

Johnson Controls Test Centre



Famous for technical excellence

Johnson Controls products and systems are renowned for their reliability and technological excellence, backed by our ability to meet even the most demanding customer requirements.

An important part of these capabilities lies in our exceptional facilities for evaluating, monitoring and testing a wide range of refrigeration equipment and solutions, under carefully controlled and supervised conditions.

State-of-the-art testing facility

Johnson Controls operates a purpose-built test centre for Sabroe refrigeration equipment. Located in Denmark, it is a state-of-the-art facility that extends over an area of

almost 3,500 square metres, and is manned by a staff of very experienced specialists.

The advanced equipment available at the Johnson Controls Test Centre allows us to provide customers with test procedures of exceptional quality and thoroughness. These tests are significantly more rigorous than is possible elsewhere in the refrigeration industry.

The Test Centre consists of two separate facilities – the End Of Line (EOL) Test Centre and the Test Lab. Together, these make it possible to undertake a wide range of tests and trials of equipment set-ups in support of the product development process, as well as to provide comprehensive documentation for the capabilities and performance of Sabroe systems and equipment.

Significant advantages

The comprehensive testing carried out at the Johnson Controls Test Centre provides a series of important advantages. These include

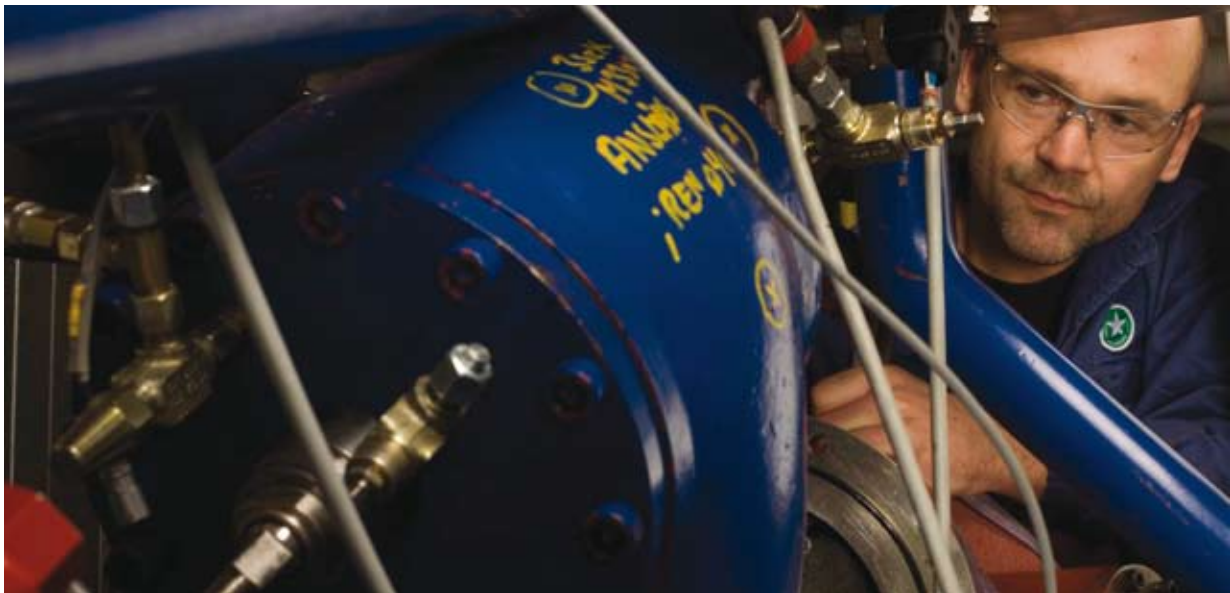
- comprehensive test procedures that provide full, reliable documentation for all Sabroe components and products.
- use of the same test data and documentation in all subsequent Sabroe calculations.
- effective simulations of the real-world operating conditions under which Sabroe products have to operate.
- witnessed test procedures available, under professional conditions.

Customer benefits

The Johnson Controls Test Centre helps provide customers with important benefit that include

- ▶ installation of pre-tested equipment ensures more rapid, problem-free commissioning.
- ▶ comprehensive documentation for the capabilities and performance of Sabroe systems and equipment, making for more reliable planning and projections.
- ▶ compliance with a wide range of national and international requirements, for quicker, cheaper installation approval.
- ▶ more rapid, cost-effective development procedures that speed up the process of making technical improvements and new technologies commercially available.

Sabroe product description



End Of Line (EOL) Test Centre

The EOL Test Centre is used to conduct highly accurate and reliable tests on Sabroe refrigeration equipment – even very large chillers, ice-makers and other integrated units.

The EOL Test Centre enables us to verify and document the performance of a specific customer's equipment as well as checking that all the features and systems work exactly as intended, prior to shipping. Customers or designated representatives are encouraged to witness these tests.

Comprehensive, reliable performance documentation prepared using highly sophisticated equipment provides a solid basis for monitoring and evaluating the performance and efficiency of Sabroe refrigeration equipment once in operation.

Test Lab

The Test Lab supports our continuing programme of technological innovation and product improvements, by conducting exhaustive, detailed tests of new components and products from the prototype stage onwards. This comprehensive documentation as regards capacity, power consumption, noise and vibration is continually updated, and used in all subsequent calculations relating to the performance of each Sabroe product or system.

High-precision data acquisition systems are used to collate and structure the test data, with all measurements in full compliance with international standards.

The facility can also provide comprehensive simulations of the real-world operating conditions under which Sabroe products have to operate. This enables us to undertake rapid, cost-effective assessments of new Sabroe product ideas, so that we can focus our development resources effectively. Endurance tests can also be carried out.

The Test Lab facility features a wide range of advanced equipment, including test loops with different refrigerants, such as ammonia, CO₂ and HFCs, for testing both compressors and other equipment. The Test Lab has the world's largest ammonia test loop for testing compressors, with a swept volume of up to 14,000 m³/h. There are also three special test rigs for testing new designs for heat exchangers and chillers.

All information is subject to change without previous notice

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