Gibitre Instruments S.r.l.
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CER_REB_001	Rev: 01	IN

Calibration Report n° REBXXXXXX_65927

Issued 15/04/2026

Customer

Name	C**USTOMER**
Address	A**DDRESS**
	A**DDRESS**
Country	C**OUNTRY**

Order

Number	No. 4311016167

Instrument

Type	REBOUND CHECK
Model	REBOUND CHECK
Producer	GIBITRE INSTRUMENTS SRL
Serial Number	REBX**XXXXX**

Calibration

Date of the measures	**15/04/2026**	
Technician	**Fabio Seminati**	Habilitation for Calibration

Reference Standard

The calibration is made in accordance to the requirements of the following standards:

ISO 4662: Rubber, vulcanized or thermoplastic— Determination of rebound resilience

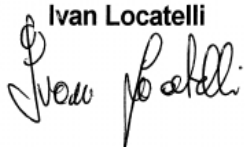
ASTM D 7121: Standard Test Method for Rubber Property— Resilience Using Schob Type Rebound Pendulum

DIN 53 512: Prüfung von Kautschuk und Elastomeren: Bestimmung der Rückprall-Elastizität

The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

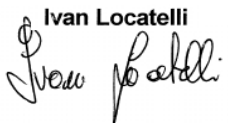
Calibration made by:

Ivan Locatelli



Calibration Report approved by:

Ivan Locatelli



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The measurement results reported in this Calibration Report were obtained following the procedures given in the following pages, where the reference standards or instruments are indicated which garantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Reference Instruments	Producer	Serial N.	Gibitre Code	Certificate N.	Calibration Laboratory	Issue Date	Due Date	Uncertainty	Unit
Digital Caliper	Mitutoyo	1019218	CLB02	LAT 051 CT-CC-0227-2022	TRESCAL	23/05/2022	23/05/2027	0,01	mm
Set of weights 1g - 5 Kg	Sartorius AG	PES01	PES01 [1-500 g]	LAT 117 23 M 143 7	CIBE	20/04/2023	20/04/2026	0,00	g
Optical Coordinate Measuring Machine	OGP HOMMEL Italia srl	SKL2252499	MDI02 [0-90°]	MDI02_21172	GIBITRE INSTRUMENTS	26/02/2025	26/02/2028	0,00	°
Digital Calliper	Mitutoyo	A16222747	C2-CL-200	CAL102_32046	GIBITRE INSTRUMENTS	02/09/2025	02/09/2026	0,01	mm
Calibrator + 22 N Load Cell	Interface + Gibitre Instruments	C2-HI-1	C2-GB3-CAL-1 + C2-HI-1	CAL102_32046	GIBITRE INSTRUMENTS	02/09/2025	02/09/2026	0,00	N

ENVIRONMENTAL CONDITIONS

Room Temperature	(23 ± 2) °C
Relative Humidity	(50 ± 10) %

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Verification of: **Friction of the main bearing**

Procedure: The verification is made by placing the instrument base on a support with an inclination of about 45°. The hammer rod is lifted up to an inclination of 45° and left free. The number of free oscillations of the hammer before the complete stop must be higher than 300.

Outcome of the test: **OK**

Calibration of: **Diameter of the hammer peen**

Procedure: The diameter of the sphere is measured usingh the reference calliper

Reference Standard: **DIN 53 512 Par. 3.2.5**

Reference Instruments:
C2-CL-200 Uncertanty: 0,0148 mm Deviation 0,01 mm

Expected Diameter mm	Minimum Allowed mm	Maximum Allowed mm	Measaure 1 mm	Measaure 2 mm	Measaure 3 mm	Mean mm	Accuracy mm	Uncertanty U_ext_95% mm	Outcome
15	14,95	15,05	15,00	15,00	14,99	15,00	0,00	0,016	ok

Calibration of: **Lenght of Pendel Arm**

Procedure: The lenght is measured using the reference calliper

Reference Standard: **DIN 53 512 Par. 3.2.5**

Reference Instruments:
C2-CL-200 Uncertanty: 0,0148 mm Deviation 0,01 mm

Expected Lenght mm	Minimum Allowed mm	Maximum Allowed mm	Measure 1 mm	Measure 2 mm	Measure 3 mm	Mean mm	Accuracy mm	Uncertanty U_ext_95% mm	Outcome
200	199,5	200,5	200,10	200,15	200,13	200,13	0,13	0,033	ok

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Calibration of: **Pendulum Mass**

Procedure: The vertical forces applied using the weights supplied are measured using the reference force sensor

Reference Standard: **DIN 53 512 Par. 3.2.5**

Reference Instruments:
C2-GB3-CAL-1 + C2-HI-1 Uncertanty: 0,0010 N Deviation 0,01 N

Expected Mass g	Minimum Allowed g	Maximum Allowed g	Measure 1 g	Measure 2 g	Measure 3 g	Mean g	Accuracy g	Uncertanty U_ext_95% g	Outcome
255	252	258	255,4	255,1	255,0	255,2	0,2	0,262	ok

Calibration of: **Apparent strain energy density**

Procedure: The measures previously obtained are used to calculate the Apparent Strain energy density. The result is compared with the tolerance limits
The calulation is performed using the following formula:
E = m•v^2 / D•d^2
Where:
m = Hammer Mass g
v = Impact Speed (2 x 9,806 x Hammer Rod Length / 1000)^½
D = Diameter of Hammer Peen
d = Sample Thickness (12.5 mm)

Reference Standard: **DIN 53 512 Par. 3.2.5**

Apparent strain energy density

Expected Value kJ/m³	Minimum Allowed kJ/m³	Maximum Allowed kJ/m³	Mass g	Arm Lenght mm	Speed m/s	Diameter of hammer peen mm	Energy Density calculated kJ/m³	Accuracy kJ/m³	Outcome
427	400	463	255,2	200,1	2,0	15,0	427,4	0,4	ok