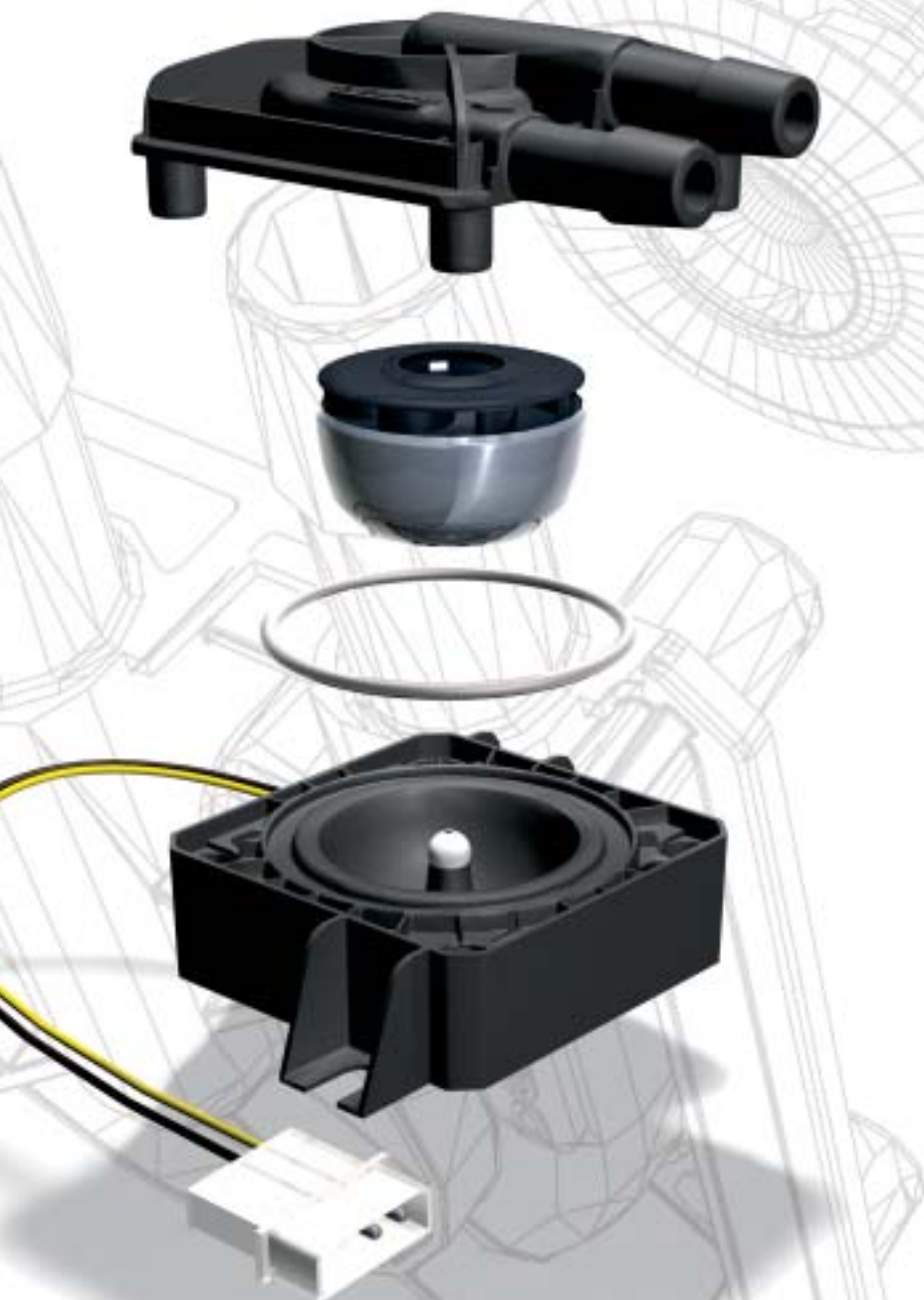


# 12 Volt DC pumps

**ddc**

Laing supplies pumps for the world's first mass produced water-cooled workstation!

- Quiet
- Compact
- Durable
- Maintenance-free
- Low power consumption



**LAING**  
simply the best • by design

# 12 Volt DC pumps

**ddc**

## Application

Delphi, a globally active company from the automotive sector with a wealth of experience in the field of electronic cooling, and Laing, a specialist in the compact pump market, have co-developed a new water-cooling system for computers. The Laing DDC pump is used in this system.

The Laing DDC is the world's first pump to be used in mass produced water-cooled workstations, and presents an ideal solution for cooling processors and electronic components using water. Besides a lot of Online-Mentions, the Laing DDC is also awarded with the Innovation Award of Baden-Württemberg, known as one of the most innovative regions in Germany and Europe. Due to its size and output, the Laing DDC can also be used in a large number of applications.

## Design

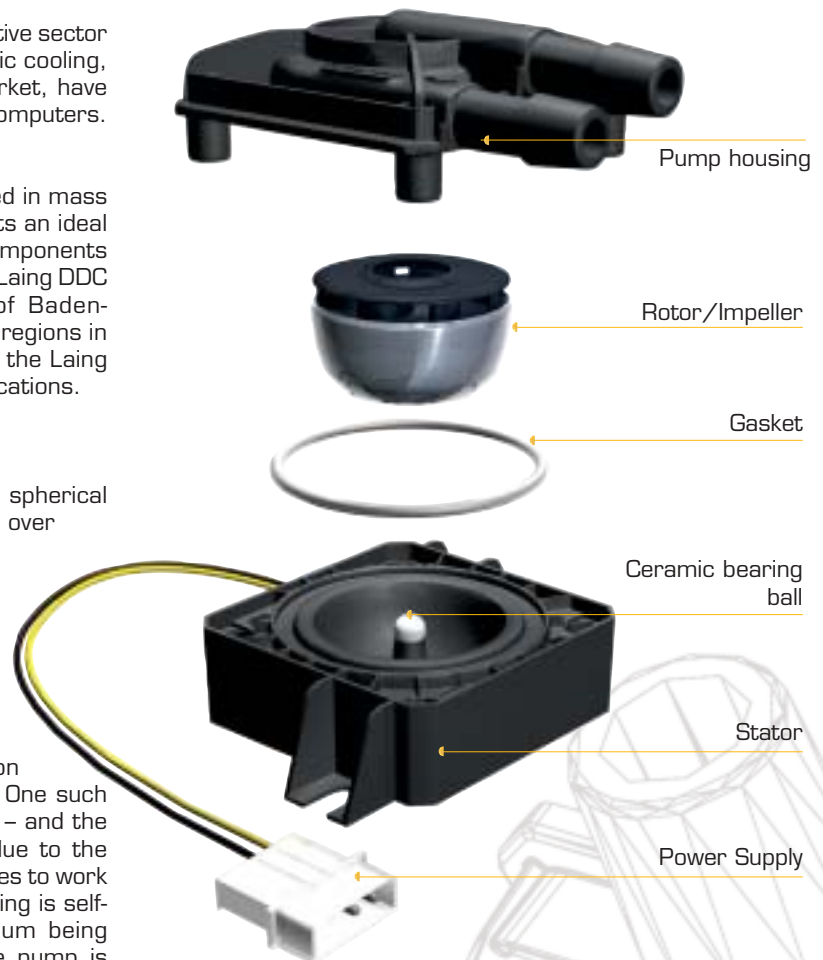
The Laing DDC is an electronically commutated spherical motor pump, with an expected service life of well over 50,000 hours at 12 Volt.

The only moving part in a spherical motor pump is a spherically shaped rotor/impeller unit, which is seated on an ultra-hard, wear-resistant ceramic ball. The conventional shaft, shaft bearings and shaft seals have been eliminated.

The spherical bearing of the rotor/impeller unit on the ceramic ball offers a number of advantages. One such advantage is that the occurrence of bearing play – and the associated increase in noise – is not possible due to the principle involved. Consequently, the pump continues to work quietly throughout its entire service life. The bearing is self-realigning. It is lubricated directly by the medium being pumped (wet rotor design). This means that the pump is maintenance-free. Since the rotor is always magnetically held in the designated position, small particles of dirt do not present a problem. Under normal conditions, it is impossible for the rotor to become locked. Reliable starting is also ensured even after long periods of shutdown.

The permanently magnetic rotor/impeller unit is driven by the magnetic field generated by the surrounding stator. The stator is wrapped entirely around the rotor. As a result, the entire pump is only slightly taller than the rotor itself, measuring only 38 mm in height. Accordingly, it fits easily into all standard PC cases. Generally, no separate magnetic shielding is required.

The spherical motor design permits economical operation with comparatively high output. Supply voltage variation provides a simple means of controlling the speed of the DDC pump over a large output range. All parts in contact with the medium are 100% corrosion resistant. With an optional tachometer output, it is possible to monitor the speed of the pump directly. In many computers, the tachometer output can be connected to a fan connector.



## Technical Data

Motor design	Electronically commutated spherical motor
Rated voltage	12 Volt DC
Power consumption	see pump curve
Voltage range	8 to 13,2 Volt*
Acceptable media	Water, Water-/Glycolic Mixtures**, other medias on request;
Max. system pressure	150 kPa (1,5 bar)
Max. system temperature	60° C
Wetted parts	Stainless steel 1.4571, PPS-GF40, EPDM gasket, Aluminium oxide, carbon; PA6.6 GF35

\* minimal start Voltage of 9 Volt necessary

\*\* check pump performance for mixtures of 20% or more glycole



**ddc** Model DDC-1 with 3/8" hosebarb, incl. 12 Volt power cord (750mm)

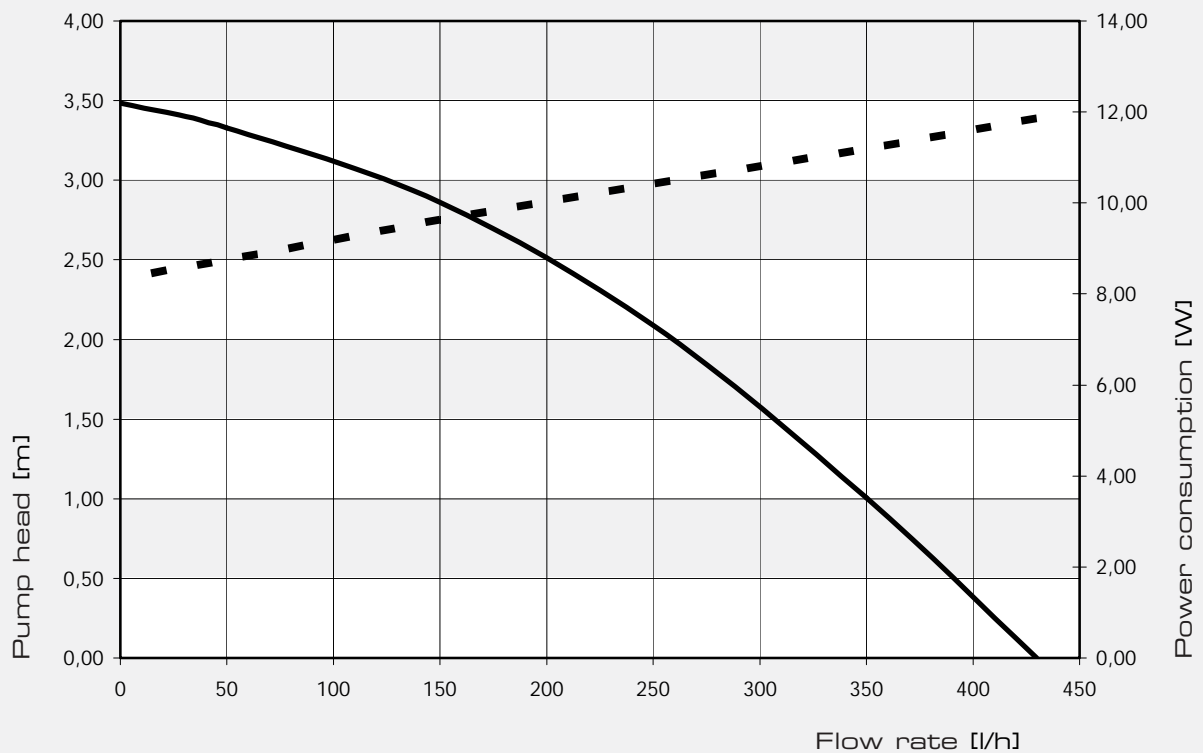
Model	Part number	Connection	Description	Product category
DDC - 1	65 00 020	3/8" hosebarb	with cable end sleeve	H
DDC - 1 P	65 00 021		with Molex plug	
DDC - 1 T	65 00 023		with Molex plug and Tacho output (750mm) with Molex-plug	



**ddc** Model DDC with 1/4" male thread, incl. 12 Volt power cord (750mm) and 2 gaskets

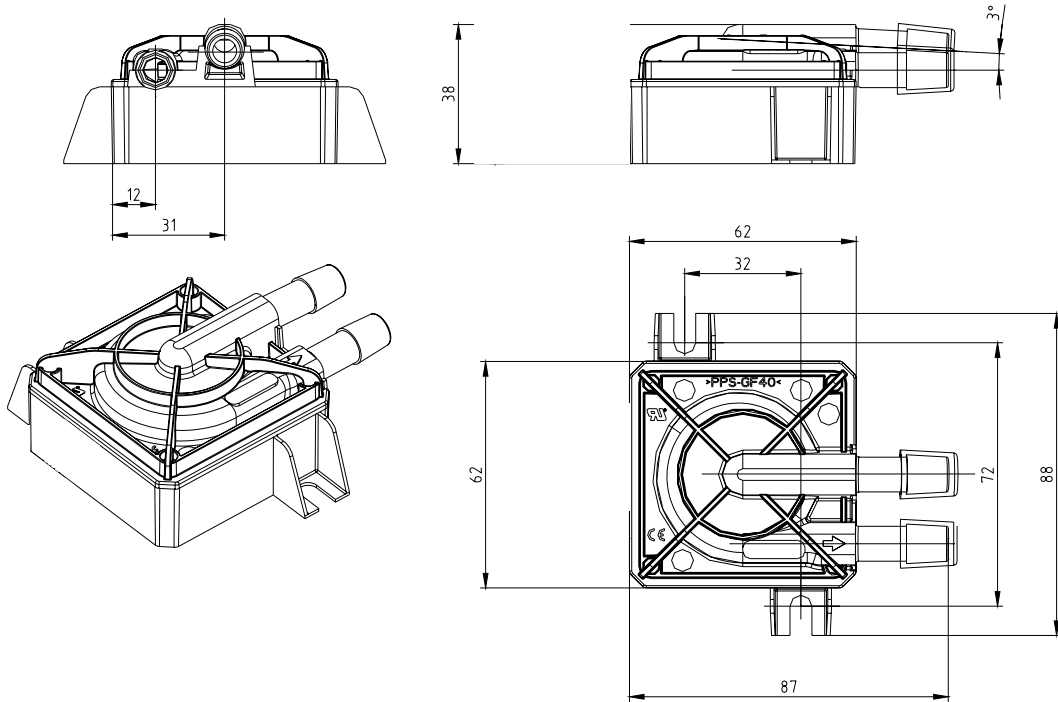
Model	Part number	Connection	Description	Product category
DDC - 1 R	65 00 030	1/4" R male	with cable end sleeve	H
DDC - 1 RP	65 00 031		with AMP-plug	
DDC - 1 RT	65 00 033		with AMP-plug and Tacho output (750mm) with Molex-plug	

Pump curve

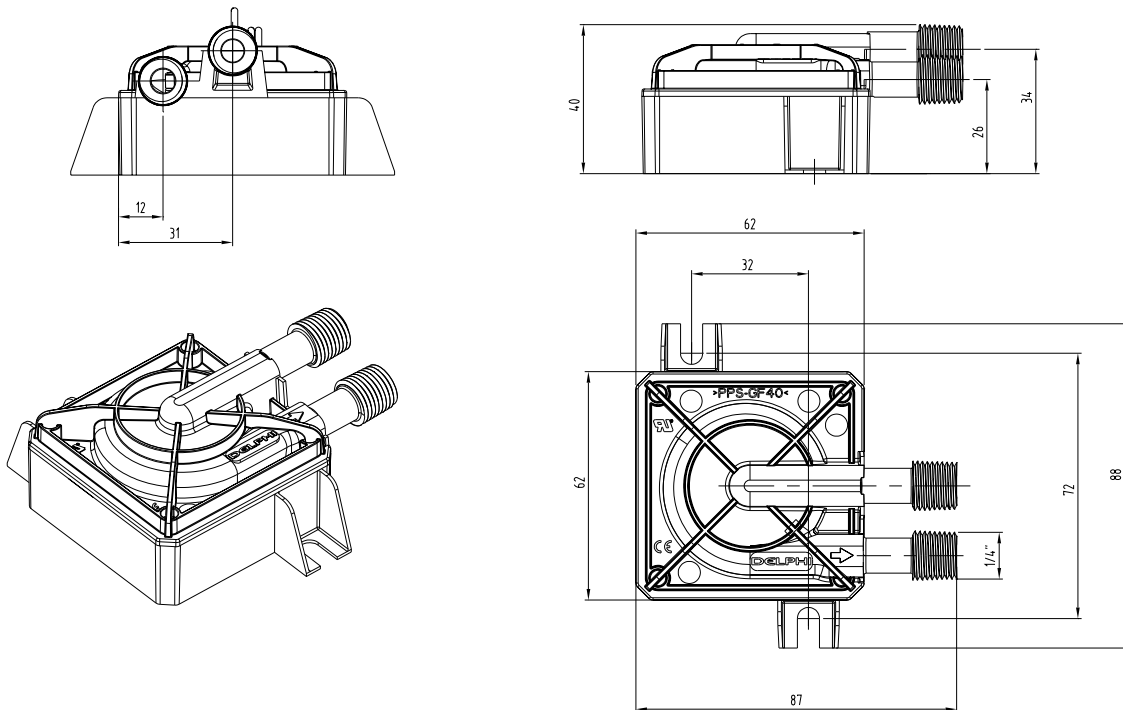


# Dimensional drawings DC pumps Laing ddc

With 3/8" hosebarb:



With 1/4" R male:



**LAING**

Laing GmbH Systeme für Wärmetechnik · Klingelbrunnenweg 4 · 71686 Remseck · Germany  
Phone: +49(0)7146/93 - 0 · Fax: +49(0)7146/93 - 33 · E-Mail: info@laing.de · Internet: www.laing.de