Industrial X-Ray

Chiller Manual XRCA-3001-WA

For OEM
# Document history

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Caution:

- Read the manual before setting to work!
- Always keep cooling unit in upright position and do not shock
- Power supply 230 V 50/60 Hz / 208 V 50/60 Hz!
- Run cooling unit always with correct coolant level and clean filter regular otherwise damage of pump may occur!
- Only use cooling hoses with sufficient pressure and coolant resistance!
- Never operate damaged or leaking equipment!
- Before starting any service work disconnect the cooling unit from power supply!
- Never carry out any work at the refrigeration cycle, this work must be carried out at manufacturer site!
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Appendix: Flow diagram and Circuit diagram
1. Description

The cooling unit WLK 32 is designed to provide a continues flow of cooling fluid at a constant temperature. Water circulates between the cooling unit and the heat source. The water is chilled by an air-cooled refrigeration system (refrigerant R 134A). The cooling unit has a main switch to start the refrigeration system. The water level in the reservoir is supervised by a level switch. If the level drops below minimum, the refrigeration cycle stops and the pilot lamp "Water level low" is activated and the safety circuit is activated.

The maximum cooling capacity of the cooling unit depends on the ambient and the fluid temperature. The cooling capacity is 3000W related to 40 °C ambient temperature and +25 °C ± 2°C fluid temperature. Cooling hoses are connected to the cooling unit via quick connectors. Water inlet and outlet are marked with symbols:

Inlet: ↓ Outlet: ↑.

The water outlet temperature is monitored by an electronic temperature controller. This controller is provided with additional contacts to prevent freezing and for temperature maximum signal. The signals "temperature maximum" and "water level low" are combined in a potential free safety circuit. The water pressure of the pump is limited by an adjustable bypass valve.

Note: If the ambient temperature is below the adjusted anti freezing temperature the refrigeration system does not operate! Anti freezing, temperature maximum and bypass valve is factory adjusted according to specification.
2. Technical data

Physical dimensions

Length: 590 mm
Width: 612 mm
Height: 925 mm
Weight: 115 kg without coolant
Coolant capacity: 14 l

Performance data

Cooling capacity: 3000 W at 40°C ambient temperature
Water flow: ≥ 6.0 l/min at 4 bar
Voltage rating: 230 V / 50/60 Hz (switchable to 208 V / 50/60 Hz)
Current consumption: < 9.3 A
Noise level: ≤ 65 dB(A), distance 1 m in any direction
Airflow at 50Hz (60Hz): 1700 m³/h (2200 m³/h)
Safety class: IP 33

Environmental specifications

Ambient temperature: + 5 °C ... + 40°C
Storage temperature: - 25°C... + 70°C (storage without water)
Air humidity: 20 % ... 90 % non condensing

Refrigeration cycle

Refrigerant: R 134A
Capacity: 1.3 kg

Settings

Maximum pressure ≤ 6.7 bar
Water outlet temperature (T1): +25°C
Anti freezing (T2): + 5°C
Temperature MAX (T3): +35°C
Flow switch open: < 4 l/min
Flow switch close: > 4.2 l/min
3. Performance chart

Water flow temperature in °C

Ambient temperature
45 °C
40 °C
30 °C
25 °C

Power in W

500 1000 1500 2000 2500 3000 3500
4. Setting to work

- the cooling unit must be positioned in an upright and free-standing position for sufficient air circulation
- use locking brake at caster
- remove top cover
- connect hoses with cooling unit
- remove cap of reservoir and fill the reservoir with water about 3 cm below thread
- For ambient temperatures lower than 10°C use antifreeze. We recommend Ethyleneglycol with tap water in a mix of 2:3
- check coolant level and refill if necessary
- Establish electrical connection

Note: Operate equipment only with correct coolant level, otherwise danger of pump destruction!

- switch on the equipment for some minutes for the ventilation of the circuit
- replace plastic cap of reservoir by applied brass cap
- mount cover

Operation on different mains voltages
The installed transformer makes operation on either 208V 50/60Hz or 230V 50/60Hz possible.
5. Settings

Note:
The temperature controller and the bypass valve are adjusted according specification. Settings of water outlet temperature, temperature maximum (parameter P1), anti-freezing, and bypass valve should not be changed. If it is necessary to change these settings refer to the following:

Set maximum pressure:

- Basic adjustment < 6.7 bar
- Solve sealing

Increasing maximum pressure:

- Turn set screw clockwise
- Reducing maximum pressure: turn set screw anti-clockwise

Set flow switch

- Unscrew fixing screw of contactor head
- Scale up +: move contactor head in the direction of the oil flow
- Scale down -: move contactor head against the direction of the oil flow
- Screw on fixing screw of contactor head
Temperature controller

Description of indicating LED’s:

**LED 1:**
- **LED on:** cooling on
- **LED off:** “heating” of refrigeration circuit

**LED 2:**
- **LED on:** Temperature maximum exceeded
- **LED off:**

**LED 3:**
- **LED on:** cooling unit ready
- **LED off:** Temperature below anti freezing, running of refrigeration system

Impossible

**Water outlet temperature (rated value) T1**

Press SET-key and keep it pressed (rated value is shown on display)

Adjust new value with keys ▲ (UP) or ▼ (DOWN)

Release SET-key (actual value is shown on display)

Note: Hysteresis of T3 is adjusted at ± 4°C symmetrical to rated value

**Anti freezing T2**

Press keys ▲ (UP) and ▼ (DOWN) simultaneously for 4 seconds, P1 is shown on display

Select to parameter P30 with key ▲ (UP)

Press SET-key and keep it pressed (value of T2 is shown on display)

Note: Hysteresis of anti freezing T2 is adjusted at 4°C. If temperature drops below anti freezing temperature (+5 °C) refrigerating unit runs only if temperature exceeds +9 °C.
Temperature maximum T3

Press keys ▲ (UP) and ▼ (DOWN) simultaneously for 4 seconds, P1 is shown on display
Press SET-key and keep it pressed (value of P1 is shown on display)

Note: Hysterese of T3 adjusted at ± 2.5°C symmetrical to parameter P1.

Example:
Value P1: 32.5°C

- Temperature maximum T3:
- fault indication ON: 35.0°C
- fault indication OFF: 20.0°C

- Adjust new value with keys ▲ (UP) or ▼ (DOWN)
- Release SET-key (P1 is shown on display)

- Press keys ▲ (UP) and ▼ (DOWN) simultaneously for 4 seconds to return to run-mode (if there is no changing of parameters, the temperature controller returns automatically into run-mode after 45 seconds).
6. Maintenance

In order to achieve maximum cooling capacity keep the condenser of the cooling unit clean. Regularly once a week check this heat exchanger and if necessary clean it:
Clean fins of heat exchanger:
Remove dust by forcing it out in the opposite direction from which it entered. If compressed air is available, direct the air against the inside of the condenser.
The water circuit is an open system. Evaporation of water may occur. Check water level regularly and refill if necessary. Check antifreeze.
About every 3 months check the filter of the pump for clean condition, if necessary more often. For this proceed as following:

Note: If the filter is not in clean condition damage of pump and motor may occur!

- Disconnect the cooling unit from mains
- Remove cover
- Close stop valve
- Unscrew filter of the pump and check the filter for impurity
- Notice: Water will run out of pump. Collect the water with suitable vessel
- If necessary clean the filter
- Screw the filter into the pump
- Check water level and refill if necessary
- Remove spilled out water
- Open stop valve

Attention: Never operate cooling unit when stop valve is closed, otherwise damage of pump may occur!

- Connect the cooling unit to the mains and run cooling unit about 10 minutes to deaerate cooling circuit. Check filter for leakage
- Mount cover of the cooling unit
7. Outline Drawing

![Diagram of outline drawing with dimensions 612 x 925, 590 x 925]
8. Circuit Diagrams

Electrical diagram
**Block diagram**

**Wasserkreislauf / water flow diagram**

- A Kupplung / coupling
- B Stromungswecher / flow controller
- C Überströmv Ventil / bypass valve
- D (-1) Flamment retrofusor / evaporator
- E Temperaturregler / temperature controller
- F Niveausucher / level sensor
- G Behälter / container
- H Filter / filter
- J Pump / pump
- K Kupplung / Coupling

**Kältkreislauf / refrigerating flow diagram**

- 1 K 1) Flamment retrofusor / evaporator
- 2 K 2) Flüssigkeitsabscheider / suction line accumulator
- 3 K 3) Verdichter / compressor
- 4 K 4) Presstat 10/15 / pressure controller 10/15
- 5 K 5) Rückschlagventil / check valve
- 6 K 6) Verdichter / condenser
- 7 K 7) Sammel / collector
- 8 K 8) Wärmevertil / shut-off valve
- 9 K 9) Trockner / drier
- 10 K 10) Schauglas / inspection glass
- 11 K 11) Regulierventil / expansion valve
- 12 K 12) Magnetventil / solenoid valve
- 13 K 13) Magnetventil / solenoid valve
9. Declaration of conformity

EINBAUERKLÄRUNG FÜR UNVOLLSTÄNDIGE MASCHINE
DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY
DÉCLARATION D’INCORPORATION DE QUASI-MACHINE

Hersteller / Adresse: COMET AG
Manufacturer / Address: Herrengasse 10
Fabricant / Adresse: CH-3175 Flamatt

Produkte:
Products:
Produits:

Kühler
Cooler
Refroidisseur

Bezeichnung / Bestell- Nr.
Type / Reference no.
Type / No. de référence

XRC-3001-WA
XRC-3001-WW
XRC-4601-OA
XRC-4601-OQ
XRC-1001-WA
XRC-3001-WA
XRC-5001-OA
XRC-3012-WA
XRC-3012-WW

10008640
10008641
10008642
10008643
20033773
20033337
20033338 / 20032810
20048508
20049509


We hereby declare that the partly completed machinery named above satisfies the relevant essential health and safety requirements set out in the Annex I of the Machinery Directive 2006/42/EC. The technical file according to the Annex VII part B is available.

Nous déclarons que la quasi-machine mentionnées ci-dessus satisfait aux exigences essentielles de santé et de sécurité pertinentes énoncées à l’annexe I de la directive machines 2006/42/CE. Le dossier technique conforme à l’annexe VII, section B est disponible.

Angewendete Normen
Standards applied
Normes appliquées

DIN EN ISO 12100-1 (2004-04)
DIN EN 60204-1 (2009-10)
DIN EN 349 (2006-09)

Datum: Dezember 2010
Date: December 2010
Date: Décembre 2010

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