






# Backhoe Loader Purchasing Guide



# Introduction to the Backhoe Loader Buying Process

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## Introduction

Though not the biggest machine on the job site, backhoes are definitely one of the most common. Used for everything from industrial and residential construction to light landscaping projects, backhoes have become an easy way to cut the time and costs associated with many earth-moving jobs. They are often considered an attachment, frequently sold as an add-on for multipurpose heavy equipment. But backhoes are also sold as a complete unit, typically including both the backhoe on the rear and a loader on the front.

Their popularity is reflected in the continuing development of the technology they include, including features that boost efficiency while simultaneously cutting the size of the design. Leading manufacturers including Case, Deere, Caterpillar, JCB, Komatsu, and New Holland currently produce backhoe loaders for the international market, often specializing in specific industries and uses such as mining, excavation, demolition, and road building.

## Getting started

This purchasing guide will cover the trends, popular specs, types, and attachments commonly found on backhoes, enabling you to narrow down the type and size you need. But with so many options available, it's essential to first focus your attention on the dealer. The dealer you choose will be responsible for providing both the initial consultation on the purchase, ensuring you get the right level of power for your job, and then back that purchase with all the necessary post-sale support.

When comparing backhoe dealers, pay attention to the following traits:

## Support

Post-sale service and maintenance are often the two primary components that ensure the long-term ROI of your purchase. Provided directly through the dealer, backhoe loader support is one of the most important factors used to evaluate the potential of a dealer. Specifically, pay attention to the following:

- Number of professional service technicians available (whether in-house or sub-contracted)
- Name-brand parts (both on-hand and delivered)
- First-call fix rate and turnaround

The above considerations allow you to look beyond the dealer's service rate and get an accurate estimate of the specific costs that will affect you during downtime. Why isn't the service rate important? Each backhoe will be used differently and for a variety of purposes. While one machine may be used to demo old structures for new construction, another may simply dig trenches. The difference in service required on these two machines will be substantial. And if a dealer has more of one type of client than another, the service rate may not apply to your situation.

### Maintenance and the service level agreement (SLA)

Like any piece of heavy equipment, backhoes require constant maintenance to continue operating efficiently and avoid downtime. These service aspects, including labor and parts as well as fees associated with routine maintenance, are detailed line by line in a service level agreement (SLA). An SLA is another way a dealer can save you thousands of dollars over the lifespan of your machine. Specifically, it locks in the costs associated with future services and allows you to budget the expenditures well in advance.

But not every SLA will be the same. When evaluating an SLA for a backhoe, pay particular attention to the following line-items:

- **Locality:** Ideally, the closer the better, giving preference to dealers or at least sub-contracted technicians within 50 miles of your location.
- **Name-brand parts:** Mentioned briefly above, the specific parts included during maintenance and repairs should be listed, including any substitutions if a primary option is on extended back order.
- **Service frequency:** Includes all costs resulting from labor and parts, scheduled maintenance (basic), scheduled maintenance (full, including all operating systems), and comprehensive service (covering everything from the front to the rear).
- **Customer support:** Includes the numbers to call and availability of staff after-hours. 24/7 is ideal, but not always the case (weekends, holidays). So make sure you get a response-time guarantee as part of your SLA.
- **Warranty:** Guarantees workmanship on parts and labor.
- **Operational and safety training:** Some dealers provide classes that train prospective operators on both the functions of the backhoe and necessary safety procedures, a valuable service given the variety of job site requirements.

## Job site requirements

The Occupational Safety and Health Administration (OSHA) has established a range of excavation standards to ensure the protection of individuals and property. Knowing these guidelines is often an important part of working on any job site, especially when using a backhoe for trenching and excavation, as many areas have electrical cables, phone lines, and gas and other hazardous pipelines buried below ground.

The OSHA standards for excavation cover things like hazard communication, hand and power tools, concrete and masonry, residential construction, steel erection, and fire and safety planning. For complete information on each topic, review OSHA's [Compliance Assistance Quick Start](#) resource. In addition, a quality dealer should be able to advise you on the best course of action specific to your area and may even be able to provide you with the contacts necessary to obtain the necessary permissions before you dig.

## Trends

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Like any other machine, backhoes are continuously upgraded with more effective designs and features that enable them to work more efficiently and cost-effectively. We've selected the following among some of the more notable trends in the industry as they have the potential to impact both cost and convenience.

### Minimal design, maximum power

One of the primary strengths of the backhoe is its compact design. Easily able to navigate narrow corridors, alleys, or side streets, backhoes continue to receive refinements to their body that increase their usability and reduce their environmental footprint.

CASE and New Holland are leaders in the drive toward this trend, offering a range of the smaller 14-foot models. In response, a number of construction firms and public utility departments have begun to consider transitioning their fleets from the larger 15-foot models to the more compact variety.

One of the primary engineering designs that enables manufacturers to cut the size of the machine is a slightly smaller engine, one that offers about 5 hp less to be exact. At the same time, these machines compensate for this loss through improvements made to the hydraulic system, keeping power output at peak levels. Sometimes considered "entry-level" models, 14-foot backhoes also include many of the same operational benefits as their larger cousins, such as four-wheel drive and four-wheel steer.

- **Added cost:** Depending on the model selected, the price tag on a new 14-foot machine may be anywhere from \$2,000 to \$10,000 higher than previous models due to the improved level of performance. This carries over to the used market as well, with recent

14-foot models equally as expensive as their 15-foot counterparts – \$25,000 to \$55,000 seems to be the average range.

### New, used, and rentals

The average sticker price for a 14-foot to 15-foot backhoe is about \$70,000. Stepping up to the 15-foot and 16-foot models can cost anywhere from \$84,000 to \$110,000. This can be cost-prohibitive to smaller outfits or even large construction firms that require a fleet of machinery – a factor that has led to a boom in the used market.

Used backhoe loaders often provide the same levels of output and reliability as a new machine but at a fraction of the cost. If you're considering a used backhoe, give preference to those offered through an established dealer. These machines will often be covered by a dealer's warranty and eligible for post-sale support and maintenance to keep them running smoothly.

When comparing used backhoes, be on the lookout for:

- **Overall condition:** Does the machine look like it's in good condition or are there dents, scratches, and (worst of all) patches of rust? Try to find out about the previous owner. Was the machine used on a farm, a construction site, or by a landscaping company? Each of these applications will have a different impact on the condition of the machine.
- **Work hours:** Low work hours on an older machine may not be so bad. If the machine has been serviced regularly and used sparingly or for light duties, an older machine may be just as reliable as a recent model.

With the high cost of the initial investment, more and more businesses and individuals are either buying used machinery or renting first. A [recent study](#) conducted by Purchasing.com revealed that many people are now turning toward the rental option as a means of supplementing a fleet or test-driving a machine before purchase. Ideal for short-term projects, renting also provides a number of cost-saving benefits associated with the elimination of maintenance and repairs as well as tax benefits in certain cases.

- **Added cost:** is practically non-existent. The drive toward used machinery and rentals allows business owners, site managers, and individual contractors to save tens of thousands of dollars on a single machine. For example, the cost of a used backhoe is often less than half that of a new machine, and sometimes only one-third. Used backhoe loaders in the 14-foot to 15-foot range currently cost between \$25,000 and \$44,000, with 16-foot machines available in the \$50,000 to \$70,000 range.

## Specs

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From vehicles to heavy construction equipment, most machines are judged by their horsepower output. But that isn't the only consideration when comparing backhoe models, and far from the most important. The real strength of a backhoe often lies in its attachments and their capabilities - digging, lifting, and hauling in particular. These accessories are not powered by the engine but rather the hydraulic system and therefore must be viewed independently of horsepower.

Be aware of the horsepower when buying a backhoe, but pay far more attention to the following five criteria:

### 1. Max digging depth

One of the primary technical considerations when buying a new or used backhoe loader is how deep it will dig in comparison to the scope of your project. In general, backhoes range from models capable of digging only 7 feet deep to those capable of digging 60 feet in depth. However, most popular models offer between a 14-foot and 17-foot digging capacity.

Full-sized machines between 15 feet to 16 feet long are usually capable of reaching to at least 14 feet. Compact models, like the 14-foot variety, may only dig 8 to 10 feet. Far easier to operate in tight spots and more cost-effective than larger models, smaller backhoes can provide substantial savings, as long as their digging depth is within range.

### 2. Backhoe bucket width

The bucket width of a backhoe is another aspect that has a major impact on productivity. Widths range between 12 and 60 inches wide. Within this range, you can expect to find carrying capacities of 2.5 ft<sup>3</sup> to 20.25 ft<sup>3</sup> and weight capacities from 250 to 670 lbs. In addition to the backhoe itself, the machine can use accessories that include hammers, crushers, and a variety of buckets.

### 3. Loader bucket width

The front end loader or loader bucket is the "front" of a backhoe and most like a bulldozer. Similar to the "back" side, it accepts quick-coupler attachments that include forks, grapples, and snowplow blades. It is most commonly used for hauling building materials or refuse and takes one of three different buckets:

1. **General purposes:** Designed for loading and carrying as well as digging and grading, this basic bucket is typically designed without sharp corners to boost its productivity. General purpose buckets are capable of carrying 1 to 1.75 cubic yards of material, measure 89 to 96 inches wide, and offer weight capacities from 780 to 1,470 lbs.
2. **Multipurpose:** For more in-depth digging, dozing, leveling and similar applications commonly found in construction and demolition projects, multipurpose buckets often include large jaw-like clamps that allow the operator to grab poles, trees, and other

large objects for quick placement or removal. They are typically capable of holding 1.3 to 1.5 cubic yards of material, measure 89 to 95 inches wide, and offer weight capacities from 1,590 to 2,100 lbs.

3. **Side-dump:** Designed primarily for loading and dumping as well as back fill applications, side dump buckets allow the backhoe operator to empty the bucket forward or to the left. This design makes them prized in restrictive spaces like tight alleys or corridors. They are typically capable of hauling 1 to 1.25 cubic yards of material, measure 99 to 107 inches wide, and provide weight capacities from 1,890 to 2,060 lbs.

#### 4. Operating weight

The last technical aspect, but certainly not the least, is operating weight. The weight of the machine may or may not be a consideration on your job site. It will largely depend on the operating environment in which the machine will be used – dirt verses paved asphalt or manicured grounds for example. In general, the operating weight for a backhoe ranges from 13,000 to 24,000 lbs, with the lighter end of the spectrum reserved for those desiring the lightest footprint possible.

#### 5. Emission rating

Backhoe manufacturers are required to provide IC engines that comply with state and federal emissions regulations, specifically EPA Tier 1 through Tier 3. These laws are currently in effect, with the tighter Tier 4 hydrocarbon (HC) limits being introduced throughout 2015. Regulated machinery includes tractors, excavators, bulldozers, logging equipment, portable generators, and of course backhoe loaders.

Make sure the backhoe you're considering conforms to all current and future regulations. In doing so, have your dealer list every aspect of the machine's compliance. To prep yourself for the conversation, review the [EPA's Reference Guide](#) for additional information on the emission standards for non-road vehicles and engines.

## Types

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Backhoe loaders typically come in two main types: center mount and sideshift. While both perform about the same in terms of digging depth and operational weight, they vary in their maneuverability and stability. Here's how the two compare.

#### Center mount backhoes

When spatial constrictions are not a concern, center mount models are often the machine of choice. Sometimes known as center pivot backhoes, this type features a backhoe that's mounted at the center of machine's rear frame. It also features swing-down stabilizers known as "gullwing" legs that result in a wider stance. These legs further elevate the stability of the



machine and are critical on job sites with inclined terrain or those that require the moving and hauling of boulders and other heavy materials. The design also adds safety when lifting and moving heavy items to the side of the machine and reportedly provides a higher degree of ground clearance.

Some contend that the same level of safety and performance can be achieved through the sideshift variety. However, they also agree that the center mount tends to be easier to use on sloped terrain or with heavy objects as the stabilizers eliminate some of the planning required for using a sideshift machine (boom placement, location of spoil pile, etc.). Generally speaking, center mount backhoes are the preferred model among many buyers in the United States.

- **Cost:** Prices start between \$42,000 and \$60,000 for new and recently manufactured used machines. They can go as high as \$79,000 to \$94,000 depending on the model selected.

### Sideshift backhoes

The other type is a sideshift machine. Unlike the center-mounted variety, this type features a backhoe that is mounted on a carrier with frame rails and stabilizers. Using these rails, the operator can shift the backhoe from one side of the machine to the other and even vertically.

The primary benefit of this design is its maneuverability. Sideshift backhoes were created for space-restricted areas, including alleyways and corridors. For this reason, they are extremely popular for working in confined spaces, including areas with fragile landscaping or nearby structures. A sideshift backhoe has the capability to inch up next to buildings and other areas and work without damage to objects or neighboring property.

Additional design benefits include precision and boom storage. Operators are reportedly able to dig with more precision and noticeably less repositioning of the machine with a sideshift backhoe. This level of precision not only cuts down on the time required to complete each project but also costs less overall through reductions in labor and fuel. Plus, the boom often features a “tuck-in” position that provides safety and peace of mind for the operator when using the loader bucket. Tuck-in keeps the boom safely within the width of the machine and prevents it from striking surrounding objects, equipment, vehicles, or structures.

Sideshift backhoes are common throughout Europe due to the narrow roads and passageways found within many European cities. However, as urban development continues in the United States, they may be positioned for broader use here as well.

- **Cost:** Prices start between \$55,000 and \$64,000 for new and recently manufactured used models. They can easily go as high as \$95,000 and above depending on the model selected. Overall, expect sideshift models to be slightly more expensive than their center mount counterparts due to the added convenience and efficiencies they provide.



## Two unofficial categories

While most machines fall into either of the two types mentioned above, they are also broken down further by their digging depth, with manufacturers offering both types of machines in the following two varieties:

1. **14 to 15 ft.:** Providing the lightest footprint available, these backhoes are popular for landscaping, public utilities, and farming applications as well as general construction. Their outputs often range from 68 to 107 hp and they include a hydraulic system that uses a variable-flow axial piston with a flow of 28 to 35 gallons per minute for powering a range of attachments. Costs start around \$10,000 to \$86,000 new and used, depending on the year of manufacture and work hours logged.
2. **15 ft. +:** For more industrial applications including mining, demolition, and heavy construction tasks, this range delivers outputs of around 127 hp and also includes the variable-flow axial piston in the hydraulics that's capable of between 42 and 43 gallons per minute. These models cost between \$13,000 and \$94,000 new and used, depending on the model year and work hours logged.

## Attachments

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Though not quite as [versatile as a skid steer](#), a backhoe is still an extremely flexible piece of heavy equipment. They can easily be converted from a bulldozer to a snow plow in minutes through a range of time-saving attachments. Some of the most popular include:

Attachment	Description	Average Cost
<b>Multipurpose buckets</b>	Often listed as a 4x1 or 4-in-1 bucket, multipurpose buckets are designed for grabbing and transporting large objects and other materials. They can be upgraded even further to the 6x1 that can be installed to allow the loader to handle pallets.	\$1,400 - \$1,800
<b>Side tip bucket</b>	When space is limited, this accessory mimics the sideshift backhoe design by allowing the operator to move or dump material without repositioning the machine. Ideal for narrow corridors and tunnels, side tip buckets can also be highly effective for trenching.	\$1,500 - \$4,500
<b>High tip bucket</b>	A high tip bucket provides additional clearance for those who routinely load and unload trucks or elevated holding areas.	\$2,700 - \$4,500
<b>Fixed ditching bucket</b>	The heavy equipment equivalent of a finish carpenter, the fixed ditching bucket is designed for cleaning out ditches, backfill applications, and finish grading.	\$600 - \$1,200

<b>Tiltable ditching bucket</b>	Providing more versatility and convenience than the fixed ditching bucket, the tiltable variety cleans and grades while tilting in either direction. By enabling the operator to work parallel with the trench, tasks are completed faster and with less jockeying for position, both of which cut the cost of the project.	\$1,100 - \$2,800
<b>Bale spike</b>	Exactly as the name implies, this farming accessory fits on the front of a backhoe and allows the operator to pick up and transport bales of hay.	\$220 - \$280
<b>Fork and grapple</b>	Not everything is perfectly placed on a pallet, loose logs for example. But with a fork and grapple, a backhoe operator can slide underneath and clamp down on a load with the grapple attachment to keep it stable.	\$800 - \$4,600
<b>Hammers</b>	Smash asphalt, concrete, or frozen soil to pieces with a backhoe hammer attachment. Many models also incorporate a silencer that allows them to be used more readily in noise-sensitive areas.	\$2,900 - \$4,000
<b>Log grapple</b>	Similar to the multipurpose bucket or fork and grapple, a log grapple is shaped to unearth and move large trees. Depending on model selected, grabbing widths range from 30 to 122 inches wide and weight capacities from 1,300 lbs. to over 26,000 lbs.	\$1,800 - \$4,900+
<b>Pallet forks</b>	Quickly transition the loader bucket into a forklift and move pallets and other items around a work site or facility. Most are around 48 to 49 inches in length, 5 inches wide, and adjustable from 44 to 6 inches.	\$650 - \$830
<b>Snow blades</b>	Powered by the backhoe's hydraulic system, this snow mover is more than just a blade. Many models often include a variation of angle, both left and right, that is often as much as 30°. Unlike similar attachments, a snow blade for a backhoe is designed for harsher winter environments and climatic conditions. Some even come with a wheel kit.	\$1,600 - \$2,900

**Before you purchase:** When [comparing different backhoe loader attachments](#), be the lookout for a quick coupler. An easy-to-use, self-locking system, the quick coupler is now standard on most major brands and features a compact, universal design and simple operation that allow a single individual to switch between tasks without assistance.

## Choosing a Dealer

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Heavy equipment dealers are not all equal. Some specialize in a particular type of equipment while some cater to specific industries or applications. With this specialization comes a custom level of support and expertise that will not be suitable to everyone. So before you select a dealer, take a few minutes to review the below criteria to ensure you find the one best suited to your needs.

### Specialization

A backhoe dealer who has been in business for at least 10 years is a pretty safe bet. With a decade under their belt, they have had ample time to establish a network of support and learn the specific problems and solutions relative to the market they serve. This network is important – especially for smaller dealerships who may rely on third-party technicians to provide service and repairs for your backhoe.

When comparing backhoe dealers, give preference to those that offer the greatest selection of machinery, whether their product offerings are comprised of a single manufacturer or multiple brands. These types of dealers are more preferable to a company that provides a wide range of construction equipment due to the specialized, firsthand knowledge they often possess. They may even be able to offer a more competitive price on both machinery and post-sale services.

### Training and safety

Backhoe operators are not required to be licensed. But it only takes one inexperienced driver to dig through a water main to prove that a little training is worth its weight in gold. Our advice: learn from the misfortune of others and invest in operational and safety training. Some manufacturers provide training kits that include DVDs (for classroom instruction) and a variety of workbooks and printed collateral – Bobcat is a great example. Dealers also typically provide varying levels of training, whether on-site at your location or at their facility.

There are also a number of training schools dedicated to heavy equipment operator instruction. In addition to the logistics of operation, these schools address issues related to grade reading and stakes, site layout and plans, soil types, and of course extensive safety best practices and procedures. Some schools even tout their ability to help place graduates after they complete the training, providing employment assistance within the local area.

### Service level agreements and maintenance terms

A service level agreement (SLA) stipulates a wide range of post-sale service elements that will directly affect the return on your investment while helping to avoid costly downtime. A good dealer should provide an equally comprehensive SLA. Addressed in more detail above, some of the most common aspects covered include:

- Preventative maintenance schedule
- Location of maintenance services when performed (on-site or at the dealer's facility)

- Miles or hours between each service interval
- Estimated work time to complete each type of service
- Specific service parts used for replacement
- Cost of each service (if not covered by warranty or standard service fee)

## Financing

Financing the purchase of a backhoe can be beneficial for some businesses and individuals as it enables them to use the newest equipment without a huge outlay, and may even allow them to take advantage of certain tax credits. It's also a great option for those looking to avoid equipment obsolescence.

Depending on the size of the dealer you select, they may or may not offer in-house financing. If they do, it's crucial to read all the fine print and know the rate of interest and any penalties involved. Also, don't forget to check with your bank to find out if they can offer a competitive rate. Depending on your credit worthiness, you may qualify for a better rate of interest on your own.

## EPA regulations

EPA regulations can get tricky, especially when factoring in those that only apply to specific locales. A professional backhoe dealer will have a solid understanding of national and local EPA regulations and can quickly prove how the machine you're considering complies.

For example, diesel engines manufactured after a certain date are required to conform to both state and federal emissions policies, including EPA Tier 1 through Tier 3. Already enforced, these laws precede the tighter Tier 4 hydrocarbon (HC) limits that are currently being phased in through 2015.

- **Before you purchase:** Used machines are usually pretty safe when it comes to EPA standards. According to a [publication](#) of frequently asked questions, the EPA states "If products were built before EPA emission standards started to apply, they are generally not affected by the standards or other regulatory requirements ... We never require owners to retire their old engines, vehicles, or equipment." Though there may be some exceptions, you can be confident that most backhoe dealers are providing certified equipment.

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