

IMPORTANT THINGS TO KNOW : ROTARY SCREW COMPRESSOR APPLICATIONS

1. Rotary screw compressors (any manufacturer) have a maximum of a 100% duty cycle. Operating the compressor over the 100% duty cycle will result in a premature failure of standard wear parts as well as other components. On initial installs a 70% duty cycle is recommended. As air leaks in tools, air lines, tool connections and equipment fittings will occur over time. It is not recommended to install a screw compressor with a duty cycle less than 50% to ensure the compressor maintains an operating temperature high enough to keep the moisture content in the oil at acceptable levels.
 - A. A 1/8 inch hole in a fitting or air line with air pressure at 100 PSI can lose up to 26 CFM. This leak would require a 7.5hp compressor just to feed it.
 - B. A 1/32 inch hole in a fitting or airline can lose up to 5 CFM at 100PSI. This leak would require a 2hp compressor just to feed it.
 - C. The higher the pressure the higher the air loss.
 - D. Example duty cycle of a compressor that makes 10 CFM:
 - You would not want to install the compressor into an application requiring more than 10CFM.
 - On a new install you would want the for a 10CFM compressor you would want the application to use 7CFM.
2. Minimum distance recommended around all sides of an electric motor driven rotary screw compressor for cooling and operation is 24 inches. Provided there is adequate fresh air flow around the package.
 - A. Not having adequate fresh air flow to the compressor package will result in overheating of the compressor package, and possible premature failure of compressor components.
3. Standard rotary screw compressor packages are designed to operate under a weather proof cover or indoors in an ambient air temperature of 32F-105F. Additional measures can be taken for higher or lower ambient operating conditions. As well as other adverse weather conditions.
4. On electric motor driven packages, voltage is critical to the proper operation of the compressor package. Compressed Air Systems primarily uses tri-voltage (208-230-460) motors on our industrial, 3 phase compressor packages (5-50hp). On single phase (5-10hp) industrial packages, 208-230 volt motors are used.
5. For 3 phase units, the site voltage needs to be known prior to assembly of the compressor package so the controls can be built for either the low or high voltage.
6. For 3 phase compressor package voltages below 207 volts, a specific low voltage motor should be utilized for proper operation. For sites with voltages above 500volts, a specific high voltage motor is required for proper operation.
7. For 1 phase motor applications with a site voltage below 207 volts, a specific low voltage motor is required for proper operation.
8. Mobile applications where the electric motor is being driven by a generator: Follow the recommendation to ensure the generator can start and run the electric motor. An electric motor requires 4-5 times the maximum running amps for approximately 3 seconds to start correctly.
 - A. Example: 5hp electric motor standard amps 20.7 with a service factor of 1.15 at 230 volt (Amps x Volts = Watts)
 - $20.7 \times 1.15 = 23.805$ maximum operating amps
 - $23.80 \text{ amps} \times 230 \text{ volts} = 5474 \text{ watts}$ required to run once started
 - $5474 \text{ watts} \times 4 = 21,896 \text{ watts}$ minimum required to start the electric motor
 - Failure to have adequate starting watts available will result in premature failure of electric components or generator.
 - When starting an electric motor driven compressor that is powered by a generator, always make sure generator is fully operational prior to starting the compressor package. Failure to do so may result in premature failure of electric components.
 - Make sure compressor is completely powered down before turning off generator. Failure to do so can result in premature failure of electric components.
9. On rotary screw compressors the cleanliness of the operating environment will determine how well the compressor package will operate. An excessively dirty/dusty environment can also lead to increased service intervals. The compressor should be installed in a dry, clean area. Packages installed in dirty or high dust areas will require more service to make sure critical parts stay clean for proper operation. Or additional features such as TEFC, NEMA7, NEMA4 or other components may be required to operate in those environments.

KNIGHT COMPRESSORS

sales@knight-compressors.com
service@knight-compressors.com
Dependable, hard-working,
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