
SOLUTIONS FOR DISHWASHERS



WE IMPROVE THE QUALITY OF PROCESS AND PRODUCT

Loccioni Industry works side by side to the top players of industrial sector, by doing automated quality test of their products, processes and buildings. Day by day challenging projects are faced with enthusiasm, inspiration and proficiency, collaborating with customers from the initial phase of prototype development to the realization of turnkey solutions.

A bit of Loccioni in every factory, all over the world

SOLUTIONS FOR DISHWASHERS

LABORATORY

- > Data acquisition system for product development
- > Data acquisition system for benchmarking with competitor products
- > Noise test
- > Vibration test

PRE-FABRICATION

Aesthetic test for the detection of the perceived quality (scratches, bumps and print quality) on:

- > sheet metal
- > front panels

Dimensional test on sub-assemblies:

- > check of the correct positioning of the gasket on the sump-base
- > check of the correct positioning of the silicone strip applied on the doors
- > check of the doors alignment

Functional test on front panels

- > vision test for quality inspection
- > programming of electronic boards
- > functional test of user interface (buttons, knobs, touch, leds, displays)

Simulation and test of the control panels as in the final dishwasher

ASSEMBLY & TESTING

EN compliance test

- > Electrical safety test (AC-DC high voltage test, insulation resistance test, leakage current test, earth wire test)

Vision test in the assembly line

- > Check of presence and correct positioning of components on pre-assemblies or single parts

Functional test

- > Electrical test (current absorption/ voltage/power/energy)
- > Hydraulic test (inlet water flow-rate of solenoid valve, outlet water flow rate discharge pump, volumes, consumptions)
- > Check of correct rotation speed of spray-arm with the accelerometer (vibration test)
- > Leakage water test through infrared analysis
- > Final test of dishwasher front panel: functional test of buttons, knobs, leds and display

Integrated handling lines

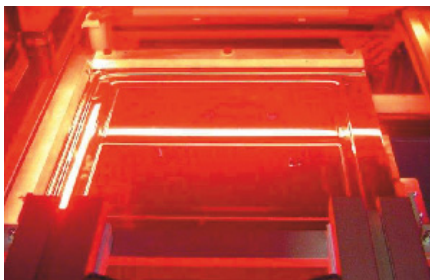
- > Integration of test benches with handling lines to create complete test areas

Data tracking and process monitoring

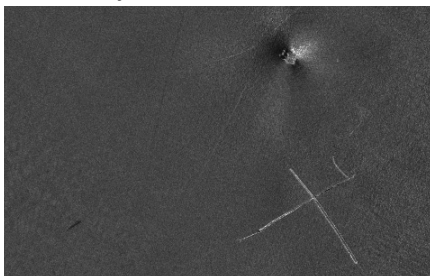
- > Recording of information related to the quality tests (i.e. functional tests)
- > Visualization of testing station status
- > Visualization of production lots
- > Classification of most frequent errors
- > Visualization of number of total tests, good tests, fail tests, repaired tests, etc.
- > NFF tests and rate
- > Failure rate
- > Test cycle time

AUDIT

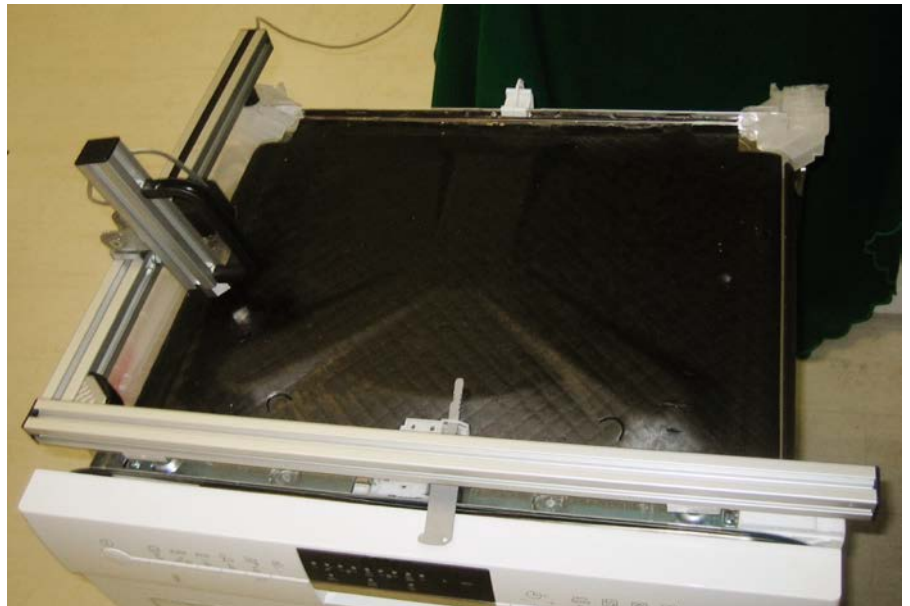
- > Functional test during a complete functioning cycle
- > Electrical test
- > Hydraulic test
- > Mechanical test
- > RPM spray-arm test
- > Communication with electronic board of dishwasher for functional test and readout of process values
- > Data connection to the production database for test results correlation Production/Audit
- > Single/double/multi test station configuration



1. Profilometry



2. Defects inspection



3. Vibrational analysis

ADVANTAGES OF LOCCIONI HOME TESTING SYSTEMS

Operations

- > Reduced number of test stations
- > Reduced test area
- > Integrated and completely automated tests
- > Reduced test time
- > Complete database of test results

Cost savings

- > Reduced personnel cost
- > Reduced costs related to:
 - > maintenance/clearing electricity

Environment

- > Reduced water consumption
- > Reduced power and energy consumption

Ergonomics workplace design

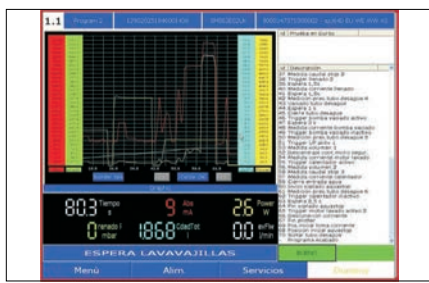
- > Automatic connection

Occupational safety

- > No manual operations at active dishwasher



5. Artificial vision



6. Data elaboration



7. Managing software



8. Test system



4. Test station



9. Handling and assembly solutions

CASE HISTORY MUSA, Loccioni Home Measuring Unit in Sound-proof Area

Musa is a turn-key completely automated testing station that integrates directly in the production line those tests that are usually performed in the R&D Laboratories only. The tests are performed on the 100% of the production for the detection of mechanical and acoustic defects.

The Loccioni handling line ensures a complete efficiency of the turn-key solution. A cabinet, made of noise-absorbing panels, ensures a reduction of the external noise of about 35 dB.

Musa integrates three different technologies to provide the maximum quality under tests:

- > Infrared Analysis to detect every small water leakage on the most critical areas
- > Vibration Test for the acquisition of the vibration through a no contact measurement

- > Noise Test for the acquisition of the noise close to the motor

The core of the system is the signal processing software which allows to detect the main defects.



11. Sound-proof Area



12. The system

RESEARCH@INDUSTRY

Research@industry is a laboratory equipped with the most innovative test systems. From the research of functional and aesthetic testing strategies, to the measurement techniques that better suit different needs, up to the most challenging requests for product development, the laboratory is at our clients' disposal to carry on **test campaigns** and feasibility studies.

The research projects carried out by our **research@industry** lab arise from the meeting between our researchers and the direct requests of our clients. Flexibility, free initiative, responsibility, imagination and integration of competences with Universities and research Centers represent the core of Loccioni innovation process.

Solutions for

- > Products
- > Processes
- > Buildings



Via Fiume 16
60030 Angeli di Rosora, Ancona, Italy
p +39 0731 8161 f +39 0731 814700
info@loccioni.com - www.loccioni.com