ANKERSMID Sampling

ANKERSMID Gas sampling and conditioning equipment

Product catalogue

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ANKERSMID Gas sampling and conditioning equipment

Range of products

Chapter	Subject		Information
1	Heated or unheated gas sampling probes	ASP	Sample probes, unheated and heated versions up to 200°C or 320°C with internal and/or external filters, Various versions for safe and hazardous (Ex-) areas
		APP	Portable sample probes, heated version up to 180°C
		AET	Extension tubes for sample probes
		AST	Sample tubes (heated & unheated) for sample probes
		ADT	Demister tubes for sample probes
		ATF	Top / Pre-filters for sample probes
		AAS	Abrasive shield for top / pre-filter
2	Heated sample lines and controller	AHL	Custom made heated sample lines made of PTFE or SS, self-limited or regulated, heated up to 120/200/250°C
		ATC	Temperature controller
3	Gas cooler	ACC	Compressor coolers with different heat exchangers
		APC	Peltier coolers with different heat exchangers
		AAC	Ambient pre-coolers
	Condensate removal	ACS	Condensate separator
		ALD	Liquid drain
		ACV	Condensate vessel
	Alarm sensor	ALA	Liquid sensors on different principals, alarm and electronic units
4	Filter	AUF	Wide range of universal filters made of different materials like PTFE, PVDF, SS. Various filter elements: Ceramics, PTFE, glass-fiber, SS
		AAM	Refillable adsorption material filters
		AAF	Ambient air suction filters
		AHU	Humidifiers
		AWB	Wash bottles
		AFP	Fluid particle filters; for catching & retract aerosols
		APF	Panel filters
		ALS	Liquid stops to protect analysers or moisture-sensible apparatus
		AHF	Heated filter
5	Flow meter	AFM	Flow meter
6	Pumps	ACP	Peristaltic pumps for condensate removal
		AMP	Membrane pumps with different flows, pressures, materials (PTFE, PVDF, PPS or SS), Various versions for safe and hazardous (Ex-) areas
7	Gas converter	AOX	NO-NO_2 gas converter
8	Connectors fittings valves	ACF	Connectors, fittings, valves made of PVDF/PTFE
		PBV	SS Ball-valves
		PNV	SS Needle valves
		PCV	SS Check valves
		PFI	SS Fittings Inches
		PFM	SS Fittings Metric
		PPF	SS Pipe fittings
		PRV	SS Gouge root valves
		PVM	SS Manifold valves
9	Gas conditioning systems	APS	Portable gas conditioning system
		ADS	Compact Digital PLC-controlled gas conditioning System in 19"-rack version
		ASS	Stationary gas conditioning system
		ATD	Touchscreen PLC-controller

ANKERSMID Gas sampling and conditioning equipment

Information on Delivery Times for Standard Products

With these standard delivery time indications you can simplify your quotations.
Indication of delivery times in weeks after receipt of order and complete clarification of all commercial and technical issues.

Validity only for small quantities and are submit to possible changes due to sudden over sales.

Chapter	Subject		Delivery time [weeks]
1	Heated or unheated gas sampling probes	ASP	2-4
		ASP Ex	8
		APP	3
		AET	2
		AST	Unheated: 2 / heated: 4
		ADT	2
		ATF	2
		AAS	2
2	Heated sample lines and controller	AHL	2-3
		ATC	2-3
3	Gas Cooler	ACC	2-3
		APC	2-3
		AAC	2
	Condensate removal	ACS	2
		ALD	2
		ACV	2
	Alarm sensor	ALA	2
4	Filter	AUF	2
		AAM	2
		AAF	2
		AHU	2
		AWB	2
		AFP	2
		APF	2
		ALS	2
		AHF	2-4
5	Flow meter	AFM	2
6	Pumps	ACP	2
		AMP	2
7	Gas converter	AOX	3
8	Connectors, fittings, valves	ACF	2 (depending on stock)
		PBV	4
		PNV	4
		PCV	4
		PFI	4
		PFM	4
		PPF	4
		PRV	4
		PVM	4
9	Gas conditioning systems	APS	2-4
		ADS	4-6
		ASS	2-4
		ATD	3

ANKERSMID Gas sampling and conditioning equipment

International Reference List

(Gas sample probes, cooler, filter, customized analytical systems)

Umicore	LISEC
Bayer	CBR Antoing
Servaco N.V.	ISSEP
Sadaci	ACV
Aquafin leuven	R.A.S.
KVBG	Ineos Manufacturing
BASF	Sadaci
Tame Tech International Co Ltd.	Clean Air Europe S.A.
Solvay	Tessenderlo Chemie
Distrigas	3M
SGS	Envirotox
Kronos Europe	KVBG
Dupont de Nemours	Kabelwerk Eupen
Aquafin Aartselaar	Envitec
Compagnie des Ciments Belges	CVSD Vandamme
Siemens	Sappi Lanaken
Highseas General Trading Co	BEP
Monsanto Europe	Electrabel - Centrale van Schelle
WFR Gent	Metallo Chimique
Medisoft	Air Products
Tauw België	Aquafin leuven
Servaco N.V.	Breva Beringen
Ciments d`Obourg	ENMO België
Fisher Rosemount	CBR
Monsanto Europe	Chevron Philips Chemicals
Dräger Safety	Electrabel
Arcelor	CW Technics
Mactac Europe S.A.	De hobbit
Compur Monitors	Campine Recycling
Laborelec	ERDA
Bodart & Gonay	Runetech
Duracell Batteries	BP
Evonik Degussa	INBEV
Borealis	Twinerg

ANKERSMID Gas sampling and conditioning equipment

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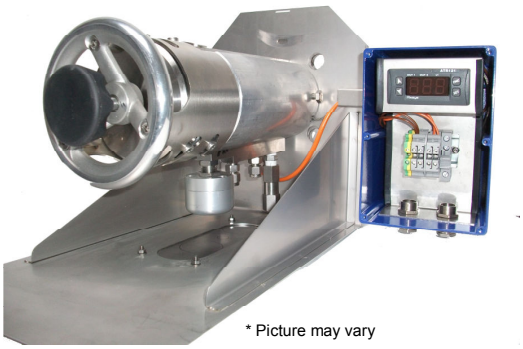
ANKERSMID Sample probe

ASP 3xx/4xx/5xx Series



* Picture may vary

Application

The ASP gas sample probes are designed for continuous gas sampling in difficult processes with gases of high or low dust content, different temperatures and extreme humidity.
As the ASP is available in different lengths, it is suitable for applications with low to very high dust loads.
Depending on the acid dew point, the standard probe operates at 180°C or when necessary with a high temperature version at 320°C (f.e. Denox applications).

Description

Due to its modular design and various options, the Ankersmid heated sample probe filters cover the widest range of applications. With a choice of different lengths of heated filter body, a filter element of 150mm length, suitable for most applications up to 1g dust/m³ can be integrated. 180mm filters with a larger filter surface are used for applications up to 4g dust/m³; with the blow-back function dust loads of up to 10g/m³ can be handled.
The 500mm model filter of the ASP 500 has a capacity for dust up to 10g/m³. When this type is equipped with blow-back option, it handles up to 20g/m³. For even higher dust loads, a primary filter is positioned on top of the first filter.
A significant advantage is that all filters are replaceable without dismounting the probe without using any tools and in the shortest possible time. Cleaning and exchanging of unheated sample tubes or preliminary top-filters can be affected by extracting the filter from the probe.
The probe temperature is controlled by a microprocessor based PID-controller (optional with Modbus/RS485 communication). Alarm or fault contacts can be programmed and the temperature can be changed easily. The standard sensor is PT100, whereas a thermo-couple is standard for the high temperature version.
The following features are offered for all probes:
• Test gas can be injected directly into the probe according to EN14181 (regulation for calibration of emission monitoring systems) that enables calibration gas feeding via the filter element of the gas sample probe.
• Test gas can be injected into the probe through a check valve directly to the sample outlet so that no calibration gas is lost to the stack.
• An isolation valve with pneumatic control shuts off the sample outlet from the internal filter area in case of blow-back.
• Cleaning of filter and the sample tube through a high-flow inlet ports so less maintenance is necessary in high dust load applications. This inlet can be controlled by pneumatic or electric valves, and also in combination with a volume chamber for high pressure flow.

- **Retractable inner probe body for easy changement of pre-filter and/or (unheated) sample tube without dismounting the probe**
- **Back-flush/calibration optional**
- **Test gas connection according to EN14181 for calibration/test gas feeding via filter element optional**
- **Spun glass cartridge for diesel generators, diesel exhaust or similar sooty applications available**
- **Universal mounting clamp for heated line**
- **Very universal applicability**
- **Compact and modular design suited for most applications**
- **Universal support for heated sample line by pre-lasered cut-outs for M40-gland connection in the bottom plate and additional optional clamp**
- **Reduce operator exposure to safety risks**
- **Easy mounting**
- **Easy maintenance**
- **Digital communication**

ANKERSMID Sample probe

ASP 3xx/4xx/5xx Series

Technical data

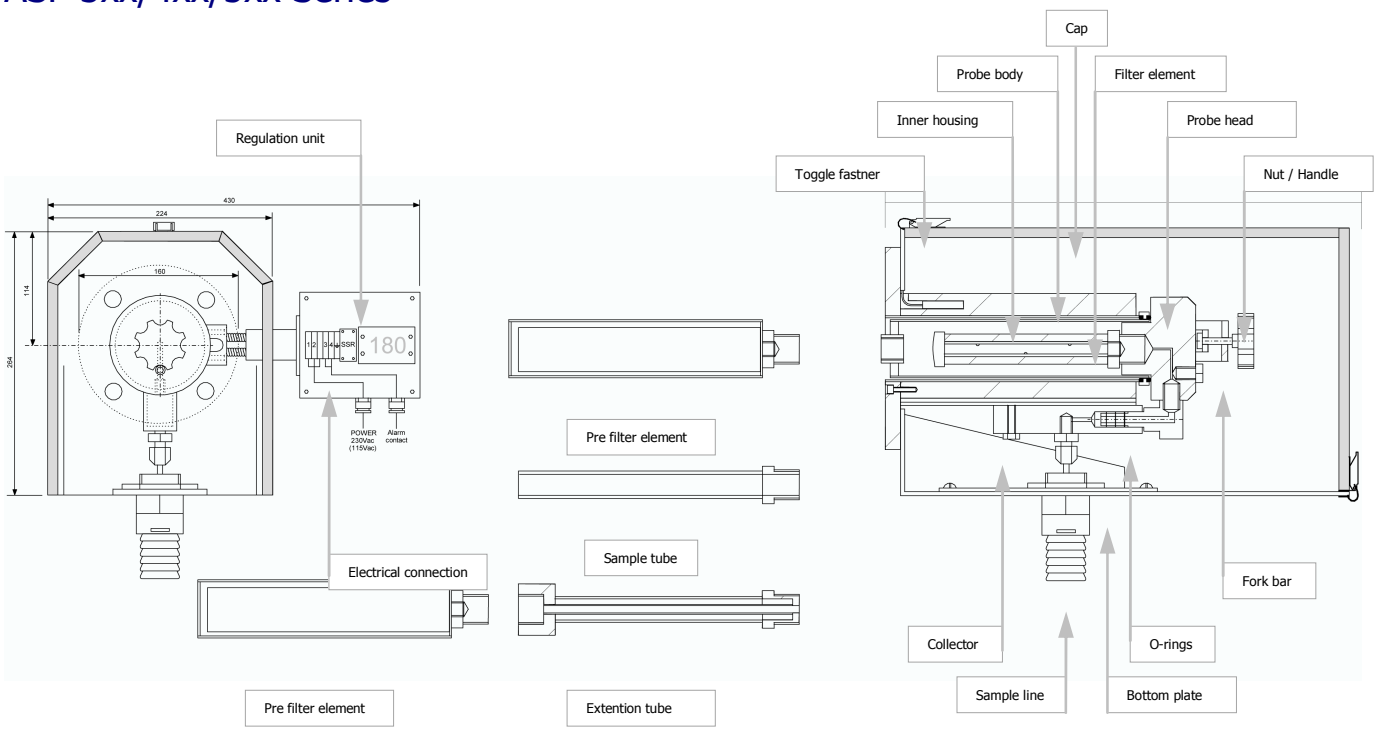
Version	ASP 30X	ASP 40X	ASP 50X
Integrated filter Length	150mm	180mm	500mm
Integrated back-flush	available	available	available
Protective cover	yes		
Degree of protection	IP55 EN60529		
Wet Materials	Stainless steel 316		
Sealing materials	FPM/ Viton® for 180°C and Kalrez®/Graphite for 320°C		
Insitu probe tube/pre-filter	Optional 200 or 500mm, stainless steel, 2µm or 20µm		
Sample pressure max.	0,5-6 bar abs.		
Ambient temperature	-20°C to +65°C		
Filter chamber volume	300cm3	300cm³	760cm³
Filter element, porosity	Ceramic, 2µm	stainless steel 316, 5 µm	stainless steel 316, 5µm
Temperature control	Standard 0-180°C with Pt 100; Option 0-320°C with thermo-couple		
Electronic Controller	Digital programmable PID-controller with optional RS485 Modbus		
temperature alarm contact	Free programmable contact, rating: 250V, 3A~, Factory set at alarm point: ΔT 20°C		
Sample gas outlet connection	1/4"f NPT		
Test gas/back-flush connection	1/4"f NPT		
Power supply	180°C		
	230VAC/800W 115VAC/800W		230VAC/1500W 115VAC/1500W
	320°C		
	230VAC/1200W 115VAC/1200W		230VAC/1500W 115VAC/1500W
Electrical connections	Terminals max. 4mm^2, 2x PG13,5 cable gland		
Electrical equipment standard	EN 61010, EN 60519-1		
Mounting flange	DN65 PN6b, SS316 other connections optional or on request		
Over all dimensions	430 x 264 x 436mm		430 x 264 x 636mm
Weight	18 kg	18 kg	26 kg

ΔP at flow of:	100	200	500	1000	1500	Nl/h
ΔP with new filter element 2µ, 150mm	0,009	0,013	0,025	0,055	0,090	bar
ΔP with new filter element 5µ, 180mm	0,005	0,010	0,018	0,030	0,050	bar
ΔP with new filter element 5µ, 500mm	0,002	0,004	0,010	0,015	0,025	bar

ANKERSMID Sample probe

ASP 3xx/4xx/5xx Series

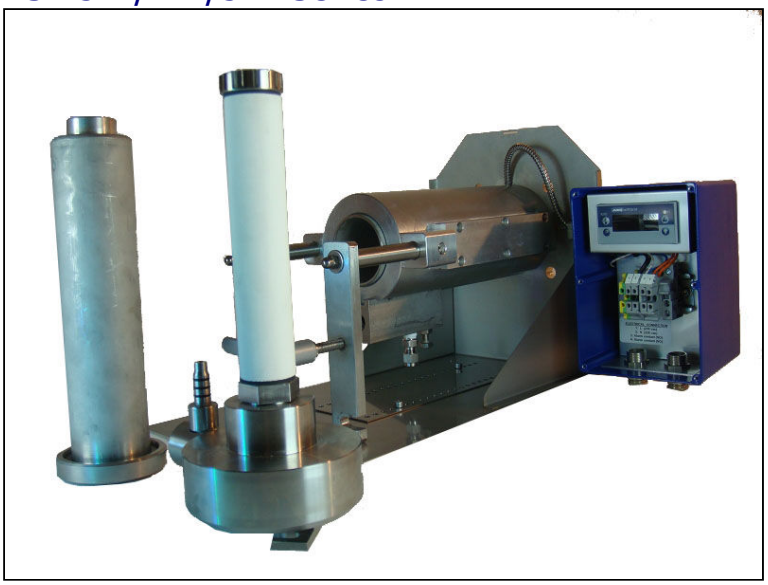
Dimensions



ANKERSMID Sample probe

ASP 3xx/4xx/5xx Series

Performance

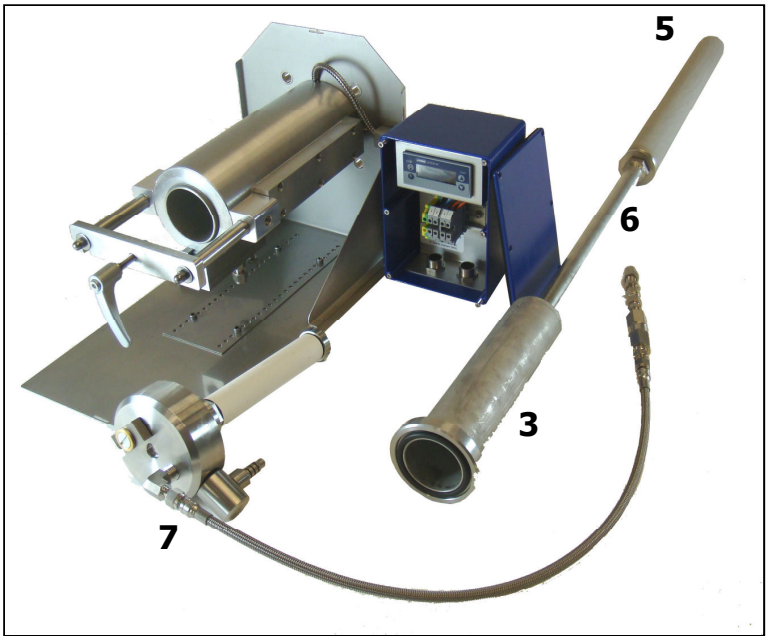


1 Sample Probe type ASP 300

2 Junction box with digital temperature controller

3 Retractable inner probe body (SS316)

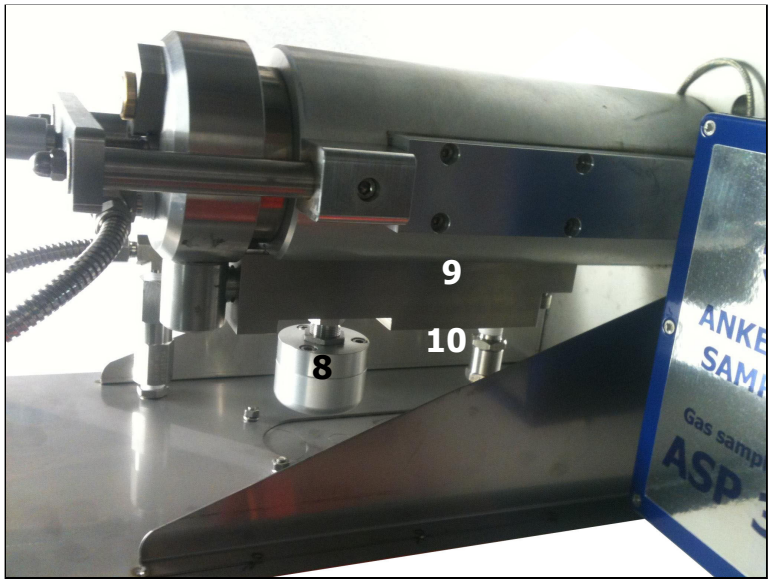
4 Probe lid with mounted external filter element type AUF 015 (150mm, 2µm, ceramics)



5 Pre-filter type ATF 050 (500mm, 2µm, SS316)

6 Extension tube type AET 050 (500mm, SS316)

7 Probe lid with optional back-flush valve type ASP 124 and connecting metal tube



8 Optional pneumatic isolation valve type ASP 122 to shut-off the sample gas outlet, integrated in the slide connector (9) below the probe

9 Slide connector

10 Calibration gas relief valve type ASP 070

ANKERSMID sample probe

ASP 611/613/622 Series

* Pictures may vary

Application

The ASP gas sample probes are designed for continuous gas sampling in difficult processes with gases of high or low dust content, different temperatures and extreme humidity.

Description

Due to its modular design and various options, the Ankersmid heated sample probe filters cover the widest range of applications. In the heated filter body a filter element of 150mm length, suitable for most applications up to 1g dust/m³, is integrated. A 180mm long filter with an outer diameter of 40mm and made of stainless steel can be optionally used for applications up to 4g dust/m³; with the blow-back function dust loads of up to 10g/m³ can be handled. For even higher dust loads, a primary filter has to be positioned as pre-filter.
A significant advantage is that all filters are replaceable without dismounting the probe without using any tools and in the shortest possible time. Cleaning and exchanging of unheated sample tubes or preliminary top-filters can be affected by extracting the filter from the probe.
The probe temperature with Exd-temperature sensor type Pt100 is controlled by an ATEX-certified controller-limiter unit with temperature alarm.
The probe is delivered with valid ATEX-certificates for all electrical components.

The following features are offered for all probes:
• Test gas can be injected directly into the probe according to EN14181 (regulation for calibration of emission monitoring systems) that enables calibration gas feeding via the filter element of the gas sample probe.
• Test gas can be injected into the probe through a check valve directly to the sample outlet so that no calibration gas is lost to the stack.
• An isolation valve with pneumatic control shuts off the sample outlet from the internal filter area in case of blow-back.
• Cleaning of filter and the sample tube through a high-flow inlet ports so less maintenance is necessary in high dust load applications. This inlet can be controlled by pneumatic or electric valves, and also in combination with a volume chamber for high pressure flow.

- **Retractable inner probe body for easy changement of pre-filter and/or (unheated) sample tube without dismounting the probe**
- **Back-flush/calibration possibility as standard**
-
- **Test gas connection according to EN14181 for calibration/test gas feeding via filter element optional**
- **Very universal applicability**
- **Compact and modular design suited for most applications**
- **Universal support for heated sample line by pre-lasered cut-outs for M40-gland connection in the bottom plate and additional optional clamp**
- **Reduce operator exposure to safety risks**
- **Easy mounting**
- **Easy maintenance**
- **Patented construction**

ANKERSMID Sample probe

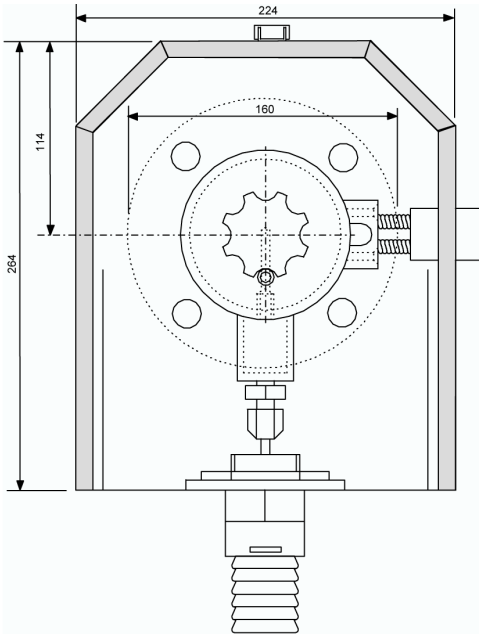
ASP 611/613/622 Series

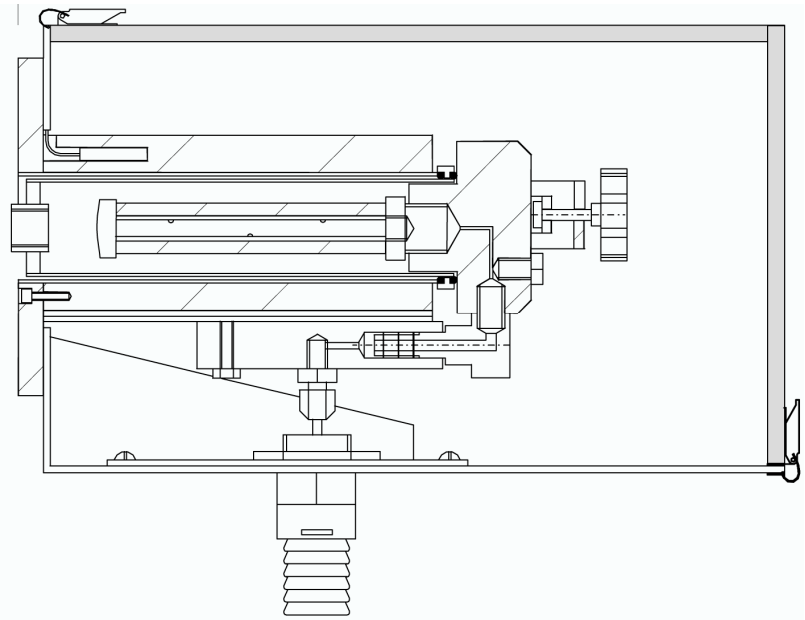
Technical data

Gas Sample Probe Version	ASP 611	ASP 613	ASP 622
Integrated filter length	150mm		
Integrated back flush	optional		
Protective cover	yes		
Electrical Terminal box	IP54		
Gas wetted Materials	Stainless steel 316, ceramics		
Sealing materials	FPM Viton®		
Max. dust loading	1g/m³ (with back purge: 10g/m³)		
Max. sample temperature	+180°C		
Time before ready for use	Approx. 45 minutes		
Sample pressure max.	0,5-6 bar abs.		
Ambient temperature	-20°C to +65°C		
Filter chamber volume	300cm³		
Filter element porosity	2µm		
Filter element material	Ceramics		
Thermostatic Control	0-180°C, Exd-Pt100		
Electronic Controller	Electronic controller		
Mounting area of controller	inside Ex-zone 1, 2, 21, 22	outside Ex-zone	
Temperature alarm contact	<120°C, 1 change-over contact, 230V 1,5AAC, 0,5ADC		
Sample gas outlet	¼" NPT f		
Test gas connection (option)	¼" NPT f		
Back flush connection (Option)	¼" NPT f		
Power supply	230VAC/400W (standard), 115VAC/400W		
Electrical connections	3 x 1,5mm²		
Electrical equipment standard	EN60529		
Marking	Ex II2G EEx d e ib IIC T3		Ex II3G, Ex nR IIB T3
Mounting flange	DN65 PN6B, SS316 other connections optional or on request		
Weight	±20 kg		
Overall dimensions	~ 440 x 470 x 360mm (w x h x d)		

ANKERSMID Sample probe
ASP 611/613/622 Series

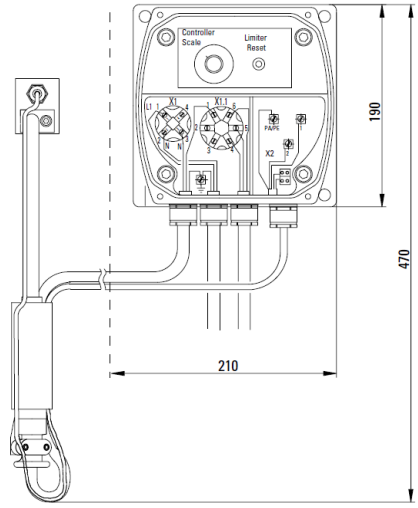
Dimensions



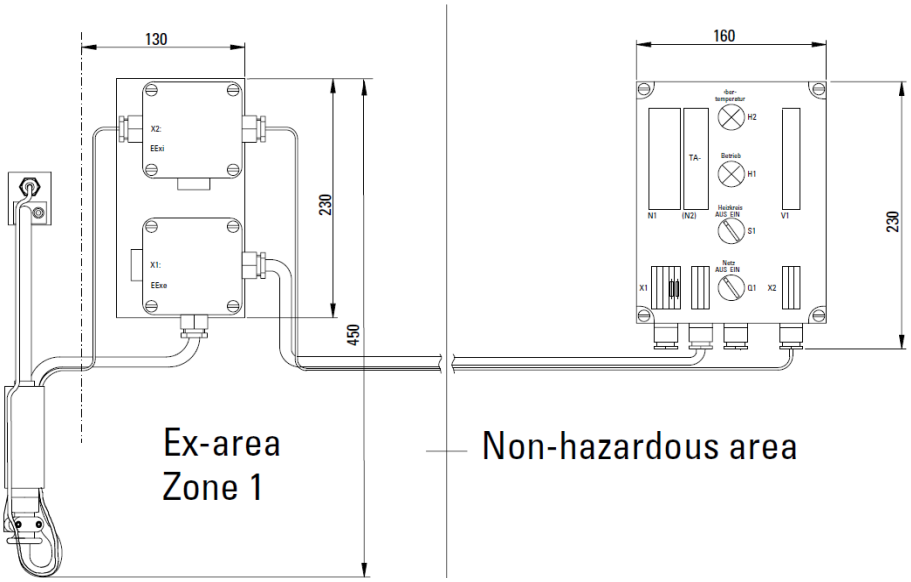


ANKERSMID Sample probe
ASP 611/613 Series

Controller



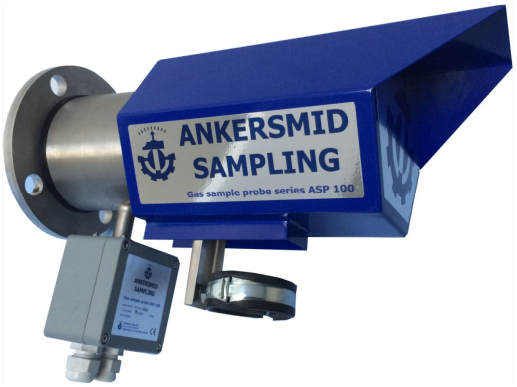
Sample probe type ASP 611 controller



Sample probe type ASP 613 controller

ANKERSMID Sample probe

ASP 1xx Series



* Picture may vary

Application

The ASP stationary gas sample probe is especially designed for standard process and ambient conditions, safe and reliable operation as well as easy maintenance at a wide range of applications is required. The innovative construction and design guarantees a perfect operation for gas measurements.

Description

Due to various acid dew points at various applications the probe is heated up to 180°C.
A filter element of 150mm is integrated, suitable for most applications up to 1g dust/m³. A significant advantage is that this filter is replaceable without dismounting the probe and without using any tools.
Due to its modular design and various options, the heated sample probe covers the widest range of applications.
With the filter element of 150mm length this probe is suitable for most applications up to 1g dust/m³; with the blow-back function dust loads of up to 10g/m³ can be handled.
Test gas can be injected directly into the probe through the calibration gas connection according to EN14181 (regulation for calibration of emission monitoring systems) that enables calibration gas feeding via the filter element of the gas sample probe. The use of the optional high-flow check valve type APP 200 is recommended.
The stationary gas sample probe series ASP is a perfect completion to the Ankersmid gas conditioning system series ASS 301/311. Both devices can easily be connected together by the Ankersmid heated sample line series AHL which guarantees a safe and reliable connection.
Using this heated line the probe's electrical power is then fed to the probe via the feed line integrated within the sample line.
To avoid cooling-down and condensation of sample gas in the extraction area, a heated sample probe tube series AST 0xx/1xx/2xx is available.

- **180°C operating temperature**
- **Integrated over-temperature safety switch-off**
- **Low-temperature alarm**
- **Back-flush/calibration possibility as standard**
- **Test gas connection according to EN14181 for calibration/test gas feeding via filter element availableas standard**
- **Universal mounting clamp for easy installation of heated lines**
- **Optional with portable carrying protection case with spare filter**
- **Very universal applicability**
- **Compact design suited for most stationary applications**
- **Full stainless steel design**
- **Easy handling**
- **Easy maintenance**

ANKERSMID Sample probe

ASP 1xx Series

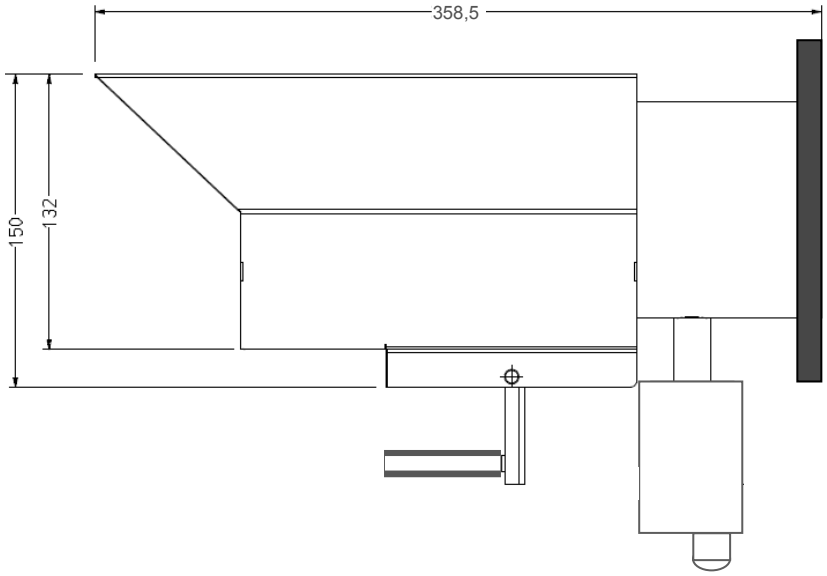
Technical data

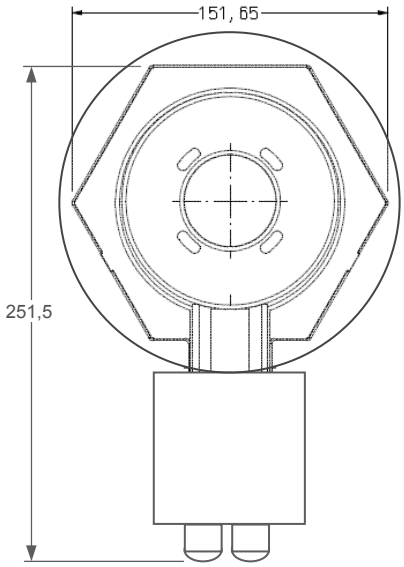
Gas Sample Probe Version	ASP 100
Integrated filter length	150mm
Integrated back-flush/calibration	Yes
Gas-wetted materials	Stainless steel 316
Sealing materials	Viton®
Max. dust loading	1g/m³
Max sample temperature	Depending on sample tube
Time before ready-for-use	Approx. 90min
Insitu pre-filter	Optional
Sample pressure max.	0,5-4 bar abs.
Ambient temperature	-20°C to +60°C
Filter element porosity, material	2µm, ceramics (other materials on request)
Operating temperature	0-180°C
Temperature control	Self-limiting heating cartridges with - Low-temperature alarm contact (NO) - Over-temperature safety switch-off
Temperature alarm contact rating	250V-10A AC (NO)
Sample gas outlet	¼"f NPT
Test gas/blowback connection	¼"f NPT
Mounting flange	DN65 PN6b
Sample gas inlet	G ¾"f
Power supply	230VAC/450W 115VAC/450W
Degree of Protection	IP54
Electrical connections	Junction box with 2 cable glands, Terminals (5 pcs.), max. 2,5mm^2
Dimensions	Approx. 260 x 150 x 230mm (l x w x h) with weather protection shield
Weight	Approx. 6 kg

ANKERSMID Sample probe

ASP 1xx Series

Dimensions





ANKERSMID Sample probe

ASP 320 DeNox heated with separator

*Picture may vary

Application

The **ASP** gas sample probe type ASP 320 is designed for continuous gas sampling especially at DeNOx-processes (SCR) where NH3 is added to the flue gas in order to reduce the NOX content.
This new sampling technique has also proved to be suitable for processes with very high pollutant concentrations.
In these applications, a significant problem is the measurement of NOX, SO2 and O2-concentrations.
With temperatures of <300°C, ammonium salts are produced due to the chemical reaction of NH3 and SO2/SO3 in the flue gas.
This salification blocks up filters and sample lines in a short time.
In order to prevent a blocking due to salification, the probe temperature is adjusted at 320°C.

Description

The probe type ASP 320 is based on the standard Ankersmid sample probe. Due to its modular and innovative design the Ankersmid heated sample probe cover also meet the special requirements of above mentioned application.
With the heated filter body a filter element of 150mm length, suitable for most applications up to 1g dust/m³, is integrated.
When the integrated port is used for back-flush higher dust loads can be handled. Additional a pre-filter can be mounted on top of the sample probe.
The filter element can be replaced without any tools and in the shortest possible time. At the sample gas outlet of the probe a special non-heated condensate vessel of glass is mounted. It is filled with glass balls to extend the surface for the salification. The salt deposits and will be washed out with the condensate. A peristaltic pump type ASR25 continuously removes the condensate with the solved ammonium salts. The temperature of the vessel is higher than the ambient temperature because of the hot gas stream. Therefore a loss of measured components is negligible because of warm condensate. In case of a DeNOx application with a small content of NH3 (normally only a few ppm) it is possible to analyse SO2 and NOX without great losses (only some ppm which normally can be neglected).
To determine the loss, it is possible to give test gas via the probe to the analyser(s). A measuring fault can be found and calibrated.
As an option the vessel can be heated as well to suppress chemical reactions of the measured component below a defined temperature.
At the sample outlet of the vessel a heated gas sample line series AHL can be connected.

- **Special probe behind DENOX (SCR)**
- **Heated up to +320°C**
- **No salt crystallization in the heated filter part**
- **Condensate vessel in the gas outlet with glass ball filling to extend the reaction surface**
- **Reduce operator exposure to safety risks**
- **Integrated peristaltic pump**
- **Easy mounting**
- **Easy maintenance**
- **Patented construction**

ANKERSMID Sample probe

ASP 320 DeNox heated with separator

Technical data

Version	ASP 30X
Integrated filter Length	150mm
Integrated back-flush	available
Protective cover	yes
Degree of protection	IP55 EN60529
Materials of gas wetted parts	Stainless steel 316
Sealing materials	Graphite/Kalrez®
Insitu probe tube/pre-filter	Optional 180mm or 500mm, stainless steel, 5µm
Sample pressure max.	0,5-6 bar abs.
Ambient temperature	-20°C to +65°C
Filter chamber volume	300cm^3
Filter element, porosity	Ceramic, 2µm
Separator vessel	Body: Duran® Glass, filling: glass balls
Separator vessel volume	500ml
Peristaltic pump	ASR25
Temperature control	0-320°C with thermo-couple
Electronic Controller	Digital programmable PID-controller, optional with RS485 Modbus
temperature alarm contact	Free programmable contact, rating: 250V, 3A~, Factory set at alarm point: ΔT 20°C
Sample gas outlet connection	1/4"f NPT
Test gas/back-flush connection	1/4"f NPT
Power supply	230VAC/1250W 115VAC/1250W
Electrical connections	Terminals max. 4mm^2, 2x PG13,5 cable gland
Electrical equipment standard	EN 61010, EN 60519-1
Mounting flange	DN65 PN6b, SS316 other connections optional or on request
Weight	Approx. 20 kg

ΔP at flow of:	100	200	500	1000	1500	Nl/h
ΔP with new filter element 2µ, 150mm	0,009	0,013	0,025	0,055	0,090	bar

ANKERSMID Portable sample probe

APP 1xx Series

* Pictures may vary

Application

The APP portable gas sample probe is especially designed for portable applications where easy handling, safe and reliable operation as well as easy maintenance at a wide range of conditions is required. The low weight and innovative design guarantees a perfect operation for mobile measurements.

Description

Due to various acid dew points at various applications the probe is heated up to 180°C.
A filter element of 150mm is integrated, suitable for most applications up to 1g dust/m³. A significant advantage is that this filter is replaceable without dismounting the probe.
With the filter element of 150mm length this probe is suitable for most applications up to 1g dust/m³; with the blow-back function dust loads of up to 10g/m³ can be handled.
Calibration gas can be injected directly into the probe through the calibration gas connection according to EN14181 (regulation for calibration of emission monitoring systems) that enables calibration gas feeding via the filter element of the gas sample probe. The use of the optional high-flow check valve type APP 200 is recommended.
The portable gas sample probe series APP is a perfect completion to the Ankersmid portable gas conditioning system series APS 303/313. Both devices can easily be connected together by the Ankersmid heated sample line type AHL205/025 with the incorporated innovative Quick-Lock System which guarantees a fast and reliable connection.
Using this heated line the probe's electrical power is then fed to the probe via the feed line integrated within the sample line.
To avoid cooling-down and condensation of sample gas in the extraction area, the heated sample probe tube type AST 301 is available.

- **+180°C operating temperature**
- **Integrated over-temperature safety switch-off**
- **Low-temperature alarm contact**
- **Test gas connection according to EN14181 for calibration/test gas feeding via filter element available as standard**
- **Back-flush port**
- **Spun glass cartridge for diesel generators, diesel exhaust or similar sooty applications**
- **Universal mounting clamp for heated line**
- **Optional Quick-Lock system for easy, fast and reliable connection of Ankersmid heated lines series AHL**
- **Very universal applicability**
- **Compact design suited for most portable applications**
- **Easy handling**
- **Easy maintenance**
- **Mounting eye on housing incl. chain (2m) for easy fixation**

ANKERSMID Portable sample probe

Technical data

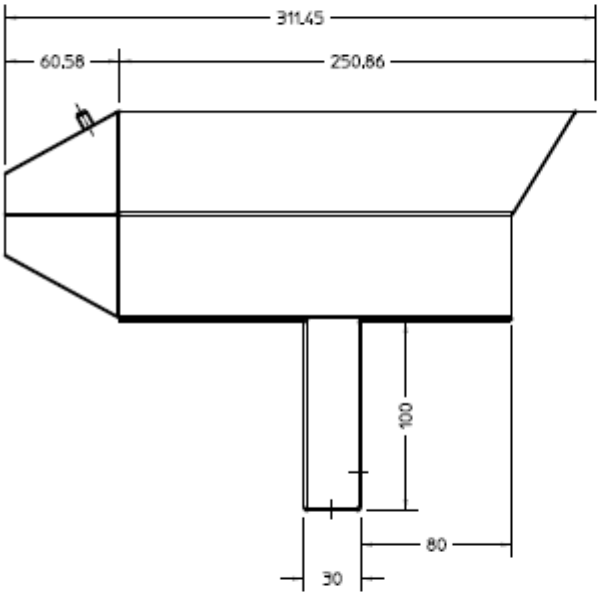
APP 1xx Series

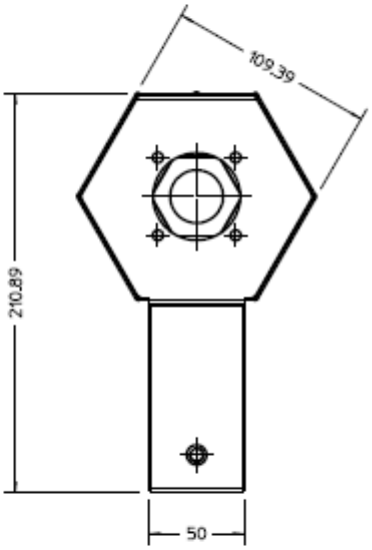
Gas Sample Probe Version	APP 100
Integrated filter length	150mm
Integrated back-flush/calibration	Yes
Gas-wetted materials	Stainless steel 316
Sealing materials	Viton®
Max. dust loading	1g/m³
Max. sample temperature	Depending on sample tube
Time before ready-for-use	Approx. 15-30min
Insitu pre-filter	Optional
Sample pressure max.	0,5-4 bar abs.
Ambient temperature	-20°C to +80°C
Filter element porosity, material	2µm, ceramics (other materials on request)
Operating temperature	0-180°C
Temperature control	Self-limiting heating cartridges with Power-on indication by red LED and ready-to-use indication by green LED
Safety features	Over-temperature safety switch-off
Sample gas outlet	¼"f NPT
Test gas/blowback connection	¼"f NPT
Sample gas inlet	G 3/8"f
Power supply	230VAC/450W 115VAC/450W
Degree of Protection	IP40
Electrical connections	Plug and socket connector 7-pin, with 4 meter connection cable
Dimensions	Approx. 330 x 125 x 220mm (l x w x h)
Weight	Approx. 2,5 kg

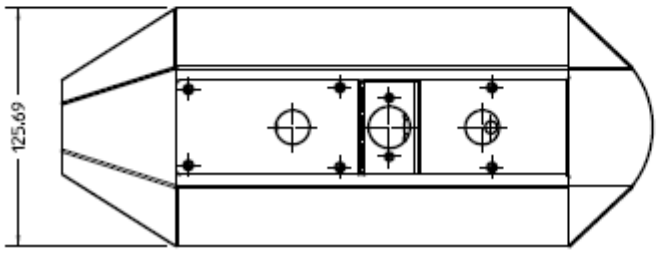
ANKERSMID Portable sample probe

APP 1xx Series

Dimensions







ANKERSMID Sample tubes - unheated

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

* Pictures may vary

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/m³, we advise fitting a pre-filter in combination with an extension tube.

Description

Ankersmid sample tubes are selected according to specific applications. Influencing process parameter are the gas composition, water vapure 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/m3**
- **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**

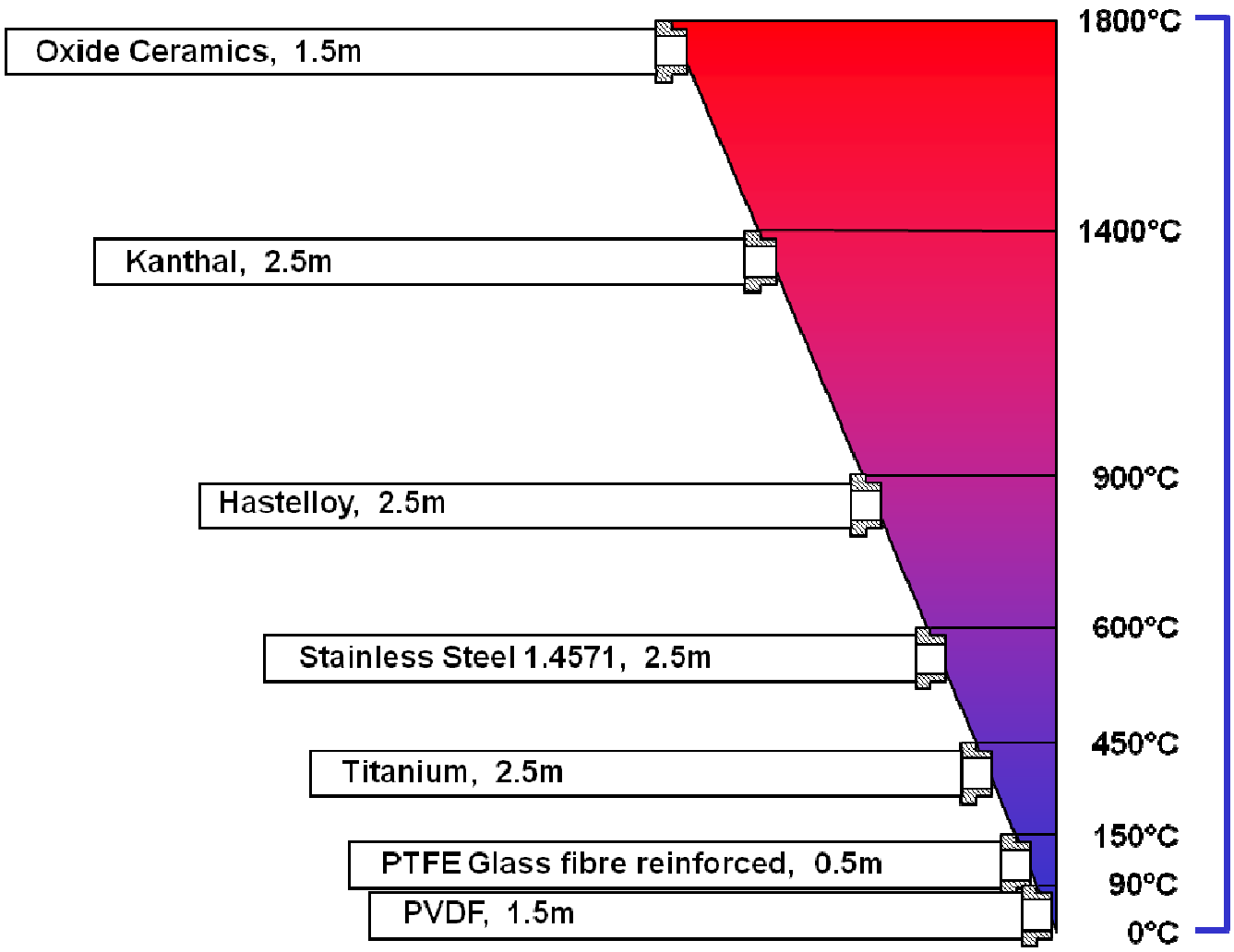
Additional sampling accessories

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 g/m³).

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.

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

Additional sampling accessories

For high dust loading:
Top-filter series ATF

ANKERSMID Sample tubes - heated

Technical data

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

Series AST Type	AST05x	AST10x	AST15x	AST20x
Temperature sensor & controller (additional part number)				
AST 001	Incorporated capillary temperature controller			
AST 002	Temperature sensor thermo-couple type J (Fe-CuNi)			
AST 004	Temperature sensor thermo-couple type J (Fe-CuNi), including integrated electronic controller with 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
Pre-filter	Optional			
Sample gas inlet connection	G3/4"i			
Dust loading	max. 2 g/m3			
Probe tube volume	200ml/m			
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 2.5mm² + 2.5mm²			
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 g/m³).

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.

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

Additional sampling accessories

For high dust loading:
Top-filter series ATF

ANKERSMID Sample tubes - heated

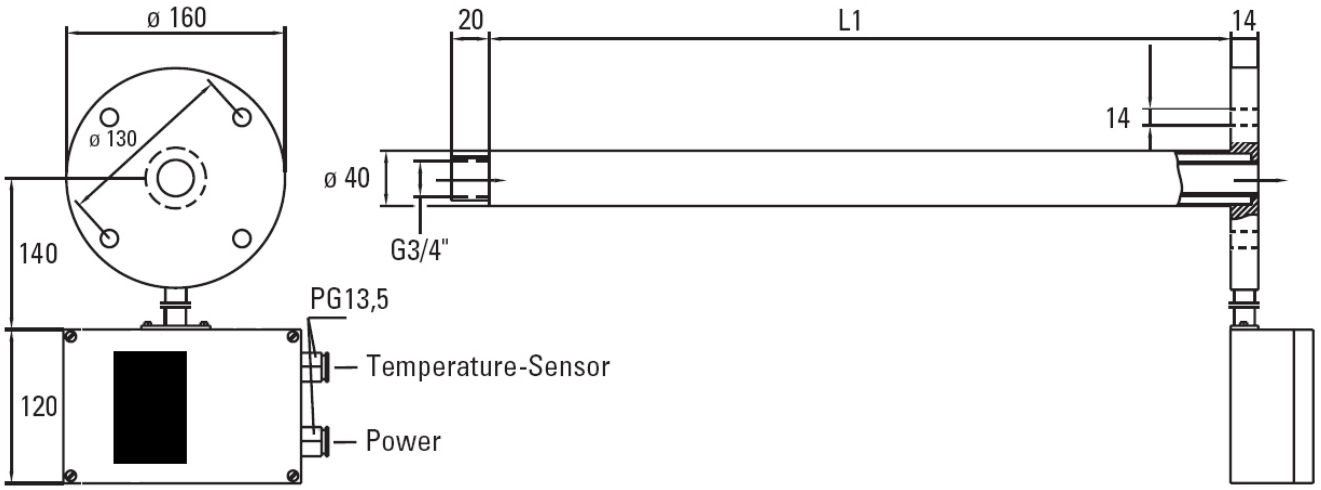
Technical data

AST 30x series – for portable heated sample probes

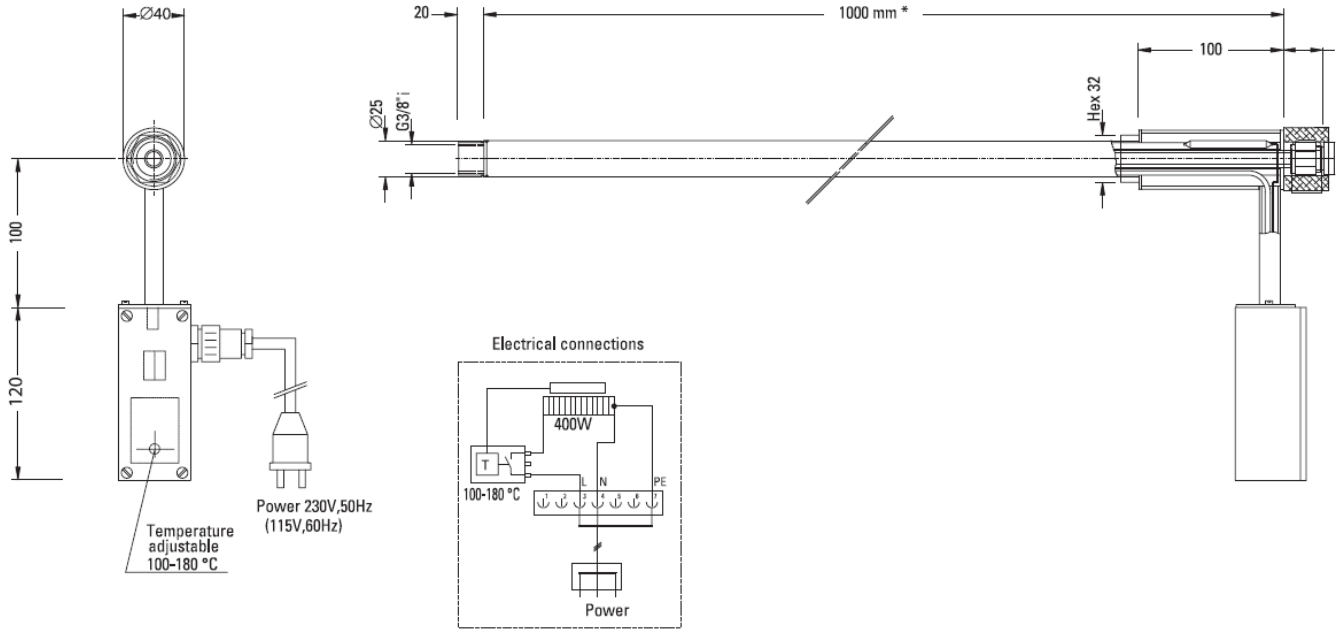
Series AST Type	AST 301
Temperature controller	Capillary switch controller
Probe tube length L1	1000mm (others on request)
Sample temperature max.	500°C
Operating temperature max.	200°C
Pre filter optional	Option
Sample gas inlet connection	G3/8"i
Dust loading	max. 2g/m3
Probe tube volume	20ml/m
Sample 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, 500W (115VAC, 500W on request)
Electrical connection	2 x 1.5mm² + 1.5mm²
Electrical standard	EN 61010, EN60519-1
Degree of protection	IP54 EN 60529
Outlet connection	G 3/8”m
Material of gas wetted parts	Stainless steel 316

ANKERSMID Sample tubes - heated
AST 05x/10x/15x/20x series

Dimensions



AST 30x series – for portable heated sample probes



ANKERSMID Top-Filter

ATF 18x/50x series

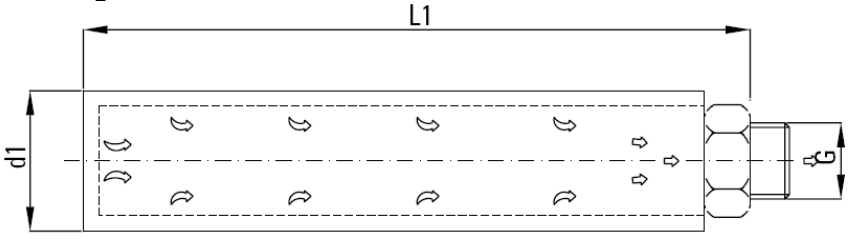
Application

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 g/m³).

Description

The large active surface of the Ankersmid top-filter guaranties 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 mountage 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 >2g/m3**
- **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/m³	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	¾"m
ATF 181	600°C	SS316	5	2 - 10	Yes	Yes	180	40	¾"m
ATF 050	600°C	SS316	5	> 10	No	Yes	500	40	¾"m
ATF 051	600°C	SS316	5	> 10	Yes	Yes	500	40	¾"m

ANKERSMID Heated lines

Self-limiting 40°C - 120°C

AHL 010, 011, 012
Fixed PTFE-tube

AHL 016, 017, 018
Interchangeable PTFE-tube

AHL 022, 023, 024
Fixed SS316-tube

* Examples

Application

This electrically heated sample lines series AHL are designed for connecting to all Ankersmid sample elements. The heated line ensures that the gas components in the sample stream remain above their dew point and thereby eliminates the risk of condensation. This is a safe way to transport the sample to a heated analyzer or the special Ankersmid coolers.
The electrically heated sample lines series AHL X are designed to transport sample gas through an explosive zone type 1 or 2, but not zones type 0.

Description

The heated sample lines are manufactured according to the clients specification and completely confectioned in the factory at a fixed length.
The heating element used in this type of heated line is an auto-regulated ribbon. The heated line is secured closely to the sample carrier tube, thus eliminating the occurrence of cold zones or spots in the heated line, and therefore also eliminating the incidence of potential blockage.
We offer a variety of standard lines, which can be fit with many options upon request.

See our price list for all available versions and options.

Compatible to ATEX Definition:

EX II 2G EExe ma IIC T3

- Protected against explosion group II
- 2G category (zone 1)
- EEx European standard
- e ensured as per DIN EN 60079-7
- ma ensured as per (moulding) DIN EN 60079-18
- IIC gas group (hydrogen)
- T3 temperature class up to 200°C

- **Completely manufactured "ready-to-use"**
- **ONE auto-regulated ribbon heater**
- **Never cold spots**
- **Tube DN 4/6, 6/8 or 8/10 mm**
  a) PTFE-tube fixed
  b) PTFE-tube interchangeable
  c) SS316-tube fixed
- **Available according to ATEX (AHLX)**

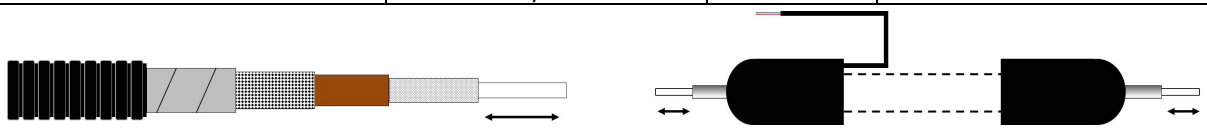
ANKERSMID Heated lines

Technical data

Self-limiting 40°C - 120°C

Operating temperature: +40°C @ 20°C ambient	Tube diameter	Line code (meter)	Beginning and end fitting (1x)
Tube PTFE fixed	DN 4/6mm	AHL 010	AHL 102
	DN 6/8mm	AHL 011	
	DN 8/10mm	AHL 012	

Tube PTFE Interchangeable	DN 4/6mm	AHL 016	AHL 108
	DN 6/8mm	AHL 017	
	DN 8/10mm	AHL 018	



Tube SS316 fixed	DN 4/6mm	AHL 022	AHL 124
	DN 6/8mm	AHL 023	
	DN 8/10mm	AHL 024	

Operating temperature: +80°C @ 20°C ambient	Additional p/n for all diameter	AHL M025	-
Operating temperature: +120°C @ 20°C ambient	Additional p/n for all diameter	AHL M060	-
Heated sample line in ATEX design	Additional p/n for lines type AHL 010-012 016-018 & 022-024	AHLX 01x AHLX 02x	AHLX 1xx

DN	DN 4/6	DN 6/8	DN 8/10
Outside diameter of inner tube	6mm	8mm	10mm
Corrugated tube outside diameter	42.5mm (Standard) / 42.5mm (ATEX)		
Hard caps outside diameter	47mm (Standard) / 47mm (ATEX)		
Power consumption at +40°C	9W/m	9W/m	9W/m
Power consumption at +80°C	46W/m	46W/m	46W/m
Power consumption at +120°C	63W/m	63W/m	63W/m
Length of connection stud	25mm		
Min. bending radius	270mm		
Max. length manufactured	78m		

Dimension and minimum bending radius (tolerance: length: 2%, diameter: 5%)

ANKERSMID Heated lines

Regulated 200°C / 250°C

AHL 030, 031, 032
Fixed PTFE-tube

AHL 033, 034, 035
Interchangeable PTFE-tube

AHL 036, 037, 038
Fixed SS316-tube

* Examples

Application

This electrically heated sample lines series AHL are designed for connecting to all Ankersmid sample elements. The heated line ensures that the gas components in the sample stream remain above their dew point and thereby eliminates the risk of condensation. This is a safe way to transport the sample to a heated analyzer or the special Ankersmid coolers.
The electrically heated sample lines series AHL X are designed to transport sample gas through an explosive zone type 1 or 2, but not zones type 0.

Description

The heated sample lines are manufactured according to the client's specification and completely confectioned in the factory at a fixed length.
The sample line temperature is to be controlled by a Pt100 temperature controller. The heater used in this type is ONE serial resistance, twisted around the tube. Due to this construction we eliminate the occurrence of cold zones or spots in the heated line, where a potential blockage could occur. We offer a variety of standard lines, which can be fit with many options upon request.

See our price list for all available versions and options.

Compatible to ATEX Definition:

EX II 2G EExe ma IIC T3

- Protected against explosion group II
- 2G category (zone 1)
- EEx European standard
- e ensured as per DIN EN 60079-7
- ma ensured as per (moulding) DIN EN 60079-18
- IIC gas group (hydrogen)
- T3 temperature class up to 200°C

- **Completely manufactured "ready-to-use"**
- **ONE serial heater**
- **Never cold spots**
- **Tube DN 4/6, 6/8 or 8/10 mm**
  a) PTFE-tube fixed
  b) PTFE-tube interchangeable
  c) SS316-tube fixed
- **Available according to ATEX (AHLX)**
- **Integrated PT100 (Others on request)**
- **External temperature controller required**

ANKERSMID Heated lines

Regulated 200°C - 250°C

Technical data

Operating temperature: +200°C @ 20°C ambient	Tube diameter	Line code (meter)	Beginning and end fitting (1x)
Tube PTFE fixed	DN 4/6mm	AHL 030	AHL 302
	DN 6/8mm	AHL 031	
	DN 8/10mm	AHL 032	

Tube PTFE Interchangeable	DN 4/6mm	AHL 033	AHL 305
	DN 6/8mm	AHL 034	
	DN 8/10mm	AHL 035	

Tube SS316 fixed	DN 4/6mm	AHL 036	AHL 308
	DN 6/8mm	AHL 037	
	DN 8/10mm	AHL 038	

Operating temperature: +250°C @ 20°C ambient	Additional p/n for all diameter	AHL H250	-
Heated sample line in ATEX design	Additional p/n for lines type 030-038	AHLX 03x	AHLX 30x

DN	DN 4/6	DN 6/8	DN 8/10
Outside diameter of inner tube	6mm	8mm	10mm
Corrugated tube outside diameter	42.5mm (Standard) / 42.5mm (ATEX)		
Hard caps outside diameter	47mm (Standard) / 47mm (ATEX)		
Power consumption at 200°C (fixed inner tube)	100W/m	100W/m	100W/m
Power consumption at 200°C (interchangeable inner tube)	100W/m	125W/m	125W/m
Power consumption at 250°C (fixed inner tube)	125W/m	125W/m	125W/m
Power consumption at 250°C (interchangeable inner type)	125W/m	150W/m	150W/m
Length of connection stud	25mm		
Min. bending radius	270mm		
Max. length manufactured (with 1 heating circuit)	46m at 230VAC (25m at 115VAC)		

Dimension and minimum bending radius (tolerance: length: 2%, diameter: 5%)

ANKERSMID Temperature controller

ATC 510/520 for wall-mounting

* Picture may vary

Application

The ATC 510/520 is a modern microprocessor-based (PID) control device featuring easy handling and a digital display. The clear design of the operator control level facilitates fast and reliable adjustment.
The plug-in device, which is equipped with a grounding-type plug and a multi-pole plug for the consumer unit, can be put into operation immediately.

Description

The electronic temperature controller is mounted in a wall-mounting housing. The temperature sensor input is developed for multiple sensor inputs (standard PT100).
The desired operating temperature can be set by using the respective control keys.
The actual value is indicated via 4-digit display and the controller function via LED.

- **In wall-mounting enclosure**
- **Relay contact 10A/20A switching capacity**
- **4-digit LCD indication**
- **Plug-in device**
- **Grounding-type plug for mains connection**
- **7-pin/5-pin Multipole plug output**
- **Quick and easy to operate**

ANKERSMID Temperature controller

Technical data

ATC 510/520 for wall-mounting

Version	ATC 510	ATC 520
Temperature sensor input	PT100 (standard) Pt500, Pt1000, Ni100, PTC1K, NTC10K (B 3435K) thermo-couple type J, K, S, R	
Switching capacity	Nominal 2300W (10A)	Nominal 4600W (20A)
Functions	PID-controller	
Power supply	24-230VAC	
Housing version	Wall-mounting housing	
International protection type	IP 54	
Housing material	Polycarbonate	
Dimensions in mm	151 x 125 x 90 (w x h x d)	
Consumer unit & sensor connection	7-pin multi-pole socket, incl. 2m power cable with grounding-type plug	5-pin multi-pole socket, incl. 2m power cable with grounding-type plug
Indications	LCD-display with 4-digit temperature display in °C (normal operation) as well as display of parameters and entry values during operator mode.	

ANKERSMID Temperature controller

ATC 506/508 for wall-mounting

* Picture may vary

Application

The ATC 506/508 is a modern microprocessor-based (PID) control device. The innovative design facilitates an easy operation.
The plug-in device, which is equipped with a grounding-type plug and a multi-pole plug for the consumer unit, can be put into operation immediately.

Description

The electronic temperature controller TC 506/508 is especially designed for direct conjunction with heated lines series AHLE but also compatible to any other heated sample line with 7-pin multi-pole socket. The internal electronic is suitable for multiple sensor inputs (factory setting PT100).
The desired operating temperature is pre-programmed (factory setting +180°C) but can be adjusted via software to any other set-point (0-200°C).
The actual operation mode is indicated via multi-colour LED.

- **Compact design**
- **Relay contact 16A switching capacity**
- **Multi-colour LED indication**
- **Plug-in device**
- **Grounding-type plug for mains connection**
- **7-pin Multipole plug output**
- **Quick and easy to operate**

ANKERSMID Temperature controller

Technical data

ATC 506/508 for wall-mounting

Version	ATC 506	ATC 508
Temperature sensor input	Pt100 (factory setting), Pt1000, thermo-couple type J, K	
Switching capacity	Nominal 1300W (6A) triac	Nominal 700W (6A) triac
Function	PID-control algorithm	
Accuracy class	1	
Power supply	230V/50Hz	115V/60Hz
Housing version	Wall-mounting housing	
International protection type	IP 65	
Housing material	Polycarbonate, Acryl	
Dimensions	Length: 150mm, diameter: 30mm	
Consumer unit & sensor connection	7-pin multi-pole socket, incl. 1.5m power cable with grounding-type plug	
Multi-color status LED indication	Red = heating green = temperature reached red flashing = sensor error/sensor damage/sensor short circuit	

ANKERSMID Temperature controller

ATC 600 for rail-mounting

* Picture may vary

Application

The ATC 600 two-step electronic temperature controller was specifically designed for the control of different heated components.

Description

The two-step electronic temperature controller is mounted in a rail mounting housing. The temperature sensor input is developed for a two-wire PT100 sensor and is equipped with a protection against short circuit and sensor breach.

The desired operating temperature can be set by using the respective control keys. Temperatures can be displayed in degrees Celsius or degrees Fahrenheit. The actual value is indicated via three-digit display and the controller function via LED.

- **In rail mounting enclosure**
- **Relay contact 10A switching capacity**
- **Three-digit LCD indication**
- **Indication selectable for °C or °F**
- **Protected parameter level**
- **Data storage in case of power failure**

ANKERSMID Temperature controller — Technical data

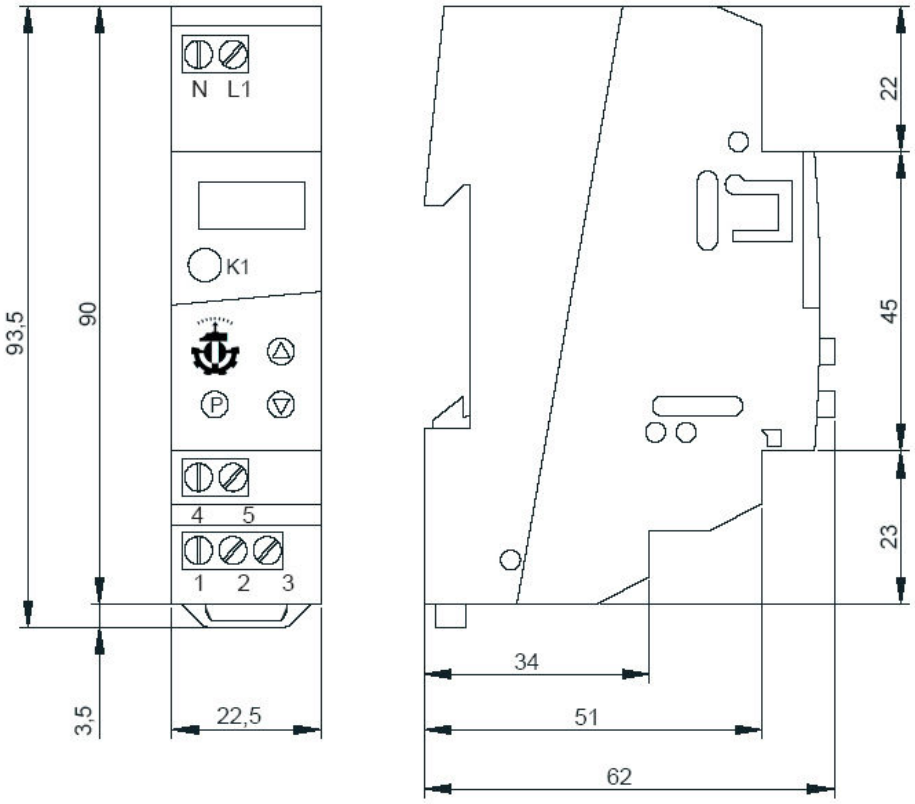
ATC 600 for rail-mounting

Version	ATC 600
Temperature control range	adjustable in range -200°C to +600°C, adjusted at works to 0°C to +200°C
Switching capacity	250VAC/10A resistive load with relay contact
Control mode	On-off controller
Temperature sensor input	PT100; 2-conductor with sensor breakage status
Ambient temperature	0°C to +55°C, for close-to-close mounting 0°C - 40°C
Storage temperature	-40°C to +70°C
Switching hysteresis	adjusted at works to 5°C
Accuracy of control	± 0,1% of final value
Electrical connection	terminals 2,5 mm2
Power supply/ Power consumption	230V +/-10%, 50/60Hz, 2VA
Housing version	Rail-mounting housing EN 50022
International protection type	IP 20 EN60529
Housing material	Polycarbonate
Dimensions in mm	90 (H) x 22,5 (W) x 62(D)
Weight	110gr.
Climatic resistance	≤ 75% rel. humidity average/year without occurrence of dew
Electrical security	DIN EN 61010 part1 excess voltage category III, contamination level 2
Electromagnetic compatibility	EN61326
Interference transmission	class B
Resistance to jamming	industrial requirement
Indications	actual value, 3-digit LCD, switching state relay via LED

ANKERSMID Temperature controller

ATC 600 for rail-mounting

Dimensions



Terminals:

L1 / N	: Power IN
4 / 5	: PT100 IN
1	: Contact OUT NC
2	: Contact OUT MC
3	: Contact OUT NO

ANKERSMID Temperature controller

ATC 900 ATEX for wall-mounting

* Picture may vary

Application

The ATC 900 ATEX is a modern Comprehensive solution for controlling and limiting the temperature in areas with potentially explosive gas or dust atmospheres according to zones 1/2 and 21/22, incl. power selector function.
Appropriate for ATEX heated lines and heated hoses.

Description

The electronic temperature controller-limiter unit is mounted in a wall-mounting housing.
The temperature sensor input is developed for 2x PT100.
The desired operating temperature can be set by using the respective control keys.
The actual value is indicated via three-digit display and the controller function via LED.

- **In wall-mounting enclosure**
- **Relay contact 25A switching capacity**
- **Approved to zones 1/2 (gas) and zone 21/22 (dust)**
- **Approved to explosion groups IIC hydrogene and IIIC static dust**
- **Appropriate for temperature classes T1, T2, T3, T4, T5, T6**
- **Approval / certified to latest standards**
- **Complete documentation**

ANKERSMID Temperature controller

Technical data

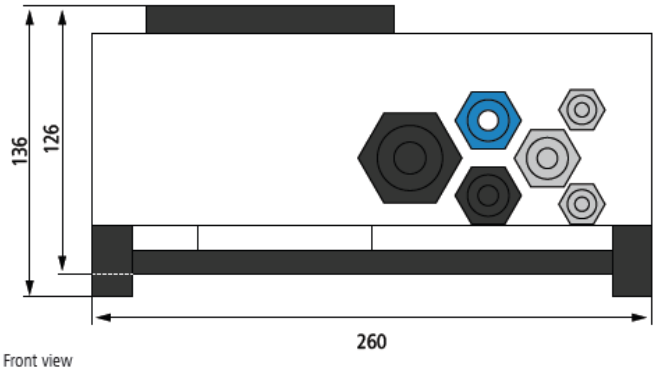
ATC 900 ATEX for wall-mounting

Version	ATC 900 ATEX
Temperature sensor input	PT100 DIN resistance thermometer
Switching capacity	Electronic solid-state relay with 25 A nominal current
Measuring circuit: intrinsically safe	[Ex ib] IIC Uo=6,3 V; Io=22 mA; Po=35 mW max. outer capacitance 1,5 µF max. outer inductance 10 mH [Ex ib] IIB Uo = 6,3 V, Io = 22 mA; Po=35 mW max. outer capacitance 8,2 µF max. outer inductance 10 mH
Ex-marking	Ⓔx II 2 G Ex e ib [ib Gb] mb IIC T4 Gb Ⓔx II 2 D Ex tb IIIC IP6X T90°C Db
Power supply	230VAC (-15% to +10%); 50-60Hz
External fuse	25 A automatic cut out, Type A, B, C (Siemens), or Z, B, C (ABB)
Measuring range	0 … 450°C
Power input	≤ 11 VA (without load)
Housing version	Wall-mounting housing
International protection type	IP 64 according to DIN EN 60529
Housing material	Aluminum
Dimensions in mm	260 x 160 x 135 (w x h x d)
Weight	6 Kg
Ambient temperature	-20 °C … +40 °C
Profile connection clamps	Mains input 0,5..6 mm² (≤ 4 mm² with ferrules) Load output 0,5..6 mm² (≤ 4 mm² with ferrules) Sensors 0,2..4 mm² (≤ 2,5 mm² with ferrules) Reset/signal. 0,2..4 mm² (≤ 2,5 mm² with ferrules)
Excess temperature protection	Integrated temperature switch (cut-off temperature approx. 90 °C)

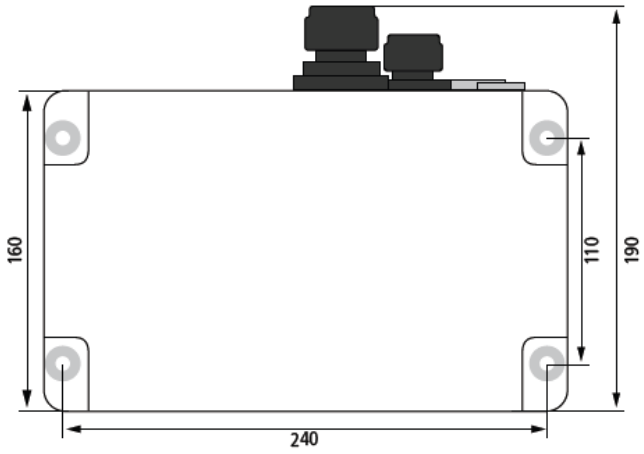
ANKERSMID Temperature controller

ATC 900 ATEX for wall-mounting

Dimensions



Front view



Back view and drilling template

ANKERSMID Compressor cooler

ACC 1xx neo Series

Picture: ACC 1xx/2xx

Application

Ankersmid Compressor Coolers are used to lower the dew point of humid gas to avoid condensate entering into the gas analyser.
This unique micro-processor controlled compressor cooler has been designed with a powerful dew point stabiliser. The dew point is set at 4°C but can be changed at any value between 1 and 15°C.
A good and stable gas dew point avoids cross-interference if the analyser is sensitive to H_2O.

Description

The ACC cooler offers precision, safety and long-term stability for extractive analytics. The very low gas dissolution rate is attained owing to the new cooler technology (Patents applied). Both the permanent separation of the condensate from the gas phase, as well as the shorter contact time of the gas in the system, plays important roles in reducing gas dissolution rates.
The new cooler incorporates an advanced structural design with housing suitable for both wall-mounting (standard) and 19"-racks by using optional brackets. The coolers can be integrated into the analysis cabinet without empty space requirements at the side for a cooling air outlet.
The design enables 1 or 2 heat exchangers to be incorporated either at the factory or at a later time, without any problem. The exchangers can be connected in series or parallel following customer requirements.
An electronic system monitors the dew point and controls the integrated fan.
A temperature alarm output is wired to the terminal block incorporated of the cooler housing for a safe connection without disassembling the cooler.

Available for 230VAC and 115VAC power supply.

The ACC cooler is designed especially for:
- Power Plants
- Waste Incinerators
- Cement Manufacturing
- Chemical Production Plants
- Gas Production Plants
- Glass manufacturing
- Timber Processing
- Food Processing

- **Provide clean dry sample gases to extractive analysers in continuous emission monitoring, process control and engine testing applications**
- **Universal cooler housing for wall-mounting (standard) and 19”-rack version by brackets**
- **Optimise industrial burning processes**
- **Continuously dehumidify gas sample streams**
- **Rapidly separate condensable liquids with a very low dissolution rate**
- **Demountable heat exchanger PFA®-coated**

ANKERSMID Compressor cooler

ACC 1xx neo Series

Technical data

Model ACC	1x1 neo	1x2 neo
Number of heat exchanger	1	2
Housing version	Wall-mount (standard) / 19”-rack (with optional brackets)	
Housing color	RAL 7035 (light-grey)	
Dimensions (W x H x D)	443,5 x 220 x 270mm (wall-mount) / 491,5 x 220 x 270mm (19”-rack)	
Weight (approximately)	18 kg	
Operation data		
Gas inlet dew-point	Max. 65°C*	
Gas inlet temperature	Max. 190°C*	
Gas outlet temperature	+1°C ..... +15°C, factory setting: +4°C	
Stability	0,1°C	
Ambient temperature	+5°C to 45°C	
General electrical data		
Mains connection	Plug	
Alarm contact	Free programmable switch-over contact 1NO/1NC, rating: 250V, 16A AC	
Alarm set points	< +2°C / > +10°C	
Protection class	IP20 EN 60529 / EN 61010	
Power supply	230V/50Hz (standard), 115V/60Hz	
Power consumption	95W (steady-state)	
Electrical protection	Fuse F1At (230VAC), F2At (115VAC)	
Total cooling capacity	Max. 445BTU/h ≈ 470kJ/h	
Coolant	R134a	

Model ACC	101	102
Power supply	230VAC, 50/60 Hz	

Model ACC	111	112
Power supply	115VAC, 50/60 Hz	

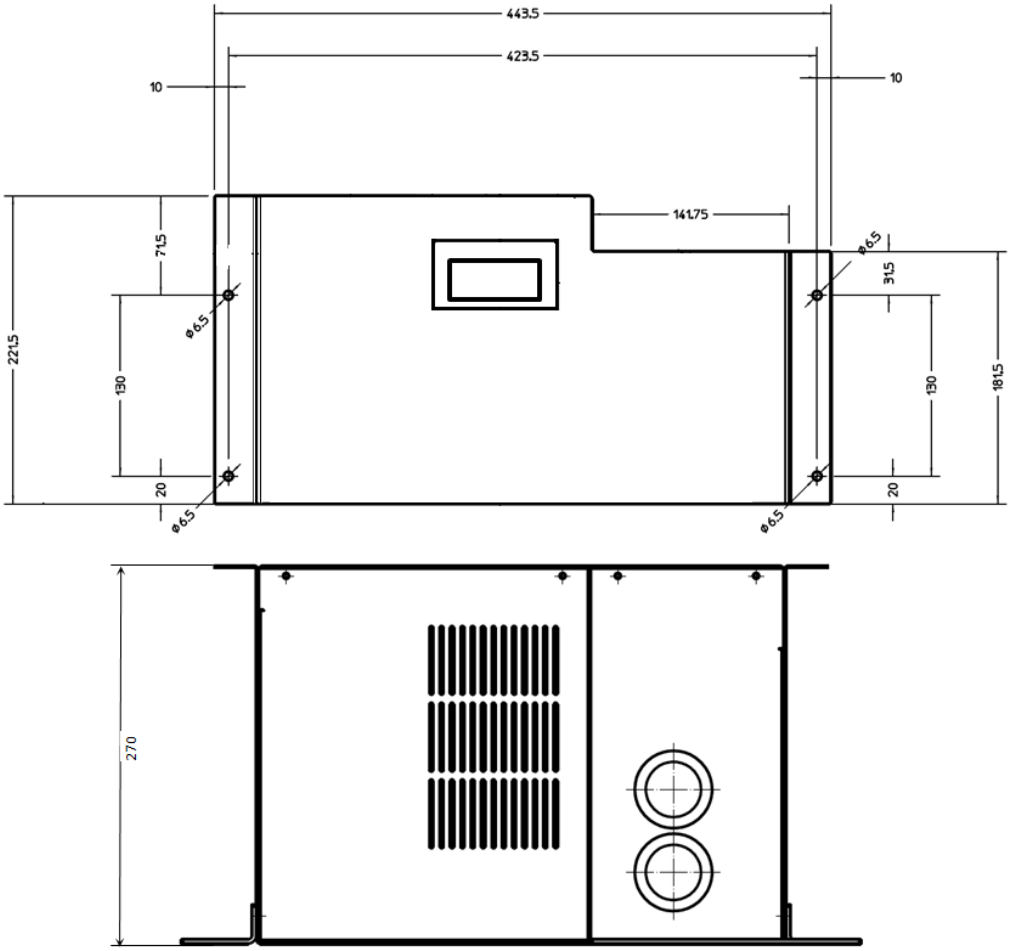
Data per heat exchanger	
Gas flow	Max. 200l/h*
Material of exchanger body	PFA®-coated
Material of exchanger head	PFA®-coated
Sealing	Viton®
Maximum pressure	10 bar a
Pressure drop	2mbar at 200l/h
Dead volume	35ml
Sample gas inlet	1x 1/4”f NPT
Sample gas outlet	1x 1/4”f NPT
Condensate outlet (HE)	1x 3/8”f NPT
Condensate outlet (pump)	PVDF DN4/6

Maximum values in technical data’s must be rated in consideration of total cooling capacity at 25°C ambient temperature and 5°C outlet dew point

PTFE = Polytetrafluoroethylene (Teflon®)
FFPM = Perfluorelastomer (Kalrez®)
PVDF = Polyvinylidenfluoride
PPS = Polypropylenesulphide (Ryton®)

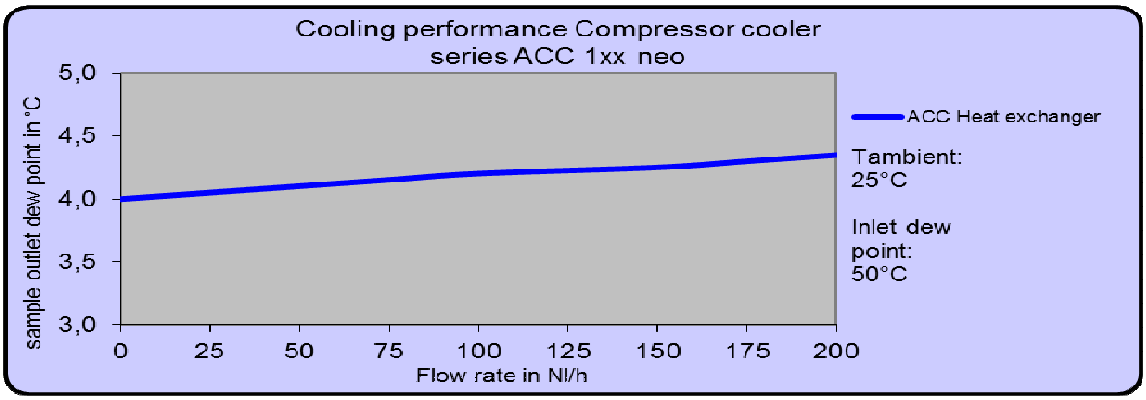
ANKERSMID Compressor cooler
ACC 1xx neo Series

Dimensions



ANKERSMID Compressor cooler
ACC 1xx neo Series

Performance



ANKERSMID Compressor cooler

ACC 4xx neo Series

* Pictures may vary

Application

Ankersmid Compressor Coolers are used to lower the dew point of humid gas to avoid condensate entering into the gas analyser.
This unique micro-processor controlled compressor cooler has been designed with a powerful dew point stabiliser. The dew point is set at 4°C but can be changed at any value between 1 and 15°C.
A good and stable gas dew point avoids cross-interference if the analyser is sensitive to H_2O.

Description

The ACC cooler offers precision, safety and long-term stability for extractive analytics. The very low gas dissolution rate is attained owing to the new cooler technology (Patents applied). Both the permanent separation of the condensate from the gas phase, as well as the shorter contact time of the gas in the system, plays important roles in reducing gas dissolution rates.
The new cooler incorporates an advanced structural design with housing suitable for both wall-mounting and 19"-racks. The coolers can be integrated into the analysis cabinet without empty space requirements at the side for a cooling air outlet.
The new design enables up to 4 heat exchangers and peristaltic pumps to be incorporated either at the factory or at a later time, without any problem. The exchangers and pumps can be connected in series or parallel following customer requirements.
An electronic system not only monitors the dew point, but also the ambient temperature. The integrated fan is cooling air temperature dependent controlled.
A temperature alarm output is wired to the terminal block incorporated of the cooler housing for a safe connection without disassembling the cooler.

Available for 230VAC and 115VAC power supply.

The ACC cooler is designed especially for:
- Power Plants
- Waste Incinerators
- Cement Manufacturing
- Chemical Production Plants
- Gas Production Plants
- Glass manufacturing
- Timber Processing
- Food Processing

- **Provide clean dry sample gases to extractive analysers in continuous emission monitoring, process control and engine testing applications**
- **Universal cooler housing for wall-mounting and 19"-rack version by multifunctional assembly brackets**
- **Optimise industrial burning processes**
- **Continuously dehumidify gas sample streams**
- **Rapidly separate condensable liquids with a very low dissolution rate**
- **Demountable heat exchanger PFA®-coated**
- **Various options like flow meter and front panel filter to be incorporated into the cooler housing**
- **Peristaltic pump for each heat exchanger incorporated as standard**

ANKERSMID Compressor cooler

ACC 4xx neo Series

Technical data

Model ACC	4x1 neo	4x2 neo	4x3 neo	4x4 neo
Number of heat exchanger	1	2	3	4
Housing version	Wall-mount / 19"-rack			
Housing color	RAL 7035			
Dimensions (HxLxD)	310 x 449 x 320mm			
Weight (approximately)	32 kg			

Data per heat exchanger	
Gas flow	Max. 200l/h*
Material of exchanger body	PFA®-coated
Material of exchanger head	PFA®-coated
Sealing	Viton®
Maximum pressure	10 bar a
Pressure drop	2mbar at 200l/h
Dead volume	35ml
Sample gas inlet	1x 1/4"f NPT
Sample gas outlet	1x 1/4"f NPT
Condensate outlet (HE)	1x 3/8"f NPT
Condensate outlet (pump)	PVDF DN4/6

Operation data	
Gas inlet dew-point	Max. 65°C*
Gas inlet temperature	Max. 190°C*
Gas outlet temperature	+1°C ..... +15°C, factory setting: +4°C
Stability	0,1°C
Ambient temperature	+5°C to 45°C

General electrical data	
Mains connection	Plug
Alarm contact	Free programmable contact 1NO / 1NC, rating: 250V, 16A AC
Alarm set points	< +1°C / > +8°C
Protection class	IP20 EN 60529 / EN 61010
Power supply	230V/50Hz (standard), 115VAC/60Hz
Electrical protection	Fuse F2,5At (230VAC), F6At (115VAC)
Power consumption	Approx. 193W (steady-state)
Total cooling capacity	Approx. 900BTU/h ≈ 955kJ/h
Coolant	R134a

Model ACC	401 neo	402 neo	403 neo	404 neo
Power supply	230V, 50 Hz			

Model ACC	411 neo	412 neo	413 neo	414 neo
Power supply	115V, 60 Hz			

Maximum values in technical data's must be rated in consideration of total cooling capacity at 25°C ambient temperature and 5°C outlet dew point

PTFE = Polytetrafluoroethylene (Teflon®) PFA = Perfluoralkoxy-Polymere

PVDF = Polyvinylidenfluoride FFPM = Perfluorelastomer (Kalrez®) PPS = Polypropylenesulphide (Ryton®)

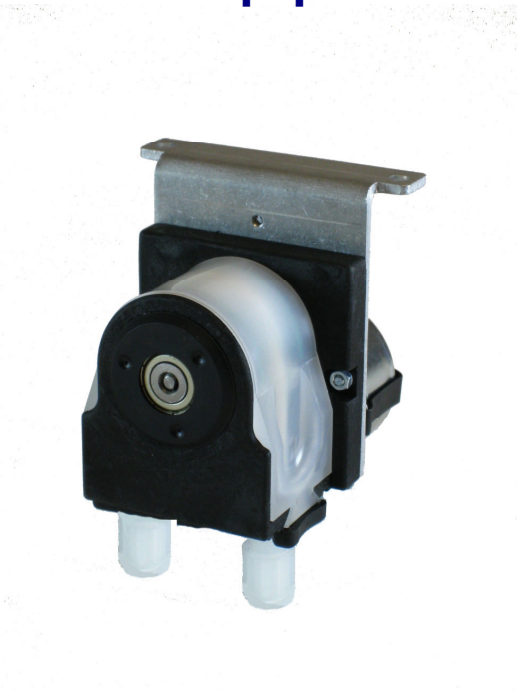
ANKERSMID Compressor cooler

ACC 4xx neo Series

Equipment

Condensate removal

Each heat exchanger is, as a standard fitted with a peristaltic pump type ACP 001 (ASR25). The pump removes all condensate, while ensuring condensate flow- back is impossible.



The pump's 0.25 l/h capacity guarantees a complete condensate removal even at high dew points.

Driven by a synchronous motor, a system of pulleys presses the condensate through a special tube with very long runtime. These pulleys are pressed by 4 springs on the peristaltic tube.

With a speed of 5 rpm, the two PVDF hose pulleys and the Novoprene® hose guarantee a good mechanical and chemical resistance with a long life time. Changing the peristaltic tube is a simple procedure that takes only seconds.

Sample gas cleaning

The APF front panel mounting extra-fine filters reliably filter out solids, especially very fine particles, by using a very fine, deep-acting filter element. The large filter surface of this cylindrical filter element guarantees reliable extra-fine filtration and a long service life with low pressure drop.

Reliable filtration of particles down to 0.1 micron occurs in the Teflon-depth filter. A viewing window shows the need for filter changes.
This filter, including piping, can be integrated into the front panel of the cooler as an option.

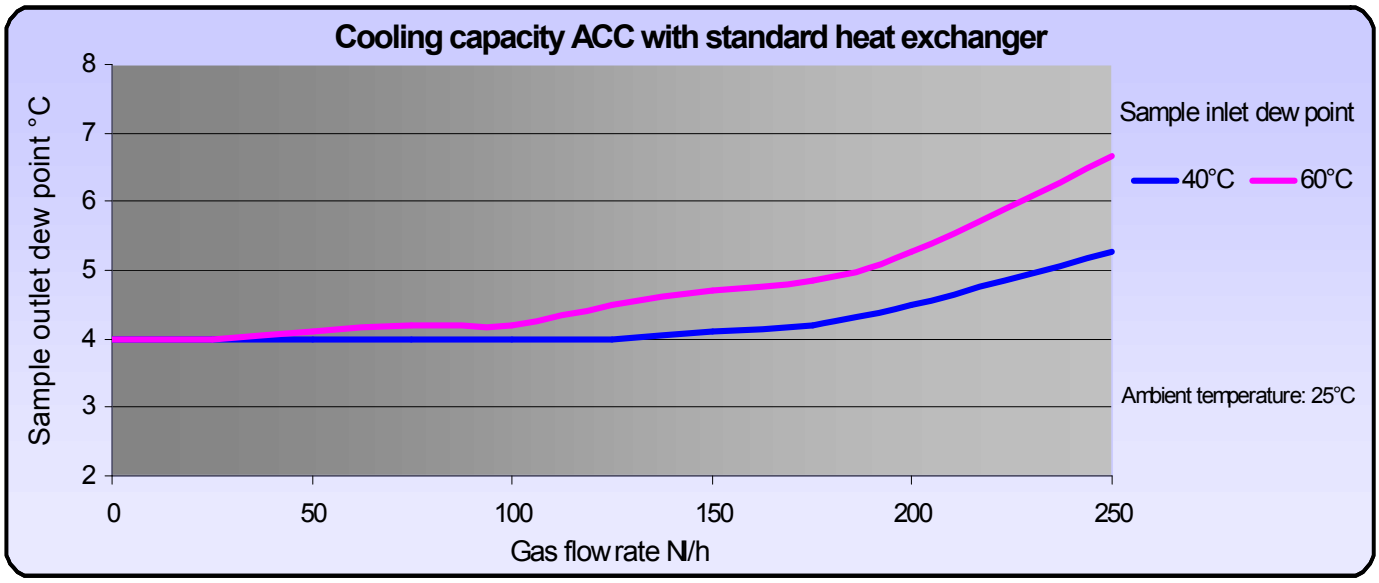
Flow rate control and adjustment

The AFM flow meter consists of a vertical, internally conical Acrylic tube widening towards the top in which a float can move freely upwards and downwards and of the head and bottom piece with an integrated Stainless Steel needle valve.
The sample gas flows upwards through the tube and lifts the float until a radial clearance occurs between the tube wall and the float so that forces affecting the body are in equilibrium. Every position of the float corresponds to a certain flow which can be read on a calibrated scale.
The measuring tube is sealed within the head and bottom part with FPM o-rings, as is the fine adjustment needle valve.
The flow meter is fitted with a fine adjustment valve in the inlet for precise flow value setting.
This flow meter, including piping, is available as option and will be built into the front panel of the cooler by Ankersmid, including all piping.

ANKERSMID Compressor cooler

ACC 4xx neo Series

Performance



ANKERSMID Compressor cooler

ACC 80x/81x Ex Series

Application

Ankersmid Compressor Coolers are used to lower the dew point of humid gas to avoid condensate entering into the gas analyser.
This unique micro-processor controlled compressor cooler has been designed with a powerful dew point stabiliser. The dew point is set at 5°C. A good and stable gas dew point avoids cross-interference if the analyser is sensitive to H_2O.

Description

The cooler offers precision, safety and long-term stability for extractive analytics. The cooler incorporates a housing suitable for wall-mounting as standard.
The design enables up to 2 heat exchangers (mono or dual gas paths each). The exchangers can be connected in series or parallel following customer requirements.
The controller is self-checking. Significant deviation from the preset is signalled by a status output. A bi-color LED on the front shows 4 different operating conditions.
Condensate is removed either into condensate vessels or by automatic condensate drainers which can be attached to the heat exchangers within the cooler's outer contour.
Available for 230VAC and 115VAC power supply.

- **Provide clean dry sample gases to extractive analysers in continuous emission monitoring, process control and engine testing applications**
- **Optimise industrial burning processes**
- **Continuously dehumidify gas sample streams**
- **Environment-friendly (CFC free)**
- **Intended for use in Potentially Explosive Atmospheres**
- **For use in hazardous area Zone 1/2**

ANKERSMID Compressor cooler

ACC 80x/81x Ex Series

Technical data

Model ACC	8x1 Ex
Number of heat exchanger	1 (standard), max. 2
Number of gas paths	1 (standard), max. 4
Housing version	Wall-mount or stand alone
Housing material	Stainless steel / Polyester
Dimensions (H x W x D)	700 mm x 500 mm x 500 mm
Weight (approximately)	37 kg
Operation data	
Gas outlet temperature	factory setting: +5°C
Dew point stability	±0,5K
Ambient temperature	+0°C to +45°C
Cooling capacity (at 25°C)	> 615 kJ/h (170 W)
General electrical data	
Alarm contact	Voltage-free changeover contact, max. 250VAC/2A, min. 24V/10mA
Alarm set points	<0 / >+10°C
Marking	II 2 G Ex px e mb q [ia] IIC T4 Gb
Power supply	230V/50-60Hz (standard) or 115V/50-60Hz
Fuse	Motor protection switch
Electrical protection	External on installation site
Power consumption	250VA (230VAC), 300VA (115VAC)
Protection class electrically	IP 54
Coolant	R134a
Model ACC	**801 Ex**
Power supply*	220…240VAC, 50Hz (230V/60Hz on request)
Model ACC	**811 Ex**
Power supply*	100…115VAC, 50/60Hz
Display	
Status LED with 4 conditions	Green: Temperature in range Green flashing: Temperature in range, compressor is running Red: Temperature off range, cooling operation Red flashing: Cooler stooped or service required

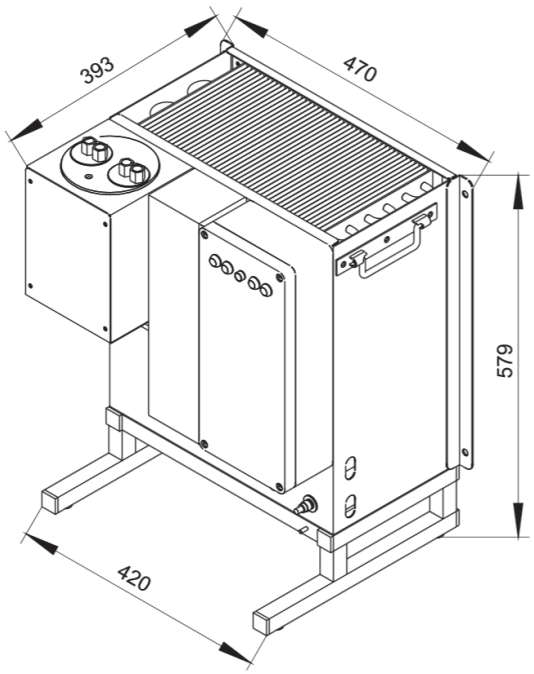
ANKERSMID Compressor cooler — Heat exchanger

ACC 80x/81x Ex Series

	Material	Mono heat exchanger	Dual heat exchanger
Sample gas flow rate Mono max.	PVDF Glass Stainless steel	125 l/h 280 l/h 530 l/h	2x 115 l/h 2x 140 l/h 2x 250 l/h
Dew point sample gas inlet	PVDF Glass Stainless steel	65 °C 80 °C 80 °C	65 °C 65 °C 80 °C
Temperature sample gas inlet limited by temperature class, T4	PVDF Glass Stainless steel	135 °C 135 °C 180 (135) °C	
Cooler capacity	PVDF Glass Stainless steel	120 KJ/h 230 KJ/h 450 KJ/h	185 KJ/h 230 KJ/h 450 KJ/h
Operating pressure max.	PVDF Glass Stainless steel	3,0 bara 3,0 bara 160 bara	2,0 bara 3,0 bara 25 bara
Differential pressure (v=150 l/h)	PVDF Glass Stainless steel	8 mbar 8 mbar 8 mbar	15 mbar 5 mbar 5 mbar
Dead volume Mono	PVDF Glass Stainless steel	129 ml 48 ml 69 ml	21/21 ml 25/25 ml 28/25 ml
Sample gas connection	PVDF Glass Stainless steel	DN4/6mm GL14 G1/4"f	DN4/6mm GL14 6mm tube
Condensate outlet on bottom	PVDF Glass Stainless steel	G3/8"f GL25 G3/8"f	DN5/8mm GL14 10mm tube

ANKERSMID Compressor cooler — Dimensions

ACC 80x/81x Ex Series



ANKERSMID Compressor cooler

ACC 85x/86x Ex Series

* Picture may vary

Application

Ankersmid Compressor Coolers are used to lower the dew point of humid gas to avoid condensate entering into the gas analyser.
This unique micro-processor controlled compressor cooler has been designed with a powerful dew point stabiliser. The dew point is set at 3°C. A good and stable gas dew point avoids cross-interference if the analyser is sensitive to H_2O.

Description

The cooler offers precision, safety and long-term stability for extractive analytics. The cooler incorporates a housing suitable for wall-mounting as standard.
The design enables one heat exchanger (mono or dual gas path). The exchanger can be connected in series or parallel following customer requirements.
An electronic system not only monitors the dew point, but also the ambient temperature.
An isolated temperature alarm output for high and low temperature alarm is included as standard.

Available for 230VAC and 115VAC power supply.

- **Provide clean dry sample gases to extractive analysers in continuous emission monitoring, process control and engine testing applications**
- **Cooler housing for wall-mounting**
- **Optimise industrial burning processes**
- **Continuously dehumidify gas sample streams**
- **Environment-friendly (CFC free)**
- **Intended for use in Potentially Explosive Atmospheres**
- **According to Directive 94/9/EC**
- **For use in hazardous area Zone 2**

ANKERSMID Compressor cooler

ACC 85x/86x Ex Series

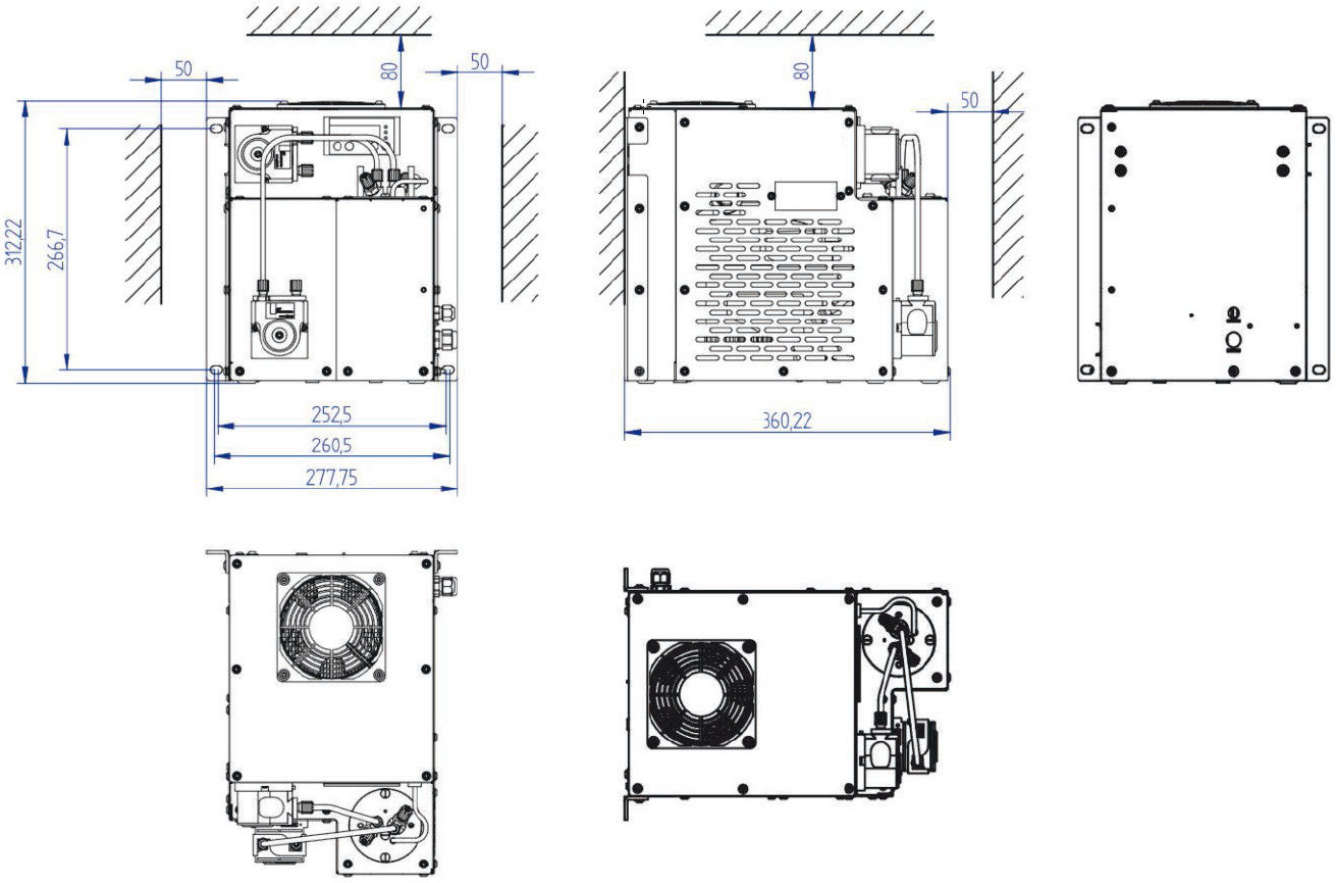
Technical data

Model ACC	85x	86x Ex
Number of gas paths	1 (standard), max. 2 (with double heat exchanger)	
Housing version	Wall-mount or stand alone	
Housing color	RAL 7035 (light-grey)	
Dimensions (W x H x D)	230 x 300 x 355 mm	
Weight (approximately)	18,5 kg	
Peristaltic pump ASR25 for condensate removal	1 pc. (standard)	2 pcs. (standard)
Data per heat exchanger		
Gas flow	1x 250l/h or 2x 125l/h	1x 500l/h or 2x 250l/h
Material of heat exchanger	PVDF	Stainless steel
Maximum pressure	1,5 bar a	100bar a
Pressure drop	6 mbar	8 mbar
Dead volume	67ml (singler heat exchanger), 55ml (double heat exchanger)	
Sample gas inlet	Tube DN 4/6mm	
Sample gas outlet	Tube DN 4/6mm	
Condensate outlet	Tube DN 10/12mm	
Operation data		
Gas inlet dew-point	Max. 70°C	Max. 80°C
Gas inlet temperature	Max. 140°C	Max. 180°C
Cooler capacity	90W	160W
Gas outlet tem ture	factory setting: +3°C	
Dew point stab...y	±1K	
Ambient temperature	+10°C to +40°C	
General electrical data		
Mains connection	approx. 2,3m open wire ends	
Alarm contact	Voltage-free changeover contact, max. 250VAC/2A, min. 5VADC/5mA	
Alarm set points	<0 / >+10°C	
Protection class	IP 20 (EN60529)	
Marking	Ex II 3G Ex ma IIA T3 Ex II 3D Ex ma IIIB T180°c (IEc respectively EN60079)	
Power supply	220...240VAC/50Hz (standard) or 100...115VAC/60Hz	
Electrical protection	External on installation site, fuse characteristic C; 230VAC 6A; 115VAC 10A	
Power consumption	190 VA (depending on configuration, ambient temperature & load)	
Coolant	R134a	

ANKERSMID Compressor cooler

ACC 85x/86x Ex Series

Dimensions



ANKERSMID Peltier cooler

APC 14xx/15xx/16xx Series

* Pictures may vary

Application

Ankersmid Peltier Coolers are used to lower the dew point of humid gas to avoid condensate entering into the gas analyser.

A good and stable gas dew point avoids cross-interference if the analyser is sensitive to H_2O.

Description

This unique microprocessor controlled Peltier Cooler has been designed with a powerful dew point stabiliser. The dew point is set at 4°C but can be changed at any value between 1 and 15°C. The condensate that is formed should be removed by a peristaltic pump, automatic drain or collection vessel.

The heat exchanger is demountable and PFA®-coated.

The digital controlled cooler has many control and warning features like programmable alarms, mA-output, digital inputs and Modbus or RS485 communication.
The alarm status changes when the temperature deviates by ± 3 °C from the set point.

Available for 230VAC and 115VAC power supply.

Extra Features

Ankersmid's electronically controlled Peltier cooler incorporates a unique design of demountable heat exchangers. This versatile design creates many possibilities. One of the important available features is the humidification of calibration gases to avoid volumetric errors.
Humidification is achieved with a special inlet for liquids. During calibration the heat exchanger dries out due to the dry calibration gas; this volumetric change is important for reference measurements. Injection of liquid during calibration can avoid this issue.

- **Special demountable heat-exchanger with unique design**
- **Humidified heat-exchanger for calibration cross-interference compensation**
- **Digital controlled high stable outlet dew point ± 0,1°C**
- **Ambient temperature up to +50°C**
- **Alarm contact**
- **Optional digital communication Modbus/RS485**
- **Power supply 115/230VAC**
- **Universal housing for 3 different versions; 1x 200Nl/h, 2x 200Nl/h or 1x 350Nl/h**
- **Isolation cap for head exchanger head to avoid condensation**

ANKERSMID Peltier cooler

APC 14xx/15xx/16xx Series

Technical data

Model APC xxxx	14x3	15x3	16x3
Number of heat exchanger	1	2	1
Housing version	Stainless steel/Aluminum anodized, Wall-mounting		
Dimensions (HxLxD)	200 x 280 x 190mm		
Data per heat exchanger			
Gas flow rate	1x 200Nl/h max.	2x 200Nl/h max.	1x 350Nl/h max.
Sealing	Viton®	Viton®	Viton®
Maximum pressure	10 bar a	10 bar a	10 bar a
Pressure drop	3mbar at 200Nl/h	3mbar at 200Nl/h	5mbar at 350Nl/h
Dead volume	35cm³	35cm³	100 cm³
Sample gas inlet	1x 1/4"f NPT	1x 1/4"f NPT	1x 1/4"f NPT
Sample gas outlet	1x 1/4"f NPT	1x 1/4"f NPT	1x 1/4"f NPT
Condensate outlet	1x 3/8"f NPT	1x 3/8"f NPT	1x 3/8"f NPT
Material of gas wetted parts	PFA®		
Operation data			
Gas inlet dew point	Max. 50°C		
Gas inlet temperature	Max. 190°C		
Gas outlet temperature	+1°C ... +15°C, factory setting: +4°C		
Total cooling capacity	Max. 245kJ/h		
Stability	0,1°C at ambient temperature 20°C		
Ambient temperature	+5°C to 45°C		
Electrical data general			
Mains connection	Electrical terminals 2,5mm² / Cable gland 2 x PG13		
Alarm contact	Free programmable contact 1NO / 1NC, rating: 250V, 16A AC		
Alarm set points	< +2°C / > +10°C		
Protection class	IP20 EN 60529 / EN 61010		
Electrical protection	Fuse 1,6A		
Power consumption	2 Peltier elements á 34W		
Weight	4,0 kg	4,6 kg	4,5 kg
Model APC	**1403**	**1503**	**1603**
Power supply	230VAC, 50/60Hz		
Model APC	**1413**	**1513**	**1613**
Power supply	115VAC, 50/60Hz		

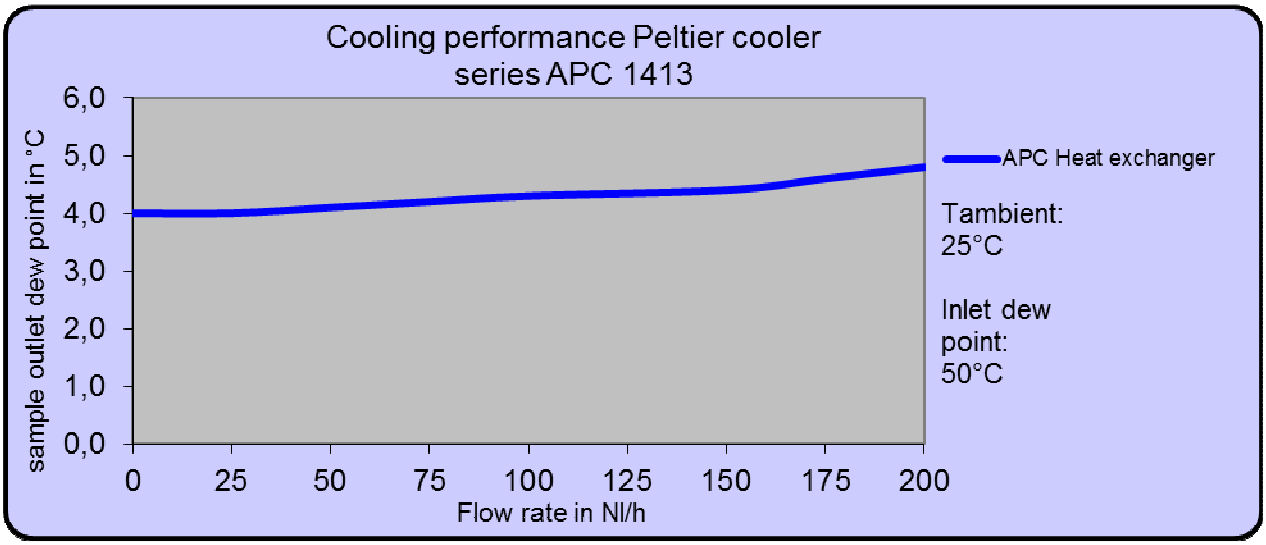
Maximum values in technical data's must be rated in consideration of total cooling capacity at 25°C ambient temperature and 5°C outlet dew point

PTFE = Polytetrafluoroethylene (Teflon®) PVDF = Polyvinylidenfluoride
FFPM = Perfluorelastomer (Kalrez®) PPS = Polypropylenesulphide (Ryton®)

ANKERSMID Peltier cooler

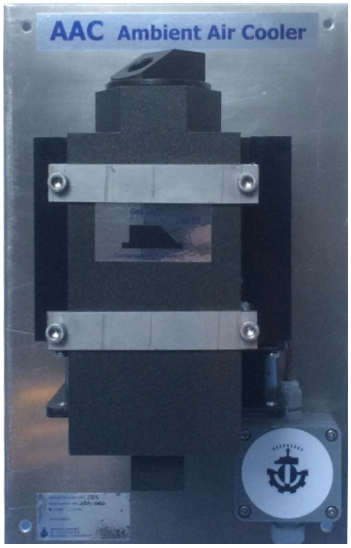
APC 14xx/15xx/16xx Series

Performance



ANKERSMID Ambient cooler

AAC 15x/16x/ Series



* Example picture AAC 154

Application

Ambient coolers are designed to be used e.g. pre-cooler or for use in applications where the sample outlet dew point is not necessary to be stable at a specific temperature (f. e. all electrical Ankersmid coolers are set to +4°C).

Description

By lowering the temperature of a sample gas, condensate liquid will be formed while passing through the heat exchanger. Condense drops will be formed and descended to the bottom of the vessel. This condensate liquid can be removed by an optional incorporated peristaltic pump.

The unit can furthermore be ventilated by a permanent operating electronic fan.

The ambient cooler is installed on an Aluminum mounting plate to be used as wall-mounting version.

Available for 230VAC and 115VAC power supply.

- **Special demountable heat-exchanger with unique design**
- **Gas wetted parts made of PFA®**

ANKERSMID Ambient cooler

AAC 15x/16x/ Series

Technical data

Model AAC	
Number of heat exchanger	1
Mounting plate	Aluminum, Wall-mount
Dimensions (w x h)	AAC 160/260: 450 x 350mm AAC 150/154/250/254: 225 x 350mm
Data per heat exchanger	
Material of gas wetted parts	PFA®
Sealing	Viton®
Sample gas inlet	1/4"f NPT
Sample gas outlet	1/4"f NPT
Condensate outlet	3/8" NPT
Maximum pressure	10 bar a
	AAC 150/154/160
Gas flow rate	200Nl/h
Dead volume	35cm³
Pressure drop	2mbar at 200Nl/h
	AAC 250/254/260
Gas flow rate	350Nl/h
Dead volume	100cm³
Pressure drop	5mbar at 350Nl/h
Operation data	
Ambient temperature	+5°C to +45°C
Option	
Fan included	AAC 154/254
Fan + peristaltic pump included	AAC 160/260
Electrical data	
Mains connection	Electrical terminals 2,5mm² / Cable gland 1 x PG11
Protection class	IP20 EN 60529 / EN 61010
Power supply	115-230V, 50/60Hz

PTFE = Polytetrafluoroethylene (Teflon®)
PVDF = Polyvinylidenfluoride
PFA = Perfluoralkoxy-Polymere

ANKERSMID Condensate separator

ACS 0x0 Series

* Picture may vary

Application

The Ankersmid universal separator series ACS are used to separate condensate from saturated sample gases.

Description

The condensate separator for gas- / liquid separation consists of standard parts of the modular designed universal filter series ACS.

The separator heads are equipped with a second G1/4" thread closed by a blind plug.

The sample gas is lead through the vertical drilling of the element holder to the lower part of the separator. The phase break is ensured by turning the flow direction of the gas stream by use of gravity and a decrease of the flow rate.

The PTFE version of the ACS can be heated up to 180°C.

The glass body separator version enables the user a visual control of the function from the outside. The optimal position of the O-ring guarantees a sure sealing between the separator body and the separator head.

The separator inlet and outlet can be rotated a 180°C on the wall mounting bracket thus enabling an easy adjustment to local circumstances.

In line with application requirements, the drainage process of the condensate may be completed with an externally installed condensate vessel, condensate trap or a peristaltic pump from the Ankersmid Sampling portfolio.

- **Reliable separation of gas and condensate**
- **Second inlet connection possible**
- **Different material combinations**
- **Head out of PVDF, PTFE or stainless steel**
- **Body out of Duran glass or stainless steel**
- **Function visible in versions with glass body**

ANKERSMID Condensate separator — Technical data

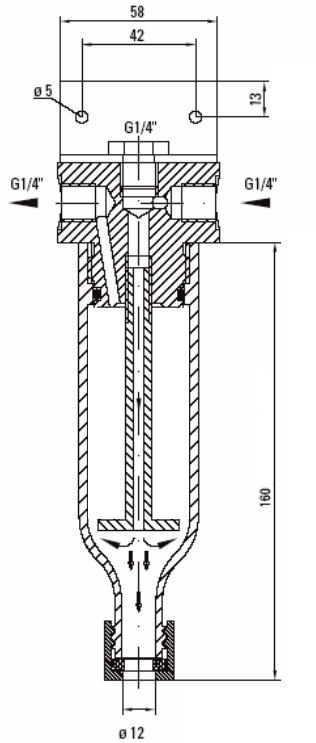
ACS 0x0 Series

Universal Condensate separator	ACS 010	ACS 020	ACS 030
Materials: Separator head, element holder, O-Ring, body	PVDF, FEP, Duran® glass	SS316, FPM, Duran® glass	SS316, FPM
Operating temperature, max.	+100°C	+160°C	+180°C
Storage temperature	-30°C to 100°C		
Operation pressure, max.	At 20°C 5bar a (2bar a when using GL-adapters)	At 20°C 5bar a (2bar a when using GL-adapters)	At 20°C 200bar a At 180°C 50bar a
Dead volume	80cm^3		
Mounting	Wall-mounting with mounting bracket, vertical mounting position		
Gas connections	G1/4"f		
Liquid drainage connection	GL25-12 mm		1/4"f NPT
Weight, approx.	0,4kg	1,0kg	1,5kg

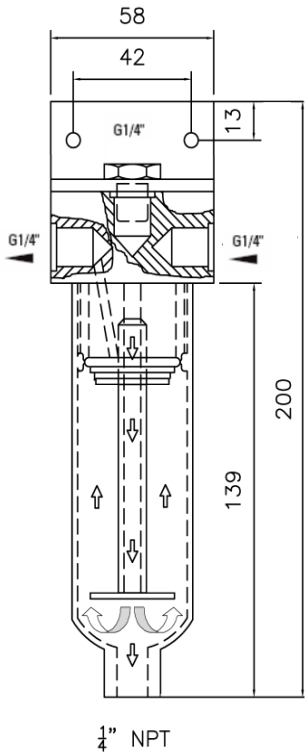
ANKERSMID Condensate separator — Dimensions

ACS 0x0 Series

ACS 010, ACS 020



ACS 030



ANKERSMID Automatic liquid drain

ALD 0x0 Series

* Picture may vary

Application

The Ankersmid liquid drain **ALD** is used in gas conditioning systems where condensate must be drained after cooling the gas. Liquid drains remove liquid continuously and automatically without wasting air or gas. In addition to drainage of the system, liquid drains provide:

- Trouble-free operation with minimal need for adjustment or maintenance
- Reliable operation even in the presence of dirt, grit and oil
- A long operating life time
- Minimal air loss

Over pressure is required to operate the liquid drainage function.

Description

The **ALD 010** automatic liquid drain's operation principle is gravity. The ALD's casing, float, valve and valve-seat are made of stainless steel.
The outlet valve is controlled by a lever mechanism. The float closes the condensate outlet via the lever mechanism with the valve tip. Due to the rising condensate level the outlet is released by the buoyancy of the float.

The **ALD 020** series separators with automatic condensate drain, offers an additional lateral side gas connection so this device can be used as separator.

- **Save condensate removal and separation**
- **Completely made out of stainless steel**
- **For high pressure and temperature applications**
- **High drain capacity**

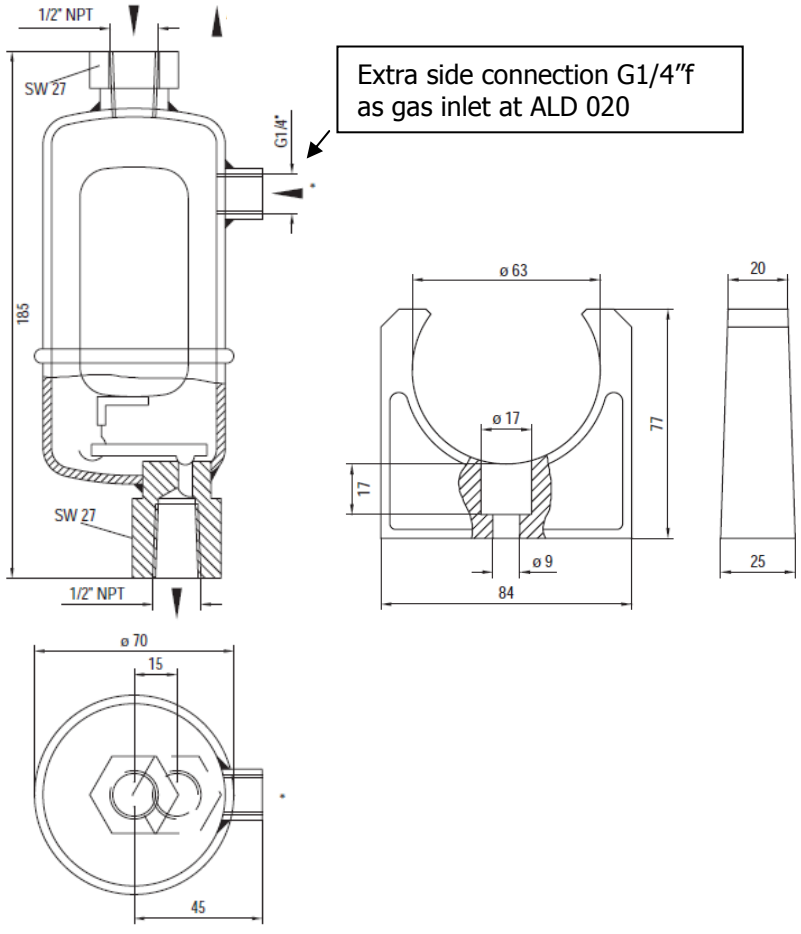
ANKERSMID Automatic liquid drain — Technical data

ALD 0x0 Series

Automatic liquid drain	ALD 010	ALD 020	Mounting clip
Material	Stainless steel 304, 316		PE
Operating temperature	0°C to +200°C		-20 to +90 °C
Storage temperature	-50°C to +200°C		-30 to +110 °C
Operation pressure, max.	1 to 19bar abs.		
Function	Specific gravity min. 0,5kg/dm3, at 1 bar abs.		
Mounting	Vertical mounting position with bracket		
Capacity	160 l/hr H_2O, at 1bar abs. and 20 °C		
Condensate IN	1/2"f NPT		
Condensate OUT	1/2"f NPT		
Sample gas IN	-	G1/4"f	
Sample gas OUT	-	1/2"f NPT	
Weight, approx.	0,8kg		0,05kg

ANKERSMID Automatic liquid drain — Dimensions

ALD 0x0 Series



ANKERSMID Condensate vessel

ACV 0x0 Series

* Pictures may vary

Application

The liquid collection vessel **ACV 0X0** is specially designed for applications where automatic condensate removal is difficult.
When using a peristaltic pump for automatic condensate removal, a sudden surge of liquid can be hard to handle. In these cases the condensate collection vessel can be used as a reservoir or buffer vessel.
For safe operation, the overflow GL25/12 of the condensate vessel ACV 010 can be equipped with a liquid-level sensor and alarm.

Description

The Ankersmid liquid collection vessel ACV 010 is made of industrial quality glass. This ensures high corrosion resistance and the ability to see inside the vessel. A GL25-12 mm clamp connector is provided as condensate inlet.
The outlet valve is a PTFE stopcock, ensuring easy access and hermetic sealing. All contacting parts are made out of glass and PTFE.
A wall-mounting plate is supplied as part of standard delivery.
The liquid Alarm Sensor is optional; the electronic of the sensor sends an alarm to the control room or opens a valve (optional) to drain the liquid out.

See more about our liquid sensors ALS on chapter 3-8.

-Vessel with other liquid capacities or materials on request -

- **Very corrosion resistant**
- **Liquid level always visible**
- **Different tube connections possible**
- **Level alarm possible**
- **With integrated outlet cock**

ANKERSMID Condensate vessel

ACV 0x0 Series

Technical data

Condensate vessel	ACV 010	ACV 020	ACV 030	ACV 040
Material	Glass	PVC	PVDF	PTFE
Operating temperature	0 to +80°C	0 to +50°C	0 to +120°C	0 to +140°C
Storage temperature	-15°C to +65°C			
Operation pressure, max.	2bar	0,5bar	10bar	6bar
Capacity	+/- 1Ltr			
Over all dimensions (wxhxd)	160 x 310 x 180	160 x 310 x 135	160 x 310 x 135	160 x 310 x 135
Connections	1x GL25-12 Manual valve	3x G1/4"f 2x G1/2"f	2x G1/4"f 1x G1/2"f	2x G1/4"f 1x G1/2"f
Overflow	1x GL25-12	-	-	-
Weight, approx.	+/- 1kg	+/- 0,5kg	+/- 0,5kg	+/- 1kg

ANKERSMID Liquid alarm sensor

ALA 002, ALA 003

Application

A liquid sensor is used in gas sample conditioning/systems as a security alarm in case of condensate breakthrough.
Coolers, water-stops and automated drains are some of the Ankersmid components used for condensate evacuation. The performance of these components is monitored with a liquid alarm sensor. The liquid alarm will report any breakthrough of condensate and thus protect liquid-sensitive optical analyzers or analytical cells from moisture damage. The alarm sensor can be set to shut of a pump or activate a solenoid valve for protection when tripped by moisture detection.

Description

The Ankersmid ALA 002 sensor works on the **principle of the detection of a change in internal reflection.** When a liquid is disposed on the outside lens of the sensor the reflection will be changed and detected by the sensor. The transparent dome contains an LED and an optical sensor. An alarm is generated by the electronic module ALA 102 with a potential fuse contact.

The ALA 003 sensor works on the principle of **electrical conductivity**. When liquid comes in contact with the sensor's two electrodes, a small current is measured and the alarm is given. (Min conductance: 40µmS/cm). The electrodes are mounted under a vertical gas path that – due to gravity - projects the smallest droplet onto the electrodes. An alarm is generated by the electronic module ALA 101 with a potential fuse contact.

- **Safe detection of very small quantities**
- **High chemical resistance**
- **Sensor also used with:**

Compressor coolers	**ACC**
Peltier coolers	**APC**
Condensate separators	**ACS**
Condensate vessels	**ACV**
Universal filters	**AUF**
Material filters	**AAM**
Portable systems	**APS/ASS**

- **Suitable electronic alarm modules: ALA 101, ALA 102**

ANKERSMID Liquid alarm sensor

Technical data

ALA 002, ALA 003

Model	ALA 002
Connection cable	3m, ø 4,2 mm, 3-core
Pressure	0 - 4bar g
Flow	0 - 1000l/h
Operating temperature	Max. +80°C
Gas connections	ø 12mm
Material of gas wetted parts	PTFE, Polysulphone
Mounting position	Vertical
Insertable length*[1]	15mm
Output sink current*[2]	@ 25°C: 10mA max.
	@ 80°C: 3mA max.
Response time	50µs
Supply current	15mA nominal @ 5V DC
Supply voltage	5V DC - 12V DC
Operation mode	User defined single point on/off switch
Ambient IR light limit	10mW/cm² in operation
Weight	40gr

Model	ALA 003
Connection cable	3m, ø 4,2 mm, 2-core
Pressure	0 - 6bar g
Flow	0 - 1000l/h
Operating temperature	Max. +80°C
Gas connections	ø 8mm
Material of gas wetted parts	Stainless steel, platinum
Mounting position	Vertical
Insertable length*[1]	10mm
Electrical conductivity	>50µS/cm
Weight	50gr

*1 Other lengths possible
*2 The output sink is intended as a TTL compatible output signal for interfacing to logic systems

ANKERSMID Liquid alarm electronics

ALA 101, ALA 102

ALA 101 ALA 102

* Pictures may vary

Application

The electronic controllers ALA 101 and ALA 102 are used for feeding and signal processing of the liquid alarm sensors ALA 002 and ALA 003.
These liquid sensors are used in gas sample conditions/systems as a security alarm in case of condensate breakthrough.
Coolers, water-stops and automated drains are some of the Ankersmid components used for condensate evacuation. The performance of these components is monitored with a liquid alarm sensor. The liquid alarm will report any breakthrough of condensate and thus protect liquid-sensitive optical analyzers or analytical cells from moisture damage. The alarm sensor can be set to shut of a pump or activate a solenoid valve for protection when tripped by moisture detection.

Description

Two electronic controllers are available, ALA 101 and ALA 102, both for rail-mounting.
The main application for these electronics is detecting of conductive and non-conductive liquids in combination with the liquid alarm sensors ALA 002 and ALA 003.
Furthermore the electronics can be used for control of the level of conductive liquids.
Selectable options allow for this control to be achieved either through a filling operation or through an emptying operation, and in either case "positive logic" is used.

- **LED indicator**
- **35 mm rail mounting (EN 60715)**

ANKERSMID Liquid alarm electronics

Technical data

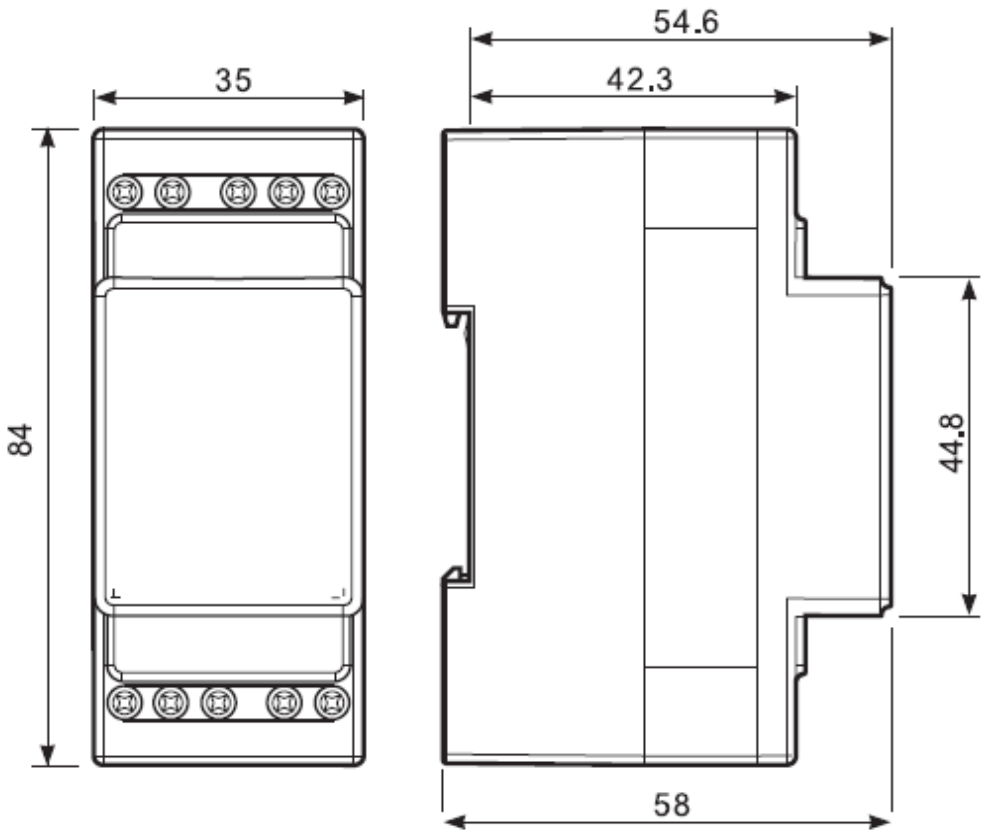
ALA 102

Model	ALA 101, ALA 102
Contact configuration	1 CO (SPDT)
Rated current/Maximum peak current	16/30A
Rated voltage/Maximum switching voltage AC	250/400V
Rated load AC1	4,000VA
Rated load AC15 (230 V AC)	750VA
Single phase motor rating (230 V AC)	0.55kW
Breaking capacity DC1: 30/110/220 V A	16/0.3/0.12
Minimum switching load	500mW (10V/5mA)
Standard contact material	AgCdO
Nominal voltage (UN)	230VAC (optional 115VAC)
Rated power AC/DC	2.5 VA (50Hz)/1.5W
Electrical life at rated load AC1	$100 \cdot 10^3$ cycles
Electrode voltage	10V AC
Insulation between supply/contacts/electrode (1.2/50 µs)	6kV
Ambient temperature	–20…+60°C
Protection category	IP20
Insulation	Impulse (1.2/50 µs)
between supply and contacts	6 kV
between electrodes, Z1-Z2 and supply	6 kV
between contacts and electrodes	6 kV
between open contacts	1.5 kV
Current absorption on Z1 and Z2	< 1mA
Power lost to the environment	
without contact current	1.5W
with rated contact current	3.2W
Max cable length between electrode and relay	200m

ANKERSMID Liquid alarm electronics

Dimensions

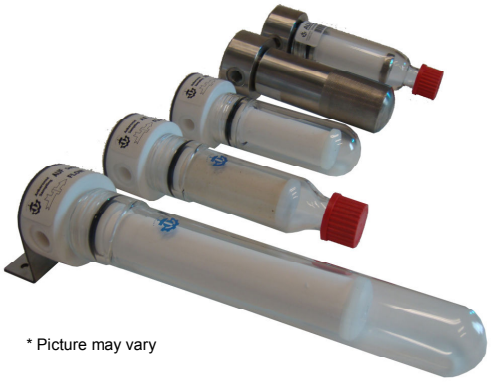
ALA 101, ALA 102



Picture ALA 101, ALA 102 Dimensions

ANKERSMID Universal filter

AUF Series



* Picture may vary

Application

Ankersmid Universal Filters are known as a reliable technique for the separation of particles from gas, ensuring a flow of clean gas to the analyzer. Filter housings in a variety of materials and standard dimensions are available.
The design of the filter and filter housing also ensures that any liquids present in the gas will be separated from the gas. Liquids are collected in the bottom of the filter-housing.

Due to its universal standard dimensions and functionality, the filter elements can also be used with any commercially available filter housings. The filters are easily replaced without the use of any additional tools.

Where needed, a liquid sensor or liquid drain can be installed at the bottom of the filter housing tube.

Description

The AUF modularity offers the following selection:

- Variety of filter element materials:
  PTFE, Ceramics, SS316, glass-fiber
- Elements with lengths of 75 or 150 mm
- PVDF, PTFE or Stainless Steel head
- Glass or Stainless Steel filter body
- Closed or outlet at the bottom (for condensate alarm)

A glass filter body offers the benefit of determining the extent of soiling of the filter from the outside at a glance.

A special bracket is available to click the filters on the Ankersmid Modular System, ensuring quick (no drilling required) installation and easy rearrangement of the filters and gas lines connecting the individual components.

- **Universal in use**
- **Modular construction**
- **High variety of materials**
- **Deep-acting filter element**
- **Reliable separation of solids**
- **Wall-mounting**
- **Easy maintenance**

ANKERSMID Universal filter

AUF Series

Technical data

AUF Universal filter	
Length of filter element	75mm / 150mm
Sample connections: Gas inlet/-outlet	3x G ¼"f (1x closed)
Condensate connection	GL25-12mm for glass body / NPT ¼"f for SS-body
Pressure at 20°C	Max. 5bar abs. for Glass body without drain / Max. 50bar abs. for SS-body (20bar abs. at +180°C)
Pressure with GL-connection adapter	Max. 2bar abs.
Stagnant space	65cm³ for filter 75mm / 190cm³ for filter 150mm
Filter surface	70cm² for filter 75mm / 140cm² for filter 150mm
Materials:	
Head	PVDF, PTFE, stainless steel 316L
Filter elements	Ceramics, PTFE, stainless steel, Glass-fiber
Body	Duran® glass, Stainless Steel, PTFE
Seals	FPM (head), PTFE/Silicone (GL-connection)
Temperature of ambient or sample	Max. 100°C (PTFE) / 180°C (stainless steel)
Mounting method	Wall-mounting / panel mounting
Weight	+/- 0,4kg for PVDF & PTFE-head + 75mm glass body +/- 1,5kg for SS-head + 75mm SS-body

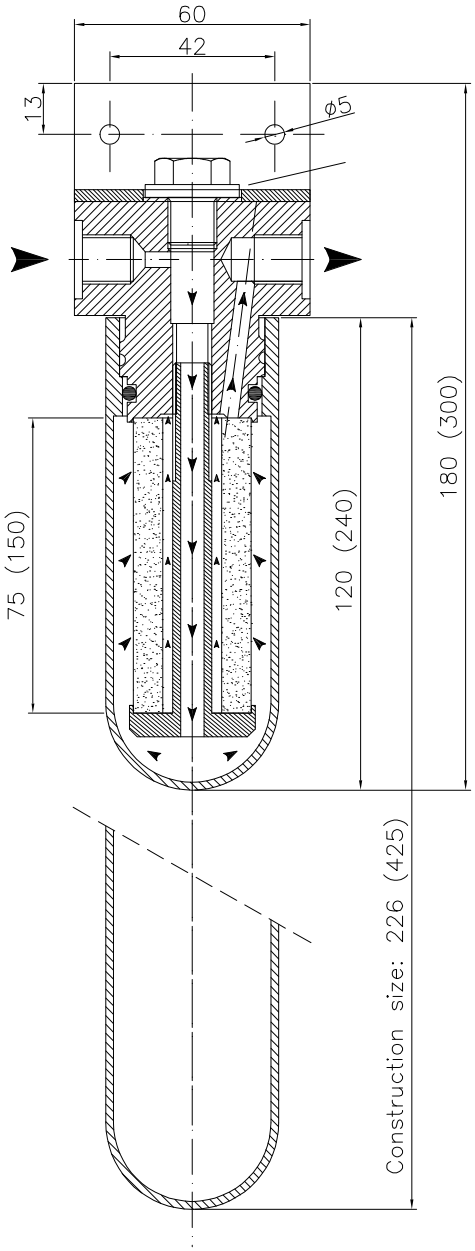
PVDF = Polyvinylidenfluoride
PTFE = Polytetrafluoroethylene (Teflon®)

ANKERSMID Universal filter

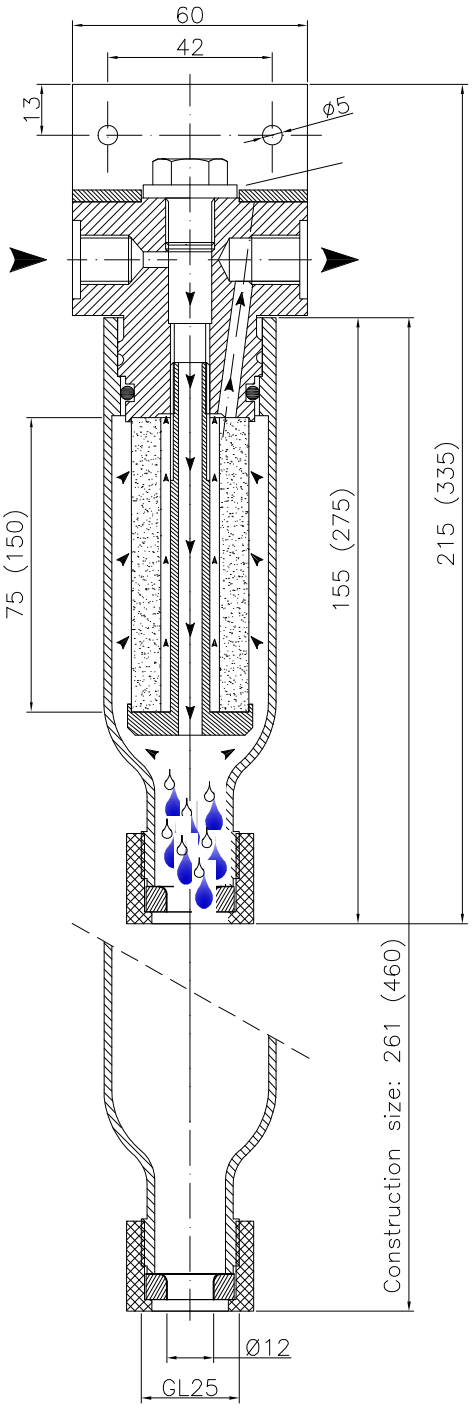
AUF Series

Dimensions

Filter unit without drain,
for filter element 75mm (150mm)



Filter unit with drain,
for filter element 75mm (150mm)



ANKERSMID Adsorption material filter

AAM Series

* Pictures may vary

Application

Ankersmid Universal Filters are known as a reliable technique for the adsorption of components in a gas stream that cause interferences in the gas measurement.
The design of the filter and filter housing ensures that any liquids present in the gas will be separated and collected in the bottom of the filter-housing.
The AAM series are based on the elements of the AUF universal filter series.
Due to its universal standard design, the filters can be used with various adsorption cartridges and, if needed, also be fitted with a liquid sensor.

Description

Gas flows into the filter body by one of two inlets in the standard filter head. The gas flows out of holes in the lower part of the filter and then passes through the adsorption material to exit again at the head of the filter housing.

The modular design is suitable for the following:

- **Cartridges filled with different types of adsorption materials like active-coal, Purafil®, Silica gel® etc.**
- **Cartridges with lengths of 75 or 150mm**
- **Head and cartridge made of PVDF or PTFE**
- **Filter body made of Duran® Glass**
- **Bottom closed or with GL25-connection**

No tools are needed to replace the cartridge.

The filter series AAM 053/054 including a filter body with bottom glass frit and filled with glass balls creates a huge surface for maximum contact of the gas and aerosols with it's liquid. The condensed liquid can be separated or extracted at the outlet (bottom) when extra absorbent is needed, or injection by a peristaltic pump can be effectuated through the second inlet port.

The filter unit can be rotated about 180° in the holder for wall mounting or Ankersmid Modular System. This allows for a flexible adaptation of in- and outlet to local conditions.

- **Universal in use**
- **Modular construction**
- **Cartridges can be filled with different kind of adsorption materials**
- **Wall-mounting**
- **Easy maintenance**

ANKERSMID Adsorption material filter

AAM Series

Technical data

Length of adsorption cartridge		75mm, 150mm
Sample connections: Gas inlet/-outlet		3x G1/4"f
Condensate connection		GL25
Pressure at 20°C		Max. 5 bar abs
Stagnant space		65cm³ for 75mm-cartridge / 190cm³ for 150mm-cartridge
Filter surface		70cm² for 75mm-cartridge / 140cm² for 150mm-cartridge (efficient surface depending on filling)
Materials:	Head	PVDF (standard) or PTFE
	Cartridge	PTFE
	Body	Duran® Glass
	Seals	FPM (head)
		PTFE/Silicone (GL-connection)
Temperature of ambient or sample		Max. 100°C (standard)
Mounting method		Wall-mounting / panel mounting

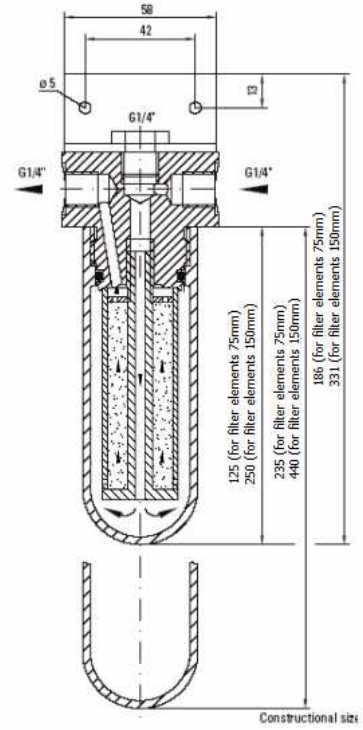
Various Adsorption materials	**Components to be interrupted**	**Cross sensitive against**
Active charcoal	Vapour of solvents or essential oil	SO2, CO2, CL2, NH3
Calcium hydroxide	CO2	SO2, CL2, H2O
Eisenberger Masse	Aerosols	HF
Silica-gel	Water vapour	SO2, NH3, HCL, CO2, Cn Hm
PURAFIL II	SO2, SO3, NH3, CS2, H2S	C2H2, C2H4, CH4O
Sodium-calcium	CO2	SO2, CL2, H2O

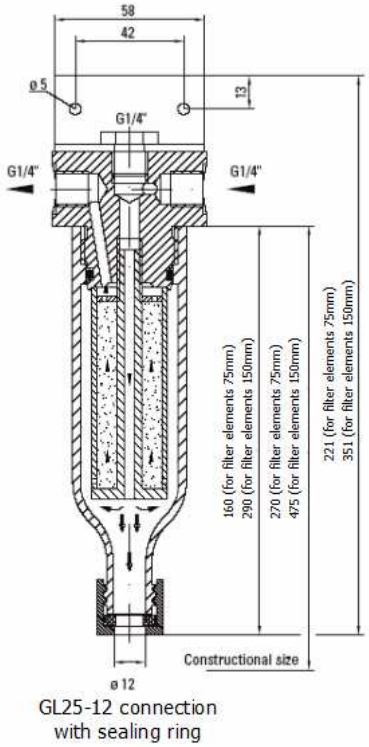
Neerlandweg 22, 2610 Wilrijk, Belgium Tel.: +32(0)3/820.80.00 Fax: +32(0)3/230.98.58

ANKERSMID Adsorption material filter

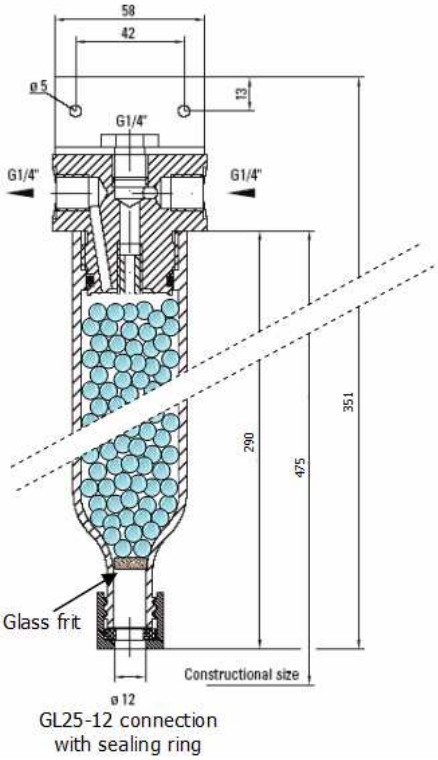
AAM Series

Dimensions





GL25-12 connection
with sealing ring



GL25-12 connection
with sealing ring

ANKERSMID Ambient air filter

AAF 051, AAF 052 &
AAF 053 with splash-proof socket

* Picture may vary

Application

The Ankersmid Ambient Air Filter AAF 051/AAF 052/AAF 053 is used for the filtration of ambient air in gas monitoring systems.
The main applications are in ambient air monitoring and in air conditioning systems.

Description

The variety of construction design of the ambient air filters AAF 051 / AAF 052 / AAF 053 allows for a perfect adaptation to local situations.

Filter body and filter elements are available in various materials and filter porosities;

- AAF 051 with 2µm PTFE filter element
- AAF 052 / AAF 053 with 2µm glass-fiber filter element

Other filter elements are available on request.

The open construction shows the contamination of the filter element at a glance, and allows for an easy filter element replacement without tools.

The filter is mounted to the wall by means of two screws in the filter flange.

The version AAF 053 is equipped with a splash-proof socket.

- **Super-fine filtration**
- **Large active filter surface**
- **Various materials available**
- **Easy mounting**
- **Easy maintenance**

ANKERSMID Ambient air filter

Technical data

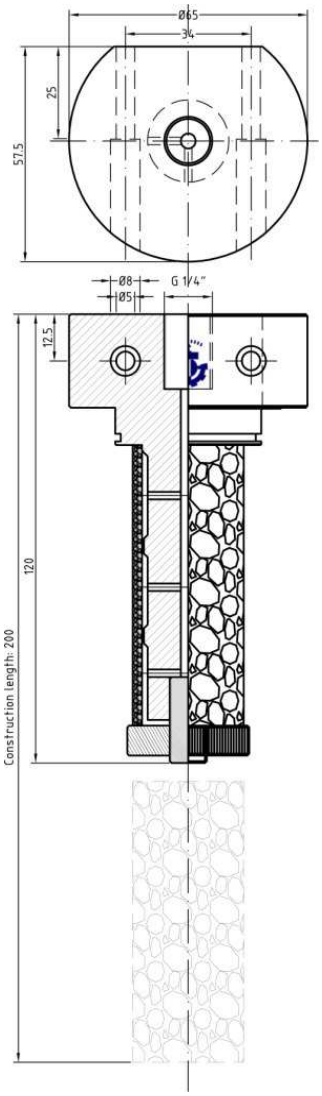
AAF 051, AAF 052 &
AAF 053 with splash-proof socket

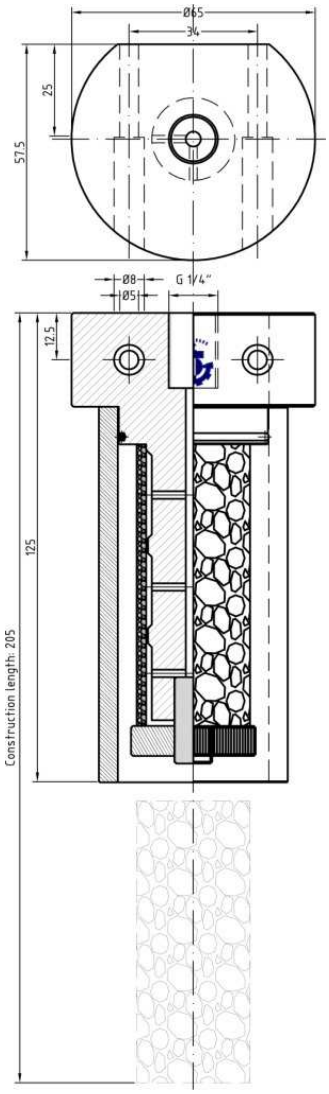
AAF Ambient air filter	
Length of filter element	75mm
Sample connections: Gas inlet/-outlet	3x G ¼"f (1x closed)
Filter surface	70cm²
Materials	PVDF (filter head & filter element holder)
Filter element	Ceramics, PTFE, stainless steel, Glass-fiber
Ambient temperature	Max. 100°C
Mounting method	Wall-mounting / panel mounting
Weight	Approx. 0,4kg

ANKERSMID Adsorption material filter

Dimensions

AAM Series





ANKERSMID Humidifier

AHU 001, AHU 002

* Pictures may vary

Application

The Ankersmid Humidifier controls the humidity of the gas sample stream. The Humidifier is used to wet calibration gases to ensure these gases undergo an identical cycle through the conditioning set-up.
In this set-up, the calibration gases enter the cooler saturated at a stable dew point. Calibration gases with water-soluble components must not be passed through the humidifier.

Description

The Ankersmid Humidifier consists of a standard filter component. The glass body version has a volume of 70ml.

The gas passes a bubbler that boosts the humidifying result. The humidifier's glass body enables the control of the liquid level without dismantling the body. No tools are required for refilling the humidifier. An o-ring guarantees tightness between the head and the glass body.

For special applications, the humidifier can be provided with a GL25-12 connection at the bottom of the glass body.

Over-pressure at the outlet or under-pressure at the inlet of the humidifier must be avoided, to avoid liquid flow into the gas inlet.

A special bracket is available to click these filters on the Ankersmid Modular System, eliminating the need for drilling and screwing.

The humidifier can be rotated about 180° in the holder for wall mounting or Ankersmid Modular System. This allows for a flexible adaptation of in- and outlet to local conditions.

- **Easy refilling**
- **Direct control of the liquid level**
- **Optimum humidifying effect**
- **Small stagnant space**
- **Wall-mounting**
- **Easy maintenance**

ANKERSMID Humidifier

AHU series

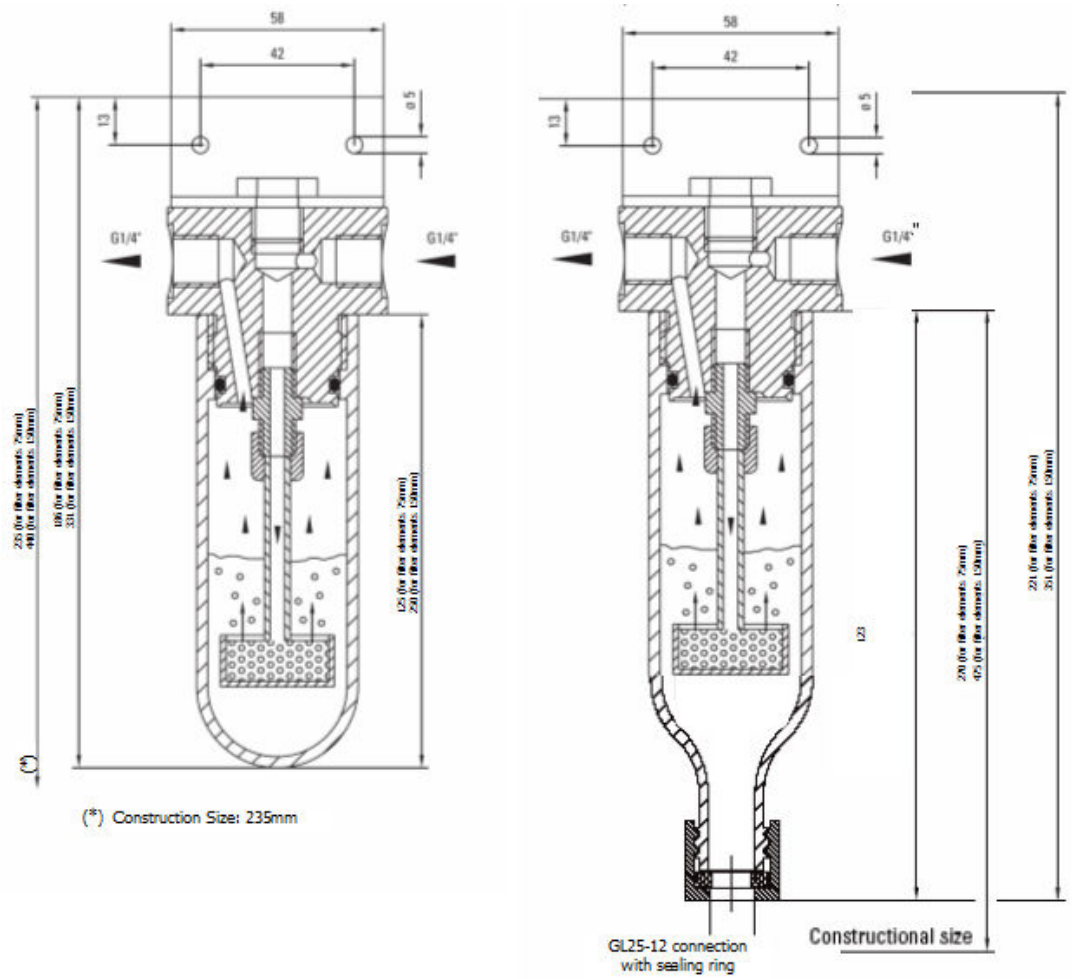
Technical data

AHU Humidifier	AHU 001	AHU 002
Length of filter element	75mm	
Connections: Gas inlet/-outlet	3x G ¼"f (1x closed)	
Additional connection	-	GL25-12 at bottom
Flow rate	Max. 100l/h	
Materials	PVDF (head, connector) FPM (tube, o-ring) Glass (bubbler, body)	
Content	Approx. 70ml	
Operating temperature	-20°C to +80°C	
Ambient temperature	-30°C to +110°C	
Operating pressure	max. 4 bar g at 20 °C	
Mounting method	Wall-mounting / panel mounting	
Weight	Approx. 0,3kg	

ANKERSMID Humidifier

AHU Series

Dimensions



ANKERSMID Wash bottle

AWB Series

* Pictures may vary

Application

The Ankersmid wash bottle serves different purposes. First of all, the wash bottle can wash out sample gases. The second application is its role in maintaining a constant pressure upstream of the analyzer by establishing a constant differential pressure with respect to the atmosphere by using the second inlet.

Description

The ANKERSMID wash bottle features components from our universal filter range.
The gas passes a bubbler witch creates a very intensive washing effect in any liquid absorbent. No tools are required for easy filling or liquid replacement. The tightness between the glass body and the head is guaranteed by an O-ring.

The Ankersmid wash bottle is also available with an optional GL25-connection (bottom) of the glass body or
with GL18-connection (bottom) and GL25-connection (side).

A special bracket is available to place these filters on the Ankersmid Modular System.

The wash bottle can be rotated about 180° in the holder for wall-mounting or Ankersmid Modular System.

This allows a flexible adaptation of in- and outlet to local conditions.

- **Chargeable with a variety of absorbents**
- **Easy change of absorbents**
- **Condition of liquid visible from outside**
- **Optimum out-washing effect**
- **Also for constant pressure upstream the analyser**

ANKERSMID Wash bottle

AWB Series

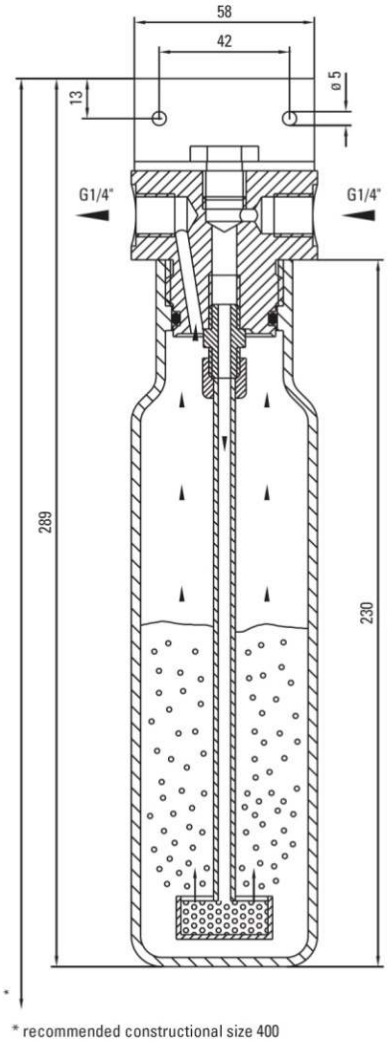
Technical data

Sample connections: Gas in/-outlet		3x G1/4"f (standard)
Condensate connection		Bottom GL25 (optional) Bottom GL18, side GL25 (optional)
Flow rate		Max. 250l/h
Pressure at 20°C		Max. 5 bar abs
Materials:	Head	PVDF (standard) or PTFE
	Body	Duran® Glass
	Seals	FPM (head)
		PTFE/Silicone (GL-connection)
Temperature of ambient or sample		Max. 100°C (standard)
Mounting method		Wall-mounting / panel mounting / Ankersmid Modular System (AMS)

ANKERSMID Wash bottle

AWB Series

Dimensions



Picture: AWB 010

ANKERSMID Fluid particle filter

AFP Series

* Picture may vary

Application

The Ankersmid aerosol/coalescence filter is suitable for filtration of fluid particles of all types and is recommended for sample gases with an acid dew point above 100°C. Application examples are measurements in flue gas of heavy oil and black coal combustions.
The filter separates the aerosols (very fine fluid particles) which still pass the gas cooler. The most effective position of the filter is downstream the sample conditioning close to the flow meter of the analyser. For additional system protection we provide the version with integrated hydrophobic diaphragm, working as a liquid stop.

Description

The filter element of the Ankersmid aerosol/coalescence filter is constructed in two sections with a flow direction from the inside to the outside of the filter element. The inner, very fine, glass-fiber layer binds the fluid particles suspended in the gas and leads them together with the gas flow to the outer, larger layer. On their way through the filter element, the very fine fluid particles accumulate with others and form droplets. The vertical flow direction and the force of gravity cause the droplets to drip into the filter pot.
The filter element remains fully effective even when completely saturated with fluid. If it is not affected by solid particles, the lifetime is nearly unlimited. The compressed Micro-Fibers are made with binding of PVDF in order to prevent influences on the sample gas.
A version equipped with an integrated liquid stop for water and water identical liquids is available. The modified filter element clamp has a protective hydrophobic diaphragm. In case the sample conditioning system does not work proper, the filter will stop the liquid in front of the filter outlet.
The condition of the filter is visible through the glass body without opening the filter. The separated acid mist can continuously be discharged with an external mounted peristaltic pump (option) connected by the GL25 adapter. No tools are required to change the filter element. The optimized position of the O-ring always guarantees a safe sealing of the filter body to the filter head.
A special bracket is available to place these filters on the Ankersmid Modular System.
The filter can be rotated about 180° in the holder for wall-mounting or Ankersmid Modular System.
This allows a flexible adaptation of in- and outlet to local conditions.

- **High separation rate of 99,9999% for particles > 0,1µm**
- **Optional liquid stop (hydrophobic membrane) for analyzer protection**
- **Visible condition of filter element from outside**
- **Easy change of filter element**
- **Wall-mounting**

ANKERSMID Fluid particle filter

AFP Series

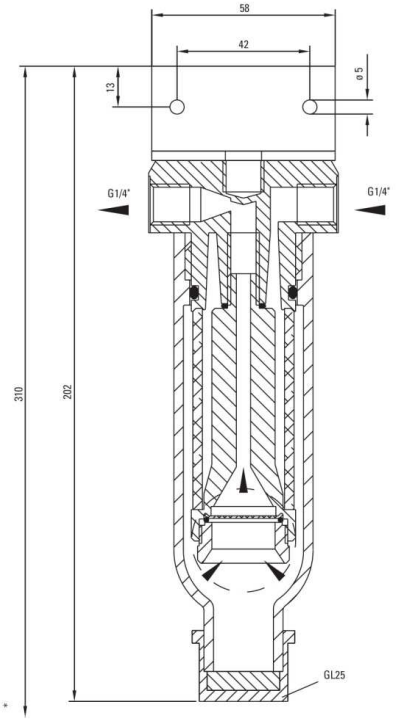
Technical data

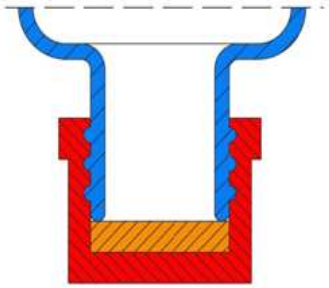
Model AFP	
Separation rate	99,99% or particles > 0,1 µm
Flow rate	Max. 300l/h
Pressure	Max. 2bar abs
Gas temperature	Max. 80°C
Connections	G1/4"f (gas inlet, gas outlet), GL25 (condensate outlet)
Materials	PVDF (filter head), PTFE (filter element holder) Duran® glass (body) Glass-fiber (filter element)

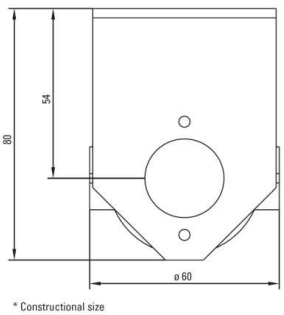
ANKERSMID Fluid particle filter

AFP Series

Dimensions







* Constructional size

ANKERSMID Panel filter

APF Series

* Picture may vary

Application

The APF front panel mounting reliably extra-fine filters solids, in particular very fine particles, from the gas stream for gas conditioning applications. The APF uses a very fine, deep-acting filter element that removes particles larger then 100 nanometer from the gas stream. The large filter surface of the cylindrical filter element guarantees reliable extra-fine filtration and a long service life with low pressure drop.

The APF extra-fine filter was primarily developed for 19" front-plate mounting equipment, as is evident from the APF's small size that is suited to flat-design equipment.

Description

Special features of the APF front panel mounting filter are flat design, low stagnant space, simple construction and assembly as well as universal usability.

The condition of the filter can be seen immediately from outside through the filter glass without opening the filter fitting. No tools are needed for changing the filter element; here, the optimum positioning of the sealing O-ring always guarantees reliable sealing between filter glass and filter body.

The gas connections are located at the back in the filter body. The inlet of the measuring gas can be turned by 180° at the front ring attachment so that a flexible adjustment to local conditions is possible when assembling.

Corresponding tube connectors can optionally be supplied on request.

- **Flat design**
- **Small stagnant space**
- **Simple construction**
- **Simple assemble**
- **Easy change of filter element**
- **Universal usability**

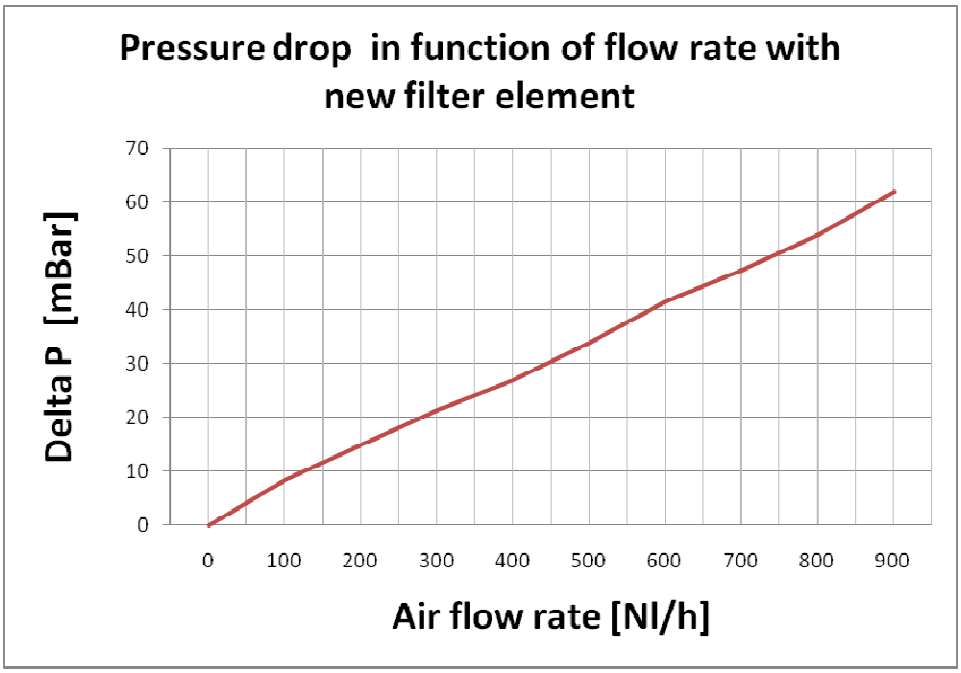
ANKERSMID Panel filter

APF Series

Technical data

Model APF	APF 010	APF 020
Filter porosity	0,1µm	2µm
Materials	PTFE, Viton®, glass, PVDF	
Connections	2x G1/4"f	
Pressure	max. 4bar g	
Sample temperature	max. 80°C	
Ambient temperature	max. 80°C	
Filter surface	50cm^2	
Dead volume	30ml	
Weight	Approx. 280g	
Type of mounting	Front-panel mounting	

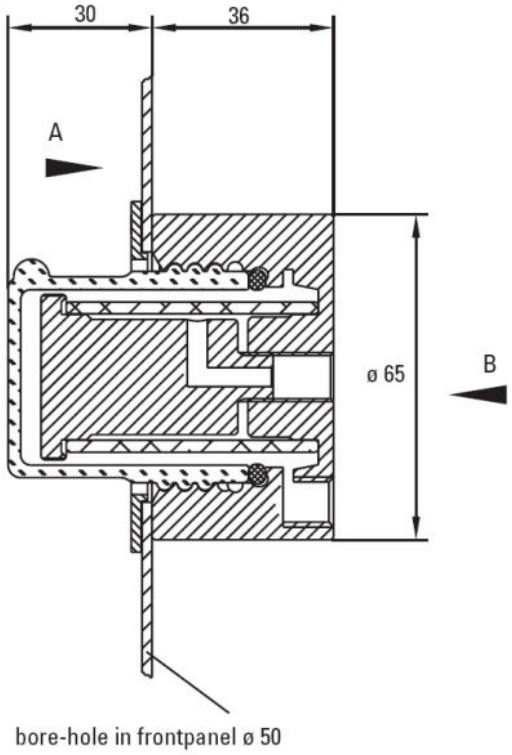
PTFE = Polytetrafluoroethylene (Teflon®)
PVDF = Polyvinylidenfluoride

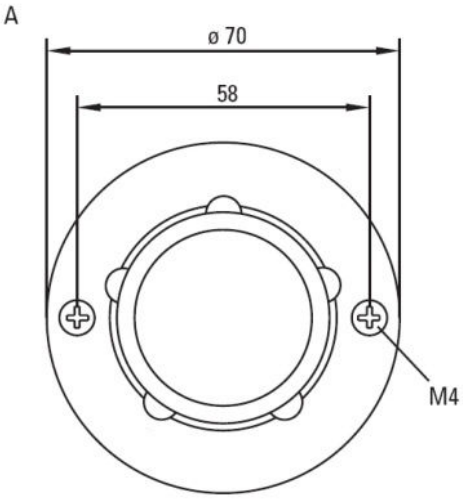


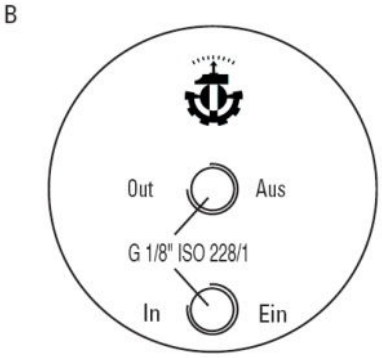
ANKERSMID Panel filter

APF Series

Dimensions







ANKERSMID Liquid stop

ALS

* Pictures may vary

Application

The ALS liquid-stop protects analyzers against an inrush of liquids from the gas conditioning unit into the analyzer.

This avoids major damages of the analyser.

The best position of the liquid is behind the gas conditioning unit, and before the flow meter going to the analyser.

Description

The hydrophobic protective membrane of the liquid-stop ALS is placed between the two parts of the housing which are screwed together. It is lined with a porous glass filter frit in order to secure stable proportions.
The pore sizes of the protective membrane are designed in such a way that gas molecules and steam can pass through but liquid molecules are retained.
Owing to the horizontal flow direction of the gas and because possible liquids are draining off on the protective membrane due to gravity, the breakthrough of liquids to the analyzer is avoided.
Changing the membrane is easy. The fixed positioning of the sealing O-rings guarantees always a secure sealing of both housing parts.
A special bracket is available to place these filters on the Ankersmid Modular System.
The filter can be rotated about 180° in the holder for wall-mounting or Ankersmid Modular System.
This allows a flexible adaptation of in- and outlet to local conditions.

- **Secure protection against liquid break-through**
- **Also suitable for high pressures**
- **Available in stainless steel and PVDF**
- **Fast exchange of the hydrophobic membrane**
- **Wall-mounting holder included**

ANKERSMID Liquid stop

ALS

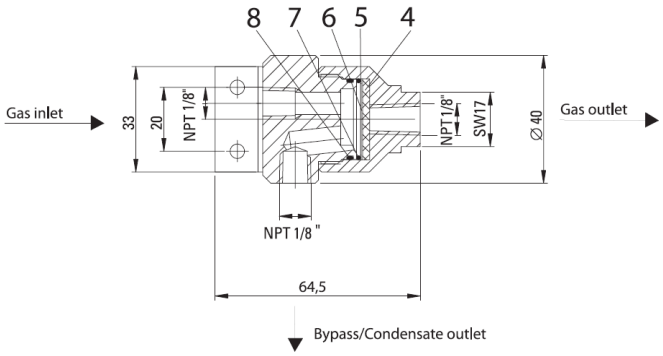
Technical data

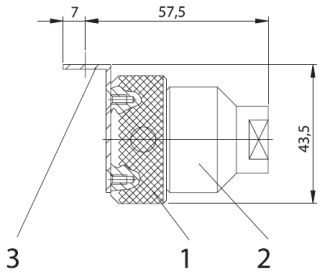
Model ALS	ALS 001	ALS 002
Gas flow rate	200Nl/h max.	
Gas pressure	0,3 -10bar abs.	0,3-2bar abs.
	ΔP max. 0,5bar	
Material	SS 316, FPM, PTFE, Polyester	PVDF, FPM, PTFE, Polyester
Sample gas temperature	+100°C max.	+80°C max.
Ambient temperature	0°C to +60°C	
Dead volume	4ml	
Differential pressure with medium air at 20°C	50mbar at 100Nl/h 100mbar at 200Nl/h	
Connections	NPT 1/8"i	
Mounting/weight	Wall-mounting/approx. 0,3kg	

ANKERSMID Liquid stop

ALS

Dimensions





1 Upper part of housing
2 Lower part of housing
3 Holding angle
4 Filter frit (glass)
5 Hydrophobic protective membrane
6 Flat ring (PTFE)
7 O-ring (FPM)
8 O-ring (FPM)

ANKERSMID Flow meter

AFM 10x/20x Series

Picture: AFM 10x

Picture: AFM 20x

Application

The AFM flow meter for front and panel mounting are used for flow control of gas media in analysis devices and systems.

Description

The Ankersmid AFM 10x flow meter consists of a vertical, internally conical glass tube widening towards the top in which a float can move freely upwards and downwards and of the head and bottom piece with an integrated Stainless Steel needle valve
The sample gas flows upwards through the tube and lifts the float until a radial clearance occurs between the tube wall and the float so that forces affecting the body are in equilibrium. Every position of the float corresponds to a certain flow which can be read on a calibrated scale.
The measuring tube is sealed within the head and bottom part with FPM o-rings, as is the fine adjustment needle valve.
The flow meter is fitted with a fine adjustment valve in the inlet for precise flow value setting.

The Ankersmid AFM 20x flow meter consists of a vertical, internally conical glass tube widening towards the top in which a float can move freely upwards and downwards. A "front panel" of a maximum 4 mm thickness with two appropriate mounting bore holes serves as base body for attaching the head and the bottom part.
The measuring tube is sealed within the head and bottom part with FPM o-rings. All parts coming into contact with the gas medium are made of PVDF, FPM and glass.

- **Good chemical resistance**
- **Compact design**
- **AFM 10x with fine adjustment needle valve**

Available flow ranges:

AFM 101	0,1-1,2 l/min
AFM 102	0,5-2,5 l/min
AFM 103	0,5-6 l/min
AFM 104	2-14 l/min
AFM 105	5-30 l/min
AFM 201	0,2-2 l/min
AFM 202	0,2-2 l/min

ANKERSMID Flow meter

AFM 10x/20x Series

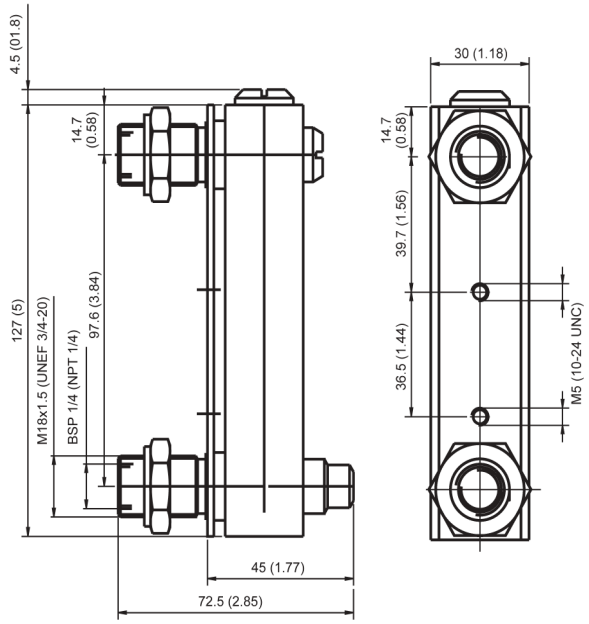
Technical data

Model	AFM 101	AFM 201/202
Max. pressure	20 bar abs. (30 bar/30°C)	3 bar abs.
Max. temperature	75°C	60°C
Material flow tube	Acrylic (PMMA)	Duran® glass
Material valve	SS 316	---
Material sealing, float	Viton®, EPDM	FPM, glass
Material connectors	SS 316	PP, PVDF
Connections	NPT ¼"	DN 4/6mm
Accuracy	± 10% F.S. (H_2O, +20°C)	
Weight	300g	100g

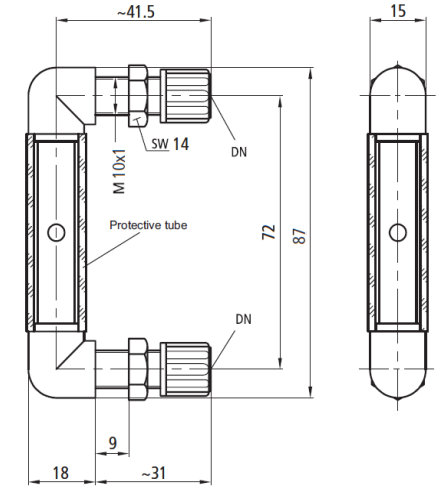
ANKERSMID Flow meter

AFM 10x/20x Series

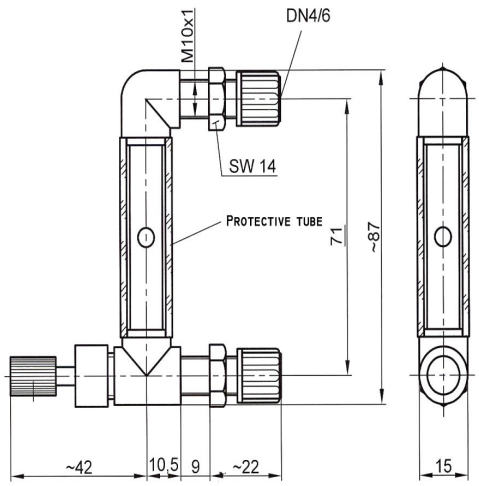
Dimensions



Picture: AFM 101



Picture: AFM 201



AFM 202

Ankersmid Peristaltic pump

ACP 001/010 series

* Pictures may vary

Application

The **Ankersmid ASR25** peristaltic pump is designed for continuous condensate removal in most gas coolers and condensate vessels, and is suitable for a wide range of analytical applications.
The design ensures that condensate flow-back into the cooler is impossible.
The pumps 0,25l/h capacity guarantees complete condensate removal, even at high dew points.

Description

The **ASR25** is a self-suction pump designed for continuous operation.
Driven by a synchronous motor a system of pulleys pushes the condensate through a special tube with a very long runtime.
These pulleys are pressed by 4 springs on the peristaltic tube.
A running speed of 5 rpm guarantees that the two PVDF hose pulleys and the Novoprene® hose provide good mechanical and chemical resistance with a long life time.
Changing the peristaltic tube is an easy procedure that only takes seconds.

• The pump can be installed inside the Ankersmid Compressor Cooler (ACC) and Ankersmid Peltier Cooler (APC).

• Also available in an ABS housing (See ACP 010)

• The pump can be clicked on the Ankersmid Modular System with a special bracket, eliminating the need for drilling and screwing, and facilitating an easy adjustment in the gas conditioning set-up.

- **Capacity: 0,25l/h**
- **Pressure range: 200mbar up to 2,2bar abs.**
- **Connection: tube DN4/6**
- **Material: Novoprene®, PVDF**
- **Power: 230/115V, 50/60Hz**

Ankersmid Peristaltic pump

ACP 001/010 series

Technical data

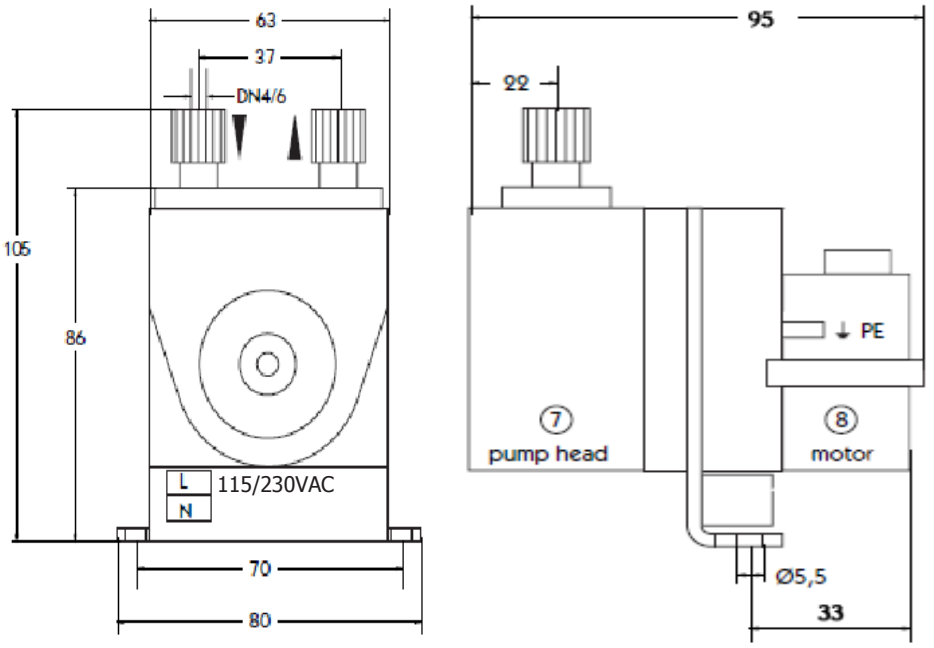
Model ACP	ACP 001	ACP 010
Housing	No	Yes, material: ABS
Capacity	0,25l/h standard	
Pump speed	5 rpm standard	
Pressure range	200mbar up to 2,2bar abs.	
Sample gas inlet/outlet	DN 4/6mm tube connections	
Sample temperature	0°C to +60°C	
Ambient temperature	0°C to +50°C	
Material of connectors	PVDF	
Material of tube	Novoprene®	
Storage temperature	-10°C to +60°C	
Power consumption	3,5W	
Protection class	IP10	IP 52
Operation mode	100% continuous duty	
Dimensions (w x h x d)	80 x 105 x 95 mm	80 x 150 x 135 mm
Weight	0,39Kg	0,6Kg
Power supply	230V/50Hz 115V/60Hz	230V/50Hz 115V/60Hz

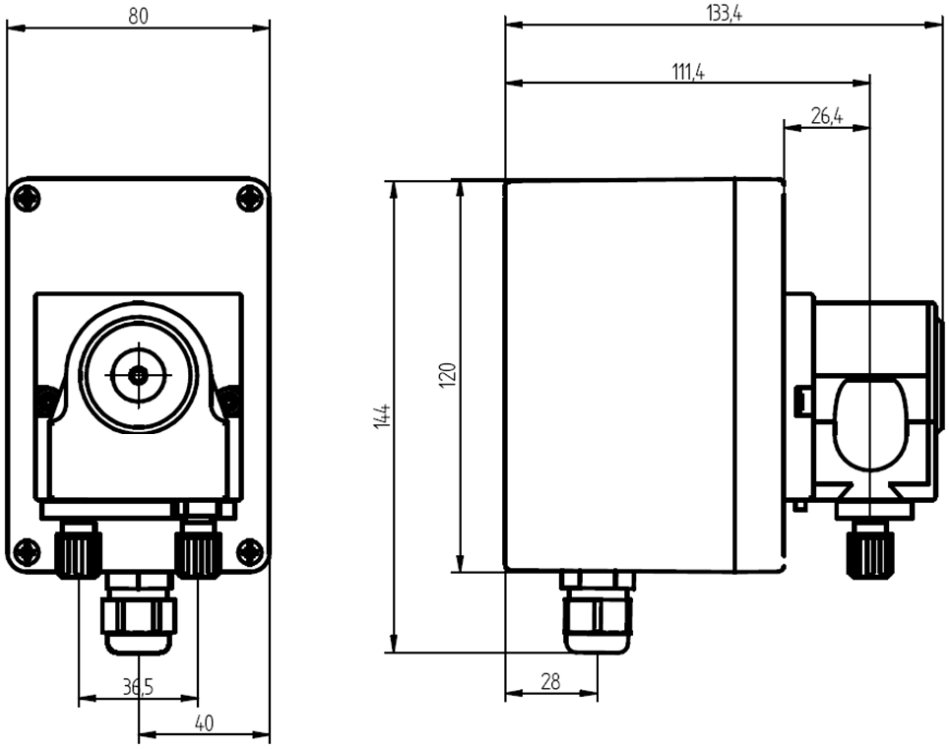
PVDF = Polyvinylidene difluoride

Ankersmid Peristaltic pump

ACP 001/010 series

Dimensions





ANKERSMID Diaphragm pump

AMP 510/518/530 Series
AMP xxx TP temperature resistant PTFE
AMP xxx T temperature resistant
AMP xxx TC with thermostatic temperature control
AMP xxx EC with electronic temperature control
Flow rates 10 -18 or 30 L/min

* Picture may vary

Application

Ankersmid Diaphragm Pumps are used for the transportation of sample gas in sample conditioning systems in the chemical industry, for environmental applications, and in production technology; some application examples are sampling gases from the ambient environment, exhaust gases and smoke analysis. The **AMP 510/518/530** is easy to install and can be adapted to a variety of process conditions.

Description

When analyzing hot gases, care must be taken not to cool the gas en route from sampling point to the gas analyzer. Were the gas to cool down, it could condensate and gas constituent parts could condense out of the gas, leading to inaccurate measurement results. To overcome condensation issues, hot gases are pumped using diaphragm pumps with heated heads.
All Ankersmid AMP 5xx models are characterized by an even spread of temperature throughout the pump head and highly efficient insulation. All models are characterised by an even spread of temperature throughout the pump head and highly efficient insulation. Pumps for this new range are available in three different versions:

- A temperature resistant version **(T)** up to 240°C
- A heated version **(TC)** up to 240°C with thermostatic temperature control
- A heated version **(EC)** for temperatures up to 240°C with electronic temperature control with PC software

Principle

The basic construction of the AMP diaphragm gas sampling pumps is simple. An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.

- **No contamination of the media due to oil-free operation**
- **Low maintenance**
- **Cool running motor even when in constant use**
- **Can operate in any installed position**
- **No condensation in the pump head**
- **Low heat loss to surroundings**
- **Easy access to the pump head**
- **Energy efficient heating**
- **Electronically controlled heating system**
- **PC software for controlling the pump via a PC and documentation of all operational data**
- **Gas tight:**
  Leakage < 6 x 10-3 mbar l/s

ANKERSMID Diaphragm pump

AMP 510/518/530 Series

Technical data

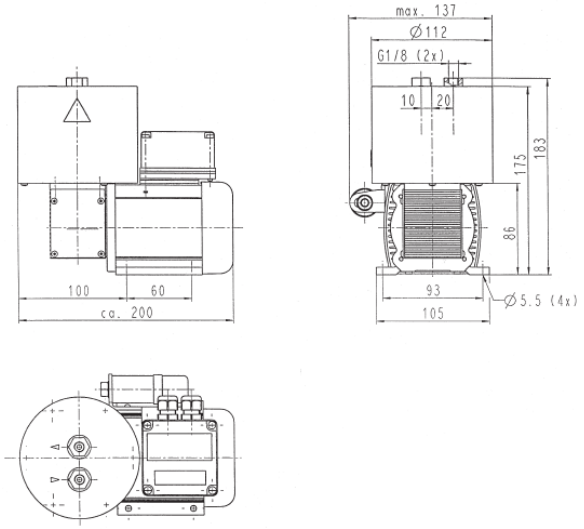
Model AMP	AMP 510				AMP 518				AMP 530		
Version	**TP**	**T**	**TC**	**EC**	**TP**	**T**	**TC**	**EC**	**T**	**TC**	**EC**
Capacity (l/min)	10				18				30		
Max. operating pressure (bar g)	1,5										
Sample gas inlet/outlet	G1/8"f										
Ultimate vacuum (mbar abs.)	240				200						
Materials											
Pump head	PTFE	SS316			PTFE	SS316			SS316		
Diaphragm	PTFE-coated										
Valves	PTFE										
Sample and ambient temperature	+5°C to 40°C										
Pump motor											
Power consumption (W)	80				100				170		
Operating current (A)	0,4				0,6				1		
Protection class	IP54										
Heating											
Power consumption (W)	-		140		-		250			400	
Operating current (A)	-		0,6		-		1,2		-	1,9	
Heating temperature (°C)	-		240		-		240		-	240	
Operation mode	100% continuous duty, start of the pump only without pressure										
Weight	4Kg				7,5Kg				12Kg		
Power supply	230V/50Hz 115V/60Hz										

PTFE = Polytetrafluoroethylene (Teflon®)
PVDF = Polyvinylidene difluoride
FFPM = Perfluorinated Elastomer (Kalrez®)

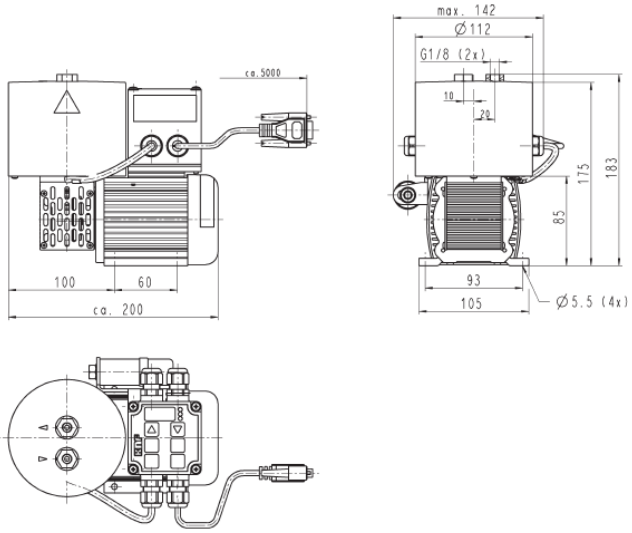
ANKERSMID Diaphragm pump

Dimensions

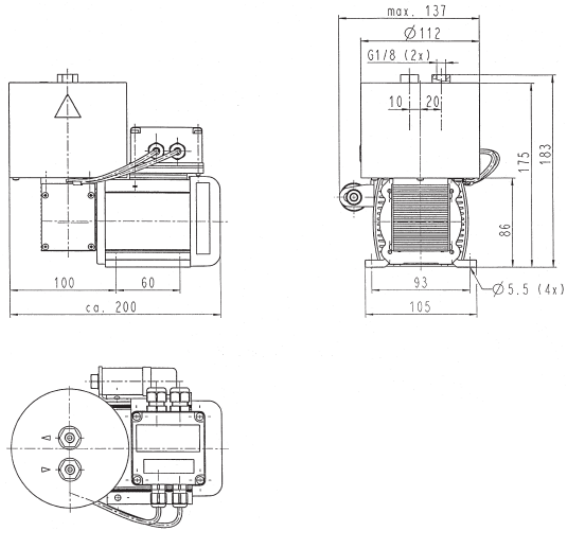
AMP 510T/TP



AMP 510EC

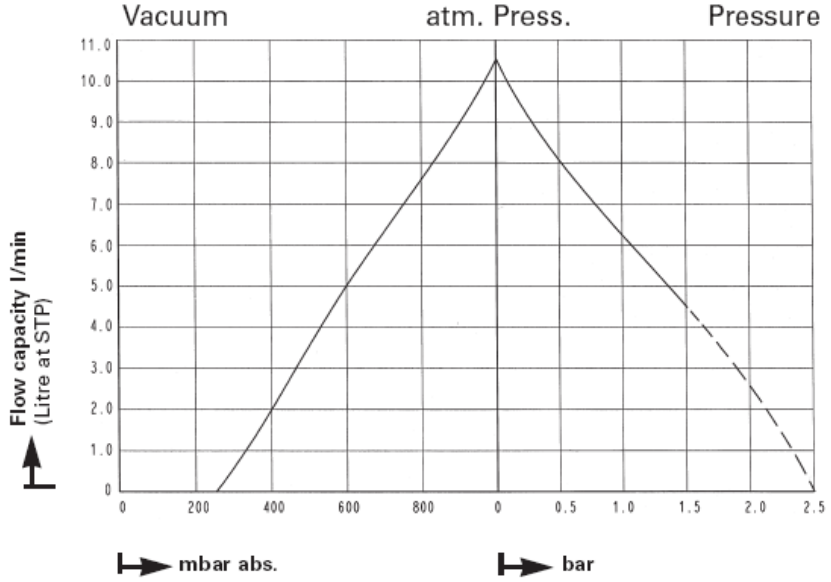


AMP 510TC



All dimensions in mm

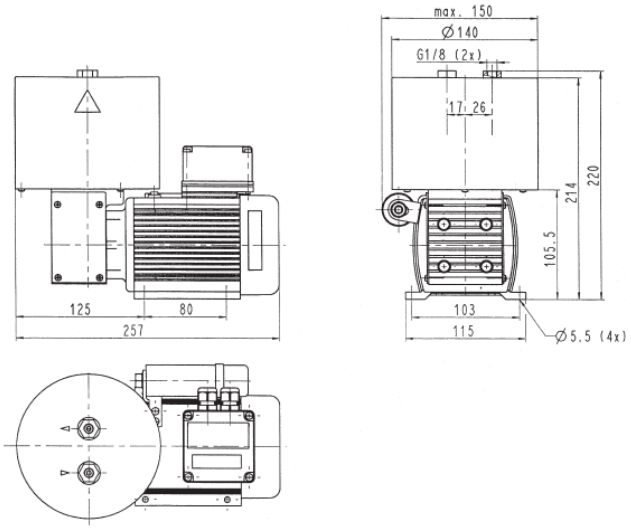
Performance characteristics



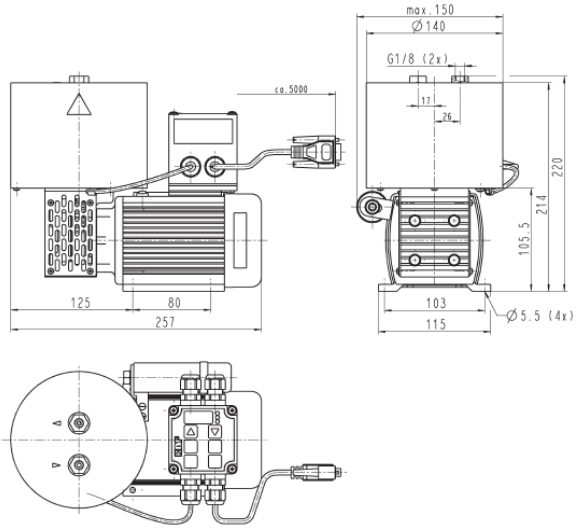
ANKERSMID Diaphragm pump

Dimensions

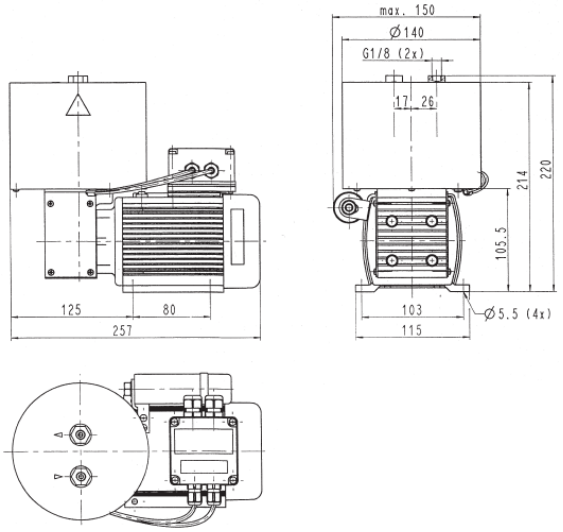
AMP 518T/TP



AMP 518EC

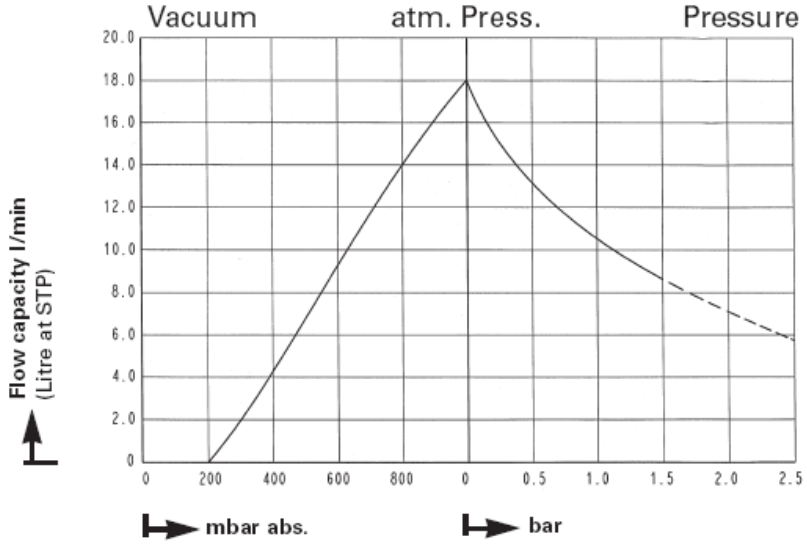


AMP 518TC



All dimensions in mm

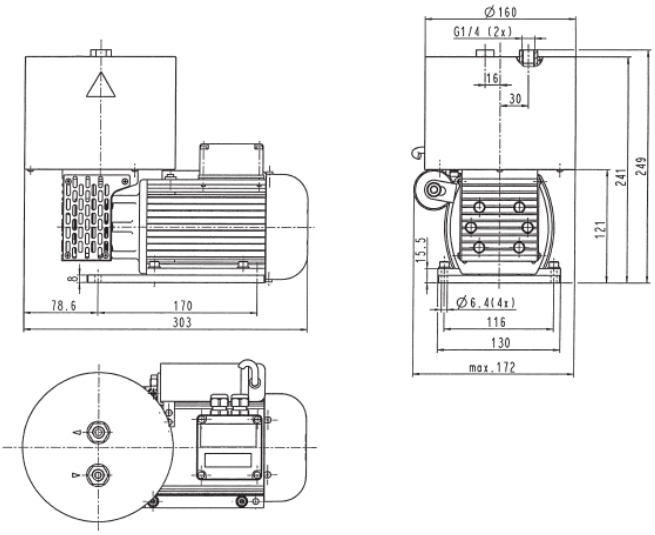
Performance characteristics



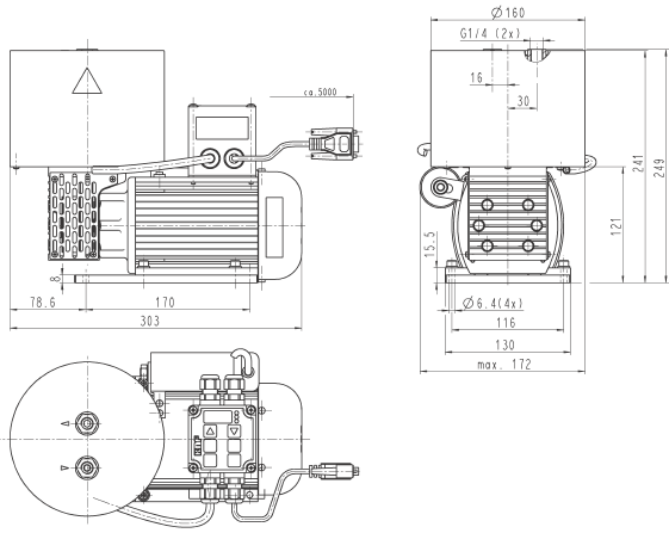
ANKERSMID Diaphragm pump

Dimensions

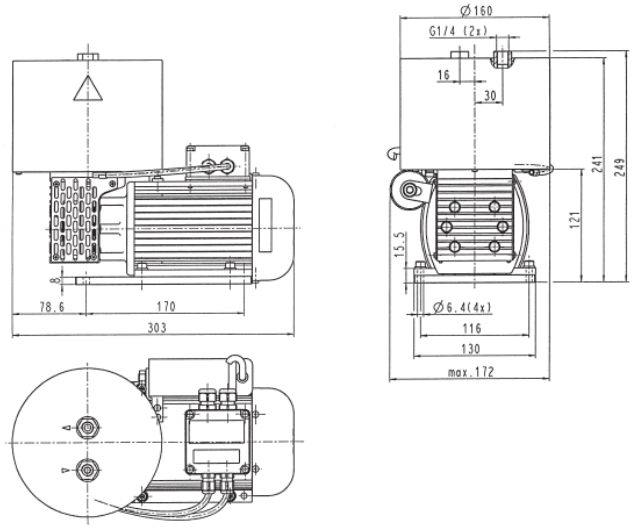
AMP 530T



AMP 530EC

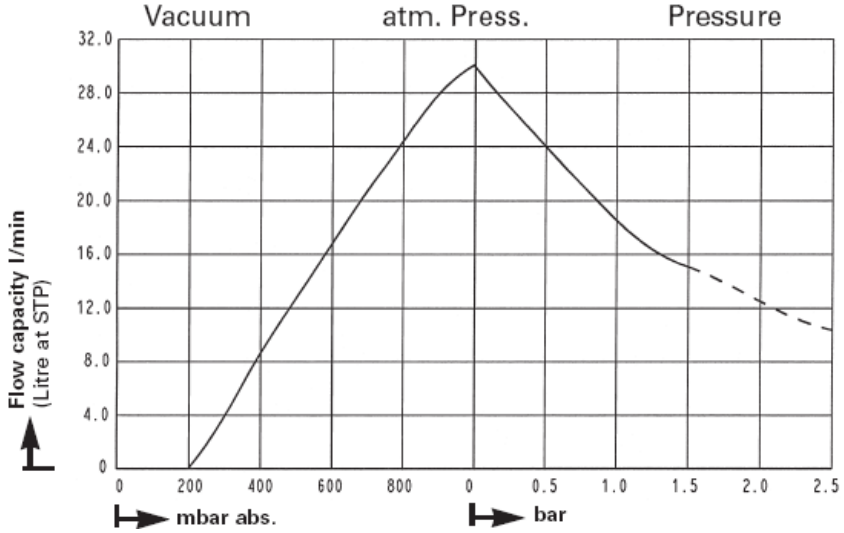


AMP 530TC



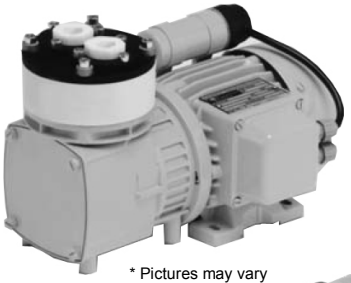
All dimensions in mm

Performance characteristics

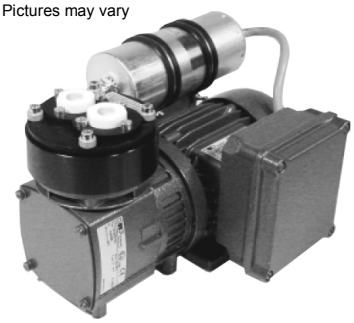


ANKERSMID Diaphragm pump

AMP 416/416Ex Series



* Pictures may vary



Application

Ankersmid Mini Diaphragm Pumps are used for the transportation of sample gas in sample conditioning systems in the chemical industry, for environmental applications, and in production technology; some application examples are sampling gases from the ambient environment, exhaust gases and smoke analysis. The **AMP 416/416Ex** is easy to install and can be adapted to a variety of process conditions.

Description

The new range of **AMP 416/416Ex** pumps are equipped with the patented stress-optimized structured diaphragm, resulting in a durable product of high pneumatic performance and compact size. Special valves ensure minimum resistance to flow.

The pumps can be operated by either standard 230VAC, or for ex-proof applications, with a motor with various options on voltages and frequencies.

Principle

The basic construction of the AMP diaphragm gas sampling pumps is simple. An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.

- **No contamination of the media due to oil-free operation**
- **Low maintenance**
- **Very quiet and little vibration**
- **Chemically-resistant models transferring high aggressive and corrosive gases and vapours**
- **High level of gas tightness: approx. 6 x 10-3 mbar x l/s**
- **Cool running motor even when in constant use**
- **Temperature resistant version up to 200°C**
- **Can operate in any installed position**
- **Explosion-proof version according to ATEX for Zone 1**

Neerlandweg 22, 2610 Wilrijk, Belgium Tel.: +32(0)3/820.80.00 Fax: +32(0)3/230.98.58

ANKERSMID Diaphragm pump — Technical data

AMP 416/416Ex Series

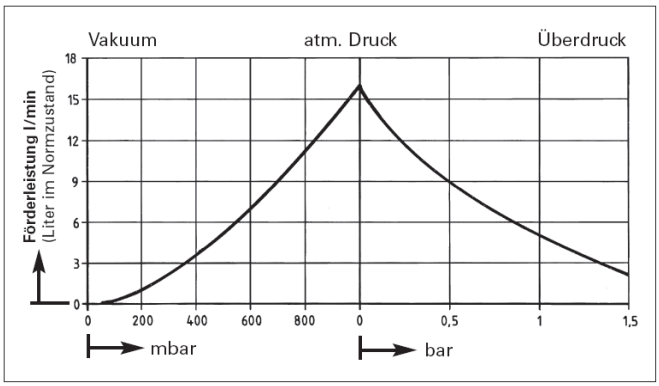
Model AMP	AMP 416	AMP 416Ex
Capacity	16 l/min without pressure	13 l/min without pressure
Max. operating pressure (bar g)	1,5 bar abs.	
Sample gas inlet/outlet	G1/4"f	
Ultimate vacuum (mbar abs.)	53	

Materials		
Pump head	PTFE	
Diaphragm	PTFE-coated	
Valves	PTFE	
Sample and ambient temperature	+5°C to 40°C	
Power consumption	130W	70W
Protection class	IP44	Ⓔx Pump parts: EEx IIB-T4 Ⓔx Motor: EExe II-T3, IP44
Operating current	1,0A	0,96A
Operation mode	100% continuous duty, start of the pump only without pressure	
Weight	5,5Kg	7,5Kg
Power supply	230V/50Hz 115V/60Hz	230V/50Hz 115V/60Hz

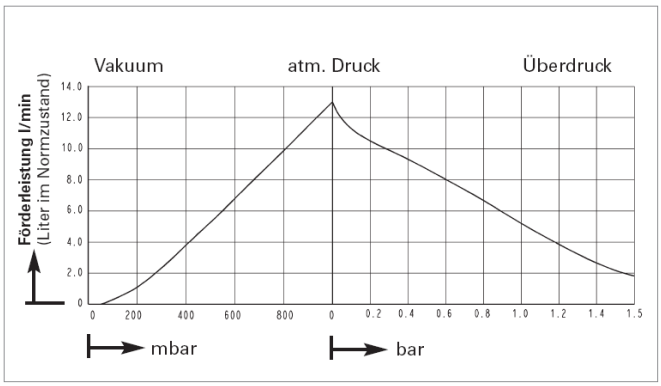
PTFE = Polytetrafluoroethylene (Teflon®)

ANKERSMID Diaphragm pump — Performance

AMP 416



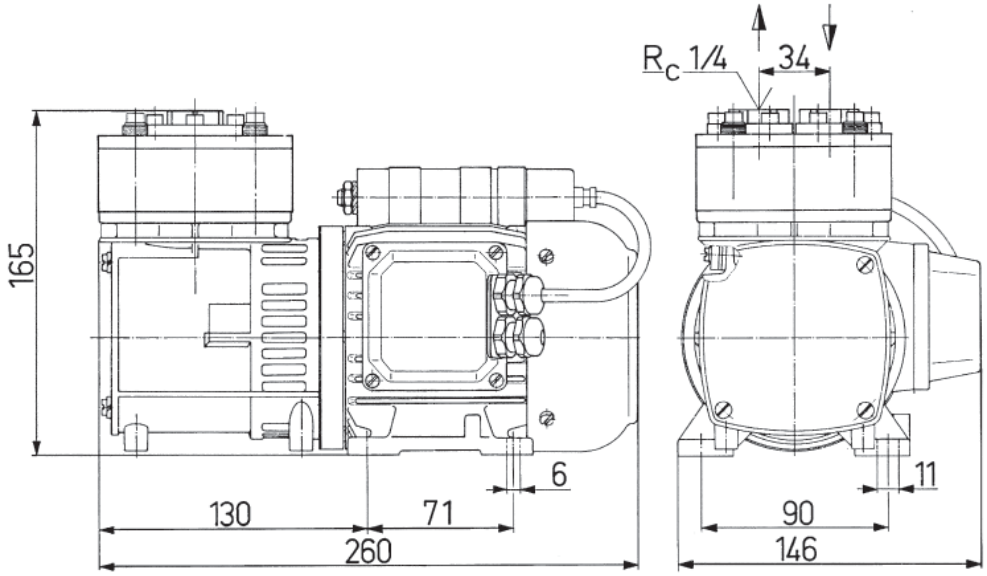
AMP 416Ex



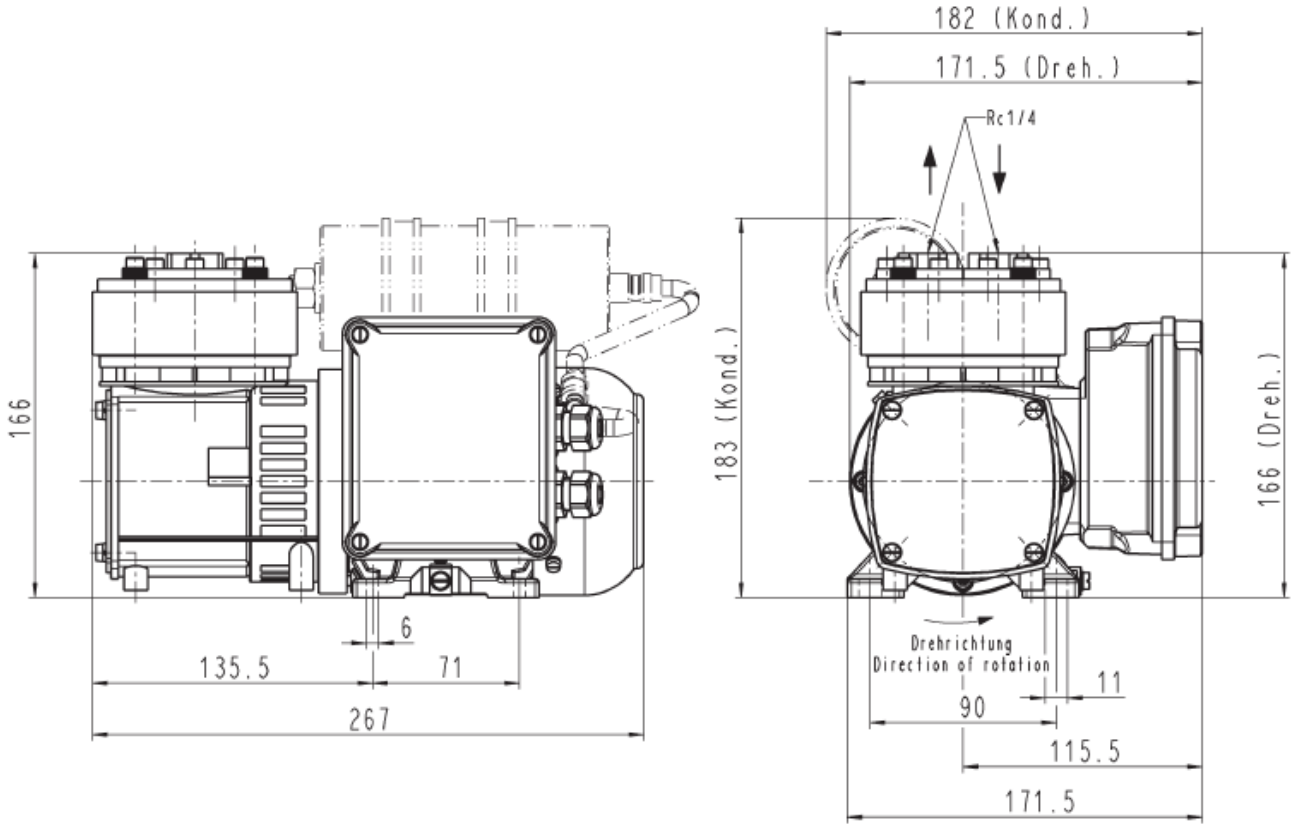
ANKERSMID Diaphragm pump

Dimensions

AMP 416



AMP 416Ex



All dimensions in mm

ANKERSMID Diaphragm pump

AMP 057 Series

* Picture may vary

Application

Ankersmid Mini Diaphragm Pumps are used for the transportation of sample gas in sample conditioning systems in the chemical industry, for environmental applications, and in production technology; some application examples are sampling gases from the ambient environment, exhaust gases and smoke analysis. The **AMP 057** is easy to install and can be adapted to a variety of process conditions.

Description

The new range of **AMP 057 / AMP 057Ex** pumps are equipped with the patented stress-optimized structured diaphragm, resulting in a durable product of high pneumatic performance and compact size. Special valves ensure minimum resistance to flow.

The pumps can be operated by either standard 230VAC, or for ex-proof applications, with a motor with various options on voltages and frequencies.

Principle

The basic construction of the AMP diaphragm gas sampling pumps is simple. An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.

- **No contamination of the media due to oil-free operation**
- **Low maintenance**
- **High performance because of structured diaphragm**
- **High level of gas tightness**
- **Long product life thanks to structured diaphragm**
- **Very quiet and little vibration**
- **Copes well with vapour and condensation**
- **Cool running motor even when in constant use**
- **Can operate in any installed position**
- **Explosion proof version according to ATEX for Zone 1**

ANKERSMID Diaphragm pump

AMP 057 Series

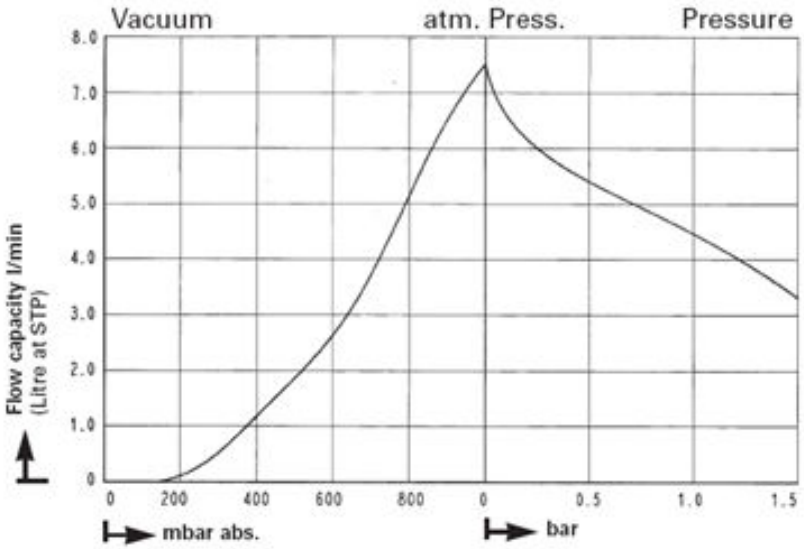
Technical data

Model AMP	AMP 057	AMP 057Ex
Capacity	7,0 l/min without pressure 0,9 / 2,0 bar abs. on suction / pressure side: 5 l/min	
Max. operating pressure (bar g)	0,2 to 2,5 bar abs.	
Sample gas inlet/outlet	G1/8"f	
Ultimate vacuum (mbar abs.)	140	

Materials		
Pump head	PVDF	
Diaphragm	PTFE-coated	
Valves	FFPM/Kalrez®	
Sample and ambient temperature	+5°C to 40°C	
Power consumption	70W	65W (115V/60Hz: 60W)
Protection class	IP54	Ⓔx II2G EEx de, q IIB T4 IP 54 EN 60529
Operating current	0,45A (115VAC: 0,7A)	0,3A (115VAC: 0,45A)
Operation mode	100% continuous duty, start of the pump only without pressure	
Weight	3,1Kg	3,3Kg
Power supply	230V/50Hz 115V/60Hz	230V/50Hz 115V/60Hz

PTFE = Polytetrafluoroethylene (Teflon®)
PVDF = Polyvinylidene difluoride
FFPM = Perfluorinated Elastomer (Kalrez®)

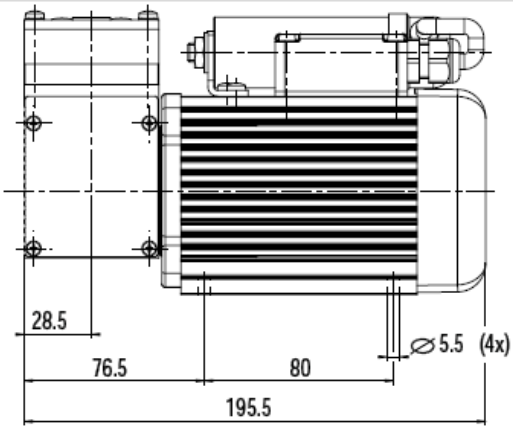
Performance characteristics

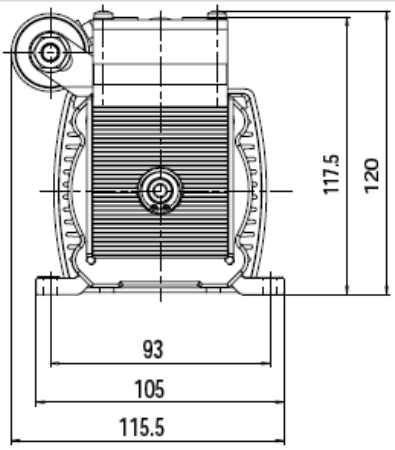


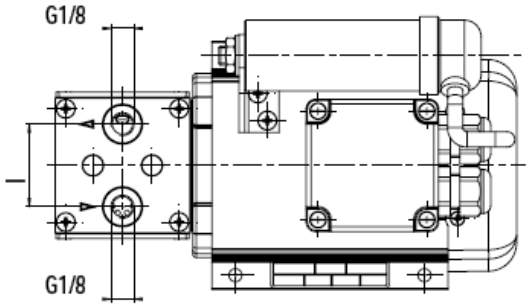
ANKERSMID Diaphragm pump

Dimensions

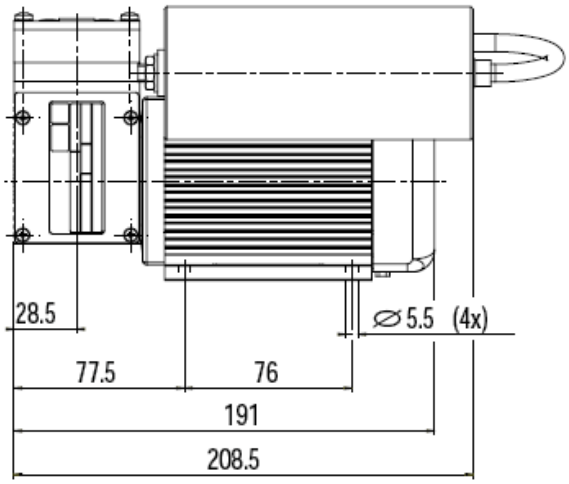
AMP 057

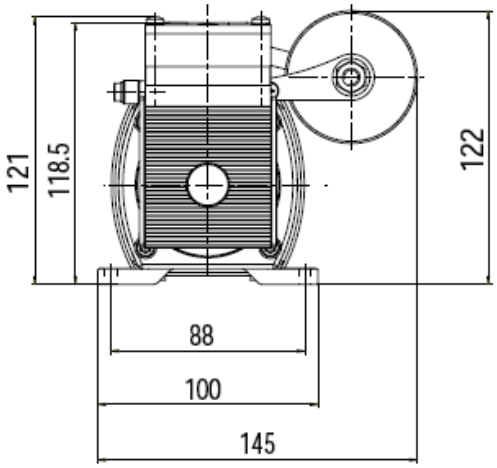


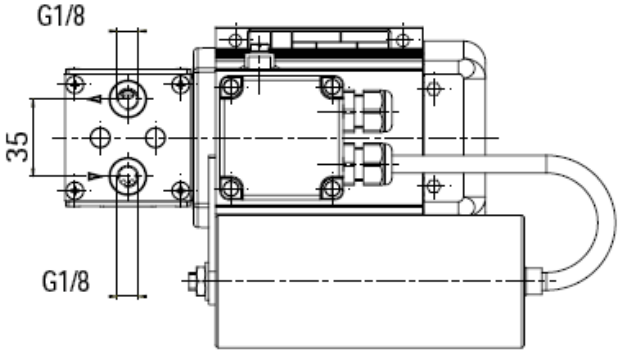




AMP 057Ex



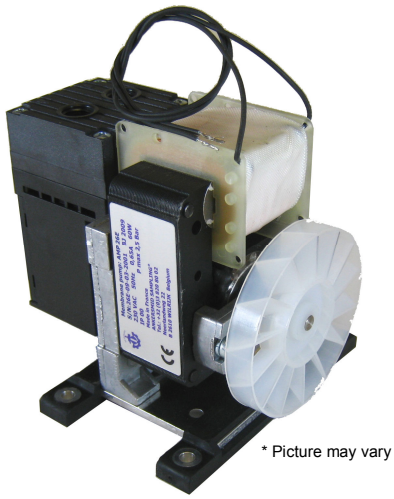




All dimensions in mm

ANKERSMID Diaphragm pump

AMP 26 Series



* Picture may vary

Application

Despite its small size the mini diaphragm vacuum pump offers a high level of performance. It is used especially in the fields of analysis, medicine and production technology.
The pumps are used for application such as sucking gases, taking samples (even liquids in a vacuum) and evacuating vessels.
The AC models are suited for use in machinery which is permanent or mains-operated.

Description

The pumps are equipped with the patented stress-optimized structured diaphragm, resulting in a high pneumatic performance, a durable product and compact size.
Special valves ensure that the product copes well with vapor and condensation that could be present in the gas stream.

Principle

The basic construction of the AMP diaphragm gas sampling pumps is simple. An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.

- **No contamination of the media due to oil-free operation**
- **Low maintenance**
- **High performance because of structured diaphragm**
- **High level of gas tightness**
- **Long product life thanks to structured diaphragm**
- **Very quiet and little vibration**
- **Copes well with vapour and condensation**
- **Cool running motor even when in constant use**
- **Can operate in any installed position**

ANKERSMID Diaphragm pump

AMP 26 Series

Technical data

Model AMP	AMP 26 E	AMP 26 S	AMP 26 C/F
Housing version	Without housing	Without housing	With housing
Capacity at atm. Pressure (l/min)	5,5	3	5,5
Max. operating pressure (bar g)	2,5	2,5	2,5
Vacuum (mbar abs.)	160	160	160
Sample gas inlet/outlet	G1/8"f		

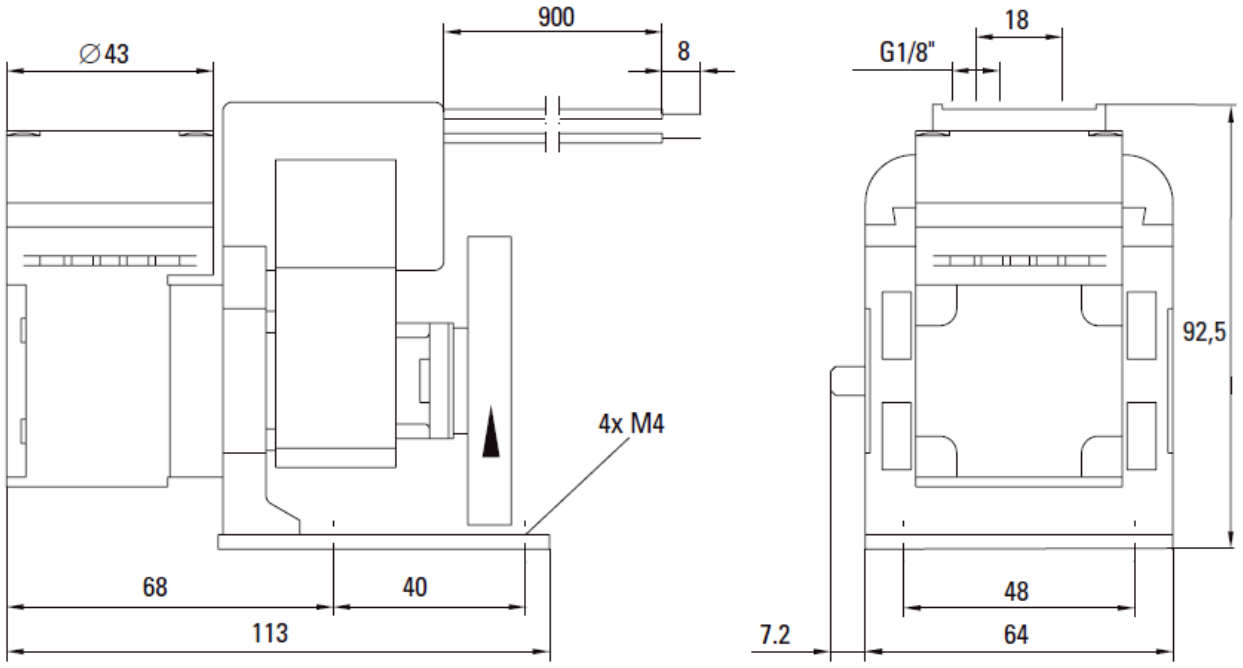
Materials			
Pump head	PPS/Ryton®		
Diaphragm	PTFE-coated		
Valves	FFPM/Kalrez®		
Sample and ambient temperature	+5°C to 40°C		
Electrical connection	Wire 4 x 0,5mm^2		Cold appliance plug with 2 fuses 230V - 1A/ 115V - 3,2A 2,5m of cable and power switch
Power (W)	60		
Protection class	IP00	IP00	IP20
Protector	Thermo switch, double (115V/230V)		
Operating current (A)	0,65		
Weight (Kg)	1,1	1,1	1,9
Power supply	230/115V, 50/60Hz	230/115V, 50/60Hz	230V, 50Hz (C) 115V, 60Hz (F)

PTFE = Polytetrafluoroethylene (Teflon®)
PPS = Polyphenylene Sulfide (Rypton®)
FFPM = Perfluorinated Elastomer (Kalrez®)

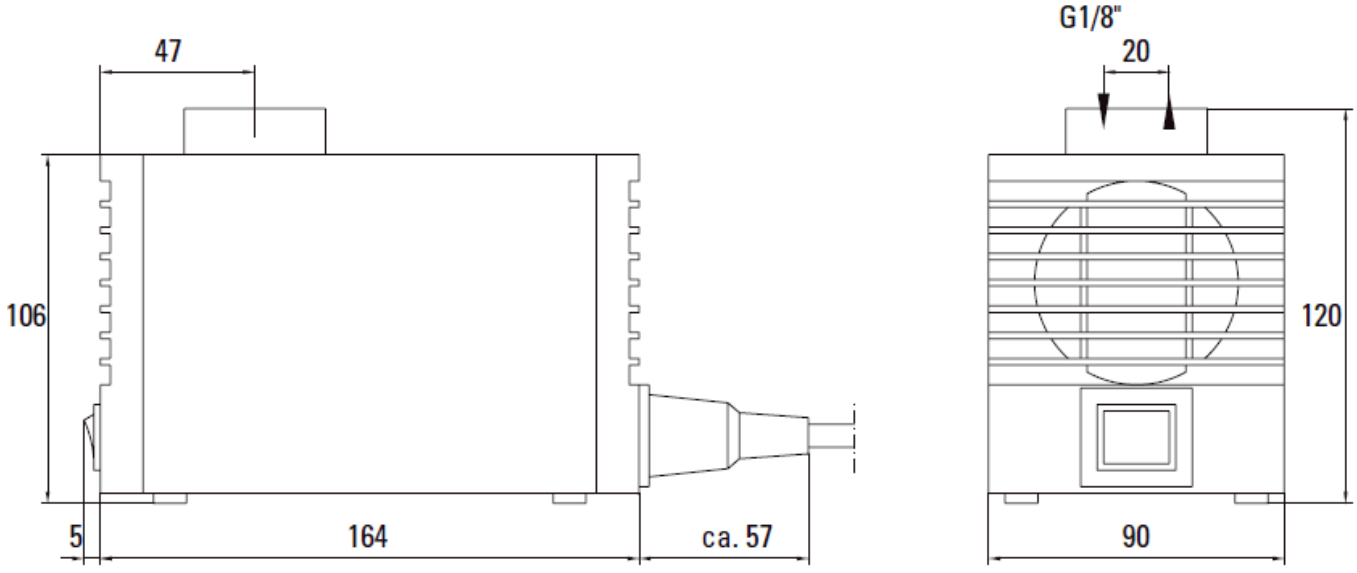
ANKERSMID Diaphragm pump

AMP 26 E/S Series

Dimensions



AMP 26 C/F Series



All dimensions in mm

ANKERSMID Diaphragm pump

AMP 11E Series

* Picture may vary

Application

Despite its small size the mini diaphragm vacuum pump offers a high level of performance. It is used especially in the fields of analysis, medicine and production technology.
The pumps are used for application such as sucking gases, taking samples (even liquids in a vacuum) and evacuating vessels.
The AC models are suited for use in machinery which is permanent or mains-operated.

Description

The pumps are equipped with the patented stress-optimized structured diaphragm, resulting in a high pneumatic performance, a durable product and compact size.
Special valves ensure that the product copes well with vapor and condensation that could be present in the gas stream.

Principle

The basic construction of the AMP diaphragm gas sampling pumps is simple. An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.

- **No contamination of the media due to oil-free operation**
- **Compact size due to structured diaphragm**
- **Maintenance-free**
- **High performance because of structured diaphragm**
- **High level of gas tightness**
- **Long product life thanks to structured diaphragm**
- **Copes well with vapour and condensation**
- **Cool running motor even when in constant use**
- **Can operate in any installed position**

ANKERSMID Diaphragm pump

AMP 11E Series

Technical data

Model AMP	AMP 11E
Housing version	Without housing
Capacity at atm. Pressure (l/min)	11
Max. operating pressure (bar g)	0,5
Vacuum (mbar abs.)	170
Sample gas inlet/outlet	G1/8"f

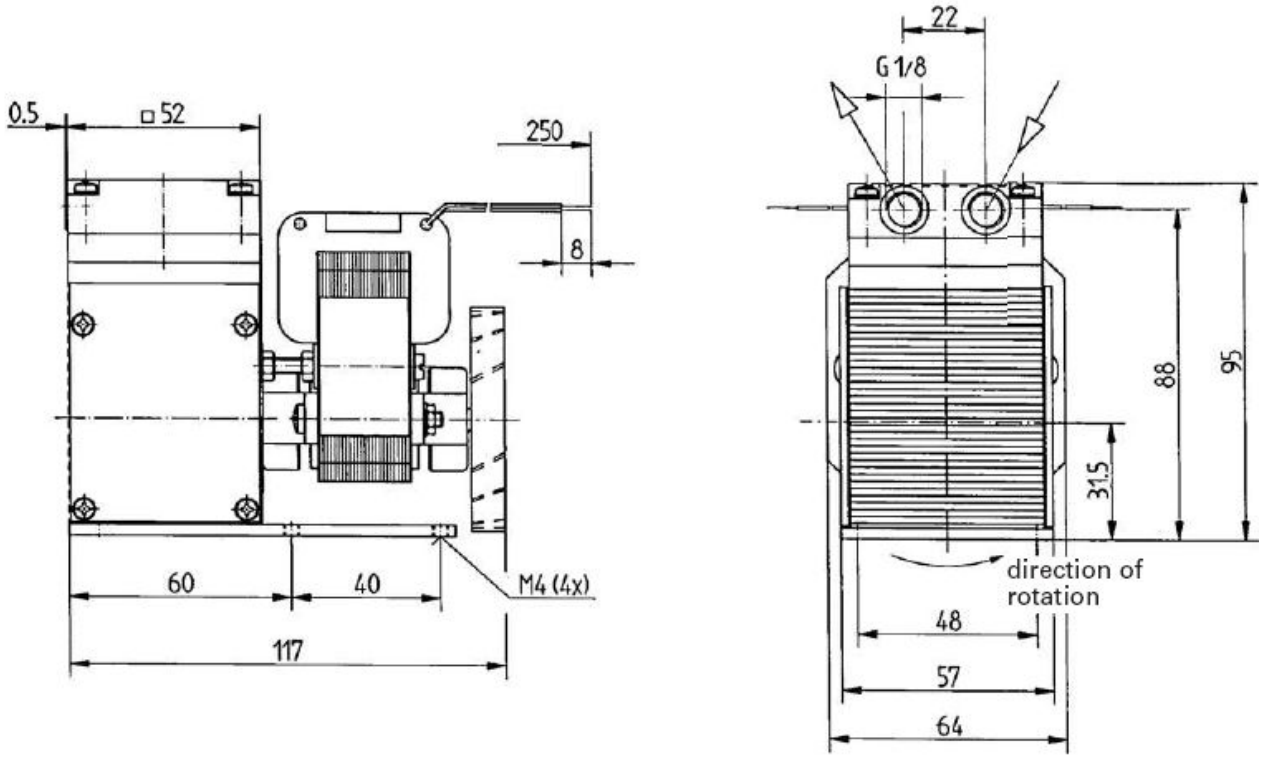
Materials	
Pump head	PPS/Ryton®
Diaphragm	PTFE-coated
Valves	FFPM/Kalrez®
Sample and ambient temperature	+5°C to 40°C
Power (W)	60
Protection class	IP00
Protector	230VAC
Operating current (A)	0,6
Weight (Kg)	1,3
Power supply	230/115V, 50/60Hz

PTFE = Polytetrafluoroethylene (Teflon®)
PPS = Polyphenylene Sulfide (Rypton®)
FFPM = Perfluorinated Elastomer (Kalrez®)

ANKERSMID Diaphragm pump

AMP 11E Series

Dimensions

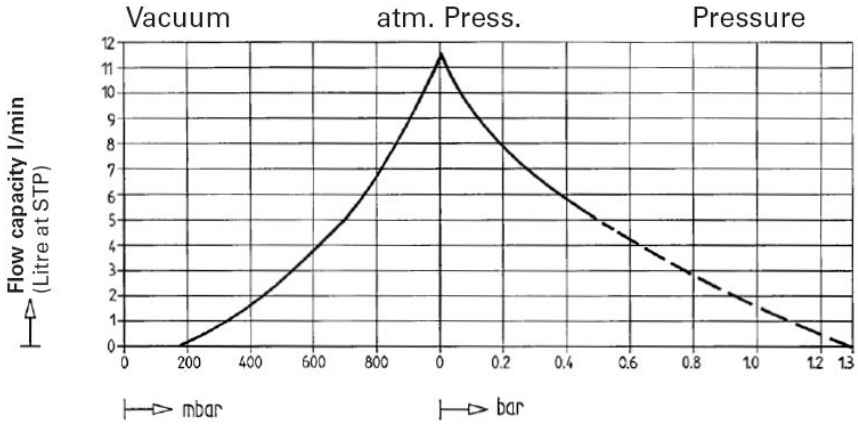


All dimensions in mm

ANKERSMID Diaphragm pump

AMP 11E Series

Performance



ANKERSMID NO_2 – NO Gas converter

AOX 1xx/2xx Series

* Picture may vary

Application

The NO2/NO converters series AOX are to be coupled with a NOx gas analyzer or NH3 gas analyzer for flue exhaust. It is converter using a special catalyst which efficiently converts NO2 in sample gas to NO.

Description

In the high temperature combustion processes, the nitrogen contained in the air reacts with the oxygen producing oxides of nitrogen in the forms of monoxide (NO) and dioxide (NO_2). The item NOx shows the total amount of the two components.
For provisions laid down by law and regulatory instructions in terms of environmental protection or for process needs, the monitoring of the NOx content in the air or in the waste gases flows is sometimes necessary.
The reference method of the NOx content definition in a gas mixture is based on the phenomenon of chemiluminescence's that can be, however, only applied to the nitric oxide. The dioxide determination requires the preventive chemical reduction to NO.
By carrying out detections of nitric oxide in the gas mixture before and after putting it under the dioxide reduction procedure, it is possible to understand the incidence of each component involved.
The NO_2/NO converter carries out the conversion of the nitrogen dioxide into monoxide through reaction inside the heating catalytic chamber.
It is inserted upstream the analysis instrument for NOx along the flow line of the gas mixture examined.

- **High flow rate at long operating time and high conversion efficiency (98% with new cartridge)**
- **No CO emission**
- **Operating temperature at 225°C**
- **Compact 19"-rack housing**
- **Catalyst cartridge easy to change without any tools**
- **Safe handling for easy maintenance**
- **Bypass solenoid valve**

The molybdenum catalyst and the temperature electronic regulation guarantee an efficiency of conversion at 98%, optimizing the performances and the duration of the cartridges of the catalytic material.
The item is composed of a stainless steel cylindrical chamber furnace heated by an electrical resistance that wraps it for all its length and is covered by a thick layer of thermal insulated material. Thanks to this, it is possible to get a stable temperature uniformly distributed and a low loss of heat.
Inside the furnace there is the molybdenum catalytic cartridge crossed by the flow of the gas mixture to be treated.
An electronic PID control thermo-regulator permits to set up and keep the temperature constant, detected through thermocouple with the most appropriate value.
On the thermo-regulator display the current temperature is visualized while luminous LED's give indications on the functionality status.
There is also a contact in the exchange as alarm status cumulative signalling for low and high temperature. The values of the intervention thresholds can be independently set up on the thermo-regulator. An electro-valve allows the catalyst chamber bypass.

The converter is available with (AOX 2xx) or without bypass valve (AOX 1xx). For test purposes, with the bypass valve the catalyst can be bypassed via a valve.
The catalyst cartridge is filled and formatted ex works factory and is ready for use immediately.

ANKERSMID NO_2 – NO Gas converter

Technical data

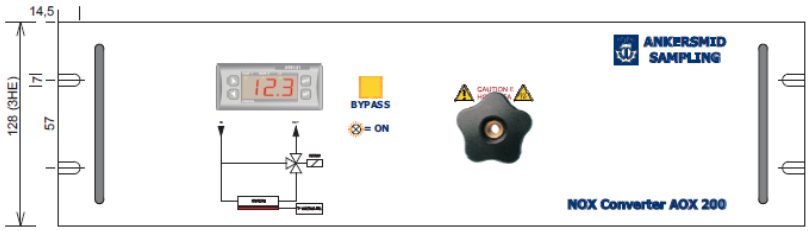
AOX 1xx/2xx Series

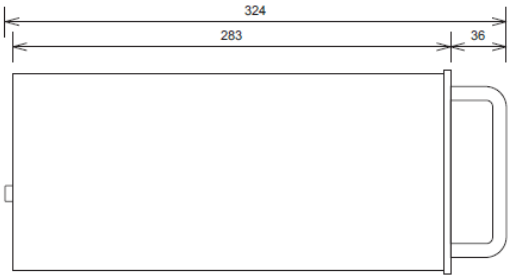
Model	AOX 100	AOX 200
Part number	AOX 100	AOX 200
Housing version	19”-rack	
Housing color front panel	RAL 7035 (light-grey)	
Weight	Approx. 5 kg	
Gas inlet & outlet	Unheated	
Gas inlet temperature	Max. +250°C	
Operating temperature	+225°C for standard molybdenum composition filling (+600°C for optional metal filling)	
Max. temperature	+ 650°C	
Gas flow rate	Standard 60Nl/h (max. 90Nl/h)	
Operating pressure	Max. 1,5 bar abs.	
Sample gas inlet	1/4” NPT f	
Sample gas outlet	1/4” NPT f	
Conversion rate NO2 in NO	Effectiveness > 96% with a new catalyst	
Life time of the catalyst	Approx. 6 months, depending on gas conditions	
Relative air humidity	< 80%	
Ambient temperature	+5°C to 50°C	
Materials of gas wetted parts	Stainless Steel SS316, PTFE, FKM, Viton©	
Electrical data		
Mains connection	Mains power plug connector incl. 1 fine fuse 5x20m (T3A/H250V) , incl. 2,5m cable with plug. Alarm- and control signals via 9-pin Sub D-connector	
Alarm contact	Free programmable contact 1NO/1NC, rating: 250V, 5A AC	
Alarm set points	+/- 10°C of set-point (others on request)	
Protection class	IP20 EN 60529 / EN 61010 / EN 60519-1	
Power supply	230V/50Hz (Standard, others on request)	
Power consumption	Approx. 450W	

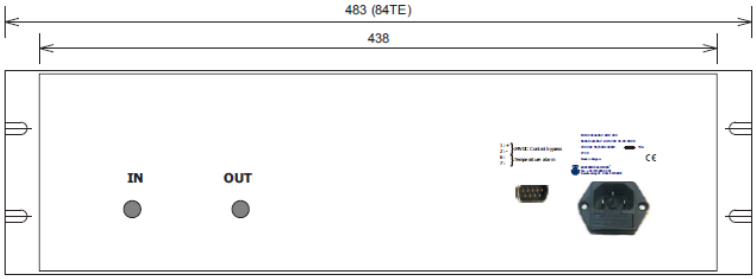
ANKERSMID NO_2 – NO Gas converter

AOX 1xx/2xx Series

Dimensions







ANKERSMID Portable gas conditioning system

APS 3xx Series

* Picture may vary

Application

The portable gas conditioning system APS has been designed so that detailed gas analyses can be carried out at any time and in any place.
The entire gas conditioning system is housed in a compact and robust carrying case which ensures that the components can be removed easily and gas analyses carried out quickly, safely and with minimum maintenance.

Description

The portable system is suitable for variable, discontinuous and continuous operation. The components built into the system can be used for standard applications. For special requirements please ask us for other solutions.
The heated sample line is to be mounted at the gas measuring inlet terminal inside the portable case.
A ball-valve can be fitted to the inlet terminal of the portable system in order to calibrate analyser(s) with check gas.
The amount of flow is determined by a sample gas diaphragm pump.
The sample gas pump (AMP) is activated automatically by means of an excess temperature contact on the cooler.
Optional flow meters with integrated needle valve are available. The flow meters are built-in as the electronic controller and are visible from outside when the carrying case is closed.
This unique microprocessor controlled Peltier cooler is a powerful designed dew point stabiliser. The dew point is set at 4°C but can be changed at any value between 1°C and 15°C. The gas cooler is equipped with an innovative heat exchanger system.
A preliminary fine filter (AUF) is installed at the inlet of the gas sampling pump and can be equipped with a variety range of filter elements in different materials and porosities.
Any condensation is continually removed by the peristaltic pump type ASR25.
With the optional thermostatic paramagnetic O2-sensor the APS is a suitable and reliable instrument for monitoring oxygen concentrations in various gas analytical control applications including process gas-, emission monitoring gas-, inert gas-, flue gas-, fermentation processes-, ambient air- and laboratory process control measurements.

- **Low maintenance and self-monitoring**
- **Dew point +4°C ± 0,1°C**
- **Ready for use < 15 min**
- **Compact design**
- **Optimum reliability**
- **Light weight**
- **Universally equipped**
- **Optional paramagnetic O2-sensor**
- **Good chemical resistance**
- **Very visible colour for use in process environment**
- **Values readable from outside**

ANKERSMID Portable gas conditioning system Technical data

APS 3xx Series

APS Portable system	APS 303	APS 313
Gas flow rate max.	350 Nl/h	200 Nl/h
Sample outlet dew point	+1°C ..... +15°C, factory setting: +4°C	
Dew point stability	±0,1°C	
Sample inlet temperature	Max. 190°C	
Sample inlet connection	Stainless steel connection DN4/6mm, suitable for heated sample lines	
Sample inlet dew point	Max. 50°C	
Ambient temperature	+5°C up to +45°C	
Maximum pressure	3 bar abs.	
Material of gas wetted parts*		
Heat exchanger coating	PFA®	
Diaphragm pump	AMP: Head: PPS, Valves: FFPM, Membrane: PTFE-coated	
Filter	head, element holder: PVDF, filter element: PTFE, body: Duran® glass	
Peristaltic pump	Tube: Novoprene®, Connectors: PVDF	
Others	Tubing: PTFE, Inlet connector: SS316, Outlet connector: PVDF	
Number of gas inlets	1	
Number of gas outlets	1 (standard), max. 2	
Filter porosity*	2µm	
Alarm contact	Free programmable contact 1NO / 1NC, rating: 250V, 16A AC	
Total cooling capacity	Max. 245kJ/h (2 Peltier elements)	
Storage temperature	-25 °C up to +65 °C	
Ready for operation	< 15 min	
Power supply	230V/50Hz or 115V/60Hz	
Power consumption	100VA	
Electrical connection	Cold appliance plug with 1,5 m of cable	
Housing	Portable heavy duty ABS case	
Housing dimensions	52,4cm x 42,8cm x 20,6cm (W x H x D)	
Electrical protection	Fuse 2A	
Electrical equipment standard	EN61010	
Weight approx.	12 kg	

Maximum values in technical data's must be rated in consideration of total cooling capacity at 25°C ambient temperature and 5°C outlet dew point

PTFE = Polytetrafluoroethylene (Teflon®)
PVDF = Polyvinylidenfluoride
PPS = Polypropylenesulphide (Ryton®)
PFA = Perfluoralkoxy-Polymere
FFPM = Perfluorelastomer (Kalrez®)

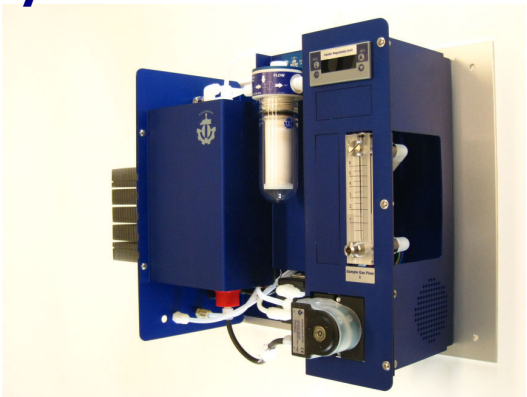
ANKERSMID Portable gas conditioning system

APS 3xx Series

Dimensions

ANKERSMID Stationary gas conditioning system

ASS 3xx Series



* Picture may vary

Application

The stationary gas conditioning system ASS has been designed so that detailed gas analyses can be carried out continuously.
The entire gas conditioning system is mounted on a plate for an easy installation in cabinets, containers and any kind of walls.
The device guarantees a safe operation with minimum maintenance.

Description

The stationary system is suitable for variable, discontinuous and continuous operation. The components built into the system can be used for standard applications. For special requirements please ask us for other solutions.
The heated sample line is to be mounted directly at the sample gas inlet connector made of stainless steel.
A ball-valve can be fitted to the inlet terminal of the portable system in order to calibrate analyser(s) with check gas.
The amount of flow is determined by a sample gas diaphragm pump.
The sample gas pump (AMP) is activated automatically by means of an excess temperature contact on the cooler.
Optional flow meters with integrated needle valve are available. The flow meters are built-in as the electronic controller and are visible from outside when the carrying case is closed.
This unique microprocessor controlled Peltier cooler is a powerful designed dew point stabiliser. The dew point is set at 4°C but can be changed at any value between 1°C and 15°C. The gas cooler is equipped with an innovative heat exchanger system.
A preliminary fine filter (AUF) is installed at the inlet of the gas sampling pump and can be equipped with a variety range of filter elements in different materials and porosities.
Any condensation is continually removed by a peristaltic pump type ASR25.
With the optional thermostatic paramagnetic O2-sensor the APS is a suitable and reliable instrument for monitoring oxygen concentrations in various gas analytical control applications including process gas-, emission monitoring gas-, inert gas-, flue gas-, fermentation processes-, ambient air- and laboratory process control measurements.

- **Low maintenance and self-monitoring**
- **Dew point +4°C ± 0,1°C**
- **Ready for use < 15 min**
- **Compact design**
- **Optimum reliability**
- **Universally equipped**
- **Optional paramagnetic O2-sensor**
- **Excellent chemical resistance**

ANKERSMID Stationary gas conditioning system Technical data

ASS 3xx Series

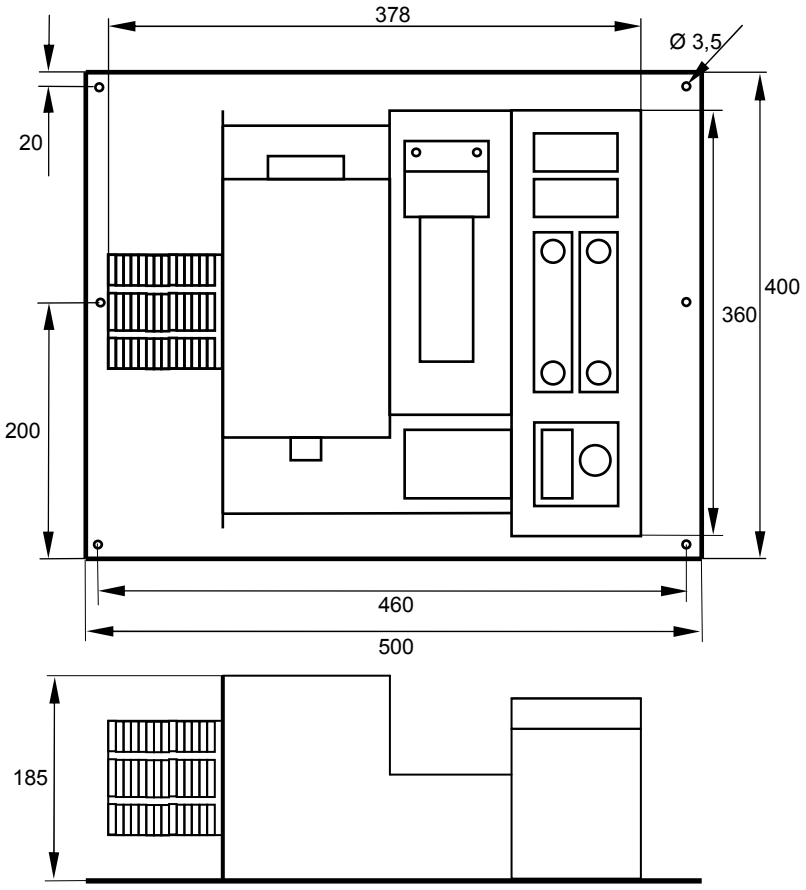
ASS Stationary system	ASS 303	ASS 313
Gas flow rate max.	350 Nl/h	200 Nl/h
Sample outlet dew point	+1°C ..... +15°C, factory setting: +4°C	
Dew point stability	±0,1°C	
Sample inlet temperature	Max.190°C	
Sample inlet connection	Stainless steel connection DN4/6mm, suitable for heated sample lines	
Sample inlet dew point	Max. 50°C	
Ambient temperature	+5°C up to +45°C	
Maximum pressure	3 bar abs.	
Material of gas wetted parts*		
Heat exchanger coating	PFA®	
Diaphragm pump	AMP: Head: PPS, Valves: FFPM, Membrane: PTFE-coated	
Filter	head, element holder: PVDF, filter element: PTFE, body: Duran® glass	
Peristaltic pump	Tube: Novoprene®, Connectors: PVDF	
Others	Tubing: PTFE, Inlet connector: SS316, Outlet connector: PVDF	
Number of gas inlets	1	
Number of gas outlets	1 (standard), max. 2	
Filter porosity*	2µm	
Alarm contact	Free programmable contact 1NO / 1NC, rating: 250V, 16A AC	
Total cooling capacity	Max. 245kJ/h (2 Peltier elements)	
Storage temperature	-25 °C up to +65 °C	
Ready for operation	< 15 min	
Power supply	230V/50Hz or 115V/60Hz	
Power consumption	100VA	
Electrical connection	Cold appliance plug with 1,5 m of cable	
Mounting plate dimensions	500mm x 400mm x 3mm (W x H x D)	
Electrical protection	Fuse 2A	
Electrical equipment standard	EN61010	
Weight approx.	8 kg	

Maximum values in technical data's must be rated in consideration of total cooling capacity at 25°C ambient temperature and 5°C outlet dew point

PTFE	= Polytetrafluoroethylene (Teflon®)	PFA	= Perfluoralkoxy-Polymere
PVDF	= Polyvinylidenfluoride	FFPM	= Perfluorelastomer (Kalrez®)
PPS	= Polypropylenesulphide (Ryton®)		

ANKERSMID Stationary gas conditioning system — Dimensions

ASS 3xx Series



ANKERSMID Digital 19”-rack mount gas conditioning system

ADS 3xx Series

* Picture may vary

Application

The digital gas conditioning system ADS has been designed for continuous use so that detailed gas analyses can be carried out at any time.
The entire gas conditioning system is equipped with a PLC which is housed in a compact 19”-housing and can be fully integrated into a gas analysis system. Its compact design ensures the ADS takes up only little space.

Description

The Ankersmid digital gas conditioning system is a compact, low-maintenance, self-monitoring and completely equipped units is suitable for variable and continuous operation in most applications.
The innovative new programmed PLC with touch screen provides a comprehensive desktop with separate pop-up menus to check and control all parts of the conditioning system as well as external devices.
The PLC is operating as controller for the internal Peltier cooler, the integrated flow sensor, a liquid sensor and several check valves for zero gas and calibration gases.
Furthermore the PLC is able to control an external heated sample line and a gas sample probe. Due to that fact external temperature controllers are no longer required for these devices.
The heated sample line is to be mounted at the gas measuring inlet terminal backside the 19”-housing.
Several valves are fitted to the inlet terminal block of the system in order to calibrate analyser(s) with check gas.
The amount of flow is determined by a sample gas diaphragm pump. The sample gas pump is activated automatically by means of an excess temperature contact on the cooler.
A digital flow sensor is integrated and the flow rate can be checked and adjusted on the touch screen.
This unique PLC microprocessor controls the Peltier cooler with is a powerful designed dew-point stabiliser. The dew point is set at 4°C but can be changed at any value between 1°C and 15°C. The gas cooler is equipped with an innovative heat exchanger system.
A preliminary front-panel fine filter type is installed at the inlet of the gas sampling pump and can be equipped with a variety range of filter elements in different materials and porosities.
Any condensation is continually removed by a peristaltic pump.

- **Low maintenance and self-monitoring**
- **Dew point +4°C ± 0,1°C**
- **Ready for use < 15 min**
- **Compact design**
- **Optimum reliability**
- **Light weight**
- **Universally equipped**
- **Good chemical resistance**

ANKERSMID Digital 19”-rack mount gas conditioning system

Technical data

APS Portable system	ADS 303
Gas flow rate max.	350 Nl/h
Sample outlet dew point	+1°C ..... +15°C, factory setting: +4°C
Dew point stability	±0,1°C
Sample inlet temperature	Max.190°C
Sample inlet connection	Stainless steel connection DN4/6mm, suitable for heated sample lines
Sample inlet dew point	Max. 80°C
Ambient temperature	+5°C up to +45°C
Maximum pressure	3 bar abs.
Material of gas wetted parts*	
Heat exchanger coating	PFA
Diaphragm pump	Head: PPS, Valves: FFPM, Membrane: PTFE-coated
Filter	head, element holder: PVDF, filter element: PTFE, body: Duran® glass
Peristaltic pump	Tube: Novoprene®, Connectors: PVDF
Others	Tubing: PTFE, Inlet connector: SS316, Outlet connector: PVDF
Number of gas inlets	1 sample inlet, max 5 check/test gas inlets (3 standard, 2 optional)
Number of gas outlets	1 sample outlet, max. 2 (1 standard, 1 optional)
Filter porosity*	2µm
Alarm contact	Free programmable contact 1NO / 1NC, rating: 250V, 0,5A AC
Total cooling capacity	Max. 245kJ/h (2 Peltier elements)
Storage temperature	-25 °C up to +65 °C
Ready for operation	< 15 min
Power supply	230V/50Hz or 115V/60Hz
Power consumption	100VA
Electrical connection	Cold appliance plug with 1,5 m of cable
Housing	19”-housing for rack-mounting
Housing dimensions	483mm x 315mm x 400mm (W x H x D)
Electrical protection	Fuse 2A
Electrical equipment standard	EN61010
Weight approx.	20 kg

Maximum values in technical data’s must be rated in consideration of total cooling capacity at 25°C ambient temperature and 5°C outlet dew point

PTFE = Polytetrafluoroethylene (Teflon®) PVDF = Polyvinylidenfluoride
FFPM = Perfluorelastomer (Kalrez®) PPS = Polypropylenesulphide (Ryton®)

ANKERSMID Online Infrared Analyzer

ABYSS SynGas Series 100-800

* Picture may vary

Application

The general application is coal or biomass gasification or pyrolysis, coal chemical process, off-gas from steel and iron making process such as blast furnace, coking, converter, direct Iron ore smelting reduction as well as Endo & Exo gas generators for heating treating.

Description

The analyzers can be used for measurement of the concentration of up to 6 gases such as CO, CO_2, CH_4, C_nH_m, H_2 and O_2 components in sample gases simultaneously. It is based on the single source dual-beam non-dispersion infrared (NDIR) method for CO, CO_2, CH_4, C_nH_m and a micro-TCD (Thermal Conductivity Detector) gas sensor for H_2 and O_2 by fuel cell method. This analyzer is designed with a digital pulsable infrared source and dual-beam systems.
There is no effect of CO_2 and CH_4 on the H_2 detector as the H_2 reading is compensated for the interference effects of the other gases measured.

- **Up to 6 gases measurement with combination of NDIR,TCD and ECD gas sensor technology**
- **Simple construction with pulsable infrared source and dual-beam technology**
- **Constant temperature control for gas bench for high stability**
- **320*240 LCD display with menu operation**
- **Heating value calculation function**
- **Integrated flow meter**
- **Automatic zero calibration**
- **Calculate the caloric value automatically**
- **Compensation of H_2 by CO, CO_2 and CH_4 sensor**
- **no requirement of constant flow for TCD of H_2**

ANKERSMID Online Infrared Analyzer — Technical data

ABYSS SynGas Series 100-800

Specifications	
Measurement	CO, CO_2, CH_4, C_nH_m,O_2, H_2 + BTU index (gas calorific value)
Calculation	High heating value or low heating value in MJ/m3 or kcal/m3 N2(Optional)
Gas flow	0.7 - 1.2 l/min, external flow meter with needle valve
Pressure of gas inlet	20 - 100mbar
Sampling gas requirement	Remove water vapor, dust (<1um) and oil
Response time	<15s (NDIR)
Warm-up time	15min
Interface	RS232 (real time and memory data download software included)
Output	4 - 20mA (according to the requirement)
Technology	CO, CO_2, CH_4, C_nH_m: proprietary dual-beam NDIR detectors O_2: industrial electrochemical cell H_2: proprietary thermal conductivity detector
Display	LCD 320 x 240 with back-light function Simultaneous indication of the 7 measures and units
	Auto-zero function via keyboard interface
Data logging	Up to 1500 sets of data; logging rate adjustable from 3 to 99 sec Possibility to identify 10 different sites and up to 100 measuring points
Operating temperature	0 - 50°C
Relative humidity	0 - 95%
Ambient air pressure	86 - 108kPa
Power supply	230V/50Hz
Dimension	483mm x 373mm x 140mm (W x L x H)
Weight	± 12Kg

Gas	Method	Range	Resolution	Precision	Error
CO	NDIR	0-100%	0,01%	≤2% FS	≤2%
CO_2	NDIR	0-50%	0,01%	≤2% FS	≤2%
CH_4	NDIR	0-10%	0,01%	≤2% FS	≤2%
H_2	TCD	0-50%	0,01%	≤3% FS	≤2%
O_2	ECD	0-25%	0,01%	≤3% FS	≤2%
C_nH_m	NDIR	0-10%	0,01%	≤2% FS	≤2%
Note: Measurement range can be customized by the requirement without extra charge					

Version	Part number	Gas components
ABYSS SynGas 800	ASG 800	CO+CO_2+CH_4+H_2+O_2+C_nH_m+Calorie
ABYSS SynGas 700	ASG 700	CO+CO_2+CH_4+H_2+O_2+Calorie
ABYSS SynGas 600	ASG 600	CO+CO_2+CH_4+H_2+Calorie
ABYSS SynGas 500	ASG 500	CO+CO_2+CH_4+O_2
ABYSS SynGas 400	ASG 400	CO+CO_2+O_2
ABYSS SynGas 300	ASG 300	CO+CO_2
ABYSS SynGas 200	ASG 200	CO+O_2
ABYSS SynGas 100	ASG 100	CO/CO_2/H_2/CH_4 (Single Gas %)

ANKERSMID Portable Infrared Analyzer

ABYSS SynGas Series 100P-800P

* Picture may vary

Application

The general application is coal or biomass gasification or pyrolysis, coal chemical process, off-gas from steel and iron making process such as blast furnace, coking, converter, direct Iron ore smelting reduction as well as Endo & Exo gas generators for heating treating.

Description

The ABYSS portable infrared SynGas analyzer is powered by Li-ion battery and can be used without AC power supply.
The analyzers can be used for measurement of the concentration of up to 6 gases such as CO, CO_2, CH_4, C_nH_m, H_2 and O_2 components in sample gases simultaneously. It is based on the single source dual-beam non-dispersion infrared (NDIR) method for CO, CO_2, CH_4, C_nH_m and a micro-TCD (Thermal Conductivity Detector) gas sensor for H_2 and O_2 by fuel cell method. This analyzer is designed with a digital pulsable infrared source and dual-beam systems.
A nylon carrying bag for analyzer and accessories is included as standard.
There is no effect of CO_2 and CH_4 on the H_2 detector as the H_2 reading is compensated for the interference effects of the other gases measured.

- **Up to 6 gases measurement with combination of NDIR,TCD and ECD gas sensor technology**
- **Simple construction with pulsable infrared source and dual-beam technology**
- **Constant temperature control for gas bench for high stability**
- **320*240 LCD display with menu operation**
- **Heating value calculation function**
- **Built-in sampling pump**
- **Integrated flow meter**
- **Automatic zero calibration**
- **Calculate the caloric value automatically**
- **Compensation of H_2 by CO, CO_2 and CH_4 sensor**
- **no requirement of constant flow for TCD of H_2**

ANKERSMID Portable Infrared Analyzer

Technical data

ABYSS SynGas Series 100P-800P

Specifications	
Measurement	CO, CO_2, CH_4, C_nH_m,O_2, H_2 + BTU index (gas calorific value)
Calculation	High heating value or low heating value in MJ/m3 or kcal/m3 N2(Optional)
Gas flow	0.7 - 1.2 l/min, external flow meter with needle valve
Pressure of gas inlet	20 - 100mbar
Sampling gas requirement	Remove water vapor, dust (<1um) and oil
Response time	<15s (NDIR)
Warm-up time	15min
Interface	RS232 (real time and memory data download software included)
Output	4 - 20mA (according to the requirement)
Technology	CO, CO_2, CH_4, C_nH_m: proprietary dual-beam NDIR detectors O_2: industrial electrochemical cell H_2: proprietary thermal conductivity detector
Display	LCD 320 x 240 with back-light function Simultaneous indication of the 7 measures and units
	Auto-zero function via keyboard interface
Data logging	Up to 1500 sets of data; logging rate adjustable from 3 to 99 sec Possibility to identify 10 different sites and up to 100 measuring points
Operating temperature	0 - 50°C
Relative humidity	0 - 95%
Ambient air pressure	86 - 108kPa
Power supply	External: 230V/50Hz Internal: with battery and charger; autonomy of > 4h with pump in operation
Dimension	380mm x 380mm x 255mm (L x D x H)
Weight	± 5Kg

Gas	Method	Range	Resolution	Precision	Error
CO	NDIR	0-100%	0,01%	≤2% FS	≤2%
CO_2	NDIR	0-50%	0,01%	≤2% FS	≤2%
CH_4	NDIR	0-10%	0,01%	≤2% FS	≤2%
H2	TCD	0-50%	0,01%	≤3% FS	≤2%
O2	ECD	0-25%	0,01%	≤3% FS	≤2%
C_nH_m	NDIR	0-10%	0,01%	≤2% FS	≤2%
Note: Measurement range can be customized by the requirement without extra charge					

Version	Part number	Gas components
ABYSS SynGas 800P	ASG 800p	CO+CO_2+CH_4+H_2+O_2+C_nH_m+Calorie
ABYSS SynGas 700P	ASG 700p	CO+CO_2+CH_4+H_2+O_2+Calorie
ABYSS SynGas 600P	ASG 600p	CO+CO_2+CH_4+H_2+Calorie
ABYSS SynGas 500P	ASG 500p	CO+CO_2+CH_4+O_2
ABYSS SynGas 400P	ASG 400p	CO+CO_2+O_2
ABYSS SynGas 300P	ASG 300p	CO+CO_2
ABYSS SynGas 200P	ASG 200p	CO+O_2
ABYSS SynGas 100P	ASG 100p	CO/CO_2/H_2/CH_4 (Single Gas %)

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ANKERSMID
Paramagnetic Oxygen Analyser
APA x00 Series

* Picture may vary

Application

The Ankersmid APA Series is a precise oxygen gauge for continuous monitoring purposes. The instrument is microprocessor controlled with self-diagnosis capability. With the programmable autocalibration function the APA Analyser is capable to fullfill a fully automatic calibration by means of the integrated relays. The measuring unit is temperature controlled to +55°C. The operation and parameterisation is carried out by means of a userfriendly 4 keys and a 16-digit LCD display and also new by a RS232 interface (USB or D-sub9).
The analyser is available in 3 versions:

- 19" rack-mount
- Portable
- Wall-mount

Description

The APA analysers are suitable and reliable instruments for monitoring oxygen concentrations in various gas analytical control applications including flue gas-, inert gas-, fermentation processes- and process or laboratory control measurements.
All analysers are temperature controlled instruments which have been designed for continuous measurements of oxygen concentrations in particle-free and dry sample gas.
The analysers are reliable and easy-to-operate instruments.
The measuring value and the sample flow through the measuring cell are displayed on the digital display.
2 alarm relays and 1 malfunction relay are available. Sample gas connections as well as connectors for incoming power supply, output signals are located at the rear panel of the analyser.
The sample gas enters the analyser passing a protective fine-filter which is installed in the front-panel (not for APA 200).
An atmospheric pressure sensor is implemented so that the actual absolute barometric pressure can be sent via RS232 and used for calculation or analysis purposes.

- **Maintenance-free and self-monitoring**
- **Modular housing system**
- **Modern micro-controller technology**
- **For process and ambient air Measurements**
- **calibration and parameter setting over RS 232**
- **Thermostated at +55°C**
- **Accurate and reliable**
- **16-Digit LCD-display with flow indication**
- **linear measuring ranges**
- **Physical measuring principle**
- **Small stagnant volume for fast response time**
- **Atmospheric pressure sensor**

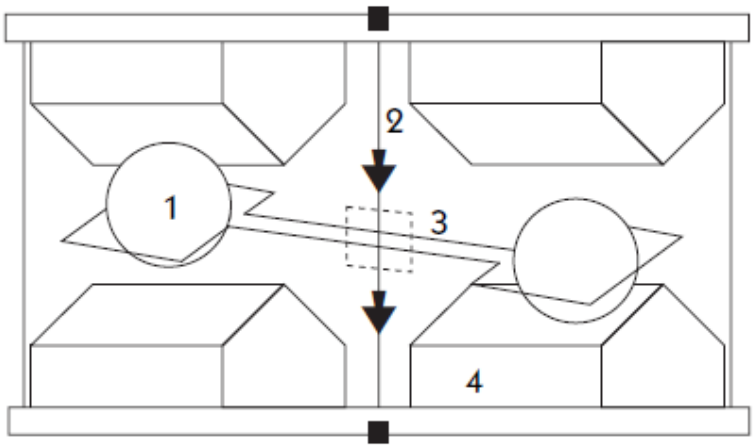
ANKERSMID Paramagnetic Oxygen Analyser

Measuring principle

The APA analyser utilises the paramagnetic principle of operation to measure oxygen concentrations. The analyser measures the paramagnetic susceptibility of the oxygen in the sample gas by means of the patented magneto-dynamic measuring cell. The physical properties which distinguishes oxygen from other gases is its paramagnetism. It is significantly higher comparing to other common gases. This operation principle is one of the most accurate and reliable procedures to determine the oxygen concentration in a gas mixture from 0 to 100 Vol.%.
The robust cell has a small stagnant volume. Advantages are the fast response time, a low drift, the absolute linearity and the negligible cross sensitivity against other sample gas components. With a proper sample conditioning and pressure, the cell will never need replacing. The nitrogen-filled dumbbell with a small mirror at its centre is mounted in a strong inhomogenous magnetic field causes a shifting of the dumbbell which is detected by a system consisting of light beam, mirror and a photo cell.
A compensation current is induced via the feedback coil on the dumbbell and leads to a reset of the dumbbell into its zero-position. The required current is linearly proportional to the oxygen concentration.

When the surrounding gas contains oxygen, the dumb bell spheres are pushed out of the magnetic field. The torque acting on the dumb bell will be proportional to the para magnetism of the surrounding gas and consequently it can be used as a measure of the oxygen concentration.

1 Quarts sphere dumb bell
2 Platinum wire
3 Mirror
4 Magnetic pole pieces



ANKERSMID
Paramagnetic Oxygen Analyser

Technical data

APA Oxygen analyser	APA 100	APA 200	APA 300
Measurement range	0-100%, freely settable by input of parameters		
Response time 90% (T90)	≤ 10 s (gas flow dependent)		
Measured value characteristic	linear		
Repeatability	≤ ± 0,03 % O_2		
Zero point drift	≤ ± 0,05% O_2 / week (offset)		
Sensitivity drift	< 0,5% of measured value per week		
Temperature influence	zero point < ± 0,01% O_2 /°C Sensitivity < ± 0,025% of measured value /°C		
Detection limit	0,01% O_2		
Air pressure effect	1% air pressure change causes 1% change in reading		
Background gas influence	slight (for guideline data see operating instructions)		
Display			
LCD digital multi-display	Indication of measured value: 999.9 %O2; Flow 99l/h Alarms, malfunction, parameters, total 16 digits		
Measured value, outputs			
Measurement signal	Selectable signal range 0 – 20mA or 4 – 20mA 500Ω max.		
Status output	2 alarm relays, 1 malfunction relay		
Output connection	Pump relay, maintenance, sample gas relay, zero gas relay, test gas relay		
Sample gas inlet conditions			
Gas temperature	+5°C to +45°C		
Gas pressure	max. 1000 hPa		
Gas flow	10 - 90 l/h (cell flow ca. 100 ml/min.)		
Gas pre-conditioning	necessary for humid and/or corrosive gases, pre-filter required		
Calibration			
2-point calibration	with gases as desired, menu-controlled, Time-controlled and fully automatic or manually		
Design			
Housing	19”-rack version	Portable version	Wall-mount version
Dimensions	19” 3HU	1/2 19” 3HU	380 x 380 x 210mm
Sample gas inlet	PVDF bulkhead tube connection DN4/6mm		
Sample gas outlet	PVDF bulkhead tube connection DN4/6mm		
Materials of gas wetted parts	PVDF, glass, SS316, gold, Viton®, platinum-iridium, epoxy resin, nickel		
Ambient conditions			
Ambient temperature	+5°C to +45°C		
Transport and storage temp.	-25°C to +65°C		
Relative humidity	≤ 75% of annual average		
Power supply			
Voltage	100 - 240VAC		
Optionals			
Features	pressure compensation, test gas pump, flow alarm unit		

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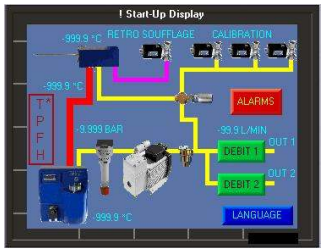
Ankersmid Touch-screen display PLC controller

ATD

ATD 240

ATD 320



* Desktop example picture

Application

The controller series **ATD** is a graphical touch screen terminal with an integrated PLC adapted for the supervision and control of systems where the participation of an operator (HMI) is necessary.
The controller type **ATD 240** with a 3,5" Touch-screen display and an integrated PLC has been designed to control a complete gas conditioning system including gas sample probes, gas coolers, heated lines etc.
The PLC can be fully integrated into a gas analysis system.
Its compact design ensures the ACM takes up only little space.
A compact version features analogue and digital resources already on board, integrating HMI and PLC in a single device.

In case expansion modules series **AEM** (for additional I/O) or other Modbus devices (controllers-actuators-sensors) are needed, the controller type **ATD 320** with a 5.7" Touch-screen display is required and will be connected via RS485 or RS232.

Description

The Ankersmid controller series ATD is compact and completely tailor-made programmed according the customer's requirements. Therefore this device is suitable for variable and continuous operation in all applications.
The innovative PLC with touch-screen display provides a comprehensive desktop with separate pop-up menus to check and control all parts of a conditioning system as well as external devices.
The PLC can operate as controller for coolers, sensors (e. g. flow, humidity, pressure) and several check valves, f. e. for zero- and calibration gases.
Furthermore the PLC is able to control external devices like heated sample lines and gas sample probes. Due to that fact external temperature controllers are no longer required for these devices.

A sample gas pump can be activated automatically by means of an excess temperature contact on the cooler. By using a digital flow sensor the flow rate can be checked and adjusted on the touch screen. A sample gas cooler can be operated by setting a free adjustable dew point.

- **Touch-screen display**
- **256 colours**
- **Integrated PLC**
- **Tailor-made and customized desktop programming**
- **Compact design**
- **ATD 240 I/O:**
  - 16 digital I / O
  - 4 Universal analogue inputs
  - 4 analogue out 0...10Volt
  - 2 serial RS232/RS485
- **ATD 320 I/O:**
  - 8 Inputs for external contacts
  - 1 General alarm output
  - 1 Programming/Communication port with RS232 interface
  - 1 communication port with RS485/RS422 interface
  - galvanic insulation
  - 1 communication port with RS232/RS485 interface
- **Universal operating by using optional expansion I/O modules (for ATD 320)**

Ankersmid Touch-screen display PLC controller

ATD 240

Technical data

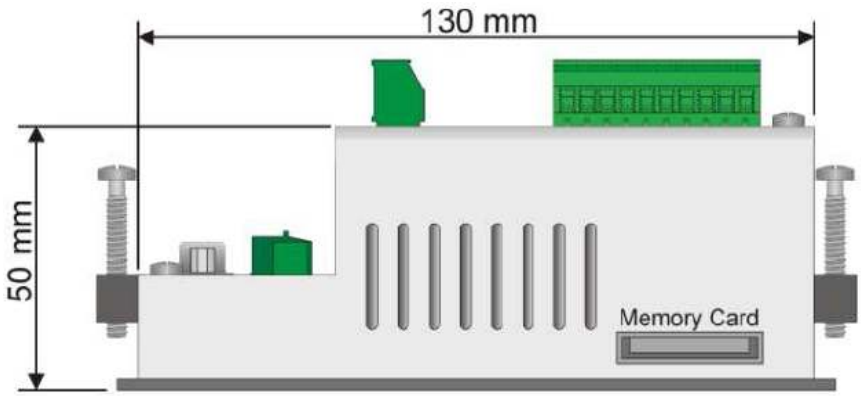
ATD 240 Inputs	
Analogue	4 Selectable for TC, K, J, S, R, T, E, PT100,PT1000, PT500, Ni100, NTC10K, (B 3435K), PTC1K (kty1000) 0/4..20 mA, 0/1..10 V
Digital	16 Selectable as inputs / outputs

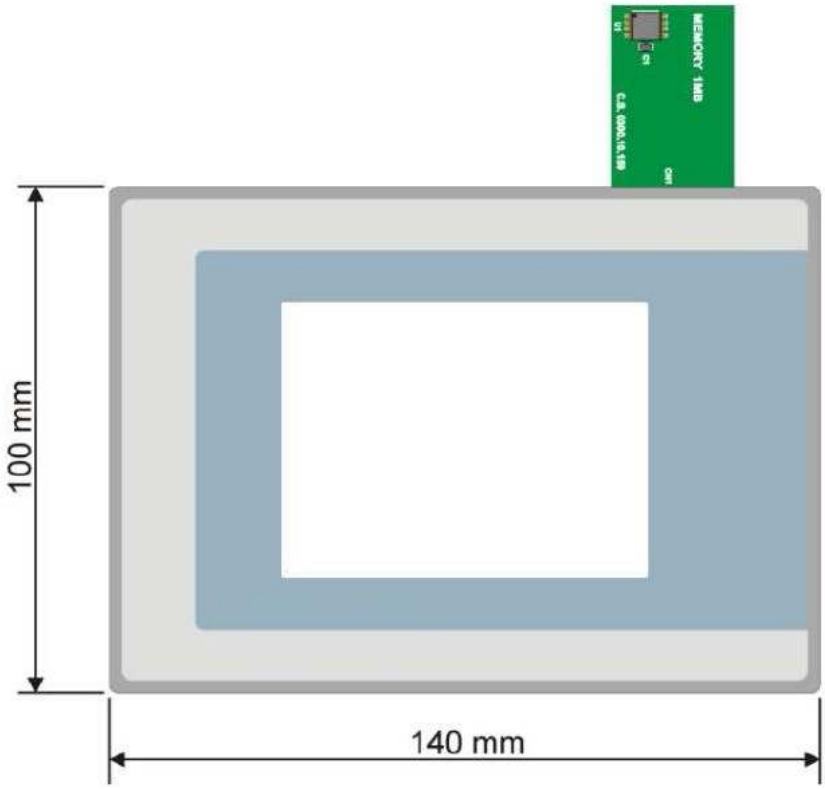
ATD 240 Outputs	
Analogue	4 outputs 0...10Volt
Digital	16 Selectable as static outputs 700mA or digital inputs
Serial ports	2 serial ports RS232/RS485

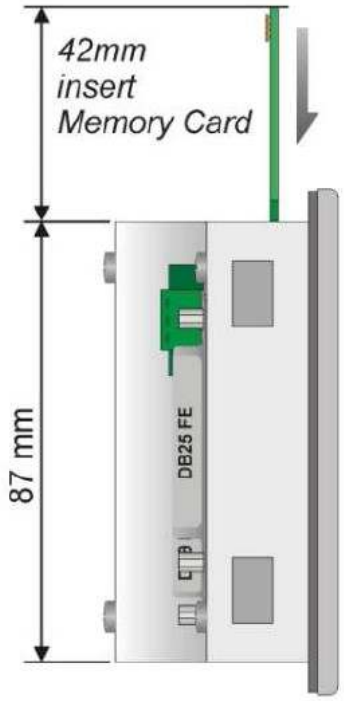
ATD 240 Main features	
Box	140x100 (front panel) x 65mm
Power supply	12...24Vac/Vdc ±15% 50/60 Hz
Consumption	8W
Display	Display Back-light LCD TFT 3,5", Integrated resistive Touch-screen TFT Dimensions: Active Area 3.5", 70.03(W)mm x 52.56(H)mm Resolution: 320x240 pixels, Colours: 256 (8bit) Importable Images: bitmap of 256 colours (.bmp)
Operating conditions	Temperature 0-45 °C, humidity 35..95 uR%
Material	Front panel: aluminum with polycarbonate coverage; Box: chromed steel
Weight	Approx. 690gr.
Sealing	IP54 (Front panel) , IP20 (Box and Terminal blocks)
Quick set-up options	SLOT Memory Card (MMC) for programs download (Ladder + graphics)

ATD 240 Software features	
Communication protocols	Modbus RTU master / slave; Free-Port mode for Modem protocols or proprietary devices
Memory	384Kbyte Flash for programming, 20Kbyte non-volatile Ram (6 months), 62Kbyte EEprom
Clock	Real-Time clock, Back-up battery
Analogue inputs control algorithms	P, PI, PID, PD

Dimensions







Ankersmid Touch-screen display PLC controller

ATD 320

Technical data

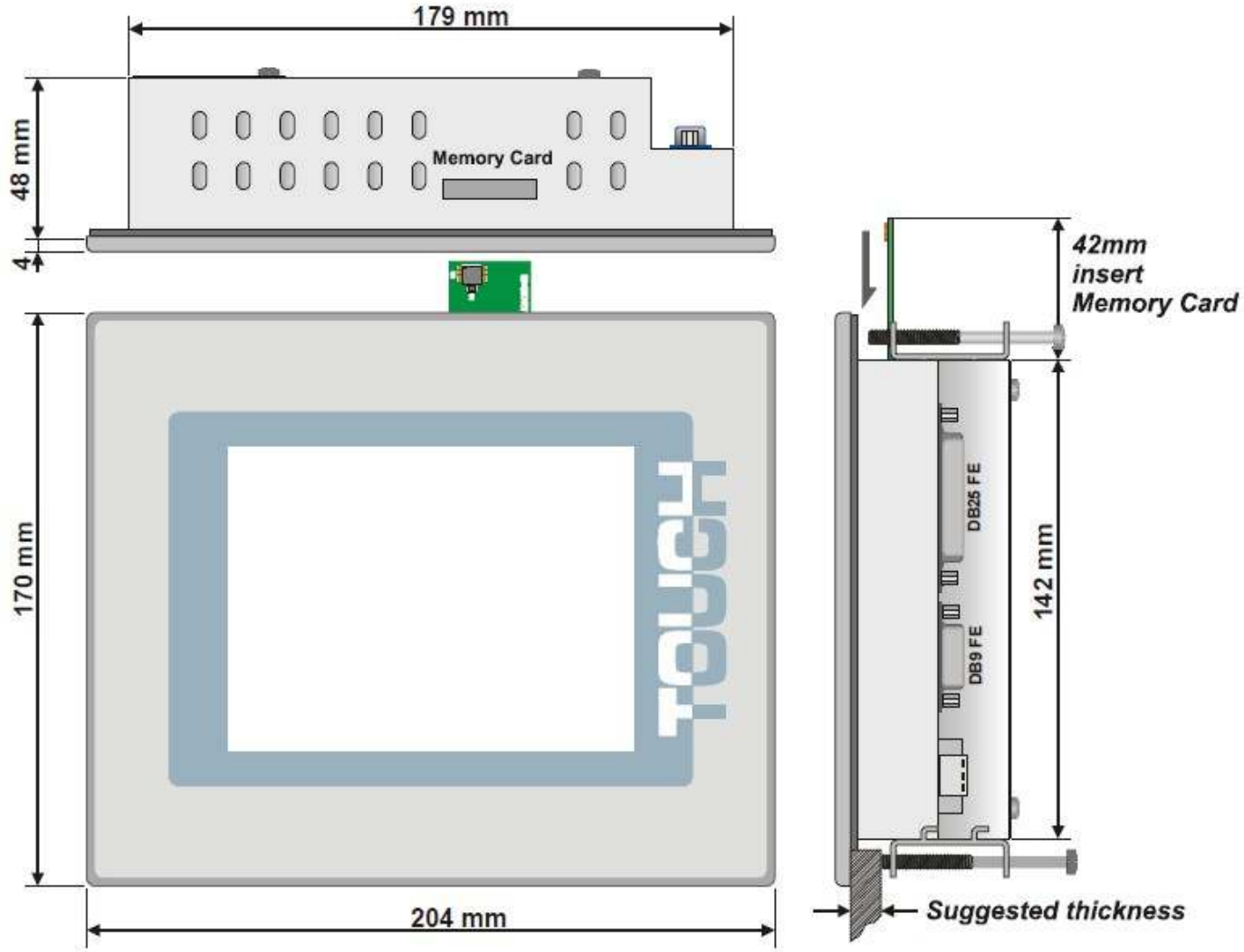
ATD 320 Inputs	
Digital	8 Inputs for external contacts on connector 25poles

ATD 320 Outputs	
Digital	1 General alarm output
Serial ports	1 Programming / Communication port with RS232 interface, 1 communication port with RS485/RS422 interface, galvanic insulation, 1 communication port with RS232/RS485 interface

ATD 320 Main features	
Box	204x170 (front panel) x 48
Power supply	12...24Vac/Vdc ±15% 50/60 Hz
Consumption	10W
Display	Display Back-light LCD TFT 5,7", Integrated resistive Touch-screen TFT Dimensions: Active Area 5.7", 115.18(W)mm x 86.38(H)mm Resolution: 320x240 pixels, Colors: 256 (8bit) Importable Images: bitmap of 256 colors (.bmp)
Operating conditions	Temperature 0-45 °C, humidity 35..95 uR%
Material	Front panel: aluminium with polycarbonate coverage Box: chromed steel
Weight	Approx. 1430gr.
Sealing	IP54 (Front panel) , IP20 (Box and Terminal blocks)
Quick set-up options	SLOT Memory Card (MMC) for programs download (Ladder + graphics)
Expansions	Communication modules ACM-1/2/3/4/5AD or other Modbus devices

ATD 320 Software features	
Operating logic functioning	Software for Ladder diagrams; 10Kword variables VW, 800 marker (logic relays), 128 bistables, 128 timer 16 bit, 64 up-down counters, mathematic and logic functions, rescale function, contact on bit
Graphic interface programming	By Ankersmid Sampling
Communication protocols	Modbus RTU Master / slave; Free-Port mode for Modem protocols or proprietary devices
Memory	384Kbyte Flash for programming, 20Kbyte non-volatile Ram (6 months), 62Kbyte EEprom
Clock	Real-Time clock, Back-up battery

Dimensions



Ankersmid I/O expansion module for ATD

ACM

Application

The digital expansion communication modules series **ACM** are conceived for acquisition and management of remote I/O and for expansion of networks relying on PLCs, PCs or HMIs. Multi-point RS485 for ModbusRTU or alterntively a CANbus forCANopen allow the integration both with Ankersmid devices like ATD as well as instrumentation of other manufacturers (including EDS files for CANbus).

Five different versions offer various combinations of both digital and analogue I/O.

Ordering codes

ACM-1AD	16 Digital static outputs 24VDC 700mA MAX
ACM-2AD	16 Digital inputs PNP 24VDC 2 Analogue inputs 0...10V
ACM-3AD	8 Digital inputs PNP 24VDC 8 Static outputs 24VDC 700mA MAX
ACM-4AD	8 Digital inputs PNP 24VDC 8 relay outputs 5A-250V~ resistive load
ACM-5AD	4 Analogue inputs 2 Analogue outputs (0..10V or 4..20mA)

Ankersmid I/O expansion module for ATD

AEM

Technical data

AEM Chracteristics	
Inputs	**AEM-2AD, AEM-3AD, AEM-4AD** Digital Inputs PNP 24VDC
	AEM-5AD Inputs Configurable via software. Thermo-couples: type K,S,R,J; automatic compensation of cold junction from 0°C to 50°C. Thermo-resistance: PT100, PT500, PT1000, NI100, PTC1K, NTC10K (β 3435K) Linear: 0-10V, 0-20 or 4-20mA, 0-40mV Potentiometers: 6KΩ, 1506KΩ
Outputs	**AEM-1AD, AEM-3AD** Static outputs: 24VDC – 700mA max Each output can give 700mA, max consumption 4A
	AEM-4AD 8 relays: contacts 5A-250V~ resistive load
	AEM-5AD 2 linear 0-10V or 4-20mA 0-10V: resolution 7680 points. 4-20mA: resolution 6500 points

AEM Main features	
Box	Standard DIN43880 90 x 71 x 58 (H) mm with DIN RAIL mounting fitting EN50022
Power supply	12...24Vac/Vdc ±15% 50/60 Hz
Consumption	2 - 4W
Operating conditions	Temperature 0-45 °C, humidity 35..95 uR%
Material	Noryl UL 94 V-0
Weight	Approx. 255gr.
Sealing	IP30 (Box)
Dimensions	70x90mm(frontal)x53mm

AEM Software features	
Communication protocols	Modbus RTU / CANopen