

Operating Manual

Oil/Air Heat Exchangers Series ACI

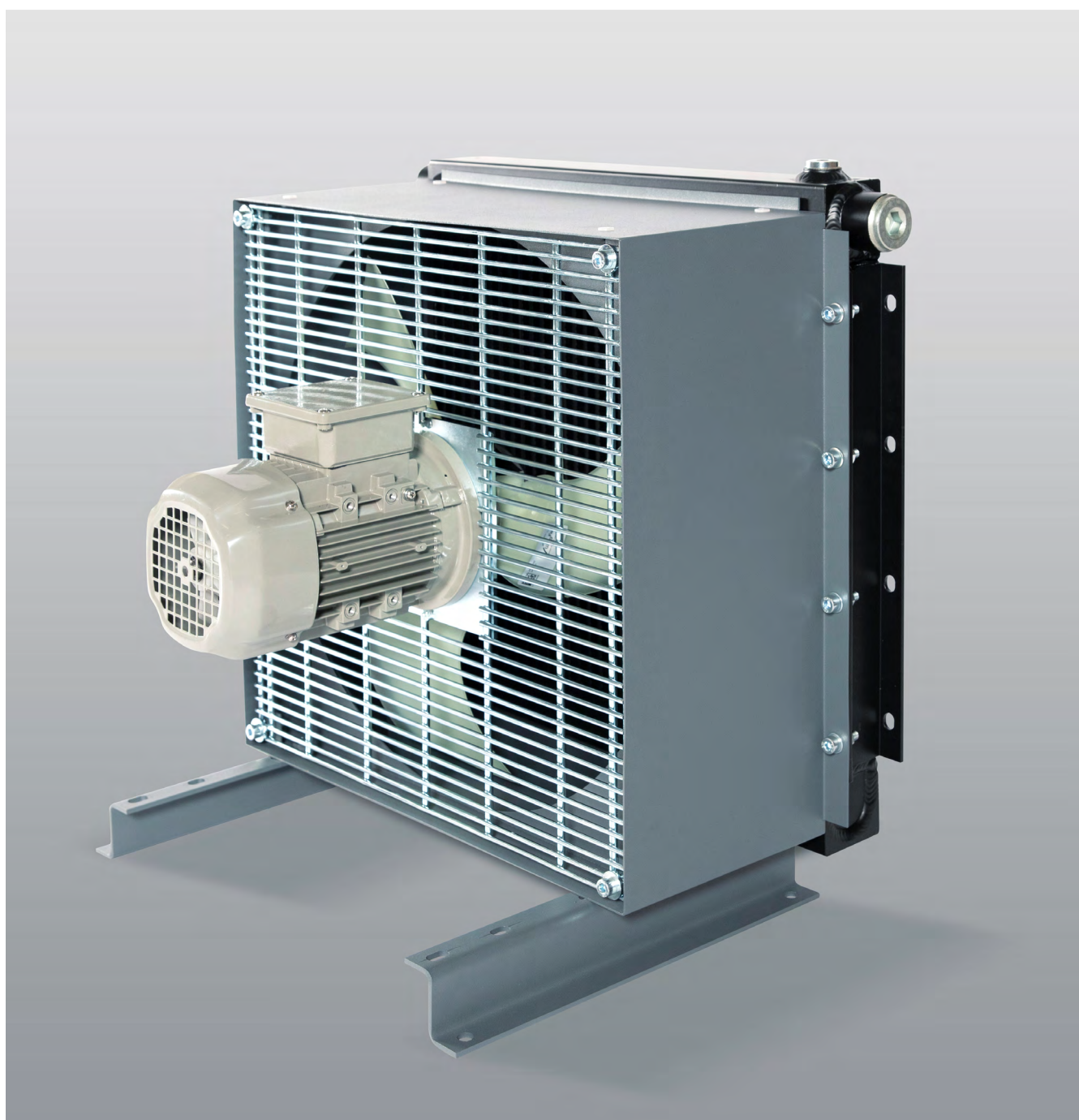


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1. BASIC INFORMATION

1.1 NOTES CONCERNING THE OPERATING MANUAL

This operating manual contains information about the use of the oil/air heat exchangers of the ACI product line.

Before beginning operation, please read the operating manual carefully. This document must be available at all times at the site of the heat exchanger.

The instructions enable quick understanding of the technical details and contain all necessary information for safe and correct use of the oil/air heat exchanger.

The respective datasheets contain additional information.

The operating manual includes technical data, a technical description, and information on initiation, operation and servicing.

The dimensions and weights apply for the day on which this operating manual was printed. In individual cases, these may differ from the respective version of the unit, without fundamentally changing the objective information or losing validity.

Deviations in the text and figure contents depend on the equipment and accessories of the respective unit, so that no claims based on these can be asserted.

The unit is intended only for the purposes described in the operating manual. The manufacturer cannot accept claims deriving from improper use and insufficient maintenance.

The documents and components in the Annex, as well as all other documents supplied, must be observed.

1.2 PURPOSE

The oil/air heat exchangers of the ACI product line are well suited for stationary installation.

They serve for the cooling of hydraulic or lubricating oils.

The housing has been optimized to ensure a low noise level.

Additional small models have been added to the ACI product line. These are available in a version with rerouting of oil flow and also in a version without rerouting of oil flow, covering the requirements for oil cooling for both low and high oil flow rates.

Product features:

- Test pressure: 25 bar static pursuant to DIN 50104
- Working pressure: 16 bar (minimum two million cycles from 0 – 16 bar at 2 Hz and 60°C)
- Compact oil cooler
- Large cooling capacity
- Low pressure loss
- Min/max operating temperature: -20°C to 120 °C
- High flexibility
- 2" SAE flange in addition from model ACI 700
- Cooling of: oil, HFA-, HFB-, HFC-, HFD- fluids
up to $v = 100 \times 10^{-6} \text{ m}^2/\text{s}$, water/glycol
mixing ratio min. 65:35
(no water without anticorrosive agent)
- Coolant: air

Further options:

- Test pressure 40 bar
- Filter mat on request
- Thermo bypass
- Thermo-switch
- Sea water version

1.3 APPROPRIATE USE

The oil/air heat exchangers of the ACI product line serve only for the cooling of oils in hydraulic and lubrication cycles.

Any other use is regarded as inappropriate!

The operator is liable for all damages resulting from such use.

1.4 WARRANTY AND LIABILITY

The „General Terms of Sale and Delivery“ of the manufacturer apply at all times.

Warranty and liability claims in regard to personal injury and material damage are excluded when these are based on one or more of the following causes:

- Inappropriate use of the unit
- Improper initiation, operation and servicing of the unit
- Modifications to the unit without consulting the manufacturer in advance

Operational safety of the unit can only be guaranteed when the unit is operated as intended, in accordance with the operating manual.

Appropriate use also includes compliance with the conditions for installation, dismantling, initiation, operating and servicing specified by HBE GmbH. This information can be obtained from HBE GmbH.

- Operating the unit with defective safety devices or with improperly installed safety and protection devices
- Failure to observe the notes in this operating manual concerning installation, initiation, operation and servicing
- Insufficient monitoring of unit parts subject to wear
- Improper repairs

2. SAFETY NOTES

2.1 STANDARDS AND DIRECTIVES

The unit has been constructed in accordance with state of the art technology and recognized safety regulations.

The following European directives and standards were observed by the company HBE GmbH and its suppliers in the development, construction and production of the unit:

- Machinery Directive
2006/42/EC
- Electromagnetic compatibility
(EMC) 2014/30/EU
- Low Voltage Directive
(LVD) 2014/35/EU
- Pressure Equipment Directive
(PED) 2014/68/EU
- Safety of machinery
DIN EN ISO 12100

All data on safety refers to current ordinances of the European Union. In other countries, relevant laws and state ordinances must be observed.

In addition to the safety notes in this operating manual, the general regulations for accident prevention and environmental protection must be noted and observed.

All information in this operating manual must be complied with, without exception.

**DANGER**

- Type and source of danger
- Consequences of the danger
- Measures to prevent danger

**ATTENTION**

- Type and source of danger
- Consequences of the danger
- Measures to prevent danger

**ATTENTION**

- Warning of electric current
- Risk of serious injury or material damage
- Measures to prevent danger

**NOTE**

- User tips and useful information

**NOTICE**

- Environmental contamination

2.3 FUNDAMENTAL SAFETY MEASURES

The following fundamental safety measures must be observed:

- The oil/air heat exchanger of the ACI product line must be used appropriately.
- The oil/air heat exchanger of the ACI product line must only be installed, operated and serviced only by trained and properly instructed specialists. Personnel must have read and understood the operating manual. This includes knowledge of how to prevent injuries for the operator and third persons.
- All safety notes in this operating manual and in all additional documents must be noted and observed.
- Unauthorized persons must not have access to the oil/air heat exchanger.
- Downtimes and environmental impairment due to incorrect handling must be excluded.
- During transport, installation and dismantling, operating and care and servicing, the relevant regulations for safety at work and environmental protection must be observed.
- All work on the oil/air heat exchanger of the ACI product line must be performed carefully and with a focus on 'safety'.
- For installation of the oil/air heat exchanger in a system, the regulations, notes and descriptions in this operating manual must be transferred to the system operating manual.
- Spare parts must be obtained only from HBE GmbH. HBE GmbH does not accept liability for damage resulting from the use of spare parts from other manufacturers.

2.4 TECHNICAL CONDITION

The following must be observed:

- To prevent danger and to ensure optimum performance, no alterations or modifications or conversions must be made to the oil/air heat exchanger.
- The user is obliged to operate the air/oil heat exchanger in a perfect and operationally safe condition. The technical condition must comply with legal requirements and regulations.
- The oil/air heat exchanger must be checked before each start-up of a system in which it is integrated, with respect to damage and proper condition.
- Operating personnel must immediately report to the operator all changes to the oil/air heat exchanger which influence safety.
- The air/oil heat exchanger must be connected only to supply lines intended and designed for the unit.

2.5 SAFETY NOTES FOR TRANSPORT

The following must be observed:

- During transport, the unit components must be secured in accordance with the regulations for the means of transport used. Improperly secured parts result in the risk of injury!
- Unauthorized transport work is not permitted. These can result in considerable risks and damage to material!
- Transport work must be performed only by properly trained and instructed personnel.

2.6 SAFETY REQUIREMENTS FOR INSTALLATION

The following safety requirements must be observed for installation:

- The oil/air heat exchanger must only be installed by properly trained and instructed specialists.

- Unauthorized assembly or installation work is not permitted.
- The atmosphere during installation / dismantling work must not be inflammable.

2.7 SAFETY NOTES FOR OPERATION

The following safety notes must be observed during operation:

- The air/oil heat exchanger must be fitted with mechanical protection against unauthorized access and contact.
- The oil/air heat exchanger must not be subjected to excess temperature or excess pressure.
- Operational safety of the oil/air heat exchanger must be verifiable at all times.
- During the entire time of operation it must be ensured that operating conditions comply with the intended use of the oil/air heat exchanger.

- If changes to the oil/air heat exchanger, such as e.g. an increase in operating temperature, are detected during operation, the unit must be shut down immediately.
- Work must only be executed on the oil/air heat exchanger when the unit is at standstill.
- A warning sign must be attached to the oil/air heat exchanger, indicating that work is being executed on the unit.
- Welding work must not be executed on the oil/air heat exchanger.

2.8 SAFETY NOTES FOR MAINTENANCE AND REPAIR

Operating malfunctions resulting from inadequate or improper maintenance can cause high repair costs and long downtimes for the unit.

The manufacturer accepts no liability for improper maintenance and care!

The maintenance intervals are specified in a maintenance plan.

The following must be observed:

- The unit must only be maintained and repaired by service personnel of the manufacturer or specially trained and instructed specialists.
- All maintenance and repair work on the unit must only be executed when the unit is at standstill, in a depressurized state.
- Unintentional re-activation of the unit must be prevented (e.g. by switching off the main power switch). Warning signs must be attached to the main power switch!
- During maintenance and repair work, some protective devices are deactivated. Immediately following the maintenance or repair work, these must again be properly installed and their function checked!

2.9 RESPONSIBILITY OF THE OPERATOR

The hydraulic aggregate is used in the commercial sector. The operator of the hydraulic aggregate must therefore comply with legal duties concerning safety at work. In addition to the safety notes included in this operating manual, the safety, accident prevention and environmental protection regulations relevant for the field of use of the unit must be observed. Special attention must be paid to the following:

- The operator must be familiar with relevant regulations concerning safety at work and must also identify risks in a risk assessment which may result from the specific working conditions at the operation site. He must include these in the form of operating instructions for the operation of the hydraulic aggregate.
- During the entire period of use of the unit, the operator must check whether his operating instructions comply with current regulations, or must adjust them accordingly.

2.10 PERSONNEL REQUIREMENTS

- Before beginning work with the unit, personnel must be instructed in the risks involved in handling oil/air heat exchangers.
- Risk of injury can result from the operation of the oil/air heat exchanger by persons not trained in its use.
- Every person assigned to start up, maintain or repair the oil/air heat exchanger must have read and understood the entire operating manual. This also applies when the respective staff member has already worked with or been trained to work with the oil/air heat exchanger.
- The operating manual must be available to the personnel at all times. We recommend maintaining a list which each person who has read the operating manual signs, indicating they have understood the contents of the manual.
- The operator or personnel authorized by the operator, who according to their duties are concerned with handling the oil/air heat exchanger, is responsible for accident-free operation of the unit.

In order to ensure safe operation of the heat exchanger, personnel is obliged to observe the following:

- Smoking, eating and drinking in the area of the oil/air heat exchanger are not permitted.

- The operator must clearly regulate and define responsibilities for installation, operation, maintenance and cleaning.
- The operator must ensure that all staff handling the hydraulic aggregate have read and understood these instructions. In addition, he must train his staff at regular intervals and inform them of risks. Instructions provided by the operator are to be recorded.
- The operator must provide his staff with protective work clothing required.
- The operator must ensure that the maintenance intervals specified in these instructions are observed.
- The operator must have all safety facilities checked regularly for functionality and completeness.

- Working on the oil/air heat exchanger in a state of fatigue or when under the influence of alcohol or medicine is not permitted.
- Personnel must not have any physical disability which temporarily or permanently limits their capacity for attention and judgment.
- Personnel must wear protective job clothing, protective gloves and, if required, protective goggles and protective respiratory equipment, in accordance with the respective work to be executed.
- All safety notes in this operating manual and in all additional documents must be observed and followed at all times without restriction.
- On identifying risks that could lead to personal injury, the system in which the oil/air heat exchanger is integrated must be immediately shut down.
- Personnel must have well founded knowledge of the following operating procedures, regulations, behavior and components:
 - Operating procedures for the unit
 - Boundaries, securing and marking of the danger area
 - Behavior and measures required in case of danger



ATTENTION

The regulations and EU directives of the respective manufacturer with respect to storage, handling, use and disposal must be observed for all lubricating and process materials used, as well as cleaning agents.

When handling process materials and cleaning agents, the following must be observed:

- No materials must be used for which the properties are unknown. If necessary, contact the manufacturer.
- Lubricating and processing materials, cleaning agents and their containers must not be disposed of as conventional waste or penetrate into sewage or the ground. Disposal must be in exact compliance with the respective regulations.
- The regulations on the safety datasheets for handling the approved cleaning agents must be observed. This includes introducing the following measures:
 - Clean affected parts of the body with water and soap.
 - Rinse the eyes at least 10 minutes under running water and seek the advice of a doctor if required.
 - If vapors are inhaled, administer fresh air or oxygen and seek the advice of a doctor.

2.12 SECURING AGAINST RE-ACTIVATION



DANGER

Danger to life from unauthorized re-activation!

When working in the danger area there is a risk of the energy supply being re- activated.

This results in danger to life in the danger zone. The following must be observed:

- Observe the instructions concerning securing against re-activation.
- Observe the following procedure to secure against re-activation:

1. Switch off the energy supply.
2. Secure the main switch with a lock and attach a clearly visible warning sign to the switch. The key should be safeguarded by the staff member specified on the warning sign.
4. After work has been completed, it must be ensured that no persons are in the danger zone.
5. Make sure all safety facilities are installed and functional. Only then may the warning sign be removed.
6. Secure the main switch with a lock and attach a clearly visible warning sign to the switch. The person specified on the sign must safeguard the key.



Switch with lock secured on:

..... at (time)

DO NOT SWITCH ON

The lock may only be removed by

.....

after it has been confirmed there are no persons in the danger zone.

3. If a switch with lock is not available, a warning sign must be attached.



Switch off on:

..... at (time)

DO NOT SWITCH ON

Power must be switched on by

.....

after it has been confirmed that no-one is in the danger zone.

2.13 TYPE PLATE

The following type plate is on the oil/air heat exchanger:

HBE hydraulic components	
Type	ACI-11-400V-4-0-0-0-0
Part no.	11003
Motor power	0,18 kW
Input voltage	400 V
Ts max.	120 °C
max. perm. pressure	2,5 Mpa
Project no.	23-61287-01
Date	23.10.2023
Weight	22 kg
HBE GmbH, Hönnestraße 47, DE-58809 Neuenrade	

3. TECHNICAL DESCRIPTION

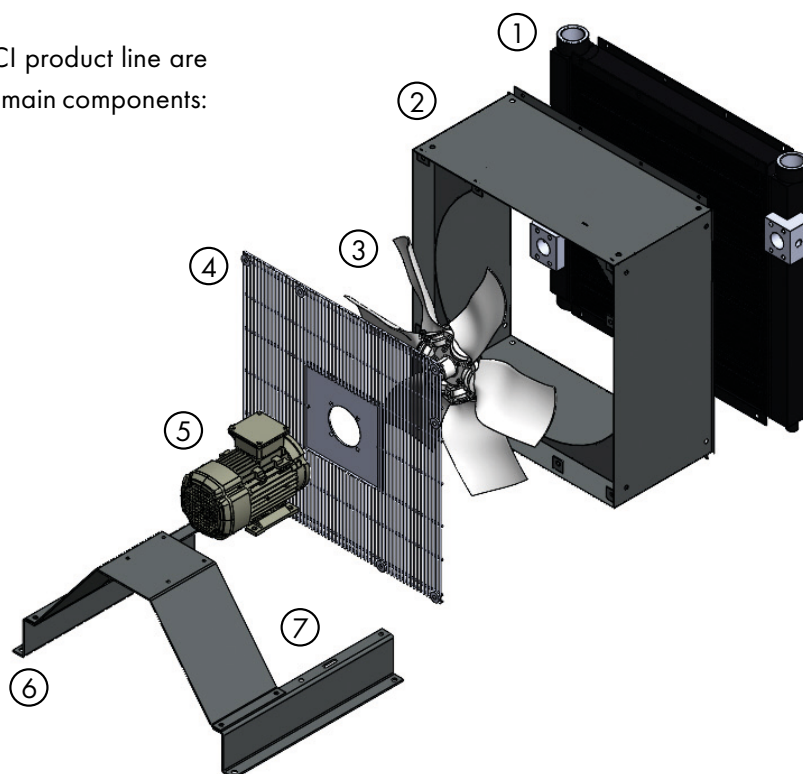


NOTE

Technical data and performance characteristics for the individual heat exchangers are described in detail in the datasheet of HBE GmbH.

The oil/air heat exchangers of the ACI product line are essentially comprised of the following main components:

- 1 Cooler block
- 2 Fan housing
- 3 Axial fan
- 4 Protection grid
- 5 Electric engine
- 6 Mounting brackets
- 7 Support of electric engine



The housing, support and mounting brackets are made of sheet steel and coated with paint (RAL 7012).

The protective grating is also made of steel and corresponds to blue chrome diffusion.

The electric motor is a multi-range motor. It can be driven with 50 Hz and 60 Hz.

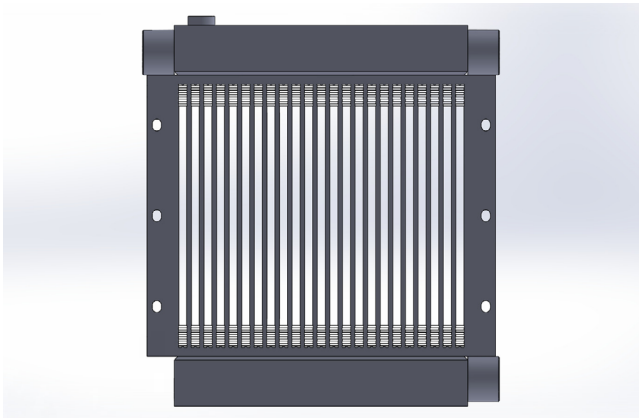
The following designs are available:

- 2 pole = 3000 min⁻¹
- 4 pole = 1500 min⁻¹
- 6 pole = 1000 min⁻¹
- 8 pole = 750 min⁻¹



NOTE

Motor power, rated current and speed of the multi-range motors are described in detail in the datasheet of HBE GmbH. This information can also be found on the identification plate of the motor.



The fan impeller is made of PPG. It is attached to the motor shaft.

The cooling packet is a compact body. It is comprised of superimposed square- shaped hollow aluminum sections. Between the individual layers are aluminum lamellae. These increase the cooling surface.

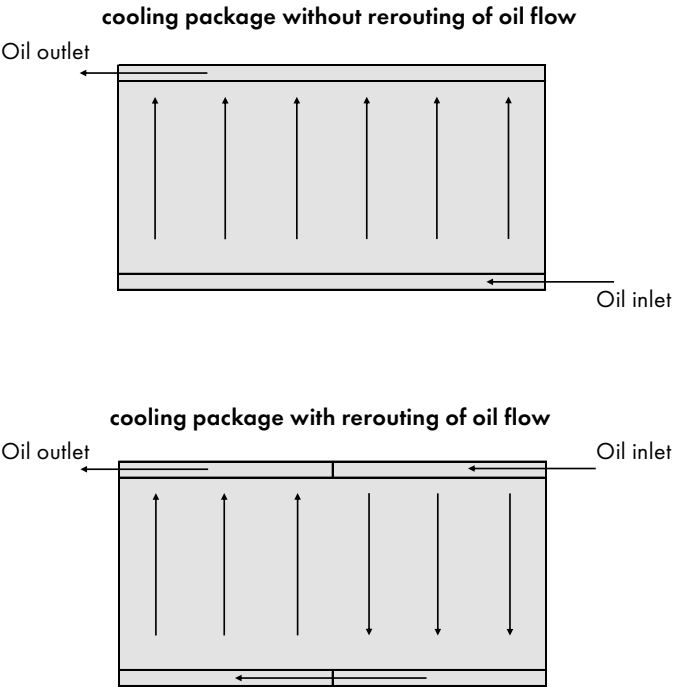
The medium to be cooled (hydraulic oil or lubricating oil) flows through the hollow sections of the cooling packet.

The electric motor with fan impeller generates the cooling air, which is then transported transversely to the cooling packet by the lamellae. The medium dissipates the heat to the cooler environment, and is discharged.

The cooling package is available in two different de-signs:

- cooling package without rerouting of oil flow
- cooling package with rerouting of oil flow

The following diagram illustrates the difference.



4. TRANSPORT AND STORAGE



DANGER

Danger of injury due to improper transport. The total mass of the complete oil/air heat exchangers of the ACI series can be up to 157 kg. Transport must only be executed with sufficiently dimensioned lifting equipment and lifting accessories, in accordance with DIN 15003 „Lifting Equipment; Load Suspension Equipment, Loads, Forces, Terms“ and the On-the-Job Safety and Health Regulations of the Social Insurances against Occupational Accidents (BGV D8).



ATTENTION

Warning of possible damage to sealing surfaces.
During transport make certain that the sealing surfaces of the connection flanges are not damaged.



ATTENTION

Warning of possible damage to the cooling packet and protective grating.
During transport and storage make sure these components are not damaged or bent.



NOTE

Danger of contamination due to preservative agents.
When using preservative agents, these may not penetrate into the ground or the sewage.
These must be disposed of in accordance with applicable environmental regulations.

For the transport of the oil/air heat exchanger, lifting and transport points are provided. Only suspend the

heat exchanger on the lifting equipment from these positions.



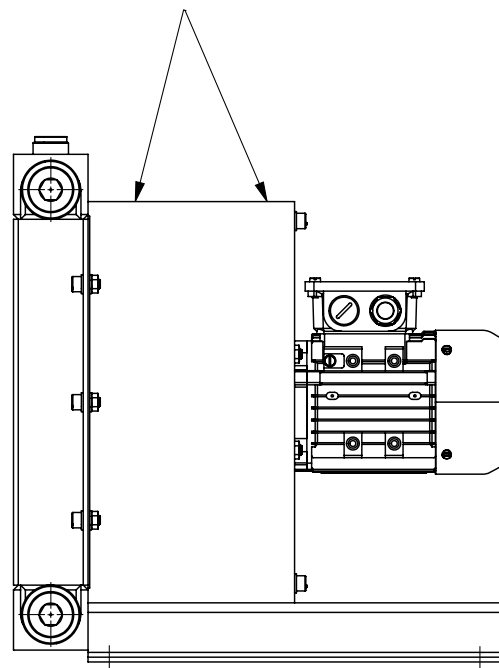
ATTENTION

The center of gravity of the heat exchanger can change according to the diversity of variants.
During lifting, the heat exchanger can vibrate and cause injury to transport personnel.

Further transport is made in cartons or on wooden pallets, depending on the weight. All openings on the heat exchanger must be closed off with plugs.

When storing the oil/air heat exchanger, ensure that all connections are closed off with plugs. Protect the heat exchanger with a preservative agent (e.g. anticorrosive oil) against corrosion. The heat exchanger must not be stored for a period exceeding two years. Before installing, remove the preservative agent.

Lifting and Transport Positions



5. INSTALLATION / DISMANTLING

5.1 INSTALLATION



DANGER

Danger of injury.

Before installing the heat exchanger, shut down the entire system and secure against unintentional re-activation.

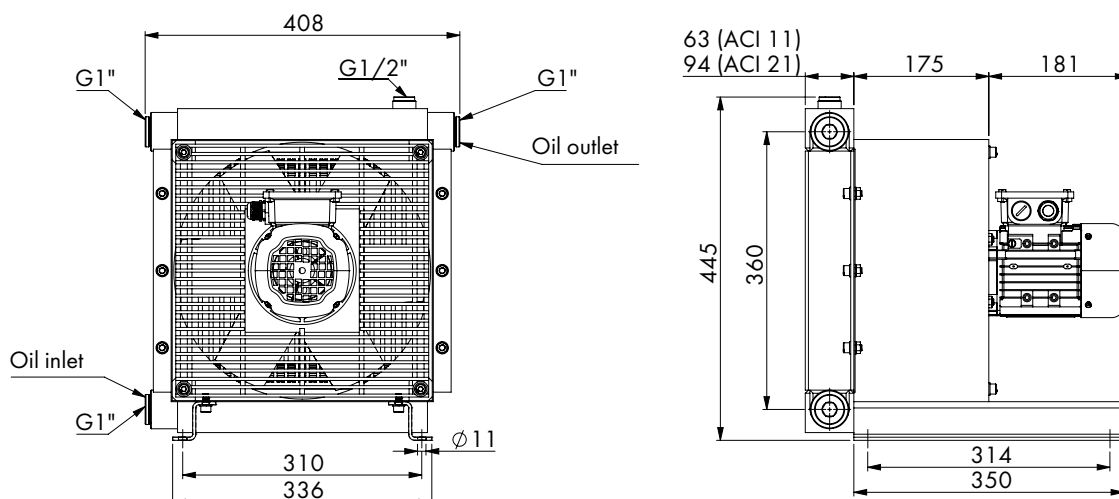
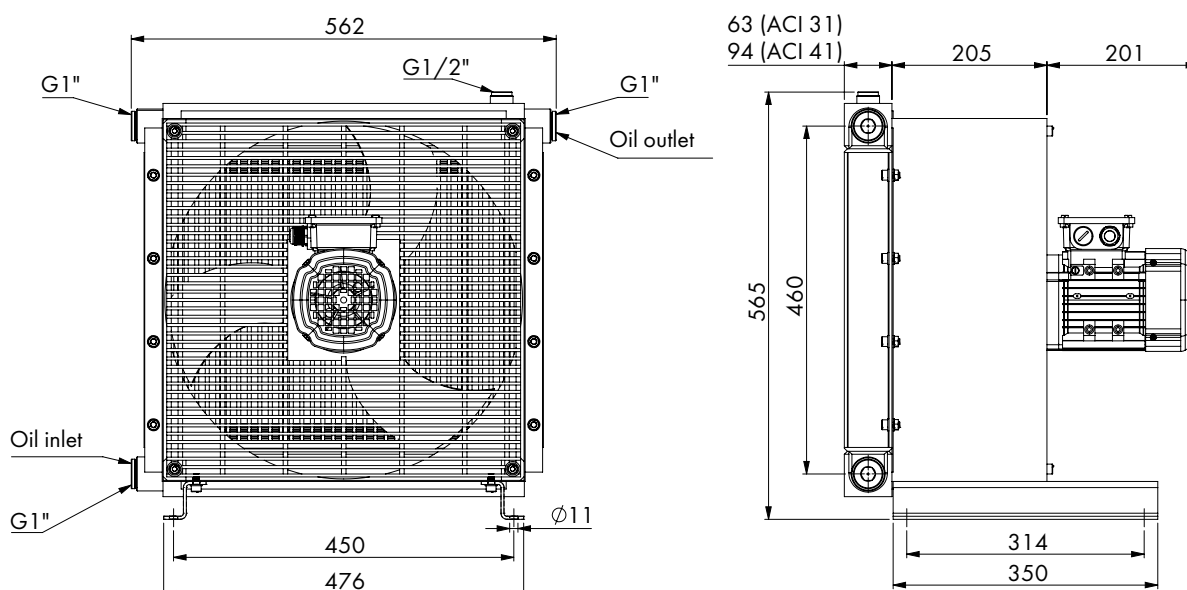


ATTENTION

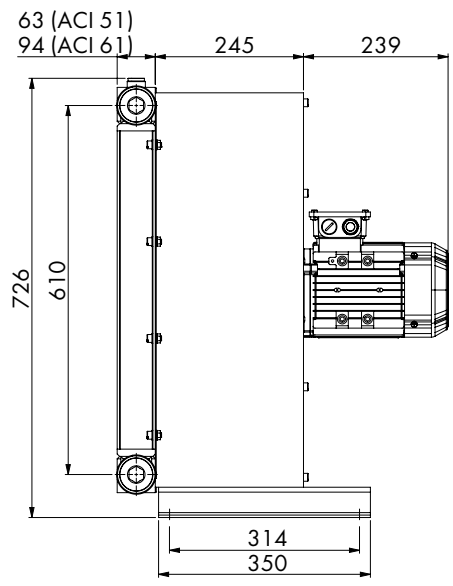
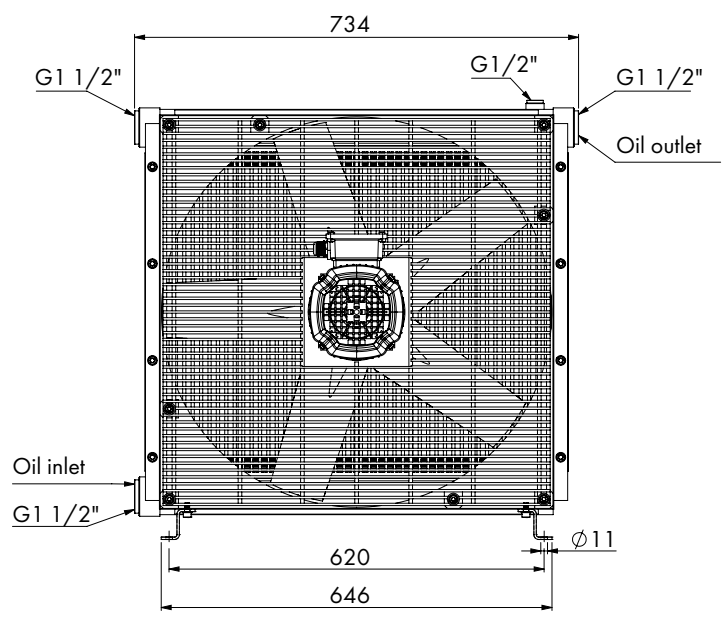
The installation site must be chosen so as to ensure unimpeded air supply and exhaust. In front of and behind the heat exchanger, the distance from air flow obstructions must be at least half the height of the cooler. Avoid disturbing noises and warm air escape.

Procedure:

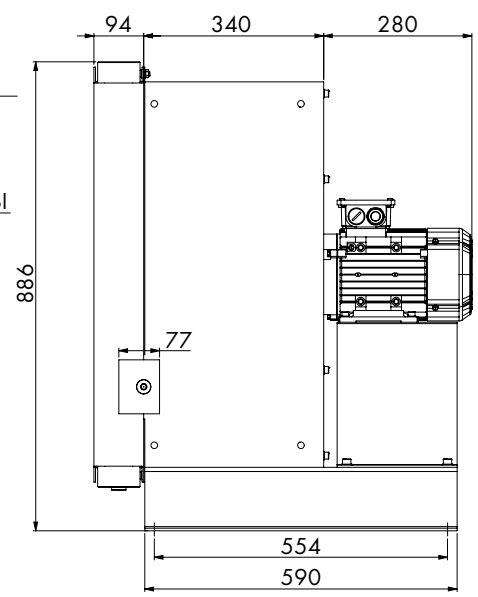
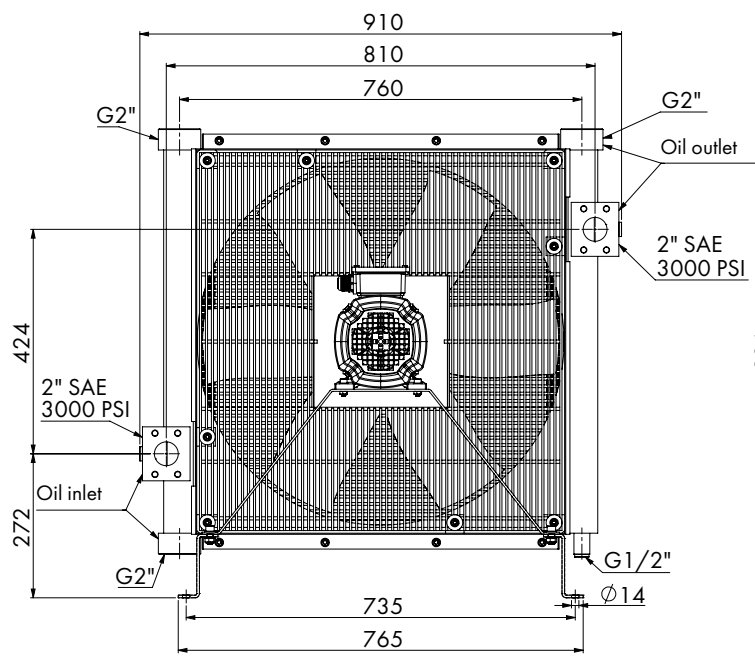
1. Set the oil/air heat exchanger onto a firm supporting surface.
2. Mark the bore holes for attachment to the supporting surface according to the following dimensional drawings.

ACI-11/ACI-21**ACI-31/ACI-41**

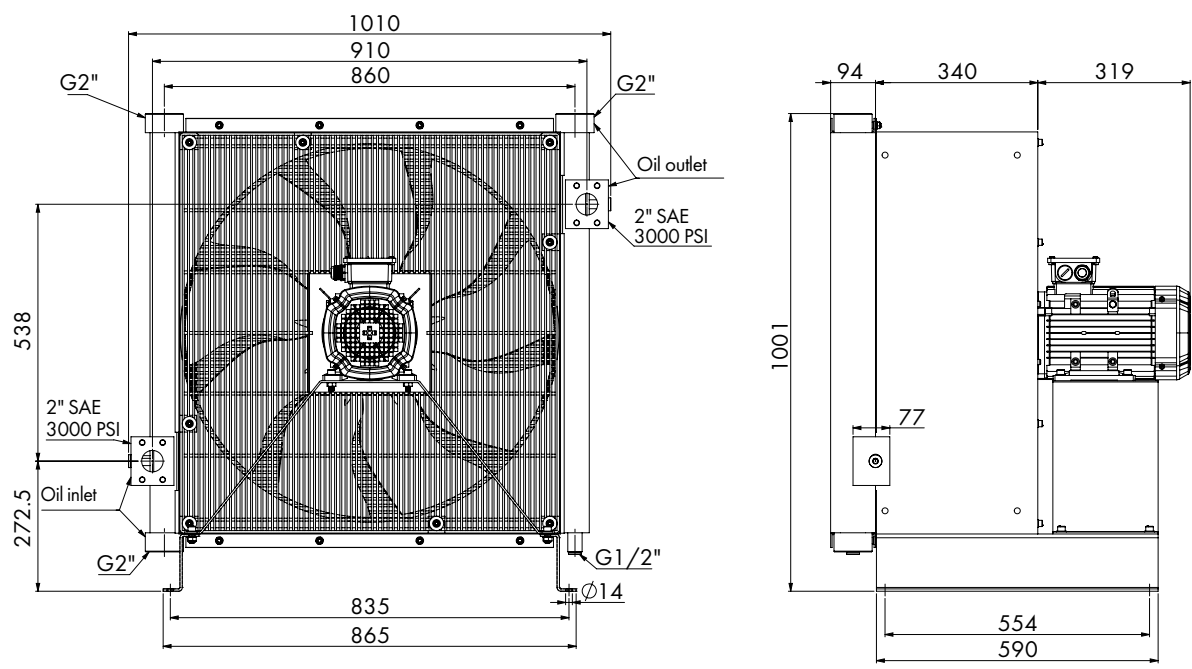
ACI-51/ACI-61



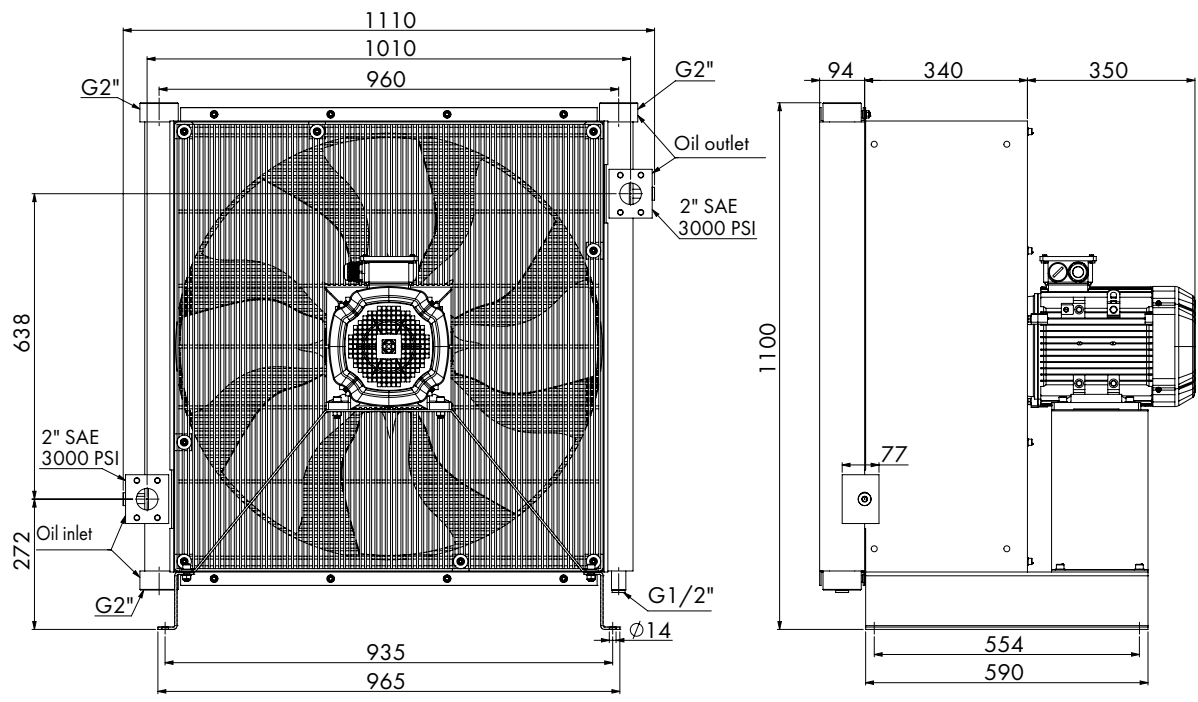
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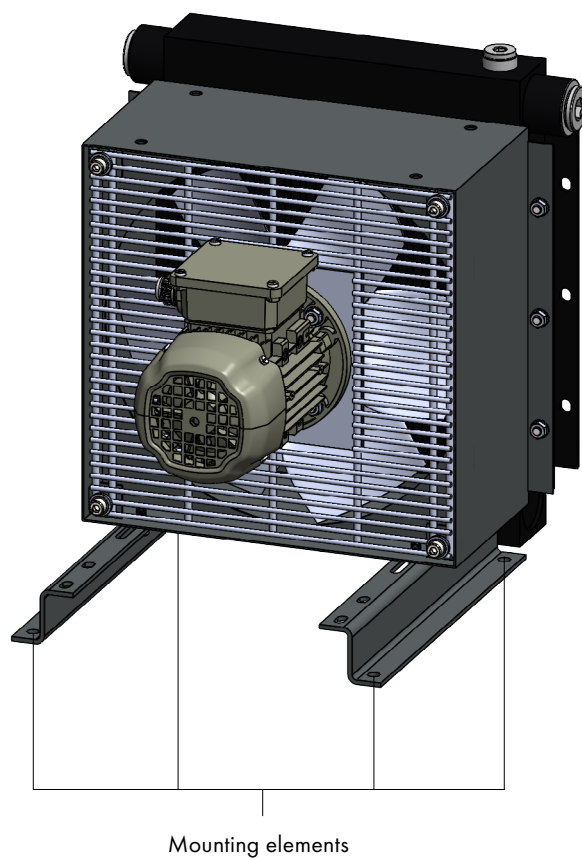
ACI-81



ACI-91



4. It is not permitted to fasten to the borings of the cooling packet.



5. Connect the oil inlet and outlet lines Line design not rigid, use tubes or compensators.

**ATTENTION**

Make certain not to confuse the oil inlet and the oil outlet. For the heat exchangers of the ACI series, the oil inlet always at the bottom.

**ATTENTION**

For the connection of the oil lines, check whether the heat exchanger is equipped with a single-flow or a dual-flow cooling packet.

**ATTENTION**

Avoid cracking due to improper tightening of the attachment screws for the connecting flanges. The screws must be uniformly tightened cross-wise in alternating sequence.

6. Connect the electric motor as illustrated in the terminal diagram. (observe VDE 0165)

**DANGER**

Danger of injury due to electric current!

Only trained specialists may perform electrical work!

**ATTENTION**

Depending on the respective type, the oil/air heat exchangers have electric motors with different power ratings.

An electrical specialist must therefore select the correct power cable and fuses.

7. Fill the unit with hydraulic oil.

8. Ventilate the complete system.

9. Switch on the electric system.

10. Check functionality by briefly activating the electric motor. Observe the direction of rotation specified. Refer to direction of rotation arrow.

**ATTENTION**

The electric system supplying the electric motor must be protected against lightning and excess voltage.

5.2 DISMANTLING**DANGER**

Danger of injury!

Before dismantling the heat exchanger, shut down the electrical system and secure against unintentional re-activation.

Interrupt the hydraulic circuit. There must be no further pressure build-up!

**DANGER**

Danger of burn injuries!

Touching the heated components (e.g. feed lines) of the heat exchanger and draining the hydraulic oil can cause burn injuries. Before dismantling the heat exchanger, allow the components and the hydraulic oil to cool down.

**DANGER**

Risk of injury!

Before dismantling, the heat exchanger must be secured against falling using sufficiently dimensioned lifting equipment and lifting accessories.

**NOTE**

Environmental contamination!

The hydraulic oil drained off must not penetrate into the sewage or the ground. It must be collected in secured containers and disposed of in accordance with relevant environmental regulations.

Procedure:

1. Shut down the electrical system and secure against unintentional reactive action.
2. Depressurize the hydraulic oil line.
3. Allow the system to cool down.
4. Drain off the hydraulic oil.
5. Unscrew the tubing from the connection flanges and close off the openings.
6. Disconnect the power cable from the electric motor.
7. Loosen the attachment screws for the heat exchanger.

6. OPERATION



ATTENTION

Before initiation, carry out the following checks:

- The entire unit must be free of foreign objects.
- The media must be properly connected.
- No objects may project into the fan impeller.
- There may be no objects (e.g. paper, wash cloths, etc.) in front of the cooling surface.
These would reduce the cooling capacity.

- Remove all objects from beneath the heat exchanger and the immediate vicinity.
- All valves and other components must be open.

After installation and carrying out the aforementioned checks, the heat exchanger can be initiated without need for any further preparatory measures. Following initiation, check the heat exchanger for correct functioning.

Carry out the following checks:

- Check the connections for proper sealing.
- Ensure free passage.
- Check the function of the heat exchanger.
- Ensure the correct direction of rotation of the electric motor with the fan impeller.



DANGER

Risk of injury due to rotating fan impeller!

While the unit is running, do not reach into the protective grating.



ATTENTION

To prevent inadmissible thermo-electric forces on the oil cooler, the oil cooler must be operated in an ambient temperature range of -20°C to 40°C. The temperature difference between cooling packet temperature and fluid must not exceed 60K. This must be especially observed on start-up.



NOTE

If malfunctions occur during operation, which cannot be immediately eliminated, please contact HBE GmbH.

The service life of a heat exchanger depends largely on the quality of the medium. The operator is responsible for defining maintenance intervals.

The performance parameters determined during ongoing operation are decisive for this.



ATTENTION

Maintenance intervals must be defined so that a loss of performance of the heat exchanger does not influence operation.

The following components are to be serviced and cleaned in accordance with the following maintenance plan:

Component	Measure	Maintenance interval
Outer housing, including feet	Removal of corrosion damage	continuously
Inner housing	Removal of corrosion damage	continuously
	Removal of contamination drawn in by the fan impeller	at appropriate intervals
Fan impeller	Removal of contamination drawn in by the fan impeller	at appropriate intervals
	Checking for jamming of motor shaft	at appropriate intervals
Protective grating	Removal of corrosion damage	continuously
	Cleaning	continuously
Electric motor	Take apart electric motor, clean, replace ball bearings, lubricate	as required
	Check that electrical connections are firmly placed in connector box	at appropriate intervals
	Check strain relief for power cable	at appropriate intervals
Cooling package	Check connection flange for evidence of leakage	continuously
	Clean	continuously

If a complete heat exchanger is worn out, it must be disposed of in accordance with relevant regulations.



NOTE

The complete heat exchanger must not be disposed of as conventional waste. For the disposal of the heat exchanger, observe the exact local environmental regulations.

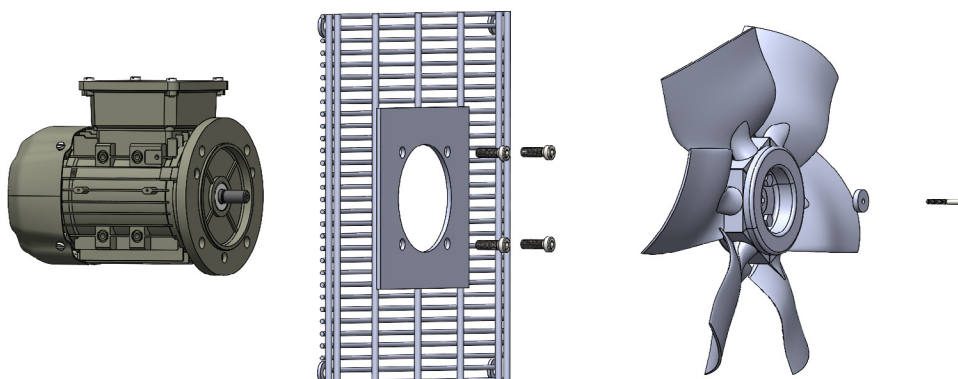
7.1 REPLACING THE ELECTRIC MOTOR

Electric motors must be replaced when the following errors occur:

- Winding of the electric motor burned out (copper or iron short circuit)
- Ball bearings jammed
- Drive shaft defective (out-of-roundness during running).
- Very strong contamination

Procedure:

1. Shut down the electrical system and secure against unintentional re-activation.
2. Unscrew the protective grating with drive unit from the housing and console
3. Loosen the fan impeller from the drive shaft and remove.
4. Disconnect the power cable to the electric motor.
5. Unscrew the electric motor from the grating.
6. Replace the electric motor.
7. Reassemble the oil/air heat exchanger.



NOTE

Exact instructions for handling the electric motor are provided in the manufacturer's operating manual and are not part of this operating manual.

7.2 REPLACING THE COOLING PACKET

The cooling package must be replaced in case of

- Damage to the cooling package (e.g. leakage).
- Noticeable loss of performance
- Strong contamination of the hydraulic oil (can cause clogging)
- Damaged connection flanges

Procedure:

1. Shut down the entire system and secure against unintentional re-activation.
2. Shut off the medium line and depressurize the heat exchanger.
3. Allow the system to cool down.
4. Remove the tubing lines from the connection flanges.
5. Loosen the attachment screws and take the cooling packet out of the housing.
6. Attach a new cooling packet to the housing.
7. Attach the tubing lines to the connection flanges.
8. Ventilate the unit.

7.3 CLEANING THE COOLING PACKET

The cooling packet of the heat exchanger can be cleaned from inside and outside. The cleaning intervals must

be defined so that a loss of performance of the heat exchanger does not influence operation.



ATTENTION

Danger of destruction of heat exchanger components.

Contact HBE GmbH regarding the type and use of cleaning agents in order to avoid damage caused by incorrect treatment.



NOTE

Danger of contamination resulting from cleaning agents.

With regard to the use of cleaning agents, make certain that these are never disposed of improperly. For disposal, the respective local environmental regulations apply.

8. INFORMATION ON ORDERING FOR CUSTOMERS

Customers can choose the required oil/air heat exchanger of the ACI series according to the following key.

ACI - 31 - 400 - 4 - 0 - 0 - 0 - 0									
Cooler series ACI = cooler for industrial application								Additional options** 0 = without 1 = internal bypass-valve	
Cooler size 1 2 3 4 5 6 7 8 9 10								Mounting options 0 = standard: feet mounted 1 = horizontally mounted with special bracket	
Versions 1 = 1-pass 2 = 2-pass								Air flow direction 0 = suction air flow 1 = blowing air flow	
Input voltage 400 = 400 Volt AC								Mounting position of cooler block 0 = standard 1 = turned 90° clockwise* 2 = turned 180° clockwise	
								Engine revolution 2 = 2 pole / 3,000 min ⁻¹ 4 = 4 pole / 1,500 min ⁻¹ 6 = 6 pole / 1,000 min ⁻¹ 8 = 8 pole / 750 min ⁻¹	

* possible with ACI-71/-81/-91/-101 ** additional options on request



Oil-air cooler series ACI

Operating and assembly instructions

EC declaration of incorporation

in accordance with the EC Machinery Directive 2006/42/EC dated May 17, 2006, Appendix II B

The manufacturer,

HBE GmbH
58809 Neuenrade
Hönnestrasse 47
Germany

declares that the product

oil-air cooler, series ACI

described in this operating and assembly instructions is an incomplete machine according to the Machinery Directive 2006/42/EC.

The above mentioned product is only intended for installation in a machine and therefore does not yet fully comply with the Machinery Directive. Commissioning of the oil-air cooler is prohibited until it has been determined that the machine in which this product is installed complies with all the essential requirements of the Machinery Directive 2006/42/EC.

The oil-air cooler meets the requirements of the following standards and regulations:

Machinery Directive	2006/42/EC
Electromagnetic compatibility	(EMC) 2014/30/EU
Low Voltage Directive	(LVD) 2014/35/EU
Pressure Equipment Directive	(PED) 2014/68/EU
Safety of machinery	DIN EN ISO 12100

Neuenrade, March 29, 2022

signed by

Detlef Lengelsen, Managing Director

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