

## MEDUMAT Standard<sup>2</sup>

A Clear New Perspective



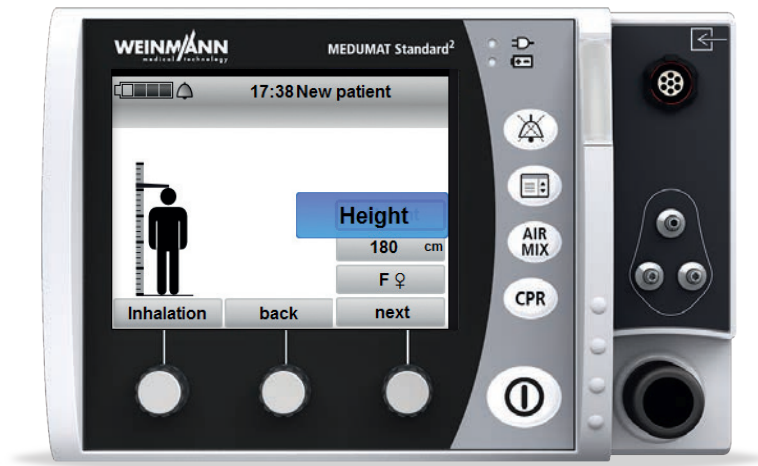




## MEDUMAT Standard<sup>2</sup>

### Top-level safety in an emergency

Every second counts in an emergency. There is no room for error, especially when the patient needs assistance with breathing. Fast and correct action can save lives. The demands made on emergency medical services (EMS) are high in such situations and easy operation of the ventilator is indispensable. MEDUMAT Standard<sup>2</sup> is the perfect partner for precisely this. It is intuitive to operate and extremely reliable and, thanks to the integrated hygiene input filter, it is protected from contamination which ultimately guarantees an unbeatable degree of safety for the patient, user and device itself!



## See for yourself: You see more

MEDUMAT Standard<sup>2</sup> offers a completely new view of modern emergency and transport ventilation. The display provides a clear, well-structured overview of all major respiratory parameters and optional ventilation curves. The familiar operation, e.g., for patient selection, makes intuitive use possible and the initiation of ventilation via entry of the patient's height ensures a simple and guideline-compliant start to ventilation treatment. Clearly organized operating elements and symbols, plus effective acoustic and visual alarms are additional details that ensure the highest level of safety.

## New perspectives: More functions for EMS

MEDUMAT Standard<sup>2</sup> also offers clearly better perspectives for flexible use. The integration of a robust flow measurement with sidestream capnography and the presentation of curves in the display provide ideal monitoring of the patient. With optionally available ventilation modes, MEDUMAT Standard<sup>2</sup> can be adjusted to any circumstances and users. In addition to IPPV, the device is equipped with the modes CPR (for cardiopulmonary resuscitation), RSI (for rapid sequence induction), Demand and CPAP (optionally with ASB). Users also can activate the optional volume-controlled modes SIMV, S-IPPV and inhalation and the pressure-controlled modes PCV, aPCV, BiLevel + ASB and PRVC + ASB, and a CO<sub>2</sub> monitoring mode. All settings are based on current requirements such as the ERC Resuscitation Guidelines. Settings can be customized upon request.

## A step ahead: Emergency ventilation today

Ventilation today can be intuitive and simple. In pre-hospital treatment, during the transport of ventilated patients, in the emergency or trauma room, the ergonomic and simple operation of MEDUMAT Standard<sup>2</sup> set a new standard for therapeutic safety. This user-friendly perspective on emergency and transport ventilation is unmatched.

### Your benefits at a glance

- Quick and easy access to the right ventilation with entry of height or via emergency mode for adults, children and infants
- CPR mode for guideline-compliant cardiopulmonary resuscitation
- RSI mode for reliable support with induction of anesthesia
- CPAP mode with optional pressure support ASB for non-invasive therapy in pre-hospital treatment
- Protection from contamination by means of hygiene input filter
- Optional: Sidestream capnography for ideal monitoring of ventilation treatment
- Optional: Flow measurement for improved monitoring during ventilation, resuscitation or induction of anesthesia (MVe, Vte, ftotal, fspond, Vleak), curve display
- Optional: Pressure-controlled ventilation modes for differentiated ventilation therapy



# More Than Pure Ventilation

## Reliable ventilation in an emergency – MEDUMAT Standard<sup>2</sup> goes one step further

Classic emergency ventilators guarantee continuous ventilation. MEDUMAT Standard<sup>2</sup> can do much more: Special modes meet the newest requirements in emergency medicine. CPAP, for example, leads to a better patient outcome\* for certain clinical conditions while RSI and CPR optimize treatment procedures. Ventilation with CPR and RSI modes offers many advantages over conventional “bag-valve-mask” application. Capnography and the optional Flow measurement + ASB assist the user with the mechanical ventilation alternative. Moreover, MEDUMAT Standard<sup>2</sup> recognizes the growing risk of epidemics and resistant pathogens which, today, pose an increasing challenge to the entire emergency service: The hygiene input filter protects the interior of the device reliably against viruses and bacteria, even in contaminated environments. As such, MEDUMAT Standard<sup>2</sup> is protected from bioburdens when the ambient air is mixed with respiratory gas and the risk of cross-contamination is minimized.



## Transport ventilation lightened up

MEDUMAT Standard<sup>2</sup> is suitable not only for emergency ventilation, but also for ideal care during transport of an already ventilated patient. It is the smallest and lightest transport ventilator in its class. Equipped with pressure-controlled ventilation modes, monitoring options such as pressure, flow and CO<sub>2</sub> curves and the display of major ventilation parameters, MEDUMAT Standard<sup>2</sup> is your compact partner for ground and air emergency medical services.

\*Sources:

Thompson, J. et al.: Out-of-hospital continuous positive airway pressure ventilation versus usual care in acute respiratory failure: a randomized controlled trial. In: Annals of emergency medicine 52 (2008), Nr. 3, S. 232-241

Deutsche Gesellschaft für Pneumologie und Beatmungsmedizin e.V. (Hrsg.): S3-Leitlinie: Nichtinvasive Beatmung als Therapie der akuten respiratorischen Insuffizienz. Hannover, 2008

## Your benefits at a glance

- Low weight of 2.5 kg makes device suitable for ground and air emergency medical services
- High level of mobility ensured thanks to the battery life of up to 10 hours
- Simple, intuitive operation via flat menu structures
- Optimum setting and monitoring of ventilation by means of the options Flow measurement + ASB, capnography and pressure-controlled ventilation modes
- Customization and standardization of the device, e.g., via preconfiguration of ventilation parameters

# CPAP Mode



## Non-invasive ventilation

The proven CPAP mode allows the patient to breathe spontaneously at an elevated pressure level, e.g., during treatment of cardiac pulmonary edema\*\*. With MEDUMAT Standard² the CPAP pressure can be finely adjusted at any time. The user also has the option of activating pressure support ASB with settable trigger. During non-invasive ventilation too, the optional volume and CO<sub>2</sub> monitoring supplement other available information.

Any leakage at the mask is detected and compensated for by the device. All ventilation parameters can be adjusted over the monitor while the patient is being ventilated.

## Option Flow measurement + ASB

- Monitoring of expiratory tidal and minute volume and respiratory rate
- Pressure support in CPAP and SIMV modes to provide ideal assistance in non-invasive ventilation
- Customized setting of inspiration trigger and expiration trigger

### Your benefits at a glance

- Improved patient outcome in cases of acute respiratory insufficiency with CPAP therapy\*\*
- ASB pressure support for differentiated non-invasive ventilation optionally available
- Lower oxygen consumption compared to Flow CPAP systems
- High level of safety thanks to apnea monitoring



## FlowCheck sensor

- Particularly robust during use and in hygienic reprocessing
- Available as disposable or reusable variants
- Chip technology ensures top precision
- Low dead space of only 9 ml suitable for children and adults

\*\*Sources:

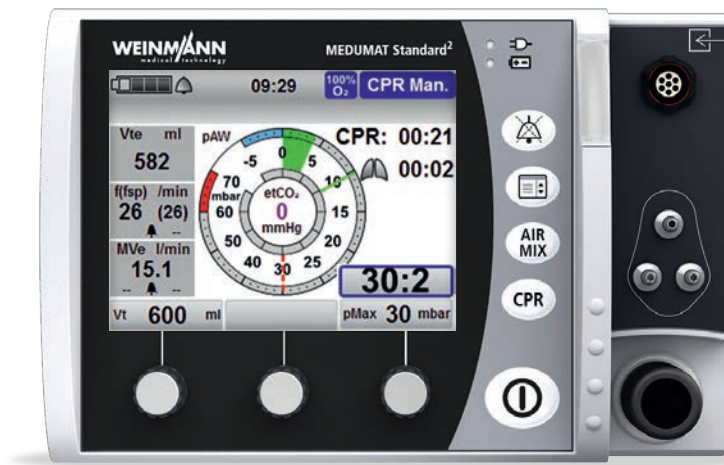
Bakke SA et al.: Continuous positive airway pressure and noninvasive ventilation in prehospital treatment of patients with acute respiratory failure. A systematic review of controlled studies. Scand J Trauma Resusc Emerg Med 22: 69, 2014.

Goodacre S et al.: Prehospital noninvasive ventilation for acute respiratory failure: systematic review, network meta-analysis and individual patient data meta-analysis. Acad Emerg Med 21: 960-970, 2014.

Williams, B. et al.: When pressure is positive: a literature review of the prehospital use of continuous positive airway pressure. In: Prehospital and disaster medicine 28 (2013), Nr. 1, S. 52-60

Deutsche Gesellschaft für Pneumologie und Beatmungsmedizin e.V. (Hrsg.): S3-Leitlinie: Nichtinvasive Beatmung als Therapie der akuten respiratorischen Insuffizienz. Hannover, 2008

## CPR Mode



### Cardiopulmonary resuscitation

MEDUMAT Standard<sup>2</sup> reliably guides you through cardiopulmonary resuscitation. After the quick entry via the CPR button and selection of the patient group, the metronome indicates the guideline-compliant rate for chest compressions. An increasingly louder acoustic signal from the metronome warns of an upcoming ventilation pause. Ventilation can be triggered in quickly changeable algorithms of 30:2, 15:2 or continuously using the MEDUtrigger situated close to the patient. All critical information, e.g., when the patient was last ventilated, duration of CPR, is visible on the monitor. To eliminate ventilation-induced artefacts, the user can interrupt ventilation during the ECG analysis by selecting the pause field. MEDUMAT Standard<sup>2</sup> is ideally suited for use with the monitor/defibrillator MEDUCORE Standard. With the optional etCO<sub>2</sub> display, emergency medical services are provided with an important parameter for the quality of resuscitation and intubation. That's a real plus for patient safety.



### Your benefits at a glance

- Increases patient safety and improved ergonomics: MEDUMAT Standard<sup>2</sup> replaces bag-valve-mask ventilation
- Mask securely held in place with two hands thanks to the triggering of breaths close to the patient using the MEDUtrigger
- Lower risk of hyperventilation due to a fixed adjustable frequency
- Constant tidal volume lowers the risk of volutrauma
- Lower risk of barotrauma thanks to individually adjustable pressure limit
- Enhanced safety from reliable alarm function
- Integrated CPR time information for an improved overview
- No ventilation artefacts during the ECG analysis phase of the defibrillator due to ventilation pause function
- Individual configuration options of the CPR mode for greater flexibility
- Optional: Capnography for checking tube position and improved detection of ROSC



## Press CPR button to activate CPR mode

- CPR mode is activated at the touch of a button
- Ensures use within seconds
- Clear setup for successful CPR



## Manual ventilation with MEDUtrigger and Double-C grip

- Ratio selection of 15:2 or 30:2
- Two hands free for ventilation and complete control of mask with Double-C grip
- Simultaneous simple and ergonomic manual triggering with the thumbs



## Continuous ventilation

- Reliable check of tube position via display of  $\text{etCO}_2$
- Automatic setting of tidal volume and ventilation rate by means of pre-set patient height



## Manual interaction with defibrillator

In the ECG analysis phase:

- Ventilation pause via selection of the pause field
- Ventilation pause eliminates motion and thus permits an artefact-free ECG analysis

During shock delivery:

- Low impedance of thorax for more effective shock delivery from defibrillator
- No oxygen enrichment of ambient air





## RSI Mode

### Reliable support during rapid sequence induction

In Rapid Sequence Induction mode MEDUMAT Standard<sup>2</sup> reliably supports every treatment step. First the preoxygenation of the patient occurs via the DEMAND function. The operator can see the anesthesia-induced apnea on the monitor. MEDUtrigger allows temporary manual ventilation of the patient so that access to the airways can be checked. Then a switch can be made at any time to the pre-set parameters for controlled ventilation. The adjustable pressure limit assures the safety of the patient in every situation. CO<sub>2</sub> monitoring lets the user check the position of the tube, a feature that further enhances patient safety.



### Preoxygenation

- Supply of 100% oxygen for the spontaneously breathing patient
- Reliable monitoring of spontaneous breathing by means of volume and frequency monitoring (optional)
- Reliable alarms for prolonged apneic phase



### Manual triggering of ventilator breath with MEDUtrigger

- In an emergency the patient can be manually ventilated with the use of the Double-C grip and MEDUtrigger



### Position check of tube

- After successful intubation, the user can confirm correct placement of the tracheal tube with MEDUtrigger and the optional capnography
- After a position check, the device can be switched to continuous ventilation (IPPV or BiLevel + ASB) at the touch of a button



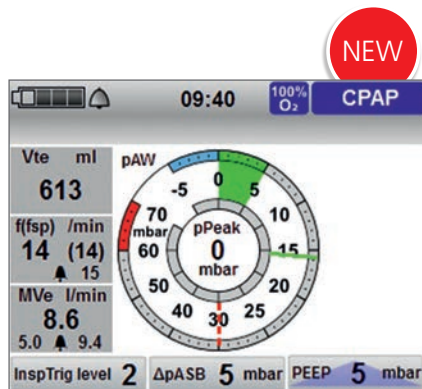
### Your benefits at a glance

- Optimal process support of out-of-hospital anesthesia induction from RSI mode
- Pressure gauge to visualize (the interrupted) spontaneous respiration
- Increased safety from adjustable pressure limitation
- Optional: Improved monitoring of spontaneous breathing via volume monitoring
- Safe checking of the position of the tube via auscultation using the MEDUtrigger and optional capnography
- Improved ergonomics thanks to option of switching directly to continuous ventilation



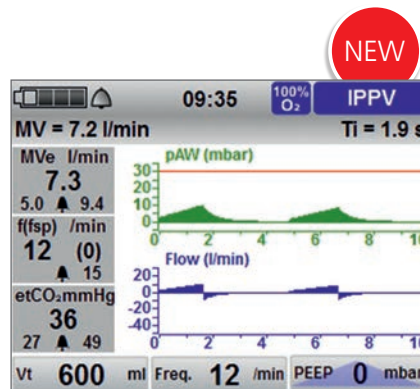
# More Freedom with More Options

MEDUMAT Standard<sup>2</sup> offers more flexibility than ever. The device can be individually configured to suit your needs and can thus be used for a wide range of applications.



## Option Flow measurement + ASB

- Monitoring of expiratory tidal and minute volume and respiratory rate
- Pressure support in CPAP and SIMV modes to provide ideal assistance with non-invasive ventilation
- Individual setting of inspiration and expiration triggers

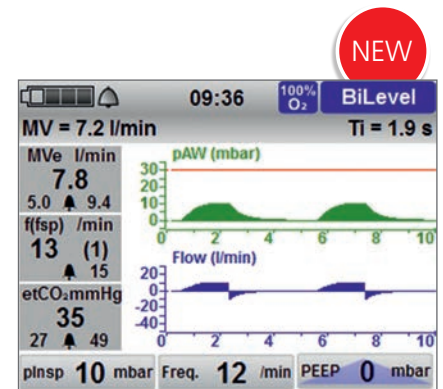


## Option Curve display

Precondition:

Option Flow measurement + ASB is installed!

- Display of pressure and flow curves help you monitor the patient

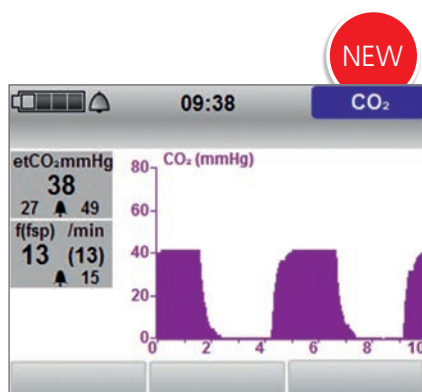


## Option Pressure-controlled ventilation modes

Precondition:

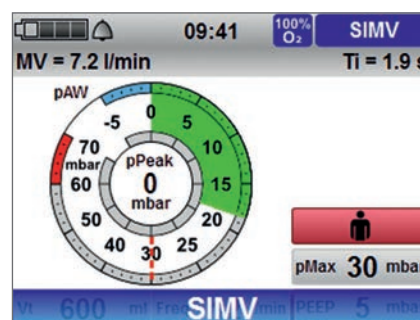
Option Flow measurement + ASB and Option Curve display are installed!

- Transport of ventilated patients improved with use of ventilation modes PCV, aPCV, BiLevel + ASB and PRVC + ASB
- Clearly structured monitoring by the display of pressure and flow curves



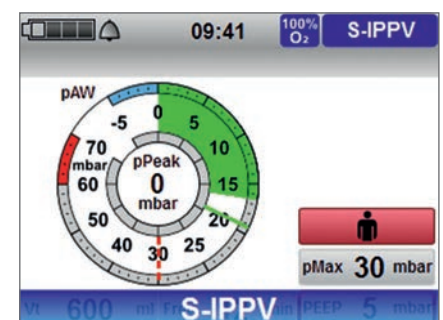
## Option Capnography

- Display of end-tidal CO<sub>2</sub> as numeric value and as curve
- Improved monitoring of ventilation treatment and assistance during CPR and RSI
- CO<sub>2</sub> measurement also with deactivated ventilation



## Option SIMV mode

- Use this mode to synchronize the patient's spontaneous breathing efforts with MEDUMAT Standard<sup>2</sup>



## Option S-IPPV mode

- MEDUMAT Standard<sup>2</sup> responds to every spontaneous breathing effort with a mandatory ventilator breath



# Intuitive Operation for Greater Safety



## 1. Ideal monitor layout

for best view of all measurements and settings

## 2. Easy access to all connections on device front

for MEDUtrigger and connection cable to FlowCheck sensor

## 3. Hygiene input filter

protects the device from viral and bacterial contamination

## 4. Data storage & updates

you can transfer device configurations and perform software updates yourself with the help of the SD memory card

## 5. User-friendly operation

quick operation of function keys for simple and fast use

## 6. Connection for ventilation hose

connects the device to the patient hose system

## 7. Connection for measuring hose system

measures pressure and CO<sub>2</sub> and manages PEEP

## 8. Li-ion removable rechargeable battery

with operating time of up to 10 hours

"Need to change the hygiene input filter?  
It couldn't be simpler!"

The hygiene input filter fits 1:1 in your device's dust filter opening.



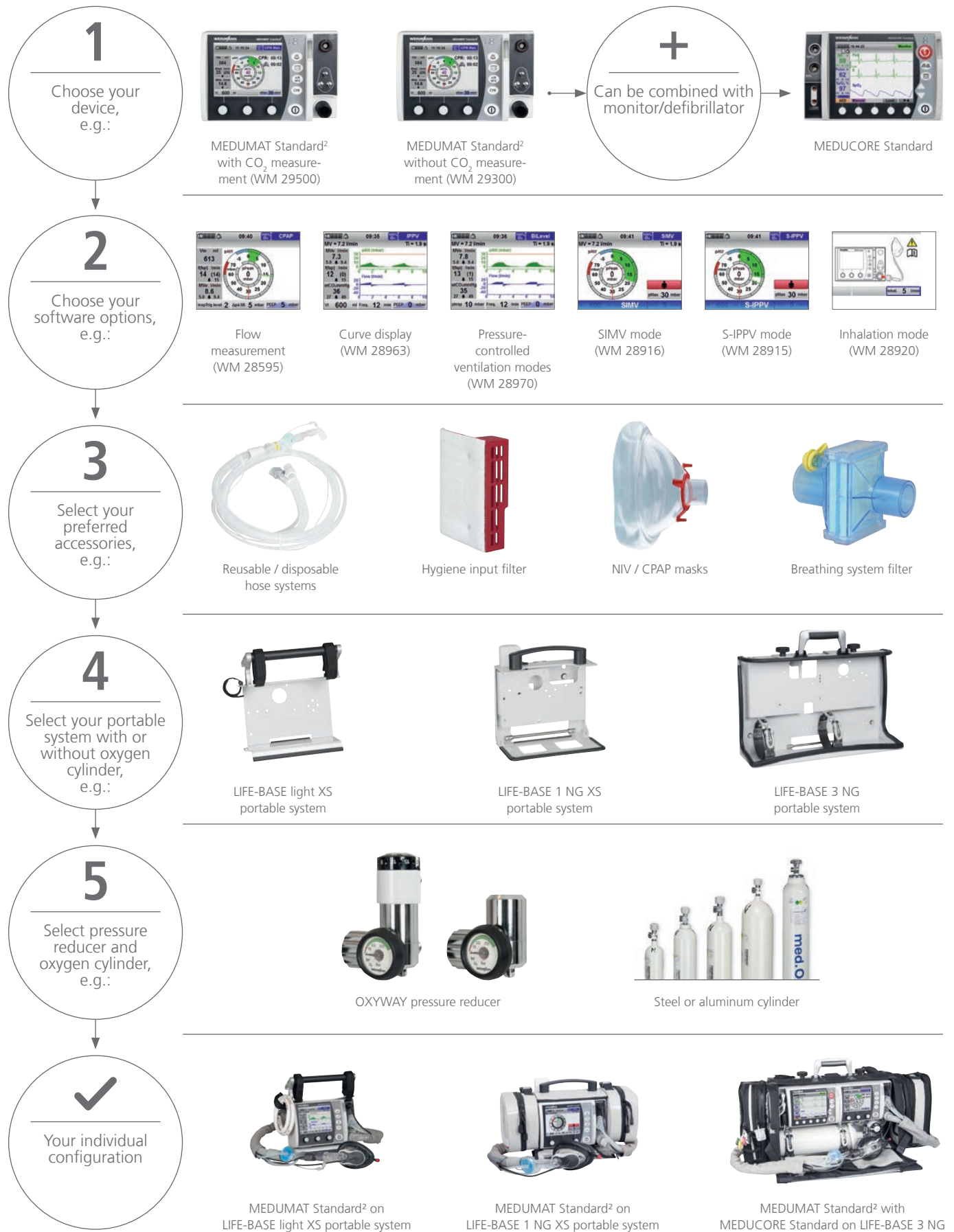
## Accessories and Consumables



- |  |          |  |          |
|--|----------|--|----------|
| • 2 m reusable patient hose system   | WM 28860 | 3. 2 m disposable patient hose system for adults and children, with flow measurement, with CO <sub>2</sub> measurement | WM 29199 |
| • 2 m disposable patient hose system   | WM 28865 | 4. Reusable FlowCheck sensor   | WM 28835 |
| • 2 m disposable patient hose system for adults and children                                   | WM 28867 | • Set of 5 reusable FlowCheck sensors  | WM 17850 |
| • 2 m reusable patient hose system with flow measurement                                       | WM 29197 | 5. 2 m MEDUtrigger   | WM 28992 |
| • 2 m disposable patient hose system with flow measurement                                     | WM 29195 | 6. 2 m connection cable to FlowCheck sensor with MEDUtrigger   | WM 32508 |
| • 2 m disposable patient hose system for adults and children, with flow measurement            | WM 29194 | 7. 2 m connection cable to FlowCheck sensor without MEDUtrigger  | WM 32506 |
| • 2 m reusable patient hose system with CO <sub>2</sub> measurement                            | WM 28905 | 8. Hygiene input filter  | WM 28740 |
| • 2 m disposable patient hose system with CO <sub>2</sub> measurement                          | WM 28907 | • Set of 5 hygiene input filters   | WM 17865 |
| • 2 m disposable patient hose system for adults and children, with CO <sub>2</sub> measurement | WM 28904 | 9. Battery charging station  | WM 45190 |
| 1. 2 m reusable patient hose system with flow measurement, with CO <sub>2</sub> measurement    | WM 29190 | • Power supply unit/charger  | WM 28937 |
| 2. 2 m disposable patient hose system with flow measurement, with CO <sub>2</sub> measurement  | WM 29192 | 10. Battery  | WM 45045 |
|  |          | • Adapter for connection of the oxygen inhalation  | WM 28263 |
|  |          | 11. SD card  | WM 29791 |
|  |          | 12. Breathing system filter  | WM 22162 |
|  |          | • EasyLung for WEINMANN Emergency  | WM 28625 |



# Configuration Examples



# Service Directly from the Manufacturer



## Remote diagnosis (Telesupport) Safety and reliability day after day

With the fast and simple function check, you can assure yourself at any time that your device is trouble-free and ready for use. In less than 30 seconds MEDUMAT Standard<sup>2</sup> conducts the automatic function check and provides the user with a status report. When a device malfunction occurs, its cause may not be immediately apparent. For reporting purposes, MEDUMAT Standard<sup>2</sup> lets you store the service files from the device on an SD card and send the files to our service specialists via e-mail. Ideally, the service files will be enough to allow the service technicians to resolve the problem with you via telesupport.

## Make software updates yourself – Your benefits as operator:

- Always up-to-date with the newest software
- You decide when to update – no deadline pressure, no waiting
- Remain ready for use – no need to ship device for update
- You decide who makes the update at your site thanks to password-protected operator menu
- No risk – making the update is simple and safe

## Active support of your quality management and documentation processes

Important information is automatically saved and quickly and easily made available for export from the SD card. Data include:

- Up to 6,000 function checks, including many details
- Software update history in a documentation sheet
- Error-free standardization: Customized device configurations can be transferred via SD card from one device to another

## Service data: MEDUMAT Standard<sup>2</sup>

Manufacturer's warranty	Two years
Maintenance interval	Two years
Automatic function check with brief summary	✓
Time for function check	About 25 seconds
Software update can be made by operator/user	✓
User training without O <sub>2</sub> consumption (free simulation software in the device/on PC)	✓
Password-protected operator menu	✓
Removable rechargeable battery system <sup>(1)</sup>	✓
Battery status	Display on battery itself
Telesupport	✓
External charging unit for removable battery	Optionally available
Service reminder in device display	e.g., scheduled safety check / maintenance

(1) You can use the removable rechargeable battery for both MEDUMAT Standard<sup>2</sup> and MEDUCORE Standard to simplify your logistical processes and device handling during use.

## Never miss a safety check again

MEDUMAT Standard<sup>2</sup> gives you reliable help with the planning of required maintenance. Every device reminds you in good time of due maintenance dates. At the end of the function check, the device tells the user the exact date of the upcoming maintenance. If the recommended interval is exceeded, MEDUMAT Standard<sup>2</sup> displays a small screwdriver symbol on the start-up screen. With these reminders, MEDUMAT Standard<sup>2</sup> assists you with your responsibility as device operator.



**Manufacturer's service**  
Hotline: +49 40 88 18 96 122



# Technical Data



## MEDUMAT Standard²

Device dimensions	W: 206 mm x H: 137 mm x D: 130 mm	
Weight, including battery	About 2.5 kg	
Product class according to Directive 93/42/EEC	IIb	
Operating conditions	<ul style="list-style-type: none"> <li>• Temperature range: -18°C to +50°C</li> <li>• Humidity: 0% RH to 95% RH without condensation</li> <li>• Air pressure: 540 hPa to 1100 hPa</li> <li>• Altitude above sea level: to 5000 meters</li> </ul>	
Rechargeable battery	<ul style="list-style-type: none"> <li>• Operating time: up to 10 hrs (depending on device and options)</li> <li>• Charging time (0% - 95%): 3.5 hrs</li> </ul>	
Display	TFT color display	5-inch
Data storage	Internal and on SD card	
Ventilation modes	<ul style="list-style-type: none"> <li>• Volume-controlled: IPPV, CPR, RSI, SIMV (with Option SIMV mode), SIMV + ASB (with Options SIMV mode and Flow measurement + ASB), S-IPPV (with Option S-IPPV mode), Inhalation (with Option Inhalation mode)</li> <li>• Pressure-controlled: PCV, aPCV, BiLevel + ASB, PRVC + ASB (with Option Pressure-controlled ventilation modes)</li> <li>• Spontaneous breathing: CPAP, CPAP + ASB (with Option Flow measurement + ASB)</li> </ul>	
Operating gas	Medical-grade oxygen or concentrator oxygen (93% O <sub>2</sub> )	
Operating pressure range	2.7 bar to 6 bar	
Monitoring	<ul style="list-style-type: none"> <li>• Displayed measurements: pPeak, pPlat, pMean, Vte, MVe, f, fsp, Vleak (with Option Flow measurement + ASB), etCO<sub>2</sub> (with Option Capnography)</li> <li>• Curves: Airway pressure (with Option Curve display or Option Capnography), Flow (with Option Curve display), CO<sub>2</sub> (with Option Capnography)</li> <li>• Gauge: Pressure gauge</li> </ul>	
Maximum outlet flow	80 l/min at input pressure of 4.5 bar in Air Mix and in non-Air Mix operation	
Tidal volume	50 ml to 2000 ml	
Ventilation rate	5 min <sup>-1</sup> to 50 min <sup>-1</sup>	
Inspiration pressure	3-60 mbar (with Option Pressure-controlled ventilation modes)	
Pressure support ASB	0-30 mbar (with Option Flow measurement + ASB)	
PEEP	0 mbar to 30 mbar	
Pressure limit (Pmax)	10 mbar to 65 mbar	
Inspiration trigger	1-15 l/min (with Option Flow measurement + ASB)	
Expiration trigger	5-80% Flow max. (with Option Flow measurement + ASB)	
I:E	1:4 - 4:1 (with Option Pressure-controlled ventilation modes)	
Pressure ramp	Steep, medium, flat (with Option Flow measurement + ASB)	
Standards used	EN 60601-1, EN 1789, EN 794-3, ISO 10651-3, RTCA DO-160 G	



## Training simulation and videos

Find out about the MEDUMAT Standard<sup>2</sup> at:  
[weinmann-emergency.com/downloads/multimedia/](http://weinmann-emergency.com/downloads/multimedia/)

### Simply Professional

WEINMANN Emergency is a family-owned, internationally active medical technology company. With our mobile system solutions for emergency, transport and disaster medicine, we set standards for saving human lives. In close collaboration with professional users in emergency medical services, hospitals and military medical corps, we develop innovative medical products for ventilation and defibrillation. For more than 100 years we have offered our customers a high degree of reliability, extensive experience and quality made in Germany.

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