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.