



Cooling system audit/maintenance

A framed methodology to keep your MV drive's cooling system healthy

An insightful approach

Cooling system is an integral part of your MV drive system to control the temperature inside the drive cubicle and to maintain the availability and keep the drive healthy. Periodical monitoring and maintenance of cooling system is required to avoid unexpected breakdowns. GE Power Conversion presents an insightful approach for its **water-cooled drives** to monitor and check the health of the cooling system **every 5 years**. Thus, MV drives can be operated within the desired temperature range and with extended lifespan.

How do we do? Here's an overview!

The following inspections will be performed during this audit/maintenance at site.

- **Visual inspection**

Flanged connections, Tri-clamp connections, flexible hoses, hose clamps, fasteners, hydraulic lines, will be tested for leakages, rust/scale formation, tightness.

- **Earthing inspection**

Cooling unit frame, components, pipes, cubicle will be reviewed for proper earthing.

- **Cooling media inspection**

Type of coolant and water, water to glycol ratio, conductivity level and pH level will be studied with recommended range.

- **Major components inspection**

Pump switching, DI cartridge performance, expansion tank pressure, heat exchanger, 3-way valve functioning will be checked.

- **Filter inspection**

Filter mesh will be looked at for clogging.

- **Sensors & gauges inspection**

Flow sensor, leakage sensor, conductivity sensor, pressure sensor, pressure gauge, coolant flow temperature sensor and ambient temperature sensor will be examined.

- **Operational noise inspection**

Noise level will be observed while running.

- **Water pressure test**

Pressurized water will be injected into the cooling system and the pipe connections will be checked. Thus, it helps to detect minute cracks in advance which are hard to identify through visual inspection during your regular maintenance.

Key benefits

- Comprehensive inspection of all parts of cooling system, identification of issues and appropriate recommendations by GE experts to address them proactively.
- Reduced unexpected flashovers due to periodic audit/maintenance.
- Significant savings on OPEX by healthy cooling system.
- Improved availability of the drive system by avoiding unplanned downtime
- Increased lifespan of MV drives due to safe operation of power system components at optimal temperatures.



Cooling system audit/maintenance

A framed methodology to keep your MV drive's cooling system healthy

Have you ever seen a drive failure caused by a cooling system leakage ?

It may require several 100k\$ to repair or replace all damaged parts. Additional spares may not be readily available to fix an unexpected breakdown resulting in unknown down time and increased loss of your production.

Approximate shutdown required for cooling system audit/maintenance

In terms of shutdown the audit requires 1 day resulting in improved availability and increased lifespan for your MV drive system

How does it differ from a regular check and what is the long run benefit to customers?

Unlike a usual check, this is a framed and comprehensive inspection method with appropriate measuring tools to monitor the operating ranges of different components, which enables the customer to understand the current status of their cooling system and to maintain it proactively.

GE's services for a lifetime

GE offers bespoke service support in the form of spares and replacement parts, onsite and remote technical support, maintenance services, upgrades, customized trainings and service agreements aimed at supporting customers based on their unique needs.

Maintenance recommendations

Based on supplier information and field experience in different operating environments across the globe, GE recommends to replace the following components as part of your cooling system maintenance (every 5 years) to ensure safe and optimal operation of your drives' cooling system.

- Pump unit
- Expansion tank
- Conductivity and temperature sensor
- Conductivity and temperature transmitter
- Electronic pressure sensor
- Pt100 temperature sensor
- Pressure gauge
- Flowmeter with transmitter
- humidity sensor
- Resign cartridge**

*** Resign cartridge should be replaced based on the conductivity alarm.*

Additionally, we recommend replacing cooling hoses every 10 years.

CONTACT US: services.powerconversion@ge.com