

Choosing a Compressor

Buying a quality compressor that's best suited to your needs will save you time and money in the long run and it's an easy process that just requires understanding a few key concepts. This guide will help direct you towards making the best possible purchase.

Selecting the right compressor will mainly depend on four factors:

- 1. The total air consumption of the all the tools you want to power simultaneously with the compressor.**
- 2. The recommended operating pressure of your tools.**
- 3. How you will use your air tools - ie. will they be run continuously or intermittently.**
- 4. Where you will run the tools - do you need the unit to be portable and is electricity available on site.**

Tool Air Consumption

A compressor needs to supply enough air flow, at the right pressure, for an air tool to work correctly. So the air tools you want to use will be a primary factor when choosing a compressor.

Air tools have a specification for air consumption, normally measured in litres per minute (l/min) or cubic feet per minute (cfm). They also have an operational pressure measured in bars (b) or pounds per square inch (psi).

An air saw for example may have an air consumption of 170 l/min (6cfm) and require a pressure of 6 bar (90psi) to operate correctly.

You will need to consult a tools manual or manufacturer to determine the right air requirements for a particular tool.

Compressor - Free Air Delivery (FAD)

A compressor needs to produce enough air to meet the air consumption requirements of the tool(s) connected to it.

The volume of air a compressor produces is called the Free Air Delivery (FAD), also measured in litres per minute (or cfm). The FAD relates directly to a tool's air consumption requirement.

For an air saw that has an air consumption of 170 l/min the compressors FAD rating will need to be at least 170 l/min.

If you intend to operate multiple tools at the same time you will need to add up the air consumption values of the tools and use a compressor with an FAD rating that meets the total air demand.

For example, to simultaneously run an air saw (170 l/min) and an air ratchet (113 l/min) you will need a compressor with an FAD of at least 283 l/min (170 + 113).

The FAD ratings for all compressors sold at Total Tools are determined according to the Australian Standard AS 4637 2006.

Air Pressure & Quality

A compressor also needs to deliver a volume of air at a tools operational pressure. If a tool requires 12 bar (174psi) to operate you need a compressor that can pressurise air to 12 bar.

If a tool needs only 6 bar (90psi) a pressure regulator fitted to the compressor will allow you to adjust the air supply to a lower pressure.

Note: Excessively high pressure can damage tools not built to handle it.

Air Quality

Compressors can produce air of varying quality. Dust, moisture and oil particles can all be present in the air flow unless they are filtered out.

If your tools or application requires "clean" air consider a compressor with particle and moisture filters installed. Oil-less pumps are also available which negate the risk of oil entering the air flow.

Air Tool Specifications

This chart shows the approximate air consumption and operating pressures you can expect from common air tools.

Note: this chart is only a guide, your tools may differ so consult your manual or manufacturer to obtain correct specifications.

Air Tool	Air Consumption		Operating Pressure	
	~ l/min	~ cfm	~ bar	~ psi
Rivet Guns	<120	<6	6	90
Grease Guns	80	3	2 - 8	30 - 115
Inflators	50	2	6 - 15	90 - 220
Blow Guns	>300	>10	8	115
Nail Guns	80 - 170	3 - 6	6 - 8	90 - 115
Staplers	80 - 170	3 - 6	4 - 8	60 - 115
Nibblers	170	6	6	90
Ratchets	115	4	6	90
Saws	170	6	6	90
Grinders	170 - 340	6 - 10	6	90
Screwdrivers	230	8	6	90
Sanders	400	14	6	90
Drills	285	10	6	90
Hammers	285	10	6	90
Chisels	285	10	6	90
Impact Wrenches	240 - 400	8 - 14	6	90
Spray Guns	340 - 400	12 - 14	2 - 5	30 - 70

Tool Usage

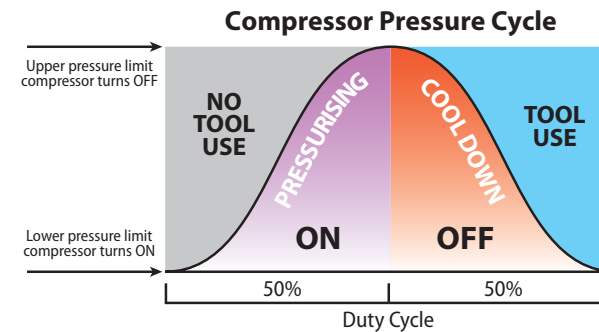
The third factor to consider when buying a compressor is how you intend to use your tools.

The volume of air a tool may require will be affected by how you use that tool. An air saw that's run in continuous long bursts will require a greater volume of air to operate efficiently over that period than if it is run in intermittent short bursts.

Pressure Cycle

Most compressors force air into a storage tank, increasing the pressure until it reaches an upper pressure limit at which the compressor shuts off.

When the compressed air is being used by a tool the pressure decreases until the tank reaches it's lower pressure limit, at that point the compressor turns on to re-pressurise the tank. This is the compressor pressure cycle.



Compressing air produces heat which can damage the compressor if it's not managed. When the compressor turns off (after reaching maximum tank pressure) it has time to cool down while the air in the tank is being consumed.

When a tool consumes the stored air quickly the time for cool down is reduced because the unit needs to turn on to repressurise. If not enough time is dedicated to the cool down phase the compressor can overheat and become damaged.

Duty Cycle

The ratio between the pressurisation and cool down phases is called the Duty Cycle. Ideally to maximise a compressor's operational life it's duty cycle over any given timeframe should be no more than 60% of the time turned on and 40% turned off (cooling down).

If you think you'll be using high air consumption tools in a continuous manner consider a compressor with a higher FAD rating and/or larger storage tank to reduce the risk of wearing out or overheating the unit.

Where do you want to use the compressor?

Where you need to operate your tools & compressor is the fourth major point to consider when buying a compressor.

Portability

Do you need your compressor to be portable? If you want to move your unit around easily then your compressor will be limited in size, power and volume of air that it can produce.

Electric vs Petrol Engine

A petrol compressor is best suited for outdoor applications where electrical power isn't available. Never use one in an enclosed environment.

A compressor with an electric motor however will be cheaper to buy and operate and also require less maintenance.

If you choose an electric compressor ensure you have adequate power to operate it. 10amp, 15amp or even 3 phase electricity may be required by your compressor.

Tank Size

The size of tank you require will most likely be determined by how you will use your compressor and the tools attached to it.

A tool used intermittently in short bursts should only require a small tank as the air volume will not be used up quickly. But if your compressor needs to sustain long periods of usage a larger tank is recommended.

Keep in mind that a larger tank will affect portability.

Site Location

Ensure the location you wish to place the compressor is large enough to fit the unit and has adequate ventilation so it won't overheat.

Large workshop systems

If you are planning on installing a large air system with more than five workstations or you require air for an industrial application you may require a screw compressor and/or a specialised airline and filtration configuration, so consult with a Total Tools staff member and they will provide the expert advice you require to build the right system for your needs.

Other things you should know

- The tank stores air, it doesn't generate it. A bigger tank doesn't mean more air, it means a longer cycle time.
- Too much pressure for your application wastes energy and can damage tools.
- If you have three phase power, buy a three phase compressor, they are more efficient and reliable.
- Extension leads reduce power to the motor so when possible use a longer air hose instead.
- If you need a long lead, consider a petrol compressor instead.
- Overheating is a major factor in compressor failure, ensure your unit has adequate ventilation and access for maintenance.
- Divide the FAD by 28.3 to convert to CFM.

Selection Summary

So you should now have a good idea of what sort of compressor will be best for you.

To review:

- Add up the total air consumption of the all the tools you want to power simultaneously.
- Determine if you will run tools continuously or intermittently.
- Decide if you need the unit to be portable?
- Do you need "clean" air?
- Is adequate electricity available on site or will you go with a petrol model.

If you have answers to these questions the next step is to look at the four main categories of compressor in the IRONAIR range:

Mobile Trade
Portable Workshop
Petrol Compressors
Stationary Workshop



Mobile Trade Compressors

Our large range of portable trade compressors are capable of producing high pressure air while still remaining compact and portable enough to take almost anywhere.

These compressors are best suited to running individual tools intermittently that have low to medium air consumption requirements.

FAD Range 73 - 247 l/min	Pressure Range 8 - 10 bar	Suitable for: Handymen Service Technicians Framers Carpenters Fencers Builders
Tank Range 10 - 100 litres	Portability Very Portable	
No. Tools Operable One at a time	Tool Usage Intermittent	

Petrol Compressors

Our petrol powered compressors are capable of producing high volume high pressure air and are ideal for use on site or wherever mains power is unavailable. They are also highly manoeuvrable and easy to transport.

These compressors are capable of running tools with medium air consumption requirements.

FAD Range 273 - 289 l/min	Pressure Range 8 - 10 bar	Suitable for: Farmers Builders Framers Carpenters
Tank Range 30 - 50 litres	Portability Very Portable	
No. Tools Operable One at a time	Tool Usage Continuous	



Portable Workshop

These are portable professional compressors that produce high volume medium pressure air perfect for workshop use.

All have wheels and handles so they can be easily manoeuvred into position. These compressors are capable of running tools with high air consumption requirements.

FAD Range 217 - 320 l/min	Pressure Range 6 - 8 bar	Suitable for: Mechanics General Industry Tyre Industry
Tank Range 50 - 200 litres	Portability Semi Portable	
No. Tools Operable Two simultaneously	Tool Usage Continuous	

Stationary Workshop

These are stationary compressors that produce high volume medium to high pressure air for workshop use.

These compressors have large storage tanks and are capable of continuously running multiple tools with high air consumption requirements.

FAD Range 433 - 946 l/min	Pressure Range 6 - 12 bar	Suitable for: Mechanics Spray Shops Manufacturing Industrial Tyre Industry
Tank Range 50 - 200 litres	Portability Stationary	
No. Tools Operable 2-5 simultaneously	Tool Usage Continuous	



COMPRESSOR SELECTION GUIDE

