

Operating Instructions

Gas Cooler Pury250 S




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Technical data subject to change.

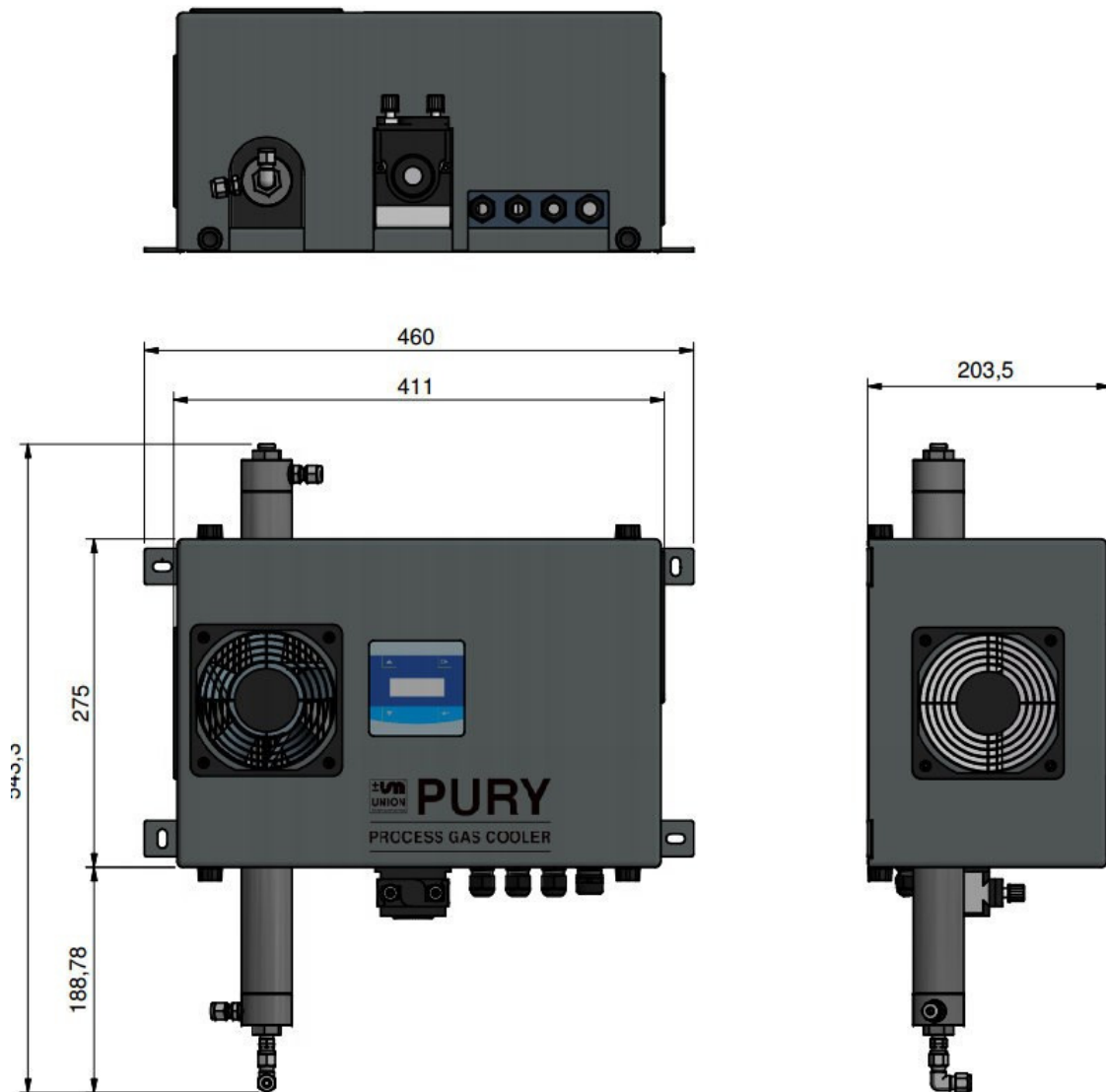
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1 Technical data

1.1 Dimensions



Weight approx. 12.6 kg (28lbs)

1.2 Device parameters

See device name plate and data and information accompanying the device.

Example name plate:

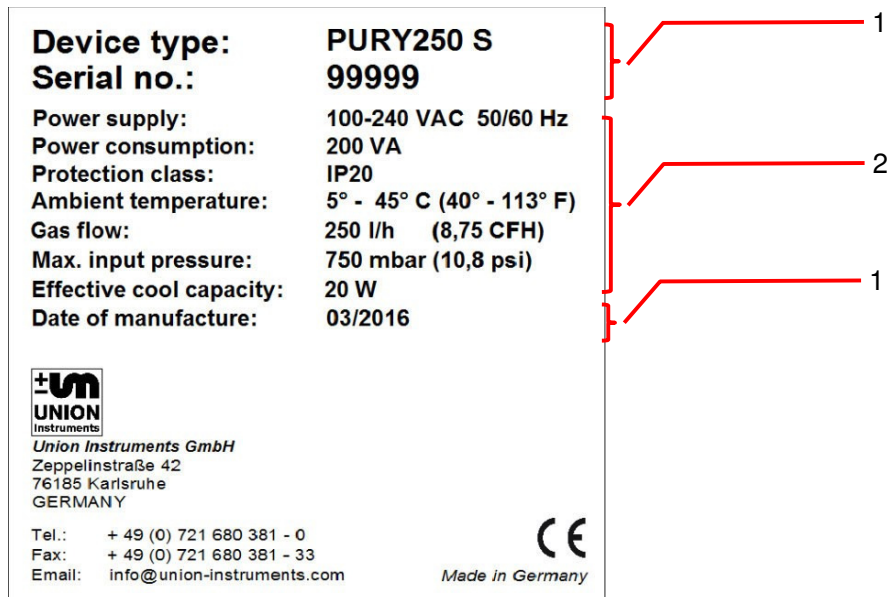


Fig. 1.1: Name plate (example)

1. Device description

2. Technical information

1.3 Data and specifications

Gas inputs

Input process gas:	1
Output process gas:	1
Output condensate:	1
Gas connections:	Compression fitting 6mm / 1/4"
Max. gas input pressure:	750 mbar absolute (11 psi)
Min. gas input pressure:	-100 mbar relative
Gas pressure drop:	5 - 10 mbar (2 - 4" H2O)
Relative gas humidity:	< 95% (non-condensing)

Performance data

Gas capacity, max	250 l/h
Effective cooling capacity:	20 W at ΔT 25 °C
Gas temperature difference, Max.	25 K
max:	
Protection class:	I
Degree of protection:	IP 22

Voltage supply

Voltage:	100 - 240 VAC, 50 - 60 Hz
Power consumption:	250 VA max.
Protection class:	I
Degree of protection:	IP22

Interfaces

Relay Contacts:	2
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Environmental conditions

Operating temperature:	5 - 45 °C. (40 - 115°F)
Humidity:	0 - 95 % relative humidity
Ambient pressure:	0.8 - 1.1 bar (11.6 - 16 psi)
Storage temperature:	-20 - 60 °C (-4 - 140°F)

Weight

Weight:	Approx. 12.6 kg. (28lbs)
---------	--------------------------

Technical data

	 NOTICE
	<p>When the PURY250S is used in outside environmental conditions, additional anti-freeze measures must be discussed with Union Instruments GmbH!</p>

2 EC Declaration of Conformity



Der Hersteller/The manufacturer

Union Instruments GmbH
Zeppelinstrasse 42
76185 Karlsruhe

erklärt hiermit, dass folgend bezeichnete Produkte / hereby declares, that following named products:

Produktbezeichnung:	Gaskühler	Gerätegruppe: PURY250
Product name	Gas Cooler	device group: PURY250

konform sind mit den Anforderungen, die in der EU – Richtlinie festgelegt sind / are compliant with the requirements as defined in the EU directives:

2014/35/EU	Niederspannungsrichtlinie
2014/35/EU	Low voltage directive
2014/30/EU	Elektromagnetische Verträglichkeit
2014/30/EU	Electromagnetic compatibility

Angewandte harmonisierte Normen / Used harmonized standards:

EN 61010-1:2010	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 1: Allgemeine Anforderungen Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
EN 61326-1:2013	Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen - Teil 1: Allgemeine Anforderungen Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

Name des Dokumentationsbevollmächtigten:	Schlichter
Name delegate of documentation	

Adresse des Dokumentationsbevollmächtigten: siehe Adresse des Herstellers address delegate of documentation see address of manufacturer

Bei einer nicht autorisierten Änderung des Gerätes verliert diese Erklärung ihre Gültigkeit. / Any unauthorized modification of the device results in invalidity of this declaration.

EC Declaration of Conformity


3 Safety information


3.1 Warning information and symbols

The operating instructions use the following nomenclature and symbols for especially important information:

	 DANGER
	For an immediate danger that can lead to serious physical injury or death!

	 WARNING
	For a potentially dangerous situation that can lead to serious physical injury or death!

	 NOTICE
	For a potentially dangerous situation that can lead to minor physical injury! This may also be used for warnings of property damage!

	NOTE
	For information that can improve the operation of the process gas analyzer or contribute to prevention of property damage.

3.2 Principle, intended use



The PURY gas cooler is used to dry and clean coke oven gas, blast furnace gas, and synthesis gas. It also provides a cleaning functions using stainless steel filter elements. Napthalene crystallizes out in the moistened filters and is filtered out with the condensate.

Application areas are the preparation of gases for further analysis with combustion calorimeters or process gas analyzers.

In the case of toxic or explosive gases, the safety provisions applicable for the installation location must be complied with.

The gas cooler is installed in a fixed manner and is intended only for use in closed rooms with adequate ventilation.

Any use beyond this is regarded as non-approved. The manufacturer is not liable for damage resulting from use. In this case, the risk is borne solely by the installation engineer/commissioning engineer/owner/operator. Only certified experts are permitted to make modifications to the gas cooler (mechanical/electrical/pneumatic changes).



	 WARNING
	<p>Intended use also includes observance of these operating instructions! In addition to the following safety information, the safety information of linked system components must also be observed!</p> <p>Additional equipment or accessory parts not installed, supplied, or made by UNION Instruments GmbH require manufacturer's approval by UNION Instruments GmbH! Any warranty is otherwise voided!</p>

3.3 Personnel and qualification


Gas connections and work on the electrical equipment of the gas cooler should only be carried out by a skilled person in compliance with safety provisions.

3.4 Safety information


3.4.1 General safety information

	 <h2 style="margin: 0;">WARNING</h2>
	<p>Only operate the gas cooler when all protective equipment is present and operational!</p> <p>Further safety information:</p> <p><i>☞ Before the corresponding chapters!</i></p>


3.4.2 Information on specific hazards

	 <h2 style="margin: 0;">WARNING</h2>
	<ul style="list-style-type: none"> • After installation, all gas-conveying parts must be checked for leak tightness according to national regulations. • Any type of repair that requires opening of the protective cover may only be carried out by trained personnel!

3.5 Recurring operator training

	<h2 style="margin: 0;">NOTE</h2>
	<p>Country-specific regulations regarding recurring training of operators must be observed by the owner, particularly regarding the handling of gases and electrical equipment.</p>

3.6 Performing a workplace hazard analysis

	NOTE
	Depending on the National regulations and, if necessary, regardless of the CE marking of the gas cooler, the owner must prepare a workplace hazard analysis!





Changes to these operating instructions may occur in the future due to further technical developments. If you desire additional information or if specific problems arise that are not covered in detail in this manual, you will receive information by contacting the following address or local representative:

Union Instruments GmbH

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	http://www.union-instruments.com

4 Protective equipment

4.1 Enclosure cover



Fig. 4.1: Enclosure cover

4.2 Markings and warning information



Fig. 4.2: Markings and warning information

1. Name plate

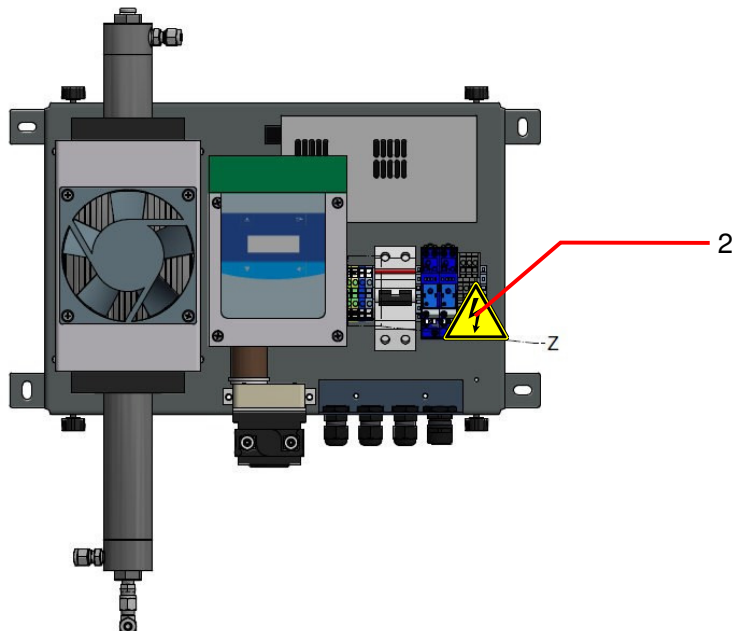


Fig. 4.3: Warning in the enclosure

2. 115/230 V voltage

5 Connections

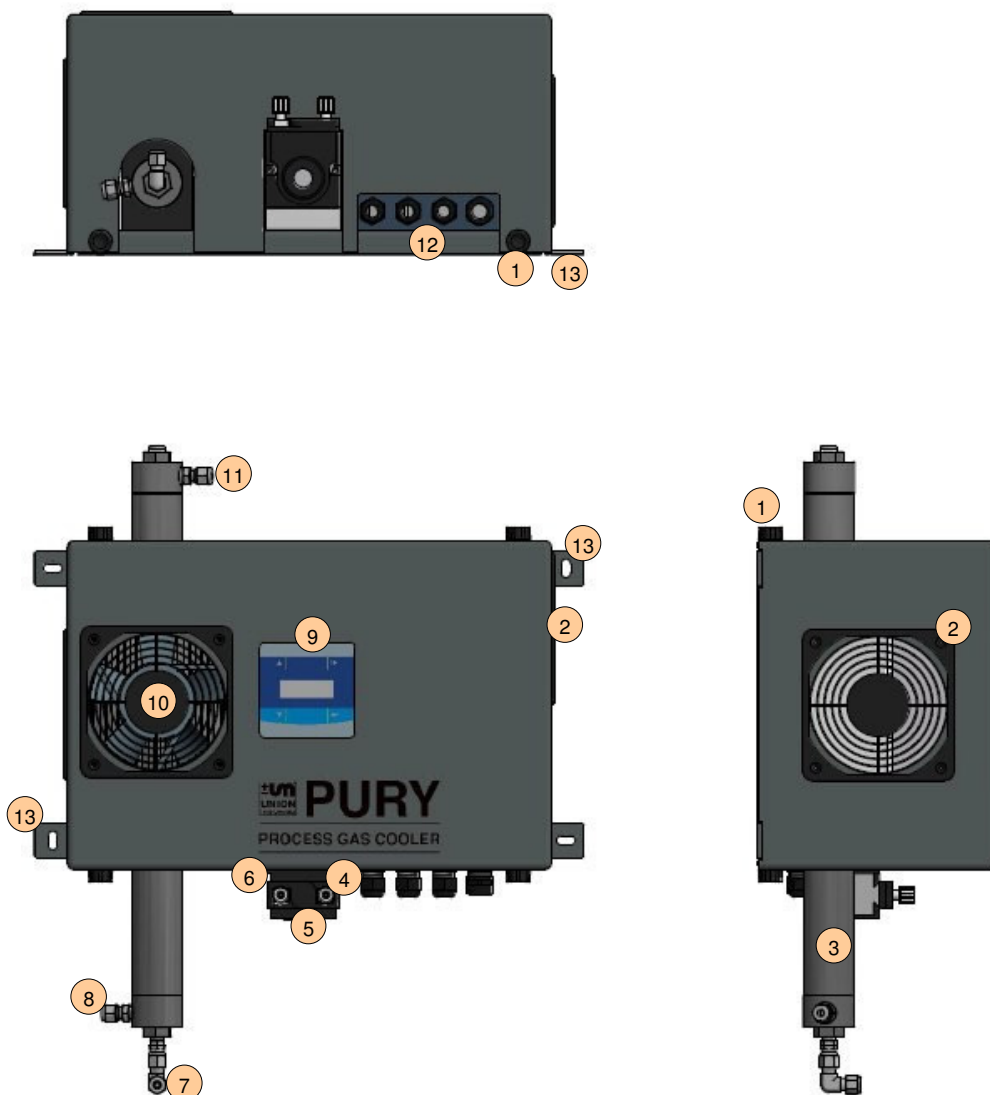




Fig. 5.1: Product description

- | | |
|--|-------------------------------------|
| 1. Enclosure screws, 4 pieces | 8. Inlet process gas |
| 2. Side fans, left, right | 9. Display with operator input keys |
| 3. Cooler tube with filter | 10. Front fan |
| 4. Condensate pump inlet side, suction | 11. Output process gas |
| 5. Condensate hose pump | 12. Cable grips, voltage supply |
| 6. Condensate pump discharge side, pressurized | 13. Wall mounting, 4 pieces |
| 7. Condensate outlet | |


Connections

5.1 General description


5.2 Accessories


	 WARNING Risk of injury/damage! The use of non-approved accessories may cause damage and endanger persons. Any warranty is voided in this case. The owner is then liable for damage that occurs! Only use genuine accessories or accessories approved by Union Instruments GmbH.
---	--

6 Transport, installation, and commissioning



	NOTE
	<p>The gas cooler is generally commissioned by Union Instruments GmbH or service technicians.</p> <p>When it is not transported, installed, and commissioned by Union Instruments GmbH (e.g., internal transport/resale), the suitable procedure must be agreed with Union Instruments GmbH (<i>☞ Chapter 12 Service</i>).</p>

6.1 Transport

	WARNING
	<p>Tipping over or dropping of the gas cooler from the pallet or load carrying means may cause injuries!</p> <ul style="list-style-type: none">□ For the unpacking and transporting, observe the weight and dimensions (see technical data)! Use a second person or aid if required.

	NOTE
	<p>In case of transport damage that is indicative of improper handling, a damage assessment by the transport carrier (rail, mail, shipping company) must be arranged.</p>

6.2 Environmental conditions

	 NOTICE
	<p>Comply with environmental conditions for storage and installation!</p> <p>Comply with environmental conditions! Contact Union Instruments GmbH if the gas cooler is stored for longer than 3 months or must be operated or stored outside the prescribed environmental conditions!</p>

6.2.1 Storage conditions

Ambient temperature:	-15 - 60 °C (-4 - 140 °F)
Air humidity:	0 - 95% relative humidity
Ambient pressure:	0.7 - 1.4 bar (11.6 - 16 psia)

Frozen condensate water in the gas cooler may cause damage. Empty and dry the gas cooler before storage!

6.3 Installing and connecting

6.4 Installation location

The installation location of the gas cooler must meet the following conditions:

- Clean dry room
- Protect from climatic influences, if necessary, with heating and cooling
- Ensure adequate load carrying capacity of the wall, the device must be installed on a fixed wall

	 WARNING
	<p>Escaping process gas may pose a hazard!</p> <p>Perform a leak test after installation and after work on gas-carrying lines!</p>

6.4.1 Wall mounting

The gas cooler is intended to be wall mounted using the attached wall brackets.

The wall used for mounting must be sufficiently sturdy to bear the weight of the gas cooler.

Secure the gas cooler to a fixed wall using the 4 mounting points.

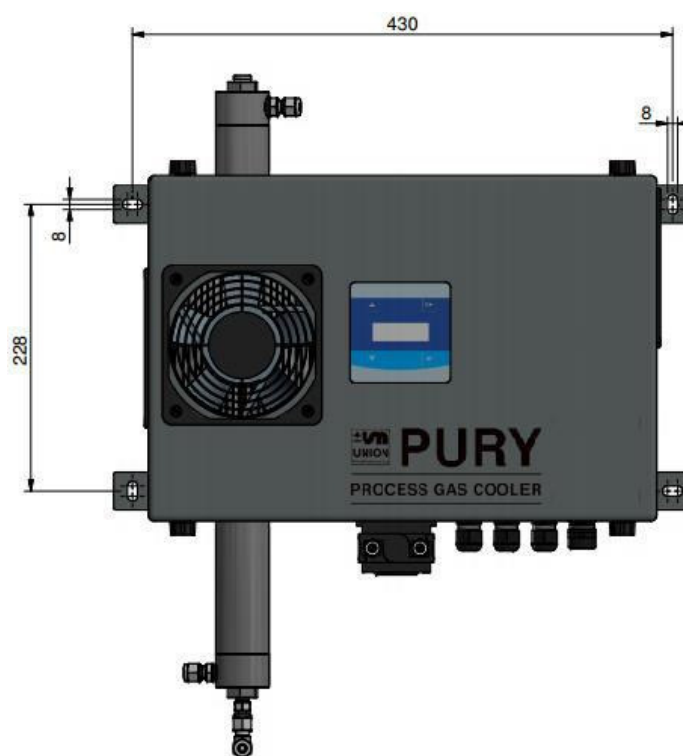


Fig. 6.1: Wall mounting

Provide adequate room for maintenance purposes. Filter element is removed upwards for maintenance, housing cover is removed downwards.

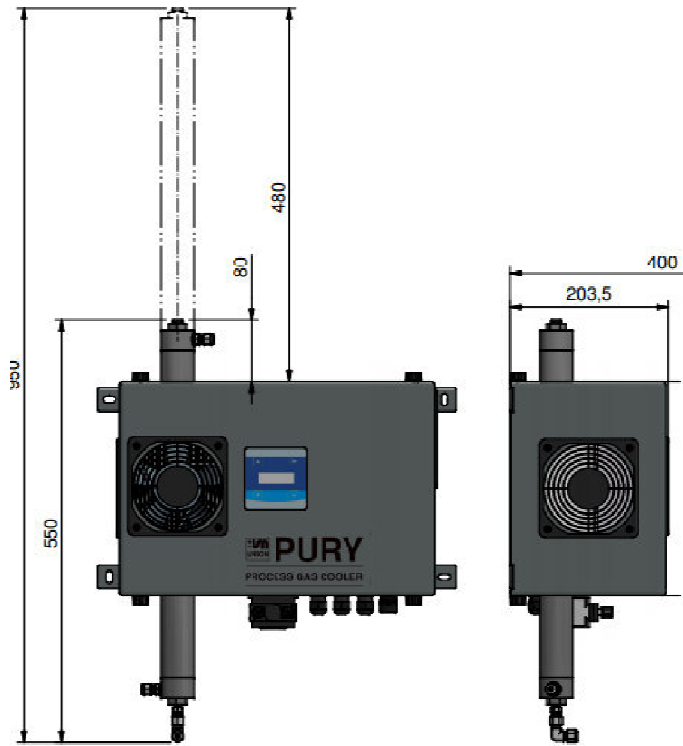



Fig. 6.2: Minimum installation space


6.4.2 Process gas

	<h1>NOTE</h1>
	<ul style="list-style-type: none"> • Connection parts must be clean and free of any contamination. • The input pressure for the gas connections must not exceed the specifications of the information sticker on the gas cooler. • Each connection point must be carefully checked for leak tightness. Escaping gas may pose hazards! • Do not use sealing paste for sealing the gas connections. Sealing paste ingredients may falsify the measurement result of subsequent analyses. Use PTFE-sealing tape. • Only suitable lines may be used. • Ensure frost-proof discharge of condensate via a separate line.

Connection of process gas

Compression fittings 6 mm or 1/4" are intended for the connection.

The upper part/lower part can be positioned in four directions – this allows a suitable position to be found for the input/output process gas.

	<h1>WARNING</h1>
	<p>Gas discharge!</p> <p>Connection of gas connections by qualified personnel only!</p> <p>Observe the installation instructions of the compression fittings, installation by trained personnel only!</p> <p>Check gas connections for leak tightness!</p>

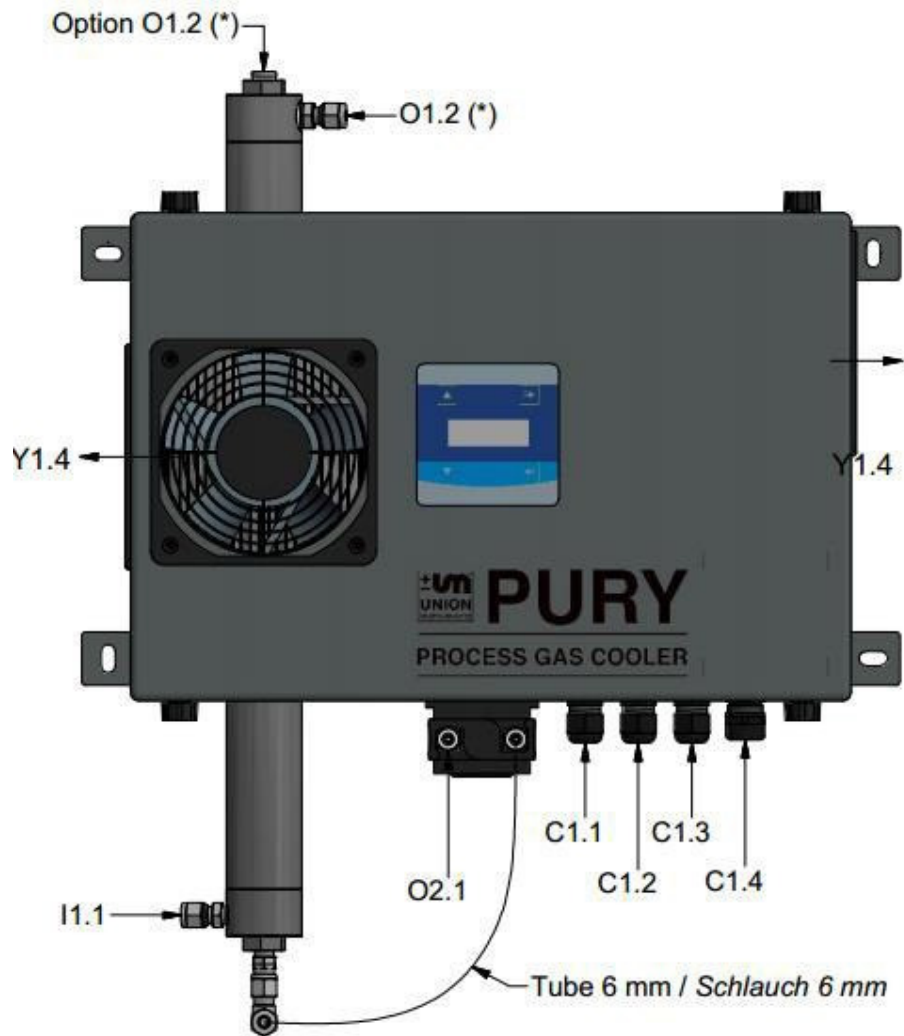



Fig. 6.3: Connection of input/output process gas


Item No.	Designation
I1.1	Input Process Gas, max. 0,75 bar (11 psig)
O1.2	Output Process Gas to analyzer
(*)	If required, the male coupling "O1.2" and the closure plug "Option O1.2" can be swapped.
O2.1	Condensate Outlet

6.4.3 Condensate line

	<h2 style="margin: 0;">NOTE</h2>
	<ul style="list-style-type: none"> Route hose to avoid kinks, blockages and in a downward sloping manner. Install output condensate in a frost-proof manner! Discharge condensate without any back pressure! A ventilated container is recommended – inspect/clean regularly.

Installation of condensate line

Compression fittings 6mm or 1/4" are intended for the connection.

	<h2 style="margin: 0;">WARNING</h2>
	<p>Discharge of condensate! Connection by qualified personnel only! Observe the installation instructions of the compression fittings, installation by trained personnel only!</p>

Inspect and if necessary, assemble the hose and compression fittings.



Fig. 6.4: Hose with clamping ring

Make the connections between gas cooler and pump.
Insert hose into screw fitting on the output condensate and install compression fitting according to instructions.

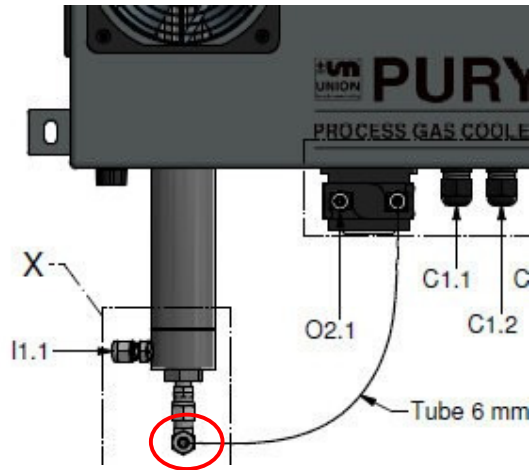


Fig. 6.5: Output condensate

Connect condensate hose onto suction side of the pump and install compression fitting according to vendors instructions.

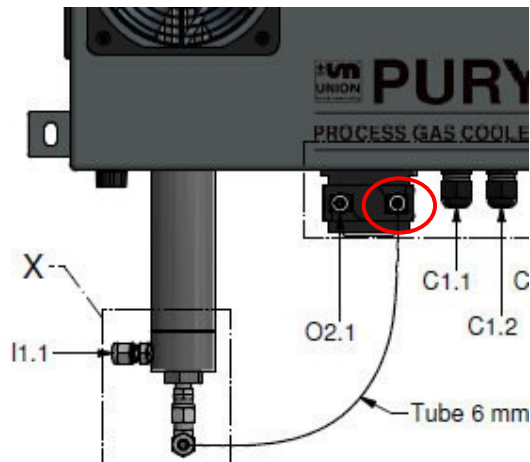


Fig. 6.6: Tube fitting on pump

View above of tube location

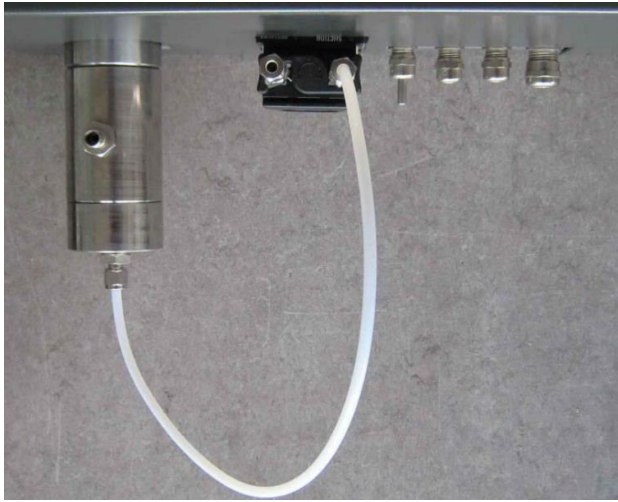




Fig. 6.7: Condensate hose after installation

Connect hose for the condensate discharge to the pressure side of the pump. Use compression fittings according to vendors instructions.

6.4.4 Electrical connection

	 DANGER
	<p>Danger of electric shock!</p> <p>Connections to the electrical equipment of the gas cooler must only be carried out by skilled electricians in accordance with NEC and applicable local rules.</p> <p>Parts of the open gas cooler marked with the adjacent symbol may still carry voltage even when the main switch is switched off! If required, disconnect the gas cooler from the line power supply!</p>

6.4.5 Electrical interfaces

	 WARNING
	<p>Endangerment of people and equipment when the gas cooler is commissioned by non-instructed personnel!</p> <p>Allow only instructed/trained service technicians to carry out commissioning!</p>

Connection of line power supply

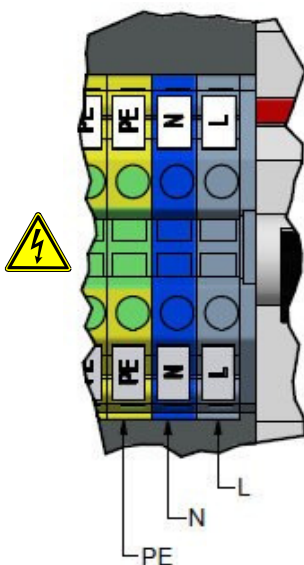


Fig. 6.8: Line power supply

Connect the gas cooler to the line power supply using connections L1, N, PE in accordance with all national and applicable local requirements.

Ground fault circuit interrupter and back-up fuse (16 A) required for L and N connections.

Remove enclosure cover, 4 screws on top and bottom of cover.

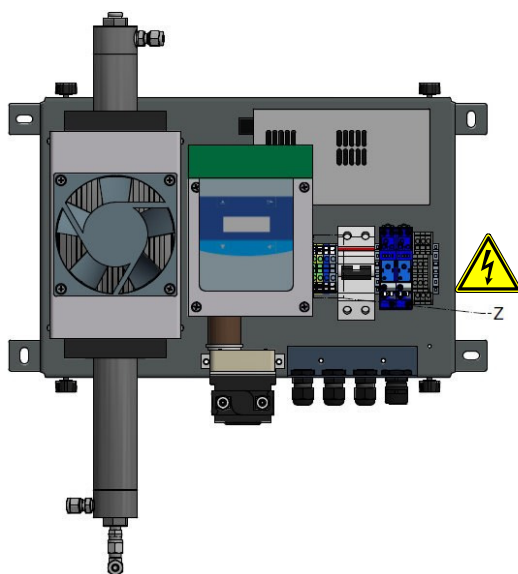


Fig. 6.9: Access to voltage supply connections

Electrical interfaces

Relays

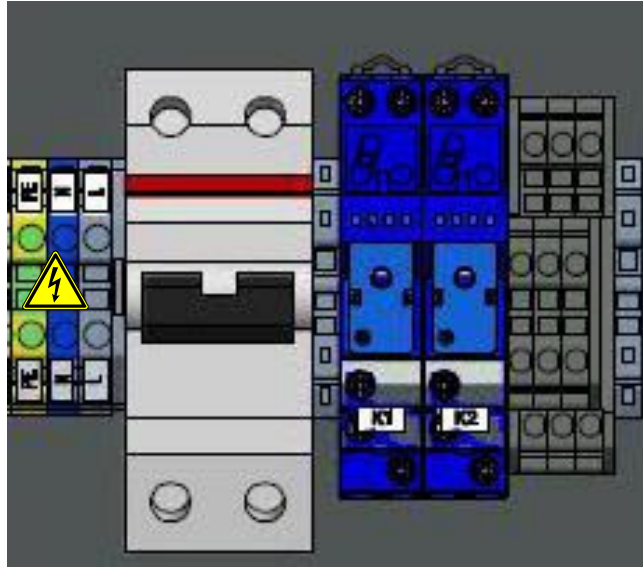



Fig. 6.10: Relays: K1 – K2

Designation	Function
Relay K1	Signal that dew point has been reached. The CWD2005 calorimeter will not start until the dew point temperature is reached. Use as a control signal also possible.
Relay K2	Monitoring of difference between gas cooler temperature and room temperature. Room temperature (temperature at the calorimeter) must be greater than at the gas cooler exit temp.

NOTE






Operate relays with extra-low voltage only!

Do not connect to line voltage!

Maximum load of relay connections 30 VDC / 1 A.

6.4.6 Safety precautions for the user


 	 WARNING
	<ul style="list-style-type: none"> • The user must provide suitable protective equipment for the gas cooler that can reliably prevent injuries to personnel, e.g., from escaping gas! • Mark outlet location of discharged condensate with a warning! • Tripping hazard from improperly routed supply lines!

Route supply lines in a suitable manner.

6.5 Commissioning after installation

	 WARNING
	<p>Endangerment of people and equipment when the gas cooler is commissioned by non-instructed personnel! Allow only instructed/trained service technicians to carry out commissioning!</p>



6.6 Documentation



	NOTE
	<p>Union Instruments GmbH recommends keeping a maintenance manual and documenting all maintenance work and tests. Union Instruments GmbH recommends documenting the proper installation and commissioning.</p>





Transport, installation, and acceptance

7 Commissioning/Switching on


	 NOTICE
<p>In order to establish start readiness, also establish the start status of linked system components according to their specific operating instructions!</p>	

	<h1>NOTE</h1>
<p>The following table contains full list of steps for commissioning after an extended downtime.</p>	
	<p>To switch on the gas cooler again after a short shutdown, some steps can be omitted:  Right column!</p>

Steps	Commission	Switch on
Check whether environmental conditions meet the requirements ( page 7, section <i>Technical data!</i>) .	X	X
Check whether the gas cooler is securely mounted.	X	
Check whether the device is suitable for the process gas.	X	
Check whether the gas connections are correct and leak tight.	X	X
Check whether the condensate connections are correct and leak tight	X	X
Supply/switch on customer side power supplies, check gas supply.	X	X
Ensure voltage is present.	X	
Open the shut-off valves.	X	X
Switch on the voltage supply of the gas cooler.	X	X
Establish operational readiness of any linked system components.	X	X
 When the gas cooler has been switched off only temporarily, operation can be quickly resumed!		

Commissioning/Switching on

8 Description of the HMI and operator control elements

	NOTE
	<p>This chapter contains only elements for operation of the gas cooler by the normal operator.</p>

8.1 Workstation/HMI





Fig. 8.1: Workstation/HMI

Item No.	Designation	Function/Activity
1	Display	Display status.

Description of the HMI and operator control elements



9 Operation

	 WARNING
	<p>Risk of injury! Only operate the gas cooler when all lines are installed and have been checked for leak tightness in accordance with country-specific regulations.</p>

9.1 Description of display

9.1.1 Operation of membrane keyboard

The software controller is operated using a membrane keyboard. The buttons shown can be selected by a keypress, the menu structures are deliberately kept flat so that functions can be accessed quickly.

	 <h1 style="margin: 0;">NOTICE</h1>
<p>Damage to membrane keyboard! Operation with objects other than fingers may damage the membrane keyboard!</p>	

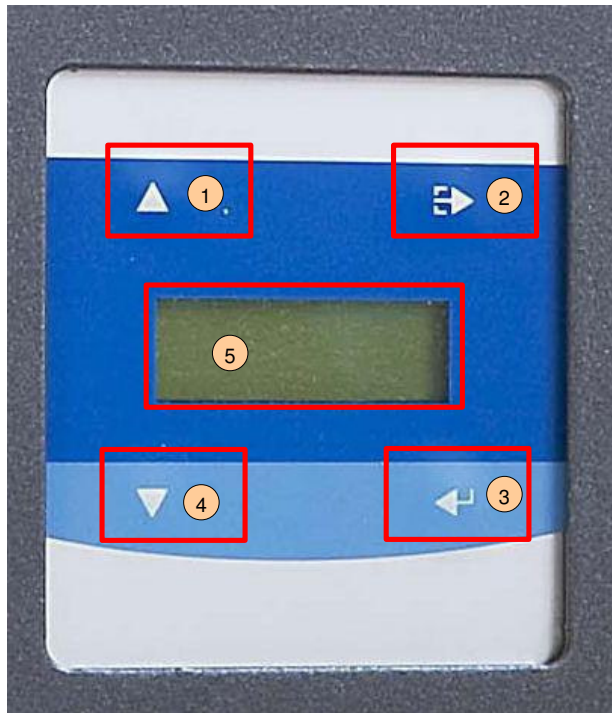


Fig. 9.1: Operator control elements

Item No.	Designation	Function
1, 4	Change value	The displayed values are changed with the keys.
2	Menu key	Navigation through menu structure, moves one level up, Back/ESC
3	Menu key	Navigation through menu structure, moves one level down, Next

9.1.2 Display area

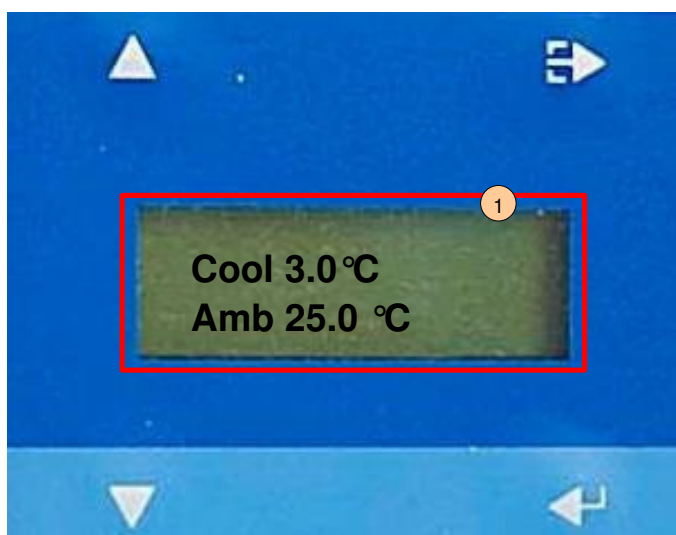



Fig. 9.2: Display

Item No.	Designation	Function
1	Display	Display of status information, measured values, here cooler temperature 3°C ambient temperature 25°C

9.2 Available displays


NOTE



The available displays and their function are described below. The displays are accessed using the menu and function keys shown in the chapter headings.

The structure shown below forms the basis of the controller.

9.2.1 Menu structure

	NOTE
	Some of the red-framed menu items may affect the function after a change.

Main menu:

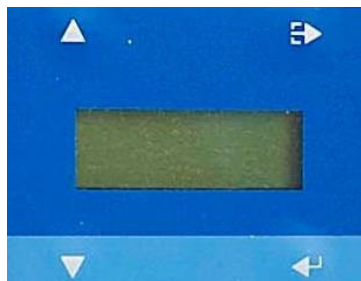
Setpoint Target cooler value
Setpoint EXT Threshold value for external cooler
Diff Ambient Minimum difference for external cooler
Pump Amount Condensate flow rate of pump

Main menu: Back/ESC Hold key 5 seconds

Password Service Mode
NTC0Offs Temperature sensor cooling block
NTC1Offs Temperature sensor outside temperature
OP-Window Operating range
T / PWM Cooler / Controller

The red-framed menu items are only required after maintenance/repair and replacement of spare parts.

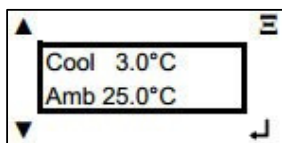
9.2.2 Navigation with keys Up ▲, Down ▼, ESC, and Enter



- Values are changed with the ▼▲ keys
- Navigation between the displays/menus with the "Next" and "ESC" keys.

9.3 Menu for closed-loop control

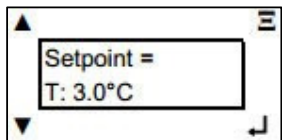
9.3.1 Main menu



Display of cooler temperature and ambient temperature.

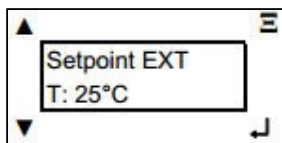
◻ key takes you to the next menu

9.3.2 Target cooling temperature



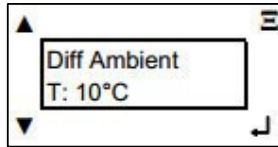
Display and setting of the target temperature of the cooler. Default value is 3°C, setting range: 2°C to 25°C.

9.3.3 Switching temperature of fan



Display and setting of the switching temperature of the fan. Default value is 25°C, setting range: 25°C to 50°C.

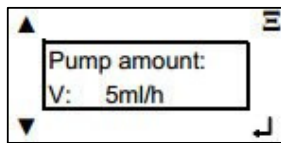
9.3.4 Difference between ambient and cooler temperatures



Difference is a measure for the degree of drying. Default value is 10°C, setting range is "Off", 10°C to 30°C.

"Off" means that no temperature difference is permitted. Cooling to the dew point temperature will be carried out.

9.3.5 Pump condensate quantity



Information on the expected condensate quantity, pump delivers this quantity automatically at intervals.

Default value is 5 ml/h, setting range is 5 ml/h to 150 ml/h.

Note: The service life of the condensate pump is dependent on the flow rate. Adjust the condensate quantity to the conditions.

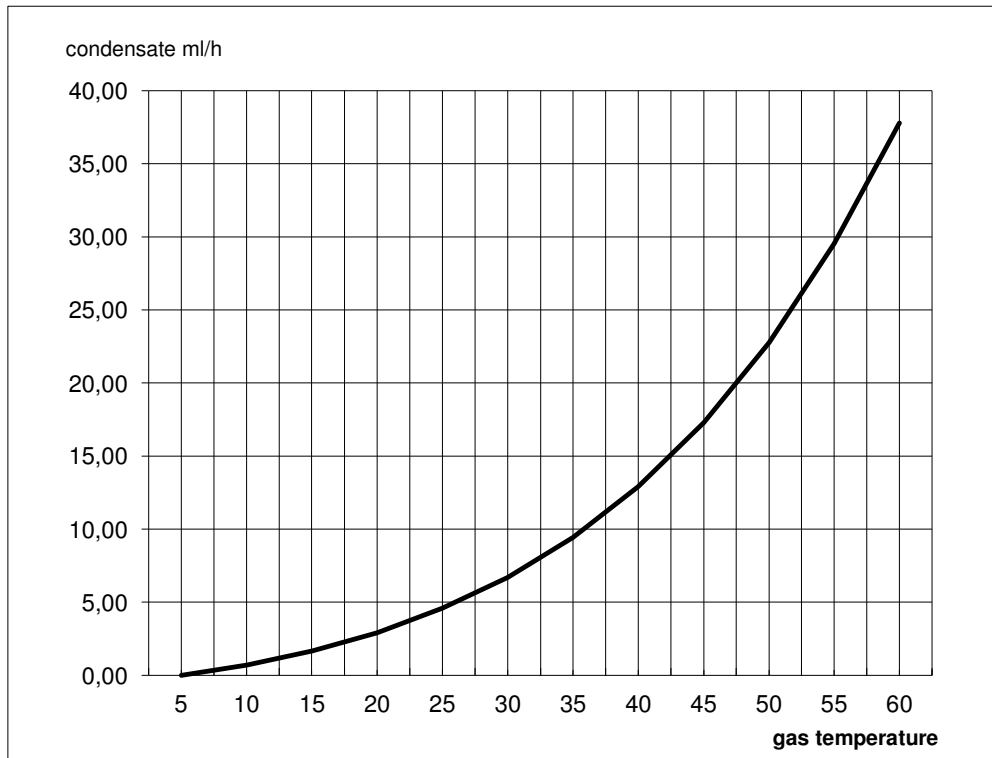

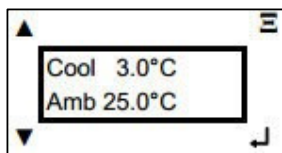


Table 1: Condensate quantity

Condensate quantity for: Dew point 5°C and 250 liter gas saturated at 100 mbar gauge pressure.

9.4 Menu for service settings


	NOTE
	<p>Disturbance of function!</p> <p>When the following parameters are changed, the function of the device may be affected.</p> <p>Allow only authorized persons to make changes!</p>

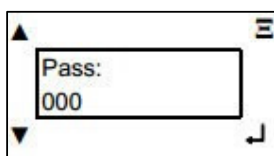


From the main menu – Display of cooler temperature/ambient temperature - hold down the ESC key for 5 seconds.

The following settings are only required after maintenance/repair and replacement of spare parts.

9.4.1 Password for service mode

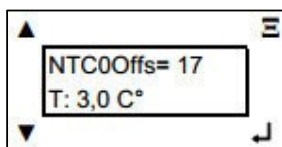
	NOTICE
<p>If the password is forgotten, changes to the configuration are no longer possible!</p>	



Assignment of a password for service mode. Default value is 042, setting range is 000 to 999.

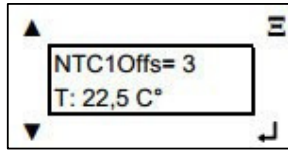
Set password with ▼ ▲ keys, when the arrow key is held down, the counter counts in increments of 10.

9.4.2 Temperature sensor - cooler



Display and setting of the offset of the temperature sensor. Corrects the temperature by the corresponding value. Default value is +99, setting range is -99 to +99.

9.4.3 Temperature sensor - outside temperature



Display and setting of the offset of the temperature sensor. Corrects the temperature by the corresponding value. Default value is +99, setting range is -99 to +99.

9.4.4 Operation Window

Display and setting of the operating range Default value is 2°C, setting range: 2°C to 10°C.

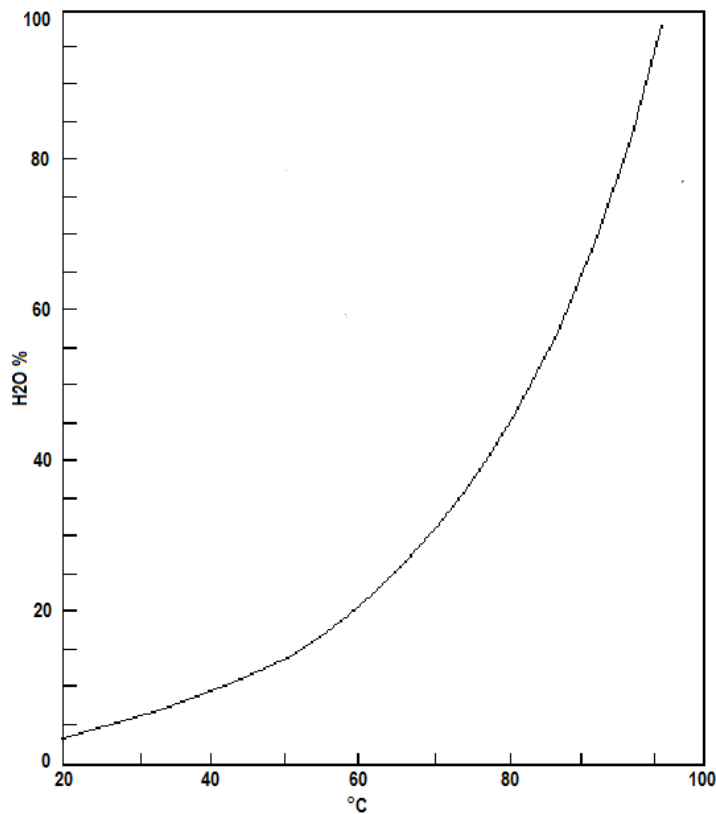









Table 2: Moisture vapor vs temperature

Condensate dropout at 100°C is minimal but at 20°C 97% of the moisture is condensed out of the sample gas.
Note: The presence of sulfur components can also raise the dewpoint temperature.


10 Decommissioning / Switching off

	 <h1>NOTICE</h1>
	<p>In order to decommission the gas cooler, also decommission any linked system components according to their specific operating instructions!</p>

	<h1>NOTE</h1>
	<p>The following table contains steps for decommissioning for an extended downtime.</p> <p>To switch off the gas cooler only temporarily, some steps can be omitted: <i>Switching off column!</i></p>

  	 <h1>WARNING</h1>
	<p>Risk of serious injury from escaping gases!</p> <ul style="list-style-type: none"> • Gas and condensate residues may be harmful to health. • Gas connections may only be made by skilled personnel. • Guidelines applicable at the installation location must be observed.

Decommissioning / Switching off



Steps	Switching off	Decommissioning
Disconnect the device from the process, professionally plug the line.	X	X
Purge gas cooler with ambient air.		X
Bring linked system components to a halt.	X	X
Clean cooler, see maintenance instructions		X
Switch off voltage supply	X	X
 If the gas cooler is to be taken out of service only temporarily, the process ends here!		
Professionally disconnect/switch off owner-side energy supplies, media supply, and signal transmission.		X
When appropriate, pack the gas cooler in a suitable manner.		X






11 Maintenance

The function of the gas cooler can only be guaranteed when the maintenance intervals are adhered to.


11.1 Preparations

Supply lines of linked system components can be closed for maintenance purposes. These must be reopened after the device is put back into service.

	 <h2 style="margin: 0;">DANGER</h2>
	<p>Risk of serious injury from electrical shock!</p> <ul style="list-style-type: none"> • Parts of the gas cooler with the adjacent symbol may still carry voltage even when the main switch is switched off! If required, disconnect the gas cooler from the line power supply! • Switch off main fuse and, if necessary, lock out against possible switch-on. • Only skilled electricians are permitted to work on the electrical equipment of the gas cooler!

   	 <h2 style="margin: 0;">WARNING</h2>
	<p>Risk of serious injury from escaping gases!</p> <ul style="list-style-type: none"> • Before carrying out maintenance work on the gas cooler and whenever necessary, also bring the linked system components to a standstill! • Gas connections may only be made by skilled personnel. Guidelines applicable at the installation location must be observed. • Check gas connections for leak tightness!

11.2 Maintenance work/Inspection

	NOTE
	<p>Maintenance work must be performed according to the inspection and maintenance schedule! The nature and amount of wear depends greatly on the individual use and operating conditions. All specified intervals are therefore guide values.</p>

Check	Interval (recommended)	
-------	------------------------	--

Weekly check

Output condensate is free (especially from frost)	Weekly	
---	--------	--

Semi-annual check

Condensate pump function	Every 6 months	
Check fan for dirt.	Every 6 months	Or as required
Replace fan filter mat if necessary	Every 6 months	
Pump hose	Every 6 months	
Check filter inserts and, if necessary, replace	Every 6 months	As necessary depending on process gas
Check track rollers of the condensate pump for pump hose.	Every 6 months	

Maintenance/component replacement	Interval (recommended)	
-----------------------------------	------------------------	--

As required and based on degree of contamination

Replacement of filter inserts	As required, based on operating conditions	

Annual service

Replacement of pump hose	Annually,	more frequently as required
Impeller	Annually	

As required

Replace condensate pumps	As required	
PTFE hoses (connections)	As required	

11.2.1 Replacing filter inserts

Disassembly

To replace the filter inserts, the cooler tube must be removed.

1. Unscrew compression fittings of the input process gas and output process gas.
2. Unscrew compression fitting of condensate hose on cooler tube.
3. Screw off lower part from the tube.
4. Pull out tube upwards from the cooler.
5. Screw off upper part from the tube.

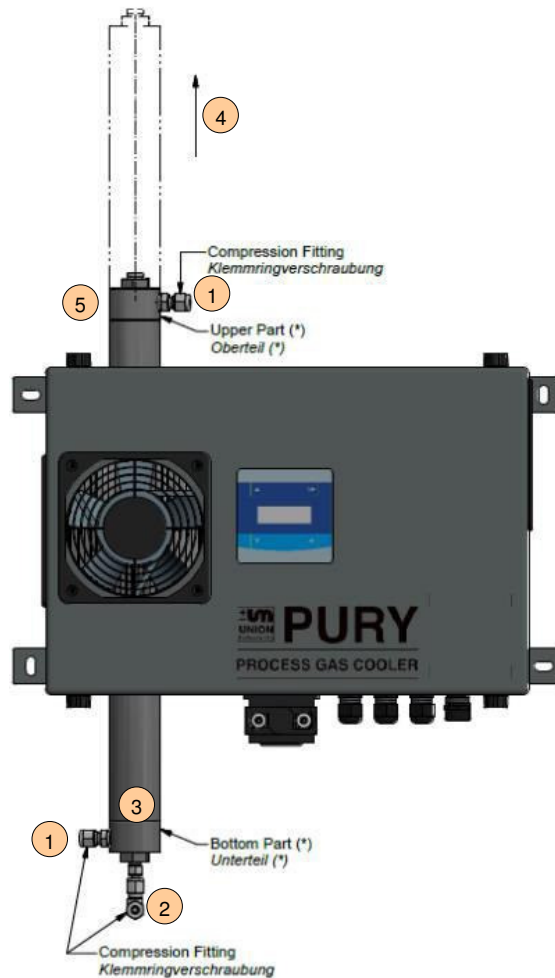


Fig. 11.1: Disassembly of cooler tube

Replacing the wire filter inserts

1. Screw off wire filter inserts downwards from the tube. Observe the correct order, two different types are used.
Filter inserts can also be pulled out downwards with a suitable tool.
2. Insert new filters in the correct order, ensure a secure fit!

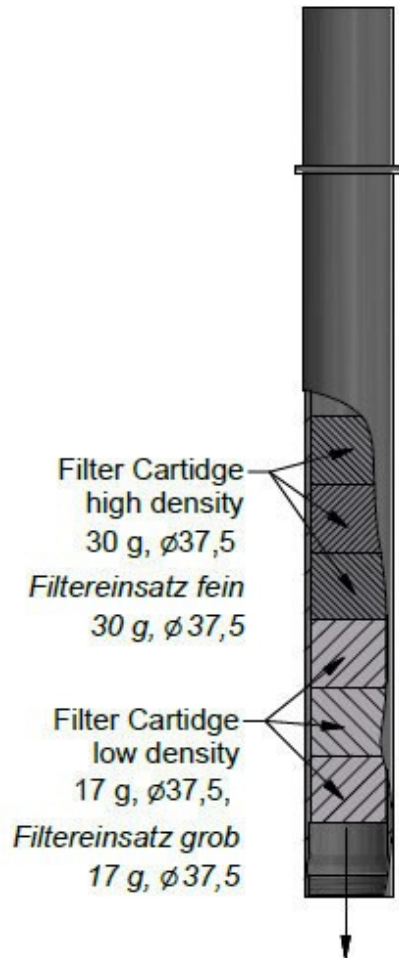


Fig. 11.2: Replacing the filter insert

Assembly

1. Clean or replace the O-rings for the upper and lower parts.
2. Insert wire filter inserts in tube.
3. Assembly in reverse order.

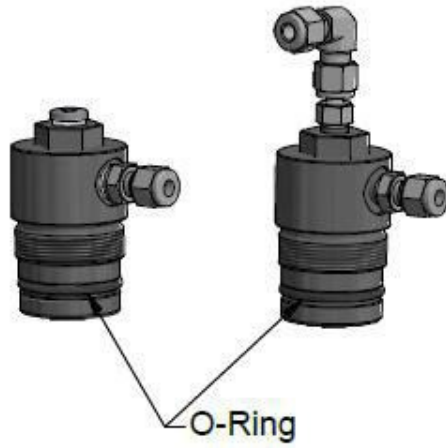




Fig. 11.3: O-rings of upper/lower parts

12 Troubleshooting

	NOTE
	<p>The function of the UNION calorimeter connected to the gas cooler may be disturbed by the reaching of a readiness condition.</p> <p>Problems in the gas cooler may negatively affect the cleaning and cooling functions and subsequent analyses.</p>

12.1 Preparations

Supply lines of any linked system components can be closed for maintenance purposes. These valves must be reopened after the device is put back into service.

	WARNING
	<p>Risk of serious injury from electricity and escaping gases!</p> <ul style="list-style-type: none">• Before carrying out maintenance work on the gas cooler and whenever necessary, also bring the linked system components to a standstill!• Switch off main fuse and, if necessary, secure against switch-on.• Only skilled electricians are permitted to work on the electrical equipment of the gas cooler!• Parts of the gas cooler with the adjacent symbol may still carry voltage even when the main switch is switched off!• If required, disconnect the gas cooler from the line power supply!

Troubleshooting

12.2 Changing/replacing fuses

Only skilled electricians or service technicians are permitted to replace fuses.
Only replace with fuse types specified by UNION.

12.3 Troubleshooting

no.	Description
1	Cooler/fan does not start up. <ul style="list-style-type: none"> • A check must be made to determine whether the device is properly connected to the power supply system. • The Pury does not activate the calorimeter. The ambient temperature is too high. Switch the additional readiness condition Diff Ambient to "off" or set a smaller value.
2	Device does not cool. <ul style="list-style-type: none"> • The filter is dirty and must be cleaned. • The fan is not delivering enough cooling air. Check fan and or the cooling fins for dirt.
3	Condensate is escaping from the output. The filter is filled with condensate. Inadequate condensate suction. <ul style="list-style-type: none"> • Check pump hose for free passage. • Increase the switching frequency of the condensate pump. • The flow rate of the gas is too high. Check whether flow rate exceeds 250 l/h, reduce flow rate.

13 Service

NOTE



Union Instruments GmbH is available to answer any questions.

In case of orders or technical questions, please provide your customer number, phone number where you can be reached, the gas cooler type and number (see name plate), and required spare parts/bills of material numbers, if applicable.

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Service

14 Related documents

- Declaration of Conformity
- Service documentation, optional

Related documents


15 Disposal

Following decommissioning, take back the device to Union Instruments GmbH if possible.

Suggestion: Have Union Instruments GmbH dispose of your gas cooler.



		WARNING
Risk of injury from electricity and, if applicable, gases in the process gas analyzer!		

Before removal, disconnect gas cooler from line power supply!
Purge out gases, clean filter!

	NOTE
Observe national regulations for disposal of machines and working materials. Sort parts by groups and send them to professional recyclers.	

Disposal

16 Spare parts

		<h1>WARNING</h1>
<p>Use of non-approved spare parts (e.g., parts of other manufacturers, parts with deviating specifications, imitation consumables and wearing parts) may cause damage and endanger people! Any warranty is voided in this case. The owner is then liable for damage that occurs!</p> <p>When standard components are replaced, use only identical components of the original manufacturer! In the event that components are discontinued or components of other manufacturers are used, this requires manufacturer's approval by UNION Instruments GmbH!</p>		

Spare parts can be ordered from Union Instruments GmbH:
☞ *Chapter 12 Service.*

Make a note of the gas cooler type and serial number (☞ *Name plate*).

Identify and make a note of the order number, if applicable (☞ *Included documents*).

Order part.

Spare parts

17 Appendix

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