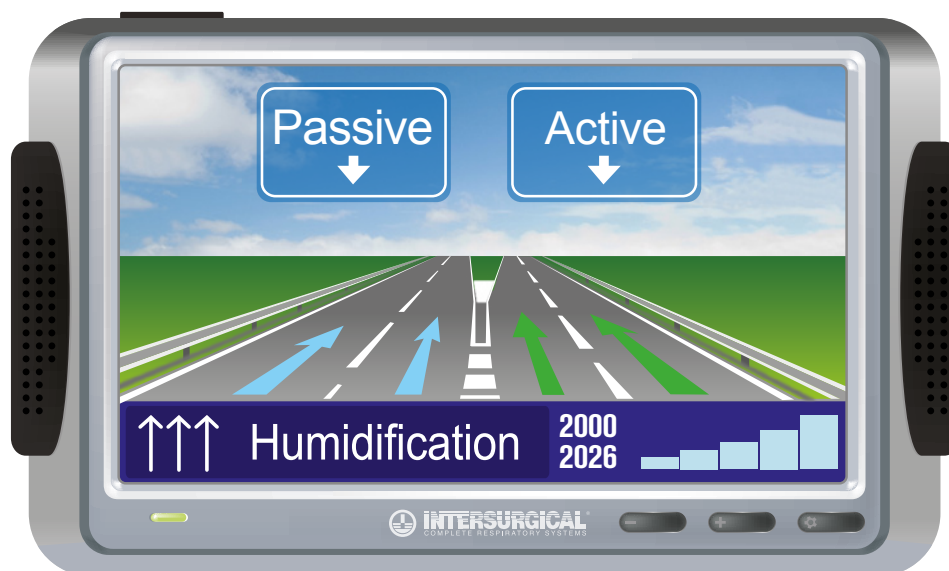


The route to humidification



A range of products to help you along the way

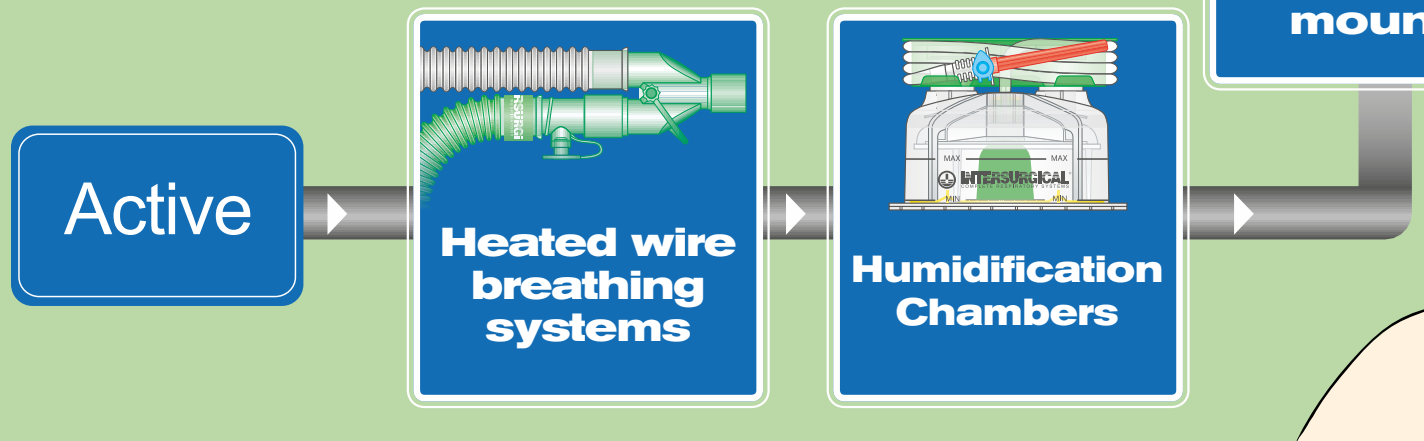
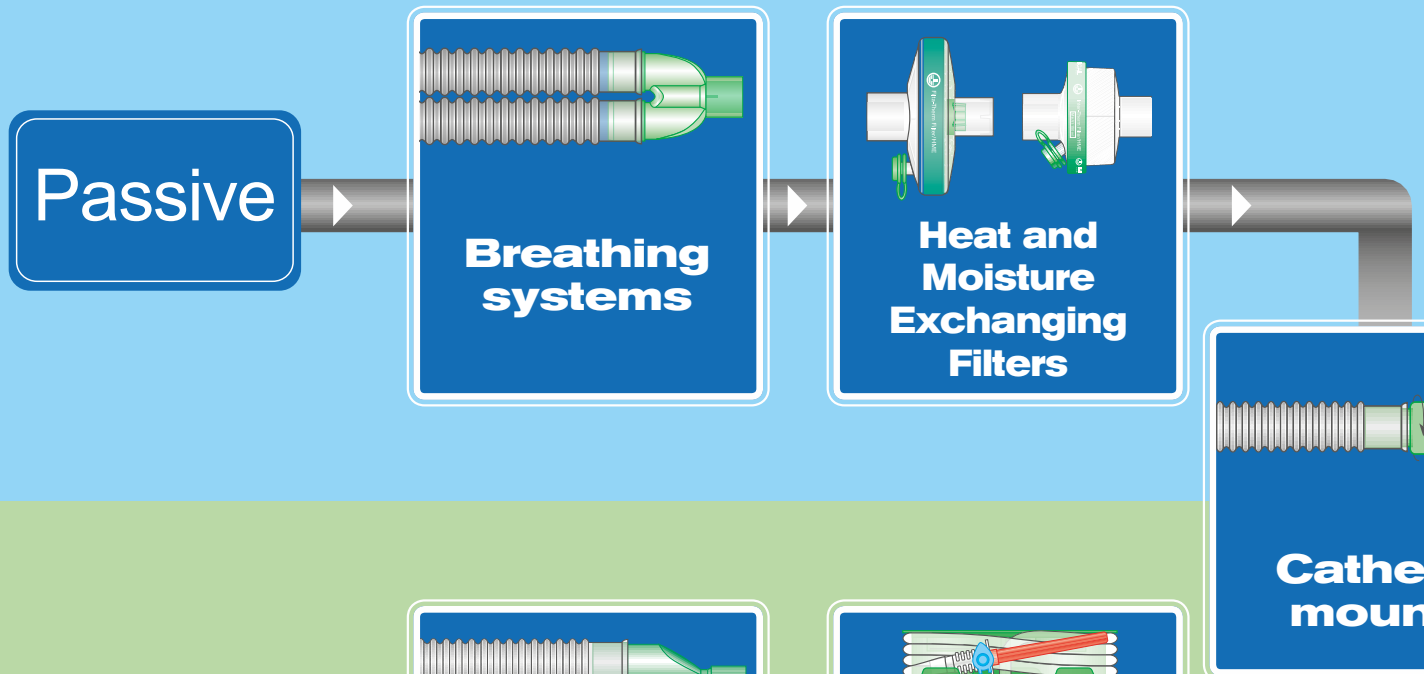
The route to humidification - your choice

At Intersurgical we understand that each patient and clinical situation is different. Our aim is to provide a solution for all of your humidification requirements, active or passive, for both ventilated and spontaneously breathing patients.

Ventilated

Passive humidification

Passive Humidification requires a heat and moisture exchanger to be positioned at the patient connection of a basic two limb breathing system. This is designed to replicate the functions of the upper airway conserving the patient's own expired heat and moisture and returning these to the patient during inspiration.

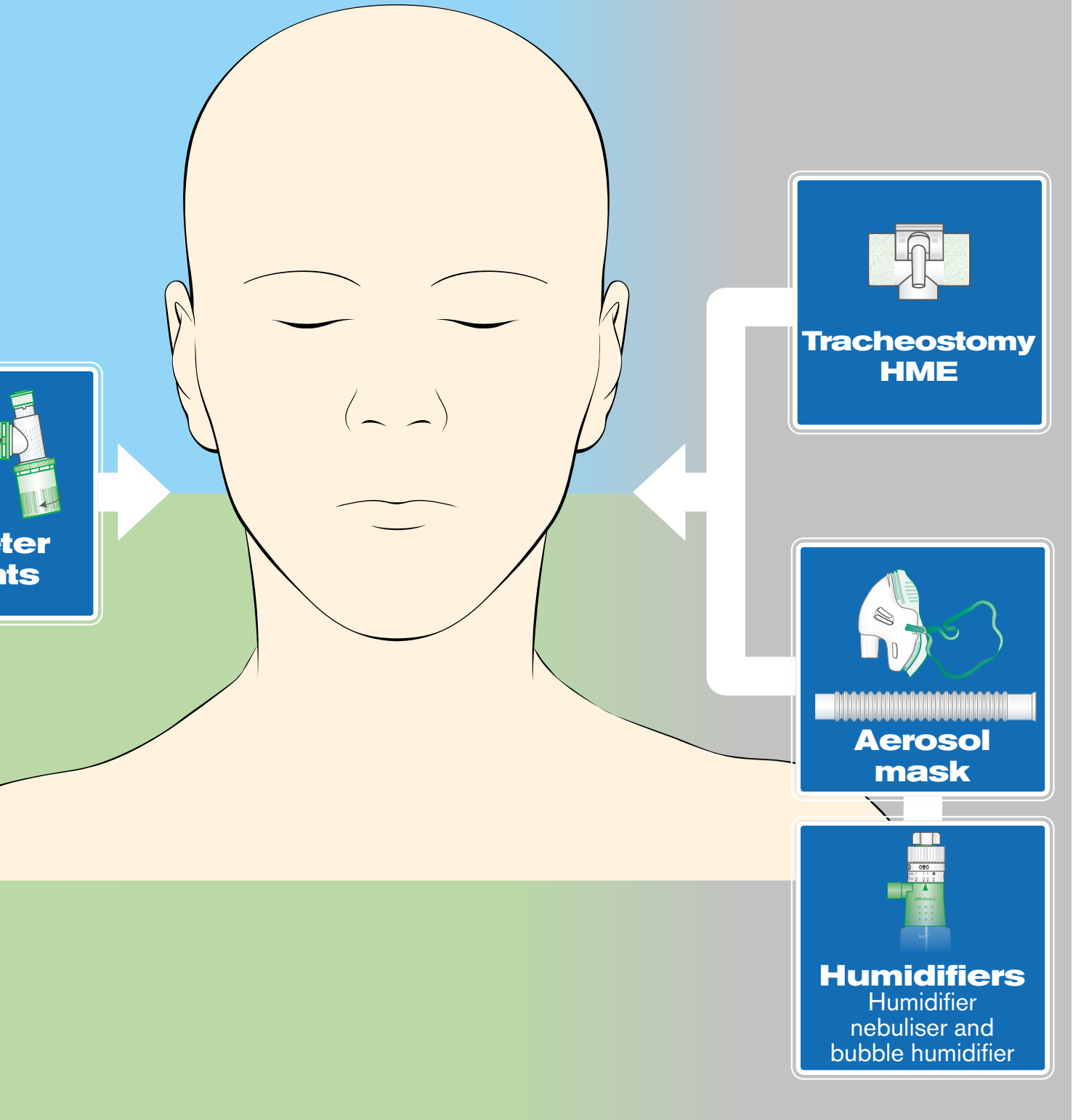


Active humidification

Active humidification requires a water bath humidifier, humidification chamber and either a heated wire breathing system or water traps within the system. This technique is also designed to replicate the functions of the upper airway by the addition of heat and moisture from the humidifier. This provides a higher level of humidity than an HME and should be selected depending on the clinical requirements of the patient.



Spontaneous



Why is Humidification needed?

In normal respiration the upper airway helps to warm and humidify inspired air and to retain the warmth and moisture contained in expired air. During inspiration even cold or dry air is typically heated to 37°C and fully saturated, containing 44mg H₂O per litre.

In mechanical ventilation the patient's upper airway may be bypassed by the introduction of a tracheal tube. As a result the patient's lungs may be confronted with dry inspired gas.

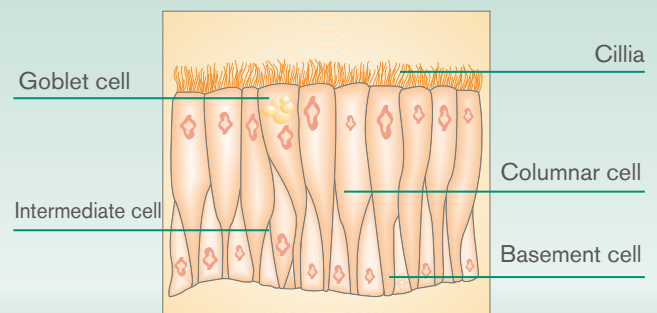
The drying and cooling effect is exacerbated by the presence of the tracheal tube, the normal process of re-absorption of heat and moisture by the upper airway during expiration is lost.

Prolonged exposure to dry ventilatory gases can lead to a number of problems as highlighted below.

Prolonged exposure to dry ventilatory gases can lead to:

- Localised inflammation of the trachea.
- A reduction in ciliary function
- Retention and thickening of secretions
- Lowering of patient temperature
- Reduction in Cardiopulmonary function
- Increased risk of tracheostomy tube occlusion

Respiratory Epithelium adversely affected by heat & moisture loss



Which routes are available?

There are two options for patient humidification, **passive** or **active**.

Passive humidification conserves the patient's own heat and moisture whilst **active humidification** adds additional heat and moisture via a humidifier.

We have a full range of products for both options to suit your patients requirements.





Passive Humidification

If your ventilated patient requires passive humidification then we have a wide range of basic breathing systems and heat and moisture exchangers.

In this brochure are a selection of options however for the full range please refer to our website www.intersurgical.com or our product catalogue.

Heat and Moisture Exchangers

Heat and moisture exchangers are designed to be used at the patient connection of a breathing system to prevent heat and moisture loss when the upper airway is by passed.

We can provide both HME only options and a range combined with filters, HMEFS. These provide the performance of a dedicated HME with the filtration efficiency of a breathing filter.

Filta-Therm Plus and Clear-Therm HMEFs

Filta-Therm Plus Bacterial and Viral Filtration efficiency	Moisture return at: VT500ml	Resistance to flow		Compressible volume	Weight	Minimum tidal volume
		30L/min	60L/min			
>99.999%	31.5mg H ₂ O/L	1.3cm H ₂ O	3.0cm H ₂ O	66ml	44g	200ml
Clear-Therm Bacterial and Viral Filtration efficiency	Moisture return at: VT500ml	Resistance to flow		Compressible volume	Weight	Minimum tidal volume
		30L/min	60L/min			
>99.99%	32mg H ₂ O/L	1.0cm H ₂ O	2.4cm H ₂ O	61ml	32g	200ml

1941001	70	1841000	35
Filta-Therm Plus + luer lock port		Clear-Therm + luer lock port	

Inter-Therm HMEF[®]

The Inter-Therm HMEF provides both high filtration efficiency and heat and moisture performance and is provided **sterile**.

Inter-Therm Bacterial and Viral Filtration efficiency	Moisture return at: VT500ml	Resistance to flow		Compressible volume		Weight		Minimum tidal volume
		30 L/min	60 L/min	Without port	With port	Without port	With port	
>99.999%	32mg H ₂ O/L	1.6cm H ₂ O	3.0cm H ₂ O	56ml	57ml	30g	31g	150ml

1341007S	125	1341000S	125	1341580S	50
Inter-Therm HMEF		Inter-Therm HMEF + luer lock port and elbow		Inter-Therm HMEF + luer lock port and Smoothbore catheter mount with double swivel elbow and double 'flip top' cap	



Hydro-Therm® HME

A range of dedicated HME's where filtration is not required

Moisture return at: VT 500ml HME only	Resistance at: HME only		Compressible volume HME only		Weight HME only		Minimum tidal volume HME only
	30L/min	60L/min	Without port	With port	Without port	With port	
Hydro-Therm 30mg H ₂ O/L	0.7cm H ₂ O	1.9cm H ₂ O	15ml	16ml	11g	12g	50ml
Hydro-Therm II 33mg H ₂ O/L	0.3cm H ₂ O	1.4cm H ₂ O	N/A	60ml	N/A	33g	200ml

1850	20	1855	20	1860	35
Hydro-Therm		Hydro-Therm + luer lock port		Hydro-Therm II + luer lock port	

Flextube® and Smoothbore basic breathing systems

A range of basic two limb breathing systems in both Flextube and Smoothbore tubing for use with HME's or HMEF's for a passive humidification solution.

		2000
2000	Breathing system, 1.6m length	20
2000100	Anti-microbial breathing system, 1.6m length	20
2200	Breathing system with detachable limb, 1.6m length (for insertion of a nebuliser or MDI)	20
2006	Breathing system, 2.0m length	15
2001	Breathing system, 2.4m length	15
2002	Breathing system, 1.6m length with 0.8m limb	20
2003	Breathing system, 2.4m length with 0.8m limb	15
2004	Breathing system with ported Y-piece, 1.6m length with 0.8m limb	10
5000	500000S Smoothbore breathing system 1.6m length	12



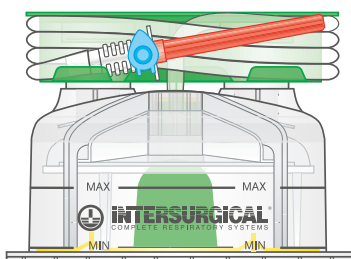
Active Humidification

If your ventilated patient requires active humidification then our range of humidification chambers combined with a choice of breathing systems in Flextube or Smoothbore are available.

Humidification Chambers

The humidification chambers are an integral part of the breathing system and allow the system to interface with the heated humidifier base. The range consists of three chamber options which can be used with humidifier bases commonly used in intensive care units.

The chamber simply slides into position on the hot plate of the base controller allowing the inspiratory gas to pass over the heated water. These are available with breathing systems for convenience or individually if required.



Auto-fill humidification chamber

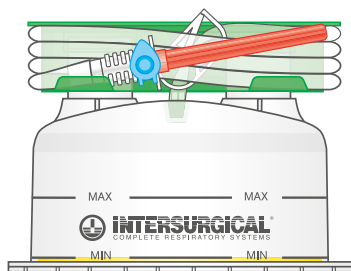
The auto-fill humidification chamber offers a fixed level of water within the chamber, ensuring a constant system volume. This, coupled with the strong polycarbonate body and non compressible float, ensures that adverse changes in system compliance are reduced to a minimum.

The auto-fill chamber provides optimum humidification output without compromising resistance to flow. The new dual-float, dual-valve design provides further assurance of reliability.

2310

Auto-fill humidification chamber

30



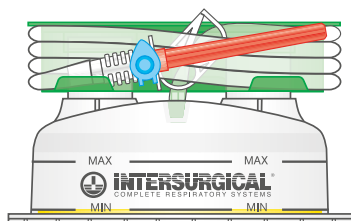
Manual fill humidification chamber

The manual fill humidification chamber offers a cost effective option in all areas of ventilation. This product is supplied complete with fill set and clamp in order to manually control the water level in the chamber.

2320

Manual fill humidification chamber

30



Low volume humidification chamber

The low volume humidification chamber is suitable for use with high frequency ventilation and many neonatal applications. The product is supplied with a fill set and clamp for manually controlling the water level in the chamber.

2330

Low volume manual fill humidification chamber

30



Features and benefits of the auto-fill humidification chamber

Inline Filter

Prevents any debris entering the chamber.

Protective cassette

Protects the chamber from contamination and conveniently stores the fill set before use.

Dual valve

For added security.

Strong Polycarbonate clear material

Improved compliance characteristics. Allows for easy visual assessment of the fluid level at all times.

Clearly visible water level indicator

Easy to see for instant accurate fluid level assessment.

Advanced dual float design

The closed cell material of the primary float ensures a totally reliable unsinkable rigid mechanism. Whilst the secondary float provides added security.

Shrouded heated plate cover

Prevents accidental burns when removing the chamber from the heater base.





Flextube® heated wire breathing systems

Systems are available with single or dual heated wires and can be supplied complete with an auto-fill humidification chamber if required

2025310

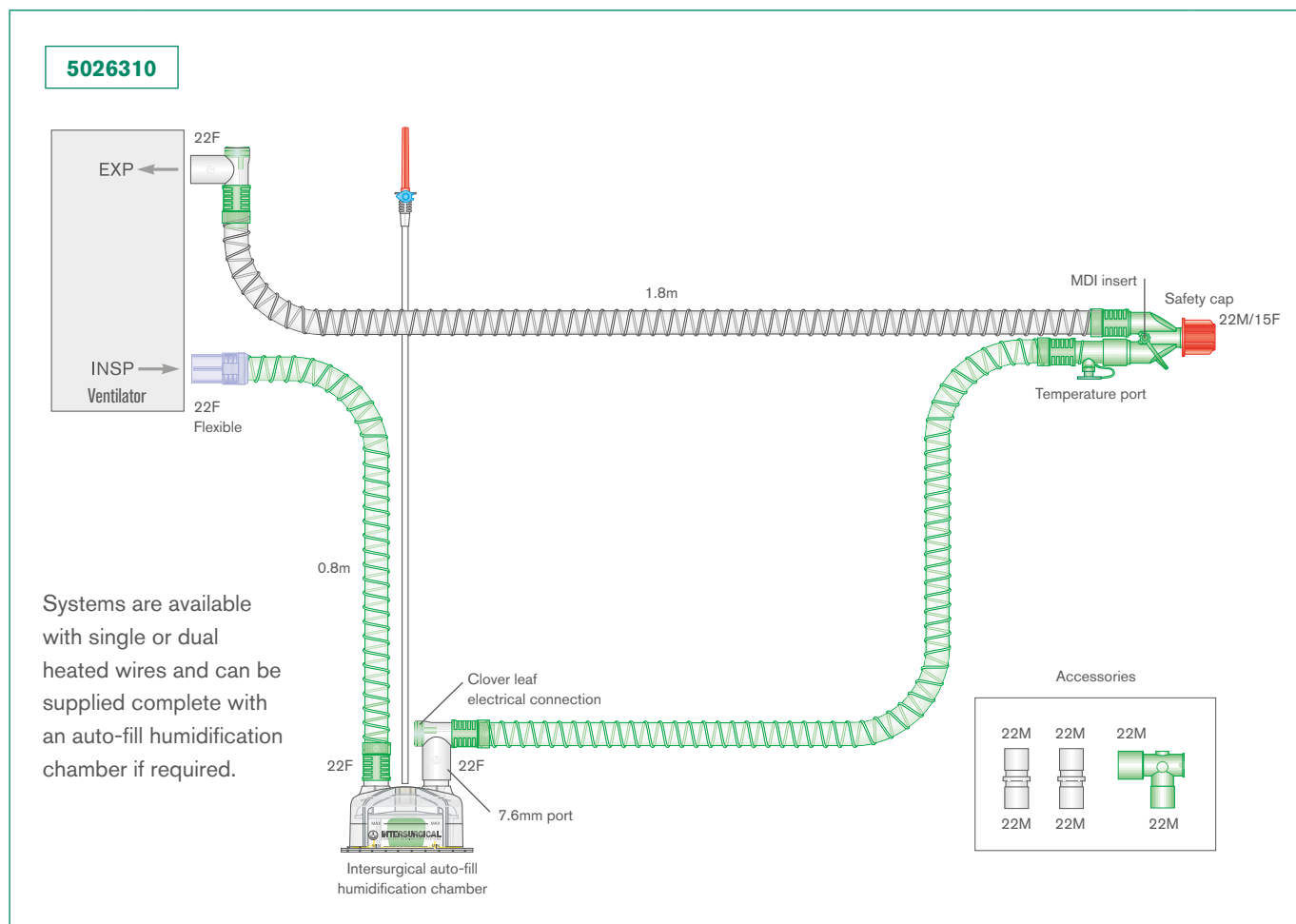
2026310

2025	Single heated wire breathing system, 1.6m length with 0.8m limb	10	
2025310	Single heated wire breathing system with auto-fill chamber , 1.6m length and 0.8m limb	8	
2026	Dual heated wire breathing system, 1.6m length with 0.8m limb	10	
2026310	Dual heated wire breathing system with auto-fill chamber , 1.6m length and 0.8m limb	8	



Smoothbore breathing systems for active humidification

Systems are available with single or dual heated wires and can be supplied complete with an auto-fill humidification chamber if required



5025	Single heated wire breathing system, 1.6m length with 0.5m limb	10	
5025310	Single heated wire breathing system with auto-fill chamber , 1.6m length with 0.5m limb	8	
5026	Dual heated wire breathing system, 1.6m length with 0.5m limb	10	
5026310	Dual heated wire breathing system with auto-fill chamber , 1.6m length with 0.5m limb	8	



Patient connections

A wide range of patient connections are available in Flexible, Superset and Smoothbore tubing, see our product catalogue for the full range.

All port caps are retained to ensure they cannot be misplaced in use. Two varieties of flip top cap are available to allow for suctioning and the use of a fibre optic bronchoscope.

Double 'Flip top' cap with seal

First tab open - bronchoscope mode with seal

Second full cap open - suction mode

Bronchoscopy and suction ports in one patient connection

Flip top cap with 7.6mm port

For connection of all standard 7.6mm probes or for suctioning

Double 'Flip top' cap with seal

22F

Covers 7.6mm and 9.5mm applications

Swivel

22M/15F swivel

3505 Swivel elbow and double flip top cap 50

'Flip top' cap with 7.6mm port

22F

170mm

Swivel

22M/15F swivel

3516 Swivel elbow and flip top cap 50

Covers 7.6mm and 9.5mm applications

Double 'Flip top' cap with seal

22F

70mm compressed
150mm extended

Swivel

22M/15F swivel

3521 Superset with swivel elbow and double flip top cap 75

'Flip top' cap with 7.6mm port

22F

70mm compressed
150mm extended

Swivel

22M/15F swivel

3520 Superset with swivel elbow and flip top cap 75

Double 'Flip top' cap with seal

22F

Swivel

22M/15F swivel

5180 Smoothbore with swivel elbow with double flip top cap, 180mm 50

5180000S Sterile Smoothbore with swivel elbow with double flip top cap, 180mm 85





Passive Humidification

For the spontaneously breathing patient with a tracheostomy or receiving oxygen therapy, both passive and active humidification options are available.

Hydro-Trach® T Mk.II

The Hydro-Trach T Mk.II is a heat and moisture exchange device designed for use with spontaneously breathing patients in order to reduce loss of heat and moisture during respiration.

When a patient has a tracheostomy, the normal system of temperature and moisture maintenance is bypassed by the insertion of the tracheal tube and can lead to serious complications.

The Hydro-Trach T Mk.II has a number of unique features which make it an ideal product for prolonged use with spontaneously breathing patients - available sterile if required.



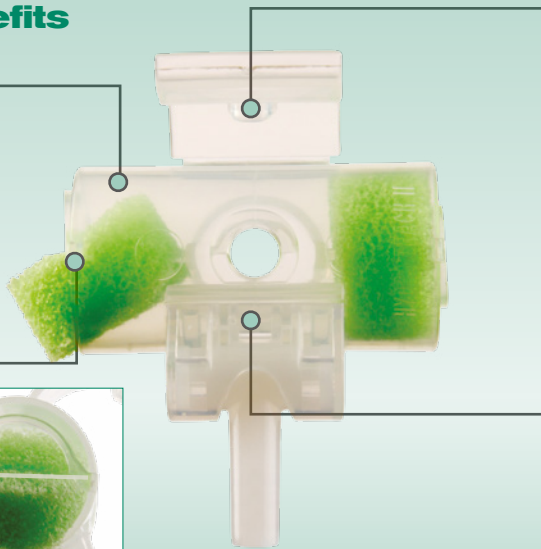
Features and benefits

Clear housing
for easy visual inspection for possible secretion build up

Anti Occlusion mechanism
allowing the HME element to partially dislodge in the event of total occlusion or vigorous cough



Small and lightweight
reducing the pull on the patient connection



Clipped suctioning port
To allow for easy suctioning without removal of the device

An integral swivel oxygen connector
allowing for connection of the oxygen tube without the need of a separate oxygen adapter, which can be easily folded away when not in use

Moisture return at: VT 500ml <small>HME only</small>	Resistance at: <small>HME only</small>		Compressible volume <small>HME only</small>	Weight <small>HME only</small>	Minimum tidal volume <small>HME only</small>
	30L/min	60L/min			
26mg H ₂ O/L	0.2cm H ₂ O	0.7cm H ₂ O	19ml	8g	50ml

1873	25	1874	40
1873000S - sterile	100	1874000S - sterile	30
<p>15M</p>		<p>15M O₂ tube not to scale</p>	
Hydro-Trach T Mk.II		Hydro-Trach T Mk.II + O ₂ tube	



Aquamist™ humidifier nebulisers

For the spontaneously breathing patient receiving long term oxygen therapy humidification is essential in order to bring dry oxygen gas to ambient levels of humidity.

A number of options are available. Aerosol masks, tracheostomy masks and T-pieces provide an ideal interface for the Aquamist humidifier nebuliser which has been designed to deliver accurate concentrations of humidified oxygen quietly.

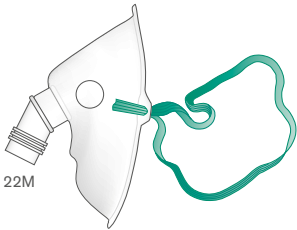
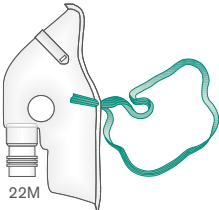
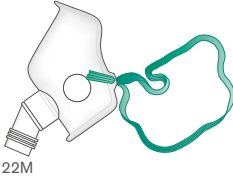
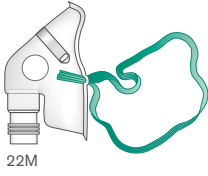





1509	1508	1500001	1506001	2.0m Flextube
1508	Humidifier nebuliser without bottle	24		
1509	Humidifier nebuliser with bottle	25		
1500	Humidifier nebuliser + BOC adaptor without bottle	24		
1502	Humidifier nebuliser + BOC adaptor with bottle	25		
1500001	Humidifier nebuliser + adult aerosol mask kit without bottle + BOC adaptor + 2.0m Flextube	15		

Tracheostomy mask and T-pieces

1200	
1200	Adult tracheostomy mask 30
1206	Paediatric tracheostomy mask 35

1984	
1980	Tracheostomy T-piece 25
1984	Tracheostomy T-piece with 7.6mm port 25


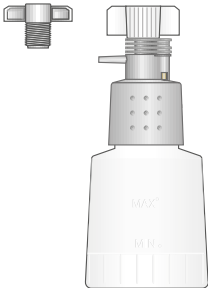








Aerosol masks

1103	1108	1148	1198
			
1103	Adult aerosol mask	70	
1101	Small adult aerosol mask	70	
1148	Paediatric aerosol mask	35	
1108	Adult aerosol mask with nose clip	70	
1198	Paediatric aerosol mask with nose clip	50	

AquaFlow™ oxygen bubble humidifiers

Patient's receiving variable oxygen concentrations delivered via mask, or nasal cannulae can be humidified using the Intersurgical AquaFlow. This uses the bubble-through humidification process.

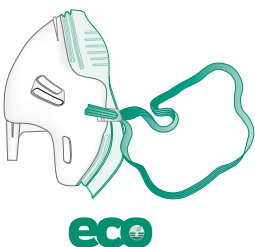
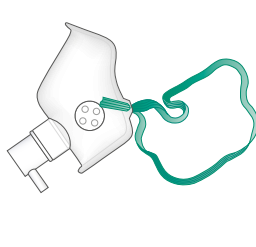
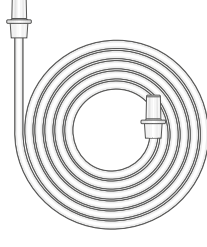
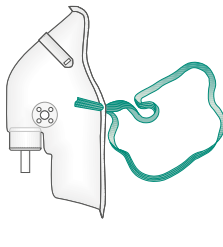
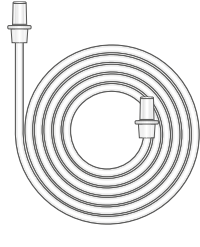













The dry gas from the flowmeter is directed into the water bottle where it is broken up into small bubbles which gain humidity as they rise to the surface of the water.

1521	1520	1505	1506	1507
				
1506	Oxygen bubble humidifier without bottle	30		
1505	Oxygen bubble humidifier with bottle + M12 adaptor	20		
1507	Oxygen bubble humidifier with bottle	20		
1521	Homecare bubble humidifier with bottle	20		
1520	Homecare bubble humidifier with bottle + M12 adaptor	20		



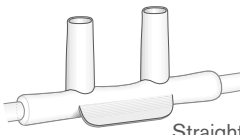
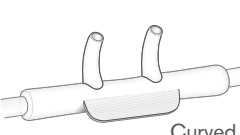
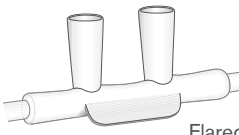
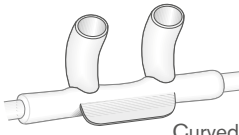








Oxygen masks

Medium concentration oxygen masks

				
1136	1146		1115	
				
1135	Adult Eco oxygen mask with 2.1m oxygen tube		40	
1136	Adult Eco oxygen mask		55	
1104	Adult oxygen mask		70	
1104001	Adult oxygen mask with ear loops		70	
1105	Adult oxygen mask with oxygen tube		50	
1106	Small adult oxygen mask		70	
1115	Adult oxygen mask with nose clip and oxygen tube		50	
1116	Adult oxygen mask with nose clip		70	
1140	Paediatric oxygen mask		50	
1146	Paediatric oxygen mask with oxygen tube		50	

Nasal cannulae

Straight prong, curved prong, flared prong and curved flared prong options

				
Straight prong	Curved prong	Flared prong	Curved flared prong	
1161	Adult straight prong with tube, 1.8m length		50	
1162	Adult straight prong with tube, 5.0m length		20	
1169	Adult straight prong headset, 0.5m length		100	
1165	Adult curved prong with tube, 1.8m length		50	
1167	Adult curved/flared prong with tube, 1.8m length		50	
1168	Adult curved/flared prong headset, 0.5m length		100	
1166	Adult flared prong with tube, 1.8m length		50	
1163	Paediatric curved prong with tube, 1.8m length		50	
1164	Neonatal curved prong with tube, 1.8m length		50	