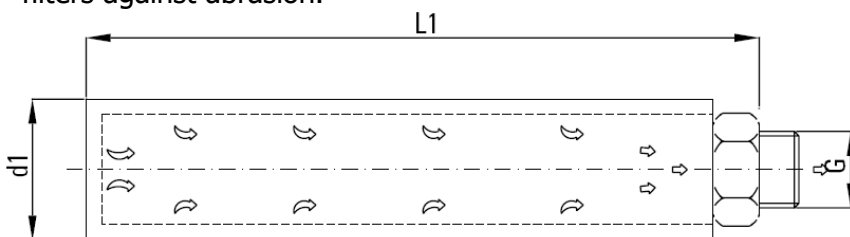
The basis for selection are the process parameters, i.e. the gas compounds, dust loading, grain sizes, water vapor saturation, temperature, pressure and gas velocity.

The ATF-filter are equipped with a welded thread connector for moutnage into the mounting flange of the gas sample probe.

For an optimal sampling position in the process, the top-filters can be mounted to the sample probe via an extension tube series AET. In case of a high velocity of the process gas, shape protection plates series AAS are used in order to protect the top-filters against abrasion.



- For dust loading $>2\text{g/m}^3$
- Sampling temperature up to max.600°C
- Different dimensions
- Great filter surface
- back-purging possible
- Easy mounting



ATF Top-filter type	Tmax	Material Filter connection	Filter Porosity μm	Dust content g/m^3	Internal volume displacer	Back-purging possible	Filter length L1 (mm)	Filter diameter D1 (mm)	Filter connection G
ATF 180	600°C	SS316	5	2 - 10	No	Yes	180	40	3/4"m
ATF 181	600°C	SS316	5	2 - 10	Yes	Yes	180	40	3/4"m
ATF 050	600°C	SS316	5	> 10	No	Yes	500	40	3/4"m
ATF 051	600°C	SS316	5	> 10	Yes	Yes	500	40	3/4"m