

Condensation Hazard on Electrical Panel (440V)

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Condensation water was observed dripping directly onto a 440V electrical panel.

What happened?

During a recent inspection, condensation water was observed dripping directly onto a 440V electrical panel in the engine room. This situation created a serious electrical safety hazard, with potential consequences including:

- Electrical short circuit.
- Equipment failure or fire risk.
- Electrical shock to personnel.

Condensation on high-voltage equipment (440V) can escalate to arc flash, fire, or total blackout of critical systems.

Why did it happen?

- The electrical panel was located directly beneath HVAC ducts or cold pipelines. Condensation formed on the chilled surfaces and collected into droplets, which fell onto the panel.
- There were no drip trays, insulation, nor shielding, which allowed water to come into direct contact with the electrical enclosure.
- This hazard was not identified during the vessel's design stage or adequately addressed during regular inspections and maintenance.

What do we learn?

- Electrical panels are vulnerable to environmental conditions such as condensation and leaks; ingress of even a small quantity of water can corrode breakers and cause latent failures.
- Panels located under HVAC ducts, cold pipelines, or areas prone to condensation are at higher risk of water ingress.
- Design the failing out! Preventive design measures (e.g., drip trays, insulation, shielding) are essential to reduce risk.
- Regular inspections can help to identify issues before they develop into serious safety hazards.
- Check carefully and regularly for condensation above or near electrical equipment—not just during scheduled inspections.

IOGP Life Saving Rules:



Bypassing safety controls



Energy isolation

Members may wish to refer to:

- [IMCA HSS 031 Offshore vessel high voltage safety](#)

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