

A QUICK GUIDE TO...

WORKSHOP COMPRESSORS

Choosing a portable, single-phase electric workshop compressor is, on the face of it, simple. Just select a unit with sufficient puff to do the job and that is it. There are design points to consider, however, and although these may not necessarily influence performance they can determine reliability and longevity.

By James de Havilland

One of the most useful items of kit within a workshop, an air compressor can be used to operate everything from rust inhibitor applicators and grease guns through to staplers and powerful hammer drills. The key to choosing the best portable machine is to select a design that can stand up to periods of intense use but not suffer when left idle for extended periods.

Establish what the compressor is needed to do. For general tyre inflation and having an air line to blast equipment clean, any mains powered unit will do the job; but to get the best compromise between price and performance key points to consider are the air receivers storage capacity, the units maximum operating pressure and all important free air delivery. Of equal importance are drive motor power and endurance rating plus the pump type.

Air Receiver Capacity

Air receiver capacity is often confused with the ability of a given compressor to do a job. More accurately, a large receiver has two main benefits:

- to extend the amount of time that the unit can supply air without the unit's pump running.
- to provide a 'buffer' of air to cope with varied air demand.

If a compressor is likely to be used for extended periods, it pays to have a larger receiver. This allows the pump and motor more time to cool between bursts of activity. For typical portable workshop



use, a 100 litre receiver capacity is a good entry point. When using a cleaning lance, a larger 200 litre receiver is better.

Maximum Air Pressure

Although important, the maximum air pressure the unit can deliver is not as critical as the free air delivery; even an entry level hobby compressor may generate air pressures of up to 8bar/118psi. Top end workshop models usually top out at 10bar/145psi.

Free Air Delivery

Still widely measured in CFM, cubic feet per minute, free air delivery is a key measure of a compressors performance. Pretty obviously, the greater the volume of air a unit can deliver, the better able it will be to keep up with a high demand for air.

To confuse matters, manufacturers may list air delivery in three ways:

- Air Displacement. This will list the pumps rated capacity, and will be higher than the maximum free air delivery.
- Maximum Free Air Delivery. This is the maximum amount of air volume the unit can actually produce.
- Free Air Delivery. This is the one to note as it is the realistic air output volume of the compressor. If only air displacement is listed, do not confuse it with free air delivery.

Portable Compressor

A rugged 6.0 CFM free air delivery portable compressor with pneumatic tyres, single phase 2.0hp motor and rugged V-twin pump. This will suit most needs. Price around £400 to £500.

Compressor Pump

As this is the heart of the machine it is an area where it pays to have a degree of background knowledge. In outline, there are numerous pump types fitted, but for a portable workshop unit the main ones will include:

- Single cylinder reed valve
- Parallel-twin cylinder reed valve
- Parallel-twin cylinder spring valve
- V-twin

Parallel-twin cylinder pumps come in two designs; single stage and dual stage. The latter have one low and one high pressure cylinder. V-twin pumps can be made from alloy, with or without cast iron cylinders, or completely from cast iron. For cooling and longevity purposes, cast iron is preferable, but this makes the pumps both heavier and more expensive.