

# BIHERMA®

## PRODUCTS

### Franz Wagner & Sohn GmbH

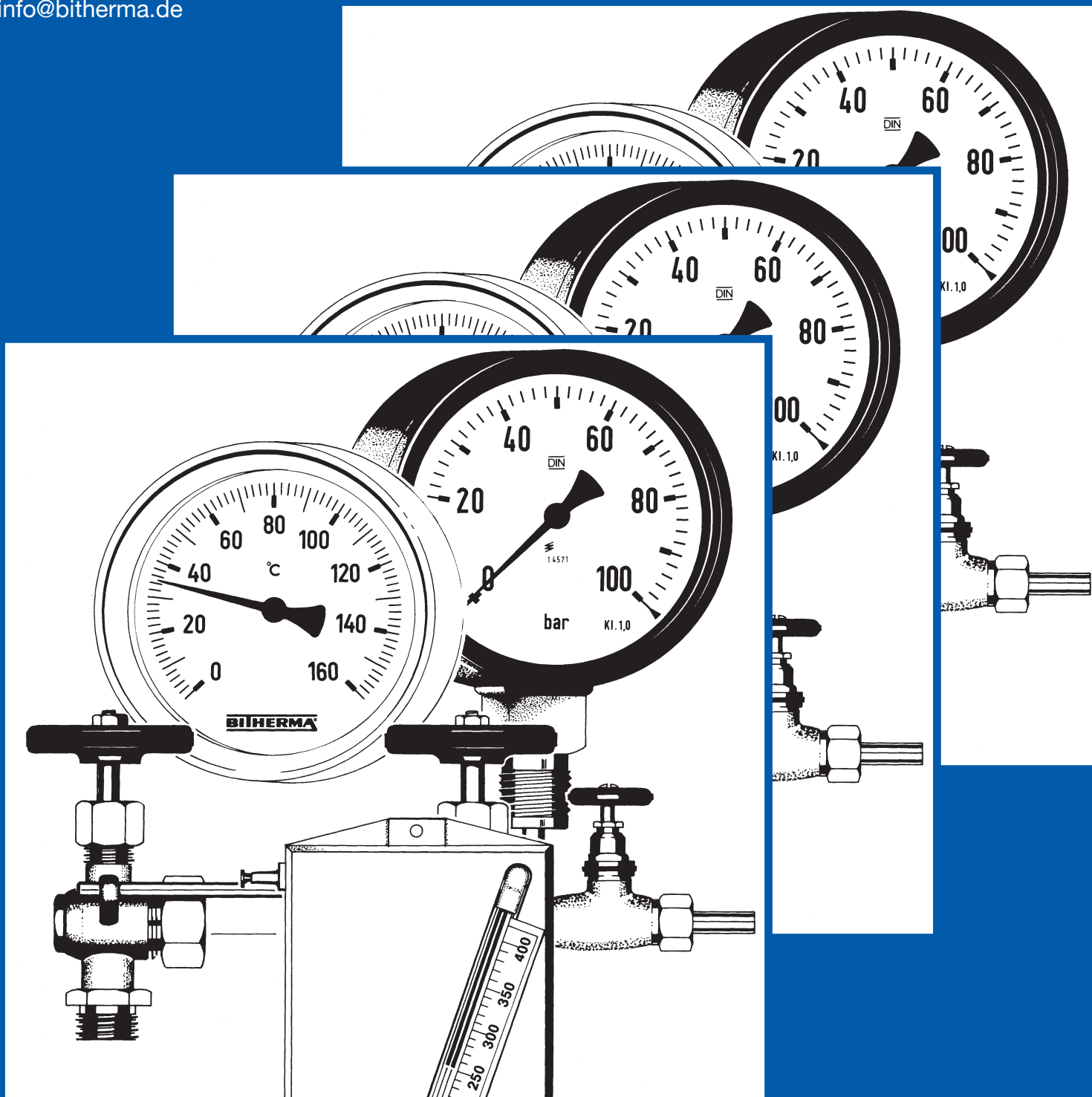
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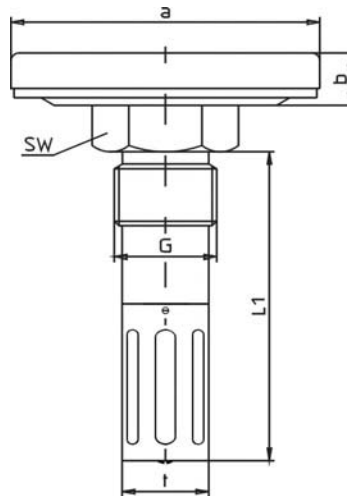
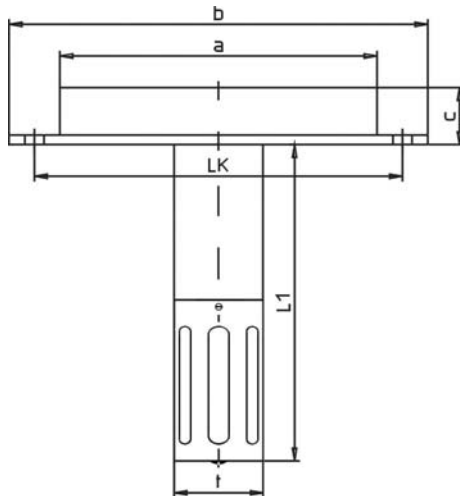
[info@bitherma.de](mailto:info@bitherma.de)



Case:	Steel zined / varnished - Diam. 160
Bezel:	Brass chromed
Dial:	Aluminium, white varnished lettering and graduation black
Pointer:	Aluminium, black adjustable at end of stem
Window:	Instrument glass - Safety glass - Max. drag pointer - Max./min. drag pointer
Distance ring:	Internal made of aluminium
Stem:	L = 100 x Ø 28 mm Cu-varnished - Other lengths are available
Measuring system:	Tripple fold for rel. humidity
Measuring range:	0-100% rel. humidity
Operating range:	-30+80°C
Connection:	Backwards - Bottom (not available with double stem)
Features:	- With sliding contact for signalling - With double scale for humidity and temperature -10+50°C ( 2 stems backwards - Ø 160 only with surface mounting flange)
Mounting method:	With back flange, steel varnished, surface mount - With back flange made of stainless steel 1.4301 (diam.100 only) or with fixed connection thread G 1 B made of brass - Stem with movable flange steel zined Ø 80 mm, surface mount
Accuracy class:	2.5  - OPTIONS



Mounting method:	Article number:	
Diam. 100	Back flange	G 1 B brass
	894	890



Type	a	b	LK	c	t
894	100	132	116	18	28

Type	a	b	t	G	SW
890	100	15	28	1 B	41

These gauges are produced for air duct and climatic chamber installations. For good ventilation of the humidity measuring element the stem is fitted with air vents. The air vents are sealed with a stainless steel gauze inside the stem, in order to prevent the infiltration of dust and therefore the damage of the measuring element.

As such gauges are insensitive to their orientation, the instrument can be mounted axial, vertical or in oblique position.

The measuring element is suitable for a permanent temperature up to plus 80°C. A temporary max. load up to 120°C is acceptable and causes no damage.

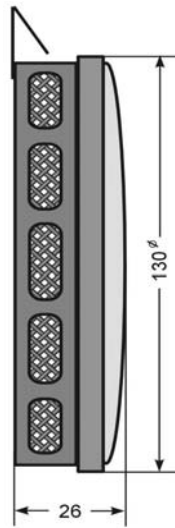
If the gauge works at steady low humidity, an annual activation and a recalibration of the measuring element should be made.

The activation takes place by bandaging the perforation of the stem with a wet cloth (approx. 60 minutes). The gauge should then indicate approx. 96% rel. humidity. Perhaps the instrument can be recalibrated by using a screwdriver.

Masses and dimensions are conform to current company standard. Changes to improve our gauges will be made without preannouncement.

Case:	Diam. 130 stainless steel 1.4301	
Bezel:	Stainless steel 1.4301	
Dial:	Aluminium, white varnished lettering and graduation black with dewpoint scale	
Pointer:	Aluminium, black adjustable	
Window:	Plastic, raised	
Measuring systems:	1 x bimetal for temperature 1 x rel. humidity	
Measuring range:	Air:	-10...+40°C
	Rel. humidity:	20...100%
	Saturation moisture:	4...50 gr./m <sup>3</sup>
	Dewpoint temperature:	-8...+26°C
Accuracy class:	Temperature	± 1°C
	Humidity	± 2.5%
Mounting method:	With lifting lug	
Miscellanea:	Fig. 35-K With scale for indoor climate	
Diam.	Article number:	
130 Fig. 35-Ta	1530001	
130 Fig. 35-K	1530002	





The thermo-hygrometer contains a precision humidity meter and a bimetal measuring system. Here the temperature, the relative humidity, the saturation moisture and the dewpoint can be read off directly following the curves from the point of intersection of the surface temperature pointer and the relative surface humidity pointer.

Its field contains a series of possibilities as controlling the temperature, the rel. humidity and the dewpoint temperature in climatic chambers, storage rooms, living rooms, sheds, barns, in all industrial factories like the textile and clothing sector, in paper, powder and canning-factories, in the wood working industry and tobacco processing.

For the quality of such products it is very important to comply to special grades of humidity and temperature during production, storage and drying. Corrosive materials have to be protected against rust and oxidation. By all means it must be avoided that the temperature cools down to the dewpoint.

Hereafter we give an explanation of the mentioned moisture values:

Saturation moisture = maximum absorbable humidity at the responsible temperature in gr./m<sup>3</sup>

Absolute humidity = substantial humidity in gr./m<sup>3</sup>

Relative humidity =  $\frac{\text{absolute humidity}}{\text{saturation moisture}} \times 100 = \% \text{ rel. humidity}$

Dewpoint = temperature, at which the water vapour included in the air just would condensate in °C

Saturation deficit: = saturation moisture minus absolute humidity

The dewpoint temperature can be read off directly in °C by following the curves from the point of intersection of the pointers. Now you are able to calculate the saturation moisture deficit.

E.G. air temperature 20.5°C, saturation moisture = 18 gr./m<sup>3</sup>, rel. humidity 70% = 14°C dewpoint can be read off at the intersection of the pointers.

At an air temperature of 14°C the saturation moisture is = 12 gr./m<sup>3</sup>. Deficit = 18 - 12 = 6 gr./m<sup>3</sup>. So in this case the air is able to absorb further 6 gr. water / m<sup>3</sup>.

Masses and dimensions are conform to current company standard. Changes to improve our gauges will be made without preannouncement.

Case: Diam. 130 stainless steel 1.4301

Bezel: Stainless steel 1.4301

Dial: Aluminium, white varnished  
lettering and graduation black  
with dewpoint scale

Pointer: Aluminium, black  
adjustable

Window: Plastic, raised

Measuring systems:  
2 x bimetal for temperature  
1 x rel. humidity

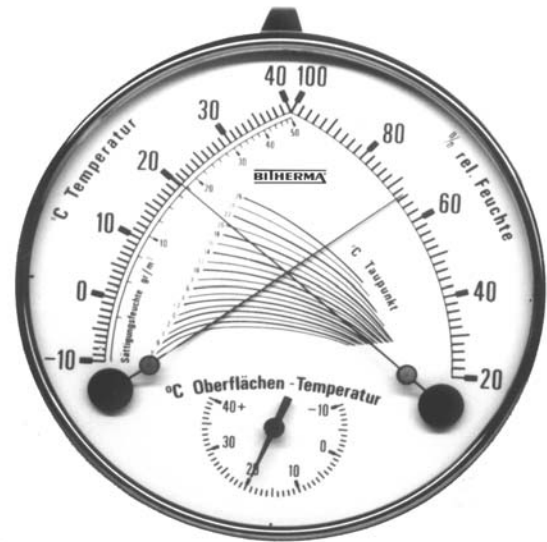
Measuring range: Air: -10...+40°C  
Rel. humidity: 20...100%  
Saturation moisture: 4...50 gr./m<sup>3</sup>  
Dewpoint temperature: -8...+26°C  
Surface temperature: -10...+40°C

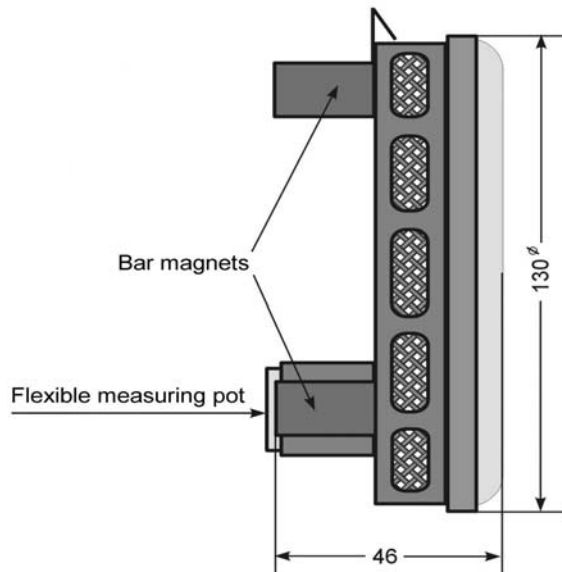
Features: Flexible measuring pot  
for surface temperature

Accuracy class: Temperature ± 1°C  
Humidity ± 2.5%

Mounting method: With 3 bar magnets and a lifting lug

Diam. Article number:  
130 Fig. 36 1530011





The thermo-hygrometer contains a precision humidity meter and two bimetal measuring systems. Here the temperature, the relative humidity, the saturation moisture and the dewpoint can be read off directly following the curves from the point of intersection of the surface temperature pointer and the relative surface humidity pointer. The back of the case is fitted with 3 strong bar magnets for steel part usage. The additional lifting lug at the top of the case gives the instrument an additional mounting method.

The instrument was developed for the requirements of the metallization and is normally used in the field of ship conservation, docks, bridges, steel constructions, mining and pipeline engineering.

At work in such fields of application it is possible to define directly the dewpoint temperature on the surface of the steel girder. This measurement has to convey certainty, that there will be no dewpoint precipitation. In the coating technic difficulties often arise because the paint doesn't stay on a wet base coat.

In order to make paintings fast, there is a decision of the German "Bundesministerium für Verkehr" that commands, that rust removing and painting works only can be done, if the temperature of the surface that shall be given a finish is min. 3°C higher than the dewpoint of the surrounding air.

After fixing the combination to the surface of the material to be worked on, the measuring elements absorb the temperature and the relative humidity. This can take about half an hour depending on conditions. Thenafter the dewpoint can be read off in °C at the intersection of both pointers.

E.G. air temperature 9.5°C, rel. humidity 80% = 6°C dewpoint at 12°C surface temperature.

The difference between surface temperature and dewpoint temperature is 6°C, so that the conserving works can begin, because it is higher than 3°C.

The air temperature shows 9.5°C. This indicates that the surface temperature sinks slowly and a dewpoint precipitation is possible.

For that reason the testing should be repeated in certain intervals.

Masses and dimensions are conform to current company standard. Changes to improve our gauges will be made without preannouncement.

Case: Diam. 130 stainless steel 1.4301

Bezel: Stainless steel 1.4301

Dial: Aluminium, white varnished  
lettering and graduation black  
with dewpoint scale

Pointer: Aluminium, black  
adjustable

Window: Plastic, raised

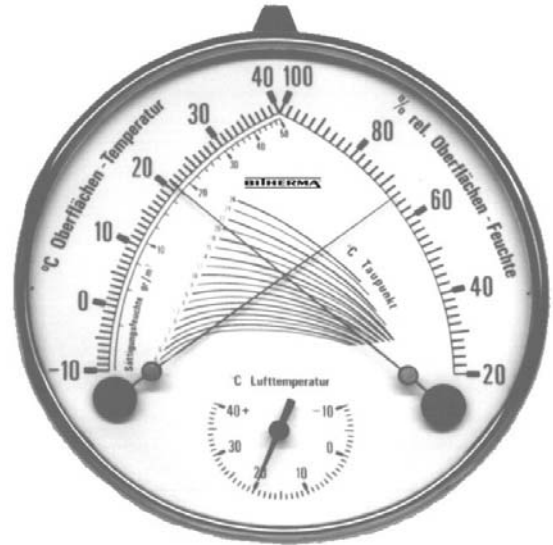
Measuring systems:  
2 x bimetal for temperature  
1 x rel. humidity

Measuring range:  
Surface temperature: -10...+40°C  
Rel. surface humidity: 20...100%  
Saturation moisture: 4...50 gr./m<sup>3</sup>  
Dewpoint temperature: -8...+26°C  
Air temperature: -10...+40°C

Features: **Fig. 38 with flexible measuring pots  
for surface temperature and surface humidity.  
With these instruments you can reach highest precision.**

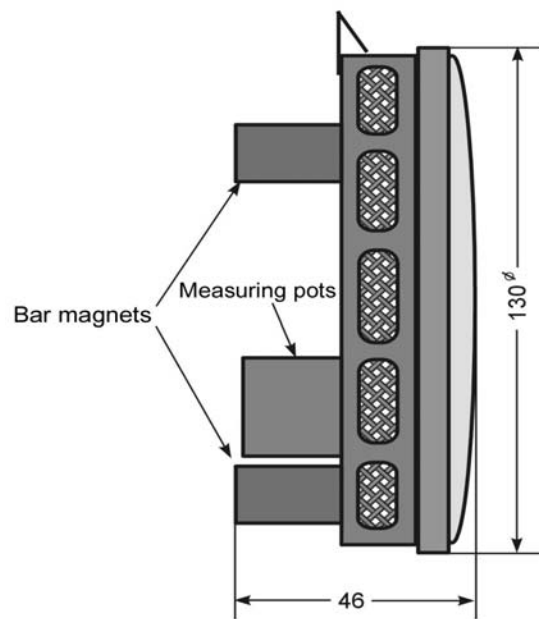
Accuracy class: Temperature ± 1°C  
Humidity ± 2.5%

Mounting method: With 3 bar magnets and a lifting lug



Daim. Article number:

130 Fig. 37 1530021  
130 Fig. 38 1530023



The thermo-hygrometer contains a precision humidity meter and two bimetal measuring systems. Here the temperature, the relative humidity, the saturation moisture and the dewpoint can be read off directly following the curves from the point of intersection of the surface temperature pointer and the relative surface humidity pointer. The back of the case is fitted with 3 strong bar magnets for steel part usage. The additional lifting lug at the top of the case gives the instrument an additional mounting method.

The instrument was developed for the requirements of the metallization and is normally used in the field of ship conservation, docks, bridges, steel constructions, mining and pipeline engineering.

At work in such fields of application it is possible to define directly the dewpoint temperature on the surface of the steel girder. This measurement has to convey certainty, that there will be no dewpoint precipitation. In the coating technic difficulties often arise because the paint doesn't stay on a wet base coat.

In order to make paintings fast, there is a decision of the German "Bundesministerium für Verkehr" that commands, that rust removing and painting works only can be done, if the temperature of the surface that shall be given a finish is min. 3°C higher than the dewpoint of the surrounding air. After fixing the combination to the surface of the material to be worked on, the measuring elements absorb the temperature and the relative humidity. This can take about half an hour depending on conditions. Thenafter the dewpoint can be read off in °C at the intersection of both pointers.

E.G.

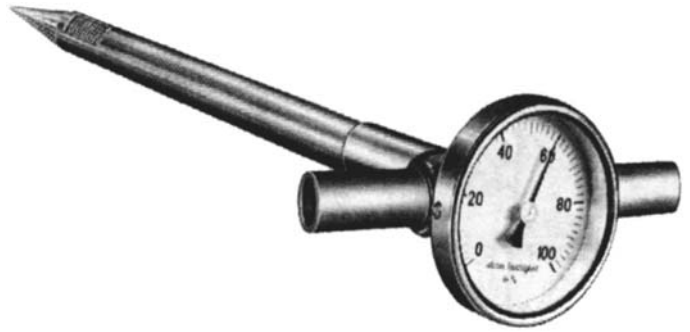
air temperature 9.5°C, rel. humidity 80% = 6°C dewpoint at 12°C surface temperature.

The difference between surface temperature and dewpoint temperature is 3.5°C, so that the conserving works can begin, because it is higher than 3°C.

The air temperature shows 12°C. This indicates that the surface temperature sinks slowly and a dewpoint precipitation is possible.

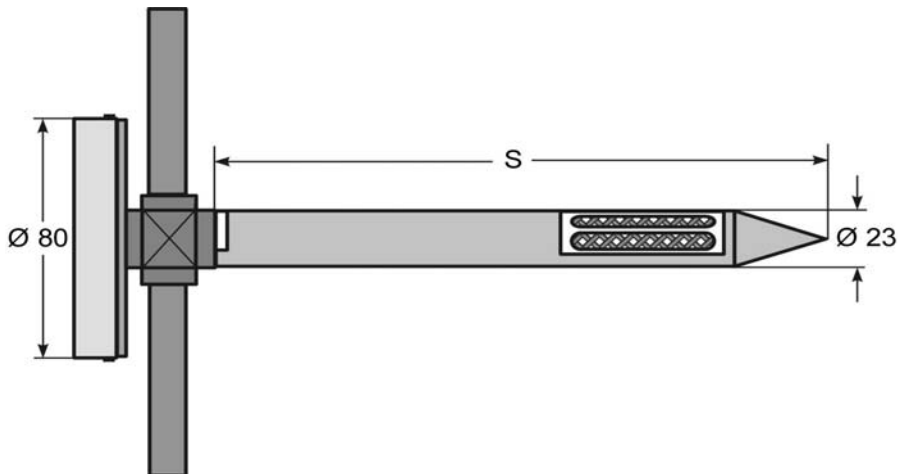
Masses and dimensions are conform to current company standard. Changes to improve our gauges will be made without preannouncement.

Case:	Diam. 80 st. steel 1.4301
Bezel:	Stainless steel 1.4301
Dial:	Aluminium, white varnished lettering and graduation black
Pointer:	Aluminium, black
Window:	Instrument glass - Safety glass
Insertion stem:	L = 500 x Ø 23 mm in brass chromed with tip - L = 1.000 mm
Features:	Measuring systems protected by st. steel gauze and by turnable double stem
Handling:	2 solid handles made of brass for pricking
Measuring system:	Triple fold for humidity
Measuring range:	0-100% rel. humidity
Accuracy class:	± 2.5%



- OPTIONS

Diam. 80	Article number: 1440001
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The hygrometer for pricking is mainly used in agriculture to define the moisture content of corn. The hygrometer is insensible to its position and can be used axial, vertical or in oblique position.

The measuring element qualifies to a permanent temperature of  $80^{\circ}\text{C}$ .

A short time load up to  $120^{\circ}\text{C}$  is justifiable and causes no damage.

There are two screwable handles installed beneath the case for inserting the stem into the goods stored.

Before insertion into the goods stored the outer stem has to be turned to close the perforation at the stem end. After reaching the measuring depth the perforation has to be opened by turning to the other direction. Now the measurement can begin.

The stem should stay in the goods stored for approx. 30 to 60 minutes, at least until the pointer doesn't move anymore.

Thenafter the reached value can be read off and the water content of the goods stored can be read off by the scales or by defining it according to the also delivered curve sheets.

After finishing the measurement the perforation has to be closed again before the stem is pulled out again. **IMPORTANT!**

By this measure it is avoided that corn dust or corn dirt comes inside the perforation during insertion or pulling out. Disregarding this can cause damage to the measuring element.

The ascertaining of the relative humidity follows by a scale 0...100%.

The instrument is produced for the following goods stored:

field beans, cotton, cottonseed, peas, peanut kernels, barley, grass seed, oats, hay, millet, wood, industrial silk, leather, linseed, corn, milo, rapeseed, rice, rye, real silk, sunflower seed, wheat and wool.

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