



PRODUCT CATALOG  
2024 | 2025



EQUIPMENT  
FOR TEST AND DIESEL  
REPAIR FUEL EQUIPMENT

Test benches, specialized tools, repair complexes, equipment,  
electronic devices for CR, UIS, UPS, injection pump systems

[www.dieselland.eu](http://www.dieselland.eu)

14.03.24

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## TRIUMF

**TRIUMF** benches are manufactured with the possibility of retrofitting with a hardware and software complex for encoding Bosch, Delphi, Denso injectors. To encode the Delphi injectors, a device is additionally installed, which allows to create a vacuum in the backleak line of the injector. The set of the vacuum creating device is a gear pump, a venturi tube and an electric motor. The device is installed on the bulkhead, which is located in the lower part of the bench above the cooling unit.

- The software allows you to code injectors BOSCH isa / ima cod, Delphi C2i / C3i / C4i\*, Denso, VDO Siemens.
- Working pressure up to 1800 bar. It is possible to increase the working pressure to 2400 bar.
- The stand is produced with the following characteristics of the main drive:
  - TRIUMF 4 kW 380 V
  - TRIUMF 5,5 kW 380 V

\* coding Delphi C4i in the stand TRIUMF 5,5 kW 380 V



## TRIUMF

## Software «CASCADE»



The software has a user-friendly interface. The program contains built-in test plans for testing and coding Bosch, Delphi, Denso, Siemens (VDO) injectors. Functions for creating new test plans, editing built-in ones, as well as creating targets for Delphi C2i, C3i, C4i injectors are available. The results and progress of testing are displayed in graphical form and saved to a file and sent to print.

**The stand is equipped with a modern system of thermal stabilization test liquids in the tank, which includes:**

1. Two radiators with forced air cooling for the backflow line from the injection pump and the backflow line from the pressure accumulator (rail).
2. Pressure accumulator with cooling. The rail cooling line includes an individual air-cooled radiator and a circulation pump.
3. Independent refrigeration unit with air heat exchanger.
4. Three individual thermal controllers for controlling radiator fans.
5. Tubular electric heater with a power of 1000 W for heating the test liquid in the tank.

- Operating pressure up to 2400 bar.
- The pressure is controlled by two regulators.
- The stand has an electronic measurement system with the ability to check four injectors at the same time.
- The stand is equipped with a frequency converter.



## TRIUMF

## STAND EQUIPMENT

**DL-CAU001**

Cable for BOSCH injectors (universal)

**DL-CAU002**

Cable for Delphi injectors (C2i, C3i)

**DL-CAU003**

Delphi injector cable (C3i)

**DL-CAU004**

Cable for injectors BOSCH, SIEMENS

**DL-CAU005**

Cable for BOSCH injectors

**DL-CAU007**

Cable for cargo injectors

**DL-CAU006**

Universal cargo injector cable

**DL-CAU009**

Pressure sensor cable

**DL-CAU010**

Pressure regulator connection cable



### TRIUMF

### STAND EQUIPMENT



**DL-24CRM**

Set of fittings for reverse draining CR injectors



**DL-UNI50343**

Nozzles for sprayers  
nozzles Ø= 9 mm (1 pc.)



**DL-UNI50083**

Adapter straight with M14  
on M12 for tube (4 pcs.)



**DL-CR10015**

Nozzle holder frame with  
cups (**DL-UNI50342**) for sprayers 7 mm (4 pcs.)  
and clamping sleeves

- DL-UNI31019 Ø=17 (4pcs.)
- DL-UNI31020 Ø=18,9 (1pc.)
- DL-UNI31021 Ø=19,2 (1pc.)
- DL-UNI31022 Ø=21 (1pc.)
- DL-UNI31231 Ø=21,4 (1pc.)



**D-OCDE**

Reverse set  
drain nozzle  
Denso (4 pcs.)



**DL-54127**

Leg (foot with  
regulating  
bolt) (4 pcs.)



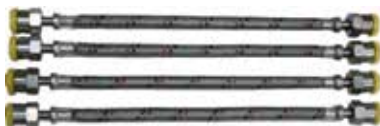
**DL-CR50162**

Stubs on RAIL  
(4 pcs.)



**DL-UNI30497**

Stub instead  
regulator  
pressure (1 pc.)



**DL-TVD41414**

High pressure pipes  
M14xM14x400mm (4 pcs.)



Door key  
(4 pcs.)

## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-MOK**

Coupling adapter with check valve  
Ø 6 x Ø 6mm with collet

**DL-CR50120**

Valve for respons time (DELPHI)

**DL-CR50136**

Check valve  
BOSCH electromagnetic injectors on the stand

**DL-CR50210**

Return pressure valve for testing piezo injectors  
SIEMENS at the booth

**DL-CR50177**

Return pressure valve for  
Bosch piezo injectors



## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-CR50013**

Universal adapter for cargo injectors CR (Bosch, Denso, Delphi Smart) for supply connection and back drain with approach angles 0°, 4° and 13°.

**DL-CR50140**

Universal adapter for trucks injectors CR Denso, including Volvo 21952974 for supply and return connection.

### TRIUMF

### OPTIONAL EQUIPMENT AND ACCESSORIES

#### ADAPTERS FOR TESTING CARGO INJECTORS



**DL-02**  
**DL-CR31046**

BOSCH MAN  
Ø 29MM



**DL-04A**  
**DL-CR30848**

BOSCH RENAULT  
Ø 32MM



**DL-05N**  
**DL-CR31048**

CUMMINS



**DL-06**  
**DL-CR31440**

DENSO Ø 27MM



**DL-07**  
**DL-CR31044**

DENSO Ø 23,5MM



**DL-08**  
**DL-CR31045**

BOSCH MAN  
Ø 26MM



**DL-09**  
**DL-CR31439**

BOSCH VOLVO  
Ø 28MM



**DL-010**  
**DL-CR31047**

CUMMINS



**DL-011**  
**DL-CR30985**

SIEMENS VDO  
FORD



**DL-012**  
**DL-CR30036**

CRIN BOSCH  
SISU Ø 26,6MM



**DL-013**  
**DL-CR30968**

DELPHI SMART  
INJECTOR



**DL-014**  
**DL-UNI30038**

DENSO



**DL-015**  
**DL-CR30822**

DENSO Ø 18,5 MM  
Caterpillar, Perkins



**DL-016**  
**DL-CR31486**

SCANIA 2/4 pin



**DL-017**  
**DL-UNI30037**

BOSCH DEUTZ  
Ø 21,5MM



**DL-018**  
**DL-CR30595**

CURSOR 9



**DL-019**  
**DL-CR30804**

BOSCH MTU



**DL-020**  
**DL-CR30596**

SCANIA 4 PIN



**DL-021**  
**DL-CR31565**

BOSCH CRIN3  
0445124015



**DL-022**  
**DL-CR31566**

Caterpillar  
3809888



**DL-023**  
**DL-CR31567**

Delphi Smart  
injector Mercedes



**DL-024**  
**DL-CR31620**

DAF-SMART  
injector



**DL-025**  
**DL-CR31625**

DELPHI CRIN DAF  
EURO 6 SMART INJ



**DL-026**  
**DL-CR31626**

CUMMINS



**DL-027**  
**DL-CR31698**

BOSCH



**DL-030**  
**DL-CR30818**

BOSCH ЯМ3-530



**DL-031**  
**DL-CR31040**

BOSCH  
0445120303



**DL-032**  
**DL-CR31430**

BOSCH  
0445120134



**DL-033**  
**DL-CR31479**

DENSO



**DL-034**  
**(CR31538)**

DENSO 1211  
11L1063  
(095000-121)



**DL-035**  
**DL-CR31561**

DENSO



**DL-036**  
**DL-CR31563**

Delphi A9362187  
Mercedes Actros Euro 6



**DL-037**  
**DL-CR50304**

MB Actros



**DL-038**  
**DL-CR31606**

5296723 DENSO

## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-UNF20420L

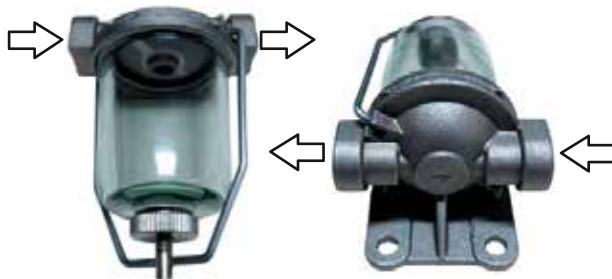
A set of sedimentation filters for testing injectors on the stand TRIUMPH.  
Designed for preliminary cleaning of nozzles before their bench test.



## Комплект поставки:

1. **DL-UNF20300L** Settling filter (inlet on the left) - 2 pcs.
2. **DL-UNI31427** Adapter 1/8"xM14x1.5mm – 4 pcs.
3. **34-RL010602** Quick adapter straight  $\varnothing$  6x1/4" – 2 pcs.
4. **34-RL310602** Quick adapter angled  $\varnothing$  6x1/4" – 2 pcs.
5. **DL-UNI31399** Splitter 1/4" – 1 pc.

*Attention!*  
All items are also sold separately.



## DL-UNF20420L

Filter - sump (entrance on the left)  
The filter contains:

1. Holes for entry and exit M14x1.5mm
2. Mounting holes  $\varnothing$  8mm



## DL-UNI31399

Splitter 1/4"  
Attached to the splitter:

1. **34-RL010802** Two quick adapters  $\varnothing$  8mm (at ends)
2. **34-RL310601** Two corner fast adapter  $\varnothing$  6mm (at the ends)

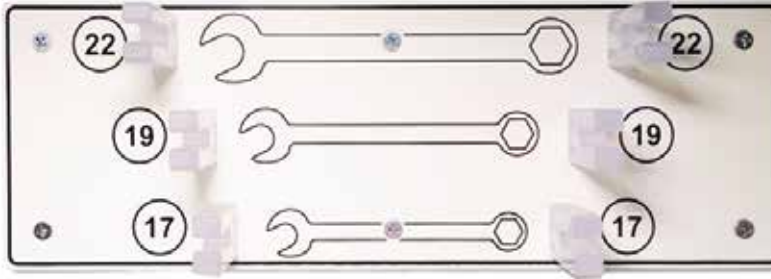


## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-UNI01792

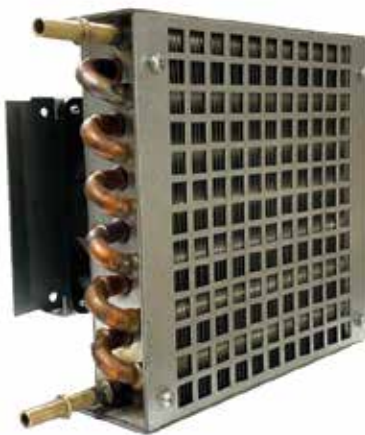
A set of open-end wrenches for the TRIUMF stand has a convenient and secure fixation of keys directly in the test bench.



## Contents of delivery:

1. DL-TRF50244 Key holder
2. DL-UNI31217 Open-end wrench 17x17mm -1 pc
3. DL-UNI31219 Open-end key. 19x19mm -1 pc.
4. DL-UNI31222 Open-end key. 22x22mm -1 pc.

*Attention!*  
All keys are also sold separately.



## DL-ORV6

**Air defense radiator for  
pressure accumulator stands TRIUMF**



## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0037

## TRIUMF Low Pressure Equipment 0-8 bar for HEUI injector checks

24-DBK-06L	Three-way valve 3/8"	1 pc.
26-04020-06	Connecting sleeve 3/8".	1 pc.
13-VMP-06	Safety valve (SV) 3/8"	1 pc.
DL-UNI20024	SV mounting bracket to oil filter with 2 screws M16x16mm	1 pc.
13-VRFB04	Throttle 1/4"	1 pc.
DL-UNI31316	SS washer 50x22mm "OIL SUPPLY" (FUEL SUPPLY)	1 pc.
041616005	Support washer, hole diam. 22mm	1 pc.
DL-UNI30020	Union 1/4"x8mm (discharge to tank from SV)	1 pc.
DL-UNI30859	Union 3/8"x8mm (discharge from SV to tank)	1 pc.
DL-UNI30530	Union 3/8"x3/8" (three-way valve: 2 pc. SV: 1 pc.)	3 pcs.
DL-UNI30363	Banjo bolt 3/8"	2 pcs.
DL-UNI30365	Banjo bolt 1/4"	1 pc.
12-03-005	Banjo female, diam. 14mm (1/4")	1 pc.
34-MA16-08-14	Quick adapter, elbow, 8mm x 1/4"	2 pcs.
DL-UNI31036	Special union 3/8"x3/8"x1/8" for supply.	1 pc.
DL-UNI31024	Special union 3/8"x3/8"x for leak-off	1 pc.
A50051-06-06	Elbow union 3/8"x8mm for special unions.	2 pcs.
DL-UNI20016	Pressure gauge bracket	1 pc.
12-TG63-010	Flanged pressure gauge 0-10 bar	1 pc.
DL-UNI30613	Pressure gauge sleeve 1/4"x 1/8"	1 pc.
34-MA12-04-18	Quick adapter, diam. 4mm x 1/8"	1 pc.
34-PTFE-04-250	PVC tube 4mm x 250mm for pressure gauge	1 pc.

## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

<b>P1331012019-850</b>	PVC tube 8mm x 850mm for drain from throttle to tank	1 pc.
<b>TI-1ZTX-06-090</b>	High-pressure fuel line 3/8"x 3/8" L=90 cm	1 pc.
<b>18-806-008-173</b>	Low-pressure fuel line (LPFL) 8mm L=173cm (SV-Spec. union. "Oil Supply").	1 pc.
<b>18-806-008-155</b>	LPFL 8mm L=155cm (Throttle-Special union "Oil Return")	1 pc.
<b>18-806-008-105</b>	LPFL inside diam. 8mm L=105cm (SV-tank)	1 pc.
<b>DL-UNI20021</b>	Washer with marking "FUEL SUPPLY"	1 pc.
<b>DL-UNI20022</b>	Washer with marking "FUEL RETURN"	1 pc.
<b>0540159</b>	Clamps 15mm	8 pcs.
<b>004636</b>	Screw M3x6mm for pressure gauge mounting	3 pcs.
<b>0046435</b>	Screw M4x35mm	6 pcs.
<b>0083645</b>	Screw M6x45mm+washer+nut for SV mounting	2 set
<b>D-GM1504AN</b>	Rubber-metal washer 1/4" for banjo bolt on throttle	2 pcs.
<b>D-GM1506AN</b>	Rubber-metal washer 3/8" for three-way valve	4 pcs.

*ATTENTION! The three low-pressure fuel lines (LPFL, items 25, 26 and 27) can be supplied as a single 433cm LPFL*

## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0037

Equipment for 0-8 bar low pressure generation for checking of HEUI unit injectors using the test bench TRIUMF



## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0037

Equipment for 0-8 bar low pressure generation for checking of HEUI unit injectors using the test bench TRIUMF



## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## HEUI INJECTOR TESTING TOOL

HEUI CATERPILLAR 3126B,  
CATERPILLAR 3126E и FORD 1998-2003  
DIESEL 7.3 FUEL INJECTOR 128-6601,  
AD1831489C1 (INTERNATIONAL)



## Equipment includes:

1. **DL-HEUI50223** Pump installation adapter nozzles



2. **DL-HEUI50240** Set of hydraulic hoses and HP line 400mm 14x14mm
3. **DL-HEUI50219** Adapter holder with clamping strip.
4. **DL-HEUI50230** Adapter cable for connecting the unit injector
5. **DL-UNI50084** Angular adapter M14.



*Attention! All accessories are sold separately.*

HEUI CATERPILLAR C7-C9



## Equipment includes:

1. **DL-HEUI50221** Pump installation adapter nozzles





## CRUIS

The **CRUIS** stand allows you to perform procedures related to testing and checking Common-Rail injectors from manufacturers such as Bosch, Denso, Delphi, VDO (Siemens), Cummins, AZPI, as well as HEUI Caterpillar unit injectors installed on diesel engines of light and medium-sized automobiles, including high-speed engines of cars and trucks, buses, agricultural machinery and tractors.

- The software allows coding BOSCH isa / ima cod, Delphi C2i / C3i / C4i\*, Denso, VDO Siemens injectors.
- Stand working pressure up to 2400 bar.
- The stand is produced with the following characteristics of the main drive:
  - CRUIS 4 kW 380 V,
  - CRUIS 5.5 kW 380 V,
  - CRUIS 4 kW 220 V

\* Delphi C4i coding in CRUIS 5.5 kW 380 V

When installing additional equipment, the CASCADE program allows you to test HEUI unit injectors.





## CRUIS

## Software «CASCADE»

**The stand has a low noise level.**

When starting the high-pressure pump, its smooth spin-up is ensured due to the use of a Schneider frequency converter in the stand.

The design of the CR test stand and the elements of its equipment meet the requirements of international standards in terms of static and dynamic parameters of ISO 4008/1 and ISO 4008/2.

For coding Delphi injectors, a device is used that allows creating a vacuum in the injector backflow line. The set of the device that creates a vacuum includes a gear pump, a venturi tube and an electric motor. The device is installed at the bottom of the stand next to the refrigeration unit. Also, in the working (test) area at the top right, a pressure gauge is installed that measures the vacuum with an electrovalve providing vacuum access to the nozzle. In this case, the vacuum is regulated by a throttle valve installed under the monitor on the left. When coding Delphi injectors in the CRUIS stand, a sensor is used that determines the injection start time.

The program with test plans is included in the package. Software updates that include new test plans are released twice a year and are provided free of charge.

**For thermal stabilization of the test liquid in the tank, the following are used:**

1. two radiators with forced air cooling for the backflow line from the injection pump and the backflow line from the pressure accumulator (rail).
2. independent refrigeration unit with air heat exchanger.
3. tubular electric heater 1000 W

Operating pressure up to 1800 bar. It is possible to increase the working pressure up to 2400 bar.

The stand has an electronic measurement system with the ability to check one nozzle.

## CRUIS

## STAND EQUIPMENT

**DL-CAU011**

Cable for BOSCH injectors (universal)

**DL-CAU012**

Cable for Delphi injectors (C2i, C3i)

**DL-CAU013**

Delphi injector cable (C3i)

**DL-CAU014**

Cable for injectors BOSCH, SIEMENS

**DL-CAU015**

Cable for BOSCH injectors

**DL-CAU016**

Universal cargo injector cable

**DL-CAU017**

Cable for cargo injectors

**DL-CAU09**

Pressure sensor cable

**DL-CAU10**

Pressure regulator connection cable

### CRUIS

### STAND EQUIPMENT



Set of fittings for reverse drain nozzles CR BOSCH, DENSO, DELPHI, SIEMENS



**DL-TVD41414**

High pressure tube  
M14 x M14 x 400mm (1 pc)



Door key  
(4 pcs)



**DL-UNI50083**

Adapter straight  
from M14 to M12 for  
tubes (1 pc)



**DL-UNI30497**

Stub instead  
regulator  
pressure (1 pc)



**DL-CR50162**

Plug for  
RAIL (1 pc)



**DL-UNI31011**

Clamping sleeves  
Ø17; Ø18,9; Ø19,2;  
Ø21 и Ø21,4



**DL-UNI50343**

Spray nozzle  
nozzles Ø=9 mm (1 pc)



**DL-54127**

Leg (foot with adjustable  
bolt) (4 pcs)

### OPTIONAL EQUIPMENT AND ACCESSORIES



**DL-CR50015**

Sensor for coding  
Ø=7mm (1 pc)



**DL-UNI50273**

Handle for convenient  
stand movement.  
Set includes 2 handles

## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-MOK**

Coupling adapter with check valve  
Ø 6 x Ø 6mm with collet

**DL-CR50120**

Valve for response time (DELPHI)

**DL-CR50136**

Check valve  
BOSCH electromagnetic injectors on the stand

**DL-CR50210**

Return pressure valve for testing piezo injectors  
SIEMENS at the booth

**DL-CR50177**

Return pressure valve for  
Bosch piezo injectors



## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-CR50013**

Universal adapter for CR truck injectors (Bosch , Denso, Delphi Smart) for supply and backflow lines at angles of 0°, 4° and 13°. It is used both for testing nozzles on test benches, and when checking the spray part of nozzles on a hand press.

**DL-CR50140**





Adapter for truck injectors CR Denso, including Volvo21952974 for connecting the supply and overflow drain



### CRUIS

### OPTIONAL EQUIPMENT AND ACCESSORIES

#### ADAPTERS FOR TESTING CARGO INJECTORS

					
<b>DL-02</b> DL-CR31046	<b>DL-04A</b> DL-CR30848	<b>DL-05N</b> DL-CR31048	<b>DL-06</b> DL-CR31440	<b>DL-07</b> DL-CR31044	<b>DL-08</b> DL-CR31045
BOSCH MAN Ø 29MM	BOSCH RENAULT Ø 32MM	CUMMINS	DENSO Ø 27MM	DENSO Ø 23,5MM	BOSCH MAN Ø 26MM
					
<b>DL-09</b> DL-CR31439	<b>DL-010</b> DL-CR31047	<b>DL-011</b> DL-CR30985	<b>DL-012</b> DL-CR30036	<b>DL-013</b> DL-CR30968	<b>DL-014</b> DL-UNI30038
BOSCH VOLVO Ø 28MM	CUMMINS	SIEMENS VDO FORD	CRIN BOSCH SISU Ø 26,6MM	DELPHI SMART INJECTOR	DENSO
					
<b>DL-015</b> DL-CR30822	<b>DL-016</b> DL-CR31486	<b>DL-017</b> DL-UNI30037	<b>DL-018</b> DL-CR30595	<b>DL-019</b> DL-CR30804	<b>DL-020</b> DL-CR30596
DENSO Ø 18,5 MM Caterpillar, Perkins	SCANIA 2/4 pin	BOSCH DEUTZ Ø 21,5MM	CURSOR 9	BOSCH MTU	SCANIA 4 PIN
					
<b>DL-021</b> DL-CR31565	<b>DL-022</b> DL-CR31566	<b>DL-023</b> DL-CR31567	<b>DL-024</b> DL-CR31620	<b>DL-025</b> DL-CR31625	<b>DL-026</b> DL-CR31626
BOSCH CRIN3 0445124015	Caterpillar 3809888	Delphi Smart injector Mercedes	DAF-SMART injector	DELPHI CRIN DAF EURO 6 SMART INJ	CUMMINS
					
<b>DL-027</b> DL-CR31698	<b>DL-030</b> DL-CR30818	<b>DL-031</b> DL-CR31040	<b>DL-032</b> DL-CR31430	<b>DL-033</b> DL-CR31479	<b>DL-034</b> (CR31538)
BOSCH	BOSCH ЯМ3-530	BOSCH 0445120303	BOSCH 0445120134	DENSO	DENSO 1211 11L1063 (095000-121)
					
<b>DL-035</b> DL-CR31561	<b>DL-036</b> DL-CR31563	<b>DL-037</b> DL-CR50304	<b>DL-038</b> DL-CR31606		
DENSO	Delphi A9362187 Mercedes Actros Euro 6	MB Actros	5296723 DENSO		



## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-UNF20420R

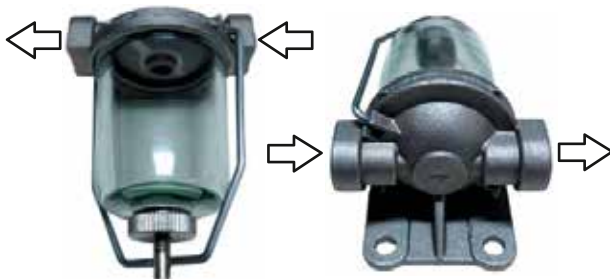
**Set of pit filters for the injector testing on CRUIS test bench**

Designed for pre-cleaning the injectors before they are tested on the test bench.

**Contents of delivery:**

1. **DL-UNF20300R** Settling filter (entrance on the right) – 2pc
2. **DL-UNI31427** Adapter 1/8"xM14x1,5mm – 4pc
3. **34-RL010602** Quick adapter straight  $\varnothing$  6x1/4" – 2pc
4. **34-RL310602** Quick adapter angled  $\varnothing$  6x1/4" – 2pc
5. **DL-UNI31399** Splitter 1/4" – 1pc

*Attention!*  
All items are also sold separately.

**DL-UNF20300R**

Pit filter (entrance on the right)  
The filter contains:

1. Holes for entry and exit M14x1,5mm
2. Mounting holes  $\varnothing$  8mm

**DL-UNI31399**

Splitter 1/4"  
Attached to the splitter:

1. **34-RL010802** Two quick adapters  $\varnothing$  8mm (at ends)
2. **34-RL310601** Two corner fast adapter  $\varnothing$  6mm (at the ends)

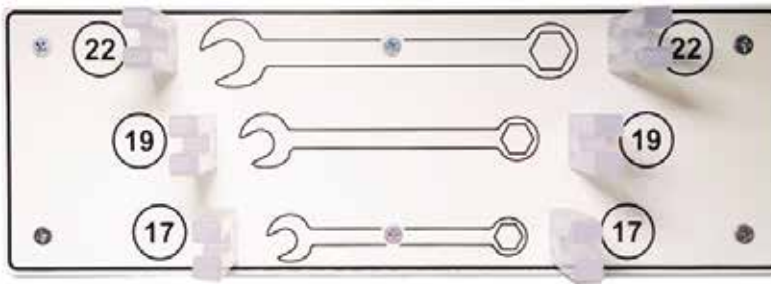
## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-UNI01791

**Set of open-end spanners for the CRUIS stand.**

The set has a convenient and secure fixation of keys directly in the test bench.

**Contents of delivery:**

1. **DL-CRS50243** Key holder
2. **DL-UNI31217** Open end wrench 17x17mm -1 pc
3. **DL-UNI31219** Open end wrench 19x19mm -1 pc
4. **DL-UNI31222** Open end wrench 22x22mm -1 pc

*Attention!*  
All keys are also sold separately.



## DL-ORV3

**Air Defense Radiator for  
Cruis Stand Pressure Accumulator**

## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0038

**Equipment for creating low pressure 0-8 bar CRUIS** for  
HEUI injector checks

24-DBK-06L	Crane 3-way 3/8"	1 pc
26-04020-06	Coupling 3/8"	1 pc
13-VMP-06	Safety valve (PC) 3/8"	1 pc
DL-UNI20023	Bracket for fastening the PC to the FTO (filter) bracket	1 pc
13-VRFB04	Choke 1/4"	1 pc
DL-UNI31316	Stainless steel washer 50 x 22mm "OILSUPPLY" (FUELSUPPLY)	1 pc
041616005	Washer persistent Ø otv. 22mm	1 pc
DL-UNI30020	Fitting 1/4 "x 8mm (draining into the tank from the PC)	1 pc
DL-UNI30859	Fitting 3/8" x 8mm (drain from PC to tank)	1 pc
DL-UNI30530	Fitting 3/8" x 3/8" (3-way valve - 2 pcs. PC - 1 pc.)	3 pcs
DL-UNI30363	Bolt Banjo 3/8"	2 pcs
DL-UNI30365	Bolt Banjo 1/4"	1 pc
12-03-005	Banjo fitting "female" Ø 14mm (1/4")	1 pc
34-MA16-08-14	Quick adapter elbow 8mm x 1/4"	2 pcs
DL-UNI31036	Specialist. fitting 3/8" x 3/8" x 1/8" for supply	1 pc
DL-UNI31024	Specialist. fitting 3/8" x 3/8" for backflow	1 pc
A50051-06-06	Elbow fitting 3/8" x 8mm for special fittings	2 pcs
DL-UNI20015	pressure gauge bracket	1 pc
12-TG63-010	Flanged manometer 0-10 bar	1 pc
DL-UNI30613	Coupling for pressure gauge 1/4" x 1/8"	1 pc
34-MA12-04-18	Quick adapter Ø 4mm x 1/8"	1 pc
34-PTFE-04-250	PVC tube 4mm x 250mm for pressure gauge	1 pc

## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

<b>P1331012019-850</b>	PVC pipe 8mm x 850mm for draining from the throttle into the tank	1 pc
<b>TI-1ZTX-06-015</b>	High pressure fuel line 3/8" x 3/8" L=15cm	1 pc
<b>18-806-008-104</b>	LPT Ø 8mm L=104cm (PC-Special Fitting "OilSupply")	1 pc
<b>18-806-008-075</b>	LPT Ø 8mm L=75cm (Throttle-Special Fitting "OilReturn")	1 pc
<b>18-806-008-037</b>	LPT Ø vnutr.8mm L=37sm (PC-Tank)	1 pc
<b>DL-UNI20021</b>	Washer labeled "FUELSUPPLY"	1 pc
<b>DL-UNI20022</b>	Washer labeled "FUELRETURN"	1 pc
<b>0540159</b>	Clamps 15mm	8 pcs
<b>004636</b>	Screw M3 x 6mm for fixing the pressure gauge	3 pcs
<b>0089416</b>	Screw M4 x 16mm for fastening special fittings	6 pcs
<b>0083645</b>	Screw M6 x 45mm + washer + nut for PC fixing	2 set
<b>D-GM1504AN</b>	Rubber washer. 1/4" for banjo bolts on throttle	2 pcs
<b>D-GM1506AN</b>	Rubber washer. 3/8" for 3-way valve	4 pcs

**ATTENTION!**

*It is allowed to supply low-pressure fuel lines (LPF) in one piece 216 cm long.*

## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0038

CRUIS low pressure tool 0-8 bar for testing pump injector HEUI





## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0038

CRUIS low pressure tool 0-8 bar for testing pump injector HEUI



## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0038

CRUIS low pressure tool 0-8 bar for testing pump injector HEUI



## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## ACCESSORIES FOR CHECKING HEU INJECTORS I

HEUI CATERPILLAR 3126B,  
CATERPILLAR 3126E и FORD 1998-2003  
DIESEL 7.3 FUEL INJECTOR 128-6601,  
AD1831489C1 (INTERNATIONAL)



## Equipment includes:

1. **DL-HEUI50223** Pump installation adapter nozzles



2. **DL-HEUI50240** Set of hydraulic hoses and HPT 400mm 14x14mm
3. **DL-HEUI50219** Adapter holder with clamping bar
4. **DL-HEUI50230** Adapter cable for connecting the pump injector
5. **DL-UNI50084** Corner adapter M14



HEUI CATERPILLAR C7-C9



## Equipment includes:

1. **DL-HEUI50221** Pump installation adapter nozzles



*Attention! All accessories are sold separately.*



## CR-Test4E

The test bench **CR-Test4E** allows checking the following equipment of the COMMON RAIL system: BOSCH, DENSO, DELPHI nozzles, (SIEMENS optional), BOSCH, DENSO, DELPHI, SIEMENS pumps (CP1, CP2, CP3, HP2, HP3, DFP1, DFP3, DFP6, HP3, HP4), regulators and pressure sensors. The operating pressure of the test is up to 1800 bar. At the request of the customer, there is possibility to increase the working pressure to 2200 bar. Test bench is equipped with an electronic measuring system. Test bench includes a software with built-in test plans.

**CR-Test-4E** - test stand for Common Rail (CR) injectors and pumps with an electronic measurement system (simultaneous testing of up to 4 injectors); The performance of the CR injection pump is checked using a two-channel flow meter.



### CR-Test4E

#### Software

##### «CASCADE»

The complex includes software software for testing CR injectors



##### «DieselTest»

The complex includes software pump testing software





## CR-Test4E

## Программное обеспечение «CASCADE»



The software has a user-friendly interface. The program contains built-in test plans for testing and coding Bosch, Delphi, Denso, Siemens (VDO) injectors. Functions for creating new test plans, editing built-in ones, as well as creating targets for Delphi C2i, C3i, C4i injectors are available. The results and progress of testing are displayed in graphical form and saved to a file and sent to print.

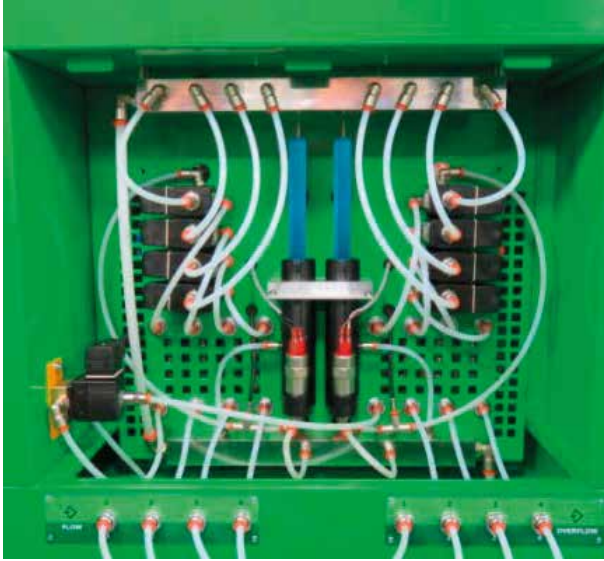
**The stand is equipped with a modern system of thermal stabilization test liquids in the tank, which includes:**

1. Two radiators with forced air cooling for the backflow line from the injection pump and the backflow line from the pressure accumulator (rail).
2. Pressure accumulator with cooling. The rail cooling line includes an individual air-cooled radiator and a circulation pump.
3. Independent refrigeration unit with air heat exchanger.
4. Three individual thermal controllers for controlling radiator fans.
5. Tubular electric heater with a power of 1000 W for heating the test liquid in the tank.

- Operating pressure up to 2400 bar.
- The pressure is controlled by two regulators.
- The stand has an electronic measurement system with the ability to check four injectors at the same time.
- Drive motor power for checking high pressure fuel pump - 11 kW
- Drive motor power for checking injectors - 5.5 kW
- The stand is equipped with frequency converters.

## CR-Test4E

## STAND EQUIPMENT



**Liquid flow meter  
for simultaneous checking  
from 1 to 4 nozzles.**  
Installed on a stand.



**FMDE-520**

**Liquid flow meter  
for pumps 2-channel.**  
Installed on a stand.



**PTC-2520**

**Pump control controller.**  
Installed on a stand.



**Injector controller.**  
Installed on a stand.

### CR-Test4E

### STAND EQUIPMENT



#### DL-24CRM

Set of fittings for reverse draining CR injectors



#### DL-UNI50343

Nozzles for sprayers  
nozzles  $\varnothing = 9$  mm (1 pc.)



#### DL-UNI50083

Adapter straight with M14 on M12 for tube (4 pcs.)



**DL-TVD61414** High pressure tube M14xM14x600mm - 2 pcs.

**DL-TVD51414** High pressure tube M14xM14x500mm - 5 pcs.



#### D-OCDE

Reverse set drain nozzle Denso (4 pcs.)



#### DL-54127

Leg (foot with regulating bolt) (4 pcs.)



#### DL-CR50162

Stubs on RAIL (4 pcs.)



#### DL-UNI30497

Stub instead regulator pressure (5 pcs.)



#### DL-UNI50088

Angle adapter M14 x M14 (2 pcs.)



Door key (4 pcs.)

## CR-Test4E

## STAND EQUIPMENT

**DL-CR10015**

Nozzle holder frame with cups (**DL-UNI50342**) for sprayers 7 mm (4 pcs.) and clamping sleeves

**DL-UNI31019** Ø=17 (4pcs)

**DL-UNI31020** Ø=18,9 (1pc)

**DL-UNI31021** Ø=19,2 (1pc)

**DL-UNI31022** Ø=21 (1pc)

**DL-UNI31231** Ø=21,4 (1pc)

**DL-CR30522KIT**

Pressure accumulator RAIL 1 (distributive) for 3 regulators pressure for checking injectors and CR pumps.

Installed on a stand.

**DL-CR31257**

Pressure accumulator RAIL 2 for checking injectors and pumps with cooling

(for 2 pressure regulators)

Installed on a stand.

**DL-CR31053KIT**

RAIL 3 pressure accumulator for 3 pressure regulators (with cooling)

to test pumps.

Installed on a stand.

## CR-Test4E

## STAND EQUIPMENT

**DL-UNI50008**

Bracket for pumps,  
Bosch standard 125 mm installed  
at the stand

## FLANGES

**DL-UNI30428**

Mounting flange for injection pump  
107 mm CP-3, installed on the stand

**DL-UNI30465**

Mounting flange for injection pump CR  
(BMW, RENAULT, MB, Peugeot)

**DL-UNI30464**

Mounting flange for injection pump  
CR ( MB )

**DL-UNI30474**

Mounting flange for injection pump  
MAN CP3 MAN, similar to Bosch  
1685720258

**DL-UNI30884**

Mounting flange for injection pump MAN  
CP3.4, similar to Bosch 1685720312

**DL-UNI30886**

Mounting flange for injection pump  
107 mm CP2 Bosch 0445020036 (Renault).

**DL-CR30860**

Mounting flange for injection pump CR  
DENSO HP2 , HP3.

## COUPLINGS

**DL-CR31251**

Coupling cone 24mm for  
High pressure fuel pump CR CP-3

**DL-CR31271**

Coupling cone 17mm for  
checks of CR pumps and high pressure  
fuel pump VE

**DL-CR31269**

Cone coupling 19mm for  
checks of CR pumps and high pressure  
fuel pump VE

**DL-CR31248**

Coupling spline (11 spline) for  
testing pumps MAN CR CP-3

**DL- UNI31025**

Coupling for injection pump Bosch CP1  
(included insert  
UNI31028 with groove width  
8 mm) and for high pressure fuel pump  
VDO

(included insert UNI31027 with 9 mm  
groove). Can be used on Bosch stands  
instead of coupling 1685702090.



## CR-Test4E

## STAND EQUIPMENT

**DL-FMDE064**

Hose for measuring the "supply" of the injection pump" from the pressure accumulator to the fitting entrance to the cooling radiator (RAIL -CR PUMP FM1)  $\varnothing 12 \times 3/8 \times 200 \text{mm}$  with bolt, Banjo fitting and 2 gaskets. 1 PC.

**DL-FMDE025**

Set of 2 hoses for connection from the fittings on the front panel "CR PUMP FM1" and "CR PUMP FM2" to connectors "IN1" and "IN2" of the controller flow measurement "FMDE". (hoses installed on the stand). The kit includes:

- Hose  $3/8 \times 3/8 \times 250 \text{mm}$  - 1 pc.
- Hose  $3/8 \times 3/8 \times 350 \text{mm}$  - 1 pc.

**DL-FMDE045**

Set of 2 hoses for connection from fittings "OUT 1" and "OUT 2" flow measurement controller "FMDE" to the fittings drain into the tank of the stand (hoses are installed on the stand)  
The set includes:

- Hose  $3/8 \times 3/8 \times 1550 \text{mm}$  - 1 pc.
- Hose  $3/8 \times 3/8 \times 1550 \text{mm}$  - 1 pc.

**DL-1CP2304**

Set of 5 hoses for pumps CP1, CP2, CP3. The set includes:

- Hose  $\varnothing 12 \times 3/8 \times 700 \text{mm}$  - 1pc.
- Hose  $\varnothing 12 \times 3/8 \times 800 \text{mm}$  - 1 pc.
- Hose  $\varnothing 12 \times 3/8 \times 850 \text{mm}$  - 1 pc.
- Hose  $\varnothing 12 \times 3/8 \times 700 \text{mm}$  - 1pc.
- Hose  $\varnothing 12 \times 3/8 \times 800 \text{mm}$  - 1 pc.
- Hose  $\varnothing 12 \times 3/8 \times 850 \text{mm}$  - 1 pc.

**DL-2UMS004**

Set of 7 hoses for various connections. The set includes:

- Universal hose  $\varnothing 8 \times 3/8 \times 1000 \text{mm}$ . 3 pcs.
- Universal hose  $\varnothing 10 \times 3/8 \times 1000 \text{mm}$ . 4 pcs.

## CR-Test4E

## STAND EQUIPMENT

## Connection set

DL-KUK0040



Kit includes :

- Conical fitting 3/8 "x10 mm - 4 pcs.;
- Taper fitting 3/8"x8 mm - 3 pcs.;
- Clamp Ø15 - 7 pcs.;
- Clamp Ø10 - 7 pcs.;
- Banjo fitting Ø16 mm x 10 mm – 2 pcs.;
- Banjo fitting Ø14 mm x 10 mm – 2 pcs.;
- Banjo fitting Ø12 mm x 8 mm – 2 pcs.;
- Bolt Banjo M16 – 2 pcs.;
- Bolt Banjo M14 – 2 pcs.;
- Bolt Banjo M12 – 6 pcs.;
- Gasket Ø12 mm - 16 pcs.;
- Gasket Ø14 mm – 12 pcs.;
- Gasket Ø16 mm - 12 pcs.;
- Gasket Ø21 mm (1/2") – 1 pc.;
- Plastic fitting for VDO pumps (Siemens) – 1 pc.
- Fitting 1/2"x3/8" - 1 pc.;
- Fitting M16x1.5x3/8" – 1 pc.
- Adapter M12xM16 (pitch 1.5 mm) - 4 pcs.
- Adapter M12xM14 (pitch 1.5 mm) - 4 pcs.
- Adapter M12xM12vn (pitch 1.5 mm) - 4 pcs.

## CR-Test4E

## STAND EQUIPMENT

**0 281 002 842**Pressure sensor  
Bosch (2pcs) on Rail,  
installed on the stand**0 281 002 494**pressure regulator  
Bosch (5pcs) on Rail,  
installed on the stand**DL-CAU001**

Cable for BOSCH injectors (universal)

**DL-CAU002**

Cable for Delphi injectors (C2i, C3i)

**DL-CAU003**

Delphi injector cable (C3i)

**DL-CAU004**

Cable for injectors BOSCH, SIEMENS

**DL-CAU005**

Cable for BOSCH injectors

**DL-CAU007**

Cable for cargo injectors

**DL-CAU006**

Universal cargo injector cable

**DL-CAU009**

Pressure sensor cable

**DL-CAU010**

Pressure regulator connection cable

## CR-Test4E

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-MOK**

Coupling adapter with check valve  
Ø 6 x Ø 6mm with collet

**DL-CR50120**

Valve for response time (DELPHI)

**DL-CR50136**

Check valve  
BOSCH electromagnetic injectors on the stand

**DL-CR50210**

Return pressure valve for testing piezo injectors  
SIEMENS at the booth

**DL-CR50177**

Return pressure valve for  
Bosch piezo injectors



## CR-Test4E

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-CR50013**

Universal adapter for CR truck injectors (Bosch , Denso, Delphi Smart) for supply and backflow lines at angles of 0°, 4° and 13°. It is used both for testing nozzles on test benches, and when checking the spray part of nozzles on a hand press.

**DL-CR50140**





Adapter for truck injectors CR Denso, including Volvo21952974 for connecting the supply and overflow drain



### CR-Test4E

### OPTIONAL EQUIPMENT AND ACCESSORIES

#### ADAPTERS FOR TESTING CARGO INJECTORS

					
<b>DL-02</b> DL-CR31046	<b>DL-04A</b> DL-CR30848	<b>DL-05N</b> DL-CR31048	<b>DL-06</b> DL-CR31440	<b>DL-07</b> DL-CR31044	<b>DL-08</b> DL-CR31045
BOSCH MAN Ø 29MM	BOSCH RENAULT Ø 32MM	CUMMINS	DENSO Ø 27MM	DENSO Ø 23,5MM	BOSCH MAN Ø 26MM
					
<b>DL-09</b> DL-CR31439	<b>DL-010</b> DL-CR31047	<b>DL-011</b> DL-CR30985	<b>DL-012</b> DL-CR30036	<b>DL-013</b> DL-CR30968	<b>DL-014</b> DL-UNI30038
BOSCH VOLVO Ø 28MM	CUMMINS	SIEMENS VDO FORD	CRIN BOSCH SISU Ø 26,6MM	DELPHI SMART INJECTOR	DENSO
					
<b>DL-015</b> DL-CR30822	<b>DL-016</b> DL-CR31486	<b>DL-017</b> DL-UNI30037	<b>DL-018</b> DL-CR30595	<b>DL-019</b> DL-CR30804	<b>DL-020</b> DL-CR30596
DENSO Ø 18,5 MM Caterpillar, Perkins	SCANIA 2/4 pin	BOSCH DEUTZ Ø 21,5MM	CURSOR 9	BOSCH MTU	SCANIA 4 PIN
					
<b>DL-021</b> DL-CR31565	<b>DL-022</b> DL-CR31566	<b>DL-023</b> DL-CR31567	<b>DL-024</b> DL-CR31620	<b>DL-025</b> DL-CR31625	<b>DL-026</b> DL-CR31626
BOSCH CRIN3 0445124015	Caterpillar 3809888	Delphi Smart injector Mercedes	DAF-SMART injector	DELPHI CRIN DAF EURO 6 SMART INJ	CUMMINS
					
<b>DL-027</b> DL-CR31698	<b>DL-030</b> DL-CR30818	<b>DL-031</b> DL-CR31040	<b>DL-032</b> DL-CR31430	<b>DL-033</b> DL-CR31479	<b>DL-034</b> (CR31538)
BOSCH	BOSCH ЯМ3-530	BOSCH 0445120303	BOSCH 0445120134	DENSO	DENSO 1211 11L1063 (095000-121)
					
<b>DL-035</b> DL-CR31561	<b>DL-036</b> DL-CR31563	<b>DL-037</b> DL-CR50304	<b>DL-038</b> DL-CR31606		
DENSO	Delphi A9362187 Mercedes Actros Euro 6	MB Actros	5296723 DENSO		

## CR-Test4E

## OPTIONAL EQUIPMENT AND ACCESSORIES

## ACCESSORIES FOR CHECKING HEU INJECTORS

HEUI CATERPILLAR 3126B,  
CATERPILLAR 3126E и FORD 1998-2003  
DIESEL 7.3 FUEL INJECTOR 128-6601,  
AD1831489C1 (INTERNATIONAL)



## Equipment includes:

1. **DL-HEUI50223** Pump installation adapter nozzles



2. **DL-HEUI50240** Set of hydraulic hoses and HPT 400mm 14x14mm
3. **DL-HEUI50219** Adapter holder with clamping bar
4. **DL-HEUI50230** Adapter cable for connecting the pump injector
5. **DL-UNI50084** Corner adapter M14



*Attention! All accessories are sold separately.*

HEUI CATERPILLAR C7-C9



## Equipment includes:

1. **DL-HEUI50221** Pump installation adapter nozzles



**CR-Test4E**  
**CR-JET-4EM****OPTIONAL EQUIPMENT AND ACCESSORIES****DL-KD020****DELPHI INJECTOR CODER  
FOR STAND CR-TEST-4E AND CR-JET-4EM****Contents of delivery:**

- |  |  |
|--|--|
| 1. Control valve                       | 9. Tap adjustment                      |
| 2. Vacuum pressure gauge               | 10. Electric motor ~230V 50Hz          |
| 3. *Pressure accumulator (Rail)        | 11. Coupling                           |
| 4. Sensor for coding                   | 12. Bracket                            |
| 5. Pressure valve for Delphi injectors | 13. Vacuum pump                        |
| 6. Venturi tube                        | 14. Tee with fitting                   |
| 7. Signal booster                      | 15. Connecting hose $\varnothing$ 8mm  |
| 8. Connecting tube $\varnothing$ 6mm   | 16. Connecting hose $\varnothing$ 10mm |

\* for additional order

**CR-Test4E**  
**CR-Test-2P**

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-UNF20400**

**A set of sedimentation filters for checking high-pressure fuel pumps**  
at the stand CR-TEST-4E and CR-TEST-2P

**Contents of delivery:**

1. **DL-UNF20300L** Settling filter (entrance on the left) - 2 pcs.
2. **DL-UNI50211** Extended adapter 3/8" x M14 x 1.5mm - 2 pcs.
3. **DL-UNI31161** Reducer short 3/8" x M14 x 1.5mm - 2 pcs.
4. **DL-UNI50213** mounting bracket filters.

**DL-UNF20410**

**Sump filter kit for checking injectors**  
at the stand CR-TEST-4E

Designed for pre-cleaning nozzles before their check on the stand.

**Contents of delivery:**

1. **DL-UNF20300L** Settling filter (entrance on the left) - 1 pc.
2. **DL-UNF20300R** Settling filter (entrance on the right) - 1 pc.
3. **DL-UNI31427** Adapter 1/8" x M14 x 1.5mm - 4 pcs.
4. **34-RL020602** Quick adapter straight Ø 6x1/4" - 2 pcs.
5. **34-RL310602** Quick adapter angled Ø 6x1/4" - 2 pcs.
6. **DL-UNI50212** Filter mounting bracket.
7. **DL-UNI30090** Mounting bolt with M14 nut.

CR-Test4E  
CR-Test-2P

## OPTIONAL EQUIPMENT AND ACCESSORIES



## DL-CR31497

Adapter for measuring the pressure of the CR booster pump

**ATTENTION!**  
*The adapter is supplied without tube fittings and pressure gauge!*

## DL-CR31497KIT

Adapter kit for measuring the pressure of the Common Rail feed pump.

## Contents of delivery:

1. **DL-SP09570** L-shaped "quick" adapter M5 x 4mm
2. **DL-SP09580** The union "mother" 1/4" x 4 mm for the manometer
3. **DL-P1002** Flexible PVC tube dia.4mm (100cm)
4. **D-12-TV63-016** Pressure gauge 16 bar with bottom fitting 1/4"



## DL-ORV9

Air-cooled radiator for testing MAN high-pressure fuel pumps workbenches CR-TEST-2P/CR-TEST-4E



TRIUMF CR-Test-4E  
CRUIS CR-JET-4EM

OPTIONAL EQUIPMENT AND ACCESSORIES

### Set of split bushings (basic) for installing injectors

- |    |   |                    |                             |
|----|---|--------------------|-----------------------------|
| 1. |    | <b>DL-UNI31019</b> | sleeve with inner Ø 17 mm   |
| 2. |    | <b>DL-UNI31020</b> | sleeve with inner Ø 18.9 mm |
| 3. |    | <b>DL-UNI31021</b> | sleeve with inner Ø 19.2 mm |
| 4. |   | <b>DL-UNI31022</b> | sleeve with inner Ø 21 mm   |
| 5. |  | <b>DL-UNI31031</b> | sleeve with inner Ø 21.4 mm |

*ATTENTION! All bushings are sold separately.*

### Set of split bushings (additional) for installing injectors

- |    |   |                    |                           |
|----|---|--------------------|---------------------------|
| 1. |  | <b>DL-UNI31015</b> | sleeve with inner Ø 24 mm |
| 2. |  | <b>DL-UNI31016</b> | sleeve with inner Ø 25 mm |
| 3. |  | <b>DL-UNI31017</b> | sleeve with inner Ø 26 mm |

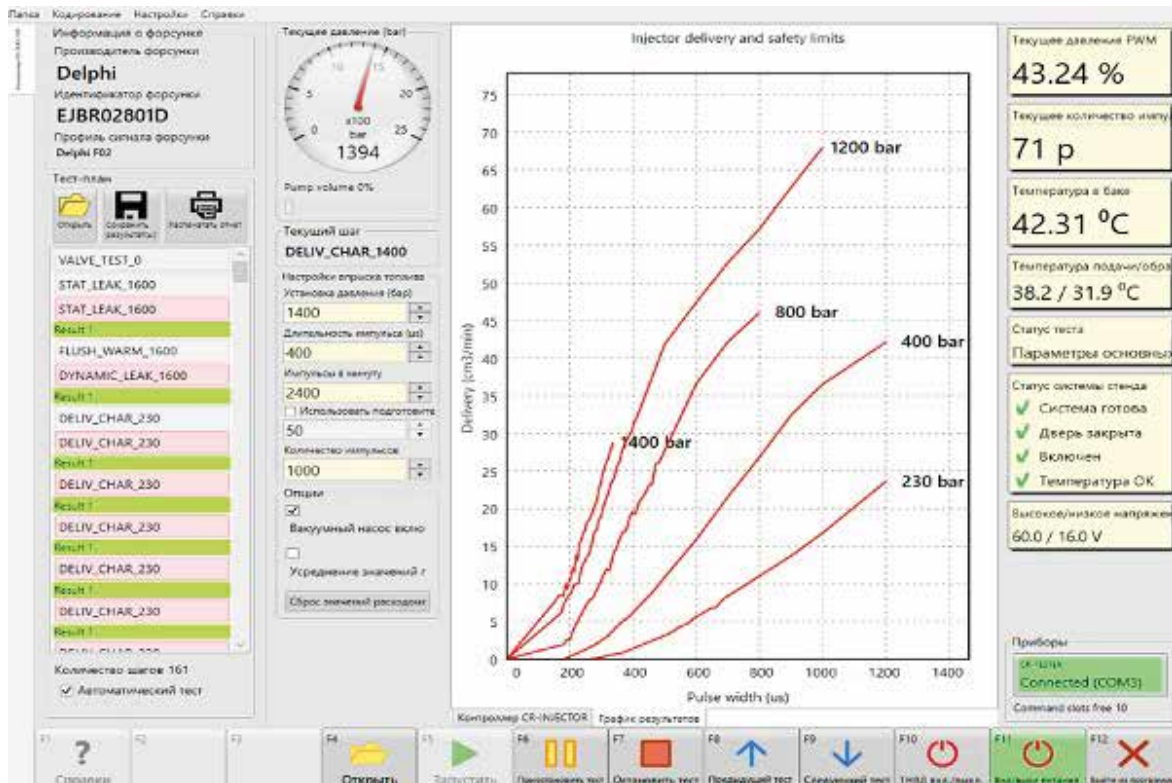
*ATTENTION! All bushings are sold separately.*

**TRIUMF CR-Test-4E**  
**CRUIS CR-JET-4EM**

**OPTIONAL EQUIPMENT AND ACCESSORIES**

### C4i-CODE DELPHI C4i injector coding

Software for the CASCADE program that allows code DELPHI C4i injectors on CRUIS, TRIUMF, CR-Test-4E test benches, CR Jet



## CR-Test2P

Stand **CR-Test2P** for testing high pressure fuel pumps Common Rail system.

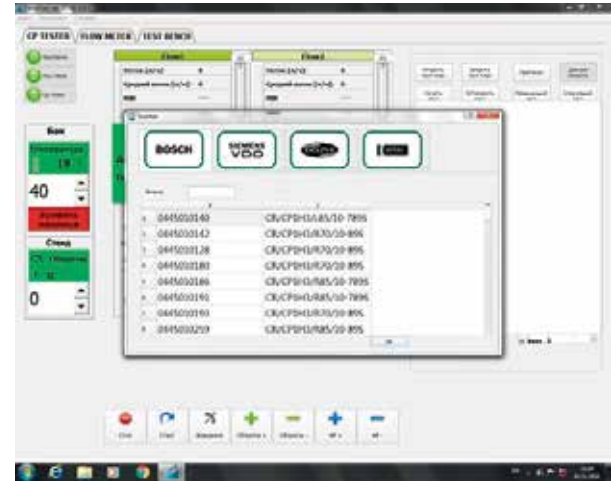
The CR-TEST-2P test bench allows you to perform procedures related to the testing of high-pressure fuel pumps of the Common Rail system of various manufacturers (Bosch, Denso, Delphi, VDO (Siemens)). The design of the test stand CR-TEST-2P and the elements of its equipment meet the requirements of international standards in terms of static and dynamic parameters-ISO 4008/1 and ISO 4008/2.

**CR-Test-2P** – is a CR pump test stand with a 2-channel electronic measurement unit.



### CR-Test2P

#### Software





### CR-Test2P

### STAND EQUIPMENT



#### FMDE-520

Liquid flow meter  
for pumps 2-channel.  
Installed on a stand.



#### PTC-2520

Pump control controller.  
Installed on a stand.



#### DL-TVD61414

High pressure tube M14 x M14 x 600mm  
for pumps CP2 – 2 pcs.



#### DL-TVD51414

High pressure tube M14 x M14 x 500mm  
for pumps CP1, CP3 -1 pc.

#### 0 281 002 842

Safety bosch valve on rail,  
installed on the stand



#### DL-CR31053

RAIL 3 pressure accumulator for 3 regulators  
pressure (with cooling) to test pumps.  
Installed on a stand.



#### 0 281 002 494

Bosch pressure regulator  
on Rail (3pcs), installed  
at the stand



#### 0 281 002 842

Bosch pressure sensor  
on Rail, installed  
at the stand



#### DL-54127

Leg (foot with  
regulating  
bolt) (4 pcs.)



Door key  
(4 pcs.)



### CR-Test2P

### STAND EQUIPMENT



**DL-CAU018**

Connection cable  
pressure sensor



**DL-CAU019**

Connection cable  
pressure regulator LP-2



**DL-CAU020**

Connection cable  
pressure regulator NR-3



**DL-UNI50008**

Bracket for pumps,  
Bosch standard 125 mm.  
Installed on a stand.

#### FLANGES



**DL-UNI30428**

Mounting flange for injection pump 107 mm  
CP-3, installed on the stand



**DL-UNI30465**

Mounting flange for injection pump CR  
(BMW, RENAULT, MB, Peugeot)



**DL-UNI30464**

Mounting flange for injection pump CR  
( MB )



**DL-UNI30474**

Mounting flange for injection pump MAN  
CP3 MAN, similar to Bosch 1685720258



**DL-UNI30884**

Mounting flange for injection pump MAN  
CP3.4, similar to Bosch 1685720312



**DL-UNI30886**

Mounting flange for injection pump 107 mm  
CP2 Bosch 0445020036 (Renault).



**DL-CR30860**

Mounting flange for injection pump CR  
DENSO HP2 , HP3.

#### COUPLINGS



**DL-CR31251**

Coupling cone 24mm for  
High pressure fuel pump CR CP-3



**DL-CR31271**

Coupling cone 17mm for checks of CR  
pumps and high pressure fuel pump VE



**DL-CR31269**

Cone coupling 19mm for checks of CR  
pumps and high pressure fuel pump VE



**DL-CR31248**

Coupling spline (11 spline) for  
testing pumps MAN CR CP-3



**DL- UNI31025**

Coupling for injection pump Bosch CP  
1 (included insert UNI31028 with groove  
width 8 mm) and for high pressure fuel  
pump VDO  
(included insert UNI31027 with 9 mm  
groove). Can be used on Bosch  
stands instead of coupling  
1685702090.

## CR-Test2P

## STAND EQUIPMENT

**DL-FMDE014**

Hose for measuring the "supply" of the injection pump" from the pressure accumulator to the inlet fitting into the cooling radiator (RAIL-CR PUMP FM1)  $\varnothing$  12 x 3/8 x 900 mm with bolt, Banjo fitting and 2 gaskets. - 1 PC.

**DL-FMDE024**

Set of 2 hoses for connection from fittings on the front panel "COOLLER OUT1" and "COOLLER OUT2" to connectors "IN1" and "IN2" of the controller flow measurement "FMDE". (hoses are installed on the stand)

The set includes:

- Hose  $\varnothing$  3/8 x 3/8 x 700 mm - 1 pc.
- Hose  $\varnothing$  3/8 x 3/8 x 800 mm - 1 pc.

**DL-1CP2304**

Set of 5 hoses for pumps CP1, CP2, CP3. The set includes:

- Hose  $\varnothing$  12 x 3/8 x 700 mm - 1 pc.
- Hose  $\varnothing$  12 x 3/8 x 800 mm - 1 pc.
- Hose  $\varnothing$  12 x 3/8 x 850 mm - 1 pc.
- Hose  $\varnothing$  12 x 3/8 x 900 mm - 1 pc.
- Hose  $\varnothing$  3/8 x 3/8 x 1250 mm - 1pc.

**DL-2UMS004**

Set of 7 hoses for various connections. The set includes:

- Universal hose  $\varnothing$  8 x 3/8 x 1000 mm - 3 pcs.
- Universal hose  $\varnothing$  10 x 3/8 x 1000 mm - 4 pcs.

## CR-Test2P

## STAND EQUIPMENT

## Connection set

DL-KUK0040



Kit includes :

- Conical fitting 3/8 "x10 mm - 4 pcs.;
- Taper fitting 3/8"x8 mm - 3 pcs.;
- Clamp Ø15 - 7 pcs.;
- Clamp Ø10 - 7 pcs.;
- Banjo fitting Ø16 mm x 10 mm – 2 pcs.;
- Banjo fitting Ø14 mm x 10 mm – 2 pcs.;
- Banjo fitting Ø12 mm x 8 mm – 2 pcs.;
- Bolt Banjo M16 – 2 pcs.;
- Bolt Banjo M14 – 2 pcs.;
- Bolt Banjo M12 – 6 pcs.;
- Gasket Ø12 mm - 16 pcs.;
- Gasket Ø14 mm – 12 pcs.;
- Gasket Ø16 mm - 12 pcs.;
- Gasket Ø21 mm (1/2") – 1 pc.;
- Plastic fitting for VDO pumps (Siemens) – 1 pc.
- Fitting 1/2"x3/8" - 1 pc.;
- Fitting M16x1.5x3/8" – 1 pc.
- Adapter M12xM16 (pitch 1.5 mm) - 4 pcs.
- Adapter M12xM14 (pitch 1.5 mm) - 4 pcs.
- Adapter M12xM12vn (pitch 1.5 mm) - 4 pcs.

## ADDITIONAL EQUIPMENT FOR STANDS



DL-USN0021

**Universal cradle for CR pumps**

Contents of delivery:

- Rotary stand - 1 pc.
- Flange kit for mounting CR pumps, 6 pcs.
- Set of 4 pump support plates.



## ADDITIONAL EQUIPMENT FOR STANDS



## DL-ORV2

**Cooling stand of radiator-fan type.**

External heat exchangers are designed for additional temperature adjustment test liquid. They can be connected to various flows with pressure up to 0.4 MPa.

- Number of radiators: 2
- Connection fitting: M14x1.5
- Supply voltage: ~220V/50Hz
- Power consumption: 20W (0.23A; 0.5A max)
- Dimensions : width 500, height 770, depth 370 (mm)
- Total weight: net ~24kg, gross ~30kg



## DL-MSP

**Mobile oil station for stands**

- Operating pressure 0-10 bar
- Capacity at 3 bar -150 liters / hour
- Fine filter 10 µm
- Tank 20 liters
- Power supply 380 V 50 Hz
- Power consumption 0.37 kW
- Dimensions: width 300, height 800, depth 420 (mm)
- Total weight: net ~54kg, gross ~60kg



## ADDITIONAL EQUIPMENT FOR STANDS

**DL-SRS020****Calibration fluid SRS**

ISO 4113-CV-AW (VS 15665-OL-CV),  
canister 20 liters.

Used in test benches for  
testing of CR injectors, unit injectors  
PLD sections.

**CRS Calibrol****Calibration fluid for diesel fuel  
equipment**

The CRS Calibrol calibration fluid (20 litre plastic  
canister container) is a test oil for testing injectors and  
pumps of diesel fuel equipment.

**CRS Calibrol** is a low viscosity working oil for  
calibration with a very tight viscosity tolerance.  
It is distinguished by an exceptional level of protection  
against wear and corrosion, as well as a low tendency  
to foaming.

**DL-SRS200****Calibration fluid SRS**

ISO 4113-CV-AW (VS 15665-OL-CV),  
Barrel 200 liters.

Used in test benches for  
testing of CR injectors, unit injectors  
PLD sections.

### ADDITIONAL EQUIPMENT AND ACCESSORIES FOR STANDS



#### DL-TVD-S

High Pressure Tube  
1000x14x14 1800 Bar



#### DL-TVD-K

High Pressure Tube

**DL-TVD-K1000** (1000x14x14 2500 Bar)  
**DL-TVD-K830** (830x14x14 2500 Bar)  
**DL-TVD-K700** (700x14x14 2500 Bar)



#### DL-TVD-B

High Pressure Tube  
800x14x14 2500 Bar



#### DL-TVD-G

High Pressure Tube  
650x14x14 2500Bar



#### DL-TVD

High Pressure Tube for stands and rigs:

**DL-TVD31212** (300x12x12), **DL-TVD31214** (300x12x14), **DL-TVD31414** (300x14x14),  
**DL-TVD41212** (400x12x12), **DL-TVD41214** (400x12x14), **DL-TVD41414** (400x14x14),  
**DL-TVD51212** (500x12x12), **DL-TVD51214** (500x12x14), **DL-TVD51414** (500x14x14),  
**DL-TVD61212** (600x12x12), **DL-TVD61214** (600x12x14), **DL-TVD61414** (600x14x14)



#### DL-TVD-M

High pressure metal tube

**DL-TVD-M81412** (800) M14xM12  
**DL-TVD-M81414** (800) M14xM14  
**DL-TVD-M61412** (600) M14xM12  
**DL-TVD-M61414** (600) M14xM14



#### DL-CR14P2000

Pressure gauge 2000 bar



#### DL-CR50015

Sensor for coding

## ADDITIONAL EQUIPMENT AND ACCESSORIES FOR STANDS

**DL-MOK**

Coupling adapter with check valve  
Ø 6 x Ø 6mm with collet

**DL-CR50120**

Valve for response time (DELPHI)

**DL-CR50136**

Check valve  
BOSCH electromagnetic injectors on the stand

**DL-CR50210**

Return pressure valve for testing piezo injectors  
SIEMENS at the booth

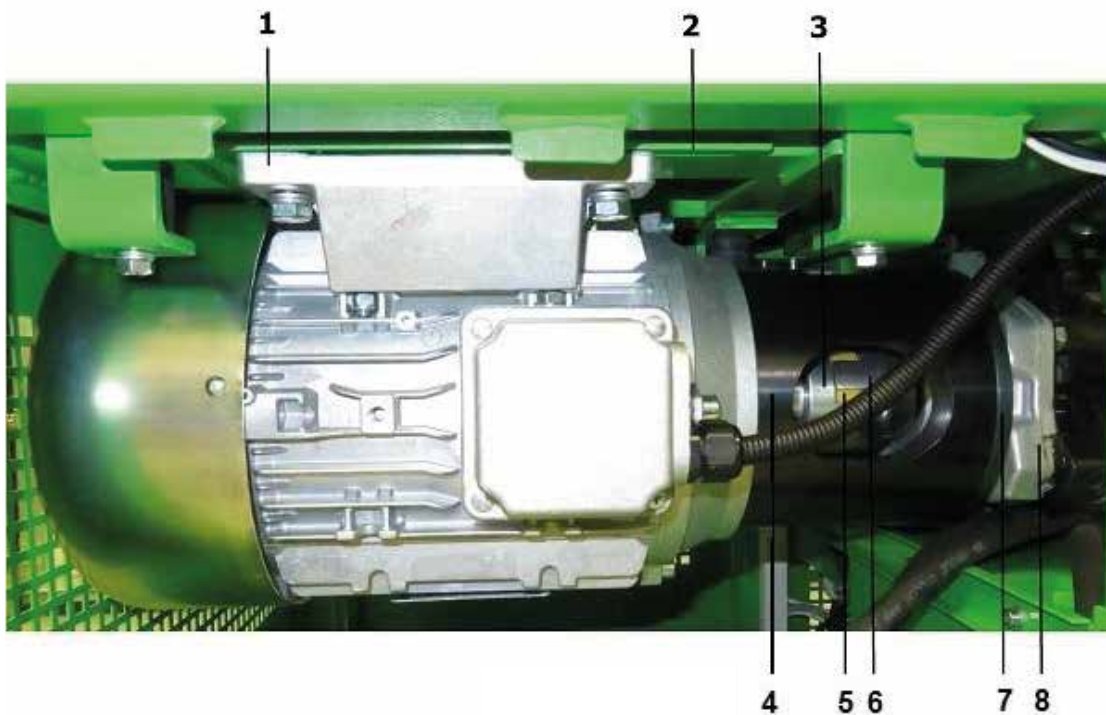
**DL-CR50177**

Return pressure valve for  
Bosch piezo injectors



ADDITIONAL EQUIPMENT AND ACCESSORIES FOR STANDS  
TRIUMF, CRUIS , CR-TEST-4E AND CR-JET-4EM

Re-equipment of stands CRUIS, TRIUMF, CR-Jet  
for electric motors 5.5 kW



- |    |                    |   |
|----|--------------------|---|
| 1. | <b>DL-EDF0055</b>  | Electric motor flange 5.5 kW                                      |
| 2. | <b>DL-UNI50277</b> | Motor Mounting Bracket<br>5.5 kW for TRIUMF, CR-Jet stands        |
|    | <b>DL-UNI31521</b> | Motor Mounting Bracket<br>5.5 kW for CRUIS stand                  |
| 3. | <b>DL-UNI31444</b> | Coupling for the engine for injection pump 0445020139, 0445020088 |
|    | <b>DL-UNI31502</b> | Coupling on the engine for injection pump 0445020078, 0445020119  |
| 4. | <b>DL-UNI31449</b> | Clip for fastening the injection pump to the electric motor       |
| 5. | <b>DL-MUP0060</b>  | Compensatory polyurethane insert                                  |
| 6. | <b>DL-UNI31443</b> | Coupling for injection pump 0445020139                            |
|    | <b>DL-UNI31520</b> | Coupling for injection pump 0445020119                            |
| 7. | <b>DL-UNI31459</b> | Flange for injection pump 0445020078 (119,175,105)                |
| 8. | <b>THBД 020139</b> | High pressure fuel pump<br>Bosch 0445020139                       |

ADDITIONAL EQUIPMENT AND ACCESSORIES FOR STANDS  
TRIUMF, CRUIS , CR-TEST-4E AND CR-JET-4EM



**DL-EDF0055**

Electric motor flange 5.5 kW



**DL-UNI50277**

Electric motor mounting bracket 5.5kW  
for stands TRIUMF, CR-Jet

**DL-UNI31521**

Motor mounting bracket 5.5 kW  
for stands CRUISE



**DL-UNI31444**

Coupling for the engine for injection pump 0445020139, 0445020088

**DL-UNI31502**

Coupling on the engine for injection pump 0445020078, 0445020119



**DL-UNI31449**

Clip for fastening the injection pump to the electric motor



**DL-MUP0060**

Compensatory polyurethane insert



**DL-UNI31443**

Coupling for injection pump 0445020139

**DL-UNI31520**

Coupling for injection pump 0445020119



**DL-UNI31459**

Flange for injection pump 0445020078 (119,175,105)



**THBД 020139**

High pressure fuel pump BOSCH 0445020139



**MODERNIZATION KIT FOR CR-JET-4E STANDS.  
INSTALLING THE CASCADE PROGRAM**

**DL-KMS-JET**

**List of modernization components:**

- Electronic part / set of mounting materials
- Delphi piezo transducer for Cascade software
- Personal Computer / PC Installation Accessories
- Frequency converter / Drive control software / Mounting kit
- Vacuum system / Mounting kit
- Mounting elements for inverter and vacuum pump
- Vacuum adjustment unit / Mounting kit
- Vacuum control unit
- Bench retrofit up to 2400 bar / hydraulic kit



The Cascade software has a user-friendly interface. The program contains built-in test plans for testing and coding Bosch, Delphi, Denso, Siemens (VDO) injectors. The functions of creating new test plans, editing built-in ones, as well as creating targets for Delphi C2i, C3i, C4i injectors are available. The results and progress of testing are displayed in graphical form and saved to a file and sent to print.

Cascade software allows coding BOSCH isa / ima cod, Delphi C2i / C3i / C4i\*, Denso, VDO Siemens injectors.

Stand working pressure up to 2400 bar.

\* coding Delphi C4i in the configuration of the stand 5.5 kW 380 V

## PUMP TEST.02

## Common-Rail High Pressure Pump Testing Equipment



## The kit includes:

1. The **PTC-2520** device is designed to provide user-programmable control signals to Common Rail injection pump pressure regulators to test their performance.
2. Device **FMDE-520**, designed to measure the performance of the Common Rail injection pump in two channels.
3. Tool rack on wheels for easy operation.
4. A set of adapter cables.
5. Liquid fine filters (2 pcs.)
6. Software.



### CR-TESTER . CRT-5040

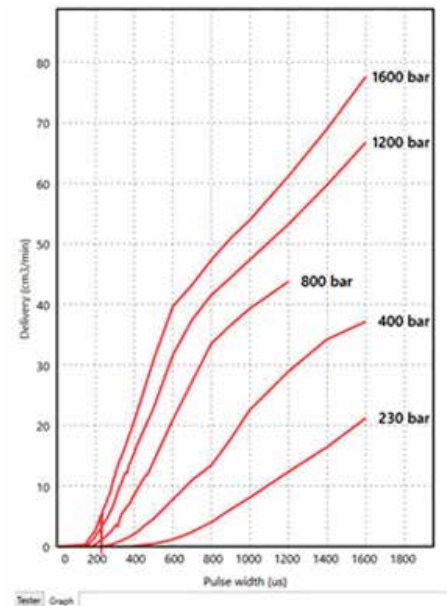
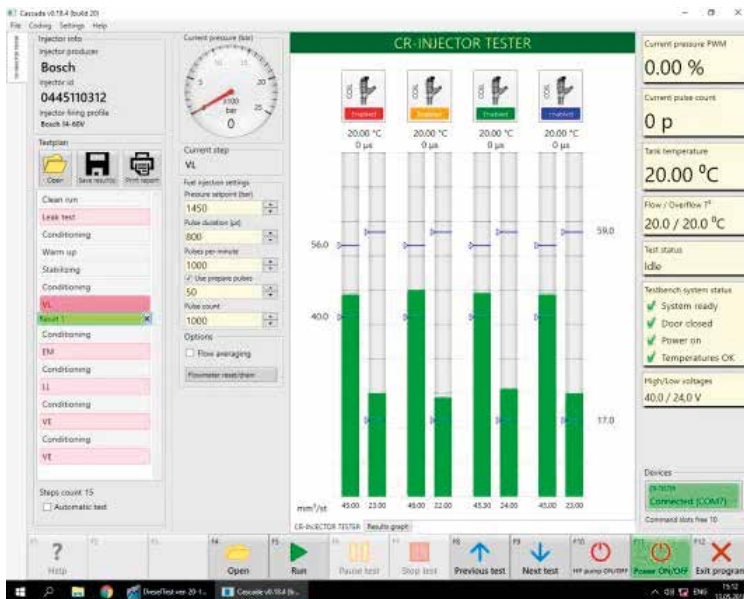


4-channel device for testing and testing Common Rail injectors Bosch, Denso, Delphi, Siemens VDO with a set of cables.

The device has the ability to connect to the FLAGMAN-FLOW beakerless measuring system with the ability to generate correction codes for Delphi C2i / C3i, BOSCH, DENSO injectors

At the CR-TESTER device. CRT-5040 has the functions of controlling the curtain of the metering unit, stopping the high-pressure pump, measuring and controlling the temperature in the tank, measuring the temperature of the back-tested injectors, measuring the injection start time, etc.

Computer control of the set through the CASCADE software.





### FLAGMAN-FLOW

CR injector dosage measuring unit, 8-channel for CR-TESTER device. CRT-5040

Computer control of the set through the CASCADE software.



### FLAGMAN-FULL

CR injector test kit

The FLAGMAN-FULL complex is intended for testing CommonRail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in an 8-channel FLAGMAN-FLOW system without a beaker. There is a possibility of retrofitting with a hardware-software complex for coding injectors.

Computer control of the set through the CASCADE software.



### FLAGMAN-CODE (FLAGMAN-CODE-L)

CR injector test kit

The FLAGMAN-CODE complex is designed to test common rail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in the 8-channel FLAGMAN-FLOW system without beakers. The complex consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER controller. CRT-5040. The complex is also equipped with a vacuum system for coding Deiphi C2i, C3i injectors. Computer control of the set through the CASCADE software.

The FLAGMAN-CODE-L kit is equipped with equipment for installing injectors on a test bench.



### DL-CR50015

Sensor for coding — *upon additional order*





## FLAGMAN-CODE

CR injector test kit

The FLAGMAN-FULL complex is intended for testing CommonRail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in an 8-channel beakerless FLAGMAN-FLOW system. The complex consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER controller. CRT-5040. The complex is also equipped with a vacuum system for coding Deiphi C2i, C3i injectors. Computer control of the set through the CASCADE software.



### DL-CR50015

Sensor for coding — *upon additional order*

## Kit of delivery FLAGMAN-CODE

Measurement unit without beaker FLAGMAN-FLOW	1 pc
Controller CR-TESTER. CRT-5040	1 pc
Vacuum system	1 set
Software	1 pc
Passport (technical description, instruction manual)	1 pc
Set of connecting cables for FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Extension cord for injector cables: "Injector" socket -1.5m	1 pc
Adapter cable for injectors	1 set
Adapter cable for high pressure regulators	1 pc
Adapter cable for low pressure regulators	1 pc
Adapter cable for pressure sensor	1 pc
Power cable 220 V	1 pc
Connectors for self-manufacturing of cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Invertor", "Rpm"	1 set
Temperature sensor for monitoring the temperature of the liquid in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the temperature of the TJ backflow	4 pcs
Reed switch for connecting a protective screen: "Protection" socket	1 pc
Fuse 3A	1 pc
Connecting pipelines	1 set





## FLAGMAN-CODE-L

CR injector test kit

The FLAGMAN-FULL complex is intended for testing common rail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in an 8-channel beakerless FLAGMAN-FLOW system. The complex consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER controller. CRT-5040. The complex is also equipped with a vacuum system for coding Deiphi C2i, C3i injectors. Computer control of the set through the CASCADE software.



### DL-CR50015

Sensor for coding — *upon additional order*

## Kit of delivery FLAGMAN-CODE-L

Measurement unit without beaker FLAGMAN-FLOW	1 pc
Controller CR-TESTER. CRT-5040	1 pc
Vacuum system	1 set
Software	1 pc
Passport (technical description, instruction manual)	1 pc
Set of connecting cables for FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Extension cord for injector cables: "Injector" socket -1.5m	1 pc
Adapter cable for injectors	1 set
Adapter cable for high pressure regulators	1 pc
Adapter cable for low pressure regulators	1 pc
Adapter cable for pressure sensor	1 pc
Power cable 220 V	1 pc
Connectors for self-manufacturing of cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Invertor", "Rpm"	1 set
Temperature sensor for monitoring the temperature of the liquid in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the temperature of the TJ backflow	4 pcs
Reed switch for connecting a protective screen: "Protection" socket	1 pc
Fuse 3A	1 pc
Connecting pipelines	1 set
<b>DL-CR10015</b> Nozzle holder frame	1 pc
<b>DL-CR10025</b> Injector holder bracket assembly	1 pc
<b>DL-CR10006</b> Protective glass (6mm) or <b>DL-CR10010</b> Protective glass (10mm)	1 pc



### CR-Active

The **CR-Active** signal activator is designed to supply a control signal to the solenoid valve of Common-Rail injectors with a set of cables. It is used to measure the valve stroke when measuring the magnetic gap of electromagnetic Common-Rail injectors.

It has two delivery options: basic and complete. In addition to the signal activator and a set of cables, the complete set includes a stand for injectors, a set of measuring probes and adapters, and a measuring indicator head



### CR-NeXT

Armature activator device for Common-Rail injector solenoid valve. The **CR-NeXT** device is designed to supply a control signal to the solenoid valve of Common-Rail injectors. It is mainly used to measure the valve stroke when measuring the magnetic gap of common-rail solenoid injectors.



### MONICA CTV-08

The device "**MONICA**" CTV-08 for measuring the actuation current of the electromagnet of Common Rail type injectors

In its case, the device has 2 connectors for connecting a signal cable and a power cable. The measurement takes place by pressing the "Enter" button, after the flashing dot appears on the display, the device is ready for a new measurement. It is also possible to reset the measurement by pressing the "Reset" button



### PTC-2520 CP TESTER

Device for testing and testing high-pressure fuel pumps of the Common Rail system with a set of cables.



### FMDE-520

Device for testing the performance of fuel pumps of the Common Rail system of various manufacturers: Bosch, Delphi, Denso, Siemens, Cummins on a test bench.

It is a 2-channel liquid flow meter (pump supply and return discharge) in various modes, with digital information output to a backlit liquid crystal display.

## CRISTINA

The **CRistina** complex is designed for assembling injectors of the COMMON RAIL BOSCH, DELPHI, DENSO systems using a technology that allows you to calculate and select all the necessary adjusting elements.

CRistina repair- and testing complex is dedicated to assembling and disassembling Bosch, Denso and Delphi Common Rail injectors according to manufacturer specified steps and mechanical tolerances. The complex offers the ability to measure relevant mechanical tolerances of the injector parts and electrical characteristics of the electromagnet. The assembly/disassembly steps and critical measurement points are presented by convenient step-by-step instructions descriptions and relevant images of the work process itself.



## CRistina-PIEZO

Device for testing piezo injectors and piezo element.

### Features of the device:

- Feeding signal to activate the injector on the hand press
- Measuring the resistance of a piezo
- Measuring the capacity of the piezo
- Measurement function of the smooth running of the piezo



## PR-TESTER.V05

Electronic pressure gauge  
2 channel

### DL-UNI20061

**Delivery set for measurement  
pressure on 2 CHANNELS:**

1. **DL-UNI20065** Electronic pressure gauge
2. **DL-UNI20071** Main adapter cable for 2-channel connection - 1 pc.
3. **DL-UNI20072** Adapter cable for pressure sensor BOSCH type 1 – 2 pcs.
4. **DL-UNI20073** Adapter cable for pressure sensor BOSCH 2 type – 2 pcs.
5. **DL-UNI20074** DELPHI pressure sensor adapter cable – 2 pcs.
6. **DL-UNI20075** Adapter cable for universal for pressure sensor - 2 pcs.
7. Charger
8. The passport



## PR-TESTER.V05

Electronic pressure gauge  
2 channel

### DL-UNI20060

**Delivery set for measurement  
pressure on 1 CHANNEL:**

1. **DL-UNI20065** Electronic pressure gauge
2. **DL-UNI20070** Main adapter cable for single-channel connection – 1 pc.
3. **DL-UNI20072** Adapter cable for pressure sensor BOSCH type 1 – 1 pc.
4. **DL-UNI20073** BOSCH pressure sensor adapter cable 2 type – 1 pc.
5. **DL-UNI20074** DELPHI pressure sensor adapter cable – 1 pc.
6. **DL-UNI20075** Universal adapter cable for pressure sensor - 1 pc.
7. Charger
8. The passport




**DL-UNI20065**
**PR-TESTER.V05**

Electronic pressure gauge included with charger


**DL-UNI20077**

adapter cable for pressure sensor BOSCH 1500 bar


**DL-UNI21030**

mounting bracket electronic manometer


**DL-UNI30237**

Pressure gauge leg (fitting) G1/2 with nut M12 x 1.25 mm

**DL-UNI30445**

Manometer leg (fitting) M20 x 1.5mm with nut M12 x 1.25 mm


**DL-CR10058**
**DL-CR10059**

Pressure sensor 1500 bar

**DL-CR10060**

## DL-UNI20065 PR-TESTER.V05

Electronic pressure gauge suitable for manual presses:


**DL-RP420**

(without pressure sensor)

**DL-RP425**

(with pressure sensor 1500 bar)

### Hand press RP 400 for injector testing with electronic pressure gauge DL-UNI20065

#### Contents of delivery:

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for RP 425) for 1500 bar – 1 pc.


**DL-RP520**

(without pressure sensor)

**DL-RP525**

(with pressure sensor 1500 bar)

### ZECA hand press for injector testing with electronic pressure gauge DL-UNI20065

#### Contents of delivery:

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for RP 525) for 1500 bar – 1 pc.



## BASIC KITS FOR CR NOZZLE TESTING

WITH THE HELP OF A MEASURING BLOCK. FROM  
POSSIBILITY OF CONNECTING TO ELECTRONIC MEASURING  
FLAGMAN-MUFI-CR UNIT AND CODING RETROFIT  
FLAGMAN CODE.



## DL-CR10030

A set of basic equipment for testing CR injectors with a controller CR-TESTER CRT-5040 and High pressure fuel pump Basic equipment kit designed to test Common Rail injectors various manufacturers (Bosch, Denso, Delphi, VDO (Siemens) Cummins, Caterpillar, AZPI).

The **DL-CR10030** set is completed with a **DL-CR00088** injection pump with a working pressure of 1800 bar.

## DL-CR10031

Basic equipment kit for testing CR injectors with controller CR-TESTER CRT-5040 without injection pump kit CP3 **DL-CR00088**

## DL-CR10020

Basic kit for testing CR injectors without controller CR-TESTER **CRT-5040**

## DL-CR10021

Basic kit for testing CR injectors without controller CR-TESTER CRT-5040 and injection pump CP3 **DL-CR00088**

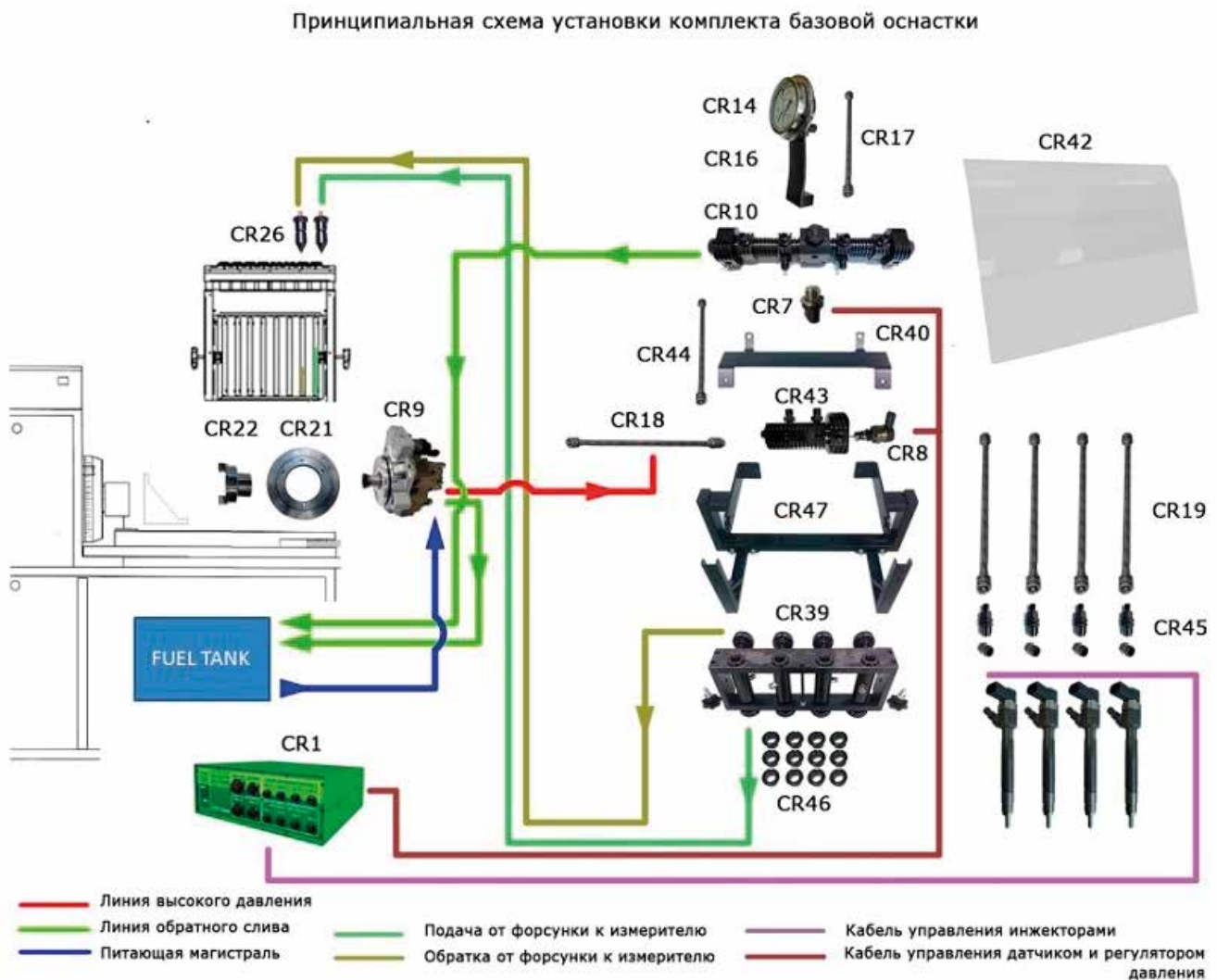
## DL-CR00139

The injection pump kit **DL-CR00139** is used with a working pressure of 2400 bar and is supplied by separate order. Also, when installing **DL-CR00139** in the basic equipment kit, it is necessary to replace the sensor and pressure regulator for 2400 Bar and 2200 Bar, respectively.

### BASIC KITS FOR CR NOZZLE TESTING

**DL-CR10030** Basic equipment kit for testing CR injectors with controller CR-tester CRT-5040 and injection pump. The basic equipment kit is designed to test CommonRail injectors from various manufacturers (Bosch, Denso, Delphi, VDO (Siemens) Cummins, Caterpillar, AZPI).

The injection pump kit **DL-CR00139** is used for operating pressures of 2400 bar or 2200 bar and is available upon separate order. When installing DL-CR00139 in the basic equipment kit, it is necessary to replace the sensor and pressure regulator with 2400 bar or 2200 bar, respectively.



## DL-CR10030

## EQUIPMENT KIT FOR TESTING CR INJECTORS

CR1	Common Rail Injector Test Controller	CRT-5040	1 pc
	Pressure sensor 1800 bar	DL-CR10050	1 pc
CR7	*Pressure sensor 2200 bar	DL-CR10052	1 pc
	*Pressure sensor 2400 bar	DL-CR10053	1 pc
	Pressure regulator 1800 bar	DL-CR10051	1 pc
CR8	*Pressure regulator 2200 bar	DL-CR10054	1 pc
	*Pressure regulator 2700 bar	DL-CR10055	1 pc
CR43	Rail pressure accumulator small	DL-CR30180	1 pc
CR10	Rail pressure accumulator for 2 regulators	DL-CR30181	1 pc
CR43	*Rail pressure accumulator for 2 regulators with cooling	DL-CR30188	1 pc
CR32	*Safety valve for pressure accumulator 1800 bar	DL-CR10056	1 pc
CR32	*Safety valve for pressure accumulator 2400 bar	DL-CR10057	1 pc
CR30	Plug M14 cap	DL-UNI50271	4 pcs
CR19	High pressure pipes M14 x 14 x 400 mm / M12 x 14 x 400 mm for injectors	DL-TVD41414 DL-TVD41214	4 pcs
CR17	High pressure tube M14 x 14 x 300 mm for pressure gauge	DL-TVD31414	1 pc
CR44	High pressure tube M14 x 14 x 300 mm for rail connection	DL-TVD31414	1 pc
CR45	Adapter from M14 to M12 / M12 to M12	DL-UNI50083 DL-UNI50087	4 pcs
CR39	Nozzle holder frame	DL-CR10015	4 pcs
CR46	Bushing set <b>DL-UNI31019</b> -Ø 17 (4pcs); <b>DL-UNI31020</b> -Ø 18.9 (1pc); <b>DL-UNI31021</b> -Ø 19.2 (1pc); <b>DL-UNI31022</b> -Ø21 (1pc) and <b>DL-UNI31231</b> -Ø21.4(1pc)	DL-UNI50161	1 set
CR24	Beaker - Clamp for 9mm atomizers	DL-UNI50343	2 pcs
CR47	Bracket - injector frame holder	DL-CR10025	1 pc
CR29	Tube TEFLON for connection of injectors to dia. 6 mm	P1004	16 m
CR31	Plug instead of pressure regulator	DL-UNI30497	2 pcs
CR32	Plug instead of safety valve	DL-CR30493	1 pc
CR36	Backflow connection kit DENSO banjo fitting, bolt M8 x 1 mm, copper washers 2 pcs.	DL-CR20060	4 sets

CR38	Return fitting for "rail" (banjo 12 mm + M12 bolt + rubber-metal washers)	DL-CR20062	2 sets
CR35	A set of fittings for measuring the return flow of fuel from the injectors	DL-24CRM	1 set
CR40	Bracket-holder "rail" on the frame	DL-CR10028	1 pc
CR41	Mounting kit for rail and frame	DL-CR20063	1 set
CR42	Protective cover (plexiglass) + 2 brackets-holders	DL-CR10006	1 pc
CR26	Defoamers	DL-UNI30156	8 pcs
CR28	Quick connect adapters for defoamers	34-RL310602	8 pcs
CR14	Pressure gauge 0-2500 bar	DL-CR14P2500	1 pc
CR15	Adapter 1/2" X M14 (for pressure gauge)	DL-UNI30287	1 pc
CR16	Pressure gauge holder	DL-KM2500	1 pc

**Set of equipment injection pump CP3 DL-CR00088 1800 bar**

CR9	High pressure fuel pump SR-3 1800 bar	DL-CR10088	1 pc
CR18	High pressure pipe M14 X 14 X 400 mm for injection pump	DL-TVD51414	1 pc
CR21	Pump bracket adapter (diameter 107 mm)	DL-UNI30428	1 pc
CR22	Coupling for connecting the pump to the drive	DL-M24/DL-M19	1 pc
CR34	Rubber hose dia.8 mm for fuel supply to the pump	D-18-806-008	2,4 m
CR38	Fitting (banjo 12 mm + M12 bolt + rubber-metal washers) for injection pump	DL-CR20062	1 set
—	Clamps 13 mm for rubber hoses $\Phi$ 8 mm	DL-CR20066	4 pcs
—	Conical fitting M12x1.5, for a hose with a diameter of 8 mm	DL-UNI30112	3 pcs
—	Washer, rubber-metal, M12	D-GM1537AN	5 pcs

**\*Set of equipment injection pump CP3 DL-CR00139 2400 bar**

CR9	High pressure fuel pump SR-3 2400 bar	DL-CR10139	1 pc
CR18	High pressure pipe M14 X 14 X 400 mm for injection pump	DL-TVD51414	1 pc
CR21	Pump bracket adapter (diameter 107 mm)	DL-UNI30428	1 pc
CR22	Coupling for connecting the pump to the drive	DL-M24	1 pc
CR34	Rubber hose dia.8 mm for fuel supply to the pump	D-18-806-008	2 m
CR38	Fitting (banjo 12 mm + M12 bolt + rubber-metal washers) for injection pump	DL-CR20062	2 sets
—	Clamps 13 mm for rubber hoses $\Phi$ 8 mm	DL-CR20066	4 pcs
—	Conical fitting M12x1.5, for a hose with a diameter of 8 mm	DL-UNI30112	3 pcs
—	Washer, rubber-metal, M12	D-GM1537AN	5 pcs

\* for additional order

## CR INJECTOR TEST KITS

**DL-CR10000**

Basic set of equipment  
CR with CR-Tester and with  
high pressure fuel pump CP-3

**DL-CR10001**

CR tool kit  
(without pump, without CR-Tester)

**DL-CR10000****BASIC EQUIPMENT KIT COMMON RAIL****Electronic part:**

CR1	Signal simulator 4-channel CR-Tester	1 pc
CR2	Cable kit (basic)	1 pc
CR3	Connector-adapter (male) for connecting injectors "on the thread"	1 pc
CR4	Connector-adapter for connecting Delphi injectors	1 pc
CR5	Connector-adapter for connecting MB injectors	1 pc
CR6	Connector-adapter for connecting BMW injectors	1 pc
CR7	Pressure sensor (0281002921 -1800 bar)	1 pc
CR8	Pressure regulator (0281002494)	1 pc



**Mechanical part:**

CR9	injection pump (CP3) BOSCH	1 pc
CR10	"Rail" for 4 nozzles on 2 RD	1 pc
CR11	Fitting for "Rail" M14xM14 in a set with gaskets	5 pcs
CR12	Fitting for "Rail" M14xM12(M14) in a set with gaskets	1 pc
CR14	Pressure gauge 0-2500 bar D-CR14P2500	1 pc
CR15	Pressure gauge adapter	1 pc
CR16	Pressure gauge holder	1 pc
CR17	High pressure pipes M14 x M12 (M14) x 300 mm for pressure gauge	1 pc
CR18	High pressure pipes M12 x M12 (M14) x 300 mm for injection pump	1 pc
CR19	High pressure pipes M14XM14 x300mm for injectors	4 pcs
CR20	Straight adapter from M14 to M12 for high pressure tube	4 pcs
CR21	Adapter for mounting the pump on a bracket (Ø107mm.)	1 pc
CR22	Coupling for connecting the pump to the drive	1 pc
CR23	BOSCH-DENSO injector adapter	4 pcs
CR24	Adapter-glass for installing DELPHI injectors	4 pcs
CR25	Clamp (collet) for injector nozzles 7mm	4 pcs
CR26	Defoamers	8 pcs
CR27	1/8" adapters for quick connection (Ø 6mm angled)	4 pcs
CR28	1/4" adapters for quick connection (Ø 6mm) straight	8 pcs
CR29	PVC spout Ø 6 mm	16 m
CR30	Plug M14 for "Rail"	4 pcs
CR31	Plug instead of RD	1 pc
CR32	Plug instead of safety valve	1 pc
CR33	Plug M12 instead of return fitting "Rail"	1 pc
CR34	PVC hose 8mm for fuel supply to the pump	1,5 m
CR35	BOSCH injector return fitting	4 pcs
CR36	DENSO injector return fitting	4 pcs
CR37	"Bolts" for DENSO injector return fittings	4 pcs
CR38	Return fitting for "Rail" (banjo12mm + bolt M12 + washers)	2 sets
CR39	Nozzle holder frame	1 pc
CR40	Rail bracket on frame	1 pc
CR41	Mounting kit for "Rail" and frame	1 pc
CR42	Protective cover	1 set

**DL-12CRM**

Reverse flask set  
draining CR injectors

**DL-24CRM**

Set of flasks with measuring adapters  
return flow of CR injectors

**DL-36CRM**

Connection adapter set  
return flow of CR injectors

**DL-80CRM****Set of connections for measuring the fuel  
backflow from Common Rail injectors**

Kit includes :

1	<b>DL-6015168</b>	Fitting for injectors FORD (Siemens VDO)	4 pcs
2	<b>DL-6015188</b>	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	<b>DL-60151111</b>	Fitting for injectors BOSCH Piezo	4 pcs
4	<b>DL-6015166</b>	Fitting for SIEMENS VDO injectors	4 pcs
5	<b>DL-GSDE</b>	L-shaped fitting with bracket for Denso injectors	4 pcs
6	<b>DL-OCDE</b>	Banjo fitting for Denso injectors	4 pcs
7	<b>DL-6015195</b>	Fitting for DELPHI injectors	4 pcs
8	<b>DL-6015176</b>	Fitting for injectors 0445110368 (BOSCH)	4 pcs
9	<b>DL-6015130</b>	DELPHI injector fitting	4 pcs
10	<b>DL-6015161</b>	Fitting for SIEMENS injectors	4 pcs
11	<b>DL-KLB01</b>	Fitting with bracket for BOSCH injectors	4 pcs
12	<b>DL-SMS01</b>	Clamp long for clamping SIEMENS fitting	4 pcs
13	<b>DL-SMS02</b>	Medium bracket for clamping the SIEMENS fitting	4 pcs
14	<b>DL-SMS03</b>	Bracket standard for clamping the SIEMENS fitting	4 pcs

# 1

## STANDS and EQUIPMENT for testing common rail injectors and pumps

1



**DL-6015168**

Nozzle fitting  
FORD (Siemens VDO)

2



**DL-6015188**

Nozzle fitting FORD  
Transit (Siemens VDO)

3



**DL-6015111**

Nozzle fitting  
BOSCH Piezo

4



**DL-6015166**

Nozzle fitting  
SIEMENS VDO

5



**DL-GSDE**

Fitting L-shaped with  
bracket for injectors  
Denso

6



**DL-OCDE**

Banjo fitting for  
Denso injectors

7



**DL-6015195**

Nozzle fitting DELPHI

8



**DL-6015176**

Nozzle fitting  
0445110368 (BOSCH)

9



**DL-6015130**

Nozzle fitting DELPHI

10



**DL-6015161**

Nozzle fitting  
SIEMENS

11



**DL-KLB01**

Union with clamp  
for Bosch injectors

12



**DL-SMS01**

Bracket long for  
fitting clamp  
SIEMENS

13



**DL-SMS02**

Bracket medium for  
fitting clamp  
SIEMENS

14



**DL-SMS03**

Bracket standard  
for fitting clamp  
SIEMENS

**DL-90CRM**

## Set of connections for measuring the fuel backflow from Common Rail injectors



Kit includes :

1	<b>DL-6015168</b>	Fitting for injectors FORD (Siemens VDO)	4 pcs
2	<b>DL-6015188</b>	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	<b>DL-60151111</b>	Fitting for injectors BOSCH Piezo	4 pcs
4	<b>DL-6015166</b>	Fitting for SIEMENS VDO injectors	4 pcs
5	<b>DL-GSDE</b>	L-shaped fitting with bracket for Denso injectors	4 pcs
6	<b>DL-OCDE</b>	Banjo fitting for Denso injectors	4 pcs
7	<b>DL-6015195</b>	Fitting for DELPHI injectors	4 pcs
8	<b>DL-6015176</b>	Fitting for injectors 0445110368 (BOSCH)	4 pcs
9	<b>DL-6015130</b>	DELPHI injector fitting	4 pcs
10	<b>DL-6015161</b>	Fitting for SIEMENS injectors	4 pcs
11	<b>DL-KLB01</b>	Fitting with bracket for BOSCH injectors	4 pcs
12	<b>DL-6015181</b>	Fitting for SIEMENS injectors	4 pcs
13	<b>DL-6015193</b>	Fitting for injectors 0445110550 (BOSCH)	4 pcs
14	<b>DL-SMS01</b>	Clamp long for clamping SIEMENS fitting	4 pcs
15	<b>DL-SMS02</b>	Medium bracket for clamping the SIEMENS fitting	4 pcs
16	<b>DL-SMS03</b>	Bracket standard for clamping the SIEMENS fitting	4 pcs



1



**DL-6015168**

Nozzle fitting  
FORD (Siemens VDO)

2



**DL-6015188**

Nozzle fitting FORD  
Transit (Siemens VDO)

3



**DL-6015111**

Nozzle fitting  
BOSCH Piezo

4



**DL-6015166**

Nozzle fitting  
SIEMENS VDO

5



**DL-GSDE**

Fitting L-shaped with  
bracket for injectors  
Denso

6



**DL-OCDE**

Banjo fitting for  
Denso injectors

7



**DL-6015195**

Nozzle fitting DELPHI

8



**DL-6015176**

Nozzle fitting  
0445110368 (BOSCH)

9



**DL-6015130**

Nozzle fitting DELPHI

10



**DL-6015161**

Nozzle fitting  
SIEMENS

11



**DL-KLB01**

Union with clamp  
for Bosch injectors

12



**DL-6015181**

Nozzle fitting  
SIEMENS

13



**DL-6015193**

Nozzle fitting  
0445110550 (BOSCH)

14



**DL-SMS01**

Bracket long for  
fitting clamp  
SIEMENS

15



**DL-SMS02**

Bracket medium for  
fitting clamp  
SIEMENS

16



**DL-SMS03**

Bracket standard  
for fitting clamp  
SIEMENS

**DL-100CRM****Set of connections for measuring the fuel  
backflow from Common Rail injectors**

Kit includes :

1	<b>DL-6015168</b>	Fitting for injectors FORD (Siemens VDO)	4 pcs
2	<b>DL-6015188</b>	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	<b>DL-60151111</b>	Fitting for injectors BOSCH Piezo	4 pcs
4	<b>DL-6015166</b>	Fitting for SIEMENS VDO injectors	4 pcs
5	<b>DL-GSDE</b>	L-shaped fitting with bracket for Denso injectors	4 pcs
6	<b>DL-OCDE</b>	Banjo fitting for Denso injectors	4 pcs
7	<b>DL-6015195</b>	Fitting for DELPHI injectors	4 pcs
8	<b>DL-6015176</b>	Fitting for injectors 0445110368 (BOSCH)	4 pcs
9	<b>DL-6015130</b>	DELPHI injector fitting	4 pcs
10	<b>DL-6015161</b>	Fitting for SIEMENS injectors	4 pcs
11	<b>DL-KLB01</b>	Fitting with bracket for BOSCH injectors	4 pcs
12	<b>DL-6015181</b>	Fitting for SIEMENS injectors	4 pcs
13	<b>DL-6015193</b>	Fitting for injectors 0445110550 (BOSCH)	4 pcs
14	<b>DL-CR31256</b>	Fitting for injectors Denso M8 x 1mm	4 pcs
15	<b>DL-CR31312</b>	Fitting for injectors Denso M8 x 1.25mm	4 pcs
16	<b>DL-CR31254</b>	Fitting for Denso injectors	4 pcs
17	<b>DL-CR31255</b>	Fitting for Denso injectors	4 pcs
18	<b>DL-SMS01</b>	Clamp long for clamping SIEMENS fitting	4 pcs
19	<b>DL-SMS02</b>	Medium bracket for clamping the SIEMENS fitting	4 pcs
20	<b>DL-SMS03</b>	Bracket standard for clamping the SIEMENS fitting	4 pcs

# 1

## STANDS and EQUIPMENT for testing common rail injectors and pumps

1



**DL-6015168**

Nozzle fitting  
FORD (Siemens VDO)

2



**DL-6015188**

Nozzle fitting FORD  
Transit (Siemens VDO)

3



**DL-60151111**

Nozzle fitting  
BOSCH Piezo

4



**DL-6015166**

Nozzle fitting  
SIEMENS VDO

5



**DL-GSDE**

Fitting L-shaped with  
bracket for injectors  
Denso

6



**DL-OCDE**

Banjo fitting for  
Denso injectors

7



**DL-6015195**

Nozzle fitting DELPHI

8



**DL-6015176**

Nozzle fitting  
0445110368 (BOSCH)

9



**DL-6015130**

Nozzle fitting DELPHI

10



**DL-6015161**

Nozzle fitting  
SIEMENS

11



**DL-KLB01**

Union with clamp  
for Bosch injectors

12



**DL-6015181**

Nozzle fitting  
SIEMENS

13



**DL-6015193**

Nozzle fitting  
0445110550 (BOSCH)

14



**DL-CR31256**

Nozzle fitting Denso  
M8 x 1mm

15



**DL-CR31312**

Nozzle fitting Denso  
M8 x 1,25mm

16



**DL-CR31254**

Nozzle fitting Denso

17



**DL-CR31255**

Nozzle fitting Denso

18



**DL-SMS01**

Bracket long for  
fitting clamp  
SIEMENS

19



**DL-SMS02**

Bracket medium for  
fitting clamp  
SIEMENS

20



**DL-SMS03**

Bracket standard  
for fitting clamp  
SIEMENS

**DL-120CRM**

## Set of connections for measuring the fuel backflow from Common Rail injectors



Kit includes :

1	DL-6015168	Fitting for injectors FORD (Siemens VDO)	4 pcs
2	DL-6015188	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	DL-60151111	Fitting for injectors BOSCH Piezo	4 pcs
4	DL-6015166	Fitting for SIEMENS VDO injectors	4 pcs
5	DL-GSDE	L-shaped fitting with bracket for Denso injectors	4 pcs
6	DL-OCDE	Banjo fitting for Denso injectors	4 pcs
7	DL-6015195	Fitting for DELPHI injectors	4 pcs
8	DL-7247800	Fitting for DELPHI injectors	4 pcs
9	DL-7271100	Fitting for DELPHI injectors	4 pcs
10	DL-6015176	Fitting for injectors 0445110368 (BOSCH)	4 pcs
11	DL-6015130	DELPHI injector fitting	4 pcs
12	DL-6015161	Fitting for SIEMENS injectors	4 pcs
13	DL-KLB01	Fitting with bracket for BOSCH injectors	4 pcs
14	DL-6015181	Fitting for SIEMENS injectors	4 pcs
15	DL-6015193	Fitting for injectors 0445110550 (BOSCH)	4 pcs
16	DL-CR31256	Fitting for injectors Denso M8 x 1mm	4 pcs
17	DL-CR31312	Fitting for injectors Denso M8 x 1.25mm	4 pcs
18	DL-CR31254	Fitting for Denso injectors	4 pcs
19	DL-CR31255	Fitting for Denso injectors	4 pcs
20	DL-SMS01	Clamp long for clamping SIEMENS fitting	4 pcs
21	DL-SMS02	Medium bracket for clamping the SIEMENS fitting	4 pcs
22	DL-SMS03	Bracket standard for clamping the SIEMENS fitting	4 pcs

# 1

## STANDS and EQUIPMENT for testing common rail injectors and pumps



**DL-6015168**

Nozzle fitting  
FORD (Siemens VDO)



**DL-6015188**

Nozzle fitting FORD  
Transit (Siemens VDO)



**DL-60151111**

Nozzle fitting  
BOSCH Piezo



**DL-6015166**

Nozzle fitting  
SIEMENS VDO



**DL-GSDE**

Fitting L-shaped with  
bracket for injectors  
Denso



**DL-OCDE**

Banjo fitting for  
Denso injectors



**DL-6015195**

Nozzle fitting  
DELPHI



**DL-7247800**

Nozzle fitting  
DELPHI



**DL-7271100**

Nozzle fitting  
DELPHI



**DL-6015176**

Nozzle fitting  
0445110368 (BOSCH)



**DL-6015130**

Nozzle fitting DELPHI



**DL-6015161**

Nozzle fitting  
SIEMENS



**DL-KLB01**

Union with clamp  
for Bosch injectors



**DL-6015181**

Nozzle fitting  
SIEMENS



**DL-6015193**

Nozzle fitting  
0445110550  
(BOSCH)



**DL-CR31256**

Nozzle fitting Denso  
M8 x 1mm



**DL-CR31312**

Nozzle fitting  
Denso  
M8 x 1,25mm



**DL-CR31254**

Nozzle fitting  
Denso



**DL-CR31255**

Nozzle fitting  
Denso



**DL-SMS01**

Bracket long for  
fitting clamp  
SIEMENS



**DL-SMS02**

Bracket medium for  
fitting clamp  
SIEMENS



**DL-SMS03**

Bracket standard  
for fitting clamp  
SIEMENS



**Universal adapter for truck CR injectors (Bosch , Denso, Delphi Smart) for supply and backflow lines at angles of 0°, 4° and 13°**

DL-CR50013



**Kit includes :**

<b>DL-CR30219</b>	Adapter housing
<b>DL- CR50035</b>	Holding bracket with fitting and fitting for backflow
<b>DL- CR30419</b>	Nozzle for backflow of CR Delphi Smart injectors
<b>DL- CR30238</b>	The fitting extended for connection of giving
<b>DL- CR30225</b>	Standard fitting for supply connection
<b>DL- CR30661</b>	Nozzle for backflow of injectors CR Bosch 0445120147,0445120098
<b>DL- CR30269</b>	A fitting with a fitting for backflow of injectors Delphi, Smart, Denso, Bosch 0445120147, 0445120098
<b>D-27-200078</b>	O-ring for backflow fitting (2pcs). Hex wrench 3mm.



**Universal adapter repair kit**

**Kit includes :**

1. **D-27-026000** Sealing rubber ring - 1 pc.
2. **D-27-026210** Sealing rubber ring - 1 pc.
3. **D-27-200078** Sealing rubber ring - 4 pcs.

## EXAMPLES OF USING THE UNIVERSAL ADAPTER DL-CR50013



**Installation in nozzle adapter  
Bosch 0445120218 with direct connection "0°".**

Used:

- **DL-CR30219** Adapter body (wide shelf towards sprayer)
- **DL-CR30225** Standard fitting for supply connection
- **DL-CR50035** Holding bracket with fitting and fitting for backflow



**Installation in nozzle adapter  
Bosch 0445120067 with approach angle "13°".**

Used:

- **DL-CR30219** Adapter body (wide shelf towards sprayer)
- **DL-CR30238** The fitting extended for connection of giving
- **DL-CR50035** Holding bracket with fitting and fitting for backflow
- Allen key for fixing the swivel base of the adapter housing by 13°

## EXAMPLES OF USING THE UNIVERSAL ADAPTER DL-CR50013

**Installation in nozzle adapter**

**Bosch 0445120147, 0445120098 with direct connection "0°".**

Used:

- **DL-CR30219** Adapter body (wide shelf towards sprayer)
- **DL-CR30661** Backflow nozzle
- **DL-CR30225** Standard fitting for supply connection
- **DL-CR30269** Short fitting with backflow fitting

**Installation in nozzle adapter**

**Denso with approach angle "0°".**

Used:

- **DL-CR30219** Adapter body (wide shelf towards sprayer)
- **DL-CR30225** Standard fitting for supply connection
- **DL-CR30269** Short fitting with backflow fitting

## EXAMPLES OF USING THE UNIVERSAL ADAPTER DL-CR50013

**Installation in nozzle adapter  
Delphi Smart with direct "0°" approach.**

Used:

- **DL-CR30219** Adapter body (wide shelf towards sprayer)
- **DL-CR30225** Standard fitting for supply connection
- **DL-CR30419** Nozzle for backflow of nozzles
- **DL-CR30269** Short fitting with backflow fitting

## Adapter for CR Denso truck injectors, incl. Volvo 21952974 for supply and return connection

DL-CR50140



Kit includes :

1. **DL-CR31031** Adapter housing
2. **DL-CR30225** Feed connector
3. **DL-CR50035** Holding bracket with fitting and fitting for backflow



## ADAPTERS FOR TESTING CARGO INJECTORS



### DL-01 (UIS31524)

**Adapter for testing mechanical injectors sections PLD MB ACTROS and MB ATEGO**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, side fitting - 1 pc, fitting - 1 pc, screw - 1 pc.



### DL-02 (DL-CR31046)

**Truck injector adapter  
Bosch 0445120098, 0445120147 MAN Ø 29mm**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.



### DL-04A (DL-CR30848)

**Adapter for truck injectors RENAULT Ø 32mm  
0445120020, 0445120019, 0445120003, 0445120004**

**Contents of delivery:**

adapter - 1 pc, cola receiver (9mm) - 1 pc, side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.



### DL-05N (DL-CR31048)

**Truck injector adapter  
CUMMINS Be110/162kW;  
KAMAZ 11TS 150/133kW, 20TS 207kW, 25TS 207W  
0445120123**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.



### DL-06 (DL-CR31440)

**Truck injector adapter  
DENSO Ø 27mm**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.

## ADAPTERS FOR TESTING CARGO INJECTORS



### DL-07 (DL-CR31044)

Truck injector adapter  
DENSO Ø 23.5mm

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting with axial compression of the core without rotation - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-08 (DL-CR31045)

Truck injector adapter  
MAN Ø 26mm

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.



### DL-09 (DL-CR31439)

Truck injector adapter  
MAN Ø 28mm (Volvo) 0445120044

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting 1 pc, fitting 2 pcs, screw - 1 pc.



### DL-010 (DL-CR31047)

Truck injector adapter  
CUMMINS 0445120121, 0445120125

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.



### DL-011 (DL-CR30985)

Adapter for connecting the return flow of cargo injectors  
SIEMENS VDO FORD

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.

## ADAPTERS FOR TESTING CARGO INJECTORS



### DL-012 (DL-CR30036)

Truck injector adapter  
Bosch 0445120063

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.



### DL-013 (DL-CR30968)

Truck injector adapter  
Delphi Smart

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting with axial compression of the core without rotation - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-014 (DL-CR30038)

Adapter for connecting the return flow of cargo injectors  
Denso 24mm

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-015 (DL-CR30822)

Adapter for connecting the return flow of cargo injectors  
Denso 18.5mm, Caterpillar, Perkins

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-016 (DL-CR31486)

Adapter for connecting the return line of SCANIA 2/4 pin cargo injectors

**Contents of delivery:**

adapter - 1pc, cola receiver (9mm) - 1pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-017 (DL-UNI30037)

Adapter for connection of return to cargo injectors

Bosch 0445120066

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.

## ADAPTERS FOR TESTING CARGO INJECTORS

**DL-018 (DL-CR30595)**

Adapter for connecting the return flow of trucks nozzles Cursor 9

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-019 (DL-CR30804)**

Adapter for connecting the return flow of trucks injectors Bosch MTU

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-020 (DL-CR30596)**

Adapter for connecting the return flow of trucks injectors MB 4PIN

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-021 (DL-CR31565)**

BOSCH injector test adapter  
CRIN3 0445124015

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, fitting - 1 pc, screw - 1 pc.

**DL-022 (DL-CR31566)**

Truck injector test adapter  
Caterpillar 3809888

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, side fitting with axial compression of the core without rotation - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-023 (DL-CR31567)**

Truck injector test adapter  
Delphi Smart injector Mercedes

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc, side fitting with axial compression of the core without rotation - 1 pc, fitting - 2 pcs, screw - 1 pc.

## ADAPTERS FOR TESTING CARGO INJECTORS

**DL-024 (DL-CR31620)**

**Adapter for connecting backflow of injectors  
CR DAF-SMART injector (DAF-1826007)**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.

**DL-025 (DL-CR31625)**

**Adapter for connecting backflow of injectors  
DELPHI CRIN DAF EURO 6 SMART INJ**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-026 (DL-CR31626)**

**Adapter for connecting the supply and backflow  
injectors CUMMINS D26**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-027 (DL-CR31698)**

**Truck injector adapter**

**Bosch 0445120086, 0445120087, 0445120127, 0445120265,  
0445120266, 0445120389, 0445120391, 0445120412, 0445120462,  
0445120474, 0445120524, 0445120526, 0445120527, 0445120531,  
0445120562, 0445120571, 0445120580.**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc.

**DL-030 (DL-CR30818)**

**Truck injector adapter**

**Bosch 0445120178 YaMZ-530**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
side fitting - 1 pc, fitting - 2 pcs, screw - 1 pc

**DL-031 (DL-CR31040)**

**Adapter for connecting backflow of injectors  
Bosch 0445120303**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



## ADAPTERS FOR TESTING CARGO INJECTORS



### DL-032 (DL-CR31430)

**Backflow connection adapter  
injectors Bosch 0445120134**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-033 (DL-CR31479)

**Adapter for connecting the return flow of trucks  
injector DENSO 7140 08S02953 33800-52000**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-034 (DL-CR31538)

**Nozzle Backflow Adapter  
DENSO 1211 11L1063 (095000-121)**

**Contents of delivery:**

adapter - 1 pc, sealing rubber ring - 2 pcs.  
fitting - 1 pc, locking screw - 1 pc.



### DL-035 (DL-CR31561)

**Nozzle Backflow Adapter  
DENSO 2300/3100 07T00365 (5213417 Komatsu)**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 2 pcs, screw - 1 pc.



### DL-036 (DL-CR31563)

**Injector test adapter  
Delphi A9362187 Mercedes Actros Euro 6**

**Contents of delivery:**

adapter - 1 pc, cola receiver (7mm) - 1 pc,  
fitting - 1 pc, screw - 1 pc.



### DL-037 (DL-CR50304)

**Adapter for testing 4-pin  
injectors MB Actros**

**Contents of delivery:**

adapter - 1 pc, clamp - 1 pc, bracket - 1 pc,  
set of screws - 1 pc, fitting - 2 pcs.

## ADAPTERS FOR TESTING CARGO INJECTORS

**DL-037KIT (DL-CR50304KIT)**

Комплект для проверки 4-х контактной форсунки MB Actros 0445120303

**Contents of delivery:**

- **DL-037** Adapter for fixing the 4-pin nozzle MB Actros - 1 pc.
- **DL-SHL02037** 20mm x 150mm reverse drain hose for the stand - 1 pc.
- **DL-ADS04020** Adapter cable with 2 connectors - 1 pc.
- **DL-UNI31616** Fitting with external threads G1/4 to G1/8- 1 piece.
- **34-GU11-21-0014** Fitting quick-release adapter G1/4", type "dad" - 1 piece.
- **DL-34-N3-213B** Fitting Ø 6mm x 1/8"- 1 piece.
- **D-GM1537AN** Rubber-metal washer Ø12mm - 1 piece.
- Rubber-metal washer Ø10mm - 2 pcs.

**DL-038 (CR31606)**

Connection adapter injectors 5296723 DENSO

**Contents of delivery:**

Adapter - 1 pc, cola receiver (7mm) - 1 pc, fitting (quick adapter) - 2 pcs, screw-"butterfly" - 1 pc.

**DL-CR30429 (DL-EA)**

Side fitting for cargo adapters

**DL-CR30972**

Feed connector for weight adapter

**DL-CR50303**

Feed connector for weight adapter assembly (nipple + bushing + nut + copper washer)

EQUIPMENT FOR CHECKING PUMPS AND INJECTORS



**DL-K7 (DL-CR30161)**

**Fuel jet catcher (cola receiver) for  
nozzle nozzles (nozzle on the nozzle) Ø7 mm**

**Contents of delivery:**

cola receiver - 1 pc, fitting - 1 pc, fixing screw - 1 pc.



**DL-K9 (DL-CR30505)**

**Fuel jet catcher (cola receiver) for  
nozzle nozzles (nozzle on the nozzle) Ø9 mm**

**Contents of delivery:**

cola receiver - 1 pc, fitting - 1 pc, fixing screw - 1 pc.



**DL-UNI30156 (DL-PG)**

**Defoamer Liquid**

**Contents of delivery:**

defoamer - 1 pc, fitting - 1 pc.



**DL-MOK 6MM x 6MM**

**Quick coupling with return valve**

Connection holes Ø 6mm X 6mm

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR10028 DL-KD (CR40)**

Bracket for Rail DL-CR30181KIT, DL-CR30522KIT  
from CR accessories

**DL-ASB (CR23)**

Adapter cup for Bosch  
injectors to frame  
CR-equipment

**DL-ASD (CR24)**

Adapter cup for Delphi  
injectors to frame  
CR-equipment

**DL-RF (CR39)**

Frame - nozzle holder

**DL-CR10015 DL-RFJ**

Nozzle holder frame with cups (DL-UNI50342) for  
sprayers 7 mm (4 pcs.) and clamping sleeves

<b>DL-UNI31019</b>	inner Ø 17 mm – 4pcs
<b>DL-UNI31020</b>	inner Ø 18,9 mm – 1pc
<b>DL-UNI31021</b>	inner Ø 19,2 mm – 1pc
<b>DL-UNI31022</b>	inner Ø 21 mm – 1pc
<b>DL-UNI31031</b>	inner Ø 21,4 mm – 1pc

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-UNI31011**

Set of split sleeves (basic)  
to install injectors



<b>DL-UNI31019</b>	inner Ø 17 mm
<b>DL-UNI31020</b>	inner Ø 18,9 mm
<b>DL-UNI31021</b>	inner Ø 19,2 mm
<b>DL-UNI31022</b>	inner Ø 21 mm
<b>DL-UNI31031</b>	inner Ø 21,4 mm

*Attention! All bushings are also sold separately.*

**DL-UNI31013**

Split sleeve kit for  
nozzle settings



<b>DL-UNI31015</b>	inner Ø 24 mm
<b>DL-UNI31016</b>	inner Ø 25 mm
<b>DL-UNI31017</b>	inner Ø 26 mm

*Attention! All bushings are also sold separately.*

**DL-UNI50342**

Cup-clamp for  
nozzles Ø7 mm

**DL-UNI50343**

Cup-clamp for  
nozzles Ø9 mm



### EQUIPMENT FOR CHECKING PUMPS AND INJECTORS



#### DL-CR50302

Nozzle holder frame for one channel

Included in the package:

DL-UNI31019	inner Ø 17 mm – 1pc*
DL-UNI31020	inner Ø 18,9 mm – 1pc
DL-UNI31021	inner Ø 19,2 mm – 1pc
DL-UNI31022	inner Ø 21 mm – 1pc
DL-UNI31031	inner Ø 21,4 mm – 1pc
DL-SZR	cup-clamp sprayer 7 mm *

\* mounted on a frame



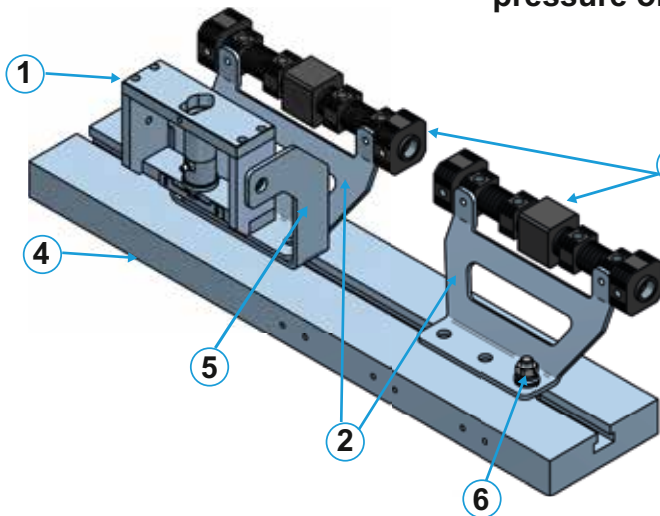
#### DL-UNI21032

holder bracket  
injectors per channel



Nozzle holder frame for one channel  
with bracket assembly

#### Installation example for nozzle holder, brackets and accumulators pressure on the stand plate



- 1 **DL-CR50302** Nozzle holder frame per channel
- 2 **DL-CR10028** Bracket for RailDL-CR30181KIT, DL-CR30522KIT, DL-CR31053KIT
- 3 Pressure accumulator: DL-CR30181KIT, DL-CR30522KIT, DL-CR31053KIT
- 4 **DL-SPN30535** Stand mounting plate
- 5 **DL-UNI21032** holder bracket injectors per channel
- 6 **DL-UNI30089** T-Slot Bolt

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR10025 DL-KDRJ****Bracket - injector frame holder****Contents of delivery:**

- Frame 1 pc.
- Intermediate bracket 2 pcs.
- Protective glass bracket 2 pcs. (can be welded to the frame)
- Bracket holder of an additional pressure accumulator. (can be welded to the frame)

**DL-CR10026****Drive Side Fixing Bracket pressure (Rail)**

The bracket is fixed with M8x25 bolts to the carrier plate in the test compartment of the stand, or to a structure that performs a similar function.

Used to mount pressure accumulators (Rail): DL-CR30181, DL-CR30522 and DL-CR31053.

**Attention!** Bolts and nuts are not included in the scope of delivery!

**DL-CR10027****Bracket for pressure accumulator (Rail)****Suitable for the following pressure accumulators:**

**DL-CR30181KIT** for 2 pressure regulators

**DL-CR30522KIT** for 3 pressure regulators

**DL-CR31053KIT** rail with cooling for 3 pressure regulators



Some drives can be installed from various vehicles

It is installed regularly on stands **CR-TEST 4E**, **CR-TEST-2P**, on stands of the **SPF series** manufactured by **Dieselland**.

For installation on other stands, it is necessary to make two M10 threaded holes on the side of the plate in a convenient place.

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR10029**

**Bracket for pressure accumulator (Rail)**

**Suitable for the following pressure accumulators:**

**DL-CR30181KIT** or 2 pressure regulators

**DL-CR30522KIT** for 3 pressure regulators

**DL-CR31053KIT** rail with cooling for 3 pressure regulators

Some drives can be installed from various vehicles

**It is established on any stands.**

For installation, it is necessary to fix the bracket with one or two bolts on top of the stand plate. One or two bolts are preliminarily installed in the T-slot of the plate.

The number of bolts is determined independently or depending on the location of the bracket. For example, with a longitudinal installation on the stand plate, it is possible to fix the bracket with 1-2 bolts, and with a transverse arrangement, fastening is possible with only one bolt. The bracket is put on the bolts through the holes and the bracket is fixed to the plate with nuts.



**ATTENTION!**

*Bolts and nuts are not included in the scope of delivery!*

**DL-CR10006**

**Protective glass from polycarbonate 6 mm thick.**

Protective glass is mounted on brackets **DL-CR10011** or **DL-CR-10025**

**Contents of delivery:**

Protective glass - 1 pc. U-shaped handle - 2 pcs.

**DL-CR10010**

**Protective glass from polycarbonate 8 mm thick.**

Protective glass is mounted on brackets **DL-CR10011** or **DL-CR-10025**

**Contents of delivery:**

Protective glass - 1 pc. U-shaped handle - 2 pcs.

**DL-CR10011**

**A set of brackets for installing a protective fences**

Installed with protective railing polycarbonate **DL-CR10006** and **DL-CR10010** directly on the stand plate.

**Contents of delivery:**

Protection mounting bracket - 2 pcs.

Nut "lamb" for fixing the protection - 2 pcs.

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR30181KIT (for 2 regulators)**

**Pressure accumulator (Rail) for checking nozzles and CR pumps on the stand**



The rail has holes for:

- pressure sensor connection M18x1.5
- pressure regulator connections M24x1.5 (2 holes)
- backflow connections M12x1.5 (4 holes)
- liquid supply to rail M14x1.5 (2 holes)
- exit of liquid from rail M14x1.5 (4 holes)
- connection of safety valve M20x1.5
- pressure relief in case of its excess  $\varnothing$  3mm. or M5
- M6 pressure gauge mounts (2 blind holes)
- M8 rail attachments (2 or 4 blind holes).

**Contents of delivery:**

1. **DL-CR30181** ramp (Rail) - 1 pc,
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 6 pcs,
3. **DL-UNI50271** plug with internal thread M14x1.5 - 5 pcs,
4. **DL-UNI30497** plug instead of pressure regulator - 2 pcs.,
5. **DL-CR30493** plug instead of safety valve M20x1.5 - 1 pc.
6. **DL-SHP15084** washer-gasket for pressure sensor
7. **DL-UNI30162** M18x1.5 plug instead of pressure sensor

**DL- CR30522KIT (for 3 regulators)**

**Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors on the bench**



**The rail has holes for:**

- pressure sensor connection M18x1.5
- pressure regulator connections M24x1.5 (3 holes)
- backflow connections M12x1.5 (5 holes)
- liquid supply to rail M14x1.5 (2 holes)
- liquid outlet from rail M14x1.5 (2 holes)
- connection of safety valve M20x1.5
- pressure relief in case of its excess  $\varnothing$ 3mm. or M12x1.5
- M6 pressure gauge mounts (2 blind holes)
- M8 rail attachments (2 or 4 blind holes).

**Contents of delivery:**

1. **DL- CR30522** ramp (Rail) - 1 pc,
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 6 pcs,
3. **DL-UNI50271** plug with internal thread M14x1.5 - 5 pcs,
4. **DL-UNI30497** plug instead of pressure regulator - 3 pcs.,
5. **DL-CR30493** plug instead of safety valve M20x1.5 - 1 pc.
6. **DL-SHP15084** washer-gasket for pressure sensor
7. **DL-UNI30162** M18x1.5 plug instead of pressure sensor

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR30777KIT**

**Pressure accumulator (Rail) for testing CR injectors, pumps BOSCH CP1, CP2, CP3, CP4, various types High pressure fuel pump Delphi, Denso, Siemens and other CR pumps. (Mounting holes 90° away from fittings.)**

**The rail has threaded holes for:**

- pressure sensor connection M18x1.5
- pressure regulator connections M24x1.5
- backflow connections 1 hole M12x1.5
- supply and exit of liquid from the rail 2 holes for fittings M14x1.5
- mounting rail M8 (2 blind holes)
- additional fitting made in one whole with rail M14x1.5

**Contents of delivery:**

1. **DL-CR30777** ramp (Rail) - 1 pc.
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 2 pcs.
3. **DL-UNI30497** plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** plug with internal thread M14x1.5 - 2 pcs.

**DL-CR30180KIT**

**Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors**

**The rail has threaded holes for:**

- pressure regulator connections M24x1.5
- backflow connections 1 hole. M12x1.5
- supply and exit of liquid from the rail 2 holes. for fittings M14x1.5
- M8 rail attachments (2 blind holes)
- nipple M14x1.5

**Комплект поставки:**

1. **DL-CR30180** ramp (Rail) - 1 pc.
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 2 pcs.
3. **DL-UNI30497** plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** plug with internal thread M14x1.5 - 2 pcs.



## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR30526KIT**

**Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors below the pressure sensor.**  
(Mounting holes 180° from fittings.)

**The rail has threaded holes for:**

- pressure sensor connection M18x1.5
- pressure regulator connections M24x1.5
- backflow connections 1 hole M12x1.5
- supply and exit of liquid from the rail 2 holes for fittings M14x1.5
- mounting rail M8 (2 blind holes)

**Contents of delivery:**

1. **DL-CR30526** ramp (Rail) - 1 pc.
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 2 pcs.
3. **DL-UNI30497** plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** plug with internal thread M14x1.5 - 2 pcs.

**DL-CR30878KIT**

**Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors below the pressure sensor.**  
(Mounting holes 90° away from fittings.)

**The rail has threaded holes for:**

- pressure sensor connection M18x1.5
- pressure regulator connections M24x1.5
- backflow connections 1 hole M12x1.5
- supply and exit of liquid from the rail 2 holes for fittings M14x1.5
- mounting rail M8 (2 blind holes)

**Contents of delivery:**

1. **DL-CR30878** ramp (Rail) - 1 pc.
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 2 pcs.
3. **DL-UNI30497** plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** plug with internal thread M14x1.5 - 2 pcs.

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR30479KIT**

**Pressure accumulator (Rail) for testing pumps and CR injectors for pressure regulator and safety valve.**



**The rail has threaded holes for:**

- connection of the pressure regulator M24x1.5 (1 hole)
- backflow connections M12x1.5 (1 hole)
- supply and exit of liquid from the rail M14x1.5 (3 holes)
- connection of safety valve M20x1.5
- pressure relief if it is exceeded M12x1.5
- M6 pressure gauge mounts (2 blind holes)
- M8 rail attachments (4 blind holes)

**ATTENTION!**

*Pressure regulators and pressure sensor included supplies are not included!*

*The pressure sensor is connected through the fitting-adaptor M14xM18*

**Contents of delivery:**

1. **DL-CR30479** Ramp (Rail) - 1 piece
2. **DL-UNI30218** Fitting M14x1.5 complete with washers-gaskets SHP15084 - 3 pcs.
3. **DL-UNI30497** Plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** Plug with internal thread M14x1.5 - 3 pcs.
5. **DL-UNI30796** Special fitting-adaptor for the sensor pressure M14xM18 - 1 pc.
6. **DL-UNI30493** Plug instead of safety valve - 1 pc.
7. **22-HS-06** M12x1.5 bolt-banjo fitting for connection backflow, hole next to the pressure regulator - 1 pc.
8. **22-RSN-06** Banjo fitting Ø12mm x 8mm (herringbone) for connection back drain - 1 pc.
9. **D-GM1537AN** Rubber-metal washer Ø12mm, installed on the plug DL-UNI30636, banjo bolt 22-HS-06 and similar parts providing connection tightness - 2 pcs.

\*Instead of a banjo fitting Ø12mm x 8mm **22-RSN-06**, an M12" x 8 fitting can be used **34-R0608** M12 x 1.5 allowing backflow through Teflon tube **P1006**

**DL-CR50269**

**Drive holder bracket  
Pressure (RAIL) DL-CR30180**

Also suitable for pressure accumulators  
**DL-CR30479, DL-CR30526, DL-CR30878, DL-CR30777**

**DL-CR50268**

**Drive holder bracket  
Pressure (RAIL) DL-CR30188**

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR30188KIT**

Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors. Rail has channels cooling for improved thermal stability during testing and testing of nozzles and pumps of the Common-Rail system.

**The rail has threaded holes for:**

- pressure sensor connection M18x1.5
- pressure regulator connections
- backflow connections 1 hole. M12x1.5
- fitting for connecting a hose or tube for rail cooling Ø8mm
- supply and exit of liquid from the rail 3 holes. for fittings M14x1.5
- fixings, 4 blind holes. M8.

**Contents of delivery:**

1. **DL-CR30188** ramna (Rail) – 1 шт.
2. **DL-UNI30218** fitting M14x1.5 complete with washers-gaskets SHP15084 - 3 pcs.
3. **DL-UNI30497** plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** plug with internal thread M14x1.5 - 2 pcs.
5. **DL-UNI30293** fitting 1/8"x8 (herringbone) for connecting hoses cooling - 2 pcs.
6. **DL-UNI30162** plug instead of pressure sensor M18x1.5 - 1 pc.

**DL-CR31068KIT**

Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors. The rail has cooling channels for improved thermal stability in testing and testing nozzles and pumps of the Common-Rail system.

**The rail has threaded holes for:**

- pressure sensor connection M18x1.5
- pressure regulator connections
- backflow connections 1 hole M12x1.5
- safety valve
- fitting for connecting a hose or tube for cooling rail diameter 8mm
- supply and exit of liquid from the rail 3 holes for fittings M14x1.5
- fixings, 4 blind holes M8

**Contents of delivery:**

1. **DL-CR31068** ramp (Rail) - 1 pc.
2. **DL-UNI30218** fitting M14x1.5 in a set with washers-gaskets SHP15084 - 3 pcs.
3. **DL-UNI30497** plug instead of pressure regulator - 1 pc.
4. **DL-UNI50271** plug with internal thread M14x1.5 - 1 pc.
5. **DL-UNI30293** fitting 1/8"x8 (herringbone) for connecting hoses cooling - 2 pcs.
6. **DL-UNI30162** plug instead of pressure sensor M18x1.5 - 1 pc.

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

### DL-CR31053KIT

**Pressure accumulator for 3 regulators with cooling for testing injection pump CR**

**Contents of delivery:**

1. **DL-CR31053** ramp (Rail) - 1 pc.
2. **DL-UNI30151** Plug instead of pressure regulator - 3 pcs.
3. **DL-UNI30162** Plug M18x1.5 instead of pressure sensor - 1 pc.
4. **34-R0608M12X1.5** Fitting M12 "x8 for backflow - 3 pcs.
5. **34-RL0408** Fitting-angle 8mmx8mm for backflow - 2 pcs.
6. **34-RL0508** Tee fitting 8mmx8mmx8mm for backflow - 1 pc.
7. **P1006** Teflon tube d.8mmx180mm - 2 pcs.
8. **22-HS-06** M12x1.5 bolt-banjo fitting for hose connection return drain - 1 pc.
9. **22-RSN-06** Banjo fitting Ø12mmx8mm (herringbone) for backflow hose connections - 1 pc.
10. **D-GM1537AN** Rubber-metal washer Ø12mm - 2pcs
11. **DL-UNI30636** Plugs in backflow channels - 2 pcs.
12. **DL-UNI30293** 1/8"x8 (herringbone) fitting for connecting hoses cooling - 2 pcs.
13. **DL-UNI30218** High pressure fitting M14(1.5)xM14(1.5) in a set with washers-gaskets SHP15084 - 2 pcs.
14. **DL-UNI50271** Plug for high pressure fitting - 2 pcs.
15. **DL-SHP15084** Gasket for pressure sensor - 1 pc.



### DL-UNI30828KIT

**high pressure Bosch filter adapter for testing pumps CP2-CP4.**

The adapter is mounted in one of the 2 holes M14x1.5 in Rail. Used with pressure accumulators (rail) **DL-CR31053** , **DL-CR30181** and **DL-CR30522**

**The adapter has threaded holes:**

- for a filter for a special fitting M18x1.5 (1 hole)
- for liquid supply M14x1.5 (2 holes from above)
- for connecting a pressure sensor M18x1.5 (1 hole)
- for connecting a safety valve M20x1.5 (1 hole)
- to relieve pressure in case of its excess M5 (1 hole)

**Contents of delivery:**

1. **DL-UNI30828** Adapter housing - 1 pc,
2. **DL-UNF21100** High pressure filter - 1 pc.,
3. **DL-UNI30871** Special fitting for high pressure filter M14xM18 - 1 pc.,
4. **DL-UNI30218** Fitting M14x1.5 -2 pcs.,
5. **DL-SHP15084** Sealing washer - 3 pcs.,
6. **DL-UNI50271** Plug M14x1.5 -1 pc.,
7. **34-RL01006M5** Straight fitting Ø 6mm x M5 or 34-RL3106M5 elbow fitting Ø 6mm x M5.,
8. **DL-SHP15084** Gasket for pressure sensor - 1 pc.





## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR31049KIT****Pressure accumulator (rail) for checking injectors and pumps with cooling (for 3 pressure regulators)**

Pressure accumulator (Rail) for testing pumps CP1, CP2, CP3, CP4, Delphi, Denso and CR injectors. The rail has cooling channels for improved thermal stabilization during testing and testing nozzles and pumps of the Common-Rail system.

**Contents of delivery:**

1. **DL-CR31049** Pressure accumulator for 3 pressure regulators
2. **DL-CR30497** Plug (M24x1.5mm) instead of regulator pressure - 2 pcs.
3. **DL-UNI30162** Plug (M18x1.5mm) instead of pressure sensor - 1 pc
4. **DL-UNI30056** Cooling fitting (1/2"x8mm) - 2 pcs.
5. **DL-UNI30020** Fitting (1/4"x8mm) outlet of the return drain from the pressure regulator - 3 pcs.
6. **DL-UNI31478** Fitting (M18x1.5mm X M14x1.5mm) for high pressure tube - 3 pcs.
7. **DL-UNI50271** Plug for fitting DL-UNI31478 - 1 pc.
8. **DL-UNI30203** Plugs (1/8") for cooling channels - 4 pcs.
9. **DL-UNI30635** Plug (M12x1.5) for rubber-metal washer - 1 pc.



**ATTENTION! Regulators and pressure sensor not included!**

**DL-UNI21042** Pressure accumulator bracket**DL-CR31514** Drain rail

Designed to work with the main pressure accumulator (rail) with installed 3 taxiways. This drain rail facilitates switching drain hoses.

Normally, the pressure accumulator **DL-CR31049** is drained from each pressure regulator (RD). When using this rail drain is made from one fitting.

**DL-CR31528** Drain rail

Designed to work with the main pressure accumulator (rail) with installed 2 taxiways. This drain rail facilitates switching drain hoses.

Normally, the pressure accumulator **DL-CR31049** is drained from each pressure regulator (RD). When using this rail drain is made from one fitting.



## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR31257KIT**

**Pressure accumulator (rail) for checking injectors and pumps with cooling (for 2 pressure regulators)**

**The rail has threaded holes for:**

- pressure sensor connection (M18x1.5)
- pressure regulator connection (2 holes M24x1.5mm)
- backflow connections and plugs (4 holes 1/8")
- a fitting for connecting a hose or tube for rail cooling and plugs (5 holes 1/4")
- supply and output of high pressure fluid from the rail (2 holes M24x1.5mm)
- high-pressure fluid inlet and outlet from the rail on the side (2 holes M14x1.5mm)
- rail mounting (4 blind holes M8)

**Contents of delivery:**

1. **DL-CR31257** Pressure accumulator for 2 pressure regulators
2. **DL-CR30497** Plug (M24x1.5mm) instead of pressure regulator (1 pc.)
3. **DL-UNI30162** Plug (M18x1.5mm) instead of pressure sensor (1 pc.)
4. **DL-UNI30020** Fitting (1/4"x8mm) for inlet and outlet of TJ for cooling (2 pcs.)
5. **DL-UNI30202** Plug (1/4") cooling channel (3 pcs.)
5. **DL-UNI30293** Fitting (1/8"x8mm) for backflow outlet from RD (1 pc.)
6. **DL-UNI30203** Plug (1/8") for the rubber gasket in the channel back drain (1 pc.)
7. **DL-UNI31082** Plug (1/8") slotted in the backflow channel with rail ends (2 pcs.)
6. **DL-UNI31041** Fitting (M24x1.5mm X M14x1.5mm) for TVD (1 pc.)
7. **DL-UNI31039** Plug (M24x1.5mm) for HP channel (1 pc.)
8. **DL-UNI31535** Fitting (M14x1.5 X M14x1.5mm) for TVD (2 pcs.)
9. **DL-UNI50271** Plug for fitting DL-UNI31535 (1 pc.)

**ATTENTION!**

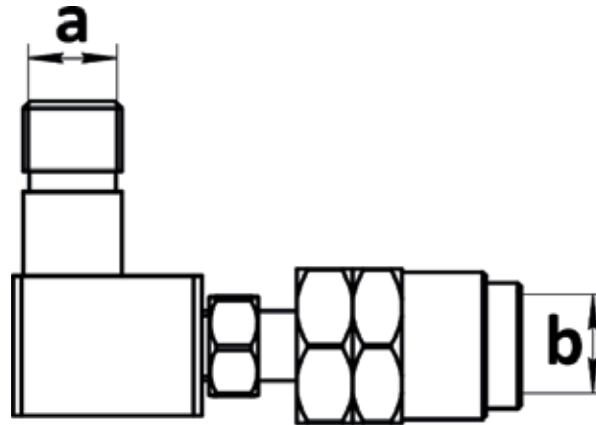
*Regulators and pressure sensor not included!*

**DL-UNI21041**


**Pressure accumulator bracket**

### EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

#### ANGLE ADAPTERS



Article	a (mm)	b (mm)
DL-UNI50278	M14 x 1,5	M14 x 1,5
DL-UNI50279	M14 x 1,5	M12 x 1,5
DL-UNI50280	M14 x 1,5	M16 x 1
DL-UNI50281	M14 x 1,5	M16 x 1,5
DL-UNI50282	M14 x 1,5	M18 x 1,5



A photograph of a black metal angle adapter, showing its L-shaped profile and the various ports and threads.

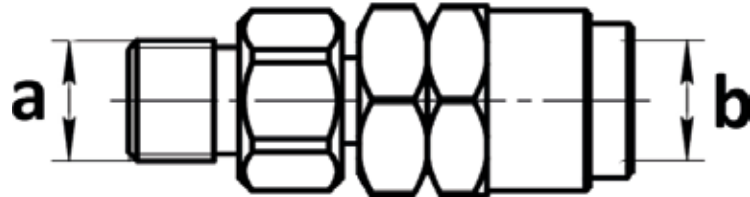
DL-UNI50283	M12 x 1,5	M14 x 1,5
DL-UNI50284	M12 x 1,5	M12 x 1,5
DL-UNI50285	M12 x 1,5	M16x1
DL-UNI50286	M12 x 1,5	M16x1,5
DL-UNI50287	M12 x 1,5	M18 x 1,5




A photograph of a black metal angle adapter, similar to the one above but with a different vertical section diameter.

### EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

#### ADAPTERS STRAIGHT



Article	a (mm)	b (mm)
DL-UNI50288	M14 x 1,5	M14 x 1,5
DL-UNI50289	M14 x 1,5	M12 x 1,5
DL-UNI50290	M14 x 1,5	M16 x 1
DL-UNI50291	M14 x 1,5	M16 x 1,5
DL-UNI50292	M14 x 1,5	M18 x 1,5



A photograph of a straight adapter, showing the component from a perspective view. The adapter is black and has a threaded section on the left, followed by a hexagonal section, a central section with a hexagonal bore, and a final section with a hexagonal end.

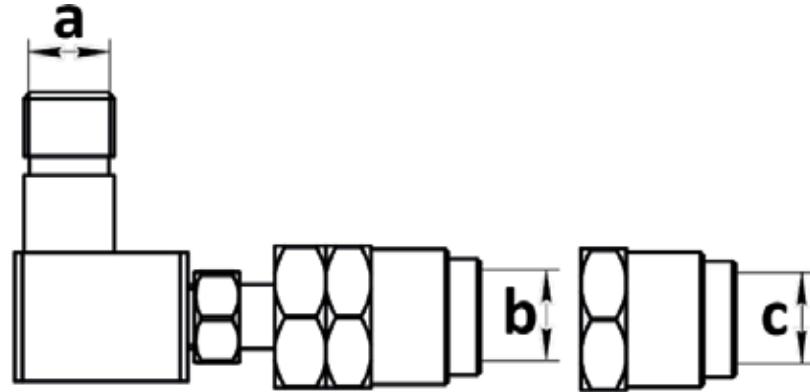
DL-UNI50293	M12 x 1,5	M14 x 1,5
DL-UNI50294	M12 x 1,5	M12 x 1,5
DL-UNI50295	M12 x 1,5	M16 x 1
DL-UNI50296	M12 x 1,5	M16 x 1,5
DL-UNI50297	M12 x 1,5	M18 x 1,5




A photograph of a straight adapter, showing the component from a perspective view. The adapter is black and has a threaded section on the left, followed by a hexagonal section, a central section with a hexagonal bore, and a final section with a hexagonal end.

### EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

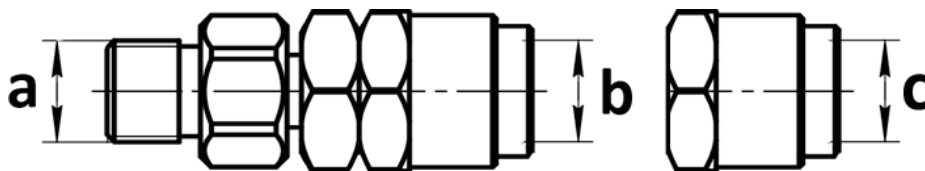
#### ANGLE ADAPTERS WITH INTERCHANGEABLE NUT




Article	a (mm)	b (mm)	c (mm)
DL-UNI50084	M14 x 1,5	M12 x 1,5	M14 x 1,5
DL-UNI50088	M12 x 1,5	M12 x 1,5	M14 x 1,5



#### ADAPTERS STRAIGHT WITH INTERCHANGEABLE NUT



Article	a (mm)	b (mm)	c (mm)
DL-UNI50083	M14x1,5	M12x1,5	M14x1,5
DL-UNI50087	M12x1,5	M12x1,5	M14x1,5



## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-UNI30980**

Replaceable nut from M16x1.0 to M18x1.5  
for injector CR Bosch 0445120303 (MB)

**DL-UNI30981**

Replacement nut from M16x1.5 to M18x1.5 for pumps  
CR Bosch CP4 0445010637, 0445010506, 0445010512.

**DL-UNI31398**

Replaceable nut from M18x1.5 to M18x1.5 for connection  
to pressure accumulator BOSCH EPS-815 / EPS-708

**DL-UNI50175**

Adapter straight long  
M14xM12 (pitch 1.5mm) with inner cone

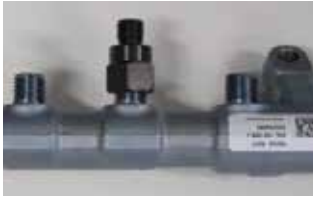
Used for installation on a pressure accumulator

*Can be installed for testing  
BOSCH PIEZO injectors.*





## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-UNI50055**

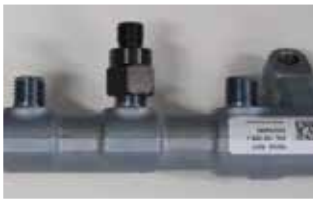
Thread adapter  
M14x1.5mm to M12x1.5mm

Contents of delivery  
adapter - 1 pc.

**DL-UNI50056**

Thread adapter  
M12x1.5mm to M14x1.5mm

Contents of delivery  
adapter - 1 pc.

**DL-UNI50276**

Thread adapter  
M14x1.5mm to M14x1.5mm

Contents of delivery  
adapter - 1 pc.

**DL-CR50121**

Adapter for high pressure filter DL-UNF2110

Mounted instead of a conventional fitting in a pressure accumulator (Rail)

DL-CR30479, DL-CR30180, DL-CR30181, DL-CR30188, DL-CR30522, DL-CR30526.

Contents of delivery:

Adapter DL-CR30834 M14x1.5 ("Male") x M18x1.5 ("Mother") - 1 pc.

Adapter body with M14x1.5 thread - 1 pc.

**ATTENTION! High pressure filter BOSCH DL-UNF2110**

**not included in the delivery set and must be ordered separately!**

**DL-CR50372**

Adapter for high pressure filter for high pressure fuel pump

Has a 60° cone on both sides for connecting conical tubes

high pressure from various manufacturers

Has connecting threads M14x1.5 x M14x1.5

Contents of delivery:

Adapter DL-CR31757 M14x1.5 ("Male") x M18x1.5 ("Mother") - 1 pc.

Adapter DL-CR30835 M14x1.5 ("Male") x M18x1.5 ("Male") - 1 pc.

**ATTENTION! High pressure filter BOSCH DL-UNF2110**

**not included in the delivery set and must be ordered separately!**

It is recommended to install the filter in the fuel system of diesel engines.

engines into the high pressure line injection pump ↔ Rail.



EQUIPMENT FOR CHECKING PUMPS AND INJECTORS



**DL-CR50374**

**Adapter with high pressure filter for high pressure pump**  
Has a 60° cone on both sides for connecting conical tubes  
high pressure from various manufacturers.

Has connecting threads M14x1.5 x M14x1.5

**Contents of delivery:**

Adapter DL-CR31757 M14x1.5 ("Male") x M18x1.5 ("Mother") - 1 pc.

Adapter DL-CR30835 M14x1.5 ("Male") x M18x1.5 ("Male") - 1 pc.

High pressure filter BOSCH DL-UNF2110 - 1 pc.

It is recommended to install the filter in the fuel system of diesel engines.  
engines into the high pressure line injection pump ↔ Rail



**DL-UNI50363**

**Adapter with positioning 3/8" female x 3/8" male**

**Contents of delivery:**

adapter – 1 pc.

O-ring 27-014400 (8.1 x 1.6 mm) – 1 pc.



**DL-UNI30650**

**Adapter for safety valve for pressure accumulator (Rail) DL-CR30188, DL-CR30180**

**Contents of delivery:**

adapter – 1 pc.



**DL-UNI30796**

**Adapter from M14 to M18 thread for installation pressure sensor in pressure accumulators**

DL-CR30479, DL-CR30180

**Contents of delivery:**

adapter – 1 pc.



**DL-CR14014**

**Angle adapter with thread M14x1.5mm to M14x1.5mm**

Convenient for connection to pumps high pressure, pressure accumulators (rails) and injectors.

**Delivery set:** adapter 1 pc.



**DL-CR14012**

**Angle adapter with thread M14x1.5mm to M12x1.5mm**

Convenient for connection to pumps high pressure, pressure accumulators (rails) and injectors.

**Delivery set:** adapter 1 pc.

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-UNI30287**

Adapter with internal thread G1/2" for pressure gauge at 2000 bar. Has a connecting M14x1.5mm thread with 60° cone for tube high pressure (HPT)

Contents of delivery:  
adapter - 1 pc.

**DL-UNI30508**

Adapter with internal thread M20x1.5mm for pressure gauge at 2500 bar. Has a connecting M14x1.5mm thread with 60° cone for tube high pressure (HPT).

Contents of delivery:  
adapter - 1 pc.

**DL-SM**

Gasket for pressure gauge

**DL-CR14P2000**

Pressure gauge 2000 bar

**DL-CR14P2500**

Pressure gauge 2500 bar

EQUIPMENT FOR CHECKING PUMPS AND INJECTORS



**DL-KM2000**

**Pressure gauge bracket for 2000bar.  
For rail DL-CR30181 and DL-CR30522**

**Contents of delivery:**

- bracket
- clamping bar
- M6x60 bolt, nuts, washers - 2 sets
- M6x45 bolt, washers - 2 sets



**DL-KM3000**

**Pressure gauge bracket 2000bar  
for installation on a stand plate.**

**Contents of delivery:**

- bracket
- Profile bolt with nut, washer and grommet
- clamping bar
- M6X60mm bolt with nut, washer and grommet – 2 sets



**DL-KM2500**

**Pressure gauge bracket for 2500bar.  
For rail DL-CR30181 and DL-CR30522**

**Contents of delivery:**

- main bracket
- pressure gauge mounting ring
- M6x45 bolt, washers - 2 sets
- M6x30 bolt, washers - 2 sets
- M6x10mm bolt - 3 pcs.



**DL-KM3500**

**Pressure gauge bracket 2500bar  
for installation on a stand plate**

**Contents of delivery:**

- main bracket
- pressure gauge mounting ring
- Profile bolt with nut, washer and grommet
- M6 x30mm bolt with washer and grommet – 2 sets
- M6x10mm bolt - 3 pcs.

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR10045**Pressure sensor 150 bar for the compressor  
DL-UNI20008**DL-CR10046**Pressure sensor 250 bar for the compressor  
DL-UNI20008**DL-CR10058**

Bosch pressure sensor 1500 bar

**DL-CR10059**

Bosch pressure sensor 1500 bar

**DL-CR10060**

Bosch pressure sensor 1500 bar

**DL-CR10050**

Bosch pressure sensor 1800 bar

**DL-CR10061**

Bosch pressure sensor 1800 bar

**DL-CR10052**

Bosch pressure sensor 2200 bar

**DL-CR10053**

Bosch pressure sensor 2400 bar

**DL-CR10062**

Bosch pressure sensor 2400 bar

**DL-CR10063**

Bosch pressure sensor 2400 bar



## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR10051**

Bosch pressure regulator 1800 bar

**DL-CR10064**

Bosch pressure regulator 1800 bar

**DL-CR10065**

Bosch pressure regulator 1800 bar

**DL-CR10054**

Bosch pressure regulator 2200 bar

**DL-CR10055**

Bosch pressure regulator 2700 bar

**DL-CR10056**

Safety valve Bosch 1800 bar

**DL-CR10066**

Safety valve Bosch 1800 bar

**DL-CR10057**

Safety valve Bosch 2400 bar

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-MOK**

Coupling adapter with check valve  
Ø 6 x Ø 6mm with collet

**DL-CR50120**

Valve for response time (DELPHI)

**DL-CR50136**

Check valve  
BOSCH electromagnetic injectors on the stand

**DL-CR50210**

Return pressure valve for testing piezo injectors  
SIEMENS at the booth

**DL-CR50177**

Return pressure valve for  
Bosch piezo injectors



## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-CR50204**

**Set with pressure gauge for testing back pressure in the injector return BOSCH Piezo.**

The test is carried out on the vehicle. The pressure gauge is installed in the device with a hook fixing it over the motor space (eg under the hood).

Using this valve kit backwater **DL-CR50177** possible control the correct operation this valve when testing injectors BOSCH Piezo **on the stand.**



## Contents of delivery:

1. **D-12-TV63-016** Pressure gauge 0-16 bar
2. **DL-CR31311** Special adapter for pressure gauge
3. **DL-CR31310** Union with rubber gasket for connection to the trunk back drain in the car.
4. **DL-CR31285** Union with fixing screw for installation in the return connection drain nozzle
5. **34-RL0506** Tee with quick fittings 6mm
6. **34-RL010601** Straight quick-release fitting 1/8x6mm - 2 pcs.
7. **DL-CR50246** Suspended Mounting Bracket
8. **D-P1004** Teflon tube - 100cm

**ATTENTION!** Valve *DL-CR50177* is not included in the scope of delivery!

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-UNI30218**

M14x1.5 x M14x1.5 fitting for pressure accumulator (Rail)

**DL-UNI31498**

M14x1.5 x M12x1.5 fitting for pressure accumulator (Rail)

**DL-CR30493**

Plug with external thread M20 x1.5 instead of safety valve for pressure accumulator (Rail)

**DL-UNI30159**

Plug with external thread M24x1.5 heat-treated instead of pressure regulator for pressure accumulator (Rail)

**DL-UNI30162**

Plug with external thread M18x1.5 instead of pressure sensor for pressure accumulator (Rail)

**DL-UNI30636**

Plug with external thread M12x1.5 for drain hole in the pressure accumulator (Rail)

**DL-UNI30529**

Plug with external thread M14x1.5

**DL-UNI50271 (CR30)**

Plug with internal thread M14x1.5 for fitting **DL-UNI30218** for pressure accumulator (Rail)

**DL-UNI50275**

Plug with internal thread M12x1.5 for fitting **DL-UNI3021** for pressure accumulator (Rail)

## EQUIPMENT FOR CHECKING PUMPS AND INJECTORS

**DL-UNI30003**

Fitting M14x1.5 X M14x1.5 60° cone for connecting two high pressure pipes

**DL-UNI31589**

Fitting M14x1.5 X M12x1.5 60° cone for connecting two high pressure pipes

**DL-UNI31592**

Fitting M12x1.5 X M12x1.5 60° cone for connecting two high pressure pipes

**DL-UNI50312**

Set of fittings and plugs for (TVD) fuel lines high pressure

**Contents of delivery:**

**DL-UNI30003** Tubing adapter

M14x1.5 X M14x1.5mm. Has a cone on both sides for tight fit to the cone of the tube

**DL-UNI31589** Tubing adapter

M14x1.5 X M12x1.5mm. Has a cone on both sides for tight fit to the cone of the tube

**DL-UNI31592** Tubing adapter

M12x1.5 X M12x1.5mm. Has a cone on both sides for tight fit to the cone of the tube

**DL-UNI31590** Plug M12x1,5 cone 60°

**DL-UNI31591** Plug M14x1,5 cone 60°

**DL-UNI31591**

M14x1.5 plug 60° cone for high pressure pipe

**DL-UNI31590**

M12x1.5 plug 60° cone for high pressure pipe



### EQUIPMENT FOR CHECKING PUMPS AND INJECTORS



#### DL-TVD-S (Type 5/4 grey)

High Pressure Tube  
1000x14x14 mm 1800 bar



#### DL-TVD-K1000

High Pressure Tube 1000x14x14 mm  
2500 bar



#### DL-TVD-K830

High Pressure Tube 840x14x14 mm  
2500 bar



#### DL-TVD-K700

High Pressure Tube 700x14x14 mm  
2500 bar



#### DL-TVD-G

High Pressure Tube  
650x14x14 mm 2500 Bar



#### DL-TVD-M

High pressure metal tube

<b>DL-TVD-M81412</b>	(800)	M14xM12
<b>DL-TVD-M81414</b>	(800)	M14xM14
<b>DL-TVD-M61412</b>	(600)	M14xM12
<b>DL-TVD-M61414</b>	(600)	M14xM14



#### DL-TVD

High Pressure tube for stands and equipment:

TVD31212 (300x12x12), TVD31214 (300x12x14), TVD31414 (300x14x14),  
TVD41212 (400x12x12), TVD41214 (400x12x14), TVD41414 (400x14x14),  
TVD51212 (500x12x12), TVD51214 (500x12x14), TVD51414 (500x14x14),  
TVD61212 (600x12x12), TVD61214 (600x12x14), TVD61414 (600x14x14)

**DL-CR50149**

**Retrofit kit for CR-Jet stands  
for pressure 2400 bar**

**Kit includes:**

1. Plug in Rail - 4 pcs.
2. Plug instead of pressure regulator
3. Pressure sensor 2400 bar
4. Pressure regulator 2400 bar
5. Bracket for rail
6. Tee fitting 1/8" x1.5 - 2 pcs.
7. Fitting quick adapter M12x1.5 - 2 pcs.
8. Corner fittings 8x8 - 2 pcs.
9. Fitting M14x M14 (step 1.5) - 4 pcs.
10. Teflon tube Ø 8mm
11. Rail with cooling
12. Flange Ø 107mm
13. Hose Ø 8mm
14. Banjo 14.5x8 mm, banjo bolt M14x1.5 (for supplying TJ to high-pressure fuel pump)
15. Rubber-metal gasket M14x1.5 - 2 pcs.
16. M14x1.5 fitting for backflow from high pressure fuel pump
17. Rubber-metal gasket 14x1.5
18. Fitting M12x1.5 - 3 pcs. (two for injection pump and one for rail drain)
19. Rubber-metal gasket M12
20. Clamp 13 mm - 3 pcs.
21. High pressure fuel pump

**DL-CR50149**

**Retrofit kit for CR-Jet stands  
for pressure 2400 bar without injection pump**

## CRISTINA

**CRistina** High-quality testing and assembly complex of BOSCH, DENSO and DELPHI Common Rail injectors.

CRistina repair- and testing complex is dedicated to assembling and disassembling Bosch, Denso and Delphi Common Rail injectors according to manufacturer specified steps and mechanical tolerances.

The complex offers the ability to measure relevant mechanical tolerances of the injector parts and electrical characteristics of the electromagnet. The assembly/disassembly steps and critical measurement points are presented by convenient step-by-step instructions descriptions and relevant images of the work process itself.

### Available in options:

- CRISTINA-BASE
- CRISTINA-BASE-F
- CRISTINA-FULL
- CRISTINA-PROF
- CRISTINA-PROF-FULL
- CRISTINA-SPECIAL



## CRISTINA-BASE

### Contents of delivery:

1. **DL-CRN005** Stand for measuring and adjusting injector parameters 1 set
2. **DL-KIP020 or DL-KIP025** Indicator digital measuring head
3. **DL-KIP0023 or DL-KIP0028** Communication device for measuring head
4. **DL-CRN50094** Probe set and adapters
5. **DL-CRN50099** Set of 4 adapters for measuring clearances of injectors BOSCH, DENSO
6. **DL-CRistina** Injector control signal activator "Valve stroke actuator" with kit cables including:
  - Power cable 220V - 1 pc.
  - Main cable for connection to the electromagnet – 1 pc.
  - Adapter cable for light injector – 1 pc.
  - Adapter cable for cargo injector – 1 pc.
7. CRistina Software
8. **DL-PASSCRistina** Passport (technical description, instruction manual)

**NOTE:** Dedicated workbench table is not included.



**CRISTINA-BASE-F****Contents of delivery:**

1. **DL-CRN005** Stand for measuring and adjusting injector parameters 1 set
2. **DL-ST01** Clamp for disassembling and assembling nozzle elements and measuring its parameters.
3. **DL-KIP020 or DL-KIP025** Indicator digital measuring head
4. **DL-KIP0023 or DL-KIP0028** Communication device for measuring head
5. **DL-CRN50094** Probe set and adapters
6. **DL-CRN50099** Set of 4 adapters for measuring clearances of injectors BOSCH, DENSO
7. **DL-CRistina** Injector control signal activator in large case with a set of cables including:
  - Power cable 220V - 1 pc.
  - Main cable for connection to the electromagnet – 1 pc.
  - Adapter cable for light injector – 1 pc.
  - Adapter cable for cargo injector – 1 pc.
8. PC with monitor, keyboard
9. CRistina Software
10. **DL-PASSCRistina** Passport (technical description, operating instructions)

**NOTE: Dedicated workbench table is not included.**





**CRISTINA-FULL****Contents of delivery:**

1. **DL-CRN005** Stand for measuring and adjusting injector parameters 1 set
2. **DL-KIP020 or DL-KIP025** Indicator digital measuring head
3. **DL-KIP0023 or DL-KIP0028** Communication device for measuring head
4. **DL-CRN50094** Probe set and adapters
5. **DL-CRN50099** Set of 4 adapters for measuring clearances of injectors BOSCH, DENSO
6. **DL-CRistina** Injector control signal activator "Valve stroke actuator" with kit cables including:
  - Power cable 220V - 1 pc.
  - Main cable for connection to the electromagnet – 1 pc.
  - Adapter cable for light injector – 1 pc.
  - Adapter cable for cargo injector – 1 pc.
7. PC with monitor, keyboard
8. CRistina Software
9. **DL-PASSCRistina** Passport (technical description, operating instructions)
10. **DL-125** Vice L=125mm
11. **CR-NEXT-ST01** Special table-workbench with two drawers included:
  - Table with two drawers
  - Perforated wall for tool placement
  - Lighting ramp with two holders
  - PC shelf
  - Shelf for signal generator



or



**CRISTINA-PROF****Contents of delivery:**

1. **DL-CRN005** Stand for measuring and adjusting injector parameters 1 set
2. **DL-KIP020 or DL-KIP025** Indicator digital measuring head
3. **DL-KIP0023 or DL-KIP0028** Communication device for measuring head
4. **DL-CRN50094** Probe set and adapters
5. **DL-CRN50099** Set of 4 adapters for measuring clearances of injectors BOSCH, DENSO
6. **DL-CRistina** Injector control signal activator "Valve stroke actuator" with kit cables including:
  - Power cable 220V - 1 pc.
  - Main cable for connection to the electromagnet – 1 pc.
  - Adapter cable for light injector – 1 pc.
  - Adapter cable for cargo injector – 1 pc.
7. CRistina Software
8. **DL-PASSCRistina** Passport (technical description, operating instructions)
9. **D-MV200UM** Electron microscope
10. **D-07147122** Torque wrench 1/2" 20-100 Nm
11. **DL-CR50104** Support ring set
12. **DL-UNI30390** Wrench for removing the solenoid for CR injectors with a 30 mm hexagon.
13. **DL-UNI30389** Wrench for removing the solenoid for CR injectors with a 29 mm hexagon.
14. **DL-UNI30435** Wrench for removing the solenoid of CR injectors with a 28 mm dodecahedron.
15. **DL-UNI30434** Wrench for removing the solenoid of CR injectors with a 27 mm dodecahedron.
16. **DL-UNI50046** 3 prong wrench for removing the nut in the electronic part of DENSO injectors.
17. **DL-UNI30545** Wrench for removing the nut in the electronic part of Siemens injectors **DL-UNI30545**
18. **DL-UNI50050** A set of wrenches for dismantling the atomizer nut (hexagon 14 mm, 15 mm, 17mm, 19mm, 16mm and 17.5mm octagon and 27mm wrench)
19. **DL-CR30561** Wrench for dismantling the multiplier nut for Bosch CR injectors, hexagon 10 mm.
20. **DL-TORX10** Wrench for removing the nut in the electronic part of Bosch injectors 10 mm.

21. **DL-TORX12** Wrench for removing the nut in the electronic part of Bosch injectors 12 mm.
22. **DL-AP2** Set of 2 anti-magnetic tweezers.
23. **DL-08CR5-244** Adjusting washers 55 pcs.
24. **DL-09CR5-219** Adjusting washers 55 pcs.
25. **DL-11CR5-236** Adjusting washers 55 pcs.
26. **DL-12CR5-230** Adjusting washers 130 pcs.
27. **DL-16CR5-232** Adjusting washers 60 pcs.
28. **DL-18CR5-271** Adjusting washers 55 pcs.
29. **DL-19CR5-273** Adjusting washers 55 pcs.
30. **DL-25CR5-288** Adjusting washers 55 pcs.
31. **DL-28CR5-287** Adjusting washers 110 pcs.

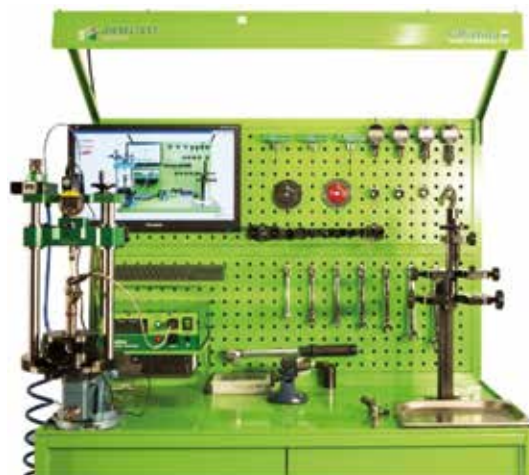
**NOTE: Dedicated workbench table is not included.**



**CRISTINA-PROF-FULL****Contents of delivery:**

1. **DL-CRN005** Stand for measuring and adjusting injector parameters 1 set
2. **DL-KIP020 or DL-KIP025** Indicator digital measuring head
3. **DL-KIP0023 or DL-KIP0028** Communication device for measuring head
4. **DL-CRN50094** Probe set and adapters
5. **DL-CRN50099** Set of 4 adapters for measuring clearances of injectors BOSCH, DENSO
6. **DL-CRistina** Injector control signal activator "Valve stroke actuator" with kit cables including:
  - Power cable 220V - 1 pc.
  - Main cable for connection to the electromagnet – 1 pc.
  - Adapter cable for light injector – 1 pc.
  - Adapter cable for cargo injector – 1 pc.
7. CRistina Software
8. **DL-PASSCRistina** Passport (technical description, operating instructions)
9. **D-MV200UM** Electron microscope
10. **D-07147122** Torque wrench 1/2" 20-100 Nm
11. **DL-CR50104** Support ring set
12. **DL-UNI30390** Wrench for removing the solenoid for CR injectors with a 30 mm hexagon.
13. **DL-UNI30389** Wrench for removing the solenoid for CR injectors with a 29 mm hexagon.
14. **DL-UNI30435** Wrench for removing the solenoid of CR injectors with a 28 mm dodecahedron.
15. **DL-UNI30434** Wrench for removing the solenoid of CR injectors with a 27 mm dodecahedron.
16. **DL-UNI50046** 3 prong wrench for removing the nut in the electronic part of DENSO injectors.
17. **DL-UNI30545** Wrench for removing the nut in the electronic part of Siemens injectors **DL-UNI30545**
18. **DL-UNI50050** A set of wrenches for dismantling the atomizer nut (hexagon 14 mm, 15 mm, 17mm, 19mm, 16mm and 17.5mm octagon and 27mm wrench)
19. **DL-CR30561** Wrench for dismantling the multiplier nut for Bosch CR injectors, hexagon 10 mm.
20. **DL-TORX10** Wrench for removing the nut in the electronic part of Bosch injectors 10 mm.

21. **DL-TORX12** Wrench for removing the nut in the electronic part of Bosch injectors 12 mm.
22. **DL-AP2** Set of 2 anti-magnetic tweezers.
23. **DL-08CR5-244** Adjusting washers 55 pcs.
24. **DL-09CR5-219** Adjusting washers 55 pcs.
25. **DL-11CR5-236** Adjusting washers 55 pcs.
26. **DL-12CR5-230** Adjusting washers 130 pcs.
27. **DL-16CR5-232** Adjusting washers 60 pcs.
28. **DL-18CR5-271** Adjusting washers 55 pcs.
29. **DL-19CR5-273** Adjusting washers 55 pcs.
30. **DL-25CR5-288** Adjusting washers 55 pcs.
31. **DL-28CR5-287** Adjusting washers 110 pcs.
32. **DL-125** Vice L=250 mm
33. **CR-NEXT-ST01** Special table-workbench with two drawers included:
  - Table with two drawers
  - Perforated wall for tool placement
  - Lighting ramp with two holders
  - PC shelf
  - Shelf for signal generator
34. PC with monitor, keyboard
35. **DL-KIP010** Digital measuring head 0.01mm, travel 12.7mm (1pc)
36. **DL-KIP011** Digital measuring heads 0.001mm, travel 12.7mm (2pcs)
37. **DL-KIP012** Digital measuring head 0.001mm, stroke 25.4mm (1pc.)
38. **DL-ST-01** Clamp for disassembly-assembly of injectors.





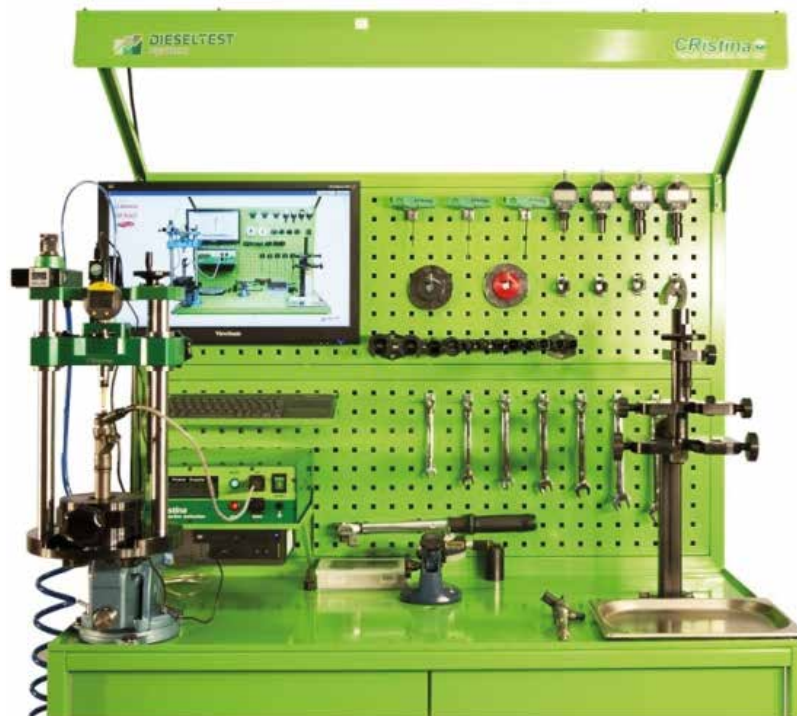
**CRISTINA-SPECIAL****Contents of delivery**

1. **DL-CRN005** Stand for measuring and adjusting injector parameters 1 set
2. **DL-KIP020 or DL-KIP025** Indicator digital measuring head
3. **DL-KIP0023 or DL-KIP0028** Communication device for measuring head
4. **DL-CRN50094** Probe set and adapters
5. **DL-CRN50099** Set of 4 adapters for measuring clearances of injectors BOSCH, DENSO
6. **DL-CRistina** Injector control signal activator "Valve stroke actuator" with kit cables including:
  - Power cable 220V - 1 pc.
  - Main cable for connection to the electromagnet – 1 pc.
  - Adapter cable for light injector – 1 pc.
  - Adapter cable for cargo injector – 1 pc.
7. CRistina Software
8. **DL-PASSCRistina** Passport (technical description, instruction manual)
9. **D-MV200UM** Electron microscope
10. **D-07147122** Torque wrench 1/2" 20-100 Nm
11. **DL-CR50104** Support ring set
12. **DL-UNI30390** Wrench for removing the solenoid for CR injectors with a 30 mm hexagon.
13. **DL-UNI30389** Wrench for removing the solenoid for CR injectors with a 29 mm hexagon.
14. **DL-UNI30435** Wrench for removing the solenoid of CR injectors with a 28 mm dodecahedron.
15. **DL-UNI30434** Wrench for removing the solenoid of CR injectors with a 27 mm dodecahedron.
16. **DL-UNI50046** 3-prong wrench for removing the nut in the electronic part of DENSO injectors.
17. **DL-UNI30545** Wrench for removing the nut in the electronic part of Siemens injectors **DL-UNI30545**
18. **DL-UNI50050** A set of wrenches for dismantling the atomizer nut (hexagon 14 mm, 15 mm, 17mm, 19mm, 16mm and 17.5mm octagon and 27mm wrench)
19. **DL-CR30561** Wrench for dismantling the multiplier nut for Bosch CR injectors, hexagon 10 mm.
20. **DL-TORX10** Wrench for removing the nut in the electronic part of Bosch injectors 10 mm.

21. **DL-TORX12** Wrench for removing the nut in the electronic part of Bosch injectors 12 mm.
22. **DL-AP2** Set of 2 anti-magnetic tweezers.
23. **DL-08CR5-244** Adjusting washers 55 pcs.
24. **DL-09CR5-219** Adjusting washers 55 pcs.
25. **DL-11CR5-236** Adjusting washers 55 pcs.
26. **DL-12CR5-230** Adjusting washers 130 pcs.
27. **DL-16CR5-232** Adjusting washers 60 pcs.
28. **DL-18CR5-271** Adjusting washers 55 pcs.
29. **DL-19CR5-273** Adjusting washers 55 pcs.
30. **DL-25CR5-288** Adjusting washers 55 pcs.
31. **DL-28CR5-287** Adjusting washers 110 pcs.
32. **DL-125** Vice L=125 mm
33. **DL-STN** Special table-workbench with two drawers included:
  - Table with two drawers
  - Perforated wall for tool placement
  - Lighting ramp with two holders
  - PC shelf
  - Shelf for signal generator
34. PC with monitor, keyboard
35. **DL-KIP010** Digital measuring head 0-12.7mm, 0.01µm (1pc)
36. **DL-KIP011** Digital measuring head 0-12.7mm, 0.001µm (2pcs)
37. **DL-KIP012** Digital measuring head 0-25.4mm, 0.001µm (1pc)
38. **DL-ST-01** Clamp for disassembly-assembly of injectors.
39. **DL-CRN50113** Set of goniometers to control the tightening of
40. **D-1012020001** Stainless steel bath
41. **DL-M035** Digital micrometer
42. **DL-M040** Tripod stand for micrometer
43. **D-07147120** Torque wrench 1/4"-1/2" with a force of 1-25 Nm
44. **DL-TX10** T-key Tx10
45. **DL-TX25** T-wrench 2.5 mm.
46. **DL-TX30** T-key 3 mm

- 46. **DL-UNI31113** The socket wrench is 6-sided by 13 mm.
- 47. **DL-UNI31114** The socket wrench is 6-sided by 14 mm.
- 48. **DL-UNI31115** The socket wrench is 6-sided by 15 mm.
- 49. **DL-UNI31119** The socket wrench is 6-sided by 19 mm.
- 50. **DL-CR50052** Device for filling the hydraulic compensator of the Bosch piezo injector.
- 51. **DL-UNI50043** Universal clamping tool for CR injectors.
- 52. **DL-UNI50032** Universal clamping tool for CR DENSO injectors.
- 53. **DL-1219KIT** Set of box spanners 10mm, 12mm, 13mm, 14mm, 15mm, 17mm, 19mm
- 54. **DL-UNI30776** Adapter from 1/4" to 1/2" for torque wrench

For additional payment: *DL-UNI31117 Long hex wrench 17 mm.*



**DL-CRN50134**

Table stand for tripod CR-CRistina

Contents of delivery :

- Base **CRN30918** – 1pc
- Rack **CRN30919** – 4 pcs
- Bolt with internal hexagon DIN912 M8x25 – 8 pcs.

**DL-1019KIT**

Open-end spanner set:

Contents of delivery :

- **DL-UNI31210** - 10 mm
- **DL-UNI31212** - 12 mm
- **DL-UNI31213** - 13 mm
- **DL-UNI31214** - 14 mm
- **DL-UNI31215** - 15 mm
- **DL-UNI31217** - 17 mm
- **DL-UNI31219** - 19 mm

**DL-PNP08****Pneumatic press**

for pressing in the stop sleeve  
adjusting washer of the magnetic gap of the injectors  
Common Rail Bosch with pressure range 0-8 bar.

**Contents of delivery :**

- pneumatic press
- **DL-CRN30914** adapter
- **DL-CRN30921** pusher
- **DL-CRN30915** adapter
- **DL-CRN30920** pusher

**DL-CRN30915**

adapter

**DL-CRN30920**pusher for  
pneumatic press**DL-CRN30914**

adapter

**DL-CRN30921**pusher for  
pneumatic press**DL-CRNRLS02**

**Adapter kit for  
pneumatic press**

**Contents of delivery :**

- **DL-CRN30914** adapter
- **DL-CRN30921** pusher
- **DL-CRN30915** adapter
- **DL-CRN30920** pusher



**DL-CRTOOLKIT-22** Tool kit for repairing CR injectors

- |    |                    |  |
|----|--------------------|--|
| 1  | <b>DL-CR50104</b>  | Support ring removal/installation kit  |
| 2  | <b>DL-UNI30390</b> | CR injector solenoid wrench with 30 mm hexagon   |
| 3  | <b>DL-UNI30389</b> | Wrench for removing the solenoid for CR injectors with a 29 mm hexagon                             |
| 4  | <b>DL-UNI30435</b> | Wrench for removing the solenoid for CR injectors with 28 mm dodecahedron                          |
| 5  | <b>DL-UNI30434</b> | Wrench for removing the solenoid for CR injectors with 27 mm dodecahedron                          |
| 6  | <b>DL-UNI50046</b> | 3-prong wrench for removing the nut in the electronic part of Denso injectors                      |
| 7  | <b>DL-UNI30545</b> | Wrench for removing the nut in the electronic part of Siemens injectors                            |
| 8  | <b>DL-UNI50050</b> | Dismantling wrench set, 14,15,17,19 mm hex, 16, 17.5 mm octagon and 27 mm wrench for torque handle |
| 9  | <b>DL-CR30561</b>  | Wrench for dismantling the nut of the Bosch CR injector multiplier, hexagon 10 Wrench              |
| 10 | <b>DL-UNI31010</b> | The key for removing the nut in the electronic part of the Bosch injector                          |
| 11 | <b>DL-UNI31012</b> | The key for mounting / dismantling the nut of multiplier of the CRIN truck injectors               |
| 12 | <b>DL-AP2</b>      | Set of 2 anti-magnetic tweezers DL-AP2   |
| 13 | <b>DL-UNI31110</b> | T-key Tx10   |
| 14 | <b>DL-UNI31125</b> | T-wrench 2.5mm   |
| 15 | <b>DL-UNI31130</b> | T-key 3 mm   |
| 16 | <b>DL-UNI31113</b> | Allen wrench hexagon 13 mm   |
| 17 | <b>DL-UNI31114</b> | Allen key 14 mm hex  |
| 18 | <b>DL-UNI31115</b> | Allen key hexagonal 15 mm  |
| 19 | <b>DL-UNI31119</b> | Allen key 19 mm hex  |
| 20 | <b>DL-CR50052</b>  | Bosch piezo injector hydraulic compensator filling tool  |
| 21 | <b>DL-UNI50043</b> | Universal clamping tool for CR injectors   |
| 22 | <b>DL-UNI50032</b> | Universal clamping tool for CR Denso injectors   |

### DL-CRTOOLKIT-12 CR injector repair tool kit



- |    |                    |  |
|----|--------------------|--|
| 1  | <b>DL-CR50104</b>  | Support ring removal/installation kit  |
| 2  | <b>DL-UNI30390</b> | CR injector solenoid wrench with 30 mm hexagon   |
| 3  | <b>DL-UNI30389</b> | Wrench for removing the solenoid for CR injectors with a 29 mm hexagon                             |
| 4  | <b>DL-UNI30435</b> | Wrench for removing the solenoid for CR injectors with 28 mm dodecahedron                          |
| 5  | <b>DL-UNI30434</b> | Wrench for removing the solenoid for CR injectors with 27 mm dodecahedron                          |
| 6  | <b>DL-UNI50046</b> | 3-prong wrench for removing the nut in the electronic part of Denso injectors                      |
| 7  | <b>DL-UNI30545</b> | Wrench for removing the nut in the electronic part of Siemens injectors                            |
| 8  | <b>DL-UNI50050</b> | Dismantling wrench set, 14,15,17,19 mm hex, 16, 17.5 mm octagon and 27 mm wrench for torque handle |
| 9  | <b>DL-CR30561</b>  | Wrench for dismantling the nut of the Bosch CR injector multiplier, hexagon 10                     |
| 10 | <b>DL-UNI31010</b> | The key for removing the nut in the electronic part of the Bosch injector                          |
| 11 | <b>DL-UNI31012</b> | The key for mounting / dismantling the nut of multiplier of the CRIN truck injectors               |
| 12 | <b>DL-AP2</b>      | Set of 2 anti-magnetic tweezers DL-AP2   |

### CRN-50250

### Set of probes and adapters

#### DL-CRN50099 Set of adapters for injectors:



DL-CRN30027

Needle stroke adapter  
BOSCH, overstroke adapter  
BOSCH CRI 2.0/2.2



DL-CRN30028



DL-CRN30029

Magnetic gap adapter BOSCH CRI 1,  
CRI 2.0/2.2, CRIN 1/1.6.



DL-CRN30030



DL-CRN30031

Injector Magnetic Gap Adapter  
BOSCH CR1 2.1



DL-CRN30032



DL-CRN30033

Overstroke adapter for injectors  
Denso



DL-CRN30034

#### DL-CRN50094 Probe set:



DL -CRN30096



DL -CRN30503



DL -CRN30097



DL -CRN30099



DL -CRN50106



DL -CRN50007



DL -CRN30100



DL -CRN30098



DL -CRN30101



DL -CRN30095



DL -CRN50006

**DL-CRN50113**

Set of goniometers to control the tightening of the atomizer nut

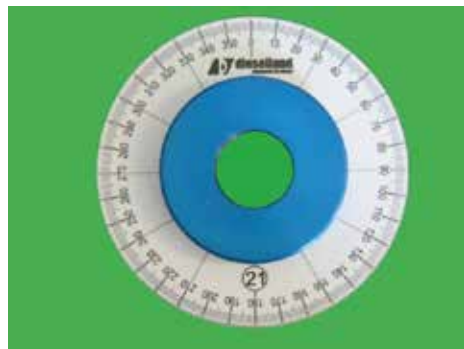
**Contents of delivery:****DL-CRN50107**

Protractor for injectors with nut diameter  
atomizer 17 mm  
Angle range: 0° - 360°

**DL-CRN50110**

Protractor for injectors with diameter  
atomizer nuts 19 mm

Angle range: 0° - 360°

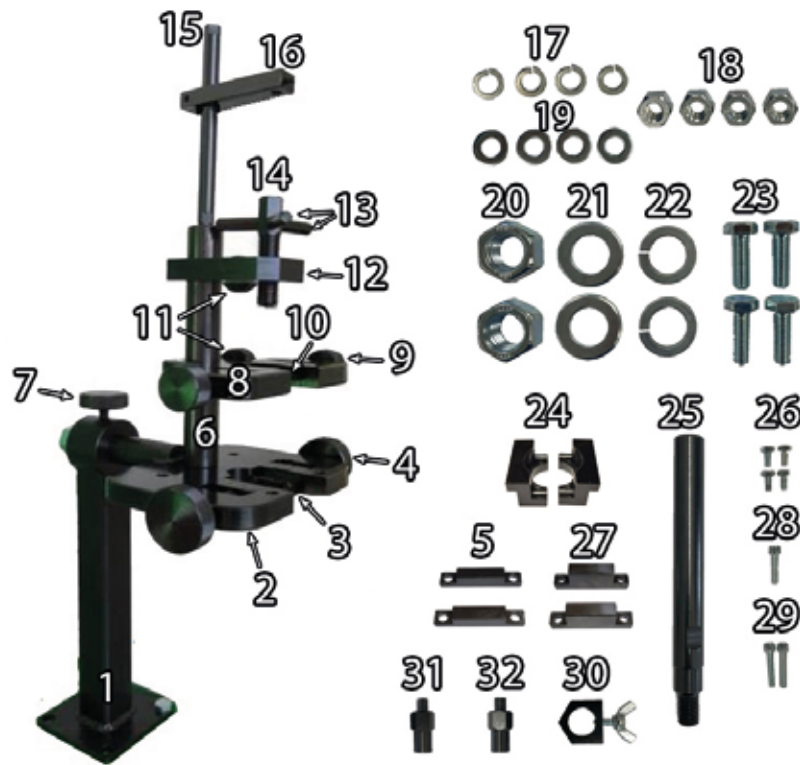
**DL-CRN50108**

Protractor for injectors with diameter  
atomizer nuts 21 mm

Angle range: 0° - 360°



*All goniometers are for sale  
also separately.*

**DL-ST01****Clamp for disassembly and assembly of CR injectors and cargo pump injectors****Contents of delivery:**

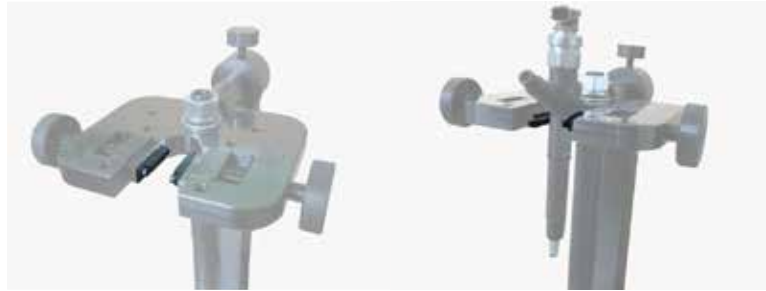
1. STD50115	Rack – 1 pc.	18. –	Nut M10 – 4 pcs.
2. STD50116	Large vise – 1 pc.	19. –	Washer 10.5x20x2 – 4 pcs.
3. STD30586	Sponge-clamping large vise– 2 pcs.	20. –	Nut M20 – 2 pcs.
4. STD30569	Large locking handle vise – 2 pcs.	21. –	Washer 21x37x3 – 2 pcs.
5. STD30498	Replaceable presser foot – 2 pcs.	22. –	Grover 20 – 2 pcs.
6. STD30540	Guide rail – 1 pc.	23. –	Bolt M10x30 – 4 pcs.
7. STD30846	Locking handle, Ø 50 mm – 1 pc.	24. STD30752	Presser foot replaceable for Denso injectors – 2 pcs.
8. STD50117	Small vise – 1 pc.	25. STD30873	Axis under the sight – 1 pc.
9. STD30500	Small vise handle – 2 pcs.	26. –	M4x8 screw – 4 pcs.
10. STD30563	"V-shaped" sponge clamp for small vise – 2 pcs.	27. STD31172	Presser foot replaceable (with increased height) – 2 pcs.
11. STD30468	Locking handle, Ø 35 mm – 2 pcs.	28. –	M4x16 screw – 1 pc.
12. STD30610	Bracket – 1 pc.	29. –	M4x20 screw – 2 pcs.
13. STD30811	Clamping screw handles – 3 pcs.	30. STD30874	Sight for goniometer – 1 pc.
14. STD30810	Clamping screw – 1 pc.	31. STD30147	Stop STD30147 Ø9 mm, for clamping screw position 14 – 1 pc.
15. STD30812	Axis – 1 pc.	32. STD30148	Stop STD30148 Ø7 mm, for clamping screw position 14 – 1 pc.
16. STD30813	Holder – 1 pc.		
17. –	Grover washer for 10 – 4 pcs.		



## SPARE PARTS FOR CLAMP DL-ST01

**DL-STD30498**

Replaceable presser foot (standard) (Set 2 pcs)

**DL-STD31172**

Replaceable presser foot (with increased height) (Set of 2 pcs)

**DL-STD30586**

Sponge-clamp of a large vice

**DL-STD30563**

V-shaped clamping jaw for small vices

**DL-STD30752**

Replacement presser foot for Denso injectors (Set of 2 pcs)



## ADDITIONAL EQUIPMENT FOR CLAMP DL-ST01

**DL-STD50072 KIT**

**Set of holders for single pump sections  
(PLD sections) and Audi / VW unit injectors  
(DL-STD50070K, DL-STD50071K)**

**DL-STD50070 K**

**Set of single section holders  
pumps (PLD sections)**

**Contents of delivery:**

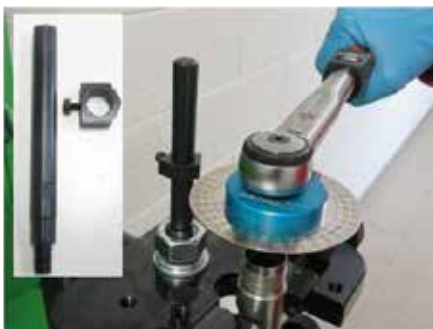
- |   |                                    |                |
|---|------------------------------------|----------------|
| 1 | <b>STD-50077</b>                   | AT holder      |
| 2 | <b>STD-50078</b>                   | speaker holder |
| 3 | <b>STD-30671</b>                   | bar            |
| 4 | <b>STD-30672</b>                   | rack           |
| 5 | <b>STD-30673</b>                   | emphasis       |
| 6 | screw GOST11738-84 M10x60 - 2 pcs. |                |

**DL-STD50071 K**

**Set of pump nozzle holders Audi / VW**

**Contents of delivery:**

- |   |                  |                             |
|---|------------------|-----------------------------|
| 1 | <b>STD-50009</b> | clamp VW2.0                 |
| 2 | <b>STD-50010</b> | clamp VW1.9                 |
| 3 | <b>STD-30656</b> | bar                         |
| 4 | <b>STD-30657</b> | stand - 2 pcs.              |
| 5 | <b>STD-30678</b> | emphasis                    |
| 6 | <b>STD-30658</b> | bolt                        |
| 7 | <b>STD31245</b>  | Short stand<br>UIS - 2 pcs. |

**DL-STD30874**

**Visor for protractor**

**DL-STD30873**

**Axle under the sight**

**DL-CR50341**

**Bracket with adapter for measurement valve stroke of BOSCH piezo injectors used during their assembly.**

Package Included:  
adapter **DL-CR31201** and  
measuring probe **DL-CR31206**

**DL-CR50340**

**Bracket for measurement adapter valve stroke of BOSCH piezo injectors used during their assembly.**

Adapter **DL-CR31201** and  
Measuring probe **DL-CR31206**  
**are not included** in the delivery package.



## OPTIONAL CLAMP DL-ST01

**DL-STD50206**

Injector holder  
AUDI / VW 1.9 to adjust  
el. magnetana clamp  
ST-01 / ST-02

**DL-STD50207**

Injector holder  
AUDI / VW 2.0 to adjust  
el. magnetana clamp  
ST-01 / ST-02



**DL-CRN50091****Set of adapters with digital indicators**

Adapter set with digital dial indicators for assembly gaps measurement and nozzle valve and needle stroke measurement.

**Kit includes:**

- |   |                      |
|---|----------------------|
| 1. <b>DL-CRI 2.1-RLS-N, CRN 30031</b><br>BOSCH CR 12.1 injector magnetic gap adapter  | 1.1 <b>CRN 30032</b> |
| 2. <b>DL-CRI 1-AHE, CRN 50089</b><br>Valve travel adapter for injectors BOSCH CRI 1, CRI 2.0/2.2, CRIN 1/1.6                            | 2.1 <b>CRN 30708</b> |
| 3. <b>DL-DENSO016-N, CRN 30033</b><br>Denso injector overstroke adapter   | 3.1 <b>CRN 30034</b> |
| 4. <b>DL-CRI-DNH-N, CRN 30027</b><br>BOSCH needle stroke adapter, BOSCH CRI 2.0/2.2 excess stroke adapter                               | 4.1 <b>CRN 30028</b> |
| 5. <b>DL-CRI-RLS-N, CRN 30029</b><br>Magnetic gap adapter BOSCH CRI 1, CRI 2.0/2.2, CRIN 1/1.6,<br>overstroke adapter BOSCH CRI 2.0/2.2 | 5.1 <b>CRN 30030</b> |
| 6. <b>DL-CRI 2.1-AHE1 CRN 30705</b><br>BOSCH CRI 2.1 injector valve stroke adapter indirect measurement                                 | 6.1 <b>CRN 30706</b> |
| 7. <b>DL-CRI 2.1-AHE 2, CRN 30707</b><br>Адаптер хода клапана инжекторов BOSCH CRI 2.1 прямой замер                                     | 7.1 <b>CRN 50007</b> |
| 8. <b>DL-VFK-DFK, CRN 30709</b><br>BOSCH Atomizer Spring and Armature Spring Adapter for BOSCH Injectors                                | 8.1 <b>CRN 30710</b> |
| 9. <b>DL-CRIN 2/3AHE, CRN 50299</b><br>Valve travel and overstroke adapter for BOSCH CRIN 2, CRIN 3 injectors                           |                      |
| 10. Digital measuring head 0-12.7mm, 0.001mm  | <b>DL-KIP011</b>     |
| 11. Digital measuring head 0-25.4mm, 0.001mm  | <b>DL-KIP012</b>     |
| 12. Allen key 2.5 mm  |                      |



**DL-CRN50092****Set of adapters with digital indicators**

Adapter set with digital dial indicators for assembly gaps measurement and nozzle valve and needle stroke measurement.

**Kit includes:**

- |   |                      |
|---|----------------------|
| 1. <b>DL-CRI 2.1-RLS-N, CRN 30031</b><br>BOSCH CR 12.1 injector magnetic gap adapter  | 1.1 <b>CRN 30032</b> |
| 2. <b>DL-CRI 1-AHE, CRN 50089</b><br>Valve travel adapter for injectors BOSCH CRI 1, CRI 2.0/2.2, CRIN 1/1.6                            | 2.1 <b>CRN 30708</b> |
| 3. <b>DL-DENSO016-N, CRN 30033</b><br>Denso injector overstroke adapter   | 3.1 <b>CRN 30034</b> |
| 4. <b>DL-CRI-DNH-N, CRN 30027</b><br>BOSCH needle stroke adapter, BOSCH CRI 2.0/2.2 excess stroke adapter                               | 4.1 <b>CRN 30028</b> |
| 5. <b>DL-CRI-RLS-N, CRN 30029</b><br>Magnetic gap adapter BOSCH CRI 1, CRI 2.0/2.2, CRIN 1/1.6,<br>overstroke adapter BOSCH CRI 2.0/2.2 | 5.1 <b>CRN 30030</b> |
| 6. <b>DL-CRI 2.1-AHE1 CRN 30705</b><br>BOSCH CRI 2.1 injector valve stroke adapter indirect measurement                                 | 6.1 <b>CRN 30706</b> |
| 7. <b>DL-CRI 2.1-AHE 2, CRN 30707</b><br>Адаптер хода клапана инжекторов BOSCH CRI 2.1 прямой замер                                     | 7.1 <b>CRN 50007</b> |
| 8. <b>DL-VFK-DFK, CRN 30709</b><br>BOSCH Atomizer Spring and Armature Spring Adapter for BOSCH Injectors                                | 8.1 <b>CRN 30710</b> |
| 9. <b>DL-CRIN 2/3AHE, CRN 50299</b><br>Valve travel and overstroke adapter for BOSCH CRIN 2, CRIN 3 injectors                           |                      |
| 10. <b>DL-KIP025MS</b> Digital measuring head 0-12.7mm, 0.001mm (PC connection possible)  |                      |
| 11. <b>DL-KIP0026</b> Digital measuring head 0-25.4mm, 0.001mm (PC connection possible)   |                      |
| 12. Allen key 2.5 m   |                      |

**DL-CRN50090**

Adapter for measuring valve stroke of CRIN 2/3 injectors. Used together with probe DL-CRN30708.

**Contents of delivery:**

<b>DL-CRN50090</b>	adapter CRIN 2/3 — 1 pc.
<b>DL-CRN30708</b>	probe - 1 pc.

**DL-CRN50299**

Адаптер измерения хода клапана и избыточного хода форсунок CRIN 2/3

**Contents of delivery:**

<b>DL-CR31555</b>	adapter case — 1 pc
<b>DL-CR31527</b>	adapter nut — 1 pc
<b>DL-CRN30708</b>	measuring probe — 1 pc.
<b>DL-CR31556</b>	anchor fixing sleeve — 1 pc

**DL-CRN50299KIT****Valve Stroke Measurement Kit and overstroke CRIN 2 / CRIN 3 with collapsible and a non-separable anchor****Contents of delivery**

- Digital indicator head **DL-KIP012** — 1 pc.
- Adapter case **DL-CR31555** — 1 pc.
- Adapter nut **DL-CR31527** — 1 pc.
- Measuring probe **DL-CRN30708** — 1 pc.
- Fixing bushing with toujon **DL-CR31556** — 1 pc.
- L-shaped hex wrench 2.5 for fixing measuring head — 1 pc.
- L-shaped hex wrench 1.5 for fixing bushings - 1 pc

**Attention!** Positions are specified according to kit **DL-CRN50091**. Others may also apply indicator measuring heads of higher quality and more expensive. CIG have the same measuring range (stroke 0-25.4 mm and resolution 0.001 mm). As an example **DL-KIP021**, **DL-KIP026**, **DL-KIP031**. All of them are available upon request.

**DL-CRN50299KIT**

**Kit for measuring the valve stroke (AH) of CRIN 2 / CRIN 3 injectors with detachable and non-demountable armature**

**Contents of delivery:**

<b>DL-CR31586</b>	Base - 1 pc.
<b>DL-CR31583</b>	Height adapter springs - 1 pc.
<b>DL-CR31584</b>	Height adapter washers Ahe - 1 pc.
<b>DL-CR31585</b>	Washer height adapter RIs - 1 pc
<b>DL-CRN30033</b>	Adapter for measuring the height of washers and springs - 1 pc.
<b>DL-KIP0036</b>	Indicator digital measuring head with an accuracy of 0.001 mm and a stroke of 25 mm - 1 pc

**DL-CR50311**

**Set of tools and adapter for measuring the height of washers and springs CRI1/CRI2**

**Contents of delivery:**

<b>DL-CR31586</b>	Base - 1 pc.
<b>DL-CR31583</b>	Height adapter springs - 1 pc.
<b>DL-CR31584</b>	Height adapter washers Ahe - 1 pc.
<b>DL-CR31585</b>	Washer Height Adapter RIs - 1 pc
<b>DL-CRN30033</b>	Adapter for measuring the height of washers and springs - 1 pc.

**DL-CR50306**

**Set of devices for measuring the height of washers and springs of CRI1/CRI2 injectors**

**Contents of delivery:**

<b>DL-CR31586</b>	Base - 1 pc.
<b>DL-CR31583</b>	Height adapter springs - 1 pc.
<b>DL-CR31584</b>	Height adapter washers Ahe - 1 pc.
<b>DL-CR31585</b>	Washer Height Adapter RIs - 1 pc



### DL-UNI20150 CRISTINA - PIEZO

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

#### Device capabilities:

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

#### Contents of delivery:

1. Signal generator "CRistina-PIEZO"
2. A set of cables to the signal generator "CRistina-PIEZO"
  - Power cable 220V
  - Main cable for connecting to the piezo package
  - Cable adapter universal
  - Adapter cable with crocodile clips
  - Earthing cable
3. Passport (technical description, operating instructions) 1 pc.

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**



## acoustic testing

DL-UNI20150A CRISTINA - PIEZO  
ACOUSTIC

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening/closing control with acoustic test
7. Precise detection of valve opening and closing with an acoustic test

**Contents of delivery:**

1. Signal generator "CRistina-PIEZO"
2. A set of cables to the signal generator "CRistina-PIEZO"
  - Power cable 220V
  - Main cable for connecting to the piezo package
  - Cable adapter universal
  - Adapter cable with crocodile clips
  - Earthing cable
3. Microphone
4. Microphone holder
5. Passport (technical description, operating instructions) 1 pc.

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**





**DL-UNI20050 CRISTINA - PIEZO**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

**DL-CR50157****Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

**Contents of delivery:**

1. Controller CRistina-Piezo
2. The clamp-holder of injectors Piezo ST-04
3. Bracket holder.
4. The air meter.
5. The air filter.
6. The distributive air valve.
7. Reducer for air.
8. The electronic manometer.
9. Set of tubes.
10. Quick coupling 6mm.
11. Set of 2 nozzles for the backflow of the Siemens VDO injectors
12. **DL-CR50157** Set of adapters for measuring of the valve stroke of CR VDO Siemens injector (DL-CR50165 for DL-UNI20050-F)
13. Connector M12x1,5X1/8"

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

*It differs from the DL-UNI20050F set in a less complete set of adapters for injectors.*

**DL-UNI20050F CRISTINA - PIEZO**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

**DL-CR50165****Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Clamp-holder for injectors Piezo ST-04
3. Bracket holder for equipment.
4. Air meter.
5. Air filter.
6. Air distribution crane.
7. Reducer for air.
8. Electronic manometer.
9. Set of tubes.
10. Coupling of quick connection 6mm.
11. Set of 2 fittings for backflow of Siemens VDO injectors
12. **DL-CR50165** Set of adapters for measuring the stroke of the injector valve CR VDO Siemens
13. Adapter M12x1.5X 1/8 "

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

*It differs from the DL-UNI20050 kit in a more complete set of adapters for injectors.*

 acoustic testing

**DL-UNI20050A CRISTINA - PIEZO  
ACOUSTIC**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.


**DL-CR50157**
**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening / closing control with acoustic test

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Clamp-holder for injectors Piezo ST-04
3. Bracket holder for equipment.
4. Air meter.
5. Air filter.
6. Air distribution crane.
7. Reducer for air.
8. Electronic manometer.
9. Set of tubes.
10. Coupling of quick connection 6mm.
11. Set of 2 fittings for backflow of Siemens VDO injectors
12. **DL-CR50157** Set of adapters for measuring the stroke of the valve injector CR VDO Siemens
13. Adapter M12x1.5X 1/8 "
14. Microphone
15. Microphone holder
16. Passport

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

*It differs from the **DL-UNI20050F (A)** kit in a less complete set of adapters for injectors.*

 acoustic testing

**DL-UNI20050FA CRISTINA - PIEZO  
ACOUSTIC**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.


**DL-CR50165**
**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening / closing control with acoustic test

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Clamp-holder for injectors Piezo ST-04
3. Bracket holder for equipment.
4. Air meter.
5. Air filter.
6. Air distribution crane.
7. Reducer for air.
8. Electronic manometer.
9. Set of tubes.
10. Coupling of quick connection 6mm.
11. Set of 2 fittings for backflow of Siemens VDO injectors
12. **DL-CR50165** Set of adapters for measuring the stroke of the injector valve CR VDO Siemens
13. Adapter M12x1.5X 1/8 "
14. Microphone
15. Microphone holder
16. Passport

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

Differs from **DL-UNI20050 (A)** kit in more complete set of injector adapters



**DL-UNI20051 Комплект с CRistina-PIEZO**

Repair kit for piezo injectors CR Siemens / VDO (without clamp for clamping injectors and acoustic test). The device confidently detects all malfunctions of the piezoelectric package. Identifies problems that similar instruments or benches do not detect.

The device was developed for assembling Siemens injectors, but it is also functional with Bosch injectors.

**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

**Contents of delivery:**

1. Controller CRistina-Piezo
  2. Bracket holder for equipment.
  3. Air meter.
  4. Air filter.
  5. Air distribution crane.
  6. Reducer for air.
  7. Electronic manometer.
  8. Set of tubes.
  9. Quick coupling 6mm.
  10. Set of 2 fittings for backflow of Siemens VDO injectors
  11. Adapter M12x1.5X 1/8 "
- DL-UNI20051A CRistina-PIEZO kit with acoustic test  
Repair kit for piezo injectors CR Siemens / VDO (without clamp for clamping injectors)

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**



 acoustic testing


## DL-UNI20051A Комплект с CRistina-PIEZO

Repair kit for piezo injectors CR Siemens / VDO (without clamp for clamping injectors with acoustic test). The device is designed to test the piezo injector of the piezo package. The device confidently detects all malfunctions of the piezoelectric package. Identifies problems that similar instruments or benches do not detect.

The device was developed for assembling Siemens injectors, but it is also functional with Bosch injectors.

**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening / closing control with acoustic test

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Bracket holder for equipment.
3. Air meter.
4. Air filter.
5. Air distribution crane.
6. Reducer for air.
7. Electronic manometer.
8. Set of tubes.
9. Quick coupling 6mm.
10. Set of 2 fittings for backflow of Siemens VDO injectors
11. Adapter M12x1.5X 1/8 "
12. Microphone
13. Microphone holder
14. Passport

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

## ADDITIONAL EQUIPMENT FOR CRISTINA-PIEZO

**DL-UNI20054** ACOUSTIC BOARD**Acoustic test kit for CRISTINA - PIEZO****The kit includes:**

1. Microphone in a plastic case
2. Clip for fixing the microphone on the nozzle body
3. Acoustic test board for installation inside the instrument CRISTINA -PIEZO
4. Set of connecting wires
5. Set of racks and bolts for fixing the board
6. Instructions for assembly.

**DL-UNI20052**

**Injector repair kit  
CR Siemens VDO (without controller  
Cristina-Piezo.**

**Contents of delivery:**

1. Clamp-holder of nozzles PiezoST-04
2. Equipment holder bracket.
3. Air meter.
4. Air filter.
5. Air distribution valve.
6. Reducer for air.
7. Electronic pressure gauge.
8. Set of tubes.
9. 6mm quick coupling.
10. Set of 2 fittings for reverse  
Siemens injector drain
11. Adapter M12x1.5 X 1/8"

**DL-UNI20053**

**Injector repair kit  
CR Siemens VDO (without controller  
CRistina-Piezo and clamps ST-04)**

**Contents of delivery:**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Equipment holder bracket.</li> <li>2. Air meter.</li> <li>3. Air filter.</li> <li>4. Air distribution valve.</li> <li>5. Reducer for air.</li> </ol> | <ol style="list-style-type: none"> <li>6. Electronic pressure gauge.</li> <li>7. Set of tubes.</li> <li>8. 6mm quick coupling.</li> <li>9. Set of 2 fittings for<br/>backflow of SiemensVDO injectors</li> <li>10. Adapter M12x1.5 X 1/8"</li> </ol> |
|--|--|

**ADDITIONALLY!** For kits **DL-UNI20051, DL-UNI20052, DL-UNI20053** requires a set of adapters with measuring head **DL-CR50157** for 6 pos. or **DL-CR50165** for 8 positions



### DL-CR50146

Adapter set without indicator head for measurement injector parameters CR VDO Siemens.

**Contents of delivery:**

1. **DL-CR31079** Adapter for testing the piezo package.
2. **DL-CR50147** Adapter (body with nut) for measuring valve travel.
3. **DL-CR31177** Measuring probe
4. **D-7153136** Hex key 2mm



### DL-CR50157

Adapter kit with indicator head for measuring parameters injectors CR VDO Siemens.

**Contents of delivery:**

1. **DL-CR31079** Adapter for testing the piezo package.
2. **DL-CR50147** Adapter (body with nut) for measuring valve travel.
3. **DL-CR31177** Measuring probe
4. **D-7153136** Hex key 2mm
5. **DL-KIP002** Indicator measuring mechanical head with precision 0.001mm, travel 5mm
6. Organizer



### DL-CR50165

**Adapter set with indicator head for measuring valve travel  
CR VDO Siemens injectors of all types.**

**Contents of delivery:**

1. **DL-CR31079** Adapter for measuring the parameters of the piezo injector package new type M25x1
2. **DL-CR31179** Adapter for measuring the parameters of the piezo injector package old type M27x1
3. **DL-CR31080** Adapter housing for measuring the stroke of the injector valve
4. **DL-CR31081** Nut to body of adapter for measuring valve travel nozzles of a new type M25x1
5. **DL-CR31178** Nut to the body of the adapter for measuring the valve travel nozzles of a new type M27x1
6. **D-7153136** Hex key 2mm
7. **DL-KIP002** Indicator measuring head mechanical 0.001mm travel 5mm
8. **DL-CR31177** Measuring probe
9. Organizer

### DL-CR50166

**Adapter kit without indicator head for measuring valve travel  
CR VDO Siemens injectors of all types.**

The kit is identical to **DL-CR50165**, except for the indicator mechanical measuring head.



**DL-CR50168****Set of adapters and wrenches for repairing CR VDO Siemens injectors****Contents of delivery:**

1. **DL-CR50165** **Set of adapters with indicator head for measuring valve travel of the CR VDO Siemens injector of all types.**
  1. **DL-CR31079** Adapter for measuring the parameters of the piezo injector package new type M25x1
  2. **DL-CR31179** Adapter for measuring the parameters of the piezo injector package old type M27x1
  3. **DL-CR31080** Adapter housing for measuring the stroke of the injector valve
  4. **DL-CR31081** Nut to body of adapter for measuring valve travel nozzles of a new type M25x1
  5. **DL-CR31178** Nut to the body of the adapter for measuring the valve travel nozzles of a new type M27x1
  6. **D-7153136** Hex key 2mm
  7. **DL-KIP002** Indicator measuring head mechanical 0.001mm travel 5mm
  8. **DL-CR31177** Measuring probe
  9. Organizer
  
2. **DL-CR50163** **Wrench for mounting / dismantling the piezo package of CR injectors VDO Siemens.**



With the help of an elongated base, this wrench provides convenient work with CR VDO Siemens injectors. The closed zones of the nozzle are excluded and the adjustment of the piezo package is facilitated. Landing dimensions of the key:

- a) hexagon for piezo package 25mm
- b) 1/2" square for torque wrench

3. **DL-CR50164** Wrench for mounting / dismantling the piezo package of CR injectors VDO Siemens.



With the help of an elongated base, this wrench provides convenient work with CR VDO Siemens injectors. The closed zones of the nozzle are excluded and the adjustment of the piezo package is facilitated. Landing dimensions of the key:

- a) hexagon for piezo package 27mm  
b) 1/2" square for torque wrench

4. **DL-UNI30545** Wrench for mounting / dismantling the multiplier nut SIEMENS injectors



**ATTENTION! All keys are sold separately.**



#### **DL-CR30843**

**Key attachment for convenient and safe tube removal piezo injectors (turnkey 27 mm).**

Prevents nozzle breakage  
injector backflow.



#### **DL-RP430**

**Manufacturer - ZECA (Italy)  
Flame test chamber (aspirator)  
nozzle spray.**

Allows visual sprayer quality control  
diesel injectors without harm to health.  
The device collects the working fluid  
for reuse.

**DL-RP400****Manual press for injector testing with mechanical pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube – 2 pcs.

**DL-RP410 (without pressure sensor)****DL-RP415 (with pressure sensor. 1500 bar)****Manual press for injector testing with electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 415**) for 1500 bar – 1 pc.

**DL-RP420 (without pressure sensor)****DL-RP425 (with pressure sensor. 1500 bar)****Manual press for injector testing with 2-channel electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 425**) for 1500 bar – 1 pc.

**DL-RP430****Manufacturer - ZECA (Italy)  
Flame test chamber (aspirator)  
nozzle spray**

Allows for visual inspection performance of diesel injectors without harm to health.

The device is going to work liquid for reuse.

**DL-RP500**

**Manufacturer - ZECA (Italy)**  
**Manual press for injector testing with mechanical pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube – 2 pcs.

**DL-RP510** (without pressure sensor)**DL-RP515** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 515**) for 1500 bar – 1 pc.

**DL-RP520** (without pressure sensor)**DL-RP525** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with 2-channel electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 525**) for 1500 bar – 1 pc.

**DL-UNI20150****Cristina-PIEZO instrument**

The device is designed to test piezo injectors and piezo package

**Instrument capabilities:**

- Sending a signal to activate the nozzle on the hand press
- Piezo resistance measurement
- Case breakdown test
- Measuring the capacitance of a piezo pack
- Measuring the smooth running of a piezo

o

**ATTENTION! Hand press not included!**



### MP-250 SASH

**Machine for fast and precise  
valve seat restoration  
injector multiplier  
BOSCH Common Rail.**

Restoration is achieved by the translational-rotational action of the lap in a special abrasive medium on the seat of the damaged nozzle valve.

**Available in 2 versions:**

- **MP-250 SASH-Z** with collet chuck
- **MP-250SASH-S** with self-locking chuck.

- **Vibration mechanism in a protective case.**
- **Screw adjustment on table height.**
- **Compactness.**

**Contents of delivery:**

- **MPS30515** Lapping at 120 ° - 5 pcs.
- **MPS30516** Lapping at 124 ° - 5 pcs.
- grinding paste diamond ASM 7/5(k)
- grinding paste diamond ASM 5/3 (k)
- grinding paste diamond ASM 3/2 (k)
- **DL-MPZ30336** valve holder  
electromagnetic injectors



**A set of lapping diamond pastes for the MP-250 machine** **DL-ACM3(K) KIT**



- **DL-ACM75K** Lapping paste diamond fraction 7/5 microns, 25 gr.
- **DL-ACM53K** Lapping paste diamond fraction 5/3 microns, 25 gr.
- **DL-ACM32K** Lapping paste diamond fraction 3/2 microns, 25 gr.



**DL-MPS31241****Spray body holder piezo injectors BOSCH**

Used for hull restoration atomizer of piezo injectors BOSCH. Suitable for lapping machine MP-250 SASH.

**Application:**

Suitable for BOSCH injectors piezo series 0445115

**DL-MPS31240 Medium soft lap (CM)**

for restoring the atomizer housing of CR BOSCH piezo injectors. Sharpening angle 60 degrees.  
Example: BOSCH CR 04455115

**DL-MPS31250 Medium hard lap**

to restore the spray body of the piezo nozzles from BOSCH. The sharpening angle is 60 degrees.  
Example: BOSCH CR 04455115

**DL-MPS31322 Elbor lap of increased hardness (PT)**

for restoring the atomizer housing of CR BOSCH piezo injectors. Sharpening angle 60 degrees.  
Example: BOSCH CR 04455115

**DL-MPS31291****Lapping for the restoration of the valve regulators pressure pumps CR CP-1**

Restoration is carried out using a machine lapping of injector valves MP-250 SASH

**DL-MPS31705****Lapping 64 degrees for grinding the sprayer body Caterpillar injectors****DL-MPS31704****Caterpillar Nozzle Sprayer Housing Holder**

Restoration is carried out during processing on the MR-250 lapping machine

**DL-CR31199****BOSCH CR piezoelectric valve seat retainer during its restoration**

- Suitable for piezo injectors BOSCH 0445115
- Adapted for lapping machine SASH MP-250
- It can also be used for machines of other manufacturers.

**DL-MPS50173****Restoration Lapping Kit  
BOSCH Piezo injector valve**

The kit includes laps with different angles:

1. DL-MPS31220 (angle 77 gr.) - 7 pcs.
2. DL-MPS31221 (angle 127 gr.) - 7 pcs.

**ATTENTION!**

*All laps are also sold separately!*

## ACCESSORIES FOR MACHINE MP-250



<b>DL-MPS50033</b>	Self-tightening chuck for MP-250S assy	1 pc
<b>DL-MPS30341</b>	Axle (Shaft Ø12) for MP-250S	1 pc
<b>DL-MPS30298</b>	Chuck body for MP-250S	1 pc
<b>DL-MPS30299</b>	Cartridge cover for MP-250S	1 pc
<b>DL-MPS30297</b>	Capture for MP-250S	2 pcs
<b>DL-MPS30364</b>	Cartridge cover (protective) for MP-250S	1 pc
<b>DL-MPS30338</b>	Washer for plastic cover for MP-250S	1 pc
<b>DL-MPS30337</b>	Upper washer for MP-250S	1 pc

**DL-MPS30364**

Cartridge protective cover

**DL-MPS30297**

Capture for MP-250S

**DL-MPZ30506**plastic pad for MP-250S  
and MP-250Z**DL-MPS30337**

Top washer for MP-250S

**DL-MPS30338**Washer for plastic  
trim for MP-250S



### DL-ACM3(K) KIT

**Lapping diamond set  
pastes for the MP-250 machine**

#### DL-ACM75K

Lapping paste diamond. Fraction of grain large 7/5 microns, 25 gr.

#### DL-ACM53K

Lapping paste diamond. Fraction of grain average 5/3 microns, 25 gr.

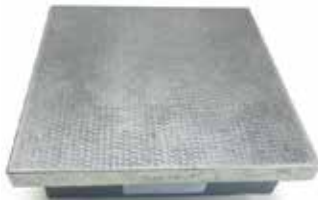
#### DL-ACM32K

Lapping paste diamond. Grain fraction small 3/2 microns, 25 gr.



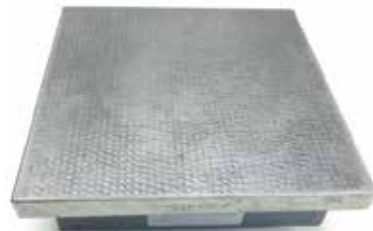
### DL-CR50112

**Set of laps for CR injector valve  
seat recovery**



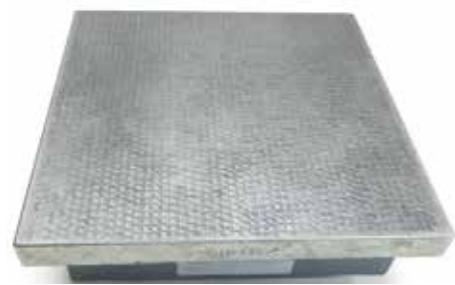
### D-261102

**Lapping plate**  
Size: 200X200 mm



### D-190171108

**Lapping plate**  
Size: 300X300 mm



### D-190171207

**Lapping plate**  
Size: 400X400 mm



### DL-UNI50270

#### Set of holders for grinding washers

Set of holders for grinding washers

The set includes two holders with diameters for different washers.

We recommend sanding on a special lapping plate



### DL-UNI31635

**Holder for lapping spacers and  
nozzle valves Piezo Bosch**

**TOM-2****CP-230 Grinding machine for dressing of the laps**

- The greatest transverse movement – 100mm.
- The greatest longitudinal movement – 70mm.
- Width of a working surface of a table – 200mm.
- Length of a working surface of a table – 90mm.
- Power supply: ~220 B±15%;
- Engine power – 0,23 kWt.
- Dimensions (length x width x height), mm 400x280x260
- Weight, kg – 21
- Revolutions per minute on the engine: – 2760
- Revolutions per minute on the drive shaft: – 200



**TOM-2****Additional equipment and accessories****DL-UNI20212****Stone abrasive with grain 36**

- outer diameter 125 mm
- internal diameter 12.7 mm
- thickness 16 mm
- processing speed 35 m/s

**DL-UNI20213****Stone abrasive with grain 60**

- outer diameter 125 mm
- internal diameter 12.7 mm
- thickness 16 mm
- processing speed 40 m/s

**DL-UNI20214****Stone abrasive with grain 80**

- outer diameter 125 mm
- internal diameter 32 mm
- thickness 10 mm
- processing speed 40 m/s

**DL-UNI20215****Stone abrasive with grain 120**

- outer diameter 125 mm
- internal diameter 12.7 mm
- thickness 16 mm
- processing speed 40 m/s

**DL-UNI20218****Stone abrasive with grain 230**

- outer diameter 125 mm
- internal diameter 12.7 mm
- thickness 16 mm
- processing speed 40 m/s

**DL-UNI20220****Stone abrasive with grain 400**

- outer diameter 125 mm
- internal diameter 12.7 mm
- thickness 16 mm
- processing speed 40 m/s

**TOM-5****Grinding machine for dressing of the laps and other bodies of revolution**

The largest transverse movement	+/-50mm
The largest longitudinal movement	+/-50mm
Angle of rotation of the working carriage	270°
Type of electronic protractor	Absolute
Granularity of abrasive stone (cup)	100 grit
Supply voltage	~ 220 V ± 15%
Power of the electric motor of the main drive	0.2 kW
Maximum power consumption of the machine	0.3 kW
The number of revolutions per minute of the electric motor	0–12000
The number of revolutions per minute of the drive shaft	0–2000
Dimensions (Depth x Width x Height), mm	335x250x300
Dimensions with lamp (Depth x Width x Height), mm	335x250x450
Machine weight (net), kg	22

**TOM-5****Additional equipment and accessories****DL-UNI20224****Cup abrasive with grain 80**

- outer diameter 50 mm
- internal diameter 13 mm
- height 32 mm
- processing speed 35 m/s

**DL-UNI20225****Stone abrasive with grain 100**

- Outer diameter 125 mm
- Inner diameter 12.7 mm
- Thickness 16 mm
- Processing speed 35 m/s

**DL-UNI20226****Stone abrasive with grain 200**

- outer diameter 125 mm
- internal diameter 12.7 mm
- thickness 16 mm
- processing speed 35 m/s



DI-CR50174

## BOSCH PIEZO injector recovery kit



## Contents of delivery:

1. **DL-CR50160** Clamp for pressing pins injector valve core.
2. **DL-CR31199** Valve seat holder for BOSCH CR piezo injectors during its restoration.
3. **DL-CR50169** Adapter for measuring the stroke of the BOSCH piezo injector valve
4. **DL-MPS31220** Lapping 77 degrees (6 pcs.)
5. **DL-MPS31221** Lapping 127 degrees (6 pcs.)
6. **DL-CR50209-15** Collet chuck valve holder for BOSCH piezo injectors.
7. **DL-CR31204** Plate N1 for injector valve recovery CR BOSCH Piezo
8. **DL-CR31205** N2 plate for injector valve recovery CR BOSCH Piezo
9. **DL-KIP002** Indicator measuring head of the clock type.

**DL-CR50160**

**Press-in clamp CR injector valve core pins piezo BOSCH.**

Suitable for BOSCH piezo series injectors **0445115**

**DL-CR50169**

**Adapter for measuring the stroke of the injector valve piezo BOSCH.**

Suitable for BOSCH piezo series injectors **0445115**

**Contents of delivery:**

1. Adapter DL-CR31201
2. Measuring probe DL-CR31206

**ATTENTION!**

*The measuring head is not included in the scope of delivery!*

**DL-CR50340**

**Bracket for measurement adapter BOSCH piezo injector valve travel**

Bracket for measurement adapter BOSCH piezo injector valve travel, applied during assembly.

Adapter **DL-CR31201** and measuring probe **DL-CR31206** not included.

**DL-CR31204**

**Lapping plate N1 for valve recovery injectors CR BOSCH Piezo**

**DL-CR31205**

**Lapping plate N2 for valve recovery injectors CR BOSCH Piezo**



**DL-HK50259**

**Universal device for filling the hydraulic compensator of Piezo injectors BOSCH and pressing/unpressing pins of nozzles SIEMENS / BOSCH Piezo**

The first purpose is filling the hydraulic compensator of the Piezo BOSCH injectors. The second purpose is to dismantle and press the pins of the valve core of the Common Rail Piezo BOSCH 0445115 injectors. The third purpose is dismantling and pressing the pins of the valve core of Common Rail SIEMENS injectors.

In the first and in the second case, an elongated cartridge with a hole is used. In the third case, a short cartridge without a hole is used.

**Scope of delivery:**

Universal fixture - 1 pc,  
Elongated cartridge - 1 pc,  
Short cartridge — 1 pc.

**DL-CR50209**

**collet chuck valve holder piezo injectors BOSCH for restoration geometry by lapping.**

Collet chucks are divided by accuracy:

**DL-CR50209-5** Collet chuck runout up to 1-5 microns

**DL-CR50209-10** Collet chuck runout up to 6-10 microns

**DL-CR50209-15** Collet chuck runout up to 11-15 microns

**DL-CR50052**

**Filler hydraulic compensator for Bosch piezo injectors.**

**Consists of two parts:  
housings with guides and clamps.**

**DL-GR7500****Grinding machine for the needles of nozzles**

Grinding machine for dressing needles of nozzles with rotation speed indicators

The machine is controlled by PWM controllers.

The control of the speed of rotation of the spindle and the processed body is regulated by means of rotary knobs located on the control panel.

Adjusting the brightness of the lower illumination of the processed body of rotation is performed using the rotary knob located in the upper part of the control panel.

The control panel has a general power switch for the machine and three power switches on each electric motor of the corresponding drive and lower lighting bulbs.

On the rear side of the machine body there is a connector for supplying a 220-volt power cable, two 220-volt sockets and a 12-volt connector for connecting a monitor.

On the front side of the machine body there is a 12 volt connector for connecting the electric motor power cable to drive rotation bodies.

The grinding machine **DL-GR7500** can be used in conjunction with the kits: **DL-UNI20025**, **DL-UNI20026**, **DL-UNI20027**, **DL-UNI20030**.

which includes: electronic industrial microscope, tripod holder, top illumination and monitor. This kit is not included in the scope of supply and is available by separate order.

**DL-GR7400****Grinding machine for nozzle needles with rotation speed indicators in percent**

The **DL-GR7400** machine is used for grinding needles of nozzles and other bodies of rotation. The machine is controlled by PWM controllers.

The control of the speed of rotation of the spindle and the processed body is regulated by means of rotary knobs located on the control panel.

Rotation speed (revolutions) is displayed as a percentage. Adjusting the brightness of the lower illumination of the processed body of rotation is performed using the rotary knob located in the upper part of the control panel.

The control panel has a general power switch for the machine and three power switches for each electric motor of the corresponding drive and a backlight.

On the rear side of the machine body there is a connector for supplying a 220-volt power cable, two 220-volt sockets and a 12-volt connector for connecting a monitor.

On the front side of the machine body there is a 12 volt connector for connecting the electric motor power cable to drive rotation bodies.

The grinding machine DL-GR7400 can be used in conjunction with the kits: **DL-UNI20025**, **DL-UNI20026**, **DL-UNI20027**, **DL-UNI20030**.

which includes: electronic industrial microscope, tripod holder, top illumination and monitor. This kit is not included in the scope of supply and is available by separate order.

**DL-GR7300****Grinding machine for the needles of nozzles  
with speed indicators**

The **DL-GR7300** machine is used for sharpening needles of atomizers and other bodies of rotation. The machine is controlled by PWM controllers.

The control of the speed of rotation of the spindle and the processed body is regulated by means of rotary knobs located on the control panel.

Adjusting the brightness of the lower illumination of the processed body of rotation is performed using the rotary knob located in the upper part of the control panel.

The control panel has a general power switch for the machine and three power switches on each electric motor of the corresponding drive and lower lighting bulbs.

On the rear side of the machine body there is a connector for supplying a 220-volt power cable, two 220-volt sockets and a 12-volt connector for connecting a monitor.

On the front side of the machine body there is a 12 volt connector for connecting the electric motor power cable to drive rotation bodies.

The grinding machine DL-GR7300 can be used in conjunction with the kits: **DL-UNI20025**, **DL-UNI20026**, **DL-UNI20027**, **DL-UNI20030**.

which includes: electronic industrial microscope, tripod holder, top illumination and monitor. This kit is not included in the scope of supply and is available by separate order.

OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-UNI20025**

**Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 8x-130x
2. Working distance : 50-200mm
3. Connect to monitor via ports: HDMI/VGA
4. Microscope size (width x length): 40mm x 115mm

**Contents of delivery:**

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI / VGA / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope.
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!





OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-UNI20030**

**Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 8x-130x
2. Working distance : 50-200mm
3. Connect to monitor via ports: HDMI/VGA
4. Microscope size (width x length): 40mm x115mm

**Contents of delivery:**

1. **DL-UNI20010** Industrial electronic microscope with power supply (HDMI / USB / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope.
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!



OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-UNI20026**

**Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 5x-100x
2. Working distance : 50-170mm
3. Connect to monitor via ports: HDMI
4. Microscope size (width x length): 40mm x 115mm

**Contents of delivery:**

1. **DL-UNI20013** Industrial electronic microscope with power supply and backlight (HDMI / USB).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20021** Monitor
4. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!



OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-UNI20027**

**Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 10x-180x
2. Working distance : 100-150mm
3. Connect to monitor via ports: HDMI
4. Microscope size (width x length): 40mm x115mm

**Contents of delivery:**

1. **DL-UNI20014** Industrial electronic microscope with power supply (HDMI / USB / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!



**DL-UNI20031****Microscope kit HDMI USB 1080P  
FHD 48MP x 200**

The microscope has a clear image and high resolution  
Lens: 200X C-MOUNT magnification

**Technical data:**

1. Photo / video shooting
2. Additional functions: adding guide lines, image fixation, mirroring, image rotation, digital zoom
3. Housing: aluminum alloy
4. Matrix: Panasonic
5. Matrix resolution 48 MP
6. Frame rate: at 1920\*1080 / 60fps
7. Outputs: USB, HDMI, TF card, infrared sensor for remote control
8. Power supply: DC-12V/1A
9. Max TF card capacity: 64G
10. HDMI image resolution: 8168\*6128 4:3 (50MP) 8168\*4592 16:9 (37MP) (for TF card),
11. USB image resolution: 1920\*1080 (for PC USB)
12. Video resolution: 1920\*1080/60fps for HDMI, 1920\*1080/30fps 1280\*720 / 30fps 640\*480 / 30fps 320\*240 / 30 fps for USB
13. Video format: MP4
14. Picture format: JPG
15. Remote control
16. Language support: Russian, Chinese, English, French, Spanish, Portuguese, German, Italian, Japanese
17. Lens: 200X C-MOUNT magnification
18. Working distance: 95mm (maximum working distance 16cm)
19. Zoom Ratio: 6.5:1

**Contents of delivery:**

1. **DL-UNI20023** Microscope electronic promiscuous with power supply (HDMI / USB / AV)
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!

OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-UNI20032****Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution  
Lens: 180X C-MOUNT magnification

**Technical data:**

1. Photo / video shooting
2. Additional functions: adding guide lines, image fixation, mirroring, image rotation, digital zoom
3. Housing: aluminum alloy
4. Matrix: Panasonic
5. Matrix resolution 37.0 MP
6. Frame rate: at 1920\*1080 / 60fps
7. Outputs: USB, HDMI, TF card, infrared sensor for remote control
8. Power supply: DC-12V/1A
9. Max TF card capacity: 64G
10. HDMI image resolution: 8168\*6128 4:3 (50MP) 8168\*4592 16:9 (37MP) (for TF card),
11. USB image resolution: 1920\*1080 (for PC USB)
12. Video resolution: 1920\*1080/60fps for HDMI, 1920\*1080/30fps 1280\*720 / 30fps 640\*480 / 30fps 320\*240 / 30 fps for USB
13. Video format: MP4
14. Picture format: JPG
15. Remote control
16. Language support: Russian, Chinese, English, French, Spanish, Portuguese, German, Italian, Japanese
17. Lens: 180X C-MOUNT magnification
18. Working distance: 95mm (maximum working distance 16cm)
19. Zoom Ratio: 6.5:1

**Contents of delivery:**

1. **DL-UNI20011** Industrial electronic microscope with power supply (HDMI / USB / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!



OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-UNI20200**

Stone abrasive with grain 400

**DL-UNI20201**

Stone abrasive with grain 200

**DL-UNI20202**

Stone abrasive with grain 100

### OPTIONAL EQUIPMENT AND ACCESSORIES TO GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500



**DL-UNI20203**

Stone abrasive with grain 320  
with tapered profile



**DL-UNI20204**

Stone abrasive with grain 230  
with tapered profile



**DL-NG50260**

Abrasive Dresser stone at an angle



OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-GR60007**

Diamond pencil for grooving  
abrasive stones (standard)

**DL-GR60008**

Diamond pencil for grooving  
abrasive stones (reinforced)

**DL-NG31309**

Editing pencil  
abrasive wheel (needle)

**DL-GR1050**

Stone holder (mandrel)

**DL-GR1060**

Axle for stone balancing  
(Gem with holder not included)



OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-GR1070**

Balancing device  
(Gem with holder not included)

**DL-NG50196**

Stone remover with mandrel with spindle taper.

**DL-NG50194**

Set of drive pulleys for machine tools  
GR-7300, GR-7400, GR-7500.

Material: polyurethane

**Package Included:**

1. **DL-NG31264** Pulley Ø15x3 for atomizer needle
2. **DL-NG31264-01** Pulley Ø15x4 for atomizer needle
3. **DL-NG31264-02** Pulley Ø15x5 for holder piezo injector valve
4. **DL-NG31196** Pulley Ø15x7 for lapping

**Attention!** All pulleys are also sold separately!

OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-GR1080****Angle measuring kit****Contents of delivery:**

1. Protractor electronic
2. Protractor bracket
3. Protractor axis NG31249
4. A set of M4 screws - 3 pcs.

**Specifications:**

1. Measuring range: 0-360 degrees
2. Graduation: 0.1 degree
3. Accuracy : +-0.2 degree
4. Accuracy : 0.1 degree
5. Battery: 3V CR20032
6. Battery life: 1 year

**DL-NG31263****Gauge for setting the angle of 60 degrees****DL-NG31253****Valve holder  
(pin) injectors BOSCH piezo  
to polish it**



OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-GR1090**

**Measurement kit  
angles of increased accuracy**

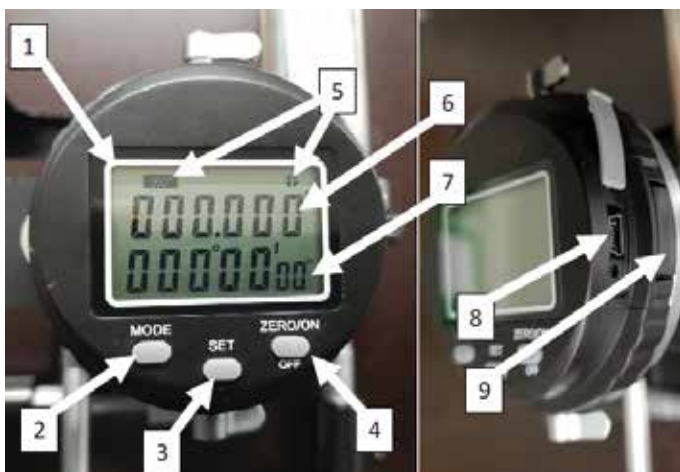
**Contents of delivery:**

1. Protractor electronic
2. Protractor bracket
3. Protractor axis NG50205
4. A set of M4 screws - 2 pcs.

**Specifications:**

1. Measuring range: 0-360 degrees
2. Division value: 0.005 degrees (10 seconds)
3. Accuracy:  $\pm 0.2$  degree
4. Accuracy: 0.08 degree ( $\pm 30$  seconds)
5. Working temperature range: 0  $\pm$  40°C
6. Battery: 3V **CR20032**
7. Battery life: 1 year

*On two lines at the same time  
the measurement value is displayed in  
decimal degrees (upper  
line) and in seconds (bottom line)*



1. Display
2. MODE button
3. "SET" button
4. "ZERO / ON-OFF" button
5. Display selected measuring range (360°, 180° x 2, 90° x 4)
6. Display angle in decimal fractions of a degree.
7. Display in degrees, minutes and seconds.
8. USB socket
9. Retractable battery slot

OPTIONAL EQUIPMENT AND ACCESSORIES TO  
GRINDING MACHINES GR-7300 , GR-7400 AND GR-7500**DL-NG50201****Prisms with electric motor assembly****Contents of delivery:**

1. **DL-NG50200** Prisms assemblies
2. **DL-NG31189** platform
3. **DL-NG50199** electric motor assembly
4. **DL-NG31246** Pencil holder  
for editing (no pencil)  
**DL-NG31309** Editing pencil
5. **DL-NG31290** Stop extension bracket
6. **DL-NG31183** stop bracket standard

**DL-NG50200**

Prisms with holder assembly

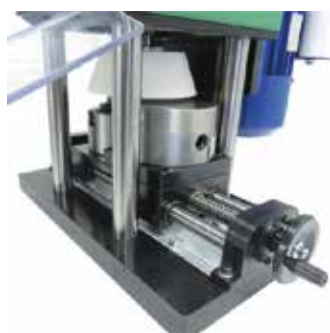
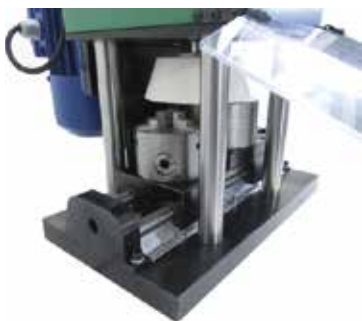
**DL-NG31189**Mounting platform  
prisms, electric motor and  
bracket with pencil  
for straightening stone.**DL-NG50199**Electric motor 12 volt  
1000 rpm with protective cover  
with mounting bracket and  
pulley.**DL-NG31246**Editing pencil holder  
abrasive stone (no pencil).  
**DL-NG31309** Straightening Pencil  
abrasive wheel.**DL-NG31290**stop extension for  
installation of long  
details for their grinding.**DL-NG31183**stop bracket  
workpiece  
with standard length

**GM-08****Surface grinding machine with bottom movable desktop.**

Designed for grinding shims, nozzle ends and other parts of fuel equipment.

**Specifications:**

Motor power	0.37 kW
Value of division	1 $\mu$ m
Working stroke of the stone	35 mm
Height length Width	505 / 370 / 340 mm
Supply voltage	~220 V $\pm$ 15%
Tolerance of parallelism of the surface of the workpiece	0,002-0,004 mm
The weight	60 kg



SPARE PARTS AND ACCESSORIES K  
SURFACE GRINDING MACHINE GM-08**DL-UNI20205**

Grinding stone for GM-08 straight, seating diameter 20mm, outer diameter 100mm at 80grit

**DL-UNI20206**

Grinding stone for GM-08 straight, seating diameter 20mm, outer diameter 100mm at 60 grit

**DL-UNI20207**

Grinding stone for GM-08 straight, seating diameter 20mm, outer diameter 100mm at 40 grit

**DL-UNI20208**

Grinding stone for GM-08 conical, landing diameter 32mm, outer diameter 125mm at 80 grit

**DL-GM50248**

mandrel stone holder for modernized machines GM-08

**DL-GM31280**

Drive shaft with taper fit under the mandrel for the modernization of machines GM-08, issued before 04.2020.

**DL-GM50263**

Stone puller with mandrel with cone shaft.

**MGM-500****Surface grinding machine with moving column**

Machine **MGM-500** is designed for grinding shims and other elements and bodies of revolution when they are fixed with a magnetic plate or clamps.

**The design of the machine includes:**

- The base housing in which the gearbox for the vertical movement of the column with grinding stone
- Electric motor with direct drive of the grinding cup
- Powerful magnet for grinding washers
- High-precision vise for trimming parts
- Protective cover
- Handle for vertical movement of the column
- Rotary handle
- Protective corrugation
- Indicator head with 0.001mm pitch
- Bracket with a cutter for straightening a stone is mounted on a protective cover

**Specifications:**

Vertical movement of the column	40 mm
Vise Width	50 mm
vise stroke	65 mm
stone grain	80 grit
Supply voltage	~220 V $\pm$ 15%
Motor power	0.5 kW
Height length Width	310x260x450
Machine weight	43 kg
The number of revolutions per minute of the electric motor	2800 / 3600
Tolerance of parallelism of the surface of the workpiece	0,003-0,006 mm



**DL-CR50167****Set of CR injector holders for vise**

The block has undergone heat treatment, which increases many times its service life.

**Contents of delivery:**

- DL-CR31054** Universal block for vise with groove dimensions 11,12,13,19mm for installation injectors CR BOSCH and DELPHI.
- DL-CR31055** Universal block for vise with groove sizes 14,16,20 mm for installation injectors CR VOLVO, Fiat Dukato, BMW (similar to SIRINI AB0122-02)
- DL-CR31056** Universal block for vise with groove sizes 15,17,18,22 mm for installation injectors CR (similar to SIRINI AB0122-03)
- DL-CR31158** Universal block for vise with groove sizes 13, 15, 18, 22 mm for installation injectors CR PIEZO SIEMENS and BOSCH

**DL-CR50158****Set of CR injector holders for vices.**

The blocks have been heat treated, which increases many times their service life.

**Contents of delivery:**

- DL-CR31054** Universal block for vise with groove dimensions 11,12,13,19mm for installation injectors CR BOSCH and DELPHI.
- DL-CR31055** Universal block for vise with groove sizes 14,16,20 mm for installation injectors CR VOLVO, Fiat Dukato, BMW (similar to SIRINI AB0122-02)
- DL-CR31056** Universal block for vise with groove sizes 15,17,18,22 mm for installation injectors CR (similar to SIRINI AB0122-03)

**DL-CR31054**

**Universal block for vise with slot sizes 11, 12, 13,19mm for installation of CR BOSCH injectors and DELPHI. (similar to BOSCH 0986612786, analogue SIRINI AB0122-01)**

The block has undergone heat treatment, which increases many times its service life.

**DL-CR31055**

**Universal block for vise with slot sizes 14, 16, 20 mm for installation of CR VOLVO injectors, FiatDukato, BMW (similar to SIRINI AB0122-02)**

The block has undergone heat treatment, which increases many times its service life.

**DL-CR31056**

**Universal block for vise  
with slot sizes 15, 17, 18, 22 mm  
for mounting CR injectors  
(similar to SIRINI AB0122-03)**

The block has undergone heat treatment,  
which increases many times its service life.

**DL-CR31058**

**Universal block for vise  
with slot sizes 13, 15, 18, 22 mm  
for installation of CR BOSCH piezo injectors  
and Siemens**

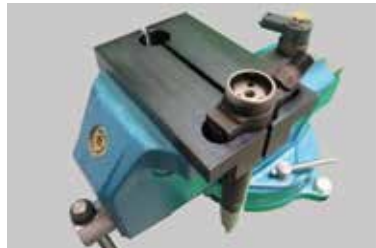
The block has undergone heat treatment,  
which increases many times its service life.

**DL-UNI50043**

**Universal fixture for  
clamps in the vise of CR injectors**

**Clamps in two positions:**

- spray up;
- spray down.

**DL-UNI50032**

**Universal fixture for  
clamp in the vise of CR Denso injectors**

**Clamps in two positions:**

- spray up;
- spray down.

**DL-CR31093**

**Wrench for dismantling the injector solenoid  
DENSO, CAT, PERKINS**

**Key Features:**

1. The key has 12 faces.
2. Distance between faces 27,5mm
3. Connecting square 1/2"

**DL-CR31667**

**Wrench 27 mm 1/2 for injector solenoid  
DENSO**

**DL-CR31668**

**Long wrench 27 mm 1/2 for solenoid  
DENSO**

**DL-UNI50046**

**Three-pin wrench for disassembly and  
Denso injector assembly.**

**Completeness:**

- key;
- guide nut;
- drift;
- 3 additional pins.

Technological holes are provided in the key, through which you can knock out broken or worn pins and install new pins.

**DL-CR31715**

**Atomizer Nut Wrench DENSO 5471 08K125157032**

**DL-NG50109**

**Set of wrenches for mounting / dismantling nuts in  
electronic part of BoschCR injectors.**

**Contents of delivery:**

- |                   |   |
|-------------------|---|
| <b>DL-CR30543</b> | Wrench 10-17 for mounting/dismounting the multiplier nut for BOSCH CR injectors, hexagon 10 mm with internal Ø7.5 mm wrench 17                |
| <b>DL-CR30558</b> | Wrench for mounting / dismantling the nut in the electronic part of the BOSCH CR injectors, 10 mm hexagon with □1/2" square for torque wrench |
| <b>DL-CR30561</b> | Wrench 10-13 for mounting / dismantling the multiplier nut for BOSCH CR injectors, hexagon 10 with internal Ø7.5 mm for a torque wrench       |
| <b>DL-CR30393</b> | Wrench for mounting / dismantling the nut in the electronic part of the Bosch CR injectors  |

**DL-UNI50058**

Wrench 32 with teeth for mounting / dismantling the nozzle nut DELPHI trucks.

**DL-CR30545**

Wrench for mounting / dismantling the multiplier nut SIEMENS injectors

**DL-UNI30434**

Wrench for mounting / dismantling the nut of the solenoid injectors CR with dodecahedron 27 mm

**DL-UNI30435**

Wrench for mounting / dismantling the nut of the solenoid injectors CR with dodecahedron 28 mm

**DL-UNI30389**

Wrench for mounting / dismantling the solenoid nut CR injectors with hexagon 29 mm

**DL-UNI30390**

Wrench for mounting / dismantling the nut of the solenoid injectors CR with hexagon 30 mm

**DL-CR31092**

Allen key 7/8 for mounting / dismantling CR injector solenoid inner ring nut Denso. Connecting square 1/2

**DL-UNI50050**

A set of keys designed for tightening the CR injector nozzle nut any manufacturers (BOSCH, DELPHI, DENSO, Siemens).

**Includes:**

hexagons for 14, 15, 17, 19 mm, octahedrons 16, 17.5 mm and a 27 mm wrench for a torque handle.

**DL-UNI30384**

socket wrench with hexagon socket by 14 mm

**DL-UNI30385**

socket wrench with hexagon socket by 15 mm

**DL-UNI30386**

socket wrench with hexagon socket by 17 mm

**DL-UNI30387**

socket wrench with hexagon socket by 19 mm

**DL-UNI30388**

Key socket with internal octagon by 16 mm

**DL-UNI30692**

Key socket with internal octagon at 17.5 mm

**DL-UNI30382**

Allen key 27 mm with square hole for torque arm



**DL-UNI50054**

A set of keys designed for tightening the CR injector nozzle nut any manufacturers (BOSCH, DELPHI, DENSO, SIEMENS).

**Includes:**

hexagons with collar 14, 15, 17, 19 mm, octahedrons with collar 16, 17.5 mm and a 27 mm wrench for a torque handle.

**DL-UNI30460**

Nozzle wrench with inner collar hexagon 14 mm

**DL-UNI30461**

Nozzle wrench with inner collar hexagon 15 mm

**DL-UNI30459**

Nozzle wrench with shoulder internal octagon 16 mm

**DL-UNI30462**

Nozzle wrench with inner collar hexagon 17 mm

**DL-UNI30691**

Nozzle wrench with inner collar 17.5 mm octagon

**DL-UNI30463**

Nozzle wrench with inner collar hexagon 19 mm

**DL-UNI30382**

Allen key 27 mm with square hole for torque arm

**DL-CR50261**

**Mounting wrench set /  
dismantling the atomizer nut for  
piezo injectors BOSCH, VDO (Siemens)  
and BOSCH series 111**

**DL-UNI30461**

Nozzle wrench with inner collar  
hexagon 15 mm

**DL-UNI31442**

Nozzle wrench for mounting / dismantling the atomizer nut  
injectors BOSCH 0445118 The key has 7 faces inside.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.

**DL-UNI30459**

Nozzle wrench with shoulder  
internal octagon 16 mm

**DL-UNI31395**

Nozzle wrench for mounting / dismantling the atomizer nut  
injectors BOSCH 0445118 The key has 8 protrusions inside.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.

**DL-UNI31394**

Nozzle wrench for mounting / dismantling the atomizer nut  
nozzles VDO (SIEMENS) PCRs5 Has an internal 9-sided face.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.

**DL-UNI31435**

Nozzle wrench for mounting / dismantling the atomizer nut  
injectors BOSCH 111 series. The key has 10 projections inside.  
Used turnkey 27mm. Made from high quality  
tool steel with subsequent heat treatment.  
Durability is guaranteed.

**DL-UNI30382**

Allen key 27 mm with square  
hole for torque arm

**DL-CR50262**

**Mounting wrench set /  
dismantling the nozzle spray nut**  
Common Rail BOSCH, VDO (Siemens), DENSO,  
DELPHI of all types.

**DL-UNI30460**

Nozzle wrench with inner collar  
hexagon 14 mm

**DL-UNI30461**

Nozzle wrench with inner collar  
hexagon 15 mm

**DL-UNI30462**

Nozzle wrench with inner collar  
hexagon 17 mm

**DL-UNI30814**

socket wrench with hexagon socket  
18 mm for BOSCH electromagnetic injectors

**DL-UNI30463**

Nozzle wrench with inner collar  
hexagon 19 mm

**DL-UNI31442**

Nozzle wrench for mounting / dismantling the atomizer nut  
injectors BOSCH 0445118 The key has 7 faces inside.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.

**DL-UNI31288**

Key socket with internal octahedron  
15 mm for BOSCH electromagnetic injectors

**DL-UNI30459**

Nozzle wrench with shoulder  
internal octagon 16 mm

**DL-UNI30691**

Nozzle wrench with inner collar  
17.5mm octagon

**DL-UNI31395**

Nozzle wrench for mounting / dismantling the atomizer nut  
injectors BOSCH 0445118 The key has 8 protrusions inside.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.

**DL-UNI31394**

Nozzle wrench for mounting / dismantling the atomizer nut  
nozzles VDO (SIEMENS) PCRs5 Has an internal 9-sided face.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.

**DL-UNI31435**

Nozzle wrench for mounting / dismantling the atomizer nut  
injectors BOSCH 111 series. The key has 10 projections inside.  
A 27mm wrench is used. Made from high quality  
tool steel with subsequent heat treatment.  
Durability is guaranteed.

**DL-UNI30382**

Allen key 27 mm with square  
hole for torque arm

**DL-UNI50105**

Set of hex wrenches for  
25,27,29,30 mm square  
hole for dyno  
handle or wrench 1/2"

**DL-UNI30803**

24 mm hex wrench with square  
hole for torque arm  
or wrench 1/2"

**DL-UNI30382**

27 mm hex wrench with square  
hole for torque arm  
or wrench 1/2"

**DL-UNI30541**

29 mm hex wrench with square  
hole for torque arm  
or wrench 1/2"

**DL-UNI30625**

30 mm hex wrench with square  
hole for torque arm  
or wrench 1/2"



**DL-CR30814**

Nut wrench (18) for mounting / dismantling  
CR SCANIA injector nozzle nuts 1881565  
The key has 6 faces with a width of 18mm

**DL-CR30816**

Wrench 2V for mounting / dismantling the nut  
injector solenoid CR SCANIA 1881565

**DL-CR30815**

Wrench 16Z for mounting / dismantling the toothed nut  
injector CR SCANIA 1881565

**DL-CR50119**

Set of keys for disassembly /  
injector assembly CR SCANIA 1881565

Kit includes:

- key DL-CR30814
- key DL-CR30815
- key DL-CR30816

**DL-CR30843**

Key - nozzle for convenient and safe  
dismantling the piezo injector tube  
(turnkey 27 mm).  
Prevents breakage of the return fitting  
drain nozzle

**DL-UIS30767**

Nozzle test adapter  
CR injectors Delphi Smart(1725282).

**DL-UNI50039**

Wrench for mounting / dismounting the spray nut  
Ø 20.9 mm Delphi Smart nozzles  
(for torque wrench)

**DL-UNI50131**

Wrench for mounting / dismounting the spray nut  
Ø 25.8mm nozzles CR Bosch  
(for torque wrench)

**DL-CR31095**

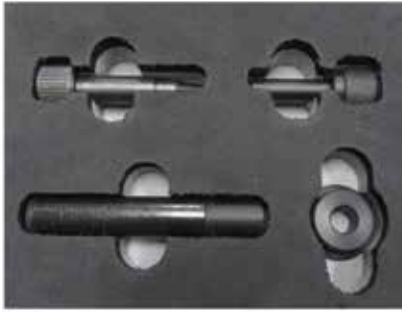
Wrench for mounting / dismounting the internal  
ring-nuts for Denso, CAT, Perkins injectors.

**DL-CR50148**

Valve Installer  
CRIN injectors

**DL-CR50154**

Valve removal tool  
injector multiplier CRIN M19 x 0.75mm

**DL-CR50104****Seal removal and installation kit  
rings and valve settings for CR injectors**

- DL-CR31553** Pusher (Ø 9.4mm x 7.4mm) for installation O-ring for BOSCH CRIN 3-18 injectors
- DL-CR30756** Guide sleeve (Ø 10mm)
- DL-CR30755** Pusher for valve installation (Ø 15.5mm)
- DL-CR30753** Extractor for old O-rings Organizer.

**DL-CR50298****Seal removal and installation kit  
rings and valve settings for CR injectors**

- DL-CR31553** Pusher (Ø 9.4mm x 7.4mm) for installation O-ring for BOSCH CRIN 3-18 injectors
- DL-CR30756** Guide sleeve (Ø 10mm)
- DL-CR30755** Pusher for valve installation (Ø 15.5mm)
- DL-CR30754** Pusher (Ø 10mm x 7.6mm) for installation O-ring for BOSCH CRI injectors
- DL-CR30753** Extractor for old O-rings Organizer.

**DL-CR50172****Set of accessories for installing paronite  
CRIN injector rings**

Contents of delivery:

**DL-CR50153****Device for installing paronite  
CRIN injector rings**

Collet outer diameter 6.5mm  
Connecting thread M18x0.75mm  
Analog BOSCH 0986613648  
Analog SIRINI AAZ034-648

**DL-CR50155****Device for installing paronite  
CRIN injector rings**

Collet outer diameter 7.5mm  
Connecting thread M18x0.75mm  
Analog BOSCH 0986613646  
Analog SIRINI AAZ034-646

**DL-CR50170****Device for installing paronite  
CRIN injector rings**

Collet outer diameter 7.5mm  
Connecting thread M17x1mm  
Analog BOSCH 0986613640  
Analog SIRINI AAZ034-640

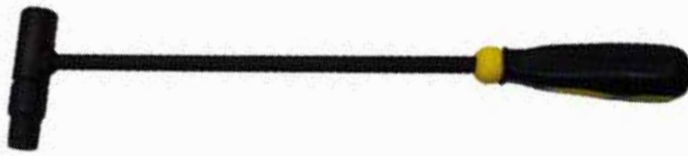
**ATTENTION! All fixtures are sold separately.**

**DL-CR50308**

Adapter for pressing in O-rings injectors CRI1/CRI2  
Consists of guide nut **DL-CR31579** and pusher **DL-CR31578**.

**DL-CR50305**

Extractor (collet) for dismantling valve seats CRI/CRIN1

**DL-CR50317**

Needle extractor nozzle sprayer

**DL-CR50245****Filter extraction and installation kit injectors DENSO CR****Contents of delivery:**

1. M14 adapter - 2 pcs.
2. M12 adapter - 2 pcs.
3. Collet clamp - 1 pc.
4. Collet for collet clamp - 1 pc.
5. Threaded stud - 2 pcs.
6. Tap - 2 pcs.
7. Extractor for extracting the filter - 1 pc.
8. Pusher for filter installation - 1 pc.

**DL-CR50300****Set of cutters for cleaning engine seats  
injectors Delphi, Bosch****Applicability:**

- Bosch common rail Piezo
- Common rail Daily
- Pump injector Volkswagen Audi
- Tector and Man nozzles





**D-07147122**

Torque wrench 1/2"  
25-100 Nm



**D-07147121**

Torque wrench 3/8"



**D-07147120**

Torque wrench 1/4"  
0-20 Nm



**DL-UNI30776**

Adapter with 1/4" internal square  
and outer square 1/2"



**DL-UNI31593**

Adapter with vnutr. 3/8" square  
and outer square 1/2"

**DL-UNI50327**

**Double-sided pneumatic puller for removing the injectors from the engine car**

Kit includes two mounting adapters nozzles: DL-CR30542 with thread M17x1 to M14x1.5; DL-CR30984 with thread M20x1.5 to M14x1.5

**DL-UNI50334**

**One-sided pneumatic puller for removing the injectors from the engine car**

Kit includes two mounting adapters nozzles: DL-CR30542 with thread M17x1 to M14x1.5; DL-CR30984 with thread M20x1.5 to M14x1.5

**DL-UNI50049**

**Puller for extracting CR injectors Bosch from the engine head.**

There are two ways to remove injectors: using a hydraulic jack and using reverse hammer.

**DL-CR50197**

**Puller (device for dismantling) BOSCH injectors from the engine.**

Suitable for extracting injectors BOSCH with internal thread M17x1 and external thread M27x1

There are two ways to remove injectors: with the help of a hydraulic jack and with the help of reverse hammer.

**DL-CR50337**

**Nozzle Puller Kit for Ssang Yong Kyron**

The puller consists of three elements: housing, nut, screw. The kit also includes 2 remote bushings of different heights.



**DL-CR30542**

Internal puller for CR injectors  
with thread M17x1 and M14x1.5



**DL-CR31077**

Puller for CR injectors with internal  
thread M14x1.5 and external thread M14x1.5



**DL-CR30984**

Internal puller for injectors  
CR Denso 23670-OR010 Threaded  
M20x1 and M14x1.5



**DL-CR30990**

Internal puller for injectors  
CR Siemens with M25x1 and M14x1.5 threads



**DL-UNI50060**

Impact puller 340 mm long



**DL-CR50059**

Puller for CR injectors  
with M27x1 thread



**DL-CR31600**

Puller for removing DENSO  
injectors from the engine



**D-CER50500**

Non-stick ceramic paste  
Pasta in a tube 50 gr.

**DL-UNI50062**

**Measurement adapter compression in diesel engines (M12x1.5; stem L=175 mm).**

Installed in place of the injector.

*The pressure sensor is not included.*

**DL-UNI20008**

**Compression test kit in diesel engines.**

**Kit includes:**

- adapter **DL-UNI50062** – 1 pc.
- Pr-tester - 1pc;
- cable for pressure sensor – 1 pc.

The pressure sensor is not included.

*\*Appearance and scope of delivery subject to change to improve equipment performance*

**DL-UNI20000**

**Compression test kit in diesel engines.**

**Kit includes:**

- adapter **DL-UNI50062** – 1 pc.
- Pr-tester - 1pc;
- cable for pressure sensor – 1 pc.
- pressure sensor up to 150 bar or 200 bar

**DL-CR10045**

**Pressure sensor 150 bar  
for the compressor DL-UNI20008**

**DL-CR10046**

**Pressure sensor 250 bar  
for the compressor DL-UNI20008**

**DL-PR363**

**Compressor kit for diesel engines**

**The kit includes:**

- Recording compressograph — 1 pc,
- Instruction — 1 pc,
- Quick — release adapter M14x1.5 - 1 pc,
- Adapter M14x1.5 — 1 pc,
- Adapter M12x1.5 — 1 pc,
- Spare cards — 1 k-t,
- Case — 1 pc.

**DL-WT04A3021**

**Fuel pressure measuring kit  
in the low pressure line in diesel  
and gasoline engines.**

Measuring range 0-140 psi (0-10 bar)

**DL-KIP0001****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 10mm
- Resolution - 0.01 mm
- Repeatability - 0.01 mm

**DL-KIP0002****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 5 mm
- Resolution - 0.001 mm
- Repeatability - 0.001 mm

**DL-KIP0003****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 5 mm
- Resolution - 0.01 mm
- Repeatability - 0.02 mm

**DL-KIP0004****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 10 mm
- Resolution - 0.01 mm
- Repeatability - 0.02 mm

**DL-KIP0005****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 20 mm
- Resolution - 0.01 mm
- Repeatability - 0.03 mm



**DL-KIP0006****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 30mm
- Resolution - 0.01 mm
- Repeatability - 0.03 mm

**DL-KIP0007****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 50 mm
- Resolution - 0.01 mm
- Repeatability - 0.04 mm

**DL-KIP0008****Indicator measuring head****Characteristics :**

- Type - mechanical
- Stroke - 25 mm
- Resolution - 0.01 mm
- Repeatability - 0.02 mm

**DL-KIP0010****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.01 mm
- Repeatability - 0.01 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0011****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0012****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0015 Limit****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.5 mm
- Resolution - 0.01 mm
- Repeatability - 0.03 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0016 Limit****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.5 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0019 TESA****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.01 mm
- Repeatability - 0.01 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0020 TESA****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0021 TESA****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0023 Dieselland****Measuring communication key  
PC heads****DL-KIP0025 Eee****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0026 Eee****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0028 Eee****Measuring communication key  
PC heads**

**DL-KIP0029**     **SHAHE****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown
- Communication with a PC using a COM port (cable included)

**DL-KIP030**     **SHAHE****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0031**     **SHAHE****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0032**     **Eee****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 50 mm
- Resolution - 0.001 mm
- Repeatability - 0.005 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0034**

**Indicator digital measuring head with an accuracy of 0.01 mm, stroke 12.5 mm**

**Characteristics :**

- Type - electronic
- Resolution - 0.01mm
- Accuracy - 0.01mm
- Large, high contrast LCD display
- Carbide tip, thread - M2.5
- Sleeve - 8mm
- Automatic shutdown
- Case Ø – 60mm

**DL-KIP0035**

**Indicator digital measuring head with an accuracy of 0.001 mm, stroke 12.5 mm**

**Characteristics :**

- Type - electronic
- Measuring range - 12.7mm
- Resolution - 0.001mm
- Accuracy - 0.002mm
- Large, high contrast LCD display
- Carbide tip, thread - M2.5
- Sleeve - 8mm
- Automatic shutdown
- Case Ø – 60mm

**DL-KIP0036**

**Indicator digital measuring head with an accuracy of 0.001 mm, stroke 25mm**

**Characteristics :**

- Type - electronic
- Measuring range - 25.4mm
- Resolution - 0.001mm
- Accuracy - 0.004mm
- Large, high contrast LCD display
- Carbide tip, thread - M2.5
- Sleeve - 8mm
- Automatic shutdown
- Case Ø – 60mm

**DL-KIP0037**

**Digital thickness gauge 0-12.7 mm, 0.001 mm**

**Characteristics :**

- Measuring range - 0-12.7 mm
- Resolution - 0.001 mm
- LCD display
- Automatic shutdown
- Case Ø – 57 mm



**DL-KIP0250****Magnetic stand for mounting indicator measuring head**

The stand base has high magnetic properties, which allows installation both on horizontal as well as vertical surfaces.

**ATTENTION!**

*The measuring head is not included in the scope of delivery!*

**DL-KIP0251****Magnetic stand for mounting indicator measuring head**

The stand base has high magnetic properties, which allows installation both on horizontal as well as vertical surfaces.

**ATTENTION!**

*The measuring head is not included in the scope of delivery!*

**DL-STC150**

digital caliper

**DL-M030***(limited quantity)***Digital micrometer**

Measuring range 0-25mm

Measurement accuracy 0.001mm

**DL-M035****Digital micrometer**

Measuring range 0-25mm

Measurement accuracy 0.001mm

**DL-M040****D-SDM  
tripod for digital  
micrometer****D-DMTS-KIT***(limited quantity)***Kit DL-030 with DL-040.****Tripod and digital micrometer**



### CR-NEXT-ST01

Special table-workbench  
with two drawers

**Included:**

- Table with two drawers
- Wall perforated for tool placement
- Lighting ramp with two holders
- Shelf for PC
- Shelf for signal generator



### D-KMD

Container for cleaning small  
parts in an ultrasonic bath.



### D-1012020001

Stainless steel bath  
320x260



### D-101340001

Stainless steel bath  
320x170



### D-UV10

ultrasonic bath  
capacity 10 liters



### D-UV05

ultrasonic bath  
capacity 5 liters



### D-UV9.5K

ultrasonic bath  
capacity 9.5 liters



**D-UV9.5R**

ultrasonic bath  
capacity 9.5 liters



**D-UV9.5R**

ultrasonic bath  
capacity 5.7 liters



**DL-AP2**

Set of 2 anti-magnetic  
tweezers



**0503-03**

High magnification lens  
backlit



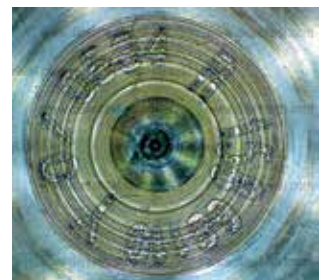
**DL-MO**

optical microscope



**DL-MV200UM**

Digital microscope



**DL-UNI20015****Set with industrial microscope,  
tripod and lighting.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 8x-130x
2. Working distance : 50-200mm
3. Connecting to a monitor via ports: (HDMI/VGA).
4. Microscope size (width x length): 40mm x 115mm

**Contents of delivery:**

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI / VGA).
2. **DL-UNI20017** tripod holder for microscope
3. **DL-UNI20018** Lamp diode for a microscope.

**ATTENTION! All equipment from the delivery set is sold separately!**





**DL-UNI20020**

**Set with industrial microscope,  
extended tripod and backlight.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 8x-130x
2. Working distance : 50-200mm
3. Connecting to a monitor via ports: (HDMI/VGA).
4. Microscope size (width x length): 40mm x 115mm

**Contents of delivery:**

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI / VGA).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope.

**ATTENTION! All equipment from the delivery set is sold separately!**



**DL-UNI20025**

**Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 8x-130x
2. Working distance : 50-200mm
3. Connect to monitor via ports: HDMI/VGA
4. Microscope size (width x length): 40mm x 115mm

**Contents of delivery:**

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI / VGA / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope.
4. **DL-UNI20021** Monitor.
5. **DL-UNI20022** Dedicated monitor holder on a tripod.

**ATTENTION! All equipment from the delivery set is sold separately!**



**DL-UNI20030**

**Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 8x-130x
2. Working distance : 50-200mm
3. Connect to monitor via ports: HDMI/VGA
4. Microscope size (width x length): 40mm x115mm

**Contents of delivery:**

1. **DL-UNI20010** Industrial electronic microscope with power supply (HDMI / USB / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope.
4. **DL-UNI20021** Monitor.
5. **DL-UNI20022** Dedicated monitor holder on a tripod.

**ATTENTION! All equipment from the delivery set is sold separately!**



**DL-UNI20026**

**Комплект с микроскопом промышленным, удлиненным штативом , подсветкой и монитором.**

Микроскоп имеет четкое изображение и высокое разрешение.

**Технические данные:**

1. Кратность увеличения микроскопа: 5х-100х
2. Рабочее расстояние : 50-170 мм
3. Подключение к монитору через порты: HDMI
4. Размер микроскопа (ширина x длина): 40мм x 115мм

**Комплект поставки:**

1. **DL-UNI20013** Микроскоп электронный промышленный с блоком питания и лампой подсветки (HDMI / USB).
2. **DL-UNI20019** Штатив держатель удлиненный для микроскопа
3. **DL-UNI20021** Монитор.
4. **DL-UNI20022** Специальный держатель монитора на штативе.

**ВНИМАНИЕ! Все оснащение из комплекта поставки продается в том числе и отдельно!**



**DL-UNI20027****Set with industrial microscope, elongated tripod, light and monitor.**

The microscope has a clear image and high resolution.

**Technical data:**

1. The magnification of the microscope: 10x-180x
2. Working distance : 100-150mm
3. Connect to monitor via ports: HDMI
4. Microscope size (width x length): 40mm x115mm

**Contents of delivery:**

1. **DL-UNI20014** Industrial electronic microscope with power supply (HDMI / USB / AV).
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope.
4. **DL-UNI20021** Monitor.
5. **DL-UNI20022** Dedicated monitor holder on a tripod.

**ATTENTION!** All equipment from the delivery set is sold separately!





**DL-UNI20031****Microscope kit HDMI USB 1080P  
FHD 48MP x 200**

The microscope has a clear image and high resolution  
Lens: 200X C-MOUNT magnification

**Technical data:**

1. Photo / video shooting
2. Additional functions: adding guide lines, image fixation, mirroring, image rotation, digital zoom
3. Housing: aluminum alloy
4. Matrix: Panasonic
5. Matrix resolution 48 MP
6. Frame rate: at 1920\*1080 / 60fps
7. Outputs: USB, HDMI, TF card, infrared sensor for remote control
8. Power supply: DC-12V/1A
9. Max TF card capacity: 64G
10. HDMI image resolution: 8168\*6128 4:3 (50MP) 8168\*4592 16:9 (37MP) (for TF card),
11. USB image resolution: 1920\*1080 (for PC USB)
12. Video resolution: 1920\*1080/60fps for HDMI, 1920\*1080/30fps 1280\*720 / 30fps 640\*480 / 30fps 320\*240 / 30 fps for USB
13. Video format: MP4
14. Picture format: JPG
15. Remote control
16. Language support: Russian, Chinese, English, French, Spanish, Portuguese, German, Italian, Japanese
17. Lens: 200X C-MOUNT magnification
18. Working distance: 95mm (maximum working distance 16cm)
19. Zoom Ratio: 6.5:1

**Contents of delivery:**

1. **DL-UNI20023** Microscope electronic promiscuous with power supply (HDMI / USB / AV)
2. **DL-UNI20019** Tripod holder extended for microscope
3. **DL-UNI20018** Lamp diode for a microscope
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Dedicated monitor holder on a tripod

**ATTENTION!** All equipment from the delivery set is sold separately!

**DL-UNI20032****Комплект с микроскопом промышленным, удлиненным штативом , подсветкой и монитором.**

Микроскоп имеет четкое изображение и высокое разрешение  
Объектив: увеличение 180X C-MOUNT

**Технические данные:**

1. Фото / видео съемка
2. Дополнительные функции: добавление вспомогательных линий, фиксация изображения, зеркальное отображение, вращение изображения, цифровой зум
3. Корпус: алюминиевый сплав
4. Матрица: Panasonic
5. Разрешение матрицы 37.0 MP
6. Частота кадров: при 1920\*1080 / 60 кадров в секунду
7. Выходы: USB, HDMI, tf-карта, инфракрасный датчик для пульта дистанционного управления
8. Питание: DC-12V / 1A
9. Максимальный объем tf-карты: 64G
10. Разрешение изображения HDMI: 8168\*6128 4:3 (50MP) 8168\*4592 16:9 (37MP) (для tf-карты),
11. Разрешение изображения USB: 1920\*1080 (для ПК USB)
12. Разрешение видео: 1920\*1080 / 60 кадров в секунду для HDMI, 1920\*1080 / 30 кадров в секунду 1280\*720 / 30 кадров в секунду 640\*480 / 30 кадров в секунду 320\*240 / 30 кадров в секунду для USB
13. Формат видео: MP4
14. Формат изображения: JPG
15. Дистанционное управление
16. Поддержка языков: русский, китайский, английский, французский, испанский, португальский, немецкий, итальянский, японский
17. Объектив: увеличение 180X C-MOUNT
18. Рабочее расстояние: 95 мм (максимальное рабочее расстояние 16 см)
19. Коэффициент масштабирования: 6,5: 1

**Комплект поставки:**

1. **DL-UNI20011** Микроскоп электронный промышленный с блоком питания (HDMI / USB / AV).
2. **DL-UNI20019** Штатив держатель удлиненный для микроскопа
3. **DL-UNI20018** Лампа диодная для микроскопа.
4. **DL-UNI20021** Монитор.
5. **DL-UNI20022** Специальный держатель монитора на штативе.

**ВНИМАНИЕ! Все оснащение из комплекта поставки продается в том числе и отдельно!**

**DL-UNI20017**

Штатив держатель для  
микроскопа

**DL-UNI20019**

Штатив держатель удлиненный  
для микроскопа

**DL-UNI20022**

Держатель монитора монитора на штативе  
Посадочный диаметр 25мм.

**DL-UNI20021**

Монитор

**Комплект поставки:**

1. Монитор
2. Кабель HDMI
3. Кабель BNC
4. Кабель AV
5. Пульт управления
6. Блок питания
7. Кронштейн
8. Кабель VGA
9. Прокладка



Монитор



Кабель HDMI



Кабель BNC



Кабель AV



Пульт управления



Блок питания



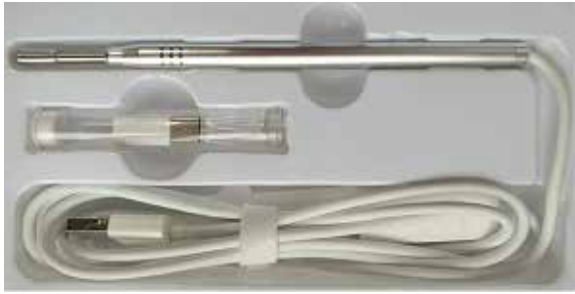
Кронштейн



Кабель VGA



Прокладка

**DL-UNI20012**

Endoscope Camera 3.9mm

**Specifications:**

1. Camera resolution: 1.0 Megapixel (FHD)
2. Field of view: 70°
3. Diameter: 3.9mm
4. Length of the thin part: 25mm
5. Total length: 140mm
6. Backlight: 6 high brightness LEDs
7. Waterproof case
8. Two types of connection ports: USB / Type-c
9. Ability to adjust the backlight
10. Ability to save photos
11. Ability to install software on the phone and PC

**DL-UNI20100**Control stand for test benches  
injectors and injection pump**Benefits of this stand:**

The stand can move across the floor for fixed wheels.

The rack can mount a PC with keyboard and monitor or laptop. There is a shelf at the bottom of the rack for a printer that closes with a door with polycarbonate glass.

Printer safety door retracts inside the rack, which creates additional convenience for accessing the printer.

There are two shelves in the middle of the rack for installation of control devices for various fuel systems.

Provides convenient access to everything equipment installed on this control stand.

**Specifications:**

- rack weight 80 kg
- overall dimensions mm (width x depth x height) 500x500x1600
- weight load kg. 160

**DL-RP400****Manual press for injector testing with mechanical pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube – 2 pcs.

**DL-RP410** (without pressure sensor)**DL-RP415** (with pressure sensor. 1500 bar)**Manual press for injector testing with electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 415**) for 1500 bar – 1 pc.

**DL-RP420** (without pressure sensor)**DL-RP425** (with pressure sensor. 1500 bar)**Manual press for injector testing with 2-channel electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 425**) for 1500 bar – 1 pc.

**DL-RP430****Manufacturer - ZECA (Italy)**  
**Flame test chamber (aspirator)**  
**nozzle spray**

Allows for visual inspection performance of diesel injectors without harm to health.

The device is going to work liquid for reuse.



**DL-RP500**

**Manufacturer - ZECA (Italy)**  
**Manual press for injector testing  
 with mechanical pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube - 2 pcs.



**DL-RP510** (without pressure sensor)

**DL-RP515** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing  
 with electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for RP 515) for 1500 bar – 1 pc.



**DL-RP520** (without pressure sensor)

**DL-RP525** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing  
 with 2-channel electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for RP 525) for 1500 bar – 1 pc.

## PUMP TEST.02

### Common-Rail High Pressure Pump Testing Equipment



#### В состав комплекта входит: The kit includes:

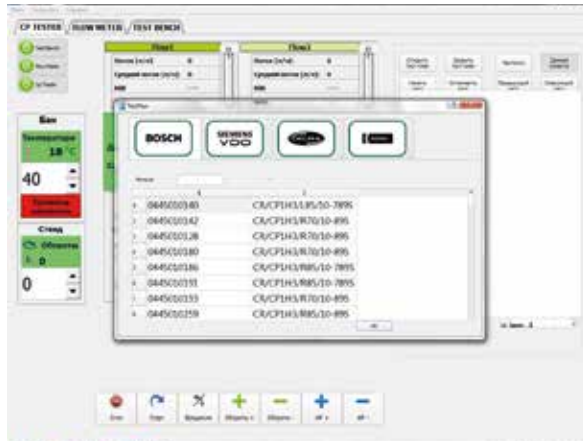
1. The **PTC-2520** device is designed to provide user-programmable control signals to Common Rail injection pump pressure regulators to test their performance.
2. Device **FMDE-520**, designed to measure the performance of the Common-Rail injection pump in two channels.
3. Tool rack on wheels for easy operation.
4. A set of adapter cables.
5. Liquid fine filters (2 pcs.)
6. Software.





### PTC-2520 CP TESTER

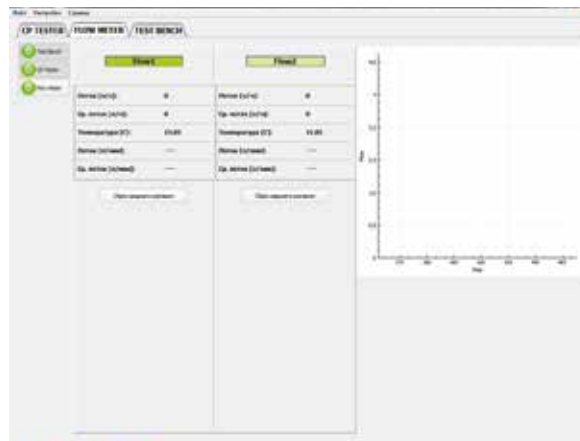
Device for testing and testing high-pressure fuel pumps of the Common Rail system with a set of cables.



### FMDE-520

Device for testing the performance of fuel pumps of the Common Rail system of various manufacturers: Bosch, Delphi, Denso, Siemens, Cummins on a test bench.

It is a 2-channel liquid flow meter (pump supply and return discharge) in various modes, with digital information output to a backlit liquid crystal display.





DL-USN0021 (ST-03)

### Universal cradle for CR pumps

#### Delivery set DL-USN0021 (ST-03):

1. Rotary stand - 1 pc.
2. Set of flanges for fastening CR pumps of 6 pcs.
3. Set of 4 pump support plates.

#### Delivery set DL-USN0021CR (ST-03CR):

1. Rotary stand - 1 pc.
2. Set of flanges for fastening CR pumps of 6 pcs.

#### ATTENTION!

*Holder plates for high pressure fuel pumps CR and rotary high pressure fuel pumps are also sold separately!*





## FLANGES

**DL-UNI30474**

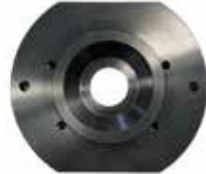
Mounting flange  
for injection pump CP3 MAN,  
equivalent to Bosch  
1685720258

**DL-UNI30884**

Mounting flange  
for injection pump MAN  
CP3.4 analog  
Bosch 1685720312

**DL-UNI30464**

Mounting flange  
for injection pump CR (MB)

**DL-CR31607**

Mounting flange  
for injection pump DENSO  
HP0 094000-0635

**DL-UNI30465**

Mounting flange  
for injection pump CR (BMW,  
RENAULT, MB, Peugeot)

**DL-CR30860**

Mounting flange  
for injection pump CR  
DENSO HP2 , HP3.

**DL-CR30466**

Mounting flange 68 mm,  
for injection pump CR Renault  
Megane, Delphi Siemens  
VDO, Land Rover,  
RangeRoverV8 and for  
HPFP VE

**DL-CR30861**

Mounting flange  
50 mm for injection pump CR  
CP4. (AAE001-CP4)

**DL-UNI30428**

Mounting flange  
107 mm for injection pump  
CP3 Bosch.

**DL-CR30862**

Mounting flange 50 mm  
for injection pump CR CP4HS2  
Bosch0445010637,  
Bosch0445010506.

**DL-UNI31739**

Mounting flange for  
Fuel injection pump AZPI  
A-08-013-10, 708,  
BOSCH 0445020224

**DL-UNI30886**

Mounting flange  
for injection pump 107 mm  
CP2 Bosch 0445020036  
(Renault).

**DL-UNI50008**

Bracket for pumps,  
Bosch standard 125 mm.  
Installed on a stand.





### DL-CR31145

Mounting flange 80mm  
for injection pump CR CP3S3  
Bosch 0445020060



### DL-CR50159

Mounting stand  
HPFP SIEMENS



### DL-CR31150

Flange for mounting on  
stand injection pump CR DELPHI with  
bore diameter 50 mm  
and mounting holes  
perpendicular  
to the plane of the bore.



### DL-UNI30887

Mounting flange  
HPFP CRCP3 Mercedes,  
(Similar to SIRINI  
AAE001-03)



### DL-CR31165

High pressure fuel pump  
mounting flange  
BOSCH CR / CP1H3 60mm  
For example BOSCH injection  
pump 0445010223  
(Renault Megane 2012)



### DL-UNI31207

Universal flange with  
mounting hole  
diameter 50 mm, without  
mounting holes.  
Created for independent  
fastening holes for pumps  
which boarding diameter  
50 mm.



### DL-UNI31208

Universal flange  
with mounting hole  
diameter 60 mm, without  
mounting holes.  
Created for independent  
fastening holes for pumps  
which boarding diameter  
60 mm

**DL-CR30866**

Flange for stand mounting  
High pressure fuel pump CR DELPHI  
with landing 50 mm in diameter and  
three mounting holes:  
two of which are located  
perpendicular to the plane  
mounting hole, and one  
parallel to it.

**DL-CR31228 (CP383)**

Mounting flange for injection pump CR  
BOSCH 0445010091 MB Sprinter,  
Viti, Viano2, 1 l. Since 2006  
Mounting hole 50mm.

**DL-CR31513**

Flange for stand mounting  
High pressure fuel pump CR  
CP3S3/K140/40-789S  
Bosch 0445020125  
Mounting hole 107 mm

**DL-CR50267**

Corner stand for fastenings for  
injection pump CR SIEMENS  
when tested on the stand.

**DL-CR50266**

Corner stand for CR DENSO  
injection pump mountings  
097300-0023 during testing  
on the stand.

## COUPLINGS

**DL-UNI50132**

Compensation clutch with clamping jaws and reinforced package plate

**DL-UNI50139**

Compensation clutch with flange connection and reinforced package plates (analogue Bosch 1686401024)

**DL-CB230016**

Conical coupling with flange connection  
Ø 30 mm  
Cam Box2, injection pump

**DL-CB130139**

Conical coupling  
Ø 30 mm  
Cam Box2, injection pump

**DL-M22 (UNI31481)**

Cone coupling Ø 22 mm  
for injection pump CR

**DL-M23 (UNI30917)**

Cone coupling Ø 23 mm  
for injection pump Continental A2C59517053, Bosch CR\ CP4HS2 0445010637, CP4S2 0445010611, CP4S1 0445010506

**DL-M24 (UNI30127)**

Cone coupling Ø 24 mm  
for injection pump CR SR-3 mod.044502088

**DL-M24L (CR31098)**

Long sleeve Ø 24 mm  
for injection pump DENSO HP0

**DL-MS8**

Coupling slotted for injection pump CR (for MV slot 8x18)

**DL-MS9**

Coupling slotted for CR injection pump (for Renault slot 9x20)

**DL-MS10D**

Coupling slotted for injection pump CR Denso, slot 10x23

**DL-MS10 S**

Муфта шлицевая для ТНВД Siemens Peugeot Boxer 2.2, шлиц 10x21,6

**DL-MS11**

Coupling slotted for injection pump CR MAN (11 splines)

**DL-M17**

Cone coupling Ø 17 mm  
for injection pump CR and injection pump VE

**DL-M19**

Cone coupling Ø 19 mm  
for CR and VE injection pumps

**DL-CR31703**

**Coupling for clamping jaws for injection pump CR Delphi 28384347**

**DL-MS4 (CR30955)**

**Coupling for injection pump Bosch 0445010512**  
Grooves for splines are made on the coupling pump connector and cone for centering.

**DL-CR31416**

**Coupling for injection pump Bosch 0445010512 CR / CP4S1**  
Grooves for splines are made on the coupling pump connector and cone for centering. Fastening is carried out to expansion joint flange. Fits to stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and mounts adapted to them.

**DL-UNI31025**

**Coupling for injection pump Bosch CP1**  
(included insert UNI31028 with groove 8 mm wide) and for high pressure fuel pump VDO (included insert UNI31027 with 9mm slot). Can be used on Bosch stands instead couplings 1685702090. Suitable for BOSCH stands EPS-815, CR-Test 4E, CR-Test 2P and customized attachments to them.

**DL-UNI31029**

**Coupling DL-UNI31029 for injection pump Denso**  
(included insert UNI31030 with groove 10 mm wide). Suitable for BOSCH stands EPS-815, CR-Test 4E, CR-Test 2P and fittings adapted to them.

**DL-CR31669**

**Flange type coupling for injection pump CR Delphi 28384347**  
Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and fittings adapted to them.

**DL-CR31271**

**Coupling cone 17mm for testing CR pumps and VE injection pumps**

Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and fittings adapted to them.



**DL-CR31269****Coupling cone 19mm  
for testing CR pumps and VE injection pumps**

Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and fittings adapted to them.

**DL-CR31558 (K23)****Cone coupling 23 mm for high pressure fuel pump CR Bosch and Continental**

Fastening is carried out to the flange compensation clutch. Suitable for CR-Test stands, BOSCH EPS-815 and mounts adapted to them

Installed injection pump CR:

- Continental A2C59517053
- BOSCH CR/CP4HS2 0445010637
- BOSCH CR/CP4S2 0445010611
- BOSCH CR/CP4S1 0445010506

**DL-CR31251****Cone coupling 24mm for high pressure fuel pump CR CP-3**

Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and fittings adapted to them.

**DL-CR31248****Coupling spline (11 splines) for injection pump CR MANN**

Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and adapted to them fasteners.

**DL-CR31480****Cone coupling 22 mm for checking pumps CR Siemens (VDO).**

Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and adapted to them fasteners.

**DL-CR31594****Coupling K35 for connection on the stand Fuel pump CP2 MAZ**

Fastening is carried out to the flange compensation clutch. Suitable for stands BOSCH EPS-815, CR-Test 4E, CR-Test 2P and adapted to them fasteners.



**DL-CR50137**

Set of equipment for the repair of injection pump CR CP4 Bosch.

**Contents of delivery:**

- **DL-CR30861** Flange - 1 pc.
- **DL-CR30862** Flange - 1 pc.
- **DL-UNI50083** Adapter - 1 pc.
- **DL-UNI50084** Adapter - 2 pcs.
- **DL-UNI30980** Nut M16x1 - 3 pcs.
- **DL-CR31003** Socket for pump valve CP4 - 1 pc.

**DL-CR50151**

Stand support kit pumps Denso HP0.

**Contents of delivery:**

- **DL-CR31094** Support - 2 pcs.
- **DL-UNI30090** Profile bolt - 2 pcs.
- Nut M14 - 2 pcs.
- Washer 14mm - 2 pcs.
- Grover 14mm - 2 pcs.

**DL-CR50315**

Device for hanging the pusher of plunger pairs, BOSCH CP2 pumps of the system Common Rail

**DL-CR50156**

Set of clamps for assembly of injection pump CP3 (Similar to SIRINI AZ0128-427)

**Contents of delivery:**

- Clamp **DL-CR50152** - 3 pcs.

**DL-CR50307**

Clamp for dismantling the dosing injection pump valve CR CP3

**Contents of delivery:**

- **DL-CR31580** clamp body - 1 pc
- **DL-CR31582** clamp slide - 1 pc.
- **DL-CR31581** clamp axle - 1 pc.
- Pins - 2 pcs.
- Recessed fixing bolt - 1 pc.

**DL-CR31003**

Socket for mounting / dismounting valve injection pump CR CP4 Bosch for torque wrench 1/2".

**DL-CR50364**

A set of fittings with a lock for checking the injection pump CP1

**Contents of delivery:**

- **DL-CR31683** Connector dia. 8mm - 2 pcs.
- **DL-CR31676** Mounting strip - 1 piece,
- **D-27-013700** O-ring - 2 pcs.

**DL-CR31676****Mounting strip for fittings**

Used with **DL-CR31683** fittings to test CP1 MB pumps

**DL-CR50198****Adapter for measuring pressure in HPFP CR CP-3.**

It is installed instead of the dispenser.

**Contents of delivery:**

- Adapter Body - 1/8" Barb - Herringbone for hose with internal Ø10mm

**ATTENTION!** *Quick connector not included in the scope of delivery and must be ordered separately.*

**DL-CR31497****Pressure adapter booster pump CR**

**ATTENTION!** *The adapter comes without tube fittings and pressure gauge!*

**DL-CR31497KIT****Pressure adapter kit booster pump CR****Contents of delivery:**

- **DL-SP09570** L-shaped "quick" adapter M5x4mm
- **DL-SP09580** Fitting "mother" 1/4"x4mm for manometer
- **DL-P1002** Flexible PVC tube dia.4mm (100cm)
- **D-12-TV63-016** Pressure gauge 16 bar with lower fitting 1/4"

## ACCESSORIES FOR DL-CR31497 ADAPTER

**D-12-TV63-010**

Pressure gauge 0÷10bar, Ø63 with bottom fitting 1/4"

**D-12-TV63-016**

Pressure gauge 0÷16 bar, Ø63 with bottom fitting 1/4"

**34-RL3104M5****Angle adapter**  
M5 x Ø4mm with collet**34-RL020402****adapter** with internal  
thread G1/4" x Ø4mm with collet**34-RL0104M5****Adapter** straight  
M5 x Ø 4mm with collet**34-RL3106M5****Angle adapter**  
M5 x Ø6mm with collet**34-RL020602****adapter** with internal  
G1/4"xØ6mm thread with collet**34-RL0106M5****Adapter** straight  
M5 x Ø 6mm with collet**34-RA30-4,5-M5****Fitting** straight  
M5 x Ø4mm herringbone**34-MC130614****adapter** with internal  
thread G1/4"x Ø 6mm with  
union nut**34-MC2306M5C****Fitting kit**  
"banjo" M5 with a union  
tube nut  
Ø 6mm x Ø4mm**DL-MSDE****Fitting kit**  
"banjo" M5 x Ø4mm**DL-P1002****PVC tube**  
Ø outer 4mm**DL-P1004****Teflon tube**  
Ø outer 6mm**DL-CR50246****Manometer mounting bracket.**  
Made in the form of a hook  
and gauge holder brackets.  
Used with pressure gauges of the series  
**D-12-TV63****DL-R1001****fuel hose**  
Ø int. 4mm

**DL-UNI50264****Fitting 3/8 "x8 mm****Designed for the following equipment:**

1. Stands CR-Test, SPF, SPN, DORPAT
  2. FMDE device (2-channel liquid flow meter)
  3. "PUMP-TEST.02" Test equipment
- CR high pressure pumps

The fitting has a 3/8" thread and is designed for hose diameter 8 mm

**DL-UNI50265****Fitting 3/8 "x10 mm****Designed for the following equipment:**

1. Stands CR-Test, SPF, SPN, DORPAT
  2. FMDE device (2-channel liquid flow meter)
  3. "PUMP-TEST.02" Test equipment
- CR high pressure pumps

The fitting has a 3/8" thread and is designed for hose diameter 10 mm

**DL-UNI50126****5 µm liquid filter with  
3/8" outlets****DL-UNI50047****5 µm liquid filter with  
fittings (herringbone) by 10 mm**

## DORPAT Multi-Cam11

The test stand is designed to test pump injectors, pump sections.

**DORPAT Multi-Cam11** – The stand can be used for fuel equipment of any diesel engines of light and medium traction, including high-speed engines of cars, buses, trucks and agricultural tractors with UIS (unit injector system) and UPS (unit pump system) fuel equipment installed on them.

Stands are produced with a capacity of 11 kW.

The measurement takes place in an electronic system.





**DORPAT Multi-Cam11****STAND EQUIPMENT**

<b>2CB20001</b>	CamBox CB	1 pc
<b>DL-CB230016</b>	Drive Coupling CamBox2	1 pc
<b>DL-CB230010</b>	Spray nozzle bracket	1 pc
	Bolt M10,L=106mm, bolt M10,L=56mm for brackets. atomizer nozzles	1 set
<b>DL-CB230012</b>	Spray nozzle Ø 9mm	1 pc
<b>DL-CB230022</b>	Injector clip	1 pc
<b>DL-CB230046, DL-CB230047, DL-CB230048, DL-CB230049</b>	Sealing washers atomizer	1 set
<b>DL-CB230013</b>	Cam stroke position lock	2 pcs
<b>DL-CB230084</b>	Remote bushing H=7 Ø20 for mounting the clip under the passenger NF	2 pcs
<b>DL-CB230109</b>	Pusher screw for pump injector spherical	1 pc
<b>DL-CB230134</b>	Screw pusher for pump-injector spherical short	1 pc
<b>DL-CB230135</b>	Screw-pusher for pump-injector internal	1 pc
<b>DL-CB230043</b>	Pusher screw with nut for pumping sections M12x1.25	1 pc
<b>DL-CB20151</b>	Clamp-adapter No. 0151 for Audi / VW1.9 unit injectors	1 pc
<b>DL-CB20152</b>	Clamp-adapter No. 0152 for Audi / VW2.0 unit injectors	1 pc
<b>DL-CB20124</b>	Clamp-adapter No. 0124 for pump-injectors Volvo FH12, Iveco, Bosch	1 pc
<b>DL-CB20148</b>	Clamp-adapter No. 0148 for unit injectors Volvo FH12, Delphi E3	1 pc
<b>DL-CB20140</b>	Clamp-adapter No. 0140 for Scania unit injectors	1 pc
<b>DL-CB20129</b>	Clamp-adapter No. 0129 for MBActros unit injectors	1 pc
<b>DL-CB201333</b>	Clamp-adapter No. 0133 for MBAtego unit injectors	1 pc
<b>DL-CB20144</b>	Clamp-adapter No. 0144 for pump injectors DAF, MAK, Renault	1 pc
<b>DL-CB20123</b>	Clamp-adapter No. 0123 for PLD sections of unit injectors No. 0129,133,144	1 pc
<b>DL-CB20100</b>	Clamp-adapter No. 0100 for installing the indicator head	1 pc
<b>DL-UNI30035</b>	Fitting for clamp-adapter M14x1.5x1/4"	16pcs
<b>1/4MBSPF04</b>	Quick coupler male hydraulic 1/4"	2 pcs
<b>D-GM1538AN</b>	Rubber-metal gasket ØM14	20pcs
<b>D-GM1504AN</b>	Gasket rubber-metal Ø1/4"	20pcs
<b>DL-UIS0920B</b>	Adapter cable for Bosch injector universal	1 pc
<b>DL-UIS0921D1</b>	Adapter cable for Delphi E3 injector 4-pin	1 pc

## DORPAT Multi-Cam11

## STAND EQUIPMENT

<b>DL-UIS0922D2</b>	Adapter cable for injectors Delphi E3 4-pin second type	1 шт.
<b>DL-UIS0923D</b>	Adapter cable for Delphi injector 2-pin	1 шт.
<b>DL-UIS0924V</b>	Adapter cable for VW injector	1 шт.
<b>DL-CB250001</b>	Adjustable gauge for setting the preload of the unit injector	1 шт.
	Supply hose 3/8"x1/4"x750mm 34-K2-212D - Ø1/4" female quick coupler (1pc)	1 к-т.
	Backflow outlet hose 3/8"x1/4"x700mm 34-K2-212D - Ø1/4" female quick coupler (1pc)	1 к-т.
	Bolt Banjo 1/4" (2pcs) + Bolt Banjo M14x1.5 (2pcs)	1 к-т.
	The quick adapter from the spray nozzle to the tube will measure. 1/8" x 1/8" vUNI30081	1 шт.
<b>DL-UNI50138</b>	Measuring tube Teflon flexible in steel braid for flow measurement	1 шт.
<b>P1004</b>	Teflon tube Ø 6mm x 1500mm	1 шт.
<b>34-RL020602</b>	Fitting (quick adapter) Ø 6mm x 1/4"	1 шт.
<b>D1530075</b>	Handwheel for scrolling the flywheel	1 шт.
	Cushioning legs (4 pcs.) + Door key (4 pcs.)	1 к-т.
	Program with test plans from the manufacturer (1 pc.)	1 шт.
	Compensation spring (red L=76mm) for plunger travel 10-12mm	1 шт.
<b>DL-CB230169</b>	Pusher for compensating spring (red L=76mm)	1 шт.
<b>DL-UNI31222</b>	Open-end wrench 22mm	1 шт.

## DORPAT Multi-Cam11

## STAND EQUIPMENT

**DL-UIS0920B**

Cable for BOSCH injectors (universal)

**DL-UIS0921D1**

Cable for injectors Delphi E3 4-pin

**DL-UIS0923D**

Cable for Delphi injectors 2-pin

**DL-UIS0924V**

Cable for VW injectors

**DL-UIS0922D2**Cable for injectors Delphi E3 4-pin  
second type

## DORPAT Multi-Cam11

## STAND EQUIPMENT

**DL-CB20124**

**Clamp for injectors Volvo FH12, Iveco, Bosch**  
0414701004, 0414701006, 0414701013, 0414701014,  
0414701015, 0414701021, 0414701022, 0414702002,  
0414702003, 0414702005, 0414702006, 0414702007,  
0414702009, 0414702010, 0414702012,  
0414702013, 0414702014, 0414702015

**to Cam Box 2 of the DORPAT stand**  
Delivery set: clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20148**

**Clamp for injectors Volvo FH12, Delphi E3**  
**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB2 0151**

**Clamp for injectors Audi / VW 1.9**

0414720002, 0414720003, 0414720005, 0414720007, 0414720008,  
0414720009, 0414720013, 0414720014, 0414720015, 0414720016,  
0414720018, 0414720028, 0414720029, 0414720030, 0414720033,  
0414720034, 0414720035, 0414720036, 0414720037, 0414720038,  
0414720039, 0414720201, 0414720204, 0414720206, 0414720208,  
0414720209, 0414720210, 0414720213, 0414720214, 0414720215,  
0414720216, 0414720217, 0414720220, 0414720221, 0414720222,  
0414720223, 0414720224, 0414720225, 0414720226, 0414720227,  
0414720228, 0414720229, 0414720230, 0414720231, 0414720232,  
0414720301, 0414720302, 0414720303, 0414720304, 0414720305,  
0414720306, 0414720307, 0414720308, 0414720309, 0414720310,  
0414720311, 0414720312, 0414720313, 0414720314

**to Cam Box 2 of the DORPAT stand**  
Delivery set: clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs, tack - 1 pc,  
fixing screw - 1 pc.

**DL-CB20152**

**Clamp for injectors Audi / VW 2.0**

0414720401, 0414720402, 0414720403, 0414720404

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs,  
sealing washer - 4 pcs, fixing screw - 2 pcs.

## DORPAT Multi-Cam11

## STAND EQUIPMENT

**DL-CB20140****Clamp for Scania injectors**

0414701017, 0414701018, 0414701019, 0414701020, 0414701030, 0414701032, 0414701035, 0414701036, 0414701037, 0414701038, 0414701040, 0414701042, 0414701043, 0414701044, 0414701045, 0414701069, 0414700002, 0414701005, 0414701007, 0414701008, 0414701016

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20129****Clamp for PLD Mercedes Actros**

0414799005, 0414799007, 0414799009, 0414799010, 0414799011, 0414799015, 0414799016, 0414799018, 0414799021, 0414799023, 0986445002

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20133****Clamp for PLD Mercedes Atego**

0414799003, 0414799006, 0414799008, 0414799012, 0414799013, 0414799014, 0414799017, 0414799019, 0414799022, 0986445003

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20144****Clamp for PLD DAF, MAK, Renault**

0414755005, 0414755006, 0414755007, 0414755008, 0414755014, 0414755015, 0414755016, 0414755017, 0414755018

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.



**DORPAT Multi-Cam11****STAND EQUIPMENT****DL-CB20100**

**Clamp-adaptor for indicator head  
to Cam Box 2 of the DORPAT stand**

Delivery set: clamp – 1 pc.

**DL-CB20123D**

**Clamp-adaptor for PLD sections  
pump injectors 0129, 0133, 0144, 0145  
to Cam Box 2 stand DORPAT**

Delivery set: clamp – 1 pc.

**DL-UNI31222**

**Open-end wrench  
at 22mm**

## DORPAT Multi-Cam11

## OPTIONAL EQUIPMENT

**DL-CB20125KIT**

**Inspection and test kit  
unit injector Caterpillar C12  
to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20125** – 1 pc.
- injector pusher **CB230276** (for C13)
- sealing washer **SV230289**
- nozzle for sprayer **SV230282**
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20126KIT**

**Inspection and test kit  
injectors Caterpillar C15, C13 (CAT2490713) Perkins  
to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20126** – 1 pc.
- injector pusher **CB230294** (for C15)
- injector pusher **CB230276** (for C13)
- sealing washer **SV230289**
- nozzle for sprayer **SV230282**
- fixing bracket **SV230283**
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20127**

**Clamp for PLD Detroit (Bosch)  
0414750003, 0414750004  
to Cam Box 2**

**Delivery set:** clamp - 1 pc, fitting - 1 pc,  
rubber-metal. gasket - 2 pcs.

**DL-CB20128**

**Clamp for injectors Iveco 7,8 Liters**

0414700002, 0414700003, 0414700004, 0414700005,  
0414700006

**to Cam Box 2**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

## DORPAT Multi-Cam11

## OPTIONAL EQUIPMENT

**DL-CB20130**

**Clamp for injectors**  
0414703005, 0414703007  
to Cam Box 2

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20131**

**Clamp for UD Nissan injectors**  
0414701023, 0414701024, 0414701033, 0414701034  
to Cam Box 2

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20136**

**Clamp for Land Rover-Discovery injectors**  
(Delphi)  
to Cam Box 2

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20137KIT**

**Clamp for Caterpillar L10 injectors**  
to Cam Box 2

**Kit includes:**

- Clamp adapter **DL-CB20137**
- Sealing washer **SV230289**
- Nozzle for sprayer **SV230282**
- Fitting to the adapter - 2 pcs.
- Rubber-metal gasket - 4 pcs.

*Nozzle not included.*

## DORPAT Multi-Cam11

## OPTIONAL EQUIPMENT

**DL-CB20138KIT**

**Inspection and test kit  
pump injector Detroit 5234770-5235580  
to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20138** – 1 pc.
- nozzle pusher **SV230276** – 1 pc.
- fixing bracket **SV230440** – 1 pc.
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20139KIT**

**Inspection and test kit  
pump injector Cummins 4DEC01L4061851  
to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20139** – 1 pc.
- fixing bracket **SV230440** – 1 pc.
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20145**

**Clamp for PLD DELPHI  
to Cam Box 2 of the DORPAT stand**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20146**

**Clamp for injectors  
Caterpillar L15  
to Cam Box 2 of the DORPAT stand**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

## DORPAT Multi-Cam11

## OPTIONAL EQUIPMENT

**DL-CB20146KIT**

**Clamp for Caterpillar L15 injectors to Cam Box 2**

**Kit includes:**

- Clamp adapter **DL-CB20146**
- Sealing washer **SV230289**
- Nozzle for sprayer **SV230282**
- Injector pusher **CB230294**
- Fixing bracket **SV230283**
- Fitting to the adapter - 2 pcs.
- Rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20149**

**Clamp for Bosch injectors**

0414703004, 0414703008, 0414703009, 0414703013

**to Cam Box 2 of the DORPAT stand**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20153KIT**

**Inspection and test kit pump injector Bosch 0414703003 to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20153** – 1 pc;
- nozzle pusher **SV230276** – 1 pc;
- fitting to the adapter - 2 pieces;
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20154KIT**

**Kit for checking and testing unit injectors CumminsHPI to DORPAT CamBox 2.**

**Contents of delivery:**

- clip-adapter **DL-CB20154** – 1 pc.
- nozzle pusher **CB230356** – 1 pc.
- nozzle for sprayer **CB230357** – 1 pc.
- valve holder **CB230355** – 1 pc.
- bracket **CB220007** for valve holder – 1 pc.
- Timing valve - 1 pc.
- Metering valve – 1 pc.
- steel braided hose – 2 pcs.
- fitting for a hose - 4 pcs.
- fitting to the adapter - 2 pieces;
- rubber-metal gasket - 4 pcs.
- pressure nozzle - 1 pc.



## DORPAT Multi-Cam11

## OPTIONAL EQUIPMENT

**DL-CB20155**

**Clamp for injectors Delphi E1 (John Deere) to Cam Box 2 of the DORPAT stand**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20156**

**Clamp adapter for testing unit injectors CAT 3920206**

**Delivery set:** clip - 1 pc, fixing bracket - 1 pc, fixing bolt of the clamp-lock 8x35 - 2 pcs, fitting - 2 pcs, rubber-metal. gasket - 4 pcs

*Nozzle not included.*

**DL-CB20157**

**Test adapter clamp pump injector Cummins 3053124**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20158**

**Adapter clip for injectors CUMMINS 4902827**

Scope of delivery:

**DL-CB231672** adapter clip № 0158 — 1 pc;

**DL-CB231675** bracket-retainer — 1 pc;

**DL-CB230357** nozzle on the sprayer — 1 pc;

**DL-UNI30035** fitting for the adapter clip M14x1,5x1/4" — 3 pcs;

**D-GM1538AN** rubber-metal gasket ØM14 — 3 pcs;

**D-GM1504AN** rubber-metal gasket Ø1/4" — 3 pcs.

*Nozzle not included.*

**DORPAT Multi-Cam11****OPTIONAL EQUIPMENT****DL-CB2 50037**

Injection sensor for unit injectors  
Cummins HPI

**DL-CB250036KIT**

injection sensor  
(piezo)

**25-FPKM-04**

Fitting - quick adapter  
for adapter

**25-FPKF-04**

Hydraulic Quick Connector  
female connections 1/4"

**DORPAT Multi-Cam11****OPTIONAL EQUIPMENT****1680750120**

Tube for test nozzle  
to the DORPAT Multi-Cam stand

**1688901119**

Test nozzle for checking  
fuel equipment to the stand  
DORPAT Multi-Cam

**1688901118**

Test nozzle for checking  
fuel equipment to the stand  
DORPAT Multi-Cam

**ISO-100-V5**

Jet 0.5mm

**DL-UNI30229**

Tip (with gaskets and fitting)  
for test injector to DORPAT stand  
Multicam

Contents of delivery:  
tip - 1 pc, rubber-metal gasket - 2 pcs,  
connecting fitting 1 pc

**CAM-BOX1 FORCE**

Basic kit for testing unit injectors and single pumps (UI / UP SYSTEM).

**Kit includes:**

1. CAMBOX 1
2. Controller UIS TESTER V6

**CAMBOX 1**

**Mechanical part to check injector pump.**

The basic version comes with clip for Volvo FH12 unit injectors and some Iveco injectors Bosch. Clips for other nozzles by additional order.

**UIS TESTER V6**

**Controller - electronic part to check pump injectors.**

Device for testing and performance checks unit injectors (UIS) and individual fuel pumps (pump sections) high pressure with solenoid valves high pressure (UPS).

## CAM-BOX1

## EQUIPMENT

**Crankcase - protective cover**

Included in CAM-BOX1:  
 ● crankcase 3pcs.

**Injector nozzle**

Included in CAM-BOX1:  
 ● nozzle - 3 pieces,  
 ● fitting - 3 pcs.

**Threaded pusher**

Included in CAM-BOX1:  
 ● spherical pusher - 1 piece,  
 ● concave pusher - 1 pc.

**Pen holder**

Included in CAM-BOX1:  
 ● handle - 1 pc.

**Mounting guides  
Cam box on stand**

Included in CAM-BOX1:  
 ● guide sleeve - 2 pcs.



## CAM-BOX1

## EQUIPMENT


**Clamp for injectors Volvo FH12 and  
some Bosch Iveco injectors  
CB0124-01**

Included in CAM-BOX1:

- clamp - 1 pc.


**Hose kit to adapter -  
clamp**

Included in CAM-BOX1:

- pressure valve - 1 piece,
- banjo bolt - 1 piece,
- banjo fitting - 2 pcs.,
- washers - 4 pcs.


**Clamp for injectors**

Included in CAM-BOX1:

- clamp - 1 pc.


**Atomizer Kit**

Included in CAM-BOX1:

- atomizer holder - 1 pc,
- adapter for atomizer 7mm - 1pc,
- fitting - 1 pc.


**Strait Kit**

Included in CAM-BOX1:

- defoamer - 1 piece,
- fitting - 1 piece,
- PVC tube 6mm x 1.5m – 1 pc.

## CAM-BOX1



## KV

**Camshaft**  
for LandRov, Iveco Cur, VW  
Contents of delivery:  
• Cam shaft - 1 pc.



## VW

**Adapter for Audi / VW**  
Contents of delivery:  
• adapter 2 pcs (2 options),  
• spray tip,  
• fitting - 1 piece,  
• side fitting - 1 pc,  
• clamp - 1 piece,  
• fastening bolt - 1 pc.



## CB 0136-01 LR

**Clamp for injectors**  
**Land Rover Discovery**  
Contents of delivery:  
• clip - 1pc,  
• fitting - 1 piece,  
• clamp - 1 piece,  
• tip on  
the spray nozzle  
ø=7mm - 1pc.



## CB0140-01 SC

**Clamp for injectors**  
**Scania**  
Contents of delivery:  
• clip - 1pc,  
• pusher - 1 pc.



## CB0148-01500 HP

**Clamp for injectors**  
**Volvo 500HP Delphi**  
Contents of delivery:  
• clamp - 1 pc.



## CB0147-01 JD

**Clamp for injectors**  
**John Deere Delphi**  
Contents of delivery:  
• clamp - 1 pc.

## OPTIONAL EQUIPMENT



## MU

**Mounting sleeve**  
**to the pump flange for**  
**TNVDP, PE and for CAM BOX**  
Contents of delivery:  
• coupling - 1 piece,  
• lock washer - 1 piece,  
• fixing nut- 1 PC.



## CB 0128-01 IVECO

**Clamp for Iveco 7,8L**  
Contents of delivery:  
• clamp - 1 piece,  
• side fitting - 1 pc.



## CB 0129-01 ACT

**Clamp for injectors**  
**Mercedes Actros**  
Contents of delivery:  
• clamp - 1 piece,  
• adapter AZ0309-01 - 1 pc,  
• side fitting DL-EA - 1pc



## CB0133-01 AT

**Clamp for injectors**  
**Mercedes Atego**  
Contents of delivery:  
• clip - 1pc,  
• adapter AZ0309-01 - 1 pc,  
• side fitting DL-EA - 1pc



## CB0144-01 DAF

**Clamp for injectors**  
**Clamp for injectors**  
**DAF, MAK, Renault**  
Contents of delivery:  
• clip - 1pc,  
• adapter AZ0309-02 - 1 pc,  
• side fitting - 1 pc,  
• cola receiver - 1 piece,  
• fitting - 2 pcs.

## CAM-BOX1

## OPTIONAL EQUIPMENT

**CB0146-01 CAT15**

**Clamp for injectors  
Caterpillar L15**

**Contents of delivery:**

- clamp-1pc, ● clamp-1pc,
- spray tip
- nozzles Ø- "cone" - 1 pc,
- crankcase – 1 pc, fitting – 1 pc.

**CB0137-01 CAT10**

**Clamp for injectors  
Caterpillar L10**

**Contents of delivery:**

- clip - 1pc,
- spray tip
- nozzles Ø=10.5mm – 1pc,
- fitting - 1 piece

**CB0138-01 DET**

**Clamp for injectors  
Detroit**

**Contents of delivery:**

- clip - 1pc,
- spray tip
- nozzles Ø=8.5mm – 1pc,
- clamp - 1 piece,
- fitting - 1 piece

**CB0139-01 CUM**

**Clamp for injectors  
Cummins**

**Contents of delivery:**

- clip - 1pc,
- spray tip
- nozzles Ø=8.5mm – 1pc,
- clamp - 1 piece,
- fitting - 1 piece

**DL-CB230017**

**Flange for sensor  
revolutions  
to CAM BOX1 and to  
CAM BOX2**

- flange – 1pc

**DL-UNI50038**

**Encoder housing  
for 5000 impulses  
for CAM BOX1 and CAM BOX2**

- encoder housing – 1pc

**PCIDS2ZKNW-M8-45-M8**

**Rev. sensor  
for CAM BOX 1**

**Contents of delivery:**

- sensor - 1 piece,
- connecting  
cable - 1pc,
- fastening nut – 2 pcs.

**DL-CBTS**

**Pusher spherical  
to rocker on CAM BOX1**

**DL-CBT**

**Pusher concave to  
rocker on CAM BOX1**

**0232103064**

**RPM sensor  
for CAMBOX 1 and  
CAMBOX 2**

**CAM-BOX 2 MASTER**

Kit for testing unit injectors and single pumps (UI / UP SYSTEM).

**Kit includes:**

1. CAM-BOX 2 MECHANIC
2. Controller UIS TESTER Multi-CAM

**CAM-BOX 2 MECHANIC****Mechanical part to check  
pump nozzles and pump sections.**

Device for testing and performance checks unit injectors (UIS) and individual fuel pumps (pump sections) high pressure with electromagnetic high pressure valves (UPS). The CAM-BOX2 MECHANIK has integrated inductive speed sensor and sensor angle (encoder) allowing to read indication of revolutions and angles for testing of modern EUI systems and EUP

**UIS TESTER Multi-CAM****Electronic part for checking  
pump injectors**

Test and Verification Instrument unit injector performance (UIS) and individual fuel pumps (pump sections) high pressure with high pressure solenoid valves pressure (UPS).

### CAM-BOX 2 MECHANIC

### EQUIPMENT



**DL-CB2 0124**

**Clamp for injectors Volvo FH12, Iveco, Bosch**  
0414700002, 0414701004, 0414701006, 0414701013, 0414701014, 0414701015, 0414701021, 0414701022, 0414702002, 0414702003, 0414702005, 0414702006, 0414702007, 0414702009, 0414702010, 0414702012, 0414702013, 0414702014, 0414702015



**DL-CB230035**

**Fitting** Ø M14 (1.5) x1/4 " - 2 pcs.  
with rubber-metal gasket - 4 pcs.



**DL-CB2 0123**

**Clamp-adaptor**  
for sections PLD NF  
0129.0133.0144



**DL-CB230022**

**Bracket-clamp**



**DL-CB250061**

**test holder nozzles to the clamp adaptor**



**DL-CB230010**

**Bracket-nozzles and spray nozzle**  
Ø 7mm

**DL-CB230012**

**Spray nozzle** Ø 9mm



**M10 bolt, L= 106mm, M10 bolt, L= 56mm**  
for nozzle bracket



**DL-CB2 0100**

**Clip-adaptor for indicator head**



**DL-CB230046, CB230047, CB230048, CB230049**

**Sealing washer (4pcs)**



**DL-CB230084**

**Remote bushing H=7 Ø 20**  
for installation of passenger NF (2 pcs.)



**DL-CB230189**

**Remote bushing H=5 Ø 12**  
for installation of passenger NF (2 pcs.)



**DL-CB230013**

**Retaining pin**  
(3 pcs)



**CAM-BOX 2 MECHANIC**

**EQUIPMENT**



DL-CB230109,CB230134,  
DL-CB230135,DL-CB230043

Screw pusher (4pcs)



DL-CB250001

Caliber adjustable for  
preload settings  
injector pump



Banjo fitting, Banjo bolt,  
rubber-metal gaskets  
and hose clamps (2 sets)



pressure hose to  
pump nozzle Ø 10x1000mm



return hose from  
pump nozzle Ø 10x1000mm



DL-1004

Teflon tube  
Ø 6mm x 1500mm



DL-UNI30001

Union with fitting  
Ø 6mm x 1/8" for  
teflon tube



DL-PG

Defoamer with  
fitting Ø 6mm x 1/4"



D-5358

Compensating spring  
for light injectors  
(red)



DL-UNI30090

profile bolt  
M14 x 44mm with nut and  
washers for fastening  
Cam-Box (2 sets)



DL-CB230169

pusher for  
compensatory  
springs



Back pressure valve  
drain 2.5 bar

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-UNI50132**

Compensation clutch  
with clamping jaws and  
reinforced package  
plates

**DL-UNI50139**

Compensation clutch  
with flange connection  
and reinforced package  
plates (analogue  
Bosch 1686401024)

**DL-CB230016**

Conical coupling with  
flange connection  
Ø 30 mm  
Cam Box2, injection pump

**DL-CB130139**

Cone coupling Ø 30 mm  
Cam Box2, injection pump

**DL-CB230879**

Mounting key for CAM-BOX couplings  
DL-CB130139 and DL-CB230016

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB20124**

**Clamp for injectors Volvo FH12, Iveco, Bosch**  
0414701004, 0414701006, 0414701013, 0414701014,  
0414701015, 0414701021, 0414701022, 0414702002,  
0414702003, 0414702005, 0414702006, 0414702007,  
0414702009, 0414702010, 0414702012,  
0414702013, 0414702014, 0414702015

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20125KIT**

**Inspection and test kit  
unit injector Caterpillar C12  
to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adaptor **DL-CB20125** – 1 pc.
- injector pusher **CB230276** (for C13)
- sealing washer **SV230289**
- nozzle for sprayer **SV230282**
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20126KIT**

**Inspection and test kit  
injectors Caterpillar C15, C13 (CAT2490713) Perkins  
to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adaptor **DL-CB20126** – 1 pc.
- injector pusher **CB230294** (for C15)
- injector pusher **CB230276** (for C13)
- sealing washer **SV230289**
- nozzle for sprayer **SV230282**
- fixing bracket **SV230283**
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20127**

**Clamp for PLD Detroit (Bosch)**  
0414750003, 0414750004  
**to Cam Box 2**

Delivery set: clamp - 1 pc, fitting - 1 pc,  
rubber-metal. gasket - 2 pcs.

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB20128****Clamp for injectors Iveco 7,8 Liters**

0414700002, 0414700003, 0414700004, 0414700005,  
0414700006

to Cam Box 2

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20129****Clamp for PLD Mercedes Actros**

0414799005, 0414799007, 0414799009, 0414799010,  
0414799011, 0414799015, 0414799016, 0414799018,  
0414799021, 0414799023, 0986445002

to Cam Box 2 of the DORPAT stand

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20130****Clamp for injectors**

0414703005, 0414703007

to Cam Box 2

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20131****Clamp for UD Nissan injectors**

0414701023, 0414701024, 0414701033, 0414701034

to Cam Box 2

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

**DL-CB20133****Clamp for PLD Mercedes Atego**

0414799003, 0414799006, 0414799008, 0414799012,  
0414799013, 0414799014, 0414799017, 0414799019,  
0414799022, 0986445003

to Cam Box 2 of the DORPAT stand

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB20136**

**Clamp for Land Rover-Discovery injectors (Delphi) to Cam Box 2**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs, rubber-metal gasket - 4 pcs.

**DL-CB20137KIT**

**Clamp for Caterpillar L10 injectors to Cam Box 2**

**Kit includes:**

- Clamp adapter **DL-CB20137**
- Sealing washer **SV230289**
- Nozzle for sprayer **SV230282**
- Fitting to the adapter - 2 pcs.
- Rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20138KIT**

**Inspection and test kit pump injector Detroit 5234770-5235580 to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20138** – 1 pc.
- nozzle pusher **SV230276** – 1 pc.
- fixing bracket **SV230440** – 1 pc.
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20139KIT**

**Inspection and test kit pump injector Cummins 4DEC01L4061851 to CamBox 2 of the DORPAT stand.**

**Contents of delivery:**

- clip-adapter **DL-CB20139** – 1 pc.
- fixing bracket **SV230440** – 1 pc.
- fitting to the adapter - 2 pcs.
- rubber-metal gasket - 4 pcs.

*Nozzle not included.*



## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB20140****Clamp for Scania injectors**

0414701017, 0414701018, 0414701019, 0414701020, 0414701030, 0414701032, 0414701035, 0414701036, 0414701037, 0414701038, 0414701040, 0414701042, 0414701043, 0414701044, 0414701045, 0414701069, 0414700002, 0414701005, 0414701007, 0414701008, 0414701016

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20144****Clip for PLDDAF, MAK, Renault**

0414755005, 0414755006, 0414755007, 0414755008, 0414755014, 0414755015, 0414755016, 0414755017, 0414755018

**to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20145****Clamp for PLD DELPHI****to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20146****Clamp for injectors****Caterpillar L15****to Cam Box 2 of the DORPAT stand**

Delivery set: clamp - 1 pc, fitting - 2 pcs, rubber-metal. gasket - 4 pcs.

**DL-CB20146KIT****Clamp for Caterpillar L15 injectors****to Cam Box 2****Kit includes:**

- Clamp adapter **DL-CB20146**
- Sealing washer **SV230289**
- Nozzle for sprayer **SV230282**
- Injector pusher **CB230294**
- Fixing bracket **SV230283**
- Fitting to the adapter - 2 pcs.
- Rubber-metal gasket - 4 pcs.

*Nozzle not included.*

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB20149****Clamp for Bosch injectors**

0414703004, 0414703008, 0414703009, 0414703013

**to Cam Box 2 of the DORPAT stand****Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.**DL-CB2 0151****Зажим для форсунок Audi / VW 1.9**0414720002, 0414720003, 0414720005, 0414720007, 0414720008,  
0414720009, 0414720013, 0414720014, 0414720015, 0414720016,  
0414720018, 0414720028, 0414720029, 0414720030, 0414720033,  
0414720034, 0414720035, 0414720036, 0414720037, 0414720038,  
0414720039, 0414720201, 0414720204, 0414720206, 0414720208,  
0414720209, 0414720210, 0414720213, 0414720214, 0414720215,  
0414720216, 0414720217, 0414720220, 0414720221, 0414720222,  
0414720223, 0414720224, 0414720225, 0414720226, 0414720227,  
0414720228, 0414720229, 0414720230, 0414720231, 0414720232,  
0414720301, 0414720302, 0414720303, 0414720304, 0414720305,  
0414720306, 0414720307, 0414720308, 0414720309, 0414720310,  
0414720311, 0414720312, 0414720313, 0414720314**to Cam Box 2 of the DORPAT stand****Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs, tack - 1 pc,  
fixing screw - 1 pc.**DL-CB20152****Clamp for injectors Audi / VW 2.0**

0414720401, 0414720402, 0414720403, 0414720404

**to Cam Box 2 of the DORPAT stand****Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
sealing washer - 4 pcs, fixing screw - 2 pcs.**DL-CB20153KIT****Inspection and test kit****pump injector Bosch 0414703003****to CamBox 2 of the DORPAT stand.****Contents of delivery:**

- clip-adapter **DL-CB20153** – 1 pc;
- nozzle pusher **SV230276** – 1 pc;
- fitting to the adapter - 2 pieces;
- rubber-metal gasket - 4 pcs.

Nozzle not included.

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB20154KIT**

**Kit for checking and testing unit injectors  
CumminsHPI to DORPAT CamBox 2.**

**Contents of delivery:**

- clip-adapter **DL-CB20154** – 1 pc.
- nozzle pusher **CB230356** – 1 pc.
- nozzle for sprayer **CB230357** – 1 pc.
- valve holder **CB230355** – 1 pc.
- bracket **CB220007** for valve holder – 1 pc.
- Timing valve - 1 pc.
- Metering valve – 1 pc.
- steel braided hose – 2 pcs.
- fitting for a hose - 4 pcs.
- fitting to the adapter - 2 pieces;
- rubber-metal gasket - 4 pcs.
- pressure nozzle - 1 pc.

**DL-CB20155**

**Clamp for injectors Delphi E1 (John Deere)  
to Cam Box 2 of the DORPAT stand**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

*Nozzle not included.*

**DL-CB20156**

**Clamp adapter for testing unit injectors CAT 3920206**

**Delivery set:** clip - 1 pc, fixing bracket - 1 pc  
fixing bolt of the clamp-lock 8x35 - 2 pcs  
fitting - 2 pcs, rubber-metal. gasket - 4 pcs

*Nozzle not included.*

**DL-CB20157**

**Test adapter clamp  
pump injector Cummins 3053124**

**Delivery set:** clamp - 1 pc, fitting - 2 pcs,  
rubber-metal. gasket - 4 pcs.

*Nozzle not included.*

## CAM-BOX 2 MECHANIC

## OPTIONAL EQUIPMENT

**DL-CB2 50037**

Injection sensor for unit injectors  
Cummins HPI

**DL-CB250036KIT**

injection sensor  
(piezo)

**DL-CB20158**

Adapter clip for injectors  
CUMMINS 4902827

Scope of delivery:

**DL-CB231672** adapter clip № 0158 — 1 pc;

**DL-CB231675** bracket-retainer — 1 pc;

**DL-CB230357** nozzle on the sprayer — 1 pc;

**DL-UNI30035** fitting for the adapter clip M14x1,5x1/4" — 3 pcs;

**D-GM1538AN** rubber-metal gasket ØM14 — 3 pcs;

**D-GM1504AN** rubber-metal gasket Ø1/4" — 3 pcs.

*Nozzle not included.*

**25-FPKM-04**

Fitting - quick adapter  
for adapter

**25-FPKF-04**

Hydraulic Quick Connector  
female connections 1/4"

**D-1324179**

Pusher for Cam-Box2

**CAMBAT-FLOW**

Injection meter for pump injectors of pump sections of the UIS/UPS system (for UIS-Tester MULTICAM).

**UIS-TESTER MultiCAM**

The UIS-Tester device is designed to test and verify the performance of unit injectors (UIS -Unit Injector System) and individual high-pressure fuel pumps with high-pressure solenoid valves (UPS -Unit Pump System).



**CAMBAT-FULL**

Equipment for testing and checking unit injectors and pump sections of the UIS / UPS system without a mechanical part.



**Equipment CAMBAT-FULL  
includes:**

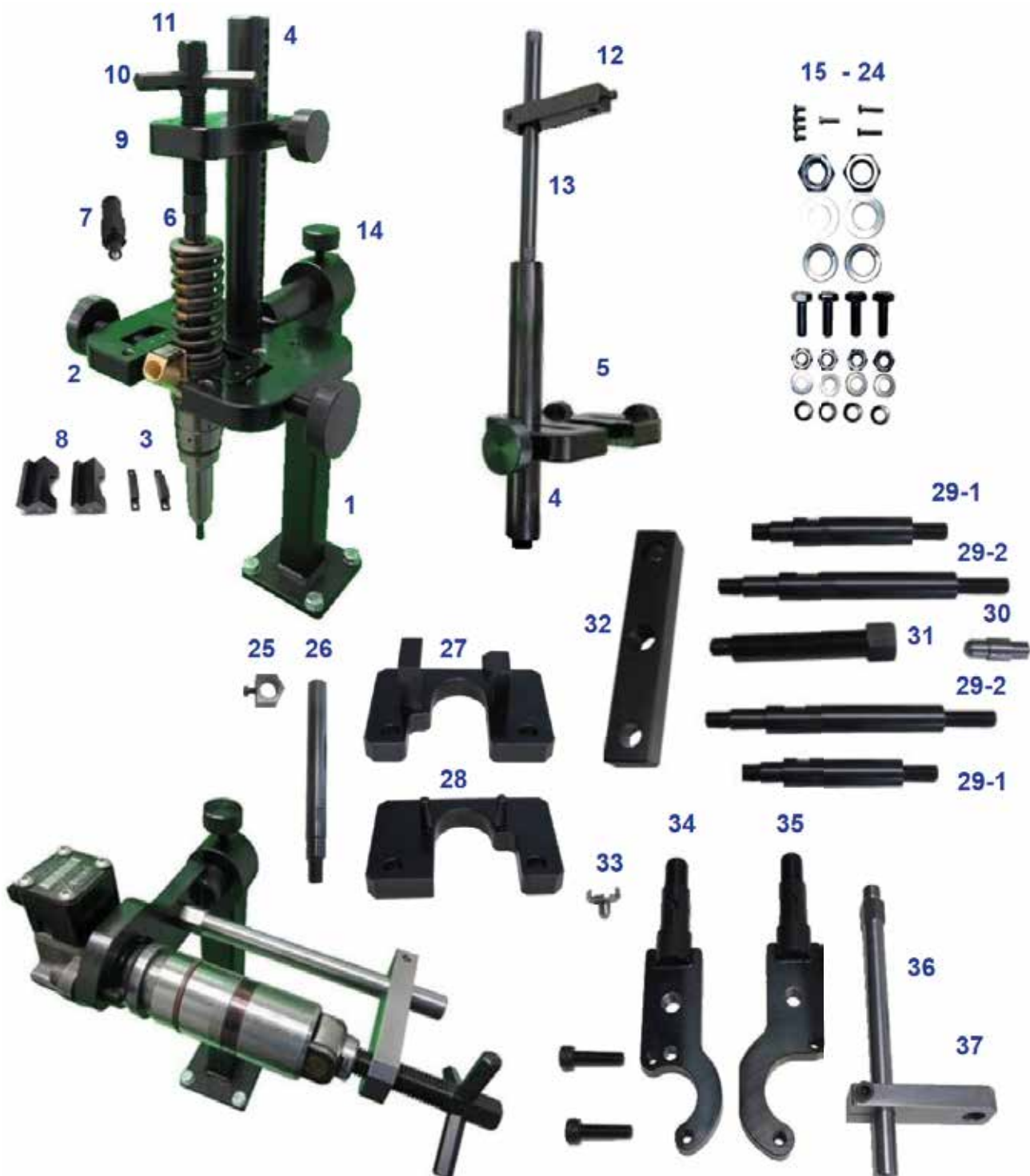
1. Rack with measuring unit CAMBAT-FLOW
2. Control device for pump-injectors of pumping sections UIS-Tester MULTICAM
3. A set of connecting wires for injectors, measuring unit, etc.

**CAMBAT-FULL-SET**

Equipment for testing and checking the pump injector of pump sections of the UIS / UPS system with a mechanical part.

**Equipment CAMBAT-FULL-SET  
includes:**

1. Rack with measuring unit CAMBAT-FLOW
2. Control device for unit injectors and pump sections UIS-Tester MULTICAM
3. A set of connecting wires for injectors, measuring unit, etc.
4. The mechanical part for testing the pump-injector pump sections CAM-BOX MECHANIC



### DL-ST02

Clamp for dismantling and assembling the unit injector of CR injectors with two stops on atomizer nozzles with  $\varnothing$  7mm, with  $\varnothing$  9mm.

**Contents of delivery:**

1. Rack **STD50115** - 1 pc.
2. Large vice **STD50116** - 1 pc.
3. Replaceable foot **STD30498** - 2 pcs.
4. Guide post **STD30540** - 1 pc.
5. Small vice **STD50117** - 1 pc.
6. Stop  $\varnothing$  7mm **STD30148** - 1 pc.
7. Stop  $\varnothing$  9mm **STD30147** - 1 pc.
8. Replaceable foot **STD30752** - 2 pcs.
9. Bracket **STD30610** - 1 pc.
10. Handle **STD30811** - 3 pcs.
11. Clamping screw **STD30810** - 1 pc.
12. Holder **STD30813** - 1 pc.
13. **STD30812** axle - 1 pc.
14. Retainer **STD30468** - 3 pcs.
15. Screw **M4x8 Din012** - 4 pcs.
16. Screw **M4x16 Din012** - 1 pc.
17. Screw **M4x20 Din012** - 2 pcs.
18. Nut M20 **Din034** - 2 pcs.
19. Washer 21x37x3 **Din0125** - 2 pcs.
20. Grover 20 **Din127** - 2 pcs.
21. Bolt M10x30 **Din033** - 4 pcs.
22. Nut M10 **Din034** - 4 pcs.
23. Washer 10.5x20x2 **Din0125** - 4 pcs.
24. Grover10 **Din127** - 4 pcs.
25. Viewfinder for goniometer **DL-STD30874**
26. Axis under the sight **DL-STD30873**
27. Clamp **STD50010** VW1.9 - 1 pc.
28. Clamp **STD50009** VW2.0 - 1 pc.
- 29-1. Short stand **STD31245** – 2 pcs.
- 29-2. Extended stand **STD30657** – 2 pcs.
30. Stop **STD30678** - 1 pc.
31. Bolt **STD30658** - 1 pc.
32. **STD30656** bar - 1 pc.
33. Stop **STD30673** - 1 pc.
34. Holder AT **STD50077** - 1 pc.
35. Speaker holder **STD50078** - 1 pc.
36. Rack **STD30672** - 1 pc.
37. **STD30671** bar - 1 pc.



**Clamp installation  
unit injector AUDI / VW 1.9**



**Clamp installation  
injector pump  
SCANIA H-shaped**



**Installation in a tube  
injector pump  
VOLVO Delphi 2x and 4x contact**



**Clamp installation  
injector pump  
SCANIA**



**Clamp installation  
pump section Delphi 082240354**



**Clamp installation  
pump section  
DAF Bosch 0414755005**



**Clamp installation  
pump section MV ATEGO**



**Clamp installation  
pump section MV ACTROS**



## OPTIONAL CLAMP DL-ST02

**DL-STD50206**

Injector holder  
AUDI / VW 1.9 to adjust  
el. magnetana clamp  
ST-01 / ST-02

**DL-STD50207**

Injector holder  
AUDI / VW 2.0 to adjust  
el. magnetana clamp  
ST-01 / ST-02



**DL-UIS50144**

Key for positioning the electromagnet in the pump injectors BOSCH AUDI / VW 1.9

**Contents of delivery:**

- Key for electromagnet
- Key positioner

*Analog BOSCH 0986610318*

**DL-UIS50195**

Key for positioning the electromagnet in the pump injectors BOSCH AUDI / VW 2.0

**Contents of delivery:**

- Key for electromagnet
- Key positioner

*Analog BOSCH 0986610318*

**DL-UIS30745****(8 faces, 38mm)**

Wrench for mounting / dismounting the electromagnet nut valve injector pump Bosch (Iveco, Scania, Volvo)

**DL-UIS31438****(12 faces, 39mm)**

Wrench for mounting / dismounting the electromagnet nut valve injector pump Bosch (Volvo)

**DL-UIS30693**

Hex wrench for mounting / dismounting the nut injector nozzle Audi / VW1,9

**Applicability:**

PDE-P1,PDE-P1,1,PDE-P1,3,PDE-P1,4

**DL-UIS30724**

Wrench for mounting / dismounting the atomizer nut unit injectors Audi / VW 2.0 TDI Bosch

**Applicability:**

414720403, 0414720404

**DL-UIS30725**

Octagonal wrench for mounting / dismounting the nut atomizer pump-injector Audi / VW 1.9-5.0 PDE-P1.5.

**Applicability:**

0414720309-2.5, 0414720359-2.5, 0414720310-2.5, 0414720360-2.5, 0414720305-5.0, 0414720301-5.0, 0414720311-5.0, 0414720361-5.0, 0414720306-2.0, 0414720302-2.0, 0414720312-2.0, 0414720362-2.0, 0414720307-1.9, 0414720303-1.9, 0414720313-1.9, 0414720363-1.9, 0414720308-1.9, 0414720304-1.9, 0414720314-1.9, 0414720364-1.9

**DL-UIS30751**

Octagonal wrench 17mm for atomizer nut unit injectors Audi / VW Siemens VDO (PIEZO)

**DL-UIS30726**

Wrench for mounting / dismantling the electromagnet nut  
unit injectors Audi / VW 2.0

**Applicability:**  
0414720403, 0414720404

**DL-UIS30733**

Wrench for mounting / dismantling the electromagnet nut  
unit injector Audi / VW 1.9

**Applicability:**  
0414720029-0414720215

**DL-UNI30667**

29 mm hex wrench for mounting / dismantling  
AUDI / VW injector housing nuts

**Applicability:**  
0414720400, 0414720401, 0414720402, 0414720403,  
0414720453, 0414720454

**DL-UNI30668**

Key 30 mm octagonal for mounting / dismantling  
VW SIEMENS injector housing nuts



**DL-UNI50011**

**Wrench for mounting / dismantling the spray nut  
Ø 27 mm injectors Volvo, Delphi, Lucas**  
(for torque wrench)

**DL-UNI50313**

**Wrench for mounting / dismantling the spray nut  
Ø 28 mm unit injector Cummins 3053124**  
(for torque wrench)

**DL-UNI50127**

**Wrench for mounting / dismantling the spray nut  
Ø 29.4 mm injectors Caterpillar C12, C15**  
(for torque wrench)

**DL-UNI50012**

**Wrench for mounting / dismantling the spray nut  
Ø 31.5mm Cummins (Scania) HPI injectors**  
(for torque wrench)

**DL-UNI50048**

**Wrench for mounting / dismantling the nut  
Ø 36.2 mm PLD sections Delphi 1668325**  
(for torque wrench)

**DL-UNI30763**

**Wrench for mounting / dismantling the spray nut  
Ø 32mm Bosch unit injectors**  
**Applicability:**  
0414701005, 0414701006, 0414701008, 0414702002,  
0414702007, 0414702010, 0414703008

**DL-UIS30880**

**Caterpillar injector holder adapter  
C12, C15 in a vice**



**DL-UIS50143**

**Valve Stroke Kit**  
unit injector AUDI / VW BOSCH 1.9/2.0

**Contents of delivery:**

1. **DL-UIS31069** Double-sided clip
2. **DL-UIS31070** Measuring head adapter.
3. **DL-UIS31071** The washer is stubborn.
4. **DL-UIS31072** Calibration plate
5. **DL-CRN30503** Measuring probe

**ATTENTION!**

*Measuring indicator head in  
delivery set is not included!*

**DL-UIS30827**

**Stand adapter for indicator**  
for measuring the air gap in the housing  
injector pump

**DL-UIS50102**

**Adapter for indicator**  
for stroke measurement  
injector valve  
Bosch

**DL-UIS50100**

**Wrench for mounting / dismantling and adjustment  
pump-injector solenoid nuts**  
Audi / VW 1.9 TDI ( Bosch) on the stand.  
Applicability: 0414720029 -0414720215

**DL-UIS50101**

**Wrench for mounting / dismantling and adjustment  
pump-injector solenoid nuts**  
Audi / VW 2.0 TDI

**DL-VW10SMFULL****SET OF KEYS FOR DISASSEMBLY-ASSEMBLY OF PUMP INJECTORS AUDI / VW****1. DL-UIS30667**

Wrench 29mm hex for mounting / dismantling the nut of the unit injector housing  
AUDI / VW 2.0 , PDE-P2.

Applicability: 0414720400 0414720401 0414720402 0414720403 0414720453 0414720454

**2. DL-UIS30668**

Wrench 30 mm octagonal for mounting / dismantling the nut of the unit injector housing  
VW Siemens

**3. DL-UIS50100**

Wrench for mounting / dismantling and adjusting the nut of the electromagnet of the unit injector  
Audi / VW 1.9-5.0 ( Bosch) on the stand.

Applicability: 0414720029-0414720215

**4. DL-UIS30726**

Wrench for assembly / disassembly of the solenoid nut of the pump injector Audi / VW 2.0 Bosch

Applicability: 0414720403 0414720404

**5. DL-UIS30725**

Octagonal wrench for mounting / dismantling the nozzle nut of the unit injector  
Audi/ VW 1.9-5.0, PDE-P1.5.

Applicability: 0414720309-2.5 l. 0414720359-2.5 l. 0414720310-2.5 l.

0414720360-2.5 l. 0414720305-5.0 l. 0414720301-5.0 l. 0414720311-5.0l. 0414720361-5.0l.

0414720306-2.0 l. 0414720302-2.0 l. 0414720312-2.0 l. 0414720362-2.0 l. 0414720307-1.9 l.

0414720303-1.9 l. 0414720313-1.9 l. 0414720363-1.9 l. 0414720308-1.9 l. 0414720304-1.9 l.

0414720314-1.9 l. 0414720364-1.9 l.

**6. DL-UIS30693**

Hexagonal wrench for mounting / dismantling the sprayer nut of the unit injector

Audi / VW 1.9, PDE-P1 PDE-P1.1 PDE-P1.3 PDE-P1.4

7. **DL-UIS50101**

Wrench for adjusting the solenoid nut NF Audi / VW 2.0

8. **DL-UIS30733**

Wrench for mounting / dismantling the nut of the electromagnet of the unit injectors Audi / VW 1.9 TDI Bosch  
Applicability: 0414720029-0414720215

9. **DL-UIS30724**

Wrench for mounting / dismantling the sprayer nut of the pump injector Audi / VW 2.0 Bosch  
Applicability: 0414720403 0414720404

10. **DL-UIS30751**

Octagonal wrench 17mm for Audi / VW injector nozzle nut  
Siemens VDO (PIEZO)

11. **DL-UIS30757**

Dodecahedral key for mounting / dismantling of the piezoelectric element.

**DL-VW2-SVDO****Tool kit for disassembly-assembly NF Audi/VW Siemens VDO**1. **DL-UIS30668**

Wrench 30 mm octagonal for mounting / dismantling the nut of the VW SIEMENS unit injector body

2. **DL-UIS30751**

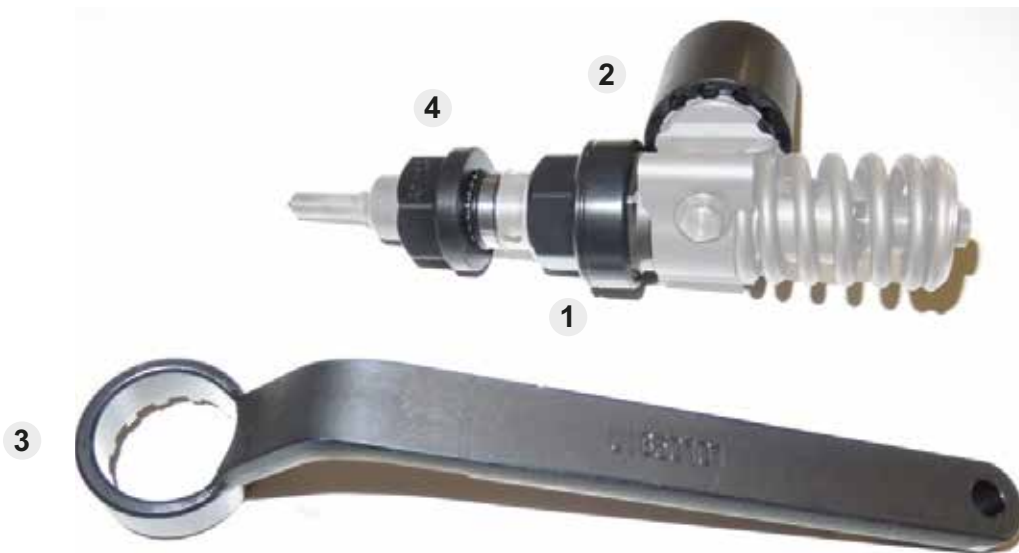
Octagonal wrench 17mm for Audi / VW Siemens VDO (PIEZO) sprayer nut

3. **DL-UIS30757**

Dodecahedral key for installation / dismantling of the piezoelectric element NF Siemens VDO

**DL-VW PDE****TOOL KIT FOR DISASSEMBLY-ASSEMBLY NF AUDI / VW1,9 PDE-P1.5**

1. **DL-UIS50100**  
Wrench for mounting / dismounting and adjusting the nut of the electromagnet of the unit injector Audi / VW 1.9-5.0 ( Bosch) on the stand.  
Applicability: 0414720029-04147202152
2. **DL-UIS30733**  
Wrench for mounting / dismounting the nut of the electromagnet of the pump injectors Audi / VW 1.9 Bosch TDI.  
Applicability: 0414720029-0414720215
3. **DL-UIS30725**  
Octagonal wrench for mounting / dismounting the nozzle nut of the unit injector Audi/VW 1.9-5.0, PDE-P1.5.  
Applicability: 0414720309-2.5 l. 0414720359-2.5 l.  
0414720310-2.5 l. 0414720360-2.5 l. 0414720305-5.0 l. 0414720301-5.0 l. 0414720311-5.0l.  
0414720361-5.0l. 0414720306-2.0 l. 0414720302-2.0 l. 0414720312-2.0 l. 0414720362-2.0 l.  
0414720307-1.9 l. 0414720303-1.9 l.0414720313-1.9 l. 0414720363-1.9 l. 0414720308-1.9 l.  
0414720304-1.9 l. 0414720314-1.9 l.0414720364-1.9 l.
4. **DL-UIS30693**  
Hexagonal wrench for mounting / dismantling the nut of the Audi / VW 1.9 injector sprayer PDE-P1 PDE-P1.1 PDE-P1.3 PDE-P1.4

**DL-VW-PDE-2****Tool kit for disassembly-assembly NF Audi / VW 2.0**

1. **DL-UIS30667**  
Wrench 29mm hex for mounting / dismantling the nut of the unit injector housing  
AUDI / VW 2.0 , PDE-P2. Applicability: 0414720400 0414720401 0414720402 0414720403  
0414720453 0414720454
2. **DL-UIS30726**  
Wrench for mounting / dismantling the solenoid nut of the pump injector Audi / VW 2.0 Bosch.  
Applicability: 0414720403 0414720404
3. **DL-UIS50101**  
Wrench for adjusting the solenoid nut NF Audi / VW 2.0
4. **DL-UIS30724**  
Wrench for assembly / dismantling of the nozzle nut of the pump-injector Audi / VW 2.0 Bosch  
Applicability: 0414720403 0414720404



**DL-UIS30590**

Adapter for testing the injector part  
Bosch injectors (Scania, Volvo,  
IVECO CURSOR TYPE 350).

**DL-UIS30591**

Adapter for testing the injector part  
pump-injector Bosch (Volvo).

**DL-UIS30594**

Adapter for testing the injector part  
pump-injector Volvo 520 CV.

**DL-UIS30597**

Adapter for testing the injector part  
pump-injector Delphi (Volvo Tape A).

**DL-UIS30598**

Adapter for testing the injector part  
pump injector Detroit .

**DL-UIS30606**

Adapter for testing the injector part  
pump injectors Cummins L10-M11.

**DL-UIS30627**

Adapter for testing the injector part  
injectors Volvo 460 2 tape, Scaniapumps.

**DL-UIS30631**

Adapter for testing the injector part  
pump injectors EUI / PDE Cummins N14 pumps.

**DL-UIS30634**

Adapter for testing the injector part  
unit injector EUI / PDE Audi, VW 2. (2.0 liters)

**DL-UIS50082**

Adapter for testing the injector part  
pump injectors EUI / PDE Audi, VW pumps all  
types except EUI / PDE Audi, VW 2. (2.0 liter)

**DL-UIS30643**

Adapter for testing the injector part  
unit injector EUI / PDE Iveco Stralis 500 HP.  
0414703004, 0414703008, 0414703010.

**DL-UIS30640**

Adapter for testing the injector part  
Cummins pump injectors.

**DL-UIS30635**

Adapter for testing the injector part pump injector Volvo Delphi 4PIN.

**DL-UIS50079**

Injector test adapter injectors Audi, VW. 04147203XX for assembly on a clamp.

**DL-UIS50081**

Adapter for testing the injector part injector pump Audi, VW. 04147200XX, 04147202XX, 04147204XX, 04147206XX for assembly on a clamp.

**DL-UIS30638**

Adapter for testing the injector part unit injectors EUI / PDE Audi, VW 2. (2.0 liters). 1 681 398 033 for assembly on a clamp.

**DL-UIS30662**

Adapter for testing the injector part pump injectors Audi, VW Siemens VDO piezo for assembly on a clamp.

**DL-UIS30770**

Adapter for testing the injector part unit injector EUI / PDE Nissan 440 (M31x1).

**DL-UIS31507**

Adapter for testing the injector part of the pump injector EUI / PDE HYUNDAI 22880-84001(M28x1)

## АДАПТЕРЫ ДЛЯ CATERPILLAR

**DL-UIS30789**

Adapter for testing the injector part  
injector pump EUI / PDE HEUICAT 3126  
The adapter has a connecting thread M28x1

**DL-UIS30768**

Adapter for testing the injector part  
unit injector EUI / PDE Caterpillar series 3500  
The adapter has a connecting thread M27x1.5

**DL-UIS30769**

Adapter for testing the injector part  
injector unit EUI / PDE Caterpillar Marino Adapter  
has a connecting thread M36x1.5

**DL-UIS30897**

Adapter for testing the injector part  
unit injectors EUI / PDE CAT C15, C16.  
The adapter has a connecting thread M33x1.5

**DL-UIS31441**

Adapter for testing the injector part  
unit injector Caterpillar CAT C12  
The adapter has a connecting thread M28x1

**DL-UIS31511**

Adapter for testing the injector part of the pump  
injectors EUI / PDE Caterpillar CAT3112  
The adapter has a connecting thread M36x1.5 and  
longer than DL-UIS30769

**DL-UIS31559**

Adapter for testing the injector part of the pump  
injectors CAT M32. The adapter has a connection  
thread M32x1.5mm  
Has two holes for atomizer pins.

## ADAPTERS FOR CATERPILLAR

**DL-TRUKUSA-04CAT**

**Test Adapter Kit  
injector part of unit injectors  
american trucks  
manufactured by CATERPILLAR.**

- DL-UIS30789
- DL-UIS30768
- DL-UIS30769
- DL-UIS30897

**DL-TRUKUSA-05CAT**

**Set of adapters for checking the injector  
truck injector parts  
American made CATERPILLAR**

- DL-UIS30789
- DL-UIS30768,
- DL-UIS30769
- DL-UIS30897
- DL-UIS31441

**DL-TRUKUSA-06CAT**

**Set of adapters for checking the injector  
truck injector parts  
American made CATERPILLAR**

- DL-UIS30789
- DL-UIS30768
- DL-UIS30769
- DL-UIS30897
- DL-UIS31441
- DL-UIS31511

**DL-TRUKUSA-07CAT**

**Set of adapters for checking the injector  
truck injector parts  
American made CATERPILLAR**

- DL-UIS30789
- DL-UIS30768
- DL-UIS30769
- DL-UIS30897
- DL-UIS31441
- DL-UIS31511
- DL-UIS31559



## ADAPTER SETS FOR CHECKING THE INJECTOR PART

**DL-TRUSA-04BR****Set of adapters for checking the injector truck injector parts**

American production CUMMINS and DETROIT.  
(DL-UIS30598-DETROIT, DL-UIS30606-CUMMINS L10-M11, DL-UIS30631-CUMMINS N14, DL-UIS30640-CUMMINS)

**DL-TRUKE-07BR****Test Adapter Kit injector part of unit injectors European cars.**

(DL-UIS30590 - BOSCH (Scania, Volvo, Iveco Cursor), DL-UIS30591 - BOSCH (Volvo), DL-UIS30594 - Volvo 520CV, DL-UIS30597 - DELPHI (Volvo Tape A), DL-UIS30627 - (Volvo 460 Tape 2, Scania), DL-UIS30635 - DELPHI (Volvo 4 Pin), DL-UIS30643 - (Iveco Stralis 500HP)

**DL-VW-4BR****Set of adapters for checking the injector AUDI / VW car injector parts**

**all types.** (DL-UIS50079-AUDI/VW 04147203XX, DL-UIS50081-AUDI/VW 04147200XX, 04147202XX, 04147204XX, 04147206XX, DL-UIS30638-EUI / PDE AUDI/VW 2.0 Liter (TYPE2), DL-UIS30662-AUDI / VW SIEMENS VDO piezo)

**DL-RP400****Manual press for injector testing with mechanical pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube – 2 pcs.

**DL-RP410** (without pressure sensor)**DL-RP415** (with pressure sensor. 1500 bar)**Manual press for injector testing with electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 415**) for 1500 bar – 1 pc.

**DL-RP420** (without pressure sensor)**DL-RP425** (with pressure sensor. 1500 bar)**Manual press for injector testing with 2-channel electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 425**) for 1500 bar – 1 pc.

**DL-RP430****Manufacturer - ZECA (Italy)  
Flame test chamber (aspirator)  
nozzle spray**

Allows for visual inspection performance of diesel injectors without harm to health. The device is going to work liquid for reuse.

**DL-RP500**

**Manufacturer - ZECA (Italy)**  
**Manual press for injector testing with mechanical pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube - 2 pcs.



**DL-RP510** (without pressure sensor)

**DL-RP515** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for RP 515) for 1500 bar – 1 pc.



**DL-RP520** (without pressure sensor)

**DL-RP525** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with 2-channel electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable – 1 pc.
- battery charger - 1 pc.
- pressure sensor (for RP 525) for 1500 bar – 1 pc.

**DL-UIS50150**

**A set of diamond laps and reamers for restoring the landing BOSCH unit injector valve locations.**

**Contents of delivery:**

1. **DL-UIS1368063** Diamond conical lap with pilot (L 136°) 80/63
2. **DL-UIS1364028** Diamond conical lap with pilot (L 136°) 40/28
3. **DL-UISPA78063** Diamond reamer RA  $\varnothing 7$  80/63
4. **DL-UISPA74028** Diamond reamer RA  $\varnothing 7$  40/28
5. **DL-UIS50193** Guide puller with split sleeve
6. **DL-UIS50247** Diamond reamer jacket puller
7. **DL-UNI30975** Handle for lapping - 2 pcs.
8. **DL-UNI30978** Handle fixing screw - 2 pcs.

**Injector valve for  
VOLVO, SCANIA, IVECO:**

- D-GR02X \ 136 \ 7,010
- D-GR02X \ 136 \ 7,015
- D-GR02X \ 136 \ 7,020
- D-GR02X \ 136 \ 7,025
- D-GR02X \ 136 \ 7,030
- D-GR02X \ 136 \ 7,035
- D-GR02X \ 136 \ 7,040
- D-GR02X \ 136 \ 7,045
- D-GR02X \ 136 \ 7,050
- D-GR02X \ 136 \ 7,055
- D-GR02X \ 136 \ 7,060
- D-GR02X \ 136 \ 7,070
- D-GR02X \ 136 \ 7,080

**DL-UIS50256**

**Set of diamond laps and reamers  
to restore a seat  
BOSCH unit injector valves**

**Contents of delivery:**

1. Diamond conical lap (L 136°) "coarse" - 1 pc.
2. Diamond conical lap (L 136°) "finish" – 1 pc.
3. Pilot for lapping diamond conical - 2 pcs.
4. Diamond reamer - 1 pc.
5. Pilot for reaming - 1 pc.
6. Handle to hold the pilot - 1 pc.
7. Cap for pressing on the reamer and laps - 3 pcs.
8. Brush for cleaning the NF valve channel - 1 pc.
9. Organizer - 1 pc.

**DL-UIS50257**

**Set of diamond laps and reamers  
to restore a seat  
DETROIT unit injector valves**

**Contents of delivery:**

1. Diamond conical lap "coarse" - 1 pc.
2. Diamond taper lap "finish" - 1 pc.
3. Pilot for lapping diamond conical - 2 pcs.
4. Diamond reamer - 1 pc.
5. Pilot for reaming - 1 pc.
6. Handle to hold the pilot - 1 pc.
7. Cap for pressing on the reamer and laps - 3 pcs.
8. Brush for cleaning the NF valve channel - 1 pc.
9. Organizer - 1 pc.

**DL-UIS50255**

**Set of diamond laps and reamers  
to restore a seat  
BOSCH unit injector valves**

**Contents of delivery:**

1. Diamond conical lap (L 136°) "coarse" - 1 pc.
2. Diamond conical lap (L 136°) "finish" – 1 pc.
3. Pilot for lapping diamond conical - 2 pcs.
4. Diamond reamer - 1 pc.
5. Pilot for reaming - 1 pc.
6. Handle to hold the pilot - 1 pc.
7. Cap for pressing on the reamer and laps - 3 pcs.
8. Brush for cleaning the NF valve channel - 1 pc.
9. Organizer - 1 pc.



## ОСНАЩЕНИЕ И ИНСТРУМЕНТ ДЛЯ ПРОВЕРКИ И РЕМОНТА НАСОС-ФОРСУНОК HEUI

HEUI CATERPILLAR 3126B,  
CATERPILLAR 3126E и FORD 1998-2003  
DIESEL 7.3 FUEL INJECTOR 128-6601,  
AD1831489C1 (INTERNATIONAL)



## Equipment includes:

1. **DL-HEUI50223** Pump installation adapter nozzles



2. **DL-HEUI50240** Set of hydraulic hoses and HPT 400mm 14x14mm
3. **DL-HEUI50219** Adapter holder with clamping bar
4. **DL-HEUI50230** Adapter cable for connecting the pump injector
5. **DL-UNI50084** Corner adapter M14



*Attention! All accessories are sold separately.*

HEUI CATERPILLAR C7-C9



## Equipment includes:

1. **DL-HEUI50221** Pump installation adapter nozzles



## EQUIPMENT AND TOOLS FOR CHECKING AND REPAIRING HEUI INJECTORS

**DL-UNI50208**

Wrench for unscrewing the atomizer nut injectors Caterpillar C7-C9.  
Key working diameter 24 mm

**DL-UIS30789**

Adapter for testing the injector part injector pump EUI / PDE HEUICAT 3126  
The adapter has a connecting thread M28x1

**DL-HEU50251**

Seal kit  
HEUI CAT C7-C9 unit injector rings

**DL-HEUI31342**

Upper case for pump-injector installations high pressure supply.

**DL-HEU31332**

Lower housing for low pressure supply

**DL-HEU50227**

Protective screen with cover from polycarbonate.  
(DL-HEU31333 Protective polycarbonate screen)  
(DL-HEU31334 Lid protective screen)

**DL-HEU31335**

Conical washer clamping (2 pcs)

**SPF: 708, 712, 1108, 1112, 1508, 1512**

The assay stand is designed for testing and adjusting with increased accuracy of in-line injection pumps, V-shaped injection pumps, distribution-type injection pumps with independent and forced lubrication systems, a pressurization corrector of all domestic manufacturers and major foreign ones: "BOSCH", "LUCAS", "ZEXEL", NIPPON DENSO.

**When using additional equipment, the stand allows you to test and check:**

- Common-Rail injectors (BOSCH, DELPHI, DENSO, SIEMENS)
- Common-Rail pumps (CP1, CP2, CP3) (BOSCH, DELPHI, DENSO)
- regulators and pressure sensors CR-pump-injectors of European and American cars
- electronic pumps such as VE, VP, Zexel, PE.

Stands are produced with a power of 7.5 kW (**SPF-308, SPF-712**), 11 kW (**SPF-1108, SPF-1112**), 15kW (**SPF-1508, SPF-1512**).

Stands **SPF-708, SPF-1108** and **SPF-1508** have an 8-section measuring block.  
Stands **SPF-712, SPF-1112** and **SPF-1512** have a 12-section measuring block.

**The stand is equipped with:**

- integrated personal computer
- monitor
- control panel of the stand and booster pump
- protective fence with 2 doors made of polycarbonate
- cooling unit of radiator-fan type for 2 channels
- cooling unit of radiator-fan type for 1 channel



SPF

STAND EQUIPMENT



Flexible pipes 3/8"  
L-105cm (2 pieces)



Tips  
14 mm (2 pcs.)



Tips  
by 12 mm (2 pcs.)



Connecting hose  
Ø 8 mm L-150 cm (1 pc.)



Connecting hose  
Ø 10 mm L-150 cm (1 pc.)



Double-sided key  
"ratchet" (1 pc.)



Leg (foot with adjustable  
bolt) (4 pcs.)



Door key (4 pcs.)

## PTB-3, PTB-5 ,PTB-7, PTB-9, PTB-12

The assay stand is designed for testing and adjusting with increased accuracy of in-line injection pumps, V-shaped injection pumps, distribution-type injection pumps with independent and forced lubrication systems, a pressurization corrector of all domestic manufacturers and major foreign ones: "BOSCH", "LUCAS", "ZEXEL", NIPPON DENSO.

**When using additional equipment, the stand allows you to test and check:**

- Common-Rail injectors (BOSCH, DELPHI, DENSO, SIEMENS)
- Common-Rail pumps (CP1,CP2,CP3) (BOSCH,DELPHI,DENSO)
- Regulators and pressure sensors CR
- injectors of European and American cars
- electronic pumps such as VE, VP, Zexel, PE.

**Stands are produced with capacity:**

- PTB-3 - 15 kW
- PTB-5 - 18 kW
- PTB-7 - 22 kW
- PTB-9 - 30 kW
- PTB-12 - 37kW





**PTB14**

with additional oil station and tank

The assay stand is designed for testing and adjusting with increased accuracy of in-line injection pumps, V-shaped injection pumps, distribution-type injection pumps with independent and forced lubrication systems, a pressurization corrector of all domestic manufacturers and major foreign ones: "BOSCH", "LUCAS", "ZEXEL", NIPPON DENSO.

**When using additional equipment, the stand allows you to test and check:**

- Common-Rail injectors (BOSCH, DELPHI, DENSO, SIEMENS)
- Common-Rail pumps (CP1,CP2,CP3) (BOSCH,DELPHI,DENSO)
- Regulators and pressure sensors CR
- injectors of European and American cars
- electronic pumps such as VE, VP, Zexel, PE.

**The stand is produced with a capacity of 45 kW**



Stands of the **PTB** series for checking high-pressure fuel pumps allow you to perform all procedures related to testing and adjusting high-pressure fuel pumps in accordance with international ISO standards:

- drive system with smooth speed control;
- power supply system with smooth pressure regulation;
- pneumatic system with smooth pressure adjustment;
- a block for measuring the dosage of the strait;
- fastening elements of tested pumps.

The design of the injection pump test bench and its equipment elements meet the requirements of international standards in terms of static and dynamic parameters - ISO4008/1 and ISO4008/2

**Technical data of PTB series stands:**

rotational speed	30–3000min <sup>-1</sup>
direction of rotation	left / right
engine power (nom.)	from 15kW to 45kW by modification
programmable number of shots	50–1000
tank capacity	30-160 dm <sup>3</sup> by modification
number of sections	eight
measuring beaker capacity	44 and 260 +/- 0.25cm <sup>3</sup>
supply voltage	3x400V/230V~50Hz
shut-off valve supply	12V / 24V
distance from the plate to the axis of the drive	125mm-170mm by modification
compensation sleeve diameter	110mm
feed pump performance assay oil at 3bar	6,5dm <sup>3</sup>
high pressure gauge	0÷10Bar
maximum current	24.5A (38.5A) by modification
total weight and dimensions L(length) x B(width) x H(height)	1830 x 1710(900) x 1670

OPTIONAL EQUIPMENT AND ACCESSORIES  
TO STANDS FOR CHECKING FUEL PUMPS OF HIGH PRESSURE**DL-MSP**

Mobile oil station  
for stands



Frequency  
converter  
for stands:

- 2,2 kW
- 4 kW
- 5,5 kW
- 7,5 kW
- 11 kW
- 15 kW

### OPTIONAL EQUIPMENT AND ACCESSORIES TO STANDS FOR CHECKING FUEL PUMPS OF HIGH PRESSURE



**MZK-45**

**Measuring cylinder 45ml  
(beaker) for stands  
injection pump checks**  
Length - 320mm  
Diameter - 18mm  
Scale – 0-150ml  
Division price - 0.2ml



**MZK-260**

**Measuring cylinder 260ml  
(beaker) for stands  
injection pump checks**  
Length - 320mm  
Diameter - 38mm  
Scale - 0-260ml  
Division price - 2ml



**MZK-150**

**Measuring cylinder 150ml  
(beaker) for stands  
injection pump checks**  
Length - 320mm  
Diameter - 28mm  
Scale – 0-150ml  
Division price - 1ml



**SDMZ-38**

**Bracket-holder  
for MZK-260 for 260ml**



**SDMZ-28**

**Bracket-holder  
for MZK-150 for 150ml**



**SDMZ-18**

**Bracket-holder  
for MZK-45 for 45ml**



**DL-OHL**

**Fridge-  
stand air conditioner**

OPTIONAL EQUIPMENT AND ACCESSORIES  
TO STANDS FOR CHECKING FUEL PUMPS OF HIGH PRESSURE



**DL-UNI50132**

Compensation clutch with clamping jaws and reinforced package plates



**DL-MS9**

Coupling slotted for CR injection pump (for Renault slot 9x20)



**DL-UNI50139**

Compensation clutch with flange connection and reinforced package plates (analogue Bosch 1686401024)



**DL-MS10D**

Coupling slotted for injection pump CR Denso, slot 10x23



**DL-CB230016**

Conical coupling with flange connection Ø 30 mm  
Cam Box2, injection pump



**DL-MS10S**

Coupling slotted for Siemens Peugeot injection pump Boxer 2.2, slot 10x21.6



**DL-M24 (UNI30127)**

Cone coupling Ø 24 mm for injection pump CRSR-3 mod.044502088



**DL-MS11**

Coupling slotted for injection pump CR MAN (11 splines)



**DL-M24L (CR31098)**

Long sleeve Ø 24 mm for injection pump DENSO HP0



**DL-M17**

Cone coupling Ø 17 mm for injection pump CR and injection pump VE



**DL-M19**

Cone coupling Ø 19 mm for CR and VE injection pumps



**DL-MS8**

Coupling slotted for injection pump CR (for MV slot 8x18)



**DL-M23 (UNI30917)**

Conical coupling for 23 for injection pump Continental A2C59517053, Bosch CR\ CP4HS2 0445010637, CP4S2 0445010611, CP4S1 0445010506



## EQUIPMENT AND ACCESSORIES FOR ROTARY AND INLINE injection pumps

**DL-UNI50051-KIT****VE injection pump test kit****Contents of delivery:**

<b>DL-UNI50051</b>	Holder frame for 6 nozzles
<b>DL-TVD-K700</b>	Profile bolt for fastening the frame Injector fixing screws – 6 pcs. Injector holder fastening screws – 2 pcs.
<b>DL-PG(CR26)</b>	Defoamers for spilling liquid - 6 pcs.
<b>34-RL020602</b>	Fitting 6mm x 1/4 for defoamer - 6 pcs.
<b>DL-UNI30452</b>	Nozzle nozzle - 6 pcs.
<b>34-RL020601</b>	Fitting 6mm x 1/8 for nozzle - 6 pcs.
<b>34-RWN-06x04</b>	PVC pipe Ø6mm for connection - 12m

**DL-TVD-M**

High pressure metal tube

<b>DL-TVD-M81412</b>	(800)	M14xM12
<b>DL-TVD-M81414</b>	(800)	M14xM14
<b>DL-TVD-M61412</b>	(600)	M14xM12
<b>DL-TVD-M61414</b>	(600)	M14xM14

## EQUIPMENT AND ACCESSORIES FOR ROTARY AND INLINE injection pumps

**DL-UNI30465**

Mounting flange Ø 50/60mm  
for high pressure fuel pump VE  
and for high pressure fuel pump  
CR (BMW, RENAULT, MB,  
Peugeot)

**DL-CB130139**

Cone coupling Ø 30 mm  
Cam Box2, injection pump

**DL-CR30466**

Mounting flange Ø 68 mm,  
for injection pump CR Renault  
Megane, Delphi Siemens  
VDO, Land Rover,  
RangeRoverV8 and for  
HPFP VE

**DL-M17**

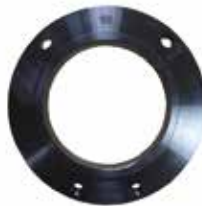
Cone coupling Ø 17 mm  
for CR and VE injection pumps

**DL-UNI30467**

Mounting flange Ø 70mm  
for injection pump VE

**DL-M19**

Cone coupling Ø 19 mm  
for CR and VE injection pumps

**DL-UNI30521**

Mounting flange Ø 105mm  
for injection pump MTZ-50, MTZ-80,  
MTZ-82, MTZ-825, T16, T25,  
T30, T40, SND-18, SND-17,  
SND-14.

**DL-UNI50008**

Bracket for pumps,  
Bosch standard 125 mm.  
Installed on a stand.

## EQUIPMENT AND ACCESSORIES FOR ROTARY AND INLINE injection pumps

**DL-UNI30514**

Mounting kit  
to the stand of in-line pumps  
Bosch-Kamaz (similar to Bosch1688030141)

**Contents of delivery:**

- support - 2 pcs.
- profile bolt - 2 pcs.
- nut - 2 pcs.
- washer - 2 pcs.
- grower - 2 pcs.

**DL-UNI30525**

Stand support  
in-line pumps MAN double rail  
(similar to Bosch1688030184)

**Contents of delivery:**

- support – 1 pc.
- profile bolt – 1 pc.
- nut - 1 pc.
- washer - 1 pc.
- grower - 1 pc.

## EQUIPMENT AND ACCESSORIES FOR ROTARY AND INLINE injection pumps

**DL-UNI50042**

indicator fixture  
measuring rack travel in-line  
pumps BoschP (P7100, P8500).

**Completed adapters:**

- 18x1.5 (B, BV pumps)
- 20x1.5 (A pumps)
- 24x1.5 (P pumps)
- 24x1.5 (8500 pumps)

**AAE388-0A**

Comparator for P7000 / 8500 pumps  
to determine the height of the start of the feed.  
Connection 24x1.5mm.

**DL-UNI50040**

Retainer-eccentric plungers in-line  
pumps BoschP (P7100, P7800).

**DL-RD30765**

Wrench for repairing mechanical  
nozzles with a 28 mm hexagon.

**DL-RD30766**

Wrench for repairing mechanical  
nozzles with hexagon 27mm.

## EQUIPMENT AND ACCESSORIES FOR ROTARY AND INLINE injection pumps

**DL-UNI30786 (VP3)**

Coupling for fastening to the pump flange for High pressure fuel pump series VP (Opel)

**DL-UNI30787 (VP4)**

Coupling for fastening to the pump flange for VP series injection pump (Audi / VW, BMW, MB)

**DL-UNI30788 (VP5)**

Coupling for fastening to the pump flange for injection pump series VP (Ford)

**DL-UNI30603 (VP6)**

Coupling for fastening to the pump flange for High pressure fuel pump series VP (Nissan Almera, Tino, Terano 3, Patrol 3.0)

**DL-VPLO**

Lodgment for injection pump VP series, Opel

**DL-VPLA**

Lodgment for injection pump VP, Aud/VW, BMW, MB series



**DL-USN0021 (ST-03)****Universal cradle for CR pumps****Delivery set DL-USN0021 (ST-03):**

1. Rotary stand - 1 pc.
2. Set of flanges for fastening CR pumps of 6 pcs.
3. Set of 4 pump support plates.

**Delivery set DL-USN0021CR (ST-03CR):**

1. Rotary stand - 1 pc.
2. Set of flanges for fastening CR pumps of 6 pcs.

**ATTENTION!**

*Holder plates for high pressure fuel pumps CR and rotary high pressure fuel pumps are also sold separately!*



### CR TESTER . CRT-5040

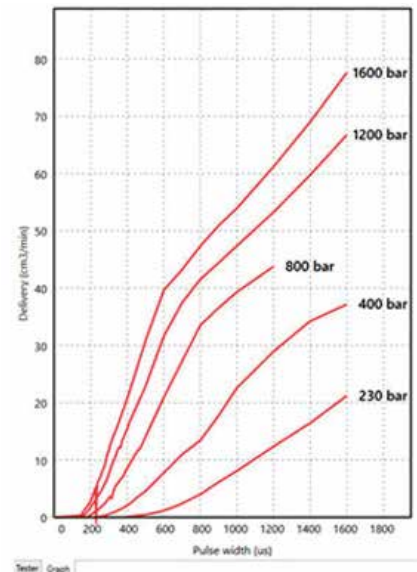
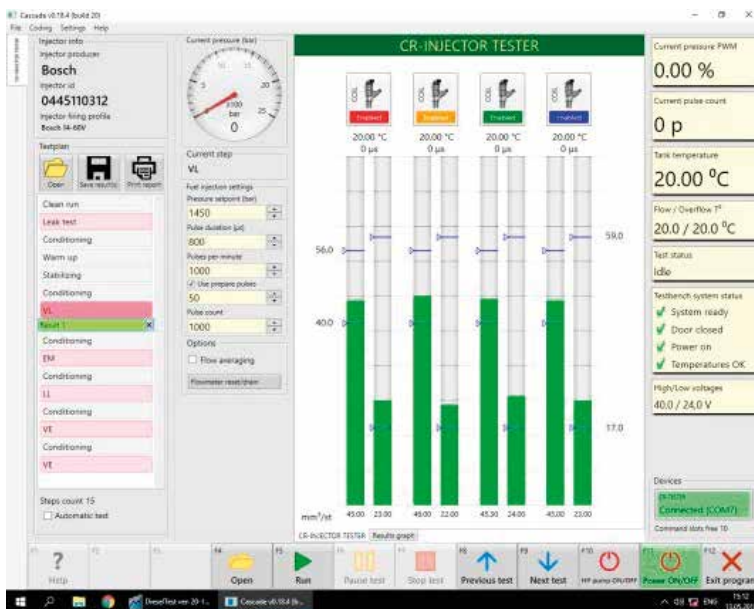


4-channel device for testing and testing Common Rail injectors Bosch, Denso, Delphi, Siemens VDO with a set of cables.

The device has the ability to connect to the FLAGMAN-FLOW beakerless measuring system with the ability to generate correction codes for Delphi C2i / C3i, BOSCH, DENSO injectors

The **CR TESTER. CRT-5040** has the functions of controlling the curtain of the metering unit, stopping the high-pressure pump, measuring and controlling the temperature in the tank, measuring the temperature of the back-tested injectors, measuring the injection start time, etc.

Computer control of the set through the CASCADE software.





### FLAGMAN-FLOW

CR injector dosage measuring unit, 8-channel for CR-TESTER device. CRT-5040

Computer control of the set through the CASCADE software.



### FLAGMAN-FULL

CR injector test kit

The FLAGMAN-FULL complex is intended for testing CommonRail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in an 8-channel FLAGMAN-FLOW system without a beaker. There is a possibility of retrofitting with a hardware-software complex for coding injectors.

Computer control of the set through the CASCADE software.



### FLAGMAN-CODE (FLAGMAN-CODE-L)

CR injector test kit

The FLAGMAN-CODE complex is designed to test common rail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in the 8-channel FLAGMAN-FLOW system without beakers. The complex consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER controller. CRT-5040. The complex is also equipped with a vacuum system for coding Deiphi C2i, C3i injectors. Computer control of the set through the CASCADE software.

The FLAGMAN-CODE-L kit is equipped with equipment for installing injectors on a test bench.



### DL-CR50015

Sensor for coding — *upon additional order*



## FLAGMAN-CODE

CR injector test kit

The FLAGMAN-FULL complex is designed for diagnosing CommonRail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in an 8-channel beakerless FLAGMAN-FLOW system. The complex consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER controller. CRT-5040. The complex is also equipped with a vacuum system for coding Deiphi C2i, C3i injectors. Computer control of the set through the CASCADE software.



### DL-CR50015

Sensor for coding

## Scope of delivery FLAGMAN-CODE

Measurement unit without beaker FLAGMAN-FLOW	1 pc
Controller CR-TESTER. CRT-5040	1 pc
Vacuum system	1 set
Software	1 pc
Passport (technical description, instruction manual)	1 pc
Set of connecting cables for FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Extension cord for injector cables: "Injector" socket -1.5m	1 pc
Adapter cable for injectors	1 set
Adapter cable for high pressure regulators	1 pc
Adapter cable for low pressure regulators	1 pc
Adapter cable for pressure sensor	1 pc
Power cable 220 V	1 pc
Connectors for self-manufacturing of cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Invertor", "Rpm"	1 set
Temperature sensor for monitoring the temperature of the liquid in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the temperature of the TJ backflow	4 pcs
Reed switch for connecting a protective screen: "Protection" socket	1 pc
Fuse 3A	1 pc
Connecting pipelines	1 set
<b>DL-CR50015</b> Injection start measuring sensor (for coding)	1 pc



## FLAGMAN-CODE-L

CR injector test kit

The FLAGMAN-FULL complex is intended for testing common rail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the stand.

The measurement takes place in an 8-channel beakerless FLAGMAN-FLOW system. The complex consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER controller. CRT-5040. The complex is also equipped with a vacuum system for coding Deiphi C2i, C3i injectors. Computer control of the set through the CASCADE software.



**DL-CR50015**

Sensor for coding — *upon additional order*

### Kit of delivery FLAGMAN-CODE-L

Measurement unit without beaker FLAGMAN-FLOW	1 pc
Controller CR-TESTER. CRT-5040	1 pc
Vacuum system	1 set
Software	1 pc
Passport (technical description, instruction manual)	1 pc
Set of connecting cables for FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Extension cord for injector cables: "Injector" socket -1.5m	1 pc
Adapter cable for injectors	1 set
Adapter cable for high pressure regulators	1 pc
Adapter cable for low pressure regulators	1 pc
Adapter cable for pressure sensor	1 pc
Power cable 220 V	1 pc
Connectors for self-manufacturing of cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Invertor", "Rpm"	1 set
Temperature sensor for monitoring the temperature of the liquid in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the temperature of the TJ backflow	4 pcs
Reed switch for connecting a protective screen: "Protection" socket	1 pc
Fuse 3A	1 pc
Connecting pipelines	1 set
<b>DL-CR10015</b> Nozzle holder frame	1 pc
<b>DL-CR10025</b> Injector holder bracket assembly	1 pc
<b>DL-CR10006</b> Protective glass (6mm) or <b>DL-CR10010</b> Protective glass (10mm)	1 pc



## CRISTINA

The **CRistina** complex is designed for assembling injectors of the COMMON RAIL BOSCH, DELPHI, DENSO systems using a technology that allows you to calculate and select all the necessary adjusting elements.

The software and hardware of the complex allows not only to accurately measure the required dimensions, but also to diagnose the state of the injector electromagnet with the measurement of the resistance and inductance of the winding.

The working program of the complex contains a detailed database of mounting dimensions of the most common COMMON RAIL injectors and a complete visualization of the assembly process, which allows you to avoid assembly errors and significantly reduce repair time.

To eliminate errors in measuring dimensions, the design of the CRistina complex allows you to accurately and rigidly base the nozzle body to eliminate the effects of vibration and uncontrolled movement of the measured element relative to the measuring device.

### Equipment options:

- CRISTINA-BASE
- CRISTINA-BASE-F
- CRISTINA-FULL
- CRISTINA-PROF
- CRISTINA-PROF-FULL
- CRISTINA-SPECIAL





## DL-UNI20150 CRISTINA - PIEZO

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

### Device capabilities:

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

### Contents of delivery:

1. Signal generator "CRistina-PIEZO"
2. A set of cables to the signal generator "CRistina-PIEZO"
  - Power cable 220V
  - Main cable for connecting to the piezo package
  - Cable adapter universal
  - Adapter cable with crocodile clips
  - Earthing cable
3. Passport (technical description, operating instructions) 1 pc.

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**



 acoustic testing

**DL-UNI20150A CRISTINA - PIEZO  
ACOUSTIC**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect. The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening/closing control with acoustic test
7. Precise detection of valve opening and closing with an acoustic test

**Contents of delivery:**

1. Signal generator "CRistina-PIEZO"
2. A set of cables to the signal generator "CRistina-PIEZO"
  - Power cable 220V
  - Main cable for connecting to the piezo package
  - Cable adapter universal
  - Adapter cable with crocodile clips
  - Earthing cable
3. Microphone
4. Microphone holder
5. Passport (technical description, operating instructions) 1 pc.

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**



**DL-UNI20050 CRISTINA - PIEZO**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

**DL-CR50157****Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

**Contents of delivery:**

1. Controller CRistina-Piezo
2. The clamp-holder of injectors Piezo ST-04
3. Bracket holder.
4. The air meter.
5. The air filter.
6. The distributive air valve.
7. Reducer for air.
8. The electronic manometer.
9. Set of tubes.
10. Quick coupling 6mm.
11. Set of 2 nozzles for the backflow of the Siemens VDO injectors
12. **DL-CR50157** Set of adapters for measuring of the valve stroke of CR VDO Siemens injector (DL-CR50165 for DL-UNI20050-F)
13. Connector M12x1,5X1/8"

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

*It differs from the DL-UNI20050F set in a less complete set of adapters for injectors.*

**DL-UNI20050F CRISTINA - PIEZO**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.

**DL-CR50165****Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Clamp-holder for injectors Piezo ST-04
3. Bracket holder for equipment.
4. Air meter.
5. Air filter.
6. Air distribution crane.
7. Reducer for air.
8. Electronic manometer.
9. Set of tubes.
10. Coupling of quick connection 6mm.
11. Set of 2 fittings for backflow of Siemens VDO injectors
12. **DL-CR50165** Set of adapters for measuring the stroke of the injector valve CR VDO Siemens
13. Adapter M12x1.5X 1/8 "

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

*It differs from the DL-UNI20050 kit in a more complete set of adapters for injectors.*



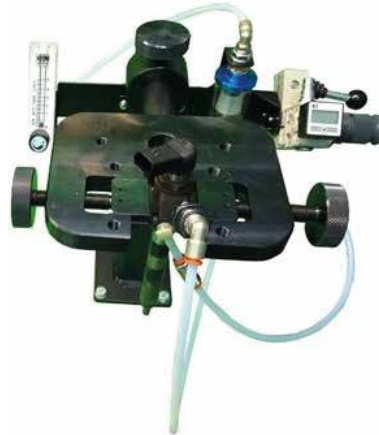
 acoustic testing

**DL-UNI20050A CRISTINA - PIEZO  
ACOUSTIC**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.


**DL-CR50157**
**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening / closing control with acoustic test

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Clamp-holder for injectors Piezo ST-04
3. Bracket holder for equipment.
4. Air meter.
5. Air filter.
6. Air distribution crane.
7. Reducer for air.
8. Electronic manometer.
9. Set of tubes.
10. Coupling of quick connection 6mm.
11. Set of 2 fittings for backflow of Siemens VDO injectors
12. **DL-CR50157** Set of adapters for measuring the stroke of the valve injector CR VDO Siemens
13. Adapter M12x1.5X 1/8 "
14. Microphone
15. Microphone holder
16. Passport

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

*It differs from the **DL-UNI20050F (A)** kit in a less complete set of adapters for injectors.*

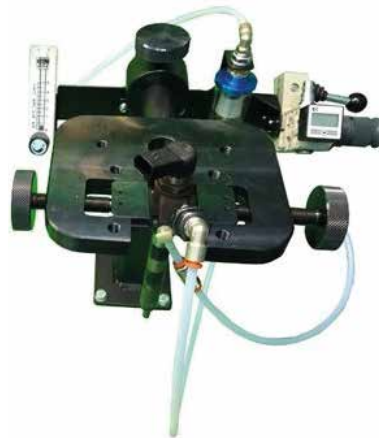
 acoustic testing

**DL-UNI20050FA CRISTINA - PIEZO  
ACOUSTIC**

The device is designed to test piezo injectors and piezo package.

The device confidently determines all the faults of the piezo package. Identifies problems that similar instruments or stands do not detect.

The device was developed for the assembly of Siemens injectors, but it is also efficient with BOSCH injectors.


**DL-CR50165**
**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening / closing control with acoustic test

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Clamp-holder for injectors Piezo ST-04
3. Bracket holder for equipment.
4. Air meter.
5. Air filter.
6. Air distribution crane.
7. Reducer for air.
8. Electronic manometer.
9. Set of tubes.
10. Coupling of quick connection 6mm.
11. Set of 2 fittings for backflow of Siemens VDO injectors
12. **DL-CR50165** Set of adapters for measuring the stroke of the injector valve CR VDO Siemens
13. Adapter M12x1.5X 1/8 "
14. Microphone
15. Microphone holder
16. Passport

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

Differs from **DL-UNI20050 (A)** kit in more complete set of injector adapters

**DL-UNI20051 Комплект с CRistina-PIEZO**

Repair kit for piezo injectors CR Siemens / VDO (without clamp for clamping injectors and acoustic test). The device confidently detects all malfunctions of the piezoelectric package. Identifies problems that similar instruments or benches do not detect.

The device was developed for assembling Siemens injectors, but it is also functional with Bosch injectors.

**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package

**Contents of delivery:**

1. Controller CRistina-Piezo
  2. Bracket holder for equipment.
  3. Air meter.
  4. Air filter.
  5. Air distribution crane.
  6. Reducer for air.
  7. Electronic manometer.
  8. Set of tubes.
  9. Quick coupling 6mm.
  10. Set of 2 fittings for backflow of Siemens VDO injectors
  11. Adapter M12x1.5X 1/8 "
- DL-UNI20051A CRistina-PIEZO kit with acoustic test  
Repair kit for piezo injectors CR Siemens / VDO (without clamp for clamping injectors)

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**

 acoustic testing


## DL-UNI20051A Комплект с CRistina-PIEZO

Repair kit for piezo injectors CR Siemens / VDO (without clamp for clamping injectors with acoustic test). The device is designed to test the piezo injector of the piezo package. The device confidently detects all malfunctions of the piezoelectric package. Identifies problems that similar instruments or benches do not detect.

The device was developed for assembling Siemens injectors, but it is also functional with Bosch injectors.

**Device capabilities:**

1. Signal giving to activate the nozzle on the hand press
2. Measurement of the resistance of the piezo package
3. Breakdown test on the case
4. Measuring the capacity of the piezo package
5. Measurement of the smooth running of the piezo package
6. Valve opening / closing control with acoustic test

**Contents of delivery:**

1. Controller CRistina-Piezo
2. Bracket holder for equipment.
3. Air meter.
4. Air filter.
5. Air distribution crane.
6. Reducer for air.
7. Electronic manometer.
8. Set of tubes.
9. Quick coupling 6mm.
10. Set of 2 fittings for backflow of Siemens VDO injectors
11. Adapter M12x1.5X 1/8 "
12. Microphone
13. Microphone holder
14. Passport

**ATTENTION ! ADDITIONAL EQUIPMENT ARE POSSIBLE TOGETHER WITH THE DEVICE!**



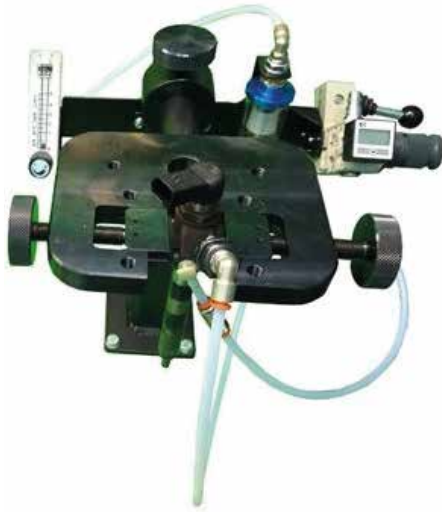
## ADDITIONAL EQUIPMENT FOR CRISTINA-PIEZO

**DL-UNI20054** ACOUSTIC BOARD**Acoustic test kit for CRISTINA - PIEZO****The kit includes:**

1. Microphone in a plastic case
2. Clip for fixing the microphone on the nozzle body
3. Acoustic test board for installation inside the instrument CRISTINA -PIEZO
4. Set of connecting wires
5. Set of racks and bolts for fixing the board
6. Instructions for assembly.



## ADDITIONAL EQUIPMENT FOR CRISTINA-PIEZO

**Contents of delivery:**

1. Clamp-holder of nozzles PiezoST-04
2. Equipment holder bracket.
3. Air meter.
4. Air filter.
5. Air distribution valve.
6. Reducer for air.
7. Electronic pressure gauge.
8. Set of tubes.
9. 6mm quick coupling.
10. Set of 2 fittings (DL-60151/61 and DL-60151/66) for backflow of Siemens injectors
11. Adapter M12x1.5X 1/8"

**DL-UNI20052****Injector repair kit**

**CR Siemens VDO (without CRistina-Piezo controller)**

**Kit features:**

1. Reliable installation and fixation of nozzles
2. Air supply with pressure valve
3. Adjusting the air pressure with a reducer
4. Air filtration from liquid residues in the nozzle
5. Convenient connection with fittings made of delivery set to injector return
6. Valve opening/closing control with using a rotameter

**DL-UNI20053****Injector repair kit**

**CR Siemens VDO (without CRistina-Piezo controller and clamps ST04)**

**Kit features:**

1. Air supply with push valve
2. Adjustment of air pressure by a reducer
3. Air filtration from liquid residues in the nozzle
4. Convenient connection with fittings from the kit supplies to the return nozzle
5. Valve opening/closing control with rotameter

**Contents of delivery:**

1. Equipment holder bracket.
2. Air meter.
3. Air filter.
4. Air distribution valve.
5. Reducer for air.
6. Electronic pressure gauge.
7. Set of tubes.
8. 6mm quick coupling.
9. A set of 2 fittings (DL-60151/61 and DL-60151/66) for backflow of Siemens injectors
10. Adapter M12x1.5X 1/8"

## ADDITIONAL EQUIPMENT FOR CRISTINA-PIEZO

**DL-CR50165**

**Set of adapters with indicator head  
for measuring the stroke of the CR VDO injector valve  
Siemens all types**

**Contents of delivery:**

1. **DL-CR31079** Adapter for measuring the parameters of the piezo injector package of a new type M25x1
2. **DL-CR31179** Adapter for measuring the parameters of the piezo injectors of the old type M27x1
3. **DL-CR31080** Adapter housing for measuring the stroke of the injector valve
4. **DL-CR31081** Nut to the body of the adapter for measuring the stroke of the injector valve of the new type M25x1
5. **DL-CR31178** Nut to the body of the adapter for measuring the stroke of the injector valve of the new type M27x1
6. **D-7153136** Hex key 2mm
7. **DL-KIP002** Indicator measuring head mechanical 0.001mm stroke 5mm
8. **DL-CR31177** Measuring probe
9. Organizer

**DL-CR50157**

**Set of adapters with indicator head for  
measuring the parameters of the CR VDO Siemens injector.**

**Contents of delivery:**

1. **DL-CR31079** Adapter for testing the piezo package.
2. **DL-CR50147** Adapter (body with nut) for measuring valve travel.
3. **DL-KIP002** Indicator measuring mechanical head with an accuracy of 0.001 mm, stroke 5 mm
4. **D-7153136** Hex key 2mm
5. **DL-CR31177** Measuring probe
6. Organizer

**DL-CR30545**

**Wrench for mounting / dismantling the multiplier nut  
SIEMENS injectors**

**DL-CR50163**

Wrench 25mm for mounting/dismantling the piezo package of CR VDO Siemens injectors.  
Landing dimensions of the key: a) hexagon for piezo package 25mm  
b) 1/2" square for torque wrench

**DL-CR50164**

Wrench 27mm for mounting/dismantling the piezo package of CR VDO Siemens injectors.  
Landing dimensions of the key: a) hexagon for piezo package 27mm  
b) 1/2" square for torque wrench

## CR-ACTIVE

The **CR-Active** signal activator is designed to supply a control signal to the solenoid valve of Common-Rail injectors. It is used to measure the valve stroke when measuring the magnetic gap of electromagnetic Common-Rail injectors.



### The base package includes:

- Signal generator "CR-ACTIVE" - 1 pc.
- Power cable (2.1) 220V – 1 pc.
- Main cable (2.2) for connection to the electromagnet – 1 pc.
- Adapter cable (2.3) for light injector – 1 pc.
- Adapter cable (2.4) for cargo injector – 1 pc.
- Passport (technical description, operating instructions) - 1 pc.

**CR-ACTIVE****EQUIPMENT AND CHARACTERISTICS****The complete package includes:**

- Signal generator "CR-ACTIVE" - 1 pc.
- Power cable (2.1) 220V – 1 pc.
- Main cable (2.2) for connection to the electromagnet – 1 pc.
- Adapter cable (2.3) for light injector – 1 pc.
- Adapter cable (2.4) for cargo injector – 1 pc.
- Stand for injectors – 1 pc.
- Set of measuring probes. - 1 set
- Set of 4 adapters for measuring force parameters. - 1 PC.
- Measuring indicator head – 1 pc.
- Passport (technical description, operating instructions) - 1 pc.

**Main technical data and characteristics:**

Supply voltage	~220 V ±15%
Power consumption	up to 150 W
Four levels of current control signal	
Control signal duration	1.5 sec
Number of operations per minute	no more than 12
Short circuit protection	
Activator dimensions (depth x width x height) mm	240x230x72
Device weight	net 4kg
Weight of the complete set	net 9kg

## CR-NeXT

**CR-NeXT** – Armature activator device for Common-Rail injector solenoid valve

The CR-NeXT device is designed to supply a control signal to the solenoid valve of Common-Rail injectors. It is mainly used to measure the valve stroke when measuring the magnetic gap of common-rail solenoid injectors.



### Contents of delivery:

- CR-NeXT device – 1 pc.
- Power cable 220 V – 1 pc.
- Universal cable for connection to the injector – 1 pc.
- Extension cable – 1 pc
- Cable with crocodile clips – 1 pc.





### DL-RLC41R

Instrument for measuring capacitance of piezo packs nozzles.

#### Contents of delivery:

- LRC Meter 41R
- Set of test leads
- Communication cable
- Software CD
- Battery



## PUMP TEST.02

### Common-Rail High Pressure Pump Testing Equipment



#### The kit includes:

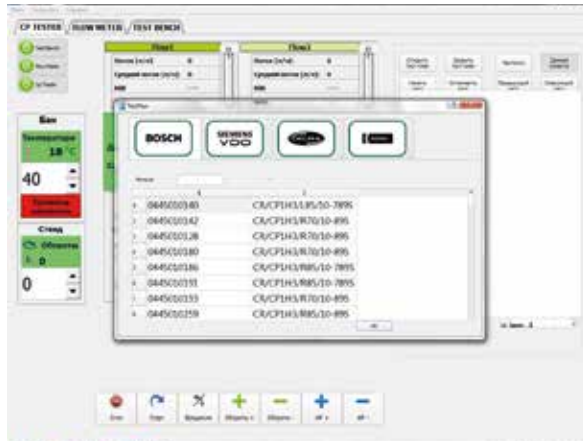
1. The **PTC-2520** device is designed to provide user-programmable control signals to Common Rail injection pump pressure regulators to test their performance.
2. Device **FMDE-520**, designed to measure the performance of the Common Rail injection pump in two channels.
3. Tool rack on wheels for easy operation.
4. A set of adapter cables.
5. Liquid fine filters (2 pcs.)
6. Software.





### PTC-2520 CP TESTER

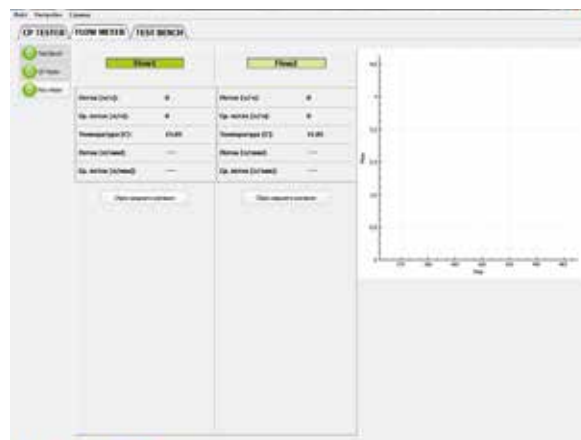
Device for testing and testing high-pressure fuel pumps of the Common Rail system with a set of cables.



### FMDE-520

Device for testing the performance of fuel pumps of the Common Rail system of various manufacturers: Bosch, Delphi, Denso, Siemens, Cummins on a test bench.

It is a 2-channel liquid flow meter (pump supply and return discharge) in various modes, with digital information output to a backlit liquid crystal display.



## UIS-TESTER 2

The **UIS TESTER Multi-CAM** device is designed to test and verify the performance of unit injectors (UIS - Unit Injector System) and individual high pressure fuel pumps with high pressure solenoid valves (UPS - Unit Pump System).

Using the **UIS TESTER Multi-CAM** device, you can measure the response time of an electric valve, the device also has the ability to automatically control the electric drive of the measuring unit, and additional options for self-updating the firmware and adapting to various CAMBOX versions.

**The UIS TESTER Multi-CAM device allows you to:**

- Set high pressure solenoid valve control signal;
- Measure the rotational speed of the pressure cam drive shaft;
- Set the required number of cycles;
- Preset mode, for 5 solenoid valve control modes;
- Set any value of the solenoid valve actuation advance angle.



**Contents of delivery:**

- Instrument UIS TESTER Multi-CAM;
- Software with BOSCH test plans;
- Speed sensor; power cable;
- Adapter cable for connecting the speed sensor;
- Adapter cable for connecting BOSCH injectors 1 type;
- Cable-adapter for connecting injectors BOSCH 2type;
- Adapter cable for connecting DELPHI injectors;
- Universal adapter cable for injectors;
- Limit switch (reed switch) for protective fencing at the stand;
- Connector for curtain control cable.





### DL-UNI20001 PR-INDICATOR

Electronic pressure gauge for hand press (instead of regular).  
Thread for the sensor in the indicator leg M12x1.5.

**Contents of delivery:**

- Electronic pressure gauge with cable for 1500 bar pressure sensor – 1 pc.
  - Charger for manometer accumulator – 1 pc.
- NB! The pressure sensor is not included in the scope of delivery.



### DL-UNI20002 PR-INDICATOR

Electronic pressure gauge with pressure sensor for 1500 bar for a hand press (instead of the regular one).

**Contents of delivery:**

- Electronic pressure gauge with cable for 1500 bar pressure sensor – 1 pc.
- Charger for manometer accumulator – 1 piece,
- Pressure sensor for 1500 bar - 1 pc.



**DL-RP410** (without pressure sensor)

**DL-RP415** (with pressure sensor. 1500 bar)

### Hand press RP 400 for injector testing with electronic pressure gauge

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 415**) for 1500 bar – 1 pc.



**DL-RP510** (without pressure sensor)

**DL-RP515** (with pressure sensor. 1500 bar)

### ZECA hand press for injector testing with electronic pressure gauge

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 515**) for 1500 bar – 1 pc.





DL-UNI20065

**PR-TESTER.V05**

Electronic pressure gauge complete with charger device. Electronic pressure gauge included with charger



DL-UNI20077

adapter cable for pressure sensor BOSCH 1500 bar



DL-UNI21030

mounting bracket electronic manometer



DL-UNI30237

Pressure gauge leg (fitting) G1/2 with nut M12 x 1.25 mm

DL-UNI30445

Manometer leg (fitting) M20 x 1.5mm with nut M12 x 1.25 mm



DL-CR10058

DL-CR10059

Pressure sensor 1500 bar

DL-CR10060

**DL-UNI20065 PR-TESTER.V05**

Electronic pressure gauge suitable for hand presses:



DL-RP420

(without pressure sensor)

DL-RP425

(with pressure sensor. 1500 bar)

**Hand press RP 400 for injector testing with electronic pressure gauge DL-UNI20065**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 425**) for 1500 bar – 1 pc.



DL-RP520

(without pressure sensor)

DL-RP525

(with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with electronic pressure gauge DL-UNI20065**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 525**) for 1500 bar – 1 pc.

**PR-TESTER.V05**Electronic pressure gauge  
2 channel**DL-UNI20061****Delivery set for measurement  
pressure on 2 CHANNELS:**

1. **DL-UNI20065** Electronic pressure gauge
2. **DL-UNI20071** Main adapter cable for 2-channel connection - 1 pc.
3. **DL-UNI20072** Adapter cable for pressure sensor BOSCH type 1 – 2 pcs.
4. **DL-UNI20073** Adapter cable for pressure sensor BOSCH 2 type – 2 pcs.
5. **DL-UNI20074** DELPHI pressure sensor adapter cable – 2 pcs.
6. **DL-UNI20075** Adapter cable for universal for pressure sensor - 2 pcs.
7. Charger
8. The passport

**PR-TESTER.V05**Electronic pressure gauge  
2 channel**DL-UNI20060****Delivery set for measurement  
pressure on 1 CHANNEL:**

1. **DL-UNI20065** Electronic pressure gauge
2. **DL-UNI20070** Main adapter cable for single-channel connection – 1 pc.
3. **DL-UNI20072** Adapter cable for pressure sensor BOSCH type 1 – 1 pc.
4. **DL-UNI20073** BOSCH pressure sensor adapter cable 2 type – 1 pc.
5. **DL-UNI20074** DELPHI pressure sensor adapter cable – 1 pc.
6. **DL-UNI20075** Universal adapter cable for pressure sensor - 1 pc.
7. Charger
8. The passport



## PR-TESTER.V03

Instrument for measuring fuel pressure in CR systems, FSI and measurement of air pressure and vacuum in pneumatic systems.

### Contents of delivery:

- Pressure measuring device - 1 pc.
- **DL-UNI20072** Sensor adapter cable pressure BOSCH 1 type - 1 pc.
- **DL-UNI20075** Universal adapter cable for pressure sensor - 1 pc.
- Charger
- Passport / instruction manual / warranty card

Additional adapter cables

(not included in the main set):

**DL-UNI20073** Adapter cable for pressure sensor BOSCH 2 type

**DL-UNI20074** Adapter cable for pressure sensor DELPHI



## DT-SCOPE

Oscilloscope attachment for measurement of the pressure value in the CommonRail system

**DL-UNI20009**

CR test kit

**Contents of delivery:**

<b>DL-UNI30744</b>	Tee – 1pc
<b>DL-CR10050</b>	Pressure sensor 1800 bar – 1 pc or <b>DL-CR10061</b> , <b>DL-CR10065</b>
<b>DL-TVD31414</b>	HP tube 14x14x300 – 1 pc
<b>DL-TVD31214</b>	HP tube 12x14x300 – 1 pc
<b>DL-UNI30218</b>	Fittings 14x14 – 2 pcs
<b>DL-UNI31498</b>	Fitting 12x14 – 1 pc
<b>DL-UNI30529</b>	Plug M14x1,5 – 1 pc
<b>DL-UNI30636</b>	Plug M12x1,5 – 1 pc

**DL-CR50310KIT**

Adapter assembly for diagnostics of the fuel system

**Contents of delivery:**

<b>DL-CR31557</b>	Adapter housing - 1 pc.
<b>DL-CR10056</b>	Safety valve 1800 bar - 1 pc
<b>DL-CR10050</b>	Pressure sensor 1800 bar - 1 pc
<b>DL-UNI30218</b>	High pressure fitting M14(1,5)xM14(1,5) in a set with a washer - gasket DL-SHP15084 – 1 pc.
<b>34-RL3106M5</b>	L-shaped "fast" adapter - 1 pc
<b>DL-P1002</b>	PVC tube with a diameter of 4 mm - 30 cm



**DL-UNI20006**

CR test kit

**Contents of delivery:**

<b>DL-UNI20005</b>	PR-tester (electronic pressure gauge) - 1 pc.
<b>DL-CR10050</b>	Pressure sensor 1800 bar - 1 pc. or <b>DL-CR10061, DL-CR10065</b>
<b>DL-UNI30744</b>	Tee (for connecting a pressure sensor and HP tubes) - 1 pc
<b>DL-UNI30218</b>	Fittings 14x14 – 2 pcs
<b>DL-UNI31498</b>	Fitting 12x14 – 1 pc
<b>DL-TVD31414</b>	HP tube 14x14x300 – 1pc
<b>DL-TVD31214</b>	HP tube 12x14x300 – 1 pc
<b>DL-UNI30529</b>	Plug M14x1,5 – 1 pc
<b>DL-UNI30636</b>	Plug M12x1,5 – 1 pc

**DL-UNI20007**

CR test kit

**Contents of delivery:**

<b>DL-UNI20005</b>	PR-tester (electronic manometer) – 1pc		
<b>DL-CR10050</b>	Pressure sensor 1800 bar – 1 pc or DL-CR10061, DL-CR10065		
<b>DL-UNI30744</b>	Tee (for connecting the pressure sensor and HP tube) – 1pc		
<b>DL-UNI30218</b>	Fittings 14x14 – 2 pcs	<b>DL-UNI31498</b>	Fitting 12x14 – 1 шт.
<b>DL-TVD31414</b>	HP tube 14x14x300 – 1 pc	<b>DL-TVD31214</b>	HP tube 12x14x300 – 1 pc
<b>DL-UNI30529</b>	Plug M14x1,5 – 1 pc	<b>DL-UNI30636</b>	Plug M12x1,5 – 1 pc
<b>DL-12CRM</b>	Backflow test flask set (only for <b>DL-UNI20007</b> )		
<b>DL-24CRM</b>	Backflow test adapter kit (only for <b>DL-UNI20007</b> )		





### DL-UNI30287

Adapter with internal thread G1/2" for pressure gauge at 2000 bar. Has a connection M14x1.5mm thread with 60° cone for tube high pressure (HPT)

**Contents of delivery:**  
adapter - 1 pc.



### DL-UNI30508

Adapter with internal thread M20x1.5mm for pressure gauge at 2500 bar. Has a connecting M14x1.5mm thread with 60° cone for tube high pressure (HPT).

**Contents of delivery:**  
adapter - 1 pc.



### DL-SM

Gasket for pressure gauge



### DL-CR14P2000

Pressure gauge 2000 bar



### DL-CR14P2500

Pressure gauge 2500 bar



### DL-CR50246

**Manometer mounting bracket.**

Made in the form of a hook and gauge holder brackets.

Used with pressure gauges of the series D-12-TV63

**DL-KM2000**

**Pressure gauge bracket for 2000bar.  
For rail DL-CR30181 and DL-CR30522**

**Contents of delivery:**

- bracket
- clamping bar
- M6x60 bolt, nuts, washers - 2 sets
- M6x45 bolt, washers - 2 sets

**DL-KM3000**

**Pressure gauge bracket 2000bar  
for installation on a stand plate.**

**Contents of delivery:**

- bracket
- Profile bolt with nut, washer and grommet
- clamping bar
- M6X60mm bolt with nut, washer and grommet – 2 sets

**DL-KM2500**

**Pressure gauge bracket for 2500bar.  
For rail DL-CR30181 and DL-CR30522**

**Contents of delivery:**

- main bracket
- pressure gauge mounting ring
- M6x45 bolt, washers - 2 sets
- M6x30 bolt, washers - 2 sets
- M6x10mm bolt - 3 pcs.

**DL-KM3500**

**Pressure gauge bracket 2500bar  
for installation on a stand plate**

**Contents of delivery:**

- main bracket
- pressure gauge mounting ring
- Profile bolt with nut, washer and grommet
- M6 x30mm bolt with washer and grommet – 2 sets
- M6x10mm bolt - 3 pcs.

## Anti-vibration pressure gauges with glycerin D-12-TG63 and D-12TV63 series

**D-12-TG63-1-0**

Pressure gauge for vacuum from -1-0 bar Ø63  
back 1/4" flange type

**D-12-TG63-1-3**

Vacuum pressure gauge from -1-3bar Ø63  
back 1/4" flange type

**D-12-TG63-01**

Manometer for 0÷1 bar, Ø63  
back 1/4" flange type

**D-12-TG63-02,5**

Manometer for 0÷2.5 bar, Ø63  
back 1/4" flange type

**D-12-TG63-004**

Manometer for 0÷4 bar, Ø63  
back 1/4" flange type

**D-12-TG63-006**

Manometer for 0÷6 bar, Ø63  
back 1/4" flange type

**D-12-TG63-010**

Manometer for 0÷10 bar, Ø63  
back 1/4" flange type

**D-12-TG63-016**

Manometer for 0÷16 bar, Ø63  
back 1/4" flange type

**D-12-TG63-025**

Manometer for 0÷25 bar, Ø63  
back 1/4" flange type

**D-12-TG63-040**

Manometer for 0÷40 bar, Ø63  
back 1/4" flange type

**D-12-TG63-060**

Manometer for 0÷60 bar, Ø63  
back 1/4" flange type

## Anti-vibration pressure gauges with glycerin D-12-TG63 and D-12TV63 series

**D-12-TV63-1-0**

Vacuum gauge from  $-1-0$ bar  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-1-3**

Vacuum pressure gauge from  $-1-3$ bar  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-01**

Manometer for  $0+1$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-02,5**

Manometer for  $0+2.5$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-004**

Manometer for  $0+4$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-006**

Manometer for  $0+6$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-010**

Manometer for  $0+10$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-016**

Manometer for  $0+16$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-025**

Manometer for  $0+25$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-040**

Manometer for  $0+40$  bar,  $\varnothing 63$   
with fitting from below 1/4"

**D-12-TV63-060**

Manometer for  $0+60$  bar,  $\varnothing 63$   
with fitting from below 1/4"

## Anti-vibration pressure gauges with glycerin of the D-12-TG100 and D-12TV100 series

**D-12-TG100-1-0**

Vacuum gauge, Ø100 mm with connector at the back  
-1 to 0 bar / -0.10 to 0 MPa

**D-12-TG100-02,5**

Pressure gauge, Ø100 mm with 1/2" rear connection  
0 to 2.5 bar / 0 to 0.25 MPa

**D-12-TG100-004**

Pressure gauge, Ø100 mm with 1/2" rear connection  
0 to 4 bar / 0 to 0.4 MPa

**D-12-TG100-016**

Pressure gauge, Ø100 mm with 1/2" rear connection  
0 to 16 bar / 0 to 1.6 MPa

**D-12-TG100-040**

Pressure gauge, Ø100 mm with 1/2" rear connection  
0 to 40 bar / 0 to 4 MPa

**D-12-TV100-1-0**

Vacuum gauge, Ø100 mm with bottom fitting 1/2"  
-1 to 0 bar / -0.10 to 0 MPa

**D-12-TV100-02,5**

Pressure gauge, Ø100 mm with 1/2" bottom connection  
0 to 2.5 bar / 0 to 0.25 MPa

**D-12-TV100-004**

Pressure gauge, Ø100 mm with 1/2" bottom connection  
0 to 4 bar / 0 to 0.4 MPa

**D-12-TV100-016**

Pressure gauge, Ø100 mm with 1/2" bottom connection  
0 to 16 bar / 0 to 1.6 MPa

**D-12-TV100-040**

Pressure gauge, Ø100 mm with 1/2" bottom connection  
0 to 40 bar / 0 to 4 MPa



**DL-KIP0001****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 10mm
- Resolution - 0.01 mm
- Repeatability - 0.01 mm

**DL-KIP0002****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 5 mm
- Resolution - 0.001 mm
- Repeatability - 0.001 mm

**DL-KIP0003****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 5 mm
- Resolution - 0.01 mm
- Repeatability - 0.02 mm

**DL-KIP0004****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 10 mm
- Resolution - 0.01 mm
- Repeatability - 0.02 mm

**DL-KIP0005****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 20 mm
- Resolution - 0.01 mm
- Repeatability - 0.03 mm

**DL-KIP0006****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 30mm
- Resolution - 0.01 mm
- Repeatability - 0.03 mm

**DL-KIP0007****Mechanical dial gauge****Characteristics :**

- Type - mechanical
- Stroke - 50 mm
- Resolution - 0.01 mm
- Repeatability - 0.04 mm

**DL-KIP0008****Indicator measuring head****Characteristics :**

- Type - mechanical
- Stroke - 25 mm
- Resolution - 0.01 mm
- Repeatability - 0.02 mm

**DL-KIP0010****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.01 mm
- Repeatability - 0.01 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0011****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0012****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0015 Limit****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.5 mm
- Resolution - 0.01 mm
- Repeatability - 0.03 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0016 Limit****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.5 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0019 TESA****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.01 mm
- Repeatability - 0.01 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0020 TESA****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0021 TESA****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0023 Dieselland****Measuring communication key  
PC heads****DL-KIP0025 Eee****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0026 Eee****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0028 Eee****Measuring communication key  
PC heads**

**DL-KIP0029 SHAHE****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown
- Communication with a PC using a COM port (cable included)

**DL-KIP030 SHAHE****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 12.7mm
- Resolution - 0.001 mm
- Repeatability - 0.002 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0031 SHAHE****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 25 mm
- Resolution - 0.001 mm
- Repeatability - 0.004 mm
- Sleeve - 8 mm
- Automatic shutdown

**DL-KIP0032 Eee****Indicator measuring head****Characteristics :**

- Type - electronic
- Stroke - 50 mm
- Resolution - 0.001 mm
- Repeatability - 0.005 mm
- Sleeve - 8 mm
- Automatic shutdown



**DL-KIP0034**

**Indicator digital measuring head with an accuracy of 0.01 mm, stroke 12.5 mm**

**Characteristics :**

- Type - electronic
- Resolution - 0.01mm
- Accuracy - 0.01mm
- Large, high contrast LCD display
- Carbide tip, thread - M2.5
- Sleeve - 8mm
- Automatic shutdown
- Case Ø – 60mm

**DL-KIP0035**

**Indicator digital measuring head with an accuracy of 0.001 mm, stroke 12.5 mm**

**Characteristics :**

- Type - electronic
- Measuring range - 12.7mm
- Resolution - 0.001mm
- Accuracy - 0.002mm
- Large, high contrast LCD display
- Carbide tip, thread - M2.5
- Sleeve - 8mm
- Automatic shutdown
- Case Ø – 60mm

**DL-KIP0036**

**Indicator digital measuring head with an accuracy of 0.001 mm, stroke 25mm**

**Characteristics :**

- Type - electronic
- Measuring range - 25.4mm
- Resolution - 0.001mm
- Accuracy - 0.004mm
- Large, high contrast LCD display
- Carbide tip, thread - M2.5
- Sleeve - 8mm
- Automatic shutdown
- Case Ø – 60mm

**DL-KIP0037**

**Digital thickness gauge 0-12.7 mm, 0.001 mm**

**Characteristics :**

- Measuring range - 0-12.7 mm
- Resolution - 0.001 mm
- LCD display
- Automatic shutdown
- Case Ø – 57 mm

**DL-KIP0250****Magnetic stand for mounting indicator measuring head**

The stand base has high magnetic properties, which allows installation both on horizontal as well as vertical surfaces.

**ATTENTION!**

*The measuring head is not included in the scope of delivery!*

**DL-KIP0251****Magnetic stand for mounting indicator measuring head**

The stand base has high magnetic properties, which allows installation both on horizontal as well as vertical surfaces.

**ATTENTION!**

*The measuring head is not included in the scope of delivery!*

**DL-CVC525**

**Digital internal caliper**  
5-25mm / 0.005mm

Measuring range 5-25 mm  
Measurement accuracy 0.005 mm

**DL-STC150**

**digital caliper**

**DL-M030**

*(limited quantity)*  
**Digital micrometer**

Measuring range 0-25mm  
Measurement accuracy 0.001mm

**DL-M035**

**Digital micrometer**

Measuring range 0-25mm  
Measurement accuracy 0.001mm

**DL-M040**

**D-SDM**  
**tripod for digital**  
**micrometer**

**D-DMTS-KIT**

*(limited quantity)*  
**Kit DL-030 with DL-040.**  
**Tripod and digital micrometer**

**DL-UNI50062**

**Measurement adapter compression in diesel engines (M12x1.5; stem L=175 mm).**

Installed in place of the injector.

*The pressure sensor is not included.*

**DL-UNI20008**

**Compression test kit in diesel engines.**

**Kit includes:**

- adapter **DL-UNI50062** – 1 pc.
- Pr-tester - 1pc;
- cable for pressure sensor – 1 pc.

The pressure sensor is not included.

*\*Appearance and scope of delivery subject to change to improve equipment performance*

**DL-UNI20000**

**Compression test kit in diesel engines.**

**Kit includes:**

- adapter **DL-UNI50062** – 1 pc.
- Pr-tester - 1pc;
- cable for pressure sensor – 1 pc.
- pressure sensor up to 150 bar or 200 bar

**DL-CR10045**

**Pressure sensor 150 bar for the compressor DL-UNI20008**

**DL-CR10046**

**Pressure sensor 250 bar for the compressor DL-UNI20008**

**DL-PR363**

**Compressor kit for diesel engines**

**The kit includes:**

- Recording compressograph — 1 pc,
- Instruction — 1 pc,
- Quick — release adapter M14x1.5 - 1 pc,
- Adapter M14x1.5 — 1 pc,
- Adapter M12x1.5 — 1 pc,
- Spare cards — 1 k-t,
- Case — 1 pc.

**DL-WT04A3021**

**Fuel pressure measuring kit in the low pressure line in diesel and gasoline engines.**

Measuring range 0-140 psi (0-10 bar)



**D-07147122**

Torque wrench 1/2"  
25-100 Nm



**D-07147121**

Torque wrench 3/8"



**D-07147120**

Torque wrench 1/4"  
0-20 Nm



**DL-UNI30776**

Adapter with 1/4" internal square  
and outer square 1/2"



**DL-UNI31593**

Adapter with vnutr. 3/8" square  
and outer square 1/2"



**DL-RP400****Manual press for injector testing with mechanical pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube – 2 pcs.

**DL-RP410** (without pressure sensor)**DL-RP415** (with pressure sensor. 1500 bar)**Manual press for injector testing with electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 415**) for 1500 bar – 1 pc.

**DL-RP420** (without pressure sensor)**DL-RP425** (with pressure sensor. 1500 bar)**Manual press for injector testing with 2-channel electronic pressure gauge****Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 425**) for 1500 bar – 1 pc.

**DL-RP430****Manufacturer - ZECA (Italy)  
Flame test chamber (aspirator)  
nozzle spray**

Allows for visual inspection performance of diesel injectors without harm to health. The device is going to work liquid for reuse.

**DL-RP500**

**Manufacturer - ZECA (Italy)**  
**Manual press for injector testing with mechanical pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- mechanical pressure gauge - 1 pc.
- connecting tube – 2 pcs.



**DL-RP510** (without pressure sensor)

**DL-RP515** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 515**) for 1500 bar – 1 pc.



**DL-RP520** (without pressure sensor)

**DL-RP525** (with pressure sensor. 1500 bar)

**ZECA hand press for injector testing with 2-channel electronic pressure gauge**

**Contents of delivery:**

- mechanical press - 1 pc.
- connecting tube – 2 pcs.
- electronic pressure gauge with cable - 1 pc.
- battery charger - 1 pc.
- pressure sensor (for **RP 525**) for 1500 bar – 1 pc.

**DL-CRN50113**

Set of goniometers to control the tightening of the atomizer nut

**Contents of delivery:****DL-CRN50107****Protractor for injectors with nut diameter atomizer 17 mm**

Angle range: 0° - 360°

**DL-CRN50110****Protractor for injectors with diameter atomizer nuts 19 mm**

Angle range: 0° - 360°

**DL-CRN50108****Protractor for injectors with diameter atomizer nuts 21 mm**

Angle range: 0° - 360°

*All goniometers are for sale also separately.*

**DL-UNF20113**

Liquid fine filter with 3 µm housing  
for stands TRIUMF, CR-TEST, SPF, CR-JET, SPN(U), DORPAT

**DL-UNF20103**

3 micron liquid fine filter  
for stands TRIUMF, CR-TEST, SPF, CR-JET, SPN(U), DORPAT

**DL-UNF20105**

5 micron liquid fine filter  
for stands TRIUMF, CR-TEST, SPF, CR-JET, SPN(U), DORPAT

**DL-UNF20110**

10 micron liquid fine filter  
for stands TRIUMF, CR-TEST, SPF, CR-JET, SPN(U), DORPAT

**DL-UNF20210**

Liquid fine filter (long body) 10 µm  
for DORPAT stands

**DL-UNF20124**

3 micron liquid fine filter  
for stands CRUIS, CR-JAS, CR-iXE

**DL-UNF24020**

Liquid filter  
for stand TRIUMF, CRUIS, CR-JET (draining from the desktop)

**DL-UNI50214**

**Filter housing** with G3/4" connection thread  
It has an inlet and outlet opening with G1/2" threads.  
Suitable for **DL-UNF20113**, **DL-UNF20110**, **DL-UNF20103**,  
**DL-UNF20210**

**DL-UNI50215**

**Housing for filters** with M16x1.5 mm connection thread.  
It has inlet and outlet hole with G1/2" threads.  
Suitable for **DL-UNF20124**.

**DL-UNI50338**

**Housing for filters** with connecting thread M16x1.5mm  
and fitting 3/4" **DL-UNI30741**.  
Fitting 16.5 x 16.5 **DL-UNI30520** can also be installed  
The body has an inlet and outlet with M14 threads.

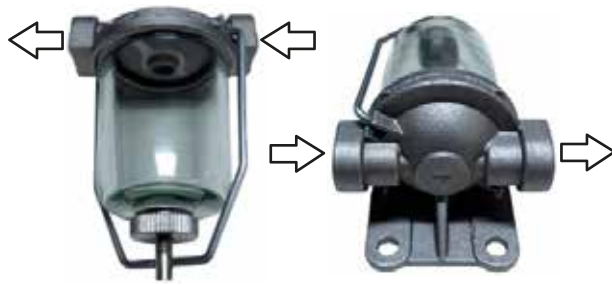
**DL-UNI50339**

**Filter housing** with connecting thread M16.5 x 16.5  
**DL-UNI30520**  
Fitting 16.5 x 3/4" **DL-UNI30741** can also be installed  
The body has an inlet and outlet with M14 threads.

**DL-UNI31662**

**Housing for filters** with connecting thread M16x1.5mm.  
Has inlet and outlet with M14 threads.

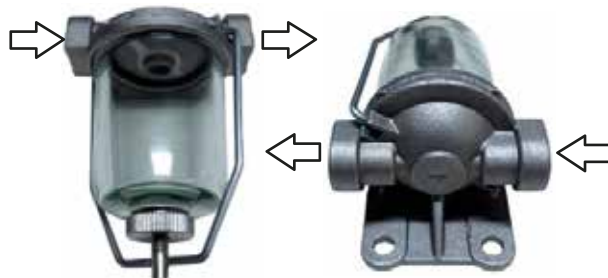




### DL-UNF20300R

Filter - sump (entrance on the right)  
The filter contains:

1. Holes for entry and exit M14x1.5mm
2. Mounting holes Ø 8mm



### DL-UNF20300L

Filter - sump (entrance on the left)  
The filter contains:

1. Holes for entry and exit M14x1.5mm
2. Mounting holes Ø 8mm



### DL-CR30051

15 micron liquid filter  
with 1/8" outlets



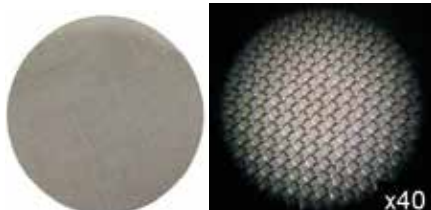
### DL-UNI50126

15 micron liquid filter  
with 3/8" outlets



### DL-UNI50047

15 micron liquid filter  
with fittings (herringbone) 10 mm



### DL-SDF0410

Mesh 15 µm for filters  
DL-UNI5026, DL-UNI50047, DL-CR30051

**DL-UNI30828**

**Adapter with Bosch high pressure filter for testing pumps CP1, CP2, CP3, CP4.**

Used with pressure accumulators (rail)  
DL-CR31083, DL-CR30181 and DL-CR30522.  
Installed in any convenient place on the rail.

**The adapter has threaded holes:**

- for a filter with a special fitting M18x1.5 (1 hole)
- for liquid supply M14x1.5 (2 holes at the top)
- for connecting a pressure sensor M18x1.5 (1 hole)
- for connecting a safety valve M20x1.5 (1 hole)
- to relieve pressure if it exceeds M5 (1 hole)

**Contents of delivery:**

1. adapter – 1 pc.
2. high pressure filter DL-UNF21100 – 1 pc.
3. cone fitting for high pressure filter M14xM18 – 1 pc.
4. fitting M14x1.5 – 2 pcs.
5. sealing washer – 3 pcs.
6. plug M14x1.5 – 1 pc.
7. fitting Ø 6mm x M5.

**DL-CR50121**

**Adapter for high pressure filter DL-UNF2110**

**Mounted instead of a conventional fitting in a pressure accumulator (Rail)**

**DL-CR30479, DL-CR30180, DL-CR30181, DL-CR30188, DL-CR30522, DL-CR30526.**

**Contents of delivery:**

Adapter DL-CR30834 M14x1.5 ("Male") x M18x1.5 ("Mother") - 1 pc.  
Adapter body with M14x1.5 thread - 1 pc.

**ATTENTION! High pressure filter BOSCH DL-UNF2110 not included in the delivery set and must be ordered separately!**

**DL-UNF2110**

**High pressure filter for pressure accumulators (Rail)**

DL-CR30479, DL-CR30180, DL-CR30181, DL-CR30188, DL-CR30522, DL-CR30526

Can also be used with adapter DL-CR50121

**DL-SRS020****Calibration fluid SRS**

ISO 4113-CV-AW (VS 15665-OL-CV),  
canister 20 liters.

Used in test benches for  
testing of CR injectors, unit injectors  
PLD sections.

**CRS Calibrol****Calibration fluid for diesel fuel  
equipment**

The CRS Calibrol calibration fluid (20 litre plastic  
canister container) is a test oil for testing injectors and  
pumps of diesel fuel equipment.

**CRS Calibrol** is a low viscosity working oil for  
calibration with a very tight viscosity tolerance.  
It is distinguished by an exceptional level of protection  
against wear and corrosion, as well as a low tendency  
to foaming.

**DL-SRS200****Calibration fluid SRS**

ISO 4113-CV-AW (VS 15665-OL-CV),  
Barrel 200 liters.

Used in test benches for  
testing of CR injectors, unit injectors  
PLD sections.

**DL-PLP125**

**Plafond lighting for stands**  
**TRIUMF / CRUIS / CR-Test / DORPAT / CR-Jet**

**Specifications:**

Overall dimension	145x145 mm
Mounting hole size	125x125 mm
Power	9 W
Voltage	24 V

Supplied complete with power supply.

**DL-PLP135**

**Plafond lighting for stands**  
**TRIUMF / CRUIS / CR-Test / DORPAT / CR-Jet**

**Specifications:**

Overall dimension	145x145 mm
Mounting hole size	135x135 mm
Power	9 W
Voltage	24 V

Supplied complete with power supply.

## Fittings for connecting hydraulic and pneumatic systems

**34-RL3104M5**

Angle adapter M5 x Ø 4mm with collet

**34-RL3106M5**

Angle adapter M5 x Ø 6mm with collet

**34-RL310401**

Angle adapter 1/8" x Ø 4mm with collet

**34-RL310601**

Angle adapter 1/8" x Ø 6mm with collet

**34-RL310801**

Angle adapter 1/8" x Ø 8mm with collet

**34-RL310602**

Angle adapter 1/4" x Ø 6mm with collet

**34-RL310802**

Angle adapter 1/4" x Ø 8mm with collet

**34-RL311002**

Angle adapter 1/4" x Ø 10mm with collet

**34-RL310803**

Angle adapter 3/8" x Ø 8mm with collet

**34-RL311003**

Angle adapter 3/8" x Ø 10mm with collet

**34-RL020402**

Adapter with internal thread 1/4" x Ø 4mm with collet

**34-RL020602**

Adapter with internal thread 1/4" x Ø 6mm with collet

**34-RL020401**

Adapter with internal thread 1/8" x Ø 4mm with collet

**34-RL020601**

Adapter with internal thread 1/8" x Ø 6mm with collet

**34-RL0306**Adapter-coupling collet with M13x1mm thread  
and 2 nuts Ø6 x Ø 6mm**34-RL0306C**Adapter-coupling collet with M14x1mm thread  
and 2 nuts Ø6 x Ø 6mm**34-RL0306E**Adapter-coupling collet with M15x1mm thread  
and 2 nuts Ø6 x Ø 6mm**34-RL0304C**Adapter-coupling collet with M10x1mm thread  
and 2 nuts Ø4 x Ø 4mm**34-RL0308C**Adapter-coupling collet with M16x1mm thread  
and 2 nuts Ø8 x Ø 8mm**34-RL0310C**Adapter-coupling collet with M18x1mm thread  
and 2 nuts Ø10 x Ø 10mm



## Fittings for connecting hydraulic and pneumatic systems

**34-RL01004M5**

Straight adapter M5 x Ø 4mm with collet

**34-RL01006M5**

Straight adapter M5 x Ø 6mm with collet

**34-RL020401**

Adapter straight 1/8" x Ø 4mm with collet

**34-RL020601**

Adapter straight 1/8" x Ø 6mm with collet

**34-RL010801**

Adapter straight 1/8" x Ø 8mm with collet

**34-RL020602**

Adapter straight 1/4" x Ø 6mm with collet

**34-RL010802**

Adapter straight 1/4" x Ø 8mm with collet

**34-RL011002**

Adapter straight 1/4" x Ø 10mm with collet

**34-RL010803**

Adapter straight 3/8" x Ø 8mm with collet

**34-RL011003**

Adapter straight 3/8" x Ø 10mm with collet

**34-RL0306B**

Adapter-coupling collet Ø 6 x Ø 6mm

**34-RL0304B**

Adapter-coupling collet Ø 4 x Ø 4mm

**34-RL0308B**

Adapter-coupling collet Ø 8 x Ø 8mm

**34-RL0310B**

Adapter-coupling collet Ø 10 x Ø 10mm

**34-RL0406**

Elbow fitting with collet clamp Ø 6mm

**34-RL0408**

Elbow fitting with collet clamp Ø 8mm

**34-RL0504**

Tee adapter Ø 4 x Ø 4 x Ø 4mm with collet

**34-RL0506**

Tee adapter Ø 6 x Ø 6 x Ø 6mm with collet

**34-RL0508**

Tee adapter Ø 8 x Ø 8 x Ø 8mm with collet

**34-RL0510**

Tee adapter Ø 10 x Ø 10 x Ø 10mm with collet

## Fittings for connecting hydraulic and pneumatic systems

**DL-MOK**

Coupling adapter with check valve  
Ø 6 x Ø 6mm with collet

**34-MC15-06-06**

Coupling adapter with union nuts and 2 clamping nuts  
nuts with M10 x 1mm thread for tube Ø6 x Ø6mm

**34-MO15-06-06**

Coupling adapter with union nuts and 2 clamping nuts  
nuts with M10 x 1mm thread for tube Ø6 x Ø6mm  
(complete with 2 sleeves)

**25-FPKM-04**

Hydraulic quick connector  
"daddy" 1/4"

**25-FPKF-04**

Hydraulic quick connector  
"mother" 1/4"



### Banjo fittings for hydraulic and pneumatic connections



**DL-CR20062**

Kit (banjo fitting 12mm + M12 bolt + rubber-metal washers) for hose 8mm (zinc)



**DL-CR20064**

Kit (14mm banjo fitting, M14 bolt, rubber-metal washers) for hose 8mm (zinc)

#### Bolts with zinc coating:



**22-HS-06** banjo bolt hydraulic M12x1.5mm

**22-HS-08** Hydraulic banjo bolt M14x1.5mm

**22-HS-10** Hydraulic banjo bolt M16x1.5mm

**22-HS-13** Hydraulic banjo bolt M18x1.5mm

**22-HZ-08** Banjo bolt hydraulic 1/4"

**22-HZ-10** Banjo bolt hydraulic 3/8"

**570RLP-08-08** Hydraulic banjo bolt 1/2"

#### Oxidized (black) coated bolt fittings:



**DL-UNI30908** Fitting banjo-bolt M16x1.5mm

**DL-UNI30364** Fitting banjo-bolt 1/4"

**DL-UNI30363** Fitting banjo bolt 3/8"

**DL-UNI30350** Fitting 1/2" banjo bolt

#### Banjo fittings with galvanized coating:



**22-RSN-06** Banjo fitting Ø12mm herringbone 8mm

**22-RSN-08-06** Banjo fitting Ø14mm herringbone 8mm

**22-RSN-08** Banjo fitting Ø14mm herringbone 10mm

**22-RSN-10** Banjo fitting Ø16mm herringbone 11-12mm

**22-RSN-13** Banjo fitting Ø18mm herringbone 13-14mm

## Adjusting washers for Common-Rail injectors BOSCH



### DL08CR-220 Bosch

**WASHER KIT**  
DFK type CRI ,CRIN  
Ø= 3.5X5.3mm,  
H=1.20-1.70mm, Pitch=0.02mm,  
24 sizes x 10 = 240 pcs



### DL08CR5-244 Bosch

**WASHER KIT**  
DFK type CRI ,CRIN  
Ø= 3.5X5.3mm,  
H=1.20-1.70mm, Pitch=0.05mm,  
11 sizes x 10 = 110 pcs



### DL09CR-219 Bosch

**WASHER KIT**  
Ø= 10.5 X 15.7 mm,  
H=1.20-1.30mm, Pitch=0.01mm,  
11 sizes x 10 = 110 pcs



### DL10CR-235 Bosch

**WASHER KIT**  
AHE type CRIN1  
Ø= 19Es 22mm,  
H=1.00-1.10mm, Pitch=0.01mm  
11 sizes x 10 = 110 pcs



### DL11CR-236 Bosch

**WASHER KIT**  
RLS type CRI-1 CRI-2.0 CRI-2.2,  
AHE type CRI-2.1  
Ø= 19 X23.7mm,  
H=1.00-1.10mm, Pitch=0.01mm  
11 sizes x 10 = 110 pcs

## Adjusting washers for Common-Rail injectors BOSCH



### DL12CR-230 Bosch

#### WASHER KIT

VFK type CRI  
Ø= 2.5X4.5mm,  
H=1.20-1.70mm, Pitch=0.02mm  
26 sizes x 10 = 260 pcs



### DL12CR5-245 Bosch

#### WASHER KIT

VFK type CRI  
Ø= 2.5X4.5mm,  
H=1.20-1.70mm, Pitch=0.05mm  
11 sizes x 10 = 110 pcs



### DL14CR-228 Bosch

#### WASHER KIT

VFK type CRIN  
Ø= 2.3X4.2mm,  
H=1.20-1.70mm, Pitch=0.02mm  
24 sizes x 10 = 240 pcs



### DL14CR5-243 Bosch

#### WASHER KIT

VFK type CRIN  
Ø= 2.3X4.2mm,  
H=1.20-1.70mm, Pitch=0.05mm  
11 sizes x 10 = 110 pcs



### DL16CR-232 Bosch

#### WASHER KIT

DNH type CRI, CRIN  
Ø= 2.25mm,  
H=1.14-1.25mm, Pitch=0.01mm  
12 sizes x 10 = 120 pcs



## Adjusting washers for Common-Rail injectors BOSCH



### DL17CR-269 Bosch

**WASHER KIT**  
DFK type CRI ,CRIN  
Ø= 3.5X5.3mm,  
H=0.90-1.90mm, Pitch=0.05mm  
21 size x 10 = 210 pcs



### DL18CR-271 Bosch

**WASHER KIT**  
CRI-1 CRI-2.0 CRI-2.2, AHE type CRI-2.1  
Ø= 19 X23.7mm,  
H=0.90-1.00mm, Pitch=0.01mm  
11 sizes x 10 = 110 pcs



### DL19CR-273 Bosch

**WASHER KIT**  
RLS type CRIN-1  
Ø= 19 Es 22mm,  
H=0.90-1.00mm, Pitch=0.01mm  
11 sizes x 10 = 110 pcs



### DL24CR-301 Bosch

**WASHER KIT**  
RLS type CRIN-1  
Ø= 19Es 22mm,  
H=1.30-1.40mm, Pitch=0.01mm  
11 sizes x 10 = 110 pcs



### DL25CR-288 Bosch

**WASHER KIT**  
AHE type CRIN1  
Ø= 18 Es 22mm,  
H=1.00-1.10mm, Pitch=0.01mm  
11 sizes x 10 = 110 pcs

## Adjusting washers for Common-Rail injectors BOSCH



### DL26CR-283 Bosch

#### WASHER KIT

DNH type CRI, CRIN  
Ø= 2.3 mm,  
H=0.95-1.13mm, Pitch=0.01mm  
19 sizes x 10 = 190 pcs



### DL28CR-287 Bosch

#### WASHER KIT

AHE, RLS type CRIN2, CRIN3  
Ø= 19.5 X 22.8mm,  
H=1.34-1.76mm, Pitch=0.02mm  
22 sizes x 10 = 220 pcs



### DL180CR-180 Bosch

#### WASHER KIT

Ø= 19 Es22 mm,  
H=1.20-1.30mm,  
Pitch = 0.01mm  
11 sizes x 10 = 110 pcs



### DL77CR-77 Bosch

#### WASHER KIT

DFK type CRI, CRIN  
Ø= 3.5x 5.3mm,  
H=1.04-1.44mm, Pitch=0.02mm  
21 size x 10 = 210 pcs



### DL376CR-376 Bosch

#### WASHER KIT

RLS type CRI, CRIN  
Ø= 2.5x 6.4mm,  
H=1.00-1.20mm, Pitch=0.01mm  
21 size x 10 = 210 pcs

## Adjusting washers for Common-Rail injectors BOSCH



### DL88CR-88 Bosch

#### WASHER KIT

DFK type CRI, CRIN  
Ø= 3.5x 5.3mm,  
H=1.46-1.86mm, Pitch=0.02mm  
21 size x 10 = 210 pcs



### DL99CR-99 Bosch

#### WASHER KIT

AHE type CRI-1, CRI2.0, CRI2.2  
Ø= 10.5 x 15.7mm,  
H=1.12-1.23mm, Pitch=0.01mm  
12 sizes x 10 = 120 pcs



### DL120CR-120 Bosch

#### WASHER KIT

VFK CRIN  
Ø= 2.5 x 4.5 mm,  
H=1.70-1.90mm, Pitch=0.02mm  
11 sizes x 10 = 110 pcs



### DL20CR-272 Bosch

#### WASHER KIT

VFK CRI  
Ø= 2.40 x 5.30mm,  
H=1.72-1.90mm, Pitch=0.02mm  
10 sizes x 10 = 100 pcs



### DL377CR-377 Bosch

#### WASHER KIT

RLS type CRI, CRIN  
Ø= 2.5x 6.4mm,  
H=1.21-1.40mm, Pitch=0.01mm  
20 size x 10 = 200 pcs

## Adjusting washers for Common-Rail injectors BOSCH



### DL22CR-222 Bosch

#### WASHER KIT

Ø= 4.4x 7.7mm,  
H=0.98-1.44mm, Pitch=0.02mm  
24 size x 10 = 240 pcs

## Adjusting washers for CR DENSO injectors



### DL130CR-130 Denso

#### WASHER KIT

DENSO VFK  
Ø= 3.0 x 5.75mm,  
H=1.10-2.00mm, Pitch=0.05mm  
19 sizes x 10 = 190 pcs



### DL78CR-78 Denso

#### WASHER KIT

DENSO VFK  
Ø= 3.0 x 6.75mm  
H=1.75-2.30mm, Pitch=0.05mm  
12 sizes x 10 = 120 pcs



### DL55CR-344 Denso

#### WASHER KIT

DENSO VFK  
Ø= 24.3 mm x21.5 mm,  
H=1.50-1.72mm, Pitch=0.01mm  
23 size x 10 = 230 pcs



### DL57CR-843 Denso

#### WASHER KIT

DENSO VFK  
Ø= 4mm x1.8mm,  
H=1.00-2.00mm, Pitch=0.05mm  
21 size x 10 = 210 pcs



## Adjusting washers for CR DENSO injectors



### DL70CR-DENSO

**WASHER KIT**  
 $\varnothing = 23 \times 21$  mm,  
 $H = 3.00-3.10$  mm,  
 Pitch = 0.01 mm,  
 11 sizes x 10 = 110 pcs

## Adjusting washers for Common-Rail VDO (SIEMENS) PIEZO injectors



### DL-400CR-VDO

**ADJUSTING SET  
 WASHER VDO (SIEMENS)**  
 $\varnothing$  ext. = 18 mm,  
 $\varnothing$  inside = 14 mm,  
 $H = 0.9-1.13$  mm,  
 Pitch = 0.01 mm  
 24 sizes x 10 = 240 pcs.  
 or 24 x 5 = 120 pcs



### DL-410CR-VDO

**ADJUSTING SET  
 WASHER VDO (SIEMENS)**  
 $\varnothing$  ext. = 5.7 mm,  
 $\varnothing$  inside = 3 mm,  
 $H = 1.00-2.00$  mm,  
 Pitch = 0.05 mm  
 24 sizes x 10 = 240 pcs.  
 or 24 x 5 = 120 pcs



## Adjusting washers and adjusting elements for CR DELPHI injectors



### DL-378CR-SMART E3

#### ADJUSTING SET WASHER DELPHI SMART E3

Ø ext. = 4.3 mm,  
Ø inside = 1.9 mm,  
H = 1.15-1.70 mm,  
Pitch = 0.05mm  
12 sizes x 10 = 120 pcs.  
or 12 sizes x 5 = 60 pcs



### DL-600CR-DELPHI

#### SET OF ADJUSTING ELEMENTS

Ø = 2.0 mm,  
H = 2.30-2.64mm,  
Pitch = 0.02mm  
18 sizes x 10 = 180 pcs.



### DL-601CR-DELPHI

#### SET OF ADJUSTING ELEMENTS

Ø = 2.00 mm,  
H = 2.66-3.00 mm,  
Pitch = 0.02mm  
18 sizes x 10 = 180 pcs



### DL-602CR-DELPHI

#### SET OF ADJUSTING ELEMENTS

Ø = 2.0 mm,  
H = 3.75-4.30mm,  
Pitch = 0.05mm  
11 sizes x 10 = 110 pcs.

## Adjusting washers and adjusting elements for CR DELPHI injectors



### DL-603CR-DELPHI

#### SET OF ADJUSTING ELEMENTS

Ø = 2.00 mm,  
H=4.35-4.90mm,  
Pitch = 0.05mm  
12 sizes x 10 = 110 pcs

## Adjusting washers for Unit Injectors (UIS) and Single Pumps (PLD)



### DL-723UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 7.3 mm, Ø inside= 3.0 mm,  
H=0.30-0.58mm, Pitch=0.02mm  
15 sizes X 10 = 150 pcs.  
or 15 sizes x 5 = 75 pcs



### DL-724UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 7.3 mm, Ø inside= 3.0 mm,  
H=0.50-1.05mm, Pitch=0.05mm  
12 sizes x 10 = 120 pcs.  
or 12 sizes x 5 = 60 pcs



### DL-725UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 9.3 mm, Ø inside= 4.7 mm,  
H=0.40-0.80mm, Pitch=0.02mm  
21 sizes x 10 = 210 pcs.  
or 21 sizes x 5 = 105 pcs

## Adjusting washers for Unit Injectors (UIS) and Single Pumps (PLD)



### DL-726UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 8.3 mm, Ø inside= 4.7 mm,  
H=0.40-0.80mm, Pitch=0.02mm  
21 sizes x 10 = 210 pcs.  
or 21 sizes x 5 = 105 pcs



### DL-727UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 5.0 mm, Ø inside= 2.5 mm,  
H =0.50-1.00 mm, Pitch = 0.02 mm 337  
26 sizes x 10 = 260 pcs.  
or 26 sizes x 5 = 130 pcs



### DL-728UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 5.0 mm, Ø inside= 2.5 mm,  
H=0.50-1.05mm, Pitch=0.05mm  
12 sizes x 10 = 150 pcs.  
or 12 sizes x 5 = 60 pcs



### DL-729UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 4.3 mm, Ø inside= 1.9 mm,  
H=0.50-1.10mm, Pitch=0.05mm  
12 sizes x 10 = 120 pcs.  
or 12 sizes x 5 = 60 pcs

## Adjusting washers for Unit Injectors (UIS) and Single Pumps (PLD)



### DL-730UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

Ø outside= 4.3 mm, Ø inside= 1.9 mm,  
H=1.10-1.50mm, Pitch=0.05mm  
9 sizes x 10 = 90 pcs.  
or 9 sizes x 5 = 45 pcs

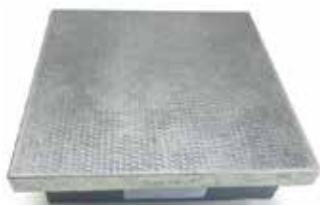


### DL-731UIS

#### ADJUSTING SET WASHER FOR UIS/UIP

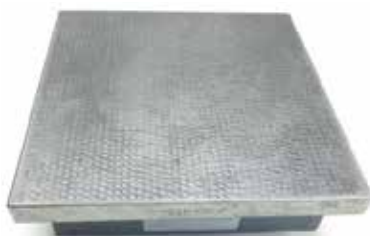
Ø outside= 4.3 mm, Ø inside= 1.9 mm,  
H=1.15-1.70mm, Pitch=0.05mm  
12 sizes x 10 = 120 pcs.  
or 12 sizes x 5 = 60 pcs

## Tools and fixtures for grinding washers and other parts



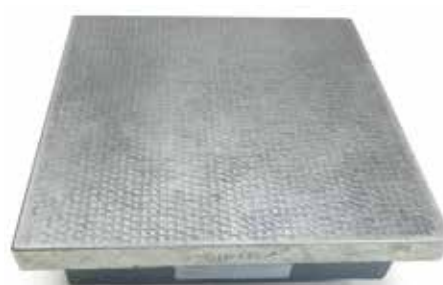
### D-261102

Plate (finishing)  
lapping  
Size: 200x200 mm



### D-190171108

Plate (finishing)  
lapping  
Size: 300x300 mm



### D-190171207

Plate (finishing)  
lapping  
Size: 400x400 mm



### DL-UNI50270

Set of washer holders for grinding them. The kit includes two holders with diameters for different pucks. It is recommended to carry out grinding on a special lapping plate.



### DL-UNI31635

Holder for lapping spacers and nozzle valves Piezo Bosch





**DL-TS800PL**

Tachometer board



**DL-PTC700PL**

PTC device board



**DL-FMDE800PL**

Flow meter board FMDE



**DL-CR500PL**

Cristina instrument board



**DL-CRP600PL**

Cristina-Piezo instrument board





**DL-AC400PL**

Board from the Acoustic kit



**DL-CAS1200PL**

CASCADE board



**DL-CASP400PL**

Piezo board CASCADE



**DL-RPC160PL**

Time circuit board  
injector response



**DL-SHT180PL**

Printed circuit board  
curtain control  
measuring block



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