

1. Key Tests Prescribed for Positive Displacement Air Compressors and Exhausters:

- **Type Tests:** These tests are crucial for validating the performance and reliability of compressors, especially when a new design is introduced or significant modifications are made to an existing model. The specific tests included are:
 - **Mechanical Tests:** Assess the structural integrity and mechanical performance of the compressor.
 - **Capacity (Free Air Delivery):** Measures the volume of air delivered by the compressor at specified conditions, which is critical for determining its operational efficiency.
 - **Specific Power Consumption:** Evaluates the energy efficiency of the compressor by measuring the power consumed at various pressures, from minimum to maximum working pressure under full flow conditions.
 - **Maximum Operating Speed:** Determines the highest speed at which the compressor can operate safely and effectively.
 - **Volumetric and Overall Efficiency:** These metrics assess how effectively the compressor converts input power into useful work and how much of the intake air is actually compressed and delivered.
 - **Lubricating Oil Consumption:** Measures the amount of lubricating oil used during operation, which is important for maintenance and operational cost assessments.
 - **Testing of Loading and Unloading Mechanism:** Ensures that the mechanisms responsible for starting and stopping the compressor function correctly and efficiently .
- **Routine Tests:** These tests are performed on every unit to ensure consistent performance and reliability. They include:
 - **Capacity (Free Air Delivery):** Similar to type tests, this measures the air output under normal operating conditions.
 - **Speed:** Confirms that the compressor operates at the specified speed, which is essential for performance.
 - **Specific Power Consumption:** For electrically driven compressors, this measures the power consumed at full load, while for other types of drives, it assesses specific fuel consumption .

2. Types of Compressors Excluded from this Standard: The standard specifically excludes:

- **Centrifugal and Axial Flow Compressors:** These types of compressors operate on different principles compared to positive displacement compressors and are not covered under this

standard. Centrifugal compressors use kinetic energy to compress air, while axial flow compressors use a series of rotating blades to achieve compression.

- **Machines with Pressure Rise Below 0.01 MPa or Above 6 MPa:** This range is set to focus on compressors that operate within typical industrial applications. Compressors that operate outside this range may have different design and operational characteristics that are not addressed in this standard .

3. Terminology Used in This Standard:

- **Supplier:** The term encompasses any entity that provides the machines, which may include manufacturers, distributors, or third-party vendors. The definition is broad to include all parties involved in the supply chain, ensuring that responsibilities and compliance can be traced back to the source of the equipment .
- **Purchaser:** This term refers to the individual or organization that buys the machines. It also includes any authorized representatives who act on behalf of the purchaser for inspection and acceptance of the machines. This ensures that the purchaser has the right to designate others to oversee the compliance and quality of the equipment being supplied .