ABB and Swegon
Flexibility and high performance in climate chambers

The Swedish group Swegon offers advanced technology and services to create the most comfortable climate with the lowest environmental impact, testing each piece of equipment in a climate chamber controlled by ABB inverters.

The testing laboratory replicates the climate conditions found by the equipment once they are up and running in the field. The climate chamber allows to simulate the outdoor environment, adjusting the temperature from -15 to +55 degrees (equivalent to a freezing winter and a hot summer). Following business expansion and the continuous evolution of European standards, Swegon Operations needed to design and build a new test room with high capacity and flexibility. In just 18 months, Swegon designed and built CHIL, “Cooling & Heating Innovation Lab”, where they can test chillers and heat pumps with air or water condensation, and multifunction units, with a single chamber (A+B) or split chamber (A and B) configuration and any combination of the types mentioned above, with the only limit that one machine cannot exceed a power of 800 kW for each chamber. For “Witness Tests” (attended by the customer), the new Swegon laboratory is equipped with six cameras to enable “remote attendance” in real time, plus recording the test if required.

We spend most of our time indoors, in offices and gyms, at home or in the swimming pool, in shopping malls or at cinemas. For this reason, our well-being and peace of mind also depend on an efficient indoor climate system. Swegon AB Group offers ventilation and climate systems with a unique range of products renowned for their reliability, including Blue Box, with its +20-year experience in high-efficiency cooling and climate technology for civil and industrial premises, especially fluid cooling/heating for industrial operations. Based in Cantarana di Cona, Venice, Italy, Swegon Operations Srl offers a comprehensive portfolio of climate solutions, with air exchange and filtration systems and all the necessary accessories. To ensure the quality and efficiency of air conditioning systems, Swegon operates a laboratory, called Testing Room, entirely dedicated to R&D and testing. This lab incorporates three climate chambers and end-of-line benches to test every single piece of equipment, especially the chillers, heat pumps and multifunction units.
The “core” of the climate chamber is a control room that must handle huge quantities of heat, balancing them to keep consistent conditions for the required time. This is the room where ABB inverters are located, together with other devices and equipment such as pumps, valves, flowmeters, network analyzers and steam injectors, all essential to carry out the tests. For a long time, Swegon has been relying on ABB technology for its chillers, heat pumps and multifunction systems. “Wherever we need an inverter to drive pumps on the hydronic side, such as variable compressors, our favorite inverter is ABB,” said the managers of the company. “Also for the new climate chamber, it didn’t make much sense for us to look for a different inverter. We know ABB drives, they are reliable and performing, so we have reaffirmed our choice also for this application where we need to modulate the operation of pumps.”

In the new climate chamber, Swegon has installed six ABB ACH580 inverters, which are programmed based on the signals from the field. Another key factor for the selection of ABB inverters is the versatility of an external and fully programmable solution. To drive compressors or fans, Swegon’s engineers prefer an external inverter that can be programmed with the specific know-how developed by the company over the years. “This is a strategic element for us,” they said. “A more compact unit with an integrated inverter is a solution that can meet the requirements of a customer, but it can also be offered by other competitors. We prefer an external drive into which we can deploy our know-how and develop proprietary features, rather than a solution off-the-shelf. The same concept applies for the construction of refrigerating compressors, mostly screw models with significant size: with our proprietary control software, we can make a difference from the standard products offered by competitors.”