

# DE MATTIA FATIGUE CHECK - PLUS

DYNAMIC TESTER FOR THE EXECUTION OF FATIGUE TESTS AT CONTROLLED  
TEMPERATURE (-40 ÷ +200°C)



**gibitre**<sup>®</sup>  
INSTRUMENTS

## Standards the instrument complies with:

ASTM D813; ASTM D430-B; ISO 132; ISO 6943; JIS K\_6260;

### Overview & Regulation

The instrument is built according to International Standards about fatigue, which describe test methods for the determination of the resistance of vulcanized rubbers under repeated deformations. This instrument permits to perform:

- **Flex cracking/crack growth test**
- **Tension fatigue test.**

According to test specification, the instrument can be easily adjusted by setting

- **Test frequency (60 to 300 rpm)**
- **Test stroke (0 to 60 mm)**
- **The distance of the grips (up to 100 mm)**
- **The number of cycles before automatic stop** can be set (up to 1.000.000)

### Temperature Range

The sample holding system is located in a Environmental chamber which permits to set the temperature between -40°C and 200 °C.

The environmental chamber is fitted with inspection window and internal led lighting which permit to inspect the sample without opening the chamber.



### Cooling system

The instrument produced by Gibitre uses a Refrigeration Unit to reduce the temperature.

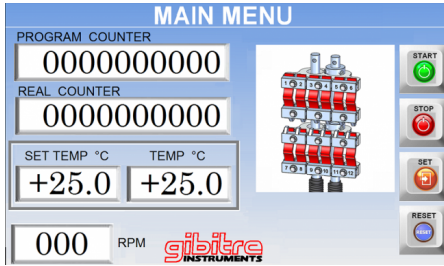
The use of the refrigeration unit, compared to cooling by liquid nitrogen, allows to:

- **check the test temperature perfectly, avoiding oscillations that may alter the results.**
- **Carry out long-term tests without risking to end the liquid nitrogen supply before finishing the test**
- **Eliminate the hazards related with manipulation of nitrogen**



## Control device

The instrument is controlled using a touch screen display which permits to set the oscillation frequency, the number of cycles and the test temperature.



## Sample holders

The sample holder permits to test 12 samples simultaneously.

The exclusive movement system with both sample holders moving in opposite directions ensures extremely low levels of noise and vibrations.



## Instrument Regulation

According to test specification, the instrument can be easily adjusted by setting

- Test frequency (60 to 300 rpm)
- Test stroke (0 to 60 mm)
- The distance of the grips (up to 100 mm)
- The number of cycles before automatic stop can be set (up to 1.000.000)

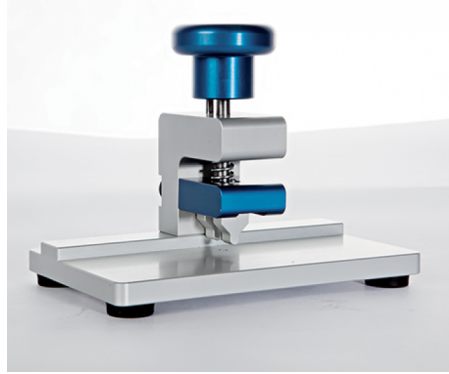
## Mould for De Mattia Flexure test

Mould for De Mattia dynamic tester according to ISO 132, ASTM D 430-method B, DIN 53 522 standards.



## Piercing tool

The piercing tool allows to realize the standard notch to carry out crack-growth tests.



## Development and production

The instrument is totally developed and produced in the plant of Gibitre Instruments in Italy.

All the mechanical parts are produced in the company workshop using modern CNC machines.

Components and sensors from well-known brands are selected in order to ensure the maximum reliability in the measures

Internal trained personnel takes care of all the production stages: **assembly, start-up, calibration, packing, shipment and installation.**

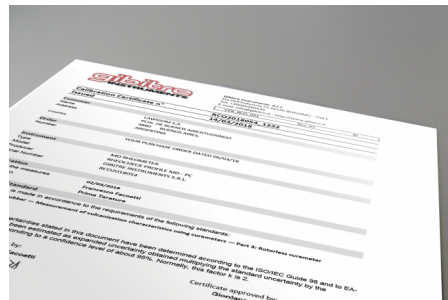


## Standard Calibration service for De Mattia Fatigue Check

The calibration is performed with reference to the requirements of ISO 132 standard.

The service includes:

- Ordinary maintenance of the instrument
- Calibration of the oscillation speed.
- Calibration of the dimension of the templates.
- Calibration of the temperature inside the environmental chamber at 4 temperatures (for flexometers with environmental Chamber)
- Issue and e-mail shipment of the Calibration Certificate with traceability to primary standards.



## Safety devices

- Safety protection doors fitted with safety switch.
- Safety Push-button
- Digital Motor controller with torque overload control.
- CE labelling



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### Instrument Characteristics

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**Speed adjustment** from 60 to 300 Cycles/min - 1 to 5 Hz

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**Run adjustment** Between 0 and 60 mm

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**Set of the number of cycles before automatic stop** Between 1 and 10<sup>9</sup>

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**Distance of the grips** Maximum 100 mm

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**Data displayed** Number of oscillations, test Temperature

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**Sample holder** 12 samples can be tested at the same time

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**Maximum force in traction** 700 N (at 1 Hz oscillation speed)

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### Environmental Chamber

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**Test temperature (without optional refrigerator)** From room temperature to 200°C (1°C resolution).

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**Air Flow** Internal air recirculation without air exchange

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**Test temperature (with refrigeration unit)** From -40°C to 200°C (1°C resolution).

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### Safety Devices

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**Safety Devices** Safety protection doors with safety switches  
Safety Pushbutton  
Motor controller with torque overload control  
CE labelling

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**Labelling** CE Labelling

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**Calibration**

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**Calibration** Calibration Report conforming to ISO 132 and ISO 6943 and Enviromnetla chamber temperature calibration, with traceability to primary references

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**Technical specifications**

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**Power supply** 220 VAC  $\pm 10\%$ , 50 Hz  $\pm 3$ , 14 A -single phase - 110 VAC  $\pm 10\%$ , 60 Hz  $\pm 3$  on request

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**Electrical Power (instrument + 3 kW  
environmental chamber)**

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**Instrument Dimensions** (Width x Depth x Height) 960 x 900 x 1750 mm

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**Thermal Chamber Internal  
dimensions** (Width x Depth x Height) 240 x 230 x 600 mm

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**Weight** 300 Kg (optional refrigeration unit: 40 Kg)

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**Noise level** < 50 dB

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**GIBITRE INSTRUMENTS**

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