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# EC Type-Approval Certificate

**No. DK 0199.424 Revision 2**

**IHB600 / IHB6000 / NHB600 / NHB6000 / EHB600 /  
EHB6000**

**NON-AUTOMATIC WEIGHING INSTRUMENT**

**Issued by** DELTA Danish Electronics, Light & Acoustics  
EU - Notified Body No. 0199

In accordance with the requirements for the non-automatic weighing instrument of  
EC Council Directive 2009/23/EC.

**Issued to** Tscale Electronics Mfg. (Kunshan) Co., Ltd.  
No. 99 Shunchang Road,  
Zhoushi, Kunshan, Jiangsy  
CHINA

**In respect of** Non-automatic weighing instrument designated IHB600 / IHB6000 /  
NHB600 / NHB6000 / EHB600 / EHB6000 with variants of modules of load  
receptors and load cells.  
Accuracy class II, single-interval  
Maximum capacity, Max: 600 g or 6000 g  
Verification scale interval:  $e_i = \text{Max}_i / n_i$   
Maximum number of verification scale intervals:  $n = 6000$ .  
Variants of models are set out in the annex.

The conformity with the essential requirements in annex 1 of the Directive is met by the ap-  
plication of the European Standard EN 45501:2015 and OIML R76:2006

**Note: This certificate is a revised edition which replaces previous revisions.**

The principal characteristics and approval conditions are set out in the descriptive  
annex to this certificate.

The annex comprises 13 pages.

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**Issued on** 2016-03-21  
**Valid until** 2023-12-04

  
**Signatory: J. Hovgård**

## Descriptive annex

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## 1. Name and type of instrument

The weighing instruments designated IHB600 / IHB6000 / NHB600 / NHB6000 / EHB600 / EHB6000 are self-indicating balances of Class II with single-interval, an external AC mains adapter, and an internal rechargeable battery (optional).

Model IHB600 and IHB6000 have internal calibration.

An optional remote display can be connected to the balance in which case the balance may be used for direct sale to public. In case of direct sale to public the setting of the balance is  $e=d$ .

The scale consists of analogue to digital conversion, microprocessor control, power supply, keyboard, non-volatile memory for storage of calibration and weight data, and a weight display contained within a single enclosure.

## 2. Description of the construction and function

### 2.1 Construction

#### Enclosure

The scale is housed in a plastic enclosure. The display is placed on the front together with the keyboard. It is intended to be used in shops as well as industrial environments.

A level indicator is built into the enclosure near the display.

#### Keyboard

The balances' keyboard contains 6 keys used to control the functions of the scale and one On/Off key.

#### Display

The display comprises of a 7-segment LCD-display with white LED backlight 16 mm high with 7½ digits, minus sign and appropriate status indicators.

The optional remote display comprises of a 7-segment LCD-display with white LED backlight 22 mm high with 6 digits, minus sign and appropriate status indicators.

#### Electronics

The instruments have two printed circuit boards, one main board, and one display board.

#### Models

Model	Max	e	d	n	No of Load cells	Load cell type	E <sub>max</sub>
IHB600 NHB 600 EHB 600	600 g	0.1 g	0.01g	6000	1	HBM SPL	600 g
IHB6000 NHB 6000 EHB 6000	6000 g	1 g	0.1 g	6000		HBM PW6K	10 kg

## **2.2 Function**

The weight indicating instruments are microcontroller based electronic computing scales. The weight information appears in the digital display. The instruments are available for operation from mains at 230 VAC 50 Hz using an external AC/DC adapter with 12 VDC output voltage and an optional internal 6V rechargeable battery.

The primary functions provided are detailed below.

### **2.2.1 Power-up**

On power-up, the weight indicator will first display the model and the application software version for 2 seconds and then perform a display test. After that it will automatically establish the current weight as a new zero reference.

If during the self-checking the ZERO key and the TARE key are pressed simultaneously, the software version of first the weighing system software and then the application software are displayed.

The optional remote display likewise shows its software version at power up and then performs a display test after which it displays the same as shown on the primary display.

### **2.2.2 Test function**

On power-up, the weight indicator will test all memory functions followed by a display test. The display test consists of counting down the numeric digits from 9 to 0.

### **2.2.3 Display range**

The weight indicators will display weight from -Max (tare function) to Max +9e (gross weight).

### **2.2.4 Auxiliary indicating device**

Pressing the "MODE" key will toggle the display view between normal display mode in g, auxiliary indicating device having a display view in g with d = 0.1 e, and auxiliary indicating device having a display view in carat (ct).

This function shall be disabled when the balance is used for 'Direct sales to the public'.

### **2.2.5 Zero-setting**

Zero-setting range:  $\pm 2\%$  of Max.

Initial zero-setting range:  $\leq \pm 10\%$  of Max.

Zero-setting is only possible when the load receptor is not in motion.

#### **2.2.5.1 Semi-automatic zero-setting**

Pressing the ZERO key causes a new zero reference to be established and ZERO annunciator to turn on indicating that the display is at the centre of zero.

### **2.2.6 Zero-tracking**

The indicators are equipped with a zero-tracking feature, which operates over a range of  $\pm 2\%$  of Max and only when the indicator is at gross zero and there is no motion in the weight display.

## **2.2.7 Tare**

The instrument models are provided with a semi-automatic subtractive tare.

### **2.2.7.1 Semi-automatic tare**

Pressing the “TARE” key will enter the current weight value as the new tare weight value, if the tare function is not already active. The weight display will automatically change to the net weight display mode and turn on the NET annunciator. This tare value can be cleared by pressing the TARE key when there is no load on the load receptor. This tare entry cannot take place if the load receptor is in motion.

## **2.2.8 Printing**

A printer may be connected to the optional serial data port. The weight indicator will transmit the current to the printer when the PRINT key is pressed. It also adds the displayed weight to the accumulation memory if the accumulation function is not automatic

The printing will not take place if the load receptor is not stable, if the gross weight is less than zero, or if the weight exceeds Max.

## **2.2.9 Counting**

Pressing the “Smpl” key will activate counting mode (or deactivate if already active). The value shown in counting mode is not to be regarded as an approved weighing result.

### **2.2.10 Percentage weighing**

Pressing the “%” key will toggle between normal weighing mode and percentage weighing mode. The value shown in percentage mode is not to be regarded as an approved weighing result.

### **2.2.11 Accumulation**

Pressing the “PRINT” key will accumulate the current weight in memory and print it if a printer is connected, but only if the weighing result is stable.

### **2.2.12 Unit**

Pressing the “MODE” key will toggle the weighing unit between g (gram), auxiliary indication in g (gram), and auxiliary indication in ct (metric carat).

### **2.2.13 Operator information messages**

The weight display can show a number of general and diagnostic messages, which are described in detail in the User’s Manual.

### **2.2.14 Software version**

The software is separated into a weighing system software and an application software. The software versions can be displayed at power up (see sect. 2.2.1).

The approved versions of the weighing system software are: 1.10 and 1.11.

The version format of the application software is Ax.yy, where x is the legal version no., while yy is the minor version numbers for changes and corrections not influencing the legal function of the software.

The approved application software version is A1.yy

The approved software version for the optional remote display is 2.10

Older units do not have the above listed software separation. For these the software revision level is displayed during the power-up sequence of the instrument. The approved software versions are:

IHB600/IHB6000 :	1.00
NHB600/NHB6000/EHB600/EHB6000 :	1.06

### 2.2.15 Battery operation

The scale models are supplied with 12 VDC from an external AC/DC adapter and can be operated from an optional internal 6V rechargeable battery. The scale contains the circuitry necessary to re-charge the battery, when the scale is connected to the mains power.

### 2.2.16 Remote display

The balance may have a remote display using the RS-232 serial interface. This display is to be used as a customer display, when using the balance for 'direct sales to the public'.

### 2.2.17 Gravity compensation

The balance has a device for compensating for difference in gravity at different geographical locations. If the balance is to be used a different place than the one of verification, then the g-value for the place of verification shall be entered into parameter P5gra, before the calibration and verification is performed. After the verification the parameter shall be set to the g-value for the place of use. This adjustment is sealed.

## 3. Technical data

### 3.1 Scales

The balances have the following characteristics:

Accuracy class:	II
Weighing range:	Single-interval
Maximum number of Verification Scale Intervals:	6000
Maximum capacity (Max):	600 g or 6000 g
Verification Scale Interval:	$e = 0.1 \text{ g}$ or $e = 1 \text{ g}$
Scale Interval:	$d = 0.1e$
Minimum capacity (Min):	50 d
Maximum tare effect:	$\leq -\text{Max}$
Excitation voltage:	5 VDC
Mains power supply:	12 VDC / 230 VAC, 50 Hz using external AC/DC adapter
Operational temperature:	+15 °C to +30 °C
Peripheral interface:	Set out in Section 4

### 3.2 Load cells

HBM load cells type SPL and PW6K according to the table in Section 2.1.

### 3.3 Documents

The documents filed at DELTA (reference No. T206506) are valid for the weighing instruments described here.

## **4. Interfaces and peripheral equipment**

### **4.1 Interfaces**

The interfaces are characterised “Protective interfaces” according to paragraph 8.4 in the Directive.

#### **4.1.1 RS-232 interface**

The balances may be equipped with a RS-232 interface for connection to the remote display or to a printer.

#### **4.1.2 USB interface**

The balances may optionally be equipped with a USB interface for connection to a printer or a PC.

#### **4.1.3 Bluetooth interface**

The balances may optionally be equipped with a bluetooth interface for connection to a printer or a PC.

### **4.2 Peripheral equipment**

The instrument may be connected to any simple printer with a CE mark of conformity by a screened cable.

## **5. Approval conditions**

### **5.1 Measurement functions other than non-automatic functions**

Measurement functions that will enable the use of the instrument as an automatic weighing instrument are not covered by this type approval.

### **5.2 Counting operation is not approved for NAWI**

The count shown as result of the counting function is not covered by this NAWI approval.

### **5.3 Percentage weighing is not approved for NAWI**

The percentage value shown as result of the percentage function is not covered by this NAWI approval.

## **6. Special conditions for verification**

None.

## **7. Securing and location of seals and verification marks**

### **7.1 Securing and sealing**

Seals shall bear the verification mark of a notified body or alternative mark of the manufacturer according to ANNEX II, section 2.3 of the Directive 2009/23/EC.

#### **7.1.1 Scale**

Access to the configuration and calibration facility is achieved by a calibration switch accessed through a hole in the bottom of the enclosure of the scale. Sealing of the access to the switch is accomplished by a sticker covering the hole through which the switch is accessed.

Sealing of the enclosure is accomplished by an additional sticker covering one of the assembling screws of the enclosure or using wire and seal through one of the assembly screws (sealing type A of IHB).

### **7.2 Verification marks**

A green M-sticker and a sticker with verification marks on or next to the inscription plate placed on the side or rear of the scale.

## **8. Location of CE mark of conformity and inscriptions**

### **8.1 Scale**

#### **8.1.1 CE mark**

A sticker with the CE mark of conformity and year of production is located on the identification plate which is located on the side of the scale.

#### **8.1.2 Inscriptions**

Manufacturer's trademark, type designation,  $\max_i$ ,  $\min$ , and  $e_i$  shall be located near the display(s).

On a label located on the side of the scale enclosure:

- Manufacturer's trademark
- Type designation
- Max, min,  $e =$ ,  $d =$
- Tare
- Temperature range
- The text: 'for direct sales to the public', if a remote display is connected to the balance and auxiliary indication is disabled.
- Model no., serial no., electrical data and other inscriptions



## 9. Pictures



**Figure 1** IHB 600 balances.



**Figure 2** IHB 6000 balance.



**Figure 3** NHB 600 balance.



**Figure 4** NHB 6000 balance.



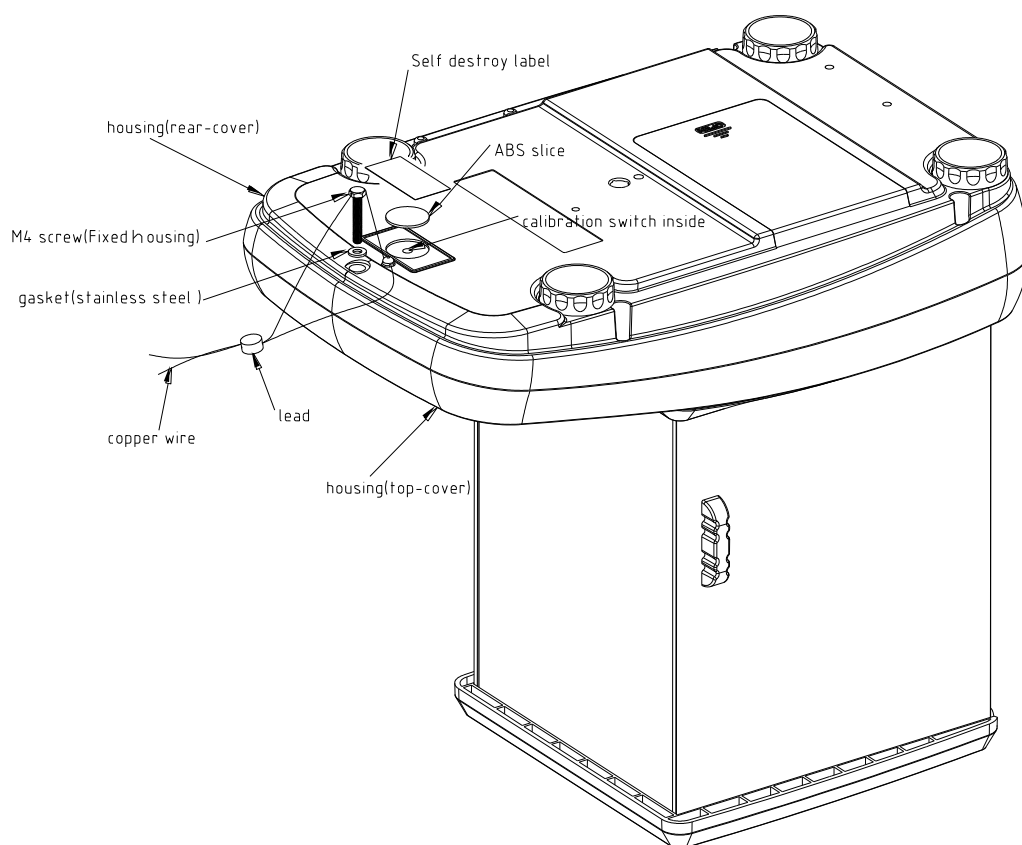
**Figure 5** EHB 600 balance.



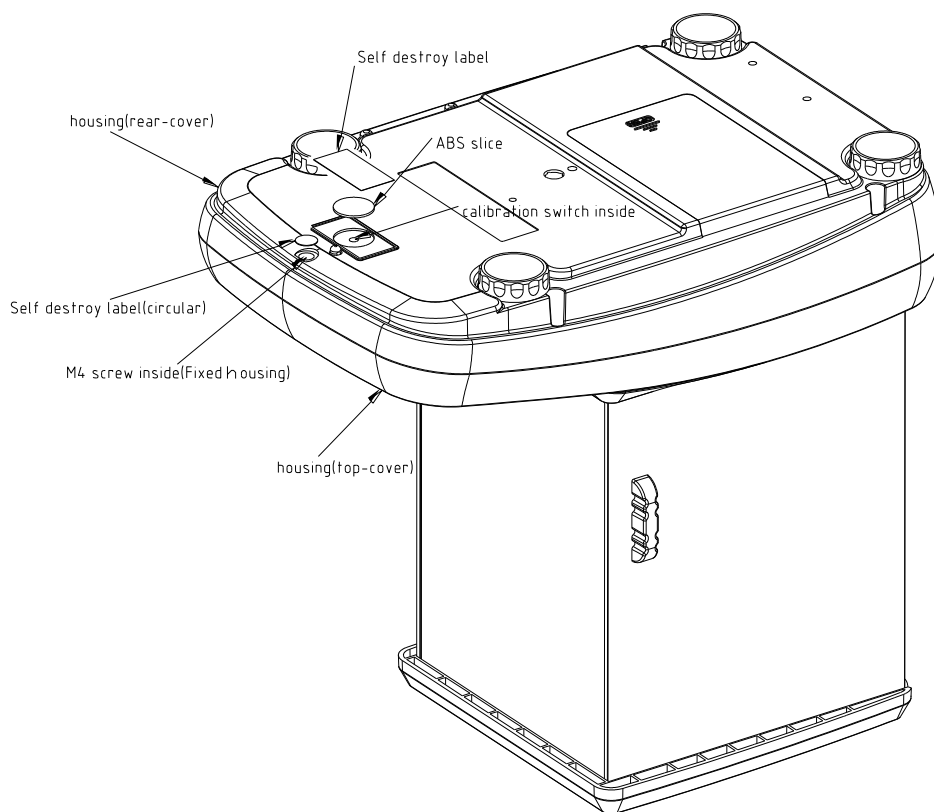
**Figure 6** EHB 6000 balance.



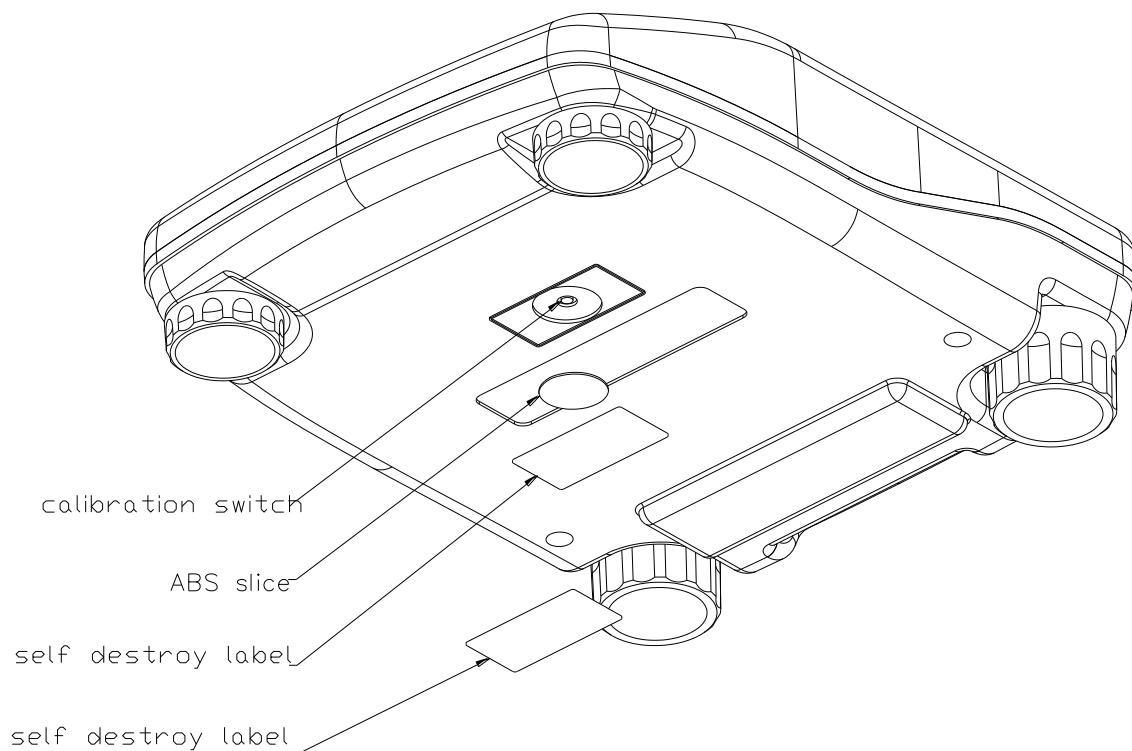
**Figure 7** Remote display



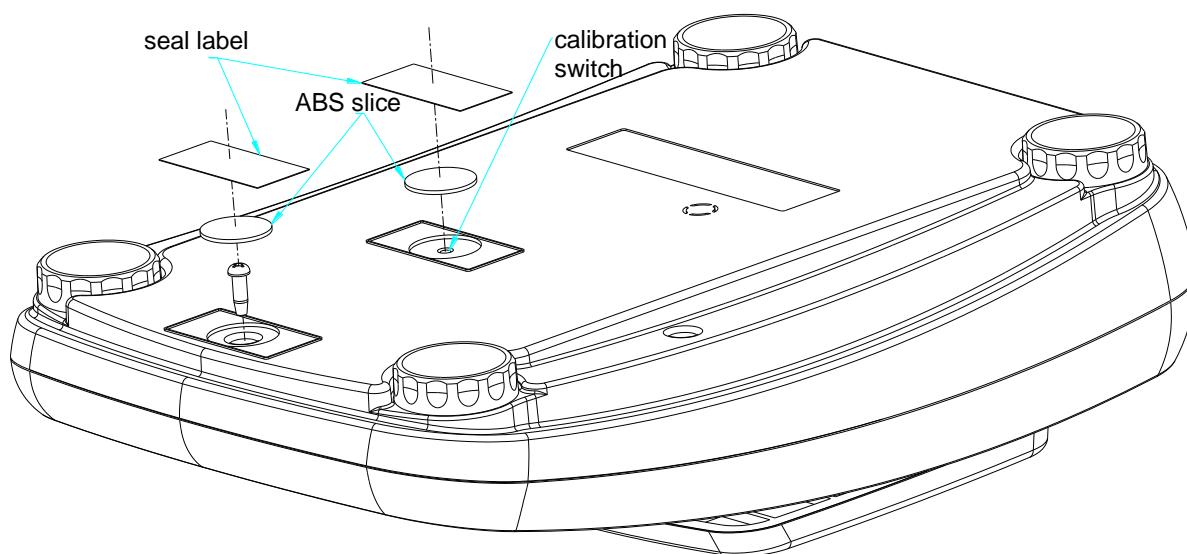
**Figure 8** Sealing type A of IHB balances.



**Figure 9** Sealing type B of IHB balances.



**Figure 10** Sealing of NHB balances.



**Figure 11** Sealing of EHB balances.