Rothacher Medical GmbH

INSTRUCTION MANUAL

Combi-vet® Anesthesia system

Rothacher Medical GmbH

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ANESTHESIA SYSTEMS

CV 30-301 Series

1 GENERAL

The Combi-vet Anesthesia system has been especially designed for inhalation of Anesthetic agents to laboratory animals.
It is a small weight, compact and robust device. It can be used either on a rail mount system or as a standalone unit on a table. As this device is transportable, it can be moved from one place to another in no time and can be immediately operational.
The system is available in different configurations but in general, it is composed of a Digital Flow-meter, a precision Vaporizer, an activated charcoal filter, a breathing circuit with Nose-cone/mask and an induction box.
More complex systems and additional accessories are also available and are described in this guide within the appropriate sections.

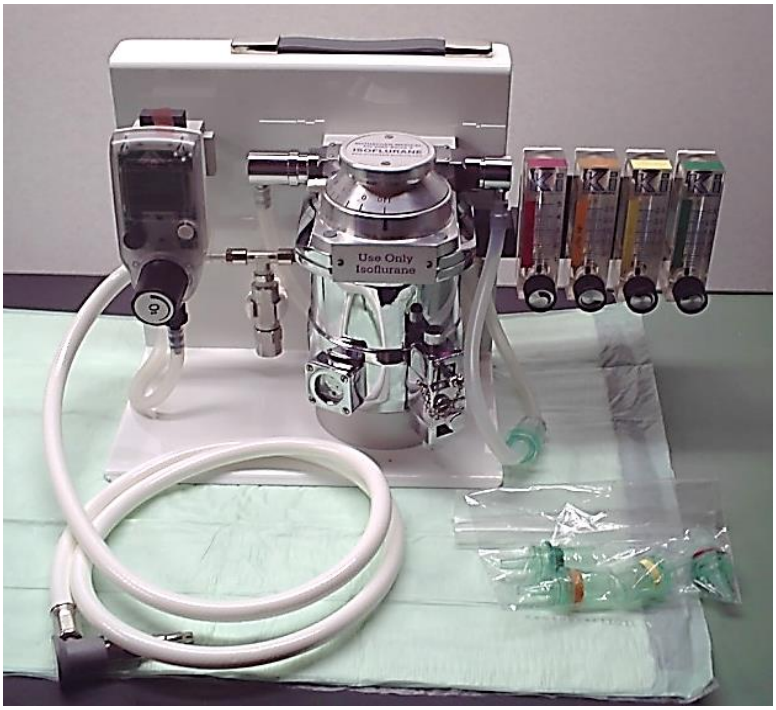

Figure 1 "Basic Anesthesia System with Multi Delivery System"

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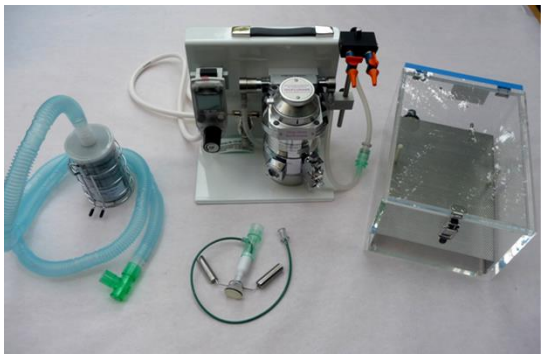
1.1 CONNECTING DIAGRAM



Combi-vet Digiflow or Analog Anesthesia Machine

Nose cone Mask System
PS-0525-A

PS-0582 Hose

Induction Chamber

OR

PS-0582 Hose

O2 Concentrator

O2 Oxygen Cylinder
with pressure manometer
3 Bar
or Wall mount port

PS-0582 Hose

Aldasorber PS-0584
or PS-0581-00 F/Air Filter

Aldasorber PS-0584
or PS-0581-00 F/Air Filter

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2 INSTALLATION

2.1 Unpacking & Preliminary Check

Check the contents of the shipment for completeness, packing list to hand, and visually inspect the instrument as soon you take it out of the packaging. Use the ***Check List*** supplied. If the instrument is damaged or after having tested it, fails to meet rated performances, notify the carrier and our company immediately.

Protect the environment!

Dispose of packaging properly, according to existing and applicable waste management rules and regulations.

2.2 Notes on the Instruction Manual

This Instruction Manual included is necessary for the correct installation and operation of the instrument.
We recommend keeping the manual in good conditions, ready to be consulted by the Qualified personnel who use the instrument.
Free of charge copies of the instruction manual are available upon request: please contact our service department (see paragraph 6.4-Customer Support) specifying the serial number of your instrument.

2.3 Assembling the System

1. Connect the white Oxygen tube to the Oxygen supply in use (a cylinder or the Oxygen main line, if present)
2. Connect the other end of the Oxygen tube to the left side of the flow-meter (Flow-meter inlet)
3. Connect the outlet of the vaporizer to the anesthetic device in use, which can be the nose-cone/face mask, the induction box, the dual diverter manifold or a Multiple Delivery System.
   If the Dual Diverter Manifold is installed in the system, connect the outlet of the Vaporizer to the input of the manifold and the 2 outlets of the manifold to the devices in use (typically and induction box and a nosecone/facemask).
   In Figure 2, the dual diverter manifold is shown with the humidifier accessory. In this case one of the outlet of the dual diverter (in the figure it is the right one) would be connected to the input of the humidifier and the outlet of the Humidifier would be connected to the Nose-cone/face mask.

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Figure 2 "Dual Diverter Manifold with Humidifier"

The manifold outlet on the left is disconnected and the right outlet is connected to the humidifier

4. If the Multiple Delivery System option is present in the system, connect the output of the vaporizer to the input of the multiple delivery system Refer to the specific section of the manual for details on use of the Multiple Delivery System).

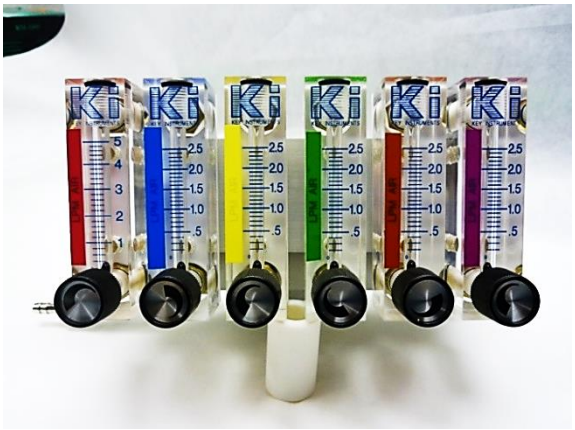

Figure 3: "Multiple Delivery System for 6 Animals"
Each flow meter is regulated independently

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5. Connect the activated charcoal canister (or the input of the active scavenging system, if present) to the exhalation side of the nosecone/facemask or to the lower port (*i.e.* the outlet) of the induction box.

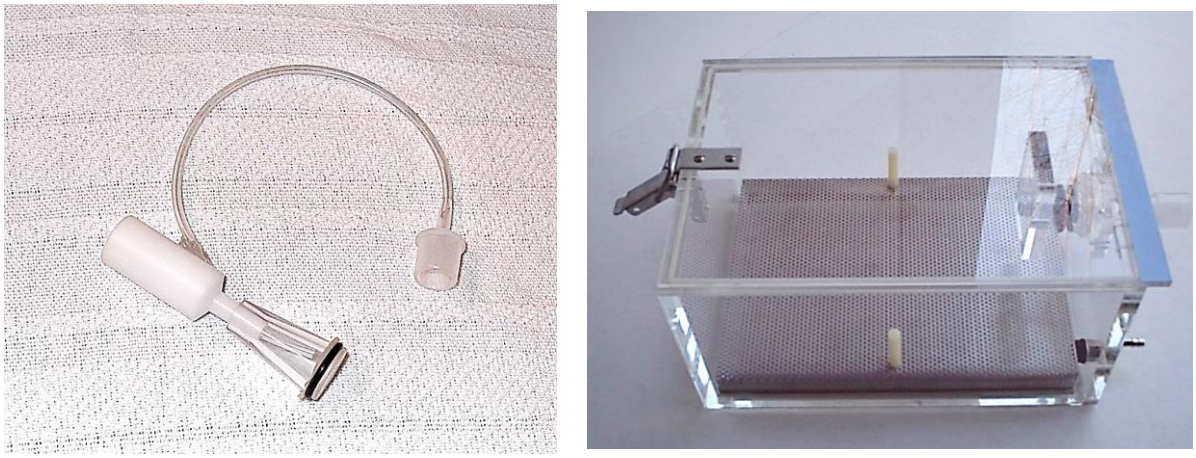

Figure 4: "Nose-Cone/Face Mask (above) and Induction Box (below)"

Figure 5: "Double Scavenging System with 2 Activated Charcoal Canisters"

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The activated charcoal filters absorb the anesthetic agent. Their weight will increase with use and will need to be changed when the weight is increased by 50 grams (after 14-15 hours of use).

Figure 6: "Activated Charcoal Canister"
Weighted to Assess if it needs to be changed

2.4 Safety Consideration

a. Check all connections and parts before use, make sure there is no leakage **The use of scavenging canisters is compulsory**, unless the anesthesia system is connected to a flow hood or another scavenging system is in use

2.5 Important Safety Consideration

a) Check all connections and parts before use, make sure there is no leakage
b) Use original accessories and spare parts only, see also paragraph 8-ORDERING
c) INFORMATION.
d) Immediately replace the damaged parts.
e) Do not operate in hazardous environments or outside prescribed environmental limitations.
f) The use of a scavenging system is compulsory

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3 OPERATION

Before operating the machine, **read all manuals** (including the ones for Vaporizer and Flow-meter) included.

The following is an **example procedure** to help the user familiarize with the equipment. It assumes that the a **mouse** is to be anesthetized using a Gas Anesthesia system, which includes:

- Tec3 Key-fill Isoflurane Vaporizer
- dual diverter manifold with humidifier
- nose-cone/face mask and induction box
- 2 activated charcoal canisters as scavengers

For other systems, the procedure may be slightly different, although the main steps willbe the same.
Proceed as follows:

1. Check all connections and parts before use
2. Turn on the oxygen supply and regulate the flow-meter to the desired setting. Commonly used flow rates vary between 1 and 4 LPM, but the appropriate flow rate depends on the aim of the procedure, the species, etc.
3. Do not turn on the vaporizer yet.
4. Fill the vaporizer by first opening the scroll and then taking away the metal rectangle.

Figure 7: "Filling a Key-Fill Vaporizer"

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IMPORTANT! If any spillage accidentally occurs, immediately open all windows and do not use the room until the environment is safe again.

5. Fill-in the humidifier system,
which is connected to one of
the outlets of the dual diverter manifold

Figure 8: "Filling the Humidifier with water"

6. Make sure that the output of the **Dual Diverter** that connects to the induction box is open and that the one that connects to the Nose-cone/facemask is closed.

Figure 9: "Dual Diverter Manifold with the Left Output Open"

7. Turn on the vaporizer to the desired concentration (usually about 4-5% for the induction phase in the box and then 1.5-2% for the maintenance phase with the Nose-cone/facemask).

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To turn the vaporizer dial, press the button and turn until the zero value is reached. At that point, the dial can be turned without any further pressure of the button.

Figure 10: "Turning on the Vaporizer

8. Quickly put the mouse in the induction camber and close the box properly. Wait for the mouse to be fully anesthetized (this will occur quite quickly) and then gently shake the box to check if it is asleep. If a mouse is asleep, it will fall on the side, without trying to recover its sternal recumbency.

9. If fully anesthetized, take the mouse out of the box, position it with its nose into the nosecone/face mask and verify that it is still sleeping by toe clipping (softly press the toes between two fingers; if the mouse does not take off its leg, it is asleep).

Figure 11: "Checking by Toe-Clipping that the Mouse is Deeply Anesthetized"

10. Quickly close the output of the manifold connected to the induction box and open the output connected to the Nosecone/face mask

11. Lower the concentration of anesthetic to 1.5-2% (this is a common concentration for the maintenance phase, but it may vary according to the specific protocol and animal model in use)

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12. When finished, turn off the vaporizer (setting the dial to off); the animal will receive pure oxygen and it could help to wake up and recover more quickly
13. Turn off the oxygen source and turn off the flow-meter to zero LPM
14. Disinfect the induction box, the operation table, etc. with 70% Ethanol and rinse with water.

4 SETTING UP A MULTIPLE DELIVERY SYSTEM

All of the Multiple Delivery Systems (for 3, 4 and 6 animals) must be used with an anesthesia machine that has a 0-12 liter per minute Oxygen flow-meter with a pressure relief valve. The version of the Multiple Delivery System for 2 animals can be used also without the pressure relief valve.
The pressure relief valve is necessary to avoid damage to the anesthetic vaporizer as carrier gas delivery systems can reach pressures as high as 50 psi. Use of the Multiple Delivery System with carrier gases other than Oxygen is strongly discouraged due to the risk of gas escaping into the work area from the pressure relief valve.

1. Connect the common input of the Multiple Delivery System to the output of the Anesthesia Machine (*i.e.* to the outlet of the Vaporizer)
2. Connect the anesthetic delivery devices to be used in the study (*e.g.* induction box, nose-cone/face mask) to the Multiple Delivery System flow-meters
3. Attach all waste gas evacuation tubing to the devices to be used
4. Turn off any
5. Turn on the digital flow-meter of anesthesia machine to approximately the flowrate equal to the estimated combined flow of the devices to be used. Do not turn on the vaporizer at this point
6. Adjust the flow-meters to the adequate flow for the devices attached to each flow-meter. It may be necessary to increase or decrease the flow rate on the master flow-meter to bring all of the devices in balance
7. Turn on the vaporizer to the desired concentration of anesthetic

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8. Notice that this is the level of anesthetic that will be delivered to all of the devices attached to the Multiple Delivery System. Therefore, if it is necessary to run a high concentration level of anesthetic (*e.g.* 4-5% to an induction box), no other device requiring a lower concentration of anesthetic (e.g. a Nose-cone / face mask) should be turned on until the vaporizer setting can be reduced to a maintenance level.
9. When a study is completed, turn off the vaporizer, turn off the master digital flow-meter, then turn off the individual flow-meters on the Multiple Delivery System and disconnect the Multiple Delivery System from the vaporizer. Flow-meter that is not in use.

While using the Multiple Delivery System, if the sound of gas escaping from the pressure relief valve is heard, this means that either the setting on the master digital flow-meter is too high or that the flow-meters have been adjusted to a very low setting or turned off completely. Flow adjustments should be made to bring the system into balance. In any case, there is no risk of anesthetic gas escaping through the pressure relief valve as the carrier gas pressure is higher than the pressure in the vaporizer and this will not allow anesthetic to escape into the work area.

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5 NOSE-CONE/FACE MASK INSTRUCTIONS

5.1 General Information

Since rodents are obligatory nose breathers in the sternal recumbency, it is sufficient to insert only the subject's nose into the fresh gas reservoir.
The diaphragm can be cut appropriately using a pair of delicate sharp/sharp scissors (see following section for details).A circular hole has to be cut in the diaphragm and it needs to be small enough such that the diaphragm forms a tight seal around the subject's muzzle.

Figure 12: "Nose-Cone/FaceMask"

IMPORTANT! Do not cut a cross "+" or an "X" in the diaphragm for the subject's nose because diaphragm will not seal properly around the subject's muzzle and anesthetic gases will escape into work space.
Just cut a circular hole.

If the rodent is in the dorsal recumbency, it is recommended that the subject's nose and mouth be inside the fresh gas reservoir, because in this position there is a risk of the subject breathing through its mouth. If the mouth is outside the fresh gas reservoir and the subject is allowed to breath room air through its mouth, the level of anesthetic will be diluted with room air and the subject may not be sufficiently anesthetized.

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5.2 Replacing the "0" Ring and the Diaphragm

The silicone "0" ring holds the diaphragm material in place on the Nose-cone/face mask fresh gas reservoir. Silicon is more resistant to photo degradation and oxidation than latex. However, when it becomes cracked or broken and will no longer hold the diaphragm material in place, it is time to change the "0" ring.
An extra "0" ring comes with each kit. Additional "0" rings can be purchased separately.
To replace a defective diaphragm material, follow the steps below:

1. Roll the "0" ring out of the groove of the nosecone/face mask
2. Discard the flawed diaphragm material
3. Stretch the new diaphragm material over the end of the nosecone/face mask, by holding the new latex diaphragm material with thumb and forefinger of one hand
4. Reinstall the "0" ring over the new diaphragm material and allow in to the rest in the groove in the fresh gas reservoir. Make sure that there is no gap around the periphery of the diaphragm where trace anesthetic gases might escape
5. Pull the diaphragm material around the edges to smooth out the diaphragm and create a slight tension on the diaphragm
6. Using a pair of delicate sharp/sharp scissors, cut off the excess diaphragm material from around the "0" ring. Save the rest of the new diaphragm material for subsequent diaphragm replacements
7. Using delicate sharp/sharp scissors cut a circular hole in the diaphragm the appropriate size of the subject's nose and /or nose and mouth. Position the circular hole in the diaphragm such that when the subject's nuzzle is placed in the diaphragm, the subjects head is relatively level with its body. The fresh gas reservoir can be rotated on its axis to ensure that the orifice in the diaphragm is in the proper position.

6 MAINTENANCE

While any service of the instrument is to be carried out by Rothacher-Medical GmbH personnel or by qualified personnel, authorized by Rothacher-Medical GmbH organization, this section of the instruction manuals describes normal maintenance procedures, which can be carried out at the customer's facilities.

6.1 Cleaning

Disinfect the induction box, the operation table, etc. with 70% Ethanol and rinse with water.

6.2 Vaporizer Service

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Due to the permanent usage it is important to maintain regular servicing of the vaporizer to avoid malfunctioning .Deposits can affect seriously the function and concentration delivery. Vaporizers must be disassembled for servicing. This should be done only by a **certified service center with proper test equipment**. When assembling, it is necessary to replace some spare parts to secure longevity of vaporizers. Finally, the Vaporizer goes through strictly defined test program with concentration examinations under different temperature and flow conditions and thermostat must, if necessary, re-calibrated.

For Vaporizer maintenance, please contact us.

6.3 Long Inactivity

The instrument does not require any particular maintenance after long inactivity, except cleaning.
However, the vaporizer must be drained from the anesthetic liquid.
Please refer to the vaporizer manual. The Digiflow battery must be replaced after 24-26 month of use. Please contact our sales department.
Before putting your system in operation again, first check all connections and parts to make sure there is no leakage.

6.4 Customer Support

For any further information you may desire concerning the use and/or maintenance of the combi-vet Anesthesia System, please do not hesitate to get in touch with our **service department** at:

We recommend you to get in touch with our service department **before sending any instrument to our factory for repair**, mentioning the serial number of your instrument) to obtain a return authorization number (R.A.N.) and shipping instructions.
We may not be held responsible for damages of returned instruments during transport due to poor packing. Whenever possible, please use the original packing.

7 SYSTEM SPECIFICATIONS

7.1 Anesthesia Systems

Dimensions: cm 26 (w) x 18 (d) x 26 (h)
Total Weight (basic system): 9.00 Kg
Shipping Weight: 11, 00 Kg approx.
Packing Dimensions: 40 x 39 x 30 cm

7.2 02/N20 Anesthesia Systems

Dimensions : cm 40 (w) x 18 (d) x 24 (h)
Total Weight (basic system): 9.00 Kg
Shipping Weight: 15, 00 Kg approx.
Packing Dimensions: 67 x 42 x 53 cm

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8 ORDERING INFORMATION

***CV 30-301-D* Basic Single-Output Anesthesia System**, including Digital Flowmeter (for O2 or Medical Air) and TEC-3 vaporizer for Isoflurane (*vaporizers for other Anesthetic agents are available on request*)

***CV 30-301-D Set 1* Single Output Anesthesia System**, including:

- No. 1 **CV-30-301-D**Basic Single-output Anesthesia System
- No. 1 **PS-0582** Evac Tubing for Canister1,8m (19mm male x 22mm female)
- No. 2 **PS-0581-00** F/air filter (activated charcoal canister)
- **Order also** (see paragraph 8.1-Delivery Systems (Masks & Induction Boxes):
- No. 1 **Nose-Cone/Mask** chosen from the available sizes and/or
- **Induction Box**

CV-30-301-D Set 2 Double-Output Anesthesia System, complete with:

- No. 1 **CV-30-301-D**Basic Single-output Anesthesia System
- No. 2 **PS-0582** Evac Tubing for Canister1,8m (19mm male x 22mm female)
- No 4 **PS-0581-00** F/air filter (activated charcoal canister)
- No. 1 **PS-0529-02** Dual Diverter Manifold with humidifier
- **Order also** (see paragraph 8.1-Delivery Systems (Masks & Induction Boxes):
- No. 2 **Nose-Cone/Mask** chosen from the available sizes and/or
- **Induction Box**

***CV 30-301-D Set 3* Multiple-Animal (4) Anesthesia System,** complete with:

- No.1 **CV-30-301-D**Basic Single-output Anesthesia System
- No. 4 **PS-0582** Evac Tubing for Canister1,8m (19mm male x 22mm female)
- No 1 **PS-0581-01** F/air filter (activated charcoal canister), package of 8
- No. 1 **PS-30-458** Multiple Delivery System with 4 Flowmeters
- **Order also** (see paragraph 8.1-Delivery Systems (Masks & Induction Boxes):
- No. 4 **Nose-Cone/Mask** chosen from the available sizes and/or
- **Induction Box**

***CV 30-301-D Set 4* Multiple-Animal (6) Anesthesia System**, complete with:

- No. 1**CV-30-301-D**Basic Single-output Anesthesia System
- No. 6 **PS-0582** Evac Tubing for Canister1,8m (19mm male x 22mm female)
- No.12 **PS-0581-00** F/air filter (activated charcoal canister)
- No. 1 **PS-30-459** Multiple Delivery System with 6 Flowmeters
- **Order also** (see paragraph 8.1-Delivery Systems (Masks & Induction Boxes):
- No. 6 **Nose-Cone/Mask** chosen from the available sizes and/or
- **Induction Box**

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9 DETAILED ROTHACHER MEDICAL GMBH PRODUCT LIST

Combi-vet® Anesthesia Machines

CV 30-301-D combi-vet Digital Anesthesia System, Digital Flowmeter for O2 and TEC-3 vaporizer for Isoflurane (vaporizers for other anesthetic agents are available on request)

Z9 19147-600 white 02 CE 1,8 meter hose, including "Quick-connect" adaptor Type Drägerwerk Germany for CV 20-421 Pressure Regulator with manometer (other connectors are available—please specify

CV 30-301-D-H same unit with mounting brackets for T-Rail system

CV 30-301-A combi-vet Analog Anesthesia System, including Parker-Porter Flowmeter 0.1-4 lpm (for 02) and TEC-3 vaporizer for Isoflurane
(vaporizers for other anesthetic agents are available on request)

CV 30-301-A-H same unit with mounting brackets for T-Rail system

CV 30-510 02/N20 combi-vet Anesthesia System, including 2 Analog Flowmeter Parker-Porter 0.1—4.0 lpm (for O2 and N20) and Dräger Vapor 19.3 for Isoflurane
(vaporizers for other anesthetic agents are available on request)

CV 30-310-02-N20/AIR
02/N20/AIR Single-Output Anesthesia System,
including 3 Analog flowmeter
Parker-Porter 0.1—4.0 lpm (for O2/N20and AIR) and TEC 3 Vaporizer for Isoflurane
(vaporizers for other anesthetic agents are available on request)

CV 30-301-Digi 02/AIR
02/AIR Output Anesthesia System,
including 2 Digital Flowmeter (for O2 and AIR) and TEC-3 vaporizer for Isoflurane
(vaporizers for other anesthetic agents are available on request)

CV 30-301-Digi 02/AIR/N20/C02
02/AIR Output Anesthesia System, including 4 Analog Flowmeter and TEC-3 vaporizer for Isoflurane
(vaporizers for other anesthetic agents are available on request)

all our machines are mounted with a security overflow valve

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Cabinet Drawer

ITD OC.1785.902
Trolley standard without holder for oxygen tank
with holder for 2 Aldasorber 1 drawer uni-cart

ITD OC.1786.902
Trolley standard with holder for oxygen tank
with holder for 2 Aldasorber 1 drawer uni-cart

Oxygen concentrator

CV-81005 5 lpm	Oxygen concentrator Everflo 5 lpm, 220 V European edition
CV- 10101 10 lpm	Oxygen concentrator 10 lpm, 220 V European edition

Small Animal Rebreathing Head

CV 30-415	Small animal rebreathing head comes mounted on a metal frame in white

Vaporizers

TEC 3 ISO-KF	Vaporizer TEC 3 Isoflurane new including Keyed-filler version Cagemount 23 mm block or Selectatec block
TEC 3 SEVO-KF	Vaporizer TEC 3 Isoflurane new including Keyed-filler version Cagemount 23 mm block or Selectatec block
Vapor Dräger 19.3	Vapor Dräger 19.3. Isoflurane, reconditioned
Vapor Dräger 2000	Halothane/Isoflurane/Sevoflurane

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Vaporizers Fill Device

PS-0950	**ISO**	Vaporizer Isoflurane Fill Device Pin-Index
PS-0949	**HAL**	Vaporizer Halothane Fill Device Pin-Index
PS-0949	**SEV**	Vaporizer Sevoflurane Fill Device Pin-Index
PS-0960	**ISO**	Vaporizer Anti-Spill Fill Device Isoflurane
PS-0961	**HAL**	Vaporizer Anti-Spill Fill Device Halothane
PS-0961	**SEV**	Vaporizer Anti-Spill Fill Device Sevoflurane

Multiplex Delivery System

PS-30-459	Multiple-Animal Delivery System, with 6 Flowmeters with mounting bracket for T-rail system
PS-30-460	Multiple-Animal Delivery System, with 5 Flowmeters with mounting bracket for T-rail system
PS-30-458	Multiple-Animal Delivery System, with 4 Flowmeters with mounting bracket for T-rail system
PS-30-457	Multiple-Animal Delivery System, with 3 Flowmeters mounted on the combi-vet machine
PS-30-456	Multiple-Animal Delivery System, with 2 Flowmeters mounted on the combi-vet machine

Rodent Mask

PS-0305	Mask small Mouse face mask Diam 3.0 cm
PS-0306	Mask medium small rat face mask Diam 4.5 cm
PS-0307	Mask large rat face mask Diam 5.0 cm
PS-0308	Mask x-large rat face mask Diam 5.5 cm

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Rodent Nosecone System set

PS-0525-A	URN-System for small mice with inlet connector	Diameter 2,5 cm
PS-0305-A	URN-System for mice with inlet connector	Diameter 3,0 cm
PS-0306-A	URN-System for small rats with inlet connector	Diameter 4,5 cm
PS-0307-A	URN-System for medium rats with inlet connector	Diameter 5,0 cm
PS-0308-A	URN-System for medium rats with inlet connector	Diameter 5,5 cm

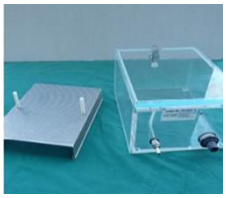
Mask Stabilizer

PS-0322 Mask holder

Induction chambers Posi-Seal standard

PS-0346 Induction chamber for Mouse
Size: 230 x 200 x 100 mm

PS-0347 Induction chamber for Rats
Size: 280 x 230 x 140 mm



Induction chambers for Mice/Rats in acrylic material

PS-0346-A Induction chamber without fan system
Size: 300 x 200 x 150 mm

PS-0346-AP Induction chamber with fan system, 220 V 1 A 12 V
Size: 300 x 200 x 150 mm

PS-0347-A Induction chamber without fan system
Size: 310 x 228 x 172 mm

PS-0347-AP Induction chamber with fan system, 220 V 1 A 12 V
Size: 310 x 228 x 172 mm

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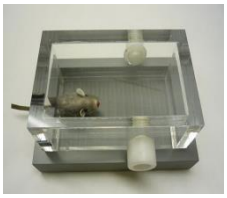
Induction chamber with 4 separators

PS-0348 Induction chamber with fan system, 220 V 1 A 12 V
Size: 450 x 230 x 172 mm

Imaging Chamber

PS-0458 Imaging chamber
Size: 100 x 240 x 270 mm



Induction chamber tail vein Injection

PS-0351-SIK Induction chamber
Size: 60 x 120 x 50 mm

Dual Diverter Manifold with Humidifier System

PS-0529-01 Dual Diverter System with manifold
PS-0529-02 Dual Diverter System with manifold and Humidifier System
PS-0529-30 Tri Diverter System with manifold
PS-0529-31 Tri Diverter System with manifold and Humidifier System

Wall Mount Program T-Size Aluminum Profile

CV 40-100 Set T-size aluminum profile 35 x 8 mm 2 x Bracket
for wall mounting, 2 rubber end parts

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Activated Charcoal Canister

PS-0581-00	F/AIR Filter 1-7 units
PS-0581-01	F/AIR Filter 8+ units
PS-0582	Evac tubing for F/AIR Filter 50 g or Aldasorber 1400 g, 1,8 m with 19 mm female male x 22 mm female adaptor
PS-0580	Holder for F/AIR Filter
PS-0584-00	Aldasorber 1400 g
PS-0586-00	Holder for 2 Aldasorber

Regulators N20 / 02 / AIR

CV 20-421	Regulator with pressure manometer for N20
CV 20-621	Regulator with pressure manometer for 02
CV 20-321	Regulator with pressure manometer for AIR
CV 20-321	Regulator with pressure manometer for C02
Z9 19147	Hose for gas according length and gas type

Active Scavenger System ANAS

PS-0833	Active scavenger System complete set

Delta-phase Iso-term pad

PS-0811	Pad size 20 cmx 20 cm x 0.65 cm

Gas evacuation fan system

PS-0452	Gas evacuation fan system with power supply

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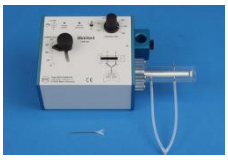
Gas evacuation fan system higher capacity

PS-0454 Gas evacuation fan system with power supply
PS-0545 Power supply CE 110-220 V 1,7 A EN60601/1

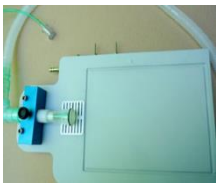


MiniVent Harvard 845 Ventilator

PS-0683 MiniVent Harvard 8454 Ventilator

Ugo Basile 7025 and 28025 Ventilator

PS-7025 Ventilator for mice & rats
PS-28025 Ventilator for mouse



Surgery table standard

PS-0451-FST Surgery table standard FST
PS-0452 Fan set with power supply 110-240 V, 1,5 A DC

Surgery table standard with Physitemp temperature Controller unit

TCAT-2LV Temperature controller T-CAT 220 V AC
HP-1M Heating plate for T-CAT System
RET-ISO 3 Isolated Rectal Probe for mice
RET-ISO 2 Isolated Rectal Probe for rats

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Surgery table with metallic frame and Safe control "Economy" Temperature controller unit for mice

Module 1 Surgery table

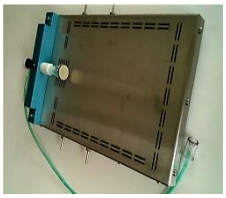
PS-0703 SM Surgery table small for mice without heating plate
PS-0703 HP Surgery table small for mice with heating plate
PS-0704 Metal holder mounted on plate with Mask for mice or small rats Mask diameter is 20 mm. It will fit PS-0703 SM and HP version

Module 2 Gas evacuation fan system

PS-0452 Set Fan with on/off switch on cable, without power supply

Module 3 Temperature controller

PS-070-A Temperature Controller unit with
Power supply 110-220 V 1,7 A EN 60601/01



Surgery table with metallic frame and Safecontrol Temperature controller unit for mice & rats and reptiles

Module 1 Surgery table

PS-0703 LG Surgery table large without heating plate
PS-0703 LG HP Surgery table large with heating plate
PS-0704 LG Metal holder mounted on plate with Mask for mice or rats Mask diameter is 20 mm and 30 mm exchangeable, it will fit PS-0703 LG and HP version

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Module 2 Gas evacuation fan system

PS-0452 Set Fan with on/off switch on cable, without power supply

Module 3 Temperature controller

PS-071-A Temperature Controller unit programmable
with Power supply 110-220 V 24 V / DC 2,5 A
with 12 V DC Outlet

PS-0545 Power supply only 110-220 V 24 V / DC 2,5 A

General Terms and conditions:

Warranty of 24 month
We reserve the right to make technical improvements.
Legal terms all under Swiss Law, Jurisdiction Canton Fribourg, SWITZERLAND

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