

prunus

# Boaray700 anesthesia machine

## Technical sheets



prunus



## Technical specifications

| Physical specifications   |   |
|---|---|
| <b>Dimensions and weight</b>  |   |
| Dimensions (HxWxD)  | 1450mmx1000mmx1330mm  |
| Weight  | 108 kg (Without vaporizer and cylinder)   |
| <b>top shelf</b>  |   |
| Weight Limit  | 34kg  |
| Width X Depth   | 578x360mm   |
| <b>work surface</b>   |   |
| Dimensions (HxWxD)  | 827x557x311mm   |
| <b>Drawer ( Internal Dimension)</b>   |   |
| Dimensions (HxWxD)  | 150x298x348mm   |
| Amount  | Standard 2  |
| <b>Wheels</b>   |   |
| Diameter  | 125mm   |
| Brakes  | All four wheels with brakes   |
| Ventilation Specifications  |   |
| <b>Ventilation modes</b>  |   |
| Ventilation modes   | Manual/Spontaneous Ventilation/Bypass/Standby<br>Ventilation Volume Control (VCV) with PLV function<br>Pressure Control Ventilation (PCV)<br>Synchronized Intermittent Mandatory ventilation: SIMV(V)+PS ,<br>SIMV(P)+PS<br>Pressure Support Ventilation (PSV) with apnea support |
| <b>Compensation</b>   |   |
| Compensation for gas leaks in the circuit and automatic compliance compensation |   |
| <b>Ventilation Parameter Range</b>  |   |
| Patient Type  | Adult, Pediatric, Infant  |
| Tidal Volume  | Pediatric/Infant: 10~300ml<br>Adult: 100~1500ml<br>(5mL increments)   |
| p <sub>insp</sub>   | 5 ~ 70 cmH <sub>2</sub> O (1 cmH <sub>2</sub> O increments )  |
| p <sub>limit</sub>  | 5 ~ 100 cmH <sub>2</sub> O (1 cmH <sub>2</sub> O increments )   |
| f(Ratio)  | f in SIMV mode: 1 ~ 40 bpm<br>Other modes: 4 ~ 100 bpm<br>(1 bpm increments)  |
| I:E   | 4:1 ~ 1:10 (0.5 increments)   |
| T <sub>pause</sub>  | OFF, 5% ~ 50% (5% increments)   |
| T <sub>you</sub>  | 0.1 ~ 10s (0.1s increments)   |
| flow trigger  | 1 ~ 15 L/min (1 L/min increment)  |
| support   | 5 ~ 60 cmH <sub>2</sub> O (1 cmH <sub>2</sub> O increments )  |



| Positive End Expiratory Pressure(PEEP)                                    |   |                  |
|---|---|------------------|
| Guy   | Integrated, electronically controlled   |                  |
| PEEP  | OFF, 4 ~ 30 cmH2O (1 cmH2O increments)  |                  |
| fan performance   |   |                  |
| driving pressure  | 280kPa to 600kPa  |                  |
| Max gas flow 120L/min + fresh gas flow                                    |   |                  |
| monitoring parameters   |   |                  |
| Volume Minute   | 0~60L/min   |                  |
| Tidal Volume  | 0~2500ml  |                  |
| Inspired oxygen (FiO2)  | 21%~100%  |                  |
| Peak airway pressure resp.  | 0~100cmH2O  |                  |
| average pressure  | 0~100cmH2O  |                  |
| plateau pressure  | 0~100cmH2O  |                  |
| I:E   | 4:1~1:10  |                  |
| Ratio   | 0 ~100bpm   |                  |
| spontaneous rate  | 0~99bpm   |                  |
| PEEP  | 0~70cmH2O   |                  |
| Stamina(R)  | 0~200cmH2O /(L/s)   |                  |
| Compliance(C)   | 0~200ml/cmH2O   |                  |
| control precision   |   |                  |
| delivery scope  | <100ml: ±20ml<br>≥100 mL: ±20 mL or ±15% of set value ±2.0cmH2O or ±10% of , whoever is older |                  |
| delivery pressure   | set value, whichever is greater   |                  |
| PEEP delivery   | ±2.0cmH2O or ±10% of set value, whichever is greater  |                  |
| flow trigger  | ±1.0 L/min or ±15% of set point, whichever is greater   |                  |
| Monitoring Precision  |   |                  |
| Monitoring Volume   | <100ml: ±20ml<br>≥100ml: ±20ml or ±15% of reading, whichever is greater                       |                  |
| Monitoring Pressure ± 2.0 cmH2O or ± 10% of reading, whichever is greater |   |                  |
| PEEP monitoring ± 2.0 cmH2O or ± 10% of reading, whichever is greater     |   |                  |
| MV Monitoring 1L/min or ±15% of reading, whichever is greater             |   |                  |
| trend chart   |   |                  |
| Continuous trending information for the last 24 hours                     |   |                  |
| alarm logbook   |   |                  |
| Storage of 500 events, first in, first out                                |   |                  |
| alarm settings  |   |                  |
| Tidal Volume  | High  | 20 ~ 1500mL, OFF |
|   | Low   | OFF, 10 ~ 1500mL |
| Volume Minute   | High  | 1 ~ 40L/min, OFF |
|   | Low   | OFF, 0 ~ 40L/min |
| Airway pressure resp.   | High  | 1~100cmH2O       |
|   | Low   | 0~99cmH2O        |



|  |   |          |
|--|---|----------|
| RR   | High  | 1~100BPM |
|  | Low   | 0~99BPM  |
| apnea alarm                                  | 10~40s  |          |
| inspired oxygen                              | Low: 21% ~ 100%<br>High: OFF, 18% ~ 99%   |          |
| Sustained airway pressure alarm              | 15s   |          |
| subatmospheric pressure alarm                | Paw < -10 cmH2O   |          |
| alarm silence                                | 120 to 0 seconds  |          |
| <b>language system</b>                       |   |          |
| Chinese, English, Spanish, Russian, Turkish. |   |          |
| <b>fan components</b>                        |   |          |
| <b>Flow sensor</b>                           |   |          |
| Guy  | Variable Orifice Flow Sensor  |          |
| location                                     | Inspiratory and expiratory port   |          |
| <b>Oxygen sensor</b>                         |   |          |
| Guy  | Galvanic fuel cell  |          |
| FiO2   | 21% to 100%   |          |
| precision                                    | ± (volume fraction of 2.5 % +2.5 % gas level)   |          |
| Response time                                | ≤15 seconds   |          |
| <b>fan screen</b>                            |   |          |
| screen type                                  | ColorTFT touch screen, rotatable  |          |
| Size   | 15 inches   |          |
| pixel format                                 | 1024x768  |          |
| parameters                                   | All alarm parameters (including respiration rate, I/E, VT,MV,PEEP,MEAN,PEAK,PLAT and concentration of O2,EtCO2, N2O, beatician gas concentration) |          |
| waveform                                     | PT, FT, VT, CO2-T   |          |
| Spirometry loops                             | PV, FV and FP   |          |
| timer  | on screen timer   |          |
| <b>communication ports</b>                   |   |          |
| Two RS-232C connectors                       |   |          |
| VGA  |   |          |
| <b>vaporizers</b>                            |   |          |
| Vaporizer                                    | Prunus BR60 Anesthetic Vaporizer<br>Penlon Sigma Delta Anesthetic Vaporizer   |          |
| agents                                       | Halothane, enflurane, isoflurane, sevoflurane   |          |
| Position                                     | Standard 2  |          |
| mounting mode                                | Selectatec®, with interlock function  |          |
| filling method                               | Key fill, Pour fill, Quick fill   |          |



| modules   |   |
|---|---|
| <b>MainStream CO2 Module (Masimo IRMA)</b>                          |   |
| measurement mode  | Mainstream  |
| Displayed numbers EtCO <sub>2</sub> , FiCO <sub>2</sub>             |   |
| Measurement range 0 ~ 99 mmHg                                       |   |
| Accuracy ± (0.3 vol%+ 4% of reading)                                |   |
| Response time <math>\dot{y}</math>1 second                          |   |
| Waveforms/ CO <sub>2</sub> -time loop                               |   |
| alarm limits<br>high EtCO <sub>2</sub>                              | 1~100cmH <sub>2</sub> O   |
| alarm limits<br>low EtCO <sub>2</sub>                               | 0~99cmH <sub>2</sub> O  |
| <b>SideStream CO2 Module (Masimo ISA)</b>                           |   |
| measurement mode  | Sidestream  |
| Displayed numbers EtCO <sub>2</sub> , FiCO <sub>2</sub>             |   |
| Measurement range 0 ~ 99 mmHg                                       |   |
| precision   | 0 to 15 vol%: ±2 (0.2 vol%+2% of reading)<br>15 to 25 vol% :Not specified   |
| Response time <math>\dot{y}</math>3 seconds (with 2m sampling line) |   |
| Waveforms/ CO <sub>2</sub> -time loop                               |   |
| alarm limits<br>high EtCO <sub>2</sub>                              | 1~100cmH <sub>2</sub> O   |
| alarm limits<br>low EtCO <sub>2</sub>                               | 0~99cmH <sub>2</sub> O  |
| <b>Multi-gas Module (Masimo IRMA)</b>                               |   |
| measurement mode  | Mainstream  |
| gas monitor   | Gas monitor CO <sub>2</sub> , N <sub>2</sub> O, Halothane, Enflurane, Isoflurane, Sevoflurane, Desflurane, MAC. <math><20</math> seconds                                  |
| heating time  | (concentrations are reported and automatic agent identification runs in 20 seconds).  |
| precision   | <b>CO<sub>2</sub></b><br>±(0.3 vol%+ 4% of reading)<br><b>N<sub>2</sub>O</b><br>±(2 vol%+ 5% of reading)<br><b>HAL, ENF, ISO, SEV, DES</b><br>±(0.2 vol%+ 10% of reading) |
| <b>SpO<sub>2</sub> module</b>                                       |   |
| Range   | 70%~100%  |
| Resolution  | 1%  |
| precision   | Absolute accuracy ± 2%  |
| PR Rank   | 30<math>\dot{y}</math>250bpm  |
| PR Resolution   | 1bpm  |
| PR precision  | 2bpm  |



| Electric specifications                                 |  |
|---|--|
| <b>Power and battery backup</b>                         |  |
| Power input   | 110 ~ 240 Vac, 50/60 Hz  |
| Electric socket auxiliaries                             | Up to 3 outputs (2 A for each)   |
| Backup battery  | 60 minutes per 1 piece battery (powered by freshly charged batteries with a change temperature of 25°)       |
| Battery Type  | Built-in lithium-ion battery, 11.1 V DC, 7800 mAh  |
| Safety feature  | In case of power and battery failure, it is possible to manual ventilation, the gas supply and the supply of |
| pneumatic specifications                                |  |
| <b>AGCO (Auxiliary Common Gas Outlet)</b>               |  |
| connector   | ISO 22mm OD and 15mm ID  |
| <b>pipe supply</b>                                      |  |
| gas type  | O <sub>2</sub> , N <sub>2</sub> O, Air   |
| Pipe inlet range  | 280 to 600 kPa   |
| NIST pipe connection                                    |  |
| <b>Pipeline Supply Pressure Gauges</b>                  |  |
| Guy   | Mechanic   |
| Range   | 0 to 1MPa  |
| precision   | ± (4% of full scale reading + 8% of full scale reading real)   |
| <b>cylinder supply</b>                                  |  |
| EC yilndro cylinders supply (Americano-British style)   |  |
| O <sub>2</sub> inlet range                              | 400 to 450 MPa   |
| N <sub>2</sub> O inlet range                            | 400 to 450 MPa   |
| Cylinder connections                                    | Pin-Index Security System (PISS)   |
| <b>YOKE O<sub>2</sub>, N<sub>2</sub>O Configuration</b> |  |
| <b>Cylinder Supply Gauges</b>                           |  |
| Guy   | Mechanic   |
| O <sub>2</sub> range                                    | 0 to 25MPa   |
| N <sub>2</sub> O range                                  | 0 to 25MPa   |
| precision   | ± (4% of full scale reading + 8% of realread)  |
| <b>O<sub>2</sub> monitoring</b>                         |  |
| Method  | N <sub>2</sub> O shutdown with O <sub>2</sub> pressure loss  |
| O <sub>2</sub> discharge                                | 25~75L/min   |
| <b>O<sub>2</sub>-N<sub>2</sub>O link system</b>         |  |
| Guy   | Mechanic   |
| Range   | O <sub>2</sub> concentration not less than 21%   |
| <b>Auxiliary O<sub>2</sub> Flowmeter</b>                |  |
| Range   | 0~15L/min  |
| Indicator   | flow tube  |
| <b>electronic flowmeters</b>                            |  |



|   |   |            |
|---|---|------------|
| O2 flow range 0~ 10 L/min                       |   |            |
| Air flow range 0~ 10 L/min                      |   |            |
| N2O flow range 0~ 10 L/min                      |   |            |
| precision                                       | between -10% and +10% of the indicated value (below 20 ° C and 101.3 kPa,<br>for a flow between 10% and 100% of full scale $\pm$ 200 ml /<br>min (for flow below 10% of full scale) |            |
| <b>environmental specifications</b>             |   |            |
| environmental specifications                    |   |            |
| Temperature                                     | Operation   | 10 ~ 40°C  |
|   | Storage and transport   | -20 ~ 55°C |
| Relative humidity(non-<br>condensing)           | Operation   | 80%RH      |
|   | Storage and transport   | 93% RH     |
| Atmospheric pressure                            | Operation   | 70~106kPa  |
|   | Storage and transport   | 50~106kPa  |
| Electromagnetic compatibility                   |   |            |
| Immunity  | Meets all requirements of IEC60601-1-2  |            |
| emissions                                       | Meets all requirements of IEC60601-1-2  |            |
| <b>Respiratory System Specification</b>         |   |            |
| carbon dioxide absorbent container              |   |            |
| Absorbent capacity 1500 mL                      |   |            |
| Breathing Circuit Parameters                    |   |            |
| compliance                                      | 0.87ml /100Pa(bag mode)<br>Automatically compensates for compression losses within the breathing<br>circuit in mechanical mode  |            |
| Expiratory resistance < 0.6 kPa @30 L/min       |   |            |
| Inspiratory resistance < 0.6 kPa @30 L/min      |   |            |
| system pressure gauge                           |   |            |
| Range   | -20~100cmH2O  |            |
| precision                                       | $\pm$ (2% of full scale reading + 5% of true reading)   |            |
| ports and connectors                            |   |            |
| exhalation, inhalation, 22mm<br>manual bag port | OD /15mm ID conical   |            |
| Integrated Adjustable                           | Pressure relief valve (APL)   |            |
| Range   | 2 ~ 70cmH2O   |            |
| Touch knob indication above 30 cm H2O           |   |            |
| precision                                       | $\pm$ 1.0 cm H2O or $\pm$ 1.5 % of the set value, whichever is greater  |            |
| <b>Anesthetic Gas Capture System (AGSS)</b>     |   |            |
| Size (HxWxD)                                    | 480 x 134 x 95mm  |            |
| Type of system<br>deletion                      | Low Flow Active AGSS  |            |
| Applicable standard                             | ISO 80601-2-13  |            |
| pumping rate                                    | 40~50L/min  |            |



|                              |            |
|------------------------------|------------|
| system connector<br>deletion | ISO 9170-2 |
|------------------------------|------------|

