

4-in-1 COMBINATION TEST MACHINE

Technology
[made in Germany]

Automatic combined post brushing, final electrical load test, post greasing and needle marking of automotive car and truck batteries with best and highest technology



■ BRUSHING ■ HRD TEST ■ GREASING ■ NEEDLE MARKING

The Advantage:

- Unique brushing tool for DIN and JIS type terminals incl. extraction of lead
- Adaptable to external exhaust system to avoid lead dust contamination
- Post contact by clamping system
- OCV,CCV; deltaV Test with **integrated E-load modules**
- **EOL high control software for HRD test**
- Automatic test process with sequences consisting of up to 5 test profiles
- Integrated polarity switch
- Statistic evaluation of test data with visual display
- Interface to read out test data
- Defined volume of grease adjustable 0,04 – 0,28 cm³/ stroke
- Reject table for failed batteries
- Combination or single use of each function unit
- One Touch Panel for all individual machines
- High Capacity output
- Quick and easy change-over time

Basic machine

The basic machine accommodates the individual components and contains the pneumatic and some electric control system of the machine. The Main Electrical cabinet is fixed at the machine. The basic structure accommodates the operating console which is vertically adjustable. The latter serves to accommodate the individual stations, the different heights of the batteries are adjusted via the servo driven lifting unit movement.

Function Brushing unit (PRE)

The unit accommodates the stroke with a corresponding polishing tool (+) and (-). For brushing, the tool is moved onto the battery terminals and by rotation the terminals will be cleaned

Brushing tool

The brushing tool with the form of the (+) and (-) terminals are rotating by an electrical motor and equipped with 4 single brushes, for side and top polishing of the terminal. The tool is designed to extract lead dust during brushing to avoid lead contamination in the environment.

Test unit (HRD)

The test unit accommodates the probe with a corresponding test clamp. For testing, the probe is moved onto the terminals of the battery and while testing a hermetic sealing between terminals and test clamp is guaranteed.

Test clamps (HRD)

The test clamps with the form of the terminals are opened and closed by a pneumatic grab and enclosed the terminal in test position, so that a superb and smooth connection is guaranteed.

Greasing tool (PRE)

The greasing tools with the form of the (+) and (-) terminals are rotated by a pneumatic cylinder and equipped with special rubber to apply a certain quantity of grease to the terminals.

Function Needle Marking unit (BMA)

A data code is applied to all batteries prior to leaving the machine. The data code is changed manually by a machine operator. The data code will be applied by a pin marking unit. The data pin code unit is located on a moveable coordinate system to adjust it to the position on top of the battery cover.

Battery positioning unit

For testing the batteries are exactly positioned under the workstation. This is performed by a system, which always guarantees an exact center positioning and does not require any change of positioning in machine direction.

Lateral guide unit

The lateral guide including the battery separation and the exit monitoring device is designed for laterally adjusting the battery below the working station. A clamping mechanism ensures the adjustment to be executed exactly and fast.

Battery conveyor unit

A flat top chain transports the batteries through the machine and, at the same time, ensures them to be adjusted smoothly and exactly at the work positions.

Reject unit

Following the HRD Test unit the machine is equipped with an eject unit. If a failure is detected by any of the testing units the battery will be rejected at the end of the machine on a table. Failure will be shown on the Touch Panel of the machine.

Description of individual 4-in-1 function

The machine is designed to have 4 different function units in one main frame with one PLC controller and one HMI. The individual batteries supplied through the conveyor of the test machine are positioned exactly at each function station. Post brushing, followed by High-Rate Discharge testing, post greasing and finally needle Marking function unit for data codes.

The machine is equipped with a reject table for ejecting batteries which have not passed the HRD test, which are outside a defined test limit or where the laser code is not readable.

Technical specifications

		(All statements without guarantee)
Battery type	:	automotive 12V car and truck batteries.
Capacity	:	up to 8 batteries/min (depending on test time)
Weight of batteries	:	20 – 70 kg
Dimension of machine	:	L = 5100 mm W = 1580 mm H = 2200 mm
Construction	:	Most components made of stainless steel 316Ti
Electric	:	230/400V, 3-Phase, 50/60 Hz, 4 Wire
Control voltage	:	24 DC
Power consumption	:	11,0 kW
Operating pressure	:	6 bar (90 psi)