

**TBCR**

**SPECIALIST SOLUTIONS**

## **Diesel Injection Systems**

Innovative, compact and professional  
solutions for every workshop to test  
& service Diesel Injection Systems

## **TBCr**

Carbon Zapp's Revolutionary TBCr Simulator provides the capability for every Conventional Test Bench out in the market to renovate and test All Makes and Types of CRDi – CRp – EUI – EUp – HEUi systems.

Diesel Test Bench  
Attachment Unit

High Pressures Control up  
to 2800 bar

NVcT: VCC / NCC / EU6  
Needle Control Testing

CRS.3-27 / CRS.2-25 / iArt/  
And more EU6 Capable...

Compact Size for Every  
Laboratory

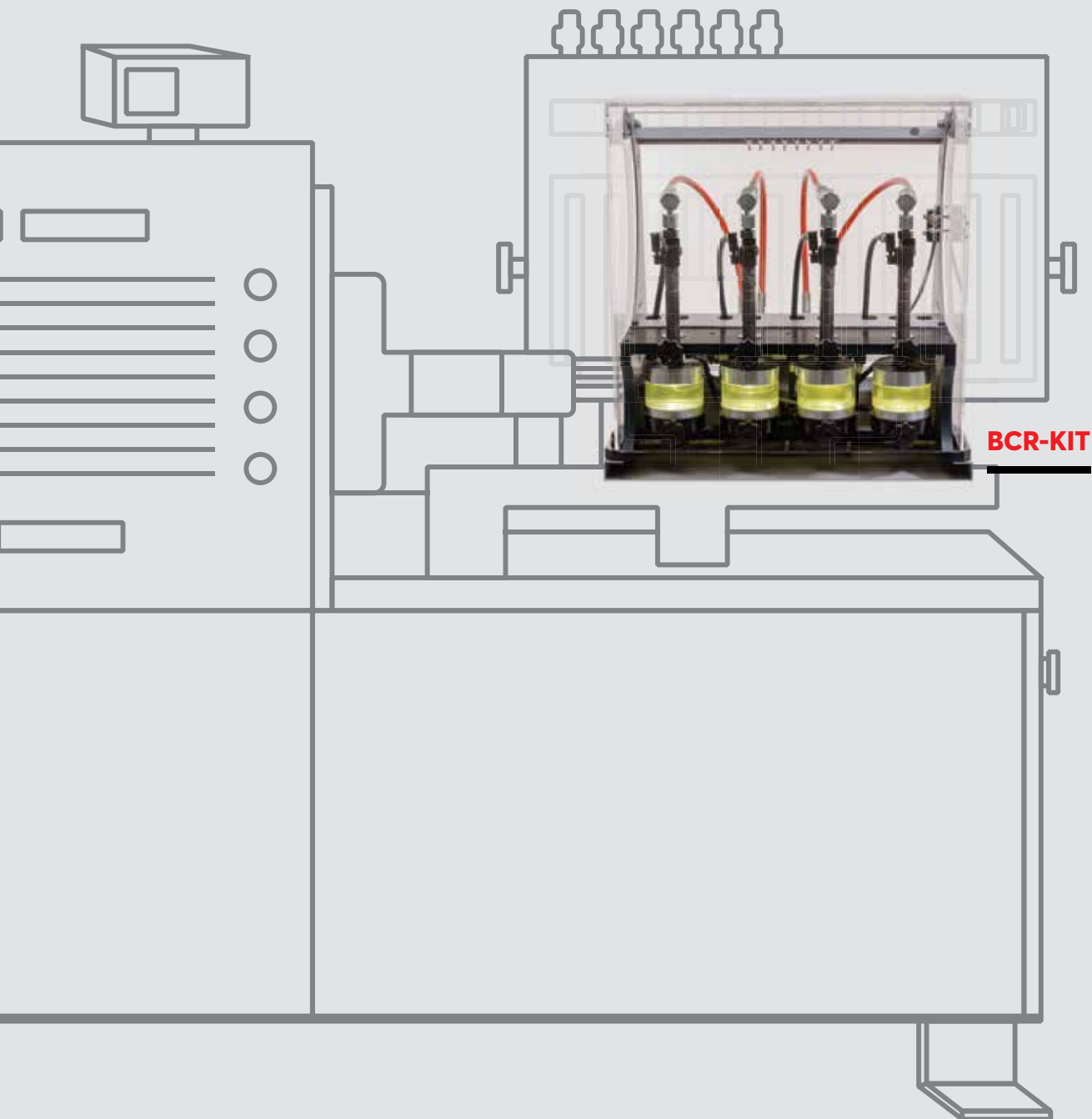
Fully Automatic  
and Fast Testing

Testing & Coding  
of All Types / Makes

Diesel Specialists Choice



Test bench Common Rail Kit.  
The unique, compact and  
Universal solution for every  
Conventional Test Bench in the  
market to operate with the latest  
technology CR injectors.



## TBCr

Works with every Conventional TestBench in the Market

Controls all Types and Makes of Injectors & Pumps.  
Includes OEM Database and Test Plans

Electronic Measurement and Coding for Conventional  
Test bench

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

High Pressure Testing up to 2800Bar (EU6) with BCR-Kit  
(optional)

Controls NEW Generation CRi3-25 and CRi3-27  
injectors with NCC and VCC technology

EU5 and EU6 systems testing [Denso I-Art (6-pin),  
VDO etc...]

Injector Coding VDO IIC, Delphi C2i/C3i, Bosch IMA/ISA  
and Denso QR

VDO CR injectors (EU5) testing only with approved  
Energy Control by **VDO**

4 CRi/CRiN solenoid or piezo and up to 2 CRiN 4.2  
injectors

Nozzle reaction time measurement for all systems via  
o-RSP sensor

Actuator Valve measurement via RSP/BIP sensor

All Makes/Types of CR pump. Special Applications CP4/  
CAT/ CB18/ CB28/ CP2 etc...

Controls all Types and Makes of Injectors & Pumps.  
Includes OEM Database and Test Plans

Connects to Carbon Zapp's HEUI-KIT.M2 solution  
for testing up to 4 HEUI's

Fully Automatic and fast testing phase through  
a 10" Touchscreen HMI with AZO software

CRDi Piezo Stack Regeneration function

Blue Limits Diagnosis for Diesel Specialists

Dynamic Electronic Mass (BK) Measurement (CRDi,  
HEUI, EUI/EUP)

Static Electronic Mass (DFAP) Measurement (CRp)

SPAR: Piezo Stack Filler after repair & re-Assembly  
(optional)

Internal cooling system (No water connection needed)

Emergency Safety Stop function

Compact, Lightweight and Portable Unit

The Advanced  
Test Bench simulator  
that renews every  
Conventional Bench  
in the market today.  
Coding made easy and  
affordable for Every  
Diesel Specialist.



## **BCR-KIT**

Test bench Common Rail Kit. The unique, compact and Universal solution for every Conventional Test Bench in the market to operate with the latest technology CR injectors, HEUI Injectors, GD*i* injectors and CR pumps.

Easy Clamp-on for 4 CR*i* injectors / 4 CR*i*N / 4 GD*i* / 4 HEU*i* (17-19-21-24mm) or 1 CR*p*

Conventional Testbench base bolt-on feature

Clear protective hood with safety switch

High Pressure Rail - 2800Bar, HP pressure regulator & sensor

4 x HP flexible hoses 3000Bar with 90-degree swivel & accumulator

1 x HP flexible hose 3000Bar with 90-degree swivel & accumulator for CR pump

4 x Led illuminated adjustable Spray Chambers

Connects to any CRD*i* Simulator.  
Recommended for TBCR operation



# 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

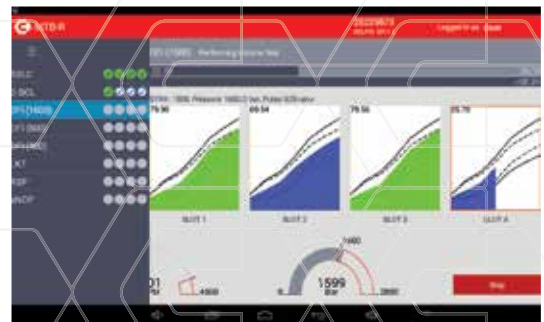
Automatic chemical treatment and flushing of the injector before testing under high pressure and using a specially formulated detergent

### 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



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