

Invented for life



Test equipment for HV batteries

Charge and discharge high-voltage battery modules,
balance cell voltages, and check for leaks



HV test equipment

Overview

The number of hybrid and battery-electric vehicles coming into the workshops for maintenance or repair is continuously increasing. To utilize this service potential, Bosch offers a range of specialized test equipment for diagnosis and repair of high-voltage battery modules.

Demand-oriented Bosch test equipment

The user-friendly Battery Tightness Tester BTD 101 tests the low- and high-pressure leakage of a wide variety of modules, such as battery packs, liquid cooling plates, and motor-driven enclosures. The Battery Charger/Discharger BAL 2260 diagnoses the state of charge (SOC) of high-voltage batteries, charging or discharging them, and improving maintenance efficiency. The modern Battery Cell Balancer BCB 5524 balances the voltage of high-voltage battery cells, improving their performance.

Technical support

When servicing and repairing electric vehicles, even experienced technicians sometimes encounter problems that are difficult to solve.

Highly qualified experts of the technical hotline support team, with their excellent technical workshop expertise, ensure quick problem resolution and simplify everyday work.

Strong partner of the workshops

Bosch stands by workshops as a strong partner – with the goal of satisfying their customers' needs and increasing profitability. Bosch offers a wide range of services for the workshop business. This includes high-quality products, reliable services, and efficient diagnostic equipment.



Battery Charger/Discharger BAL 2260

Product details

The Bosch BAL 2260 Charger/Discharger diagnoses the state of charge (SOC) at module level and balances it individually. It is primarily used for the rapid charging and discharging of offline battery pack modules in electric vehicles, enhancing the maintenance efficiency.



Advantages at a glance

- **Fast status check** of cell and wire connection through immediate voltage detection
- **Reduction of maintenance time** thanks to rapid charging and discharging with high voltage
- **Comprehensive monitoring** through real-time control of voltage, current and temperature for battery health and wiring integrity
- **Quick initialization** thanks to pre-installed software and guided start-up
- **Immediate power cut-off** via emergency stop button to protect both users and equipment in critical situations

Technical data BAL 2260

Power input	AC 90–264 V/40–60 Hz 16 A
Display	10-inch LCD touchscreen
Embedded storage	32 GB
Dis/charging power	Max. 7 kW/3.5 kW
Dis/charge voltage	DC 2–260 V
Dis/charge current	0–60 A
Single battery cell voltage collect channel	24 channels
Current battery support	LFP, NCM, LTO, LMO, NiMH
Current control accuracy	±0.5% FS
Voltage control accuracy	±0.1% FS
Weight	Approx. 27 kg

Battery Charger/Discharger BAL 2260 Technology



Fast and easy operation thanks to the clear arrangement of controls, switches and interfaces on the BAL 2260.



Charging and discharging with the BAL 2260 supports the handling of HV batteries of electrically powered vehicles.

The Charger/Discharger BAL 2260 is an essential tool for workshops involved in maintaining or optimizing battery packs of electric vehicles:

- **Efficiency and speed:** Its high-voltage and large current capabilities allow for rapid charging and discharging, significantly reducing downtimes and enhancing the productivity.
- **Comprehensive monitoring:** Real-time monitoring of voltage, current, and temperature helps ensure the health and safety of the battery packs, preventing potential failures before escalation.
- **User-friendly interface:** Easy to use thanks to its pre-installed software and quick initialization, the BAL 2260 allows to focus on the maintenance without complicated setups.
- **Safe operation:** With multiple built-in protection mechanisms against over-voltage, under-voltage, over-current, short circuits, and over-temperature, the BAL 2260 ensures the safe operation for both user and equipment.

- **Scalability and flexibility:** Supporting up to 2 measuring boxes for monitoring up to 48 cells, the BAL 2260 meets current needs and offers the scalability for future requirements.
- **Detailed reporting:** Automatically generated charging and discharging reports for easy tracking and sharing of maintenance activities, ensuring transparency and effective communication with clients.

The BAL 2260 HV Charger/Discharger comes with a range of accessories (excerpt): power cords, charging/discharging cables, voltage and temperature measuring box and cables, USB memory stick, WLAN adapter.



Battery Cell Balancer BCB 5524

Product details

The modern Bosch BCB 5524 precisely balances the voltage of HV battery cells. In this way it improves the performance and extends the service life of battery packs in electric vehicles.



Advantages at a glance

- **Fast status check** of cell and wire connection through immediate voltage detection
- **Precise and efficient voltage balancing** through independent management of each cell's balance
- **High performance and early identification of operational failures** by continuous control of battery voltage, current and temperature
- **Quick initialization** thanks to pre-installed software and guided start-up
- **Immediate power cut-off** via emergency stop button to protect both users and equipment in critical situations

Technical data BCB 5524

Power input	AC 90–264 V/40–60 Hz 10 A
Display	10-inch LCD touchscreen
Embedded storage	32 GB
Dis/charging power	Max. 600 W
Dis/charge voltage	DC 1–5 V
Dis/charge current	0.1–5 A
Discharging/charging mode	CC-CV
Current control accuracy	±50 mA
Voltage control accuracy	±5 mV
Weight	17 kg

Battery Cell Balancer BCB 5524 Technology



Fast and easy operation thanks to the clear arrangement of controls, switches and interfaces on the BCB 5524.



Voltage balancing across the cells with the BCB 5524 enhances the overall performance and efficiency of the battery pack.

The Battery Cell Balancer BCB 5524 is an essential tool for workshops involved in maintaining or optimizing battery packs of electric vehicles:

- **Maximized battery performance:** Achieve precise voltage balancing across cells to enhance the overall performance and efficiency of your battery pack.
- **Extended battery service life:** Preventing of uneven wear and tear on cells, significantly extending the lifespan of batteries and reducing replacement costs.
- **Safe operation:** With built-in protection mechanisms against over-voltage, under-voltage, over-current, short circuits, and over-temperature, the BCB 5524 ensures the safe operation of battery systems.
- **Real-time diagnostics:** Monitoring voltage, current, and temperature in real-time to quickly identify and address potential issues, avoiding unexpected failures.

- **User-friendly interface:** Easy setup and operation with guided initialization, pre-installed software, and intuitive controls enabling easy access even for those with minimal technical expertise
- **Comprehensive reporting:** Detailed charging and discharging reports for thorough analysis and sharing, supplying every information for maintenance and optimization.

The BCB 5524 HV Cell Balancer comes with a range of accessories (excerpt): power cords, voltage and temperature measuring cables, USB memory stick.



Battery Tightness Tester BTD 101

Product details

The user-friendly low- and high-pressure Battery Tightness Tester BTD 101 for a wide range of modules such as battery packs, liquid cooling plates, and motor driven boxes operates with automatic pressure regulation and comprehensive data management.



Advantages at a glance

- **Quick and secure test head attachment** prevents device damage caused by accidental disconnections
- **Precise pressure adjustments for reliable and consistent test results** thanks to automatic pressure regulation by servo motor control
- **Suitable for various components** like battery packs and motor drive boxes by supporting low- and high-pressure tests
- **Quick initialization** thanks to pre-installed software and guided start-up
- **Convenient online updates** and no need for a PC through automatic checks and software updates via WiFi
- **Comprehensive logging and reporting** with support of troubleshooting and customer documentation by operational data logs and detailed test reports

Battery Tightness Tester BTD 101

Technology

The BTD 101 Battery Tightness Tester is an essential tool for workshops involved in maintaining or optimizing battery packs of electric vehicles:



- 1 Air outlet
- 2 Air intake (for 0.4 – 0.8 MPa gas source)
- 3 USB port (for memory stick,
- 4 WiFi stick or barcode scanner)
- 5 Alternative port (Micro USB)
- 6 Power adapter 24 V/DC

- **Enhanced diagnostic accuracy:** The BTD 101 provides precise and reliable airtightness testing for critical components like battery packs and cooling systems, helping to detect even the smallest leaks. The high level of accuracy ensures thorough and effective repairs boosting the safety and performance of the serviced vehicles.
- **Improving efficiency and productivity:** Automatic pressure regulation and user-friendly interface streamline the testing process. The BTD 101 quickly adjusts to the required pressure settings and performs tests with minimal manual intervention, allowing technicians to focus on other tasks and save time.
- **Up-to-date with technology:** The online update capability via a USB-WIFI stick ensures the equipment to always run the latest software
- **Comprehensive data management:** Easy storage, management, and export of test results with the BTD 101's robust data handling features.
- **Future-proof operations:** As the automotive industry evolves towards more advanced and eco-friendly technologies, having the BTD 101 equips the workshop to handle the latest in electric vehicles.

Technical data BTD 101

Pressure range	<ul style="list-style-type: none"> ■ High pressure range: 10–500 kPa ■ Detection accuracy: 0.05 % FS ■ Low pressure range: 0–10 kPa ■ Detection accuracy: 0.05 % FS
Automatic pressure regulation range	0–500 kPa
Range of testing time	0–9,999 s
Detection standard display resolution	0.1 Pa
Display	10-inch LCD touchscreen
Operating system	Android 4.4.2
Processor	ARM Cortex-A9 Tetranuclear S5P 4418 1.4 GHz
Random access memory	1 GB DDR3
Hard disk space	16 GB EMMC
Language	English
Ingress protection standard	IP41
Certification information	CE, RoHS
Power adapter	AC 110–240 V, 50–60 Hz
Operating temperature range	0–50 °C
Humidity requirements for operation	10–90% (+25 °C)
Air pressure requirements for operation environment	80–108 kPa
Dimensions (L x W x H)	413 x 238 x 253 mm
Weight	5.3 kg

Battery Insulation Tester BIT 1000

Product details

The Battery Insulation Tester BIT 1000 is mainly used in testing high-voltage components, battery systems and EV-motors. It integrates multimeter, insulation test equipment and an infrared thermal imaging temperature measuring device.



Advantages at a glance

- **Multifunctional testing device** combining high-voltage insulation testing, multimeter functions, and non-contact temperature measurement in one tool
- **Wide measurement range** supporting AC/DC voltage up to 1,000 V and insulation resistance up to 5 GΩ with automatic range adjustment
- **Efficient diagnostics with high accuracy and fast response** through stable voltage, current, and resistance readings with rapid A/D switching
- **User safety protection preventing accidental electric shocks** due to automatic release of capacitor voltage after testing
- **Non-contact surface temperature detection** from -20 °C to 260 °C through infrared thermal imaging
- **Clear and intuitive operation** with a 3.5-inch LCD color display and simple interface
- **Efficient documentation and analysis** due to wireless data monitoring
- **Convenient handling and long service life** due to the robust design and a durable carrying case

Battery Insulation Tester BIT 1000

Technology



Practical helpers installed on the rear side of the BIT 1000: Thermal imager, laser and work light



Multiple jacks are mounted at the bottom of the BIT 1000: Positive input, communication input and insulation inputs

Testing and ensuring HV insulation safety

The Bosch BIT 1000 Battery Insulation Tester is an essential tool for workshops involved in maintaining, repairing, or diagnosing high-voltage systems in electric vehicles:

- **Reliable insulation verification:** Detects insulation degradation and leakage issues in high-voltage components to ensure safe and stable vehicle operation.
- **Comprehensive measurement capability:** Performs insulation resistance, voltage, current, and resistance tests with high precision across a wide measuring range.
- **Safe operation:** Automatic discharge of residual capacitor voltage and built-in protection functions safeguard the user during and after testing.
- **Flexible applications:** Suitable for testing battery packs, electric motors, power electronics, and other HV components in electric vehicle maintenance.

Efficient diagnostics and intelligent operation

- **Real-time monitoring:** Continuously monitors voltage, current, resistance, and insulation status to quickly identify potential faults and prevent unexpected failures.
- **User-friendly interface:** Simple operation with a 3.5-inch color LCD display, clear test navigation, and Bluetooth connectivity for control and data viewing.
- **Non-contact temperature measurement:** Integrated infrared thermal imaging allows safe temperature checks without touching live components.
- **Comprehensive reporting:** Automatically generates test and measurement reports for thorough analysis, record keeping, and sharing – supporting efficient maintenance and documentation.

Description	Order number
Multifunctional Insulation Tester BIT 1000	1 699 505 751
Li-Ion rechargeable battery 7.4 V	1 699 505 752
K-type thermocouple	1 699 505 753
K-type thermocouple socket	1 699 505 754
Pair of test leads	1 699 505 755
Remote control probe	1 699 505 756
Alligator clips	1 699 505 757
12 V F-type power adapter	1 699 505 758
Battery charger	1 699 505 759
Quick start guide	–



The BIT 1000 comes with a battery, a power supply unit and all necessary accessories in a robust protective case.

HV test equipment Trainings



Bosch – know-how, test equipment and service training from a single source



Bosch workshop support on high-voltage systems

As a developer of innovative solutions and supplier of hybrid and electric drive technology for original equipment, Bosch is shaping technological change in the vehicle and workshop market. Bosch offers extensive workshop equipment and technical support in the aftermarket.

Fit for high-voltage with Bosch service trainings

For jobs on electric and hybrid vehicles, such as high-voltage battery repairs, extensive knowledge of complex high-voltage technology is necessary. Bosch therefore offers a range of service trainings and legally required qualification measures for workshops.

High-voltage repair kit

In case the HV battery is defective or aged, replacement is not the only possible solution. For Toyota Prius III, Yaris or Lexus CT 200h with aged HV modules, Bosch offers a repair-kit with new long-life Bosch nickel metal hydride modules – cost effective and saving valuable resources.



Service information:

The BCB 5524 Battery Cell Balancer, the BAL 2260 Battery Charger/Discharger and the BTD 101 Battery Tightness Tester may only be used with the appropriate HV qualification. Bosch offers specified trainings.



**Find out more about Bosch service
trainings by scanning the QR code!**

What drives you, drives us

Bosch technologies are used in most vehicles worldwide.
People, and assuring their mobility, is what we are focused on.

Therefore, we have dedicated over 130 years of pioneering spirit
and expertise in research and manufacturing to achieving this.

We provide the aftermarket and workshops worldwide with modern diagnostic and workshop
equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- solutions for efficient vehicle repairs
- innovative workshop equipment and software
- one of the world's most comprehensive ranges of new and exchange parts
- large network of wholesale customers, for quick and reliable parts supply
- competent hotline support
- comprehensive educational and training offers
- targeted sales and marketing support

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boschaftermarket.com

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