

Conduit Fill Chart for House Wires

How many house wires fit safely in a conduit - based on the 40% fill rule.

Overfilling a conduit traps heat and makes wire-pulling damage the insulation. Good practice is to fill a conduit to no more than **about 40% of its cross-section**. The chart below gives the approximate maximum number of single-core PVC house wires per conduit size.

Approximate maximums at 40% fill, based on typical wire overall diameters and PVC conduit internal areas. Actual capacity depends on the exact wire OD and conduit type.

Conduit size	1.0 sq mm	1.5 sq mm	2.5 sq mm	4.0 sq mm	6.0 sq mm
20 mm	11	10	6	5	3
25 mm	18	15	11	8	6
32 mm	31	27	19	14	10
40 mm	51	45	31	23	17
50 mm	81	70	49	36	27

The rule in short

Usable conduit area = conduit internal cross-section $\times$ 0.40. Number of wires $\approx$ usable area $\div$ overall area of one wire. Remember that more wires bunched together also means you must derate their current rating (see the ampacity chart).

Figures are for guidance. Confirm against the actual outer diameters on the APAR datasheet and your conduit's stated internal diameter before finalising a run.