



PROFESSIONAL MEASURING AND TESTING
TECHNOLOGY FOR HYDRAULICS



product range 9:

Hydraulic diagnostics

- Hydraulic diagnostic devices
- Digital pressure measurement
- Hydraulic test cases
- Testkits
- Glycerine filled pressure gauges DS 63



Hydraulic diagnostic device HD 01	page 3
Digital pressure gauges DM 80, DM 80-UMS and DM 80-S	page 5
Hydraulic test kits HPKD and HPK	page 9
Working hydraulics test kits HPKD-AH	page 13
Testkits (pressure test pump, digital pressure gauge, hoses, adapters)	page 15
Glycerine filled bourdon tube pressure gauges (DS 63 - 2 1/2")	page 17

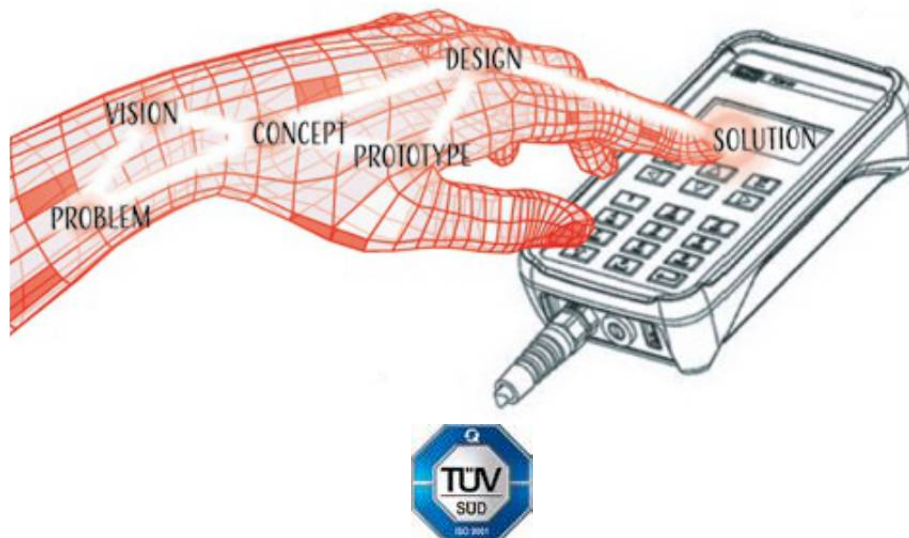
Customized testing technology for hydraulic applications

In addition to innovative products in the field of measurement and calibration technology - specifically for the parameters of pressure, temperature, torque, force, and level - DRUCK & TEMPERATUR Leitenberger GmbH offers customized solutions for hydraulics, particularly hydraulic diagnostics.

We have been developing, manufacturing, and distributing our broad product portfolio since 1969. High-quality components, professional project implementation, and a high degree of flexibility are our hallmarks. The result is state-of-the-art solutions and intelligent tools for demanding users.

We would also be happy to work with you - through ongoing dialogue - to design and develop customized, flexible, and cost-effective measurement, diagnostic, and testing technology.

We look forward to your project: dt-export@leitenberger.de



ISO 9001-certified quality management system.

Hydraulic Diagnostic Device HD 01

for testing and diagnostic works in hydraulic systems

- 2 measuring channels
- Per measuring channel display of 3 physical quantities:
Pressure (P) + Flow rate (Q) + Temperature (T)
Accuracy of pressure measurement: $\pm 0.5\%$ FS
Accuracy of flow rate and temperature measurement: $\pm 2\%$ FS
- Logging and storage of measured data via USB interface on USB stick
- The integrated chargeable Li-Ion battery guarantees long time autonomous operation
- Clear, easy reading LC display, with backlight option
- Operation via easy manageable keypad
- Measuring rate: 1 ms (1 measurement every 0.001 s)
- Data storage rate: 100 ms
- Sensors supplied with factory certificate of calibration



HD-01-SET-01

- Handheld device HD 01
- Sensor package
Pressure: 0...250 bar ($\pm 0.5\%$ FS)
Flow rate: 7,5...75 l/min ($\pm 2\%$ FS)
Temperature: 0...125°C ($\pm 2\%$ FS)
- Battery charger
- USB stick
- Factory certificate of calibration
- Carrying case with foam inserts

HD-01-SET-02

- Handheld device HD 01
- Sensor package
Pressure: 0...400 bar ($\pm 0.5\%$ FS)
Flow rate: 15...300 l/min ($\pm 2\%$ FS)
Temperature: 0...125°C ($\pm 2\%$ FS)
- Battery charger
- USB stick
- Factory certificate of calibration
- Carrying case with foam inserts

HD-01-SET-03

- Handheld device HD 01
- Sensor package
Pressure: 0...400 bar ($\pm 0.5\%$ FS)
Flow rate: 40...600 l/min ($\pm 2\%$ FS)
Temperature: 0...125°C ($\pm 2\%$ FS)
- Battery charger
- USB stick
- Factory certificate of calibration
- Carrying case with foam inserts

HD-01-SET-04

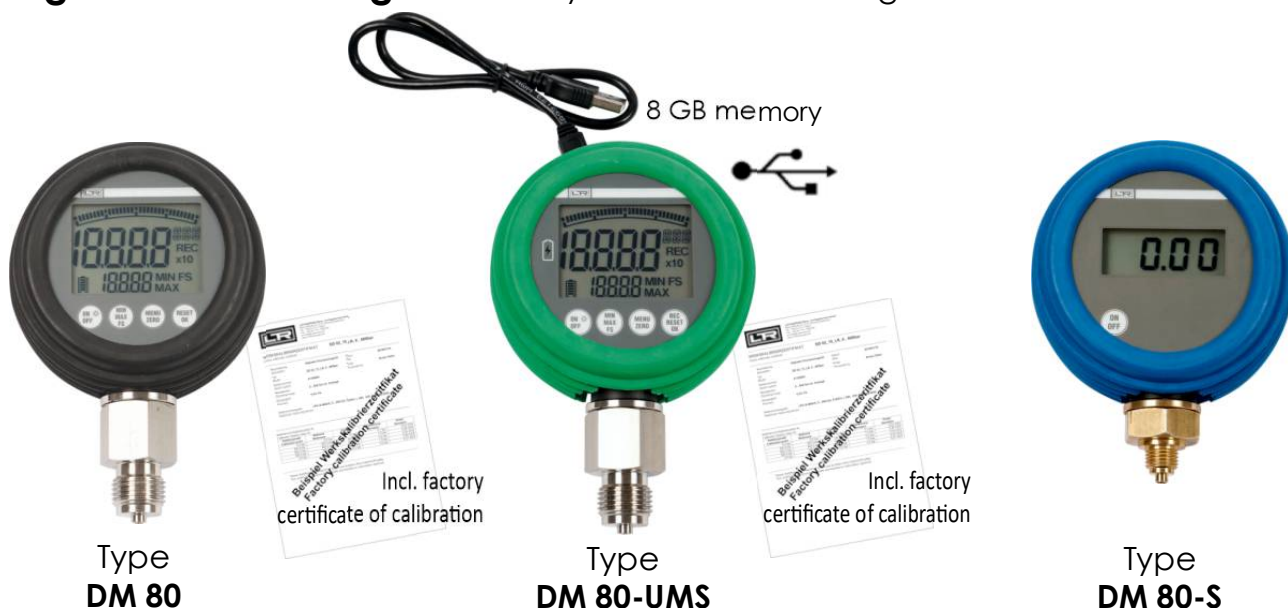
- Handheld device HD 01
- Sensor package
Pressure: 0...400 bar ($\pm 0.5\%$ FS)
Flow rate: 7,5...75 l/min ($\pm 2\%$ FS)
Temperature: 0...125°C ($\pm 2\%$ FS)
- Battery charger
- USB stick
- Factory certificate of calibration
- Carrying case with foam inserts



Hydraulic Diagnostic Device HD 01 Sets / Spare parts / Accessories

Content - Hydraulic Diagnostic Device HD 01 Sets		Order-Code:
Set 1:	• HD 01 Hydraulic Diagnostic basic Device • Sensor package 7,5...75 l/min + 0...250 bar + 0...125°C • Charger • USB stick • Transport case with foam insert	HD-01-SET-01
Set 2:	• HD 01 Hydraulic Diagnostic basic Device • Sensor package 15...300 l/min + 0...400 bar + 0...125°C • Charger • USB stick • Transport case with foam insert	HD-01-SET-02
Set 3:	• HD 01 Hydraulic Diagnostic basic Device • Sensor package 40...600 l/min + 0...400 bar + 0...125°C • Charger • USB stick • Transport case with foam insert	HD-01-SET-03
Set 4:	• HD 01 Hydraulic Diagnostic basic Device • Sensor package 7.5...75 l/min + 0...400 bar + 0...125°C • Charger • USB stick • Transport case with foam insert	HD-01-SET-04
Components and Spare Parts for HD 01:		Order-Code:
HD 01 Hydraulic Diagnostic basic Device (without sensors etc.)		HD-01
Sensor package 7,5...75 l/min + 0...250 bar + 0...125°C		HD-01-SP-075
Sensor package 15...300 l/min + 0...400 bar + 0...125°C		HD-01-SP-300
Sensor package 40...600 l/min + 0...400 bar + 0...125°C		HD-01-SP-600
Pressure sensor (single) for HD 01: Range 0...250 bar		HD-01-DS-0250
Pressure sensor (single) for HD 01: Range 0...400 bar		HD-01-DS-0400
Pressure sensor (single) for HD 01: Range 0...600 bar		HD-01-DS-0600

Digital Pressure Gauge Accuracy: $\pm 0.5\%$ FS according to IEC 60770



The digital pressure gauges types DM 80, DM 80-UMS (and DM 80-S) are used for digital indication of measured pressure values, as well as for testing and diagnose purposes in stationary and mobile hydraulic applications.

	Type DM 80	Type DM 80-UMS	Type DM 80-S
Interface:	---	USB	---
Data storage (data transmission as CSV file):	---	8 GB	---
Ambient temperature:	-10...+50°C	-10...+50°C	-10...+50°C
Storage temperature:	-20...+60°C	-20...+60°C	-20...+60°C
Medium temperature:	ranges -50...+50 and -200...+200 mbar: -10...+50°C *)	---	---
	range 0...4 bar absolute: -20...+80°C	---	---
	all other pressure ranges: -40...+125°C	-40...+125°C	-20...+120°C
Maximal relative humidity:	85% r.h.	85% r.h.	85% r.h.
Material pressure port:	ranges -50...+50 and -200...+200 mbar: CuZn39Pb3	---	---
	range 0...4 bar absolute: St.st. 1.4404	---	---
	all other pressure ranges: St.st. 1.4301	St.st. 1.4301	Brass
Material membrane:	ranges from -50...+50 mbar to 0...4 bar abs. Ceramic	---	---
	all other pressure ranges: St.st. 1.4548	St.st. 1.4548	Ceramic
Material gasket:	ranges -50...+50 and -200...+200 mbar: Epoxy	---	---
	range 0...4 bar absolute: EPDM	---	---
	all other pressure ranges: welded **)	welded **)	H-NBR
Temperature compensated range:	0...50°C	0...50°C	+10...+40°C
Error in temperature compensated range:	ranges -50...+50 and -200...+200 mbar: $\leq \pm 0.03\%$ FS / °C	---	---
	range 0...4 bar absolute: $\leq 0.005\%$ FS / °C	---	---
	all other pressure ranges: $\leq 0.035\%$ FS / °C	$\leq 0.035\%$ FS / °C	$\leq 0.02\%$ FS / °C
Minimum load cycles:	ranges from -50...+50 mbar to 0...4 bar abs.: 10×10^6	---	---
	all other pressure ranges: 100×10^6	100×10^6	10×10^6
Power supply:	2 x 1.5 VDC LR6-AA ***)	built-in Li-Ion battery	2 x 1.5 VDC LR6-AA ***)
Max. battery life time:	1500 h	10 h continuously	1500 h
	ranges -50...+50 and -200...+200 mbar: mbar	---	---
Pressure units:	ranges from 0...4 bar abs. to 0...60 bar: bar, PSI, kPa, MPa, mbar	bar, PSI, kPa, MPa	---
	ranges from 0...100 bar to 0...600 bar: bar, PSI, kPa, MPa	bar, PSI, kPa, MPa	---
	ranges from 0...700 bar to 0...3.000 bar: bar, PSI, MPa	bar, PSI, MPa	---
Pressure port:	ranges from -50...+50 mbar to 0...4 bar abs.: 1/4" BSP M acc. EN 837 *)	---	---
	all other pressure ranges: 1/2" BSP M acc. EN 837	1/2" BSP M acc. EN 837	1/4" BSP M acc. EN 837
Indication:	LCD incl. bargraph	LCD incl. bargraph	LCD
PEAK function:	Min. / Max.	Min. / Max.	---
Case material:	Metal (die-cast zinc)	Metal (die-cast zinc)	Plastic
Protection degree:	IP 65	IP 65	IP 40
Weight:	approx. 600 g	approx. 610 g	approx. 390 g
Case diameter:	with rubber protection cap: approx. 95-100 mm	approx. 95-100 mm	approx. 95-100 mm
	without rubber protection cap: approx. 80 mm	approx. 80 mm	approx. 80 mm

*) For dry gaseous media only! **) no gasket, because of welded diaphragm membrane ***) NOT included in scope of standard delivery

How to order: Pressure ranges and Order-Codes

Type DM 80

Pressure conn.: 1/2" BSP M

Accuracy $\pm 0.5\%$ FS *)

Housing: metal

Protection: IP 65

incl. factory certificate of calibration and black rubber protection cap



Gauge pressure ranges:	Order-Code:
0...10 bar	DM80-0010-0-G12
0...25 bar	DM80-0025-0-G12
0...40 bar	DM80-0040-0-G12
0...60 bar	DM80-0060-0-G12
0...100 bar	DM80-0100-0-G12
0...250 bar	DM80-0250-0-G12
0...400 bar	DM80-0400-0-G12
0...600 bar	DM80-0600-0-G12
0...700 bar	DM80-0700-0-G12
0...1,000 bar	DM80-1000-0-G12
0...2,500 bar	DM80-2500-0-G12
0...3,000 bar	DM80-3000-0-G12
Compound pressure ranges:	Order-Code:
-50...+50 mbar (conn. 1/4" BSP)	DM80-8000-5-G14
-200...+200 mbar (conn. 1/4" BSP)	DM80-8002-0-G14
-1...+16 bar	DM80-9016-0-G12
-1...+25 bar	DM80-9025-0-G12
-1...+40 bar	DM80-9040-0-G12
-1...+60 bar	DM80-9060-0-G12
Absolute pressure ranges:	Order-Code:
0...4 bar absolute (conn. 1/4" BSP)	DM80-0004-ABS-G12

Accessories for DM 80:	Order-Code:
Rubber protective cap with hook for hanging 	DM80-GKS-S-HAKEN
Threaded adapter *)  M16x2 female x 1/2" BSP female	DM80-AD-M16-I-G12
Threaded adapter *)  M16x2 male x 1/2" BSP female	DM80-AD-M16-A-G12
Small transit case with custom foams 	DM80-KOFFER

*) max.700 bar

*) Accuracy acc. to IEC 60770 (limit point adjustment (non-linearity, hysteresis and repeatability))

Type DM 80-S

Pressure conn.: 1/4" BSP M

Accuracy $\pm 0.5\%$ FS (IEC 60770)

Housing: plastic

Protection: IP 40

incl. blue rubber protection cap



Gauge pressure ranges:	Order Code:
0...60 bar	DM80-S-0060-0-G14
Compound pressure ranges:	Order Code:
-1...+3 bar	DM80-S-0003-0-G14
-1...+16 bar	DM80-S-9016-0-G14

Accessories for DM 80-S	Order-Code:
Rubber protective cap with hook for hanging 	DM80-GKS-S-HAKEN
Factory certificate of calibration 	DM80-S-WZERT
Threaded adapter  M16x2 female x 1/4" BSP female	DM80-AD-M16-I-G14
Threaded adapter  M16x2 male x 1/4" BSP female	DM80-AD-M16-A-G14
Small transit case with custom foams 	DM80-KOFFER

Pressure unit BAR or PSI.



Digital pressure gauge / datalogger DM 80-UMS

Type **DM 80-UMS**

Pressure conn.: 1/2" BSP M

Accuracy $\pm 0.5\%$ FS *)

Housing: metal

Protection: IP 65

Interface: USB-C

incl. factory certificate of calibration and green rubber protection cap



with USB-C interface and **8 GB** data memory
(export as csv file, no special software needed,
the instrument is recognized like an USB
memory stick)



Powered with built-in chargeable Li-Ion battery.

Gauge Pressure Ranges:	Order-Code:
0...25 bar	DM80-UMS-0025-0-G12
0...40 bar	DM80-UMS-0040-0-G12
0...60 bar	DM80-UMS-0060-0-G12
0...100 bar	DM80-UMS-0100-0-G12
0...250 bar	DM80-UMS-0250-0-G12
0...400 bar	DM80-UMS-0400-0-G12
0...600 bar	DM80-UMS-0600-0-G12
0...1000 bar	DM80-UMS-1000-0-G12
0...2500 bar (on request only)	DM80-UMS-2500-0-G12
Compound Pressure Ranges:	Order-Code:
-1...+16 bar	DM80-UMS-9016-0-G12

Accessories for DM 80-UMS:	Order-Code:
Rubber protective cap with hook for hanging 	DM80-GKS-G-HAKEN
Mains charger 110...230 VAC 	DM80-UMS-LG
Threaded adapter M16x2 female x 1/2" BSP female 	DM80-AD-M16-I-G12
Threaded adapter M16x2 male x 1/2" BSP female 	DM80-AD-M16-A-G12
Small transit case with custom foams 	DM80-KOFFER

*) Accuracy acc. to IEC 60770 (limit point adjustment (non-linearity, hysteresis and repeatability))

The type DM 80-UMS is equipped with a 8 GB data memory and has an USB-C connector. The data transfer speed is according to the USB 2.0 standard. The DM 80-UMS is recognized by connected PC/Laptop as an external memory.

The built-in rechargeable lithium-ion battery enables autonomous continuous operation of approx. 10 hours. The charging time of an empty battery is about 3 hours.

The measurement value storage rate can be set: every 10 ms, / 100 ms / 1 sec / 10 sec.
A data record can be also created by pushing the button „REC“.

Due to the extremely large storage capacity, the logging time is approximately as follows:

- with storage interval every 10 milliseconds: approx. 1 year
- with storage interval every 100 milliseconds: approx. 10.1 years
- with storage interval every 1 second: approx. 101.5 years
- with storage interval every 10 seconds: approx. 1015 years

The built-in data memory of the DM 80-UMS will be recognized by the computer as an external memory (like an USB drive). Enables extremely simple reading of the stored data (.csv file) without special software.

Scope of standard delivery of the digital pressure gauge and datalogger DM 80-UMS:

- Device DM 80-UMS with green rubber protection cap
- USB- cable (Micro-USB to USB-A), PC connection to USB-A connector
- Built-in chargeable Li-Ion battery (chargeable with standard 5 VDC output USB chargers)
- Factory certificate of calibration
- Operating manual

Recommended accessories:

- Plug battery charger 110...240 VAC with USB-A connector: order-code [DM80-UMS-LG](#)

The digital pressure gauges DM 80, DM 80-UMS as well as type DM 80-S are ideal not only for measurement of process pressures (DM 80-UMS with datalogger), but also - in combination with our pressure test pumps - perfect for testing and diagnostic works:



with pressure comparison test pump
LR-Cal LSP 100-H



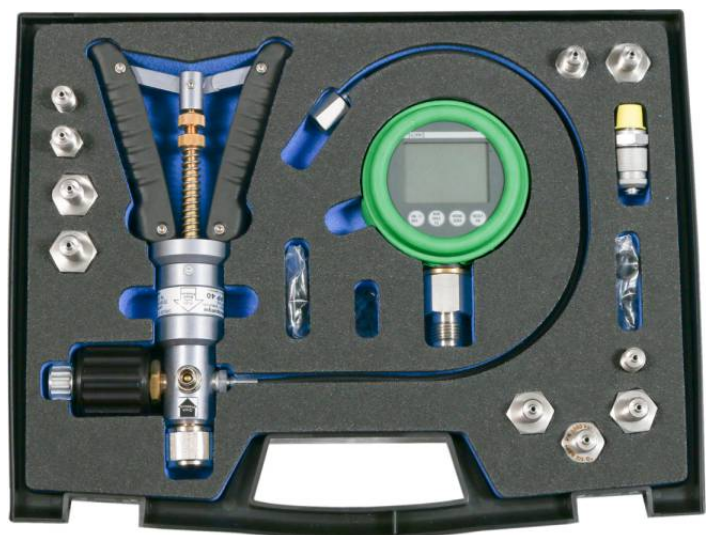
with pneumatic
pressure test pump
LR-Cal LPP 40



with pneumatic
pressure test pump
LR-Cal LPP 60-T



with hydraulic
pressure test pump
LR-Cal LPP 700/1000



Diagnostic Case [TESTKIT-DM80-UMS-9016](#)
with pneumatic pressure test pump
LR-Cal LPP 40 and adapters

Hydraulic Test Kits

HPKD - digital and HPK - analogue

The HPKD, HPKD-UMS and HPK test kits enable quick and reliable digital (or analogue) diagnosis of all kind of hydraulic systems.

The HPKD, HPKD-UMS and HPK test kits are supplied in a rigid portable case with custom foam inserts.

Optional individual customized content of the hydraulic test cases are available on request.



The digital pressure gauges in the HPKD and HPKD-UMS (with 8 GB data memory) hydraulic test cases have an accuracy of $\pm 0.5\%$ FS (Technical data see datasheet „DM 80 | DM 80-UMS“)

The analogue pressure gauges in the HPK hydraulic test cases have an accuracy of $\pm 1.6\%$ FS.

Hydraulic Test Case HPKD and HPKD-UMS with 1 digital pressure gauge

Content: (with 1 digital pressure gauge)	Order-Code:
1 Rigid transport and storage case with custom foam inserts 1 Pressure hose, length 2.0 meter 1 Direct pressure gauge adapter 1/2" BSP 2 Test couplings: 1 pc. 1/4" BSP + 1 pc. M10x1 2 Threaded adapters: 1 pc. 3/8" BSP to M10x1 + 1 pc. 1/2" BSP to M10x1 1 Hose connector M16x2	
with 1 Digital pressure gauge DM 80: 1 pc. 0...100 bar incl. rubber protection cap: 1 pc. green	HPKD-11
with 1 Digital pressure gauge DM 80: 1 pc. 0...400 bar incl. 1 rubber protection cap: 1 pc. orange	HPKD-10
with 1 Digital pressure gauge DM 80-UMS (with USB): 1 pc. 0...400 bar incl. 1 rubber protection cap: 1 pc. orange	HPKD-10-UMS
with 1 Digital-Manometer DM 80: 1 Stück 0...600 bar incl. 1 rubber protection cap: 1 pc. red	HPKD-12

Hydraulic Test Case HPKD and HPKD-UMS with 2 digital pressure gauges

Content: (with 2 digital pressure gauges)	Order-Code:
1 Rigid transport and storage case with custom foam inserts 2 Pressure hoses, length each 2.0 meter 1 Direct pressure gauge adapter 1/2" BSP 1 Pressure gauge adapter 1/2" BSP 2 Test couplings: 1 pc. 1/4" BSP + 1 pc. M10x1 2 Threaded adapters: 1 pc. 3/8" BSP to M10x1 + 1 pc. 1/2" BSP to M10x1 1 Hose connector M16x2	
with 2 Digital pressure gauges DM 80: 1 pc. 0...100 bar + 1 pc. 0...400 bar incl. 2 rubber protection caps: 1 pc. green + 1 pc. orange	HPKD-21
with 2 Digital pressure gauges DM 80: 1 pc. 0...400 bar + 1 pc. 0...600 bar incl. 2 rubber protection caps: 1 pc. orange + 1 pc. red	HPKD-20
with 2 Digital pressure gauges DM 80-UMS (with USB): 1 pc. 0...400 bar + 1 pc. 0...600 bar incl. 2 rubber protection caps: 1 pc. orange + 1 pc. red	HPKD-20-UMS
with 2 Digital pressure gauges DM 80: 1 pc. 0...600 bar + 1 pc. 0...100 bar incl. 2 rubber protection caps: 1 pc. red + 1 pc. green	HPKD-22

Hydraulic Test Case HPKD and HPKD-UMS with 3 digital pressure gauges

Content: (with 3 digital pressure gauges)	Order-Code:
1 Rigid transport and storage case with custom foam inserts 2 Pressure hoses, length each 2.0 meter 2 Direct pressure gauge adapters 1/2" BSP 1 Pressure gauge adapter 1/2" BSP 6 Test couplings: 3 pcs. 1/4" BSP + 3 pcs. M10x1 2 Threaded adapters: 1 pc. 3/8" BSP to M10x1 + 1 pc. 1/2" BSP to M10x1 1 Hose connector M16x2	
with 3 Digital pressure gauges DM 80:	HPKD-30
1 pc. 0...100 bar + 1 pc. 0...400 bar + 1 pc. 0...600 bar - incl. 3 rubber protection caps: 1 pc. green + 1 pc. orange + 1 pc. red	
with 3 Digital pressure gauges DM 80-UMS (with USB):	HPKD-30-UMS
1 pc. 0...100 bar + 1 pc. 0...400 bar + 1 pc. 0...600 bar - incl. 3 rubber protection caps: 1 pc. green + 1 pc. orange + 1 pc. red	

Hydraulic Test Case HPK with 1 analogue pressure gauge

Content: (with 1 analogue bourdon tube pressure gauge)	Order-Code:
1 Rigid transport and storage case with custom foam inserts 1 Pressure hose, length 2.0 meter 1 Direct pressure gauge adapter 1/4" BSP 1 Pressure gauge adapter 1/4" BSP 2 Test couplings: 1 pc. 1/4" BSP + 1 pc. M10x1 2 Threaded adapters: 1 pc. 3/8" BSP to M10x1 + 1 pc. 1/2" BSP to M10x1 1 Hose connector M16x2	
with 1 glycerine filled bourdon tube pressure gauge DS 63: 1 pc. 0...400 bar	HPK-10

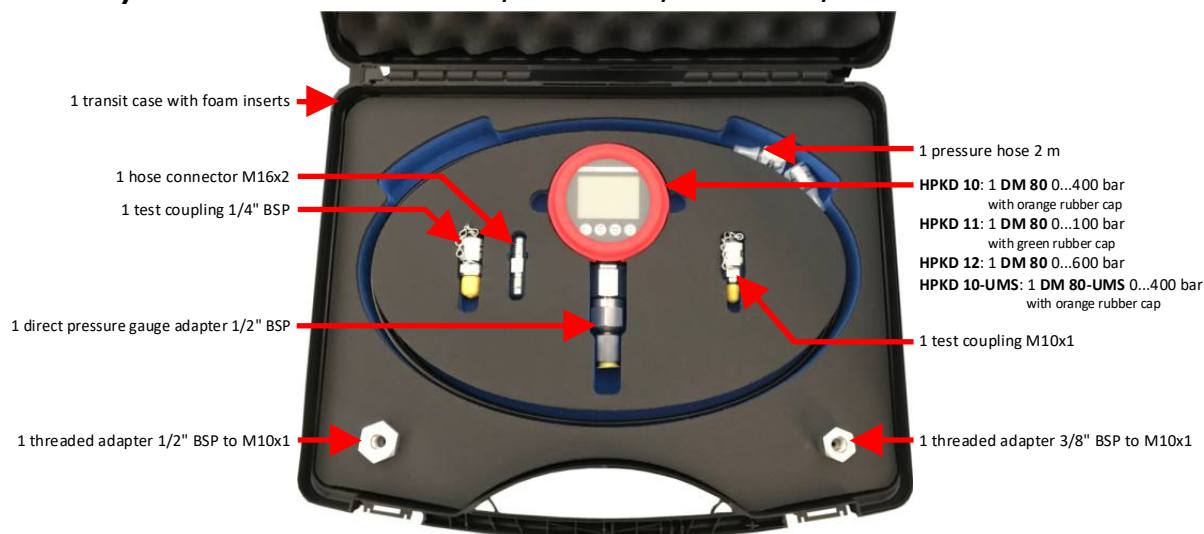
Hydraulic Test Case HPK with 2 analogue pressure gauges

Content: (with 2 analogue bourdon tube pressure gauges)	Order-Code:
1 Rigid transport and storage case with custom foam inserts 2 Pressure hoses, length each 2.0 meter 1 Direct pressure gauge adapter 1/4" BSP 1 Pressure gauge adapter 1/4" BSP 2 Test couplings: 1 pc. 1/4" BSP + 1 pc. M10x1 2 Threaded adapters: 1 pc. 3/8" BSP to M10x1 + 1 pc. 1/2" BSP to M10x1 1 Hose connector M16x2	
with 2 glycerine filled bourdon tube pressure gauges DS 63:	HPK-20
1 pc. 0...100 bar + 1 pc. 0...400 bar	

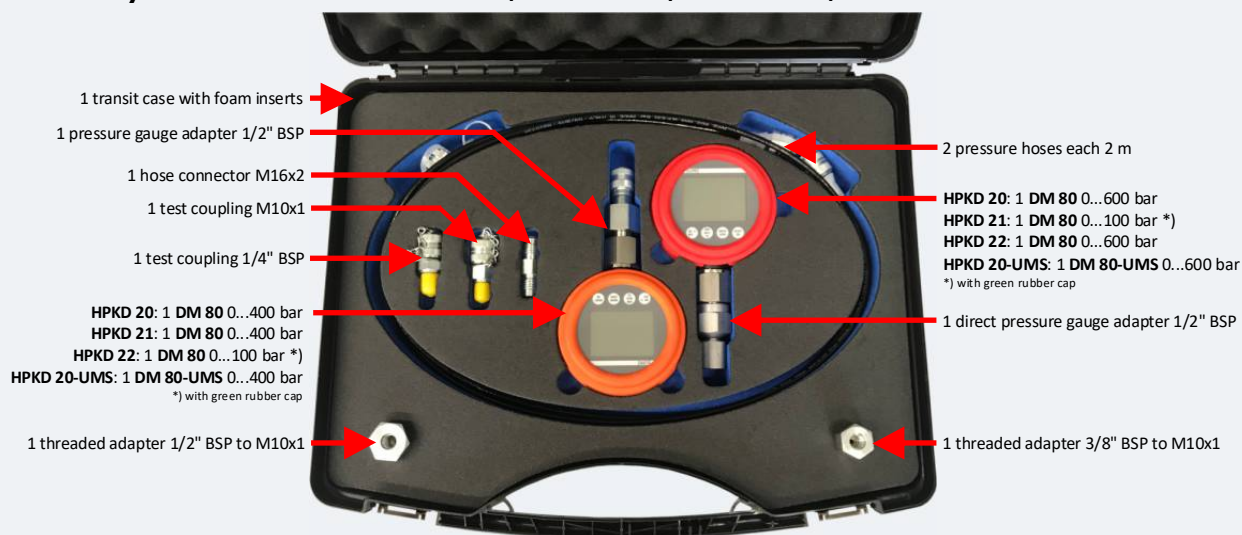
Hydraulic Test Case HPK with 3 analogue pressure gauges

Content: (with 3 analogue bourdon tube pressure gauges)	Order-Code:
1 Rigid transport and storage case with custom foam inserts 2 Pressure hoses, length each 2.0 meter 2 Direct pressure gauge adapters 1/4" BSP 1 Pressure gauge adapter 1/4" BSP 6 Test couplings: 3 pcs. 1/4" BSP + 3 pcs. M10x1 2 Threaded adapters: 1 pc. 3/8" BSP to M10x1 + 1 pc. 1/2" BSP to M10x1 1 Hose connector M16x2	
with 3 glycerine filled bourdon tube pressure gauges DS 63:	HPK-30
1 pc. 0...25 bar + 1 pc. 0...100 bar + 1 pc. 0...400 bar	

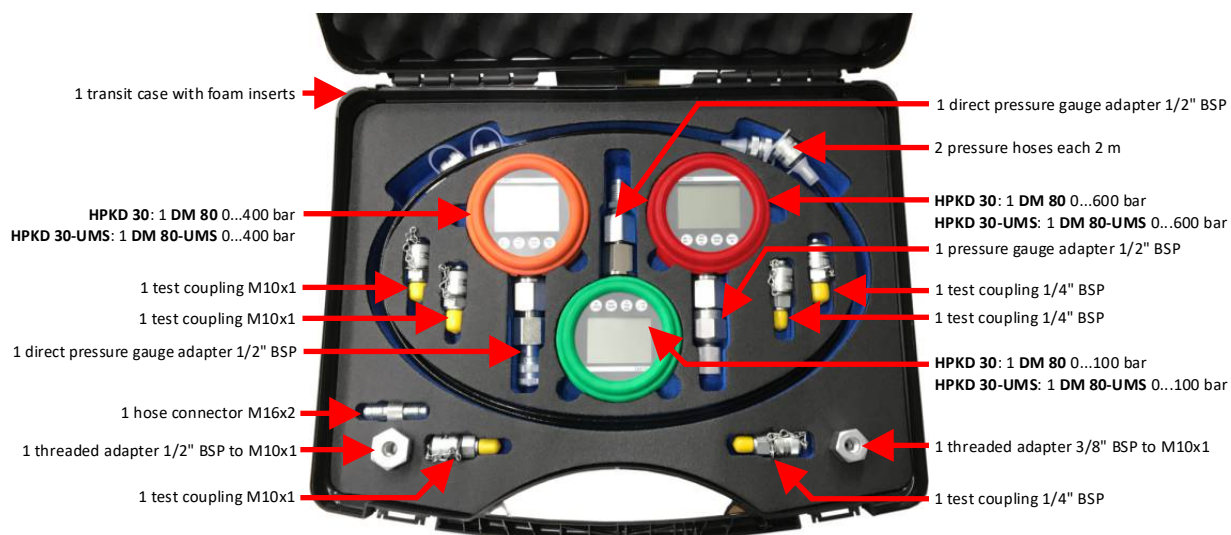
Content of Hydraulic Test Kit HPKD 10 / HPKD 11 / HPKD 12 / HPKD 10-UMS



Content of Hydraulic Test Kit HPKD 20 / HPKD 21 / HPKD 22 / HPKD 20-UMS



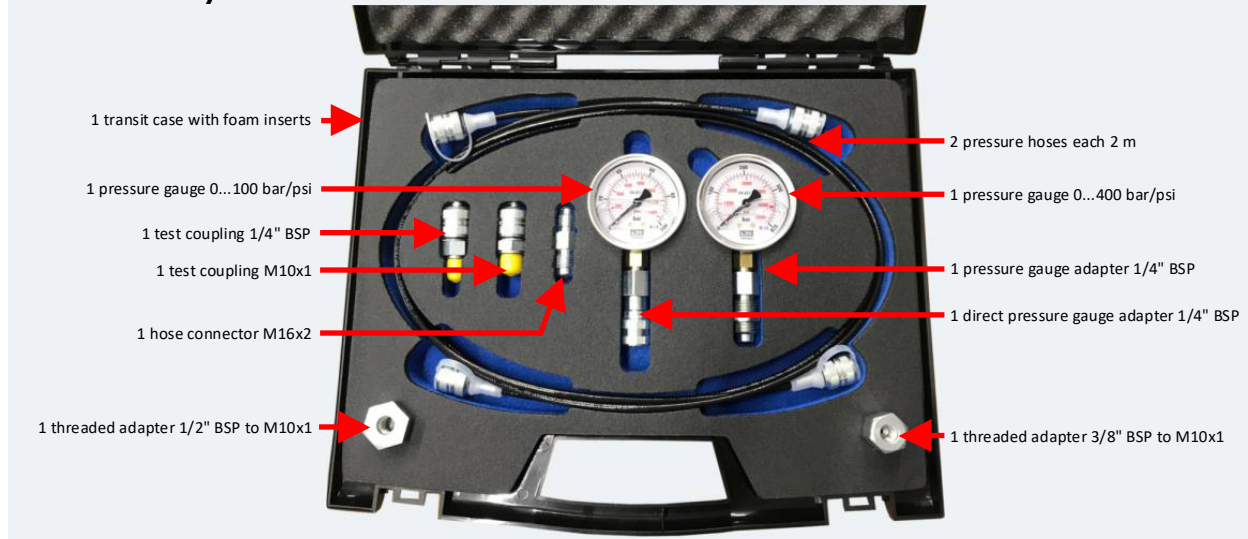
Content of Hydraulic Test Kit HPKD 30 / HPKD 30-UMS



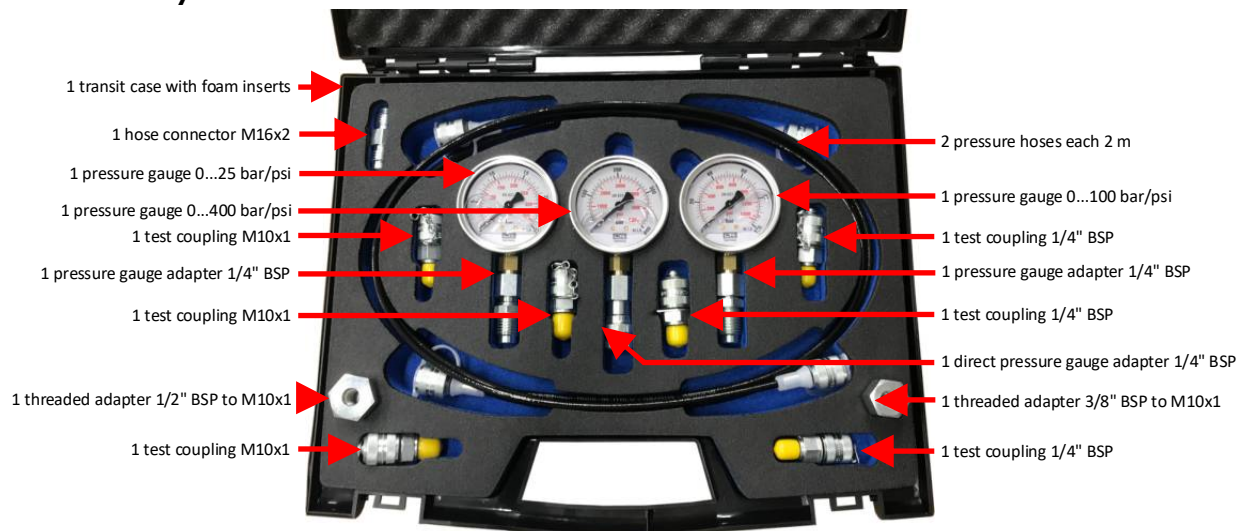
Content of Hydraulic Test Kit HPK 10

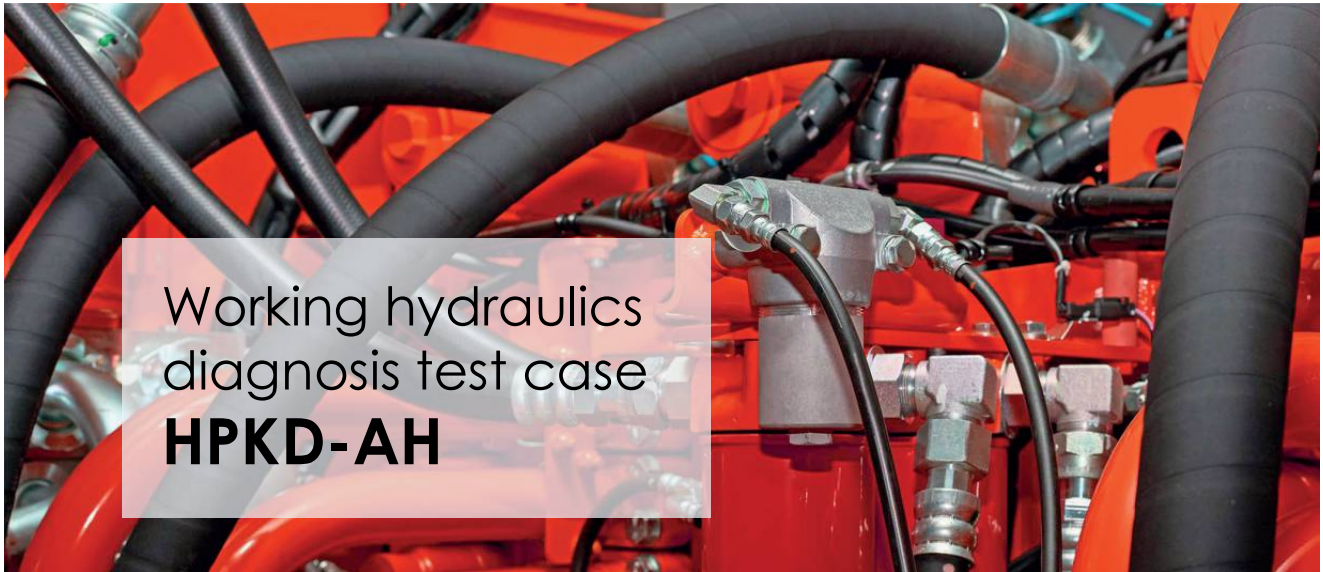


Content of Hydraulic Test Kit HPK 20



Content of Hydraulic Test Kit HPK 30





Working hydraulics diagnosis test case **HPKD-AH**

Developed especially for commercial vehicles, tractors and trucks with hydraulic auxiliary equipment (working hydraulics) for municipal as well as in agriculture and forestry: HPKD-AH hydraulic test case for working hydraulics diagnosis.

A standard configuration is shown here, but we are also happy to create together with you your individual configuration (pressure measuring ranges, connections, adaptations, etc.).

With this HPKD-AH test kit, a quick, safe and reliable diagnosis of all hydraulic systems is possible.



The HPKD-AH hydraulic test case has been specially designed to meet the requirements for checking and testing the hydraulic systems on universal commercial vehicles (e.g. Unimog) as well as agricultural and construction machinery.

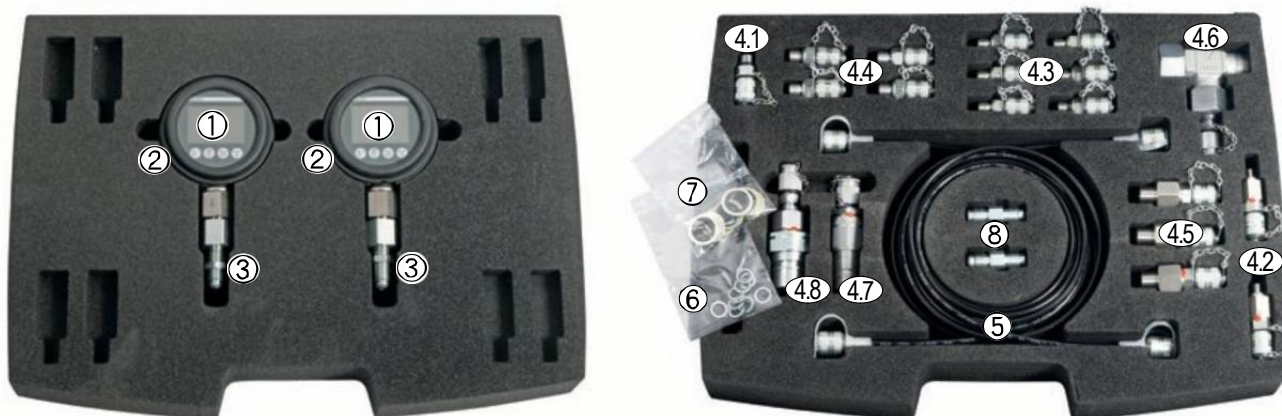
- Content:**
- 2 Digital pressure gauges DM 80 (0...600 bar)
 - 2 Pressure gauge connections 1/2" BSP
 - 1 Adapter set
 - 4 Pressure hoses M16x2
Length each je 3 Meter
 - 10 Sealing rings M8 (st.st.)
 - 10 Sealing rings M18 (st.st.)
 - 2 Hose connectors M16x2
 - Transport and storage case with milled molded foam inserts

For more detailed information on the scope of delivery, see next page.

Technical data

Pressure range (digital pressure gauge DM 80):	0...600 bar (0...8702 psi)
Maximum permissible overpressure (digital pressure gauge DM 80):	600 bar
Burst pressure (digital pressure gauge DM 80):	1,200 bar
Measurement accuracy (digital pressure gauge DM 80):	±0.5% FS as per IEC 60770
Burst pressure (pressure hose):	1,950 bar
Permissible ambient temperature range:	-20...+65°C
Permissible storage temperature range:	-20...+50°C
Maximum permissible medium temperature:	+60°C
Maximum permissible relative humidity:	<85%, non-dewing
Material pressure ports:	Stainless steel
Material gaskets:	NBR
Material test ports:	Stainless steel
Weight:	approx. 6 kgs
Dimension (complete with case):	approx. 500 x 410 x 130 mm

Full content:



(Position) Description	Qty.
(1) Digital pressure gauge DM 80, 0...600 bar, ±0.5% FS	2
(2) Rubber protection cap, black	2
(3) Pressure gauge connection SMA20 - G 1/2-P-OR	2
(4) Adapter set, consisting of:	1
(4.1) Test port G 1/4 (1/4" BSP)	1
(4.2) Test port M 8 x 1	2
(4.3) Test port M 12 x 1,5	6
(4.4) Test port M 14 x 1,5	4
(4.5) Test port M 18 x 1,5	3
(4.6) Test adapter, T-piece, 20S, M 16 x 2	1
(4.7) Test adapter, hydraulic pc. HP 10 - M 16 x 2	1
(4.8) Test adapter, hydraulic pc. HP 12 - M 16 x 2	1
(5) Pressure hose M 16 x 2i, length 3 m	4
(6) Sealing ring in stainless steel, M 8	10
(7) Sealing ring in stainless steel, M 18	10
(8) Hose connector M16 x 2 male x M 16 x 2 male	2
Case with milled molded foam inserts	1

TESTKIT-DM80-9040 + TESTKIT-DM80-1000



Content:

- **Pressure test pump** LR-Cal LPP 40 for manual pressure generation -0.95...+40 bar or LR-Cal LPP 1000 (0...1,000 bar / 14,500 psi)
- **Digital Pressure Gauge** DM 80
Range -1...+40 bar, $\pm 0.5\%$ FS or range 0...1,000 bar, $\pm 0.5\%$ FS
- with factory Certificate of Calibration
- with protection rubber cap, black
- **Threaded adapters** for test item port of the pump
1/8" BSP F, 3/8" BSP F, 1/2" BSP F, 1/2" BSP M
1/8" NPT F, 1/4" NPT F, 3/8" NPT F, 1/2" NPT F
M12x1.5 F, M20x1.5 F, M16x2 F
- Rigid transit **case** with countersunk foam insert.

More details see datasheets „LPP 40“/„LPP 1000“ and „DM 80“.

TESTKIT-DM80UMS-9016

 Data Logger + USB



Content:

- **Pressure test pump** LR-Cal LPP 40 for manual pressure generation -0.95...+40 bar
- **Digital Pressure Gauge** DM 80-UMS with Data logger (8 GB memory)
Range -1...+16 bar, $\pm 0.5\%$ FS
 - with factory Certificate of Calibration
 - with protection rubber cap, green
 - with mains battery charger
- **Threaded adapters** for test item port of the pump:
 - 1/8" BSP F, 3/8" BSP F, 1/2" BSP F, 1/2" BSP M
 - 1/8" NPT F, 1/4" NPT F, 3/8" NPT F, 1/2" NPT F
 - M12x1.5 F, M20x1.5 F, M16x2 F
- Rigid transit **case** with countersunk foam insert.

More details see datasheets „LPP 40" and „DM 80".



Glycerine filled bourdon tube pressure gauges DS 63 according to EN 837-1, Wetted parts in copper alloy

Service intended:

Intended for applications with pulsating pressure and vibrations.

Suitable for all gaseous and liquid media that will not obstruct the pressure system or attack copper alloy parts, e.g. Hydraulics, Compressors, Shipbuilding industry, and much more



Case: Stainless steel, case diameter DS 63 (2 1/2") with O-Ring seal between case and socket
Ranges up to 16 bar (232 psi) with case venting provision

Dampening fluid: Glycerine 99.7%, optional silicone oil filled *)

Protection: IP 65

Pressure port: 1/4" BSP male in brass, optional 1/4" NPT male in brass *)

Sensing element: Bourdon tube in copper alloy, soft soldered
Ranges up to 40 bar (580 psi): C-type
Ranges from 60 bar (870 psi): helical type

Pointer: Plastic, black

Dial: Aluminium, white background, figures as per EN 837-1
Single scale „bar“ or dual scale „bar/psi“
Optional with customer logo, coloured areas, etc. *)

Window: Transparent plastic, optional safety-glass (non-laminated) *)

Accuracy: Class 1.6 (maximal measurement deviation $\pm 1.6\%$ of the span)
Temperature influence: when temperature of the pressure element deviates from reference temperature $+20^{\circ}\text{C}$: max. $\pm 0.5\%$ / 10K of the span

Temperature: Ambient $0...+60^{\circ}\text{C}$, Medium max. $+60^{\circ}\text{C}$, optional $-40...+60^{\circ}\text{C}$ with silicone oil filling *)

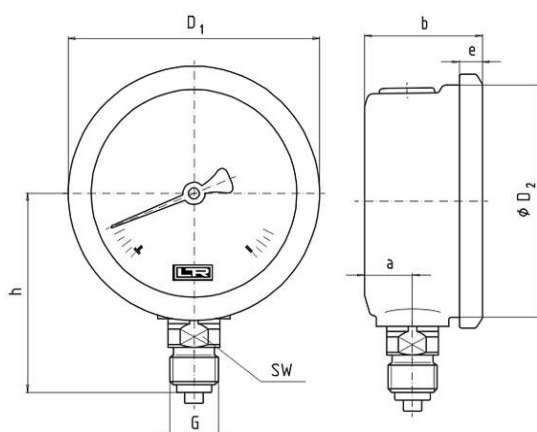
Working pressure: Steady: 3/4 of full scale value
Fluctuating: 2/3 of full scale value
Short time: full scale value

Pressure ranges: all standard ranges (gauge pressure, vacuum, compound)
between $-1...0$ bar (-14.5 psi) and $0...1000$ bar (14500 psi).

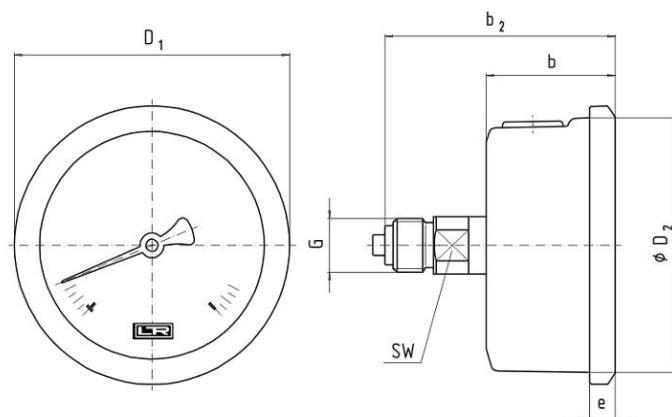
*) Minimum order quantity: 100 pieces per type (not available from stock)

Unfilled pressure gauges are also available, as well as those with case diameters of DS 100 + 160.

Dimensions



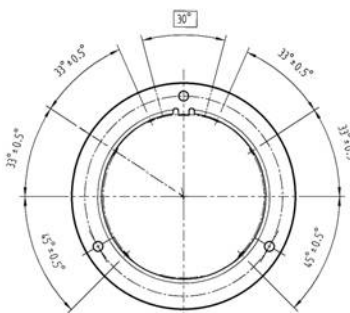
Type 010.1.063. + 011.1.063.
Bottom connection



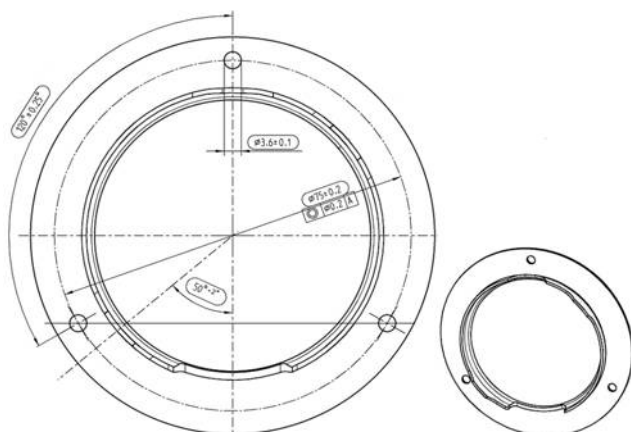
Type 010.2.063. + 011.2.063.
Back connection

a	b ±0,5	b ₂ ±1	D ₁	D ₂	e	G ±1	SW	h	weight
13 mm	32 mm	56 mm	68 mm	62 mm	6,5 mm	G 1/4 B = 1/4" BSP	54 mm	14 mm	0,21 kg

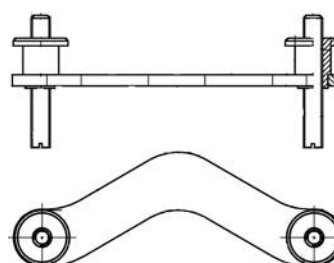
Accessory for types 010.1.063. and 011.1.063.
Back flange (with 3 holes) for wall mounting



Accessory for types 010.2.063. and 011.2.063.
Front flange (with 3 holes) for panel mounting



Accessory for types 010.2.063. and 011.2.063.
Bracket set for panel mounting



Our product brochures:

Product overview

**Produktübersicht
Product overview**

Messen kalibrieren loggen
measure calibrate log

Druck Temperatur Füllstand Drehmoment Kraft
pressure temperature level torque force

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Pressure calibration

**Druck-Kalibrierung
Pressure Calibration**

- Grundlagen Informationen
- Druck Controller
- Druckregler / Prüfdruckumrichter
- Druckregler / Prüfdruckumrichter
- Druckregler / Prüfdruckumrichter
- Kalibrieren für kleine Drücke und Unterdrücke
- General information
- Pressure controller
- Pressure regulator / pressure weight tester
- Pressure comparison test pump
- Pressure calibration / precision reference instruments
- Handhelds for small pressure and vacuum ranges

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Portable pressure calibration

**Portable Druckkalibrierung
Portable Pressure Calibration**

- Einzelanlagen
- Manometrische Kalibrier Handpumpen
- Induktive Kalibrier Handpumpen
- Druck Kalibrierer LR-Cal LPT 40T
- Digital Messmanometer
- Recommendations
- Manometric pressure test pumps
- Inductive pressure test pumps
- Portable pressure calibration kit LR-Cal LPT 40T
- Handheld measurement

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Temperature calibration

**Temperatur-Kalibrierung
Temperature Calibration**

- Wie ist eine Temperaturkalibrierung?
- Grundlagen der Temperaturkalibrierung
- Temperatur Kalibrierer für Kalibrierer
- Temperatur Kalibrierer
- Temperatur Kalibrierer
- Kalibrieren und Temperaturkalibrierung
- Handhelds und Temperaturkalibrierung
- Handhelds und Temperaturkalibrierung
- Handhelds und Temperaturkalibrierung
- Handhelds und Temperaturkalibrierung

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Calibration of torque + force

**Kalibrierung Drehmoment + Kraft
Calibration of Torque + Force**

- Drehmoment Kalibriergeräte
- Druckmessgeräte für Drehmoment + Kraft
- Druckmessgeräte für Drehmoment + Kraft
- Digital Messmanometer mit Anzeige in Gewicht + Kraft
- Digital Messmanometer
- Torque calibration
- Technical support for torque wrenches
- Handheld instruments for torque + force
- Digital pressure gauge with indication weight + force
- Handheld tachometer

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**Marine-Kalibrierkoffer
Marine Calibration Kits**

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- Digital Druckmessgeräte
- Hydraulik Prüfkörper
- Hydraulic diagnostic devices
- Digital pressure measurement
- Hydraulic test cases

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