

CENTRAL OFFICE OF MEASURES [GŁÓWNY URZĄD MIAR]

DESCRIPTIVE ANNEX TO EU-TYPE EXAMINATION CERTIFICATE NO. PL 20 008 dated 18.11.2020

REFERENCE DOCUMENT

The conformity assessment of the weighing instruments was carried out using the harmonized standard PN-EN 45501:2015-05 - "Metrological aspects of non-automatic weighing instruments" and the GUM-PCertB certification programme.

1 NAME AND TYPE OF MEASURING INSTRUMENT

Electronic non-automatic weighing instrument with accuracy class of II and a round or rectangular load receptor supported on a magnetolectric transducer (load cell), for general use or for direct sale to the public. The ACA weighing instrument is equipped with an automatic and semi-automatic internal adjustment device. The ACZ weighing instrument does not comprise an internal adjustment device.

The weighing instruments of the ACA or ACZ series of types are marked as follows:
XXX x1 x2, where:

- XXX - marking of the ACA or ACZ series of types,
- x1 - maximum load of weighing instrument, Max in g,
- x2 - type of weighing instrument:
no letter - with a LCD display,
letter L - with a LED display,
letter G - with a graphic LCD display,
letter T - with a graphic LCD display and a touch panel,
letter R - with an additional display,
different letter - non-typical design or other equipment,

2 DESCRIPTION OF DESIGN AND OPERATION

2.1 Equipment and functions

The weighing instruments have the following functions and equipment (reference to the relevant point of the PN-EN 45501:2015-05 standard is provided in brackets)

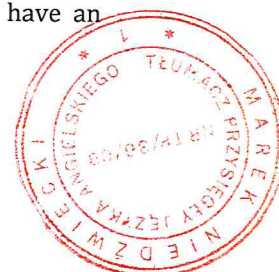
- Semi-automatic zero-setting device (T.2.7.2.2),
- Initial zero-setting device, range: $\leq \pm 10\%$ Max (T.2.7.2.4),
- Zero-tracking device (T.2.7.3),
- Subtractive tare device (T.2.7.4),
- Semi-automatic and automatic tare device (T.2.7.4),
- Tare-balancing device (T.2.7.4.1),
- Pre-set tare device (T.2.7.5).

2.2 Design

2.2.1 Mechanical system

The weighing instrument consists of a magnetolectric force transducer (load cell), an A/D converter mounted on the regulator board, a 32-bit processor on the processor board and a display mounted on the display board.

The magnetolectric transducer unit of the force compensation system and the electronics are mounted in a housing consisting of an aluminium base and a plastic cover. The ACA weighing instruments are equipped with an internal calibration weight and an automatic adjustment mechanism (automatic and semi-automatic device for adjusting the indication range). The ACZ weighing instruments do not have an automatic adjustment mechanism.



The weighing instruments with a scale interval of 1 mg are equipped with a plastic ring-shaped load receptor shield on the housing. A shield in the form of a lampshade can be also used.

The round or rectangular load receptor is made of stainless steel.

On the front part of the weighing instrument there is a board with a display and a keypad. A segment or graphic LCD display or a LED display can be used. The weighing instruments for direct sale to the public are equipped with a second display connected with a cable through one of the interfaces. The metrological parameters of the weighing instrument are displayed on a graphic display or printed on a label located in a special keypad pocket or glued to or near the keypad.

The keypad includes keys for metrological operation of the weighing instrument and function keys.

A weighing instrument's power supply socket, a power supply data plate and interface sockets are located on the back of the housing. An adjustment switch that performs the function of external calibration lock, protected with a mark, and a weighing instrument data plate that can be protected with marks, are also located on the back of the housing. On the left side and at the back of the weighing instrument there are places for the mark protecting the housing.

Each weighing instrument can be equipped with a hook for suspending weight, a set for measuring the density of solids or liquids and with special functions. Levelling screws and a level indicator are installed in the base of the weighing instrument.

2.2.2 Electrical system

The weighing instrument operation is based on a magnetolectric force compensation system. An actuator consisting of a magnetic core, magnet and coil is the basic component of this system. The coil is installed on the assembly of the transmission lever that is connected to the load receptor. The photoelectric element of the position sensor works with the transmission lever. The entire magnetolectric system is supplied through a PID controller. A change of the load receptor load causes, through the position sensor, a change in the controller current, restoring the previous state of the transmission lever. Change in the regulator current changes the voltage (proportional to the load) transmitted to the analogue-to-digital converter. The analogue-to-digital converter is connected to the microprocessor system, which performs all the necessary functions for displaying or printing the weighing result.

A temperature transducer system used for temperature compensation of the weighing instrument indications and for measuring the ambient temperature is connected to the microprocessor system.

The weighing result is displayed on the display connected to the microprocessor system. The data from the display or the weighing instrument's memory can be transmitted to external devices using one of the microprocessor-controlled interfaces.

All ACA / ACZ weighing instruments are built based on EACA52100 or EACA52110 boards that have the same metrological software. Using the software, the manufacturer can programmatically select the weighing instrument type and the type-related metrological parameters and characteristic parameters (attenuation, filtration, etc.).

The weighing instrument is powered by 12V DC from an external voltage source, including an AC adapter with a voltage of 230 V, 50 Hz / 12 V DC.

2.3 Adjustment

The ACA weighing instrument is equipped with an internal adjustment system that automatically adjusts the weighing instrument at specified intervals and when the ambient temperature changes (automatic adjustment). The adjustment can also be done manually using the keypad (semi-automatic adjustment). The ACA weighing instrument can be adjusted externally after switching the switch inside the weighing instrument, which can be accessed through the opening in the housing. The access to the switch is protected by a mark covering this opening.



The ACZ weighing instrument, which cannot be adjusted internally, can be adjusted after switching the switch inside the weighing instrument, which can be accessed through the opening in the housing. The access to the switch is protected by a mark covering this opening.

2.4 Firmware and data storage device (DSD)

The firmware name is shown on the display after powering on the weighing instrument. The firmware has the designation ACA_01 for ACA and ACZ weighing instruments with LCD display and ACAG_01 for ACA and ACZ weighing instruments with graphic displays. The firmware is embedded in the internal flash memory of the 32-bit microcontroller on the main board, which cannot be accessed without removing the mark protecting the adjustment switch.

On the main board there is a data storage device (DSD) that can store 100,000 measurement records. The user cannot modify or delete the contents of the DSD memory. The measurement record contains the following information: measurement date, time and number, user and product ID, gross, net and tare result, etc.

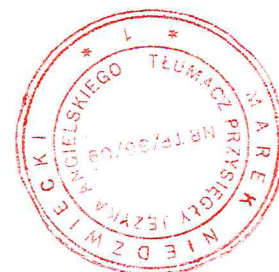
The manufacturer's dedicated software is used to read the memory of the weighing instrument.

3 TECHNICAL DATA

3.1 Weighing instrument

Metrological characteristics of weighing instrument. The weighing instrument is of accuracy class II, its dimensions are 231x345x97 mm, weight is 5 kg

| Type of weighing instrument | Designation and unit | ACA70 ÷ACA 1000 | ACA1200 ÷ACA4200 | ACA6200 |
|-----------------------------------|----------------------|--|---------------------|---------|
| Maximum load | <i>Max</i> [g] | 70 ÷ 1000 | 1200 ÷ 4200 | 6200 |
| Minimum load | <i>Min</i> | 20 <i>d</i> | 50 <i>d</i> | |
| Verification scale interval value | <i>e</i> [g] | 0.01 | 0.1 | |
| Scale interval value | <i>d</i> [g] | 0.001 | 0.01 | |
| Tare range limit | <i>T</i> | - <i>Max</i> | | |
| Working temperature range | [°C] | +10 / +40 | | |
| Carrier dimensions | [mm] | varying, depending on the load | | |
| Power supply | | DC 12V 1.2A, supplied directly or using an external AC 230V, 50Hz, 9 VA power supply | | |



| Type of weighing instrument | Designation and unit | ACZ70 ÷ACZ320 | ACZ1200 ÷ACZ3200 |
|-----------------------------------|----------------------|--|---------------------|
| Maximum load | Max[g] | 70÷320 | 1200÷3200 |
| Minimum load | Min | 20 <i>d</i> | 50 <i>d</i> |
| Verification scale interval value | <i>e</i> [g] | 0.01 | 0.1 |
| Scale interval value | <i>d</i> [g] | 0.001 | 0.01 |
| Tare range limit | <i>T</i> | — <i>Max</i> | |
| Working temperature range | [°C] | +10 / +40 | |
| Carrier dimensions | [mm] | varying, depending on the load | |
| Power supply | | DC 12V 1.2A, supplied directly or using an external AC 230V, 50Hz, 9 VA power supply | |

The maximum load (Max) of weighing instrument, the verification scale interval value, the number of verification scale intervals can be set for the weighing range within the limits given in the table above.

3.2 Documentation

The documentation delivered and stored in the Central Office of Measures corresponds to the series of types of the weighing instruments described in this certificate.

4 INTERFACES AND PERIPHERALS

4.1 Interfaces

The following interfaces can be used in the weighing instruments of the ACA or ACZ series of types:

- RS 232C, RS 485, USB, Ethernet, Wi-Fi, PS2, optocouplers, Bluetooth,
- analogue: 4÷20 mA, 0 ÷ 10 V.

4.2 Peripherals

The weighing instrument can cooperate with the following peripherals:

- simple peripherals that only receive data, without a test certificate and without reference to the EC type-approval certificate, assuming that the conditions given in point 3.3 of WELMEC Guide 2.5 (2000) are met,
- external automation devices (optocoupler inputs and outputs).

The weighing instrument communicates with peripherals via the weighing instrument's built-in interfaces.

5 APPROVAL CONDITIONS

No part of the weighing instrument, regardless of whether it is described in the certificate or not, may be inconsistent with the requirements set out in the regulation of the Minister of Economic Development of 2 June 2016 on requirements for non-automatic weighing instruments (Journal of Laws, item 802) or in Annex I to Directive 2014/31/EU.



6 ADDITIONAL REQUIREMENTS FOR PRODUCT VERIFICATION

Required documents:

- a copy of this EU type-examination certificate,
- user manual of weighing instrument.

The weighing instrument may be subjected to verification by the manufacturer or in another place in accordance with the requirements set out in paragraphs 8, 9 and 10 of the regulation of the Minister of Economic Development of 2 June 2016 on requirements for non-automatic weighing instruments (Journal of Laws, item 802) or in Annex II, point 7 to Directive 2014/31/EU.

The weighing instrument should be adjusted and protected against tampering in accordance with point 2.3 and point 8 of this certificate.

7 LOCATION OF LEGALIZATION MARKS

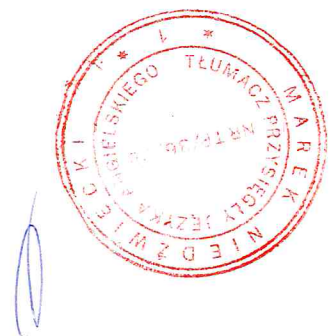
The legalization mark (a proof of metrological inspection of the weighing instrument conducted in accordance with internal regulations of the European Union Member States), in the form of a label, is placed partly on the weighing instrument's data plate and partly on the weighing instrument housing, as shown in figures 2 to 7 (red colour).

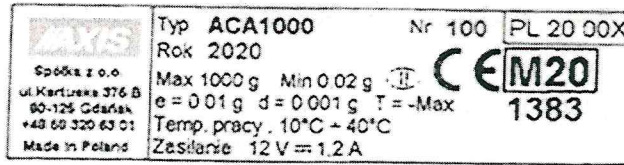
8 LOCATION OF PROTECTIVE MARKS

Protective marks in the form of a label are placed on the weighing instrument housing in such locations as to prevent access to the adjustment system and prevent opening the housing, according to the data presented in the example figures 2 to 7 (yellow).

9 LOCATION OF CE MARKING AND DATA PLATE

The data plate is placed on the weighing instrument's housing, an example is shown in figure 1. The data plate should bear the CE marking and an additional metrological marking consisting of the capital letter 'M' and the last two digits of the year in which the marking was affixed, placed in a rectangle. The number or identification numbers of the notified bodies are imposed by the notified body or the manufacturer as recommended by the notified body. These numbers are placed on the data plate.





| | | | | |
|--|-----------------------|-------------|---------|-----------|
| AXIS Spółka z o.o. ul. Kartuska 376 B 80-125 Gdańsk +48 58 320 63 01 | Type | ACA1000 | Nr 100 | PL 20 00X |
| | Year | 2020 | CE | M20 |
| | Max | 1000 g | II | 1383 |
| | e = 0,01g | d = 0,001 g | T = Max | |
| | Operating temperature | 10°C + 40°C | | |
| | Power supply | 12V = 1.2 A | | |

Fig. 1 - an example of a rating plate for an ACA weighing instrument with a maximum load of 1000 g



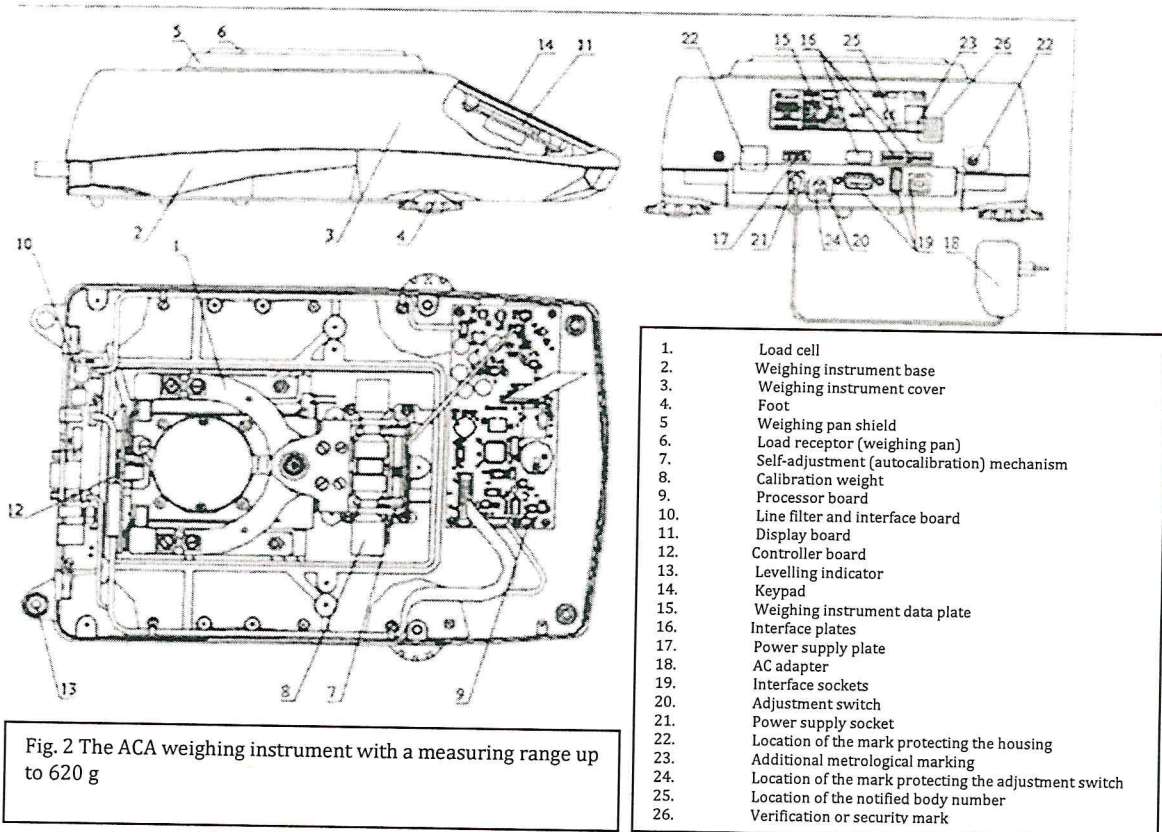


Fig. 2 The ACA weighing instrument with a measuring range up to 620 g

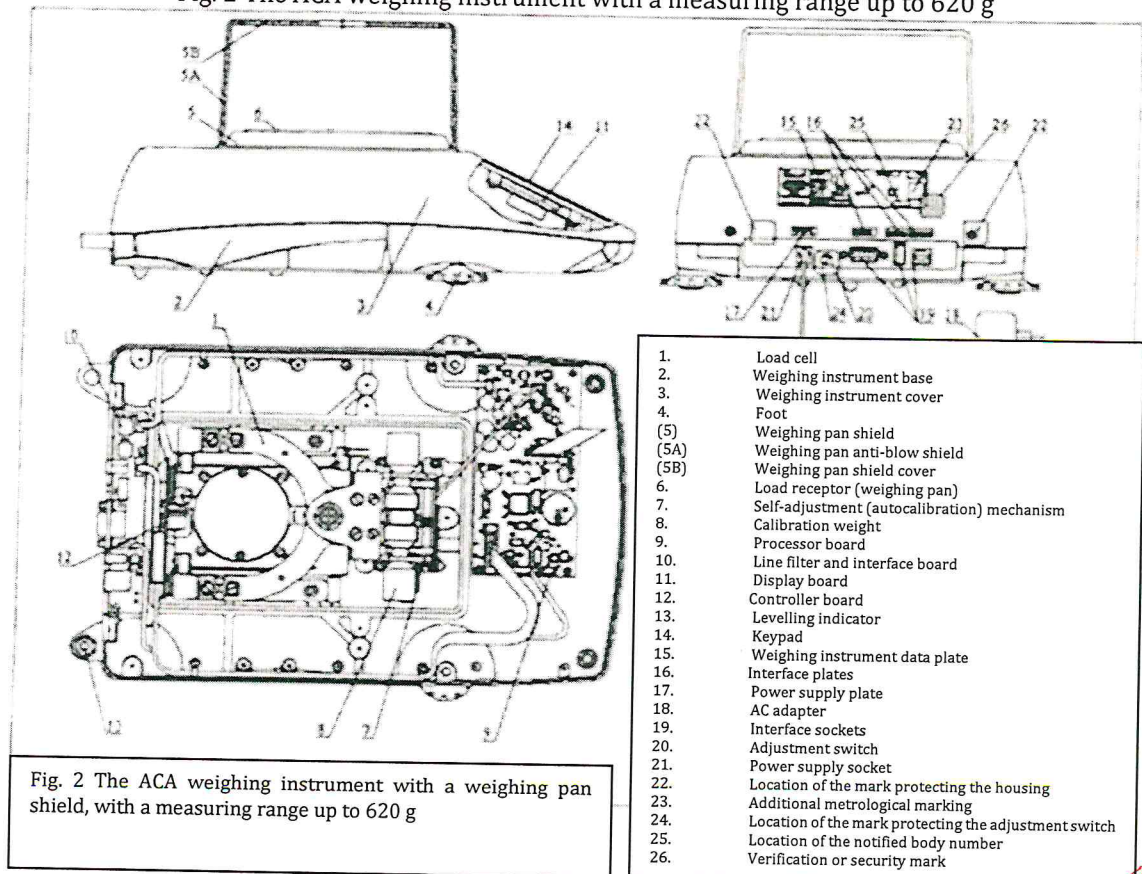
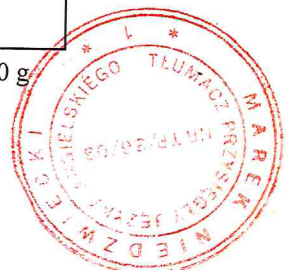


Fig. 2A - ACA weighing instrument with a load receptor cover with a measuring range up to 620 g



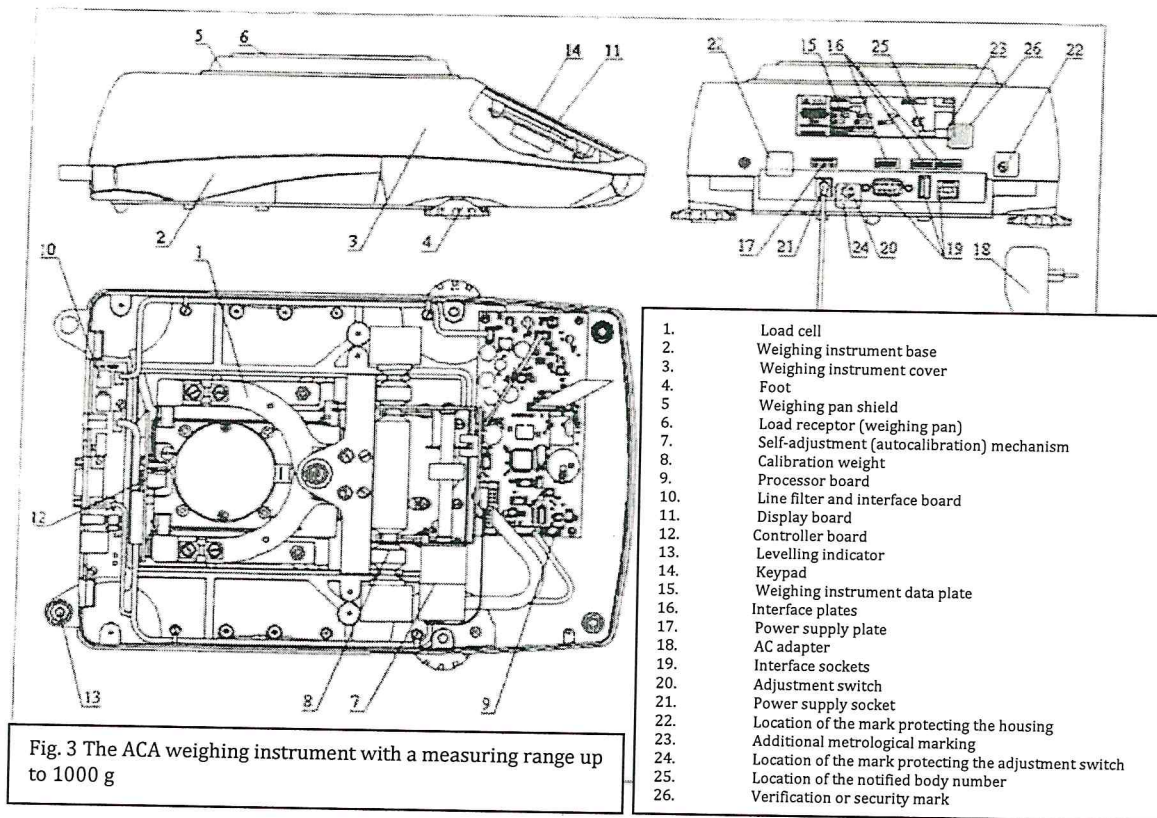


Fig. 3 The ACA weighing instrument with a measuring range up to 1000 g

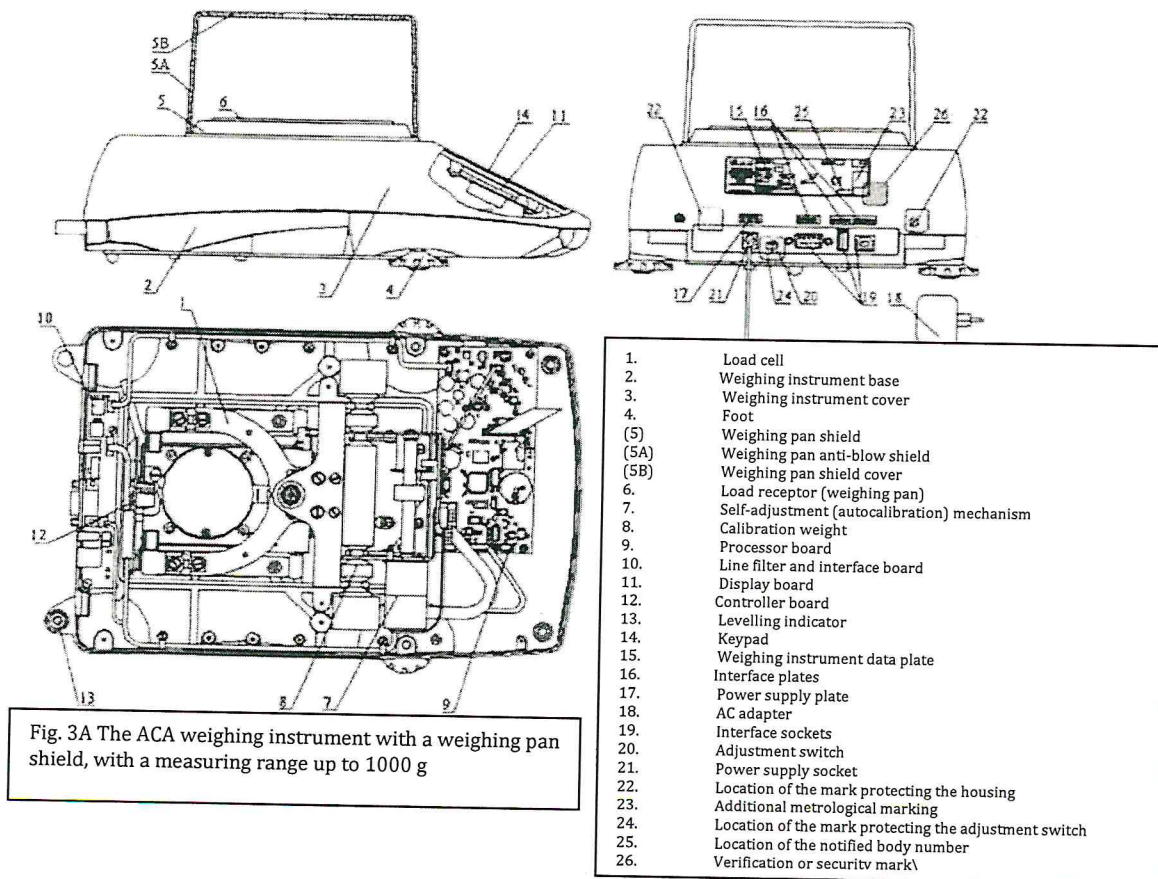
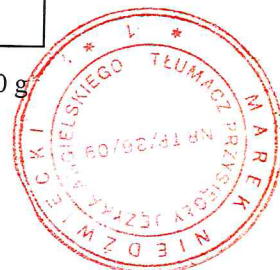


Fig. 3A - ACA weighing instrument with a load receptor cover with a measuring range up to 1000 g



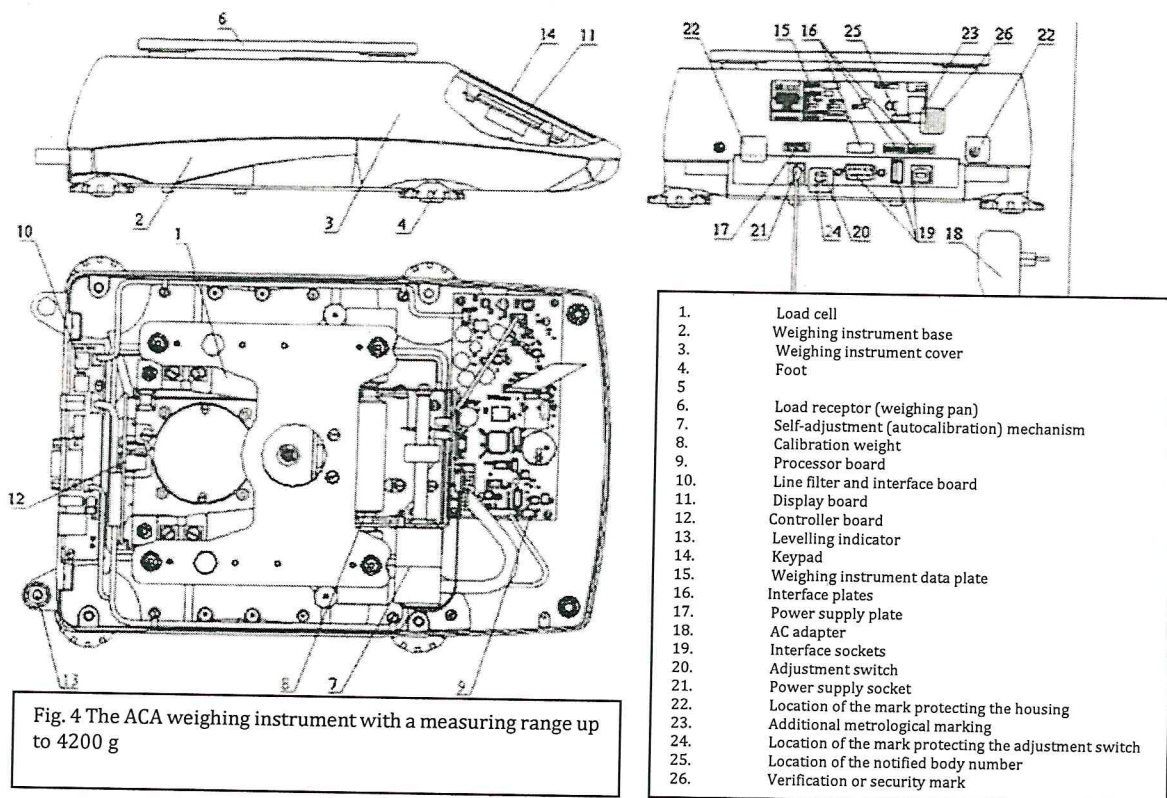


Fig. 4 The ACA weighing instrument with a measuring range up to 4200 g

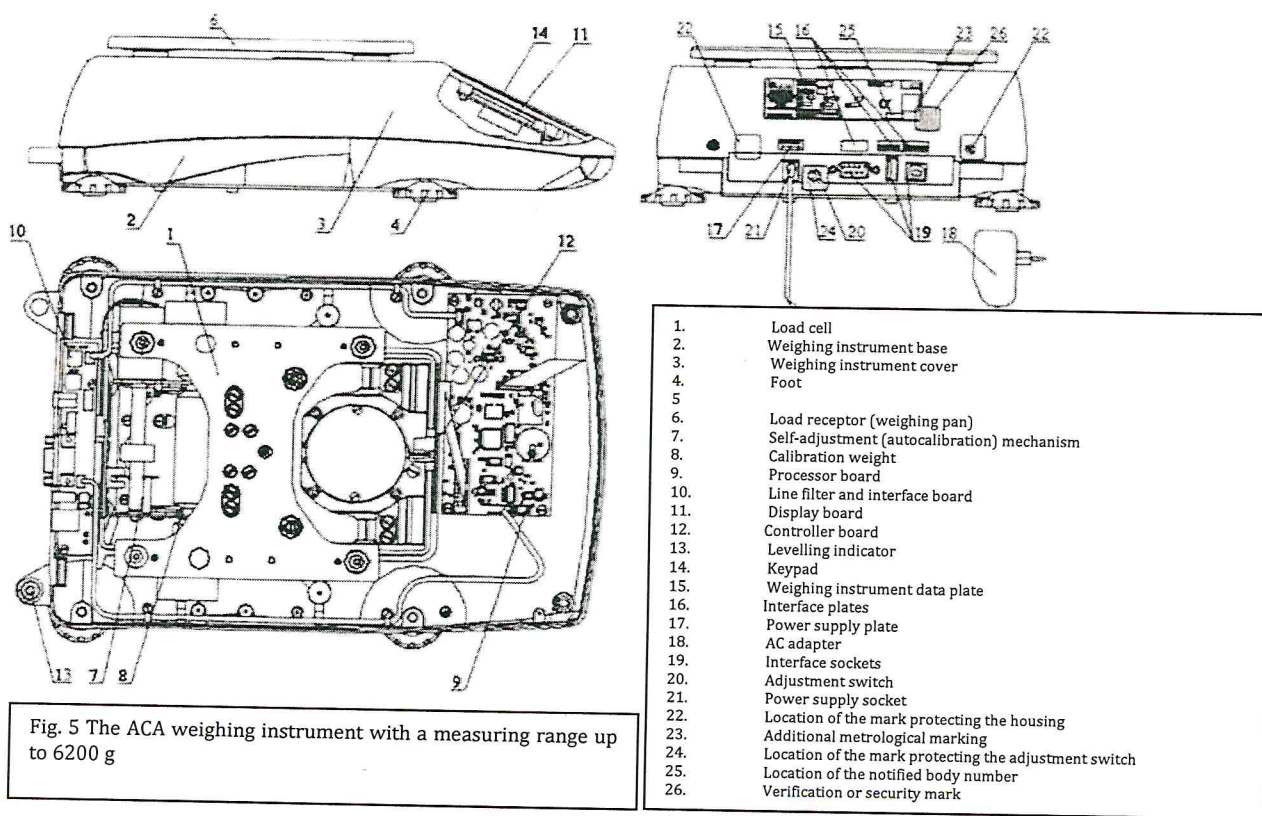


Fig. 5 The ACA weighing instrument with a measuring range up to 6200 g



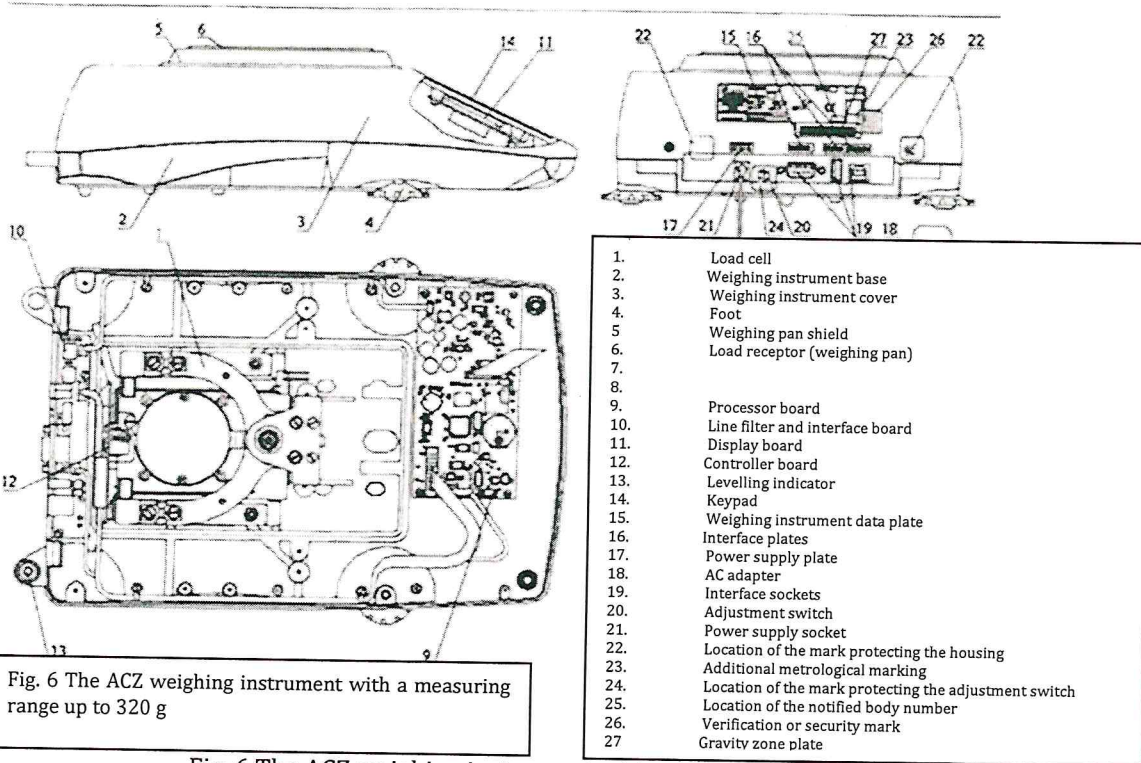


Fig. 6 The ACZ weighing instrument with a measuring range up to 320 g

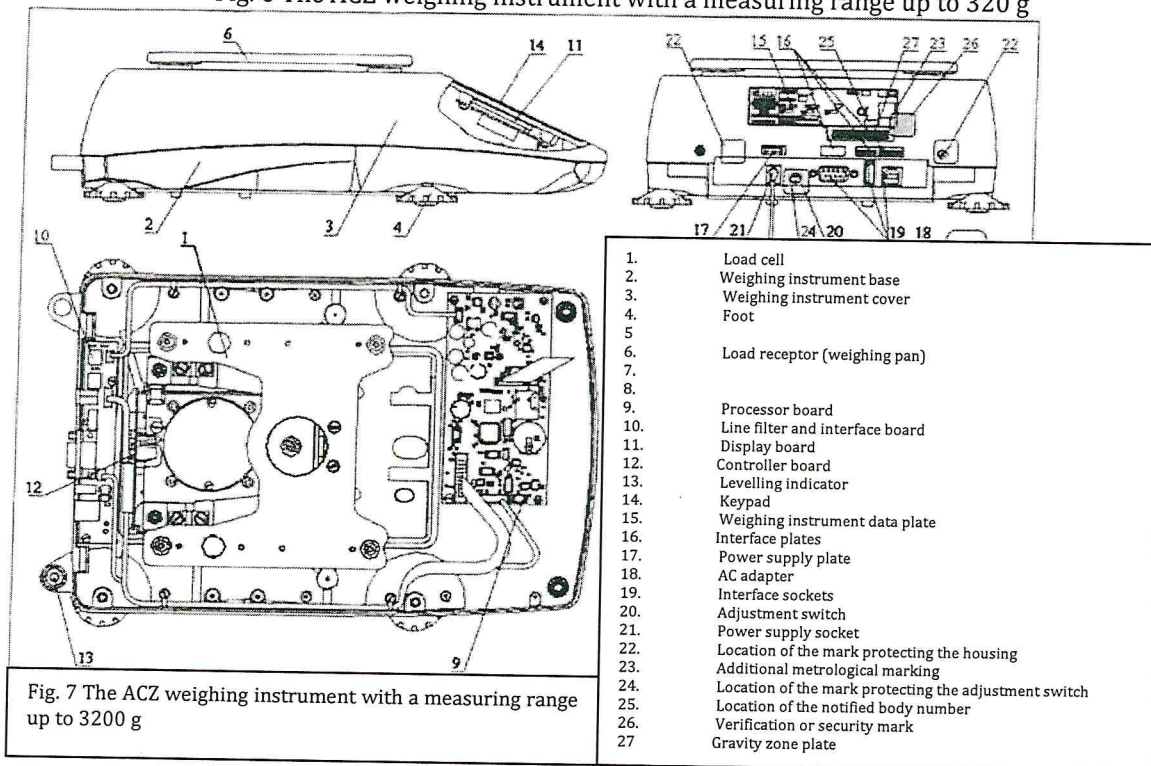


Fig. 7 The ACZ weighing instrument with a measuring range up to 3200 g

[Translator's notes are placed in italics in square brackets]

Reg No 1205/2020

I, the undersigned Marek Niedźwiecki, Sworn Polish-English translator entered in the Register of Sworn Translators maintained by the Ministry of Justice of the Republic of Poland under the number TP/36/09, hereby certify that the foregoing is a true English translation of the document in Polish.

Chełm, 11th December 2020

Marek Niedźwiecki

