OTT air-oil heat exchangers are used for cooling oil hydraulic systems using as the coolant ambient air that passes over the radiant by means of a fan operated by an electric or hydraulic motor.
The cooler element, in high resistance aluminium alloy, is obtained by means of a braze-welding process carried out under vacuum.
The particular configuration of the cooling pipes increase the turbulence of the fluid consequently of the exchange capacity; moreover, the presence of special jets on the cooler finning further improves the total transmission coefficient.

Compatible fluids

. MINERAL OILS; HL; HLP.
. WATER-OIL EMULSION.
. WATER-GLYCOL.

Technical specification of Cooler Element

. Material: "long life" aluminium.
. Operating pressure: 20 bar
. Test pressure: 35 bar.
. Max operating temperature: 120°C.

Installation

The exchangers can be fitted in a horizontal position, respecting the minimum distance from the wall (see fig.1) so as to ensure a natural flow of cooling air.
The exchangers is usually installed on oil tank return piping; it must also be protected from impacts and mechanical vibrations by supports and must be connected to the plant with flexible pipes.
Avoid subjecting the exchanger to sudden changes in flow, hammering and pulsations that can cause irreversible damage to the element.
We recommend installing a by-pass valve (see fig.2) to protect the exchanger from over-pressure generated when the plants is started up due to high oil viscosity.

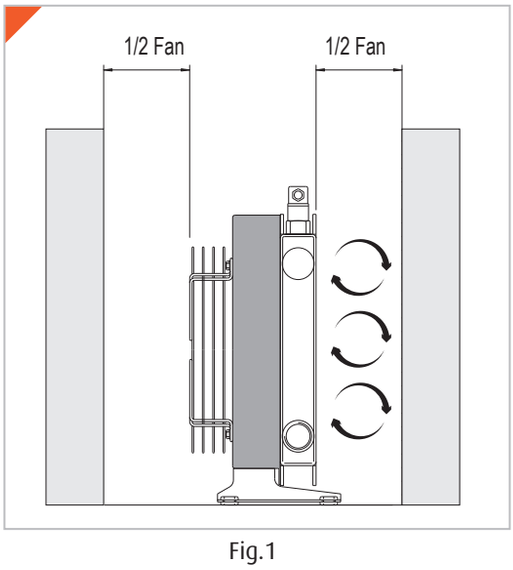


Fig.1

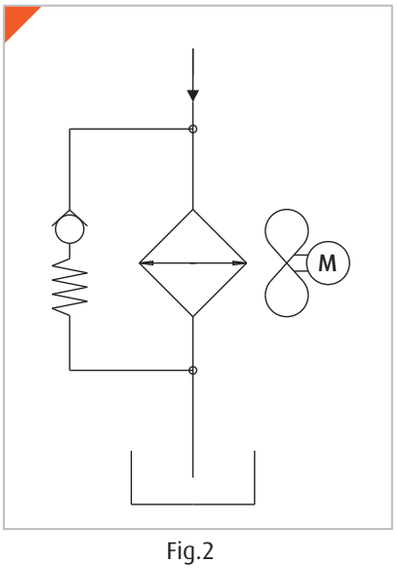


Fig.2

Maintenance

You should be particularly carefully in cleaning the cooler element to guarantee a natural exchange of air, in order to prevent a reduction in thermal efficiency

Cleaning Oil Side

The exchanger should be dismantled to clean on the oil side. The dirt can be removed by flushing, in counter-current, de-greasing substance, compatible with aluminium. Wash with hydraulic oil before re-connecting the product to the plant.

Introduction

Cleaning Air Side

Cleaning on the air side can be done using compressed air or water, directing the jet parallel to the fins so as not to damage them. Oily dirt or grease can be removed with a jet of steam or hot water. During this operation, the electric motor must be disconnected from the voltage supply, and must be adequately protected.

Example of How to Choose a Heat Exchanger

Proceed with sizing the exchanger, with a knowledge of the data as the example below shows:

Power To Dissipate Iso	8,7 KW
Vg 32 Oil Flow Oil Input	90 lpm
Temperature Ambient	60 °C
Temperature	30 °C

Fan operating with an electric motor 230V-50Hz.

You can then calculate the specific heat exchange power KW/°C if you know the power to dissipate and the ΔT
(the difference between the oil input temperature and the ambient temperature).

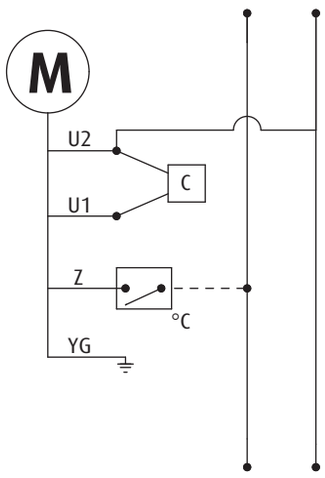
$$P=\frac{8,7\ KW}{60°-30°}=0,29KW/°C$$

Note the oil flow (90 lpm) and specific exchange power (0.29 KW/°C), product research is made by referring to the graph in the catalogue which is relevant to each model.

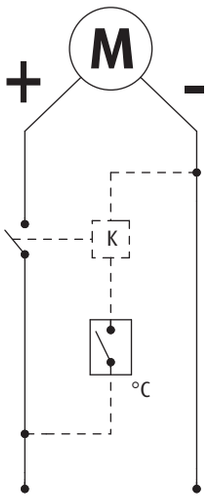
The exchanger selected is the following model:
OS2030 - 01S/T03F

Electric Wiring

12-24V DC Electric Wiring

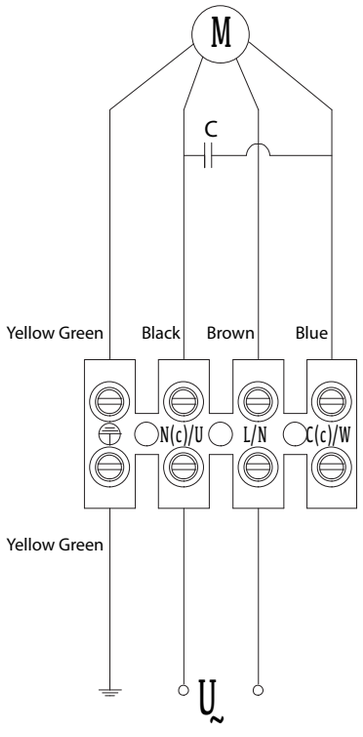


YG= Ground
U1= Blue
U2= Black
Z = Brown
C = Capacitor
°C= Thermostat



K= Relay
°C= Thermostat

230V AC Monophase Electric Wiring



380V AC Threephase Electric Wiring