

SPECIFICATIONS

Dimensions: 140 mm x 173 mm x 135 mm (without chamber fitted)
Weight: 2.8 kg (no chamber fitted), 3.1 kg (chamber fitted and filled with water)
Supply Frequency: 50/60 Hz Supply Voltage: 115 V~ Supply Current: 2.0 A max at 115 V~
Heater Plate: 150 W Heater Wire: 22 V~, 2.73 A, 60 W, 50/60 Hz
Heater Plate Over-temperature Cutout: 118 ± 6 °C

Temperature Control Settings

Invasive Mode: Chamber outlet: 35.5 - 37 °C, Airway 35 - 40 °C
Noninvasive Mode: Chamber outlet: 31 °C, Airway 28 - 34 °C
Display: Three digit 14 mm 7 segment LED
Range: 10 - 70 °C, Accuracy: ± 0.3 °C (in 25 - 45 °C temperature range)

Alarm Parameters

High Humidity Alarm: An immediate, audible alarm at a displayed temperature of 41 °C or if the airway temperature exceeds 43 °C
Low Humidity Alarm: An audible alarm between 10 minutes @ 29.5 °C, and 60 minutes @ 34.5 °C (Invasive Mode only)
Sound Pressure Level: Alarms exceed 50 dBA @ 1 m

Performance

Recommended ambient temperature range: 18 - 26 °C

CAUTION: If operating in ambient temperatures outside the recommended range, consult your local Fisher & Paykel Healthcare representative.

Recommended Flow Range: Invasive Mode: up to 60 L/min, Noninvasive Mode: up to 120 L/min
Refer to breathing circuit specifications for minimum flow

Humidity Performance: Invasive Mode: > 33 mg/L, Noninvasive Mode: >10 mg/L

Maximum Operating Pressure: Refer to chamber and breathing circuit specifications

Warm-up time: Less than 30 minutes

Symbol Definitions



Type BF



ATTENTION
Consult
accompanying
documents



Alternating
Current



IPX 1
Drip
Proof



CAUTION
Hot surfaces
may exceed
85 °C



Respiratory Humidifier Classified by
Underwriters Laboratories Inc. with respect to
electric shock, fire and mechanical hazards
only in accordance with UL 60601-1 and
CAN/CSA C22.2 No. 601.1 84DJ

CLEANING MR850 Heaterbase Using a damp cloth, clean the humidifier with either of the following: Isopropyl Alcohol, normal dishwashing detergent. **Temperature Probe** Always clean before use. Probes can be cleaned with one of the following solutions: Sporicidin™, Cidex™ OPA, Sporox™ OR sterilize the probe using Ethylene Oxide before use. Store probes in clean conditions. **DO NOT** autoclave probes.

CAUTION: DO NOT immerse the heaterbase or temperature probe electrical connections in any liquid.

NOTE: Follow the cleaning agent manufacturers' instructions carefully. It is the user's responsibility to qualify any deviations from these procedures, both for disinfecting efficacy and physical effect on the probe and the heaterbase. See the MR850 technical manual for more detailed instructions on cleaning.

WARNING

Ensure that invasive mode is set for patients that have bypassed airways.

The use of breathing circuits, chambers or other accessories which are not approved by Fisher & Paykel Healthcare may impair performance or compromise safety.

Ensure that both temperature probe sensors are correctly and securely fitted. Failure to do so may result in temperatures in excess of 41 °C being delivered to the patient.

Ensure maintenance of grounding integrity by connection to a "hospital grade" receptacle. Always disconnect supply before servicing.

When mounting a humidifier adjacent to a patient ensure that the humidifier is always positioned lower than the patient.

The operation of high frequency surgical apparatus, shortwave or microwave equipment in the vicinity of the humidifier may adversely affect its function. If this occurs, the humidifier should be removed from the vicinity of such devices.

Do not touch the glass tip of the chamber temperature probe during use. Keep black connectors dry at all times.

Visually inspect accessories for damage before use.

Rx



Patents Pending in Principal Countries
of the World

**INSTRUCTION SHEET
DO NOT DISCARD**

REF 185042343
Rev G 2004-02

MR850 RESPIRATORY HUMIDIFIER

US



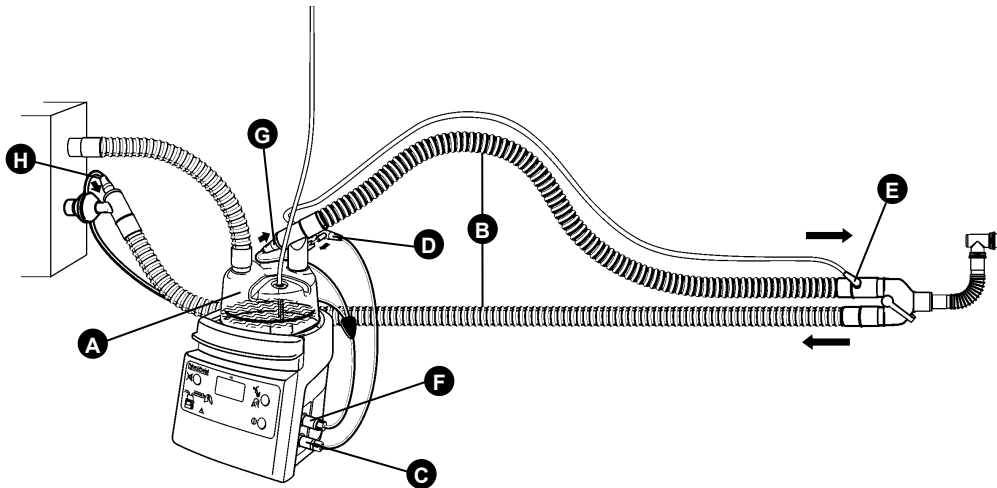
The MR850 respiratory humidifier is used to warm and humidify gases delivered to patients requiring mechanical ventilation, positive pressure breathing assistance, or other medical gases.

Fisher & Paykel
HEALTHCARE

SET UP

1. Slide humidification chamber (A) onto humidifier base and connect breathing circuit (B) (refer to humidification chamber and breathing circuit operating instructions for further details).
2. Connect the temperature probe plug (C) (REF 900MR86X) to the blue socket on the humidifier base until an audible click is heard.
3. Push the chamber probe (D) and airway probe (E) into the breathing circuit. Make sure the chamber probe is correctly located in its key-way and that both probes are pushed home. The probe lead can be restrained using breathing circuit clips.
4. Connect the heater wire adaptor plug (F) (REF 900MR8XX) to the yellow socket on the humidifier base until an audible click is heard.
5. Connect the other end(s) of the heater wire adaptor to the breathing circuit socket(s) (G) and (H).
6. The humidification system is now set up and ready for use. After power on, the humidifier will default to invasive mode.

ATTENTION: Refer to operating instructions which accompany each accessory.



THE FOLLOWING ACCESSORIES ARE REQUIRED:

- Humidification Chamber (e.g: MR290)
- Breathing Circuit (e.g: RT110)
- Temperature Probe (e.g: 900MR869)
- Heater Wire Adaptor (e.g: 900MR800)
- Mounting Bracket (to suit ventilator)

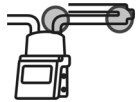
Choice will depend upon application. Please contact your local Fisher & Paykel Healthcare representative for recommendations.

OPERATION

MUTE

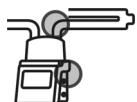
The mute button silences the humidifier's audible alarm for at least two minutes. The muted time depends on the alarm condition and the severity of its cause.

SET-UP INDICATORS



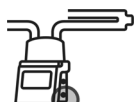
Chamber & Airway Probes

Lights if either the chamber probe or the airway probe is not inserted into the breathing circuit correctly.



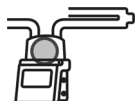
Heater Wire

Lights if the heater wire adaptor or breathing circuit has not been connected, or is damaged.



Temperature Probe

Lights if the temperature probe is not correctly plugged into the MR850, or the probe is faulty.



Water Out

Lights when there is insufficient water in the chamber. Check water supply. Maximum time to alarm of 20 minutes.



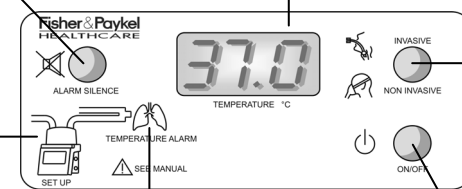
See Manual

The humidifier and all accessories should be immediately replaced and sent for servicing.

TEMPERATURE DISPLAY

Displays the saturated gas temperature (the lower of the airway and chamber temperatures in °C) delivered to the patient. This display will normally show the chamber temperature (around 37 ± 0.5 °C for invasive mode, and 31 ± 0.5 °C for noninvasive mode).

By pushing and holding the mute button for one second, the chamber outlet temperature then the airway temperature is displayed. The display will then revert to normal operation.



LOW TEMPERATURE ALARM

An audible alarm and flashing temperature display showing **35.5 °C or lower** (in invasive mode only). Caused by cold/draffy conditions or very high or low gas flows.

If the circumstances causing the low humidity alarm cannot be changed then the audible alarm acts as a reminder that the patient is receiving inadequate humidity and may require further intervention to maintain airway clearance.

HIGH TEMPERATURE ALARM

A flashing temperature display showing **41 °C or higher**. The humidifier will discontinue heating of the chamber and circuit until the temperature decreases to within normal limits.

MODE BUTTON

This button switches between invasive and noninvasive mode.



Invasive Mode

This mode is for patients with bypassed airways. The humidifier delivers gas as close to body temperature saturated (37 °C, 44 mg/L) as possible.

Under cold or draffy conditions the chamber temperature may drop as low as 35.5 °C in order to maintain a dry breathing circuit.

WARNING: Ensure that invasive mode is set for patients that have bypassed airways



Noninvasive Mode

This mode is for patients receiving face mask or headbox therapy, and delivers a comfortable level of humidity.

ON/OFF BUTTON

The humidifier will power ON if this button is held down briefly, but must be held down for one second to turn the humidifier off. The humidifier will always default to invasive mode when it is turned on.

ROUTINE MAINTENANCE

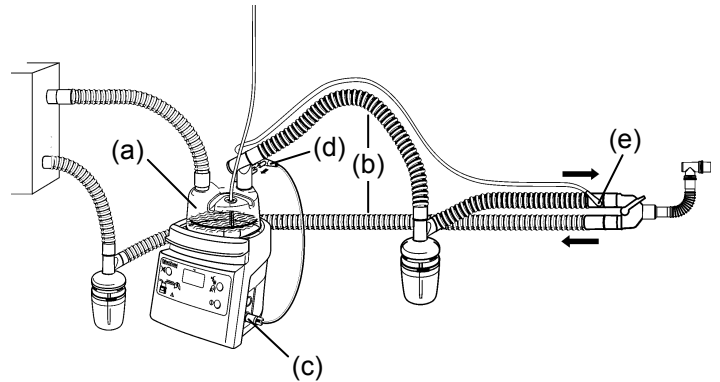
Refer maintenance to qualified service personnel. A full technical description including routine maintenance and service data is contained in the Technical Manual which is available from your supplier or Fisher & Paykel Healthcare (REF 185041340)

NON-HEATED BREATHING CIRCUITS

SET UP

1. Slide humidification chamber (a) onto humidifier base and connect breathing circuit (b) (refer to humidification chamber and breathing circuit operating instructions for further details).
2. Connect the temperature probe plug (c) (REF 900MR86X) to the blue socket on the humidifier base until an audible click is heard.
3. Push the chamber probe (d) and airway probe (e) into the breathing circuit. Make sure the chamber probe is correctly located in its key-way and that both probes are pushed home. The probe lead can be restrained using breathing circuit clips.
4. The humidification system is now set up and ready for use. After power on, the humidifier will default to invasive mode.

ATTENTION: Refer to operating instructions which accompany each accessory.



RECOMMENDED SETUP FOR ADULT PATIENTS

Non-heated breathing circuit with MR290 Chamber
900MR869 Temperature Probe, Mounting bracket to suit ventilator

For all other applications refer to Product Guide or contact your local Fisher & Paykel Healthcare representative.

SPECIFICATIONS (additional)

Temperature Control Settings (non heated circuits)

Invasive Mode: Airway 37 °C

Noninvasive Mode: Airway 31 °C

Alarm Parameters (non heated circuits)

High Temperature Alarm: Immediate, audible alarm at a displayed temperature > 41 °C

Low Temperature Alarm: Audible alarm at a displayed temperature < 29 °C (Invasive), < 26 °C (Noninvasive)

Performance (non heated circuits)

Recommended Flow Range: Invasive Mode: 6 to 60 L/min

Non-Invasive Mode: 6 to 120 L/min

NOTE

To set the humidifier to non-heater wire mode, refer to the MR850 technical manual. (Rev. H or later).

If a heated breathing circuit is used while in non-heater wire mode the humidifier automatically changes to heater wire mode. To use non-heater wire mode again will require it to be manually set.

The airway probe out test does not work with non-heated breathing circuits. A low humidity alarm will instead be given.

When there is no gas flow the humidifier will give a low humidity alarm.

If the chamber runs dry either a water out alarm or a low humidity alarm will occur.