

Excavator Size Classes: Defined

*Cutting through the jargon. **Plus:** Tips for properly sizing your excavator.*

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There are many standards for construction equipment manufacturers. Naming and size classification is not one of them.

Each OEM has a different nomenclature and way of categorizing equipment. Our goal here is to break through the clutter and add definition to excavator size classes. Also, we'll provide a few tips for sizing your next excavator.

Understanding Size Classes

The Association of Equipment Manufacturers (AEM) lumps crawler excavators into three general size categories: mini or compact, midi and standard/full-sized. There is a fourth category dedicated to heavy crawler excavators (90 metric tons and greater), but that range sells a very limited number of units annually into the commercial construction industry. A fifth category, rubber-tired excavators, will not be covered.

A note on weights: in keeping with AEM, we're using metric tons as a benchmark – but we'll also list the conversion to pounds for those who prefer it.

Mini or Compact (0 – 6 metric tons; or <13,227 pounds):

Compacts. Minis. Regardless of what a manufacturer calls them, these are the small excavators that get into the tight places. A benefit to this category is that certain Class 1 and Class 2 trucks can haul compact excavators (and other comparably sized construction equipment) without requiring the driver to have a Commercial Drivers License (CDL) (always check with your local DMV).

Within the realm of compact excavators, those ranging from 3-4 metric tons (6,613 – 8,818 pounds) are the most popular – selling thousands of units across building construction, utility and landscape trades. These models are extremely versatile, performing in-building work, tight subdivision sewer repairs, water line installs and foundational repair that may not require the size of a conventional excavator, but save countless hours of labor compared to doing the work by hand.

Midi (6 – 10 metric tons; or 13,227 – 22,046 pounds):

Midi, or mid-sized excavators, sell a large percentage of their total industry volume into building construction, utilities, roads and bridges and landscaping. Some models are zero or near-zero/minimum swing radius machines, while others feature a more conventional tail design.

Machines in this size class provide digging and lifting capabilities more in line with their full-sized counterparts, but are still compact enough that they provide advantages in transportation and jobsite access.

Standard/Full-Size Crawler Excavators (10 – 90 metric tons; or 22,046 – 198,416 pounds).

This category represents the widest spectrum of excavators available on the market today. It includes a few zero and near-zero/minimum swing radius machines in the lower weight classes, but the majority of these machines are full-sized, full-featured excavators. The highest volume of machines sold into the industry range from 19 – 24 metric tons (41,887 – 52,910 pounds), and 33-40 metric tons (72,752 – 88,184 pounds).

Tips/Thoughts on Sizing Your Excavator:

- **Consider transportation and access:** It may be tempting to buy a high-horsepower, large-capacity excavator – but what kind of trailer(s) does your company currently have? Do your drivers have the proper certifications to haul heavier machines? Are your jobsites regularly on weight-limited roads, or require you to cross weight-limited bridges? Right-size the excavator to your application and geography – because there are ancillary transportation and owning/operating costs that go with the purchase of the excavator.
- **... but don't go too small:** the excavator may be the right size for *today's* work – but where do you plan to go *tomorrow*? Don't sell yourself short and buy an excavator that's too small – you may find yourself needing to rent or buy additional equipment in the future. Consider where you want your business to go in the next 5-10 years and how you may get there.
- **Digging depth:** It's the primary purpose of every excavator: Digging. Go into the buying process with a complete understanding of your common jobsites and the depths you'll need to reach. Keep in mind that you may have a choice of a longer arm or even a long reach excavator so if the breakout forces and lift capacities meet your needs, you don't always need to go up in size to get the depth.
- **Long reach:** Many excavators are available in a long reach boom configuration. This is particularly helpful in demolition and material handling applications where conventional excavators may not provide the reach.
- **Lifting capacity:** An excavator doubles as a material handler on many jobsites today and often performs the work of numerous machines. It's an invaluable tool for lifting and placing materials. Don't undercut yourself on lifting capacity.
- **Bucket capacity:** It's important to know the optimal bucket size for your application – but it's also important to consider having a variety of bucket sizes at your disposal for application versatility.

- **Couplers:** Take a close look at a machine's coupler options, as that will go a long way to determining the scope of attachments you can outfit on a machine.
- **Think hydraulically:** Know your attachment needs and the hydraulic flows required to operate all attachments. This isn't as much about the physical size of the machine as it is about the power the machine is capable of producing to run attachments. Excavators are the ultimate multi-use tool when outfitted with the right attachments: Sheers, grapples, magnets, breakers, compactors – equipping the machine with the right hydraulics will give you that flexibility.
- **Understand counterweights:** Different manufacturers offer different combinations of counterweights – some as options, some already spec'd into the machine. Counterweights may add physical size and weight to your machine, but that added heft can also boost lifting and operating capacities.
- **Advanced technology:** Adding machine control to an excavator can make it more efficient and productive (in the right applications). This may actually allow the prospective owner to be more efficient with a smaller machine, versus just buying the larger machine for its sheer volume of earthmoving.

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