



Reference Meters

Comparison IBP and Mesa meters

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	MESALabs	MESALabs	IBP	IBP
Measuring	NEO2	90XL	HDM97Pocket	HDM99XP
Number of measuring channels	4	4	4	9
Conductivity	✓	✓	✓	✓
Temperature	✓	✓	✓	✓
Pressure	✓	✓	✓	✓
pH	✓	✓	✓	✓
Flow		✓	✓	✓
Voltage			✓	✓
Frequency/Pulses/Events			✓	✓
Features				
Graphic on screen			✓	✓
Oscilloscope Function			✓	✓
Temperature Compensation selectable by brand name			✓	✓
Automated Pressure Drop Measurement			✓	✓
Computer Interface			✓	✓
Data Acquisition Software			✓	✓
CE marked as Medical Device			✓	✓
Warranty	12 month	12 month	24 month	24 month



Measuring	Conductivity accuracy (2 ... 20 mS/cm)	±0.1 mS/cm *	±0.1 % **	±0.03 mS/cm	±0.03 mS/cm
Temperature accuracy (25 ... 40°C)	±0.2 °C *	±0.1 °C ***	±0.05 °C	±0.05 °C	±0.05 °C
Temperature accuracy (41 ... 90°C)	±1 °C	±0.1 °C	±0.1 °C	±0.1 °C	±0.07 °C
Pressure Range	-700 to +1000 mmHg	-600 to +1600 mmHg	-700 to +1900 mmHg	-700 to +1900 mmHg	-700 to +1900 mmHg
Pressure Accuracy (0 ... 300 mmHg)	±5 mmHg	±1.0 mmHg	± 1 mmHg	± 0.5 mmHg	± 0.5 mmHg
Pressure Accuracy otherwise	±1 % of reading	±0.5% of reading + 1 mmHg	± 2 mmHg	± 1 mmHg	± 1 mmHg
pH Accuracy	± 0.1 pH units	± 0.1 pH units	±0.02 pH units	± 0.02 pH units	± 0.02 pH units

* In accordance to ISO 10012-1 the accuracy is to low to calibrate any dialysis machine. [Read more.](#)

** The specified conductivity accuracy by Mesalabs of ±0.10% leads to 0.015 mS/cm at 15 mS/cm. This seems to be a misprint for following reason.

The reference material with the highest accuracy Mesalab is using comes from [Dansk Fundamental Metrologi A/S](#). This material is specified to have a measuring uncertainty of 0.15%. It can be estimated that the calibration procedure at Mesalabs adds another 0.05% uncertainty which leads to an uncertainty of ±0.20%. This uncertainty can roughly be estimated to an measuring accuracy of about 0.1%. According to ISO 10012-1 the reference to calibrate a device needs to be at least three times higher than the device to calibrate. Following this rule the calibrated meter has an accuracy of 0.3% which leads to an accuracy of 0.045 mS/cm at 15 mS/cm. The published accuracy by Mesalabs is incorrect and should be about 0.3%.

*** Due to the temperature compensation the accuracy of 0.1 °C at 37°C leads to a possible error of the conductivity measurement of about 2.4% which computes to 0.36 mS/cm at 15 mS/cm.



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