

**testo 445**
**Service instrument for ventilation/air conditioning systems**

The testo 445 VAC instrument measures temperature, relative humidity, dew point, absolute humidity, degree of humidity, enthalpy, all types of air velocity (in ducts, duct openings or extractors), volume flow, pressure and indoor air quality.

Data can be saved according to location and then analysed on PC or printed on the Testo fast printer on site.

testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol

Part no.  
**0563 4450**

- Automatic mean calculation and volume flow measurement
- Automatic allocation of duct cross-section to location (max. 99 locations)
- Internal data logger (3,000 readings)
- Simultaneous measurement of up to 6 parameters



Accessories	Part no.
<b>Transport and Protection</b>	
Transport case (plastic) for measuring instrument, probes and accessories Larger version, for safe and clear storage	0516 0445
System case (plastic) for measuring instrument, probes and accessories probes in lid make it easy to find parts in case (540 x 440 x 130 mm)	0516 0400
System case (aluminium) for measuring instrument, probes and accessories probes in lid make it easy to find parts in case	0516 0410
<b>Additional Accessories and Spare Parts</b>	
9V rech. battery for instrument instead of battery	0515 0025
Desk-top power supply with international connection options	0554 1143
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
<b>Printer and Accessories</b>	
Testo fast printer with wireless infrared interface, 1 roll thermal paper and 4 AA batteries	0554 0549
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries infrared thermal line printer with graphics function	0554 1775
External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610
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
Label thermal paper (Testo patent) for testo 575 printer (6 rolls), can be applied directly	0554 0561
<b>Software and Accessories</b>	
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, RS232 - Ethernet incl. software driver, mains unit facilitates data communication in network	0554 1711
<b>Calibration Certificates</b>	
ISO calibration certificate velocity hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s	0520 0004
ISO calibration certificate/Velocity hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034
DAkkS calibration certificate/velocity* hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s	0520 0244
DAkkS calibration certificate/velocity* hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s	0520 0204

\*Successor organization of the DKD

Technical data			
Probe type	Type K (NiCr-Ni)	Type J (Fe-CuNi)	NTC
Meas. range	-200 to +1370 °C	-200 to +1000 °C	-50 to +150 °C
Accuracy ±1 digit	±0.5% of mv (-200 to 60 °C) ±0.5% of mv (+60 to +1370 °C) ±0.3 °C (-60 to +60 °C)	±0.5% of mv (-200 to 60 °C) ±0.5% of mv (+60 to +1000 °C) ±0.2 °C (-25 to +74.9 °C) ±0.3 °C (-60 to +60 °C)	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (-50 to -25.1 °C) ±0.4 °C (+75 to +99.9 °C)
Resolution	0.1 °C (-200 to +1370 °C)	0.1 °C (-200 to +1000 °C)	0.1 °C (-50 to +150 °C)

Probe type	Testo humid. sensor, cap.	Vane	Thermal
Meas. range	0 to +100 %RH	0 to +60 m/s	0 to +20 m/s
Accuracy ±1 digit	See probe data	See probe data	See probe data
Resolution	0.1 %RH (0 to +100 %RH)	0.01 m/s (0 to +60 m/s)	0.01 m/s (0 to +10 m/s) 0.1 m/s (+10.1 to +20 m/s)

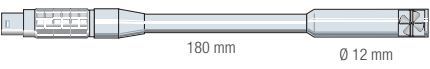
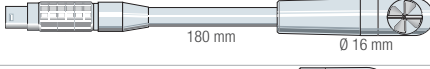





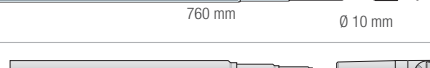





Probe type	Pressure	CO2 probe	CO2 probe
Meas. range	See pressure probes	0 to +1 Vol. % CO <sub>2</sub>	0 to +10000 ppm CO <sub>2</sub>
Accuracy ±1 digit	±0.1% of mv	See probe data	±(100 ppm CO <sub>2</sub> ±3% of mv) (+5000 to +10000 ppm CO <sub>2</sub> ) ±(500 ppm CO <sub>2</sub> ±2% of mv) (0 to +5000 ppm CO <sub>2</sub> )
Resolution	0.001 hPa (Sonde 0638 1345) 0.001 hPa (Sonde 0638 1445) 0.01 hPa (Sonde 0638 1545) 1 hPa (Sonde 0638 1645)	0 Vol. % CO <sub>2</sub> (0 to +1 Vol. % CO <sub>2</sub> )	1 ppm CO <sub>2</sub> (0 to +10000 ppm CO <sub>2</sub> )

Probe type	CO probe		
Meas. range	0 to +500 ppm CO		
Accuracy ±1 digit	±5% of mv (+100 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)		
Resolution	1 ppm CO (0 to +500 ppm CO)		

Oper. temp.	0 to +50 °C
Storage temp.	-20 to +70 °C
Display	LCD, 4 lines
Battery type	9V block battery
Battery life	45 h
PC	RS232 interface
Weight	255 g
Material/Housing	ABS
Warranty	2 years
Memory	3000
Dimensions	215 x 68 x 47 mm

Battery life: 6-45 h (depending on probe)  
Mains conn. and batt. rech. in instr.  
Calculated humidity parameters: td, g/m<sup>3</sup>, g/kg  
pressure-compensated, J/g  
Calculated volume flow: m<sup>3</sup>/h (e.g. 0 to 99999 m<sup>3</sup>/h), m<sup>3</sup>/min, m<sup>3</sup>/s, l/s, cfm  
Calculated velocity values (density-compensated): 0 to 100 m/s; 0 to 99999 m<sup>3</sup>/h  
Humidity measurement: Measuring range -50 to 180 °C; See Probes for accuracy  
Accuracy of Type K, J: Additional error via operation temperature 0.2 °C (adjustment point)

**testo 445**
**Suitable probes at a glance**

Probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, $\varnothing$ 12 mm, can be attached to handle 0430 3545 or telescopic handle 0430 0941	 180 mm $\varnothing$ 12 mm	Vane	+0.6 to +20 m/s Oper. temp. -30 to +140 °C	$\pm(0.2 \text{ m/s} \pm 1\% \text{ of mv})$ (+0.6 to +20 m/s)	0635 9443
Vane/temperature probe, $\varnothing$ 16 mm, attachable to 0430 3545 handle or 0430 0941 telescopic handle	 180 mm $\varnothing$ 16 mm	Vane Type K (NiCr-Ni)	+0.4 to +60 m/s -30 to +140 °C	$\pm(0.2 \text{ m/s} \pm 1\% \text{ of mv})$ (+0.4 to +40 m/s) $\pm(0.2 \text{ m/s} \pm 2\% \text{ of mv})$ (+40.1 to +50 m/s)	0635 9540
Vane/temperature probe, $\varnothing$ 25 mm, can be attached to 0430 3545 handle or 0430 0941 telescopic handle	 180 mm $\varnothing$ 25 mm	Vane Type K (NiCr-Ni)	+0.4 to +40 m/s -30 to +140 °C	$\pm(0.2 \text{ m/s} \pm 1\% \text{ of mv})$ (+0.4 to +40 m/s)	0635 9640
Bendable vane probe (can be bent by 90°), $\varnothing$ 60 mm, attachable to handle 0430 3545 or telescopic handle 0430 0941, for meas. on ventilation outlets	 $\varnothing$ 60 mm	Vane	+0.25 to +20 m/s Oper. temp. 0 to +60 °C	$\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.25 to +20 m/s)	0635 9440
Bendable vane probe (can be bent by 90°), $\varnothing$ 100 mm, attachable to handle 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets	 $\varnothing$ 100 mm	Vane	+0.1 to +15 m/s Oper. temp. 0 to +60 °C	$\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.1 to +15 m/s)	0635 9340
Affordable, robust hot bulb probe, $\varnothing$ 3 mm, for measurements in the lower velocity range, with handle	 150 mm $\varnothing$ 4 mm $\varnothing$ 3 mm	Hot bulb NTC	0 to +10 m/s -20 to +70 °C	$\pm(0.03 \text{ m/s} \pm 5\% \text{ of mv})$ (0 to +10 m/s)	0635 1549
Robust hot bulb probe, $\varnothing$ 3 mm, with handle and telescopic handle for measurements in the lower velocity range	 850 mm $\varnothing$ 3 mm	Hot bulb NTC	0 to +10 m/s -20 to +70 °C	$\pm(0.03 \text{ m/s} \pm 5\% \text{ of mv})$ (0 to +10 m/s)	0635 1049
Quick-action hot wire probe, $\varnothing$ 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition	 760 mm $\varnothing$ 10 mm	Hot wire NTC	0 to +20 m/s -20 to +70 °C	$\pm(0.03 \text{ m/s} \pm 4\% \text{ of mv})$ (0 to +20 m/s)	0635 1041
Vane probe, $\varnothing$ 16 mm, with telescopic handle, Tmax +60°C	 700 mm $\varnothing$ 16 mm	Vane	+0.6 to +40 m/s	$\pm(0.2 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.6 to +40 m/s)	0628 0005
Vane probe, $\varnothing$ 60 mm, with telescopic handle, for integrating velocity measurement	 1100 mm $\varnothing$ 60 mm	Vane	+0.25 to +20 m/s	$\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.25 to +20 m/s)	0635 9449
High temperature vane probe, $\varnothing$ 25 mm, with handle for continuous measurements up to +350°C	 560 mm $\varnothing$ 25 mm	Vane Type K (NiCr-Ni)	+0.6 to +20 m/s -40 to +350 °C	$\pm(0.3 \text{ m/s} \pm 1\% \text{ of fsv})$ (+0.6 to +20 m/s)	0635 6045
Precision pressure probe, 100 Pa, measures differential pressure and velocities (in combination with Pitot tube)		Differential pressure probe	0 to +100 Pa	$\pm(0.3 \text{ Pa} \pm 0.5\% \text{ of mv})$ (0 to +100 Pa)	0638 1345
Pressure probe, 10 hPa, measures differential pressure and velocities (in combination with Pitot tube)		Differential pressure probe	0 to +10 hPa	$\pm 0.03 \text{ hPa}$ (0 to +10 hPa)	0638 1445

Probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Pressure probe, 100 hPa, measures differential pressure and velocities (in combination with Pitot tube)		Differential pressure probe	0 to +100 hPa	±0.5% of mv (+20 to +100 hPa) ±0.1 hPa (0 to +20 hPa)	0638 1545
Pressure probe, 2000 hPa, measures absolute pressure		Absolute pressure probe	0 to +2000 hPa	±5 hPa (0 to +2000 hPa)	0638 1645
Pitot tube, 500 mm long, Ø 7 mm, stainless steel, measures flow speed			Oper. temp. 0 to +600 °C		0635 2045
Pitot tube, 350 mm long, Ø 7 mm, stainless steel, measures flow speed			Oper. temp. 0 to +600 °C		0635 2145
Pitot tube, 300 mm long, stainless steel, for measuring flow velocity			Oper. temp. 0 to +600 °C		0635 2245
Pitot tube, 1000 mm long, stainless steel, measures flow speed			Oper. temp. 0 to +600 °C		0635 2345
3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required		Hot bulb Testo humid. sensor, cap. NTC	0 to +10 m/s 0 to +100 %RH -20 to +70 °C	±(0.03 m/s ±5% of mv)(0 to 10 m/s) ±2 %RH (+2 to +98 %RH) ±0.4 °C (0 to +50 °C) ±0.5 °C (remaining range)	0635 1540
Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills EN 13779 requirements		Hot wire NTC	0 to +5 m/s 0 to +50 °C	±(0.03 m/s ±4% of mv) (0 to +5 m/s) ±0.3 °C (0 to +50 °C)	0628 0009
CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required		CO2 probe	0 ... +1 Vol. % CO <sub>2</sub> 0 ... +10000 ppm CO <sub>2</sub>	±(50 ppm CO <sub>2</sub> ±2% of mv)(0 to +5000 ppm CO <sub>2</sub> ) ±(100 ppm CO <sub>2</sub> ±3% of mv)(+5001 to +10000 ppm CO <sub>2</sub> )	0632 1240
Ambient CO probe, for detecting CO in buildings and rooms			0 to +500 ppm CO	±5% of mv (+100.1 to +500 ppm CO) ±5 ppm CO (0 to +100 ppm CO)	0632 3331

More probes	Illustration	Meas. range	Accuracy	t90	Part no.	
Standard ambient air probe up to +70°C		0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	0636 9740
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Duct humidity/temperature probe		0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s	0636 9715
Thin humidity probe incl. 4 attachable protection caps for ambient air measurements, measurements in exhaust air ducts and equilibrium moisture measurements		0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	15 s	0636 2130
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Highly accurate reference humidity/temp. probe		0 to +100 %RH -20 to +70 °C	±1 %RH (+10 to +90 %RH)* ±2 %RH (remaining range)	±0.2 °C (+10 to +40 °C) ±0.4 °C (remaining range)	12 s	0636 9741
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm		0 to +100 %RH -20 to +125 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	20 s	0628 0013
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Sword probe for measuring humidity and temperature in stacked material		0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +70 °C)	12 s	0636 0340
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
High humidity level probe w/ heated sensor element, no humidity on sensor		0 to +100 %RH -20 to +85 °C	±2.5 %RH (0 to +100 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (-20 to -10.1 °C) ±0.5 °C (+50.1 to +100 °C)	30 s	0636 2142
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120°C		0 to +100 %RH -20 to +120 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	30 s	0636 2140
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Robust high temperature/humidity probe up to +180°C		0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (remaining range)	30 s	0628 0021
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Flexible humidity probe (does not retain shape) for measurements in inaccessible places		0 to +100 %RH -20 to +180 °C	±2 %RH (+2 to +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +180 °C)	30 s	0628 0022
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Standard pressure dew point probe for measurements in compressed air systems		0 to +100 %RH -30 to +50 °C tpd		±0.9 °C tpd (+0.1 to +50 °C tpd) ±1 °C tpd (-4.9 to 0 °C tpd) ±2 °C tpd (-9.9 to -5 °C tpd) ±3 °C tpd (-19.9 to -10 °C tpd) ±4 °C tpd (-30 to -20 °C tpd)	300 s	0636 9840
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					
Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40°C tpd		0 to +100 %RH -60 to +50 °C tpd		±0.8 °C tpd (-4.9 to +50 °C tpd) ±1 °C tpd (-9.9 to -5 °C tpd) ±2 °C tpd (-19.9 to -10 °C tpd) ±3 °C tpd (-29.9 to -20 °C tpd) ±4 °C tpd (-40 to -30 °C tpd)	300 s	0636 9841
	Plug-in head. connection cable 0430 0143 or 0430 0145 required					

\* in the temperature range from +15°C to +30°C

**testo 445**
**Suitable probes at a glance**

Probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500 °C	150 mm Ø 10 mm Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2*	3 s	0604 0194
Super quick-action immersion/penetration probe for measurements in liquids	150 mm Ø 1.5 mm Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1*	1 s	0604 0493
Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip	150 mm Ø 1.4 mm 20 mm Ø 0.5 mm Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +600 °C	Class 1*	1 s	0604 9794
Pipe wrap probe for pipes up to 2" in diameter	Fixed cable	-60 to +130 °C	Class 2*	5 s	0600 4593
Spare meas. head for pipe wrap probe, TC Type K	35 mm 15 mm	-60 to +130 °C	Class 2*	5 s	0602 0092
Globe thermometer to measure radiant heat	Ø 150 mm Fixed cable	0 to +120 °C <small>Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements</small>	±0.5 °C (0 to +49.9 °C) ±1 °C (+50 to +120 °C)		0554 0670

\* According to standard EN 60584-2, the accuracy of Classes 1 / 2 refer to -40 to +1000/+1200 °C.

**See testo 400 for more probes**

Accessories for velocity probes, pressure probes	Part no.
Professional telescopic handle for plug-in vane probes, max. 1 m long	0430 0941
Extension for telescopic handle, 2 m long please also order the 0409 0063 extension cable	0430 0942
Handle for plug-in vane probes	0430 3545
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Connection hose, silicone, 5m long max. load 700 hPa (mbar)	0554 0440
Cover plugs for test holes (50 off)	0554 4001

Accessories for temperature probes	Part no.
Silicone heat paste (14g), T <sub>max</sub> = +260°C improves heat transfer in surface probes	0554 0004
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head cable: 2.5 m long, PUR coating material	0430 0144

Accessories: Humidity, 3-function probe	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument PUR coating material	0430 0143
Cable, 5 m long, connects probe with plug-in head to measuring instrument PUR coating material	0430 0145
Extension cable, 5 m long, between plug-in head cable and instrument PUR coating material	0409 0063
Telescopic handle, max. 1 m, for probe with plug-in head cable: 2.5 m long, PUR coating material	0430 0144
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH and 75.3 %RH with adapter for humidity probe	0554 0660
Metal protection cage, Ø 12 mm for humidity probes for measurement in flow velocities of less than 10 m/s	0554 0755
Cap with wire mesh filter, Ø 12 mm	0554 0757
PTFE sintered filter, Ø 21 mm, for corrosive substances high humidity range (long-term measurements), high velocities	0554 0666
Sintered PTFE filter, Ø 12 mm, for corrosive media High humidity range (long-term measurements), high flow velocities.	0554 0756
Stainless steel sintered cap, Ø 21 mm, can be screwed onto humidity probe protection in case of high mechanical load and high velocities	0554 0640
Stainless steel sintered cap, Ø 12 mm, is screwed onto humidity probe for measurements at higher flow velocities or in contaminated air	0554 0647
PTFE cap, Ø 5 mm, attachable, PTFE material, (5 off) PTFE Dust protection, high humidity measurements, high flow speeds for humidity probe 0636 2130	0554 1031
PTFE sintered filter, Ø 12 mm, for corrosive substances high humidity range (non-stop measurements), high flow speeds	0554 0758

Caps for humidity probes, see page 32