WEINMANN
medical technology

MEDUMAT Standard²

A clear new perspective

Maximum safety in an emergency

In an emergency, every second counts. Every move has to be perfect, especially where respiration support is concerned, which is when prompt correct action can be a key factor in saving lives. The demands on emergency medical services are high in such situations, and easy operation of the ventilator is critical for a successful outcome. MEDUMAT Standard² is the perfect partner for just this situation. It is intuitive to operate, reliable in use and its integrated hygiene filter protects it from contamination, ultimately guaranteeing an unbeatable degree of safety for the patient, the user and the device itself!

MEDUMAT Standard²

See for yourself: You can see more

MEDUMAT Standard² provides a completely new perspective on modern emergency and transport ventilation. It clearly displays all the important respiratory parameters and an overview of ventilation curves is an additional option. The familiar operation – patient selection, for example – allows intuitive handling, whilst the initiation of ventilation by inputting height ensures that ventilation starts simply and in compliance with guidelines. Controls and symbols are clearly arranged to provide an overview, with effective audible and visual alarms as further features to ensure maximum patient safety.

Your benefits at a glance

- Quick and easy access to the right ventilation by inputting height or via emergency mode for adults, children and infants
- CPR mode for guideline-compliant cardiopulmonary resuscitation
- RSI mode for reliable support during induction of anesthesia
- CPAP mode with optional ASB pressure support for non-invasive respiratory treatment in a prehospital setting
- Hygiene filter provides protection from contamination

New outlook: More functions for emergency medical personnel

MEDUMAT Standard² also provides a much better outlook in terms of flexibility. Integration of robust flow measurement close to the patient, with sidestream capnography and a curve display, delivers optimal patient monitoring. **The optional modes available allow** MEDUMAT Standard² to be customized for individual circumstances and users. In addition to IPPV, the modes also encompass CPR (for cardiopulmonary resuscitation), RSI (for support during induction of anesthesia), Demand and CPAP (optionally with ASB). Volume-controlled modes SIMV, S-IPPV and Inhalation, together with pressure-controlled modes PCV, aPCV, BiLevel + ASB and PRVC + ASB, can furthermore still be enabled as options along with CO_2 monitoring mode. All settings are based on current specifications, e.g. resuscitation in accordance with ERC Guidelines. However, they can also be customized on request.

Optional functions

- Sidestream capnography for ideal monitoring of ventilation treatment
- Flow measurement for improved monitoring during ventilation, resuscitation or induction of anesthesia (MVe, Vte, fspont, Vleak), curve display
- Pressure-controlled ventilation modes for more differentiated ventilation therapy
- **Bluetooth®** data transmission for digital documentation of ventilation data
- Innovative resuscitation ventilation with CCSV mode

More Than Pure Emergency Ventilation

Transport ventilation "light"

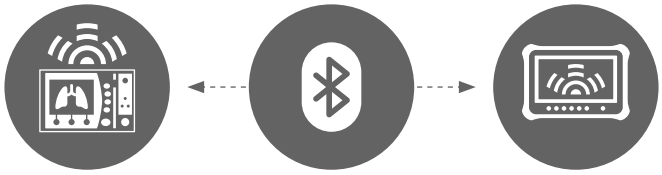
MEDUMAT Standard² is suitable not only for emergency ventilation, but also for optimal care during transport of patients already being ventilated. Equipped with pressure-controlled ventilation modes and monitoring options such as display of pressure, flow and CO_2 curves and display of major ventilation parameters, MEDUMAT Standard² is your compact partner for ground and air rescue services.

Your benefits at a glance

- Low weight of 2.5 kg makes it suitable for ground and air rescue services
- Battery life of 10 hours ensures a high level of mobility
- Simple, intuitive operation via flat menu structures
- Optimum setting and monitoring of ventilation using the Flow measurement + ASB, Capnography and Pressure-controlled ventilation modes options
- Customization and standardization of the device, e.g., by preconfiguring ventilation parameters
- Digital documentation of ventilation data using the Bluetooth® data transmission option

Digitally en route – with the Bluetooth® data transmission option

Documentation is just as important as rescue and safe transport. Bluetooth® technology makes it possible to transmit ventilation parameters, settings and trend data wirelessly and quickly to digital documentation systems - to the MEDICALPAD, for example. This facilitates seamless, paperless documentation.



CPAP Mode

Non-invasive ventilation

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, CPAP pressure can be fine-tuned at any time. The user also has the option of activating ASB pressure support with a settable trigger. Optional volume and CO_2 monitoring ensure comprehensive monitoring, even during non-invasive ventilation. Any leakage at the mask is detected and compensated for by the device. All ventilation parameters can be adjusted via the monitor during ventilation.

Flow measurement + ASB option

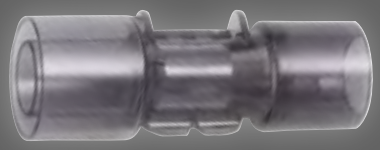
- Monitoring of expiratory tidal and minute volume as well as of respiratory rate
- Pressure support in CPAP and SIMV modes provides optimal assistance for non-invasive ventilation
- Inspiration and expiration trigger can be set individually

Your benefits at a glance

- CPAP therapy improves patient outcome in cases of acute respiratory insufficiency**
- ASB pressure support for more differentiated non-invasive ventilation available as an option
- Lower oxygen consumption compared to flow CPAP systems
- Apnea ventilation provides high level of safety

FlowCheck sensor

✓ Particularly robust during use and hygienic reprocessing
✓ Available in disposable or reusable variants
✓ Unique chip technology ensures maximum precision
✓ Minimal dead space of just 9 ml makes it 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.

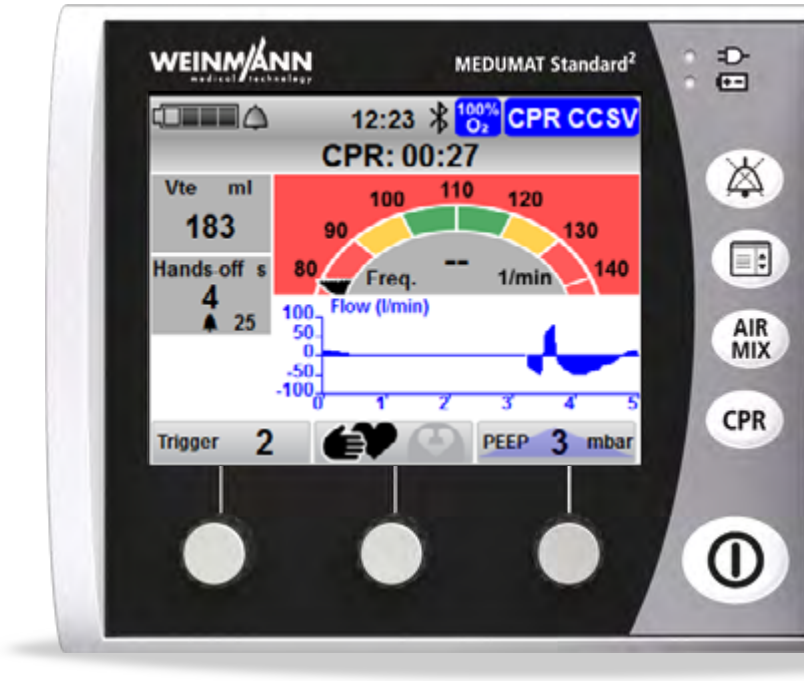
Goodacre S et al.: Prehospital noninvasive ventilation for acute respiratory failure: systematic review, network meta-analysis and individual patient data meta-analysis. Acad Emerg Med 21: 960-970, 2014.

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), No. 1, pp. 52-60

Deutsche Gesellschaft für Pneumologie und Beatmungsmedizin e.V. (ed.): S3–Leitlinie: Nichtinvasive Beatmung als Therapie der akuten respiratorischen Insuffizienz [S3 Guidelines: non-invasive ventilation as treatment of acute respiratory insufficiency]. Hannover, 2008

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), No. 3, pp. 232-241

CPR ventilation with MEDUMAT Standard²



Cardiopulmonary resuscitation

MEDUMAT Standard² guides you reliably through cardiopulmonary resuscitation. Following a quick start using the CPR button and selection of the patient group, ventilation starts automatically using preconfigured settings. Ventilation can be controlled manually by the MEDUtrigger close to the patient. Following intubation, it is then possible to switch easily to continuous ventilation. All the critical information, e.g., when the patient was last ventilated or duration of CPR so far, is visible on the monitor. Optional display of $etCO_2$ in the form of curves or trends provides emergency medical services with an important parameter for the quality of resuscitation and intubation.

Your benefits at a glance

- Increases patient safety compared to bag/mask ventilation
- Mask held securely in place with two hands, as breaths are triggered close to the patient by MEDUtrigger
- Individual activation/deactivation of alarms (and consequently fewer irritating alarms during CPR)
- Individual configuration options for CPR mode for greater flexibility

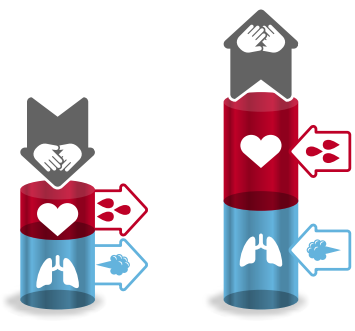
Optional functions

- Innovative resuscitation ventilation with CCSV mode
- Capnography for checking tube position and improved detection of ROSC
- etCO2 trend display to support detection of ROSC

CCSV – the ventilation mode that supports the heart

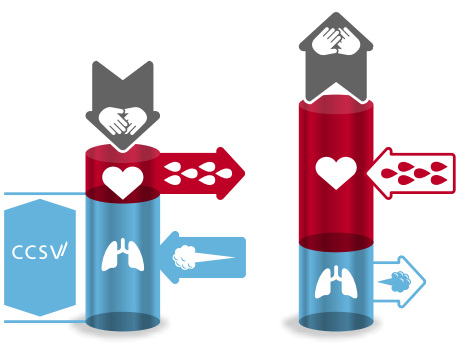
With Chest Compression Synchronized Ventilation (CCSV), WEINMANN Emergency has developed a ventilation mode specifically designed for resuscitation. CCSV applies a pressure-controlled mechanical breath synchronized with each chest compression. This revolutionary method is proven to improve gas exchange and hemodynamics.

Conventional resuscitation at 30:2



Compression phase Decompression phase

Resuscitation with CCSV



Compression phase Decompression phase

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
- Optional: CCSV ventilation easily integrated in CPR mode

Manual ventilation with MEDUtrigger and Double-C grip

- Two hands free for ventilation and thus complete control of mask with Double-C grip
- Simultaneously simple and ergonomic manual triggering of mechanical breaths using the thumbs
- Safe use due to fixed tidal volume setting and pressure limit

CCSV mode

Innovative ventilation for resuscitation

✓ Simplified operation for resuscitation: Display reduced to the essentials

✓ Compatible with automatic hest compression devices

✓ Compression rate and hands-off time displayed

For more information, see the last page.

RSI Mode

Reliable support for induction of anesthesia

MEDUMAT Standard² reliably supports every treatment step in Rapid Sequence Induction mode. The patient is first preoxygenated via the DEMAND function. The operator can see the anesthesia-induced apnea directly on the monitor. MEDUtrigger close to the patient allows temporary manual ventilation - to enable the position of airway access to be checked, for example. A switch to controlled ventilation can then be made at any time using all the preset parameters, with the adjustable pressure limit guaranteeing patient safety in every situation. CO_2 monitoring lets the user check the position of the tube, a feature that further enhances patient safety.

Preoxygenation

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

Manual triggering of mechanical breaths with MEDUtrigger

- In an emergency, the patient can be ventilated manually using MEDUtrigger and the Double-C grip

Position check of tube

- Following successful intubation, the user can check the position of airway access using MEDUtrigger and optional capnography
- Following 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

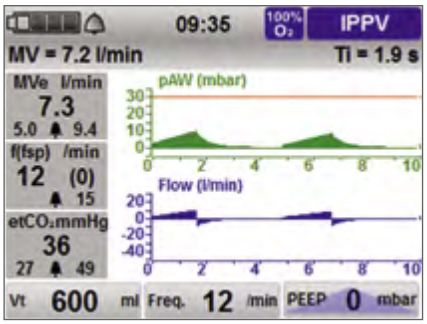
- RSI mode provides optimal process support of prehospital induction of anesthesia
- Pressure gauge to visualize (uninterrupted) spontaneous respiration
- Adjustable pressure limit delivers increased safety
- Optional: Improved monitoring of spontaneous breathing via volume monitoring
- MEDUtrigger and optional capnography can beused to check tube position reliably by means of auscultation
- Option of switching directly to continuous ventilation improves ergonomics

More Freedom with More Options

MEDUMAT Standard² now offers an even better outlook in terms of flexibility. The device can be individually configured to suit your needs and can thus be used for a wide range of applications.

Flow measurement + ASB option

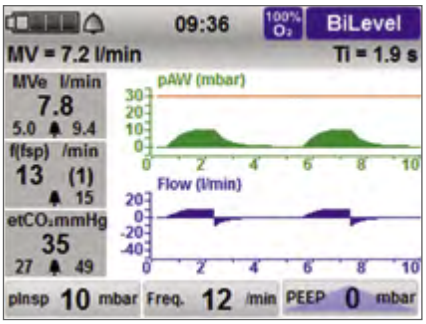
- Monitoring of expiratory tidal and minute volume, in addition to respiratory rate
- Pressure support in CPAP and SIMV modes to provide ideal assistance in non-invasive ventilation
- Inspiration and expiration trigger can be set individually



Curve display option

Condition: Flow measurement + ASB option is installed!

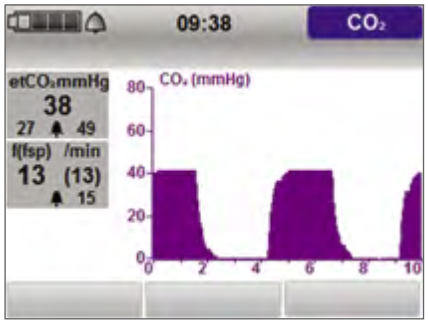
- Pressure and flow curves displayed for clear monitoring



Pressure-controlled ventilation modes option

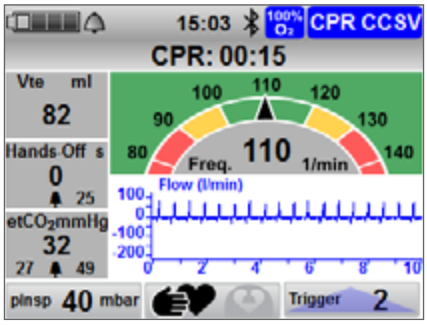
Condition: Flow measurement + ASB option and Curve display option are installed!

- Improved transport of ventilated patients using the PCV, aPCV, BiLevel + ASB and PRVC + ASB ventilation modes
- Pressure and flow curve display for clear monitoring



Capnography option

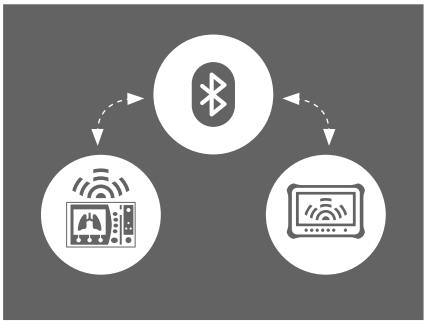
- End-tidal CO_2 displayed in the form of a measured value, a curve and as a trend over an extended period
- Improved monitoring of ventilation treatment and support during CPR and RSI
- CO_2 measurement even with ventilation deactivated



CCSV mode option

Condition: Flow measurement + ASB option is installed

- Ventilation mode specifically for resuscitation
- For optimal ventilation synchronized with each chest compression



Bluetooth® data transmission

- Wireless transmission of ventilation data to an external documentation system
- Simplified documentation

Other options:

- Inhalation mode
- S-IPPV mode
- SIMV mode

Intuitive Operation for Maximum Safety

1 Optimal screen arrangement
for a perfect view of all measurements and settings

2 Accessories connection
for MEDUtrigger and connection cable to the FlowCheck sensor accessible from the front

3 Hygiene filter
protects the device from viral and bacterial contamination

4 Data memory and updates
Device configuration and software updates can be transmitted with the aid of the SD memory card itself

5 User-oriented operation
Rapidly-operated navigation buttons are simple and quick to use

6 Connection for ventilation hose
connects the device to the patient circuit

7 Connection for measuring tube system
measures pressure and CO2 and manages PEEP

8 Li-Ion removable rechargeable battery
with a life of up to 10 hours

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

The hygiene filter is a 1:1 fit in the dust filter opening of your device.

Accessories and Replacement Parts

1. 2 m reusable patient circuit with flow measurement, with CO_2 measurement — WM 29190
2. 2 m disposable patient circuit with flow measurement, with CO_2 measurement — WM 29192
3. 2 m disposable patient circuit for adults and children, with flow measurement, with CO_2 measurement — WM 29199
4. Reusable FlowCheck sensor — WM 28835
5. $etCO_2/O_2$ nasal cannula — WM 1928
6. 2 m MEDUtrigger — WM 28992
7. 2 m connection cable to FlowCheck sensor with MEDUtrigger — WM 32508
8. 2 m connection cable to FlowCheck sensor without MEDUtrigger — WM 32506
9. Hygiene filter — WM 28740
10. Battery charging station — WM 45190
11. Battery — WM 45045
12. Respiratory system filter — WM 22162

You can find all accessories and replacement parts in our supply catalog.

Examples of Configuration Options

1 Select your device, e.g.:

MEDUMAT Standard² with CO_2 measurement (WM 29500)

MEDUMAT Standard² without CO_2 measurement (WM 29300)

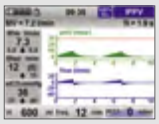
+ Can be combined with monitor/ defibrillator system

MEDUCORE Standard

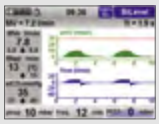
MEDUCORE Standard²

2 Select your software options, e.g.:

Flow measurement (WM 28959)



Curve display (WM 28963)



Pressure-controlled ventilation modes (WM 28970)

CCSV mode (WM 28940)

Bluetooth® data transmission (WM 28945)

+

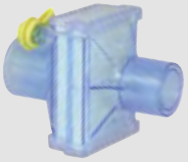
- SIMV mode (WM 28916)
- S-IPPV mode (WM 28915)
- Inhalation mode (WM 28920)

3 Select your preferred accessories, e.g.:

Reusable / disposable patient circuits

Hygiene filter

NIV / CPAP masks



Respiratory system filter

4 Select your portable system with or without oxygen cylinder, e.g.:

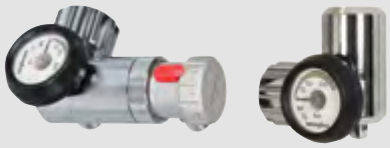
LIFE-BASE light XS portable system

LIFE-BASE 1 NG XS portable system

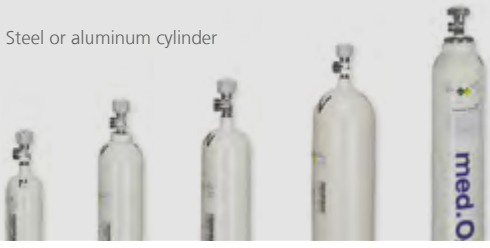
LIFE-BASE 3 NG portable system

5 Select pressure reducer and oxygen cylinder, e.g.:

OXYWAY pressure reducer



Steel or aluminum cylinder



✓ Your individual configuration

MEDUMAT Standard² on LIFE-BASE light XS portable system

MEDUMAT Standard² on LIFE-BASE 1 NG XS portable system

MEDUMAT Standard² with MEDUCORE Standard² on LIFE-BASE 3 NG

Service Directly from the Manufacturer

Remote diagnosis (telesupport) in the event of a fault Safety and reliability day after day

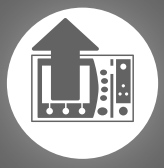
With the fast and simple function check, you can assure yourself at any time that your device is trouble-free and ready for use. In less than 30 seconds, MEDUMAT Standard² performs the automatic function check and provides the user with a status report. If a device malfunction does ever occur, its cause may not be immediately apparent. For reporting purposes, MEDUMAT Standard² lets you save the service files from the device to an SD card and e-mail them to WEINMANN Emergency. Ideally, these data alone will be sufficient for our service specialists to resolve the fault with you via telesupport. Should this not be the case, we will take a closer look at your device and, if necessary, you will be provided with a replacement device to cover this down time.

Service data: MEDUMAT Standard²

Manufacturer's warranty	2 years
Safety check interval	Every 2 years
Servicing interval	Every 2 years
COMFORT Plus service package with fixed annual fees available	✓
Automatic function check with clear summary	✓
Duration of function check	Approx. 25 seconds
Software update can be performed by operator/user	✓
User training without O_2 consumption (free simulation software in the device/on PC)	✓
Password-protected operator menu	✓
Removable rechargeable battery system(1)	✓
Battery status	Display also on battery itself
Telesupport	✓
External charging base for removable battery	Available as an option
Service reminder in device display	E.g., of scheduled safety check / servicing

Never miss a safety check or service interval again

MEDUMAT Standard² gives you reliable help with the planning of required servicing. Every device reminds you in good time of due servicing/safety check dates. At the end of the function check, the device tells the user the exact date of upcoming servicing/safety checks. If the recommended interval is exceeded, MEDUMAT Standard² also displays a small spanner symbol on the start-up screen. MEDUMAT Standard² uses these reminders to support you in your responsibility as device operator.



Perform software updates yourself – Your benefits as the operator:

- Always up-to-date with the latest software
- You decide when to update – no appointment pressure, no waiting
- Remain ready for use – no need to ship device for update
- You decide who makes the update at your site - password-protected operator menus make this possible
- No risk – performing the update is simple and safe

Active support of your quality management and documentation processes

Important information is saved automatically and can be exported to the SD card quickly and easily. Data included:

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

(1) You can use the removable rechargeable battery for both MEDUMAT Standard² and MEDUCORE Standard to support your logistical processes and simplify device handling during use.

Technical Data of MEDUMAT Standard²

Device dimensions	W: 206 mm x H: 138 mm x D: 130 mm
Weight, incl. battery	Approx. 2,65 kg
Product class according to Directive 93/42/EEC	IIb
Operating conditions	• Temperature range: -20 °C to +50 °C • Humidity: 0 % rh to 95 % rh, no condensation • Air pressure: 540 hPa to 1,100 hPa • Altitude above MSL: -500 m up to 5,000 m
Rechargeable battery	• Operating time: up to 10 hrs (depending on device and options) • Charging time (0 % - 95 %): 3.5 h
Display	TFT color display 5"
Data storage	Internal and on SD card
Ventilation modes	• Volume-controlled: IPPV, CPR, RSI, SIMV (with SIMV mode option), SIMV + ASB (with SIMV mode and Flow measurement + ASB options), S-IPPV (with S-IPPV mode option) • Pressure-controlled: PCV, aPCV, BiLevel + ASB, PRVC + ASB (with pressure-controlled ventilation modes option), CCSV (with Flow measurement + ASB option and CCSV mode option) • Spontaneous breathing: CPAP + ASB (with Flow measurement + ASB option), Inhalation (with Inhalation mode option)
Operating gas	Medical-grade oxygen or concentrator oxygen (93 % O_2)
Operating pressure range	2.7 bar to 6 bar
Monitoring	• Displayed measured values: pPeak, pPlat, pMean, Vte, MVe, f, fsp, Vleak (with Flow measurement + ASB option), $etCO_2$ (with Capnography option) • Curves: Airway pressure (with Curve display option or Capnography option), Flow (with Curve display option), CO_2 (with Capnography option), $etCO_2$ trend (with Capnography option) • Gauge: Pressure gauge
Maximum outlet flow	80 l/min at inlet pressure of 4.5 bar in Air Mix and in No Air Mix operation
Tidal volume	50 ml to 2,000 ml (+- 10ml oder +-20%)
Ventilation rate	5 min^{-1} to 50 min^{-1} (+- 1 min^-1)
Inspiration pressure	3 mbar to 60 mbar (+-3 mbar oder +-15%) (with Pressure-controlled ventilation modes option)
ASB pressure support	0 mbar to 30 mbar (+-3mbar oder +-15%) (with Flow measurement + ASB option)
PEEP	0 mbar to 30 mbar (+-3mbar oder +-15%)
Pressure limit (Pmax)	10 mbar to 65 mbar (+-3 mbar oder +-15%)
Inspiration trigger	1 l/min to 15 l/min (with Flow measurement + ASB option)
Expiration trigger	5 % to 80 % flow max. (with Flow measurement + ASB option)
I:E	1:4 – 4:1
Pressure ramp	Steep, medium, flat (with Flow measurement + ASB option)
Standards applied	EN 60601-1, EN 1789, EN 794-3, ISO 10651-3, RTCA DO-160 G, MIL STD 810 G

CE 0197

Zertifiziertes QM-System nach EG-Richtlinie 93/42/EWG, Anh.II (EN ISO 9001:2008/EN ISO 13485)

We reserve the right to make changes to the technical specifications without notice.

Made in Germany

WEINMANN
medical technology

CCSV

With CCSV, mechanical breaths are delivered synchronously with manual or even mechanically performed chest compressions. Due to the synchronized mechanical breath, no air escapes from the thorax. This increases the intrathoracic pressure in the compression phase. This produces:

- ✓ Increased arterial pressure
- ✓ Increased blood circulation
- ✓ Improved gas exchange

In the decompression phase, the ventilator switches to expiration, which causes air to escape from the lung. At the same time, the intrathoracic pressure decreases and the venous return to the heart can occur unhindered.

CCSV Brochure

CCSV Whitepaper

We Simplify Saving Lives

WEINMANN Emergency ist ein international tätiges Medizintechnikunternehmen in Familienbesitz. Mit unseren mobilen Systemlösungen für die Bereiche Notfall-, Transport- und Katastrophenmedizin setzen wir Maßstäbe beim Retten von Menschenleben. Im engen Austausch mit Profis aus Rettungsdiensten, Kliniken und Sanitätsdiensten von Armeen entwickeln wir innovative Medizinprodukte rund um die Beatmung, Monitoring/Defibrillation und Datenmanagement. Seit über 100 Jahren bieten wir unseren Kunden ein Höchstmaß an Verlässlichkeit, Erfahrung und Qualität made in Germany.

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