

CELEBRATING TOGETHER  
35 Years of Innovation



# FORWARD MOBILITY SOLUTIONS



Pioneering  
the Automotive  
Service for 35 years  
and beyond.



# FORWARD MOBILITY SOLUTIONS

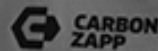


INNOVATION DRIVEN

## DEFINING INNOVATION



**Celebrating Together  
35 Years of Innovation**



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### **INNOVATION TO DRIVE FORWARD MOBILITY SOLUTIONS**



Carbon Zapp is dedicated in manufacturing Automotive Injection Service Solutions, providing a worldwide sales network, investing constantly in R&D and offering efficient support. With today's exponential increase in the automotive industry, Carbon Zapp offers solutions for a healthier, less polluted environment, specializing in designing & manufacturing Diesel and Gasoline Injection Service Benches, that have become a standard for major OE's and general workshops.

As a global supplier to diverse users, with broad knowledge in the automotive industry and through teamwork and skillful personnel, Carbon Zapp is able to support your corporate vision and fulfill your market's needs.

**Let's make together the first step towards future and success!**

**Nikolaos Pantazis**  
Managing Director International Business

**Dimitrios Pantazis**  
Managing Director Manufacturing

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**“ We have earned our position to the global market because of our commitment to quality products and well known customer service. If we fail to provide satisfaction to our customers, we forfeit our right to their business. Carbon Zapp’s Management and staff loyalty to this business makes it a win-win situation**

**Bill Pantazis,  
Founder of Carbon Zapp**



## Our Company

Carbon Zapp was founded in 1989 by Bill Pantazis. As a leading manufacturer of Automotive Injection Service Equipment and Tools, Carbon Zapp has its Headquarters and Production Plant in Athens, Greece and a constantly growing global network in every continent. Recently, the company expanded in Germany by establishing its OEM business administration offices.

Through a wide range of innovative products, including injector and pump test benches for Diesel and Gasoline High Pressure injection systems, Engine service equipment and tools, Carbon Zapp offers high quality equipment and customer service to automotive dealers, workshops and educational institutions, as well as for specialized developers, remanufacturers and most major automotive OE’s. Carbon Zapp uses over 40% of its profits to update existing products with newer technological advancements and aims to provide simpler methods and tools for a safer environment.

Carbon Zapp today is the Authorized global partner for Diesel Specialists to Diagnose and Service CRDi systems, holding the unique technology to correctly control with Energy and accurately test Continental / VDO systems.

## Our Mission

Carbon Zapp aims to provide user friendly, compact and time saving solutions to a wide range of operators, focusing in the automotive injection systems.



**BUILDING  
THE FUTURE  
OF AUTOMOTIVE  
INJECTION  
SERVICE TODAY**



**Our Customers**

Diesel Service Centers  
Auto Workshops /Dealerships  
Automotive Aftermarket OEM's  
Parts Remanufacturers  
Automotive OE's  
Developers

**Let's Connect and Discover  
Future Opportunities.**

**We Provide Authorized  
Solutions for Continental/VDO**





### Innovation Driven Company

"Innovation" is the key to continuous growth and competitive advantage. Carbon Zapp "Drives" its research team to keep a high ambition level and work on their research, development and technical skills.

On an annual basis, the company invests more than 40% of its profits on research and development for upgrading existing and implementing new products. Carbon Zapp has fostered an extensive group of intellectual property and talented personnel throughout the years. Strategic agreements and world-class component suppliers have contributed in developing advanced technologies & products.

### Support

At Carbon Zapp, customer satisfaction is a major priority. The staff offers the best service to increase customer trust, earn their loyalty and built their respect. The key to this success is to acknowledge the customers' needs and listen to them.

### Global Sales Network

With a logistics center in Carbon Zapp can effectively export its products globally in continents and over 98 countries. The products are trusted internationally for their world class quality and unique capabilities. Carbon Zapp takes pride in consistently delivering premium products and reliable customer services.



# CloudX is Carbon Zapp IoT Cloud computing Platform.

**Powerful innovations at your fingertips  
with CZ CloudX computing Platform**

CZ CloudX computing technology Platform as a service (PaaS) is a complete environment in the cloud, with resources that enable clients the full control of their Bench with cloud based Apps access them over a secure Internet connection. With middleware, development tools, business intelligence (BI) services, database management systems and more.

CloudX allows clients to access live online updates of database, remote operation and status report of their bench. Generate remote reports for handling, printing, filling and organizing from machine database. Instant activation of features on a pay-as-you-go basis. Multiple machines management support. Complete machine cloud back-up and instant trouble shooting via X-Connect directly from CZ factory. Receive notifications on your smart devices for machine maintenance tasks like Oils, Filters, Service, and more.

Explore today new powerful innovations at your fingertips with CZ CloudX computing Platform.

## CloudX Features



IoT Cloud Platform Industry 4.0

Remote Operation and Status  
Report of Client Bench

Generating remote reports for  
handling, printing, filing and  
organizing from machine database

Multiple machines management

Instant Activation of Features on a  
pay-as-you-go basis

Notifications on Client smart devices  
for machine maintenance tasks like  
Oils, Filters, Service, and more

Complete machine cloud back-up

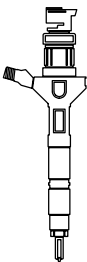
Instant troubleshooting via CX-Connex  
directly from CZ Factory

Live Online Updates of Database  
and supporting new requests from  
clients

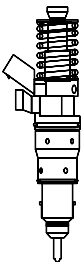
# INDEX BY SYSTEM



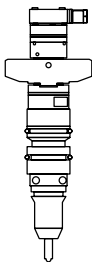
Explore our complete range of Automotive Injection Service Solutions both for Specialist and Workshops thought the supporting Systems & find your next best match.



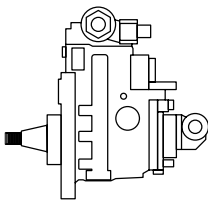
CRDI



EUI/EUP



HEUI



CRP

	PAGE	MACHINES	DIESEL			
SPECIALISTS	14-25	MTBr-X	•	•	•	•
	26-29	PTBr-X				•
	30-35	ITB.4R-X	•			
	30-35	ITB.1R-X	•			
	36-37	DGFr-X	•			
	40-45	ETBr-X	•	•	•	•
	46-51	HTBr-X			•	
	52-57	GTB.4R-X				
	58-61	GDU.4R-X				
	62-63	ACCESSORIES				
WORKSHOPS	66-67	DSr-X	•			
	68-69	GDr-X				
	70-71	GS4				
	70-71	GS8				
	72-73	ES-X				
	73	EP-X				
	74	FST	•	•	•	
	74	FST-HF				
	74	HP-G2500	•			•
	74	HP-G250			•	
	75	CRPT-110	•			
	75	CRMK-110	•			
	75	PIMK-010	•			
	75	DIT-062	•			

**CRDi**  
Common Rail Diesel Injectors

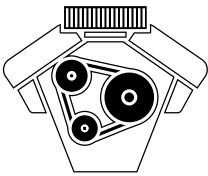
**EUI**  
Electronic Unit Injectors

**EUP**  
Electronic Unit Pumps

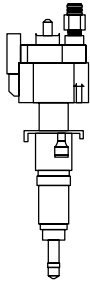
**HEUI**  
Hydraulic Electronic Unit Injectors

**CRp**  
Common Rail Diesel Pumps

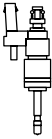
**Engine**  
Diagnostic and Service Solutions



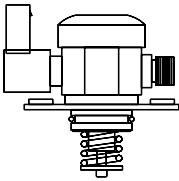
ENGINE



GDi  
INJECTORS



EFi  
INJECTORS



GDi  
PUMPS



CONTINENTAL  
\ VDO

DIESEL/GASOLINE	GASOLINE			AUTHORIZED	MACHINES
	•		•	•	MTBr-X
			•		PTBr-X
	•			•	ITB.4R-X
	•			•	ITB.1R-X
	•			•	DGFr-X
	•	•	•		ETBr-X
					HTBr-X
	•		•		GTB.4R-X
	•				GDU.4R-X
					ACCESSORIES
					DSR-X
	•	•			GDR-X
	•	•			GS4
	•	•			GS8
•					ES-X
•					EP-X
•	•	•	•		FST
•	•	•	•		FST-HF
•			•		HP-G2500
•	•		•		HP-G250
•					CRPT-110
•					CRMK-110
•					PIMK-010
•					DIT-062

**GDi**  
Gasoline Direct Injectors

**EFi**  
Electronic Fuel Injectors

**GDi Pumps**  
Gasoline Direct Injection HP Pumps

**Continental /VDO**  
Authorized Solutions for EU3, EU4  
and EU5 Diesel Injectors



## INDEX BY PRODUCT



Browse our catalog by Product and find your next best match for all your needs through Carbon Zapp's new full improved XSeries benches, a complete range of Automotive Injection Service Solutions both for Specialists and Workshops.

### SPECIALISTS



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SPECIALISTS

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**PTBR-X**  
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**LTBR-X**  
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**ITB.1R-X**  
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**CTBR-X**  
SPECIALISTS

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**DGFR-X**  
SPECIALISTS

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**ETBR-X**  
SPECIALISTS

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**HTBR-X**  
SPECIALISTS

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**GTB.4R-X**  
SPECIALISTS

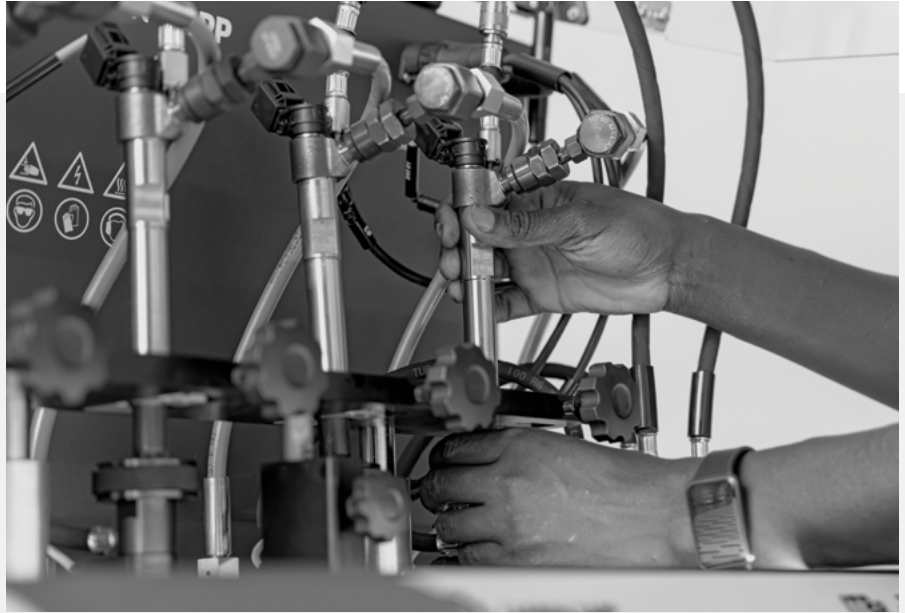
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**GDU.4R-X**  
SPECIALISTS

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# INNOVATION TO DRIVE FORWARD MOBILITY SOLUTIONS



## WORKSHOPS



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WORKSHOPS

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**GS4**  
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**GS8**  
WORKSHOPS

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**ES-X**  
WORKSHOPS

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**EP-X**  
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**FST/FST-HF**  
WORKSHOPS

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**HP-G2500**  
WORKSHOPS

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**HP-G250**  
WORKSHOPS

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**CRPT-110**  
WORKSHOPS

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**CRMK-110**  
WORKSHOPS

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**PIMK-010**  
WORKSHOPS

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**DIT-062**  
WORKSHOPS

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## SPECIALISTS



Discover Diesel and Gasoline  
Specialists Solutions

Innovative, Compact and Professional  
Solutions for every Diesel Specialist  
Workshop to Test and Service All Makes  
and Types of Heavy Duty, Light Duty and  
Passenger Car Fuel Injection Systems.

CRDi  
Common Rail Diesel Injectors

EUi  
Electronic Unit Injectors

EUp  
Electronic Unit Pumps

HEUi  
Hydraulic Electronic Unit Injectors

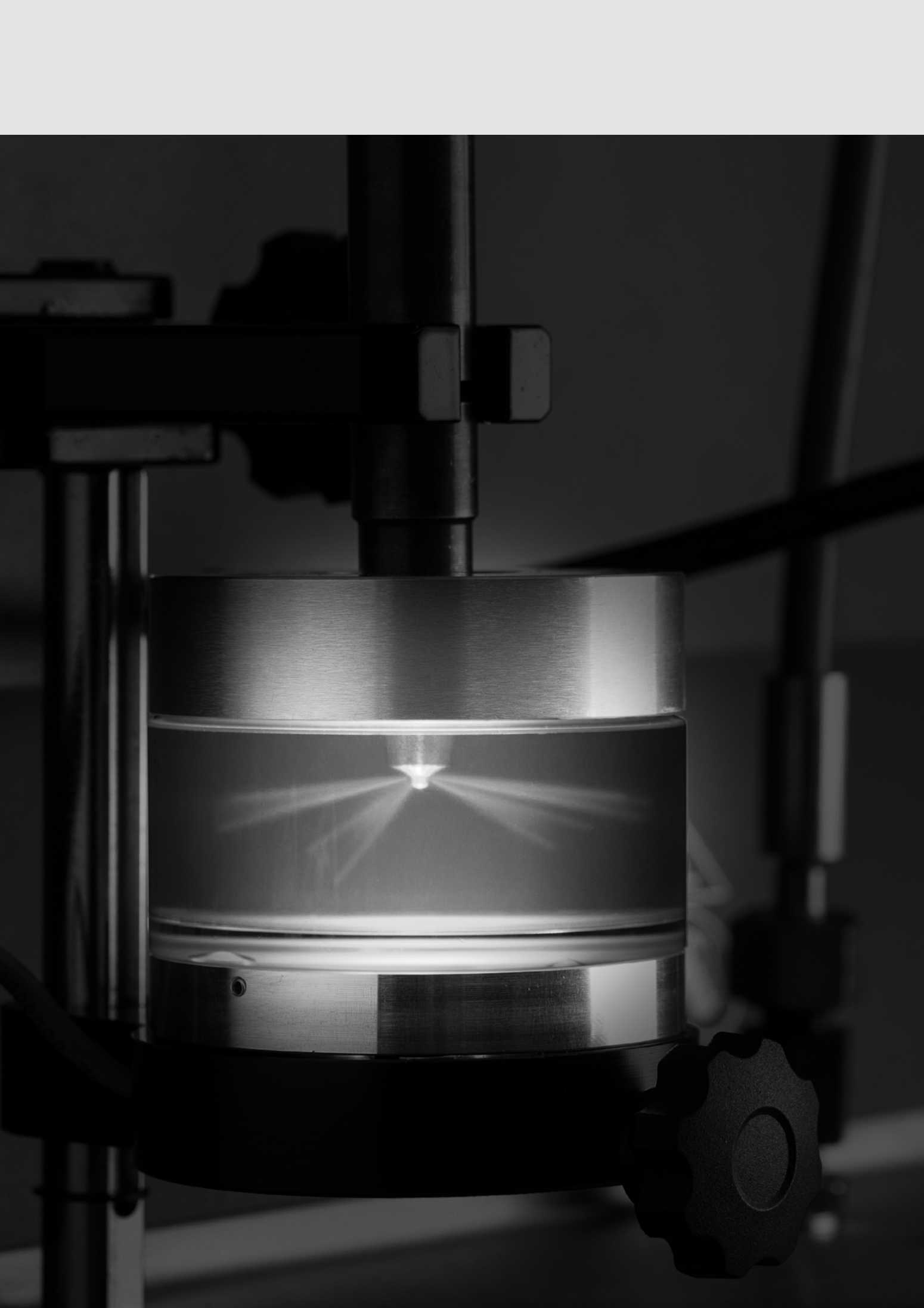
CRp  
Common Rail Diesel Pumps

Engine  
Diagnostic and Service Solutions

GDi  
Gasoline Direct Injectors

EFi  
Electronic Fuel Injectors

GDi Pumps  
Gasoline Direct Injection HP Pumps



**MTBR „X**

Diesel System Test Bench

Authorized  
Solution for  
Continental/VDO

**CloudX****2800Bar+**

**Standalone Diesel CRDi & GDi  
Test Benches for Specialists.  
Handles CR, HEUI, EUI/EUP, GDI  
injectors and pumps.**

The Preferred Diesel  
Specialists Solution. The  
Comprehensive Solution  
for Every Advanced  
Diesel Service Center.

**Overview of the New MTBR-X**

**Precise, repeatable and rapid Diesel & Gasoline  
Components Testing**

**[1] Pump Testing**

- 5-15 minutes testing time per pump
- CRp / GDp Pump (All Brands and Types).
- Capable for all EU6 technologies with Sync Operation such as Denso HP5, Bosch CP4-EU6, VDO EU6 technology and more...
- Heavy-Duty CR pump (CPN5S2, CAT, Cummins HPO etc.)
- Testing of All brands and types PCV's [Pressure Control Valves]
- Testing of All brands and types VCV's [Volume Control Valves]
- Testing of All brands and types of RDS [Rail Pressure Sensors]
- Testing of all types of High Pressure Rails

**[4] Injectors Testing & Coding\***

- 6-12 minutes testing and coding\* time for 4 injectors
- CRi / CRiN / GDi injectors (All Brands and Types).
- Capable for all EU6 technologies such as VCC and NCC technology, iART, PCRS5,
- XPI, F2X and F3X systems and more...
- CRIN 4.2 Heavy Commercial-Vehicle injectors
- Large Diesel Engine CRiN injector (QSK, MTU, L 'Orange, etc...)

**[1] HEUi Testing & Coding\***

- 6-8 minutes testing and coding\* time per injector
- Dynamic and static measurement of the actual overflow
- Dual-Coil HEUi Injector testing capable
- Accurate and automatic measurement of the NOP without disassembling the injector

**[1] EUI/EUP Testing & Coding\* (requires HK1400A Cambox)**

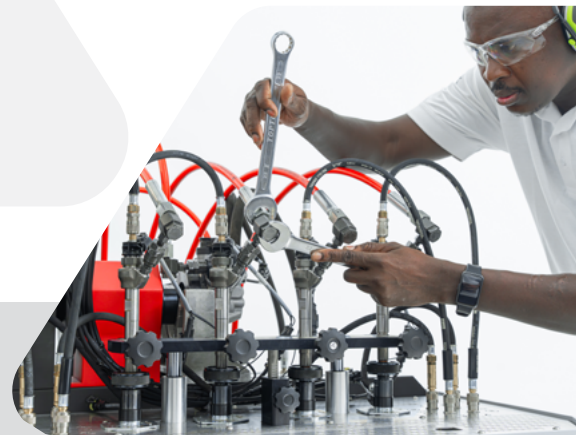
- 6-10 minutes testing and coding\* time per injector
- Capable for all EU6 technologies
- Expandable to Future Systems

**CGL - Authorized Continental / VDO "Blind-Lift"  
Measurement of Piezo-Stack**

\*New database and Coding is continuously being updated to new EU6 applications

## SPECIALISTS

CRDi - EUI/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps



**Setting the  
Benchmark  
for Test Benches**



Our expertise, experience  
& innovative thinking brought  
together a New Design,  
Advanced Hardware &  
Upgraded Software for our  
New **MTBR-X**

## SPECIALISTS

CRDi - EUI/EUP - HEUI - CRP  
ENGINE - GDi - EFi - GDi Pumps



01.

DIESEL CRDI TESTING & CODING

02.

GASOLINE GDI INJECTOR  
TESTING & CODING

03. DIESEL UNIT INJECTION  
SYSTEMS TESTING/CAMBOX

04. GASOLINE GDI PUMP TESTING

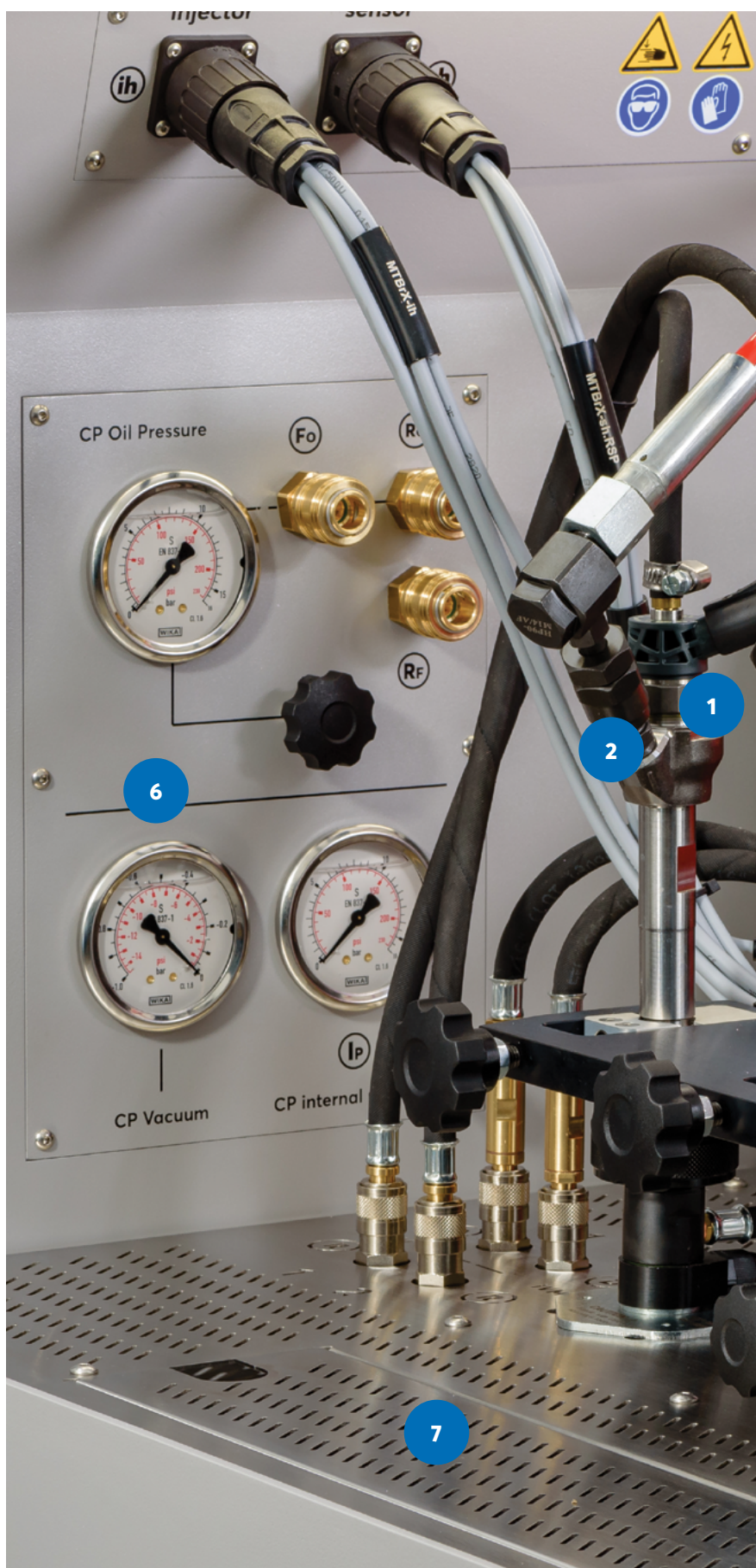
05. DIESEL CR PUMP TESTING

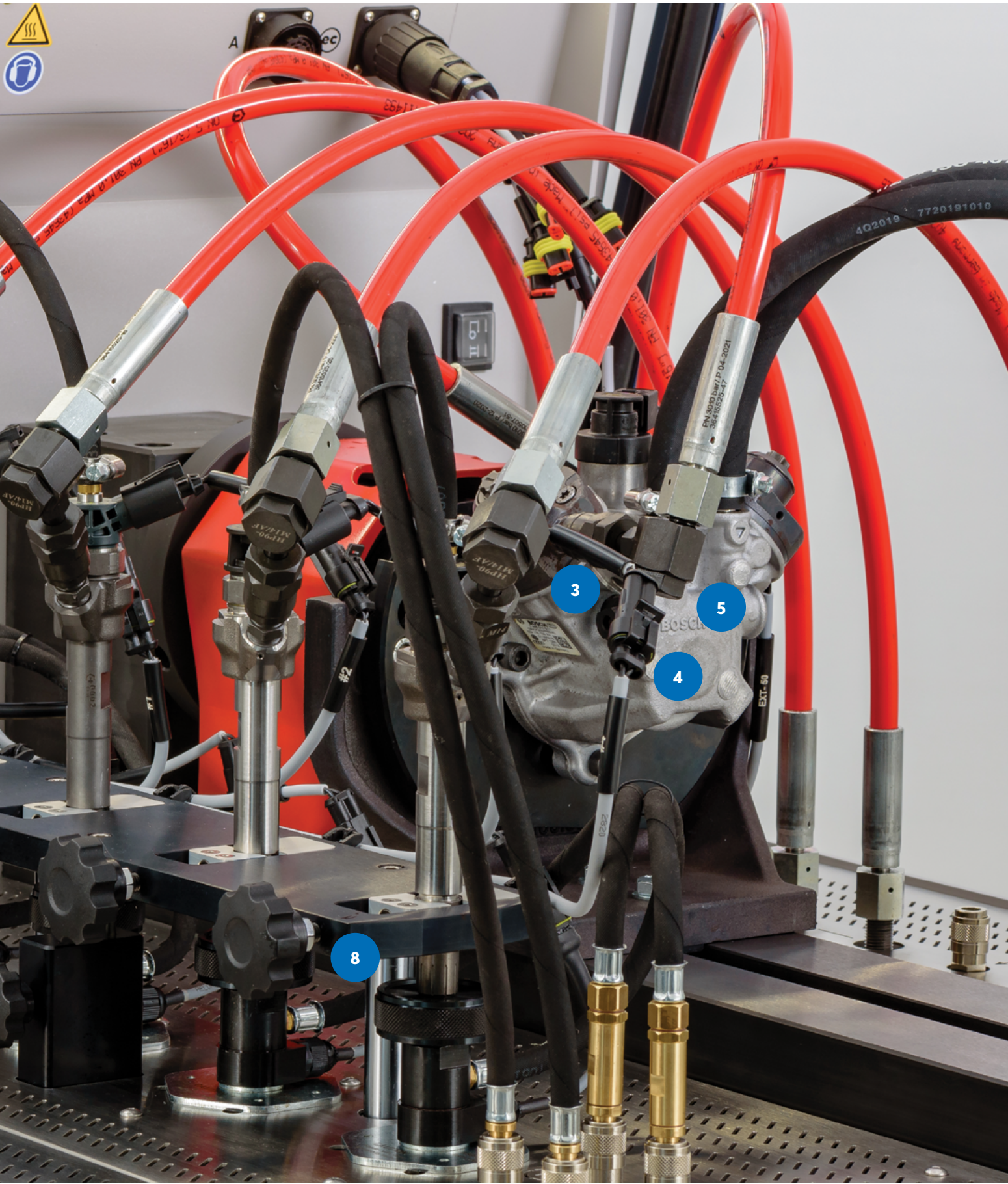
06. LOW SUPPLY PRESSURE/  
SUCTION PERFORMANCE

07. EASILY ACCESSIBLE  
FILTERS & WASTE AREA

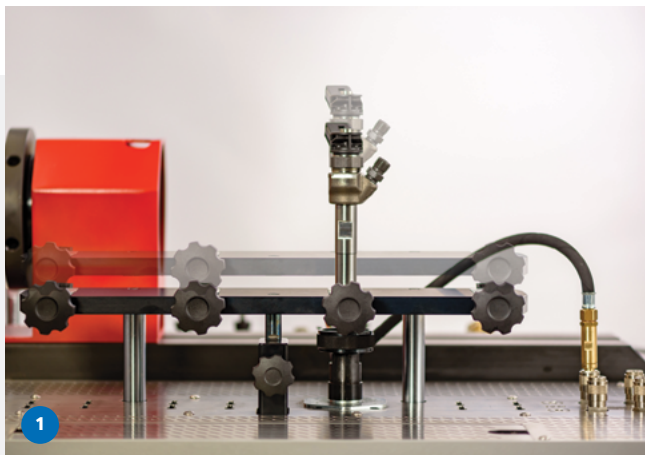
08. HEUI  
TESTING & CODING

*Detailed information on next page*





## MTBR „X” → Points



### 01.

#### Diesel CRDI Testing & Coding

Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times. Fully Adjustable height for all types of CR injectors. Utilizes a spring-loaded injector holder to ease the operation of the user.

### 02.

#### Gasoline GDI Injector Testing and Coding

Quick and Easy Injector Clamping device with adjustable height to fit all types of adapters for Gasoline Direct injectors. Unperceivable testing capabilities, adaptability, global database and coding for newer EU6 applications\* as well as for the widely available Siemens/VDO piezo injectors (for BMW) in the market today.

### 03

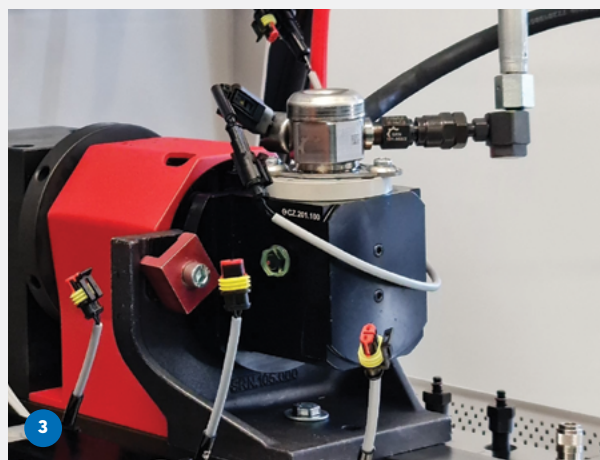
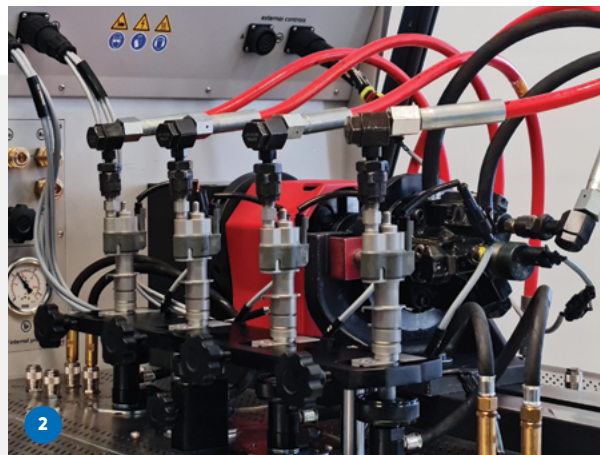
#### Gasoline GDI Pump Testing

The New MTBRX is the first machine in the world to fully test and diagnose faulty GDI (Gasoline Direct Injection) Pumps. Adaptability and operation for All Types and Makes.

### 04.

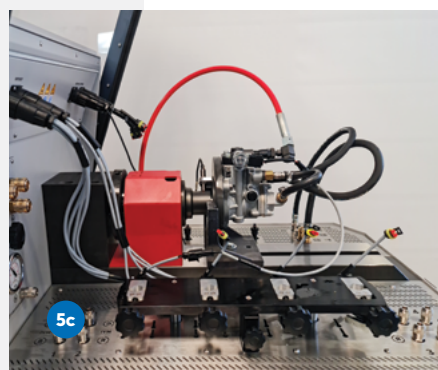
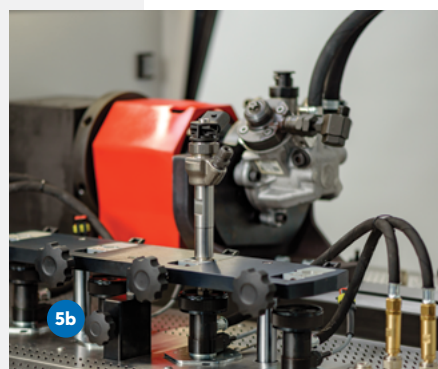
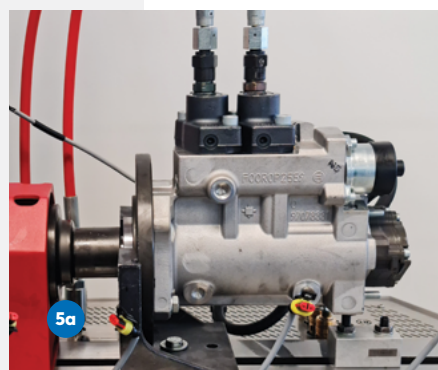
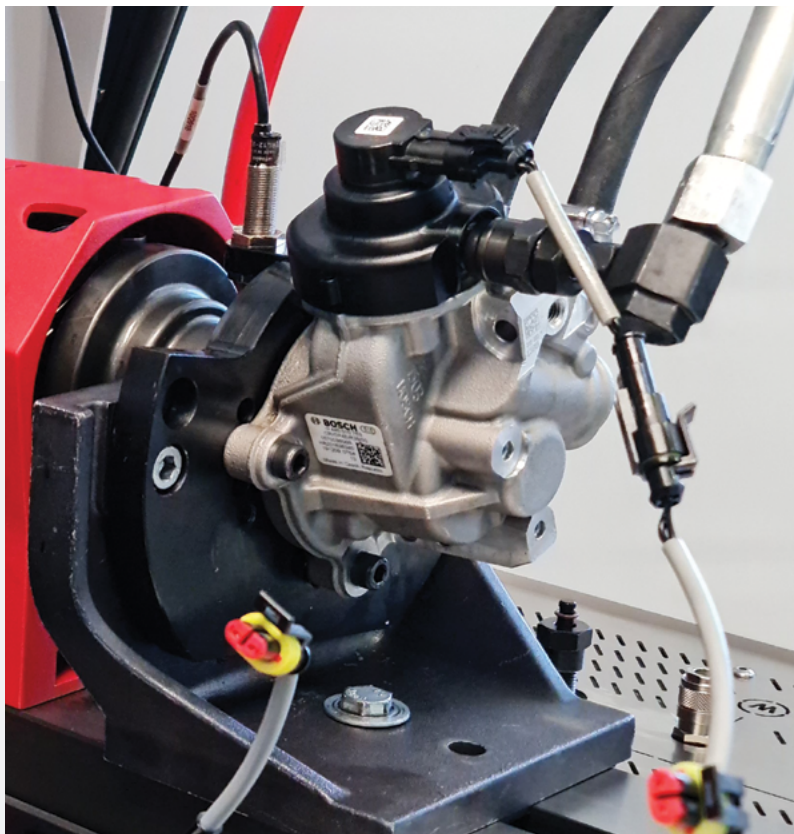
#### Diesel Unit Injection Systems Testing/Cambox

EUI and EUP testing and coding with OE standards is now made as simple as testing a CR injector. Smart Pumps and Injectors testing and coding (EU6) has never been so accurate, repeatable and correct. Hartridge's HK-1400A Base Cambox optimized and upgraded with our ingenuity to meet all the standards of today's revolution in Medium and Heavy Duty Diesel Unit Systems.



## SPECIALISTS

CRDi - EUi/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps



### 05.

#### Diesel CR pump testing

A well proven pump coupling apparatus provides the flexibility needed for future upgrades, as well as the quick coupling and versatility for today's All-Makes CR pumps. Capable to test all EU6 Common Rail pumps with sync control valve function.

5a: CPN5S2 and other **Heavy-Duty** CR Pump applications require high Power, high Torque and responsive correction of the machine's power transfer through the transmission and flywheel. The New MTBR-X is specifically designed to efficiently test these systems.

5b / 5c: EU6 Generation Common Rail Pump testing:

- Denso HP5S/D, HP6, HP7,
- Bosch CP4 new Euro6,
- Continental /VDO new Euro6
- and every other Euro 6 CR Pumps that operate by timing correctly the discharge quantity control valve(s).

The New **MTBR-X** advanced electronics and modern technology provides this unique testing capability for today's and next generation CR pumps.

## MTBR „X” → Points

Capable to efficiently Diagnose and fully Calibrate all Makes and Types of CRDi's, EUi's, EUP's, HEUI's, CR-pumps, GDi-pumps and GDi injectors.



### 06.

#### Low Supply Pressure/Suction Performance

Measures the inlet pressure made by the supply pump or the vacuum produced by the pump itself. Important diagnostic information for many types of pumps and even for newest EU6 generation pumps.



Scan to visit our YouTube channel and watch CZ Test Benches tutorials, training and product videos.



### 07.

#### Easily Accessible Filters & Waste Area

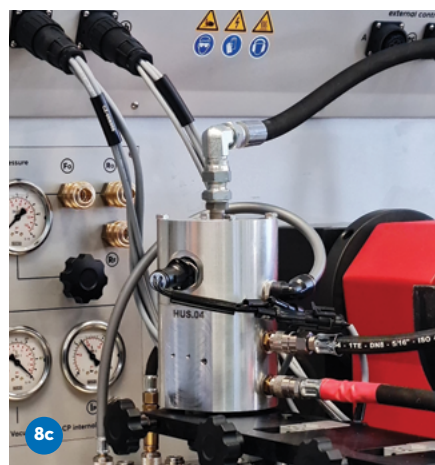
Quick access to all inline filters for fast check-up and replacement located within your working area. A mess-free compartment to work at, continuously draining to the waste tank.





## SPECIALISTS

CRDi - EUI/EUP - HEUI - CRP  
ENGINE - GDi - EFi - GDi Pumps



### 08. HEUI testing and coding\*.

Pre-order your MTBR-X ready to test and code\* HEUI injectors according to the OE standards. Adaptability and database available to test the majority and the diversity of injectors available in the world today. A unique capability of this add-on feature is to save space and cost from an additional standalone unit.

**8. CAT C7/C9 testing and coding\*.** Measuring discharge and actual overflow at different loads to optimally diagnose faults and characterize the injector to generate the correct trim file for coding where applicable. Additional unique dynamic measurement of the NOP without disassembling the nozzle.

**8a. CAT C7/C9 testing and coding\*.**

**8b. CAT 3126/Navistar.**

**8c. Ford Power Stroke 6.0L / 7.3L\*.** Efficiently controlling the dual-solenoid control poppet valve .

**8d. Isuzu Trooper.**

## MTBR „X” EXPANDING CAPABILITIES



Space saving, accessory  
organizers for everyday tasks.  
Increased productivity and  
uncluttered space.

### 01.

#### Desk & Harness Shelf

### 02.

#### Hydraulic Hose Side Panel Pocket with Drain



### 03.

#### CZ Base Trolley

Ideal workshop organizer to fit most  
parts of the machine like harnesses,  
hoses, adapters, tools and flanges.  
Can be easily transformed to a  
Cambox and/or pump rack for easy  
transfer and storing.



## SPECIALISTS

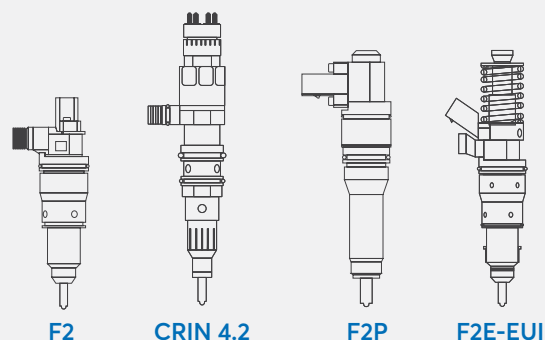
CRDi - EUi/EUP - HEUi - CRP  
ENGINE - GD i - EFi - GD i Pumps



## SPECIALISTS

CRDi - EUi/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps

### AZO SOFTWARE



## EU6 Technologies

### → Features

A **Continental/VDO Authorized** Test Bench

Xtremely Fast Testing Times without any Compromise

New Design for every Service Station

Optimized Working Area access [240o] & Component Set-up Times

2800Bar Operating Pressure

EU6 Systems Testing and Coding\*

#### **CloudX** Capabilities

Coding capability for all brands and types available in the market today. Bosch, Denso, Delphi, Continental /VDO, CAT, Cummins\*, John Deere, ISUZU\*, HINO\*, KOMATSU\*, E1/ E3/ DAF/ Smart Pump, F2X and F3X (Beta) technologies and more added every day...

Off-Highways CR applications testing and coding (John Deere, Komatsu, Hino, Isuzu)

Cummins XPI\*, Caterpillar-Perkins C4/C6 and other Medium and Heavy-Duty testing and coding

Advanced water-cooling or air-cooling system to optimize long term nonstop operation at all environmental conditions.

Live Response Time Measurement at every test plan

BIP Actuation Measurement for all Heavy-Duty type solenoids (EUI & CR)

Adaptability for every type of Diesel Injectors in the market

Continuous Database updates and new Software capabilities to meet the market needs.

Android Powered 15.6" HMI with unlimited flexibility and connectivity competencies.

Injector & Pump flushing feature pre-installed



\*New database and Coding is continuously being updated to new EU6 applications

# MTBR → SPECIFICATIONS

	DESCRIPTION	UNIT	MTBRX-A (CZ-008713)	MTBRX-W (CZ-008783)
Machine Type	Cooling System	A / W	AIR	WATER
Machine Dimensions	Length	mm	950	950
	Width	mm	1300	1300
	Height	mm	1610	1610
Weight		kg	571	573
HMI	Tablet Touchscreen	Inches	15	15
Pressure Source	Type	Motor Driven High Pressure CR Pump		
Test Oil	Type	(DxL-ISO) ISO4113 Calibration Oil		
Test Oil for CPL / EZO	Type	Engine Oil (0W-40 / 10W-40 / 15W-50)		
EZO Oil Tank	Capacity	Liters	0.7	0.7
CPL Oil Tank	Capacity	Liters	5	5
Test Oil Tank	Capacity	Liters	44	44
Flush Tank	Capacity	Liters	11	11
Max Pressure	Pressure	Bar	2800	2800
Max RPM	Max Revolutions Per Minute	RPM	4000	4000
Max Pumps	Diesel Pumps	Slots	1	1
	Gasoline Pumps	Slots	1	1
Max Injectors	Test Injectors	Slots	4	4
		Types	"4 CRI / 4 GDI / 1 HEUI / 1 EUI-EUP"	"4 CRI / 4 GDI / 1 HEUI / 1 EUI-EUP"
LP Pump	Supply Pressure	Bar	0.1 / 5.4	0.1 / 5.4
CP Vacuum	CP Vacuum Gauge	Bar	0 / -1	0 / -1
CP IP	CP Internal Pressure Gauge	Bar	0 / 16	0 / 16
CPL Pressure	CP Oil Pressure	Bar	0.1 / 8	0.1 / 8
Air Supply	Pressure	Bar	-	-
	Air Flow	Lt/ Min	-	-
	Phases	Number	3P	3P
Main Power Supply		TYPE	PE	PE
	Voltage	VAC	380-480	380-480
	Frequency	Hz	50/60	50/60
	Current	Ampere	32	32
	Max Consumption	kVA (380V/480V)	21 - 26.6	21 - 26.6
Motor	Model		TYPE	AK132-4
	POWER	RPM	RPM 50 / 60Hz	1450 / 1740
			KW 50 / 60Hz	13 / 15.6
			HP 50 / 60Hz	17.5 / 21
		Connection Δ	Ampere (50HZ)	400 V:24.4 A
			Ampere (60HZ)	480 V: 24.4A
Water Supply	Max Input pressure	Bar	-	4
	Max Output Pressure	Bar	-	1Bar< Input Pressure
	Min Input Temperature	Celsius	-	5
	Max Input Temperature	Celsius	-	15
	Min Diameter In/Out Water Hose	mm	-	10
	Water Tank Capacity	Liters	-	17
	Max Water Flow	Lt / Min (4Bar)	-	4
	Min Water Output Temperature	Celsius	-	5
	Max Water Output Temperature	Celsius	-	65
	Delta T	Celsius	-	0-50
	Max Cooling Efficiency "Debit" [27.2 liters of 5° C water in order to Cool Down the Test Oil from 43° C to 36° C (1.6 tank cycles)]	Tank Cycles	-	1.6
Operating Temperature	Min / Max Room Temperature	Celsius	6 / 23	6 / 30
IVM Sensors	Measurement Sensors	Type / Quantity	XKM / 4 *	XKM / 4 *
IVM Sensors		Type / Quantity	DFM500 / 1**	2/9/23

→

- : N/A  
A: Air Cooling  
W: Water Cooling

**PRESSURE SOURCES**  
Motor: Motor Driven High Pressure CR Pump  
Electr. Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC

**MEASUREMENT SENSORS**  
XKM: Dynamic Measurement Sensor; High Accuracy: ± 0.1%, Exceptional Repeatability: ± 0.05%, Measur. Range: 1-1000ml/min  
DFM 500: Dynamic Measurement Sensor; Accuracy: ± 1%, Repeatability: 0.5%, Measurement range: 5-500l/min  
DFM 50: Dynamic Measurement Sensor; Accuracy: ± 1%, Repeatability: 0.5%, Measurement range: 0.5-50l/min

**APPLICATIONS**  
Passenger Car/ Motorcycles: Volumes up to 120mm³/h  
Light Duty: Volumes up to 200mm³/h  
Medium Duty: Volumes up to 300mm³/h  
Heavy Duty: Volumes up to 650mm³/h  
Marines: Volumes up to 1500mm³/h

## **PTBR //X**

Diesel System Test Bench

## **CloudX**

The Comprehensive  
Diesel Specialists  
Solutions for Testing  
Diesel Common Rail  
and Gasoline GDi  
Pumps.



**2800Bar+**

Standalone Diesel CR  
& Gasoline GDi Pump  
TestBench for Specialists

## Overview of the New PTBR-X

Precise, repeatable and rapid Diesel & Gasoline High Pressure Pump Testing

### [1] Pump Testing

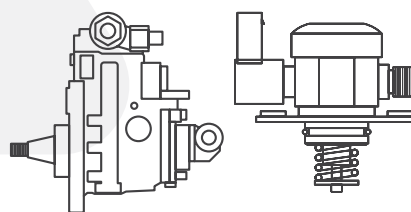
- 5-15 minutes testing time per pump
- CRp / GDp Pump (All Brands and Types).
- Capable for all EU6 technologies with Sync Operation such as Denso HP5 / HP6 / HP7, Bosch CP4-EU6, VDO EU6 technology and more...
- Heavy-Duty CR pump (CPN5S2, CAT, Cummins, HP0 etc.)
- Testing of All brands and types PCV's [Pressure Control Valves]
- Testing of All brands and types VCV's [Volume Control Valves]
- Testing of All brands and types of RDS [Rail Pressure Sensors]
- Testing of all types of High Pressure Rails



## SPECIALISTS

CRDi - EUI/EUP - HEUI - **CRP**  
ENGINE - GDi - EFi - **GDi Pumps**

## EU6 Technologies



## → Features

Xtremely Fast Testing Times without any Compromise

New Design for every Service Station

Optimized Working Area to reduce Pump Set-up Times

2800Bar+ Operating Pressure

EU6 Systems Testing CloudX

**Setting the Standard  
for Diesel & Gasoline  
High Pressure Pumps  
Test Benches**

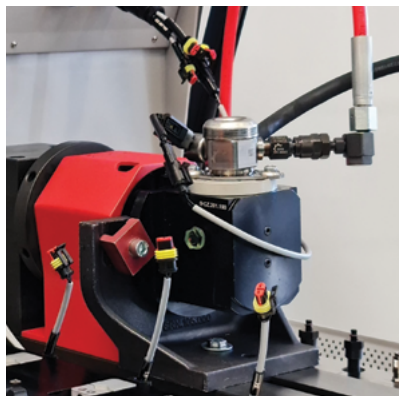


Our expertise, experience & innovative thinking brought together a New Design, Advanced Hardware & Upgraded Software for our New **PTBR-X**.

## PTBR **X** → Points

### SPECIALISTS

CRDi - EUi/EUP - HEUi - **CRP**  
ENGINE - GDi - EFi - **GDi Pumps**



#### 01.

##### Gasoline GDI Pump Testing

The New PTBR-X is the first machine in the world to fully test and diagnose faulty GDI (Gasoline Direct Injection) Pumps. Adaptability and operation for All Types and Makes.

#### 02.

##### Low Supply Pressure/Suction Performance

Measures the inlet pressure made by the supply pump or the vacuum produced by the pump itself. Important diagnostic information for many types of pumps and even for newest EU6 generation pumps.

#### 03.

##### Diesel CR pump testing

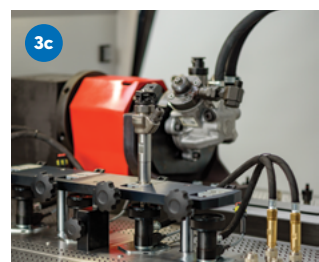
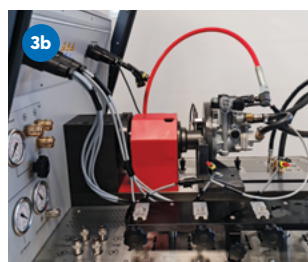
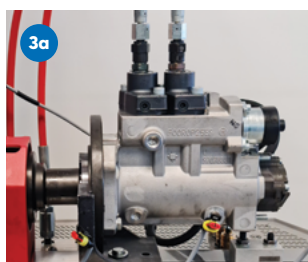
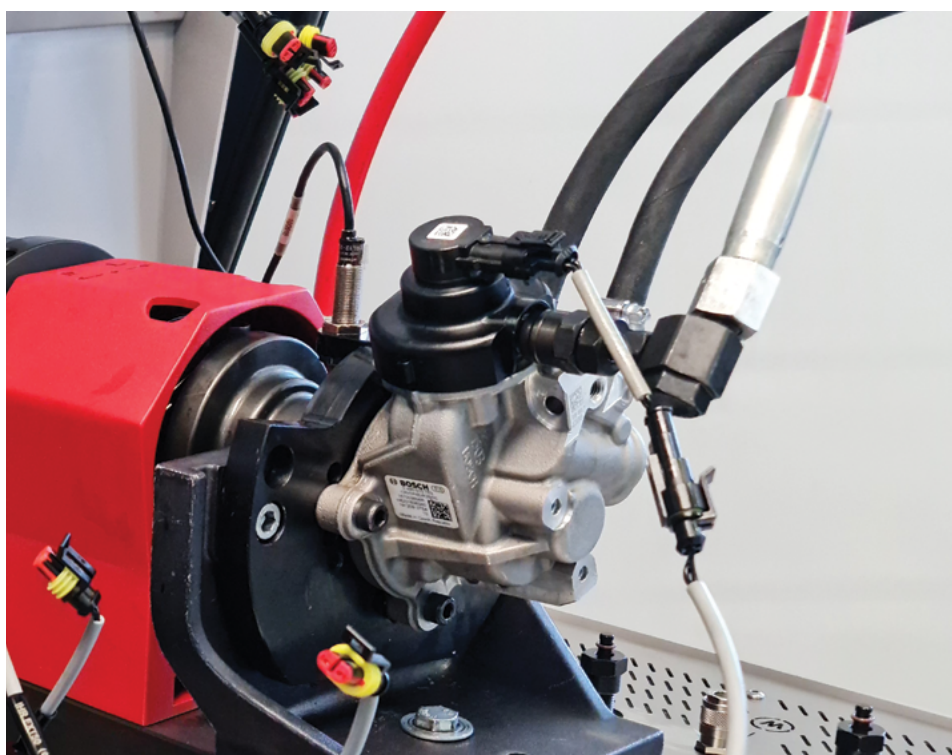
A well proven pump coupling apparatus provides the flexibility needed for future upgrades, as well as the quick coupling & versatility for today's All-Makes CR pumps. Capable to test all EU6 Common Rail pumps with sync control valve function.

**3a: CPN5S2 and other Heavy-Duty CR Pump applications** require high Power, high Torque and responsive correction of the machine's power transfer through the transmission and flywheel. The New PTBR-X is specifically designed to efficiently test these systems.

**3b / 3c: EU6 Generation Common Rail Pump testing:**

- Denso HP5S/D, HP6, HP7,
- Bosch CP4 new Euro6,
- Continental /VDO new Euro6
- and every other Euro 6 CR Pumps that operate by timing correctly the discharge quantity control valve(s).

The New **PTBR-X** advanced electronics and modern technology provides this unique testing capability for today's and next generation CR pumps.



\*New database and Coding is continuously being updated to new EU6 applications

## PTBR → SPECIFICATIONS

	DESCRIPTION	UNIT	PTBRX-A (CZ-008715)	PTBRX-W (CZ-008785)
Machine Dimensions	Length	mm	950	950
	Width	mm	1300	1300
	Height	mm	1610	1610
Weight		kg	520	522
HMI	Tablet Touchscreen	Inches	15	15
Pressure Source	Type	Motor Driven High Pressure CR Pump		
Test Oil	Type	(DxL-ISO) ISO4113 Calibration Oil		
Test Oil for CPL / EZO	Type	Engine Oil (0W-40 / 10W-40 / 15W-50)		
EZO Oil Tank	Capacity	Liters	0.7	0.7
CPL Oil Tank	Capacity	Liters	5	5
Test Oil Tank	Capacity	Liters	44	44
Flush Tank	Capacity	Liters	11	11
Max Pressure	Pressure	Bar	2800	2800
Max RPM	Max Revolutions Per Minute	RPM	4000	4000
Max Pumps	Diesel Pumps	Slots	1	1
	Gasoline Pumps	Slots	1	1
Max Injectors	Test Injectors	Slots	-	-
		Types	-	-
LP Pump	Supply Pressure	Bar	0.1 / 5.4	0.1 / 5.4
CP Vacuum	CP Vacuum Gauge	Bar	0 / -1	0 / -1
CP IP	CP Internal Pressure Gauge	Bar	0 / 16	0 / 16
CPL Pressure	CP Oil Pressure	Bar	0.1 / 8	0.1 / 8
Air Supply	Pressure	Bar	-	-
	Air Flow	Lt/ Min	-	-
	Phases	Number	3P	3P
Main Power Supply		TYPE	PE	PE
	Voltage	VAC	380-480	380-480
	Frequency	Hz	50/60	50/60
	Current	Ampere	32	32
	Max Consumption	kVA (380V/480V)	21 - 26.6	21 - 26.6
Motor	Model	TYPE	AK132-4	AK132-4
	RPM	RPM 50 / 60Hz	1450 / 1740	1450 / 1740
		KW 50 / 60Hz	13 / 15.6	13 / 15.6
	POWER	HP 50 / 60Hz	17.5 / 21	17.5 / 21
	Connection Δ	Ampere (50HZ)	400 V:24.4 A	400 V:24.4 A
		Ampere (60HZ)	480 V: 24.4A	480 V: 24.4A
	Max Input pressure	Bar	-	4
Water Supply	Max Output Pressure	Bar	-	1Bar< Input Pressure
	Min Input Temperature	Celsius	-	5
	Max Input Temperature	Celsius	-	15
	Min Diameter In/Out Water Hose	mm	-	10
	Water Tank Capacity	Liters	-	17
	Max Water Flow	Lt / Min (4Bar)	-	4
	Min Water Output Temperature	Celsius	-	5
	Max Water Output Temperature	Celsius	-	65
	Delta T	Celsius	-	0-50
	Max Cooling Efficiency "Debit" [27.2 liters of 5° C water in order to Cool Down the Test Oil from 43° C to 36° C (1.6 tank cycles)]	Tank Cycles	-	1.6
Operating Temperature	Min / Max Room Temperature	Celsius	6 / 23	6 / 30
IVM Sensors	Measurement Sensors	Type / Quantity	DMF50 / 1 *	DMF50 / 1 *
			DFM500 / 1**	2/9/23

→

: N/A  
 A: Air Cooling  
 W: Water Cooling  
**PRESSURE SOURCES**  
 Motor: Motor Driven High Pressure CR Pump  
 Elect. Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC

**MEASUREMENT SENSORS**  
 DFM 500 [Dynamic Measurement Sensor]: Accuracy: ± 1%, Repeatability: 0.5%, Measurement range: 5-500l/min  
 DFM 50 [Dynamic Measurement Sensor]: Accuracy: ± 1%, Repeatability: 0.5%, Measurement range: 0.5-50l/min  
**APPLICATIONS**  
 Passenger Car/ Motorcycles: Volumes up to 120mm³/h  
 Light Duty: Volumes up to 200mm³/h  
 Medium Duty: Volumes up to 300mm³/h  
 Heavy Duty: Volumes up to 650mm³/h  
 Marines: Volumes up to 1500mm³/h

Production Q2/2025

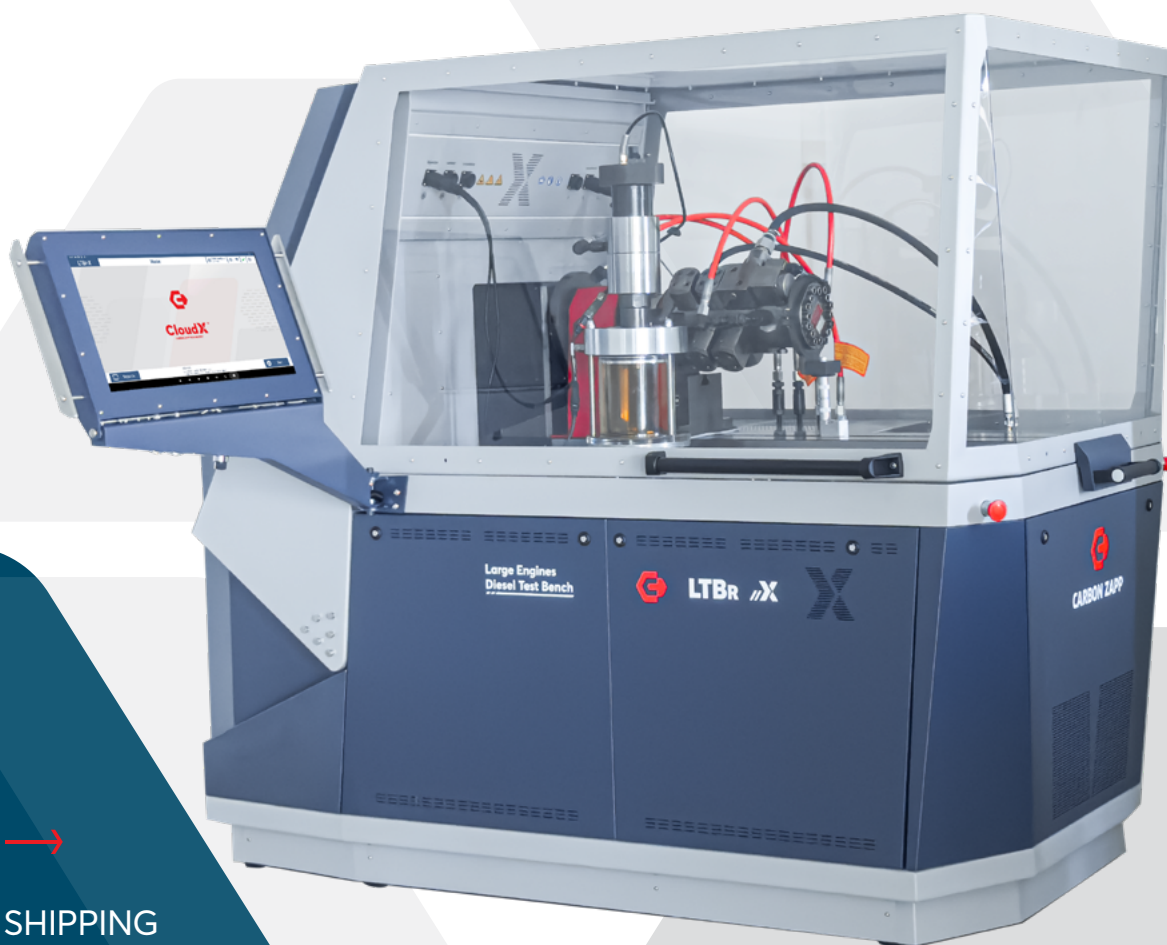
**LTBR //X**

Large Engines Diesel  
Test Bench

Common Rail  
Micro-Pilot Injection Systems

**CloudX**

The Premier Professional  
Solution for Large  
Engines and Heavy-Duty  
Diesel Systems.



→

SHIPPING  
MARINES  
GENERATORS  
HD ENGINES  
MACHINERY  
LOCOMOTIVES  
AND MORE

**X Series 2024**

## SYSTEMS TESTED



### 2-STROKE ENGINES

Wärtsilä X-DF Diesel 2-stroke engines  
[Conventional Electronic Injectors and  
Pilot Pumps]

MAN ME Diesel 2-stroke engines  
[Conventional and Slide-Valve Injectors]

Mitsubishi 2-stroke engines



### 4-STROKE ENGINES

Wärtsilä Diesel 4-stroke engines Conventional  
& Electrical [Injectors and Pilot Pumps (CR / DF)]

MAN Diesel 4-stroke engines Mechanical  
& electronic [Injectors and Pilot Pumps (CR / DF)]

HiMSEN [Injectors and Pilot Pumps DF]

YANMAR [Injectors]

DEUTZ [Injectors]

MTU [Electronic Injectors and Pumps]

CAT / MAK [Conventional & Electronic Injectors and  
Pumps]

CUMMINS [Electronic Injectors and Pumps]

Daihatsu [Injectors]

Other Auxiliary / Main Engines Systems

All Makes & Types of Light, Medium  
and Heavy Duty Modern Diesel Engines



**INNOVATION  
TO DRIVE  
FORWARD  
MOBILITY  
SOLUTIONS**



## Heavy Duty Diesel Systems

**Setting the Benchmark  
for Large Engines Tests  
Benches**



Building on our expertise and extensive experience,  
we have applied innovative thinking to create the new  
**LTBR-X**, which incorporates a cutting-edge design, state-  
of-the-art hardware, and enhanced AZO software.



## Overview of the New LTBR-X

### Advanced Diesel Test Bench Capabilities

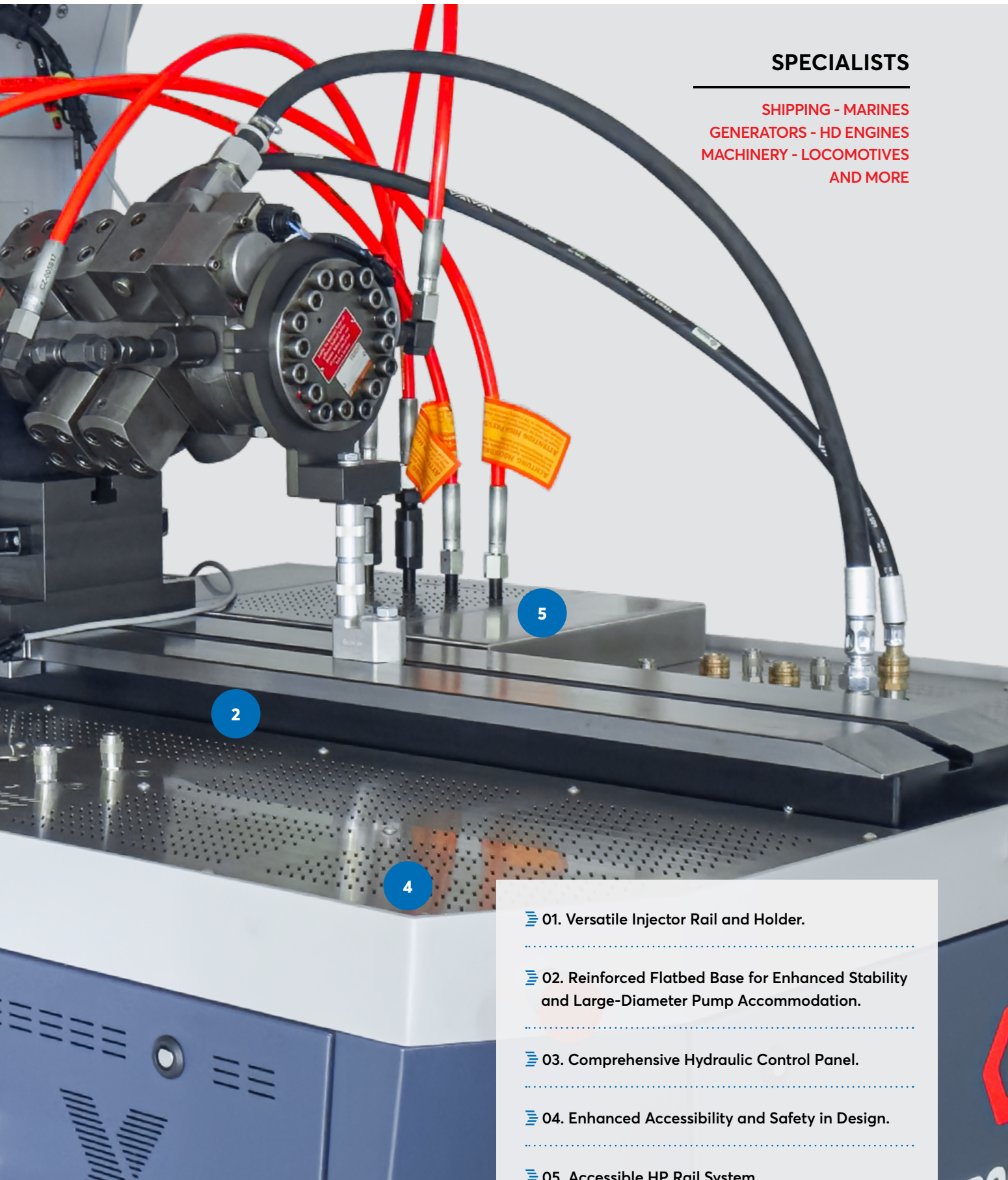
Our state-of-the-art diesel test bench is equipped with the latest technology to deliver precise and comprehensive diagnostics for fuel injection systems. Key functionalities include:

- **Cambox Integration (Optional):** Allows for advanced testing features requiring cambox connectivity.
- **Electronic Flow Rate Measurement:** Accurate measurement of flow rates across various test plans (iVMs), with Integrated Synchronous Acquisition (ISA) detection.
- **Injector Coding:** Supports calibration data generation and trim file creation (IC) for precise injector performance.
- **Dynamic Spray Pattern Analysis:** Real-time spray pattern analysis within an illuminated spray chamber (dSPR) for detailed injector diagnostics.
- **Automatic Nozzle Opening Pressure Measurement:** Electronic measurement of nozzle opening pressure (aNOP-PCV) for consistent and reliable results.
- **Live Injector Nozzle Response Time Measurement:** Real-time measurement of injector nozzle response times (RSP) for dynamic performance assessment.
- **Static and Dynamic Leakage Tests:** Electronic measurement of leakage under both static and dynamic conditions (LKT) for comprehensive component evaluation.
- **Volumetric Test Plans for Pumps:** Multiple-load test plans (pVMs) to assess volumetric efficiency under various conditions.
- **Pressure vs. Speed Tests for Pumps:** Conducts pressure versus speed assessments (PvS) to evaluate pump performance across different operating speeds.
- **Speed vs. Pressure Tests for Pumps:** Performs speed versus pressure evaluations (SvP) to determine optimal pump performance parameters.
- **Electrical Valve Diagnosis and Measurement:** Advanced diagnosis and measurement of electrical valve functionality (eRLC) for ensuring system integrity.



## SPECIALISTS

SHIPPING - MARINES  
GENERATORS - HD ENGINES  
MACHINERY - LOCOMOTIVES  
AND MORE



01. Versatile Injector Rail and Holder.

02. Reinforced Flatbed Base for Enhanced Stability and Large-Diameter Pump Accommodation.

03. Comprehensive Hydraulic Control Panel.

04. Enhanced Accessibility and Safety in Design.

05. Accessible HP Rail System.

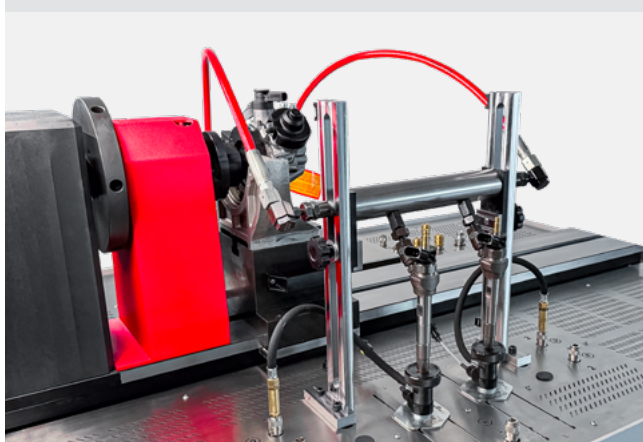
*Detailed information on next page*

## LTBR **XX** → Points

### 01.

#### Versatile Injector Rail and Holder.

Designed for seamless coupling and compatibility with all types and sizes of diesel injectors, this robust and fully adjustable fixture ensures the quickest and most efficient placement and testing on today's diesel test benches. The inclusion of illuminated multilayer glass chambers enables detailed nozzle and spray pattern analysis during dynamic injector testing. Additionally, integrated Nozzle Response Time measurement sensors provide real-time monitoring of internal component efficiency, optimizing overall test outcomes.



### 02.

#### Reinforced Flatbed Base for Enhanced Stability and Large-Diameter Pump Accommodation.

This reinforced flatbed base is engineered for exceptional stability and is specifically designed to accommodate large-diameter pumps. With a central area that exceeds standard industry dimensions, it provides the necessary support for handling oversized components, ensuring precise and reliable testing even for the most demanding applications.



### 03.

#### Comprehensive Hydraulic Control Panel.

The machine control panel is an integral component of the diesel test bench, providing comprehensive control over all hydraulic functions necessary for pump testing. From this panel, operators can manage the oil supply to the pumps, as well as regulate and test both the low-pressure supply and the vacuum generated by the 2 pump under examination. The panel also includes the hydraulic oil setup for the Cambox, ensuring reliable operation.

### 04.

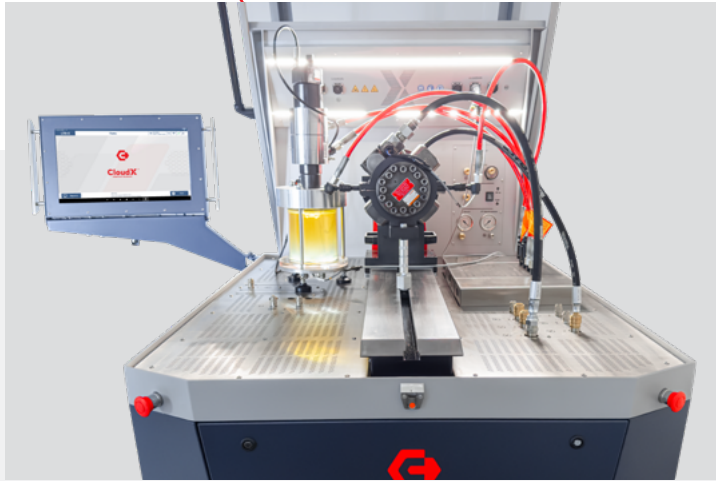
#### Enhanced Accessibility and Safety in Design.

The machine is designed with ample working space and allows for easy access from 3-sides, enhancing operational efficiency. Additionally, it features a transparent protective hood, ensuring both safety and full visibility during the testing process.

### 05.

#### Accessible HP Rail System.

The flatbed of the machine offers convenient access to the high-pressure rails connected to the DRV, which controls the system's high-pressure. This setup is designed to facilitate efficient and accurate maintenance of the machine, ensuring optimal performance and reliability.



## SPECIALISTS

**SHIPPING - MARINES  
GENERATORS - HD ENGINES  
MACHINERY - LOCOMOTIVES  
AND MORE**

### AZO SOFTWARE



## → Key Features

### 01. Versatile Testing Capabilities:

- **Primary Engines:** Supports testing for Low, Medium, and High-Speed primary engines.
- **Dual-Fuel Systems:** Equipped to manage the complexities of dual-fuel engine systems with precision.
- **Secondary & Auxiliary Engines:** Provides thorough testing for all secondary and auxiliary engines currently available in the market.

### 02. Universal Compatibility:

Designed to test all makes and models of diesel pumps and injectors, ensuring complete versatility across various engine platforms.

### 03. Precision and Reliability:

Engineered to deliver highly accurate and consistent results, ensuring each test adheres to the highest industry standards for performance and safety.

### 04. Robust Construction:

Built with heavy-duty materials and components to ensure long-lasting durability, capable of withstanding the demands of rigorous daily operation.

### 05. User-Friendly Interface:

Features an intuitive control system and advanced software powered by CloudX, simplifying operation and configuration, thereby enhancing productivity and reducing downtime.

### 06. Scalable and Future-Ready:

Designed with scalability in mind, the bench can be easily upgraded to accommodate emerging Diesel technologies, ensuring long-term relevance and utility.

### 07. Comprehensive Safety Features:

Incorporates multiple safety mechanisms to protect operators and equipment, in full compliance with industry standards.

This diesel test bench is an essential tool for specialists who require a robust, versatile, and reliable solution for testing a diverse array of diesel fuel system components. Its advanced features and superior build quality make it the ideal choice for professional workshops and testing facilities.



## Standalone HD and LE Diesel Test Bench for Specialists

This cutting-edge standalone Diesel Test Bench is meticulously engineered for professionals who demand excellence in fuel system diagnostics and maintenance. Designed to accommodate a wide range of engines and components, it is the definitive solution for comprehensive Diesel Systems testing.

## ITB4R //X

Diesel System Test Bench

Authorized  
Solution for  
Continental/VDO



**CloudX**

» » » »  
**INNOVATION  
TO DRIVE  
FORWARD  
MOBILITY  
SOLUTIONS**



**2800 Bar**

Standalone Diesel CRDi  
Test Benches for Specialists.  
Available in 2 models for 4 / 1  
injectors

\*New database and Coding is continuously being  
updated to new EU6 applications

The Optimum  
Diesel Specialists  
CRDi Solution. The  
Professional's Service  
Station for All Types  
and Makes CRDi  
systems.

### Overview of the New ITB.4R-X

**Precise, repeatable and rapid Diesel Injectors Testing**

#### [1 / 4] Injector(s) Testing & Coding\*

- 6-12 minutes testing and coding\* time for 1 or 4 injectors respectively
- CRi / CRiN injectors (All Brands and Types).
- Capable for all EU6 technologies such as VCC and NCC technology, iART, PCRS5,
- XPI, F2X / F3X Systems and more...
- CRiN 4.2 Heavy Commercial-Vehicle injectors
- Large Diesel Engine CRiN injector (QSK, MTU, L 'Orange, etc...)
- Capable to diagnose failures on GDi Injectors (Optional). Recommended unit for GDi Injector Testing and Servicing is the GTBR-X

#### Extra Features

Testing of All brands and types of RDS [Rail Pressure Sensors]

Testing of all types of High Pressure Rails (without DRV)

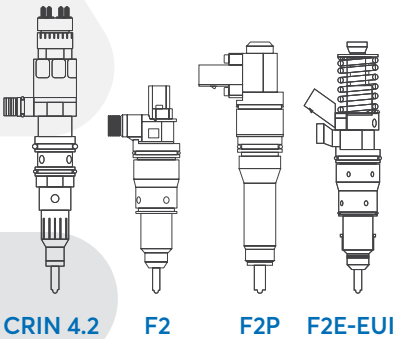
CGL - Authorized Continental / VDO "Blind-Lift"  
Measurement of Piezo-Stack



SPECIALISTS

CRDi - EUI/EUP - HEUI  
CRP - ENGINE - GDi - EFI

EU6 Technologies



ITB1r **X**



A Revolution in  
CRDi Test Benches

→ Our qualified team, know-how and pioneering thinking developed the New Powerful ITBR-X Generation.

## ITB4R **X** → Points



\*New database and Coding is continuously being updated to new EU6 applications

## ITB4R **///X**

Diesel System Test Bench

## SPECIALISTS

CRDi - EUI/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps



### 01. Working Area

Ergonomic & easily accessible illuminated working space. Fast mounting for all types of Injectors.

### 02. Easily Accessible Filters & Waste Area

Quick access to all inline filters for fast check-up and replacement located within your working area. A mess-free compartment to work at, continuously draining to the waste tank.

### 03. Machine Interface

New CloudX based AZOv3 software features speed, connectivity and expandability in a user friendly environment.

### 04. Easily accessible drawer and connection ports.

### 05. Functional use of test oil tank enhances maintenance.

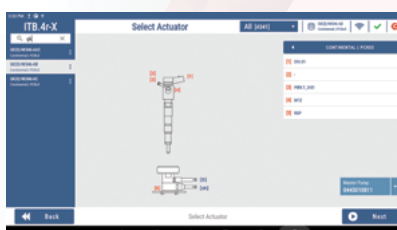
Tank extends to fill-up, drain and clean.



## SPECIALISTS

**CRDi** - EUI/EUP - HEUI - CRP  
ENGINE - **GDi** - EFi - GDi Pumps

### AZO SOFTWARE



## ITBR - X → Features

A Continental/VDO Authorized Test Bench

Xtremely Fast Testing Times without any Compromise

New Design for every Service Station

Optimized Working Area to reduce Injector Set-up Times

2800Bar Operating Pressure

EU6 Systems Testing and Coding CloudX Capabilities

Coding capability for all brands and types available in the market today. Bosch, Denso, Delphi, Continental /VDO, CAT, Cummins\*, John Deere, ISUZU\*, HINO\*, KOMATSU\*, F2X and F3X (Beta) EU6 technologies and more added every day...

Off-Highways CR applications testing and coding (John Deere, Komatsu, Hino, Isuzu)

Cummins XPI\*, Caterpillar-Perkins C4/C6 and other Medium and Heavy-Duty testing and coding

Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times.

Fully Adjustable height for all types of CR injectors.

Utilizes a spring-loaded injector holder to ease the operation of the user.

Easily accessible filters and waste area

Quick access to all inline filters for fast check-up and replacement located within your working area.

A mess-free compartment to work at, continuously draining to the waste tank.

Advanced water-cooling or air-cooling system to optimize long term nonstop operation at all environmental conditions.

Live Response Time Measurement for all injectors

BIP Actuation Measurement for all Heavy-Duty type solenoids

Adaptability for every type of Diesel Injectors in the market

Continuous Database updates and new Software capabilities to meet the market needs.

Android Powered 15.6' HMI with unlimited flexibility and connectivity competencies.

Injector flushing feature pre-installed



## ITB4R **X** → SPECIFICATIONS

DESCRIPTION			UNIT	ITB.4RX-A (CZ-008721)	ITB.4RX-W (CZ-008771)	ITB.1RX-A (CZ-008719)	ITB.1RX-W (CZ-008799)
Machine Dimensions	Length		mm	770	770	770	770
	Width		mm	800	800	800	800
	Height		mm	1650	1650	1650	1650
Weight			kg	292	294	250	252
HMI	Tablet Touchscreen		Inches	15	15	15	15
Internet Update	WiFi / Ethernet		-	YES / YES	YES / YES	YES / YES	YES / YES
Pressure Source	Type			Motor Driven High Pressure CR Pump			
Test Oil	Type			(DxL-ISO) ISO4113 Calibration Oil			
Test Oil Tank	Capacity		Liters	30	30	30	30
Max Pressure	Pressure		Bar	2800	2800	2800	2800
Max RPM	Max Revolutions Per Minute		RPM	1850	1850	1600	1600
Max Pumps	Pumps Test		Slots	-	-	-	-
Max Injectors	Test Injectors		Slots	4	4	1	1
LP Pump	Supply Pressure		Bar	0.1 - 5.4	0.1 - 5.4	0.1 - 5.4	0.1 - 5.4
Air Supply	Pressure		Bar	-	-	-	-
	Air Flow		Lt/ Min	-	-	-	-
	Phases		Number	3P	3P	1P	1P
Main Power Supply			TYPE	PE	PE	P+N / PE	P+N / PE
	Voltage		VAC	380-480	380-480	220-240	220-240
	Frequency		Hz	50/60	50/60	50/60	50/60
	Current		Ampere	16	16	25	25
	Max Consumption		kVA (380V/480V)	10.5-13.3	10.5-13.3		
kVA (220V/240V)					5.5 - 6	5.5 - 6	
Motor	Model		TYPE	AK100L-4	AK100L-4	AK100L-4	AK100L-4
	RPM		RPM 50 / 60Hz	1420 / 1700	1420 / 1700	1420 / 1700	1420 / 1700
	POWER		KW 50 / 60Hz	3 / 3.6	3 / 3.6	3 / 3.6	3 / 3.6
			HP 50 / 60Hz	4 / 4.8	4 / 4.8	4 / 4.8	4 / 4.8
		Connection Δ	Ampere (50HZ)	400 V:6.56 A	380 V: 6.89 A	400 V:6.56 A	380 V: 6.89 A
	Ampere (60HZ)		480 V:6.56 A	460 V: 6.89 A	480 V:6.56 A	460 V: 6.89 A	
	Max Input pressure		Bar	-	4	-	4
	Max Output Pressure		Bar	-	1Bar< Input Pressure	-	1Bar< Input Pressure
	Min Input Temperature		Celsius	-	5	-	5
	Max Input Temperature		Celsius	-	15	-	15
Water Supply	Min Diameter In/Out Water Hose		mm	-	10	-	10
	Water Tank Capacity		Liters	-	10	-	10
	Max Water Flow		Lt / Min (4Bar)	-	4	-	4
	Min Water Output Temperature		Celsius	-	5	-	5
	Max Water Output Temperature		Celsius	-	65	-	65
	Delta T		Celsius	-	0-50	-	0-50
	Max Cooling Efficiency "Debit" [20 liters of 5° C water in order to Cool Down the Test Oil from 43° C to 36° C (2 tank cycles)]		Tank Cycles	-	2	-	2
	Operating Temperature						
	Min / Max Room Temperature		Celsius	6 / 23	6 / 30	6 / 23	6 / 30
IVM Sensors	Measurement Sensors		Type / Quantity	XKM / 4 *	XKM / 4 *	XKM / 2 *	XKM / 2 *

→

- : N/A  
A: Air Cooling  
W: Water Cooling

**PRESSURE SOURCES**  
Motor Driven High Pressure CR Pump  
Electr Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC

**MEASUREMENT SENSORS**  
XKM [Dynamic Meas. Sensor] High Accuracy: ± 0.1%, Exceptional Repeatability: ±0.05%, Measur. Range: 1-1000ml/min

**APPLICATIONS**  
Passenger Car: Motorcycles: Volumes up to 120mm³/h  
Light Duty: Volumes up to 200mm³/h  
Medium Duty: Volumes up to 300mm³/h  
Heavy Duty: Volumes up to 650mm³/h  
Marines: Volumes up to 1500mm³/h

Production Q2/2025

**CTBr X**

Compact Diesel CRDi  
Test Bench

Approved Activation  
Signal for **Continental**

**CloudX**

The Ultimate Solution  
for Diesel Specialists,  
Offering Professional  
Service and Coding  
for All CRDi Systems.



THE NEW CTBr-X IS A  
BENCH-TOP, MOTOR-DRIVEN  
DIESEL CRDi TEST BENCH  
THAT COMBINES COMPACT  
DESIGN WITH ADVANCED  
INNOVATION, MAKING IT  
AN AFFORDABLE SOLUTION  
FOR EVERY WORKSHOP.

**2500 Bar**

**Standalone Diesel CRDi  
Test Bench for Specialists.**

**X Series 2024**

*\*New database and Coding is continuously being updated to new EU6 applications*

*\*\*Recommended unit for GDi Injector Testing and Servicing is the GTBr-X*

## CTBR ///X

Compact Diesel CRDi  
Test Bench



### A Revolution in CRDi Test Benches



Our qualified team, expertise,  
and pioneering thinking have  
developed the new, powerful  
CTBR-X Generation.

## SPECIALISTS

CRDi - EUI/EUP - HEUI  
CRP - ENGINE - GDi - EFi



### Overview of the New CTBR-X

- **Precise Measurement:** Provides accurate, repeatable, and rapid electronic measurement of Diesel CRDi injectors.
- **Efficient Testing:** Testing and coding time is between 8 to 14 minutes.
- **Operational Specifications:** Single-phase 50/60Hz VFD motor-driven; NO Air supply required.
- **Injector Compatibility:** Supports All Makes & Types CRi/CRiN injectors.
- **Technology Support:** Compatible with all EU6 technologies, including VCC, NCC, iART, PCRS5, and more.
- **Heavy Duty Systems:** [Exclusive Version] handles XPI, F2X/F3X/CRIN 4.2, and other Heavy-Duty systems. (Optional Upgrade)
- **Medium Duty Systems:** [Standard Version] supports up to Medium-Duty systems.
- **GDi Injector Testing:** Optional capability to test and diagnose most failures in GDi injectors\*\*.
- **Portability:** Optional portable ergonomic machine stand available.

The CTBR-X is engineered to offer comprehensive, efficient, and versatile testing solutions for a wide range of diesel injectors and systems.

### Extra Features

Testing of All brands and types of RDS [Rail Pressure Sensors]

Testing of all types of High Pressure Rails (without DRV)

CGL - Authorized Continental / VDO "Blind-Lift"  
Measurement of Piezo-Stack

\*New database and Coding is continuously being updated to new EU6 applications

\*\*Recommended unit for GDi Injector Testing and Servicing is the GTBR-X

## DGFR **///X**

Diesel System Test Bench

Authorized  
Solution for  
Continental/VDO



Diesel CRDi & Gasoline  
GDi Flushing Bench.  
Flushing / Cleaning  
and Servicing bench  
for up to 4 injectors.

## CloudX

### → Features

- A Continental/VDO Proposed Flushing Bench
- Xtremely Fast Flushing Times
- New Design for every Service Station
- Optimized Working Area to reduce Injector Set-up Times
- 1000Bar Operating Pressure
- EU6 Systems Capable
- CloudX Capabilities
- Off-Highways CR applications operation (John Deere, Komatsu, Hino, Isuzu)
- Cummins XPI, Caterpillar-Perkins C4/C6 and other Medium-Duty operation

### → Diesel CRDi/Gasoline GDi Injector Flushing Bench

- Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times.
- Fully Adjustable height for all types of CRDi / GDi injectors.
- Utilizes a spring-loaded injector holder to ease the operation of the user.
- Advanced self air-cooling system to optimize long term nonstop operation at all environmental conditions.
- Adaptability for every type of Diesel Injectors in the market
- Android Powered 10" HMI with unlimited flexibility and connectivity competencies.



SPAR

Diesel System Test Bench

CZ Piezo Stack Filler, Air remover and Stack Activator is the only automatic solution to assure optimum servicing and operation of Piezo injectors today after being serviced by Diesel Specialists.

- Automatic and easy operation for 4 Piezo injectors at once
- Connects directly at the return port (backleak)
- Only needs single phase 100-250Vac
- Lightweight and portable solution
- Connects to any Carbon Zapp Test Bench
- High Flow Vacuum Power 10KPa and Pressure of 100KPa
- Automatic Start / Stop function with specific Test Plans
- Adaptability to all types of Piezo injectors



SPECIALISTS

CRDi - EUi/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps

DGFR  → SPECIFICATIONS

DESCRIPTION		UNIT	DGFR-X (CZ-007091)
Machine Dimensions	Length	mm	510
	Width	mm	780
	Height	mm	780
Weight		kg	66
HMI	Tablet Touchscreen	Inches	10
Internet Update	WiFi / Ethernet	-	YES / YES
Pressure Source	Type	Air Driven High Pressure Pump (DxL-ISO) ISO4113	
Test Oil	Type	Calibration Oil	
Test Oil Tank	Capacity	Liters	4
Flush Tank	Capacity	Liters	4
Max Pressure	Pressure	Bar	1000
Max RPM	Max Revolutions Per Minute	RPM	-
Max Pumps	Pumps Test	Slots	-
Max Injectors	Test Injectors	Slots	4
HP Pump	High Pressure Pump	Type	Pneumatic Pump
LP Pump	Supply Pressure	Bar	-
	Pressure	Bar	6 - 8
	Air Tank Capacity	Lt	200
Air Supply	Air Flow	Lt/ Min	300
	Min Diameter at Air Supply Hose	mm	8
	Air	Type	Water / Oil FREE
Main Power Supply	Phases	Number	1
		TYPE	1P+N
	Voltage	VAC	100 - 240
	Frequency	Hz	50/60
	Current	Ampere	5
Operating Temperature	Max Consumption	kVA (100V/240V)	0.5 / 1.2
	Min / Max Room Temperature	Celsius	6 / 35
IVM Sensors	Measurement Sensors	Type / Quantity	-

→  
**PRESSURE SOURCES**  
Air: Air Driven High Pressure Pump  
**APPLICATIONS**  
Passenger Car/ Motorcycles: Volumes up to 120mm3/H  
Light Duty: Volumes up to 200mm3/H  
Medium Duty: Volumes up to 300mm3/H  
Heavy Duty: Volumes up to 650mm3/H

## DEFINING INNOVATION



### Celebrating Together 35 Years of Innovation

#### CARBON ZAPP INSIGHTS



**35+**  
Years of Innovation

**1,000+**

Hours of Training and  
Seminars Annually

**40%**

Annual R&D  
Investment of Profits

**10,000+**

Hours of Product Testing Annually

**98+**

Countries of Global Network

**16,000+**

Products Produced

At Carbon Zapp, we push the boundaries of automotive innovation. With over 35 years of experience, we redefine performance, efficiency, and technology in the automotive injection service industry ..and beyond. To understand our journey and success, we must explore the fundamentals of innovation shaping our company's present and future.

Innovation begins with a bold vision. Since Carbon Zapp's inception, our goal has been to transform the automotive industry with groundbreaking solutions. Creating new products means turning original ideas into tangible innovations that revolutionize the market.

Solving problems uniquely and efficiently is at the core of our technological advancements. We tackle challenges with creativity, developing solutions that meet needs in novel ways. Innovation results from collaboration, bringing together diverse skills and perspectives to create something greater than the sum of its parts. Our success is built on the collaborative spirit of our team, continually pushing the boundaries of what's possible.

Adapting and evolving ensures continuous improvement and relevance. By streamlining and improving processes, we enhance productivity, quality, and sustainability. Expanding globally allows us to bring innovative solutions to new markets and industries worldwide. Driven by visionary leadership, we inspire teams to achieve groundbreaking advancements and set new milestones.

# **BUILDING THE FUTURE OF AUTOMOTIVE INJECTION SERVICE TODAY**

**ETBR **

Injector & Pump Control  
Bench Extension Module



The revolutionary simulator that modernizes any test bench for all types of fuel systems.

**Overview to the New ETBR-X****Precise and repeatable Diesel & Gasoline Components Testing****[1] Pump Testing****5-15 minutes testing time per pump**

CRp / GDp Pump (All Brands and Types).

Capable for all EU6 technologies with Sync Operation such as Denso HP5, Bosch CP4-EU6, VDO-EU6 technology and more...

Heavy-Duty CR pump (CPN5S2, CAT, Cummins, HP0 etc..)

Testing of All brands and types PCV's [Pressure Control Valves]

Testing of All brands and types of RDS [Rail Pressure Sensors]

Testing of all types of High Pressure Rails

**[4] Injectors Testing & Coding\*****6-12 minutes testing and coding\* time per injector**

CRi / CRiN / GDi injectors (All Brands and Types).

Capable for all EU6 technologies such as VCC and NCC technology, iART, PCRS5,

XPI, F2X and F3X systems and more...

CRIN 4.2 Heavy Commercial-Vehicle injectors (max. 2 Large Diesel Engine CRiN injector (QSK, MTU, L 'Orange, etc..)

**[1] HEUi Testing & Coding\*****6-8 minutes testing and coding\* time per injector**

Dynamic and static measurement of the actual overflow

Dual-Coil HEUi Injector testing capable

Accurate and automatic measurement of the NOP without disassembling the injector

**[1] EUi/EUp Testing & Coding\* (requires HK1400A Cambox)****6-10 minutes testing and coding\* time per injector**

Capable for all EU6 technologies

Expandable to Future Systems

## SPECIALISTS

CRDi - EUI/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps



## Service Center

AUTHORIZED

The optimized test bench simulator for every fuel system.

Conventional Test Bench  
(EPS625 or similar)



### BCR.1

Injector holder (1 / 4) injectors, with Common-Rail, Pressure Control and protective hood, ready to mount on a conventional bench.



### BCR.4



### ETBR-X

*Detailed information on next page*

## ETBR „X” → Points

Expandable and Fully Configurable  
Modular Unit for Every Diesel  
and Gasoline Specialist.

Electrical and Hydraulic connectors,  
fittings and adapters are available  
for all Systems in the Market.

1



2



8



**ETBr //X**

Injector & Pump Control  
Bench Extension Module

**SPECIALISTS**

CRDi - EUI/EUP - HEUI - CRP  
ENGINE - GDi - EFi - GDi Pumps

**01.**

- 0, 1 or 4 Injectors Measuring Ports
- Actuate 1-4 Injectors / Components
- Measure Response time for 1-4 injectors

**02.**

- External Control of any Test Bench.
- Connect With Cambox for Operation.

**03.**

- Measure up to 1 Pump
- Post Measurement Oils return back to Test Bench Tank.

**04.**

HMI - 10" Touchscreen with CloudX Based AZO.V3 Software.

**05.**

WiFi, USB and Ethernet Connectivity

**06.**

Emergency STOP

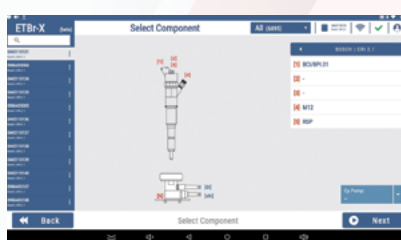
**07.**

Drain Pan with Waste Port

**08.****Cooling System**

CRp pump outlet portable cooling system & stand for the ETBRX bench

## AZO SOFTWARE



**The unique, compact & Universal solution for every Test Bench in the market to operate with the latest technology Diesel and Gasoline Systems.**

### → Features

- Control Unit for Every Test Bench in the Market
- Compact Size Attachment for Every Laboratory
- Expandable and Modular Apparatus
- Pressure Control up to 2800 bar
- Up to EU6 System Technologies Capable
- Semi-Automatic Operation of Cambox
- Operating, Measuring & Coding of All Types & Makes
- IoT Cloud computing Platform - Industry 4.0 Complaint
- The Diesel Specialists Affordable Choice

### → Characteristics

- Xtremely Fast Testing Times without any Compromise
- New Design for every Service Station
- Optimized Working Area
- EU6 Systems Testing and Coding\*
- CloudX Capabilities
- Coding capability for all brands and types available in the market today. Bosch, Denso, Delphi, CAT, Cummins\*, John Deere, ISUZU\*, HINO\*, KOMATSU\*, E1/ E3/ DAF/ Smart Pump, F2X and F3X (Beta) EU6 technologies and more added every day...
- Off-Highways CR applications testing and coding (John Deere, Komatsu, Hino, Isuzu)
- Cummins XPI\*, Caterpillar-Perkins C4/C6 and other Medium and Heavy-Duty testing and coding
- Live Response Time Measurement at every test plan
- BIP Actuation Measurement for all Heavy-Duty type solenoids (EUI & CR)
- Adaptability for every type of Diesel and Gasoline Injectors in the market (optional)
- Continuous Database updates and new Software capabilities to meet the market needs.
- Android Powered 10" HMI with unlimited flexibility and connectivity competencies.

\*New database and Coding is continiously being updated to new EU6 applications

SPECIALISTS

Build your **ETBR-X** according to your Testing Needs now  
and Upgrade it Anytime in the Future on your own.

**CRDi - EUi/EUP - HEUi - CRP**  
**ENGINE - GDi - EFi - GDi Pumps**



**ETBR-X** → SPECIFICATIONS

	DESCRIPTION	UNIT	ETBR-X (CZ-007092)
Machine Dimensions	Length	mm	510
	Width	mm	650
	Height	mm	550
Weight		kg	23 (Basic Version)
HMI	Tablet Touchscreen	Inches	10
Internet Update	WiFi / Ethernet	-	YES / YES
Pressure Source	Type	External: Pressure coming from another Test Bench or external source	
Test Oil	Type	(DxL-ISO) ISO4113 Calibration Oil	
Test Oil Tank	Capacity	Liters	-
Max Pressure	Pressure	Bar	2800
Max RPM	Max Revolutions Per Minute	RPM	-
Max Pumps	Pumps Test (Optional)	Slots	1
Max Injectors	Test Injectors (Optional)	Slots	4
		Types	4 CRI /
			1 HEUI / 1 EUI-EUIP
Main Power Supply	Phases	Number	1
		TYPE	1P+N
	Voltage	VAC	100 - 240
	Frequency	Hz	50/60
	Current	Ampere	5
Operating Temperature	Max Consumption	kVA (100V/240V)	0.5 / 1.2
	Min / Max Room Temperature	Celsius	6 / 35
IVM Sensors (Optional)	Measurement Sensors (Full Version / Pumps)	Type / Quantity	XKM / 1 *
		Type / Quantity	DFM500 / 1 *

→

**PRESSURE SOURCES**  
External: Pressure coming from another Test Bench or external source Application Electrical Pump 12VDC

**MEASUREMENT SENSORS**  
XKM [Dynamic Meas. Sensor]: High Accuracy: ± 0.1%, Exceptional Repeatability ±0.05%, Measur. Range: 1-1000ml/min  
DFM 500 [Dynamic Measurement Sensor]: Accuracy: ± 1%, Repeatability 0.5%, Measurement range: 5-500l/min

**APPLICATIONS**  
Passenger Car/ Motorcycles: Volumes up to 120mm3/H  
Light Duty: Volumes up to 200mm3/H  
Medium Duty: Volumes up to 300mm3/H  
Heavy Duty: Volumes up to 650mm3/H  
Marines: Volumes up to 1500mm3/H

## **HTBR „X**

Diesel System Test Bench



The New HTBR-X is a unique Standalone Diesel Hydraulic Electronic Unit Injector Test Bench capable to thoroughly Test, Service and Code\* every possible HEUi in the market today.

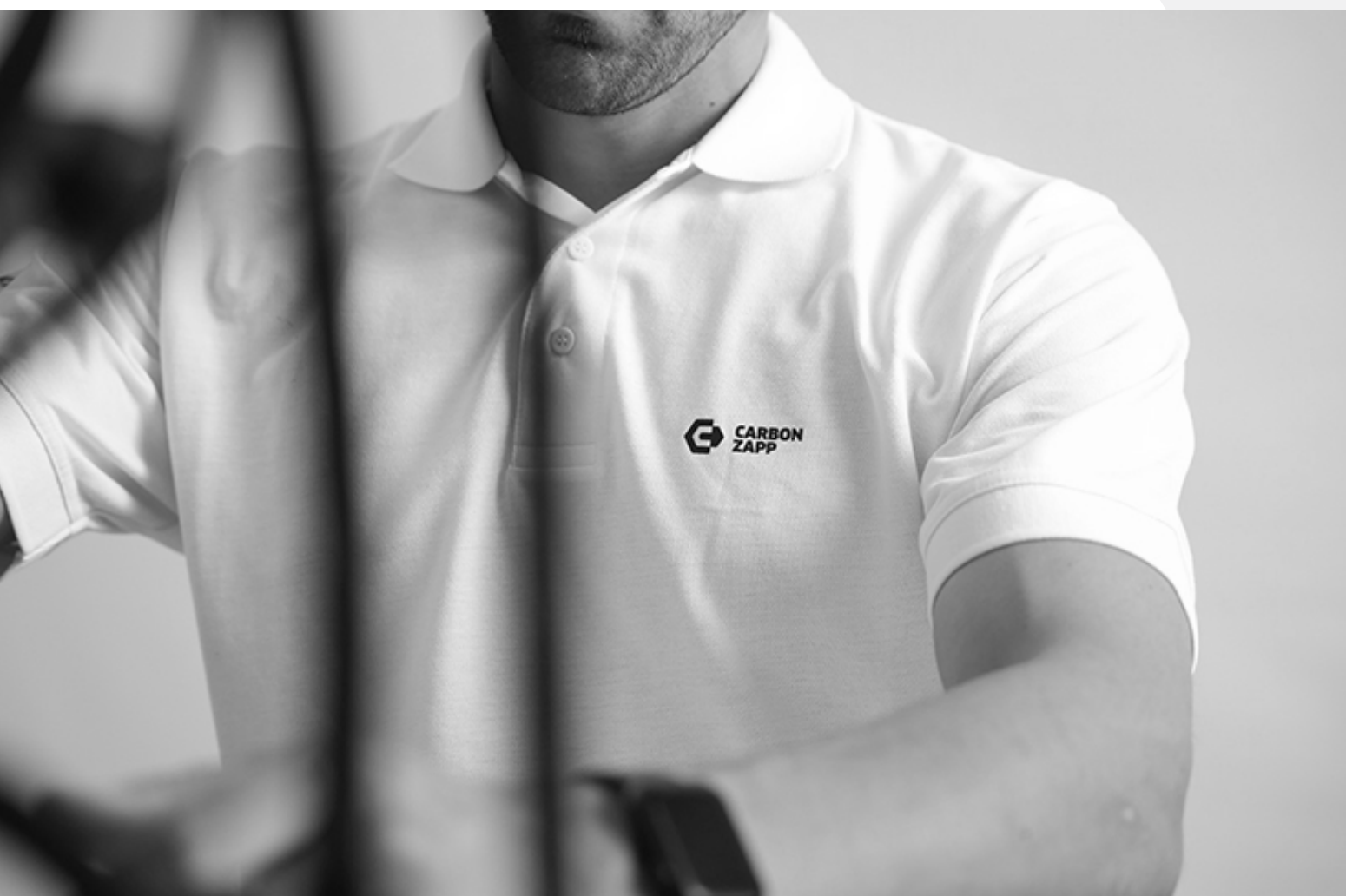
The Professional's Service Station for All Types and Makes HEUi systems.

### **Overview of the New HTBR-X**

**Precise, repeatable and rapid Diesel HEUi Injectors Testing**

#### **HEUi Testing & Coding\***

- 6-8 minutes testing and coding\* time per injector
- Dynamic and static measurement of the actual overflow
- Dual-Coil HEUi Injector testing capable
- Accurate and automatic measurement of the NOP without disassembling the injector



## SPECIALISTS

CRDi - EUI/EUP - **HEUI** - CRP  
ENGINE - GDi - EFi - GDi Pumps

#carbonzappXseries



Scan to visit our  
**YouTube** channel and  
watch CZ Test Benches  
tutorials, training and  
product videos.



**400 Bar**

**Standalone Diesel HEUI  
(1 Injector) Test Bench  
For Specialists**

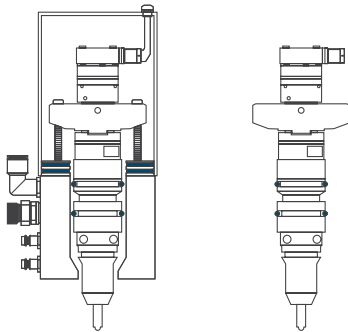
**A Revolution in  
HEUI Test Benches**



Our qualified team, know-how  
and pioneering thinking  
developed the New Powerful  
**HTBR-X** Generation

## HTBR „X“ → Points

### HEUI Technologies



If you want to optimize your operations and become part of our Carbon Zapp Worldwide Authorized Service Centers, please contact us at [sales@carbonzapp.com](mailto:sales@carbonzapp.com).

Set up a meeting to explore the NEW Xseries Automotive Injection Servicing Equipment and discover its features and benefits in depth. #InnovationDriven

#### 01.

##### Working Area

Ergonomic & easily accessible illuminated working space. Fast mounting for all types of Injectors.

#### 02.

##### Easily Accessible Filters & Waste Area

Quick access to all inline filters for fast check-up and replacement located within your working area. A mess-free compartment to work at, continuously draining to the waste tank.

#### 03.

##### Machine Interface

New CloudX based AZOV3 software features speed, connectivity and expandability in a user friendly environment.

#### 04.

##### Easily accessible drawer and connection ports.

#### 05.

##### Functional use of test oil tank enhances maintenance.

Tank extends to fill-up, drain and clean.

(View detailed image on page 30)

#### 06.

##### Actual Dynamic measurement of the injector overflow

SPECIALISTS

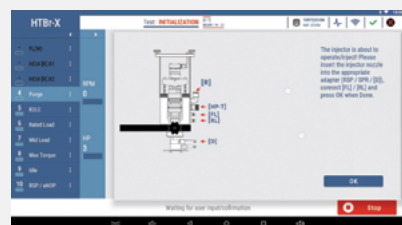
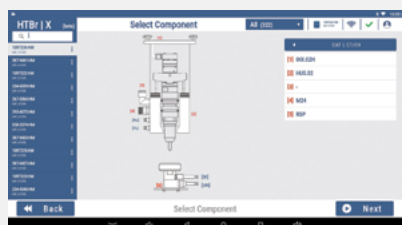
CRDi - Eui/EUP - **HEUi** - CRP  
ENGINE - GDi - EFi - GDi Pumps



## HTBr „X

### Diesel System Test Bench

#### AZO SOFTWARE



#### → Systems

CAT C7/C9

CAT 7.3L/3126

CAT 3408/3412

FORD POWER STROKE

ISUZU TROOPER

#### → Features

Extremely Fast Testing Times without any Compromise

New Design for every Service Station

Optimized Working Area to reduce Injector Set-up Times

400Bar Operating Pressure

All Systems Testing and Coding

CloudX Capabilities

Coding capability for CAT C7/C9\*

#### → Diesel HEUI testing and coding\*

Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times.

Fully Adjustable height for all types of injectors.

Utilizes a spring-loaded injector holder to ease the operation of the user.

Easily accessible filters and waste area

Quick access to all inline filters for fast check-up and replacement located within your working area.

A mess-free compartment to work at, continuously draining to the waste tank.

Advanced water-cooling or air-cooling system to optimize long term nonstop operation at all environmental conditions.

Live Response Time Measurement for all injectors

Capable to automatically measure the BIP of the solenoid actuator

Adaptability for every type of Diesel HEUI Injectors in the market

Continuous Database updates and new Software capabilities to meet the market needs.

Android Powered 15.6' HMI with unlimited flexibility and connectivity competencies.

Injector flushing feature pre-installed

SPECIALISTS

CRDi - Eui/EUP - **HEUi** - CRP  
ENGINE - GDi - Efi - GDi Pumps

HTBR  → SPECIFICATIONS

DESCRIPTION		UNIT	HTBRX-A (CZ-008722)	HTBRX-W (CZ-008862)	
Machine Dimensions	Length	mm	770	770	
	Width	mm	800	800	
	Height	mm	1650	1650	
Weight		kg	250	252	
HMI	Tablet Touchscreen	Inches	15	15	
Internet Update	WiFi / Ethernet	-	YES / YES	YES / YES	
Pressure Source	Type	Motor Driven High Pressure CR Pump			
Test Oil	Type	(DxL-ISO) ISO4113 Calibration Oil			
Test Oil Tank	Capacity	Liters	30	30	
Max Pressure	Pressure	Bar	400	400	
Max RPM	Max Revolutions Per Minute	RPM	2500	2500	
Max Pumps	Pumps Test	Slots	-	-	
Max Injectors	Test Injectors	Slots	1	1	
LP Pump	Supply Pressure	Bar	0.1 - 5.4	0.1 - 5.4	
Air Supply	Pressure	Bar	-	-	
	Air Flow	Lt/ Min	-	-	
Main Power Supply	Phases	Number	1P	1P	
		TYPE	P+N / PE	P+N / PE	
	Voltage	VAC	220-240	220-240	
	Frequency	Hz	50/60	50/60	
	Current	Ampere	12	12	
	Max Consumption	kVA (220V/240V)	2.64 - 2.88	2.64 - 2.88	
	Model	TYPE	AK100L-4	AK100L-4	
Motor	RPM	RPM 50 / 60Hz	1420 / 1700	1420 / 1700	
	POWER		KW 50 / 60Hz	3 / 3.6	3 / 3.6
			HP 50 / 60Hz	4 / 4.8	4 / 4.8
		Connection Y	Ampere (50HZ)	400 V:6.56 A	380 V: 6.89 A
			Ampere (60HZ)	480 V:6.56 A	460 V: 6.89 A
	Max Input pressure	Bar	-	4	
Max Output Pressure	Bar	-	1Bar< Input Pressure		
Water Supply	Min Input Temperature	Celsius	-	5	
	Max Input Temperature	Celsius	-	15	
	Min Diameter In/Out Water Hose	mm	-	10	
	Water Tank Capacity	Liters	-	10	
	Max Water Flow	Lt / Min (4Bar)	-	4	
	Min Water Output Temperature	Celsius	-	5	
	Max Water Output Temperature	Celsius	-	65	
	Delta T	Celsius	-	0-50	
	Max Cooling Efficiency "Debit" [20 liters of 5° C water in order to Cool Down the Test Oil from 43° C to 36° C (2 tank cycles)]	Tank Cycles	-	2	
	Min / Max Room Temperature	Celsius	6 / 23	6 / 30	
	IVM Sensors	Measurement Sensors	Type / Quantity	XKM / 1 *	XKM / 1 *

→

- : N/A  
A: Air Cooling  
W: Water Cooling  
**PRESSURE SOURCES**  
Motor: Motor Driven High Pressure CR Pump  
Electr. Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC  
**MEASUREMENT SENSORS**  
XKM | Dynamic Meas. Sensor | High Accuracy: ± 0.1% Exception al Repeatability ±0.05% Measur. Range: 1-1000ml/min  
**APPLICATIONS**  
Light Duty: Volumes up to 200mm³/h  
Medium Duty: Volumes up to 300mm³/h  
Heavy Duty: Volumes up to 650mm³/h

**GTB4R //X**

Gasoline System  
Test Bench

**CloudX**

#carbonzappXseries

The Optimum Gasoline Specialists GDi Solution. The Professional's Service Station for All Types and Makes GDI systems.

The New GTB4R-X is a unique Standalone Gasoline Direct Injector Test Bench capable to thoroughly Test, Service and Code every possible GDi in the market today.

The machine's Innovative technology is already in compliance with all EU6 standards and requirements, meantime is prepared for future upgrades.

**Overview of the New GTB.4R-X****Precise, repeatable and rapid Gasoline Injectors Testing****[4] Injectors Testing & Coding\***

- 5-7 minutes testing and coding\* time for 4 injectors
- GDi injectors (All Brands and Types)
- Conventional Gasoline EFi Injectors
- Capable for all EU6 technologies
- Coding Capable for all Types of GDi's (Energy Controlled or Volume Metering types)
- Flushing and Servicing options for GDi injectors
- External Control and Measurement for GDi High Pressure Pumps operating on a Conventional Test Bench\*\*

**1200 Bar**

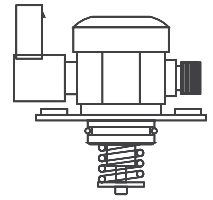
**4 GDi Injectors. Capable  
for all EU6 Technologies**

\*New database and Coding is continuously being updated to new EU6 applications

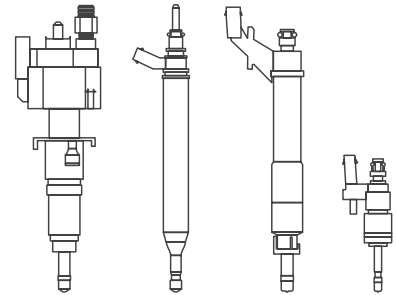


## SPECIALISTS

CRDi - EUI/EUP - HEUI - CRP  
ENGINE - **GDi** - **EFi** - **GDi Pumps**



GDi Pump testing  
on a conventional bench  
as an external control  
& measurement [Optional  
future update]



**EU6 Technologies**

### A Revolution in GDi Test Benches



Our qualified team, know-how  
and pioneering thinking developed  
the New Powerful **GTB.4R-X**

## GTB4R „X” → Points

### 01.

#### Working Area

Ergonomic & easily accessible illuminated working space. Fast mounting for all types of Injectors.

---

### 02.

#### Easily Accessible Filters & Waste Area

Quick access to all inline filters for fast check-up and replacement located within your working area. A mess-free compartment to work at, continuously draining to the waste tank.

---

### 03.

#### Machine Interface

New CloudX based AZOV3 software features speed, connectivity and expandability in a user friendly environment.

---

### 04

#### Easily accessible drawer and connection ports.

(View detailed image on page 30)

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### 05.

#### Functional use of test oil tank enhances maintenance.

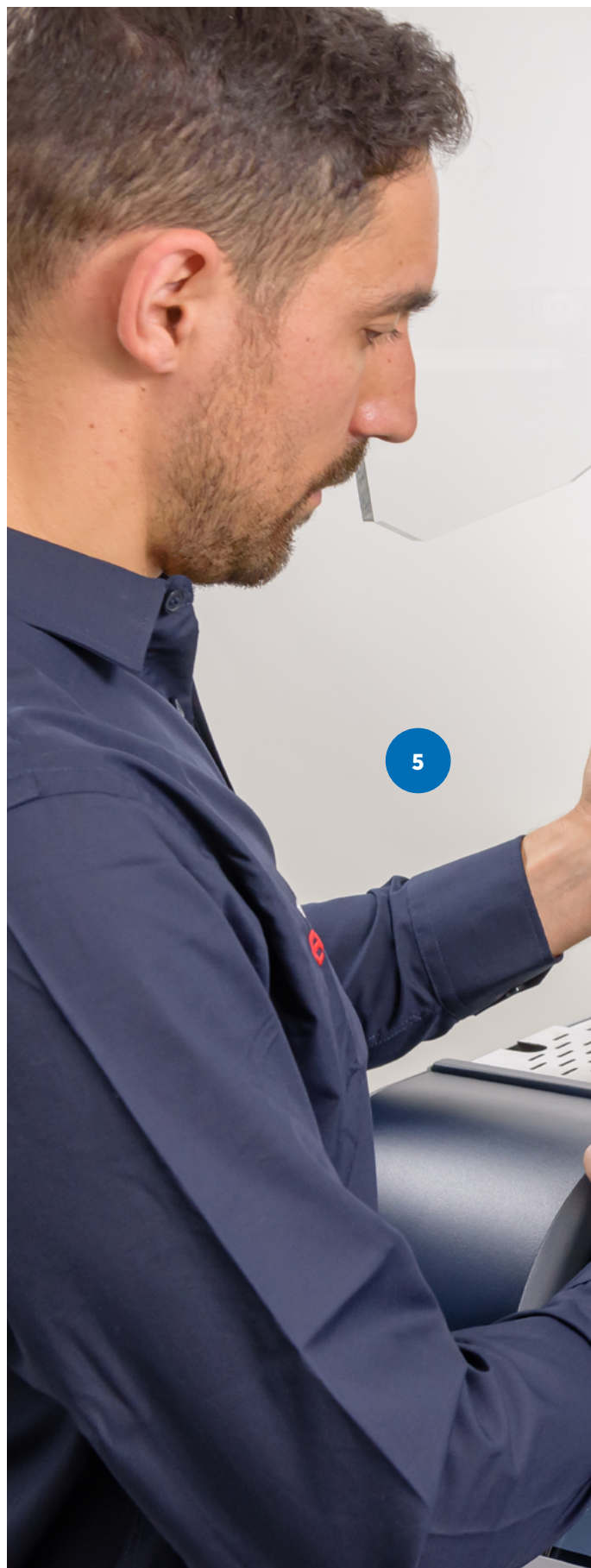
Tank extends to fill-up, drain and clean.

(View detailed image on page 30)

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### 06.

#### Actual Dynamic measurement of the injector overflow







## → Applications

Gasoline Passenger cars  
Gasoline Light Duty vehicles  
Gasoline Outboard motors  
Alternative Fuels engines

## → Features

Xtremely Fast Testing Times without any Compromise  
New Design for every Service Station  
Optimized Working Area to reduce  
Injector Set-up Times  
1200Bar Capable Test Bench  
EU6 Systems Testing and Coding  
CloudX Capabilities

## → Gasoline GDi testing and coding

Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times.

Fully Adjustable height for all types of GDi and EFi injectors.

Utilizes a spring-loaded injector holder to ease the operation of the user.

Quick access to all inline filters for fast check-up and replacement located within your working area.

A messfree compartment to work at, continuously draining to the waste tank.

Advanced Testing capability for all brands and types available in the market today. Bosch, Denso, Delphi, Continental /VDO, Hitachi-HTC, Magneti Marelli and more added every day...

Coding capability for Siemens/ VDO and for the newer\* generation EU6 available in the market today.

Advanced water-cooling or air-cooling system to optimize long term nonstop operation at all environmental conditions.

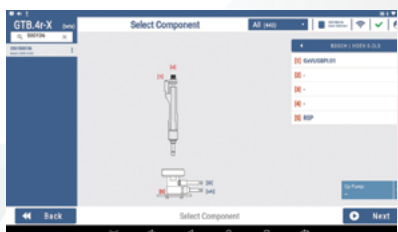
Live Response Time Measurement at every test plan

Adaptability for every type of Gasoline Injectors in the market

Continuous Database updates and new Software capabilities to meet the market needs.

Android Powered 15.6' HMI with unlimited flexibility and connectivity competencies.

## AZO SOFTWARE



\*New database and Coding is continuously being updated to new EU6 applications

GTB4R 

Gasoline System  
Test Bench

SPECIALISTS

CRDi - Eui/EUP - HEUi - CRP  
ENGINE - **GDi** - **EFi** - **GDi Pumps**

GTB4R  → SPECIFICATIONS

DESCRIPTION		UNIT	GTB.4RX-A (CZ-008737)	GTB.4RX-W (CZ-008787)
Machine Dimensions	Length	mm	770	770
	Width	mm	800	800
	Height	mm	1650	1650
Weight		kg	250	252
HMI	Tablet Touchscreen	Inches	15	15
Internet Update	WiFi / Ethernet	-	YES / YES	YES / YES
Pressure Source	Type	Motor Driven High Pressure CR Pump		
Test Oil	Type	(GxL-ISO) Calibration Oil		
Test Oil Tank	Capacity	Liters	30	30
Max Pressure	Pressure	Bar	1200	1200
Max RPM	Max Revolutions Per Minute	RPM	2000	2000
Max Pumps	Diesel Pumps	Slots	-	-
	Gasoline Pumps	Slots	1	1
Max Injectors	Test Injectors	Slots	4	4
LP Pump	Supply Pressure	Bar	0.1 - 5.4	0.1 - 5.4
Air Supply	Pressure	Bar	-	-
	Air Flow	Lt/ Min	-	-
Main Power Supply	Phases	Number	1P	1P
		TYPE	P+N / PE	P+N / PE
	Voltage	VAC	220-240	220-240
	Frequency	Hz	50/60	50/60
	Current	Ampere	16	16
Motor	Max Consumption	kVA (220V/240V)	3.52 -3.84	3.52 -3.84
	Model	TYPE	AK100L-4	AK100L-4
	RPM	RPM 50 / 60Hz	1420 / 1700	1420 / 1700
	POWER	KW 50 / 60Hz	3 / 3.6	3 / 3.6
		HP 50 / 60Hz	4 / 4.8	4 / 4.8
		Ampere (50HZ)	400 V:6.56 A	380 V: 6.89 A
		Ampere (60HZ)	480 V:6.56 A	460 V: 6.89 A
	Max Input pressure	Bar	-	4
	Max Output Pressure	Bar	-	1Bar< Input Pressure
	Min Input Temperature	Celsius	-	5
Water Supply	Max Input Temperature	Celsius	-	15
	Min Diameter In/Out Water Hose	mm	-	10
	Water Tank Capacity	Liters	-	10
	Max Water Flow	Lt / Min (4Bar)	-	4
	Min Water Output Temperature	Celsius	-	5
	Max Water Output Temperature	Celsius	-	65
	Delta T	Celsius	-	0-50
	Max Cooling Efficiency "Debit" [20 liters of 5° C water in order to Cool Down the Test Oil from 43° C to 36° C (2 tank cycles)]	Tank Cycles	-	2
Operating Temperature	Min / Max Room Temperature	Celsius	6 / 23	6 / 30
IVM Sensors	Measurement Sensors	Type / Quantity	XKM / 4 *	XKM / 4 *

→

- : N/A  
A: Air Cooling  
W: Water Cooling  
**PRESSURE SOURCES**  
Motor: Motor Driven High Pressure CR Pump  
Electr Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC  
**MEASUREMENT SENSORS**  
XKM [Dynamic Meas. Sensor]: High Accuracy: ± 0.1%, Exceptional Repeatability ±0.05%, Measur. Range: 1-1000ml/min  
**APPLICATIONS**  
Light Duty: Volumes up to 200mm³/h  
Medium Duty: Volumes up to 300mm³/h  
Heavy Duty: Volumes up to 650mm³/h

## **GDU4R //X**

Gasoline System  
Test Bench

## **CloudX**



**650 Bar**

**4 GDi Injectors Capable**

The professional solution  
for workshops to test  
& service Gasoline Direct  
Injection Systems.

### **Overview of the GDU.4R-X**

**Precise & repeatable Gasoline Injectors Testing**

#### **[4] Injectors Testing & Coding\***

- 20 minutes testing and coding\* time for 4 injectors
- GDi injectors (All Brands and Types)
- Conventional Gasoline EFi Injectors
- Capable for all EU6 technologies
- Coding Capable for all Types of GDi's (Energy Controlled or Volume Metering types)
- Flushing and Servicing options for GDi injectors

\*New database and Coding is continuously being updated to new EU6 applications





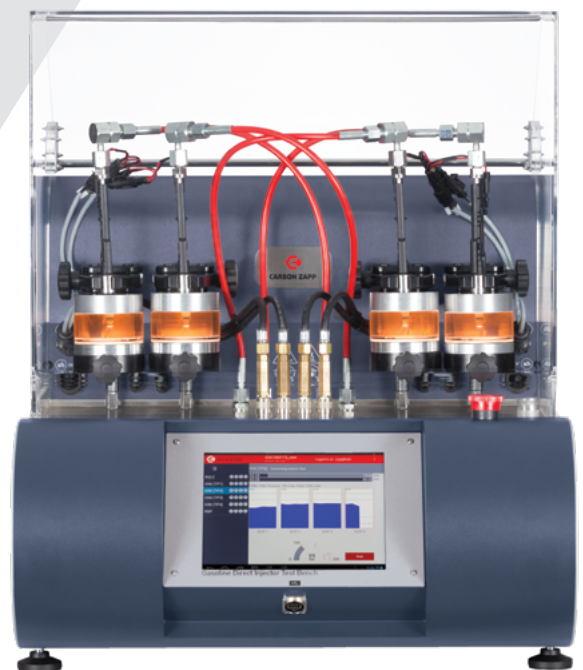
## SPECIALISTS

CRDi - EUi/EUP - HEUi - CRP  
ENGINE - **GDi** - **EFi** - GDi Pumps

### A Revolution in GDi Test Benches



Gasoline Direct Injection (GDi)  
requires high pressure testing to truly  
diagnose injector operation faults.





## → Features

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

Low Pressure Testing for Conventional MPFi or Racing application Injectors 0-10Bar

Controls NEW Generation High Pressure GDi with multiple Step Current profiles

LPG for Heavy Duty Applications (Trucks, Commercial Vehicles)

Continental / Siemens GDi injectors (EU5) testing only with approved Energy Control

Nozzle reaction time measurement for all systems via RSP sensor

Efficient Working Area with Protective Hood fully opening

The fastest and easiest clamping of injectors in the market

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

GDi Piezo Stack Regeneration function. The only way to correct GDi Piezo injectors after Cleaning them internally and reverse flushing them

Reverse flushing adapter and function with 25Bar pressure

Blue Limits Diagnosis for Specialists

Dynamic Electronic Mass (BK) Measurement

Prepared for Future Injector Coding

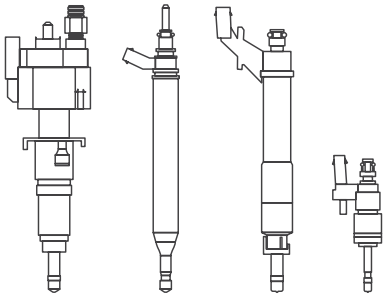
Emergency Safety Stop function

SPECIALISTS

AZO SOFTWARE



CRDi - EUI/EUP - HEUI - CRP  
ENGINE - GDi - EFi - GDi Pumps



EU3 > EU6 Technologies

GDU4R  → SPECIFICATIONS

DESCRIPTION		UNIT	GDU.4R(X) (CZ-008726)
Machine Dimensions	Length	mm	620
	Width	mm	780
	Height	mm	740
Weight		kg	59
HMI	Tablet Touchscreen	Inches	10
Internet Update	WiFi / Ethernet	-	YES / YES
Pressure Source	Type	Air Driven High Pressure Pump	
Test Oil	Type	(GxL-ISO) Calibration Oil	
Test Oil Tank	Capacity	Liters	4
Max Pressure	Pressure	Bar	650
Max RPM	Max Revolutions Per Minute	RPM	-
Max Pumps	Pumps Test	Slots	-
Max Injectors	Test Injectors	Slots	4
HP Pump	High Pressure Pump	Type	Pneumatic Pump
LP Pump	Supply Pressure	Bar	-
Air Supply	Pressure	Bar	6.5-10
	Air Tank Capacity	Lt	250
	Air Flow	Lt/ Min	400
	Min Diameter at Air Supply Hose	mm	8
Main Power Supply	Air	Type	Water / Oil FREE
	Phases	Number	1
		TYPE	1P+N
	Voltage	VAC	100 - 240
	Frequency	Hz	50/60
Operating Temperature	Current	Ampere	5
	Max Consumption	kVA (100V/240V)	0.5 / 1.2
	Min / Max Room Temperature	Celsius	6 / 35
IVM Sensors	Measurement Sensors	Type / Quantity	BK Coriolis / 1 *

→

:- N/A

**PRESSURE SOURCES**  
Air: Air Driven High Pressure Pump  
Electr Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC

**MEASUREMENT SENSORS**  
XKM | Dynamic Meas. Sensor | High Accuracy: ± 0.1%, Exceptional Repeatability: ±0.05%, Measur. Range: 1-10000ml/min  
Light Duty: Volumes up to 200mm3/h

**APPLICATIONS**  
Passenger Car/ Motorcycles: Volumes up to 120mm3/h

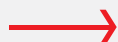
## EXPANDING CAPABILITIES



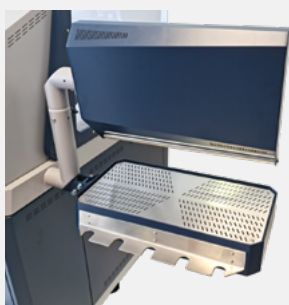
Space saving, accessory organizers for everyday tasks. Increased productivity and uncluttered space.



### Extras



MTBR-X & PTBR-X



01.  
Desk & Harness Shelf

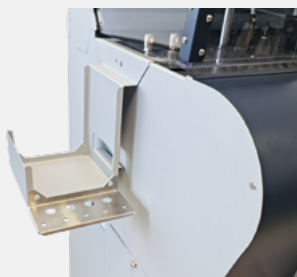


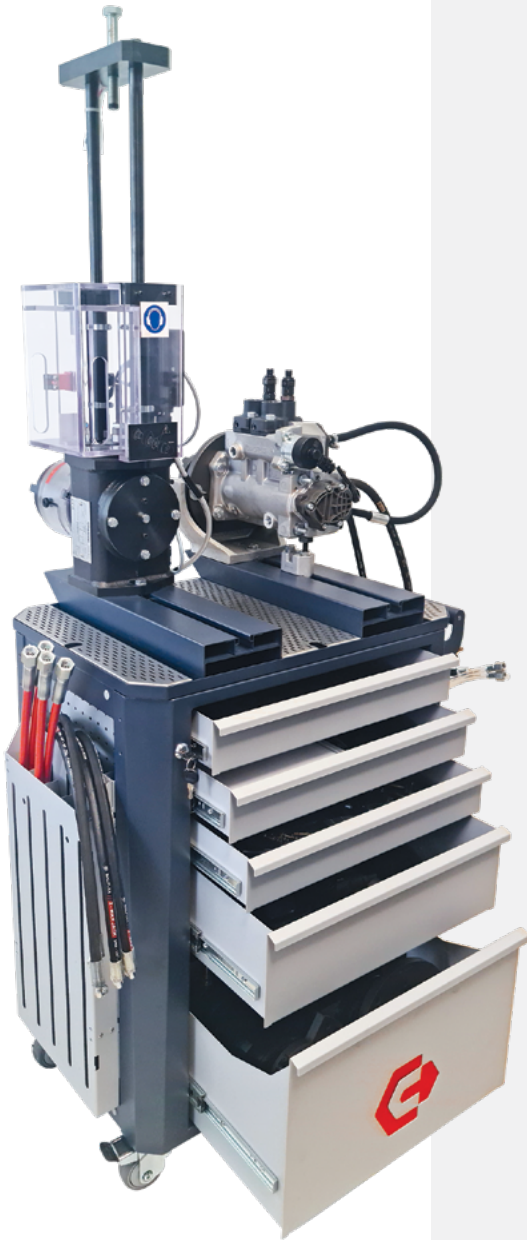
02.  
Hydraulic Hose Side Panel  
Pocket with Drain

### Ultrasonic Shelf



for GTBR-X,  
ITBR-X, HTBR-X





Carbon Zapp Trolley  
Fully Configured Setup



/// CZ Base Trolley



/// Hose & Harness  
Side Organizer  
(max. 2 pcs per trolley)

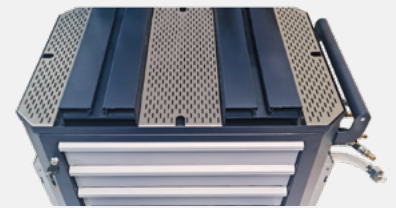
## Carbon Zapp Trolley



Ideal workshop organizer to fit most parts of the machine like harnesses, hoses, adapters, tools and flanges. Can be easily transformed to a Cambox and/or pump rack for easy transfer and storing.



/// CRp Flange Drawer  
Organizer  
(max. 1 pc per trolley)



/// Cambox/Pump  
Transfer Rack  
(max. 2 pcs per trolley)





## WORKSHOPS



Explore Workshop  
Diagnostic and  
Service Solutions.

### Passenger Car and Light Duty Types

Diesel Common Rail

Diesel Heavy Duty

Gasoline Direct Injection GDi

Gasoline Fuel Injection

Engine & Exhaust Servicing

Diagnostic Fuel Injection Tools





**CARBON LAPP** **ES-X**

**Engine Service Unit** Chemical Carbon Cleaning for Diesel & Gasoline Engines. In-line Handheld and DPE/GPH Servicing.

Gasoline	MFC / GPM / GPH	Diesel
2,500 0.57	1,400 38	2,100 0.57
2,000 0.53	1,200 31	1,800 0.53
1,750 0.46	1,000 26	1,700 0.46
1,500 0.40	800 22	1,500 0.40
1,250 0.33	600 17	1,300 0.33
1,000 0.26	400 12	1,000 0.26
750 0.20	200 07	750 0.20
500 0.13		500 0.13
400 0.10		400 0.10
300 0.08		300 0.08
200 0.05		200 0.05
100 0.03		100 0.03
50 0.01		50 0.01
0 0.00		0 0.00

Return Line (M) Feed Line (PL) Filter

## DSR „X“

Diesel Common-Rail  
Injector Test Bench

## CloudX

### Overview of the New DSR-X

Fast, Accurate and Reliable Diesel  
CRDi Injector Testing

#### [1] Injector Testing

- 6-12 minutes testing time per injector
- CRi (All Brands and Types).
- Capable for all EU6 technologies such as VCC and NCC technology, iART, PCRS5 and more...
- CRIN Light Duty Vehicle injectors

The Affordable Diesel  
CRDi Workshop Solution  
to diagnose cars and light  
duty vehicles of All Makes.



### → Features

- Xtremely Fast Testing Times without any Compromise
- New Design for every Service Station
- Optimized Working Area
- EU6 Systems Testing
- CloudX Capabilities
- IoT Cloud computing Platform - Industry 4.0 Complaint
- Live Response Time Measurement at every test plan
- Adaptability for every type of Diesel CRDi's in the market (optional)
- Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times.
- Continuous Database updates and new Software capabilities to meet the market needs.
- Android Powered 10" HMI with unlimited flexibility and connectivity competencies.

### 2000 Bar

**Standalone Air-Operated  
Diesel CRi Test Bench  
For Workshops**



## SPECIALISTS

CRDi - EUI/EUP - HEUI  
CRP - ENGINE - GDi - EFI

## DSR → SPECIFICATIONS

	DESCRIPTION	UNIT	DSR-X (CZ-007093)
Machine Dimensions	Length	mm	510
	Width	mm	780
	Height	mm	780
Weight		kg	50
HMI	Tablet Touchscreen	Inches	10
Internet Update	WiFi / Ethernet	-	YES / YES
Pressure Source	Type	Air Driven High Pressure Pump	
Test Oil	Type	(DxL-ISO) ISO4113 Calibration Oil	
Test Oil Tank	Capacity	Liters	4
Max Pressure	Pressure	Bar	2000
Max RPM	Max Revolutions Per Minute	RPM	-
Max Pumps	Pumps Test	Slots	-
Max Injectors	Test Injectors	Slots	1
HP Pump	High Pressure Pump	Type	Pneumatic Pump
LP Pump	Supply Pressure	Bar	-
	Pressure	Bar	7.5-10
	Air Tank Capacity	Lt	200
Air Supply	Air Flow	Lt/ Min	400
	Min Diameter at Air Supply Hose	mm	8
	Air	Type	Water / Oil FREE
Main Power Supply		Number	1
	Phases	TYPE	1P+N
	Voltage	VAC	100 - 240
	Frequency	Hz	50/60
	Current	Ampere	5
	Max Consumption	kVA (100V/240V)	0.5 / 1.2
Operating Temperature	Min / Max Room Temperature	Celsius	6 / 35
IVM Sensors	Measurement Sensors	Type / Quantity	XKM / 1 *

→

Pressure Sources  
Air: Air Driven High Pressure Pump

MEASUREMENT SENSORS  
XKM (Dynamic Meas. Sensor): High Accuracy: ± 0.1%, Exceptional Reproducibility ±0.05%, Measur. Range: 1-1000ml/min

APPLICATIONS  
Passenger Car/ Motorcycles: Volumes up to 120mm³/h  
Light Duty: Volumes up to 200mm³/h

## **GDR X**

Gasoline Direct Injector  
Test Bench

The Affordable Gasoline  
GDi Workshop Solution  
to diagnose and service  
faults for All Makes.

### **Overview of the New GDR-X**

**Fast, Accurate and Reliable Gasoline  
GDi Injector Testing**

#### **[1] Injector Testing**

**5-7 minutes testing time per injector**

- GDi (All Brands and Types)
- Capable for all EU6 technologies
- Capable for GDi Piezo  
(with Energy Controlled Signal)



### **→ Features**

Xtremely Fast Testing Times without any Compromise
New Design for every Service Station
Optimized Working Area
Pressurized Reverse Flush for Injectors
Optimized Actuation Software for Ultrasonic Cleaning
CloudX Capabilities
IoT Cloud computing Platform - Industry 4.0 Complaint
Live Response Time Measurement at every test plan
Adaptability for every type of Gasoline GDi's in the market (optional)
Ergonomic, Fast and Easy Injector Clamping device to minimize mounting times.
Continuous Database updates and new Software capabilities to meet the market needs.
Android Powered 10" HMI with unlimited flexibility and connectivity competencies.

**450 Bar**

**Standalone Air-Operated  
Gasoline GDi Test**



## WORKSHOPS

CRDi - EUi/EUP - HEUi - CRP  
ENGINE - **GDi** - **EFi** - GDi Pumps

## GDR //X → SPECIFICATIONS

	DESCRIPTION	UNIT	GDR//X (CZ-007094)
Machine Dimensions	Length	mm	510
	Width	mm	780
	Height	mm	780
Weight		kg	46
HMI	Tablet Touchscreen	Inches	10
Internet Update	WiFi / Ethernet	-	YES / YES
Pressure Source	Type	Air Driven High Pressure Pump (GxL-ISO)	
Test Oil	Type	Calibration Oil	
Test Oil Tank	Capacity	Liters	4
Max Pressure	Pressure	Bar	450
Max RPM	Max Revolutions Per Minute	RPM	-
Max Pumps	Pumps Test	Slots	-
Max Injectors	Test Injectors	Slots	1
HP Pump	High Pressure Pump	Type	Pneumatic Pump
LP Pump	Supply Pressure	Bar	-
	Pressure	Bar	6 - 8
	Air Tank Capacity	Lt	200
Air Supply	Air Flow	Lt/ Min	400
	Min Diameter at Air Supply Hose	mm	8
	Air	Type	Water / Oil FREE
		Number	1
Main Power Supply	Phases	TYPE	1P+N
	Voltage	VAC	100 - 240
	Frequency	Hz	50/60
	Current	Ampere	5
	Max Consumption	kVA (100V/240V)	0.5 / 1.2
Operating Temperature	Min / Max Room Temperature	Celsius	6 / 35
IVM Sensors	Measurement Sensors	Type / Quantity	XKM / 1 *

→

Pressure Sources  
Air: Air Driven High Pressure Pump  
Electr Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC

MEASUREMENT SENSORS  
XKM | Dynamic Meas. Sensor | High Accuracy: ± 0.1%, Exceptional Repeatability: ±0.05%, Measur. Range: 1-1000ml/min

APPLICATIONS  
Passenger Car / Motorcycles: Volumes up to 120mm<sup>3</sup>/H  
Light Duty: Volumes up to 200mm<sup>3</sup>/H

- : N/A

## GS4 / GS8

Gasoline System  
Test Bench



### Systems Tested

Solenoid Direct Injectors (G-Di, FSI...)  
Multi-Port Fuel Injectors (MPFi / SPFi)  
Racing Application Injectors\*  
Central-Port Fuel Injectors (CSFI / CPFI)  
Throttle Body Injectors (TBI / CFI)  
Continuous Injection Injectors (K-Jetronic),  
Marines Application Injectors (E-TEC / FICHT)  
Motorcycle Application Injectors (Racing\*)  
LPG & Alternative fuels Injectors

The efficient, cost-effective and proven workshop solution to bench test and service every gasoline fuel injector.

### GS8



Bench for Testing & Ultrasonic  
Cleaning up to 8 Fuel Injectors



**Ultrasonic Cleaning Baths**  
Available at sizes up to 120L\*  
featuring: 42KHz frequency  
Sweep technology\* Degas  
function\*, Controlled Heater and  
more...

### GS4



Bench for Testing & Ultrasonic  
Cleaning up to 4 Fuel Injectors



Fully Automatic Function  
Electronic Pressure Control 0-10Bar  
Racing Injectors Capable\*  
Dynamic & Static iVM  
Auto-iRF function  
Injector Leak Test function  
User-Friendly Design  
Language Localization

\*: Optional Upgrade



WORKSHOPS

CRDi - EUi/EUP - HEUi - CRP  
ENGINE - **GDi** - **Efi** - GDi Pumps

→ Features

iVM: Injection Volume Metering

Precise graduated led illuminated tubes are used for efficient diagnosis of uneven flow rates and weak or defective nozzle springs. Automatic drainage after each test resolution 1ml, accuracy ±1ml/130ml

iSPC

Illuminated Spray Pattern Chamber used for visual diagnosis of correct injection

iRF

Injector Reverse Flush Device used to remove all dirt remained inside injector body after cleaning with the use of Ultrasonics

eRSO

Electrical Resistance, Short Circuit & Open Circuit Test

0-10 Bar

Testing Capability of All Types of Injectors up to 10Bars Maximum.

GDi Advanced Units are available for High Pressure Direct Injectors up to 1200Bars

→ Service & Repair

Increased exhaust emissions

Reduced engine performance (Power, Torque)

Increased fuel consumption

Poor drive-ability situations

Direct injection systems failure (Leaks, Pressure drop)

Rough idle and periodic stall of the engine

Conditions that lead to long-term catalytic converter damage

Extended engine start-up MIL - check engine light-up

GS4 / GS8 → Technical Data

		GS8	GS4
	Part Number	(CZ-008350)	(CZ-008347)
TYPE	Standalone	●	●
	Add-On	-	-
USER LEVEL	Test Bench	●	●
	Service / Diagnostic Unit	-	-
SYSTEMS / [TESTING MINUTES]	Diesel / Gasoline Specialists	○	○
	Workshop / Garage	●	●
APPLICATIONS	Test Slots [injectors / Pumps]	[8/ -]	[4/ -]
	CRDi / Smart Injectors [ 1 / 4 ]	-	-
MEASUREMENT SENSORS	GDi Injectors [ 1 / 4 ]	●	●
	Gasoline Injectors [ 1 / 4 ]	●	●
SYSTEM PRESSURE	LPG / CNG Injectors [ 1 / 4 ]	●	●
	Passenger Car / HEV / PHEV	●	●
PACKAGING	Motorcycles	●	●
	Racing (Gasoline)	●	●
	Light Duty	-	-
	Medium Duty	-	-
	Marine	□	□
	XKM	-	-
	BK	-	-
	Volumetric Tubes	8	4
	Max (BAR)	10	10
	Source	ELECTR. PUMP	ELECTR. PUMP
	Spray Chamber	●	●
	Mains Power 50/60Hz /1-Phase 100-250VAC	●	●
	Mains Power 50/60Hz /3-Phase/PE 380-480VAC	-	-
	Tank Capacity [testing / flushing]	[4 / -]	[4 / -]
	HMI (Inches)	LCD	LCD
	Touchscreen	-	-
	Protective Cover	-	-
	Calibration Oils	○	○
	Ultrasonic Bath	●	●
	Width (mm)	660	500
	Depth (mm)	770	440
	Height (mm)	800	680
	Weight (kg)	52	39

→

- : Capable / Standard Equipped
- : Capable / Optional required
- : Optional
- : N/A

**PRESSURE SOURCES**  
Elect Pump: Fuel Injection system or Industrial Application Electrical Pump 12VDC

**MEASUREMENT SENSORS**  
Volumetric Tubes (Static Anding Measurement); Accuracy: 1ml, Measurement range: 0.5-65ml

**APPLICATIONS**  
Passenger Car/ Motorcycles: Volumes up to 1200mm3/H  
Light Duty: Volumes up to 2000mm3/H

## ES **X** / EP **X**

Complete Engine  
Service Unit



### Systems

Common-Rail and  
Conventional Diesels

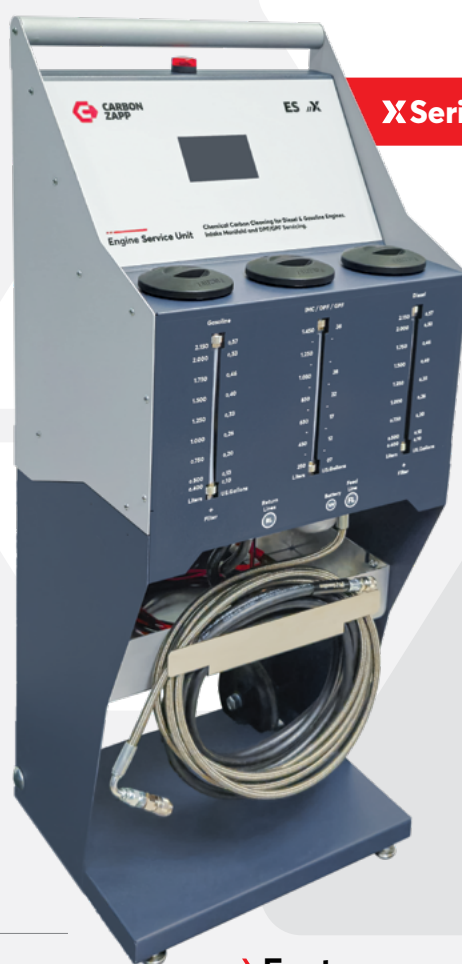
Gasoline Direct Injection  
(G-Di, FSI, HPI, CGI etc.)

Conventional Fuel  
Injection (MPFI / TBI / CIS)

LPG and Alternative fuels

Carburated Engines

Diesel & Gasoline Engine  
De-Carbonizing Unit.  
DPF & Intake Manifold  
Treatment Unit.



**X Series 2024**

### → Benefits

- Exhaust emissions reduction more than 70%
- De-Carbonization of the combustion chamber
- De-Carbonization of the catalytic converter
- De-Carbonizing of Intake Manifold and throttle body
- DPF Cleaning without disassembling
- Maximum restoration of engine's performance
- Reduction of fuel consumption
- Optimum fuel combustion gain
- Blocked valves and piston rings release
- Improved idle-speed stability
- Fading of engine knocking
- Prevention of long-term expensive repairs

### → Features

- Common-Rail system cleaning
- High Pressure pump conditioning
- User-Friendly, On-Display guide with language localization
- Automatic Pressure adjustment and Operation Cycle
- ESX: 3 separate tank system / EPX: 1 common tank system (flushing & filter change required)
- Adaptability to all makes and models
- Portable, Lightweight and Robust unit
- Visual-Audible Signaling Alarm
- Online Updates

*\*Optional Upgrade*

ES X / EP X → Technical Data

	Part Number	(CZ-007090 / CZ-007021)	EXPLANATIONS
	Standalone Add-On	-	● : Capable / Standard Equipped
TYPE	Service Unit	●	○ : Optional
USER LEVEL	Diesel / Gasoline Specialists	○	□ : Capable / Optionals required
	Workshop / Garage	●	- : N/A
	Gasoline / Other Engines	●	
	Diesel Engines	●	
	Gasoline/Diesel Fuel Systems	●	
APPLICATIONS	Passenger Car / HEV / PHEV	●	
	Motorcycles	●	
	Racing (Gasoline)	●	
	Light Duty	●	
	Medium Duty	●	
	Heavy Duty / Industrial	●	
	Marine	●	
SYSTEM PRESSURE	Max (BAR)	10	
	Source	ELECTR. PUMP	
	Mains Power	12VDC	
	Tank Capacity	3L/tank	
	HMI Touchscreen	LCD	
PACKAGING	Width (mm)	430 / 600	
	Depth (mm)	400 / 510	
	Height (mm)	1040 / 570	
	Weight (kg)	36 / 21	



EP-X, the Compact Alternative to ES-X.

The EP-X is a compact alternative to the ES-X, offering the same advanced features in a smaller package with a 1 Tank System, making it an ideal choice for workshops that prioritize space and portability.

WORKSHOPS

CRDi - Eui/EUP - HEUi - CRP  
ENGINE - GDi - EFi - GDi Pumps

Detergents

The environmental friendly ESX/EPX Series Detergents for Decarbonizing the engine activates the inert carbon molecules, resins, dust varnish and gums that accumulate inside the engine components, and burns them with the combustion process.



Adapters

Exclusive fuel system adapters kit available for all types of engine configurations\*



DPF.01

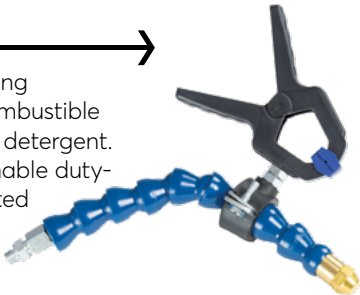
Diesel Particulate Filter Cleaning Adapter Kit. Use of Non-Combustible environmental friendly detergent to efficiently clean Particulate Matter, Carbon Soot, Ash, Organic materials and Sulfates.

Application programmable duty-cycle software integrated



IMC.01

Intake Manifold Cleaning Adapter Kit & Non-Combustible environmental friendly detergent. Application programmable duty-cycle software integrated



## FST/FST-HF

Fuel System Testing  
and Analysis



### → Diagnosis

Incorrect fuel pressure  
Incorrect system fuel flow Plugged fuel filter  
Faulty fuel pump  
Plugged fuel pump inlet strainer, Faulty fuel pump check valve,  
Leaky fuel injectors  
Plugged fuel pump inlet strainer. Faulty fuel pump check valve  
Leaky fuel injectors  
Restrictions in supply/ return fuel lines  
Intake manifold vacuum fluctuation  
Exhaust back-pressure for testing DPF & Catalytic Converter  
Turbo-boost pressure operation  
Adaptability for all Makes, Models and Types

### → Features

Compact, Portable and Robust tool for use in the workshop  
High flow capability for Racing and Performance applications [FST-HF]  
Easy readable analog gauges: Fuel Pressure, Manifold Vacuum,  
Exhaust Back-Pressure  
Durable and clear analog flow tube Spill-free quick connectors  
Easy hook for mounting on engine hood

\*Optional Upgrade

## HP-G2500

Common-Rail Gauge



### → Features

New Common Rail Injection Systems  
Up to 2500Bar  
Compact & Portable  
Dynamic & Static tests  
Adaptable to all CRDi Systems

## HP-G250

High Pressure Gauge



### → Features

Conventional Diesel Systems / GDi  
Gasoline Fuel Systems.  
Up to 250Bar  
Compact & Portable Dynamic &  
Static tests.  
Adaptable to all DI & G-Di Systems\*

**CRPT-110**

Digital Common  
Rail Pressure Tester

→ **Diagnosis**

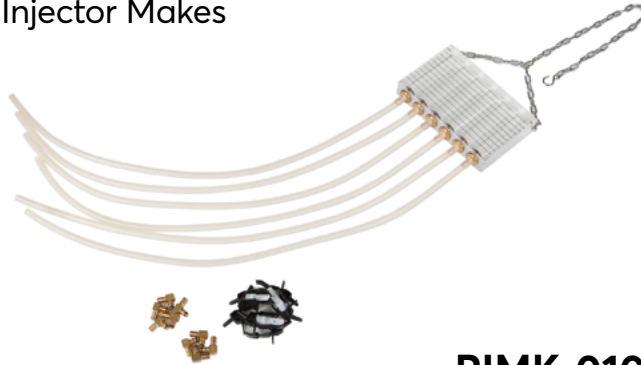
CRDi system operating  
pressure CRDi system  
leaking

→ **Features**

Easy Operation / Robust design  
Adaptability to All Makes sensors  
Operation Range 0-2000 Bar  
Measurement resolution of 1 bar  
Indication for defective pressure sensor  
Fault detection indicated by a red  
warning LED  
Automatic shut-off after 1 minute  
Power supply by 9 V battery  
(standalone unit)

**CRMK-110**

Common Rail Injectors  
Backflow Kit for All  
Injector Makes

→ **Diagnosis**

CRDi Excessive  
Back-Leak

→ **Features**

Test kit for checking the return  
flow volumes from Common-Rail  
Injectors  
Plexiglass robust container with  
graduated scales  
for easy comparison  
Metal chain hook to hold tester in  
upright position of the engine hood  
Set of backleak connectors for  
BOSCH, VDO, DELPHI and DENSO  
injectors

**WORKSHOPS**

CRDi - EUi/EUP - HEUi - CRP  
**ENGINE** - GDi - EFi - GDi Pumps

**PIMK-010**

Piezo CRDi Backflow  
Pressure Tester

→ **Diagnosis**

Piezo CRDi return  
pressure Piezo injector  
proper operation

→ **Features**

Transparent Plexiglass tester to permit  
view of any air pockets which may be  
present in the fuel  
Interchangeable vacuum gauge on the  
test unit for further testing capabilities  
Adaptability for most injectors  
in the market  
Pressure relief valve for safe removing  
from engine  
Adaptable to BOSCH  
(15 Bar gauge) and VDO, DELPHI &  
DENSO (+3 Bar gauge)

**DIT-062**

High Pressure Injector  
Leakage Tester

→ **Features**

Up to 600Bar  
Compact Static tests adaptable  
to all Di and GDi injectors



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strive for  
Excellence  
& Innovation**



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Product Catalog





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**Headquarters & Production**

**New Address**

Isiodou 18 (Industrial Park)  
194 00 Koropi, Attica-Greece

**German Branch**

A.I.S. GmbH  
75438 Knittlingen, Germany

**email** [contact@carbonzapp.com](mailto:contact@carbonzapp.com)

**tel** +30 210 9856110

**fax** +30 210 9928655

**[carbonzapp.com](http://carbonzapp.com)**