

# Boaray 600 Anesthesia Machine



## Features

- ◆ CE marked.
- ◆ 15 inch colored LCD, touch screen setting, big font display, free changeable angles of views.
- ◆ Various ventilation modes - VCV, PCV, SIMV+VCV, SIMV+PCV, PSV.
- ◆ Comprehensive parameters monitoring & graphs displaying.
- ◆ Closed-loop controlling system, dynamic compensation, real-time adjustment of ventilation parameters.
- ◆ Integrated breathing absorber leads to compact structure, easy installation and saves space.
- ◆ Imported key components are stable and reliable.
- ◆ AGSS active system (Optional).
- ◆ Imported vaporizer from PENLON to ensure the accuracy of anesthetic concentration. (Optional)
- ◆ Powerful extended function with optional CO<sub>2</sub>&SpO<sub>2</sub> & Anesthetic Agent monitoring and anesthesia information management system. (Optional)

## Physical specifications

Package Dimensions	
Volume:	1570×880×1000 mm <sup>3</sup> (H×W×D)
Gross Weight::	143 Kg
Net Weight:	103 Kg

  

Top shelf	
Area:	570×360 mm <sup>2</sup> (L×W)
Weight limit:	Approximately 34 Kg(75 lb)

  

Work surface	
Area:	555×310 mm <sup>2</sup> (L×W)

  

Drawers(2 standard)	
Volume:	150×300×350 mm <sup>3</sup> (H×W×D)

  

Casters	
Diameter:	Φ 125 mm
Brakes:	Single foot lever locks and unlocks two front casters

  

Material	
The framework is made of metal and ABS, wherein the metal is galvanized A3, and it passes the 48h salt spray test.	

## Electrical specifications

Power supply	
Power input:	100 to 240 VAC, 50/60 Hz, 10A(Max.)
Power cord:	3 m, 1 mm <sup>2</sup>
Fuse:	T10AL/250V
Standard:	SFDA, EN.

  

Accessory power supply	
Amount:	Three.
Power output:	100 to 240 VAC, 50/60 Hz, 2A×3
Fuse:	T2AL/250V
Standard:	SFDA, EN.

**Batteries**

Type:	Ni-MH
Amount:	Two pieces of batteries.
Power supply time:	Approximately 120 minutes.
Charging time:	Approximately 10 hours.

**Communication port**

VGA, RS232, RJ45, PS2.

## Pneumatic specifications

**Gas supply**

Pipeline:	O <sub>2</sub> , N <sub>2</sub> O and Air
Cylinder(optional):	O <sub>2</sub> and/or N <sub>2</sub> O
Drive gas:	O <sub>2</sub>
Pressure:	280 to 600 kPa
Gauges:	Totally 5, 3 for pipeline of O <sub>2</sub> , N <sub>2</sub> O and Air, 2 for cylinder of O <sub>2</sub> and N <sub>2</sub> O.

**Flowmeters**

Type:	O <sub>2</sub> , N <sub>2</sub> O and Air, mechanical flowmeters, two tubes of every gas supply.
Hypoxic guard system:	Provide a nominal minimum 25% concentration of oxygen in O <sub>2</sub> /N <sub>2</sub> O mixture(Mechanical Link-25).

**Absorber**

Volume:	385×502×335 mm <sup>3</sup> (H×W×D)
Net Weight:	Approximately 6 Kg
Bellows Volume:	1500 mL(adult)
APL Valve:	2 to 70 cmH <sub>2</sub> O
Gauge:	Pneumatic gauge measures breathing circuit pressure with range of -20 to 100cmH <sub>2</sub> O.
Absorber canister:	Single, approximately 1.5 L(1.35 Kg).
Bag/Vent switch:	Turns the ventilator on or off.
ACGO connector:	22mm

## Anesthesia ventilator specifications

**Ventilator screen**

**Ventilator screen**

Size:	15 inch(120×90 mm), glare free colored LCD.
Resolution:	1024×768

**Ventilation operating modes**

VCV, PCV, SIMV+VCV, SIMV+PCV, Manual, Standby.

**Ventilator Parameter**

Tidal volume range:	20 to 1500 mL
Tidal volume increments settings:	20 to 100 mL (increments of 5 mL) 100 to 300 mL (increments of 10 mL) 300 to 1000 mL (increments of 20 mL) 1000 to 1500 mL (increments of 50 mL)
Frequency range:	1 to 100 bpm (increments of 1 bpm)
Inspiratory time range:	0.1 to 10 s (increments of 0.1 s)
Inspiratory/expiratory ratio range:	4:1 to 1:10 (increments of 0.5)
Inspiratory hold percent range:	OFF, 5% to 50% (increments of 5%)
Inspiratory pressure range:	5 to 70 cmH <sub>2</sub> O (increments of 1 cmH <sub>2</sub> O)
Pressure support range:	5 to 60 cmH <sub>2</sub> O (increments of 1 cmH <sub>2</sub> O)
Flow trigger range:	1 to 15 L/min (increments of 1 L/min)

**Positive End Expiratory Pressure(PEEP)**

Type:	Integrated, electronically controlled.
Controlled range:	OFF, 4 to 30 cmH <sub>2</sub> O (increments of 1 cmH <sub>2</sub> O)
Monitoring range:	0 to 70 cmH <sub>2</sub> O

**Ventilator monitoring**

Inspiratory tidal volume range:	0 to 2500 mL
Expiratory tidal volume range:	0 to 2500 mL
Minute volume range:	0 to 60 L
Spontaneous Minute volume range:	0 to 60 L
Frequency range:	0 to 100 bpm
Spontaneous frequency range:	0 to 99 bpm
Inspiratory/expiratory ratio range:	4:1 to 1:10
Peak pressure range:	0 to 100 cmH <sub>2</sub> O
Mean pressure range:	0 to 100 cmH <sub>2</sub> O
Inspiratory plat pressure range:	0 to 100 cmH <sub>2</sub> O
Minimum pressure range:	0 to 100 cmH <sub>2</sub> O

**Ventilator monitoring**

Inspiratory O <sub>2</sub> % range:	21% to 100%
Compliance range:	0 to 200 mL/cmH <sub>2</sub> O
Resistance range:	0 to 200 cmH <sub>2</sub> O/(L/S)

**Alarm settings**

Tidal volume range:	High: 30 to 1500 mL, OFF Low: 20 to 1500 mL
Minute volume range:	High: 1 to 40 L, OFF Low: 0 to 40 L
Frequency range:	High: 1 to 100 bpm Low: 0 to 99 bpm
Inspiratory O <sub>2</sub> % range:	High: 21% to 100% Low: OFF, 21% to 99%
Airway pressure range:	High: 1 to 100 cmH <sub>2</sub> O Low: 0 to 99 cmH <sub>2</sub> O
High continuous airway pressure:	Alarm when airway pressure exceeds (PEEP+15) cmH <sub>2</sub> O for 15 seconds.
Negative pressure:	Alarm when airway pressure exceeds -10 cmH <sub>2</sub> O.
Apnea:	Alarm when no breath within 10 to 40 seconds(adjustable) in SIMV mode.
O <sub>2</sub> failure:	Alarm when supply pressure of O <sub>2</sub> is less than 280 kPa.
Main failure:	Alarm when main power fails.
Low Battery:	Alarm when battery can be used for approximately 10 minutes.
No battery capacity:	Alarm when battery can be used for approximately 3 minutes.
Alarm mute:	Less than 100 seconds.

**Graph**

Waveforms:	Pressure-time, Flow-time, Volume-time optional: SpO <sub>2</sub> -time, EtCO <sub>2</sub> -time
Loops:	Pressure-Volume, Flow-Volume, Flow-Pressure optional: Volume-EtCO <sub>2</sub>
Tendency chart:	P <sub>peak</sub> -time, f-time, FiO <sub>2</sub> -time, MV-time, PEEP-time, V <sub>TE</sub> -time

**SpO<sub>2</sub> monitoring (optional & no CE marking)**

SpO<sub>2</sub> module includes sensor and adult probe for monitoring SpO<sub>2</sub> of patient and triggering alarm when measured values exceed the preset alarm values.

SpO <sub>2</sub> monitoring range:	0 to 100%
PR monitoring range:	30 to 250 bpm

**SpO<sub>2</sub> monitoring (optional & no CE marking)**

SpO <sub>2</sub> alarm range:	70% to 99%
-------------------------------	------------

**Gas Module (optional)**

PHASEIN mainstream CO<sub>2</sub> module monitors the concentration of CO<sub>2</sub> in inspiratory and expiratory phases.

PHASEIN Mainstream gas module, for five kinds of anesthetic agent, CO<sub>2</sub> and N<sub>2</sub>O. PHASEIN

**Anesthesia Information Management System(AIMS) (optional & no CE marking)**

ADVANTECH Panel PC with 17 inch LCD touch screen records the information of patient, displays the main physiological parameters and trendline of them during real-time monitoring and records operations such as event and medicine during anesthetic process.

## AGSS active system

**AGSS active system(optional)**

AGSS active system reduces exhausted gas pollution to the operation room and ensures the safety of patients as well as medical personnel.

## Vaporizers

**Vaporizers(optional)**

Imported vaporizers with original packing from PENLON to ensure the accuracy of anesthetic concentration.

Anesthetic agent:	Enflurane, Pour Fill or Key Fil.
	Isoflurane, Pour Fill or Key Fil.
	Sevoflurane, Pour Fill, Quick Fil or Key Fil.

## Accessories

**Useful time of accessories**

O <sub>2</sub> sensor:	1 year
Patient circuit:	silicon, normal use for approximately six months
Batteries:	normal use for approximately 3 years

## Environmental specifications

**Operation system**

Temperature:	10°C to 40°C
--------------	--------------

**Shenzhen PROBE Science & Technology Co., Ltd.**

Add.: Probe Building, No.37 Yanshan Road, Shekou, Nanshan, Shenzhen, P.R. China.

Tel.: +86 755 26899781

Fax: +86 755 26899789

E-mail: export@probemedical.com

Website: www.probemedical.com

---

**Operation system**

Humidity:	less than 80%, non-condensing
Altitude:	70 kPa to 106 kPa

**Storage system**

Temperature:	-20°C to 55°C
Humidity:	less than 93%, non-condensing
Altitude:	50 kPa to 106 kPa