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• **MTBR - CAMBOX** • • • • • • • • • •  
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## **MTBr - CAMBOX**

The only Complete Standalone unit to test every Automotive, Commercial, Industrial and Marine Unit Injection System (UIS) available in the market today.



Professional and  
Automatic Testing  
Solution for all Makes  
and Types EUi/EUP



**Technical data**

Input frequency	50/60 Hz
Number of phases	3 P/PE
Speed range	0 – 3000 rpm 12.5HP
Powerful Motor with thermal protection	-
Maximum operating ambient temperature	50°C
Base to axis center height	125 mm
Supply pump pressure	10 – 800 kPa
Test oil tank	38 L
Waste Oil tank	15 L
Dimensions (W x D x H) Weight	750 x 700 x 1610 mm 350 kg

**Compact Standalone Diesel Test Bench**

Controls all Types and Makes of Unit Injectors & Pumps. Includes the markets greatest OEM and CZ Database and Test Plans

Automatic function with complete database and test plans (Coding\*) with the Hartridge HK-1400A Cambox powered by Carbon Zapp

Cummins ISX / Scania HPI and Cummins QSK Test Plans

Easy and Oil free change of Cam (20sec) by use of the EZO-Kit (optional)

6 injectors testing in less than 1 hour

Compact and Robust Unit. 240° Efficient Working Area

Nozzle reaction time measurement for all systems via RSP sensor (optional)

Actuator Valve measurement via RSP/BIP sensor

Smart Injector / Pump (E3/E1/DAF) Coding coming soon

Fully Automatic and fast testing phase through a 15" Touchscreen HMI with AZO software

Dynamic Electronic Mass (BK) Measurement

Internal cooling system (No water connection needed)

Emergency Stop function (Instantaneous electric brake)

*\*Note: Future Update*

# CZ Technologies

## Tests Performed

### R2LC

Electrical actuator test for  $k\Omega/\mu F$ ,  $\Omega/\mu H$

### CFL

Check For internal and external Leaks

### NLT

High Pressure Nozzle Leakage

### LKT

Static Back Leakage (Overflow) measurement

### aNOP

Automatic Nozzle Opening Pressure

### iVM (FL, PL, EM, LL, PI)

Injector Volume Measurements (full-load, part-load, emissions, low-load, pre/post-injection.)

### iVM-aDFi

Injector Volume Measurement Performance Ramp (multiple testpoints slope / different Pressure points)

### RSP

Injector Nozzle Response Time

### BIP [ EUI / EUP systems ]

Injector / Pump Control Valve Response Time for Unit Injection Systems

### SPR

Dynamic Spray Test performed in all testing conditions up to 2800Bar

### Extra Tests

High pressure Control Valve operation (DRV, IMV, VCV, PCV, etc...) High Pressure Sensor reaction, High Pressure relief safety valve operation CR Pump flow limiter valve operation (ZME, IMV, SCV.)

### MIM

Multiple Injection Metering (up to 8 fully programmable delay and overlap times)

## Features

### AZO Software

Advanced Android based HMI/PC, Wi-Fi printing, sharing, syncing, software/ hardware & database updating, via USB or Wi-Fi, Real-time Oscilloscope and CSV data export

### Reports

Easy fail-track color report for each component tested. Single-page Quick report or Multi-page Analytic reporting

### aMACC Flushing / Cleaning function

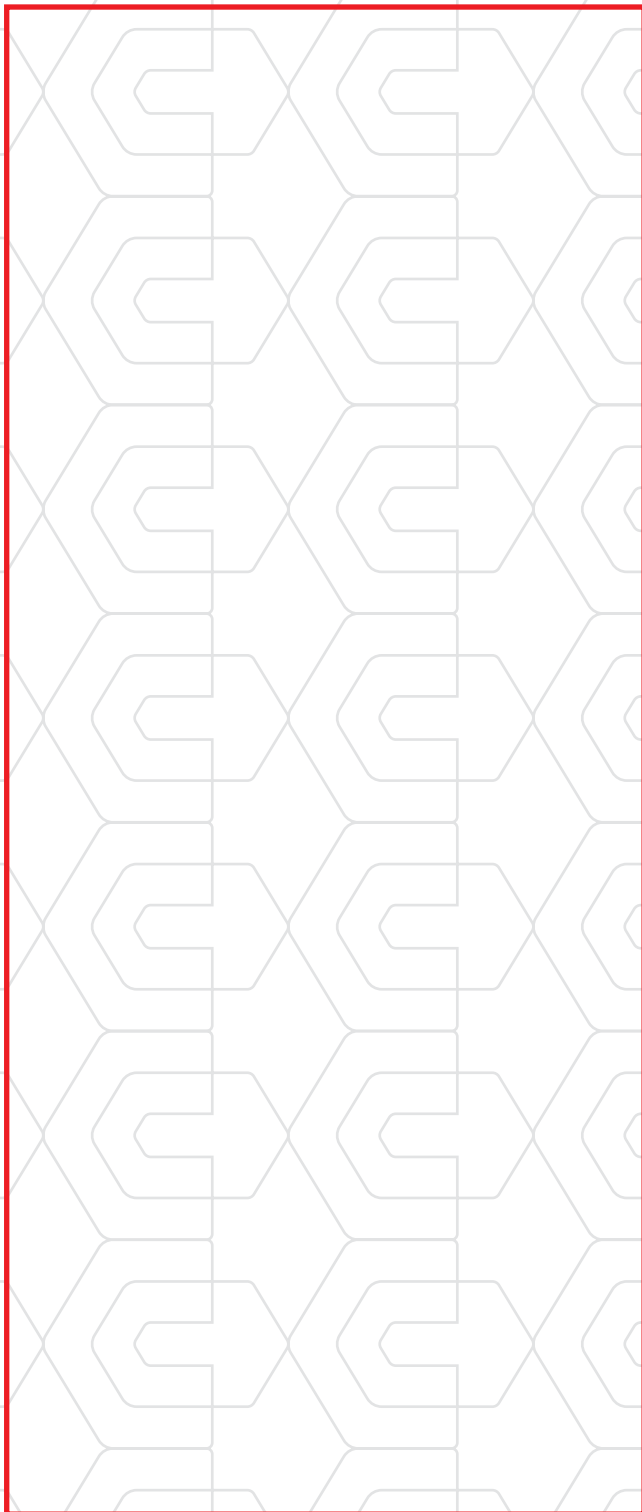
Automatic chemical treatment and flushing of the injector before testing under high pressure and using a specially formulated detergent

### RSP / BIP

Response Sensor (RSP) adaptable to all Injector Nozzles

Response Sensor (BIP) adaptable to all Control Valves [EUI/EUP].

Precise measurement of Control Valve & Nozzle reaction time to easily diagnose a slow acting injector, a retarded injection event, poor engine performance and emissions issues."



1. BK



2. DFAP

### Electronic Measurement

1. Dynamic Electronic Mass Measuring Sensor (BK). Ramp function capable for aDFI function, Injector Coding Capable, Acc:0.2%FS, repeatability: 0.05%. Fast and Accurate Measurement with Coriolis technology
2. Static Electronic Mass Measuring Sensor (DFAP) Acc: 0.6%FS, Accurate and Repeatable Measurement with Differential Absolute Pressure Technology