CIRCUIT BREAKERS, TORQUE AND THE DIN RAIL

DOES A BREAKER PROTECT AGAINST EARTH FAULTS?

Our example breaker is marked **B32** and **BS EN 60898**: a **Type B, 32 A** circuit breaker.

- Types **B**, **C** and **D** differ in how much **inrush (starting) current** they'll allow before tripping. Circuits need more current to get going than to keep going.
- **Type B:** most domestic circuits, which have very little start-up current.
- **Type C:** commercial and industrial, e.g. **motor circuits** with a high starting current that settles to a running current.
- **Type D:** circuits with a **really high** starting current.
- They all **look the same** apart from the letter, and fit the same board.

BS EN 60898 · circuit breakers (Types B, C, D)

`B UP TO 5 × IN, C 10 × IN, D 20 × IN`

FITTING THE BREAKER AND TORQUE

- The breaker **hooks over the DIN rail** at the top and **drops onto the busbar** "spine". The terminal screw **closes a gap** that clamps onto the busbar or conductor, rather than screwing into a thread.
- Terminal screws must be tightened to the **manufacturer's torque setting**, in **newton metres (N m)**. Our breaker is marked **2.3 N m** on its side.
- Use a **torque screwdriver** set to 2.3. When you reach the setting it "breaks" (clicks and slips) so you can't overtighten. Torque settings became a big focus from the start of the **18th Edition (2018)**. It's part of following the manufacturer's instructions.
- Loose-looking breakers on a half-empty board aren't loose connections. They sit firm once the board is filled and the cover is on.

Commonly misheard

It sounds like "bin rail". It's the **DIN rail**, the standard metal mounting rail the devices clip onto.

Do CBs protect against earth faults?It's often said a circuit breaker protects against **short circuits, earth faults and overloads**, but doesn't give brilliant earth-fault protection, especially the sensitive **additional protection** a **30 mA RCD** gives. A CB **will clear an earth fault** if the fault current is high enough (low enough Zs), but it **can't detect small leakage currents** like an RCD can.

Free section from Sparky Study Notes. The full Level 3 notes, 1,463 practice questions and the video lessons: sparkystudynotes.co.uk