RAPPORT

utfärdat av ackrediterat laboratorium / *REPORT issued by an Accredited Laboratory*
issued by Notified body No 0402

1002

TEST CERTIFICATE No. 0402-MTm035 Revision 1

Load cell type KIS-11

Issued to

Thermo Nobel AB, Box 423, SE-691 27 Karlskoga, Sweden.

In respect of

The model of a **load cell**, tested as a part of a weighing instrument.
Type KIS-11
Manufacturer Thermo Nobel AB, Box 423, SE-691 27 Karlskoga, Sweden

Characteristics

Load cell to be used as a part of a non-automatic weighing instrument with the following characteristics:

- Class C
- Maximum number of LC verification scale intervals (n_{LC}) is 3000
- Ratio of minimum LC verification interval (Y) is 10500
- Ratio of minimum dead load output return (Z) is 13000
- Temperature range: -10 °C to +40 °C
- In the annex belonging to this certificate further essential characteristics are described

Description and documentation

The load cell is described in the annex to this certificate and documented in the documentation folder held by SP, both appertaining to this test certificate.

Issued by

SP Sveriges Provnings- och Forskningsinstitut, Box 857, SE-501 15 BORÅS, Sweden.

In accordance with

Paragraph 8.1 and 3.5.4 of the European Standard on metrological aspects of non-automatic weighing instruments EN 45501:1992 and WELMEC 2.4 and by application of the OIML International Recommendation R 60 Edition 2000. The applied error fraction p_i meant in paragraph 3.5.4 of the standard is 0,7.

This test certificate does not have the meaning of a type approval document as mentioned in directive 90/384/EEC. The error fraction pi mentioned under "In accordance with" must be regarded as the decisive value for the application of the test certificate. This test certificate can be quoted in an EC Type-approval certificate without permission of the applicant quoted above.

Borås, 24 November, 2002

SP Sveriges Provnings- och Forskningsinstitut
Section for mass, force and pressure

Håkan Källgren
Technical Manager

Bengt Johansson
Technical Officer

Annex to

Test Certificate

0402-MTm035, dated 24 November, 2002

Revision 1

General

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

Technical data

Type		KIS-11
Accuracy class		C
Maximum number of intervals, n_{max}		3000
Max capacity, E_{max}		50, 100, 200 kN
Safe overload, E_{lim}/E_{max}		100 % (of E_{max})
Min capacity, E_{min}		0 % of E_{max}
Ratio **to** minimum LC verification interval, Y	$= E_{max}/V_{min}$	10500
Ratio **to** minimum dead load output return, Z	$=E_{max}/(2*DR)$	13000
Rated output, C		1,02 mV / V ± 0,1
Output Impedance		350 Ω ± 0,5 Ω
Input Impedance, R_{LC}		350 Ω ± 3 Ω
Excitation		10 / 18 V AC/DC recommended / maximum

Essential shapes

Description	**Drawing no.**	**Rev**	**Remarks**
Drawing	600523	2	
Drawing	500940	0	

Tests carried out

The load cell is tested in accordance with SPs test procedure MVm 7.5 and OIML R60 / EN45501. The results are documented in the test report 0402-MTm035 dated 2002-04-29.

Tests performed with load cell KIS-11

Test	**R60 Ed. 2000**	**Performed by**	**Result**
Temperature test and repeatability (at 20,40,-10 and 20^{O} C)	5.5.1.1 & 5.4 / A.4.1.1, C.2.3	SP, MTm	Passed
Temperature effect on minimum load output (at 20,40,-10 and 20^{O} C)	5.5.1.3 / A.4.1.14	SP, MTm	passed
Creep during 30 minutes (at 20,40,-10 and 20^{O} C)	5.3.1.1 / A.4.2	SP, MTm	passed
Minimum dead load output return (at 20,40,-10 and 20^{O} C)	5.3.2 / A.4.3	SP, MTm	passed
Barometric pressure effects	5.5.2 / A.4.4	SP, MTm	passed
Humidity test	5.5.3.1/ A.4.5	SP, MTm	passed

Description of load cell

Function of the load cell

Load cell KIS-11 is supported at one end and the load applies at the other end. KIS-11 has strain gauges that measure the strain that arise from the shear forces caused by the load.

Construction of the load cell

KIS-11 has a sleeve, which make it possible to apply the load directly over the strain gauges. That eliminates disturbing effects from bending forces. The strain gauges are placed in an I-beam section and are oriented for optimal measurement of the shear force. The load cell is provided with a shielded cable. The shield is not connected to the load cell body.

Characteristics of load cell cable

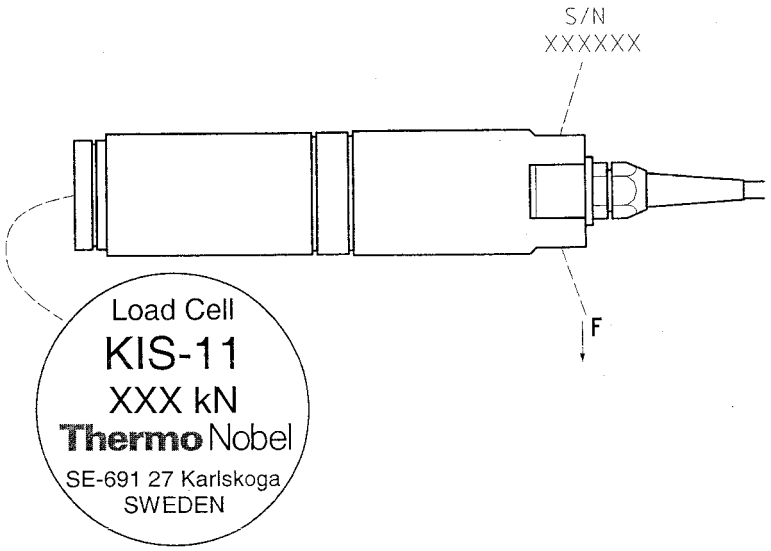
The cable has four wire plus shield. The ground is open at the load cell end. The cross section of wire is $\geq 0{,}3$ mm^2, cable length 10-30 m. Electrical connectors; four wire with shield, specification as follows:

RED	+Excitation
BLACK	-Excitation
GREEN	+Signal
WHITE	-Signal

Markings

The markings of the load cell contain the ThermoNobel name, type, serial number, and E_{MAX}.

Drawings



Documentation

Application and technical documention dated 23 march and 15 april 2002.

Validity of this Test Certificate

Manufacturing process, material and sealings of the produced load cells have to be in accordance with that of the tested pattern; essential changes are only allowed with the permission of the Notified Body.