BOSCHE

Volume scale

3D Silence

Operating Manual

- Translation of the original -

(keep for future use)

Last revised: 2024-01-08

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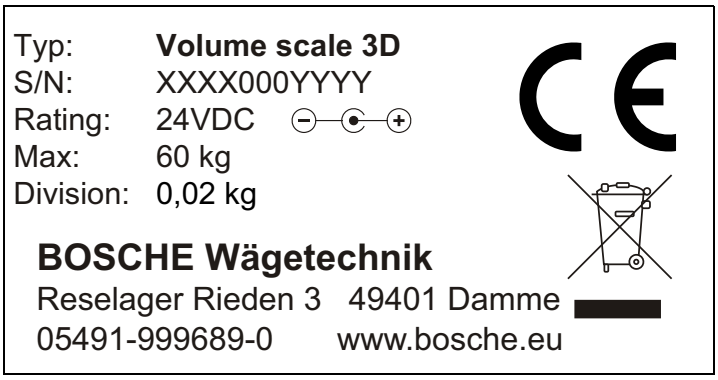
EXAMPLE TYPE PLATE



XXX = Year number

YYY = Consecutive number

Foreword

These operating instructions provide you with detailed information about the Volume scale 3D Silence.

These instructions contain safety instructions to guarantee safe use of the volume and weight measurement system.

The manufacturer strives to improve their products on an ongoing basis. They reserve the right to carry out any and all modifications and improvements that they consider to be necessary. However, this means that there is no obligation to carry out retrospective modifications in this connection.

Danger
Before using the Volume scale 3D Silence, you must have read and understood the operating instructions and the safety regulations that they contain.

Note
Errors and omissions in the documentation reserved. If necessary, please inform the Bosche GmbH & Co. KG of any errors in the documentation. We would also be grateful for any suggestions for improvements that you may have.

The manufacturer's contact data is listed on the reverse of the title page. If you have any queries or problems, please contact the manufacturer without delay.

Note
If you have any questions for Bosche GmbH & Co. KG, please have the serial number to hand.

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1 Safety

This chapter warns against possible risks when handling the device. The information for detection of risks contained in this chapter is intended to allow the save and correct operation.

It is important to read and adhere to this operating manual and particularly this chapter prior to operating this device.

1.1 For your safety

1.1.1 General

In addition to safety information, the operating manual includes:

- A general product description
- Information about installation and connection of the device
- Instructions to operate the device
- Maintenance and care instructions
- Troubleshooting and remedy instructions
- Technical data

Always keep this operating manual and additional documents for your personnel at hand in the direct vicinity of the device.

Always adhere to all information, notes, instructions and explanations contained in this manual! Avoid accidents caused by incorrect operations! Also adhere strictly to the valid legal regulations in addition to the safety instructions specified in this manual.

Prior to commissioning/start-up read the safety information/instructions and familiarise yourself with dangerous areas.

The device is constructed according to the current state of art and the valid safety regulations. However, there are risks in the event of incorrect operation or non-observance of the safety regulations:

- Danger to limb and life of operators, third persons and animals staying in the vicinity of the device.
- Danger to the device and other assets of the owner/user
- Danger to the efficient operation of the device.

1.1.2 Safety symbols in this manual

The following symbols are used on all important positions in this manual. Particularly observe these notes and treat very careful.

Danger
This note indicates danger of injuries and/or danger to life, if specific behaviour rules are not observed.
When this symbol appears in the operating manual, please take all required safety measures.

Attention
This note warns against damage to assets as well as financial disadvantages and responsibility under criminal law (e.g. loss of the warranty, cases of third party risks, etc.).

Note
Important notes and information about an efficient, economic and environmental friendly handling are specified here.

1.2 Intended use

The Volume scale 3D Silence is used to measure the volume and weight of packages in compliance with certain specifications (see chapter 8 Technical data).

Any further use is considered as not in accordance with the intended use. The manufacturer does not assume any liability for resulting damage.

The intended use also includes:

- Observance of all notes, information, instructions contained in the documentation as well as in all supplied manuals issued by the manufacturer.
- Adherence of the maintenance and service conditions and intervals prescribed by the manufacturer and
- Observance of the technical data.

Adhere to the attendant accident prevention regulations as well as other generally approved technical safety rules

1.3 Inappropriate use

- Use in explosive environments (ATEX zones).
- Modification or opening of the device.

1.4 Hazard warnings on the Volume scale 3D Silence

On the Volume scale you will find pictograms according to EN ISO 7010, which indicate special behaviour. These may not be removed and must be maintained in legible condition.

Warning of laser beam

This pictogram is located on the covers of the integrated laser distance sensors. Do not look into the laser beam as this can cause eye damage.

Laserradiation
Don‘t look into the beam
Laser class 2

1.5 Obligations of the owner/user

The owner/user obligates himself to only instruct persons to work on the device, who:

- Are familiar with the basic rules concerning safety and accident prevention and are trained in the operation of this device and
- have read and understood the operating manual, the safety chapter as well as the warning notes.

1.6 Obligations of the operator

All persons instructed to operate the device obligate themselves:

- to always ensure the safety of other persons,
- to read the operating manual, the safety chapter and the warning notes and
- to only operate the device when they are familiarised with its functions.

1.7 Description of the dangers

1.7.1 Danger of injury

- Always switch off the device for care and maintenance work.
- Never insert any pointed objects into the electric contacts.
- Do not change the contacts.
- Stop device operation, if the device or the connection line is damaged of have a malfunction.

1.7.2 Danger of damages

- Observe the information on the type plate (max. load).
- Never use pointed objects to actuate the device keys.
- Shut the PC down after finishing work and do not just disconnect it from the mains.

1.8 Liability and warranty

The BOSCHE company offers a restricted warranty for components, which became faulty due to strain or material faults. The warranty starts with the date of delivery. The BOSCHE company retains the right to repair or replace components. Repair work executed during the warranty period will not extend the period of warranty. The warranty becomes null and void:

- In the event of incorrect use / use other then the intended use or incorrect installation
- Non-observance of the specifications in the operating manual
- Use outside the described applications
- Conversion, modification or opening of the device
- Unintentional or mechanical damage and damage caused by media, liquids, natural wear.
- Overloading the measuring unit.

2 Description

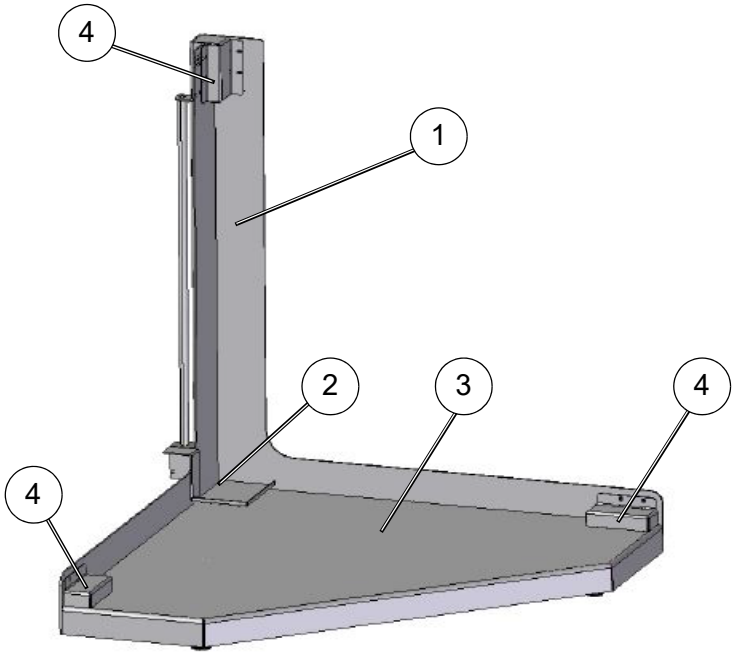
2.1 General

The volume scale 3D silence system is use

- to measure the length, width and height of an object.
- to calculate the volume of the bounding box (determining the smallest possible packaging).
- to determine the object weight and the volume weight.

The data that is determined can be used to improve the use of space (storage or transportation location). At the same time, the system optimizes packaging, storage and despatch. The data that is collected can be transferred to a computer system.

2.2 Construction of the volume scale

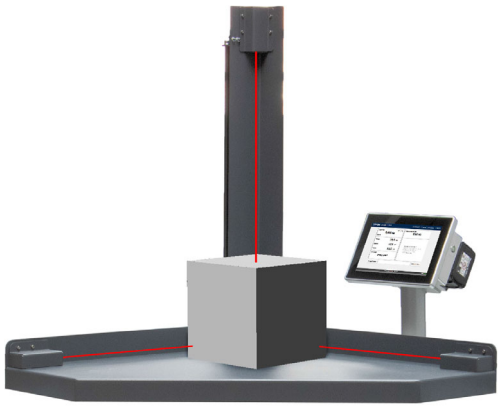


Item	Designation
1	Frame made of powder-coated steel
2	Measuring flange
3	Scale platform
4	Cover for integrated laser distance sensor

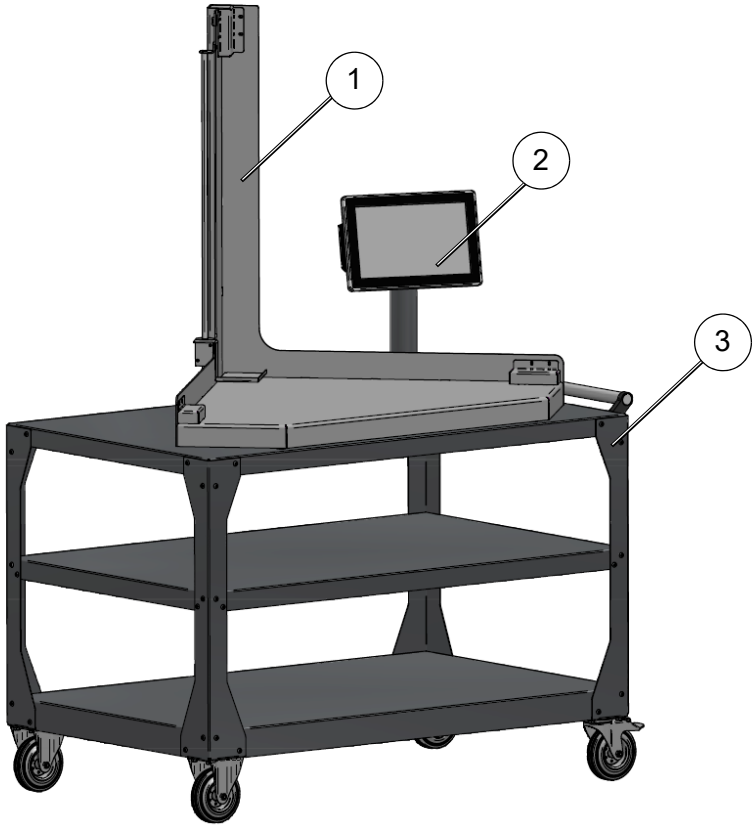
2.2.1 Measuring principle

Under the weighing platform (3), four load cells are installed in the corners. The load cells record the load on the weighing platform and transfer it to the industrial PC. The system shows the object weight on the display of the industrial PC.

Three laser distance sensors (4) measure the length, width and height of the object to an accuracy of 1.5 mm. The associated volume and the resulting volume weight are determined.



2.3 Construction of the Volume scale 3D Silence for the mobile use



Item	Designation
1	Volume scale 3D
2	Industrial PC with Display, with integrated rechargeable batteries (optional).
3	Transport trolley (optional) with two locking castors.

2.4 Industrial PC (optional)

The 12 Inch Bosche Industrial PC is used as a display device. The industrial PC is operated via a touch screen.
The monitor can be swivelled up to 330°.

Der Industrie-PC verfügt über folgende Schnittstellen:

- three USB 3.0 ports
- one USB 2.0 port
- an Ethernet LAN connection
- WLAN
- Bluetooth

A Windows operating system is installed to operate the volume scale. Weighing software is required

Note
The weighing software used is described in a separate operating manual.

2.5 Measurement value output

The main page of the optional VolumeScannerProfessional software displays all the relevant measured values of the measurement object (the weight, the volume weight, the length, width, height and volume). In addition, the system saves this data.

The VolumeScannerProfessional software either outputs the saved data as a .CSV file or transfers it directly to a database.

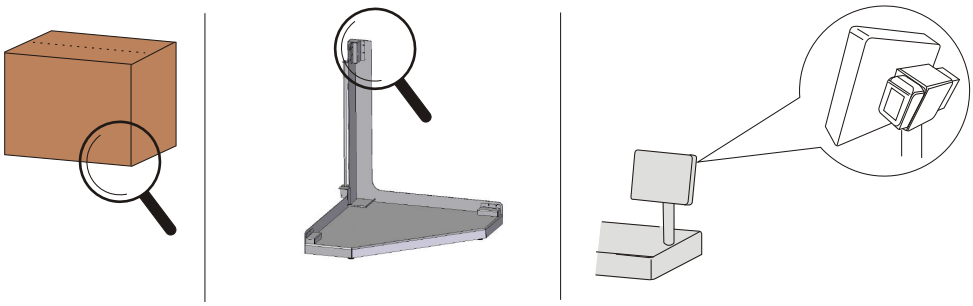
Note
If you use different weighing software, output of measured values is described in its manual.

2.6 Optional equipment

Note
All the equipment and enhancements that are available as options are described in Chapter 5, “Optional Equipment”.

3 Transport, installation, connection

3.1 Control



When the device is delivered, check the packaging, the device and possible accessories for visible damages.

3.2 Packaging and disposal

Keep all parts of the original packaging for a possible return.

Note
Only use the original packaging, if the display is returned.
Prior to the transport, disconnect/fasten all loose/moving parts of the device. Secure the parts against slipping/damage.

Dispose of the packaging and the display according to the national and/or local regulations by law valid on the installation site. Separately dispose of a defective battery according to the national and local regulations on environmental protection and recycling.

Do not treat a battery as standard waste. Please dispose of via a waste management company.

3.2.1 Installation work

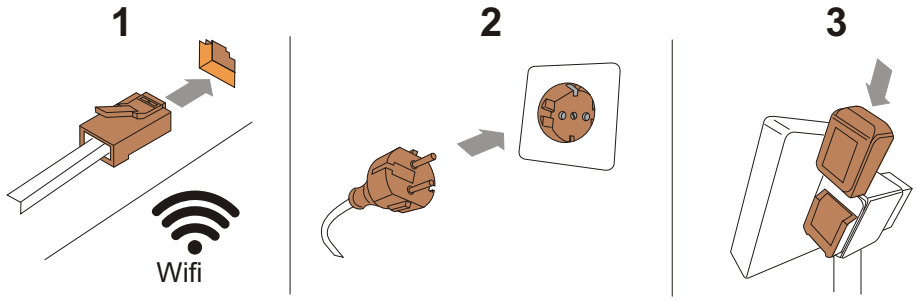
- Put the volume scale tilt-free on a level and stable surface.
- Release/remove all the transport retainers (e.g. cable ties).

3.3 Connection

Note
Ensure that a 230 V AC voltage supply is available on the installation site (unless operation with rechargeable batteries is intended).

As-standard, the measured data is saved on the industrial PC's hard drive. If you want to use the measured data in a different environment, you need data-connections to transfer the measured data..

Data connections: Wifi connection, network port or a USB port.



Step 1 If necessary, establish a data transfer connection.
Standalone use = Plug in the LAN plug in the network port or insert the USB plug.
Mobile use = Establish a wifi connection when starting for the first time..

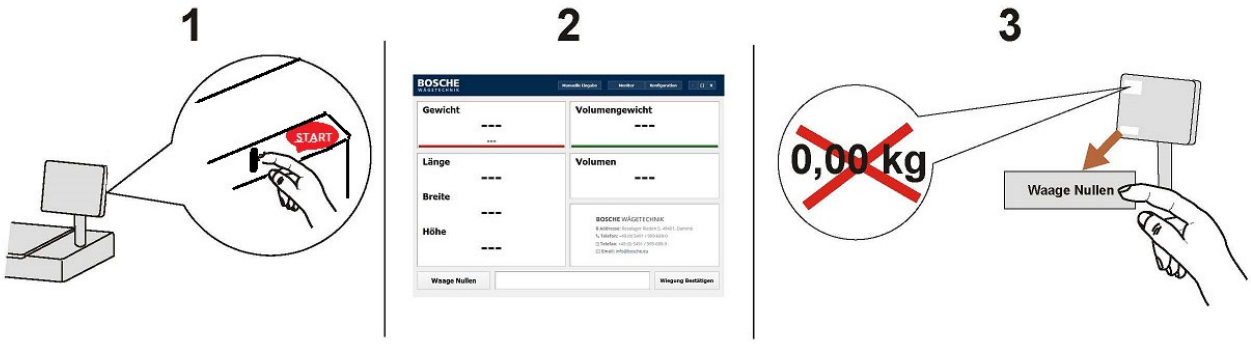
Step 2 Plug in the volume and weight measurement system to the mains (if operating without a rechargeable battery = standalone use).

Step 3 Insert the charged batteries (optional equipment for mobile use, for example).

4 Operation

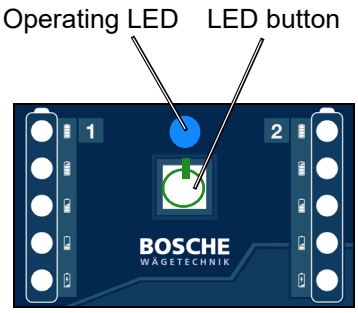
This scale is used to determine the dimensions and the weight of an object as well as its volume weight..

4.1 Switching on



Step 1 <u>With power supply unit:</u>
Press the START button on the back, the PC starts (LED button lights up green, operating LED lights up blue).

<u>Without power supply unit, with batteries:</u>
- Make sure that the battery switch is ready for operation (LED button lights up green).
- Then press the START button on the back of the PC.



Step 2 Wait until the system has booted and the main screen is displayed.

Step 3 „Zero“ the scale, if the weight display of the empty scale does not show 0,00 kg.

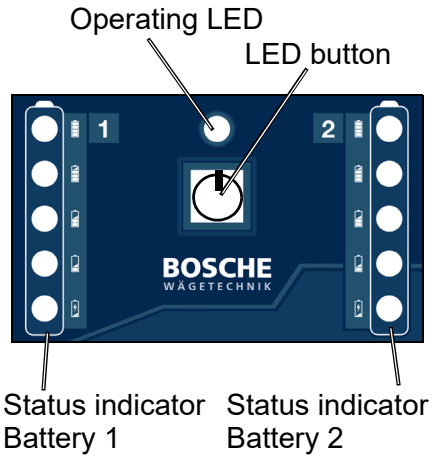
4.2 Battery-Switch (Optional)

The Bosche Battery-Switch enables mobile working with Bosche weighing systems. The weighing system is powered by two batteries, in which first a battery is being discharged. Is this discharged or removed unexpectedly from the device, the Battery-Switch switches to the second battery. When the secondary battery is discharged, the system switches back to the first battery. If both batteries are discharged, the system shuts down controlled.

In addition, the Battery-Switch offers the possibility tob e powered by an external power supply. If an AC adapter is connected, the Battery-Switch turnes right around on this and the batteries are not discharged. The current status of the batteries is indicated via an LED status indicator. When switched off, the batteries are separated from the hardware technology system and the batteries are not deep discharged.

4.2.1 Status indicators

- Battery-Switch in the off state.
  - LEDs do not light up.



- Battery-Switch started and powered via power supply (without batteries)
  - Operating LED lights up blue.
  - LED button lights up green.
  - The status indicators flash red.

- Battery-Switch started and powered via power supply (with batteries).
  - Operating LED lights up blue.
  - LED button lights up green.
  - The status indicators light up green.

- Battery-Switch started (without power supply unit) with two charged batteries.
  - Operating LED lights up blue.
  - All status indicators light up green.
  - The first battery is discharged, the first status indicator flashes.
  - When the first battery is empty, automatically switches to the second battery.

- Remove battery 1 and recharge using the Makita-charger.
  - Status indicators (battery 1) flash red.
- Insert charged battery.
  - Status indicators light up again green.

- Both batteries are empty..
  - All status indicators flash red.
  - The PC switched off automatically.

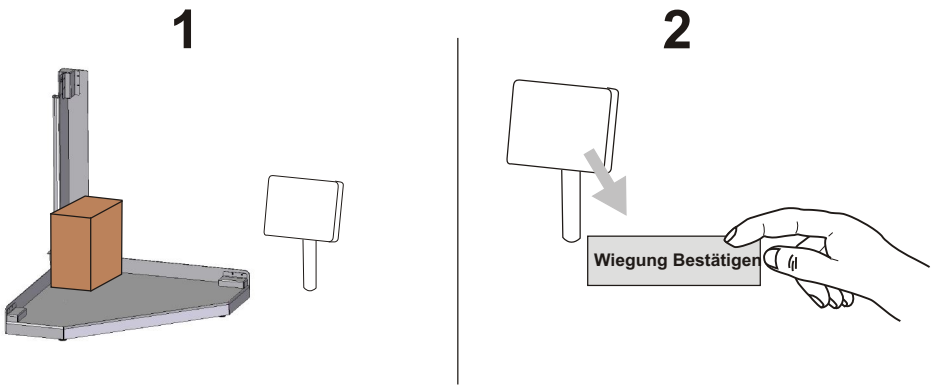
4.2.2 Communication protocol

The current battery status can be read via a serial RS232 interface. The baud rate of the serial port is 9600 baud.

Commands:

BAT.POW:100<CR><LF> Status power supply unit from 0 – 100%
BAT.ST1:100<CR><LF> Status battery one from 0 – 100%
BAT.ST2:100<CR><LF> Status battery two from 0 – 100%
BAT.LOW<CR><LF> Both batteries empty. System is switched off.

4.3 Measuring an object



Step 1 Place the object carefully on the weighing platform in the corner,on the measuring frame - do not throw or drop it!

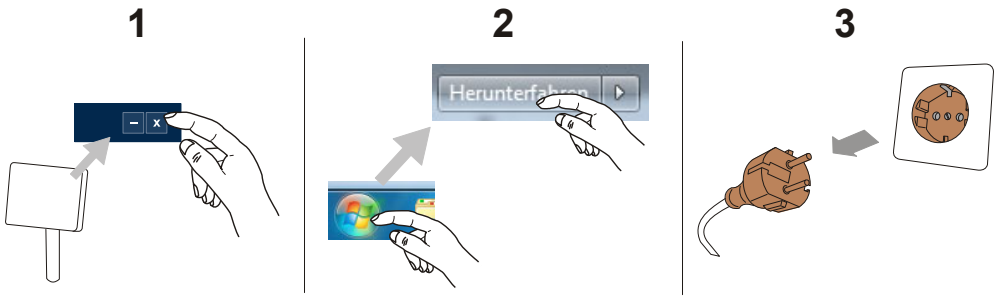
Step 2 Check the data on the screen and confirm the measurements by touching the "Confirm weighing" area.

Note
Only ever place one measurement object on the weighing platform.

Note
You must not make any changes to the measuring frame (this could impair-measuring precision and functioning).

Note
The weighing software is described in separate operating manual.

4.4 Switching off



Step 1 Close the weighing software by touching the X. The system closes the software and you can see the Windows desktop.

Step 2 Switch off the industrial PC by shutting down Windows.

Step 3 Pull out the mains plug.

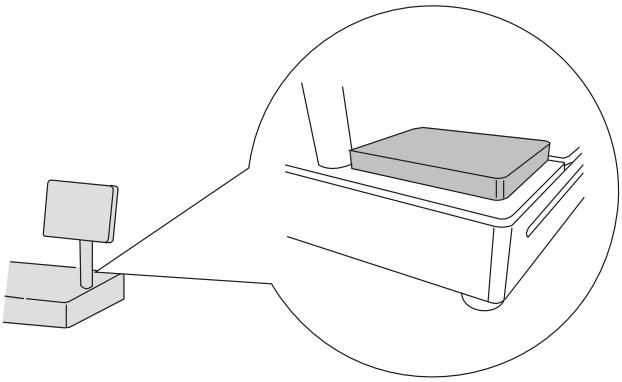
5 Optional Equipment

You can add the optional equipment below to enhance the volume scale:

- Precision/reference scale (for precise measurement of relatively small weights)
- Battery switch for supplying off-grid pow
- Transport trolley
- Camera
- Bosche Industrial PC
- Bluetooth calliper
- Bluetooth tape measure

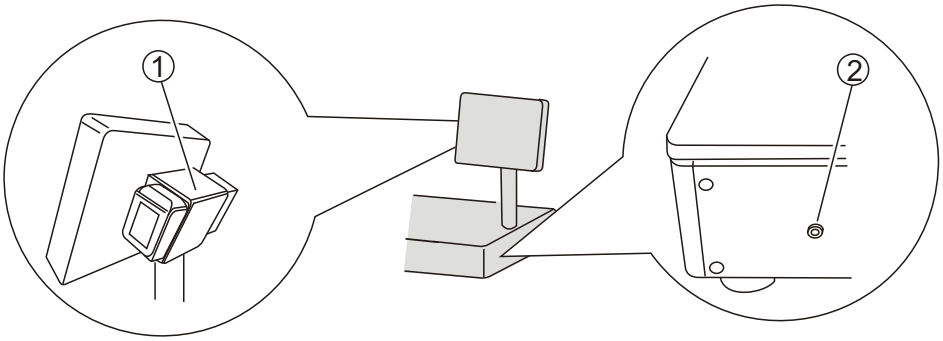
5.1 Precision scale

An optional precision scale is available for measuring low-weight objects.



5.2 Battery switch

As an alternative, to supplying power via the normal 230V mains, you can supply the volume and weight measurement system via a rechargeable battery system (a battery switch). The battery switch includes an additional plug-connection for an external power supply.

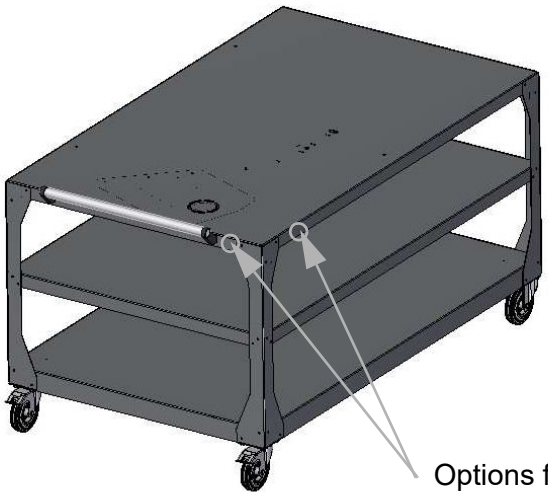


1. Battery switch
2. Connection for external power supply

5.3 Transport trolley

A trolley for the volume scale is available as an option.

The volume scale is bolted on the transport trolley. The transport trolley has two fixed casters without brakes and two casters with parking brakes.



Options for the position of the power supply socket.

Note
In the version with a mobile table, the socket for the power supply via the mains adapter is integrated into the mobile table (see arrows in the illustration)

6 Troubleshooting

The symptoms of faults include, for example:

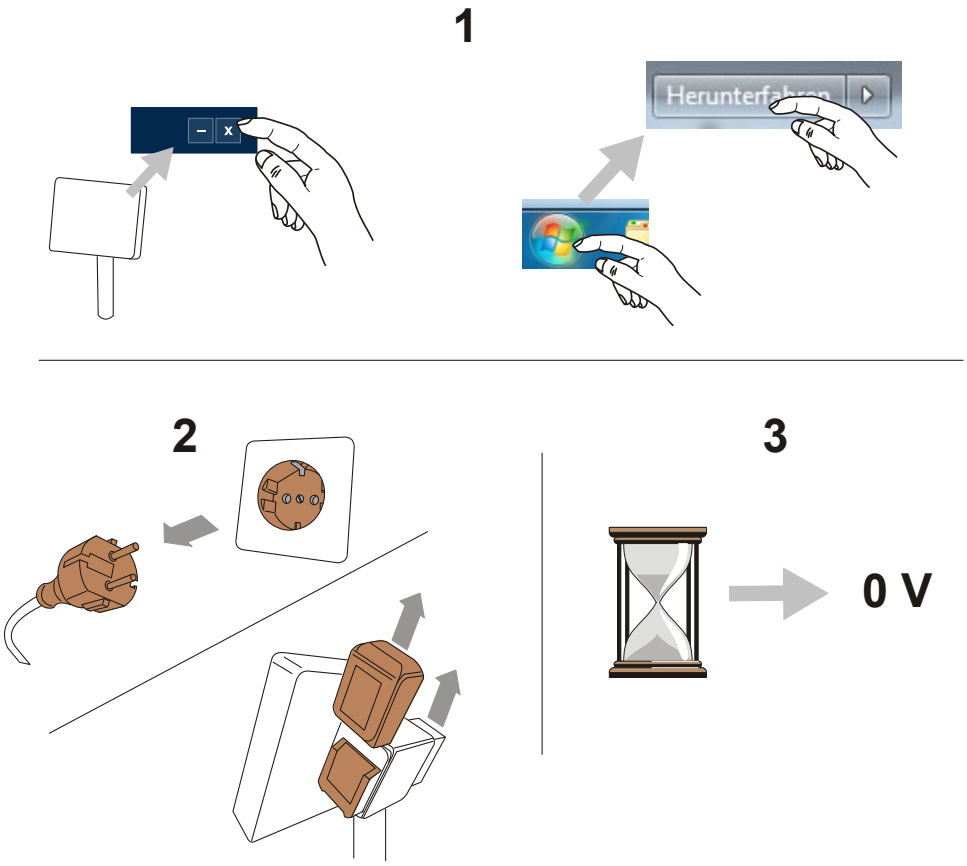
- The system displays obviously erroneous values.
- No data is transferred.
- Despite the measuring surface being empty, the system detects an object/ weight.

If a fault occurs, the remedial measures listed below may be helpful:

- First of all, try restarting the system OR
- Zero the scale (see Chapter 4.1, Step 5) OR
- Clean the scale (see Chapter 7.1) and then check the scale for damage.

If the error keeps occurring, please contact our Customer Service department.

6.1 System restart



Step 1 Close the weighing software by touching the “X“ area.

Step 2 Pull out the mains plug or remove the batteries.

Step 3 Wait for a few minutes until the system is safely deenergisedt.

Step 4 Restart the system.

6.2 Contacting customer service

Bosche GmbH & Co. KG
Reselager Rieden 3
49401 Damme

Phone +49 (0)5491 9996890
Fax +49 (0)5491 9996899
E-mail info@bosche.eu

6.3 Information needed when contacting customer service

Opersting company	Information
Name of your company	
Name of a contact	
Contactdata Phone Fax E-mail	

Product	Information
Model name	
Serial number	
Software revision number	
Date of purchase	
Name and location of supplier	

Note
Fill in the tables that are shown when you receive the volume scale so you can easily refer back to them at any time

Information about the problem:

Examples of necessary information that supports troubleshooting:

- Has the volume scale worked since being supplied?
- Has the volume scale been in contact with water?
- Has there been fire damage?
- Has there been a thunderstorm before/during the fault?

Note
Please include the entire prior history of the volume scale.

7 Maintenance and care

7.1 Cleaning

- Before starting cleaning, switch off the device and disconnect it from the mains.
- Remove dust and other dirt from the weighing platform and the laser sensor covers using a damp cloth.
- Take particular care with the lenses of the laser sensors.
- Rub all the surfaces with a dry cloth.

Attention
No moisture must enter the volume scale.

7.2 Maintenance, servicing

Only trained service engineers who have been authorised by Bosche are allowed to open the volume scale.

Danger
Before opening the volume scale, you must ensure that it has been safely deenergised and disconnected from the mains.

7.3 Testing equipment monitoring

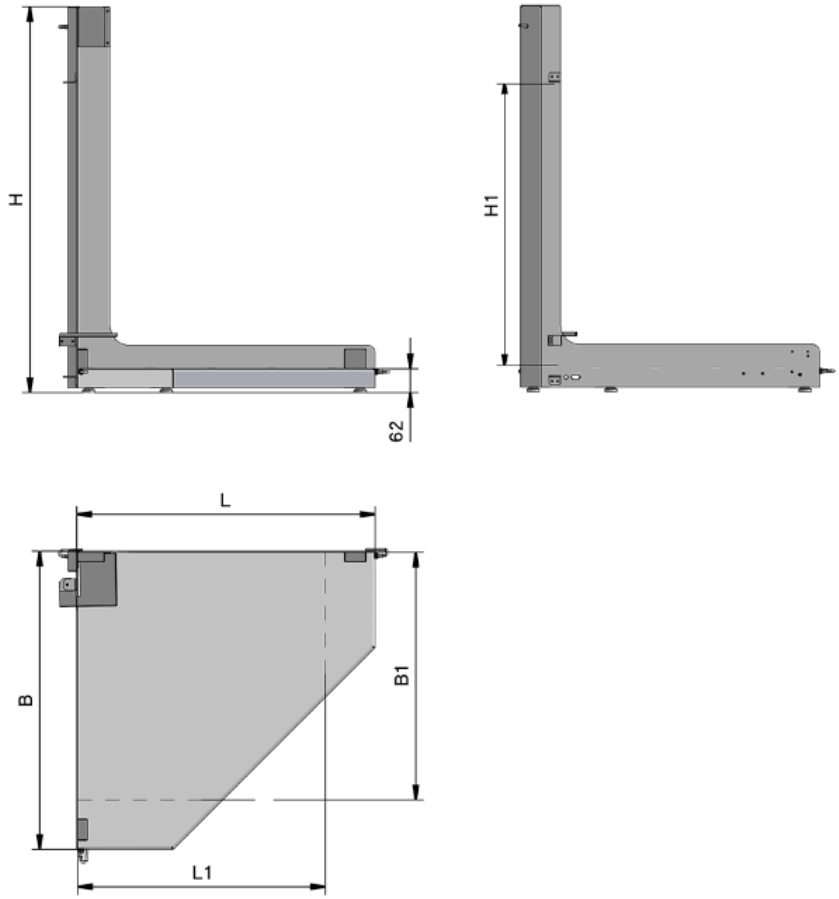
Within the scope of quality assurance, you must inspect the measuring technology properties of the volume scale at regular intervals.

Check the results of the volume scale using an object whose weight and dimensions you know for sure. If necessary, use a separate precision scale to determine the weight. If required, use a measuring device for determining lengths to measure the dimensions.

Users must specify a suitable interval for testing as well as its scope. In this connection, you must take into consideration the frequency of use and the sensitivity of the application. In most cases, a two-year test frequency is appropriate.

8 Technical data

8.1 Technical drawing



Type	L*	B*	H*	L1*	B1 *	H1*	max. package size L x b x H *
3D Silence 600	830	785	915	600	600	660	600 x 600 x 660
3D Silence 800	1030	985	1100	800	800	860	800 x 800 x 860
3D Silence 1200	1430	1385	1100	1200	1200	860	1200 x 1200 x 860

***** all dimensions in mm

Type	Weighing range (kg)	Devision	Weight
3D Silence 600	30 / 60	10 / 20 g	
3D Silence 800	30 / 60 / 150	10 / 20 / 50 g	
3D Silence 1200	30 / 60 / 150	50 / 50 / 50 g	

8.2 Technical data

Feature	Value/Unit
Power supply - Standard - Battery switch	 230 V ~ 18 V 18 V Makita rechargeable battery/ 19 V power supply
Reproducibility	± 1,5 mm
Laser class (IEC 60825-1:2014)	2
Max. perm. extraneous light	10.000 Lux
Temperature range	+5 bis +40 °C
Relative humidity	max. 80 %, non condensing

8.3 Scope of delivery

Component	Note
Volume scale 3D Silence	
Operating manual	
Industrial PC (optional)	
Switch battery (optional) 3 Makita rechargeable batteries with charger 19 V power supply	

9 Declaration of Conformity

Bosche GmbH & Co. KG
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Internet: www.bosche.eu

EU-Konformitätserklärung Declaration of conformity • Déclaration de conformité Conformiteitsverklaring • Declaración de conformidad	
Typ / Modell Type /Model • Modèle Model • Tipo / Modelo	**Volumenwaage 3D Silence** Volume scale • Balance volumétrique • Volumeschaal • Balanza volumétrica
Seriennummern.: 2018000001 - 2030999999 For the serial numbers• Pour le numéro de séries Voor het serienummers • Para el número de serie	
Hersteller Manufacturer • Fabricant Fabrikant • Fabrikante	**Bosche GmbH & Co. KG**

Die alleinige Verantwortung für die Ausstellung trägt der Hersteller.
The sole responsibility for the issue carries the manufacturer. • La seule responsibilité de l'exposition porte le fabricant. • De verantwoordelijkheid voor de uitgifte draagt de fabrikant. • El único responsable de la publicación lleva el fabricante.

Die nicht selbsttätige Waage Volumenwaage 3D
The non-automatic weighing instrument – L'instrument de pesage á foncionnement non automatique – De niet-automatische weeg – El pesaje de funcionamiento no automático

Der oben genannte Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungs-rechtsvorschriften der Union:
The above-mentioned object of the declaration complies with the relevant harmonization legislation of the Union • L'objet de la déclaration susmentionné est conforme à la législation d'harmonisation pertinente de l'Union • Het bovengenoemde voorwerp van de verklaring voldoet aan de relevante harmonisatiewetgeving van de Unie • El objeto de la declaración mencionado anteriormente cumple con la legislación de armonización pertinente de la Unión

2014/35/EU Niederspannungsrichtlinie Low voltage Directive
2014/30/EU **EMV-Richtlinie** EMC Directive
2011/65/EU RoHS

entsprechend den folgenden Normen: In conformity with following standards: conforme aux norms suivantes: volgens de volgende normen: de acuerdo con las siguientes normas:

DIN EN 60204-1:2019
DIN EN 45501:2016

Unterzeichnet für und im Namen von Bosche:
Signed for and on behalf of: Signé pour et au nom de:
Ondertekend voor en namens: Firmado por y en nombre de:

Damme, 21/11/2023

Dipl. Ing. Jarmila Bosche, PhD.
Geschäftsführer • Managing Director
Directeur général • Directeur • Director general

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