SAMSON

Prototype construction

Prototype construction plays an important role in product development. It provides essential information for implementation in series production, particularly when designing complex parts. In addition, prototyping focuses on future manufacturing methods.
In the Innovation Center, traditional tools machinery as well as CNC machining centers are used for prototype construction. Additive manufacturing of plastic parts based on 3-D design data is already possible. Implementing additive manufacturing also for metal and ceramic materials is planned.

Materials engineering

Using suitable materials is key to achieve durable, reliable products. As a result, one of the main tasks of materials science and engineering is to assess materials and parts to determine their maximum permissible conditions of use.

As products are not always installed in moderate environments, the Innovation Center provides facilities to simulate the different atmospheric conditions that exist across the world. Accelerated simulations help determine the resistance of metal and non-metal parts as well as entire devices to these conditions. The processes involve exposing the parts to seawater and industrial atmospheres, humid environments as well as different weather conditions.

Digital infrastructure

More than 200 test instruments are operated in the Innovation Center based on a fully integrated measuring and automation system. Thanks to the digital infrastructure, it will be possible to perform real-time tests including simulations of various plant and operating conditions as well as compile and analyze the collected data. A modular communication infrastructure helps ensure that the smart SAMSON products are compatible with all common process control, engineering and asset management systems and that they can be connected to cloud computing systems. With this setup, research and development into shifting smart features to the field devices to achieve decentralized control can be intensified.

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EMC and device safety

The electromagnetic compatibility and safety of SAMSON products is verified in the CE Lab.
Tests at frequencies up to 18 GHz can be performed in an anechoic chamber for radiated interferences and emission measurements. Stations to test electrostatic energy and conducted interferences, like they occur when the voltage drops or lightning strikes, also exist.
The tests completed in the CE Lab enable SAMSON to document the required CE compliance of our products.

Life cycle tests

SAMSON products are characterized by their long service life, even if they are operated in the most adverse process and ambient conditions. To achieve this durability, individual parts as well as complete control valves are subjected to life cycle tests in the Innovation Center.

The tests cover the specimens' chemical, thermal and mechanical resistance as well as their flow characteristics and suitability for specific climate conditions. The available test facilities include various simulation and climatic cabinets, ovens and flow test benches.

Fluid mechanics

We are SMART IN FLOW CONTROL. We want to understand and control the flow of media.
Process media in all possible conditions, such as liquids, gases, vapors, multi-phase flows and even liquids containing solid particles, can be simulated on different test benches in the Innovation Center.

In the Flow Labs, valves in sizes up to DN 500 (optionally up to DN 1000) can be subjected to flow, acoustic and functional tests, they can be calibrated and their operation under specific plant conditions can be simulated.

Plant engineering

The complex plant engineering equipment and systems are at the heart of the Innovation Center. They enable SAMSON to cover a wide variety of tests, process media, process conditions and fields of application.

Over two kilometers of pipes in nominal sizes up to DN 1000 are installed in the Innovation Center. More than 250 valves in different sizes and pressure ratings manufactured by SAMSON and its subsidiaries are used to shut off and control the flow in the center's pipelines. An installed power of 5.5 MW serves to drive 18 pumps with different output pressures of up to 120 bar and flow rates as high as 9000 m³/h.

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Building

Plot area:	3265 m²
Floors:	3 (plus basement)
Gross total area:	9050 m²
Usable area:	7000 m²
Building volume:	53000 m³
Max. height:	22.3 m (25 m including silencer)
Steel:	1100 t (76.5 km)

Plant engineering

MEP lines:	4000 m
Electric cables:	40 km
Data and ICA cables:	50 km
Water tank:	400 m³, 78 t
Pipeline network:	2070 m
Signals used (I/O):	1673
Valves installed:	253
Pumps installed:	8
Total power installed:	5.5 MW

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