

NEW!

**Extended
Product
Range**



Fit for the future:
Everything for Diesel Service



BOSCH

Invented for life

Everything for Diesel Service: Contents



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Overview test devices



EPS 815

Universal Diesel component test bench for testing:

- ▶ Conventional system:
H/R/A/M-MW/P/VE pumps
- ▶ Solenoid-valve-controlled system:
VP 29/30/44
- ▶ Unit injector/unit pump system:
UI-P/UI-N/UP
- ▶ Common Rail System:
CP1, CP2, CP3, CP Delphi/Denso/Siemens
- ▶ Solenoid valve CRI Bosch/Delphi/Denso
- ▶ Solenoid valve CRIN Bosch
- ▶ Piezo CRI Bosch/Siemens/Denso

More information from page 7 onwards



EPS 708

Specialized Common Rail test bench for testing:

- ▶ Common Rail System:
CP1, CP3, CP Delphi/Denso/Siemens,
- ▶ Solenoid valve CRI Bosch/Delphi/Denso
- ▶ Solenoid valve CRIN Bosch
- ▶ Piezo CRI Bosch/Siemens/Denso

More information from page 10 onwards



EPS 200

Automatic injector tester for testing:

- ▶ UI nozzles via holding adapter (unit injector)
- ▶ 1-spring / 2-spring (DHK)
- ▶ Nozzle-holder assembly with needle-motion sensor (NBF)
- ▶ Nozzle-holder assemblies made by other manufacturers
- ▶ Stepped nozzle holder
- ▶ Solenoid valve CRI Bosch/Delphi/Denso
- ▶ Solenoid valve CRIN Bosch

More information from page 46 onwards



EPS 100

Manual injector nozzle tester for testing:

- ▶ Nozzle sizes P, R, S, T
- ▶ 1-spring / 2-spring nozzle-holder assembly (DHK)
- ▶ Stepped nozzle holder
- ▶ UI nozzles via holding adapter (unit injector)

More information from page 49 onwards

Product overview:

EPS 815

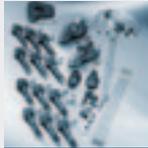
3. Special accessories kits



HR pump set



A pump set



M-MW pump set



P pump set



VE pump set

2. Retrofit kits



Basis set



VPM 844

1. Basic test bench EPS 815





CP1



CP2



CP3



CP Delphi/
Denso/
Siemens



CRIN



CRI Delphi/
Denso



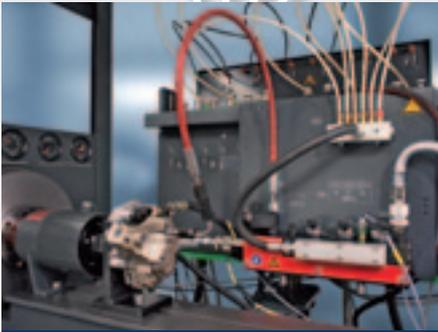
CRI Piezo
Bosch/Denso/
Siemens



CRI 846 H



CRI/CRIN 848 H



CRS 845 H



CAM 847



Diesel Systems **conquer** the **market**



Bosch – world leaders in Diesel technology and workshop test equipment

Since the production of the first Diesel truck in 1924 and first Diesel passenger car in 1936, Bosch has been the world's leading provider of Diesel technology. Through close cooperation with engine designers and constant innovation in development and production, modern high-pressure systems have been created in the last few years. The high performance and economy of these electronically controlled Diesel systems makes Diesel vehicles more and more popular. Parallel to the expertise being built up in initial equipment, innovative test equipment including corresponding software ESI[tronic] has been developed. They make diagnosis of the Diesel systems possible at the vehicle to allow subsequent selective replacement of defective components.

Bosch thus makes it possible for all workshops to master modern Diesel systems and to take advantage of new turnover potential.

Efficient and flexible component testing – only with Bosch

Component testing in accordance with manufacturer specifications is only guaranteed through the flexible use of Bosch retrofit kits.

This ensures that:

- ▶ Statutory emission limits are complied with

- ▶ Exact and reproducible measured values are determined
- ▶ A warranty evaluation in accordance with manufacturers' specifications is possible

The basis for Bosch component testing is the component test bench EPS 815 plus KMA measurement technology

The extension of this system by the following retrofit kits guarantees your future business in testing:

- ▶ CRS 845 H for testing the Common Rail components (CP1, CP2, CP3, CRI) from Bosch and other manufacturers
- ▶ CRI 846 H for testing Common Rail injectors (CRI solenoid valve controlled and Piezo, CRIN) from Bosch and other manufacturers
- ▶ CRI/CRIN 848 H for testing Common Rail injectors (CRI solenoid valve controlled and Piezo, CRIN) from Bosch and other manufacturers
- ▶ VPM 844 for testing the solenoid valve controlled distributor injection pumps (VP 29/30/44)
- ▶ CAM 847 for testing Unit Injector and Unit Pump components

The test equipment and programs simulate all necessary operating states of normal vehicle operation. During testing, all process steps are displayed continuously on the monitor. The data you need for this is taken from the TestData CD.

Test bench: EPS 815



EPS 815 – universal component test bench

Future-proof and flexible design

- ▶ Observance of the specifications of automobile manufacturers
- ▶ Efficient components of the latest generation both from Bosch as well as from other manufacturers can be tested
- ▶ Expansion possible with different retrofit kits and special accessories sets:
 - MGT/KMA
 - VPM 844/CRS 845 H/CR1 846 H/CAM 847/CR1/CRIN 848 H
 - CP1/2/3/CRIN
 - and systems from other manufacturers
- ▶ Continuous further development of optional accessories
- ▶ Long service life as subsequent bending of the test pipes is hardly necessary (the measuring device can be adjusted on all three levels)

User and environmentally friendly

- ▶ Through oil vapor and oil mist reduction

Efficient work

- ▶ Outstanding true-running characteristics and speed stability ensure high reproducibility, specially during the injection cycle:
 - Direct drive
 - High flywheel mass
 - Rotational-speed control with an extremely short speed control time
 - Position control

- ▶ Maintenance-free drive element with high efficiency
- ▶ The weight counterbalance during height adjustment of the measuring device makes work considerably easier
- ▶ Fully automatic test sequence¹ in conjunction with KMA 802/822

¹ Applies to Bosch VP and CR components.

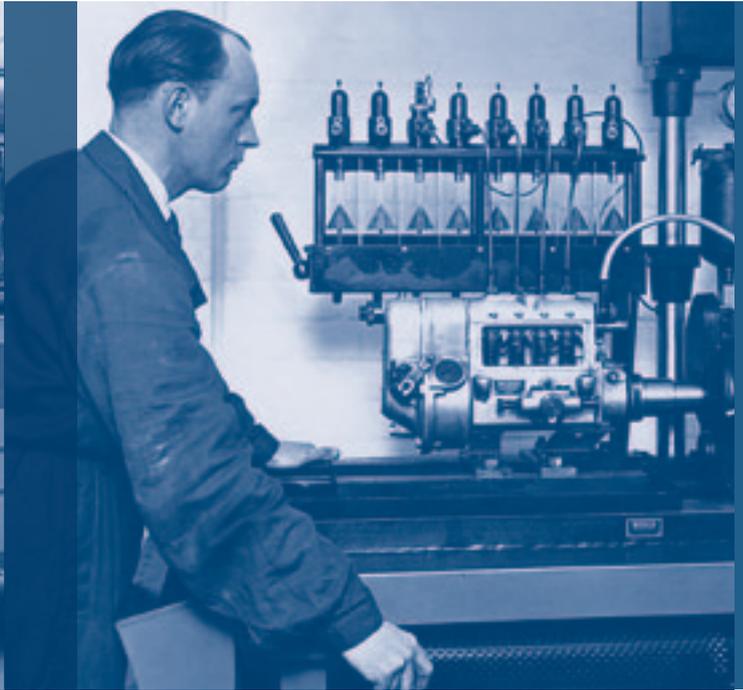
Scope of delivery

Test bench EPS 815, selector valve with flushing valve for distributor injection test, hose lines for selector valve and testing oil, socket wrench for calibration nozzle holder, T-bar for flywheel mass, screwdriver set, connection lines for additional fuel Start-Stop solenoids and for temperature sensor, insulation boards for test bench installation, drive coupling in accordance with ISO with protective guard, small parts set (banjo union, banjo bolts, gaskets, etc.), technical documentation

Designation	Order number
EPS 815 400 V; ± 10 % ² ; 50/60 Hz	0 683 815 001
EPS 815 200/220/230/240 V; ± 10 % ² ; 50/60 Hz	0 683 815 002
EPS 815 440/460/480/500 V; ± 10 % ² ; 50/60 Hz	0 683 815 003

² Max. permissible asymmetry (L:L or L:N) < 20 V

Measuring technology: MGT 812 / 824



Test equipment EPS 815

MGT – Measuring system with measuring glass technology for conventional Diesel injection pumps up to 12 cylinders

With the mechanical fuel quantity measuring device MGT 824, a further 2 x 12 measuring glasses (44 ml and 260 ml) can be used for a quick test. The test bench satisfies all test requirements because the measuring glass holder can be swiveled and moved transversally.

For larger injection pumps, there is also the option of replacing the measuring glass holder insert with 12 measuring glasses, volume 155 ml and 600 ml (special accessories). After every test procedure, all values are read off individually from the measuring glasses and entered in the respective test record.

Scope of delivery MGT 812/824

Measuring glass holder incl. measuring glasses, operating unit (stroke counting mechanism) and additional with MGT 824: Transverse displacement



All values are read off directly from the measuring glasses

Designation	Order number
MGT 812	0 683 812 001
MGT 824	0 683 824 001
Special accessories	
Measuring glass lighting for MGT 812 (50 Hz)	1 687 001 393
Measuring glass lighting for MGT 812 (60 Hz)	1 687 001 394
Measuring glass lighting for MGT 824 (50 Hz)	1 687 001 395
Measuring glass lighting for MGT 824 (60 Hz)	1 687 001 396
Extension set (double fitting) only for MGT 824, from 12 to 24 measuring glasses each with 44 ml and 260 ml	1 687 001 414
Measuring glass holder insert only for MGT 824, with 12 measuring glasses 155 ml and 12 measuring glasses 600 ml	1 688 005 065

Measuring technology: KMA 802 / 822



Test equipment EPS 815

KMA – Kontinuierliche Mengen-Analyse (continuous fuel delivery analysis)

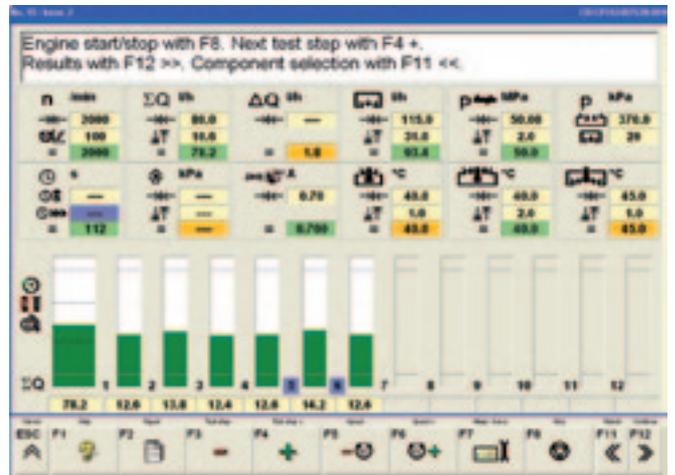
The computer-based measurement system for conventional and new Diesel injection systems. Absolutely necessary for testing modern Diesel injection systems is the electronic fuel quantity measurement. It guarantees a high reproducibility of measured values.

Efficient operation

- ▶ Short setting times thanks to measurement display on the monitor
- ▶ Clearly arranged display of the measured values in a column chart with colored identification of tolerance transgressions
- ▶ User-friendly software EPS 945: All important settings can be preselected and test steps can be defined
- ▶ Automated test sequence through import of specified data from the TestData CD and the Diesel ESI[tronic]-W

Scope of delivery KMA 802/822

Continuous fuel quantity measurement, display unit with 19" TFT monitor for assembly on test bench (KMA 802) or incl. trolley for assembly beside the test bench (KMA 822)



Electronic reading of the measured values

Designation	Order number
KMA 802	0 683 802 001
KMA 822	0 683 822 001
Special accessories	
Standard computer ¹ without keyboard, incl. CR software	1 687 022 958
Computer ¹ without keyboard, incl. CR and VP software	available soon
Keyboard (country-specific)	1 687 022 3XX
Hardcopy printer PDR 374 incl. USB connecting line	1 687 001 850

¹ Incl. operating system

Product overview:

EPS 708

3. Special accessories kits



CP1/CP3



CP Delphi/
Denso/
Siemens



CRIN



CRI Delphi/
Denso



CRI Piezo
Bosch/Denso/
Siemens

2. Retrofit kits



CRI 846 H



CRI/CRIN 848 H

1. Basic test bench EPS 708 (incl. CRS 845 H)



Test bench:

EPS 708



Ready for the future with the new Common Rail test bench EPS 708

New! EPS 708: Forward-looking and efficient

The injection pressures on which modern Common-Rail Diesel engines run have risen constantly over the last few years. 2,000 bar is nowadays already normal – with a rising tendency. The new Diesel test bench EPS 708 from Bosch specially for Common Rail injection pumps and injectors therefore enables testing with up to 2,200 bar. Its newly developed rail is designed for pressures up to 2,500 bar, which means that the test bench is prepared for future developments in Diesel technology.

Precise and comfortable:

- ▶ Electronic quantity measurement for cost-effective testing of Common Rail components
- ▶ Electronic supply pressure control for pump and lube oil supply
- ▶ Simple pump assembly without clutch cover

Non-polluting:

- ▶ Integrated cooling system reduces water consumption in the workshop (water-cooling available as an option)

Safe:

- ▶ Immediate engine shutdown if hood is opened
- ▶ Hood protects against loose parts

Efficient:

- ▶ Electronic monitoring and display of service intervals (e.g. test oil change)
- ▶ Self-diagnosis system indicates necessary filter change

Scope of delivery

Test bench, monitor, mouse, computer units, mains connection lead, hydraulic hoses, software package, protective cover, CRS 845 H

Designation		Order number
EPS 708	400 V; ± 10 %; 50/60 Hz with integrated cooling	available soon
EPS 708	200/220/230/240 V; ± 10 %; 50/60 Hz with integrated cooling	available soon
EPS 708	400 V; ± 10 %; 50/60 Hz without integrated cooling	available soon
EPS 708	200/220/230/240 V; ± 10 %; 50/60 Hz without integrated cooling	available soon
Special accessories		
Special accessory set for cooling		available soon

Mechanical pumps:

Basis set for H/R/A/M-MW/P/VE pumps



Base retrofit kit

Bosch has rearranged conventional Diesel technology for you. Thanks to the systematic pump-based structure, duplication of components was reduced considerably. You only buy what you really need, and save money at the same time.

The basis of conventional Diesel test equipment is the basis set. This set contains all parts that are also used for the extension kits.

Test equipment EPS 815

Designation	Order number
Basis set	1 687 005 018
Scope of delivery	
Test nozzle-and-holder assembly	0 681 343 009
Measuring, bracket 11 mm measuring mechanism	1 682 329 038
Measuring, bracket 13 mm measuring mechanism	1 682 329 080
Spacer for test pressure line	1 682 386 002
Coupling half cone Ø 17 mm	1 686 430 022
Coupling half cone Ø 20 mm	1 686 430 024
Coupling half cone Ø 25 mm	1 686 430 026
Accessory set for rack travel measuring device	1 687 000 053
Accessory set for rack travel measuring device with manifold-pressure compensator on drive side	1 687 000 061
Dial gauge	1 687 233 012
Angle plate	1 688 010 129
Dial gauge holder (tripod) for 1 687 233 015	1 688 130 095
Dial gauge 0.1 mm, scale division, 30 mm measurement range	1 687 233 015
Rack travel measuring device	1 688 130 130
Angle measuring device for controller	1 688 130 183
Accessory set for control-rack travel and piston stroke measurement	1 688 130 030
Magnet base	1 688 130 134
Fitting	1 683 457 082
Fitting	1 683 457 081

Mechanical pumps:

H/R pumps



Special accessories set
for testing Bosch H and R pumps

Test equipment EPS 815

Designation	Order number
Special accessories set for H/R pumps	1 687 005 023
Scope of delivery	
Clamping set	1 687 001 314
Flat-base bench stand	1 688 030 170
Coupling assembly	1 685 702 075
Coupling assembly	1 685 702 076
Measuring pin H pump 1000	1 682 012 015
Measuring pin H pump 1	1 682 012 004

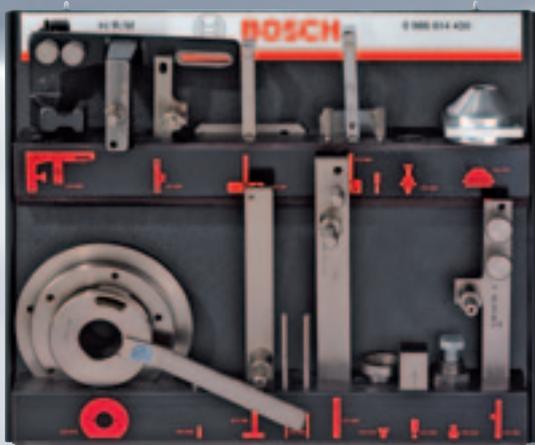
Repair tools

Designation	Order number
Tool set, tool box, equipped	0 986 614 415
Scope of delivery	
Tool tray, tool box, empty	0 986 614 417
Puller for swivel-joint roller bearings	0 986 612 630
Angle bracket for roller tappets	0 986 612 636
Adapter for camshaft bearings	0 986 612 646
Press-out mandrel for cylindrical roller bearings	0 986 612 648
Clamping fixture/drive assembly for sump and flatbed mounting	0 986 612 649
Connecting flange for test oil supply of the test bench	0 986 612 653
Press-in tool for cylindrical roller bearings	0 986 612 655
Press-in tool for cylindrical roller bearings	0 986 612 659
Mandrel for cylindrical roller bearings	0 986 612 660

Designation	Order number
Further accessories	
Test device for control evaluation	0 986 610 101
Measurement cable for rack-travel sensor	0 986 610 102
Adapter line with RE24, RE30	0 986 610 104
Adapter line with RE30	0 986 610 107
Adapter line with RE33	0 986 610 124
Bench stand for in-line fuel-injection pump	0 986 611 248
Roller tappet holder	0 986 611 298
Assembly device for barrel-and-valve assembly	0 986 611 356
Combined tool holder for flange mounting	0 986 611 358
Retainer	0 986 611 441
Socket wrench for delivery-valve holder	0 986 611 451
Ring wrench	0 986 611 452
Socket wrench for auxiliary spring for diaphragm controller	0 986 611 459
Puller for end cap	0 986 611 668
Sleeve for lateral end cap	0 986 611 676
Wrench for control sleeve	0 986 611 738
Locking device for controller flyweights	0 986 611 746
Assembly device for roller tappet	0 986 611 993
Press-in tools for roller bearings on camshaft and bearing in pump housing	0 986 612 065

Mechanical pumps:

H pumps



Repair of electronically controlled in-line fuel-injection pumps (EDC) of sizes H, R, (M)



Repair of actuator mechanisms (RE actuator mechanisms) of electronic controllers for the in-line fuel-injection pumps of sizes H, R, M

Repair tools

Designation	Order number
Tool set, tool box, equipped	0 986 614 400
Scope of delivery	
Tool tray, tool box, empty	0 986 614 402
Setting gauge	0 986 612 301
Tracing gauge	0 986 612 308
Assembly gauge	0 986 612 590
Guide pin for short-circuiting ring	0 986 612 598
Retaining device	0 986 612 601
Retaining device prestroke shaft, start of delivery, rack-travel sensor short-circuiting ring	0 986 612 620
Mounting sleeve for sealing ring in the prestroke shaft bearing	0 986 612 639
Disassembly tool for wedge bolt	0 986 612 640
Mounting wrench for threaded sleeves	0 986 612 643
Measuring device for solenoid armature stroke	0 986 612 657
Setting gauge	0 986 612 664
Tracing gauge	0 986 612 669
Cover plate (accessory part)	0 986 612 675
Cover for prestroke solenoid	0 986 612 676
Puller	0 986 618 245

Designation	Order number
Further accessories	
Assembly wrench for camshaft	0 986 612 071
Assembly device for roller tappet	0 986 612 072
Assembly sleeve for radial shaft seal	0 986 612 085
Support ring for pump housing	0 986 612 106
Locking pin for pump plunger	0 986 612 114
Tool kit for bottom end cap	0 986 612 119
Pump plunger caliper	0 986 612 120
Forcing plate for camshaft bearing	0 986 612 134
Assembly mandrel for end caps of bore for holding up tappet	0 986 612 156
Retaining device for speed pulse generator RE24, RE30	0 986 612 305
Spring clamp for control rack return spring	0 986 612 311
Removal device for barrel-and-valve assembly	0 986 612 397
Roller tappet holder	0 986 612 482
Socket wrench for tappet holder	0 986 612 489
Centering mandrel for roller tappet	0 986 612 492
Guide sleeve for roller bearing	0 986 612 493
Press-in tool for roller bearing	0 986 612 494
Removal device for bearing cap	0 986 612 505
Mounting sleeve for O-ring on the delivery-valve holder	0 986 612 606
Pressure tester, constant-pressure valves	0 986 612 619
Retaining device for drive flange	0 986 612 694
Locating pin for drive flange	0 986 612 697
Adapter for coupling assembly	0 986 612 710
Measuring device, axial clearance measuring device	0 986 612 837
Directional-control valve for fuel pressure measurement	0 986 615 111

Mechanical pumps:

R pumps



Tool set for the repair of actuator mechanisms (RE actuator mechanisms) of electronic controllers for the in-line fuel-injection pumps of sizes R, M

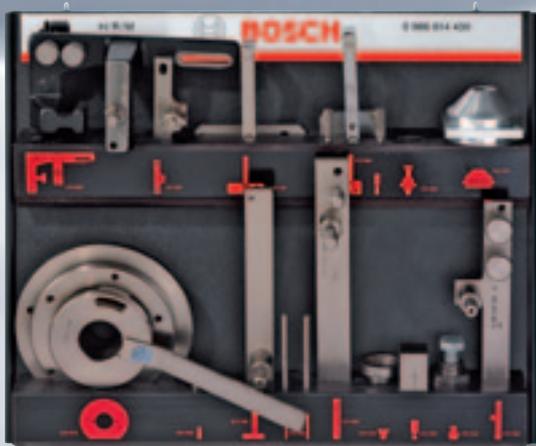
Repair tools

Designation	Order number
Tool set, tool box, equipped	0 986 614 415
Scope of delivery	
Tool tray, tool box, empty	0 986 614 417
Puller for swivel-joint roller bearings	0 986 612 630
Angle bracket for roller tappets	0 986 612 636
Adapter for camshaft bearings	0 986 612 646
Press-out mandrel for cylindrical roller bearings	0 986 612 648
Clamping fixture/ drive assembly for sump and flatbed mounting	0 986 612 649
Connecting flange for test oil supply of the test bench	0 986 612 653
Press-in tool for cylindrical roller bearings	0 986 612 655
Press-in tool for cylindrical roller bearings	0 986 612 659
Mandrel for cylindrical roller bearings	0 986 612 660

Designation	Order number
Further accessories	
Test device for rack-travel evaluation	0 986 610 101
Measurement cable for rack-travel sensor	0 986 610 102
Adapter line for RE24, RE30	0 986 610 104
Bench stand	0 986 611 248
Removal hook for sealing rings	0 986 611 292
Roller tappet holder	0 986 611 298
Assembly device for barrel-and-valve assembly	0 986 611 356
Combined tool holder for flange mounting	0 986 611 358
Retainer	0 986 611 441
Socket wrench for delivery-valve holder	0 986 611 451
Ring wrench	0 986 611 452
Socket wrench for auxiliary spring	0 986 611 459
Puller for end caps	0 986 611 668
Sleeve for lateral end caps	0 986 611 676
Wrench for control sleeves	0 986 611 738
Locking device for controller flyweights	0 986 611 746
Assembly device for roller tappet	0 986 611 993
Assembly sleeve	0 986 612 060
Spacer plate for barrel-and-valve assembly	0 986 612 061

Mechanical pumps:

R pumps



Tool set for repair of electronically controlled in-line fuel-injection pumps (EDC) of sizes R, (M)

Repair tools

Designation	Order number
Tool set, tool box, equipped	0 986 614 400
Scope of delivery	
Tool tray, tool box, empty	0 986 614 402
Setting gauge	0 986 612 301
Tracing gauge	0 986 612 308
Assembly gauge	0 986 612 590
Guide pin for short-circuiting ring	0 986 612 598
Retaining device	0 986 612 601
Retaining device prestroke shaft, start of delivery, rack-travel sensor short-circuiting ring	0 986 612 620
Mounting sleeve for sealing ring in the prestroke shaft bearing	0 986 612 639
Disassembly tool for wedge bolt	0 986 612 640
Mounting wrench for threaded sleeves	0 986 612 643
Measuring device for solenoid armature stroke	0 986 612 657
Setting gauge	0 986 612 664
Tracing gauge	0 986 612 669
Cover plate (accessory part)	0 986 612 675
Cover for prestroke solenoid	0 986 612 676
Puller	0 986 618 245

Designation	Order number
Further accessories	
Press-in tool for roller bearing on camshaft and pump housing bearing	0 986 612 065
Assembly wrench for clutch dogs	0 986 612 071
Assembly device for roller tappet	0 986 612 072
Assembly sleeve for radial shaft seal	0 986 612 085

Designation	Order number
Further accessories continued	
Support ring for camshaft	0 986 612 106
Removal device for roller bearing	0 986 612 111
Locking pins for pump plunger	0 986 612 114
Tool kit for bottom end caps	0 986 612 119
Pump plunger caliper	0 986 612 120
Socket wrench for control rack slotted nut	0 986 612 129
Forcing plate for camshaft bearing	0 986 612 134
Assembly mandrel for end caps	0 986 612 156
Retaining device for speed pulse generator	0 986 612 305
Spring clamp for control rack return spring	0 986 612 311
Assembly sleeve for anti-erosion cap circlip	0 986 612 325
Removal device for barrel-and-valve assembly	0 986 612 397
Roller tappet holder	0 986 612 482
Socket wrench for tappet holder	0 986 612 489
Centering mandrel for roller tappet	0 986 612 492
Guide sleeve for roller bearing	0 986 612 493
Press-in tool for roller bearing	0 986 612 494
Assembly device for element seal	0 986 612 495
Removal device for bearing cap	0 986 612 505
Assembly sleeve for O-ring on delivery-valve holder	0 986 612 606
Retaining device for drive flanges	0 986 612 694
Axial clearance measuring device	0 986 612 837
Directional-control valve for fuel pressure	0 986 615 111

Mechanical pumps:

A pumps



Special accessories set
for testing Bosch A pumps

Test equipment EPS 815

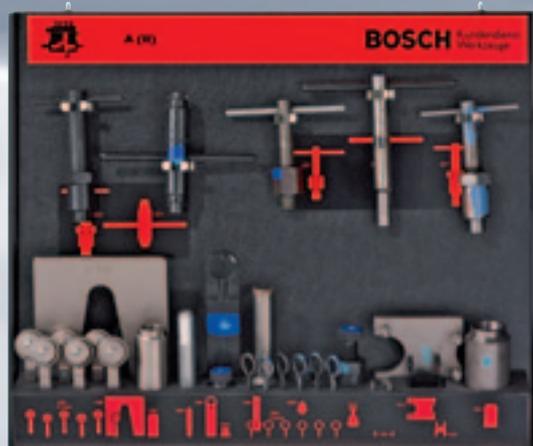
Designation	Order number
Special accessories set for A pumps	1 687 005 019
Scope of delivery	
Bench stand radius 45 mm	1 688 030 147
Clamping flange Ø 92 mm and 68 mm	1 685 720 017
Reduction ring Ø 72 mm	1 680 103 007
Reduction ring Ø 80 mm	1 680 202 004
Reduction ring Ø 85 mm	1 680 202 005
Prestroke measuring device	1 688 130 041
Test pressure line	1 680 750 014

Mechanical pumps:

A pumps



Repair of in-line fuel-injection pumps of the model series PE(S)..A..D/S 1000, -/S 2000, -/3000 **without** controller, charge-pressure-dependent full-load stop (LDA) and timing device



Repair of in-line fuel-injection pumps of the model series PE(S)..A..D/S 1000, -/S 2000, -/3000 **without** controller, charge-pressure-dependent full-load stop (LDA) and timing device

Repair tools

Designation	Order number
Repair tools for A pumps (I)	
Tool set, tool board, equipped	0 986 614 150
Scope of delivery	
Tool tray, tool board, empty	0 986 614 152
Assembly sleeve for radial shaft seal	0 986 611 049
Assembly sleeve for radial shaft seal	0 986 611 051
Measuring device for camshaft longitudinal clearance	0 986 611 092
Measuring block for camshaft	0 986 611 139
Wrench for camshafts	0 986 611 211
Tappet holder	0 986 611 227
Pump plunger caliper	0 986 611 237
Puller	0 986 611 246
Roller tappet holder	0 986 611 298
Handheld milling cutter for element seats	0 986 611 324
Handheld milling cutter for element seats	0 986 611 328
Reamer for control rack guide bushes	0 986 611 478
Wrench set, fork wrench set	0 986 612 247
Mandrel for bottom end cap	0 986 612 357
Measuring device for camshaft longitudinal clearance	0 986 611 282 ¹

Designation	Order number
Repair tools for A pumps (II)	
Tool set, tool board, equipped	0 986 614 160
Scope of delivery	
Tool tray, tool board, empty	0 986 614 162
Puller (pressure valve lifter)	0 986 611 100
Power screwdriver for control rack stop sleeve	0 986 611 214
Puller (pressure valve lifter)	0 986 611 402
Tappet holder for fast-running pumps	0 986 611 471
Adapter for dial gauge rest	0 986 611 616
Forcing plate for camshaft bearing	0 986 612 134
Sleeve for camshaft bearing	0 986 612 137
Tool kit for bottom blanking plug	0 986 612 139
Handheld milling cutter for element seats	0 986 611 325

¹ Not included in the tool board equipment.
A corresponding position has been reserved on the board.

Mechanical pumps:

M-MW pumps



Special accessories set
for testing Bosch M-MW/RW pumps

Test equipment EPS 815

Designation	Order number
Special accessories set for M-MW pumps	1 687 005 020
Scope of delivery	
Bench stand radius 50 mm	1 688 030 150
Trestle	1 688 030 161
Coupling half cone Ø 25 mm	1 686 430 026
Prestroke measuring device for M pump	0 681 440 017
Prestroke measuring device for MW pump	1 688 130 135
Coupling half for DB Typ 190	1 686 432 022
Coupling half for DB Typ 191	1 685 720 208
Test pressure line	1 680 750 008
Connection set	1 687 010 083
Test nozzle-and-holder assembly	1 688 901 101
Test nozzle-and-holder assembly	1 688 901 111
Accessory set for rack travel measuring device for M pump	1 688 130 042

Mechanical pumps:

M-MW pumps



Repair of in-line fuel-injection pumps of model series PE(S) ..M.. with and without port-closing sensor system (FBG system), **without** controller, atmospheric-pressure-dependent full-load stop (ADA) and timing device



Repair of in-line fuel-injection pumps of model series PE(S) ..MW.. S1 (8 mm stroke) ..S100 (10 mm stroke) and ..S1500, **without** controller, charge-pressure-dependent full-load stop (LDA) and timing device

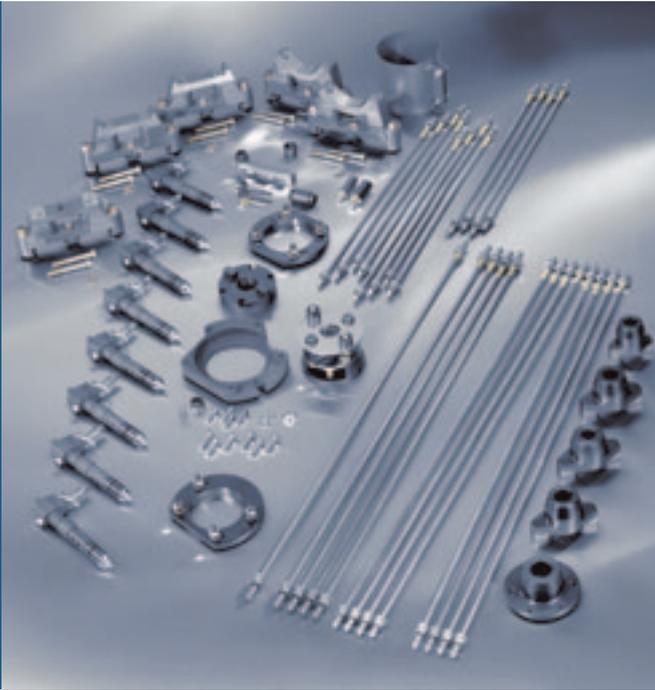
Repair tools

Designation	Order number
Repair tools for M pumps	
Tool set, tool board, equipped	0 986 614 170
Scope of delivery	
Tool tray, tool board, empty	0 986 614 172
Handheld milling cutter for element seats	0 986 611 329
Reamer for control rack guide bush	0 986 611 472
Tappet holder	0 986 611 516
Socket wrench for delivery-valve holder	0 986 611 623
Press-in tool for camshaft bearing	0 986 611 635
Tappet holder	0 986 612 089
Stamping tool for control rack screw cap	0 986 612 241
Socket wrench for armature on full-load screw	0 986 612 599
Measuring device for camshaft longitudinal clearance	0 986 611 092 ¹
Measuring block for camshaft projection	0 986 611 139 ¹
Wrench for camshaft	0 986 611 211 ¹
Pump plunger caliper	0 986 611 237 ¹
Puller	0 986 611 246 ¹
Tappet holder	0 986 611 471 ¹
Clamping device for coupling assembly	0 986 612 056 ¹
Setting device for control lever	0 986 612 600 ¹
Designation	Order number
Repair tools for MW/RW pumps	
Tool set, tool board, equipped	0 986 614 180
Scope of delivery	
Tool tray, tool board, empty	0 986 614 182
Puller	0 986 611 246

Designation	Order number
Repair tools for MW/RW pumps:	
Scope of delivery continued	
Adapter for dial gauge rest	0 986 611 616
Roller tappet holder	0 986 611 653
Separating tube for fuel gallery	0 986 611 660
Separating tube for fuel gallery	0 986 611 663
Assembly sleeve for camshaft in needle bearing	0 986 611 666
Assembly sleeve for camshaft in needle bearing	0 986 611 667
Puller for end cap	0 986 611 668
Plate for pump housing and barrel-and-valve assembly	0 986 611 677
Press-in tool for needle bearing	0 986 611 679
Press-in tool for deep groove ball bearing	0 986 611 680
Setting device for control sleeve	0 986 611 683
Socket wrench for locknut	0 986 611 695
Socket wrench for auxiliary idle-speed spring	0 986 611 696
Roller tappet holder	0 986 611 733
Measuring device for pin projection	0 986 611 736
Assembly mandrel for compression spring	0 986 611 745
Locking device for controller flyweights	0 986 611 746
Puller	0 986 611 854
Mandrel for spacer rings	0 986 612 146
Assembly sleeve for locking ring	0 986 612 147
Sleeve for shaft seal	0 986 612 148
Assembly sleeve for radial shaft seal	0 986 611 049 ¹
Wrench for camshaft	0 986 611 211 ¹
Adapter	0 986 611 275 ¹
Roller tappet holder	0 986 611 298 ¹

Mechanical pumps:

P pumps



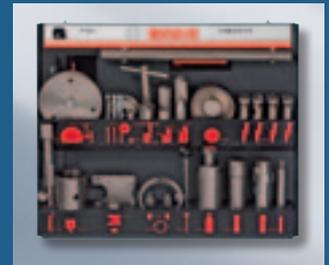
Tool set for P pumps (I)



Tool set for P pumps (II)



Tool set for P pumps (III)



Tool set for P pumps (IV)

Test equipment EPS 815

Designation	Order number
Special accessories set for P pumps	1 687 005 021
Scope of delivery	
Clamping flange Ø 95 mm	1 685 720 060
Clamping flange Ø 107 mm	1 685 720 159
Bench stand radius 56 mm	1 688 030 153
Flat-base bench stand	1 688 030 141
Trestle	1 688 030 184
Coupling half cone Ø 25 mm	1 686 430 030
Coupling half cone Ø 30 mm	1 686 430 032
Coupling half cone Ø 30 mm	1 686 430 034
Coupling half cone Ø 35 mm	1 686 430 038
Prestroke measuring device	1 688 130 112
Fitting	1 683 457 082
Fitting	1 683 457 084
Test pressure line	1 680 750 089
Test pressure line	1 680 750 075
Test nozzle-and-holder assembly	1 688 901 105
Collar nut for 1 688 130 130	1 683 315 022
Coupling assembly, zero backlash	1 686 401 024
Coupling assembly, zero backlash	1 685 702 073
Guard ring	1 685 510 176
Clamping flange accessory set	1 687 000 065

Repair tools

Designation	Order number
Repair tools for P pumps (I)	
Tool set, tool board, equipped	0 986 614 240
Scope of delivery	
Tool tray, tool board, empty	0 986 614 242
Assembly sleeve for radial shaft seal	0 986 611 049
Assembly sleeve for radial shaft seal	0 986 611 051
Measuring device for camshaft longitudinal clearance	0 986 611 068
Assembly wrench for camshaft clutch dogs	0 986 611 084
Assembly sleeve for radial shaft seal	0 986 611 122
Measuring block for camshaft projection	0 986 611 278
Assembly device for barrel-and-valve assembly	0 986 611 356
Measuring device for camshaft longitudinal clearance	0 986 611 383
Puller	0 986 611 246 ¹
Measuring device for camshaft longitudinal clearance	0 986 611 282 ¹
Socket wrench for threaded sleeves	0 986 611 398
Measuring block for camshaft projection	0 986 611 399
Socket wrench for delivery-valve holder	0 986 611 451
Ring wrench	0 986 611 452
Tappet holder	0 986 611 613
Tool kit for locking ring on baffle plate	0 986 611 627
Socket wrench for control rack slotted nut	0 986 612 129
Removal device for barrel-and-valve assembly	0 986 612 397
Assembly sleeve	0 986 611 992

¹ Not included in the tool board equipment.
A corresponding position has been reserved on the board.

Mechanical pumps:

P pumps

Repair tools

Designation	Order number
Repair tools for P pumps (II)	
Tool set, tool board, equipped	0 986 614 250
Scope of delivery	
Tool tray, tool board, empty	0 986 614 252
Removal device for flywheels	0 986 611 374
Retainer	0 986 611 441
Measuring block for camshaft projection	0 986 611 139 ¹
Tool kit for bottom end caps	0 986 612 119 ¹
Adapter for dial gauge rest	0 986 611 616
Wrench for control sleeve	0 986 611 738
Mandrel (5.8 mm) for pump plunger	0 986 612 086
Mandrel (8.5 mm) for pump plunger	0 986 612 087
Forcing plate for camshaft bearing	0 986 612 134 ¹
Sleeve for camshaft bearing	0 986 612 136 ¹
Sleeve for camshaft bearing	0 986 612 137 ¹

Designation	Order number
Repair tools for P pumps (III)	
Tool set, tool board, equipped	0 986 614 260
Scope of delivery	
Tool tray, tool board, empty	0 986 614 262
Sleeve for lateral end caps	0 986 611 676
Assembly sleeve for roller bearing	0 986 612 060
Spacer plates for element assemblies	0 986 612 061
Press-in tool for roller bearing	0 986 612 064
Press-in tool for roller bearing camshaft and pump housing bearing	0 986 612 065
Roller tappet holder	0 986 612 066
Roller tappet holder	0 986 611 298 ¹
Puller for end cap	0 986 611 668 ¹
Assembly wrench for camshaft	0 986 612 071 ¹
Removal device for drive flange	0 986 612 079
Assembly sleeve for radial shaft seal	0 986 612 085
Support ring for pump housing	0 986 612 106
Removal device for swivel-joint roller bearing	0 986 612 107
Locking pins for pump plunger	0 986 612 114
Pump plunger caliper	0 986 612 120
Assembly mandrel	0 986 612 156
Mandrel for end cap	0 986 612 070 ¹
Removal device for roller bearing	0 986 612 111 ¹

¹ Not included in the tool board equipment.
A corresponding position has been reserved on the board.

Designation	Order number
Repair tools for P pumps (IV)	
Tool set, tool board, equipped	0 986 614 270
Scope of delivery	
Tool tray, tool board, empty	0 986 614 272
Assembly device for roller tappet	0 986 612 072
Tool kit for bottom end caps	0 986 612 119
Compensating ring for injection pump drivetrain	0 986 612 234
Mandrel for camshaft	0 986 612 246
Assembly sleeve for anti-erosion cap circlip	0 986 612 325
Sleeve for camshaft	0 986 612 354
Assembly mandrel for bearing outer race	0 986 612 355
Roller tappet holder	0 986 612 482
Socket wrench for tappet holder	0 986 612 489
Mandrel for locking ring and tappet roller	0 986 612 492
Guide sleeve for camshaft	0 986 612 493
Press-in tool for roller bearing	0 986 612 494
Assembly device for element seal	0 986 612 495
Removal device for anti-erosion caps	0 986 612 498
Removal device for bearing cap	0 986 612 505
Assembly sleeve for O-ring on delivery-valve holder	0 986 612 606

Mechanical pumps:

VE pumps



Special accessories set
for testing Bosch VE pumps

Test equipment EPS 815

Designation	Order number
Special accessories set for VE pumps	1 687 005 022
Scope of delivery	
Clamping flange Ø 50 mm	1 685 720 062
Injection timing tester EP/VA..C..	1 688 130 121
Injection timing tester EP/VE..	1 688 130 227
Prestroke measuring device	1 688 130 180
Support device KDEP 1 140	0 986 611 876
Test pressure line	1 680 750 017
Test pressure line	1 680 750 073
Test pressure line	1 680 750 085
Test nozzle-and-holder assembly	1 688 901 000
Test nozzle-and-holder assembly	1 688 901 020
Test nozzle-and-holder assembly	1 688 901 022
Test nozzle-and-holder assembly	1 688 901 023
Banjo bolt	1 683 456 000
Banjo bolt	1 683 370 011
Flushing valve	1 687 010 126

Mechanical pumps:

VE pumps



Tool set for repair of mechanically controlled distributor injection pumps (VE)

Repair tools

Designation	Order number
Repair tools for VE pumps (I)	
Tool set, tool board, equipped	0 986 614 220
Scope of delivery	
Tool tray, tool board, empty	0 986 614 222
Puller for clamping sleeve	0 986 611 562
Male triangular wrench for plug screw	0 986 611 750
Pin socket wrench for controller shaft	0 986 611 751
Spacer for start-quantity position	0 986 611 753
Socket wrench for pressure-control valve	0 986 611 757
Socket wrench for triangular shoulder screw	0 986 611 758
Measuring device	0 986 611 759
Press-in tool for delivery valve	0 986 611 766
Press-in tool for clamping sleeve	0 986 611 769
Assembly wrench for setting shaft	0 986 611 778
Assembly mandrel for eccentric ring	0 986 611 780
Protective sleeve for roller ring	0 986 611 790
Assembly shell for impeller	0 986 611 791
Clamping device for diaphragm sliding bolt	0 986 611 792
Alignment pin for alignment	0 986 611 795
Puller for bearing bush	0 986 611 796
Measuring sleeve	0 986 611 799
Stamping tool for control lever	0 986 611 803
Puller for radial shaft seal (17 mm)	0 986 611 817
Puller for radial shaft seal (20 mm)	0 986 611 821
Dial gauge holder for locating collar	0 986 611 848
Spacer for stop lever	0 986 611 853
Tool set for bronze bearing bush	0 986 611 859
Measuring device for MS dimension	0 986 611 914
Dial gauge holder for locating collar	0 986 611 905

Designation	Order number
Repair tools for VE pumps (II)	
Tool set, tool board, equipped	0 986 614 230
Scope of delivery	
Tool tray, tool board, empty	0 986 614 232
Adapter for dial gauge rest	0 986 611 616
Mandrel for drive shaft	0 986 611 912
Adjustment plate for timing device position	0 986 611 913
Sleeve for manifold-pressure compensator strokew	0 986 611 922
Shifting square	0 986 611 945
Set for drive shaft bearing bush (17 mm)	0 986 611 946
Set for drive shaft bearing bush (20 mm)	0 986 611 953
Mandrel for coupling half	0 986 611 959
Screw for speed control lever	0 986 611 966
Spring clamp for shifting point	0 986 611 969
Setting wrench for controller axis	0 986 611 971
Mandrel for end cap	0 986 611 973
Twist drill bit for ball sealing bore	0 986 611 974
Mandrel for spring retainer	0 986 611 975
Lead sealing device for synthetic seals	0 986 611 976
Drill bush for lateral threaded bore	0 986 612 487
Assembly plate for sliding bolt	0 986 612 585
Socket wrench for triangular screw	0 986 612 605
Stop screw for potentiometer voltage and delivery quantity	0 986 612 690
Wrench for camshaft	0 986 611 211 ¹
Removal hook for sealing rings and tappet springs	0 986 611 292 ¹
Assembly sleeve for radial shaft seal	0 986 611 293 ¹

¹ Not included in the tool board equipment.
A corresponding position has been reserved on the board.

Mechanical pumps: EDC-VE



Test device EDC-VE: EPS 865

The use of this accessory device increases the number of functions of the injection component test bench EPS 815

Test device EDC-VE EPS 865

The EPS 865 can be used at the component test bench to test electronically controlled distributor injection pumps (EDC-VE). In combination with the ballast unit, it is also possible to test EDC-VEs with a half-differential short-circuit ring travel sensor.

Designation	Order number
EPS 865 – test device EDC-VE	0 684 200 615
Special accessories	
EPS 910 – activation unit with half-differential short-circuit ring travel sensor for EPS 865	1 687 022 281

Solenoid valve controlled distributor pumps: VP 29/30/44



VPM 844 Retrofit kit for testing and programming solenoid valve controlled Bosch distributor pumps

The basis for Bosch component testing is the injection component test bench EPS 815 plus KMA measurement technology. Only the use of the VPM 844 retrofit kit can guarantee pump testing in accordance with manufacturer's specifications.

Automatic programming with VPM 844

- ▶ Automated test sequence
- ▶ All adjusting tasks carried out through control unit programming
- ▶ Exact power supply by means of precision stabilizer
- ▶ Calibration and programming by PC

Test equipment EPS 815

Retrofit kit VPM 844

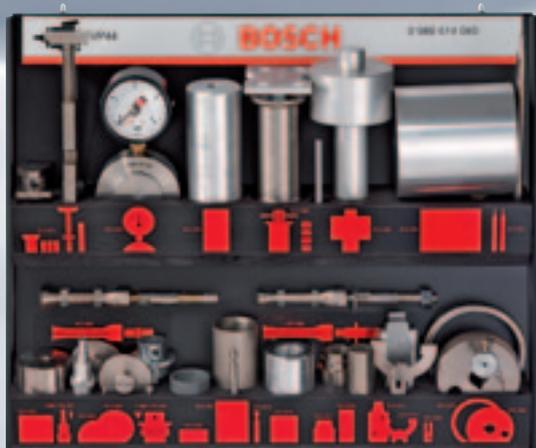
For testing VP 29/30/44

Scope of delivery VPM 844

Special connecting cables, clamp-on sensors, flanges, connection unit, speed sensor, precision voltage stabilizer, various small parts

Designation	Order number
Retrofit kit VPM 844 for solenoid valve controlled distributor pumps 29/30/44 Important: Coolant temperature for tests of VP 29/30/44 permissible up to maximum 17 °C. Additional measures may be necessary on site if the temperature is exceeded	available soon
Accessories	
Computer unit WIN 2000, VP 44 multilingual, without keyboard Note: If WIN 2000, PC 1 687 022 958 is already present, only order the VP-M retrofit kit	available soon
Retrofit kit VP-M for conversion of CR (PC) to VP 44 (PC)	available soon
Transformer conversion kit 400 - 500 V for EPS 815 ¹	1 687 001 800
Transformer conversion kit 200 - 240 V for EPS 815 ¹	1 687 001 801
Test pressure line L= 350 mm (Ford/Rover VP 29/30)	1 680 750 100
Test pressure line L= 450 mm (Audi/BMW/Ford/Nissan/Opel VP 44)	1 680 750 101
Test pressure line L= 845 mm (Cummins/John Deere/MAN/Nissan/VM Motori/Volvo VP 44)	1 680 750 102
Test pressure line L= 450 mm (Opel VP 29/SISU, Perkins VP 30)	1 680 750 103
Adapter line PSG2 (pump control unit model 2 only VP 44)	1 684 465 498
Calibration nozzle holder combination model IX Passenger car/commercial vehicle (d= 0.5), 6 units recommended	1 688 901 116
Calibration nozzle holder combination model X Passenger car (d= 0.4), 6 units recommended (only VP 44)	1 688 901 118
Calibration nozzle holder combination model X Commercial vehicle (d= 0.5), 6 units recommended (only VP 44)	1 688 901 119
Bench stand Audi, 2 units necessary (only VP 44)	1 688 030 186
Heat exchanger (2,500 bar)	available soon
Update set for old heat exchanger 1 687 010 130 (1,800 bar) for customers who use retrofit kit CRS 845 H (2,500 bar)	available soon
Cable clip set	1 680 190 018
Specified data on CD TestData for CR injectors (passenger car/commercial vehicle) and CR/VP-M pumps Note: Update subscription via ESI[tronic] ServiceLine	1 687 370 270

Solenoid valve controlled distributor pumps: VP 29/30/44



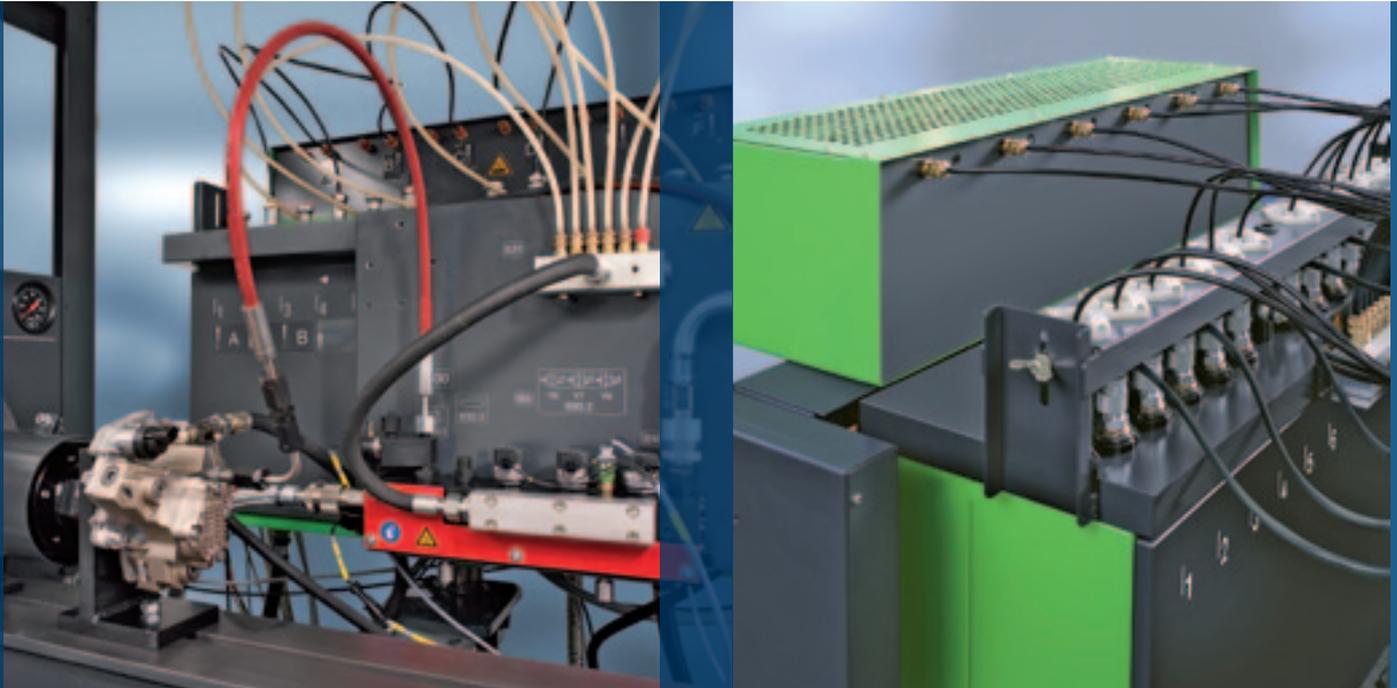
Tool set for repair of electronically controlled distributor injection pumps (VR)

Repair tools

Designation	Order number
Repair tools VP 29/30/44	
Tool set, tool board, equipped	0 986 614 040
Scope of delivery	
Tool tray, tool board, empty	0 986 614 042
Striking tool for drive pinion	0 986 612 252
Assembly device for locking ring	0 986 612 255
Assembly mandrel for vane-type supply pump	0 986 612 448
Press-in tool for flange shaft seal	0 986 612 846
Press-in tool for flange shaft seal	0 986 612 844
Dynamometer for press-in force	0 986 612 459
Puller for shaft seal	0 986 612 465
Press-in tool	0 986 612 503
Assembly mandrel for high-pressure sealing ring	0 986 612 808
Socket wrench for overflow valve	0 986 612 809
Sleeve for drive shaft	0 986 612 810
Mandrel for coupling assembly	0 986 612 812
Disassembly tool for PCB track film	0 986 612 813
Assembly device for distributor body	0 986 612 816
Assembly device for timing device plunger	0 986 612 817
Press-on plate for angle-of-rotation sensor film	0 986 612 818
Power screwdriver for clamping nut	0 986 612 819
Bolt for cam ring	0 986 612 822
Puller for deep groove ball bearing	0 986 612 823
Press-off device for diaphragm	0 986 612 829
Test device for drive shaft position	0 986 614 046
Measuring device	1 688 130 237
Measuring device	1 688 130 239

Common Rail System:

Basis set for CR components (CP/CRI)



Test equipment EPS 815

Retrofit kit CRS 845 H

Basis for testing Common Rail components

- ▶ Software-controlled test
- ▶ Return flow pressure control by regulating valve
- ▶ Adaptation and fixtures for various components with corresponding special accessories
- ▶ High-pressure rail that functions as a pressure accumulator, including pressure sensor and integrated controller.
- ▶ Distributor for separation of the volume flow before cooling and volume measurement

The retrofit kit CRS 845 H enables reliable testing of Diesel components up to a pressure of 2,500 bar. The corresponding special accessories sets are available for testing various high-pressure pumps.

Scope of delivery CRS 845 H

Splash protection, control unit, test rail 2,500 bar, various adapters and connecting lines, regulating valve, various small parts

Designation	Order number
Retrofit kit CRS 845 H for Common Rail components	available soon
Special accessories	
Update set to 1,800 bar required for existing CRS 845 with manufacturing date before 05/2006	1 687 001 612
Update set CRS 845 H required if CRS 845 (1,800 bar) 1 687 001 845 is already present and is to be updated to 2,500 bar CRS 845 (1,800 bar) => CRS 845 H (2,500 bar)	available soon
CP1/CP1H pump set	available soon
CP2 pump set (lube oil supply required)	available soon
CP3 pump set (lube oil supply is required for CP3.3/3.4)	1 687 010 182
CP third-party pump set (Delphi/Denso/Siemens) Successor set for 1 687 010 161/162/166	1 687 010 183

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Common Rail System: CP1/CP1H



Special accessories set CP1 permits testing of Common Rail high-pressure pumps of the first generation.



Repair of Common Rail high-pressure pumps of the model series CP1 and CP1H

Test equipment EPS 815/EPS 708

Designation	Order number
Special accessories set CP1 Can be used on EPS 815 (can also be used for EPS 708, but is not specially recommended for the EPS 708, as parts are delivered that are not required on the EPS 708)	available soon
Special accessories set CP1/CP3 Can only be used specifically on EPS 708 (the CP1 and CP3 set scope of delivery has been adapted and grouped for the EPS 708)	available soon
High-pressure hose 2,500 bar 1,000 mm	available soon

Scope of delivery of special accessories set CP1

Drive flange, cone 20 CP1, Drive flange Oldham CP1, Clamping flange CP1, Connection set CP1 pumps DC

Scope of delivery of special accessories set CP1/CP3

Drive flange, cone 20 CP1, drive flange Oldham CP1, clamping flange CP1, connection set CP1 pumps DC, drive flange cone 25 CP3, M14 x 1.5, clamping flange CP3, pressure hose for connection of volume flow measurement, fitting, O-ring, 8 x 2,5, retaining plate, drive flange cone 25, M18 x 1.5, drive flange CP3 Oldham, ring fitting, T fitting, hose clamp, adapter 1 x CP3, pressure gauge 0...600 kPa, pressure gauge -100...250 kPa, parts set throttle, metering unit ZME 0928B00561 for 1L/H, software package, CD-ROM, hose line NW12.5 AD15 length 600 mm, union nut M22 x 1.5 x 17, cutting ring, installation instructions, operating instructions, various small parts

Repair tools

Designation	Order number
Repair tools CP1/CP1H	
Tool set, tool board, equipped	0 986 614 360
Scope of delivery	
Tool tray, tool board, empty	0 986 614 362
Puller for radial shaft seal	0 986 611 821
Puller for pressure-control valve	0 986 612 062
Press-in tool for low-pressure connection	0 986 612 200
Press-in tool for low-pressure connection	0 986 612 201
Press-in tool for low-pressure connection	0 986 612 205
Puller for barrel-and-valve assembly	0 986 612 397
Dummy plug for housing bore	0 986 612 413
Parts set for shaft seal	0 986 612 422
Adjusting screw for cylinder-head cover	0 986 612 501
Guide pin for short-circuiting ring	0 986 612 598
Assembly sleeve for shaft	0 986 612 779
Assembly sleeve for O-ring	0 986 612 787
Spacer tube	0 986 612 801
Support flange	0 986 612 806
Puller for flange	0 986 612 820
Assembly sleeve for cone shaft	0 986 612 884
Press-in tool for low-pressure connection	0 986 612 886
Assembly mandrel for gear pump	0 986 611 665
Assembly mandrel for gear pump	0 986 611 675
Press-in tool for low-pressure connector	0 986 612 904

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Installation and removal tools on the next page

Common Rail System: CP2



With its CP2 Common Rail pump, Bosch has a special commercial vehicle application in its range. It is currently used for Mitsubishi and RVI.

The **special accessories set CP2** permits testing of these commercial vehicle Common Rail pumps.

Test equipment EPS 815

Designation	Order number
Special accessories set CP2	available soon
High-pressure hose 2,500 bar 1,000 mm for CP2 testing, two hoses are necessary	available soon

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Scope of delivery CP2

Throttle, banjo union for D=16, AD15, hose line NW12.5, AD15, L=1100, M14 x 1.5-A15, M14 x 1.5, T-threaded connection AD15-10-15, swiveling screw-fitting AD15-M18 x 1.5, pressure gauge 2.5 MPa, steel pipe AD15, hose line NW8 AD10, L=1350, screw connection, speed sensor adapter line, adapter line for DMV, connecting line to CP2, pressure hose ID8, PVC hose, printed circuit board equipped, single-stage box filter, plug screw M18 x 1.5, temperature sensor, clamping flange, O-ring 12.5 x 2.5, bracket, flat sealing ring A18 x 22, intake line retrofit kit, CD-ROM, software package, installation instructions, operating instructions, various small parts

Repair tools

Designation	Order number
Repair tools CP2	
Assembly sleeve for radial shaft seal	0 986 611 037
Roller tappet holder	0 986 611 298
Assembly sleeve	0 986 611 992
Assembly device for roller tappet	0 986 611 993
Clamp block	0 986 611 072
Tool kit for bottom blanking plug	0 986 612 139
Assembly device for drive gear	0 986 612 857
Tappet holder	0 986 612 858
Puller for drive bearing cap	0 986 612 859
Puller for barrel-and-valve assembly	0 986 612 860
Assembly sleeve for upper element sealing ring	0 986 612 861
Assembly sleeve for lower element sealing ring	0 986 612 862
Support ring for shaft seal	0 986 612 863
Assembly mandrel for shaft seal	0 986 612 864
Press-in tool for barrel-and-valve assembly	0 986 612 865
Guide pin for drive bearing cap	0 986 612 866
Guide pin for housing assembly	0 986 612 867
Assembly device for bearing cap/housing	0 986 612 868
Assembly mandrel for bottom blanking plug	0 986 612 869

Removal and installation tools

Designation	Order number
Locking device for crankshaft	0 986 612 741
Spacer for belt pulley	0 986 612 744

Common Rail System: CP3



New opportunities for the Diesel workshop

Powerful, modern Common Rail Systems are making an increasing impact on the market. The latest generation of high-pressure pumps is deployed here, the volume-controlled CP3.

The **special accessories set CP3** from Bosch makes professional diagnostics in the workshop and the repair of the latest Diesel Systems possible. For sophisticated component repair, the Diesel specialists also have Bosch know-how at their disposal.

Test equipment EPS 815/EPS 708

Designation	Order number
Special accessories set CP3 Can be used on EPS 815 (can also be used for EPS 708, but is not specially recommended for the EPS 708, as parts are delivered that are not required on the EPS 708)	1 687 010 182
Special accessories set CP1/CP3 Can only be used specifically on EPS 708 (the CP1 and CP3 set scope of delivery has been adapted and grouped for the EPS 708)	available soon
Further special accessories:	
High-pressure hose 2,500 bar 1,000 mm	available soon
Update set CP3.4 return line connection ¹	1 687 016 061

¹ CP3.4 return line connection, included as of 09/2009 in the scope of delivery of the CP3

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Scope of delivery CP3

Drive flange, cone 25 CP3, M14 x 1.5, clamping flange CP3, fitting, O-ring, 8 x 2.5, retaining plate, drive flange, cone 25, M18 x 1.5, drive flange CP3 Oldham, banjo union, T-adapter, hose clip, adapter 1 x CP3, pressure gauge 0...600 KPa, pressure gauge -100...250 KPa, throttle parts set, metering unit ZME 0928B00561 for 1L/H, software package, CD-ROM, hose line NW12.5 AD15, length 600 mm, cap nut M22 x 1.5 x 17, cutting ring, installation instructions, operating instructions, various small parts

Repair tools

Designation	Order number
Repair tools CP3 flange	
Tool set, tool board, equipped	0 986 610 360
Scope of delivery	
Tool tray, tool board, empty	0 986 610 362
Guide sleeve for press-in tool	0 986 612 907
Support for press-in tool	0 986 613 114
Support for pre-pressing/pressing in housing bush	0 986 613 142
Downholder for pre-pressing/pressing in housing bush	0 986 612 849
Support for holder	0 986 613 141
Screw clamp	0 986 612 414
Rail	0 986 613 148
Plunger for housing bush	0 986 613 126
Plunger for housing bush	0 986 613 283
Plunger for housing bush	0 986 613 124
Plunger for housing bush	0 986 613 112
Plunger for housing bush	0 986 613 140
Press-in tool for housing bush	0 986 613 137
Axial measuring device for measuring axial clearance	0 986 610 281
Axial measuring device for measuring axial clearance	0 986 610 282
Clamp block for measuring axial clearance	0 986 611 096
Adapter for measuring axial clearance	0 986 612 835
Sleeve for extending the bell	0 986 613 128
Fastening	0 986 613 113
Screw for guide piece	0 986 613 399

Scope of delivery continued on next page

Common Rail System: CP3

Repair tools

Designation	Order number
Repair tools CP3 flange: Scope of delivery continued	
Stud bolt	0 986 612 992
Stud bolt	0 986 612 993
Stud bolt	0 986 612 994
Collet for removing housing bush	0 986 613 129
Collet for removing housing bush	0 986 613 280
Collet for removing housing bush	0 986 613 120
Collet for removing housing bush	0 986 613 130
Test adapter for leak test of outer shaft seal	0 986 612 887

Designation	Order number
Repair tools for CP3 housing	
Tool set, tool board, equipped	0 986 610 370
Scope of delivery	
Tool tray, tool board, empty	0 986 610 372
Washer for flange bush	0 986 613 328
Plunger for flange bush	0 986 613 327
Plunger for flange bush	0 986 613 326
Wrench socket, Torx T50 IP	0 986 613 145
Washer for disassembly of thrust rings	0 986 613 374
Guide pin for disassembly of thrust rings	0 986 613 375
Nut for disassembly of thrust rings	0 986 613 376
Washer for calking thrust rings	0 986 613 377
Washer for calking thrust rings	0 986 613 378
Sleeve for calking thrust rings	0 986 613 381
Sleeve for calking thrust rings	0 986 613 382
Sleeve for calking thrust rings	0 986 613 383
Guide sleeve for pressing in flange bushes	0 986 613 362
Guide sleeve for pressing in flange bushes	0 986 613 364
Guide sleeve for pressing in flange bushes	0 986 613 451
Guide sleeve for pressing in flange bushes	0 986 613 457
Guide sleeve for pressing in flange bushes	0 986 613 323
Support for pressing in flange bushes	0 986 613 359
Plunger for flange bush	0 986 613 324
Plunger for flange bush	0 986 613 325
Assembly sleeve for O-ring of cascade overflow valve	0 986 611 706
Assembly sleeve for cone shaft	0 986 612 883
Assembly sleeve for shaft	0 986 612 779
Assembly sleeve for shaft	0 986 612 831
Assembly sleeve for O-ring of metering unit	0 986 611 815
Assembly sleeve for overflow valve	0 986 613 152
Assembly sleeve for O-ring of metering unit	0 986 611 851
Assembly sleeve for cone shaft	0 986 612 884
Press-in tool for inner flange shaft seal	0 986 612 841
Stamping tool for eliminating distortion in the flange	0 986 613 371
Stamping tool for eliminating distortion in the flange	0 986 613 372

Designation	Order number
Repair tools for CP3 housing: Scope of delivery continued	
Stamping tool for eliminating distortion in the flange	0 986 613 373
Stamping tool for eliminating distortion in the flange	0 986 610 289
Press-in tool for flange shaft seal	0 986 612 845
Press-in tool for flange shaft seal	0 986 612 844
Press-in tool for flange shaft seal	0 986 612 843
Press-in tool for flange shaft seal	0 986 610 256
Press-in tool for flange shaft seal	0 986 612 842
Press-in tool for flange shaft seal	0 986 612 846
Press-in tool	0 986 612 503
Rotary button for pump shaft	0 986 613 160
Socket wrench for low-pressure connections	0 986 611 489
Socket wrench for low-pressure connections	0 986 612 991
Plunger for flange bush	0 986 613 352
Washer for flange bush	0 986 613 353
Washer for flange bush	0 986 613 354
Support for flange bush	0 986 613 355
Washer for flange bush	0 986 613 356
Washer for flange bush	0 986 613 357
Plunger for washer	0 986 613 358
Fastener for flange bush	0 986 613 363
Screw for guide piece	0 986 613 399
Piston ring for calking the flange thrust ring	0 986 612 854
Piston ring for calking the flange thrust ring	0 986 612 855
Piston ring for calking the flange thrust ring	0 986 612 853
Piston ring for calking the flange thrust ring	0 986 612 856
Piston ring for calking the flange thrust ring	0 986 613 316
Piston ring for calking the flange thrust ring	0 986 610 283
Disassembly tool for removing the flange thrust ring	0 986 613 385
Plunger for flange bush	0 986 613 367
Plunger for guiding the press-in tool for flange bush	0 986 613 368
Plunger for flange bush	0 986 613 361
Plunger for flange bush	0 986 613 369
Washer for calking the friction washer	0 986 613 384
Support for aligning the load sensor	0 986 613 386
Support for flange bush	0 986 613 365
Support for flange bush	0 986 613 366

Designation	Order number
Additional repair tools CP3	
Load sensor for shaft seals, bushes, etc.	0 986 612 878
Force transducer for pressures	0 986 612 997
Puller for shaft seals	0 986 612 465

Common Rail System: CP from Delphi / Denso / Siemens



Common Rail – the future of the Diesel engine

As early as 1997, the first Diesel vehicle series was fitted with a Common Rail System. Since then, the triumphal progression of this technology is unstoppable.

In the field of Diesel fuel injection, Bosch is the worldwide leading partner of the automobile industry, with high market shares in vehicle initial equipment.

In the meantime, systems from other suppliers, e.g. Delphi, Denso and Conti/Siemens, are also being used by various vehicle manufacturers.

These components can be tested using the **special accessories set CP Delphi/Denso/Siemens**.

Test equipment EPS 815 / EPS 708

Test equipment for Common Rail components from other manufacturers

With its component test benches EPS 815 and EPS 708, Bosch offers Diesel specialists an extensive, complete solution, which also permits testing of Common Rail pumps and injectors from other manufacturers. For that, the test equipment range has been extended by further accessory sets.

New: In addition to our own test values CD "TestData", test values for Diesel components from Delphi, Denso and Conti/Siemens for EPS 815, EPS 708 and EPS 200 are available from the data provider Refdat and can be downloaded from the workshop under www.refdat.net

Special accessories set CR pumps Delphi/Denso/Siemens

This special accessories set enables testing of Common Rail high-pressure pumps from the manufacturers Delphi/Denso/Siemens on the EPS 815.

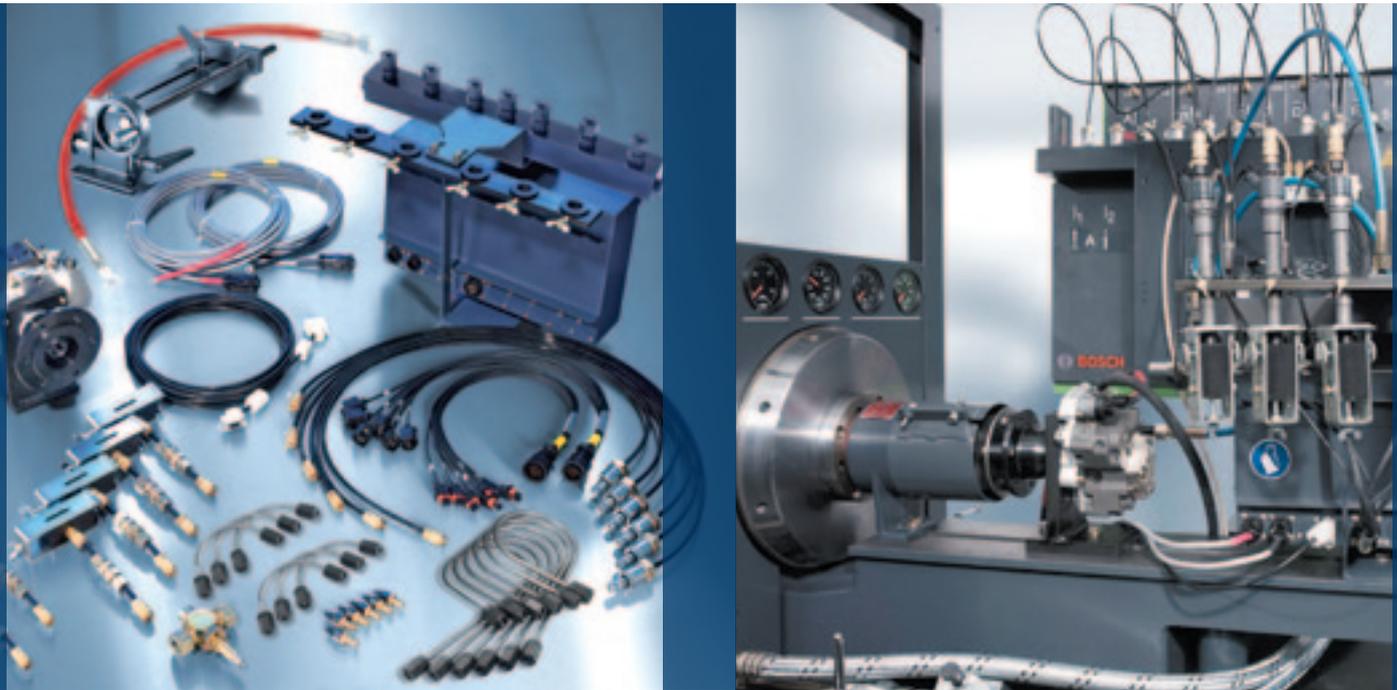
A requirement is the retrofit kit CRS 845 (1,800 bar) or CRS 845 H (2,500 bar).

Designation	Order number
Special accessories set CR pumps Delphi/Denso/Siemens	1 687 010 183
Further special accessories:	
High-pressure hose 2,500 bar 1,000 mm	available soon
Update set for existing special accessories sets for pumps of other manufacturers 1 687 010 161, 1 687 010 162, 1 687 010 166	1 687 010 184

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Common Rail System: CRI¹ from Bosch and basis set for CR injectors

¹ Solenoid valve controlled injectors



Test equipment EPS 815/ EPS 708

Retrofit kit CRI 846 H for passenger cars, six-way clamping/for commercial vehicles, two-way clamping, including passenger cars special accessories set for testing Common Rail injectors

- ▶ Up to 6 passenger car injectors (1st and 2nd generation) can be fixtured for one test sequence
- ▶ High measurement accuracy and tight manufacturing tolerances for future reclassification of injectors after repair, as well as testing of injectors with IMA² technology

Scope of delivery CRI 846 H

High-pressure pump CP3, distributor rail, injection chambers for CRI, electronic control unit (already prepared for UI/UP) with fixture device for up to 6 passenger car injectors, set of electrical connecting cables and test pressure lines, TestData CD with current test values.

² Injector delivery compensation

Designation	Order number
Retrofit kit CRI 846 H incl. special accessories set for Common Rail injectors on passenger cars (CRS 845 required) For testing Bosch solenoid-valve injectors on passenger cars (100%) and base set for piezo, 3rd-party and commercial vehicle injectors. Prior to commissioning of the test kit, calibration of the rail pressure sensor at the EPS 815 is necessary	available soon
Special accessories	
Update set swivel device, required for existing CRI 846 with manufacturing date before 06/2006 (for adaptation of Common Rail injectors). As of delivery date 06/2006, the swivel device is included in the CRI 846	1 688 120 174
Update set CRI 846 H, required if CRI 846 (1,800 bar) 1 687 001 846 is already present and is to be updated to 2,500 bar CRI 846 (1,800 bar) => CRI 846 H (2,500 bar)	available soon
High-pressure hose 250 Mpa 1000 mm	1 687 016 064
Adapter, required if a set combination CRS 845 (1,800 bar) and CRI 846 H (2,500 bar) is applied. Limits the system to 1,800 bar	available soon
CRIN test set For Bosch commercial vehicle injectors. For CRIN clamping device, 1x CRIN set 1 687 001 XXX is required. For two CRIN clamping devices, 2x CRIN sets 1 687 001 XXX and 1x adapter line 1 684 463 711 are required	available soon
CRI Delphi/Denso for passenger car injectors	1 687 010 186
CRI Piezo for testing piezo injectors from Bosch, Siemens and Denso	available soon

Common Rail System: CRI/CRIN¹ from Bosch and basis set for CR injectors

¹ Solenoid valve controlled injectors



Testing injector from Bosch and other manufacturers quickly and tidily

For testing:

- ▶ 4 commercial vehicle injectors
- ▶ 6 passenger car injectors

Test equipment EPS 815/ EPS 708

Retrofit kit CRI/CRIN 848 H for passenger cars, six-way clamping/for commercial vehicles, four-way clamping

Designed for all Common Rail injectors. The new clamp permits testing of Bosch CRI/CRIN and CRIs from other manufacturers. CRINs from other manufacturers can be tested in future. The exclusive adapter and quick-action locking mechanism ensure rapid operational readiness. The retrofit kit is perfectly designed for efficient Diesel component testing of injectors in passenger cars and commercial vehicles.

- ▶ CRI/CRIN 848 H: Alternative to the CRI 846 H
- ▶ Can be upgraded to CRI/CRIN 848 H for current CRI 846 and future CRI 846 H customers
- ▶ Flexible: Modular concept for the EPS 815 and EPS 708

Scope of delivery CRI/CRIN 848 H

High-pressure pump CP3, distributor rail, universal injection chamber for CRI and CRIN, hose line HD 250 Mpa, electronic control unit (already prepared for UI/UP) with clamping fixture for up to six passenger car injectors and up to four commercial vehicle injectors, set with electrical connection cable and test pressure lines, CD TestData with current test setpoint values

Designation	Order number
Retrofit kit CRI/CRIN 848 H	available soon
Special accessories	
17 Adapter sets and 35 cover plates	available soon
Update set for customers with CRI 846 or CRI 846 H	available soon
High pressure hose 250 Mpa 1,000 mm (for EPS 815: see product offer sheet page 58 - item 6) (for EPS 708: see product offer sheet page 62 - item 3)	available soon
High pressure hose 250 Mpa 700 mm, only necessary for EPS 708 (for EPS 708: see product offer sheet page 62 - item 3)	available soon
Delphi/Denso CRI for passenger car injectors	1 687 010 186
Piezo CRI for testing piezo injectors from Bosch, Siemens and Denso	available soon

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Common Rail System: CRIN¹ from Bosch (for use with CRI 846 H)

¹ Solenoid valve controlled injectors



Test equipment EPS 815/ EPS 708

The **special accessories set CRIN** permits testing of commercial vehicles injectors of 1st and 2nd generation (without HEX-NIMA).

A precondition for the use of the special accessories set CRIN is availability of retrofit kit CRI 846 or CRI 846 H.

Scope of delivery CRIN

3 assembly frames with high-pressure connection, clamping pieces, injection chamber with adapter sleeves, injector backflow line connection set, electric connection cable and CD TestData with current test values

Designation	Order number
CRIN special accessories set for Bosch commercial vehicle injectors of 1st and 2nd generation. Includes 1 687 016 060 and 1 687 016 062 Note: CRI 846 or CRI 846 H required. If existing CRIN set 1 687 001 599 is used, use corresponding extension sets (1 687 016 060 and 1 687 016 062)	available soon
Special accessories CRIN ADD ON – adapter line for simultaneous testing of 2 CRINs	1 684 463 711
High-pressure hose 2,500 bar 1,000 mm	available soon
Update sets for existing CRIN set 1 687 001 599 Update set: Includes extended return line for future CRIN with larger return volume	1 687 016 060
Update set: Includes new clamping elements for the latest CRIN applications	1 687 016 062

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Common Rail System: CRI/CRIN¹ from Bosch

¹ Solenoid valve controlled injectors



Repair tools CRI/CRIN/UI

Level 1 – assembly fixture

Assembly fixture for nozzles or nozzle-retaining nuts of Common Rail and UI injectors.

Designation	Order number
Assembly fixture for nozzle and retaining nut replacement CRI/CRIN	0 986 610 130
Assembly set for O-ring assembly CRI/CRIN	0 986 612 930
Alternative	
Assembly fixture for nozzle and retaining nut replacement UI and base assembly fixture for CRI/CRIN (accessory set 0 986 613 500 necessary)	0 986 613 400
Accessory set for base assembly fixture necessary for CRI/CRIN	0 986 613 500

Level 2 – CRI/CRIN set 1, carrying case

Carrying case contains tools for replacing high-pressure sealing ring on the CRI. Assembly fixture 0 986 613 600 for use with tool set 0 986 613 650 for replacement of the high-pressure sealing ring. Extension for CRIN injector with 0 986 613 699

Designation	Order number
Assembly fixture for use with 0 986 613 650	0 986 613 600
CRI/CRIN set 1, carrying case Note: The foam inserts are already prepared to fit tools of level 1.	0 986 613 650
Accessory set for CRIN injectors (space available in the carrying case 0 986 613 650)	0 986 613 699

Removal and installation tools CRI/CRIN

Designation	Order number
Rotating device for injector	0 986 611 481
Puller for CRI	0 986 611 499
Striking tool for injector (CR)	0 986 612 727
Cleaning set for compressed air adapter	0 986 612 729
Sealing bolt for combustion chamber	0 986 612 734
Puller for injector	0 986 612 782
Removal claw for CRI (MB, PSA)	0 986 612 872

Common Rail System: CRI / CRIN¹ from Bosch

¹ Solenoid valve controlled injectors



Full repair of passenger car Common Rail injectors (CRI) and commercial vehicle Common Rail injectors (CRIN).

Collection (packages) of repair and measuring tools, assembly tools, and testers in line with requirements and according to customer profiles.

Repair tools

Level 3 - tools for complete repair of solenoid-valve-controlled Bosch injectors

For first-time users/workshops that have so far not carried out any injector repairs.

First-time user package: CRIN level 3

Designation	Order number
First-time user package: CRIN level 3	0 986 610 700
Equipment supplied:	
Carrying case CRI/CRIN set 2 (measurement and calibration)	
Carrying case CRI/CRIN set 3 (assortment of measurement accessories)	
Carrying case CRI/CRIN set 4 ("first-time users")	
Carrying case, torque wrench with CRI-specific content	
Control unit, CRR 120 (pneumatic activation), manual	
Control unit, CRR 220 (electric activation), manual	
Carrying case CRI shim	
Assembly fixture CRR 130 (CRI 2.1)	
Power screwdriver for removal of the injector	
Clamping fixture for injector mounting	
Conversion kit	
Required special accessories	
Base set of shims	F 00Z C99 016
Set of shims CRI	F 00Z C99 009
Precision voltage regulator	1 687 022 873

Retrofit set

Designation	Order number
Retrofit kit CRI, level 3	0 986 610 715
Set of shims CRI	F 00Z C99 009

For first-time users/workshops that have so far not carried out any injector repairs.

First-time user package: CRIN level 3

Designation	Order number
First-time user package: CRIN level 3	0 986 610 710
Equipment supplied:	
Carrying case CRI/CRIN set 2 (measurement and calibration)	
Carrying case CRI/CRIN set 3 (assortment of measurement accessories)	
Carrying case CRI/CRIN set 4 ("first-time users")	
Carrying case, torque wrench with CRI-specific content	
Control unit, CRR 120 (pneumatic activation), manual	
Control unit, CRR 220 (electric activation), manual	
Carrying case CRIN shim	
Power screwdriver for removal of the injector	
Clamping fixture for injector mounting	
Conversion kit	
Required special accessories	
Base set of shims	F 00Z C99 016
Set of shims CRIN	F 00R J02 760
Precision voltage regulator	1 687 022 873

Retrofit set

Designation	Order number
Retrofit kit CRIN, level 3	0 986 610 705
Set of shims CRIN	F 00R J02 760



Repair tools

For workshops that already perform injector repair levels 1 (nozzle replacement) and 2 (high-pressure ring replacement).

Upgrade kit for CRI, level 3

Designation	Order number
Upgrade kit for CRI, level 3	0 986 610 750
Equipment supplied:	
Carrying case CRI/CRIN set 2 (measurement and calibration)	
Carrying case CRI/CRIN set 3 (assortment of measurement accessories)	
Carrying case, torque wrench with CRI-specific content	
Control unit, CRR 120 (pneumatic activation), manual	
Control unit, CRR 220 (electric activation), manual	
Carrying case CRI (without content)	
Assembly fixture CRR 130 (CRI 2.1)	
Conversion kit	
Required special accessories	
Base set of shims	F 00Z C99 016
Set of shims CRI	F 00Z C99 009
Precision voltage regulator	1 687 022 873

Retrofit set

Designation	Order number
Retrofit kit CRI level 3	0 986 610 735
Set of shims CRI	F 00Z C99 009

For workshops that already perform injector repair levels 1 (nozzle replacement) and 2 (high-pressure ring replacement).

Upgrade kit for CRIN, level 3

Designation	Order number
Upgrade kit CRI, level 3	0 986 610 760
Equipment supplied:	
Carrying case CRI/CRIN set 2 (measurement and calibration)	
Carrying case CRI/CRIN set 3 (assortment of measurement accessories)	
Carrying case, torque wrench with CRI-specific content	
Control unit, CRR 120 (pneumatic activation), manual	
Control unit, CRR 220 (electric activation), manual	
Carrying case CRIN (without content)	
Conversion kit	
Required special accessories	
Base set of shims	F 00Z C99 016
Set of shims CRIN	F 00R J02 760
Precision voltage regulator	1 687 022 873

Retrofit set

Designation	Order number
Retrofit kit CRIN, level 3	0 986 610 725
Set of shims CRIN	F 00R J02 760

Common Rail System: CRI¹ from Delphi / Denso

¹ Solenoid valve controlled injectors



Special accessories set for testing Delphi and Denso Common Rail injectors

Test equipment EPS 815 / EPS 708

Special accessories set CRI Delphi / Denso

This special accessories set enables Common Rail passenger car injectors (solenoid valve) from the manufacturers Delphi and Denso to be mounted and tested on the EPS 815 or EPS 708.

A requirement is the retrofit kit CRI 846 / CRI 846 H or CRI / CRIN 848 H.

Test above 1 Ω possible

New: In addition to our own test values CD "TestData", test values for Diesel components from Delphi, Denso and Conti/Siemens for EPS 815, EPS 708 and EPS 200 are available from the data provider Refdat and can be downloaded from the workshop under www.refdat.net

Designation	Order number
Special accessories CRI Delphi / Denso	1 687 010 186
Further special accessories:	
Update set for former CRI Delphi / Denso set 1 687 001 609. For testing injectors above 1 Ω	1 687 010 187
For testing Denso / Siemens piezo CRI and Delphi / Denso CRI solenoid valve. Required if Delphi / Denso CRI set 1 687 001 609 or 1 687 010 186 (production date before 11 / 2010) not present	available soon
Test pressure line 1,800 bar for testing CRI piezo Bosch and solenoid valve Delphi / Denso up to 1,800 bar. Note: Required if "old" CRI Delphi / Denso set 1 687 001 609 is not present. Can only be used with CRI 846 (1,800 bar)	1 687 010 185
Test pressure line 2,500 bar for testing Bosch piezo CRI and Delphi / Denso solenoid valve up to 2,500 bar. Can only be used with CRI 846 H or CRI / CRIN 848 H	available soon

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Common Rail System: CRI (Piezo) from Bosch / Denso / Siemens



Special accessories set for testing Delphi and Denso passenger car Common Rail piezo injectors

- ▶ Bosch components of the latest generation can be tested with test software and TestData CD
- ▶ Test specifications from systems from other manufacturers are available via www.refdat.net

Test equipment EPS 815 / EPS 708

Special accessories set CRI Piezo

for diagnosing passenger car Common Rail piezo injectors from manufacturers:

- ▶ Bosch
- ▶ Denso
- ▶ Siemens / Continental
- ▶ Delphi (in preparation)

The new test kit is designed for efficient and highly accurate testing of Bosch systems and systems from other external manufacturers. Testing of competitors' components is still in preparation. The workshop thus guarantees a wide base in the long-term for a reliable business growth area.

Piezo Common Rail injector testing at a glance:

- ▶ Air-tightness test
- ▶ Check of coupler filling
- ▶ Check for insulating faults in the piezo module
- ▶ Injection quantity measurement at the test points:
 - pre-injection (VE)
 - idling (LL)
 - emission (EM)
 - full load (VL) - fuel return quantity
- ▶ IMA coding (incl. ISA Code) (injector voltage adjustment)
- ▶ Activation up to 220V

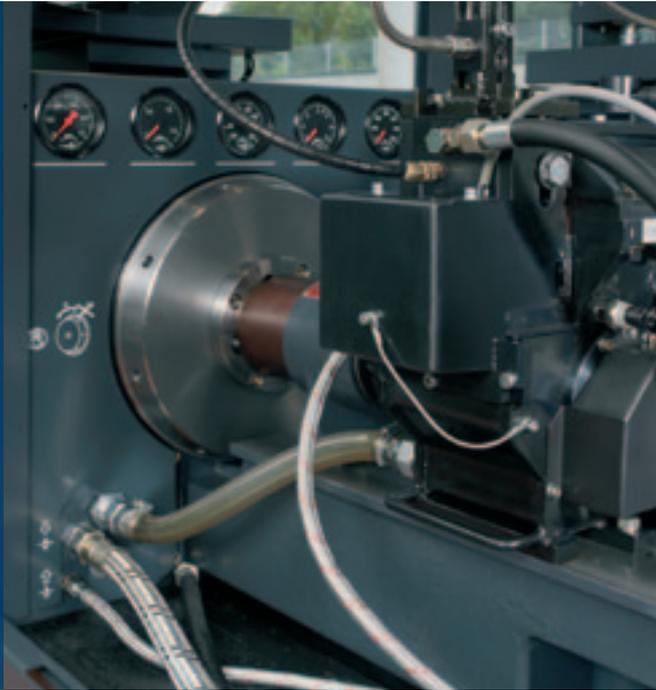
Designation	Order number
Special accessories set CRI Piezo	available soon
Further special accessories:	
Hose lines for testing CRI Piezo Denso. Required if CRI Delphi / Denso set 1 687 001 609 or 1 687 010 186 not present	available soon
Injection chambers for testing Denso / Siemens piezo CRI and Delphi / Denso CRI solenoid valve. Required if Delphi / Denso CRI set 1 687 001 609 or 1 687 010 186 (production date before 11 / 2010) not present	available soon
Test pressure line 1,800 bar for testing Bosch piezo CRI and Delphi / Denso solenoid valve up to 1,800 bar. Required if "old" Delphi / Denso CRI set 1 687 001 609 not present. Can only be used with CRI 846 (1,800 bar)	1 687 010 185
Test pressure line 2,500 bar for testing Bosch piezo CRI and Delphi / Denso solenoid valve up to 2,500 bar. Only to be used with CRI 846 H or CRI / CRIN 848 H	available soon

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Removal and installation tools

Designation	Order number
Puller for CRI	0 986 611 499
Adapter for UP, CRI Piezo	0 986 612 885

Unit injector / unit pump system: UI / UP



CAM 847 retrofit kit for testing Unit Injector and Unit Pump systems

The basis for testing Unit Injector and Unit Pump systems is the injection component test bench EPS 815 from Bosch. The CAM 847 retrofit kit guarantees that the functional test of Bosch systems is in accordance with manufacturer's specifications.

Testing of competitors' systems is still in preparation.

Test equipment EPS 815

CAM 847 retrofit kit – complete testing of UI and UP systems

Full performance development, high injection pressures and a long service life are trademarks of Unit Injector and Unit Pump systems. With the CAM 847 retrofit kit, Bosch now rounds off the use of EPS 815 as a universal test bench, allowing UI and UP systems to be tested.

Flexible design

Bosch offers two versions of the CAM 847 retrofit kit:

- ▶ Complete package with Camboxes and 12 adaptations for test Bosch UI and UP systems
- ▶ Individual package for customized and market-oriented compilation of the necessary adapter sets

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Efficient work

- ▶ Space-saving Cambox
- ▶ Timesaving by testing with universal cam
- ▶ Significantly reduced setup times in the workshop thanks to the simulation of all relevant system strokes via adaptations
- ▶ Automated test sequence

Unit injector / unit pump system:

UI / UP Complete package



The basis for testing Unit Injector and Unit Pump systems is the complete package. It contains the Cambox and 12 adapters required for testing UI and UP systems from Bosch.

Individual package see page 44

Test equipment EPS 815

Retrofit kit CAM 847 complete package

Designation	Order number
Retrofit kit CAM 847 including 12 adaptations Note: For testing UI-P, UI-N and UP	1 687 001 847
Special accessories	
Test nozzle-holder assembly required for CAM 847 if VPM 844 not present	1 688 901 119
Test nozzle-holder assembly required for CAM 847, if test DHK 1 688 901 034 + nozzle-retaining nut 1 683 373 081 not present	1 688 901 120

Please note additional test set accessories and accessories for test benches (see quotation sheets)

Unit injector / unit pump system: UI / UP Individual package



Flexible arrangement with the CAM 847 individual package:

Purchase only to match your workshop requirements

- ▶ Selection of three adapter sets for customized market adaptation
 - UI-P adapter set
 - UI-N adapter set
 - UP adapter set

Test equipment EPS 815

Retrofit kit CAM 847 individual package

Designation	Order number
Retrofit kit CAM 847 without adapter sets	1 687 001 849
CAM 847 individual package cam box without adapter sets Only for EPS 815 as of manufacturing date 01/2010	1 687 001 849
UI passenger car adapter set (consisting of 2 adapters for testing Bosch UI passenger cars)	1 687 016 051
UI commercial vehicle adapter set (consisting of 6 adapters for testing Bosch UI commercial vehicles)	1 687 016 052
UP adapter set (consisting of 4 adapters for testing Bosch UP)	1 687 016 053
Nozzle-and-holder assembly suspension required for testing UP components	1 687 016 049
Injection chamber required for testing UI components	1 682 312 044
Test nozzle-holder assembly required for CAM 847 if VPM 844 not present	1 688 901 119
Test nozzle-holder assembly required for CAM 847, If test DHK 1 688 901 034 + nozzle-retaining nut 1 683 373 081 not present	1 688 901 120

Please note additional test set accessories and accessories for test benches (see quotation sheets)



Adapter set UI-P



Adapter set UI-N



Adapter set UP



Nozzle-and-holder assembly suspension

Unit injector / unit pump system: UI / UP



Assembly device for nozzle replacement



Force transducers for pressures

Repair tools

Efficient work with the assembly device UI-P:

- ▶ Optional adaptations for repair of commercial vehicles injectors and CR injectors (0 986 613 500) available
- ▶ Simple disassembly and assembly of the UI thanks to assembly device for nozzle replacement 0 968 613 400 in spite of forces between 9,000 N and 16,000 N
- ▶ Precise measured results with the already widely used force transducer 0 968 612 997

Designation	Order number
Assembly device for nozzle replacement	0 986 613 400
Force transducer in conjunction with assembly device	0 986 612 997
Support plate for UI passenger car	0 986 613 237
Support plate for UI commercial vehicle	0 986 613 499
Assembly sleeve set for assembly of O-rings on UI-P1.x	0 986 613 824
Assembly sleeve set for assembly of O-rings on UI-P2	0 986 611 490
Box wrench set, 28 a/f for nozzle clamping nut	0 986 613 238
Box wrench set, 32 a/f for nozzle clamping nut	0 986 613 240
Wrench socket, 38 a/f for solenoid clamping nut	0 986 613 239
Load sensor for shaft seals, bushes, etc.	0 986 612 878
Force transducer for pressures	0 986 612 997

Removal and installation tools

Designation	Order number
Assembly sleeve set for O-ring UI	0 986 611 490
Striking tool for removal and installation of the UI for Scania	0 986 611 492
Measuring device for measuring the UI for Scania	0 986 611 493
Puller for removing the UI for VW (passenger car)	0 986 611 494
Wrench socket for screwing in the UI in cylinder head for VW (passenger car)	0 986 612 747
Assembly sleeve for sealing rings (UI)	0 986 612 748
Puller for removal of UI from cylinder head of VW (passenger car)	0 986 612 750
Sealing plug for sealing the cylinder head for Volvo	0 986 612 751
Measuring device for measuring the UI for Volvo	0 986 612 777
Wrench socket for toothed belt tensioner	0 986 612 778
Adapter for UP, CRI	0 986 612 885

Test bench:

EPS 200



Diesel boom with new opportunities for qualified service

Modern high-pressure Diesel fuel-injection systems are the driving force behind the sustained Diesel boom. Due to the widespread use of Diesel technology, new growth areas are available to workshops in a rapidly growing market.

EPS 200 – checking Diesel components quickly with little effort:

- ▶ UI nozzles via adapters (Unit Injector)
- ▶ 1-spring/2-spring nozzle-and-holder assembly (DHK)
- ▶ Nozzle-and-holder assembly with needle-motion sensor (NBF)
- ▶ Nozzle-and-holder assembly from external brands
- ▶ Stepped holders
- ▶ Solenoid-valve CRI¹
- ▶ Solenoid-valve CRIN¹
- ▶ Solenoid-valve CRI from external brands

New: In addition to our own test values CD “TestData”, test values for Diesel components from Delphi, Denso and Conti/Siemens for EPS 815, EPS 708 and EPS 200 are available from the data provider Refdat and can be downloaded from the workshop under www.refdat.net

Higher performance in a compact format: EPS 200 Efficient Common Rail injector testing

Delivery quantity-based injector test through quantity measurement of

- ▶ Pre-injection (VE)
- ▶ Idling (LL)
- ▶ Full-load (VL)
- ▶ Fuel return

with solenoid CRI/CRIN².

Conventional nozzle testing

- ▶ Check of the combination leak-tightness (internal leak test)
- ▶ Seat-tightness test
- ▶ Electrical “chattering check”
- ▶ Measurement of nozzle-opening pressures

Updates for CRI/CRIN components can be called via the TestData CD.

Checking Diesel components **automatically**, reliably and **economically**



CRI/CRIN (Common Rail Injectors passenger cars / commercial vehicles)



UI (Unit Injector)



Nozzle holder

EPS 200 – an overview of the advantages:

User and environmentally friendly

- ▶ Integrated extractor device for minimizing oil mist in the workshop

Efficient work

- ▶ Excellent economy through automatic test sequence, simple menu guidance with graphic and numeric presentation of the measured results
- ▶ Integrated database for saving test values and customer data
- ▶ Test values already “on board” when device is delivered³, selection by part numbers
- ▶ Realistic operating status through pressure generation up to 1,800 bar by an integrated Common Rail high-pressure pump
- ▶ Warranty assessment⁴ with UI and nozzle-and-holder assembly test possible
- ▶ Integrated flushing program for clean Diesel components

Efficient operation

- ▶ Intuitive user interface with touchscreen operation or a PC keyboard

Future-proof and flexible design

- ▶ Space-saving thanks to compact shape
- ▶ Windows XP embedded operating system, monitor port, e.g. for beamer

¹ Injector rate matching classifications can not be carried out.

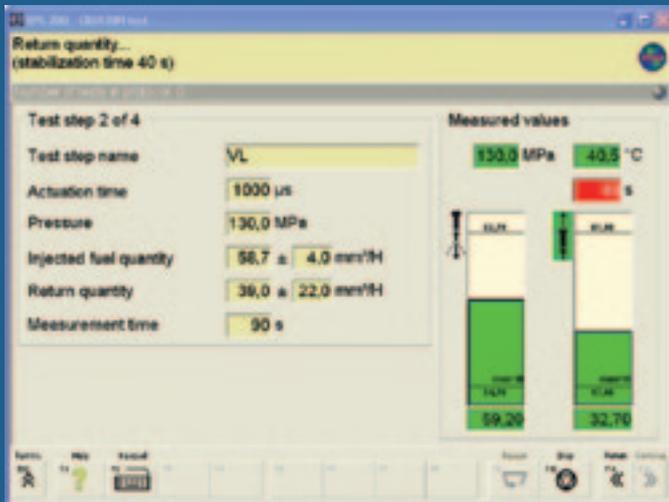
² A warranty assessment for the CRI/CRIN test is not possible with the EPS 200.

³ Opening pressures of the UIs and nozzle-and-holder assemblies (possibly with 1st and 2nd nozzle opening pressure) are included in the database. Test values for CRI/CRIN up to 12/2008 are contained in the database; an update is via the TestData CD subscription.

⁴ Simple acquisition of the EPS 200 does not entitle you to perform warranty work for Robert Bosch GmbH.

Only workshops that have a corresponding contractual relationship with Robert Bosch GmbH are entitled to do such work.

Test equipment: EPS 200



Intuitive user interface with touchscreen operation



Device overview and special accessories

Designation	Order number	Use
EPS 200 (400 V)	0 683 803 200	For checking nozzle-and-holder assembly (Bosch and external brands), UI nozzles and solenoid CRI (Bosch applications)
EPS 200 (200 V)	0 683 803 201	For checking nozzle-and-holder assembly (Bosch and external brands), UI nozzles and solenoid CRI (Bosch applications)
EPS 200 A (400 V)	0 683 803 202	As EPS 200 incl. CRI Delphi/Denso, CRIN-Bosch
EPS 200 A (200 V)	0 683 803 203	As EPS 200 incl. CRI Delphi/Denso, CRIN-Bosch
Accessories		
CRI Delphi/Denso, CRIN from Bosch	1 687 001 872	For testing solenoid-controlled CR injectors from Delphi and Denso incl. CRIN Bosch, SA for the EPS 200 basic device
Oil catcher pan ¹	1 685 411 077	Pan for placing under EPS 200
UI adapter set for commercial vehicles	1 687 010 147	3-piece UI adapter set for testing UI nozzles for Scania, Iveco and Volvo ²
UI adapter set for commercial vehicles	1 687 010 338	2-piece UI adapter set for testing UI nozzles for Iveco and Detroit ²
UI adapter set for passenger cars	1 687 001 857	3-piece UI adapter set for testing UI nozzles from the Volkswagen Group ²
UI adapter Nissan	1 681 335 111	Adapter for testing UI nozzles from Nissan
Nozzle-and-holder assembly connector	1 683 391 193	Radial
Nozzle-and-holder assembly connector	1 683 391 194	Axial, Opel
Nozzle-and-holder assembly reducing adapter	1 680 362 047	M 16 x 1.5 (commercial vehicle-specific)
Nozzle-and-holder assembly reducing adapter	1 680 362 000	M 18 x 1.5 (commercial vehicle-specific)
Nozzle-and-holder assembly reducing adapter	1 680 362 001	M 22 x 1.5 (commercial vehicle-specific)
Nozzle-and-holder assembly reducing adapter	1 680 362 044	M 24 x 1.5 (commercial vehicle-specific)
Nozzle-and-holder assembly reducing adapter	1 680 362 002	M 26 x 1.5 (commercial vehicle-specific)
Nozzle-and-holder assembly reducing adapter	1 680 362 045	M 27 x 1.5 (commercial vehicle-specific)
Printer PDR 374	1 687 001 850	Color inkjet printer incl. USB cable
CD/DVD drive ¹	1 687 022 932	External DVD drive for connection to the EPS 200
Power unit ¹	1 687 022 890	Power unit for CD/DVD drive
Mains cable ¹	1 684 461 106	Mains cable for power unit
CD EPS 200 system software	1 687 005 050	Software version 1.10 incl. pre-injection for retrofitting
CD TestData	1 687 370 270	Specified data on CD TestData for CR injectors (pass. car/comm. veh.) Note: Update subscription via ESI[tronic] ServiceLine

Test device: EPS 100



Test equipment

The Bosch injector test device EPS 100: Future-proof and flexible design

- ▶ Testing and adjustment of injection-nozzle opening pressure
- ▶ Assessment of the injection spray with regard to shape and atomization (injection-spray pattern)
- ▶ Checking for leaks in injection nozzles, and checking the chatter properties on two-spring nozzle holders, stepped nozzle holders, and UI/UP applications

Efficient work

- ▶ Reduced total error (+/- 2.4 bar) through high read-off (1 bar) and pressure gauge accuracy
- ▶ Idling vibrations of the engine can be avoided by extremely accurate analysis of the smallest possible leaks

Designation	Order number
EPS 100	0 684 200 704
Scope of delivery	
Test pressure line M 14 x 1.5/M 12 x 1.5	1 680 750 014
Test pressure line M 14 x 1.5/M 14 x 1.5	1 680 750 008
Pressure gauge 0–40 MPa 100 dia., strength class 0.6, M 20 x 15	1 687 231 211

User and environmentally friendly thanks to extraction device EPS 738 as special accessories

- ▶ Direct extraction of the oil mist when testing injection nozzles

Designation	Order number
Special accessories	
EPS 738 – extraction device 230 V/50 Hz	0 684 200 702
Test pressure line M 14 x 1.5/M 16 x 1.5	1 680 750 087
Reducing adapter M 14 x 1.5/M 18 x 1.5	1 680 362 000
Reducing adapter M 14 x 1.5/M 22 x 1.5	1 680 362 001
Reducing adapter M 14 x 1.5/M 24 x 1.5	1 680 362 044
Reducing adapter M 14 x 1.5/M 26 x 1.5	1 680 362 002
Reducing adapter M 14 x 1.5/M 27 x 1.5	1 680 362 045
Injector needle test accessories for hole pintle nozzle	1 688 130 153
Metal oil tank with cover	1 685 400 029
UI AdapterKit for commercial vehicle Scania, Iveco and Volvo	1 687 010 147
UI AdapterKit for commercial vehicle Iveco and Detroit	1 687 010 338
UI AdapterKit for passenger car Volkswagen	1 687 001 857
UI adapter for Nissan	1 681 335 111

Diagnostic tools at the vehicle



Diesel Set 1

Diesel Set 1

For low-pressure measurement at the vehicle on all passenger cars and commercial vehicles fuel systems.

Diesel Set 2

Ventilation for fuel systems with radial-piston distributor pumps and Common Rail Systems.

Diesel Set 3

Pressure build-up check on high-pressure pumps for Common Rail Systems under engine starting conditions

- Engine does not start (starter turns)
- Breakdowns (engine stalls during operation and does not start up again when the starter is turned)
- Cutouts (engine stalls)

Rail-pressure sensor comparison test in the Common Rail System

- Performance loss (no fault-code storage)

Diesel Set 3 extension set

In the framework of offboard system diagnosis, the extension set allows you to carry out a rail-pressure sensor test on engines with less than four cylinders (e.g. Smart). Measurements are possible in the complete operating range of the engine.

Volume measuring device

Return flow measurement on Common Rail injectors on passenger car and commercial vehicle systems and piezo injectors. Adaptations enable connection of many injectors to the volume measuring device.



Diesel Set 2

Designation	Order number
Diesel Set 1, checking low-pressure circuit	0 986 613 100
Scope of delivery	
Measuring device	0 986 613 001
Pressure gauge	0 986 613 102
Pressure gauge	0 986 613 103
Parts set, discharge valve	0 986 615 075
Test pressure line	0 986 613 078
Test pressure line	0 986 613 079
Test pressure line	0 986 613 080
Test pressure line	0 986 613 081
Test pressure line	0 986 613 082
Test pressure line	0 986 613 083
Test pressure line	0 986 613 084
Test pressure line	0 986 613 085
Test pressure line	0 986 613 119
Tool set, double banjo bolts	0 986 613 098
Tool set, threaded hollow connection pieces	0 986 613 037
Tool set, threaded hollow connection pieces	0 986 613 099
Adapter for return line pressure measurement	0 986 612 980
Test pressure line	0 986 613 097
Test pressure line	0 986 613 110

Designation	Order number
Diesel Set 2, venting low-pressure circuit	0 986 610 234
Scope of delivery	
Hand pump	0 986 610 305
Connecting piece	0 986 610 306
Adapter	0 986 610 307
Banjo bolt	0 986 610 310



Diesel Set 3

Designation	Order number
Diesel Set 3, checking high-pressure circuit	0 986 613 200
Scope of delivery	
Container for pressure transducer module	0 986 612 938
Hose, 60 MPa	0 986 613 272
Display unit, digital	0 986 613 163
Adapter line for pressure display pressure transducer/pressure transducer module	0 986 613 164
Charger for pressure display device	0 986 613 168
Parts set, adapter for 200 MPa hose line	0 986 613 250
Parts set, union nuts 200 MPa	0 986 613 251
Parts set, thrust rings 200 MPa	0 986 613 252
Parts set, adapter connector 60 Mpa	0 986 613 253
Parts set, union nuts 60 MPa	0 986 613 254
Parts set, thrust rings 60 MPa	0 986 613 268
Carrying case	0 986 613 199
Blanking plug for pressure transducer	1 683 212 023
Union nut for pressure transducer	1 413 313 041

Designation	Order number
Diesel Set 3, extension set	0 986 612 925
Scope of delivery	
Hose	0 986 612 963
Fitting	0 986 612 964
Elbow	0 986 612 966
Elbow	0 986 612 967
Fitting	0 986 612 968
Nut	0 986 612 969
Nut	0 986 612 971
Ring	0 986 612 979
Ring	0 986 612 983



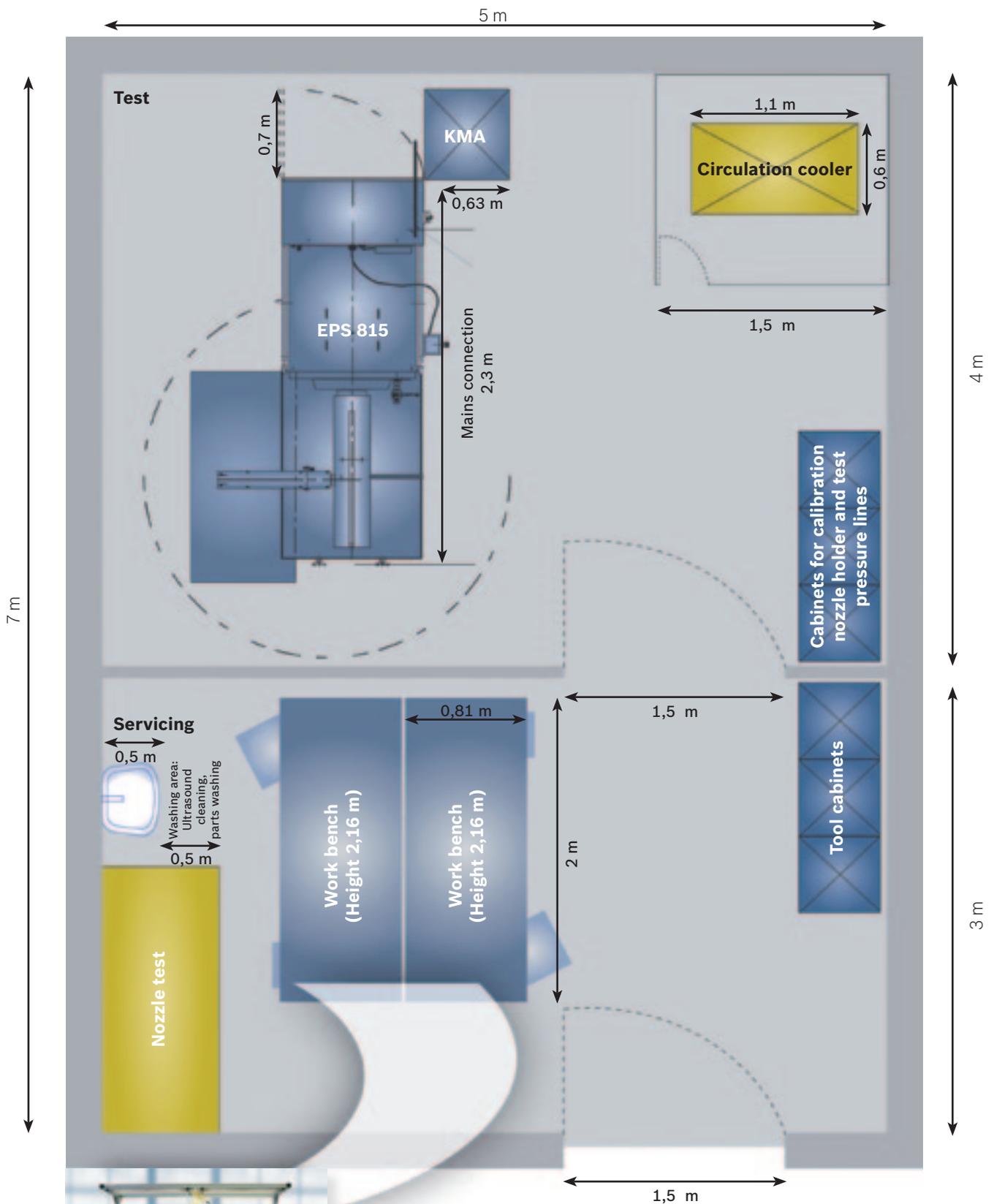
Quantity measuring device

Designation	Order number
Quantity measuring device	0 986 612 950
Adapter, screw adapter (6 pieces)	0 986 613 952
Adapter, Piezo injectors	0 986 612 922
Adapter, Piezo injectors (6 pieces)	0 986 613 922
Adapter, Delphi injectors	0 986 612 902
Adapter, Delphi injectors (6 pieces)	0 986 613 902
Adapter, Denso injectors	0 986 612 923
Adapter, Denso injectors (6 pieces)	0 986 613 923
Adapter, Siemens injectors	0 986 612 906
Adapter, Siemens injectors (6 pieces)	0 986 613 906
Sealing parts set, return line (6 pieces)	0 986 612 900
Adapter, screw adapter	0 986 613 952
Tool set for connection of return quantity measuring device (CRIN)	0 986 613 951

Further diagnostic tools

Designation	Order number
Coil, triggering signal for solenoid valve injectors (passenger car / commercial vehicle)	0 986 612 793
Test device, triggering of CRI (Piezo)	0 986 610 099
Coil, triggering signal for solenoid injectors Delphi	0 986 612 745

Space and work area requirements



The ideal work bench for Diesel service (0 986 613 300)

The workplace for servicing Diesel pumps and components must meet the highest requirements with regard to cleanliness, clarity and functionality, as even the smallest dirt particles can lead to malfunctions in the Diesel systems.

The area should be equipped as follows:

- ▶ Floor of sealed concrete with damping at the test bench bases
- ▶ Sufficient ventilation through an exhaust air system for carrying away vapors
- ▶ Noise insulation is recommended
- ▶ A water connection with supply and drain line or circulation cooler

Technical data:

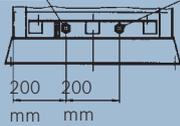
EPS 815

Dimensions of the EPS 815

Water connection G1/2" A ISO 228-1

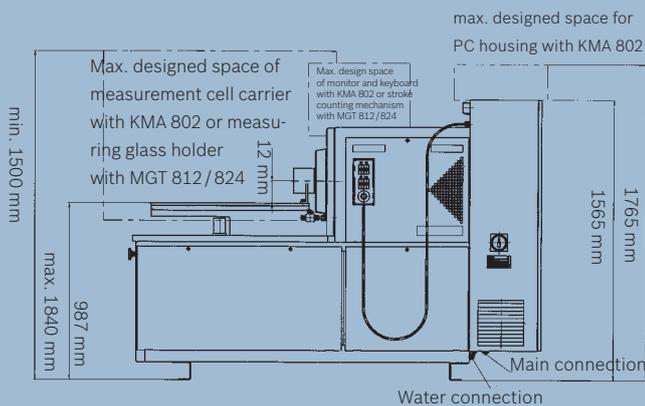
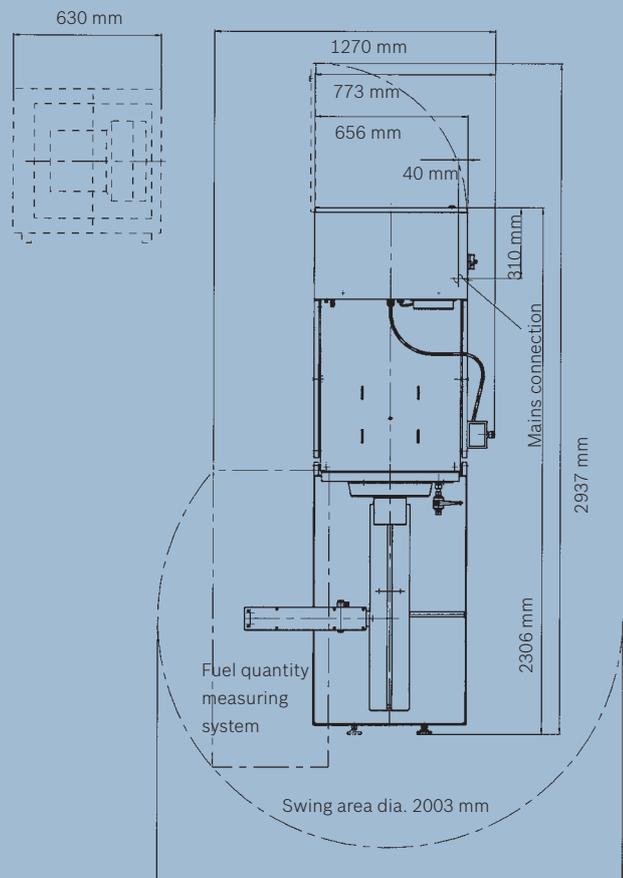
Supply line Return line

max.
17°C*



***Note:**

If the coolant temperature in the supply line exceeds 17 °C, apart from the installation of a circulation cooler (see Special accessories) it may be necessary to introduce additional onsite measures. Please consult your Bosch sales partner before doing this.



Technical data		EPS 815
L x H x W	mm	2,260 x 1,588 x 860
Weight approx.	kg	1,000
Drive:		
Special motor with full protection (thermal and overload)		
Clutch output, standard version		
Power output (duration)	kW	10.2
Power output (20 min)	kW	15
Power output (60 s)	kW	17.5
Customer-provided in-series fuse	A	35
GFC protection	mA	300
Torque limiting clutch (duration)		
0 to 590 rpm	Nm	164
0 to 850 rpm	Nm	-
at 1,500 rpm	Nm	65
at 2,500 rpm	Nm	38
Torque limiting clutch (60 s)		
0 to 590 rpm	Nm	280
0 to 850 rpm	Nm	-
at 1,500 rpm	Nm	111
at 2,500 rpm	Nm	67
Speed range	rpm	0 - 4,000
Speed range accuracy	rpm	< ± 1
Speed reaction time	µs	250
Speed adjustment rate	rpm/s	250
Direction of rotation: left/right		
Positioning accuracy (closed-loop control)	<°	0.1
Moment of inertia of graduated disk	kg/m ²	1.5
Axis height (clamping bed height to injection pump axis center)	mm	125
Coupling assembly		
Zero-backlash multiplate clutch as per ISO	Nm/°	2,600
Power supply		
12/24 V for start/stop solenoids	A	7
Delivery pump capacity		
Test oil, low pressure	kPa	0 - 600
	l/min	0 - 22
Test oil, high pressure	Mpa	0 - 6
	l/min	0 - 1.4
Lube oil pressure (special accessories)	kPa	0 - 600
	l/min	0 - 5.8
Pressure gauge		
Low pressure	kPa	0 - 600
High pressure	Mpa	0 - 6
Vacuum/pump internal pressure	kPa	-100 0 250
Delivery pump pressure	Mpa	0 - 1.6
Lube oil pressure (special accessories)	Mpa	0 - 1
Heating/cooling		
Test oil heating: electric approx.	kW	2,2
Test oil heating: Water connection	ISO 288	G ^{1/2}
Coolant consumption approx.	l/min	9
Coolant temperature max.	°C	17
Filling quantities		
Test oil approx.	l	50
Reservoir for contaminated oil approx.	l	6
Lube oil (special accessories) approx.	l	12
Testing colours		
green	RAL	6018

Technical data:

MGT 8xx / KMA 8xx

Technical data		MGT 812/MGT 824
Weight	kg	33/39
Dimensions L x H x W	mm	825 x 590 x 285 / 840 x 630 x 290
Speed range	rpm	0 – 6,400
Speed measurement accuracy	rpm	< ± 0.25% ± 1 digit
Stroke rate range in steps of 50	Stroke	50 – 5,000
Stroke rate accuracy	Stroke	< ± 0.4
Temperature measurement range	°C	-40 – +150
Temperature control range	°C	+30 – +60
Temperature measurement accuracy	°C	40 ± 0.5; 80 ± 1.2
Overflow quantity measurement	l/h	15 µ 260
Number of measurement points		12
Measuring glass size	ml	44 + 260
Operating hours counter		40 years in 0.25 hour cycles

Technical data		KMA 802/KMA 822
Weight	kg	68/100
Dimensions L x H x W	mm	840 x 630 x 290 / 630 x 1,700 x 630
Speed range		0 – 5,000
Speed measurement accuracy	rpm	< ± 0.25% ± 1 digit
Temperature measurement range	°C	-40 – +150
Temperature control range	°C	+30 – +60
Temperature measurement accuracy	°C	40 ± 0.5; 80 ± 1.2
Overflow quantity measurement	l/h	15 – 400
Number of measurement points		12
Measurement range	l/h	0.03 – 30
max./min. quantity within measurement range	mm ³ /stroke	0.2 – 3,000
Measurement accuracy	l/h	0.03 – 0.1 < ± 3 %
	l/h	0.1 – 1 < ± 2 %
	l/h	1 – 30 < ± 1 %
Maximum permitted ambient temperature	°C	40
Operating hours counter		40 years in 0.25 hour cycles
Mains voltage (present on EPS 815)		230 V – 50/60 Hz – 3 A
		28 V – 50/60 Hz – 5 A
		20 V – 50/60 Hz – 3 A

Scope of delivery MGT 812/MGT 824

- ▶ Measuring glass holder
- ▶ Stroke counting mechanism with temperature controller
- ▶ 12 measuring glasses 44 ml and 12 measuring glasses 260 ml
- ▶ 2 protective sleeves for test value sheet

Scope of delivery KMA 802/KMA 822

- ▶ Fuel delivery measurement device
- ▶ 19"-LCD color monitor on a rotary console
- ▶ Support for keyboard
- ▶ Assembly and fixing parts power supply lines
- ▶ KMA 802 for assembly on the test bench incl. DVD drive.
- ▶ KMA 822 with system carrier (trolley) for assembly beside the test bench

Technical data:

EPS 708 / EPS 200 / EPS 100

Technical data		EPS 708
L x H x W	mm	2,070 x 1,850 x 790
Weight with cooler without/with operating supplies approx.	kg	850/920
Weight (with packaging, without operating supplies) approx.	kg	950
Three-phase current – nominal voltage 400 V	VAC	380 – 440
Three-phase current – nominal voltage 230 V	VAC	200 – 240
Number of phase	P/PE	3
Input frequency	Hz	50/60
Rated current for 400 V	A	30 (fuse 35 A gG)
Rated current for 230 V	A	60 (fuse 35 A gG)
Rated output	kVA	21
Customer-provided in-series fuse	A	40
GFC protection	mA	500
Drive:		
Standstill torque (motor)	Nm	23
Maximum torque (motor)	Nm	61
Speed range	rpm	0 – 4,000
Direction of rotation: Left/right		
Axis height (clamping bed height to injection pump axis center)	mm	110
Drive coupling:		
Zero-backlash multiplate clutch as per ISO	Nm/°	2,600
Supply pump output:		
Test oil low-pressure	kPa l/min	500 3 – 6
Test oil high-pressure	Mpa l/min	220 58
Lubrication oil pressure (special accessories)	kPa l/min	0 – 600 0 – 5,8
Pressure setting:		
Rail designed for up to	Mpa	250
Test pressure	Mpa	18–220
Pre-supply-pump pressure	kPa	10 – 500
Lube oil pressure (special accessories)	kPa	100 – 600
Heating/cooling:		
Test oil heating: electrical approx.	kW	2,1
Test oil cooling: Water connection	ISO 288	2.5 bar at G1/2"
Coolant consumption approx.	°C	17
Filling volumes:		
Test oil approx.	l	55
Retaining capacity for contaminated oil approx.	l	10
Lubrication oil (special accessories) approx.	l	8
Test bench colors:		
Green	RAL	6018
Measuring technology:		
Temperature control range	°C	30 – 50
Temperature measurement accuracy	°C	±0,5

Technical data		EPS 708
Pump volume measurement	l/h	0.03 – 300
Pump overflow volume measurement	l/h	15 – 150
Injector volume measurement	mm ³ /stroke	0.03 – 30
Measurement accuracy	l/h	0.03 – 0.1 < ± 3%
	l/h	0.1 – 1 < ± 2%
	l/h	1 – 30 < ± 1%
	l/h	30 – 100 < ± 1.5%
	l/h	100 – 300 < ± 1%
Maximum permitted ambient temperature	°C	40
Separate operating hour meter	for test bench, motor and measurement cells	

Technical data		EPS 200/200 A
Three-phase current – nominal voltage EPS 200 – 400 V	VAC	380 – 460
Three-phase current – nominal voltage EPS 200 – 230 V	VAC	200 – 240
Number of phases	P/PE	3
Input frequency	Hz	50/60
Rated current for EPS 200 – 400 V	A	15
Rated current for EPS 200 – 230 V	A	27
Rated output	kW	4,2
Compressed air	Mpa	0,5 – 0,8
Operating temperature	°C	0 – 40
Degree of protection	–	IP 34
Oil pressure	MPa	180
Maximum speed	rpm	3,500
Control voltage	VDC	24
Capacity of testing oil tank	l	7
Noise emission Workplace-related emission soundpressure level as per DIN EN ISO 11201	dB(A)	< 71,5
Sound power level as per DIN EN ISO 3744	dB(A)	< 84,1
EPS 200 (H x W x D)	mm	580 x 560 x 780
Weight of EPS 200 with packaging	kg	156
Weight of EPS 200 (without testing oil and packaging)	kg	112
Oil catcher pan (H x W x D) (special accessories)	mm	30 x 570 x 720
Technical data		EPS 100
For nozzle sizes	–	P, R, S, T
Pressure gauge	bar	0 – 400
Pressure gauge	Mpa	0 – 40
Connecting thread for test pressure line	–	M 14 x 1,5
Weight	kg	4

Safety information for EPS 200:

The grounded, symmetrical 400 Volt three-phase power system and the 200 Volt three-phase power system must be protected by a residual current circuit-breaker with rated residual current of 30 mA. The 230 Volt basic device must be protected by a 32-ampere fuse and the 400 Volt basic device by a 16-ampere fuse.

Product offer sheet:

EPS 815

Item	Designation	Order number	Price excl. VAT
Test benches			
1	Injector component test benches – without measuring system		
	<i>Please choose a test bench:</i>		
1.1a	EPS 815 400 volt	0 683 815 001	
1.1b	EPS 815 200/220/230/240 volt	0 683 815 002	
1.1c	EPS 815 440/460/480/500 volt	0 683 815 003	
1.1d	Conversion kit 807 to 815 only for old generation AMKASYM converter required	1 687 001 553	
Test sets (for mechanical and electronic systems)			
2	Test sets for conventional systems (mechanical inline fuel-injection pumps, distributor injection pumps)		
2.1	Basic set	1 687 005 018	
2.1.1	A-pump set	1 687 005 019	
2.1.2	P-pump set	1 687 005 021	
2.1.3	VE-pump set	1 687 005 022	
2.1.4	M-MW pump set	1 687 005 020	
2.1.5	H-pump set	1 687 005 023	
2.2	EDC-VE: EPS 865	0 684 200 615	
2.2.1	Special accessories for EDC-VE ballast unit, required for testing EDC-VE pumps with HDK sensor	1 687 022 281	
3	Test sets for VP systems (VP 29, VP 30, VP 44)		
3.1	VPM 844 test set (VP 29/30/44) only for EPS 815 from production date 01/2000. Coolant temperature during testing VP 29/30/44 maximum 17 °C permissible.	1 687 002 844	
3.1.1	Adapter line PSG2, required for connection of pump control unit type 2 only VP 44	1 684 465 498	
3.1.2	Test pressure line L= 350 mm (Ford/Rover VP 29/30)	1 680 750 100	
3.1.3	Test pressure line L= 450 mm (Audi/BMW/Ford/Nissan/Opel VP 44)	1 680 750 101	
3.1.4	Test pressure line L= 845 mm (Cummins/John Deere/MAN/Nissan/VM Motori/Volvo VP 44)	1 680 750 102	
3.1.5	Test pressure line L= 450 mm (Opel VP 29/SISU/Perkins VP 30)	1 680 750 103	
3.1.6	Calibration nozzle holder combination type IX pass.veh./comm.veh. (d= 0.5), qty.6 recommended	1 688 901 116	
3.1.7	Calibration nozzle holder combination type X pass.veh. (d= 0.4), qty.6 recommended (only VP 44)	1 688 901 118	
3.1.8	Calibration nozzle holder combination type X comm.veh. (d= 0.5), qty.6 recommended (only VP 44)	1 688 901 119	
3.1.9	Bench stand Audi, qty.2 required (only VP 44)	1 688 030 186	
3.1.10	Cable clip set	1 680 190 018	
4	Test sets for UI/UP systems (UI-P, UI-N, UP)		
	<i>Please choose between complete package (item 4.1a) and individual package (item 4.1b):</i>		
4.1a	CAM 847 complete package incl. 12 adaptations for testing UI-P, UI-N and UP from Bosch. Only for EPS 815 from production date 01/2000	1 687 001 847	
4.1b	CAM 847 individual package, Cambox without adapter sets. Only for EPS 815 from production date 01/2000	1 687 001 849	
4.1b.1	UI pass.veh. adapter set, comprising 2 adapters for testing Bosch UI pass.veh.	1 687 016 051	
4.1b.2	UI comm.veh. adapter set, comprising 6 adapters for testing Bosch UI comm.veh.	1 687 016 052	
4.1b.3	UP adapter set, comprising 4 adapters for testing Bosch UP	1 687 016 053	
4.1b.4	DHK mounting, required for testing UP components	1 687 016 049	
4.1b.5	Injection chamber, required for testing UI components	1 682 312 044	
4.2	Test DHK, required for CAM 847 if VPM 844 not present	1 688 901 119	
4.3	Test DHK, required for CAM 847 if test DHK 1 688 901 034 + nozzle-retaining nut 1 683 373 081 not present	1 688 901 120	

Item	Designation	Order number	Price excl. VAT
5	Test sets for CRS = Common Rail System (CP, CPN, CRI, CRIN)		
5.1	CRS 845 H basic test set for CR pumps	available soon	
5.1.1	Update set from 1,600 bar to 1,800 bar, required for existing CRS 845 with production date before 05/2006	1 687 001 612	
5.1.2	Update set CRS 845 H, required for upgrading CRS 845 (1,800 bar) 1 687 001 845 to CRS 845 H (2,500 bar) 1 687 002 XXX	available soon	
5.1.3	CP1/CP1H pump set	available soon	
5.1.4	CP2 pump set	available soon	
5.1.5	CP3 pump set	1 687 010 182	
5.1.5.1	Update set CP3.4 return connection for CP3.4 pumps, for customers with "old" CP3 set 1 687 010 135. 1 687 010 135 + 1 687 016 061 = 1 687 010 182	1 687 016 061	
5.1.5.2	Supplement set MAN CP3.4 for CP3.4 MAN applications (CP3 pump set is prerequisite)	1 687 001 619	
5.1.6	CP Delphi/Denso/Siemens (other brand pump set), successor set for 1 687 010 161/...162/...166	1 687 010 183	
5.1.6.1	Update set CP Delphi/Denso/Siemens (other brand pump set) with new adapters for CP other brand pumps, for customers with "old" CP other brand pump sets 1 687 010 161/...162/...166/1 687 010 161/...162/...166 + 1 687 010 184 = 1 687 010 183	1 687 010 184	
5.1.7	Test sets for CR injectors (CRI and CRIN from Bosch and other brands)		
	<i>Please choose between CRI 846 H (item 5.1.7a) and CRI/CRIN 848 H (item 5.1.7b):</i>		
5.1.7a	CRI 846 H Test set for testing Bosch CRI (solenoid valve) passenger car + basic set for piezo CRI, other brand and commercial vehicle (CRS 845 or CRS 845 H is prerequisite). When commissioning, calibration of rail pressure sensor must be carried out.	available soon	
5.1.7a.1	Update set for swivel device (for adaptation of Common Rail injectors), required for existing CRI 846 with production date before 06/2006	1 688 120 174	
5.1.7a.2	Update set CRI 846 H, required for upgrading CRI 846 (1,800 bar). 1 687 001 846 to CRI 846 H (2,500 bar) 1 687 002 XXX	available soon	
5.1.7a.3	Adapter (restricts system to 1,800 bar), required if set combination CRS 845 (1,800 bar) and CRI 846 H (2,500 bar) are used	available soon	
5.1.7a.4	CRIN test set, only required if customers choose not to opt for CRI/CRIN 848 H (item 5.1.7b). For Bosch comm.veh. injectors generation CRI 846 or CRI 846 H required: for 1x CRIN clamp: 1x CRIN set 1 687 001 XXX for 2x CRIN clamps: 2x CRIN sets 1 687 001 XXX + 1x adapter line 168 446 371	available soon	
5.1.7a.4.1	Adapter line, required of customer clamps 2x CRIN sets (1 687 001 925)	1 684 463 711	
5.1.7a.4.2	Upgrade set return line CRIN (extended return line), required for "old" CRIN set 1 687 001 599. 1 687 001 599 + 1 687 016 060 + 1 687 016 062 = 1 687 001 623	1 687 016 060	
5.1.7a.4.3	Upgrade set clamp piece CRIN (additional clamp pieces for latest CRIN applications), required for "old" CRIN set 1 687 001 599. 1 687 001 599 + 1 687 016 060 + 1 687 016 062 = 1 687 001 623	1 687 016 062	
5.1.7b	CRI/CRIN 848 H Test set for testing Bosch CRI (solenoid valve) passenger car and commercial vehicle + basic set for piezo CRI, other brand injectors (CRS 845 or CRS 845 H is prerequisite)	available soon	
5.1.7b.1	Update set CRI/CRIN 848 H (testing of up to 4 CRIN then possible), required for upgrading CRI 846 (1,800 bar, 1 687 001 846) or CRI 846 H (2,500 bar, 1 687 002 XXX) to CRI/CRIN 848 H (1 687 001 XXX)	available soon	
5.1.7b.2	17 adapter sets and 35 cover plates	available soon	

Product offer sheet:

EPS 815

Item	Designation	Order number	Price excl. VAT
5.1.8	Test sets that can be used on CRI 846 H (item 5.1.7a) or on CRI/CRIN 848 H (item 5.1.7b)		
5.1.8.1	CRI Delphi/Denso (for other brand passenger car CRI)	1 687 010 186	
5.1.8.1.1	Update set with hose lines and software, required for "old" Delphi/Denso CRI 1 687 001 609. 1 687 001 609 + 1 687 010 187 = 1 687 010 186	1 687 010 187	
5.1.8.2	Piezo CRI (for Bosch, Siemens and Denso piezo CRI)	available soon	
5.1.8.2.1	Hose lines required for piezo CRI test sets if Delphi/Denso CRI set 1 687 001 609 oder 1 687 010 186 not already present	available soon	
5.1.9	Accessory for Delphi/Denso CRI (item 5.1.8.1) and piezo CRI (item 5.1.8.2)		
5.1.9.2	Injection chambers, required for piezo CRI and Delphi/Denso CRI test sets if Delphi/Denso CRI set 1 687 001 609 or 1 687 010 186 (with production date before 11/2010) not already present	available soon	
5.1.9.3	Test pressure line set 1,800 bar (if testing is only up to 1,800 bar), to be used only with CRI 846 (1,800 bar), required for piezo CRI and Delphi/Denso CRI test sets, if Delphi/Denso CRI set 1 687 001 609 not present	1 687 010 185	
5.1.9.4	Test pressure line set 2,500 bar (if testing is only up to 2,500 bar), to be used only with CRI 846 H (2,500 bar) and CRI/CRIN 848 H, required for piezo CRI and Delphi/Denso CRI test sets	available soon	
6	Accessory for Common Rail test sets (under item 5)		
6.1	High pressure hose 2,500 bar Length: 1,000 mm Required for: CP1, CP2, CP3, Delphi/Denso/Siemens CP, CRI 846 H, CRIN, CRI/CRIN 848 H Caution! 1 x 1 687 016 XXX for CP1, CP3, Delphi/Denso/Siemens CP, CRI 846 H 5 x 1 687 016 XXX for CRI/CRIN 848 H (only in conjunction with EPS 815) 2 x 1 687 016 XXX for CRIN set with double clamping 2 x 1 687 016 XXX for CP2	available soon	
6.2	High pressure hose 1,800 bar (for CP2 in conjunction with CRS 845, 1,800 bar), required if hose set 2,500 bar 1 687 016 064 not present, length: 1,000 mm, M14/M14 – straight, blue Caution! 2 x 1 680 712 227 for CP2	1 680 712 227	
6.3	High pressure hose 1,800 bar (for CP1 and CP3 with M12 thread), required if testing is up to 1,800 bar and hose set 2,500 bar 1 687 016 XXX not present, length: 1,000 mm, M14/M12 – straight, blue	1 680 712 229	
6.4	High pressure hose 1,800 bar (for CP1 and CP3 with M14 thread), required if testing is up to 1,800 and hose set 2,500 bar. 1 687 016 XXX not present, length: 1,000 mm, M14/M12 – 90°, blue	1 680 712 230	
6.5	Adapter, used for reducing pump adapter M14 to M12, available as option if hose M14/M12 1,800 bar not present	1 681 032 077	
Accessories for test benches			
7	Accessories for test benches		
7.1	Drive coupling without play, required for CRS 845 H and CAM 847	1 686 401 024	
7.1.1	Intermediate flange, required for CRS 845 H and CAM 847	1 685 700 140	
7.2	Clamping bracket, required for all VE, VR, CRS 845 H	1 688 010 129	
7.3	Lubrication supply (voltage 200 to 500 volt), required for CP2/CP3.4 pumps or CAM 847	1 687 001 362	
7.3.1	Conversion kit for lubrication supply, only required for CAM 847 and for lubrication supply 1 687 001 362 with production before 01/2009	1 687 010 169	
7.4	Riser retrofit kit, required for KMA with production date before 04/2001	1 687 001 544	
	<i>Please choose a transformer (item 7.5a and item 7.5b):</i>		
7.5a	Transformer conversion kit 400 - 500 V/EPS 815, required for VPM 844, CRI 846 H, CRI/CRIN 848 H only for EPS 815 with production date before 06/2005	1 687 001 800	

Item	Designation	Order number	Price excl. VAT
7.5b	Transformer conversion kit 200-240 V/EPS 815, required for VPM 844, CRI 846 H, CRI/CRIN 848 H only for EPS 815 with production date before 06/2005	1 687 001 801	
7.6	Heat exchanger, required for CRS 845 H, VPM 844 and CAM 847	available soon	
7.6.1	Update set for heat exchanger (2,500 bar), required for update set CRS 845 H (1 687 010 XXX). 1 687 010 130 + 1 687 010 XXX = 1 687 010 XXX	available soon	
7.6.2	Heat exchanger supplement to 12 channel, required for testing CR pumps with delivery capacity > 160 l/h	1 687 001 557	
7.7	Precision constant voltage regulator (included in retrofit kit VPM 844), required for CRI 846 H, CRI/CRIN 848 H and CAM 847	1 687 022 873	
7.7.1	Assembly set, required when purchasing precision constant voltage regulator (1 687 022 873)	1 687 016 043	
7.8	CRI 800 (CRI 846 control unit), required for CAM 847 if CRI 846 not present	1 687 023 369	
7.9	Speed sensor, required for CAM 847 if VPM 844 not present	1 687 224 963	
7.10	Connection line for speed sensor, required for CAM 847 if VPM 844 not present	1 684 465 499	
7.11	EMV kit, required for CAM 847 if VPM 844 not present	1 687 016 042	
7.12	Temperature sensor, required for CAM 847 if CRI 846, CRI 846 H or CRI/CRIN 848 H not present	1 687 016 033	
8	Test instrument (MGT or KMA)		
	<i>Please choose as follows between MGT (item 8.1a) or KMA (item 8.1b):</i>		
8.1a	MGT – measuring glass measuring systems		
	<i>Please choose as follows between MGT 812 (item 8.1a.1) or MGT 824 (item 8.1a.2):</i>		
8.1a.1	MGT 812 measuring glass holder incl. measuring glass control unit (lift and turn counter)	0 683 812 001	
8.1a.1.1	Measuring glass light MGT 812 (50 Hz)	1 687 001 393	
8.1a.1.2	Measuring glass light MGT 812 (60 Hz)	1 687 001 394	
8.1a.2	MGT 824 measuring glass holder incl. measuring glass control unit (lift and turn counter) with lateral offset for 4 unit loading and means of using larger measuring glasses	0 683 824 001	
8.1a.2.1	Measuring glass light MGT 824 (50 Hz)	1 687 001 395	
8.1a.2.2	Measuring glass light MGT 824 (60 Hz)	1 687 001 396	
8.1a.2.3	Measuring glass holder adapter with 12 x 155 ml measuring glasses and 12 x 600 ml measuring glasses	1 688 005 065	
8.1a.2.4	Supplement kit for MGT 824 (double unit loading) from 12 x 44 ml measuring glasses to 24 x 44 ml measuring glasses and from 12 x 260 ml measuring glasses to 24 260 ml measuring glasses	1 687 001 414	
8.1b	KMA – Continuous measuring systems		
	<i>Please choose as follows between KMA 802 (item 8.1b.1) or KMA 822 (item 8.1b.2):</i>		
8.1b.1	KMA 802 continuous measuring system, 19" TFT display unit for assembly on test bench, required for VPM 844, CRS 845 H, CAM 847	0 683 802 001	
8.1b.2	KMA 822 continuous measuring system, 19" TFT display unit for assembly on test bench, required for VPM 844, CRS 845 H, CAM 847	0 683 822 001	
9	Computer unit (essential for KMA)		
	<i>Please choose as follows between KMA 802 (item 8.1b.1) or KMA 822 (item 8.1b.2):</i>		
9.1.a	CR/UI/UP computer, required for KMA 8xx, CAM 847, CRS 845 H, (Win 2000, Celeron 1,1 GHz, 256 RAM, HDD 40 GB, CD/DVD-LW, PCI-COM2/-COM3/-COM4, no keyboard) required for KMA 8xx, CAM 847, CRS 845 H	1 687 022 958	
9.1.b	CR/UI/UP/VP computer, required for KMA 8xx, CAM 847, CRS 845 H, VPM 844 (Win 2000, Celeron 1,1 GHz, 256 RAM, HDD 40 GB, CD/DVD-LW, PCI-COM2/-COM3/-COM4, VPM 844 ISO module, SVTW card, Smart CAN card, no keyboard)	available soon	
9.1.1	Update set for converting all generations of Win 2000, CR/UI/UP computer (e.g. 1 687 022 887, 1 687 022 958) to CR/UI/UP/VP computer (1 687 023 582)	available soon	

Product offer sheet:

EPS 815

Item	Designation	Order number	Price excl.. VAT
9.1.2	Update set for conversion WinME to Win 2000, required for CAM 847, CRS 845 H, VPM 844 if WinME present	1 687 001 555	
9.1.3	COM 4 interface, required for CAM 847 if CRI 846, CRI 846 H or CRI/CRIN 848 H not present	1 687 016 034	
9.2	Keyboard		
	<i>Please choose suitable keyboard:</i>		
9.2.a	ASCII keyboard (German)	1 687 022 354	
9.2.b	ASCII keyboard (US)	1 687 022 356	
9.2.c	ASCII keyboard (French)	1 687 022 360	
9.2.d	ASCII keyboard (Spanish)	1 687 022 358	
9.2.e	ASCII keyboard (Italian)	1 687 022 361	
9.2.f	ASCII keyboard (Danish)	1 687 022 359	
9.2.g	ASCII keyboard (Dutch)	1 687 022 377	
9.2.h	ASCII keyboard (Finnish/Swedish)	1 687 022 379	
9.2.i	ASCII keyboard (Greek)	1 687 022 392	
9.2.j	ASCII keyboard (Turkish)	1 687 022 378	
9.2.k	ASCII keyboard (Polish)	1 687 022 397	
9.2.l	ASCII keyboard (UK)	1 687 022 357	
9.2.m	ASCII keyboard (Czech)	1 687 022 396	
9.2.a-m	Protection hood for standard PC keyboard	1 685 510 165	
9.2.i and b	Protection hood for US English/Greek PC keyboard	1 685 510 166	
9.3	Printer		
9.3.1	Inkjet printer PDR 374 incl. USB connecting line	1 687 001 850	
10	Software (database of test specifications, ESI)		
10.1	CD ESI[tronic]-A	1 987 729 002	
10.2	CD ESI[tronic]-D	1 987 729 012	
10.3	CD ESI[tronic]-K1	1 987 729 261	
10.4	CD ESI[tronic]-W	1 987 729 032	
10.5	CD TestData – update subscription required for VPM 844, CRS 845 H or CAM 847	1 687 370 270	
10.6	Zexel ZD	1 987 729 059	
10.7	Zexel ZW	1 987 729 061	
11	Maintenance tools		
11.1	Dial gauge, service dept. calibration tool for CAM 847	1 687 233 112	
11.2	Pressure sensor, service dept. calibration tool for CRS 845 H and EPS 708	available soon	
12	Service		
12.1	Calibrating oil 25 l Required in EPS 815: 50 l when commissioning Required in EPS 708: 55 l when commissioning Required in EPS 200: 7 l when commissioning	5 980 570 025	
12.2	User training		
12.3	Freight, packaging disposal		
12.4	Installation, initial operation, instruction, training courses		
12.5	Travel flat rate		

Product offer sheet:

EPS 708

Item	Designation	Order number	Price excl. VAT
Test benches			
1	Test benches for CR pumps and CR injectors incl. measuring system		
	<i>Please choose a test bench:</i>		
1.1	Test benches incl. integrated cooling system		
1.1a	EPS 708 400 volt	available soon	
1.1b	EPS 708 200/220/230/240 volt	available soon	
1.2	Test benches – without internal cooling system (external water connection)		
1.2a	EPS 708 400 volt	available soon	
1.2b	EPS 708 200/220/230/240 volt	available soon	
1.3	Cooler retrofit kit 200 – 400 volt	available soon	
Test sets (for Common Rail System, CRS 845 H included in items supplied with EPS 708)			
2	Test sets for CRS = Common Rail System (CP, CPN, CRI, CRIN)		
2.1	CP1/CP3 pump set. Note: Lubrication supply required for CP3.3/3.4, existing CP1 and CP3 set can also be used on EPS 708	available soon	
2.1.1	Update set CP3.4 return connection for CP3.4 pumps for customers with "old" CP3 set 1 687 010 135 1 687 010 135 + 1 687 016 061 = 1 687 010 182	1 687 016 061	
2.1.2	Supplement set MAN CP3.4 for CP 3.4 MAN applications (CP3 and CP1/CP3 pump set is prerequisite)	1 687 001 619	
2.2	Delphi/Denso/Siemens CP (other brand pump set), successor kit for 1 687 010 161/...162/...166	1 687 010 183	
2.2.1	Update set Delphi/Denso/Siemens CP (other brand pump set) with new adapters for other brand CP pumps for customers with "old" other brand CP pump sets 1 687 010 161/...162/...166 1 687 010 161/...162/...166 + 1 687 010 184 = 1 687 010 183	1 687 010 184	
2.3	Test sets for CR injectors (CRI and CRIN from Bosch and other brands)		
	<i>Please choose between CRI 846 H (item 2.3.1a) and CRI/CRIN 848 H (item 2.3.1b):</i>		
2.3.1a	CRI 846 H Test set for testing Bosch CRI (solenoid valve) passenger car + basic set for piezo CRI, other brand and commercial vehicle (CRS 845 or CRS 845 H is prerequisite). When commissioning, calibration of rail pressure sensor must be carried out.	available soon	
2.3.1a.1	Update set for swivel device (for adaptation of Common Rail injectors), required for already existing CRI 846 with production date before 06/2006	1 688 120 174	
2.3.1a.2	Update set CRI 846 H, required for upgrading CRI 846 (1,800 bar) 1 687 001 846 to CRI 846 H (2,500 bar) 1 687 002 XXX	available soon	
2.3.1a.3	Adapter (restricts system to 1,800 bar), required if set combination CRS 845 (1,800 bar) and CRI 846 H (2,500 bar) are used	available soon	
2.3.1a.4	CRIN test set, only required if customer chooses not to opt for CRI/CRIN 848 H (item 2.3.1b). For Bosch commercial vehicle injectors generation CRI 846 or CRI 846 H required: for 1x CRIN clamp: 1x CRIN set 1 687 001 XXX for 2x CRIN clamps: 2x CRIN sets 1 687 001 XXX + 1x adapter line 168 446 371	available soon	
2.3.1a.4.1	Adapter line required if customer clamps 2x CRIN set (1 687 001 925)	1 684 463 711	
2.3.1a.4.2	Update set return line CRIN (extended return line), required for "old" CRIN set 1 687 001 599. 1 687 001 599 + 1 687 016 060 + 1 687 016 062 = 1 687 001 623	1 687 016 060	
2.3.1a.4.3	Upgrade set clamp piece CRIN (additional clamp pieces for latest CRIN applications), required for "old" CRIN set 1 687 001 599. 1 687 001 599 + 1 687 016 060 + 1 687 016 062 = 1 687 001 623	1 687 016 062	

Product offer sheet:

EPS 708

Item	Designation	Order number	Price excl. VAT
2.3.1b	CRI/CRIN 848 H Test set for testing Bosch CRI (solenoid valve) passenger car and commercial vehicle + basic set for piezo CRI, other brand (CRS 845 or CRS 845 H is prerequisite)	available soon	
2.3.1b.1	Update set CRI/CRIN 848 H (testing of up to 4 CRIN then possible), required for upgrading CRI 846 (1,800 bar, 1 687 001 846) or CRI 846 H (2,500 bar, 1 687 002 XXX) to CRI/CRIN 848 H (1 687 001 XXX)	available soon	
2.3.1b.2	17 adapter sets and 35 cover plates	available soon	
2.3.2	Test sets that can be used on CRI 846 H (item 2.3.1a) or on CRI/CRIN 848 H (item 2.3.1b)		
2.3.2.1	Delphi/Denso CRI (for other brand passenger car CRI)	1 687 010 186	
2.3.2.1.1	Update set with hose lines and software, required for "old" Delphi/Denso CRI 1 687 001 609. 1 687 001 609 + 1 687 010 187 = 1 687 010 186	1 687 010 187	
2.3.3	Piezo CRI (for piezo CRI from Bosch, Siemens and Denso)	available soon	
2.4.3.1	Hose lines, required for CRI piezo test sets if Delphi/Denso CRI set 1 687 001 609 or 1 687 010 186 not already present	available soon	
2.3.4	Accessory for Delphi/Denso CRI (item 2.3.2.1) and piezo CRI (item 2.3.3)		
2.3.4.1	Injection chambers, required for piezo CRI test sets (Denso/Siemens injectors) and Delphi/Denso CRI (solenoid valve) if Delphi/Denso CRI set 1 687 001 609 or 1 687 010 186 (with production date before 11/2010) not already present	available soon	
2.3.4.2	Test pressure line set 1,800 bar (if testing is only up to 1,800 bar), to be used only with CRI 846 (1,800 bar), required for piezo CRI test sets (Bosch injectors) and Delphi/Denso CRI (solenoid valve) if Delphi/Denso CRI set 1 687 001 609 not present	1 687 010 185	
2.3.4.3	Test pressure line set 2,500 bar (if testing up to 2,500 bar, only to be used with CRI 846 H (2,500 bar) and CRI/CRIN 848 H, required for piezo CRI test sets (Bosch injectors) and Delphi/Denso CRI (solenoid valve)	available soon	
3	Accessory for Common Rail test sets (under item 2)		
3.1	High pressure hose 2,500 bar, length: 1,000 mm required for: CP1, CP3, CP1/CP3, Delphi/Denso/Siemens CP, CRI 846 H, CRIN, CRI/CRIN 848 H Caution! 1 x 1 687 016 XXX for CP1, CP3, CP1/CP3, Delphi/Denso/Siemens CP, CRI 846 H 1 x 1 687 016 XXX for CRI/CRIN 848 H (only in conjunction with EPS 815)	available soon	
3.2	High pressure hose 2,500 bar, length: 700 mm required for: CRI/CRIN 848 H Caution! 4 x 1 687 016 XXX for CRI/CRIN 848 H (only in conjunction with EPS 708)	available soon	
3.3	High pressure hose 1,800 bar (for CP2 in conjunction with CRS 845 (1,800 bar)), required if hose set 2,500 bar 1 687 016 XXX not present (Length: 1,000 mm), M14/M14 – straight, blue Caution! 2 x 1 680 712 227 für CP2	1 680 712 227	
3.4	High pressure hose 1,800 bar (for CP1 and CP3 with M12 thread), required if testing up to 1,800 bar and hose set 2,500 bar 1 687 016 XXX not present. Length: 1,000 mm; M14/M12, straight, blue	1 680 712 229	
3.5	High pressure hose 1,800 bar (for CP1 and CP3 with M14 thread), required if testing is up to 1,800 bar and hose set 2,500 bar 1 687 016 XXX not present. Length: 1,000 mm; M14/M12 - 90°, straight, blue	1 680 712 230	
3.6	Adapter: Application for pump adapter, reduction from M14 to M12 available as option if no hose M14/M12 1,800 bar present	1 681 032 077	

Item	Designation	Order number	Price excl. VAT
Accessories for test benches			
4	Accessories for test benches		
4.1	Clamping bracket, required for all CR pumps	1 688 010 129	
4.2	Lubrication supply (only to be used on EPS 708), required for CP3.4 pumps	1 687 001 931	
5	Computer unit (computer included in items supplied with EPS 708)		
5.1	Keyboard		
	<i>Please choose suitable keyboard:</i>		
5.1a	ASCII keyboard (German)	available soon	
5.1b	ASCII keyboard (US)	available soon	
5.1c	ASCII keyboard (French)	available soon	
5.1d	ASCII keyboard (Spanish)	available soon	
5.1e	ASCII keyboard (Italian)	available soon	
5.1f	ASCII keyboard (Danish)	available soon	
5.1g	ASCII keyboard (Dutch)	available soon	
5.1h	ASCII keyboard (Finnish/Swedish)	available soon	
5.1i	ASCII keyboard (UK)	available soon	
5.1j	ASCII keyboard (Czech)	available soon	
5.1.a-j	Protection hood for standard PC keyboard	1 685 510 165	
5.1.b	Protection hood for US English/Greek PC keyboard	1 685 510 166	
6	Printer		
6.1	Inkjet printer PDR 374 incl. USB connecting line	1 687 001 850	
7	Software (database of test specifications, ESI)		
7.1	CD ESI[tronic]-A	1 987 729 002	
7.2	CD ESI[tronic]-D	1 987 729 012	
7.3	CD ESI[tronic]-K1	1 987 729 261	
7.4	CD ESI[tronic]-W	1 987 729 032	
7.5	CD TestData – update subscription required for VPM 844, CRS 845 H or CAM 847	1 687 370 270	
8	Maintenance tools		
8.1	Pressure sensor, service dept. calibration tool for CRS 845 H and EPS 708	available soon	
9	Service		
9.1	Calibrating oil 25 l Required in EPS 815: 50 l when commissioning Required in EPS 708: 55 l when commissioning Required in EPS 200: 7 l when commissioning	5 980 570 025	
9.2	User training		
9.3	Freight, packaging disposal		
9.4	Installation, initial operation, instruction, training courses		
9.5	Travel flat rate		

Software for replacement and repair



Well equipped for Diesel and electrical systems: Use the timesaving ESI[tronic] software with practical Troubleshooting Instructions to replace and repair defective components of modern vehicle systems and to exploit new sales opportunities.

ESI[tronic]-K “Components repair instructions”

- ▶ Repair instructions, service information and telegrams for Diesel and electrical system components
- ▶ Direct interaction of information from ESI[tronic]-D and ESI[tronic]-E, e.g. spare parts, and ESI[tronic]-W

ESI[tronic]-D “Diesel replacement parts”

- ▶ Most comprehensive catalogue for Bosch Diesel products
- ▶ Around 51,000 spare-parts lists with over 380,000 individual parts
- ▶ Exploded drawings in highest quality
- ▶ Stepless zoom function

ESI[tronic]-W “Diesel test data”

- ▶ Test specifications of around 12,000 inline fuel-injection pump combinations and for approx. 2,000 VE pumps
- ▶ Complete test operation from obtaining measured values to log printing
- ▶ All test steps are displayed in optimized order

ESI[tronic]-K/W “Archive”

Every new customer receives the archive data of ESI[tronic]-K and W once, and free of charge, with the ESI[tronic] subscription.

The TestData CD

Test specifications for Bosch Common Rail high-pressure pumps, Common Rail injectors and VP 29/30/44 distributor injection pumps (obtainable by subscription, can be ordered via the ESI[tronic] ServiceLine).

New: In addition to our own test values CD “TestData”, test values for Diesel components from Delphi, Denso and Conti/Siemens for EPS 815 and EPS 200 are available from the data provider Refdat and can be downloaded from the workshop under www.refdat.net

Training for success



With selective technical training, always one step ahead of the competition

Training in one of our training centers provides the theory and practice of the necessary basic knowledge for successful diagnosis and repair.

- ▶ Comprehensive transfer of knowledge of modern Diesel systems by the system developer Bosch
 - ▶ Instruction in methodical procedures during troubleshooting
 - ▶ Learning by doing
 - ▶ Practical training in groups on active vehicles and operational engines
 - ▶ Firsthand instruction in the newest systems and components
 - ▶ Modern, extensive training equipment
 - ▶ Highly qualified practice-oriented trainers and insider know-how
 - ▶ Training according to the most modern didactical methods
- The following is a selection of courses offered:**
- ▶ Bosch in-line fuel-injection pumps and mechanical controller - Basic 1 987 727 550
 - ▶ Bosch distributor injection pumps model VE, VE-EDC, VP 29/30/44 1 987 727 552
 - ▶ High-pressure pump/CR system 1 987 727 568
 - ▶ EDC in-line fuel-injection pumps (electronically controlled in-line fuel-injection pumps and actuator) 1 987 727 555
 - ▶ Zexel injection pumps 1 987 727 558
 - ▶ Repair and testing of Bosch Common Rail injectors for passenger car and commercial vehicle and testing of external injectors 1 987 726 283
 - ▶ Repair and testing of Unit Injector UI (pump-nozzle) and Unit Pump UP for passenger car and commercial vehicle 1 987 726 286
 - ▶ WBT Web Based Training EDC (CD-ROM)
 - ▶ EDC passenger car practical training for WBT 1 987 726 210
 - ▶ Diesel vehicle technology 1 1 987 727 562
 - ▶ Diesel vehicle technology 2 1 987 727 557
 - ▶ Diesel commercial vehicle technology 1 987 727 563
 - ▶ European On-Board Diagnosis on Diesel Vehicles (passenger car/commercial vehicle) 1 987 726 280
 - ▶ Diagnosis on Bosch Common Rail Systems for pass. cars 1 987 726 292

New:

- ▶ High-pressure pump/CR system type CP2/CPN2 1 987 727 574
- ▶ Exhaust-gas treatment in commercial vehicles 1 987 727 577

Outlook: Continuous further development



Stable and future-proof

The EPS 815 component test bench is the reliable basis in the long term for testing the newest Diesel components. To accomplish this, Bosch continuously develops appropriate test equipment for further components from Bosch and other manufacturers.

The following list shows the accessory sets which will be available in the near future.

Planned test equipment

- ▶ Special accessories CRI Piezo for EPS 200
- ▶ Special accessories CRI commercial vehicles external brands
- ▶ Special accessories CP4
- ▶ Special accessories UI/UP external brands

List of abbreviations used

CP1	Common Rail high pressure pump type 1	NBF	Needle motion sensor
CP1H	Common Rail high pressure pump type 1 (Heavy duty version)	NIMA	Injection quantity comparison (commercial vehicle)
CP2	Common Rail high pressure pump type 2	RP	Inline fuel-injection pump
CP3	Common Rail high pressure pump type 3	UI-P	Unit injector (passenger car)
CRI	Common Rail injector (passenger car)	UI-N	Unit injector (commercial vehicle)
CRIN	Common Rail injector (commercial vehicle)	UP	Unit pump
DHK	Nozzle holder assembly	VE	Distributor fuel-injection pump
EPS	Injection pump test bench	VP44	Radial piston pump (distributor fuel-injection pump)
IMA	Injection quantity comparison (passenger car)	VP29	Axial piston pump (distributor fuel-injection pump)
ISA	Injection voltage comparison	VP30	Axial piston pump (distributor fuel-injection pump)
KMA	Continual quantity analysis		

Our **knowledge**, your **success**: Bosch Diagnostics

Diagnostics – the key to the automotive workshop of the future. Motor vehicle systems are becoming increasingly complex; the demands placed on qualified diagnosis in workshops are rising. For professional service on modern vehicles, Bosch provides everything at one stop, perfectly coordinated: test equipment, software, technical training and hotline, supplemented by parts in initial equipment quality.



ESI[tronic]: Software for diagnostics and service

- ▶ Simple operation
- ▶ Rapid access
- ▶ Modular structure
- ▶ Comprehensive market coverage
- ▶ Continually updated
- ▶ Universal operation regardless of manufacturer

Test Equipment: Matched to each workshop type

- ▶ Optimized combination of hardware and software for rapid troubleshooting, qualified repair and high time savings
- ▶ PC-based test technology of the latest generation with extendable modules

Service Training: Knowledge as a factor of success

- ▶ Comprehensive training programs for automotive workshops
- ▶ Practical training courses
- ▶ Highly qualified trainers with practical experience

Technical Hotline: Support from the system developer

- ▶ Support in difficult technical situations
- ▶ Skills covering all brands and manufacturers

Bosch: bringing you the workshop of the future

For over 120 years, Bosch innovations have been keeping vehicles on the road and getting people to and from their destinations while improving safety and peace of mind along the way.

Bosch Automotive Aftermarket offers workshops and retailers a comprehensive portfolio of products that is unmatched worldwide:

- ▶ Efficient diagnostics
- ▶ Innovative workshop equipment
- ▶ Quick, reliable delivery
- ▶ The world's most comprehensive range of spare parts – including both new and remanufactured
- ▶ Workshop concepts to meet every requirement
- ▶ Comprehensive training
- ▶ Targeted sales and marketing support
- ▶ A competent service hotline
- ▶ 24-hour online workshop services
- ▶ Affordable leasing services for workshop equipment and software

From parts to scheduling, organization and results, our solutions are combined with additional services to ensure your needs will be perfectly met, helping you to maximize your potential.

Workshop tip:

With its expertise from original equipment, Bosch offers all Diesel specialists a holistic range of workshop test equipment, software, training and know-how. For consolidating Diesel business today and in the future.

Diagnostics and parts: you only find both at Bosch.

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Automotive Aftermarket
Business Unit Diagnostics

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Technical changers and program modifications are reserved

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Superior technology and high dependability: From the original equipment through motor racing to the spare parts market. Bosch always delivers quality.



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