Electrical junction box size chart

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Use this junction box sizing calculator to determine the recommended dimensions of a junction box depending on the number of straight and angle pulls entering it and meet the National Electrical Code®.

The sizing requirements for pull boxes, junction boxes, handhole enclosures, and conduit bodies exist to prevent conductor insulation damage. Those requirements are in 314.28, and they apply to all conductors 4 AWG and larger (Fig. 1). To illustrate how these requirements prevent conductor insulation damage, let"s consider two extremes in a ...

You must size pull boxes, junction boxes, and conduit bodies large enough so a crew can install the conductors without damaging them. For conductors 4 AWG and larger, you size pull boxes, junction boxes, and conduit bodies per Sec. 314.28. That means the minimum dimensions of boxes and conduit bodies must comply with the following:

These regulations describe in detail the required junction box size, depending on the number and size of conductors and fittings enclosed within the box. You"ll need to calculate both box volume and box fill when determining the appropriate size for a junction box .

Determine the number and type of conductors entering and exiting the box. Include all devices, such as switches, receptacles, or splices, that will be housed within the junction box. According to NEC 314.16 (B), calculate the box fill units based on the conductor sizes and types.

This electrical junction box sizing calculator will be your companion when deciding what size of electrical boxes to get for your pull boxes or junction boxes while, at the same time, complying with the National Electrical Code(R).

? In this junction box calculator, we refer to the specifications provided by the National Fire Protection Association(R) (NFPA(R)) in the NFPA 70: National Electrical Code(R) 2020 (2020 NEC(R)) Article 314.28 Pull and Junction Boxes and Conduit Bodies.

? This junction box sizing calculator, just like our box fill calculator, is meant for estimation purposes and not to substitute professional expertise.

Until now, the easiest way to transport electricity from a power source to any equipment throughout a structure is through electrical wires. Connecting various devices like lighting fixtures and outlets to the power source means lots of cables to manage.

We call these boxes our junction boxes or pull boxes (as we pull wires to them before inserting them back into

other conduits). Just like when choosing the correct wire sizes or wire gauges suitable for our electrical needs, these boxes should also have the appropriate dimensions to accommodate the wires that enter them. We"ll also have enough room for the necessary bending of cables so we don"t end up folding the wires sharply, which could damage their insulation.

? You can learn more about how to choose the correct size of wires in our wire size calculator and our wire gauge calculator.

For our safety and protection, the NFPA(R) has set out guidelines we can follow to avoid fire and damage to our devices. In the next section of this text, we will discuss the minimum requirements when choosing the proper junction box sizes.