« I’ve been waiting for a new lung for nearly three years. Reliable technology keeps me alive. »
Providing ventilation for better quality of life

Successful home mechanical ventilation gives overloading respiratory musculature a chance to recover and makes the patient more mobile and more resilient. The patient’s quality of life is improved significantly, as is his life expectancy. Some of the most frequent syndromes in which respiratory muscles are continuously overtaxed are chronic obstructive pulmonary and respiratory tract disorders, spinal deformities and severe thoracic wall diseases. Home mechanical ventilation relieves the respiratory muscles and normalizes the patient’s

**Indications**

- Neuromuscular diseases such as
  - Amyothrophic lateral sclerosis (ALS)
  - Muscular dystrophy
  - Spinal muscular atrophy
  - Post-Polio Syndrome

- Obstructive respiratory disorders like
  - COPD

- Restrictive disorders such as
  - Thorax deformities e.g., kyphoskoliosis
  - Post-TBC Syndrome
  - Interstitial lung diseases
ventilation by means of a ventilator and a mask (non-invasive) or a tracheal cannula (invasive). Therapy is initiated during a patient’s stay in hospital and then continued at home by the patient himself. For this specific use we develop tailor-made technologies.

The result: devices that automatically adapt to the current situation and provide optimum ventilation that supports the patient and assists to physicians and nursing personnel.

## Therapy objectives and types

### Therapy objectives

The respiratory system consists of the lungs and the respiratory pump. The lungs manage gas exchange and the respiratory pump transports air into the lungs and back out of the body again.

In addition to the respiratory muscles, the pump consists of the osseous thorax, central and peripheral nerves and the respiratory center.

Many different diseases can disrupt the system and cause life-threatening impairment to the ventilation of the lungs. These pathological changes, which can be either acute or chronic, may be treated with home mechanical ventilation. Its primary functions are:

- To ensure ventilation
- To unload respiratory musculature
- To ensure gas exchange

In the case of dysfunctional gas exchange, home mechanical ventilation can be combined with oxygen therapy to deliver supplemental oxygen to the ventilated patient to increase oxygen concentration in the blood.

### Types of therapy

- **Controlled ventilation**
  
  In controlled (mandatory) ventilation all breathing effort is taken over by the therapy device. This results in the greatest degree of unloading the overworked respiratory pump.

- **Controlled-assisted ventilation**
  
  The patient can trigger the therapy device in controlled-assisted ventilation. A minimum level of ventilation is guaranteed by the back-up respiratory rate, which can be set by medical personnel. It can be set in such a way that the ventilation is essentially mandatory, but the patient can demand extra breaths at any time.

- **Assisted ventilation**
  
  The ventilator supports the patient’s spontaneous breathing in assisted (augmented) ventilation. The advantage of this type is greater comfort, which in turn leads to better acceptance on the part of the patient.

## TA mode

Ventilation in TA mode is pressure-cycled and completely controlled. Before ventilation begins, the device conducts an analysis of about 10 breaths in which the algorithm captures the patient’s spontaneous breathing pattern. On the basis of the information collected, the algorithm then calculates an optimized and individualized ventilation pattern whose goal is to imitate the patient’s spontaneous breathing pattern.

![“Fade in” Ventilation Graph](chart.png)
Therapy modes

Home mechanical ventilation is a standard component of treatment of patients with hypercapnic respiratory insufficiency. One of several therapy modes can be selected, depending on the indication. A basic distinction is made between volume-controlled and pressure controlled modes. In volume-controlled mode, a pre-set tidal volume is applied at a certain time. In pressure-controlled mode, the ventilator regulates by means of a pre-set pressure.

**Therapy devices**

**VENTIlogic LS**
- IV and NIV: invasive and non-invasive, life-sustaining ventilation
- All hose systems can be used: single patient and double patient circuit with patient valve, leakage circuit
- Titration platform: Making therapy selection; settings can be made for all Weinmann ventilators

**VENTIlogic**
- Permanently set to patient’s breathing pattern
  - Unloading of respiratory musculature in TA mode due to optimum synchronization

**VENTImotion**
- Optimum unloading of respiratory pump
  - Volume compensation with targeted tidal volume

**BiLevel ST 22**
- Most comfortable Bilevel-ST therapy
  - Separately set inspiration and expiration triggers

**Therapy modes IV/NIV**

Invasive and non-invasive ventilation with single patient or double patient circuit with patient valve
- PCV (Pressure Controlled Ventilation)
- aPCV (assisted Pressure Controlled Ventilation)
- VCV (Volume Controlled Ventilation)
- PSV (Pressure Support Ventilation)

**NIV therapy modes**

Non-invasive ventilation with leakage circuit
- CPAP Therapy: (CPAP = Continuous Positive Airway Pressure) ventilation with constant pressure
- **T mode** (T = timed): pressure-controlled ventilation at two different pressure levels
- **TA mode** (TA = timed adaptive): Weinmann’s intelligent alternative to ST mode. TA mode adapts the ventilation to the patient’s breathing pattern. If ventilation gets out of sync with the patient’s pattern, a new comparison is made.
- **ST mode** (ST = spontaneous timed): ST mode is a combination of assisted spontaneous breathing and controlled ventilation.
- **S mode** (S = spontaneous): Breathing support is initiated and terminated by the patient’s spontaneous breathing.
- **SX mode and SXX mode**: With parameters supplemental to S mode, the device can direct the breathing rhythm of the patient. If a patient shows low acceptance of controlled ventilation, he can be gradually acclimated to it with the use of SX and SXX modes.

**Very Convenient**
- Simple operation
- Hygiene concept
- Innovative technology
- Optimum service

**Coming soon**
WEINMANNsupport, the supplemental software for all Weinmann home ventilation therapy devices, manages the reading, presentation and PC-supported analysis of therapy monitoring data. Daily statistics make possible the analysis of the patient’s ventilation data, breath-for-breath, over a period of 10 hours. Furthermore, the statistical analysis provides numeric and graphic presentation of all ventilation parameters in Weinmann home ventilators for a six-week period.

**Therapy analysis**

![Ventilation monitoring with WEINMANNsupport and VENTIlogic LS](image)

**WEINMANNsupport**

Setting and analysis software for home ventilation therapy devices

The WEINMANNsupport software makes possible the online presentation of ventilation parameters (pressure, volume, flow and leakage) on a PC screen.

It also offers trend analysis for therapy via extended memory on an SD card (Secure Digital).*

In addition, the program can deliver an uninterrupted recording of the course of the ventilation during the night while the patient sleeps.

* only VENTIlogic LS

**Complete accessory range for individual needs**

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<tr>
<th>Accessory</th>
<th>Description</th>
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<tr>
<td><strong>VENTIclick</strong></td>
<td>Humidifier for patients with high humidity needs at a high flow</td>
</tr>
<tr>
<td><strong>VENTIpower</strong></td>
<td>If power fails, the rechargeable battery operates the complete ventilation system for up to five hours.</td>
</tr>
<tr>
<td><strong>VENTI-O₂ plus</strong></td>
<td>Oxygen valve permits an O₂ feed of up to 15 l/min.</td>
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<tr>
<td><strong>Bacteria filters</strong></td>
<td>They keep the therapy device hygienically pure for 24 hours.</td>
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<tr>
<td><strong>Patient Interface</strong></td>
<td>Masks in the JOYCE family, optimized for use with Weinmann therapy devices</td>
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<tr>
<td><strong>Analogbox D / A</strong></td>
<td>Connection between Weinmann home ventilation devices and polysomnography</td>
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VENTIlogic LS
The home mechanical ventilator for high IV/NIV performance

The solution for life-sustaining ventilation
VENTIlogic LS (LS = Life Support) is the innovative home mechanical ventilator that supplements our NIV therapy devices in the VENTI family. Equipped with an integrated rechargeable battery, VENTIlogic LS can be used for life-sustaining invasive and non-invasive ventilation.

VENTIlogic LS, which is also a titration device, works with all hose systems (leakage circuit, single patient and double patient circuits with patient valve) and thus covers nearly all indications for invasive ventilation.

Titration
- Settings can be made for all Weinmann home ventilation therapy devices.
- The following modes are covered with the leakage circuit: CPAP, S, T, ST, TA, SX and SXX.
- Circuits with patient valve cover the modes: PSV, PCV, aPCV and VCV.

Trigger
- Sensitive flow trigger with artefact suppression
- Lower trigger latency minimizes the patient’s respiratory efforts
- Automatic compensation of ambient air pressure and temperature. Flow measurement is not affected by fluctuations in environmental parameters

Monitoring
- Numeric and/or graphic presentation of pressure, flow and volume
- Average values of all ventilation parameters
- PV and FV Loops
- Storage of emitted alarms for analysis of therapy and device settings

LIAM (Lung Insufflation Assist Maneuver)
- Particularly suitable in cases of neuromuscular diseases to support coughing
- Promotes secretion mobilization through deep insufflation
- Can be used in all ventilation modes – intermittent with ventilation

Blower
- Highly dynamic with a flow of up to 300 l/min
- Very quiet even at maximum pressure (about 28 dB(A) at 10 hPa)

WEINMANNsupport
- Online presentation of ventilation parameters (pressure, volume, flow, leakage) on PC monitor
- Trend analysis and expanded storage function for therapy on a Secure Digital card
- Complete recording of ventilation session
The bridge between NIV and IV

VENTIlogic LS is the bridge between non-invasive (NIV) and invasive (IV) ventilation. With this device Weinmann helps its partners to provide their customers with the full ventilation spectrum. The integrated rechargeable battery makes the home mechanical ventilator very safe.

The combination of NIV and IV ports covers a wide range of usages from intermittent self-ventilation to continuous life-sustaining ventilation (24 hours per day). Because VENTIlogic LS can be converted from a leakage circuit to a single patient or double patient circuit, nearly all indications can be covered.

Treatment is available for obstructive, restrictive and neuromuscular diseases.

The therapy device VENTIlogic LS is distinguished by simple and convenient operation and intuitive user guidance. Since all VENTI devices share the same operating concept and nearly the same design, all accessories in the Weinmann home ventilation product line can also be used with VENTIlogic LS. That simplifies operation and adds extra safety.
VENTIlogic
TA mode – Timed Adaptive Ventilation, the more intelligent ST alternative

TA mode: patented mode for controlled-adaptive ventilation
Weinmann’s patented TA mode (Timed Adaptive Ventilation) provides the best help in unloading the patient’s weakened respiratory muscles. A frequent problem in non-invasive ventilation (NIV) is the lack of synchronicity between patient and ventilator during controlled ventilation. The result is so-called “respirator-fighting” (unwanted triggering, which leads to hyperventilation) and additional breathing effort, all of which endangers patient compliance with therapy. Weinmann’s therapy devices VENTIlogic and VENTIlogic LS with the controlled-adaptive TA mode offer greater patient comfort than standard therapy devices.

Ventilation in TA mode delivers significant advantages. Optimized synchronization of patient and device nearly eliminates the patient’s work of breathing. In addition, the imitation of the patient’s spontaneous breathing patterns helps to increase therapy compliance while automatic titration of the parameters reduces the workload of hospital personnel.

VENTImotion
At home or on the go: optimum unloading of respiratory pump

The home mechanical ventilators VENTIlogic and VENTImotion are for general use in cases of respiratory pump failure or other types of acute respiratory insufficiency. They respond to a light triggering in expiratory and inspiratory phases and can deliver peak flows when needed, even at maximum inspiratory pressure. VENTIlogic also has the patented TA (Timed Adaptive) ventilation mode, which facilitates adaptation of ventilation to the patient.

Automatic adjustment to patient’s breathing pattern
Modes: CPAP, S, T, ST, SX, SXX, TA

Very quiet at only 25 dB(A)

Inspiratory and expiratory triggers
Modes: CPAP, S, T, ST, SX, SXX
Autostart

With VENTI-O2 plus and VENTIclick
With VENTIclick
With bacteria filter
In transport bag
VENTILogic and VENTImotion performance features

Innovative operation
- Intuitive user guidance with pushbutton dial: select, change, cancel
- Direct access via hard keys to most important ventilation parameters
- Setting of volume compensation with targeted tidal volume
- Auto-Start: The device is switched on by the first inhalation.

Broad therapy spectrum
- Non-invasive modes CPAP, S, ST, SX, SXX and TA (TA only with VENTILogic)
- High trigger variability, separately set inspiration and expiration triggers, suitable for each patient
- Variable inspiration and expiration pressure increase and decrease speeds with graphic presentation
- Softstart also in T and ST modes for effortless first-time setting by patient with initially high inspiration pressure

Comfortable therapy
- Uninterrupted optimum ventilation based on imitation of patient’s breathing pattern (only VENTILogic)
- Very quiet at only 25 dB(A)
- Manual analysis can be initiated in doctor’s menu as needed (only VENTILogic)

Online Monitoring and Visualization
- Numeric and graphic ventilation parameters
- Online curve display or optionally on PC screen with WEINMANNsupport
- Display of change (trigger) between spontaneous and mandatory breathing
- Setting options offline or online
- PC software (WEINMANNsupport) for setting of patient data (WEINMANNadjust) and analysis of therapy. The optional Analogbox provides means to display ventilation parameters in conventional PSG systems.

Accessories and therapy support
- Adaptive oxygen valve (VENTI-O2, plus) without extra hose: no restriction of trigger and volume compensation with oxygen feed of up to 15 l/min.
- Adaptive humidifier (VENTIclick) with extra power supply or extra hose
- Versatile Weinnmann mask system: JOYCE, JOYCE Full Face and gel masks
- Compatible accessories for all Weinnmann VENTI devices
- Extensive service provided by Weinnmann Customer Service

Maximum safety
- Visual and acoustic alarms: IPAPmin, Vtmin, power loss, disconnection, overpressure, overheating, implausible pressure measurement
- Optional back-up power independent of mains supply with VENTIpower, with minimum operating capacity of five hours
- Innovative filter concept with high filtration efficiency of 99.7 % at particle size of 2 µm and long service life of 1000 hours
- Weinnmann hygiene concept for reconditioning at change of patient in accordance with recommendations for hygienic handling of home mechanical ventilation devices*

*Issued by the industry group SPECTARISmed as per guidelines from the Robert Koch Institute for hygienic care of home ventilation devices

WEINMANNsupport (Software)