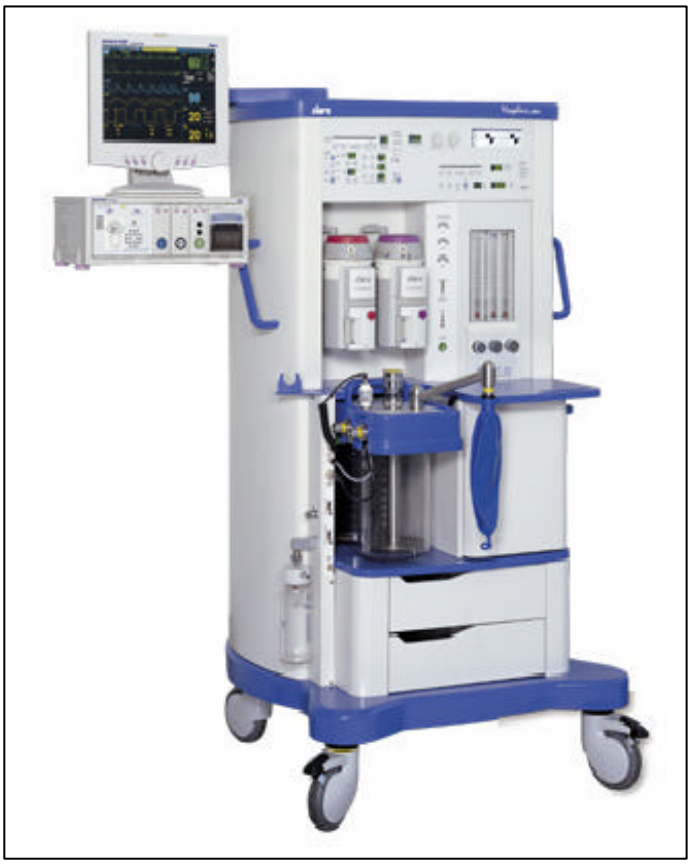
ANAESTHESIA WORKSTATION

Description :

MORPEUS Anaesthesia workstation



The Morpheus is a workstation for gaseous anaesthesia. It can be used on adult, paediatric and neonatal patients.

The construction materials are the most innovative and suitable for use in hospital environment, and they allow to have a light and ergonomic system and easy to clean. The electronic control guarantees technologically advanced lung ventilation and it is able to meet the needs of the different application fields for which the systems was designed.

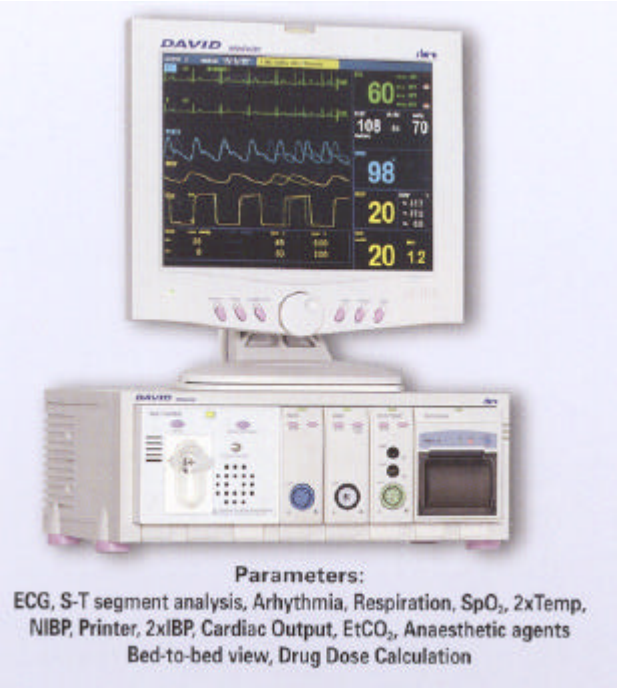
The Morpheus is designed for administering: O2, Air, N2O, Halothane, Enflurane, Isoflurane, Sevoflurane, Desflurane, Halocarbon

The machine is equipped with an automatic system which verifies, at each start-up, all important safety parameters for approx.5 minutes (AUTO-TEST). Specially, the flows, the pressures and all electronic hardware and software are verified, as well as the automatic O2 probe calibration with the consequent automatic identification of an eventual gas inversion. In order to use the machine in emergency case the above mentioned AUTO-TEST can be interrupted at anytime.

The unit Morpheus is completed with:
- Mechanic gas mixing device O2/N2O/AIR;
- Electronic ventilator
- Breathing monitoring system
- Heated closed/open valves group w/2.5 Kg. CO2 absorber;
- Double interlock/selectatec support for 2 vaporizers;
- Adultes silicone patient circuit for aut/man ventilation;
- User's manual.

Optionals:
Vital Signs Monitoring

The Morpheus can be combined with various monitoring systems from the David range



Parameters:
ECG, S-T segment analysis, Arhythmia, Respiration, SpO_2, 2xTemp, NIBP, Printer, 2xIBP, Cardiac Output, $EtCO_2$, Anaesthetic agents
Bed-to-bed view, Drug Dose Calculation

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TECHNICAL DATA SHEET

Material	light aluminiumalloy, varnished steel and plastic moulds,.
Wheels	N. 4 - Antistatic - Diameter 125 mm - The two front ones with pedal brakes.
Work shelf	Dimensions 32x27x81 (LxDxH) cm
Shelves	N. 1 Dimensions 60x35 - (LxD) cm Max load capacity 30 Kg
Drawer	N. 2 Inner dimensions: 38x34x10 (LxDxH) cm
Cylinder support	N. 3 Vertical cylinders support - On the back side - For up to 7 lt. capacity cylinders.
Dimensions	80x65x144 (LxDxH) cm (with monitor support arm)
Weight	90 kg
Environmental Conditions	Temperature from 10 to 40°C - Relative humidity from 10 to 90% non-condensing

Mechanic gas mixing device

General description	It has the function to regulate the capacity and the concentration of gas mixture (Air, O_2, N_2O), as well as to deliver it to the anaesthetic gas vaporizer. It allows to select the mixture to be delivered (Air-O_2, or N_2O-O_2) and the O2 enrichment to the delivered mixture in emergency situations. It includes a device which guarantees a minimum concentration of 25% oxygen in all gas erogating conditions (MIX-LIFE device). Through the three pressure gauges on the front panel it allows the continuous control of medical gas feeding pressure coming from the gas pipelines system.
Oxygen rotameter	Scale 0.2 - 12 l/min. Resolution: 0.1 l/min up to 1 l/min and 0.5 l/min up to 12 l/min Accuracy:± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Nitrous oxyde rotameter	Scale 0.2 - 12 l/min. Resolution: 0.1 l/min up to1 l/min and 0.5 l/min up to 12 l/min Accuracy:± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Air rotameter	Scale 0.2 - 12 l/min. Resolution: 0.1 l/min up to 1 l/min and 0.5 l/min up to 12 l/min Accuracy:± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Medical gas supply	**OXYGEN:** Pressure at 3.5 bar +/- 0.75 - Max required flow 90 l/min. **NITROUS OXYDE:** Pressure at 3.5 bar +/- 0.75 - Max required flow 15 l/min. **MEDICAL COMPRESSED AIR:** Pressure at 3.5 bar +/- 0.75 - Max required flow 90 l/min
Control gauges	N. 3 - Scale 0 - 10 bar (O_2-N_2O-ARIA) - On the front panel
Vaporizer connection	Double vaporizer connection Selectatec type, with system which avoid the contemporary opening of the 2 vaporizers.

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Safety devices	**AGAINST THE ADMINISTRATION OF HYPOXIC MIXTURES** MIX-LIFE: Guarantees a minimum concentration of 25% oxygen on mixtures that include nitrous oxide (N2O) **IN CASE OF LACK OR LOW OXYGEN PRESSURE** CUT-OFF: Audible alarm with immediate cut-off of nitrous oxide delivery. **AGAINST HIGH PRESSURE IN SUPPLY** Safety valve calibrated at 0.8 bar for the protection of the glass rotameters **IN CASE OF LACK OR LOW COMPRESSED AIR PRESSURE** All the devices supplied with compressed air are automatically supplied by oxygen (except the flowmeter) **AGAINST THE CONTEMPORANEOUS DELIVERY OF AIR AND N20** Selecting valve on the front panel.
Deviator with double outlet	Device to deviate fresh gas addressing them to the anaesthesia unit valves group or to a To-and-Fro patient circuit for manual ventilation
Auxiliary gas outlets (3.5 bar +/- 0.75)	. 1 emergency oxygen . 1 air compressed/oxygen for lung ventilator . 1 air compressed/oxygen for active gas scavenger (if present) . 1 air compressed/oxygen for tracheal aspirator (if present)
O2 emergency By-Pass	By push button. On the front panel. Mas flow 90l/min.
Fresh gas outlets	N. 1 - Automatic connection for the Breathing System N. 1 - On the front panel for the To-and-Fro system selectable by dedicated lever on the front panel

Breathing System

General description	Compact system with automatic connections, easy dismountable and autoclavable
Functionality	It allows the ventilation in modality: **real open circuit, semi-closed circuit, closed circuit.** The system also allows the spontaneous and manual ventilation also in case of machine breakdown or machine off. The CO2 absorber canister has a rapid connection and this allows its replacement also during operation. The recycling system is a selective type, hence the soda lime and fresh gases consumption is reduced to the minimum. Reservoir bag orientable support to facilitate the manual ventilation. The circuit is heated to reduce condensation and heat the fresh gases. The switching from one modality to another is completely controlled by ventilator without any user's action on valves group. All group internal connections are stainless steel made. The group is completely autoclavable and does not have disposable parts..

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Lung Ventilator

Type of ventilation	IPPV
Control modality	Electronic by microprocessor The equipment is equipped of an electronic systems which, at every start-up for around 5 minutes, verifies all setted parameters for safety purposes (AUTOMATIC TESTS). In particular it verifies flows, pressures and all the hardware and software electronic parts, automatic compensation of dead space, O2 cell automatic calibration and the leakages test. In order to use the equipment in emergency cases the AUTO-TEST can be interrupted at any time.
Flow generation	Proportional valve
Gas feeding	Medical compressed air or Oxygen at 3.5 bar ± 0.75
Ventilation modes	IPPV+AST / PCV / SPONT-SIMV / MANUAL (performable both by breathing system that with and external manual system for ex. To-and-Fro)
Measured parameters	O_2 concentration / Max and Mean airways pressure/ Flow (from 1 to 100 l/min), tidal volume, minute volume and breathing rate
Breathing rate	From 5 to 70 bpm
I:E Ratio	1:1 - 1:1.5 - 1:2 -1:3 - 1:4 - 2:1 - 3:1. Settable by inspiratory time
Inspiratory time	20 - 25 - 33 - 40 - 50 - 67 - 75% of breathing cycle
Frequency in SIMV	From 0 to 69
Tidal Volume	From 5 to 1500 ml
Minute Volume	From 1 to 30 liters with % INSP. at 33%
PEEP	0-20 cm H_2O
Inspiratory Flow	From 0 to 100 litri/min.
Mixer	From 21 to 100 % O_2
Oxymeter	Built-in with display of O2 concentration. Min. resolution 1% . Automatic calibration procedure.
Bronchomanometer	Electronic with led bar and display from -10 to 80 cm di H_2O
Trigger (sensibility)	Electronically adjustable in continuous way from -9 to +20 cm di H_2O
Alarms	Power failure /Low battery / Gas supply / Wrong O_2 concentration / Low and high airway pressure / Apnoea / Airways pressure limit. During the self-diagnosys the machine signals failures or wrong connections, suggests the exhaust O_2 sensor replacement, and every 1000 hours operation it suggests maintenance service. Apnoea, High and low minute volume, failure
Electric power supply	220 Vac 50-60 Hz (110 Vac optional)
Power consumption	50 W
Battery operation	With internal Pb battery (approx. 2 hours operation)
Safety	Airways pressure electronic and mechanic limit. Self-diagnosys system.
User's interface	LED Display / Led bar bronchomanometer / Other LED indicators / Control buttons and knobs.
Flow Sensor	At magnetic induction on the expiratory side, mass on inspiratory side
Displayed Curves	Pressure and flow curves: on enlightened LCD monitor
External connections	RS232 serial connector. connector for software refreshments

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Standard accessories	- To-and-Fro (Mapleson C) (code 002627EN) - O2 supply tube (code G60005100) - N2O supply tube (code G60006100) - AIR supply tube (code G60007100 - FiO2 cell + cable (code E75000004+E85500999) - Electric supply cable (code G30105100) - Patient circuit (code 102634) - Flow transducer (code G80053000+E85501249)			
Optional Accessories	Articulated arm in light alloy for patient circuit Tracheal aspirator kit with Venturi system Oxygen-therapy kit Lateral arm for monitor support Active gas scavenger Passive gas scavenger Vaporizers (Halothane, Isoflurane, Sevoflurane, Enflurane) RGA Anaesthetic Agents Monitor DAVID Serie Vital Signs Monitor TWINRESP: a second emergency ventilator presetted with fix data to continue the ventilation in the case of failure of the first ventilator. Rate: 12; Tidal Volume: 600ml, I:E Ratio: 1:2, Limit Pressure: 20 cm H2O.			
CEI Classification	Class I Type B			
EEC/93/42 MDD Classification	Class IIB			
Conformity to Norms	**Typology**	**Internationals**	**Nationals**	**Directives**
	Generals	IEC 601-1	CEI 62-5	
	Lung Ventilators	IEC 601-2-12 ISO 5369	CEI 62-20	
	Anaesthesia equipment	IEC 601-2-13 BS 4272 part.3	CEI 62-21	
	Patient monitoring		CEI 62-18	
	Connections	EN 1281-1 ISO 5356		
	Electromedical systems	IEC 601-1-1	CEI 62-51	
	Electromagnetic Compatibility (EMC)	IEC 601-1-2	CEI 62-50	89/336
	Medical Devices			93/42