

Oiltech's blue book

- The handbook for purchasing with greater confidence

Guarantee

Oiltech Coolers

Performance Guarantee

Olaer Group Network

OLAER - OILTECH - OILAIR - FCH

Oiltech Cooler Performance Guarantee - our safety and performance guarantee

Why should there be an obligation to provide a performance guarantee to customers? Is 100% performance not obvious when supplying products, and a precondition of being a successful player in the marketplace?

We wish it was the case. The reality is completely different. Arbitrary tests of air oil coolers, or sometimes no tests at all, often mislead buyers into believing that a product has higher performance than it actually does. The difference between cooling performance curves in brochures and measured results is often all too wide and sometimes plainly misleading.

This is why we have developed our own quality and performance guarantee – the Oiltech Cooler Performance Guarantee. It is our guarantee to you that all of our standard models of air oil coolers are tested in our own laboratory as per existing standards, and that all results are presented in an authentic way.

To make demands on your supplier is your right and essential for you as a customer. To critically scrutinize and challenge does however take expertise. This is why we have developed this small pocketbook, in the hope that it will be a useful guide to you for purchasing with greater confidence when it is time to invest in a new air oil cooler.

COOLING CAPACITY

- NOISE LEVEL
- PRESSURE DROP
- FATIGUE
- LEAK TESTED
- CE-MARKED

1. Cooling capacity

Cooling capacity is calculated by measuring oil flow, air temperature and “in” and “out” values of the oil temperature. There is an industry standard for how measurements are made, although not for how they

are presented. The European Standard EN 1048 indicates how tests should be carried out.

Unfortunately it is still common in our industry to “guesstimate” or perhaps be selective in testing. So whenever manufacturers carry out more thorough tests on their air oil coolers it becomes all too apparent that their coolers suddenly have worse performance. In reality it is the same cooler, with the same performance as before, the difference being that the results are now measured based on the Standard and are accurately presented. At Oiltech we carry out tests based on the European Standard EN 1048 on all standard models.

Things to consider...

- Have cooling capacity tests been carried out on the cooler?
- Have these been carried out based on European Standard EN 1048?
- How are the results of these tests presented?
- Are stated performance and cooling curves the results of tests or are they merely estimated?

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2. Noise level

Understanding the readings from different noise level measurements is no easy matter. A number of manufacturers present acoustic pressure, some acoustic power, and others present both. It is very important to

understand the difference between acoustic pressure and acoustic power in order to be able to demand answers from a manufacturer on stated noise level. Often just a value is indicated, which fails to show whether it is acoustic pressure or acoustic power, from what distance the noise is measured, or if it refers to a mean value or a lowest value etc. This is often one reason for the stated noise level varying significantly between different suppliers. If the result is stated as acoustic pressure it gives a lower and consequently an apparently better value than if given as acoustic power.

Acoustic power is the power an object is emitting in terms of noise, whatever the nature of the environment. Acoustic pressure is the airborne noise we can hear, which greatly depends upon the distance to the object itself and the nature of the surroundings.

At Oiltech we have a fully equipped acoustic chamber where we produce values for both acoustic pressure and acoustic power, according to the International Standard ISO 3743-1. The measurements are always made from a distance of one metre and stated as mean value from nine measuring points around the oil cooler. The noise level is then stated in dB(A). This indicates that the result is "A-scaled", i.e. how the ear understands noise at different frequencies.

Things to consider...

- If noise level has been measured, is it stated in terms of acoustic pressure or acoustic power?
- Are the measurements a mean value or a lowest value?
- At what distance from the cooler is the noise level measured?
- Is the measuring carried out based on the ISO 3743-1 standard, or as per another standard? Which one?

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3. Pressure drop

At Oiltech we measure oil pressure drop at 30 cSt and with the flow at up to 500 litres per minute.

In order to guarantee laminar flow at the measuring point, the connection of the air oil cooler with the measuring instrument is carried out in accordance with EN 1048.

Things to consider...

- At what oil viscosity is the pressure drop presented?
- At what oil viscosity and with which oil shall the system in question be operated?
- How is the connection between the air oil cooler and the measuring instrument made?

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4. Fatigue

The air oil cooler in a hydraulic system is subjected to loading and pressure changes from pumps and valves etc. In order to ensure that the cooler matrix

in the air oil cooler tolerates normal loading, we test the cooler matrix for fatigue as per ISO 10771-1.

Tests are carried out at dynamic pressure 0-14 bar, at approximately 2 Hz and at least 2 million cycles. The higher the frequency (Hz), the easier it is on the matrix, as the material in the cooler matrix cannot then react to the pressure changes. Static burst pressure in our cooler matrix is 75-100 bar.

Things to consider...

- Are fatigue tests carried out based on ISO 10771-1 or as per another standard? Which one?
- At what frequency (Hz), what pressure, and what number of cycles are the fatigue tests carried out?

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5. Leak tested

All cooler matrixes used in our air oil coolers are pressure and leak tested before they leave the factory. If a specific test pressure certificate is required, this should be stated at the time of order.

Things to consider...

- Is there a requirement for, or do you need, a test pressure certificate?

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6. CE-marked

According to the Swedish Work Environment Authority's interpretation of the Directive on machinery, an air oil cooler fitted with a fan drive should be CE-marked. CE-marking is a quality assurance for

you as a customer and a strong sales argument for the supplier, so both parties should have a great interest that products on the market are CE-marked. We find it difficult to comprehend why there are air oil coolers on the market which are not CE-marked. The cost of CE-marking an air oil cooler should never be accepted as an argument from a supplier.

A number of suppliers in Europe consider that an oil cooler is a component included in a larger system and therefore does not need to be CE-marked. At Oiltech we actively work for the Swedish Work Environment Authority and/or the industry, together with authorities in other countries, to establish the interpretation of the Directive on machinery. Naturally, all Oiltech's air oil coolers are CE-marked.

Things to consider...

- Is the air oil cooler CE-marked?
- If not, for what reason?



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