

The route to humidification



A range of products to help you along the way

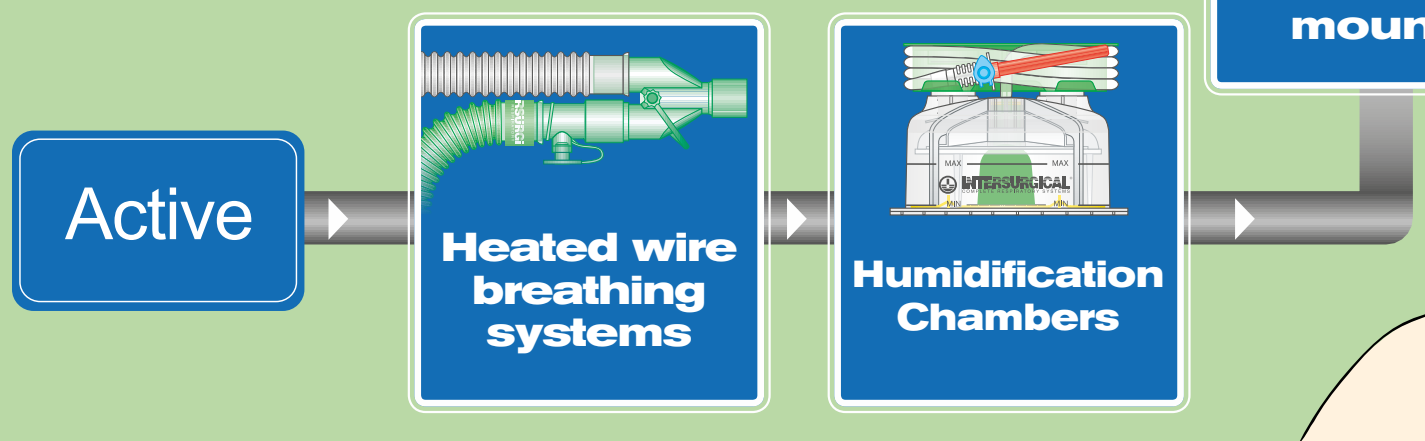
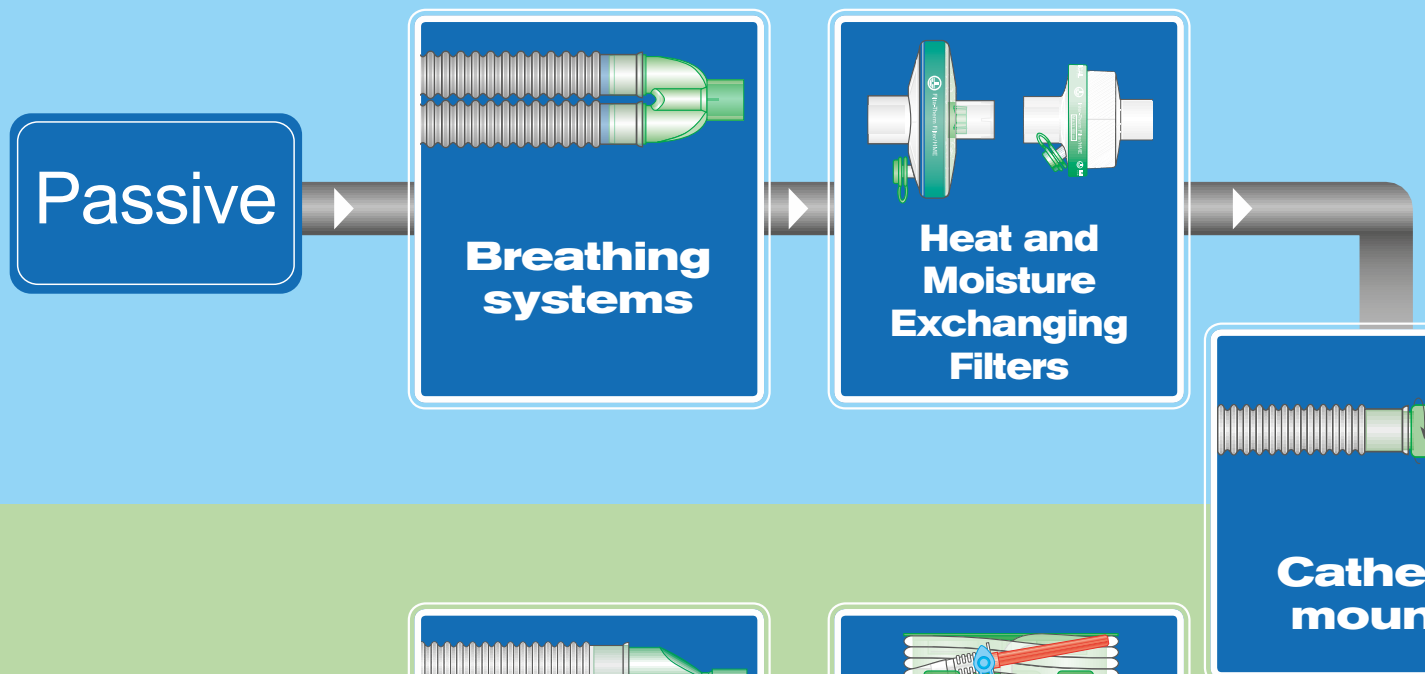
The route to humidification - your choice

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

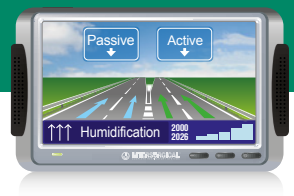
Passive humidification

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.

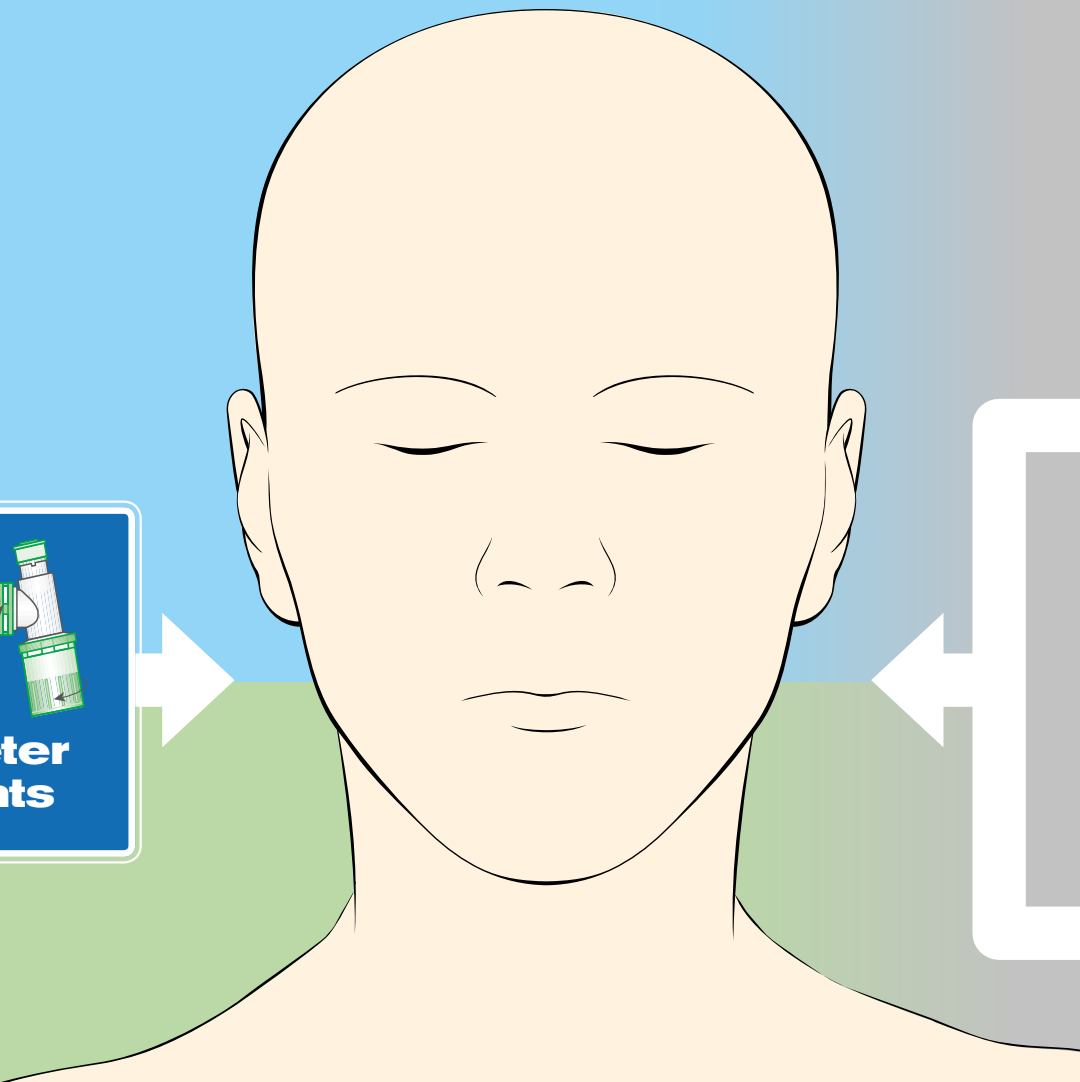


Active humidification

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.

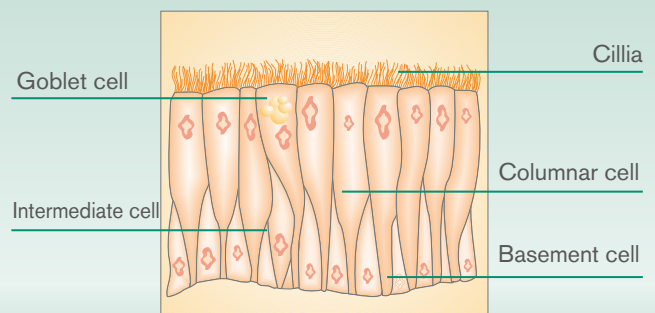
The drying and cooling effect is exacerbated by the presence of the tracheal tube, the normal process of re-absorption of heat and moisture by the upper airway during expiration is lost.

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

Passive



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

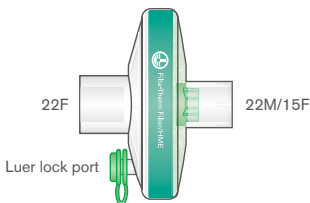
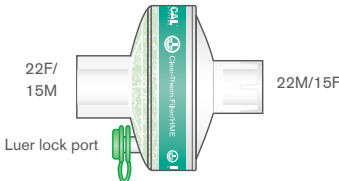
In this brochure are a selection of options however for the full range please refer to our website www.intersurgical.com or our product catalogue.

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.




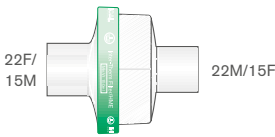
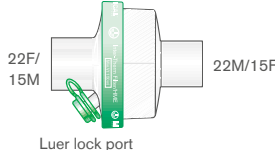
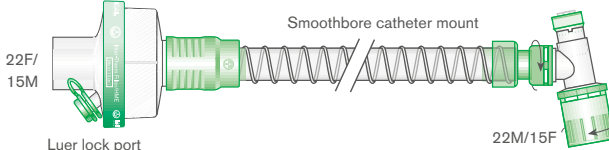
Filta-Therm Plus and Clear-Therm HMEFs

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.

<div>22F EXP INSP Ventilator 22F 1.6m 22M 22M Safety cap 22M/15F</div>			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		

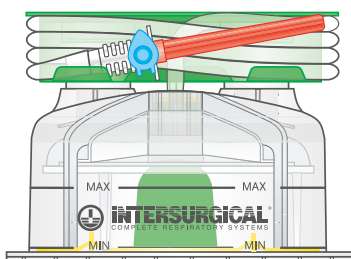
Active Humidification

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.



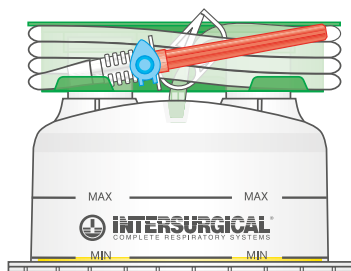
Auto-fill humidification chamber

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

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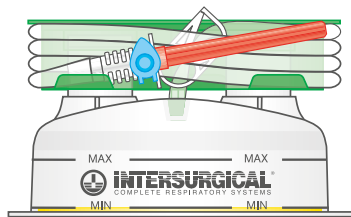


Manual fill humidification chamber

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	<p>2025310</p> <p>EXP 22F</p> <p>INSP 22F</p> <p>0.8m</p> <p>Water trap</p> <p>Intersurgical auto-fill humidification chamber</p> <p>22F</p> <p>7.6mm port</p> <p>Safety cap 22M/15F</p> <p>Temperature port</p> <p>MDI Insert</p> <p>Accessories</p> <p>22M 22M</p> <p>22M 22M</p>	10	
2026310	<p>2026310</p> <p>EXP 22F</p> <p>INSP 22F</p> <p>0.8m</p> <p>Water trap</p> <p>Intersurgical auto-fill humidification chamber</p> <p>22F</p> <p>7.6mm port</p> <p>Safety cap 22M/15F</p> <p>Temperature port</p> <p>MDI Insert</p> <p>Accessories</p> <p>22M 22M</p> <p>22M 22M</p> <p>22M T-connector</p> <p>22M long tube</p>	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

5026310

EXP

INSP Ventilator

22F Flexible

1.8m

MDI insert

Safety cap 22M/15F

Temperature port

0.8m

22F

Clover leaf electrical connection

7.6mm port

Intersurgical auto-fill humidification chamber

Accessories

22M 22M 22M

22M 22M 22M

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

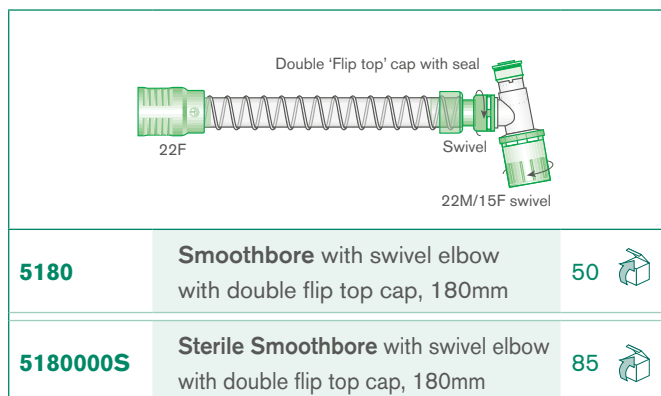
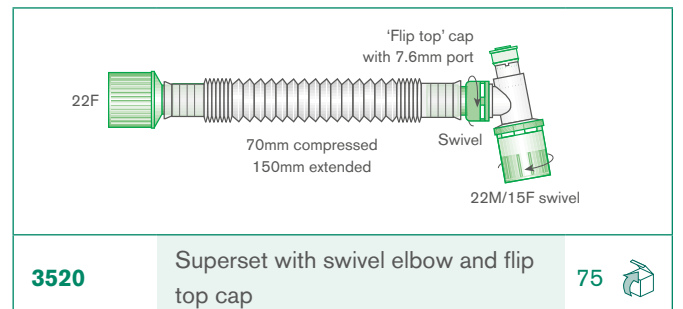
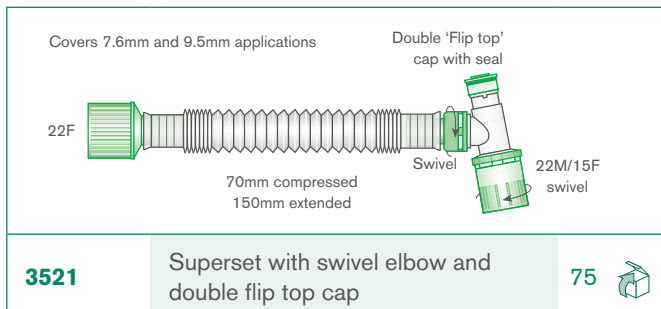
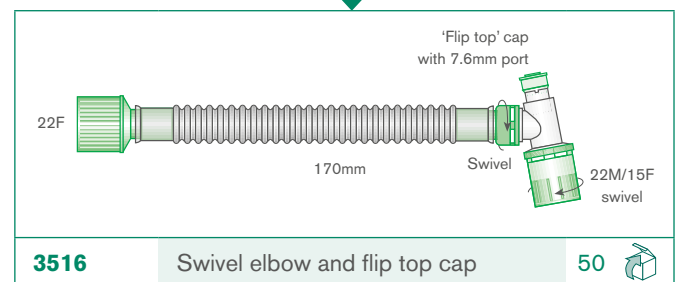
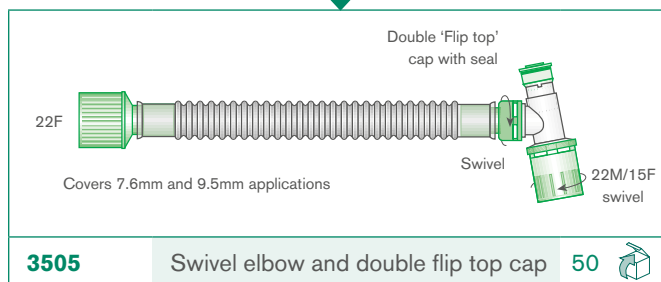
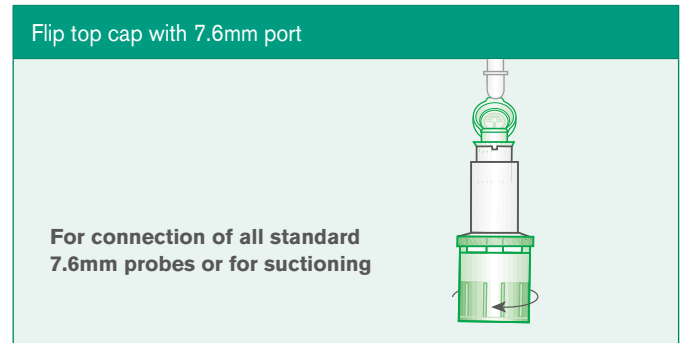
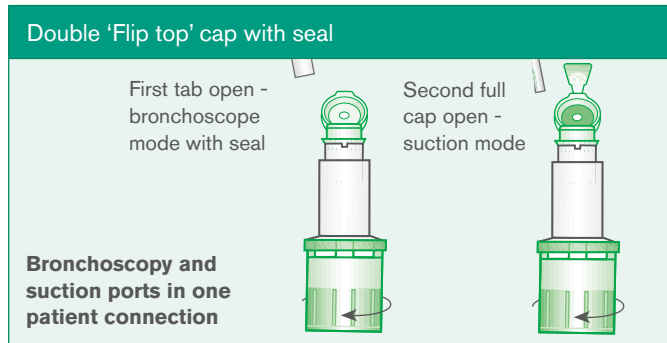
5025	Single heated wire breathing system, 1.6m length with 0.5m limb	10	
5025310	Single heated wire breathing system with auto-fill chamber , 1.6m length with 0.5m limb	8	
5026	Dual heated wire breathing system, 1.6m length with 0.5m limb	10	
5026310	Dual heated wire breathing system with auto-fill chamber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

Passive**Active**

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.



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





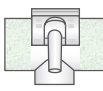
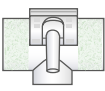

Clipped suctioning port

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

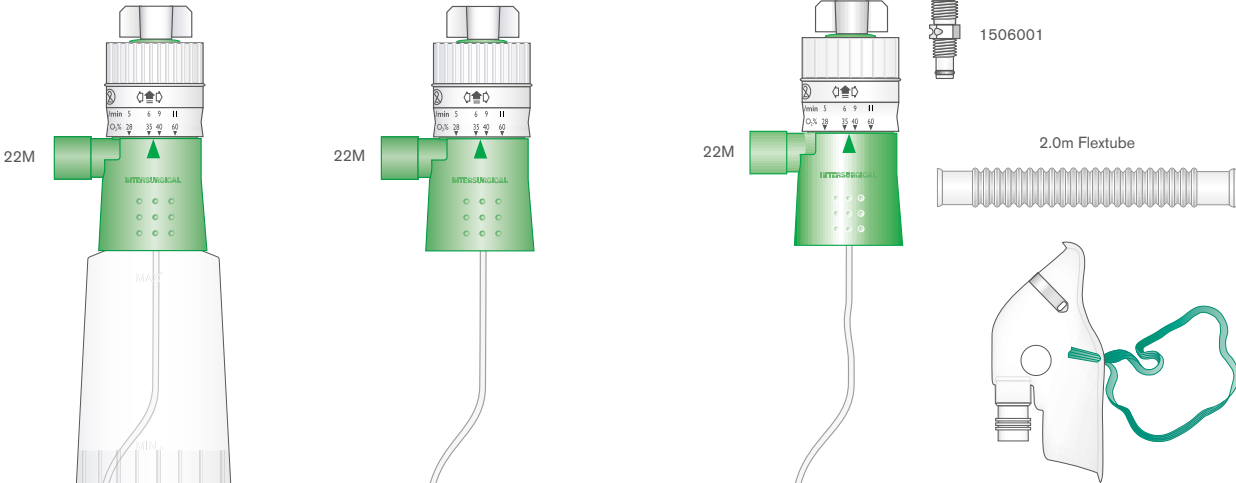





1873	25 	1874	40 
1873000S - sterile	100 	1874000S - sterile	30 
 15M		  O2 tube not to scale	
Hydro-Trach T Mk.II		Hydro-Trach T Mk.II + O ₂ tube	



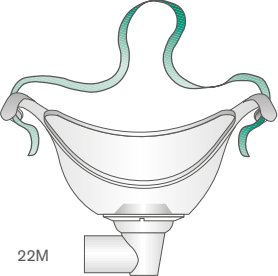
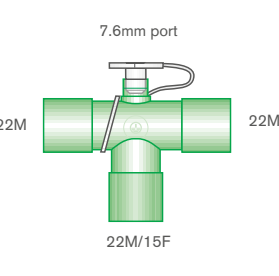




Aquamist™ humidifier nebulisers

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.

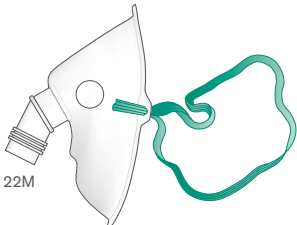
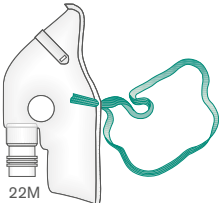
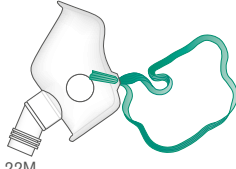
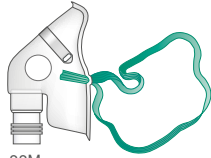





1509	1508	1500001	
1508	Humidifier nebuliser without bottle		24 
1509	Humidifier nebuliser with bottle		25 
1500	Humidifier nebuliser + BOC adaptor without bottle		24 
1502	Humidifier nebuliser + BOC adaptor with bottle		25 
1500001	Humidifier nebuliser + adult aerosol mask kit without bottle + BOC adaptor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

Tracheostomy mask and T-pieces

1200		1984	
1200	Adult tracheostomy mask	30 	1980 Tracheostomy T-piece 25 
1206	Paediatric tracheostomy mask	35 	1984 Tracheostomy T-piece with 7.6mm port 25 




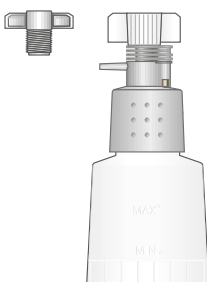

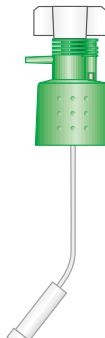






Aerosol masks

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.

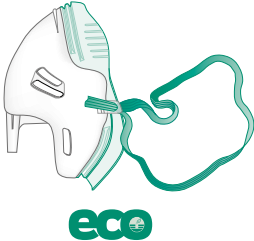
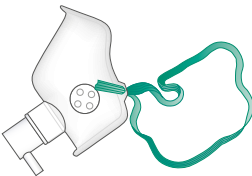
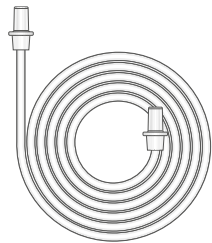
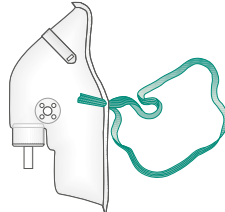
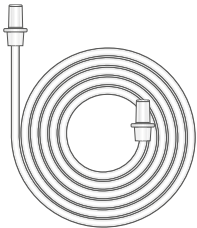












The dry gas from the flowmeter is directed into the water bottle where it is broken up into small bubbles which gain humidity as they rise to the surface of the water.

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 



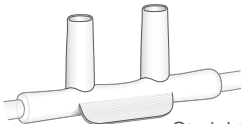
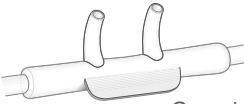


Oxygen masks










Medium concentration oxygen masks

<div>1136</div> 		<div>1146</div> 				<div>1115</div> 			
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	



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