

## Calibration Certificate

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<b>Object</b>	Dialysis Meter
<b>Manufacturer</b>	IBP
<b>Type</b>	HDM99XP
<b>Serial No.</b>	2512310006001304
<b>Inventory No.</b>	
<b>Customer</b>	IBP
<b>Date of calibration</b>	20.03.2008 09:00
<b>IBP Order No.</b>	Neu
<b>Certifikate No.</b>	253407
<b>Number of pages of the certificate</b>	- 4 -

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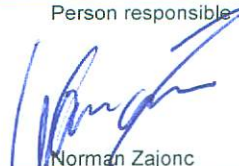
The calibration certificate documents the traceability to national standards, which realize the physical units of measurement according to the international System of Units (SI).

IBP guarantees the keeping of the specification for the temperature- pressure- and voltage measurement to the time of calibration. Concerning the conductivity and pH-measurement, in between check-ups by the user are advisable. For the monthly conductivity measurement use fresh standard 14,00 mS/cm. The pH-measurement needs to be calibrated with two solutions before each measurement. The user is obliged to have the device recalibrated at appropriate intervals.

This calibration certificate may not be reproduced other than in full extent.

Calibration certificates without signature and seal are not valid.

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 IBP Medical GmbH Ikarusallee 15 D 30179 Hannover <a href="http://www.ibpmt.com">www.ibpmt.com</a>	Date 27.03.2008	Head of production  Horst Müller	Person responsible  Norman Zajonc
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## Reference Device and Standard Solution

Channel	Reference unit	Serial number	Calibration mark
Conductivity	HDM99XPHDM99XP	200531000600R001200531000600R001	KAL IBP244607KAL IBP244607
Temperature	Testotherm Test 781/DQF826	0478/0193	T16580 DKD-K-11201 08-01
Pressure	Fluke 713 30G	6945124	A2835 DKD-K- 05801 08-01
pH & Voltage	Prema Multimeter Typ 6000	10147	3869 DKD-K-13301 2008-01

### 1. Calibration Object

The dialyse measuring device is a high precision measuring device for the measuring of conductivity, temperature, pressure, voltage, pH and as option the flow.

### 2. Method of the Calibration

The calibration took place by comparison of the „right value“- which is being shown by reference device the respectively by the standard solution - with the notice „shown value“ of the calibration device.

### 3. Environmental Conditions

Temperature: 23 °C ± 3 °C

Before the calibration the examinee has been acclimated in the measuring room for more than 24h.

### 4. Measuring Conditions

The respective measuring conditions and adjustments on the calibration object are listed under „Remarks“.

### Measuring Results

#### Temperature

Range	Right Value	Shown Value	Allowed Deviation
100 °C	25,00 °C	25,02 °C	± 0,05
	34,00 °C	33,99 °C	± 0,05
	37,00 °C	36,99 °C	± 0,05
	40,00 °C	39,99 °C	± 0,05
	55,00 °C	54,99 °C	± 0,07
	80,00 °C	79,98 °C	± 0,07

#### Conductivity

Range	Right Value	Shown Value	Allowed Deviation
Auto	74,0 µS/cm	74,0 µS/cm	± 0,6
	147,0 µS/cm	147,4 µS/cm	± 0,6
	720 µS/cm	720,1 µS/cm	± 6
	1410 µS/cm	1412 µS/cm	± 6
	2,77 mS/cm	2,772 mS/cm	± 0,03
	6,70 mS/cm	6,701 mS/cm	± 0,03
	14,00 mS/cm	14,00 mS/cm	± 0,03
	16,00 mS/cm	16,00 mS/cm	± 0,03
	19,50 mS/cm	19,50 mS/cm	± 0,03

Cellparameter: 0,6025 1/cm  
 Adjusted TC in device: 2,07 %/K

#### Pressure

Range	Right Value	Measured Value	Allowed Deviation	Remarks
	1800 mmHg	1800 mmHg	±	
	1450 mmHg	1450 mmHg	± 1	
	1100 mmHg	1100 mmHg	± 1	
	850 mmHg	849,9 mmHg	± 1	
	500 mmHg	499,9 mmHg	± 1	
	300 mmHg	300,0 mmHg	± 0,5	
	150 mmHg	150,0 mmHg	± 0,5	
	0 mmHg	0,0 mmHg	± 0,5	open inlet

-150 mmHg	-150,0 mmHg	± 0,5
-300 mmHg	-300,1 mmHg	± 0,5
-500 mmHg	-500,1 mmHg	± 1

**pH**

Range	Right Value	Shown Value	Allowed Deviation
	4,00	4,00	± 0,02
	5,00	5,00	± 0,02
	6,00	6,00	± 0,02
	7,00	7,00	± 0,02
	8,00	8,00	± 0,02
	9,00	9,00	± 0,02
	10,00	10,00	± 0,02

**Voltage**

Range	Right Value	Shown Value	Allowed Deviation	Remarks
	35,00 V	35,00 V	± 0,05	
	20,00 V	20,00 V	± 0,05	
	10,00 V	10,00 V	± 0,05	
	0,00 V	0,00 V	± 0,05	Input short-circuited
	-10,00 V	-10,00 V	± 0,05	
	-20,00 V	-20,00 V	± 0,05	
	-35,00 V	-35,00 V	± 0,05	

**Flow**

Range	Sensor code	Right Value	Shown Value	Allowed Deviation
2000 ml/min	Code 1	5000 ml	ml	± 50 ml

Calibration value: 21418 Imp./Liter

**Additional Remarks**

Keine.