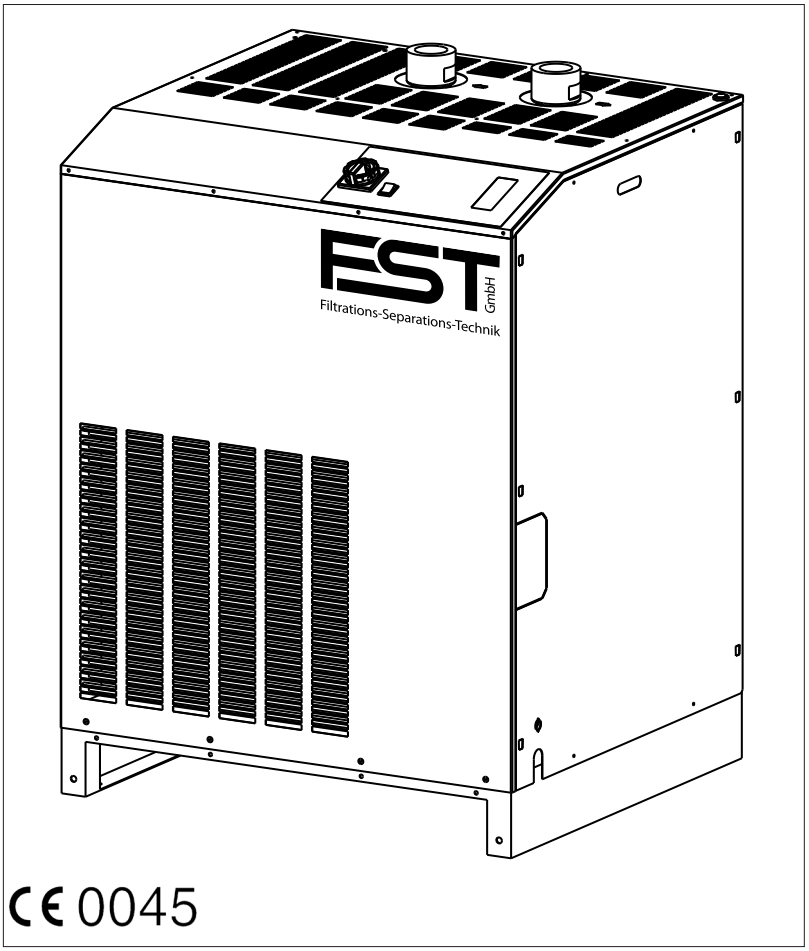
FST GmbH

Filtrations-Separations-Technik

Operating Instruction



O127020G000 GB
06.2014

Compressed Air-Dryer

DFE 55 A - DFE 165 A

Type Code

Series

Type Code	Model	Type no.	Material no.
Version air-cooled	**DFE 55 A**	**1270 A**	
	DFE 65 A	**1271 A**	
	DFE 75 A	**1272 A**	
	DFE 85 A	**1273 A**	
	DFE 100 A	**1274 A**	
	DFE 120 A	**1275 A**	
	DFE 135 A	**1276 A**	
	DFE 150 A	**1277 A**	
	DFE 165 A	**1278 A**	

Translation of the original instructions!

FST GmbH
Im Teelbruch 106
D-45219 Essen

Telefon +49 (0) 2054 8735 0
Telefax +49 (0) 2054 8735 100
e-mail: info@fstweb.de

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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

1.1 General notes

- This refrigerant compressed air-dryer (referred to below as CA-dryer) is a machine in the sense of EC-machine directives.

- 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.
  Our products are consequently customized to the standards, and after an analysis of our risk evaluation, our products are accurate in the sense of product liability.
  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 Legal requirements for the user

1.2.1 Classification EC regulation 97/23

- Due to classification into category 2 acc. to EC-Pressure Equipment directive, the CA-Dryer are "systems to be monitored".

1.2.2 Check of working materials

- Before starting the CA-Dryer, the user has to check the working materials and record this accordingly.

1.2.3 Periodical checks

- The user of the CA-Dryer has to find out the test periods of the complete unit and the unit parts on base of a safety related technical evaluation.

1.2.4 Instruction EN 378-1

- The user has to provide the instructions for the operators as well as their information of the used working media. A yearly instruction is mandatory.

1.2.5 Short Operating In - struction EN 378-2

- A form „Short Operating Instruction" is included in the Operating Instruction and must only be completed by the user and positioned next to the machine

1.2.6 Documentation EN 378-4.3.1 EC regulation 842/2006

- The user is committed to create a unit record of the refrigerating plant when using more than 3 Kg refrigerant A guideline can be provided by the service.

1.2.7 Maintenance EN 13 313

- Maintenance has to be provided by qualified personnel only.

1.3 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 of 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 dismounting 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.
- The CA-Dryer must not be used as deposit station.
- The casing of the CA-Dryer must not be stepped on.

Attention!
The form „Short Operating Instruction“ included with the CA-Dryer must be completed by the user by means of the name plate or technical data sheet and positioned next to the machine for general information purposes.

1.4 Handling with refrigerant

- Personal protective equipment
  At refrigerant escapes or at works with possible refrigerant escapes, protective glasses and gloves must be used.

- Avoid contact of liquid refrigerants with your skin (frostbite).

- 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.

- If not available the safety data sheet with further information of the refrigerant used in this CA-Dryer can be requested from the manufacturer.

1.5 First aid at refrigerant accident

1.5.1 General notes:

- Immediately bring casualty into the fresh air or into a well ventilated room.
- Assistants must pay attention to self-protection!
- Take off contaminated clothes.
- Never leave the casualty unattended!
- **CALL THE DOCTOR and inform him that accident has been caused by refrigerants, as to be read on the name plate!**

1.5.2 After inhaling:

- Bring casualty into the fresh air, keep him warm, and let him relax.
  At breathlessness: Oxygene therapie
  At apnoea: Resuscitation
  Mouth-to-nose resuscitation, mouth-to-mouth resuscitation or with equipment.
  Medical treatment necessary

1.5.3 After skin contact:

- At skin contact, clean with water and soap immediately.
  After contact with the fluid, undercooled skin areas must be cooled with warm (not hot) water.

1.5.4 After eye contact:

- Flush well opened eye with running water for at least 10 minutes.
  Contact doctor.

1.5.5 Notes for the doctor:

- Inform doctor about the used refrigerant.
  After inhalation, deep breathing of a corticoid emulsive dosing aerosol (e.g. Ventolair) as soon as possible.
  Prohobition of using adrenergic drugs.
  Prophylactic pulmonary edema after inhalation of decomposition products / fire gases

1.6 Disposal

- When disposing of used devices, pay attention to oil and refrigerant in the hermetically sealed refrigerating circuit of the CA-dryers. Therefore, before dismounting, 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!

Part 2 Installation

2.1 Transportation

Transportation has to be carried out in the normal working position of the CA-dryer. The CA-dryer may be transported with a fork lift truck or stacker lift truck.
The CA-dryer can be transported for a short time in an inclined position of up to 45 °.

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. Fixing possibilities at the ground plates are available and can be used if necessary.

Attention!
To avoid corrosion on 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.

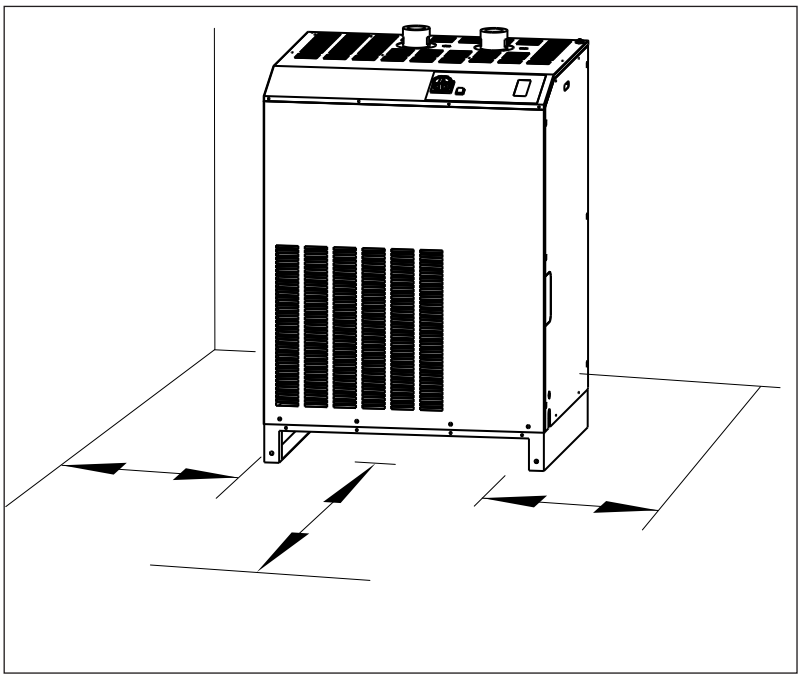
The CA-dryer is designed for an ambient temperature of 25 °C.
To prevent the condensate from freezing the room temperature must not drop below +2 °C.

Attention!
At different ambient conditions pay attention to the layout data!

2.3 Installation (mounting)

The CA-Dryer has to be installed with free access to all operating and display elements as well as the condensate drains (**Fig.1**).

Fig. 1 Installation of CA-dryer



2.3.1 Version air cooled

The cooling air for the refrigerant condenser is sucked in at the left side (**fig. 3/7**). This area must be kept free.
If necessary, sufficient cooling air supply must be provided by additional wall openings.
The cooling air outlet is positioned at the right side of the CA-dryer (**fig. 3/5**). Ensure a free air outlet and do not obstruct the outlet of the cooling air.

2.4 Compressed air connection

The connection must be executed acc. to marking at the CA-dryer (**fig. 3/1+2**).

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.

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

Attention!
To exclude unallowed overpressures at the pressure side, the user has to provide a corresponding safety at the inlet.

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.

Operating voltage: acc. to name plate or wiring diagram resp.

Attention!
The proper phasing as given in the wiring diagram must absolutely be fulfilled!
At correct direction of fan rotation the cooling air is sucked through the condenser!

2.6 Connection condensate drain

A hose must be fixed at the condensate drain and led out of the casing.
An opening **(fig. 3/6)** can be used for leading out the hose.
For safety reasons the side wall must be closed again.

Attention!
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).

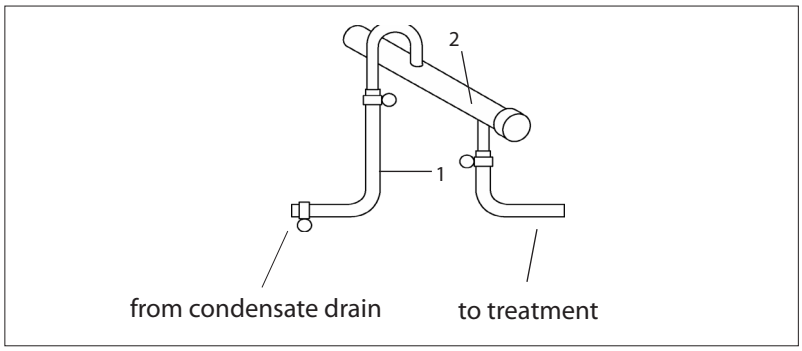
A minimum operating pressure of 2 bar is required for safe operation.

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

2.6.1 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 operating pressure increases for 0,1 bar per meter. The collecting pipe **(fig. 2/2)** has to have at least the cross-section of the condensate outlet.

Fig. 2: Connection condensate draining



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).

Part 3 Description

3.1 Designation

Refrigerating compressed air-dryer (CA-dryer).
Version see type code **(page 2)**

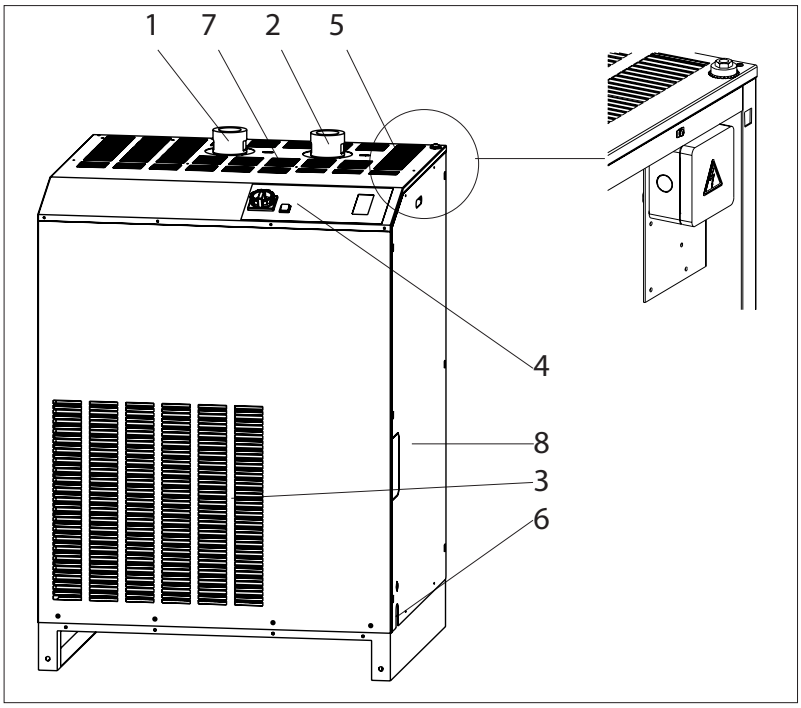
3.2 Intended use:

The CA-Dryer is used for drying compressed air only.

3.3 Unit Layout

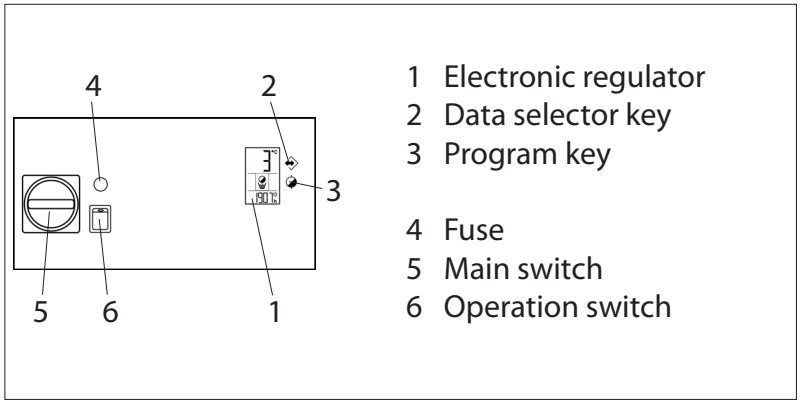
The following components of the CA-dryer are accessible from outside **(fig. 3)**.

Fig. 3: Complete system



1 Compressed-air inlet
2 Compressed-air outlet
3 Cooling air inlet
4 Operating panel (fig. 4)
5 Power supply
6 Condensate drain
7 Cooling air outlet
8 Access for service

Fig. 4: Electronic regulato

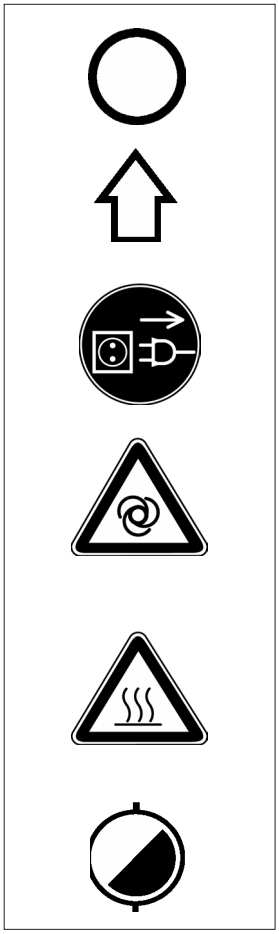


1 Electronic regulator
2 Data selector key
3 Program key

4 Fuse
5 Main switch
6 Operation switch

3.3.1 Symbols

Fig. 5: 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.

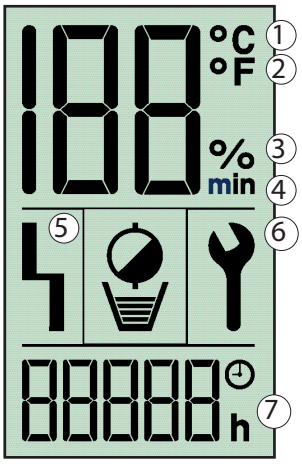
If the CA-dryer is not disconnected the risk of injuries is given, due to free rotating fan wings.

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

Condensate drain.

3.3.2 Electronic regulator symbols

Fig. 6: Symbols electronic regulator

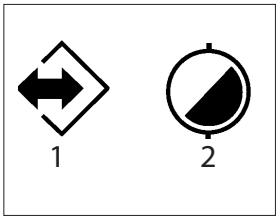


1 Temperature in °C
2 Temperature in °F
3 Relative humidity
4 Time to next condensate draining

5 Failure indication
6 Maintenance interval exceeded

7 Counter working hours

Fig. 7: Electronic regulator operation

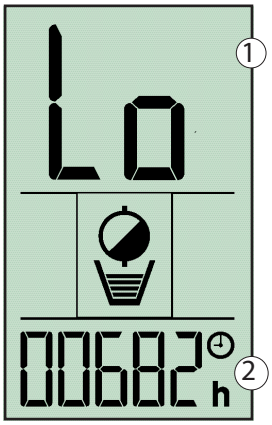


1 Data input key
2 Program key

3.4 Electronic regulator

The electronic regulator is a controller specially designed for CA-dryers. It operates on the basis of micro processors. By processing parameters such as cooling temperature, pressure in the fridge circuit as well as dryer specific parameters the actual operational condition of the dryer is calculated by the electronic.
If the measured data admit the refrigerating compressor will be shut of for a precalculated period. The pulsating measuring of the temperature (several times per second) and the using of the aluminium heat exchanger as a storage mass ensures a quick response to load changes without tolerating dew point peaks.

Fig 8: Electronic regulator normal display (example)



1 Display "Lo"
pressure dew point ok
(Display "HI"
pressure dew point too high)

2 682 working hours

3.4.1 Normal operation (factory setting)

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

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 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 operating 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.

3.7 Mode of operation

3.7.1 Compressed air side

The compressed air precooled in the after cooler 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 counter flow 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.

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 evaporated refrigerant compressed by the refrigerant compressor is condensed in the condenser and is available for the evaporation again.

3.8 Condensate draining

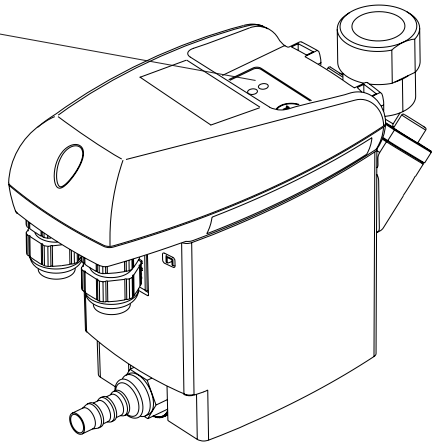
The condensate drain **(fig. 9)** is used for draining the condensate. For functional safety a minimum pressure of 2 bar is necessary.

3.8.1 Condensate drain sensor-controlled

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.

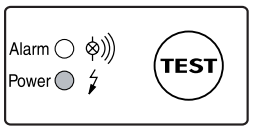
Fig. 9: Condensate drain Complete system

Fig. 10

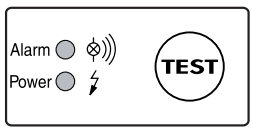


The operating states of the condensate drain are indicated by two LED's.

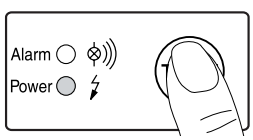
Fig. 10: Condensate drain reports



- Ready for operation. Power on.



- Malfunction/Alarm.



- Test of valve function and manual drainage: press button for 2 seconds.
- Press button for > 1 minute to test the alarm function.

Part 4 Operation

4.1 Commissioning

After the installion, the CA-dryer is supplied with power via the power plug (**fig. 4/5**).

Before operating the operation switch (**fig. 4/6**), a waiting period of at least 6 hours is necessary.

4.2 Starting

The CA-dryer is switched on via the operation switch (**fig. 3/9**). After approx. 5 minutes the compressed air admission is possible by connecting the compressed air compressor.

Attention!
A period of 5 minutes must be kept between switching off and switching on the CA-dryer to achieve a pressure compensation within the refrigeraion system.

After some hours of operation under load, it should be controlled that condensate is generated and drained.
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. 4/6**).

4.4 Stopping

At standstill periods, the CA-dryer is switched off with the operation switch (**fig. 4/6**).

4.4.1 Service

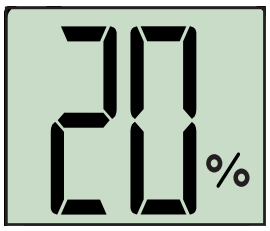
For service works, the CA-dryer is additionally switched off by the main switch (**fig. 4/5**). When restarting the dryer proceed as mentioned in item 4.1

Attention!
At restarting proceed as mentioned in item 4.1.

4.5 Electronic regulator operation

Following operating data can be recalled by operating the data selector key (⇔):

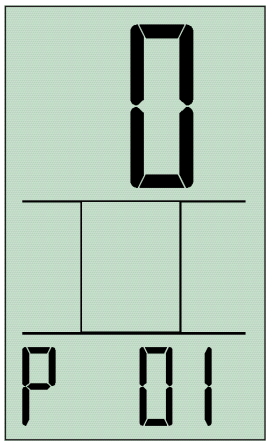
Fig. 11: Relative humidity



- relative humidity

4.6 Changing the factory setting

Fig. 12: 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 (P01 - P06).
3. Adjusting by program 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 Acknowledgement of failures (see 5.2.2).

4.6.1.2 P02 Acknowledgement maintenance interval (see 5.1.2).

4.6.2 Change modes Service

4.6.2.1 P03 Adaptation of condensate volume.

4.6.2.2 P04 Changing the dew point failure limit value (factory setting 25°C).

4.6.2.3 P05 Change °C / °F.

4.6.2.4 P06 Adjust sensor-controlled drain:
'0' = operation with sensor-controlled drain.

4.6.2.5 P07 Opening time of seleonid valve condensate drain
(Version with automatic condensate drain P07 is inactive)

5.1 Maintenance

Attention!
Prior to any maintenance works all safety regulations for electrical systems and units must be observed **(see part 1)**.

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.

5.1.1 Electronic regulator maintenance display

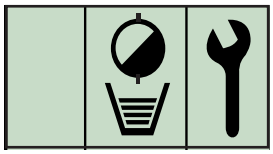


Fig. 13: Maintenance display

Flashing maintenance symbol:
- maintenance interval exceeded (8000 hrs.).

5.1.1.1 Acknowledgement maintenance interval

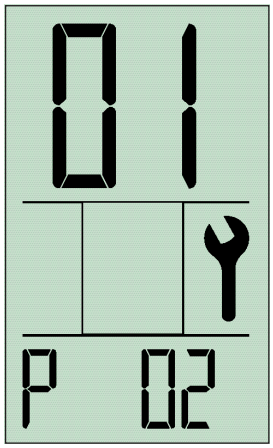


Fig. 14: Acknowledgement maintenance interval

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 P02 appears.
3. Acknowledging the maintenance interval key with program key (◔) - the maintenance symbol disappears (🔧).
4. For returning into display mode press data selector key (⇔) for 5 seconds

5.1.1.2 Daily checks (without maintenance symbol)

Monitoring all temperature.
At proper temperatures it can be assumed, that all electrical- and refrigeration components are working properly.
If the temperatures are seriously deviating up or down, a malfunction can be assumed. **(see 5.2)**.

a) Check function of condensate drain. Check, if water is drained.
b) Monitor pressure dew point **(fig. 5).** In case of differences to normal operation **(see 5.2.3)**.

5.1.1.3 Version aircooled

Function check of the fans.
At no function, **see 5.2.5.4.**
Check condenser on pollution, if necessary clean.

5.1.2 Check refigeration system for leakage

The checks must be recorded in a journal by the user! On request, a journal can be provided by the service.

Attention!
Before working at a refrigeration unit, absolutely pay attention to the information about how to handle refrigerant **(see 1.3)**!

5.1.2.1 1/2 yearly check

Leak tightness check at CA-Dryers with refrigerant filling ≥30 kg (filling amount see nameplate).
With this amount of filling, the maximum allowed leak rate of 2 % must not be exceeded.

5.1.2.2 Yearly maintenance

Leak tightness check at CA-Dryers with refrigerant filling ≤30 kg (filling amount see nameplate).
With this amount of filling, the maximum allowed leak rate of 2 % must not be exceeded.

5.1.2.3 Weekly maintenance

nspection and cleaning of condensate draining system if necessary.

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

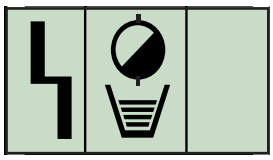
5.1.2.4 Periodic checks at pressure vessels

All CA-Dryers mentioned in this operating instruction, are corresponding with the pressure vessel guideline category I/ II, fluid group 2 and have a maximum pressure of 16 bar.

Periodic checks must be done acc. to the determinations of the user. **(see 1.2.4)**.

5.2 Trouble shooting

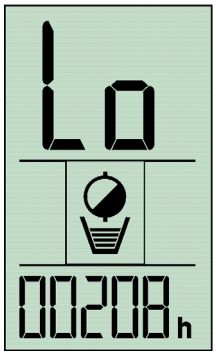
Fig. 15: Failure indication general

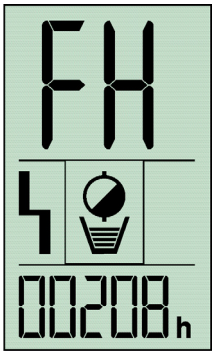


Failure indication: CA-dryer stopped.

5.2.1 Electronic regulator failure indication

Fig. 16: Electronic regulator failure indication





refrigerant over-pressure

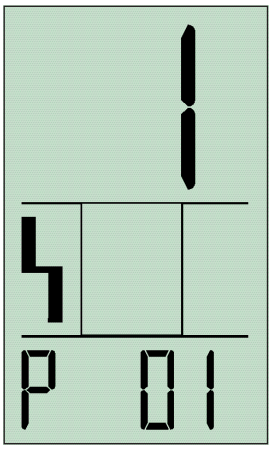
CA-dryer stopped.

Display changes between set value and failure indication

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 electronic regulator.
5.2.1.3 EH EEPROM electronic regulator	Change parameters (see 4.6), if not possible: Replace electronic 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 HI 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. 17: Acknowledgement of failures



1. For acknowledgement operate data selector key (⇔) for 5 seconds.
2. Operate data selector key (⇔) once more until P01 appears.
3. Acknowledgement of failure through program key (◔).
4. For returning into display mode press data selector key (⇔) for 5 seconds.

5.2.3 Function:

Cause	Remedy
5.2.3.1 CA-dryer does not start	- Check and establish power supply if necessary. - If the power supply is ok, contact service or send CA-dryer to the manufacturer.
5.2.3.2 Indication dewpoint too high **- comressed air system dry** **- CA-dryer in function**	Sensor defect - Control takes over by thermostat, compressed air quality is ensured - Contact service

5.2.4 Water in compressed air system:

Cause		Remedy
5.2.4.1	Condensate is not drained sufficiently	- Check condensate separator behind the air compressor. Possibly install automatic drain. - **See 5.2.7** condensate drain.
5.2.4.2	Operating pressure below required minimum	Increase working pressure.
5.2.4.3	Temporary overload of the CA-dryer due to non-uniform compressed air consumption	Reduce load, check whether CA-dryer´s capacity is properly selected.
5.2.4.4	Overload due to volume flow or compressed air inlet temperatur too high	Reduce CA-consumption or increase CA-dryer´s capacity.
Only with installed bypass line:		
5.2.4.5	Bypass valve of bypass line opened	Close bypass valve in the bypass line.
5.2.4.6	Bypass valve of bypass line leaky	Seal or replace bypass valve in the bypass line.

5.2.5 Stopping CA-dryer during operation

Cause		Remedy
5.2.5.1	Stopping of CA-dryer by installed electric start and protection device (Klixon) at the refrigerant compressor due to overload	Eliminate cause of trouble, see 3.5 or contact 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.
5.2.5.2	Compressor or starting device is defective	Contact service.
5.2.5.3	CA-volume flow too high	Reduce volume flow. Check whether CA-dryer´s capacity is properly selected, increase CA-dryer´s capacity.
5.2.5.4	CA-inlet temperature too high	Check after cooler with separator and drain behind the compressed air compressor, install if not present.
5.2.5.5	Room temperature too high	Ensure proper ventilation of CA-dryer´s location.
5.2.5.6	Defective fan or cooling water regulator (water cooled version)	Replace fan or cooling water regulator resp., contact service.
5.2.5.7	Condenser polluted	Clean condenser.
5.2.5.8	Operating pressure too low	Increase operating pressure, check whether CA-dryer´s capacity is selected properly.

5.2.6 High differential pressure at CA-side:

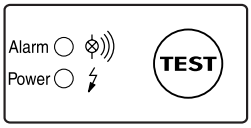
Cause		Remedy
5.2.6.1	Compressed air volume flow too high	Check whether CA-dryer´s capacity is properly selected, increase CA-dryer´s capacity.
5.2.6.2	Working pressure too low	Increase operating pressure, check whether CA-dryer´s capacity is properly selected.
5.2.6.3	Icing of CA-dryer	Disconnect unit 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 contact service.
5.2.6.4	Heat exchanger polluted	Contact service.

5.2.7 Condensate drain:

Cause **Remedy**

5.2.7.1

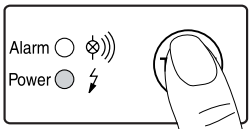
Fig. 18a: LED not lighting up



Power supply faulty.
Power supply board defective.
- Check voltage on type plate.
- Check connections.
- Check printed circuit boards for possible damage.

5.2.7.2

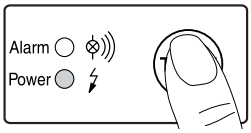
Fig. 18b: Pressing of test button, but no condensate discharge



Feed and/or outlet line shut off or blocked.
Worn parts (seals, valve core, diaphragm).
Power supply board defective.
Service unit defective.
Dropping below necessary minimum pressure.
Maximum pressure exceeded.
- Check feed line and outlet line.
- Check if valve opens audibly (press test button several times).
- Check printed circuit board for possible damage.
- Check operating pressure.

5.2.7.3

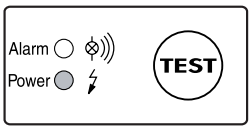
Fig. 18c: Condensate discharge only when test button is being pressed



Service unit extremely dirty.
- Replace service unit.

5.2.7.4

Fig. 18d: Device keeps blowing off air



Service unit defective or dirty.
- Replace service unit.

GB	Technical Data											
Version air cooled												
Pos.			Type-No.	1270	1271	1272	1273	1274	1275	1276	1277	1278
1	Volume flow		m³/h	550	650	750	850	1000	1175	1350	1500	1650
			m³/min	9,17	10,83	12,50	14,17	16,67	19,58	22,50	25,00	27,50
2	Cooling air required		m³/h	2900			2600	3100	2600			
3	Power consumption	(total)	kW	1,25	1,28	1,45	1,80	2,40	2,56	2,80	2,95	3,10
4	Power consumption	(fan)	kW	0,13				0,37				
5	Power supply			400V / 3~ / 50 Hz								
6	Allowable pressure (compressed air)	min./ max.	bar	2 / 16								
7	Allowable pressure (refrigerant)	low,- high pressure side	bar	16 20								
8	Compressed air connections		G	2				2 1 / 2				
9	Weight		kg	150	152	166	175	177	180	185	190	196
10	Dimensions	width	mm	1230								
		height		900								
		depth		800								
11	Refrigerant quantity	R 134a	kg	1,35	1,35	1,60	1,70	2,60	2,60	2,90	2,90	3,30
12	Sound pressure level (at a distance of 1m)		dB (A)	< 70								
13	Type of protection		IP	20								
14	Condensate drain		G	1/4"								

Specification:

Pos.1 : **Volume flow** reffered to +20°C 1 bar
at compressed air inlet temperature +35°C
operating pressure 7 bar
ambient temperature +25°C
pressure dew point at CA-dryer outlet +7°C

Pos. 3, 4: **Power consumption** at ambient temperature +25°C

Compressed air inlet temperature max. +70°C

Allowed ambient temperature min. + 2°C
max. +50°C

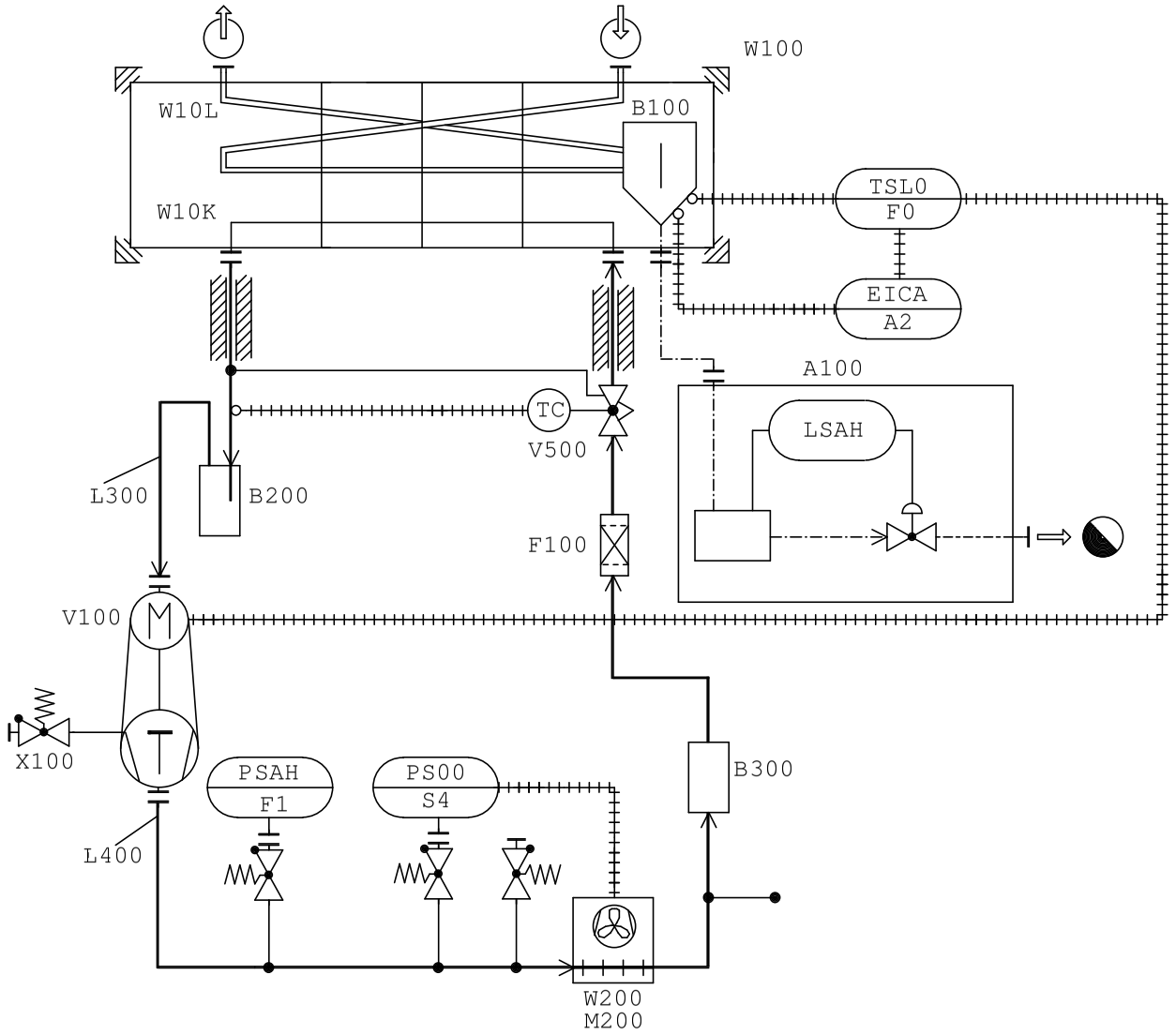
Technical modifications are subject to change without notice!

Art. No	Pos.	Designation		
A127000000EZ	**A000**	**BASIC UNIT TYPE 1270A - 1271A**	Qty	Remarks
0114239000	B200	Refrigerant separator	1 pcs	
0114112000	B300	Refrigerant collector	1 pcs	
0106265000	B310	Refrigerant R134a	1,35 kg	
0112063000	F100	Filter dryer	1 pcs	
0108053000	M200	Fan	1 pcs	
0106807000	M202	Screw	4 pcs	
0114315000	PS00	Pressure switch	1 pcs	
0113100000	PSAH	Pressure limiter HP	1 pcs	
0109866000	V100	Refrigerant compressor	1 pcs	
0112619000	V500	Thermic expansion valve	1 pcs	
0112699000	W100	Heat exchanger	1 pcs	
L200251000	W101	Insulation	1 pcs	
L700008000	W200	Condenser air cooled	1 pcs	
A127200000EZ	**A000**	**BASIC UNIT TYPE 1272A**	Qty	Remarks
0114239000	B200	Refrigerant separator	1 pcs	
0114112000	B300	Refrigerant collector	1 pcs	
0106265000	B310	Refrigerant R134a	1,60 kg	
0112063000	F100	Filter dryer	1 pcs	
0108053000	M200	Fan	1 pcs	
0106807000	M202	Screw	4 pcs	
0114315000	PS00	Pressure switch	1 pcs	
0113100000	PSAH	Pressure limiter HP	1 pcs	
0109865000	V100	Refrigerant compressor	1 pcs	
0112619000	V500	Thermic expansion valve	1 pcs	
0112701000	W100	Heat exchanger	1 pcs	
L200251000	W101	Insulation	1 pcs	
L700008000	W200	Condenser air cooled	1 pcs	
A127300000EZ	**A000**	**BASIC UNIT TYPE 1272A**	Qty	Remarks
0114239000	B200	Refrigerant separator	1 pcs	
0114112000	B300	Refrigerant collector	1 pcs	
0106265000	B310	Refrigerant R134a	1,70 kg	
0112063000	F100	Filter dryer	1 pcs	
0108053000	M200	Fan	1 pcs	
0106807000	M202	Screw	4 pcs	
0114315000	PS00	Pressure switch	1 pcs	
0113100000	PSAH	Pressure limiter HP	1 pcs	
0106497000	V100	Refrigerant compressor	1 pcs	
0112619000	V500	Thermic expansion valve	1 pcs	
0112701000	W100	Heat exchanger	1 pcs	
L200251000	W101	Insulation	1 pcs	
L700008000	W200	Condenser air cooled	1 pcs	
A127400000EZ	**A000**	**BASIC UNIT TYPE 1274A - 1275A**	Qty	Remarks
0114101000	B200	Refrigerant separator	1 pcs	
0114112000	B300	Refrigerant collector	1 pcs	
0106265000	B310	Refrigerant R134a	2,60 kg	
0112063000	F100	Filter dryer	1 pcs	
0112992000	M200	Fan	1 pcs	
0106807000	M202	Screw	4 pcs	
0114315000	PS00	Pressure switch	1 pcs	
0113100000	PSAH	Pressure limiter HP	1 pcs	
0106359000	V100	Refrigerant compressor	1 pcs	
0112620000	V500	Thermic expansion valve	1 pcs	
0112703000	W100	Heat exchanger	1 pcs	
L200251000	W101	Insulation	1 pcs	
L700010000	W200	Condenser air cooled	1 pcs	

Art. No	Pos.	Designation		
A127600000EZ	**A000**	**BASIC UNIT TYPE 1276A - 1277A**	Qty	Remarks
0114101000	B200	Refrigerant separator	1 pcs	
0114112000	B300	Refrigerant collector	1 pcs	
0106265000	B310	Refrigerant R134a	2,90 kg	
0112063000	F100	Filter dryer	1 pcs	
0112992000	M200	Fan	1 pcs	
0106807000	M202	Screw	4 pcs	
0114315000	PS00	Pressure switch	1 pcs	
0113100000	PSAH	Pressure limiter HP	1 pcs	
0100650000	V100	Refrigerant compressor	1 pcs	
0112620000	V500	Thermic expansion valve	1 pcs	
0112705000	W100	Heat exchanger	1 pcs	
L200251000	W101	Insulation	1 pcs	
L700011000	W200	Condenser air cooled	1 pcs	
A127800000EZ	**A000**	**BASIC UNIT TYPE 1278A**	Qty	Remarks
0114101000	B200	Refrigerant separator	1 pcs	
0114112000	B300	Refrigerant collector	1 pcs	
0106265000	B310	Refrigerant R134a	2,9 kg	
0112063000	F100	Filter dryer	1 pcs	
0112992000	M200	Fan	1 pcs	
0106807000	M202	Screw	4 pcs	
0114315000	PS00	Pressure switch	1 pcs	
0113100000	PSAH	Pressure limiter HP	1 pcs	
0107716000	V100	Refrigerant compressor	1 pcs	
0112620000	V500	Thermic expansion valve	1 pcs	
0112707000	W100	Heat exchanger	1 pcs	
L200251000	W101	Insulation	1 pcs	
L700011000	W200	Condenser air cooled	1 pcs	
C1270000000	**C000**	**DRAIN UNIT TYPE 1270 - 1278A**	Qty	Remarks
0114537000	A100	Condensate drain	1 pcs	
0113941000	A101	Barrel nipple	1 pcs	
0113945000	A102	Union	1 pcs	
0114364000	A150	Set of seals	1 pcs	
0114526000	A160	Service unit	1 pcs	
C1270000000Y000	**C000**	**DRAIN UNIT TYPE 1270 - 1278A**	Qty	Remarks
0114451000	V700	Solenoid valve condensate drain	1 pcs	
	EICA	**Electronic regulator 1270A - 1278A**	Qty	Remarks
01121711270AS	EICA	Electronic regulator 1270A	1 pcs	
01121711271AS	EICA	Electronic regulator 1271A	1 pcs	
01121711272AS	EICA	Electronic regulator 1272A	1 pcs	
01121711273AS	EICA	Electronic regulator 1273A	1 pcs	
01121711274AS	EICA	Electronic regulator 1274A	1 pcs	
01121711275AS	EICA	Electronic regulator 1275A	1 pcs	
01121711276AS	EICA	Electronic regulator 1276A	1 pcs	
01121711277AS	EICA	Electronic regulator 1277A	1 pcs	
01121711278AS	EICA	Electronic regulator 1278A	1 pcs	

Art. No	Pos.	Designation		
L800002000	**EIC2**	**Protection cap 1270A - 1278A**	1 pcs	
0112755000S	**EIC3**	**Temperature probe 1270A - 1278A**	1 pcs	
E100100000E1000	**E000**	**E-UNIT TYPE 1274A - 1278A**	Qty	Remarks
0114785000	E100	Main switch	1 pcs	
0108673000	E110	Operation switch	1 pcs	
0113026000	E130	Compressor contactor	1 pcs	
0113070000	E140	Relais	1 pcs	
0110244000	E150	Control transformer	1 pcs	
L800067000	TSL0	Thermostat low temperature	1 pcs	
E100900000E1000	**E000**	**E-UNIT TYPE 1274A - 1278A**	Qty	Remarks
0114785000	E100	Main switch	1 pcs	
0108673000	E110	Operation switch	1 pcs	
0113026000	E130	Compressor contactor	1 pcs	
0113025000	E135	Fan contactor	1 pcs	
0113070000	E140	Relais	1 pcs	
0112008000	E150	Control transformer	1 pcs	
L800067000	TSL0	Thermostat low temperature	1 pcs	
E127000000H1000	**E000**	**E-UNIT TYPE 1274A - 1278A**	Qty	Remarks
0114785000	E100	Main switch	1 pcs	
0108673000	E110	Operation switch	1 pcs	
0113026000	E130	Compressor contactor	1 pcs	
0113070000	E140	Relais	1 pcs	
0114716000	E150	Control transformer	1 pcs	
L800067000	TSL0	Thermostat low temperature	1 pcs	
E127400000H1000	**E000**	**E-UNIT TYPE 1274A - 1278A**	Qty	Remarks
0114785000	E100	Main switch	1 pcs	
0108673000	E110	Operation switch	1 pcs	
0113026000	E130	Compressor contactor	1 pcs	
0113025000	E135	Fan contactor	1 pcs	
0113070000	E140	Relais	1 pcs	
0114716000	E150	Control transformer	1 pcs	
L800067000	TSL0	Thermostat low temperature	1 pcs	

Spare parts may only be replaced by the technical service or qualified personnel!



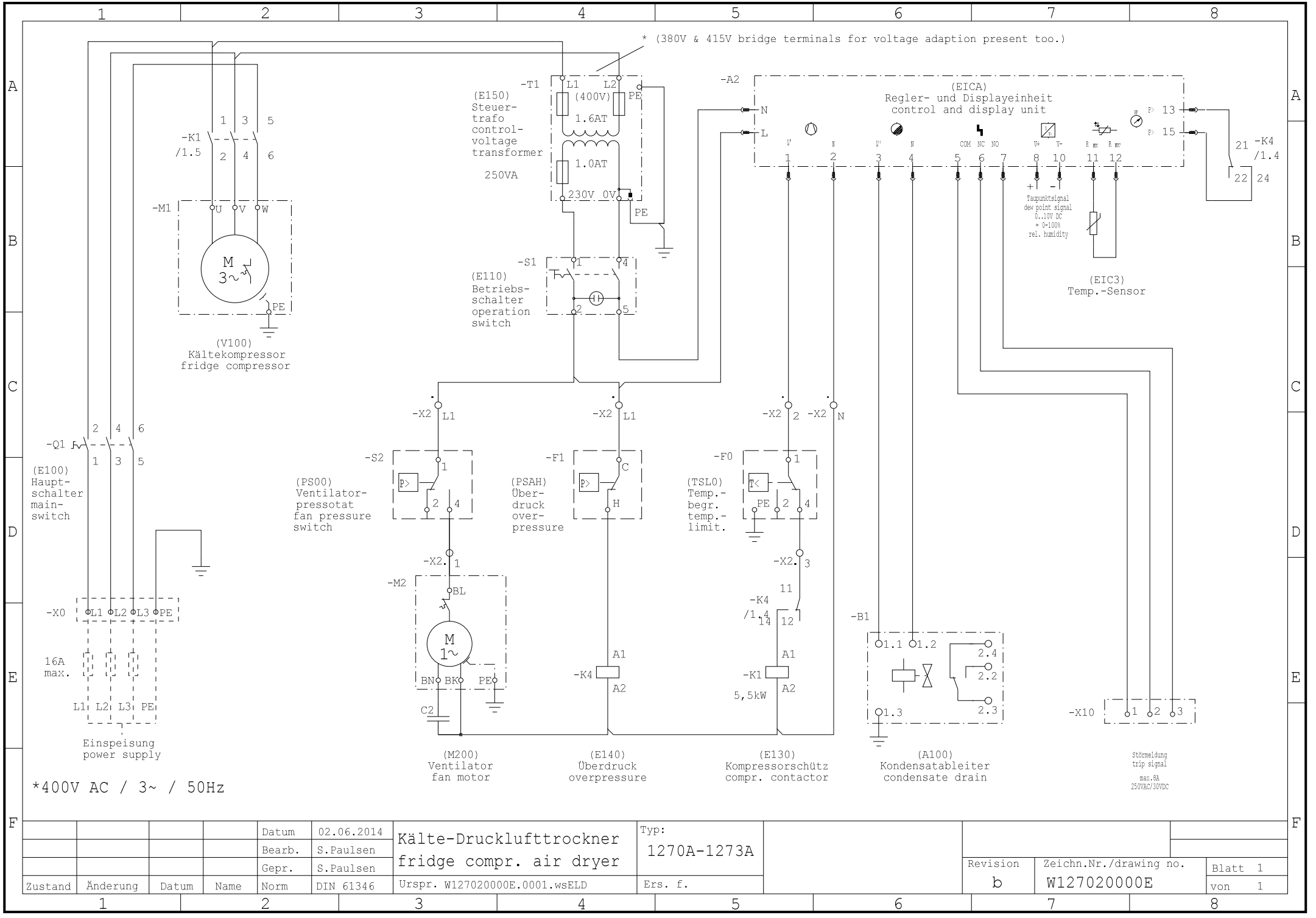
Technische Aenderungen vorbehalten!/Subject to change!

Abt. Konstr. / Dept.	Techn. Ref. DIN EN ISO 10628	Gez. / Drawn: R.Heinecke	Gepr. / Review: D.Froehling
		Dokumentenart / Kind of document: RI-Fliesschema / P&I-Diagram	Dok.status / Status of doc.: Freigegeben / released
		Titel / Title: Kaeltedrucklufttrockner / Refriger. compressed air dryer	Nr. / No.: R117020G000
		Typ / Type: 1170 A - 1178 A	Index Rev.: 0 · Datum / Date: 30.03.10 · Spr. / Lang.: DE/GB · Blatt / Sheet: 1 / 2

Pos.Nr.	Bezeichnung	Designation
A100	Kondensatableiter	Condensate drain
B200	Kaeltemittelsabscheider	Refrigerant separator
B300	Kaeltemittelsammler	Refrigerant collector
EICA	Elekronischer Regler	Elecronic regulator
F100	Filtertrockner	Filter dryer
L300	Saugleitung	Refrigeration suction pipe
L400	Druckleitung	Refrigeration pressure pipe
PS00	Druckschalter	Pressure switch
PSAH	Druckwaechter Hochdruck	Pressure limiter HP
TSL0	Thermostat Untertemperatur	Thermostat low temperature
V100	Kaeltemittel Kompressor	Refrigerant compressor
V500	Thermisches Expansionsventil	Thermic expansion valve
W100	Waermeaustauscher	Heat exchanger
W200	Kondensator luftgekuehlt	Condenser air cooled
X100	Schraderventil	Schrader valve

Technische Aenderungen vorbehalten!/Subject to change!

Abt. Dept. Konstr.	Techn. Ref. DIN EN ISO 10628	Gez. Drawn R.Heinecke	Gepr. Review D.Froehling
		Dokumentenart Kind of document RI-Fliesschema P&I-Diagram	Dok.status Status of doc. Freigegeben released
		Titel Title Kaeltedrucklufttrockner Refriger. compressed air dryer	Nr. No. R117020G000
		Typ Type 1170 A – 1178 A	Index Rev. 0 / Datum Date 30.03.10 / Spr. Lang. DE/GB / Blatt Sheet 2 / 2



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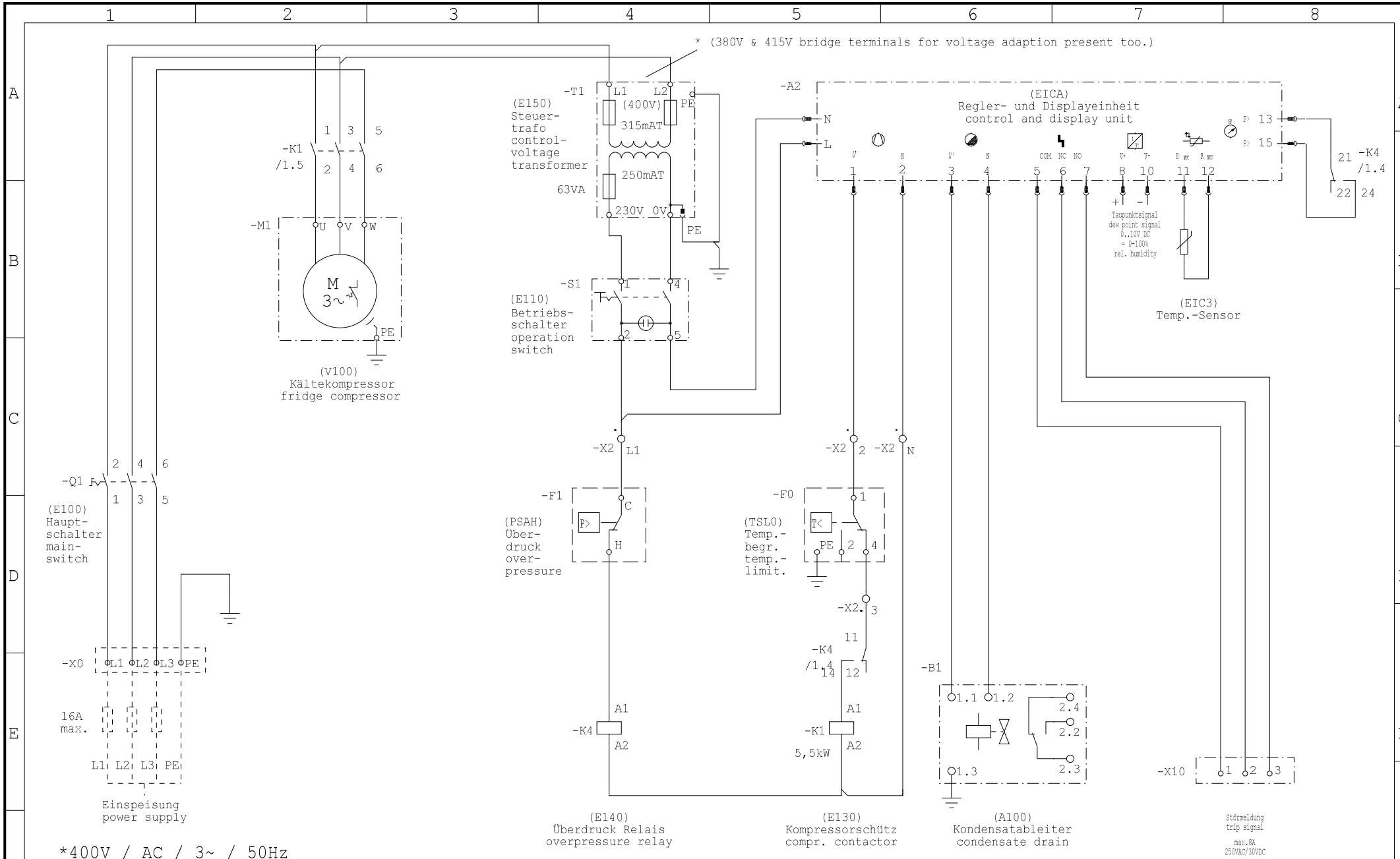
				Bearb.	S.Paulsen				
				Gepr.	S.Paulsen			Revision	Zeichn.Nr./drawing no.
Zustand	Änderung	Datum	Name	Norm	DIN 61346	Urspr. W127020000E.0001.wsELD	Ers. f.	b	W127020000E

Blatt 1 von 1



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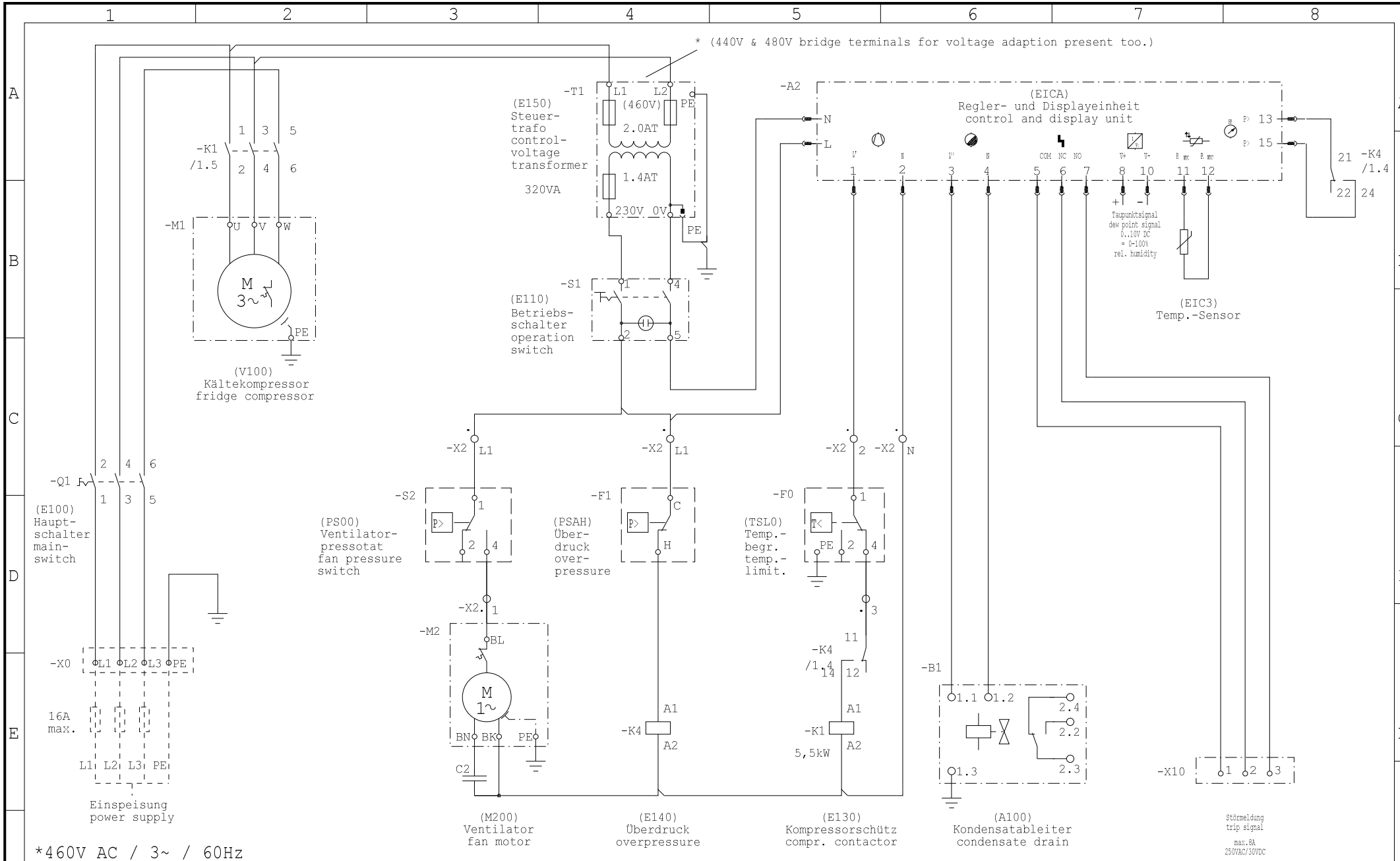
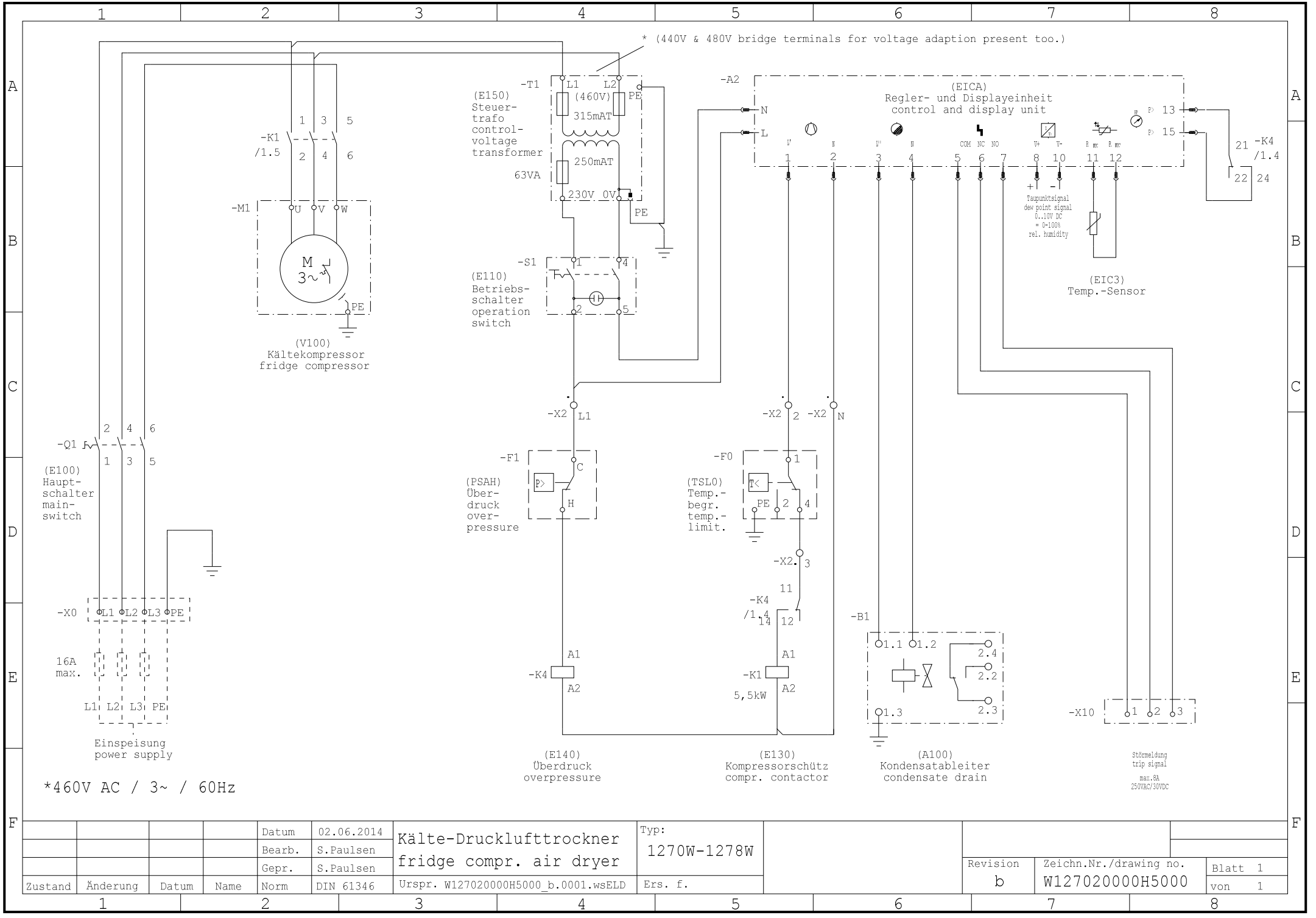
				Bearb.	S.Paulsen				
				Gepr.	S.Paulsen				
Zustand	Änderung	Datum	Name	Norm	DIN 61346	Urspr. W127020000E5000_b.0001.wsELD	Ers. f.		

Revision	Zeichn.Nr./drawing no.	Blatt 1
b	W127020000E5000	von 1



				Datum	02.06.2014	Kälte-Drucklufttrockner fridge compr. air dryer	Typ: 1270A-1273A		
				Bearb.	S.Paulsen				
				Gepr.	S.Paulsen			Revision	Zeichn.Nr./drawing no.
Zustand	Änderung	Datum	Name	Norm	DIN 61346	Urspr. 127020000H_b.0001.wsELD	Ers. f.	b	W127020000H

Blatt 1 von 1



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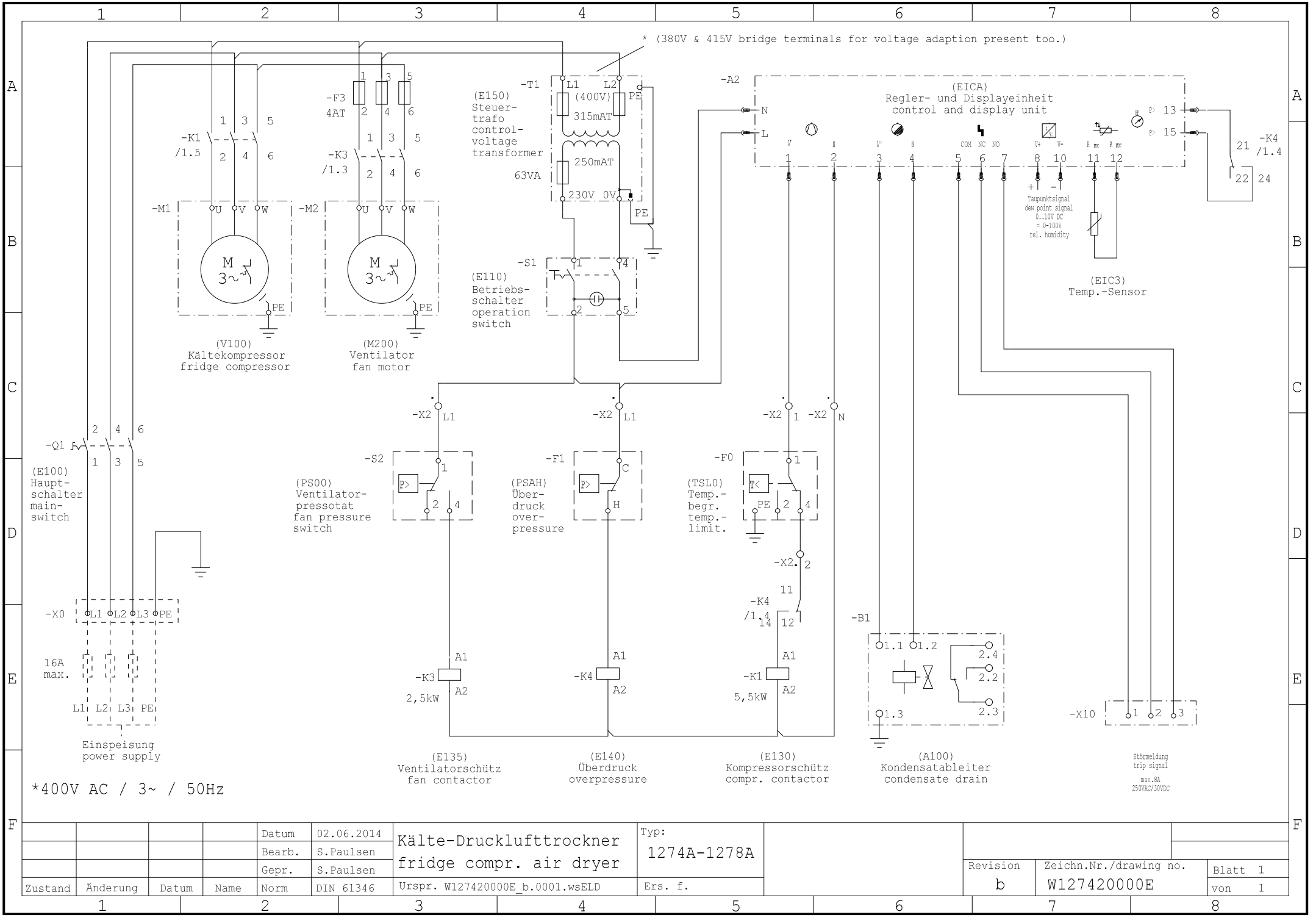
				Bearb.	S.Paulsen				
				Gepr.	S.Paulsen				
Zustand	Änderung	Datum	Name	Norm	DIN 61346	Urspr. W127020000H5000_b.0001.wsELD	Ers. f.		

Revision	Zeichn.Nr./drawing no.	Blatt 1
b	W127020000H5000	von 1



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				Bearb.	S.Paulsen				
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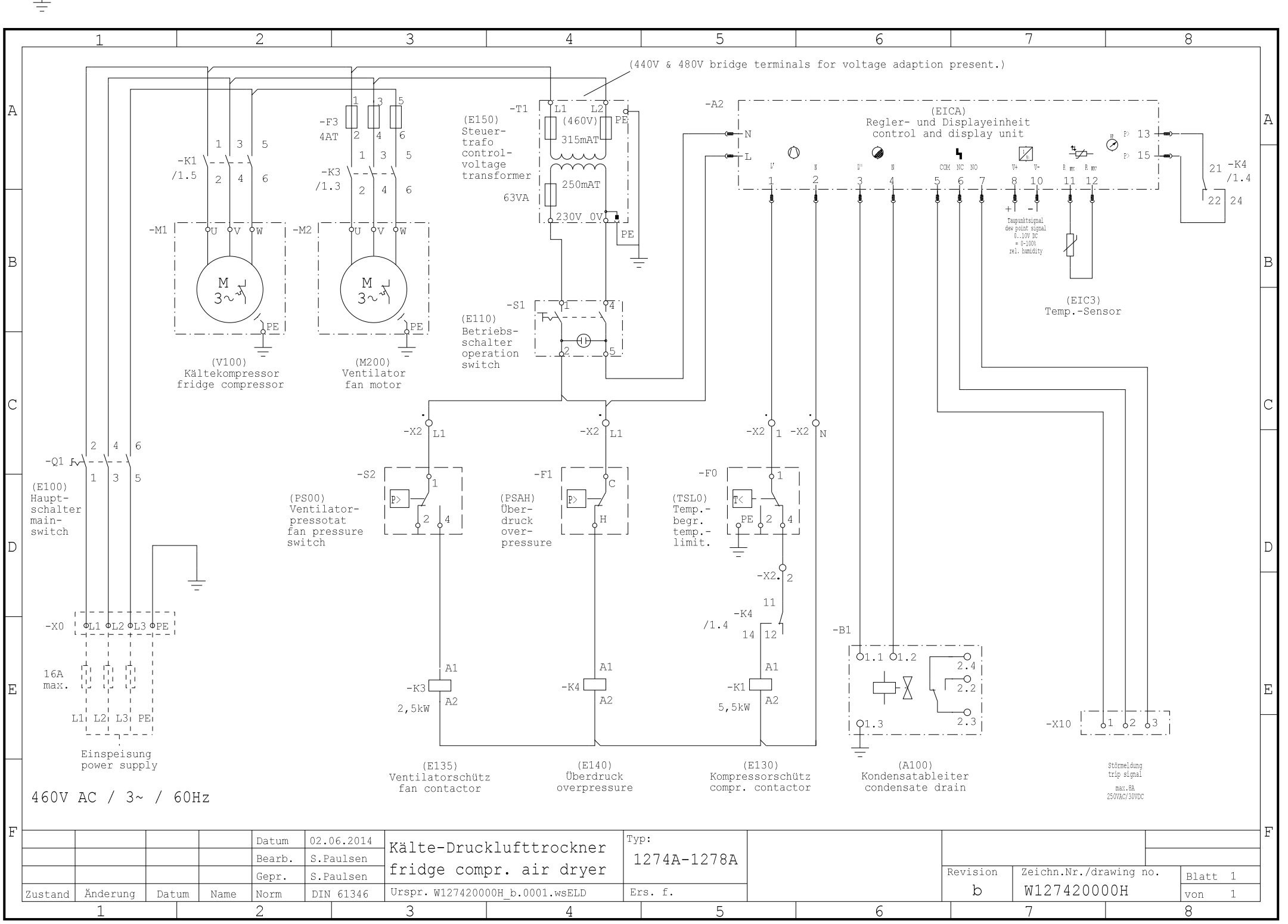
Zustand	Änderung	Datum	Name	Norm	DIN 61346	Urspr. W127420000E_b.0001.wsELD	Ers. f.	b	W127420000E

Blatt 1 von 1



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				Bearb.	S.Paulsen				
				Gepr.	S.Paulsen			Revision b	Zeichn.Nr./drawing no. W127420000H
Zustand	Änderung	Datum	Name	Norm	DIN 61346	Urspr. W127420000H_b.0001.wsELD	Ers. f.		Blatt 1 von 1

CE

EG-Konformitätserklärung
EC declaration of conformity
Déclaration "CE" de conformité
EG-verklaring van overeenstemming

Reg.Nr.:
I13 2000 0G WE1 / d
DE-GB-FR-NL

im Sinne der EG-Druckgeräterichtlinie 97/23/EG, Anhang VII
as defined by Pressure Equipment Directive 97/23/EC, Annex VII
conformément à la Directive "CE" Equipements sous Pression 97/23/CE, Annexe VII
inzake richtlijn van de raad betreffende drukapparatuur 97/23/EG, bijlage VII

Die folgend aufgeführten Kälte-Druckufttrockner, bestehend aus Druckbehältern, Rohrleitungen und Armaturen, dienen zur Aufnahme von Druckluft und Kältemittel der Fluidgruppe 2.
Sie wurden dem Konformitätsbewertungsverfahren nach Modul A1 unterzogen.

The Compressed Air Dryers mentioned in the following, consisting of pressure vessels, pipe lines and fittings, are used for operation with compressed air and refrigerant of fluid group 2.
They are treated acc. to conformity evaluation procedures module A1.

Les sécheurs par réfrigération mentionnés en suivant composés par des reservoirs de pression, tuyauteries et armatures servent de contenir l´ air comprimé et de réfrigérant de la groupe 2 des fluides.
Ils sont soumis une évaluation de conformité selon module A1.

De hierna vermelde koude-persluchtdrogers, bestaande uit drukvaten, pijpleidingen en armaturen, dienen voor de opname van perslucht en koelmiddel van de vloeistofgroep 2.
Zij werden onderworpen aan de conformiteits-ijkmethode conform module A1.

Baureihe / Series / Série / Serie	Typ / Type	Artikel-Nr.: / Serial-No.: / No Série:
DFE 55 A - DFE 165 A	1270A - 1278A	L127020G00E - L127820G00E

Angewendete weitere Richtlinien: **conform with the following directives:** **correspond aux disposition suivantes:** **komt overeen met de volgende verdere richtlijnen:**	**2006/42/EG** **2004/108/EG**
Angewendete harmonisierte Normen, insbesondere: **Applied harmonized standards in particular:** **Normes harmonisée utilisées, notamment:** **Gebruike geharmoniseerde normen, in het bijzonder:**	**EN 378-1 - EN 378-4** **EN 60204-1** **EN 60335-1 - 60335-2-40** **EN 61000-3-3 / -6-2 / -6-3** **EN 55011 B**
Angewendete nationale technische Regeln, insbesondere: **Applied national technical standards and specifications in particular:** **Normes et spécifications techniques nationales utilisées, notamment:** **Gebruikte nationale technische normen en specificaties, in het bijzonder:**	**AD 2000 Merkblätter**

Die Benannte Stelle nach Anhang IV:
The Notified Body within the meaning of annex IV:
L`organisme notifié conformément à l´annexe IV:
Instantie waar van kennisgeving volgens bijlage IV:

CE 0045
Zert.Nr. / Cert.No.:
072021207 Z 0009/13/D-001

Prüflaboratorium der
TÜV Nord1 Gruppe
Segeberger Landstr.2b
DE - 24145 Kiel

Essen, 11.02.2013

Datum / Date

Unterschrift / Signature / Handtekening
(Bevollmächtigter / authorized person / fondé de pouvoir / gevolmagtiegde)

FST GmbH
Filtrations-Separations-Technik

FST GmbH
Im Teelbruch 106
D-45219 Essen
Tel : +49(0)2054 8735 0
Fax: +49(0)2054 8735 100
e-mail: info@fstweb.de