WANNER INTERNATIONAL LTD

Hydra-Cell Seal-less Pumps

INSTALLATION & SERVICE MANUAL

Oil Cooler – OCWI 34 1

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WI 04/15 rev 2, JK

OIL COOLER

INTRODUCTION

The WANNER oil cooler, OCWI 34 1 has been developed for use with Hydra-Cell pumps (G10, G25, G35); specifically for use in high temperature applications to maintain the correct oil viscosity to ensure good lubrication of pump bearings and other mechanical elements.

The oil cooler is a self contained unit that requires little maintenance and no supervision.

WORKING PRINCIPLE

The oil is pumped continuously through the heat exchanger by means of a gear pump. As the oil passes through the heat exchanger it is cooled by an electric driven fan.

There is a 10μm oil filter between the gear pump on the cooler and the heat exchanger.

The oil cooler has been designed for use with all mineral, synthetic and multi-grade oils supplied by WANNER. Other lubricants can also be used but should be approved in advance with WANNER. The Oil Cooler should not be used for any purpose other than as described in this manual.

 **The operating conditions and installation methods described in this operators manual serve as a basis for safe working practices and should not be deviated from without the permission of WANNER.**

OPERATING CONDITIONS

The following operation conditions should never be exceeded:

Min. /Max. Process liquid temperature	**: +20 to +120°C**
Min. /Max. Ambient temperature	**: 0 to +40°C**
Density of the lubricant (S.G.)	**: 0.8 – 1.4 kg/dm3**
Max. working pressure	**: 6 barG**
Normal operating pressure	**: 2 barG**
Viscosity	**: 0.5 – 80 mPas-1**

IMPORTANT GUIDELINES

- The oil cooler must not be used for any purpose other than cooling oil in accordance with the guidelines and instructions set out in this operator's manual.
- Check that once installed, the operating conditions of the oil cooler cannot be exceeded.
- Before starting an installation, check that all electrical connections and hoses are attached properly with no leaks and the oil cooler is completely filled with oil.

 **Never let the oil cooler run dry (without oil).**

SAFETY

This operating manual specifies a number of safety requirements at appropriate points throughout. A 'Hazard Warning Pictogram' precedes these important requirements.

The following points apply at all times:

- **Perform no action on the oil cooler when the unit is running.**
- **Do not perform electrical work on the oil cooler unless the machine is electrically isolated.**
- **Be aware that oil cooler hoses will become very hot when system is operational.**
- **When connecting the oil cooler, take care not to create a tripping hazard when routing the hoses.**
- **Appropriate Personal Protective Equipment (PPE) should be worn when installing or maintaining the oil cooler.**
  i.e. Safety glasses, heat resistant gloves and safety footwear with oil resistant soles.
- **Material safety data sheets for all oils used in Wanner Hydra-Cell pumps are available on request.**

STORAGE

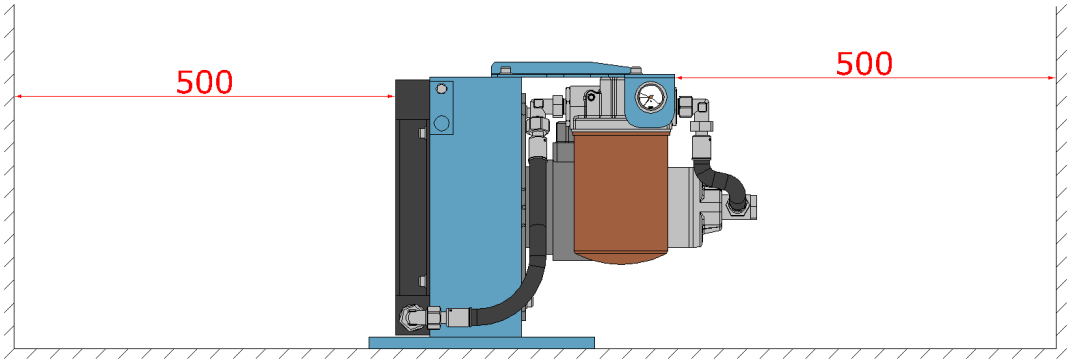
Instructions if you intend to store the oil cooler for a long time.

- The oil cooler must be stored in a clean, dry place. The ambient temperature should be between +1°C and +40°C and the relative humidity <60%. The oil cooler should be completely filled with oil when stored, with both inlet and outlet hoses capped off.
- To put the oil cooler back into use after a long period of time, the commissioning procedure should be followed.

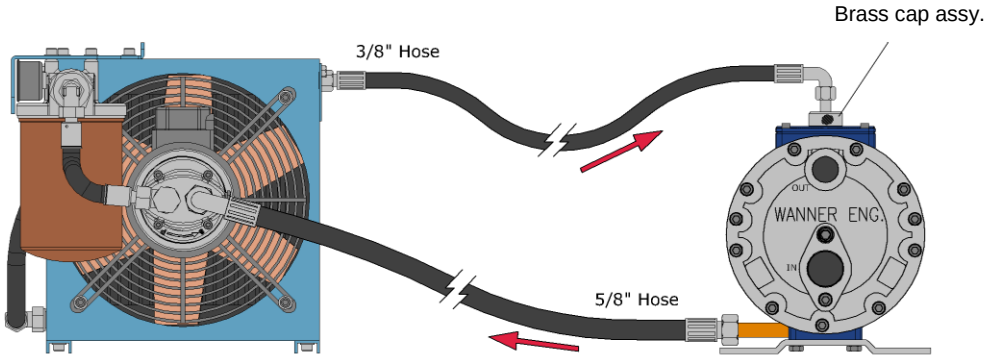
INSTALLATION

Before a successful installation can be assured, the following points need to be followed carefully.

- A qualified technician should always install the unit.
- The oil cooler needs to be positioned as close as possible to the pump being cooled. The hoses are 1.5 metres long.
- The height of the top of the oil cooler must not be greater than 0.5 metres above or below the pump.
- The oil cooler must be positioned as level as possible.
- The air through the oil cooler must be unrestricted. There should be a minimum of 500mm from any wall or closed partition to allow for the sufficient flow of cooling air.



- The oil cooler should be fixed to a level and stable surface using the bolt holes in the feet supplied.
- The inlet and outlet ports on the cooler are clearly labelled. Refer to the sketch below for hose connection and direction of oil flow.



Oil cooler connection sketch

- Use only the hose kits supplied by Wanner to ensure correct fitting to the pump.

ELECTRICAL CONNECTIONS

A trained electrician should always perform electrical work.

The electrical connection to the motor has to be made according to the country regulations and the information in the electric motor connection box.

TECHNICAL SPECIFICATIONS

Motor specification –

OCWI 34 1 – 0.37 Kw, 1ph, 4-pole (1450 rpm), IP 65, fitted with thermistors.

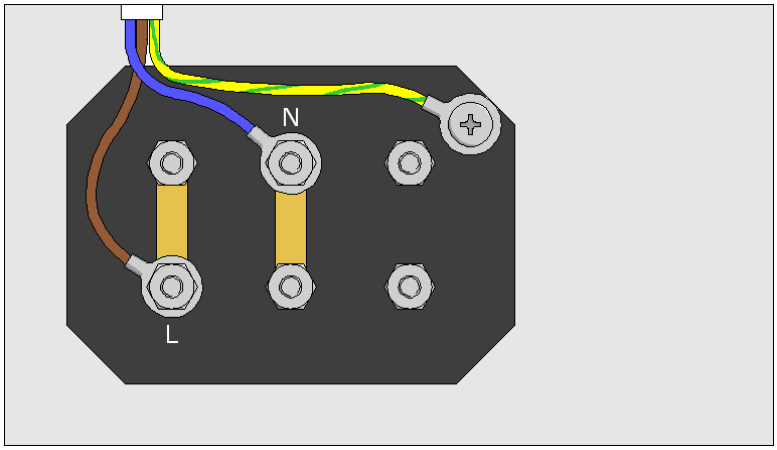


Figure 1, Wiring connections

Pump –

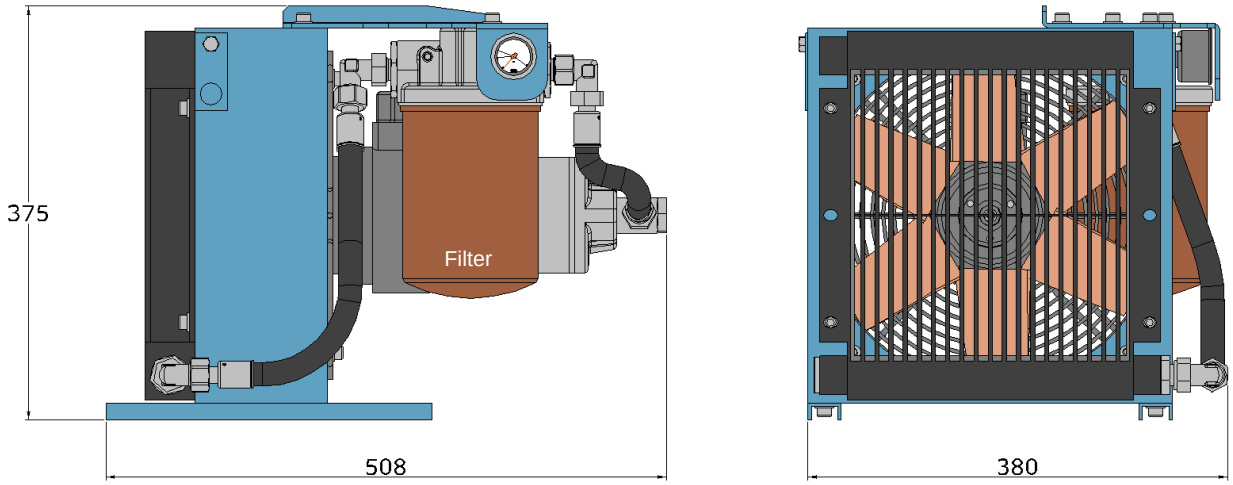
Gear pump, delivers 2.6 l/m at 1450 rpm

Cartridge filter –

0160 MG 010 P – Supplied on the unit. 10μm, paper type.

0160 MA 010 BN – Supplied as a replacement in the hose kit. 10μm, Betamicron™ filter element for absolute filtration.

Dimension sketch



COMMISSIONING PROCEDURE

PRIMING THE OIL COOLER CIRCUIT

 **At this point the immediate area around the pump and oil cooler installation should be prepared for an amount of oil spillage as this will be inevitable and may cause a slip hazard!**

The oil cooler must be filled with the same oil as in the pump, in accordance with the following procedure. Between 2 and 3 litres of oil will be required to successfully fill the oil cooler system.

 **The oil cooler will contain some residual oil from the manufacturers testing. If the Hydra-Cell pump is to be used with EPDM compatible / food grade oil, this residual oil must be fully flushed out of the cooler with the new oil before connecting to the pump.**

- Attach the supplied suction hose (5/8”) to the port on the gear pump on the cooler marked ‘IN’ and the discharge hose (3/8”) to the port on the heat exchanger marked ‘OUT’. (See the connection sketch in the installation section of this manual).
- Remove the cap from the brass drain tube on the pump. Some oil will leak at this point. This will be topped up later.
- Connect the suction hose (5/8”) with the supplied fitting to the drain tube on the pump.
- Remove the red filler cap from the pump.
- Attach the brass cap to the discharge hose (3/8”).
- The brass cap should now be held over the oil filler hole of the pump but not screwed in. The oil level needs to be initially monitored by eye.
- With a supply of suitable oil to ‘top up’ the pump close to hand, the oil cooler is now ready to be filled.
- Start the oil cooler. The gear pump on the cooler will draw oil out of the bottom of the pump, through the oil cooler system and back out of the discharge hose. Close attention should be paid to the oil level in the pump during this process and should be topped up as required.
- Continue this process until there is a steady flow of oil from the discharge hose free of any air or bubbles. This should take no more than 5 minutes. If there is still air coming out, check the hose connections.

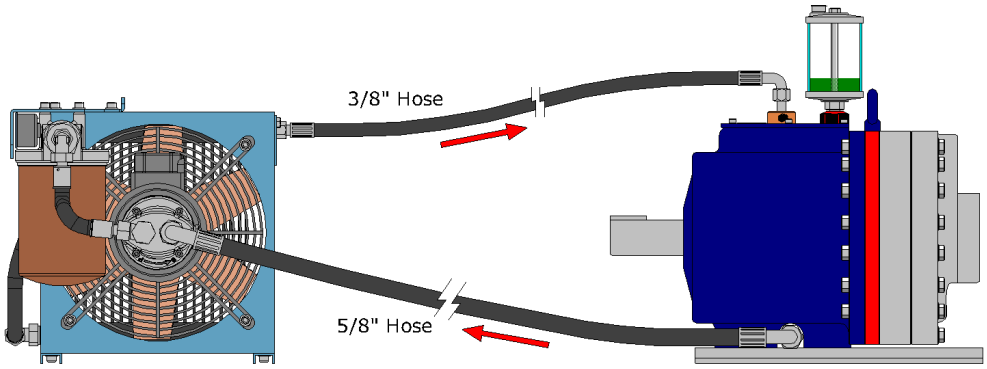
 **If oil is not circulating, immediately stop the oil cooler.** Check the hose connections. If they are correctly fitted, contact WANNER immediately.

Continued on page 7

PRIMING THE OIL COOLER CIRCUIT (continued)

- The oil cooler is entirely filled with oil when the flow from the hose is free of air bubbles. Switch off the oil cooler.
- The oil level in the pump should be at the level of the baffle plate inside the top of the pump to allow for heat expansion of the oil.
- The oil cooler should now be connected so it will now start simultaneously with the pump.

Note: For the G35 pump, a modified top plate is available so the oil sight bowl can be fitted as well as the oil cooler. This will require the oil bowl to be filled with oil up to a level 15 – 20mm from its base.



G35 connection sketch with oil bowl

INITIAL RUNNING CHECKS

Always ensure the system has sufficient oil.

- **Check for any leaks in the system.**
- **Check for any abnormal noises from the oil cooler.**
- **Check that the operating conditions of the oil cooler correspond with the predetermined values.**
- **Regularly check these points during the first hours of operation.**

CLEANING AND MAINTENANCE.

ROUTINE MAINTENANCE.

This is purely a guideline. Individual operating conditions should determine the true interval. For further advice contact WANNER.
When the oil cooler is operating under correct conditions and is installed correctly, it will require little maintenance.
The following inspections and maintenance checks are recommended.

- Regularly check the hose connections for leaks and the integrity of the hose material.
- The oil and the oil filter should be changed in accordance with the recommendations laid out in the pump manual.
  i.e. Initially after the first 100hrs of service, then simultaneously when the pump oil is changed according to operating conditions.
  The oil cooler is fitted with a filter clogging indicator which should be monitored periodically. If the filter is found to be clogging prior to the established routine service point, contact WANNER for a review of the overall pump system.
  A spare oil filter is supplied with each hose kit for this first service.
  Refer then to the **Commissioning Procedure** to ensure system is fully bled when re-filled.
- If the cooler is installed in a particularly dusty environment the heat exchanger should be periodically cleaned with a soft brush only to avoid damaging the cooling fins.

CHANGING THE OIL AND OIL FILTER

The oil filter should be changed at the same time that the oil in the pump is changed and in accordance with the recommendations laid out in the pump manual.

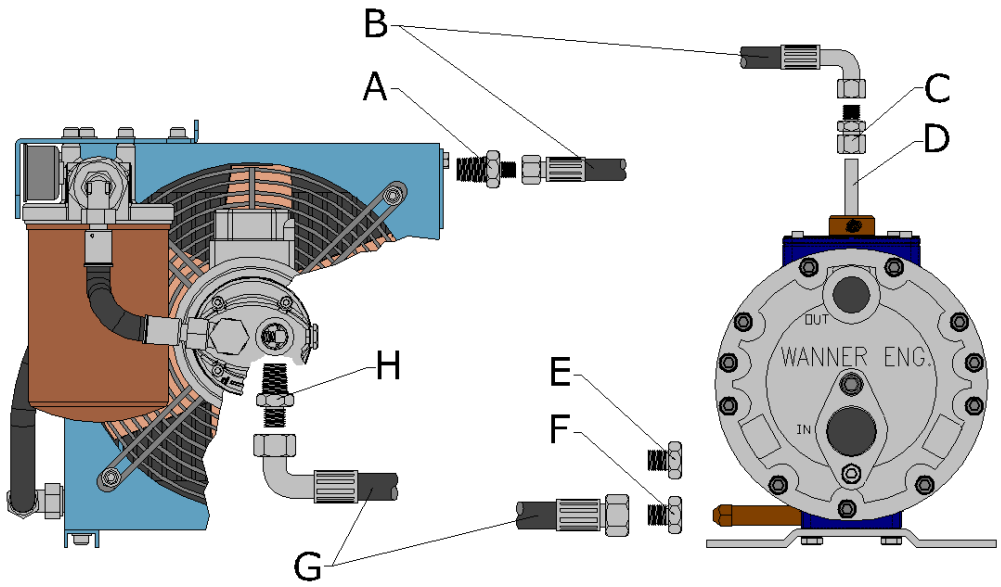
 **At this point the immediate area around the pump and oil cooler installation should be prepared for an amount of oil spillage as this will be inevitable and may cause a slip hazard!**

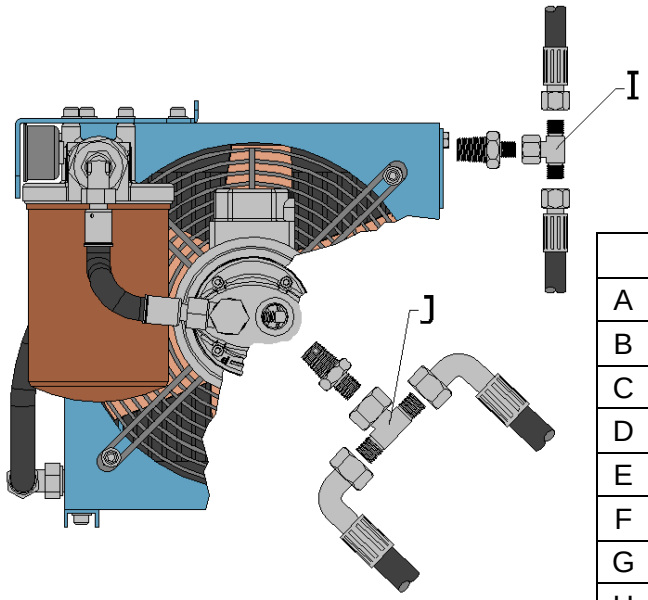
- Firstly, the pump should be isolated electrically so the oil cooler can be controlled independently.
- A suitable sized waste oil container will be required to dispose of the old oil. This will depend on which pump the cooler is connected to.
- Disconnect the discharge hose from the brass cap on top of the pump.
- Place the end of the discharge hose in the waste container. The oil pump can now be run to drain the oil from the pump and the oil cooler system.
- Once oil has stopped flowing, the oil cooler should be switched off immediately to avoid damage to the gear pump.
- The filter can now be removed using a standard strap wrench.

 **Care must be taken, as the filter will still contain some oil.**

- Before fitting a new oil filter, the rubber seal on the filter should be wetted with new oil.
- The new oil filter can now be fitted, and should be tightened by hand.
- To refill the system with new oil the **commissioning procedure** should be followed.

HOSE KIT ASSEMBLIES





	Part number
A	1BT/6-12
B	3/8 Hose assembly
C	GE12LRFOA
D	BRASS CAP ASSY.
E	5B/10-4 (G10 only)
F	5B/10-6 (G25 & G35)
G	5/8 Hose assembly
H	1BT/10-12
I	Z11B/6-6-6 (OC HK 2)
J	Z11B/10-10-10 (OC HK 2)

Two hose kits are available to be used only in conjunction with the Wanner oil cooler.

OC HK 1 – Hose kit for connecting the oil cooler to 1 Hydra-Cell pump. Contains the required parts to connect to the G10, G25 or G35 pump.

OC HK 2 – Hose kit contains extra parts so 2 pumps can be connected to one oil cooler.