

The reference testo 400

testo 400

testo 400 contains the measurement parameters flow velocity and volume flow, temperature, CO₂, current, voltage, humidity and pressure.

Useful instrument functions testo 400

- Input of cross-sections for volume flow calculation
- Absolute pressure compensation in thermal probes
- Density calculation for flow velocity measurement, taking temperature, humidity and absolute pressure into account
- Degree of turbulence measurement according to DIN 27726, DIN 1946 Part 2, ISO
- Evaluation of volume flow measurements with calculation of the total measurement inaccuracy according to EN 12599 with VAC module
- System accuracy up to 0.05 °C and up to a resolution of 0.001 °C
- Calculation of all parameters of the Mollier diagram
 - relative humidity %RH, dewpoint and pressure dewpoint (td, tpd)
 - absolute humidity g/m³, psychrometric wet bulb temperature
 - degree of humidity (g/kg), water vapour partial pressure in mbar/hPa
 - enthalpy kcal/kg
 - aw-value measurement with trend display
 - barometric air pressure



Attachable printer
Prints readings on site in a matter of seconds

Clear graphics display

3 user defined function buttons

Save up to max. 500,000 readings) or print at the touch of a button

Data communication via PC

User friendly operation with cursor via menu structure

2 user-defined probe inputs

Mains connection/quick battery recharge

testo 400

testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol

Applications for:

- Flow velocity, volume flow
- Humidity, pressure
- Temperature
- CO₂, current/voltage

Part no. 0563 4001

The reference testo 400

The right probe for every application

Flow velocity measurement

- First laboratory for flow velocity accredited by the PTB ensures secure measurement values
- Reference laser-Doppler anemometer ensures calibration accuracy from 0.05 % of reading
- Thermal probes for a high accuracy up to $\pm (0.03 \text{ m/s} + 5\% \text{ of reading})$ in the measuring range up to 20 m/s
- Density-independent measurement from 500 hPa absolute pressure or to 350 °C ambient temperature with vane probes in the measuring range from 0.4 m/s to 60 m/s

- Straight Pitot tubes with considerably improved accuracy compared to Prandtl Pitot tubes through a Pitot tube factor of 0.67

Comfort level measurement

- high accuracy of determining the degree of turbulence of $\pm (0.03 \text{ m/s} + 4\% \text{ of reading})$

Temperature measurement

- DKD laboratory for temperature accredited by the PTB guarantees secure measurement values
- First DKD laboratory for surface temperature accredited by the PTB, developed together with the PTB and the University of Ilmenau
- Cross-band probe for fast surface measurements
- Customized temperature probes for your application
- System accuracy up to 0.05 °C with precision probe 0614 0240

Current-voltage measurement

- Additional connection of external measurement transmitters such as particle counters and pressure transmitters, and scaling in the instrument

CO and CO₂ measurement

- Long-term stable 2 beam method for measuring the reference and the measurement channel for CO₂

Humidity measurement

- The first DKD laboratory for air humidity and dewpoint temperature accredited by the PTB guarantees secure measurement values
- Worldwide patented (capacitive) Testo humidity sensor
- Inter-laboratory tests in national and international institutes confirms a sensor accuracy of $\pm 1 \text{ \%RH}$
- 2 years guaranteed long-term stability of the Testo humidity sensor under normal conditions
- Easy calibration or adjustment of

the humidity probe (on site) with defined saline solutions (11.3 %RH, 33 %RH and 75.3 %RH)

Pressure measurement

- Very high accuracy in the lower measuring range (100 Pa) of $\pm (0.3 \text{ Pa} + 0.5 \text{ \% of reading})$
- Temperature-compensated pressure measurement

12/16/25 mm – vane probes for measurement in ducts with temperature measurement



Vane probes 60/100 mm for integrating measurements at outlets



Thermal anemometer, $\varnothing 10 \text{ mm}$, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175



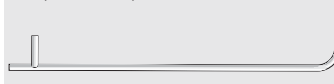
Robust hot bulb probe for direction-independent flow measurement



Comfort probe for measurements of degree of turbulence according to DIN 1946 Part 2



Straight and Prandtl Pitot tubes for measuring the flow velocity in dirty air and temperatures up to +600 °C



Highly accurate immersion/penetration probe with a system accuracy of 0.05 °C in the measuring range from 0 to 100 °C and a resolution of up to 0.001 °C



Fast reaction surface probe for measuring surface temperature



Precision air probe for measuring the air temperature



Current/voltage cable ($\pm V$, $\pm 10 \text{ V}$, 20 mA) for example for checking stationary measurement transmitters



CO₂ probe for determining indoor air quality and monitoring the workplace



Highly accurate reference humidity/temperature probe for highest accuracy requirements 1 %RH



aw-value set: pressure-tight precision humidity probe for determining aw-value



Thin humidity probe incl. 4 attachable protection caps for ambient air measurements, measurements in exhaust air ducts and equilibrium moisture measurements



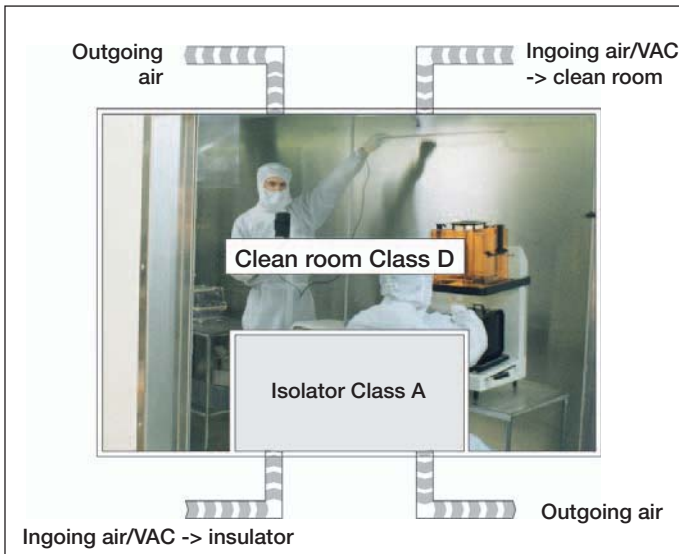
Flexible humidity probe with mini-module for measurements e.g. at material test benches



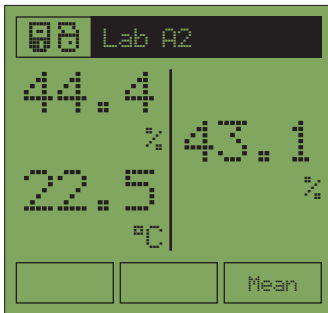
Precision differential pressure probe 0 to 100 Pa
Absolute pressure probe 0 to 2000 Pa



The pro set for cleanroom technology/ordering suggestion testo 400



Example of layout of a clean room



testo 400 display during the calibration of a stationary transmitter:

Left display half: Reference humidity probe

Right display half: 4-20 output measurement in a transmitter using current/voltage cable (scaling 0-100%RH)

The Pro Set for clean room technology

testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol	0563 4001
Precision pressure probe, 100 Pa (differential pressure)	0638 1347
Precision air probe	0628 0017
Highly accurate reference humidity/temp. probe incl. cal. cert.	0636 9741
Connection cable, length 1.5 m, for probes with plug-in heads	0430 0143
Connection cable, length 1.5 m, for probes with plug-in heads	0430 0143
Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175	0635 1047
Bendable vane probe (90° bend radius) Ø 100 mm, attachable to handle or telescope	0635 9340
Pro telescope for plug-in vane probes, length max. 1 m	0430 0941
Current/voltage cable (±1 V, ±10 V, 20 mA)	0554 0007
System case (aluminium) for measuring instrument, probes and accessories	0516 0410
ComSoft 3 - Professional with data management	0554 0830
RS232 cable	0409 0178

We recommend:

DKD calibration certificates for temperature, humidity, velocity, pressure (See page 45, 67, 75)

Defined process ambient conditions must be assured for the qualification and validation of the high quality standards of production units in clean rooms.

Air exchange and the resulting air flow are linked directly to air temperature and air moisture. Specified air flows produce defined positive pressures which prevent the ingress of impurities from outside.

Testo's measurement technology has proven to be ideal for testing process ambient conditions.

With the testo 400 reference measuring instrument, you have the possibility of connecting 2 probes simultaneously. The measuring instrument can then be used to monitor measurements on-site or for long-term measurements thanks to the integrated readings memory with capacity for 500,000 data.

Typical measurement tasks: differential pressure monitoring using the 100 Pa probe

The testo 100 Pa probe with an accuracy of $\pm(0.3 \text{ Pa} + 0.5 \% \text{ of the reading})$ is the ideal solution.

Position dependencies are completely eliminated thanks to the revolutionary double membrane technology and fluctuations in temperature no longer have any influence on the measured result thanks to temperature compensation.

Accurate air temp. measurement

testo 400 achieves a system accuracy of 0.1°C and a resolution of 0.01°C when used together with the precision air probe (Pt100 Class B 1/10).

Accurate air moisture measurement

The task at hand is to monitor exactly the fluctuations in air moisture with an accuracy of up to $\pm 1\% \text{RH}$. testo 400 sets new standards in terms of accuracy and long-term stability. The worldwide inter-laboratory test with the patented humidity sensor in leading, international institutes confirm the stated values.

Measurement of ideal air supply

testo 400, with its thermal, vane and pitot tube measurements, has all the technology available to measure air flow. A calibration accuracy from 0.5% of the reading is assured thanks to the first PTB accredited DKD laboratory for flow.

Measuring laminar flow

The probe 0635 1047 for testing laboratory exhaust fans and for measuring laminar flow is new. Owing to its optimum flow impact characteristics with a direction-independent measurement within a possible twist angle (20°) and an accuracy of $\pm(0.02 \text{ m/s} + 5 \% \text{ of reading})$, the probe is optimally designed for the measurement of laminar flow.

Stationary transmitters

The check is carried out using the current/voltage cable (0 to 20 mA, 0 to 1 V, 0 to 10 V) and there is a possibility of integrating additional parameters.



Checking the flow speed using the hot wire probe Part no.: 0635 1041

On-site test procedure according to DIN EN 14175/ordering suggestion testo 400

The thermal anemometer probe is used for measurements and monitoring of exhaust fans. The probe corresponds to the new DIN EN 14175. The advantages of the new thermal anemometer probe are the optimum flow impact behaviour and the easy handling. The testo 400 provides necessary calculation such as mean value and standard deviation. The objective of the on-site test procedure is to test the correct set-up of the exhaust fan, and to establish the performance of the fan under the prevailing conditions. For this purpose, the inflow as well as the outflow is measured. For commissioning test (Part 4), the requirements of the measuring instrument are identical to those in the design check (Part 3).

- Direction-dependent, however measurement must be possible within $\pm 20^\circ$
- Time constant (t_{63}) 0.5 s
- Accuracy $\pm (0.02 \text{ m/s} + 5\% \text{ of reading})$ in measuring range 0.2 to 1 m/s
- Anemometers must be calibrated

For the repetition test (Part 3), the anemometer must show an accuracy of 10% of the final value for the inflow velocity test, and $\pm(0.02 \text{ m/s} + 5\% \text{ of reading})$ for the outflow velocity test in the range from 0.3 m/s. The new laboratory exhaust fan probe here fulfils the requirements from Parts 3 and 4.

The general indoor air conditions during the air tests, included temperature, air pressure, air

humidity and pressure difference between indoor air input and indoor air output must continue to be measured. According to DIN EN 14175-3: 2003, the anemometer must be able to measure indoor air velocity independently of direction. With additional probes the testo 400 offers the possibility of measuring the general indoor conditions.

testo 400

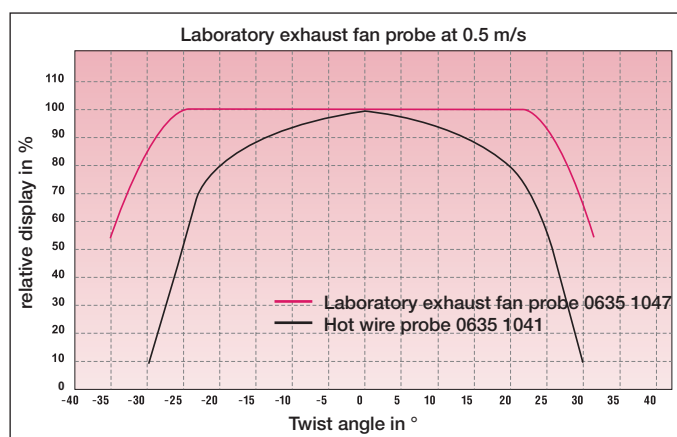
- Multi-function instrument testo 400 for measuring temperature, humidity, ΔP , flow velocity, absolute pressure
- PC interface and ComSoft 3

Advantages of the laboratory exhaust probe

- optimum flow impact characteristics
- robust probe with protective cap
- corresponds to norm DIN EN 14175



On-site testing of a laboratory exhaust fan with the testo 400



Optimum flow impact behaviour of the laboratory exhaust fan probe (0635 1047)

Hot wire probe (0635 1041) optimized for duct measurement with direction recognition

Ordering suggestion

testo 400, multi-functional measuring instrument, incl. measurement value store up to 500,000 readings, VAC-module (determination of volume flow with error calculation), battery, Li-cell and calibration protocol	0563 4001
Mains unit 230 V/ 8 V/ 1 A, for instrument (European plug)	0554 1084
Rechargeable battery set for instrument (2 rech. 2.4V/1100mAh)	0554 0196
Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175	0635 1047
Standard ambient air probe up to +70°C	0636 9740
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	0638 1847
Precision pressure probe, 100 Pa, measures differential pressure, in robust metal housing with impact protection, incl. magnet for fast attachment	0638 1347
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument	0430 0143
Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements	0628 0009

We recommend:

ComSoft 3 - Professional with data management	0554 0830
RS232 cable	0409 0178
Attachable printer (securely attached) including 1 roll of thermal paper and batteries	0554 0570
SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder	0516 0401
SoftCase for attachable printer (protects printer from dirt/impact)	0516 0411
System case (aluminium) for measuring instrument, probes and accessories	0516 0410
DKD calibration certificate/velocity, hot wire anemometer; calibration points 0.1; 0.2; 0.5; 0.8; 1 m/s	0520 0224
ISO calibration certificate velocity, hot wire, vane anemometer; calibration points 0.5; 0.8; 1; 1.5 m/s	0520 0024



Accessories testo 400

ComSoft 3 - Professional

(see page 79)



ComSoft 3 - Professional with data management

incl. database, analysis and graphics function, data analysis, trend curve

Part no. 0554 0830

Ethernet adapter

Ethernet adapter, RS232 - Ethernet incl. software driver, mains unit

facilitates data communication in network



Part no. 0554 1711

Attachable printer

Attachable printer (securely attached) including 1 roll of thermal paper and batteries

quickly prints readings on location



Part no. 0554 0570

Fast report printer

with 1 roll of thermal paper and 4 AA batteries



Testo printer Part no. 0554 0547
testo 575 fast printer Part no. 0554 1775

Part no. 0554 0547

Part no. 0554 1775

SoftCase

SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder
Part no. 0516 0401

SoftCase for attachable printer (protects printer from dirt/impact)
Part no. 0516 0411

Part no. 0516 0401

Part no. 0516 0411



testo alarm modem GSM

Alarm notification by SMS or e-mail

You require remote control of the measuring instrument, i.e. without the need to be on site? The Testo alarm modem (GSM) is attached to the portable instrument and offers the following functions:

- Alarm by SMS/fax/e-mail which is sent when limit values are exceeded or the status changes.
- Remote query of readings by mobile phone.
- Remote readout of stored data into the ComSoft software.



Part no. 0554 0522

VAC module (now included with testo 400)

Part no.

Update of mass store to 500,000 readings, retroactive update of memory capacity (by service)

Update VAC module, determination of volume flow in ducts incl. error calculation in instrument

Accessories for measuring instrument

Part no.

Rechargeable battery set for instrument (2 rech. 2.4V/1100mAh) selected for quick recharging in instrument

Mains unit 230 V/ 8 V/ 1 A, for instrument (European plug) for mains operation and battery recharging

Lithium battery, button cell, type CR 2032

0554 0196

0554 1084

0515 0028

Printer and Accessories

Part no.

Attachable printer (securely attached) including 1 roll of thermal paper and batteries

Testo printer with wireless IRDA and infrared interface, 1 roll of thermal paper and 4 AA batteries

Fast testo 575 printer, incl. 1 roll of thermal paper and batteries, infrared thermal line printer with graphics function

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

Spare thermal paper for printer (6 rolls)

Spare thermal paper for printer (6 rolls)

measurement data documentation legible for up to 10 years

Label thermal paper (Testo patent) for testo 575 printer (6 rolls), can be applied directly

0554 0570

0554 0547

0554 1775

0554 0610

0554 0569

0554 0568

0554 0561

SoftCase for instrument and printer

Part no.

SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder

SoftCase for attachable printer (protects printer from dirt/impact) protects from impact and falls

Software (see page 79) and accessories

Part no.

ComSoft 3 - Professional with data management incl. database, analysis and graphics function, data analysis, trend curve (without interface)

Update VAC module, PC software (for software ComSoft 3), printout of normed measurement protocols (now included in delivery of testo 400)

RS232 cable connects instrument to PC (1.8 m) for data transfer

Ethernet adapter, RS232 - Ethernet incl. software driver, mains unit facilitates data communication in network

Electrical isolation for RS232 (connects measuring instrument to PC)

0516 0401

0516 0411

0554 1711

0554 0006

testo alarm modem GSM

Part no.

Alarm modem GSM, (without Testo measuring instrument and the necessary RS232 adapter)

Software Testo Alarm-Editor Professional AK20 (CD incl. instruction manual)

Software Testo Alarm-Editor Basic AK4 (CD incl. instruction manual) Limited range of functions

Stick aerial for screwing on to GSM-modem, bendable 2 ways

Magnetic foot aerial with 3 m cable

Mains unit (rail mounting) 90 to 264V AC/24VDC (2.5A)

Mains unit

Serial interface cable (RS232) for initial parameterization of the alarm modem

0554 0522

0554 0519

0554 0518

0554 0523

0554 0524

0554 1749

0554 1142

0449 0051

System case

Part no.

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)

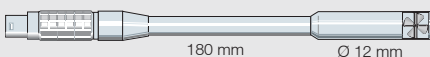
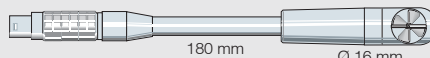
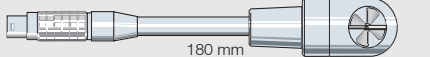


System case (aluminium) for measuring instrument, probes and accessories, probes in lid make it easy to find parts in case

0516 0400

0516 0410

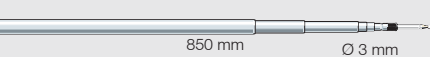
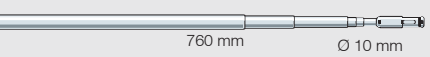
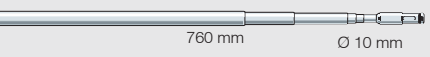
Calibration certificates see page 28/46/68/76




Suitable probes for testo 400

Vane probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Vane probe, Ø 12 mm, can be attached to handle or telescopic handle	 180 mm Ø 12 mm	Vane	+0.6 to +20 m/s Oper. temp. -30 to +140 °C	±0.2 m/s ±1% of mv (+0.6 to +20 m/s)	0635 9443
Vane/temperature probe, Ø 16 mm, attachable to 0430 3545 handle or 0430 0941 telescopic handle	 180 mm Ø 16 mm	Vane Type K (NiCr-Ni)	+0.4 to +60 m/s -30 to +140 °C	±(0.2 m/s +1% of mv) (+0.4 to +40 m/s) ±(0.2 m/s +2% of mv) (+40.1 to +50 m/s)	0635 9540
Vane/temperature probe, Ø 25 mm, can be attached to 0430 3545 handle or 0430 0941 telescopic handle	 180 mm Ø 25 mm	Vane Type K (NiCr-Ni)	+0.4 to +40 m/s -30 to +140 °C	±(0.2 m/s ±1% of mv) (+0.4 to +40 m/s)	0635 9640
Bendable vane probe (can be bent by 90°), Ø 60 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets	 Ø 60 mm	Vane	+0.25 to +20 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.25 to +20 m/s)	0635 9440
Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle 0430 3545 or telescopic handle 0430 0941, for measurements on ventilation outlets	 Ø 100 mm	Vane	+0.1 to +15 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ±1.5% of mv) (+0.1 to +15 m/s)	0635 9340

Accessories: Vane 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

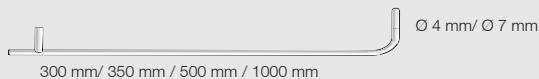
Accessories: Vane probes	Part no.
Swan neck, flexible connection between probe and connection part	0430 0001
Magnetic probe holder for vane probes	0554 0430

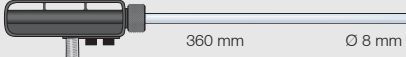
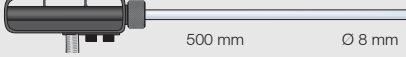
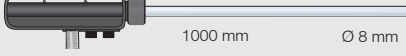
Thermal probes	Illustration	Probe type	Meas. range	Accuracy	Part no.
Robust hot bulb probe, Ø 3 mm, with handle and telescopic handle for measurements in the lower velocity range	 850 mm Ø 3 mm	Hot bulb NTC	0 to +10 m/s -20 to +70 °C	±0.03 m/s ±5% of mv (0 to +10 m/s)	0635 1049
Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition	 760 mm Ø 10 mm	Hot bulb NTC	0 to +20 m/s -20 to +70 °C	±(0.03 m/s ±4% of mv) (0 to +20 m/s)	0635 1041
Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175	 760 mm Ø 10 mm	Hot bulb NTC	0 to +5 m/s 0 to +50 °C	±(0.02 m/s ±5% of mv) (0 to +5 m/s)	0635 1047

Differential pressure probe for Pitot tube measurement	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 flow speeds (in combination with Pitot tube)		0 to +100 Pa	±(0.3 Pa ±0.5% of mv)	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 flow speeds (in combination 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 flow speeds (in combination 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

Accessories: Pressure probes	Part no.
Connection hose, silicone, 5m long, max. load 700 hPa (mbar)	0554 0440

Accessories: Pressure probes	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143

Prandtl's Pitot tubes	Illustration	Accuracy	Part no.
Pitot tube, 300 mm long, stainless steel, measures flow speed, Length 300 mm, Ø 4 mm	 300 mm/ 350 mm / 500 mm / 1000 mm Ø 4 mm/ Ø 7 mm	Oper. temp. 0 to +600 °C	0635 2245
Length 350 mm, Ø 7 mm		0635 2145	
Length 500 mm, Ø 7 mm		0635 2045	
Length 1000 mm, Ø 7 mm		0635 2345	

Straight Pitot tubes	Illustration	Probe type	Meas. range	Part no.
Pitot tube, stainless steel, 360 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545	 360 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2040
Pitot tube, stainless steel, 500 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545	 500 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2140
Pitot tube, stainless steel, 1000 mm long, measures velocity with temperature, for pressure probes 0638 1345/..1445/..1545	 1000 mm Ø 8 mm	Type K (NiCr-Ni)	-40 to +600 °C	0635 2240



Suitable probes and covering caps for testo 400

Comfort level measurement	Illustration	Probe type	Meas. range	Accuracy	Part no.
3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required	270 mm, Ø 21 mm	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 DIN 1946 Part 2 or EN 12 599 requirements	890 mm, Ø 90 mm	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
Wet Bulb Globe temperature probe to assess workplaces subjected to heat, in accordance with ISO 7243 or DIN 33403, incl. WGBT case	Ø 150 mm, 560 mm		0 to +120 °C	In accordance with ISO 7243 or DIN 33403	0635 8888 ID No. 0699 4239/1

Accessories: 3-Function probe	Part no.
Adapter for humidity adjustment of 3-function probe 0635 1540, order with adjustment set	0554 0661

Accessories: 3-Function probe	Part no.
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143

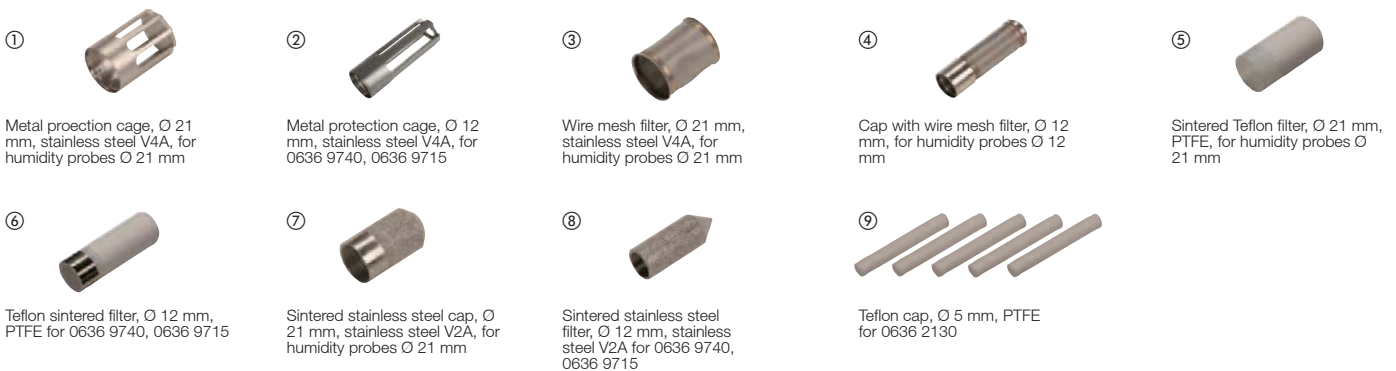
Humidity probe with accuracy ±1 %RH	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Highly accurate reference humidity/temp. probe incl. cal. cert.	Ø 21 mm	0 to +100 %RH -20 to +70 °C	±1 %RH (+10 to +90 %RH)* ±2 %RH (remaining range)	±0.2 °C (+10 to +40 °C) ±0.4 °C (remaining range)	12 s 0636 9741 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required

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

Humidity probes	Illustration	Meas. range	Accuracy	t ₉₉	Part no.
Standard ambient air probe up to +70°C	Ø 12 mm	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 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Duct humidity/temperature probe, can be connected to telescopic handle 0430 9715	180 mm, Ø 12 mm	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 Conn.: Fixed cable
Thin humidity probe incl. 4 attachable protection caps for ambient air measurements, measurements in exhaust air ducts and equilibrium moisture measurements	250 mm, Ø 4 mm	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 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Humidity/temperature probe	Ø 21 mm	0... +100 %RH -20 to +70 °C	±2 %RH (+2... +98 %RH)	±0.4 °C (+0.1 to +50 °C) ±0.5 °C (-20 to 0 °C) ±0.5 °C (+50.1 to +70 °C)	12 s 0636 9742 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required

Caps for humidity probes Ø 12mm and 21mm	Part no.
① Metal protection cage, Ø 21 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s	0554 0665
② Metal protection cage, Ø 12 mm for humidity probes, material: stainless steel V4A. Quick adjustment time, robust and temperature-proof. Used when measuring velocities of less than 10 m/s.	0554 0755
③ Wire mesh filter, Ø 21 mm, insertable filter for metal protection cage and plastic cap. Material: stainless steel V4A, quick adjustment time, protects from dirt and damage. Applications: meteorology, splashwater, condensation.	0554 0667
④ Cap with wire mesh filter, Ø 12 mm	0554 0757
⑤ Teflon sintered filter, Ø 21 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high flow velocities	0554 0666

Caps for humidity probes Ø 12mm and 21mm	Part no.
④ Teflon sintered filter, Ø 12 mm, PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, high humidity range (continuous measurements), high velocities	0554 0756
⑦ Stainless steel sintered cap, Ø 21 mm, made of stainless steel V2A. Highly robust, suitable for penetration, clean with compressed air, mechanical protection of sensor. Applications: high mechanical loads, high flow velocities.	0554 0640
⑧ Stainless steel sintered cap, Ø 12mm, made of stainless steel V2A. Highly robust, suitable for penetration, should be cleaned with compressed air, mechanical protection of sensor. Applications: high mechanical loads, high flow velocities.	0554 0647
⑨ Teflon cap, Ø 5 mm, attachable, PTFE material, (5 off). Applications: dust protection, high humidity level measurements, high velocities	0554 1031



Suitable probes for testo 400

Pressure probes	Illustration	Meas. range	Accuracy	Part no.
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and flow speeds (in combination with Pitot tube)		0 to +100 Pa	$\pm(0.3 \text{ Pa} \pm 0.5\% \text{ of mv})$	0638 1347 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
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	$\pm 5 \text{ hPa (0 to +2000 hPa)}$	0638 1847 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required

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	 150 mm Ø 10 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +300 °C	Class 2	3 s	0604 0194 0614 0194*
Fast response immersion/penetration probe	 150 mm Ø 3 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200 to +400 °C	Class 1	3 s	0604 0293 0614 0293*
Standard air probe	 150 mm Ø 3 mm Ø 9 mm Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	-200... +600 °C	Class A	75 s	0604 9773

FURTHER TEMPERATURE PROBES SEE PAGE 17, 18

*with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t₉₅ extrapolation; surface allowance in surface probe can be adapted to measuring task

More probes	Illustration	Meas. range	Accuracy	Part no.
Ambient CO probe, for detecting CO in buildings and rooms		0 to +500 ppm CO	$\pm 5\% \text{ of mv (+100.1 to +500 ppm CO)}$ $\pm 5 \text{ ppm CO (0 to +100 ppm CO)}$	0632 3331 Conn.: Fixed cable, 1.5 m
CO ₂ probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required		0 to +1 Vol. % CO ₂ 0 to +10000 ppm CO ₂	$\pm(50 \text{ ppm CO}_2 \pm 2\% \text{ of mv (0 to +5000 ppm CO}_2))$ $\pm(100 \text{ ppm CO}_2 \pm 3\% \text{ of mv) (+5001 to +10000 ppm CO}_2)$	0632 1240 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required
Current/voltage cable ($\pm 1 \text{ V}$, $\pm 10 \text{ V}$, 20 mA)		0 to +1000 mV 0 to +10 V 0 to +20 mA	$\pm 1 \text{ mV (0 to +1000 mV)}$ $\pm 0.01 \text{ V (0 to +10 V)}$ $\pm 0.04 \text{ mA (0 to +20 mA)}$	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	$\pm 0.04 \text{ mA}$	0554 0528 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required

Accessories: Humidity probes	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
Telescopic handle, 340 - 800 mm long, for 0636 9715 probe	0430 9715
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH/75.3 %RH with adapter for humidity probes	0554 0660
testo saline solution pot for checking humidity probes, 33 %RH	0554 0636

Accessories: Pressure probes	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
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



Technical data for testo 400

Technical data

Probe type	Vane	Thermal	Testo humid. sensor, cap.	aw value	Pressure
Meas. range	0 to +60 m/s	0 to +20 m/s	0 to +100 %RH	0 to +1 aW	0 to +2000 hPa
Accuracy ±1 digit	See probe data for system accuracy	±0.01 m/s (0 to +1.99 m/s) ±0.02 m/s (+2 to +4.9 m/s) ±0.04 m/s (+5 to +20 m/s)	See probe data	See probe data	Probe 0638 1347 Probe 0638 1847 ±0.1% of fsv
Resolution	0.01 m/s (for Ø 60/100 mm), 0.1 m/s (for rem. probes)	0.01 m/s (0 to +20 m/s)	0.1 %RH (0 to +100 %RH)		0.001 hPa (Probe 0638 1347) 0.1 hPa (Probe 0638 1847)
Probe type	NTC	Pt100	Type K (NiCr-Ni)	Type S (Pt10Rh-Pt)	Type J (Fe-CuNi)
Measurement range temp.	-40 to +150 °C	-200 to +800 °C	-200 to +1370 °C	0 to +1760 °C	-200 to +1000 °C
Accuracy ±1 digit	±0.2 °C (-10 to +50 °C) ±0.4 °C (-40 to -10.1 °C) ±0.4 °C (+50.1 to +150 °C)	±0.1 °C (-49.9 to +99.9 °C) ±(0.1 °C + 0.1% of mv) remaining range	±(0.3 °C + 0.1% of mv)	±1 °C (0 to +1760 °C)	±0.4 °C (-150 to +150 °C) ±1 °C (-200 to -150.1 °C) ±1 °C (+150.1 to +1000 °C)
Resolution	0.1 °C (-40 to +150 °C)	0.01 °C (-99.9 to +300 °C) 0.1 °C (-200 to -100 °C) 0.1 °C (+300.1 to +800 °C)	0.1 °C (-200 to +1370 °C)	1 °C (0 to +1760 °C)	0.1 °C (-200 to +1000 °C)
Probe type	CO2 probe	CO probe	Current measurement	Voltage measurement	
Meas. range	0 to +1 Vol. % CO ₂ 0 to +10000 ppm CO ₂	0 to +500 ppm CO	0 to +20 mA (0554 0007) 0/4 to +20 mA (0554 0528)	0 to +10 V (0554 0007)	
Accuracy ±1 digit	See probe data	±5% of mv (0 to +500 ppm CO)	±0.04 mA (0 to +20 mA) (0554 0007) See probe data (0554 0007)	±0.01 V (0 to +10 V)	
Resolution			0.01 mA (0 to +20 mA)	0.01 V (0 to +10 V)	
Oper. temp.	0 to +50 °C		Memory space: 1 MB corresponding to approx. 500,000 readings Other features: automatic probe recognition Power: Battery/rech. battery, alternatively 8 V mains unit Battery life in continuous operation with 2 T/C probes		
Storage temp.	-25 to +60 °C				
Battery type	1,5 V AA				
Battery life	18 h				
Weight	500 g				
PC	RS232 interface				
Warranty	3 years				

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