



Nederlands Meetinstituut

Test certificate

Number **TC2485** revision 6
Project number 811807
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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 Hottinger Baldwin Messtechnik GmbH
Im Tiefen See 45
D-64293 Darmstadt
Germany

In respect of A **bending beam load cell load cell**, with strain gauges, tested as a part of a weighing instrument.

Manufacturer : Hottinger Baldwin Messtechnik GmbH
Type : SP4....

Characteristics E_{max} : 1 kg up to and including 200 kg
Accuracy class : C3 – C6

In the description number TC2485 revision 6 further characteristics are described.

Description and documentation The load cell is described in the description number TC2485 revision 6 and documented in the documentation folder TC2485-5, appertaining to this test certificate.

Remarks Summary of the test involved: see Appendix number TC2485 revision 6
This revision test certificate replaces the earlier version, including its documentation folder.

Dordrecht, 26 February 2009
NMI Certin B.V.

Ing. C. Oosterman
Manager Product Certification

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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
Outline SP4 Load Cell	2P16325 3P17672 3P17723	2 - -	Mechanical
Schematic SS4, SP4 load cell	P16494	0	Electrical
Data sheet SP4... Platformwägezellen	I2476-1.0 NMI	-	3 pages
Technische Daten (Fortsetzung)	B26091.0de	-	1 page

Cable:

- The load cell is provided with a 4-wire system.
The cable length has to correspond with the code on the load cell see Nomenclature;
The cable length shall not be modified.
- Or the load cell is provided with a 6-wire system (=“Remote-sensing”).
The cable length is not limited.

Nomenclature: PW4xyyzz

- x - Different version of cable such as shielded round or flat ribbon cable;
- Different thread sizes or versions like metric or inch;
- Different cable ends such as various like metric plugs or free end.
- yy - Accuracy class.
- zz - Capacity of the load cell.

1.2 Essential characteristics

Type	SP4....		
Humidity classification	CH		
Maximum capacity E_{max}	1 kg up to and including 200 kg	7 kg up to and including 200 kg	7 kg up to and including 36 kg
Accuracy class	C		
Maximum number of load cell verification intervals n_{max}	3000	6000	6000
Ratio of minimum LC verification interval $Y = E_{max} / v_{min}$	15000		20000



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The characteristics for n_{\max} and Y can be reduced separately. Z is proportional or equal to n_{\max}

Each produced load cell is supplied with information about its characteristics. The type number on the load cell also indicates the characteristics; see drawing Marking specifications, drawing number 143073_A.

Minimum dead load	: 0 kg
Safe overload	: 150 % of E_{\max}
Rated Output	: 2 mV/V \pm 0.1 % 1kg version 1.8 mV/V \pm 0.1 %
Input impedance	: 300 .. 500 Ω
Output impedance	: 300 .. 500 Ω
Excitation	: 15 V DC
Transducers material	: Aluminum
Atmospheric protection	: potted with different pottings

1.3 Essential shapes

The load cell is built according to drawing:

- Outline SP4 Load Cell, drawing numbers: 2P16325, 3P17672 and 3P17723;
- Data sheet SP4... Platformwägezellen, drawing number, I2476-1.0 NMI;
- Technische Daten (Fortsetzung), drawing number B26091.0de.

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: TC2485.

Securing:

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



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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.	SP4 1 kg C3, SP4 10 kg C3 SP4 100 kg C3, SP4 7 kg C6 and SP4 50 kg C6
Temperature effect on minimum dead load output (20, 40, -10 and 20 °C)	NMi Certin B.V.	SP4 1 kg C3, SP4 10 kg C3 SP4 100 kg C3, SP4 7 kg C6 and SP4 50 kg C6
Creep (20, 40 and -10 °C)	NMi Certin B.V.	SP4 1 kg C3, SP4 10 kg C3 SP4 100 kg C3, SP4 7 kg C6 and SP4 50 kg C6
Minimum dead load output return (20, 40 and -10 °C)	NMi Certin B.V.	SP4 1 kg C3, SP4 10 kg C3 SP4 100 kg C3, SP4 7 kg C6 and SP4 50 kg C6
Barometric pressure effects at room temperature	NMi Certin B.V.	SP4 10 kg C3, SP4 100 kg C3 and SP4 7 kg C6
Damp heat, cyclic: marked CH (or not marked)	NMi Certin B.V.	SP4 10 kg C3, SP4 100 kg C3 and SP4 7 kg C6