Air Liquide
HEALTHCARE

Inhalation systems for aerosol therapy

The confidence in respiratory care

Introduction to topical inhalation therapy

Compressor aerosol units and nebulizers for topical treatment

Devoted
to customers' satisfaction, our full engagement is to improve the quality of patients' life affected by respiratory pathologies concentrating our research on efficient and non-invasive technologies to offer both doctors and patients reliable and effective devices, easy to use and respecting the environment.

Believing
in the benefits of aerosol therapy as topical treatment, our company is the first one to develop two separate nebulizers for the targeted treatment of the upper and lower airways.

We create
nebulizers aiming to guarantee all the patients, both children and adults, the following advantages from topical inhalation therapy, considered the most effective method for respiratory diseases:

Topical treatment using a specific nebulizer allows drug deposition directly in the target organ.

The local administration of reduced doses of drug avoids the problem of systemic side effects and makes the treatment more effective.

Topical treatment is normally well tolerated and more than one drug can be atomized simultaneously if prescribed.

Key-words in aerosoltherapy

Here you are some frequent definitions in aerosol therapy:

Aerosol

Suspension of liquid particles in a gas.

Nebulizer

A device that converts a liquid into an aerosol.

Aerosol device

A device comprised of an electromechanical part and a nebulizer that converts a liquid into an aerosol and makes it available for inhalation.

Airways

The body's natural ducts through which air is conveyed to the pulmonary alveoli.

Atomization

The reduction of a substance into particles around thousandths of a millimetre in diameter, expressed in microns (µm).

Atomization efficacy

The ability of the aerosol device to convert a given volume of liquid into micronized particles.

Dynamic pressure

The output pressure generated by the nebulizer, generally expressed in bars. This parameter is influenced by the power source and dimensional factors.

Dynamic flow or dynamic capacity

The rate of air flow generated by the nebulizer, in litres per minute (l/min). This parameter is influenced by the power source.

Output or rate of flow

The quantity of aerosol delivered by the system in a unit of time.

Maximun filling volume

The maximum volume of liquid that the base of the nebulizer can hold, expressed in millilitres (ml) or cubic centimetres (cc).

Residue

The amount of un-atomized drug remaining in the nebulizer at the end of treatment.

Mean Mass Aerodynamic Diameter (MMAD)

This parameter indicates the ability of the nebulizer to produce small size particles, which are necessary for the treatment to be effective. The diameter of 50% by volume of the particles atomized by the nebulizer is lower than the MMAD, the remaining 50% is higher than the MMAD.

Every product, entirely manufactured in Italy, is studied to offer a specific solution to get the best therapy's effectiveness

Rinowash Device for nasal care

Connected to a compressor aerosol unit, it is ideal for treating rhinitis, rhino-sinusitis, nasal polyposis, adenoiditis and tubo-tympanitis using drugs or SPA water, saline and physiological solutions, it enhances deposition in the **upper airways** as it produces **particles with a MMAD of 18 µm.**

- Convenient and compatible with all compressor aerosol units
- Atomizes 5 ml solution in 2 minutes
- Usable as from a very early age, with no contra-indications
- A special patented internal valve controls the output pressure in the nasal cavities to prevent the risk of barotraumas

Rinowash Solution

Hypertonic saline solution, ideal for flushing out the nasal cavities.

Thanks to its **osmotic action**, the use of Rinowash saline solution with the micronized nasal douche is associated with **greater improvement** in nasal patency or/ and oedema reduction.

Please see instructions manual for any additional information

Volumetric masks and nebulizers

Nebula Spacer

Volumetric mouth mask for adults and children.

Nebula Spacer is studied for **bronco-pulmonary apparatus** taking care of bacterial or viral infections, asthma, bronchitis, pneumonia, cystic fibrosis.

Connected to a compressor aerosol unit, Nebula Spacer guarantees **an efficient therapy in a shorter time.**

- Universal and functioning with all compressor aerosol units
- Ideal for cooperating patients
- Guarantees bronchial deposition of the atomized drug as it produces particles of the right size (1 - 5 microns)
- The ergonomic shape increases the patients' comfort during therapy

Perfecta

Volumetric oro-nasal mask especially shaped for babies and young children.

Perfecta delivers the drug straight into the lower airways.

It produces very small particles ideal for treating **pathologies affecting the lower respiratory tract**: bacterial or viral infections, asthma, bronchitis, pneumonia, cystic fibrosis.

The special shape of the mask and the soft material make it suitable for very **young children** who are not cooperative, **covering both mouth and nose.**

- Universal and functioning with all compressor aerosol units
- Producing particles sized 1-5 microns, it is suitable for the lower airways
- Easily tolerated by users of any age, it reduces side effects and enhances therapy effectiveness

Please see instructions manual for any additional information

Alvea

Alvea is a specific nebulizer for the treatment of lower airways diseases.

Alvea can be used by adults and children thanks to 3 different terminals:

- **mouth mask:** for cooperating patients
- **pediatric mask:** for children up to 4/5 years
- **mouthpiece**

- with inhalation and expiration valves (breath enhanced)
- completely sterilizable
- low drug dispersal
- MMAD:1,7 µm

Alvea is available as separate device (to be connected to compressor aerosol units) and also supplied with our aerosol unit Nebula H.

Rinowash, Perfecta, Nebula Spacer and Alvea are the result of our constant research in providing an effective and safe method of performing inhalation therapy.
Supplied with our aerosol units Nebula, Nebula H, Mobyneb, Soffio Plus, they are also available as **separate devices** to be connected to compressor aerosol units.
Information about these units are in the pages here-on.

Nebula

All-in-one compressor aerosol unit for the full family

Nebula is the result of **30 years in scientific research and technology** in order to guarantee professional products with a **specific therapeutical action**.

Each component part is made of shock-resistant material and is designed to make it easy to use, **reliable and safe,** and to **ensure excellent performance** at all times.
Nebula aerosol therapy unit comes with **two special nebulizers** that convey the drug straight to the parts to be treated: **Rinowash**, designed specifically for the upper airways, and **Nebula Spacer** for the bronchopulmonary apparatus.

Nebula is equipped with:
- Nebula Spacer
- Rinowash
- paediatric mask
- spare air filters and air tubing

Rinowash
Specific device for the upper airways. It atomizes particles of an ideal size for treating the nasal cavities.

Nebula Spacer
Nebulizer with volumetric mouth mask. Increases efficacy of treatment. Improves bronchial deposition of the nebulized drug.

Please see instructions manual for any additional information

- Effective: complete treatment of upper and lower airways
- High performance ensuring safe therapy
- Increase of the peripheral deposition
- Reduction of drug dispersal to a minimum
- Reduced therapy time
- Longer durability and higher robustness

TECHNICAL SPECIFICATIONS

Rinowash	
MMAD	18 µm (*)

Nebula Spacer	
MMAD	1.9 µm (*)
Minimum output rate	0.3 ml/min

Unit	
Operation	Continuous
Maximum air pressure	2.7 bar
Dimensions of the basic unit	230x180x185H mm
Maximum air flow	12 l/min
Noise level at 1 m	57 dBA (to UNI EN 13544-1)
Weight of the basic unit	3 kg

(*) The values shown refer to the use of physiological solution (0,9% NaCl) and may vary with the drug used.
The values given do not apply to drugs in suspension or high-viscosity drugs. The manufacturer of the drug can provide the necessary details. Measured with API Aerosizer MACH2.

Nebula is a professional unit improving the full family's quality life

Nebula H

All-in-one compressor aerosol unit for intensive use

Nebula H is the optimal solution for intensive use, intended for chronic patients who have to undergo **frequent therapy cycles.**

Nebula H guarantees a complete therapy of both **upper and lower respiratory tract** thanks to the two nebulizers:

- **Rinowash** is the terminal for the treatment of the nasal cavity
- **Alvea** is a **breath enhanced** nebulizer for the treatment of the bronchopulmonary apparatus

Nebula H is complete with all the accessories for the therapy of adults and children.

Rinowash
is conceived specifically for nasal treatment, to hydrate cavities, to fluidify and remove secretions and to deliver solutions and drugs in the target district.

Alvea
Nebulizer with breath enhanced technology.

Please see instructions manual for any additional information

Respiratory valbes
for the great enhanced mode

Alvea is available as separate device (to be connected to compressor aerosol units) and also supplied with our aerosol unit Nebula H.

TECHNICAL SPECIFICATIONS	
Rinowash	
MMAD	18 µm (*)
Alvea	
MMAD	1.7 µm (**)
Minimum output rate	0.3 ml/min
Unit	
Operation	Continuous
Maximum air pressure	3.2 bar
Dimensions of the basic unit	230x180x185H mm
Maximum air flow	12 l/min
Noise level at 1 m	57 dBA (to UNI EN 13544-1)
Weight of the basic unit	3 kg

(*) The values shown refer to the use of physiological solution (0,9% NaCl) and may vary with the drug used. The values given do not apply to drugs in suspension or high-viscosity drugs. The manufacturer of the drug can provide the necessary details. Measured with API Aerosizer MACH2. (**) Measured using a solution of NaF at 2.5% with NGI cascade impactor.

MobyNeb

Dual-function compressor aerosol unit specific for children

Mobyneb features **Perfecta** nebulizer with volumetric oro-nasal mask for children but suitable also to adults, as well as **Rinowash**, both successfully used **to treat localized diseases of the lower and upper airways.**

Mobyneb is comprised of:
- Power unit
- Rinowash
- Kit Perfecta with volumetric mask
- mouth piece
- air tubing and spare air filters.

- Friendly design allowing an easier treatment for children
- Safe and effective treatment of the lower airways
- Increased drug deposition where it is needed with reduced side effects
- Reduction of drug dispersal to a minimum
- Reduced therapy time
- Longer durability and higher robustness

Rinowash
allows physiological and/or medical treatment of the nasal cavities.
A jet of atomized solution helps to enhance hydration and fluidification of the mucus and catarrh, hence their removal.
Very useful for babies not yet able to blow their nose.

Perfecta
is especially designed for treating the lower airways of young children.
Allows high deposition of the atomized drug.

Please see instructions manual for any additional information

TECHNICAL SPECIFICATIONS	
Rinowash	
MMAD	18 µm (*)
Kit Perfecta	
MMAD	1.9 µm (*)
Minimum output rate	0.3 ml/min
Unit	
Operation	Continuous
Maximum air pressure	2.7 bar
Maximum air flow	12 l/min
Noise level at 1 m	56 dBA (to UNI EN 13544-1)
Dimensions of the basic unit	320x210x197H mm
Weight of the basic unit	2.9 kg

(*) The values shown refer to the use of physiological solution (0,9% NaCl) and may vary with the drug used.
The values given do not apply to drugs in suspension or high-viscosity drugs. The manufacturer of the drug can provide the necessary details. Measured with API Aerosizer MACH2.

Soffio Plus

Compressor aerosol unit for children and adults

It is extremely **compact** and very **pratical**. **Light and small in size**, its design has been studied to obtain essential shape and durable casing, **easy to handle and to clean**.
A very pratical shoulder bag facilitates any transport needs.
Soffio Plus comes with **Perfecta volumetric oro-nasal mask** specific for children and suitable also for adults and it is used for the treatment of **lower airways diseases.**

- Effective treatment of lower airways
- Increased peripheral deposition with limited side effects
- Reduction of drug dispersal to a minimum
- Compact, light design granting ease of handling and cleaning
- Shoulder bag included

Perfecta
volumetric mask for children and adults. Specific for treating diseases of the lower airways. Allows high deposition of the atomized drug.

Please see instructions manual for any additional information

TECHNICAL SPECIFICATIONS

Kit Perfecta	
MMAD	1.9 µm (*)
Minimum output rate	0.3 ml/min

Unit	
Operation	Continuous
Maximum air pressure	2.5 bar
Maximum air flow	12 l/min
Noise level at 1 m	59.3 dBA (to UNI EN 13544-1)
Dimensions of the basic unit	190x130x120H mm
Weight of the basic unit	1.5 kg

(*) The values shown refer to the use of physiological solution (0,9% NaCl) and may vary with the drug used.
The values given do not apply to drugs in suspension or high-viscosity drugs. The manufacturer of the drug can provide the necessary details. Measured with API Aerosizer MACH2.

Soffio Plus means full comfort at any conditions: it is the ready to use solution helping patients to get their aerosol treatment everywhere

Soffio Cube

Pneumatic aerosol unit

Soffio Cube is a **lightweight** and **compact** device for aerosol therapy, for the lower respiratory tract.

- New compact design
- Easy and efficient therapy
- Easy to handle and to use
- Ideal for the whole family

Nebulizer
efficent therapy of the lower respiratory treatment.

Please see instructions manual for any additional information

Kit accessories includes:

- Nebulizer
- Nosepiece and mouthpiece
- Adult and pediatric mask
- Air tube and air filters
- Carrying bag

TECHNICAL SPECIFICATIONS

Nebulizer	
MMAD	2.61 µm (*)
Minimum output rate	0.35 ml/min (**)

Unit	
Operation	Continuous
Maximum air pressure	1.85 bar
Maximum air flow	10 l/min
Noise level at 1 m	58 dBA (to UNI EN 13544-1)
Dimensions of the basic unit	135x140x155H mm
Weight of the basic unit	1.1 kg

(*) Measured with ACI Marple 290 cascade impactor.
(**) The values shown refer to the use of physiological solution (0,9% NaCl) and may vary with the drug used. The values given do not apply to drugs in suspension or high-viscosity drugs. The manufacturer of the drug can provide the necessary details.

Soffio Cube is the solution compact and lightweight for aerosol therapy, for children and adults. The contemporary design exalts the easy of use

L'espace

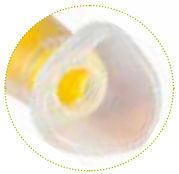
Valved holding chambers for Metered Dose Inhalers

Worldwide guidelines recommend the use of the **spacer chamber for the proper treatment of asthma**.
L'espace makes treatment easier and allows a better coordination between MDI (Metered Dose Inhalers) output and inhalation.
L'espace helps the adequate drug deposition in the lower airways preventing oral deposition and reducing side effects.

Innovative conic shape
Flow dynamics delivers a higher fraction of the drug by increasing the deposition in the lower respiratory tract.

Ideal volumes
L'espace reduces the drug particles reaggregation that occurs in the spacers with smaller volumes.

Bottom lid with adaptive air inlets
Facilitated inspiratory effort and better flow dynamics.



Comfortable anatomical mask
Guarantees high levels of comfort and compliance.
Optimal seal to prevent in and out air leaks.

Patented valves system
Efficient feedback of the correct use, simple to synchronise MDI output with breathing acts, easy to count breath.

Please see instructions manual for any additional information

- Very low triboelectric charging
- Universal MDI (Metered Dose Inhalers) insert
- All models are autoclavable at 121 °C
- Single packed in protective bag and carton box
- Tissue bag supplied for storage and transport
- Longer durability and robustness

■ MOUTHPIECE

■ ADULT MASK (non cooperating)

■ PEDIATRIC MASK 2-6 years

■ INFANT MASK 0-2 years

L'espace ensures great functionality with reduced risk of errors during treatment, helping patient compliance

SPATIAL UP

New valved holding chambers
for Metered Dose Inhalers

Spatial UP is a **spacer chamber for MDI spray** recommended by international guidelines to improve asthma therapy.

Please see instructions manual for any additional information

4 different versions according to the patient age:

- Infant mask (0-2 years)
- Child mask (2-6 years)
- Large mask (> 6 years)
- Mouth-piece (> 6 years)

Something unique!

For a better therapy compliance. download the **Spatial UP application** (for smartphone and tablet) that is intended to entertain children during their asthma therapy and to improve their acceptance of the spacer.

Follow UP the monkey along its adventures throughout the space!

1. download the free app
2. place the child in position for therapy
3. connect the MDI spray to the spacer
4. open the app to activate the animation and start your therapy.

Spatial UP is the innovative spacer chamber able to improve the little patients compliance

Solutions at a glance

Topical therapy: specific solutions for treating different respiratory pathologies

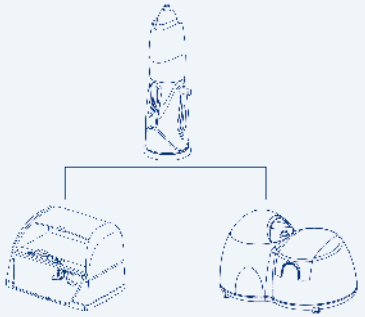
Rinowash

UPPER AIRWAYS

- MMAD 18 µm
- removes secretions, mucus and catarrh
- reactivates mucociliary movement in the nasal cavities
- effective with drugs and natural solutions

For the treatment of:

- rhinitis
- rhino-sinusitis
- rhino-pharyngitis
- nasal polyposis
- adenoiditis
- tubotympanitis
- etc



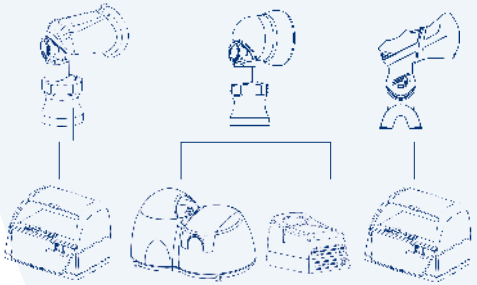
Perfecta, Nebula Spacer and Alvea

LOWER AIRWAYS

- very small particle size
- increase peripheral deposition of the drug
- enhance patient compliance, increasing the treatment's effectiveness

For the treatment of:

- bacterial and viral respiratory infections
- asthma
- bronchitis
- pneumonia
- cystic fibrosis
- etc



L'espace and Spatial UP

LOWER AIRWAYS

- Increase drug deposition and the available inspiratory fraction of the nebulized drug

For the treatment of:

- asthma
- COPD

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non-exhaustive

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L'espace

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The choice of Air Liquide Medical Systems means certainty of quality. All products are entirely "Made in Italy", manufactured with biocompatible materials according to UNI EN directive IS0 10993 and controlled and tested following the most severe trials. Air Liquide Medical Systems is certified:

ISO 13485:2016: Medical devices - Quality Management Systems Requirements for Regulatory Purposes
ISO 14001:2015 Environmental Management Systems
BS OHSAS 18001:2007 Occupational health and Safety Management Systems Requirements

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Contatti

AIR LIQUIDE MEDICAL SYSTEMS S.r.l.
Via dei Prati 62
25073 Bovezzo (Brescia)
Tel. +39 030 20159.11 - Fax +39 030 2000551

www.device.airliquidehealthcare.com/it

Air Liquide HEALTHCARE

Air Liquide Healthcare is a world leader in medical gases, home healthcare, hygiene products and healthcare specialty ingredients. It aims to provide customers in the continuum of care from hospital to home with medical products, specialty ingredients and services that contribute to protecting vulnerable lives.