RESPIRATORY
Continuous Positive Airway Pressure

Boussignac CPAP
Just breathe

Digitally signed by Grabazei Alexandru
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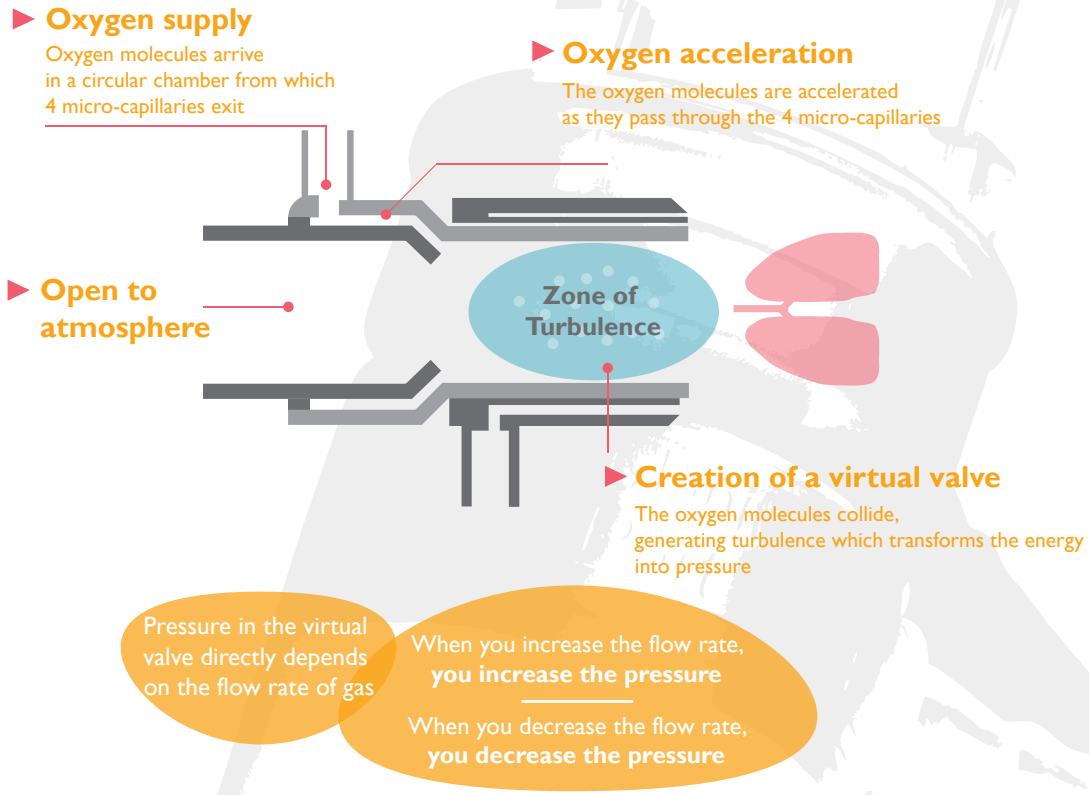
VYGON
Value Life

What is **Boussignac** CPAP ?

Boussignac CPAP is a Non Invasive Ventilation (NIV) device generating Continuous Positive Airway Pressure (CPAP).



How does **Boussignac** CPAP work?

- The operating principle of **Boussignac** CPAP is simple as it is based on the creation of a virtual valve.
- The pressure level obtained at this virtual valve depends on the gas flow rate supplied to the device. When you increase the flow rate, you increase the pressure. When you decrease the flow rate, you decrease the pressure.
- **Boussignac** CPAP is an open system and works without a mechanical valve. Thus, it adapts continuously to the medical treatment and to the patient's physiology, with optimum safety concerning the pressures generated.

What are the indications for **Boussignac** CPAP ?

• Pre-hospital & and Intra-Hospital Emergency Department Treatment

Main indication:

- Acute Cardiogenic Pulmonary Edema (ACPE): **(6)** Willem Dieperink et al - BMC Cardiovascular Disorders 2007
  - Application of CPAP: 7.5 to 10 cmH_2O

Other clinical indications:

- Conscious drowned person: **(7)** Dottorini M, et al - Chest. 1996
- Acute severe asthma: Boussignac CPAP can be used in conjunction with nebulization: **(9)** Laurent Brochard et al - Respiratory Care. Oct. 2011 **(10)** Service d'Aide Médicale d'Urgence (SAMU) de Lille: Protocole d'utilisation de la CPAP de Boussignac avec nébuliseur. 14 mars 2007

Proven benefits of **Boussignac** CPAP

- High FiO2
- Rapid hypoxia correction with an increase of SpO_2
- Rapid correction of ACPE's clinical signs
- Patient's tolerance to an open system

• Intra-hospital treatment

Operating room

- Bariatric surgery, cardiac surgery, thoraco-abdominal surgery: **(12)**Wong D., et al - 2011. Can J Anesth
- Preoperative: pre-oxygenation : **(11)**Delay J.M., Jaber S. - Presse médicale 2012
- Extubation with positive pressure
- Postoperative: immediately after extubation: **(13)**Neligan P., et al. - 2009. Anesthesiology

Intensive care unit and resuscitation

- Post-resuscitation: stabilization and weaning after extubation: **(14)**Dieperink W, et al. - 2008. Respiration

  Fiberoptic bronchoscopy in hypoxemic patients: **(16)** Jaber S., et al - Am J Resp Crit Care Med Vol.162, 2000

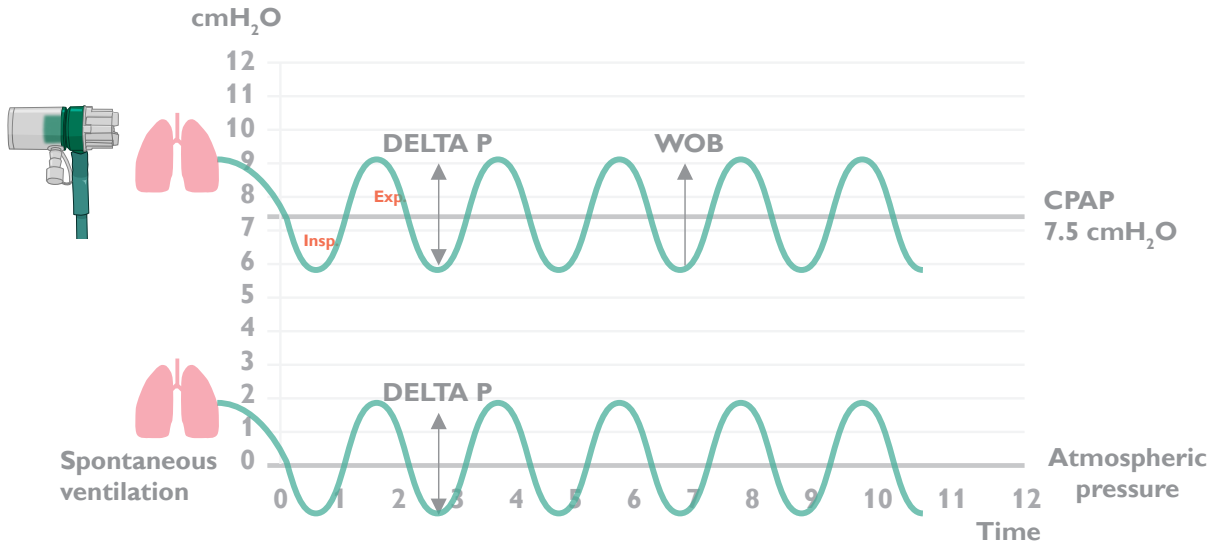
Paediatrics

- Infant bronchiolitis: **(17)** Fleming P.F., et al. - 2012. J Paediatr Child Health

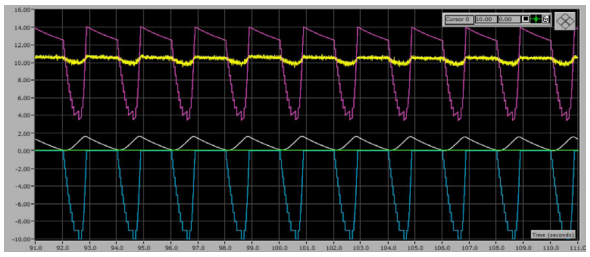
Proven benefits of **Boussignac** CPAP

- Alveolar recruitment
- Prevention of atelectasis
- Improved lung volume
- Reduced risk of reintubation
- Decreased length of in-patient hospital stay
- Proven decreased rate of ventilator associated pneumonia and duration of oxygen requirement without prolonging the hospital stay

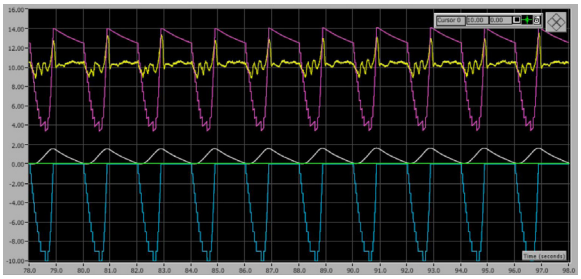
What are the features of a good CPAP device?



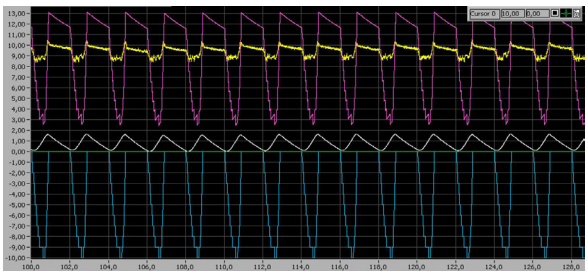
- **The Work-of-Breathing (WOB) needs to be reduced for the patient: Boussignac CPAP decreases the WOB**
  The WOB is the expenditure of energy required to inspire air in the lungs.
  The Delta P is the difference between inspiratory pressure and expiratory pressure.



Boussignac CPAP



Competitor A



Competitor B

Expiratory work - Pressure (Tracheal) [cmH_2O]
CPAP level - Pressure (Airway) [cmH_2O]
Inspiratory work - Pressure (Oesophagus) [cmH_2O]

(1) Valero P., Khoury A., et al. Poster. SRLF-2013

- **According to the above schematics, Boussignac CPAP was reported to have the same performances as complex capital equipment respiratory devices and has the advantage of having a stable CPAP level.**

Boussignac CPAP is…

Safe

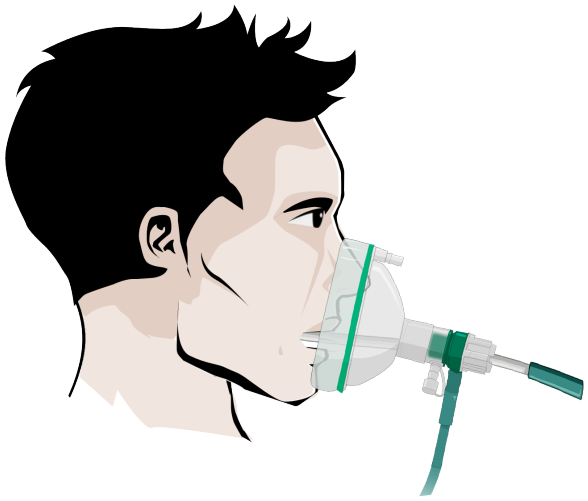
- **Open System:** if necessary the patient can breathe atmospheric air and thus constantly breathe the required volume of gas
- Spontaneous ventilation is possible even if the gas flow stops
- **No mechanical parts**
- Precise control of pressures generated with specific manometer
- **No risk of barotrauma / volotrauma:** the pressure in the lungs cannot be superior to the one in the CPAP valve thanks to open system
- **No risk of hypoventilation**

Easy to use

- Light
- User-friendly
- **Mucus suctioning is possible without interruption of the treatment**
- Possibility to connect a nebulizer
- Regulation of FiO_2 with an attachable ring

Effective

- **Decreases the WOB**
- Flow rate of gas available for inspiration is **280 to 320 l/min**
- The difference between inspiratory pressure and expiratory pressure (Delta P) is only **1.5 +/- 0.2 cmH_2O** (8)
- Regulation of inspired FiO2



Boussignac CPAP Features:

- Pressure variation in the airways during respiratory cycle is near 1 cmH_2O, irrespective of the CPAP level access chosen
- Airways remain accessible for any other medical intervention (aspiration, bronchoscopy…etc)
- CPAP level is not altered and medical interventions can be applied without any disruption of the treatment
- Peak flow rate is high, thus reducing the WOB
- In practice: clinical signs of hypoxia are rapidly reduced and O_2 saturation increases rapidly

Boussignac CPAP
What are the features and benefits?

No risk of misconnection

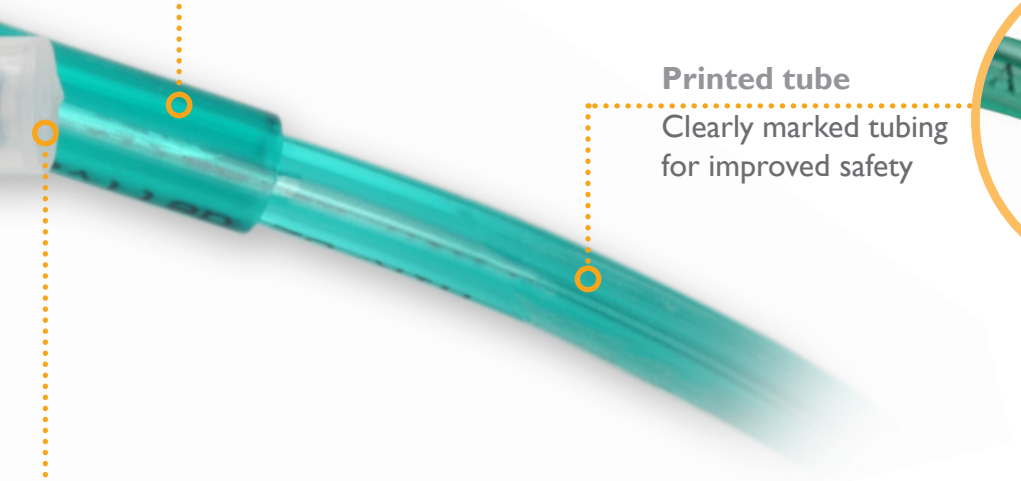
Supplementary port
Allows pressure measurement, $EtCO_2$ monitoring or additional oxygen or air delivery

FiO_2 ring

Nebulizer

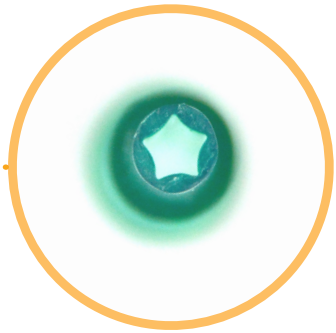
Boussignac CPAP and Nebulization
A specific nebulizer fitted with a separate oxygen extension tube, allows an optimum flow rate (6l/min) for drug particles between 2 to 4 µm ensuring a perfect broncho-alveolar spread.

Integral O_2 tube
With international colour coding for O_2 delivery



Printed tube
Clearly marked tubing for improved safety

Special « star » shaped O_2 tube
Reduces the risk of tube kinking and the associated cessation of gas delivery



Noise reducer

This device reduces the noise by 6 decibels. With the noise reducer Boussignac CPAP now reaches a level of approximatively 69 decibels (=to shower running 70 dcbls). This accessory is optimum for intra-hospital use.

Product range and ordering information

Boussignac CPAP	
CPAP & manometer connector	**code 5570.13**

Single use accessories	
Manometer connector	**code 5558.053 / 5558.203**
E.T.Tube connector	**code 555.01**
vy**connector** (Y connector)	**code 884.06**
Nebulizer	**code 5569.01**
FiO_2 ring (angle)	**code 5566.01**
FiO_2 ring (straight)	**code 5566.02**
Noise Reduction Device	**code 5558.91**

Mask and Harness	
Mask (size 4) ≈ S	**code 5557.45**
Mask (size 5) ≈ M	**code 5557.55**
Mask (size 6) ≈ L	**code 5557.65**
Silicone fixation harness	**code 5559.01**
Fabric fixation harness	**code 5559.03**

Reusable accessories	
O_2 Flowmeter (Afnor connection)	**code 5563.02**
O_2 Flowmeter (BSI connection)	**code 5563.41**
O_2 Flowmeter (DIN connection)	**code 5563.42**
O_2 Flowmeter (Nordic connection)	**code 5563.44**
Manometer	**code 527.01**
Air flowmeter (Afnor connection)	**code 5563.01**
Air flowmeter (BSI connection)	**code 5563.31**
Air flowmeter (DIN connection)	**code 5563.32**
Air flowmeter (Nordic connection)	**code 5563.34**

Emergency CPAP kit contents	
2 x CPAP & 2 x Manometer connector	code 5570.13
1 Mask (size 4) ≈ S	code 5557.45
1 Mask (size 5) ≈ M	code 5557.55
1 Mask (size 6) ≈ L	code 5567.65
1 Harness	code 5559.01
1 O_2 Flowmeter	
1 Manometer	code 527.01
1 x 20ml syringe	
1 nebulizer	code 5569.01
1 FiO_2 ring	code 5566.01

Emergency CPAP kit code
code 5562.802 (with Afnor flowmeter)
code 5562.841 (with BSI flowmeter)
code 5562.842 (with DIN flowmeter)
code 5562.700 (without flowmeter)

CPAP set with **nebulizer**	1 CPAP 1 mask 1 manometer connector 1 nebulizer + T piece	**code 5571.303/403/503/603 (scented mask)** **code 5571.300/400/500/600 (odourless mask)**
	1 CPAP 1 mask 1 manometer connector 1 nebulizer + T piece 1 harness	**code 5572.303/403/503/603**
	1 CPAP 1 nebulizer + T piece	**code 5577.013**

CPAP set without **nebulizer**	1 CPAP 1 mask 1 manometer connector	**code 5561.303/403/503/603**
	1 CPAP 1 Silicone harness 1 mask 1 manometer connector	**code 5562.303/403/503/603**

References

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(5) Leman P., et al. Simple lightweight disposable continuous positive airways pressure mask to effectively treat acute pulmonary edema. Emerg Med Australia 17 (3): 224-230.
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Notes

ANAESTHESIA EMERGENCY

For further information, please contact: questions@vygon.com

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