INSTRUCTION MANUAL

Combi-vet® Anesthesia system
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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"
1.1 CONNECTING DIAGRAM

**Combi-vet Digiflow or Analog Anesthesia Machine**

- **O2 Concentrator**
- **O2 Oxygen Cylinder with pressure manometer 3 Bar or Wall mount port**
- **Induction Chamber**
- **Nose cone Mask System PS-0525-A**
- **Aldasorber PS-0584 or PS-0581-00 F/Air Filter**
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.
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.
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”
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).

![Activated Charcoal Canister](image)

*Figure 6: “Activated Charcoal Canister”  
Weighted to Assess if it needs to be changed*

### 2.4 Safety Consideration

- 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

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

![](image1)

*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.

![](image2)

*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).
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)
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
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.
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.
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 nozzle 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
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
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. 1CV-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
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 O2 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 O2) 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  O2/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**  O2/N20/AIR Single-Output Anesthesia System, including 3 Analog Flowmeter Parker-Porter 0.1—4.0 lpm (for O2/N20 and AIR) and TEC 3 Vaporizer for Isoflurane (vaporizers for other anesthetic agents are available on request)

**CV 30-301-Digi 02/AIR**  O2/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**  O2/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_
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
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
### Rodent Nosecone System set

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<td>URN-System for small mice with inlet connector</td>
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<td>PS-0305-A</td>
<td>URN-System for mice with inlet connector</td>
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<td>PS-0306-A</td>
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<td>PS-0307-A</td>
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<td>PS-0308-A</td>
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### Mask Stabilizer

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<td>Mask holder</td>
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### Induction chambers Posi-Seal standard

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<td>Induction chamber for Mouse</td>
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<tr>
<td>PS-0347</td>
<td>Induction chamber for Rats</td>
<td>280 x 230 x 140 mm</td>
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### Induction chambers for Mice/Rats in acrylic material

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<td>Induction chamber without fan system</td>
<td>300 x 200 x 150 mm</td>
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<tr>
<td>PS-0346-AP</td>
<td>Induction chamber with fan system, 220 V 1 A 12 V</td>
<td>300 x 200 x 150 mm</td>
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<tr>
<td>PS-0347-A</td>
<td>Induction chamber without fan system</td>
<td>310 x 228 x 172 mm</td>
</tr>
<tr>
<td>PS-0347-AP</td>
<td>Induction chamber with fan system, 220 V 1 A 12 V</td>
<td>310 x 228 x 172 mm</td>
</tr>
</tbody>
</table>
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
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 / O2 / AIR

- **CV 20-421**: Regulator with pressure manometer for N20
- **CV 20-621**: Regulator with pressure manometer for O2
- **CV 20-321**: Regulator with pressure manometer for AIR
- **CV 20-321**: Regulator with pressure manometer for CO2
- **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 cm x 20 cm x 0.65 cm

Gas evacuation fan system

- **PS-0452**: Gas evacuation fan system with power supply
Gas evacuation fan system higher capacity

PS-0454
PS-0545

Gas evacuation fan system with power supply
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
PS-28025

Ventilator for mice & rats
Ventilator for mouse

Surgery table standard

PS-0451-FST
PS-0452

Surgery table standard FST
Fan set with power supply 110-240 V, 1.5 A DC

Surgery table standard with
生理温度控制器单元

TCAT-2LV
HP-1M
RET-ISO 3
RET-ISO 2

Temperature controller T-CAT 220 V AC
Heating plate for T-CAT System
Isolated Rectal Probe for mice
Isolated Rectal Probe for rats
### 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
- 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

**PS-0704**
- Surgery table with metallic frame and Safe control
- “Economy” Temperature controller unit for mice

### 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

### Module 1 Surgery table

**PS-0703 LG**
- Surgery table large without heating plate

**PS-0703 LG HP**
- Surgery table large with heating plate
- 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
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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