MEDICAL INTERNATIONAL RESEARCH

Innovation in Spirometry Oximetry Telemedicine

MIR Reusable Turbine

January 2018

www.spirometry.com
www.mirsmartone.com

MIR Reusable Turbine

Technical Features

The best Sensor

No Calibration

No Cross Contamination

ATS Certification

No Vapour Condensation

No Ambient Influence

MIR Reusable Turbine

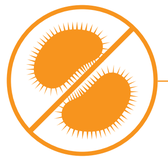
No Mandatory Calibration

No Calibration

- *Factory calibrated, Always accurate*
- *Mesasurements are not influenced by ambiental conditions*
- *The mesasurement can change only in presence of “foreign bodies” with the turbine tube (hair, thread, sputum…)*
- *Calibration check and re-calibration functions are always available with a user friendly interface*

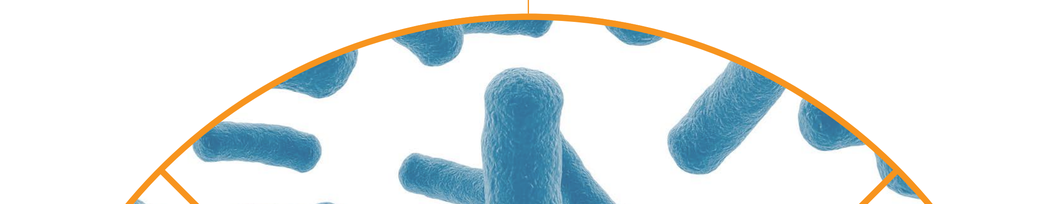
MIR Reusable Turbine

No Cross Contamination



No Cross Contamination

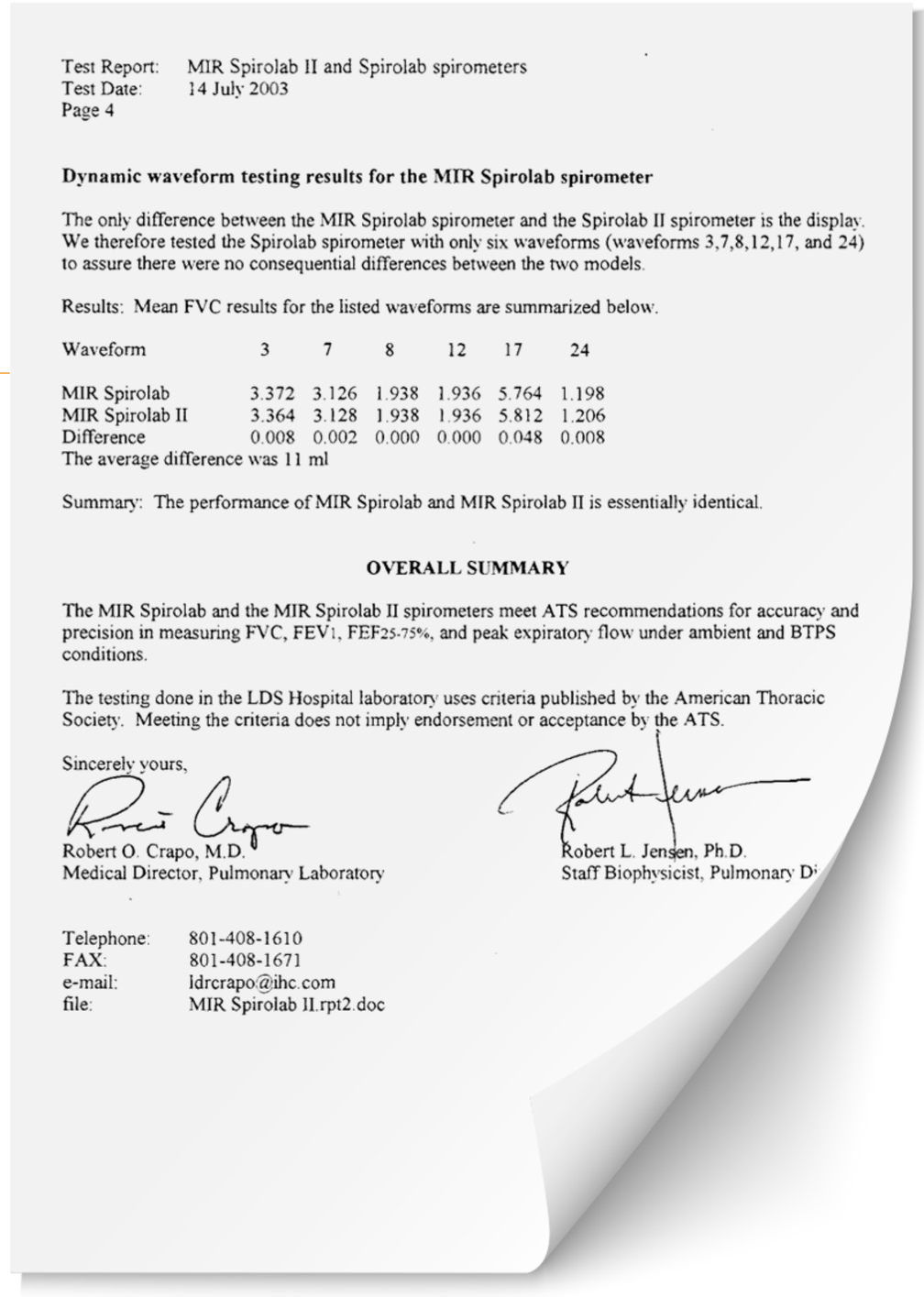
The device is completely isolated (no contact of device sensor with contaminants)



MIR Reusable Turbine
ATS Certification

ATS Certification

MIR's Turbine System is ATS (American Thoracic Society) Certified



Test Report: MIR Spirolab II and Spirolab spirometers
Test Date: 14 July 2003
Page 4

Dynamic waveform testing results for the MIR Spirolab spirometer

The only difference between the MIR Spirolab spirometer and the Spirolab II spirometer is the display. We therefore tested the Spirolab spirometer with only six waveforms (waveforms 3,7,8,12,17, and 24) to assure there were no consequential differences between the two models.

Results: Mean FVC results for the listed waveforms are summarized below.

Waveform	3	7	8	12	17	24
MIR Spirolab	3.372	3.126	1.938	1.936	5.764	1.198
MIR Spirolab II	3.364	3.128	1.938	1.936	5.812	1.206
Difference	0.008	0.002	0.000	0.000	0.048	0.008

The average difference was 11 ml

Summary: The performance of MIR Spirolab and MIR Spirolab II is essentially identical.

OVERALL SUMMARY

The MIR Spirolab and the MIR Spirolab II spirometers meet ATS recommendations for accuracy and precision in measuring FVC, FEV_1, $FEF_{25-75\%}$, and peak expiratory flow under ambient and BTPS conditions.

The testing done in the LDS Hospital laboratory uses criteria published by the American Thoracic Society. Meeting the criteria does not imply endorsement or acceptance by the ATS.

Sincerely yours,

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file: MIR Spirolab II.rpt2.doc

MIR Reusable Turbine

No Vapour Condensation

No Vapour Condensation

Many other sensor are affected by Vapour Condensation causing a resistance that affects the measurements.
(Vapour Condensation is determined by the expiration gasses against a cold fixed surface)

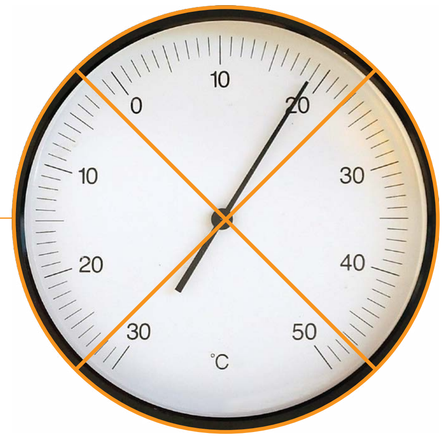
MIR Reusable Turbine

No Ambient Influence

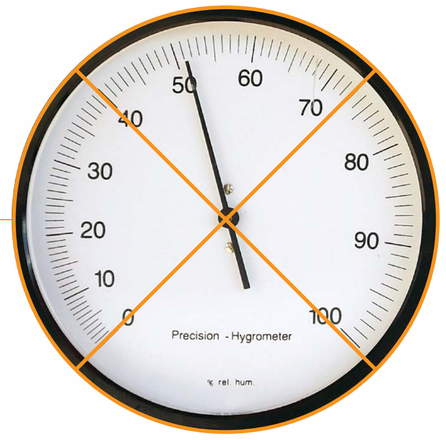
No Ambient Influence

Many other sensor types are dependent by ambient conditions and therefore are required the insertion of:

- ✔ *Temperature*
- ✔ *Pressure*
- ✔ *Humidity*
- ✔ *Viscosity*



THERMOMETER



HYGROMETER

BAROMETER

MIR Reusable Turbine

The best Sensor

The best Sensor	PNEUMOTACH	ULTRASONIC	TURBINE
Measurement changes with air: ✔ *Pressure* ✔ *Humidity* ✔ *Temperature* ✔ *Viscosity*	*YES*	*YES*	*NO*
Measurement changes due to condensation of water vapour in expiration	*YES*	*NO*	*NO*
Requires calibration	*YES*	*YES*	*NO, though calibration function is always availabe*
Hygiene	✔ *Sensors not completely isolated from the device*	✔ *Sensors not completely isolated from the device*	✔ *Sensors completely isolated from the device*

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www.spirometry.com
www.oximetry.com

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