

# Technical Bulletin 51

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## Actual Air Compressor Horsepower

by Brian S. Elliott

The horsepower rating for compressors should be an indicator of the compressed air output. However, it has become a common practice to rate so-called “commercial” or “home” compressors by their motor horsepower instead. For example, a compressor that has an output of 12 SCFM @ 125 PSI is a true 2.8 HP compressor, even though the graphics may advertise “6 HP”. This 6 HP rating is the horsepower of the motor, not the compressed air output. In an effort to present the image of a larger compressor for less money, many companies boldly advertise the motor horsepower rather than the air compression horsepower. This has a tendency to skew the customer’s perception into thinking that they are getting a lot of compressor for a low price. This is not true and can be a very expensive way to learn about compressed air.

When evaluating any compressor, it is very important to base your evaluations on SCFM (CFM) and not the motor horsepower. To further illustrate this, let’s compare a true 5 HP industrial compressor with a contractor-grade 6 HP compressor available from the home improvement center.

1. The 5 HP industrial compressor costs \$1,300.00 and produces 16.9 SCFM @ 175 PSI.  $16.9 \times .282^* = 4.77$  actual horsepower of compressed air.  $\$1,300.00 \div 4.77 \text{ HP} = \$272.54$  per HP.

2. The 6 “Peak” HP contractor compressor costs \$679.00 and produces 4 SCFM @ 90 PSI.  $4.0 \times .195^* = .78$  actual horsepower of compressed air.  $\$679.00 \div .78 \text{ HP} = \$870.62$  per HP.

As you can see, the industrial compressor really is a 5 HP compressor and represents a much better compressed air value. On the other hand, the 6 HP contractor compressor is really a 3/4 HP compressor and is a far cry from what you were probably expecting.

Additionally, many of these lesser compressors have what is termed “compressor-rated motors”. This can also be a little confusing to the customer. “compressor-rated motor” is a relatively new term that actually refers to a low-duty cycle motor. These motors are not suitable for continuous operation. They are capable of outputting their power for only short times and require a longer “off” period for cool down. Low-duty cycle motors are considerably less expensive to manufacture and have the added advertising advantage of a high horsepower rating. Coupled with the lesser actual compressed air output and the low-duty cycle motor, it is not difficult to imagine that the compressor may be forced to operate well above its maximum rated capabilities. This will have the effect of greatly reducing the life of your compressor . . . Once again, a costly education in compressed air.

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