

TYPE EVALUATION REPORT

N° 1.12-4093444



on the
Type Examination of a
Load cell family

Type: PW27A

Manufacturer: Hottinger Baldwin Messtechnik GmbH
Im Tiefen See 45
64293 Darmstadt
Germany

The type was tested under the following requirements:

R 60-1, edition 2000

This report belongs to the OIML Certificate N° R60/2000-A-DE1-2019.01 and includes 6 pages.

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ANNEX 1 TEST REPORT N° 1.12-4059628-1: TYPE PW27, LOAD CELL
(Class C3MR, Max 10 kg)
See separate test report (22 pages)

The certificate and Test-Reports are based of the OIML-MAA-Certificate
R60/2000-DE1-10.06 Revision 1 and have been transferred due to Procedural Documents
OIML-CS PD-07.

Summary of the examination

The metrological characteristics of the load cells type PW27A are listed in Table 1. Further technical data are listed in the data sheet of the manufacturer in section "Data sheet and dimensions" of this annex.

Accuracy class			C3MR
Maximum number of load cell intervals	n_{LC}		3000
Rated output		mV/V	2
Maximum capacity	E_{max}	kg	10 / 20
Minimum load cell verification interval	$v_{min} = (E_{max} / Y)$		$E_{max} / 10000$

Dead load: $0\% \cdot E_{max}$; Safe overload: $150\% \cdot E_{max}$; Input impedance: 400Ω

The determination of the load cell error, the stability of the dead load output, repeatability and creep in the temperature range of -10°C to $+40^{\circ}\text{C}$ as well as the tests of barometric pressure effects and the determination of the effects of cyclic damp heat have been performed according to OIML R60 (2000) with fraction $p_{LC} = 0.7$ as shown in Table 2 and provided in the following test report:

- Test Report No. PTB 1.12-4059628-1, dated February 04, 2013; C3; Y=10000; Z=3000; $E_{max}=10$ kg; SN: PROTO5668

Table 2: Tests performed

Test	R60 (2000)		Tested samples	Result
Temperature test and repeatability at ($20^{\circ}\text{C} / 40^{\circ}\text{C} / -10^{\circ}\text{C} / 20^{\circ}\text{C}$)	5.1.1; 5.4	A.4.1	10 kg	+
Temp. effect on min. dead load output at ($20^{\circ}\text{C} / 40^{\circ}\text{C} / -10^{\circ}\text{C} / 20^{\circ}\text{C}$)	5.5.1.3	A.4.1.16	10 kg	+
Creep test at ($20^{\circ}\text{C} / 40^{\circ}\text{C} / -10^{\circ}\text{C} / 20^{\circ}\text{C}$)	5.3.1	A.4.2	10 kg	+
Minimum dead load output return at ($20^{\circ}\text{C} / 40^{\circ}\text{C} / -10^{\circ}\text{C} / 20^{\circ}\text{C}$)	5.3.2	A.4.3	10 kg	+
Barometric pressure effects at room temperature	5.5.2	A.4.4	10 kg	+
Damp heat test, cyclic, marked CH or (not marked)	5.5.3.1	A.4.5	10 kg	+

Result

On the basis of the performance tests and the examination of the instruments mentioned above and the documentation, the weighing instruments are permitted to comprise the functions, devices and characteristics features stated in the "general information concerning the pattern"; they fully meet the requirements of R 60-1.

Date of report: 23.09.2019

Signature: _____

J. Denz

GENERAL INFORMATION CONCERNING THE PATTERN

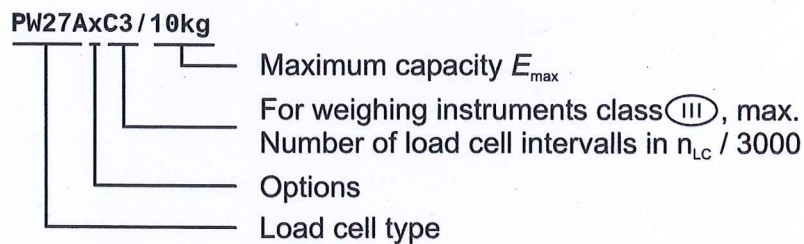
1. Description of the load cell

The load cells of the series PW27A are shear beam load cells. They are made of stainless steel and the strain gauge application is hermetically sealed. Further essential characteristics are given in the data sheet, see section 4 of this annex.



Figure 1: Load cell type PW27A / 10 kg

The type designation is indicated as follows in the example on the name plate:

**2. Documentation**

The technical documents relating to this Certificate are deposited in the respective Set of Certification Documents at PTB. The Table of Contents of the Set of Certification Documents was sent to the owner of the Certificate.

3. Further information

The manufacturing process, material and sealing of the produced load cells have to be in accordance with the tested patterns; changes are only allowed with the permission of the PTB. The typical errors related to linearity, hysteresis and temperature coefficient as indicated in the data sheet point out possible single errors of a pattern; however the overall error of each pattern is determined by the maximum permissible error according to OIML R60 No 5.1.

The technical data, the dimensions of the load cell are given on page 6 of this annex, have to be complied with. The load cells also can be used in weighing instruments of class (III) in accordance with DIN/EN 45501 No. 4.12.

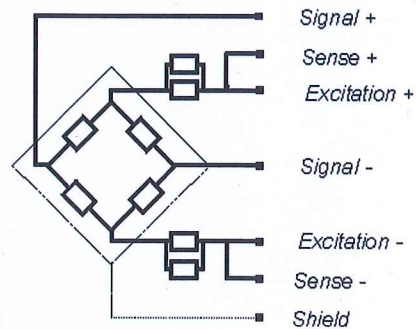
4. Data sheet and dimensions

Specifications of the Load Cell Family

Accuracy class acc. to OIML R60			C3MR
Rated output	C_n	mV/V	2 ± 0.2
Maximum capacity	E_{max}	kg	10 / 20
Max. number of load cell intervals	n_{LC}		3000
Min. load cell verification interval	V_{min}		$E_{max} / 10000$
Temperature effect on zero balance	TC_0	% C_n / 10°K	± 0.0140
Non-linearity	d_{lin}	% C_n	$\leq \pm 0.0166$
Hysteresis	d_{hy}	% C_n	$\leq \pm 0.0166$
Safe load limit	E_L	% $\cdot E_{max}$	150
Deflection at E_{max} , approx.	s_{nom}	mm	< 0.5
Zero balance		mV/V	0 ± 0.1
Excitation voltage, recommended	B_U	V	1 – 12
Reference excitation voltage	U_{ref}	V	5
Excitation voltage, maximum		V	15
Input resistance	R_{LC}	Ω	400 ± 100
Output resistance	R_{out}	Ω	400 ± 100
Insulation resistance	R_{is}	G Ω	≥ 1 (100VDC)
Compensated temperature range	B_T	°C	- 10 ... + 40
Operating temperature range	B_{tu}	°C	- 20 ... + 70
Storage temperature range	B_{tl}	°C	- 25 ... + 90
Load cell material			Stainless steel 1.4545
Weight, without cable, approx.	G	kg	1,0
Degree of protection according to EN60529			IP68
Tightening torque on fixation bolts		Nm	10
Cable sheath			PUR
Environmental Protection			hermetically sealed

Wiring

The load cell is provided with a shielded 6 conductor cable.



Connections

Connections		6-wires
Excitation	+	blue
Excitation	-	black
Signal	+	white
Signal	-	red
Sense	+	green
Sense	-	grey
Shield		yellow

Load cell dimensions in mm

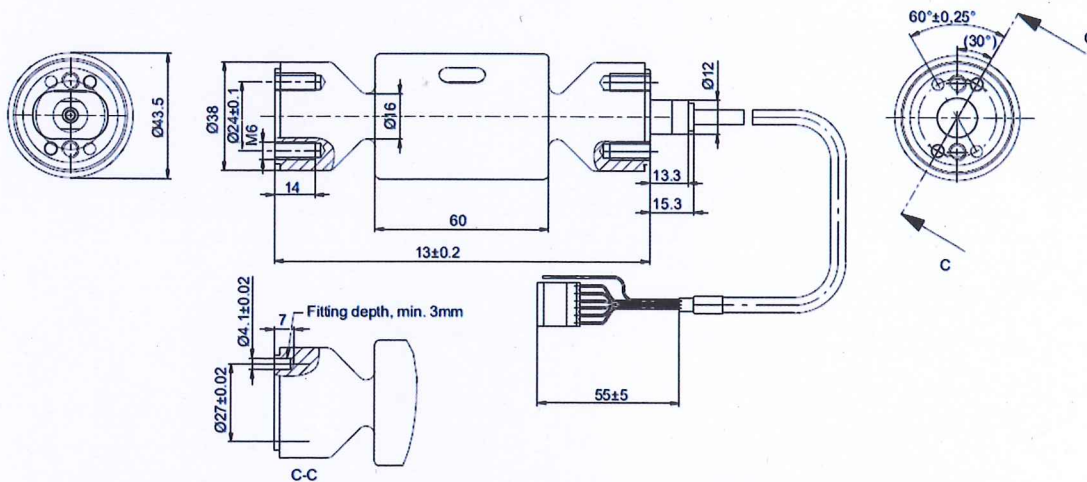


Figure 2: Dimensions of the load cell type PW27A

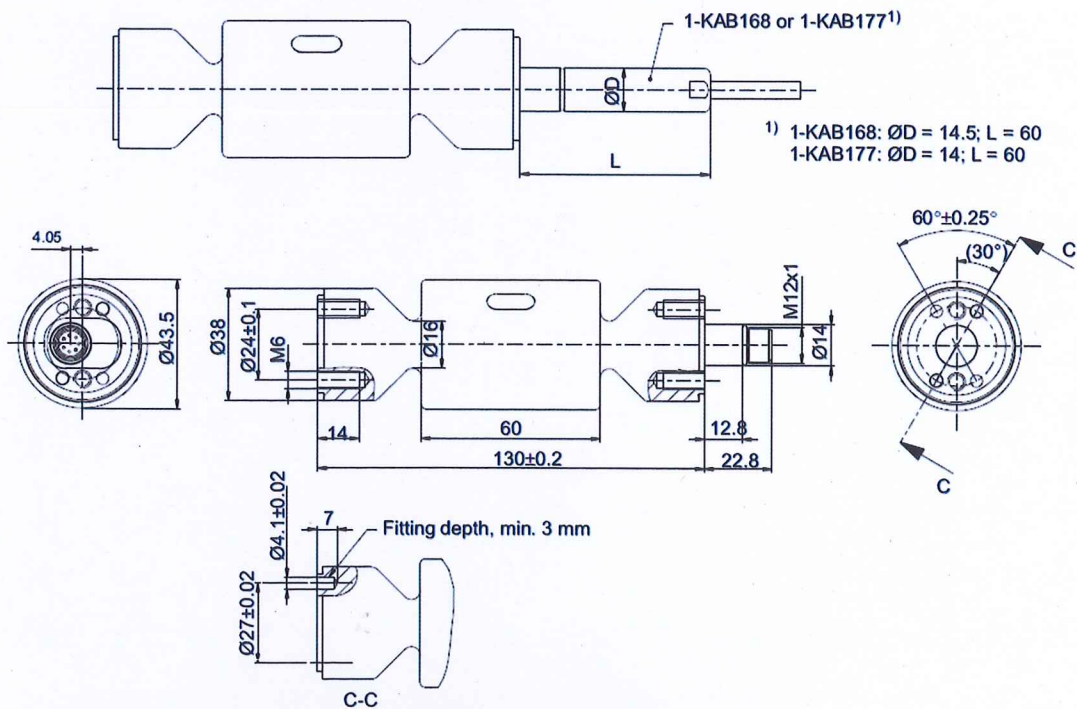


Figure 3: Dimensions of the load cell type PW27AP