



Member State of OIML
Japan

OIML Certificate No.
R60/2000-JP1-11.07

OIML CERTIFICATE OF CONFORMITY

Issuing authority

Name: National Metrology Institute of Japan / National Institute of Advanced Industrial Science and Technology (NMIJ / AIST)
Address: AIST Tsukuba Central 3-9, Tsukuba Ibaraki 305-8563, Japan
Person responsible: Dr. Tamotsu Nomakuchi, President of AIST

Applicant

Name: MINEBEA CO., LTD.
Address: 1-1-1, Katase, Fujisawa-shi, Kanagawa-ken, 251-8531, Japan

Manufacturer of the certified pattern

Name: MINEBEA CO., LTD.
Address: 1-1-1, Katase, Fujisawa-shi, Kanagawa-ken, 251-8531, Japan

Identification of the certified pattern:

Beam(shear) load cell
Type: C2T1-1T-M1
Fraction: Pi=0.7
Temperature range: -10 °C / 40 °C



Member State of OIML
Japan

OIML Certificate No.
R60/2000-JP1-11.07

Characteristics:

Model designation			C2T1-1T-M1
Accuracy class	Class	-	C
Maximum number of load cell verification intervals	n_{max}	-	1000
Humidity symbol			CH
Minimum dead load	E_{min}	kg	0
Maximum capacity	E_{max}	kg	1000
Safe load limit	E_{lim}	kg	$1.5 * E_{max}$
Minimum verification interval	v_{min}	kg	$E_{max} / 2000$
Apportionment factor	p_{LC}		0.7
Ratio of minimum LC Verification interval $Y = E_{max} / v_{min}$	Y	-	2000
Ratio of minimum dead load output return $Z = E_{max} / (2 * DR)$	Z	-	1000
Rated output		mV/V	2
Maximum excitation voltage		V DC	15
Input impedance	R_{LC}	Ω	380~430
Cable length		m	1.5

This certificate attests the conformity of the above-mentioned pattern (represented by the samples identified in the associated test report(s) 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 pattern of the instrument concerned, as covered by the relevant OIML International Recommendation.

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

The conformity was established by tests described in the associated test report no. 11-07/R60:2000, that includes 19 pages.



Member State of OIML
Japan



OIML Certificate No.
R60/2000-JP1-11.07

The Issuing Authority
NMIJ/AIST



Dr. T. Nomakuchi
President of AIST
2011-09-07

The CIML member

Dr. Y. Miki
2011-09-07

Important note: Apart from the mention of certificate's reference number and the name of the OIML Member State in which the certificate was issued, partial quotation of the certificate or the associated test report is not permitted, though they may be reproduced in full.



Evaluation Report

Load cells

Issuing Authority

Name : National Metrology Institute of Japan /National Institute
of Advanced Industrial Science and Technology (NMIJ/AIST)

Address : AIST Tsukuba Central 3, Tsukuba Ibaraki 305-8563, Japan

Applicant : MINEBEA CO., LTD.

Manufacturer : MINEBEA CO., LTD.

Applied Type : C2T1-1T-MI

Evaluation Report Number : 23-004

This report ensures the conformity of the applied type with the requirements of the OIML R60 (edition 2000), on the basis of evaluation of the attached test report (N^o 11-07/R60:2000).

Evaluator :

Wataru Kaminaga
Legal Metrology Division
NMIJ/AIST

Signature :

W. Kaminaga

Date: 2011. 9. 5

Supervisor :

Shigeki Yamaguchi
Head of Legal Metrology Division
NMIJ/AIST

Signature :

Shigeki Yamaguchi

Date: 2011. 9. 5

Description

Technical data

Model designation			C2T1-1T-M1
Accuracy class	Class	-	C
Maximum number of load cell verification intervals	n_{max}	-	1000
Humidity symbol			CH
Minimum dead load	E_{min}	kg	0
Maximum capacity	E_{max}	kg	1000
Safe load limit	E_{lim}	kg	1.5* E_{max}
Minimum verification interval	v_{min}	kg	$E_{max} / 2000$
Apportionment factor	p_{LC}		0.7
Ratio of minimum LC Verification interval $Y = E_{max} / v_{min}$	Y	-	2000
Ratio of minimum dead load output return $Z = E_{max} / (2 * DR)$	Z	-	1000
Rated output		mV/V	2
Maximum excitation voltage		V DC	15
Input impedance	R_{LC}	Ω	380~430
Cable length		m	1.5



National Metrology Institute of Japan



Metrological regulation for load cells :
Test report

Project number : LC-OIML-11-008

Test report number : 11-07 / R60:2000

Issuing authority : National Metrology Institute of Japan /National Institute of
Advanced Industrial Science and Technology (NMIJ/AIST)

AIST Tsukuba Central 3, Tsukuba Ibaraki 305-8563, Japan

Applicant : Minebea Co.,Ltd

Manufacturer : Minebea Co.,Ltd

Date of application : 2011.8.3

End of evaluation : 2011.8.23

Date of issue : 2011.8.26

Signature :

A handwritten signature in black ink, appearing to read 'Y. Koyano'.

Yasuhiro Koyano

Chief of Legal Weighing Metrology Section
Mechanical Metrology Division

Testing authority

Name: National Metrology Institute of Japan
 Address: Central 3-1, 1-1-1 Umezono, Tsukuba, Ibaraki, 305-8563, Japan
 Contact information: Telephone: +81 29 861 4389 Fax: +81 29 861 4341

Applicant/Manufacturer information

Application no.: 23-004
 Application date: 2011.8.3
 Model designation: C2T1-1T-M1

Manufacturer: Minebea Co.,Ltd
 Address: 1-1-1, Katase Fujisawa-shi Kanagawa-ken 251-8531, Japan

Applicant: Minebea Co.,Ltd
 Address: 1-1-1, Katase Fujisawa-shi Kanagawa-ken 251-8531, Japan

Representative: Akira Murohashi
 (name, telephone) +81 466 22 7152

Instrument category: Load cell: strain gauge Documentation no.: _____

Information concerning the pattern

Accuracy class: A B C D

Maximum number of load cell verification intervals (n) 1000

Direction of loading: (for load cell characterization, see 4.6.3)

Tension Beam (shear) Compression
 Universal Beam (bending)

Safe load limit (Lim): 150% of E_{max} Apportionment factor, p_{LC} (see Note) 0.7

Limits of working temperature: (only if other than -10°C to +40°C, see 5.5.1.1)

Upper: _____ °C Lower: _____ °C

Power voltage: V_{min} 7.5 V V_{max} 15 V

or V: 10 V AC DC Recommended: AC DC

Humidity evaluation symbol: NH Yes No
 SH Yes No
 CH or no markings Yes No

Electronic load cell: Yes No

Note: This value of p_{LC} is assumed to be 0.7 unless otherwise declared by the manufacturer.

Information concerning the pattern (continued)Application No: 23-004

Specify other conditions that must be observed to obtain the specified performance (for example, electrical characteristics of the load cell):

Various designs within model range:

Maximum capacity E_{max} (kg)	Minimum load cell verification interval v_{min} (kg)	Minimum dead load E_{min} (kg)	Maximum number of load cell intervals n_{max}	Minimum dead load output return DR (kg)
1000	0.5	0	1000	

All values in this table are taken from documentation pages _____.

DR information required only when applicable.

Load cell(s) submitted:

Model designation	Serial number	E_{max} (kg)
C2T1-1T-M1	T143278	1000

Secondary equipment (specify load adapters, etc.):

Remarks:

General information concerning test conditions

Ref.:A3

Application no.: 23-004Load cell model: C2T1-1T-M1 Serial no.: T143278 E_{\max} : 1000 kg
 n_{\max} : 1000 v_{\min} : 0.5 kg DR (if applicable): _____Force-generating system - description: Load cell performance testing device
(see Note)Minimum test load: _____ 4.7 kgIndicating instrument - description: HBM DMP40Environmental equipment - description: Air Supply Equipment ASE-210Temperature: 20.2 ~ 20.3 °CRelative humidity: 47.0 ~ 47.3 %RHBarometric pressure: 100.73 ~ 100.92 kPaTest location: Room 023Acceleration of gravity at test location: 9.79949 m/sec²Evaluator: _____ Fukuda*Note* : Include information concerning accuracy (for example, accredited laboratory).

Summary of the test

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max} : 1000 kg n_{max} : 1000
 v_{min} : 0.5 kg DR: _____
 Force-generating system: Load cell performance testing device ρ_{LC} : 0.7
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

No.	Test description	Passed	Failed	Report page	Remarks
D.2	Load cell errors (E_L)	x		10	
D.3	Repeatability errors (E_R)	x		11	
D.4	Temperature effects on MDLO (C_M)	x		12	
D.5	Creep (C_C)	x		13-16	
D.5	DR(C_{DR})	x		13-16	(see Note 2) DR: 0.35 kg
D.6	Barometric pressure effects (C_p)	x		17	
D.7	Humidity effects (CH or no mark) (C_{Hmin})	x		18	
D.7	Humidity effects (CH or no mark) (C_{Hmax})	x		18	
D.8	Humidity effects (SH)				
D.9	Marking requirements	See Page 19, Check that marked values are correct.			
D.10	Load cells equipped with electronics				
D.11	Warm-up time				
D.12	Power voltage variations				
D.13	Short time power reductions				
D.14	Bursts (electrical fast transients)				
D.15	Electrostatic discharge				
D.16	Electromagnetic susceptibility				
D.17	Span stability				

The following table checks the required calculations as per the General notes provisions of C.4:

Paragraph No.	Description	n_{max}		$n_{max}-500$		$n_{max}-1000$	
		Pass	Fail	Pass	Fail	Pass	Fail
C.4.2, C.4.3, C.4.5	Check all calculations using values of n at n_{max} and at lower than n_{max}	x		x			
C.4.4	Check that $v_{min} \leq \frac{D_{max}-D_{min}}{n_{max}}$	Pass		Fail			
		x					

Worst case figure for minimum dead load output return error (in mass units) = DR = 0.35 kg see Note 3

- Notes:
- 1 Enter "NA" for "the test is not applicable".
 - 2 Record error to accommodate OIML R76.
 - 3 This DR value is used in association with OIML R 76.

D.4 Temperature effects on MDLO (C_M) calculation

Ref.: 5.5.1.3; A.4.1.14; C.2.4.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max}: 1000 kg
 n_{max}: 1000
 V_{min}: 0.5 kg
 P_{LC}: 0.7 DR: _____
 Force-generating system: Load cell performance testing device Conversion factor, f: 0.001985
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

Table D.4

Temperature °C	Indication (mV/V)	Change (C _M) (V)	Change (V _{min} /5 °C)	mpc (V _{min} /5 °C)
20.3	0.013052			
40.2	0.013607	0.28	0.14	0.70
-10.2	0.012462	-0.58	0.11	0.70
20.2	0.013156	0.35	0.11	0.70

PASS: FAIL:

- Notes:
- 1 MDLO: minimum dead load output.
 - 2 Indication: the average initial minimum test load indication obtained from Table D.1.
 - 3 The maximum permissible change(mpc) allowed is: (V_{min}/5°C) for classes B, C, and D; (V_{min}/2°C) for class A.
 - 4 Change, C_M(v): the difference between the observed indications, and the indications at the prior temperature, divided by the conversion factor, f.

Form D.5 Creep (Cc) and DR (CDR)

Ref.: 5.3.1, 5.3.2; A.4.2, A.4.3 Complete one sheet for each test temperature.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max} : 1000 kg
 n_{max} : 1000
 V_{min} : 0.5 kg
 P_{LC} : 0.7 DR: _____

	At start	At end	
Date:	2011/8/5	2011/8/5	
Temperature:	20.3	20.3	°C
Relative humidity:	47.2	47.7	%
Barometric pressure:	100.88	100.88	kPa
Indicator temperature:	23.9	24.0	°C

Force generating system: Load cell performance testing device Conversion factor, f: 0.001807
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

Table D.5

Test load (kg)	Indication (mV/V)	Barometric pressure (kPa)	Time	Change (v)	mpc (v)	
0						
0						
0						
0						
(*) →	0	0.013029	100.88	14:22:43		←initial "no load" indication
Fill in time →	Record time of initial loading →			14:22:43		
(**) →	900	1.819793	100.88	14:23:13	0.00	←initial "load" indication
Constant maximum test load, Dmax	900	1.819787	100.88	14:24:13	0.00	
	900	1.819798	100.88	14:25:12	0.00	
	900	1.819808	100.88	14:26:11	0.01	
	900	1.819816	100.88	14:27:10	0.01	
	900	1.819826	100.88	14:28:10	0.02	
	900	1.819831	100.88	14:29:09	0.02	
	900	1.819843	100.88	14:30:08	0.03	
	900	1.819849	100.88	14:31:07	0.03	
	900	1.819857	100.88	14:32:06	0.04	
	900	1.819862	100.88	14:33:05	0.04	
	900	1.819890	100.88	14:38:04	0.05	
	900	1.819913	100.88	14:43:03	0.07	
	900	1.819930	100.88	14:48:02	0.08	
	900	1.819949	100.88	14:53:01	0.09	
	Fill in time →	Record time of initial unloading →			14:53:01	
(***) →	0	0.013240	100.88	14:53:31	0.12	←initial indication
These rows are for reference purposes only	0	0.013244	100.88	14:53:50	0.12	
	0	0.013240	100.88	14:54:09	0.12	
	0	0.013234	100.88	14:54:28	0.11	
	0	0.013229	100.88	14:54:47	0.11	
	0	0.013224	100.88	14:55:06	0.11	
	30-20 minute creep difference in units:				0.02	0.1575

DR (v):	0.12	30 minute creep:	PASS:	x	FAIL:	
actual time (s):	30	30-20 minute creep diffence:	PASS:	x	FAIL:	
specified time (s):	30	DR ≤ 0.5v:	PASS:	x	FAIL:	
mpc for DR (v):	0.50	DR within manufacturer specified DR requirements:	PASS:		FAIL:	

- Notes:
- 1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
 - 2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
 - 3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
 - 4 Absolute (not relative) time shall be recorded.

Form D.5 Creep (Cc) and DR (CDR)

Ref.: 5.3.1, 5.3.2; A.4.2, A.4.3 Complete one sheet for each test temperature.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max}: 1000 kg
 n_{max}: 1000
 V_{min}: 0.5 kg
 P_{LC}: 0.7 DR: _____

	At start	At end	
Date:	2011/8/8	2011/8/8	
Temperature:	40.2	40.2	°C
Relative humidity:	34.7	34.7	%
Barometric pressure:	100.94	100.90	kPa
Indicator temperature:	24.2	24.1	°C

Force generating system: Load cell performance testing device Conversion factor, f: 0.001807
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

Table D.5

Exercise cells	Test load (kg)	Indication (mV/V)	Barometric pressure (kPa)	Time	Change (v)	mpc (v)	
	0						
These rows may be omitted for a load sequence as shown in Figure A.1	0						
	0						
	0						
(*) →	0	0.013540	100.94	9:46:10			← initial "no load" indication
Fill in time →	Record time of initial loading →			9:46:10			
(**) →	900	1.820390	100.94	9:46:40	0.00	0.735	← initial "load" indication
Constant maximum test load, D _{max}	900	1.820467	100.94	9:47:40	0.04	0.735	
	900	1.820519	100.94	9:48:40	0.07	0.735	
	900	1.820559	100.94	9:49:39	0.09	0.735	
	900	1.820589	100.93	9:50:38	0.11	0.735	
	900	1.820618	100.93	9:51:37	0.13	0.735	
	900	1.820644	100.93	9:52:36	0.14	0.735	
	900	1.820665	100.93	9:53:35	0.15	0.735	
	900	1.820686	100.93	9:54:34	0.16	0.735	
	900	1.820702	100.93	9:55:34	0.17	0.735	
	900	1.820722	100.93	9:56:33	0.18	0.735	
	900	1.820797	100.93	10:01:32	0.23	0.735	
	900	1.820858	100.92	10:06:31	0.26	0.735	
	900	1.820909	100.92	10:11:30	0.29	0.735	
900	1.820953	100.90	10:16:29	0.31	0.735		
Fill in time →	Record time of initial unloading →			10:16:29			
(***) →	0	0.014177	100.90	10:16:59	0.35	0.500	← initial indication
These rows are for reference purposes only	0	0.014143	100.90	10:17:18	0.33	0.500	
	0	0.014115	100.90	10:17:37	0.32	0.500	
	0	0.014091	100.90	10:17:56	0.30	0.500	
	0	0.014071	100.90	10:18:15	0.29	0.500	
	0	0.014056	100.90	10:18:34	0.29	0.500	
	30-20 minute creep difference in units:					0.05	0.1575

DR (v):	0.35	30 minute creep:	PASS:	x	FAIL:	
actual time (s):	30	30-20 minute creep diffence:	PASS:	x	FAIL:	
specified time (s):	30	DR ≤ 0.5v:	PASS:	x	FAIL:	
mpc for DR (v):	0.50	DR within manufacturer specified DR requirements:	PASS:		FAIL:	

- Notes:
- 1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
 - 2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
 - 3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
 - 4 Absolute (not relative) time shall be recorded.

Form D.5 Creep (Cc) and DR (CDR)

Ref: 5.3.1, 5.3.2; A.4.2, A.4.3 Complete one sheet for each test temperature.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max}: 1000 kg
 n_{max}: 1000
 V_{min}: 0.5 kg
 P_{LC}: 0.7 DR: _____

	At start	At end	
Date:	2011/8/9	2011/8/9	
Temperature:	-10.2	-10.2	°C
Relative humidity:	34.3	33.7	%
Barometric pressure:	100.91	100.90	kPa
Indicator temperature:	23.5	23.4	°C

Force generating system: Load cell performance testing device Conversion factor, f: 0.001807

Indicating instrument: HBM DMP40

Evaluator: Fukuda

Table D.5

Test load (kg)	Indication (mV/V)	Barometric pressure (kPa)	Time	Change (v)	mpc (v)	
0						
0						
0						
0						
(*) →	0	0.012474	100.91	8:37:51		← initial "no load" indication
Fill in time →	Record time of initial loading →			8:37:51		
(**) →	900	1.819082	100.91	8:38:21	0.00	← initial "load" indication
Constant maximum test load, D _{max}	900	1.819030	100.91	8:39:20	-0.03	
	900	1.819011	100.91	8:40:19	-0.04	
	900	1.819000	100.91	8:41:18	-0.05	
	900	1.818992	100.91	8:42:17	-0.05	
	900	1.818987	100.90	8:43:16	-0.05	
	900	1.818982	100.90	8:44:15	-0.06	
	900	1.818979	100.90	8:45:14	-0.06	
	900	1.818976	100.90	8:46:13	-0.06	
	900	1.818973	100.90	8:47:13	-0.06	
	900	1.818971	100.90	8:48:12	-0.06	
	900	1.818965	100.90	8:53:11	-0.06	
	900	1.818962	100.90	8:58:10	-0.07	
	900	1.818958	100.89	9:03:09	-0.07	
	900	1.818957	100.89	9:08:08	-0.07	
Fill in time →	Record time of initial unloading →			9:08:08		
(***) →	0	0.012396	100.89	9:08:38	-0.04	← initial indication
These rows are for reference purposes only	0	0.012417	100.90	9:08:57	-0.03	
	0	0.012427	100.90	9:09:16	-0.03	
	0	0.012435	100.90	9:09:35	-0.02	
	0	0.012439	100.90	9:09:54	-0.02	
	0	0.012444	100.90	9:10:13	-0.02	
30-20 minute creep difference in units:				0.00	0.1575	

DR (v):	-0.04	30 minute creep:	PASS:	x	FAIL:	
actual time (s):	30	30-20 minute creep difference:	PASS:	x	FAIL:	
specified time (s):	30	DR ≤ 0.5v:	PASS:	x	FAIL:	
mpc for DR (v):	0.50	DR within manufacturer specified DR requirements:	PASS:		FAIL:	

- Notes:
- 1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
 - 2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
 - 3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
 - 4 Absolute (not relative) time shall be recorded.

Form D.5 Creep (Cc) and DR (CDR)

Ref.: 5.3.1, 5.3.2; A.4.2, A.4.3 Complete one sheet for each test temperature.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max}: 1000 kg
 n_{max}: 1000
 V_{min}: 0.5 kg
 PLC: 0.7 DR: _____

	At start	At end	
Date:	2011/8/10	2011/8/10	
Temperature:	20.2	20.2	°C
Relative humidity:	47.7	47.7	%
Barometric pressure:	100.73	100.70	kPa
Indicator temperature:	23.9	23.6	°C

Force generating system: Load cell performance testing device Conversion factor, f: 0.001807
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

Table D.5

Test load (kg)	Indication (mV/V)	Barometric pressure (kPa)	Time	Change (v)	mpc (v)
0					
0					
0					
0					
(*) → 0	0.013129	100.73	9:12:09		
Fill in time →	Record time of initial loading →		9:12:09		
(**) → 900	1.819903	100.73	9:12:39	0.00	0.735
900	1.819897	100.73	9:13:39	0.00	0.735
900	1.819906	100.73	9:14:38	0.00	0.735
900	1.819915	100.73	9:15:38	0.01	0.735
900	1.819923	100.73	9:16:37	0.01	0.735
900	1.819931	100.73	9:17:36	0.02	0.735
900	1.819940	100.73	9:18:35	0.02	0.735
900	1.819946	100.73	9:19:34	0.02	0.735
900	1.819955	100.72	9:20:33	0.03	0.735
900	1.819960	100.72	9:21:33	0.03	0.735
900	1.819966	100.72	9:22:32	0.03	0.735
900	1.819996	100.72	9:27:31	0.05	0.735
900	1.820018	100.72	9:32:30	0.06	0.735
900	1.820037	100.71	9:37:29	0.07	0.735
900	1.820054	100.70	9:42:28	0.08	0.735
Fill in time →	Record time of initial unloading →		9:42:28		
(***) → 0	0.013327	100.70	9:42:58	0.11	0.500
0	0.013333	100.70	9:43:17	0.11	0.500
0	0.013329	100.70	9:43:36	0.11	0.500
0	0.013325	100.70	9:43:55	0.11	0.500
0	0.013320	100.70	9:44:14	0.11	0.500
0	0.013315	100.70	9:44:33	0.10	0.500
30-20 minute creep difference in units:				0.02	0.1575

DR (v):	0.11	30 minute creep:	PASS:	x	FAIL:	
actual time (s):	30	30-20 minute creep difference:	PASS:	x	FAIL:	
specified time (s):	30	DR ≤ 0.5v:	PASS:	x	FAIL:	
mpc for DR (v):	0.50	DR within manufacturer specified DR requirements:	PASS:		FAIL:	

- Notes: 1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
 2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
 3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
 4 Absolute (not relative) time shall be recorded.

Form D.6 Barometric pressure effects (Cp)

Ref.: 5.5.2; A.4.4.

	At start	At end	
Application no.: 23-004	2011/8/23	2011/8/23	Date:
Load cell model: C2T1-1T-M1	25.3	25.3	Test temperature: °C
Serial no.: T143278	52.7	53.0	Relative humidity: %
E_{max} : 1000 kg	101.11	101.10	Barometric pressure: kPa
n_{max} : 1000	25.3	25.3	Indicator temperature: °C
V_{min} : 0.5 kg			
P_{LC} : 0.7			DR: _____

Force-generating system: — Conversion factor, f: 0.001985

Indicating instrument: HBM DMP40

Evaluator: Fukuda

Table D.6

Pressure (kPa)	Indication (mV/V)	Time	Change (V)	Change (v_{min}/kPa)	mpc (v_{min}/kPa)
101.11	0.001802	10:29	0.00	0.00	0
102.11	0.001803	10:30	0.00	0.00	1
101.12	0.001802	10:31	0.00	0.00	1
100.12	0.001800	10:32	0.00	0.00	1
101.10	0.001802	10:33	0.00	0.00	1

PASS: FAIL:

Remarks:

- Notes: 1 Change (v): the difference between the observed indication and the initial indication divided by the conversion factor, f.
- 2 Although A.4.4 specifies a change of only 1 kPa for this test, additional measurements may be taken.
- 3 Absolute (not relative) time shall be recorded.

Form D.7 Humidity effects (CH or no mark)

Ref.: 5.5.3.1;A.4.5.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max}: 1000 kg
 n_{max}: 1000
 V_{min}: 0.5 kg
 P_{LC}: 0.7 DR: —

	At start	At end	
Date:	2011/8/10	2011/8/23	
Temperature:	20.2	20.4	°C
Relative humidity:	46.7	48.0	%
Barometric pressure:	100.63	100.95	kPa
Indicator temperature:	24.1	24.7	°C
Conversion factor, f:	0.001807		

Force generating system: Load cell performance testing device
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

Conditions during damp heat cyclic test:
 Chamber temp.(high): 40.3 °C Relative humidity: 95.0 %
 Chamber temp.(low): 25.2 °C Relative humidity: 96.5 %

Table D.7

Test load (kg)	Before humidity test		After humidity test		Change (v)	mpc (v)
	Indication (mV/V)	Time	Indication (mV/V)	Time		
0	0.013220	11:02:36	0.012972	9:31:54		
900	1.819988	11:03:05	1.819778	9:32:23		
0	0.013219	11:03:35	0.012995	9:32:53		
900	1.819989	11:04:04	1.819781	9:33:22		
0	0.013223	11:04:34	0.013005	9:33:52		
900	1.819997	11:05:03	1.819785	9:34:21		
0	0.013227	11:05:33	0.013012	9:34:51		
0	0.013218	11:10:50	0.013010	9:40:08		
900	1.819996	11:11:20	1.819789	9:40:38		
0	0.013216	11:11:50	0.013007	9:41:08		
900	1.820003	11:12:19	1.819789	9:41:37		
0	0.013222	11:12:49	0.013013	9:42:06		
900	1.820010	11:13:18	1.819797	9:42:36		
0	0.013227	11:13:48	0.013017	9:43:06		
Average(⊖)	0.013221		0.013012		-0.12	40 ← ≤ 4% n _{max}
Average(⊕)	1.820003		1.819792			
Averages difference(*)	1.806782		1.806780		0.00	1.0

(⊖) Indications at minimum test load Change (⊖), CHmin: PASS: FAIL:
 (⊕) Indications at maximum test load (see Note Change (*), CHmax: PASS: FAIL:
 (*) Average, see 5.5.3.1 and C.2.7

- Notes: 1 This test is not necessary if the load cell is marked NH or SH.
 2 Change(v): the difference between the after indication and the before indication divided by the conversion factor, f.
 3 Use five test runs for classes A and B; use three test runs for classes C and D.
 4 Absolute (not relative) time shall be recorded.

Form D.9 Marking requirements

Ref.: 4.6, 4.7.

Application no.: 23-004
 Load cell model: C2T1-1T-M1
 Serial no.: T143278
 E_{max}: 1000 kg
 n_{max}: 1000
 v_{min}: 0.5 kg
 PLC: 0.7 DR: _____
 Force-generating system: -
 Indicating instrument: HBM DMP40
 Evaluator: Fukuda

Table D.9.1

R 60 reference	Mandatory information	On load cell	In document
4.6.1	Accuracy class designation	+	+
4.6.2	Maximum number of load cell verification intervals, n _{max}	+	+
4.6.3	Loading designation (if necessary)	-	-
4.6.4	Working temperature designation	-	-
4.6.5.1	Humidity symbol "NH"	/	/
4.6.5.3	Humidity symbol "SH"	/	/
4.6.6.1, 4.7.1	Name or trademark of manufacturer (see Note 1)	+	+
4.6.6.1, 4.7.1	Manufacturer's own designation or load cell model (see Note 1)	+	+
4.6.6.1, 4.7.1	Serial number (see Note 1)	+	+
4.6.6.1	Year of manufacture	+	+
4.6.6.1	Minimum dead load, E _{min}	-	+
4.6.6.1, 4.7.1	Maximum capacity, E _{max} (see Note 1)	+	+
4.6.6.1	Safe load limit, E _{lim}	-	+
4.6.6.1	Minimum load cell verification interval (v _{min})	+	+
4.6.6.1	Other pertinent conditions	-	-
4.6.6.1	Apportionment factor, p _{LC} (if not equal to 0.7)	/	/
4.6.7	Standard classification	-	-
4.6.8	Multiple classifications	-	-

Table D.9.2

R 60 reference	Non-mandatory additional information	On load cell	In document
4.6.5.2	Humidity symbol "CH"	-	-
4.6.6.2	Relative v _{min} , Y	-	+
4.6.6.2	Relative DR, Z	-	+

Include references to the following:

Documents supplied with load cells: _____

Diagrams showing markings on load cells: _____

- Notes:
- 1 Required both on load cell and in document.
 - 2 Indicate that the marking is present with a "+".
 - 3 Indicate that the marking is not present with a "-".
 - 4 Indicate that the marking is not applicable with a "/".