

# AEROSOL THERAPY IN A CLOSED SYSTEM

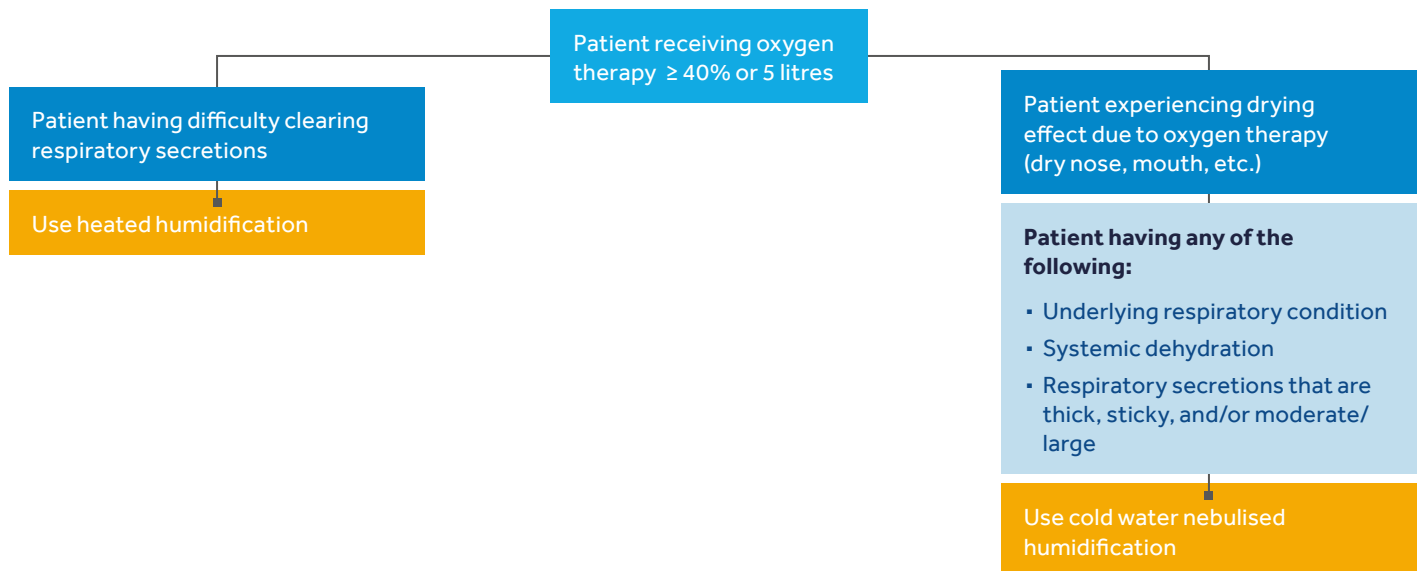
Kendall™ Heater for  
Mechanical Nebulisation



## Clinical Indications

According to several guidelines,<sup>1,2</sup> all patients receiving oxygen therapy should be regularly assessed for humidification needs.

Patients receiving high flow oxygen for more than 24 hours or who report upper airway discomfort due to dryness, may require some form of humidification.<sup>2</sup> Heated humidification or cold water nebulised humidification is required in order to improve patient comfort and compliance and to prevent deterioration in respiratory condition.



Cold water nebulised humidification systems are most appropriate where retained secretions are thick or extra humidity is required. This system can be used for oxygen of 28% and above and can assist in reducing some complications associated with the administration of oxygen, e.g., dry mouth, nose, and cracked lips.

Heated humidification systems are used when patients' respiratory secretions are difficult to clear from the respiratory tract. This system heats and moistens the secretions, making it easier for the patient to clear them, reducing their viscosity, and facilitating clearance.

Humidification may also be of benefit to patients with viscous secretions causing difficulty with expectoration. This benefit can be achieved using nebulised normal Saline.<sup>2</sup>



**Nebulised oxygen humidification may contribute to make viscous secretions more liquid, may help to minimise drying of bronchial mucosa, and prevent potential damage to ciliated tracheal epithelium.**

### References

1. Kallstrom TJ, American Association for Respiratory Care (AARC). AARC clinical practice guideline: oxygen therapy for adults in the acute care facility:2002 revision & update. *Respir Care*. 2002 Jun;47(6):717-720.
2. O'Driscoll BR, Howard LS, Davison AG; British Thoracic Society. BTS guideline for emergency oxygen use in adult patients. *Thorax*. 2008;63 Suppl 6:vi1-68.

## Kendall™ Heater for Mechanical Nebulisation — The versatile humidification system

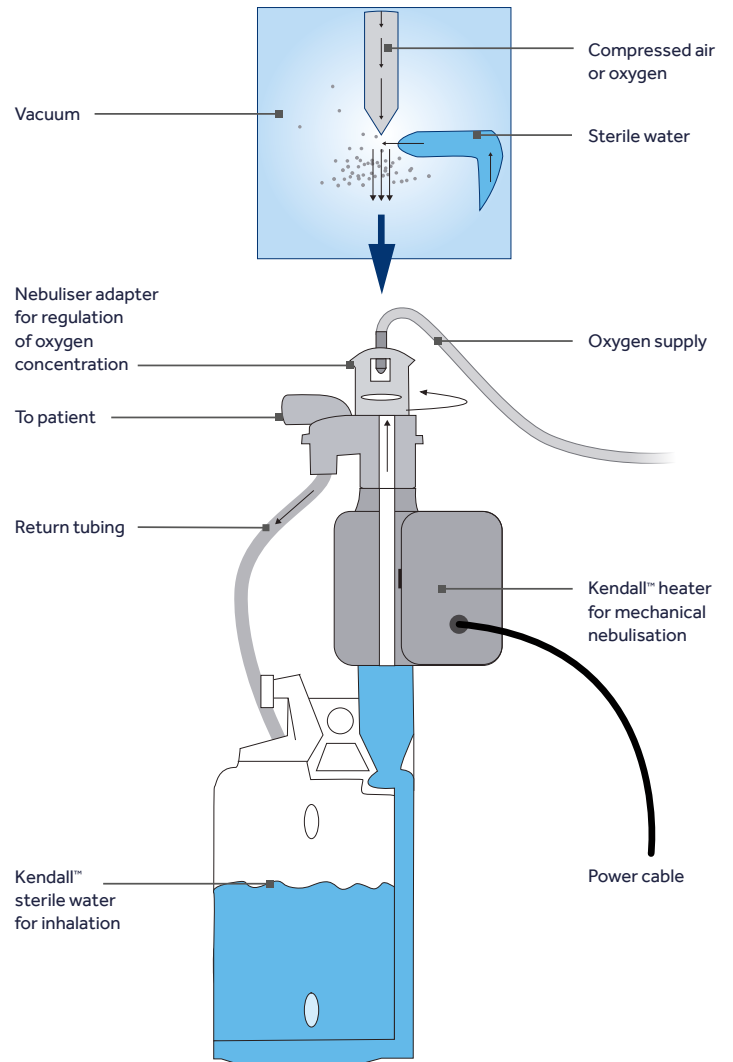
### Easy nebulisation

The nebuliser adapter works according to Venturi principle and offers the ideal solution for cold and warm nebulisation of self-ventilating patients.

The sterile water is suctioned up from the bottle and warmed upstream by the heater.

The system delivers visible aerosol in particulate range of 1.4-8 microns allowing oxygen concentrations of 28-98% (24% with special adapter).

Used in conjunction with nebuliser adapters, the Kendall™ heater for mechanical nebulisation allows the delivery of warmed aerosol with controllable variable temperature due to nine temperature settings.



### Benefits of a closed nebulisation system

In conjunction with the range of Kendall™ sterile water for inhalation closed system, the Kendall™ heater for mechanical nebulisation and Kendall™ nebuliser adapter are easy to set up and use and may help minimising infection risk associated with conventional open systems.

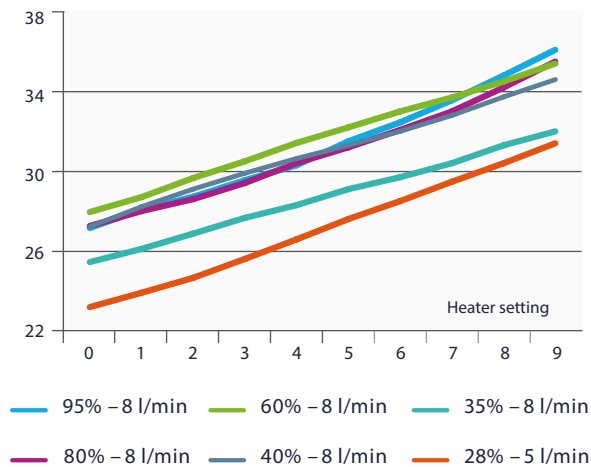


## Powerful in clinical setting

Temperature output for heater level setting 0 to 9 †

### Internal laboratory testing

Temp. C (±2 C)



The temperature tables were created under laboratory conditions from 21 C-22 C with 120 cm PE aerosol tube (22 mm diameter), Kendall™ sterile water for inhalation (REF 21000), and heated Kendall™ nebuliser adapter (REF 2219).

The temperatures were measured on the aerosol tube end at the patient side.

† Temperature diagrams linearised within the scope of the tolerance limits.

### Technical data

Work area:	5-8 l/min
Operation type:	continuous operation
Protection class:	I
Protection degree:	B
Protection degree:	IP22
Dimensions (approx.):	H 115 × L 135 × W 80 mm
Weight (approx.):	0.6 kg
Rated voltage:	230 V ~
Nominal frequency:	50 Hz
Normal consumption:	150 W
Nominal current:	0.65 A

### Aerosol spectrum by laser-holography

Cold Nebulisation	Oxygen setting	
	35 %	98 %
Droplet size		
0,3 – 2,0 µm	35,46 %	20,43 %
0,3 – 4,0 µm	72,06 %	52,02 %
0,3 – 8,0 µm	97,33 %	91,03 %
With Kendall™ heater	Oxygen setting	
Warm nebulisation	35 %	98 %
Setting	9	9
Aerosol temperature	36 °C	40 °C
Droplet size		
0,3 – 2,0 µm	20,45 %	18,88 %
0,3 – 4,0 µm	68,79 %	58,45 %
0,3 – 8,0 µm	95,76 %	95,31 %

Internal laboratory testing.

### Ordering information

REF	Description	Carton/quantity
15900A	Kendall™ Heater for mechanical nebulisation	1
1072	Kendall™ Nebuliser Adapter	50
2219	Kendall™ Nebuliser Adapter (remote)	50
2500	Kendall™ Sterile Water for Inhalation USP 500 ml	15
21000	Kendall™ Sterile Water for Inhalation USP 1000 ml	8
21500	Kendall™ Sterile Water for Inhalation USP 1500 ml	6
2528	Kendall™ Sterile Water for Inhalation USP with Nebuliser Adapter, 500 ml	15
21028	Kendall™ Sterile Water for Inhalation USP with Nebuliser Adapter, 1000 ml	8
21027	Kendall™ Sterile Water for Inhalation USP with Nebuliser Adapter (remote), 1000 ml	8
290/7264	DAR™ 22 mm Corrugated Tubing 50 mt roll, cuffed at 39,5 cm	1
290/5035	DAR™ 22 mm Corrugated Tubing 50 mt roll, cuffed at 16,5 cm	1
58512	Kendall™ Heater Holder for wall rail	1
38153	Kendall™ Sterile Water Bracket for wall rail	1
38154	Kendall™ Sterile Water Bracket for IV Pole	1
608P9289	Mallinckrodt™ Connector with temperature indicator	10



Avda. Médico Ballina, 38  
36005 Pontevedra  
T.: +34 986 87 60 50  
F.: +34 986 87 60 51

info@emasamedical.com  
www.emasamedical.com