



AKG - Cooling Systems Setup and Operating Instructions

Form Number:

IM-1

Reference:

Phone: 919-563-4871

Catalog Section:

Applications

Page Number:

1 OF 4

Fax: 919-563-4917

Effective Date:

7/17/2006

Supersedes:

1 GENERAL SAFETY INFORMATION

1.1 Specification

Never exceed the maximum allowable temperature or pressure ratings.
Never exceed the published maximum allowable flow rate.
Be sure the system pressure is relieved prior to opening the cooler.
Disconnect the electrical power before servicing.
The fluid being cooled should be compatible with Aluminum.

1.2 UNPACKING

Prior to installation, unpack the unit and check for loose or missing pieces. Minor damage to the cooling fins can be corrected by gently bending them straight. Caps should be removed from the fluid connections and a visual inspection performed to check for any debris or corrosion that may have occurred during storage or shipment.

1.3 STORAGE

Product should be stored in a dry area that has a constant temperature. Temperature changes in the storage area cause condensation to form inside the heat exchanger. This condensation then causes corrosion which causes product failure. This failure is not covered by the guarantee. If this criteria cannot be met, the cooler should be stored in a sealed plastic bag with desiccant added to absorb the moisture.

Storage term:

6 Months: No specific internal corrosion protection procedures are required. All openings should be sealed with plastic plugs

7-24 Months: Coolers should be flushed with oil and all openings re-sealed with plastic plugs.

25+ Months: Coolers should be completely filled with oil and sealed. These coolers should be flushed, inspected and re-sealed every 24 Months.

2 INSTALLATION & MOUNTING

2.1 Place of installation

The place of installation should be chosen in such a manner as not to interfere with the functional cooling. Cooling air shall flow in and out freely. Re-circulation of warmed air must be avoided.



AKG - Cooling Systems Setup and Operating Instructions

Form Number:	IM-1	Reference:
Catalog Section:	Applications	Page Number: 2 OF 4
Effective Date:	7/17/2006	Supersedes:

2.2 Mounting in closed area

If mounted in a closed area, sufficient ventilation must be provided. Heat transfer from the cooling system to ambient air may not increase room temperature. If these conditions are not met, air ducts have to be installed between cooling system and the outside to provide sufficient ventilation.

2.3 Outdoor mounting

Installation outdoors results in high efficiency for cooler installations with high capacity. In this case electric motors must be protected against the weather. Oil type coolants, standing in coolers at low outside temperature, can become highly viscous. When coolant flow is started at low temperatures the increased viscosity may cause high-pressure peaks exceeding the permissible range. Therefore, a temperature controlled by-pass valve must be provided or, as an alternative, an additional coolant heating system with continuous thermostatically controlled coolant circulation may be installed.

2.4 Mounting in Dirty ambient conditions

Care should be taken to select a location that has reasonably clean cooling air. Dirty air will result in dirt deposits on the cooling surfaces causing reduced cooling efficiency. Therefore, in dusty or thick-oil bearing environments, regular cleaning must be provided.

2.5 Manner of Mounting

Mounting is usually vertical by means of existing legs or mounting brackets. The cooler should be securely mounted to avoid injury. Pertinent precautionary measures must be carefully observed. During installation and operation please make sure that the cooler is mounted without pre-stressing it. All piping must be properly supported to prevent strain to the cooler. Pipe sizes should be based on the oil flow and pressure drop requirements, not the oil coolers connection size. Where excessive vibration may be a concern, flexible connectors should be used to eliminate stress.

2.6 Electrical connection

Certified electrician should comply with all local codes. The fan motors should be connected to a power supply that matches that of the motor nameplate. Voltage may vary 10% of nameplate or voltage. Be sure to provide proper fusing to prevent possible motor burnout.

2.7 Start-up

The fan blade should be spun by hand prior to hookup to make sure it has proper clearance. Check fan air flow to be sure it matches the directional arrow on the unit. Make sure oil connections are properly sealed. Check for blockage to the air supply.



AKG - Cooling Systems Setup and Operating Instructions

Form Number:	IM-1	Reference:	
Catalog Section:	Applications	Page Number:	3 OF 4
Effective Date:	7/17/2006	Supersedes:	

Phone: 919-563-4871

Fax: 919-563-4917

2.8 Purging lines

Cooling units require purging of air.

2.9 Circuit connection

In hydraulic systems and also in intermittent operation lubricant oil systems peak pressures may arise well in excess of the permissible operating pressure. Due to the short duration, they are traceable only by an oscilloscope. In such cases, as a precautionary measure and for reasons on long-term reliability, a separate cooling circuit should be provided as shown in figure 1. Experience has proven that spring loaded excess pressure valves are often not sufficient for reducing spikes and intermittent pressure peaks.

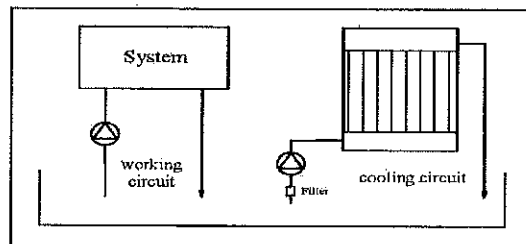


Fig. 1: Cooler installation as separate circulation system

3 PRECAUTIONARY MEASURES

Coolers under pressure or hot coolers must not be opened.
Do not touch area behind guard. A rotating fan could cause injuries. Remove guard only after electrical disconnection.
Please make sure that published limitations of operation are not exceeded, and that mechanical stress, vibration, and tensions are avoided.

4 CHECKS

If required coolant temperature is not attained after start of operation, or if the temperature gradually rises during operation, check for the following:

1. Speed and direction of fan
2. Electrical connection
3. Coolant quantity
4. Cooling air in and out flow
5. Soiling condition of cooling surface
6. Entering temperatures of cooling air and coolant

Deviations from given installation data, obstacles to coolant or coolant air flow, or soiling of cooling surfaces are causes of inefficient cooling. Such deviations must be eliminated for safety and proper cooling function.



AKG - Cooling Systems Setup and Operating Instructions

Phone: 919-563-4871	Form Number: IM-1	Reference:
Fax: 919-563-4917	Catalog Section: Applications	Page Number: 4 OF 4
	Effective Date: 7/17/2006	Supersedes:

5 MAINTENANCE

AKG cooling systems require no particular maintenance. However, in operation with heavy soiling, regular cleaning must be carried out. Be sure to disconnect the power supply prior to servicing. Inspect the product regularly for corrosion, and dirty or clogged heat transfer surfaces.

- 5.1 External Cleaning of Air Side: This can be done by either washing the cooler with a mild cleaner (compatible with aluminum), or with compressed air. A power spray washer works well. Care should be taken not to damage the fins. The direction of stream shall be parallel to the fins in order not to damage. Cooler needs to be dried completely before restarting operation.
- 5.2 Internal Cleaning of Coolant Side: The cooler should be disconnected, and a suitable cleaning agent used for removing the type of deposit, yet safe on aluminum should be circulated through the cooler until clean. After cleaning procedure, the cleaning medium shall be completely drained and blown out by means of compressed air.

6 Product Warranty

All heat transfer products manufactured by AKG Thermal Systems, Inc are guaranteed against defective material or workmanship for one year of service after purchase by validated end user or 2000 hours service, which ever comes first. Warranty will not apply after 24 months from original ship date from AKG Thermal Systems, Inc. Warranty for components such as fans, motors, and other components when used on an AKG Thermal Systems, Inc. product will be provided by component manufacturer. Any product alleged defective under the warranty period must be returned to AKG Thermal Systems, Inc unless otherwise specified by AKG Thermal Systems, Inc. Transportation charges are to be prepaid by the customer, unless previously agreed by AKG Thermal Systems, Inc. Warranty consideration is subject to factory inspection. AKG Thermal Systems Inc. is not responsible or liable for products damaged through carelessness or abuse. Careful inspection of products should be made by the customer before returning to AKG Thermal Systems, Inc for warranty. If factory inspection proves any parts defective, repair or replacement of defective parts will be made without charge to the customer. Transportation charges will be prepaid for returning product back to the customer. Liability under this guarantee is limited to the repair or replacement of the defective parts, and shall in no event include consequential damages of any nature. AKG THERMAL SYSTEMS, INC WARRANTY IS "AS IS" AND WILL BE BOUND BY NO OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT THOSE HEREIN SET FORTH. Any attempt at local repairs automatically cancels this warranty. Returned products must be properly packaged. Adjustments cannot be made on any returned product which is damaged in transit due to poor packaging, and a charge will be made to cover cost of repair. If after factory inspection, product is found not to be defective, an inspection and packaging charge will be made and return freight is not prepaid.