DISCONNECTION TIMES: CHOOSING THE MAXIMUM ZS TABLE

A REWIREABLE FUSE. WHICH MAX ZS TABLE?

The disconnection time decides which **maximum earth fault loop impedance (Zs)** table you use when designing. There are three tables, one after another:

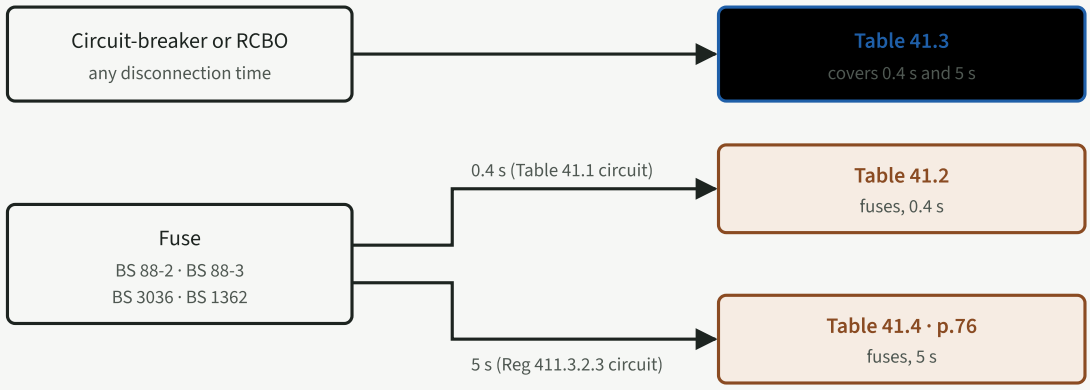
TABLE	DEVICES	DISCONNECTION TIME	PAGE (A4)
41.2	Fuses: BS 88-2, BS 88-3, BS 3036, BS 1362	**0.4 s**	74
41.3	**Circuit-breakers and RCBOs** (their own table)	**0.4 s and 5 s**	75
41.4	Fuses: BS 88-2, BS 88-3, BS 3036, BS 1362	**5 s**	76

BS 7671 · Table 41.2 max Zs, fuses, 0.4 s · **p.74**

BS 7671 · Table 41.3 max Zs, circuit-breakers and RCBOs · **p.75**

BS 7671 · Table 41.4 max Zs, fuses, 5 s · **p.76**

BS 88-2 / BS 88-3	**Cartridge** style fuses (heavy-duty cartridge fuses)
BS 3036	**Rewireable** fuses (fuse wire). Still common in a lot of places.
BS 1362	**Plug-top** fuses (the fuse in a 13 A plug)



Breakers and RCBOs have one table. For fuses, you first need the disconnection time, and that tells you which table to use.

With a **circuit-breaker or RCBO**, it's simple: go straight to Table 41.3. You should still know the disconnection time and use it carefully in your design. It's with **fuses** that the disconnection time really matters, because it decides between Table 41.2 and 41.4. The top of each fuse table states the disconnection time it's for: **0.4 s** on 41.2 and **5 s** on 41.4.

Watch outA common way to put it is that circuit-breakers and RCBOs "have their own 0.4 disconnection time parameter". More exactly, the heading of **Table 41.3** says its values give compliance with **both** the 0.4 s time (Table 41.1) **and** the 5 s time (Reg 411.3.2.3). That's why you don't need to pick between two tables for a breaker. **Type D is the exception:** Table 41.3 gives Type D separate **0.4 s** and **5 s** columns, so for a Type D the disconnection time still matters.

EXAMPLE A · REWIREABLE FUSE, HEATING CIRCUIT

```
Circuit: BS 3036 rewireable fuse · final circuit · 20 A heating (fixed equipm
Final circuit, fixed equipment NOT above 32 A → Table 41.1
TN, AC, U₀ = 230 V → max disconnection time 0.4 s
Fuse + 0.4 s → take max Zs from Table 41.2
```

EXAMPLE B · REWIREABLE FUSE, FEED TO A SHED

```
Circuit: BS 3036 rewireable fuse · feeds a consumer unit in a shed
Feeds another board → distribution circuit → NOT Table 41.1
TN → Reg 411.3.2.3 → max disconnection time 5 s
Fuse + 5 s → take max Zs from Table 41.4
```

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