GYDAD INTERNATIONAL

Mobile Coolers CMS – Cooling Mobile System



Hydraulic oil cooling on loader crane: air cooler with DC motor



Hydraulic oil cooling on concrete pump: air cooler with hydraulic motor and integrated filter



Combination cooler for forestry machine: air cooler for 4 cooling circuits with fine filter grille, in folding design for easy, tool-free cleaning

General

The Emissions Directive for engines in mobile machinery has been structured to reduce emissions progressively which can lead to a drastic increase in the required heat dissipation and a corresponding adjustment in cooler size. The limited installation space available in a mobile machine must therefore be utilised efficiently and intelligently.

In mobile machines, multiple cooling circuits can be combined together in various ways in a CMS mobile cooler:

- Charge air cooling
- Coolant cooling
- Oil-cooling: gearbox, hydraulics, fan drive, axles
- Fuel cooling
- Condenser
 - If required, a heat exchanger for the A/C condenser can also be integrated into the cooling system

Product Features

The cooler comprises a set of cooling elements in different layouts, either side-by-side or front-to-back. With the addition of a fan cover, a protective grille and a fan (also available with motor) this cooler package is supplied to the customer ready for installation.

KULI simulation software is used to determine the optimal combination and configuration of heat exchangers and fan. In addition, CFD software can be used to visualise and calculate air flow and heat management in the engine compartment. This helps to reduce development costs.

Special cooling fins ensure suitability for use in dusty environments, for example, in agriculture and forestry or for applications in the mining sector.





Side-by-side layout

Front-to-back layout

Options

Fan controls

The efficiency of a cooler also depends largely on the fan control.

For DC and hydraulic motors, various options are used, such as the electronic speed control ESC, the temperature bypass TB or a proportional valve that continuously adjusts the fan speed according to the fluid temperature.

This means that the fan speed can be tailored directly to the required cooling capacity, i.e. just sufficient power is supplied to the fan as is immediately required. As an option, these controls can also be supplied with a reversing function to "purge" the cooler of coarse contamination, such as lint, paper or fragments of vegetation.

Application Field

- Municipal vehicles and municipal machines
- Cement mixers and concrete pump trucks
- Agricultural and forestry machinery e.g. tractors, harvesters, sprayers, combine harvesters
- Road construction machinery, e.g. paver finishers, rollers, bulldozers, graders
- Dump truck



Configuration of the cooling elements in the engine compartment

Integration solutions

A variety of equipment can be integrated to produce customised solutions:

- Tank, filter and fan housing
- Integrated bypass valve pressure (IBP) / Integrated bypass valve – temperature and pressure (IBT)
- Control

Combined in one component, they make a significant contribution to reducing installation space.

- Mobile cranes
- Wheel loaders
- Backhoe loaders
- Wheeled excavators and crawler excavators
- Snow grooming vehicles
- Vibrator survey trucks



Combination cooler for sprayer: air cooler for 4 cooling circuits with hydraulic fan control

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Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications and corrections.

HYDAC

HYDAC AG

Mezzovico

branch office

HYDAC COOLING GMBH

Industriegebiet 66280 Sulzbach/Saar Germany

Tel.: +49 6897 509-01 Fax: +49 6897 509-454

E-mail: cooling@hydac.com Internet: www.hydac.com

Via Sceresa, Zona Industriale 3 6805 Mezzovico Switzerland

Tel.: +41 91 9355-700 Fax: +41 91 9355-701

E-mail: info@hydac.ch Internet: www.hydac.com