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# Periodic Maintenance

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## BIGCHILLER SCREW COMPRESSORS

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### Air Cooled Water Chillers



# MAINTENANCE CHECKS FOR AIR COOLED AND WATER COOLED WATER CHILLERS

## LEGEND

**L1** = Level 1 maintenance to be done by the operator

**L2** = Level 2 maintenance to be done by the Schneider Electric local team or the partner (if relevant)

**L3** = Level 3 maintenance to be done by the Schneider Electric local team

## DAILY CHECKS

DESCRIPTION	TYPE
Check the status of the alarms (historical events)	L1
Check the correct functionality of the local/remote user terminal	L1
Check for possible water leaks from the heat exchangers, hydraulic manifolds	L1
Check that the water temperature set-point is achieved	L1
Check the water IN/OUT pressure on the feeding pipe works	L1

## MONTHLY CHECKS

DESCRIPTION	TYPE
Repeat the previous checks	L1
Check and clean the condenser fans from dirty deposit	L1
Check and report the Inlet/Outlet water temperature	L1
Check noise and anomalous vibration of the pumps/compressors	L1
Check the status of the free-cooling hoses (degradation/swelling pressure/slipping phenomena/presence of cuts)	L1

## THREE-MONTHLY CHECKS

DESCRIPTION	TYPE
Repeat all previous checks	L2
Check the main power supply	L2
Check the mechanical seals of the pumps and water leakage	L2
Check and report the electrical absorption of each compressor and compare it with its design value (report on the label)	L2
Check and report the compressors run hours and on/off	L2
Check and report the pumps (free cooling included) run hours	
Check and report the electrical absorption of each pump and compare it with its design value (report on the label)	L2
Check and report the electrical absorption of the fans	L2
Check and report the water temperature drop between inlet/outlet of the evaporator	L2
Check that the sight glass on the liquid line is without any bubble and dry	L2

Check and report the water flow value (if water flow meter is installed)	L2
Check and eventually clean the metallic filters (protection of condenser exchangers)	L2
Check and report the IN/OUT water pressure (display) if pump VFD installed	L2
Check the oil level on the crankcase of the compressors	L2
Check and report discharge & suction pressure/temperature and ambient temperature	L2
Check and report the superheating of the refrigerant at the suction of the compressors	L2
Check and report the sub cooling of the refrigerant at the expansion valve inlet	L2
Check and report the refrigerant temperature at the compressor discharge	L2
Check the activation of ECO (if present)	L2
Clean the unit internally and externally	L2
Check and eventually clean the water strainer	L2
Check and clean with blow a low-pressure compressed air across the fins or use a soft bristle brush (or both) the condenser coils	L2

<sup>A</sup> The frequency of the cleaning depends from the environmental pollution.

## SIX-MONTHLY CHECKS

DESCRIPTION	TYPE
Repeat all previous checks	L2/L3
Check the proper activation of the water flow switch	L2/L3
Check the electrical absorption of the crankcase heaters (if present)	L2/L3
Check the status and the cleaning of the electrical panel and the internal control devices	L2/L3
Check the tightening of the screws for the main power devices	L2/L3
Check the status of all electrical contacts, terminals, relays and automatic switches	L2/L3
Check the tightening of the flanges and joints of the hydraulic circuits	L2/L3
Check the tightening of the valves and all caps of the refrigerant circuit	L2/L3
Perform a leakage test with electronic leak detector*	L2/L3

\* To be part of the F-gas certification not included

## ANNUAL CHECKS

DESCRIPTION	TYPE
Repeat all previous checks	L3
Check the calibration of the motors (thermal) electrical protections	L3
Check the intervention of High/low pressure switches	L3
Check compressor motor winding isolation	L3
Check the correct functioning of the unit at partial loads	L3
Check the levels, status, fixing and vibrations of the compressors	L3
Check the glycol percentage inside the water circuits (if used)	L3
Check the PH and perform chemical analysis of the water	L3
Check the antifreeze calibration (if no glycol used)	L3
Conduct an oil analysis to determine the acidity	L3

Check and perform (if needed) the calibration of the temperature sensors and pressure transducers	<b>L3</b>
Check LAN addresses and settings (if present) and simulate a time-based rotation and a rotation in case of alarm (if a stand-by unit is present)	<b>L3</b>
Check the proper settings of HW & SW parameters (default values)	<b>L3</b>
Check the functioning of ULTRACAP accessory (if present)	<b>L3</b>
Perform the software upgrading (if a new release is available)	<b>L3</b>
Tuning of sensible parameters in order to match the best working conditions	<b>L3</b>
Check the tightening torque of all electrical connections of ATS and test it in a full operating cycle (I-0-II-0-I: Auto and Manual)	<b>L3</b>
Check and clean with low water pressure the condenser coils <sup>B</sup>	<b>L3</b>

<sup>B</sup> Use a mild detergent (PH factor between 5 to 9) and water.

## FIVE-YEARLY CHECKS

DESCRIPTION	TYPE
Repeat all previous checks	<b>L3</b>
Check and, if necessary, replace the dryer filters cartridges	<b>L3</b>
Check and, if necessary, replace the compressor oil (if present)	<b>L3</b>
Check and clean the evaporator chemically (air cooled units)	<b>L3</b>