

Blower Standards and Test Methods: FAQs

1. Is there a need for test standards? What would be the benefit for customers?

Standards provide a common means of understanding and communicating performance. An accurate, uniform method of testing to determine performance lays the groundwork for proper selection of equipment so that it can meet the needs of particular applications. If all manufacturers test and rate their equipment using the same standard test method, purchasers can be certain that reliable comparisons can be made among different equipment providers and that performance information can be used to properly specify equipment.

2. How is performance for blowers reported now?

For many years, manufacturers have reported performance of bare shaft power at several operating points. While this method was sufficient to obtain a general understanding of performance, it does not paint the entire picture. Current machines have evolved, and many times incorporate devices (cooling fans, variable frequency drives, pumps controllers) required to achieve peak performance. These devices add the power requirements and must be considered in the selection process. Additionally, variable speed machines mean a variation in performance across the machine operating range. Equipment purchasers require a comprehensive approach that takes into account all energy inputs that are used to provide useful air output at multiple data points.

3. Why does CAGI develop its own standards, instead of using ones now available?

CAGI has been developing standards since its formation 100 years ago. Over the decades, standards and the process of developing standards have evolved. The “CAGI” standards are evolutionary in nature, using the current methods, which have become obsolete, and updating them so that they meet the needs of modern times. The result is a more accurate, complete understanding of true performance coupled with better communication of true performance information to purchasers.

In fact, while CAGI plays a key role in initiating and guiding development of many industry standards, most of the standards that eventually become used in the industry are American National Standards and ISO (international) standards. To achieve this status, a standard is reviewed and approved by a wide variety of manufacturers, users, test labs, and other interested parties, both in the US and internationally. As manufacturers have become more engaged in the global economy, particularly US manufacturers, the existence of international standards has proved to be an invaluable asset that reduces confusion, increases efficiency, and increases the competitiveness of honest manufacturers that provide reliable data as they compete against other manufacturers that do not necessarily hold the same values

4. Why are different test methods used for different types of blowers?

CAGI has championed the development of two standards for blowers, ISO 5389 for dynamic compressors and blowers (centrifugal, turbo, etc.) and ISO 1217 for positive displacement compressors and blowers (rotary vane, rotary lobe, screws, etc.). Positive displacement machines and dynamic machines operate under different principles and use different technologies to provide compressed air. The different operating principles and technologies require different test methods; however, the results that are obtained through these different methods can be compared against each other. CAGI BL300, Performance Test Code for Electric Driven Low Pressure Air Compressor Packages provides a means of comparing performance of dynamic blower against dynamic blower, positive displacement blower against positive displacement blower, and dynamic blower against positive displacement blower.

ISO 1217 displaced the obsolete PTC 9 for most of the industry many years ago. The 1217 standard and its annexes provide true wire-to-air performance methods, measuring all power inputs to a positive displacement blower package and stating a true specific power performance: y power in = x air out.

Whereas ISO 1217 already contains wire-to-air methods, ISO 5389 does not—yet. Much of the recent effort has been development of a method that will provide a similar means of measuring specific power for dynamic machines using ISO 5389 as that which has existed for many years in 1217 for positive displacement blowers.

5. Why base standards off other standards using “simplified” annexes, instead of using the full base test standard? Are the ‘simplified’ tests accurate?

The full base test standards (5389 and 1217) serve a purpose, but they can be complex and lengthy due to the fact that they address many different types of compressor product variations. The annexes are written to focus on specific types of compressors or compressor packages.

The “simplified” annexes are rigorous methods that provide extremely accurate results. In fact, the annex to 5389 eliminates many of the negative tolerances that are common in most performance standards. “Simplified” annexes in 1217 have been used for decades and have resulted in more effective development and communication of performance information and greater customer satisfaction.

Overly complex test methods and lengthy, involved standards do not ensure accuracy. They do ensure confusion and increase the likelihood of error and misapplication. Some manufacturers attempt to capitalize on this “smoke and mirrors” approach which, in the vast majority of instances, does not provide information that is meaningfully more accurate or useful.

6. Will these standards become global ones?

Yes. Other international bodies have already begun reviewing the CAGI standards and integration of the CAGI standard into the international standards is in the early stages of implementation.

7. Do manufacturers have to use these test standards when reporting their machinery performance?

There are no laws that require manufacturers to use the test standards when reporting performance; however, the demands of the market will eventually lead to a de facto requirement. For a specific example, with higher pressure equipment such as rotary screw compressors, all manufacturers state performance according to the ISO 1217 standard and have done so for many years. We expect the same with lower pressure equipment (blowers) because of the clear advantages the standards provide to purchasers, users and manufacturers.

8. If someone is not a member of CAGI, can they still use the test standard?

Yes. The standards exist to be used by all manufacturers.