



# GENERAL MAINTENANCE OF LV3

Helps in reducing your maintenance cost and preventing unplanned outages

## DO YOU HAVE LV3 AND THE BELOW QUESTIONS?



Is it your goal to reduce your OPEX and unexpected breakdowns?



Do you wish to increase the performance of your LV3 by understanding its status?



Are you looking for replacement parts and optimized inventory?

Then, Plan your maintenance and choose it from Power Conversion’s structured and comprehensive maintenance programs.

## AVAILABLE MAINTENANCE PROGRAM PACKAGES

### PERFORMANCE MAINTENANCE

Annual which includes,

- Visual inspection
- Performance checks
- Basic maintenance tasks

### EXTENDED PERFORMANCE MAINTENANCE

Every 3 years which includes,

- Visual inspection
- Performance checks
- Extended maintenance activities

### MAJOR MAINTENANCE

Every 4 years which includes,

- Advanced visual inspections & performance checks
- First systematic replacement of parts based on ageing.

### LIFECYCLE MAINTENANCE

Every 5 years which includes,

- Major maintenance extended by systematic lifecycle replacement of parts & components from cooling & power cubicles.



# OUR MAINTENANCE PROCESS

Tailored to the needs of your plant – step by step

## HOW DO WE DO IT?



1

Performing and recording preventive actions



2

Identifying safety critical and operational critical issues



3

Submitting reports with appropriate recommendations

Please refer the maintenance recommendations for LV3 from 125+ years old industry expert on the following pages

Step 1



- Drive inspection and health checks to assess the present condition of your drives.
- Air/water cooling system maintenance.
- Process cabinets & controller equipment maintenance.

Step 2



- Operational & safety critical issues identified will be brought to your attention with resolution.
- Prioritized dispatch of the required parts to attend the issue on safety critical scenarios.

Step 3



- Comprehensive report with recommendations for improved safety and better performance of your critical power equipment.



# MAINTENANCE CONFIGURATIONS <sup>1/2</sup>

COMMON FOR AFE & BESC	EVERY					
Operation description	0.5Y	1Y	3Y	4Y	5Y	Drive status
Check all electrical connections for tightness and signs of overheating		x				Isolated
Check for signs of overheating / heat damage		x				Isolated
Check for discoloration		x				Isolated
Wiring check		x				Isolated
<b>General maintenance activities on all cubicles</b>						
Check cubicle frames and steelwork for corrosion		x				Isolated
Clean with vacuum cleaner as required around all internal equipment		x				Isolated
Check for general condition of supports, clips, connectors, plugs, trunking and sockets		x				Isolated
Carry out earth bonding checks		x				Isolated
Check smoke detector function (if fitted as an option)		x				Isolated
<b>Reactor</b>						
Check security & tightness of all connections		x				Isolated
Visually check for any sign of colored glycol residue on the reactor or floor below		x				
<b>Filter capacitors</b>						
Visual inspection of capacitors condition	x					Isolated
Measure capacitance		x				Isolated
<b>Cooling system</b>						
Check coolant system pressure	x					Main power isolated, auxiliary power on
Check that as pump starts, the system pressure only varies slightly, if it does shift then this may indicate air in the system	x					
Check cooling devices for any leakage	x					
Drain condensation traps	x					
Listen for noisy cubicle cooling fans	x					
Renew coolant (if applicable)		x				Isolated
Check / test / renew OAT coolant		x				Isolated
Inspect cooling water hoses for degradation / damage		x				Isolated
Remove cubicle cooling fan trays & inspect fans for bearing size and replace if necessary		x				Isolated
Replace cubicle cooling fans					x	Isolated



# MAINTENANCE CONFIGURATIONS <sup>1/2</sup>

Operation description	EVERY					Drive status
	0.5Y	1Y	3Y	4Y	5Y	
<b>Control</b>						
Check PT100 temperature sensor is within range	x					Isolated
Recalibrate temperature sensors					x	
Check security and connection tightness of all relays, contactor and MCBs		x				Isolated
If the equipment has been out of service for more than 3 years, the control system must be powered up to reform the DMR DC link capacitors. Reformation takes an average of 12 hours.			x			In operation
Check for correct operation of external cooling water system		x				Stopped
Check operation of the e-stop function	x					In operation
<b>PECe service</b>						
Replace battery				x		Isolated





# ADDITIONAL SUPPORT

We also recommend the following services for your benefits



## Critical spare parts

List of critical spares will be suggested

- To manage your unexpected breakdowns efficiently.
- To optimize your inventory for spare parts.



## Replacement parts\*

A form-fit-function replacement suggestion

- Based on the performance of existing components of LV3 drives and lifecycle status replacement parts will be suggested.



## Proactive performance enhancement packages\*\*

- To stick with state-of-the-art protection and safety technologies
- To enhance the efficiency, performance and life-span

\* Power Conversion offers a lifecycle management including 'last time buy' notifications to mitigate critical impacts and obsolescence risk.

\*\* Power Conversion offers various smaller upgrades as a part of our proactive maintenance.

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