

# 10 Things to know when buying an Air Compressor

When selecting the compressor that's right for you, there are a variety of factors that you'll need to consider; first and foremost, what job you need it to do.

Whatever your requirements, we will have it in stock. It is just a matter of establishing which is going to work best for you.

This guide covers everything from horsepower and air pressure to life expectancy.



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## 1. Size

Based on our extensive experience, the chances are whatever the size you choose, you'll be glad you didn't buy a smaller compressor.

Always refer to the manufacturer's specifications for industrial equipment.

The majority of automotive air tools require around 10 CFM at 90 psi to keep them operating. Though for some tools – ratchets for example, which are often run sporadically – 5 CFM per tool should suffice.

For running tools continually, such as sanders, you'll need at least 10 CFM. For this type of application, we'd advise a 16 CFM (at 90 PSI) compressor with a 65% duty cycle. This would give you just a little over 10 CFM persistently. This way, there'd be no waiting for air and no need for concern about overstraining the machine; at least, not if using a standard sander.

We always recommend purchasing a compressor that will run most of the 200-ish tools available as we've seen many customers use an air tool for the first time and want to use other tools in the same way.

## 2. Air Pressure (PSI)

Air pressure is most commonly measured in pounds per square inch (PSI). The majority of air tools require 90 PSI to operate efficiently, though you'll need a compressor with a greater shut-off pressure. Most industrial air compressors are two-stage, meaning they shut off pressure in two stages, the first building to around 90 PSI and the second to 175 PSI. Smaller compressors are single stage, shutting off at around 125-135 PSI.



## 3. Cubic Feet Per Minute (CFM) 5. Horsepower (HP)

Cubic Feet Per Minute (CFM) refers to the volume of air required to keep the compressor operating effectively. For smaller compressors, 90 PSI is what you need to



look out for, as this is what's required to run the majority of tools. Like HP ratings, CFM ratings are often exaggerated. As a guide, you'll get 3-4 CFM per real HP at 90 PSI.

## 4. Tank Size

Size isn't necessarily important when it comes to the compressor tank. It stores the air; it doesn't produce it. It's a bigger pump and motor that you'll need. That said, there are times when you may be able to save money by purchasing a smaller compressor with a big tank, if you only use air sporadically. What do we mean by this? As an example, if your compressor produces 10 CFM continually, you can take 20 CFM out of the tank for half the time. This means that if you're using a 1" impact wrench irregularly at around 20 CFM, with a big tank, there may be enough air stored for you to repeat the task. Instead, it may be that you're looking to operate a tool steadily – say, a sander – in which case, you'll want your machine to generate the amount of air you'll need. A smaller tank will reach the required pressure more swiftly.

Whilst the horsepower rating should be a good indicator as to the size of compressor you need, it can't be relied upon, alone.

Some compressors tend to be overrated, though as a guide, industrial compressors generally aren't. This, of course, should only be used as a more general rule of thumb.

If you're unsure, it will help if you look at the amount of electrical power a compressor uses. As an example, an accurately rated single phase power 5 HP motor will use around 24 amps on a 220 volt circuit; in comparison with the majority of overrated hobby machines which run on a standard 15 amp 110 volt circuit. These can realistically only manage running at around 2 HP.

How can you tell? If the machine can be plugged into a standard electric socket, then it's going to be no more than 2 real HP.

When it comes to gas engine HP, the ratings differ. To give you some idea, a 10 HP gas compressor generates the same amount of air as an industrial 5 HP electric machine.



## 6. Single-Stage and Two-Stage Air Compressors

The terms 'single-stage' and 'two-stage' are bandied about a lot when it comes to air compressors. So, what do they mean?

Simply put, single-stage compressors are designed with one or more cylinder which pumps air straight into the tank.

Two-stage compressors are defined by having two or more cylinders. With these machines, the air is pumped from one cylinder to another before reaching the tank.

The latter is more appropriate for high pressure, though there aren't an inordinate number of applications that need this.

Therefore, it is likely that you won't need a two-stage compressor.

It is worth bearing in mind that a two-stage compressor isn't necessarily going to be better than a single-stage one, in any case.

We recommend a reliable, good quality single-stage compressor for the majority of applications. Of course, there are times when this won't be apt.

## 7. Direct Drive or Belt Drive? Oil or Oil-less?

You can find some great compressors, in both direct drive and belt drive form. We do advise, however, on checking the quality of any direct-drive compressor before purchasing.

Look into factors such as life expectancy and noise levels.

We generally advise steering clear of high-speed oil-less compressors. Oil-less direct drive compressors are vital

for some applications, such as breathing air or aeration. There are some high-quality direct drive oil-lubricated compressors which work well for those in the construction industry. The fact that these machines are compact and portable means they can be transported from site to site.

If transportability isn't important to you and you need greater volume of air, your most suitable compressor is likely to be a belt drive oil lubricated compressor. Again, keep an eye out for the product's life expectancy with these. Though, generally speaking, they tend to be more efficient.

The majority of belt drive compressors are splash lubricated, with dippers at the foot of the connecting rods which splash oil around in the crankcase. If used correctly – with plenty of oil – the splash lubricated pumps should have a good shelf-life.

As long as you don't need it to be portable, we recommend investing in a belt drive, oil lubricated compressor for best value.



## 8. Duty Cycle

Duty cycle is significant. What does it tell you? The duty cycle refers to the number of minutes the compressor can run in a 10-minute period.

A low-quality compressor will often have a 50% duty cycle, meaning it should run for no more than 5 minutes out of a 10 minutes period.

For industrial compressors, aim for a 75% duty cycle at the very least. If you opt for one with a 100% duty cycle, you'll be able to operate it continually.

## 9. Issues with Moisture?

If you have problems with moisture, it may help to know that compressed air gets hot and when cooled, water condenses from it. The more your compressor is used, the hotter it will get and the more moisture issues you

are likely to be faced with. This can often be prevented by purchasing a larger compressor that doesn't need to work so hard.

It may be that you've experienced intermittent moisture complications due to the humidity in the air. A standard moisture trap can help; its design means it collects water droplets as opposed to water vapour. The idea is to get the air as cool as you can before it reaches the moisture trap.

Refrigerated air dryers tend to be used for industrial applications.

Another option is desiccant dryers. These use a silica gel which, when saturated, can be heated or replaced. For smaller products, a clever plumbing system may suffice. Aluminium or copper pipes won't rust and will both disperse heat well. For larger appliances, this will act as a greater radiator and will be even more effective at cooling the air.

To fit, attach the trap at the end of the pipe, as close as you can to the apparatus and as far away as possible from the compressor.

Whilst you'll want to drain your tank to prevent it rusting, it's not necessary to do it continually – it's highly unlikely to get into your air lines.



## 10. Life Expectancy

Depending on the type of product you buy, you can expect to see an increased shelf-life of up to 20%. And your pocket won't be affected nearly as much as you think – if at all.

We always advise on not buying a compressor unless you know about its life expectancy first. It's so important. In addition to saving money, you'll be helping your environmental policy, as your product will be a sustainable one.

As a guide, we estimate that for every £1 you spend on your machine, you'll be likely to save £2-3 long-term. When thinking about life expectancy, consider purchasing a larger compressor too. By staying cooler, it should last a lot longer – twice as long, even. It's a no-brainer, isn't it?

## Bonus: Additional Compressor Types

Whilst the majority of our guide relates to electric compressors, it may be that these aren't what you need. For 25 HP and above, it's worth looking into a screw-type machine.

For a constant low pressure and low volume supply, you'll probably need a diaphragm compressor.

Then there are the rotary vane and regenerative blowers. These work well for specific applications (talk to us for more information), however reciprocating piston-type compressors often work out to be best value for money; they are suitable for most purposes.

If you need any more help or advice, speak to one of our specialists here at Multimax Direct. And please do feel free to download and keep this compact guide. Ready to buy? Our superb range of air compressors can be found here.

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