

Portfolio at a Glance

Sleep · Ventilation · Masks

The whole world of ventilation.

From one source.



Sleep Therapy

Sleep therapy solutions for every case.

For several decades we have been developing reliable, specialized technologies for sleep medicine. Our focus is on patient safety, treatment success and operating convenience.

The result is device and service solutions that provide the patient with highly effective treatment. Thanks to their intuitive use, product compatibility and low maintenance, the work process is simplified and leaves more time to concentrate on the patient.



prisma SOFT/SMART Series

prisma SOFT plus/max
prisma SMART plus/max



prismaLINE Series

prisma20C/20A
prisma25S/25ST
prisma30ST
prismaCR
prismaLAB titration

Home Mechanical Ventilation

Mobile and stationary ventilation with specialized technology.

When the respiratory system is damaged by disease, disability or accident, ventilation of the lungs can be impaired to a life-threatening degree. To ensure proper ventilation and relieve the respiratory pump, we develop customized, reliable technologies.

We concentrate on patient safety, effective treatment and the simplest and most convenient operation of the ventilator.

The result: Products that automatically ventilate according to patient needs. That's how we offer maximum support to patients and medical personnel.



prisma VENT Series

Non-life support ventilation
IV and NIV

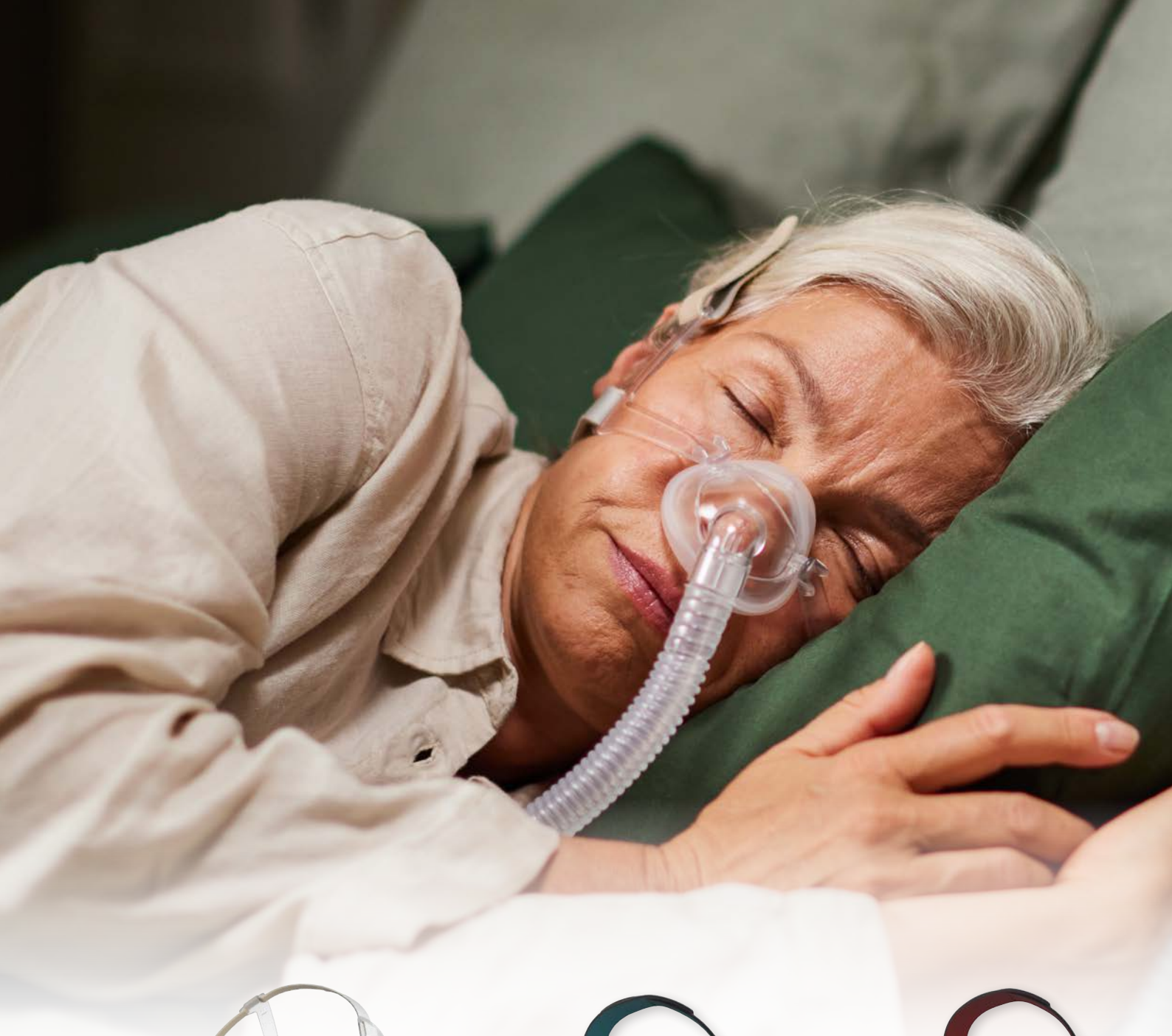
prisma VENT30/30-C
prisma VENT40
prisma VENT50/50-C



LUISA

Life-support ventilation
HFT and MPV





Sleep Therapy
JULIA



Sleep Therapy
CARA



Sleep Therapy
CARA Full Face

Patient Interface

The right mask for any requirement.

One of the most important modules for successful ventilation therapy is the use of the right mask for the patient. Requirements differ greatly for homecare treatment (sleep medicine and outpatient ventilation) and in-hospital use. In every case, however, satisfying the varied needs and targets is the key to good patient compliance and successful therapy.

Our mask assortment meets the challenge with a wide range of solutions. The products shown below represent only a selection from our diverse range. Because every patient deserves a mask that fits perfectly.



Home Ventilation

LENA
LENA NV



Hospital Ventilation Single-Patient Use

JOYCEclinic Full Face
JOYCEclinic Full Face NV
JOYCEclinic Full Face NV + AAV

Why choose prisma SOFT/SMART (plus/max):

Reduced titration effort

- two options (standard, dynamic) in APAP mode
- proven reliable algorithm
- titration via prismaLAB

Many options

- available with 15 mm and 19 mm tube
- external battery for travelling
- Flexibility in connectivity
- with integrated sleep quality tracker (White Paper fl10243en2302)

Ease of use and therapy analyses

- prisma CLOUD for telemonitoring, remote setting
- updates "over the air" (internal modem)
- pTS, therapy software for detailed data analyses
- prisma APP for Android & iOS
- direct Bluetooth connection for @home therapy control processes with polygraph device Samoa
- transfer of up to 8 signals into any PSG (with prisma HUB)

Low maintenance

- no service required during 6 years of service life
- durable blower (22,500 h / no time limit)
- remote therapy setting
- APP-based communication

precise pressure
regulation
and reaction

lightweight
and small

7-segment
LED Screen

@home therapy
control

quiet
operation



Why choose prismaLINE:

Reduced titration effort

- two options (standard, dynamic) in APAP mode
- autoST: autoEPAP, autoF
- autoTrigger
- target volume (prisma30ST 300 - 2,000 ml)

Many options

- apnea detection via FOT/FBT
- humidifier with 7 levels
- prismaCR for patients with Cheyne-Stokes respiration
- BiLevel modes up to 30 hPa

Ease of use and therapy analyses

- pTS, therapy software for detailed data analyses
- prisma APP for Android & iOS (White Paper fl10371en2103)
- prisma CLOUD for telemonitoring, remote setting*
- menu with helpful graphics
- SpO₂ monitoring with prismaCHECK
- transfer of up to 8 signals into any PSG (with prisma HUB)

Low maintenance

- no service required during 6 years of service life
- durable blower (22,500 h / no time limit)
- remote therapy setting*
- APP-based communication*

7 different variants to fit every need

26 dB average sound level

up to 30 hPa

integrated heated circuit

intuitive touchscreen



* with external modem

Why choose prisma VENT:

Reduced titration effort

- autoST: autoEPAP, autoF
- target volume (100 – 2,000 ml)
- autoTrigger
- manual and automatic max ramp

Many options

- additional Highflow-Mode (up to 60 l/min)
- Mouthpiece Ventilation (MPV) in prisma VENT50/50-C
- 3 programs
- additional disease-specific features (ATC, LIAM, Trigger Lock, ex ramp)

Ease of use and therapy analyses

- trend view to evaluate therapy without software
- prisma CLOUD for telemonitoring, remote setting*
- pTS, therapy software for detailed data analyses
- integrated battery, additional run time of at least 10 h (without humidifier)
- SpO₂ monitoring with prismaCHECK
- PDMS data integration (Philips IntelliVue)
- integrated heated circuit

Low maintenance

- durable blower (35,000 h)
- no service required during 6 years of service life (except Germany: STK)
- battery replacement every 4 years

integrated
power supply

leakage and
single circuit
patient valve

disease-specific
features

integrated battery
(up to 10h)

over
15 languages

menu with
helpful graphics



* with external modem

Why choose LUISA:

Reduced titration effort

- autoST: autoEPAP and autoF
- target volume (30 – 3,000 ml)
- autoTrigger

Many options

- additional Highflow-Mode (HFT)
- Mouthpiece Ventilation (MPV)
- additional disease-specific features
- 4 programs named by user

Ease of use and therapy analyses

- universal “open” circuit systems
- display with curves and schemes
- with USB-C interface and integrated Bluetooth
- trend view to evaluate therapy without software
- LUISA App for Android & iOS
- prismaCLOUD for telemonitoring*
- integrated FiO₂ monitoring
- SpO₂ monitoring / CO₂ monitoring*
- PDMS data integration (Philips IntelliVue)

Low maintenance

- durable blower (35,000 h / no time limit)
- 4-year service schedule (replace internal battery and membrane expiratory module)
- durable O₂ Cell (one million h / best compromise for HC / not mandatory for operation)

no adapter / tools
to change
circuit system

CPAP + HFT in all
circuit systems

rotatable
10" touch display

30 ml VT for
pediatric use

two additional
batteries

second alarm
language



* upcoming



LOWEYEN

+

-

max

Prisma SMART

Why choose JULIA:

Benefits of all Löwenstein masks

- quiet and diffuse exhalation system with 360° slit, closed at the top
- made in Germany

Many options

- soft, supple mask cushion adapts to all face shapes
- clear field of view, Glasses may be worn
- innovative headgear frame:
 - comfortable & stable mask fit throughout the night
 - easier to put on the mask
- 3 sizes – S, M, L
- for a sustainable future:
 - less resource consumption
 - 100% recycled paper
 - plastic bag out of 80% renewable resource (sugar cane)

Ease of use

- headgear coded for easy re-assembly:
 - sand colour comes on top of the head
 - arrows on frame come on top of the head
- clip markings right (R) and left (L)
- reusable



Why choose

CARA & CARA Full Face:

Benefits of all Löwenstein masks

- quiet and diffuse exhalation system with 360° slit, closed at the top
- freedom of movement, thanks to the ball-and-socket joint in all vented masks
- made in Germany

Many options

- soft, supple mask cushion adapts to all face shapes
- Full Face mask cushion stays in place, thanks to a special surface structure
- headgear with various fitting options
- 4 sizes
 - CARA – XS, S/M, M/L, XL
 - CARA Full Face – S, M, L, XL

Ease of use

- headgear color-coded for easy re-assembly
 - CARA – teal color comes on top of the head
 - CARA Full Face – syrah color comes on top of the head
- almost unbreakable material
- reusable

Accessories

- headgear size XL (without clips)
- headgear size XS (with CARA clips pre-assembled)
- quick-release cord (CARA Full Face)



Why choose LENA:

Benefits of all Löwenstein masks

- quiet and diffuse exhalation system with 360° slit, closed at the top
- freedom of movement, thanks to the ball-and-socket joint in all vented masks
- made in Germany

Many options

- vented & non-vented
- mask cushion with double lip allows a stable, comfortable fit
 - at high pressures
 - at BiLevel pressure differences
- headgear with various fitting options
- 3 sizes – S, M, L

Ease of use

- headgear
 - color-coded for easy re-assembly: green comes on top of the head
 - curved edges to prevent markings on the cheeks
 - back part wider to distribute the contact pressure on the head
- reusable

Accessories

- headgear size XL (without clips)
- headgear size XS (with CARA clips pre-assembled)
- quick-release cord
- elbow Endoscope Adapter for bronchoscopy during ventilation



Why choose JOYCEclinic Full Face:

Benefits of all Löwenstein masks

- quiet and diffuse exhalation system with 360° slit
- made in Germany

Many options

- pre-assembled available: Non-vented, non-vented + AAV*, vented
- mask cushion allows a stable, comfortable fit
 - at high pressures up to 50 hPa
 - at BiLevel pressure differences
- 3 sizes – S, M, L
- set of 1 or 10 available
- connector
 - all elbows cone Ø 22 mm (female)
 - adapter cone Ø 22 mm (male) for vented elbow
- Single-Patient Use

Ease of use

- automatic forehead adjustment
- intuitive handling of clip and quick-release cord (pre-assembled)
- fitting template in manual

Accessories

- elbow Endoscope Adapter for bronchoscopy during ventilation
- headgear replacement, set of 5 available

Elbow Adapter

With the lever on the retaining ring, the elbow can be loosened easily and changed quickly at any time.



JOYCEclinic Full Face NV



NV without AAV*



NV with AAV*



V with AAV*



Endoscope Adapter

*AAV = Anti-Asphyxia Valve

Sleep Publications

Nilius, G.; Tremli, M.; Priegnitz, C.; Domanski, U.; Schröder, M.; Bähr, M. et al. (2015): Clinical validation of a novel FOT-based APAP device for treatment of obstructive sleep apnea. In: *Eur. Respir. J* 46. DOI: 10.1183/13993003.congress2015.PA2402.

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Cantero, C.; Adler, D.; Pasquina, P.; Uldry, C.; Egger, B.; Prella, M. et al. (2020): Adaptive Servo-Ventilation. A Comprehensive Descriptive Study in the Geneva Lake Area. In: *Frontiers in Medicine* 7. DOI: 10.3389/fmed.2020.00105.

Richter, Matthias; Schroeder, Maik; Domanski, Ulrike; Schwaibold, Matthias; Nilius, Georg (2022): Reliability of respiratory event detection with continuous positive airway pressure in moderate to severe obstructive sleep apnea — comparison of polysomnography with a device-based analysis. In: *Sleep and Breathing*. DOI: 10.1007/s11325-022-02740-w.

Herkenrath, S. D.; Tremli, M.; Anduleit, N.; Richter, K.; Pietzke-Calcagnile, A.; Schwaibold, M. et al. (2019): Extended evaluation of the efficacy of a proactive forced oscillation technique-based auto-CPAP algorithm. In: *Sleep & breathing = Schlaf & Atmung*. DOI: 10.1007/s11325-019-01901-8.

Zhu, K.; S, Aouf; G, Roisman; P, Escourrou (2016): Pressure-relief features of fixed and autotitrating continuous positive airway pressure may impair their efficacy. Evaluation with a respiratory bench model. In: *J Clin Sleep Med* 12 (3), S. 385–392. DOI: 10.5664/jcsm.5590.

Randerath, W.; Nilius, G.; Ficker, J.; Benz, A.; Bögel, M.; Schröter, C. et al. (2015): Validation of a new therapeutic device for treatment of central and mixed sleep apnea with anticyclic servoventilation (ACSV). In: *Sleep Med* 16, S9. DOI: 10.1016/j.sleep.2015.02.019.

Johnson, Karin G. (2022): APAP, BPAP, CPAP, and New Modes of Positive Airway Pressure Therapy. In: *Advances in experimental medicine and biology* 1384, S. 297–330. DOI: 10.1007/978-3-031-06413-5_18.

Baiamonte P.; E, Mazzuca; I, Gruttad'Auria C.; A, Castrogiovanni; C, Marino; Lo D, Nardo et al. (2018): Use of autobilevel ventilation in patients with obstructive sleep apnea. An observational study. In: *J. Sleep Res.* DOI: 10.1111/jsr.12680.

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Elshahaat, H. A.; Mahfouz, T.A.E.-H.; Elshora, A. E.; Shaker, A. (2021): Different Continuous Positive Airway Pressure Titration Modalities in Obstructive Sleep Apnea Syndrome Patients. In: *International Journal of General Medicine* 14, S. 10103–10115. DOI: 10.2147/IJGM.S344217.

Ventilation Publications

Wollsching-Strobel, Maximilian; Bauer, Iris; Baur, Johannes Julian; Majorski, Daniel Sebastian; Magnet, Friederike Sophie; Storre, Jan Hendrik et al. (2022): The Impact of Non-Invasive Ventilation on Sleep Quality in COPD Patients. In: *Journal of clinical medicine* 11, S. 5483. DOI: 10.3390/jcm11185483.

Toussaint, Michel; Chatwin, Michelle; Gonçalves, Miguel R.; Gonzalez-Bermejo, Jesús; Benditt, Joshua O.; McKim, Douglas A. et al. (2021): Mouthpiece ventilation in neuromuscular disorders. Narrative review of technical issues important for clinical success. In: *Respiratory medicine* 180, S. 106373.

Delorme, Mathieu; Leroux, Karl; Léotard, Antoine; Boussaid, Ghilas; Prigent, Héléne; Louis, Bruno; Lofaso, Frédéric (2022): Noninvasive Ventilation Automated Technologies. A Bench Evaluation of Device Responses to Sleep-Related Respiratory Events. In: *Respir Care* 68 (1). DOI: 10.4187/respcare.09807.

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Stagnara, A.; Baboi, L.; Nesme, P.; Subtil, F.; Louis, B.; Guérin, C. (2018): Reliability of tidal volume in average volume assured pressure support mode. In: *Respir Care* 63 (9), S. 1139–1146. DOI: 10.4187/respcare.05917.

Lamia, B.; Pasquier, O.; Pontier, S.; Prigent, A.; Rabec, C.; Bermejo, J. G. (2018): Expiratory slope variations induce physiological changes in stroke volume during non invasive ventilation in hyperinflated COPD patients. In: *Eur. Respir. J.* 52. DOI: 10.1183/13993003.congress2018.PA1678.

Su, M.; Huai, D.; Cao, J.; Ning, D.; Xue, R.; Xu, M. et al. (2018): Auto-trilevel versus bilevel positive airway pressure ventilation for hypercapnic overlap syndrome patients. In: *Sleep and Breathing* 22 (1), S. 65–70. DOI: 10.1007/s11325-017-1529-y.

Zhang, X. (2018): Comparison between auto-trilevel and bilevel positive airway pressure ventilation for treatment of obesity hypoventilation syndrome patients. In: *J Sleep Res* 27, S. 399. DOI: 10.1111/jsr.12751.

Zou, C.; Sheng, W.; Huai, D.; Cao, J.; Su, M.; Ning, D. et al. (2019): Comparison between auto-trilevel and bilevel positive airway pressure ventilation for treatment of patients with concurrent obesity hypoventilation syndrome and obstructive sleep apnea syndrome. In: *Sleep & breathing = Schlaf & Atmung* 23 (3), S. 735–740. DOI: 10.1007/s11325-018-1750-3.

White Paper

Deep Sleep Indicator/Sleep Quality

fl10243en2302

Sleep Quality in CPAP/APAP.

Therapy links compliance, leakage, AHI and therapeutic success.

Central Sleep Apnea

fl10244en2302

Central Respiratory Events during CPAP/APAP

Therapy: Challenges and therapeutic solutions.

prisma APP

fl10371en2103

Patient Self-Management in PAP Therapy.

The possibilities of mobile apps and the effects on treatment success.



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