CABLE CALCULATION, STEP 8: VOLTAGE DROP

DOES IT PASS THE 5 % LIMIT?

You get the **mV/A/m** from the **same table** as the current rating. For T&E, Table 4D5 has both. For some other cable types they're split: e.g. single-core 70 °C cable uses **Table 4D1A** for current ratings and **Table 4D1B** for mV/A/m.

$$VD = (mV/A/m \times Ib \times L) \div 1000$$

÷ 1000 turns millivolts into volts. (A ring final divides by 4000.)

WORKING

16 mm² T&E → 2.8 mV/A/m (Table 4D5, mV/A/m column)
VD = (2.8 × 24.5 × 27) ÷ 1000
  = 1.85 V (≈ 1.8 V)

Max for a non-lighting circuit = 5% of 230 V = 11.5 V
1.85 V ≤ 11.5 V ✓

- The low voltage drop is helped massively by the big cable. A smaller cable has more resistance, so more drop.
- **Lighting** circuits: **3%** (6.9 V). **Everything else: 5%** (11.5 V).
- **Three-phase**: work from **400 V**, so 5% allows **20 V**.

BS 7671 · Appendix 4 · Table 4Ab · voltage drop limits 3% / 5%

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