BPR-FDT-ENCSA

TEST BENCH FOR MECHANICAL ENDURANCE WITH FLEXING AND DURABILITY TESTS ON FLEXIBLE HOSES AT THREE STATIONS

INDEX

1 - INTRODUCTION **2**

2 - CONFIGURATION **3**

2.1 - BPR-FDT-ENCSA 3
2.1.1 - Applications: *3*
2.1.2 - Main components: *3*
2.1.3 - Structural characteristic of the bench: *3*
2.1.4 - Transducers installed: *4*
2.1.5 - Technical data: *4*
2.1.6 - Documentation: *4*
2.2 - EXAMPLE 5

3 - PACKAGING **8**

3.1 - BPR-FDT-ENCSA PACKAGING 8

GIUSSANI

1 - INTRODUCTION

With this bench, it is possible to execute mechanical tests on flexible drain hoses and extractable shower hoses according to the EN 1113, EN 16146 and ASME A112.18.1/CSA B125.1.12 Standards.

Tests on station 1

The station allows to perform tests according to standards EN 1113 (2015) chapter 9.3 and EN 16146 chapter 9.3 (2012) or any other standard based on the same principle.
The test consists in assessing the resistance of a flexible hose when this is exposed to cyclical bending forces in the proximity of the fitting.
It is possible to adjust the waiting time in each position by the PLC and, the rotating speed of the pneumatic actuator is adjustable manually with two needle valves in both rotating directions in order to run the test at different cycles per minute.
The number of cycles and maximum acceptable cycle time are parameters adjustable by the operator on the PLC.
The PLC manages the safety issues and stops the test in case of alarms.

Tests on station 2

The station allows to perform tests according to standards EN 16146 chapter 9.4 (2012) or durability tests according standard ASME A112.18.1/CSA B125.1 chapter 5.6.3.5.1 or any other standard based on the same principle.
The test consists in checking the durability of the hose when it is pulled out of the faucet and then pushed back.
The PLC allows you to adjust the number of cycles to be performed and the waiting times in each position, it also allows you to resume the test in case of interruption.
The handling speed of the pneumatic actuator can be manually adjusted by the operator and this allows the test to be performed at the desired value of cycles per minute.
The PLC manages the safety issues and stops the test in case of alarms.

Tests on station 3

The station allows to perform tensile strength tests on flexible hoses according to standards EN 1113 (2015) cap. 9.2, EN 16146 (2012) cap. 9.2 and ASME A112.18.1/CSA B125.1 chapter 5.6.3.5.2 any other standards based on the same principle.
The test consists in checking the resistance of the hose when it is subjected to a longitudinal tensile force.
The PLC allows to adjust the pulling time, manages the safety issues and stops the test in case of alarms.

Pneumatic device for failure control

To applying and maintain the air pressure inside the samples there is a common pneumatic supply line with one precision pressure regulator + dial manometer 0-4 bar (accuracy 0,25%).
Test stations 1 and 2 are equipped with two independent pressurisation devices with needle valves to adjust the flow restriction and digital manometers to read the pressure inside the hoses and to set the range of tolerance.
In case of pressure drop inside the component under test (for example due to the failure of the component under test), the PLC stops the test.

2 - CONFIGURATION

2.1 - BPR-FDT-ENCSA

- Air pressure: 0÷2 bar.
- Maximum torque (station 1): 1 Nm (rotary actuator).
- Maximum force (station 2): 130 N (linear actuator).
- Maximum force (station 3): 600 N (linear actuator).
- Max length of the hoses under test (station 1 and 2): 2.400 mm.
- Max length of the hoses under test (station 3): 2.400 mm.

2.1.1 - Applications:

Mechanical and endurance tests on flexible hoses for sanitary tapware according to EN and ASME/ASSE Standards.

2.1.2 - Main components:

- **Pressure transducers** and regulators.
- **Rotating pneumatic actuator** for testing on station 1 (maximum torque 1 Nm at 2 bar of pressure).
- **Linear pneumatic actuator** for testing on station 2 (maximum force 130 N at 2 bar of pressure).
- **Linear pneumatic actuator** for testing on station 3 (maximum force 600 N at 2 bar of pressure).
- **PLC Magelis** for the managements of tests and safety issues.
- **Calibrated weights** connected to the hoses under tests (60 kg).

2.1.3 - Structural characteristic of the bench:

- Supporting structural frame made of aluminum and laminated panels' permits to support the electric and pneumatic plant and the test stations and relative devices, assembled on rotating wheels provided with parking brakes.
- The test bench is controlled by PLC (and touchscreen panel), it manages the setting parameters, the tests sequences and checks the safety systems.
- The operator makes the positioning of the devices under test manually.
- The pneumatic plant (for control and pressurization) includes filter, pressure regulator and manometer.

2.1.4 - Transducers installed:

PRESSURE (station 1 and 2): Operative range 0-2,5 bar.
Accuracy ±0,1% of the full-scale value.

Digital readers: Accuracy ±0,20% of the full-scale value.
Resolution 0,1 bar.

PRESSIONE (inlet): Operative range 0-4 bar.
Accuracy ±0,25% del of the full-scale value.
Resolution 0,02 bar.

The measuring equipment assembled on the bench is equipped with an inspection report relative to the operational fields and performed according to the ISO 9001 standards, with reference to the ACCREDIA (Italian Calibration Service) primary samples.

The test bench is provided with a final test report of electrical safety according to standard CEI EN 60204-1 and CE declaration of conformity.

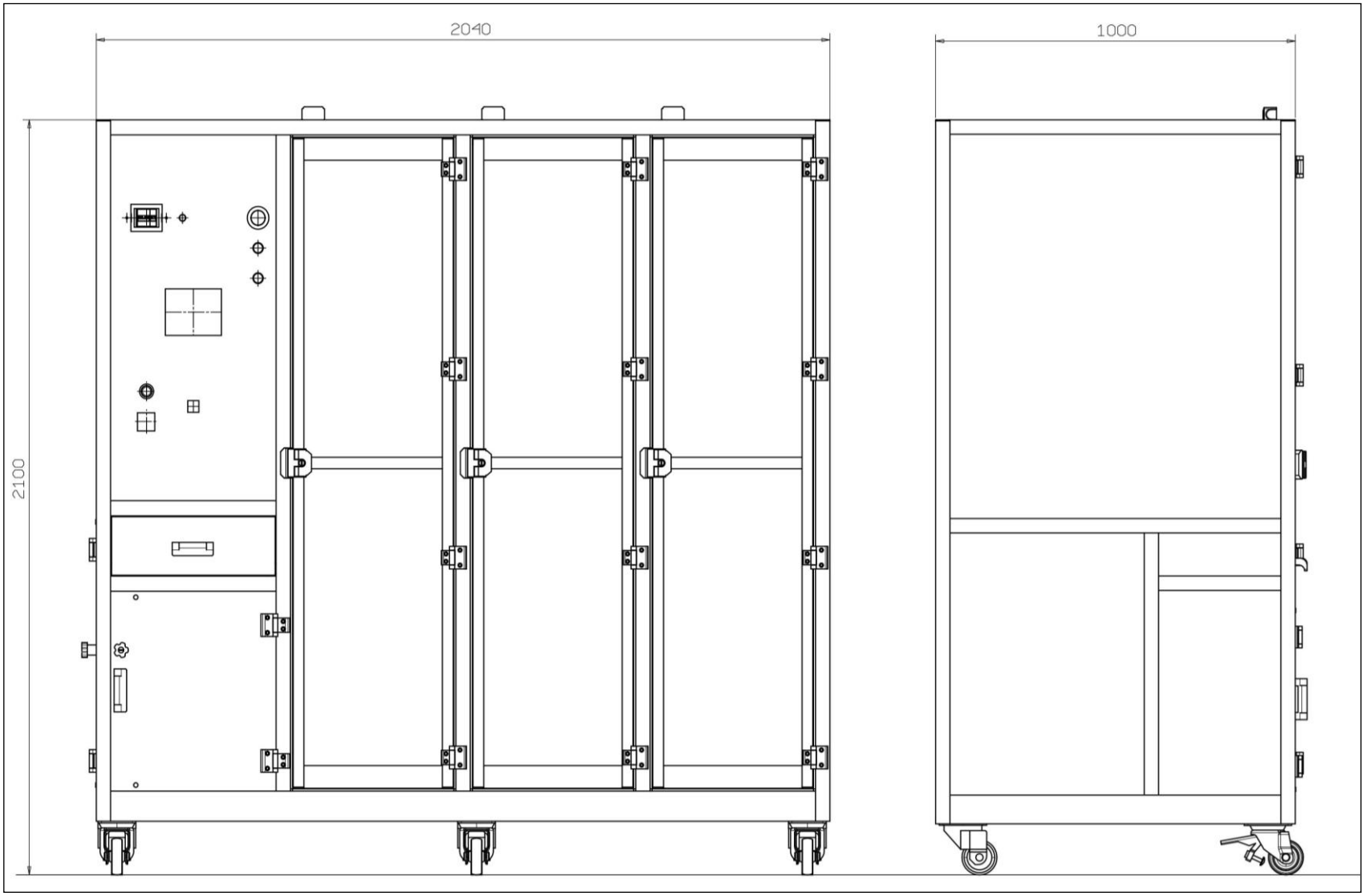
2.1.5 - Technical data:

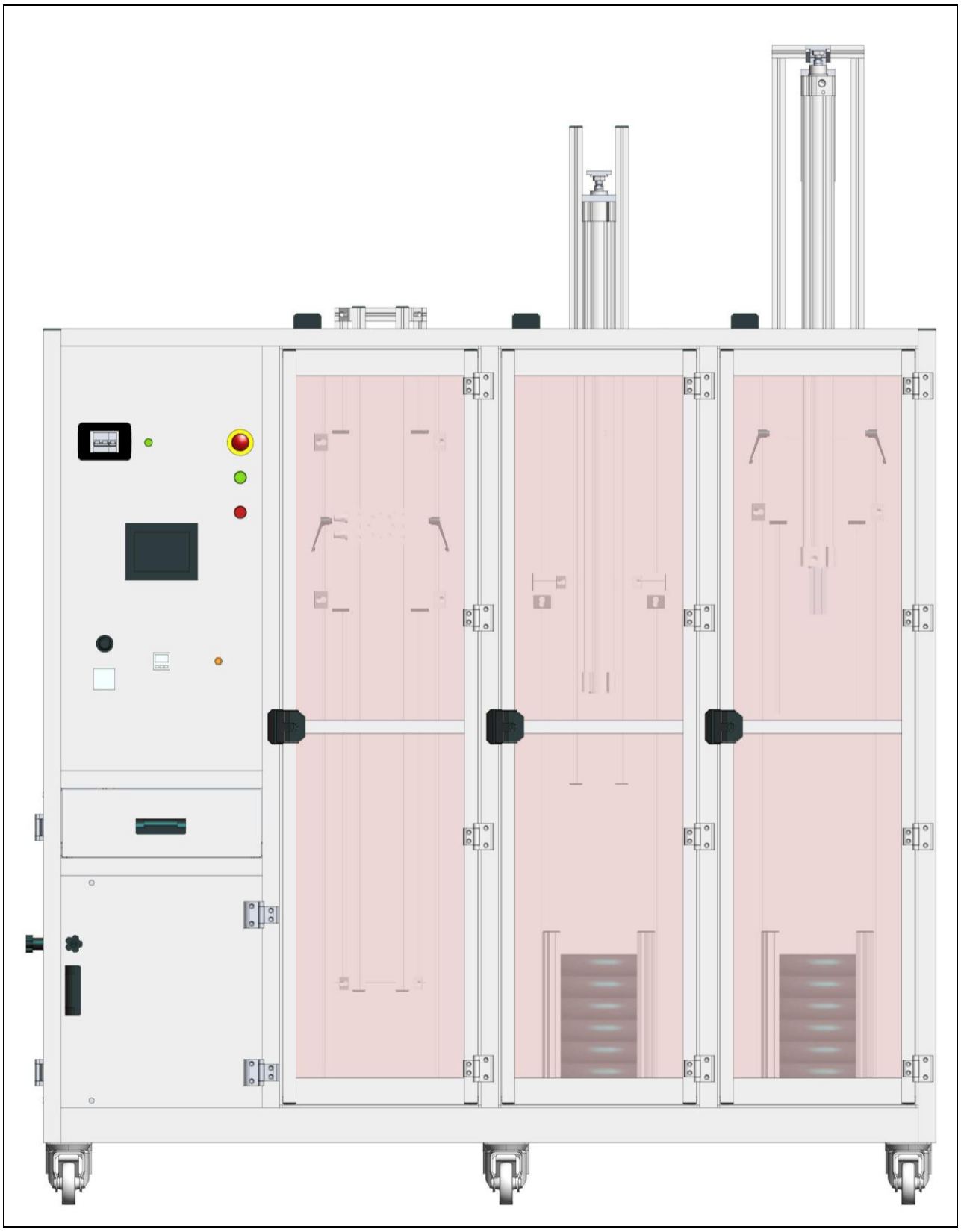
WEIGHT AND DIMENSION	
- LENGTH	2040 mm (+100 mm)
- DEPTH	1000 mm (+100 mm)
- HEIGHT	2100 mm (+700 mm)
- WEIGHT (APPROX.)	450 kg
SUPPLY CHARACTERISTICS	
- ELECTRICAL SUPPLY	230 V 1 phases + N + GND 50 Hz
- POWER	0,5 kW
- PNEUMATIC SUPPLY	6÷9 bar
- MAXIMUM AIR FLOWRATE	600 NL/min

2.1.6 - Documentation:

The operating manual and CE declaration will be submitted in English, Italian and/or German.
The user interface on the PLC Magelis will be in English only.

2.2 - EXAMPLE






ST 1
ST 2
ST 3

3 - PACKAGING

3.1 - BPR-FDT-ENCSA packaging

Wooden box with anti-vibrating damper.
Exp. model with sealed plastic bag and ISPM treatment.
Code: 8CASSA-FDT3-EXP