



# PRODUCT CATALOG

## 2026 | 2027



EQUIPMENT  
FOR TEST AND DIESEL  
REPAIR FUEL EQUIPMENT

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

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

06.01.2026

## 1

### Stands and equipment for testing common rail injectors and pumps

<b>TRIUMF</b> – test bench for testing 1-4 CR injectors .....	8
<b>CRUIS</b> – test bench for testing 1 CR injector.....	22
<b>CR-Test 4E</b> – test bench for testing pumps and 1-4 CR injectors.....	37
<b>CR-Test-2P</b> – test bench for testing CR high-pressure fuel pumps.....	62
Additional equipment and components for benches.....	77
<b>CR-Jet 4E</b> bench upgrade kit.....	81
<b>PUMP TEST.02</b> – equipment for testing CR high-pressure fuel pumps.....	82
<b>CR TESTER CRT-5040</b> – device for testing 1-4 CR injectors.....	83
<b>FLAGMAN-FLOW</b> – 8-channel injector dosage measurement unit .....	84
<b>FLAGMAN FULL</b> – equipment for testing 1-4 CR injectors without coding.....	84
<b>FLAGMAN-CODE</b> – equipment for testing 1-4 CR injectors with coding.....	85
<b>FLAGMAN-CODE-L</b> – equipment for testing 1-4 CR injectors with coding.....	86
<b>CR-Active</b> – CR injector signal activator.....	87
<b>CR-NeXT</b> – Common Rail injector solenoid valve armature activator.....	87
<b>MONICA</b> – Common Rail injector solenoid actuation current measuring device.....	87
<b>PTC-2520 CP TESTER</b> – device for testing CR high-pressure fuel pumps.....	87
<b>FMDE-520</b> – device for testing CR high-pressure fuel pump performance.....	87
<b>CRISTINA</b> – CR injector assembly and adjustment kit .....	88
<b>CRISTINA-PIEZO</b> – device for testing PIEZO CR injectors .....	88
<b>PR-TESTER.V05</b> – 2-channel electronic pressure gauge.....	89
Basic equipment kits for testing CR injectors.....	91
Sets of CR injector backflow tubes and adapters.....	97
Sets of CR injector backflow nipples .....	98
Universal adapter for <b>DL-CR50013</b> truck CR injectors.....	106
Adapter for Denso truck CR injectors for connecting the supply and backflow lines.....	110
Adapters for testing truck injectors.....	111
Equipment for testing pumps and injectors.....	118
Retrofit kit for CR-Jet benches for a pressure of 2400 bar.....	147

## 2

### Equipment and tools for repairing common rail injectors

<b>CRISTINA</b> – a kit for assembling and adjusting CR injectors.....	148
<b>CRISTINA</b> kit « <b>BASE</b> ».....	149
<b>CRISTINA</b> kit « <b>BASE-F</b> ».....	150
<b>CRISTINA</b> kit « <b>FULL</b> ».....	151
<b>CRISTINA</b> kit « <b>PROF</b> ».....	152

<b>CRISTINA</b> kit « <b>PROF FULL</b> ».....	154
<b>CRISTINA</b> kit « <b>SPECIAL</b> » .....	156
Tabletop stand for CR-CRistina tripod.....	159
Set of open-end and ring spanners.....	159
Pneumatic press.....	160
Tool kits for CR injector repair.....	161
Set of feeler gauges and adapters.....	165
Set of goniometers for checking nozzle nut tightening.....	166
Clamp for disassembling and assembling CR injectors.....	167
Adapter sets with digital indicators for measuring mounting gaps and the stroke of the nozzle needle and valve.....	172
<b>CRistina-PIEZO</b> – device for testing PIEZO injectors.....	176
Hand presses.....	186
<b>MP-250 SASH</b> – machine for restoring the valve seat of the CR injector multiplier.....	188
Lappers.....	189
Diamond pastes, lapping plates, and a set of shim holders for grinding.....	192
<b>TOM-2</b> – sharpening machine for straightening laps.....	193
<b>TOM-5</b> – sharpening machine for straightening laps and other rotating bodies.....	195
BOSCH PIEZO injector restoration kit.....	197
<b>DL-GR7500</b> – sharpening machine for straightening nozzle needles.....	200
<b>DL-GR7400</b> – sharpening machine for straightening nozzle needles with speed indicator.....	201
<b>DL-GR7300</b> – Sharpening machine for straightening injector needles with rotation speed indicators displaying rpm.....	202
Kits with an industrial microscope, extended stand, illumination, and monitor.....	203
Abrasive stones for GR machines.....	209
Diamond pencils, stone holder, stone balancing axis.....	210
Balancing device, stone remover, set of drive pulleys.....	211
Additional equipment and components for sharpening machines.....	212
<b>GM-08</b> – Surface grinding machine with movable worktable.....	215
<b>GM-08 PREMIUM</b> – Surface grinding machine with movable worktable.....	216
Universal fixtures for clamping CR and CR Denso injectors in a vice.....	217
CR injector holder blocks for vices.....	218
Injector Disassembly/Assembly Wrenches.....	219
CR Injector Nozzle Nut Installation/Removal Wrenches.....	221
CR Injector Nozzle Nut Installation/Removal Wrenches with Flange.....	222
Nozzle Nut Installation/Removal Wrenches for BOSCH, VDO (Siemens), and BOSCH Series 111 Piezo Injectors.....	223
Nozzle Nut Installation/Removal Wrenches for BOSCH, VDO (Siemens), DENSO, and DELPHI Injectors of All Types.....	224
DL-CR50414 Keys set (16 pos) mounting/dismounting CR inj. nozzle nut.....	227
Hex Keys with Square Hole for Torque Handle.....	228
CR Injector Disassembly/Assembly Wrenches for SCANIA.....	229
Delphi Smart injector nozzle nut installation/removal wrenches (Ø20.9 mm, Bosch Ø25.8 mm). CRIN injector valve installation/removal tools.....	229
CR injector support ring removal/installation kit.....	230

CRIN injector paronite ring installation kit.....	231
DENSO CR injector filter removal/installation kit.....	232
Delphi and Bosch injector seat cleaning cutter sets.....	233
Torque wrenches and adapters.....	234
CR injector pullers.....	235
Low-pressure fuel pressure measuring kit for diesel and gasoline engines.....	237
Diesel engine compression tester kit.....	237
Diesel engine compression test kits.....	237
Mechanical measuring heads.....	238
Indicator measuring heads.....	239
Magnetic stands for mounting an indicator measuring head.....	244
Digital caliper. Digital micrometer.....	245

## 3

### Auxiliary equipment and tools for checking and repairing dta

<b>CR-NEXT-ST01</b> Special Workbench.....	246
Stainless Steel Baths. Ultrasonic Baths. Small Parts Cleaning Container .....	247
Antimagnetic Tweezers Set. High-Magnification Lens. Microscopes.....	247
Industrial Microscope Kits with Stand, Light, and Monitor.....	248
Microscope Holders.....	256
Control Stand for Injector and Fuel Pump Test Stands.....	257
Endoscope Camera.....	257
Hand Presses.....	258

## 4

### Equipment and tools for testing and repairing common rail pumps

<b>PUMP TEST.02</b> – equipment for testing CR high-pressure fuel pumps.....	260
<b>PTC-2520 CP TESTER</b> – device for testing CR high-pressure fuel pumps.....	261
<b>FMDE-520</b> – device for testing CR high-pressure fuel pump performance.....	261
<b>ST-03</b> – universal stand for CR pumps.....	262
Flanges for CR high-pressure fuel pumps.....	264
Couplings for CR high-pressure fuel pumps.....	265
Equipment for repairing Bosch CR CP4 high-pressure fuel pumps.....	268
Set of supports for mounting Denso HP0 pumps on a stand.....	268
Clamp kit for assembling the CP3 high-pressure fuel pump.....	268
Set of nipples with a clamp for testing the CP1 pump.....	269
Adapters for measuring pressure in the CR CP-3 high-pressure fuel pump.....	269
Adapter kit for measuring pressure in the CR booster pump.....	269
Additional accessories for the DL-CR31497 adapter.....	270
Nipples for connecting the high-pressure fuel pump. Fluid filters.....	271
<b>DORPAT Multi-Cam11</b> – a test bench for testing unit injectors and pump sections.....	271

# 5

## Stands and equipment for testing unit injectors (UIS) and pump sections (UPS)

Additional equipment for <b>DORPAT Multi-Cam11</b> .....	279
<b>CAM-BOX1 FORCE</b> – basic kit for testing unit injectors and individual pumps (UI / UP SYSTEM).....	286
Additional equipment for CAM-BOX 1.....	289
<b>CAM-BOX 2 MASTER</b> – kit for testing unit injectors and individual pumps.....	291
Additional equipment for CAM-BOX 2.....	294
<b>CAMBAT-FLOW</b> – injection meter for unit injectors of UIS/UPS system pump sections (for UIS-Tester MULTICAM).....	302
<b>CAMBAT-FULL-SET</b> – equipment for testing and checking unit injectors of UIS/UPS system pump sections with mechanical parts.....	304

# 6

## Equipment and tools for the repair of unit injectors (UIS) and pump sections (UPS)

<b>DL-ST02</b> – clamp for disassembling and assembling unit injectors of CR injectors.....	305
Wrenches for installing/removing the solenoid nut of the unit-injector valve.....	310
Wrenches for installing/removing the nozzle nut of the unit-injector.....	312
Caterpillar injector holder adapter.....	312
Kit for measuring the valve stroke of the unit-injector.....	313
Stand adapter for the indicator.....	313
Set of keys for disassembling and assembling AUDI / VW unit-injectors.....	314
Tool set for disassembling and assembling Audi / VW Siemens VDO unit-injectors.....	315
Tool set for disassembling and assembling AUDI / VW 1.9 PDE-P1.5 unit-injectors.....	316
Tool set for disassembling and assembling AUDI / VW 2.0 unit-injectors.....	317
Adapters for checking the injector section Unit injectors.....	318
Adapters for CATTERPILLAR.....	321
Injector section testing adapter kits.....	323
Hand presses.....	324
Diamond lapping and reaming kit for restoring the valve seat of BOSCH unit injectors.....	326
Unit injector valves for VOLVO, SCANIA, IVECO.....	326
Diamond lapping and reaming kits.....	327

# 7

## Equipment and tools for testing and repairing heui unit injectors

Equipment and tools for testing and repairing HEUI unit injectors.....	328
HEUI unit injector nozzle test adapter.....	329
HEUI unit injector O-ring installation kit.....	329
HEUI unit injector nozzle nut wrench.....	329

## 8

### Stands for testing fuel pumps high pressure injection pump

<b>SPF-708, SPF-712, SPF-1108, SPF-1112, SPF-1508, SPF-1512</b> – test stands for high-pressure fuel pumps.....	330
Additional equipment and components for fuel injection pump testing stands.....	332

## 9

### Equipment and tools for repair of high pressure fuel pumps

Expansion couplings. Flanged couplings. Cone couplings. Spline couplings.....	334
Equipment and tooling for rotary and in-line fuel injection pumps.....	335
Devices for adjusting in-line fuel injection pumps.....	338
Flange mounting couplings for VP series fuel injection pumps.....	339

## 10

### Electronic devices for diagnostics and repair of diesel fuel equipment

<b>ST-03</b> – универсальный стапель для насосов CR.....	340
<b>CR TESTER CRT-5040</b> – device for testing 1-4 CR injectors.....	341
<b>FLAGMAN FULL</b> – equipment for testing 1-4 CR injectors without coding.....	342
<b>FLAGMAN-FLOW</b> – 8-channel injector dosage measuring unit .....	342
<b>FLAGMAN-CODE</b> – equipment for testing 1-4 CR injectors with coding.....	343
<b>FLAGMAN-CODE-L</b> – equipment for testing 1-4 CR injectors with coding.....	344
<b>CRISTINA</b> – complex for assembly and adjustment of CR injectors .....	345
<b>DL-UNI20150 CRISTINA - PIEZO</b> – device for testing PIEZO CR injectors.....	346
<b>DL-UNI20050 CRISTINA - PIEZO</b> – test and adjustment kit. PIEZO injectors CR.....	347
<b>DL-UNI20050F CRISTINA - PIEZO</b> – test and adjustment kit. CR PIEZO injectors.....	348
<b>DL-UNI20051</b> Clamp-less testing and adjustment kit for CR PIEZO injectors.....	349
Additional accessories for CRISTINA-PIEZO.....	350
<b>CR-Active</b> – CR injector signal activator.....	353
Device for measuring the capacitance of RLC injector piezo packs.....	354
<b>PUMP TEST.02</b> – CR injection pump testing equipment.....	355
<b>FMDE-520</b> – CR injection pump performance testing device.....	356
<b>PTC-2520 CP TESTER</b> – CR injection pump testing device.....	356
<b>UIS TESTER Multi-CAM</b> – device for testing unit injectors and pump sections.....	357
<b>PR- INDICATOR</b> – electronic pressure gauges.....	358
<b>PR-TESTER.V05</b> – 2-channel pressure measuring device.....	359
<b>PR-TESTER.V03</b> – pressure measuring device. Oscilloscope attachment.....	361
CR system testing kits.....	362

# 11

## Control and measuring tool and Instrumentation

Pressure Gauges and Accessories.....	364
Mechanical Dial-Type Measuring Heads.....	369
Indicator Measuring Heads.....	370
Magnetic Stands for Mounting an Indicator Measuring Head.....	375
Digital Caliper. Digital Micrometer.....	376
Digital Micrometer Stand.....	376
Diesel Engine Compression Test Kits.....	377
Low-Pressure Fuel Pressure Test Kit for Diesel and Gasoline Engines.....	377
Torque Wrenches, Adapters.....	378
Hand Presses.....	379
Anti-Injector Nut Tightening.....	381

# 12

## Filters and consumables for test stands for Diesel Fuel Equipment

Fine Liquid Filters.....	382
Sediment Filters. Liquid Purification Filters. 15-µm Mesh for Filters.....	384
DL-UNF21100 High-Pressure Filter Adapter.....	385
High-Pressure Filter for Rail Pressure Accumulators.....	385
Bosch High-Pressure Filter Adapter.....	385
SRS Calibration Fluid.....	386
Bench Lights.....	387
Fittings for Connecting Hydraulic and Pneumatic Systems.....	388

# 13

## Spare parts for repair Diesel Fuel Equipment and other equipment

Adjusting washers for BOSCH Common Rail injectors.....	392
Adjusting washers for DENSO CR injectors.....	397
Adjusting washers for VDO (SIEMENS) Common Rail injectors PIEZO.....	398
Adjusting washers and adjusting elements for DELPHI Common Rail injectors.....	399
Adjusting washers for Unit Injectors (UIS) and Single Pumps (PLD).....	400

# 14

## Control boards for Dieselland equipment

Tools and fixtures for grinding washers and other parts.....	403
Control boards for Dieselland equipment.....	405

### 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 (C2i, C3i)

**DL-CAU003**

Cable for Delphi (C3i)

**DL-CAU004**

Cable for BOSCH, SIEMENS

**DL-CAU005**

Cable for BOSCH

**DL-CAU007**

Cable for truck injectors

**DL-CAU006**

Universal cable for truck injectors

**DL-CAU09**

Cable for connecting the pressure sensor

**DL-CAU10**

Cable for connecting the pressure regulator

### 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**

Adapter-coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 37 mm  
 Length without clamps = 33 mm  
 Diameter = 1.15 mm



**DL-MOK-K**

Quick-connect coupling with check valve, Ø 6 mm  
 Connection holes: Ø 6 mm x Ø 6 mm  
 Length with clamps = 49 mm  
 Length without clamps = 45 mm  
 Diameter = 13.8 mm



**DL-MOK-KS**

Quick-connect coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 42.6 mm  
 Length without clamps = 37.3 mm  
 Diameter = 12.5 mm



**DL-CR50120**

Delphi injector back-up valve for coding (response time)



**DL-CR50406**

Back-up valve for DELPHI coding, thread G 1/8"



**DL-CR50136**

Return flow pressure valve for testing BOSCH electromagnetic injectors on a test bench



**DL-CR50210**

Return pressure valve for testing SIEMENS piezo injectors on a test bench



**DL-CR50177**

Return pressure valve for piezo injectors Bosch

**TRIUMF**

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-CR50013**

Universal adapter for CR truck injectors (Bosch, Denso, Delphi Smart) for connecting the supply and return lines with 0°, 4°, and 13° angles.

**DL-CR50140**

Universal adapter for Denso CR truck injectors, including Volvo 21952974 for connecting the supply and return lines.

## ADAPTERS FOR CHECKING TRUCK INJECTORS

							
<b>DL-002</b> DL-CR31046	<b>DL-003</b> DL-CR31821	<b>DL-004A</b> DL-CR30848	<b>DL-005N</b> DL-CR31048	<b>DL-006</b> DL-CR31440	<b>DL-007</b> DL-CR31044	<b>DL-008</b> DL-CR31045	<b>DL-009</b> DL-CR31439
BOSCH MAN Ø 29MM	DAF Euro 7 (PACCAR)	BOSCH RENAULT Ø 32MM	CUMMINS	DENSO Ø 27MM	DENSO Ø 23,5MM	BOSCH MAN Ø 26MM	BOSCH VOLVO Ø 28MM
							
<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	<b>DL-015</b> DL-CR30822	<b>DL-016</b> DL-CR31486	<b>DL-016U</b> DL-CR31806
CUMMINS	SIEMENS VDO FORD	CRIN BOSCH SISU Ø 26,6MM	DELPHI SMART INJECTOR	DENSO	DENSO Ø 18,5 MM Caterpillar, Perkins	SCANIA 2/4 pin	SCANIA 2/4 pin
							
<b>DL-017</b> DL-UNI30037	<b>DL-018</b> DL-CR30595	<b>DL-019</b> DL-CR30804	<b>DL-020</b> DL-CR30596	<b>DL-021</b> DL-CR31565	<b>DL-022</b> DL-CR31566	<b>DL-023</b> DL-CR31567	<b>DL-024</b> DL-CR31620
BOSCH DEUTZ Ø 21,5MM	CURSOR 9	BOSCH MTU	SCANIA 4 PIN	BOSCH CRIN3 0445124015	Caterpillar 3809888	Delphi Smart injector Mercedes	DAF-SMART injector
							
<b>DL-025</b> DL-CR31625	<b>DL-026</b> DL-CR31626	<b>DL-027</b> DL-CR31698	<b>DL-028</b> DL-CR31759	<b>DL-029</b> DL-CR31793	<b>DL-030</b> DL-CR30818	<b>DL-031</b> DL-CR31040	<b>DL-032</b> DL-CR31430
DELPHI CRIN DAF EURO 6 SMART INJ	CUMMINS	BOSCH	FORD	BOSCH 0445120247	BOSCH 9M3-530	BOSCH 0445120303	BOSCH 0445120134
							
<b>DL-033</b> DL-CR31479	<b>DL-034</b> DL-CR31538	<b>DL-035</b> DL-CR31561	<b>DL-036</b> DL-CR31563	<b>DL-037</b> DL-CR50304	<b>DL-038</b> DL-CR31606	<b>DL-039</b> DL-CR31738	<b>DL-040</b> DL-LR31785
DENSO	DENSO 1211 11L1063(095000-121)	DENSO	Delphi A9362187 Mercedes Actros Euro 6	MB Actros	5296723 DENSO	CAT Ø 28MM	Lorang Ø 26,5MM x Ø 23MM
							
<b>DL-041</b> DL-CR31861	<b>DL-042</b> DL-CR31900	<b>DL-043</b> DL-CR31969					
CUMMINS-XPI 4307475	BOSCH DHIM, Doosan, Yuchai	BOSCH 0445120471					

## DL-UNF20420L

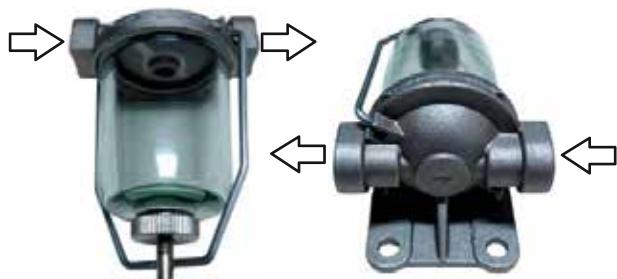
**A set of sediment filters for testing injectors on a TRIUMF test bench.**  
These filters are designed for pre-cleaning injectors before testing them on a test bench.



## Delivery set:

1. **DL-UNF20300L** Sedimentation filter (entrance on the left) – 2 pcs.
2. **DL-UNI31427** Adapter 1/8" x M14x1.5mm – 4 pcs.
3. **34-RL010602** Quick adapter straight Ø 6x1/4" – 2 pcs.
4. **34-RL310602** Quick corner adapter Ø 6x1/4" – 2 pcs.
5. **DL-UNI31399** Splitter 1/4" – 1 pc.

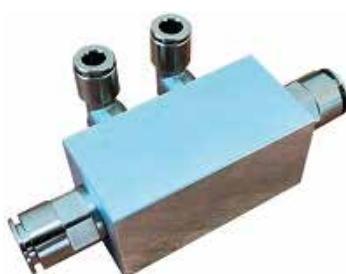
*Please note!  
All items are also sold separately.*



## DL-UNF20420L

Filter-summ (inlet on the left)  
The filter includes:

1. Inlet and outlet openings M14x1.5mm
2. Mounting holes Ø 8mm



## DL-UNI31399

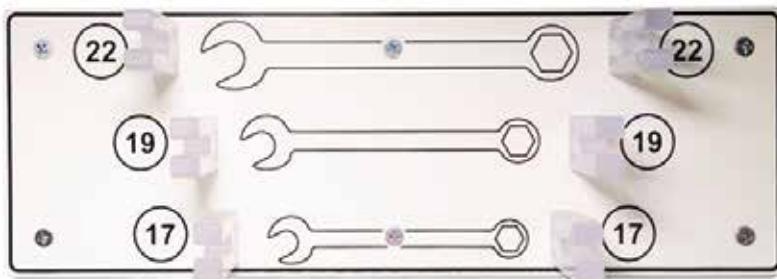
1/4" Splitter  
Connected to the splitter:

1. **34-RL010802** Two quick-release adapters Ø 8 mm (at the ends)
2. **34-RL310601** Two quick-fit corner adapters Ø 6 mm (on the ends)

## DL-UNI01792

**A set of open-end and ring-end wrenches for the TRIUMF test bench.**

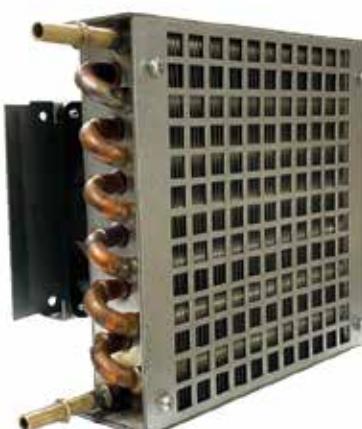
The wrenches are conveniently and securely held directly in the test bench's test compartment.

**Delivery set:**

1. DL-TRF50244 Key holder
2. DL-UNI31217 Open-end wrench 19x19mm - 1 pc.
3. DL-UNI31219 Open-end wrench 19x19MM -1 pc.
4. DL-UNI31222 Open-end wrench 22x22MM -1 pc.

*Please note!*

*All keys are also sold separately.*



## DL-ORV6

**Air defense radiator for the pressure accumulator of TRIUMF test rigs**

## DL-HEUI0037

## TRIUMF 0-8 bar low pressure test kit for HEUI unit injectors

24-DBK-06L	3-way valve 3/8"	1 pc
26-04020-06	Coupling 3/8"	1 pc
13-VMP-06	Safety relief valve (SRV) 3/8"	1 pc
DL-UNI20024	SRV mounting bracket to FTO with two M6 x 16mm screws	1 pc
13-VRFB04	Restrictor 1/4"	1 pc
DL-UNI31316	Stainless steel washer 50 x 22mm "OILSUPPLY" (FUELSUPPLY)	1 pc
041616005	Thrust washer, hole diameter 22mm	1 pc
DL-UNI30020	1/4" x 8mm nipple (drain from PC into tank)	1 pc
DL-UNI30859	3/8" x 8mm nipple (drain from PC into tank)	1 pc
DL-UNI30530	3/8" x 3/8" nipple (3-way valve - 2 pcs., PC - 1 pc.)	3 pcs
DL-UNI30363	3/8" Banjo Bolt	2 pcs
DL-UNI30365	1/4" Banjo Bolt	1 pc
12-03-005	Female Banjo nipple Ø 14mm (1/4")	1 pc
34-MA16-08-14	8mm x 1/4" quick connector	2 pcs
DL-UNI31036	Special nipple 3/8" x 3/8" x 1/8" for supply	1 pc
DL-UNI31024	Special nipple 3/8" x 3/8" for return drain	1 pc
A50051-06-06	Angle nipple 3/8" x 8mm for special Fittings	2 pcs
DL-UNI20016	Manometer bracket	1 pc
12-TG63-010	Flanged pressure gauge 0-10 bar	1 pc
DL-UNI30613	Manometer coupling 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

<b>P1331012019-850</b>	PVC tube, 8mm x 850mm, for draining from the throttle body to the tank	1 pc
<b>TI-1ZTX-06-090</b>	High-pressure fuel line, 3/8" x 3/8" L=90cm	1 pc
<b>18-806-008-173</b>	Injection pump, Ø 8mm, L=173cm (PC-Special Fitting "OilSupply")	1 pc
<b>18-806-008-155</b>	Injection pump, Ø 8mm, L=155cm (Throttle-Special Fitting "OilReturn")	1 pc
<b>18-806-008-105</b>	Injection pump, Ø 8mm, L=105cm (PC-Tank)	1 pc
<b>DL-UNI20021</b>	Washer with "FUELSUPPLY" inscription	1 pc
<b>DL-UNI20022</b>	Washer with "FUELRETURN" inscription	1 pc
<b>0540159</b>	15mm clamps	8 pcs
<b>004636</b>	M3 x 6mm screw for mounting the pressure gauge	3 pcs
<b>0046435</b>	M4 x 35mm screw	6 pcs
<b>0083645</b>	M6 x 45mm screw + washer + nut for mounting the PC	2 set
<b>D-GM1504AN</b>	Rubber-metal washer 1/4" for banjo bolts on the throttle	2 pcs
<b>D-GM1506AN</b>	3/8" rubber washer for the 3-way valve	4 pcs

**ATTENTION!**

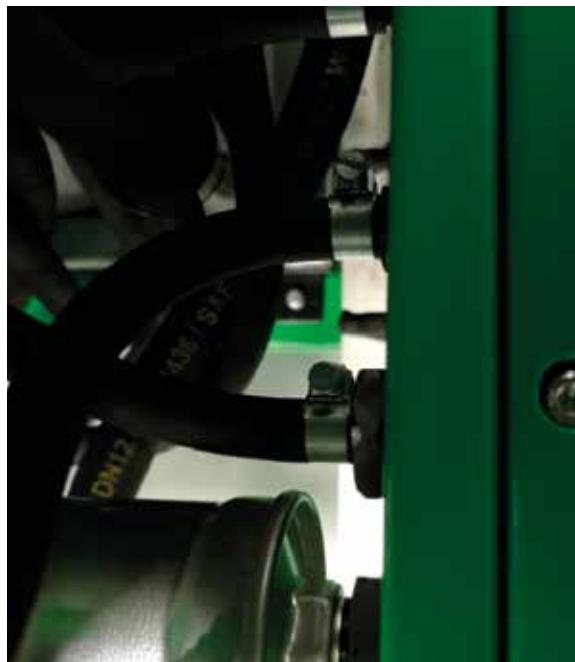
Low-pressure fuel lines (LPF) may be supplied in a single 433cm length.

## TRIUMF

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0037

TRIUMF 0-8 bar low pressure test kit for HEUI unit injectors



### TRIUMF

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### DL-HEUI0037

TRIUMF 0-8 bar low pressure test kit for HEUI unit injectors



## HEUI UNIT INJECTOR TESTING KIT

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



The equipment includes:

1. **DL-HEUI50223** Adapter for installing pump injectors



2. **DL-HEUI50240** Set of hydraulic hoses and turbocharger 400 mm 14x14 mm
3. **DL-HEUI50219** Adapter holder with clamping bar
4. **DL-HEUI50230** Adapter cable for connecting a pump-injector
5. **DL-UNI50084** Angle adapter M14



HEUI CATERPILLAR C7-C9



The equipment includes:

1. **DL-HEUI50221** Adapter for installing pump injectors



### 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

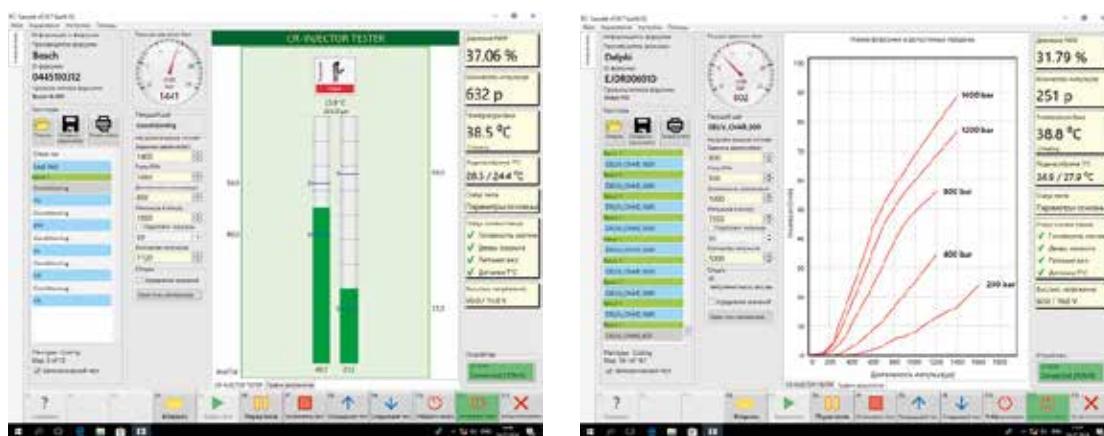
\* Delphi C4i coding in CRUIS 5.5 kW 380 V

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-CAU001**

Cable for BOSCH injectors (universal)

**DL-CAU002**

Cable for Delphi (C2i, C3i)

**DL-CAU003**

Cable for Delphi (C3i)

**DL-CAU004**

Cable for BOSCH, SIEMENS

**DL-CAU005**

Cable for BOSCH

**DL-CAU007**

Cable for truck injectors

**DL-CAU006**

Universal cable for truck injectors

**DL-CAU09**

Cable for connecting the pressure sensor

**DL-CAU10**

Cable for connecting the pressure regulator

### CRUIS

### STAND EQUIPMENT



A set of backflow nipples for CR injectors (BOSCH, DENSO, DELPHI, SIEMENS)



DL-TVD41414



Door keys  
(4 pcs.)



DL-UNI50083

Straight adapter  
from M14 to M12 for  
tube (1 pc.)



DL-UNI30497

Pressure regulator  
plug (1 pc.)



DL-CR50162

Rail plug (1 pc.)



DL-UNI31011

Clamping sleeves  
Ø17; Ø18.9; Ø19.2;  
Ø21 and Ø21.4



DL-UNI50343

Насадка на распылитель  
форсунки Ø=9 мм (1 шт.)



DL-54127

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

### ADDITIONAL EQUIPMENT AND COMPONENTS



DL-CR50015

Encoding sensor  
Ø=7mm (1 pc.)



DL-UNI50273

A handle for easy movement  
of the stand.  
Two handles are included.



### CRUIS

#### OPTIONAL EQUIPMENT AND ACCESSORIES



**DL-MOK**

Adapter-coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 37 mm  
 Length without clamps = 33 mm  
 Diameter = 1.15 mm



**DL-MOK-K**

Quick-connect coupling with check valve, Ø 6 mm  
 Connection holes: Ø 6 mm x Ø 6 mm  
 Length with clamps = 49 mm  
 Length without clamps = 45 mm  
 Diameter = 13.8 mm



**DL-MOK-KS**

Quick-connect coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 42.6 mm  
 Length without clamps = 37.3 mm  
 Diameter = 12.5 mm



**DL-CR50120**

Delphi injector back-up valve for coding (response time)



**DL-CR50406**

Back-up valve for DELPHI coding, thread G 1/8"



**DL-CR50136**

Return flow pressure valve for testing BOSCH  
 electromagnetic injectors on a test bench



**DL-CR50210**

Return pressure valve for testing SIEMENS  
 piezo injectors on a test bench



**DL-CR50177**

Return pressure valve for  
 piezo injectors Bosch

**CRUIS**

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-CR50013**

Universal adapter for CR truck injectors (Bosch, Denso, Delphi Smart) for connecting the supply and return lines with 0°, 4°, and 13° angles.

**DL-CR50140**

Universal adapter for Denso CR truck injectors, including Volvo 21952974 for connecting the supply and return lines.

### CRUIS

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### ADAPTERS FOR CHECKING TRUCK INJECTORS

							
<b>DL-002 DL-CR31046</b> BOSCH MAN Ø 29MM	<b>DL-003 DL-CR31821</b> DAF Euro 7 (PACCAR)	<b>DL-004A DL-CR30848</b> BOSCH RENAULT Ø 32MM	<b>DL-005N DL-CR31048</b> CUMMINS	<b>DL-006 DL-CR31440</b> DENSO Ø 27MM	<b>DL-007 DL-CR31044</b> DENSO Ø 23,5MM	<b>DL-008 DL-CR31045</b> BOSCH MAN Ø 26MM	<b>DL-009 DL-CR31439</b> BOSCH VOLVO Ø 28MM
							
<b>DL-010 DL-CR31047</b> CUMMINS	<b>DL-011 DL-CR30985</b> SIEMENS VDO FORD	<b>DL-012 DL-CR30036</b> CRIN BOSCH SISU Ø 26,6MM	<b>DL-013 DL-CR30968</b> DELPHI SMART INJECTOR	<b>DL-014 DL-UNI30038</b> DENSO	<b>DL-015 DL-CR30822</b> DENSO Ø 18,5 MM Caterpillar, Perkins	<b>DL-016 DL-CR31486</b> SCANIA 2/4 pin	<b>DL-016U DL-CR31806</b> SCANIA 2/4 pin
							
<b>DL-017 DL-UNI30037</b> BOSCH DEUTZ Ø 21,5MM	<b>DL-018 DL-CR30595</b> CURSOR 9	<b>DL-019 DL-CR30804</b> BOSCH MTU	<b>DL-020 DL-CR30596</b> SCANIA 4 PIN	<b>DL-021 DL-CR31565</b> BOSCH CRIN3 0445124015	<b>DL-022 DL-CR31566</b> Caterpillar 3809888	<b>DL-023 DL-CR31567</b> Delphi Smart injector Mercedes	<b>DL-024 DL-CR31620</b> DAF-SMART injector
							
<b>DL-025 DL-CR31625</b> DELPHI CRIN DAF EURO 6 SMART INJ	<b>DL-026 DL-CR31626</b> CUMMINS	<b>DL-027 DL-CR31698</b> BOSCH	<b>DL-028 DL-CR31759</b> FORD	<b>DL-029 DL-CR31793</b> BOSCH 0445120247	<b>DL-030 DL-CR30818</b> BOSCH 9M3-530	<b>DL-031 DL-CR31040</b> BOSCH 0445120303	<b>DL-032 DL-CR31430</b> BOSCH 0445120134
							
<b>DL-033 DL-CR31479</b> DENSO	<b>DL-034 DL-CR31538</b> DENSO 1211 11L1063(095000-121)	<b>DL-035 DL-CR31561</b> DENSO	<b>DL-036 DL-CR31563</b> Delphi A9362187 Mersedes Actros Euro 6	<b>DL-037 DL-CR50304</b> MB Actros	<b>DL-038 DL-CR31606</b> 5296723 DENSO	<b>DL-039 DL-CR31738</b> CAT Ø 28MM	<b>DL-040 DL-LR31785</b> Lorang Ø 26,5MM x Ø 23MM
							
<b>DL-041 DL-CR31861</b> CUMMINS-XPI 4307475	<b>DL-042 DL-CR31900</b> BOSCH DHIM, Doosan, Yuchai	<b>DL-043 DL-CR31969</b> BOSCH 0445120471					

### CRUIS

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### DL-UNF20420L

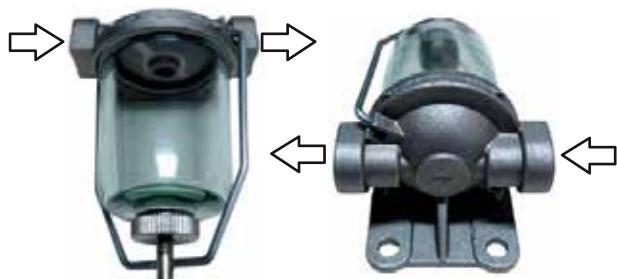
**A set of sediment filters for testing injectors on a TRIUMF test bench.**  
These filters are designed for pre-cleaning injectors before testing them on a test bench.



##### Delivery set:

1. **DL-UNF20300L** Sedimentation filter (entrance on the left) – 2 pcs.
2. **DL-UNI31427** Adapter 1/8" x M14x1.5mm – 4 pcs.
3. **34-RL010602** Quick adapter straight Ø 6x1/4" – 2 pcs.
4. **34-RL310602** Quick corner adapter Ø 6x1/4" – 2 pcs.
5. **DL-UNI31399** Splitter 1/4" – 1 pc.

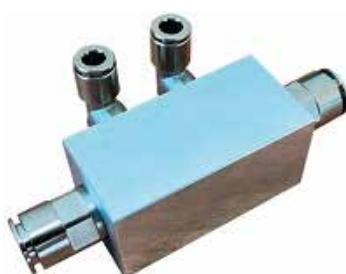
*Please note!*  
All items are also sold separately.



##### DL-UNF20420L

Filter-summ (inlet on the left)  
The filter includes:

1. Inlet and outlet openings M14x1.5mm
2. Mounting holes Ø 8mm



##### DL-UNI31399

1/4" Splitter  
Connected to the splitter:

1. **34-RL010802** Two quick-release adapters Ø 8 mm (at the ends)
2. **34-RL310601** Two quick-fit corner adapters Ø 6 mm (on the ends)

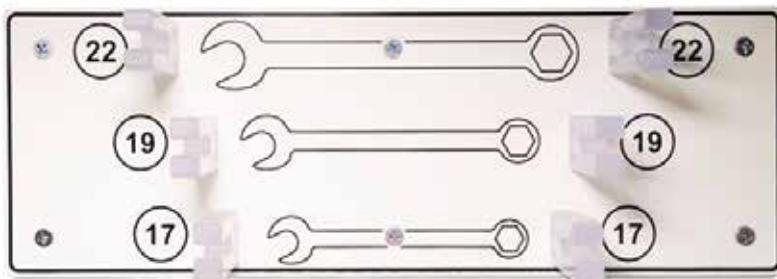
## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-UNI01792

**A set of open-end and ring-end wrenches for the TRIUMF test bench.**

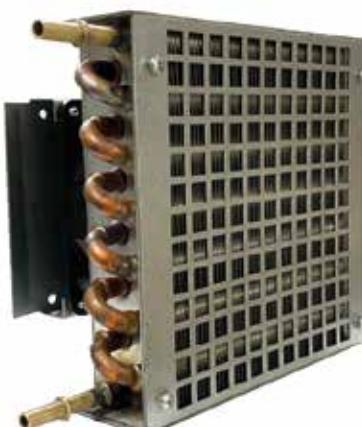
The wrenches are conveniently and securely held directly in the test bench's test compartment.

**Delivery set:**

1. DL-TRF50244 Key holder
2. DL-UNI31217 Open-end wrench 19x19mm - 1 pc.
3. DL-UNI31219 Open-end wrench 19x19MM -1 pc.
4. DL-UNI31222 Open-end wrench 22x22MM -1 pc.

*Please note!*

All keys are also sold separately.



## DL-ORV6

**Air defense radiator for the pressure accumulator of TRIUMF test rigs**

## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

DL-HEUI0038

## CRUIS 0-8 bar low pressure test kit for HEUI unit injectors

24-DBK-06L	3-way valve 3/8"	1 pc
26-04020-06	Coupling 3/8"	1 pc
13-VMP-06	Relief valve (RV) 3/8"	1 pc
DL-UNI20023	Bracket for mounting RV to FTO (filter) bracket	1 pc
13-VRFB04	Orifice 1/4"	1 pc
DL-UNI31316	Stainless steel washer 50 x 22 mm "OILSUPPLY" (FUELSUPPLY)	1 pc
041616005	Thrust washer Ø hole 22mm	1 pc
DL-UNI30020	1/4" x 8mm nipple (drain from PC into tank)	1 pc
DL-UNI30859	3/8" x 8mm nipple (drain from PC into tank)	1 pc
DL-UNI30530	3/8" x 3/8" nipple (3-way valve - 2 pcs., PC - 1 pc.)	3 pcs
DL-UNI30363	3/8" Banjo Bolt	2 pcs
DL-UNI30365	1/4" Banjo Bolt	1 pc
12-03-005	Female Banjo nipple Ø 14mm (1/4")	1 pc
34-MA16-08-14	8mm x 1/4" quick connector	2 pcs
DL-UNI31036	Special nipple 3/8" x 3/8" x 1/8" for supply	1 pc
DL-UNI31024	Special nipple 3/8" x 3/8" for return drain	1 pc
A50051-06-06	Angle nipple 3/8" x 8mm for special Fittings	2 pcs
DL-UNI20015	Manometer bracket	1 pc
12-TG63-010	Flanged pressure gauge 0-10 bar	1 pc
DL-UNI30613	Manometer coupling 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 tube, 8mm x 850mm, for draining from the throttle body to 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>	Injection pump, Ø 8mm, L=104cm (PC-Special Fitting "OilSupply")	1 pc
<b>18-806-008-075</b>	Injection pump, Ø 8mm, L=75cm (Throttle-Special Fitting "OilReturn")	1 pc
<b>18-806-008-037</b>	Injection pump, Ø inner.8mm, L=37cm (PC-Tank)	1 pc
<b>DL-UNI20021</b>	Washer with "FUELSUPPLY" inscription	1 pc
<b>DL-UNI20022</b>	Washer with "FUELRETURN" inscription	1 pc
<b>0540159</b>	15mm clamps	8 pcs
<b>004636</b>	M3 x 6mm screw for mounting the pressure gauge	3 pcs
<b>0089416</b>	M4 x 16mm screw for mounting special fittings	6 pcs
<b>0083645</b>	M6 x 45mm screw + washer + nut for mounting the PC	2 set
<b>D-GM1504AN</b>	Rubber-metal washer 1/4" for banjo bolts on the throttle	2 pcs
<b>D-GM1506AN</b>	3/8" rubber washer for the 3-way valve	4 pcs

**ATTENTION!**

Low-pressure fuel lines (LPF) may be supplied in a single 216 cm section.

## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

DL-HEUI0038

CRUIS low-pressure test kit for 0-8 bar HEUI unit injectors



**CRUIS**

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-HEUI0038**

CRUIS low-pressure test kit for 0-8 bar HEUI unit injectors



## CRUIS

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-HEUI0038

CRUIS low-pressure test kit for 0-8 bar HEUI unit injectors



### CRUIS

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### HEUI UNIT INJECTOR TESTING KIT

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



The equipment includes:

1. **DL-HEUI50223** Adapter for installing pump injectors



2. **DL-HEUI50240** Set of hydraulic hoses and turbocharger 400 mm 14x14 mm
3. **DL-HEUI50219** Adapter holder with clamping bar
4. **DL-HEUI50230** Adapter cable for connecting a pump-injector
5. **DL-UNI50084** Angle adapter M14



HEUI CATERPILLAR C7-C9



The equipment includes:

1. **DL-HEUI50221** Adapter for installing pump injectors



*Please note: All equipment components 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 for testing CR injectors



##### «DieselTest»

The complex includes software for pump testing



### CR-Test4E

#### 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.
- 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



**A fluid flow meter**  
for simultaneously testing  
one to four injectors.  
Mounted on a test bench.



#### FMDE-520

**Liquid flow meter**  
for pumps, 2-channel.  
Mounted on a test bench.



#### PTC-2520

**Pump controller.**  
Mounted on a test bench.



**Injector controller.**  
Mounted on a test bench.

## CR-Test4E

## STAND EQUIPMENT



DL-24CRM

A set of backflow nipples for CR injectors



DL-UNI50343

Spray nozzles  
Ø= 9 mm (1 pc.)



DL-UNI50083

Straight adapter from M14  
to M12 for tube (4 pcs.)



DL-TVD61414 High pressure tube M14xM14x600MM – 2 pc

DL-TVD51414 High pressure tube M14xM14x500MM – 5 pcs



D-OCDE

Denso Injector  
Backflow Kit (4 pcs.)



DL-54127

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



DL-CR50162

Rail plugs (4 pcs.)



DL-UNI30497

Pressure regulator  
plug (5 pcs.)



DL-UNI50088

Angle adapter  
M14 x M14 (2 pcs.)



Door keys (4 pcs.)

### CR-Test4E

#### STAND EQUIPMENT



#### DL-CR10015

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

DL-UNI31019 Ø=17 (4 pcs.)

DL-UNI31020 Ø=18,9 (1 pc)

DL-UNI31021 Ø=19,2 (1 pc)

DL-UNI31022 Ø=21 (1 pc)

DL-UNI31231 Ø=21,4 (1 pc)



#### DL-CR30522KIT

RAIL 1 pressure accumulator (distribution)  
with 3 pressure regulators for testing  
CR injectors and pumps.  
Mounted on a test bench.



#### DL-CR31257

RAIL 2 pressure accumulator  
for testing injectors and pumps with cooling  
(for 2 pressure regulators)  
Mounted on a test bench.



#### DL-CR31053KIT

RAIL 3 pressure accumulator  
for 3 pressure regulators  
(with cooling)  
for pump testing.  
Mounted on a test bench.

### CR-Test4E

#### STAND EQUIPMENT



**DL-FMDE064**

Hose for measuring fuel injection pump flow from the pressure accumulator to the radiator inlet fitting (RAIL –CR PUMP FM1) ø12x3/8x200 mm with a bolt, Banjo fitting, and 2 gaskets. 1 pc.



**DL- FMDE025**

A set of two hoses for connecting the "CR PUMP FM1" and "CR PUMP FM2" front panel fittings to the "IN1" and "IN2" fittings of the "FMDE" flow measurement controller. (The hoses are installed on the stand.) The kit includes:

- Hose 3/8x3/8x250mm - 1 pc.
- Hose 3/8x3/8x350mm - 1 pc.



**DL- FMDE045**

A set of two hoses for connecting the "OUT 1" and "OUT 2" fittings of the "FMDE" flow measurement controller to the drain fittings of the test bench tank. (The hoses are installed on the test bench.)

The kit includes:

- Hose 3/8x3/8x1550 mm - 1 pc.
- Hose 3/8x3/8x1550 mm - 1 pc.



**DL-1CP2304**

A set of 5 hoses for pumps SR1, SR2, SR3. The set includes:

• Hose ø12x3/8x700mm - 1 pc.	• Hose ø12x3/8x900mm - 1 pc.
• Hose ø12x3/8x800mm - 1 pc.	• Hose 3/8x3/8x1250mm - 1 pc.
• Hose ø12x3/8x850mm - 1 pc.	



**DL-2UMS004**

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

- Universal hose Ø8x3/8x1000 mm. 3 pcs.
- Universal hose Ø10x3/8x1000 mm. 4 pcs.

### CR-Test4E

#### STAND EQUIPMENT

##### Set of fittings for connection

DL-KUK0040



The set includes:

- Cone fitting 3/8"x10 mm – 4 pcs.;
- Cone 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.;
- Banjo bolt M16 – 2 pcs.;
- Banjo M14 bolt – 2 pcs.;
- Banjo M12 bolt – 6 pcs.;
- Ø12 mm gasket – 16 pcs.;
- Ø14 mm gasket – 12 pcs.;
- Ø16 mm gasket – 12 pcs.;
- Ø21 mm (1/2") gasket – 1 pc.;
- Plastic nipple for VDO (Siemens) pumps – 1 pc.
- 1/2"x3/8" nipple – 1 pc.;
- M16x1.5x3/8" nipple – 1 pc.
- M12xM16 adapter (1.5 mm pitch) - 4 pcs.
- M12xM14 adapter (1.5 mm pitch) - 4 pcs.
- Adapter M12xM12vn (pitch 1.5 mm) - 4 pcs.

## CR-Test4E

## STAND EQUIPMENT

**0 281 002 842**

Bosch pressure sensor  
(2 pcs.) for Rail,  
mounted on a stand

**0 281 002 494**

Bosch pressure regulators  
(5 pcs.) on rail,  
mounted on a stand

**DL-CAU001**

Cable for BOSCH injectors (universal)

**DL-CAU002**

Cable for Delphi (C2i, C3i)

**DL-CAU003**

Cable for Delphi (C3i)

**DL-CAU004**

Cable for BOSCH, SIEMENS

**DL-CAU005**

Cable for BOSCH

**DL-CAU007**

Cable for truck injectors

**DL-CAU006**

Universal cable for truck injectors

**DL-CAU09**

Cable for connecting the pressure sensor

**DL-CAU10**

Cable for connecting the pressure regulator

### CR-Test4E

#### STAND EQUIPMENT



**DL-UNI50008**

Pump mounting bracket,  
standard Bosch 125 mm.  
Mounted on a stand.



**DL-UNI50433**

125mm bracket with  
3 mounting holes and  
stops at the front



**DL-UNI50434**

125mm bracket  
with three mounting holes  
and stops at the rear

#### FLANGES



**DL-UNI30428**

Fuel injection pump mounting flange  
107 mm CP-3



**DL-UNI30465**

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



**DL-UNI30464**

Mounting flange for CR (MB)  
high-pressure fuel pump

#### COUPLINGS



**DL-CR31251**

24mm cone coupling for  
CR SR-3 high-pressure fuel pump



**DL-CR31271**

17mm cone coupling for testing  
CR pumps and VE high-pressure fuel pumps



**DL-CR31269**

19mm cone coupling for testing  
CR pumps and VE high-pressure  
fuel pumps

## CR-Test4E

## OPTIONAL EQUIPMENT AND ACCESSORIES

## DL-CR50378 KIT FOR TESTING FUEL INJECTION PUMPS CP3-4 MAN, KAMAZ, Bosch

## FLANGES



DL-UNI30474

Фланец крепления для ТНВД MAN CP3  
MAN, аналог Bosch 1685720258



DL-UNI30884

Фланец крепления для ТНВД  
MAN КАМАЗ CP3.4,  
аналог Bosch 1685720312

## COUPLINGS



DL-CR31248

Муфта шлицевая (11 шлиц.) для  
проверки насосов MAN CR CP-3

## DL-CR50379 FUEL PUMP TESTING KIT CP2 RENAULT, MAZ, BOSH

## FLANGES



DL-UNI30886

Fuel injection pump mounting flange  
107 mm CP2  
Bosch 0445020036 (Renault).



DL-CR31833

Flange for fuel injection pump CP-2  
BOSCH 0445020116

## COUPLINGS



DL-CR31594

K35 coupling for connecting to a  
MAZ SR2 high-pressure fuel pump  
test bench



Mounts to the flange of the expansion  
joint. Compatible with BOSCH EPS-815,  
CR-Test 4E, CR-Test 2P test benches  
and compatible mounting hardware.



DL-CB230016

Cone coupling with flange connection  
Ø 30 mm  
Cam Box2, Renault fuel injection pump

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### DL-CR50380 KIT OF EQUIPMENT FOR TESTING CUMMINS KAMAZ WITH FUEL PUMP BOSCH AND AZPI



**DL-CR31145**

80mm mounting flange for fuel injection pump CR CP3S3 Bosch 0445020060



**DL-UNI31739**

Fuel injection pump mounting flange AZPI A-08-013-10, 708, BOSCH 0445020224



**DL-CR50427**

KAMAZ 54901 Fuel Injection Pump Test Kit K5 0445020338 (Flange Mount)



**DL-CR50426 \***

Fuel injection pump test kit KAMAZ 54901 K5 0445020338 (slotted mount)

#### Delivery set:

- **DL-CR31145** Flange – 1 pc.
- **DL-UNI31739** Flange – 1 pc.
- **DL-CR50427** Fuel injection pump test kit - 1 pc.
- **DL-CR50426** Fuel injection pump test kit - 1 pc. \*

\* The kit is supplied for stands with a splined drive coupling.

##### DL-CR50137 A KIT OF EQUIPMENT FOR CHECKING AND REPAIRING FUEL FUEL PUMP CR CP4 BOSCH



#### Delivery set:

- **DL-CR30861** Flange – 1 pc.
- **DL-CR30862** Flange – 1 pc.
- **DL-UNI50083** Adapter – 1 pc.
- **DL-UNI50084** Adapter – 2 pcs.
- **DL-UNI30980** Screw M16x1 – 3 pcs.
- **DL-CR31003** Socket head for pump valve CP4 – 1pc.

##### EQUIPMENT KIT FOR FUEL PUMP 0 445 025 604 BOSCH CB28 (D245 EURO-4) MMZ EURO-4



**DL-CR31972**

Mounting flange for fuel injection pump 0 445 025 604 BOSCH CB28 (D245 EURO-4) MMZ EURO-4



**DL-CR31974 \***

24 mm cone coupling with mounting tabs 0 445 025 604 fuel injection pump BOSCH CB28 (D245 EURO-4) MMZ EURO-4.



**DL-CR31973**

24 mm cone coupling for high-pressure fuel pump 0 445 025 604 BOSCH CB28 (D245 EURO-4) MMZ EURO-4

#### Delivery set:

- **DL-CR31972** Flange – 1 pc.
- **DL-CR31973** Flange – 1 pc.
- **DL-CR31974** Coupling – 1 pc. \*

\* The kit is supplied for stands with a splined drive coupling.

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### FUEL PUMP TOOLING KIT CUMMINS P4954200



**DL-CR31766**

Flange coupling  
for CUMMINS P4954200  
high-pressure fuel pump  
To connect the CUMMINS  
P4954200 high-pressure fuel pump,  
DL-CR31765 is also required.



**DL-CR31778**

Splined coupling  
with tabs for the Cummins  
P4954200 high-pressure fuel pump  
To connect the Cummins  
P4954200 high-pressure fuel pump,  
a flange is also required.  
DL-CR31765



**DL-CR31765**

Mounting flange for CUMMINS  
P4954200 fuel injection pump

##### CR INJECTION PUMP TESTING EQUIPMENT BOSCH

#### FLANGES



**DL-UNI30887**

Flange for installing  
a high-pressure fuel pump  
CRCP3 Mercedes, (Analog  
SIRINI AAE001-03)



**DL-CR31228 (CP383)**

Mounting flange for CR fuel injection  
pump BOSCH 0445010091 MB Sprinter,  
Viti, Viano 2.1L. 2006 and later.  
Bore size: 50 mm.



**DL-CR31165**

Fuel injection pump mounting  
flange BOSCH CR/CP1H3  
60mm For example,  
BOSCH fuel injection pump  
0445010223 (Renault  
Megane 2012)



**DL-CR31513**

Flange for mounting on a bench  
CR CP3S3/K140/40-789S high-  
pressure fuel pump  
BOSCH 0445020125  
Bore 107 mm

#### COUPLINGS

**DL-CR31416**



**Bosch 0445010512 CR / CP4S1 Fuel Injection Pump Coupling**

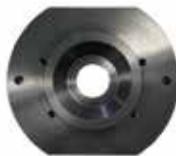
The coupling has grooves for the pump coupling splines and  
a centering cone. It is attached to the expansion joint flange.  
Compatible with BOSCH EPS-815, CR-Test 4E,  
CR-Test 2P test stands and compatible mounts.

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES

#### DENSO CR FUEL PUMP TESTING KIT

##### FLANGES / SUPPORTS



**DL-CR31607**

Flange for high-pressure  
fuel pump  
DENSO HP0  
094000-0635



**DL-CR50151**

A set of supports for mounting Denso  
HP0 pumps on a stand



**DL-CR50266**

Angle stand for mounting  
the CR DENSO 097300-0023  
fuel injection pump during  
testing on a test bench.



**Delivery set:**

- **DL-CR31094** Support – 2 pcs.
- **DL-UNI30090** Profile bolt – 2 pcs.
- M14 nut – 2 pcs.
- 14mm washer – 2 pcs.
- 14mm lock washer – 2 pcs.

##### COUPLINGS



**DL-UNI31029**

**DL-UNI31029 coupling for Denso fuel injection pumps**  
(includes UNI31030 insert with a 10 mm groove).  
Compatible with BOSCH EPS-815, CR-Test 4E,  
CR-Test 2P test benches and their compatible mounting hardware.

#### CR DELPHI FUEL PUMP TESTING TOOL

##### FLANGES



**DL-CR31150**

A flange for mounting on a CR DELPHI high-pressure fuel pump stand  
with a 50 mm mounting diameter and mounting holes located perpendicular  
to the plane of the mounting hole.



**DL-CR30866**

A flange for mounting on a CR DELPHI high-pressure fuel pump stand  
with a 50 mm mounting diameter and three mounting holes: two  
perpendicular to the mounting hole plane, and one parallel to it.

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES

#### CR INJECTION PUMP TESTING EQUIPMENT **DELPHI**

##### COUPLINGS



**DL-CR31669**

Flange coupling for CR Delphi high-pressure fuel pump 28384347

Mounts to the expansion joint flange.

Compatible with BOSCH EPS-815, CR-Test 4E,

CR-Test 2P test stands and their associated mounting hardware.

#### CR INJECTION PUMP TESTING EQUIPMENT **Siemens (VDO) Contienental**

##### SUPPORTS



**DL-CR50159**

Mounting stand for  
SIEMENS fuel  
injection pumps



**DL-CR50267**

Angle stand for mounting  
the Siemens CR fuel injection  
pump during bench testing.

##### COUPLINGS



**DL-CR31480**

22 mm cone coupling for testing CR Siemens (VDO) pumps.

Mounts to the expansion joint flange.

Compatible with BOSCH EPS-815, CR-Test 4E,

CR-Test 2P test stands and compatible mounting hardware.

##### FLANGES



**DL-CR31560**

C50 flange for mounting on a Continental high-pressure fuel pump stand  
2802002037101

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES

#### UNIVERSAL EQUIPMENT FOR CHECKING HIGH-PRESSURE FUEL PUMP CR

##### FLANGES



**DL-CR30860**

Mounting flange for CR fuel injection pump DENSO HP2, HP3, VDO-Siemens VW 1.6 (Continental A2C59517053)



**DL-CR30466**

68 mm mounting flange for CR fuel injection pumps Renault Megane, Delphi Siemens VDO, Land Rover, Range Rover V8, and VE fuel injection pumps



**DL-UNI31207**

A universal flange with a 50 mm diameter mounting hole, without mounting holes. Designed for making mounting holes for pumps with a 50 mm mounting diameter.



**DL-UNI31208**

A universal flange with a 60 mm diameter mounting hole, without mounting holes. Designed for making mounting holes for pumps with a 60 mm diameter mounting hole.

##### COUPLINGS



**DL-UNI31025**

**Coupling for Bosch SR1 fuel injection pumps, Siemens VDO Continental fuel injection pumps**

For Bosch SR1 (MB) high-pressure fuel pumps (includes UNI31028 insert with an 8 mm groove) and for Siemens VDO high-pressure fuel pumps (includes UNI31027 insert with a 9 mm groove). Can be used on Bosch test stands instead of coupling 1685702090.

Suitable for BOSCH EPS-815, CR-Test 4E, CR-Test 2P test stands and compatible mountings.



**DL-CR31558 (K23)**

**23 mm cone coupling for Bosch and Siemens VDO Continental CR fuel injection pumps**

The mount is located on the expansion joint flange.

Suitable for CR-Test, BOSCH EPS-815, and compatible mounts.

Compatible CR fuel injection pumps:

- Continental A2C59517053
- BOSCH CR/CP4HS2 0445010637
- BOSCH CR/CP4S2 0445010611
- BOSCH CR/CP4S1 0445010506

*All elements of the set are sold separately.*

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES



**DL-MOK**

Adapter-coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 37 mm  
 Length without clamps = 33 mm  
 Diameter = 1.15 mm



**DL-MOK-K**

Quick-connect coupling with check valve, Ø 6 mm  
 Connection holes: Ø 6 mm x Ø 6 mm  
 Length with clamps = 49 mm  
 Length without clamps = 45 mm  
 Diameter = 13.8 mm



**DL-MOK-KS**

Quick-connect coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 42.6 mm  
 Length without clamps = 37.3 mm  
 Diameter = 12.5 mm



**DL-CR50120**

Delphi injector back-up valve for coding (response time)



**DL-CR50406**

Back-up valve for DELPHI coding, thread G 1/8"



**DL-CR50136**

Return flow pressure valve for testing BOSCH electromagnetic injectors on a test bench



**DL-CR50210**

Return pressure valve for testing SIEMENS piezo injectors on a test bench



**DL-CR50177**

Return pressure valve for piezo injectors Bosch

**CR-Test4E**

## OPTIONAL EQUIPMENT AND ACCESSORIES

**DL-CR50013**

Universal adapter for CR truck injectors (Bosch, Denso, Delphi Smart) for connecting the supply and return lines with 0°, 4°, and 13° angles.

**DL-CR50140**

Universal adapter for Denso CR truck injectors, including Volvo 21952974 for connecting the supply and return lines.

## CR-Test4E

## OPTIONAL EQUIPMENT AND ACCESSORIES

## ADAPTERS FOR CHECKING TRUCK INJECTORS

							
<b>DL-002 DL-CR31046</b> BOSCH MAN Ø 29MM	<b>DL-003 DL-CR31821</b> DAF Euro 7 (PACCAR)	<b>DL-004A DL-CR30848</b> BOSCH RENAULT Ø 32MM	<b>DL-005N DL-CR31048</b> CUMMINS	<b>DL-006 DL-CR31440</b> DENSO Ø 27MM	<b>DL-007 DL-CR31044</b> DENSO Ø 23,5MM	<b>DL-008 DL-CR31045</b> BOSCH MAN Ø 26MM	<b>DL-009 DL-CR31439</b> BOSCH VOLVO Ø 28MM
							
<b>DL-010 DL-CR31047</b> CUMMINS	<b>DL-011 DL-CR30985</b> SIEMENS VDO FORD	<b>DL-012 DL-CR30036</b> CRIN BOSCH SISU Ø 26,6MM	<b>DL-013 DL-CR30968</b> DELPHI SMART INJECTOR	<b>DL-014 DL-UNI30038</b> DENSO	<b>DL-015 DL-CR30822</b> DENSO Ø 18,5 MM Caterpillar, Perkins	<b>DL-016 DL-CR31486</b> SCANIA 2/4 pin	<b>DL-016U DL-CR31806</b> SCANIA 2/4 pin
							
<b>DL-017 DL-UNI30037</b> BOSCH DEUTZ Ø 21,5MM	<b>DL-018 DL-CR30595</b> CURSOR 9	<b>DL-019 DL-CR30804</b> BOSCH MTU	<b>DL-020 DL-CR30596</b> SCANIA 4 PIN	<b>DL-021 DL-CR31565</b> BOSCH CRIN3 0445124015	<b>DL-022 DL-CR31566</b> Caterpillar 3809888	<b>DL-023 DL-CR31567</b> Delphi Smart injector Mercedes	<b>DL-024 DL-CR31620</b> DAF-SMART injector
							
<b>DL-025 DL-CR31625</b> DELPHI CRIN DAF EURO 6 SMART INJ	<b>DL-026 DL-CR31626</b> CUMMINS	<b>DL-027 DL-CR31698</b> BOSCH	<b>DL-028 DL-CR31759</b> FORD	<b>DL-029 DL-CR31793</b> BOSCH 0445120247	<b>DL-030 DL-CR30818</b> BOSCH ΡM3-530	<b>DL-031 DL-CR31040</b> BOSCH 0445120303	<b>DL-032 DL-CR31430</b> BOSCH 0445120134
							
<b>DL-033 DL-CR31479</b> DENSO	<b>DL-034 DL-CR31538</b> DENSO 1211 11L1063(095000-121)	<b>DL-035 DL-CR31561</b> DENSO	<b>DL-036 DL-CR31563</b> Delphi A9362187 Mersedes Actros Euro 6	<b>DL-037 DL-CR50304</b> MB Actros	<b>DL-038 DL-CR31606</b> 5296723 DENSO	<b>DL-039 DL-CR31738</b> CAT Ø 28MM	<b>DL-040 DL-LR31785</b> Lorang Ø 26,5MM x Ø 23MM
							
<b>DL-041 DL-CR31861</b> CUMMINS-XPI 4307475	<b>DL-042 DL-CR31900</b> BOSCH DHIM, Doosan, Yuchai	<b>DL-043 DL-CR31969</b> BOSCH 0445120471					

### CR-Test4E

#### OPTIONAL EQUIPMENT AND ACCESSORIES

##### HEUI Unit Injector Testing Kit

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



The equipment includes:

1. **DL-HEUI50223** Adapter for installing pump injectors



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



HEUI CATERPILLAR C7-C9



The equipment includes:

1. **DL-HEUI50221** Adapter for installing pump injectors



*Please note: All equipment components are sold separately.*

CR-Test4E  
CR-JET-4EM

## ADDITIONAL EQUIPMENT AND COMPONENTS

DL-KD020

DELPHI INJECTOR CODING DEVICE  
FOR THE CR-TEST-4E AND CR-JET-4EM

## Delivery set:

1. Control valve	9. Adjustment valve
2. Vacuum gauge	10. Electric motor ~230 V 50 Hz
3. *Pressure accumulator (Rail)	11. Coupling
4. Coding sensor	12. Bracket
5. Back-up valve for Delphi injectors	13. Vacuum pump
6. Venturi tube	14. Tee with nipple
7. Signal amplifier	15. Connecting hose ø 8 mm
8. Connecting tube ø 6 mm	16. Connecting hose ø 10 mm

*\* on additional order*

### CR-Test4E CR-Test-2P

#### ADDITIONAL EQUIPMENT AND COMPONENTS

##### DL-UNF20400

**Set of filters and sediment collectors for testing fuel injection pumps**  
at the CR-TEST-4E and CR-TEST-2P stands



##### Delivery set:

1. **DL-UNF20300L** Sedimentation filter (entrance on the left) – 2 pcs.
2. **DL-UNI50211** Extended adapter 3/8" x M14 x 1.5 mm – 2 pcs.
3. **DL-UNI31161** Shortened adapter 3/8" x M14 x 1.5 mm – 2 pcs.
4. **DL-UNI50213** Filter mounting bracket.

##### DL-UNF20410

**Set of sediment filters for testing injectors**  
at the CR-TEST-4E stand

Designed for preliminary cleaning of injectors before testing them on a test bench.

##### Delivery set:



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

### CR-Test4E CR-Test-2P

#### ADDITIONAL EQUIPMENT AND COMPONENTS



**DL-CR31497**

**Adapter for measuring pressure  
of the CR booster pump**

*Please note: The adapter is supplied without  
tube connectors and a pressure gauge!*

**DL-CR31497KIT**

**CR booster pump pressure  
measurement adapter kit**

**Delivery set:**

1. **DL-SP09570** L-shaped "quick" adapter M5 x 4mm
2. **DL-SP09580** Female nipple 1/4" x 4mm for pressure gauge
3. **DL-P1002** Flexible PVC tube, diameter 4 mm (100 cm)
4. **D-12-TV63-016** 16 bar pressure gauge with 1/4" lower connection



**DL-ORV9**

**Air defense radiator for testing  
MAN fuel injection pumps on CR-TEST-2P/  
CR-TEST-4E stands**

**TRIUMF CR-Test-4E**  
**CRUIS CR-JET-4EM****ADDITIONAL EQUIPMENT  
AND COMPONENTS****Set of split bushings (main) for installing injectors**

1.		<b>DL-UNI31019</b>	bushing with internal Ø 17 mm
2.		<b>DL-UNI31020</b>	bushing with interna Ø 18,9 mm
3.		<b>DL-UNI31021</b>	bushing with interna Ø 19,2 mm
4.		<b>DL-UNI31022</b>	bushing with interna Ø 21 mm
5.		<b>DL-UNI31031</b>	bushing with interna Ø 21,4 mm

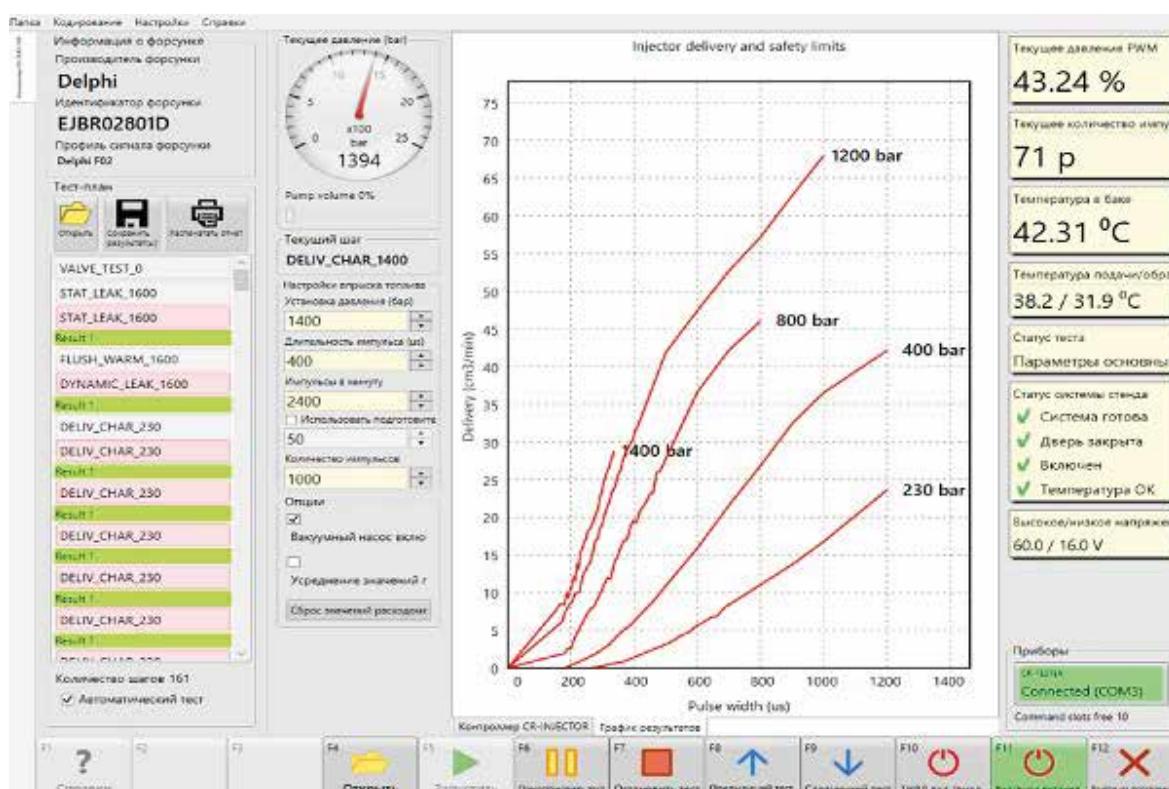
*ATTENTION! All bushings are sold separately.***A set of split bushings (additional) for installing injectors**

1.		<b>DL-UNI31015</b>	bushing with interna Ø 24 mm
2.		<b>DL-UNI31016</b>	bushing with interna Ø 25 mm
3.		<b>DL-UNI31017</b>	bushing with interna Ø 26 mm

*ATTENTION! All bushings are sold separately.*

TRIUMF CR-Test-4E  
CRUIS CR-JET-4EMADDITIONAL EQUIPMENT  
AND COMPONENTSC4i-CODE  
DELPHI C4i Injector Coding

Software for the CASCADE program, allowing coding of DELPHI C4i injectors on CRUIS, TRIUMF, CR-Test-4E, and CR-Jet test benches



## CR-Test2P

The **CR-Test2P** test bench is designed for testing Common Rail pumps.

The bench tests BOSCH, DENSO, DELPHI, and SIEMENS pumps (CP1, CP2, CP3, HP2, and HP3). System pressure is up to 1800 bar. The pressure can be increased to 2200 bar. Measurements are performed using an electronic measurement system. A software program with test plans is included.

**CR-Test-2P** – a test bench for CR pumps with a 2-channel electronic measurement unit.



### CR-Test2P

#### Software



### CR-Test2P

### STAND EQUIPMENT



**FMDE-520**

**Liquid flow meter  
for pumps, 2-channel.**  
Mounted on a test bench.



**PTC-2520**

**Pump controller.**  
Mounted on a test bench.



**DL-TVD61414**

High-pressure hose M14 x M14 x 600 mm  
for SR2 pumps – 2 pcs.



**DL-TVD51414**

High-pressure hose M14 x M14 x 500 mm  
for SR1, SR3 pumps - 1 pc.

**0 281 002 842**

Bosch Rail pressure relief valve,  
installed on a stand



**DL-CR31053**

RAIL 3 pressure accumulator with 3 pressure regulators  
(with cooling) for pump testing.  
Mounted on a test bench.



**0 281 002 494**

Bosch pressure regulators  
on rail (3 pcs), mounted  
on a stand



**0 281 002 842**

Bosch pressure sensor  
on Rail, mounted  
on a stand



**DL-54127**

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



Door keys (4 pcs.)

### CR-Test2P

#### STAND EQUIPMENT



**DL-FMDE014**

Hose for measuring fuel injection pump flow from the pressure accumulator to the radiator inlet fitting (RAIL-CR PUMP FM1),  $\varnothing 12 \times 3/8 \times 900$  mm, with bolt, Banjo fitting, and 2 gaskets. – 1 pc.



**DL-FMDE024**

A set of two hoses for connecting from the "COOLER OUT1" and "COOLER OUT2" ports on the front panel to the "IN1" and "IN2" ports on the "FMDE" flow measurement controller. (The hoses are installed on the stand.)

The kit includes:

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



**DL-1CP2304**

A set of 5 hoses for pumps SR1, SR2, SR3. The set includes:

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



**DL-2UMS004**

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

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

### CR-Test2P

#### STAND EQUIPMENT

##### Set of fittings for connection

DL-KUK0040



The set includes:

- Cone fitting 3/8"x10 mm – 4 pcs.;
- Cone fitting 3/8"x8 mm – 3 pcs.;
- Clamp Ø13 - 7 pcs.;
- Clamp Ø15 - 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.;
- Banjo bolt M16 – 2 pcs.;
- Banjo M14 bolt – 2 pcs.;
- Banjo M12 bolt – 6 pcs.;
- Ø12 mm gasket – 16 pcs.;
- Ø14 mm gasket – 12 pcs.;
- Ø16 mm gasket – 12 pcs.;
- Ø21 mm (1/2") gasket – 1 pc.;
- Plastic nipple for VDO (Siemens) pumps – 1 pc.
- 1/2"x3/8" nipple – 1 pc.;
- M16x1.5x3/8" nipple – 1 pc.
- M12xM16 adapter (1.5 mm pitch) - 4 pcs.
- M12xM14 adapter (1.5 mm pitch) - 4 pcs.
- Adapter M12xM12vn (pitch 1.5 mm) - 4 pcs.

### CR-Test2P

#### STAND EQUIPMENT



**DL-CAU018**

Pressure sensor connection cable



**DL-CAU019**

Cable for connecting the LP-2 pressure regulator



**DL-CAU020**

Cable for connecting the HP-3 pressure regulator



**DL-UNI50008**

Pump mounting bracket, standard Bosch 125 mm. Mounted on a stand.



**DL-UNI50433**

125mm bracket with 3 mounting holes and stops at the front



**DL-UNI50434**

125mm bracket with three mounting holes and stops at the rear

#### FLANGES



**DL-UNI30428**

Fuel injection pump mounting flange 107 mm CP-3



**DL-UNI30465**

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



**DL-UNI30464**

Mounting flange for CR (MB) high-pressure fuel pump

#### COUPLINGS



**DL-CR31251**

24mm cone coupling for CR SR-3 high-pressure fuel pump



**DL-CR31271**

17mm cone coupling for testing CR pumps and VE high-pressure fuel pumps



**DL-CR31269**

19mm cone coupling for testing CR pumps and VE high-pressure fuel pumps

### CR-Test2P

### ADDITIONAL EQUIPMENT FOR THE STAND

#### DL-CR50378 CP3-4 Fuel Pump Test Kit for MAN, KAMAZ, and Bosch

##### FLANGES



##### DL-UNI30474

Mounting flange for MAN CP3 fuel injection pump MAN, equivalent to Bosch 1685720258



##### DL-UNI30884

Fuel injection pump mounting flange MAN KAMAZ CP3.4, similar to Bosch 1685720312

##### COUPLINGS



##### DL-CR31248

Splined coupling (11 splines) for testing MAN CR CP-3 pumps

#### DL-CR50379 A KIT OF EQUIPMENT FOR CHECKING FUEL PUMP CP2 RENAULT, MAZ, BOSH

##### FLANGES



##### DL-UNI30886

Fuel injection pump mounting flange 107 mm CP2 Bosch 0445020036 (Renault).



##### DL-CR31833

Flange for CP-2 fuel injection pump BOSCH 0445020116

##### COUPLINGS



##### DL-CR31594

K35 coupling for connection to a test bench MAZ SR2 high-pressure fuel pump



The mounting is done to the expansion joint flange. Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test stands and compatible mountings.



##### DL-CB230016

Cone coupling with flange connection Ø 30 mm  
Cam Box2, Renault fuel injection pump



### CR-Test2P

#### ADDITIONAL EQUIPMENT FOR THE STAND

##### CUMMINS P4954200 FUEL PUMP TOOL KIT



**DL-CR31766**

Flange coupling  
for CUMMINS P4954200  
high-pressure fuel pump  
To connect the CUMMINS  
P4954200 high-pressure fuel pump,  
DL-CR31765 is also required.



**DL-CR31778**

Splined coupling  
with tabs for the Cummins  
P4954200 high-pressure fuel pump  
To connect the Cummins  
P4954200 high-pressure fuel pump,  
a flange is also required.  
DL-CR31765



**DL-CR31765**

Mounting flange for CUMMINS  
P4954200 fuel injection pump

##### BOSCH CR FUEL PUMP TESTING TOOL

#### FLANGES



**DL-UNI30887**

Flange for installing  
a high-pressure fuel pump  
CRCP3 Mercedes, (Analog  
SIRINI AAE001-03)



**DL-CR31228 (CP383)**

Mounting flange for CR fuel injection  
pump BOSCH 0445010091 MB  
Sprinter, Vito, Viano 2.1L. 2006 and  
later. Bore size: 50 mm.



**DL-CR31165**

Fuel injection pump mounting  
flange BOSCH CR/CP1H3  
60mm For example, BOSCH  
fuel injection pump  
0445010223 (Renault  
Megane 2012)



**DL-CR31513**

Flange for mounting on a bench  
CR CP3S3/K140/40-789S high-pressure  
fuel pump  
BOSCH 0445020125  
Bore 107 mm

#### COUPLINGS

**DL-CR31416**



**Bosch 0445010512 CR / CP4S1 Fuel Injection Pump Coupling**

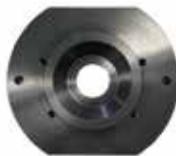
The coupling has grooves for the pump coupling splines and  
a centering cone. It is attached to the expansion joint flange.  
Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P  
test stands and compatible mounts.

### CR-Test2P

#### ADDITIONAL EQUIPMENT FOR THE STAND

##### DENSO CR Fuel Pump Testing Kit

###### FLANGES / SUPPORTS



**DL-CR31607**

Flange for high-pressure fuel pump DENSO HP0 094000-0635



**DL-CR50151**

A set of supports for mounting Denso HP0 pumps on a stand



**DL-CR50266**

Angle stand for mounting the CR DENSO 097300-0023 fuel injection pump during testing on a test bench.



###### Package Contents:

- **DL-CR31094** Support – 2 pcs.
- **DL-UNI30090** Profile Bolt – 2 pcs.
- M14 Nut – 2 pcs.
- 14mm Washer – 2 pcs.
- 14mm Grover – 2 pcs.

###### COUPLINGS



**DL-UNI31029**

**DL-UNI31029 coupling for Denso fuel injection pumps**  
(includes UNI31030 insert with a 10 mm groove).

Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test benches and their compatible mounting hardware.

##### CR DELPHI FUEL PUMP TESTING TOOL

###### FLANGES



**DL-CR31150**

A flange for mounting on a CR DELPHI high-pressure fuel pump stand with a 50 mm mounting diameter and mounting holes located perpendicular to the plane of the mounting hole.



**DL-CR30866**

A flange for mounting on a CR DELPHI high-pressure fuel pump stand with a 50 mm mounting diameter and three mounting holes: two perpendicular to the mounting hole plane, and one parallel to it.

**CR-Test2P**

## ADDITIONAL EQUIPMENT FOR THE STAND

**CR DELPHI FUEL PUMP TESTING TOOL****COUPLINGS****DL-CR31669**

**Flange coupling for CR Delphi high-pressure fuel pump 28384347**  
Mounts to the expansion joint flange.  
Compatible with BOSCH EPS-815, CR-Test 4E,  
CR-Test 2P test stands and their associated mounting hardware.

**SIEMENS (VDO) CONTINENTAL CR FUEL PUMP TESTING KIT****SUPPORTS****DL-CR50159**

Mounting stand for  
SIEMENS fuel injection  
pumps

**DL-CR50267**

Angle stand for mounting the  
Siemens CR fuel injection pump  
during bench testing.

**COUPLINGS****DL-CR31480**

22 mm cone coupling for testing CR Siemens (VDO) pumps.  
Mounts to the expansion joint flange.  
Compatible with BOSCH EPS-815, CR-Test 4E,  
CR-Test 2P test stands and compatible mounting hardware.

**FLANGES****DL-CR31560**

C50 flange for mounting on a Continental high-pressure fuel pump stand  
2802002037101

### CR-Test2P

### ADDITIONAL EQUIPMENT FOR THE STAND

#### UNIVERSAL EQUIPMENT FOR CHECKING HIGH-PRESSURE FUEL PUMP CR

##### FLANGES



**DL-CR30860**

Mounting flange for CR fuel injection pump DENSO HP2, HP3, VDO-Siemens VW 1.6 (Continental A2C59517053)



**DL-CR30466**

68 mm mounting flange for CR fuel injection pumps Renault Megane, Delphi Siemens VDO, Land Rover, Range Rover V8, and VE fuel injection pumps



**DL-UNI31207**

A universal flange with a 50 mm diameter mounting hole, without mounting holes. Designed for making mounting holes for pumps with a 50 mm mounting diameter.



**DL-UNI31208**

A universal flange with a 60 mm diameter mounting hole, without mounting holes. Designed for making mounting holes for pumps with a 60 mm diameter mounting hole.

##### COUPLINGS



**DL-UNI31025**

**Coupling for Bosch SR1 and Siemens VDO Continental fuel injection pumps**  
for Bosch SR1 (MB) fuel injection pumps (includes UNI31028 insert with an 8 mm groove) and for Siemens VDO fuel injection pumps (includes UNI31027 insert with a 9 mm groove). Can be used on Bosch test benches instead of coupling 1685702090.

Suitable for BOSCH EPS-815, CR-Test 4E, CR-Test 2P test benches and compatible mountings.



**DL-CR31558 (K23)**

**23 mm cone coupling for Bosch and Siemens VDO Continental CR fuel injection pumps**  
Mounts to the expansion joint flange.  
Compatible with CR-Test, BOSCH EPS-815, and compatible mounts.  
Compatible CR fuel injection pumps:  

- Continental A2C59517053
- BOSCH CR/CP4HS2 0445010637
- BOSCH CR/CP4S2 0445010611
- BOSCH CR/CP4S1 0445010506

*All elements of the set are sold separately.*

### ADDITIONAL EQUIPMENT FOR STANDS



**DL-USN0021**

#### Universal stand for CR pumps

Delivery set:

- 1 rotary stand
- 6-piece set of flanges for mounting CR pumps
- 4-piece set of pump holder plates



### ADDITIONAL EQUIPMENT FOR STANDS



**DL-ORV2**

#### Radiator-fan type cooling rack.

ORV2 external heat exchangers are designed for additional temperature adjustment of the brake fluid. They can be connected to various streams with pressures up to 0.4 MPa.

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



**DL-MSP**

#### Mobile oil station for stands

- Operating pressure: 0-10 bar
- Flow rate at 3 bar: 150 liters/hour
- Fine filter: 10 microns
- 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 ~54 kg, gross ~60 kg

## ADDITIONAL EQUIPMENT FOR STANDS



**CRS Calibrol**

### Calibration fluid for diesel fuel equipment

CRS Calibrol Calibration Fluid (20-liter plastic canister)  
Is a test oil for testing injectors and pumps of diesel fuel injection systems.

CRS Calibrol is a low-viscosity calibration fluid with very tight viscosity tolerances.  
It offers exceptional protection against wear and corrosion, as well as low foaming.



**DL-SRS020**

### SRS calibration fluid

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

Used in test rigs for testing CR injectors, unit injectors, and PLD sections.

### ADDITIONAL EQUIPMENT AND COMPONENTS 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 equipment:

**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**

2000 Bar pressure gauge



**DL-CR50015**

Coding sensor

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR STANDS



**DL-MOK**

Adapter-coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 37 mm  
 Length without clamps = 33 mm  
 Diameter = 1.15 mm



**DL-MOK-K**

Quick-connect coupling with check valve, Ø 6 mm  
 Connection holes: Ø 6 mm x Ø 6 mm  
 Length with clamps = 49 mm  
 Length without clamps = 45 mm  
 Diameter = 13.8 mm



**DL-MOK-KS**

Quick-connect coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 42.6 mm  
 Length without clamps = 37.3 mm  
 Diameter = 12.5 mm



**DL-CR50120**

Delphi injector back-up valve for coding (response time)



**DL-CR50406**

Back-up valve for DELPHI coding, thread G 1/8"



**DL-CR50136**

Return flow pressure valve for testing BOSCH electromagnetic injectors on a test bench



**DL-CR50210**

Return pressure valve for testing SIEMENS piezo injectors on a test bench



**DL-CR50177**

Return pressure valve for piezo injectors Bosch

## ADDITIONAL EQUIPMENT AND COMPONENTS FOR THE TRIUMF, CRUIS, CR-TEST-4E, AND CR-JET-4EM TEST STANDS

Retrofitting CRUIS, TRIUMF, and CR-Jet test rigs  
with 5.5 kW electric motors



1. **DL-EDF0055** 5.5 kW Flanged Electric Motor
2. **DL-UNI50277** 5.5 kW Electric Motor Mounting Bracket for TRIUMF and CR-Jet Test Stands  
**DL-UNI31521** 5.5 kW Electric Motor Mounting Bracket for the CRUIS Test Stand
3. **DL-UNI31444** Engine coupling for fuel injection pump  
**DL-UNI31502** Engine coupling for fuel injection pump
4. **DL-UNI31449** Fuel injection pump mounting collar to electric motor
5. **DL-MUP0060** Polyurethane expansion joint
6. **DL-UNI31443** Fuel injection pump coupling  
**DL-UNI31520** Fuel injection pump coupling
7. **DL-UNI31459** Fuel injection pump flange
8. **THВД 020139** High-pressure fuel pump  
BOSCH 0445020139

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR STANDS TRIUMF, CRUIS , CR-TEST-4E И CR-JET-4EM



**DL-EDF0055**

Flanged electric motor 5.5 kW



**DL-UNI50277**

5.5 kW Electric Motor Mounting Bracket  
for TRIUMF and CR-Jet stands



**DL-UNI31521**

5.5 kW Electric Motor Mounting Bracket  
for CRUIS Test Stands



**DL-UNI31449**

Mounting collar for fuel injection pump to electric motor



**DL-MUP0060**

Polyurethane compensating insert



**DL-UNI31443**

Coupling for fuel injection pump

**DL-UNI31520**

Coupling for fuel injection pump



**DL-UNI31459**

Flange for fuel injection pump

**THВД 020139**

BOSCH 0445020139 high-pressure fuel pump

### CR-JET-4E STAND UPGRADE KIT. CASCADE SOFTWARE INSTALLATION

#### DL-KMS-JET

#### List of modernization components:

- Electronics / Mounting Kit
- Delphi Piezo Sensor for Cascade Software
- Personal Computer / PC Installation Accessories
- Frequency Converter / Frequency Converter Control Software / Mounting Kit
- Vacuum System / Mounting Kit
- Mounting Elements for Frequency Converter and Vacuum Pump
- Vacuum Control Unit / Mounting Kit
- Vacuum Monitoring Unit
- 2400 Bar Pressure Upgrade / Hydraulic Kit



Cascade software has a user-friendly interface. It includes built-in test plans for testing and coding Bosch, Delphi, Denso, and Siemens (VDO) injectors. You can create new test plans, edit existing ones, and create targets for Delphi C2i, C3i, and C4i injectors. Test results and progress are displayed graphically, saved to a file, and printed.

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

The stand operates at pressures up to 2400 bar.

\*Delphi C4i coding is available as an optional extra.

### PUMP TEST.02

Equipment for testing high-pressure Common Rail pumps



#### The kit includes:

1. The PTC-2520 device is designed to provide user-programmable control signals to Common Rail fuel injection pump pressure regulators to test their performance.
2. The FMDE-520 device is designed to measure Common Rail fuel injection pump performance via two channels.
3. A wheeled instrument stand for convenient operation.
4. A set of adapter cables.
5. Fine fluid filters (2 pcs.)
6. Software.





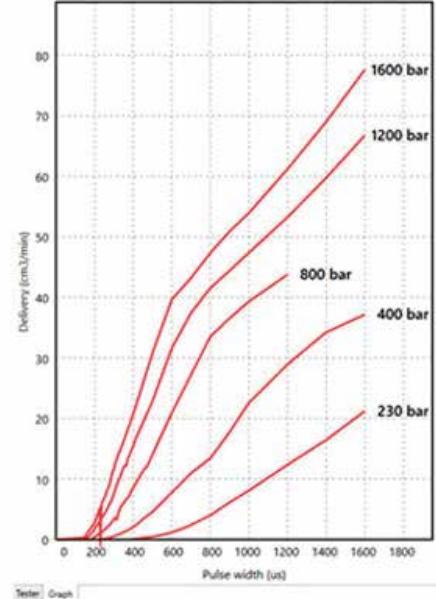
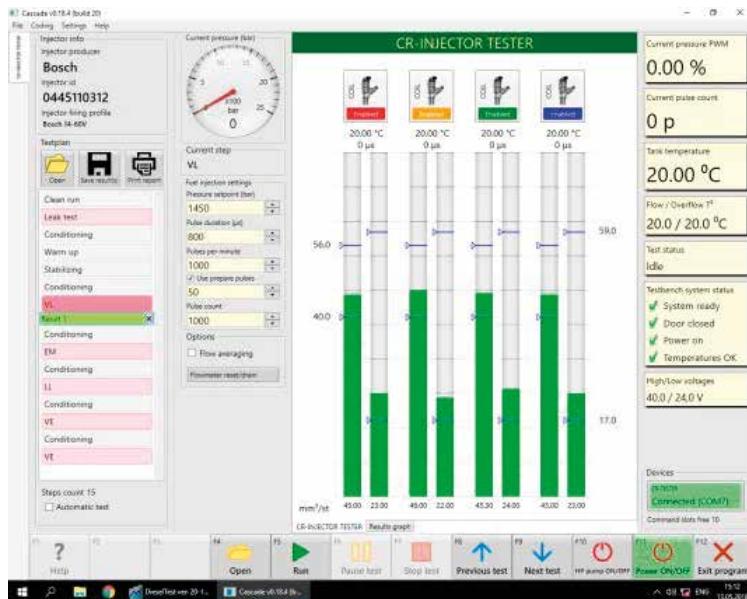
### CR-TESTER . CRT-5040

A 4-channel device for testing Bosch, Denso, Delphi, and Siemens VDO Common Rail injectors with a cable kit.

The device can be connected to the **FLAGMAN-FLOW** measuring system, which can generate correction codes for Delphi C2i/C3i, BOSCH, and DENSO injectors.

The **CR-TESTER CRT-5040** device features functions for controlling the metering unit shutter, stopping the fuel injection pump, measuring and controlling tank temperature, measuring the return temperature of the tested injectors, measuring injection start time, and more.

The kit is computer-controlled via the **CASCADE** software.





### FLAGMAN-FLOW

8-channel CR injector dosage measurement unit for the CR-TESTER device. CRT-5040

Computer-controlled kit via CASCADE software.



### FLAGMAN-FULL

CR Injector Test Kit

The **FLAGMAN-FULL** system is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the 8-channel, beakerless **FLAGMAN-FLOW** system. A hardware and software package for injector coding can be added.

The system is computer-controlled via the CASCADE software.



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

CR Injector Test Kit

The **FLAGMAN-CODE** kit is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the **FLAGMAN-FLOW** 8-channel, beakerless system. The kit consists of a **FLAGMAN-FLOW** measuring unit and a **CR-TESTER CRT-5040** controller. The kit is also equipped with a vacuum generation system for coding Delphi C2i and C3i injectors. The kit is computer-controlled via the CASCADE software.

The FLAGMAN-CODE-L kit includes hardware for mounting the injectors on a test bench.



### DL-CR50015

Coding sensor - optional



### FLAGMAN-CODE

#### CR Injector Test Kit

The **FLAGMAN-FULL** system is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the FLAGMAN-FLOW 8-channel, beakerless system. The system consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER CRT-5040 controller. The system is also equipped with a vacuum generation system for coding Deiphi C2i and C3i injectors. The system is computer-controlled via the CASCADE software.



**DL-CR50015**

Coding sensor - optional

### FLAGMAN-CODE delivery set

FLAGMAN-FLOW Beakerless Measuring Unit	1 pc
CR-TESTER CRT-5040 Controller	1 pc
Vacuum Generation System	1 set
Software	1 pc
Data Sheet (technical description, operating instructions)	1 pc
Connecting cable set for the FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Injector cable extension: "Injector" socket - 1.5 m	1 pc
Injector adapter cable	1 set
High-pressure regulator adapter cable	1 pc
Low-pressure regulator adapter cable	1 pc
Pressure sensor adapter cable	1 pc
220 V power cable	1 pc
Connectors for making your own cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Inverter", "Rpm"	1 pc
Temperature sensor for monitoring the fluid temperature in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the brake fluid return temperature	4 pcs
Reed switch for connecting the protective screen: "Protection" socket	1 pc
3 A fuse	1 pc
Connecting pipes	1 set



### FLAGMAN-CODE-L

#### CR Injector Test Kit

The **FLAGMAN-FULL** system is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the **FLAGMAN-FLOW** 8-channel, beakerless system. The system consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER CRT-5040 controller. The system is also equipped with a vacuum generation system for coding Delphi C2i and C3i injectors. The system is computer-controlled via the CASCADE software.



**DL-CR50015**

Coding sensor - optional

### FLAGMAN-CODE-L delivery set

FLAGMAN-FLOW Beakerless Measuring Unit	1 pc
CR-TESTER CRT-5040 Controller	1 pc
Vacuum Generation System	1 set
Software	1 pc
Data Sheet (technical description, operating instructions)	1 pc
Connecting cable set for the FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Injector cable extension: "Injector" socket - 1.5 m	1 pc
Injector adapter cable	1 set
High-pressure regulator adapter cable	1 pc
Low-pressure regulator adapter cable	1 pc
Pressure sensor adapter cable	1 pc
220 V power cable	1 pc
Connectors for making your own cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Inverter", "Rpm"	1 set
Temperature sensor for monitoring the fluid temperature in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the brake fluid return temperature	4 pcs
Reed switch for connecting the protective screen: "Protection" socket	1 pc
3A fuse	1 pc
Connecting pipes	1 set
<b>DL-CR10015</b> Injector holder frame	1 pc
<b>DL-CR10025</b> Injector holder bracket assembly	1 pc
<b>DL-CR10006</b> Protective glass (6mm) or DL-CR10010 Protective glass (10mm)	1 pc



### CR-Active

The **CR-Active** signal activator is designed to supply a control signal to the Common Rail injector solenoid valve, along with a cable set.

It is used to measure valve lift when measuring the magnetic gap of Common Rail injectors. Two kit options are available: basic and complete. The complete kit, in addition to the signal activator and cable set, includes an injector stand, a set of measuring probes and adapters, and a measuring indicator head.



### CR-NeXT

The **CR-NeXT** device is a Common Rail injector solenoid valve actuator. It is designed to send a control signal to the Common Rail injector solenoid valve.

It is primarily used to measure valve lift when measuring the magnetic gap of Common Rail injectors.



### MONICA CTV-08

The **MONICA CTV-08** device is designed for measuring the actuation current of common rail injector solenoid valves. The device has two connectors for connecting the signal cable and the power cable. The measurement is initiated by pressing the "Enter" button. Once a flashing dot appears on the display, the device is ready for a new measurement. The measurement can also be reset by pressing the "Reset" button.



### PTC-2520 CP TESTER

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



### FMDE-520

A device for testing the performance of Common Rail fuel pumps from various manufacturers, including Bosch, Delphi, Denso, Siemens, and Cummins, on a test bench.

It features a two-channel flow meter (pump feed and return) in various modes, with digital information displayed on a backlit LCD display.

### CRISTINA

The **CRistina** complex is designed for assembling COMMON RAIL BOSCH, DELPHI, and DENSO injectors using technology that allows for the calculation and selection of all necessary adjustment elements.

The system's hardware and software not only accurately measures the required dimensions but also diagnoses the injector solenoid's condition by measuring the winding's resistance and inductance. The system's operating software contains a detailed database of installation dimensions for most common COMMON RAIL injectors and a complete visualization of the assembly process, eliminating assembly errors and significantly reducing repair time. To eliminate measurement errors, the CRistina system's design allows for precise and rigid positioning of the injector body, eliminating vibration and uncontrolled movement of the measured element relative to the measuring device.



### CRistina-PIEZO

This device is designed to test the piezo injector of a piezoelectric package. It reliably identifies all piezoelectric package faults. It identifies problems that similar devices or test benches fail to detect. The device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.

#### Device capabilities:

- Sending a signal to activate the injector on a hand press
- Measuring the resistance of the piezoelectric unit
- Testing for breakdown on the housing
- Measuring the capacitance of the piezoelectric unit
- Measuring the smooth movement of the piezoelectric unit

### PR-TESTER.V05

Electronic pressure gauge  
2-channel

#### DL-UNI20061

Delivery set for measuring pressure via  
2 CHANNELS:

1. **DL-UNI20065** Electronic pressure gauge
2. **DL-UNI20071** Adapter cable main 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 type 2 – 2 pcs.
5. **DL-UNI20074** DELPHI pressure sensors – 2 pcs.
6. **DL-UNI20075** Universal adapter cable for pressure sensor – 2 pcs.
7. Charger
8. Passport



### PR-TESTER.V05

Electronic pressure gauge  
2-channel

#### DL-UNI20060

Delivery set for measuring pressure via  
1 CHANNEL:

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





DL-UNI20065

**PR-TESTER.V05**

Electronic pressure gauge with charger  
Electronic pressure gauge with charger



DL-UNI20077

Adapter cable for the  
BOSCH 1500 bar pressure  
sensor



DL-UNI21030

Mounting bracket for an  
electronic pressure gauge



DL-UNI30237

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

DL-UNI30445

Pressure gauge stem (fitting) M20 x 1.5 mm  
with M12 x 1.25 mm nut



DL-CR10058

DL-CR10059 1500 bar pressure sensor

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)

**RP 400 Manual Injector Testing Press  
with DL-UNI20065 Electronic Pressure Gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 425) 1500 bar – 1 pc.

DL-RP520 (without pressure sensor)

DL-RP525 (with pressure sensor 1500 bar)



**ZECA Manual Injector Tester  
with Electronic Pressure Gauge DL-UNI20065**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 525) 1500 bar – 1 pc.

### BASIC EQUIPMENT KITS FOR TESTING CR INJECTORS

USING A GRADUATED MEASURING UNIT, AS WELL AS THE POSSIBILITY OF CONNECTING TO THE FLAGMAN-MUFI-CR ELECTRONIC MEASURING UNIT AND UPGRADING WITH THE FLAGMAN CODE CODING SYSTEM.



#### DL-CR10030

Basic tool kit for testing CR injectors with the CR-TESTER CRT-5040 controller and The basic tool kit is designed for testing Common Rail injectors from various manufacturers (Bosch, Denso, Delphi, VDO (Siemens), Cummins, Caterpillar, AZPI). The **DL-CR10030** kit is equipped with a **DL-CR00088** high-pressure fuel pump with an operating pressure of **1800 Bar**.

#### DL-CR10031

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

#### DL-CR10020

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

#### DL-CR10021

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

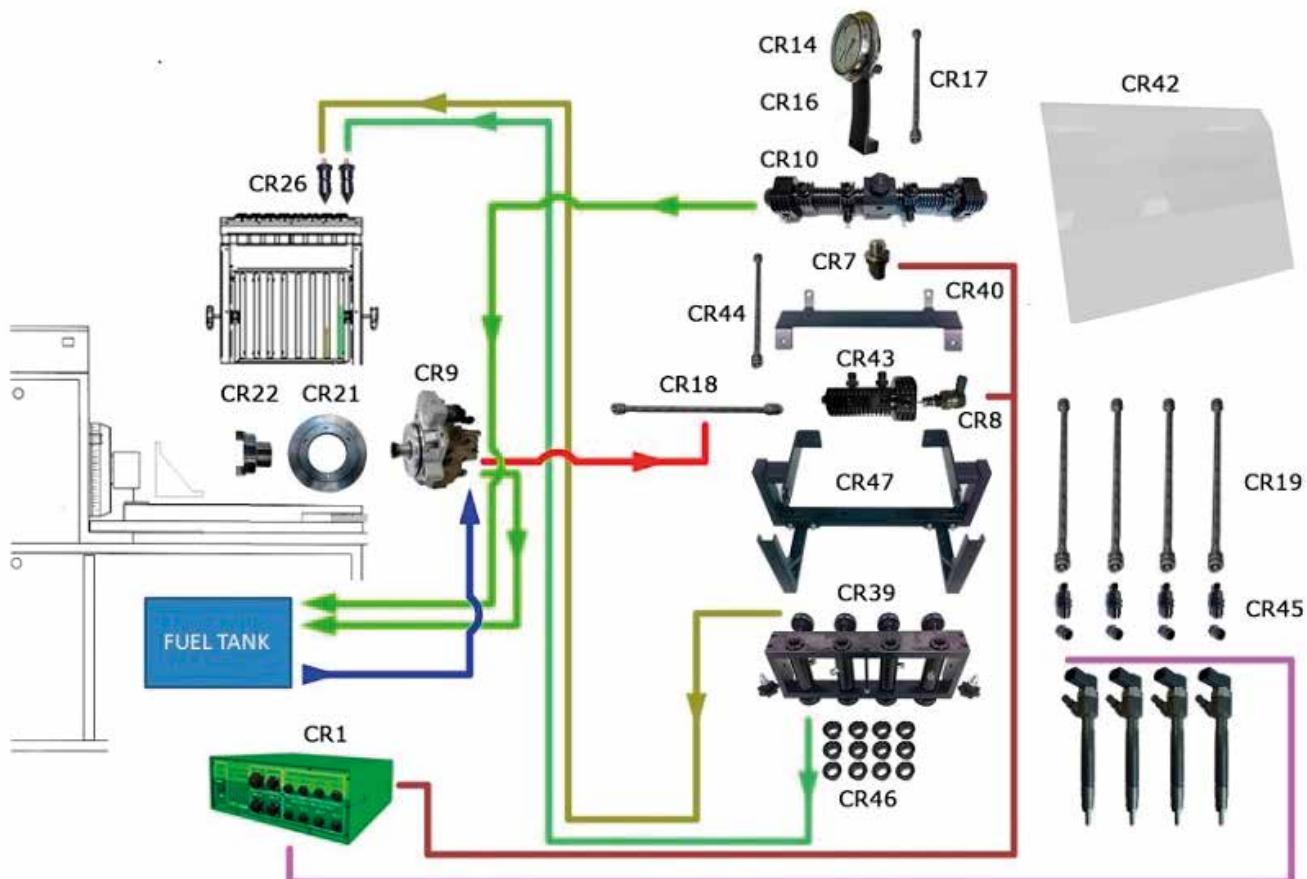
#### DL-CR00139

The **DL-CR00139** high-pressure fuel pump kit is designed for a 2400 bar operating pressure and is available as a separate order. When installing the **DL-CR00139** as part of the basic kit, the pressure sensor and regulator must be replaced with 2400 bar and 2200 bar pressure regulators, respectively.

### BASIC EQUIPMENT KITS FOR TESTING CR INJECTORS

**DL-CR10030** Basic Kit for Testing Common Rail Injectors with the CR-tester CRT-5040 Controller and High-Pressure Fuel Pump. This basic kit is designed for testing Common Rail injectors from various manufacturers (Bosch, Denso, Delphi, VDO (Siemens), Cummins, Caterpillar, AZPI).

The **DL-CR00139** High-Pressure Fuel Pump Kit is designed for operating pressures of 2400 bar or 2200 bar and is available upon separate order. When installing the DL-CR00139 in the basic kit, the pressure sensor and regulator must be replaced with a 2400 bar or 2200 bar pressure regulator, respectively.



### DL-CR10030

#### КОМПЛЕКТ БАЗОВОЙ ОСНАСТКИ ДЛЯ ПРОВЕРКИ ФОРСУНОК CR

CR1	Common Rail Injector Test Controller	CRT-5040	1 pc
	1800 bar Pressure Sensor	DL-CR10050	1 pc
CR7	*2200 bar Pressure Sensor	DL-CR10052	1 pc
	*2400 bar Pressure Sensor	DL-CR10053	1 pc
	1800 bar Pressure Regulator	DL-CR10051	1 pc
CR8	*2200 bar Pressure Regulator	DL-CR10054	1 pc
	*2700 bar Pressure Regulator	DL-CR10055	1 pc
CR43	Small Rail Pressure Accumulator	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	*Relief Valve for 1800 bar Pressure Accumulator	DL-CR10056	1 pc
CR32	*Relief Valve for 2400 bar Pressure Accumulator	DL-CR10057	1 pc
CR30	M14 Plug	DL-UNI50271	4 pcs
CR19	High-pressure tubes M14 x 14 x 400 mm / M12 x 14 x 400 mm for injectors	DL-TVD41414 DL-TVD41214	4 pcs
CR17	High-pressure hose M14 x 14 x 300 mm for pressure gauge	DL-TVD31414	1 pc
CR44	High-pressure hose 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	Injector holder frame	DL-CR10015	4 sets
CR46	Set of bushings <b>DL-UNI31019</b> -Ø 17 (4 pc.); <b>DL-UNI31020</b> -Ø 18,9 (1 pc); <b>DL-UNI31021</b> -Ø 19,2 (1 pc); <b>DL-UNI31022</b> -Ø21 (1 pc.) и <b>DL-UNI31231</b> -Ø 21,4(1 pc)	DL-UNI50161	1 set
CR24	Glass clamp for 9 mm spray nozzles	DL-UNI50343	2 pcs
CR47	Bracket – holder of the injector frame	DL-CR10025	1 pc
CR29	TEFLON tube for connecting injectors, diameter 6 mm	P1004	16 m
CR31	Plug instead of RD	DL-UNI30497	2 pcs
CR32	A plug instead of a safety valve	DL-CR30493	1 pc
CR36	DENSO backflow connection kit: banjo fitting, M8 x 1 mm bolt, 2 copper washers.	DL-CR20060	4 sets

CR38	Return connection for "rail" (12 mm banjo + M12 bolt + rubber-metal washers)	DL-CR20062	2 sets
CR35	A set of fittings for measuring the backflow of fuel from injectors	DL-24CRM	1 set
CR40	Rail Holder on Frame	DL-CR10028	1 pc
CR41	Rail and Frame Mounting Kit	DL-CR20063	1 set
CR42	Protective Cover (Plexiglas) + 2 Holder Brackets	DL-CR10006	1 pc
CR26	Foam Defoamers	DL-UNI30156	8 pcs
CR28	Quick-Connect Adapters for Foam Defoamers	34-RL310602	8 pcs
CR14	Pressure Gauge 0-2500 bar	DL-CR14P2500	1 pc
CR15	1/2" X M14 Adapter (for Pressure Gauge)	DL-UNI30287	1 pc
CR16	Pressure Gauge Holder Bracket	DL-KM2500	1 pc

### Fuel injection pump kit CP3 DL-CR00088 1800 Bar

CR9	SR-3 1800 Bar Fuel Pump	DL-CR10088	1 pc
CR18	High-pressure hose M14 x 14 x 400 mm for fuel pump	DL-TVD51414	1 pc
CR21	Adapter for mounting pump on bracket (diameter 107 mm)	DL-UNI30428	1 pc
CR22	Coupling for connecting pump to drive	DL-M24/DL-M19	1 pc
CR34	Rubber hose, diameter 8 mm, for supplying fuel to the pump	D-18-806-008	2,4 m
CR38	Fitting (12 mm banjo + M12 bolt + rubber-metal washers) for fuel pump	DL-CR20062	1 set
—	13 mm clamps for 8 mm diameter rubber hoses	DL-CR20066	4 pcs
—	M12x1.5 cone fitting, for 8 mm diameter hose	DL-UNI30112	3 pcs
—	Rubber-metal washer, M12	D-GM1537AN	5 pcs

### \*Injection pump kit CP3 DL-CR00139 2400 Bar

CR9	SR-3 2400 Bar Fuel Pump	DL-CR10139	1 pc
CR18	High-pressure hose M14 x 14 x 400 mm for fuel pump	DL-TVD51414	1 pc
CR21	Adapter for mounting pump on bracket (107 mm diameter)	DL-UNI30428	1 pc
CR22	Coupling for connecting pump to drive	DL-M24	1 pc
CR34	Rubber hose, 8 mm diameter, for supplying fuel to the pump	D-18-806-008	2 m
CR38	Fitting (12 mm banjo + M12 bolt + rubber-metal washers) for fuel pump	DL-CR20062	2 sets
—	13 mm clamps for 8 mm diameter rubber hoses	DL-CR20066	4 pcs
—	M12x1.5 cone fitting, for 8 mm diameter hose	DL-UNI30112	3 pcs
—	Rubber-metal washer, M12	D-GM1537AN	5 pcs

\* on additional order

### CR INJECTOR TEST KITS



**DL-CR10000**

Basic CR tooling kit  
with CR-Tester and SR-3  
high-pressure fuel pump

**DL-CR10001**

CR Toolkit  
(without pump, without CR-Tester)

**DL-CR10000**

**COMMON RAIL BASIC EQUIPMENT KIT**

**Electronic part:**

CR1	4-channel signal simulator CR-Tester	1 pc
CR2	Cable set (basic)	1 pc.
CR3	Adapter connector (plug) for connecting threaded injectors	1 pc
CR4	Adapter connector for connecting Delphi injectors	1 pc
CR5	Adapter connector for connecting MB injectors	1 pc
CR6	Adapter connector for connecting BMW injectors	1 pc
CR7	Pressure sensor (0281002921 -1800 bar)	1 pc
CR8	Pressure regulator (0281002494)	1 pc

### Mechanical part:

CR9	Fuel injection pump (CP3) BOSCH	1 pc
CR10	"Rail" for 4 injectors 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	Adapter for pressure gauge	1 pc
CR16	Bracket-holder for pressure gauge	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 fuel injection pump	1 pc
CR19	High-pressure pipes M14xM14 x300 mm for injectors	4 pcs
CR20	Straight adapter M14 to M12 high-pressure hose	4 pcs
CR21	Pump bracket adapter (Ø107 mm)	1 pc
CR22	Pump coupling for drive	1 pc
CR23	Adapter for BOSCH-DENSO injectors	4 pcs
CR24	Adapter for DELPHI injectors	4 pcs
CR25	Clamp (injector receiver) for 7 mm injector nozzles	4 pcs
CR26	Foam suppressors	8 pcs
CR27	1/8" quick-connect adapters (Ø6 mm angled)	4 pcs
CR28	1/4" straight quick-connect adapters (Ø6 mm)	8 pcs
CR29	PVC drain tube Ø 6 mm	16 m
CR30	M14 plug for Rail	4 pcs
CR31	Plug instead of RD	1 pc
CR32	Plug instead of relief valve	1 шт.
CR33	M12 plug instead of Rail return connection	1 шт.
CR34	8mm PVC hose for supplying fuel to the pump	1,5 m
CR35	Return connection for BOSCH injectors	4 pcs
CR36	Return connection for DENSO injectors	4 pcs
CR37	Bolts for DENSO injector return connections	4 pcs
CR38	Return connection for Rail (12mm banjo + M12 bolt + washers)	2 sets
CR39	Injector holder frame	1 pc
CR40	Rail holder bracket on frame	1 pc
CR41	Fastening kit for Rail and frame	1 pc
CR42	Protective cover	1 set

**DL-12CRM**

A set of flasks for measuring backflow of CR injectors

**DL-24CRM**

A set of flasks with adapters for measuring backflow of CR injectors

**DL-36CRM**

Adapter kit for connecting the backflow of CR injectors

### DL-80CRM

A set of fittings for measuring fuel backflow from CR injectors



The set includes:

1	<b>DL-6015168</b>	Fitting for FORD injectors (Siemens VDO)	4 pcs
2	<b>DL-6015188</b>	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	<b>DL-60151111</b>	Fitting for BOSCH Piezo injectors	4 pcs
4	<b>DL-6015166</b>	Fitting for SIEMENS VDO injectors	4 pcs
5	<b>DL-GSDE</b>	L-shaped fitting with clamp 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
9	<b>DL-6015130</b>	Fitting for DELPH injectors	4 pcs
10	<b>DL-6015161</b>	Fitting for SIEMENS injectors	4 pcs
11	<b>DL-KLB01</b>	Fitting with clamp for BOSCH injectors	4 pcs
12	<b>DL-SMS01</b>	Long clamp for SIEMENS fitting	4 pcs
13	<b>DL-SMS02</b>	Medium clamp for SIEMENS fitting	4 pcs
14	<b>DL-SMS03</b>	Standard clamp for SIEMENS fitting	4 pcs

1



2



3



4

**DL-6015168**Injector nipple FORD  
(Siemens VDO)**DL-6015188**Fitting for FORD  
Transit (Siemens VDO)**DL-60151111**Штуцер для форсунок  
BOSCH Piezo**DL-6015166**Fitting for FORD  
Transit (Siemens VDO)

5



6



7



8

**DL-GSDE**L-shaped nipple with  
a bracket for Denso  
injectors**DL-OCDE**Banjo fitting for Denso  
injectors**DL-6015195**Fitting for  
DELPHI injectors**DL-6015130**Fitting for  
DELPHI injectors

9



10



11



12

**DL-6015161**Injector nipple  
SIEMENS**DL-KLB01**BOSCH injector  
nipple with clamp**DL-SMS01**Long clamp for  
SIEMENS nipple clamp**DL-SMS02**Medium clamp for  
SIEMENS nipple clamp

13

**DL-SMS03**Standard clamp  
for clamping the fitting  
SIEMENS

### DL-90CRM

A set of fittings for measuring fuel backflow from CR injectors



The set includes:

1	DL-6015168	Fitting for FORD injectors (Siemens VDO)	4 pcs
2	DL-6015188	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	DL-60151111	Fitting for BOSCH Piezo injectors	4 pcs
4	DL-6015166	Fitting for SIEMENS VDO injectors	4 pcs
5	DL-GSDE	L-shaped fitting with clamp 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-6015130	Fitting for DELPHI injectors	4 pcs
9	DL-6015161	Fitting for SIEMENS injectors	4 pcs
10	DL-KLB01	Fitting with clamp for BOSCH injectors	4 pcs
11	DL-6015181	Fitting for SIEMENS injectors	4 pcs
12	DL-6015193	Fitting for 0445110550 (BOSCH) injectors	4 pcs
13	DL-SMS01	Long clamp for SIEMENS fitting	4 pcs
14	DL-SMS02	Medium clamp for SIEMENS fitting	4 pcs
15	DL-SMS03	Standard clamp for SIEMENS fitting	4 pcs

1



2



3



4

**DL-6015168**Injector nipple  
FORD (Siemens VDO)**DL-6015188**Fitting for FORD  
Transit (Siemens VDO)**DL-60151111**BOSCH Piezo Injector  
Nozzle Connector**DL-6015166**Injector nipple  
SIEMENS VDO

5



6



7



8

**DL-GSDE**L-shaped nipple with  
a bracket for Denso  
injectors**DL-OCDE**Banjo fitting for  
Denso injectors**DL-6015195**Fitting for  
DELPHI injectors**DL-6015130**Fitting for  
DELPHI injectors

9



10



11



12

**DL-6015161**Injector nipple  
SIEMENS**DL-KLB01**BOSCH injector  
nipple with clamp**DL-6015181**Injector nipple  
SIEMENS**DL-6015193**Injector nipple  
0445110550 (BOSCH)

13



14



15

**DL-SMS01**Long clamp for  
SIEMENS nipple clamp**DL-SMS02**Medium clamp for  
SIEMENS nipple clamp**DL-SMS03**Standard clamp  
for clamping the fitting  
SIEMENS

### DL-100CRM

A set of fittings for measuring fuel backflow from CR injectors



The set includes:

1	<b>DL-6015168</b>	Fitting for FORD injectors (Siemens VDO)	4 pcs
2	<b>DL-6015188</b>	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	<b>DL-60151111</b>	Fitting for BOSCH Piezo injectors	4 pcs
4	<b>DL-6015166</b>	Fitting for SIEMENS VDO injectors	4 pcs
5	<b>DL-GSDE</b>	L-shaped fitting with clamp 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-6015130</b>	Fitting for DELPH injectors	4 pcs
9	<b>DL-6015161</b>	Fitting for SIEMENS injectors	4 pcs
10	<b>DL-KLB01</b>	Fitting with clamp for BOSCH injectors	4 pcs
11	<b>DL-6015181</b>	Fitting for SIEMENS injectors	4 pcs
12	<b>DL-6015193</b>	Fitting for injectors 0445110550 (BOSCH)	4 pcs
13	<b>DL-CR31256</b>	Fitting for Denso injectors M8 x 1mm	4 pcs
14	<b>DL-CR31312</b>	Fitting for Denso injectors M8 x 1.25mm	4 pcs
15	<b>DL-CR31254</b>	Fitting for Denso injectors	4 pcs
16	<b>DL-CR31255</b>	Denso injector connector	4 pcs
17	<b>DL-SMS01</b>	Long clamp for Siemens connector	4 pcs
18	<b>DL-SMS02</b>	Medium clamp for Siemens connector	4 pcs
19	<b>DL-SMS03</b>	Standard clamp for Siemens connector	4 pcs



DL-6015168

Injector nipple  
FORD (Siemens VDO)



DL-6015188

Fitting for FORD  
Transit (Siemens VDO)



DL-60151111

BOSCH Piezo Injector  
Nozzle Connector



DL-6015166

Injector nipple  
SIEMENS VDO



DL-GSDE

L-shaped nipple with  
a bracket for Denso  
injectors



DL-OCDE

Banjo fitting for  
Denso injectors



DL-6015195

Fitting for  
DELPHI injectors



DL-6015130

Fitting for  
DELPHI injectors



DL-6015161

Injector nipple  
SIEMENS



DL-KLB01

BOSCH injector  
nipple with clamp



DL-6015181

Connector for  
SIEMENS injectors



DL-6015193

Injector nipple  
0445110550 (BOSCH)



DL-CR31256

Denso Injector Fitting  
M8 x 1mm



DL-CR31312

Denso injector nipple  
M8 x 1.25mm



DL-CR31254

Denso injector nipple



17



18



19



DL-CR31255

Denso injector nipple

DL-SMS01

Long clamp  
for clamping  
SIEMENS fittings

DL-SMS02

Medium clamp  
for clamping  
SIEMENS fittings

DL-SMS03

Standard clamp  
for clamping  
SIEMENS fittings

### DL-120CRM

A set of fittings for measuring fuel backflow from CR injectors



The set includes:

1	DL-6015168	Fitting for FORD injectors (Siemens VDO)	4 pcs
2	DL-6015188	Fitting for FORD Transit (Siemens VDO)	4 pcs
3	DL-60151111	Fitting for BOSCH Piezo injectors	4 pcs
4	DL-6015166	Fitting for SIEMENS VDO injectors	4 pcs
5	DL-GSDE	L-shaped fitting with a clamp 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-6015130	Fitting for DELPHI injectors	4 pcs
11	DL-6015161	Fitting for SIEMENS injectors	4 pcs
12	DL-KLB01	Fitting with a clamp for BOSCH injectors	4 pcs
13	DL-6015181	Fitting for SIEMENS injectors	4 pcs
14	DL-6015193	Fitting for injectors 0445110550 (BOSCH)	4 pcs
15	DL-CR31256	Fitting for Denso injectors M8 x 1mm	4 pcs
16	DL-CR31312	Fitting for Denso injectors M8 x 1.25 mm	4 pcs
17	DL-CR31254	Nipple for Denso injectors	4 pcs
18	DL-CR31255	Nipple for Denso injectors	4 pcs
19	DL-SMS01	Long clamp for Siemens nipple	4 pcs
20	DL-SMS02	Medium clamp for Siemens nipple	4 pcs
21	DL-SMS03	Standard clamp for Siemens nipple	4 pcs



DL-6015168

Injector nipple  
FORD (Siemens VDO)



DL-6015188

Fitting for FORD  
Transit (Siemens VDO)



DL-60151111

BOSCH Piezo Injector  
Nozzle Connector



DL-6015166

Injector nipple  
SIEMENS VDO



DL-GSDE

L-shaped nipple with  
a bracket for Denso  
injectors



DL-OCDE

Banjo fitting for  
Denso injectors



DL-6015195

Fitting for  
DELPHI injectors



DL-7247800

Fitting for  
DELPHI injectors



DL-7271100

Fitting for  
DELPHI injectors



DL-6015130

Fitting for  
DELPHI injectors



DL-6015161

Connector for  
SIEMENS  
injectors



DL-KLB01

BOSCH injector  
nipple with clamp



DL-6015181

Connector for  
SIEMENS injectors



DL-6015193

Injector nipple  
0445110550  
(BOSCH)



DL-CR31256

Denso Injector  
Fitting M8 x 1mm



DL-CR31312

Denso injector nipple  
M8 x 1.25mm



DL-CR31254

Denso injector  
nipple



DL-CR31255

Denso injector  
nipple



DL-SMS01

Long clamp  
for clamping  
SIEMENS fittings



DL-SMS02

Medium clamp  
for clamping  
SIEMENS fittings



DL-SMS03

Standard clamp  
for clamping  
SIEMENS fittings

**Universal adapter for CR truck injectors (Bosch, Denso, Delphi Smart) for connecting the supply and return lines with inlet angles of 0°, 4°, and 13°.**

**DL-CR50013**



The set includes:

<b>DL-CR30219</b>	Adapter housing
<b>DL- CR50035</b>	Holder bracket with nipple and fitting for backflow
<b>DL- CR30419</b>	Backflow nozzle for Delphi Smart CR injectors
<b>DL- CR30238</b>	Extended nipple for supply connection
<b>DL- CR30225</b>	Standard nipple for supply connection
<b>DL- CR30661</b>	Backflow nozzle for Bosch CR injectors 0445120147, 0445120098
<b>DL- CR30269</b>	Nipple with fitting for backflow of Delphi, Smart, Denso injectors Bosch 0445120147, 0445120098
<b>D-27-200078</b>	O-ring for backflow nozzle (2 pcs.) 3mm Allen key.



### Repair kit for universal adapter

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.

**DL-CR31758**



**Ø 7.8 mm adapter for VDO GK2Q-9K546-AC  
injector return lines**

#### Delivery set:

Adapter — 1 pc; Side clamp — 1 pc;  
Ø6 mm corner adapter — 1 pc

### EXAMPLES OF USING THE UNIVERSAL ADAPTER DL-CR50013



**Installation in the Bosch 0445120218 injector adapter with a direct "0°" connection.**

Used:

- **DL-CR30219** Adapter body (wide shelf facing the sprayer)
- **DL-CR30225** Standard connection for the supply
- **DL-CR50035** Bracket holder with connection and fitting for the return drain



**Installation in the Bosch 0445120067 injector adapter with a 13° inlet angle.**

Used:

- **DL-CR30219** Adapter body (wide shelf facing the sprayer)
- **DL-CR30238** Extended connection for supply
- **DL-CR50035** Bracket holder with connection and fitting for return flow
- Hex key for fixing the adapter housing rotating base at 13°

**ПРИМЕРЫ ИСПОЛЬЗОВАНИЯ УНИВЕРСАЛЬНОГО АДПТЕРА DL-CR50013**

**Installation in the injector adapter**  
**Bosch 0445120147, 0445120098 with a direct "0°" connection.**

Used:

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



**Installation in a Denso injector adapter with a 0° approach angle.**

Used:

- **DL-CR30219** Adapter body (wide shelf facing the sprayer)
- **DL-CR30225** Standard connection for supply
- **DL-CR30269** Shortened connection with a fitting for return flow

**ПРИМЕРЫ ИСПОЛЬЗОВАНИЯ УНИВЕРСАЛЬНОГО АДПТЕРА DL-CR50013**

**Installation in a Delphi Smart injector adapter  
with a direct "0°" connection.**

Used:

- **DL-CR30219** Adapter body (wide shelf toward the sprayer)
- **DL-CR30225** Standard connection for supply
- **DL-CR30419** Nozzle backflow nozzle
- **DL-CR30269** Shortened nozzle with backflow fitting

### Adapter for Denso CR truck injectors, including Volvo 21952974 for connecting the supply and return lines

DL-CR50140



The set includes:

1. **DL-CR31031** Adapter housing
2. **DL-CR30225** Feed nipple
3. **DL-CR50035** A bracket with a nipple and a fitting for backflow

### ADAPTERS FOR CHECKING TRUCK INJECTORS



#### DL-001 (UIS31524)

Adapter for testing mechanical injectors  
for PLD sections of MB ACTROS and MB ATEGO  
Included in delivery:

Adapter – 1 piece, side connection – 1 piece, fitting – 1 piece



#### DL-002 (DL-CR31046)

Adapter for truck injectors  
Bosch 0445120098, 0445120147 MAN Ø 29mm  
Included:

Adapter – 1 piece, side nozzle – 1 piece, fitting – 1 piece



#### DL-003 (DL-CR31821)

DAF Euro 7 (PACCAR) Injector Test Adapter  
Includes:

1 adapter, 1 side connector, 1 fitting



#### DL-004A (DL-CR30848)

Adapter for Renault truck injectors Ø 32mm  
0445120020, 0445120019, 0445120003, 0445120004  
Included:

Adapter – 1 piece, side nozzle – 1 piece, fitting – 1 piece



#### DL-005N (DL-CR31048)

Adapter for truck injectors  
CUMMINS B6.7/162 kW;  
KAMAZ 11TS 150/133 kW, 20TS 207 kW, 25TS 207 kW  
0445120123  
Included in delivery:

Adapter – 1 pc., side nozzle – 1 pc., fitting – 1 pc.



#### DL-006 (DL-CR31440)

Adapter for truck injectors  
DENSO Ø 27mm  
Included:

Adapter – 1 pc., side nozzle – 1 pc., fitting – 1 pc.

## ADAPTERS FOR CHECKING TRUCK INJECTORS



### DL-07 (DL-CR31044)

Adapter for truck injectors  
DENSO Ø 23.5 mm  
Included:

Adapter – 1 piece, side connector – 1 piece,  
fitting – 1 piece



### DL-08 (DL-CR31045)

Adapter for MAN truck injectors, Ø 26 mm  
Included:

adapter – 1 piece, side nozzle – 1 piece,  
fitting – 1 piece



### DL-09 (DL-CR31439)

Adapter for truck injectors  
MAN Ø 28 mm (Volvo) 0445120044  
Included in delivery:

adapter – 1 pc., side nozzle – 1 pc.,  
fitting – 1 pc.



### DL-010 (DL-CR31047)

Adapter for truck injectors  
CUMMINS 0445120121, 0445120125  
Included:

adapter – 1 pc., side connector – 1 pc.,  
fitting – 1 pc.



### DL-011 (DL-CR30985)

Adapter for connecting the return line of truck injectors  
SIEMENS VDO FORD  
Included in delivery:

adapter – 1 piece, side connection – 1 piece,  
fitting – 1 piece

### ADAPTERS FOR CHECKING TRUCK INJECTORS



#### DL-012 (DL-CR30036)

Adapter for truck injectors  
Bosch 0445120063  
Included:  
1 adapter, 1 side nozzle, 1 fitting



#### DL-013 (DL-CR30968)

Adapter for truck injectors  
Delphi Smart  
Included:  
1 adapter, 1 side nozzle, 1 fitting



#### DL-014 (DL-CR30038)

Adapter for connecting the return line of truck injectors  
Denso 24mm  
Included in delivery:  
1 adapter, 1 side connector, 1 fitting



#### DL-015 (DL-CR30822)

Return line adapter for truck injectors  
Denso 18.5mm, Caterpillar, Perkins  
Included:  
Adapter – 1 piece, side connection – 1 piece, fitting – 1 piece



#### DL-016 (DL-CR31486)

Adapter for connecting the return line of Scania 2/4-pin truck injectors  
Included in delivery:  
Adapter – 1 piece, side connector – 1 piece, fitting – 1 piece



#### DL-016U (DL-CR31806)

Extended adapter for Scania Ø40.5 mm (2 and 4 pins)  
Extended for easy installation in Dieselland test stands  
Included in delivery:  
1 adapter, 1 side connector, 1 fitting



#### DL-017 (DL-UNI30037)

Return line adapter for fuel injectors  
Bosch 0445120066  
Included:  
Adapter – 1 piece, side connection – 1 piece, fitting – 1 piece

### ADAPTERS FOR CHECKING TRUCK INJECTORS



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

Adapter for connecting the return line of Cursor 9 truck injectors  
 Included in delivery:  
 adapter – 1 pc., side connector – 1 pc., fitting – 1 pc.



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

Adapter for connecting the return line of Bosch MTU truck injectors  
 Includes:  
 1 adapter, 1 side connector, 1 fitting



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

MB 4PIN Truck Injector Return Line Connection Adapter  
 Included:

Adapter – 1 piece, side connector – 1 piece, fitting – 1 piece



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

BOSCH Injector Test Adapter  
 CRIN3 0445124015  
 Includes:  
 1 adapter, 1 side connector, 1 fitting



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

Adapter for testing truck injectors  
 Caterpillar 3809888  
 Included:  
 adapter – 1 pc., side connector – 1 pc., fitting – 1 pc.



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

Adapter for testing truck injectors  
 Delphi Smart injector Mercedes  
 Included in delivery:  
 1 adapter, 1 side connector, 1 fitting



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

Adapter for connecting the backflow of injectors  
 CR DAF-SMART injector (DAF-1826007)  
 Included in delivery:  
 Adapter – 1 piece, side connection – 1 piece, fitting – 1 piece

### ADAPTERS FOR CHECKING TRUCK INJECTORS



#### DL-025 (DL-CR31625)

Adapter for connecting the backflow of injectors  
**DELPHI CRIN DAF EURO 6 SMART INJ**  
**Included in delivery:**  
 Adapter – 1 piece, side connection – 1 piece,  
 Fitting – 1 piece



#### DL-026 (DL-CR31626)

Adapter for connecting the supply and return lines  
**of CUMMINS D26 injectors**  
**Includes:**  
 adapter – 1 piece, side connection – 1 piece,  
 fitting – 1 piece



#### DL-027 (DL-CR31698)

Adapter for truck injectors  
**Bosch 0445120086, 0445120087, 0445120127, 0445120265,  
 0445120266, 0445120389, 0445120391, 0445120412, 0445120462,  
 0445120474, 0445120524, 0445120526, 0445120527, 0445120531,  
 0445120562, 0445120571, 0445120580.**  
**Included in delivery:**  
 adapter – 1 pc., side nozzle – 1 pc.  
 Fitting – 1 pc.



#### DL-028 (DL-CR31759)

Adapter for truck injectors  
**Ford 0445120025, 0445120135, 0445120168, 0445120500**  
**Included:**  
 Adapter – 1 pc., Side connector – 1 pc.,  
 Fitting – 1 pc.



#### DL-029 (DL-CR31793)

Adapter for truck injectors  
**Common Rail 0445120247**  
**Included:**  
 Adapter – 1 pc., side nozzle – 1 pc.,  
 fitting – 1 pc.



#### DL-030 (DL-CR30818)

Adapter for truck injectors  
**Bosch 0445120178 YaMZ-530**  
**Included:**  
 Adapter – 1 pc., side nozzle – 1 pc.,  
 fitting – 1 pc.

### ADAPTERS FOR CHECKING TRUCK INJECTORS



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

Adapter for connecting the injector backflow  
**Bosch 0445120303**  
**Included:**  
 Adapter – 1 piece, side connector – 1 piece,  
 fitting – 1 piece



**DL-032 (DL-CR31430)**

**Bosch Injector Backflow Adapter 0445120134**  
**Included:**  
 1 adapter, 1 side connector, 1 fitting



**DL-033 (DL-CR31479)**

**DENSO 7140 Truck Injector Return Line Adapter**  
**08S02953 33800-52000**  
**Included:**  
 1 adapter, 1 side connector, 1 fitting



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

**Injector Backflow Adapter**  
**DENSO 1211 11L1063 (095000-121)**  
**Included:**  
 adapter – 1 pc., side nipple – 1 pc.,  
 fitting – 1 pc.



**DL-035 (DL-CR31561)**

**Injector Backflow Adapter**  
**DENSO 2300/3100 07T00365 (5213417 Komatsu)**  
**Includes:**  
 adapter – 1 pc., side nipple – 1 pc.,  
 fitting – 1 pc.



**DL-036 (DL-CR31563)**

**Injector Test Adapter**  
**Delphi A9362187 Mercedes Actros Euro 6**  
**Included:**  
 adapter – 1 pc., side connector – 1 pc.,  
 fitting – 1 pc.

### ADAPTERS FOR CHECKING TRUCK INJECTORS



**DL-037 (DL-CR50304)**

Adapter for testing 4-pin MB Actros injectors  
 Included in delivery:  
 1 adapter, 1 side connector, 1 fitting



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

MB Actros 4-Pin  
 Injector Test Kit 0445120303

#### Delivery set:

- **DL-037** Adapter for fixing a 4-pin MB Actros injector - 1 pc.
- **DL-SHL02037** Backflow hose 20 mm x 150 mm for a test bench - 1 pc.
- **DL-ADS04020** Adapter cable with 2 connectors - 1 pc.
- **DL-UNI31616** Fitting with external threads G1/4 to G1/8 - 1 pc.
- **34-GU11-21-0014** Quick-release fitting G1/4", male - 1 pc.
- **DL-34-N3-213B** Fitting Ø 6 mm x 1/8" - 1 pc.
- **D-GM1537AN** Rubber-metal washer Ø 12 mm - 1 pc.
- **D-GM1537AN** Rubber-metal washer Ø 10 mm - 2 pcs.



**DL-038 (CR31606)**

DENSO Injector Adapter 5296723  
 Included in delivery:  
 1 adapter, 1 fitting



**DL-039 (DL-CR31738)**

Adapter for connecting a CAT d28 injector (J73 6102300 04G11250)  
 Includes:  
 1 adapter, 1 fitting



**DL-040 (DL-LR31785)**

Adapter for connecting a Lorang Ø26.5 to Ø23 nozzle  
 Included in delivery:  
 1 adapter, 1 fitting



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

Side connection for  
 cargo adapters



**DL-CR50303**

Supply nipple for the cargo  
 adapter assembly (nipple +  
 bushing + nut + copper washer)



**DL-CR30972**

Supply nipple for  
 cargo adapter

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-041 (DL-CR31861)**

CUMMINS-XPI 4307475 Return Line Connection Adapter

Included:

1 adapter, 1 fitting



**DL-042 (DL-CR31900)**

Adapter for BOSCH DHIM, Doosan, and Yuchai truck injectors

Included:

1 adapter, 1 fitting



**DL-043 (DL-CR31969)**

Adapter for injector 0445120471 (Weichai engine)

Included:

1 adapter, 1 fitting



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

Fuel stream catcher (coil receiver) for injector nozzles (nozzle attachment) Ø7 mm

Included in delivery:

coil receiver – 1 pc., fitting – 1 pc., retaining screw – 1 pc.



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

Fuel stream catcher (coil receiver) for injector nozzles (nozzle attachment) Ø9 mm

Included in delivery:

coil receiver – 1 pc., fitting – 1 pc., locking screw – 1 pc.



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

quid Defoamer

Included:

defoamer, 1 fitting.



**DL-MOK**

Adapter-coupling with check valve Ø 6 mm

Connecting holes Ø 6 mm x Ø 6 mm

Length with clamps = 37 mm

Length without clamps = 33 mm

Diameter = 1.15 mm



**DL-MOK-K**

Quick-connect coupling with check valve, Ø 6 mm

Connection holes: Ø 6 mm x Ø 6 mm

Length with clamps = 49 mm

Length without clamps = 45 mm

Diameter = 13.8 mm



**DL-MOK-KS**

Quick-connect coupling with check valve Ø 6 mm

Connecting holes Ø 6 mm x Ø 6 mm

Length with clamps = 42.6 mm

Length without clamps = 37.3 mm

Diameter = 12.5 mm

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-CR10028    DL-KD (CR40)**

Rail Bracket DL-CR30181KIT, DL-CR30522KIT  
from the CR-equipment kit



**DL-ASB (CR23)**

Adapter-cup for Bosch  
injectors  
CR-equipment edge



**DL-ASD (CR24)**

Adapter-cup for Delphi  
injectors  
to the CR-mounted frame



**DL-RF (CR39)**

Frame - holder for injectors



**DL-CR10015    DL-RFJ**

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

**DL-UNI31019**

internal Ø 17 mm – 4 pcs.

**DL-UNI31020**

internal Ø 18,9 mm – 1 pc.

**DL-UNI31021**

internal Ø 19,2 mm – 1 pc.

**DL-UNI31022**

internal Ø 21 mm – 1 pc.

**DL-UNI31031**

internal Ø 21,4 mm – 1 pc.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### DL-UNI31011

A set of split bushings (main)  
for installing injectors



##### DL-UNI31019

internal Ø 17 mm

##### DL-UNI31020

internal Ø 18,9 mm

##### DL-UNI31021

internal Ø 19,2 mm

##### DL-UNI31022

internal Ø 21 mm

##### DL-UNI31031

internal Ø 21,4 mm

*Please note: All bushings are also sold separately.*

#### DL-UNI31013

A set of split bushings for installing injectors



##### DL-UNI31015

internal Ø 24 mm

##### DL-UNI31016

internal Ø 25 mm

##### DL-UNI31017

internal Ø 26 mm

*Please note: All bushings are also sold separately.*



#### DL-UNI50342

Cup clamp for 7 mm  
spray nozzles



#### DL-UNI50343

Cup clamp for 9 mm  
spray nozzles

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-CR50302**

Single-channel injector holder frame

Included in the delivery:

<b>DL-UNI31019</b>	internal Ø 17 mm – 1 pc.*
<b>DL-UNI31020</b>	internal Ø 18,9 mm – 1 pc
<b>DL-UNI31021</b>	internal Ø 19,2 mm – 1 pc
<b>DL-UNI31022</b>	internal Ø 21 mm – 1 pc
<b>DL-UNI31031</b>	internal Ø 21,4 mm – 1 pc
<b>DL-SZR</b>	7 mm spray nozzle clamp cup*

\* mounted on a frame holder



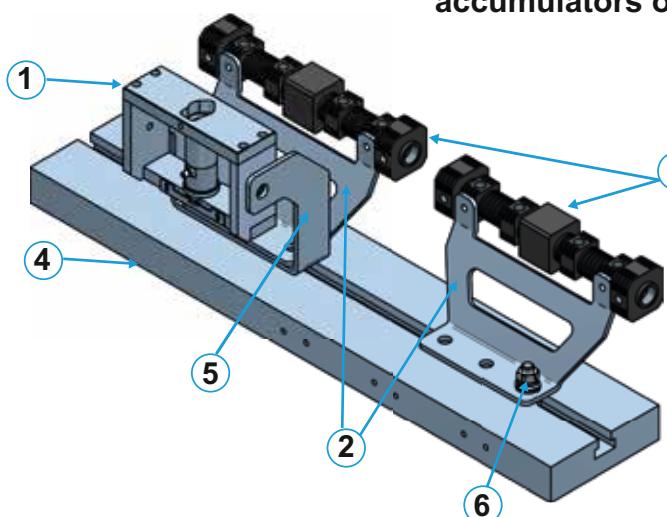
**DL-UNI21032**

Single-channel injector frame bracket



Single-channel injector holder frame with bracket assembly

#### An example of installing a nozzle holder, brackets, and pressure accumulators on a test bench plate



1	<b>DL-CR50302</b>	Injector holder frame for one channel
2	<b>DL-CR10028</b>	Rail Bracket DL-CR30181KIT, DL-CR30522KIT, DL-CR31053KIT
3	3	Pressure Accumulator: DL-CR30181KIT, DL-CR30522KIT, DL-CR31053KIT
4	<b>DL-SPN30535</b>	Mounting plate of the stand
5	<b>DL-UNI21032</b>	Single-channel injector frame bracket
6	<b>DL-UNI30089</b>	T-slot bolt

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



#### DL-CR10025 DL-KDRJ

Bracket – holder of the injector frame

**Package Contents:**

- Frame (1 pc.)
- Intermediate bracket (2 pcs.)
- Protective glass bracket (2 pcs.)  
(Can be welded to the frame)
- Additional pressure accumulator holder bracket  
(Can be welded to the frame)



#### DL-CR10026

Side mounting bracket for pressure accumulators (Rail)

The bracket is secured with M8x25 bolts to the support plate in the test rig's test section, or to a structure performing a similar function.

Used for mounting pressure accumulators (Rail):  
DL-CR30181, DL-CR30522, and DL-CR31053.

Note! Bolts and nuts are not included!



#### DL-CR10027

Pressure Accumulator Bracket (Rail)

Applicable to the following pressure accumulators:

**DL-CR30181KIT** For 2 pressure regulators

**DL-CR30522KIT** For 3 pressure regulators

**DL-CR31053KIT** Cooled rail for 3 pressure regulators

Installation of some drives from various vehicles is possible.



It is installed as standard on the CR-TEST 4E, CR-TEST-2P, and SPF series test stands manufactured by Dieselland.

For installation on other test stands, two M10 threaded holes must be drilled on the side of the plate in a convenient location.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-CR10029**

**Pressure Accumulator Bracket (Rail)**

**Applicable to the following pressure accumulators:**

**DL-CR30181KIT** For 2 pressure regulators

**DL-CR30522KIT** For 3 pressure regulators

**DL-CR31053KIT** Cooled rail for 3 pressure regulators

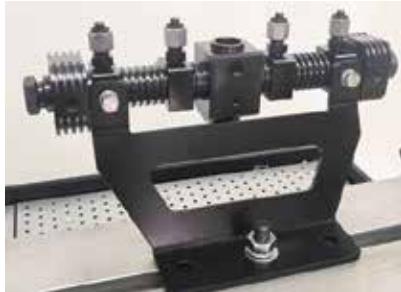
Installation of some drives from various vehicles is possible.

**Can be installed on any stand.**

To install, secure the bracket to the top of the stand plate with one or two bolts. One or two bolts are pre-installed in the plate's T-slot. The number of bolts is determined manually or depends on the bracket's placement. For example, when mounted longitudinally on the stand plate, it is possible to secure the bracket with one or two bolts, while for transverse mounting, only one bolt is required. The bracket is inserted through the holes onto the bolts and secured to the plate with nuts.

**ATTENTION!**

*Bolts and nuts are not included!*



**DL-CR10006**

**6mm thick polycarbonate protective glass.**

The protective glass is mounted on DL-CR10011 or DL-CR10025 brackets.

**Package contents:**

1 protective glass. 2 U-shaped handles.



**DL-CR10010**

**8 mm thick polycarbonate protective glass.**

The protective glass is mounted on DL-CR10011 or DL-CR10025 brackets.

**Included in delivery:**

1 protective glass. 2 U-shaped handles.



**DL-CR10011**

**Bracket kit for installing protective barriers**

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

**Package includes:**

Protection mounting brackets – 2 pcs.

Wing nuts for securing the protective barrier – 2 pcs.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



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

Pressure accumulator (Rail) for testing CR injectors and pumps on a bench

**The rail has openings for:**

- connecting a pressure sensor M18x1.5
- connecting a pressure regulator M24x1.5 (2 holes)
- connecting a return drain M12x1.5 (4 holes)
- supplying fluid to the rail M14x1.5 (2 holes)
- draining fluid from the rail M14x1.5 (4 holes)
- connecting a safety valve M20x1.5
- relieving pressure in case of excess pressure Ø 3 mm. or M5
- mounting a pressure gauge M6 (2 blind holes)
- mounting a rail M8 (2 or 4 blind holes).

**Delivery set:**

1. DL-CR30181 ramp (Rail) – 1 pc,
2. DL-UNI30218 M14x1.5 nipple in a set with washers and 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 a safety valve M20x1.5 – 1 pc.
6. DL-SHP15084 pressure sensor washer
7. DL-UNI30162 M18x1.5 plug instead of a pressure sensor

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

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



**The rail has openings for:**

- connecting a pressure sensor M18x1.5
- connecting a pressure regulator M24x1.5 (3 holes)
- connecting a return drain M12x1.5 (5 holes)
- supplying fluid to the rail M14x1.5 (2 holes)
- draining fluid from the rail M14x1.5 (2 holes)
- connecting a safety valve M20x1.5
- relieving pressure in case of excess pressure Ø3mm. or M12x1.5
- mounting a pressure gauge M6 (2 blind holes)
- mounting a rail M8 (2 or 4 blind holes).

**Delivery set:**

1. DL-CR30522 ramp (Rail) – 1 pc,
2. DL-UNI30218 M14x1.5 nipple in a set with washers and 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 a safety valve M20x1.5 – 1 pc.
6. DL-SHP15084 pressure sensor washer
7. DL-UNI30162 M18x1.5 plug instead of a pressure sensor

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



#### DL-CR30777KIT

Pressure accumulator (Rail) for testing CR injectors, BOSCH CP1, CP2, CP3, CP4 pumps, various types of Delphi, Denso, Siemens fuel injection pumps, and other CR pumps. (Mounting holes at 90° from the fittings.)

**The rail has threaded holes for:**

- connecting a pressure sensor (M18x1.5)
- connecting a pressure regulator (M24x1.5)
- connecting a backflow drain (1 hole M12x1.5)
- supplying and discharging fluid from the rail (2 holes) for M14x1.5 fittings
- fastening the rail (M8) (2 blind holes)
- an additional fitting made integral with the rail (M14x1.5)



**Delivery set:**

1. DL-CR30777 ramp (Rail) – 1 pc.
2. DL-UNI30218 M14x1.5 nipple in a set with washers and gaskets SHP15084 – 2 pcs.
3. DL-UNI30497 Pressure regulator plug – 1 pc.
4. DL-UNI50271 Plug with internal thread M14x1.5 – 2 pcs.



#### DL-CR30180KIT

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

**The rail has threaded holes for:**

- connecting a pressure regulator (M24x1.5)
- connecting a return drain (1 hole M12x1.5)
- supplying and draining fluid from the rail (2 holes) for M14x1.5 fittings
- attaching the rail (M8) (2 blind holes)
- fitting-nipple (M14x1.5)



**Delivery set:**

1. DL-CR30180 Rail – 1 pc.
2. DL-UNI30218 M14x1.5 nipple with washers and gaskets in a set SHP15084 – 2 pcs.
3. DL-UNI30497 Pressure regulator plug – 1 pc.
4. DL-UNI50271 Plug with internal thread M14x1.5 – 2 pcs.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### DL-CR30526KIT

Pressure accumulator (Rail) for testing CP1, CP2, CP3, CP4, Delphi, Denso pumps and CR injectors with a pressure sensor.  
(Mounting holes are 180° off the fittings.)



**The rail has threaded holes for:**

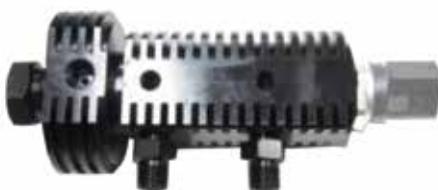
- connecting a pressure sensor (M18x1.5)
- connecting a pressure regulator (M24x1.5)
- connecting a backflow drain (1 hole M12x1.5)
- supplying and discharging fluid from the rail (2 holes) for M14x1.5 fittings
- securing the rail (M8) (2 blind holes)

**Delivery set:**

1. DL-CR30526 Rail – 1 pc.
2. DL-UNI30218 M14x1.5 nipple with washers and gaskets in a set SHP15084 – 2 pcs.
3. DL-UNI30497 Pressure regulator plug – 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 with a pressure sensor.  
(Mounting holes at 90° from the fittings.)



**The rail has threaded holes for:**

- connecting a pressure sensor (M18x1.5)
- connecting a pressure regulator (M24x1.5)
- connecting a backflow drain (1 hole M12x1.5)
- supplying and discharging fluid from the rail (2 holes) for M14x1.5 fittings
- securing the rail (M8) (2 blind holes)

**Delivery set:**

1. DL-CR30878 Rail – 1 pc.
2. DL-UNI30218 M14x1.5 nipple with washers and gaskets in a set SHP15084 – 2 pcs.
3. DL-UNI30497 Pressure regulator plug – 1 pc.
4. DL-UNI50271 Plug with internal thread M14x1.5 – 2 pcs.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### DL-CR30479KIT

Pressure accumulator (Rail) for testing CR pumps and injectors under the pressure regulator and relief valve.

The rail has threaded holes for:

- connecting a pressure regulator M24x1.5 (1 hole)
- connecting a return drain M12x1.5 (1 hole)
- supplying and draining fluid from the rail M14x1.5 (3 holes)
- connecting a safety valve M20x1.5
- relieving pressure in case of excess pressure M12x1.5
- mounting a pressure gauge M6 (2 blind holes)
- mounting a rail M8 (4 blind holes)



#### ATTENTION!

Pressure regulators and pressure sensor are not included in the delivery kit!

The pressure sensor is connected via an M14xM18 adapter fitting.

#### Delivery set:

1. DL-CR30479 ramp (Rail) – 1 pc.
2. DL-UNI30218 M14x1.5 nipple with washers and spacers SHP15084 – 3 pcs.
3. DL-UNI30497 Plug in place of the pressure regulator – 1 pc.
4. DL-UNI50271 Plug with internal thread M14x1.5 – 3 pcs.
5. DL-UNI30796 Special adapter nipple for the pressure sensor M14xM18 – 1 pc.
6. DL-UNI30493 Plug in place of the relief valve – 1 pc.
7. 22-HS-06 Banjo bolt nipple M12x1.5 for connecting the backflow, hole next to the pressure regulator – 1 pc.
8. 22-RSN-06 Banjo nipple Ø12mm x 8mm (herringbone) for connecting the backflow – 1 pc.
9. D-GM1537AN Rubber-metal washer Ø12mm, installed on plug DL-UNI30636, banjo bolt 22-HS-06, and similar parts to ensure a tight connection – 2 pcs.

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



#### DL-CR50269

DL-CR30180 Pressure Accumulator Mounting Bracket (RAIL)

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



#### DL-CR50268

DL-CR30188 Pressure Accumulator Holder Bracket (RAIL)

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



#### DL-CR30188KIT

A pressure accumulator (rail) for testing SR1, SR2, SR3, SR4, Delphi, Denso pumps, and CR injectors. The rail has cooling channels for improved thermal stabilization during testing of Common Rail injectors and pumps.

**The rail has threaded holes for:**

- connecting a pressure sensor (M18x1.5)
- connecting a pressure regulator
- connecting a backflow drain (1 hole M12x1.5)
- connecting a hose or tube for rail cooling (Ø8mm)
- supplying and draining fluid from the rail (3 holes for M14x1.5 fittings)
- fastenings, 4 blind holes M8.



#### Delivery set:

1. DL-CR30188 Rail – 1 pc.
2. DL-UNI30218 M14x1.5 nipple with washers and gaskets SHP15084 – 3 pcs.
3. DL-UNI30497 Pressure regulator plug – 1 pc.
4. DL-UNI50271 M14x1.5 internal thread plug – 2 pcs.
5. DL-UNI30293 1/8"x8" nipple (herringbone) for connecting the cooling hoses – 2 pcs.
6. DL-UNI30162 M18x1.5 pressure sensor plug – 1 pc.

#### DL-CR31068KIT

A pressure accumulator (rail) for testing SR1, SR2, SR3, SR4, Delphi, Denso pumps, and CR injectors. The rail features cooling channels for improved thermal stabilization during testing of CR injectors and pumps.

**The rail has threaded holes for:**

- connecting a pressure sensor (M18x1.5)
- connecting a pressure regulator
- connecting a backflow drain (1 hole M12x1.5)
- a relief valve
- a hose or tube connection (8mm diameter)
- supply and outlet of fluid from the rail (3 holes for M14x1.5)
- fastenings, 4 blind holes M8



#### Delivery set:

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

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### DL-CR31053KIT

A pressure accumulator with 3 regulators and cooling for testing CR fuel injection pumps.

##### Delivery set:



1. **DL-CR31053** Rail – 1 pc.
2. **DL-UNI30151** Pressure regulator plug – 3 pcs.
3. **DL-UNI30162** M18x1.5 pressure sensor plug – 1 pc.
4. **34-R0608M12X1.5** M12"x8" nipple for backflow - 3 pcs.
5. **34-RL0408** Elbow fitting 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** Banjo bolt nipple M12x1.5 for connecting the backflow hose - 1 pc.
9. **22-RSN-06** Banjo nipple Ø12mmx8mm (herringbone) for connecting the backflow hose - 1 pc.
10. **D-GM1537AN** Rubber-metal Washer Ø12mm - 2 pcs
11. **DL-UNI30636** Plugs in the return drain channels - 2 pcs
12. **DL-UNI30293** Fitting 1/8"x8 (herringbone) for connecting cooling hoses - 2 pcs
13. **DL-UNI30218** High-pressure fitting M14 (1.5) x M14 (1.5) in a set with SHP15084 washers and gaskets - 2 pcs
14. **DL-UNI50271** Plug for high-pressure fitting - 2 pcs
15. **DL-SHP15084** Washer and gasket for pressure sensor - 1 pc

#### DL-UNI30828KIT

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

The adapter is installed in one of the two M14x1.5 holes in the rail.

Used with pressure accumulators (rails)

**DL-CR31053, DL-CR30181, and DL-CR30522**

##### The adapter has threaded holes:

- For a filter with a special M18x1.5 fitting (1 hole)
- For fluid supply M14x1.5 (2 holes on top)
- For connecting a pressure sensor M18x1.5 (1 hole)
- For connecting a safety valve M20x1.5 (1 hole)
- For pressure relief in case of excess pressure M5 (1 hole)

##### Delivery set:



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 6 mm x M5 or 34-RL3106M5 angular fitting Ø 6 mm x M5.,
8. **DL-SHP15084** Washer-gasket for pressure sensor - 1 pc.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



#### DL-CR31049KIT

**Pressure accumulator (rail) for testing injectors and cooled pumps (for 3 pressure regulators)**

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

#### Delivery set:

1. **DL-CR31049** HPressure accumulator for 3 pressure regulators
2. **DL-CR30497** Plug (M24x1.5mm) in place of the pressure regulator - 2 pcs.
3. **DL-UNI30162** Plug (M18x1.5mm) in place of the pressure sensor - 1 pc.
4. **DL-UNI30056** Fitting (1/2"x8mm) for cooling - 2 pcs.
5. **DL-UNI30020** Fitting (1/4"x8mm) for the return drain outlet from the pressure regulator - 3 pcs.
6. **DL-UNI31478** Fitting (M18x1.5mm x M14x1.5mm) for the turbojet engine - 3 pcs.
7. **DL-UNI50271** Plug for DL-UNI31478 fitting - 1 pc.
8. **DL-UNI30203** Cooling channel plugs (1/8") - 4 pcs.
9. **DL-UNI30635** Plug (M12x1.5) for rubber-metal washer - 1 pc.



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

#### DL-UNI21042

Bracket-holder for pressure accumulator



#### DL-CR31514 Drain strip

Designed for use with the main pressure accumulator (rail) with three pressure regulators installed. This drain rail facilitates the connection of the drain hoses.

The **DL-CR31049** pressure accumulator is normally drained from each pressure regulator (PR). When using this rail, drainage occurs from a single fitting.



#### DL-CR31528 Drain strip

Designed for use with the main pressure accumulator (rail) with two pressure regulators installed. This drain rail facilitates the connection of drain hoses.

Normally, the **DL-CR31049** pressure accumulator drains from each pressure regulator (PR). When using this rail, drainage occurs from a single fitting.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



#### DL-CR31257KIT

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

The rail has threaded holes for:

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

#### Delivery set:

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** Fittings (1/4"x8mm) for brake fluid inlet and outlet for cooling (2 pcs.)
5. **DL-UNI30202** Plug (1/4") for cooling channel (3 pcs.)
5. **DL-UNI30293** Fitting (1/8"x8mm) for return drain from RD (1 pc.)
6. **DL-UNI30203** Plug (1/8") for rubber gasket in return drain channel (1 pc.)
7. **DL-UNI31082** Plug (1/8") slotted in the return drain channel from the ends of the rail (2 pcs.)
6. **DL-UNI31041** Fitting (M24x1.5mm x M14x1.5mm) for the HPD (1 pc.)
7. **DL-UNI31039** Plug (M24x1.5mm) for the HPD channel (1 pc.)
8. **DL-UNI31535** Fitting (M14x1.5 x M14x1.5mm) for the HPD (2 pcs.)
9. **DL-UNI50271** Plug for the DL-UNI31535 fitting (1 pc.)

#### ATTENTION!

Regulators and pressure sensor not included!

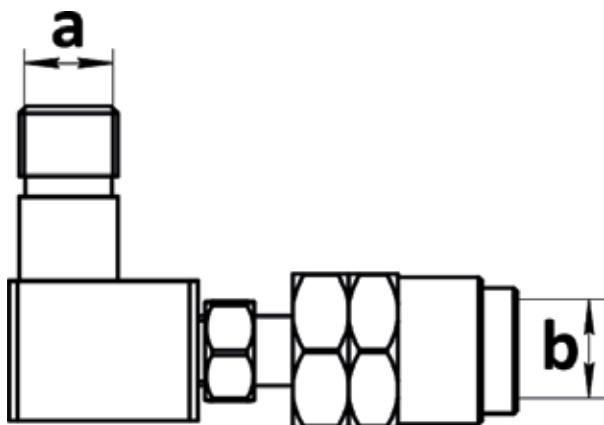


#### DL-UNI21041

Bracket-holder for pressure accumulator

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### ANGLE ADAPTERS

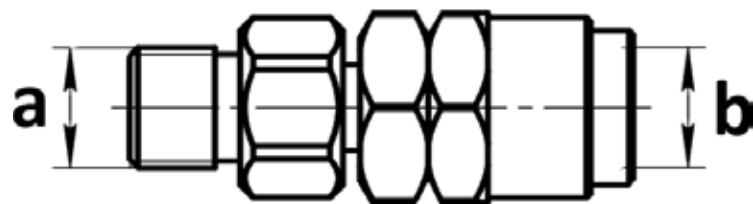


Article	a (mm)	b (mm)	
DL-UNI50278	M14 x 1,5	M14 x 1,5	
DL-UNI50279	M14 x 1,5	M12 x 1,5	
DL-UNI50280	M14 x 1,5	M16 x 1	
DL-UNI50281	M14 x 1,5	M16 x 1,5	
DL-UNI50282	M14 x 1,5	M18 x 1,5	



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	



**EQUIPMENT FOR TESTING PUMPS AND INJECTORS****STRAIGHT ADAPTERS**

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	

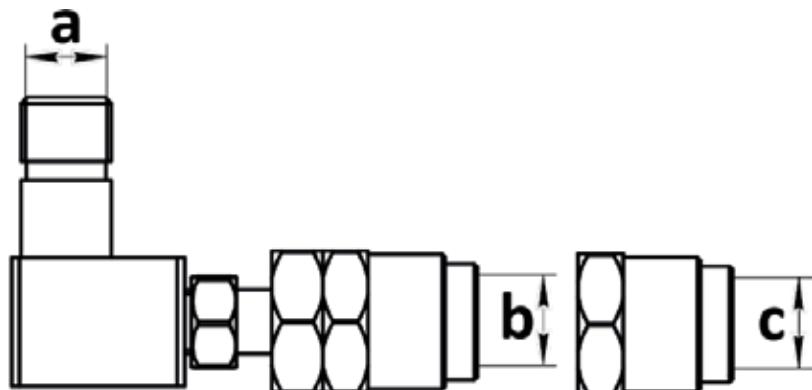
A photograph of a black metal straight adapter. It has a flange on the left, a hexagonal section, a square section, and a flange on the right. Two vertical dimension lines with arrows are drawn: one from the top of the left flange to the top of the hexagonal section, labeled 'a'; and another from the bottom of the hexagonal section to the bottom of the right flange, labeled 'b'.

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 black metal straight adapter. It has a flange on the left, a hexagonal section, a square section, and a flange on the right. Two vertical dimension lines with arrows are drawn: one from the top of the left flange to the top of the hexagonal section, labeled 'a'; and another from the bottom of the hexagonal section to the bottom of the right flange, labeled 'b'.

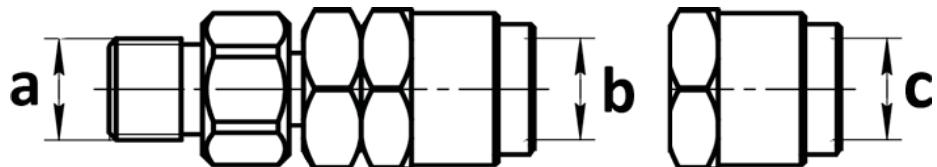
### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### ANGLE ADAPTERS WITH REPLACEMENT 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	

#### STRAIGHT ADAPTERS WITH REPLACEMENT 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 TESTING PUMPS AND INJECTORS



**DL-UNI30980**

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



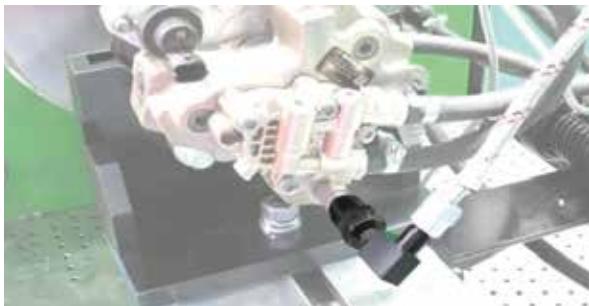
**DL-UNI30981**

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



**DL-UNI31398**

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



**DL-UNI50175**

Extended straight adapter  
M14xM12 (1.5mm pitch) with internal cone

Used for installation on a pressure accumulator

*Can be installed for testing  
BOSCH PIEZO injectors.*



### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-UNI50055**

Thread adapter  
M14x1.5mm to M12x1.5mm  
Included in delivery  
adapter – 1 pc.



**DL-UNI50056**

Thread adapter  
M12x1.5mm to M14x1.5mm  
Included in delivery  
adapter – 1 pc.



**DL-UNI50276**

Adapter from M14x1.5mm  
thread to M14x1.5mm thread  
Included in delivery: 1 adapter



**DL-CR50121**

**DL-UNF2110 High Pressure Filter Adapter**

Installs in place of the standard fitting in the pressure accumulator (Rail)  
DL-CR30479, DL-CR30180, DL-CR30181, DL-CR30188, DL-CR30522, DL-CR30526.  
Package Contents:  
DL-CR30834 Adapter M14x1.5 (Male) x M18x1.5 (Female) - 1 pc.  
Adapter body with M14x1.5 thread - 1 pc.

***ATTENTION! The BOSCH DL-UNF2110 high pressure filter is not included in the package and must be ordered separately.***



**DL-CR50372**

**High-pressure filter adapter for turbochargers**

Features a 60° cone on both ends for connecting conical high-pressure pipes from various manufacturers.  
Has M14x1.5 x M14x1.5 connection threads.

**Included in delivery:**

DL-CR31757 adapter M14x1.5 (Male) x M18x1.5 (Female) - 1 pc.  
DL-CR30835 adapter M14x1.5 (Male) x M18x1.5 (Male) - 1 pc.

***ATTENTION! The BOSCH DL-UNF2110 high-pressure filter is not included in the delivery set and must be ordered separately!***

This filter is recommended for installation in the high-pressure fuel system of diesel engines, in the high-pressure line from the fuel pump to the rail.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS

#### DL-CR50374



##### High-pressure filter adapter for turbochargers

Features a 60° cone on both ends for connecting conical high-pressure pipes from various manufacturers.

Has M14x1.5 x M14x1.5 connecting threads.

##### Included in delivery:

DL-CR31757 adapter M14x1.5 (Male) x M18x1.5 (Female) - 1 pc.

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

BOSCH DL-UNF2110 high-pressure filter - 1 pc.

**This filter is recommended for installation in the high-pressure line of diesel engines (injection pump ↔ Rail).**



#### DL-UNI50363

##### 3/8" Female x 3/8" Male Positioning Adapter

##### Included:

Adapter – 1 pc.

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



#### DL-UNI30650

##### Relief valve adapter for pressure accumulator (Rail) DL-CR30188, DL-CR30180

##### Included in delivery:

Adapter – 1 pc.



#### DL-UNI30796

##### Adapter from M14 to M18 thread for installing a pressure sensor in pressure accumulators

DL-CR30479, DL-CR30180

**Included in delivery:** adapter – 1 pc.



#### DL-CR14014

##### Angle adapter from M14x1.5mm thread to M14x1.5mm thread.

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

**Included in delivery:** 1 adapter.



#### DL-CR14012

##### Angle adapter from M14x1.5mm thread to M12x1.5mm thread.

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

**Included in delivery:** 1 adapter.

## EQUIPMENT FOR TESTING PUMPS AND INJECTORS

**DL-UNI30287**

Adapter with a G1/2" female thread for a 2000 bar pressure gauge. It has a M14x1.5 mm connection thread with a 60° cone for the high-pressure tube (HPT).

**Included in delivery:**  
adapter – 1 pc.

**DL-UNI30508**

Adapter with M20x1.5mm internal thread for a 2500 bar pressure gauge. It has an M14x1.5mm connection thread with a 60° cone for the high-pressure tube (HPT).

**Included in delivery:**  
adapter – 1 pc.

**DL-SM**

Pressure gauge washer

**DL-CR14P2000**

2000 bar pressure gauge

**DL-CR14P2500**

2500 bar pressure gauge

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



#### DL-KM2000

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

##### Included in delivery:

- bracket
- clamping bar
- M6x60 bolt, nuts, washers – 2k
- bolt M6x45, washers – 2k



#### DL-KM3000

2000 bar pressure gauge bracket  
for mounting on the bench plate.

##### Included in delivery:

- Bracket
- Profile bolt with nut, washer, and lock washer
- Clamping plate
- M6x60mm bolt with nut, washer, and lock washer – 2 sets



#### DL-KM2500

2500bar pressure gauge bracket.

For DL-CR30181 and DL-CR30522 rails

##### Included in delivery:

- Main bracket
- Pressure gauge mounting ring
- M6x45 bolt, washers – 2 sets
- M6x30 bolt, washers – 2 sets
- M6x10mm bolt – 3 pcs.



#### DL-KM3500

2500bar pressure gauge bracket  
for mounting on the bench plate

##### Included in delivery:

- Main bracket
- Pressure gauge mounting ring
- Profile bolt with nut, washer, and lock washer
- M6 x 30mm bolt with washer and lock washer – 2 sets
- M6 x 10mm bolt – 3 pcs.

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-CR10045**

150 bar pressure sensor for compression tester  
DL-UNI20008



**DL-CR10046**

250 bar pressure sensor for compression tester  
DL-UNI20008



**DL-CR10058**

Bosch 1500 bar pressure sensor



**DL-CR10059**

Bosch 1500 bar pressure sensor



**DL-CR10060**

Bosch 1500 bar pressure sensor



**DL-CR10050**

Bosch 1800 bar pressure sensor



**DL-CR10061**

Bosch 1800 bar pressure sensor



**DL-CR10052**

Bosch 2200 bar pressure sensor



**DL-CR10053**

Bosch 2400 bar pressure sensor



**DL-CR10062**

Bosch 2400 bar pressure sensor



**DL-CR10063**

Bosch 2400 bar pressure sensor

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-CR10051**

Bosch 1800 bar pressure regulator



**DL-CR10064**

Bosch 1800 bar pressure regulator



**DL-CR10065**

Bosch 1800 bar pressure regulator



**DL-CR10054**

Bosch 2200 bar pressure regulator



**DL-CR10055**

Bosch 2700 bar pressure regulator



**DL-CR50344**

30mm wrench for tightening the pressure regulator



**DL-CR10056**

Bosch 1800 bar pressure relief valve



**DL-CR10066**

Bosch 1800 bar pressure relief valve



**DL-CR10057**

Bosch 2400 bar pressure relief valve

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-MOK**

Adapter-coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 37 mm  
 Length without clamps = 33 mm  
 Diameter = 1.15 mm



**DL-MOK-K**

Quick-connect coupling with check valve, Ø 6 mm  
 Connection holes: Ø 6 mm x Ø 6 mm  
 Length with clamps = 49 mm  
 Length without clamps = 45 mm  
 Diameter = 13.8 mm



**DL-MOK-KS**

Quick-connect coupling with check valve Ø 6 mm  
 Connecting holes Ø 6 mm x Ø 6 mm  
 Length with clamps = 42.6 mm  
 Length without clamps = 37.3 mm  
 Diameter = 12.5 mm



**DL-CR50120**

Delphi injector back-up valve for coding (response time)



**DL-CR50406**

Back-up valve for DELPHI coding, thread G 1/8"



**DL-CR50136**

Return flow pressure valve for testing BOSCH electromagnetic injectors on a test bench



**DL-CR50210**

Return pressure valve for testing SIEMENS piezo injectors on a test bench



**DL-CR50177**

Return pressure valve for piezo injectors Bosch

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-CR50204**

A pressure gauge kit for testing the return pressure of BOSCH Piezo injectors.

Testing is performed on the vehicle.  
The pressure gauge is installed in a device with a hook that secures it above the engine compartment (e.g., under the hood).

Using this kit with the **DL-CR50177** pressure gauge valve allows you to monitor the correct operation of this valve when testing BOSCH Piezo injectors on a test bench.



Delivery set:

1. **D-12-TV63-016** Pressure gauge 0-16 bar
2. **DL-CR31311** Special adapter fitting for pressure gauge
3. **DL-CR31310** A nipple with a rubber seal for connection to the vehicle's return line.
4. **DL-CR31285** A fitting with a locking screw for installation in the backflow fitting of the injector
5. **34-RL0506** Tee with quick-release couplings 6 mm
6. **34-RL010601** Straight quick-release fitting 1/8x6mm – 2 pcs.
7. **DL-CR50246** Hanging bracket for installation in a suspended state
8. **D-P1004** Teflon tube – 100 cm

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

## EQUIPMENT FOR TESTING PUMPS AND INJECTORS

**DL-UNI30218**

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

**DL-UNI31498**

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

**DL-CR30493**

Plug with external thread M20 x 1.5 instead of a pressure relief valve for a pressure accumulator (Rail)

**DL-UNI30159**

Heat-treated plug with external thread M24x1.5 in place of the pressure regulator for the 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 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 TESTING PUMPS AND INJECTORS



**DL-UNI30003**

Fitting M14x1.5 x M14x1.5 cone 60° for connecting two turboprop engines.



**DL-UNI31589**

Fitting M14x1.5 x M12x1.5 cone 60° for connecting two turboprop engines.



**DL-UNI31592**

Fitting M12x1.5 x M12x1.5 cone 60° for connecting two turboprop engines.



**DL-UNI50312**

A set of fittings and plugs for high-pressure fuel lines (HP)

#### Delivery set:

**DL-UNI30003** Adapter for connecting tubes

M14x1.5 x M14x1.5 mm. Conical on both ends for a tight fit with the tube cone.

**DL-UNI31589** Adapter for connecting M14x1.5 x M12x1.5 mm tubes. Conical on both ends for a tight fit.

**DL-UNI31592** Adapter for connecting M12x1.5 x M12x1.5 mm tubes. Conical on both ends for a tight fit.

**DL-UNI31590** Plug M12x1.5 cone 60°

**DL-UNI31591** Plug M14x1.5 cone 60°



**DL-UNI31591**

Plug M14x1.5 cone 60° for turbojet



**DL-UNI31590**

Plug M12x1.5 cone 60° for turbojet



**DL-UNI50085**

Adapter with external cone thread K 1/4 X K 1/4



**DL-UNI50086**

Adapter with external cone thread K 3/8 X K 3/8



**DL-UNI50389**

Adapter with external cone thread K 1/2 X K 1/2

### EQUIPMENT FOR TESTING PUMPS AND INJECTORS



**DL-TVD-S**

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

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

Комплект дооснащения стендов CR-Jet  
на давление 2400 бар



### The set includes:

1. Rail plug – 4 pcs.
2. Plug instead of pressure regulator
3. Pressure sensor 2400 bar
4. Pressure regulator 2400 bar
5. Rail bracket
6. 1/8" x 1.5 fir-tree fitting – 2 pcs.
7. Quick adapter fitting M12x1.5 – 2 pcs.
8. Elbow fittings 8x8 – 2 pcs.
9. Fitting M14x M14 (pitch 1.5) – 4 pcs.
10. Teflon tube Ø 8 mm
11. Rail with cooling
12. Flange Ø 107 mm
13. Hose Ø 8 mm
14. Banjo 14.5x8 mm, banjo bolt M14x1.5 (for supplying brake fluid to the high-pressure fuel pump)
15. Rubber-metal gasket M14x1.5 – 2 pcs.
16. M14x1.5 nipple for backflow from the fuel injection pump
17. 14x1.5 rubber-metal gasket
18. M12x1.5 nipples – 3 pcs. (two for the fuel injection pump and one for draining from the rail)
19. M12 rubber-metal gasket
20. 13 mm clamp – 3 pcs.
21. Fuel injection pump

DL-CR50149

Retrofit kit for CR-Jet test benches  
for 2400 bar pressure without fuel injection pump

### CRISTINA

The CRistina complex is designed for assembling COMMON RAIL BOSCH, DELPHI, and DENSO injectors using technology that allows for the calculation and selection of all necessary adjustment elements.

The system's hardware and software not only accurately measures the required dimensions but also diagnoses the injector solenoid's condition by measuring the winding's resistance and inductance.

The system's software contains a detailed database of installation dimensions for most common COMMON RAIL injectors and a complete visualization of the assembly process, which helps avoid assembly errors and significantly reduce repair time.

To eliminate measurement errors, the CRistina system's design allows for precise and rigid positioning of the injector body, eliminating vibration and uncontrolled movement of the measured element relative to the measuring device.

**Available in the following variants:**

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



## CRISTINA-BASE

## Delivery set:

1. **DL-CRN005** Tripod for measuring and adjusting injector parameters 1 set
2. **DL-KIP025** Digital indicator measuring head
3. **DL-KIP0028** Communication device for the measuring head
4. **DL-CRN50094** Set of measuring probes and adapters
5. **DL-CRN50099** A set of 4 adapters for measuring the clearances of BOSCH and DENSO injectors
6. **DL-CRistina** Valve stroke actuator with a set of cables including:
  - 220V power cable – 1 pc.
  - Main solenoid connection cable – 1 pc.
  - Adapter cable for passenger car injector – 1 pc.
  - Adapter cable for truck injector – 1 pc.
7. CRistina software
8. **DL-PASSCRistina** Passport (technical description, operating instructions)

**NOTE: The special workbench table is not included.**



### CRISTINA-BASE-F

#### Delivery set:

1. **DL-CRN005** Tripod for measuring and adjusting injector parameters 1 set
2. **DL-ST01** Clamp for disassembling and assembling injector elements and measuring its parameters.
3. **DL-KIP025** Digital indicator measuring head
4. **DL-KIP0028** Communication device for the measuring head
5. **DL-CRN50094** Set of measuring probes and adapters
6. **DL-CRN50099** A set of 4 adapters for measuring the clearances of BOSCH and DENSO injectors
7. **DL-CRistina** Injector control signal activator in a large housing with a set of cables including:
  - 220V power cable – 1 pc.
  - Main solenoid connection cable – 1 pc.
  - Adapter cable for passenger car injector – 1 pc.
  - Adapter cable for truck injector – 1 pc.
8. PC with monitor and keyboard
9. CRistina software
10. **DL-PASSCRistina** Passport (technical description, operating instructions)

**NOTE: The special workbench table is not included.**



### CRISTINA-FULL

#### Delivery set:

1. **DL-CRN005** Tripod for measuring and adjusting injector parameters 1 set
2. **DL-KIP025** Digital indicator measuring head
3. **DL-KIP0028** Communication device for the measuring head
4. **DL-CRN50094** Set of measuring probes and adapters
5. **DL-CRN50099** A set of 4 adapters for measuring the clearances of BOSCH and DENSO injectors
6. **DL-CRistina** Valve stroke actuator with a set of cables including:
  - 220V power cable – 1 pc.
  - Main solenoid connection cable – 1 pc.
  - Adapter cable for passenger car injector – 1 pc.
  - Adapter cable for truck injector – 1 pc.
7. PC with monitor and keyboard
8. CRistina software
9. **DL-PASSCRistina** Passport (technical description, operating instructions)
10. **DL-125** Vice L=125mm
11. **CR-NEXT-ST01** A special workbench with two drawers included:
  - Table with two drawers
  - Perforated wall for tool storage
  - Lighting ramp with two holders
  - Shelf for PC
  - Shelf for signal generator



### CRISTINA-PROF

#### Delivery set:

1. **DL-CRN005** Tripod for measuring and adjusting injector parameters 1 set
2. **DL-KIP025** Digital indicator measuring head
3. **DL-KIP0028** Communication device for the measuring head
4. **DL-CRN50094** Set of measuring probes and adapters
5. **DL-CRN50099** A set of 4 adapters for measuring the clearances of BOSCH and DENSO injectors
6. **DL-CRistina** Valve stroke actuator with a set of cables including:
  - 220V power cable – 1 pc.
  - Main solenoid connection cable – 1 pc.
  - Adapter cable for passenger car injector – 1 pc.
  - Adapter cable for truck 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 kit
12. **DL-UNI30390** CR injector solenoid removal key with 30mm hexagon.
13. **DL-UNI30389** CR injector solenoid removal key with 29mm hexagon.
14. **DL-UNI30435** CR injector solenoid removal key with 28 mm twelve-sided socket.
15. **DL-UNI30434** CR injector solenoid removal key with 27mm twelve-sided socket.
16. **DL-UNI50046** A 3-prong wrench for removing the nut in the electronic part of DENSO injectors.
17. **DL-UNI30545** Siemens DL-UNI30545 injector electronic nut removal tool
18. **DL-UNI50050** A set of wrenches for removing the nozzle nut (14mm, 15mm, 17mm, 19mm hex keys, 16mm and 17.5mm octagon keys, and a 27mm wrench)
19. **DL-CR30561** Key for dismantling the Bosch CR injector multiplier nut, 10 mm hex.
20. **DL-UNI31010** Key for removing the nut in the electronic part of Bosch injectors, 10 mm.

21. **DL-UNI31012** Key for removing the nut in the electronic part of Bosch injectors, 12 mm.
22. **DL-AP2** Set of 2 antimagnetic 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: The special workbench table is not included.**



### CRISTINA-PROF-FULL

#### Delivery set:

1. **DL-CRN005** Tripod for measuring and adjusting injector parameters 1 set
2. **DL-KIP025** Digital indicator measuring head
3. **DL-KIP0028** Communication device for the measuring head
4. **DL-CRN50094** Set of measuring probes and adapters
5. **DL-CRN50099** A set of 4 adapters for measuring the clearances of BOSCH and DENSO injectors
6. **DL-CRistina** Valve stroke actuator with a set of cables including:
  - 220V power cable – 1 pc.
  - Main solenoid connection cable – 1 pc.
  - Adapter cable for passenger car injector – 1 pc.
  - Adapter cable for truck 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 kit
12. **DL-UNI30390** CR injector solenoid removal key with 30mm hexagon.
13. **DL-UNI30389** CR injector solenoid removal key with 29mm hexagon.
14. **DL-UNI30435** CR injector solenoid removal key with 28 mm twelve-sided socket.
15. **DL-UNI30434** CR injector solenoid removal key with 27mm twelve-sided socket.
16. **DL-UNI50046** A 3-prong wrench for removing the nut in the electronic part of DENSO injectors.
17. **DL-UNI30545** Siemens DL-UNI30545 injector electronic nut removal tool
18. **DL-UNI50050** A set of wrenches for removing the nozzle nut (14mm, 15mm, 17mm, 19mm hex keys, 16mm and 17.5mm octagon keys, and a 27mm wrench)
19. **DL-CR30561** Key for dismantling the Bosch CR injector multiplier nut, 10 mm hex.
20. **DL-UNI31010** Key for removing the nut in the electronic part of Bosch injectors, 10 mm.

21. **DL-UNI31012** Key for removing the nut in the electronic part of Bosch injectors, 12 mm.
22. **DL-AP2** Set of 2 antimagnetic 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 55 pcs.
32. **DL-125** Vice L=250 mm
33. **CR-NEXT-ST01** A special workbench with two drawers included:
  - Table with two drawers
  - Perforated wall for tool storage
  - Lighting ramp with two holders
  - Shelf for PC
  - Shelf for signal generator
34. PC with monitor and keyboard
35. **DL-KIP010** Digital measuring head 0.01 mm, stroke 12.7 mm (1 pc.)
36. **DL-KIP011** Digital measuring heads 0.001 mm, stroke 12.7 mm (2 pcs.)
37. **DL-KIP012** Digital measuring head 0.001 mm, stroke 25.4 mm (1 pc.)
38. **DL-ST-01** Clamp for disassembling and assembling injectors.



### CRISTINA-SPECIAL

#### Delivery set:

1. **DL-CRN005** Tripod for measuring and adjusting injector parameters 1 set
2. **DL-KIP025** Digital indicator measuring head
3. **DL-KIP0028** Communication device for the measuring head
4. **DL-CRN50094** Set of measuring probes and adapters
5. **DL-CRN50099** A set of 4 adapters for measuring the clearances of BOSCH and DENSO injectors
6. **DL-CRistina** Valve stroke actuator with a set of cables including:
  - 220V power cable – 1 pc.
  - Main solenoid connection cable – 1 pc.
  - Adapter cable for passenger car injector – 1 pc.
  - Adapter cable for truck 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 kit
12. **DL-UNI30390** CR injector solenoid removal key with 30mm hexagon.
13. **DL-UNI30389** CR injector solenoid removal key with 29mm hexagon.
14. **DL-UNI30435** CR injector solenoid removal key with 28 mm twelve-sided socket.
15. **DL-UNI30434** CR injector solenoid removal key with 27mm twelve-sided socket.
16. **DL-UNI50046** A 3-prong wrench for removing the nut in the electronic part of DENSO injectors.
17. **DL-UNI30545** Siemens DL-UNI30545 injector electronic nut removal tool
18. **DL-UNI50050** A set of wrenches for removing the nozzle nut (14mm, 15mm, 17mm, 19mm hex keys, 16mm and 17.5mm octagon keys, and a 27mm wrench)
19. **DL-CR30561** Key for dismantling the Bosch CR injector multiplier nut, 10 mm hex.
20. **DL-UNI31010** Key for removing the nut in the electronic part of Bosch injectors, 10 mm.

21. **DL-UNI31012** Key for removing the nut in the electronic part of Bosch injectors, 12 mm.
22. **DL-AP2** Set of 2 antimagnetic 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. **CR-NEXT-ST01** A special workbench table with two drawers included:
  - Desk with two drawers
  - Perforated wall for tool storage
  - Lighting ramp with two holders
  - Shelf for PC
  - Shelf for signal generator
34. PC with monitor and keyboard
35. **DL-KIP010** Digital measuring head 0-12.7 mm, 0.01 µm (1 pc.)
36. **DL-KIP011** Digital measuring head 0-12.7 mm, 0.001 µm (2 pcs.)
37. **DL-KIP012** Digital measuring head 0-25.4 mm, 0.001 µm (1 pc.)
38. **DL-ST-01** Clamp for disassembling and assembling injectors
39. **DL-CRN50113** Set of angle gauges for checking the tightening of the nozzle nut
40. **D-1012020001** Stainless steel bath
41. **DL-M035** Digital micrometer
42. **DL-M040** Micrometer stand
43. **D-07147120** Torque wrench 1/4"-1/2" with a force of 1-25 Nm
44. **DL-TX10** T-shaped key Tx10
45. **DL-TX25** T-shaped key 2.5 mm
46. **DL-TX30** T-shaped key 3 mm

47.	<b>DL-UNI31113</b>	13 mm hexagon socket wrench
48.	<b>DL-UNI31114</b>	14mm hexagon socket wrench
49.	<b>DL-UNI31115</b>	15 mm hexagon socket wrench
50.	<b>DL-UNI31119</b>	19 mm hexagon socket wrench
51.	<b>DL-CR50052</b>	Device for filling the hydraulic compensator of the Bosch piezo injector.
52.	<b>DL-UNI50043</b>	Universal fixture for clamping CR injectors in a vice.
53.	<b>DL-UNI50032</b>	Universal fixture for clamping CR DENSO injectors in a vice.
54.	<b>DL-1219KIT</b>	Set of open-end wrenches 10 mm,12 mm,13 mm,14 mm,15 mm,17 mm,19 mm
55.	<b>DL-UNI30776</b>	1/4" to 1/2" adapter for torque wrench

For an additional fee: **DL-UNI31117 Hex key, extended, 17 mm.**





**DL-CRN50134**

Tabletop stand for CR-CRistina tripod

**Delivery set:**

- **CRN30918** base – 1 pc.
- **CRN30919** stand – 4 pcs.
- **DIN912 M8x25** Allen bolt – 8 pcs.



**DL-1019KIT**

Set of open-end and ring spanners:

**Included in 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 restrictor sleeve  
and magnetic gap adjusting washer of Bosch  
Common Rail injectors with a pressure range of 0-8 bar.

**Delivery set:**

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



**DL-CRN30915**

adapter

**DL-CRN30920**

Pneumatic press pusher



**DL-CRN30914**

adapter

**DL-CRN30921**

Pneumatic press pusher



**DL-CRNRLS02**

Adapter kit for a pneumatic press

**Delivery set:**

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

### DL-CRTOOLKIT-22 CR injector repair tool kit



1	<b>DL-CR50104</b>	Removal/installation kit for the support ring
2	<b>DL-UNI30390</b>	CR injector solenoid removal tool with a 30 mm hexagon
3	<b>DL-UNI30389</b>	CR injector solenoid removal tool with a 29 mm hexagon
4	<b>DL-UNI30435</b>	CR injector solenoid removal tool with a 28 mm bi-lateral hexagon
5	<b>DL-UNI30434</b>	CR injector solenoid removal tool with a 27 mm bi-lateral hexagon
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>	Set of wrenches for removal: 14, 15, 17, 19 mm hexagons, 16, 17.5 mm octagons, and a 27 mm wrench for a torque handle
9	<b>DL-CR30561</b>	Bosch CR injector multiplier nut removal tool, hexagon 10 mm Bosch Injector
10	<b>DL-UNI31010</b>	Electronic Nut Removal Wrench
11	<b>DL-UNI31012</b>	12 mm Bosch Injector Electronic Nut Removal Wrench
12	<b>DL-AP2</b>	Set of 2 DL-AP2 Antimagnetic Tweezers
13	<b>DL-UNI31110</b>	T-Shaped Wrench Tx10
14	<b>DL-UNI31125</b>	T-Shaped Wrench 2.5 mm
15	<b>DL-UNI31130</b>	T-Shaped Wrench 3 mm
16	<b>DL-UNI31113</b>	13 mm Allen Key
17	<b>DL-UNI31114</b>	14 mm Allen Key
18	<b>DL-UNI31115</b>	15 mm Allen Key
19	<b>DL-UNI31119</b>	19 mm Allen Key
20	<b>DL-CR50052</b>	Bosch Piezo Injector Compensator Filler Tool
21	<b>DL-UNI50043</b>	Universal Clamping Tool for CR Injectors
22	<b>DL-UNI50032</b>	Universal Clamping Tool for Denso CR Injectors

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



1	<b>DL-CR50104</b>	Removal/installation kit for the support ring
2	<b>DL-UNI30390</b>	CR injector solenoid removal tool with a 30 mm hexagon
3	<b>DL-UNI30389</b>	CR injector solenoid removal tool with a 29 mm hexagon
4	<b>DL-UNI30435</b>	CR injector solenoid removal tool with a 28 mm bi-lateral hexagon
5	<b>DL-UNI30434</b>	CR injector solenoid removal tool with a 27 mm bi-lateral hexagon
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>	Set of wrenches for removal: 14, 15, 17, 19 mm hexagons, 16, 17.5 mm octagons, and a 27 mm wrench for a torque handle
9	<b>DL-CR30561</b>	Bosch CR injector multiplier nut removal tool, hexagon 10 mm wrench for removing the nut in the electronic part of Bosch injectors
10	<b>DL-UNI31010</b>	12 mm wrench for removing the nut in the electronic part of Bosch injectors
11	<b>DL-UNI31012</b>	Set of 2 DL-AP2 antimagnetic tweezers
12	<b>DL-AP2</b>	Set of 2 DL-AP2 antimagnetic tweezers



**DL-DEN00090**

**Set of wrenches  
for repairing DENSO injectors**

**Delivery set:**

1	<b>DL-CR31715</b>	DENSO Nozzle Nut Wrench 5471 08K125157032
2	<b>DL-CR31668</b>	27mm extended 1/2 wrench for installing/removing solenoids of DENSO injectors
3	<b>DL-CR31667</b>	27mm 1/2 wrench for installing/removing solenoids of DENSO injectors
4	<b>DL-CR31093</b>	Wrench for removing solenoids of DENSO, CAT, PERKINS injectors
5	<b>DL-CR31095</b>	Wrench for installing/removing inner ring-nut of Denso, CAT, Perkins injectors
6	<b>DL-CR31092</b>	7/8 Allen key for installing/removing inner ring nut of solenoid of CR Denso injectors. 1/2" Square Drive
7	<b>DL-UNI30460</b>	14mm Allen Key with Flange
8	<b>DL-UNI50046</b>	Three-Pin Key for Disassembling and Assembling Denso Injectors
9	<b>DL-UNI30382</b>	27mm Allen Key with Square Hole for Torque Handle or 1/2" Wrench



**DL-DEN00100**

**A set of wrenches and tools  
for repairing DENSO injectors**

**Delivery set:**

1	<b>DL-CR31715</b>	DENSO Nozzle Nut Wrench 5471 08K125157032
2	<b>DL-CR31668</b>	27mm extended 1/2 wrench for installing/removing solenoids of DENSO injectors
3	<b>DL-CR31667</b>	27mm 1/2 wrench for installing/removing solenoids of DENSO injectors
4	<b>DL-CR31093</b>	Wrench for removing solenoids of DENSO, CAT, PERKINS injectors
5	<b>DL-CR31095</b>	Wrench for installing/removing inner ring-nut of Denso, CAT, Perkins injectors
6	<b>DL-CR31092</b>	Hex key 7/8 for installing/removing the inner ring nut of the solenoid of CR Denso injectors. 1/2" Square Drive
7	<b>DL-UNI30460</b>	14mm Allen Key with Flange
8	<b>DL-UNI50046</b>	Three-Pin Key for Disassembling and Assembling Denso Injectors
9	<b>DL-UNI50032</b>	Universal Vise Clamp for Denso CR Injectors
10	<b>DL-UNI30382</b>	27mm Allen Key with Square Hole for Torque Handle or 1/2" Wrench

### DL-DEN00110

**A set of wrenches and tools  
for repairing DENSO injectors**



#### Delivery set:

1	<b>DL-CR31715</b>	DENSO Nozzle Nut Wrench 5471 08K125157032
2	<b>DL-CR31668</b>	27mm extended 1/2 wrench for installing/removing solenoids of DENSO injectors
3	<b>DL-CR31667</b>	27mm 1/2 wrench for installing/removing solenoids of DENSO injectors
4	<b>DL-CR31093</b>	Wrench for removing solenoids of DENSO, CAT, PERKINS injectors
5	<b>DL-CR31095</b>	Wrench for installing/removing inner ring-nut of Denso, CAT, Perkins injectors
6	<b>DL-CR31092</b>	Hex key 7/8 for installing/removing the inner ring nut of the solenoid of CR Denso injectors. 1/2" Square Drive
7	<b>DL-UNI30460</b>	14mm Allen Key with Flange
8	<b>DL-UNI50046</b>	Three-Pin Key for Disassembling and Assembling Denso Injectors
9	<b>DL-UNI50032</b>	Universal Vise Clamp for Denso CR Injectors
10	<b>DL-CR50245</b>	DENSO CR Injector Filter Removal and Installation Kit
11	<b>DL-UNI30382</b>	27mm Allen Key with Square Hole for Torque Handle or 1/2" Wrench

CRN-50250

Set of probes and adapters

DL-CRN50099

Set of adapters for injectors:



DL-CRN30027

Needle Stroke Adapter

BOSCH, Excess Stroke Adapter

BOSCH CRI 2.0/2.2

DL-CRN30028

BOSCH Magnetic Gap Adapter CRI 1, CRI 2.0/2.2, CRIN 1/1.6.

DL-CRN30031

Magnetic gap adapter for injectors

BOSCH CR1 2.1

DL-CRN30032

DL-CRN30029

DL-CRN30030

DL-CRN30033

DL-CRN30034

Injector Overrun Adapter  
Denso

DL-CRN50094

Set of measuring probes:



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 angle gauges for checking the tightening of the nozzle nut

Delivery set:



### DL-CRN50107

Angle gauge for injectors with a nozzle nut diameter of 17 mm

Angle range: 0° – 360°



### DL-CRN50110

Angle gauge for injectors with a nozzle nut diameter of 19 mm

Angle range: 0° – 360°



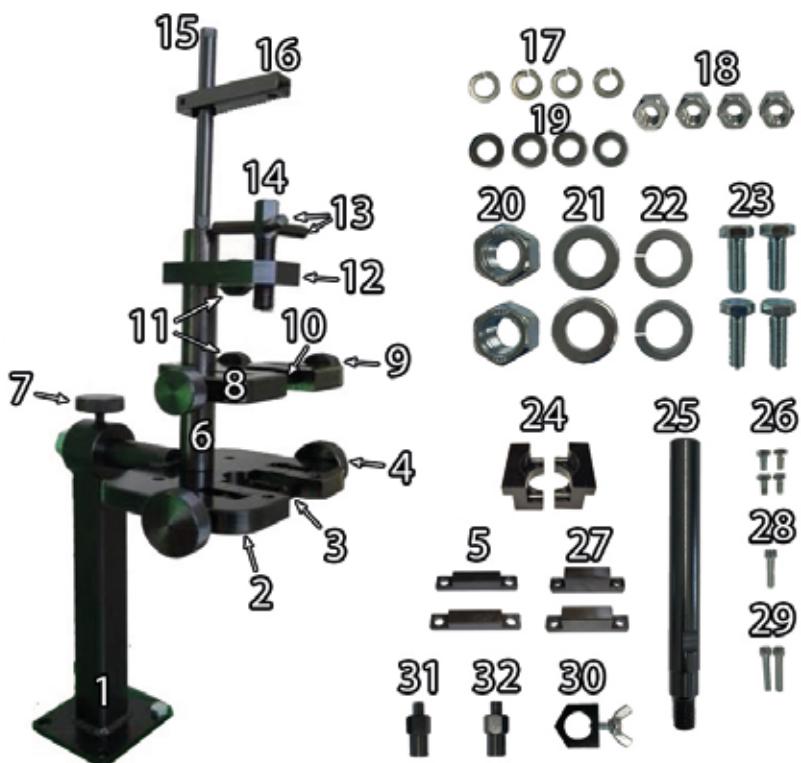
### DL-CRN50108

Angle gauge for injectors with a nozzle nut diameter of 21 mm

Angle range: 0° – 360°



***All protractors are also sold separately.***



DL-ST01

**Clamp for disassembling and assembling CR injectors and truck unit injectors**

**Delivery set:**

1. STD50115	Stand – 1 pc.	18.	–	Nut M10 – 4 pcs.
2. STD50116	Large Vise – 1 pc.	19.	–	Washer 10.5x20x2 – 4 pcs.
3. STD30586	Large Vise Clamp – 2 pcs.	20.	–	Nut M20 – 2 pcs.
4. STD30569	Large Vise Locking Handle – 2 pcs.	21.	–	Washer 21x37x3 – 2 pcs.
5. STD30498	Replaceable Clamping Foot – 2 pcs.	22.	–	Grover 20 – 2 pcs.
6. STD30540	Guide Post – 1 pc.	23.	–	Bolt M10x30 – 4 pcs.
7. STD30846	Locking Handle, Ø 50 mm – 1 pc.	24. STD30752		Replaceable clamping tab for Denso injectors – 2 pcs.
8. STD50117	Small Vise – 1 pc.	25. STD30873		Sight pin – 1 pc.
9. STD30500	Small Vise Handle – 2 pcs.	26. Screw M4x8	– 4 pcs.	
10. STD30563	"V" Clamping Handle for Small Vise – 2 pcs.	27. STD31172		Replaceable clamping tab (with increased height) – 2 pcs.
11. STD30468	Locking Handle, Ø 35 mm – 2 pcs.	28.	–	Screw M4x16 – 1 pc.
12. STD30610	Bracket – 1 pc.	29.	–	Screw M4x20 – 2 pcs.
13. STD30811	Clamp Screw Handles – 3 pcs.	30. STD30874		Sight for protractor – 1 pc.
14. STD30810	Clamp Screw – 1 pc.	31. STD30147		Stop Ø9 mm, for clamping screw pos. 14 – 1 pc.
15. STD30812	Axle – 1 pc.	32. STD30148		Stop Ø7 mm, for clamping screw pos. 14 – 1 pc.
16. STD30813	Holder – 1 pc.			
17. –	Grover Washer, 10mm – 4 pcs.			

### SPARE PARTS FOR CLAMP DL-ST01



**DL-STD30498**

Replaceable presser foot (standard) (set of 2)



**DL-STD31172**

Replaceable presser foot (with increased height) (set of 2)



**DL-STD30586**

Large vice jaw



**DL-STD30563**

V-shaped clamp for small vices



**DL-STD30752**

Replacement pressure pad for Denso injectors (set of 2)



#### ADDITIONAL EQUIPMENT FOR CLAMP DL-ST01

##### DL-STD50072 KIT

Set of holders for single pump sections (PLD sections) and Audi/VW unit injectors (DL-STD50070 K, DL-STD50071 K)



##### DL-STD50070 K

Single Pump Section Holder Set (PLD Sections)

Included in delivery:

1	STD-50077	AT holder
2	STD-50078	AC holder
3	STD-30671	bar
4	STD-30672	stand
5	STD-30673	stop

6 screw GOST 11738-84 M10x60 - 2 pcs.

##### DL-STD50071 K

Unit injector holder kit Audi/VW

Included in delivery:

1	STD-50009	VW2.0 clamp
2	STD-50010	VW1.9 clamp
3	STD-30656	bar
4	STD-30657	post - 2 pcs.
5	STD-30678	stop
6	STD-30658	bolt
7	STD31245	shortened post UIS - 2 pcs.



##### DL-STD30874

Sight for an angle meter



##### DL-STD30873

Axis under the sight



**DL-CR50341**

**A bracket with an adapter for measuring the valve stroke of BOSCH piezo injectors is used during their assembly.**

**The kit includes:**

**DL-CR31201** adapter

**DL-CR31206** measuring probe.



**DL-CR50340**

**The adapter bracket for measuring the valve stroke of BOSCH piezo injectors is used during their assembly.**

**DL-CR31201** adapter

**DL-CR31206** feeler gauge are not included in the delivery kit.



### ADDITIONAL EQUIPMENT FOR CLAMP DL-ST01



**DL-STD50206**

AUDI/VW 1.9 unit injector holder  
for adjusting the solenoid on a clamp  
ST-01/ST-02



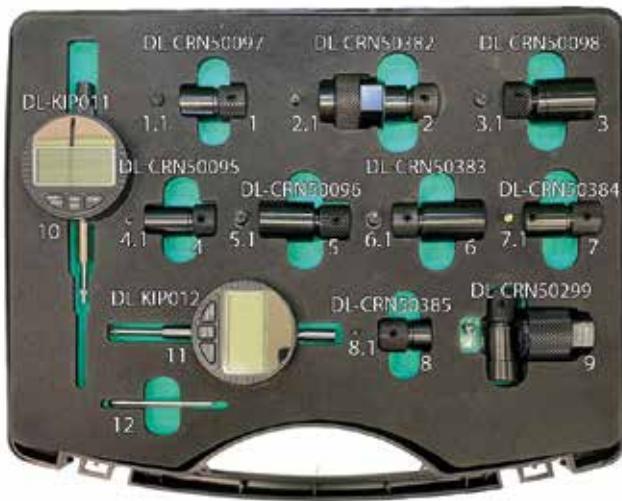
**DL-STD50207**

AUDI/VW 2.0 unit injector holder  
for adjusting the solenoid on a clamp  
ST-01/ST-02



#### DL-CRN50091

A set of adapters with measuring probes and digital indicators



A set of adapters with digital indicators for measuring mounting clearances and the stroke of the injector needle and valve of CR injectors.

The kit consists of nine adapters complete with measuring probes, two digital indicators, and Allen keys.

**The set includes:**

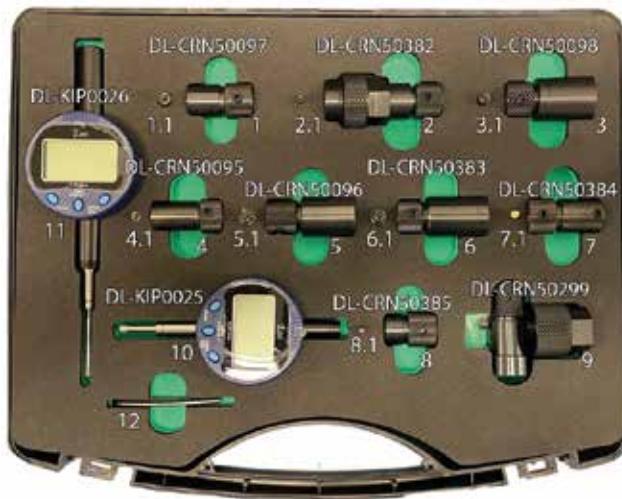
1. **DL-CRN50097** — **DL-CRN30031** adapter with **DL-CRN30032** feeler gauge for measuring the magnetic gap of BOSCH CRI 2.1 injectors
2. **DL-CRN50382** — **DL-CRN50089** adapter with **DL-CRN30708** feeler gauge for measuring the valve lift for BOSCH CRI 1, CRI 2.0/2.2, CRIN 1/1.6 injectors
3. **DL-CRN50098** — **DL-CRN30033** adapter with **DL-CRN30034** feeler gauge for measuring excess lift for Denso injectors
4. **DL-CRN50095** — **DL-CRN30027** adapter with feeler gauge **DL-CRN30028** for measuring the stroke of the BOSCH injector needle, excess stroke adapter BOSCH CRI 2.0 / 2.2
5. **DL-CRN50096** - Adapter **DL-CRN30029** with a measuring probe **DL-CRN30030** for measuring the magnetic gap for BOSCH CRI 1, CRI 2.0 / 2.2, CRIN 1 / 1.6, excess stroke adapter BOSCH CRI 2.0 / 2.2
6. **DL-CRN50383** - Adapter **DL-CRN3070** 5 with a measuring probe **DL-CRN30706** for measuring the valve stroke for BOSCH CRI 2.1 injectors indirect measurement
7. **DL-CRN50384** - Adapter **DL-CRN30707** with a measuring probe **DL-CRN50007** for measuring the valve stroke for BOSCH CRI 2.1 injectors, direct measurement
8. **DL-CRN50385** — **DL-CRN30709** adapter with **DL-CRN30710** measuring probe for measuring the nozzle spring and anchor spring for BOSCH injectors
9. **DL-CRN50299** — **DL-CRN50299** \* adapter, uses **DL-CRN30708** \* measuring probe No. 2.1 for measuring the valve stroke and excess stroke of BOSCH CRIN 2, CRIN 3 injectors
10. **DL-KIP0011** Digital indicator 0-12.7 mm, 0.001 mm
11. **DL-KIP0012** Digital indicator 0-25.4 mm, 0.001 mm
12. Allen keys: L-shaped 2.5 mm, L-shaped 1.5 mm
13. **DL-ORG50091** Organizer in a container

**ATTENTION! Adapter No. 9 — DL-CRN50299 uses measuring probe 2.1 — DL-CRN30708.**

*Kit components are also supplied separately.*

#### DL-CRN50092

Adapter kit for measuring clearances, needle stroke, and valve travel of CR injectors



#### The set includes:

1. **DL-CRN50097** — **DL-CRN30031** adapter with **DL-CRN30032** feeler gauge for measuring the magnetic gap of BOSCH CRI 2.1 injectors
2. **DL-CRN50382** — **DL-CRN50089** adapter with **DL-CRN30708** feeler gauge for measuring the valve lift for BOSCH CRI 1, CRI 2.0/2.2, CRIN 1/1.6 injectors
3. **DL-CRN50098** — **DL-CRN30033** adapter with **DL-CRN30034** feeler gauge for measuring excess lift for Denso injectors
4. **DL-CRN50095** — **DL-CRN30027** adapter with feeler gauge **DL-CRN30028** for measuring the stroke of the BOSCH injector needle, excess stroke adapter BOSCH CRI 2.0 / 2.2
5. **DL-CRN50096** - Adapter **DL-CRN30029** with a measuring probe **DL-CRN30030** for measuring the magnetic gap for BOSCH CRI 1, CRI 2.0 / 2.2, CRIN 1 / 1.6, excess stroke adapter BOSCH CRI 2.0 / 2.2
6. **DL-CRN50383** - Adapter **DL-CRN30705** with a measuring probe **DL-CRN30706** for measuring the valve stroke for BOSCH CRI 2.1 injectors indirect measurement
7. **DL-CRN50384** - Adapter **DL-CRN30707** with a measuring probe **DL-CRN50007** for measuring the valve stroke for BOSCH CRI 2.1 injectors, direct measurement
8. **DL-CRN50385** — **DL-CRN30709** adapter with **DL-CRN30710** measuring probe for measuring the nozzle spring and anchor spring for BOSCH injectors
9. **DL-CRN50299** — **DL-CRN50299** \* adapter, uses **DL-CRN30708** \* measuring probe No. 2.1 for measuring the valve stroke and excess stroke of BOSCH CRIN 2, CRIN 3 injectors
10. **DL-KIP0025** Digital indicator with PC connectivity, 0-12.7 mm, 0.001 mm
11. **DL-KIP0026** Digital indicator with PC connectivity, 0-25.4 mm, 0.001 mm
12. Allen keys: L-shaped 2.5 mm, L-shaped 1.5 mm
13. **DL-ORG50091** Organizer in a container

**ATTENTION! Adapter No. 9 — DL-CRN50299 uses measuring probe 2.1 — DL-CRN30708.**

*Kit components are also supplied separately.*



#### DL-CRN50299

Adapter for measuring valve lift and excess lift for CRIN 2/3 injectors

Included in delivery:

DL-CR31555	Adapter housing — 1 pc
DL-CR31527	Adapter nut — 1 pc
DL-CRN30708	Measuring probe — 1 pc
DL-CR31556	Anchor retaining sleeve — 1 pc



#### DL-CRN50299KIT

Valve lift and overtravel measurement kit CRIN 2 / CRIN 3 with detachable and non-detachable anchors

Delivery set:

- DL-KIP012 Digital Indicator Head — 1 pc
- DL-CR31555 Adapter Housing — 1 pc
- DL-CR31527 Adapter Nut — 1 pc
- CRN30708 Measuring Probe — 1 pc
- DL-CR31556 Locking Sleeve with Goujon — 1 pc
- 2.5mm Allen Key for Fixing the Measuring Head — 1 pc
- 1.5mm Allen Key for Fixing the Sleeve — 1 pc

Please note! The items listed are for the **DL-CRN50091** kit. Other higher-quality and more expensive dial gauges may also be used. The CIGs have the same measuring range (0-25.4 mm stroke and 0.001 mm resolution). For example, **DL-KIP021**, **DL-KIP026**, and **DL-KIP031**. All of these are available as separate orders.



#### DL-CRN50388

CAT C6.6 Injector Clearance Measurement Kit (320-0677)

The adapter kit includes:

DL-CRN31767	Adapter — 1 pc
DL-CRN30030	Measuring Probe — 1 pc



#### DL-CRN31767

Adapter for measuring injector clearances  
CAT C6.6 (320-0677)



#### DL-CR31745

CAT C6.6 Injector Anchor Plate Removal Tool



#### DL-CR50311KIT

A kit with a CIG for measuring the height of washers and springs of CRI1/CRI2 injectors

**DL-CR31586** Base — 1 pc

**DL-CR31583** Spring Height Measuring Adapter — 1 pc

**DL-CR31584** Ahe Washer Height Measuring Adapter — 1 pc

**DL-CR31585** Rls Washer Height Measuring Adapter — 1 pc

**DL-KIP0036** Washer and Spring Height Measuring Adapter — 1 pc

**DL-CRN30033** Digital Measuring Indicator

with 0.001 mm Accuracy and 25 mm Stroke — 1 pc

#### DL-CR50311

A set of tools and an adapter for measuring the height of CRI1/CRI2 washers and springs.

**Delivery set:**

**DL-CR31586** Base — 1 pc

**DL-CR31583** Spring Height Measuring Adapter — 1 pc

**DL-CR31584** Ahe Washer Height Measuring Adapter — 1 pc

**DL-CR31585** Rls Washer Height Measuring Adapter — 1 pc

**DL-CRN30033** Washer and Spring Height Measuring Adapter — 1 pc

#### DL-CR50306

A set of tools for measuring the height of CRI1/CRI2 injector washers and springs.

**Delivery set:**

**DL-CR31586** Base — 1 pc

**DL-CR31583** Spring Height Measuring Adapter — 1 pc

**DL-CR31584** Ahe Washer Height Measuring Adapter — 1 pc

**DL-CR31585** Rls Washer Height Measuring Adapter — 1 pc



#### DL-CR50408

Scania CIG installation and valve adjustment kit 188 15 65



**Delivery set:**

**DL-CR31796** Adapter — 1 pc

**DL-CRN30028** Measuring probe — 1 pc

#### DL-CR31796

Adapter for installing the CIG and adjusting the SCANIA valve 188 15 65





#### DL-UNI20150 CRISTINA - PIEZO

This device is designed to test piezo injectors and the piezo pack. It reliably identifies all piezo pack faults, identifying issues that similar devices or test benches miss.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.

#### Device capabilities:

1. Sending a signal to activate the injector on a hand press
2. Measuring piezoelectric unit resistance
3. Testing for breakdown to the housing
4. Measuring piezoelectric unit capacitance
5. Measuring piezoelectric unit smooth movement

#### Package contents:

1. CRistina-PIEZO signal generator
2. Cable set for the CRistina-PIEZO signal generator
  - 220V power cable
  - Main connection cable to the piezoelectric unit
  - Universal adapter cable
  - Adapter cable with alligator clips
  - Grounding cable
3. Data sheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**





**DL-UNI20050 CRISTINA - PIEZO**

This device is designed to test piezo injectors and the piezo pack. It reliably identifies all piezo pack faults, identifying issues that similar devices or test benches miss.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.



**DL-CR50157**

#### Device capabilities:

1. Sends a signal to activate the injector on a hand press
2. Measures piezoelectric unit resistance
3. Tests for breakdown to the housing
4. Measures piezoelectric unit capacitance
5. Measures piezoelectric unit smooth operation

#### Included in delivery:

1. CRistina-Piezo Controller
2. PiezoST-04 Injector Clamp
3. Mounting Bracket
4. Air Flow Meter
5. Air Filter
6. Air Distribution Valve
7. Air Reducer
8. Electronic Pressure Gauge
9. Tubing Set
10. 6mm Quick Connector
11. Set of 2 backflow nipples for Siemens VDO injectors
12. **DL-CR50157** Adapter set for measuring the valve stroke of the Siemens VDO CR injector
13. Adapter M12x1.5x 1/8"
14. Datasheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**

*Differs from the DL-UNI20050F kit in that it has a less complete set of adapters for injectors.*



### DL-UNI20050F CRISTINA - PIEZO

This device is designed to test piezo injectors and the piezo pack. It reliably identifies all piezo pack faults, identifying issues that similar devices or test benches miss.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.



DL-CR50165

#### Device capabilities:

1. Sends a signal to activate the injector on a hand press
2. Measures piezoelectric unit resistance
3. Tests for breakdown to the housing
4. Measures piezoelectric unit capacitance
5. Measures piezoelectric unit smooth operation

#### Included in delivery:

1. CRistina-Piezo Controller
2. PiezoST-04 Injector Clamp
3. Mounting Bracket
4. Air Flow Meter
5. Air Filter
6. Air Distribution Valve
7. Air Reducer
8. Electronic Pressure Gauge
9. Tubing Set
10. 6mm Quick Connector
11. Set of 2 backflow nipples for Siemens VDO injectors
12. **DL-CR50165** Adapter set for measuring the valve stroke of the Siemens VDO CR injector
13. Adapter M12x1.5x 1/8"
14. Datasheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**

***Differs from the DL-UNI20050 kit by a more complete set of adapters for injectors.***



#### DL-UNI20051 Set with CRistina-PIEZO

Siemens / VDO CR piezo injector repair kit (without injector clamp or acoustic test). This device is designed to test piezo injectors in a piezoelectric unit. It reliably identifies all piezoelectric unit faults and detects problems that similar devices or test benches cannot detect.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.



#### Device capabilities:

1. Sends a signal to activate the injector on a hand press
2. Measures piezoelectric unit resistance
3. Tests for breakdown to the housing
4. Measures piezoelectric unit capacitance
5. Measures piezoelectric unit smooth operation

#### Included in delivery:

1. CRistina-Piezo controller
2. Mounting bracket
3. Air flow meter
4. Air filter
5. Air distribution valve
6. Air pressure regulator
7. Electronic pressure gauge
8. Tube set
9. 6mm quick-connect coupling
10. Set of 2 backflow fittings for Siemens VDO injectors
11. Adapter M12x1.5x1/8"
12. Datasheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**

## ДОПОЛНИТЕЛЬНАЯ КОМПЛЕКТАЦИЯ К CRISTINA-PIEZO

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

1. Microphone in a plastic housing
2. Clamp for securing the microphone to the injector housing
3. Acoustic test board for installation inside the CRISTINA-PIEZO device
4. Set of connecting wires
5. Set of standoffs and bolts for mounting the board
6. Assembly instructions.

#### DL-UNI20052



Repair kit for CR Siemens VDO injectors (without CRistina-Piezo controller).

#### Package Contents:

1. PiezoST-04 Injector Clamp
2. Accessories Holder
3. Air Flow Meter
4. Air Filter
5. Air Distribution Valve
6. Air Pressure Regulator
7. Electronic Pressure Gauge
8. Tubing Set
9. 6mm Quick Connector
10. Set of 2 Backflow Relief Fittings for Siemens Injectors
11. M12x1.5 x 1/8" Adapter



#### DL-UNI20053

UNI20053 Siemens VDO CR Injector Repair Kit (without CRistina-Piezo controller and ST-04 clamp)

#### Delivery set:

1. Equipment holder bracket.
2. Air flow meter.
3. Air filter.
4. Air distribution valve.
5. Air pressure regulator.
6. Electronic pressure gauge.
7. Set of tubes.
8. 6mm quick-connect coupling.
9. Set of 2 fittings for Siemens VDO injector backflow.
10. M12x1.5 x 1/8" adapter.

**ADDITIONAL!** Kits **DL-UNI20051**, **DL-UNI20052**, and **DL-UNI20053** require an adapter kit with a **DL-CR50157** 6-position measuring head or a **DL-CR50165** 8-position measuring head.



#### DL-CR50146

A set of adapters without an indicator head for measuring the parameters of the Siemens VDO CR injector.

**Delivery set:**

1. DL-CR31079	Adapter for testing the piezoelectric package.
2. DL-CR50147	Adapter (housing with nut) for measuring valve stroke.
3. DL-CR31177	Measuring probe
4. D-7153136	2 mm Allen key



#### DL-CR50157

A set of adapters with an indicator head for measuring the parameters of a VDO Siemens CR injector.

**Delivery set:**

1. DL-CR31079	Adapter for testing the piezoelectric package.
2. DL-CR50147	Adapter (housing with nut) for measuring valve stroke.
3. DL-CR31177	Measuring probe
4. D-7153136	2mm Allen key
5. DL-KIP002	Mechanical measuring indicator head with accuracy of 0.001mm, stroke 5mm
6. Organizer	



#### DL-CR50165

**A set of adapters with an indicator head for measuring the valve stroke of all Siemens VDO CR injectors.**

**Delivery set:**

1. DL-CR31079	Adapter for measuring the piezoelectric injector parameters of the new type M25x1
2. DL-CR31179	Adapter for measuring the piezoelectric injector parameters of the old type M27x1
3. DL-CR31080	Adapter body for measuring the injector valve stroke
4. DL-CR31081	Adapter body nut for measuring the valve stroke of the new type M25x1 injectors
5. DL-CR31178	Adapter body nut for measuring the valve stroke of the new type M27x1 injectors
6. D-7153136	2mm Allen key
7. DL-KIP002	Mechanical measuring indicator 0.001mm stroke 5mm
8. DL-CR31177	Measuring probe
9. Organizer	

#### DL-CR50166

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

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



#### DL-CR50168

A set of adapters and keys for repairing CR VDO Siemens injectors

**Delivery set:**

1. **DL-CR50165** A set of adapters with an indicator head for measuring the valve stroke of all Siemens VDO CR injector types.

1. **DL-CR31079** Adapter for measuring the piezoelectric injector parameters of the new type M25x1
2. **DL-CR31179** Adapter for measuring the piezoelectric injector parameters of the old type M27x1
3. **DL-CR31080** Adapter body for measuring the injector valve stroke
4. **DL-CR31081** Adapter body nut for measuring the valve stroke of the new type M25x1 injectors
5. **DL-CR31178** Adapter body nut for measuring the valve stroke of the new type M27x1 injectors
6. **D-7153136** 2mm Allen key
7. **DL-KIP002** Mechanical measuring indicator 0.001mm stroke 5mm
8. **DL-CR31177** Measuring probe
9. Organizer

2. **DL-CR50163** Key for installing/removing the piezoelectric unit of CR injectors VDO Siemens.



The extended base of this wrench ensures convenient use with VDO Siemens CR injectors. It eliminates obstructed areas of the injector and facilitates piezoelectric unit adjustment. Wrench mounting dimensions:

- a) 25mm hexagon for piezoelectric unit
- b) 1/2" square for torque wrench

3. **DL-CR50164** Key for installing/removing the piezoelectric unit of CR injectors  
VDO Siemens.



The extended base of this wrench allows for convenient use with VDO Siemens CR injectors. It eliminates obstructed areas of the injector and facilitates piezoelectric unit adjustment. Wrench mounting dimensions:

- a) 27mm hexagon for piezoelectric unit
- b) 1/2" square for torque wrench

4. **DL-UNI30545** SIEMENS injector multiplier nut installation/removal key



**SIEMENS injector multiplier nut installation/removal key**



**DL-CR30843**

**A socket wrench for easy and safe removal of the piezo injector tube (27 mm socket).**

Prevents damage to the injector backflow nipple.



**DL-RP430**

**Manufacturer: ZECA (Italy)**

Injector spray testing chamber (aspirator)  
Allows visual inspection of the performance of diesel injectors without any risk to health.  
The device collects the working fluid for reuse.



**DL-RP400**

**Manual injector tester  
with mechanical pressure gauge**

**Delivery set:**

- 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)**

**Handheld injector tester  
with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 415) 1500 bar – 1 pc.



**DL-RP420 (without pressure sensor)**

**DL-RP425 (with pressure sensor 1500 bar)**

**Handheld injector tester  
with a 2-channel electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 425) 1500 bar – 1 pc.



**DL-RP430**

**Manufacturer: ZECA (Italy)**

Injector spray testing chamber (aspirator)  
Allows visual inspection of the performance  
of diesel injector nozzles without risk to health.  
The device collects the working fluid for reuse.



DL-RP500

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

**Delivery set:**

- 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 manual injector testing press with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 515) 1500 bar – 1 pc.



DL-RP520 (without pressure sensor)

DL-RP525 (with pressure sensor 1500 bar)

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

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 525) 1500 bar – 1 pc.



DL-UNI20150

**CRistina-PIEZO Device**

**This device is designed for testing piezoelectric injectors and piezoelectric packs.**

**Device capabilities:**

- Sends a signal to activate the injector using a hand press
- Measures piezoelectric pack resistance
- Tests for breakdown to the housing
- Measures piezoelectric pack capacitance
- Measures piezoelectric pack smooth movement

**ATTENTION! Hand press not included!**



### MP-250 SASH

Machine for fast and precise repair of the valve seat of the BOSCH Common Rail injector multiplier.

The restoration is achieved by the reciprocating and rotating action of a grinding tool in a special abrasive medium on the seat of the damaged injector valve.

Available in 2 versions:

- MP-250 SASH-Z with collet chuck
- MP-250 SASH-S with self-clamping chuck.

- Vibration mechanism in a protective housing.
- Screw-type table height adjustment.
- Compact design.

Delivery set:

- MPS30515 120° Lapping Stone – 5 pcs.
- MPS30516 124° Lapping Stone – 5 pcs.
- ASM 7/5(k) diamond lapping paste
- ASM 5/3(k) diamond lapping paste
- ASM 3/2(k) diamond lapping paste
- DL-MPZ30336 Electromagnetic injector valve holder



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



<b>DL-ACM75K</b>	Lapping paste diamond fraction 7/5 microns, 25 g.
<b>DL-ACM53K</b>	Lapping paste diamond fraction 5/3 microns, 25 g.
<b>DL-ACM32K</b>	Lapping paste diamond fraction 3/2 microns, 25 g.



DL-MPS31241

**BOSCH Piezo Injector Nozzle Housing Holder**

Used to restore the nozzle housing of BOSCH piezo injectors. Suitable for use with the MP-250 SASH lapping machine.

**Application:**

**Suitable for BOSCH piezo injectors, 0445115 series**



DL-MPS31240

**Lapping stone of medium softness (SM)**

For restoring the nozzle body of BOSCH CR piezo injectors. 60-degree sharpening angle.

Example: BOSCH CR 04455115



DL-MPS31250

**Medium-hardness lapping (MH)**

For restoring the nozzle body of BOSCH CR piezo injectors. Sharpening angle: 60 degrees.

Example: BOSCH CR 04455115



DL-MPS31322

**Elbor lapping stone of increased hardness (PT)**

For restoring the nozzle body of BOSCH CR piezo injectors. 60-degree sharpening angle.

Example: BOSCH CR 04455115



DL-MPS31291

**Lapping tool for restoring the pressure regulator valve of CR CP-1 pumps**

The restoration is performed using the MP-250 SASH injector valve lapping machine.



DL-MPS31705

**64-degree lapping tool for regrinding the nozzle body of Caterpillar injectors.**



DL-MPS31704

**Caterpillar Injector Nozzle Housing Holder**

The restoration is carried out by processing on the lapping machine MP-250



**DL-CR31199**

**BOSCH CR piezo injector valve seat holder during its restoration**

- Suitable for BOSCH 0445115 piezo injectors
- Adapted for the SASH MP-250 lapping machine
- Can also be used with machines from other manufacturers, similar to the SASH MP-250.



**DL-MPS50173**

**A set of lapping tools for restoring the BOSCH Piezo injector valve**

The set includes lapping tools with different angles:

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

**ATTENTION!**

*All grinders are also sold separately!*

### КОМПЛЕКТУЮЩИЕ К СТАНКУ МР-250



DL-MPS50033	Self-clamping chuck assembly for the MP-250S	1 pc
DL-MPS30341	Axle (Shaft Ø12) for the MP-250S	1 pc
DL-MPS30298	Chuck body for the MP-250S	1 pc
DL-MPS30299	Chuck cover for the MP-250S	1 pc
DL-MPS30297	Grip for the MP-250S	2 pcs
DL-MPS30364	Chuck cover (protective) for the MP-250S	1 pc
DL-MPS30338	Washer for the plastic cover for the MP-250S	1 pc
DL-MPS30337	Top washer for the MP-250S	1 pc



**DL-MPS30364**

Protective casing for the cartridge



**DL-MPS30297**

Grip for MP-250S



**DL-MPZ30506**

Plastic cover for MP-250S and MP-250Z



**DL-MPS30337**

Upper washer for MP-250S



**DL-MPS30338**

Washer for plastic cover for MP-250S



**DL-ACM3(K) KIT**

**A set of diamond lapping pastes  
for the MP-250 machine**

**DL-ACM75K**

Diamond lapping paste. Coarse grain size 7.5 microns, 25 g.

**DL-ACM53K**

Diamond lapping paste. Medium grain size 5/3  $\mu\text{m}$ , 25 g.

**DL-ACM32K**

Diamond lapping paste. Fine grain size 3/2  $\mu\text{m}$ , 25 g.



**DL-CR50112**

**A set of lapping tools for restoring the  
valve seat of CR injectors**



**D-261106**

Lapping plate  
Size: 250x250 mm



**D-261108**

Lapping plate  
Size: 400x400 mm



**DL-UNI50270**

**A set of washers for grinding.**

The set includes two washers with different diameters.  
It is recommended to grind on a special lapping plate.



**DL-UNI31635**

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

**TOM-2**

Sharpening machine for dressing lapping wheels.



- The sharpening lap can be adjusted to two positions (left and right).
- Power supply: 230 V, 50 Hz.
- Electric motor power: 120 W.
- Electric motor speed: 2950 min-1.
- Shaft speed with lap: 500 min-1.
- Sharpening stone diameter: 125 mm.
- Adjustable sharpening angle.
- Compact.

### TOM-2

#### Additional equipment and components



**DL-UNI20212**

##### Abrasive stone with grain 36

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



**DL-UNI20213**

##### Abrasive stone with grain 60

- Outer diameter 125 mm
- Inner diameter 12.7 mm
- Thickness 16 mm
- Processing speed 40 m/s



**DL-UNI20214**

##### Abrasive stone with grain 80

- Outer diameter 125 mm
- Inner diameter 32 mm
- Thickness 10 mm
- Processing speed 40 m/s



**DL-UNI20215**

##### Abrasive stone with grain 120

- Outer diameter 125 mm
- Inner diameter 12.7 mm
- Thickness 16 mm
- Processing speed 40 m/s



**DL-UNI20218**

##### Abrasive stone with grain 230

- Outer diameter 125 mm
- Inner diameter 12.7 mm
- Thickness 16 mm
- Processing speed 40 m/s



**DL-UNI20220**

##### Abrasive stone with grain 400

- Outer diameter 125 mm
- Inner diameter 12.7 mm
- Thickness 16 mm
- Processing speed 40 m/s

#### TOM-5

A sharpening machine for dressing laps and other rotating bodies



Maximum transverse travel	+/- 50 mm
Maximum longitudinal travel	+/- 50 mm
Work carriage rotation angle	270°
Electronic protractor type	Absolute
Abrasive stone grit	100 grit
Power supply voltage	~220 V ± 15%
Main drive electric motor power	0.2 kW
Maximum machine power consumption	0.3 kW
Electric motor RPM	0–12000
Drive shaft RPM	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 components



DL-UNI20224

## Abrasive stone with grain 80

- Outer diameter 50 mm
- Inner diameter 13 mm
- Height 32 mm
- Processing speed 35 m/s



DL-UNI20225

## Abrasive stone with grain 100

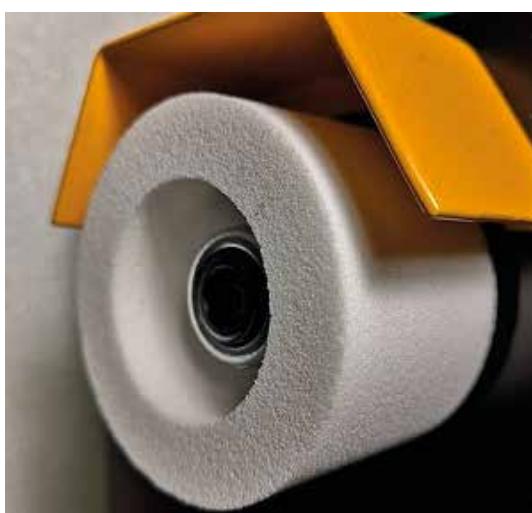
- Outer diameter 125 mm
- Inner diameter 12.7 mm
- Thickness 16 mm
- Processing speed 35 m/s



DL-UNI20226

## Abrasive stone with grain 200

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



DI-CR50174

Комплект для восстановления форсунок BOSCH PIEZO



#### Комплект поставки:

1. **DL-CR50160** Струбцина для выпрессовки запрессовки штифтов сердечника клапана форсунок.
2. **DL-CR31199** Держатель седла клапана пьезо форсунок BOSCH CR при его восстановлении.
3. **DL-CR50169** Адаптер для измерения хода клапана форсунок BOSCH пьезо
4. **DL-MPS31220** Притир 77 градусов (6шт.)
5. **DL-MPS31221** Притир 127 градусов (6шт.)
6. **DL-CR50209-15** Цанговый патрон держатель клапана пьезофорсунок BOSCH.
7. **DL-CR31204** Пластина N1 для восстановления клапана форсунки CR BOSCH Piezo
8. **DL-CR31205** Пластина N2 для восстановления клапана форсунки CR BOSCH Piezo
9. **DL-KIP002** Индикаторная измерительная головка часового типа.



**DL-CR50160**

Clamp for pressing out and pressing in the valve core pins of CR piezo BOSCH injectors.

Suitable for BOSCH piezo injectors, 0445115 series.



**DL-CR50169**

Adapter for measuring valve stroke of BOSCH piezo injectors  
Suitable for BOSCH piezo injectors 0445115

**Included in the package:**

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

**ATTENTION!**

*The measuring probe is not included in the package!*



**DL-CR50340**

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

Bracket for BOSCH piezo injector valve stroke measurement adapter, used during assembly.

Adapter **DL-CR31201** and feeler gauge **DL-CR31206** are not included in the package.



**DL-CR31204**

Lapping plate No.1 for rebuilding the BOSCH Piezo CR injector valve



**DL-CR31205**

Lapping plate No.2 for rebuilding the BOSCH Piezo CR injector valve

A collet chuck is used to hold the valve of a BOSCH piezo injector for restoring its geometry by grinding. Collet chucks are classified by accuracy:



**DL-CR50209-5** Collet chuck runout 1-5 µm

**DL-CR50209-10** Collet chuck runout 6-10 µm

**DL-CR50209-15** Collet chuck runout 6-10 µm

A collet chuck is used to hold the valve of a BOSCH piezo injector for restoring its geometry by grinding. Collet chucks are classified by accuracy:



**DL-CR50405-5** Collet chuck runout 1-5 µm

**DL-CR50405-10** Collet chuck runout 6-10 µm

**DL-CR50405-15** Collet chuck runout 11-15 µm

#### DL-HK50259

Universal tool for filling hydraulic compensators from BOSCH Piezo and pressing/unpressing pins from SIEMENS / BOSCH Piezo



The first purpose is to fill the hydraulic compensator of BOSCH Piezo injectors. The second purpose is to remove and press in the valve core pins of BOSCH 0445115 Common Rail Piezo injectors. The third purpose is to remove and press in the valve core pins of SIEMENS Common Rail injectors. In both cases, an extended cartridge with a hole is used. In the third case, a short cartridge without a hole is used.

#### Delivery set:

Universal attachment — 1 pc.

Extended cartridge — 1 pc.

Short cartridge — 1 pc.



#### DL-CR50052

A tool for filling hydraulic compensators for Bosch piezo injectors.

It consists of two parts:  
a body with guides and a clamp.

### DL-GR7500

Sharpening machine for straightening spray needles.



The **DL-GR7500** machine is used for sharpening spray gun needles and other rotating objects. The machine is controlled using PWM controllers.

The spindle and workpiece speeds are adjusted using rotary knobs located on the control panel.

The brightness of the lower workpiece illumination is adjusted using the rotary knob located at the top of the control panel.

The control panel features a main power switch for the machine and three power switches for each electric motor and the lower illumination lamp.

On the rear of the machine, there is a 220-volt power supply connector, two 220-volt sockets, and a 12-volt port for connecting a monitor.

On the front of the machine, there is a 12-volt port for connecting the electric motor power supply for the rotating object drive.

The **DL-GR7500** sharpening machine can be used with the DL-UNI20025 or DL-UNI200230 kit, which includes:

- Industrial electron microscope
- Tripod holder, overhead illumination, and monitor.

For angle measurement, the DL-GR1080 angle meter, with a minute accuracy, or the DL-GR1090 angle meter, with a second accuracy, can be installed as an optional accessory on the machine.

### DL-GR7400

#### Sharpening machine for sprayer needles with rotation speed indicators.

The rotation speed (RPM) is displayed as a percentage.



The **DL-GR7400** machine is used for sharpening spray gun needles and other rotating parts. It is controlled using PWM controllers.

The spindle and workpiece speeds are adjusted using rotary knobs located on the control panel.

The brightness of the lower workpiece illumination is adjusted using the rotary knob located at the top of the control panel.

The control panel features a main power switch for the machine and three power switches for each electric motor and the lower illumination lamp.

On the rear of the machine, there is a 220-volt power supply connector, two 220-volt sockets, and a 12-volt port for connecting a monitor.

On the front of the machine, there is a 12-volt port for connecting the electric motor power supply for the rotating part drive.

The **DL-GR7400** sharpening machine can be used with the DL-UNI20025 or DL-UNI200230 kit, which includes:

- Industrial electron microscope
- Tripod holder, overhead illumination, and monitor.

For angle measurement, the DL-GR1080 angle meter, with a minute accuracy, or the DL-GR1090 angle meter, with a second accuracy, can be installed as an optional accessory on the machine.

#### DL-GR7300

Sharpening machine for sprayer needles with RPM indicators.



The **DL-GR7300** machine is used for sharpening spray gun needles and other rotating parts. The machine is controlled using PWM controllers.

The machine is controlled using PWM controllers.

The spindle and workpiece speeds are adjusted using rotary knobs located on the control panel.

The brightness of the lower workpiece illumination is adjusted using the rotary knob located at the top of the control panel.

The control panel features a main power switch for the machine and three power switches for each electric motor and the lower illumination lamp.

On the rear of the machine, there is a 220-volt power supply connector, two 220-volt sockets, and a 12-volt port for connecting a monitor.

On the front of the machine, there is a 12-volt port for connecting the electric motor power supply for the rotating part drive.

The **DL-GR7300** sharpening machine can be used with the DL-UNI20025 or DL-UNI200230 kit, which includes:

- Industrial electron microscope
- Tripod holder, overhead illumination, and monitor.

For angle measurement, the DL-GR1080 angle meter, with a minute accuracy, or the DL-GR1090 angle meter, with a second accuracy, can be installed as an optional accessory on the machine.

#### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES

##### DL-UNI20025

A set with an industrial microscope, extended stand, illumination, and monitor.

The microscope has a clear image and high resolution.



#### Technical data:

1. Microscope magnification: 8x-130x
2. Working distance: 50-200 mm
3. Monitor connection via HDMI/VGA ports
4. Microscope size (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI/VGA/AV).
2. **DL-UNI20019** DL-UNI20019 Extended microscope stand
3. **DL-UNI20018** DL-UNI20018 LED microscope lamp
4. **DL-UNI20021** DL-UNI20021 Monitor
5. **DL-UNI20022** DL-UNI20022 Special monitor stand

**ATTENTION! All included accessories are also sold separately!**



#### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES

##### DL-UNI20030

A set with an industrial microscope, extended stand, illumination, and monitor.

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 8x-130x
2. Working distance: 50-200 mm
3. Monitor connection via ports: HDMI/VGA
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20010** Industrial electronic microscope with power supply (HDMI/USB/AV).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED microscope lamp
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Special monitor stand.

**ATTENTION! All included accessories are also sold separately!**



### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES

#### DL-UNI20026

A set with an industrial microscope, extended stand, illumination, and monitor.

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 5x-100x
2. Working distance: 50-170 mm
3. Monitor connection via ports: HDMI
4. Microscope size (width x length): 40 mm x 115 mm

#### Delivery set:

1. **DL-UNI20013** Industrial electronic microscope with power supply and illumination lamp (HDMI/USB).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20021** Monitor
4. **DL-UNI20022** Special monitor stand.

**ATTENTION! All included accessories are also sold separately!**



### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES

#### DL-UNI20027

A set with an industrial microscope, extended stand, illumination, and monitor.

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 10x-180x
2. Working distance: 100-150 mm
3. Monitor connection via ports: HDMI
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20014** Industrial electronic microscope with power supply (HDMI/USB/AV).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED microscope lamp
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Special monitor stand.

**ATTENTION! All included accessories are also sold separately!**



#### DL-UNI20031

#### Microscope kit HDMI USB 1080P FHD 48MP x 200

The microscope offers clear images and high resolution.  
Objective: 200X magnification C-mount



#### Specifications:

1. Photo/video recording
2. Additional functions: adding guide lines, image freeze, mirror display, image rotation, digital zoom
3. Body: aluminum alloy
4. Sensor: Panasonic
5. Sensor resolution: 48 MP
6. Frame rate: 1920\*1080 / 60 fps
7. Outputs: USB, HDMI, TF card, IR sensor for remote control
8. Power: DC-12V / 1A
9. Maximum 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\*1080/60 fps for HDMI, 1920\*1080/30 fps, 1280\*720/30 fps, 640\*480/30 fps, 320\*240/30 fps for USB
13. Video Format: MP4
14. Image Format: JPG
15. Remote Control
16. Language Support: Russian, Chinese, English, French, Spanish, Portuguese, German, Italian, Japanese
17. Lens: 200X C-Mount
18. Working Distance: 95 mm (maximum working distance 16 cm)
19. Zoom Ratio: 6.5:1

#### Package Contents:

1. **DL-UNI20023** Industrial electronic microscope with power supply (HDMI/USB/AV).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED microscope lamp
4. **DL-UNI20021** Monitor
5. **DL-UNI20022** Special monitor stand

**ATTENTION! All included accessories are also sold separately!**

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-UNI2020**

Abrasive stone with grain size 400



**DL-UNI20201**

Abrasive stone with grain size 200



**DL-UNI20202**

Abrasive stone with grain size 100

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-UNI20203**

320-grit abrasive stone with  
a conical profile



**DL-UNI20204**

230-grit abrasive stone with  
a conical profile



**DL-NG50260**

A device for dressing abrasive  
stones at an angle



### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-GR60007**

Diamond pencil for sharpening abrasive stones (standard)



**DL-GR60008**

Diamond pencil for sharpening abrasive stones (reinforced)



**DL-NG31309**

Editing pencil  
abrasive wheel (needle-shaped)



**DL-GR1050**

Stone holder (mandrel)



**DL-GR1060**

Stone balancing axle  
(Stone and holder not included)

#### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-GR1070**

Balancing device  
(Stone and holder not included)



**DL-NG50196**

Stone remover with mandrel from spindle cone.



**DL-NG50194**

Drive pulley set for  
GR-7300, GR-7400, GR-7500 machines.  
Material: Polyurethane

Included in the package:

1. **DL-NG31264** Pulley Ø15x3 for the injector needle
2. **DL-NG31264-01** Pulley Ø15x4 for the injector needle
3. **DL-NG31264-02** Pulley Ø15x5 for the piezo injector valve holder
4. **DL-NG31196** Pulley Ø15x7 for lapping

**Please note: All pulleys are also sold separately!**

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-GR1080**

Angle measuring kit

**Delivery set:**

1. Electronic protractor
2. Protractor bracket
3. Protractor shaft NG31249
4. Set of 3 M4 screws



**Specifications:**

1. Measurement range: 0-360 degrees
2. Division value: 0.1 degree
3. Accuracy: +/- 0.2 degrees
4. Error: 0.1 degree
5. Battery: 3V CR20032
6. Battery life: 1 year



**DL-NG31263**

60 degree angle setting gauge



**DL-NG31253**

A holder for the valve (pin)  
of a Bosch piezo injector  
for grinding



#### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-GR1090**

**High-Precision Angle Measurement Kit**

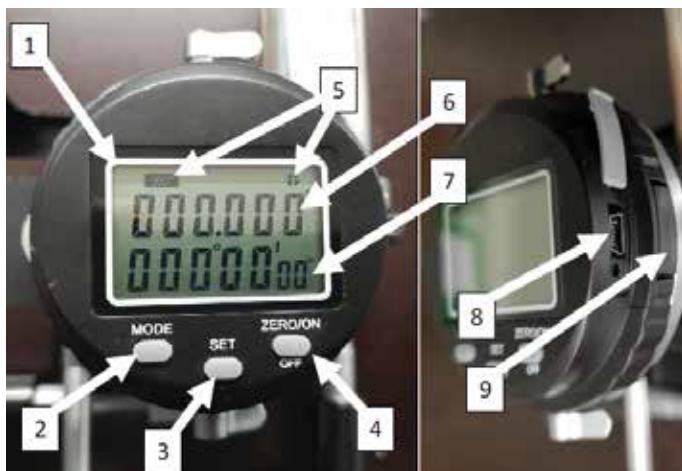
**Included in the package:**

1. Electronic protractor
2. Protractor bracket
3. NG50205 protractor shaft
4. 2 M4 screws

**Technical Specifications:**

1. Measurement range: 0-360 degrees
2. Division: 0.005 degrees (10 seconds)
3. Accuracy: +/- 0.2 degrees
4. Error: 0.08 degrees ( $\pm 30$  seconds)
5. Operating temperature range: 0  $\div$  40°C
6. Battery: 3V CR20032
7. Battery life: 1 year

*Two lines simultaneously display the measurement value in decimal degrees (upper line) and in seconds (lower line).*



1. Display
2. "MODE" button
3. "SET" button
4. "ZERO / ON-OFF" button
5. Display of the selected measurement range (360°, 180° x 2, 90° x 4)
6. Display of the angle in decimal fractions of a degree.
7. Display in degrees, minutes, and seconds.
8. USB port
9. Retractable battery compartment

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR GR-7300, GR-7400, AND GR-7500 SHARPENING MACHINES



**DL-NG50201**

Prisms with electric motor assembly

Included in delivery:

1. **DL-NG50200** Prism Assembly
2. **DL-NG31189** Platform
3. **DL-NG50199** Electric Motor Assembly
4. **DL-NG31246** Pencil Holder  
for Dressing (without pencil)
5. **DL-NG31309** Pencil for Dressing
6. **DL-NG31290** Stop Extension Bracket
7. **DL-NG31183** Stop Bracket Standard



**DL-NG50200**

Prisms with holder assembly

**DL-NG31189**

A mounting platform for prisms, an electric motor, and a bracket with a pencil for straightening stone.

**DL-NG50199**

12-volt electric motor  
1000 rpm in a protective casing  
with mounting bracket and  
pulley.



**DL-NG31866**

GR Machine Tool Stop Extension

This extension allows you to install long parts in the machine tool  
for subsequent grinding.



**DL-NG31246**

Pencil holder for dressing  
abrasive stone (without pencil).

**DL-NG31309** Pencil for dressing  
abrasive wheel.

**DL-NG31290**

An extension stop for  
installing long  
parts for grinding.

**DL-NG31183**

Workpiece support bracket  
with standard length

#### GM-08

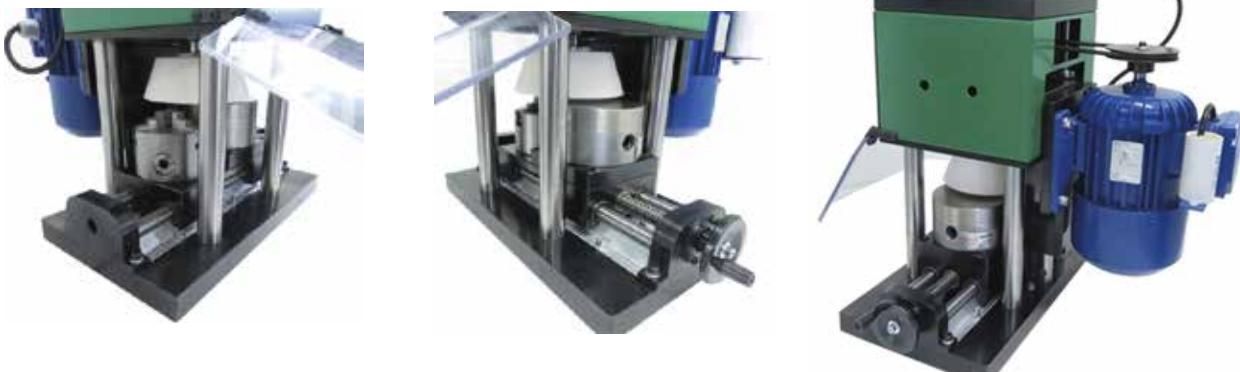
**Surface grinding machine with a lower movable work table.**

Designed for grinding adjusting washers, nozzle ends, and other fuel system components.



#### Technical specifications:

Electric motor power	0.37 kW
Division value	1 µm
Stone stroke	35 mm
Height/length/width	505 / 370 / 340 mm
Power supply voltage	~220 V ±15%
Parallelism tolerance of the workpiece surface	0.002-0.004 mm
Weight	60 kg



#### GM-08 PREMIUM

Surface grinding machine with  
movable worktable

Designed for grinding adjusting shims, nozzle cases and other parts of fuel equipment



#### Technical specifications:

Motor power	0,37 kW
Scale	1 micron
Vertical movement of the wheel	25 mm
Stone Turns	4300 rpm
Cartridge revolutions	150 rpm
Grit	80 grit
Height / length / width	505/370/340 mm
Horizontal movement	115 mm
Chuck working diameter	2-22 mm
Tolerance of parallelism of the surface of the workpiece	0,002-0,004 mm
Supply voltage	V ~220 B ±15%
Weight, net/gross	69 kg /75 kg

### SPARE PARTS AND COMPONENTS FOR THE GM-08 SURFACE GRINDING MACHINE

**DL-UNI20205**

Sharpening stone for GM-08, straight, 20mm bore diameter, 100mm outer diameter, 80 grit

**DL-UNI20206**

Sharpening stone for GM-08, straight, 20mm bore diameter, 100mm outer diameter, 60 grit

**DL-UNI20207**

Sharpening stone for GM-08, straight, 20mm bore diameter, 100mm outer diameter, 40 grit

**DL-UNI20208**

Sharpening stone for GM-08, conical, seat diameter 32 mm, outer diameter 125 mm, 80 grit

**DL-GM50248**

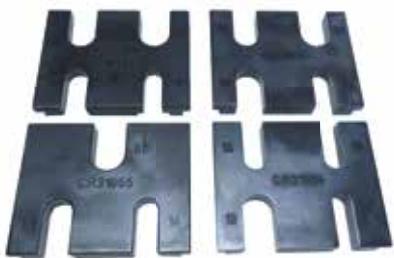
Stone holder mandrel for upgraded GM-08 machines

**DL-GM31280**

Drive shaft with a tapered fit for a mandrel for upgrading GM-08 machines manufactured before April 2020.

**DL-GM50263**

Stone remover with a mandrel from a cone shaft.



DL-CR50167

**CR Injector Holder Block Set for Vise**

The block is heat-treated, significantly increasing its service life.

**Delivery set:**

- DL-CR31054** Universal vice block with groove sizes of 11, 12, 13, and 19 mm for installing BOSCH and DELPHI CR injectors. (analog BOSCH 0986612786, analog SIRINI AB0122-01)
- DL-CR31055** Universal vice block with groove sizes of 14, 16, and 20 mm for installing CR injectors for Volvo, Fiat Ducato, and BMW (analog SIRINI AB0122-02)
- DL-CR31056** Universal vice block with groove sizes of 15, 17, 18, and 22 mm for installing CR injectors (analog SIRINI AB0122-03)
- DL-CR31158** Universal vice block with groove sizes of 13, 15, 18, and 22 mm for installing injectors CR PIEZO SIEMENS and BOSCH



DL-CR50158

**A set of CR injector holder blocks for a vice.**

The blocks are heat-treated, significantly increasing their service life.

**Delivery set:**

- DL-CR31054** Universal vice block with groove sizes of 11, 12, 13, and 19 mm for installing BOSCH and DELPHI CR injectors (analogous to BOSCH 0986612786, analogous to SIRINI AB0122-01)
- DL-CR31055** Universal vice block with groove sizes of 14, 16, and 20 mm for installing CR injectors for Volvo, Fiat Ducato, and BMW (analogous to SIRINI AB0122-02)
- DL-CR31056** Universal vice block with groove sizes of 15, 17, 18, and 22 mm for installing CR injectors (analogous to SIRINI AB0122-03)



DL-CR31054

**Universal vice block with slot sizes of 11, 12, and 13.19 mm for installing BOSCH and DELPHI CR injectors. (Similar to BOSCH 0986612786, Similar to SIRINI AV0122-01)**

The block is heat-treated, which significantly increases its service life.



DL-CR31055

**Universal vice-mounted block with slot sizes of 14, 16, and 20 mm for installing CR injectors for Volvo, Fiat Ducato, and BMW (similar to SIRINI AB0122-02)**

The block is heat-treated, which significantly increases its service life.



**DL-CR31056**

Universal block for a vise  
with slot sizes of 15, 17, 18, and 22 mm  
for installing CR injectors  
(similar to SIRINI AB0122-03)

The block is heat-treated, which significantly increases its service life.



**DL-CR31058**

Universal vice block  
with slot sizes of 13, 15, 18, and 22 mm  
for installing BOSCH and Siemens CR piezo injectors

The block has been heat-treated, which significantly increases its service life.



**DL-UNI50043**

Universal fixture for  
clamping CR injectors in a vice

**Clamps in two positions:**

- nozzle facing up;
- nozzle facing down.



**DL-UNI50032**

Universal fixture for clamping CR Denso injectors in a vice.

**Clamps in two positions:**

- nozzle facing up;
- nozzle facing down.



DL-CR31093

Solenoid removal key for DENSO, CAT, and PERKINS injectors.

**Key specifications:**

1. Key has 12 edges.
2. Edge spacing is 27.5 mm.
3. 1/2" square drive.



DL-CR31927

A 27mm Allen key for adjusting the piezo injector assembly on a CR Siemens injector with a 27mm Allen key.



DL-CR31927

A 25mm Allen key for adjusting the piezo unit of Siemens CR injectors with a 25mm Allen key on the vehicle



DL-CR31667

27 mm 1/2" wrench for DENSO injector solenoid



DL-CR31668

Ключ удлинённый 27 мм 1/2 для электромагнита форсунок DENSO



DL-UNI50046

Three-prong wrench for disassembling and assembling Denso injectors. Kit includes:

- wrench;
- guide nut;
- punch;
- 3 additional pins.

The wrench has holes for knocking out broken or worn pins and installing new ones.



DL-CR31715

DENSO 5471 Nozzle Nut Wrench 08K125157032



DL-NG50109

A set of keys for installing/removing the nut in the electronic part of Bosch CR injectors.

**Delivery set:**

DL-CR30543

10-17 wrench for installing/removing the multiplier nut of BOSCH CR injectors, 10 mm hex key with an internal diameter of 7.5 mm for a 17 mm wrench

DL-CR30558

Wrench for installing/removing the nut in the electronic part of BOSCH CR injectors, 10 mm hex key with a 1/2" square for a torque wrench

DL-CR30561

Wrench for installing/removing the multiplier nut of BOSCH CR injectors, 10 mm hex key with an internal diameter of 7.5 mm for a torque wrench

DL-CR30393

Wrench for installing/removing the nut in the electronic part of Bosch CR injectors

**DL-CR31827**

**Bosch 111 Series Injector Valve Nut Removal/Installer Wrench with Hole (0445111009)**

**DL-UNI50058**

**A 32-tooth wrench for installing/removing DELPHI injector nuts for trucks.**

**DL-CR30545**

**SIEMENS injector multiplier nut installation/removal key**

**DL-UNI30434**

**CR injector solenoid nut installation/removal wrench with 27 mm hexagon**

**DL-UNI30435**

**CR injector solenoid nut installation/removal wrench with 28 mm hexagon**

**DL-UNI30389**

**CR injector solenoid nut installation/removal key with 29 mm hex**

**DL-UNI30390**

**CR injector solenoid nut installation/removal key with 30 mm hex**

**DL-CR31092**

**7/8" Allen key for installing/removing the inner ring nut of the CR injector solenoid. 1/2" square drive.**

**DL-UNI50050**

A set of wrenches designed for tightening the nozzle nuts of CR injectors from any manufacturer (BOSCH, DELPHI, DENSO, SIEMENS).

**Includes:**

14, 15, 17, and 19 mm hex keys,  
16 and 17.5 mm octagon keys,  
and a 27 mm wrench for a torque handle.

**DL-UNI30384**

14 mm Allen key socket

**DL-UNI30385**

15 mm Allen key socket

**DL-UNI30386**

17 mm Allen key socket

**DL-UNI30387**

19 mm Allen key socket

**DL-UNI30388**

Socket wrench with internal octagonal socket  
16 mm

**DL-UNI30692**

Socket wrench with internal octagonal socket  
17,5 mm

**DL-UNI30382**

27mm Allen key with square hole for torque handle

**DL-UNI50054**

A set of wrenches designed for tightening the nozzle nuts of CR injectors from any manufacturer (BOSCH, DELPHI, DENSO, SIEMENS).

**Includes:**

14, 15, 17, and 19 mm hex keys with flanges,  
16 and 17.5 mm octagon keys with flanges,  
and a 27 mm wrench for a torque handle.

**DL-UNI30460**

14 mm Allen key with flange

**DL-UNI30461**

15 mm Allen key with flange

**DL-UNI30459**

16 mm Allen key with flange

**DL-UNI30462**

17 mm Allen key with flange

**DL-UNI30691**

17.5 mm internal octagon socket wrench with flange

**DL-UNI30463**

19 mm Allen key with flange

**DL-UNI30382**

27 mm Allen key with square hole for torque handle



**DL-CR50261**

**A set of wrenches for installing/removing the nozzle nut for BOSCH, VDO (Siemens) piezo injectors and BOSCH series 111**



**DL-UNI30461**

15 mm Allen key with flange



**DL-UNI31442**

A 7-pronged wrench for installing/removing the nozzle nut for BOSCH 0445118 injectors. Uses a 27mm socket. Made of high-quality heat-treated tool steel.



**DL-UNI30459**

16 mm socket wrench with flange



**DL-UNI31395**

A nozzle wrench for installing/removing the nozzle nut for BOSCH 0445118 injectors. The wrench has 8 internal protrusions. Uses a 27mm socket. Made of high-quality heat-treated tool steel.



**DL-UNI31394**

This socket wrench is used for installing/removing the nozzle nut of VDO (SIEMENS) PCRs5 injectors. It has an internal hexagonal socket. It uses a 27mm socket. It is made of high-quality heat-treated tool steel.



**DL-UNI31435**

A socket wrench for installing/removing the nozzle nut for BOSCH 111 series injectors. The wrench has 10 internal protrusions. Uses a 27mm wrench. Made of high-quality heat-treated tool steel. Durability guaranteed.



**DL-UNI30382**

27 mm Allen key with square hole for torque handle

**DL-CR50262**

**A set of wrenches for installing/removing the nozzle nut of Common Rail injectors from BOSCH, VDO (Siemens), DENSO, and DELPHI for all types.**

**DL-UNI30460**

14 mm Allen key with flange

**DL-UNI30461**

15 mm Allen key with flange

**DL-UNI30462**

17 mm Allen key with flange

**DL-UNI30814**

18 mm Allen key socket for BOSH electromagnetic injectors

**DL-UNI30463**

19 mm Allen key with flange

**DL-UNI31442**

A 7-pronged wrench for installing/removing the nozzle nut for BOSCH 0445118 injectors.

Uses a 27mm socket. Made of high-quality heat-treated tool steel.

**DL-UNI31288**

15 mm socket wrench with internal octagon for BOSH electromagnetic injectors

**DL-UNI30459**

16 mm socket wrench with flange

**DL-UNI30691**

17.5 mm internal octagon socket wrench with flange

**DL-UNI31395**

A nozzle wrench for installing/removing the nozzle nut for BOSCH 0445118 injectors. The wrench has 8 internal protrusions. Uses a 27mm socket. Made of high-quality heat-treated tool steel.

**DL-UNI31394**

This socket wrench is used for installing/removing the nozzle nut of VDO (SIEMENS) PCR5 injectors. It has an internal hexagonal socket. It uses a 27mm socket. It is made of high-quality heat-treated tool steel.

**DL-UNI31435**

A socket wrench for installing/removing the nozzle nut for BOSCH 111 series injectors. The wrench has 10 internal protrusions. Uses a 27mm socket. Made of high-quality heat-treated tool steel. Durability guaranteed.

**DL-UNI30382**

27 mm Allen key with square hole for torque handle

### DL-CR50414

**Keys set(16 pos) mounting/dismounting  
CR inj. nozzle nut**

Application: BOSCH, DENSO, DELPHI, SIEMENS (VDO). Suitable for both electromagnetic and piezo injectors.



27 mm

Foot-wrench for dynamometer  
handle 1/2" by 27mm



**UNI 30460**

14 mm

Wrench attachment with  
6-sided socket 14 mm for  
DENSO injectors



**UNI 30461**

15 mm

Wrench attachment with  
6-sided socket 15mm for  
SIEMENS/VDO and BOSCH  
115/116 series piezo injectors  
and Delphi injectors



**UNI 30462**

17 mm

Wrench attachment with  
6-sided socket 17 mm for  
BOSCH injectors



**CR 30814**

18 mm

Wrench attachment with  
6 - sidedsocket 1 8 m m  
for SCANIA 1881565 injectors



**CR 30463**

19 mm

Wrench attachment with  
6-sided socket 19 mm  
for BOSCH injectors



**CR 31442**

7

Wrench attachment with  
7-sided socket for BOSCH 118  
series piezo injectors



**CR 31288**

15V mm

Wrench attachment with  
8-sided socket 15 mm for  
BOSCH 0445120460 (GAZ)  
injectors



**CR 30459**

16 mm

Wrench attachment with  
8-sided socket 16 mm for  
SIEMENS /VDO and BOSCH  
116/117 series piezo injectors



**UNI 30691**

17,5 mm

Wrench attachment with  
8-sided socket 17.5 mm for  
BOSCH, Fiat, Iveco injectors



**CR 31394**

9

Wrench attachment with  
9-sided socket for  
SIEMENS/VDO  
PCRs5 piezo injectors



**CR 31395**

8

Wrench attachment with  
8 internal protrusions for  
BOSCH 118 series piezo injectors



**CR 31856**

9

Wrench attachment with  
9 internal protrusions for  
BOSCH 110/111 series injectors



**CR 31435**

10

Wrench attachment with  
10 internal protrusions for  
BOSCH 111 series injectors



**CR 31846**

12

Wrench attachment with  
12 internal protrusions for  
BOSCH 118 series piezo injectors



**CR 31715**

12

Wrench attachment with  
12 internal protrusions for  
DENSO piezo injectors

**DL-UNI50105**

A set of 25, 27, 29, and 30 mm Allen keys with a square hole for a torque handle or a 1/2" wrench.

**DL-UNI30803**

24 mm Allen wrench with a square hole for a torque handle or a 1/2" wrench

**DL-UNI30382**

A 27 mm Allen wrench with a square hole for a torque handle or a 1/2" wrench

**DL-UNI30541**

A 29 mm Allen wrench with a square hole for a torque handle or a 1/2" wrench

**DL-UNI30625**

A 30 mm Allen wrench with a square hole for a torque handle or a 1/2" wrench



**DL-CR30814**

Nut wrench (18 mm) for installing/removing the CR SCANIA injector nozzle nut 1881565

The wrench has 6 edges and a width of 18 mm.



**DL-CR30816**

2V wrench for installing/removing the CR SCANIA injector solenoid nut (1881565)



**DL-CR30815**

16Z wrench for installing/removing the toothed nut for CR Scania injectors (1881565)



**DL-CR50119**

Scania CR Injector Disassembly/Assembly Wrench Set 1881565

The kit includes:

- DL-CR30814 Wrench
- DL-CR30815 Wrench
- DL-CR30816 Wrench



**DL-CR30843**

A wrench attachment for easy and safe removal of the piezo injector tube (27 mm wrench).

Prevents damage to the injector backflow nipple.



**DL-CR31808**

36.4 mm Allen key  
for 4-pin injectors  
BOSCH 0445120386



**DL-CR31877**

CR 0445120386 4-pin injector  
nozzle nut installation and  
removal tool with 12 grooves

**DL-UIS30767**

Adapter for testing Delphi Smart CR injectors (1725282).

**DL-UNI50039**

Wrench for installing/removing the nozzle nut  
Ø 20.9 mm for Delphi Smart injectors  
(for a torque wrench)

**DL-UNI50131**

Wrench for installing/removing the nozzle nut  
Ø 25.8 mm for Bosch CR injectors  
(for a torque wrench)

**DL-UNI50386**

BOSCH 0445120303 Ø31.2 mm Solenoid  
Nut Installation/Removal Wrench  
BOSCH 0445120303 Ø31.2 mm Solenoid  
Nut Installation/Removal Wrench for 4-pin injectors

**DL-CR31095**

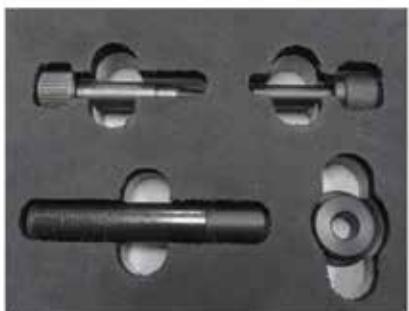
Wrench for installing/removing the inner nut  
ring of Denso, CAT, and Perkins injectors.

**DL-CR50148**

CRIN injector valve installation tool

**DL-CR50154**

CRIN injector multiplier valve removal tool M19 x 0.75mm



#### DL-CR50104

##### CR Injector O-Ring Removal and Installation Kit

- DL-CR31553** Pusher ( $\varnothing$  9.4 mm x 7.4 mm) for installing the sealing ring of the BOSCH CRIN 3-18 injectors
- DL-CR30756** Guide bushing ( $\varnothing$  10mm)
- DL-CR30755** Valve pusher ( $\varnothing$  15.5 mm)
- DL-CR30753** O-ring remover
- Organizer.



#### DL-CR50298

##### CR Injector O-Ring Removal and Installation Kit

- DL-CR31553** Pusher ( $\varnothing$  9.4 mm x 7.4 mm) for installing the sealing ring of the BOSCH CRIN 3-18 injectors
- DL-CR30756** Guide bushing ( $\varnothing$  10mm)
- DL-CR30755** Valve pusher ( $\varnothing$  15.5 mm)
- DL-CR30754** Pusher ( $\varnothing$  10mm x 7.6mm) for installing the sealing ring for BOSCH CRI injectors
- DL-CR30753** O-ring remover
- Organizer.

#### DL-CR50172

##### A set of tools for installing paronite rings on CRIN injectors

Delivery set:



#### DL-CR50153

##### Paronite ring installation tool for CRIN injectors

- Collar outer diameter: 6.5 mm
- Connecting thread: M18 x 0.75 mm
- Similar to BOSCH 0986613648
- Similar to SIRINI AAZ034-648



#### DL-CR50155

##### Paronite ring installation tool for CRIN injectors

- Collar outer diameter: 7.5 mm
- Connecting thread: M18 x 0.75 mm
- Similar to BOSCH 0986613646
- Similar to SIRINI AAZ034-646



#### DL-CR50170

##### Paronite ring installation tool for CRIN injectors

- Collar outer diameter: 7.5 mm
- Connecting thread: M17x1 mm
- Similar to BOSCH 0986613640
- Similar to SIRINI AAZ034-640

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



DL-CR50308

Adapter for pressing in sealing rings  
for CRI1/CRI2 injectors

Consists of a **DL-CR31579** guide nut  
and a **DL-CR31578** pusher.



DL-CR50305

CRI/CRIN1 Valve Seat Extractor (Collet)



DL-CR50317

Injector needle extractor



DL-CR31745

CAT C6.6 Injector Anchor Plate Removal Tool

DL-CR50245

#### DENSO CR Injector Filter Removal and Installation Kit



##### Delivery set:

1. M14 adapter – 2 pcs.
2. M12 adapter – 2 pcs.
3. Collet chuck – 1 pc.
4. Collet chuck handle – 1 pc.
5. Threaded stud – 2 pcs.
6. Tap – 2 pcs.
7. Filter extractor – 1 pc.
8. Filter installation pusher – 1 pc.

**DL-CR50300**

A set of cutters for cleaning engine injector seats  
for Delphi and Bosch



### Applicability:

- Bosch common rail Piezo
- Common rail Daily
- Volkswagen and Audi unit injectors
- Tector and Man injectors



**D-07147122**

1/2" Torque Wrench  
25-100 Nm



**D-07147121**

3/8" torque wrench



**D-07147120**

1/4" Torque Wrench  
0-20 Nm



**DL-UNI30776**

Adapter with 1/4" internal square  
and 1/2" external square

**DL-UNI31593**

Adapter with 3/8" internal square  
and 1/2" external square



**DL-UNI50327**

**Double-ended pneumatic puller for removing injectors from a car engine.**

The kit includes two adapters for mounting the injectors: DL-CR30542 with M17x1 to M14x1.5 threads; DL-CR30984 with M20x1.5 to M14x1.5 threads.



**DL-UNI50334**

**Single-ended pneumatic puller for removing injectors from a car engine**

The kit includes two adapters for mounting injectors: DL-CR30542 with M17x1 to M14x1.5 threads; DL-CR30984 with M20x1.5 to M14x1.5 threads



**DL-UNI50049**

**A puller for removing Bosch CR injectors from the engine head.**

Injectors can be removed in two ways:  
using a hydraulic jack or  
using a slide hammer.



**DL-CR50197**

**A puller (device for removing) BOSCH injectors from the engine.**

Suitable for removing BOSCH injectors with an M17x1 internal thread and an M27x1 external thread.  
Injectors can be removed in two ways:  
using a hydraulic jack or  
using a slide hammer.



**DL-CR50337**

**SsangYong Kyron Fuel Injector Puller Kit**

The puller consists of three parts: a housing, a nut, and a screw.  
The kit also includes two spacers of different heights.



DL-CR30542

Internal puller for CR injectors with M17x1 and M14x1.5 threads



DL-CR31077

A puller for CR injectors with an M14x1.5 internal thread and an M14x1.5 external thread.



DL-CR30984

Internal puller for injectors CR Denso 23670-OR010 with thread M20x1 and M14x1.5



DL-CR30990

Internal puller for Siemens CR injectors with M25x1 and M14x1.5 threads



DL-UNI50060

Impact puller 340 mm long



DL-CR50336

Delphi Piezo Injector Puller, Peugeot 2.0, Mercedes OM651



DL-CR50059

Injector puller CR with M27x1 thread



DL-CR31600

Puller for removing DENSO injectors from the engine



DL-CR50387

Siemens injector puller on a Ford vehicle



D-CER50500

Ceramic Paste Non-Stick Paste in a 50g tube.



DL-UNI50062

**Adapter for measuring compression in diesel engines (M12x1.5; stem L=175 mm).**  
Installed in place of the injector.  
Pressure sensor not included.



DL-UNI20008

**Diesel engine compression measurement kit.**

**The kit includes:**

- DL-UNI50062 adapter – 1 pc.
- PR-tester – 1 pc.
- Pressure sensor cable – 1 pc.

**The pressure sensor is not included.**

*\*The appearance and package contents may change to improve the performance of the equipment.*



DL-UNI20000

**Diesel engine compression test kit.**

**Kit includes:**

- DL-UNI50062 adapter – 1 pc.
- PR-tester – 1 pc.
- Pressure sensor cable – 1 pc.
- 150 bar or 200 bar pressure sensor



DL-CR10045

**150 bar pressure sensor  
for the DL-UNI20008  
compression tester**



DL-CR10046

**250 bar pressure sensor  
for the DL-UNI20008 compression  
tester**



DL-PR363

**KDiesel Engine Compression Tester Kit**

**The kit includes:**

- Recording Compression Tester — 1 pc.,
- Instructions — 1 pc.,
- Quick-release adapter M14x1.5 — 1 pc.,
- Adapter M14x1.5 — 1 pc.,
- M12x1.5 adapter — 1 pc.,
- Spare cards — 1 set,
- Case — 1 pc.



DL-WT04A3021

**Fuel pressure measuring kit for low-pressure lines  
in diesel and gasoline engines.**

Measurement range: 0-140 psi (0-10 bar)

**DL-KIP0001****Mechanical watch-type measuring head****Specifications:**

- Type – mechanical
- Stroke – 10 mm
- Resolution – 0.01 mm
- Repeatability – 0.01 mm

**DL-KIP0002****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 5 mm
- Resolution – 0.001 mm
- Repeatability – 0.001 mm

**DL-KIP0003****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 5 mm
- Resolution – 0.01 mm
- Repeatability – 0.02 mm

**DL-KIP0004****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 10 mm
- Resolution – 0.01 mm
- Repeatability – 0.02 mm

**DL-KIP0005****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 20 mm
- Resolution – 0.01 mm
- Repeatability – 0.03 mm



**DL-KIP0006**

**Mechanical watch-type measuring head**

**Specifications:**

- Type – mechanical
- Stroke – 30 mm
- Resolution – 0.01 mm
- Repeatability – 0.03 mm



**DL-KIP0007**

**Mechanical Dial Head**

**Specifications:**

- Type – Mechanical
- Stroke – 50 mm
- Resolution – 0.01 mm
- Repeatability – 0.04 mm



**DL-KIP0008**

**Indicator Measuring Head**

**Specifications:**

- Type – Mechanical
- Stroke – 25 mm
- Resolution – 0.01 mm
- Repeatability – 0.02 mm



**DL-KIP0010**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.01 mm
- Repeatability – 0.01 mm
- Sleeve – 8 mm
- Automatic shut-off



**DL-KIP0011**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off

**DL-KIP0012****Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 25 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off

**DL-KIP0015 Limit****Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 12.5 mm
- Resolution – 0.01 mm
- Repeatability – 0.03 mm
- Sleeve – 8 mm
- Automatic shut-off

**DL-KIP0016 Limit****Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 12.5 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off

**DL-KIP0023 Dieselland**

Communication key for the measuring head  
to the PC



**DL-KIP0025 Eee**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.002 mm
- Sleeve – 8 mm
- Automatic shut-off



**DL-KIP0026 Eee**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 25 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



**DL-KIP0028 Eee**

Communication key for the measuring head  
to the PC



**DL-KIP0029 SHAHE**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.002 mm
- Sleeve – 8 mm
- Automatic power-off
- PC connection via COM port (cable included)



DL-KIP030 SHAHE

**Indicator Measuring Head**  
**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.002 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP031 SHAHE

**Indicator Measuring Head**  
**Specifications:**

- Type – Electronic
- Stroke – 25 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP032 Eee

**Indicator Measuring Head**  
**Specifications:**

- Type – Electronic
- Stroke – 50 mm
- Resolution – 0.001 mm
- Repeatability – 0.005 mm
- Sleeve – 8 mm
- Automatic shut-off



**DL-KIP0034**

**Digital indicator measuring head  
with an accuracy of 0.01 mm, stroke 12.5 mm**

**Specifications:**

- Type – Electronic
- Resolution – 0.01 mm
- Accuracy – 0.01 mm
- Large, high-contrast LCD display
- Carbide tip, thread – M2.5
- Sleeve – 8 mm
- Automatic power-off
- Body diameter – 60 mm



**DL-KIP0035**

**Digital indicator measuring head  
with an accuracy of 0.001 mm, stroke 12.5 mm**

**Specifications:**

- Type – Electronic
- Measurement range – 12.7 mm
- Resolution – 0.001 mm
- Accuracy – 0.002 mm
- Large, high-contrast LCD display
- Carbide tip, thread – M2.5
- Sleeve – 8 mm
- Automatic power-off
- Body diameter – 60 mm



**DL-KIP0036**

**Digital indicator measuring head  
with an accuracy of 0.001 mm, 25 mm stroke**

**Specifications:**

- Type – Electronic
- Measurement range – 25.4 mm
- Resolution – 0.001 mm
- Accuracy – 0.004 mm
- Large, high-contrast LCD display
- Carbide tip, thread – M2.5
- Sleeve – 8 mm
- Automatic power-off
- Body diameter – 60 mm



**DL-KIP0037**

**Digital Thickness Gauge 0-12.7 mm, 0.001 mm**

**Specifications:**

- Measurement range: 0-12.7 mm
- Resolution: 0.001 mm
- LCD display
- Automatic power-off
- Body diameter: 57 mm



### DL-KIP0250

#### Magnetic stand for mounting the indicator measuring head

The stand's base is highly magnetic, allowing installation on both horizontal and vertical surfaces.

#### ATTENTION!

*The measuring head is not included in the package!*



### DL-KIP0251

#### Magnetic stand for mounting the indicator measuring head

The stand's base is highly magnetic, allowing installation on both horizontal and vertical surfaces.

#### ATTENTION!

*The measuring head is not included in the package!*



**DL-STC150**

Digital caliper



**DL-M030**

(Limited quantity)  
Digital Micrometer

Measurement range: 0-25mm

Measurement accuracy: 0.001mm



**DL-M035**

Digital micrometer

Measurement range: 0-25 mm

Measurement accuracy: 0.001 mm



**DL-M040**

D-SDM  
Digital Micrometer Stand



**D-DMTS-KIT**

(Limited quantity)  
DL-030 and DL-040 kit.  
Tripod and digital micrometer



**CR-NEXT-ST01**

Specialized workbench  
with two drawers

**Included:**

- Table with two drawers
- Perforated wall for tool storage
- Lighting ramp with two holders
- PC shelf
- Signal generator shelf



**D-KMD**

A container for cleaning small  
parts in an ultrasonic bath.



**D-1012020001**

Stainless steel bathtub  
320x260



**D-101340001**

Stainless steel bathtub  
320x170



**D-UV10**

Ultrasonic bath  
10-liter capacity



**D-UV05**

Ultrasonic bath  
5-liter capacity



**D-UV9.5K**

Ultrasonic bath  
9.5 liter capacity



**D-UV9.5R**

Ultrasonic bath  
9.5 liter capacity



**D-UV9.5R**

Ultrasonic bath  
5.7 liter capacity



**DL-AP2**

Set of 2 Antimagnetic  
Tweezers



**0503-03**

High-magnification lens  
with illumination



**DL-MO**

Optical  
microscope



**DL-MV200UM**

Digital microscope



### DL-UNI20015

A set with an industrial microscope,  
stand, and illumination.

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 8x-130x
2. Working distance: 50-200 mm
3. Monitor connection via ports: (HDMI/VGA)
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI/VGA).
2. **DL-UNI20017** Microscope stand
3. **DL-UNI20018** Microscope LED lamp.

**ATTENTION! All accessories included in the package are also sold separately!**



### DL-UNI20020

A set with an industrial microscope,  
extended stand, and illumination.

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 8x-130x
2. Working distance: 50-200 mm
3. Monitor connection via ports: (HDMI/VGA)
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI/VGA).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED lamp for microscope.

**ATTENTION! All accessories included in the package are also sold separately!**



### DL-UNI20025

**A set with an industrial microscope, extended stand, illumination, and monitor.**

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 8x-130x
2. Working distance: 50-200 mm
3. Monitor connection via HDMI/VGA ports
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20016** Industrial electronic microscope with power supply (HDMI/VGA/AV).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED lamp for microscope.
4. **DL-UNI20021** Monitor.
5. **DL-UNI20022** Special monitor stand on a stand.

**ATTENTION! All accessories included in the package are also sold separately!**



### DL-UNI20030

A set with an industrial microscope, extended stand, illumination, and monitor.

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 8x-130x
2. Working distance: 50-200 mm
3. Monitor connection via HDMI/VGA ports
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20010** Industrial electronic microscope with power supply (HDMI/USB/AV).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED lamp for microscope.
4. **DL-UNI20021** Monitor.
5. **DL-UNI20022** Special monitor stand on a stand.

**ATTENTION! All accessories included in the package are also sold separately!**



### DL-UNI20026

**A set with an industrial microscope, extended stand, illumination, and monitor.**

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 5x-100x
2. Working distance: 50-170 mm
3. Monitor connection via HDMI ports
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20013** Industrial electronic microscope with power supply and illumination lamp (HDMI / USB).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20021** Monitor
4. **DL-UNI20022** Special monitor stand on a stand.

**ATTENTION! All accessories included in the package are also sold separately!**



### DL-UNI20027

**A set with an industrial microscope, extended stand, illumination, and monitor.**

The microscope has a clear image and high resolution.



#### Technical specifications:

1. Microscope magnification: 10x-180x
2. Working distance: 100-150 mm
3. Monitor connection via HDMI ports
4. Microscope dimensions (width x length): 40 mm x 115 mm

#### Package contents:

1. **DL-UNI20014** Industrial electronic microscope with power supply (HDMI/USB/AV).
2. **DL-UNI20019** Extended microscope stand
3. **DL-UNI20018** LED lamp for microscope.
4. **DL-UNI20021** Monitor.
5. **DL-UNI20022** Special monitor stand on a stand.

**ATTENTION! All accessories included in the package are also sold separately!**



### DL-UNI20031

#### Microscope kit HDMI USB 1080P FHD 48MP x 200

The microscope offers clear images and high resolution.  
Objective: 200X magnification C-mount



#### Specifications:

1. Photo/video recording
2. Additional functions: adding guide lines, image freeze, mirror display, image rotation, digital zoom
3. Body: aluminum alloy
4. Sensor: Panasonic
5. Sensor resolution: 48 MP
6. Frame rate: 1920\*1080 / 60 fps
7. Outputs: USB, HDMI, TF card, IR sensor for remote control
8. Power: DC-12V / 1A
9. Maximum 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\*1080/60 fps for HDMI, 1920\*1080/30 fps, 1280\*720/30 fps, 640\*480/30 fps, and 320\*240/30 fps for USB
13. Video format: MP4
14. Image format: JPG
15. Remote control
16. Language support: Russian, Chinese, English, French, Spanish, Portuguese, German, Italian, Japanese
17. Lens: 200X C-MOUNT
18. Working distance: 95 mm (maximum working distance 16 cm)
19. Zoom ratio: 6.5:1

#### Package contents:

1. DL-UNI20023 Industrial electronic microscope with power supply (HDMI/USB/AV).
2. DL-UNI20019 Extended Microscope Stand
3. DL-UNI20018 Microscope LED Lamp
4. DL-UNI20021 Monitor
5. DL-UNI20022 Special Monitor Holder on a Stand

**ATTENTION! All included accessories are also sold separately!**

### DL-UNI20032

**A set with an industrial microscope, extended stand, illumination, and monitor.**

The microscope offers clear images and high resolution.

Objective: 180X magnification C-mount



#### Specifications:

1. Photo/video recording
2. Additional functions: adding guide lines, image freeze, mirror display, image rotation, digital zoom
3. Body: aluminum alloy
4. Sensor: Panasonic
5. Sensor resolution: 37.0 MP
6. Frame rate: 1920\*1080 / 60 fps
7. Outputs: USB, HDMI, TF card, IR sensor for remote control
8. Power: DC-12V / 1A
9. Maximum 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 / 60 fps for HDMI, 1920\*1080 / 30 fps 1280\*720 / 30 fps 640\*480 / 30 fps 320\*240 / 30 fps for USB
13. Video format: MP4
14. Image format: JPG
15. Remote control
16. Language support: Russian, Chinese, English, French, Spanish, Portuguese, German, Italian, Japanese
17. Lens: 180X C-MOUNT
18. Working distance: 95 mm (maximum working distance 16 cm)
19. Zoom ratio: 6.5: 1

#### Package contents:

1. DL-UNI20011 Industrial electronic microscope with power supply (HDMI / USB / AV).
2. DL-UNI20019 Extended Microscope Stand
3. DL-UNI20018 Microscope LED Lamp
4. DL-UNI20021 Monitor
5. DL-UNI20022 Special Monitor Holder on a Tripod

**ATTENTION! All included accessories are also sold separately!**



DL-UNI20017

Tripod holder for a microscope



DL-UNI20019

Extended stand holder for microscope



DL-UNI20022

Monitor holder on a tripod  
Mounting diameter: 25mm.

DL-UNI20021

Monitor

Package Contents:

1. Monitor
2. HDMI Cable
3. BNC Cable
4. AV Cable
5. Remote Control
6. Power Supply
7. Bracket
8. VGA Cable
9. Gasket



Монитор



Кабель HDMI



Кабель BNC



Кабель AV



Пульт управления



Блок питания



Кронштейн



Кабель VGA



Прокладка



DL-UNI20012

3.9 mm endoscope camera

**Specifications:**

1. Camera resolution: 1.0 megapixel (FHD)
2. Field of view: 70°
3. Diameter: 3.9 mm
4. Length of the thin part: 25 mm
5. Overall length: 140 mm
6. Backlight: 6 high-brightness LEDs
7. Waterproof housing
8. Two types of connection ports: USB/Type-C
9. Adjustable backlight
10. Ability to save photos
11. Ability to install software on a phone or PC



DL-UNI20100

Control stand for injector and fuel injection pump test benches

**Advantages of this stand:**

The stand can be moved along the floor on locking wheels.

A PC with a keyboard and monitor, or a laptop, can be installed on the stand. At the bottom of the stand is a shelf for a printer, which is covered by a door with polycarbonate glass.

The protective printer door slides inside the stand, providing additional access to the printer.

The middle section of the stand has two shelves for mounting control devices for various fuel systems.

Easy access to all equipment installed on this control stand is provided.

**Specifications:**

- Rack weight: 80 kg
- Overall dimensions (width x depth x height): 500 x 500 x 1600 mm
- Load capacity: 160 kg



DL-RP400

**Manual injector tester  
with mechanical pressure gauge**

**Delivery set:**

- 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)

**Handheld injector tester  
with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 415) 1500 bar – 1 pc.



DL-RP420 (without pressure sensor)

DL-RP425 (with pressure sensor 1500 bar)

**Handheld injector tester  
with a 2-channel electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 425) 1500 bar – 1 pc.



DL-RP430

**Manufacturer: ZECA (Italy)**  
**Injector spray testing chamber (aspirator)**  
**Allows visual inspection of the performance**  
**of diesel injector nozzles**  
**without risk to health. The device collects**  
**the working fluid for reuse.**



**DL-RP500**

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

**Delivery set:**

- 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 manual injector testing press**  
**with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 515) 1500 bar – 1 pc.



**DL-RP520 (without pressure sensor)**

**DL-RP525 (with pressure sensor 1500 bar)**

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

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 525) 1500 bar – 1 pc.

### PUMP TEST.02

Equipment for testing high-pressure Common Rail pumps



#### The kit includes:

1. The **PTC-2520** device is designed to provide user-programmable control signals to Common Rail fuel injection pump pressure regulators to test their performance.
2. The **FMDE-520** device is designed to measure Common Rail fuel injection pump performance via two channels.
3. A wheeled instrument stand for convenient operation.
4. A set of adapter cables.
5. Fine fluid filters (2 pcs.)
6. Software.





### PTC-2520 CP TESTER

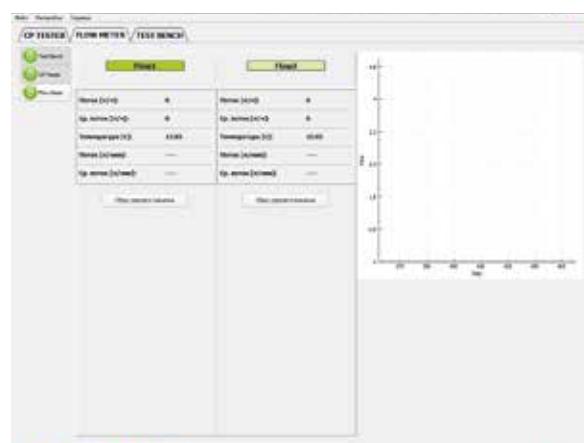
A device for testing and testing high-pressure fuel pumps of the Common Rail system with a set of cables.



### FMDE-520

A device for testing the performance of Common Rail fuel pumps from various manufacturers, including Bosch, Delphi, Denso, Siemens, and Cummins, on a test bench.

It features a two-channel flow meter (pump feed and return) in various modes, with digital information displayed on a backlit LCD display.





**DL-USN0021 (ST-03)**

#### Universal stand for CR pumps

##### DL-USN0021 (ST-03) Delivery Set:

1. Swivel Stand – 1 pc.
2. Set of 6 CR Pump Mounting Flanges
3. Set of 4 Pump Mounting Plates

##### DL-USN0021CR (ST-03CR) Delivery Set:

1. Swivel Stand – 1 pc.
2. Set of 6 CR Pump Mounting Flanges

#### ATTENTION!

*Holder plates for CR and rotary injection pumps are also sold separately!*





**DL-USN0021 (ST-03)**

#### Universal stand for CR pumps

##### DL-USN0021 (ST-03) Delivery Set:

1. Swivel Stand – 1 pc.
2. Set of 6 CR Pump Mounting Flanges
3. Set of 4 Pump Mounting Plates

##### DL-USN0021CR (ST-03CR) Delivery Set:

1. Swivel Stand – 1 pc.
2. Set of 6 CR Pump Mounting Flanges

#### ATTENTION!

*Holder plates for CR and rotary injection pumps are also sold separately!*





**DL-CR30866**

A flange for mounting on a CR DELPHI high-pressure fuel pump stand with a 50 mm mounting diameter and three mounting holes: two of which are perpendicular to the plane of the mounting hole, and one parallel to it.



**DL-CR31150**

Flange for mounting on a CR DELPHI high-pressure fuel pump stand with a 50 mm bore diameter and mounting holes perpendicular to the bore plane.



**DL-CR31228 (CP383)**

Mounting flange for CR fuel injection pump BOSCH 0445010091 MB Sprinter, Vito, Viano 2.1L. 2006 and later. Bore size: 50 mm.



**DL-CR31513**

Flange for mounting on a bench CR CP3S3/K140/40-789S high-pressure fuel pump BOSCH 0445020125 Bore 107 mm



**DL-CR50266**

Angle stand for mounting the CR DENSO 097300-0023 fuel injection pump during testing on a test bench.

### COUPLINGS



**DL-UNI50132**

Compensating coupling with clamping jaws and reinforced plate pack



**DL-UNI50139**

Compensating coupling with flange connection and reinforced plate pack (similar to Bosch 1686401024)



**DL-CR31953**

Adapter from flange to splined coupling



**DL-CB230016**

Cone coupling with flange connection Ø 30 mm  
Cam Box2, high-pressure fuel pump



**DL-CB130139**

Cone coupling Ø 30 mm  
Cam Box2, high-pressure fuel pump



**DL-CR31594**

**K35 coupling for connecting to the SR2 MAZ high-pressure fuel pump test bench.**

It is mounted to the expansion joint flange.

Suitable for BOSCH EPS-815, CR-Test 4E, CR-Test 2P test benches and compatible mounting hardware.



**DL-M22**

(UNI31481)

Cone coupling Ø 22 mm  
for CR high-pressure fuel pumps



**DL-CR31480**

**22 mm cone coupling for testing CR Siemens (VDO) pumps.**

**Mounts to the expansion joint flange.**

Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test stands and compatible mounting hardware.



**DL-M23**

(UNI30917)

Cone coupling Ø 23 mm for Continental A2C59517053, Bosch CR fuel injection pumps  
CP4HS2 0445010637, CP4S2 0445010611, CP4S1 0445010506



**DL-CR31558 (K23)**

**23 mm cone coupling for Bosch and Continental CR fuel injection pumps**

**Mounts to the expansion joint flange.**

**Compatible with CR-Test, BOSCH EPS-815, and compatible mounts.**

**Compatible CR fuel injection pumps:**

- Continental A2C59517053
- BOSCH CR/CP4HS2 0445010637
- BOSCH CR/CP4S2 0445010611
- BOSCH CR/CP4S1 0445010506



**DL-M24 (UNI30127)**

Cone coupling Ø 24 mm  
for CRCP-3 high-pressure  
fuel pump model 044502088



**DL-M24L (CR31098)**

Extended coupling Ø 24 mm  
for DENSO HP0 fuel injection pumps



**DL-CR31251**

**24mm cone coupling for CR SR-3 high-pressure fuel pumps**  
Mounts to the expansion coupling flange.  
Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test stands  
and compatible mounting hardware.



**DL-MS8**

Splined coupling for  
CR high-pressure  
fuel pumps  
(for MV, spline 8x18)



**DL-MS9**

Splined coupling for CR fuel  
injection pump (for Renault)  
9x20 spline



**DL-UNI31025**

**Coupling for Bosch SR1 fuel injection pumps**

(includes UNI31028 insert with an 8 mm groove) and for VDO fuel injection  
pumps (includes UNI31027 insert with a 9 mm groove). Can be used  
on Bosch test benches instead of coupling 1685702090. Compatible  
with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test benches and  
compatible mountings.



**DL-MS10D**

Splined coupling for  
CR Denso fuel injection



**DL-MS10S**

Splined coupling for Siemens  
Peugeot Boxer 2.2  
high-pressure fuel pump,  
10x21.6 spline



**DL-UNI31029**

**DL-UNI31029 coupling for Denso fuel injection pumps**

(includes UNI31030 insert with a 10 mm groove).  
Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P  
test benches and compatible mounts.



**DL-MS11**

Splined coupling for CR MAN  
high-pressure fuel pumps (11 splines)



**DL-CR31248**

**Splined coupling (11 splines) for CR-MANN high-pressure  
fuel pumps**

Mounts to the expansion joint flange.  
Compatible with BOSCH EPS-815, CR-Test 4E,  
CR-Test 2P test benches and compatible mounts.



DL-M17

**Cone coupling Ø 17 mm**  
for CR and VE high-pressure fuel pumps



DL-CR31271

**17mm cone coupling for testing CR pumps and VE high-pressure fuel pumps**

Mounts to the expansion joint flange. Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test benches and compatible mounts.



DL-M19

**Cone coupling Ø 19 mm**  
for CR pumps and VE high-pressure fuel pumps



DL-CR31269

**19mm cone coupling for testing CR pumps and VE high-pressure fuel pumps**

Mounts to the expansion joint flange.  
Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test benches and compatible mounting hardware.



DL-CR31956

**Flange coupling for THBD BOSCH 0445010170, 0445010233, 0986437044**



DL-CR31703

**Clamping jaw coupling for CR fuel injection pumps Delphi 28384347**



DL-CR31669

**Flange coupling for CR Delphi high-pressure fuel pump 28384347**  
Mounts to the expansion joint flange.

Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test stands and compatible mounting hardware.



DL-MS4 (DL-CR30955)

**Coupling for Bosch fuel injection pump 0445010512**

The coupling has grooves for the pump connector splines and a cone for centering.



DL-CR31416

**Bosch 0445010512 CR / CP4S1 Fuel Injection Pump Coupling**

The coupling has grooves for the pump coupling insert splines and a cone for centering. It is attached to the flange of the expansion joint. Compatible with BOSCH EPS-815, CR-Test 4E, CR-Test 2P test stands and compatible mounts.



**DL-CR50137**

**Fuel injection pump repair kit for the CR CP4 Bosch.**

**Included:**

- **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 head for CP4 pump valve – 1 pc.



**DL-CR50151**

**A set of supports for mounting Denso HP0 pumps on a stand.**

**Included in delivery:**

- **DL-CR31094** Support – 2 pcs.
- **DL-UNI30090** Profile bolt – 2 pcs.
- M14 nut – 2 pcs.
- 14mm washer – 2 pcs.
- 14mm lock washer – 2 pcs.



**DL-CR50315**

**A device for hanging the plunger of pump assemblies for BOSCH CP2 Common Rail pumps.**



**DL-CR50156**

**Clamp kit for assembling the CP3 high-pressure fuel pump (Similar to SIRINI AZ0128-427)**

**Included in delivery:**

- **DL-CR50152** clamp – 3 pcs.



**DL-CR50307**

**Clamp for disassembling the CR CP3 high-pressure fuel pump metering valve**

**Included in delivery:**

- **DL-CR31580** clamp body — 1 pc
- **DL-CR31582** clamp slider — 1 pc
- **DL-CR31581** clamp axle — 1 pc
- Pins — 2 pcs
- Grooved fixing bolt — 1 pc



DL-CR31003

Bosch CR CP4 high-pressure fuel pump valve installation/removal socket with 1/2" torque wrench.



DL-CR31868

Socket wrench for installing/removing the bypass valve for the Bosch CR CP4 fuel injection pump (0445010790).



DL-CR31869

Socket wrench for installing/removing the bypass valve of the DENSO CR fuel injection pump



DL-CR31676

Fitting plate  
Used with fittings  
DL-CR31683 for  
testing CP1 MB pumps



DL-CR50364

**Set of fittings with a clamp for testing the CP1 high-pressure fuel pump**  
Included in delivery:

- DL-CR31683 Fitting, diameter 8 mm — 2 pcs,
- DL-CR31676 Mounting plate — 1 pc,
- D-27-013700 O-ring — 2 pcs.



DL-CR31865

Key for the fuel injection pump plug DENSO HP2 / HP3 / HP4



DL-CR50198

**CR CP-3 fuel injection pump pressure measurement adapter.**  
Installed in place of the metering unit.

Included:

- Adapter body – 1/8" barb fitting for hose with Ø10mm internal diameter

**ATTENTION! The quick-connect fitting is not included in the delivery and must be ordered separately.**



DL-CR31497

**CR Booster Pump Pressure Gauge Adapter**

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



DL-CR31497KIT

**CR Booster Pump Pressure Measurement Adapter Kit**

Included:

- DL-SP09570 M5x4mm L-Shaped Quick Connector
- DL-SP09580 1/4"x4mm Female Pressure Gauge Connector
- DL-P1002 Flexible PVC Tubing, 4mm Diameter (100cm)
- D-12-TV63-016 16 Bar Pressure Gauge with 1/4" Lower Connector

### ADDITIONAL KIT FOR ADAPTER DL-CR31497



D-12-TV63-010

Pressure gauge 0÷10bar, Ø63 with a 1/4" fitting at the bottom

D-12-TV63-016

Pressure gauge 0÷16 bar, Ø63 with a 1/4" fitting at the bottom



34-RL3104M5

Angle adapter  
M5 x Ø4 mm with collet

34-RL020402

Adapter with internal thread  
G1/4" x Ø4mm with collet

34-RL0104M5

Straight adapter  
M5 x Ø 4 mm with collet

34-RL3106M5

Angle adapter  
M5 x Ø6 mm with collet

34-RL020602

Adapter with internal thread  
G1/4" x Ø6mm with collet

34-RL0106M5

Straight adapter  
M5 x Ø 6mm with collet

34-RA30-4,5-M5

Straight adapter  
M5 x Ø 6mm with collet

34-MC130614

Adapter with internal  
thread G1/4" x Ø 6 mm  
with union nut

34-MC2306M5C

Set of M5 banjo fittings with  
union nut for tubing  
Ø 6mm x Ø 4mm

DL-MSDE

Set of banjo fittings  
M5 x Ø4 mm

DL-P1002

PVC pipe  
Outer diameter 4 mm

DL-P1004

Teflon tube  
Outer diameter 6 mm

DL-CR50246

Pressure gauge mounting bracket.  
Designed as a hook  
and clamp for the pressure gauge  
holder. Used with pressure gauges  
of the D-12-TV63 series.

DL-R1001

Fuel hose  
Ø inner 4 mm



DL-UNI50264

3/8" x 8 mm nipple

**Designed for the following equipment:**

1. CR-Test, SPF, SPN, DORPAT test benches
2. FMDE device (2-channel liquid flow meter)
3. "PUMP-TEST.02" equipment for testing CR high-pressure pumps

**The nipple has a 3/8" thread and is designed for an 8 mm diameter hose**



DL-UNI50265

3/8" x 10 mm nipple

**Designed for the following equipment:**

1. CR-Test, SPF, SPN, DORPAT test benches
2. FMDE device (2-channel liquid flow meter)
3. "PUMP-TEST.02" equipment for testing CR high-pressure pumps

**The nipple has a 3/8" thread and is designed for a 10 mm diameter hose**



DL-UNI50126

5 micron liquid filter with 3/8" outlets

DL-UNI50047

5-micron liquid filter with 10-mm fittings (herringbone)

## DORPAT Multi-Cam11

The test bench is designed for testing pump injectors and pump sections.

**The DORPAT Multi-Cam11** test rig can be used for fuel injection systems on any light- and medium-duty diesel engines, including high-speed engines in passenger cars, buses, trucks, and agricultural tractors with UIS (unit injector system) and UPS (unit pump system) fuel injection systems.

The rigs are manufactured with a power output of 11 kW.

Measurements are performed electronically.



## DORPAT Multi-Cam11

## STAND KIT

2CB20001	CamBox CB	1 pc
DL-CB230016	CamBox2 Drive Coupling	1 pc
DL-CB230010	Spray Nozzle Bracket	1 pc
	M10 Bolt, L=106mm, M10 Bolt, L=56mm for Spray Nozzle Bracket	1 set
DL-CB230012	Spray Nozzle Ø 9mm	1 pc
DL-CB230022	Nozzle Retainer Clip	1 pc
DL-CB230046, DL-CB230047, DL-CB230048, DL-CB230049	Sealing washers nozzle	1 set
DL-CB230013	Camshaft position lock	2 pcs
DL-CB230084	H=7 mm Ø20 mm spacer for installing a clamp for a passenger car NF	2 pcs
DL-CB230109	Spherical pusher screw for a unit injector	1 pc
DL-CB230134	Short spherical pusher screw for a unit injector	1 pc
DL-CB230135	Internal pusher screw for a unit injector	1 pc
DL-CB230043	Pusher screw with nut for pump sections M12x1.25	1 pc
DL-CB20151	Clamp adapter #0151 for Audi / VW1.9 unit injectors	1 pc
DL-CB20152	Clamp adapter #0152 for Audi / VW2.0 unit injectors	1 pc
DL-CB20124	Clamp adapter #0124 for Volvo FH12, Iveco, Bosch unit injectors	1 pc
DL-CB20148	Clamp adapter #0148 for Volvo FH12, Delphi E3 unit injectors	1 pc
DL-CB20140	Clamp adapter #0140 for Scania unit injectors	1 pc
DL-CB20129	Adapter clamp #0129 for MBActros unit injectors	1 pc
DL-CB201333	Adapter clamp #0133 for MBActego unit injectors	1 pc
DL-CB20144	Adapter clamp #0144 for DAF, MAK, and Renault unit injectors	1 pc
DL-CB20123	Adapter clamp No. 0123 for pump-injector sections No. 0129, 133, 144	1 pc
DL-CB20100	Adapter clamp #0100 for installing an indicator head	1 pc
DL-UNI30035	Adapter clamp nipple M14x1.5x1/4"	16 pcs
1/4MBSPF04	Hydraulic quick coupler "male" 1/4"	2 pcs
D-GM1538AN	Rubber-metal gasket ØM14	20 pcs
D-GM1504AN	Rubber-metal gasket Ø1/4"	20 pcs
DL-UIS0920B	Universal adapter cable for Bosch injector	1 pc
DL-UIS0921D1	Adapter cable for Delphi E3 4-pin injector	1 pc

## DORPAT Multi-Cam11

## STAND KIT

<b>DL-UIS0922D2</b>	Adapter cable for Delphi E3 4-pin type 2 injectors	1 pc
<b>DL-UIS0923D</b>	Adapter cable for Delphi 2-pin injectors	1 pc
<b>DL-UIS0924V</b>	Adapter cable for VW injectors	1 pc
<b>DL-CB250001</b>	Adjustable gauge for setting unit injector preload	1 pc
	Supply hose 3/8" x 1/4" x 750mm	1 set
	34-K2-212D - quick adapter "female" Ø 1/4" (1 pc.)	
	Backflow drain hose 3/8" x 1/4" x 700mm	1 set
	34-K2-212D - quick adapter "female" Ø 1/4" (1 pc.)	
	Banjo bolt 1/4" (2 pcs.) + Banjo bolt M14x1.5 (2 pcs.)	1 set
	Quick adapter from the spray nozzle to the measuring tube. 1/8" sx 1/8" vUNI30081	1 pc
<b>DL-UNI50138</b>	Flexible Teflon measuring tube in steel braid for flow measurement	1 pc
<b>P1004</b>	Teflon tube Ø 6mm x 1500mm	1 pc
<b>34-RL020602</b>	Quick adapter Ø 6mm x 1/4"	1 pc
<b>D1530075</b>	Flywheel handle	1 pc
	Shock-absorbing feet (4 pcs.) + Door key (4 pcs.)	1 set
	Manufacturer's test plan program (1 pc.)	1 pc
	Compensation spring (red, L=76mm) for plunger stroke of 10-12mm	1 pc
<b>DL-CB230169</b>	Pusher for compensation spring (red, L=76mm)	1 pc
<b>DL-UNI31222</b>	22mm open-end wrench	1 pc

## DORPAT Multi-Cam11

## STAND KIT

**DL-UIS0920B**

Cable for BOSCH injectors (universal)

**DL-UIS0921D1**

Cable for Delphi E3 4-pin injectors

**DL-UIS0923D**

Cable for Delphi 2-pin injectors

**DL-UIS0924V**

Cable for VW injectors

**DL-UIS0922D2**Cable for Delphi E3 4-pin injectors  
Type II

## DORPAT Multi-Cam11

## STAND KIT



## DL-CB20124

**Injector Clamp for 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 DORPAT stands**

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



## DL-CB20148

**Volvo FH12, Delphi E3 Injector Clamp  
for DORPAT Cam Box 2**

**Included in delivery:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



## DL-CB2 0151

**Injector Clamp 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

**for DORPAT Cam Box 2**

**Includes:** clamp – 1 pc., fitting – 2 pcs., rubber-metal gasket – 4 pcs., clamp – 1 pc., locking screw – 1 pc.



## DL-CB20152

**Audi / VW 2.0 Injector Clamp**

0414720401, 0414720402, 0414720403, 0414720404

**for DORPAT Cam Box 2**

**Included in delivery:** 1 clamp, 2 fittings, 4 sealing washer, 2 locking screws.

### DORPAT Multi-Cam11

#### STAND KIT



#### DL-CB20140

##### Scania Injector Clamp

0414701017, 0414701018, 0414701019, 0414701020, 0414701030, 0414701032, 0414701035, 0414701036, 0414701037, 0414701038, 0414701040, 0414701042, 0414701043, 0414701044, 0414701045, 0414701069, 0414700002, 0414701005, 0414701007, 0414701008, 0414701016

##### for Cam Box 2 DORPAT stands

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20129

##### Mercedes Actros PLD Clamp

0414799005, 0414799007, 0414799009, 0414799010, 0414799011, 0414799015, 0414799016, 0414799018, 0414799021, 0414799023, 0986445002

##### for DORPAT Cam Box 2

**Included in delivery:** clamp – 1 pc., nipple – 2 pcs., rubber-metal gasket – 4 pcs.



#### DL-CB20133

##### Mercedes Atego PLD Clamp

0414799003, 0414799006, 0414799008, 0414799012, 0414799013, 0414799014, 0414799017, 0414799019, 0414799022, 0986445003

##### for DORPAT Cam Box 2

**Included in delivery:** clamp – 1 pc., nipple – 2 pcs., rubber-metal gasket – 4 pcs.



#### DL-CB20144

##### Clamp for PLDDAF, MAK, Renault

0414755005, 0414755006, 0414755007, 0414755008, 0414755014, 0414755015, 0414755016, 0414755017, 0414755018

##### for Cam Box 2 of DORPAT test bench

**Included in delivery:** clamp – 1 pc., nipple – 2 pcs., rubber-metal gasket – 4 pcs.

## DORPAT Multi-Cam11

## STAND KIT



DL-CB20100

Adapter clamp for the indicator head  
for the DORPAT Cam Box 2 stand

Included in delivery: clamp – 1 pc.



DL-CB20123D

Adapter clamp for PLD sections  
of unit injectors 0129, 0133, 0144, 0145  
to Cam Box 2 of the DORPAT test bench

Included in delivery: clamp – 1 pc.



DL-UNI31222

22 mm open-end wrench

## DORPAT Multi-Cam11

## ADDITIONAL EQUIPMENT



## DL-CB20125KIT

Caterpillar C12 unit injector testing and inspection kit for the DORPAT CamBox 2 test bench.

## Package contents:

- **DL-CB20125** adapter clamp – 1 pc.
- **CB230276** injector pusher (for C13)
- **CB230289** sealing washer
- **CB230282** nozzle nozzle
- 2 adapter nipples
- 4 rubber-metal gaskets

*Injector not included.*



## DL-CB20126KIT

Test and inspection kit for Caterpillar C15, C13 (CAT2490713) Perkins unit injectors for the DORPAT CamBox 2 test bench.

## Included:

- **DL-CB20126** adapter clamp – 1 pc.
- **CB230294** injector pusher (for C15)
- **CB230276** injector pusher (for C13)
- **CB230289** sealing washer
- **CB230282** nozzle nozzle
- **CB230283** retaining clip
- 2 adapter nipples
- 4 rubber-metal gaskets

*Not included.*



## DL-CB20127

Detroit PLD Clamp (Bosch)  
0414750003, 0414750004  
for Cam Box 2

## Included in delivery:

clamp – 1 pc., nipple – 1 pc.,  
rubber-metal gasket – 2 pcs.



## DL-CB20128

## Iveco 7.8L Injector Clamp

0414700002, 0414700003, 0414700004, 0414700005,  
0414700006

## for Cam Box 2

**Included:** 1 clamp, 2 fittings,  
4 rubber-metal gaskets.

### DORPAT Multi-Cam11

#### ADDITIONAL EQUIPMENT



**DL-CB20130**

Injector Clamp  
0414703005, 0414703007  
for Cam Box 2

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



**DL-CB20131**

Nissan UD Injector Clamp  
0414701023, 0414701024, 0414701033, 0414701034  
for Cam Box 2

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



**DL-CB20136**

Land Rover Discovery Injector Clamp (Delphi)  
for Cam Box 2

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



**DL-CB20137KIT**

Caterpillar L10 Injector Clamp  
for Cam Box 2

**The kit includes:**

- **DL-CB20137** Adapter Clamp
- **CB230289** Sealing Washer
- **CB230282** Nozzle Nozzle
- 2 Adapter Fittings
- 4 Rubber-Metal Gaskets

**Injector not included.**

### DORPAT Multi-Cam11

#### ADDITIONAL EQUIPMENT



#### DL-CB20138KIT

Test and inspection kit for Detroit unit injectors  
5234770-5235580

for the DORPAT CamBox 2 test bench.

Package contents:

- **DL-CB20138** adapter clamp – 1 pc.
- **CB230276** injector pusher – 1 pc.
- **CB230440** retaining clip – 1 pc.
- Adapter nipples – 2 pcs.
- Rubber-metal gaskets – 4 pcs.

*Injector not included.*



#### DL-CB20139KIT

Cummins 4DEC01L4061851 unit injector testing  
and inspection kit for the DORPAT CamBox 2 test bench.

Package contents:

- **DL-CB20139** adapter clamp – 1 pc.
- **CB230440** retaining clip – 1 pc.
- Adapter nipples – 2 pcs.
- Rubber-metal gaskets – 4 pcs.

*Injector not included.*



#### DL-CB20145

**DELPHI PLD Clamp**  
for DORPAT Cam Box 2

**Included in delivery:**

1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20146

**Injector Clamp**  
**Caterpillar L15**  
for DORPAT Cam Box 2

**Included in delivery:**

1 clamp, 2 fittings, 4 rubber-metal gaskets.

### DORPAT Multi-Cam11

#### ADDITIONAL EQUIPMENT



#### DL-CB20146KIT

**Caterpillar L15 Injector Clamp  
for Cam Box 2**

**The kit includes:**

- **DL-CB20146** Adapter Clamp
- **CB230289** Sealing Washer
- **CB230282** Nozzle Nozzle
- **CB230294** Injector Pusher
- **CB230283** Retainer Clip
- Adapter Fittings – 2 pcs.
- Rubber-metal gasket – 4 pcs.

**Injector not included.**



#### DL-CB20149

**Bosch Injector Clamp**

0414703004, 0414703008, 0414703009, 0414703013  
**for DORPAT Cam Box 2**

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20153KIT

**Bosch 0414703003 Unit Injector**

**Test and Check Kit for CamBox 2 DORPAT Bench.**

**Package Contents:**

- **DL-CB20153** Adapter Clamp – 1pc;
- **CB230276** Injector Pusher – 1pc;
- Adapter Fittings – 2pcs;
- Rubber-to-Metal Gaskets – 4pcs.

**Injector not included.**



#### DL-CB20154KIT

**CumminsHPI unit injector testing and inspection  
kit for the DORPAT CamBox 2 test bench.**

**Package contents:**

- **DL-CB20154** adapter clamp – 1 pc.
- **CB230356** injector pusher – 1 pc.
- **CB230357** nozzle tip – 1 pc.
- **CB230355** valve holder – 1 pc.
- **CB220007** valve holder bracket – 1 pc.
- Timing valve – 1 pc.
- Metering valve – 1 pc.
- 2 steel-braided hoses
- 4 hose nipples
- 2 adapter nipples
- Rubber-metal gasket – 4 pcs.
- Nozzle clamp – 1 pc.

## DORPAT Multi-Cam11

## ADDITIONAL EQUIPMENT



DL-CB20155

**Delphi E1 Injector Clamp (John Deere)  
for DORPAT Cam Box 2****Included in the kit:** 1 clamp, 2 fittings,  
4 rubber-metal gaskets.*Injector not included.*

DL-CB20156

**Clamp adapter for testing unit injectors  
CAT 3920206****Included in the kit:** clamp – 1, clamp – 1  
8x35 clamp fixing bolt – 2  
fitting nipples – 2, rubber-metal gaskets – 4*Injector not included.*

DL-CB20157

**Test clamp adapter for Cummins unit  
injectors 3053124****Includes:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.*Injector not included.*

DL-CB20158

**Injector Adapter Clamp  
CUMMINS 4902827****Included in delivery:**

- DL-CB231672** Adapter Clamp No. 0158 — 1 pc;
- DL-CB231675** Retaining Clip — 1 pc;
- DL-CB230357** Spray Nozzle — 1 pc;
- DL-UNI30035** Adapter Clamp Connector M14x1.5x1/4" — 3 pcs;
- D-GM1538AN** Rubber-to-Metal Gasket ØM14" — 3 pcs;
- D-GM1504AN** Rubber-to-Metal Gasket Ø1/4" — 3 pcs.

*The nozzle is not included.*

## DORPAT Multi-Cam11

## ADDITIONAL EQUIPMENT

**DL-CB2 50037**Injection sensor for Cummins  
HPI unit injectors**DL-CB250036KIT**

Injection sensor (piezo)

**DL-CB350348**

Strain gauge for testing unit injectors

**25-FPKM-04**

Quick connector for adapter

**25-FPKF-04**

Hydraulic quick-connect connector 1/4" female

## DORPAT Multi-Cam11

## ADDITIONAL EQUIPMENT

**1680750120**

Tube for test nozzle  
to the DORPAT Multi-Cam stand

**1688901119**

Test injector for testing fuel systems  
for the DORPAT Multi-Cam test bench

**1688901118**

Test injector for testing fuel systems  
for the DORPAT Multi-Cam test bench

**ISO-100-V5**

0.5 mm nozzle

**DL-UNI30229**

Nozzle (with gaskets and nipple)  
for the DORPAT Multi-Cam test bench

Included in delivery:

Nozzle – 1 pc., rubber-metal gaskets – 2 pcs.,

Connecting nipple – 1 pc.

## CAM-BOX1 FORCE

Basic kit for testing unit injectors and individual pumps (UI / UP SYSTEM).

The kit includes:

1. CAMBOX 1
2. UIS-TESTER MultiCAM controller



### CAMBOX 1

**Mechanical part for testing unit injectors.**

The basic version comes with a clamp for Volvo FH12 unit injectors and some Iveco injectors from Bosch. Clamps for other injectors are available upon request.



### UIS-TESTER MultiCAM

**The controller is an electronic component for testing unit injectors.**

A device for testing and verifying the performance of unit injectors (UIS) and individual high-pressure fuel pumps (pump sections) with high-pressure solenoids (UPS).

## CAM-BOX1

## EQUIPMENT

**Crankcase Protective Cover**

Included in the CAM-BOX1 kit:

- 3 crankcases

**Injector Nozzle**

Included in the CAM-BOX1 kit:

- Nozzle – 3 pcs.
- Fitting – 3 pcs.

**Threaded plunger**

Included in the CAM-BOX1 kit:

- 1 spherical plunger
- 1 concave plunger

**Pen holder**

Included in the CAM-BOX1 kit:

- Pen – 1 pc.

**Guides for mounting  
Cam Box on a stand**

Included in the CAM-BOX1 kit:

- Guide bushings – 2 pcs.

## CAM-BOX1

## EQUIPMENT



**Clamp for Volvo FH12 and some Iveco injectors from Bosch  
CB0124-01**

Included in the CAM-BOX1 kit:

- Clamp – 1 pc.



**Hose Kit for Adapter-Clamp**

Included in the CAM-BOX1 kit:

- Pressure valve – 1 pc.,
- Banjo bolt – 1 pc.,
- Banjo nipples – 2 pcs.,
- Washers – 4 pcs.



**Injector clamp**

Included in the CAM-BOX1 kit:

- Clamp – 1 pc.



**Spray Gun Kit**

Included in the CAM-BOX1 kit:

- Spray Gun Holder – 1 pc.,
- Spray Gun Adapter – 1 pc.,
- Fitting – 1 pc.



**Flooding Kit**

Included in the CAM-BOX1 kit:

- 1 x defoamer
- 1 x fitting
- 1 x 6mm x 1.5m PVC tube

## CAM-BOX1

## ADDITIONAL EQUIPMENT



## KV

**Camshaft**  
for Land Rov, Iveco Cur, VW  
Included in delivery:  
• Camshaft – 1 pc.



## MU

**Pump flange coupling**  
for high-pressure fuel  
injection pumps, PE pumps,  
and CAM BOXes  
Included in delivery:  
• Coupling – 1 pc.  
• Lock washer – 1 pc.  
• Locking nut – 1 pc.



## VW

**Adapter for Audi / VW**  
Included:  
• 2 adapters (2 options),  
• Nozzle tip,  
• Fitting – 1,  
• Side nipple – 1,  
• Clamp – 1,  
• Mounting bolt – 1



## CB 0128-01 IVECO

**Clamp** for Iveco 7.8L  
Included in delivery:  
• Clamp – 1 pc.  
• Side connection – 1 pc.



## CB 0136-01 LR

**Injector Clamp**  
Land Rover Discovery  
Included in delivery:  
• Clamp – 1 pc.  
• Fitting – 1 pc.  
• Clamp – 1 pc.  
• Nozzle tip  
ø=7 mm – 1 pc.



## CB 0129-01 ACT

**Injector Clamp**  
Mersedes Actros  
Included in delivery:  
• Clamp – 1 pc.  
• Adapter AZ0309-01 – 1 pc.  
• Side nipple  
DL-EA – 1 pc.



## CB0140-01 SC

**Injector Clamp**  
Scania  
Included in delivery:  
• Clamp – 1 pc.  
• Pusher – 1 pc.



## CB0133-01 AT

**Injector Clamp**  
Mersedes Atego  
Included in the kit:  
• Clamp – 1 pc.  
• Adapter AZ0309-01 – 1 pc.  
• Side nipple  
DL-EA – 1 pc.



## CB0148-01500 HP

**Injector Clamp**  
Volvo 500HP, Delphi  
Included in delivery:  
• Clamp – 1 pc.



## CB0144-01 DAF

**Injector Clamp**  
Injector Clamp  
DAF, MAK, Renault  
Included in delivery:  
• Clamp – 1 pc.  
• Adapter AZ0309-02 – 1 pc.  
• Side nipple – 1 pc.  
• Injector receiver – 1 pc.  
• Fitting – 2 pcs.



## CB0147-01 JD

**Injector Clamp**  
John Deere Delphi  
Included in delivery:  
• Clamp – 1 pc.

### CAM-BOX1

### ADDITIONAL EQUIPMENT



**CB0146-01 CAT15**

Injector Clamp  
Caterpillar L15  
Included in delivery:  

- Clamp – 1 pc.,
- Clamp – 1 pc.,
- Nozzle tip with Ø "cone" – 1 pc.,
- Crankcase – 1 pc., Fitting – 1 pc.



**CB0137-01 CAT10**

Injector Clamp  
Caterpillar L10  
Included:  

- Clamp – 1 pc.
- Nozzle tip Ø=10.5 mm – 1 pc.
- Fitting – 1 pc.



**CB0138-01 DET**

Injector Clamp  
Detroit  
Included:  

- Clamp – 1 pc.
- Nozzle tip Ø=8.5 mm – 1 pc.
- Clamp – 1 pc.
- Fitting – 1 pc.



**CB0139-01 CUM**

Injector Clamp  
Cummins  
Included in delivery:  

- Clamp – 1 pc.
- Nozzle tip for Ø=8.5 mm nozzle – 1 pc.
- Clamp – 1 pc.
- Fitting – 1 pc.



**DL-CB230017**

Flange for the RPM sensor  
for CAM BOX1 and  
CAM BOX2  

- Flange – 1 pc.



**DL-UNI50038**

Encoder housing  
for 5000 pulses  
for CAM BOX1 and CAM BOX2  

- Encoder housing — 1 pc.



**PCIDS2ZNKW-M8-45-M8**

RPM Sensor  
for CAM BOX 1  
Package Contents:  

- Sensor – 1 pc.,
- Connecting  
cable – 1 pc.,
- Mounting Nut – 2 pcs.



**DL-CBTS**

Spherical tappet  
to the rocker arm on  
CAM BOX1



**DL-CBT**

Concave pushrod to the  
rocker arm on CAM BOX1



**0232103064**

Speed sensor  
for Cambox 1 and  
Cambox 2

### CAM-BOX 2 MASTER

A test kit for unit injectors and individual pumps (UI/UP SYSTEM).

The kit includes:

1. CAM-BOX 2 MECHANIC
2. UIS TESTER Multi-CAM controller



#### CAM-BOX 2 MECHANIC

**Mechanical unit for testing unit injectors and pump sections.**

A device for testing and performance testing of unit injectors (UIS) and individual high-pressure fuel pumps (pump sections) with high-pressure solenoid valves (UPS). The CAM-BOX2 MECHANIC includes an integrated inductive speed sensor and an angle sensor (encoder) that allow for reading RPM and angle data for testing modern EUI and EUP systems.



#### UIS TESTER Multi-CAM

**Electronic component for testing unit injectors**

A device for testing and verifying the performance of unit injectors (UIS) and individual high-pressure fuel pumps (pump sections) with high-pressure solenoids (UPS).

## CAM-BOX 2 MECHANIC

## EQUIPMENT



DL-CB2 0124

**Clamp for Volvo FH12, Iveco, and Bosch injectors**  
0414700002, 0414701004, 0414701006, 0414701013, 0414701014, 0414701015, 0414701021, 0414701022, 0414702002, 0414702003, 0414702005, 0414702006, 0414702007, 0414702009, 0414702010, 0414702012, 0414702013, 0414702014, 0414702015



DL-CB230035

Fittings Ø M14 (1.5) x 1/4" – 2 pcs.  
with rubber-metal gasket – 4 pcs.



DL-CB2 0123

Adapter clamp  
for PLD NF sections  
0129, 0133, 0144



DL-CB230022

Fixing bracket



DL-CB250061

Test nozzle holder  
to clamp-adapter



DL-CB230010

Nozzle bracket and nozzle  
Ø 7 mm



Bolt M10, L= 106 mm, bolt M10, L= 56 mm  
for the spray nozzle bracket



DL-CB2 0100

Adapter clamp for  
indicator head

DL-CB230046, CB230047,  
CB230048, CB230049

Sealing washer  
• Washer – 4 pcs.



DL-CB230084

Spacer bushing H=7 Ø 20  
for installing passenger car NF (2 pcs.)



DL-CB230189

Spacer bushing H=5 Ø 12  
for installing passenger car NF (2 pcs.)



DL-CB230013

Locking pin (3 pcs)

## CAM-BOX 2 MECHANIC

## EQUIPMENT



DL-CB230109, CB230134,  
DL-CB230135, DL-CB230043

Pusher screw (4 pcs)



DL-CB250001

Adjustable gauge for  
setting the preload of  
the unit injector



Banjo fitting, Banjo bolt, rubber-metal  
washers, and hose clamps (2 sets)



Pressure supply hose to  
the pump-nozzle, Ø 10x1000 mm



Backflow hose from the pump  
nozzle, Ø 10x1000 mm



DL-P1004

Teflon tube  
Ø 6 mm x 1500 mm



DL-UNI30001

Nipple with fitting  
Ø 6 mm x 1/8" for  
Teflon tubing



DL-PG

Antifoam with  
a 6mm x 1/4" fitting



DL-5358

Compensation spring  
for passenger car fuel  
injectors (red)



DL-UNI30090

Profile bolt  
M14 x 44 mm with nut  
and washers for fastening  
Cam-Box (2 sets)



DL-CB230169

Pusher for  
compensation  
spring



Check valve drain 2.5 bar

## CAM-BOX 2 MECHANIC

## ADDITIONAL EQUIPMENT

**DL-UNI50132**

Compensating coupling  
with clamping jaws and  
reinforced plate pack

**DL-UNI50139**

Compensating coupling  
with flange connection  
and reinforced plate pack  
(similar to Bosch 1686401024)

**DL-CB230016**

Cone coupling with flange  
connection Ø 30 mm Cam Box2,  
high-pressure fuel pump

**DL-CB130139**

Cone coupling Ø 30 mm  
Cam Box2, high-pressure  
fuel pump

**DL-CB230879**

Mounting key for CAM-BOX couplings  
DL-CB130139 and DL-CB230016

## CAM-BOX 2 MECHANIC

## ADDITIONAL EQUIPMENT



## DL-CB20124

## Clamp for Volvo FH12, Iveco, and Bosch injectors

0414701004, 0414701006, 0414701013, 0414701014, 0414701015, 0414701021, 0414701022, 0414702002, 0414702003, 0414702005, 0414702006, 0414702007, 0414702009, 0414702010, 0414702012, 0414702013, 0414702014, 0414702015

## For DORPAT Cam Box 2

Included: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



## DL-CB20125KIT

## Caterpillar C12 unit injector testing and inspection kit for the DORPAT CamBox 2 test bench.

## Package contents:

- DL-CB20125 adapter clamp – 1 pc.
- CB230276 injector pusher (for C13)
- CB230289 sealing washer
- CB230282 nozzle nozzle
- 2 adapter nipples
- 4 rubber-metal gaskets

Injector not included.



## DL-CB20126KIT

## Test and inspection kit for Caterpillar C15, C13 (CAT2490713) Perkins unit injectors for the DORPAT CamBox 2 test bench.

## Included:

- DL-CB20126 adapter clamp – 1 pc.
- CB230294 injector pusher (for C15)
- CB230276 injector pusher (for C13)
- CB230289 sealing washer
- CB230282 nozzle nozzle
- CB230283 retaining clip
- 2 adapter nipples
- 4 rubber-metal gaskets

Not included.



## DL-CB20127

## Detroit PLD Clamp (Bosch) 0414750003, 0414750004 for Cam Box 2

Included: Clamp – 1 pc., Fitting – 1 pc., Rubber-metal gasket – 2 pcs.

### CAM-BOX 2 MECHANIC

### ADDITIONAL EQUIPMENT



**DL-CB20128**

**Iveco 7.8L Injector Clamp**

0414700002, 0414700003, 0414700004, 0414700005, 0414700006 for Cam Box 2

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



**DL-CB20129**

**Mercedes Actros PLD Clamp**

0414799005, 0414799007, 0414799009, 0414799010, 0414799011, 0414799015, 0414799016, 0414799018, 0414799021, 0414799023, 0986445002

**for DORPAT Cam Box 2**

**Included in delivery:** clamp – 1 pc., nipple – 2 pcs., rubber-metal gasket – 4 pcs.



**DL-CB20130**

**Injector Clamp**

0414703005, 0414703007

**for Cam Box 2**

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



**DL-CB20131**

**Nissan UD Injector Clamp**

0414701023, 0414701024, 0414701033, 0414701034

**for Cam Box 2**

**Included:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.



**DL-CB20133**

**Mercedes Atego PLD Clamp**

0414799003, 0414799006, 0414799008, 0414799012, 0414799013, 0414799014, 0414799017, 0414799019, 0414799022, 0986445003

**for DORPAT Cam Box 2**

**Included in delivery:** clamp – 1 pc., nipple – 2 pcs., rubber-metal gasket – 4 pcs.

### CAM-BOX 2 MECHANIC

### ADDITIONAL EQUIPMENT



#### DL-CB20136

Land Rover Discovery Injector Clamp (Delphi)  
for Cam Box 2

Included: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20137KIT

Caterpillar L10 Injector Clamp  
for Cam Box 2

The kit includes:

- DL-CB20137 Adapter Clamp
- CB230289 Sealing Washer
- CB230282 Nozzle Nozzle
- 2 Adapter Fittings
- 4 Rubber-Metal Gaskets

Injector not included.



#### DL-CB20138KIT

Test and inspection kit for Detroit unit injectors  
5234770-5235580

for the DORPAT CamBox 2 test bench.

Package contents:

- DL-CB20138 adapter clamp – 1 pc.
- CB230276 injector pusher – 1 pc.
- CB230440 retaining clip – 1 pc.
- Adapter nipples – 2 pcs.
- Rubber-metal gaskets – 4 pcs.

Injector not included.



#### DL-CB20139KIT

Cummins 4DEC01L4061851 unit injector testing  
and inspection kit for the DORPAT CamBox 2 test bench.

Package contents:

- DL-CB20139 adapter clamp – 1 pc.
- CB230440 retaining clip – 1 pc.
- Adapter nipples – 2 pcs.
- Rubber-metal gaskets – 4 pcs.

Injector not included.

### CAM-BOX 2 MECHANIC

### ADDITIONAL EQUIPMENT



#### DL-CB20140

##### Scania injector clamp

0414701017, 0414701018, 0414701019, 0414701020, 0414701030, 0414701032, 0414701035, 0414701036, 0414701037, 414701038, 0414701040, 0414701042, 0414701043, 0414701044, 0414701045, 0414701069, 0414700002, 0414701005, 0414701007, 0414701008, 0414701016

##### to Cam Box 2 of the DORPAT stand

Delivery set: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20144

##### Clamp for PLDDAF, MAK, Renault

0414755005, 0414755006, 0414755007, 0414755008, 0414755014, 0414755015, 0414755016, 0414755017, 0414755018

##### to Cam Box 2 of the DORPAT stand

Delivery set: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20145

##### DELPHI PLD Clamp for DORPAT Cam Box 2

Included: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20146

##### Injector Clamp Caterpillar L15 for DORPAT Cam Box 2

Included: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB20146KIT

##### Caterpillar L15 Injector Clamp

##### for Cam Box 2

##### The kit includes:

- **DL-CB20146** Adapter Clamp
- **CB230289** Sealing Washer
- **CB230282** Nozzle Nozzle
- **CB230294** Injector Pusher
- **CB230283** Retainer Clip
- Adapter Fittings – 2 pcs.
- Rubber-metal gasket – 4 pcs.

Injector not included.

### CAM-BOX 2 MECHANIC

### ADDITIONAL EQUIPMENT



#### DL-CB20149

##### Bosch Injector Clamp

0414703004, 0414703008, 0414703009, 0414703013

##### for DORPAT Cam Box 2

Included: 1 clamp, 2 fittings, 4 rubber-metal gaskets.



#### DL-CB2 0151

##### Audi/VW 1.9 injector clamp

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

##### For the DORPAT Cam Box 2 stand

Included in delivery: clamp – 1 pc., fitting – 2 pcs., rubber-metal gasket – 4 pcs., clamp – 1 pc., locking screw – 1 pc.



#### DL-CB20152

##### Audi / VW 2.0 Injector Clamp

0414720401, 0414720402, 0414720403, 0414720404

##### for DORPAT Cam Box 2

##### Included in delivery:

1 clamp, 2 fittings, 4 sealing washer, 2 locking screws.



#### DL-CB20153KIT

##### Bosch 0414703003 Unit Injector Test and Check Kit for CamBox 2 DORPAT Bench.

##### Package Contents:

- DL-CB20153 Adapter Clamp – 1pc;
- CB230276 Injector Pusher – 1pc;
- Adapter Fittings – 2pcs;
- Rubber-to-Metal Gaskets – 4pcs.

Injector not included.

## CAM-BOX 2 MECHANIC

## ADDITIONAL EQUIPMENT



## DL-CB20154KIT

Cummins HPI unit injector testing and inspection kit for the DORPAT CamBox 2 test bench.

## Package contents:

- **DL-CB20154** adapter clamp – 1 pc.
- **CB230356** injector pusher – 1 pc.
- **CB230357** nozzle tip – 1 pc.
- **CB230355** valve holder – 1 pc.
- **CB220007** valve holder bracket – 1 pc.
- Timing valve – 1 pc.
- Metering valve – 1 pc.
- 2 steel-braided hoses
- 4 hose nipples
- 2 adapter nipples
- Rubber-metal gasket – 4 pcs.
- Nozzle clamp – 1 pc.



## DL-CB20155

Delphi E1 Injector Clamp (John Deere)  
for DORPAT Cam Box 2

**Included in the kit:** 1 clamp, 2 fittings,  
4 rubber-metal gaskets.

*Injector not included.*



## DL-CB20156

Clamp adapter for testing unit injectors CAT 3920206

**Included in the kit:** clamp – 1, clamp – 1  
8x35 clamp fixing bolt – 2  
fitting nipples – 2, rubber-metal gaskets – 4

*Injector not included.*



## DL-CB20157

Test clamp adapter for Cummins unit injectors 3053124

**Includes:** 1 clamp, 2 fittings, 4 rubber-metal gaskets.

*Injector not included.*

## CAM-BOX 2 MECHANIC

## ADDITIONAL EQUIPMENT



DL-CB2 50037

Injection sensor for Cummins  
HPI unit injectors

DL-CB250036KIT

Injection sensor (piezo)



DL-CB20158

Injector Adapter Clamp  
CUMMINS 4902827

Included in delivery:

- DL-CB231672 Adapter Clamp No. 0158 — 1 pc;
- DL-CB231675 Retaining Clip — 1 pc;
- DL-CB230357 Spray Nozzle — 1 pc;
- DL-UNI30035 Adapter Clamp Connector M14x1.5x1/4" — 3 pcs;
- D-GM1538AN Rubber-to-Metal Gasket ØM14" — 3 pcs;
- D-GM1504AN Rubber-to-Metal Gasket Ø1/4" — 3 pcs.

*The nozzle is not included.*

25-FPKM-04

Quick connector  
for adapter

25-FPKF-04

Hydraulic quick-connect  
connector 1/4" female

D-1324179

Pusher for Cam-Box2

## CAMBAT-FLOW

Injection meter for pump-nozzles and pump sections of the UIS/UPS system (for UIS-Tester MULTICAM).



## UIS-TESTER MultiCAM

The UIS-Tester MULTICAM device is designed to test and check the performance of unit injectors (UIS - Unit Injector System) and individual high-pressure fuel pumps with high-pressure electromagnetic valves (UPS - Unit Pump System).



**CAMBAT-FULL**

Equipment for testing and checking pump-nozzles and pump sections of the UIS/UPS system without mechanical parts.

**The CAMBAT-FULL equipment includes:**

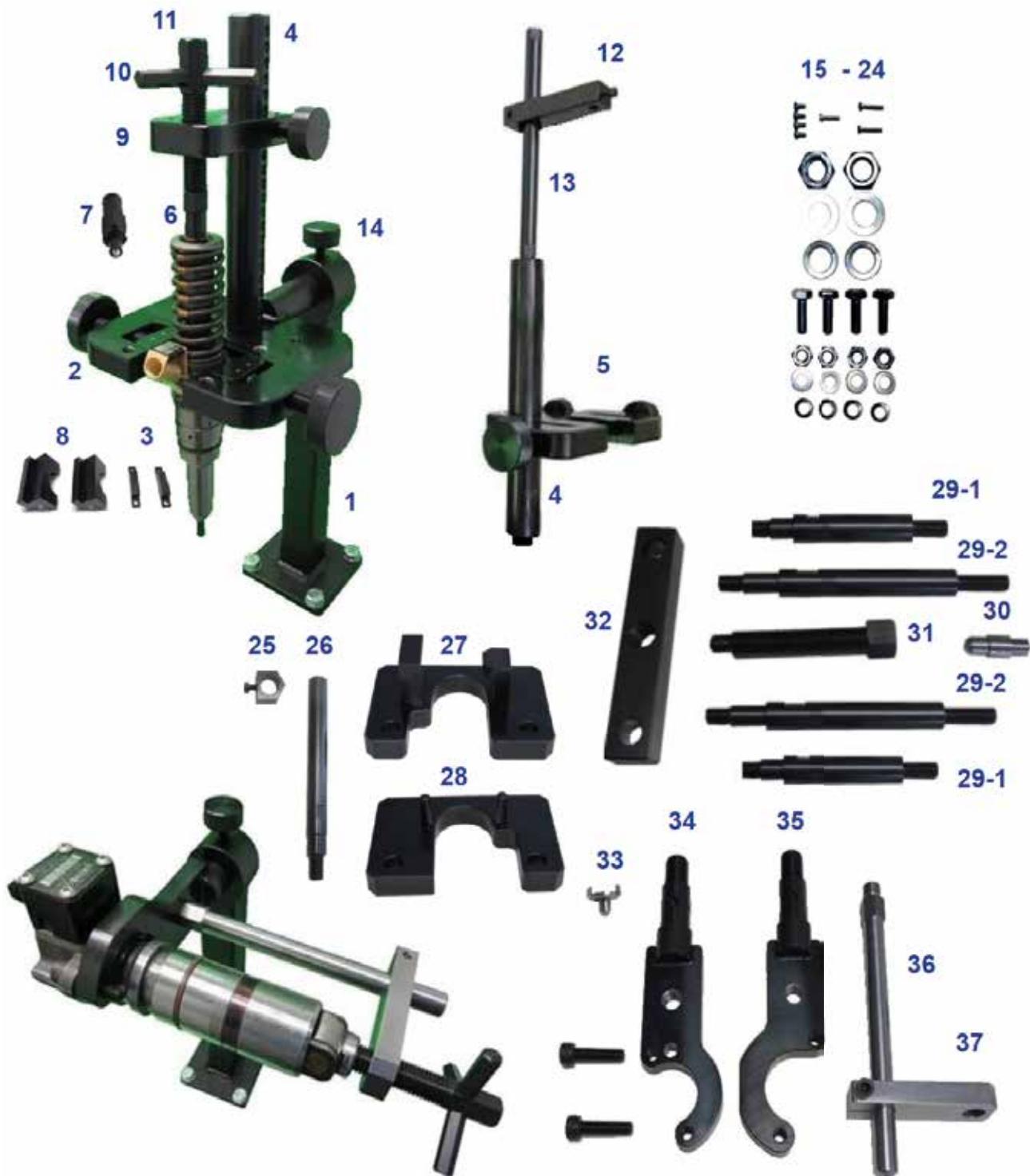
1. A stand with a CAMBAT-FLOW measuring unit
2. A UIS-Tester MULTICAM unit-injector control unit for pump sections
3. A set of connecting cables for the injectors, measuring unit, etc.

**CAMBAT-FULL-SET**

Equipment for testing and checking pump-nozzles of pump sections of the UIS/UPS system with a mechanical part.

**The CAMBAT-FULL-SET equipment includes:**

1. A stand with a CAMBAT-FLOW measuring unit
2. A UIS-Tester MULTICAM unit injector and pump section control device
3. A set of connecting cables for the injectors, measuring unit, etc.
4. A mechanical part for testing unit injectors and pump sections  
CAM-BOX MECHANIK



**DL-ST02**

A clamp for disassembling and assembling CR injector units with two stops for 7mm and 9mm diameter injectors.

### Delivery set:

1. STD50115 Stand – 1 pc.
2. STD50116 Large Vise – 1 pc.
3. STD30498 Replacement Foot – 2 pcs.
4. STD30540 Guide Post – 1 pc.
5. STD50117 Small Vise – 1 pc.
6. STD30148 Ø 7 mm Stop – 1 pc.
7. STD30147 Ø 9 mm Stop – 1 pc.
8. STD30752 Replacement Foot – 2 pcs.
9. STD30610 Bracket – 1 pc.
10. STD30811 Handle – 3 pcs.
11. STD30810 Clamp Screw – 1 pc.
12. STD30813 Holder – 1 pc.
13. STD30812 Axle – 1 pc.
14. STD30468 Locking Pin – 3 pcs.
15. M4x8 DIN012 Screw – 4 pcs.
16. M4x16 DIN012 Screw – 1 pc.
17. M4x20 DIN012 Screw – 2 pcs.
18. M20 DIN034 Nut – 2 pcs.
19. 21x37x3 DIN0125 Washer – 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. Grover 10 Din127 – 4 pcs.
25. Sight for protractor DL-STD30874
26. Axis for sight DL-STD30873
27. Clamp STD50010 VW1.9 – 1 pc.
28. Clamp STD50009 VW2.0 – 1 pc.
- 29-1. Shortened stand STD31245 – 2 pcs.
- 29-2. Extended Strut STD30657 – 2 pcs.
30. Stop STD30678 – 1 pc.
31. Bolt STD30658 – 1 pc.
32. Bar STD30656 – 1 pc.
33. Stop STD30673 – 1 pc.
34. AT Bracket STD50077 – 1 pc.
35. AC Bracket STD50078 – 1 pc.
36. Strut STD30672 – 1 pc.
37. Bar STD30671 – 1 pc.



Clamp-mounted installation  
of an AUDI/VW 1.9 unit injector



Installing a Scania U-shaped  
unit injector in a clamp



**Clamp-mounted  
VOLVO Delphi 2- and 4-pin unit injectors**



**Installing a SCANIA U-shaped  
unit injector in a clamp**



**Clamp installation  
of the Delphi 082240354 pump section**



**Installation in a pump section clamp  
DAF Bosch 0414755005**



**Installation in a clamp  
of the ATEGO MB pump section**



**Installation in a clamp  
of the MV ACTROS pump section**

### ADDITIONAL EQUIPMENT FOR CLAMP DL-ST02



**DL-STD50206**

AUDI/VW 1.9 unit injector holder  
for adjusting the solenoid on a clamp  
ST-01/ST-02



**DL-STD50207**

AUDI/VW 2.0 unit injector holder  
for adjusting the solenoid on a clamp  
ST-01/ST-02



**DL-UIS50144****Solenoid positioning key for BOSCH AUDI / VW 1.9 unit injectors****Included in delivery:**

- Solenoid key
- Positioning key

*Similar to BOSCH 0986610318***DL-UIS50195****Solenoid positioning key for BOSCH AUDI / VW 2.0 unit injectors****Included in delivery:**

- Solenoid key
- Positioning key

*Similar to BOSCH 0986610318*



**DL-UIS30745**

(8-sided, 38 mm)  
Wrench for installing/removing the solenoid nut  
for Bosch unit injector valves (Iveco, Scania, Volvo)



**DL-UIS31438**

(12-sided, 39 mm)  
Wrench for installing/removing the solenoid nut  
for the Bosch (Volvo) unit injector valve



**DL-UIS30693**

Hex key for installing/removing the nozzle nut of the  
Audi/VW1.9 unit injector.

**Applicability:**  
PDE-P1, PDE-P1.1, PDE-P1.3, PDE-P1.4



**DL-UIS30724**

Nozzle Nut Installation/Removal Wrench  
Audi/VW 2.0 TDI Bosch Unit Injectors

**Applicability:**  
414720403, 0414720404



**DL-UIS30725**

Octagonal wrench for installing/removing the nozzle  
nut of the Audi/VW 1.9-5.0 PDE-P1.5 unit injector.

**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**

17mm Allen key for the nozzle nut  
for Audi/VW Siemens VDO (Piezo) unit injectors

**DL-UIS30726**

Wrench for installing/removing the solenoid nut  
for Audi/VW 2.0 unit injectors

**Applicability:**

0414720403, 0414720404

**DL-UIS30733**

Wrench for installing/removing the solenoid nut  
for Audi/VW 1.9 unit injectors

**Applicability:**

0414720029-0414720215

**DL-UNI30667**

29 mm Allen key for installing/removing  
AUDI/VW unit injector housing nuts

**Applications:**

0414720400, 0414720401, 0414720402, 0414720403,  
0414720453, 0414720454

**DL-UNI30668**

30 mm octagonal wrench for installing/removing  
the VW Siemens injector housing nut





**DL-UNI50011**

Wrench for installing/removing nozzle nuts  
 $\varnothing$  27 mm for Volvo, Delphi, and Lucas injectors  
 (for a torque wrench)



**DL-UNI50313**

Wrench for installing/removing the nozzle nut  
 $\varnothing$  28 mm for Cummins 3053124 unit injectors  
 (for a torque wrench)



**DL-UNI50127**

Nozzle nut installation/removal wrench  
 $\varnothing$  29.4 mm for Caterpillar C12, C15 injectors  
 (for torque wrench)



**DL-UNI50012**

Wrench for installing/removing nozzle nuts  
 $\varnothing$  31.5 mm for Cummins (Scania) HPI injectors  
 (for a torque wrench)



**DL-UNI50048**

Nut installation/removal key  
 $\varnothing$  36.2 mm for Delphi PLD sections 1668325  
 (for torque wrench)



**DL-UNI30763**

Nozzle Nut Installation/Removal Wrench  
 $\varnothing$  32mm for Bosch Unit Injectors  
 Applicability:  
 0414701005, 0414701006, 0414701008, 0414702002,  
 0414702007, 0414702010, 0414703008



**DL-UIS30880**

Caterpillar injector adapter holder  
 C12, C15 in a vice



**DL-UIS50143**

Valve Stroke Measurement Kit  
for AUDI / VW BOSCH 1.9/2.0 Unit Injectors

Included in the package:

1. **DL-UIS31069** Double-Ended Clamp
2. **DL-UIS31070** Measuring Head Adapter
3. **DL-UIS31071** Thrust Washer
4. **DL-UIS31072** Verification Plate
5. **DL-CRN30503** Feeler Gauge

**ATTENTION!**

*The measuring head is not included in the package!*



**DL-UIS30827**

Adapter stand for an indicator  
for measuring the air gap in the unit injector housing



**DL-UIS50102**

Adapter for the indicator  
for measuring the stroke of the valve stem  
of the BOSCH unit injector



**DL-UIS50100**

Wrench for installing/removing and adjusting  
the solenoid nut of the unit injector  
Audi/VW 1.9 TDI (Bosch) on a test bench.  
Applicability: 0414720029 - 0414720215

**DL-UIS50101**

Key for installing/removing and adjusting  
the solenoid nut of the unit injector  
Audi / VW 2.0 TDI



### A SET OF KEYS FOR DISASSEMBLING AND ASSEMBLING AUDI / VW PUMP-INJECTORS

#### 1. **DL-UIS30667**

29mm Allen key for installing/removing the unit injector housing nut  
Audi/VW 2.0, PDE-P2.

Applicable to: 0414720400 0414720401 0414720402 0414720403 0414720453 0414720454

#### 2. **DL-UIS30668**

30 mm octagonal wrench for installing/removing the VW SIEMENS injector housing nut

#### 3. **DL-UIS50100**

Wrench for installing/removing and adjusting the solenoid nut of the unit injector  
Audi/VW 1.9-5.0 (Bosch) on a test bench.

Applicability: 0414720029-0414720215

#### 4. **DL-UIS30726**

Audi/VW 2.0 Bosch unit injector solenoid nut installation/removal tool

Applicability: 0414720403 0414720404

#### 5. **DL-UIS30725**

Octagonal wrench for installing/removing the unit injector nozzle nut  
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. 0414720311-5,0 l. 0414720361-5,0 l.

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**

Hex key for installing/removing the unit injector nozzle nut

Audi/VW 1.9, PDE-P1, PDE-P1.1, PDE-P1.3, PDE-P1.4

7. **DL-UIS50101**

Key for adjusting the solenoid nut NF Audi / VW 2.0

8. **DL-UIS30733**

Audi/VW 1.9 TDI Bosch unit injector solenoid nut installation/removal tool  
Applicability: 0414720029-0414720215

9. **DL-UIS30724**

Audi/VW 2.0 Bosch unit injector nozzle nut installation/removal key  
Applicability: 0414720403 0414720404

10. **DL-UIS30751**

17mm Allen key for Audi/VW unit injector nozzle nut  
Siemens VDO (Piezo)

11. **DL-UIS30757**

Twelve-sided key for mounting/dismounting the piezo element.



**DL-VW2-SVDO**

#### A SET OF TOOLS FOR DISASSEMBLING AND ASSEMBLING THE AUDI/VW SIEMENS VDO NF

1. **DL-UIS30668**

30 mm octagonal key for mounting/removing the housing nut of the VW Siemens pump-injector

2. **DL-UIS30751**

17mm octagonal wrench for the nozzle nut of the Audi/VW Siemens VDO (Piezo) unit injector

3. **DL-UIS30757**

Twelve-sided key for mounting/dismounting the Siemens VDO piezoelectric element



### DL-VW PDE

#### TOOL KIT FOR DISASSEMBLING AND ASSEMBLING NF AUDI / VW1.9 PDE-P1.5

##### 1. DL-UIS50100

Wrench for installing/removing and adjusting the solenoid nut of the unit injector Audi/VW 1.9-5.0 (Bosch) on a test bench.  
Applicability: 0414720029-04147202152

##### 2. DL-UIS30733

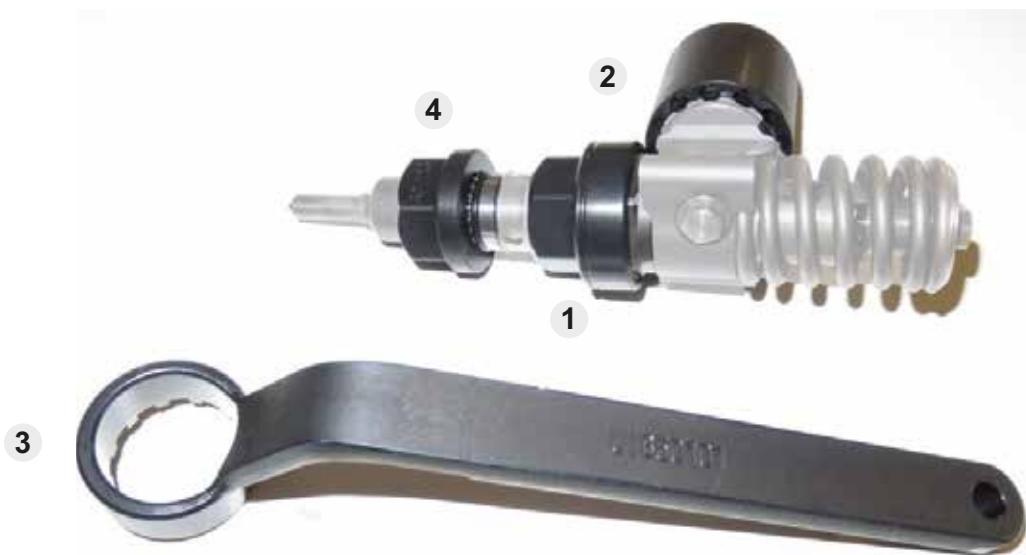
Audi/VW 1.9 TDI Bosch unit injector solenoid nut installation/removal tool.  
Applicability: 0414720029-0414720215

##### 3. DL-UIS30725

Octagonal key for mounting/dismounting the pump-injector nozzle nut  
Audi / VW 1,9-5,0 , PDE-P1,5.  
Применяемость: 0414720309-2,5 л. 0414720359-2,5 л.  
0414720310-2,5 л. 0414720360-2,5 л. 0414720305-5,0 л. 0414720301-5,0 л. 0414720311-5,0 л.  
0414720361-5,0 л. 0414720306-2,0 л. 0414720302-2,0 л. 0414720312-2,0 л. 0414720362-2,0 л.  
0414720307-1,9 л. 0414720303-1,9 л. 0414720313-1,9 л. 0414720363-1,9 л. 0414720308-1,9 л.  
0414720304-1,9 л. 0414720314-1,9 л. 0414720364-1,9 л.

##### 4. DL-UIS30693

Hex key for installing/removing the nozzle nut of the Audi/VW 1.9 unit injector  
PDE-P1 PDE-P1,1 PDE-P1,3 PDE-P1,4

**DL-VW-PDE-2****AUDI/VW 2.0 NF DISASSEMBLY AND ASSEMBLY TOOL KIT****1. DL-UIS30667**

29 mm Allen key for installing/removing the unit injector housing nut  
Audi/VW 2.0, PDE-P2. Applicable to: 0414720400 0414720401 0414720402 0414720403  
0414720453 0414720454

**2. DL-UIS30726**

Audi/VW 2.0 Bosch unit injector solenoid nut installation/removal key.  
Applicability: 0414720403 0414720404

**3. DL-UIS50101**

Key for adjusting the solenoid nut NF Audi / VW 2.0

**4. DL-UIS30724**

Audi/VW 2.0 Bosch unit injector nozzle nut installation/removal key  
Applicability: 0414720403 0414720404

**DL-UIS30590**

Adapter for testing the injector section of Bosch unit injectors (Scania, Volvo, IVECO CURSOR TYPE 350).

**DL-UIS30591**

Adapter for testing the injector section of Bosch (Volvo) unit injectors.

**DL-UIS30594**

Adapter for testing the injector section of the Volvo 520 CV unit injectors.

**DL-UIS30597**

Adapter for testing the injector section of Delphi unit injectors (Volvo Tape A).

**DL-UIS30598**

Adapter for testing the injector section of Detroit unit injectors.

**DL-UIS30606**

Adapter for testing the injector section of Cummins L10-M11 unit injectors.

**DL-UIS30627**

Adapter for testing the injector section of the Volvo 460 2-tape unit injector, Scaniapumps.

**DL-UIS30631**

Adapter for testing the injector section of Cummins N14 EUI/PDE unit injectors.

**DL-UIS30634**

Adapter for testing the injector section of EUI/PDE unit injectors for Audi, VW 2.0L

**DL-UIS50082**

Adapter for testing the injector section for all types of EUI/PDE Audi and VW pumps except EUI/PDE Audi and VW 2.0-liter units

**DL-UIS30643**

Adapter for testing the injector section of the EUI/PDE unit injectors for the Iveco Stralis 500 HP. 0414703004, 0414703008, 0414703010.

**DL-UIS30640**

Adapter for testing the injector section of Cummins unit injectors.

**DL-UIS30635**

Adapter for testing the injector section of Volvo Delphi 4-PIN unit injectors.

**DL-UIS50079**

Injector testing adapter for Audi and VW unit injectors. 04147203XX for clamp-mounted assembly.

**DL-UIS50081**

Adapter for testing the injector section of Audi, VW unit injectors 04147200XX, 04147202XX, 04147204XX, 04147206XX for assembly on a clamp.

**DL-UIS30638**

Adapter for testing the injector section for Audi, VW 2.0L EUI/PDE unit injectors. 1 681 398 033 for mounting on a clamp.

**DL-UIS30662**

Adapter for testing the injector section of Audi, VW Siemens VDO Piezo unit injectors for clamp mounting.

**DL-UIS30770**

Adapter for testing the injector section of EUI/PDE Nissan 440 unit injectors (M31x1).

**DL-UIS31507**

Adapter for testing the injector section of EUI/PDE unit-injectors HYUNDAI 22880-84001 (M28x1)

### ADAPTERS FOR CATERPILLAR



**DL-UIS30789**

Adapter for testing the injector section of the EUI/PDE unit injector HEUICAT 3126  
The adapter has an M28x1 connection thread



**DL-UIS30768**

Adapter for testing the injector section of EUI/PDE unit injectors Caterpillar series 3500  
The adapter has an M27x1.5 connection thread.



**DL-UIS30769**

Adapter for testing the injector section of EUI/PDE unit injectors Caterpillar Marino  
The adapter has an M36x1.5 connection thread



**DL-UIS30897**

Adapter for testing the injector section of EUI / PDE unit injectors CAT C15, C16.  
The adapter has an M33x1.5 connection thread.



**DL-UIS31441**

Adapter for testing the injector section of Caterpillar CAT C12 unit injectors. The adapter has an M28x1 connection thread.



**DL-UIS31511**

Adapter for testing the injector section of Caterpillar CAT C12 unit injectors. The adapter has an M28x1 connection thread.



**DL-UIS31559**

Adapter for testing the injector section of CAT M32 unit injectors.  
The adapter has a connecting thread M32x1.5mm.  
It has two holes for the nozzle pins.



**DL-LR31788**

Adapter for testing the injector section of Lorange injectors with M32x1 threads



**DL-LR31787**

Adapter for testing the injector section of Lorang injectors with M20 x 0.75 threads

### АДАПТЕРЫ ДЛЯ CATERPILLAR



#### DL-TRUKUSA-04CAT

A set of adapters for testing the injector section of unit injectors on American-made CATERPILLAR trucks.

- DL-UIS30789
- DL-UIS30768
- DL-UIS30769
- DL-UIS30897



#### DL-TRUKUSA-05CAT

A set of adapters for testing the injector section of unit injectors for American-made CATERPILLAR trucks.

- DL-UIS30789
- DL-UIS30768,
- DL-UIS30769
- DL-UIS30897
- DL-UIS31441



#### DL-TRUKUSA-06CAT

A set of adapters for testing the injector section of unit injectors for trucks manufactured in the United States by CATERPILLAR.

- DL-UIS30789
- DL-UIS30768
- DL-UIS30769
- DL-UIS30897
- DL-UIS31441
- DL-UIS31511



#### DL-TRUKUSA-07CAT

A set of adapters for testing the injector section of unit injectors for American-made CATERPILLAR trucks.

- DL-UIS30789
- DL-UIS30768
- DL-UIS30769
- DL-UIS30897
- DL-UIS31441
- DL-UIS31511
- DL-UIS31559

### КОМПЛЕКТЫ АДАПТЕРОВ ДЛЯ ПРОВЕРКИ ФОРСУНОЧНОЙ ЧАСТИ



#### DL-TRUSA-04BR

A set of adapters for testing the injector section of truck unit injectors manufactured by CUMMINS and DETROIT.

(DL-UIS30598-DETROIT, DL-UIS30606-CUMMINS L10-M11, DL-UIS30631-CUMMINS N14, DL-UIS30640-CUMMINS)



#### DL-TRUKE-07BR

A set of adapters for testing the injector section of unit injectors in European vehicles.

(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

A set of adapters for testing the injector section of AUDI/VW unit injectors of all types.

(DL-UIS50079-AUDI/VW 04147203XX, DL-UIS50081-AUDI/VW 04147200XX, 04147202XX, 04147204XX, 04147206XX, DL-UIS30638-EUI / PDE AUDI/VW 2,0 литра (ТИП2), DL-UIS30662-AUDI / VW SIEMENS VDO piezo)



**DL-RP400**

**Manual injector tester  
with mechanical pressure gauge**

**Delivery set:**

- 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)**

**Handheld injector tester  
with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 415) 1500 bar – 1 pc.



**DL-RP420 (without pressure sensor)**

**DL-RP425 (with pressure sensor 1500 bar)**

**Handheld injector tester  
with a 2-channel electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 425) 1500 bar – 1 pc.



**DL-RP430**

**Manufacturer: ZECA (Italy)**

Injector spray testing chamber (aspirator)  
Allows visual inspection of the performance  
of diesel injector nozzles without risk to health.  
The device collects the working fluid for reuse.



**DL-RP500**

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

**Delivery set:**

- 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 manual injector testing press**  
**with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 515) 1500 bar – 1 pc.



**DL-RP520 (without pressure sensor)**

**DL-RP525 (with pressure sensor 1500 bar)**

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

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 525) 1500 bar – 1 pc.



**DL-UIS50150**

**A set of diamond lapping tools and reamers for restoring the valve seat of BOSCH unit injectors.**

**Delivery set:**

1. <b>DL-UIS1368063</b>	Diamond conical lapping tool with pilot (L 136°) 80/63
2. <b>DL-UIS1364028</b>	Diamond conical lapping tool with pilot (L 136°) 40/28
3. <b>DL-UISPA78063</b>	Diamond reamer PA 80/63
4. <b>DL-UISPA74028</b>	Diamond reamer PA 40/28
5. <b>DL-UIS50193</b>	Split bushing guide puller
6. <b>DL-UIS50247</b>	Diamond reamer shell puller
7. <b>DL-UNI30975</b>	Lapping handle – 2 pcs.
8. <b>DL-UNI30978</b>	Handle locking screw – 2 pcs.

**Unit 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 lapping tools and reamers  
for restoring the seat  
of the BOSCH unit injector valve**

**Included in delivery:**

1. Coarse conical diamond lapping tool (L 136°) – 1 pc.
2. Fine conical diamond lapping tool (L 136°) – 1 pc.
3. Pilot tools for conical diamond lapping tools – 2 pcs.
4. Diamond reamer – 1 pc.
5. Pilot tool for reamer – 1 pc.
6. Pilot tool handle – 1 pc.
7. Cap for pressing on reamer and lapping tools – 3 pcs.
8. NF valve bore cleaning brush – 1 pc.
9. Organizer – 1 pc.

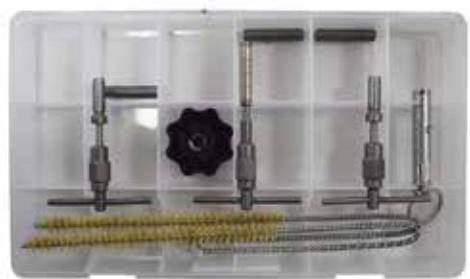


#### DL-UIS50257

**A set of diamond lapping tools and reamers  
for restoring the seat  
of the DETROIT unit injector valve**

**Included in the kit:**

1. Coarse conical diamond lapping tool – 1 pc.
2. Fine conical diamond lapping tool – 1 pc.
3. Pilot tools for conical diamond lapping tools – 2 pcs.
4. Diamond reamer – 1 pc.
5. Pilot tool for reamer – 1 pc.
6. Pilot tool handle – 1 pc.
7. Cap for pressing on reamer and lapping tools – 3 pcs.
8. NF valve bore cleaning brush – 1 pc.
9. Organizer – 1 pc.



#### DL-UIS50255

**Set of diamond lapping tools and reamers  
for restoring the seat  
of the BOSCH unit injector valve**

**Included in delivery:**

1. Coarse conical diamond lapping tool (L 136°) – 1 pc.
2. Fine conical diamond lapping tool (L 136°) – 1 pc.
3. Pilot tools for conical diamond lapping tools – 2 pcs.
4. Diamond reamer – 1 pc.
5. Pilot tool for reamer – 1 pc.
6. Pilot tool handle – 1 pc.
7. Cap for pressing on reamer and lapping tools – 3 pcs.
8. NF valve bore cleaning brush – 1 pc.
9. Organizer – 1 pc.

### EQUIPMENT AND TOOLS FOR CHECKING AND REPAIRING HEUI UNIT INJECTORS

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



**The equipment includes:**

1. **DL-HEUI50223** Adapter for installing pump injectors



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



*Please note: All equipment components are sold separately.*

HEUI CATERPILLAR C7-C9



**Оснастка включает в себя:**

1. **DL-HEUI50221** Adapter for installing pump injectors



### EQUIPMENT AND TOOLS FOR CHECKING AND REPAIRING HEUI UNIT INJECTORS



**DL-UNI50208**

Injector nut wrench  
for Caterpillar C7-C9 unit injectors.  
Wrench diameter: 24 mm



**DL-UIS30789**

Adapter for testing the injector section  
EUI/PDE HEUICAT 3126 unit injector  
The adapter has a connecting thread  
M28x1



**DL-HEU50251**

O-ring installation kit for HEUI CAT C7-C9  
unit injectors



**DL-HEUI31342**

The upper part of the housing  
is for installing the pump-  
injector and supplying high  
pressure.



**DL-HEU31332**

Lower housing for low  
pressure supply



**DL-HEU50227**

Protective screen with cover  
made of polycarbonate.  
(DL-HEU31333 Protective  
screen made of polycarbonate)  
(DL-HEU31334 Protective  
screen cover)



**DL-HEU31335**

Conical pressure washer (2 pcs)

**SPF: 708, 712, 1108, 1112, 1508, 1512**

The test bench is designed for testing and adjusting with increased precision in-line fuel injection pumps, V-shaped fuel injection pumps, distributor-type fuel injection pumps with autonomous and forced lubrication systems, and a boost corrector from all domestic and major foreign manufacturers: BOSCH, LUCAS, ZEXEL, and NIPPON-DENSO.

**With additional equipment, the test bench can be used to test and check the following:**

- Common Rail injectors (BOSCH, DELPHI, DENSO, SIEMENS)
- Common Rail pumps (CP1, CP2, CP3) (BOSCH, DELPHI, DENSO)
- Pressure regulators and sensors for CR unit injectors of European and American vehicles
- Electronic pumps of the VE, VP, Zexel, and PE types.

The test benches are available with a capacity of 7.5 kW (SPF-308, SPF-712), 11 kW (SPF-1108, SPF-1112), and 15 kW (SPF-1508, SPF-1512).

The SPF-708, SPF-1108, and SPF-1508 test benches feature an 8-section measuring unit. The SPF-712, SPF-1112, and SPF-1512 stands have a 12-section measuring unit.

**The stand is equipped with:**

- an integrated personal computer
- a monitor
- a stand and booster pump control panel
- a protective enclosure with two polycarbonate doors
- a two-channel radiator-fan cooling unit



## SPF

## STAND KIT



Flexible 3/8" hoses  
L-105cm (2 pcs.)



14 mm tips  
(2 pcs.)



12 mm tips  
(2 pcs.)



Connecting hose  
Ø 8 mm, L - 150 cm (1 pc.)



Connecting hose  
Ø 10 mm, L - 150 cm (1 pc.)



Double-ended ratchet  
wrench (1 pc.)



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



Door key (4 pcs.)

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR HIGH-PRESSURE FUEL INJECTION PUMPS TEST STANDS



DL-MSP

Mobile oil station  
for test benches



Frequency converter  
for test benches:

- 2,2 kW
- 4 kW
- 5,5 kW
- 7,5 kW
- 11 kW
- 15 kW

## ADDITIONAL EQUIPMENT AND COMPONENTS FOR HIGH-PRESSURE FUEL INJECTION PUMPS TEST STANDS



**MZK-45**

45ml graduated cylinder (beaker) for fuel injection pump test benches  
Length: 320mm  
Diameter: 18mm  
Scale: 0-150ml  
Graduation: 0.2ml



**MZK-260**

260ml graduated cylinder (beaker) for fuel injection pump test benches  
Length: 320mm  
Diameter: 38mm  
Scale: 0-260ml  
Graduation: 2ml



**MZK-150**

150ml graduated cylinder (beaker) for fuel injection pump test benches  
Length: 320mm  
Diameter: 28mm  
Scale: 0-150ml  
Graduation: 1ml



**SDMZ-38**

Holder bracket for MZK-260 (260 ml)



**SDMZ-28**

Holder bracket for MZK-150 (150 ml)



**SDMZ-18**

Holder clip for MZK-45 (45ml)



**DL-OHL**

Refrigerator-air conditioner for stands

### ADDITIONAL EQUIPMENT AND COMPONENTS FOR HIGH-PRESSURE FUEL INJECTION PUMPS TEST STANDS



**DL-UNI50132**

Compensating coupling with clamping jaws and reinforced plate pack



**DL-MS9**

Splined coupling for CR fuel injection pump (for Renault) 9x20 spline



**DL-UNI50139**

Compensating coupling with flange connection and reinforced plate pack (similar to Bosch 1686401024)



**DL-MS10D**

Splined coupling for CR Denso fuel injection pumps, 10x23 spline



**DL-CB230016**

Cone coupling with flange connection Ø 30 mm  
Cam Box2, high-pressure fuel pump



**DL-MS10S**

Splined coupling for Siemens Peugeot Boxer 2.2 high-pressure fuel pump, 10x21.6 spline



**DL-M24 (UNI30127)**

Cone coupling Ø 24 mm  
for CRCP-3 high-pressure fuel pump model 044502088



**DL-MS11**

Splined coupling for CR MAN high-pressure fuel pumps (11 splines)



**DL-M24L (CR31098)**

Extended coupling Ø 24 mm  
for DENSO HP0 fuel injection pumps



**DL-M17**

Cone coupling Ø 17 mm  
for CR and VE high-pressure fuel pumps



**DL-MS8**

Splined coupling for CR high-pressure fuel pumps (for MV, spline 8x18)



**DL-M19**

Cone coupling Ø 19 mm  
for CR pumps and VE high-pressure fuel pumps



**DL-M23 (UNI30917)**

23mm cone coupling  
for Continental fuel injection pumps  
A2C59517053, Bosch CR  
CP4HS2 0445010637,  
CP4S2 0445010611,  
CP4S1 0445010506

### EQUIPMENT AND FITTINGS FOR ROTARY FUEL PUMP AND IN-LINE FUEL PUMP



#### DL-UNI50051-KIT

Test kit for VE-type fuel injection pumps

##### Package Contents:

**DL-UNI50051**

6-Nozzle Holder Frame

**DL-TVD-K700**

Profile Frame Mounting Bolt

Nozzle Mounting Screws – 6

Nozzle Holder Mounting Screws – 2

Foam Defoamers – 6

6mm x 1/4" Fittings for Foam Defoamers – 6

**DL-PG(CR26)**

Nozzle Nozzles – 6

**34-RL020602**

6mm x 1/8" Fittings for Nozzles – 6

**DL-UNI30452**

6mm x 1/8" Fittings for Nozzles – 12m

**34-RL020601**

6mm PVC Connection Tube

**34-RWN-06x04**



#### 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

### EQUIPMENT AND FITTINGS FOR ROTARY FUEL PUMP AND IN-LINE FUEL PUMP



**DL-UNI30465**

Mounting flange Ø 50/60 mm  
for VE and CR high-pressure  
fuel pumps (BMW, RENAULT, MB,  
Peugeot)



**DL-CB130139**

Cone coupling Ø 30 mm  
Cam Box2, high-pressure  
fuel pump



**DL-CR30466**

Mounting flange Ø 68 mm,  
for CR Renault  
Megane, Delphi Siemens  
VDO, Land Rover,  
Range Rover V8 and for  
VE fuel injection pumps



**DL-M17**

Cone coupling Ø 17 mm  
for CR pumps and VE  
high-pressure fuel pumps



**DL-UNI30467**

Mounting flange Ø 70 mm  
for VE high-pressure fuel pumps



**DL-M19**

Cone coupling Ø 19 mm  
for CR pumps and VE  
high-pressure fuel 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**

Pump mounting bracket,  
standard Bosch 125 mm.  
Mounted on a stand.



**DL-UNI50433**

125mm bracket  
with three mounting holes  
and stops at the front



**DL-UNI50434**

125mm bracket  
with three mounting holes  
and stops at the rear

## EQUIPMENT AND FITTINGS FOR ROTARY FUEL PUMP AND IN-LINE FUEL PUMP



**DL-UNI30514**

**Set of supports for mounting in-line pumps on a stand**

Bosch-Kamaz (similar to Bosch 1688030141)

**Included in delivery:**

- Supports – 2 pcs.
- Profile bolt – 2 pcs.
- Nuts – 2 pcs.
- Washers – 2 pcs.
- Spring washers – 2 pcs.



**DL-UNI30525**

**Mounting bracket for MAN double-rack in-line pumps (similar to Bosch 1688030184)**

**Included in delivery:**

- Mounting bracket – 1 pc.
- Profile bolt – 1 pc.
- Nut – 1 pc.
- Washer – 1 pc.
- Spring washer – 1 pc.



**DL-UNI50353**

**Set of two UNI31707 supports for YAZDA in-line fuel injection pumps**

**Included in delivery:**

- Supports — 2 pcs.

### EQUIPMENT AND FITTINGS FOR ROTARY FUEL PUMP AND IN-LINE FUEL PUMP



**DL-UNI50042**

A device for measuring the rack stroke of BoschP in-line pumps (P7100, P8500).



Includes 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 for determining the discharge start height. 24x1.5mm connection.



**DL-UNI50040**

Eccentric locking device for plungers of BoschP in-line pumps (P7100, P7800).



**DL-RD30765**

A 28mm Allen key for repairing mechanical injectors.



**DL-RD30766**

A 27mm Allen key for repairing mechanical injectors.

## EQUIPMENT AND FITTINGS FOR ROTARY FUEL PUMP AND IN-LINE FUEL PUMP

**DL-UNI30786 (VP3)**

Pump flange coupling for VP series fuel injection pumps (Opel)

**DL-UNI30787 (VP4)**

Pump flange coupling for VP series fuel injection pumps (Audi / VW, BMW, MB)

**DL-UNI30788 (VP5)**

Pump flange coupling for VP series fuel injection pumps (Ford)

**DL-UNI30603 (VP6)**

Pump flange coupling for VP series fuel injection pumps (Nissan Almera, Tino, Terano 3, Patrol 3.0)

**DL-VPLO**

Fuel injection pump support for the VP series, Opel

**DL-VPLA**

Fuel injection pump support for VP, Audi/VW, BMW, and MB series



DL-USN0021 (ST-03)

**Universal stand for CR pumps****DL-USN0021 (ST-03) Delivery Set:**

1. Swivel Stand – 1 pc.
2. Set of 6 CR Pump Mounting Flanges
3. Set of 4 Pump Mounting Plates

**DL-USN0021CR (ST-03CR) Delivery Set:**

1. Swivel Stand – 1 pc.
2. Set of 6 CR Pump Mounting Flanges

**ATTENTION!**

*Holder plates for CR and rotary injection pumps are also sold separately!*





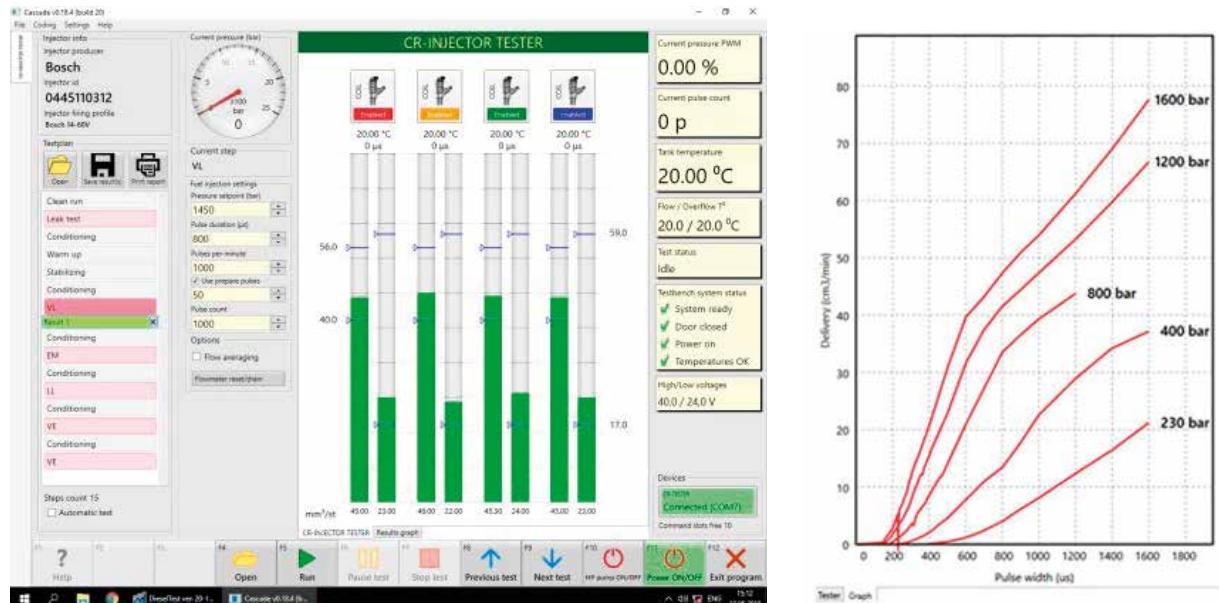
## CR TESTER . CRT-5040

A 4-channel device for testing Bosch, Denso, Delphi, and Siemens VDO Common Rail injectors with a cable kit.

The device can be connected to the **FLAGMAN-FLOW** beakerless measurement system, which can generate correction codes for Delphi C2i/C3i, BOSCH, and DENSO injectors.

The **CR TESTER CRT-5040** device features functions for controlling the metering unit shutter, stopping the fuel injection pump, measuring and controlling tank temperature, measuring the return temperature of the injectors being tested, measuring injection start time, and more.

The kit is computer-controlled via the CASCADE software.





### FLAGMAN-FLOW

8-channel CR injector dosage measurement unit for the CR-TESTER device. CRT-5040

Computer-controlled kit via CASCADE software.



### FLAGMAN-FULL

CR Injector Test Kit

The FLAGMAN-FULL system is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the 8-channel, beakerless FLAGMAN-FLOW system. A hardware and software package for injector coding can be added.

The system is computer-controlled via the CASCADE software.



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

CR Injector Test Kit

The FLAGMAN-CODE kit is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the FLAGMAN-FLOW 8-channel, beakerless system. The kit consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER CRT-5040 controller. The kit is also equipped with a vacuum generation system for coding Delphi C2i and C3i injectors. The kit is computer-controlled via the CASCADE software.

The FLAGMAN-CODE-L kit includes hardware for mounting the injectors on a test bench.



### DL-CR50015

Coding sensor - *optional*



## FLAGMAN-CODE

## CR Injector Test Kit

The FLAGMAN-FULL system is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the FLAGMAN-FLOW 8-channel, beakerless system. The system consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER CRT-5040 controller. The system is also equipped with a vacuum generation system for coding Deiphi C2i and C3i injectors. The system is computer-controlled via the CASCADE software.



## DL-CR50015

Coding sensor

## FLAGMAN-CODE delivery set

FLAGMAN-FLOW Beakerless Measuring Unit	1 pc
CR-TESTER CRT-5040 Controller	1 pc
Vacuum Generation System	1 set
Software	1 pc
Data Sheet (technical description, operating instructions)	1 pc
Connecting cable set for the FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Injector cable extension: "Injector" socket - 1.5 m	1 pc
Injector adapter cable	1 set
High-pressure regulator adapter cable	1 pc
Low-pressure regulator adapter cable	1 pc
Pressure sensor adapter cable	1 pc
220 V power cable	1 pc
Connectors for making your own cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Inverter", "Rpm"	1 set
Temperature sensor for monitoring the fluid temperature in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the brake fluid return temperature	4 pcs
Reed switch for connecting the protective screen: "Protection" socket	1 pc
3A fuse	1 pc
Connecting pipes	1 set
<b>DL-CR50015</b> Injection start measurement sensor (for coding)	1 pc



## FLAGMAN-CODE-L

## CR Injector Test Kit

The FLAGMAN-FULL system is designed for testing Common Rail injectors from Bosch, Denso, Delphi, and Siemens VDO on a test bench.

Measurements are made using the FLAGMAN-FLOW 8-channel, beakerless system. The system consists of a FLAGMAN-FLOW measuring unit and a CR-TESTER CRT-5040 controller. The system is also equipped with a vacuum generation system for coding Delphi C2i and C3i injectors. The system is computer-controlled via the CASCADE software.



DL-CR50015

Coding sensor - optional

## FLAGMAN-CODE-L delivery set

FLAGMAN-FLOW Beakerless Measuring Unit	1 pc
CR-TESTER CRT-5040 Controller	1 pc
Vacuum Generation System	1 set
Software	1 pc
Data Sheet (technical description, operating instructions)	1 pc
Connecting cable set for the FLAGMAN-FLOW measuring unit and CR-TESTER controller. CRT-5040	1 set
Injector cable extension: "Injector" socket - 1.5 m	1 pc
Injector adapter cable	1 set
High-pressure regulator adapter cable	1 pc
Low-pressure regulator adapter cable	1 pc
Pressure sensor adapter cable	1 pc
220 V power cable	1 pc
Connectors for making your own cables into sockets: "Protection", "TanktC", "RegtC", "Cycle", "Pump", "Inverter", "Rpm"	1 set
Temperature sensor for monitoring the fluid temperature in the tank: "TanktC" socket	1 pc
Temperature sensors for measuring the brake fluid return temperature	4 pcs
Reed switch for connecting the protective screen: "Protection" socket	1 pc
3A fuse	1 pc
Connecting pipes	1 set
<b>DL-CR10015</b> Injector holder frame	1 pc
<b>DL-CR10025</b> Injector holder bracket assembly	1 pc
<b>DL-CR10006</b> Protective glass (6mm) or DL-CR10010 Protective glass (10mm)	1 pc

## CRISTINA

The **CRistina** complex is designed for assembling COMMON RAIL BOSCH, DELPHI, and DENSO injectors using technology that allows for the calculation and selection of all necessary adjustment elements.

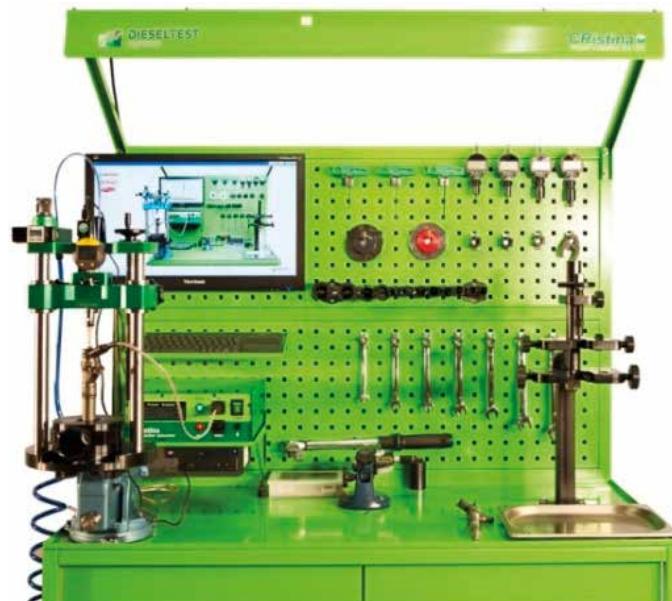
The system's hardware and software not only accurately measures the required dimensions but also diagnoses the injector solenoid's condition by measuring the winding's resistance and inductance.

The system's software contains a detailed database of installation dimensions for most common COMMON RAIL injectors and a complete visualization of the assembly process, which helps avoid assembly errors and significantly reduce repair time.

To eliminate measurement errors, the CRistina system's design allows for precise and rigid positioning of the injector body, eliminating vibration and uncontrolled movement of the measured element relative to the measuring device.

### Available in the following options:

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





### DL-UNI20150 CRISTINA - PIEZO

This device is designed to test piezo injectors and the piezo pack. It reliably identifies all piezo pack faults, identifying issues that similar devices or test benches miss.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.

#### Device capabilities:

1. Sending a signal to activate the injector on a hand press
2. Measuring piezoelectric unit resistance
3. Testing for breakdown to the housing
4. Measuring piezoelectric unit capacitance
5. Measuring piezoelectric unit smooth movement

#### Package contents:

1. CRistina-PIEZO signal generator
2. Cable set for the CRistina-PIEZO signal generator
  - 220V power cable
  - Main connection cable to the piezoelectric unit
  - Universal adapter cable
  - Adapter cable with alligator clips
  - Grounding cable
3. Data sheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**





## DL-UNI20050 CRISTINA - PIEZO

This device is designed to test piezo injectors and the piezo pack. It reliably identifies all piezo pack faults, identifying issues that similar devices or test benches miss.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.



DL-CR50157

## Device capabilities:

1. Sends a signal to activate the injector on a hand press
2. Measures piezoelectric unit resistance
3. Tests for breakdown to the housing
4. Measures piezoelectric unit capacitance
5. Measures piezoelectric unit smooth operation

## Included in delivery:

1. CRistina-Piezo Controller
2. PiezoST-04 Injector Clamp
3. Mounting Bracket
4. Air Flow Meter
5. Air Filter
6. Air Distribution Valve
7. Air Reducer
8. Electronic Pressure Gauge
9. Tubing Set
10. 6mm Quick Connector
11. Set of 2 backflow nipples for Siemens VDO injectors
12. DL-CR50157 Adapter set for measuring the valve stroke of the Siemens VDO CR injector
13. Adapter M12x1.5x 1/8"
14. Datasheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**

Differs from the **DL-UNI20050F** kit in that it has a less complete set of adapters for injectors.



### DL-UNI20050F CRISTINA - PIEZO

This device is designed to test piezo injectors and the piezo pack. It reliably identifies all piezo pack faults, identifying issues that similar devices or test benches miss.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.



DL-CR50165

#### Device capabilities:

1. Sends a signal to activate the injector on a hand press
2. Measures piezoelectric unit resistance
3. Tests for breakdown to the housing
4. Measures piezoelectric unit capacitance
5. Measures piezoelectric unit smooth operation

#### Included in delivery:

1. CRistina-Piezo Controller
2. PiezoST-04 Injector Clamp
3. Mounting Bracket
4. Air Flow Meter
5. Air Filter
6. Air Distribution Valve
7. Air Reducer
8. Electronic Pressure Gauge
9. Tubing Set
10. 6mm Quick Connector
11. Set of 2 backflow nipples for Siemens VDO injectors
12. **DL-CR50165** Adapter set for measuring the valve stroke of the Siemens VDO CR injector
13. Adapter M12x1.5x 1/8"
14. Datasheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**

*Differs from the **DL-UNI20050** kit by a more complete set of adapters for injectors.*



### DL-UNI20051 Set with CRistina-PIEZO

Siemens / VDO CR piezo injector repair kit (without injector clamp or acoustic test). This device is designed to test piezo injectors in a piezoelectric unit. It reliably identifies all piezoelectric unit faults and detects problems that similar devices or test benches cannot detect.

This device was developed for assembling Siemens injectors, but is also compatible with Bosch injectors.



#### Device capabilities:

1. Sends a signal to activate the injector on a hand press
2. Measures piezoelectric unit resistance
3. Tests for breakdown to the housing
4. Measures piezoelectric unit capacitance
5. Measures piezoelectric unit smooth operation

#### Included in delivery:

1. CRistina-Piezo controller
2. Mounting bracket
3. Air flow meter
4. Air filter
5. Air distribution valve
6. Air pressure regulator
7. Electronic pressure gauge
8. Tube set
9. 6mm quick-connect coupling
10. Set of 2 backflow fittings for Siemens VDO injectors
11. Adapter M12x1.5x1/8"
12. Datasheet (technical description, operating instructions)

**ATTENTION! Additional accessories may be included with the device.**

## ADDITIONAL ACCESSORIES FOR CRISTINA-PIEZO



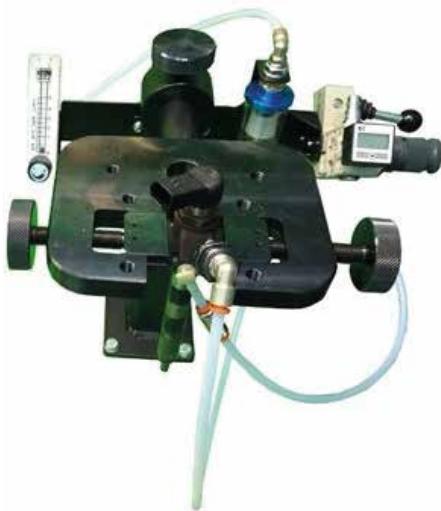
DL-UNI20054    ACOUSTIC BOARD

## ACOUSTIC TEST KIT FOR THE CRISTINA - PIEZO DEVICE

**The kit includes:**

1. Microphone in a plastic housing
2. Clamp for securing the microphone to the injector housing
3. Acoustic test board for installation inside the CRISTINA-PIEZO device
4. Set of connecting wires
5. Set of standoffs and bolts for mounting the board
6. Assembly instructions.

## ADDITIONAL ACCESSORIES FOR CRISTINA-PIEZO



## DL-UNI20052

Siemens VDO CR Injector Repair Kit  
(without CRistina-Piezo controller)

## Kit features:

1. Secure installation and fixation of injectors
2. Air supply via a push-button valve
3. Air pressure regulation via a pressure reducer
4. Air filtration to remove residual liquid in the injector
5. Convenient connection to the injector return line using the supplied fittings
6. Valve opening/closing control using a flowmeter

## Package Contents:

1. PiezoST-04 Injector Clamp
2. Accessories Holder
3. Air Flow Meter
4. Air Filter
5. Air Distribution Valve
6. Air Pressure Regulator
7. Electronic Pressure Gauge
8. Tubing Set
9. 6mm Quick Connector
10. Set of 2 Fittings (DL-60151/61 and DL-60151/66) for Siemens Injector Backflow
11. M12x1.5x1/8" Adapter



## DL-UNI20053

Siemens VDO CR Injector Repair Kit  
(excluding CRistina-Piezo controller  
and ST04 clamp)

## Kit features:

1. Air supply via a push-button valve
2. Air pressure regulation via a pressure reducer
3. Air filtration to remove residual liquid from the nozzle
4. Convenient connection to the nozzle return line via the supplied fittings
5. Valve opening/closing control using a rotameter

## Package Contents:

1. Mounting bracket.
2. Air flow meter.
3. Air filter.
4. Air distribution valve.
5. Air pressure regulator.
6. Electronic pressure gauge.
7. Tubing kit.
8. 6mm quick-connect coupling.
9. Set of 2 fittings (DL-60151/61 and DL-60151/66) for backflow of Siemens injectors.
10. M12x1.5x1/8" adapter.

## ADDITIONAL ACCESSORIES FOR CRISTINA-PIEZO



DL-CR50165

**Adapter kit with indicator head  
for measuring the valve stroke of CR VDO injectors of all types  
Siemens**

**Delivery set:**

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



DL-CR50157

**A set of adapters with an indicator head for measuring  
the parameters of the Siemens VDO CR injector.**

**Delivery set:**

1. **DL-CR31079** Adapter for testing the piezoelectric package.
2. **DL-CR50147** Adapter (housing with nut) for measuring valve stroke.
3. **DL-KIP002** Indicator measuring mechanical head with an accuracy of 0.001 mm, stroke 5 mm.
4. **D-7153136** Hex key, 2 mm.
5. **DL-CR31177** Measuring probe.
6. Organizer



DL-CR30545

**SIEMENS injector multiplier nut installation/removal key**



DL-CR50163

25mm wrench for installing/removing the piezo pack of Siemens VDO CR injectors.  
Wrench mounting dimensions: a) 25mm Allen key for the piezo pack  
b) 1/2" square drive for the torque wrench

DL-CR50164

27mm wrench for installing/removing the piezo pack of Siemens VDO CR injectors.  
Wrench mounting dimensions: a) 27mm Allen key for the piezo pack  
b) 1/2" square drive for a torque wrench

## CR-ACTIVE

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



**The basic delivery package includes:**

- "CR-ACTIVE" signal generator – 1 pc.
- Power cable (2.1) 220V – 1 pc.
- Main cable (2.2) for connecting to the solenoid – 1 pc.
- Adapter cable (2.3) for passenger car injector – 1 pc.
- Adapter cable (2.4) for truck injector – 1 pc.
- Data sheet (technical description, operating instructions) – 1 pc.

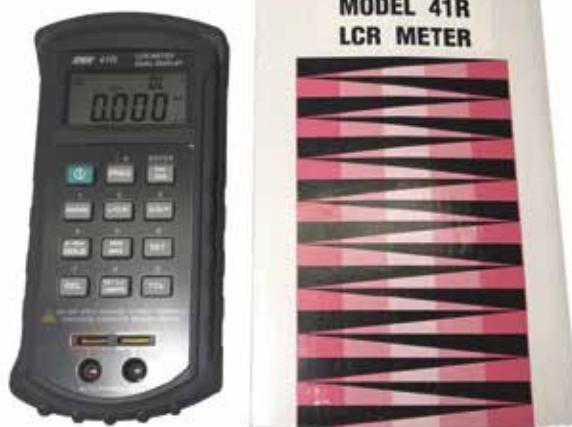


DL-RLC41R

A device for measuring the capacitance of piezoelectric injectors.

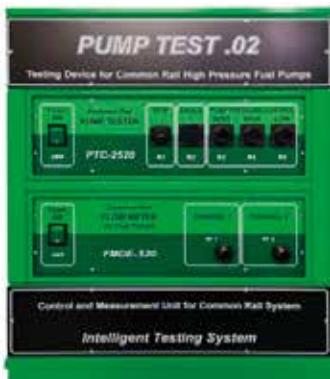
**Included in the package:**

- LRC Meter 41R
- Set of measuring leads
- Communication cable
- Software disc
- Power supply



## PUMP TEST.02

Equipment for testing high-pressure Common Rail pumps



### The kit includes:

1. The **PTC-2520** device is designed to provide user-programmable control signals to Common Rail fuel injection pump pressure regulators to test their performance.
2. The **FMDE-520** device is designed to measure Common Rail fuel injection pump performance via two channels.
3. A wheeled instrument stand for convenient operation.
4. A set of adapter cables.
5. Fine fluid filters (2 pcs.)
6. Software.





## PTC-2520 CP TESTER

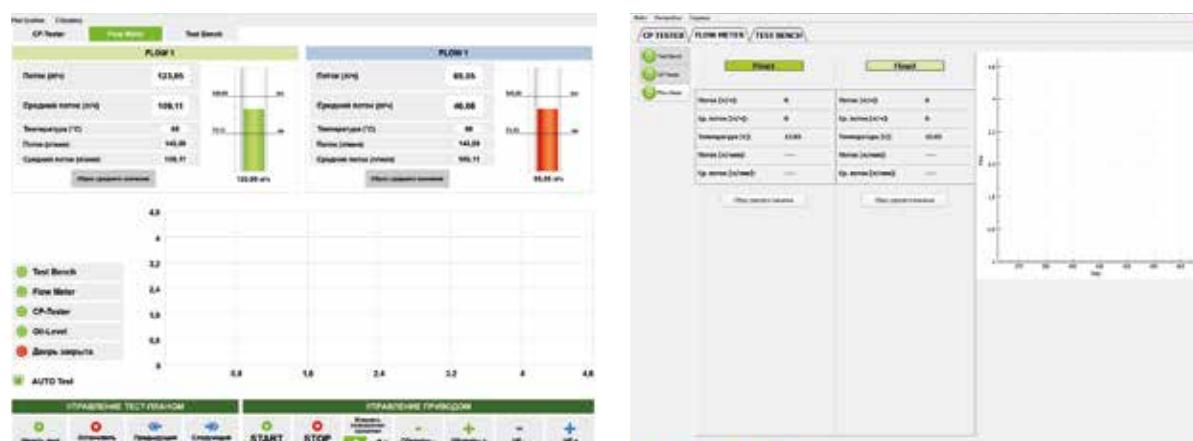
A device for testing and testing high-pressure fuel pumps of the Common Rail system with a set of cables.



## FMDE-520

A device for testing the performance of Common Rail fuel pumps from various manufacturers, including Bosch, Delphi, Denso, Siemens, and Cummins, on a test bench.

It features a two-channel flow meter (pump feed and return) in various modes, with digital information displayed on a backlit LCD display.



## UIS TESTER Multi-CAM

The **UIS TESTER Multi-CAM** device is designed to test and check the performance of unit injectors (UIS - Unit Injector System) and individual high-pressure fuel pumps with high-pressure electromagnetic valves (UPS - Unit Pump System).

The **UIS TESTER Multi-CAM** device can be used to measure the response time of an electric valve. It also features automatic control of the measuring unit's electric drive, as well as the ability to independently update the firmware and adapt it to various CAMBOX configurations.

The **UIS TESTER Multi-CAM** device allows you to:

- Set the high-pressure solenoid valve control signal;
- Measure the camshaft speed;
- Set the required number of cycles;
- Preset mode for 5 solenoid valve control modes;
- Set any solenoid valve advance angle.



**Package contents:**

- UIS TESTER Multi-CAM device;
- Software with BOSCH test plans;
- Speed sensor; power cable;
- Adapter cable for connecting the speed sensor;
- Adapter cable for connecting BOSCH type 1 injectors;
- Adapter cable for connecting BOSCH type 2 injectors;
- Adapter cable for connecting DELPHI injectors;
- Universal adapter cable for injectors;
- Limit switch (reed switch) for the safety fence on the test bench;
- Connector for connecting the curtain control cable.



### DL-UNI20001 PR-INDICATOR

Electronic pressure gauge for a hand press (instead of the standard one). The sensor thread in the indicator leg is M12x1.5.

**Included in the package:**

- Electronic pressure gauge with cable for a 1500 bar pressure sensor – 1 pc.
- Battery charger for the pressure gauge – 1 pc.

*NB! The pressure sensor is not included in the package.*



### DL-UNI20002 PR-INDICATOR

Electronic pressure gauge with 1500 bar pressure sensor for a hand press (instead of the standard one).

**Included in the package:**

- Electronic pressure gauge with cable for 1500 bar pressure sensor – 1 pc.
- Battery charger for the pressure gauge – 1 pc.
- 1500 bar pressure sensor – 1 pc.



**DL-RP410** (without pressure sensor)

**DL-RP415** (with pressure sensor 1500 bar)

### RP 400 Manual Injector Tester with Electronic Pressure Gauge

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 415) 1500 bar – 1 pc.



**DL-RP510** (without pressure sensor)

**DL-RP515** (with pressure sensor 1500 bar)

### ZECA manual injector testing press with electronic pressure gauge

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 515) 1500 bar – 1 pc.



DL-UNI20065

**PR-TESTER.V05**

Electronic pressure gauge with charger included.



DL-UNI20077

Adapter cable for the  
BOSCH 1500 bar pressure  
sensor



DL-UNI21030

Mounting bracket for an  
electronic pressure gauge



DL-UNI30237

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

DL-UNI30445

Pressure gauge stem (fitting) M20 x 1.5 mm  
with M12 x 1.25 mm nut



DL-CR10058

1500 bar pressure sensor

DL-CR10059

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)

**RP 400 Manual Injector Testing Press  
with DL-UNI20065 Electronic Pressure Gauge****Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 425) 1500 bar – 1 pc.

DL-RP520 (without pressure sensor)

DL-RP525 (with pressure sensor 1500 bar)

**ZECA Manual Injector Tester  
with Electronic Pressure Gauge DL-UNI20065****Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 525) 1500 bar – 1 pc.

**PR-TESTER.V05**Electronic pressure gauge  
2-channel**DL-UNI20061**Delivery set for measuring pressure via  
2 CHANNELS:

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

**PR-TESTER.V05**Electronic pressure gauge  
1-channel**DL-UNI20060**Delivery set for measuring pressure via  
1 CHANNEL:

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



**PR-TESTER.V03**

A device for measuring fuel pressure in CR and FSI systems and for measuring air pressure and vacuum in pneumatic systems.

**Package Contents:**

- Blood Pressure Monitor – 1 pc.
- **DL-UNI20072** Adapter Cable for BOSCH Type 1 Pressure Sensor – 1 pc.
- **DL-UNI20075** Universal Adapter Cable for Pressure Sensor – 1 pc.
- Charger
- Data Sheet / User Manual / Warranty Card

**Additional Adapter Cables**

(not included in the basic package):

**DL-UNI20073** Adapter Cable for BOSCH Type 2 Pressure Sensor

**DL-UNI20074** Adapter Cable for DELPHI Pressure Sensor

**DT-SCOPE**

Oscilloscope attachment for measuring pressure in the Common Rail system



### DL-UNI20009

CR system test kit

**Delivery set:**

**DL-UNI30744** Tee – 1 pc.

**DL-CR10050** Pressure sensor 1800 bar – 1 pc.

or DL-CR10061, DL-CR10065 depending on availability

**DL-TVD31414** 14x14x300 VD Tube – 1 pc.

**DL-TVD31214** 12x14x300 VD Tube – 1 pc.

**DL-UNI30218** 14x14 Fittings - 2 pcs.

**DL-UNI31498** 12x14 Fitting - 1 pc.

**DL-UNI30529** 14x1.5 Plug - 1 pc.

**DL-UNI30636** 12x1.5 Plug - 1 pc.



### DL-CR50310KIT

Adapter assembly for fuel system diagnostics

**Delivery set:**

**DL-CR31557** Adapter body – 1 pc

**DL-CR10056** Pressure relief valve 1800 bar – 1 pc

**DL-CR10050** Pressure sensor 1800 bar – 1 pc

**DL-UNI30218** High-pressure fitting

M14(1.5)xM14(1.5) in a set with a DL-SHP15084  
washer-gasket – 1 pc

**34-RL3106M5** L-shaped "quick"  
adapter – 1 pc

**DL-P1002** PVC tube, 4 mm diameter, 30 cm



## DL-UNI20006

## CR System Test Kit

## Included:

<b>DL-UNI20005</b>	PR tester (electric pressure gauge) – 1 pc
<b>DL-CR10050</b>	1800 bar pressure sensor – 1 pc. or <b>DL-CR10061, DL-CR10065</b> depending on availability
or <b>DL-CR10061, DL-CR10065</b> depending on availability	
<b>DL-UNI30744</b>	Tee (for connecting the pressure sensor and high-pressure tube) – 1 pc.
<b>DL-UNI30218</b>	14x14 mm fittings – 2 pcs.
<b>DL-UNI31498</b>	12x14 mm fitting – 1 pc.
<b>DL-TVD31414</b>	14x14x300 mm high-pressure tube – 1 pc.
<b>DL-TVD31214</b>	12x14x300 mm high-pressure tube – 1 pc.
<b>DL-UNI30529</b>	M14x1.5 mm plug – 1 pc.
<b>DL-UNI30636</b>	M12x1.5 mm plug – 1 pc.



## DL-UNI20007

## CR System Test Kit

## Included:

<b>DL-UNI20005</b>	PR tester (electronic pressure gauge) – 1 pc.
<b>DL-CR10050</b>	1800 bar pressure sensor – 1 pc. or <b>DL-CR10061, DL-CR10065</b> depending on availability
<b>DL-UNI30744</b>	Tee (for connecting the pressure sensor and high-pressure tube) – 1 pc.
<b>DL-UNI30218</b>	14x14 mm fittings – 2 pcs. <b>DL-UNI31498</b> 12x14 mm fitting – 1 pc.
<b>DL-TVD31414</b>	14x14x300 mm high-pressure tube – 1 pc. <b>DL-TVD31214</b> 12x14x300 mm high-pressure tube – 1 pc.
<b>DL-UNI30529</b>	14x1.5 mm plug – 1 pc. <b>DL-UNI30636</b> 12x1.5 mm plug – 1 pc.
<b>DL-12CRM</b>	Backflow test vial set (for DL-UNI20007 only)
<b>DL-24CRM</b>	Backflow test adapter set (for DL-UNI20007 only)



DL-UNI30287

Adapter with a G1/2" female thread for a 2000 bar pressure gauge. It has a M14x1.5 mm connection thread with a 60° cone for the high-pressure tube (HPT).

Included in delivery:  
adapter – 1 pc.



DL-UNI30508

Adapter with M20x1.5mm internal thread for a 2500 bar pressure gauge. It has an M14x1.5mm connection thread with a 60° cone for the high-pressure tube (HPT).

Included in delivery:  
adapter – 1 pc.



DL-SM

Pressure gauge washer



DL-CR14P2000

2000 bar pressure gauge



DL-CR14P2500

2500 bar pressure gauge



DL-CR50246

Pressure gauge mounting bracket.  
Designed as a hook and clamp for holding the pressure gauge.  
Used with D-12-TV63 series pressure gauges.

**DL-KM2000**

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

**Scope of delivery:**

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

**DL-KM3000**

2000 bar pressure gauge bracket  
for mounting on the bench plate.

**Included:**

- Bracket
- Profile bolt with nut, washer, and lock washer
- Clamping plate
- M6x60mm bolt with nut, washer, and lock washer – 2 sets

**DL-KM2500**

2500bar pressure gauge bracket.  
For DL-CR30181 and DL-CR30522 rails

**Included in delivery:**

- Main bracket
- Pressure gauge mounting ring
- M6x45 bolt, washers – 2 sets
- M6x30 bolt, washers – 2 sets
- M6x10mm bolt – 3 pcs.

**DL-KM3500**

2500bar pressure gauge bracket  
for mounting on the bench plate

**Included in delivery:**

- Main bracket
- Pressure gauge mounting ring
- Profile bolt with nut, washer, and lock washer
- M6 x 30mm bolt with washer and lock washer – 2 sets
- M6 x 10mm bolt – 3 pcs.

### Anti-vibration pressure gauges with glycerin series D-12-TG63 and D-12TV63



#### D-12-TG63-1-0

Vacuum pressure gauge from 1-0 bar, Ø63 mm, with a 1/4" flanged connection on the back



#### D-12-TG63-1-3

Vacuum pressure gauge from 1-3 bar, Ø63 mm, with a 1/4" flanged connection on the back



#### D-12-TG63-01

0-1 bar pressure gauge, Ø63 mm with a 1/4" flange-type fitting on the back



#### D-12-TG63-02,5

Pressure gauge 0÷2.5 bar, Ø63 mm with a 1/4" flange-type fitting on the back



#### D-12-TG63-004

Pressure gauge for 0–4 bar, Ø63 mm with a 1/4" flanged connection on the back



#### D-12-TG63-006

Pressure gauge 0÷6 bar, Ø63 mm with a 1/4" flange-type fitting on the back



#### D-12-TG63-010

Pressure gauge 0÷10 bar, Ø63 mm with a 1/4" flanged connection on the back



#### D-12-TG63-016

Pressure gauge 0÷16 bar, Ø63 mm with a 1/4" flanged connection on the back



#### D-12-TG63-025

Pressure gauge 0÷25 bar, Ø63 mm with a 1/4" flanged connection on the back



#### D-12-TG63-040

Pressure gauge 0÷40 bar, Ø63 mm with a 1/4" flanged connection on the back



#### D-12-TG63-060

Pressure gauge 0÷60 bar, Ø63 mm with a 1/4" flanged connection on the back

## Anti-vibration pressure gauges with glycerin series D-12-TG63 and D-12TV63

**D-12-TV63-1-0**

Vacuum pressure gauge for pressures from –1 to 0 bar, Ø63 mm, with a 1/4" connection at the bottom

**D-12-TV63-1-3**

Vacuum pressure gauge for 1-3 bar, Ø63 mm, with a 1/4" connection at the bottom

**D-12-TV63-01**

Pressure gauge 0÷1 bar, Ø63 with a 1/4" connection at the bottom

**D-12-TV63-02,5**

Pressure gauge 0÷2.5 bar, Ø63 with a 1/4" connection at the bottom

**D-12-TV63-004**

Pressure gauge 0÷4 bar, Ø63 mm with a 1/4" connection at the bottom

**D-12-TV63-010**

Pressure gauge 0÷10 bar, Ø63 with a 1/4" connection at the bottom

**D-12-TV63-016**

Pressure gauge 0÷16 bar, Ø63 with a 1/4" connection at the bottom

**D-12-TV63-025**

Pressure gauge 0÷25 bar, Ø63 with a 1/4" connection at the bottom

**D-12-TV63-040**

Pressure gauge 0÷40 bar, Ø63 mm with a 1/4" connection at the bottom

**D-12-TV63-060**

Pressure gauge 0÷60 bar, Ø63 mm with a 1/4" connection at the bottom

### Anti-vibration pressure gauges with glycerin series D-12-TG100 and D-12TV100



#### D-12-TG100-1-0

Vacuum pressure gauge, Ø100 mm  
with rear connection  
-1 to 0 bar / -0.10 to 0 MPa

#### D-12-TG100-02,5

Pressure gauge, Ø100 mm with a 1/2" rear connection  
0 to 2.5 bar / 0 to 0.25 MPa

#### D-12-TG100-004

Pressure gauge, Ø100 mm with a 1/2" rear connection  
0 to 4 bar / 0 to 0.4 MPa

#### D-12-TG100-016

Pressure gauge, Ø100 mm with a 1/2" rear connection  
0 to 16 bar / 0 to 1.6 MPa

#### D-12-TG100-040

Pressure gauge, Ø100 mm with a 1/2" rear connection  
0 to 40 bar / 0 to 4 MPa



#### D-12-TV100-1-0

Vacuum pressure gauge, Ø100 mm  
with a 1/2" connection at the bottom  
from -1 to 0 bar / from -0.10 to 0 MPa

#### D-12-TV100-02,5

Pressure gauge, Ø100 mm with a 1/2" connection  
at the bottom 0 to 2.5 bar / 0 to 0.25 MPa

#### D-12-TV100-004

Pressure gauge, Ø100 mm with a 1/2" connection  
at the bottom 0 to 4 bar / 0 to 0.4 MPa

#### D-12-TV100-016

Pressure gauge, Ø100 mm with a 1/2" connection  
at the bottom 0 to 16 bar / 0 to 1.6 MPa

#### D-12-TV100-040

Pressure gauge, Ø100 mm with a 1/2" connection  
at the bottom 0 to 40 bar / 0 to 4 MPa

**DL-KIP0001****Mechanical watch-type measuring head****Specifications:**

- Type – mechanical
- Stroke – 10 mm
- Resolution – 0.01 mm
- Repeatability – 0.01 mm

**DL-KIP0002****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 5 mm
- Resolution – 0.001 mm
- Repeatability – 0.001 mm

**DL-KIP0003****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 5 mm
- Resolution – 0.01 mm
- Repeatability – 0.02 mm

**DL-KIP0004****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 10 mm
- Resolution – 0.01 mm
- Repeatability – 0.02 mm

**DL-KIP0005****Mechanical Dial Head****Specifications:**

- Type – Mechanical
- Stroke – 20 mm
- Resolution – 0.01 mm
- Repeatability – 0.03 mm



**DL-KIP0006**

**Mechanical watch-type measuring head**

**Specifications:**

- Type – mechanical
- Stroke – 30 mm
- Resolution – 0.01 mm
- Repeatability – 0.03 mm



**DL-KIP0007**

**Mechanical Dial Head**

**Specifications:**

- Type – Mechanical
- Stroke – 50 mm
- Resolution – 0.01 mm
- Repeatability – 0.04 mm



**DL-KIP0008**

**Indicator Measuring Head**

**Specifications:**

- Type – Mechanical
- Stroke – 25 mm
- Resolution – 0.01 mm
- Repeatability – 0.02 mm



**DL-KIP0010**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.01 mm
- Repeatability – 0.01 mm
- Sleeve – 8 mm
- Automatic shut-off



**DL-KIP0011**

**Indicator Measuring Head**

**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0012

**Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 25 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0015 Limit

**Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 12.5 mm
- Resolution – 0.01 mm
- Repeatability – 0.03 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0016 Limit

**Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 12.5 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0023 Dieselland

Communication key for the measuring  
head to the PC



DL-KIP0025 Eee

**Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.002 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0026 Eee

**Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 25 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0028 Eee

Communication key for the measuring  
head to the PC

DL-KIP0029 SHAHE

**Indicator Measuring Head****Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.002 mm
- Sleeve – 8 mm
- Automatic power-off
- PC connection via COM port (cable included)



DL-KIP030 SHAHE

**Indicator Measuring Head**  
**Specifications:**

- Type – Electronic
- Stroke – 12.7 mm
- Resolution – 0.001 mm
- Repeatability – 0.002 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0031 SHAHE

**Indicator Measuring Head**  
**Specifications:**

- Type – Electronic
- Stroke – 25 mm
- Resolution – 0.001 mm
- Repeatability – 0.004 mm
- Sleeve – 8 mm
- Automatic shut-off



DL-KIP0032 Eee

**Indicator Measuring Head**  
**Specifications:**

- Type – Electronic
- Stroke – 50 mm
- Resolution – 0.001 mm
- Repeatability – 0.005 mm
- Sleeve – 8 mm
- Automatic shut-off

**DL-KIP0034**

**Digital indicator measuring head  
with an accuracy of 0.01 mm, stroke 12.5 mm**

**Specifications:**

- Type – Electronic
- Resolution – 0.01 mm
- Accuracy – 0.01 mm
- Large, high-contrast LCD display
- Carbide tip, thread – M2.5
- Sleeve – 8 mm
- Automatic power-off
- Body diameter – 60 mm

**DL-KIP0035**

**Digital indicator measuring head  
with an accuracy of 0.001 mm, stroke 12.5 mm**

**Specifications:**

- Type – Electronic
- Measurement range – 12.7 mm
- Resolution – 0.001 mm
- Accuracy – 0.002 mm
- Large, high-contrast LCD display
- Carbide tip, thread – M2.5
- Sleeve – 8 mm
- Automatic power-off
- Body diameter – 60 mm

**DL-KIP0036**

**Digital indicator measuring head  
with an accuracy of 0.001 mm, 25 mm stroke**

**Specifications:**

- Type – Electronic
- Measurement range – 25.4 mm
- Resolution – 0.001 mm
- Accuracy – 0.004 mm
- Large, high-contrast LCD display
- Carbide tip, thread – M2.5
- Sleeve – 8 mm
- Automatic power-off
- Body diameter – 60 mm

**DL-KIP0037**

**Digital Thickness Gauge 0-12.7 mm, 0.001 mm**

**Specifications:**

- Measurement range: 0-12.7 mm
- Resolution: 0.001 mm
- LCD display
- Automatic power-off
- Body diameter: 57 mm

**DL-KIP0250****Magnetic stand for mounting the indicator measuring head**

The stand's base is highly magnetic, allowing installation on both horizontal and vertical surfaces.

**ATTENTION!**

*The measuring head is not included in the package!*

**DL-KIP0251****Magnetic stand for mounting the indicator measuring head**

The stand's base is highly magnetic, allowing installation on both horizontal and vertical surfaces.

**ATTENTION!**

*The measuring head is not included in the package!*



DL-CVC525

Digital internal caliper  
5-25 mm / 0.005 mm

Measurement range: 5-25 mm  
Measurement accuracy: 0.005 mm



DL-STC150

Digital caliper



DL-M030

(Limited quantity)  
Digital micrometer

Measurement range: 0-25 mm  
Measurement accuracy: 0.001 mm



DL-M035

Digital micrometer

Measurement range: 0-25 mm  
Measurement accuracy: 0.001 mm



DL-M040

D-SDM  
Digital Micrometer Stand



D-DMTS-KIT

(Limited quantity)  
DL-030 and DL-040 kit.  
Tripod and digital micrometer



DL-UNI50062

Adapter for measuring compression in diesel engines (M12x1.5; rod L=175 mm).

Installed in place of the injector.

Pressure sensor not included.



DL-UNI20008

Diesel engine compression measurement kit.

The kit includes:

- DL-UNI50062 adapter – 1 pc.
- PR-tester – 1 pc.
- Pressure sensor cable – 1 pc.

*The pressure sensor is not included.*

*\*Appearance and package contents may vary to improve equipment performance*



DL-UNI20000

Diesel engine compression test kit.

Kit includes:

- DL-UNI50062 adapter – 1 pc.
- PR-tester – 1 pc.
- Pressure sensor cable – 1 pc.
- 150 bar or 200 bar pressure sensor



DL-CR10045

150 bar pressure sensor  
for the DL-UNI20008 compression  
tester



DL-CR10046

250 bar pressure sensor  
for the DL-UNI20008 compression  
tester



DL-PR363

Diesel Engine Compression Tester Kit

The kit includes:

- Recording Compression Tester — 1 pc.,
- Instructions — 1 pc.,
- Quick-release adapter M14x1.5 — 1 pc.,
- Adapter M14x1.5 — 1 pc.
- M12x1.5 adapter — 1 pc.,
- Spare cards — 1 set,
- Case — 1 pc.



DL-WT04A3021

Fuel pressure measuring kit for low-pressure lines  
in diesel and gasoline engines.

Measurement range: 0-140 psi (0-10 bar)



D-07147122

1/2" Torque Wrench 25-100 Nm



D-07147121

3/8" torque wrench



D-07147120

1/4" Torque Wrench 0-20 Nm



DL-UNI30776

Adapter with 1/4" internal square  
and 1/2" external square

DL-UNI31593

Adapter with 3/8" internal square  
and 1/2" external square



DL-RP400

**Manual injector tester  
with mechanical pressure gauge**

**Delivery set:**

- 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)

**Handheld injector tester  
with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 415) 1500 bar – 1 pc.



DL-RP420 (without pressure sensor)

DL-RP425 (with pressure sensor 1500 bar)

**Handheld injector tester  
with a 2-channel electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 425) 1500 bar – 1 pc.



DL-RP430

**Manufacturer: ZECA (Italy)**

**Injector spray testing chamber (aspirator)**

Allows visual inspection of the performance  
of diesel injector nozzles without risk to health.  
The device collects the working fluid for reuse.



DL-RP500

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

**Delivery set:**

- 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 manual injector testing press**  
**with electronic pressure gauge**

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 515) 1500 bar – 1 pc.



DL-RP520 (without pressure sensor)

DL-RP525 (with pressure sensor 1500 bar)

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

**Delivery set:**

- Mechanical press – 1 pc.
- Connecting tube – 2 pcs.
- Electronic pressure gauge with cable – 1 pc.
- Battery charger – 1 pc.
- Pressure sensor (for RP 525) 1500 bar – 1 pc.

DL-CRN50113

Set of angle gauges for checking the tightening of the nozzle nut

Delivery set:



DL-CRN50107

Angle gauge for injectors with a nozzle  
nut diameter of 17 mm

Angle range: 0° – 360°



DL-CRN50110

Angle gauge for injectors with a nozzle  
nut diameter of 19 mm

Angle range: 0° – 360°



DL-CRN50108

Angle gauge for injectors with a nozzle  
nut diameter of 21 mm

Angle range: 0° – 360°

*All protractors are also  
sold separately.*



DL-UNF20113

Fine liquid filter with 3-micron housing  
for TRIUMF, CR-TEST, SPF, CR-JET, SPN(U),  
and DORPAT test benches



DL-UNF20103

3-micron fine liquid filter for TRIUMF, CR-TEST,  
SPF, CR-JET, SPN(U), and DORPAT test benches



DL-UNF20105

5-micron fine liquid filter  
for TRIUMF, CR-TEST, SPF, CR-JET, SPN(U),  
and DORPAT test benches



DL-UNF20110

10-micron fine liquid filter  
for TRIUMF, CR-TEST, SPF, CR-JET, SPN(U),  
and DORPAT test benches



DL-UNF20210

Fine liquid filter (long body) 10  $\mu\text{m}$   
for DORPAT stands



DL-UNF20124

3-micron fine liquid filter  
for CRUIS, CR-JAS, and CR-iXE test benches



DL-UNF24020

Liquid cleaning filter  
for TRIUMF, CRUIS, CR-JET stands  
(drain from the workbench)



DL-UNI50214

Filter housing with G $\frac{3}{4}$ " connection thread.  
Features inlet and outlet with G $\frac{1}{2}$ " threads.  
Fits DL-UNF20113, DL-UNF20110, DL-UNF20103,  
DL-UNF20210



DL-UNI50215

Filter housing with M16x1.5mm connection thread.  
Features inlet and outlet with G $\frac{1}{2}$ " threads.  
Suitable for DL-UNF20124



DL-UNI50338

Filter housing with a G3/4" connection thread (nipple) DL-UNI30741.  
An M16x1.5 x M16x1.5 nipple (DL-UNI30520) can also be installed.  
The housing has an inlet and outlet with M14x1.5 threads.



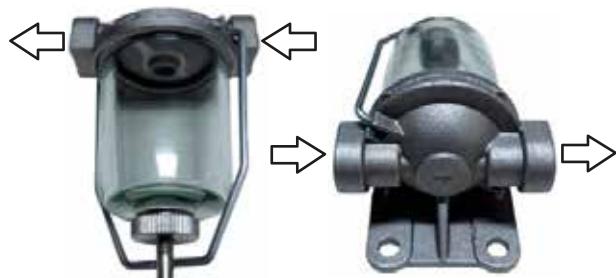
DL-UNI50339

Filter housing with M16x1.5 threaded connection (nipple)  
DL-UNI30520. Can also be installed with an M16x1.5 x G3/4"  
nipple DL-UNI30741.  
The housing has an inlet and outlet with M14x1.5 threads.  
Suitable for DL-UNF20124



DL-UNI31662

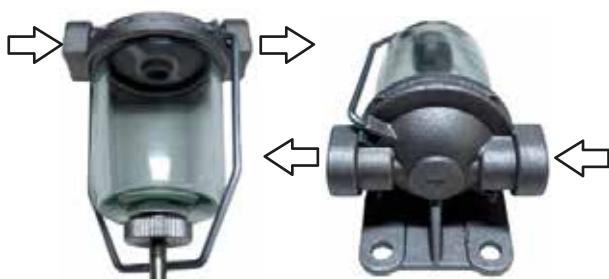
Filter housing with M16x1.5mm connection thread.  
It has an inlet and outlet with M14x1.5mm threads.  
A fitting can be installed to accommodate any filter diameter.  
The filter fitting is custom-made.



DL-UNF20300R

**Sediment filter (inlet on the right)****The filter includes:**

1. Inlet and outlet openings M14x1.5mm
2. Mounting holes Ø 8mm



DL-UNF20300L

**Filter-summ (inlet on the left)****The filter includes:**

1. Inlet and outlet openings M14x1.5mm
2. Mounting holes Ø 8mm



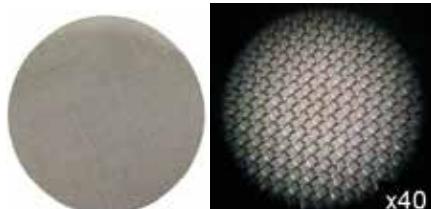
DL-CR30051

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 10-mm herringbone fittings

DL-SDF0410

15-µm mesh for filters  
DL-UNI5026, DL-UNI50047, DL-CR30051



## DL-UNI30828

Bosch high-pressure filter adapter  
for testing CP1, CP2, CP3, and CP4 pumps.  
Used with pressure accumulators (rails)  
DL-CR31083, DL-CR30181, and DL-CR30522.  
Can be installed in any convenient location on the rail.

## The adapter has threaded holes:

- For a filter with a special M18x1.5 fitting (1 hole)
- For fluid supply M14x1.5 (2 holes on top)
- For connecting a pressure sensor M18x1.5 (1 hole)
- For connecting a safety valve M20x1.5 (1 hole)
- For relieving pressure in case of excess pressure M5 (1 hole)



## Included in delivery:

1. Adapter – 1 pc.
2. DL-UNF2110 high-pressure filter – 1 pc.
3. Conical fitting for high-pressure filter M14xM18 – 1 pc.
4. Fittings M14x1.5 – 2 pcs.
5. Sealing washer – 3 pcs.
6. Plug M14x1.5 – 1 pc.
7. Fitting Ø 6mm x M5.

## DL-CR50121

**DL-UNF2110 High Pressure Filter Adapter**  
Installs in place of the standard fitting on the DL-CR30479,  
DL-CR30180, DL-CR30181, DL-CR30188, DL-CR30522,  
and DL-CR30526 Rail.



## Included in delivery:

adapter – 1 pc.,  
adapter body with M14x1.5 thread – 1 pc.

## ATTENTION!

*The DL-UNF2110 high pressure filter is 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  
Also used with adapter DL-CR50121



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

CRS Calibrol Calibration Fluid  
(20-liter plastic canister)

Is a test oil for testing injectors and pumps of diesel fuel injection systems.

CRS Calibrol is a low-viscosity calibration fluid with very tight viscosity tolerances. It offers exceptional protection against wear and corrosion, as well as low foaming.

**DL-SRS020****SRS calibration fluid**

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

Used in test rigs for testing CR injectors, unit injectors, and PLD sections.



### DL-PLP125

**Lighting for stands**  
**TRIUMF / CRUIS / CR-Test / DORPAT / CR-Jet**

**Technical specifications:**

Overall dimensions	145x145 mm
Mounting hole size	125x125 mm
Power	9 W
Voltage	24 V

Comes complete with a power supply.

### DL-PLP135

**Lighting for stands**  
**TRIUMF / CRUIS / CR-Test / DORPAT / CR-Jet**

**Technical specifications:**

Overall dimensions	145x145 mm
Mounting hole size	135x135 mm
Power	9 W
Voltage	24 V

Comes complete with a power supply.

## Fittings for connecting hydraulic and pneumatic systems



<b>34-RL3104M5</b>	Angle adapter M5 x Ø 4mm with collet
<b>34-RL3106M5</b>	Angle adapter M5 x Ø 6mm with collet
<b>34-RL310401</b>	Angle adapter 1/8" x Ø 4mm with collet
<b>34-RL310601</b>	Angle adapter 1/8" x Ø 6mm with collet
<b>34-RL310801</b>	Angle adapter 1/8" x Ø 8mm with collet
<b>34-RL310602</b>	Angle adapter 1/4" x Ø 6mm with collet
<b>34-RL310802</b>	Angle adapter 1/4" x Ø 8mm with collet
<b>34-RL311002</b>	Angle adapter 1/4" x Ø 10mm with collet
<b>34-RL310803</b>	Angle adapter 3/8" x Ø 8mm with collet
<b>34-RL311003</b>	Angle adapter 3/8" x Ø 10mm with collet



<b>34-RL020402</b>	Adapter with internal thread 1/4" x Ø 4 mm with collet
<b>34-RL020602</b>	Adapter with internal thread 1/4" x Ø 6 mm with collet
<b>34-RL020401</b>	Adapter with internal thread 1/8" x Ø 4 mm with collet
<b>34-RL020601</b>	Adapter with internal thread 1/8" x Ø 6 mm with collet



<b>34-RL0306</b>	Collet adapter with M13x1mm thread and two Ø6 x Ø6mm nuts
<b>34-RL0306C</b>	Collet adapter with M14 x 1mm thread and two Ø6 x Ø6mm nuts
<b>34-RL0306E</b>	Collet adapter with M15x1mm thread and two Ø6 x Ø6mm nuts
<b>34-RL0304C</b>	Collet adapter with M10x1mm thread and two Ø4 x Ø4mm nuts
<b>34-RL0308C</b>	Collet adapter with M16 x 1mm thread and two Ø8 x Ø8mm nuts
<b>34-RL0310C</b>	Collet adapter with M18x1mm thread and two Ø10 x Ø10mm nuts

## Fittings for connecting hydraulic and pneumatic systems



<b>34-RL01004M5</b>	Straight adapter M5 x Ø 4mm with collet
<b>34-RL01006M5</b>	Straight adapter M5 x Ø 6mm with collet
<b>34-RL020401</b>	Straight adapter 1/8" x Ø 4mm with collet
<b>34-RL020601</b>	Straight adapter 1/8" x Ø 6mm with collet
<b>34-RL010801</b>	Straight adapter 1/8" x Ø 8mm with collet
<b>34-RL020602</b>	Straight adapter 1/4" x Ø 6mm with collet
<b>34-RL010802</b>	Straight adapter 1/4" x Ø 8mm with collet
<b>34-RL011002</b>	Straight adapter 1/4" x Ø 10mm with collet
<b>34-RL010803</b>	Straight adapter 3/8" x Ø 8mm with collet
<b>34-RL011003</b>	Straight adapter 3/8" x Ø 10mm with collet



<b>34-RL0306B</b>	Collet adapter Ø 6 x Ø 6 mm
<b>34-RL0304B</b>	Collet adapter Ø 4 x Ø 4 mm
<b>34-RL0308B</b>	Collet adapter Ø 8 x Ø 8 mm
<b>34-RL0310B</b>	Collet adapter Ø 10 x Ø 10 mm



<b>34-RL0406</b>	Elbow fitting with collet clamp Ø 6 mm
<b>34-RL0408</b>	Elbow fitting with collet clamp Ø 8 mm



<b>34-RL0504</b>	Tee adapter Ø 4 x Ø 4 x Ø 4 mm with collet
<b>34-RL0506</b>	Tee adapter Ø 6 x Ø 6 x Ø 6 mm with collet
<b>34-RL0508</b>	Tee adapter Ø 8 x Ø 8 x Ø 8 mm with collet
<b>34-RL0510</b>	Tee adapter Ø 10 x Ø 10 x Ø 10 mm with collet

## Fittings for connecting hydraulic and pneumatic systems



DL-MOK

Adapter-coupling with check valve Ø 6 mm  
Connecting holes Ø 6 mm x Ø 6 mm  
Length with clamps = 37 mm  
Length without clamps = 33 mm  
Diameter = 1.15 mm



DL-MOK-K

Quick-connect coupling with check valve, Ø 6 mm  
Connection holes: Ø 6 mm x Ø 6 mm  
Length with clamps = 49 mm  
Length without clamps = 45 mm  
Diameter = 13.8 mm



DL-MOK-KS

Quick-connect coupling with check valve Ø 6 mm  
Connecting holes Ø 6 mm x Ø 6 mm  
Length with clamps = 42.6 mm  
Length without clamps = 37.3 mm  
Diameter = 12.5 mm



34-MC15-06-06

Adapter coupling with union nuts and two clamping nuts with  
M10 x 1mm threads for Ø 6 x Ø 6mm tubing



34-MO15-06-06

Adapter coupling with union nuts and two clamping nuts with  
M10 x 1mm threads for Ø 6 x Ø 6mm tubing (includes two sleeves)



25-FPKM-04

Hydraulic quick-connect connector 1/4" male



25-FPKF-04

Hydraulic quick-connect connector 1/4" female



## Штуцеры "банджо" для гидравлических и пневматических соединений



DL-CR20062

Kit (12mm banjo nipple + M12 bolt + rubber and metal washers) for 8mm hose (zinc)



DL-CR20064

Kit (14 mm banjo nipple, M14 bolt, rubber and metal washers) for 8 mm hose (zinc)

## Galvanized Coated Stud Bolts:



22-HS-06 Hydraulic banjo bolt 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 Hydraulic banjo bolt 1/4"

22-HZ-10 Hydraulic banjo bolt 3/8"

570RLP-08-08 Hydraulic banjo bolt 1/2"

## Fittings-bolts with oxidized (black) coating:



DL-UNI30908 Banjo bolt nipple M16x1,5mm

DL-UNI30364 Banjo bolt nipple 1/4"

DL-UNI30363 Banjo bolt nipple 3/8"

DL-UNI30350 Banjo bolt nipple 1/2"

## Banjo fittings with galvanized coating:



22-RSN-06 Banjo fitting Ø12mm, fir-tree 8mm

22-RSN-08-06 Banjo fitting Ø14mm, fir-tree 8mm

22-RSN-08 Banjo fitting Ø14mm, fir-tree 10mm

22-RSN-10 Banjo fitting Ø16mm, fir-tree 11-12mm

22-RSN-13 Banjo fitting Ø18mm, fir-tree 13-14mm

### Adjusting washers for BOSCH Common Rail injectors



#### DL08CR-220 Bosch

**ADJUSTER SET**  
**DFK type CRI, CRIN**  
 **$\varnothing = 3.5 \times 5.3$  mm,**  
**H = 1.20-1.70 mm, Pitch = 0.02 mm,**  
**24 sizes x 10 = 240 pcs**



#### DL08CR5-244 Bosch

**ADJUSTER SET**  
**DFK type CRI, CRIN**  
 **$\varnothing = 3.5 \times 5.3$  mm,**  
**H = 1.20-1.70 mm, Pitch = 0.05 mm,**  
**11 sizes x 10 = 110 pcs**



#### DL09CR-219 Bosch

**ADJUSTER SET**  
 **$\varnothing = 10.5 \times 15.7$  mm,**  
**H = 1.20-1.30 mm, Pitch = 0.01 mm,**  
**11 sizes x 10 = 110 pcs**



#### DL10CR-235 Bosch

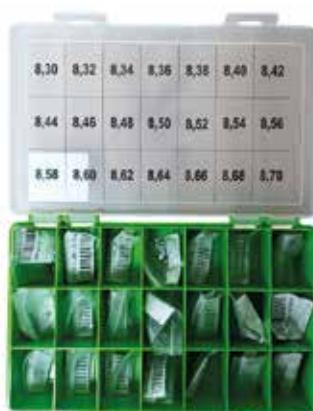
**ADJUSTER SET**  
**AHE type CRIN1**  
 **$\varnothing = 19$  Es 22mm,**  
**H = 1.00-1.10mm, Pitch = 0.01mm**  
**11 sizes x 10 = 110 pcs**



#### DL11CR-236 Bosch

**ADJUSTER SET**  
**RLS type CRI-1 CRI-2.0 CRI-2.2,**  
**AHE type CRI-2.1**  
 **$\varnothing = 19 \times 23.7$  mm,**  
**H = 1.00-1.10 mm, Pitch = 0.01 mm**  
**11 sizes x 10 = 110 pcs**

### Adjusting washers for BOSCH Common Rail injectors



#### DL12CR-230 Bosch

**ADJUSTER SET**  
**VFK type CRI**  
 **$\varnothing = 2.5 \times 4.5$  mm,**  
**H=1.20-1.70 mm, Pitch = 0.02 mm**  
**26 sizes x 10 = 260 pcs**

#### DL12CR5-245 Bosch

**ADJUSTER SET**  
**VFK type CRI**  
 **$\varnothing = 2.5 \times 4.5$  mm,**  
**H = 1.20-1.70 mm, Pitch = 0.05 mm**  
**11 sizes x 10 = 110 pcs**

#### DL14CR-228 Bosch

**ADJUSTER SET**  
**VFK type CRIN**  
 **$\varnothing = 2.3 \times 4.2$  mm,**  
**H = 1.20-1.70 mm, Pitch = 0.02 mm**  
**24 sizes x 10 = 240 pcs**

#### DL14CR5-243 Bosch

**ADJUSTER SET**  
**VFK type CRIN**  
 **$\varnothing = 2.3 \times 4.2$  mm,**  
**H = 1.20-1.70 mm, Pitch = 0.05 mm**  
**11 sizes x 10 = 110 pcs**

#### DL15CR-240/2 Bosch

**SET OF ADJUSTING WASHERS**  
 **$\varnothing=5.76$ ,**  
**H=8.3-8.7 mm, Step = 0.02 mm,**  
**21 size X 5 = 105 pcs**

### Adjusting washers for BOSCH Common Rail injectors



#### DL16CR-232 Bosch

**ADJUSTER SET**  
**DNH type CRI, CRIN**  
 **$\varnothing = 2.25$  mm,**  
**H = 1.14-1.25 mm, Pitch = 0.01 mm**  
**12 sizes x 10 = 120 pcs**



#### DL17CR-269 Bosch

**ADJUSTER SET**  
**DFK type CRI, CRIN**  
 **$\varnothing = 3.5 \times 5.3$  mm,**  
**H = 0.90-1.90 mm, Pitch = 0.05 mm**  
**21 sizes x 10 = 210 pcs**



#### DL18CR-271 Bosch

**ADJUSTER SET**  
**CRI-1 CRI-2.0 CRI-2.2, AHE type CRI-2.1**  
 **$\varnothing = 19 \times 23.7$  mm,**  
**H = 0.90-1.00 mm, Pitch = 0.01 mm**  
**11 sizes x 10 = 110 pcs**



#### DL19CR-273 Bosch

**ADJUSTER SET**  
**RLS type CRIN-1**  
 **$\varnothing = 19$  mm Es 22 mm,**  
**H = 0.90-1.00 mm, Pitch = 0.01 mm**  
**11 sizes x 10 = 110 pcs**



#### DL24CR-301 Bosch

**ADJUSTER SET**  
**RLS type CRIN-1**  
 **$\varnothing = 19$  Es 22mm,**  
**H = 1.30-1.40mm, Pitch = 0.01mm**  
**11 sizes x 10 = 110 pcs**

### Adjusting washers for BOSCH Common Rail injectors

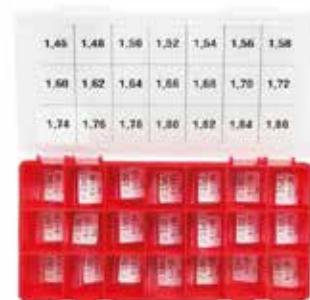


### Adjusting washers for BOSCH Common Rail injectors



#### DL77CR-77 Bosch

**ADJUSTER SET**  
**DFK type CRI, CRIN**  
 **$\varnothing = 3.5 \times 5.3$  mm,**  
 **$H = 1.04-1.44$  mm, Pitch = 0.02 mm**  
**21 sizes x 10 = 210 pcs**



#### DL88CR-88 Bosch

**ADJUSTER SET**  
**DFK type CRI, CRIN**  
 **$\varnothing = 3.5 \times 5.3$  mm,**  
 **$H = 1.46-1.86$  mm, Pitch = 0.02 mm**  
**21 sizes x 10 = 210 pcs**



#### DL99CR-99 Bosch

**ADJUSTER SET**  
**AHE type CRI-1, CRI2.0, CRI2.2**  
 **$\varnothing = 10.5 \times 15.7$  mm,**  
 **$H = 1.12-1.23$  mm, Pitch = 0.01 mm**  
**12 sizes x 10 = 120 pcs**



#### DL120CR-120 Bosch

**ADJUSTER SET**  
**VFK CRIN**  
 **$\varnothing = 2.5 \times 4.5$  mm,**  
 **$H = 1.70-1.90$  mm, Pitch = 0.02 mm**  
**11 sizes x 10 = 110 pcs**



#### DL20CR-272 Bosch

**ADJUSTER SET**  
**VFK CRI**  
 **$\varnothing = 2.40 \times 5.30$  mm,**  
 **$H = 1.72-1.90$  mm, Pitch = 0.02 mm**  
**10 sizes x 10 = 100 pcs**

### Adjusting washers for BOSCH Common Rail injectors



**DL377CR-377 Bosch**

**ADJUSTER SET**  
**RLS type CRI, CRIN**  
 **$\varnothing = 2.5 \times 6.4 \text{ mm}$ ,  
 $H = 1.21-1.40 \text{ mm}$ , Pitch = 0.01 mm**  
**20 size x 10 = 200 pcs**

**DL22CR-222 Bosch**

**ADJUSTER SET**  
 **$\varnothing = 4.4 \times 7.7 \text{ mm}$ ,  
 $H = 0.98-1.44 \text{ mm}$ , Pitch = 0.02 mm**  
**24 x 10 = 240 pcs**

### Adjusting washers for mechanical injectors



**DL-460CRX-005 Bosch**

**SET OF ADJUSTING WASHERS**  
 **$\varnothing = 8.3.5 \times 3.0$**   
 **$H = 1.00-2.00 \text{ mm}$ , Step 0.05 mm**  
**21 size X 10 = 210 pcs**



**DL130CR-130 Denso**

**ADJUSTER SET**  
**DENSO VFK**  
 **$\varnothing = 3.0 \times 5.75 \text{ mm}$ ,  
 $H = 1.10-2.00 \text{ mm}$ , Pitch = 0.05 mm**  
**19 sizes x 10 = 190 pcs**



**DL78CR-78 Denso**

**ADJUSTER SET**  
**DENSO VFK**  
 **$\varnothing = 3.0 \times 6.75 \text{ mm}$ ,  
 $H = 1.75-2.30 \text{ mm}$ , Pitch = 0.05 mm**  
**12 sizes x 10 = 120 pcs**

**Adjusting washers for CR DENSO injectors**



**DL54CR-343**

**ADJUSTER SET**  
**Ø21.5 x 24.3**  
**H = 1.20-1.72 mm, Pitch = 0.02 mm**  
**27 x 10 = 270 pcs**



**DL55CR-344 Denso**

**ADJUSTER SET**  
**DENSO VFK**  
**Ø = 24.3 mm x 21.5 mm,**  
**H = 1.50-1.72 mm, Pitch = 0.01 mm**  
**23 sizes x 10 = 230 pcs**



**DL57CR-843 Denso**

**ADJUSTER SET**  
**DENSO VFK**  
**Ø = 4mm x 1.8mm,**  
**H = 1.00-2.00mm, Pitch = 0.05mm**  
**21 sizes x 10 = 210 pcs**



**DL70CR-DENSO**

**ADJUSTER SET**  
**Ø = 23 x 21 mm,**  
**H = 3.00-3.10 mm,**  
**Pitch = 0.01 mm,**  
**11 sizes x 10 = 110 pcs**

### Adjusting washers and adjusting elements for CR DELPHI injectors



#### DL-378CR-SMART E3

##### DELPHI SMART E3 ADJUSTER SET

Ø outer = 4.3 mm,

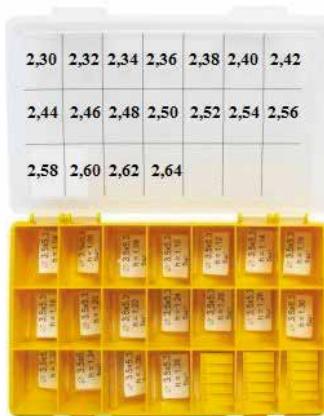
Ø inner = 1.9 mm,

H = 1.15-1.70 mm,

Pitch = 0.05 mm

12 sizes x 10 = 120 pcs.

or 12 sizes x 5 = 60 pcs.



#### DL-600CR-DELPHI

##### ADJUSTMENT ELEMENT SET

Ø = 2.0 mm,

H = 2.30-2.64 mm,

Pitch = 0.02 mm

18 sizes x 10 = 180 pcs.



#### DL-601CR-DELPHI

##### ADJUSTMENT ELEMENT SET

Ø = 2.00 mm,

H = 2.66-3.00 mm,

Pitch = 0.02 mm

18 sizes x 10 = 180 pcs



#### DL-602CR-DELPHI

##### ADJUSTMENT ELEMENT SET

Ø = 2.0 mm,

H = 3.75-4.30 mm,

Pitch = 0.05 mm

11 sizes x 10 = 110 pcs.

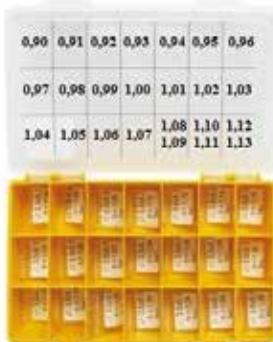
### Adjusting washers and adjusting elements for CR DELPHI injectors



#### DL-603CR-DELPHI

**ADJUSTMENT ELEMENT SET**  
 $\varnothing = 2.00$  mm,  
 $H = 4.35-4.90$  mm,  
 Pitch = 0.05 mm  
 $12 \text{ sizes} \times 10 = 110$  pcs

### Adjusting washers for Common Rail VDO (SIEMENS) PIEZO injectors



#### DL-400CR-VDO

**VDO (SIEMENS) ADJUSTING WASHERS SET**  
 $\varnothing$  outer = 18 mm,  $\varnothing$  inner = 14 mm,  
 $H = 0.9-1.13$  mm, Pitch = 0.01 mm  
 $24 \text{ sizes} \times 10 = 240$  pcs.  
 or  $24 \text{ sizes} \times 5 = 120$  pcs.



#### DL-410CR-VDO

**VDO (SIEMENS) ADJUSTING WASHERS SET**  
 $\varnothing$  outer = 5.7 mm,  $\varnothing$  inner = 3 mm,  
 $H = 1.00-2.00$  mm, Pitch = 0.05 mm  
 $24 \text{ sizes} \times 10 = 240$  pcs.  
 or  $24 \text{ sizes} \times 5 = 120$  pcs.

### Adjusting washers for Unit Injectors (UIS) and Single Pumps (PLD)



**DL-723UIS**

**ADJUSTER SET**

**FOR UIS/UIP**

$\varnothing$  outer = 7.3 mm,  $\varnothing$  inner = 3.0 mm,

H = 0.30-0.58 mm, Pitch = 0.02 mm

15 sizes x 10 = 150 pcs.

or 15 sizes x 5 = 75 pcs.



**DL-724UIS**

**ADJUSTER SET**

**FOR UIS/UIP**

$\varnothing$  outer = 7.3 mm,  $\varnothing$  inner = 3.0 mm,

H = 0.50-1.05 mm, Pitch = 0.05 mm

12 sizes x 10 = 120 pcs.

or 12 sizes x 5 = 60 pcs.



**DL-725UIS**

**ADJUSTER SET**

**FOR UIS/UIP**

$\varnothing$  outer = 9.3 mm,  $\varnothing$  inner = 4.7 mm,

H = 0.40-0.80 mm, Pitch = 0.02 mm

21 sizes x 10 = 210 pcs.

or 21 sizes x 5 = 105 pcs.



**DL-726UIS**

**ADJUSTER SET**

**FOR UIS/UIP**

$\varnothing$  outer = 8.3 mm,  $\varnothing$  inner = 4.7 mm,

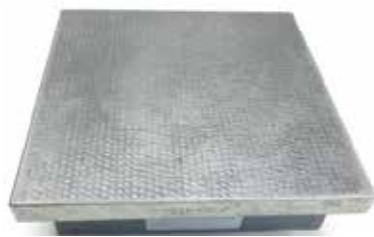
H = 0.40-0.80 mm, Pitch = 0.02 mm

21 sizes x 10 = 210 pcs.

or 21 sizes x 5 = 105 pcs.

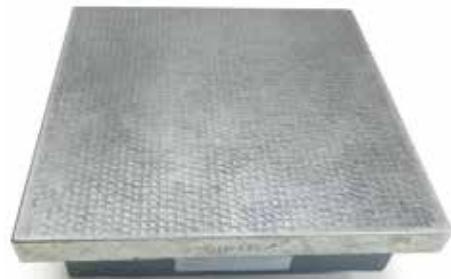


## Инструмент и приспособления для шлифовки шайб и других деталей



D-261106

Lapping plate  
Size: 250x250 mm



D-261108

Lapping plate  
Size: 400x400 mm



DL-UNI50270

**Washer Holder Set  
for Grinding**

The set includes two holders  
with different diameters for washers.  
It is recommended to grind  
on a special lapping plate.



DL-UNI31635

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



DL-TS800PL

Плата тахосчетчика



DL-PTC700PL

Плата прибора PTC



DL-FMDE800PL

Плата расходомера FMDE



DL-CR500PL

Плата прибора Cristina



DL-CRP600PL

Плата прибора Cristina-Piezo



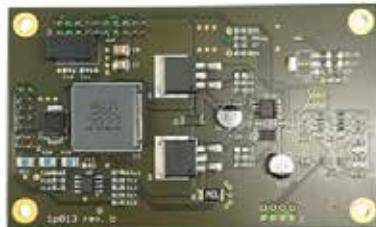
DL-AC400PL

Acoustic kit board



DL-CAS1200PL

CASCADE board



DL-CASP400PL

Piezo board CASCADE



DL-RPC160PL

Injector response time printed circuit board



DL-SHT180PL

Printed circuit board controlling the shutter of the measuring unit