

**ResMed**

**Lumis™ series**

VPAP S

VPAP ST



Cleaning and reprocessing guide

English

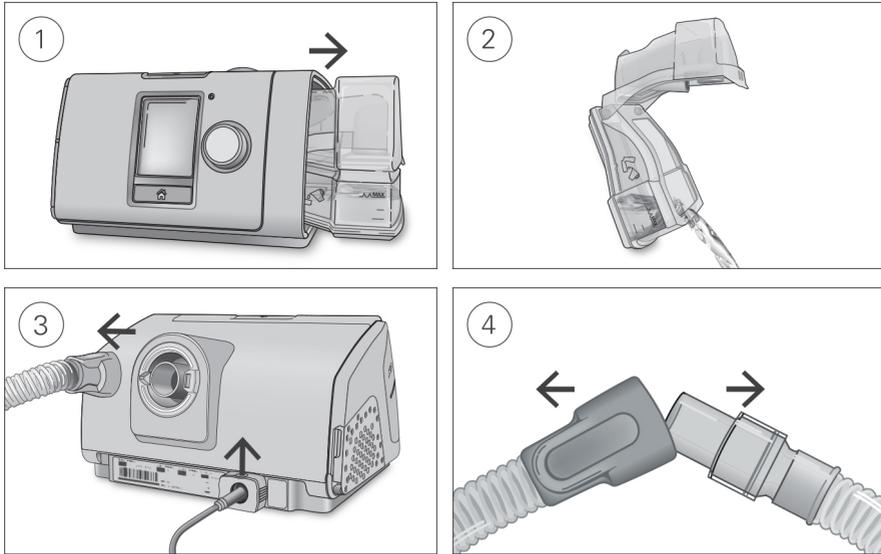
# Cleaning and Maintenance

It is important that the Lumis device is cleaned regularly to ensure optimal therapy. The following sections will help with disassembling, cleaning, checking and reassembling the device.

## WARNING

Regularly clean the tubing assembly, humidifier and mask for optimal therapy and to prevent the growth of germs that can adversely affect the patient's health.

### Disassembling



1. Hold the humidifier at the top and bottom, press it gently and pull it away from the device.
2. Open the humidifier and discard any remaining water.
3. Hold the cuff of the air tubing and gently pull it away from the device.  
Grip the retention clip and pull up to release the power cord.
4. Hold both the cuff of the air tubing and the swivel of the mask, then gently pull apart.

### Cleaning

You should clean the device weekly as described. Refer to the mask user guide for detailed instructions on cleaning the mask.

1. Wash the humidifier and air tubing in warm water using mild detergent.
2. Rinse the humidifier and air tubing thoroughly and allow to dry out of direct sunlight and/or heat.
3. Wipe the exterior of the device with a dry cloth.

## Notes:

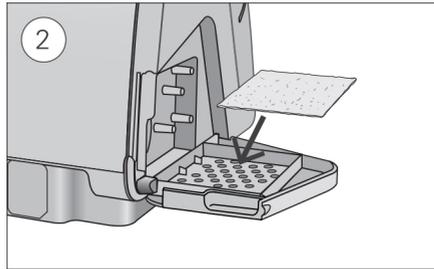
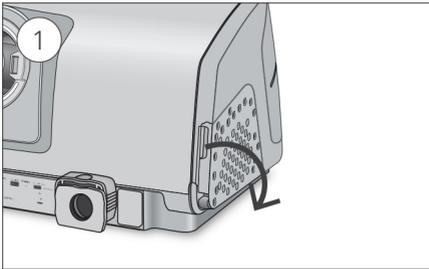
- The humidifier may be washed in a dishwasher on the delicate or glassware cycle (top shelf only). It should not be washed at temperatures higher than 65°C.
- Do not wash the air tubing in a dishwasher or washing machine.
- Empty the humidifier daily and wipe it thoroughly with a clean, disposable cloth. Allow to dry out of direct sunlight and/or heat.

## Checking

You should regularly check the humidifier, air tubing and the air filter for any damage.

1. Check the humidifier:
  - Replace it if it is leaking or has become cracked, cloudy or pitted.
  - Replace it if the seal is cracked or torn.
  - Remove any white powder deposits using a solution of one part household vinegar to 10 parts water.
2. Check the air tubing and replace it if there are any holes, tears or cracks.
3. Check the air filter and replace it at least every six months. Replace more often if there are any holes or blockages by dirt or dust.

### To replace the air filter:



1. Open the air filter cover and remove the old air filter.  
The air filter is not washable or reusable.
2. Place a new air filter onto the air filter cover and then close it.  
Make sure the air filter is fitted at all times to prevent water and dust from entering the device.

## Reassembling

When the humidifier and air tubing are dry, you can reassemble the parts.

1. Connect the air tubing firmly to the air outlet located on the rear of the device.
2. Open the humidifier and fill it with room temperature water up to the maximum water level mark.
3. Close the humidifier and insert it into the side of the device.
4. Connect the free end of the air tubing firmly onto the assembled mask.

## Reprocessing

When the device is used for multiple patients, for example, in a sleep lab, clinic, hospital or at a health care provider, the cleanable humidifier, air outlet and air tubing should be reprocessed between each patient use.

If the cleanable humidifier or the air tubing are being used for a single user in the home, refer to the cleaning instructions in this guide or in the User Guide.

Described here are ResMed's recommended and validated procedures for cleaning and disinfecting the cleanable humidifier, air outlet and air tubing. However, the steps for disinfection vary regionally and each healthcare facility should consult its own procedures before carrying out those within this guide.

### WARNING

- ResMed cannot give any assurance that deviations from the procedures listed in this guide, and their effect on the performance of the product, will be acceptable.
- When using detergents, disinfectants or sterilisation agents, always follow the manufacturer's instructions.
- Beware of electrocution. Do not immerse the device, power supply or power cord in water. If liquids are spilled into or onto the device, unplug the device and let the parts dry. Always unplug the device before cleaning and make sure that all parts are dry before plugging it back in.

### Surface disinfection

1. Wipe the exterior of the device including display, externally accessible ports, side cover, power supply unit and accessories with a disposable cloth and mild detergent or alcohol disinfectant (see list below).
2. Remove any excess disinfectant with a disposable dry cloth.

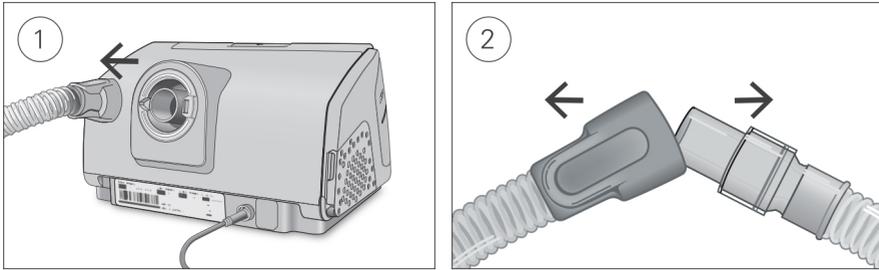
Agents recommended for surface disinfection and cleaning:

- Warm water and mild detergent eg, Teepol™ multipurpose detergent
- Window cleaner or other premixed surface detergent
- Methyl alcohol solution
- 70% Ethyl alcohol solution
- 70-90% Isopropanol solution
- 10% Bleach solution
- Isopropyl wipes
- CaviCide™
- Mikrozyd®
- Actichlor™ Plus
- Terralin®.

**Note:** Agents may not be available in all regions.

# Reprocessing the air tubing and Air10 tubing elbow

## Disconnecting



1. Hold the cuff of the air tubing and gently pull it away from the device.
2. Hold both the cuff of the air tubing and the swivel of the mask, then gently pull apart.

## Decontaminating

Before the disinfection process, each component must be cleaned and rinsed so no visible contamination is present.

1. Clean all components with a soft bristled brush for one minute while soaking in detergent solution (see table below). Pay particular attention to all crevices and cavities.
2. Run the detergent solution through the air tubing repeatedly until no contamination is visible.
3. Thoroughly rinse each component according to the detergent manufacturer's instructions.

ResMed has tested the following detergents according to the manufacturer's instructions:

Detergent	Water temperature	SlimLine / Standard	ClimateLineAir	ClimateLineAir Oxy	Air10 tubing elbow
Alconox™ (diluted at 1%)	Hot water (approx 60°C) Warm water (approx 45 to 60°C) Room temperature water (approx 21°C)	✓	✓	✓	✓
Neodisher MediZyme (diluted at 2.0%)	Warm water (approx 45 °C)	✓			
Gigazyme® (diluted at 1.0%)	Room temperature water (approx 21°C)		✓	✓	✓

## Disinfecting

In the procedures below, only one disinfection process needs to be performed.

### High level thermal disinfection

Part	Validated number of cycles	
	Hot water: 75°C for 30 minutes OR 70°C for 100 minutes.	
SlimLine	100	
ClimateLineAir	26	
ClimateLineAir Oxy	20	
Standard	100	
Air10 tubing elbow	26	

1. Immerse the air tubing in a water bath.  
Take care that no air bubbles are trapped inside the air tubing.
2. Increase the water bath temperature to 70°C for 100 minutes, or a maximum of 75°C for 30 minutes. Higher temperatures may damage the tubing.
3. Air dry out of direct sunlight and/or heat.

### High level chemical disinfection

Part	Validated number of cycles	
	CIDEX® OPA Ortho-phthalaldehyde 0.55% for 12 minutes	Gigasept FF® 5% for 15 minutes
SlimLine	100	-
ClimateLineAir	26	26
ClimateLineAir Oxy	20	20
Standard	100	-
Air10 tubing elbow	26	26

1. Soak the air tubing/Air10 tubing elbow in a commercially available solution of a chemical sterilant.  
Take care that no air bubbles are trapped inside the air tubing.
2. Thoroughly rinse the air tubing/Air10 tubing elbow in drinking quality water (five litres per assembly) by immersing it completely for a minimum of one minute in duration.
3. Repeat the rinse procedure two additional times using fresh water for a total of three rinses.
4. Air dry out of direct sunlight and/or heat.

## Sterilisation

ResMed has validated the following parts with Sterrad NX/100S:

Part	Validated number of cycles	
	Sterrad NX Standard and Advanced cycles	Sterrad 100S Short cycle
ClimateLineAir	26	26
ClimateLineAir Oxy	26	26

1. Sterilize the air tubing using Sterrad by following the manufacturers instructions.
2. Rinse and agitate the air tubing in drinking quality water, 5 litres per component at 15°C-20°C for 1 minute.
3. Shake the air tubing to remove excess water.
4. Allow the air tubing to air dry out of direct sunlight.

## Inspecting

Perform a visual inspection of the components. If any visible deterioration is apparent (holes, tears or cracks etc), the components should be discarded and replaced. Slight discoloration may occur and is acceptable.

## Reconnecting the air tubing

When the air tubing is dry, you can reconnect it to the device.

1. Connect the air tubing firmly to the air outlet located on the rear of the device.
2. Connect the free end of the air tubing firmly onto the assembled mask.

## Packaging and storage

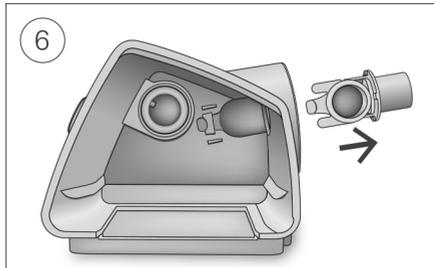
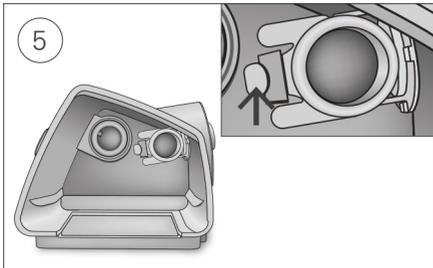
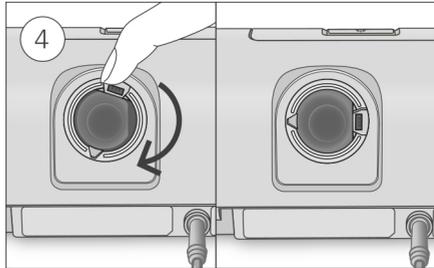
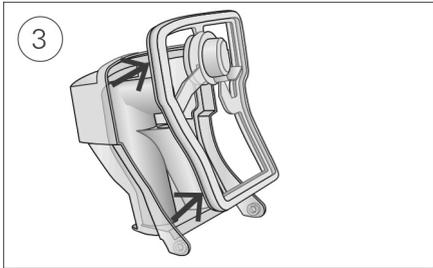
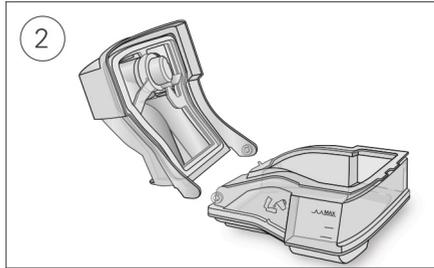
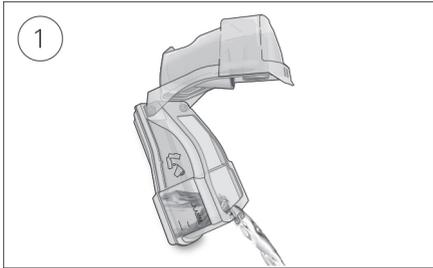
Store in a dry, dust-free environment away from direct sunlight.

Storage temperature: -20°C to 60°C.

## Reprocessing the humidifier and air outlet

### Disassembling

The following instructions provide guidance on how to correctly disassemble the cleanable humidifier and the air outlet.



1. Remove the humidifier from the device, open it and discard any remaining water.
2. Hold the humidifier base and then fully open the humidifier lid and pull it away so that it easily detaches from the base.
3. Remove the humidifier seal from the humidifier lid by pulling it away.
4. Align the swivel so that the connector port is on the right. If the swivel is not in this position you will not be able to remove the air outlet.
5. Locate the air outlet on the inside of the device and release it by pressing the clip firmly.
6. Remove the air outlet by pulling it out through the air outlet socket at the rear of the device.

## Decontaminating

Before the disinfection process, each component must be cleaned and rinsed so no visible contamination is present.

1. Clean all components with a soft bristled brush for one minute while soaking in detergent solution (see table below). Pay particular attention to all crevices and cavities.
2. Thoroughly rinse each component according to the detergent manufacturer's instructions.

ResMed has tested the following detergents according to the manufacturer's instructions:

Detergent	Water temperature	Cleanable humidifier	Air outlet
Alconox (diluted at 1%)	Hot water (approx 60°C) Warm water (approx 45 to 60°C) Room temperature water (approx 21°C)	✓	✓
Gigazyme (diluted at 1.0%)	Room temperature water (approx 21°C)	✓	✓
Aniosyme DD1		✓	

## Disinfecting

In the procedures below, only one disinfection process needs to be performed.

### High level thermal disinfection

Part	Validated number of cycles
	Hot water: 90°C for 1 minute OR 75°C for 30 minutes OR 70°C for 100 minutes.  Due to specific regional requirements, ResMed cleanable humidifiers have been tested for disinfection (100 cycles) at 93°C for 10 minutes
Cleanable humidifier	130
Air outlet	130

1. Soak the disassembled components in a hot water bath at pasteurizing temperature. Take care that no air bubbles are trapped against the components.
2. Air dry out of direct sunlight and/or heat.

## High level chemical disinfection

Part	Validated number of cycles	
	CIDEX OPA Ortho-phthalaldehyde 0.55% for 12 minutes Gigasept FF 5% for 15 minutes	Anioxide
Cleanable humidifier	130	130
Air outlet	130	-

1. Soak the disassembled components in a commercially available solution of a chemical sterilant. Take care that no air bubbles are trapped against the components.
2. Thoroughly rinse the cleanable humidifier in drinking quality water (five litres per assembly) by immersing it completely for a minimum of one minute in duration.
3. Repeat the rinse procedure two additional times using fresh water for a total of three rinses.
4. Air dry out of direct sunlight and/or heat.

## Sterilisation

ResMed has validated the following parts with Sterrad NX/100S:

Part	Validated number of cycles	
	Sterrad NX Standard and Advanced cycles	Sterrad 100S Short cycle
Air Outlet	130	130
Humidifier	130	-

1. Sterilize the air outlet and humidifier using Sterrad by following the manufacturers instructions.
2. Rinse and agitate the air outlet and humidifier in drinking quality water, 5 litres per component at 15°C-20°C for 1 minute.
3. Shake the air outlet and humidifier to remove excess water.
4. Allow the air outlet and humidifier to air dry out of direct sunlight.

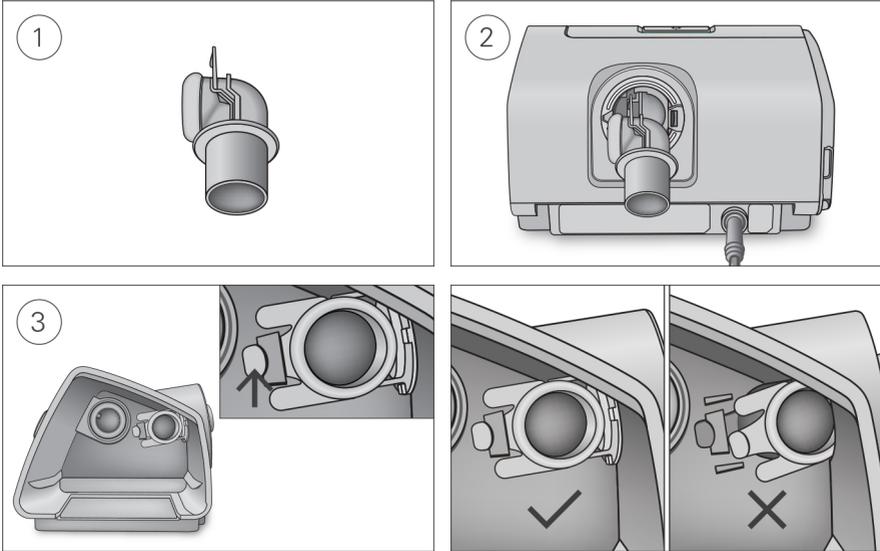
## Inspecting

Perform a visual inspection of all components. If any visible deterioration is apparent (cracking, crazing, tears, etc), the humidifier should be discarded and replaced. Slight discoloration of the silicone components may occur and is acceptable.

## Reassembling

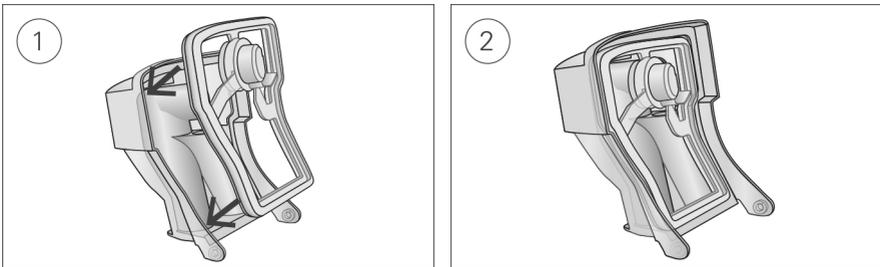
The following instructions provide guidance on how to correctly reassemble the air outlet and the humidifier.

### To reassemble the air outlet



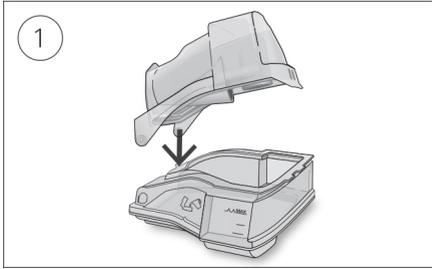
1. Hold the air outlet with the seal pointing to the left and the clip pointing forward.
2. Make sure that the air outlet is correctly aligned and insert the air outlet into the socket. It will click in place.
3. Check if the air outlet is inserted correctly as shown.

### To insert the humidifier seal:



1. Place the seal into the lid.
2. Press down along all edges of the seal until it is firmly in place.

To reassemble the humidifier lid:



1. Insert one side of the lid into the pivot hole of the base.
2. Slide the other side down the ridge until it clicks into place.

### Packaging and storage

Store in a dry, dust-free environment away from direct sunlight.

Storage temperature: -20°C to 60°C.