Verification tests

The tests should be conducted in accordance with DIN EN 45501:2015.
During the tests the indicator shall be set in high resolution mode (HI_RES). Only for the tests for accuracy of zero- and tare-device, the HI_RES-Mode shall be switched off. The results shall be recorded in the Test Report X00A-822.
Please select the appropriate sheet regarding to the tested scale. At the top of each sheet the language English or German can be chosen. All orange data fields have to be completed. Set no. of the used standard weights and no. of the used small delta-weights (used e.g. for test of Zero, Tare, Discrimination) must be recorded in the header.
At the beginning of each test ensure that the scale is in its reference position (not tilted), i.e. the bubble is in the centre of the marked circle. The tests should be performed at a steady ambient temperature.

Eccentricity for Dual range scale should be tested at 1/3 of Max2

In case, a printer is connected, the printout should be checked.

Substitution of standard weights at verification (for Max.>1t)

When testing instruments at the place of use (application), instead of standard weights any other constant load may be used, provided that standard weights of at least 50% Max are used. At a load of about the value where the substitution is made (but at least 50% Max), the repeatability test should be passed.
If it isn't allowed to transport more than 20t of weights on the roads, like in Hungary, it is permitted to do Repeatability Test for a scale with Max up to 60t with a contingent of only 20t standard weights. Provided that the max.error in Test 1 is not more than 0,2e. Repeatabitlity Test must then be performed at a total load of about 50% Max, made up of the standard weights + Truck + substitution material.
If the max. error is not more than 0,3e the portion of standard weights may be reduced to 35% Max
If the max. error is not more than 0,2e the portion of standard weights may be reduced to 20% Max
Procedure for using substitution material is the following:
Put the contingent of standard weights onto the scale that you would like to substitute. Note down which weight the indicator shows. Then load substitution material onto the scale until the indicator shows exactly the same weight. After that, gently add the standard weights up to the next test load. Same procedure would be downwards.

Test 1: Repeatability Test

The instrument's automatic zero-setting and zero-tracking device may be in operation during this test.
Before testing repeatability the scale has to be pre-loaded with Max.
At least three weighings with about 80% Max are necessary.
If Max. is more than 1t, it will be allowed to test repeatability with load of about 50% Max.
Readings shall be taken and recorded when the instrument is loaded. It is allowed to zero the instrument between the weighings, if it doesn't show zero.
The error between the three readings shouldn't be more than the absolute value of the permissible error.

Test 2: Accuracy of zero device

High-Res Mode must be switched off.
For this test a weight near to Zero (Zero tracking should be turned off) must be loaded onto the scale
Indicator must now be set to Zero by pressing the Zero-button
Standard weights of 1/10e must be gently added, until indication changes from one scale interval to the next above. Please note down the number of added weights.
Now evaluation of Error at Zero is calculated in the sheet according to the following formula:

- $E = 1/2e - \Delta L$ (ΔL: added load)

Test 3: Accuracy of tare device

High-Res Mode and Zero tracking must be switched off.
This test is to be performed in the same manner like Test 2.
A weight close to Zero must be loaded onto the scale, e.g. 10e.
Indicator must be tared by pressing the Tare-button.
Standard weights of 1/10e must be gently added, until indication changes from one scale interval to the next above.
Evaluation of Error is calculated in the sheet.

Test 4: Weighing / Linearity Test

Zero-setting or zero-tracking device shall not be in operation.
Apply at least 5 test loads and similarly remove them back to zero. The loads selected shall include Max and Min and values at or near to those at which the maximum permissible error (mpe) changes (500e and 2000e). The scale should not be allowed to return to zero between loads.
If substitution material is used, you must first load from zero up to the maximum quantity of standard weights. Then remove the weights and substitute the previous weights with substitution material. Repeat the procedure until Max is reached. Unload in reverse order to zero.
The calculation sheets calculates the total error E_{error} - $E_{zero.}$ If this total error is less or equal to 0,5e, Tare Test 5 has not to be performed.

Test 5: Tare (Weighing Test)

The Test Report sheet calculates if this Test has to be undertaken or not.
This test has to be performed if the total error in Test 4 is more than 0,5e.
Zero-setting or zero-tracking device shall not be in operation.
A load between 1/3 and 2/3 Max should be applied and then be tared.
Apply at least 5 test loads and similarly remove them back to zero. The loads selected shall include Max and Min and values at or near to those at which the maximum permissible error (mpe) changes (500e and 2000e). The scale should not be allowed to return to zero between loads.
If substitution material is used, you must first load from zero up to the maximum quantity of standard weights. Then remove the weights and substitute the previous weights with substitution material. Repeat the procedure until Max is reached. Unload in reverse order to zero.

Test 6: Eccentricity Test

Zero-setting or zero-tracking device shall not be in operation.
Large weights should be used.
For an instrument with a load receptor having not more than four points of support, the four quarter segments roughly equal to ¼ of the surface of it shall be loaded in turn. The test load shall be 1/3 Max.
For an instrument with a load receptor having more than four points of support, the test load of 1/n-1 Max shall be applied over each support on an area of 1/n of the surface area of the load receptor.
Where two points of support are too close together for this test load, the doubled load shall be distributed over twice the area on both sides of the axis connecting the two points of support.

Test 7: Test with coasting load

A truck load of at least 50% Max but not exceeding 80% Max shall be driven onto the weighbridge from each of the access roads. Measurements shall be carried out in each of the three bridge segments. The distance from the middle position to the first or end position shall be more than 0,1B, where B is the length of the bridge.

Test 8: Tilting test (for medical bed Class III only)

Indicator should be in Hi-Res mode
The bed must be in reference position, without inclination, no load on it. Now, please adjust to zero.
Max. load must be put onto the bed and the indicated weight must be written into the test report.
Then, the bed must be inclined until the bubble in the levelling device touches the marking in all four directions. For the bed, this means for the width you'll have to reline a height of about 1,5mm under the two wheels at one side, for the length you'll need about 2,8mm height under the two wheels at one end.
Now the indicated weight without any load and with Max load must be written to the test report in every inclined direction
This test is not necessary for medical beds Class IIII

Earth Gravity

If necessary, verify the earth gravity for the place of use.

Place of installation

Name and town of the installation.

Calibration Counter

The high resolution mode (HI_RES) shall be switched off. Then calibration counter should be recorded.