



## Measuring Instruments For Velocity



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## Measurement and application ranges of the velocity probes

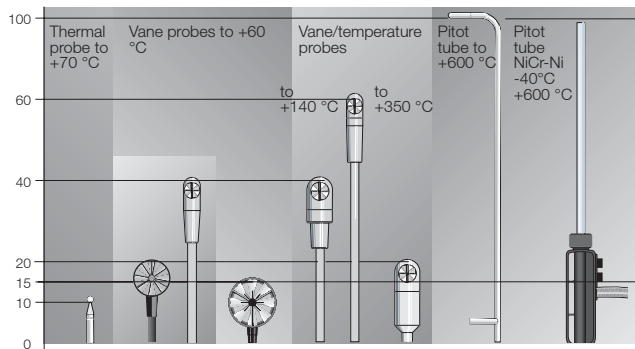
### Probe selection

The flow measuring range 0 to 100 m/s can be divided into three sections:

- Low-speed velocity 0 to 5 m/s
- Mid-speed velocity 5 to 40 m/s
- High-speed velocity 40 to 100 m/s.

Thermal probes are used for accurate measurements in the range 0 to 5 m/s. Vane probes are ideal for velocities ranging from 5 to 40 m/s. The measuring range of the Pitot tube depends on the differential pressure probe used. The new 100 Pa probe can therefore be used for the exact measurement of flow speed from approx. 1 m/s to 12 m/s. The Pitot tube yields optimum results in the higher velocity range. An additional criterion when selecting the right velocity probe is the temperature. Thermal sensors can normally be used at up to approx. +70 °C. Special design vane probes can be used to max. +350 °C. Pitot tubes are used for temperatures above +350 °C.

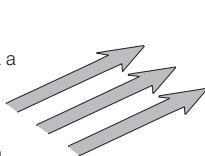
Measurement and application ranges of the velocity probes



### Thermal probes

#### Thermal probes

The principle of the thermal probe is based on a heated element from which heat is extracted by the colder impact flow. Temperature is kept constant via a regulating switch. The controlling current is directly proportional to the velocity. When thermal velocity probes are used in turbulent flows, the measured result is influenced by the flows impacting the heated body from all directions. In turbulent flows, a thermal velocity sensor indicates higher measured values than a vane probe. This can be observed especially during measurements in ducts. Depending on the design of the duct, turbulent flows can occur even at low velocities.



Thermal hot wire probe for measuring velocity, with direction recognition function

### Vane probes

#### Vane probes

The measuring principle of the vane probe is based on the conversion of a rotation into electric signals. The flowing agent makes the vane rotate. An inductive proximity switch "counts" the revolutions of the vane and supplies a pulse sequence which is converted in the measuring instrument and is then indicated as a velocity value. Large diameters (Ø 60 mm, Ø 100 mm) are suitable for the measurement of turbulent flows (e.g. at outlet ducts) at smaller or medium velocities. Small diameters are more suitable for measurements in ducts; in which case the duct cross-section must be 100 times bigger than the probe cross-section being impacted.

The 16mm probe has proven to be very versatile. It is large enough to have good starting qualities and is small enough to withstand velocities of up to 60 m/s.

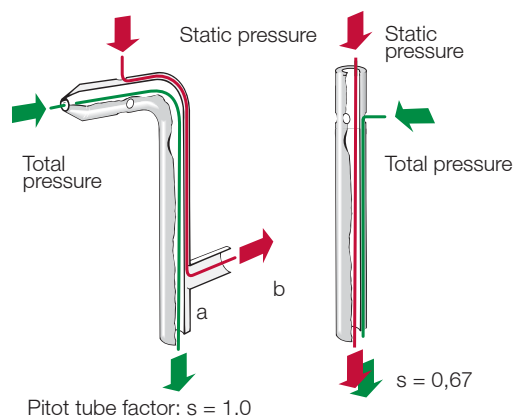


### Pitot tube

#### Pitot tube

The Pitot tube opening takes on total pressure and conducts it to connection (a) in the pressure probe. The pure static pressure is taken up by a lateral slot and conducted to connection (b). The resulting differential pressure is a dynamic flow-dependent pressure which is then analysed and indicated.

As with thermal probes, the Pitot tube is more likely to react to turbulent flows than a vane probe. Therefore, a free inlet and outlet path must also be ensured during Pitot tube measurements.



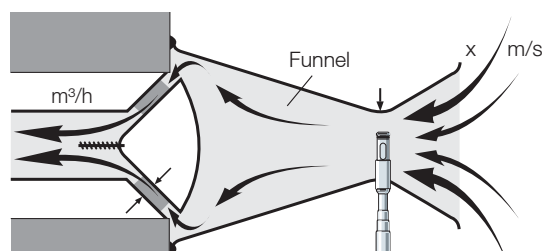
$$v = s \cdot \sqrt{\frac{2 \cdot p}{\rho}}$$

- v = Velocity in m/s
- s = Pitot tube factor
- ρ = Air density in kg/m³
- p = Differential pressure in Pascal measured at Pitot tube

### Measuring volume flow with a funnel

$$v \left[ \frac{\text{m}^3}{\text{h}} \right] = x \left[ \frac{\text{m}}{\text{s}} \right] \cdot 22$$

- v = Volume
- x = Velocity
- 22 = Funnel factor



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## Accessories

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## Measurement systems

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|           |                                                                    |         |
|           |                                                                    |         |

## testo 405-V1

testo 405-V1 is the first thermal anemometer in this price range which can measure air velocity, volume flow and temperature.

Velocity measurement stick, with channel holder, incl. fixing clip, battery

Part no.  
**0560 4051**

## Measure air flow and temperature – Flexibly and easily

- m/s and m³/h (volume flow calculation 0 to 99,990 m³/h)
- Meas. in ducts and at duct outlets
- Duct holder and multi-function clip for quick positioning
- Also suitable for larger duct Ø if length is approx. 300 mm
- User-friendly operation and fast battery change
- Auto-OFF function
- Pocket-size
- Precision micro NTC (hot wire)

One quick twist and the velocity sensor is protected by the captive cap



### Technical data

|                      |                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------|
| Meas. range          | 0 to +10 m/s<br>-20 to +50 °C<br>0 to +99990 m³/h                                                       |
| Accuracy<br>±1 digit | ±(0.1 m/s ±5% of mv) (0 to +2 m/s)<br>±(0.3 m/s ±5% of mv) (+2.1 to +10 m/s)<br>±0.5 °C (-20 to +50 °C) |
| Resolution           | 0.01 m/s<br>0.1 °C                                                                                      |

|               |                       |
|---------------|-----------------------|
| Oper. temp.   | 0 to +50 °C           |
| Storage temp. | -20 to +70 °C         |
| Battery type  | 3 AAA micro batteries |
| Battery life  | 20 h                  |
| Weight        | 180 g                 |
| Warranty      | 2 years               |

### Accessories

| Accessories                                                                                                       | Part no.  |
|-------------------------------------------------------------------------------------------------------------------|-----------|
| testovent 410, volume flow funnel, Ø 340mm/330 x 330mm, incl. case                                                | 0554 0410 |
| testovent 415, volume flow funnel, Ø 210mm/190x190mm, incl. case                                                  | 0554 0415 |
| ISO calibration certificate/Velocity<br>Two point calibration; calibration points 5m/s and 10m/s                  | 0520 0094 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s | 0520 0004 |

## testo 415

testo 415, the compact anemometer for measuring ambient air flow and temperature.

testo 415, thermal anemometer, with integrated velocity/temperature probe, battery and calibration protocol

Part no.  
**0560 4150**

## Compact anemometer

- Timed or multi-point mean calculation
- Parallel measurement of flow and temperature
- Switch: Hold/Max/Min; °C/°F; m/s/fpm
- Compact with built-in probe for ambient velocity measurement
- Practical accessories: TopSafe (indestructible protection sleeve); protects measuring instrument against impact, dirt, bench stand included
- Accessories set for fast attachment of measuring instrument e.g to wall, belt etc., probe holder included
- Battery display
- Auto OFF function (can be switched off)
- With calibration protocol



### Technical data

|                      |                                                                               |
|----------------------|-------------------------------------------------------------------------------|
| Meas. range          | 0... +10 m/s<br>0... +50 °C                                                   |
| Accuracy<br>±1 digit | ±0.05 m/s (0... +10 m/s)<br>±5% of mv (0... +10 m/s)<br>±0.5 °C (0... +50 °C) |
| Resolution           | 0.01 m/s (0... +10 m/s)<br>0.1 °C (0... +50 °C)                               |

|                  |                  |
|------------------|------------------|
| Oper. temp.      | 0... +50 °C      |
| Storage temp.    | -20... +70 °C    |
| Battery type     | Alkali manganese |
| Battery life     | 20 h             |
| Auto Off         | 10 min           |
| Display          | LCD, 2 lines     |
| Material/Housing | ABS              |
| Weight           | 300 g            |
| Warranty         | 2 years          |
| Dimensions       | 190 x 57 x 42 mm |

### Accessories

| Accessories                                                                                                       | Part no.  |
|-------------------------------------------------------------------------------------------------------------------|-----------|
| TopSafe (protection case) with bench stand<br>Protects instrument from impact and dirt                            | 0516 0183 |
| Case for instrument and probes<br>For safe and orderly storage                                                    | 0516 0182 |
| Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder         | 0554 0550 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s | 0520 0004 |

## testo 425

testo 425, the anemometer with separate, securely attached telescopic probe.

The telescopic probe facilitates measurement at inaccessible points e.g. in ceiling and wall outlets, in ventilation ducts or diffusers.

**testo 425, thermal anemometer with separate velocity/temperature probe incl. telescopic handle, battery and calibration protocol**

Part no.  
**0560 4250**

## Anemometer with telescopic probe

- Timed or multi-point mean calculation
- Parallel measurement of velocity and temperature
- TopSafe, protects instrument from dirt and impact

Telescopic probe is securely attached



| Accessories                                                                                                                 | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Transport and Protection</b>                                                                                             |           |
| TopSafe (protection case) with bench stand<br>Protects instrument from impact and dirt                                      | 0516 0183 |
| Case for instrument and probes<br>For safe and orderly storage                                                              | 0516 0182 |
| Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder                   | 0554 0550 |
| Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder                                 | 0554 0552 |
| <b>Additional Accessories and Spare Parts</b>                                                                               |           |
| 9V rech. battery for instrument<br>Instead of battery                                                                       | 0515 0025 |
| Recharger for 9V rechargeable battery<br>For external recharging of 0515 0025 battery                                       | 0554 0025 |
| <b>Calibration Certificates</b>                                                                                             |           |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s           | 0520 0004 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 0.5; 0.8; 1; 1.5 m/s                  | 0520 0024 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 5; 10; 15; 20 m/s                     | 0520 0034 |
| ISO calibration certificate/Velocity<br>All velocity probes, calibration points selectable from 0.3 to 50 m/s at +25°C      | 0520 0104 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s      | 0520 0204 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s                  | 0520 0244 |
| DKD calibration certificate/Velocity<br>Hot wire, vane probes, Pitot tube; calibration points selectable from 0.1 to 50 m/s | 0520 0214 |
| DKD calibration certificate/Velocity<br>for vane anemometers; calibration points 2.5; 5; 10 m/s                             | 0520 0254 |

| Recommended set                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>testo 425, Standard Set</b>                                                                                                                                                                                                                                                                                                                                                                                     |
| <ul style="list-style-type: none"> <li>- testo 425, thermal anemometer with separate velocity/temperature probe incl. telescopic handle, battery and calibration protocol (Part no. 0560 4250)</li> <li>- Case for instrument and probes (Part no. 0516 0182)</li> <li>- Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder (Part no. 0554 0550)</li> </ul> |

| Technical data       |                                                                                           |                  |                  |
|----------------------|-------------------------------------------------------------------------------------------|------------------|------------------|
| Meas. range          | 0 to +20 m/s<br>-20 to +70 °C                                                             | Oper. temp.      | 0 to +50 °C      |
|                      |                                                                                           | Storage temp.    | -20 to +70 °C    |
| Accuracy<br>±1 digit | ±(0.05 m/s ±5% of mv) (0 to 20 m/s)<br>±0.5 °C (0 to +50 °C)<br>±0.7 °C (remaining range) | Battery type     | Alkali manganese |
|                      |                                                                                           | Battery life     | 20 h             |
|                      |                                                                                           | Dimensions       | 190 x 57 x 42 mm |
|                      |                                                                                           | Weight           | 300 g            |
|                      |                                                                                           | Display          | LCD, 2 lines     |
|                      |                                                                                           | Material/Housing | ABS              |
| Resolution           | 0.01 m/s (0 to +10 m/s)<br>0.1 m/s (+10.1 to +20 m/s)<br>0.1 °C (-20 to +70 °C)           | Warranty         | 2 years          |

## testo 435

testo 435, with volume flow calculation ( $\text{m}^3/\text{h}$ ,  $\text{m}^3/\text{min}$ ,...), has all the advantages of thermal and vane anemometers.

Vane probes

Thermal probes

Temperature probes

can be connected to testo 435

testo 435, anemometer, incl. battery and calibration protocol

Part no.

0560 4350

## Anemometer with probes

- m/s and  $\text{m}^3/\text{h}$  (volume flow calculation 0 to 999,999  $\text{m}^3/\text{h}$ )
- Quick documentation of data on location
- Timed and multi-point mean calculation
- More than 10 different probes can be connected



| Probes                                                                                                                                            | Illustration | Meas. range                                    | Accuracy                                                             | Part no.  |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------|----------------------------------------------------------------------|-----------|
| Affordable vane probe, $\varnothing$ 60 mm, e.g. for measurements at duct outlets                                                                 |              | +0.25 to +20 m/s<br>Oper. temp.<br>0 to +60 °C | $\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$<br>(+0.25 to +20 m/s) | 0635 9244 |
| Vane probe, $\varnothing$ 60 mm, with telescopic handle max. 754 mm, e.g. for measurements at duct outlets                                        |              | +0.25 to +20 m/s<br>Oper. temp.<br>0 to +60 °C | $\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$<br>(+0.25 to +20 m/s) | 0635 9344 |
| Vane probe, $\varnothing$ 16 mm, with telescopic handle max. 720 mm, e.g. for measurements in ducts                                               |              | +0.6 to +40 m/s<br>Oper. temp.<br>0 to +60 °C  | $\pm(0.2 \text{ m/s} \pm 1.5\% \text{ of mv})$<br>(+0.6 to +40 m/s)  | 0635 9544 |
| Affordable hot wire probe for m/s and °C, $\varnothing$ 12 mm, with telescopic handle max. 675 mm                                                 |              | 0 to +20 m/s<br>-20 to +70 °C                  | $\pm(0.05 \text{ m/s} \pm 5\% \text{ of mv})$<br>(+0 to +20 m/s)     | 0635 1044 |
| Quick action hot wire probe for m/s and °C, $\varnothing$ 10 mm, with telescopic handle max. 835 mm, for measurements in the lower velocity range |              | 0 to +20 m/s<br>-20 to +70 °C                  | $\pm(0.03 \text{ m/s} \pm 4\% \text{ of mv})$<br>(+0 to +20 m/s)     | 0635 1043 |

| More probes                                                            | Illustration | Meas. range    | Accuracy                                                                                                                        | t <sub>99</sub> | Part no.  |
|------------------------------------------------------------------------|--------------|----------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Waterproof immersion/penetration probe                                 |              | -50 to +150 °C | $\pm 0.5\% \text{ of mv (+100 to +150 °C)}$<br>$\pm 0.2 \text{ °C (-25 to +74.9 °C)}$<br>$\pm 0.4 \text{ °C (remaining range)}$ | 10 s            | 0613 1211 |
| Waterproof surface probe with widened measuring tip, for flat surfaces |              | -50 to +150 °C | $\pm 0.5\% \text{ of mv (+100 to +150 °C)}$<br>$\pm 0.2 \text{ °C (-25 to +74.9 °C)}$<br>$\pm 0.4 \text{ °C (remaining range)}$ | 35 s            | 0613 1911 |
| Robust, affordable air probe to check storage temperatures             |              | -50 to +150 °C | $\pm 0.5\% \text{ of mv (+100 to +150 °C)}$<br>$\pm 0.2 \text{ °C (-25 to +74.9 °C)}$<br>$\pm 0.4 \text{ °C (remaining range)}$ | 60 s            | 0613 1711 |

| Recommended set                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>testo 435, Starter Set for measuring velocity in ducts</b>                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>- testo 435, anemometer, incl. battery and calibration protocol (Part no. 0560 4350)</li> <li>- Affordable hot wire probe for m/s and °C, Ø 12mm, with telescopic handle max. 675 mm (Part no. 0635 1044)</li> <li>- Transport case (plastic) for instrument and accessories (Part no. 0516 0184)</li> </ul> |

| testo 435, Starter Set for measuring velocity at outlets                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- testo 435, anemometer, incl. battery and calibration protocol (Part no. 0560 4350)</li> <li>- TopSafe (protection case) with bench stand (Part no. 0516 0183)</li> <li>- Vane probe, Ø 60mm, with telescopic handle max. 754mm, e.g. for measurements at duct outlets (Part no. 0635 9344)</li> <li>- Robust, affordable air probe to check storage temperatures (Part no. 0613 1711)</li> <li>- Transport case (plastic) for instrument and accessories (Part no. 0516 0184)</li> </ul> |

| Accessories                                                                                               | Part no.  |
|-----------------------------------------------------------------------------------------------------------|-----------|
| <b>Transport and Protection</b>                                                                           |           |
| TopSafe (protection case) with bench stand<br>Protects instrument from impact and dirt                    | 0516 0183 |
| Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder | 0554 0550 |
| Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder               | 0554 0552 |
| Case for instrument and probes<br>For safe and orderly storage                                            | 0516 0182 |
| Transport case (plastic) for instrument and accessories<br>For safe and orderly storage                   | 0516 0184 |
| <b>Additional Accessories and Spare Parts</b>                                                             |           |
| 9V rech. battery for instrument<br>Instead of battery                                                     | 0515 0025 |
| Recharger for 9V rechargeable battery<br>For external recharging of 0515 0025 battery                     | 0554 0025 |
| testovent 410, volume flow funnel, Ø 340mm/330 x 330mm, incl. case                                        | 0554 0410 |
| testovent 415, volume flow funnel, Ø 210mm/190x190mm, incl. case                                          | 0554 0415 |

| Printer and Accessories                                                                                     |           |
|-------------------------------------------------------------------------------------------------------------|-----------|
| Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries | 0554 0547 |
| Recharger for printer (with 4 standard rech. batteries)<br>Rechargeable batteries are recharged externally  | 0554 0110 |
| Spare thermal paper for printer (6 rolls)                                                                   | 0554 0569 |
| Spare thermal paper for printer (6 rolls)<br>Measurement data documentation legible for up to 10 years      | 0554 0568 |

| Calibration Certificates                                                                                               |           |
|------------------------------------------------------------------------------------------------------------------------|-----------|
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s      | 0520 0004 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s    | 0520 0034 |
| ISO calibration certificate/Velocity<br>All velocity probes, calibration points selectable from 0.3 to 50 m/s at +25°C | 0520 0104 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s             | 0520 0244 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s | 0520 0204 |

| Technical data       | Hot wire                                              | Vane                                                  | NTC                                                                                   |
|----------------------|-------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------|
| Probe type           |                                                       |                                                       |                                                                                       |
| Meas. range          | 0 to +20 m/s                                          | +0.2 to +40 m/s                                       | -50 to +150 °C                                                                        |
| Accuracy<br>±1 digit | See probe data                                        | See probe data                                        | ±1% of mv (+100 to +150 °C)<br>±0.5 °C (-25 to +74.9 °C)<br>±0.8 °C (remaining range) |
| Resolution           | 0.01 m/s (0 to +10 m/s)<br>0.1 m/s (+10.1 to +20 m/s) | 0.01 m/s (0 to +10 m/s)<br>0.1 m/s (+10.1 to +40 m/s) | 0.1 °C                                                                                |

| Probe type           | Calc. parameter   |  |  |
|----------------------|-------------------|--|--|
| Meas. range          | 0 to +999999 m³/h |  |  |
| Accuracy<br>±1 digit |                   |  |  |
| Resolution           |                   |  |  |

|                  |                  |                              |  |
|------------------|------------------|------------------------------|--|
| Oper. temp.      | 0 to +50 °C      | Battery life                 |  |
| Storage temp.    | -20 to +70 °C    | Thermal probe: more than 20h |  |
| Display          | LCD, 2 lines     | Vane probe: more than 100h   |  |
| Battery type     | Alkali manganese |                              |  |
| Battery life     | 20 h             |                              |  |
| Auto Off         | 10 min           |                              |  |
| Weight           | 300 g            |                              |  |
| Material/Housing | ABS              |                              |  |
| Warranty         | 2 years          |                              |  |

## testo 521-1 / testo 521-2

The highly accurate differential pressure meter, testo 521, with an internal pressure sensor from 0 to 100 hPa is ideal for Pitot tube measurements in the range 5 to 100 m/s. testo 521 is available in 2 accuracy classes. testo 521-1 with an internal pressure sensor with Class 0.2, testo 521-2 with an internal pressure sensor with Class 0.1.

In the case of velocity speeds in the range from 1 to 12 m/s, you can carry out accurate measurements using the 100 Pa probe which can be attached externally.

The measurement data can be saved according to location and analysed on your PC or printed on site on your Testo printer.

## Pitot tube reference instrument

- Temp. compensated differential pressure sensor in instrument
- Additional 2 probe sockets for measuring pressure and temp.
- Direct calculation of velocity speed and velocity flow
- Multi-point and temporal mean calculation
- Density compensation
- Up to two 4 to 20 mA interfaces connectable to hand-held instr.
- 1 analog signal can be evaluated per interface
- Scaling of analog signal in hand-held instrument
- Transmitter can be supplied with power from testo 521, for example
- 4 to 20 mA interface can be connected to testo 521, 526, 400, 650 und 950 hand-held instruments



**1** testo 521-1, differential pressure meter 0 to 100 hPa incl. battery and calibration protocol

Part no.  
**0560 5210**

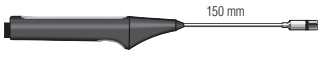
**2** testo 521-2, differential pressure meter 0 to 100 hPa incl. battery and calibration protocol

Part no.  
**0560 5211**

| Pressure probes                                                                                                                                                                                          | Illustration | Probe type                  | 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 velocity speeds (in connection with Pitot tube) |              | Differential pressure probe | 0 to +100 Pa   | $\pm(0.3 \text{ Pa} \pm 0.5\% \text{ of mv})$                                       | 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)            |              | Differential pressure probe | 0 to +10 hPa   | $\pm 0.03 \text{ hPa}$                                                              | 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)          |              | Differential pressure probe | 0 to +100 hPa  | $\pm 0.5\% \text{ of mv (+20 to +100 hPa)}$<br>$\pm 0.1 \text{ hPa (0 to +20 hPa)}$ | 0638 1547 |
| 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                                |              | Absolute pressure probe     | 0 to +2000 hPa | $\pm 5 \text{ hPa (0 to +2000 hPa)}$                                                | 0638 1847 |

| Prandtl's Pitot tubes                                                                                                 | Illustration | Meas. range                 | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------|-----------|
| Pitot tube, 300 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545  |              | Oper. temp.<br>0 to +600 °C | 0635 2245 |
| Pitot tube, 350 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545  |              | Oper. temp.<br>0 to +600 °C | 0635 2145 |
| Pitot tube, 500 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545  |              | Oper. temp.<br>0 to +600 °C | 0635 2045 |
| Pitot tube, 1000 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545 |              | Oper. temp.<br>0 to +600 °C | 0635 2345 |

| Straight Pitot tubes                                                                                                        | Illustration | Probe type       | Meas. range    | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|------------------|----------------|-----------|
| Pitot tube, stainless steel, 360 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547  |              | Type K (NiCr-Ni) | -40 to +600 °C | 0635 2040 |
| Pitot tube, stainless steel, 500 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547  |              | Type K (NiCr-Ni) | -40 to +600 °C | 0635 2140 |
| Pitot tube, stainless steel, 1000 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547 |              | Type K (NiCr-Ni) | -40 to +600 °C | 0635 2240 |

| Probes                                                                                                      | Illustration                                                                                                                                                           | Meas. range     | Accuracy     | t <sub>90</sub> | Part no.  |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|-----------------|-----------|
| Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C             |  150 mm<br>Ø 10 mm                                                                    | -200 to +300 °C | Class 2      | 3 s             | 0614 0194 |
| Pipe wrap probe for pipes up to 2" in diameter                                                              |  Fixed cable                                                                          | -60 to +130 °C  | Class 2      | 5 s             | 0600 4593 |
| Super quick-action immersion/penetration probe for measurements in liquids                                  |  150 mm<br>Ø 1.5 mm<br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | -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 |  150 mm<br>Fixed cable<br>Ø 9 mm                                                      | -40 to +130 °C  | To UNI curve | 60 s            | 0610 9714 |

| Accessories                                                                                                                                     | Part no.  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Transport and Protection</b>                                                                                                                 |           |
| TopSafe (protection case)<br>Incl. carrier strap, bench stand and magnet. Protects instrument from dust, impact, scratches                      | 0516 0446 |
| Transport case<br>For measuring instrument, probes, Prandtl Pitot tube, accessories                                                             | 0516 0527 |
| System case<br>For measuring instrument, probes, straight or Prandtl Pitot tube, accessories                                                    | 0516 0526 |
| <b>Additional Accessories and Spare Parts</b>                                                                                                   |           |
| 9V rech. battery for instrument<br>Instead of battery                                                                                           | 0515 0025 |
| Plug-in mains unit<br>For mains operation and recharging battery in instrument                                                                  | 0554 0088 |
| Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material                                                 | 0430 0143 |
| Cable, 5 m long, connects probe with plug-in head to measuring instrument<br>PUR coating material                                               | 0430 0145 |
| Connection hose, silicone, 5m long<br>Max. load 700 hPa (mbar)                                                                                  | 0554 0440 |
| <b>Printer and Accessories</b>                                                                                                                  |           |
| Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries                                     | 0554 0547 |
| Spare thermal paper for printer (6 rolls)<br>Measurement data documentation legible for up to 10 years                                          | 0554 0568 |
| <b>Software and Accessories</b>                                                                                                                 |           |
| ComSoft 3 - Professional with data management<br>Incl. database, analysis and graphics function, data analysis, trend curve (without interface) | 0554 0830 |
| RS232 cable<br>Connects instrument to PC (1.8 m) for data transfer                                                                              | 0409 0178 |
| Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit<br>Facilitates data communication in network                              | 0554 1711 |
| <b>Calibration Certificates</b>                                                                                                                 |           |
| DKD calibration certificate/Pressure<br>Differential and positive pressure; 11 measuring points distributed over the instrument measuring range | 0520 0215 |
| DKD calibration certificate/Pressure<br>Diff. and pos. pressure; 6 meas. points distributed over meas. range (>0.6% of fsv)                     | 0520 0225 |
| DKD calibration certificate/Pressure<br>Absolute pressure; 11 measuring points distributed over meas. range                                     | 0520 0212 |
| ISO calibration certificate/Pressure<br>Differential pressure, accuracy 0.1 to 0.6 (% of fsv)                                                   | 0520 0025 |
| ISO calibration certificate/Pressure<br>Differential pressure; 5 points distributed over meas. range                                            | 0520 0005 |
| ISO calibration certificate/Pressure<br>Absolute pressure, accuracy 0.1 to 0.6 (% of full-scale value)                                          | 0520 0125 |

| Technical data  |                                |                             |                             |
|-----------------|--------------------------------|-----------------------------|-----------------------------|
|                 | testo 521-1                    |                             |                             |
| Probe type      | Piezoresistive pressure sensor | Current/voltage measurement | Current/voltage measurement |
| Meas. range     | 0 to 100 hPa                   | 0 to 10 V                   | 0 to 20 mA                  |
| Overload        | 300 hPa                        |                             |                             |
| Static pressure | 2000 hPa                       |                             |                             |
| Accuracy        | ±0.2 % of fsv                  | ±0.01 V                     | ±0.04 mA                    |
| ±1 digit        |                                |                             |                             |
| Resolution      | 0.01 hPa                       | 0.01 V                      | 0.01 mA                     |

|                 |                                |                        |  |
|-----------------|--------------------------------|------------------------|--|
|                 | testo 521-2                    |                        |  |
| Probe type      | Piezoresistive pressure sensor | Pitot tube measurement |  |
| Meas. range     | 0 to 100 hPa                   | 5 to 100 m/s           |  |
| Overload        | 300 hPa                        |                        |  |
| Static pressure | 2000 hPa                       |                        |  |
| Accuracy        | ±0.1 % of fsv                  | 0.05 m/s at 65 m/s     |  |
| ±1 digit        |                                |                        |  |
| Resolution      | 0.01 hPa                       |                        |  |

| Common data |                                                                                            |                           |                           |
|-------------|--------------------------------------------------------------------------------------------|---------------------------|---------------------------|
| Probe type  | Piezoresistive pressure sensor for external pressure probes                                | NTC                       | Type K (NiCr-Ni)          |
| Meas. range | 0 to 2000 hPa                                                                              | -40 to +150 °C            | -200 to +1370 °C          |
| Accuracy    | ±0.1 % of mv                                                                               | ±0.2 °C (-10 to +50 °C)   | ±0.4 °C (-100 to +200 °C) |
| ±1 digit    |                                                                                            | ±0.4 °C (remaining range) | ±1 °C (remaining range)   |
| Resolution  | 0.1 Pa (0638 1347)<br>0.001 hPa (0638 1447)<br>0.01 hPa (0638 1547)<br>0.1 hPa (0638 1847) | 0.1 °C                    | 0.1 °C                    |

|                           |                                                                          |                  |                                                                                                                 |
|---------------------------|--------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------|
| Oper. temp. (compensated) | 0 to +50 °C                                                              | Power supply     | Battery/Rechargeable battery, Mains unit 12 V                                                                   |
| Storage temp.             | -20 to +70 °C                                                            | Battery life     | Continuous operation w/ internal pressure sensor: 30 h<br>With rech. battery: 10 h<br>With carbon battery: 18 h |
| Display                   | LCD display with symbol, 7 segment display and point matrix LCD, 2 lines | Other features   | Mains connection and battery recharging in instrument<br>Automatic recognition of all connected probes          |
| Battery type              | 9 V (6LR61)                                                              | Material/Housing | ABS                                                                                                             |
| Dimensions                | 219 x 68 x 50 mm                                                         | Warranty         | 2 years                                                                                                         |
| Weight                    | 300 g                                                                    |                  |                                                                                                                 |
| PC                        | RS232 interface                                                          |                  |                                                                                                                 |
| Memory                    | 25,000                                                                   |                  |                                                                                                                 |

### Accurate measurements from 1 m/s

You will achieve accurate measurement results in the range from 5 to 100 m/s using an internal pressure sensor with an accuracy of 0.1 % of fsv:

Accuracy at 5 m/s: 0.32 m/s  
Accuracy at 20 m/s: 0.09 m/s  
Accuracy at 50 m/s: 0.05 m/s

High accuracy levels are achieved in the velocity range from 1 to 12 m/s when you use the 100 Pa probe which is connected externally. Dependencies on position are completely eliminated thanks to double diaphragm engineering. Changes in position do not influence the measurement result:

Accuracy at 1 m/s: 0.09 m/s  
Accuracy at 5-8 m/s: 0.03 m/s

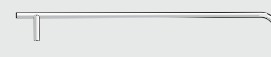
### Pitot tube measurement

Straight Pitot tubes or classical Prandtl's Pitot tubes can be used, depending on the application. Pitot tubes are available in different lengths and diameters depending on duct diameters and duct openings.



**Straight Pitot tubes**

- Built-in temperature measurement
- Higher accuracy on account of Pitot tube factor 0.67



**Prandtl's Pitot tube**

- Higher velocity range in pressure measurement range used
- Application range from 0 to +600 °C

## Mini wind tunnel

You can draw up your own ISO certificates using the wind tunnel and a certified Testo measuring instrument. All of Testo's velocity probes can be checked and calibrated using the mini wind tunnel (except Ø 100 mm vane probes).

Draw up your own ISO calibration certificates! The Testo mini wind tunnel can be used for regular checks on velocity probes and measuring instruments in your company.

You already have a Testo measuring instrument with velocity probe and calibration certificate and you want to calibrate more probes of the same type using the wind tunnel. Mini wind tunnel incl. power connection cable

Part no.  
**0554 0450**

- 3 speed levels can be set: 2.5/5/10 m/s
- The readings are traceable to the PTB standard if Testo's DKD certified testo 400 reference instrument is used
- Accuracy of wind tunnel:  $\pm 1\%$  of reading (at least 0.1 m/s) plus calibration uncertainty of the respective reference instrument's certificate



### Technical data

Length: 610 mm  
 Ø meas. tunnel: approx. 100 mm (inside)  
 Velocities: 2.5/5/10 m/s, can be switched  
 Range of application: +10 to +40 °C  
 Probe holder: For all of Testo's velocity probes except vane probes with Ø 100 mm  
 Motor: Direct current fan  
 Power supply: 230 V/50 Hz or 110 V  
 can be switched, built-in IEC socket  
 Warranty: 2 years

### Recommended set

#### Testo mini wind tunnel, affordable set for beginners

- Mini wind tunnel incl. power connection cable (Part no. 0554 0450)
- testo 435, anemometer, incl. battery and calibration protocol (Part no. 0560 4350)
- Vane probe, Ø 16 mm, with telescopic handle max. 720mm, e.g. for measurements in ducts (Part no. 0635 9544)
- DKD calibration certificate/Velocity (Part no. 0520 0254)

#### Testo mini wind tunnel with reference measuring system

- Mini wind tunnel incl. power connection cable (Part no. 0554 0450)
- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle (Part no. 0635 9540)
- Cable, 1.5 m long, for connecting vane probes with plug-in head to the measuring instrument (Part no. 0409 0045)
- DKD calibration certificate/Velocity (Part no. 0520 0254)

**Testo printer**

The versatile printer with IRDA and infrared interface saves time since it saves the data to be printed prior to printing. Data is transmitted within 2 seconds. The instrument is then immediately ready to operate.

The readings are stored black on white with date and time.

Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries

Part no.  
**0554 0547**

**Versatile infrared printer**



| Technical data   |                                                                           |
|------------------|---------------------------------------------------------------------------|
| Printer type     | Infrared-controlled thermal printer, adjustable contrast, prints graphics |
| Reception radius | Max. 2 m                                                                  |
| Dimensions       | 147 x 77 x 47 mm                                                          |

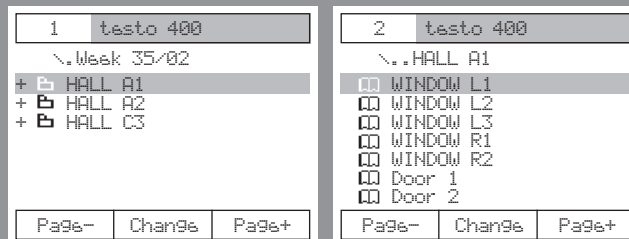
|               |                                                         |
|---------------|---------------------------------------------------------|
| Oper. temp.   | 0 to +50 °C                                             |
| Storage temp. | -40 to +60 °C                                           |
| Power supply  | 4 round cell batteries, 1.5 V or rechargeable batteries |
| Weight        | 430 g                                                   |

| Accessories                                                                                              | Part no.  |
|----------------------------------------------------------------------------------------------------------|-----------|
| Spare thermal paper for printer (6 rolls)                                                                | 0554 0569 |
| Spare thermal paper for printer (6 rolls), Measurement data documentation legible for up to 10 years     | 0554 0568 |
| Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally | 0554 0110 |

## structure - measure - print on-site

### Structuring measurement data:

- Readings can be saved at individual locations
  - with guarantee of refinding.
- The "tree structure" - folders, sub-folders and measurement protocols - guarantees an uncomplicated view.
- Practical additional information such as measurement information or required value input can be saved with the location.
- The locations can be selected via barcode labels using the pen.
- It is easy to draw an effective tour plan using the locations list.



### Long-term control made easy:

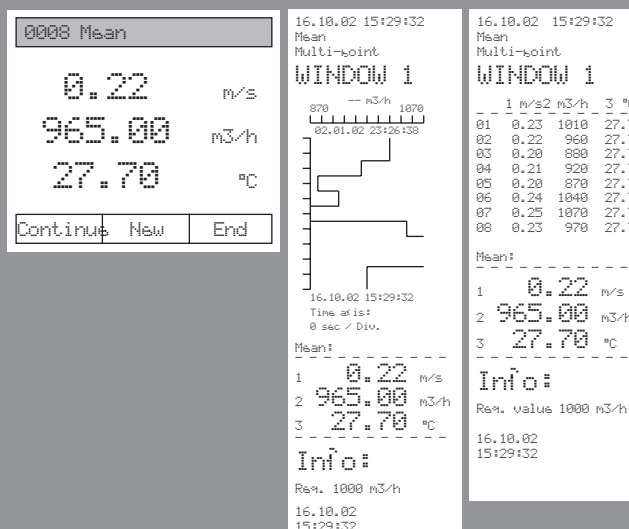
#### User-friendly data logging, not only for spot checks

- The beginning of the measurement can be...**
  - determined manually each time.
  - activated if a user defined limit value is exceeded.
  - set according to date/time.
- The measurement is completed when...**
  - the predefined number of readings is reached.
  - date/time is reached.
  - the memory is full.
  - ended manually.
- Non-stop measurement via wrap-around memory...**
  - deletes the oldest respective value.
  - is deactivated manually.



### Documentation on-site:

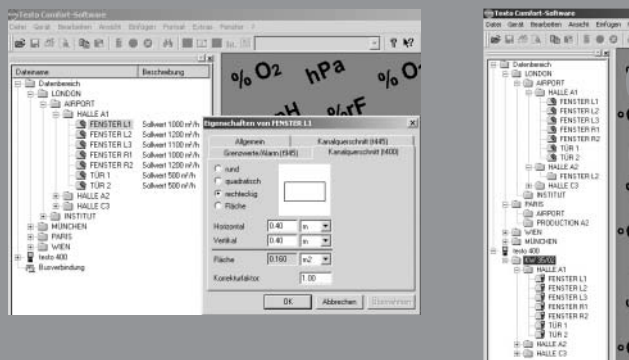
- The individual measurement protocol can be either saved or deleted following analysis.
- The printer immediately supplies the documentation required.
- The attachable comfort printer also offers graphical analysis options.
- Thermal paper for long-term legible measurement data documentation of up to 10 years.



## prepare - analyse - file - document

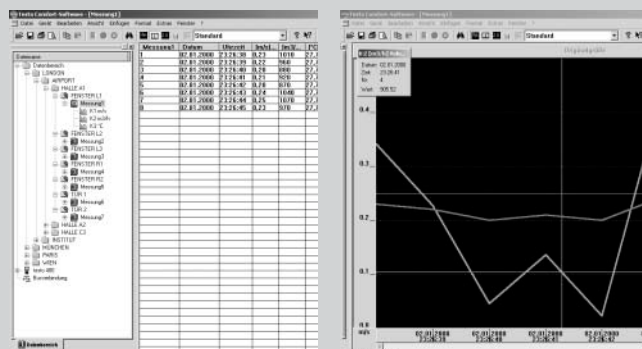
### Easy reading management:

- Preparation of the measurement:
  - The measurement program is determined and loaded into instrument
  - Tour plan is drawn up based on locations and is loaded into instrument.
- The measuring instrument is downloaded once measuring is complete:
  - The saved protocols are conveniently filed via the software using "Drag & Drop" or are analysed in Data.
- The readings are determined using the measuring instrument and can also be displayed online using the software.



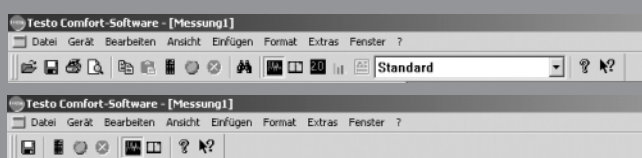
### Comprehensive analysis, easy filing:

- Analysis:
  - with calculation functions
  - with crosshairs
  - with mean calculation
  - with calculation of standard deviation
  - taking all conventional refrigerants into consideration (refrigeration module, optional)
- Display:
  - as table or as graphic
  - as digit field or as histogram
  - with analog display
  - Measurement channels can be activated or deactivated at the touch of a button
- Documenting:
  - Data is transferred to Excel table using "Copy and Paste".



### Individual configuration options:

- Your company logo can be included on the printouts.
- Functions can be selected from the function list and the finished profile can be saved.
- The online interface is available for LabVIEW software.
- Menu can be individually tailored to your needs.



#### ComSoft 3 - Professional for:

- Data loggers from the testo 175, testo 177 and testostor 171 series
- testo 945, testo 645, testo 445 and testo 545 monitoring instruments
- testo 950, testo 650, testo 400 reference measuring instruments (as version also for

#### ComSoft 3 - Professional with data management

Incl. database, analysis and graphics function, data analysis, trend curve (without interface)

Part no.  
**0554 0830**

#### Accessories

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

#### Part no.

0409 0178

## Ethernet adapter

The new Ethernet adapter enables the following:

- On-site measurements, e.g. in production, warehouses, Incoming Goods
- Measuring instrument remains on site, transport not necessary
- Data inspection from office or administration
- Centralised filing of measurement data

### Ethernet offers:

- Fast transmission of readings
- Use of an existing network without additional cabling
- Long transmission distances
- Identification of measuring instruments in system network

**Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit**  
Facilitates data communication in network (not for use in Ex-zone)

Part no.

**0554 1711**

## Access Ethernet with Testo measuring instruments

### Long-term monitoring of ambient data

The parameters, temperature and humidity, are measured and saved on site by the datalogger. Using the Ethernet adapter, measurement data stored in the logger can be read out and filed via the PC network. The measurement data is then easily analysed and checked on your PC in the office.

The Ethernet adapter therefore has the following advantages:

- Affordable operation since it is no longer necessary to read out data on site or take the logger to the office
- Fast access times because current measurement data can be accessed at any time.



### Multi-point checks on site

Testo's handheld measuring instruments are used in production or in Incoming Goods to take spot checks on site. Using an Ethernet adapter, measurement data can be transmitted immediately to a central office which enables fast reaction times, if further actions are required.

| Accessories                                                                                                                                   | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>System accessories: testo 400, testo 445, testo 650, testo 950</b>                                                                         |           |
| ComSoft 3 - Professional with data management, Incl. database, analysis and graphics function, data analysis, trend curve (without interface) | 0554 0830 |
| RS232 cable, Connects instrument to PC (1.8 m) for data transfer                                                                              | 0409 0178 |

| Technical data |                                                        | Management and software configuration | Internet browser e.g. from Netscape or Microsoft Telnet                                                                 |
|----------------|--------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Dimensions     | 45 x 48 x 14 mm                                        |                                       |                                                                                                                         |
| Oper. temp.    | +0 to +70 °C                                           | Interface                             | Serial interface on computer board with terminal program<br><br>Provision of a local virtual COM port (Windows systems) |
| Software       | Microsoft Windows 2000 / NT 4.0 / ME / 98 / 95         |                                       |                                                                                                                         |
| Power supply   | Mains unit, 5 Volt app. 230 mA                         |                                       |                                                                                                                         |
| Humidity class | F to DIN 40040                                         |                                       |                                                                                                                         |
| EMC            | Radio interference and interference resistance         |                                       |                                                                                                                         |
| Interface      | 25 pin RS 232 connection with adapter 25/9pin          |                                       |                                                                                                                         |
| Logs           | TCP/IP, LPR, Telnet, SNMP, DHCP DDNS, ARP, BOOTP, ICMP |                                       |                                                                                                                         |

## testo 445

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 printer on site.

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

Part no.

**0563 4450**

## Service instrument for ventilation/air conditioning systems

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

Prints at touch of button

Saves up to 3000 readings

Selects up to 99 sites



### Set

#### Starter set for flow measurement in ducts (Part no. 0563 4451)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C (Part no. 0628 0005)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)

### Set

#### Starter set for flow/climate measurements in ducts (Part no. 0563 4452)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition (Part no. 0635 1041)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

### Set

#### Starter set for flow/climate measurements in ducts (Part no. 0563 4453)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C (Part no. 0628 0005)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

### Set

#### The affordable pro set for velocity/ambient air measurements in ducts and at duct openings. (Part no.0563 4454 )

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C (Part no. 0628 0005)
- Vane probe, Ø 60 mm, with telescopic handle, for integrating velocity measurement (Part no. 0635 9449)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

### Set

#### The Pro set for convenient monitoring of air conditioning/ventilation units parameters. (Part no. 0563 4455)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets (Part no. 0635 9340)
- Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle (Best.-Nr.0635 9540 )
- Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request (Part no. 0430 0941)
- Standard ambient air probe up to +70°C (Part no. 0636 9740)
- Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C (Part no. 0604 0194)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Pressure probe, 100 hPa, measures differential pressure and velocities (in connection with Pitot tube) (Part no. 0638 1545)
- Pitot tube, 500 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/.1445/.1545 (Part no. 0635 2045)
- Connection hose, silicone, 5m long (Part no. 0554 0440)
- Magnetic holder for pressure probes (Part no. 0554 0225)
- System case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0400)

### Set

#### Set for monitoring Indoor Air Quality (Part no. 0563 4456)

- testo 445, VAC measuring instrument, incl. TopSafe, battery and calibration protocol (Part no. 0563 4450)
- CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required (Part no. 0632 1240)
- 3-function probe for simultaneous measurement of temperature, humidity and velocity. With plug-in head, 0430 0143 connection cable required (Part no. 0635 1540)
- Transport case (plastic) for measuring instrument, probes and accessories (Part no. 0516 0445)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)

| Accessories                                                                                                                                     | Part no.  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Transport and Protection</b>                                                                                                                 |           |
| Transport case (plastic) for measuring instrument, probes and accessories<br>Larger version, for safe and clear storage                         | 0516 0445 |
| System case (plastic) for measuring instrument, probes and accessories<br>Probes in lid make it easy to find parts in case                      | 0516 0400 |
| System case (aluminium) for measuring instrument, probes and accessories<br>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<br>Instead of battery                                                                                           | 0515 0025 |
| Plug-in mains unit<br>For mains operation and recharging battery in instrument                                                                  | 0554 0088 |
| Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material                                                 | 0430 0143 |
| Cable, 5 m long, connects probe with plug-in head to measuring instrument<br>PUR coating material                                               | 0430 0145 |
| Extension cable, 5 m long, between plug-in head cable and instrument<br>PUR coating material                                                    | 0409 0063 |
| <b>Printer and Accessories</b>                                                                                                                  |           |
| Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper<br>and 4 round cell batteries                                  | 0554 0547 |
| Fast testo 575 printer, incl. 1 roll of thermal paper and batteries<br>Infrared thermal line printer with graphics function                     | 0554 1775 |
| Recharger for printer (with 4 standard rech. batteries)<br>Rechargeable batteries are recharged externally                                      | 0554 0110 |
| Spare thermal paper for printer (6 rolls)                                                                                                       | 0554 0569 |
| Spare thermal paper for printer (6 rolls)<br>Measurement data documentation legible for up to 10 years                                          | 0554 0568 |
| Label thermal paper (Testo patent) for testo 575 printer (6 rolls), can be<br>applied directly                                                  | 0554 0561 |
| <b>Software and Accessories</b>                                                                                                                 |           |
| ComSoft 3 - Professional with data management<br>Incl. database, analysis and graphics function, data analysis, trend curve (without interface) | 0554 0830 |
| RS232 cable<br>Connects instrument to PC (1.8 m) for data transfer                                                                              | 0409 0178 |
| Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit<br>Facilitates data communication in network                              | 0554 1711 |
| <b>Calibration Certificates</b>                                                                                                                 |           |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s                               | 0520 0004 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s                             | 0520 0034 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s                                      | 0520 0244 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s                          | 0520 0204 |

| Technical data       | Type K (NiCr-Ni)                                                                         | Type J (Fe-CuNi)                                                                         | NTC                                                                                                                  |
|----------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Probe type           |                                                                                          |                                                                                          |                                                                                                                      |
| Meas. range          | -200 to +1370 °C                                                                         | -200 to +1000 °C                                                                         | -50 to +150 °C                                                                                                       |
| Accuracy<br>±1 digit | ±0.5% of mv (-200 to -60 °C)<br>±0.5% of mv (+60 to +1370 °C)<br>±0.3 °C (-60 to +60 °C) | ±0.5% of mv (-200 to -60 °C)<br>±0.5% of mv (+60 to +1000 °C)<br>±0.3 °C (-60 to +60 °C) | ±0.5% of mv (+100 to +150 °C)<br>±0.2 °C (-25 to +74.9 °C)<br>±0.4 °C (-50 to -25.1 °C)<br>±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<br>±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)<br>0.1 m/s (+10.1 to +20 m/s) |

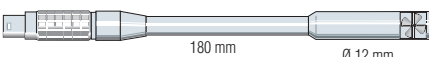
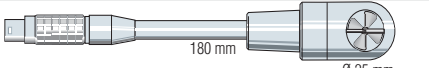
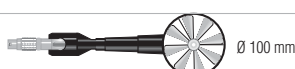
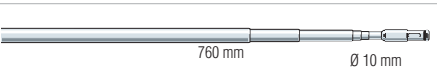
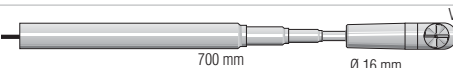
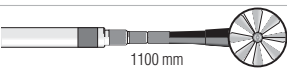
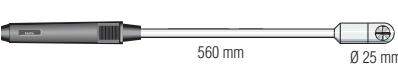
| Probe type           | Pressure                                                                                                            | CO2 probe                                                  | CO2 probe                                                                                       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

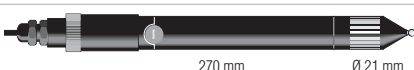
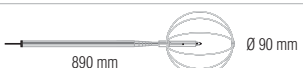
| Probe type           | CO probe                                                        |  |  |
|----------------------|-----------------------------------------------------------------|--|--|
| Meas. range          | 0 to +500 ppm CO                                                |  |  |
| Accuracy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

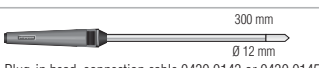
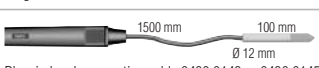
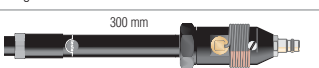
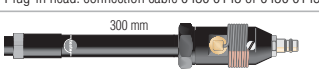
|                  |                  |                                                                                                                                                                                                                                                                     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

## testo 445

## Suitable probes at a glance

| Probes                                                                                                                                 | Illustration                                                                                                    | Probe type                     | Meas. range                                      | Accuracy                                     | Part no.  |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------|----------------------------------------------|-----------|
| Vane probe, Ø 12 mm, can be attached to handle or telescopic handle                                                                    | <br>180 mm<br>Ø 12 mm          | Vane                           | +0.6 to +20 m/s<br>Oper. temp.<br>-30 to +140 °C | ±(0.2 m/s ±1% of mv)<br>(+0.6 to +20 m/s)    | 0635 9443 |
| Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle                                                             | <br>180 mm<br>Ø 16 mm          | Vane<br>Type K (NiCr-Ni)       | +0.4 to +60 m/s<br>-30 to +140 °C                | ±(0.2 m/s ±1% of mv)<br>(+0.4 to +60 m/s)    | 0635 9540 |
| Vane/temperature probe, Ø 25 mm, can be attached to handle or telescopic handle                                                        | <br>180 mm<br>Ø 25 mm          | Vane<br>Type K (NiCr-Ni)       | +0.4 to +40 m/s<br>-30 to +140 °C                | ±(0.2 m/s ±1% of mv)<br>(+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  | <br>Ø 60 mm                    | Vane                           | +0.25 to +20 m/s<br>Oper. temp.<br>0 to +60 °C   | ±(0.1 m/s ±1.5% of mv)<br>(+0.25 to +20 m/s) | 0635 9440 |
| Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets | <br>Ø 100 mm                   | Vane                           | +0.1 to +15 m/s<br>Oper. temp.<br>0 to +60 °C    | ±(0.1 m/s ±1.5% of mv)<br>(+0.1 to +15 m/s)  | 0635 9340 |
| Affordable, robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, with handle                                   | <br>150 mm<br>Ø 4 mm<br>Ø 3 mm | Hot bulb<br>NTC                | 0 to +10 m/s<br>-20 to +70 °C                    | ±(0.03 m/s ±5% of mv)<br>(0 to +10 m/s)      | 0635 1549 |
| Robust hot bulb probe, Ø 3 mm, with handle and telescopic handle for measurements in the lower velocity range                          | <br>850 mm<br>Ø 3 mm           | Hot bulb<br>NTC                | 0 to +10 m/s<br>-20 to +70 °C                    | ±(0.03 m/s ±5% of mv)<br>(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  | <br>760 mm<br>Ø 10 mm          | Hot wire<br>NTC                | 0 to +20 m/s<br>-20 to +70 °C                    | ±(0.03 m/s ±4% of mv)<br>(0 to +20 m/s)      | 0635 1041 |
| Vane probe, Ø 16 mm, with telescopic handle, Tmax +60°C                                                                                | <br>700 mm<br>Ø 16 mm          | Vane                           | +0.6 to +40 m/s                                  | ±(0.2 m/s ±1.5% of mv)<br>(+0.6 to +40 m/s)  | 0628 0005 |
| Vane probe, Ø 60 mm, with telescopic handle, for integrating velocity measurement                                                      | <br>1100 mm<br>Ø 60 mm        | Vane                           | +0.25 to +20 m/s                                 | ±(0.1 m/s ±1.5% of mv)<br>(+0.25 to +20 m/s) | 0635 9449 |
| High temperature vane probe, Ø 25 mm, with handle for continuous measurements up to +350°C                                             | <br>560 mm<br>Ø 25 mm        | Vane<br>Type K (NiCr-Ni)       | +0.6 to +20 m/s<br>-40 to +350 °C                | ±(0.3 m/s ±1% of fsv)<br>(+0.6 to +20 m/s)   | 0635 6045 |
| Precision pressure probe, 100 Pa, measures differential pressure and velocities (in connection with Pitot tube)                        |                              | Differential pressure<br>probe | 0 to +100 Pa                                     | ±(0.3 Pa ±0.5% of mv)<br>(0 to +100 Pa)      | 0638 1345 |
| Pressure probe, 10 hPa, measures differential pressure and velocities (in connection with Pitot tube)                                  |                              | Differential pressure<br>probe | 0 to +10 hPa                                     | ±0.03 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 connection with Pitot tube)                                       |   | Differential pressure probe                     | 0 to +100 hPa                                                     | ±0.5% of mv (+20 to +100 hPa)<br>±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, stainless steel, measures flow speed when used with pressure probes 0638 1345/.1445/.1545                           |   |                                                 | Oper. temp.<br>0 to +600 °C                                       |                                                                                                                                                    | 0635 2045 |
| Pitot tube, 350 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/.1445/.1545                           |   |                                                 | Oper. temp.<br>0 to +600 °C                                       |                                                                                                                                                    | 0635 2145 |
| Pitot tube, 300 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/.1445/.1545                           |   |                                                 | Oper. temp.<br>0 to +600 °C                                       |                                                                                                                                                    | 0635 2245 |
| Pitot tube, 1000 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/.1445/.1545                          |   |                                                 | Oper. temp.<br>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<br>Testo humid. sensor,<br>cap.<br>NTC | 0 to +10 m/s<br>0 to +100 %RH<br>-20 to +70 °C                    | ±(0.03 m/s ±5% of mv)(0 to 10 m/s)<br>±2 %RH (+2 to +98 %RH)<br>±0.4 °C (0 to +50 °C)<br>±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 |   | Hot wire<br>NTC                                 | 0 to +5 m/s<br>0 to +50 °C                                        | ±(0.03 m/s ±4% of mv)<br>(0 to +5 m/s)<br>±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 to +1 Vol. % CO <sub>2</sub><br>0 to +10000 ppm CO <sub>2</sub> | ±(50 ppm CO <sub>2</sub> ±2% of mv)(0 to +5000 ppm CO <sub>2</sub> )<br>±(100 ppm CO <sub>2</sub> ±3% of mv)(+5001 to +10000 ppm CO <sub>2</sub> ) | 0632 1240 |
| Ambient CO probe to measure CO level in ambient air                                                                                          |  | CO probe                                        | 0 to +500 ppm CO                                                  | ±5% of mv (+100.1 to +500 ppm CO)<br>±5 ppm CO (0 to +100 ppm CO)                                                                                  | 0632 1247 |

| More probes                                                                                                                                                  | Illustration                                                                                                                                          | Meas. range                        | Accuracy                                                                                                                                                                | t <sub>90</sub> | Part no.  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Standard ambient air probe up to +70 °C                                                                                                                      | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +70 °C     | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                                                                          | 12 s            | 0636 9740 |
| Duct humidity/temperature probe, can be connected to telescopic handle                                                                                       | <br>Fixed cable                                                    | 0 to +100 %RH<br>-20 to +70 °C     | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±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 | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +70 °C     | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)<br>±0.5 °C (+50.1 to +70 °C)                                                             | 15 s            | 0636 2130 |
| Highly accurate reference humidity/temp. probe incl. cal. cert.                                                                                              | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +70 °C     | ±1 %RH (+10 to +90 %RH)<br>±2 %RH (remaining range)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                                             | 12 s            | 0636 9741 |
| Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm                            | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +125 °C    | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                                                                          | 20 s            | 0628 0013 |
| Sword probe for measuring humidity and temperature in stacked material                                                                                       | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +70 °C     | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)<br>±0.5 °C (+50.1 to +70 °C)                                                             | 12 s            | 0636 0340 |
| High humidity level probe w/ heated sensor element, no humidity on sensor                                                                                    | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +85 °C     | ±2.5 %RH (0 to +100 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)<br>±0.5 °C (+50.1 to +85 °C)                                                           | 30 s            | 0636 2142 |
| Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120 °C                                                | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +120 °C    | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                                                                          | 30 s            | 0636 2140 |
| Robust high temperature/humidity probe up to +180 °C                                                                                                         | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +180 °C    | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (+0.1 to +50 °C)<br>±0.5 °C (remaining range)                                                                                         | 30 s            | 0628 0021 |
| Flexible humidity probe (does not retain shape) for measurements in inaccessible places                                                                      | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +180 °C    | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (+0.1 to +50 °C)<br>±0.5 °C (-20 to 0 °C)<br>±0.5 °C (+50.1 to +180 °C)                                                               | 30 s            | 0628 0022 |
| Standard pressure dew point probe for measurements in compressed air systems                                                                                 | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-30 to +50 °C tpd | ±0.9 °C tpd (+0.1 to +50 °C tpd)<br>±1 °C tpd (-4.9 to 0 °C tpd)<br>±2 °C tpd (-9.9 to -5 °C tpd)<br>±3 °C tpd (-19.9 to -10 °C tpd)<br>±4 °C tpd (-30 to -20 °C tpd)   | 300 s           | 0636 9840 |
| Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40 °C tpd                                         | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-60 to +50 °C tpd | ±0.8 °C tpd (-4.9 to +50 °C tpd)<br>±1 °C tpd (-4.9 to 0 °C tpd)<br>±2 °C tpd (-19.9 to -10 °C tpd)<br>±3 °C tpd (-29.9 to -20 °C tpd)<br>±4 °C tpd (-40 to -30 °C tpd) | 300 s           | 0636 9841 |
| Flexible humidity probe (retains shape) for                                                                                                                  |                                                                    | 0 to +100 %RH<br>-20 to +125 °C    | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)                                                                                          | 30 s            | 0628 0014 |

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

| Probes                                                                                                                                                     | Illustration                                                                                            | Meas. range                                                                                               | Accuracy                                          | t <sub>99</sub> | Part no.  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------------|-----------|
| <ul style="list-style-type: none"> <li>Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C</li> </ul>          | <p>150 mm<br/>Ø 10 mm<br/>Plug-in head, connection cable 0430 0143 or 0430 0145 required</p>            | -200 to +300 °C                                                                                           | Class 2                                           | 3 s             | 0604 0194 |
| <ul style="list-style-type: none"> <li>Super quick-action immersion/penetration probe for measurements in liquids</li> </ul>                               | <p>150 mm<br/>Ø 1.5 mm<br/>Plug-in head, connection cable 0430 0143 or 0430 0145 required</p>           | -200 to +600 °C                                                                                           | Class 1                                           | 1 s             | 0604 0493 |
| <ul style="list-style-type: none"> <li>Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip</li> </ul> | <p>150 mm<br/>20 mm<br/>Ø 0.5 mm<br/>Plug-in head, connection cable 0430 0143 or 0430 0145 required</p> | -200 to +600 °C                                                                                           | Class 1                                           | 1 s             | 0604 9794 |
| Pipe wrap probe for pipes up to 2" in diameter                                                                                                             | <p>Fixed cable</p>                                                                                      | -60 to +130 °C                                                                                            | Class 2                                           | 5 s             | 0600 4593 |
| Spare meas. head for pipe wrap probe                                                                                                                       | <p>35 mm<br/>15 mm</p>                                                                                  | -60 to +130 °C                                                                                            | Class 2                                           | 5 s             | 0602 0092 |
| Globe thermometer to measure radiant heat                                                                                                                  | <p>Ø 150 mm<br/>Fixed cable</p>                                                                         | Accuracy corresponds to<br>ISO 7243, ISO 7726, DIN<br>EN 27726, DIN 33403<br>requirements<br>0 to +120 °C | ±0.5 °C (0 to +49.9 °C)<br>±1 °C (+50 to +120 °C) |                 | 0554 0670 |

• The measuring instrument inside TopSafe is waterproof with this probe.

**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, extension on request  | 0430 0941 |
| Extension for telescopic handle, 2 m long<br>Please also order the 0409 0063 extension cable | 0430 0942 |
| Handle for plug-in vane probes                                                               | 0430 3545 |
| Swan neck, flexible connection between probe and connection part                             | 0430 0001 |
| Extension cable, 5 m long, between plug-in head cable and instrument<br>PUR coating material | 0409 0063 |
| Magnetic probe holder for vane probes                                                        | 0554 0430 |
| Connection hose, silicone, 5m long<br>Max. load 700 hPa (mbar)                               | 0554 0440 |
| Magnetic holder for pressure probes<br>For pressure probes 0638 1345/..1445/..1545/..1645    | 0554 0225 |
| 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<br>Improves heat transfer in surface probes      | 0554 0004 |
| • Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material     | 0430 0143 |
| • Cable, 5 m long, connects probe with plug-in head to measuring instrument                           | 0430 0145 |
| Extension cable, 5 m long, between plug-in head cable and instrument<br>PUR coating material          | 0409 0063 |
| • Telescopic handle, max. 1 m, for probe with plug-in head<br>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<br>PUR coating material                                                           | 0430 0143 |
| • Cable, 5 m long, connects probe with plug-in head to measuring instrument<br>PUR coating material                                                         | 0430 0145 |
| Extension cable, 5 m long, between plug-in head cable and instrument<br>PUR coating material                                                                | 0409 0063 |
| • Telescopic handle, max. 1 m, for probe with plug-in head<br>Cable: 2.5 m long, PUR coating material                                                       | 0430 0144 |
| Telescopic handle, 340 - 800mm long                                                                                                                         | 0430 9715 |
| Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes                                                                       | 0554 0660 |
| Adapter for humidity adjustment of 3-function probe 0635 1540<br>Order with adjustment set                                                                  | 0554 0661 |
| Control and storage humidity (33%RH) for humidity probes                                                                                                    | 0554 0636 |
| Metal protection cage, Ø 21 mm for humidity probes<br>For velocities of less than 10 m/s                                                                    | 0554 0665 |
| Metal protection cage, Ø 12 mm for humidity probes<br>For velocities of less than 10 m/s                                                                    | 0554 0755 |
| Wire mesh filter, Ø 21 mm, for metal protection cage and plastic cap<br>Protects from dirt and damage. Applications: meteorology, splashwater, condensation | 0554 0667 |
| Cap with wire mesh filter, Ø 12 mm                                                                                                                          | 0554 0757 |
| Teflon sintered filter, Ø 21 mm, for corrosive substances<br>High humidity range (long-term measurements), high velocities                                  | 0554 0666 |
| Teflon sintered filter, Ø 12 mm, for corrosive substances<br>High humidity range (long-term measurements), high velocities                                  | 0554 0756 |
| Stainless steel sintered cap, Ø 21 mm, can be screwed onto humidity probe<br>Protection in case of high mechanical load and high velocities                 | 0554 0640 |
| Stainless steel sintered cap, Ø 12 mm, is screwed onto humidity probe<br>For measurements at high velocity speeds or in dirt ingressed air                  | 0554 0647 |
| Teflon cap, Ø 5 mm, attachable, PTFE material, (5 off)<br>Dust protection, high humidity measurements, high flow speeds for humidity probe 0636 2130        | 0554 1031 |
| Teflon sintered filter, Ø 12 mm, for corrosive substances<br>High humidity range (non-stop measurements), high flow speeds                                  | 0554 0758 |

Caps for humidity probes, see page 28

## testo 400

Precision reference class measuring instruments have everything the professional user needs to complete complicated measurement tasks efficiently, accurately and conveniently.

testo 400 includes the parameters temperature, CO<sub>2</sub>, rpm, current, voltage, relative humidity, pressure, velocity and volume flow.

Intelligent electronics ensure the latest technology is used thanks to software updates. The measuring instrument can always keep up with the measurement tasks at hand thanks to upgrades.

Upgradable and teachable, highly reliable and of the highest quality - they are the properties which guarantee that the customer is equipped for the future.

### Useful instrument functions:

- System accuracy up to 0.05 °C and up to a resolution of 0.001 °C
- All functions of testo 650 and testo 950
- Input of cross-sections to volume flow calculation
- Absolute pressure compensation in thermal probes
- Density calculation for velocity measurement with reference to temperature, humidity and absolute pressure
- Turbulence degree measurement to DIN EN 27726, DIN 1946 Teil 2, ISO
- Assessment of volume flow measurements with calculation of total uncertainty of measurement in accordance with EN 12599 with VAC module (optional)

## The reference measuring instrument for A/C and ventilation systems

- With VAC module for velocity measurement in m/s, m<sup>3</sup>/h duct
- Clear graphics display
- 3 user defined function buttons
- Save or print at the touch of a button
- Mains connection/Quick battery recharge
- Attachable printer
- Prints readings on site in the matter of seconds
- Data communication via PC
- Barcode reader
- User friendly operation via cursor



Attachable printer prints readings on site in seconds

Clear graphics display

Data communication by PC, barcode reader

3 user-defined function buttons

Saves or prints at the touch of a button

Easy operation with cursor

Power connection/quick battery recharge

2 user defined probe sockets

### testo 400

testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol

#### Can be used for:

- Velocity, volume flow
- Humidity, pressure
- Temperature
- CO<sub>2</sub>, rpm and current/voltage

Part no.

**0563 4001**

### Recommended set

#### For fast measurements on VAC systems

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Memory upgrade to 500,000 readings (Part no. 0554 9481)
- VAC module upgrade (Part no. 0450 4010)
- ComSoft 3 - Professional with data management (Part no. 0554 0830)
- VAC module upgrade, PC software, (for ComSoft 3 software) (Part no. 0554 4030)
- RS232 cable (Part no. 0409 0178)
- Bendable vane probe (can be bent by 90°, Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets (Part no. 0635 9340)
- Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle (Part no. 0635 9540)
- Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request (Part no. 0430 0941)
- Attachable printer (securely attached) including 1 roll of thermal paper and batteries (Part no. 0554 0570)
- 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)
- System case (aluminium) for measuring instrument, probes and accessories (Part no. 0516 0410)

#### We recommend:

DKD calibration certificate/Temperature 0520 0201  
El. resistance thermometer, el. thermometer; cal. points selectable from -80 to +1000°C

# testo 400

## Additional recommended sets

### Recommended set

#### The pro set for assessing workplaces subjected to heat

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Wet Bulb Globe temperature probe to assess workplaces subjected to heat, in accordance with ISO 7243 or DIN 33403, incl. WBGT case (Part no. 0635 8888)
- Attachable printer (securely attached) including 1 roll of thermal paper and batteries (Part no. 0554 0570)

#### We recommend:

ISO calibration certificate/Temperature 0520 0181  
For air/immersion probes, calibration points -8°C; 0°C; +40°C

#### testo 400, the Pro set for comfort level meas. & occupational safety/health

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Comfort level probe for measuring degree of turbulence, with telescopic handle and stand. Fulfills DIN 1946 Part 2 or EN 12 599 requirements (Part no. 0628 0009)
- Attachable printer (securely attached) including 1 roll of thermal paper and batteries (Part no. 0554 0570)

#### We recommend:

CO2 probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required 0632 1240

Cable, 1.5 m long, connects probe with plug-in head to meas. instrument 0430 0143  
PUR coating material

Standard ambient air probe up to +70°C 0636 9740  
Measures all physical parameters in the Mollier diagram

Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500°C 0604 0194

Cable, 1.5 m long, connects probe with plug-in head to meas. instrument 0430 0143  
PUR coating material

#### The Pro Set for clean room systems

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- 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) (Part no. 0638 1347)
- Precision air probe (Part no. 0628 0017)
- Highly accurate reference humidity/temp. probe incl. cal. cert. (Part no. 0636 9741)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 0430 0143)
- Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition (Part no. 0635 1041)
- Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets (Part no. 0635 9340)
- Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request (Part no. 0430 0941)
- Current/voltage cable (±1 V, ±10 V, 20 mA) (Part no. 0554 0007)
- System case (aluminium) for measuring instrument, probes and accessories (Part no. 0516 0410)
- ComSoft 3 - Professional with data management (Part no. 0554 0830)
- RS232 cable (Part no. 0409 0178)

#### We recommend:

DKD calibration certificates for temperature, humidity, velocity, pressure (See Calibration)

### Recommended set

#### Laboratory fume cupboard probe

- testo 400, multi-function measuring instrument, incl. battery, Li cell and calibration protocol (Part no. 0563 4001)
- Power unit 230 V/ 8 V/ 1 A, for instrument (European plug) (Part no. 0554 1084)
- Rechargeable battery set for instrument (4 rechargeables 2.4V/700mAh) (Part no. 0554 0196)
- Thermal anemometer, Ø 10 mm, w. telescopic handle, measures air flow in lab fume cupboards to DIN EN 14175 (draft) (Part no. 0635 1047)
- Standard ambient air probe up to +70°C (Part no. 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 (Part no. 0638 1847)
- 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) (Part no. 0638 1347)
- Cable, 1.5 m long, connects probe with plug-in head to meas. instrument (Part no. 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 (Part no. 0628 0009)

#### We recommend:

ComSoft 3 - Professional with data management 0554 0830  
Incl. database, analysis and graphics function, data analysis, trend curve (without interface)

RS232 cable 0409 0178  
Connects instrument to PC (1.8 m) for data transfer

Attachable printer (securely attached) including 1 roll of thermal paper and batteries 0554 0570

SoftCase (protects instrument from impact) with carrier strap, magnetic holder 0516 0401  
and probe holder

SoftCase for attachable printer (protects printer from dirt/impact) 0516 0411  
Protects from impact and falls

System case (aluminium) for measuring instrument, probes and accessories 0516 0410  
Probes in lid make it easy to find parts in case

DKD calibration certificate/Velocity for laboratory fume cupboard probe

ISO calibration certificate/Velocity for laboratory fume cupboard probe

| Accessories                                                                                                                                     | Part no.  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Accessories for measuring instrument</b>                                                                                                     |           |
| Memory upgrade to 500,000 readings<br>Upgrades memory capacity (by Service)                                                                     | 0554 9481 |
| Rechargeable battery set for instrument (4 rechargeables 2.4V/700mAh)<br>Selected for quick recharging in instrument                            | 0554 0196 |
| Power unit 230 V/ 8 V/ 1 A, for instrument (European plug)<br>For mains operation and battery recharging                                        | 0554 1084 |
| Car charging adapter, ready to measure following recharging in car<br>Battery is recharged while travelling in car                              | 0554 0424 |
| Spare Li cell to save RAM data<br>When changing battery or rechargeable battery                                                                 | 0515 0028 |
| <b>Printer and Accessories</b>                                                                                                                  |           |
| Attachable printer (securely attached) including 1 roll of thermal paper and batteries                                                          | 0554 0570 |
| Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries                                     | 0554 0547 |
| Fast testo 575 printer, incl. 1 roll of thermal paper and batteries<br>Infrared thermal line printer with graphics function                     | 0554 1775 |
| Recharger for printer (with 4 standard rech. batteries)<br>Rechargeable batteries are recharged externally                                      | 0554 0110 |
| Spare thermal paper for printer (6 rolls)                                                                                                       | 0554 0569 |
| Spare thermal paper for printer (6 rolls)<br>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>Softcase for instrument and printer</b>                                                                                                      |           |
| SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder                                                 | 0516 0401 |
| SoftCase for attachable printer (protects printer from dirt/impact)<br>Protects from impact and falls                                           | 0516 0411 |
| <b>Barcode and accessories</b>                                                                                                                  |           |
| Barcode reader to read in measurement locations<br>Quick and accurate allocation of reading to site                                             | 0554 0460 |
| Barcode labels, self-adhesive (1200 off)<br>for labelling site with barcode, printing via software                                              | 0554 0411 |
| Adhesive pockets (50 off) for printout, paper barcode labels...                                                                                 | 0554 0116 |
| <b>Software and Accessories</b>                                                                                                                 |           |
| ComSoft 3 - Professional with data management<br>Incl. database, analysis and graphics function, data analysis, trend curve (without interface) | 0554 0830 |
| RS232 cable<br>Connects instrument to PC (1.8 m) for data transfer                                                                              | 0409 0178 |
| Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit<br>Facilitates data communication in network                              | 0554 1711 |
| Electrical isolation for RS232 (connects measuring instrument to PC)                                                                            | 0554 0006 |
| <b>VAC module</b>                                                                                                                               |           |
| Memory upgrade to 500,000 readings<br>Upgrades memory capacity (by Service)                                                                     | 0554 9481 |
| VAC module upgrade<br>Volume flow calculation in ducts with error calculation function in instrument                                            | 0450 4010 |
| VAC module upgrade, PC software, (for ComSoft 3 software)<br>Printout of standard measurement protocols                                         | 0554 4030 |
| <b>Refrigeration module</b>                                                                                                                     |           |
| "Refrigeration technology" update with saved curves of all usual refrigerants                                                                   | 0554 4035 |
| <b>System case</b>                                                                                                                              |           |
| Transport case (plastic) for measuring instrument, probes<br>For secure and orderly storage                                                     | 0516 0300 |
| System case (plastic) for measuring instrument, probes and accessories<br>Probes in lid make it easy to find parts in case                      | 0516 0400 |
| System case (aluminium) for measuring instrument, probes and accessories<br>Probes in lid make it easy to find parts in case                    | 0516 0410 |

| Calibration Certificates                                                                                                                        | Part no.  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Calibration certificates/Temperature</b>                                                                                                     |           |
| ISO calibration certificate/Temperature<br>For air/immersion probes, calibration points -18°C; 0°C; +60°C                                       | 0520 0001 |
| ISO calibration certificate/Temperature<br>Meas. instr. with air/immersion probe; cal. points 0°C; +150°C; +300°C                               | 0520 0021 |
| ISO calibration certificate/Temperature<br>Thermometers with surface probe; calibration points +60°C; +120°C; +180°C                            | 0520 0071 |
| DKD calibration certificate/Temperature<br>Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C                          | 0520 0211 |
| DKD calibration certificate/Temperature<br>Contact surface temperature probes; calibration points +100°C; +200°C; +300°C                        | 0520 0271 |
| <b>Calibration certificates/Humidity</b>                                                                                                        |           |
| ISO calibration certificate/Humidity<br>Cal points freely selectable from 5 to 95%RH at +15 to +35°C or at -18 to +80°C                         | 0520 0106 |
| ISO calibration certificate/Humidity<br>Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C                                 | 0520 0006 |
| ISO calibration certificate/Pressure dew point<br>Two adjustment points -10/-40 °C tpd                                                          | 0520 0136 |
| ISO calibration certificate/Humidity<br>Saturated saline solutions; calibration point 11.3%RH                                                   | 0520 0013 |
| ISO calibration certificate/Humidity<br>Saturated saline solutions, calibration point 75.3%RH                                                   | 0520 0083 |
| DKD calibration certificate/Humidity<br>Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C                                 | 0520 0206 |
| DKD calibration certificate/Humidity<br>Cal. points freely selectable from 5 to 95%RH at +25°C or -20°C to +85°C                                | 0520 0216 |
| DKD calibration certificate/Humidity<br>Saturated saline solutions; calibration point 11.3%RH                                                   | 0520 0213 |
| DKD calibration certificate/Humidity<br>Saturated saline solutions; calibration point 75.3%RH                                                   | 0520 0283 |
| <b>Calibration certificates/Pressure</b>                                                                                                        |           |
| ISO calibration certificate/Pressure<br>Differential pressure; 5 points distributed over meas. range                                            | 0520 0005 |
| DKD calibration certificate/Pressure<br>Diff. and pos. pressure; 6 meas. points distributed over meas. range (>0.6% of fsv)                     | 0520 0225 |
| ISO calibration certificate/Pressure<br>Differential pressure, accuracy 0.1 to 0.6 (% of fsv)                                                   | 0520 0025 |
| DKD calibration certificate/Pressure<br>Differential and positive pressure; 11 measuring points distributed over the instrument measuring range | 0520 0215 |
| ISO calibration certificate/Pressure<br>Absolute pressure, accuracy 0.1 to 0.6 (% of full-scale value)                                          | 0520 0125 |
| DKD calibration certificate/Pressure<br>Absolute pressure; 11 measuring points distributed over meas. range                                     | 0520 0212 |
| <b>Calibration certificates/Velocity</b>                                                                                                        |           |
| ISO calibration certificate/Velocity<br>All velocity probes, calibration points selectable from 0.3 to 50 m/s at +25°C                          | 0520 0104 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s                               | 0520 0004 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s                             | 0520 0034 |
| ISO calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 0.5; 0.8; 1; 1.5 m/s                                      | 0520 0024 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s                                      | 0520 0244 |
| DKD calibration certificate/Velocity<br>Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s                          | 0520 0204 |
| DKD calibration certificate/Velocity<br>Hot wire anemometer; calibration points 0.1; 0.2; 0.5; 0.8; 1 m/s                                       | 0520 0224 |

| Technical data       |                                                          |                                                                                       |                           |                                                                                                                                                                                                                                                                                                                                       |                |
|----------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Probe type           | Vane                                                     | Thermal                                                                               | Testo humid. sensor, cap. | Pressure                                                                                                                                                                                                                                                                                                                              | aw value       |
| Meas. range          | 0 to +60 m/s                                             | 0 to +20 m/s                                                                          | 0 to +100 %RH             | 0 to +2000 hPa                                                                                                                                                                                                                                                                                                                        | 0 to +1 aW     |
| Accuracy<br>±1 digit | See probe data for system accuracy                       | ±0.01 m/s (0 to +1.99 m/s)<br>±0.02 m/s (+2 to +4.9 m/s)<br>±0.04 m/s (+5 to +20 m/s) | See probe data            | Probe 0638 1347<br>Probe 0638 1447<br>Probe 0638 1547<br>Probe 0638 1647<br>Probe 0638 1747<br>Probe 0638 1847<br>±0.1% of mv<br>Probe 0638 1741<br>Probe 0638 1841<br>Probe 0638 1941<br>Probe 0638 2041<br>Probe 0638 2141<br>±0.2% of mv                                                                                           | See probe data |
| Resolution           | 0.01 m/s (for Ø 60/100 mm),<br>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)<br>0.001 hPa (Probe 0638 1447)<br>0.01 hPa (Probe 0638 1547)<br>0.1 hPa (Probe 0638 1647)<br>0.1 hPa (Probe 0638 1747)<br>0.1 hPa (Probe 0638 1847)<br>0.01 bar (Probe 0638 1741)<br>0.01 bar (Probe 0638 1841)<br>0.01 bar (Probe 0638 1941)<br>0.01 bar (Probe 0638 2041)<br>0.01 bar (Probe 0638 2141) |                |

| Probe type           | NTC                                                                                | Pt100                                                                                                                                         | Type K (NiCr-Ni)                                                                     | Type S (Pt10Rh-Pt)    | Type J (Fe-CuNi)                                                                     |
|----------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------|
| Meas. range          | -40 to +150 °C                                                                     | -200 to +800 °C                                                                                                                               | -200 to +1370 °C                                                                     | 0 to +1760 °C         | -200 to +1000 °C                                                                     |
| Accuracy<br>±1 digit | ±0.2 °C (-10 to +50 °C)<br>±0.4 °C (-40 to -10.1 °C)<br>±0.4 °C (+50.1 to +150 °C) | ±0.1 °C (-49.9 to +99.9 °C)<br>±0.4 °C (-99.9 to -50 °C)<br>±0.4 °C (+100 to +199.9 °C)<br>±1 °C (-200 to -100 °C)<br>±1 °C (+200 to +800 °C) | ±0.4 °C (-100 to +200 °C)<br>±1 °C (-200 to -100.1 °C)<br>±1 °C (+200.1 to +1370 °C) | ±1 °C (0 to +1760 °C) | ±0.4 °C (-150 to +150 °C)<br>±1 °C (-200 to -150.1 °C)<br>±1 °C (+150.1 to +1000 °C) |
| Resolution           | 0.1 °C (-40 to +150 °C)                                                            | 0.01 °C (-99.9 to +300 °C)<br>0.1 °C (-200 to -100 °C)<br>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                     | Mechanical                | Current/voltage measurement                                                | Current/voltage measurement |
|----------------------|-------------------------------------------------------------------|------------------------------|---------------------------|----------------------------------------------------------------------------|-----------------------------|
| Meas. range          | 0 to +1 Vol. % CO <sub>2</sub><br>0 to +10000 ppm CO <sub>2</sub> | 0 to +500 ppm CO             | +20 to +20000 rpm         | 0 to +20 mA (0554 0007)<br>0/4 to 20 mA (0554 0528)                        | 0 to +10 V                  |
| Accuracy<br>±1 digit | See probe data                                                    | ±5% of mv (0 to +500 ppm CO) | (+20 to +20000 rpm)       | ±0.04 mA (0 (0554 0007)<br>to +20 mA)<br><br>See probe (0554 0528)<br>data | ±0.01 V (0 to +10 V)        |
| Resolution           |                                                                   |                              | 1 rpm (+20 to +20000 rpm) | 0.01 mA (0 to +20 mA)                                                      | 0.01 V (0 to +10 V)         |

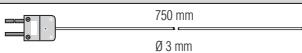
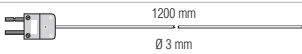
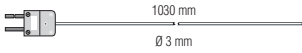
|                  |                 |
|------------------|-----------------|
| Oper. temp.      | 0 to +50 °C     |
| Storage temp.    | -25 to +60 °C   |
| Display          | LCD, 4 lines    |
| Battery type     | 1,5 V AA        |
| Battery life     | 18 h            |
| PC               | RS232 interface |
| Weight           | 500 g           |
| Material/Housing | ABS             |
| Warranty         | 3 years         |
| Memory           | 45000           |

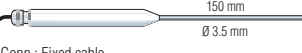
Memory space in basic version: 128 KB  
corresponding to approx. 45,000 readings  
With memory upgrade: 1 MB corresponding to  
approx. 500,000 readings  
Other features: automatic probe recognition  
Power: Battery/rech. battery, alternatively 8 V  
mains unit  
Battery life in continuous operation with 2 T/C  
probes

| Probes Type K (NiCr-Ni)                                                                                                                                             | Illustration | Meas. range      | Accuracy | t <sub>99</sub> | Part no.                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|----------|-----------------|--------------------------|
| Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip                                                            |              | -200 to +600 °C  | Class 1  | 1 s             | 0604 9794<br>0614 9794 * |
| Thermocouple, made of fibre-glass insulated thermal pipes, pack of 5                                                                                                |              | -200 to +400 °C  | Class 1  | 5 s             | 0644 1109                |
| 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<br>0614 0194 * |
| Super quick-action surface probe, probe tip at 90° angle, with sprung thermocouple strip                                                                            |              | -200 to +300 °C  | Class 2  | 3 s             | 0604 0994                |
| Robust surface probe                                                                                                                                                |              | -200 to +600 °C  | Class 1  | 25 s            | 0604 9993<br>0614 9993 * |
| Robust surface probe, at 90° angle, suitable for inaccessible places                                                                                                |              | -200 to +600 °C  | Class 1  | 25 s            | 0604 9893<br>0614 9893 * |
| Robust surface probe with sprung thermocouple strip for high temperature range up to +700 °C                                                                        |              | -200 to +700 °C  | Class 2  | 3 s             | 0600 0394                |
| Roller surface probe for measurements on rollers and rotating drums, max. circumferential velocity 18 to 400 m/min                                                  |              | -50 to +240 °C   | Class 2  |                 | 0600 5093                |
| Magnetic probe, adhesive power approx. 20 N, with magnets, for measurements on metal surfaces                                                                       |              | -50 to +170 °C   | Class 2  |                 | 0600 4793                |
| Magnetic probe, adhesive power approx. 10 N, with magnets, for higher temperatures, measures on metal surfaces                                                      |              | -50 to +400 °C   | Class 2  |                 | 0600 4893                |
| Miniature surface probe for measurements on electronic components, small motors...                                                                                  |              | -200 to +400 °C  | Class 2  | 3 s             | 0600 1494                |
| Adhesive thermocouple, pack of 2, carrier material: aluminium foil<br>Is fixed at the measuring point using conventional adhesives or silicone heat paste 0554 0004 |              | -200 to +200 °C  | Class 1  |                 | 0644 1607                |
| Fast response immersion/penetration probe                                                                                                                           |              | -200 to +400 °C  | Class 1  | 3 s             | 0604 0293<br>0614 0293 * |
| Super quick-action immersion/penetration probe for measurements in liquids                                                                                          |              | -200 to +600 °C  | Class 1  | 1 s             | 0604 0493<br>0614 0493 * |
| Super quick-action immersion/penetration probe for high temperatures                                                                                                |              | -200 to +1100 °C | Class 1  | 1 s             | 0604 0593<br>0614 0593 * |
| Super quick-action immersion/penetration probe for measurements in gases and liquids with a low-mass tip                                                            |              | -200 to +600 °C  | Class 1  | 1 s             | 0604 9794<br>0614 9794 * |
| Robust immersion/penetration probe made of V4A stainless steel, waterproof and oven-proof, e.g. for the food sector                                                 |              | -200 to +400 °C  | Class 1  | 3 s             | 0600 2593                |
| Smelting probe for measurements in non-ferrous melting baths, with exchangeable measuring tips                                                                      |              | -200 to +1250 °C | Class 1  | 60 s            | 0600 5993                |
| Pipe wrap probe for pipes up to 2" in diameter                                                                                                                      |              | -60 to +130 °C   | Class 2  | 5 s             | 0600 4593                |
| Spare meas. head for pipe wrap probe                                                                                                                                |              | -60 to +130 °C   | Class 2  | 5 s             | 0602 0092                |

\*with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t<sub>95</sub> extrapolation; surface allowance in surface probe can be adapted to measuring task

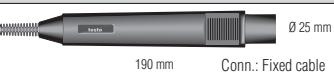
**testo 400**
**Suitable probes at a glance**

| Probes Type K (NiCr-Ni)                                                                                    | Illustration                                                                                                                                          | Meas. range      | Accuracy | t <sub>99</sub> | Part no.  |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|-----------------|-----------|
| Plug-in measuring tip, 750mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541   | <br>750 mm<br>Ø 3 mm<br>Please order handle with Part no. 0600 5593  | -200 to +900 °C  | Class 1  | 4 s             | 0600 5393 |
| Plug-in measuring tip, 1200 mm long, flexible, for high temperatures, outer casing: stainless steel 1.4541 | <br>1200 mm<br>Ø 3 mm<br>Please order handle with Part no. 0600 5593 | -200 to +900 °C  | Class 1  | 4 s             | 0600 5493 |
| Plug-in measuring tip, 550mm long, flexible, for high temperatures, outer casing: Inconel 2.4816           | <br>550 mm<br>Ø 3 mm<br>Please order handle with Part no. 0600 5593  | -200 to +1100 °C | Class 1  | 4 s             | 0600 5793 |
| Plug-in measuring tip, 1030mm long, flexible, for high temperatures, outer casing: Inconel 2.4816          | <br>1030 mm<br>Ø 3 mm<br>Please order handle with Part no. 0600 5593 | -200 to +1100 °C | Class 1  | 4 s             | 0600 5893 |

| Probes Pt100                                                                               | Illustration                                                                                                                                                                        | Meas. range                        | Accuracy                                                                                                                  | t <sub>99</sub> | Part no.               |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|
| Standard air probe                                                                         | <br>150 mm<br>Ø 3 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required      | -200...+600 °C                     | Class A                                                                                                                   | 75 s            | 0604 9773              |
| Precision air probe                                                                        | <br>150 mm<br>Ø 3 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required      | -100 to +400 °C                    | 1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751                                                            | 75 s            | 0628 0017              |
| Robust surface probe                                                                       | <br>150 mm<br>Ø 4 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required      | -50 to +400 °C                     | Class B                                                                                                                   | 40 s            | 0604 9973<br>0628 0018 |
| Velcro probe for pipes with diameter of max. 75 mm                                         | <br>280 mm<br>Conn.: Fixed cable                                                                   | -50 to +150 °C                     | Class B                                                                                                                   | 40 s            | 0628 0019              |
| Standard immersion/penetration probe                                                       | <br>200 mm<br>Ø 3 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required     | Stainless Steel<br>-200 to +400 °C | Class A                                                                                                                   | 20 s            | 0604 0273              |
| Standard immersion/penetration probe                                                       | <br>200 mm<br>Ø 3 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required    | Nickel<br>-200 to +600 °C          | Class A                                                                                                                   | 20 s            | 0604 0274              |
| Highly accurate immersion/penetration probe incl. certificate                              | <br>295 mm<br>Ø 4 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required    | Stainless Steel<br>-40 to +300 °C  | ±0.05 °C (+0.01 to +100 °C)<br>±0.05 °C ±0.05% of mv)<br>(-40 to 0 °C)<br>±(0.05 °C ±0.05% of mv)<br>(+100.01 to +300 °C) | 60 s            | 0614 0240              |
| Highly accurate immersion/penetration probe                                                | <br>200 mm<br>Ø 3 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required    | -100 to +400 °C                    | 1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751                                                            | 30 s            | 0628 0015              |
| Flexible precision immersion probe, cable heat-proof up to +300°C                          | <br>1000 mm<br>Ø 3.5 mm<br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required | 50 mm<br>Ø 6 mm<br>-100 to +265 °C | 1/10 Class B (0 to 100°C) 1/5 Class B (rem. range) to EN 60751                                                            | 80 s            | 0628 0016              |
| Robust immersion/penetration probe with sharpened measuring tip, waterproof and oven-proof | <br>150 mm<br>Ø 3.5 mm<br>Conn.: Fixed cable                                                     | Ø 3 mm<br>-200 to +400 °C          | Class A                                                                                                                   | 30 s            | 0604 2573              |

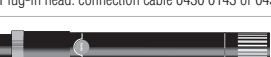
\*with EEPROM: Precision adjustment for each probe at a measuring point; measuring range limits are saved in probe; t<sub>95</sub> extrapolation; surface allowance in surface probe can be adapted to measuring task

| Probes NTC                                                                                                  | Illustration                                                                                                                  | Meas. range    | Accuracy                                                                                                                              | t <sub>99</sub> | Part no.  |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor | <br>150 mm<br>Ø 9 mm<br>Conn.: Fixed cable | -40 to +130 °C | To UNI curve                                                                                                                          | 60 s            | 0610 9714 |
| Globe thermometer to measure radiant heat                                                                   | <br>Ø 150 mm<br>Conn.: Fixed cable         | 0 to +120 °C   | ±0.5 °C (0 to +49.9 °C)<br>±1 °C (+50 to +120 °C)<br>Accuracy corresponds to ISO 7243, ISO 7726, DIN EN 27726, DIN 33403 requirements |                 | 0554 0670 |

| More probes                                                                                                                                                                                                                                                                                                                                                                                                                                               | Illustration                                                                                                                                               | Meas. range                                                       | Accuracy                                                                                                                                           | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Ambient CO probe to measure CO level in ambient air                                                                                                                                                                                                                                                                                                                                                                                                       | <br>190 mm Conn.: Fixed cable                                             | 0 to +500 ppm CO                                                  | ±5% of mv (+100.1 to +500 ppm CO)<br>±5 ppm CO (0 to +100 ppm CO)                                                                                  | 0632 1247 |
| CO <sub>2</sub> probe measures indoor air quality and monitors the workplace. With plug-in head, connection cable 0430 0143 or 0430 0145 required                                                                                                                                                                                                                                                                                                         | <br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +1 Vol. % CO <sub>2</sub><br>0 to +10000 ppm CO <sub>2</sub> | ±(50 ppm CO <sub>2</sub> ±2% of mv)(0 to +5000 ppm CO <sub>2</sub> )<br>±(100 ppm CO <sub>2</sub> ±3% of mv)(+5001 to +10000 ppm CO <sub>2</sub> ) | 0632 1240 |
| Mechanical rpm probe with plug-in head<br>Included<br> 2 probe tips Ø 8 and Ø 12 mm<br> 1 hollow cone Ø 8 mm<br> 1 surface speed disc Ø 19 mm to measure rotational speed: rpm = rotational speed in mm/s | <br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required | 20 to 20000 rpm                                                   | ±1 digit                                                                                                                                           | 0640 0340 |
| Current/voltage cable (±1 V, ±10 V, 20 mA)                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                           | 0 to +1000 mV<br>0 to +10 V<br>0 to +20 mA                        | ±1 mV (0 to +1000 mV)<br>±0.01 V (0 to +10 V)<br>±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                                                                                                                                                                                                                                                    | <br>Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0/4 to 20 mA                                                      | ±0.04 mA                                                                                                                                           | 0554 0528 |

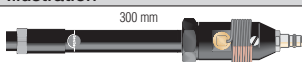
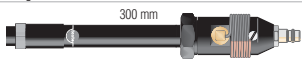
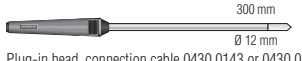
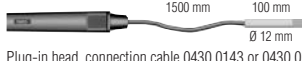
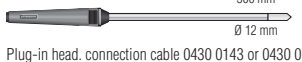
| Accessories                                                                                                                       | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
| Cable, 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 |
| Glass shaft for immersion/penetration probe to protect from corrosive agents<br>For probes with Part nos. 0604 0273 and 0628 0015 | 0554 7072 |
| Adapter to connect NiCr-Ni thermocouples and probes with open wire ends                                                           | 0600 1693 |
| Handle for plug-in measuring tip                                                                                                  | 0600 5593 |
| Silicone heat paste (14g), Tmax = +260°C, Improves heat transfer in surface probes                                                | 0554 0004 |
| Spare measuring tip for smelting probe                                                                                            | 0363 1712 |

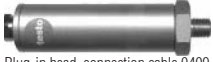
**More probes**

| Humidity probes                                                                                                                                              | Illustration                                                                                                                                                              | Meas. range                    | Accuracy                                                                                                      | t <sub>99</sub> | Part no.  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Standard ambient air probe up to +70°C                                                                                                                       | <br>Ø 12 mm<br>Plug-in head, connection cable 0430 0143 or 0430 0145 required          | 0 to +100 %RH<br>-20 to +70 °C | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                | 12 s            | 0636 9740 |
| Duct humidity/temperature probe, can be connected to telescopic handle<br>Telescopic handle 0430 9715, see Ordering data/Accessories                         | <br>180 mm<br>Ø 12 mm<br>Fixed cable                                                   | 0 to +100 %RH<br>-20 to +70 °C | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±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 | <br>250 mm<br>Ø 4 mm<br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 %RH<br>-20 to +70 °C | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)<br>±0.5 °C (+50.1 to +70 °C)   | 15 s            | 0636 2130 |
| Highly accurate reference humidity/temp. probe incl. cal. cert.                                                                                              | <br>Ø 21 mm<br>Plug-in head, connection cable 0430 0143 or 0430 0145 required          | 0 to +100 %RH<br>-20 to +70 °C | ±1 %RH (+10 to +90 %RH)<br>±2 %RH (remaining range)<br>* ±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range) | 12 s            | 0636 9741 |
| Humidity/temperature probe                                                                                                                                   | <br>Ø 21 mm<br>Plug-in head, connection cable 0430 0143 or 0430 0145 required          | 0... +100 %RH<br>-20 to +70 °C | ±2 %RH (+2... +98 %RH)<br>±0.4 °C (+0.1 to +50 °C)<br>±0.5 °C (-20 to 0 °C)<br>±0.5 °C (+50.1 to +70 °C)      | 12 s            | 0636 9742 |

\* in the temperature range from +10°C to +30°C

**testo 400**
**Suitable probes at a glance**

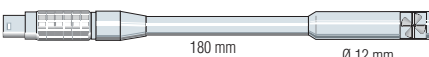
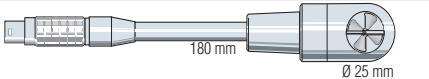
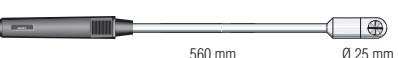
| Probes Process humidity                                                                                                                                                                                  | Illustration                                                                                                                                          | Meas. range                                  | Accuracy                                                                                                                                                                 | t <sub>99</sub> | Part no.  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Standard pressure dew point probe for measurements in compressed air systems                                                                                                                             | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-30 to +50 °C tpd           | ±0.9 °C tpd (+0.1 to +50 °C tpd)<br>±1 °C tpd (-4.9 to 0 °C tpd)<br>±2 °C tpd (-9.9 to -5 °C tpd)<br>±3 °C tpd (-19.9 to -10 °C tpd)<br>±4 °C tpd (-30 to -20 °C tpd)    | 300 s           | 0636 9840 |
| Precision pressure dew point probe for measurements in compressed air systems incl. cert. with test point -40°C tpd                                                                                      | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-60 to +50 °C tpd           | ±0.8 °C tpd (-4.9 to +50 °C tpd)<br>±1 °C tpd (-9.9 to -5 °C tpd)<br>±2 °C tpd (-19.9 to -10 °C tpd)<br>±3 °C tpd (-29.9 to -20 °C tpd)<br>±4 °C tpd (-40 to -30 °C tpd) | 300 s           | 0636 9841 |
| High humidity level probe w/ heated sensor element, no humidity on sensor                                                                                                                                | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-20 to +85 °C               | ±2.5 %RH (0 to +100 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)<br>±0.5 °C (+50.1 to +85 °C)                                                            | 30 s            | 0636 2142 |
| Robust high temperature/humidity probe up to +180°C                                                                                                                                                      | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-20 to +180 °C              | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (+0.1 to +50 °C)<br>±0.5 °C (remaining range)                                                                                          | 30 s            | 0628 0021 |
| Flexible humidity probe (does not retain shape) for measurements in inaccessible places                                                                                                                  | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-20 to +180 °C              | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (+0.1 to +50 °C)<br>±0.5 °C (-20 to 0 °C)<br>±0.5 °C (+50.1 to +180 °C)                                                                | 30 s            | 0628 0022 |
|                                                                                                                                                                                                          |                                                                                                                                                       |                                              |                                                                                                                                                                          |                 |           |
| Probes Material and equilibrium moisture                                                                                                                                                                 | Illustration                                                                                                                                          | Meas. range                                  | Accuracy                                                                                                                                                                 | t <sub>99</sub> | Part no.  |
| Flexible humidity probe with mini module for meas. e.g. on material testing rigs, module cable length 1500mm, probe tip 50x19x7mm                                                                        | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-20 to +125 °C              | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                                                                           | 20 s            | 0628 0013 |
| Sword probe for measuring humidity and temperature in stacked material                                                                                                                                   | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-20 to +70 °C               | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (-20 to -10.1 °C)<br>±0.5 °C (+50.1 to +70 °C)                                                              | 12 s            | 0636 0340 |
| Robust humidity probe e.g. for measuring equilibrium moisture or for measurements in exhaust ducts to +120°C                                                                                             | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required   | 0 to +100 %RH<br>-20 to +120 °C              | ±2 %RH (+2 to +98 %RH)<br>±0.4 °C (-10 to +50 °C)<br>±0.5 °C (remaining range)                                                                                           | 30 s            | 0636 2140 |
| Material moisture probe                                                                                                                                                                                  |                                                                     |                                              | Free scaling, reference measurement, no water level                                                                                                                      |                 | 0636 0365 |
| Material/building moisture cable                                                                                                                                                                         |                                                                    | 0 to 100 k Ohm = 100 to 0 %                  | Display values in instrument display mean: 100 to 66 wet; 0 to 1 very dry                                                                                                |                 | 0636 0565 |
|                                                                                                                                                                                                          |                                                                                                                                                       |                                              |                                                                                                                                                                          |                 |           |
| Probes aw value                                                                                                                                                                                          | Illustration                                                                                                                                          | Meas. range                                  | Accuracy                                                                                                                                                                 | t <sub>99</sub> | Part no.  |
| aw value set: pressure-tight precision humidity probe with certificate, measurement chamber and 5 sample bowls (plastic)                                                                                 | <br>Reproducibility of aw value ±0.003                             | 0 to +1 aW<br>0 to +100 %RH<br>-20 to +70 °C | ±0.01 aW (+0.1 to +0.9 aW)<br>±0.1 hPa (0 to +20 hPa)<br>±0.02 aW (+0.9 to +1 aW)                                                                                        |                 | 0628 0024 |
|                                                                                                                                                                                                          |                                                                                                                                                       |                                              |                                                                                                                                                                          |                 |           |
| Differential pressure probe                                                                                                                                                                              | 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 velocity speeds (in connection with Pitot tube) | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 Pa                                 | ±(0.3 Pa ±0.5% of mv)                                                                                                                                                    | 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)            | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +10 hPa                                 | ±0.03 hPa                                                                                                                                                                | 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)          | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +100 hPa                                | ±0.5% of mv (+20 to +100 hPa)<br>±0.1 hPa (0 to +20 hPa)                                                                                                                 | 0638 1547       |           |
| Pressure probe, 1000 hPa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment                            | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +1000 hPa                               | ±1 hPa (0 to 200 hPa)<br>±0.5% of mv (200 to 1000 hPa)                                                                                                                   | 0638 1647       |           |
| Pressure probe, 2000 hPa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment                            | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +2000 hPa                               | ±2 hPa (0 to 400 hPa)<br>±0.5% of mv (400 to 2000 hPa)                                                                                                                   | 0638 1747       |           |
| 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                                | <br>Plug-in head, connection cable 0430 0143 or 0430 0145 required | 0 to +2000 hPa                               | ±5 hPa (0 to +2000 hPa)                                                                                                                                                  | 0638 1847       |           |

| Relative pressure probes                                              | Illustration                                                                                                                           | Meas. range    | Accuracy                          |                           | Part no.  |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------|---------------------------|-----------|
| Low pressure probe, refrigerant-proof stainless steel, up to 10 bar   | <br>Plug-in head, connection cable 0409 0202 required | -1 to +10 bar  | ±1% of fsv<br>Overload<br>25 bar  | Screw-in thread 7/16" UNF | 0638 1741 |
| High pressure probe, refrigerant-proof stainless steel, up to 30 bar  | <br>Plug-in head, connection cable 0409 0202 required | -1 to +30 bar  | ±1% of fsv<br>Overload<br>120 bar | Screw-in thread 7/16" UNF | 0638 1841 |
| High press. probe, refrigerant-proof st. steel, up to 40 bar          | <br>Plug-in head, connection cable 0409 0202 required | -1 to +40 bar  | ±1% of fsv<br>Overload<br>120 bar | Screw-in thread 7/16" UNF | 0638 1941 |
| High pressure probe, refrigerant-proof stainless steel, up to 100 bar | <br>Plug-in head, connection cable 0409 0202 required | -1 to +100 bar | ±1% of fsv<br>Overload<br>250 bar | Screw-in thread 7/16" UNF | 0638 2041 |
| High pressure probe, refrigerant-proof stainless steel, up to 400 bar | <br>Plug-in head, connection cable 0409 0202 required | -1 to +400 bar | ±1% of fsv<br>Overload<br>600 bar | Screw-in thread 7/16" UNF | 0638 2141 |

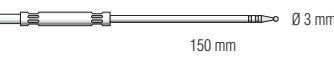
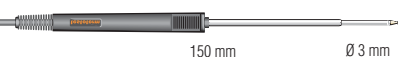
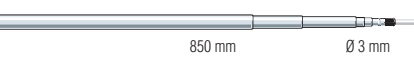
| Caps for humidity probes Ø 12mm and 21mm                                                                                                                                                                                                       | Illustration                                                                        |         | Part no.                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|---------------------------------------------------------|
| 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                                                     |    | Ø 21 mm | All humidity probes with Ø 21 mm<br>0554 0665           |
| 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.                                                    |    | Ø 12 mm | 0636 9740, 0636 9715<br>0554 0755                       |
| 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.             |    | Ø 21 mm | All humidity probes with Ø 21 mm<br>0554 0667           |
| Cap with wire mesh filter, Ø 12 mm                                                                                                                                                                                                             |                                                                                     |         | All humidity probes with Ø 12 mm<br>0554 0757           |
| 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 velocities             |  | Ø 21 mm | All humidity probes with Ø 21 mm<br>0554 0666           |
| 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             |  | Ø 12 mm | 0636 9769, 0636 9740, 0636 9715<br>0554 0756            |
| 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             |  | Ø 12 mm | 0628 0021, 0628 0022, 0636 2140, 0636 2142<br>0554 0758 |
| 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             |  | Ø 21 mm | All humidity probes Ø 21 mm<br>0554 0640                |
| 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 velocity speeds. |  | Ø 12 mm | 0636 9740, 0636 9715<br>0554 0647                       |
| Teflon cap, Ø 5 mm, attachable, PTFE material, (5 off). Applications: dust protection, high humidity level measurements, high velocities                                                                                                       |  | Ø 5 mm  | 0636 2130<br>0554 1031                                  |

| Accessories: Humidity probes                                                                                   | Part no.  |
|----------------------------------------------------------------------------------------------------------------|-----------|
| Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material                | 0430 0143 |
| Cable, 5 m long, connects probe with plug-in head to measuring instrument<br>PUR coating material              | 0430 0145 |
| Extension cable, 5 m long, between plug-in head cable and instrument<br>PUR coating material                   | 0409 0063 |
| Telescopic handle, max. 1 m, for probe with plug-in head<br>Cable: 2.5 m long, PUR coating material            | 0430 0144 |
| Telescopic handle, 340 - 800mm long                                                                            | 0430 9715 |
| Adapter for surface humidity measuring, for humidity probes Ø 12mm<br>Locates damp spots on walls, for example | 0628 0012 |
| Cap for bore holes, for humidity probe Ø 12 mm<br>Measures equilibrium moisture in bore holes                  | 0554 2140 |
| Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes                          | 0554 0660 |
| Control and storage humidity (33%RH) for humidity probes                                                       | 0554 0636 |

| Accessories: Pressure probes                                                                                                    | Part no.  |
|---------------------------------------------------------------------------------------------------------------------------------|-----------|
| Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941                                                           | 0409 0202 |
| Adapter for pressure probes, 1/2" outer thread, 1/4" inner thread<br>for pressure probes 0638 1741/1841/1941/2041/2141          | 0699 3127 |
| Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material                                 | 0430 0143 |
| Cable, 5 m long, connects probe with plug-in head to measuring instrument<br>PUR coating material                               | 0430 0145 |
| Connection hose, silicone, 5m long<br>Max. load 700 hPa (mbar)                                                                  | 0554 0440 |
| Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection<br>Pressure-tight up to 20 bar, for probe 0638 1647/1747/1847 | 0554 0441 |

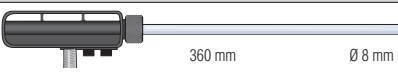
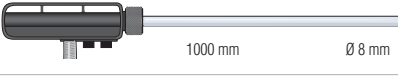
| Vane probes                                                                                                                            | Illustration                                                                      | Probe type               | Meas. range                                      | Accuracy                                     | Part no.  |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------|--------------------------------------------------|----------------------------------------------|-----------|
| Vane probe, Ø 12 mm, can be attached to handle or telescopic handle                                                                    |  | Vane                     | +0.6 to +20 m/s<br>Oper. temp.<br>-30 to +140 °C | ±(0.2 m/s ±1% of mv)<br>(+0.6 to +20 m/s)    | 0635 9443 |
| Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle                                                             |  | Vane<br>Type K (NiCr-Ni) | +0.4 to +60 m/s<br>-30 to +140 °C                | ±(0.2 m/s ±1% of mv)<br>(+0.4 to +60 m/s)    | 0635 9540 |
| Vane/temperature probe, Ø 25 mm, can be attached to handle or telescopic handle                                                        |  | Vane<br>Type K (NiCr-Ni) | +0.4 to +40 m/s<br>-30 to +140 °C                | ±(0.2 m/s ±1% of mv)<br>(+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  |  | Vane                     | +0.25 to +20 m/s<br>Oper. temp.<br>0 to +60 °C   | ±(0.1 m/s ±1.5% of mv)<br>(+0.25 to +20 m/s) | 0635 9440 |
| Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets |  | Vane                     | +0.1 to +15 m/s<br>Oper. temp.<br>0 to +60 °C    | ±(0.1 m/s ±1.5% of mv)<br>(+0.1 to +15 m/s)  | 0635 9340 |
| Vane probe, Ø 16 mm, for stationary assembly, 3 m cable (PVC)                                                                          |  |                          | +0.4 to +60 m/s<br>Oper. temp.<br>0 to +70 °C    | ±(0.2 m/s ±1% of mv)<br>(+0.4 to +60 m/s)    | 0628 0036 |
| High temperature vane probe, Ø 25 mm, with handle for continuous measurements up to +350°C                                             |  | Vane<br>Type K (NiCr-Ni) | +0.6 to +20 m/s<br>-40 to +350 °C                | ±(0.3 m/s ±1% of fsv)<br>(+0.6 to +20 m/s)   | 0635 6045 |

| Accessories: Vane probes                                                                     | Part no.  | Accessories: Vane probes                                         | Part no.  |
|----------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------|-----------|
| Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request  | 0430 0941 | Swan neck, flexible connection between probe and connection part | 0430 0001 |
| Extension for telescopic handle, 2 m long<br>Please also order the 0409 0063 extension cable | 0430 0942 | Magnetic probe holder for vane probes                            | 0554 0430 |
| Handle for plug-in vane probes                                                               | 0430 3545 |                                                                  |           |

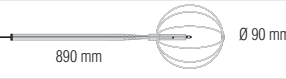
| Thermal probes                                                                                                                        | Illustration                                                                        | Probe type      | Meas. range                   | Accuracy                                | Part no.  |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------|-------------------------------|-----------------------------------------|-----------|
| Robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, 2m cable (PVC)                                           |  | Hot bulb<br>NTC | 0 to +10 m/s<br>-20 to +70 °C | ±(0.03 m/s ±5% of mv)<br>(0 to +10 m/s) | 0628 0035 |
| Affordable, robust hot bulb probe, Ø 3 mm, for measurements in the lower velocity range, with handle                                  |  | Hot bulb<br>NTC | 0 to +10 m/s<br>-20 to +70 °C | ±(0.03 m/s ±5% of mv)<br>(0 to +10 m/s) | 0635 1549 |
| Robust hot bulb probe, Ø 3 mm, with handle and telescopic handle for measurements in the lower velocity range                         |  | Hot bulb<br>NTC | 0 to +10 m/s<br>-20 to +70 °C | ±(0.03 m/s ±5% of mv)<br>(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 |  | Hot wire<br>NTC | 0 to +20 m/s<br>-20 to +70 °C | ±(0.03 m/s ±4% of mv)<br>(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 (draft)                    |  | Hot wire<br>NTC | 0 to +5 m/s<br>0 to +50 °C    | ±(0.02 m/s ±5% of mv)<br>(0 to +5 m/s)  | 0635 1047 |

| Differential pressure probes                                                                                                                                                                             | Illustration                                                                        | Probe type                  | 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 velocity speeds (in connection with Pitot tube) |  | Differential pressure probe | 0 to +100 Pa  | ±(0.3 Pa ±0.5% of mv)                                    | 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)            |  | Differential pressure probe | 0 to +10 hPa  | ±0.03 hPa                                                | 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)          |  | Differential pressure probe | 0 to +100 hPa | ±0.5% of mv (+20 to +100 hPa)<br>±0.1 hPa (0 to +20 hPa) | 0638 1547 |

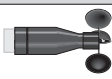
| Prandtl's Pitot tubes                                                                                                 | Illustration                                                                                        | Accuracy                    | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------|-----------|
| Pitot tube, 300 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545  |  300 mm<br>Ø 4 mm  | Oper. temp.<br>0 to +600 °C | 0635 2245 |
| Pitot tube, 350 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545  |  350 mm<br>Ø 7 mm  | Oper. temp.<br>0 to +600 °C | 0635 2145 |
| Pitot tube, 500 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545  |  500 mm<br>Ø 7 mm  | Oper. temp.<br>0 to +600 °C | 0635 2045 |
| Pitot tube, 1000 mm long, stainless steel, measures flow speed when used with pressure probes 0638 1345/..1445/..1545 |  1000 mm<br>Ø 7 mm | Oper. temp.<br>0 to +600 °C | 0635 2345 |

| Straight Pitot tubes                                                                                                        | Illustration                                                                                        | Probe type       | Meas. range    | Part no.  |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------|----------------|-----------|
| Pitot tube, stainless steel, 360 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547  |  360 mm<br>Ø 8 mm  | Type K (NiCr-Ni) | -40 to +600 °C | 0635 2040 |
| Pitot tube, stainless steel, 500 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547  |  500 mm<br>Ø 8 mm  | Type K (NiCr-Ni) | -40 to +600 °C | 0635 2140 |
| Pitot tube, stainless steel, 1000 mm long, measures flow speed and temperature, for pressure probes 0638 1347/..1447/..1547 |  1000 mm<br>Ø 8 mm | Type K (NiCr-Ni) | -40 to +600 °C | 0635 2240 |

| Accessories: Pressure probes                                                                    | Part no.  |
|-------------------------------------------------------------------------------------------------|-----------|
| Connection hose, silicone, 5m long<br>Max. load 700 hPa (mbar)                                  | 0554 0440 |
| Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material | 0430 0143 |

| 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<br>Ø 21 mm | Hot bulb<br>Testo humid. sensor,<br>cap.<br>NTC | 0 to +10 m/s<br>0 to +100 %RH<br>-20 to +70 °C | ±(0.03 m/s ±5% of mv)(0 to 10 m/s)<br>±2 %RH (+2 to +98 %RH)<br>±0.4 °C (0 to +50 °C)<br>±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<br>Ø 90 mm | Hot wire<br>NTC                                 | 0 to +5 m/s<br>0 to +50 °C                     | ±(0.03 m/s ±4% of mv)<br>(0 to +5 m/s)<br>±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. WBGT case           |  Ø 150 mm          |                                                 | 0 to +120 °C                                   | In accordance with ISO 7243 or DIN 33403                                                                           | 0635 8888<br>ID No.<br>0699 4239/1 |

| Accessories: 3-Function probe                                                                   | Part no.  |
|-------------------------------------------------------------------------------------------------|-----------|
| Adapter for humidity adjustment of 3-function probe 0635 1540<br>Order with adjustment set      | 0554 0661 |
| Cable, 1.5 m long, connects probe with plug-in head to meas. instrument<br>PUR coating material | 0430 0143 |

| Other features                                                   | Illustration                                                                        | Probe type | Meas. range     | Accuracy                                  | Part no.  |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------|-----------------|-------------------------------------------|-----------|
| Shell anemometer, 3 m cable, for meteorological wind measurement |  | Vane       | +0.7 to +30 m/s | ±(0.3 m/s ±5% of mv)<br>(+0.7 to +30 m/s) | 0635 9045 |