COMPARISON OF THE FEATURES AND SPECIFICATIONS

OF

DIGITAL HUMIDIFIERS

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1.Introduction

Humidification of inhaled gases has been standard of care in mechanical ventilation for a long period. More than a century ago, a variety of reports described important airway damage by applying dry gases during artificial ventilation. Now there are a lot of different digital humidifier brands. Some of them are just for home usage. These models are simplest humidifiers. In this study humidifiers for ICU ventilators are compared because they are critical and more featured then home usage ones.

To compare the features and specifications of humidifiers there is table and then notes section to compare the advantages and disadvantages of humidifiers.

In this study different brands of digital humidifiers are compared, these brands are the Foras Humidias DH-320, Fisher and Paykel MR-850, Hamilton H-900, Vadi VH-3000, Wilamed AirCon.

2. Table comparison

Features\Devices	Humidias DH-320	F&P MR 850	WilaMed AIRcon	Vadi WH-3000	Hamilton H-900
Can be used in ICU and Homecare	✔	✔	✔	✔	✔
Servo-controlled	✔	✔	✔	✔	✔
Set Temperature Interval	✔	✔	✔	✔	✔
Can be used with Heater wire and Non-Heater wire	–	✔	–	✔	–
Heater wire temperature interval (Invasive Mode)	30°C-40°C	35°C-40°C	28°C-40.5°C	31°C-40°C	30°C-41 °C
Non-Heater wire temperature interval(Invasive Mode)	–	28°C-34°C	–	26°C-36°C	–
Reusable temperature probe	✔	✔	✔	✔	✔
Flow Sensor	✔	✔	–	–	Flow –
Water Finished Alarm	✔	✔	✔	–	✔
Alarm Mute Button	✔	✔	✔	✔	✔
Audible Alarm	✔	✔	✔	✔	✔
Visible Alarm Symbols on the Display	✔	–	✔	–	✔
Overheating Protection	✔	✔	✔	✔	✔
3 Humidity Level (Low-Medium-High)	✔	–	✔	–	–
Two points temperature controlled	✔	✔	✔	✔	✔
Compatible with any Ventilator	✔	✔	✔	✔	–
Suitable for neonatal,pediatric and adult	✔	✔	✔	✔	✔
Lcd Screen	✔	–	✔	–	✔
Touch Screen	✔	–	–	–	–

Features\Devices	Humidias DH-320	F&P MR 850	WilaMed AIRcon	Vadi WH-3000	Hamilton H-900
Suitable for INV and NIV	✔	✔	✔	✔	✔
Has NIV,INV and free parameter setting	✔	–	✔	–	✔
Set parameters shown on the Display	✔	–	✔	–	✔
Can show chamber plate and airway temperature	✔	✔	–	✔	–
Warm up time less than 30 minutes	✔	✔	✔	✔	✔
ON-OFF Switch	✔	✔	✔	✔	✔
Automatic Detection of Heater wire	✔	✔	✔	–	✔
Single-dual heated systems	✔	✔	✔	✔	✔
Can Set the Expiratory Heater Wire Level	✔	–	–	–	–
Display Dimmer	✔	–	✔	–	–
Measuring the ambient temperature	–	–	–	–	–
Ergonomic and intuitive user interface	✔	–	–	–	✔
Universal heater wire adapters	✔	✔	✔	✔	–
Compatible with any Chamber	✔	–	✔	✔	–
Weight (without chamber)	1.9 kg	2.8 kg	2.8 kg	1.5 kg	2.5 kg
Dimensions	15.0cm x 14.0cm x 13.5cm	14.0cm x 17.3cm x 13.5cm	17.0cm x 14.5cm x 20.0cm	16.0cm x 14.5cm x 13.5cm	18.0cm x 16.0cm x 19.0cm
Manufacturing Chambers	✔	✔	✔	✔	✔

3. Comparison Notes

❖ DH-320, H-900 and AirCon has user friendly interface and it is very easy to operate these devices. Only DH-320 has touch screen and rotary encoder.

❖ All devices can be used single or dual limb heated. Only DH-320 expiratory heater level is adjustable. Others do not have this feature and expiratory heater level is not adjustable.

❖ 3 different humidity levels low-medium-high can be adjusted to patient and ambient conditions which one is required. Only Aircon and Humidias DH-320 have this feature.

❖ Only Aircon and Humidias DH-320 show the set parameters on the main screen. Device can be examined with this screen.

❖ Alarms are both audible and visual. For clinicians easy to understand the error and solve it quickly. Only Aircon and Humidias DH-320 have this feature.

❖ Only Aircon and Humidias DH-320 can be used in free parameter setting mode.

❖ Only MR 850 and Humidias DH-320 show the airway temperature and plate temperature

❖ Only Humidias DH-320 and MR-850 have flow sensor and can measure the flow and stand by it if there is no air flow on the circuit. This feature is for power saving.

- ❖ Only MR-850 and VH-3000 work heater wire and non-heater wire

- ❖ MR 850 is very old device and design. AirCon, H-900 and DH-320 have unique design and launched suitable for new generation of humidifiers.

- ❖ H-900 is compatible with its own accessories and ventilators. MR-850,DH-320,VH-3000 and AirCon suitable with any ventilators

4. References

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