



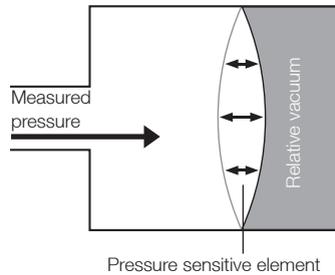
Measuring Instruments for Pressure and Refrigeration



Different pressure types

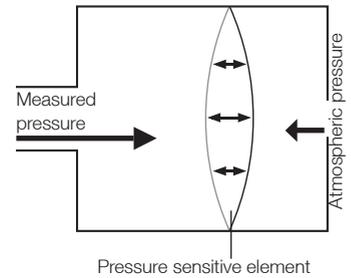
Absolute pressure (P_{abs})

The pressure which applies to the vacuum in the universe (zero pressure) is known as absolute pressure. Absolute pressure has "abs" as its index.



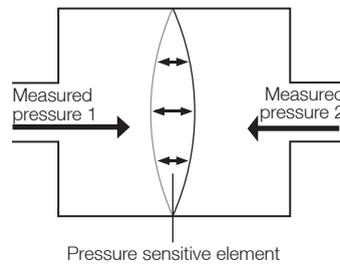
Atmospheric pressure difference, positive pressure

Atmospheric pressure difference (p_e) is the difference between an absolute pressure (p_{abs}) and the respective atmospheric pressure ($p_e = P_{abs} - P_{amb}$). This is generally referred to as positive pressure.



Differential pressure, pressure difference (Δp)

The difference between two pressures p_1 and p_2 is known as pressure difference ($\Delta p = p_1 - p_2$). If the difference between two pressures is a variable, this is referred to as differential pressure ($p_{1,2}$).



Atmospheric air pressure (P_{amb})

This is the most important pressure for life on earth. Atmospheric pressure is created by the weight of the atmosphere surrounding the earth. The atmosphere reaches a height of up to approx. 500 km. Pressure decreases constantly up to this height (absolute pressure $P_{abs} = \text{zero}$). Atmospheric air pressure is also influenced by fluctuations in the weather. The average P_{amb} at sea level is 1013.25 Hectopascal (hPa) or millibar (mbar/ normal pressure in accordance with DIN 1343). Typically this value can fluctuate by $\pm 5\%$ if there are low or high pressure weather areas.

Measuring principle

When designing pressure meters, the principle of the effect of pressure on a defined area is almost always used. This is then retraced to a measurement of force.

The following formula applies:

$$\text{Pressure (p)} = \frac{\text{Force (F)}}{\text{Area (A)}}$$

Pressure meters

Advantages: Electrical pressure meters

There is a displacement of 1-3 mm in elastic pressure meters. The deformation in electrical pressure sensors is only a few μm . Due to this very low mechanical deformation, electrical pressure meters / sensors have an excellent dynamic performance and low material stress resulting in high endurance levels and long-term stability. Electrical pressure meters can also be manufactured in very small sizes.

An additional advantage is the easy-to-read display. Considering today's technology standards, accurate pressure measurement is becoming more and more important. Precision

measuring meters have an accuracy of $\pm 0.05\%$ of the full-scale value. In the case of mechanical manometers, such accuracies cannot be read on account of the parallax error and mechanical performance of the springs. Electrical precision meters with LCD display often have a resolution in the thousandth range of 0.001.

Types of pressure meters

Liquid pressure meters

- U-tube manometer
- Inclined tube manometer
- Multi-liquid manometer
- Float manometer

Pressure balances with sealing liquid

Piston pressure meters

- Piston pressure meters with spring-loaded piston
- Piston pressure scales

Elastic pressure meters

Electric pressure sensors and pressure meters

- Sensor principles with strain meters
- Sensor principles with path measurement
- Compression meter
- Ionisation pressure meter
- Friction meter

Conversion table for the most important pressure units

	Pa	hPa/mbar	kPa	MPa	bar	psi	mmH ₂ O	inH ₂ O	mmHg	inHg
Pa	1	100	1.000	1.000.000	100.000	6.895	9.807	249.1	133.3	3.386
hPa/mbar	0.01	1	10	10.000	1.000	68.948	0.09807	2.491	1.333	33.864
kPa	0.001	0.1	1	1.000	100	6.895	0.009807	0.2491	0.1333	3.386
MPa	0.000001	0.0001	0.001	1	0.1	0.006895	0.00009807	0.0002491	0.0001333	0.003386
bar	0.00001	0.001	0.01	10	1	0.0689	0.00009807	0.002491	0.001333	0.0339
psi	0.0001451	0.0145	0.14505	145.05	14.505	1	0.001422	0.0361	0.0193	0.4912
mmH ₂ O	0.102	10.2	102	102.000	10.200	704.3	1	25.4	13.62	345.9
inH ₂ O	0.004016	0.4016	4.016	4.016	401.6	27.73	0.0394	1	0.5362	13.62
mmHg	0.007501	0.7501	7.501	7.501	750.1	51.71	0.0734	1.865	1	25.4
inHg	0.0002953	0.0295	0.2953	295.3	29.53	2.036	0.002891	0.0734	0.0394	1



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testo 506 (10/200 hPa)

Electronic U-tube manometer

testo 506, the small and practical differential pressure meter with a switchable measurement range from 10/200 hPa/mbar, is ideal for tuning heating systems and burners (measures gas flow pressure and flue draught).

- 5 switchable units: hPa/mbar, mmH₂O, mmHg, inH₂O, psi

testo 506, differential pressure meter, 0 to 10/200 hPa/mbar, incl. connection hoses and battery

Part no.
0560 5063



Soft rubber housing protection

Magnetic holder and suspension eye on the rear

4/6 mm hose connections

Technical data

Meas. range	0 to +10 hPa	Oper. temp.	0 to +40 °C
Accuracy	±0.03 hPa (0 to +1 hPa)	Storage temp.	-20 to +70 °C
±1 digit	±1.5% of mv (+1 to +10 hPa) 1 hPa + 1% of mv (>10 hPa)	Battery type	2 lithium batteries (CR2032)
Resolution	0.01 / 0.1 hPa	Battery life	150 h
Overload	300 hPa	Dimensions	86 x 48 x 24 mm
		Weight	55 g
		Warranty	2 years

Accessories

Accessories	Part no.
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Pressure connection hose, single, diameter: 4/6 mm, 50 cm long, without connection adapter	0554 0449
Pressure set with flue draught probe consisting of:	0554 3150
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005
ISO calibration certificate/Pressure, Differential pressure; 3 points distributed over meas. range	0520 0095

testo 506 (500 Pa)

Electronic U-tube manometer with flow measurement

testo 506 (500 Pa) makes it possible to measure air flow using a Pitot tube. Even air density can be compensated. With its very high accuracy level, it is ideal for applications in air conditioning, ventilation and in clean rooms.

- Integrated air flow measurement up to 27 m/s
- 5 switchable units: Pa, mmH₂O, mmHg, inH₂O, psi
- Magnetic holder and suspension loop on the back

testo 506, differential pressure meter, 0 to 500 Pa, incl. connection hoses and battery

Part no.
0560 5062



Pitot tubes

Pitot tube, 300 mm long, Ø 4 mm, stainless steel, measures velocity speed

Part no. 0635 2245

Pitot tube, 350 mm long, Ø 7 mm, stainless steel, measures velocity speed

Part no. 0635 2145

Pitot tube, 500 mm long, Ø 7 mm, stainless steel, measures velocity speed

Part no. 0635 2045

Technical data

Meas. range	0 to 500 Pa 0 to 27 m/s	Oper. temp.	0 to +40 °C
Accuracy	±2.5 Pa	Storage temp.	-20 to +70 °C
±1 digit		Battery type	2 lithium batteries (CR2032)
Resolution	1 Pa 0.01 m/s	Battery life	150 h
Overload	±2000 Pa	Dimensions	86 x 48 x 24 mm
		Weight	55 g
		Warranty	2 years

Accessories

Accessories	Part no.
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Pressure connection hose, single, diameter: 4/6 mm, 50 cm long, without connection adapter	0554 0449
Pressure set with flue draught probe consisting of:	0554 3150
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005
ISO calibration certificate/Pressure, Differential pressure; 3 points distributed over meas. range	0520 0095

testo 511

Pressure measurement in robust housing

The differential pressure meter testo 511 with switchable measurement range measures differential, positive and negative pressure. It is ideal for tuning heating units and furnaces (measures gas flow pressure and flue draught).

- 5 switchable units: hPa/mbar, mmH₂O, mmHg, inH₂O, psi
- TopSafe (optional), protects instrument from dust and impact
- Temperature-compensated
- Automatic switching of measurement range

testo 511, testo 511, differential pressure meter, 0 to 10/200 hPa/mbar, incl. connection hoses and battery

Part no.
0560 5111



Technical data			
Meas. range	0 to +10 hPa		+10 to +200 hPa
Accuracy	±0.03 hPa (0 to +1 hPa)		±(1 hPa ±1% of mv)
±1 digit	±1.5% of fsv (+1 to +10 hPa)		
Resolution	0.01 hPa		0.1 hPa
Overload	300 hPa	Battery life	150 h
Oper. temp.	0 to +40 °C	Dimensions	191 x 57 x 42 mm
Storage temp.	-20 to +70 °C	Weight	170 g
Battery type	9V block battery	Warranty	2 years

Accessories	Part no.
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt	0516 0183
Multi-function clip (for instrument with TopSafe) consisting of multi-function clip and magnetic holder	0554 0398
9V rech. battery for instrument, Instead of battery	0515 0025
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Pressure connection hose, single, diameter: 4/6 mm, 50 cm long, without connection adapter	0554 0449
Pressure set with flue draught probe, consisting of: 2 x silicone hoses Ø 4 mm and Ø 6 mm respectively, 4 mm and 6 mm T-piece, connection piece	0554 3150
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005
ISO calibration certificate/Pressure, Differential pressure; 3 points distributed over meas. range	0520 0095

testo 512

Pressure and flow meter inside robust housing

Pressure and flow meter with switchable units. When connected to a Pitot tube, testo 512 displays pressure as well as air velocity.

TopSafe protects the instrument from dust, dirt and impact (optional).

- Adjustable damping
- Density compensation integrated
- 6 switchable pressure units: hPa/mbar, mmH₂O, mmHg, psi, inH₂O, inHg



Simultaneous display of velocity and pressure value

1 0 to 2 hPa/mbar

testo 512, differential pressure meter, 0 to 2 hPa/mbar, incl. battery and calibration protocol

Part no.

0560 5120

2 0 to 20 hPa/mbar

testo 512, differential pressure meter, 0 to 20 hPa/mbar, incl. battery and calibration protocol

Part no.

0560 5121

3 0 to 200 hPa/mbar

testo 512, differential pressure meter, 0 to 200 hPa/mbar, incl. battery and calibration protocol

Part no.

0560 5122

4 0 to 2000 hPa/mbar

testo 512, differential pressure meter, 0 to 2000 hPa/mbar, incl. battery and calibration protocol

Part no.

0560 5123

Technical data

	1	2	3	4
Meas. range	0 to +2 hPa +2 to +17.5 m/s 0 to +3350 fpm	0 to +20 hPa +5 to +55 m/s 0 to +10800 fpm	0 to +200 hPa +10 to +100 m/s 0 to +19650 fpm	0 to +2000 hPa
Resolution	0.001 hPa 0.1 m/s (+1 to +17 m/s) 0.1 fpm	0.01 hPa 0.1 m/s (+3 to +55 m/s) 1 fpm	0.1 hPa 1 m/s (+9 to +100 m/s) 1 fpm	1 hPa
Overload	±10 hPa	±200 hPa	±2000 hPa	±4000 hPa

Common data

Accuracy	0.5% of fsv / ±1 digit	Oper. temp.	0 to +60 °C	Battery life	120 h
Measuring medium	All non-corrosive gases	Storage temp.	-10 to +70 °C	Dimensions	191 x 57 x 42 mm
Display	LCD, 2 lines	Auto Off	20 min	Weight	275 g
		Battery type	9V block battery	Warranty	2 years

Accessories

Accessories	Part no.
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt	0516 0183
Multi-function clip (for instrument with TopSafe) consisting of multi-function clip and magnetic holder	0554 0398
Case for instrument and probes, For safe and orderly storage	0516 0182
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Pitot tube, 350 mm long, Ø 7 mm, stainless steel, measures velocity speed	0635 2145
Hose connection set, incl. silicone hose and connection adapter, For separate gas pressure measurement	0554 0315
DKD calibration certificate/Pressure, Differential and positive pressure; 11 measuring points distributed over the instrument measuring range	0520 0215
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over the measurement range	0520 0025
ISO calibration certificate/Pressure, Calibration points freely selectable from 0 to 70 bar absolute and 0 to 250 bar positive pressure	0520 0145

testo 312-2

testo 312-2, DVGW approval according to TRGI, measures pressure from 0 to 200 hPa. Even the finest of pressures with a resolution of 0.01 mbar can be measured in the measuring range from 0 to 40 mbar.

testo 312-2, precision manometer up to 40/200 hPa, DVGW approval, incl. alarm display, battery and calibration protocol

Part no.
0632 0313

testo 312-3

testo 312-3, the versatile manometer for the pre-test and main test on gas and water pipelines up to 6 bar. Pressure changes caused by changes in temperature during the measurement are balanced out by the temperature compensation function.

testo 312-3, robust manometer up to 300/6000 hPa, DVGW approval, incl. alarm display, battery and calibration protocol

Part no.
0632 0314

Pressure meters for gas and water fitters

- Switchable precision range with a high resolution
- Alarm when user-defined limit values are exceeded
- Printout of data incl. software, instrument number, date/time on Testo printer
- Clear display with time
- DVGW approval



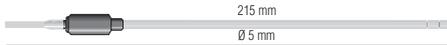
Technical data				
	testo 312-2		testo 312-3	
Meas. range	-40 to +40 hPa	-200 to +200 hPa	-300 to +300 hPa	-6000 to +6000 hPa
Accuracy ±1 digit	±1.5% of mv (+3 to +40 hPa) ±0.03 hPa (0 to +3 hPa)	±0.5 hPa (0 to +50 hPa) ±2 hPa (+50 to +200 hPa)	±0.5 hPa (0 to +50 hPa) ±1.5 hPa (+50 to +300 hPa)	±2% of mv (+400 to +2000 hPa) ±4% of mv (+2000 to +6000 hPa) ±4 hPa (0 to +400 hPa)
Resolution	0.01 hPa (-40 to +40 hPa)	0.1 hPa (-200 to +200 hPa)	0.1 hPa (-300 to +300 hPa)	1 hPa (-6000 to +6000 hPa)
Overload	±1000 hPa (-40 to +40 hPa)	±1000 hPa (-200 to +200 hPa)	±8000 hPa (-300 to +300 hPa)	±8000 hPa (-6000 to +6000 hPa)

Common data

Display	LCD 2-zeilig	Measurement range can be switched from ±40 hPa to ±200 hPa
Oper. temp.	+5... +45 °C	
Storage temp.	-20... +70 °C	Setting step: 0.01 hPa or 5 hPa
Material/Housing	ABS	Alarm threshold: -0.04 hPa or 100 hPa
Battery type	9V-Blockbatterie	Alarm display: Audible and visual if limit values are reached
Dimensions	215 x 68 x 47 mm	
Weight	300 g	
Warranty	2 years	

Set	Part no.
Complete test system for gas/water fitters	
testo 312-3 pressure meter	0563 0314
TopSafe for testo 312	
Printer	
testo 316-1 gas leak detector	
TopSafe for testo 316-1	
Accessories: Pressure drop test set 200 mbar, testing pump, single-pipe counter cap, two valve T-fitting, single valve barrier, connection hose LW 6, conical test plugs 1/2", 3/4", high pressure stage stops 3/8", 3/4", 1/2", 1", leak detection spray, slide rule, system case	

Set	Part no.
High pressure set with case (without instrument)	
Pressure drop test set, 200 mbar	0554 3160
Testing pump, greater than 500 mbar	
Single-pipe counter cap	
Two-valve T-fitting	
Single-valve barrier	
Connection hose LW	
Conical test plugs 1/2" and 3/4"	
High pressure stage stop 3/8", 1/2", 3/4", and 1"	
Leak detection spray	
System case	

Probes	Part no.
Pressure set with flue draught probe, consisting of: 2 x silicone hoses Ø 4 mm and Ø 6 mm respectively, 4 mm and 6 mm T-piece, connection piece	0554 3150
	
Hose connection set, incl. silicone hose and connection adapter, For separate gas pressure measurement	0554 0315
Accessories	Part no.
Printer and accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), permanent ink, Measurement data documentation legible for up to 10 years	0554 0568
Additional accessories and spare parts	
9V rech. battery for instrument, Instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Pressure transmitter 1-1000 mbar to measure pressure in filled water pipelines	0554 3168
Pressure transmitter 1-6 bar to measure pressure in filled water pipelines	0554 3159
Connection hose for pressure transmitter to system (1 off)	0554 3170

Transport and Protection	Part no.
TopSafe (protection case), with bench stand, Protects instrument from dirt and impact	0516 0443
Magnetic bench stand suitable for TopSafe 0516 0443, For positioning on boilers, for example	0554 0407
Case, For secure storage of measuring instrument	0516 0191
Transport case (plastic), For transport and secure storage of measuring instrument and accessories	0516 3120
Calibration certificates	
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005

Recommended set
The complete maintenance set with documentation
- testo 312-2, precision manometer, up to 40/200 hPa (Part no. 0632 0313)
- TopSafe (protection case), with bench stand (Part no. 0516 0443)
- Pressure set (Part no. 0554 3150)
- testo 316-1, gas leak detector (Part no. 0632 0316)
- TopSafe (protection case) with bench stand (Part no. 0516 0189)
- Testo printer with IRDA and infrared interface (Part no. 0554 0547)
- Case (plastic) (Part no. 0516 3120)

testo 520

Robust and efficient differential pressure meters for industrial applications

The compact testo 520 handheld manometer has a large, easy-to-read display and is easy to operate. The two integrated measuring ranges can be switched at the touch of a button resulting in an improved readoff accuracy in the lower measuring range. Measurements can be carried out in positive/negative and differential pressure ranges.

- Low Bat display
- Zeroing using a potentiometer
- High accuracy (Class 0.2 % of fsv)
- With precision certificate



Large LCD display

Two measurement ranges, switchable at the touch of a button

Hold button

1 0 to 20/200 hPa

testo 520, differential pressure meter, 0 to 20/200 hPa/mbar, incl. battery and precision certificate

Part no.

0560 5200

2 0 to 100/1000 hPa

testo 520, differential pressure meter, 0 to 100/1000 hPa/mbar incl. battery and precision certificate

Part no.

0560 5201

3 0 to 200/2000 hPa

testo 520, differential pressure meter, 0 to 200/2000 hPa/mbar incl. battery and precision certificate

Part no.

0560 5202

4 0 to 1/10 bar

testo 520, differential pressure meter, 0 to 1/10 bar, incl. battery and precision certificate

Part no.

0560 5203

Technical data				
	1	2	3	4
	0 to 20/200 hPa	0 to 100/1000 hPa	0 to 200/2000 hPa	0 to 1/10 bar
Meas. range	0 to +200 hPa	0 to +1000 hPa	0 to +2000 hPa	0 to +10 bar
Resolution	0.01 hPa (0 to +20 hPa) 0.1 hPa (+20 to +200 hPa)	0.1 hPa (0 to +100 hPa) 1 hPa (+100 to +1000 hPa)	0.1 hPa (0 to +200 hPa) 1 hPa (+200 to +2000 hPa)	0.001 bar (0 to +1 bar) 0.01 bar (+1 to +10 bar)
Overload	±1400 hPa	±2000 hPa	±6000 hPa	±20 bar

Common data							
Accuracy	Hi: Linearity ±0.2% of fsv/±1 digit Lo: ±0.5% of fsv/±1 digit	Measuring medium	All non-corrosive gases	Oper. temp.	0 to +60 °C	Battery life	Approx. 250 h
		Conn.	4 mm hose, NPT 1/8"	Storage temp.	-35 to +85 °C	Dimensions	152 x 83 x 34 mm
				Protection class	IP54	Weight	250 g
				Battery type	9V block battery	Warranty	2 years

Accessories	Part no.
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Transport and Protection	
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Transport case (plastic) for measuring instrument and accessories, For safe transport	0516 5200
Case made of leather with shoulder strap, For secure storage of measuring instrument	0554 5251

Additional accessories and spare parts	
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9V rech. battery for instrument, Instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection, Pressure-tight up to 20 bar	0554 0441
Adapter 1/8", for connection hoses	0554 5200
Calibration pump, negative pressure, Max. -700 hPa/mbar	0554 5253
Calibration pump, positive pressure, Max. 5 bar	0554 5252
Pressure transmitter 0 to 10 bar, to measure pressure in liquid substances (please also order 1/8" adapter 0554 5200 for pressure range up to 7 bar)	0554 5254
Connection hose for pressure transmitter to system (1 off)	0554 3170

Calibration certificates	
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ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005
ISO calibration certificate/Pressure, Calibration points freely selectable from 0 to 70 bar absolute and 0 to 250 bar positive pressure	0520 0105
DKD calibration certificate/Pressure, Differential and positive pressure; 11 measuring points distributed over the instrument measuring range	0520 0215

testo 525

Highly accurate pressure meters for industrial applications

Temperature fluctuations do not have any influence on measurements taken using testo 525 on account of temperature compensation. It facilitates measurements in the ranges of positive/negative overpressure, differential pressure and absolute pressure making testo 525 the ideal reference measuring instrument for calibration.

- Temperature-compensated (temperature fluctuations do not have any influence on the measurement result)
- 11 different meas. units to select from
- Measures leak rate (pressure drop over time)
- Min/Max value
- Hold button
- Data memory for single values or series of measurements
- Auto-Off/Low Bat display
- With precision certificate

testo 525, pressure meters incl. battery and precision certificate. See below for the different instrument versions available for every application.

- One touch zero
- Hold button
- Configuration modes



testo 525 Differential pressure meters

Accuracy $\pm 0.2\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to 25 hPa	0.001 hPa	± 125 hPa	0560 5250
0 to 200 hPa	0.01 hPa	± 1400 hPa	0560 5251
0 to 1000 hPa	0.1 hPa	± 2000 hPa	0560 5252
0 to 2000 hPa	0.001 hPa	± 6000 hPa	0560 5253
0 to 7 bar	0.001 bar	± 17 bar	0560 5254
0 to 10 bar	0.001 bar	± 21 bar	0560 5255

Accuracy $\pm 0.1\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to 25 hPa	0.001 hPa	± 125 hPa	0560 5260
0 to 200 hPa	0.01 hPa	± 1400 hPa	0560 5261
0 to 1000 hPa	0.1 hPa	± 2000 hPa	0560 5262
0 to 2000 hPa	0.1 hPa	± 6000 hPa	0560 5263
0 to 7 bar	0.001 bar	± 17 bar	0560 5264
0 to 10 bar	0.001 bar	± 21 bar	0560 5265

Accuracy $\pm 0.05\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to 1000 hPa	0.1 hPa	± 2000 hPa	0560 5270
0 to 2000 hPa	0.1 hPa	± 6000 hPa	0560 5271
0 to 7 bar	0.001 bar	± 17 bar	0560 5272

testo 525 Positive pressure meters

Accuracy $\pm 0.2\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to 30 bar	0.01 bar	70 bar	0560 5258
0 to +70 bar	0.01 bar	140 bar	0560 5259

testo 525 Absolute pressure meters

Accuracy $\pm 0.2\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to 1100 hPa	0.1 hPa	± 3000 hPa	0560 5256
0 to 2000 hPa	0.1 hPa	± 3000 hPa	0560 5257

Accuracy $\pm 0.1\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to 1100 hPa	0.1 hPa	± 2000 hPa	0560 5266
0 to +2000 hPa	0.1 hPa	± 3000 hPa	0560 5267

Accuracy $\pm 0.05\%$ of fsv

Meas. range	Resolution	Overload	Part no.
0 to +2000 hPa	0.1 hPa	± 3000 hPa	0560 5273

Technical data

See opposite page for information on accuracies, measurement ranges, resolution and overload.

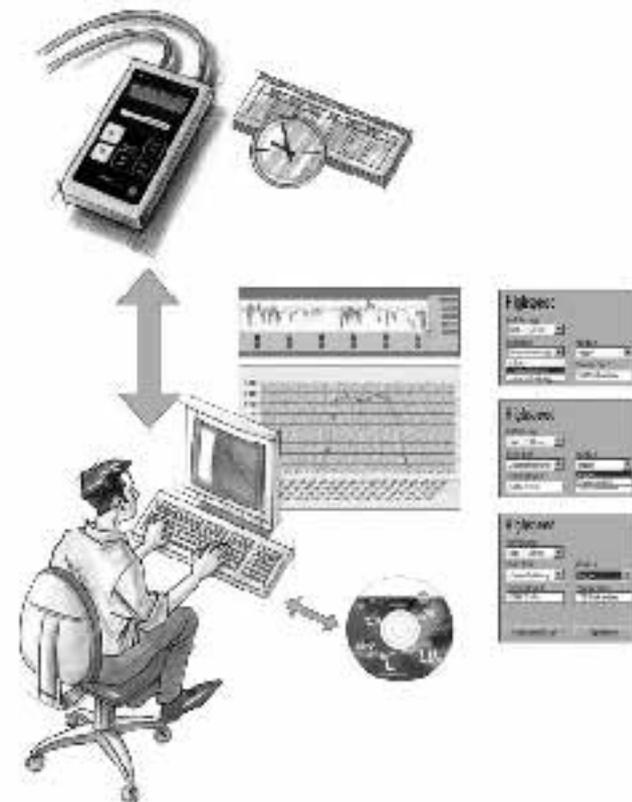
Saving interval	Manually, 1 second...60 min selectable
Memory	984
Oper. humidity	30 to 95 %RH
Oper. temp.	-5 to +50 °C
Storage temp.	-30 to +85 °C
Protection class	IP54
Battery type	9V block battery
Battery life	50 h
Dimensions	152 x 83 x 34 mm
Weight	270 g
Warranty	2 years
Other features	11 different measuring units can be set: bar, mbar, kPa, hPa, MPa, mmH2O, mH2O, mmHg, psi, inchH2O, inchHg

Common data

Sensor	Piezoresistive pressure sensor
Measuring medium	All non-corrosive gases
Conn.	Hose 4 mm (to 7 bar) NPT 1/8" (from 10 bar)
PC	RS232 interface
Display	LCD, 1 line

Accessories

	Part no.
Transport and Protection	
Case made of leather with shoulder strap, For secure storage of measuring instrument	0554 5251
Transport case (plastic) for measuring instrument and accessories, For safe transport	0516 5200
Software and accessories	
Software set incl. RS232 data transfer cable, Software for instrument control and data management	0554 5256
Software, for instrument control and data management	0554 5255
Data transfer cable RS 232, Connects measuring instrument to PC for data transfer	0554 5250
Additional accessories and spare parts	
9V rech. battery for instrument, Instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection	0554 0441
Adaptor 1/8", for connection hoses	0554 5200
Calibration pump, negative pressure, Max. -700 hPa/mbar	0554 5253
Calibration pump, positive pressure, Max. 5 bar	0554 5252
Pressure transmitter 0 to 10 bar, to measure pressure in liquid substances	0554 5254
Connection hose for pressure transmitter to system (1 off)	0554 3170
Calibration certificates	
ISO calibration certificate/Pressure, Differential pressure; 5 points distributed over meas. range	0520 0005
DKD calibration certificate/Pressure, Differential and positive pressure; 11 measuring points distributed over the instrument measuring range	0520 0215
DKD calibration certificate/Pressure, Absolute pressure 11 points distributed over the whole measuring range (less than 0.1% of fsv)	0520 0222

Software for instrument control and data management

Configuration settings in instrument

All of the important parameters in the instrument can be easily adapted on your PC using the PC software for testo 525; regardless of whether you wish to change a unit or measuring rate or wish to activate smoothing. No problem. Simply select the required value using the pull-down menu and it is transmitted to your instrument straightaway.

Readout memory

Data is transferred to a file on your hard disk, where it is permanently filed, when the "Readout memory" button is pressed. The data can also be shown in a table. Important information such as maximum/minimum and mean value appear in the top lines. The data can also be printed or transferred to Excel.

Online Measurement

All of the measurement data can be read straightaway from the graphic appearing in the initial screen. The data is automatically saved during online measurement.

High speed

testo 525 carries out 10/20 measurements per second. Fast measurement is necessary so that pressure drops can be recognised and recorded. In the case of high speed measurements, the user can select when the measurement is to be started.

The following can be selected:

- immediately*
Measurement starts running *ad hoc*
- Overshooting*
Measurement starts once a specific limit value is overshoot
- Undershooting*
Measurement starts once a specific limit value is undershot.

A trigger mode can also be set up. If a limit value is exceeded, you can determine how long afterwards measurements can continue. Recording stops once the specified time has been reached. If the limit value is again exceeded, recording begins again. This mode is ideal for troubleshooting systems.

testo 521

testo 521-1/-2 with internal sensor 0 to 100 hPa / 0.1 %
 testo 521-1/-2 is equipped for accurate differential pressure measurements in the VAC sector, for example pressure drops in filters, inspections on ventilators and suction systems. Use testo 521-1/-2 for Pitot tube measurements in the range 5 to 100 m/s.

testo 521-3 with internal sensor 0 to 2.5 hPa

Even the smallest differential pressures up to 2.5 hPa are measured using testo 521-3. A high accuracy level and a resolution of 0.1 Pa make the instrument ideal for measurements in cleanrooms or for flue draught inspections. Use testo 521-3 for accurate measurements during Pitot tube measurements in the range 1 to 20 m/s.

1 0 to 100 hPa / ± 0.2 % of fsv
 testo 521-1, differential pressure meter 0 to 100 hPa incl. battery and calibration protocol

Part no.
0560 5210

2 0 to 100 hPa / ± 0.1 % of fsv
 testo 521-2, differential pressure meter 0 to 100 hPa incl. battery and calibration protocol

Part no.
0560 5211

3 0 to 2.5 hPa
 testo 521-3, differential pressure meter 0 to 2.5 hPa incl. battery and calibration protocol

Part no.
0560 5213

testo 526

testo 526-1 for differential pressure from 0 to 2000 hPa
 testo 526 is the ideal differential pressure meter for industrial applications. Processes can be accurately measured and monitored with an accuracy of 0.1% of the full-scale value.

testo 526-1 with highly accurate pressure sensor

testo 526 is the ideal differential pressure meter for sensitive industrial applications. Critical processes can be efficiently measured and monitored at an accuracy of up to 0.05% of the full-scale value.

Pressure test

Specially for leak tests on containers, uninterrupted recording is possible via the built-in test menu in testo 526-1 and testo 526-2. Subsequent processing of the measurement data via software or printouts ensure that the pressure test is documented.

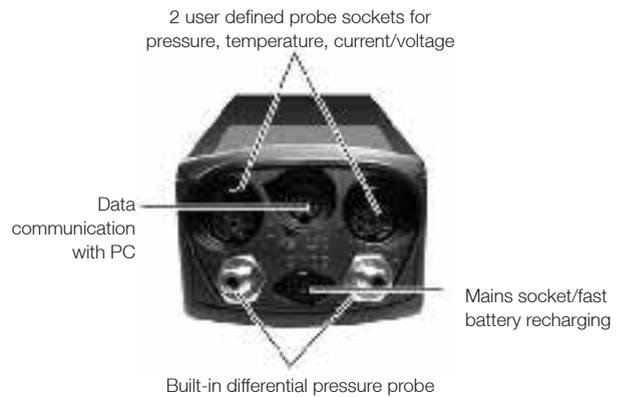
4 0 to 2000 hPa / ± 0.1 % of fsv
 testo 526-1, differential pressure meter 0 to 2000 hPa incl. fast coupling connections, battery and calibration protocol

Part no.
0560 5280

5 0 to 2000 hPa / ± 0.05 % of fsv
 testo 526-2, differential pressure meter 0 to 2000 hPa incl. fast coupling connections, battery and calibration protocol

Part no.
0560 5281

Reference pressure meters for all measurement ranges



Technical data

	1 testo 521-1	2 testo 521-2	3 testo 521-3	4 testo 526-1	5 testo 526-2
Probe type	Piezoresistive pressure sensor	Piezoresistive pressure sensor	Piezoresistive pressure sensor	Piezoresistive pressure sensor	Piezoresistive pressure sensor
Meas. range	0 to 100 hPa	0 to 100 hPa	0 to 250 Pa	0 to 2000 hPa	0 to 2000 hPa
Accuracy ± 1 digit	± 0.2 % of fsv	± 0.1 % of fsv	± 0.5 Pa (0 to 20 Pa) $\pm (0.5 \text{ Pa} \pm 0.5\% \text{ of mv})$ (20.1 to 250 Pa)	± 0.1 % of fsv	± 0.05 % of fsv
Resolution	0.01 hPa	0.01 hPa	0.1 Pa	0.1 hPa	0.1 hPa
Static pressure	2000 hPa	2000 hPa	100 hPa	2000 hPa	2000 hPa
Overload	300 hPa	300 hPa	50 hPa	3000 hPa	3000 hPa

See page 15 for additional technical data

Benefits while measuring

- The brief text menu greatly facilitates navigation
- Two measurement channels are depicted in the large two line LCD display; use the arrow buttons to switch to the calculated parameters
- Initialisation of the relative and differential pressure probes is directly via the P=O button
- You can select from the following units when measuring pressure: mbar, hPa, bar, Pa, kPa, inH2O, mmH2O, torr and psi
- Button for Hold, Max, Min and Mean
- Fast measurement rate of 0.04 seconds is ideal for recognising pressure drops
- Hands-free: Top-Safe (protection from impact) with carrier strap and magnetic plate as practical accessory for measuring instrument

Wide selection of probes

The differential pressure sensor is built into testo 521 and testo 526. Up to two additional probes can be connected via the user-defined probe sockets.

- Differential pressure probes to 2000 hPa
- Absolute pressure probes to 2000 hPa
- Relative pressure probes to 400 bar
- Temperature probes from -200 to +1250 °C
- Probes for measuring current/voltage

Long-term monitoring made easy

- Measurement data can be saved separately or as a measurement series. The measurement rate (0.04 seconds, 1 second to 24 hours) and the number of values to be saved are freely selectable. The maximum memory size is 25,000 readings.
- The readings are saved under separate names for the sites (max. 99 sites) - with retracing guarantee.
- Online measurement for large

quantities of data can be activated via PC.

Inspection of transmitters with 4 to 20 mA interface

All transmitters or non-Testo probes (in 2 or 4 wire systems, 18 V) can be connected to the 4 to 20 mA interface. Scaling is carried out on the hand-held measuring instrument.

Major benefit: The transmitter connected does not need its own power; it is supplied by the testo 521 or testo 526 pressure meter.

Documentation on site

- Measurement protocols can be printed on site. No awkward cables required on account of the infrared interface.
- Long-term legible thermal paper ensures that measurement data documentation can be stored for up to 10 years.

Easy data management via PC

- The saved measurement data can be easily analysed and processed using the software available.
- Readings are taken by the instrument and can be depicted online by the software.
- Pressure drops can be protocolled online in cycles of 0.05 seconds in the Fast Measurement menu. Since, in most cases, pressure drops cannot be predicted, a rule can be defined via the trigger function; the pressure drops are then filtered out and stored separately for the user in indexed pages.

testo 521 / testo 526 Probes / Accessories

Differential pressure probe	Illustration	Meas. range	Accuracy	Conn.	Part no.	
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		0 to +100 Pa	±(0.3 Pa ±0.5% of mv)	Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1347	
Pressure probe, 10 hPa, in robust metal housing with impact protection incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		0 to +10 hPa	±0.03 hPa	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1447	
Pressure probe, 100 hPa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		0 to +100 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1547	
Pressure probe, 1000 Pa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment		0 to +1000 hPa	±1 hPa (0 to 200 hPa) ±0.5% of mv (200 to 1000 hPa)	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1647	
Pressure probe, 2000 Pa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment		0 to +2000 hPa	±2 hPa (0 to 400 hPa) ±0.5% of mv (400 to 2000 hPa)	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1747	
Absolute pressure probe	Illustration	Meas. range	Accuracy	Conn.	Part no.	
Pressure probe, 2000 hPa, measures absolute pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment		0 to +2000 hPa	±5 hPa (0 to +2000 hPa)	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1847	
Relative pressure probe	Illustration	Overload	Meas. range	Accuracy	Conn.	Part no.
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar		25 bar	-1 to +10 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1741
High pressure probe, refrigerant-proof stainless steel, up to 30 bar		120 bar	-1 to +30 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1841
High press. probe, refrigerant-proof st. steel, up to 40 bar		120 bar	-1 to +40 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1941
High pressure probe, refrigerant-proof stainless steel, up to 100 bar		250 bar	-1 to +100 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 2041
High pressure probe, refrigerant-proof stainless steel, up to 400 bar		600 bar	-1 to +400 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 2141
Current/voltage probes	Illustration	Meas. range	Accuracy	Conn.	Part no.	
Current/voltage cable (±1 V, ±10 V, 20 mA)		0 to +1000 mV 0 to +10 V 0 to +20 mA	±1 mV (0 to +1000 mV) ±0.01 V (0 to +10 V) ±0.04 mA (0 to +20 mA)		0554 0007	
4 to 20 mA interface for connection and intermittent power supply to transmitters (scaling via hand-held instrument), in robust metal housing with impact protection, incl. magnet for fast attachment		0/4 to 20 mA	±0.04 mA	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0554 0528	
Pitot tubes	Illustration	Oper. temp.	Part no.			
Pitot tube, 350 mm long, Ø 7 mm, stainless steel, measures velocity speed In connection with 0638 1347 / 0638 1447 / 0638 1547 pressure probes or testo 521, with internal sensor		0 to +600 °C	0635 2145			
Pitot tube, 500 mm long, Ø 7 mm, stainless steel, measures velocity speed In connection with 0638 1347 / 0638 1447 / 0638 1547 pressure probes or testo 521, with internal sensor		0 to +600 °C	0635 2045			
Temperature probes	Illustration	Meas. range	Accuracy	t ₉₉	Part no.	
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C		-200 to +300 °C	Class 2	3 s	0604 0194	
Pipe wrap probe for pipes with diameter of up to 2", for flow/return temp. meas. in hydronic systems		-60 to +130 °C	Class 2	5 s	0600 4593	
Super quick-action immersion/penetration probe for measurements in liquids		-200 to +600 °C	Class 1	1 s	0604 0493	
Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor		-40 to +130 °C	To UNI curve	60 s	0610 9714	
Accessories	Part no.	Accessories	Part no.			
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143	Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection, Pressure-tight up to 20 bar	0554 0441			
Cable, 5 m long, connects probe with plug-in head to measuring instrument, PUR coating material	0430 0145	Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941/2041/2141	0409 0202			
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440	Adapter for pressure probes, 1/2" outer thread, 1/4" inner thread, for pressure probes 0638 1741/1841/1941/2041/2141	0699 3127			



testo 521 / testo 526

Accessories / Technical data

Accessories	Part no.
Additional accessories and spare parts	
9V rech. battery for instrument, Instead of battery	0515 0025
Plug-in mains unit, For mains operation and recharging battery in instrument	0554 0088
Transport and Protection	
TopSafe (protection case), Incl. carrier strap, bench stand and magnet. Protects instrument from dust, impact, scratches	0516 0446
Transport case, For measuring instrument, probes, Prandtl Pitot tube, accessories	0516 0527
System case, For measuring instrument, probes, straight or Prandtl Pitot tube, accessories	0516 0526
Printer and accessories	
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries, For printout of reading on site	0554 0547
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), permanent ink, Measurement data documentation legible for up to 10 years	0554 0568
Software and accessories	
ComSoft 3 - Professional with data management, Incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
RS232 cable, Connects instrument to PC (1.8 m) for data transfer	0409 0178
Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit, Facilitates data communication in network	0554 1711

Accessories	Part no.
Calibration certificates	
DKD calibration certificate/Pressure, Differential pressure, accuracy < 0.1 (% of full scale value)	0520 0205
DKD calibration certificate/Pressure, Differential pressure, accuracy 0.1 to 0.6 (% of full-scale value)	0520 0215
DKD calibration certificate/Pressure, Differential pressure, accuracy > 0.6 (% of full-scale value)	0520 0225
DKD calibration certificate/Pressure, Absolute pressure, accuracy 0.1 to 0.6 (% of full-scale value)	0520 0212
ISO calibration certificate/Pressure, Differential pressure, accuracy < 0.1 (% of full scale value)	0520 0035
ISO calibration certificate/Pressure, Differential pressure, accuracy 0.1 to 0.6 (% of fsv)	0520 0025
ISO calibration certificate/Pressure, Differential pressure, accuracy > 0.1 (% of fsv), for testo 521-3	0520 0405
ISO calibration certificate/Pressure, Absolute pressure, accuracy 0.1 to 0.6 (% of full-scale value)	0520 0125
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature, Measuring instruments with air/immersion probe; calibration points 0°C; +150°C; +300°C	0520 0021
ISO calibration certificate/Temperature, Thermometers with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071
DKD calibration certificate/Temperature, Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C	0520 0211
DKD calibration certificate/Temperature, Contact surface temperature probes; calibration points +100°C; +200°C; +300°C	0520 0271
ISO calibration certificate/Electrical	0520 1000

Technical data					
	testo 521-1	testo 521-2	testo 521-3	testo 526-1	testo 526-2
Probe type	Piezoresistive pressure sensor	Piezoresistive pressure sensor	Piezoresistive pressure sensor	Piezoresistive pressure sensor	Piezoresistive pressure sensor
Meas. range	0 to 100 hPa	0 to 100 hPa	0 to 250 Pa	0 to 2000 hPa	0 to 2000 hPa
Accuracy ±1 digit	±0.2 % of fsv	±0.1 % of fsv	±0.5 Pa (0 to 20 Pa) ±(0.5 Pa ±0.5% of mv) (20.1 to 250 Pa)	±0.1 % of fsv	±0.05 % of fsv
Resolution	0.01 hPa	0.01 hPa	0.1 Pa	0.1 hPa	0.1 hPa
Static pressure	2000 hPa	2000 hPa	100 hPa	2000 hPa	2000 hPa
Overload	300 hPa	300 hPa	50 hPa	3000 hPa	3000 hPa

Common data testo 521 / testo 526						
Probe type	Ceramic sensor for external pressure probes	Piezoresistive pressure sensor For external pressure probes	NTC	Type K (NiCr-Ni)	Voltage measurement	Current measurement
Meas. range	-1 to 400 bar	0 to 2000 hPa	-40 to +150 °C	-200 to +1370 °C	0 to 10 V	0 to 20 mA
Accuracy* ±1 digit	±0.2 % of fsv	±0.1 % of mv	±0.2 °C (-10 to +50 °C) ±0.4 °C (remaining range)	±0.4 °C (-100 to +200 °C) ±1 °C (remaining range)	±0.01 V	±0.04 mA
Resolution	0.01 bar	0.1 Pa (0638 1347) 0.001 hPa (0638 1447) 0.01 hPa (0638 1547) 0.1 hPa (0638 1647; 0638 1747; 0638 1847)	0.1 °C	0.1 °C	0.01 V	0.01 mA

*Accuracy information apply only to instrument without probes connected

Oper. temp.	0 to +50 °C	Conn.	Hose: inner Ø 4 mm outer Ø 6 mm	Dimensions	219 x 68 x 50 mm	Other features	Mains connection and battery recharging in instrument Automatic recognition of all connected probes Automatic recognition of all connected probes
Storage temp.	-20 to +70 °C	Display	LCD display with symbol, 7 segment display and point matrix	Weight	300 g		
Power supply	Battery/Rechargeable battery, Mains unit 12 V			Warranty	2 years		
Battery type	9 V (6LR61)			Material/Housing	ABS		
Battery life	Continuous operation w/ internal pressure sensor: 30 h With rech. battery: 10 h With zinc coal: 18 h	Updating rate in display	2x per second, 4x per second during fast measurements	PC	RS232 interface		
				Memory	100 kB (corresponds to approx. 25,000 readings)		

testo 551

Absolute pressure meter

testo 551, the highly accurate absolute pressure meter, is ideal for measuring vacuum in refrigeration systems and heat pumps.

testo 551 shows the respective sublimation or evaporation temperature of water. The 0 to 200 mbar (abs) vacuum cell is separated from the media. Positive pressure protection up to 6 bar is available.

- 6 bar (abs) positive pressure protection
- Resolution 0.0001 bar
- Temperature-compensated
- Logging and view of measurement data in instrument
- Stainless steel sensor for media compatibility
- Storage and display of the performance data of 9 vacuum pumps on the unit display



testo 551, absolute pressure meter for measuring vacuum with stainless steel pressure sensor, incl. battery

Part no.

0560 5510

Technical data

Meas. range	0 to +200 hPa	Protection class	IP65
Accuracy	±0.5% of fsv ±1 digit	Dimensions	175 x 108.6 x 34.3 mm
Resolution	0.0001 bar	Warranty	2 years
Overload	max. 6 bar	Pressure media:	CFC, fluorinated hydrocarbon, nitrogen, ammonia
Compensation	-10 to +50 °C	Compensation:	-10 to +50 °C
Oper. temp.	-20 to +60 °C	Internal memory:	Wrap-around memory 3610 values
Storage temp.	-20 to +60 °C	Connection:	1 x 7/16" - UNF
Battery type	9V block battery		
Battery life	40 h		

Recommended set

testo 551, Complete vacuum and temperature set

- testo 551, absolute pressure meter for measuring vacuum with stainless steel pressure sensor, incl. battery (Part no. 0560 5510)
- testo 935, thermometer, incl. battery and calibration protocol (Part no. 0560 9350)
- 2 x Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120 °C (Part no. 0628 0020)
- Robust, affordable air probe (Part no. 0602 1792)
- Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries (Part no. 0554 0547)
- TopSafe (protection case) with bench stand (Part no. 0516 0183)
- System case for measuring instrument and accessories (Part no. 0516 5601)

Accessories

Part no.

Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
Tool system case with tools section without contents, can be connected to system case	0516 0329
ISO calibration certificate/Pressure, Absolute pressure, accuracy 0.1 to 0.6 (% of full-scale value)	0520 0125
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range	0520 0212

testo 555

testo 555, the electronic manifold with 3-way valve bank and 2 pressure sensors for service and maintenance work on refrigeration systems and heat pumps.

The pressures measured are converted immediately, depending on the selected refrigerant, to temperature values and all the values are shown on the display.

Electronic manifolds

- Data logging and view in instrument
- Pressure probes, temperature-compensated
- 2 pressure sockets
- 3 way valve bank
- Internal memory
- Display of calculated Carnot and Lorenz cooling/heating output figures
- Valve bank for temporary change to flow paths in unit



1 Brass valve block

testo 555-1, Electronic manifold, valve block made of brass, incl. battery

Part no.

0560 5551

2 Stainless steel valve block

testo 555-2, Electronic manifold, stainless steel valve block (also for ammonia (NH₃) refrigerant), incl. battery

Part no.

0560 5552

Technical data

Meas. range	0 to +50 bar	Pressure media: CFC, fluorinated hydrocarbon, nitrogen, (ammonia, testo 555-2 only)
Accuracy	±0.5% of fsv ±1 digit	Compensation: -10...+50°C
Resolution	0.1 bar	Internal memory: Wrap-around 3610 values
Overload	75 bar	Connection: 3 x 7/16" - UNF
Compensation	-10 to +50 °C	Refrigerants stored in instrument:
Oper. temp.	-20 to +60 °C	
Storage temp.	-20 to +60 °C	R 12 R 290 R 407C R 600
Battery type	9V block battery	R 1270 R 401A R 408A R 600A
Battery life	40 h	R 123 R 401B R 409A RDI 24
Protection class	IP65	R 124 R 401C R 410A RDI 36
Dimensions	175 x 108.6 x 34.3 mm	R 125 R 402A R 413A RDI 44
Warranty	2 years	R 134A R 402B R 417A R 717 *
		R 22 R 403B R 500
		R 227 R 404A R 502
		R 23 R 407A R 507
		R 236F R 407B R 508

Accessories

	Part no.
Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
Tool system case with tools section without contents, can be connected to system case	0516 0329
ISO calibration certificate/Pressure, Absolute pressure; 5 points distributed over the measurement range	0520 0125
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range	0520 0212

Recommended set

Introductory Refrigeration Set 555-1 (Brass version)

- testo 555-1, Electronic manifold, valve block made of brass, incl. battery (Part no. 0560 5551)
- testo 935, thermometer, incl. battery and calibration protocol (Part no. 0560 9350)
- TopSafe for testo 935 (Part no. 0516 0183)
- Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries (Part no. 0554 0547)
- 2 x Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C (Part no. 0628 0020)
- System case for measuring instrument and accessories (Part no. 0516 5601)

Introductory Refrigeration Set 555-2, also for ammonia refrigerant (stainless steel valve block)

- testo 555-2, Electronic manifold, stainless steel valve block (also for ammonia (NH₃) refrigerant), incl. battery (Part no. 0560 5552)
- testo 935, thermometer, incl. battery and calibration protocol (Part no. 0560 9350)
- TopSafe for testo 935 (Part no. 0516 0183)
- Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries (Part no. 0554 0547)
- 2 x Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C (Part no. 0628 0020)
- System case for measuring instrument and accessories (Part no. 0516 5601)

testo 556

Electronic manifolds with data management

testo 556, the electronic manifold with 3-way valve bank and 2 pressure sensors, calculates superheating or subcooling in a refrigeration unit or heat pump via externally connected probes. The flow paths of a system can be temporarily changed with the 3-way valve bank.

All of the current data in the unit can be documented thanks to the external memory chip (optional)

- External memory chip
- Temperature probe can be connected externally
- Direct conversion of pressure values into temperature values (condensation, vaporisation temperature)
- Leak test with logging and view of data in instrument display
- 3 way valve bank
- Internal memory



Leak test:

Temperature fluctuations in the surrounding environment can have a significant influence on ambient pressure. Based on general gas laws, testo 556 calculates whether there has been a drop in pressure. How long the pressure was constant, dropped or increased, depending on ambient temperature, is shown on the display at the touch of a button. The leak test can also be recorded and read out via the instrument display.

1 Brass valve block

testo 556-1, Electronic manifold with 2 temperature probe sockets, brass valve block, incl. battery

Part no.

0560 5561

2 Stainless steel valve block

testo 556-2, Electronic manifold with 2 temperature probe sockets, stainless steel valve block (also for ammonia (NH₃)), incl. battery

Part no.

0560 5562

Temperature probes

	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Robust, waterproof immersion/penetration probe	<p>Conn.: Fixed cable</p>	-50 to +400 °C	Class A	12 s	0628 1272
Robust, waterproof surface probe with widened measuring tip, for smooth surfaces	<p>Conn.: Fixed cable</p>	-50 to +400 °C	Class B	40 s	0628 1972
Robust, affordable air probe	<p>Conn.: Fixed cable</p>	-50 to +400 °C	Class A	70 s	0628 1772
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, T _{max} +120°C	<p>Conn.: Fixed cable</p>	-50 to +120 °C	Class B	90 s	0609 5600

The external memory chip for testo 556

If maintenance is due in a refrigeration unit or the unit indicates "error", the service technician must first procure an overview of the system history (work carried out in the past, exchanged parts, previous errors etc.) This is done by studying the system files or by contacting the service technician who carried out maintenance work on the unit before. These jobs are time-consuming and there is also the risk of the refrigeration chain being interrupted for a longer period of time. testo 556 has an external memory chip on which the system history can be documented. Fast information on all relevant system parameters is guaranteed thus helping to reduce searching and downtimes.

Memory chip

The memory chip consists of a "read only" section (values can only be written on chip using PC and software) as well as a section which is "readable" and "writeable" by the instrument.

Read only memory section

System data is copied onto this section of the memory by a PC before the system is initialised (e.g. system planner, manufacturer, refrigerants filled, refrigerant quantities, operating pressure etc.) This part of the memory can be read by the installer but cannot be modified or deleted. Once programmed the memory chip is attached as a system component together with the rating plate.

Installation and handling made easy

The memory software is activated automatically in the memory chip once

testo 556 is initialised. When working on a system, the data from the last maintenance is first read out. This provides a fast overview and helps to assess the current system status. Once service has been carried out or the error has been eliminated, the current data is simply transmitted to the memory chip. In this way, the memory chip receives the complete system history.

- Fast overview of all relevant machine data
- System history
- Easy troubleshooting
- Fast help for customers
- All required data to the machine



Rating plate with memory chip for filing system data and system history

testo 556
Accessories / Technical data

Accessories	Part no.
Transport and Protection	
Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
Tool system case with tools section without contents, can be connected to system case	0516 0329
Software and accessories	
Memory chip incl. machine rating plate (also order 0628 5600 interface cable)	0554 5507
Interface cable from measuring instrument to memory chip, Attachable to memory chip, transfers system data and reads out via instrument display	0628 5600
Serial interface cable from memory chip to PC, Attachable to memory chip, writes and reads out measurement data	0409 5600
Software for memory chip (please also order 0409 5600 interface cable), Enters and reads out data in a system	0554 5601
Calibration certificates	
ISO calibration certificate/Pressure, Absolute pressure; 5 pt. distributed over the whole measurement range	0520 0115
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range	0520 0212
DKD calibration certificate/Temperature, Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C	0520 0211

Recommended set
The set for maintenance and service on refrigeration systems and heat pumps (brass version)
- testo 556-1, Electronic manifold with 2 temperature probe sockets, brass valve block, incl. battery (Part no. 0560 5561)
- 2 x Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C (Part no. 0609 5600)
- Memory chip incl. machine rating plate (also order 0628 5600 interface cable) (Part no. 0554 5507)
- Software for memory chip (please also order 0409 5600 interface cable) (Part no. 0554 5601)
- Interface cable from measuring instrument to memory chip (Part no. 0628 5600)
- Serial interface cable from memory chip to PC (Part no. 0409 5600)
- System case for measuring instrument and accessories (Part no. 0516 5601)
The set for maintenance and service on refrigeration units and heat pumps, also for refrigerant ammonia (stainless steel valve block)
Set as above but with
- testo 556-2, Electronic manifold with 2 temperature probe sockets, stainless steel valve block (also for ammonia (NH ₃)), incl. battery (Part no. 0560 5562)

Technical data						Refrigerants stored in instrument:			
Meas. range	0 to +50 bar -100 to +400 °C	Compensation	-10 to +50 °C	Pressure media:	CFC, fluorinated hydrocarbon, nitrogen, (ammonia, testo 556-2 only)	R 12	R 236F	R 407A	R 502
Accuracy	±0.5% of fsv	Oper. temp.	-20 to +60 °C	Compensation:	-10 to +50 °C	R 1270	R 290	R 407B	R 507
±1 digit		Storage temp.	-20 to +60 °C	Internal memory:	Wrap-around memory (3610 values)	R 123	R 401A	R 407C	R 508
Resolution	0.1 bar 0.1 °C	Battery type	9V block battery	Memory chip:	8 KB	R 124	R 401B	R 408A	R 600
		Battery life	40 h	Connection:	3 x 7/16" - UNF	R 125	R 401C	R 409A	R 600A
		Protection class	IP65			R 134A	R 402A	R 410A	RDI 24
		Dimensions	175 x 108.6 x 34.3 mm			R 22	R 402B	R 413A	RDI 36
		Warranty	2 years			R 227	R 403B	R 417A	RDI 44
						R 23	R 404A	R 500	R 717 *

* testo 556-2 only

testo 560

Electronic manifolds with data analysis on PC

testo 560, the electronic manifold for all applications on refrigeration systems and heat pumps. The instrument with high-quality sensors to measure pressure, vacuum, temperature and a valve bank to temporarily change the flow paths in the system.

Convenient PC software is used for data management: data overviews of all measurements, displays in table and graph form, automatic acceptance of company, fitter, customer and system data.

- Vacuum measurement with accurate vacuum sensor
- Internal temperature sensor and external temperature probe socket
- Superheating, subcooling, temperature difference calculation
- Convenient data analysis on your notebook/PC

Vacuum measurement with display of sublimation and evaporation temperature:

During vacuum measurement, ambient temperature (tA) is measured either by the internal sensor or the external temperature probes which can be connected. The sublimation or condensation temperature "to" (i.e. the temperature at which free water in refrigeration systems condenses when subjected to heat) is displayed in accordance with the pressure measured. By comparing both temperature values, the user can estimate if the vacuum reached is sufficient to dry the circuit.



NEW: Robust design, instrument protected by rubber Softcase

Valve block for evacuating, filling and changing the flow paths in a system

1 Brass valve block

testo 560-1, Electronic manifold with SoftCase, incl. vacuum measurement and 1 temperature probe socket, brass valve block, with battery

Part no.
0560 5601

2 Stainless steel valve block

testo 560-2, Electronic manifold with SoftCase, incl. vacuum measurement and 1 temperature probe socket, stainless steel valve block with battery

Part no.
0560 5602

Temperature probes	Illustration	Meas. range	Accuracy	t ₉₀	Part no.
Robust, waterproof immersion/penetration probe		-50 to +400 °C	Class A	12 s	0628 1272
Robust, waterproof surface probe with widened measuring tip, for smooth surfaces		-50 to +400 °C	Class B	40 s	0628 1972
Robust, affordable air probe		-50 to +400 °C	Class A	70 s	0628 1772
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C		-50 to +120 °C	Class B	90 s	0609 5600

Accessories Temperature probes	Part no.
Adapter to probe/RS 232 connection for acdoor instruments PCD 312	0554 5603


Save money and time during error analysis

When the power in a refrigeration unit drops or a unit indicates "system failure", the causes are many: air in the refrigerant circuit, leaks in pipelines resulting in loss of refrigerant, dirt in the condensers or liquefiers etc. Because the pressures and temperatures are now recorded over longer time periods, it is no longer necessary to monitor them for several hours. The recorded data is quickly analysed on your PC.

Using testo 560, you can save all the readings of up to 200 customers, each with up 99 systems, quickly and

efficiently. The electronic manifolds have memory for more than 100,000 readings. In this way, large measurement series can be recorded over a period of several days without any problems.

The data saved in the instruments are saved on your PC using the interface cable. The data is then shown in graphics or table form.

Producing protocols for your customers

The software manages all customer addresses, systems and individual customer and system information. The data recorded on repairs, leak checks or evacuations in refrigeration systems can then be easily allocated to the customers.

The most important data, such as customer address, system, refrigerant and date are then transferred automatically to tables and graphics. You can thus provide your customers with protocols on the measurements taken.

Refrigeration management - Installing new refrigerants

The PC software lists all of the refrigerants available. New refrigerants

can be downloaded to your software from the testo Home page on Internet at any time. In this way, you are always up-to-date.

Up to 38 refrigerant types can be managed simultaneously on testo 560. You can add all refrigerants or only those clicked on in the list using the mouse. In this way, every manifold can be individually equipped with refrigerants.

The PC software can do even more...

- Read out and delete the contents of the instrument memory
- Allocate a security code (theft-proof)

Minimum system requirements:

- | | |
|-------------------------|---|
| Operating system | |
| - | Microsoft Windows 95, 98, ME |
| - | Microsoft Windows NT 4, Service pack 4 or newer |
| - | Windows 2000 |
| Hardware | |
| - | CD-Rom drive |
| - | Pentium 100 MHz |
| - | 32 MB RAM |
| - | 15 MB free hard disk space |
| - | Free serial interface (COM) |



Refrigerant update on Testo's home page "<http://www.testo.com>"

Accessories	Part no.
Transport and Protection	
Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
Tool system case with tools section without contents, can be connected to system case	0516 0329
Software and accessories	
PC software for data analysis and documentation, With data management incl. diagram and table displays	0554 5600
RS232 cable, Cable to connect instrument to PC (1.8m) for data transfer	0628 0178
Additional accessories and spare parts	
Mains unit for external power supply, Mains unit is recommended for long-term measurements	0628 1084
Calibration certificates	
ISO calibration certificate/Pressure, Absolute pressure; 5 pt. distributed over the whole measurement range	0520 0115
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range	0520 0212
DKD calibration certificate/Temperature, Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C	0520 0211

Recommended set
The set for the refrigeration fitter (brass version)
- testo 560-1, Electronic manifold with SoftCase, incl. vacuum measurement and 1 temperature probe socket, brass valve block, with battery (Part no. 0560 5601)
- Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C (Part no. 0609 5600)
- PC software for data analysis and documentation (Part no. 0554 5600)
- RS232 cable (Part no. 0628 0178)
- Mains unit for external power supply (Part no. 0628 1084)
- System case for measuring instrument and accessories (Part no. 0516 5601)
The set for the refrigeration fitter, also for ammonia refrigerant (stainless steel valve block)
Set as above but with
- testo 560-2, Electronic manifold with SoftCase, incl. vacuum measurement and 1 temperature probe socket, stainless steel valve block with battery (Part no. 0560 5602)

Technical data			
Meas. range	0 to +50 bar 0 to +200 hPa -50 to +400 °C		
Accuracy	±0.5% of fsv ±1 digit		
Resolution	0.1 bar 0.1 hPa		
Overload	±75 bar		
Compensation	-10 to +50 °C		
Oper. temp.	-20 to +60 °C		
Storage temp.	-20 to +60 °C		
Battery type	9V block battery		
Battery life	40 h		
Protection class	IP65		
Dimensions	175 x 108.6 x 34.3 mm		
Warranty	2 years		
Pressure media:	CFC, fluorinated hydrocarbon, nitrogen, (ammonia, testo 560-2 only)		
Compensation:	-10 to +50 °C		
Memory:	10,000 data records, logs 32,000 data records corresponding to 100,000 readings		
Connection:	3 x 7/16" - UNF		
Refrigerants stored in instrument:			
R 12	R 236F	R 407A	R 502
R 1270	R 290	R 407B	R 507
R 123	R 401A	R 407C	R 508
R 124	R 401B	R 408A	R 600
R 125	R 401C	R 409A	R 600A
R 134A	R 402A	R 410A	RDI 24
R 22	R 402B	R 413A	RDI 36
R 227	R 403B	R 417A	RDI 44
R 23	R 404A	R 500	R 717



Always at your service!