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The Netherlands

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.

Manufacturer Keli Electric Manufacturing (Ningbo) Co., Ltd.  
No. 199 Changxing Road,  
Jiangbei District, Ningbo,  
P.R. China

In respect of A **compression load cell**, with strain gauges, tested as a part of a weighing instrument.  
Manufacturer : Keli Electric Manufacturing (Ningbo) Co., Ltd.  
Type : ZSF-SS, ZSFY-SS and ZSFW-SS

Characteristics  $E_{max}$  : 10 t up to and including 50 t  
Accuracy class : C

In the description number TC7679 revision 0 further characteristics are described.

Description and documentation The load cell is described in the description number TC7679 revision 0 and documented in the documentation folder TC7679-1, appertaining to this test certificate.

Remarks Summary of the test involved: see Appendix number TC7679 revision 0

Issuing Authority

**NMI Certin B.V. Notified Body number 0122**  
28 December 2009

  
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Head of Certification Board

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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
ZSF-SS10~50 t	KL/JT-ZSF-SS10~50t.0A	B	Mechanical/ Electrical
ZSFW-SS10t ~50 t	KL/JT-ZSW-SS10t~50t.0A	B	Mechanical/ Electrical
ZSFY-SS10~50 t	KL/JT-ZSFY-SS10~50t.0A	B	Mechanical/ Electrical

Cable:

- The load cell is provided with a 4-wire system.
- The cable length has to be approximately:
  - 8 meter for the 10 t version;
  - 10 meter for the 15 t version;
  - 12 meter for the 20 t and 25 t version;
  - 14 meter for the 30 t version;
  - 16 meter for the 40 t and 50 t version.
 The cable length shall not be modified.
- 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 is not connected to the load cell.

### 1.2 Essential characteristics

Type	ZSF-SS, ZSFY-SS and ZSFW-SS
Maximum capacity $E_{max}$	10 t up to and including 50 t
Humidity classification	CH
Temperature range	-10 °C / 40 °C
Accuracy class	C
Maximum number of load cell verification intervals $n_{max}$	3000
Ratio of minimum LC verification interval $Y = E_{max} / v_{min}$	10 000
Ratio of minimum dead load output return $Z = E_{max} / 2 * DR$	3000

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.

Minimum dead load	: 0 kg
Safe overload	: 150 % of $E_{max}$
Rated Output	: 2 mV/V $\pm$ 0.002 mV/V
Input impedance	: 400 $\Omega \pm 20 \Omega$ for the Model ZSF-SS-..... 700 $\Omega \pm 20 \Omega$ for the Model ZSFY-SS-..... and ZSFW-SS-.....
Output impedance	: 352 $\Omega \pm 3 \Omega$ for the Model ZSF-SS-..... 706 $\Omega \pm 7 \Omega$ for the Model ZSFY-SS-..... and ZSFW-SS-.....
Recommended excitation	: 10 V DC/AC
Excitation maximum	: 15 V DC/AC
Transducer material	: Stainless Steel
Atmospheric protection	: Stainless Steel welded

## 1.3 Essential shapes

The load cell is built according to drawing:

- ZSF-SS10-50t, drawing number KL/JT-ZSF-SS10-50t.0A ;
- ZSFW-SS10t-50t, drawing number KL/JT-ZSFW-SS10t-50t.0A
- ZSFY-SS10-50t, drawing number KL/JT-ZSFY-SS10-50t.0A.

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: TC7679.

Securing:

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

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Project number 9200462  
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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.	ZSFY-SS 10 t C3
Temperature effect on minimum dead load output (20, 40, -10 and 20 °C)	NMi Certin B.V.	ZSFY-SS 10 t C3
Creep (20, 40 and -10 °C)	NMi Certin B.V.	ZSFY-SS 10 t C3
Minimum dead load output return (20, 40 and -10 °C)	NMi Certin B.V.	ZSFY-SS 10 t C3
Barometric pressure effects at room temperature	NMi Certin B.V.	ZSFY-SS 10 t C3
Damp heat, cyclic: marked CH (or not marked)	NMi Certin B.V.	ZSFY-SS 10 t C3