

如何選擇適合的空氣壓縮機

How to choose a suitable Air Compressor

空壓機馬達有分為旋齒式、渦卷式、往復式、螺桿式等。主要差別為壓縮空氣的速度、空氣品質等。但在選購時，還是要依據欲使用的氣動工具來選擇才可以讓工具發揮最大效能。目前空氣壓縮機可提供的壓力為 80psi(5.5kg/cm²)



~ 110psi(7.6kg/cm²)，大多數的氣動工具使用的壓力為 90psi(6.3kg/cm²)。

Air compressor motors are divided into spiral tooth type, scroll type, alternating type, screw type and so on. The main difference is the speed of compressed air, air quality, etc. However, when purchasing, you still have to choose according to the pneumatic tools you want to use in order to maximize the effectiveness of the tools. Most air compressors can provide a pressure of 80psi (5.5kg/cm²) ~ 110psi (7.6kg/cm²), while the average pneumatic tool uses a pressure of 90psi (6.3kg/cm²).

空氣壓縮機規格選擇標準：首先要決定總空氣消耗量(SCFM)。計算上要考慮管線消耗、同時間使用設備數，或其他可以會消耗空氣的因素。空氣消耗量 SCFM 換算 m³/min 的數值為 $1 \text{ m}^3/\text{min} = 35.3147 \text{ SCFM}$ 。如果氣動工具 A 的耗氣量 $D = 0.45 \text{ m}^3/\text{min} * 35.3147 = 15.89 \text{ SCFM}$ 。

Selection method of air compressor horsepower : First, determine the total air consumption (SCFM). The calculation should consider the pipeline consumption, the number of equipment used at the same time, or other factors that may consume air. The value of air consumption SCFM converted to m³/min is $1 \text{ m}^3/\text{min} = 35.3147 \text{ SCFM}$. If the air consumption of pneumatic tool A is $D = 0.45 \text{ m}^3/\text{min} * 35.3147 = 15.89 \text{ SCFM}$.

額外預留量依據個別需求調整。一般來說，我們預留量會多 20% ~ 50%。假設今天我們預留量設定為多 30%。新總空氣消耗量($D1$) = $15.89 * 1.3 = 20.657 \text{ SCFM}$ 。

The additional reserve is adjusted according to individual needs. Generally speaking, we reserve 20% ~ 50% more. Suppose today we set the reserve amount to 30% more. New total air consumption ($D1$) = $15.89 * 1.3 = 20.657 \text{ SCFM}$.

空氣壓縮機馬力選擇。當 $D1 \leq 100 \text{ SCFM}$ 時，馬力(HP) = $D1/4$ 。當 $D1 > 100 \text{ SCFM}$ 時，馬力(HP) = $D1/5$ 。因此，氣動工具 A 需要的空壓機馬力(HP) = $20.657 / 4 = 5.16$ 。購買上需要5.5或6馬力的空氣壓縮機才可提供氣動工具不間斷的使用。

Air compressor horsepower selection. **When $D1 \leq 100 \text{ SCFM}$, horsepower (HP) = $D1/4$. When $D1 > 100 \text{ SCFM}$, horsepower (HP) = $D1/5$.** Therefore, the air compressor horsepower (HP) required for pneumatic tool A = $20.657 / 4 = 5.16$. Purchase an air compressor that requires 5.5 or 6 horsepower to provide uninterrupted use of pneumatic tools.

