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### Caution:

- ◆ **Warning: This manual should be fully read and understood before starting installation!**
- ◆ **Power supply 230 V 50/60 Hz!**
- ◆ **Run cooling unit always with correct oil level otherwise damage of pump may occur!**
- ◆ **Never operate damaged or leaking equipment!**
- ◆ **Before starting any service work disconnect the cooling unit from the power source!**

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| Table of contents                          | Page |
|--|------|
| 1. Description .....                       | 2    |
| 2. Technical data .....                    | 3    |
| 2.1 Physical dimensions .....              | 3    |
| 2.2 Performance data .....                 | 3    |
| 2.3 Environment specifications .....       | 3    |
| 2.4 Settings .....                         | 3    |
| 3. Setting to work .....                   | 4    |
| 4. Maintenance .....                       | 4    |
| 5. Putting out of operation .....          | 4    |
| 6. Spare part list and illustrations ..... | 5    |
| 7. Cooling performance .....               | 7    |
| 8. Flow Chart and Circiute Diagram .....   | 8    |
| 9. Declaration of Conformity .....         | 10   |

## 1. Description

The cooling unit OW 4002 is intended for the cooling of an oil circuit. Oil circulates between the cooling unit and the heat source. The oil is re-cooled by a water-cooled heat exchanger. Cooling hoses are connected to the cooling unit via screw and via hose nipples.

Coolant inlet and outlet are marked with symbols: Inlet:  $\downarrow \bigcirc$ , outlet  $\uparrow \bigcirc$

The oil flow is monitored by an adjustable flow switch, the oil temperature by an adjustable thermal switch. The signals of the flow switch and the thermal switch are available at a potential free safety circuit. The oil pressure is limited by an adjustable bypass valve. The capacity of the cooling unit depends on the temperature difference between the cooling water temperature and the oil outlet temperature. You can take it from diagram on page 7

Inlet:  $\downarrow \bigcirc$  outlet:  $\uparrow \bigcirc$

## 2. Technical data

### 2.1 Physical dimensions

|                    |                       |
|--------------------|-----------------------|
| Length:            | 621 mm                |
| Width:             | 350 mm                |
| Height:            | 551 mm                |
| Weight:            | ca. 45 kg without oil |
| Fuel capacity oil: | app. 23 l             |

### 2.2 Performance data

|                       |   |
|-----------------------|---|
| Cooling capacity:     | 4000 W,   |
| Oil flow:             | > 17 l/min at 3,5 bar related to oil temperature 22 °C ± 3 °C |
| Voltage rating:       | 230V ± 10% / 50/60 Hz   |
| Current consumption : | 3,6 A by 6 bar  |
| Noise level:          | 60 dB (A) (50 Hz) distance 1 m in any direction               |

### 2.3 Environment specifications

|                      |                                 |
|----------------------|---------------------------------|
| Ambient temperature: | +5 °C...+40 °C                  |
| Storage temperature: | -40 °C...+70 °C without coolant |
| Air humidity:        | 20%...80%                       |

### 2.4 Settings

|                       |            |
|-----------------------|------------|
| System pressure:      | 9,0 bar    |
| Flow switch:          | 17,0 l/min |
| Temp. controller (on) | 55 °C      |

### 3. Setting to work

Remove cover

Remove cap of oil reservoir and fill with oil up to the visible mark

Connect oil hoses to cooler.

Connect water supply to cooler.

Establish electrical connections according wiring diagram, use suitable leads.

Start water supply to cooler.

Start power supply for cooler

Exhaust valve open

Run oil cooler for approximately 10 minutes to  
remove air from the oil circuit.

Exhaust valve close

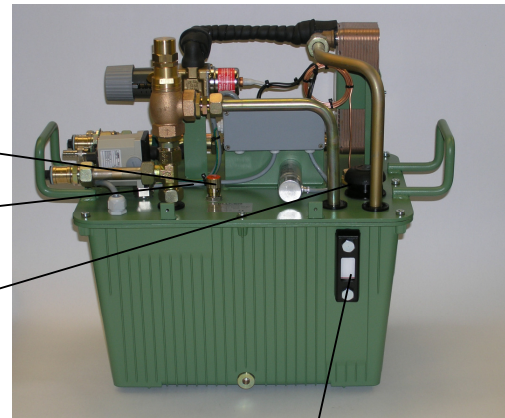
Check oil level and refill if necessary

Stop cooling unit

Close cap of oil reservoir.

Mount cover.

Cooling unit is ready for use.



Inspection glass

### 4. Maintenance

Check oil level at inspection glass monthly or more often, if necessary and refill oil.

### 5. Putting out of operation.

- Stop oil circulation by switching off pump.
- Disconnect equipment from mains.
- Lock oil supply and return pipes.
- Lock cooling water supply and return pipes.
- Drain water off the cooling system for frost.

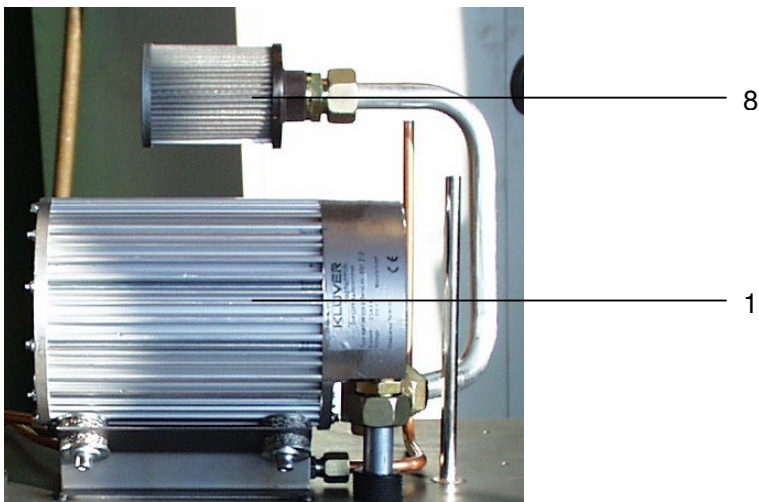
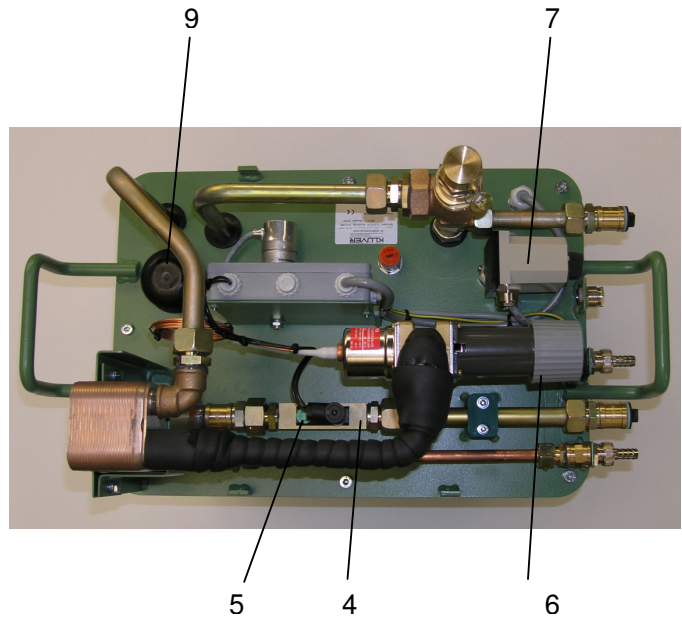
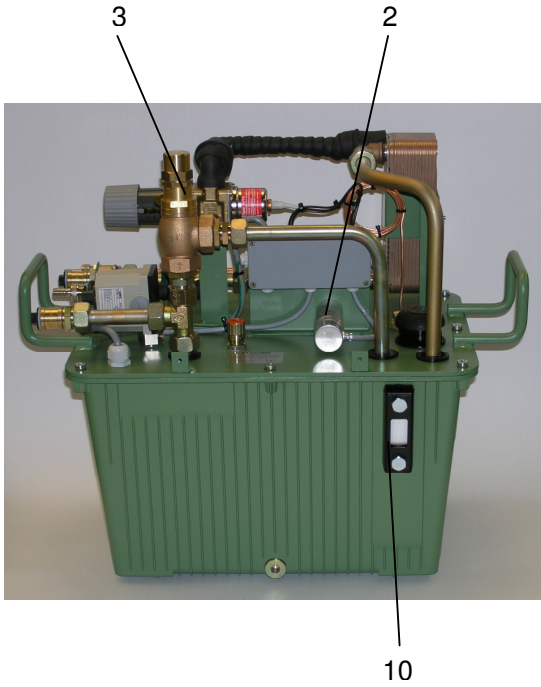
## 6. Spare part list and illustrations

| <b>No.</b> | <b>Description</b>                   | <b>Code number</b> |
|------------|--------------------------------------|--------------------|
| 1          | engine pump unit KA-1-26-230-2       | 95205237.00        |
| 2          | motor capacitor                      | 95290735.00        |
| 3          | safety valve Type 618 T              | 96121014.00        |
| 4          | flow controller FW1                  | 95140572.00        |
| 5          | switch head                          | 95140567.00        |
| 6          | temperature controller water 25-65°C | 95100101.00        |
| 7          | thermostat AMFS-13                   | 95160001.00        |
| 8          | strainer 125 µm                      | 93314901.00        |
| 9          | filler neck                          | 95169901.00        |
| 10         | inspection glass                     | 93300201.00        |

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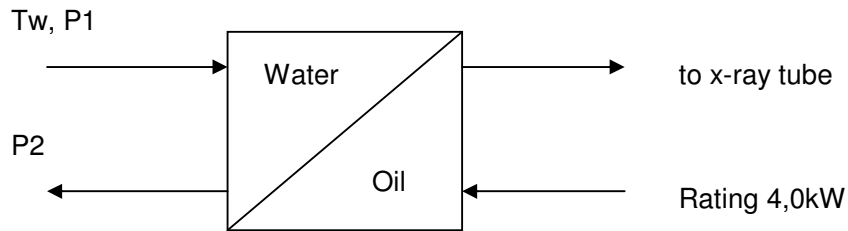
## Manual OW 4002

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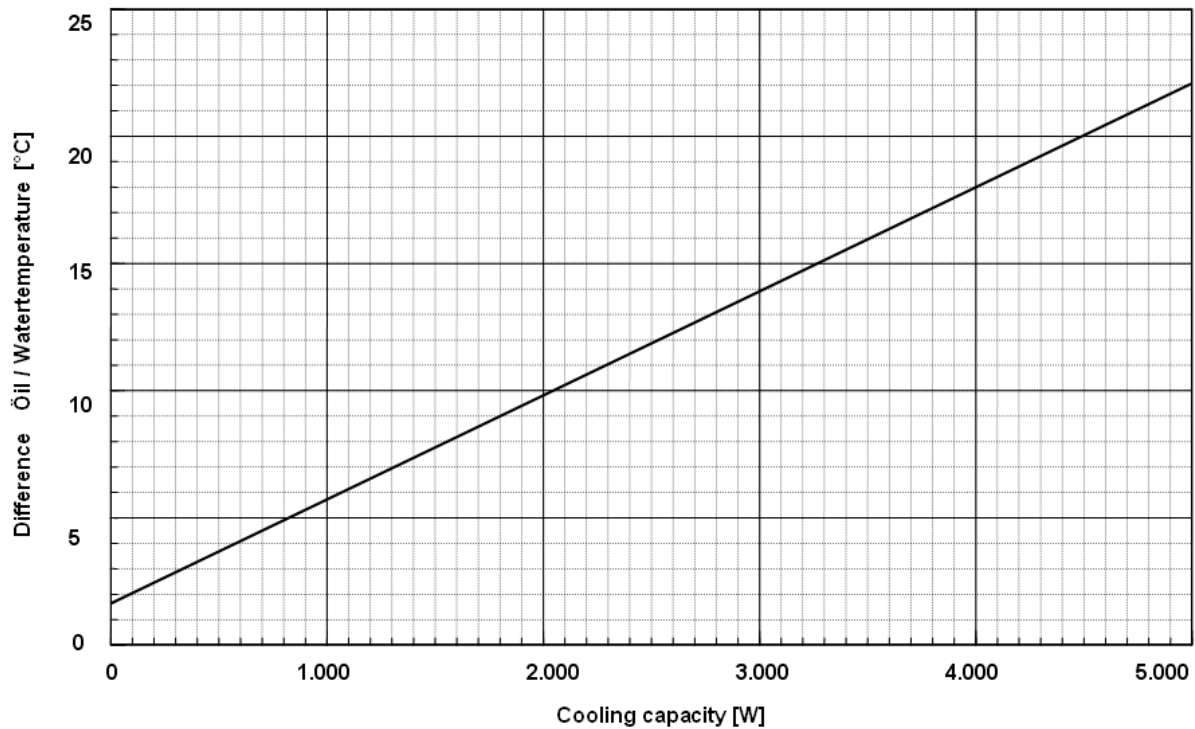


### 7. Cooling performance

Cooling performance 4,0 kW, oil temperature vs. water temperature and flow rate

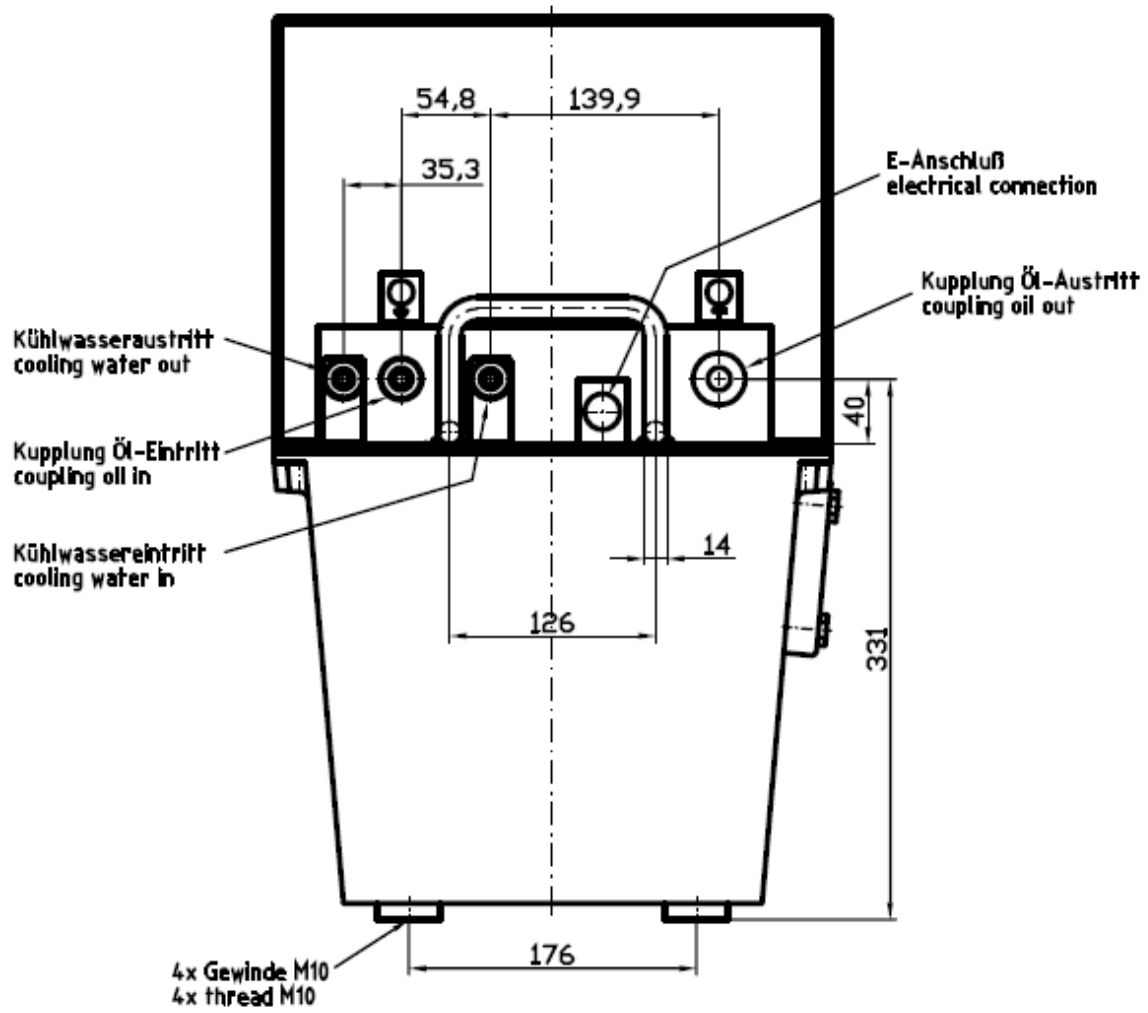


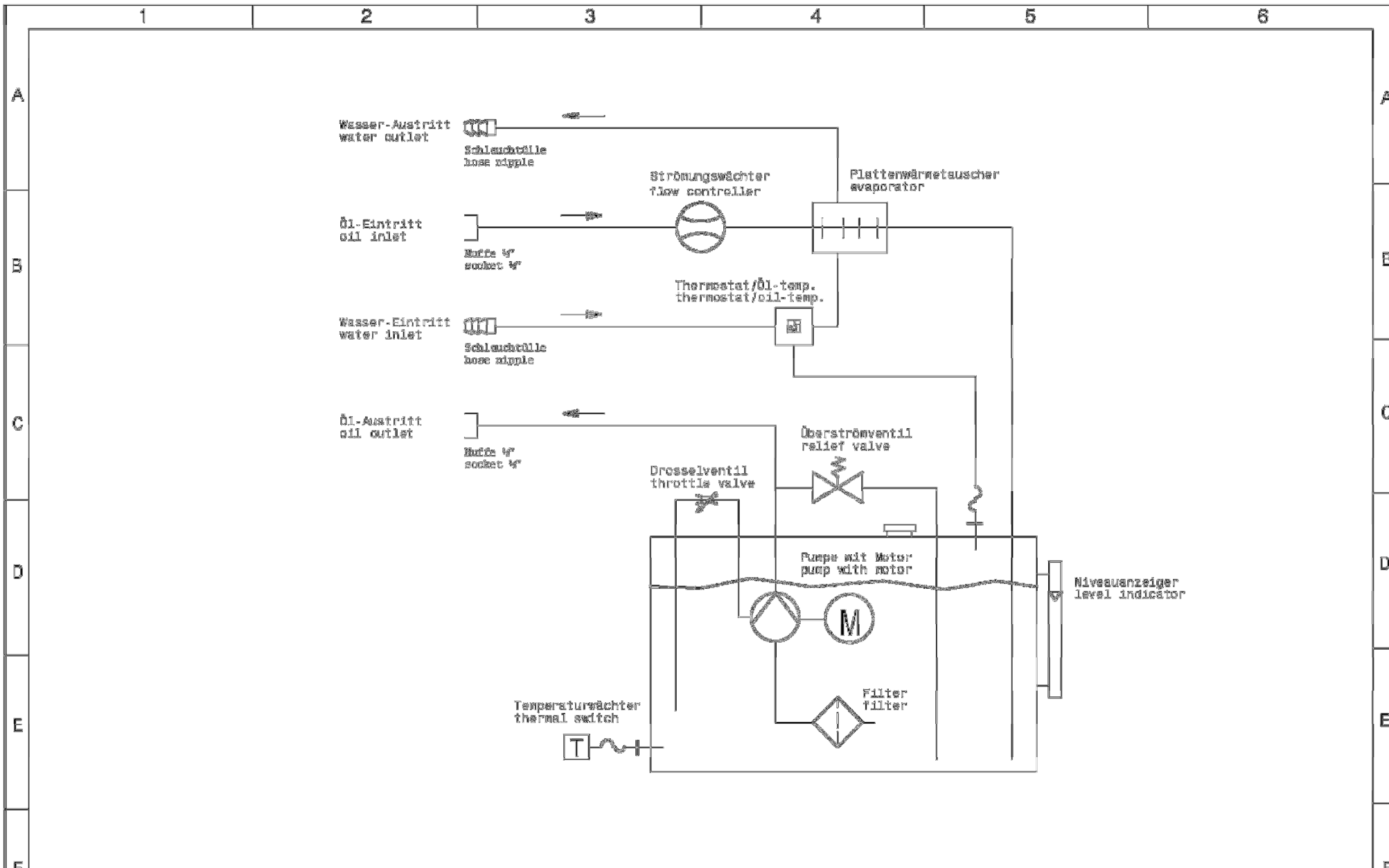
$T_w$  = Temperature Water inlet  
 P1 = Pressure Water inlet  
 P2 = Pressure Water outlet  
 Pressure drop = P1 - P2





## Connector distances





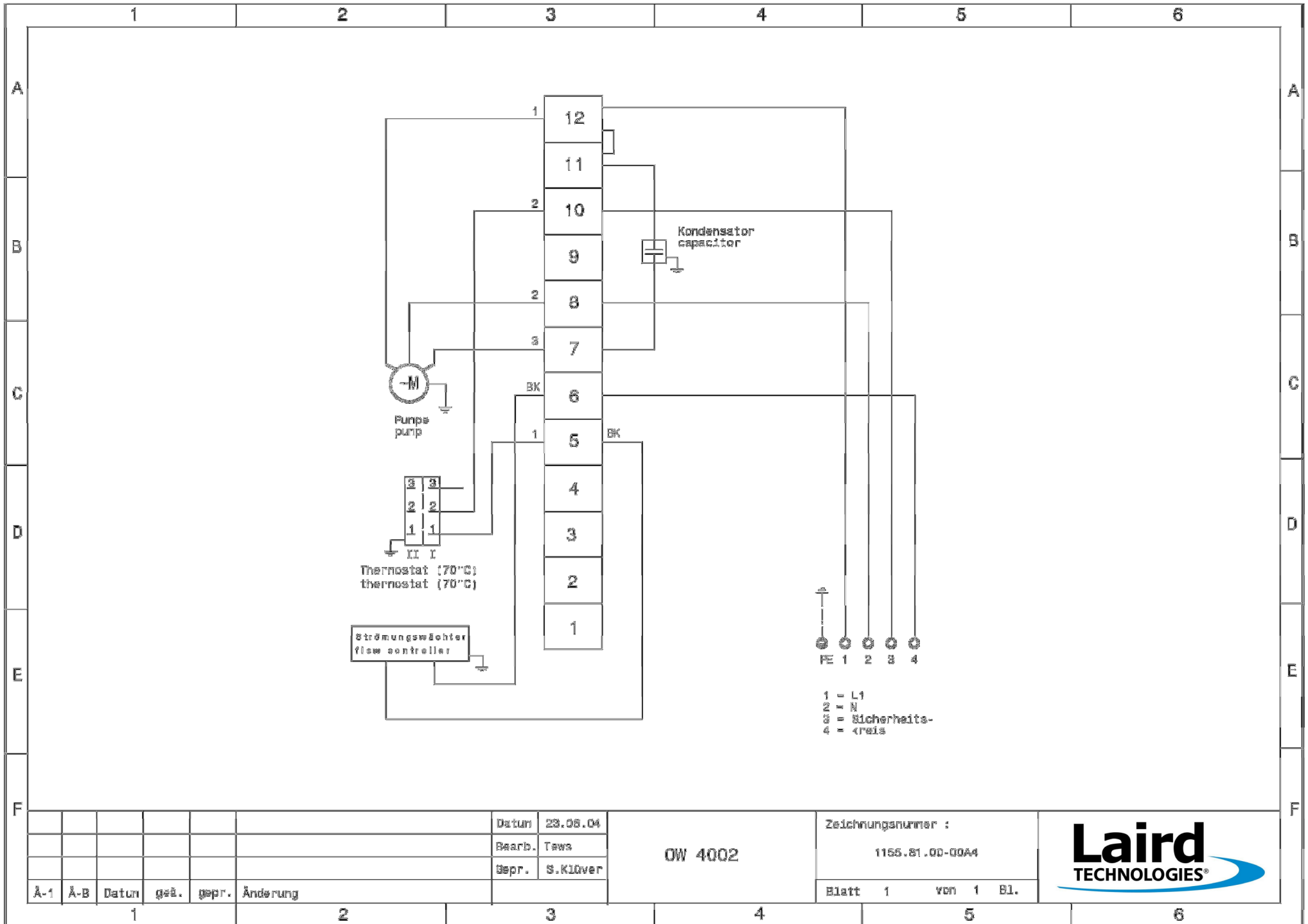
|     |     |       |      |       |          |        |          |
|-----|-----|-------|------|-------|----------|--------|----------|
|     |     |       |      |       |          | Datum  | 28.06.04 |
|     |     |       |      |       |          | Bearb. | Tews     |
|     |     |       |      |       |          | Gepr.  | Schulze  |
| Ä-1 | Ä-2 | Datum | geä. | gepr. | Änderung |        |          |

DW 4002 Fließschema

Zeichnungsnummer : 1155.82.00-0044

Blatt 1 von 1 Bl.





## Konformitätserklärung *Declaration of Conformity*

Wir: Laird Technologies GmbH  
We: (Name des Hersteller / *supplier's name*)

Borsigstrasse 1  
24568 Kaltenkirchen  
Deutschland / Germany

Erklären in alleiniger Verantwortung, dass das Produkt  
*Declare under our sole responsibility that the product*

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Kühlaggregate  
*Cooling aggregate*

Modelle / *types* **WL, WLK, OL, OLK, OW, WW**

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auf das sich die Erklärung bezieht / *to which this declaration relates,*  
mit den folgenden Normen oder normativen Dokumenten übereinstimmt,  
*is in conformity with the following standards or normative documents*

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DIN EN ISO 12100-1 (2004-04)  
DIN EN ISO 12100-2 (2004-04)  
DIN EN 60204-1 (2009-10)  
DIN EN 349 (2009-09)

Gemäß den Bestimmungen der Richtlinie 2006/42/EG  
*Following the provisions of directive 2006/42/EEC*

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Kaltenkirchen  
2010-12-23

Ort / Datum / der Ausstellung  
*Place / date of issue*

Leiter Qualitätsmanagement  
*Leader Qualitymanagement*

Funktion  
*Responsibility*

Lothar Lühr



Name / Unterschrift  
*Name/ signature*