

DIAGNOSIS
FUEL SYSTEM

AUTOTESTGERÄTE **LEITENBERGER GMBH**

FUEL SYSTEM

CR INJ
RETURN P

**FUEL LOW PRESSURE,
ABSENCE OF BUBBLES**

A graduated cylinder containing a green liquid. A color calibration strip is placed vertically inside the cylinder, partially submerged in the liquid. The strip shows a color gradient from yellow at the bottom to green at the top, with a red band near the bottom.

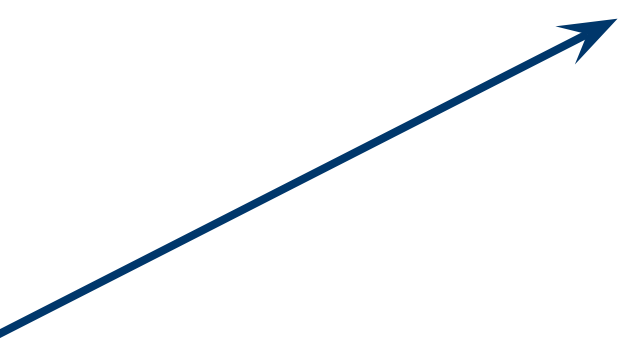
STEP 1

2

3

4

NON INVASIVE



JECTOR
PRESSURE



4

HIGH PRESSURE TEST



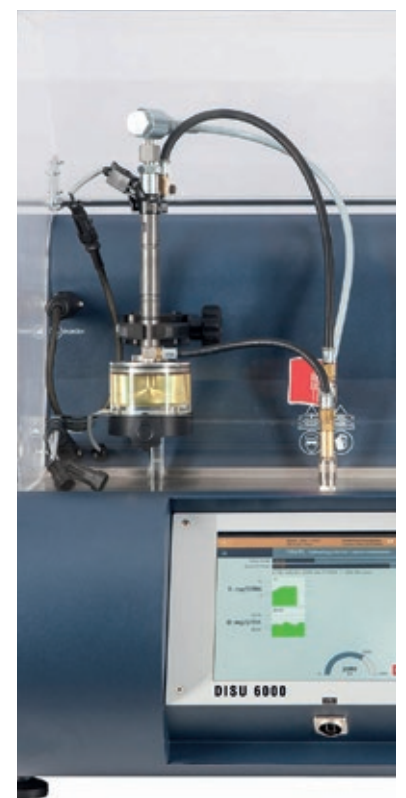
5

TESTING FUNCTIONALITY
OF THE INJECTORS



6

TEST STANDS FOR CR AND
GDI INJECTORS,
WITH TEST CERTIFICATE



7

INVASIVE

KIK 01_LR

110804_1



Fuel identification kit

The smallest quantities of gasoline in a common rail system lead to the corrosion of engine parts, which later causes individual components to fail.

- The use of the BD 01 petrol detector guarantees the detection of contaminated fuel, from a percentage as small as 0.2 % gasoline in a diesel system.
- In the area of motor vehicle servicing, it is a great help to be able to identify fuel before extensive measurements are carried out on the system pressure and for leaks etc. Power is supplied by the 12V/DC vehicle electrical system.

Scope of delivery

- 1 petrol detector 12 V/DC
- 1 measuring cylinder 500 ml
- 1 hydrometer (for density determination)
- 1 hook up clips NSVA 100
- 1 cleaning brush
- 50 pcs filter pads
- Supplied in a solid plastic case

EMK 01

110805_1



Ethanol measurement kit

- For measurement of the ethanol concentration of a fuel probe
- For determination of fuel quantity

Scope of delivery

- 1 measurement flask
- 1 measurement cylinder 500 ml
- 1 measurement cylinder 100 ml
- 1 cleaning brush
- 10 pipets
- 1 coloring liquid LT 02



LRD 180_AK2 .1

041620_10



Fuel system pressure tester with digital gauge

For fast, easy and professional testing of the flow and return pressure on injection systems for petrol and diesel engines

- For example, for testing and diagnosing the fuel pump, system pressure regulator and tightness, etc.
- The special adapter assembly makes it especially suitable for vehicles with plastic quick couplings according to the SAE standard
- Can be used almost universally in combination with other adapters
- The digital precision vacuum manometer with large display (digit height of 16 mm), integrated bar graph display, recallable MIN/MAX peak value, reset and zero function as well as display illumination enables effective analysis of the measurement values
- The flow of petrol can be closely observed through a plexiglass body (identification of bubbles)
- Pressure and vacuum testing from -1 to +16 bar
- All individual parts are available as spare parts
- Premium product, made in Germany
- Extensive assortment of adapters as accessories

Scope of delivery

- 1 digital precision vacuum pressure gauge (incl. factory calibration certificate), Measurement range: -1 ... +16 bar, Accuracy class: $\pm 0.5\%$ FSS, Pressure units: bar, PSI, kPa, MPa, mbar; with rubber protection cap and quick coupling
- 1 plexiglass body with quick couplings
- 7 DPAK adapter pairs (coupling connection)
- Ships in a rugged plastic case

LRDL 180_AK2

041620_9

Fuel system pressure tester with digital gauge

Description, function and scope of delivery as LRD 180_AK2.1, but with:

- 1 digital precision vacuum pressure gauge
- measurement range -1 ... +16 bar
- with rubber protection cap and quick coupling

LR 180_AK2

041620_2

Fuel system pressure tester with compound gauge

Description, function and scope of delivery as LRD 180_AK2.1, but with:

- 1 precision vacuum gauge NG 63
- measurement range -1 ... +9 bar
- with quick coupling



Scan QR-code

to get to the adapter list for injection system testers.

DPAK Adapters:

Description	Plug-Ø	Plug length (connection)	Shape
DPAK 64G	9.89 mm	30 mm	Male coupler straight Female coupling 90°
DPAK 65G	7.89 mm	21 mm	Male coupler straight Female coupling 90°
DPAK 66G	7.89 mm	33 mm	Male coupler straight Female coupling 90°
DPAK 67G	9.49 mm	21 mm	Male coupler straight Female coupling 90°
DPAK 68G	7.89 mm	21 mm	Male coupler straight Female coupling gerade
DPAK 69G	9.89 mm	24.5 mm	Male coupler straight Female coupling 90°
DPAK 70G	11.8 mm	10.8 mm	Plug-in connector straight Female coupling 90°

LR 180_AK2_Volvocars

041620_11

figure similar



Fuel system pressure tester with vacuum manometer for pressure and vacuum display Beispiel: Volvocars

For quick, simple and professional testing of the supply and return pressure on injection systems for gasoline and diesel engines

- E.g. for testing and diagnosis of fuel pumps, system pressure regulators and leaks etc.
- Thanks to the special adapter combination, it can be used especially for Volvo vehicles
- Can be used almost universally in connection with other adapters
- The fuel flow can be closely observed through the plexiglass body (air bubble detection)
- The 0...600mbar precision manometer enables the display of very small pressure deviations
- Pressure and vacuum testing from -1 to +9 bar
- All individual parts available as spare parts
- Extensive range of adapters as accessories

Scope of delivery

- 1 precision vacuum manometer NG 63, measuring range -1...+9 bar with quick coupling
- 1 precision pressure gauge NG 63, measuring range 0...600 mbar (graduation 20 mbar) with quick coupling
- 2 plexiglass bodies with quick connectors;
- 4 DPAK adapter pairs (connectable)
- Delivery in a sturdy plastic case

EZ_S 01

400124_1



Unlocking tongs for SAE quick couplings

Can be used for all metric and SAE couplings on fuel, air conditioning, brake and oil lines

- 270° head adjustment
- Can be adapted to the installation position of the plug connection
- Rubberised handle
- Handle length: 95 mm
- Handle length: 75 mm
- Adjustable length: 50 mm
- Unlocking head: Ø 4.20 mm

EZ_L01

400125_1

Unlocking tongs for SAE quick couplings

Use and description EZ_S 01, but

- Handle length: 130 mm
- Handle length: 75 mm



BAS 01

060306



Fuel extractor unit 12 V, 90l/h

For simple, fast, safe and professional extraction of fuel

- Suitable for all fuel types
- Mobile / can be used anywhere
- Required, for example, for incorrect refuelling, tank repairs, etc.
- Power supply 12 V / DC through alligator clips
- Flow rate 90 litres/h with unimpeded flow
- Suitable for refilling
- Robust and explosion-proof
- Metal housing with a compact carrying handle and hose holder
- Feed pump with liquid-filled protective housing
- With overload protection
- TÜV-tested and approved in accordance with the statutory provisions and regulations on explosion protection
- Corresponds to the standard DIN EN 60079-15 and the directive 94/9/EC, Ex II 3 G EEx nC IIA T6 explosion protection
- High performance quality product „Made in Germany“
- All individual parts are available as spare parts

Technical data:

- Delivery rate 90 litre/h
- Nominal voltage 12 V/DC
- Rated power 9 W
- Current consumption 0.75 A
- Fuse F1.6 A (BM 60127-2)
- Weight 4 kg
- Dimensions L/W/H 210/210/410 mm

Scope of delivery

- 1 fuel suction device
- 1 electr. connecting lead 5.00 m (14 ft)
- 1 fuel filter
- 2 fuel hoses 2.50 m and 1.50 m long

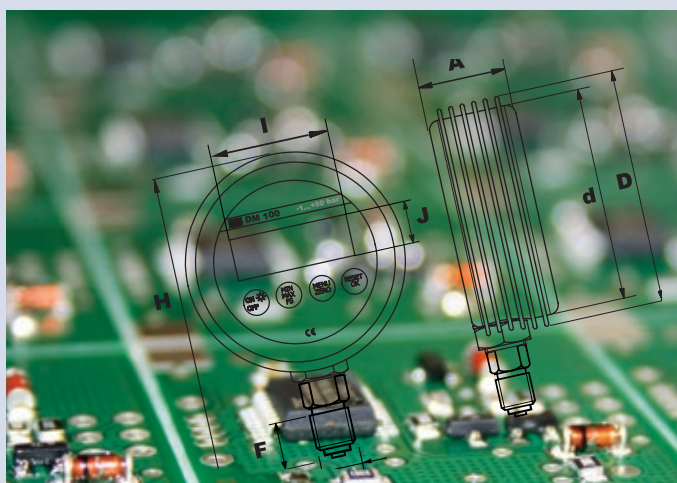
ABOUT US

The special tools made by **LEITENBERGER** are used worldwide to carry out, facilitate and optimise measurement, analysis and repair work on vehicles or engines.

Every product is developed with the highest standards of functionality, longevity, ergonomics and safety.

Founded 50 years ago as a small family business, the **LEITENBERGER** corporate group is now a globally active company with factories in Germany and Greece.

- Owner-operated, established manufacturer of innovative measuring and analysis equipment and repair solutions for manufacturers and workshops
- All devices are developed and produced in-house up to series maturity
- Vendor-independent due to high vertical integration
- Extensive technical know-how for efficient solutions
- Customer-oriented
- ISO-certified quality
- International network



CRMK 01

042119_1



Test kit for checking the return flow volumes from common rail systems for 6 injectors

For fast, professional and expert measurement of the injector return flow volume

- A faulty injector can be easily diagnosed via the measured return flow volume
- Universally applicable for common rail engines
- Measurement of up to 6 high pressure injectors simultaneously
- For Bosch, Delphi, Denso and VDO/Siemens injectors
- Fuel resistant and flexible hoses
- Precise measuring result due to a scaled plexiglass container
- Test volume per strand = 30 ml
- Easy mounting in the engine compartment
- High performance quality product made in Germany
- All individual parts are available as spare parts

Scope of delivery

- 1 plexiglass measuring container with 6 fuel-resistant, highly flexible hoses, each 0.40 m long (1ft)
- 6 adapters for BOSCH injectors
- 6 adapters for DELPHI injectors
- 6 adapters for DENSO injectors
- 6 adapters for VDO/SIEMENS injectors
- 1 solid plastic case



FPMK 01

042118_1



Test instrument for testing the return pressure from piezo common rail injectors

For quick, safe and professional testing of the return pressure from piezo common rail injectors

- Suitable for testing the quality of a common rail injector (pass/fail statement).
- The tester features a test unit made of transparent plexiglass permitting the identification of any air pockets which may be present.
- The advantage of the tester is that the vacuum gauge on the test unit can be exchanged.
- The required pressure range for BOSCH and VDO/SIEMENS injectors is -1 ... +15 bar, for DELPHI injectors it is -1 ... +3 bar.
- The connecting leads FPZ 01, FPZ 02 and FPZ 03 can be connected to the control unit.
- Suitable for use on a variety of injectors
- Replaceable vacuum gauge
- Release valve for venting/depressurisation

Scope of delivery

- 1 test unit with gauge, quick-fit connectors and pressure release valve
- 1 vacuum gauge DS 63, measuring range -1 to +15 bar
- 1 vacuum gauge DS 63, measuring range -1 to +3 bar
- FPZ 01 set of hoses, for connection to VDO/SIEMENS injectors
- FPZ 02 set of hoses, for connection to BOSCH injectors
- FPZ 03 set of hoses, for connection to DELPHI injectors
- 1 conical brass adapter
- Supplied in a solid plastic case

CRP 01.2

042134_1



Common rail high pressure testing device with analogue display (1000 bar)

For quick, easy pressure testing of the high pressure circuit on common rail diesel engines

- Max. operating pressure up to 1000 bar / 1400 psi
- Required, e.g. for testing the high pressure pump when starting the engine
- Universally applicable due to the different CRPZ adapters
- Precision high pressure gauge in stainless steel design, NG 63, measurement range 0...1000 bar, glycerine filled
- High performance quality product made in Germany
- All individual parts are available as spare parts

Scope of delivery

- 1 high pressure manometer NG 63, 0...1000 bar, glycerine-filled
- 1 DETA (041257) adapter, thread M 14x1.5 (IG) - M 12x1.5 (AG)
- 1 adapter G 1/4 - M 12x1.5
- CRPZ 01 (042114_1) adapter, thread M 14x1.5 (AG) - M 12x1.5 (AG)
- CRPZ 02 (042115_1) fuel fuel, rigid, 120 mm, bend 50°, M 12x1.5 - M 14x1.5
- CRPZ 03 (042116_1) fuel fuel, rigid, 120 mm, bend 90°, M 12x1.5 - M 14x1.5
- CRPZ 04 (042121_1) fuel fuel, rigid, 120 mm, bend 90°, angle length 40 mm
- CRPZ 05 (042122_1) fuel fuel, rigid, 120 mm, bend 90°+45°, M 12x1.5 - M 14x1.5
- CRPZ 06 (042123_1) fuel fuel, rigid, 120 mm, bend 65°, M 12x1.5 - M 14x1.5
- Supplied in a robust plastic case

CRP 04

042112_1



Pressure tester for static and dynamic high-pressure pump testing (1600 bar)

For quick, easy and safe static and dynamic pressure testing of the high pressure circuit on common rail diesel engines

- Max. working pressure up to 1600 bar
- Required, e.g. for testing the high-pressure pump when starting the engine or the system pressure test at varying speeds
- For universal use
- High performance quality product made in Germany
- All individual parts are available as spare parts

Scope of delivery

- 1 pressure tester unit with high pressure gauge with protective rubber cap, DS 100 mm (4"), 0...1600 bar
- 2 high pressure hoses, each 0.50 m long
- 1 adapter M 12x1.5 both sides (ET 446)
- 1 solid plastic case



COMMON RAIL - HIGH PRESSURE TEST

-10-

CRP 2500

042131_2



Common rail high pressure tester (2500 bar)

For quick, easy and safe static and dynamic pressure testing of the high pressure circuit on common rail diesel engines

- Max. operating pressure up to 2500 bar
- Required, e.g. for testing the high-pressure pump when starting the engine or the system pressure test at varying speeds
- For universal use
- High performance quality product made in Germany
- All individual parts are available as spare parts

Scope of delivery

- 1 test block with high-pressure gauge with GSK, NG 100, measurement range 0 to 2500 bar
- 2 flexible high-pressure hoses M 14x1.5, length 0.50 m
- 1 adapter thread M 14x1.5 (male thread)
- 1 silicone hose, 1.00 m (3.3 ft)
- Delivery in a stable plastic case

CRPD 2500

042140_1



Common rail high pressure tester with digital manometer (2500 bar)

For quick, easy and safe static and dynamic pressure testing of the high pressure circuit on common rail diesel engines

- Max. working pressure up to 2500 bar
- Required, e.g. for testing the high-pressure pump when starting the engine or the system pressure test at varying speeds
- For universal use
- High performance quality product made in Germany
- All individual parts are available as spare parts

Scope of delivery

- 1 test block with digital pressure gauge with protective rubber cap, NG 100, measurement range 0 . . . 2500 bar
- 2 flexible high-pressure hoses M 14x1.5, length 0.50 m
- 1 adapter thread M 14x1.5 (male thread)
- 1 silicone hose, 1.00 m (3.3 ft)
- delivery in solid plastic case



GDP 400

042150_1



High pressure tester for GDI systems, analog

For quick, simple and safe static and dynamic pressure testing of the high pressure circuit on GDI * engines

- Max. Working pressure up to 400 bar
- Required, e.g. to check:
 - the pressure pump when starting the engine or
 - the system pressure test at changing speeds
- Universally applicable

* GDI = gasoline engine with direct injection

Scope of delivery

- 1 test block with analog pressure manometer with GSK, NG 100, measuring range 0...400 bar
- 2 flexible pressure lines, length 0.7 m
- 1 adapter
- Delivery in a sturdy plastic case



Example: GDI-Injectors

GDPD 400

042151_1



High pressure tester for GDI systems, digital

For quick, simple and safe static and dynamic pressure testing of the high pressure circuit on GDI * engines

- Max. Working pressure up to 400 bar
- Required, e.g. to check:
 - the pressure pump when starting the engine or
 - the system pressure test at changing speeds
- Universally applicable

* GDI = gasoline engine with direct injection

Scope of delivery

- 1 test block with digital pressure gauge with GSK, DM 80, measuring range 0...400 bar, class: 0.5
- 2 flexible pressure lines, length 0.7 m
- 1 adapter
- Delivery in a sturdy plastic case



Example: GDI-Injectors

Turbo Wipes

399999_1



Industrial Cleaning Wipes

Turbo Wipes are specially developed, surface active cleaning wipes

- with selected ingredients that remove easily and quickly residues from permanent marker, colours, fats, oils, soot, nicotine and other dirt from painted surfaces, glass, ceramic, metal tiles and walls.
- Turbo Wipes are suitable for all surfaces and are free of CHC and aromatic compounds.
- On sensitive surfaces the compatibility must be checked beforehand!
- Not suitable for goggles, smartphone, tablets, etc.

Removes easily and quickly:

- Silicon, glue
- Bitumen, PU foam
- Fats, oils, resins
- Colours, toner
- Soot residues
- and much more
- double side use

Application:

- on smooth surfaces, painted surfaces, metal, plastic, fabric, etc.
- Size: 18 cm x 19 cm

FCM 01_Set_LR01

041820_1



Fuel consumption meter

Measures your vehicle's exact consumption during a road test under real driving conditions

- For gasoline and Diesel systems with or without return line.
- Calibrated flow sensors guarantee a high level of accuracy.

Indicates:

- current consumption in km/l
- current temperature in °C
- consumption liters per hour
- volume in l
- easy handling by intuitive keypad
- USB port for data transfer at USB stick

Applications:

- fuel consumption
- flow rate for fuel systems with return or returnless fuel systems
- volume measurement of other fluids possible

Use:

- in test rigs
- in facilities
- mobile use

Spezification:

- temperature range: +20 . . . +100° C
- pressure range (flow sensor): -1 . . . +16 bar
- suitable media: petrol, diesel and others on request
- power supply 10 . . . 28 VDC
- pressure range flow sensors typ 1: 15 . . . 500 l/h
- pressure range flow sensors typ 2: 4 . . . 100 l/h

Scope of delivery

- 1 Measuring unit FCM incl. powerlead, length 3m
- 2 Flow sensors type 1 (for fuel system with return line)
- 1 Flow sensors type 2 (for fuel system without return line)
- 3 Temperature sensors incl. hydraulic distributor

DET 06

041255



Tester for testing petrol and diesel fuel injectors (400 bar)

For the quick, easy and safe testing of injection nozzles / injectors of gasoline and diesel engines

- The following is checked: opening pressure, spray pattern, tightness and humming
- Measurement range 0 ... 400 bar / 0 ... 5800 psi
- Made from aluminium with reversible pump lever
- Enables easy and ergonomic pumping from above or from the front
- Liquid container (800 cm³) with plexiglass splash guard
- Displacement 35 cm³
- Precision pressure gauge NG 100, with rubber protection cap and double scale bar/psi
- All individual parts are available as spare parts

Note:

- Also available with drag pointer - DET 061

Scope of delivery

- 1 injection tester
- 1 pressure line thread M 12x1.5
- 1 adapter DETA thread M 14x1.5



DIVE INTO THE FASCINATING WORLD OF TECHNOLOGY

Are you interested in new product developments?
Do you want to be always up to date? Then subscribe to our newsletter.

Look forward to many interesting stories, insights, products and news from **LEITENBERGER** and register today:

Register here:

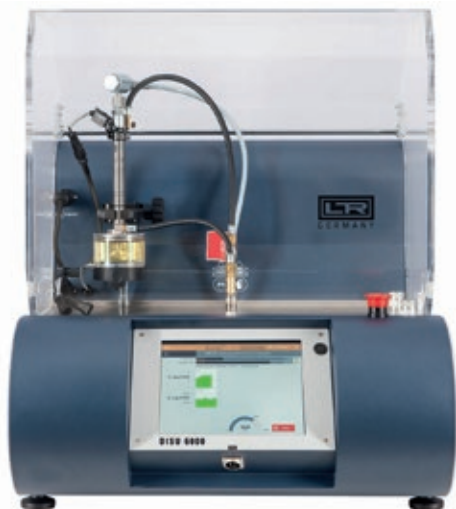
<https://www.autotestgeraete.en/news/newsletter.html>

You can also **scan the QR-code:**



DISU 6000_2800bar

-



Test bench for 1 CR Diesel-Injector - 2800 bar high-end version

Professional, automated test bench for maintenance and testing of injectors

- Suitable for all common injectors of common rail diesel systems (Bosch, Delphi, Denso, Siemens / VDO / Continental, HTC, Piezo; CDI, TDI, HDI . . .)
- Future-proof, lifetime updates for software and database via Wi-Fi free of charge and for printing and sending of test reports and support
- High efficiency due to fast and fully automatic operation and test run
- User-friendly operation, test duration under 7 minutes
- Injector coding function VDO IIC, Delphi C2i and C3i, Bosch IMA and ISA as well as Denso QR (optional)
- 10" touch screen

Inspection/test scope:

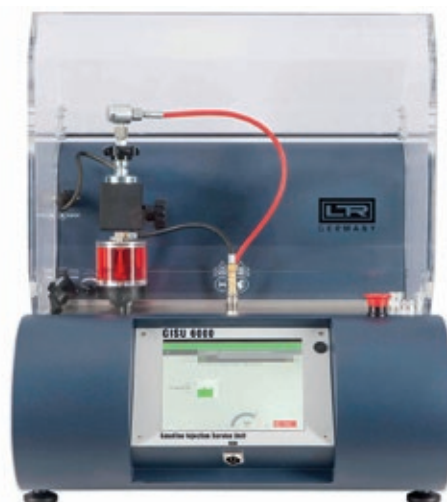
- Dynamic spray pattern test
- Check of the injector reaction time
- Injection quantity measurement Full load, Half load, Emission, Low load
- Pre- and post-injection
- Test of the nozzle opening pressure
- Test for leakage / tightness test
- Static leakage quantity test
- Electrical test of Ω , F, H

Scope of delivery

- 1 DISU 6000 test bench including connection and adapter set for all common injectors
- 1 DISU_Z_PIST (041293_1)
Illuminated pressure injection chamber, for 7–9 mm nozzles

GISU 6000_850bar_T

041323_1



Test and service test bench 850 bar «High End» for 1 injector petrol direct injection

Professional, automated test bench for maintenance and testing of injectors

- Suitable for all common injectors of gasoline direct injection systems (electromagnetic / piezo injectors; CGI, G-DI, FSI, TSI . . .)
- High efficiency due to fast and fully automatic operation and test run
- Future-proof, lifetime updates for software and database via Wi-Fi free of charge and for printing and sending of test reports and support
- Test duration only about 5 minutes
- Dynamic electronic mass measurement system
- Regeneration function for piezo injectors
- 10" touch screen

Inspection/test scope:

- Dynamic spray pattern test
- Check of the injector reaction time
- Injection quantity measurement Full load, Half load, Emission, Low load
- Pre- and post-injection
- Injection quantity measurement with rising test curve
- Test of the nozzle opening pressure
- Test for leakage / tightness test
- Static leakage quantity test
- Electrical test of Ω , F, H

Further devices:



Scope of delivery

- 1 GISU 6000 test bench including connection and adapter set for all common petrol direct injection injectors
- 1 GISU_Z_PIST (041314_1)
Illuminated pressure injection chamber, for 8 mm nozzles



LEITENBERGER is an established, innovative and highly effective development partner in the following sectors and supports renowned OEMs and suppliers with product development.

- Car and lorry manufacturers
- Wholesalers and workshop chains
- Motorbike manufacturers
- Testing organisations and assessors
- Agriculture and forestry machines
- Construction equipment manufacturers
- Army and navy
- Shipping industry
- Educational institutions

Our engineers support development: from the idea to the series-produced product. Thanks to our expertise in the fields of design, construction, trialling, simulation and prototyping, we are able to offer both complete solutions and partial developments.

DEVELOPMENT

State-of-the-art is a must. And practical know-how matters too. This gives us room for innovation and our customers a decisive edge over the competition when it comes to measuring and analysis equipment for manufacturers and their workshops.

At **LEITENBERGER** we find solutions for all types of applications, construct samples and develop prototypes up to series production. We produce our devices as well as almost all components ourselves. With a vertical integration that surprises even our long-standing customers time and again.

QUALITY WITH SEAL

„Form follows function“ – under this motto we have been developing and producing high-quality testing equipment for 50 years. Functionality, reliability and durability are always at the forefront. Our name stands for quality engineered AND made in Germany. This means that Leitenberger carries out all steps of product development in-house. From concept to series maturity. And the result of this approach speaks for itself:

Our quality management system has been certified according to DIN EN ISO 9001:2015 since 1996.





GERMANY
Autotestgeräte
LEITENBERGER GmbH

WWW.AUTOTESTGERAETE.DE

CONTACT

Autotestgeräte
LEITENBERGER GMBH
Bahnhofstraße 33
72138 Kirchentellinsfurt
Germany



+49 (0)7121/908-101



+49 (0)7121/908-200



ATG-info@LR-germany.de



ISO 9001: 2015
registration number
12 100 24343/01 TMS

Technical changes
and printing errors reserved.

06/2020

WWW.AUTOTESTGERAETE.DE

 **PREMIUM-Products**
Made in Germany