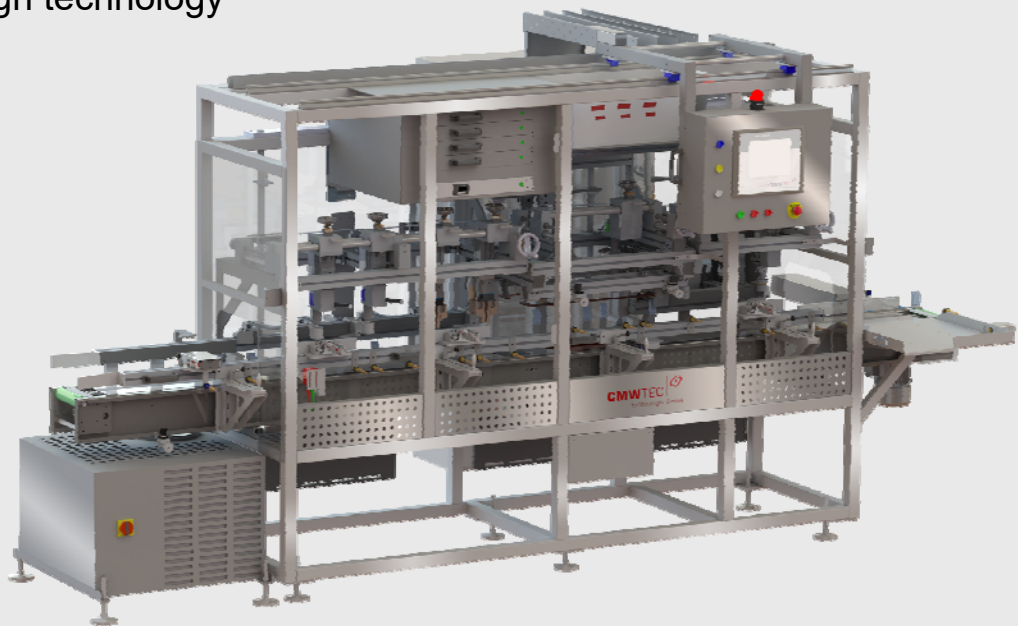


4-in-1 COMBINATION TEST MACHINE

Technology
[made in Germany]

Automatic combined post brushing final electrical load with integrated E-Load, dielectric test and post greasing of automotive car and truck batteries with best and high technology



■ 1 UN BRUSHING ■ 1 UN HRD TEST ■ 1 UN HVT TEST ■ 1 UN GREASING

The Advantage:

- Post brushing with special tool with integrated lead dust extraction
- Post contact by clamping system
- OCV,CCV; deltaV Test with **integrated E-load modules**
- **EOL high control software for HRD test**
- Location of smallest leakage
- Test of cover seal line and bottom of the battery box
- Fine thin layer of grease for each terminal
- Reject table for failed batteries
- Automatic test process
- Combination or single use of each function unit
- One Touch Panel for all single machines
- 2D Scanner for collecting Battery code Data
- 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 remote standing behind 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 vertical spindle movement.

Post Brushing Function unit (PRE)

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

Brushing tool (PRE)

The polishing 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

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 terminal 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 connecting is guaranteed.

Test unit (HVT)

The test unit accommodates the probe with a four corresponding test strips. For testing, the positive Electrode will be moved onto the one of the terminals of the battery, while the negative electrode will be positioned around the sealing line of the battery cover.

Test strips (HVT)

The self-adjusting test strips are opened and closed by pneumatic cylinders and enclosed the battery in the test Position, so that a superb and smooth connecting is guaranteed.

Post Greasing Function unit (PRE)

The unit accommodates the stroke with a corresponding greasing tool (+) and (-). For greasing, the tool is moved onto the terminals of the battery and by 180 ° rotation the terminals will be lubricated

Greasing tool (PRE)

The greasing tool with the form of the (+) and (-) terminals are rotating by a pneumatic cylinder and equipped with special rubber, to achieve a given quantity grease to the terminal

Battery positioning unit

For testing, the batteries are exactly positioned under the working station. This performed by a system, which always guarantees an exact centre-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 position.

Reject units

Following the HRD and HVT Test unit the machine is equipped with an eject unit. If there is a failure, 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 functions 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 with our new E-Load modules integrated in the machine design, followed by a High Voltage Leakage test with finally post greasing function. The machine is equipped with a reject table for eject batteries which have not passed the HRD or HV test.

Technical specifications

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 = 4000 mm W = 1525 mm H = 2200 mm
Construction	:	Stainless steel 1.4301 (304), with aluminum profiles
Electric	:	230/400V, 3-Phase, 50/60 Hz, 4 Wire
Control voltage	:	24 DC
Power consumption	:	6,8 kW
Operating pressure	:	6 bar (90 psi)