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.

**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**

- Tracheostomy HME
- Aerosol mask
- Humidifiers
  - Humidifier nebuliser and bubble humidifier
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.

Why is Humidification needed?

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.

Which routes are available?

Passive Humidification

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

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.

Filsta-Therm Plus and Clear-Therm HMEFs

If you require a list of available options, please refer to our website www.intersurgical.com or our product catalogue.

Inter-Therm HMEF

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

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

<table>
<thead>
<tr>
<th>Moisture return at:</th>
<th>Resistance at:</th>
<th>Compressible volume</th>
<th>Weight</th>
<th>Minimum tidal volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT 600mL</td>
<td>HME only</td>
<td>HME only</td>
<td>HME only</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30L/min</td>
<td>60L/min</td>
<td>Without port</td>
<td>With port</td>
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<tr>
<td>Hydro-Therm</td>
<td>0.7cm H₂O</td>
<td>1.0cm H₂O</td>
<td>15ml</td>
<td>16ml</td>
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<td>Hydro-Therm II</td>
<td>0.3cm H₂O</td>
<td>1.4cm H₂O</td>
<td>N/A</td>
<td>60ml</td>
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</table>

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.

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.

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.

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.

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.
Active humidification | ventilated patients

Features and benefits of the auto-fill humidification chamber

- **Inline Filter**
  Prevents any debris entering the chamber.

- **Dual valve**
  For added security.

- **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.

- **Strong Polycarbonate clear material**
  Improved compliance characteristics. Allows for easy visual assessment of the fluid level at all times.

- **Protective cassette**
  Protects the chamber from contamination and conveniently stores the fill set before use.

- **Shrouded heated plate cover**
  Prevents accidental burns when removing the chamber from the heater base.

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**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

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>2025310</td>
<td>Single heated wire breathing system with auto-fill chamber</td>
<td>10</td>
</tr>
<tr>
<td>2026310</td>
<td>Dual heated wire breathing system with auto-fill chamber</td>
<td>8</td>
</tr>
</tbody>
</table>

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**Accessories**

- **22M 22M**
- **22F**
- **0.8m**
- **7.6mm port**
- **Intersurgical auto-fill humidification chamber**
- **MDI Insert**
- **Temperature port**
- **Safety cap**
- **Water trap**
- **22M/15F**
- **Flextube® heated wire breathing systems**

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

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>5025</td>
<td>Single heated wire breathing system, 1.6m length with 0.5m limb</td>
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</tr>
<tr>
<td>5025310</td>
<td>Single heated wire breathing system with auto-fill chamber, 1.6m length with 0.5m limb</td>
<td>8</td>
</tr>
<tr>
<td>5026</td>
<td>Dual heated wire breathing system, 1.6m length with 0.5m limb</td>
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</tr>
<tr>
<td>5026310</td>
<td>Dual heated wire breathing system with auto-fill chamber, 1.6m length with 0.5m limb</td>
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</tbody>
</table>

Patient connections

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

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
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<tr>
<td>3505</td>
<td>Swivel elbow and double flip top cap</td>
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<tr>
<td>3516</td>
<td>Swivel elbow and flip top cap</td>
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<tr>
<td>3521</td>
<td>Superset with swivel elbow and double flip top cap</td>
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<tr>
<td>5180</td>
<td>Smoothbore with swivel elbow with double flip top cap, 180mm</td>
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<tr>
<td>5180000S</td>
<td>Sterile Smoothbore with swivel elbow with double flip top cap, 180mm</td>
<td>85</td>
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</table>
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
- 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
- Clipped suctioning port To allow for easy suctioning without removal of the device

Moisture return at: VT 500ml

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
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<td>1502</td>
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</tr>
<tr>
<td>1500001</td>
<td>15</td>
</tr>
</tbody>
</table>

Hydro-Trach T Mk.II

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.

Tracheostomy mask and T-pieces
Aerosol masks

- **1103** Adult aerosol mask
- **1101** Small adult aerosol mask
- **1148** Paediatric aerosol mask
- **1108** Adult aerosol mask with nose clip
- **1198** Paediatric aerosol mask with nose clip

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.

- **1506** Oxygen bubble humidifier without bottle
- **1505** Oxygen bubble humidifier with bottle + M12 adaptor
- **1507** Oxygen bubble humidifier with bottle
- **1520** Homecare bubble humidifier with bottle + M12 adaptor

Oxygen masks

Medium concentration oxygen masks

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

Nasal cannulae

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

- **1161** Adult straight prong with tube, 1.8m length
- **1162** Adult straight prong with tube, 5.0m length
- **1169** Adult straight prong headset, 0.5m length
- **1165** Adult curved prong with tube, 1.8m length
- **1167** Adult curved/flared prong with tube, 1.8m length
- **1168** Adult curved/flared prong headset, 0.5m length
- **1166** Adult flared prong with tube, 1.8m length
- **1163** Paediatric curved prong with tube, 1.8m length
- **1164** Neonatal curved prong with tube, 1.8m length
Passive

Humidification

Active

2000
2026