

# Operating Instruction

## Compressed Air-Dryer

**Cool 201**  
**Cool 401**



**ELEKTRA BECKUM** 

metabo germany

<b>Serie</b>	<b>Cool 201</b>	<b>405AP</b>
	<b>Cool 401</b>	<b>407AP</b>

**Version**

Types equipped with electromagnetic drainvalve according 2.6.1 and 3.8.1.  
(Types equipped with sensor operated drainvalve according 2.6.1, 3.8.2 and 5.1.6 are not available.)

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**All safety notes in this operating instruction which may cause harm to personnel or equipment, when ignored, are marked by the following symbols:**



**General danger symbol**



**Electrical danger symbol**

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**1.1 General notes**

- This compressed air-dryer is called CA-dryer in the following.
- The Company does not accept responsibility if safety regulations are not met during handling, operation, maintenance and repair, even though these are not strictly stated in these operating instructions.
- We recommend the notice of these operating instructions verified by the operating personnel in writing (personnel file).
- We recommend translation of these operating instruction into native language of foreign workers.
- The usability and the life cycle of the compressed air-dryer as well as the avoidance of premature repairs depends on proper operation, maintenance, care and competent repair under consideration of these operating instructions.
- Hints to figures and locations are in brackets, e.g. **(Fig. 5/2)**
- Due to our position as suppliers of components we do not always know the final usage and total range of products' applications. We constantly improve our products to the latest state of science and technology and therefore, we assume that our products are free from defects in the sense of product liability. However, it cannot be excluded that during faulty operation in critical areas of application especially at danger to life and limb of persons involved, additionally safety measures may be necessary. Therefore, we request the user of our components / units, to ensure in his own interest, to inform us about the application of our products in order to initiate additional safety measures, if necessary.

## 1.2 Safety regulations

**Attention!**

The operator has to observe the national working-, operating- and safety regulations. Also existing internal factory regulations must be met.

Maintenance and repair work must only be carried out by specially trained personnel and, if necessary, under supervision of a person qualified for this work.

- Protective or safety devices must not be removed, modified or readjusted.
- During operation of the CA-dryer none of the protective or safety devices must be removed, modified or readjusted temporarily or permanently.
- Use proper tools for maintenance and repair work only.
- Use original spare parts only.

**Attention!**

All maintenance and repair works must only be executed at stopped machine, disconnected power supply and pulled mains plug. Ensure that the CA-dryer cannot be switched on by mistake.

- Prior to dismantling a part under pressure disconnect the CA-dryer from all pressure sources and depressurize the CA-dryer.
- Do not use inflammable solvents for cleaning.
- Keep the environment absolutely clean during maintenance and repair works. Keep free of dirt by covering the parts and free openings with clean cloth, paper or adhesive tape.
- Never weld at the pressure vessel or modify it in any way.
- Ensure that no tools, loose parts or similar are left in the system.

**1.3 Handling with refrigerant**

- Wear eye protection and protective gloves
- Avoid contact of liquid refrigerants with your skin (frost-bite).
- Do not inhale refrigerant vapours.
- To avoid higher concentrations, all work rooms must be ventilated very well. The opening of windows and doors may not be sufficient, so an exhausting system must be used directly at the supply point or near the floor.
- Do not smoke, because fire might decompose the refrigerant. The resulting substances are toxic and must not be inhaled.
- Do not have refrigerants escaped during filling or repair work. Cover with tape.
- Leave the room immediately and only enter after the room has been sufficiently ventilated when refrigerant concentrations (e.g. pipe line leakages) appear suddenly.
- Execute welding and soldering works on refrigerating systems in well ventilated rooms only. Refrigerants will be decomposed in flames as well as in electrical arcs.
- The resulting decomposition products are toxic.
- Before welding and soldering at refrigerating systems, the refrigerant must be removed.
- A stinking smell points to decomposition of refrigerant due to overheating:
  - leave room immediately
  - ventilate room very well.

**1.4 First aid**

- Take victim immediately into the fresh air or into a very well ventilated room.
- Splashes of refrigerant in the eyes must be blown out with the mouth. Then rinse eyes with plenty of water. Do not wipe with cloth!
- If the victim does not breathe, perform a mouth-to-mouth resuscitation or use a respirator until the doctors arrival.
- **Call the doctor and inform him that accident has been caused by refrigerants, for refrigerant type see identification plate!**
- Never leave the victim unattended!

**1.5 Disposal**

- When disposing of used devices, pay attention to oil and refrigerant in the hermetical sealed refrigerating circuit of the CA-dryers. Therefore, before dismantling, these operation media must be disposed by a special company.
- The used materials are listed on the recycling label inside the CA-dryer.

**Attention!**

Do not dispose waste oil into the environment. Do not mix with household rubbish and do not burn in unauthorized plants.

- The escape of refrigerant into the atmosphere must be prevented by appropriate measures.

- 2.1 Transportation** Transportation has to be carried out in the normal operating position of the CA-dryer. For a short time an inclined position of 45 ° is allowed.
- 2.2 Requirements on the place of installation** At the site of installation, the CA-dryer can be installed without anchorage or special foundation at the location desired. The CA-dryer is provided for an ambient temperature of 25 °C.

**Attention!**

To avoid corrosion at components of the CA-dryer the compressed and ambient air must be free of aggressive parts.

The CA-dryers are provided for inside mounting. Deviating conditions require the consultation of the manufacturer.

To prevent the condensate from freezing the room temperature must not drop below +2 °C.

**Attention!**

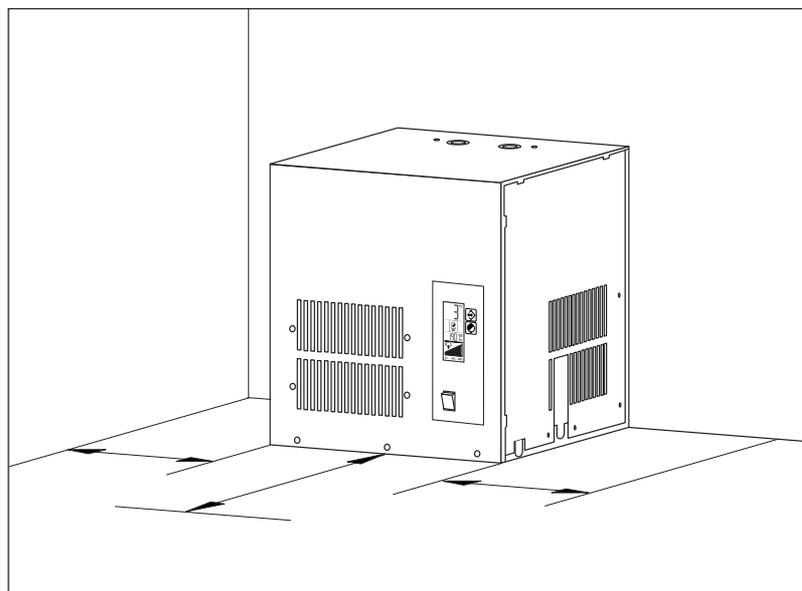
At different ambient conditions pay attention to the layout data!

**2.3 Installation (mounting)**

The CA-dryer must be installed that accessibility to the front panel is ensured. Furthermore leave space for service purpose on both sides of the CA-dryer (fig. 1).

Wall mounting is possible with all types.

Fig. 1: Installation of CA-dryer



**2.3.1 Version air cooled**

The cooling air for the refrigerant condenser will be sucked in at the front panel (fig. 5/3). This area must be kept free and not be obstructed.

If necessary, sufficient cooling air supply must be provided by additional wall openings .

The cooling air outlet is positioned at the top of the unit (fig. 5/8). Ensure a free air outlet and do not obstruct the outlet of the cooling air.

If the CA-dryer is connected to an exhaust trunk, an additional fan must be installed to compensate the pressure drop. The controlling of the fan must be provided through the CA-dryer.

**2.4 Compressed air connection**

The connection must be executed acc. to marking at the CA-dryer (fig. 5/1+2).

For service purposes the installation of a bypass line is recommended (additional equipment).

**Attention!**

Before mounting the CA-dryer, welding residual, rust or other pollution must be removed from the pipelines to be connected. If pollution cannot be excluded, proper filter system must be installed

The compressed air pipes must be installed stress-free. Expansion joints are recommended in case of vibrations and pulsations.

**2.5 Electric connection**

The CA-dryers are completely equipped and wired. They merely have to be connected to a power supply. The CA-dryers are to be protected by slow-blow fuses as defined in the wiring diagram.

**Operation voltage:** acc. to name plate or wiring diagram resp.

**Attention!**

Due to transportation reasons the power connection cable with installed cable gland is located inside the casing of the CA-dryer.

After removal of the side wall (fig. 5/9) the cable gland is mounted and fastened in the corresponding passage (fig. 5/6) of the casing.

## 2.6 Connection condensate drain



### Attention!

A hose must be fixed at the condensate drain and led out of the casing.

An opening (Fig. 5/7) can be used for leading out the hose.

For safety reasons the side wall must be closed again.

The CA-dryer separates water as well as oil from the compressed air. The water/oil mixture must not be led into the sewage. Water and oil must be separated by suitable separators (additional equipment).

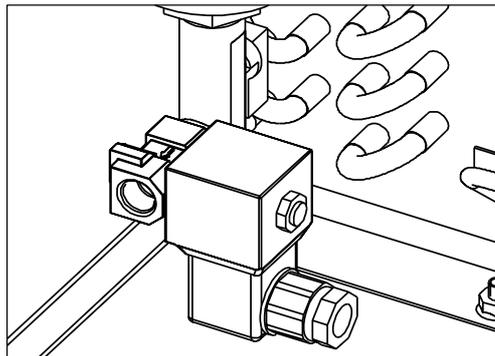


### Attention!

Route outflow so that persons or objects will not be struck by condensate (condensate outlet with operating pressure)!

### 2.6.1 Version with solenoid valve

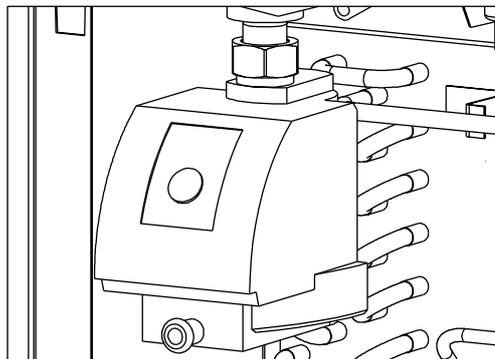
Fig. 2: Solenoid valve



with electronic regulated condensate drain

### 2.6.2 Version with sensor controlled drain (option)

Fig. 3: Sensor controlled drain

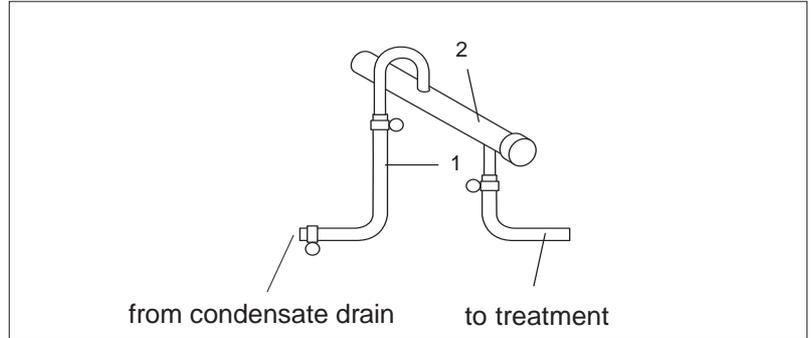


A minimum operation pressure of 2 bar is required for safe operation.

### 2.6.3 Connection condensate draining

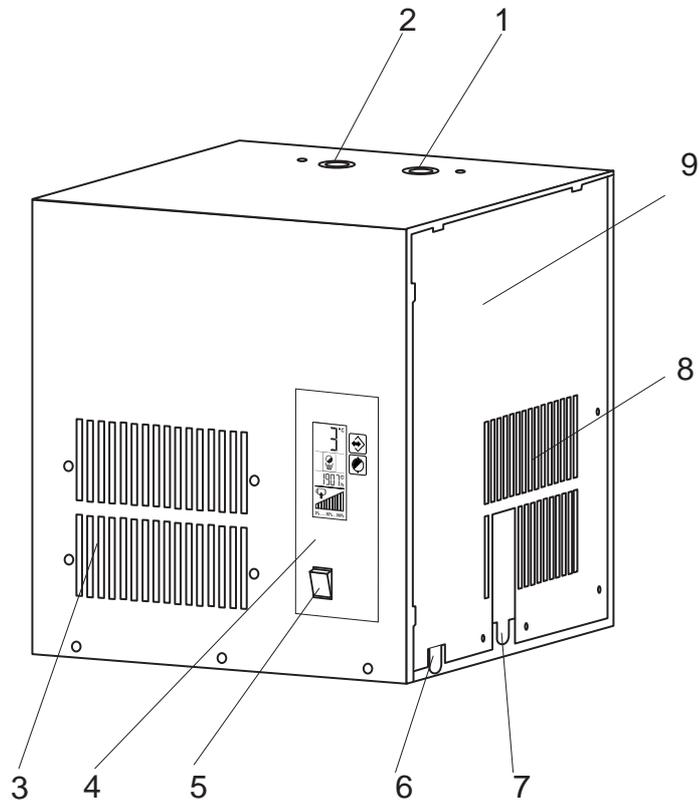
The condensate drain pipe (fig. 2.1) may be fixed to the wall with a rising slope of maximum 5 m. Thereby the minimum operation pressure increases for 0,1 bar per meter. The collecting pipe (fig. 2/2) should be laid throughout its whole length at least as the cross-section of the condensate outlet.

*Fig. 4: Connection condensate draining*



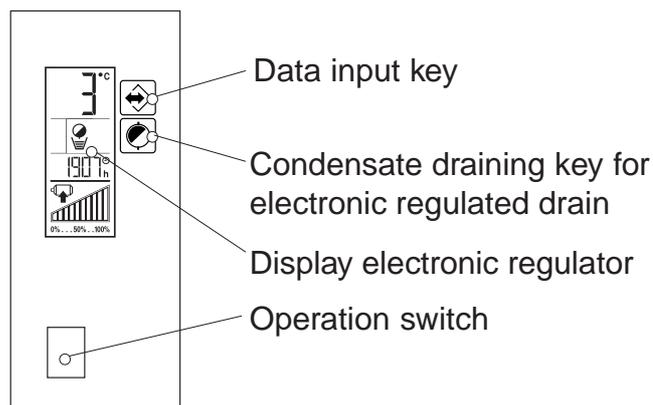
- 3.1 Designation** Refrigerating compressed air-dryer (CA-dryer).  
Version see type code (page 2)
- 3.2 Purpose** Compressed air will be dehumidified by the CA-dryer.
- 3.3 Unit Layout** Following components of the CA-dryer are accessible from outside (fig. 3).

Fig. 5: Complete system



- 1 Compressed-air inlet
- 2 Compressed-air outlet
- 3 Cooling air inlet
- 4 Electronic regulator operating panel (Fig. 6)
- 5 Operation switch
- 6 Electric connection
- 7 Condensate drain
- 8 Cooling air outlet
- 9 Access for service

Fig. 6: Electronic regulator - operating panel



3.3.1 Symbols

Fig. 7: Symbols general



Operation switch "off".

Compressed air inlet or outlet.

Before executing maintenance work at the CA-dryer, the unit must be disconnected from the power supply.

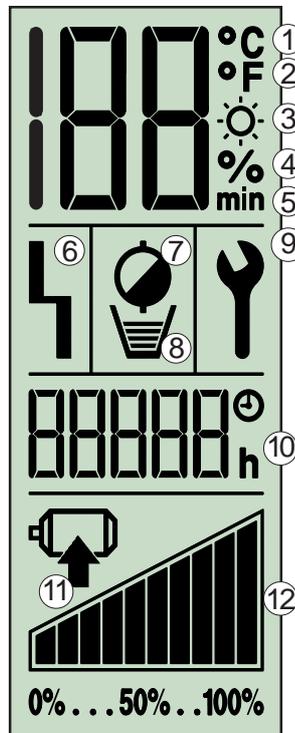
If the CA-dryer is not disconnected the risk of injuries is given, due to free rotating fan wings.

The refrigerant compressor heats up during operation so that there is a danger of burns .

Condensate drain

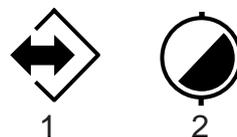
3.3.2 electronic regulator symbols

Fig. 8: Symbols electronic regulator



- 1 Temperature in °C
- 2 Temperature in °F
- 3 Normal- or summer operation
- 4 Percentage running time of CA-dryer
- 5 Time to next condensate draining
- 6 Failure indication
- 7 Condensate drain
- 8 Condensate tank
- 9 Maintenance interval exceeded
- 10 Counter working hours
- 11 Operation indication refrigerant compressor
- 12 Actual energy consumption

Fig. 9: electronic regulator operation



- 1 Data input key
- 2 Condensate drain key for electronic regulated drain

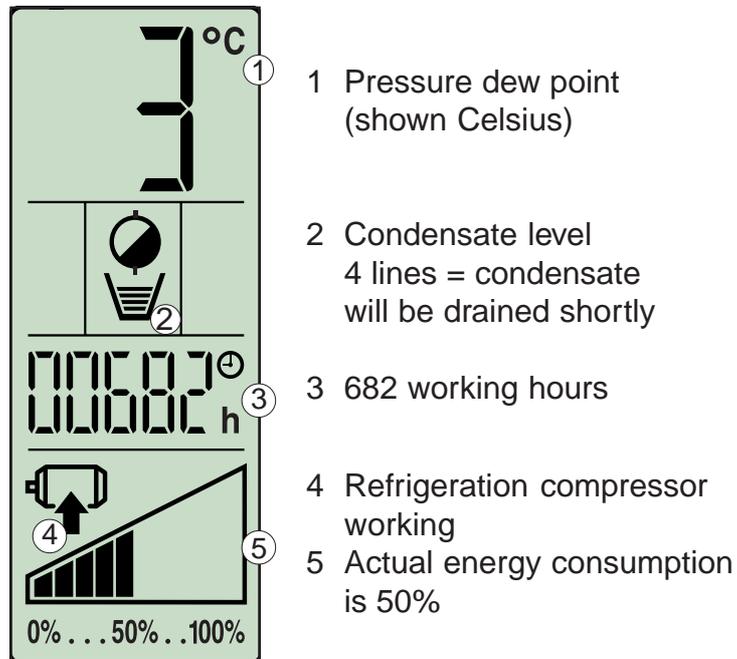
**3.4 electronic regulator**

The electronic regulator is a controller specially designed for CA-dryers. It operates on the basis of micro processors. Data as cooling temperature, pressure within cooling circuit, ambient temperature as well as CA-dryer specific parameter are processed by the electronic and therewith the actual operational state of the unit is determined.

If it is allowed due to the measuring data, the cooling compressor is stopped for a predetermined time. The pulsating measuring of the temperatures (multiple per second) and the function of the aluminium-heat exchanger as cold store enables the quick reaction on load changes without allowing dew point peaks to exceed the max. adjusted nominal value.

Depending on loads the electronic regulator additionally regulates the condensate drain to avoid compressed air losses.

Fig. 10: Normal display electronic regulator, example



**3.4.1 Normal operation (factory setting)**

The electronic regulator sets the pressure dew point on max. 3°C.

**3.4.2 Summer operation**

The electronic regulator sets the pressure dew point on max. 7 °C.

**3.4.3 Automatic operation**

The electronic regulator sets the pressure dew point in dependence to the ambient temperature at the location, to keep a relative humidity below 40% at the CA-dryer outlet.



**Attention!**

To enable this, it is necessary that the ambient temperature of the whole CA-network are not below the temperatures at the location of the CA-dryer.

- 3.5 Nominal power of CA-dryer**
- The nominal power of the CA-dryer mentioned in the technical data is related to a working pressure of 7 bar, a compressed air inlet temperature of 35 °C as well as an ambient temperature of 25 °C acc. to DIN ISO 7183. Lower working pressure, higher compressed air inlet temperature and/or higher ambient temperatures overload the compressor which causes to an increased pressure dew point and the compressor can be stopped by internal safety devices.  
At essentially deviating operation conditions, contact the deliverer of the CA-dryer for support.
- 3.6 Principle of operation**
- The CA-dryer includes a refrigerant system cooling the compressed air flow. The steam saturation limit is lowered causing condensate to fall out, which is removed by the condensate drain.  
The higher the cooling temperature difference of the air, the higher the amount of condensate.  
The lower the cooling temperature of air, the lower the moisture content.  
The lower limit of air cooling results from the operating principle of the CA-dryer based on the moisture separation in liquid form.  
So the freezing point of water (0 °C) must not be undergone.
- 3.7 Mode of operation**
- 3.7.1 Compressed air side**
- The compressed air precooled in the aftercooler and saturated with moisture enters into the CA-dryer and is precooled in the first cooling stage, the air-to-air heat exchanger without additional energy. Cooling is carried out in counterflow to the already cooled air heated during this process.  
The cooling to the pressure dew point is performed in the second cooling stage, the refrigerant-to-air heat exchanger cooled by the refrigerant system installed. Subsequently, the cooled compressed air is reheated in the air-to-air heat exchanger as already described.  
The pressure dew point is indicated at the electronic regulator panel.

**3.7.2 Refrigerant side**

The refrigerant is injected into the refrigerant-to-air heat exchanger where it evaporates, thereby the compressed air is cooled. The electronic regulator regulates the cooling temperature and keeps the pressure dew point constant in nearly all capacity stages.

The refrigerant compressed by the motor compressor is condensed within the condenser and is available for the evaporation again.

**3.8 Condensate draining**

The condensate drain is used for draining the condensate.

**3.8.1 Condensate drain electromagnetic**

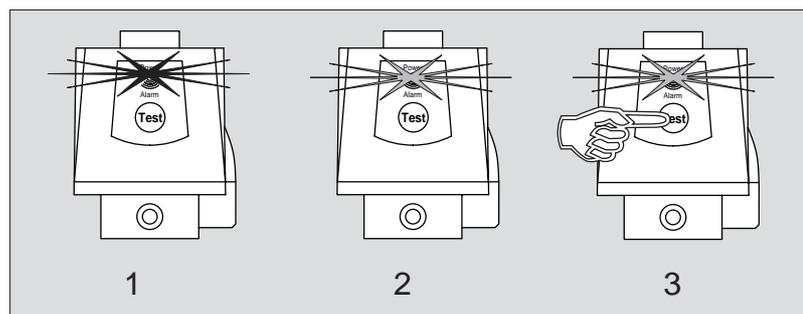
Depending on the ambient- and cooling temperature of the CA-dryer, the solenoid valve is opened by the electronic regulator. This ensures a compressed air condensate draining with nearly no loss of compressed air. If the condensate volume deviates from the set values (see 4.6.1.6) the adaptation to the specific characteristics of compressed air system is possible (see 4.6.1.6)

**3.8.2 Condensate drain sensor-controlled (option)**

Once the container has filled with condensate, so that the capacitive level sensor emits a signal, the internal solenoid valve opens and the condensate is forced by the working pressure into the discharge pipe.

The condensate drain electronic system ensures the closing of the outlet opening before any compressed air can escape. For functional safety a minimum pressure of 2 bar is necessary.

Fig. 11: Condensate drain reports



At faulty condensate discharge (blocked discharge pipe, pressure below minimum operating pressure), the unit changes to the alarm control after 60 seconds. The green LED flashes and a potential-free contact is activated. While in alarm control mode, the solenoid valve will open every 4 minutes for a period of 7,5 seconds, in order to remove any possible obstructions in the discharge pipe automatically.

A unit filled during a pressureless state will additionally be emptied automatically, as soon as the minimum pressure within the condensate drain has been reached.

**4.1 Commissioning**

After installation the CA-dryer is supplied with power via the power cable (fig. 5/1) or by operating the main switch (fig. 5/13).

Before operating the operation switch (fig. 3/14), a waiting period of at least 6 hours is absolutely necessary.

**4.2 Starting**

The CA-dryer is switched on via the operation switch (fig. 5/14). After approx. 5 minutes the compressed air admission is possible by connecting the compressed air compressor.

The CA-dryer is designed for continuous operation and may remain switched on during periods of no load, as it adapts to the required performance automatically.

**4.3 Operation**

Operation is indicated by the luminous operation switch (fig. 5/14).

The electronic regulator shows the pressure dew point reached by the CA-dryer.

**4.4 Stopping**

At standstill periods, the CA-dryer is switched off with operation switch (fig. 5/5).

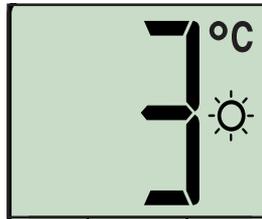
For service works, the CA-dryer is switched off by pulling the power cable (Fig 5/6).

At restarting proceed acc. to item 4.1.

#### 4.5 electronic regulator - operation

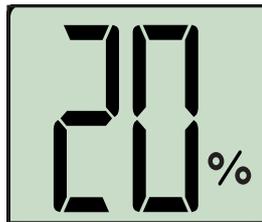
Following operation data can be recalled by operating the data selector key (◀▶):

Fig. 12: Pressure dew point



- Pressure dew point
- Summer operation

Fig. 13: Percentage running time of CA-dryer



- Percentage running time of CA-dryer in relation to total running time of the system

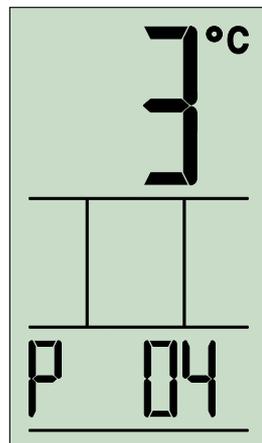
Fig. 14: Condensate drain



- Next condensate drain in 3 minutes

#### 4.6 Changing the factory setting

Fig. 15: Changing factory setting



1. Press data selector key (◀▶) for 5 seconds to change from display- into change mode.
2. If necessary press data selector key (◀▶) several times until requested change mode appears.
3. Adjusting by condensate drain key (●)
4. Press data selector key (◀▶) for 5 seconds to save changes and returning into display mode.

**4.6.1 Change modes**

- 4.6.1.1 P01** Activation pressure dew point-summer set value (factory setting: pressure dew point 7 °C).
- 4.6.1.2 P02** Acknowledgement of failures (see 5.1)
- 4.6.1.3 P03** Acknowledgement maintenance interval (see 5.1)
- 4.6.1.4 P04** Change of pressure dew point-normal set value by service.
- 4.6.1.5 P05** Change of pressure dew point-summer set value by service.
- 4.6.1.6 P06** Change of station time of condensate draining time (optimization of condensate draining)

At normal operation conditions the condensate volume per condensate draining time corresponds to the values mentioned below.

<u>Type of CA-dryer</u>	<u>Condensate volume</u>
405 AP, 406AP:	40cm <sup>3</sup> - 60cm <sup>3</sup>
407 AP:	12cm <sup>3</sup> - 18cm <sup>3</sup>

**Attention!**

- at greater amount of condensate per condensate draining time the factor P06 must be lowered.
- at smaller amount of condensate per condensate draining time the factor P06 must be raised.

<b>P06 Minimum:</b>	<b>Factor 1</b>
<b><u>P06 factory setting:</u></b>	<b><u>Factor 16</u></b>
<b>P06 Maximum:</b>	<b>Factor 33</b>

- 4.6.1.7 P07** Setting possibility of the pressure dew point failure limit value (factory setting 18 °C).
- 4.6.1.8 P08** Change °C / °F.
- 4.6.1.9 P09** Activation solenoid valve condensate draining.
- 4.6.1.10 P10** Activation automatic operation.

### 5.1 electronic regulator maintenance display

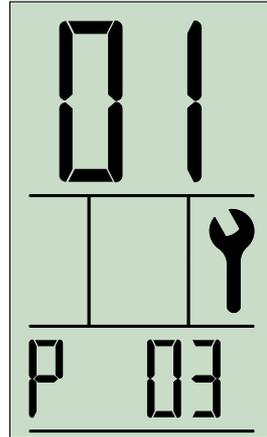


Flashing maintenance symbol:  
- maintenance interval exceeded

Fig. 16: Maintenance display

#### 5.1.1 Acknowledgement maintenance interval

Fig. 17: Acknowledgement maintenance interval



1. For acknowledgement press data selector key (↔) within 5 minutes after restart the CA-Dryer for 5 seconds.
2. Press data selector key (↔) several times until change mode P03 appears.
3. Acknowledging the maintenance interval key with condensate drain key (☉) - the maintenance symbol disappears (☿).
4. For returning into display mode press data selector key (↔) for 5 seconds

#### 5.1.2 Maintenance



#### Attention!

Prior to any maintenance works all safety regulations for electrical systems and units must be observed.

Maintenance intervals highly depend on the mode of operation and the ambient conditions on site, the intervals below are only to be understood as general recommendations.

#### 5.1.3 Daily checks (without maintenance symbol)

Monitoring of all temperatures.

Check function of condensate drain.

a) electronic regulated condensate drain:

Operating condensate drain key (☉) check, if water is drained.

b) Sensor controlled condensate drain:

Operating key "Test". check, if water is drained.

When operated, the condensate drain pulses all 2-3 seconds.

**5.1.4 Weekly maintenance**

Inspection and cleaning of condensate draining system if necessary.

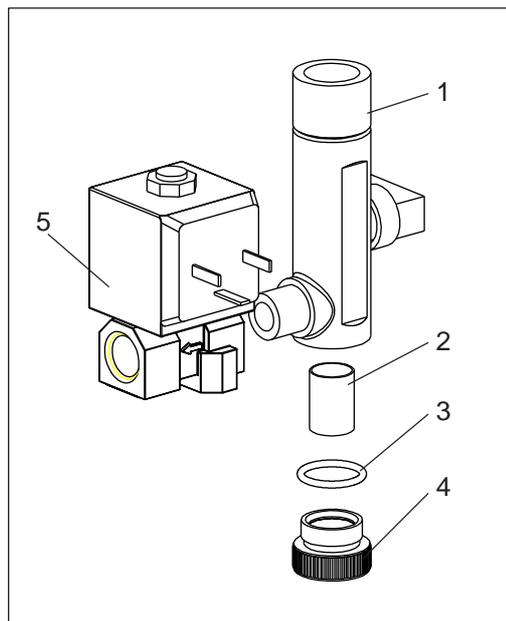
**Attention!**

Maintenance work must be performed at the depressurized condensate trap only. For this purpose, the installation of a bypass line is recommended (additional equipment).

**5.1.5 Cleaning of filter before condensate drain with solenoid valve****5.1.5.1 Dismounting of filters**

- a) disconnect CA-dryer from compressed air system
- b) remove side wall (Fig. 5/9)
- c) shut ball valve
- d) depressurize by operating the condensate drain key (Fig. 9/2).
- e) remove cap
- f) remove filter and clean with neutral cleaning agent, replace if necessary.

*Fig. 17: Solenoid valve, ball valve with filter*



- 1 Ball valve with filter insert
- 2 Filter
- 3 O-ring
- 4 Cap
- 5 Solenoid valve

**5.1.5.2 Mounting of Filters**

Mounting is done in reverse order.

**5.1.6 Sensor controlled condensate drain (option)**

Replace working parts yearly (see spare parts list)

## 5.2 Trouble shooting

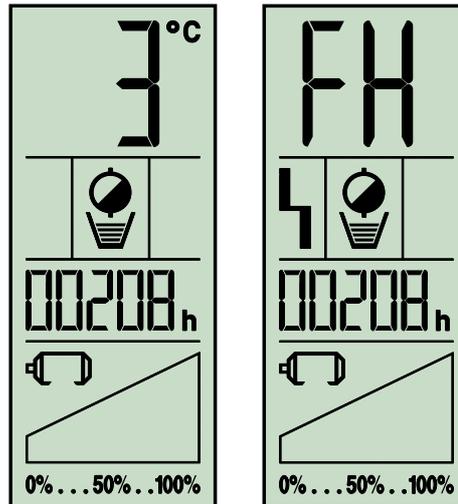
Fig. 19: Failure indication general



Failure indication: CA-dryer stopped.

### 5.2.1 electronic regulator failure indication

Fig. 20: electronic regulator Failure indication



CA-dryer stopped

Display changes between set value and failure indication (refrigerant overpressure)

#### Cause

#### Remedy

5.2.1.1 F1 sensor pressure dewpoint defective

Check sensor connection, replace sensor

5.2.1.2 F2 sensor ambient temperature defective

Replace regulator

5.2.1.3 EH EEPROM: electronic regulator

Restart CA-dryer, if not possible:  
Replace regulator

5.2.1.4 EL electronic regulator defective

Restart CA-dryer, if not possible:  
Replace regulator

5.2.1.5 FH refrigerant-overpressure

See 5.2.5

5.2.1.6 EU low voltage

Ensure electric power supply acc. to technical data.

5.2.1.7 H1 dew point too high

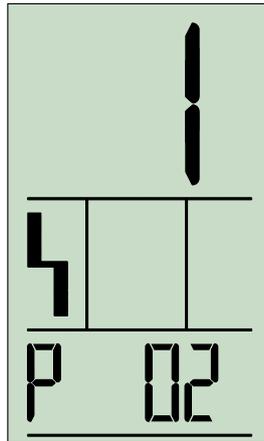
See 5.2.4

5.2.1.8 L1 dew point too low

See 5.2.6.3

### 5.2.2 Acknowledgement of failures

Fig. 21: Acknowledgement of failures



1. For acknowledgement operate data selector key (↔) for 5 seconds.
2. Operate data selector key (↔) once more until P02 appears .
3. Acknowledgement of failure through condensate drain key (⊙)
4. For returning into display mode press data selector key (↔) for 5 seconds.

### 5.2.3 Function:

#### Cause

No function

#### Remedy

- Check and establish power supply if necessary
- If the power supply is ok, call for service or send CA-dryer to the manufacturer.

### 5.2.4 Water in compressed air system

#### Cause

#### Remedy

#### 5.2.4.1 Condensate is not drained properly

- check condensate separator behind the compressor.
- possibly install automatic drain
- no sufficient drainage of the condensate separator behind the compressor, extend condensate draining time.

#### 5.2.4.2 electronic regulated condensate drain

##### 5.2.4.2.1 Faulty condensate draining

Clean solenoid valve

##### 5.2.4.2.2 Solenoid valve defective

Replace solenoid valve

**5.2.4.3** Sensor-controlled condensate drain

5.2.4.3.1 Blocked discharge pipe

Clean condensate drain with neutral cleaning agent.

5.2.4.3.2 Operation pressure below required minimum

Increase working pressure

**Cause****Remedy****5.2.4.4** Temporary overload of the CA-dryer due to non-uniform compressed air consumption

Reduce load, check whether CA-dryer's capacity is properly selected

**5.2.4.5** Overload due to high volume flow, or too high compressed air inlet temperature

Reduce CA-consumption or increase CA-dryer's capacity

(with installed bypass line)

**5.2.4.6** Bypass valve of bypass line opened

Close bypass valve in the bypass line

**5.2.4.7** Bypass valve of bypass line leaky

Seal or replace bypass valve in the bypass line,

### 5.2.5 Stopping CA-dryer during operation:

#### Cause

- Stopping of CA-dryer by installed electric start and protection device (Klixon) at the refrigerant compressor due to overload

#### Remedy

- eliminate cause of trouble, see 3.5 or call for service
- the CA-dryer will return to operation mode automatically after protection device has cooled down.  
**Note:** The immediate restarting of the unit is not possible because the protection device requires a minimum time to cool down to an admissible operating temperature.

#### 5.2.5.1 CA-volume flow too high

Reduce volume flow  
Check whether CA-dryer's capacity is properly selected, increase CA-dryer's capacity

#### 5.2.5.2 CA-inlet temperature too high

Check aftercooler with separator and drain behind the compressed air compressor, install if not present

#### 5.2.5.3 Room temperature too high

Ensure proper ventilation of CA-dryer's location

#### 5.2.5.4 Defective fan or cooling water regulator (water-cooled version)

Replace fan or cooling water regulator resp., call for service

#### 5.2.5.5 Condenser polluted

Clean condenser

#### 5.2.5.6 Operating pressure too low

Increase operating pressure, check whether CA-dryer's capacity is properly selected

**5.2.6 High differential pressure at CA-side:****Cause****Remedy****5.2.6.1** Compressed air volume flow too high

Check whether CA-dryer's capacity is properly selected, increase CA-dryer's capacity

**5.2.6.2** Working pressure too low

Increase operating pressure, check whether CA-dryer's capacity is properly selected

**5.2.6.3** Icing of CA-dryer**Characteristics:**

- differential pressure at compressed air side increases
- volume flow decreases

Disconnect unit and maintain compressed air flow. After approx. half an hour, the differential pressure will return to normal value. Restart the unit. If the heat exchanger ices up again call for service.

## Technical Data

**GB**

Size of Housing		3		
Pos.	Type-No.	405 AP	406 AP	407 AP
1	Volume flow	m <sup>3</sup> /h	65	80
		m <sup>3</sup> /min	1,08	1,33
2	Cooling air required	m <sup>3</sup> /h	450	
3	Power consumption (total)	kW	0,27	0,33
		kW (fan)	0,036	
5	Power supply	50 Hz	230V 1N~	
6	Allowable pressure (compressed air)	min. / max.	2 / 16	
7	Allowable pressure (refrigerant)	low pressure side,	16 / 50	
		high pressure side		
8	Compressed air connections	G	3/4	
9	Weight	kg	40	44
			41	
10	Dimensions	height	500	
		width	450	
		depth	450	
11	Refrigerant quantity	R 134a	0,33	0,37
12	Sound pressure level	dB (A)	<70	
13	Type of protection	IP	20	
14	Condensate drain	G	1/4"	

**Specification:**

Pos.1 : **Volume flow** referred to the suction status of the air compressor  
 at compressed air inlet temperature  
 operating pressure  
 ambient temperature  
 pressure dew point at CA-dryer outlet

Pos. 3, 4:

**Power consumption** at ambient temperature

**Compressed air inlet temperature**

**Allowed ambient temperature:**

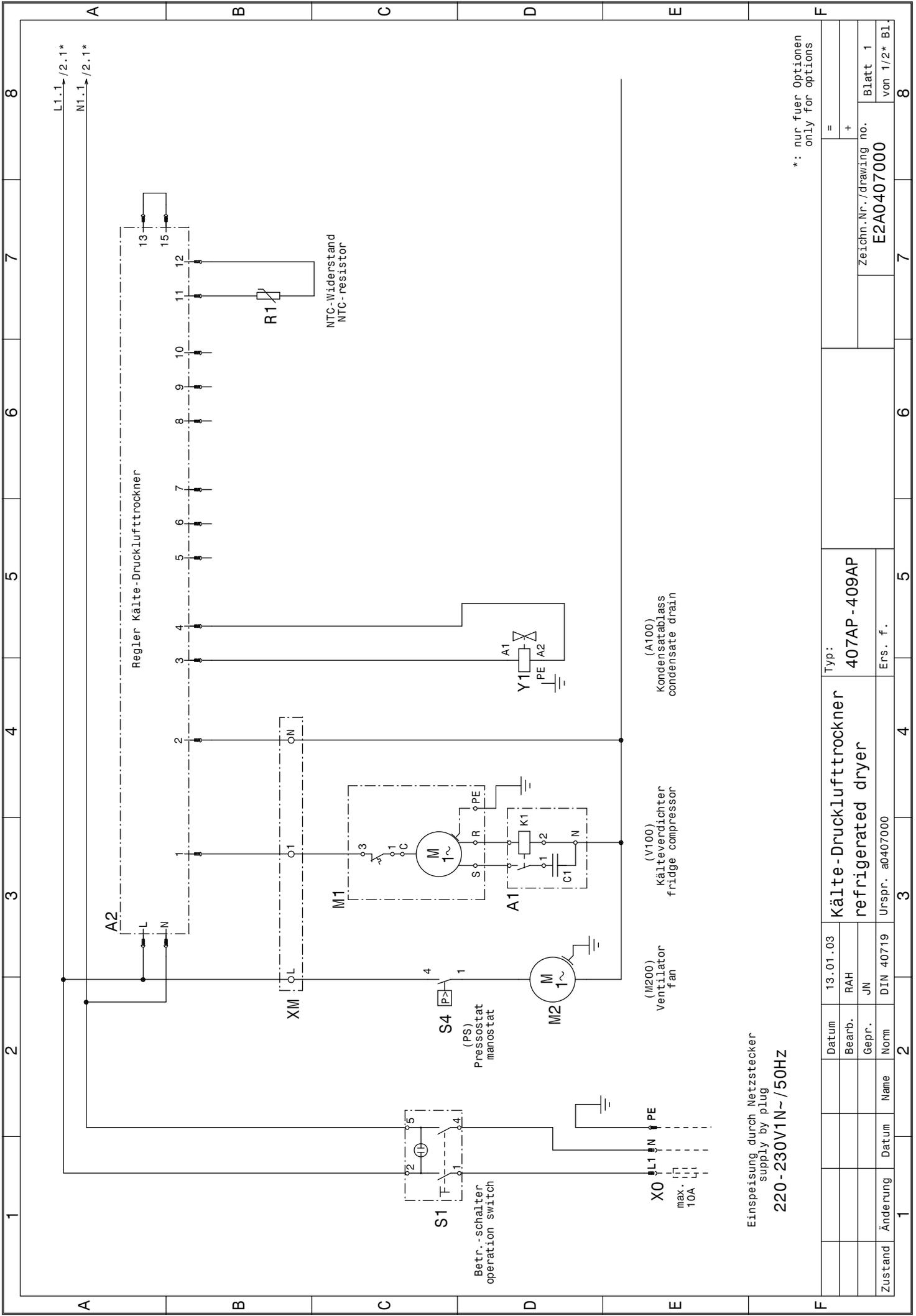
	+20°C
	+35°C
	+25°C
	+3°C
	+25°C
	+60°C
	max.
	min.
	+2°C
	+50°C

1 bar  
7 bar

Technical modifications are subject to change without notice!

<b>Designation:</b>	Refrigerated Compressed Air Dryer	<b>Type-No.:</b>	405AP - 407AP	<b>Technical Data Sheet:</b>	I/T 5003 OGB	<b>Date:</b>	2002-11-29	<b>Page 1 of</b>	1
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Einspeisung durch Netzstecker  
supply by plug  
**220-230V1N~/50HZ**

\*: nur fuer Optionen  
only for options

Zustand	Änderung	Datum	Name	Typ:	
				407AP-409AP	
				Kälte-Drucklufttrockner refrigerated dryer	
		13.01.03	RAH	Ers. f.	
			JN	Urspr. a0407000	
			DIN 40719	Zeichn.Nr./drawing no.	
				E2A0407000	
				Blatt 1	
				von 1/2* Bl.	
				8	



**D DEUTSCH****KONFORMITÄTSEKKLÄRUNG**

Wir erklären in alleiniger Verantwortlichkeit, dass dieses Produkt mit den folgenden Normen übereinstimmt\* gemäß den Bestimmungen der Richtlinien\*\*

**F FRANÇAIS****DECLARATION DE CONFORMITE**

Nous déclarons, sous notre seule responsabilité, que ce produit est en conformité avec les normes ou documents normatifs suivants\* en vertu des dispositions des directives\*\*

**IT ITALIANO****DICHIARAZIONE DI CONFORMITÀ**

Noi dichiariamo sotto la nostra esclusiva responsabilità che il presente prodotto è conforme alle seguenti norme\* in conformità con le disposizioni delle normative\*\*

**PT PORTUGUÊS****DECLARAÇÃO DE CONFORMIDADE**

Declaramos sob nossa responsabilidade que este produto está de acordo com as seguintes normas\* de acordo com as directrizes dos regulamentos\*\*

**FIN SUOMI****VAATIMUKSEN MUKAISUUSVAKUUTUS**

Vakuutamme, että tämä tuote vastaa seuraavia norveja\* on direktiivien määräysten mukainen\*\*

**DA DANSK****OVERENSSTEMMELSESTEST**

Hermed erklærer vi på eget ansvar, at dette produkt stemmer overens ed følgende standarder\* iht bestemmelserne i direktiverne\*\*

**EL ΕΛΛΗΝΙΚΑ****ΔΗΛΩΣΗ ΑΝΤΙΣΤΟΙΧΕΙΑΣ**

Δηλώνουμε με ίδια ευθύνη ότι το προϊόν αυτό αντιστοιχεί στις ακόλουθες προδιαγραφές\* σύμφωνα με τις διατάξεις των οδηγιών\*\*

**ENG ENGLISH****DECLARATION OF CONFORMITY**

We herewith declare in our sole responsibility that this product complies with the following standards\* in accordance with the regulations of the undermentioned Directives\*\*

**NL NEDERLANDS****CONFORMITEITSVERKLARING**

Wij verklaren als enige verantwoordelijke, dat dit product in overeenstemming is met de volgende normen\* conform de bepalingen van de richtlijnen\*\*

**ES ESPAÑOL****DECLARACION DE CONFORMIDAD**

Declaramos bajo nuestra exclusiva responsabilidad, que el presente producto cumple con las siguientes normas\* de acuerdo a lo dispuesto en las directrices\*\*

**SV SVENSKA****FÖRSÄKRAN OM ÖVERENSSTÄMMEELSE**

Vi försäkrar på eget ansvar att denna produkt överensstämmer med följande standarder\* enligt bestämmelserna i direktiven\*\*

**NO NORGE****SAMSVARSERKLÆRING**

Vi erklærer under eget ansvar at dette produkt samsvarer med følgende normer\* henhold til bestemmelsene i direktiv\*\*

**POL POLSKI****OŚWIADCZENIE O ZGODNOŚCI**

Oświadczamy z pełną odpowiedzialnością, że niniejszy produkt odpowiada wymogom następujących norm\* według ustaleń wytycznych\*\*

**HU MAGYAR****MEGEGYZŐSÉGI NYILATKOZAT**

Kizárólagos felelősségünk tudatában ezennel igazoljuk, hogy ez a termék kielégíti az alábbi szabványokban lefektetett követelményeket\* megfelel az alábbi irányelvek előírásainak\*\*

## Druckluftkältetrockner Cool 201 - Cool 401

EN 292, EN 294, EN 378-1, prEN 387 -2, EN 60204-1, EN 60335-2-40, EN 50081, EN 50082

\*\* 98/37/EG, 73/23/EWG, 89/336/EWG

Ing. grad. H. J. Schaller  
Entwicklungsleiter



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