

# PC-Blaine-Star



## Measuring Instrument



Determination of the specific surface in accordance with the flow-through method requires a lot of experience and special care. Only then it is possible to obtain consistent measurement results throughout. This means of course that even the slightest lack of precision (e.g. during weighing) or other influences due to work shift dependent changes of personnel have a detrimental effect on the exactness of measuring results.

If you need safe and consistent Blaine values for your work, the solution is:

### ZEB / PC-Blaine-Star

The dustproof measuring system consists of the measuring tower with U-tube, the stainless steel permeability cell with plunger (in acc. with DIN 1164 Part 4 / EN 196 Part 6) and a digital dial gauge.

As a control unit any IBM-compatible PC with MS-Windows® has to be used. The measuring tower and the balance are connected to the PC's serial interfaces. The PC-software ensures the comfortable operation of the measuring system.

### Special Features

- measuring in three different ranges
- each measuring range can be calibrated independently
- determination of residual volume
- porosity check
- recalculation of Blaine value to the calibration porosity is possible
- automatic data file recording
- storing of standard materials
- easy handling

## Function

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Enter data like name of tester, a remark and type and density of material. Fill material under test into the permeability cell (approx. 95...125 g in case of cement). The required minimum quantity to be weighed in is preset.

The quantity weighed in will be entered automatically.

The material filled into the cylinder is compacted with the plunger. With the attached dial gauge the thus reached porosity can be displayed on the PC screen. The set value can be stored by keystroke.

Then the measuring starts with up to two automatically repetitions. The mean value of two time measurements together with the other data (porosity, density, viscosity of air, device constant) plus the conversion to the normal volume of the measuring cell is used to determine the **specific surface expressed in  $\text{cm}^2/\text{g}$** . If the measuring and calibrating porosities are different, the recalculation to the calibration porosity is alternatively possible (e-correction function).

The test record is stored and can later be displayed on screen or printed out. Transferring the record to a word processor or database is also possible.

## Fast, precise and self-contained

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- The measuring method developed in collaboration with the VDZ (German Association of Cement Manufacturers) makes refilling of the permeability cell unnecessary if the porosity has been wrongly adjusted.
- The consistency of the measured values is always ensured as all parameters are listed in the test record.
- Personnel-dependent influences (especially as far as compaction with the plunger is concerned) are virtually eliminated as all influence quantities are determined by measurement and taken into consideration in the calculation.

## Scope of supply

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- Measuring tower with PC-Blaine-Star software and accessories (measuring liquid, 100 paper filters, filling funnel, pushing ram and bottle brush for cleaning of permeability cell, calibration substance, interface cable)
- Dial gauge with data cable
- Balance with interface cable
- As an option: additional measuring cylinder for faster measuring sequence
- As an option: additional RS 232 interface card for PC or complete PC-system on request

## Technical Data

### 1. Measuring Tower

- dustproof casing
- U-tube with 3 IR-light barriers
- solenoid valve, pump, beeper
- integrated microcontroller
- power supply 230 V/50 Hz (110 V/60 Hz optional)
- stainless steel measuring cylinder
- (volume approx. 74 cm<sup>3</sup>) and plunger
- measuring cylinder (volume approx. 8 cm<sup>3</sup>) optional
- dimensions (WxHxD): 300 x 420 x 260 mm
- weight: approx. 15 kg



### 2. Dial gauge

- MITUTOYO DIGIMATIC with data cable
- weight: approx. 0.25 kg



### 3. Balance

- SARTORIUS CPA 5201 with serial interface,
- configured for data transfer to PC-software
- dimensions (WxHxL): 238 x 80.5 x 297 mm
- weight: approx. 3 kg



## Technical Data

### Requirements for a Personal Computer

(PC is not included in scope of supply)

- IBM-compatible PC
- INTEL-compatible processor
- MS-Windows(r) 95 or higher
- HardDisk (min. 2 MB free space), CD-Drive
- VGA-graphics (800 x 600 pixels, high color)
- COM-port for connection of measuring tower
- COM-port for connection of balance (optional)
- Printer for record printout via LPT-port (recommended)

The screenshot shows the PC-Blaine Star software interface. At the top, there is a menu bar with options: Datei, Meßübersicht..., Messen..., Kalibrieren..., Lumtest, Vorgang abbrechen, Einstellungen, Sprache, Hilfe. Below the menu bar is a toolbar with icons for file operations and measurement functions. The main window contains a table with the following data:

Nummer	Datum	Bemerkung	Zementsorte	Spez. Oberfläche	el
X 1	16.05.2001		Quarzsand	3600	
2	16.05.2001		Quarzsand	100	
X 3	16.05.2001		Quarzsand	100	
X 4	16.05.2001		Quarzsand	3600	
X 5	16.05.2001		Quarzsand	3510	
X 6	16.05.2001		Quarzsand	3510	
X 7	16.05.2001		Quarzsand	3540	
X 8	16.05.2001		Quarzsand	3520	X
X 9	17.05.2001		Quarzsand	1930	X

Below the table, there are several input fields for measurement parameters:

- Protokollnummer: 1
- Datum: 16.05.2001
- Name: [empty]
- Bemerkung: [empty]
- Zementsorte: Quarzsand
- Dichte: 2,65 g/cm<sup>3</sup>
- Einwaage: 10,6 g
- Restabstand: 0,00 mm
- Temperatur: 21,0 °C
- Porosität: 0,50

At the bottom, there are two rows of results:

- Zeit 1: 96,52 s      Spez. Oberfläche: 3600 cm<sup>2</sup>/g
- Zeit 2: 96,88 s      e-Korrektur: aus

The status bar at the bottom shows: Meßbereich 1, e-Korrektur aus, Benutzerabbruch.

### LEGAL WARNING AND DISCLAIMER

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