

Nederlands Meetinstituut

OIML Member State
The Netherlands

OIML Certificate N° R60/2000-NL1-04.02

Project number 312817

Page 1 of 2

OIML CERTIFICATE OF CONFORMITY

Issuing Authority

Name: NMI Certin B.V.
Address: Hugo de Grootplein 1, Dordrecht
Person responsible: Ing. C. Oosterman

Applicant

Name: Vishay Transducers.
Address: 5a Hatzoran St.
Netanya, 42506
Israel

Manufacturer of the certified type

Name: Vishay Transducers.
Address: 5a Hatzoran St.
Netanya, 42506
Israel

Identification of the certified type

Type : 1022
Fraction : $P_i = 0.7$
Temperature range $-10\text{ }^\circ\text{C} / 40\text{ }^\circ\text{C}$

Model 1022:

Maximum capacity (E_{max})	3 kg up to and including 35 kg			
Accuracy class	C			
Maximum number of load cell verification intervals (n_{max})	1000	2000	3000	4000
Ratio of minimum LC verification interval $Y = E_{max} / V_{min}$	3333	6666	10000	12000

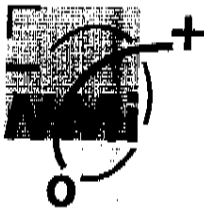
Nederlands Meetinstituut
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3314 EG Dordrecht
Telephone +31 78 6332332
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NMI B.V.
(Chamber of Commerce no.27.228.701)

Subsidiary companies:
NMI Van Swinden Laboratorium B.V. (27228703)
NMI Certin B.V. (27.233.418)
Verispect B.V. (27.228.700)

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Page 2 of 2

Model 1022P:

Maximum capacity (E_{max})	3 kg up to and including 35 kg			
Accuracy class	C			
Maximum number of load cell verification intervals (n_{max})	1000	2000	3000	4000 *)
Ratio of minimum LC verification interval $Y = E_{max} / V_{min}$	3333	6666	10000	12000 *)

*) Only valid for $E_{max} \geq 30$ kg.

This Certificate attests the conformity of the above identified type (represented by the sample or samples identified in the associated Test Report, the test certificate and the description with number TC2792 and the appertaining documentation folder), with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R60
Edition 2000 (E)
for accuracy class C

This Certificate relates only to the metrological and technical characteristics of the type of the instrument covered by the relevant OIML International Recommendation identified above.

This Certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated Test Report:

- N° R60/1991-NL-96.03 that includes 37 pages;
- N° R60/1991-NL-96.05 that includes 35 pages;
- N° R60/2000-NL1-04.02A that includes 38 pages;
- N° R60/2000-NL1-04.02B that includes 8 pages;
- N° R60/2000-NL1-04.02C that includes 37 pages.

The Issuing Authority
Ing. C. Oosterman
Manager Product Certification

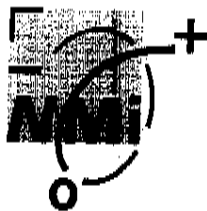
12 February 2004

The OIML Member
G.J. Faber

12 February 2004

*
**

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is issued, partial quotation of the Certificate and of the associated Test Report is not permitted, although either may be reproduced in full.



Nederlands Meetinstituut

Test certificate

Number **TC2792** revision 2

Project number 312817

Page 1 of 4

Issued by **NMi Certin B.V.**
 Hugo de Grootplein 1
 3314 EG Dordrecht
 The Netherlands

Notified Body Number 0122

In accordance with Paragraph 8.1 of the European Standard on Metrological aspects of non-automatic weighing instruments EN 45501:1992/AC:1993 and by application of the OIML International Recommendation R 60 (Edition 2000). The applied error fraction p_i , meant in the paragraph 3.5.4. of the standard is 0.7.

Applicant **Vishay Transducers.**
 5a Hatzoran St.
 Netanya, 42506
 Israel

In respect of **A single point, bending beam load cell**, with strain gauges, tested as a part of a weighing instrument.
 Manufacturer : **Vishay Transducers or TedeA-Huntleigh**
 Type : **1022**

Characteristics **Model 1022:**

Maximum capacity (E_{max})	3 kg up to and including 35 kg			
Accuracy class	C			
Maximum number of load cell verification intervals (n_{max})	1000	2000	3000	4000
Ratio of minimum LC verification interval $Y = E_{max} / V_{min}$	3333	6666	10000	12000

Model 1022P:

Maximum capacity (E_{max})	7 kg up to and including 35 kg			
Accuracy class	C			
Maximum number of load cell verification intervals (n_{max})	1000	2000	3000	4000 *)
Ratio of minimum LC verification interval $Y = E_{max} / V_{min}$	3333	6666	10000	12000 *)

*) Only valid for $E_{max} \geq 30$ kg.

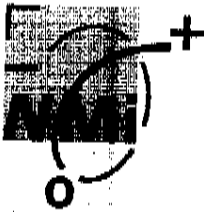
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Subsidiary companies:
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Nederlands Meetinstituut

Test certificate

Number **TC2792** revision 2
Project number 312817
Page 2 of 4

In the description number TC2792 revision 2 further characteristics are described.

Description and documentation: The load cell is described in the description number TC2792 revision 2 and documented in the documentation folder TC2792-1, appertaining to this test certificate.

Remarks: Summary of the test involved: see Appendix number TC2792 revision 2
This revision test certificate replaces the earlier version(s), including its documentation folder.

Delft, 12 February 2004
NMI Certin B.V.


Ing. C. Oosterman
Manager Product Certification



1 General information about the load cell

All properties of the load cell, whether mentioned or not, may not be in conflict with the standard mentioned in the test certificate.

1.1 Essential parts

Description	Drawing number	Rev.	Remarks
Model 1022 Load cell	187.000.00-3	D	Mechanical
Model 1022P Load cell	218.000.00-3	A	Mechanical
Wired sensor	187.200.00-2	B	Electrical
Model 1022P Load cell	218.200.00-2	1	Electrical

Cable:

- The load cell is provided with a 4 or 6-wire system.
Because (no Remote sensing) is used by the 4-wire system that cable length has to be approximate 1 meters. If the load cell is provided with a 6-wire system (=“Remote-sensing”).
The cable length is not limited.
- The cable should be a shielded cable, the shield may be connected to the load cell.

1.2 Essential characteristics

Minimum dead load	: 0 kg
Safe overload	: 150 % of E_{max}
Rated Output	: $2 \text{ mV/V} \pm 0.2 \text{ mV/V}$
Input impedance	: $415 \Omega \pm 15 \Omega$
Output impedance	: $350 \Omega \pm 3 \Omega$
Recommended excitation	: 10 V DC/AC
Excitation maximum	: 15 V DC/AC
Transducer material	: Anodized Aluminium or Non-Anodized Aluminium
Atmospheric protection	: Adhesive Silicone Rubber

1.3 Essential shapes

The load cell is built according to drawing:

- Model 1022 Load cell, drawing number 187.000.00-3;
- Model 1022P Load cell, drawing number 218.000.00-3

The data plate is secured against removal by sealing or will be destroyed when removed. The data plate mentions at least the information and markings as described in the OIML R60 document. In the countries where it is mandatory the load cell should bear this test certificate number: TC2792.

Securing:

The connecting cable of the load cell or the junction box is provided with possibility to seal.



Tests performed for this test certificate:

Test	Institute	type, version, remarks
Temperature test and repeatability (20, 40, -10 and 20 °C)	NMi Certin B.V	1022, 3 kg C4 and 30 kg C4 1022P, 7 kg C3 and 30 kg C4
Temperature effect on minimum dead load output (20, 40, -10 and 20 °C)	NMi Certin B.V	1022, 3 kg C4 and 30 kg C4 1022P, 7 kg C3 and 30 kg C4
Creep (20, 40 and -10 °C)	NMi Certin B.V	1022, 3 kg C4 and 30 kg C4 1022P, 7 kg C3 and 30 kg C4
Minimum dead load output return (20, 40 and -10 °C)	NMi Certin B.V	1022, 3 kg C4 and 30 kg C4 1022P, 7 kg C3 and 30 kg C4
Barometric pressure effects at room temperature	NMi Certin B.V	1022, 3 kg C4 1022P, 7 kg C4
Damp heat, cyclic: marked CH (or not marked)	NMi Certin B.V.	1022, 3 kg C4 1022P, 7 kg C4