

TECHNICAL DESCRIPTION AND INSTALLATION INSTRUCTIONS

FLOWTRONIC 6000 SC



FLOWTRONIC 6000 SC WATER PUMP FOR THE HYDRONIC L AND HYDRONIC L II HEATERS AND FOR OTHER APPLICATIONS

Designation	Order No.
Flowtronic 6000 SC – 24 V	25 2488 25 00 00

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1 INTRODUCTION

Before starting any work, read through this documentation carefully.

Keep the documentation in a place that can be accessed at any time. The documentation must be available at all times.

Follow the safety instructions in order to avoid risks to people and product faults.

STATUTORY REGULATIONS



REGULATION

The Federal Motor Transport Authority has issued an approval for a component according to ECE-R110 for the water pump for installation in motor vehicles, with an official E1 type-approval marking.

ECE type-approval marking



10 R – 044594



NOTE

Abroad the relevant laws, guidelines, directives and regulations of the respective country also apply.

SAFETY INSTRUCTIONS FOR INSTALLATION AND REPAIR



ATTENTION!

Improper installation or improper repair is dangerous. It can result in personal injuries and / or damage to equipment.

- The water pump may only be installed by authorised and trained persons and according to the specifications in the technical documents.
- Use original accessories and original spare parts only for installation and repair.

- Use only anti-freeze products approved by the vehicle manufacturer to top-up (refer to the vehicle's operating manual). Mixing with unapproved anti-freeze causes damage to the cooling system.
- Defective fuses may only be replaced by fuses with the specified fuse rating.

Impermissible measures

- Installation and repairs by unauthorised and untrained persons, repairs using non-original spare parts and without the technical documents required for installation and repair are dangerous and therefore are not permitted.
- Changes to components
- Use of third-party components not approved by Eberspächer Climate Control Systems GmbH & Co. KG.
- Deviations from the statutory regulations, safety instructions and / or functionally relevant specifications as stated in this documentation. This especially applies to the electrical wiring.



NOTE

- To install the water pump, note and follow the documentation enclosed with it and also the technical description of the heater regarding the water pump installation conditions.
- The relevant rules of sound engineering practice and any information provided by the vehicle manufacturer are to be observed during the installation and repair.

1 INTRODUCTION

GUARANTEE / LIABILITY

Eberspächer Climate Control Systems GmbH & Co. KG does not accept any liability whatsoever for defects and damage, which are due to installation or repair by unauthorised and untrained persons.

Failure to comply with the statutory regulations, the official regulations and safety instructions as well as improper repairs, even if original spare parts are used, make the guarantee null and void and exclude any liability whatsoever of Eberspächer Climate Control Systems GmbH & Co. KG.

AREA OF USE

The water pump is used to pump coolant liquid for the Hydronic L and Hydronic L II heaters and for other applications.

ACCIDENT PREVENTION

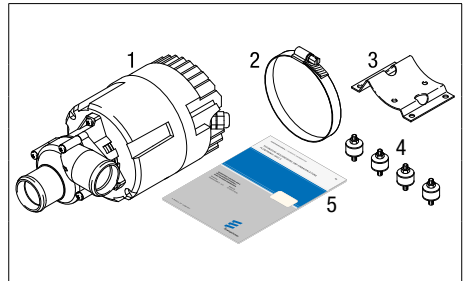
General accident prevention regulations and the corresponding workshop and operating safety instructions are to be observed.

2 PRODUCT INFORMATION

SCOPE OF SUPPLY

The scope of supply includes:

Figure No.	Quantity	Designation
1	1	Water pump, Flowtronic 6000 SC
2	1	Clip 90-110
3	1	Bracket
4	4	Metal rubber buffer with nuts and spring lock washers
5	1	Technical Description, Installation Instructions



TECHNICAL DATA

Heating medium	Mixture of water and anti-freeze (Proportion of antifreeze at least 10 % up to 50 % maximum)		
Delivery rate (l/h) – at 0.40 bar delivery pressure	6000		
Operating pressure (bar)	max. 2		
Weight (kg) – without bracket, clamp and coolant liquid	2.5		
Rated voltage (V)	24		
Operating voltage range (V)	18-32		
Electrical power consumption (watt) – at 6000 l/h and 0.4 bar delivery pressure	210		
Interference suppression to DIN VDE 0879-3	5 for LW, MW, SW1, SW2, VHF		
Degree of protection DIN 40 050, Part 9	IP25 (potted electronics)		
Electrical fusing for third party control (A)	15		
Temperature conditions	Heating medium	–40 °C to +90 °C	short-term (15 min) +115 °C
	Environment and operation	–40 °C to +90 °C	short-term (15 min) +115 °C
	Storage	–40 °C to +120 °C	
Dry running	approx. 45 min. – the motor switches off after approx. 45 min.		
Anti-blocking protection	Yes – the starting attempts are continued without limit.		



ATTENTION!

Operating the water pump outside the technical data can cause malfunctions.

➔ Comply with the technical data.

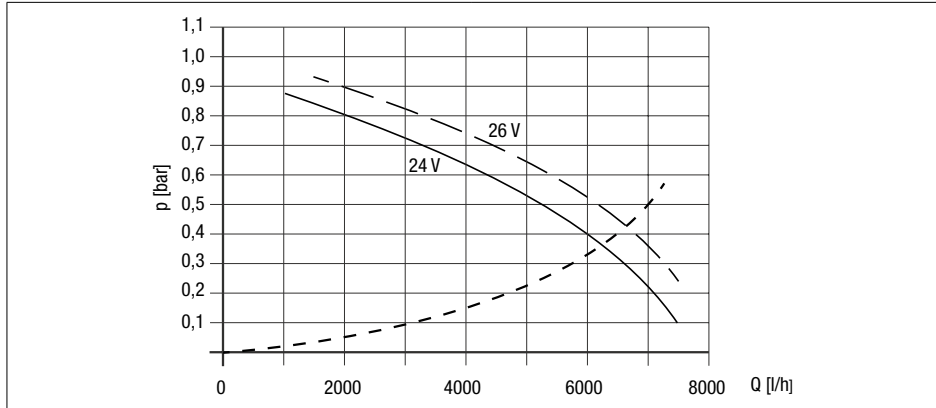


NOTE

The technical data applies at nominal voltage and a reference height of 240 m above sea level. If not limit values are given the tolerance is $\pm 10\%$.

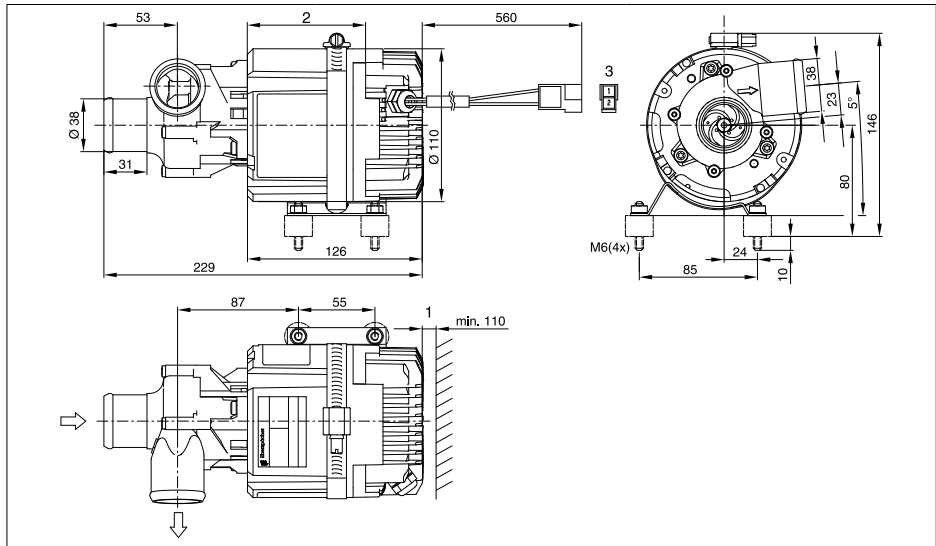
2 PRODUCT INFORMATION

PUMPING AND PRESSURE LOSS CHARACTERISTIC CURVE



- Volumetric flow rate (24V) Flow resistance
 Volumetric flow rate (26V) (when pump at a standstill)

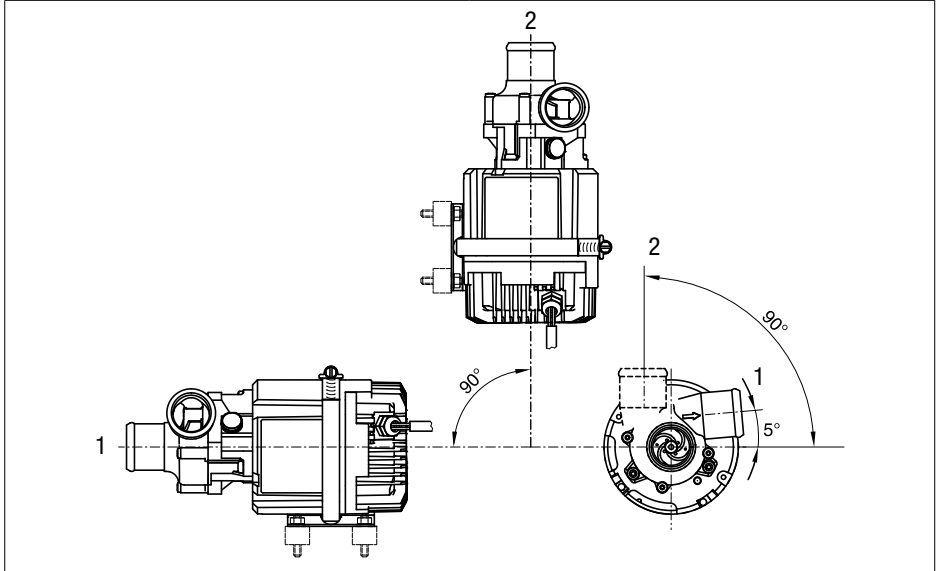
MAIN DIMENSIONS, FIXING



- 1** Minimum spacing for adequate motor ventilation. **2** Permissible clamping area of the fixing clip **3** Tab connector housing, 2 pin

2 PRODUCT INFORMATION

INSTALLATION POSITION



- 1 Preferred installation position
- 2 Permissible installation position

i NOTE

Please consult the manufacturer if a different installation position is required.

SPECIAL FUNCTIONS

The Flowtronic 6000 SC water pump has the following special functions:

- **Brushless motor**
- **Soft start**
The motor starts slowly and gently, with no material strain, and reaches the maximum speed after approx. 5 seconds.
- **Dry running protection**
Dry running protection is integrated in the motor for speeds >3300 1/min. If dry running is detected the water pump switches off automatically after approx. 45 minutes.

- **Anti-blocking protection**

If the speed drops below 57 1/min while the motor is running the motor is switched off after approx. 1 sec., the motor then starts up again. The starting attempts are continued without limit.

- **Polarity reversal protection**

The motor is **not** equipped with internal polarity reversal protection. Used in conjunction with the heater cable harness and a 25A fuse the motor is protected against incorrect polarity connection.

3 INSTALLATION

INSTALLING THE WATER PUMP

i NOTE

Before installing the water pump, check the whole cooling system for contamination caused by limescale, rust and / or dirt. If the cooling system is dirty or contaminated, clean it according to the vehicle manufacturer's instructions.

Fix the water pump with preassembled bracket in a protected area and on a firm surface with the four metal rubber buffers.

INSTALLATION CONDITIONS

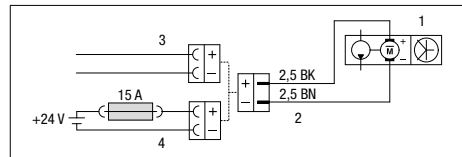
- Fix the water pump as near as possible to the component through which the coolant liquid is to flow.
- Install the water pump as deep as possible in the vehicle, to ensure automatic ventilation of the pump.
- Leave sufficient space around the water pump to make maintenance work easier.
- A coolant liquid hose (Ø 38 mm) with a straight length of at least 200 mm must be connected to the intake side of the water pump. Only then may a bend or change in cross-section of the coolant liquid hose follow.
- Choose an adequate hose cross-section to ensure the minimum water flow rate of the component through which the coolant liquid flows.
- Use few valves and hose bends in the cooling system to keep the pressure loss low.
- The laying of the connection lines must not cause any lateral strain forces to occur in the inlet and outlet connection sockets of the water pump (the connection sockets and connection lines must be in alignment). Fix and / or support coolant liquid hoses if necessary.
- Before starting up, align the water pump exactly within the permissible installation positions (see Page 6).

4 ELECTRICS

ELECTRICAL CONNECTION

HYDRONIC L AND HYDRONIC L II HEATERS

Connect the water pump lead harness to the 2-pin tab connector housing.



- 1 Water pump
- 2 Water pump lead harness,
+ Supply: 2.5² BK, – Supply: 2.5² BN
- 3 Heater cable harness, supply + / –
- 4 Third party lead harness with 15A fuse

If the 2-pin tab connector housing of the water pump lead harness does not match that of the heater cable harness, use the adapter cable (Order No. 25 1698 05 02 00).

If the water pump is not used with a Hydronic L / Hydronic LII heater, fuse the pump with a fuse (15A).

i NOTE

- In case of incorrect polarity connection the motor will be damaged; there is no guarantee cover for this.
- Note and follow the circuit diagram in the technical description of the heater.

D 24 W / D 30 W HEATERS

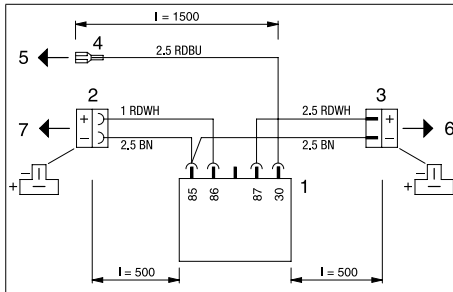
(predecessor series of the Hydronic L / Hydronic LII)

If the water pump is used with the D 24 W or D 30 W heaters the "Relay for water pump" kit is required (Order No. 22 1000 31 19 00).

4 ELECTRICS

Connect the relay from the kit

Insert the relay, as shown in the sketch, between the “heater” cable harness and the “water pump” lead harness.



- 1 Relay
- 2 Receptacle housing, 2 pin
- 3 Tab connector housing, 2 pin
- 4 Receptacle DIN 46 340 A 6.3-6-MS gal Su
- 5 Unplug the connection at the cable harness of the heater, 6-pin connector B1, chamber 3: cable 2.5² RDBU from 6-pin connector, cut off directly at the receptacle and strip.
Connect the stripped cable to the cable 2.5² RDBU from the relay and crimp on the receptacle (4). Connect the receptacle (4) to the 6-pin connector, chamber 3 of the heater.
- 6 Connection to the “water pump” lead harness
- 7 Connection to the “heater” cable harness

i NOTE

- Note and follow the circuit diagram in the technical description of the heater.

Cable colours

RD	red	GR	grey	BK	black
BU	blue	YE	yellow	GN	green
WH	white	VT	violet	BN	brown
OR	orange				

5 FOLLOWING INSTALLATION

BEFORE STARTING UP FOR THE FIRST TIME, CHECK

- All hoses, pipe clips and all electrical connections are tight fitting.
- The coolant liquid system is vented and leak-tight.
- The vehicle manufacturer's instructions for filling and venting the coolant liquid system have been followed.
- All loose cables are secured with cable ties.
- The official regulations and safety instructions in the technical description of the heater have been followed.

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