

Single Screw Compressors Vs Twin Screw Compressors

Criteria	Single Screw Compressor	Twin Screw Compressor
Performance and Reliability	Along with oil, liquid refrigerant is used to cool, lubricate and seal the compressor. This leads to low discharge temperatures, an effective seal for the compression, tolerant to liquid slugging, enhances overall compressor reliability and noise levels. This also reduces the amount of oil in the system, thus increasing the efficiency and reducing the problems associated with oil management system.	Only oil is used to seal, cool and lubricate the twin-screws. However, this method of cooling and lubricating is not effective as compared to mono screw compressor. Also, due to high velocities of discharge gas in the oil separator, the noise levels are also very high.
Radial and axial loads	Balanced radial and axial forces on the compression mechanism, along with unrestricted mounting space for the bearings allow us to design bearings for two to three times greater life than the twin screw compressors.	Heavy axial, radial and tilting forces are experienced in a twin-screw design. Also, due to limited mounting space for the bearings, costly Class 5 design of the bearings is essential. The design life of these bearings is in the range of 50,000 to 80,000 hours only.
Vibration levels	Balanced forces means low vibration levels.	Due to very high unbalanced forces, vibration levels are high.
Noise level	No metal to metal contact which means ultra silent operation with dBA levels two to four times lower than the twin-screw compressors.	Due to the metal-to-metal contact of the male and female rotors, twin screw compressors generate a very high noise.