CABLE CALCULATION, STEP 3: THE DESIGN CURRENT, IB

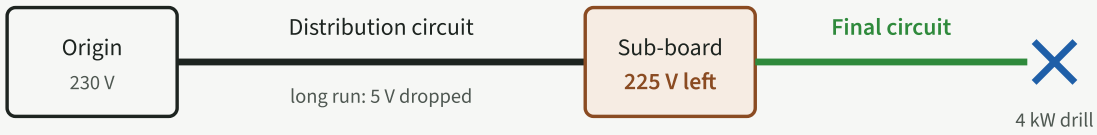
WHY MIGHT 230 VOLTS BE THE WRONG NUMBER?

Ib = design current: how many amps the circuit will draw. It depends only on the **load**. From the power triangle, cover I and you're left with P over V.

WORKING

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Ib = P ÷ V
   = 9600 ÷ 230
   = 41.7 A   (full load, every hob, oven and grill on full)
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Use **230 V** unless you know otherwise. One case where you do know otherwise:



Ib = 4000 ÷ 225 = 17.8 A (not 4000 ÷ 230 = 17.4 A)

Take the voltage already lost on the distribution circuit into account

Our garage-workshop example. Final circuits fed from a long distribution circuit start with less than 230 V.

A hot tub story

One customer replaced an old garden shed with a summer house and a hot tub. There was "already a supply there": a 50–60 m run of about 4–6 mm² cable, fine for a light and a socket. The hot tub wouldn't work because of the voltage drop on that long run. Nobody had checked the existing installation first (**Reg 132.16** again).

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