



## Advantages of Frictionless Compressor Technology

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### DESCRIPTION

The roller bearings and hydrodynamic bearings, which are used in conventional centrifugal compressors and both of which use energy, need oil and lubrication systems. Frictionless compressor technology, a new advancement in compressor technology, can solve this problem. The frictionless compressor technology uses a permanent magnet synchronous motor and magnetic bearings in the compressor. Magnetic bearings are utilized in frictionless compressors in place of roller bearings and hydrodynamic bearings. With magnetic bearings, there is no need for lubrication systems or oil, which reduces power consumption. Permanent magnets are used in place of copper windings in permanent magnet brushless synchronous motors.

One of the rapidly expanding technologies in the field of mechanical engineering is frictionless compressor technology. Traditional centrifugal compressors use roller bearings and hydrodynamic bearings, both of which require oil and lubrication systems and consume energy. The advent of new frictionless compressor technology, often known as compressor technology, can solve this problem. The compressor that uses magnetic bearings and a permanent magnet synchronous motor is known as a frictionless compressor. Magnetic bearings will be used in the frictionless compressor in place of roller bearings and hydrodynamic bearings. With magnetic bearings, the requirement for lubrication and oil systems is eliminated. Instead of copper windings, permanent magnet brushless synchronous motors use magnets. This compressor is highly reliable, requires little maintenance, and has crew. It is quite simple to regulate and monitor the job with the aid of the digital control system.

### ADVANTAGES

- The suction, discharge, and economizer ports are identical to those found on conventional compressors. It mounts in the conventional manner. It can utilize the same power wiring with just one connection for control and monitoring.

- The oil management system is not necessary with this frictionless magnetic bearing design. Additionally, the unit's high efficiency may be preserved throughout its lifespan because there isn't any oil to cover the heat transfer surfaces. Due to the compressor's exceptional efficiency, equipment producers can choose to provide the highest efficiency/lowest emissions, most cost-effective performance in its tonnage range.
- With a sound pressure level of less than 70 dB and almost little vibration carried by the structure, expensive attenuation equipment are not necessary.
- The compressor features an advanced self-diagnostics, monitoring, and control system within and is completely self-correcting. You can access this intelligence outside by employing control outputs for a variety of purposes, such as web-enabled monitoring and control.

### CONCLUSION

One of the quickly expanding technologies in the field of mechanical engineering is frictionless compressor technology. Traditional centrifugal compressors use roller bearings and hydrodynamic bearings, both of which require an oil and lubrication system and consume energy. Frictionless compressor technology can solve this problem and has positive effects on the economy, the environment, and the use of energy. The main ones are reduced weight, noise, and vibration, elimination of oil and control of oil. This is the first intermediate package that makes use of centrifugal compression's efficiency, which was previously reserved for large systems. This compressor is highly reliable, efficient, lower maintenance costs and staff. It is quite easy to use a digital control and monitoring management system. Compressors without friction bring about new advancements in air conditioning, refrigeration, and other fields. One of the engineering fields' fastest-growing technologies is compressor technology. These compressors have a design that is unmistakably inventive, beautiful, and effective, and all signs point to a high-quality item. The concept of magnetic bearings is intriguing, but it turns out that this feature is rarely sufficient to make a frictionless compressor worth the 50–70% price premium pay for a frictionless compressor.

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