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TENSILE AND COMPRESSIVE FORCE MEASUREMENT

PCE Instruments

Discover force gauges for industrial and many other applications.



TENSILE AND COMPRESSIVE FORCE

TEST INSTRUMENTS FROM GERMANY

Maintenance and Service

The company PCE Instruments based in Meschede-Freienohl in the German Sauerland region was founded in 1999 by three engineers. With more than 120 employees and several branches around the world, the company focuses on the development, production and distribution of high-performance and innovative products from the fields of measuring instruments, control systems, weighing equipment and laboratory technology.

PCE Instruments' wide range of products and services offers high precision and flexibility in any application as well as outstanding quality and functionality. The different fields can be seen in the overview.



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MEASURING INSTRUMENTS

The field of measuring instruments covers a multitude of innovative portable products as well as products for fixed installation that measure electrical, mechanical, biological and chemical parameters.

CONTROL SYSTEMS

The range of control systems covers the complete demand for sensors, displays, controllers and paperless recorders.

WEIGHING EQUIPMENT

The field of weighing equipment comprises a wide standard range of high-quality scales and balances that can be calibrated and/or verified for trade.

LABORATORY TECHNOLOGY

High-end analytical and laboratory devices have been developed for professional applications and in particular for use in laboratories.



DEVELOPMENT

In order to develop modified test equipment in line with customers' specifications, proficient engineers and technicians cooperate closely with the customer.

PRODUCTION

PCE Instruments manufactures industrial test instruments that help improving process analysis and optimisation.

CALIBRATION

Our DIN EN ISO 9001:2015 certified calibration laboratory verifies the measuring accuracy of our products. They calibrate pressure, hardness, force, material thickness, sound pressure, conductivity, redox, vibration acceleration and more.

FORCE MEASUREMENT

FORCE GAUGE PCE-DFG N 500

Digital force gauge for tensile and compressive force measurement up to 500 N

The PCE-DFG N 500 is a digital force gauge for tensile and compressive force measurement up to 500 N. It has a resolution of 0.1 N. The measured values are shown on a large display with backlight which is rotatable by 180°. Therefore, reading the measured values correctly is possible in any position and at any time. The outstanding accuracy of $\pm 0.1\%$ f. s. is confirmed

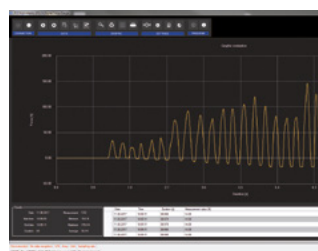
by the factory calibration certificate that comes with the meter. In addition to the internal memory with sufficient capacity for 100 readings, a USB interface is available for data transfer.

ISO cal option

- ▶ tensile and compressive force measurement
- ▶ 1600 Hz sampling rate
- ▶ error limit 0.1 % of the measuring range
- ▶ PEAK function (MIN / MAX)
- ▶ limit value function
- ▶ various units of measurement
- ▶ automatic or manual storage
- ▶ graphical evaluation
- ▶ display with automatic orientation
- ▶ time / date
- ▶ control and evaluation software
- ▶ auto power off adjustable
- ▶ battery level indicator
- ▶ mains operation possible
- ▶ memory capacity for 100 measurements



APPLICATION



TECHNICAL SPECIFICATIONS

Measurement range	0 ... 500 N
Accuracy	$\pm 0.1\%$ of the measuring range
Resolution	0.1 N
Units	N, kg, lb, KPa
Display	2.8 " TFT graphical display
Alarm modes	inside, outside, crack, shutdown
Sampling rate	6 ... 1600 Hz
Memory	100 measurements, 8000 values each
Power supply	rechargeable NiMH battery 6 V / 1600 mAh
Battery life	approx. 10 h
Charging adaptor	12 V / 1 A
Outputs	Interface: USB Switching output: 12 V / 50 mA
Protection class	IP 54
Operating and storage conditions	-10 ... 50 °C / 14 ... 122 °F 5 ... 95 % RH non-condensing
Force absorption element	M6 x 7 mm
Dimensions	200 x 97 x 42 mm / 7.9 x 3.8 x 1.7 in
Weight	540 g / 1.2 lbs

Optional accessories:

Clamp for peel-off tests	Order code	PCE-SJJ035
Holder for button and rivet testing	Order code	PCE-SJJ032
Clamping device for bristle testing	Order code	PCE-SJJ029
Clamping device for bristle testing	Order code	PCE-SJJ020
Universal clamping device	Order code	PCE-SJJ017
Clamping device for tensile tests	Order code	PCE-SJJ012
Fork holder for tensile & compr. tests	Order code	PCE-SJJ09
Clamping tool for tensile tests	Order code	PCE-SJJ08
Clamping device for tensile tests	Order code	PCE-SJJ07
Adaptor clamp for tensile tests	Order code	PCE-SJJ010
Adaptor clamp for tensile tests	Order code	PCE-SJJ06
Round adaptor stamp for compr. tests	Order code	PCE-SJJ04
Adaptor for compr. tests	Order code	PCE-SJJ01
Motorised force test stand	Order code	PCE-MTS50
Force test stand	Order code	PCE-FTS50
Clamping device for test stand	Order code	PCE-SJJ03
Adaptor ring for tensile tests	Order code	PCE-SJJ02
Clamping device for test stand	Order code	PCE-SJJ024
Clamping device for test stand	Order code	PCE-SJJ015
Clamping jaw for test stand	Order code	PCE-SJJ13
Clamping jaw for PCE-FTS50, PCE-FM 50/200	Order code	PCE-SJJ05
Clamping jaw for test stand PCE-FTS50	Order code	PCE-SJJ011



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FORCE MEASUREMENT

FORCE GAUGE PCE-DFG N 10K

With external measuring cell and USB interface for connection to a PC

The force gauge measures both tensile and compressive forces with a very high resolution. Tensile and compressive forces are often measured in test laboratories, for example to determine the yield strength, the pull-off force and the force required to actuate a push-button or switch. The force gauge is supplied with an external measuring cell. The PCE-DFG N 10K force

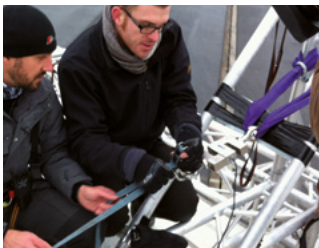
gauge can measure up to 10,000 N / 2,248 lbs. Models for 1,000 N / 225 lbs, 2,500 N / 562 lbs and 5,000 N / 1,124 lbs are also available. Various eyelets or hooks with M10 or M12 threads can be screwed into the measuring cells but other devices with the same thread can also be attached to the measuring cell.

ISO cal option

- ▶ USB interface
- ▶ memory capacity for 100 measurements
- ▶ incl. ISO calibration certificate
- ▶ graphical display
- ▶ fast response time
- ▶ PC software



APPLICATION



TECHNICAL SPECIFICATIONS

Measurement range	0 ... 10,000 N / 0 ... 2,248 lbs
Resolution	5 N
Accuracy	±0.1 % of the measuring range
Units	N, kg, lb, KPa
Display	2.8 " TFT graphical display
Alarm modes	inside, outside, crack, shutdown
Sampling rate	6 ... 1600 Hz
Memory	100 measurements, 8000 values each
Power supply	rechargeable NiMH battery, 6 V / 1600 mAh
Battery life	approx. 10 h
Mains / charging adaptor	12 V / 1 A
Outputs	Interface: USB
Protection class	Switching output: 12 V / 50 mA
Operating and storage conditions	IP 54
	-10 ... 50 °C / 14 ... 122 °F
	5 ... 95 % RH non-condensing
Mounting thread measuring cell	
up to 1000 N / 225 lbs	M10
2500 ... 10000 N / 562 ... 2,248 lbs	M12
Dimensions	200 x 97 x 42 mm / 7.9 x 3.8 x 1.7
Weight	540 g / 1.2 lbs

Optional accessories:

Universal clamping device	Order code	PCE-SJJ017
Clamping device for tensile tests	Order code	PCE-SJJ012
Fork holder for tensile & compr. tests	Order code	PCE-SJJ09
Adaptor clamp for tensile tests	Order code	PCE-SJJ06
Round adaptor stamp for compr. tests	Order code	PCE-SJJ04
Adaptor for compr. tests	Order code	PCE-SJJ01
Clamping device for test stand	Order code	PCE-SJJ015

Further models of the PCE-DFG N series:

PCE-DFG N5	internal measuring	cell meas. range	0 ... 5 N
PCE-DFG N10	internal measuring	cell meas. range	0 ... 10 N
PCE-DFG N20	internal measuring	cell meas. range	0 ... 20 N
PCE-DFG N200	internal measuring	cell meas. range	0 ... 200 N
PCE-DFG N500	internal measuring	cell meas. range	0 ... 500 N
PCE-DFG N 1K	internal measuring	cell meas. range	0 ... 1000 N / 100 kg
PCE-DFG N 2,5K	internal measuring	cell meas. range	0 ... 2500 N / 250 kg
PCE-DFG N 5K	internal measuring	cell meas. range	0 ... 5000 N / 500 kg
PCE-DFG N 20K	internal measuring	cell meas. range	0 ... 20000 N / 2 t
PCE-DFG N 50K	internal measuring	cell meas. range	0 ... 50000 N / 5 t
PCE-DFG N 100K	internal measuring	cell meas. range	0 ... 100000 N / 10 t



Subject to change without notice

FORCE MEASUREMENT

FORCE GAUGE PCE-DFG NF 1K

Measurement of compressive forces with external load cell

The force gauge with an external load cell is designed for the measurement of compressive forces in hard-to-reach measuring locations. The pressure cell is connected to the force gauge by a sensor cable of approx. 3 m length and thanks to the small cell dimensions, it ensures versatile applications. The force gauge/load cell has several threaded holes at the bottom to enable

fixed installation. The force gauge can operate at a sampling rate of up to 1600 Hz. The sampled readings are displayed as an instantaneous value as well as in a graph showing the measurement curve directly in the force gauge.

ISO cal option

- ▶ USB interface
- ▶ graphical display
- ▶ fast response time
- ▶ PC software
- ▶ incl. calibration
- ▶ memory for 100 measurements



APPLICATION



TECHNICAL SPECIFICATIONS

Measurement range	0 ... 1000 N
Resolution	0.1 N
Accuracy	±0.5 % of meas. range
Measurement units	N, kg, lb, kPa
Display	2.8 " TFT graphical display
Alarm modes	inside, outside, crack, shutdown
Sampling rate	6 ... 1600 Hz
Memory	100 measurements
Power supply	rechargeable NiMH battery, 6 V / 1600 mAh
Battery life	approx. 10 hours
Power adaptor / charging adaptor	12 V / 1 A
Outputs	interface: USB
Protection class	switching output: 12 V / 50 mA
Operating and storage conditions	IP 54
	-10 ... 50 °C
	5 ... 95 % RH, non-condensing
Dimensions load cell	Ø 20 mm / H 12 mm / M3 thread
	(see technical drawing)
Cable length pressure cell	approx. 3 m
Dimensions	200 x 97 x 42 mm
Weight	540 g

Further models :

PCE-DFG NF 0,5K	Measurement range	0 ... 500 N
PCE-DFG NF 2K	Measurement range	0 ... 2000 N
PCE-DFG NF 5K	Measurement range	0 ... 5000 N
PCE-DFG NF 10K	Measurement range	0 ... 10000 N / 0 ... 10 kN
PCE-DFG NF 20K	Measurement range	0 ... 20000 N / 0 ... 20 kN
PCE-DFG NF 50K	Measurement range	0 ... 50000 N / 0 ... 50 kN



Subject to change without notice

TORQUE MEASUREMENT

TORQUE METER PCE-DFG N 100TW

Torque meter up to 100 Nm / external torque transducer 1/2 " internal square

The torque wrench tester consists of a handheld measuring device and an external torque transducer. The torsion transducer is connected to the hand-held device via a 1.5 m / 4.9 ft long cable and thus enables installation in a test stand or direct assembly on a test bench.

The torque measuring device is delivered adjusted so that the

control measurements can be started immediately. A calibration certificate is optionally available for the torque measuring device. This certificate is a target / actual comparison on a traceable reference standard and thus serves as proof of the measurement accuracy. The measurement uncertainty of the torque measuring device is only 0.5 % of the measuring range.

ISO cal option

- ▶ left / right torsion measurement
- ▶ error limit 0.5 % of the measuring range
- ▶ graphic display
- ▶ PC software
- ▶ PEAK / Hold function
- ▶ 1600 Hz sampling rate
- ▶ power adapter and battery operation possible
- ▶ the direction of rotation must be selected



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	0 ... 100 Nm
Resolution	0.1 Nm
Accuracy	±0.5 % of the measuring range
Units of measurement	Nm, lbfft, kgfm
Torque sensor mount	1/2 " (12.5 x 12.5 mm) internal square
Torsion measurement	Left / Right
Display	2.8 " TFT graphic display
Alarm modes	Inside Outside
Sampling rate	6 ... 1600 Hz
Storage measurement points each	For 100 measurement series with 8,000
Power supply	NiMh battery, 6 V / 1600-mAh
Battery life	About 10 hours
Power supply / charging adapter	12 V / 1 A
Outputs	Interface: USB
	Switching output: 12 V / 50-mA
Protection class	IP 54
Operating and storage conditions	-10 ... 50 °C / 14 ... 122 °F
	5 ... 95 % RH non-condensing
Torque transducer dimensions	H 85 mm / Ø 72 mm / Ø 104 mm (H 3.3 in / Ø 2.8 in / Ø 4.1 in)
	(see technical drawing)
Sensor cable length / td>	Approx. 1.5 m / 4.9 ft
Dimensions handset	200 x 97 x 42 mm / 7.9 x 3.8 x 1.7 in
Weight handset	540 g / 1.2 lbs
Weight of the torsion transducer	985 g / 2.2 lbs

Further models of the PCE-DFG N TW series:

PCE-DFG N 50TW	Measuring range	0 ... 50 Nm
PCE-DFG N 10TW	Measuring range	0 ... 10 Nm
PCE-DFG N 5TW	Measuring range	0 ... 5 Nm



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FORCE MEASUREMENT

HYDRAULIC FORCE GAUGE PCE-HFG 10K

For the measurement of compression forces in mechanical systems

The hydraulic force transducer PCE HFG series is used for the absorption of static pressure forces and is made of stainless steel. The force transducer can measure forces over a long period of time due to its independence from power sources. With the integrated drag indicator the respective PEAK value is stored for later read out. The force transducer uses the measuring prin-

ciple of hydraulic transmission of forces. The forces applied to the plunger are transmitted to the dial gauge via the medium and are displayed on the Newton scale [N]. Due to the 27 mm ring opening, it is also possible to use the force transducer axially and to determine axial shaft forces, for example.

ISO cal option

- ▶ measurement of static pressure forces
- ▶ for stationary maintenance measurements and adjustment work
- ▶ independent of power sources
- ▶ analogue meter scale
- ▶ compact for small installation spaces
- ▶ pressure force display in kilonewtons [kN]
- ▶ stainless steel
- ▶ integrated drag indicators



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	0 ... 10,000 N
Resolution	200 N
Measuring accuracy	±1.85% of the measuring range
Dimensions of the display	Ø55 mm
Mounting holes	2 x M6
Ambient conditions	0 ... 50 °C

Models of the PCE-HFG series:

Measured value: Force [N]

Measuring range	
PCE-HFG 1K	0... 1000 N
PCE-HFG 2.5K	0... 2500 N
PCE-HFG 10K	0... 10000 N
PCE-HFG 25K	0... 25000 N

Resolution:	
PCE-HFG 1K	20 N
PCE-HFG 2.5K	100 N
PCE-HFG 10K	200 N
PCE-HFG 25K	1000 N

Accuracy:	±(1.6 % pressure gauge + 0.25 % reading error) from measuring range
Temperature range:	0... 50 °C
weight:	1.6 kg
Mounting holes:	2 x M6
Inner diameter of the ring:	Ø 27 mm
Display dimensions:	Ø 55 mm



Subject to change without notice

FORCE MEASUREMENT

FORCE GAUGE PCE-FM 200

Force gauge for tensile force measurement and pressure force measurement up to 200 N

The force gauge PCE-FM 200 is a handheld device that measures up to 200 N. The force gauge can determine the units N, kg and lb. The scope of delivery of the PCE-FM 200 force gauge includes various adapters with different shapes. These can be screwed onto the device and thus offer the optimum solution for differently designed surfaces in the measurement of pressure

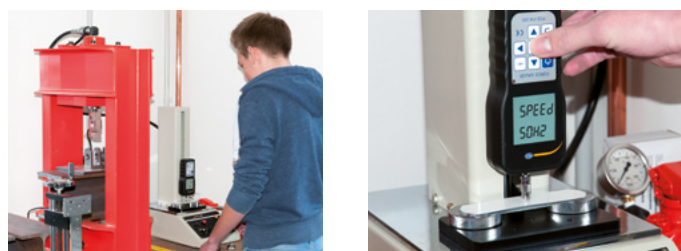
and tension. In addition to the adapters, an extension rod is also supplied, which allows measurements in hard to reach places. The scope of delivery of the PCE-FM 200 force gauge includes flat head adapter, hook adapter, ball head adapter, chisel head adapter and a notched head adapter, whereby the hook adapter is used for tensile force measurements.

ISO cal option

- ▶ differently shaped measuring adapters
- ▶ downloadable evaluation software
- ▶ device for mounting on test stands
- ▶ peak measurement
- ▶ power supply via charging adapter
- ▶ delivery includes extension rod
- ▶ evaluation via USB interface
- ▶ fast display of measured value



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	2 ... 200 N / 0.2 ... 20 kg / 0.4 ... 45 lbs
Resolution	0.1 N / 0.02 lbs
Pressure calibration	1 Mpa
Load cell	integrated load cell with M6 connection
Measuring range	1 ... 100% of the full scale
Measurement accuracy	±0.5%
Units	n, kg, lb
Display	LCD
Operating temperature	10 ... 30°C / 50 ... 86°F
Relative humidity	15 ... 80%
Working conditions	the device must not be located near sources of vibration or corrosive substances
Weight	1 kg / 2.2 lb

Further models :

PCE-FM 500N	Measurement range 5 ... 500 N
PCE-FM 50N	Measurement range 0.5 ... 50 N

Optional accessories :

Double handle	order code	PCE-DHFG 500
Thread reducer	order code	PCE-SJJM10M6
Hand grip	order code	KG-LTS-20
Mounting adapter for test stand	order code	FG-ADP
Adapters for Pressure Tests	order code	PCE-SJJ01
Adapter Ring for Tensile Tests	order code	PCE-SJJ02
Clamping Device for Test Stand	order code	PCE-SJJ03
Adapter Stamp Round for Pressure Tests	order code	PCE-SJJ04
Clamp Jaw	order code	PCE-SJJ05
Adapter Clamps for Tensile Tests	order code	PCE-SJJ06
Clamping Device for Tensile Tests	order code	PCE-SJJ07
Clamping Tool for Tensile Tests	order code	PCE-SJJ08
Fork Holder for Tensile and Compression Tests	order code	PCE-SJJ09
Adapter Clamp for Tensile Tests	order code	PCE-SJJ010
Clamp Jaw for Teststand	order code	PCE-SJJ011
Tensioning Device for Tensile Tests	order code	PCE-SJJ012
Clamp Jaw for Test stand	order code	PCE-SJJ013
Clamping Device for Test Stand	order code	PCE-SJJ015
Universal Clamping Device	order code	PCE-SJJ017
Clamping Device for Testing Bristles	order code	PCE-SJJ020
Clamping Device for Test Stand	order code	PCE-SJJ024
Clamping Device for Testing Bristles	order code	PCE-SJJ029
Holder for Button and Rivet Testing	order code	PCE-SJJ032
Pliers for Trigger Tests	order code	PCE-SJJ035
Adapter Plate for Force Test Stand	order code	ADP-UNI
Force Test Stand	order code	PCE-FTS50
Force gauge test stand	order code	LTS-20



Subject to change without notice

FORCE MEASUREMENT

FORCE GAUGE PCE-PTR 200N

For tensile force measurement and pressure force measurement up to 200 N (45 lbs)

The PCE-PTR 200N force gauge is a hand-held device up to 200 N / 45 lbs. The force measuring device can determine the units N, kg and lb. The PCE-PTR 200N force gauge is supplied with various shaped adapters. These can be screwed onto the device and thus offer the optimum solution for differently designed surfaces in the measurement of pressure and tension. In

addition to the adapters, an extension rod is also supplied, which allows measurements in hard to reach places. This extension rod has a length of 65 millimeters / 2.6 inches. The PCE-PTR 200N force gauge includes a flat head adapter, hook adapter, ball head adapter, chisel head adapter, and a notched head adapter, with the hook adapter used for pulling force measure-

ISO cal option

- ▶ differently shaped measuring adapter
- ▶ downloadable evaluation software
- ▶ device for mounting on test stands
- ▶ peak measurement
- ▶ power supply via charging adapter
- ▶ delivery with extension rod
- ▶ evaluation via USB interface
- ▶ fast measured value display



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	0 ... 200 N / 0 ... 45 lbs
Resolution	0.1 N / 0.02 lbs
Pressure calibration	1 Mpa
Load cell	Integrated load cell with M6 connection
Measuring range	1 ... 100% of the full scale
Measurement accuracy	± 0.5%
Units	n, kg, lb
Display	LCD
Operating temperature	10 ... 30°C / 50 ... 86°F
Relative humidity	15 ... 80% relative humidity
Working conditions	The device must not be located near sources of vibration or corrosive substances
Weight	1 kg / 2.2 lbs

Optional accessories:

Adapter Plate for Force Test Stand	Best.Nr.:	ADP-UNI
Force Test Stand	Best.Nr.:	PCE-FTS50



Subject to change without notice

FORCE MEASUREMENT

DYNAMOMETER PCE-PFG 500

With internal S load cell

The PCE-PFG dynamometer is a handy, digital measuring device for measuring tensile and compressive forces. The force measuring device offers a sampling rate of 500 Hz and various measurement options such as real-time measurement (RT), maximum value measurement (PEAK), configurable average value acquisition (Average) and automatic measurement storage of up to

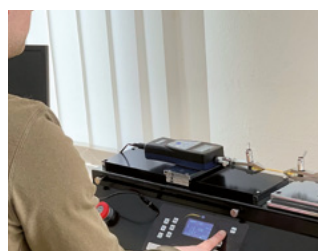
100 measurements. The measurement data and a statistical evaluation of the data stored in the force measuring device (MIN / MAX / average) are shown on the graphic display and can be transferred to a PC via the USB interface. In addition, the force measuring device offers a limit value function MIN / MAX, which can switch a multi-colored LED and switching contacts.

ISO cal option

- ▶ 4 measurement modes (real-time measurement / maximum value / average measurement / automatic memory measurement)
- ▶ internal memory for up to 100 measured values
- ▶ statistics evaluation (MIN / MAX / average)
- ▶ rotatable display
- ▶ alarm function with multi-colored LED (yellow / green / red) and switching contact output 2.85 V.
- ▶ USB B interface
- ▶ battery life up to 36 hours



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	0 ... 500 N
Resolution	0.1 N
Accuracy	±0.3 % of the measuring range
Measurement units	N, kgF, lbf
Display	1.8" graphic display
Alarm modes	Below, Inside, Outside
Sampling rate	500 Hz
Memory	100 measurements
Power supply	lithium battery 3.7 V / 1500 mAh
Battery life	up to 36 hours
Power supply / USB charging adapter	5 V / 1 A
Outputs	interface: USB B Switching output / alarm modes: MD6 with 2.85 V if active
Protection class	IP 54
Operating and storage conditions	5 ... 45 °C 35 ... 65 % r.H. not condensing
Force application	M6 x 10 mm thread
Dimensions	189 x 707 x 34 mm
Weight	450 g

Further models :

PCE-PFG 20	Measuring range	0 ... 20 N
PCE-PFG 50	Measuring range	0 ... 50 N
PCE-PFG 100	Measuring range	0 ... 100 N
PCE-PFG 200	Measuring range	0 ... 200 N

Optional accessories

Hand grip	order code	KG-LTS-20
Mounting adapter for test stand	order code	FG-ADP
Adapters for Pressure Tests	order code	PCE-SJJ01
Adapter Ring for Tensile Tests	order code	PCE-SJJ02
Clamping Device for Test Stand	order code	PCE-SJJ03
Adapter Stamp Round for Pressure Tests	order code	PCE-SJJ04
Clamp Jaw	order code	PCE-SJJ05
Adapter Clamps for Tensile Tests	order code	PCE-SJJ06
Clamping Device for Tensile Tests	order code	PCE-SJJ07
Clamping Tool for Tensile Tests	order code	PCE-SJJ08
Fork Holder for Tensile and Compression Tests	order code	PCE-SJJ09
Adapter Clamp For Tensile Tests	order code	PCE-SJJ010
Clamp Jaw for Teststand	order code	PCE-SJJ011
Tensioning Device for Tensile Tests	order code	PCE-SJJ012
Clamp Jaw for Test stand	order code	PCE-SJJ013
Clamping Device for Test Stand	order code	PCE-SJJ015
Universal Clamping Device	order code	PCE-SJJ017
Clamping Device for Testing Bristles	order code	PCE-SJJ020
Clamping Device for Test Stand	order code	PCE-SJJ024
Clamping Device for Testing Bristles	order code	PCE-SJJ029
Holder for Button and Rivet Testing	order code	PCE-SJJ032
Pliers for Trigger Tests	order code	PCE-SJJ035
Adapter Plate for Force Test Stand	order code	ADP-UNI
Force Test Stand	order code	PCE-FTS50
Force gauge test stand	order code	LTS-20



Subject to change without notice



FORCE MEASUREMENT

FORCE GAUGE PCE-PFG 2K

With internal S load cell / Measuring range 0 ... 2000 N

The PCE-PFG force measuring device is a handy, digital measuring device for measuring tensile and compressive forces. The force measuring device offers a sampling rate of 500 Hz and various measurement options such as real-time measurement (RT), maximum value measurement (PEAK), configurable average value acquisition (Average) and automatic measure-

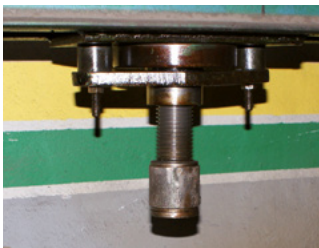
ment storage of up to 100 measurements. The measurement data and a statistical evaluation of the data stored in the force measuring device (MIN / MAX / average) are shown on the graphic display and can be transferred to a PC via the USB interface.

ISO cal option

- ▶ 4 measurement modes (real-time measurement / maximum value / average measurement / automatic memory measurement)
- ▶ internal memory for up to 100 measured values
- ▶ statistics evaluation (MIN / MAX / average)
- ▶ rotatable display
- ▶ alarm function with multi-colored LED (yellow / green / red) and switching contact output 2.85 V.
- ▶ USB B interface



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	0 ... 2000 N
Resolution	0.5 N
Accuracy	±0.3 % of the measuring range
Measurement units	N, kgF, lbf
Display	1.8" graphic display
Alarm modes	Below, Inside, Outside
Sampling rate	500 Hz
Memory	100 measurements
Power supply	lithium battery 3.7 V / 1500 mAh
Battery life	up to 36 hours
Power supply / USB charging adapter	5 V / 1 A
Outputs	Switching output / alarm modes: MD6 with 2.85 V if active
interface: USB B	IP 54
Protection class	5 ... 45 °C
Operating and storage conditions	35 ... 65 % r.H. not condensing
Dimensions of load cell	L 52 mm / H 72 mm / W 19 mm / M12 thread / 490 g (see technical drawing)
Cable length of load cell	approx. 1.8 m
Dimensions handset	189 x 707 x 34 mm
Weight handset	240 g



Subject to change without notice

BELT TENSION TESTING

BELT-TENSION METER PCE-BTM 2000

To measure the tension of V-belts or drive belts

The PCE-BTM 2000 is a measuring instrument to determine the tension of V-belts or drive belts. Belt tension can only be measured when the belt is not in operation. A small impulse with the help of a beater is enough to make the belt vibrate. With a measuring probe and a sensor beam, the generated vibration frequency is determined. The belt tension is calculated on the

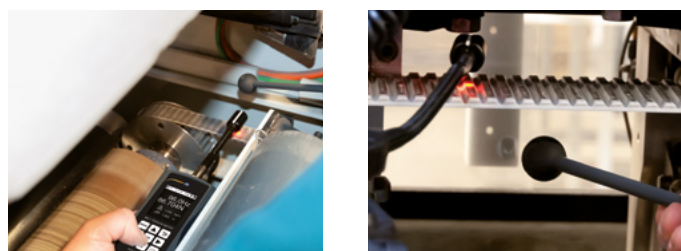
basis of the measuring data of the natural frequency as well as the belt mass and the length of the free belt span. It is not necessary to enter the belt mass and the belt length. The maximum service life of V-belts or drive belts can only be achieved with ideal tension.

ISO cal option

- ▶ measures vibration frequency of the belt
- ▶ intuitive operation
- ▶ calculation of belt tension (trum force)
- ▶ displays belt tension in N
- ▶ 6 menu languages
- ▶ memory for 750 readings
- ▶ sensor with gooseneck
- ▶ belt length and belt mass can be entered



APPLICATION



TECHNICAL SPECIFICATIONS

Measurement range	10 ... 900 Hz
Accuracy	±(1 % of rdg. + 4 digits)
Repeatability	±1 Hz
Resolution	< 100 Hz: 0.1 Hz > 100 Hz: 1 Hz
Belt length	max. 9.999 m
Belt mass	max. 9.999 kg/m
Memory	750 readings 15 folders, 50 measuring points/folder
Menu languages	English, German, Spanish, French, Italian, Dutch
Power supply	3 x 1.5 V AAA battery
Operating conditions	0 ... 50 °C; max. 95 % RH
Storage conditions	-20 ... 65 °C; max. 95 % RH
Dimensions	150 x 80 x 38 mm
Weight	approx. 200 g incl. batteries



Subject to change without notice



DATA LOGGER PCE-VDL 16I

For the parameters temperature, relative humidity, air pressure, light and vibration

The mechanical engineering data logger PCE-VDL 16I from PCE Instruments measures and records the relevant parameters temperature, relative humidity, air pressure, light as well as 3-axis acceleration by means of a vibration sensor. This makes the data logger the ideal tool for monitoring machine vibration and at the same time measuring and recording important

environmental conditions of the equipment. Depending on the sampling rate, the data logger can record for several days. The recorded readings are saved to the internal 32 GB SD card and can be transferred to other media for evaluation where required.

ISO cal option

- ▶ 3-axis acceleration up to 800 Hz
- ▶ measures temperature, humidity, air pressure and light
- ▶ 32 GB SD memory card
- ▶ compact design: 86.8 x 44.1 x 22.2 mm
- ▶ country of origin Germany



APPLICATION



TECHNICAL SPECIFICATIONS

Parameter	
Temperature measuring range	-20 ... +65 °C
Accuracy	±0.2 °C
Sampling rate	1 s ... 1800 s
Relative humidity measuring range	0 ... 100 % RH
Accuracy	±1.8 % RH
Sampling rate	1 s ... 1800 s
Air pressure measuring range	10 ... 2000 mbar
Accuracy	±2 mbar (within range 750 ... 1100 mbar) otherwise ±4 m bar
Sampling rate	1 s ... 1800 s
Light measuring range	0.045 ... 188,000 lux
Sampling rate	1 s ... 1800 s
3-axis acceleration measuring range	±16 g
Accuracy	±0.24 g
Sampling rate	800 Hz ... 1 Hz

General technical data of the mini data logger PCE-VDL 16I

Memory capacity	2.5 readings per measurement, 3.2 billion readings with included 32 GB memory card
Keys	start / stop of a measurement; data logger on / off
LED	Log: operating status Alarm: alarm indicator Charge: charging status USB: status of PC connection
Power supply	integrated rechargeable Li-Ion battery 3.7 V / 500 mAh The meter is charged via the USB interface.
Integrated sensors	3-axis acceleration
Interface	USB
PC software	free setup and evaluation software (Windows XP / Vista / 7 / 8 / 10 32 bit / 64 bit) to record and evaluate data
Operating conditions	temperature -20 ... +65 °C
Storage conditions	temperature +5 ... +45 °C (ideal storage conditions for battery) 10 ... 95 % RH, non-condensing
Standards	complies with EU regulation RoHS/WEEE
Weight	approx. 60 g
Dimensions (L x W x H)	87 x 44 x 23 mm

Optional accessories:

Mounting plate

Order code PCE-VDL MNT



Subject to change without notice



FORCE MEASUREMENT

FORCE GAUGE PCE-DDM 3WI

Measurement range up to 3 t

The PCE-DDM 3WI Force Gauge is the ideal tool for measuring strong tensile forces. The PCE-DDM 3WI Force Gauge is delivered in a protective carrying case and includes two shackles made of heavy-duty aluminum. The instrument is manufacturer calibrated, but can be certified to ISO standards for an additional fee. Despite its high measurement capacity, the Force Gauge

is a compact portable device with a low net weight. Interesting functions of the Force Gauge are the peak hold function, summation function, and the ability to select different units of measurement such as kg / t / lbs / N / kN. The instrument is only suitable for tension force testing. For compression force testing, please see the PCE-FB series force gauges.

ISO cal option

- ▶ measurement range up to 3000 kg / 30 kN
- ▶ high capacity
- ▶ compact and portable
- ▶ long battery life
- ▶ peak hold function
- ▶ summation function
- ▶ selectable units of measurement: kg / t / lb / N / kN
- ▶ adjustable gravitation range
- ▶ shackles and carrying case included

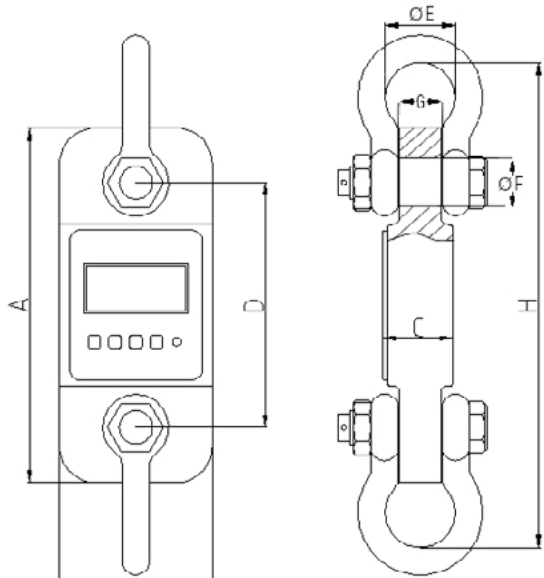


APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	3000 kg / 30 kN / 6614 lbs
Resolution	1 kg / 10 N / 2.2 lbs
Min. range	10 kg / 22 lbs
Weight (with shackle)	2 kg / 4.4 lbs (5 kg / 11 lbs)
Accuracy	±0.1 % of measurement range
Tare range	Max. 20 % of measurement range
Display	LCD with 22 mm / 0.9 in digit height
Units of measurement	kg / t / lb / N / kN
Sampling rate	2.5 Hz
Operating temperature	-10° C ... +40° C / +14° F ... +104° F
Power supply	3 x 1.5 V AA batteries
Operating time	Approx. 50 hours



Further models :

PCE-DDM 5WI	measuring range	5000 kg
PCE-DDM 10WI	measuring range	10000 kg
PCE-DDM 20WI	measuring range	20000 kg
PCE-DDM 50WI	measuring range	50000 kg



Subject to change without notice

DYNAMOMETER PCE-DDM 5

Measuring range up to 5 t / incl. remote display

The dynamometer is ideal for carrying out mobile tension measurements such as those made by surveyors. Quality materials are used for the manufacture of the tension dynamometer. Despite the high measuring capacity, these materials enable a compact design with a low weight. The tension dynamometer is supplied with a radio display and two shackles in a transport case.

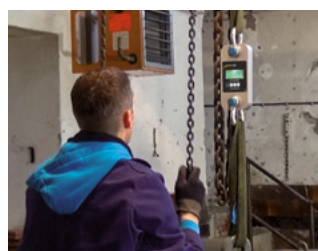
Interesting functions of the dynamometer are the PEAK hold function, summation function and the various units of measurement such as kg / t / lb / N or kN. The tensile dynamometer is only suitable for tensile measurements; other force measuring devices must be used for pressure tests, such as our PCE-FB series force measuring gauges.

ISO cal option

- ▶ Measuring range up to 5,000 kg / 50 kN
- ▶ Low device weight
- ▶ Compact design
- ▶ Long battery life
- ▶ Remote radio display
- ▶ PEAK Hold function
- ▶ Summing function
- ▶ Measurement units: kg / t / lbs / N / kN



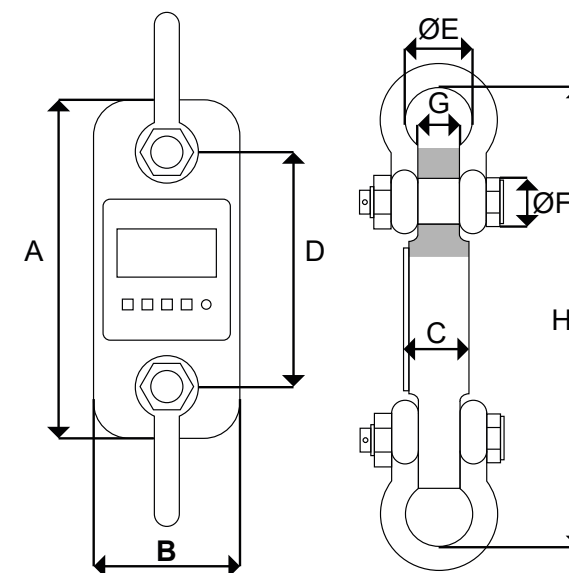
APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	5000 kg / 50 kN / 11023 lbs
Resolution	2 kg / 20 N / 4 lbs
Min. range	40 kg / 88 lbs
Weight (with shackle)	3 kg / 6.6 lbs (6 kg / 13 lbs)
Accuracy	±0.1 % of measurement range
Tare range	Max. 20 % of measurement range
Display	LCD with 22 mm / 0.9 in digit height
Units of measurement	kg / t / lb / N / kN
Sampling rate	2.5 Hz
Operating temperature	-10 °C ... +40 °C / +14 °F ... +104 °F
Power supply	3 x 1.5 V AA batteries
Operating time	Approx. 50 hours

Technical drawing



A	285 mm	11.2 in
B	123 mm	4.8 in
C	57 mm	2.2 in
D	210 mm	8.3 in
Ø E	58 mm	2.3 in
H	405 mm	15.9 in
Material	Aluminium	

Further models :

PCE-DDM 3	measuring range	5000 kg
PCE-DDM 10	measuring range	10000 kg
PCE-DDM 20	measuring range	20000 kg
PCE-DDM 50	measuring range	50000 kg

Subject to change without notice

EDGE BAND TESTER PCE-PST 1

Edge band tester for Edge Tests / Measures up to 500 N

PCE-PST 1 edge band tester is designed to check the adhesive force of edges on support materials. With the edge band tester, checks can be made with respect to the quality of workmanship. Feed speed, travel distance, tension, and traction angle are fixed. Ball transfer units on the guide surface of the Test Stand reduce the coefficient of friction. Likewise the self-locking

jaws and smooth guide rollers always guarantee reproducible and comparable results. Measurement errors caused by the "human factor" are reduced to a minimum. The PCE-PST 1 edge band tester is designed for adhesive forces up to 500 N or 110 pounds.

ISO cal option

- ▶ for adhesive forces to 500 N or 110 pounds
- ▶ high repeatability
- ▶ defined test parameters
- ▶ mobile implementation
- ▶ automatic and manual measurement mode
- ▶ evaluation via software



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	500 N / 50 kg / 110 lbs
Measurable edge thickness	0.4 mm ... 3.5 mm 0.02 in ... 0.14 in
Measurable plate thicknesses	10 mm ... 64 mm 0.4 in ... 2.5 in
Travel speed	0.3 m/min / 11.8 in/min
Traverse	100 mm / 3.9 in
Measurement accuracy	± 0.1% of the measuring range
Resolution	0.1 N / 0.010 kg / 0.02 lbs
Max. overload	± 20%
Display	Graphic display with backlight 61 mm x 34 mm / 2.4 in x 1.3 in
Operating modes	Manual / automatic
Interface	USB
Environmental conditions	-10°C ... 40°C / 14°F ... 104°F
Weight	ca. 9 kg / 19.8 lbs
Power supply	230V / 110V / 12V; 1.2 A
Dimensions (LxWxH)	490 mm x 210 mm x 150 mm 19.3 in x 8.3 in x 5.9 in

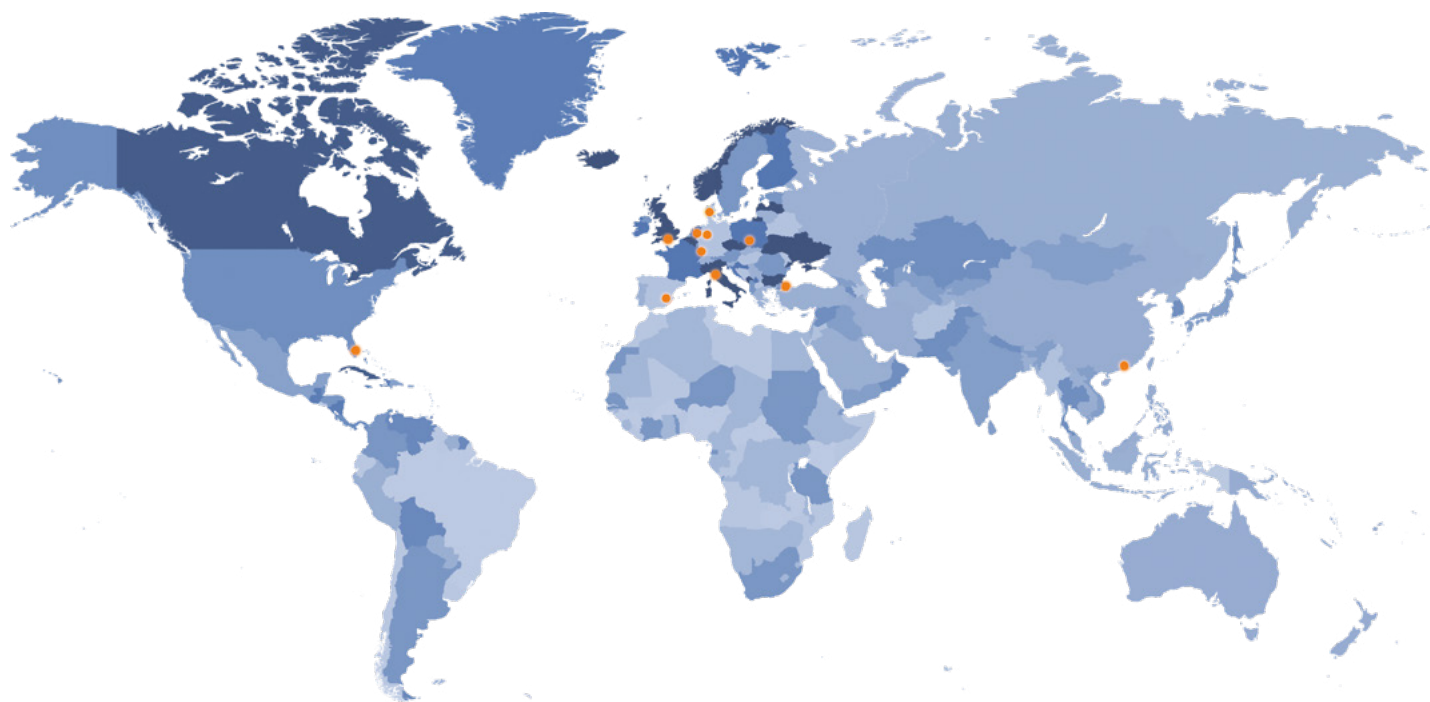
Optional accessories:

Test Table	Order no.: PS-PST 1
Support table extension	Order no.: AV-PST 1



Subject to change without notice

COMPANY LOCATIONS



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