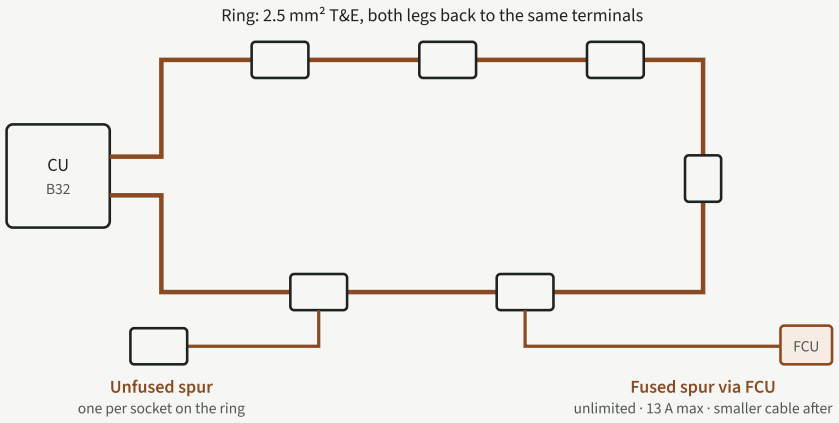
RING FINAL CIRCUITS AND LOADING

WHY IS THE RING VOLT DROP WORKED OUT OVER 4000?

A ring final circuit (on a **32 A** device, **2.5 mm²** T&E, up to **100 m²**) is really **two legs** of cable from the same breaker. That lets the load **spread across both legs**, which is why you shouldn't plug a kettle and a toaster into one double socket.

That sharing is why 2.5 mm² is allowed on a 32 A device. The cable must have a current-carrying capacity of at least **20 A**, and the ring must be designed so that no part of it carries more than that. If one leg breaks, every socket still works, but you now have a **2.5 mm² radial on a 32 A device**. Nothing shows it until step 1 of the ring test.

- At the consumer unit, **both line conductors** go in the **same terminal** of the one breaker (or RCBO), **both neutrals** in the **same neutral terminal**, and **both CPCs** in the **same earth terminal**.
- The same happens at every socket. It's still **parallel** wiring: every socket gets 230 V.
- The load current splits between the **two legs**, and each leg is only about **half the length** to the load, so the drop is ½ × ½ = **¼** of a radial of the same length. That is why ring volt drop divides by **4000** instead of 1000 (mV/A/m already covers line and neutral).
- A **radial** has one leg and ends at the last point. Many kitchens now use a **32 A radial in 4 mm²** instead of a ring.



A **spur** is a branch off the ring. The ring itself can also be run in any shape. This is just a simple loop.

On-Site Guide · Appendix H · Table H2.1 socket-outlet circuits · **p.218**

BS 7671 · Appendix 15 · Figure 15A ring final circuit arrangements (and the radial figure on the next page) · **p.583**

WORTH HIGHLIGHTING: RING, JUNCTION BOX, FCU SPURS, FIXED EQUIPMENT

> **Electrician's Guide to the Building Regs** · Figure 4.2.2 radial final circuit arrangements · **p.78**

SHOWS THE RADIAL ARRANGEMENTS

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