

ASTRA 3i Anaesthesia Machine

Technical Specification

- Anaesthesia machine with integrated 10.4" ventilator TFT full colour touch screen – optional 15" screen
- 3 lockable drawers
- Adult, pediatric and neonate modes
- Three gases (O2/N2O/Air)
- European label colour coding – optional USA available
- One or two station Selectatec® vaporizer backbar
- Upto four cylinder yokes – Pin Index
- Non Interchangeable pipeline inlets (NIST connections) – DISS available on request
- Pipeline & cylinder gauges for O2, N2O & Air
- Oxygen flush located next to the common gas outlet (CGO)
- Lockable front castors
- Absorber mounting arm – when absorber fitted
- Hoses for O2, N2O and Air outlets with NIST fittings – DISS available on request
- 4 power socket outlets – twin fused 3 pin UK specification with mains isolator – optional US, IEC and European sockets available
- Top shelf. Maximum loading: 35 kg with even distribution
- Work surface with 3 drawer unit and retractable writing table
- Maximum drawer loading: 35 Kg / drawer
- Vertical GCX compatible mounting system
- Oxygen monitor – optional (when supplied without integrated Cygnus ventilator)
- Oxygen sensor type – MOX 3 – paramagnetic available with Draeger patient airway gas analyzer
- Flowmeter backlight – electro luminescent - optional
- MRI compatible version available
- Draeger side stream patient gas analyzer with or without paramagnetic oxygen analyser, automatic anaesthetic gas identification, CO2 and N2O - optional

Machine Construction Specification

- Aluminium extruded anodized uprights with GCX compatible mounting system
- Flame retardant polyurethane molded components
- Anaesthetic resistant epoxy powder coated aluminum panels
- Height – 130 cm
- Width – 72 cm / 100 cm with screen / 102 cm with absorber
- Depth – 66 cm
- Monitor shelf – 66 cm x 35 cm. Maximum load 35 kg evenly distributed
- Work surface – 60 cm x 30 cm
- Writing table 35 cm x 30 cm. Maximum load 10 kg evenly distributed
- Drawers – 48 cm x 32 cm. Maximum load 35 kg evenly distributed
- Weight – approximately 110 kg – dependent on specification
- 12.5 cm castors - lockable front castors

Pneumatic Specification

- Common gas outlet ISO 22mm male taper and 15mm female
- Pipeline input pressure :
 - o O2 : 300 – 450 kPa NIST
 - o N2O : 300 – 450 kPa NIST
 - o Air : 300 – 450 kPa NIST
- Pin Index cylinder yokes : up to four for E size Pin Index cylinders
- Oxygen failure device: Nitrous Oxide cuts out with low oxygen pressure
- Oxygen failure alarm with reservoir - whistle sounds prior to Nitrous Oxide cut off

- Pipeline gauges
 - o O2 : 0 – 1000 kPa
 - o N2O : 0 – 1000 kPa
 - o Air : 0 – 1000 kPa
- Cylinder contents gauges
 - o O2 : 0 – 20000 kPa
 - o N2O : 0 – 20000 kPa
 - o Air : 0 – 20000 kPa
- Oxygen high pressure Mini Schrader outlet
- Air high pressure Mini Schrader outlet – optional

Flowmeter Specification

- Optional electronic TFT colour touch screen digital flowmeter readout (EFM – Electronic Flow Monitor)
- On / off switch mounted below flowmeter bank - shrouded knob
- Diameter and shape indexed flowmeter control knobs
- Secondary regulators for flow meter bank
- Six tubes cascade flowmeter with three gas machine (O2 x2, N2O x2, Air x2) – 4 tubes cascade flowmeter with two gas machine (O2/N2O or O2/Air)
- Mechanical anti hypoxic device
- Gear driver with minimum 25% Oxygen concentration
- Oxygen flow range (dual tube)
 - o 0 – 1000 ml
 - o 1- 10 Litre
- Nitrous Oxide flow range (dual tube)
 - o 0 -1000 ml
 - o 1-10 Litre
- Air flow range (dual tube)
 - o 0 – 1000 ml
 - o 1 - 10 Litre

Vertical Tee Slot Mounting System GCX compatible Specification

- Vertical mounting system
- Height adjustment 22 cm to 127 cm
- Maximum loading 30 Kg

HYDRA CO2 (Carbon Dioxide) Absorber Specification

- Absorber on / off switch
- Ventilator / bag switch
- Ventilator connector with 22mm male taper and 15 mm female taper
- Swivel bag arm with 22mm male taper and 15 mm female taper
- Adjustable pressure limit valve – APL – 60 cm H2O max
- Fresh gas inlet 0.8 M hose with 22 mm female taper
- 30 mm exhaust connector
- Fresh gas inlet hose – with 22 mm female taper connector and o seal for easy sealing
- Patient circuit pressure gauge with sampling on inspiratory limb - range (-) 20 to (+) 100 cm H2O
- Inspiratory and expiratory connectors 22mm male taper and 15 mm female taper
- Non return valves with stainless steel one way valves with clear screw top covers
- Quick release absorber latches
- Absorbent container – autoclavable
- Canister / absorbent capacity - 1.4 kg / 1600 cc
- Mounting system – 25.4 mm mounting block with clamp screw
- Quick release manometer - range - 20 - 100 cm H2O



CYGNUS Integrated Electronic Multi Mode Ventilator

Cygnus Electronic Ventilator Specification

- Touch screen control with large easy to read 10.4" or optional 15" TFT full colour screen
- Software /electronically controlled using Oxygen as drive gas
- Integrated oxygen monitor with pop up key pad adjustment
- Variable orifice patient proximal spirometry
- Modes - Volume, Pressure, Spontaneous, PSV-Plus, Pressure with Volume Guarantee, SIMV, SMMV and Cardiac Bypass modes
- Electronic PEEP
- Five hours battery backup
- Patient select initial screen
- User selectable patient weight default settings for 3, 10, 25, 50, 70 and 100 Kg
- User savable patient configured setting with custom naming facility – six off settings
- Patient setting confirm button
- User patient settings keys – Oxygen Alarm, Minute Volume, Tidal Volume, Pressure Limit / Target Pressure, PEEP, BPM, I : E Ratio
- Mode settings keys – Volume, Pressure, Spontaneous, PSV – Plus, SIMV, Cardiac Bypass, SMMV, Trigger, Inspiratory Pause, Sigh, Alarm Settings, Calibrate / Screen Setting Adjustment / Clock, Engineer Settings
- Measured Parameters – Oxygen concentration, Expired Tidal Volume, Expired Minute Volume, Peak Pressure, Mean Pressure, PEEP Pressure
- Colour coded waveform
- Digital case timer
- Digital clock
- Start / stop case button
- Gas mixture set button – Oxygen and Air or Oxygen and Nitrous Oxide
- Pop out key pads for all adjustable settings
- Leak and compliance check
- Oxygen fuel cell calibration
- Patient flow sensor calibration
- Internal calibration routine for Service Engineer in the field
- Engineer settings – service pin, language, diagnosis (error log and voltages), service record, calibration, upgrade, features
- Waveforms – pressure / time plus one of the following second waveforms - flow versus time, volume versus time, volume / pressure loop, flow / pressure loop
- Additional CO2 waveform available when Anaesthetic Gas Module fitted
- Autoclavable bellows assembly

Function

| | |
|------------------------|--|
| Tidal volume (Vt) | : 10 to 1500 ml |
| Rate (BPM) | : 4 to 100 bpm |
| I:E Ratio | : 1:05 to 1:60 |
| Pressure limit | : 10 to 70 cm H2O |
| Fresh gas compensation | : Active automatic tidal volume adjustment |
| Pressure control | : 10 to 50 cmH2O |
| Electronic PEEP | : 5 to 20 cmH2O |

Advance Modes

| | |
|-----------------------|---|
| Trigger | : 0.7 to 6.0 L/min (PEEP Referenced) |
| Trigger window | : 60 % of expiratory time |
| Tidal volume (Vt) | : 10 to 1500 ml |
| Inspiratory pause | : 0 to 50% of inspired time |
| Sigh | : 1.5 x tidal volume every 50 / 100 /150 breaths |
| Minute volume (Vm) | : 0.4 to 25 Litre – dependent on user settings |
| Inspiratory time (Ti) | : 0.2 to 6.0 seconds – dependent on user settings |
| Support pressure | : 3 to 20 cmH2O (PEEP referenced) |

Alarms – Automatic

| | |
|--|----------------------------------|
| Low drive gas pressure | : Less than 275 kPa |
| Low tidal volume | : 50% of volume set (Spirometry) |
| Mains failure | : 5 hours battery backup |
| Ventilator inoperable | |
| High airway pressure | |
| Patient disconnect | |
| Low oxygen – 18 % to 50 % | |
| High oxygen – 55 % to 104 % | |
| High airway flow | |
| Low tidal volume | |
| Low minute volume | |
| Power about to fail | |
| Low airway pressure | |
| Battery missing | |
| Oxygen sensor exhausted | |
| Low supply gas pressure | |
| Negative airway pressure | |
| High continuous positive airway pressure | |
| High tidal volume | |
| High minute volume | |
| Apnea | |
| Oxygen sensor disconnected | |
| High drive pressure | |
| Very low battery | |
| Drive valve leaking | |

Alarms – User Set

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|---------------------------|
| High airway pressure |
| Low oxygen concentration |
| High Oxygen concentration |
| Alarm mute - 120 seconds |
| Apnea Alarm time |

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