Medium Voltage Switchgear (MV SWG) Preventive Maintenance & Checklist

A preventive maintenance checklist ensures that MV switchgear components are properly inspected, tested, and serviced to avoid failures, improve safety, and extend equipment life.

The MV switchgear preventative maintenance checklist typically comprises the following:

- Visual inspection involves looking for physical deterioration, loose connections, & contamination.
- Cleaning involves removing dust, moisture, & dirt from both interior and external components.
- Tightening and torque checks ensure that electrical & mechanical connections are secure.
- Insulation Resistance Testing involve checking insulation integrity to avoid errors.
- Circuit breaker inspections include checking for wear, lubrication, & operational functionality.
- Relay and Protection Testing includes ensuring that protective devices function properly.
- Busbar and cable inspection includes checking for overheating, corrosion, & adequate insulation.

Levels of Maintenance

Level 1: Operations recommended in the instructions manual "installation - operation - maintenance", carried out by suitably qualified personnel having received training allowing them to intervene whilst respecting the safety rules.

Level 2: Complex operations requiring expertise & implementation of support equipment in accordance with OEM's procedures. A trained technician with appropriate equipment performs these procedures.

Moving Parts Preventive Maintenance

Preventive Maintenance	Frequency		Levels		
Recommended Operations	3 Years	6 Years	1	2	3
Remove dust from the insulating shell of the poles (dry, clean cloth).	X		X	X	X
Checking the state of the plugging-in clamps		X		X	X
Checking the moving part's earthing switch device (clamps and contact jaws)		X		X	X

Preventive Maintenance	Frequency		Levels		
Recommended Functional Unit Operations	**3 Years**	**6 Years**	**1**	**2**	**3**
Check for the presence or condition of accessories (e.g., levers).	X		X	X	X
Visual inspection of exterior appearance (cleanliness, absence of oxidation, etc.)	X		X	X	X
Cleaning of external elements, with a clean dry cloth	X		X	X	X
Checking the tightness to torque (covers, wiring ducts, connections, etc.)	X		X	X	X
Checking the mechanical controls by carrying out a few operations	X		X	X	X
Checking the positioning of the status indicators (open and closed)	X		X	X	X
Control of the status and the functioning of the mechanical locking by key locks	X		X	X	X
Dusting and cleaning the internal mechanical elements (without solvent)	X			X	X
Inspection of the tightening of the threaded fasteners and presence of internal stops	X			X	X
Dusting and cleaning the internal mechanical elements (with solvent)		X			X
Lubrication and greasing of mechanical elements (with recommended products)		X			X
Monitoring the general appearance of the mechanical components and connections		X			X
Testing the "function" mechanical interlocks		X			X

Preventive Maintenance	Frequency		Levels		
Moving Part Compartment-Specific Recommendations	**3 Years**	**6 Years**	**1**	**2**	**3**
Ensure the smooth functioning of the shutters (plugging-in/withdrawing)		X		X	X
Checking the state of the plugging-in electrodes		X			X
Clean the insulating parts with a clean, dry cotton cloth.		X			X
Cleaning and lubricating the mechanical parts		X			X
Examination of the electrical power contacts		X			X
Checking for the absence of overheating or of discharges in the plugging-in electrodes		X			X

Preventive Maintenance	Frequency		Levels		
Recommended Busbar Operations	**3 Years**	**6 Years**	**1**	**2**	**3**
Checking the tightness of the busbar connections		X		X	X
Clean interior elements, including insulators, connectors, and supports.		X		X	X
Checking the leak tightness in the compartment		X		X	X
Visual inspection of the appearance of the internal components		X			X

Preventive Maintenance	Frequency		Levels		
HV Cable Compartment-specific Recommended Operations	**3 Years**	**6 Years**	**1**	**2**	**3**
Checking the state of the earthing switch contacts		X			X
Checking the tightness in the compartment		X			X
Clean interior elements, including insulators, connectors, and supports.		X			X
Examination of the state of the cable reassemblies		X			X
Cleaning and lubricating the mechanical parts		X			X
Visual inspection of the appearance of the internal components		X			X

Preventive Maintenance	Frequency		Levels		
Low Voltage Box Recommended Operations	**3 Years**	**6 Years**	**1**	**2**	**3**
Checking the state of the internal components		X		X	X
Checking the tightness to torque of the terminals and electrical connections in general		X		X	X
Examination of the general state of the wiring and the relays		X		X	X

Lubricating & Greasing Points

For the lock out procedures, follow the General Safety Instructions for the Electrical Applications as well as the requirements specific to the network.

- Grease the sliding joints to guide the shutters.
- Grease the earthing shoe (optional) on the moving part.
- Grease the earthing switch's plugging contacts.

Anomalies & Remedies

Observation	Mechanism	Probable	Remedy
Unusual noises when energized, crackling, vibrations	Voltage presence box	"Fasten" plug poorly connected	Check the connections
	Capacitive voltage divider	Defective voltage divider	Replace the defective capacitive voltage divider
	Insulators	Polluted or degraded insulating parts	Clean the parts or consult our After-Sales Service: see address at the beginning of the manual
Abnormal over- heating at the connecting points.	Connecting	Poor tightening	Retighten to the appropriate torque after cleaning the contact plates
Voltage presence indicator extinguished.	MV fuse on outgoing switch or contactor	Fuse blown	Replace all three fuses
	Voltage presence box	Deterioration of a component	Replace the box
Abnormal efforts for mechanical parts operations.	Earthing switch	Safety interlocking.	Check the position of the control mechanisms
	Plugging-in of the circuit breaker or contactor moving parts		
Circuit breaker does not close.	Line section switch or LV circuit breaker	Line section switch or LV circuit breaker open	Check the closure of the switch or the LV circuit breaker
	Protection devices	Action by protection devices	Check the adjustments
	External connections	Poor connection	Check wiring diagrams
	Low voltage connector of the circuit breaker	Poor connection	Check the connection