

CUSTOMER DOCUMENT

Preventive maintenance schedule

ACS6000

Overview

The recommended intervals for drive inspection and component replacement are based on the maximum ratings for the operational and environmental conditions.

To ensure the highest reliability and optimum performance of your drive, ABB highly recommends regular inspections by qualified personnel. Such inspections are crucial in detecting performance related issues due to the potential premature aging of components.

ABB drives have been designed to continuously operate for long periods of time between maintenance and inspection intervals. If the recommended maintenance or inspection schedule is inadequate for a specific application, a different schedule can be created through mutual agreement during the sales phase.

For more detailed maintenance information, see the product manuals at:

<http://new.abb.com/drives/medium-voltage-ac-drives>

Legend

I	Inspection (visual inspection and maintenance action if required)
P	Performance of on-site work (commissioning, tests, measurements or other work)
R	Preventive replacement



Regular inspection

The following table contains an overview of the most relevant inspection checks for the drive.

ABB recommends that inspections be carried out whenever the drive has been shut down, i.e., to replace components or for any other field intervention.

Inspection action	Interval [years]	Inspection Type
Filter mats (cleaning or replacement)	2 ¹	I or R
Cleaning of inlet and outlet meshes	2	I
Cleaning of sensitive parts inside the converter	2	I
Environmental and operational data (since last inspection)	2	I
Screwed connections	2	I
Corrosion and overheating	2	I
Pipe joints and water tube connectors	2	I
3-way valve	2	I, P
DC link capacitors (capacity)	2 ²	P
Door interlocking	2	P
Insulation test	4	P
Spare parts	2	I
Software backup	2	I
Safety circuits	2	I

Foot notes:

- 1 Inspection and replacement of filter mats depend on the ambient air quality, i.e. dustiness, humidity. If the filter mat is clogged and the cooling air flow is not high enough, the drive operation is stopped (drive trips). Under normal conditions, a cleaning/replacement interval of 2 years is recommended. In harsh environments, a yearly cleaning/replacement interval might be required.
- 2 First inspection in year 10 and then every second year.

Preventive replacement schedule

The following table highlights the recommended replacement intervals for drive components, starting from the completion date of the commissioning³.

This scheduled can be adapted and optimized for applications that require non-stop operation of the drive over several years. To discuss the available options, please contact your ABB sales representative.

Years from commissioning:	2	4	6	8	10⁴	12	14	16	18
Fans (control part)		R		R		R		R	
Fans (power part)			R			R			R
Conventional water pumps (no redundancy)		R		R		R		R	
Mechanical seal of conventional water pumps ⁵ (no redundancy)	R		R		R		R		R
Conventional water pumps (with redundancy)				R				R	
Mechanical seal of conventional water pumps ⁵ (with redundancy)		R				R			
Deionizer cartridge and micro filter	R	R	R	R	R	R	R	R	R
Pressure sensors					R				
Rubber hoses				R				R	
IFU and EMC capacitors ⁶					R				
PCBA (containing electrolytic capacitors)					R				
Gate unit boards (of IGCTs)					R ⁷			R ⁷	
Power supplies (AUX and insulated supply)					R				
Electrolytic capacitors (auxiliary buffer)					R				
Excitation fuses (if drive is equipped with EXU)					R				
Water cooled clamp resistors in ARU/INU					R ⁸				

Foot notes:

- 3 The start date for the preventive replacement schedule is the commissioning completion date or 2 years after delivery, whichever comes first.
- 4 Due to the shorter life cycle of the control hardware, ABB strongly recommends combining a modernization service (if available) with the 10-year preventive maintenance to ensure further 10 years of spare parts availability of control hardware.
- 5 The mechanical seals in conventional water pumps have a maintenance interval of 2 years, which corresponds to their life expectancy. In the case of pump redundancy, this maintenance interval is doubled, i.e., every 4 years. The replacement of mechanical seals is not required in the years that require pump replacement.
- 6 Since IFU and EMC capacitors are AC capacitors they do not have self-healing technology and, as a result, do not show signs of reduced capacitance over their lifetimes, ABB recommends preventively replacing these components.
- 7 IGCT maintenance interval is depending on the gate unit generation. For older generation, a maintenance interval of 10 years is recommended. The latest gate unit generation requires only 16-year maintenance intervals. In the tailored PM kits, this fact is considered and either 10-year or 16-year interval is recommended.
- 8 The resistor maintenance interval is depending on the ARU/INU design generation. For ACS6000 delivered before 2014 a maintenance interval of 10 years is recommended. Newer ACS6000 are designed for >20 years resistor lifetime.

The drive has been designed for a lifetime of 20 years. However, if the drive is operated according to ABB's instructions in a location where the environment parameters are below the rated limits for the drive, it is also suitable for applications of up to 40 years. In order to guarantee the highest drive reliability during this longer period, a site audit is required 20 years after commissioning to define the specific maintenance actions that need to be taken.

For more information please contact:

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<http://new.abb.com/drives/medium-voltage-ac-drives>