TestFast

Maximum Zs values, 18th Edition

Original quick reference for common MCB checks

Revision
31 August 2026
Owner
TestFast

Use this as a quick reference only. Identify the protective device, confirm the required disconnection time and use manufacturer data where it applies. The values below are an original formula-derived summary, not an official reproduction of BS 7671 or another published table.

Zs = (U₀ × Cmin) ÷ Ia

Method: U₀ = 230 V, Cmin = 0.95, so the numerator is 218.5 V. Ia is represented here as 5 × In for Type B, 10 × In for Type C and 20 × In for Type D. Values are rounded to two decimal places. The orange column is 0.8 × the displayed 100% value, following the IET worked example.

Type B
Ia = 5 × In

Rating	100% Ω	80% comparison Ω
6 A	7.28	5.82
10 A	4.37	3.50
16 A	2.73	2.18
20 A	2.19	1.75
32 A	1.37	1.10
40 A	1.09	0.87
50 A	0.87	0.70
63 A	0.69	0.55

Type C
Ia = 10 × In

Rating	100% Ω	80% comparison Ω
6 A	3.64	2.91
10 A	2.19	1.75
16 A	1.37	1.10
20 A	1.09	0.87
32 A	0.68	0.54
40 A	0.55	0.44
50 A	0.44	0.35
63 A	0.35	0.28

Type D
Ia = 20 × In

Rating	100% Ω	80% comparison Ω
6 A	1.82	1.46
10 A	1.09	0.87
16 A	0.68	0.54
20 A	0.55	0.44
32 A	0.34	0.27
40 A	0.27	0.22
50 A	0.22	0.18
63 A	0.17	0.14

Blue: 100% permitted / operating-temperature basis **Orange: adjusted 80% comparison basis**

Choose the right basis

1. Identify
Device standard, curve, rating and manufacturer.

2. Confirm
Circuit arrangement and required disconnection time.

3. Compare
Use like-for-like values and record the basis with the result.

Scope warning

These rows are for common BS EN 60898 MCBs and, only where the overcurrent characteristic matches, BS EN 61009 RCBOs. Do not apply them automatically to MCCBs, BS EN 60947-2 devices, fuses or unusual arrangements. Manufacturer-specific information takes priority where available. The 80% column is an adjusted comparison value, not a universal replacement for the 100% figure.

Worked example

For a 32 A Type B device: Ia = 5 × 32 = 160 A. Therefore Zs = 218.5 ÷ 160 = 1.365625 Ω, shown as **1.37 Ω** at 100%. The adjusted comparison follows the displayed reference: 0.8 × 1.37 = 1.096 Ω, shown as **1.10 Ω**.

Source and method: IET Wiring Matters guidance on maximum earth fault loop impedance and temperature comparison, checked 31 August 2026. Verify the current standard and device data before relying on any value.

Full explanation:
testfast.uk/blog/max-zs-values-18th-edition-table