



REFERENCE PROJECT

LEAK DETECTION OF CASTINGS

Fully automatic leak detection machine with vacuum and overpressure



Industry
Development

Advanced leak detection for high precision and operational reliability

On behalf of Ljunghäll AB, we developed and delivered a fully automatic leak testing machine for castings, based on vacuum and overpressure.

The machine is designed for industrial production with high requirements for leak tightness and can be used both in a robotic cell and as a standalone unit.

Product description

The leak detection machine is a fully automatic machine developed for precise and repeatable leak detection of components in industrial manufacturing. The machine is built to ensure that every test object meets demanding leak tightness requirements and can easily be integrated into a robotic cell or used as a standalone unit with manual loading.

With two separate test fixtures, the machine can perform parallel measurements, providing high production capacity and efficiency. The HMI panel offers a user-friendly interface where the operator can easily control test sequences, monitor measurement values in real time, and manage alarms or maintenance functions.

The built-in database logs all measurement results for traceability and quality follow-up. Integrated calibrated leaks are activated via the control panel to simplify calibration of the measuring instrument during annual maintenance.

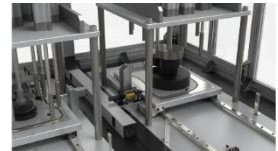
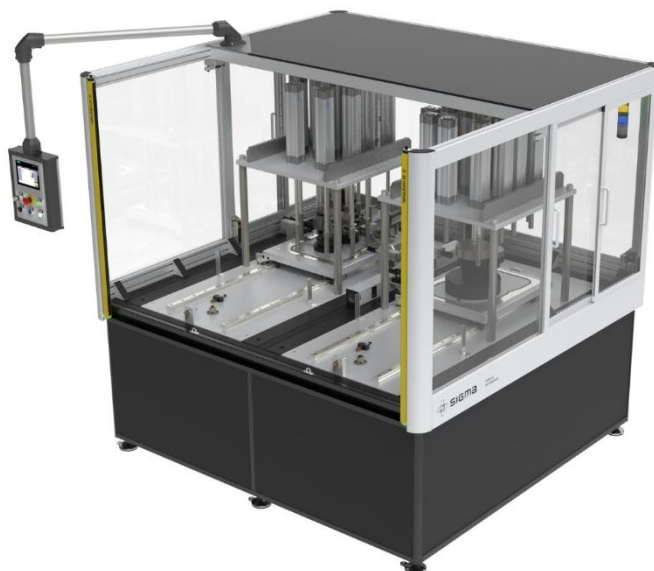
Facts

Customer: Ljunghäll AB

Product segment: Leak testing

Project start: April 2025

Delivery/commissioning: November 2025



Main components

PLC	Siemens ET200 SP.
HMI	Siemens TP700 Comfort 7"
Measuring instrument	ATEQ F6 Class
Valve terminal	Festo with shut-off and soft-start valves
Light curtain	SCHMERSAL SLC440COM Series
Gate switch	SCHMERSAL AZM40 med RFID
Pneumatic components	SMC / Festo cylinders and valves

Functions and benefits

Dual fixture station	Enables simultaneous testing of two objects for increased capacity.
Automatic leak testing	Performed using predefined test programs with high repeatability.
Automatic marking	Approved test objects are automatically marked using a stamping tool.
Integrated data logging	Stores up to the 200 most recent measurements with results and test pressure.
Intuitive HMI panel	Clear touchscreen with manual and automatic operation, alarm history, and service views.
ATEQ F6-class	High-precision measuring instrument with fast response time.
Flexible operation	Supports both robotic integration and manual loading.
Integrated cast seals	Provides high reliability and long service life.
Full safety integration	Light curtain, service doors with locks, and pressure monitoring.
Easy service	Clear lubrication points, fast seal replacement, and calibration routine with reference leak.
Alarm and monitoring functions	Automatic indication in case of deviating results or serial leakage.
Built for industrial environments	Robust steel frame, quality components, and high operational reliability.

Technical specifications

Test method	Pressure drop / flow-based leak measurement
Measuring instrument	ATEQ F6-class, program-controlled via PLC
Number of fixtures	2, independently controlled
Control system	Siemens ET200 SP with Profinet
Control panel	Siemens TP700 COMFORT 7" touchscreen
Pneumatic system	Festo / SMC valves and cylinders
Pressure range	SMC / Festo cylinders and valves
Measurement accuracy	±0.1 cm ³ /min depending on program
Data capacity	200 logged test cycles locally
Operating modes	Manual / Automatic
Communication	Ethernet / Profinet
Mains voltage	230 VAC, 50 Hz
Compressed air supply	5 to 8 bar, clean and dry air
Dimensions	2100 x 2000 x 2000 mm (W x L x H)
Weight	1200 kg
Noise level	<70 dB(A)
Calibration	Certified ISO 17025

For more information about the project:

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