Dräger

Technical Documentation IPM

Evita 4

Warning

All servicing and/or test procedures on the device require detailed knowledge of this documentation. Use of the device requires detailed knowledge and observance of the relevant Instructions for Use.

Intensive Care Ventilator

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Contents

1 General

This chapter contains general notes and definitions that are important for the use of this documentation.

1.1 General notes

1.1.1 Notes on use

Read through the following notes thoroughly before applying this documentation.

The warnings set out here apply to all parts of this documentation.

Dräger reserves the right to make changes to the device and/or to this documentation without prior notice. This documentation is intended solely as an information resource for maintenance personnel or technical specialists.

1.1.2 Copyright and other protected rights

The content of this documentation, in particular its design, text, software, technical drawings, configurations, graphics, images, data and their selection and its composition and any amendments to it (content) are protected by copyright. The content must not (in whole or in part) be modified, copied, distributed, reproduced, republished, displayed, transmitted or sold without the prior written consent of Dräger.

1.1.3 Definitions

WARNING

An important advisory indicating a potentially hazardous situation which may result in death or serious injury if not prevented.

CAUTION

An important advisory indicating a potentially hazardous situation which may result in minor or moderate injury to the user or patient or in damage to the medical product or other assets if not prevented.

NOTE

A NOTE provides additional information intended to avoid inconvenience during operation and/or servicing.

Term	Definition
Maintenance	Maintaining the operative condition of a medical product by suitable means
Inspection	Assessment of the actual condition of a medical product
Servicing	Maintaining the operative condition of a medical product by recurrent, specified measures
Repair	Restoring the operative condition of a medical product after failure of a device function

1.1.4 General safety precautions

Read through each section thoroughly before beginning servicing.

> **CAUTION**
>
> Incorrect use of tools
> The device's function may be impaired, or the device may be damaged.
> Always use the correct tools and the specified test equipment.

> **WARNING**
>
> **The device must be regularly inspected and serviced by maintenance personnel. Repairs and complex maintenance work on the medical product must be carried out by qualified specialists.**
> **If you require a service contract, or for any necessary repair work, Dräger recommends DrägerService. Dräger recommends using original Dräger parts for servicing.**
> **If the aforementioned instructions and recommendations are ignored, the correct functioning of the medical product may be put at risk. Pay attention to the "Servicing" section of the Instructions for Use.**

> **WARNING**
>
> **Non-conforming test values**
> **If test values do not conform to specifications, the safety of the patient may be put at risk.**
> – **Do not put the device into operation if test values do not conform to specifications.**
> – **Contact your local service organization.**

> **WARNING**
>
> **Impermissible modifications to the device**
> **If impermissible modifications are made to the device, the safety of the patient may be put at risk.**
> **Do not modify the device without Dräger's permission.**

> **WARNING**
>
> **Risk of infection**
> **The unit may transmit pathogens following use on the patient.**
> – **Before carrying out any servicing, ensure that the device and its components have been handed over by the user cleaned and disinfected.**
> – **Service only cleaned and disinfected units and unit components.**

> **WARNING**
>
> **Risk to patient.**
> **Ensure that no patient is connected to the device before starting maintenance or repair work.**

NOTE

Where reference is made to legislation, regulations and standards, in respect of devices used and serviced in Germany they are based on the laws of Germany. Users and technicians in other countries must comply with their national laws and/or international standards.

2 Abbreviations

This section contains a list of the abbreviations used in this document.

2.1 List of abbreviations and glossary of terms

Abbreviation	Term
ATC	Automatic Tube Compensation
BTPS	Measured values referring to conditions of the patient's lung, body temperature 37 °C, water vapour saturated gas, ambient pressure (Body Temperature, Pressure Saturated)
CAN	Fast serial port (Controller Area Network)
COM	Serial port
DUART	Dual Universal Asynchronous Receiver/Transmitter
EGB	Electrostatic sensitive devices
ECG-SYNC	ECG Synchronization
ESD	Electrostatic Sensitive Device
FiO_2	Inspiratory O_2 concentration
HPSV	High Pressure Servo Valve
ILV	Independent Lung Ventilation
NIF	Negative Inspiratory Force
NIV	Application mode for support of non-invasive ventilation therapies
NTPD	Normal Temperature, Pressure Dry
Paw	Airway pressure
PIP	Peak Inspiratory Pressure
RSB	Rapid Shallow Breathing (quotient of spontaneous breathing frequency and breathing volume)
SpO_2	Functional oxygen saturation
VTASB	Tidal volume ASB

3 Function descriptions

This chapter contains descriptions of the device's technical functions.

3.1 General information

The Evita 4/ Evita 4 edition is a time-cycled, constant-volume long-term ventilator for adults and children. The features and ventilation modes depend on the specific device and its optional features; they are described in the Instructions for Use of the specific device.

3.1.1 Evita 4 edition

New design:
- The background foil is gray.
- The alarm silence key is yellow.
- The back of the display housing is blue.

New default option - "SW 4.0 Plus":
- Weaning parameters RSBi, NIF and VT$_{ASB}$.
- Measurement of an external flow source.
- Large loops.

New software version SW 4.20:
- Extended alarm management for battery, flow sensor and MediBus.
- Optimized ATC®, NIV and NeoFlow.

By the integrated "Software 4.0. Plus" option loops can be displayed in full-screen format. A cursor can be used to determine individual values in the loop sequence. This facilitates an accurate examination of the lung mechanics.

Rapid shallow breathing index, negative inspiratory force index and VT$_{ASB}$ contribute to an improved weaning process. Optional features such as ATC®, PPS, NIV and NeoFlow can be added.

Evita 4 edition offers both conventional and non-invasive ventilation. Due to its new type of dynamic leakage compensation, the Evita 4 edition is ready to meet mask ventilation requirements.

3.2 Basic principle

3.2.1 Evita 4

The Evita 4 consists of three components which communicate via a CAN (fast serial interface).
- Control unit (Fig. 1/1)
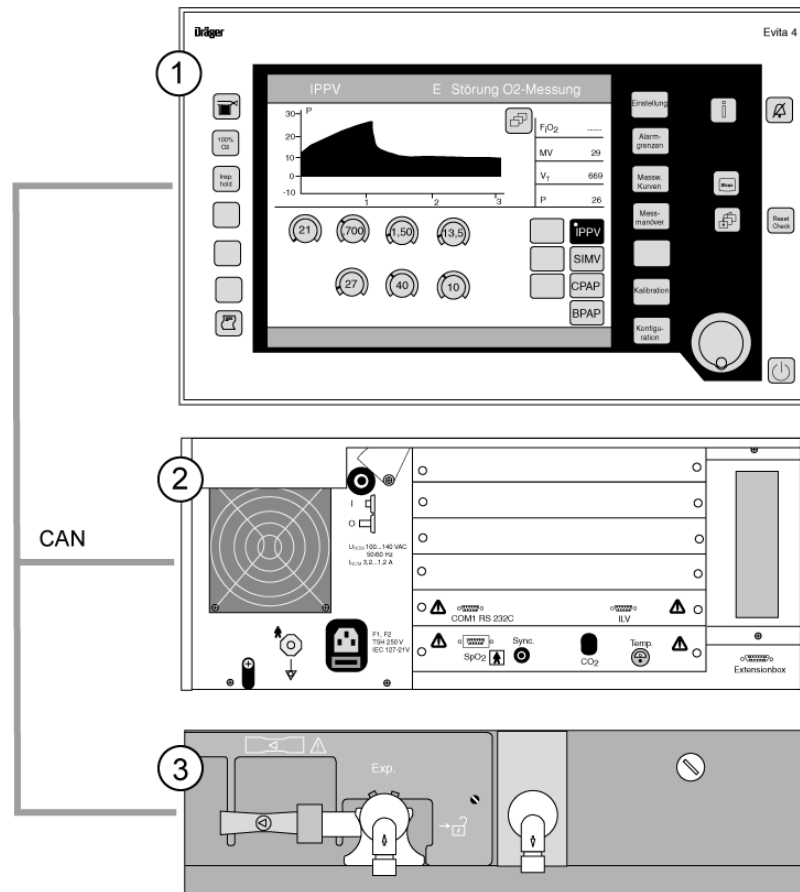- Electronics (Fig. 12)
- Pneumatics (Fig. 1/3)

Fig. 1   Basic components of the Evita 4

3.2.1.1   Control unit

The control unit is the interface between the device and the operator. The control unit serves to make adjustments, to display measured values and to generate alarms. In the control unit the display, keypad, touch-screen and Graphics Controller PCB are accommodated.

3.2.1.2   Electronic assembly

The electronics is the central control unit of the Evita 4. The electronics includes the CPU 68332 PCB, the CO_2 Carrier PCB with the Processor Board PCB and the Power Supply PCB and the power supply unit (Communication PCB, Paediatric Flow PCB, IFCO PCB and the SpO_2 PCB as option).

3.2.1.3   Pneumatic assembly

The pneumatic assembly controls the pneumatic valves following preset ventilation parameters. It includes an independent microprocessor system and the valve control. In the pneumatics the Pneumatics Controller PCB, the HPSV Controller AIR/O_2 PCB, the PEEP valve, the mixer, the pressure connection, the flow sensor and the O_2 sensor are accommodated.

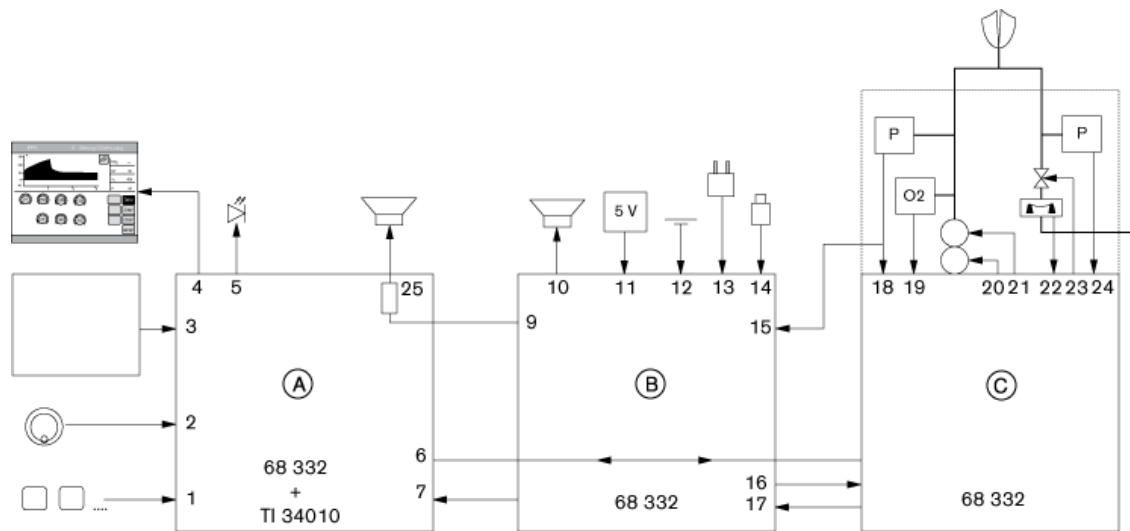### 3.2.2   Simplified block diagram of the Evita 4

Fig. 2   Basic principle of the Evita 4

Item	Designation	Item	Designation
A	Front panel.	12	Battery (Goldcap capacitor).
B	Electronics.	13	Supply voltages.
C	Pneumatics.	14	Power switch.
1	Keys.	15	Second inspiratory Paw sensor.
2	Control knob (press to confirm).	16	Pneumatics processor and venting reset.
3	Touchscreen.	17	Electronic processor reset and second loud-speaker alarm.
4	TFT display 640 x 480.	18	Inspiratory Paw sensor.
5	Information LEDs and Alarm LEDs.	19	O_2 sensor.
6	CAN bus.	20	FiO_2 (HPSV mixer).
7	Graphics processor reset.	21	AIR (HPSV mixer).
8	N/A.	22	Flow sensor.
9	Loudspeaker with sound chip.	23	Expiratory valve with PEEP.
10	Second loudspeaker (piezo).	24	Expiratory Paw sensor.
11	Voltage monitoring (activates reset of the processors and the piezo).	-	

3.3   CPU 68332 PCB

The CPU 68332 PCB is located in the electronic assembly of the Evita 4. The board includes an independent processor system, two external interfaces, three internal interfaces, the loudspeaker control and a serial EEPROM.
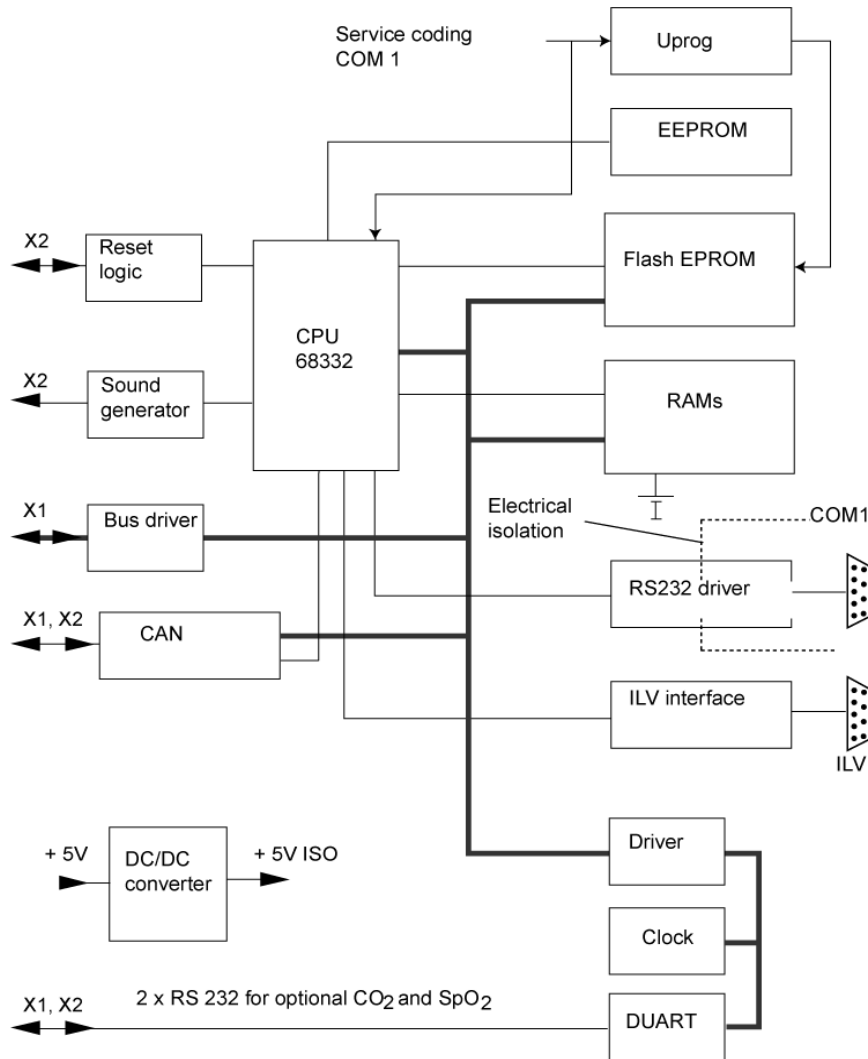
Fig. 3   Block diagram CPU 68332 PCB

3.3.1   EEPROM

The EEPROM is connected to the synchronized, serial interface of the 68332. The EEPROM characterizes the Evita 4 (enabled options, serial number, etc.).

3.3.2   Processor system

The processor system comprises a 68332 CPU, a 512 kByte RAM and a 1 MByte flash EPROM (electrically programmable and erasable read-only memory). The RAM has a battery back-up. When the battery is being replaced a Goldcap capacitor ensures voltage supply of the RAMs.

3.3.3   RS232 interface

The CPU 68332 PCB provides an RS232 interface in the device. The interface is labeled COM1. The interface is electrically isolated from the device. Electrical isolation is made by means of optocouplers.

3.3.4 ILV interface

The ILV interface is required for independent-lung ventilation with units. The ILV interface is not electrically isolated. Pin 3 of the ILV interface is provided with a filler plug. This filler plug prevents confusion with the RS232 interface.

3.3.5 Driver

The driver adjusts the access times between the 68332, the clock and the DUART (Dual Universal Asynchronous Receiver/Transmitter).

3.3.6 Clock

The clock gives the current time. When the device is off, the clock runs on battery back-up.

3.3.7 DUART

The DUART has two serial interfaces and digital inputs and outputs. The serial ports are used to connect the SpO_2 module and the CO_2 module.

3.3.8 DC/DC converter

The DC/DC converter provides the voltage supply (+5 V ISO) required for the interface. The input voltage of the DC/DC converter is +5 V.

3.3.9 CAN

The CAN interface is a fast, serial interface (Controller Area Network). The control unit, the electronics and the pneumatics communicate via a CAN interface. The transmission rate is 800 kbit/s.

3.3.10 Bus driver

The address bus, the data bus and the check-back signals are transferred by the bus driver to the motherboard. The 68332 CPU communicates with the optional PCBs on the motherboard via the bus driver. Currently, it is only the Paediatric Flow PCB (NeoFlow option).

3.3.11 Sound generator

The sound generator controls the loudspeaker in the control unit. The sound generator incorporates the volume control and sound generation for the loudspeaker. The volume is controlled by the DUART.

3.3.12 Reset logic

The CPU 68332 can reset the control unit and the pneumatics. A reset is also triggered if there is an undervoltage or overvoltage of the +5 V voltage. The pneumatics can also reset the CPU 68332 PCB. The reset logic controls and displays the resets.

3.4　CO2 Carrier PCB

The CO_2 Carrier PCB is integrated in the electronic assembly of the device. The PCB includes the mount and the electrical isolation of the CO_2 module and the SpO_2 module, the power failure logic, the temperature measurement and the voltage monitoring.
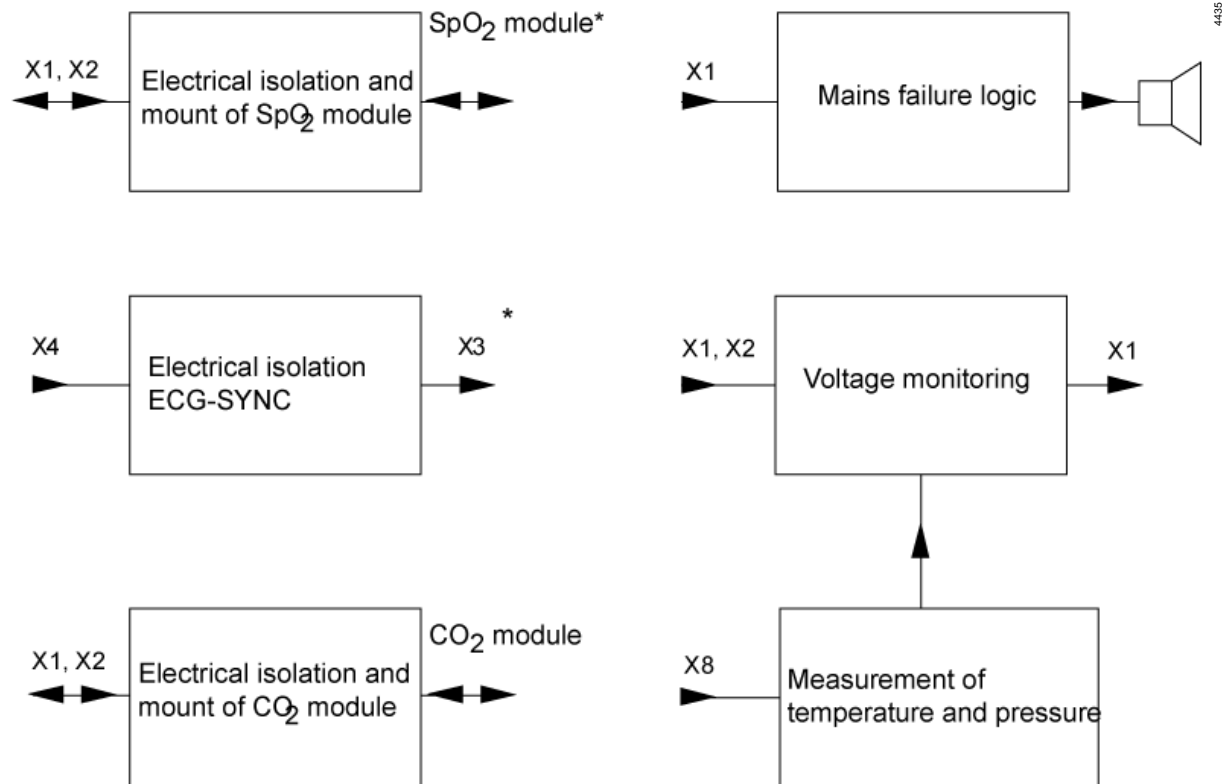
Fig. 4　Block diagram of the CO2 Carrier PCB

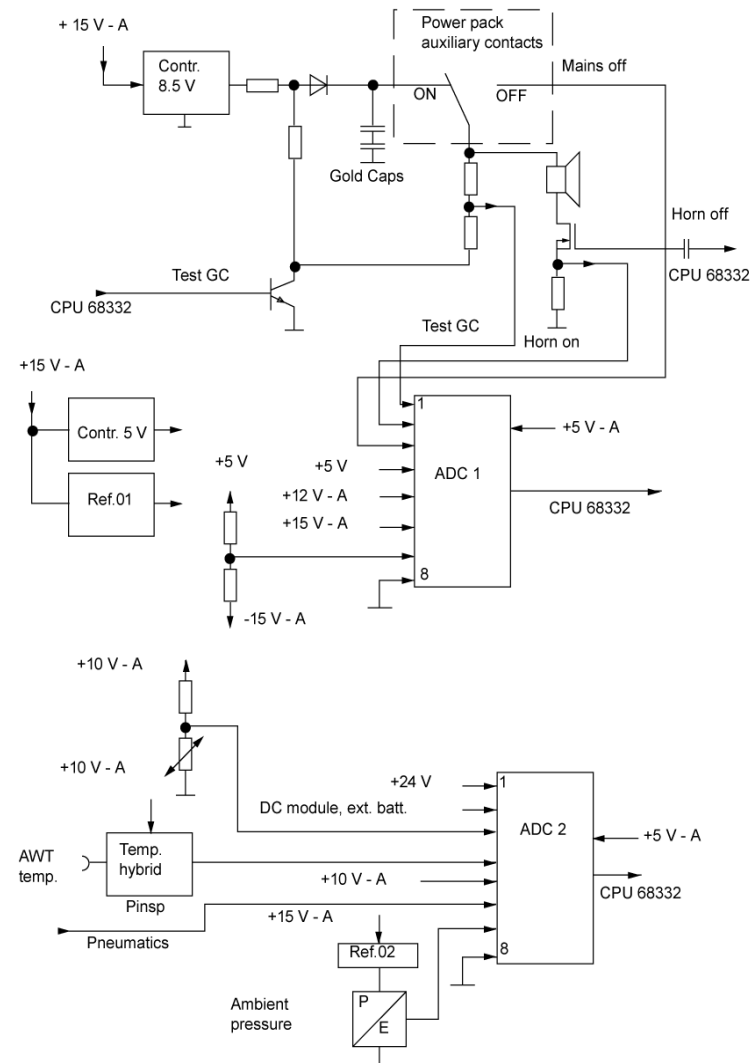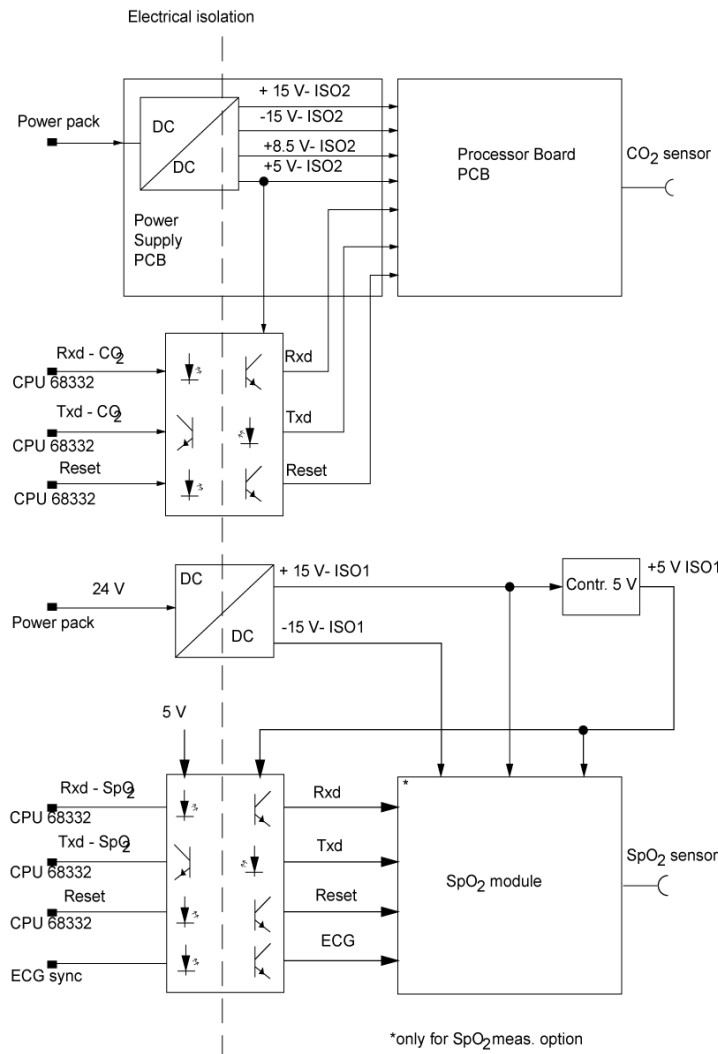Fig. 5 CO_2 Carrier PCB block diagram, (part 1)

Fig. 6   CO2 Carrier PCB block diagram, (part 2)

3.4.1   Electrical isolation

Electrical isolation is made by means of optocouplers. The PCB is coupled with the SpO2 and CO2 modules by plug-in contacts. The **X3** connector is part of the optional SpO2 module and is not fitted.

3.4.2   Power failure logic

The power failure logic monitors the power supply. In the event that a mains voltage failure occurs while the device is operating an audible alarm will sound.

3.4.3   Voltage monitoring

The voltages ±15 V, +10 V, +24 V, +12 V and +5 V are monitored. The relevant voltages are transmitted to a voltage divider and read out by an A/D converter. The A/D converter is read out by the CPU 68332 PCB.

3.4.4 Measurement of temperature and pressure

The temperature is measured by an NTC thermistor detector. The signals are processed in a temperature hybrid. The output signal of the temperature hybrid is transmitted to an A/D converter. The A/D converter is read out by the CPU 68332 PCB.

3.5 CO_2 measurement

The CO_2 measuring system comprises three modules:

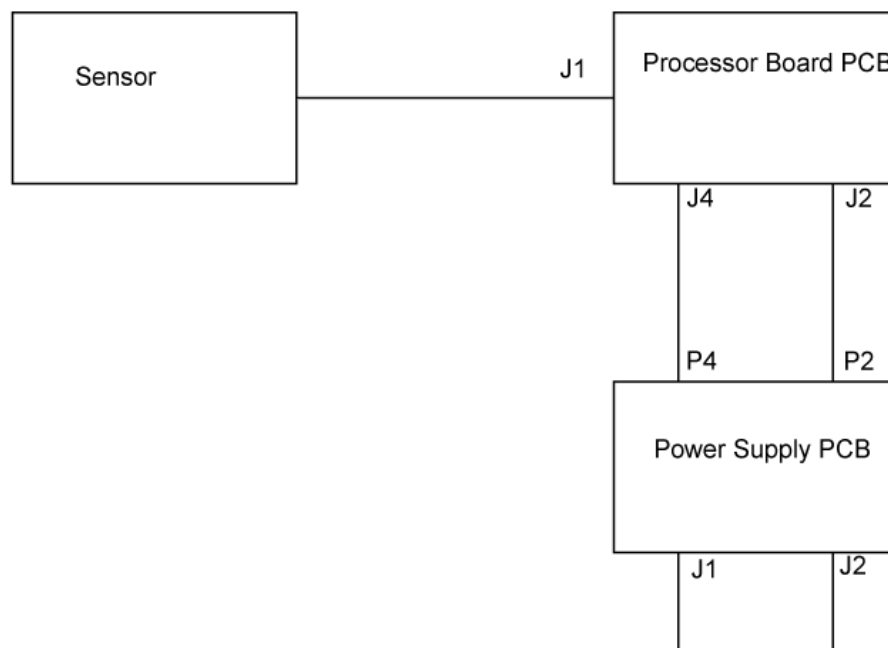– Sensor,
– Processor Board PCB,
– Power Supply PCB.

Fig. 7   Block diagram of the CO_2 measurement

3.5.1 CO_2 sensor

The CO_2 sensor comprises the CO_2 measuring unit and a microprocessor system. A lamp generates a light spectrum up to 4.5 µm. This light spectrum is transmitted via the cuvette and two sapphire lenses to detectors. The detectors emit electrical signals depending on the CO_2 concentration. These signals are analyzed by the microprocessor and transmitted to the Processor Board PCB via an RS232 interface. The CO_2 measuring unit is kept at a constant temperature to avoid condensation.
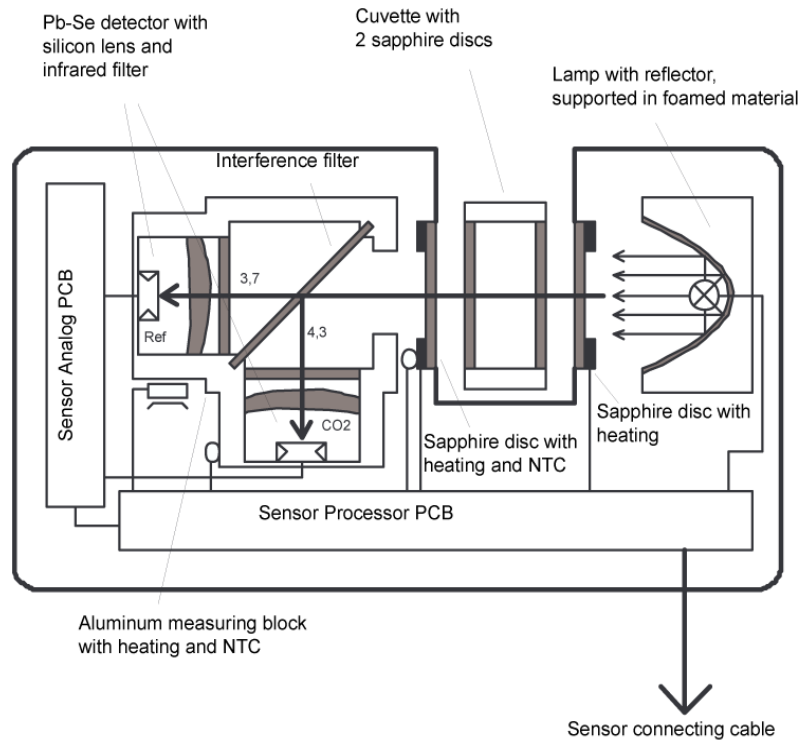
Fig. 8   Sectional view of the CO$_2$ sensor
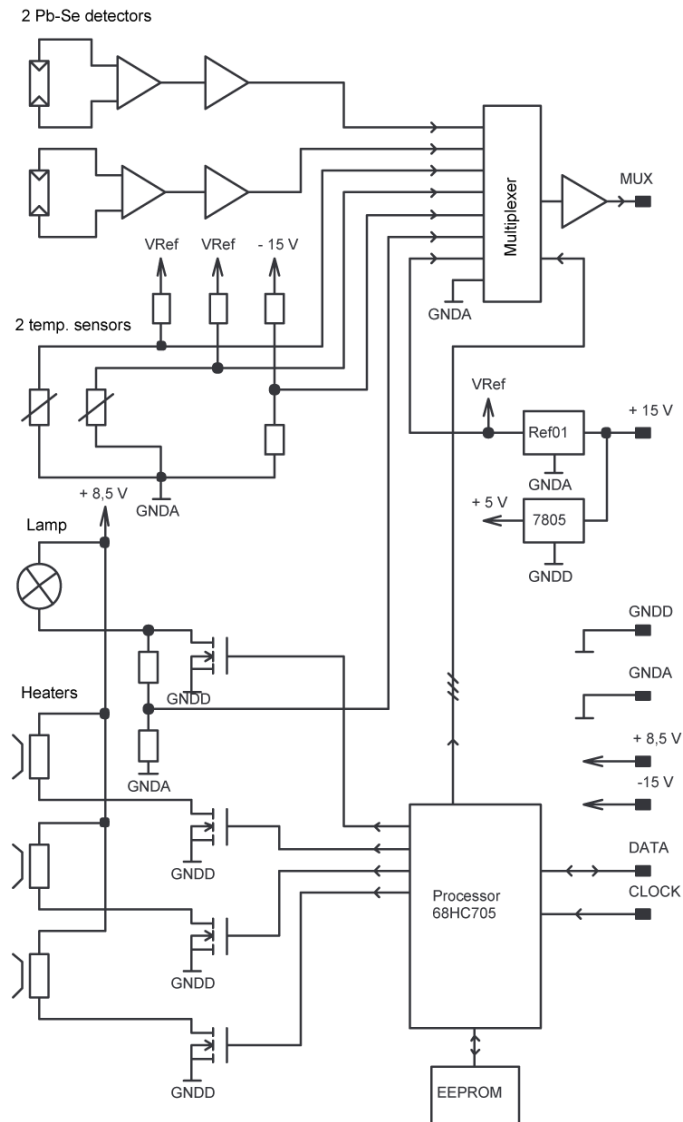
Fig. 9   Block diagram of the CO_2 sensor

3.5.2   Processor Board PCB

The Processor Board PCB controls the heating of the CO_2 measuring unit and the measured-data transfer of the CO_2 sensor.
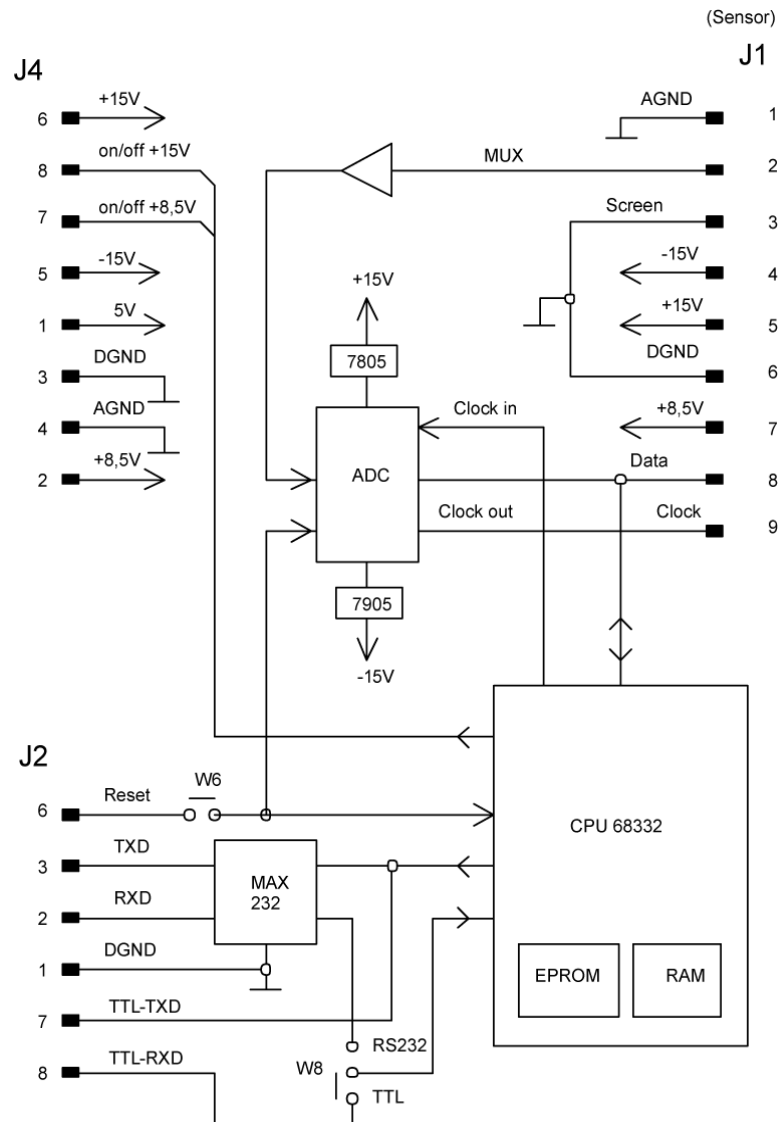
Fig. 10   Processor Board PCB block diagram

3.5.3   Power Supply PCB

The Power Supply PCB provides the supply voltages for the Processor Board PCB and the CO_2 sensor. The supply voltages are electrically isolated from the device. The CO_2 measured values are transmitted to the CPU 68332 PCB via the Power Supply PCB.
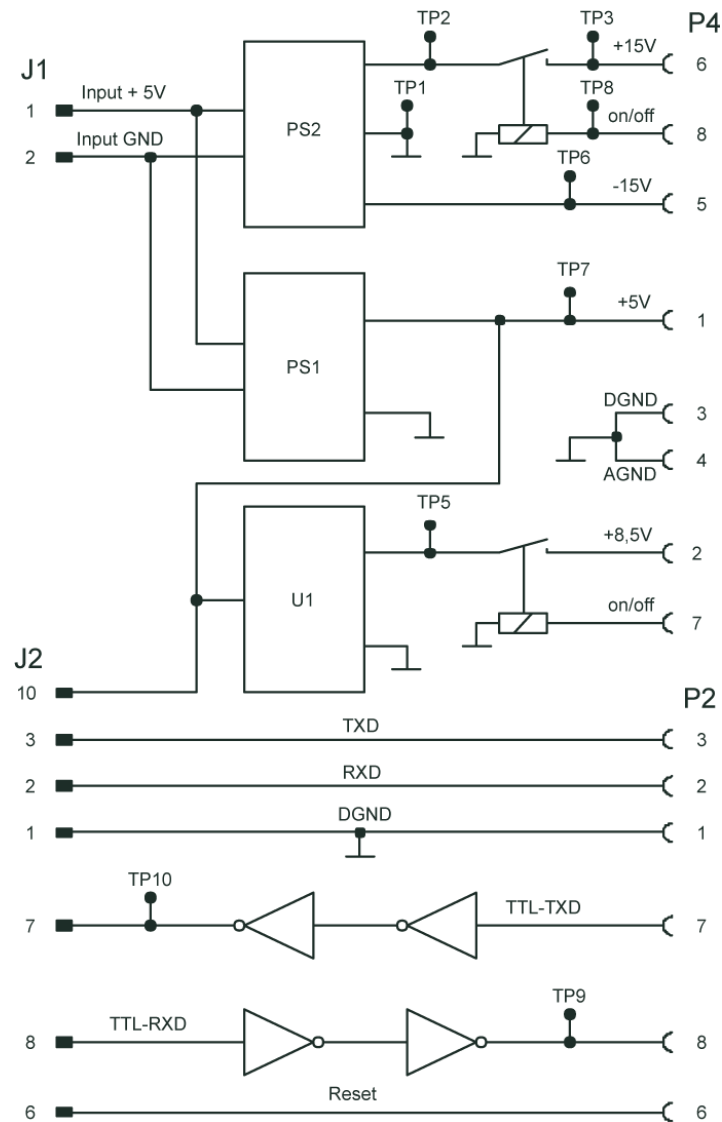
Fig. 11   Power Board block diagram

3.6   Power supply unit

The power supply unit delivers the following output voltages:

- +24 V
- +15 V
- -15 V
- +12 V
- +5 V

The power supply unit is a switched-mode power supply unit. The output voltages are short-circuit-proof. A DC module is optionally available ensuring voltage supply in case of power failure or short duration transport of the device.
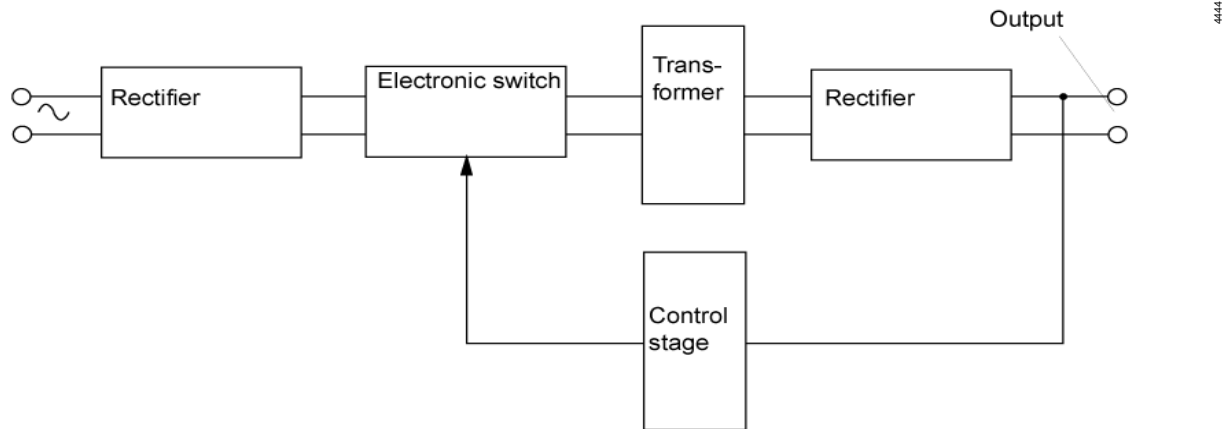
Fig. 12   Functional diagram of a switched-mode power supply unit

3.7   Evita 4 Graphics Controller PCB

The Graphics Controller PCB is located in the Evita 4 control unit. The board includes an independent processor system, the voltage supply of the control unit, the interface to the electronics and the display control.
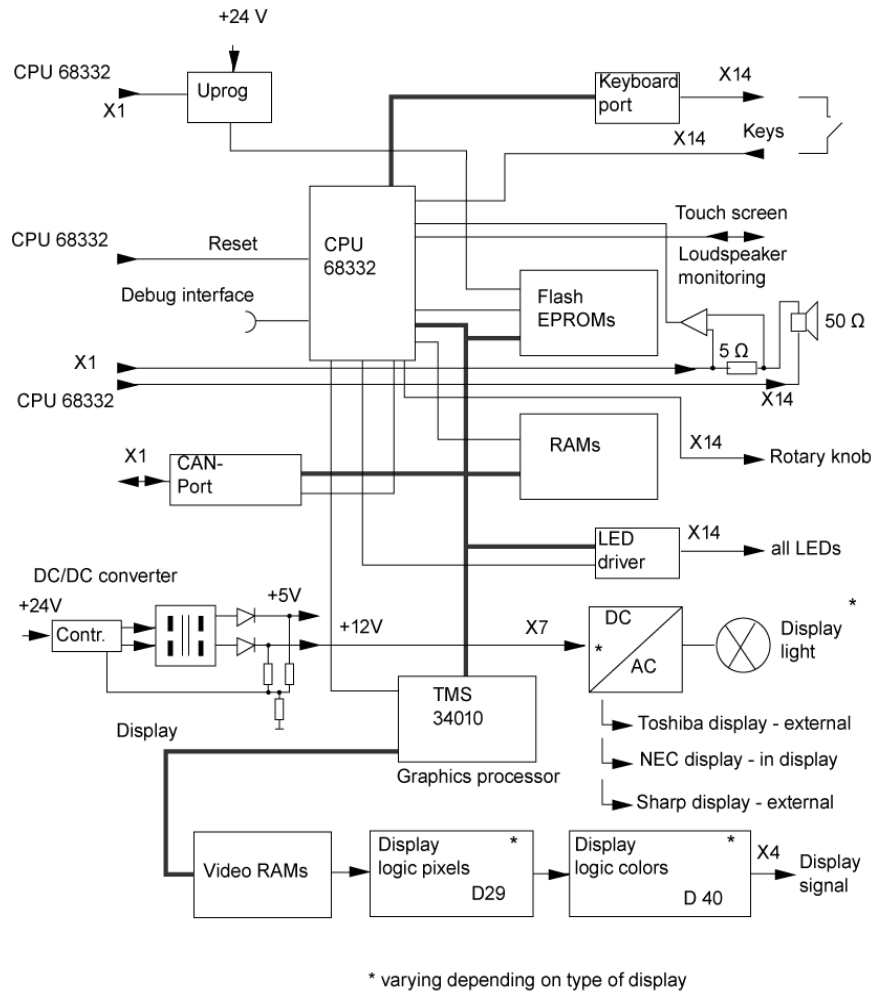
Fig. 13   Graphics Controller PCB block diagram

3.7.1   Processor system

The processor system comprises a 68332 CPU, a 256 kByte RAM and a 2 MByte flash EPROM (electrically programmable and erasable read-only memory).

3.7.2   Uprog

Uprog generates the voltage required for programming the flash EPROMs. An enable logic prevents unintentional supply of the programming voltage to the flash EPROMs.

3.7.3   Reset

The Graphics Controller PCB operates independently and is fitted with its own reset generator. The display can be reset by the CPU 68332 PCB.

3.7.4   Loudspeaker monitoring

The loudspeaker monitoring checks the loudspeaker function. The current passing through the loudspeaker is measured by a resistor and then analyzed.

3.7.5 Keyboard port and LED driver

The keyboard and the LEDs are arranged in a **3 x 8** matrix array. The LEDs are controlled by transistors. The keyboard columns are also selected in the same way. A driver module controls the selection of lines of the LEDs in the matrix. The 68332 CPU scans the keyboard using Schmitt triggers.

3.7.6 Display control

The video processor TMS 34010 controls the image processing, generates the synchronized signals for the display and displays the image to be represented by means of the display logic. The video RAM is the memory of the video processor. The size of the video RAM is 512 kilobytes. The video RAM stores the video processor program, the video processor data and the displayed image.

3.7.7 CAN interface

The CAN interface is a fast, serial interface (Controller Area Network). The control unit, the electronics and the pneumatics communicate via a CAN interface. The transmission rate is 1 Mbit/s.

3.7.8 DC/DC converter

The DC/DC converter supplies +5 V and +12 V for the voltage supply of the control unit. The input voltage of the DC/DC converter is +24 V. Since the +5 V and +12 V voltages are generated directly on the Graphics Controller PCB there is a tolerance of ±2.5%. The maximum power consumption of the control unit is 1.5 A for +5 V and 2.2 A for +12 V.

3.8 Communication PCB (option)

The Communication PCB is integrated in the electronic assembly of the device. The PCB includes an independent processor system, the voltage supply of the interfaces, an internal CAN interface, an external CAN interface, two RS232 interfaces and two analog outputs.
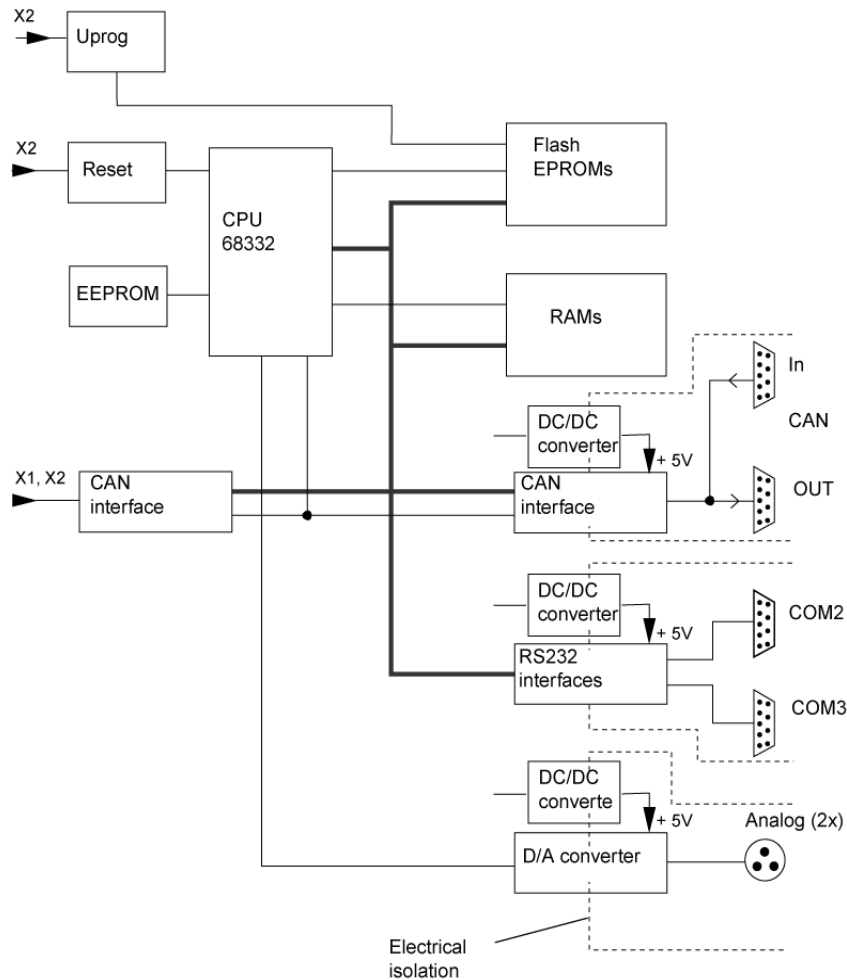
Fig. 14   Block diagram of the Communication PCB

3.8.1 Processor system

The processor system comprises a 68332 CPU, a 512 kByte RAM and a 1 MByte flash EPROM (electrically programmable and erasable read-only memory).

3.8.2 Uprog

Uprog generates the voltage required for programming the flash EPROMs. An enable logic prevents unintentional supply of the programming voltage to the flash EPROMs.

3.8.3 Reset

The reset logic generates a defined reset after power-up. The CPU 68332 can be reset by the CPU 68332 PCB.

3.8.4 CAN interfaces

The Communication PCB is not connected to the data bus of the CPU 68332 PCB. The data are transmitted via an internal CAN interface (Controller Area Network – fast, serial interface). The external CAN interface is electrically isolated from the device. Electrical isolation is made by means of optocouplers.

3.8.5 RS232 interfaces

The Communication PCB provides an RS232 interface in the device. The interfaces are labeled COM2 and COM3. The interfaces are electrically isolated from the device. Electrical isolation is made by means of optocouplers.

3.8.6 Analog outputs

The analog outputs supply voltages between 0 V and 4.095 V. The assignment of analog outputs is freely selectable. The resolution of the output voltage is 1 mV per bit.

3.8.7 DC/DC converter

The DC/DC converters supply +5 V ISO each for the voltage supply of the interfaces. The input voltages of the DC/DC converters are +5 V.

3.8.8 EEPROM

The EEPROM stores internal data of the interface. The EEPROM has a 2 kB capacity.

3.9 Paediatric Flow PCB (optional)

The Paediatric Flow PCB is integrated in the electronic unit of the device. The PCB has two flow measuring channels for connection of the Babylog flow sensor, one four-channel multiplexer, one twelve-bit A/D converter and one interface to the CPU 68332 PCB.
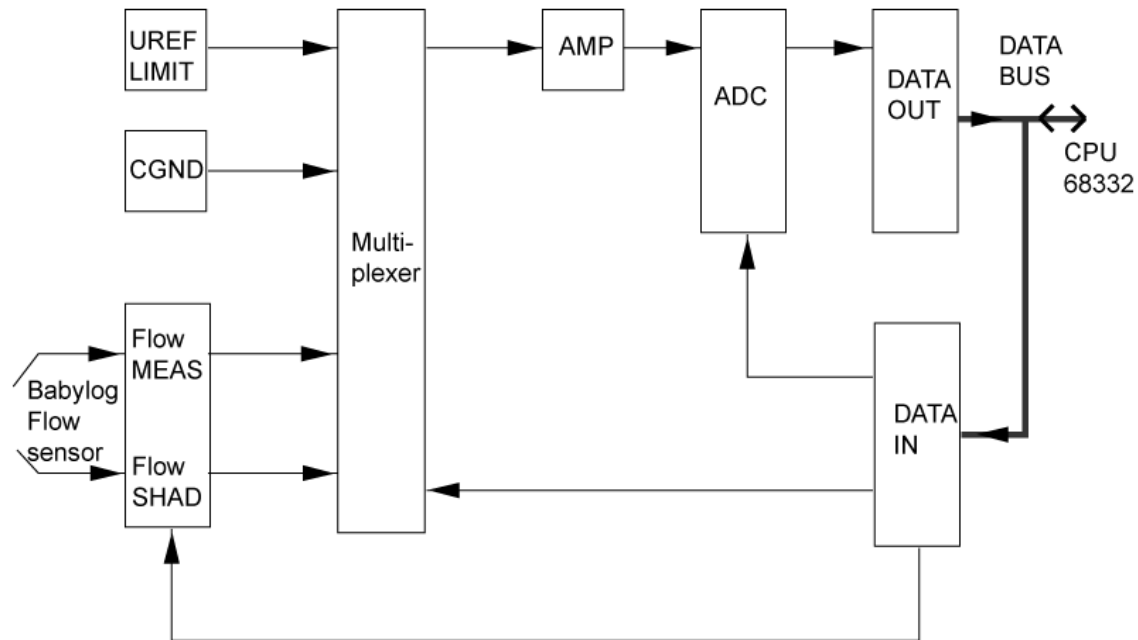
Fig. 15   Block diagram of the Paediatric Flow PCB

3.9.1   Flow measurement

The flow is measured with the Babylog flow sensor. The Babylog flow sensor has two measuring wires. One measuring wire is "covered" by a plastic bar; the Babylog flow sensor recognizes the direction of the flow. The flow is analyzed by a measuring bridge.

3.9.2   Multiplexer

The multiplexer consists of four analog-value selectors. The analog-value selectors are controlled by the software. The multiplexer transmits the flow sensor measurement signals, CGND and UREF LIMIT via a buffer (AMP) to an A/D converter (ADC).

3.9.3   A/D Converter

The input voltage of the A/D converter ranges from 0 V to 10 V. The A/D converter converts the flow measurement values into digital data. The CPU PCB controls the A/D converter and the multiplexer via an interface (DATA OUT; DATA IN). The voltage drop across the multiplexer, the buffer and the A/D converter is measured using the UREF LIMIT reference voltage and can be taken into account when measuring the flow.

3.10   IFCO Carrier PCB (optional nurse call and other)

3.10.1   General information

The IFCO Carrier PCB functions as carrier board for other optional features; it supports the nurse call and Remote Pad (cable remote control) functions and one additional ambient pressure sensor (optional).
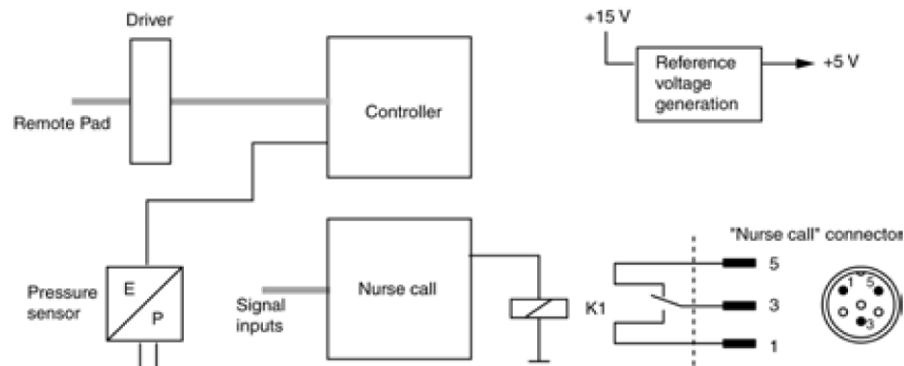
Fig. 16   IFCO Carrier PCB

3.10.2   Nurse call

The nurse call transmits top-priority alarms (!!!) displayed on the screen to, e.g., a central station. An alarm is also transmitted if the internal loudspeaker for audible alarms fails. The alarm is reset automatically as soon as the cause of the alarm disappears. The alarms are suppressed during the boot phase ("start phase" of the device).

The central station alarm signaling is carried out by relay contacts. The alarm status can be determined by scanning these relay contacts. An alarm is considered to be triggered if contacts 3 and 5 of the "nurse call" connectors are closed by the relay contacts. These relay contacts are electrically isolated from the rest of the electronics. A bistable relay is used in order to keep this alarm signaling function active even when the power supply fails.

The nurse call function monitors the contacts of the power switch thus being able to detect whether the device is switched on or off. A power failure in the device can thus be detected. This alarm (power failure) can be cancelled by switching the device off. However, the device must be switched off within a defined time window. This time window is dependent on the charge status of specific capacitors. The time window is typically 2 minutes.

3.10.3   Remote Pad

The Remote Pad is a cable remote control that is connected to the IFCO Carrier PCB. The Remote Pad has 6 keys to control the ventilator. The Remote Pad is also provided with alarm LEDs. The inputs and outputs of the Remote Pads are short-circuit protected and protected against inadvertent wrong connections.

3.10.4   Ambient pressure sensor (optional)

The measured value supplied by the ambient pressure sensor on the IFCO Carrier PCB is evaluated by the safety software. This measured value is used to monitor the ambient pressure sensor on the CO_2 Carrier PCB.

3.11   Pneumatic Controller PCB

The Pneumatic Controller PCB is located in the pneumatic assembly of the device. The PCB provides the following functions:

- – Supply pressure measurement.
- – Inspiratory and expiratory airway pressure measurement.
- – Esophagus pressure measurement.
- – Flow measurement.
- – Measurement of the O_2 concentration in the respiratory gas.
- – Fan monitoring.
- – Solenoid valve control.
- – PEEP valve control.
- – Interface to the HPSV Controller PCBs.
- – CAN interface.
- – 68332 CPU with RAM and flash memory.
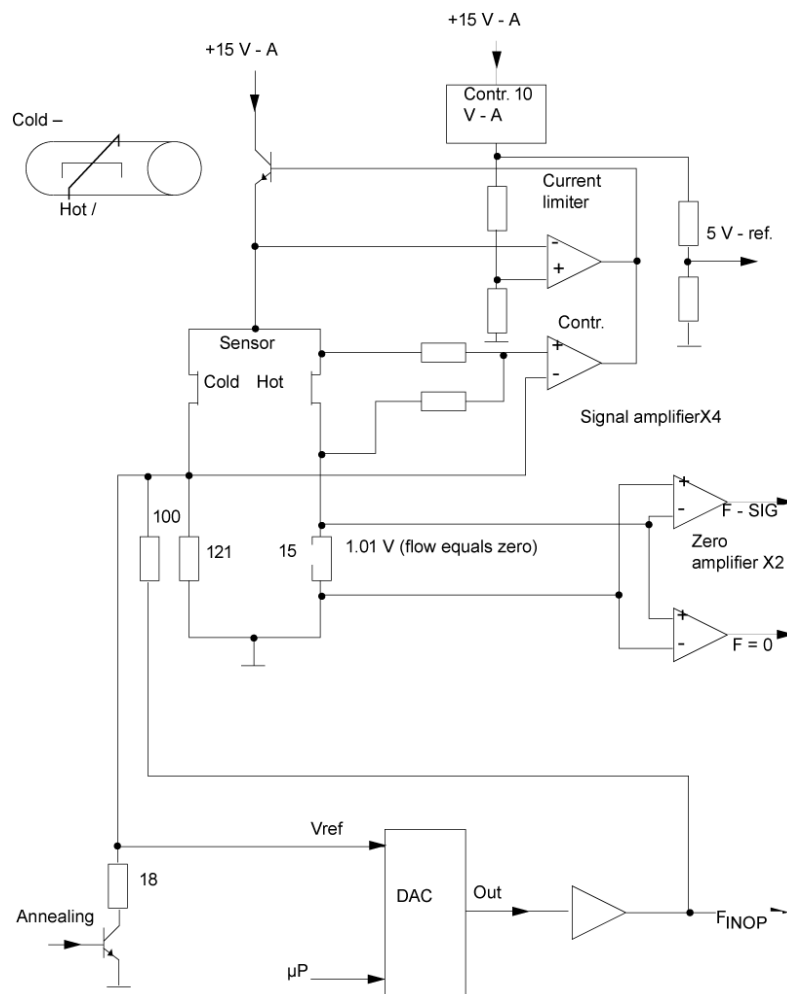- – Serial EEPROM for storage of device configuration.

3.11.1 Pneumatic Controller PCB flow measurement

Fig. 17   Pneumatic Controller PCB flow measurement

3.11.2 Pneumatic Controller PCB block diagram
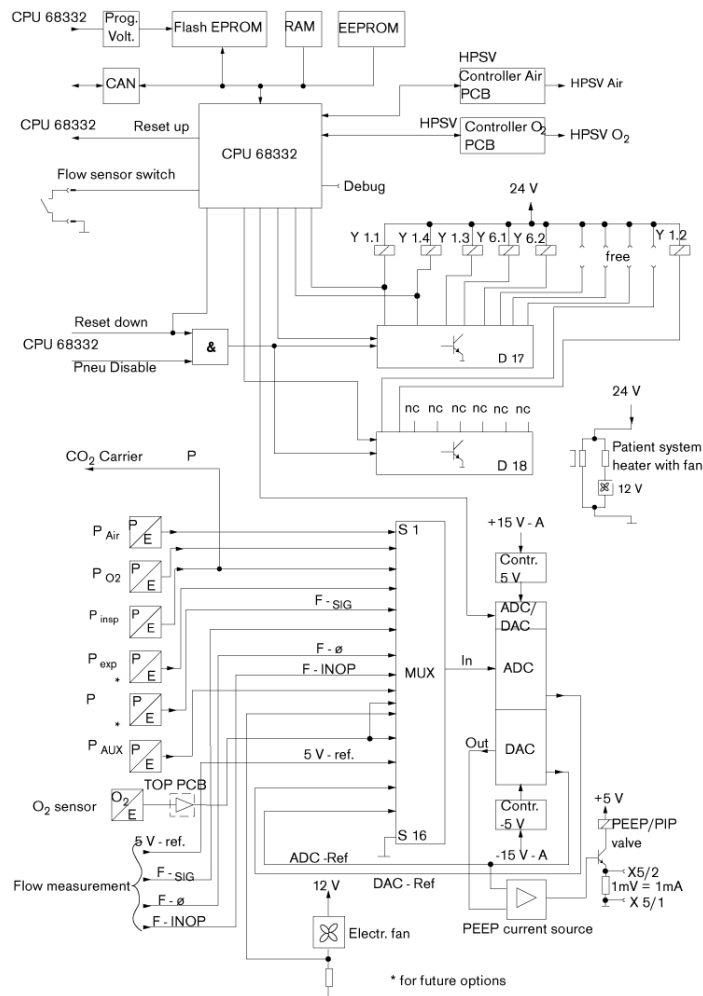
Fig. 18   Pneumatic Controller PCB block diagram

3.11.3 Pressure measurement

The pressure is measured with two pressure sensors. During the inspiratory phase and the expiratory phase, the pressure is measured by the respective pressure sensor. The airway pressure signals are transmitted to the multiplexer. The pressure sensors are automatically zero-calibrated every 3 minutes.

3.11.4 Flow measurement

The sensor works according to the principle of a constant-temperature hot-wire flowmeter. Respiratory gas flows along a very thin, electrically heated platinum wire in a measuring tube. The wire is heated to a temperature of 180 °C and kept at this temperature with a closed-loop control system. If gas flows past this wire, heat is dissipated. The larger the gas volume per time unit flowing past, the higher the heat dissipation. The heating power required to keep the wire at a constant temperature is a measure of the gas flow.

3.11.4.1 **Cleaning the flow sensor**

The actuator to clean/anneal the sensor applies a defined current to both measuring wires. During calibration the measuring wires begin to glow and burn any impurities. The sensor is cleaned when pressing the "flow calibration" key or automatically after drug nebulization. The cleaning process occurs during the next inspiratory phase or after 15 seconds at the latest.

3.11.5 O$_2$ measurement

The O$_2$ sensor works according to the galvanic cell principle. Oxygen molecules contained in the gas mixture to be measured diffuse through a plastic diaphragm into the electrochemical cell and are reduced at the noble metal electrodes. At the same time a base electrode is being oxidized. The base electrode is spent by the oxidation process and thus determines the life of a sensor. The current flowing through the cell is proportional to the oxygen partial pressure in the gas mixture to be measured.

Provided the pressure and temperature of the gas mixture to be measured are kept constant, the measured value will be directly proportional to the oxygen partial pressure. The O$_2$ amplifier on the O$_2$ Top PCB is mounted externally on the inspiratory block. The output signal is transmitted to the O$_2$ Contact PCB via spring contacts and transferred to the Pneumatic Controller PCB. The O$_2$ cell is also connected to the O$_2$ Top PCB via spring contacts.

3.11.6 Fan monitoring

At the front panel of the device a fan is mounted to limit the temperature and the O$_2$ concentration in the electronic unit of the pneumatics in case of failure; the fan is monitored by the electronics.

3.11.7 Multiplexer

The multiplexer consists of 16 analog-value selectors. The analog-value selectors are controlled by the software. The multiplexer routes the measurement signals from the pressure sensors, the O$_2$ amplifier, the FAN UREF and the flow sensor to an A/D converter via a buffer.

3.11.8 Solenoid valves

The solenoid valves are controlled by two power drivers. The power driver outputs for the nebulizer and the O$_2$/Air switchover are monitored by a comparator. The power drivers can be switched off by the electronic unit.

3.11.9 PEEP valve control

The PEEP valve is controlled by a voltage-controlled current source with power MOS FET. A quad operational amplifier serves to adapt the D/A converter output signal to the current range of the PEEP valve. The CPU controls the D/A converter. The PEEP valve control is calibrated to the PEEP valve; the calibration data are stored in the serial EEPROM.

3.11.10 HPSV interface

The status lines of the HPSV Controller PCB are led to the Pneumatic Controller PCB via the pneumatics motherboard. Two bus drivers transmit the data to the data bus of the CPU. The data are transmitted to the HPSV Controller PCB by two power drivers. The data are accepted by power swing of the respective chip-select pin.

3.11.11 CAN interface

The CAN interface comprises a CAN controller and a series-connected driver. The CAN controller is directly connected to the data bus of the CPU. The control unit, the electronics and the pneumatics communicate via a CAN interface. The transmission rate is 1 Mbit/s.

3.11.12 Processor system

The processor system on the Pneumatic Controller PCB consists of a 68332 CPU, a 256 kByte flash EPROM (electrically programmable and erasable read-only memory) and a 256 kByte RAM.

3.11.13 Serial EEPROM

The serial EEPROM stores the data of the pneumatics. The EEPROM has a 128 Byte capacity.

3.12 HPSV Controller PCB

The pneumatics of the device contain two identical HPSV Controller PCBs. The board slot determines which of the boards is assigned to O_2 and AIR. The PCB comprises the following functions:

– Microcontroller with EPROM and RAM.
– ADC for measurement of supply pressure.
– DAC for default setpoint of current.
– Control loop for current control.
– Power transistor (power source).

NOTE

The characteristic of the HPSV cartridge is stored in the cartridge and is read out by the HPSV Controller PCB.
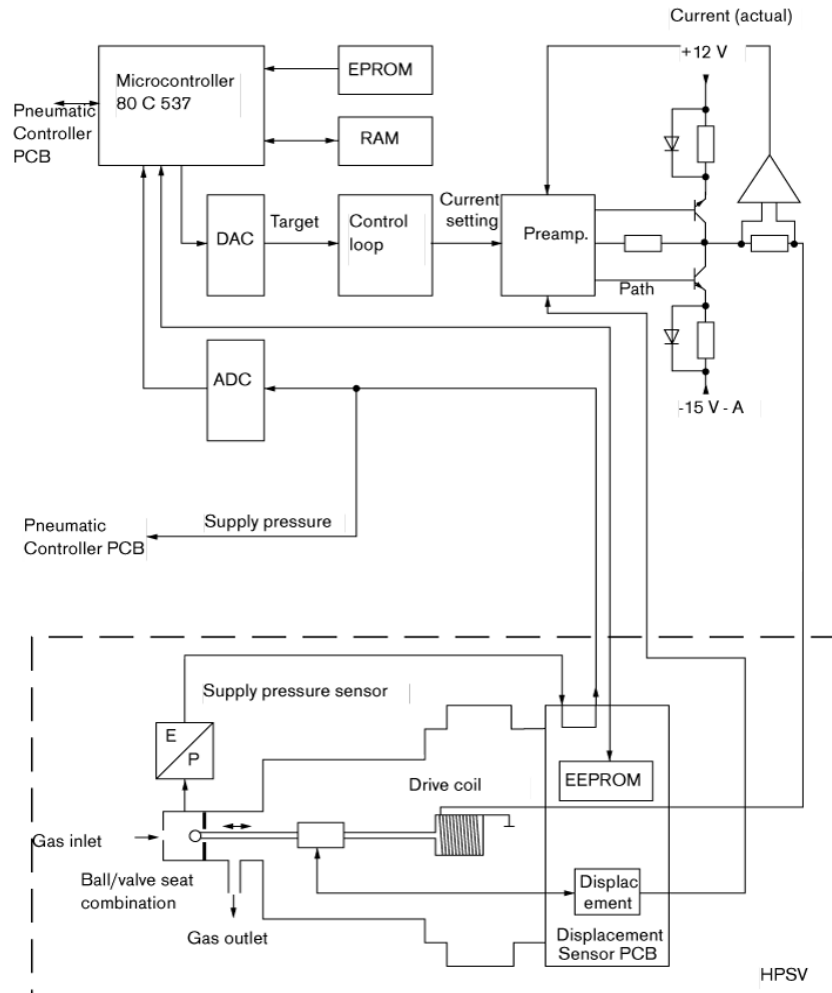
Fig. 19   HPSV Controller PCB with HPSV

3.13   Pneumatic assembly

Air and O2 must be available at a supply pressure of 2.7 to 6 bar to drive the device.

The pneumatic assembly consists of the following subassemblies:

–   Gas connection block

–   Parallel mixer or mixer block

–   Pressure sensors

–   PEEP/PIP valve

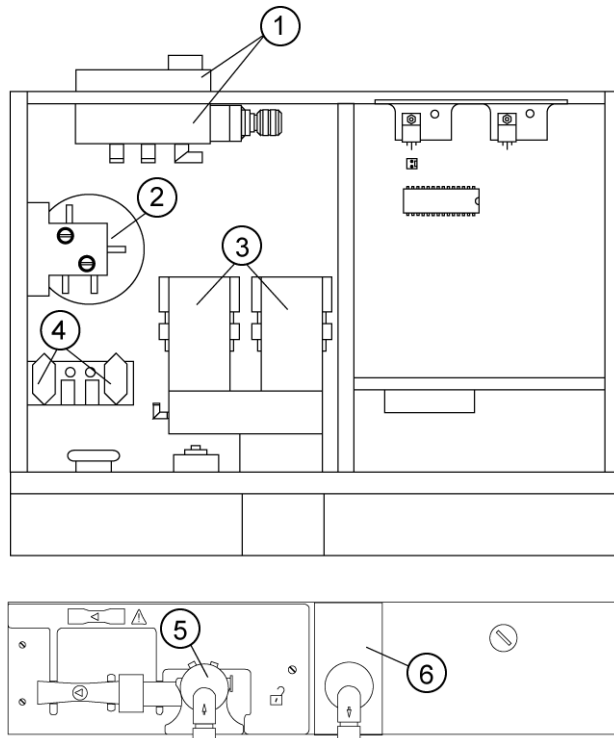–   Inspiratory block

–   Patient system

Fig. 20   Layout of the pneumatic subassemblies

Item	Designation
1	Gas connection block
2	PEEP/PIP valve
3	Parallel mixer
4	Pressure sensors
5	Patient system (expiratory)
6	Inspiratory block

3.13.1   Gas connection block

The gas connection block comprises the **O2** gas connection (M 12x1 female) and the **AIR** connection (M 20x1.5 male). In the future, the following gas connections will be available: NIST, DISS (USA) and DIN. The connections are fitted with filters **F1.1** and **F1.2**(metal fiber web). The non-return valves **D1.1** (AIR) and **D1.2** (O2) prevent the gas from flowing back into the central gas supply system.

The pressure regulators **DR1.1** and **DR1.2** are set to 2 bar. The control gas flows past the **DR1.1** to the 3/2-way valve **Y1.1**, from there to the emergency valve **Y1.3**, to the PEEP/PIP valve **Y4.1** and finally to the emergency valve **Y3.1**.

The gas also flows to the expiratory pressure sensor S6.2 (purge flow) via the restrictor **R1.1** (0.08 L/min).

Gas flows to the nebulizer via the 3/2-way valve **Y1.4**, if appropriately adjusted.

In the event of AIR supply failure, the device will switch over to O2 supply ("switchover function").
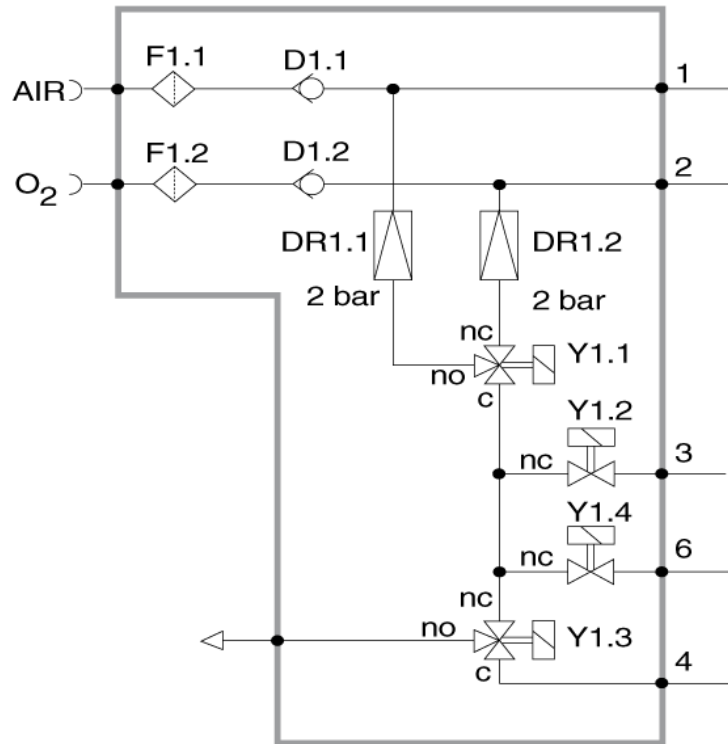
Fig. 21   Gas connections function diagram

3.13.1.1   **Use of different gas connection blocks**

Two different gas connection blocks are used:

– Dräger gas connection block

– FAS gas connection block
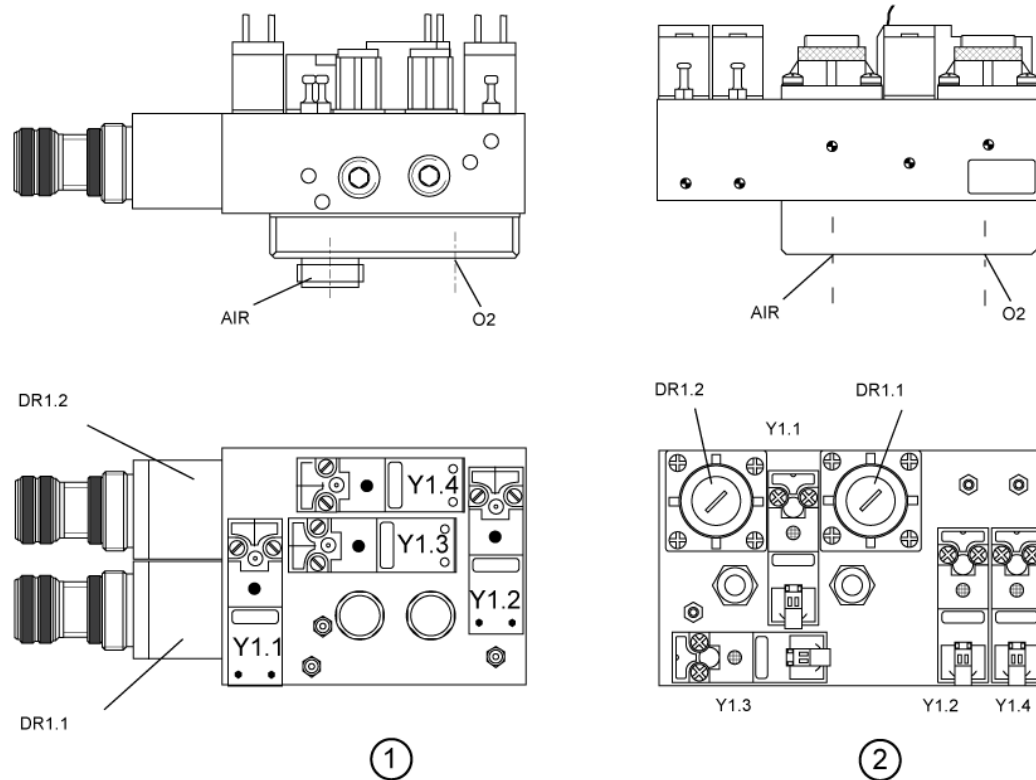
Fig. 22   Dräger gas connection block (1) and FAS gas connection block (2)

Item	Designation
1	Dräger gas connection block
2	FAS gas connection block
DR1.1	AIR pressure regulator
DR1.2	O_2 pressure regulator
Y1.1	3/2-way solenoid valve, O_2/AIR
Y1.2	3/2-way solenoid valve, O_2 sensor calibration
Y1.3	3/2-way solenoid valve, venting
Y1.4	3/2-way solenoid valve, nebulizer

3.13.2   Characteristics of various gas connection blocks

The gas connection blocks can be differentiated by the following items:

– If the gas connection plate on the back of the device is secured with four screws, then it is a Dräger gas connection block, see also Fig. 23/1. With the FAS gas connection block, the gas connection plate is secured with two screws only - see also Fig. 23/2.

– If the pressure regulator housing on the gas connection block is made of brass, then it is a Dräger gas connection block. The pressure regulator housings of the FAS gas connection block are made of black plastic.
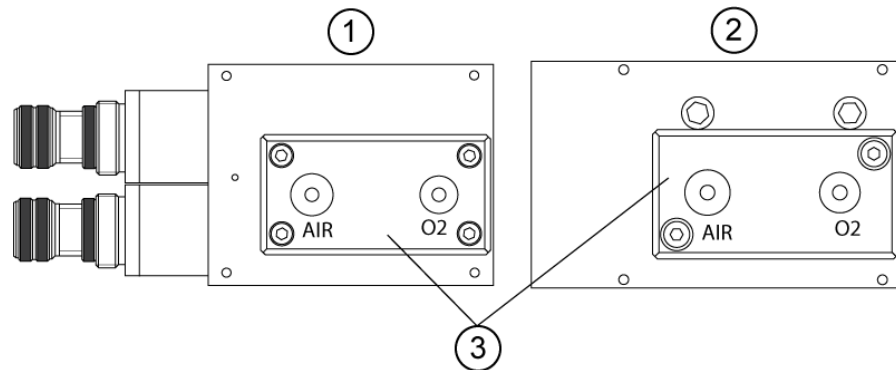
Fig. 23   Connection side of the gas connection blocks

Item	Designation
1	Dräger gas connection block
2	FAS gas connection block
3	Connector plate

The gas connection blocks are interchangeable since their mounts for attaching to the device are identical.

3.13.3   Parallel mixer or mixer block

The parallel mixer is a fast, electrically controllable proportional valve for gas flows between 5 and 180 L/min at supply pressures of 3 to 6 bar. Partial flows of less than 5 L/min are pulsed at a constant flow of 5 L/min. The supply gases compressed air (AIR) and oxygen (O_2) available at the parallel mixer have a supply pressure of 2.7 bar to 6 bar. In the parallel mixer the two gases are mixed in accordance with the set parameters. The parallel mixer supplies the inspiratory gas to the patient.

The parallel mixer consists of the following components:

– Mixer connection block
– Two cartridge valves with displacement sensor system for compressed air (AIR) and oxygen (O_2)
– 2 supply pressure sensors measuring the inlet pressure of the supply gases

The HPSV Controller PCB controls the parallel mixer electrically. The control signals are transmitted to the parallel mixer via the Pneumatic Motherboard PCB and the Pneumatic Controller PCB.
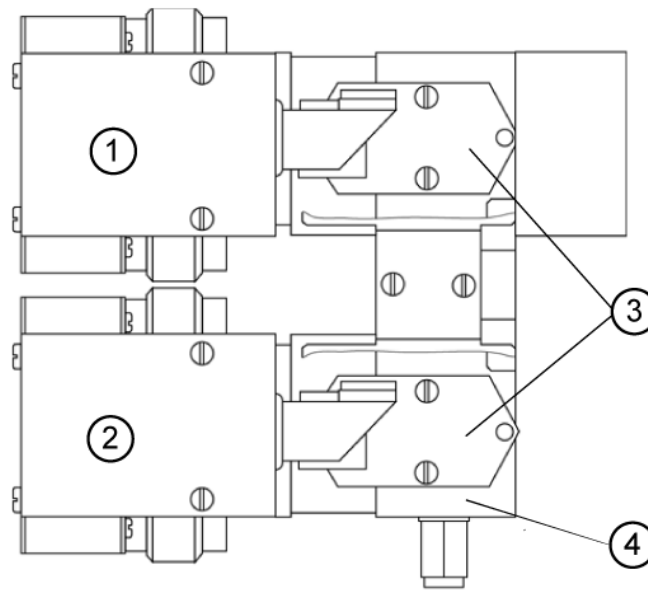
Fig. 24   Parallel mixer

Item	Designation
1	AIR cartridge valve
2	O_2 cartridge valve
3	Supply pressure sensor
4	Mixer connection block

3.13.4   Mixer connection block

The two cartridge valves are mounted to the mixer connection block. The inspiratory gases in the mixer connection block are supplied to the respective cartridge valve. The respiratory gas available at the outlet of the cartridge valves is mixed in the mixer connection block and supplied to the inspiratory unit.

3.13.5   Cartridge valves (O_2 and AIR HPS valves)

The cartridge valve or HPS valve (HPSV = high-pressure servo-valve) supplies a defined amount of gas to the patient in accordance with the preset adjustment parameters for e.g. inspiration, trigger pressure, leak flow compensation.
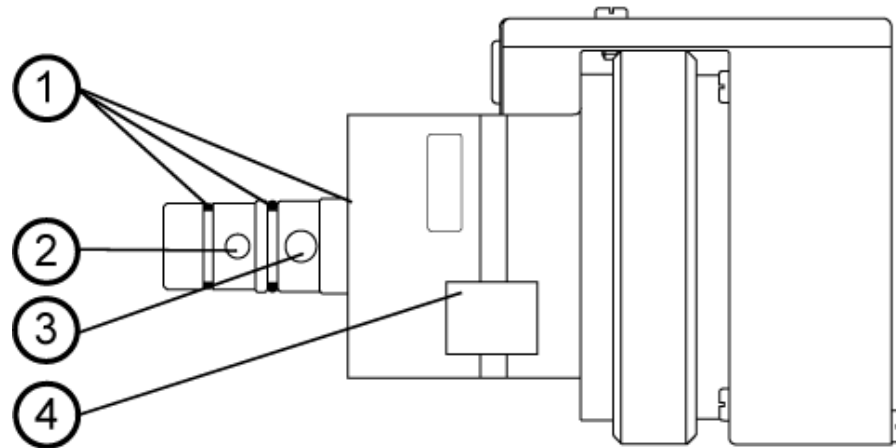
Fig. 25   Cartridge valves or O2, AIR HPS valves

Item	Designation
1	O-rings
2	Input
3	Outlet
4	Adhesive label: O2 or AIR

During expiration the supply gas is available at the cartridge valve and at the supply pressure sensor. In the HPS valve ball A is pressed into the valve seat B; this action closes the valve.

In the event of a flow demand, e.g. inspiration, current is supplied to the drive system. The drive system is equipped with a coil working according to the principle of a moving coil of the type used e.g. in loudspeakers The plunger is deflected in proportion to the supplied current. The ball A is pushed out of its valve seat B, causing an annular gap. The cartridge valve opens and gas flows to the patient.
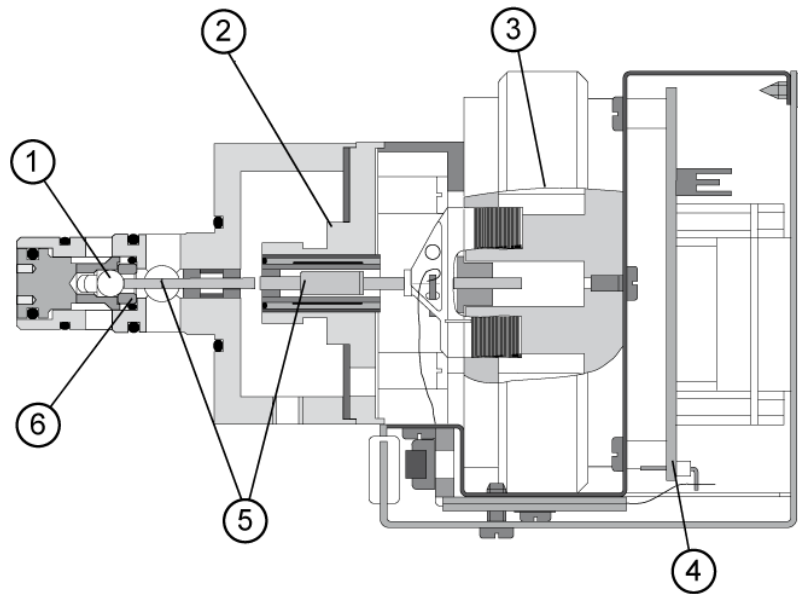
Fig. 26   HPS valve cross-section

Item	Designation
1	Ball A
2	Displacement measuring system
3	Drive system
4	Displacement Sensor PCB
5	Plunger
6	Valve seat B

Consequently, the size of the annular gap determines the gas flow. The annular gap between the ball and the valve seat is determined by the deflection of the plunger. This deflection is measured and controlled by the displacement measuring system. At the same time a supply pressure sensor at the cartridge valve measures the supply pressure of the gas to be dosed. The supply pressure, along with the gap width, determines the gas flow. Twice the pressure (absolute) for the same gap width will produce twice the flow.

Gap width (annular gap) - or supply pressure - = gas flow -.

The gas flow in valves used to meter and mix the respiratory gas is not measured but determined indirectly by the displacement signal and the supply pressure. The valves supply a flow of 5 L/min to 180 L/min. The plunger movement (displacement) depends on the supply pressure. The supply pressure is between 3 bar and 6 bar absolute. For a flow requirement of 120 L/min and a supply pressure of 5 bar the displacement will be approx. 0.2 mm or 0.6 mm for a supply pressure of 1.5 bar.

As the mixer must permanently operate with high precision it is measured and the data (non-linearity) are stored in an EEPROM on the Displacement Sensor PCB. Therefore no calibration is required when the cartridge valves are replaced.

3.13.5.1 Displacement sensor system

The displacement sensor system measuring the position of the plunger in the valve is integrated in the cartridge valve. The displacement sensor system consists of the displacement measuring system and the Displacement Sensor PCB.

The displacement measuring system is designed as a differential transformer. The AC voltage applied to the primary winding of the transformer has a frequency of approx. 1 MHz. The two secondary windings are switched such that their output voltages balance out. If the ferrite core (plunger of the cartridge valves) moves in the differential transformer, the output voltage of the displacement sensor system will change.

As the displacement output signal is not linear to the gas flow, the characteristic of the cartridge valve is measured and stored in the EEPROM. The micro-controller on the HPSV PCB thus balances the non-linearity of the cartridge valve.

The two circuits of the cartridge valves of parallel mixers are operated asynchronously in parallel (AIR, O_2). To avoid beat interference, the frequencies of the two oscillators must differ by a minimum of 200 kHz. To do so, the two cartridge valves are measured at two different frequencies. The cartridge valves can only be measured at a special test stand.

3.13.5.2 Supply pressure sensors

The supply pressure sensors are calibrated to absolute pressure (0 bar). They measure the inlet pressure of the supplied gas. The high-pressure sensor is fitted with a P/U converter supplying a pressure-dependent output pressure.

- Measuring range: 0 bar to 7 bar.
- Sensitivity: 1.58 V/bar ±8 mV/bar.
- Offset voltage: 300 mV ±30 mV

The high-pressure sensors are linked via a flex-strip to the Displacement Sensor PCB. The Displacement Sensor PCB is installed in the HPS valves.

3.13.6 Pressure sensors

The pressure sensor mount comprises the airway pressure sensors **S6.1** for the inspiratory side and **S6.2** for the expiratory side. **S6.1** monitors the inspiratory Paw high and Paw low.

- Measuring range: 140 mbar.
- Sensitivity: 36.5 mV/mbar ±0.3 mV/mbar.
- Offset voltage: 1.74 V ±0.04 V.

3.13.6.1 Pressure sensor calibration

The solenoid valves "Y6.1" and "Y6.2" expose the relevant pressure sensors to atmospheric pressure at specific time intervals, consequently, the sensors are automatically calibrated. The pressure sensors "S6.1" and "S6.2" are zero-calibrated every 3 minutes. (Calibrate the electronic zero drift as necessary). To do so, the solenoid valves "Y6.1" and "Y6.2" are subsequently exposed to atmospheric pressure and the pressure sensors automatically calibrated.
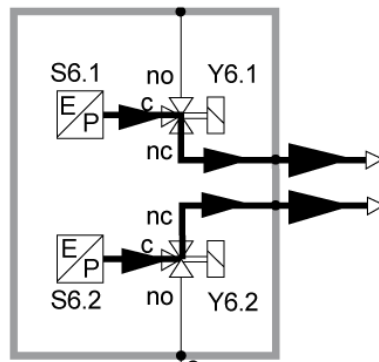
Fig. 27   Pressure sensors function diagram

3.13.7   Inspiratory block

The safety valve "D3.3" limits the pressure in the inspiratory line to 100 mbar max.

In the event of compressed air failure or power failure the pneumatically controlled emergency air valve "Y3.1" will open so that the patient can breathe ambient air passing the filter "F3.1". The non-return valve "D3.1" prevents rebreathing of the air through the inspiratory line When the valve "Y3.1" opens, the spring-loaded non-return valve "D3.2" allows the pressure to be relieved.

In the case of emergency air spontaneous breathing the patient can exhale through the expiratory valve "Y5.1" on account of the spring loading (5 mbar), thus preventing rebreathing.

The inspiration block is provided with the plug-in connection for the oxygen sensor.

The restrictor "R1.2" limits the drug nebulizer flow to 9 L/min.
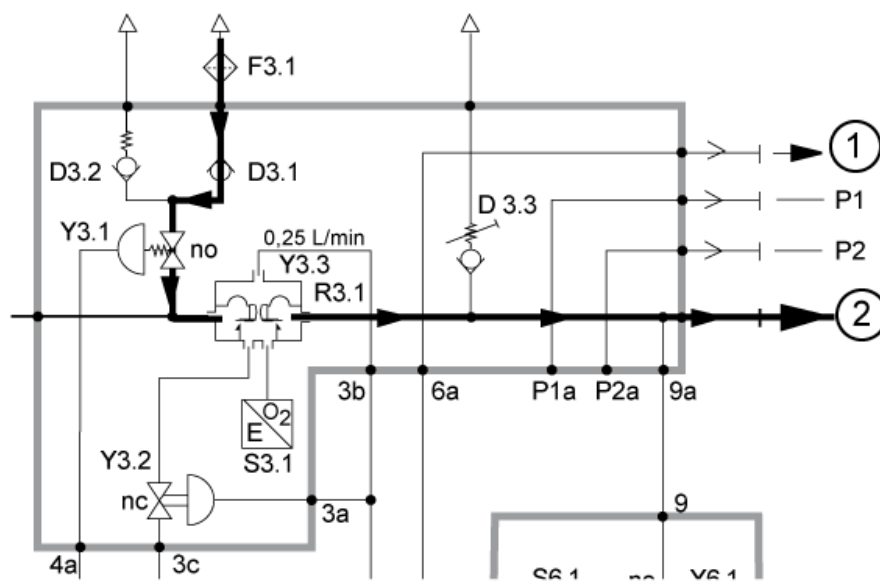
Fig. 28   Emergency air function diagram

Item	Designation
1	Nebulizer
2	Inspiration
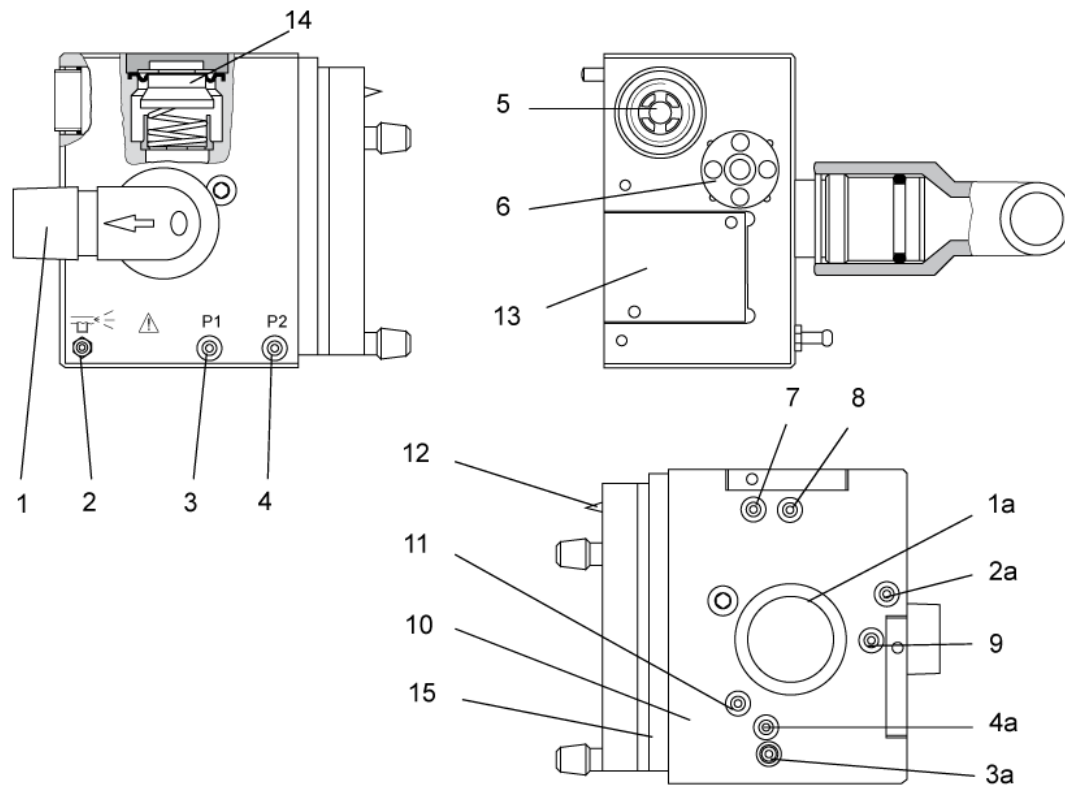
Fig. 29   Inspiratory block

Item	Designation	Item	Designation
1-1a	Patient connection (inspiration)	9	O2 calibration control
2-2a	Nebulizer port	10	O2 sensor chamber (behind the O2 amplifier)
3-3a	Esophagus pressure P1	11	O2 calibration purge flow outlet
4-4a	Esophagus pressure P2	12	Emergency air non-return valve D3.1 in O2 amplifier
5	10 mbar pressure relief valve D3.2	13	O2 calibration diaphragm lattice Y3.3 with R3.1
6	100 mbar pressure relief valve D3.3 (adjustable; Note: until middle of '96 valve slot milled in the block, after '96 separate piece screwed onto the block)	14	Valve Y3.1
7	Emergency venting control	15	O2 amplifier
8	Pressure measurement (inspiration)	-	

3.13.8   Patient system

The expiratory gas flows from the patient directly to the expiratory valve **Y5.1**. The copper measuring line at the **8a** connection has a germicidal effect and connects the expiratory side to the pressure sensor **S6.2**.

The expiratory valve has a transmission ratio of approx. 1:1. The non-return valve **D5.1** allows flow in one direction only and makes sure that gases do not travel backwards. The expiratory flow is measured with flow sensor **S5.1**.
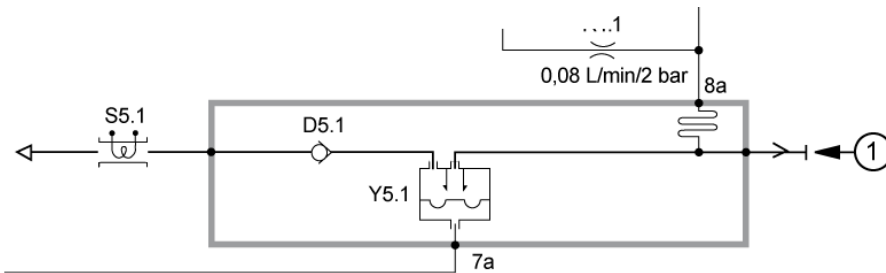
Fig. 30   Patient system function diagram

Item	Designation
1	Expiration

The ratio between the control pressure at the **7a** connection of the PEEP/PIP valve and the resulting pressure at the expiratory port is linear to the following values:

- Control pressure of 3 mbar => expiratory pressure of 0 mbar.
- Control pressure of 33 mbar => expiratory pressure of 33 mbar.
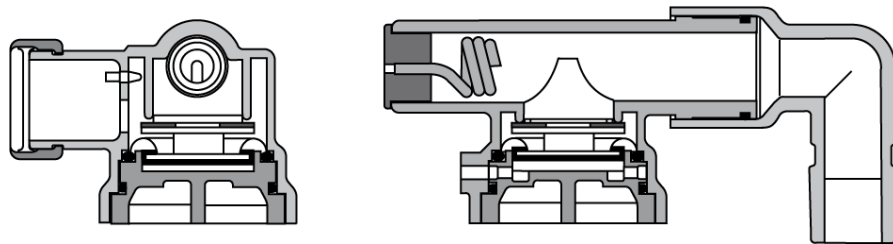
Fig. 31   Sectional view of the patient system

3.13.8.1   **Patient system with RS water trap 84 13 125**

The water trap avoids flow measurement faults caused by water droplets. Such faults may occur if the water traps on the ventilation tubes are not positioned at the lowest possible point. In this case the condensation water is collected in the water trap of the patient system.

The collector jar of the water trap can be removed during operation. The opening to the patient system is sealed automatically.
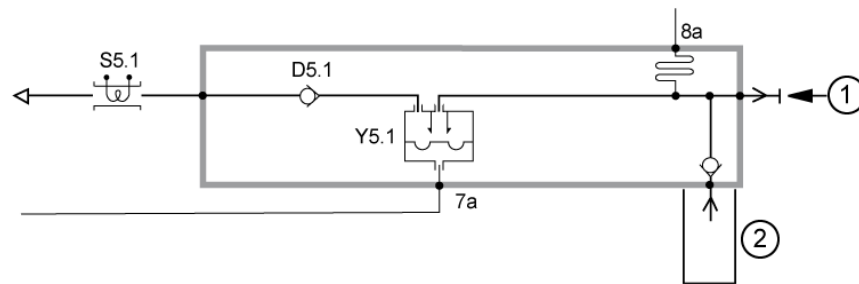
Fig. 32   Function diagram of the patient system with water trap

Item	Designation
1	Expiration
2	Water trap
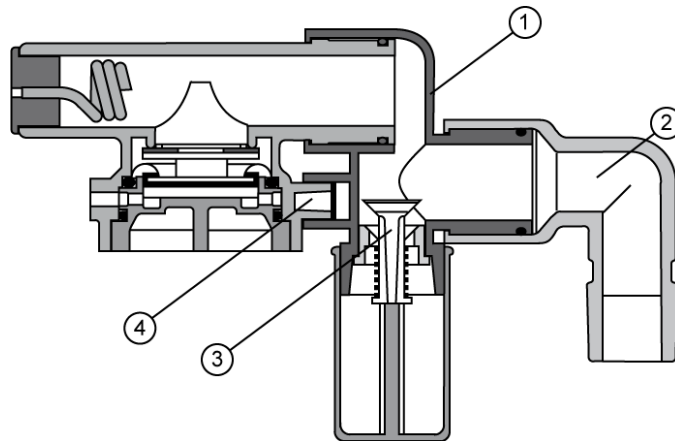
Fig. 33   Sectional view of the patient system with water trap

Item	Designation
1	Water trap conversion kit
2	Angle socket
3	Locking mechanism
4	Connector

3.13.9   PEEP/PIP valve

The PEEP valve **Y4.1** consists of a diaphragm valve acting as a flow-control device and the linear drive whose plunger closes the diaphragm valve. A coil drives the PEEP valve **Y4.1**. The values are set via the ventilation settings. These settings are processed by a computer program and the coil is driven by an appropriate current. The PEEP valve opens and adjusts a pressure proportional to the adjusted electric current. 0 mA will correspond to −1 mbar, 500 mA to 120 mbar.

The valve **Y4.1** controls the expiratory valve **Y5.1** in the patient system via a servo-line. The solenoid valve **Y1.3** and the restrictor **R4.1** supplies the patient system with control gas. The non-adjustable restrictor **R4.1** is set to a flow of 3.5 L/min.

Depending on the setting the plunger coil is activated causing an appropriate servo-pressure to be applied to the expiratory valve.

The software compares the preset and measured airway pressures. This comparison is a measure of the Pneumatic Controller PCB's control action on the PEEP/PIP valve. The PEEP/PIP valve is calibrated to the electronics. The calibration data are stored on the Pneumatic Controller PCB.
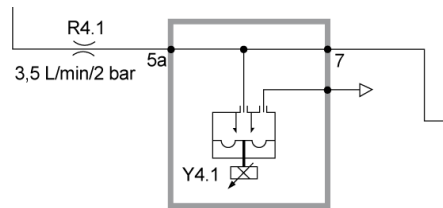
Fig. 34   PEEP valve function diagram
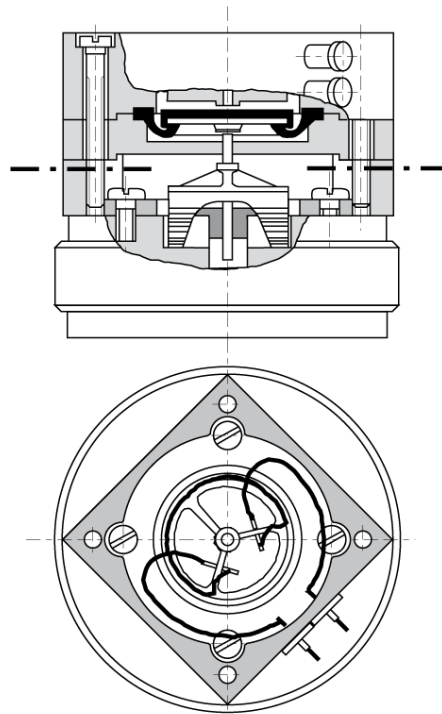
Fig. 35   Section view of the PEEP valve

3.13.10   AIR supply

AIR flows through the filter **F1.1** via the non-return valve **D1.1** to the mixing and dosage unit (pressure sensor **S2.1** and HPSV **Y2.1**), and at the same time via the pressure regulator **DR1.1**, which is set to 2 bar, to the 3/2-way solenoid valve **Y1.1**. From here the gas flows through the 3/2-way solenoid valve **Y1.3** to the emergency air valve **Y3.1** which closes. Furthermore, AIR passes the restrictor **R4.1** to reach the PEEP/PIP valve **Y4.1** and from there – depending on the setting – to the expiratory valve **Y5.1**. Finally, AIR passes the restrictor **R1.1** to flow to the expiratory pressure sensor **S6.2** connecting line on the patient side. At this point, expiratory humidity is prevented from reaching the pressure sensor **S6.2**.
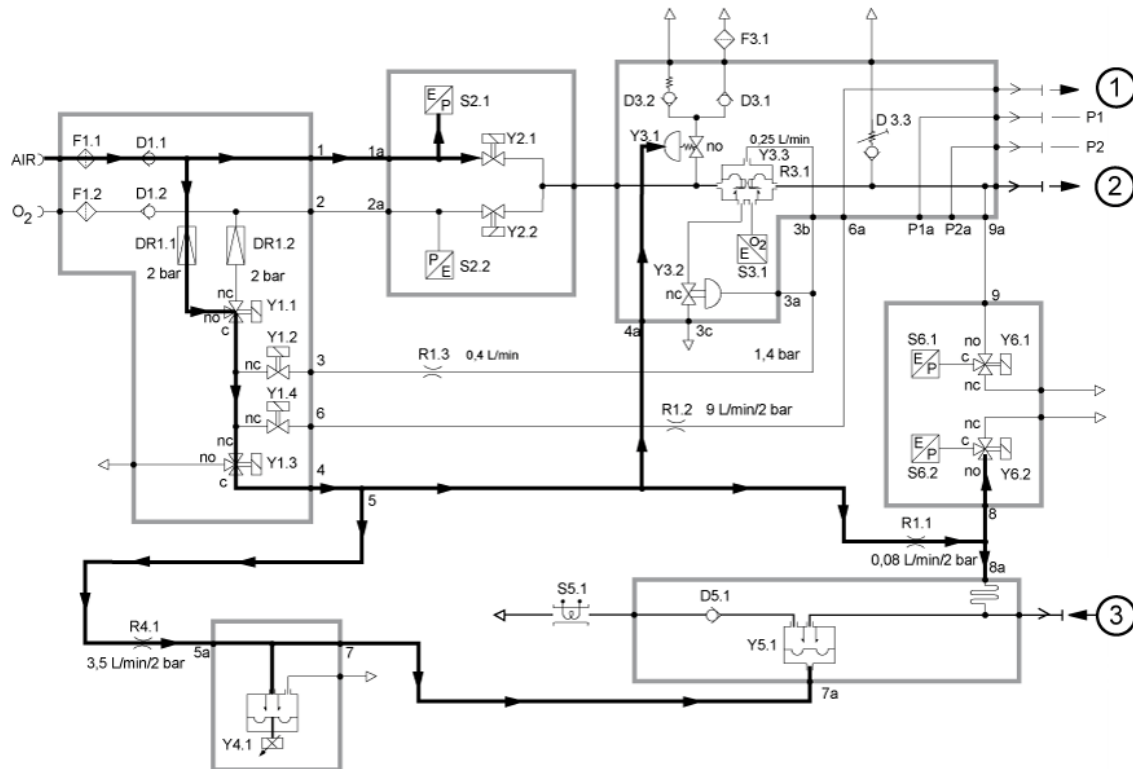
Fig. 36   AIR supply function diagram

Item	Designation
1	Nebulizer
2	Inspiration
3	Expiration

3.13.11   O₂ supply

Compressed oxygen flows through the filter **F1.2** via the non-return valve **D1.2** to the mixing and dosage unit (pressure sensor **S2.2** and HPSV **Y2.2**), at the same time via the **DR1.2**, which is set to a downstream pressure of 2 bar, to the 3/2-way solenoid valve **Y1.1**.
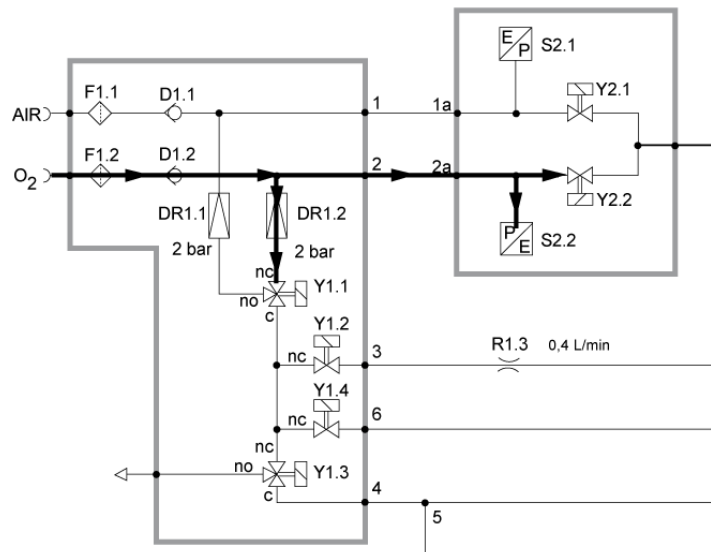
Fig. 37   O2 supply function diagram

3.13.11.1   O2/AIR changeover valve (switchover)

In the event that compressed air fails, in the course of O2 sensor calibration and when controlling the nebulizer function (depending on the FiO2 setting) the 3/2-way solenoid valve **Y1.1** switches over. The servo-system will then be supplied with O2.

3.13.12   Inspiration

Depending on the settings (O2 concentration, inspiratory volume, frequency, Ti, inspiratory flow, inspiratory pressure) the HPSVs **Y2.1** and **Y2.2** open. The gas flows via the inspiratory connector to the patient. At the same time, gas flows to the O2 sensor **S3.1** and to the safety valve **D3.3**; from there, it flows through the 3/2-way solenoid valve **Y6.1** to the inspiratory pressure sensor **S6.1**.

The safety valve **D3.3** is fixed to 100 mbar and serves as an additional safety device in the event of a complete failure of the electronic control.

When calibrating the O2 sensor **S3.1** the O2 sensor **S3.1** will be disconnected with valve **Y3.3** from the inspiratory gas. The O2 sensor **S3.1** is flushed with calibration gas via valve **Y1.2**, restrictor **R1.3**, restrictor **R3.1** and valve **Y3.2**. The O2 concentration and the inspiratory gas flow are not affected.

The pressure sensors **S6.1** and **S6.2** monitor the inspiratory pressure. During the entire inspiratory time a pressure is applied to the expiratory valve **Y5.1** via the PEEP/PIP valve **Y4.1**.
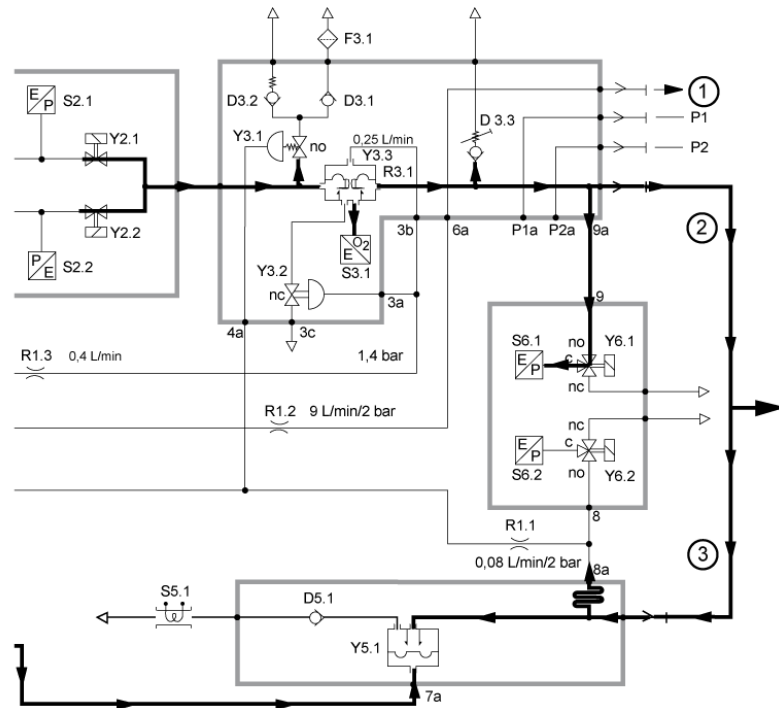
Fig. 38   Inspiration function diagram

Item	Designation
1	Nebulizer
2	Inspiration
3	Expiration

3.13.13   Paw high

If the set Paw high alarm limit is exceeded during inspiration, the HPSVs **Y2.1** and **Y2.2** interrupt the gas flow. The PEEP/PIP valve **Y4.1** is switched to expiration and the patient can exhale.

3.13.14   Emergency venting

If the Paw high alarm limit is exceeded by 5 mbar, the 3/2-way valve **Y1.3** additionally opens. This will cause the emergency air valve **Y3.1** to open and the pressure can be reduced via the non-return valve **D3.2**.

3.13.15   Expiration

Upon start of expiration (Fig. 39/1) the HPSVs **Y2.1** and **Y2.2** are closed. No gas flows to the patient. The PEEP/PIP valve **Y4.1** is switched to the set PEEP value. The expiratory valve **Y5.1** will also be relieved and the patient can exhale via non-return valve **D5.1** and the flow sensor **S5.1**. The flow sensor **S5.1** measures the expiratory volume.
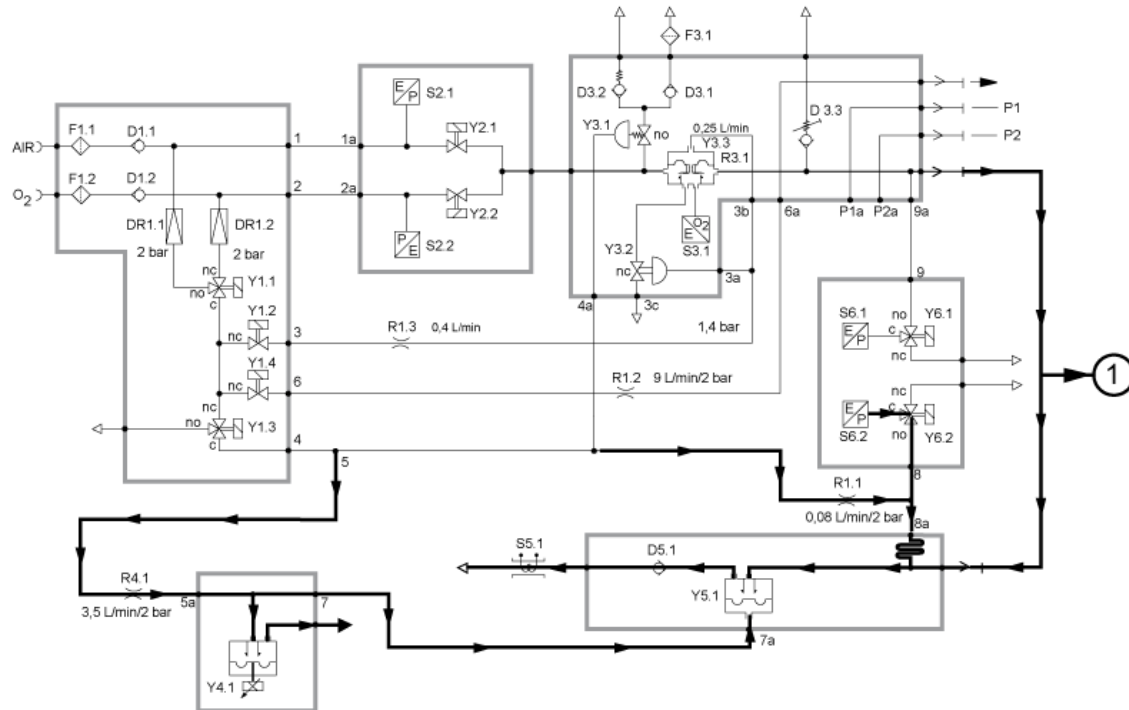
Fig. 39   Expiration function diagram

3.13.16   Drug nebulizer

After pressing the "Drug nebulizer" key, the drug nebulizer is switched on for 30 minutes. At the same time the solenoid valve **Y1.4** is switched through in the flow-active inspiratory phase. The drug nebulizer is supplied with drive gas through the restrictor **R1.2**. After completion of the inspiratory gas supply phase, the solenoid valve **Y1.4** is also switched back. The minute volume remains constant while the flow setting is being corrected. When drug nebulizing is complete, the flow sensor **S5.1** is automatically annealed clean.

The drug nebulizer needs a minimum inspiratory flow of 16 L/min.
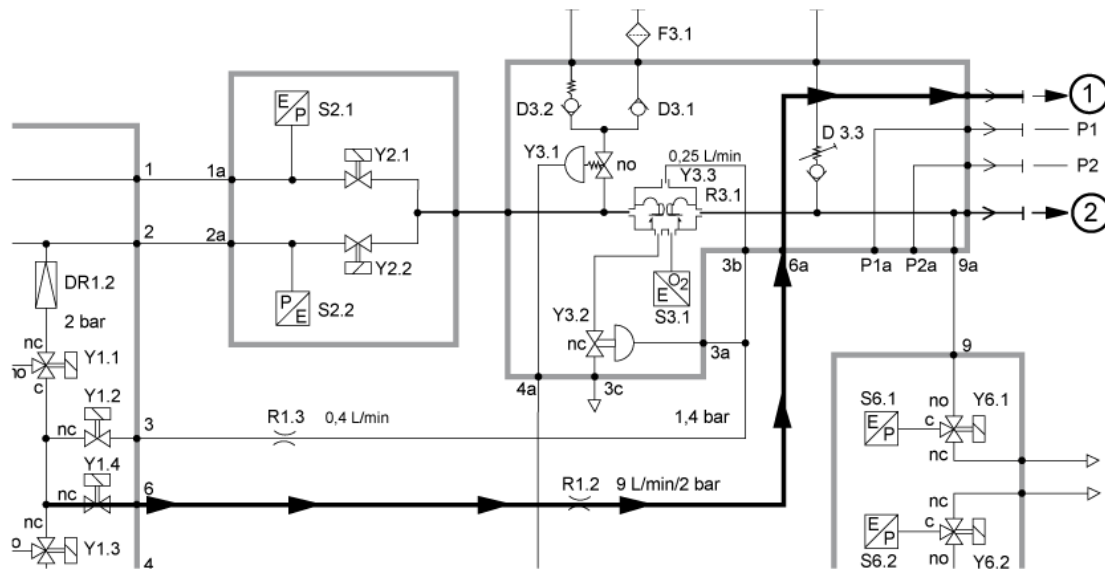
Fig. 40   Nebulizer function diagram

Item	Designation
1	Nebulizer
2	Inspiration

3.14   Gas mixture

3.14.1   Functional principle

The AIR flow and the O_2 flow are metered directly out of the supply lines with one HPSV each; both sub-flows flow together to the inspiration block in the so-called parallel mixer. Depending on the set FiO_2 (0.21 to 1.00), the total flow to be metered is split into an air sub-flow and an oxygen sub-flow. Sub-flows of less than 5 L/min are no longer metered continuously, but in pulses lasting at least 8 ms and with a constant flow value of 5 L/min. This results in a pulse/pause ratio that corresponds to the sub-flow value.

3.14.2   Correcting the oxygen HPSV

Corresponding to its operating principle, the HPSV meters a mass flow. Owing to the differing gas density values of the compressed air and the oxygen, different volume flows would therefore be applied if these values were not corrected.

Owing to the different gas density values, the portion of the inspiration flow demanded of the oxygen HPSV is therefore boosted by 5%.

3.14.3   Dependence on the supply pressure

With regard to the gas supply, the operating range of the device is specified from 2.7 bar to 6 bar overpressure. The device monitors this operating range with the aid of the absolute pressure sensors on the HPSVs by the following criteria:

- Supply pressure always higher than 1.2 bar absolute
- At no flow, supply pressure greater than 2.5 bar relative.

At low supply pressures (below 3 bar overpressure), the HPSV can no longer apply high flow demands without errors, i.e. the actually supplied flow is less than the demanded flow. The inspiratory flow must be limited for reasons of flow accuracy and thus also for oxygen concentration accuracy reasons.

Conversion inside device. Prior to the start of an inspiration, the maximum inspiration flow for spontaneous inspiration of the HPSV is defined on the basis of the measured supplied overpressure:

- Psupply > 4 bar absolute > max. inspiratory flow = 180 L/min.
- Psupply < 4 bar absolute > max. inspiratory flow = 150 L/min.

For mandatory inspirations, the inspiration flow is limited by the setting to 120 L/min.

3.14.4 BTPS/NTPD conversion

BTPS = Body Temperature, Pressure, Saturated = body temperature (37 °C), lung pressure, 100% humidity

NTPD = Normal Temperature, Pressure, Dry = normal temperature (20 °C), ambient pressure, 0% humidity

The HPSV is a mass source and therefore supplies the flow under NTPD conditions. Nevertheless, the user setting of the inspiration flow or the demand by the demand flow generator is based on BTPS conditions.

Prior to control of the HPSVs, the BTPS flow demands must be converted to an NTPD flow supply.

$$Flow\_NTPD = Flow\_BTPS * \frac{P\_umgebung + P\_Insp\_End - 63\ mbar}{1013\ mbar} * \frac{293K}{310K}$$

Fig. 41   Conversion

Item	Designation
P_umgebung	Value measured by the ambient pressure sensor.
P_Insp_End	Measured airway pressure at the end of the last inspiration.

3.15　　　　Pneumatics function diagram
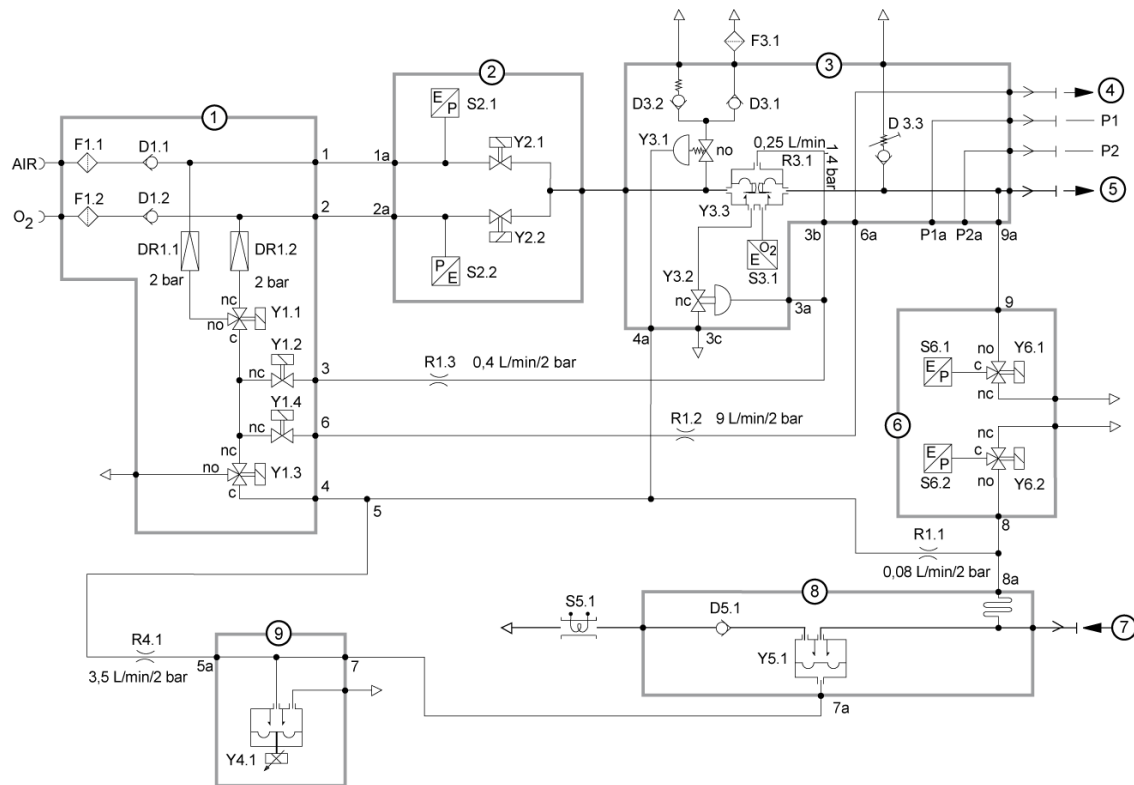
Fig. 42　　Pneumatics diagram

Item	Designation
1	Gas connection.
2	Parallel mixer.
3	Inspiration block.
4	Nebulizer.
5	Inspiration.
6	Pressure measurement
7	Expiration.
8	Patient system.
9	PEEP/PIP valve.
AIR	Gas connection, compressed air.
D1.1	Non-return valve.
D1.2	Non-return valve.
D3.1	Non-return valve.
D3.2	Non-return valve 10 mbar.
D3.3	Non-return valve 100 mbar.
D5.1	Non-return valve.
DR1.1	AIR pressure regulator.
DR1.2	O_2 pressure regulator.
F1.1	Filter.

Item	Designation
F1.2	Filter.
F3.2	Filter.
O_2	Gas connection, compressed oxygen.
R1.1	Restrictor 0.08 L/min/2 bar.
R1.2	Restrictor 9 L/min/2 bar.
R1.3	Restrictor 0.4 L/min/2 bar.
R3.1	Restrictor (hole in the diaphragm in **Y3.3**) 0.25 L/min/1.4 bar.
R4.1	Restrictor 3.5 L/min/2 bar.
S2.1	AIR pressure sensor (HPSV).
S2.2	O_2 pressure sensor (HPSV).
S3.1	O_2 sensor.
S5.1	Flow sensor.
S6.1	Inspiratory pressure sensor.
S6.2	Expiratory pressure sensor.
Y1.1	3/2-way solenoid valve, O_2/AIR.
Y1.2	3/2-way solenoid valve calibration O_2 sensor.
Y1.3	3/2-way solenoid valve, venting.
Y1.4	3/2-way solenoid valve, nebulizer.
Y2.1	HPSV AIR (high-pressure servo-valve) parallel mixer.
Y2.2	HPSV O_2 (high-pressure servo-valve) parallel mixer.
Y3.1	Emergency air valve.
Y3.3	Inspiratory valve.
Y4.1	PEEP/PIP valve.
Y5.1	Expiratory valve.
Y6.1	3/2-way solenoid valve, inspiration.
Y6.2	3/2-way solenoid valve, expiration.

4   Parts catalog

Parts catalog

This chapter contains a list of the device's orderable parts.

Dräger

Parts catalog

Evita 4/ Evita 4 edition

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Parts catalog
Evita 4/ Evita 4 edition

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44200	☐	Tools		St	
	MX44201	☐	Products concerned		St	
	MX44068	☐	Instructions for use		St	
	MX44205	☐	Basic Unit		St	
	MX44203	☐	Modification Kits/Options		St	
	MX44212	☐	Maintenance Parts/Service Kits		St	
	MX44204	☐	Accessories/Consumables		St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

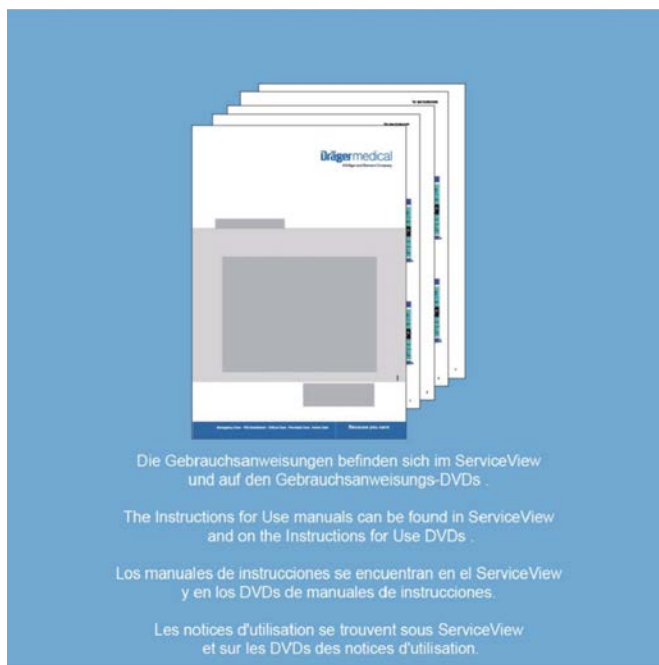Evita 4/ Evita 4 edition
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Parts catalog
Tools
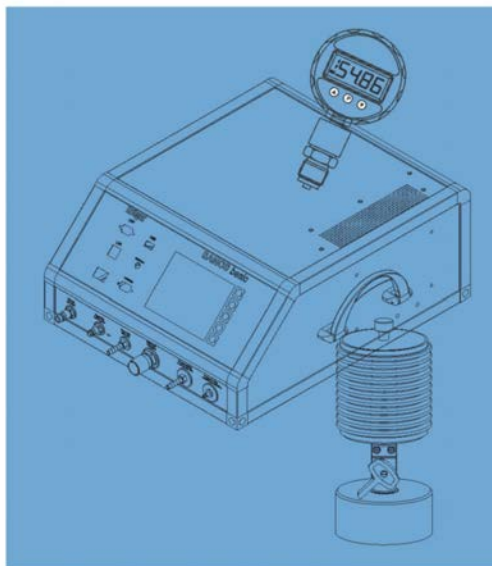
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44355	☐	Test equipment,non-calibrated	1.000	St	
	MX44356	☐	Test equipment, calibrated	1.000	St	
	MX44357	☐	Service tools	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Test equipment,non-calibrated
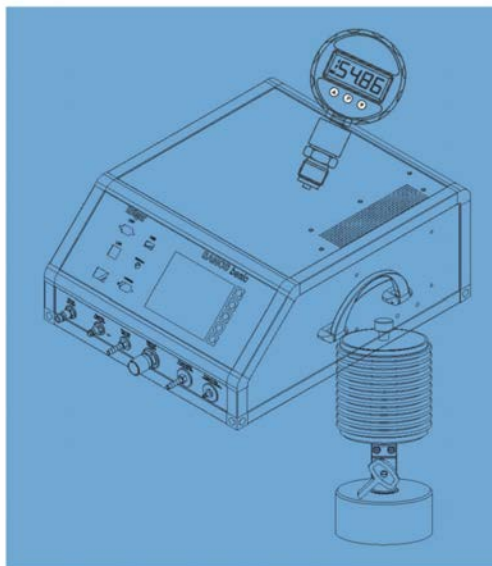
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8290271	☑	Testing gas for CO2 Monitor	1.000	St	
	7910364	☑	Leakage curr. test lead, 2-pin, temperat	1.000	St	
	7901204	☑	Wrench, special open-ended, WAF 17	1.000	St	
	7901607	☑	27MM Spanner	1.000	St	
	7901541	☑	Syring 50ml, empty	1.000	St	
	8400904	☑	Taper adapter	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Test equipment, calibrated
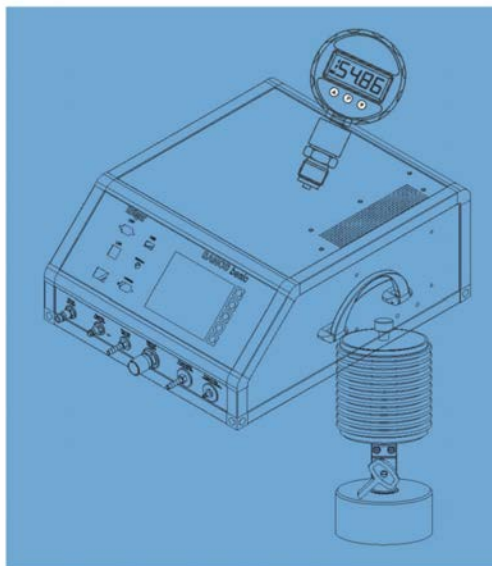
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	7910724	☑	Pres. meas. device, dig. 20bar	1.000	St	
	7910722	☑	Pres. meas. device, dig. 1bar	1.000	St	
	7901161	☑	Flowm., bl. , 0.02 - 14 L/min.	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Service tools
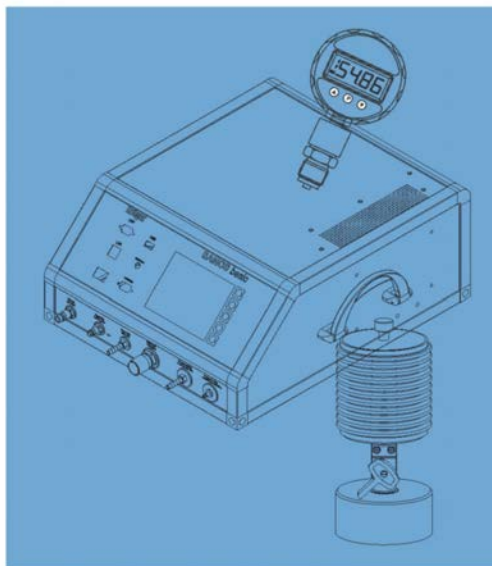
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8412710	☑	Calibration set CO2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Products concerned

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8411740	☐	Evita 4, CE	1.000	St	
	8411900	☐	Evita 4, Construction Kit	1.000	St	
	8412800	☐	Evita 4 international	1.000	St	
	8412970	☐	Evita 4, F	1.000	St	
	8412980	☐	Evita 4, USA	1.000	St	
	8412990	☐	Evita 4, J	1.000	St	
	8413454	☐	ICU respirator Evita 4	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Instructions for use

Die Gebrauchsanweisungen befinden sich im ServiceView
und auf den Gebrauchsanweisungs-DVDs .

The Instructions for Use manuals can be found in ServiceView
and on the Instructions for Use DVDs .

Los manuales de instrucciones se encuentran en el ServiceView
y en los DVDs de manuales de instrucciones.

Les notices d'utilisation se trouvent sous ServiceView
et sur les DVDs des notices d'utilisation.

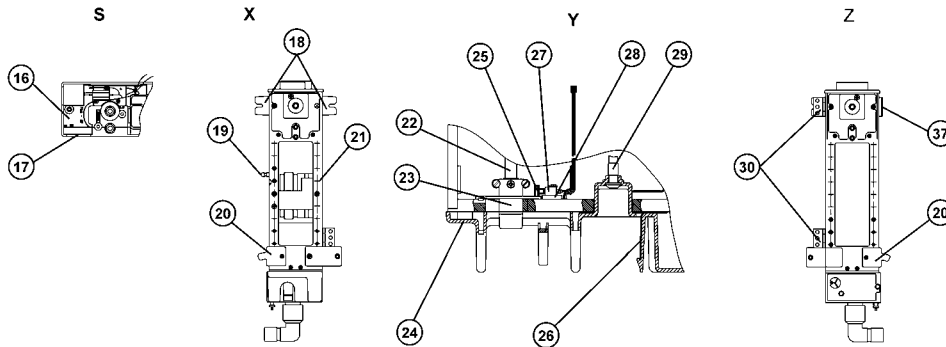| Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Basic Unit
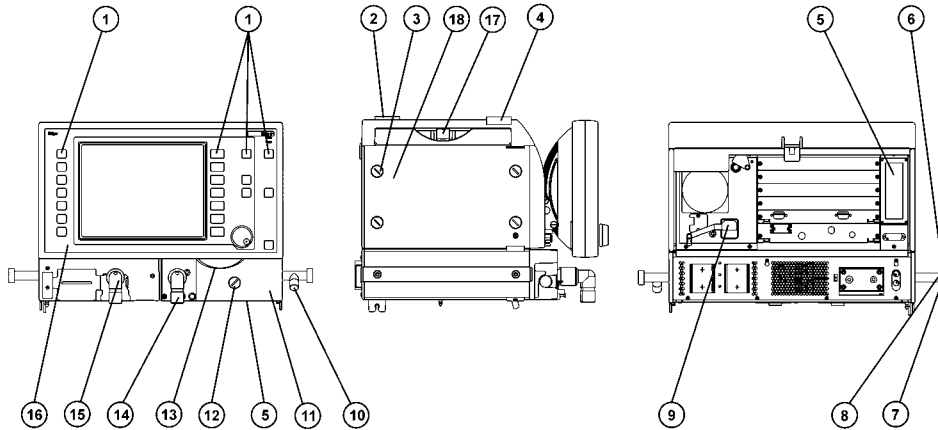
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44207	☐	Electronic	1.000	St	Servicedrawing
	MX44206	☐	Pneumatic	1.000	St	Servicedrawing
	MX44208	☐	Operating Device	1.000	St	Servicedrawing
1	8412380	☑	Stripe	1.000	St	
2	8412858	☑	Vent plug	2.000	St	
3	2M17288	☑	Screw	8.000	St	
4	8412857	☑	Vent plug	2.000	St	
5	8412384	☑	Filter, single	2.000	St	
6	8406763	☑	Bar	2.000	St	
7	G60455	☑	Vent plug	4.000	St	
8	8406504	☑	Socket	3.000	St	
9	1824481	☑	Power cable CE,3m,10A,C13L,bk	1.000	St	
10	8411784	☑	Parking support	1.000	St	
11	8412375	☑	Hood	1.000	St	
12	8419618	☑	Plastic screw	1.000	St	
13	1839780	☑	Connecting cable	1.000	St	
14	8410575	☑	Angular porcelain Bush	1.000	St	
15	8410580	☑	Expiration valve, Patientsys.	1.000	St	
16	8416980	☑	Op.Device Evita 4 edition	1.000	St	
17	8414828	☑	Tray	1.000	St	
18	8412379	☑	Hood 4H,1B	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Pneumatic
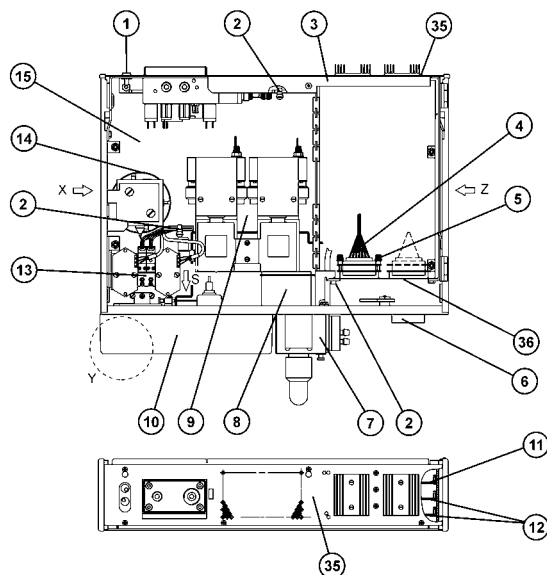
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412361	☑	Socket	1.000	St	
2	8712065	☑	Cable clip	7.000	St	
3	8412339	☑	Chassis pneumaticPNEUMATIC	1.000	St	
4	8306545	☑	Cable harness	2.000	St	
5	8306225	☑	Screw	2.000	St	
6	8306560	☑	Fan pneumatic, compl.	1.000	St	
7	MX44218	☐	Inspiration Block	1.000	St	
8	MX44216	☐	Housing	1.000	St	
9	MX44215	☐	Parallel Mixer 4	1.000	St	
10	MX44225	☐	Patient System	1.000	St	
11	8306601	☐	PCB pneumatic controller	1.000	St	sale
11	8420855	☑	Rep-Kit LP Pneumatikcont 42dXL	1.000	St	
12	8306561	☑	PCB HPSV-controller	2.000	St	for repair only one piece necessary
13	MX44214	☐	Pressure Metering Block	1.000	St	
14	8410717	☑	Peep Valve	1.000	St	
15	2M04819	☑	Rubber buffer	2.000	St	
35	8412718	☑	Cover plate, backpanel	1.000	St	
36	8306571	☑	PCB pneumatic motherboard	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
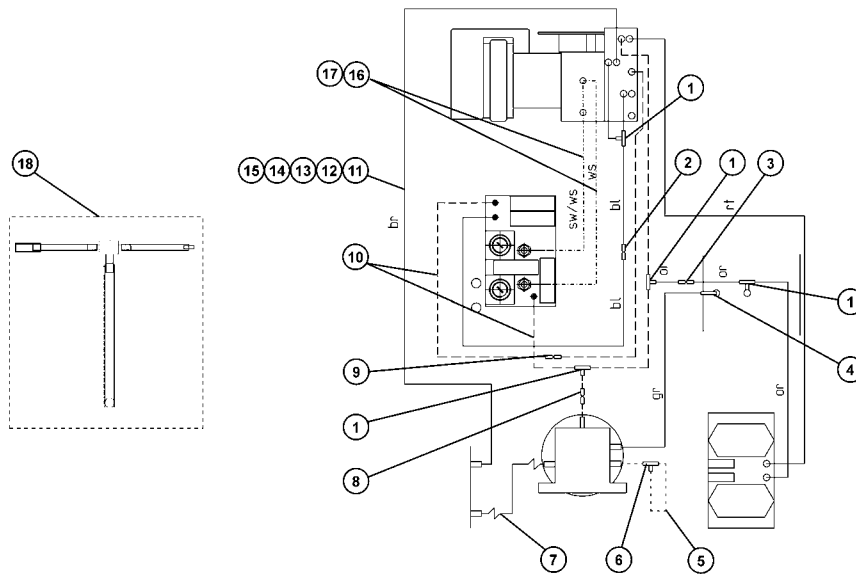Revision: 22

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Parts catalog
Pneumatic

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
16	MX44217	☐	Patientsystem heater	1.000	St	
17	8412605	☑	Plate	1.000	St	
18	8412363	☑	Latch	2.000	St	
19	8408902	☑	Pin	1.000	St	
20	2M17303	☑	Catch	2.000	St	
21	8412354	☑	Side part 2H	1.000	St	
22	8415709	☑	Cable harness spirolog sensor	1.000	St	
23	8410663	☑	Plug accommodation	1.000	St	
24	8410570	☐	Connecting housing	1.000	St	
25	1190520	☑	Hose 4X1,5-SI 50 SH A NF	1.000	m	
26	8410631	☑	Spring	1.000	St	
27	8306556	☑	Cable harness flowswitcher	1.000	St	
28	8410917	☑	Rubber element	1.000	St	
29	8407689	☑	Lip seal	2.000	St	
30	8412707	☑	Hinge,cpl.	2.000	St	
37	8412382	☑	Sheet metal,cpl	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Pneumatic

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
30	8412707	☑	Hinge,cpl.	2.000	St	
31	2M17302	☑	Base	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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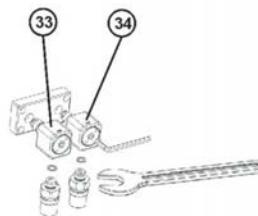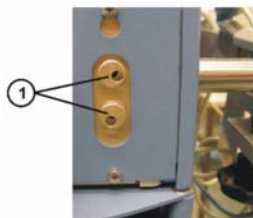
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412361	☑	Socket	1.000	St	
33	8414466	☑	90° connector Air	1.000	St	
34	8413641	☑	90 degrees connector O2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

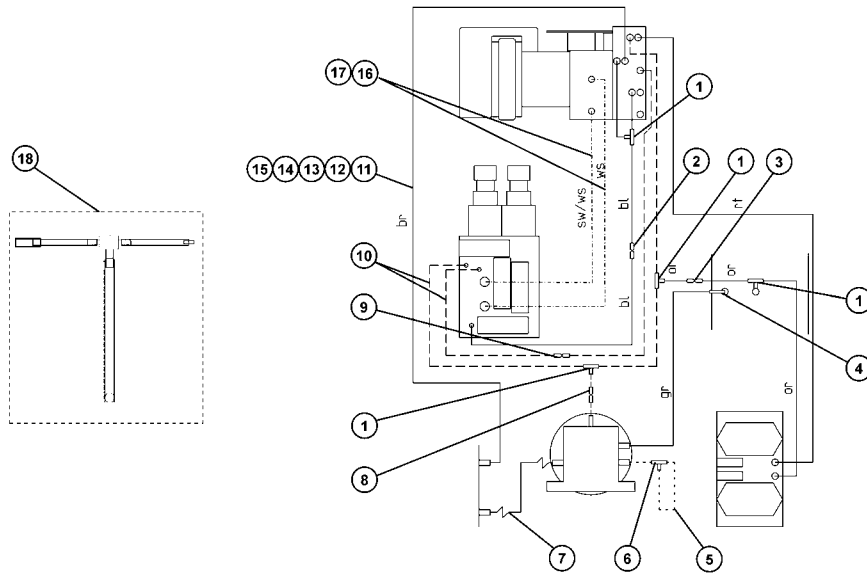Evita 4/ Evita 4 edition
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Parts catalog
Pneumatic

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44221	☐	Tubing Plan GS FAS	1.000	St	
	MX44223	☐	Gas Supply FAS	1.000	St	
	1301489	☑	Lock washer 6 DIN 6799	1.000	St	
	MX44222	☐	Gas Supply Draeger	1.000	St	
	MX44220	☐	Tubing Plan GS Draeger	1.000	St	
32	6800478	☑	Buffer	4.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Tubing Plan GS FAS

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8401083	☑	T-piece	4.000	St	
2	8412998	☑	Dosage	1.000	St	
3	8412201	☑	Dosage	1.000	St	
4	2M17645	☑	Tube	1.000	St	
5	1190520	☑	Hose 4X1,5-SI 50 SH A NF	1.000	m	
6	6800187	☑	T-Socket	1.000	St	
7	1198343	☑	Hose 7X2,5 SI NF M29908	1.000	m	
8	8412892	☑	Dosage	1.000	St	
9	8414789	☑	Dosage	1.000	St	
10	1203622	☑	Hose 2X1,5 SI NF 8403323	1.000	m	
11	1204807	☑	Hose 2X1-SIGN green	1.000	m	
12	1204823	☑	Hose 2X1-sign orange	1.000	m	
13	1204793	☑	Hose 2X1-SIGN red	1.000	m	
14	1204815	☑	Hose 2X1-sign brown	1.000	m	
15	1204785	☑	Hose 2X1-SIGN BL	1.000	m	
16	1210203	☑	Hose 4X1PAE SW/WS M31989	1.000	m	
17	1210165	☑	Hose 4X1 PAE WS	1.000	m	
18	8419520	☑	Kit Volume for PEEP Valve	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Gas Supply Draeger
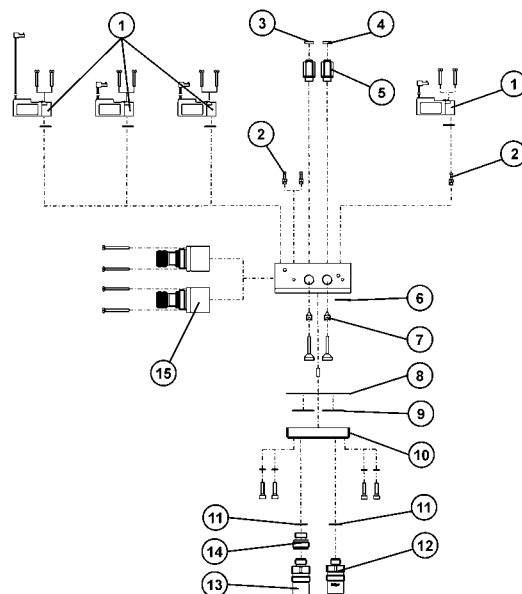
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412209	☑	Micro-electrovalve	4.000	St	
2	8408197	☑	Socket	3.000	St	
3	M31601	☑	Thrust collar 6 black	1.000	St	
4	M31603	☑	Thrust collar 6, white	1.000	St	
5	M30960	☑	Plug-type connection	2.000	St	
6	8303296	☑	Adhesive label	1.000	St	
7	D21138	☑	Check valve	2.000	St	
8	8408204	☑	Gasket	1.000	St	
9	8408208	☑	Filter (for 8411848)	2.000	St	
10	8412871	☑	Receiver	1.000	St	
11	M19311	☑	Washer	2.000	St	
12	M32489	☑	Adapter O2	1.000	St	
13	8412872	☑	Anschluss Air (Nist)	1.000	St	
14	8412873	☑	Connection Air (DIN)	1.000	St	
15	8408205	☑	Pressure regulator	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Tubing Plan GS Draeger

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8401083	☑	T-piece	4.000	St	
2	8412998	☑	Dosage	1.000	St	
3	8412201	☑	Dosage	1.000	St	
4	2M17645	☑	Tube	1.000	St	
5	1190520	☑	Hose 4X1,5-SI 50 SH A NF	1.000	m	
6	6800187	☑	T-Socket	1.000	St	
7	1198343	☑	Hose 7X2,5 SI NF M29908	1.000	m	
8	8412892	☑	Dosage	1.000	St	
9	8414789	☑	Dosage	1.000	St	
10	1203622	☑	Hose 2X1,5 SI NF 8403323	1.000	m	
11	1204807	☑	Hose 2X1-SIGN green	1.000	m	
12	1204823	☑	Hose 2X1-sign orange	1.000	m	
13	1204793	☑	Hose 2X1-SIGN red	1.000	m	
14	1204815	☑	Hose 2X1-sign brown	1.000	m	
15	1204785	☑	Hose 2X1-SIGN BL	1.000	m	
16	1210203	☑	Hose 4X1PAE SW/WS M31989	1.000	m	
17	1210165	☑	Hose 4X1 PAE WS	1.000	m	
18	8419520	☑	Kit Volume for PEEP Valve	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

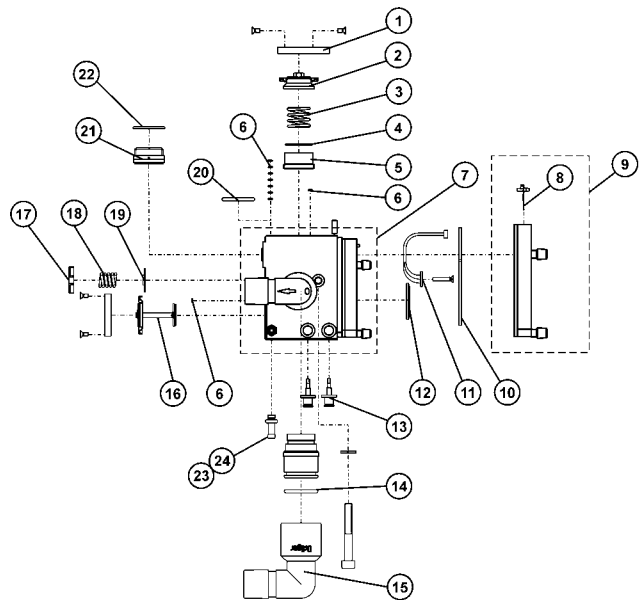Evita 4/ Evita 4 edition
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Parts catalog
Gas Supply FAS
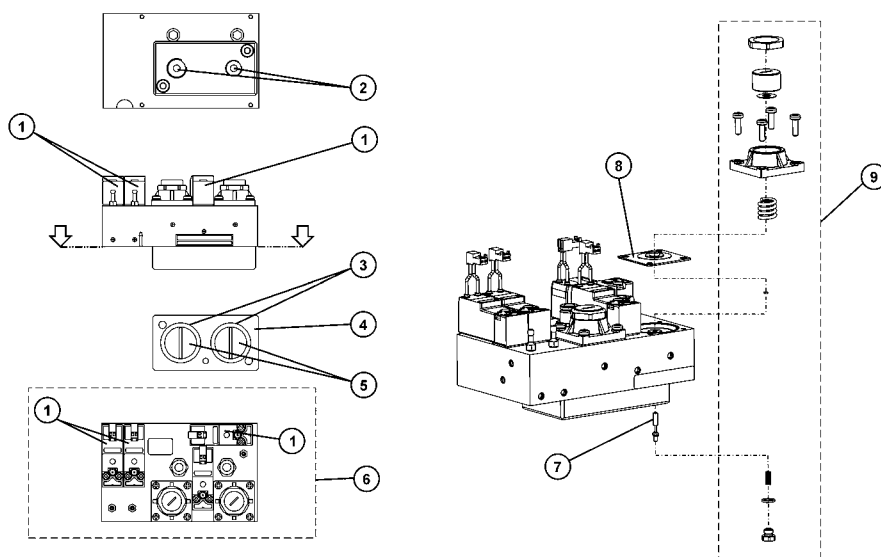
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412209	☑	Micro-electrovalve	1.000	St	Y1.1;Y1.2;Y1.3;Y1.4
2	8411515	☑	Nonreturn valve (for 8411848)	2.000	St	
3	8411516	☑	O-ring for 8411848	2.000	St	
4	8419505	☑	FAS connection board, complete	1.000	St	
5	8408208	☑	Filter (for 8411848)	2.000	St	
6	8411848	☑	Gas Input Unit	1.000	St	
7	8411514	☑	Valve tappet (for 8411848)	2.000	St	
8	8411513	☑	Diaphragm FPM (for 8411848)	2.000	St	
9	8419255	☑	FAS pressure regulator kit	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Inspiration Block
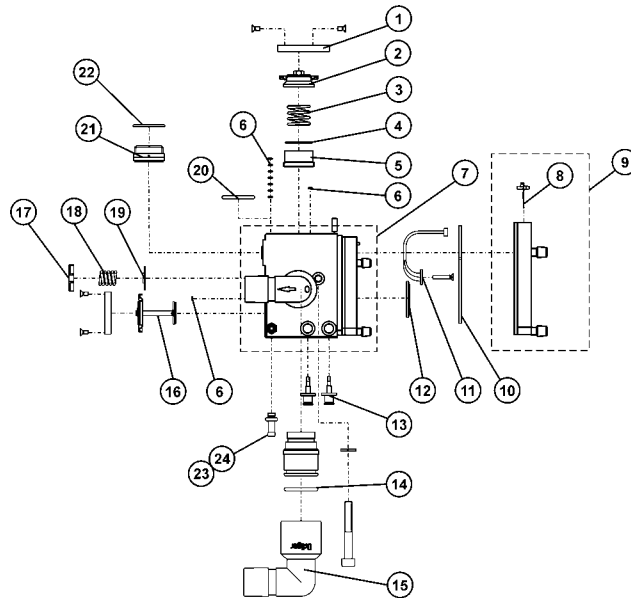
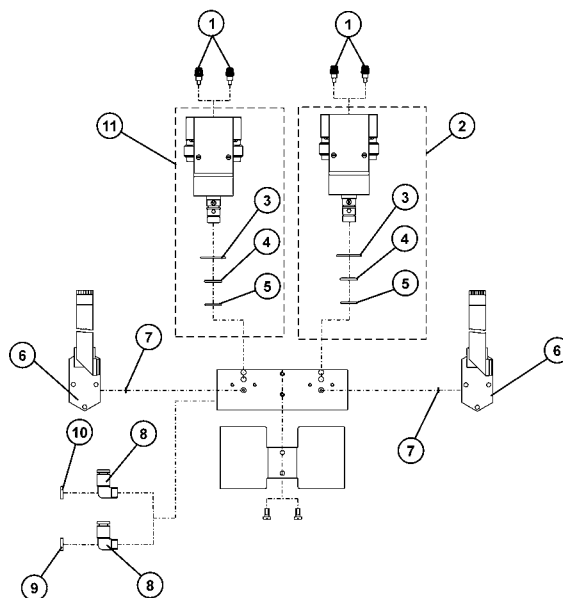| Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412955	☐	Cover 1	1.000	St	
2	8414179	☑	Diaphragm connection SV	1.000	St	
3	D13509	☑	Closing spring	1.000	St	
4	R27696	☑	O-ring 19x1	1.000	St	
5	8412951	☑	Receiver	1.000	St	
6	8414597	☑	O-ring seal 2,8x1,6	8.000	St	
7	8412981	☑	Inspiration Unit,complete	1.000	St	
8	8410682	☑	Diaphragm	1.000	St	
9	8411749	☑	Cover, cpl. (Evita 4)	1.000	St	
10	8413031	☑	Gasket	1.000	St	
11	8306671	☑	Pba O2-contact	1.000	St	
12	8412938	☑	Lip seal	1.000	St	
13	8600213	☑	LUER-LOCK,female	2.000	St	
14	M20622	☑	O-ring	1.000	St	
15	8410676	☑	Angular porcelain Bush	1.000	St	
16	8414178	☑	Diaphragm connection O2	1.000	St	
17	8412952	☑	Screw	1.000	St	
18	2M12034	☑	Spring	1.000	St	
19	8410307	☑	Sealing washer	1.000	St	
20	2M08777	☑	O-ring seal	1.000	St	
21	8411745	☑	Pressure control valve	1.000	St	
22	R26807	☑	O-ring, 18.77x1.78mm	1.000	St	
23	8412939	☑	Socket	1.000	St	glue in with 7911820

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Inspiration Block

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
24	7911820	☑	UHU plus self-setting 300	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Housing
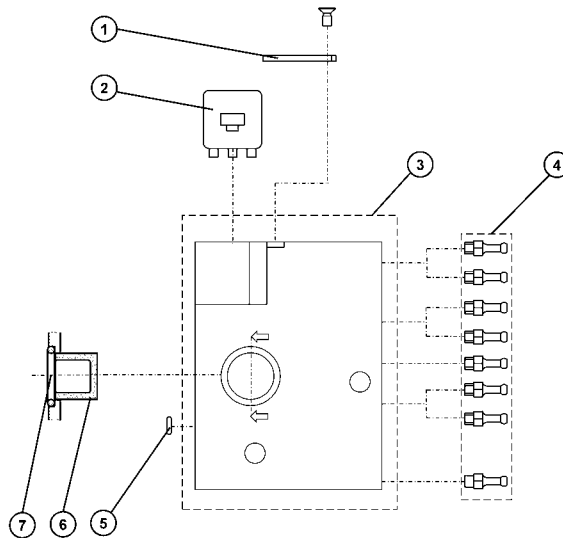
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8409177	✔	Sheet metal	1.000	St	
2	8407265	✔	Microswitch	1.000	St	Dreloba
3	8412356	✔	Housing, cpl	1.000	St	
4	8408197	✔	Socket	8.000	St	
5	E20567	✔	O-ring	1.000	St	
6	8407827	✔	Sintered filter	1.000	St	
7	2M08777	✔	O-ring seal	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Parallel Mixer 4

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8306225	☑	Screw	4.000	St	
2	8412128	☑	Valve Air	1.000	St	
3	R16442	☑	O-ring	2.000	St	
4	8414375	☑	O-ring seal	1.000	St	
5	E09548	☑	O-ring 13.5x1.5	2.000	St	
6	8306248	☑	Rep.set high pressure sensor	1.000	St	
7	8410713	☑	O-ring seal	2.000	St	
8	M30961	☑	Angle connection	2.000	St	
9	M31601	☑	Thrust collar 6 black	1.000	St	
10	M31603	☑	Thrust collar 6, white	1.000	St	
11	8412126	☑	Valve O2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Patient System
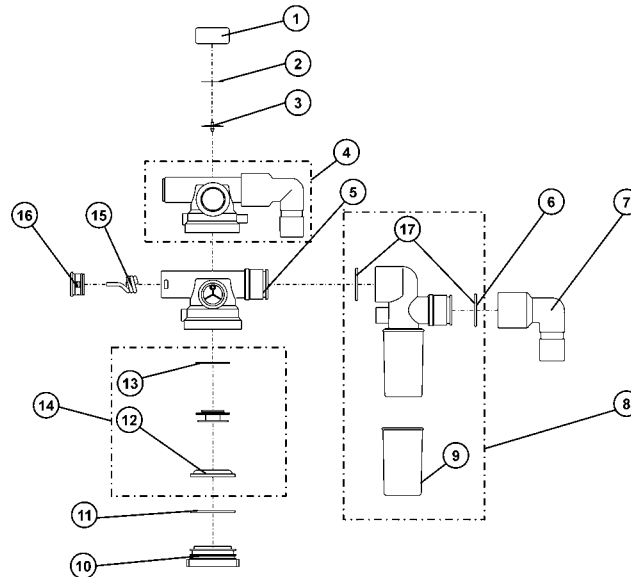
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8410576	☑	Gasket	1.000	St	
2	8412202	☑	Sieve	1.000	St	
3	8410682	☑	Diaphragm	1.000	St	
4	8410580	☑	Expiration valve, Patientsys.	1.000	St	Complete Unit
5	8410571	☑	Valve housing	1.000	St	
6	M29902	☑	O-Ring	2.000	St	without Watertrap
7	8410575	☑	Angular porcelain Bush	1.000	St	
8	8413125	☑	KIT Water trap, for exp. valve	1.000	St	
9	8403976	☑	Pot	1.000	St	
10	8410572	☑	Valve cover	1.000	St	
11	E22651	☑	O-ring	1.000	St	
12	8410181	☑	Diaphragm	1.000	St	
13	8407979	☑	Sealing washer	1.000	St	
14	8412015	☑	Diaphragm	1.000	St	
15	8410574	☑	Tube	1.000	St	
16	8410672	☑	Connecting cap	1.000	St	
17	M20622	☑	O-ring	1.000	St	only with "Kit Watertrap"

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Pressure Metering Block
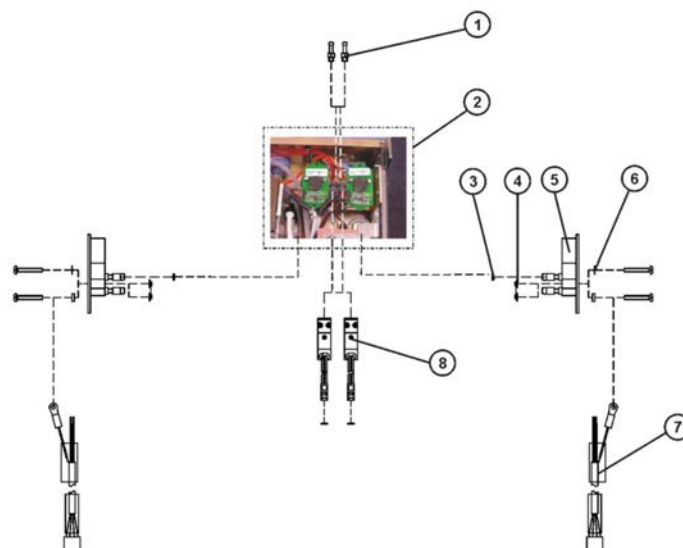
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8408197	☑	Socket	2.000	St	
2	8412210	☑	Pressure Measurement Unit	1.000	St	Complete Unit
3	8410713	☑	O-ring seal	2.000	St	
4	6804141	☑	Isolate socket	4.000	St	
5	1865870	☑	Pres.sensor 120mbar diff. RoHS	1.000	St	sale. replaced through 8419627 + 8419628
5	8419628	☑	Kit pressure sensor EX	1.000	St	replacement for 1865870
5	8419627	☑	Kit pressure sensor IN	1.000	St	replacement for 1865870
6	D04766	☑	Packing ring	2.000	St	
7	8306538	☑	Cable harness,press.absorption	2.000	St	
8	8412993	☑	Electrovalve	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Patientsystem heater
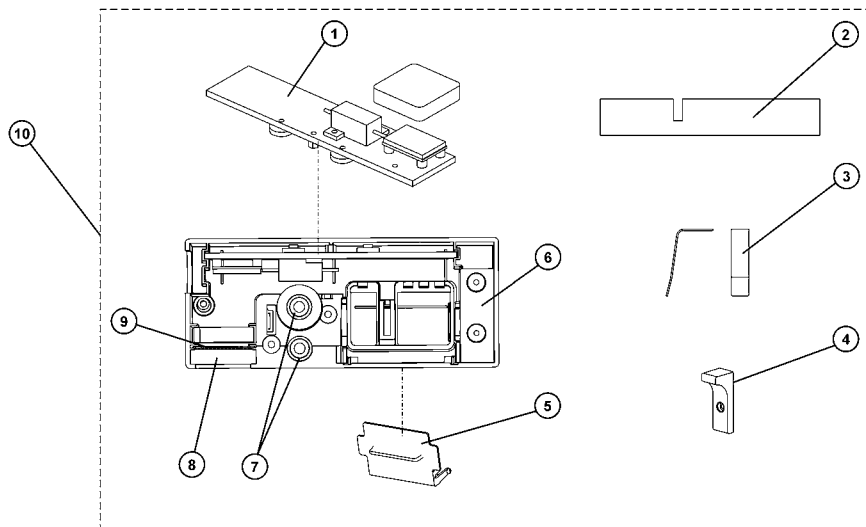
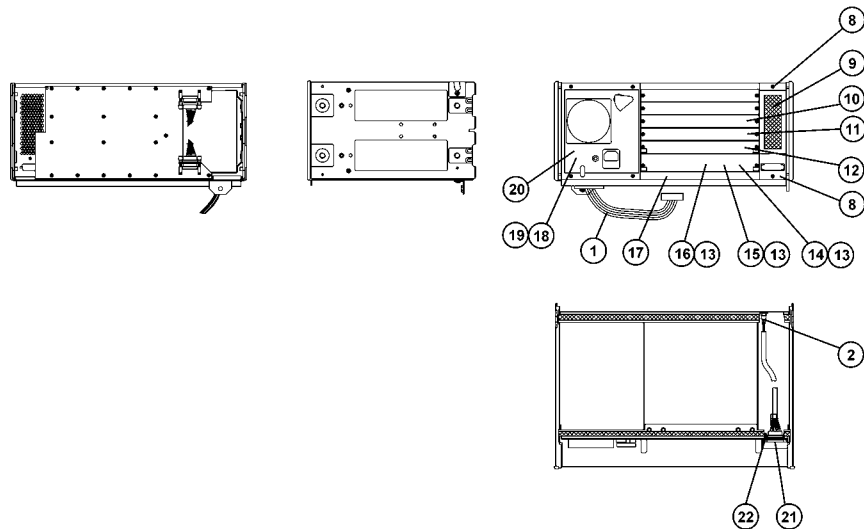| Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8415975	☑	Heater	1.000	St	(mit Lüfter u. Ansteuerung/ with fan and controller)
2	8411739	☑	Insulation foil	1.000	St	
3	8410631	☑	Spring	1.000	St	
4	8414198	☑	Exhalation outlet protector	1.000	St	
5	8415973	☑	Cap	1.000	St	
6	8415971	☑	Connecting housing	1.000	St	
7	8407689	☑	Lip seal	1.000	St	
8	8415978	☑	Dust filter	1.000	St	
9	8415979	☐	Protective guard	1.000	St	
10	8416804	☑	Kit heating patient part	1.000	St	For patientsystem heater 2005 only

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Electronic
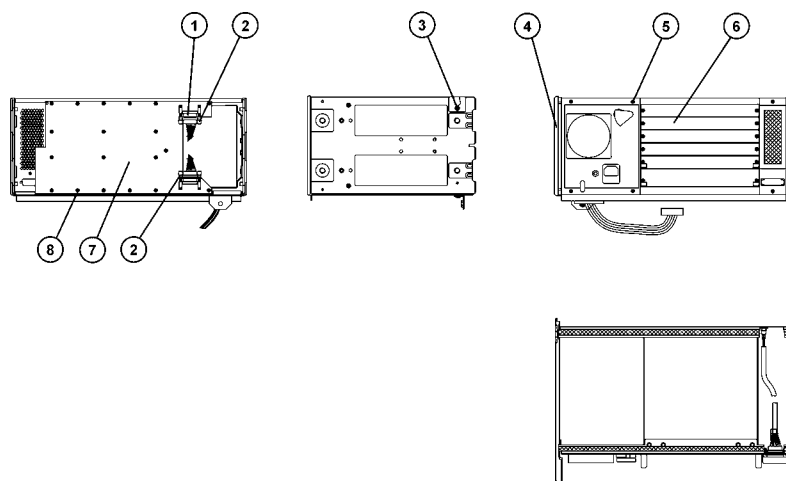
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8306546	☑	Cable harness,pneumatics drive	1.000	St	
2	8306225	☑	Screw	6.000	St	
3	2M17304	☑	Support	2.000	St	
4	8304117	☑	Sideparts 4H	2.000	St	
5	1342142	☑	Screw M3X12 DIN7985	4.000	St	
6	MX44231	☐	PCB Communication	1.000	St	Servicedrawing
7	8306581	☑	PCB motherboard	1.000	St	
8	1340727	☑	pan head screw ISO7045 M3x6-A2-H	21.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Electronic

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8306546	☑	Cable harness,pneumatics drive	1.000	St	
2	8306225	☑	Screw	6.000	St	
8	1340727	☑	pan head screw ISO7045 M3x6-A2-H	21.000	St	
9	8412384	☑	Filter, single	1.000	St	
10	MX44232	☐	PCB IFCO-Carrier	1.000	St	Servicedrawing
11	MX44230	☐	PCB Paed.Flow	1.000	St	Servicedrawing
12	MX44226	☐	PCB-CPU	1.000	St	Servicedrawing
13	MX44234	☐	Kit SpO2	1.000	St	
14	MX44228	☐	PCB CO2-Carrier (discontinued)	1.000	St	
15	MX44229	☐	Modification Kit-CO2 Carrier	1.000	St	
16	MX44233	☐	CO2-Accessories	1.000	St	
17	8412374	☑	Chassis elektronik	1.000	St	
18	MX44662	☐	Power supply Delta AC/DC 2013	1.000	St	
18	MX44001	☐	Power Supply Delta (Frako)	1.000	St	
19	MX44002	☐	Power Supply MB	1.000	St	
20	8421988	☑	kit 2 batteries Evita internal	1.000	St	
21	1853945	☑	Cap	1.000	St	
22	1822357	☑	DSUB-Threaded boltM3 RoHS	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
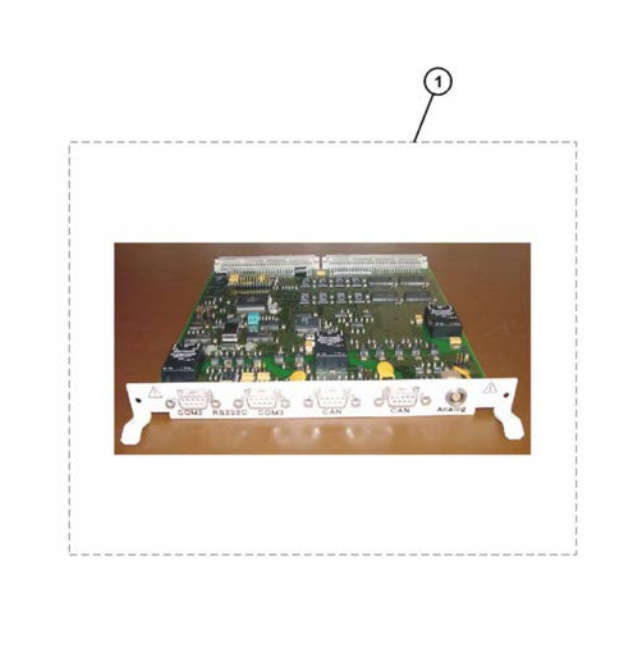Revision: 22

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Parts catalog
Electronic

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8306547	☑	Plate	4.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
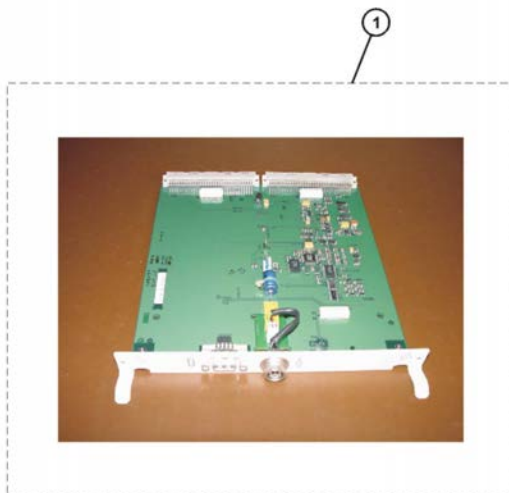Revision: 22

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Parts catalog
PCB Communication

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8306621	☐	PCB COMMUNICATION	1.000	St	sale
1	8420856	☑	Rep-Kit PCB Communication42dXL	1.000	St	

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Evita 4/ Evita 4 edition
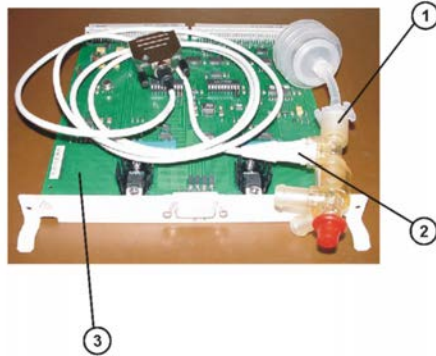Revision: 22

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Parts catalog
PCB IFCO-Carrier

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8415611	☑	P.C.B. nursecall	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
PCB Paed.Flow

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8411130	☑	Neonatal Flow Sensor ISO15	1.000	St	
2	8409626	☑	Connector cable flow sensor	1.000	St	
3	8306631	☑	Pba paediatric-flow	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
PCB-CPU
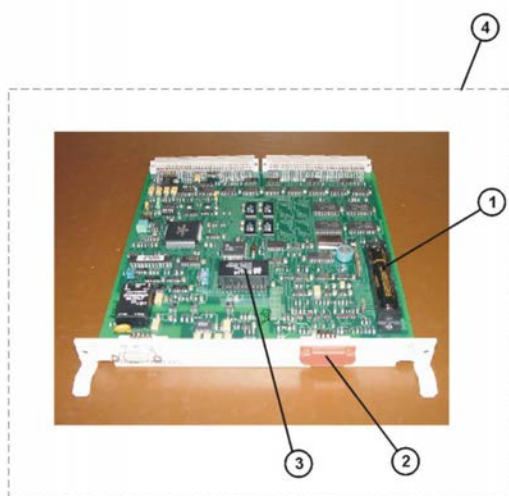
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	1835343	☑	Lithium stor.battery 3V/1400	1.000	St	
2	1852345	☑	Cap	1.000	St	
3	1837087	☑	Realtimeclock DIL24	1.000	St	
4	8420854	☑	Rep-Kit LP CPU 42dXL	1.000	St	please D22 with take over
4	8306591	☐	PCB CPU 68332	1.000	St	please D22 with take over/sale

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Kit SpO2
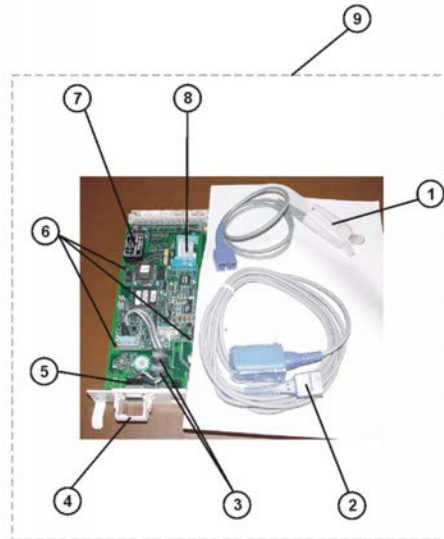
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8201001	☐	Durasensor DS-100A	1.000	St	
2	8600859	☑	Extension cable sensor 2,6M	1.000	St	
3	8712065	☑	Cable clip	2.000	St	
4	8600677	☐	Flat/mounting SPO2-cable	1.000	St	
5	8600787	☑	Cable harness SPO2	1.000	St	
6	D04766	☑	Packing ring	3.000	St	
7	1837869	☑	DC/DC-converter +-15V	1.000	St	
8	8411728	☐	Cable harness SPO2-power	1.000	St	
9	8600481	☑	SAO2 module	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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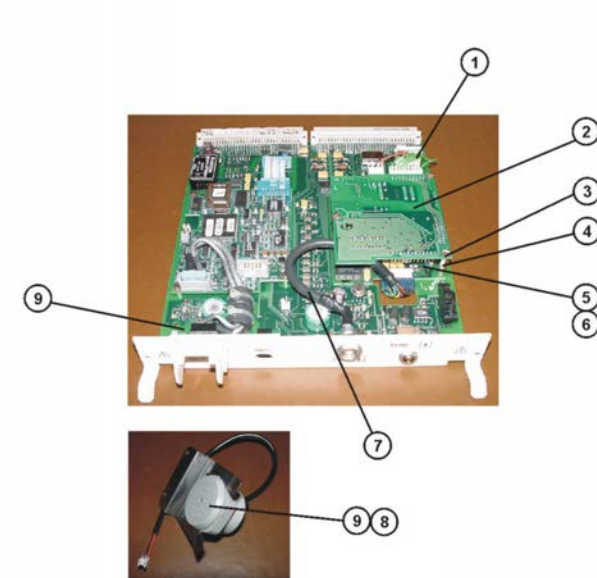
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Parts catalog
PCB CO2-Carrier (discontinued)
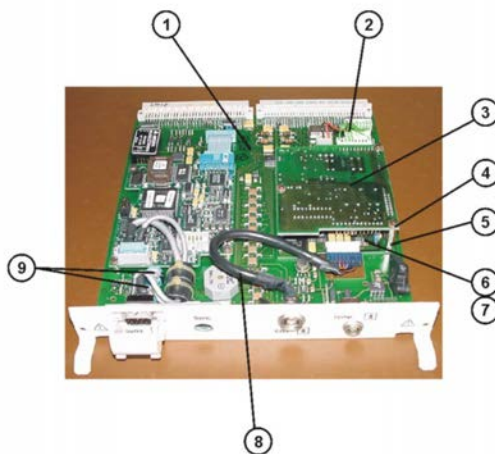
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8306611	☐	PCB CO2-carrier	1.000	St	
2	8306567	☑	Wiring harness CO2-power RS232	1.000	St	
3	8350411	☑	PCB power	1.000	St	
4	D04766	☑	Packing ring	1.000	St	
5	8305182	☑	Spacer bolt	1.000	St	
6	6870296	☑	PCB signal processor (CO2-main)	1.000	St	
7	6871930	☑	Software 1.14 (CO2-Main)	1.000	St	Substitute for(6870508 discontinued)
8	8306766	☑	Cable for CO2 sensor	1.000	St	
9	1837125	☑	Al. DL Capacitor 0.22F 5V RoHS	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Modification Kit-CO2 Carrier

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8306567	☑	Wiring harness CO2-power RS232	1.000	St	
2	8350411	☑	PCB power	1.000	St	
3	D04766	☑	Packing ring	1.000	St	
4	8305182	☑	Spacer bolt	1.000	St	
5	6870296	☑	PCB signal processor (CO2-main)	1.000	St	
6	6871930	☑	Software 1.14 (CO2-Main)	1.000	St	
7	8306766	☑	Cable for CO2 sensor	1.000	St	
8	8414361	☑	Horn, complete	1.000	St	Mounted after the filter on the back wall
9	8414362	☑	KIT CO2-Carrier	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
CO2-Accessories
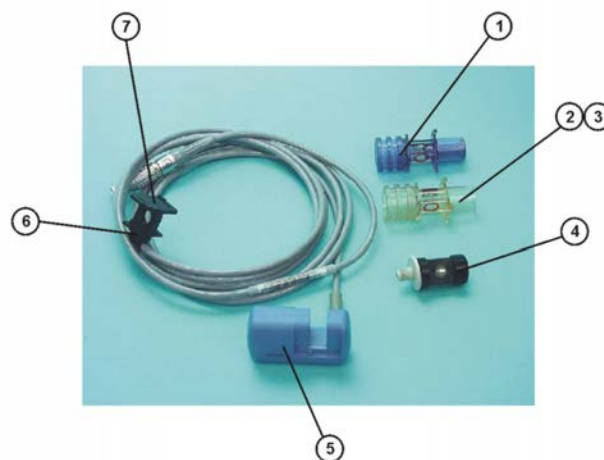
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	6870280	☑	CO2-Cuvette Paed.	1.000	St	
2	6870279	☑	CO2-Cuvette ERW	1.000	St	
3	MP01062	☑	Disposable CO2 Cuvette Adult	1.000	St	
4	8412840	☑	Parking support, cpl.	1.000	St	
5	6871500	☑	Mainstream sensor	1.000	St	New CO2 Sensor
6	6870343	☑	Set of inscripted clips	1.000	St	All possible clips with all values
7	6870281	☑	Test filter	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Power supply Delta AC/DC 2013
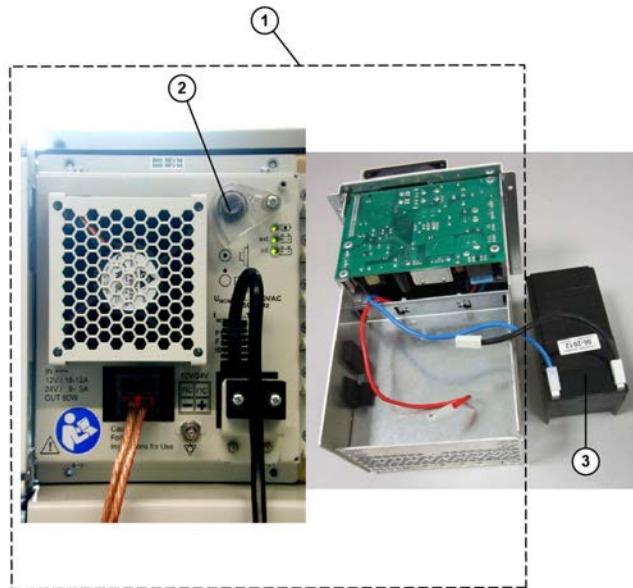
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8421079	☑	Repair kit AC/DC power supply unit	1.000	St	
2	8415955	☑	Kit flap for power switch	1.000	St	
3	8421988	☑	kit 2 batteries Evita internal	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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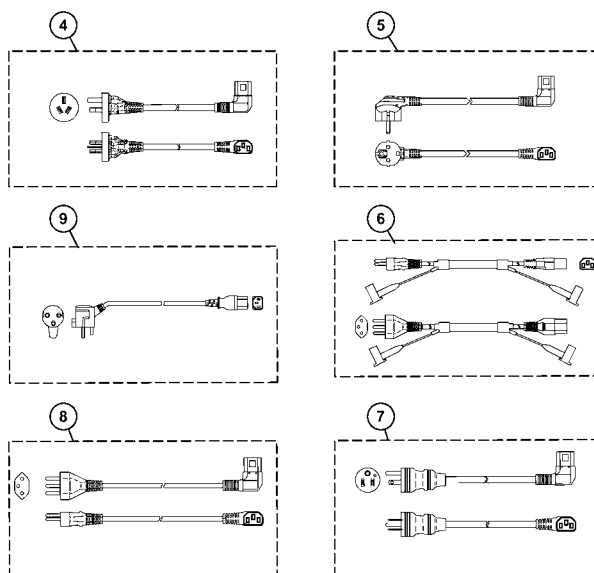**Parts catalog**
Power supply Delta AC/DC 2013

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
4	1851810	☑	Cabel Australia,3m,10A,C13W	1.000	St	
5	1856553	☑	Power cord CE,3m,10A,C13W	1.000	St	
6	1866788	☑	Cable Switzerland,3m,C13 RoHS	1.000	St	
7	1856626	☑	Power cord USA,3m,10A,C13W	1.000	St	
8	1856561	☑	Power cord CH,3m,10A,C13W	1.000	St	
9	1868950	☑	PWR Cord DK,3m,10A,C13,HG RoHS	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22
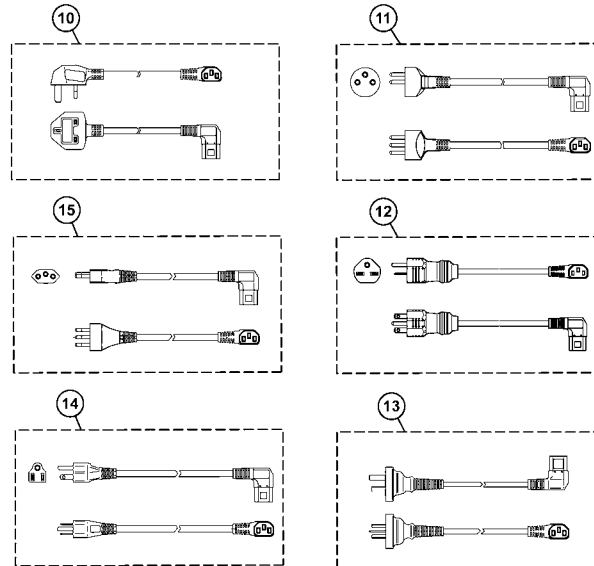
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Parts catalog
Power supply Delta AC/DC 2013

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
10	1856596	☑	Cable Great Britain 3m,C13W	1.000	St	
11	1878840	☑	Pwr. cord IL,3m,10A,C13W RoHS	1.000	St	
12	1875973	☑	Mains cable SA,3m,C13W,GY RoHS	1.000	St	
13	1859706	☑	Power cable 10A,3m,black,China	1.000	St	
14	1866915	☑	Power cable 10A 3m bk RoHS	1.000	St	
15	1875531	☑	Mains cable BR,3m,C13W,BK RoHS	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Power supply Delta AC/DC 2013

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
0	8421078	☑	Kit connecting housing f. ext.	1.000	St	only for option external battery
0	8421072	☑	Stain relief, 30 degrees	1.000	St	only for CH and DK
0	8422125	☑	kit 2 batteries Evita external	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
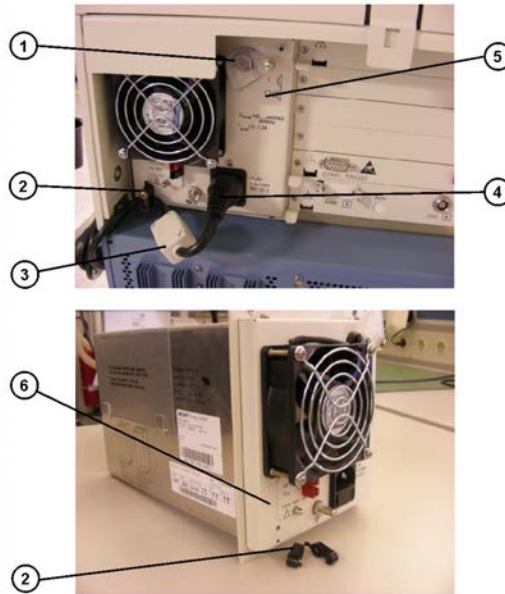Revision: 22

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Parts catalog
Power Supply Delta (Frako)

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8415955	☑	Kit flap for power switch	1.000	St	
2	1843680	☑	Pull relief	1.000	St	
3	1834967	☑	Ferrite core DM6-7 LV01583	1.000	St	
4	1851683	☑	Supply main, 3m, 10A	1.000	St	
4	1841793	☑	PWR Cord 10A,3m,gr,USA/J RoHS	1.000	St	
4	1851713	☑	Cable Great Britian,3m,10A	1.000	St	
4	1851691	☑	Mains cable Swiss ,3m,10A	1.000	St	
4	1851705	☑	Cable Australia,3m,10A,C13	1.000	St	
4	1851721	☑	Power cable DK, 3 m, 10 A	1.000	St	
5	8306520	☐	AC-modul power supply Evita 4	1.000	St	without DC-module option/ sale
6	8419059	☐	Opt. AC/DC pwrpack w/o batt.	1.000	St	with DC-module option

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
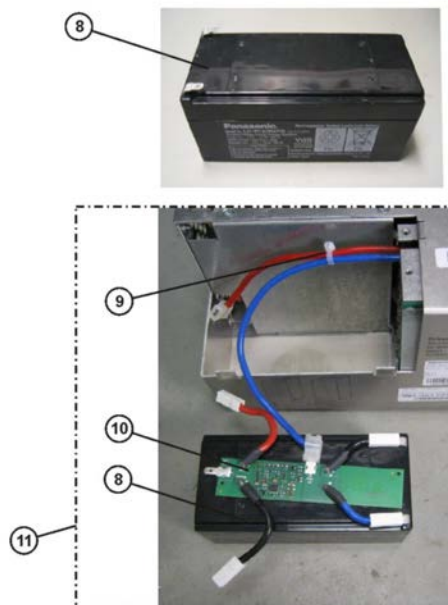Power Supply Delta (Frako)

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
8	8421988	☑	kit 2 batteries Evita internal	1.000	St	
9	8300358	☑	Cable clip (3,6X140)	1.000	St	
10	8419275	☑	Kit PCB Battery Type B (Evita)	1.000	St	
11	8417298	☑	Kit PCB Battery Type B cpl.	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
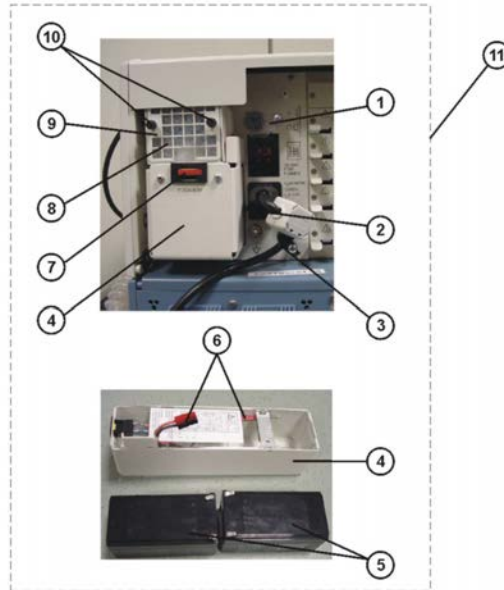Revision: 22

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Parts catalog
Power Supply MB

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8415638	☑	Drop Flap	1.000	St	
2	1855549	☐	Fuse 6,3A IEC60127-2/I	2.000	St	
3	1843680	☑	Pull relief	1.000	St	
4	8415639	☑	Battery Drawer	1.000	St	
5	8421988	☑	kit 2 batteries Evita internal	1.000	St	
6	8415636	☐	Set of cable	1.000	St	
7	1855530	☑	Fuse 20A/80V	1.000	St	
8	8415572	☑	Airfilter	1.000	St	
9	8415637	☑	Filter covering	2.000	St	
10	8306225	☑	Screw	2.000	St	
11	8414577	☐	Power pack USA	1.000	St	nur für Bundeswehr/ only for German army

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Operating Device
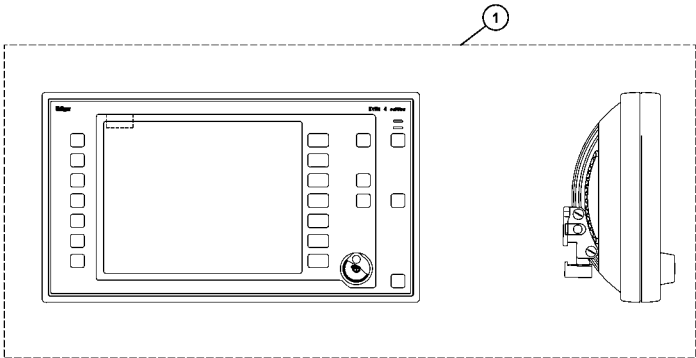

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8416980	☑	Op.Device Evita 4 edition	1.000	St	

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Evita 4/ Evita 4 edition
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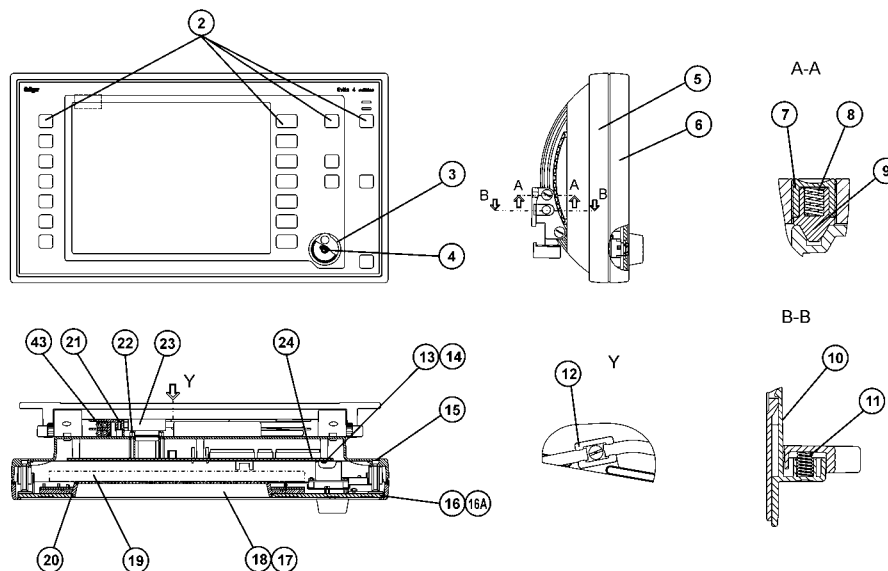
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Parts catalog
Operating Device

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
2	8412380	☑	Stripe	1.000	St	
3	M29655	☑	Control knop	1.000	St	
4	M29952	☑	Plate spring	1.000	St	
5	8416960	☑	Housing, blue	1.000	St	
6	8412602	☑	Outer frame	1.000	St	
7	8412626	☑	Insert nut	4.000	St	
8	M09360	☑	Spring	4.000	St	
9	8412625	☐	Guide tappet	4.000	St	
10	8412632	☑	Release taste	2.000	St	
11	M14362	☑	Spring	2.000	St	
12	8412884	☑	Clamp	1.000	St	
13	1340727	☑	pan head screw ISO7045 M3x6-A2-H	6.000	St	
14	D04766	☑	Packing ring	4.000	St	
15	1341790	☑	Oval head screw DIN7985-M4X12-A2	4.000	St	
16	8416965	☑	Keyboard Evita 4 edition	1.000	St	
16A	8412137	☐	Display, cpl.	1.000	St	keyboard Evita 4
17	8306638	☑	Touchscreen	1.000	St	
18	8411746	☑	Touchrahmen, kompl.	1.000	St	8412941-seal does not belong to the scope of delivery
20	8412941	☑	O-ring seal	1.000	St	
21	1339974	☑	Screw M4X16 DIN965	6.000	St	
22	1822357	☑	DSUB-Threaded boltM3 RoHS	1.000	St	
23	1839780	☑	Connecting cable	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
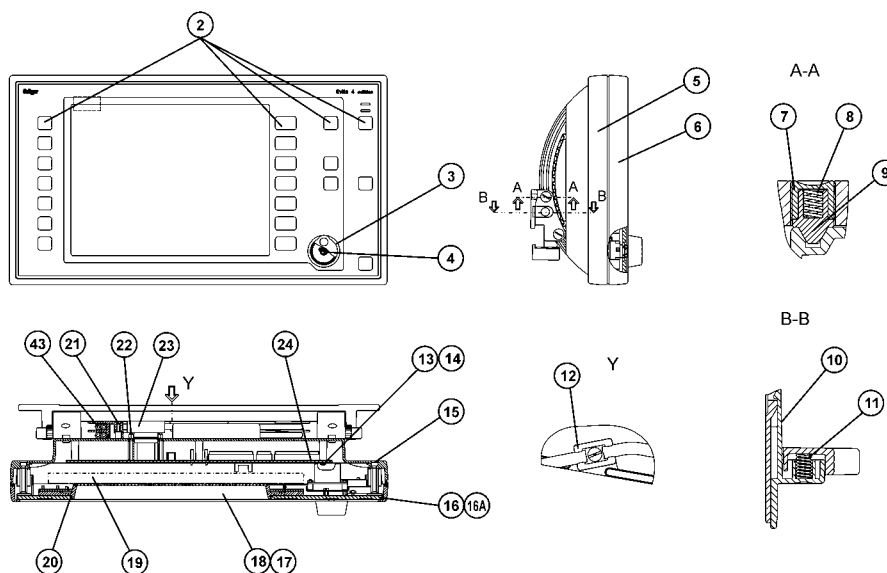Revision: 22

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Parts catalog
Operating Device

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
24	8420857	☑	Rep-Kit Grafikcontroller 4	1.000	St	
24	8306641	☐	PCB graphic controller	1.000	St	
43	8412631	☑	Roller	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Operating Device
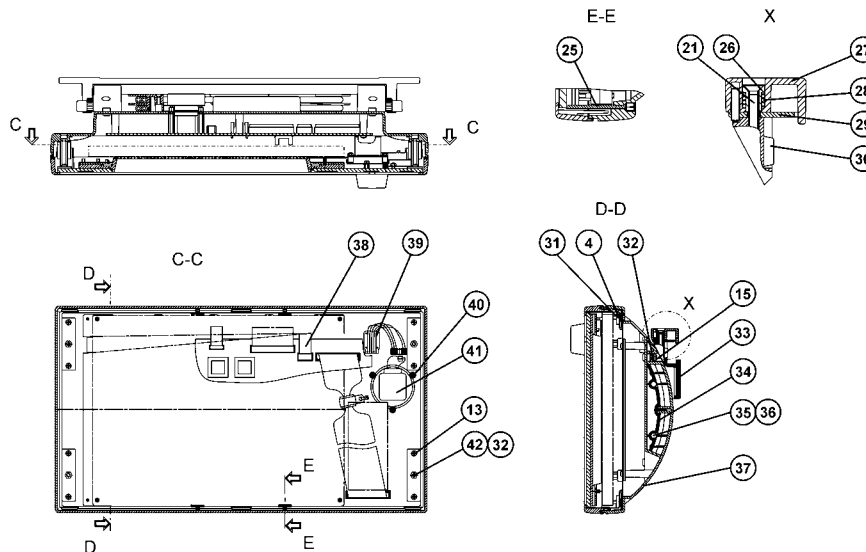
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
4	M29952	☑	Plate spring	1.000	St	
13	1340727	☑	pan head screw ISO7045 M3x6-A2-H	6.000	St	
15	1341790	☑	Oval head screw DIN7985-M4X12-A2	4.000	St	
21	1339974	☑	Screw M4X16 DIN965	6.000	St	
25	8412885	☑	Plate	4.000	St	
26	8412844	☑	socket	1.000	St	
27	8412637	☑	Toggle	1.000	St	
28	E24916	☑	Spring	1.000	St	
29	8412843	☑	Sheet metal	1.000	St	
30	6800478	☑	Buffer	1.000	St	
31	8412703	☑	Springplate	1.000	St	
32	1327542	☑	Washer ISO 7089-4-200HV-A4	4.000	St	
33	8412627	☑	Bar	1.000	St	
34	8412622	☑	Lock	2.000	St	
35	M14164	☑	Closing spring	4.000	St	
36	1263056	☑	Hexagon socket head cap screw	1.000	St	
37	8412611	☑	Housing (hinge)	2.000	St	
38	8412898	☑	Cable harness touch-SC(Evita 4	1.000	St	
39	8306565	☑	Shaft encoder,cpl.	1.000	St	
40	1334913	☑	Hexagon nut ISO 4032-M3-A4	3.000	St	
41	8306558	☐	Loudspeaker, cpl.	1.000	St	
42	8412808	☑	Spacer	4.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22
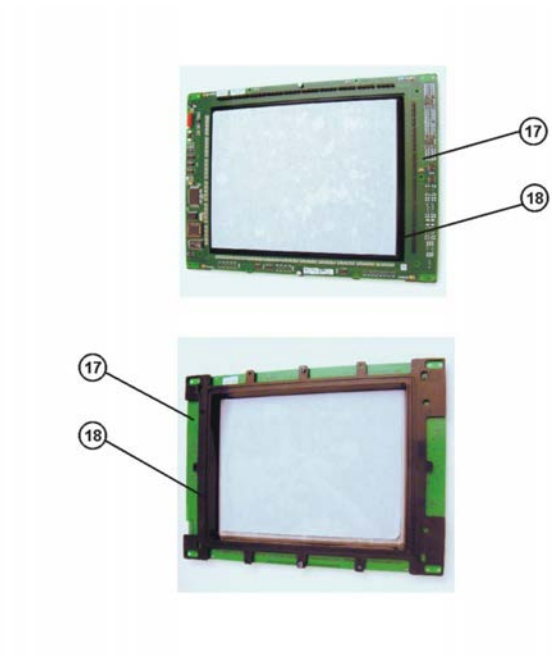
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Parts catalog
Operating Device

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
17	8306638	☑	Touchscreen	1.000	St	
18	8411746	☑	Touchrahmen, kompl.	1.000	St	8412941-seal does not belong to the scope of delivery

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
Operating Device

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44236	☐	Display Toshiba Typ1	1.000	St	sale
	MX44238	☐	Display NEC	1.000	St	sale
	MX44237	☐	Display Toshiba Typ0	1.000	St	
	MX44240	☐	Plate Front Evita 4	1.000	St	Servicedrawing
	MX44239	☐	Display Sharp	1.000	St	sale

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Plate Front Evita 4
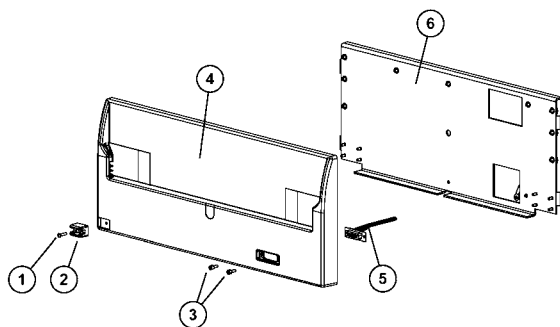
Pos. 0 ohne Abbildung/ Item 0 without illustration/ Pos. 0 sin ilustración/ Pos. 0 sans illustration

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	1311522	☑	Screw B2,9X13 DIN7973	1.000	St	
2	8412884	☑	Clamp	1.000	St	
3	1822357	☑	DSUB-Threaded boltM3 RoHS	2.000	St	
4	8414815	☑	Front plate	1.000	St	
5	8306775	☑	Cable harness,front (Evita 4)	1.000	St	
6	8412839	☑	Front plate, cpl	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Display Toshiba Typ1
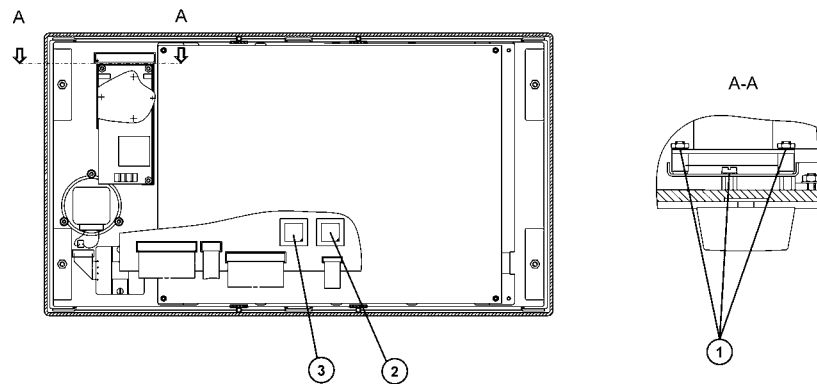
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
0	8420794	☑	Rep-Kit Display AUO (Evita 4)	1.000	St	consider please conversion instructions
1	D04766	☑	Packing ring	6.000	St	
2	8306640	☑	Multiplexer color Toshiba	1.000	St	
3	8306795	☑	Lookup TFT-Toshiba	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Display Toshiba Typ0
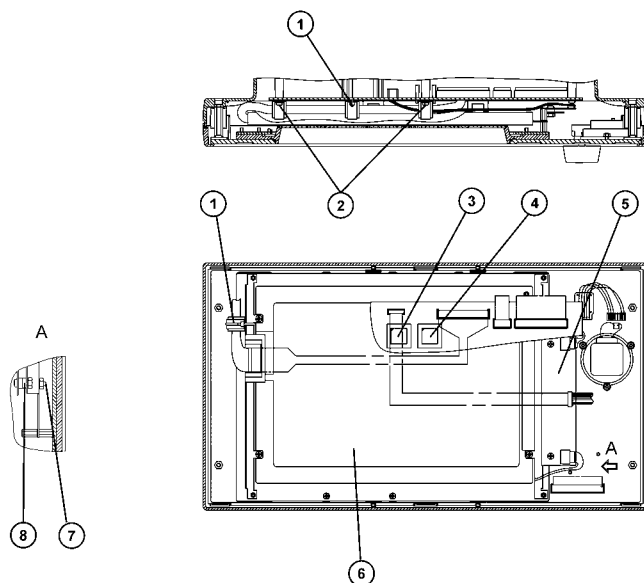
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
0	8416801	☐	Kit Display Toshiba E4	1.000	St	TSB/IDM Nr.57
0	8309126	☑	Cable harness Toshiba Evita 4	1.000	St	
0	8420794	☑	Rep-Kit Display AUO (Evita 4)	1.000	St	consider please conversion instructions
1	8712065	☑	Cable clip	1.000	St	
2	D04766	☑	Packing ring	4.000	St	
3	8411859	☑	Multiplexer color Toshiba	1.000	St	
4	8306795	☑	Lookup TFT-Toshiba	1.000	St	
5	1843559	☑	DC/AC-inverter 12V/550V RoHS	1.000	St	
6	1868594	☑	TFT-Display 10,4" 640X480 RoHS	1.000	St	
7	8411765	☑	Distance bolt	4.000	St	
8	D20682	☑	Gasket	4.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Display NEC

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
0	8420794	☑	Rep-Kit Display AUO (Evita 4)	1.000	St	consider please conversion instructions
1	8300428	☑	Spacer	4.000	St	
2	1841610	☐	LCD back lighting (Nec 2.vers.	1.000	St	
3	8411715	☐	Holder, left	1.000	St	
4	8411686	☑	Multiplexer NEC	1.000	St	
5	8306795	☑	Lookup TFT-Toshiba	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
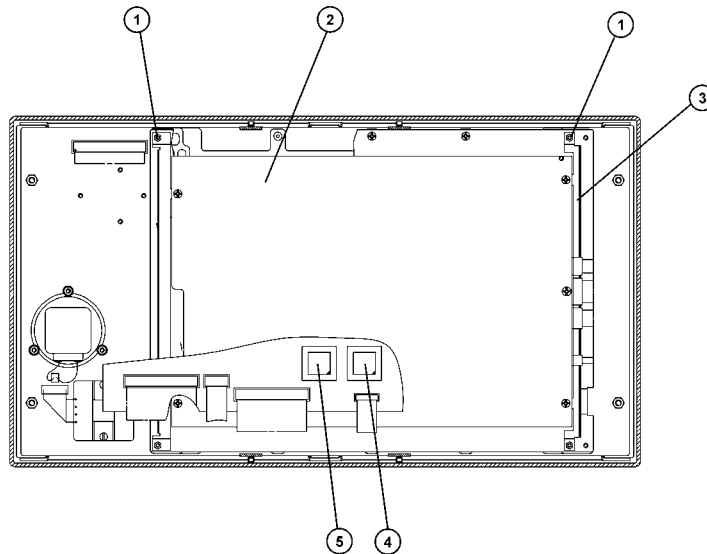Revision: 22

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Parts catalog
Display Sharp
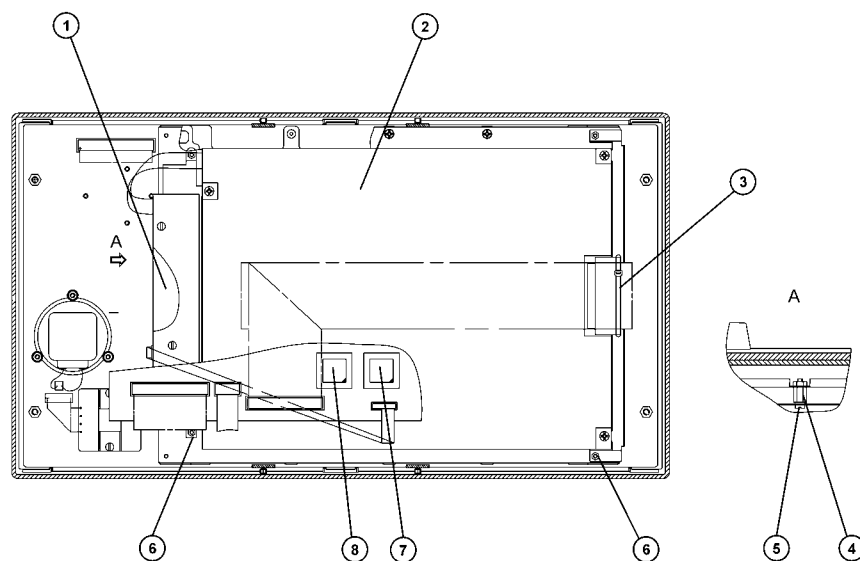
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
0	8420794	☑	Rep-Kit Display AUO (Evita 4)	1.000	St	consider please conversion instructions
1	8411732	☑	Inverter Sharp	1.000	St	
2	1843095	☐	Back lighting (Sharp)	1.000	St	
3	8712065	☑	Cable clip	3.000	St	
4	8411765	☑	Distance bolt	2.000	St	
5	8411753	☐	Screw	1.000	St	
6	8300428	☑	Spacer	4.000	St	
7	8411776	☑	Multiplexer Sharp	1.000	St	
8	8306795	☑	Lookup TFT-Toshiba	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Modification Kits/Options
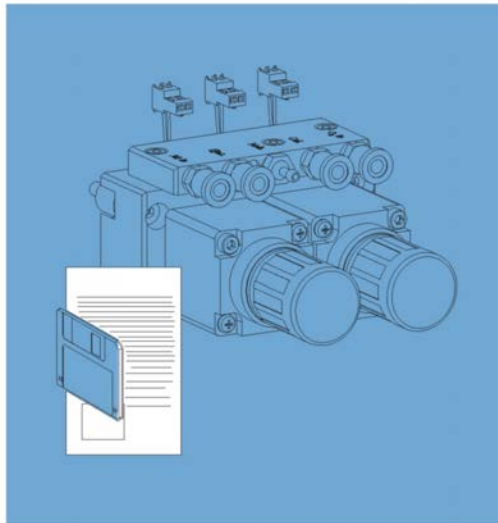
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8413780	☐	Kit Capno Plus	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8411735	☐	Kit communication	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8413562	☐	Kit Breathing Support Package	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8413563	☐	Kit Neoflow	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8414474	☐	Kit mask ventilation	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8414472	☐	Kit Evita Remote	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8414476	☐	Kit nurse call	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8414879	☐	Kit Evita 4 zu EvitaXL	1.000	St	
	8414556	☐	Kit ATC	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8413034	☐	Kit DC-modul	1.000	St	Bestellung über Konfi.-Nr: 8414240
	8414359	☑	Kit muted loudspeaker	1.000	St	
	MX44336	☐	Evita 4 edition	1.000	St	
	MX44209	☐	Evita mobil with Transport	1.000	St	
	MX44210	☐	Mobile Trolley MSU	1.000	St	
	MX44252	☐	Hinged Bracket 240-Degree	1.000	St	
	MX44255	☐	Water Seperator, cpl.	1.000	St	
	MX44254	☐	High Pressure Water Trap AIR	1.000	St	
	MX44253	☐	Pneum. Med. Nebulizer Evita 4	1.000	St	
	8414875	☐	Kit PPS	1.000	St	order via Confi.-No: 8414240

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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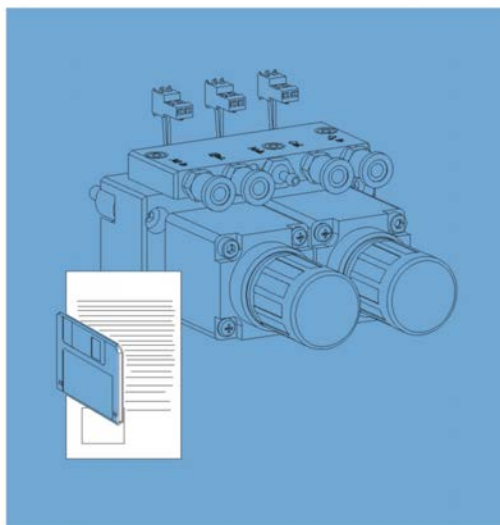
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Parts catalog
Modification Kits/Options

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8415570	☐	Kit nurse call/pressure sensor	1.000	St	order via Confi.-No: 8414240
	8419417	☐	Kit SW 4.22 Evita 4	1.000	St	order via Confi.-No: 8414240
	MX44241	☐	Two-Column Trolley to 1997	1.000	St	discontinued
	8419419	☑	Kit SW4.22 Evita 4 w/o UM	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita 4 edition

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8414828	☑	Tray	1.000	St	
2	8416960	☑	Housing, blue	1.000	St	
3	8416965	☑	Keyboard Evita 4 edition	1.000	St	
4	1868594	☑	TFT-Display 10,4" 640X480 RoHS	1.000	St	
5	8419064	☑	Evita 4 label	1.000	St	nur für Mittel-und Südamerika/ only for Middle- and Southamerika
6	8416969	☑	Keypad strip kit, EL	1.000	St	
6	8416974	☑	Keypad strip kit, nl	1.000	St	
6	8416968	☑	set insertion strip ZH	1.000	St	
6	8416973	☑	Keypad strip kit, es	1.000	St	
6	8416972	☑	Keypad strip kit, it	1.000	St	
6	8416970	☑	Keypad strip kit, de	1.000	St	
6	8416978	☑	Keypad strip kit, ja	1.000	St	
6	8416975	☑	Keypad strip kit, sv	1.000	St	
6	8416976	☑	Keypad strip kit, fr	1.000	St	
6	8416977	☑	Keypad strip kit, enUS	1.000	St	
6	8416967	☑	Keypad strip kit, PT	1.000	St	
6	8416966	☑	Keypad strip kit, RU	1.000	St	
6	8416971	☑	Keypad strip kit, enGB	1.000	St	
7	8416980	☑	Op.Device Evita 4 edition	1.000	St	
8	MX44257	☐	Frontplate	1.000	St	auch für Evita 4 edition/also for Evita 4 edition

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Frontplate
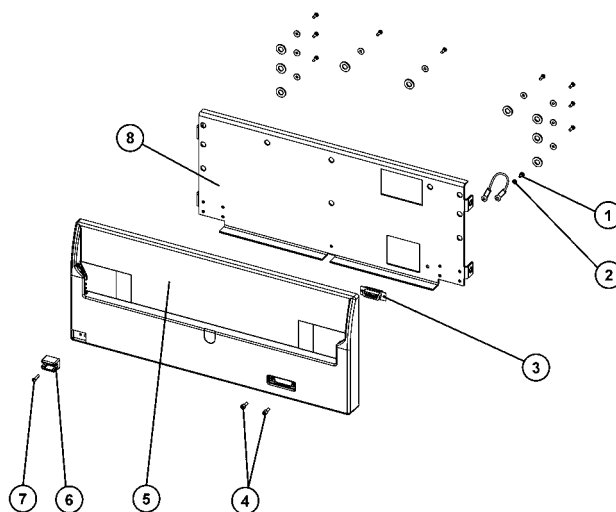
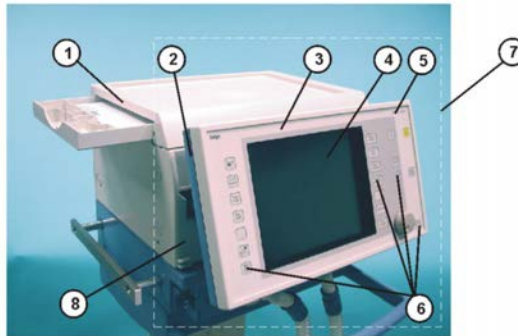| Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	1340727	☑	pan head screw ISO7045 M3x6-A2-H	1.000	St	
2	1309749	☑	Split washer B3 DIN127-X12CRNI	1.000	St	
3	8306775	☑	Cable harness,front (Evita 4)	1.000	St	
4	1822357	☑	DSUB-Threaded boltM3 RoHS	2.000	St	
5	8414815	☑	Front plate	1.000	St	
6	8412884	☑	Clamp	1.000	St	
7	1311522	☑	Screw B2,9X13 DIN7973	1.000	St	
8	8412839	☑	Front plate, cpl	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita mobil with Transport
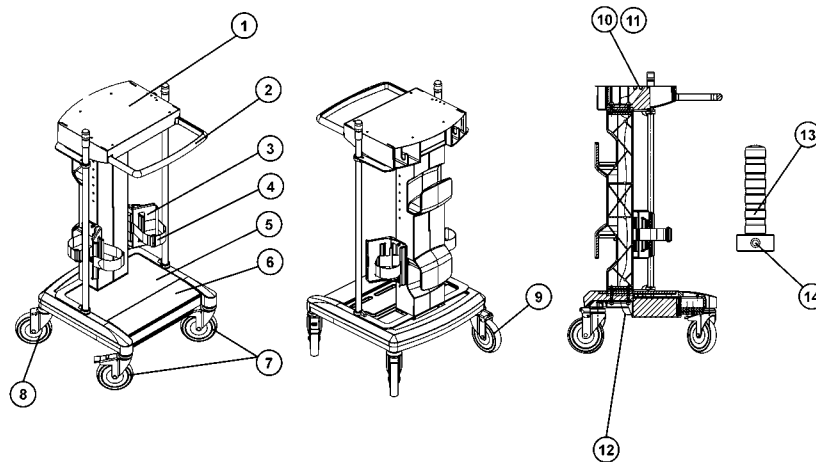
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8411954	☑	Cover plate for top	1.000	St	
2	8411957	☑	Handle	1.000	St	
3	8414229	☑	Cylinder rack,compl.	1.000	St	
4	8411972	☑	Hook and loop fastener	1.000	St	
5	8411973	☑	Inlet	1.000	St	
6	8411955	☑	cover for battery	1.000	St	
7	8414226	☑	Castor with brake	1.000	St	
8	8414228	☑	Roller, unlocked	1.000	St	
9	8414227	☑	Castor	1.000	St	
10	8411518	☑	Slide, cpl.	1.000	St	
11	M16452	☑	Tension spring	1.000	St	
12	8411822	☑	KIT battery cable Evita Mobil	1.000	St	
13	8414424	☑	Handle	1.000	St	
14	1314440	☑	Split washer 8 DIN7980-X12CRNI	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita mobil with Transport

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
15	8414484	☐	Evita TransportMobil	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita mobil with Transport

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
16	1330705	☑	Washer ISO 7089-6-200HV-A4	1.000	St	
17	8419252	☑	Screw	1.000	St	
18	8414495	☑	Base (Transportmobile)	1.000	St	
19	8414496	☑	Top section (Transportmobile)	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22
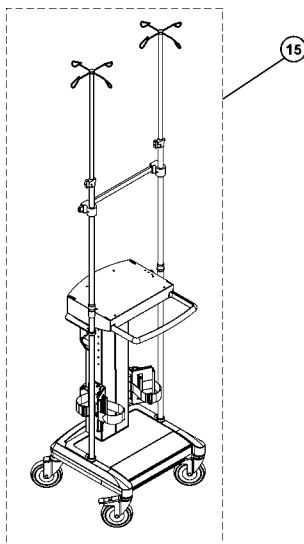
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Parts catalog
Evita mobil with Transport

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	1326279	☑	Washer ISO 7089-5-200HV-A4	1.000	St	
	1283081	☑	Hexagon nut ISO 4032-M5-A4	1.000	St	
	8414437	☑	Kit Evita TransportMobil	1.000	St	see modification instructions
	1335820	☑	Ch.head screw AM5X16 DIN84-A2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Mobile Trolley MSU
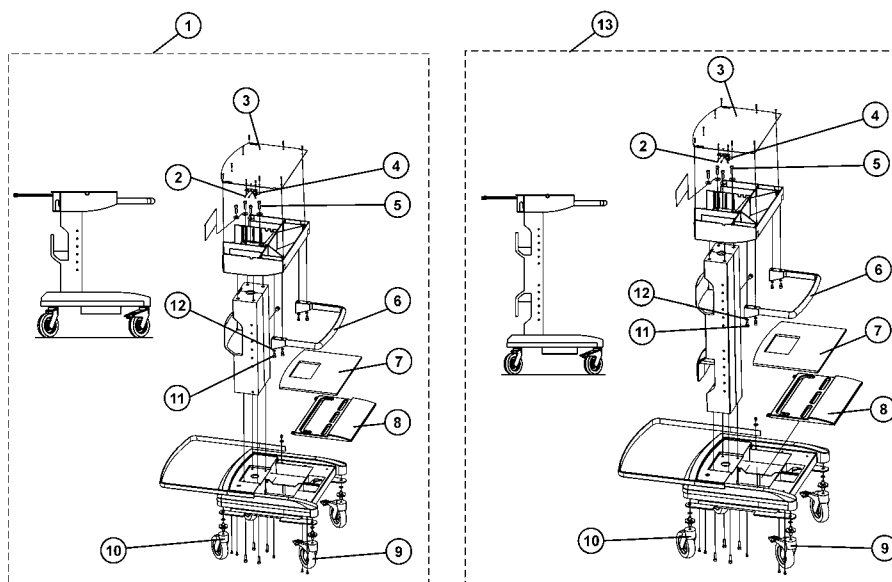
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8411965	☑	Evita mobil, short	1.000	St	
2	M16452	☑	Tension spring	2.000	St	
3	8411954	☑	Cover plate for top	1.000	St	
4	8411518	☑	Slide, cpl.	1.000	St	
5	1282123	☑	Hexagon socket head cap screw	1.000	St	
6	8411957	☑	Handle	1.000	St	
7	8411973	☑	Inlet	1.000	St	
8	8411955	☑	cover for battery	1.000	St	
9	8411945	☑	Castor with fixing	2.000	St	
10	8411946	☑	Castor	2.000	St	
11	8419252	☑	Screw	1.000	St	
12	1330705	☑	Washer ISO 7089-6-200HV-A4	1.000	St	
13	8411950	☑	Evita mobil, tall	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
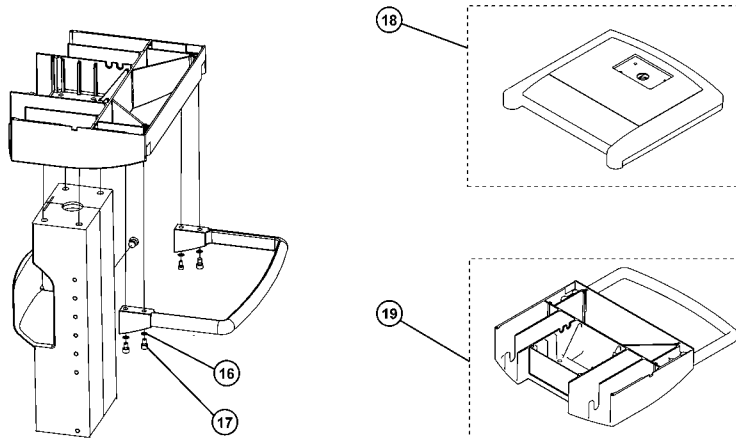Revision: 22

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Parts catalog
Mobile Trolley MSU
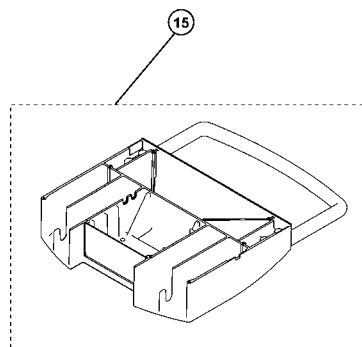
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
14	8414495	☑	Base (Transportmobile)	1.000	St	
15	8414496	☑	Top section (Transportmobile)	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Mobile Trolley MSU

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44242	☐	Cylinder Support	1.000	St	
	MX44243	☐	Humidifier Rack	1.000	St	
	MX44244	☐	Kit Socket Strip Evita Mobil	1.000	St	Servicedrawing
	MX44245	☐	Kit Battery Cable Evita Mobil	1.000	St	Servicedrawing

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Kit Socket Strip Evita Mobil
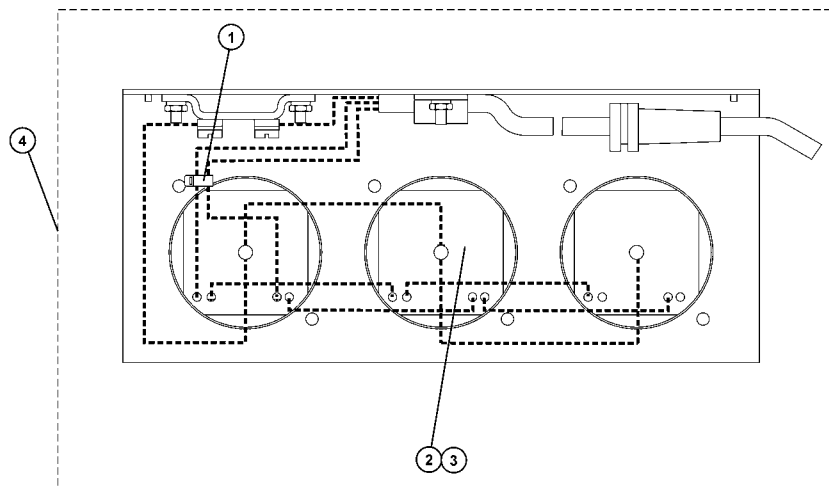
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8712065	☑	Cable clip	1.000	St	
2	8409310	☑	Socket	3.000	St	
3	1815148	☑	Fuse link DIN 41662 T3,15A	6.000	St	
4	8411814	☑	Kit Power socket strip Evita Mobil	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Kit Battery Cable Evita Mobil
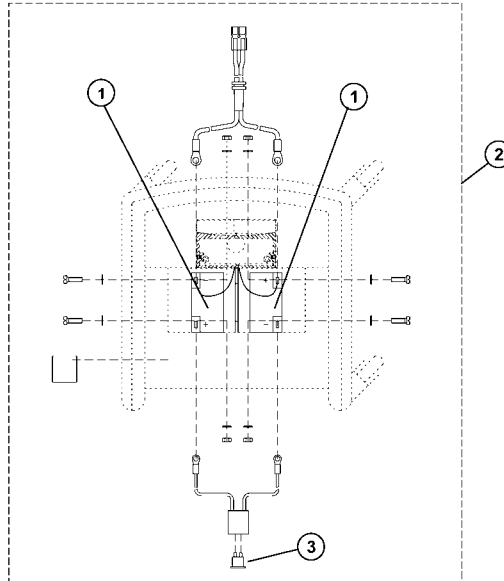
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Pos. 0 (si existe) sin ilustración/ Pos. 0 (si existant) sans illustration

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8422125	☑	kit 2 batteries Evita external	1.000	St	
2	8411822	☑	KIT battery cable Evita Mobil	1.000	St	
3	1843133	☑	Blade fuse 25A 32V RoHS	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
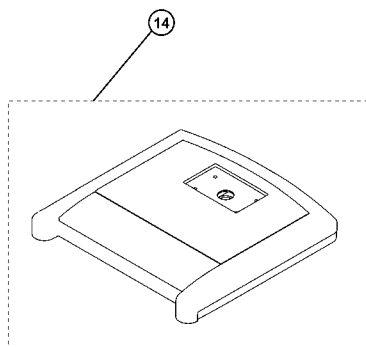Revision: 22

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Parts catalog
Cylinder Support
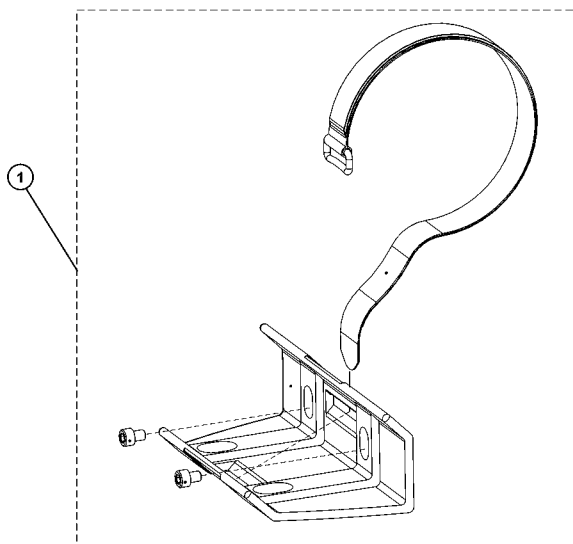
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8411970	☑	Set cylinder bracket ev.mobil	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Humidifier Rack
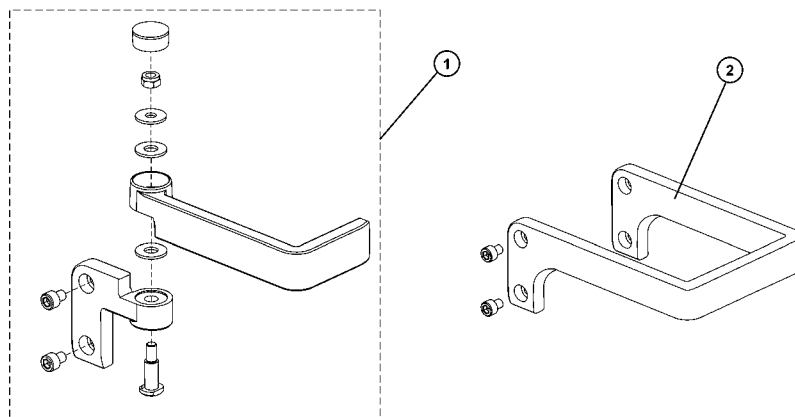
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8411956	☑	Humidifier bracket Evita mobil	1.000	St	
2	MP01002	☑	Mounting bracket F&P	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Hinged Bracket 240-Degree
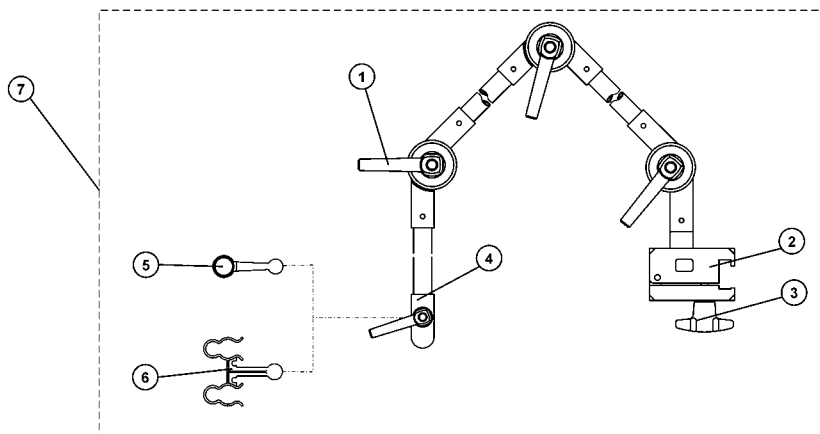
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8410383	☑	Set clamping lever	1.000	St	
2	8411424	☑	Rail catch	1.000	St	
3	8410382	☑	Star grip with disc	2.000	St	
4	8410075	☑	Binder, cpl.	1.000	St	
5	8409746	☑	Support for hinged arm A	1.000	St	
6	8409841	☑	Hose clamp for hinged arm	1.000	St	
7	8409609	☑	Hinged arm	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Water Seperator, cpl.

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	M13142	☑	o-ring	1.000	St	
2	M32027	☑	Packing ring	1.000	St	
3	8414271	☑	Air-Watertrap big NIST/NIST	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
High Pressure Water Trap AIR

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8414274	☑	Air water trap medium	1.000	St	
2	M13142	☑	o-ring	1.000	St	
3	M32027	☑	Packing ring	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Pneum. Med. Nebulizer Evita 4

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8405046	☑	Cap	1.000	St	
2	2M10633	☑	O-ring	1.000	St	
3	8412934	☑	Atomizer housing, cpl.	1.000	St	
4	8407291	☑	Gasket	1.000	St	
5	R27810	☑	Sealing ring	1.000	St	
6	8412932	☑	Nozzle	1.000	St	
7	E20566	☑	O-ring 7x1,5	1.000	St	
8	8404979	☑	Atomizer	1.000	St	
9	8406584	☑	Receptacle	1.000	St	
10	8412985	☑	Nebulizer hose	1.000	St	
11	8412935	☑	Pneum. Medication Nebulizer	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Technical Documentation IPM Evita 4

Parts catalog
Two-Column Trolley to 1997
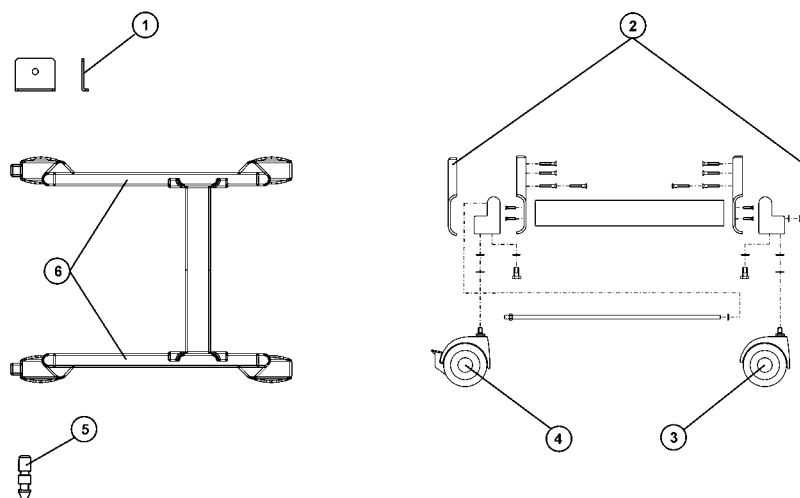
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44246	☐	Support	1.000	St	Servicedrawing
	MX44248	☐	O2-Distributor Mod. Kit Evita	1.000	St	Servicedrawing
	MX44247	☐	Modification Kit Socket	1.000	St	Servicedrawing
	MX44249	☐	Fixing Set Cupboard Evita	1.000	St	Servicedrawing
	MX44250	☐	Receiver	1.000	St	Servicedrawing
1	8408904	☐	Sheet metal	1.000	St	
2	M29200	☑	Tray	2.000	St	
3	2M19130	☐	Guide roll	2.000	St	
4	2M19140	☑	Fixing guide roll	2.000	St	
5	8408902	☑	Pin	1.000	St	
6	M29336	☑	Profile	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Support

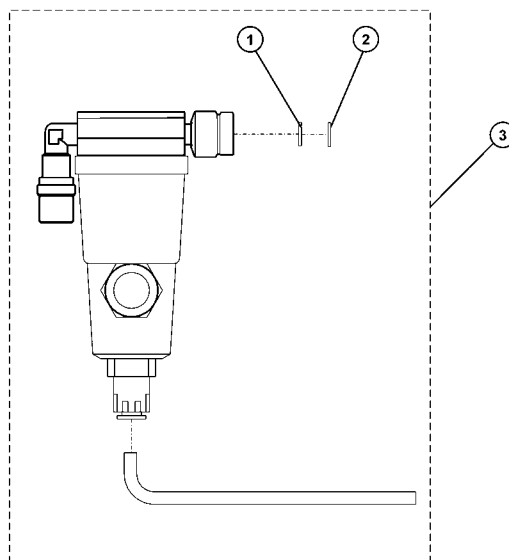| Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	M29110	☑	Plate	1.000	St	
2	8412219	☑	Support	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Modification Kit Socket

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	2M18642	☑	Mains cable bushing	1.000	St	
2	1815148	☑	Fuse link DIN 41662 T3,15A	6.000	St	
5	8409021	☑	KIT Multiple socket strip	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
O2-Distributor Mod. Kit Evita
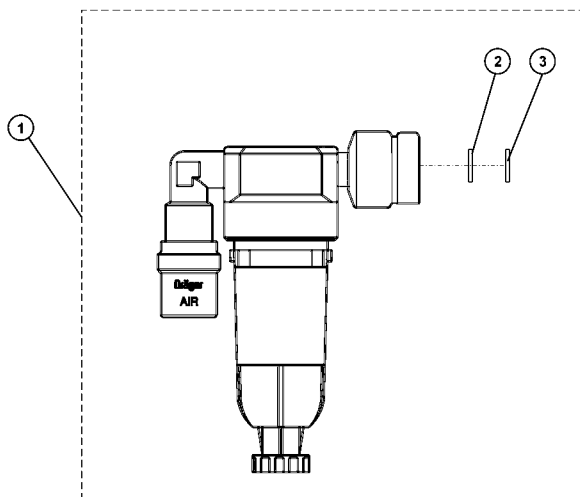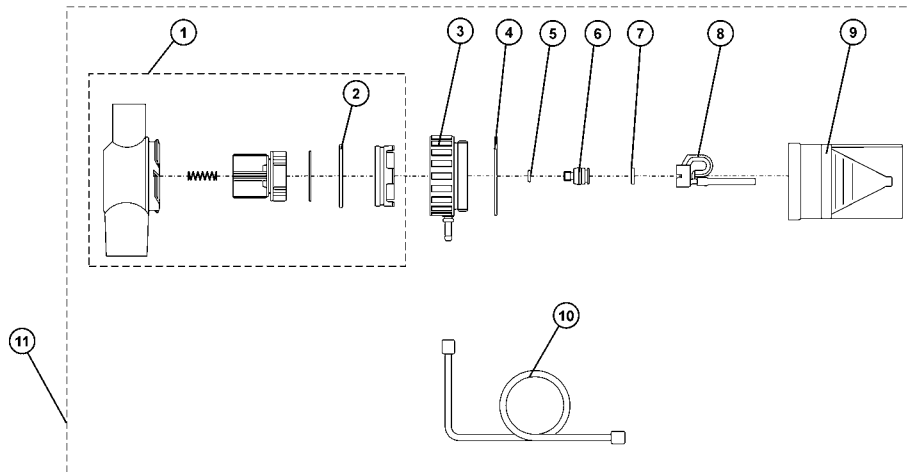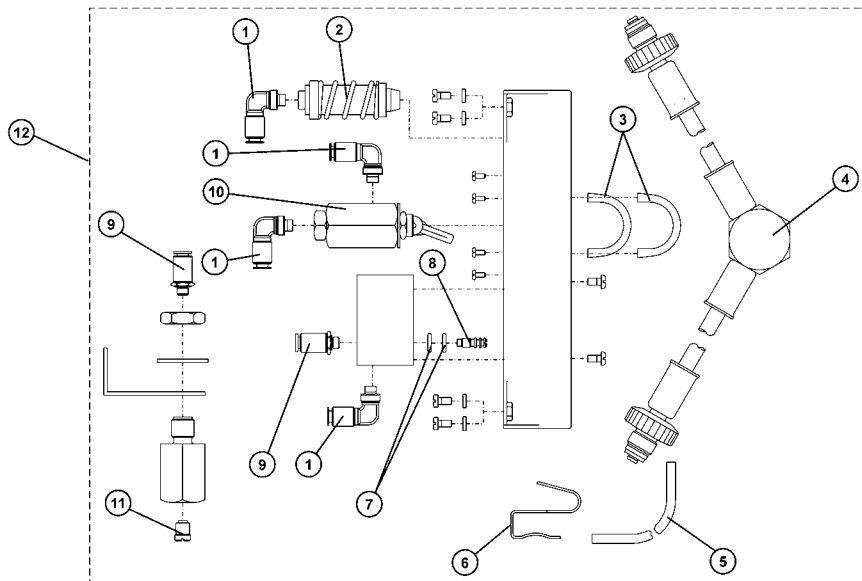

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	G12065	☑	L-Swivel connection	4.000	St	
2	8410859	☑	Modification kit drop signal	1.000	St	
3	8403058	☑	Bow	2.000	St	
4	8405629	☐	Connecting line	1.000	St	
5	1190520	☑	Hose 4X1,5-SI 50 SH A NF	1.000	m	
6	M26349	☑	Hook	1.000	St	
7	RM07823	☑	O-ring	2.000	St	
8	8403322	☐	Screw	1.000	St	
9	M25210	☑	Screw-in plug-type connection	2.000	St	
10	8402441	☑	3/2-Port distributing valve	1.000	St	
11	D11521	☑	Mesh bottom	1.000	St	
12	8409010	☐	O2 distributor inst.set Evita	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Fixing Set Cupboard Evita

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8409018	☐	Cabinet attachment set Evita	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Receiver

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	MX08108	☐	Hinge	2.000	St	
2	8408959	☑	Fixing device	1.000	St	
3	8409015	☐	Drawer, cpl.	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

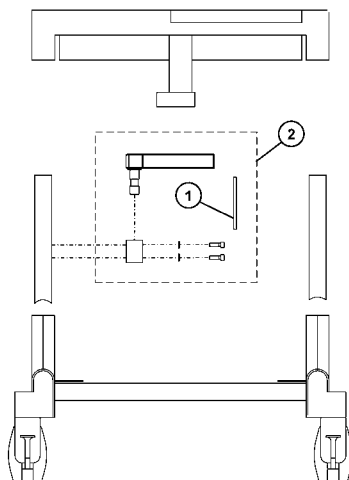Evita 4/ Evita 4 edition
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Parts catalog
Maintenance Parts/Service Kits

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
0	MP03904	☐	Filter Bowl	1.000	St	
0	MP03901	☐	AIR-High Pressure Line Filter	1.000	St	only for USA
0	MP03902	☐	O2-High Pressure Line Filter	1.000	St	only for USA
0	MP03903	☐	Filter Element	1.000	St	
1	MX40018	☐	Evita XL/4/2d/2/S2, yearly	1.000	St	
2	MX44260	☐	Evita 2 dura/4, 2-yearly	1.000	St	
3	MX40035	☐	Evita XL/4/2d Draeger,2-yearly	1.000	St	
4	MX40034	☐	Evita XL/4/2d FAS, 2-yearly	1.000	St	
5	MX41894	☐	Evita XL/4/2d Dräger, 6-yearly	1.000	St	
6	MX40061	☐	Evita XL/4/2d FAS, 6-yearly	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita XL/4/2d/2/S2, yearly
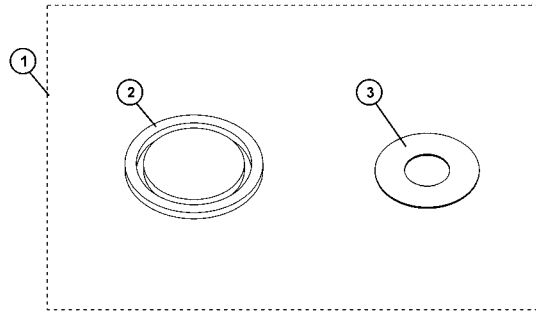
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	MX08220	☑	Evita 2/S2/2Dura/4/XL Set 1y	1.000	St	Set kompl.
2	8410181	☑	Diaphragm	1.000	St	
3	8407979	☑	Sealing washer	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Evita 2 dura/4, 2-yearly
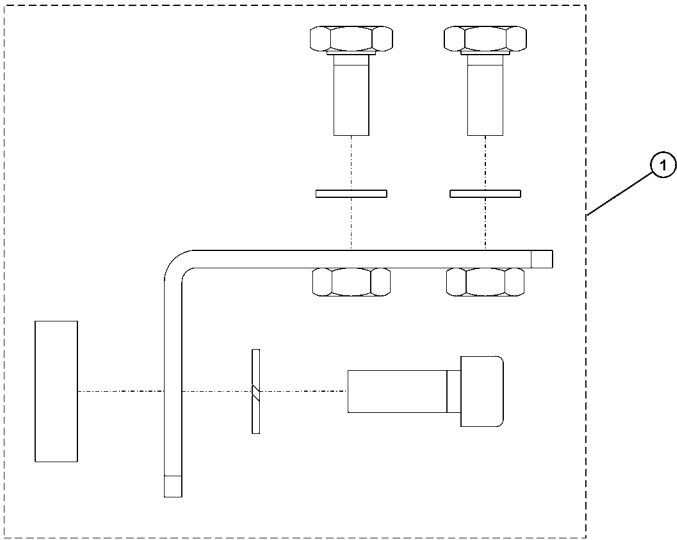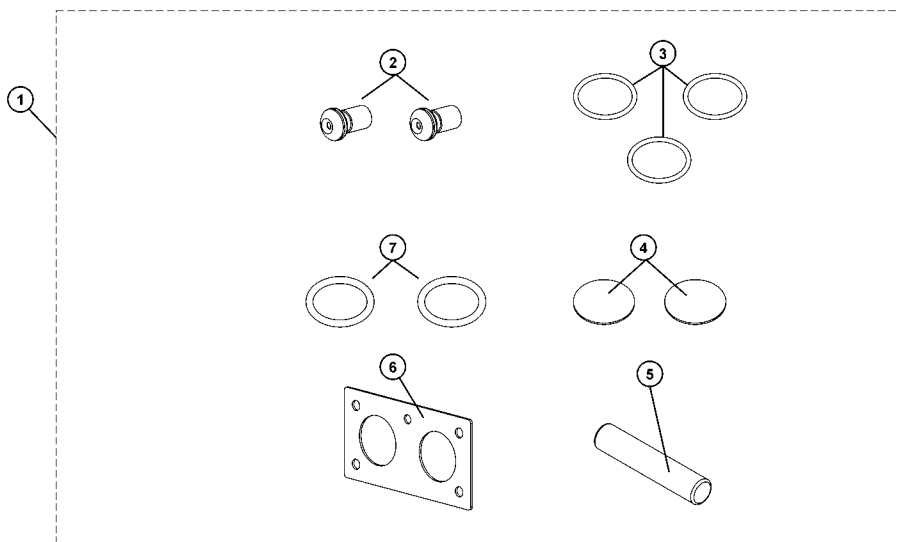

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
2	8407689	☑	Lip seal	2.000	St	
3	M20622	☑	O-ring	3.000	St	
4	8408208	☑	Filter (for 8411848)	2.000	St	
5	1835343	☑	Lithium stor.battery 3V/1400	1.000	St	
6	8408204	☑	Gasket	1.000	St	
7	8411516	☑	O-ring for 8411848	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita XL/4/2d Draeger,2-yearly
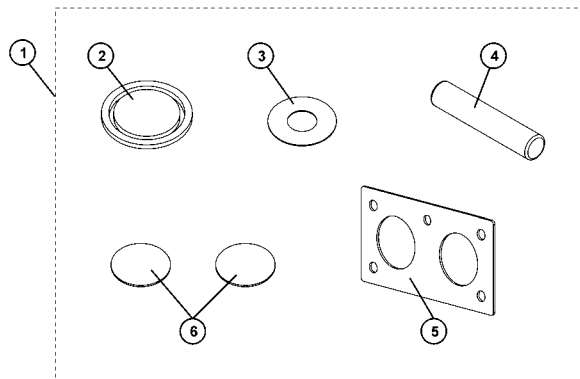
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	MX08226	☑	EvitaXL/4/2d Gasinlet Draeg.2y	1.000	St	Set kompl.
2	8410181	☑	Diaphragm	1.000	St	
3	8407979	☑	Sealing washer	1.000	St	
4	1835343	☑	Lithium stor.battery 3V/1400	1.000	St	
5	8408204	☑	Gasket	1.000	St	
6	8408208	☑	Filter (for 8411848)	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Evita XL/4/2d FAS, 2-yearly
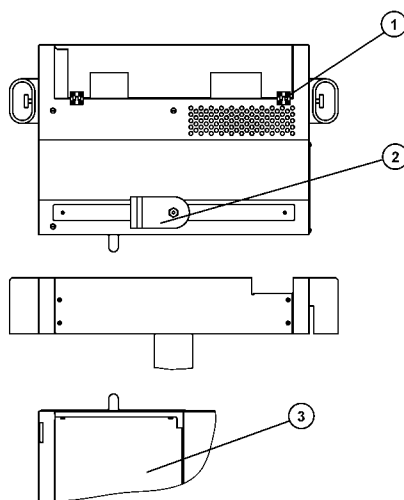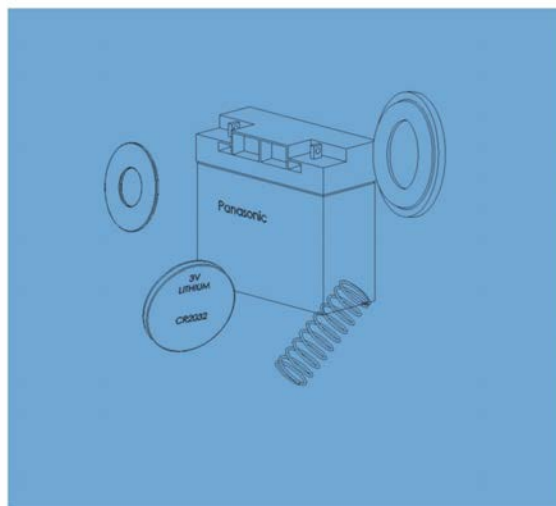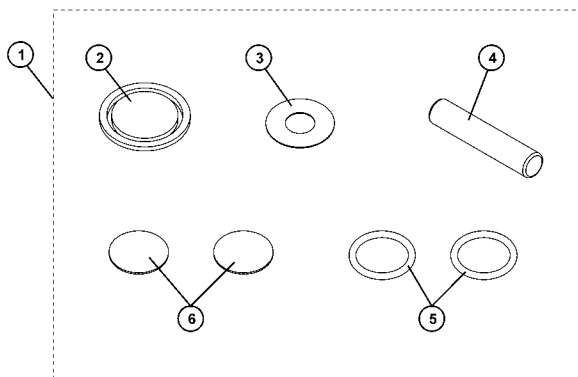

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	MX08225	☑	EvitaXL/4/2d Gasinlet FAS 2Y	1.000	St	Set kompl.
2	8410181	☑	Diaphragm	1.000	St	
3	8407979	☑	Sealing washer	1.000	St	
4	1835343	☑	Lithium stor.battery 3V/1400	1.000	St	
5	8411516	☑	O-ring for 8411848	2.000	St	
6	8408208	☑	Filter (for 8411848)	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
Evita XL/4/2d Dräger, 6-yearly
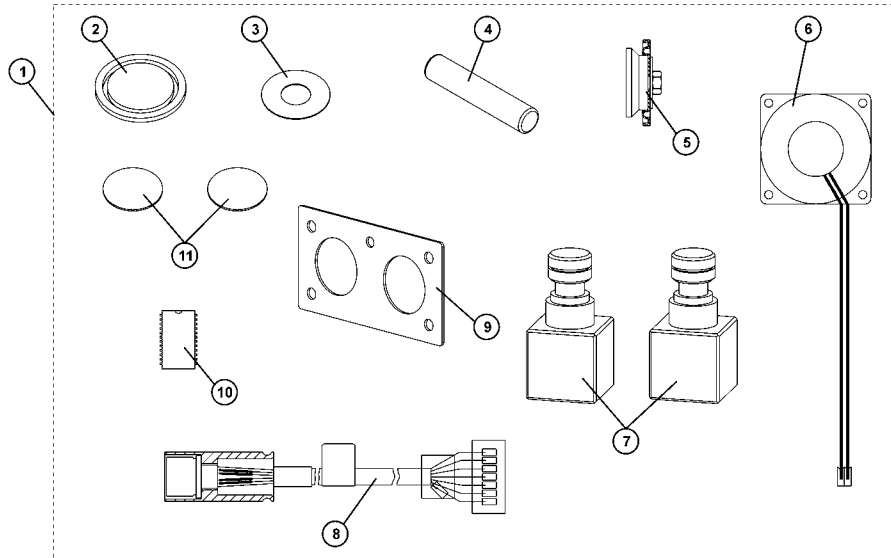
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	MX08228	☑	EvitaXL/4/2d Gasinl.Draeg. 6y	1.000	St	Set kompl.
2	8410181	☑	Diaphragm	1.000	St	
3	8407979	☑	Sealing washer	1.000	St	
4	1835343	☑	Lithium stor.battery 3V/1400	1.000	St	
5	8414179	☑	Diaphragm connection SV	1.000	St	
6	8306560	☑	Fan pneumatic, compl.	1.000	St	
7	8408205	☑	Pressure regulator	2.000	St	
8	8415709	☑	Cable harness spirolog sensor	1.000	St	
9	8408204	☑	Gasket	1.000	St	
10	1837087	☑	Realtimeclock DIL24	1.000	St	
11	8408208	☑	Filter (for 8411848)	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
Evita XL/4/2d FAS, 6-yearly
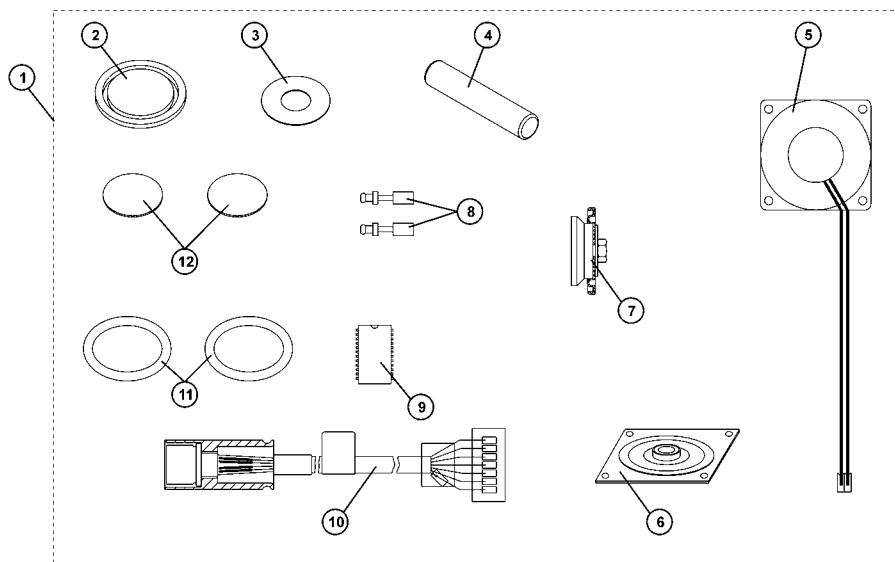
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	MX08227	☑	EvitaXL/4/2D Gasinlet FAS 6y	1.000	St	Set kompl.
2	8410181	☑	Diaphragm	1.000	St	
3	8407979	☑	Sealing washer	1.000	St	
4	1835343	☑	Lithium stor.battery 3V/1400	1.000	St	
5	8306560	☑	Fan pneumatic, compl.	1.000	St	
6	8411513	☑	Diaphragm FPM (for 8411848)	2.000	St	
7	8414179	☑	Diaphragm connection SV	1.000	St	
8	8411514	☑	Valve tappet (for 8411848)	2.000	St	
9	1837087	☑	Realtimeclock DIL24	1.000	St	
10	8415709	☑	Cable harness spirolog sensor	1.000	St	
11	8411516	☑	O-ring for 8411848	2.000	St	
12	8408208	☑	Filter (for 8411848)	2.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Accessories/Consumables
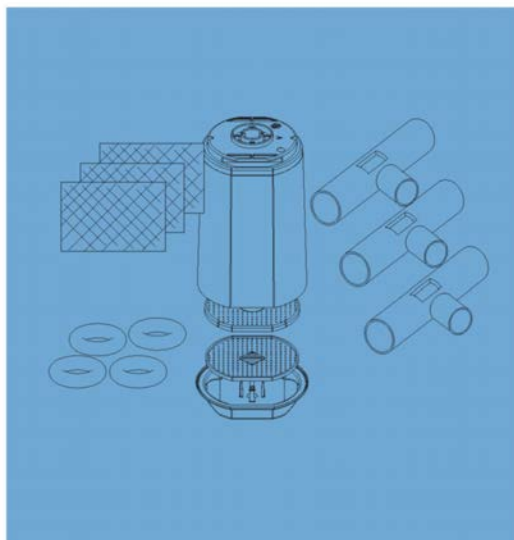
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	MX44202	☐	Order List	1.000	St	Servicedrawing
	MX44263	☐	Accessories Adult Ventilation	1.000	St	Servicedrawing
	MX44264	☐	Accessories Paed. Ventilation	1.000	St	Servicedrawing
	MX44089	☐	Calibration Set CO2	1.000	St	Servicedrawing
	MX44358	☐	Aquapor EL	1.000	St	
	MX44649	☐	CP parts	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
Order List
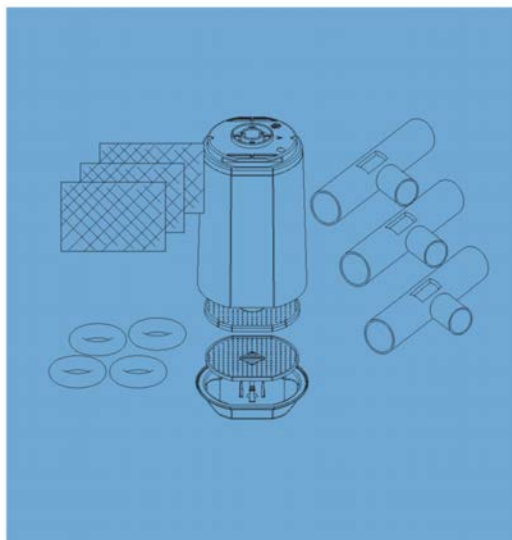
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8411900	☐	Evita 4, Construction Kit	1.000	St	
	M29231	☐	O2 connecting hose 3M	1.000	St	
	M29251	☐	O2 connecting hose 5M	1.000	St	
	M34402	☐	O2-hose NIST 3M DIN probe	1.000	St	
	M34404	☐	ZV-Schlauch N20 1,5M,DIN-ST.	1.000	St	
	M29239	☐	Air-connecting hose 3M	1.000	St	
	M29259	☐	Air-connecting hose 5M	1.000	St	
	M34409	☐	Air-hose NIST 5M DIN probe	1.000	St	
	8414700	☐	Aquapor EL, Humidifier	1.000	St	
	8409716	☐	Bacteria filter EV800/801	1.000	St	
	6870281	☑	Test filter	1.000	St	
	8412710	☑	Calibration set CO2	1.000	St	
	6850435	☑	CO2-cylinder (LINDE) 5%	1.000	St	
	8412840	☑	Parking support, cpl.	1.000	St	
	8412723	☑	Tray Evita 4	1.000	St	
	2120046	☐	Resutator 2000 adults	1.000	St	
	5702321	☑	Resuscitator Child MR_100	1.000	St	
	2120941	☐	Baby-Resutator 2000	1.000	St	
	M26349	☑	Hook	1.000	St	
	8411950	☑	Evita mobil, tall	1.000	St	
	8411965	☑	Evita mobil, short	1.000	St	
	M31796	☐	Cupboard 8H (4 drawers)	1.000	St	
	M31795	☑	Cupboard 4H (2 drawers)	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Order List

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
	8409018	☐	Cabinet attachment set Evita	1.000	St	
	8411970	☑	Set cylinder bracket ev.mobil	1.000	St	
	8411814	☑	Kit Power socket strip Evita Mobil	1.000	St	
	8413125	☑	KIT Water trap, for exp. valve	1.000	St	
	8306489	☑	Printer cable bl.8000	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
Accessories Adult Ventilation

Pos. 0 (wenn vorhanden) ohne Abbildung/ Item 0 (if available) without illustration/
Pos. 0 (si existe) sin ilustración/ Pos. 0 (si existant) sans illustration

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412723	☑	Tray Evita 4	1.000	St	
2	8412840	☑	Parking support, cpl.	1.000	St	
3	8411900	☐	Evita 4, Construction Kit	1.000	St	
4	6850645	☑	O2-Sensor (capsule)	1.000	St	
5	8412384	☑	Filter, single	1.000	St	
6	8411950	☑	Evita mobil, tall	1.000	St	
7	8411965	☑	Evita mobil, short	1.000	St	
8	M31796	☐	Cupboard 8H (4 drawers)	1.000	St	
9	M31795	☑	Cupboard 4H (2 drawers)	1.000	St	
10	8411970	☑	Set cylinder bracket ev.mobil	1.000	St	
12	8411956	☑	Humidifier bracket Evita mobil	1.000	St	
13	8410580	☑	Expiration valve, Patientsys.	1.000	St	
14	8403735	☑	Spirolog Flow Sensor (5x)	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Accessories Adult Ventilation

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
15	8405371	☑	Temperature sensor	1.000	St	
16	8405435	☑	Y-piece evita	1.000	St	
17	8403201	☑	Test lung	1.000	St	
18	6870279	☑	CO2-Cuvette ERW	1.000	St	
19	M23840	☑	Standard conn.12,5 plastic	1.000	St	
20	8402041	☑	Corrugated hose	1.000	St	
21	8401644	☑	Cap (11 mm)	1.000	St	
22	8403076	☑	Adapter E	1.000	St	
23	8403685	☑	Set 12 stand. cone a plastic	1.000	St	
24	6871500	☑	Mainstream sensor	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Accessories Adult Ventilation
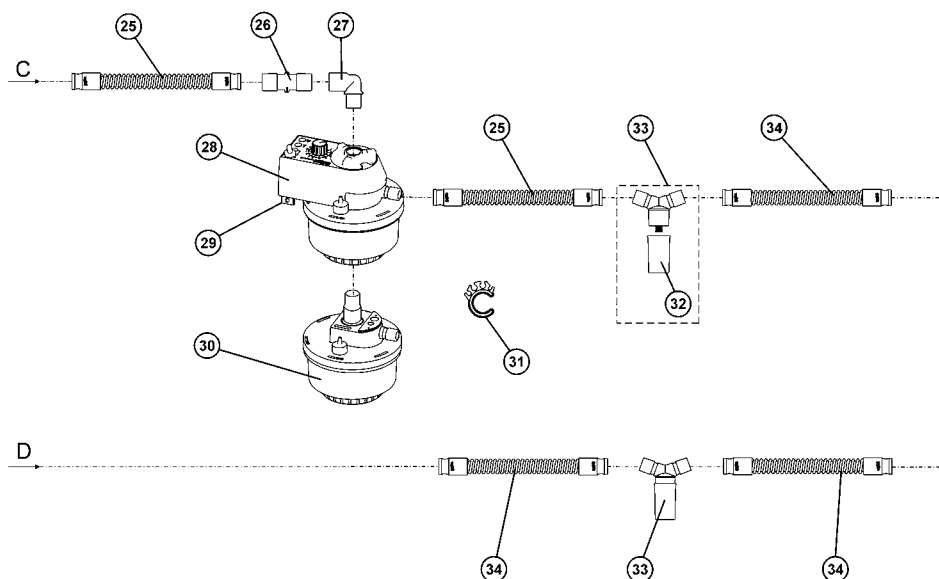
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
25	2165619	☑	Breathing hose 22/22 (A) 35	2.000	St	
26	M25647	☑	Double adapter 22/22	1.000	St	
27	M25649	☑	Maskenkruemmer	1.000	St	
28	8414700	☐	Aquapor EL, Humidifier	1.000	St	
29	8403345	☑	Set of spare brackets	1.000	St	
30	8405029	☑	Patient part (Aquapor)	1.000	St	
31	8403566	☑	Tube clamps	1.000	St	
32	8403976	☑	Pot	1.000	St	
33	8404985	☑	Water trap	1.000	St	
34	2165627	☑	Breathing hose 22/22 (A) 60	3.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Revision: 22

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Parts catalog
Accessories Adult Ventilation

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
35	8409746	☑	Support for hinged arm A	1.000	St	
36	8409841	☑	Hose clamp for hinged arm	1.000	St	
37	8409609	☑	Hinged arm	1.000	St	
38	2M85706	☑	Quickstop hinged arm 2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
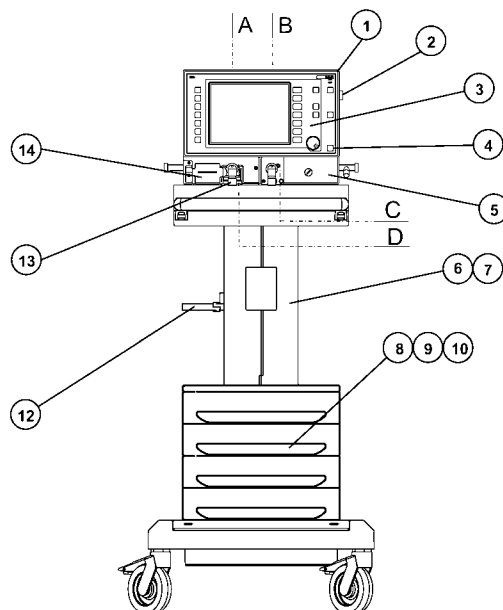Accessories Adult Ventilation
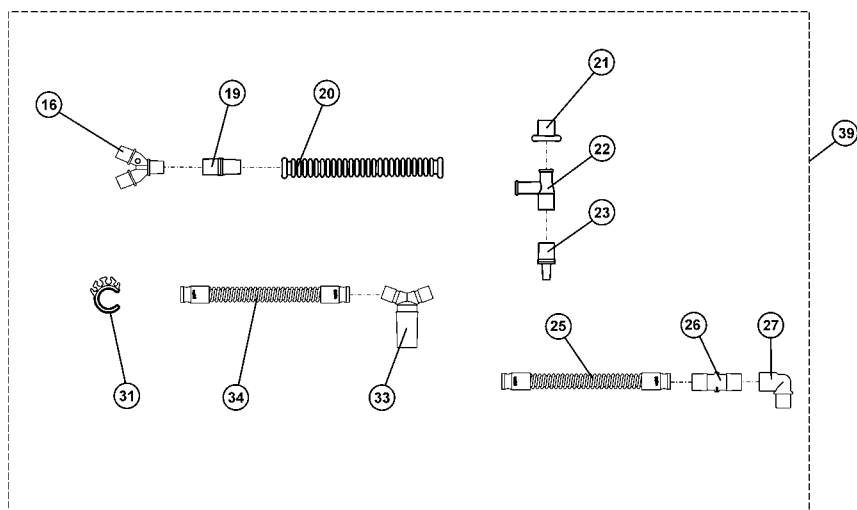
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
16	8405435	☑	Y-piece evita	1.000	St	
19	M23840	☑	Standard conn.12,5 plastic	1.000	St	
20	8402041	☑	Corrugated hose	1.000	St	
21	8401644	☑	Cap (11 mm)	1.000	St	
22	8403076	☑	Adapter E	1.000	St	
23	8403685	☑	Set 12 stand. cone a plastic	1.000	St	
25	2165619	☑	Breathing hose 22/22 (A) 35	2.000	St	
26	M25647	☑	Double adapter 22/22	1.000	St	
27	M25649	☑	Maskenkruemmer	1.000	St	
31	8403566	☑	Tube clamps	1.000	St	
33	8404985	☑	Water trap	1.000	St	
34	2165627	☑	Breathing hose 22/22 (A) 60	3.000	St	
39	8412092	☑	Hose kit adult, Aquapor	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
Accessories Paed. Ventilation

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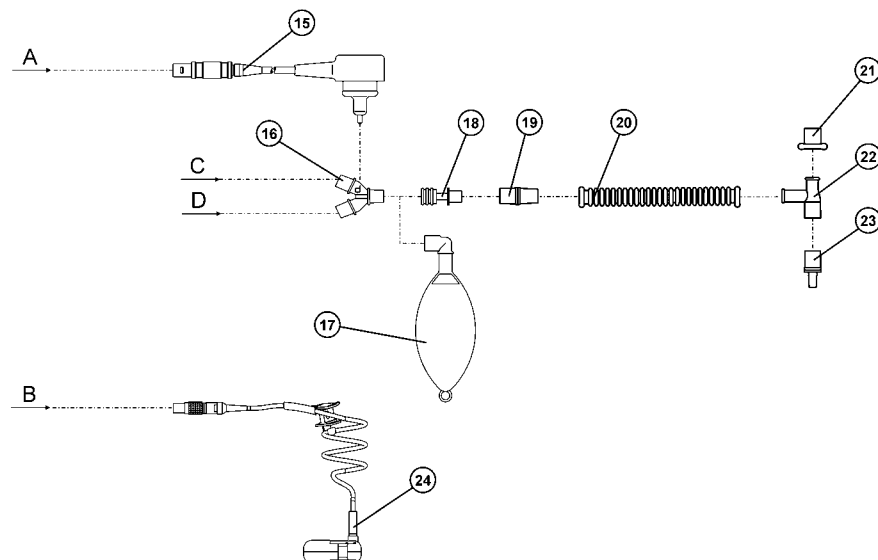
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8412723	☑	Tray Evita 4	1.000	St	
2	8412840	☑	Parking support, cpl.	1.000	St	
3	8411900	☐	Evita 4, Construction Kit	1.000	St	
4	6850645	☑	O2-Sensor (capsule)	1.000	St	
5	8412384	☑	Filter, single	1.000	St	
6	8411950	☑	Evita mobil, tall	1.000	St	
7	8411965	☑	Evita mobil, short	1.000	St	
8	M31796	☐	Cupboard 8H (4 drawers)	1.000	St	
9	M31795	☑	Cupboard 4H (2 drawers)	1.000	St	
10	8411970	☑	Set cylinder bracket ev.mobil	1.000	St	
12	8411956	☑	Humidifier bracket Evita mobil	1.000	St	
13	8410580	☑	Expiration valve, Patientsys.	1.000	St	
14	8403735	☑	Spirolog Flow Sensor (5x)	1.000	St	
15	6871500	☑	Mainstream sensor	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22

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Parts catalog
Accessories Paed. Ventilation
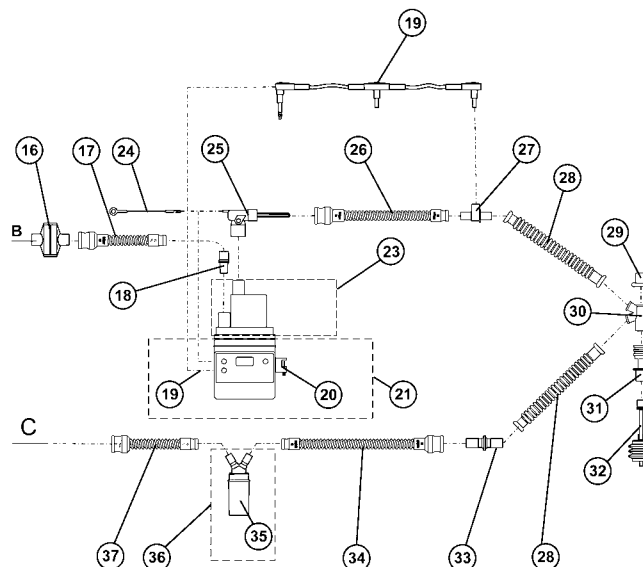
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Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
16	8409716	☐	Bacteria filter EV800/801	1.000	St	
17	2165856	☑	Breathing hose 22/10 (N/P)40	1.000	St	
18	M19351	☑	Catheter 11	1.000	St	
19	8411048	☑	Dual airway temp.sensor 1,45M	1.000	St	
20	8411074	☑	Mounting kit	1.000	St	
23	8411047	☑	Humidifier chamber MR 340 (E)	1.000	St	
24	8411050	☑	Draw wire	1.000	St	
25	8411045	☑	Heating 1,10m	1.000	St	
26	2165651	☑	Breathing hose 22/10 (N/P) 110	1.000	St	
27	8411044	☑	Probe-thermometer housing drae	1.000	St	
28	8409634	☑	accordion hose flex.	1.000	St	
29	8401645	☑	Cap (7 mm)	1.000	St	
30	8403075	☑	Y-piece 90 degree	1.000	St	
31	6870280	☑	CO2-Cuvette Paed.	1.000	St	
32	8409742	☑	Test lung, cpl.	1.000	St	
33	8409897	☑	Double cone 11A	1.000	St	
34	2165848	☑	Breathing hose 10/10 (N/P) 60	1.000	St	
35	8403976	☑	Pot	1.000	St	
36	8409627	☑	Condensate trap ex.	1.000	St	
37	2165821	☑	Breathing hose 22/10 (N/P) 60	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22
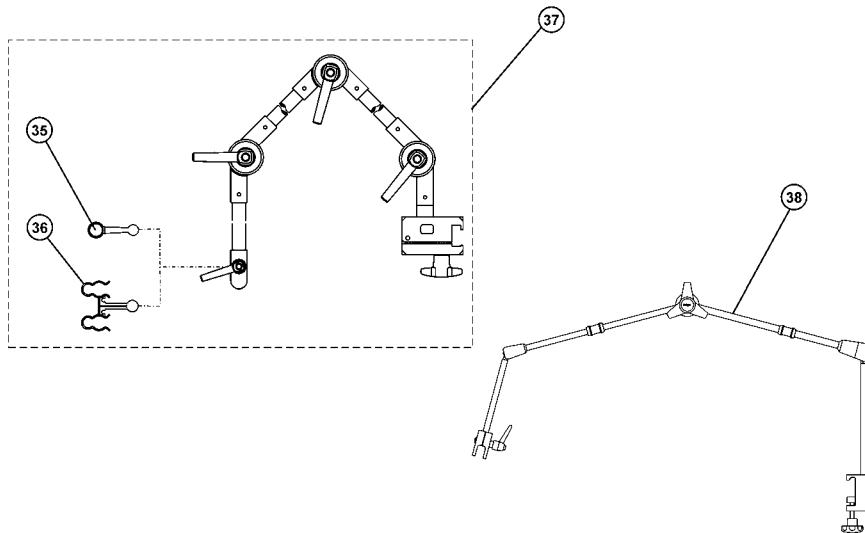
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Parts catalog
Accessories Paed. Ventilation
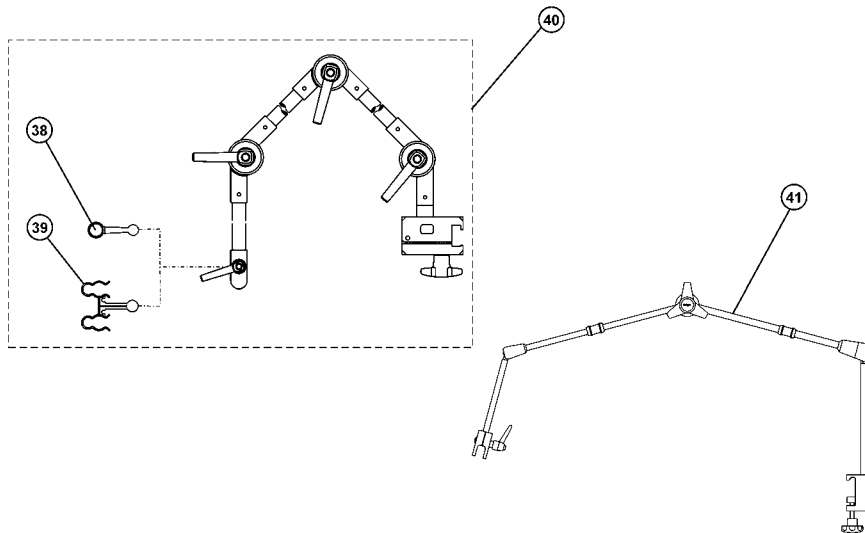
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
38	8409746	☑	Support for hinged arm A	1.000	St	
39	8409841	☑	Hose clamp for hinged arm	1.000	St	
40	8409609	☑	Hinged arm	1.000	St	
41	2M85706	☑	Quickstop hinged arm 2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
Revision: 22
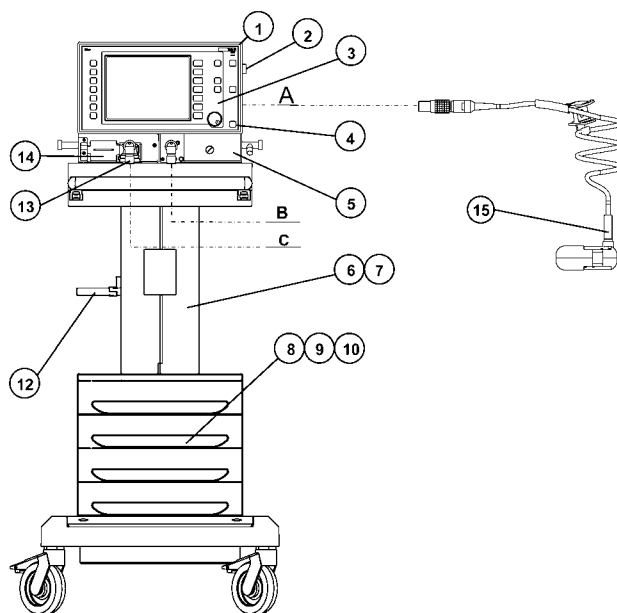
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Parts catalog
Accessories Paed. Ventilation
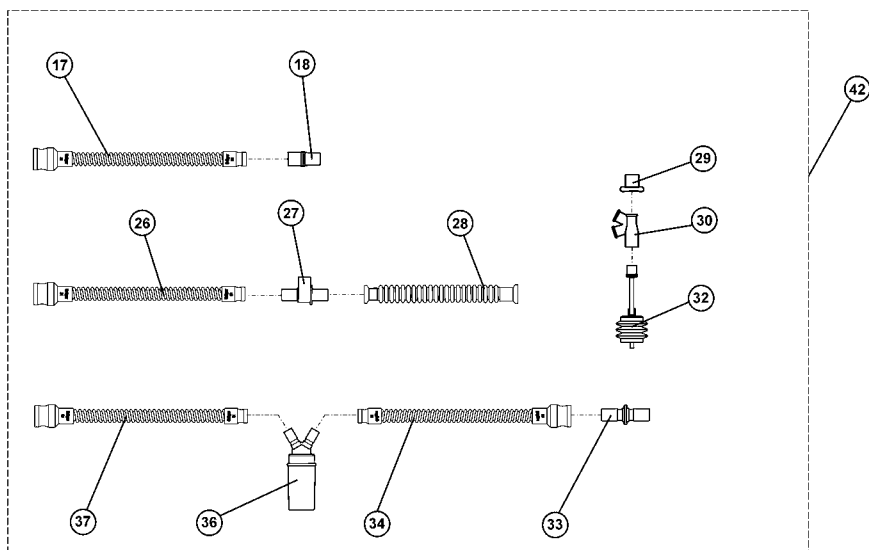
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
17	2165856	☑	Breathing hose 22/10 (N/P)40	1.000	St	
18	M19351	☑	Catheter 11	1.000	St	
26	2165651	☑	Breathing hose 22/10 (N/P) 110	1.000	St	
27	8411044	☑	Probe-thermometer housing drae	1.000	St	
28	8409634	☑	accordion hose flex.	1.000	St	
29	8401645	☑	Cap (7 mm)	1.000	St	
30	8403075	☑	Y-piece 90 degree	1.000	St	
32	8409742	☑	Test lung, cpl.	1.000	St	
33	8409897	☑	Double cone 11A	1.000	St	
34	2165848	☑	Breathing hose 10/10 (N/P) 60	1.000	St	
36	8409627	☑	Condensate trap ex.	1.000	St	
37	2165821	☑	Breathing hose 22/10 (N/P) 60	1.000	St	
42	8412081	☑	Hose kit ped., F&P	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Calibration Set CO2
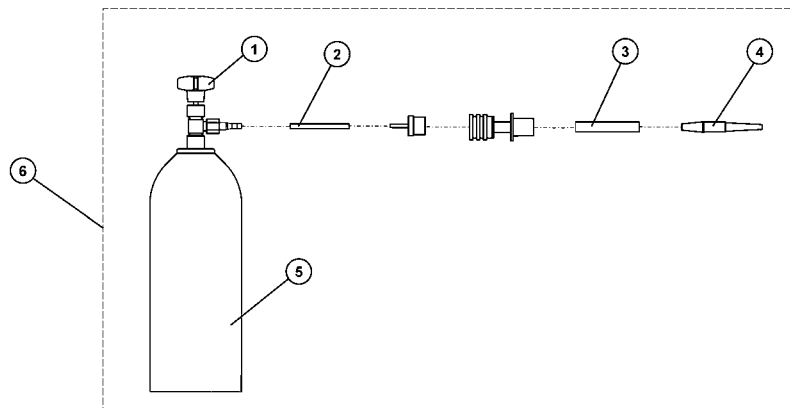
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8290272	☑	Valve for CO2-monitor	1.000	St	
2	1180614	☑	Hose 2X1-SI NF M17749	1.000	m	
3	1198343	☑	Hose 7X2,5 SI NF M29908	1.000	m	
4	M07582	☑	Secretion control glass	1.000	St	
5	6850435	☑	CO2-cylinder (LINDE) 5%	1.000	St	
6	8412710	☑	Calibration set CO2	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
Aquapor EL

Zum Öffnen des Teilekatalogs hier doppelklicken.
Double-click here to open the parts catalog.
Hacer dobleclick aquí para abrir el catálogo de piezas.
Double-cliquer ici pour ouvrir le catalogue des pièces.

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
CP parts
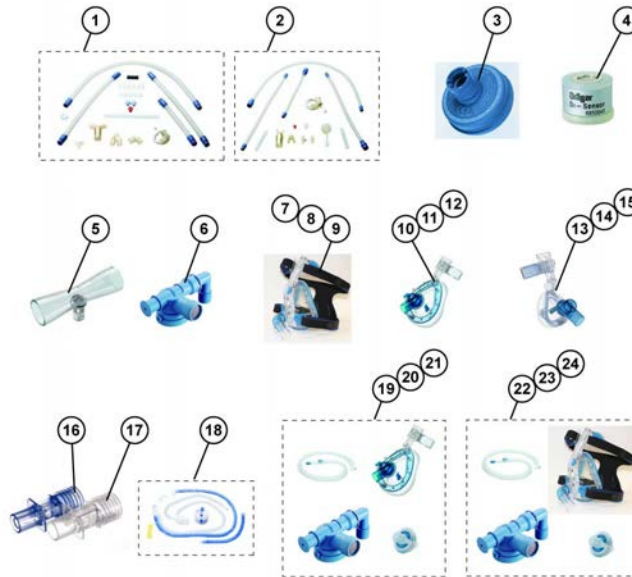
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Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
1	8414986	☑	BlueSet Heated (P/A)	1.000	St	
2	8414987	☑	BlueSet Heated (N)	1.000	St	
3	6733895	☑	Set Mic.filter 654ST-ISOCLICK	1.000	St	
4	6850645	☑	O2-Sensor (capsule)	1.000	St	
5	8403735	☑	Spirolog Flow Sensor (5x)	1.000	St	
6	8414776	☑	Set single use valve, 10 pcs.	1.000	St	
7	MP01579	☑	NovaStar® TS NIV-Mask,SE,S	1.000	St	
8	MP01580	☑	NovaStar® TS NIV-Mask,SE,M	1.000	St	
9	MP01581	☑	NovaStar® TS NIV-Mask,SE,L	1.000	St	
10	MP01573	☑	Mask ClassicStar,NIV,SE,S	1.000	St	
11	MP01574	☑	Mask ClassicStar,NIV,SE,M	1.000	St	
12	MP01575	☑	Mask ClassicStar,NIV,SE,L	1.000	St	
13	MP01623	☑	Mask ClassicStar Nasal NV, S	1.000	St	
14	MP01624	☑	Mask ClassicStar Nasal NV, M	1.000	St	
15	MP01625	☑	Mask ClassicStar Nasal NV, L	1.000	St	
16	MP01063	☑	Disposable CO2 Cuvette paed.	1.000	St	
17	MP01062	☑	Disposable CO2 Cuvette Adult	1.000	St	
18	8414991	☑	Hose kit for MR850, RT 212	1.000	St	
19	MP01650	☐	Evita VPack w ClassicS Fullf S	1.000	St	
20	MP01651	☐	Evita VPack w ClassicS Fullf M	1.000	St	
21	MP01652	☐	Evita VPack w ClassicS Fullf L	1.000	St	
22	MP01653	☐	Evita VPack w NovaS Fullf S	1.000	St	
23	MP01654	☐	Evita VPack w NovaS Fullf M	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

Evita 4/ Evita 4 edition
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Parts catalog
CP parts

Pos. 0 ohne Abbildung/ Item 0 without illustration/ Pos. 0 sin ilustración/ Pos. 0 sans illustration

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
24	MP01655	☐	Evita VPack w NovaS Fullf L	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Revision: 22

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Parts catalog
CP parts

Pos. 0 ohne Abbildung/ Item 0 without illustration/ Pos. 0 sin ilustración/ Pos. 0 sans illustration

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
25	MP00306	☑	VentStar dual heated	1.000	St	
26	MP00307	☑	VentStar heated	1.000	St	
27	MP00308	☑	VentStar heated (N)	1.000	St	
28	MP00309	☑	VentStar heated (N) basic	1.000	St	
29	MP00305	☑	Vent Set Flex	1.000	St	
30	MP00315	☑	Vent Set COAX	1.000	St	
31	MP00316	☑	Vent Set COAX with Holder	1.000	St	
32	MP00338	☑	VentStar Basic P 150 w/o LuerL	1.000	St	
33	MP00349	☑	VentStar Basic 180	1.000	St	
34	MP00350	☑	VentStar Basic 250	1.000	St	
35	MP00351	☑	VentStar Basic (P)180	1.000	St	
36	MP00355	☑	VentStar Flex 220	1.000	St	
37	MP00356	☑	VentStar Coax 180	1.000	St	
38	MP00361	☑	VentStar Watertrap (P) 180	1.000	St	
39	MP00362	☑	VentStar Watertrap (P) 180 w/oLL	1.000	St	
40	MP00363	☑	VentStar Watertrap (N) 180	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
CP parts

Pos. 0 ohne Abbildung/ Item 0 without illustration/ Pos. 0 sin ilustración/ Pos. 0 sans illustration

Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
41	MP00234	☑	Disp. humi.chamber f.F&P MR850	1.000	St	
42	MP01590	☑	2side pumpball f.airmanagement	1.000	St	
43	MP00334	☑	VentStar Watert. 180 w/o LuerL	1.000	St	
44	MP00337	☑	VentStar Watertrap 180	1.000	St	
45	MP01855	☑	ErgoStar CM 55	1.000	St	
46	MP01840	☑	ErgoStar CM 40	1.000	St	
47	MP01845	☑	ErgoStar CM 45	1.000	St	
48	MP01850	☑	ErgoStar CM 50	1.000	St	
49	MP01890	☑	ErgoStar AC 90	1.000	St	
50	MP01895	☑	ErgoStar AC 95	1.000	St	
51	MP01860	☑	ErgoStar CM 60	1.000	St	
52	8418435	☐	BabyFlow Starterp. reusable	1.000	St	
53	8418410	☐	BabyFlow reusable	1.000	St	
54	8418414	☐	Silicon hoses with connectors	1.000	St	
55	8418411	☐	Prongadapter	1.000	St	
56	8418540	☐	Headband XXL plus	1.000	St	
57	8418423	☐	Headband XXL (extra ex. large)	1.000	St	
58	8418422	☐	Headband XL (extra large)	1.000	St	
59	8418418	☐	Stirnband XS (extra klein)	1.000	St	
60	8418419	☐	Headband S (small)	1.000	St	
61	8418420	☐	Headband M (medium)	1.000	St	
62	8418421	☐	Headband L (large)	1.000	St	
63	MP01755	☑	Filter CareStar 45	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
CP parts
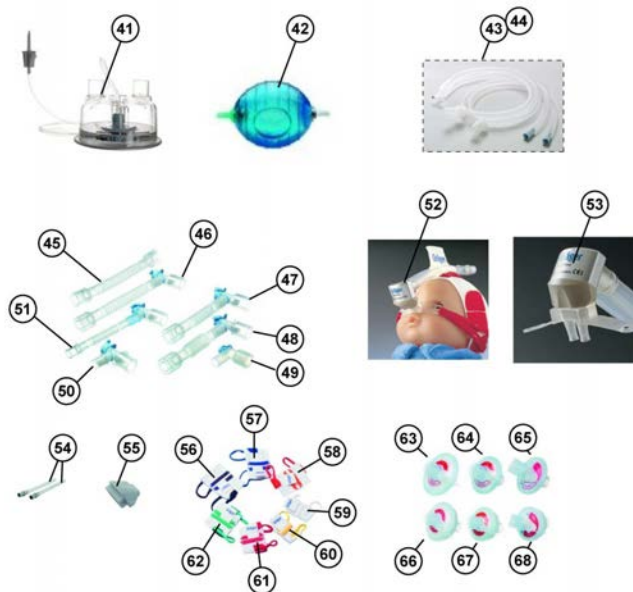
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Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
64	MP01770	☑	Filter CareStar 30	1.000	St	
65	MP01765	☑	Filter CareStar 40A	1.000	St	
66	MP01785	☑	Filter SafeStar 80	1.000	St	
67	MP01790	☑	Filter SafeStar 55	1.000	St	
68	MP01795	☑	Filter SafeStar 60A	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
CP parts
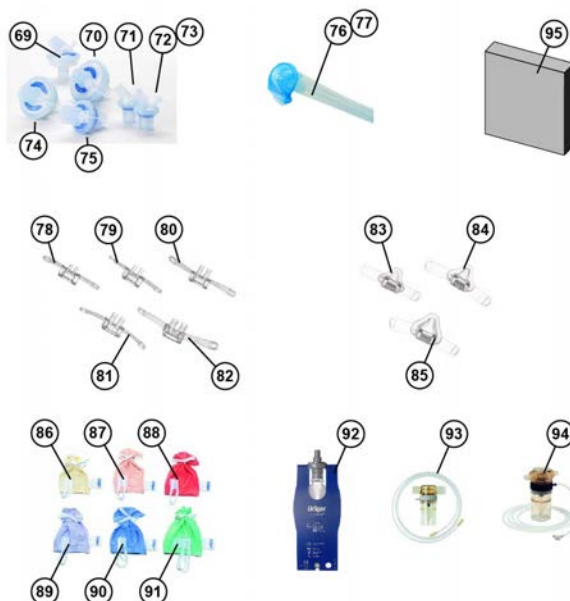
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Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
69	MP01810	☑	Filter/HME TwinStar 65A	1.000	St	
70	MP01800	☑	Filter/HME TwinStar 90	1.000	St	
71	MP01825	☑	Filter/HME TwinStar 10A	1.000	St	
72	MP01820	☑	Filter/HME TwinStar 8	1.000	St	
73	MP01815	☑	Filter/HME TwinStar 25	1.000	St	
74	MP01801	☑	Filter/HME TwinStar HEPA	1.000	St	
75	MP01805	☑	Filter/HME TwinStar 55	1.000	St	
76	8418550	☑	BabyFlow Demop. disposable	1.000	St	
77	8418583	☑	BabyFlow disposable (20x)	1.000	St	
78	8418415	☑	Prong XS (10pcs)	1.000	St	
79	8418605	☑	Prong S (10pcs)	1.000	St	
80	8418416	☑	Prong M (10pcs)	1.000	St	
81	8418531	☑	Prong L (10pcs)	1.000	St	
82	8418417	☑	Prong XL (10pcs)	1.000	St	
83	8418491	☑	NeoMask S (10pcs)	1.000	St	
84	8418490	☑	NeoMask M (10pcs)	1.000	St	
85	8418619	☑	NeoMask L (10pcs)	1.000	St	
86	8418534	☑	Cap S (smal 5pcs)	1.000	St	
87	8418535	☑	Cap M (medium 5pcs)	1.000	St	
88	8418536	☑	Cap L (large 5pcs)	1.000	St	
89	8418537	☑	Cap XL (extra large 5 pcs)	1.000	St	
90	8418538	☑	cap XXL(ex. ex. large 5pcs)	1.000	St	
91	8418539	☑	Cap XXL plus (5pcs)	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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Parts catalog
CP parts
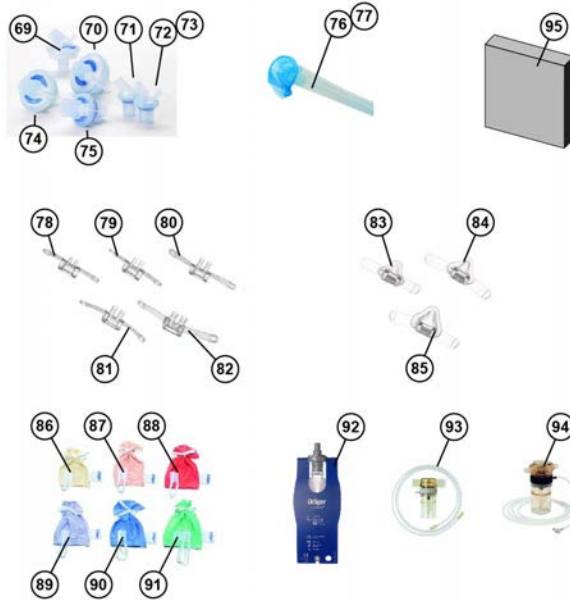
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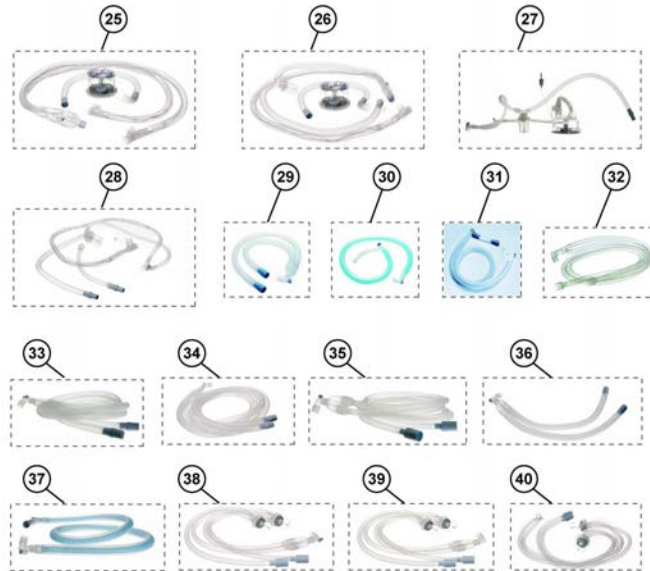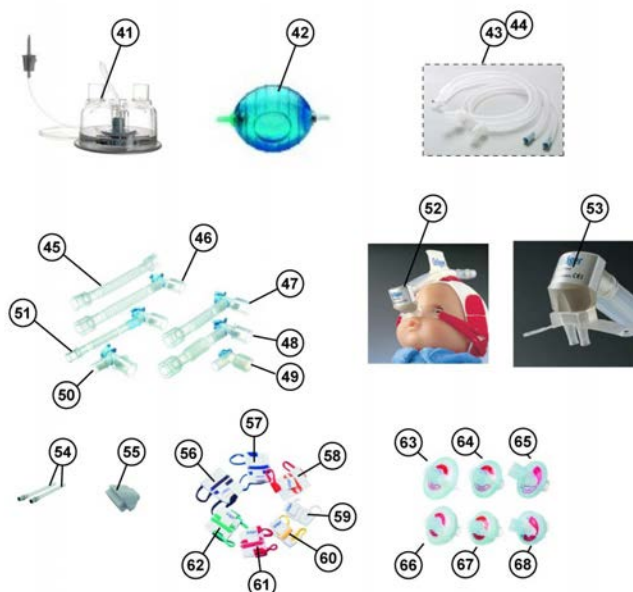
Item No.	Order No.	Oderable	Description	Qty.	Qty.unit	Remark
92	MP02400	☑	SelfTestLung	1.000	St	
93	8412935	☑	Pneum. Medication Nebulizer	1.000	St	
94	8411030	☑	Pneum. Medication Nebulizer N	1.000	St	
95	8415978	☑	Dust filter	1.000	St	

Items that are shown in the illustration but are not listed below the illustration are not available as spare parts

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5 Test instructions

Test Instructions

This chapter contains the measures required to determine the actual condition of the device.

5.1 Test Instructions / Service Card IPM

Dräger

Test Instructions / Service Card IPM

Evita 4 / Evita 4 edition

Warning

All servicing and/or test procedures on the device require detailed knowledge of this documentation. Use of the device requires detailed knowledge and observance of the relevant Instructions for Use.

Revision 13.0

Table of contents

No.0306_0000007424

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Evita 4 / Evita 4 edition
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Important notes

NOTE

Do not use these test instructions for testing after a repair procedure.

NOTE

Prior to using these test instructions, check that they are the latest revision (compare revision with latest service documentation).

All results and inputs must be documented in the "Test Report" and "Result Sheet".

NOTE

Clean and disinfect the device and device components prior to each maintenance procedure.

NOTE

For the function test the rechargeable batteries must be fully charged.

These test instructions apply from software version 4.n.

For the devices listed below, use the test instructions specific to the relevant device:

– Respiratory air compressor
– Humidifier

1 Device configuration

This section records the device configuration.

No.0306_0000007424

Evita 4 / Evita 4 edition
Device configuration

1.1 Device configuration

The basic device configuration comprises the following assemblies:
– Base unit
– Expiratory valve
– Ventilation hose system
– Trolley
– Compressed gas connecting hoses

1.1.1 Serial number (if not otherwise recorded)

Action • Read the serial number on the basic device.

Result **Serial number of the basic device**

[_____txt]

Action • Document the expiratory valve used.

Result **Document the use of a disposable expiratory valve with "Yes" or "No".**

[_____txt]

NOTE

Disposable expiratory valves have no serial number.

Action • Read the serial number of the expiratory valve(s).

Result **Serial number of expiratory valve 1**

[_____txt]

Result **Serial number of expiratory valve 2**

[_____txt]

Action • Read the serial number on the control unit of the ventilator.

Result **Serial number of the control unit**

[_____txt]

Action • Read the serial number on the CO_2 sensor (option).

Result **Serial number of the CO_2 sensor**

[_____txt]

1.1.2 Software version

Action • Connect unit to power supply.
        • Switch on the device.
        • Press the "Standby" key.
        • Press "Configuration" key.
        • Read off the software version shown on the display.

Result **Software version**

[_____txt]

No.0306_0000007424

1.1.3 Operating hours

Action
- as described under 1.1.2 Software version.
- Read off the operating hours shown on the display.

Result **Operating hours**

[_____h]

1.1.4 Device ID

Action
- as described under 1.1.2 Software version.
- Read off the device ID shown on the display.

Result **Device ID**

[_____txt]

2 Maintenance parts

This chapter contains interval-related maintenance parts, measures, and tests that can only be performed on an open device.

2.1 Maintenance intervals, overview

2.1.1 Maintenance intervals and required sets and parts

The following table presents an overview of the maintenance procedures and the required sets and maintenance parts over 78 months. After 78 months the table is worked through again starting from the first column.

Designation	Part number	Service interval in months										
		12	18	24	30	36	42	48	54	60	66	72
Service set, every 1 years	MX08220	x		x		x		x		x		x
Option: Filters for Canada and USA	MP03903	x		x		x		x		x		x
Devices with gas supply block FAS **or** Devices with gas supply block Dräger	MX08225 **or** MX08226			x				x				
Devices with gas supply block FAS **or** Devices with gas supply block Dräger	MX08227 **or** MX08228											x
Set 2 batteries Evita internal	8421988			x				x				x
Set 2 batteries Evita external	8422125			x				x				x

Evita 4 / Evita 4 edition
Maintenance parts

2.2 Maintenance parts by specified interval

2.2.1 Service set, once a year, MX08220

NOTE

When using disposable expiratory valves, the diaphragm 8410181 and the sealing washer 8407979 are not required.

The service set (quantity 1) with the number MX08220 includes the following items:

Quan-tity	Designation	Number	Location/Remark
1	Diaphragm	8410181	Expiratory valve / Replacement by specialist
1	Sealing washer	8407979	Expiratory valve / Replacement by specialist

Result **Service set, once a year, MX08220**

Next replacement: [_____dat]

2.2.2 Option for Canada and USA, filter element MP03903

or if the above filters are no longer available:

Quan-tity	Designation	Number	Location/Remark
1	AIR filter	MP03903	Gas inlet block/Replacement by specialist

Result **AIR filter**

Next replacement: [_____dat]

Quan-tity	Designation	Number	Location/Remark
1	O$_2$ filter	MP03903	Gas inlet block/Replacement by specialist

Result **O$_2$ filter**

Next replacement: [_____dat]

2.2.3 Gas inlet block

NOTE

Different maintenance parts are required depending on the gas inlet block used (FAS or Dräger), as explained below.

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2.2.3.1   Service set, gas inlet block FAS, MX08225

Fig. 1   Rear of device; FAS gas inlet block

The service set (quantity 1) with the number MX08225 for Evita with FAS gas inlet block includes the following items:

Quan-tity	Designation	Number	Location/Remark
1	Diaphragm	8410181	Expiratory valve / Replacement by specialist
1	Sealing washer	8407979	Expiratory valve / Replacement by specialist
1	Battery, lithium, 3 V / 1400 mAh	1835343	CPU / Replacement by specialist
2	Filter	8408208	Gas inlet block FAS / Replacement by specialist
2	O-ring	8411516	Gas inlet block FAS / Replacement by specialist

NOTE

When using disposable expiratory valves, the diaphragm 8410181 and the sealing washer 8407979 are not required.

Result   **Devices with FAS gas inlet block**

Next replacement: [_____dat]

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2.2.3.2   Service set, gas inlet block Dräger, MX08226
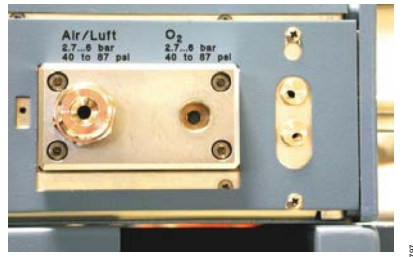
Fig. 2   Rear of device; Dräger gas inlet block

The service set (quantity 1) with the number MX08226 for Evita with Dräger gas inlet block includes the following items:

Quan-tity	Designation	Number	Location/Remark
1	Diaphragm	8410181	Expiratory valve / Replacement by specialist
1	Sealing washer	8407979	Expiratory valve / Replacement by specialist
1	Battery, lithium, 3 V / 1400 mAh	1835343	CPU / Replacement by specialist
2	Filter	8408208	Gas inlet block Dräger / Replacement by specialist
1	Flat seal	8408204	Gas inlet block Dräger / Replacement by specialist

NOTE

When using disposable expiratory valves, the diaphragm 8410181 and the sealing washer 8407979 are not required.

Result   **Devices with Dräger gas inlet block**

Next replacement: [_____dat]

2.2.3.3   Service set, gas inlet block FAS, MX08227

Fig. 3   Rear of device; FAS gas inlet block

The 6-yearly service set (quantity 1) with the number MX08227 for Evita with FAS gas inlet block includes the following items:

Quantity	Designation	Number	Location/Remark
1	Diaphragm	8410181	Expiratory valve / Replacement by specialist
1	Sealing washer	8407979	Expiratory valve / Replacement by specialist
1	Battery, lithium, 3 V / 1400 mAh	1835343	CPU / Replacement by specialist
2	Filter	8408208	Gas inlet block FAS / Replacement by specialist
2	O-ring	8411516	Gas inlet block FAS / Replacement by specialist
2	Diaphragm	8411513	Gas inlet block FAS / Replacement by specialist
2	Valve tappet	8411514	Gas inlet block FAS / Replacement by specialist
1	Real-time clock DIL24	1837087	CPU / Replacement by specialist
1	Fan	8306560	Pneumatic assembly/Replacement by specialist
1	Spirolog sensor cable harness	8415709	Pneumatic assembly/Replacement by specialist
1	SV diaphragm assembly	8414179	Safety valve / Replacement by specialist

NOTE

When using disposable expiratory valves, the diaphragm 8410181 and the sealing washer 8407979 are not required.

Result   **Devices with FAS gas inlet block**

Next replacement: [_____dat]

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Maintenance parts

2.2.3.4   Service set, gas inlet block Dräger, MX08228
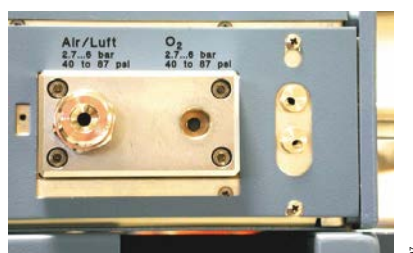
Fig. 4   Rear of device; Dräger gas inlet block

The 6-yearly service set (quantity 1) with the number MX08228 for Evita with Dräger gas inlet block includes the following items:

Quan-tity	Designation	Number	Location/Remark
1	Diaphragm	8410181	Expiratory valve / Replacement by specialist
1	Sealing washer	8407979	Expiratory valve / Replacement by specialist
1	Battery, lithium, 3 V / 1400 mAh	1835343	CPU / Replacement by specialist
2	Filter	8408208	Gas inlet block Dräger / Replacement by specialist
1	Flat seal	8408204	Gas inlet block Dräger / Replacement by specialist
2	Pressure regulator	8408205	Gas inlet block Dräger / Replacement by specialist
1	Real-time clock DIL24	1837087	CPU / Replacement by specialist
1	Fan	8306560	Pneumatic assembly/Replacement by specialist
1	Spirolog sensor cable harness	8415709	Pneumatic assembly/Replacement by specialist
1	SV diaphragm assembly	8414179	Safety valve / Replacement by specialist

NOTE

When using disposable expiratory valves, the diaphragm 8410181 and the sealing washer 8407979 are not required.

Result   **Devices with Dräger gas inlet block**

Next replacement: [_____dat]

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2.2.4 Optional rechargeable battery (DC module), 8421988

CAUTION

Risk of overcharging of internal rechargeable batteries!

► When using power supply unit 8419059 (8306520+8306530), the "Battery PCB upgrade kit type B" must always be installed (8419275). When the PCB is installed, the label +/- REV B should be fixed from the outside on the top of the screen frame.

► When using power supply unit 8419616 (identifiable by the LEDs next to the power switch), the "Battery PCB upgrade kit type B" (8419275) and the label are not needed.

Fig. 5   Power Supply 8419275

"Panasonic" rechargeable battery (power supply unit)

Quan-tity	Designation	Number	Location/Remark
1	Set 2 batteries Evita internal	8421988	DC module (power supply unit) / Replacement by specialist

Result   **Optional rechargeable battery (DC module)**

Next replacement: [_____dat]

2.2.5 Optional rechargeable battery (trolley), 8422125

Quan-tity	Designation	Number	Location/Remark
1	Set 2 batteries Evita external	8422125	Trolley

Result   **Optional rechargeable battery (trolley)**

Next replacement: [_____dat]

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Maintenance parts

2.2.6 Replacing the LCD backlight after 25000 operating hours

NOTE

Display 8411841 is always indicated in Service mode regardless of the display installed.

Different displays have been used over the years. There is often a label on the rear of the control panel identifying the display. If there is no label on the rear of the display, the control panel must be opened. The type designation is given on the rear of the display.

2.2.6.1 Replacement of no longer available displays and backlights

Display Toshiba type 1, if fitted

– The display was in production in 1995.
– The display type designation is LTM10C015K.
– The LCD backlight is no longer available.
– The **replacement** is the repair kit Display AUO (Evita 4).

Display NEC, if fitted

– The display was in production in 1996.
– The LCD backlight is no longer available.
– The **replacement** is the repair kit Display AUO (Evita 4).

Display Sharp, if fitted

– The display was in production in 1996.
– The LCD backlight is no longer available.
– The **replacement** is the repair kit Display AUO (Evita 4).

Display Toshiba 8411841, if fitted

The display was in production from 1997 to 2007, and is identifiable by the label under the control unit rating plate. The label indicates the number 8411841. If the label is not present, open the control unit. On the rear the Toshiba display type LTM 10C209A is specified.

The LCD backlight is no longer available. The **replacement** is the repair kit Display AUO (Evita 4).

Repair kit Display AUO (Evita 4)

The repair kit Display AUO (Evita 4) replaces all the displays and backlights listed above. The repair kit Display AUO (Evita 4) includes the maintenance-free Toshiba 8418948 display cited in the following test item.

Quan-tity	Designation	Number	Location/Remark
1	Repair kit Display AUO (Evita 4)	8418948	Front panel / Replacement by specialist

Result **Date of installing repair kit 8420794**

[_____txt]

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2.2.6.2   Maintenance-free display

Display Toshiba 8418948, if fitted

The display entered production as from mid 2011, or has been retrofitted with repair kit Display AUO (Evita 4). The LCD backlight is maintenance-free.

The display is identifiable by the label beneath the type plate on the control unit (Fig. 7). The label indicates the number "8418948".

Fig. 6   Labels

If the label is not present, open the control unit. On the rear of the fixing plate the display type "FPDS-104KID" is specified.

Display Toshiba 8417028, if fitted

The display has been in production since 2008. The LCD backlight is maintenance-free.

The display is identifiable by the label beneath the type plate on the control unit (Fig. 7). The label indicates the number "8417028".

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Maintenance parts

Fig. 7   Labels

If the label is not present, open the control unit. On the rear the Toshiba display type "LTA 104A261F" is specified.

Result   **No maintenance required**

[_____OK]

2.2.7   Maintenance parts as required

2.2.7.1   Maintenance parts as per instructions for use

NOTE

Replacement of maintenance parts is detailed in the instructions for use, and is carried out by the users.

Quantity	Designation	Part number	Location/Remark
1	O_2 sensor	6850645	Replace O_2 sensor when the display "O_2 measurement fault !!!" appears and when calibration is no longer possible.
1	Room air filter	8412384	Replace room air filter after no more than one year.
1	Cooling air filter	8412384	Replace cooling air filter after no more than one year.
1	Dust protection filter	8415978	Replace dust protection filter after no more than one year. The dust protection filter is fitted in devices from date of manufacture 2005.

Action   • Check whether the above-mentioned maintenance parts have been replaced.

Result   **The above-mentioned maintenance parts have been replaced.**

[_____OK]

3 Electrical safety

This section contains tests which have to be performed in order to determine the operational readiness of the medical-electrical system.

3.1 Electrical safety to DIN EN 62353 (IEC 62353)

NOTE

The device conforms to the conditions of protection class I, type BF.

NOTE

The tester, e.g. SECUTEST, must be correctly configured for all measurements. If implausible measurement results are obtained, such as a leakage current of 0.0 μA, check the tester configuration in addition to the test setup!

NOTE

In testing to IEC 62353, the medical electrical device (ME device) or the medical electrical system (ME system) must be tested.

ME systems must be treated like ME devices.

An ME system is a combination of several devices, as specified by the manufacturer, of which at least one must be an ME device, which are interconnected by a functional connection or by means of a multiple socket outlet.

NOTE

With devices that are connected to other devices by means of a data cable, this connection must be disconnected prior to performing the electrical safety check, in order to avoid incorrect measurements.

3.1.1 Visual check

Prerequisites The tester and the device under test are switched off.

WARNING

Hazardous voltage.

Touching live components can lead to serious injury or death.

► Disconnect the power cord from the AC outlet before checking the power fuse-links.

Action • Disconnect the power plug from the mains socket.

Test – The power fuse-links of the device under test match the specifications on the rating plate.

– The power cable and plug are not dirty or damaged.

Result **Condition checked.**

[_____OK]

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Evita 4 / Evita 4 edition
Electrical safety

3.1.2 Protective earth resistance
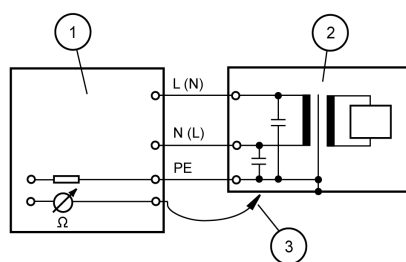
Test set-up

Fig. 8 Protective earth conductor resistance

Item	Designation
1	Tester
2	Device under test
3	Tester probe cable
L	Conductor
N	Neutral conductor
PE	Protective earth

Action
- Prepare the test setup.
- Switch the tester on.
- Configure the tester appropriately and follow the instructions on the tester.
- Using the tip of the probe cable, scan each of the measuring points on the device under test listed under "Protective earth resistance measuring points" one after the other, moving the mains power supply cord along the entire length during the measurement. The resistance must not change when you do so.

Test   The protective earth resistance of devices with detachable but connected mains power supply cords must not exceed **0.3** Ohm in each case.

Result   **Maximum measured value of device with power supply cord.**

[_____Ω]

Test   If other optional power supply cords are fitted, the respective protective earth resistance must not exceed **0.1** Ohm. Move the power supply cord along the entire length during the measurement. The resistance must not change when you do so.

Result   **Maximum measured value of optional power supply cord.**

[_____Ω]

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3.1.3 Protective earth resistance measuring points

Action • Scan the following measurement points for protective conductor resistance measurement one after the other using the tip of the probe cable:

– Equipotential equilization pin on power pack

– Gas connection and metal connectors on the pneumatic assembly

– Inspiratory block

– Side rails on the device under test

Result Measurement points scanned.

[_____OK]

3.1.4 Test adapters for equipment leakage current

Prerequisites The following device-specific test adapters are required for the device under test:

– 7910195, Patient adapter

– 7910364, Measuring line, leakage current, 2-pin, VDE test connector, temperature

– 7901772, VDE test connector Babylog (optional)

– 7901068, Shorting cable Nellcor, type L (optional)

Action • Connect all adapter cables to the device under test.

• Connect all adapter cables to the sockets for applied parts on the tester.

• Perform the device leakage current test.

Result **Test adapters for device leakage current**

[_____OK]

3.1.5 Equipment leakage current

NOTE

The equipment leakage current can be tested by the differential measurement method or the direct measurement method.

In direct measurement, set up the device under test with insulation and scan all accessible conductive components using the probe (the protective earth is internally interrupted in the tester).

Prerequisites The tester is switched on.

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Electrical safety

Test set-up
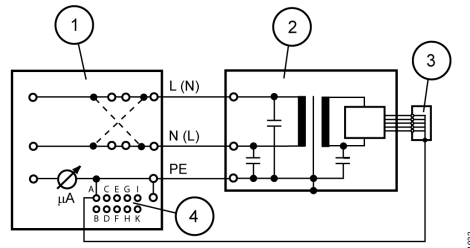
Fig. 9   Equipment leakage current

Item	Designation
1	Tester
2	Device under test
3	(Applied part) Device-specific test adapter for tester
4	(Applied part) Configurable ports for applied part
L	Conductor
N	Neutral conductor
PE	Protective earth

Action
- Prepare the test setup.
- (Applied part) Connect the device-specific test adapter on one end to the device under test and on the other end to the tester's configurable port "A" for applied parts (paying attention to the configuration!).
- Follow the instructions on the tester.

NOTE

For symmetrical mains plugs that have no preferential position in the socket-outlet, perform the test twice! Perform the second test with the plug rotated 180° in the socket. In many test devices the mains plug rotation is simulated by means of a built-in selector switch. Document the higher measured value.

NOTE

Always enter the reference value (initial value measured) in the "Test Report" or "Result Sheet" document.

NOTE

If the measured values are between 90% and 100% of the permissible limit value, apply the reference value and the previously measured values of the recurrent test to assess electrical safety!

Test   The reference value must not exceed **500** µA.

Result   **Reference value**

[_____ µA]

Test   The recurrent test value must not exceed **500** µA.

Result   **Recurrent test**

[_____ µA]

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3.1.6   Test adapters for patient leakage current

Prerequisites   The following device-specific test adapters are required for the device under test:

– 7910195, Patient adapter

– 7910364, Measuring line, leakage current, 2-pin, VDE test connector, temperature

– 7901772, VDE test connector Babylog (optional)

– 7901068, Shorting cable Nellcor, type L (optional)

Action   • Connect all adapter cables to the device under test.

• Connect all adapter cables to the sockets for applied parts on the tester.

NOTE

Measure applied parts individually!

• Perform patient leakage current test.

Result   **Test adapters for patient leakage current**

[_____OK]

3.1.7   Leakage current, mains on applied part with airway temperature sensor AWT 01, if installed

NOTE

In the following test the leakage current is measured at the airway temperature sensor AWT01. The expected value is very low (the typical measured value is 1.5 µA to 2 µA).

Prerequisites   The tester is switched on.

Action   • Prepare the following test setup.

Test set-up
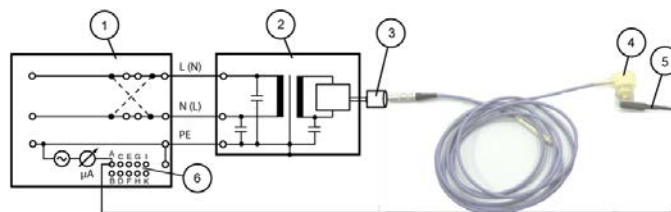
Fig. 10   Leakage current of airway temperature sensor

Item	Designation
1	Tester (test device)
2	Device under test
3	Connection port of device under test
4	Airway temperature sensor AWT 01
5	Test clip with measuring lead
6	Configurable ports for applied part

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Electrical safety

Item	Designation
L	Conductor
N	Neutral conductor
PE	Protective earth

Action
• (Applied part) Connect the airway temperature sensor on one end to the device under test and on the other end by a test clip with measuring lead and the tester, configurable port "A" for applied parts (paying attention to the configuration!).

• Follow the instructions on the tester.

NOTE

For symmetrical mains plugs that have no preferential position in the socket-outlet, perform the test twice! Perform the second test with the plug rotated 180° in the socket. In many test devices the mains plug rotation is simulated by means of a built-in selector switch. Document the higher measured value.

NOTE

Always enter the reference value (initial value measured) in the "Test Report" or "Result Sheet" document.

NOTE

If the measured values are between 90% and 100% of the permissible limit value, apply the reference value and the previously measured values of the recurrent test to assess electrical safety!

Test   The reference value must not exceed **5000** µA.

Result **Reference value**

[_____µA]

Test   The recurrent test value must not exceed **5000** µA.

Result **Recurrent test**

[_____µA]

3.1.8   Leakage current on applied part with test adapter (normal condition)

NOTE

The following measurement is performed in the "normal condition" setting on the tester.

Prerequisites   The tester is switched on.

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Test set-up
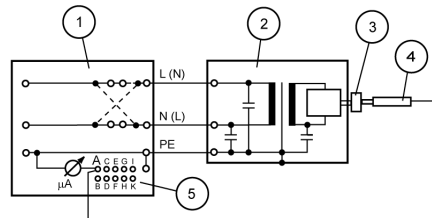
Fig. 11   Leakage current on applied part

Item	Designation
1	Tester (test device)
2	Device under test
3	Applied part of device under test
4	Test adapter
5	Configurable ports for application components
L	Conductor
N	Neutral conductor
PE	Protective earth

Action
- Prepare the test setup.
- (Applied part) Connect the device-specific test adapter on one end to the device under test and on the other end to the tester's configurable port "A" for applied parts (paying attention to the configuration!).
- Follow the instructions on the tester.

NOTE

For symmetrical mains plugs that have no preferential position in the socket-outlet, perform the test twice! Perform the second test with the plug rotated 180° in the socket. In many test devices the mains plug rotation is simulated by means of a built-in selector switch. Document the higher measured value.

NOTE

Always enter the reference value (initial value measured) in the "Test Report" or "Result Sheet" document.

NOTE

If the measured values are between 90% and 100% of the permissible limit value, apply the reference value and the previously measured values of the recurrent test to assess electrical safety!

Airway temperature sensor

Test   The initial value must not exceed **100** µA "IAC".

Result   **Initial measured value "IAC", airway temperature sensor**

[_____µA]

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Electrical safety

Test	The initial value must not exceed **10** μA "IDC".	
Result	**Initial measured value "IDC", airway temperature sensor**	
		[_____μA]
Test	The recurrent test value must not exceed **100** μA "IAC".	
Result	**Recurrent test "IAC", airway temperature sensor**	
		[_____μA]
Test	The recurrent test value must not exceed **10** μA "IDC".	
Result	**Recurrent test "IDC", airway temperature sensor**	
		[_____μA]
	NeoFlow option	
Test	The initial value must not exceed **100** μA "IAC".	
Result	**Initial measured value "IAC", NeoFlow sensor**	
		[_____μA]
Test	The initial value must not exceed **10** μA "IDC".	
Result	**Initial measured value "IDC", NeoFlow sensor**	
		[_____μA]
Test	The recurrent test value must not exceed **100** μA "IAC".	
Result	**Recurrent test "IAC", NeoFlow sensor**	
		[_____μA]
Test	The recurrent test value must not exceed **10** μA "IDC".	
Result	**Recurrent test "IDC", NeoFlow sensor**	
		[_____μA]

3.1.9 Optional SpO$_2$, leakage current, mains on applied part

Prerequisites The tester is switched on.

Test set-up
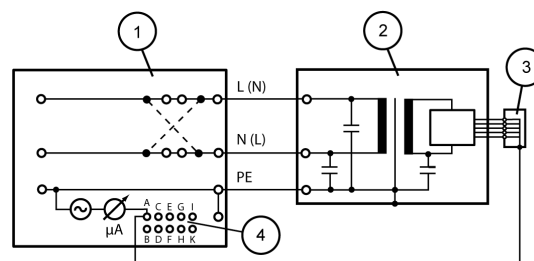
Fig. 12 Leakage current on applied part

Item	Designation
1	Tester (test device)
2	Device under test
3	Application component, device-specific test adapter for tester
4	Configurable connection sockets for applied part (A - K)

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Item	Designation
L	Conductor
N	Neutral conductor
PE	Protective earth

Action
- Prepare the test setup.
- Connect the device-specific test adapter on one end to the device under test and on the other end to the tester's configurable socket "A" for applied parts (paying attention to the configuration!).
- Follow the instructions on the tester.

NOTE

For symmetrical mains plugs that have no preferential position in the socket-outlet, perform the test twice! Perform the second test with the plug rotated 180° in the socket. In many test devices the mains plug rotation is simulated by means of a built-in selector switch. Document the higher measured value.

NOTE

Always enter the reference value (initial value measured) in the "Test Report" or "Result Sheet" document.

NOTE

If the measured values are between 90% and 100% of the permissible limit value, apply the reference value and the previously measured values of the recurrent test to assess electrical safety!

Test   Measure leakage current at SpO_2 connection. The reference value must not exceed **5000** µA.

Result   **SpO_2 connection reference value**

[_____µA]

Test   Measure leakage current at SpO_2 connection. The recurrent test value must not exceed **5000** µA.

Result   **SpO_2 connection recurrent test**

[_____µA]

3.2 Electrical safety according to IEC 60601-1

NOTE

The device conforms to the conditions of protection class I, type BF.

NOTE

The following presents a description of the electrical safety tests according to IEC 60601-1. Whether the standard is applicable or not depends on national regulations and its use must be decided on site under consideration of applicable national regulations.

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NOTE

When testing according to IEC 60601-1, systems must be tested and not individual devices.

Systems should be treated as devices.

A system is a combination of several devices of which at least one is a medical electrical device which is connected to other devices by functional connections or by a transportable multiple socket outlet.

NOTE

With devices that are connected to other devices by means of a data cable, this connection must be disconnected prior to performing the electrical safety check, in order to avoid incorrect measurements.

NOTE

The test to UL2601-1 is satisfied by testing to IEC 60601-1. Differing limit values are marked.

3.2.1 Visual check

Prerequisites   The tester and the device under test are switched off.

WARNING

Hazardous voltage.

Touching live components can lead to serious injury or death.

► Disconnect the power cord from the AC outlet before checking the power fuse-links.

Action   • Disconnect the power plug from the mains socket.

Test   – The power fuse-links of the device under test match the specifications on the rating plate.

  – The power cable and plug are not dirty or damaged.

Result   **Condition checked.**

[_____OK]

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3.2.2 Protective earth resistance
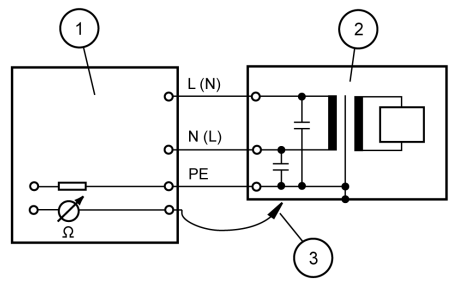
Test set-up

Fig. 13 Protective earth conductor resistance

Item	Designation
1	Tester
2	Device under test
3	Tester probe cable
L	Conductor
N	Neutral conductor
PE	Protective earth

Action
• Prepare the test setup.

• Switch the tester on.

• Configure the tester appropriately and follow the instructions on the tester.

• Using the tip of the probe cable, scan each of the measuring points on the device under test listed under "Protective earth resistance measuring points" one after the other, moving the power supply cord along the entire length during the measurement. The resistance must not change when you do so.

Test
The protective earth resistance of single devices (including the permanently installed power supply cord, or power supply cord detachable only by use of tools) must not exceed **0.2** Ohm in each case.

Result
Maximum measured value.

[_____Ω]

3.2.3 Protective earth resistance measuring points

Action
• Scan the following measuring points for protective conductor resistance measurement one after the other using the tip of the probe cable:

– Power supply unit potential equalization pin

– Gas connection and metal connectors on the pneumatic assembly

– Inspiratory block

– Side rails on the device under test

Result
Measurement points scanned.

[_____OK]

Evita 4 / Evita 4 edition
Electrical safety

3.2.4   Earth leakage current

Test set-up

NOTE

To avoid false measurements, install the device under test insulated.
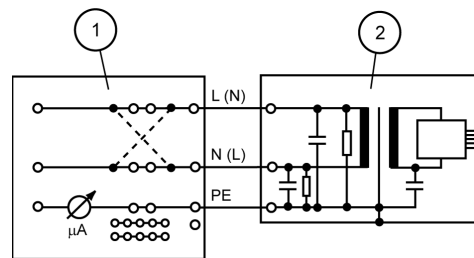
Fig. 14   Earth leakage current

Item	Designation
1	Tester (test device)
2	Device under test
L	Conductor
N	Neutral conductor
PE	Protective earth

Action • Prepare the test setup.

• Switch on the tester and the device under test.

NOTE

For symmetrical mains plugs that have no preferential position in the socket-outlet, perform the test twice! Perform the second test with the plug rotated 180° in the socket. In many test devices the mains plug rotation is simulated by means of a built-in selector switch. Document the higher measured value.

• Follow the instructions on the tester.

Test   Normal condition (N.C.): The value must not exceed **500** µA.

Result **Normal condition (N.C.)**

[_____µA]

Test   Single fault condition (S.F.C.): The value must not exceed **1000** µA.

Result **Single fault condition (S.F.C.)**

[_____µA]

3.2.5   Patient leakage current

Prerequisites   The tester is switched on.

No.0306_000000007424
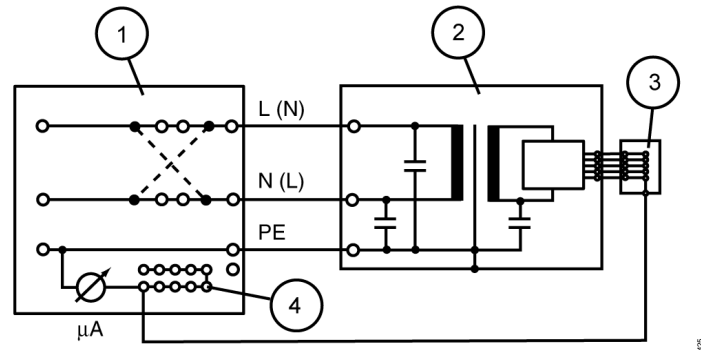
Test set-up

Fig. 15 Patient leakage current test setup

Item	Designation
1	Tester
2	Device under test
3	Applied part, device-specific test adapters for tester
4	Ports for applied parts
L	Conductor
N	Neutral conductor
PE	Protective earth

Prerequisites | The following device-specific test adapters are required for the device under test:

– 7910195, Patient adapter

– 7910364, Measuring line, leakage current, 2-pin, VDE test connector, temperature

– 7901772, VDE test connector Babylog (optional)

– 7901068, Shorting plug Nellcor, type L

Action | • Prepare the test setup.

• Plug the test adapter into the relevant connection on the device under test and connect the laboratory plug to the tester.

• Follow the instructions on the tester.

NOTE

For symmetrical mains plugs that have no preferential position in the socket-outlet, perform the test twice! Perform the second test with the plug rotated by 180° in the power socket. In many test devices the mains plug rotation is simulated by means of a built-in selector switch. Document the higher measured value.

Test | Measure leakage current at temperature sensor connection. In normal condition (N.C.), the value must not exceed **100** μA.

Result | **Temperature sensor connection, normal condition (N.C.)**

[_____μA]

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Function and condition test

Test	Measure leakage current at temperature sensor connection. In single fault condition (S.F.C.), the value must not exceed **500** µA.	
Result	**Temperature sensor connection, single fault condition (S.F.C.)**	[_____µA]
Test	Measure leakage current at Neo-Flow connection (optional). In normal condition (N.C.), the value must not exceed **100** µA.	
Result	**NeoFlow connection, normal condition (N.C.)**	[_____µA]
Test	Measure leakage current at Neo-Flow connection (optional). In single fault condition (S.F.C.), the value must not exceed **500** µA.	
Result	**NeoFlow connection, single fault condition (S.F.C.)**	[_____µA]
Test	Measure leakage current at SpO_2 connection (optional). In normal condition (N.C.), the value must not exceed **100** µA.	
Result	**SpO_2 connection, normal condition (N.C.)**	[_____µA]
Test	Measure leakage current at SpO_2 connection (optional). In single fault condition (S.F.C.), the value must not exceed **500** µA.	
Result	**SpO_2 connection, single fault condition (S.F.C.)**	[_____µA]

4 Function and condition test

This section contains tests to establish whether the device and the accessories used conform to the stipulations of the Instructions for Use in terms of condition and function.

4.1 Condition of basic device

Prerequisites The device is fully assembled.

4.1.1 Labels and instructions for use

Test – Labels are complete and legible.

– The instructions for use are available, according to the user/owner.

– Only applicable in Germany: The medical product log is available (according to user/owner).

Result **Condition checked.**

[_____OK]

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4.1.2   Base unit

Test – The housing is neither contaminated nor damaged.

– Markings/labelling are complete and legible.

Result **Condition and function checked.**

[_____OK]

4.1.3   Trolley

Test Trolley is undamaged, all screw connections are tight.

The castors are undamaged and firmly attached to the trolley.

Result **Condition checked.**

[_____OK]

4.1.4   Compressed gas connecting hoses

Test – Plugs, screw connections and tubes/hoses are undamaged.

– Plugs, screw connections and tubes/hoses correspond to country-specific coding.

Result **Condition and country-specific coding checked.**

[_____OK]

4.2   Function check

4.2.1   PEEP/PIP valve calibration

Prerequisites The device is on standby.

Action • Connect the "AIR" and "O_2" compressed gas connecting tubes of the ventilator to the central gas supply.

• Disconnect the ventilation hoses from the inspiratory socket and expiratory socket.

• Remove the flow sensor.

• Detach patient system.

• Unscrew the diaphragm cover (Fig. 16/7) from the patient system and remove the diaphragm (Fig. 16/6).

• Screw the diaphragm cover (Fig. 16/7) onto the patient system.

• Seal off the expiratory socket (Fig. 16/5) with a rubber plug.

• Remove the "flow sensor connection" lip seal (Fig. 16/8) and seal off the connection with a rubber plug.

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Function and condition test
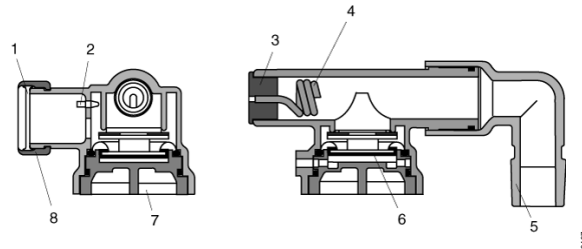
Fig. 16 Patient system, components

Legend to Fig. 16

Item	Designation
1	Filter
2	Non-return valve
3	Plug
4	Copper tube (observe preferred position!)
5	Expiratory socket
6	Diaphragm with sealing washer
7	Diaphragm cover with O-ring
8	Lip seal

- Install the patient system on the device.
- When using a disposable expiratory valve, a short-circuit can be created between the two lip seals into the connection housing as an alternative.
- Press the "Calib. config." key.
- Press the "Ventilation" key.
- Enter the following number code: 4 7 9 9 4 7 4 7.

Test   Calibration starts.

NOTE

The calibration may take more than 1 minute!

The calibration has been completed successfully if a flow pulse of less than/equal to 0.2 seconds can be heard at the inspiratory port.

NOTE

If the calibration failed (audible flow impulse was approx. 1 s), repeat the calibration. If the calibration fails several times, replace the PEEP/PIP valve and repeat the calibration.

Action   • Restore the patient system to its correct condition. Note: Make sure that the sealing to the flow sensor is fitted correctly and that the non-return valve D 5.1 is not broken.

Result   **Calibration completed.**

[_____OK]

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4.2.2   Power-on test

Test set-up
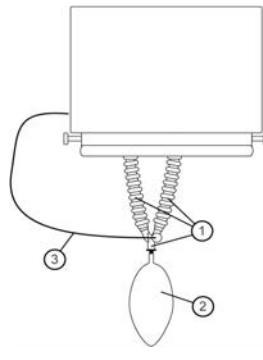
Fig. 17   Device ready for use

Item	Designation
1	Tubing system according to instructions for use
2	Breathing bag
3	Cable from temperature sensor

Action
- Connect the ventilator to compressed gas supply and to the mains power supply.
- Connect an adult tubing system without humidifier.
- Connect the "AWT temperature sensor", if fitted.
- Connect the "CO_2 sensor", if fitted.
- Connect the "NeoFlow sensor", if fitted.
- Connect the "Remote Pad", if fitted
- Switch on the lung ventilator.

Test
- The ventilator carries out its self-test.
- At the end of the self-test all LEDs are lit for approx. 2 seconds (also on the optional Remote Pad, if fitted).
- The information on the display must not be corrupted by faulty pixels.

Result   **Power-on test checked.**

[_____OK]

4.2.3   Test according to internal device checklist as per instructions for use

NOTE

If the "CO_2" option is fitted, wait 3 minutes!

Action
- Call up device check and perform all test steps in succession. Follow the instructions on the display.

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Function and condition test

Test   At the end of the device check, a result sheet will be displayed containing the following information:

– "Check symbol" = correct result

– "F" = faulty result

– "(- -)" = check not performed

If there are leaks, the maximum permissible leak rate is 100 mL/min, as testing is being performed with a tubing system with no humidifier.

NOTE

Perform the leak test with all expiratory valves present.

Result   **All tests successfully completed.**

[_____OK]

4.2.4   Non-return valve (D5.1) in expiratory valve

NOTE

Check all the expiratory valves registered in the "Test Report" or on the "Result Sheet".

Prerequisites   The ventilator is switched off. The expiratory valve is adapted to the ventilator.

Test set-up
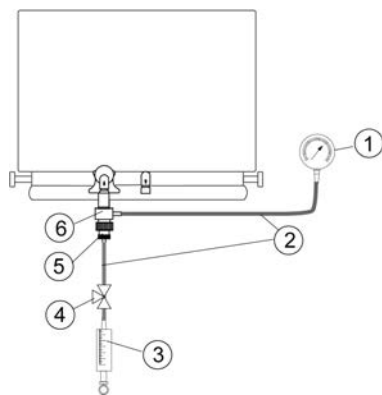
Fig. 18   Test setup for non-return valve D5.1 in expiratory valve

Item	Designation
1	Pressure gauge, class 1.6, measuring range e.g. +12 mbar to –12 mbar
2	Silicone tube, e.g. 7 x 2.5 Si, natural colour
3	Syringe, e.g. 60 mL
4	Tube clamp
5	Catheter connector 5.5 mm (outer)
6	LUER-LOCK with LUER-LOCK adapter, connected to expiratory socket

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Action	• Prepare the test setup.
	• Use the syringe to generate a negative pressure of –7 mbar, and then reduce it to –4 mbar.
Test	– After about 5 seconds, the vacuum for each expiratory valve tested is still at least –1 mbar.
Result	**Function checked.**

[_____OK]

4.2.5   Non-return valve D3.2 (10 mbar)

Prerequisites	The ventilator is switched off.
Test set-up	
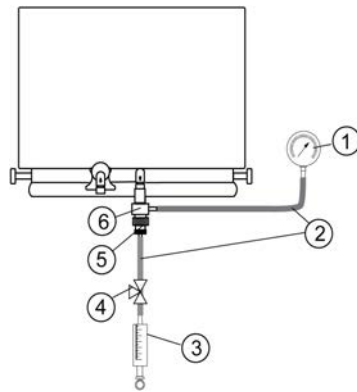
Fig. 19   Test setup for non-return valve D3.2

Item	Designation
1	Pressure gage, class 1.6, measuring range e.g. +12 mbar to –12 mbar
2	Tube, e.g. 7 x 2.5 Si, natural colour
3	Syringe, e.g. 60 mL
4	Tube clamp
5	Catheter connector 5.5 mm (outer)
6	LUER-LOCK with LUER-LOCK adapter, connected to inspiratory socket

Action	• Prepare the test setup.
	• Use the syringe to feed a volume of 50 mL into the inspiratory socket within 2 seconds to 4 seconds.
Test	– The reading on the comparative manometer is **5** mbar to **10** mbar.
Result	**Enter the measured value.**

[_____mbar]

Action	• Withdraw the syringe.

4.2.6   Emergency air valve Y3.1/non-return valve D3.1

Prerequisites	The ventilator is switched off.

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Function and condition test

Test set-up

NOTE

Use an adult ventilation tube (0.9 m to 1.2 m long) between the inspiratory socket of the ventilator and the Y-piece (pressure measurement point).
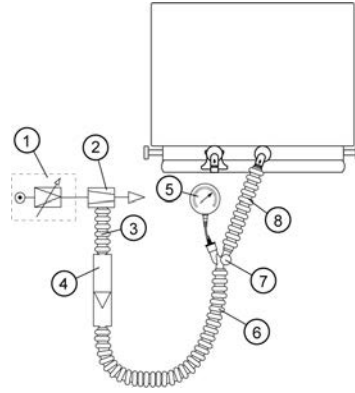
Fig. 20   Test setup; emergency air valve Y3.1/non-return valve D3.1

Item	Designation
1	Adjustable compressed gas source, e.g. test pressure regulator
2	Ejector
3	Adult corrugated tube, e.g. 0.35 m long
4	Flowmeter; class 2.5, measuring range e.g. 10 L/min to 120 L/min
5	Manometer, class 1.6, measuring range e.g. +12 mbar to -12 mbar
6	Adult corrugated tube, 0.9 m to 1.2 m long
7	Y-piece
8	Adult corrugated hose, 0.9 m to 1.2 m long, plugged onto inspiratory socket

Action   • Prepare the test setup.

• With a test pressure regulator and an injector, set a flow of 55 L/min to 60 L/min.

Test   – The measured value on the reference manometer is **0** to **-6** mbar.

Result   **Enter the measured value.**

[_____mbar]

Action   • Remove the test setup.

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Function and condition test

4.2.7 Safety valve D3.3 (120 mbar)

Test set-up
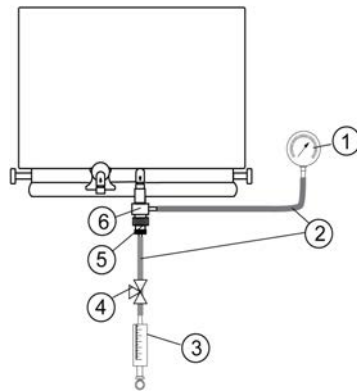
Fig. 21 Test setup; safety valve D3.3

Item	Designation
1	Pressure gage, class 1.6, measuring range e.g. 0 mbar to 120 mbar
2	Silicone hose, e.g. 7 x 2.5 Si, natural color
3	Syringe, at least 60 mL
4	Tube clamp
5	Catheter connector 5.5 mm (outer)
6	LUER-LOCK with LUER-LOCK adapter, connected to inspiratory socket

NOTE

Applies to Evita 4/2 dura as from software version 4.2n:

If the ventilator is switched to Standby mode immediately after completion of the self-test, it will enter the safety switchoff/gas saving mode, and no pressure will be built up (Y1.3 is not actuated).

Remedy: start the "Leakage" device test and then interrupt it at once.

NOTE

In this test, the "Pressure measurement inop" alarm may be delivered; ignore this alarm. This alarm must disappear again when the test setup is removed.

Pressure may also build up as a result of leakage at the mixer if this was not zeroed at power-on. The test can be performed immediately, however.

Action
• Prepare the test setup.

• Set the device to "Standby" mode and confirm. From the "Check" menu, just start the leakage test using the "Check" softkeys and then stop it immediately using the "Abort" softkey.

• Use the syringe to feed a volume of 50 mL into the inspiratory socket within 2 seconds to 4 seconds.

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Function and condition test

| Test | – The reading on the comparative manometer is **101** mbar to **110** mbar. |
| Result | **Enter the measured value.** |

[_____mbar]

| Action | • Remove the test setup. |

4.2.8   DC power supply unit with LEDs

NOTE

This test relates only to the new DC power supply unit 8419616.

Prerequisites	The ventilator is connected to the mains power supply.
	The ventilator is switched off.
Test	The mains power LED on the rear of the power supply unit is lit green.
	The LED for the optional external rechargeable battery on the rear of the power supply unit is lit green (rechargeable battery fully charged) or yellow (rechargeable battery charging). If no external battery is connected, the LED remains unlit.
	The LED for the internal rechargeable battery on the rear of the power supply unit is lit green (rechargeable battery fully charged) or yellow (rechargeable battery charging). An internal battery must always be present.
Action	• Switch on the device.
Test	All LEDs on the rear of the power supply unit are out.
	After the self-test the mains power supply connection is indicated by a yellow dot next to the power icon in the bottom right corner of the screen.
	The state of charge of the internal and external rechargeable batteries is indicated in the bottom right corner of the screen as follows:
	– Green battery icon = rechargeable battery fully charged.
	– "Transparent" battery icon = rechargeable battery charging.
Action	• Cut the mains power supply.
Test	If the "external battery" option is connected, the "External battery active!!!" alarm is generated.
	The yellow dot next to the on-screen mains power icon disappears.
	The on-screen icon for the external rechargeable battery becomes transparent. A yellow dot is displayed next to the external rechargeable battery icon.
Test	If the "external battery" option is not present, or if the connector from the external rechargeable battery to the power supply unit is unplugged, the "Internal battery active!!!" alarm is generated.
	The yellow dot next to the on-screen mains power icon has disappeared.
	The on-screen icon for the internal rechargeable battery becomes transparent. A yellow dot is displayed next to the internal rechargeable battery icon.
Result	**Functions checked.**

[_____OK]

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4.2.9 DC module (if present)

> **NOTE**
>
> This test item applies to the following power supply units:
>
> AC power supply unit 8306520 with retrofitted DC module 8306530
>
> For the above variant standard ex factory
>
> For the new DC power supply unit 8419616 with LEDs

> **NOTE**
>
> The internal battery may take up to 20 minutes to discharge. If the battery life and data backup tests are started here and run in parallel with the following test steps, test time can be considerably reduced.

Action
- Carry out the test step Internal rechargeable battery in the test "DC module (if present), additional tests".

> **NOTE**
>
> It is possible that the device may switch off during one of the following test steps due to the internal battery discharging.
>
> In this case first perform the following step and then repeat the interrupted test item.

Action
- Carry out the test steps Mains power failure and data backup and "External rechargeable battery" option in the test "DC module (if present), additional tests".

Result **Function checked.**

[_____OK]

4.3 Testing ventilation in adult mode

Prerequisites
- The ventilator is in adult mode.
- An adult tubing system is connected.

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Function and condition test

Test set-up
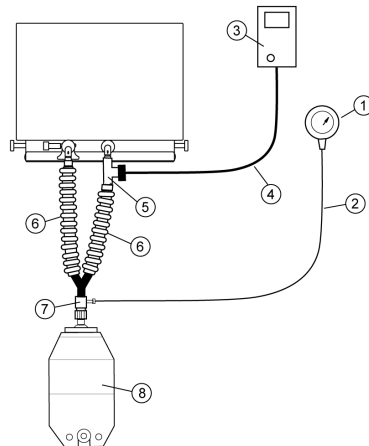
Fig. 22 Sensor calibration

Item	Designation
1	External manometer e.g. DPI 705, 7910722
2	Silicone tube, e.g. 1198343
3	External O_2 meter, e.g. Miniox 3000, 7911610
4	O_2 connecting cable Miniox 3000
5	O_2 measuring adapter (scope of supply, Miniox 3000)
6	Adult ventilation tube
7	LUER-LOCK adapter, 8290285 LUER-LOCK, 8600214
8	Test lung, 8403201

NOTE

In the following tests, the "IPPV" and "BIPAP/PCV+" ventilation modes are used in adult and paediatric mode.

If one of these modes has not been programmed by the user, this can be configured for the tests in accordance with the instructions for use.

Before handing the ventilator back to the user, restore the original user configuration.

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Test Instructions / Service Card IPM | Revision 13.0 |

Action • Make the following settings:
– Flow trigger = off
– Autoflow = off
– Sigh = off
– Mode = IPPV
– O_2 concentration = 21 %
– VT = 500 mL
– Tinsp = 2 s
– f = 10 1/min
– Flow = 25 L/min
– Pmax = max.
– PEEP = 5 mbar
• On the "Alarm Limits" menu:
– Alarm limits: Vti = max.; Paw = max., MVlow < 5L/min, $etCO_2$ = 0
• Start ventilation.

4.3.1 Calibrating the sensors

Calibrate the sensors during ventilation.

Action • Press the "Calibration" key.
• Press the "Flow" softkey.
• Press the "Start cal." softkey.

Test The device calibrates the flow sensor.

Action • Press the "O_2" softkey.

Test The device calibrates the O_2 sensor.

Result **Calibration of sensors successful.**

[_____OK]

4.3.2 O_2 comparative measurement

Action • Set the individual O_2 presets on the device and after a few seconds compare the measured values.

Test Compare the device measured value on the "Values" menu with the external measured value.

O_2 preset	O_2 measurement from device/external tester
21 vol.%	19 to 23 vol.%
30 vol.%	27 to 33 vol.%
90 vol.%	85 to 95 vol.%

Result **O_2 comparative values within tolerance.**

[_____OK]

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Function and condition test

4.3.3 Volume metering/flow measurement

NOTE

If the ambient pressure is above 965 mbar, perform the "Measurement at high ambient pressure" test.

If the ambient pressure is below 965 mbar, perform the "Measurement at low ambient pressure" test.

Measurement at high ambient pressure

Action • Open the "Service diagnosis" start screen and enter the following codes:
– 3999 and 3948 (leakage compensation off)
– 3999 and 3958 (conversion off)
– 7299 and 7235 and 0000 (set the tube compliance correction to "0").

NOTE

All settings remain active until the ventilator is switched off.

NOTE

Any fault 00.71.002 which occurs can be ignored.

Action • Start ventilation.
Test Compare the specified "VT" value with the measured "VTe" value.
Action • Set the O_2 concentration to 21%.
• Calibrate the flow sensor.
• Read out "VTe".
Test VTe = 450 to 550 mL
Action • Set the O_2 concentration to 100%.
• Calibrate the flow sensor.
• Read out "VTe".
Test VTe = 450 to 550 mL (Note: The oxygen concentration rises slowly!).
Result **Measurement at high ambient pressure. Function checked.**

[_____OK]

Measurement at low ambient pressure

Action • Open the "Service diagnosis" start screen and enter the following codes:
– 3999 and 3948 (leakage compensation off)
– 7299 and 7235 and 0000 (set the tube compliance correction to "0").
– 4655 (Start service mode).

Action • Under "Pneumatic", "Sensors" read the two factors "NTPS -> BTPS" and "BTPS -> NTPD".
• The VTe readout must be corrected on all ventilators by the humidity error according to the following formula:

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$$V_{Te} = \frac{V_{Te\text{ display value}}}{(\text{Factor NTPS} \rightarrow \text{BTPS}) \times (\text{Factor BTPS} \rightarrow \text{NTPD})}$$

Fig. 23   Formula for correction of humidity error

- Set the O_2 concentration to 21%.
- Calibrate the flow sensor.
- Read out "VTe".

Test   VTe = 450 to 550 mL

Action   • Set the O_2 concentration to 100%.
- Calibrate the flow sensor.
- Read out "VTe".

Test   VTe = 450 to 550 mL

Result   **Measurement at low ambient pressure. Function checked.**

[_____OK]

Action   • Switch the device to standby mode.

4.3.4   BIPAP/PCV+ ventilation mode

Action   • Select "BIPAP/PCV+" ventilation mode.
- Make the following entries, confirming each with the rotary knob:
  – O_2 concentration = 21%
  – Tinsp = 2 s
  – f = 10 1/min
  – Ramp = 0.2 s
  – Pinsp = 25 mbar
  – PEEP = 5 mbar
  – PASB = 0 mbar
- Tube compensation option off.
- Alarm limits: set Vti and Paw to "max".
- Start the ventilation.

Plausibility checking of pressure measurement and control

Action   • Read out measured values.

Test   Read the PEEP measurement from the device and compare it with the external measured value.

Device measured values	External measured values
PEEP = 4 to 6 mbar (during expiratory phase) Ppeak = 23 to 27 mbar (during inspiratory phase)	PEEP = 4 to 6 mbar (during expiratory phase) Ppeak = 23 to 27 mbar (during inspiratory phase)

Action   • Set "PEEP" to 1 mbar.
- Set "Pinsp" to 50 mbar.
- Read out measured values.

Test   Compare measured value with external measuring device:

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Device measured values	External measured values
PEEP = 0 to 2 mbar (during expiratory phase) Ppeak = 47 to 53 mbar (during inspiratory phase)	PEEP = 0 to 2 mbar (during expiratory phase) Ppeak = 47 to 53 mbar (during inspiratory phase)

Result **Functions checked.**

[_____OK]

Action • Switch the device to standby mode.

4.4 Additional function tests

4.4.1 Power failure and data backup (ventilators without DC module)

Action • Start the ventilation.

  • Disconnect the ventilator power plug from the mains socket outlet.

Test – The acoustic power failure warning sounds.

  – The signal can be clearly heard distinguished from the general noise level.

Action • Connect the power plug of the ventilator to the mains power supply.

Test – Following a shortened version of the self-test, the ventilator restarts operation with the previously set ventilation mode.

Result **Function checked.**

[_____OK]

4.5 DC module or Benning power supply unit (if fitted), additional tests

> **NOTE**
>
> The tests for the "DC module" are run in parallel with other function tests.

> **NOTE**
>
> This test item applies to the following power supply units:
>
> AC power supply unit 8306520 with retrofitted DC module 8306530
>
> For the above variant standard ex factory
>
> For the new DC power supply unit 8419616 with LEDs

4.5.1 Internal rechargeable battery

> **NOTE**
>
> Power supply units with a DC module are always fitted with internal rechargeable batteries.

Prerequisites The ventilator is connected to the compressed gas and mains power supply.

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Action	•	Unplug the connector of the "external rechargeable battery" option from the power supply unit.
	•	Switch on the device.
	•	Set controlled ventilation for adults.
	•	Disconnect the ventilator power plug from the mains socket-outlet.
Test	–	The DC connector is undamaged.
	–	The ventilator continues operating without interruption.
Action	•	Continue operating the ventilator from the internal battery supply until the battery is depleted (with a fully charged battery this will take approx. 20 minutes).
Result		**Internal rechargeable battery, state of charge and function tested.**

[_____OK]

4.5.2 Mains power failure and data backup

Test	–	The audible power failure alarm sounds.
	–	The signal can be clearly heard from a distance of 3 m and distinguished from the general noise level.
Action	•	Connect the power plug of the ventilator to the mains power supply.
Test	–	Following a shortened version of the self-test, the ventilator must restart operation with the previously selected ventilation mode.
Result		**Power failure and data backup, function tested.**

[_____OK]

4.5.3 "External rechargeable battery" option

Action	•	Connect the cable connector of the external rechargeable batteries to the power supply unit.
	•	Disconnect the ventilator power plug from the mains socket-outlet.
Test	–	The ventilator continues operating without interruption.
	–	The power supply from the external rechargeable batteries is indicated on the display.
Result		**External rechargeable battery, function tested.**

[_____OK]

4.6 CO_2 sensor option

Prerequisites	The ventilator is connected to the compressed gas and mains power supply and switched on. The internal device check has been carried out.

4.6.1 Condition

Prerequisites	The ventilator is connected to the compressed gas and mains power supply and switched on. The internal device check has been carried out.

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Test	– The housing and the anti-kink sleeve are undamaged.
	– The cable and the connector are undamaged.
	– The window in the CO_2 sensor is neither contaminated nor damaged.
	– The mounting of the test filter on the connecting cable is undamaged. The test filter is neither contaminated nor scratched.
	– The cuvette windows are neither contaminated nor damaged.
	– The windows in the standby holder for the CO_2 sensor are neither contaminated nor damaged.
Result	**Condition checked.**

[_____OK]

4.6.2 Measurement accuracy with test filter

NOTE

Before testing with the test filter, perform a zero calibration of the CO_2 sensor on the standby holder or on a clean reusable cuvette.

NOTE

Calibration data is stored in the CO_2 sensor, not in the ventilator.

NOTE

The value stated on the test filter applies to the given CO_2 sensor and not to other sensors! The labeling on the test filter can be changed after calibration with test gas.

Action	• Connect the breathing tube system without a humidifier to the ventilator.
	• Select and start "IPPV" mode.
	• If the "CO_2" function is not active, press the "Alarm limits" key.
	• Press the "Monitoring" softkey and push the rotary knob.
Test	– The lamp in the CO_2 sensor comes on.
Action	• Press the "Calibration" key.
	• Press the "CO_2" softkey.
	• Slot the CO_2 sensor onto the test filter.
	• Press the "Filter test" softkey.
Test	– The value for "FCO_2" is indicated on the display. The value matches the figure on the test filter with a tolerance of +/-0.3 vol.%.
Action	• Fit the CO_2 sensor in the standby holder.
Result	**Measurement accuracy with test filter. Function checked.**

[_____OK]

4.7 Options

4.7.1 Evita SAT (SpO$_2$, hardware)

Test	The SpO$_2$ sensor and cable are undamaged.

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Action	• Activate the SpO$_2$ measurement function on the device.
	• Connect the SpO$_2$ sensor to the device.
	• Clip the SPO$_2$ cable by the finger clip to your own finger.
Test	– The displayed SpO$_2$ value is above 90%
	– The pulse rate is plausible.
Result	**Condition checked.**

[_____OK]

4.7.2 NeoFlow (hardware)

NOTE

The option is identifiable by the Flow PCB with NeoFlow sensor connection. For this option an expiratory valve with water trap must be used!

Condition of accessories

Prerequisites	– The ventilator is connected to the compressed gas and mains power supply and switched on.
	– The ventilator is in neonatal mode.
	– The water trap of the expiratory valve is undamaged.
Test	– The flow sensor cable is undamaged. The socket on the flow sensor cable engages securely with the flow sensor insert.
	– The ISO 15 flow sensor and the flow sensor insert are undamaged.

Function of accessories

Action	• Press the "Calibration" key.
	• Press the "NeoFlow" softkey.
	• Pull the NeoFlow sensor out of the Y-piece, seal it off, and confirm.
Test	– The message "Calibration" will be displayed after a brief period.
Result	**Condition and function checked.**

[_____OK]

4.7.3 Breathing Support Package (software)

Action	• Press the "Mode settings" key.
Test	– The "Tubus Comp" and "PPS" softkeys are installed.
Result	**Breathing Support Package (software)**

[_____OK]

4.7.4 ATC (Automatic Tubus Compensation, software)

Action	• Press the "Mode Settings" key and the "BIPAP", "Additional Setting" softkeys.
Test	– If the "Tubus Comp" softkey is installed, the option is available.
Result	**The "ATC" option is present.**

[_____OK]

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Function and condition test

4.7.5 CapnoPlus (hardware)

Test – The option is present if the port for the CO_2 connection is installed on the CO_2 Carrier PCB.

Result **The "CapnoPlus" option is present.**

[_____OK]

4.7.6 SW 4.00 Plus (software)

Action • Press the "Calibration" key, then the "Flow" softkey.

Test – The "External flow source" softkey is installed.

Result **SW 4.00 Plus (software)**

[_____OK]

4.7.7 NIV (Non-Invasive Ventilation, software)

Test – If the "Tube/Mask" softkey is displayed in standby, the option is available.

Result **The "mask ventilation NIV" option is present.**

[_____OK]

4.7.8 IFCO Carrier/NurseCall (hardware)

Prerequisites The ventilator is connected to the compressed gas and mains power supply and switched on.

Nurse call

Action • Switch the device to standby mode.

Test The standby alarm is activated (do not deactivate with the Reset key!).

Action • Measure the ohmic resistance at the nurse call connector on the back of the ventilator.
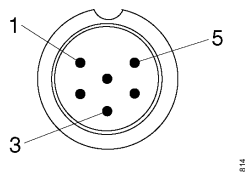
Test set-up

Fig. 24 Contacts on the nurse call connector (top view)

Test – Continuity between pin 3 and pin 5.
– No continuity between pin 1 and pin 3.

Action • Press the Reset key, and then measure the ohmic resistance at the nurse call connector on the back of the ventilator.

Test – No continuity between pin 3 and pin 5.
– Continuity between pin 1 and pin 3.

Result **Nurse call. Condition checked.**

[_____OK]

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4.7.9   Remote Pad (hardware)

Condition

Prerequisites   The ventilator is connected to the compressed gas and mains power supply and switched on.

Test   – The housing is undamaged.

– The keypad is undamaged.

– The cable and the connector are undamaged.

Function

Action   • Start up ventilator.

• Press the alarm silence key.

Test   – The LED for this key comes on in the Remote Pad and on the ventilator.

Action   • Slide the flow sensor to the left.

Test   – The error message "Flow Sensor?" is displayed on red background at the top of the screen.

Action   • Slide the flow sensor to the right.

Test   – The background in the display changes from red to blue.

Action   • Press the Alarm Reset key on the Remote Pad.

Test   – The error message disappears from the display.

Action   • Press the drug nebulizer key for approx. 2 s.

Test   – The ventilator displays the message that drug nebulization is on.

– The LED for this key in the Remote Pad comes on.

Action   • Press the "O_2 suction" key.

Test   – The O_2 value rises (max. 100%).

Action   • Press the "Insp. Hold" key.

Test   – The airway pressure curve is held on the upper pressure level until this key is released.

– The LED on the Remote Pad is on as long as the key is pressed.

Action   • Press the "Exp. Hold" key.

Test   – The airway pressure curve is held on the lower pressure level until this key is released.

– The LED on the Remote Pad is on as long as the key is pressed.

Result   **Condition and function checked.**

[_____OK]

4.7.10   Communication between ventilator and monitor (hardware)

NOTE

This test relates to the Infinity monitors SC 7000, SC 8000, SC 9000 XL, Delta, Delta XL and Kappa.

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<table>
<tr><td colspan="2">Evita 4 / Evita 4 edition
Test equipment</td></tr>
<tr><td>Action</td><td>• Connect between ventilator and monitor via MIB converter, preferentially at COM2 or COM3 if the "Evita Link" option is present.

• Switch on the ventilator and the monitor.</td></tr>
<tr><td>Test</td><td>– Communication between the two devices is present.</td></tr>
<tr><td>Result</td><td>**Function checked.**</td></tr>
<tr><td></td><td align="right">[_____OK]</td></tr>
</table>

4.8 Final action

Prerequisites – The test instructions have been performed as specified.

– All tests performed were passed successfully.

4.8.1 Device handover

> **CAUTION**
>
> ► External battery not connected!
>
> ► If the red plug of the external battery is not connected to the back of the power supply unit, the ventilator's runtime will be reduced considerably in the event of a mains power failure. Check that the plug of the external battery is securely connected to the back of the power supply unit.

> **CAUTION**
>
> ► Batteries not fully charged!
>
> ► If the batteries are not fully charged, the runtime of the ventilator in the event of a mains power failure may be reduced considerably. If applicable, inform the user that the rechargeable batteries still need to be recharged.

Action • Attach a test label to the device.

• Supply the user/owner with a fully functioning device.

Result **Device handover**

[_____OK]

5 Test equipment

This section sets out the test equipment required for the tests in this test procedure.

5.1 Test equipment

5.1.1 Test equipment subject to mandatory calibration

> **NOTE**
>
> Tests must be performed using test equipment calibrated in a valid manner!

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NOTE

Use the following test equipment or equivalent aids.

Designation	Part number	Comments
Electrical safety tester, e.g. GMC Secut-est	7910594	
Multimeter	7901021	
Manometer	7910722	
Flowmeter 120 L/min	7900718	
Adjustable compressed gas source (O_2 test pressure regulator; 300 bar manometer, 20 bar manometer)	7901482	

Result   **Test equipment calibrated in a valid manner used**

[_____OK]

5.1.2   Test equipment not subject to mandatory calibration

Designation	Part number	Remarks
Tube 7 x 2.5 Si nat.	1198343	

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Test equipment

Designation	Part number	Remarks
Rubber plug	1294113	
Tube clamp	7900484	
Ejector	7900930	
Shorting cable Nellcor, type L	7901068	
VDE test connector Babylog	7901772	
Patient adapter	7910195	
Measuring line, leakage current, 2-pin, temp.	7910364	
Syringe, 60 mL	7910745	

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Designation	Part number	Remarks
Probe cable	7911196	
USB adapter	7911718	
MX 300-i oxygen monitor	7911955	
LUER-LOCK adapter	8290285	
LUER-LOCK	8600214	
Breathing bag with 7 mm catheter connector, set	8403201	

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Test equipment

Designation	Part number	Remarks
Catheter connector 5.5. mm (outer), set	8403684	
O_2 adapter	8405807	
Y-piece	2M12754	
Corrugated tube	8402041 or equivalent	
Connecting sleeve	M13506	
Y-piece	M25650	

5.1.3   Additionally required items

Designation	Part number	Comments
Test label		No illustration available.
Tubing system	As specified in instructions for use	
"AIR" pipeline supply connecting tube	As specified in instructions for use	
"O_2" pipeline supply connecting tube	As specified in instructions for use	

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6 Annex

This section contains further information which may be helpful in testing the device.

6.1 Evita 4 service mode start screen

6.1.1 Access

Service mode can be called up at any time in the course of operation. This mode only involves data readout; settings are not altered.

1. Press the "Configuration" key.
2. Select the "Basic setting" menu.
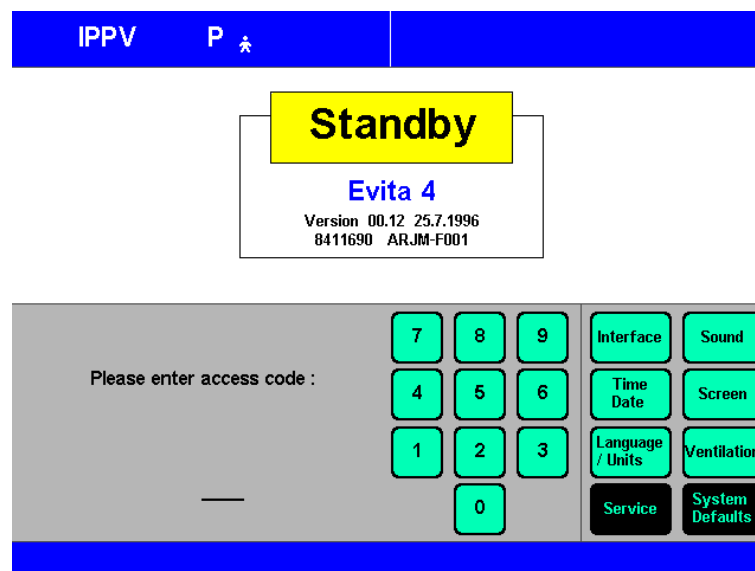3. Select the "Service Diagnosis" menu.

Fig. 25 Detail view of display; Service mode start screen

4. Enter the following number code: 4 6 5 5.
5. Select the required menu.

5.2   Result Sheet Test instructions / Service Card IPM

Dräger

Result Sheet Test Instructions / Service Card IPM
Evita 4 / Evita 4 edition

Order number:

Location: **Serial no. (basic unit):**

Department: **Cust. invent. no.:**

Maintenance interval: **Other / Delivery date:**

Applies to Test Instructions / Service Card IPM Revision 13.0

Key

✓ / OK	= OK
+	= Spare part used
!	= Error / Report
/	= Accessory not available
-	= Not applicable

Test	Result
1 Device configuration	
1.1 Device configuration	
1.1.1 Serial number (if not otherwise recorded)	
☐ 1.1.1.1 basic device	txt
☐ 1.1.1.2 disposable expiratory valve	txt
☐ 1.1.1.3 expiratory valve 1	txt
☐ 1.1.1.4 expiratory valve 2	txt
☐ 1.1.1.5 control unit	txt
☐ 1.1.1.6 CO_2 sensor	txt
☐ 1.1.2 Software version	txt
☐ 1.1.3 Operating hours	h
☐ 1.1.4 Device ID	txt
2 Maintenance parts	
2.1 Maintenance intervals, overview	
2.1.1 Maintenance intervals and required sets and parts	
2.2 Maintenance parts by specified interval	
☐ 2.2.1 Service set, once a year, MX08220	dat
2.2.2 Option for Canada and USA, filter element MP03903	
☐ 2.2.2.1 AIR filter	dat
☐ 2.2.2.2 O_2 filter	dat
2.2.3 Gas inlet block	
☐ 2.2.3.1 Service set, gas inlet block FAS, MX08225	dat
☐ 2.2.3.2 Service set, gas inlet block Dräger, MX08226	dat
☐ 2.2.3.3 Service set, gas inlet block FAS, MX08227	dat
☐ 2.2.3.4 Service set, gas inlet block Dräger, MX08228	dat
☐ 2.2.4 Optional rechargeable battery (DC module), 8421988	dat
☐ 2.2.5 Optional rechargeable battery (trolley), 8422125	dat
2.2.6 Replacing the LCD backlight after 25000 operating hours	
☐ 2.2.6.1 Replacement of no longer available displays and backlights	txt
☐ 2.2.6.2 Maintenance-free display	OK
2.2.7 Maintenance parts as required	
☐ 2.2.7.1 Maintenance parts as per instructions for use	OK
3 Electrical safety	
3.1 Electrical safety to DIN EN 62353 (IEC 62353)	
☐ 3.1.1 Visual check	OK
3.1.2 Protective earth resistance	
☐ 3.1.2.1 Maximum measured value of device with power supply cord	Ω
☐ 3.1.2.2 Maximum measured value of optional power supply cord	Ω
☐ 3.1.3 Protective earth resistance measuring points	OK
☐ 3.1.4 Test adapters for equipment leakage current	OK

Test	Result
3.1.5 Equipment leakage current	
☐ 3.1.5.1 Reference value	µA
☐ 3.1.5.2 Recurrent test	µA
☐ 3.1.6 Test adapters for patient leakage current	OK
3.1.7 Leakage current, mains on applied part with airway temperature sensor AWT 01, if installed	
☐ 3.1.7.1 Reference value	µA
☐ 3.1.7.2 Recurrent test	µA
3.1.8 Leakage current on applied part with test adapter (normal condition)	
☐ 3.1.8.1 Initial measured value "IAC", airway temperature sensor	µA
☐ 3.1.8.2 Initial measured value "IDC", airway temperature sensor	µA
☐ 3.1.8.3 Recurrent test "IAC", airway temperature sensor	µA
☐ 3.1.8.4 Recurrent test "IDC", airway temperature sensor	µA
☐ 3.1.8.5 Initial measured value "IAC", NeoFlow sensor	µA
☐ 3.1.8.6 Initial measured value "IDC", NeoFlow sensor	µA
☐ 3.1.8.7 Recurrent test "IAC", NeoFlow sensor	µA
☐ 3.1.8.8 Recurrent test "IDC", NeoFlow sensor	µA
3.1.9 Optional SpO₂, leakage current, mains on applied part	
☐ 3.1.9.1 SpO_2 connection reference value	µA
☐ 3.1.9.2 SpO_2 connection recurrent test	µA
3.2 Electrical safety according to IEC 60601-1	
☐ 3.2.1 Visual check	OK
☐ 3.2.2 Protective earth resistance	Ω
☐ 3.2.3 Protective earth resistance measuring points	OK
3.2.4 Earth leakage current	
☐ 3.2.4.1 Normal condition (N.C.)	µA
☐ 3.2.4.2 Single fault condition (S.F.C.)	µA
3.2.5 Patient leakage current	
☐ 3.2.5.1 Temperature sensor connection, normal condition (N.C.)	µA
☐ 3.2.5.2 Temperature sensor connection, single fault condition (S.F.C.)	µA
☐ 3.2.5.3 NeoFlow connection, normal condition (N.C.)	µA
☐ 3.2.5.4 NeoFlow connection, single fault condition (S.F.C.)	µA
☐ 3.2.5.5 SpO_2 connection, normal condition (N.C.)	µA
☐ 3.2.5.6 SpO_2 connection, single fault condition (S.F.C.)	µA
4 Function and condition test	
4.1 Condition of basic device	
☐ 4.1.1 Labels and instructions for use	OK
☐ 4.1.2 Base unit	OK

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Test	Result
☐ 4.1.3 Trolley	OK
☐ 4.1.4 Compressed gas connecting hoses	OK
4.2 Function check	
☐ 4.2.1 PEEP/PIP valve calibration	OK
☐ 4.2.2 Power-on test	OK
☐ 4.2.3 Test according to internal device checklist as per instructions for use	OK
☐ 4.2.4 Non-return valve (D5.1) in expiratory valve	OK
☐ 4.2.5 Non-return valve D3.2 (10 mbar)	mbar
☐ 4.2.6 Emergency air valve Y3.1/non-return valve D3.1	mbar
☐ 4.2.7 Safety valve D3.3 (120 mbar)	mbar
☐ 4.2.8 DC power supply unit with LEDs	OK
☐ 4.2.9 DC module (if present)	OK
4.3 Testing ventilation in adult mode	
☐ 4.3.1 Calibrating the sensors	OK
☐ 4.3.2 O_2 comparative measurement	OK
4.3.3 Volume metering/flow measurement	
☐ 4.3.3.1 Measurement at high ambient pressure.	OK
☐ 4.3.3.2 Measurement at low ambient pressure.	OK
☐ 4.3.4 BIPAP/PCV+ ventilation mode	OK
4.4 Additional function tests	
☐ 4.4.1 Power failure and data backup (ventilators without DC module)	OK
4.5 DC module or Benning power supply unit (if fitted), additional tests	
☐ 4.5.1 Internal rechargeable battery	OK
☐ 4.5.2 Mains power failure and data backup	OK
☐ 4.5.3 External rechargeable battery option	OK
4.6 CO_2 sensor option	
☐ 4.6.1 Condition	OK
☐ 4.6.2 Measurement accuracy with test filter	OK
4.7 Options	
☐ 4.7.1 Evita SAT (SpO_2, hardware)	OK
☐ 4.7.2 NeoFlow (hardware)	OK
☐ 4.7.3 Breathing Support Package (software)	OK
☐ 4.7.4 ATC (Automatic Tubus Compensation, software)	OK
☐ 4.7.5 CapnoPlus (hardware)	OK
☐ 4.7.6 SW 4.00 Plus (software)	OK
☐ 4.7.7 NIV (Non-Invasive Ventilation, software)	OK
☐ 4.7.8 IFCO Carrier/NurseCall (hardware)	OK
☐ 4.7.9 Remote Pad (hardware)	OK
☐ 4.7.10 Communication between ventilator and monitor (hardware)	OK
4.8 Final action	
☐ 4.8.1 Device handover	OK
5 Test equipment	
5.1 Test equipment	
☐ 5.1.1 Test equipment subject to mandatory calibration	OK
5.1.2 Test equipment not subject to mandatory calibration	
5.1.3 Additionally required items	
6 Annex	
6.1 Evita 4 service mode start screen	
6.1.1 Access	

Report:

Test has been performed according to the test instructions.

Name: .... :_____

Date/Signature: .... :_____

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CE 0123

Directive 93/42/EEC concerning medical
devices

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