- → Pneumatic hand test pumps
- → Hydraulic hand test pumps
- → Hydraulic comparison test pumps
- → Digital pressure gauges
- → Hand-held pressure instruments

Including products with:

TEST PUMPS AND DIGITAL GAUGES →

Test pumps

Pressure is one of the most commonly measured quantities in engineering, which is why exact and reliable pressure measurement is especially important.
However, the characteristics of the even best sensor or transducer can be altered by a wide variety of factors. This drift cannot be prevented, and it leads to incorrect readings.
Calibration allows these deviations to be measured and documented in a certificate. All pressure measuring devices that significantly affect processes or activities should be calibrated before being used.

Requirements for pressure sources

The essential requirements for manual pressure generation are:

- Easy connection to test samples
- Simple and easy pressure generation
- Maintenance free operation

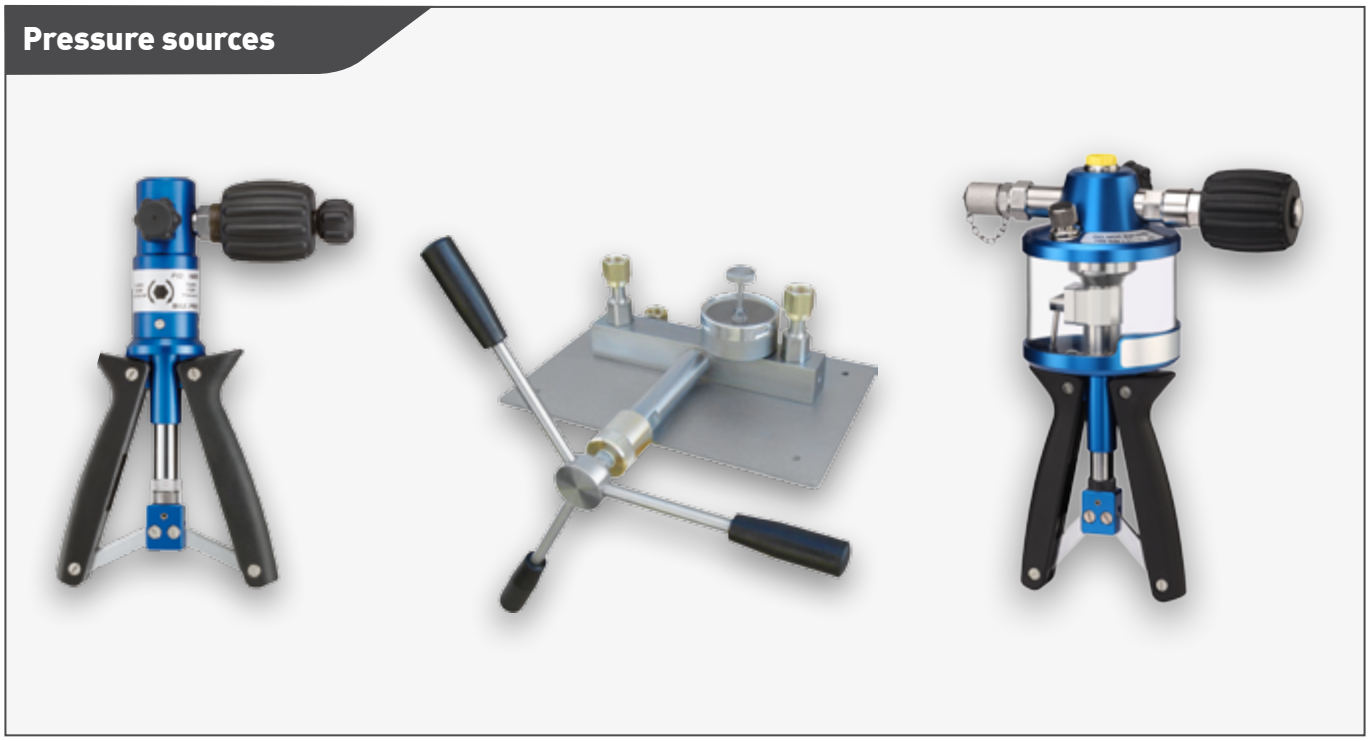
These aspects have been taken into account and implemented in the design of our test pumps.

Good reasons for proper and reliable calibration

- Maintaining consistently high product quality
- Fulfilling industrial requirements
- Fulfilling quality assurance requirements
- Process optimisation
- Increasing productivity
- Avoiding unexpected production downtimes
- Employee and customer safety
- Environmental requirements / ecological aspects
- Profit optimisation / economic aspects

SIKA's mobile test and calibration devices are effective aids for performing the necessary test and calibration tasks quickly.

Pressure sources

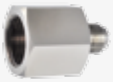
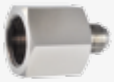
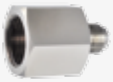


OEM version and full version

Depending on the model a matching pressure hose is part of the basic configuration of the OEM version of the test pump. The hydraulic hoses are fitted with a self-sealing quick coupling. Inch, conical or metric adapters for all commonly used connection threads are available in the full version. A matching seal kit is also included with the pump. All of the equipment is held in a carrying case with a foam-rubber insert.

Full version / P 1000.2

Standard adapter kit

G⅛	G¼	G⅜	G½	⅛ NPT	¼ NPT	½ NPT	M12 x 1.5	M20 x 1.5	G⅛ A	G¼ A
										

Mobile and independent

Test pumps are ideal for mobile use. Their low weight and compact design make them easy to transport directly to the measurement site. The instruments can be used immediately and do not require an additional power supply. There is no need to take along nitrogen bottles or connect the equipment to a compressed air network. Manual pressure generation is simple and easy, regardless of ambient temperature and orientation.

Possible areas of application

Test pumps can be used everywhere, including on site in workshops, test and measurement rooms as well as laboratories. They cover a broad spectrum of industries with diverse applications.

- Assembly and commissioning
- Manufacturing and production
- Maintenance and service
- Quality assurance and test equipment monitoring
- Repair

They are suitable for testing, adjusting and calibrating pressure sensors, pressure gauges, pressure switches, safety valves and all types of pressure devices. They are optimised in their function and use and assist in the performance of specific tests and inspections.

Mobile use

Hand test pumps

Hydraulic or pneumatic

Air, water and oil are used as pressure media. Especially in application areas in which wetting of the test sample is not allowed or the use of aggressive or ionising substances must be avoided, air is the ideal test medium.

SIKA's pneumatic test pump fulfils requirements that in many cases can only be covered by several pumps from other suppliers.

❶ Manual pressure generation in the medium pressure range up to 60 bar using a handle is unique – no other pump can do this.

❷ Integrated negative pressure capability enables operating with vacuum down to -950 mbar. A changeover valve enables switching from positive pressure to negative pressure with no need for special tools.

❸ A large-volume pressure regulator with ultrafine thread pitch is used for precise pressure adjustment in the low mbar range, enabling accurate settings in the low pressure region.

The easily operated hydraulic test pumps are specifically designed for the medium to high pressure range. They have a built-in reservoir for the hydraulic fluid. Pressures up to 700 bar or 1000 bar can be generated, depending on the model.

Practical

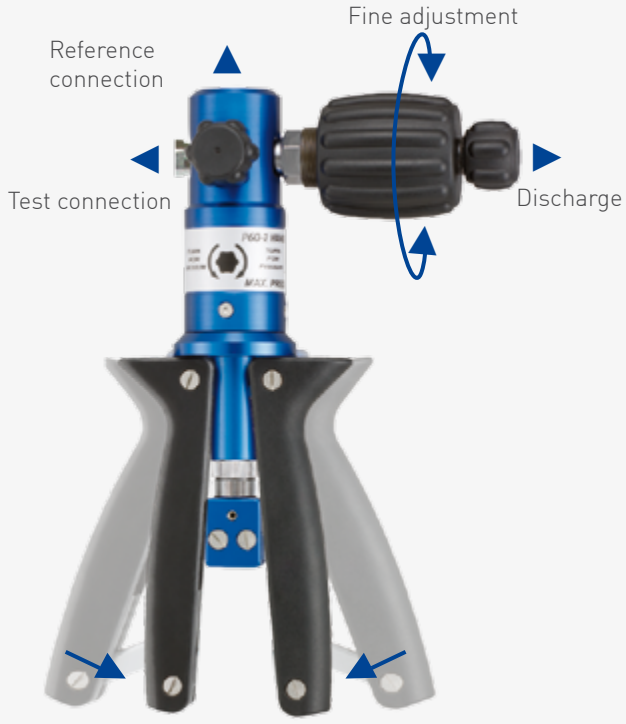
The test pumps are designed to enable the direct connection of all pressure systems to be tested using adapters. The test sample is easily connected using the rugged industrial hose with integrated quick coupling and supplied adapters. The reference is fitted directly at the top of the pump using a positioning adapter.

The required test pressure is initially generated using the handles and then adjusted precisely with the fine adjustment valve. As a result, the pressure on both instruments is the same.

The pressure relief valve allows continuous pressure reduction and ensures accurate and easy testing, even with decreasing pressure.

In the simplest case, the pressure is indicated by an analogue test gauge. An easy to read digital pressure gauge or hand-held instrument can also be used. The accuracy or adjustment of the pressure measuring device being tested can be checked by comparing the indicated reference value with the measured value for the device under test.

Practice orientated



Force applied by pressing the handles together

Comparison test pumps

The latest generation of comparison test pumps combines precision - even at high pressures- with a high build quality. All wetted parts are made of stainless steel, whereby a wear-free operation is ensured.

The sophisticated design of these comparison test pumps facilitates the installation of test samples, even with large nominal diameters, without sacrificing the handiness. The built-in adapters on the pressure connections also allow the free alignment of the reference pressure gauge and test sample. In this way, almost any test situation can be taken into account.
Depending on model distilled water and hydraulic oil can be used as test medium. Distilled water is an excellent calibration medium, since it can be removed without problem and without residue. Thereby, sensors can be tested which may not be contaminated by oil, for example. For test pressures above 1000 bar, hydraulic oil is recommended, since it allows an easier test pressure generation because of its higher viscosity.

The filling of the pressure body and test pressure generation are easily done via a rotatable spindle. Large volumes can be easily loaded via the pressure medium reservoir which is built on the test pump. Pressure fluctuations caused by air and gas components in the filling liquid, compensation of thermodynamic effects and precise adjustment of the required test pressure are done via the fine adjustment (optional).

Overview pressure generation

Function	Type	Pressure range		Air	Oil	Water
Hand test pump	P 4	-0.3...4 bar	-4.35...58 psi	✓		
	P 40.2	-0.95...40 bar	-13.78...580 psi	✓		
	P 60	-0.95...60 bar	-13.78...870 psi	✓		
	P 700.3	0...700 bar	0...10 152 psi		✓	✓
	P 1000.2	0...1000 bar	0...14 503 psi		✓	✓
Comparison test pump	P 700.G2	0...700 bar	0...10 152 psi		✓	
	P 700.GW	0...700 bar	0...10 152 psi			✓
	P 1000.GW	0...1000 bar	0...14 503 psi			✓
	P 1400.G	0...1400 bar	0...20 305 psi		✓	

Pressure calibrators

Pressure calibration is the comparison between the indicated values of a pressure measuring device with the indicated values of a pressure standard with a known accuracy.
In many cases, the device to be tested cannot be removed from the active process. Calibration is performed on site to avoid lengthy downtimes. Portable pressure calibrators are especially suitable for this purpose.
In order to perform a specified functional test or accuracy check, the test sample is often connected to the calibration device with a pressure hose. Digital pressure gauges with sufficient precision can be used as compact reference instruments.

Hand test pumps or comparison test pumps are used for simple pressure generation.
SIKA offers a complete range of pressure calibrators for a wide variety of applications to allow specified test and calibration tasks to be performed.
Routine on-site calibrations can be performed very quickly and economically with the right combination of test pump and reference. This ensures that the indicated pressure values are correct and reliable and that all specified requirements are fulfilled.

Handling

Pneumatic hand test pumps

Type P 4

Type	**P 4**	
Pressure ranges		
Negative pressure	-0.3 bar (depending on test sample / reference)	-4.35 psi (depending on test sample / reference)
Positive pressure	4 bar	58 psi
OEM version		
Pressure medium	Air	
Dimensions	Approx. 225 x Ø 55 mm	Approx. 8.86 x Ø 2.17 in.
Weight	Approx. 980 g	Approx. 2.16 lbs.
Connections		
Reference	G¼ with Quick-Snap Y-plug-connection with PA hose (2 x 1 m)	G¼ with Quick-Snap Y-plug-connection with PA hose (2 x 39,37 in.)
Test sample	G¼ with quick coupling and pressure hose (1 m)	G¼ with quick coupling and pressure hose (39,37 in)
Full version		
Adapter kit	Chrome-plated brass	
Gasket kit	PA Seals and O-rings	
Dimensions	Approx. 450 x 370 x 110 mm	Approx. 17.72 x 14.57 x 4.33 in.
Weight	Approx. 4.2 kg	Approx. 9.26 lbs.

Type P 40.2 / P 60

Type	P 40.2		P 60	
Pressure ranges				
Negative pressure	-0.95 bar	-14 psi	-0.95 bar	-14 psi
Positive pressure	40 bar	580 psi	60 bar	870 psi
OEM version				
Pressure medium	Air			
Dimensions	Approx. 240 x 170 x 50 mm / Approx. 9.45 x 6.69 x 1.97 in			
Weight	Approx. 1.1 kg / Approx. 2.43 lbs.			
Connections				
Reference	G¼			
Test sample	G¼ with quick coupling and pressure hose (1 m) / G¼ with quick coupling and pressure hose (39.37 in.)			
Full version				
Adapter kit	Chrome-plated brass			
Gasket kit	PA Seals and O-rings			
Dimensions	Approx. 450 x 370 x 110 mm / Approx. 17.72 x 14.57 x 4.33 in.			
Weight	Approx. 4.2 kg / Approx. 9.26 lbs.			

Hydraulic hand test pumps

Type P 700.3

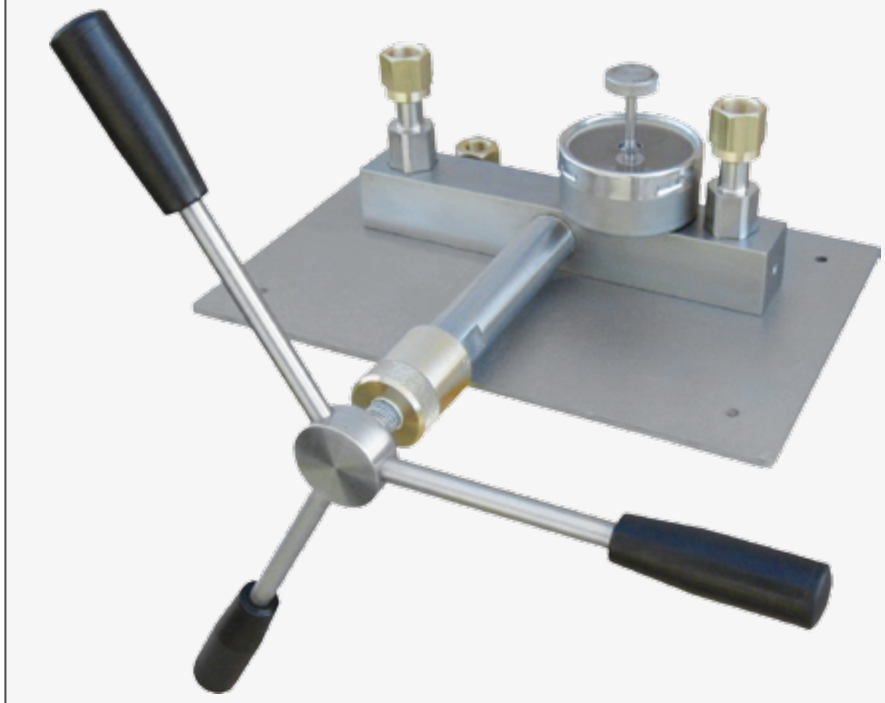
Type	P 700.3	
Pressure ranges		
With destilled water	0...700 bar	0...10 152 psi
With hydraulic fluid	0...700 bar	0...10 152 psi
OEM version		
Pressure medium	Distilled water or hydraulic fluid	
Dimensions	Approx. 255 x 225 x 85 mm	Approx. 10.04 x 8.86 x 3.35 in.
Weight	Approx. 1.7 kg	Approx. 3.75 lbs.
Connections		
Reference	G¼	
Test sample	G¼ with quick coupling and pressure hose (1 m)	G¼ with quick coupling and pressure hose (39.37 in.)
Full version		
Adapter kit	Stainless steel	
Gasket kit	PA Seals and O-rings	
Dimensions	Approx. 450 x 370 x 125 mm	Approx. 17.72 x 14.57 x 4.92 in.
Weight	Approx. 4.8 kg	Approx. 10.58 lbs.

Type P 1000.2

Type	**P 1000.2**	
Pressure ranges		
With destilled water	0...1000 bar	0...14 503 psi
With hydraulic fluid	0...1000 bar	0...14 503 psi
OEM version		
Pressure medium	Distilled water or hydraulic fluid	
Dimensions	Approx. 255 x 225 x 85 mm	Approx. 10.04 x 8.86 x 3.35 in.
Weight	Approx. 1.9 kg	Approx. 4.19 lbs.
Connections		
Reference	G¼	
Test sample	G¼ with quick coupling and high pressure hose (1 m), 1000 bar	G¼ with quick coupling and high pressure hose (39.37 in.), 14 503 psi
Full version		
Adapter kit	Stainless steel	
Gasket kit	PA Seals and O-rings	
Dimensions	Approx. 450 x 370 x 125 mm	Approx. 17.72 x 14.57 x 4.92 in.
Weight	Approx. 5 kg	Approx. 11 lbs.

Hydraulic comparison test pump

Type P 1400.G



Type	P 700.G2		P 700. GW		P 1000.GW		P1400.G	
Pressure ranges								
With distilled water			0...700 bar	0...10 000 psi	0...1000 bar	0...15 000 psi		
With hydraulic fluid	0...700 bar	0...10 000 psi					0...1400 bar	0...20 000 psi
OEM version								
Pressure medium	Hydraulic fluid		Demineralised water		Demineralised water		Hydraulic fluid	
Dimensions	Approx. 340 x 225 x 130 mm / Approx. 13.39 x 8.86 x 5.12 in.							
Weight	Approx. 9.9 kg / Approx. 21.8 lbs.							
Connections								
Reference	G⅜ A left, G¼, G½							
Test sample	G⅜ A left, G¼, G⅜, G⅛							
Full version								
Adapter kit	Stainless steel							
Gasket kit	PA Seals and O-rings							
Dimensions	Approx. 450 x 370 x 150 mm / Approx. 17.71 x 14.57 x 5.91 in.							
Weight	Approx. 12.6 kg / Approx. 27.7 lbs.							

Digital pressure gauges

Digital pressure gauges are particularly suitable for both stationary and mobile measurement and display of pressure. They can be used as reference pressure gauges to simplify the checking, adjustment and calibration of other pressure measurement devices directly on site.
High accuracy in signal acquisition is achieved by using high-performance measuring cells with electronic linearisation of the characteristic curve. Suitable instruments are available for a wide variety of measurement tasks.
Ease of use is assured by innovative design and advanced technology. All essential functions for everyday use can be selected conveniently at the press of a button. Excellent protection against dust and moisture is provided by a membrane keypad or rubber buttons.Integrated supplementary functions make our digital pressure gauges true all-rounders.

Type E2 / D2 and P

Advantages at a glance

- Exact and reliable measurement
- High operational readiness
- Easy and clear readout
- Well suited to difficult on-site tasks
- Easy to assemble and use
- Supplementary functions for extra value
- EX-version availiabe on request

Negative / Positive / and Differential Pressure

Measuring ranges from -1 bar negative pressure to 2500 bar positive pressure with high overpressure protection are available. Very small differential pressures in the millibar range can also be measured. Differential pressure measuring cells or two independent measuring inputs are used for this purpose.

Resolution / Accuracy

It is often necessary to use several mechanical pressure gauges when measurements must be made over a wide pressure range with sufficient accuracy. Digital pressure gauges with high resolution and precision can handle this task with just one instrument.
An indicating accuracy of 0.5% to 0.01% covers the entire spectrum of requirements. This precision is often found only in sensitive laboratory instruments, whereas SIKA digital pressure gauges are designed for use in harsh industrial environments.

Tare / Zero

User-defined zero point setting at the push of a button makes offset adjustment easy and eliminates the need for tedious mechanical adjustment. Single-point adjustment allows the linear characteristic curve to be shifted in positive or negative direction over the entire measuring range.

Linearisation

Multi-point adjustment can be performed if it is necessary to adjust the indicated values at different test points. Two-point adjustment is available for setting the zero point and slope of the measuring cell curve. Some digital pressure gauges allow up to six offset values to be programmed in order to shift the characteristic curve to meet the most stringent customer expectations.

Battery operation / Auto-Off

Power is supplied by long-life batteries (ordinary or rechargeable). An external AC adapter can also be used. To increase battery operating time, a programmable Auto-Off function switches off the power to the instrument after prolonged inactivity. The electronics are designed for extremely low power consumption, which enables a battery life of significantly more than 1000 hours.

Display

The large illuminated digital local display shows the measured pressure and indicates the current status of the digital pressure gauge, even under poor lighting conditions. This eliminates the difficult task of reading a dial gauge and avoiding parallax errors. Needle jitter due to vibration or pressure fluctuations is eliminated. Display damping or averaging can be configured directly using display filters. This ensures easy, tireless readout.

Selectable pressure units

Another feature is the large selection of pressure units. Up to 13 different units are possible – far more than any complicated dual-scale or multi-scale gauge can offer.

The required display unit is selected directly on the digital pressure gauge and is clearly indicated on the display. No conversion necessary; the desired value can be read directly.

Area of application

The right measuring system is available for every measuring task. For simple applications with air or non-corrosive and non-ionising substances, low-cost unenclosed pressure sensors are used. In difficult applications with water or other aggressive media, high-quality stainless steel versions are used.

Once the intended use has been determined and the pressure range has been specified, a digital pressure gauge with an internal measuring cell is preferably used. For frequently changing application conditions, plug-in pressure sensors for various pressure ranges and applications can be fitted using adapters. Automatic sensor recognition using standard DIN connectors offers a simple Plug-&-Play solution.

Electronics / Pressure measuring cell

The measuring cells and electronics used in the gauges are temperature compensated, so that the effect of temperature on the readings is negligible. Liquid entry into the measuring system is not necessary, which eliminates the risk of damage from media residues. Another unbeatable feature of the electronic measuring cells is their immunity to pressure surges.

Min / Max Displays and Peak function

Experience shows that excess pressure and pressure peaks significantly higher than normal operating pressure occur at some measuring points. Min / max displays and fast peak value measurement cycles in digital pressure gauges assist in system analysis and allow peak values to be determined. This allows incorrect readings and violations of range limits to be detected and helps avoid damage to pressure systems. Preventive service is often less expensive than repairing or replacing defective instruments.

Protection class

High IP protection classes are available to minimise dust and water sensitivity. Rugged, impact-resistant digital pressure gauges are fitted with rubber caps for protection during transport and field use.

Direct mounting, built-in version and hand-held instrument

The compact, handy design proves its worth in everyday use. It puts an end to large-diameter gauges with sizes up to 250 mm, as is common with precision pressure gauges. The small size simplifies direct mounting. If necessary, built-in versions are available for switchgear cabinet or control panel mounting. Hand-held digital pressure gauges are especially suitable for applications where short-term pressure measurements are desired instead of continuous measurement.

Data memory

The logger function for local data storage can be used to record pressure curves automatically and perform leak tests. The integrated data memory in digital pressure gauges allows a variety of data sets to be recorded directly. The time interval between samples is programmable and the maximum recording interval is configurable. The stored values can be displayed on a PC. Data import at the press of a button is also possible. In this case the data is shown directly on the display. In this process the values are automatically annotated with the date and time of day using an integrated real-time clock.

→ *Reference type J, MH 3181, MH 3151 and MH 3156*

Analogue output

An electrical output signal enables remote display on a control console or in a control room as well as the connection of external recorders and indicating instruments.

→ *Reference type Q*

Relay output / Alarm signalling

Digital pressure gauges allow limit contacts to be closed even at low pressures. There is no need for high actuation forces for magnetic spring or inductive contacts, which makes it easier to signal critical equipment conditions and perform supplementary control tasks. A built-in buzzer generates an alarm when the pressure exceeds the range of the programmed minimum and maximum pressure levels.

→ *Reference type Q, MH 3181, MH 3151 and MH 3156*

Temperature display

Temperature measurement is often required in addition to pressure measurement. For this purpose, a temperature sensor is integrated in the measuring cell to detect the temperature of the medium. The process temperature can be displayed at the press of a button. This allows two quantities to be measured at a single measuring point, which saves costs.

→ *Reference type J, P*

Explosion protection

Explosion-proof versions are also available for use in potentially explosive locations, e.g. oil refineries, chemical plants and drilling platforms.

→ *Reference types E-Ex, D-Ex, L*

Example applications

- Continuous or temporary checking of a wide variety of system pressures
- Air density measurement in building shells for the detection and elimination of problem areas and avoiding structural damage
- Monitoring the degree of soiling of filter units in ventilation or air conditioning systems
- Recording pressure drops for the determination of leakage rates in leak tests
- Measurement of barometric air pressure for the determination of weather conditions
- Reference pressure gauge for calibration tasks

Hand-held pressure instruments

	BASIC	SOLID	BASIC	SOLID	PREMIUM
	MH 3161	MH 3181	MH 3111	MH 3151	MH 3156
Accuracy (full scale)	0.2 %	0.2 %	0.2 %	0.2 %	0.2 %
Pressure range					
	-1...25 mbar -10...350 mbar		-2...2.5 mbar -20...25 mbar 0...100 mbar 0...250 mbar -200...350 mbar 0...400 mbar		
	0...1300 bar -100...2000 mbar		0...1 bar 0...1.3 bar -1...1.5 bar -1...2 bar 0...2.5 bar -1...3 bar 0...4 bar 0...6 bar		
			0...7 bar -1...10 bar 0...16 bar 0...25 bar 0...40 bar 0...60 bar		
			0...100 bar 0...160 bar 0...250 bar 0...400 bar 0...600 bar		
			0...1000 bar		
Multi-point adjustment	✓	✓	✓	✓	✓
Changeable measuring cell			✓	✓	✓
PC connection	✓	✓	✓	✓	✓
Data memory		✓		✓	✓
Analogue output		✓		✓	✓
Second measuring input					✓
Ex version	○	○	○	○	○
Version free of oil and grease					

Digital pressure gauges

	BASIC				
	E-Ex	E2	D-Ex	D2	
Accuracy (full scale)	0.5 %	0.5 %	0.1 %	0.1 %	
Pressure range					
		-1...3 bar	-1...3 bar	-1...3 bar	
	-1...30 bar	-1...40 bar -1...60 bar	-1...30 bar -1...60 bar	-1...40 bar -1...60 bar	
	0...300 bar	0...400 bar 0...700 bar	0...300 bar 0...700 bar	0...400 bar 0...700 bar	
		0...1000 bar		0...1000 bar	
Multi-point adjustment		✓ (via adapter)		✓ (via adapter)	
PC connection					
Data memory					
Relais output					
Analogue output					
Temperature indication					
Built-in version					
Ex version	✓		✓		
Oil and grease free	○		○		

○ = optionally available

	SOLID			PREMIUM
	J	P	Q	L
	0.2 %	0.5 % 0.2 % 0.05 % 0.025 %	0.2 %	0.05 % 0.025 % 0.01 %
	0...100 mbar 0...250 mbar 0...500 mbar -1...1 bar -1...2.5 bar -1...5 bar	 0...500 mbar -1...1 bar -1...2.5 bar -1...5 bar	 -1...1 bar -1...2.5 bar -1...5 bar	 -1...2 bar
	-1...10 bar -1...20 bar -1...40 bar -1...60 bar	-1...10 bar -1...20 bar -1...40 bar -1...60 bar	-1...10 bar -1...20 bar -1...40 bar -1...60 bar	-1...10 bar -1...20 bar
	0...100 bar 0...250 bar 0...350 bar 0...500 bar 0...700 bar	0...100 bar 0...250 bar 0...350 bar 0...500 bar 0...700 bar	0...100 bar 0...250 bar 0...350 bar 0...500 bar 0...700 bar	0...100 bar 0...200 bar 0...400 bar 0...700 bar
	0...1000 bar 0...1500 bar 0...2000 bar	0...1000 bar 0...1500 bar 0...2000 bar 0...2500 bar	0...1000 bar 0...1500 bar 0...2000 bar	0...1000 bar
	✓	✓	✓	
	✓	○	○	✓
	✓			
			✓	
			○	
	✓	✓		
	○	○	○	
				○
				○

Digital pressure gauges

Type E-Ex

Type D-Ex

Type E-Ex	
Accuracy (full scale)	0.5 %
Pressure range	**Resolution**
-1...30 bar	10 mbar
0...300 bar	100 mbar

Type D-Ex			
Accuracy (full scale)		0.1 %	
Pressure range		**Resolution**	
-1...3 bar	-14.5...43.5 psi	1 mbar	0.1 psi
-1...30 bar	-14.5...435.1 psi	10 mbar	0.1 psi
-1...60 bar	-14.5...870.2 psi	10 mbar	0.1 psi
0...300 bar	0...4351 psi	100 mbar	1 psi
0...700 bar	0...9999 psi	200 mbar	1 psi

Functions		
Type	E-Ex	D-Ex
Adjustment options		
Tare / Zero	✓	✓
Selectable units		
Pressure	bar	bar, mbar, hPa, kPa, MPa, PSI, kp/cm²
Features		
Measuring inputs	1 x direct	
Explosion protection	Ex II 1G EEx ia II C T5 / T6	
Version free of oil and grease (optional)	✓ (< 200 bar)	
Display / Representation		
Multi-functional LCD	4 digit	
Min / max value	✓	
Measuring rate		
Standard	500 ms	
Process connection		
Connection options	G¼ / H16 UNF	
Material	1.0718 zinc-plated / 1.4435	
Medium temperature	0...50 °C	32...122 °F
For aggressive media	✓	
Housing		
Degree of protection	IP65 (front) / IP65	
Dimension	Ø 70 mm T=30 mm H=100 mm	
Material	ABS plastic	
Operating temperature	0...50 °C	32...122 °F
Weight	130 g	0.29 lbs.
Power		
Auto-off function	✓	
Battery type	1 x 3V CR	
Battery operation	1000 h	
Certificates (optional)		
DAkkS certificate		
SIKA works certificate		

Type E2, D2

Type E2 / D2					
Accuracy (full scale)		E2 0.5 %		D2 0.1 %	
Pressure range		**Resolution**			
-1...3 bar	-14...43.5 psi	1 mbar	0.1 psi	1 mbar	0.1 psi
-1...40 bar	-14...580 psi	10 mbar	1 psi	10 mbar	1 psi
-1...60 bar	-14...870 psi	10 mbar	1 psi	10 mbar	1 psi
0...400 bar	0...5800 psi	100 mbar	1 psi	100 mbar	1 psi
0...700 bar	0...10 000 psi	100 mbar	1 psi	100 mbar	1 psi
0...1000 bar	0...14 500 psi	100 mbar	1 psi	100 mbar	1 psi

Functions		
Type	E2 / D2	
Adjustment options		
Linearisation	via adapter	
Tare / Zero	✓	
Selectable units		
Pressure	bar, mbar, kPa, MPa, PSI, kg/cm², mH_2O, inH_2O	
Features		
Measuring inputs	1 x direct	
Display / Representation		
Multi-functional LCD	4 ½ digit	
Bargraph	✓	
Illumination	✓	
Display filter	✓	
Min / max value	✓	
Measuring rate		
Standard	10 ms	
Peak / Fast	10 ms	
Process connection		
Connection options	G¼	
Material	1.4404	
Medium temperature	-20...80 °C	-4...176 °F
For aggressive media	✓	
Housing		
Degree of protection	IP67 (front) / IP67	
Dimension	Ø 80 mm T=30 mm H=100 mm	
Material	Zinc casting	
Operating temperature	0...50 °C	32...122 °F
Weight	540 g	1.2 lbs.
Power		
Auto-off function	✓	
Battery type	2x 1.5 V AA	
Battery operation	1500 h	
Certificates (optional)		
DAkkS certificate		
SIKA works certificate		

Type J

Type J			
Accuracy (full scale)		0.2 %	
Pressure range*		**Resolution**	
0...100 mbar	0...1.450 psi	0.1 mbar	0.001 psi
0...250 mbar	0...3.626 psi	0.1 mbar	0.001 psi
0...500 mbar	0...7.252 psi	0.1 mbar	0.001 psi
-1...1 bar	-14.5...14.50 psi	1 mbar	0.01 psi
-1...2.5 bar	-14.5...36.26 psi	1 mbar	0.01 psi
-1...5 bar	-14.5...72.52 psi	1 mbar	0.01 psi
-1...10 bar	-14.5...145.0 psi	10 mbar	0.1 psi
-1...20 bar	-14.5...290.1 psi	10 mbar	0.1 psi
-1...40 bar	-14.5...580.2 psi	10 mbar	0.1 psi
-1...60 bar	-14.5...870.2 psi	10 mbar	0.1 psi
0...100 bar	0...1450psi	100 mbar	1 psi
0...250 bar	0...3626 psi	100 mbar	1 psi
0...350 bar	0...5076psi	100 mbar	1 psi
0...500 bar	0...7252 psi	100 mbar	1 psi
0...700 bar	0...10 153 psi	100 mbar	1 psi
0...1000 bar	0...14 504 psi	1 bar	10 psi
0...1500 bar	0...21 756 psi	1 bar	10 psi
0...2000 bar	0...29 008 psi	1 bar	10 psi

* Other measuring ranges on request.

Functions		
Type	J	
Adjustment options		
Linearisation	6 points	
Tare / Zero	✓	
Selectable units		
Pressure	bar, mbar, hPa, kPa, MPa, PSI, mmHg, inHg, cmH_2O, mH_2O, inH_2O, kg/cm^2	
Temperature	°C, °F	
Features		
Measuring inputs	1 x direct	
PC connection	USB (B)	
Built-in version (optional)	✓	
Data memory		
Number of memory	60 000 values (auto)	
Recording interval	1 s...10 h	
Recording duration	1 min...1000 h	
Data sets	Pressure / Temperature	
Display / Representation		
Multi-functional LCD	5 digit	
Bargraph	✓	
Illumination	✓	
Display filter	✓	
Min/max value	✓	
Measuring rate		
Standard	100 ms	
Process connection		
Connection options	G½	
Material	1.4542	
Medium temperature	-10...70 °C	14...158 °F
For aggressive media	✓	
Housing		
Degree of protection	IP65 (front) / IP40	
Dimension	86 x 86 mm T=40 mm H=135 mm	
Material	Aluminium	
Operating temperature	-10...70 °C	14...158 °F
Weight	900 g	1.98 lbs.
Power		
Auto-off function	✓	
Battery type	internal accu	
Ext. power	USB	
Battery operation	2000 h	
Certificates (optional)		
DAkkS certificate		
SIKA works certificate		

Type P

Type P									
Accuracy (full scale)		0.5 %		0.2 %		0.05 %		0.025 %	
Pressure range*		**Resolution**							
0...500 mbar	0...7.25 psi	1 mbar	0.01 psi	0.1 mbar	0.01 psi	0.1 mbar	0.01 psi		
-1...1 bar	-14.5...14.5 psi	1 mbar	0.01 psi	1 mbar	0.01 psi	0.1 mbar	0.01 psi		
-1...2.5 bar	-14.5...36.26 psi	1 mbar	0.01 psi	1 mbar	0.01 psi	0.5 mbar	0.01 psi		
-1...5 bar	-14.5...72.52 psi	1 mbar	0.01 psi	1 mbar	0.01 psi	0.5 mbar	0.01 psi		
-1...10 bar	-14.5...145.0 psi	10 mbar	0.1 psi	10 mbar	0.1 psi	1 mbar	0.1 psi	1 mbar	0.1 psi
-1...20 bar	-14.5...290.0 psi	10 mbar	0.1 psi	10 mbar	0.1 psi	2 mbar	0.1 psi	2 mbar	0.1 psi
-1...40 bar	-14.5...580.1 psi	10 mbar	0.1 psi	10 mbar	0.1 psi	5 mbar	0.1 psi	5 mbar	0.1 psi
-1...60 bar	-14.5...870.2 psi	10 mbar	0.1 psi	10 mbar	0.1 psi	5 mbar	0.1 psi	5 mbar	0.1 psi
0...100 bar	0...1450 psi	100 mbar	1 psi	100 mbar	1 psi	10 mbar	1 psi	10 mbar	1 psi
0...250 bar	0...3626 psi	100 mbar	1 psi	100 mbar	1 psi	20 mbar	1 psi	20 mbar	1 psi
0...350 bar	0...5076 psi	100 mbar	1 psi	100 mbar	1 psi	50 mbar	1 psi	50 mbar	1 psi
0...500 bar	0...7252 psi	100 mbar	1 psi	100 mbar	1 psi	50 mbar	1 psi	50 mbar	1 psi
0...700 bar	0...10 153 psi	100 mbar	1 psi	100 mbar	1 psi	50 mbar	1 psi	50 mbar	1 psi
0...1000 bar	0...14 504 psi	1 bar	10 psi	1 bar	10 psi	100 mbar	10 psi	100 mbar	10 psi
0...1500 bar	0...21 756 psi	1 bar	10 psi	1 bar	10 psi	200 mbar	10 psi		
0...2000 bar	0...29 008 psi	1 bar	10 psi	1 bar	10 psi	500 mbar	10 psi		
0...2500 bar	0...36 259 psi	1 bar	10 psi	1 bar	10 psi				

* Other measuring ranges on request.

Functions		
Type	P	
Adjustment options		
Linearisation	6 points	
Tare / Zero	✓	
Selectable units		
Pressure	bar, mbar, kPa, MPa, PSI	
Features		
Measuring inputs	1 x direct	
PC connection (optional)	RS232	
Built-in version (optional)	✓	
Display / Representation		
Multi-functional LCD	4 digit (0.5 % / 0.2 %), 5 digit (0.05 % / 0.025 %)	
Bargraph	✓	
Display filter	✓	
Min/max value	✓	
Measuring rate		
Standard	100 ms	
Process connection		
Connection options	G½	
Material	1.4542	
Medium temperature	0...50 °C	32...122 °F
For aggressive media	✓	
Housing		
Degree of protection	IP65 (front) / IP40	
Dimension	86 x 86 mm T=40 mm H=135 mm	
Material	Aluminium	
Operating temperature	0...50 °C	32...122 °F
Weight	900 g	1.98 lbs.
Power		
Auto-off function	✓	
Battery type	2x 1.5 V AAA	
Ext. power (optional)	24 VDC	
Battery operation	8000 h	
Certificates (optional)		
DAkkS certificate		
SIKA works certificate		

Type Q

Type L

Type Q	
Accuracy (full scale)	0.2 %
Pressure range**	**Resolution**
-1...1 bar	1 mbar
-1...2.5 bar	1 mbar
-1...5 bar	1 mbar
-1...10 bar	10 mbar
-1...20 bar	10 mbar
-1...40 bar	10 mbar
-1...60 bar	10 mbar
0...100 bar	100 mbar
0...250 bar	100 mbar
0...350 bar	100 mbar
0...500 bar	100 mbar
0...700 bar	100 mbar
0...1000 bar	1 bar
0...1500 bar	1 bar
0...2000 bar	1 bar

Type L							
Accuracy (full scale)		0.05 %		0.025 %*		0.01 %*	
Pressure range		**Resolution**					
-1...2 bar	-14.5...29.00 psi	0.1 mbar	0.01 psi				
-1...10 bar	-14.5...145.0 psi	1 mbar	0.1 psi				
-1...20 bar	-14.5...290.1 psi	1 mbar	0.1 psi	1 mbar	0.1 psi	1 mbar	0.1 psi
0...200 bar	0...2901 psi	10 mbar	1 psi	10 mbar	1 psi	10 mbar	1 psi
0...400 bar	0...5802 psi	50 mbar	1 psi	50 mbar	1 psi	50 mbar	1 psi
0...700 bar	0...10 153 psi	100 mbar	1 psi	100 mbar	1 psi	100 mbar	1 psi
0...1000 bar	0...14 504 psi	100 mbar	10 psi	100 mbar	10 psi	100 mbar	10 psi

* Precision declaration

** Other measuring ranges on request.

Functions				
Type	Q		L	
Adjustment options				
Linearisation	6 points			
Tare / Zero	✓		✓	
Selectable units				
Pressure	bar		bar, mbar, hPa, kPa, MPa, PSI, mmHg, inHg, cmH2O, mH2O, inH2O, ftH2O, Kp/cm²	
Features				
Measuring inputs	1 x direct		1 x direct	
PC connection	RS232 (optional)		RS 485	
Analogue output (optional)	0(4)...20mA / 0...10 V			
Relay output	2 x 24 VDC/1A			
Built-in version (optional)	✓			
Explosion protection (optional)			Ex II 2G Ex ia II C T6	
Display / Representation				
Multi-functional LCD/LED	4 digit, 7-segment LED		5 digit	
Illumination	red LED			
Display filter	✓			
Min/max value	✓		✓	
Measuring rate				
Standard	16 ms		500 ms	
Process connection				
Connection options	G½		G¼	
Material	1.4542		1.4435	
Medium temperature	0...50 °C	32...122 °F	0...50 °C	32...122 °F
For aggressive media	✓		✓	
Housing				
Degree of protection	IP65 (front) / IP40		IP65 (front) / IP54	
Dimension	86 x 86 mm T=40 mm H=135 mm		Ø 80 mm T=40 mm H=120 mm	
Material	Aluminium		ABS plastic	
Operating temperature	0...50 °C	32...122 °F	0...50 °C	32...122 °F
Weight	900 g	1.98 lbs.	210 g	0.46 lbs.
Power				
Auto-off function	✓		✓	
Battery type			1x 3 VCR	
Ext. power	24 VDC			
Battery operation			2000 h	
Certificates (optional)				
DAkkS certificate				
SIKA works certificate				

Hand-held pressure instruments

Type MH 3161 / MH 3181

Type MH 3111 / MH 3151 / MH 3156

Type MH 3161 / MH 3181				
Accuracy (full scale)	0.2 %			
Pressure range			**Resolution**	
MH 3161-01 / MH 3181-01	-1.00...25 mbar	-0.01...0.363 psi	0.01 mbar	0.001 psi
MH 3161-07 / MH 3181-07	-10.0...350 mbar	-0.15...5.076 psi	0.1 mbar	0.001 psi
MH 3161-12 / MH 3181-12	0...1300 mbar (abs.)	0...18.85 psi	1 mbar	0.01 psi
MH 3161-13 / MH 3181-13	-100...2000 mbar	-1.45...29.00 psi	1 mbar	0.01 psi

Type MH 3161 / MH 3181		
Accuracy (full scale)	0.2 %	
Pressure range		**Resolution**
	Depending on the external pressure sensor MSD	

Type MSD 250 MRE

Type MSD 160 BRE

EX-Version (EEx ib IIC T4 - 03ATEX0136X)

Functions					
Type	MH 3161	MH 3181	MH 3111	MH 3151	MH 3156
Adjustment options					
Linearisation	2 points				
Tare / Zero	✓				
Selectable units					
Pressure	bar, mbar, kPa, MPa, PSI, mmHg, mH2O				
Features					
Measuring inputs	2 x direct	2 x direct	1 x changeable	1 x changeable	1 x changeable
PC connection	USB	USB	USB	USB	USB
Analogue output		0...1 V		0...1 V	0...1 V
Explosion protection	Ex II 2G Ex ia II C T6	Ex II 2G Ex ia II C T6	Ex II 2G Ex ia II C T6	Ex II 2G Ex ia II C T6	Ex II 2G Ex ia II C T6
Data memory					
Number of memory		10 000 values (Auto)		10 000 values (Auto)	4000 values (Auto)
Recording interval		1...3600 s		1...3600 s	1...3600 s
Data sets		pressure		pressure	pressure
Display / Representation					
Multi-functional LCD	4 ½ digit	4 ½ digit	4 ½ digit	4 ½ digit	4 ½ digit
Display filter		✓		✓	✓
Min / max value	✓	✓	✓	✓	✓
Measuring rate					
Standard	250 msec.	250 ms	250 ms	250 ms	250 ms
Peak / Fast		1 ms		1 ms	1 ms
Process connection					
Connection options	nipple Ø 6	nipple Ø 6	MSD pressure sensors		
Material	copper 2.0380	copper 2.0380			
Medium temperature	-10...50 °C / 14...122 °F	-10...50 °C / 14...122 °F			
Housing					
Degree of protection	IP65 (front) / IP40				
Dimension	140 x 70 x 30 mm / 5.51 x 2.76 x 1.18 in.				
Material	ABS plastic				
Operating temperature	0...50 °C / 32...122 °F				
Weight	200 g / 0.44 lbs.				
Power					
Auto-off function	✓				
Battery type	9 V block				
Ext. power	12 VDC				
Battery operation	350 h				
Certificates (optional)					
DAkkS certificate					
SIKA works certificate					

Pressure sensors MSD

Nylon type

Piezoresistive pressure sensor for air as well as non-corrosive / ionizing gases and fluids with integrated sensor memory

- Inputs 2 x nipple Ø 6
- Accurcy* ±0.2 % full scale
- PVC cable (1 m / 39.37 in.) with mini-DIN-plug
- Housing Robust ABS plastic, IP65
- Dimensions 70 x 30 x 15 mm / 2.76 x 1.18 x 0.59 (H x D x W)
- Weight Approx. 75 g / Approx. 0.16 lbs.

Stainless steel type

Piezoresistive pressure sensor for aggressive media, water, gases, and fluids, with internal sensor memory

- Inputs G½
- Accuracy* ±0.2 % full scale
- PVC cable (1 m) with mini-DIN-plug (not part of delivery)
- Housing Stainless steel, IP65
- Dimensions Approx. 23 x 85 mm / 0.90 x 3.35 (Ø x L)
- Weight Approx. 175 g / 0.39 lbs.

Pressure range				
Type (nylon)			**Resolution**	
MSD 2.5 MR	-2...2.5 mbar	-0.03...0.04 psi	0.001 mbar	0.001 psi
MSD 25 MR	-20...25 mbar	-0.29...0.36 psi	0.01 mbar	0.001 psi
MSD 350 MR	-200...350 mbar	2.9...5.08 psi	0.1 mbar	0.001 psi
MSD 1.3 BA	0...1.3 bar (abs.)	0...18.85 psi (abs.)	1 mbar	0.01 psi
MSD 2 BA	0...2 bar (abs.)	0...29 psi	1 mbar	0.01 psi
MSD 2 BR	-1...2 bar	-14.5...29 psi	1 mbar	0.01 psi
MSD 7 BA	0...7 bar (abs.)	0...101.53 psi (abs.)	10 mbar	0.1 psi
MSD 10 BR	-1...10 bar	-14.5...145.04 psi	10 mbar	0.1 psi
Type (stainless steel)			**Resolution**	
MSD 100 MRE	0...100 mbar	0...1.45 psi	0.1 mbar	0.001 psi
MSD 250 MRE	0...250 mbar	0...3.63 psi	0.1 mbar	0.001 psi
MSD 400 MRE	0...400 mbar	0...5.8 psi	0.1 mbar	0.001 psi
MSD 1 BAE	0...1 bar (abs.)	0...14.5 psi (abs.)	1 mbar	0.01 psi
MSD 1 BRE	0...1 bar	0...14.5 psi	1 mbar	0.01 psi
MSD -1 / 1.5 BRE	-1...1.5 bar	-14.5...21.76 psi	1 mbar	0.01 psi
MSD -1 / 3 BRE	-1...3 bar	-14.5...43.51 psi	1 mbar	0.01 psi
MSD 2.5 BAE	0...2.5 bar (abs.)	0...36.26 psi (abs.)	1 mbar	0.01 psi
MSD 2.5 BRE	0...2.5 bar	0...36.26 psi	1 mbar	0.01 psi
MSD 4 BAE	0...4 bar (abs.)	0...58.02 psi (abs.)	1 mbar	0.01 psi
MSD 4 BRE	0...4 bar	0...58.02 psi (abs.)	1 mbar	0.01 psi
MSD 6 BAE	0...6 bar (abs.)	0...87.2 psi (abs.)	1 mbar	0.01 psi
MSD 6 BRE	0...6 bar	0...87.2 psi	1 mbar	0.01 psi
MSD 10 BAE	0...10 bar (abs.)	0...145.03 psi (abs.)	10 mbar	0.1 psi
MSD 10 BRE	0...10 bar	0...145.03 psi	10 mbar	0.1 psi
MSD 16 BAE	0...16 bar (abs.)	0...232.06 psi (abs.)	10 mbar	0.1 psi
MSD 25 BAE	0...25 bar (abs.)	0...362 (abs.)	10 mbar	0.1 psi
MSD 25 BRE	0...25 bar	0...362 psi	10 mbar	0.1 psi
MSD 40 BRE	0...40 bar	0...580 psi	10 mbar	0.1 psi
MSD 60 BRE	0...60 bar	0...870 psi	10 mbar	0.1 psi
MSD 100 BRE	0...100 bar	0...1450 psi	0.1 bar	0.1 psi
MSD 160 BRE	0...160 bar	0...2320 psi	0.1 bar	1 psi
MSD 250 BRE	0...250 bar	0...3625 psi	0.1 bar	1 psi
MSD 400 BRE	0...400 bar	0...5801 psi	0.1 bar	1 psi
MSD 600 BRE	0...600 bar	0...8702 psi	0.1 bar	1 psi
MSD 1000 BRE	0...1000 bar	0...14 503 psi	1 bar	10 psi

* Optional: Higher accuracy sensor (available from 350 mbar)

Accessories

PC connection and software

Many digital pressure gauges have a serial interface port to allow measurement values and stored data to be transferred directly to a PC and documented. An inexpensive measurement data acquisition system can easily be assembled with suitable software and an interface converter. Processes can be readily monitored and analysed using the recorded and visualised measurements and all data can be exported using standard programs such as Microsoft Excel. Remote control is also possible. Various software packages with extensive recording and display functions, logger and alarm evaluation as well as for calibration are available.

Software package						
Function	**AnalyserLight**	**DEMO**	**PressKAL**	**CCS30**	**EBS20M**	**SOFT3050**
Memory management						
→ PC download / delete / export	✓					✓
→ Storage interval setting	✓					✓
→ Graphics function	✓					✓
Display management						
→ Remote indication		✓		✓	✓	
→ Real time data recording		✓		✓	✓	
→ Storage interval setting		✓		✓	✓	
→ Export function		✓		✓	✓	
Calibration management						
→ Remote indication			✓			
→ Set up calibration routines			✓			
→ Set up calibration certificates			✓			
References						
	R J	P R Q	P R J	L	MH series	MH 3181 MH 3151 MH 3158