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Boaray 700D Anesthesia Machine

Technical sheets



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Technical specifications

Physical specifications	
Dimensions and weight	
Dimensions (HxWxD)	1385mmx850mmx633mm
Weight	85 kg (without vaporizer and cylinder)
top shelf	
Weight Limit	34kg
Width X Depth	535x382mm
work surface	
Dimensions (HxWxD)	886x360x260mm
Drawer (Internal Dimension)	
Dimensions (HxWxD)	150x338x308mm
Amount	Standard 2
Wheels	
Diameter	125mm
Brakes	Two front wheels with brakes
Ventilation Specifications	
Ventilation modes	
Ventilation modes	Manual/Spontaneous Ventilation/Bypass/Standby Ventilation Volume Control (VCV) with PLV function Pressure Control Ventilation (PCV) Synchronized Intermittent Mandatory ventilation: SIMV(V)+PS, SIMV(P)+PS Pressure Support Ventilation (PSV) with apnea support
Compensation	
Compensation for gas leaks in the circuit and automatic compliance compensation	
Ventilation Parameter Range	
Patient Type	Adult, Pediatric, Infant
Tidal Volume	Pediatric/Infant: 20~300ml Adult: 100~1500ml (5mL increments)
p _{insp}	5 ~ 70 cmH ₂ O (1 cmH ₂ O increments)
p _{limit}	(PEEP+5) ~ 100 cmH ₂ O (1 cmH ₂ O increments)
f(Ratio)	f in SIMV mode: 1~40bpm Other modes: 4~60bpm (1bpm increments)
I:E	3:1 ~ 1:6 (0.5 increments)
T _{pause}	OFF, 5% ~ 50% (5% increments)
T _{you}	0.1 ~ 10.0s (0.1s increments)
flow trigger	1 ~ 15 L/min (1 L/min increments)
support	5 ~ 60 cmH ₂ O (1 cmH ₂ 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		
minute volume	0~60L/min	
Tidal Volume	0~2000ml	
Inspired oxygen (FiO2)	21%~100%	
Peak airway pressure resp.	0~100cmH2O	
average pressure	0~100cmH2O	
plateau pressure	0~100cmH2O	
I:E	3:1~1:6	
Ratio	0 ~100bpm	
spontaneous rate	0~100bpm	
PEEP	0~70cmH2O	
Stamina(R)	0~200cmH2O /(L/s)	
Compliance(C)	0~200ml/cmH2O	
control precision		
delivery scope	$\pm 2.0 \text{ ml}$ or $\pm 1.0\%$ of set value, whichever is older	
delivery pressure	$\pm 2.0 \text{ cm H}_2\text{O}$ or $\pm 1.0\%$ of set value, whichever is older	
PEEP delivery	$\pm 2.0 \text{ cm H}_2\text{O}$ or $\pm 1.0\%$ of set value, whichever is older	
flow trigger	$\pm 1.0 \text{ L/min}$ or $\pm 1.5\%$ of set value, whichever is older	
Monitoring Precision		
Monitoring Volume	$\pm 20 \text{ mL}$ or $\pm 16\%$ of reading, whichever is greater	
Pressure Monitoring	$\pm 2.0 \text{ cmH}_2\text{O}$	
PEEP monitoring	$\pm 2.0 \text{ cmH}_2\text{O}$	
MV monitoring	1L/min or $\pm 15\%$ of reading, whichever is greater	
alarm logbook		
Storage of 500 events, first in, first out		
alarm settings		
Tidal Volume	High	20 ~ 1500 mL, OFF
	Low	OFF, 20 ~ 1500 mL
Volume Minute	High	1 ~ 40 L/min, OFF
	Low	OFF, 0 ~ 40L/min
Airway pressure resp.	High	1~100cmH2O
	Low	0~99cmH2O
RR	High	1~60BPM
	Low	0~60BPM
apnea alarm	10~40s	



inspired oxygen	Low: 21% ~ 100% High: OFF, 18% ~ 99%
Sustained airway pressure alarm	15s
subatmospheric pressure alarm	Paw < -10 cmH2O
silence of alarm	120 to 0 seconds
language system	
Chinese, English, Spanish, Russian, Turkish.	
fan components	
Flow sensor	
Guy	Variable Orifice Flow Sensor
location	Inspiratory and expiratory port
Oxygen sensor	
Guy	Galvanic fuel cell
FiO2	21% to 100%
precision	± (volume fraction of 2.5 % +2.5 % gas level)
Response time	≤15 seconds
fan screen	
screen type	ColorTFT touch screen, integrated
Size	10.1 inches
pixel format	800x600
parameters	All alarm parameters (including Respiration Rate , I / Eratio, TV, MV, PEEP, MEAN, PEAK, PLAT, and concentration of O2, EtCO2, N2O, aesthetic gas concentration)
waveform	PT, FT, VT, CO2-T
Spirometry loops	PV, FV and FP
timer	on screen timer
communication ports	
An RS-232 connector	
vaporizers	
Vaporizer	Prunus BR60 Anesthetic Vaporizer Penlon Sigma Delta Anesthetic Vaporizer
agents	Halothane, enflurane, isoflurane, sevoflurane
Position	Standard1, Optional2
mounting mode	Selectatec®, with interlock function
filling method	Key fill, Pour fill, Quick fill
modules	
MainStream CO2 Module (Masimo IRMA)	
measurement mode	Mainstream



Displayed numbers EtCO ₂ , FiCO ₂	
Measurement range 0 ~ 99 mmHg	
precision	± (0.3 vol%+ 4% of reading)
Waveforms/ CO ₂ -time loop	
alt alarm limits of EtCO ₂	1~100cmH ₂ O
alarm limits low EtCO ₂	0~99cmH ₂ O
Multi-gas Module (Masimo IRMA)	
measurement mode	Mainstream
gas monitor	Gas monitor CO ₂ , N ₂ O, Halothane, Enflurane, Isoflurane, Sevoflurane, Desflurane, MAC. <20 seconds
heating time	(concentrations and identification are reported automatic agent runs in 20 seconds).
precision	<p>CO₂</p> <p>±(0.3 vol%+ 4% of reading)</p> <p>N₂O</p> <p>±(2 vol%+ 5% of reading)</p> <p>HAL, ENF, ISO, SEV, DES</p> <p>±(0.2 vol%+ 10% of reading)</p>
Electric specifications	
Power and battery backup	
Power input 110 ~ 240 Vac, 50/60 Hz	
Electric socket auxiliaries	Up to 3 outputs (1.5 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, DC 11.1V, 7800 mAh
security feature	^{AND} In case of power and battery failure, it is possible to ventilate manual ation, gas supply and gas supply.
pneumatic specifications	
ACGO (Auxiliary common gas outlet)	
connector	ISO 22mm OD and 15mm ID
pipe supply	
gas type	O ₂ , N ₂ O, Air
Pipe inlet range 280 to 600 kPa	
NIST pipe connection	
Pipeline Supply Pressure Gauges	
Guy	Mechanic
Range	0 to 1MPa
precision	±(4% of full scale reading+8% of true reading)
cylinder supply	



EC yilindro cylinders supply (Americano-British style)		
O2 inlet range 400 to 450 MPa		
N2O inlet range 400 to 450 MPa		
Cylinder connections Pin-Index Security System (PISS)		
YOKE O2, N2O setup		
Cylinder Supply Gauges		
Guy	Mechanic	
O2 range	0 to 25MPa	
N2O range	0 to 25MPa	
precision	±(4% of full scale reading+8% of true reading)	
O2 monitoring		
Method	N2O shutdown with O2 pressure loss	
O2 discharge	25~75L/min	
O2-N2O link system		
Guy	Mechanic	
Range	O2 concentration not less than 21%	
Auxiliary O2 Flowmeter		
Range	0~15L/min	
Indicator	flow tube	
electronic flowmeters		
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, for flow between 10% and 100% of full scale)	
environmental specifications		
environmental specifications		
Temperature	Operation	10 ~ 40°C
	Storage and transport	-20 ~ 55°C
Relative humidity(without condensation)	Operation	15 ~ 95% RH
	Storage and transport	10 ~ 95% 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	
Respiratory System Specification		
carbon dioxide absorbent container		
Absorbent capacity	1500 mL	
Breathing Circuit Parameters		
compliance	0.87ml /100Pa(bag mode) Automatically compensates for compression losses within of the breathing circuit in mechanical mode	



Expiratory resistance < 0.6 kPa @30 L/min	
Inspiratory resistance < 0.6 kPa @30 L/min	
system pressure gauge	
Range	-20~100cmH ₂ O
precision	±(2% of full scale reading+ 5% of true reading)
ports and connectors	
Exhalation, inhalation, manual bag port	22mm OD /15mm ID conical
Integrated Adjustable	Pressure relief valve (APL)
Range	2 ~ 70cmH ₂ O
Touch knob indication above 30cmH ₂ O	
precision	± 1.0 cm H ₂ O or ± 1.5 % of the set value , which is greater
Anesthetic Gas Capture System (AGSS)	
Size (HxWxD))	480 x 134 x 95mm
Type of system deletion	Low Flow Active AGSS
Applicable standard	ISO 80601-2-13
pumping rate	40~50L/min
system connector deletion	ISO 9170-2

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