Transition Cable Joints in MV Networks

A practical risk checklist for reliable cable transitions

Where things go wrong

In medium voltage networks, failures rarely originate in the cable itself. They occur at transition points, where different cable generations are connected — such as PILC to XLPE. In most cases, failures are not caused by a single mistake, but by a combination of small deviations during selection and installation.

The 3 critical risk drivers

When assessing a transition cable joint, always consider:

1. Interface behaviour
Different insulation systems meet (paper vs polymer) → Risk: local electrical stress and instability
2. Moisture exposure
Underground conditions vary (soil, groundwater, ageing cables) → Risk: slow moisture ingress and hidden degradation.
3. Installation consistency
Results depend heavily on execution in the field → Risk: variation between crews and conditions

Common mistakes in practice

Most transition joint failures are linked to:

- Joint type not matched to the specific cable combination
- Insufficient preparation of paper-insulated cables
- Contamination at the interface during installation
- Incomplete filling or hidden void formation
- Inconsistent execution between different crews

👉 These issues often remain unnoticed until a **delayed failure occurs**

Practical selection & installation checklist

Before selecting or installing a transition cable joint, verify:

☐ Cable types correctly identified (PILC / XLPE / PVC / EPR)
☐ Joint compatible with both insulation systems
☐ Moisture conditions understood (soil & environment)
☐ Electric field control considered at the interface
☐ Installation conditions realistic (space, access, repeatability)
☐ Installation procedure clear and standardised
☐ Installers trained on transition-specific risks

👉 If one of these is uncertain → **risk increases significantly**

Key takeaway

Reliable transition cable joints are not only about the product. They depend on correct selection, controlled installation and consistent execution.

👉 Discuss your transition cable joint situation with a Lovink specialist and identify where reliability risks can be reduced in your MV network.