



Prüfschein

Test certificate

Ausgestellt für:

Issued to:

Revere-Transducers Europe BV
Ramshoorn 7
NI - 4824 AG Breda
Netherlands

Prüfgrundlage:

In accordance with:

EN 45501 (1992), para. 8.1 & 3.5.4 mit Fehleranteil / *with fraction* $\rho_{LC} = 0,7$
OIML R60 (1991), WELMEC 2.4

Gegenstand:

In respect of

DMS-Zugwägezellen / *strain gauge tension load cells*

Typ / *type*

9363 ..

E_{max}

50 kg ÷ 7500 kg

100 lb ÷ 15000 lb

Genauigkeitsklasse / *accuracy class*

C1, C2 & C3

Kennnummer:

Serial number:

Prüfscheinnummer:

Test certificate number:

D09-00.05

Datum der Prüfung:

Date of Test:

Anzahl der Seiten:

Number of pages:

5

Geschäftszeichen:

Reference No.:

1.14 - 99060452

Benannte Stelle

Notified Body

102

Im Auftrag

By order

Dr. Meißner



Braunschweig, 28.04.2000

Siegel

Seal

Anlage zum Prüfschein

Annex to test certificate

vom 28.04.2000, Prüfscheinnummer: D09-00.05

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1. Technical data

The metrological characteristics of the load cells are shown in Table 1, further technical data are given in the data sheet of the manufacturer Revere Transducers Inc., Tustin, USA, on pages 4 and 5 of this annex.

Table 1: Essential characteristics

Accuracy class		C1	C2	C3
Max. number of load cell intervals	n_{LC}	1000	2000	3000
Maximum capacities	E_{max}	50 / 100 / 250 / 500 / 1000 / 2500 / 5000 / 7500 kg 0,10 / 0,15 / 0,20 / 0,25 / 0,30 / 0,50 / 0,75 / 1,0 / 1,5 / 2,0 / 2,5 / 3,0 / 5,0 / 10 / 15 klb		
Minimum LC verification interval	v_{min} (Y)	$E_{max} /$ 4500	$E_{max} /$ 6000	$E_{max} /$ 9000

Minimum dead load: $0\% * E_{max}$; Save load: $\sim 150\% * E_{max}$; Input resistance : $\sim 430 \pm 60 \Omega$

¹⁾ Load cells with the maximum capacity $E_{max} < 300\text{lbs}$ ($\sim 150\text{kg}$) have to be marked "NH" (not humidity tested).

2. Tests

Base of this test certificate are the NIST reports:

OIML00332, 300 lb, SN 17231, of 16.06.98; OIML00333, 300 lb, SN 17234, of 19.06.98;

OIML00335, 3000 lb, SN 17363, of 30.06.98; OIML00365, 100 lb, SN 17454, of 17.03.99;

OIML00366, 500 lb, SN 17482, of 02.03.99.

The determination of load cell error, repeatability, temperature effect on minimum dead load output, creep and minimum dead load output return in the temperature range of -10°C to $+40^\circ\text{C}$ according OIML R60 have been performed.

Table 2: Tests

T e s t	R60 No :	Institute
Temperature test and repeatability (at 20, -10, 40 and 20°C)	15.1 & 5.1 & 9.0	NIST
Temperature effect on min. dead load output (at 20, -10, 40 and 20°C)	15.1 & 10.1.3	NIST
Creep test (at 20, -10 and 40 °C)	15.2 & 7.1	NIST
Minimum dead load output return (at 20, -10 and 40 °C)	15.3 & 7.2	NIST
Barometric pressure effects at room temperature	15.4 & 10.2	²⁾
Humidity test	15.5 & 7.3	NIST ¹⁾

¹⁾ The stability against humidity was verified on pattern OIML00333, 300 lb, SN 17234.

Load cells with smaller capacities are marked "NH" .

²⁾ Potted shear beams with $Y=9000$ are sufficiently stabile against barometric effects.

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3. Description of the load cell

The tension load cell of 9363 type is an s-type LC, and introduces the force centred into a shear beam. The load cells are made of stainless steel, the strain gauge application is potted.

Further essential data is presented in the data sheet.

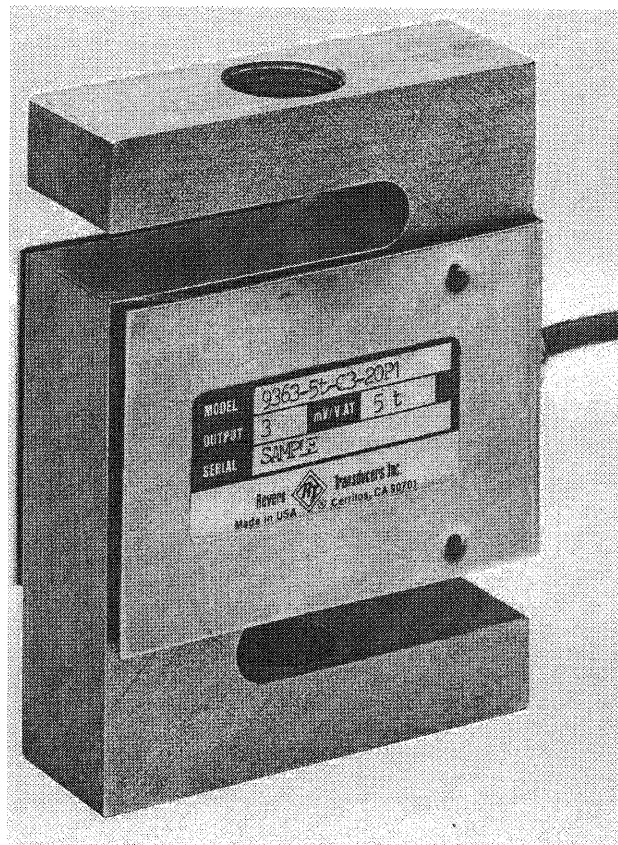
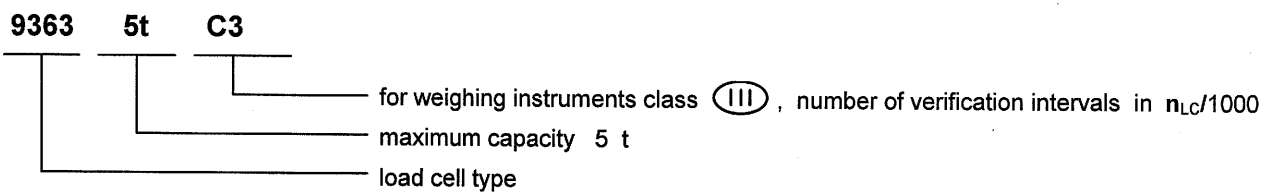


Figure 1: Load cell type 9363 - 5t - C3 - ..

Example of a complete type designation on the identification plate:



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4. Documentation

The test results and the following drawings are kept at the PTB:

Drawing Outline of 363/9363

5. Further information

- Validity of this test certificate

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

- Data sheet

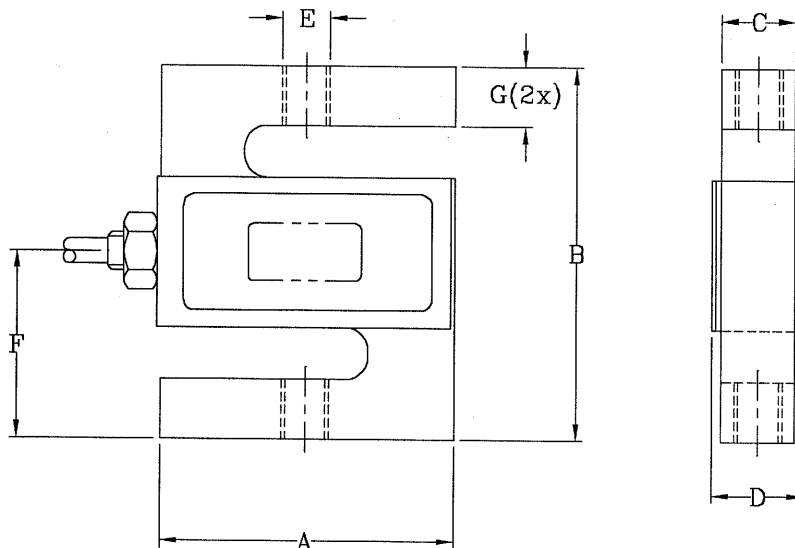
The data for deviation from non linearity, hysteresis and temperature effect on rated output are typical values. The sum of these data meets the requirements according to OIML R60.

The technical data and the dimensions are given in the annex and have to be complied with.

According to DIN/EN 45501 Nr. 4.12 the load cells are applicable in weighing instruments class

Ⓜ and Ⓜ.

6. Dimensions and data sheet



Cap (kg)	50 / 100	250 / 500	1000	2500	5000	7500
Cap (lbs)	100 / 200 / 300	500 - 1.5K	2 / 2.5 K	3* / 5K	10 K	15 K
A	50.8	50.8	50.8	76.2	74.7	87.4
B	61.0	61.0	61.0	99.1	99.1	139.7
C	11.7	18.0	24.4	24.4	30.7	37.1
D _{max}	16.5	22.9	29.2	29.2	35.6	41.4
E (kg)	M8x1.25-6H	M12x1.75-6H		M20x1.5-6H		M24x2-6H
E (lbs)	¼ - 28UNF-2B	½ - 20UNF-2B		¾ - 16UNF-2B		1 - 14UNF-2B
F	30.5	30.5	30.5	49.5	49.3	69.9
G	8.9	8.9	8.9	14.0	15.7	22.4

* 3K1b version has ½ - 20UNF-2B threads

Note: Dimensions in millimeters

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9363: SPECIFICATIONS:

Standard Capacities (=E _{max})	kg	50, 100, 250, 500, 1000, 2500, 5000, 7500		
Standard Capacities (=E _{max})	lbs	100, 200, 300, 500, 750, 1K, 1.5K, 2K, 3K, 5K, 10K, 15K		
Accuracy Class According to OIML R-60		C1	C2	C3
Max. Number of Verification Intervals (n _{ic})		1000	2000	3000
Minimum Verification Interval (v _{min})		E _{max} /4500	E _{max} /6000	E _{max} /9000
Minimum Utilisation	%	25	33	33
Accuracy According to Type Designation		C1	C2	C3
Combined Error	%S	≤ ± 0.0300	≤ ± 0.0230	≤ ± 0.0200
Non-Repeatability	%S	≤ ± 0.0200	≤ ± 0.0100	≤ ± 0.0100
Minimum Dead Load Output Return ¹	%S	≤ ± 0.0500	≤ ± 0.0250	≤ ± 0.0167
Creep Error (30 Minutes) ¹	%S	≤ ± 0.0490	≤ ± 0.0245	≤ ± 0.0245
Creep Error (20-30 Minutes) ¹	%S	≤ ± 0.0105	≤ ± 0.0053	≤ ± 0.0053
Temp. Effect on Min. Dead Load Output	%S/5°C	≤ ± 0.0140	≤ ± 0.0112	≤ ± 0.0070
Temp. Effect on Sensitivity	%S/5°C	≤ ± 0.0085	≤ ± 0.0060	≤ ± 0.0050
Minimum Deadload	%E _{max}	0		
Maximum Safe Overload	%E _{max}	150		
Ultimate Overload	%E _{max}	300		
Maximum Safe Sideload	%E _{max}	100		
Excitation Voltage	V	5...12		
Maximum Excitation Voltage	V	15		
Rated Output (=S)	mV/V	3.3		
Tolerance on Rated Output	mV/V	± 0.3		
Rated Output (Trimmed Version)	mV/V	3 1.0		
Tolerance on Rated Output (Trimmed Version)	mV/V	± 0.0075		
Zero Balance	%S	≤ ± 1.0		
Input Resistance	Ω	390 ± 15		
Input resistance (Trimmed version)	Ω	430 ± 60		
Output Resistance	Ω	350 ± 3.5		
Insulation Resistance	MΩ	≥ 5000		
Compensated Temperature Range	°C	-10...+40		
Operating Temperature Range	°C	-40...+80		
Storage Temperature Range	°C	-40...+90		
Element Material (DIN)		NP alloy (363) / Stainless Steel 1.4542 (9363)		
Sealing (DIN 40.050)		IP65		

Note: "temperature Effect on Sensitivity" and "Combined Error" are combined in such a way that the load cells meet the tolerance envelope of R-60.

Hinweise

Prüfscheine ohne Unterschrift und Siegel haben keine Gültigkeit. Dieser Prüfschein darf nur unverändert weiterverbreitet werden. Auszüge bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.

Notes

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Physikalisch-Technische Bundesanstalt

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