Manual for Water Glycol Pump for Electrification Cooling GVM GVI with QDC Cooler

Bulletin MSG10-6201/EN

ENGINEERING YOUR SUCCESS.

WARNING – USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

MSG10-6201-EN QPMDC.indd 08.10.24

General

The purpose of this manual is to serve as a reference guide for installation, maintenance and operation of the QPMDC low pressure pump.

Keep the manual at hand. A lost manual should be replaced as soon as possible.

For optimum performance and in order to prevent incorrect use, please read this manual carefully and observe all safety precautions prior to putting the QPMDC low pressure pump into service.

Installation and maintenance work should only be carried out by qualified personnel. Parker reserve the right to make technical alterations without prior notice.

Use

The QPMDC low pressure pump is designed to circulate Water/Glycol mixtures in, for instance, cooling systems. The QPMDC low pressure pump is also suitable as a part of systems for filling and draining of tanks.

Warranty and claims

In the event of malfunction, consult your local Parker office. Parker shall not be held responsible for any consequences due to misuse, modification and/or alterations made by the customer.

Safety instructions

The installation contractor as well as the user should be aware of, understand and observe all safety precautions in this manual, including any information mentioned on labels attached to the product.

Definition of Safety Warning Levels

…concerning personal safety

All precautions concerning personal safety are classified as per below, depending on how severe the consequences of an incident could be.

Danger: This alerts you to an action or procedure that, if performed improperly, will produce bodily harm or death.

Caution: This alerts you to an action or procedure that, if performed improperly, is likely to produce bodily harm or death.

Precaution: This alerts you to an action or procedure that, if performed improperly, is likely to cause an accident with bodily harm.

...concerning other safety issues

Notifications concerning other safety issues (property, process or environmental) and maintenance work are classified as follows:

Important! This alerts you to an action or procedure that, if performed improperly, is likely to result in damage to the product, process or environment.

…concerning additional information

Additional information is marked as follows:

Note! This alerts you to important information related to the text in a paragraph.

Overall instructions

Electrical shock hazard. All electrical connections must be made by a qualified electrician!

Risk of bodily injury. Disconnect the motor power supply prior to maintenance.

Risk of bodily injury. Before disconnecting the hydraulic connections and hoses, make sure that the system is depressurized.

Risk of severe burns. As the pump could become extremely hot during operation, make sure that the pump is cool before touching.

Risk of severe burns. Hose rupture or other failure could cause hot oil to squirt out.

This indicates a toxic hazard. To prevent bodily injury and damage to property or environment, used Water/Glycol should be collected according to specific industrial waste regulations of each country.

Risk of slip and fall accidents and damage to property. If the unit is used as foot plate, there is a risk for slip and fall accidents and the unit can be damaged. Do not step on the unit.

Note! Use hearing protection when standing close to an operating pump for long periods of time.

Environmental information

To prevent personal injury and damage to the environment:

- Disassemble and sort all material for reuse and/or recycling.
- Make sure that hazardous waste is collected for disposal.

Used material, components and products should be collected and handed over to public waste collection points. Check local rules and regulations with local authorities or with your nearest recycling station.

Description

The QPMDC centrifugal type of low-pressure pump is equipped with electric high efficiency brushless direct current (DC) motor, magnetic force transmission, Inverter with PWM signal rotation speed controlling and protection from reverse polarity, dry running, over voltage and current, overload and over-temperature.

The QPMDC centrifugal type of low-pressure pump is available in 12 and 24 VDC and different flow rates,

The centrifugal principle involves imparting energy to the liquid by means of a centrifugal force developed by the rotation of an impeller that has several blades or vanes.

QPMDC series pumps are centrifugal pumps which require pre-filling.

Do not step on the unit! High temperature surfaces!

Installation

Lifting

Risk of bodily injury. To prevent bodily injury when lifting the pump, ensure correct lifting technique is used. Make sure that all lifting devices are working properly and that they are approved for the weight of the pump. Use lifting straps under the pump unit to prevent bodily injury.

Risk of bodily injury. Make sure that all parts of the pump are firmly secured.

An upright position of the QPMDC pump, standing on the electric motor feet is recommended.

QPMDC series pumps are centrifugal pumps which require pre-filling. Pre-filling of the pump before power on is required.

The pump must be installed in the lowest position of the system to ensure that the impeller is always immersed in the liquid.

As viewed from the pump inlet direction, the impeller rotates clockwise (see the arrow on the outlet port).

The pump can be mounted vertically or horizontally, see figure 1. When installed vertically, the outlet port should be facing upwards.

To avoid the dry-running (air getting stuck in impeller), pump outlet port should be vertical or in the upper of the impeller (Figure 1).

Make sure that the outlet port level is always above the pump axis (Figure 1b).

Connected Hose should be vertically mounted (or no elbow in 20cm) to make the air discharged easily, the outlet pipe should not be used less than 90 degrees elbow (figure 2).

Can't use the seawater or other heavy pollution with big grain impurity liquid as the liquid medium.

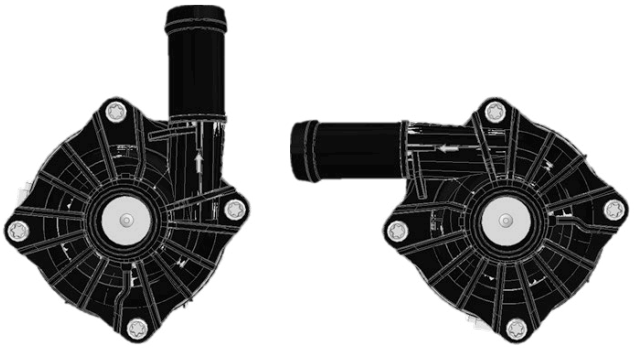

Figure 1

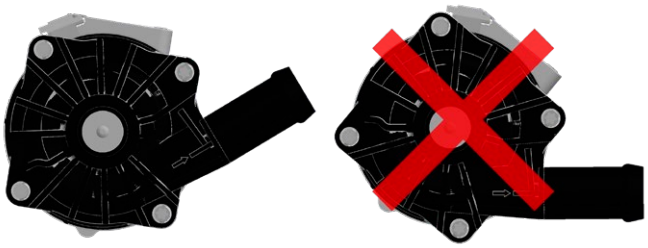

Figure 1b

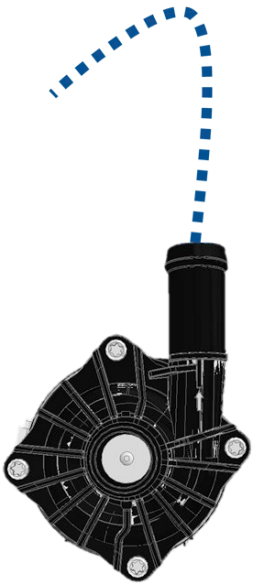

Figure 2

Water glycol connection

Connect the QPMDC low pressure pump using flexible hoses. Make sure that all connections and hoses are sized according to the system pressure, flow, temperature and

Water/Glycol mixture. Connect the hydraulic hoses as illustrated in figure 3.

A – Inlet.

B – Outlet.

Maximum allowed Water/ Glycol temperature is 85 °C.

Use a hose with the Nozzle Diameter of the Pump if you use a smaller diameter, due to the negative pressure in the pump, air could be drawn into the system, it will potentially damage the and impact the pump performance.

To avoid the dry-running (air getting stuck in the impeller), pump outlet port should be placed in the vertical position or in the upper part of the impeller. (Figure 1).

Connected hoses should be vertically mounted (with no elbow for at least 20cm) to make the air easy to discharge, the outlet pipe should not be used with elbows with less than 90 degrees (figure 2).

Parker will not be held responsible for the consequences of any modification or variation with regard to connections.

Electrical connection

Danger Electrical shock hazard. All electrical connections must be made by a qualified electrician!

Prior to connecting the motor to the electrical supply system, make sure that the specification on the electric motor rating plate matches the main supply voltage and frequency. The electric motor should be installed according to general rules and electrical safety regulations.

Risk of personal injury and damage to property.

Be careful when connecting the equipment. Improperly made connections, damaged cables, etc. could cause parts to become current carrying or result in incorrect direction of rotation of the electric motor and pump..

Important! Do not exceed the maximum rated current for the electric motor, see electric motor rating plate.

Note! An electric motor overload protection is recommended.

In extremely humid environments, especially when the operation is intermittent, condensation may form. Some motors are fitted with plugged holes, which can be used to drain condensed water. Depending on the placement of the electric motor, proper plugs should be removed.

If the QPMDC low pressure pump is installed in an environment where water may penetrate into the electric motor, use a protective shield. The protective shield is available as an option.

Connector

AMP282106-1	1 (Black)	2 (Yellow)	3 (Blue)	4 (Red)
(Matched Plug AMP282088-1)	GND	Fault feedback	PWM	+12V / 24 V DC

PWM signal mode

Duty Cycle	Description / Mode	Remark
0 % ≤ duty ≤ 10 %	PWM Stop	1: PWM duty cycle metrical error ±2 %
11 % ≤ duty ≤ 55 %	PWM Min speed	2: PWM: 24 VDC / 12 VDC / frequency: 50-1000 Hz *
56 % ≤ duty ≤ 90 %	PWM Linear speed control	3: PWM stop duty cycle: 7 %
90 % ≤ duty ≤ 100 %	PWM Max speed limit	4: 0 % duty as PWM disconnect

* 500 Hz recommended.

Note! 24V only for QPMDC-20-24-20 and QPMDC-70-24-25.

Note! 12 V only for QPMDC-20-12-20.

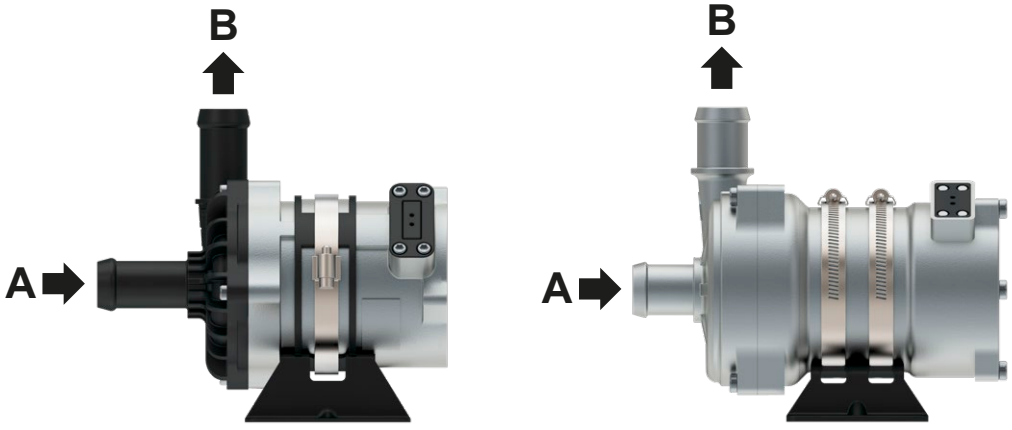

Figure 3

Handling

Prior to initial start-up

Make sure that the unit is securely fixed and correctly connected. We recommend to run the pump with the same oil as used in the hydraulic system. See Technical specification for Water Glycol compatibility.

Note! Pre-filled the pump before power on is requested

Prior to start up

Make sure that the pump can be put into service without causing bodily injury or damage to property or environment.

Make sure that:

- Fluid connections are tight,
- Valves and similar throttling devices are open and that conduits and couplings are not damaged.

At start-up

Make sure that:

the direction of rotation corresponds to indications on the pump cover by looking at the electric motor fan, see Figure 4.

Make sure not to overload the electric motor due to cold start conditions or operation with high fluid viscosity.

For long service life, Water/Glycol cleanliness should be controled.

Note! Air in the inlet line could cause problem at start-up.

Make sure that the pump inlet is always filled with Water Glycol.

During operation

Caution Risk of personal injury and damage to property. The pump must not be run in such a way that the maximum pressure is exceeded, which could occur if the pump outlet is closed or severely throttled. This could damage the unit and cause personal injury.

Important! Risk of heat release. Avoid internal recirculation during a long period of time.

Note! Use hearing protection when standing in the immediate vicinity of an operating pump for long periods of time.

The QPMDC pumps are not provided with a by-pass valve.

Preventive maintenance

Preventive maintenance work must be carried out at regular intervals.

Make sure that the pump:

- is free from abnormal noise or vibrations,
- is securely fixed,
- is free from leaks.

Annually: Check the electrical installation. This may only be made by a qualified electrician.

Under normal operating conditions the pump is maintenance free. In extreme operating conditions the pump requires inspection, service or replacement of the pump and/or couplings.

Cleaning

Prior to cleaning the outside of the pump housing, for instance using water, disconnect all motor power supplies. Be aware of the electric motor protection standard.

Parker will not be held responsible for any interference in the pump such as internal cleaning. If the pump has been running with contaminated fluids, clean it by running it with Water/Glycol.

Maintenance

Parker will not be held responsible for any consequences after repairs, modifications or alterations made by the customer.

The pump can not be repaired outside Parker.

Technical Data

Pump QPMDC-20-12-20		
Hose nozzle outside diameter	[mm]	20
Hose nozzle inner diameter	[mm]	18
Waterproof based		IP68 rating (EN60529)
Connector model		AMP282106-1 (matched Plug AMP282088-1)
Medium liquid temperature	[°C]	-40 to +85 (-40°F to + 185°F)
Working ambient temperature	[°C]	-40 to +85 (-40°F to +185°F) Humidity ≤90 %
Storage temperature	[°C]	-40 to +70 (-40°F to +158°F)
System pressure	[bar]	-0.2 to 2.5 (100°C / 212°F).
Rated power supply	[V]	9 - 16
Max. pressure	[bar]	2.5 (at 100°C / 212°F)
Min. Pressure	[bar]	-0.2
Service life	[h]	20.000
Noise	[dB]	<61
Weight	[kg]	1.2
Rated power	[W]	100
Rated flow	[l/h]	1800 (9 m height)
Fluid		Water with below 60 % glycol

Pump QPMDC-20-24-20 (part no. 999111)		
Hose nozzle outside diameter	[mm]	20
Hose nozzle inner diameter	[mm]	18
Waterproof based		IP68 rating (EN60529)
Connector model		AMP282106-1 (matched Plug AMP282088-1)
Medium liquid temperature	[°C]	-40 to +85 (-40°F to + 185°F)
Working ambient temperature	[°C]	-40 to +85 (-40°F to +185°F) Humidity ≤90 %
Storage temperature	[°C]	-40 to +70 (-40°F to +158°F)
System pressure	[bar]	-0.2 to 2.5 (100°C / 212°F).
Rated power supply	[V]	18 - 32
Max. pressure	[bar]	2.5 (at 100°C / 212°F)
Min. Pressure	[bar]	-0.2
Service life	[h]	20.000
Noise	[dB]	<61
Weight	[kg]	1.2
Rated power	[W]	100
Rated flow	[l/h]	1800 (9 m height)
Fluid		Water with below 60 % glycol
ECE		Compliant to ECE Reg.10R06

Pump QPMDC-70-24-25		
Hose nozzle outside diameter	[mm]	25
Hose nozzle inner diameter	[mm]	22
Waterproof based		IP68 rating (EN60529)
Connector model		AMP282106-1 (matched Plug AMP282088-1)
Medium liquid temperature	[°C]	-40 to +85 (-40 °F to + 185 °F)
Working ambient temperature	[°C]	-40 to +85 (-40 °F to +185 °F) humidity ≤90 %
Storage temperature	[°C]	-40 to +70 (-40 °F to +158 °F)
System pressure	[bar]	-0.2 to 2.5 (100 °C (212 °F)
Rated power supply	[V]	18-32
Max. pressure	[bar]	2.5 (at 100 °C (212 °F)
Min. Pressure	[bar]	-0.2
Service life	[h]	20.000
Noise	[dB]	<61
Weight	[g]	2200
Rated power	[W]	240
Rated flow	[l/h]	2400 (17 m hight)
Fluid		Water with below 60 % glycol

Declaration of conformity

雷 Leili 利

DECLARATION OF CONFORMITY

Manufacturer: **Hangzhou Leili New Energy Technology Co.,Ltd**
No.1777,Binsheng Road,Changhe Street,Binjiang District,
Hangzhou City,Zhejiang,China
Products Name: **Electronic Water Pump**
Products Models:**BLP43 , BLP93**

We,the Manufacturer herewith Declare That The Stated Electronic Water Pump documentation Is Retained At The Premises Of The Manufacturer

Standards Applied:
Harmonized with EMC Directive No.2014/30/EU
EN IEC 61000-6-1:2019
EN IEC 61000-6-3:2021
RoHS 3, Directive 2015/863/EU
REACH, Directive No 1907/2006

Notified Body: **Vojensky Technicky Ustav,s.p.**
Vita Nejedleho 691,682 01 Vyskov,Czech Republic
(Tests made by Shenzhen LCS Compliance Testing Laboratory Ltd)
Identification Number:
CERTIFICATE No.: **VTUPV-024/2023/ZAHRU**
Test report No.:**LCSA031423091E**

European Authorized Representative:
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Start Of CE-Marking:
Date Of First CE Marking :14th,April.2023
This certificate is valid until:14th.April.2028

Place,Date Of Declaration: Hangzhou City,Zhejiang,China

Signature:
Position: Sales Director

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