

# VS500S

Premature, Neonatal & Pediatric Ventilator

Care the Future  
Carry the Hope



 **heyer**

## Start respiratory care with VS500S

VS500S is a specially designed non-invasive ventilator for premature infant, neonate and pediatric. It provides comprehensive non-invasive ventilation to meet various respiratory management requirements.

### 10.4" highly sensitive capacitive touchscreen

Provides clear vision with comprehensive monitoring data.

Easy to learn, Easy to operate

- User-friendly interface
- No hidden menu
- Immediately access and change ventilation modes and parameters

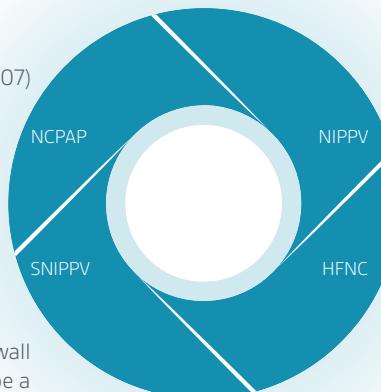




## 4 types of ventilation mode fully cover various clinical needs

**NCPAP** appears to stabilize the chest wall and upper airway and to reduce apneas. Early application of CPAP might also preserve surfactant. [1]

RT staff. (2007)



**SNIPPV** can improve stability of chest wall and pulmonary mechanics. SNIPPV can be a means to wean infants from mechanical ventilation. [3], [4]

Santin et al. (2004)  
Dumpha et al. (2012)

**NIPPV** is associated with a significantly decreased need for intubation including among the extremely preterm infants. [2]

Shi et al. (2020)

**HFNC** is to optimize spontaneous breathing through the reduction of dead space and the creation of positive distending airway pressure. [5]

Farghali, O. G. E. (2017)



- [1] RT Staff. (2007). NCPAP for the Neonate. <https://rtmagazine.com/diseases-diseases/critical-care/ards/ncapap-for-the-neonate/>
- [2] Shi, Y., Muniraman, H., Binwale, M., & Ramanathan, R. (2020). A review on non-invasive respiratory support for management of respiratory distress in extremely preterm infants. *Frontiers in pediatrics*, 8, 270.
- [3] Santin, R., Brodsky, N., & Bhandari, V. (2004). A prospective observational pilot study of synchronized nasal intermittent positive pressure ventilation (SNIPPV) as a primary mode of ventilation in infants $\geq$  28 weeks with respiratory distress syndrome (RDS). *Journal of perinatology*, 24(8), 487-493.
- [4] Dumpha, V., Katz, K., Northrup, V., & Bhandari, V. (2012). SNIPPV vs NIPPV: does synchronization matter? *Journal of Perinatology*, 32(6), 438-442.
- [5] Ola G.E. High-Flow Nasal Cannula in Neonates. *Respiratory Care* May 2017, 62(5) 641-642. <http://rc.rcjournal.com/content/62/5/641>

## Real-time monitoring assures patient safety

With SpO<sub>2</sub> module, VS500S has real-time monitoring including 3 waveforms, SpO<sub>2</sub>/FiO<sub>2</sub>, PI and OSI to give more reference for clinical decision to facilitate early diagnosis of Acute Lung Injury and Acute Respiratory Distress Syndrome.



### • Oxygen Saturation Index- (OSI) A noninvasive Tool for Monitoring Hypoxic Respiratory Failure in Newborns

OSI can be calculated readily and continuously at the bedside, without the need for invasive blood sampling, and may be useful in identifying infants with mild to moderate HRF and evaluating response to some interventions. [6]

Doreswamy et al. (2016)

### • Perfusion index (PI)

Perfusion index (PI) is normally monitored with pulse oximeters. It is a good indicator of the reliability of the pulse oximeter reading, and can be used as a non-invasive tool to predict illness severity and mortality in pediatric ICU and emergency departments. [8], [9]

Bazaraa et al. (2021)

### • SpO<sub>2</sub>/FiO<sub>2</sub>

The SpO<sub>2</sub>/FiO<sub>2</sub> is an independent indicator of ARDS development among patients at risk. [7]

Festic et al. (2015)

### • Waveforms: Pressure-T, Flow-T, SpO<sub>2</sub>-T

Provide real-time information about patient-ventilator interaction and ventilator function. You can observe the change in a patient's condition from breath to breath, detect problems related to mechanical ventilation, evaluate the patient's response to interventions, and use this information to adjust therapy as needed. [10]

Lian, J. X. (2009)

According to the neonatal unique breathing pattern, abdominal respiratory sensor was adopted to prevent apnea and start apnea back up ventilation on time.



[6] Doreswamy, S. M., Chakrapani, A. A., & Murthy, P. (2016). Oxygen saturation index, a noninvasive tool for monitoring hypoxic respiratory failure in newborns. *Indian pediatrics*, 53(5), 432-433.

[7] Festic, E., Bansal, V., Kor, D. J., Cajic, O., & US Critical Illness and Injury Trials Group: Lung Injury Prevention Study Investigators (USCITI-LIPS). (2015). SpO<sub>2</sub>/FiO<sub>2</sub> ratio on hospital admission is an indicator of early acute respiratory distress syndrome development among patients at risk. *Journal of critical care*, 30(2), 205-210.

[8] <https://www.amperidirect.com/pchelp/pulse-oximeter/2-what-is-pi.html>

[9] Bazaraa, H., Roby, S., Salah, E., & Algebaly, H. (2021). Assessment of tissue perfusion using the peripheral perfusion index and lactate clearance in shock in pediatric patients. *Shock*, 56(6), 933-938.

[10] Lian, J. X. (2009). Understanding ventilator waveforms—and how to use them in patient care. *Nursing2020 Critical Care*, 4(1), 43-55.

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