

Electrical Worked Example Pack

Tool group: Cable Sizing, Voltage Drop, Breaker, kVA to Amps

This worked example shows the expected input logic, result interpretation, and verification checks for a common MEP planning scenario.

Sample inputs

Input	Value
Load	75 kW
Voltage	400 V
Phase	Three phase
Power factor	0.85
Route length	95 m
Conductor	Copper
Voltage drop limit	4%

Expected result interpretation

Result	Planning interpretation
Design current	Use kW, voltage, phase, and PF to estimate current.
Voltage drop	Compare calculated drop against the selected project limit.
Breaker/cable check	Breaker, cable ampacity, derating, and protection coordination must be reviewed together.

Verification notes

- Confirm installation method, grouping, ambient temperature, insulation, fault level, earthing, and local code tables.
- Voltage drop limits vary by circuit type and standard.
- Do not rely on generic ampacity without project derating.

Official references to verify: ASHRAE, NFPA, IEC, IET BS 7671, ICC/IPC, CIBSE, local GCC/Saudi/UAE Civil Defense, and project specifications as applicable.