HIB / HIT

Fig.1

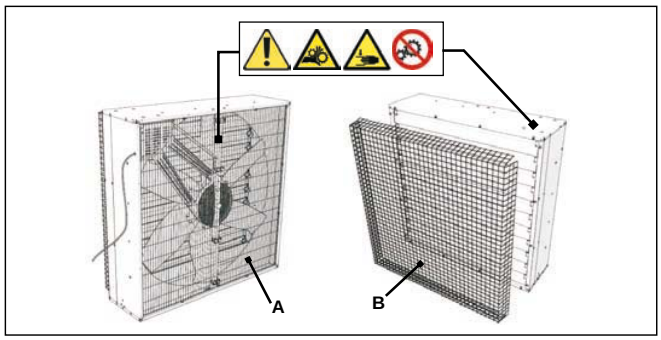


Fig.2

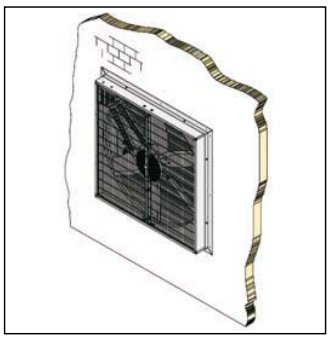


Fig.3

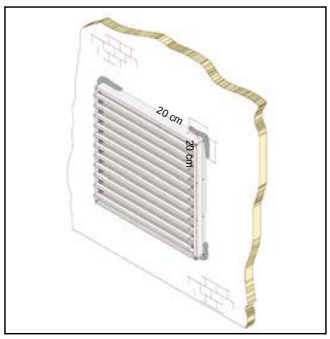


Fig.4

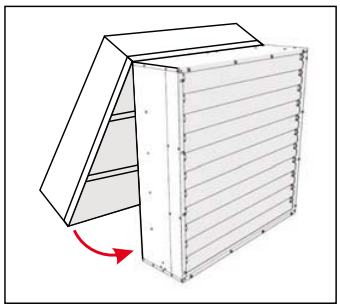


Fig.5

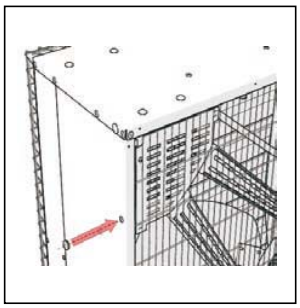


Fig.6

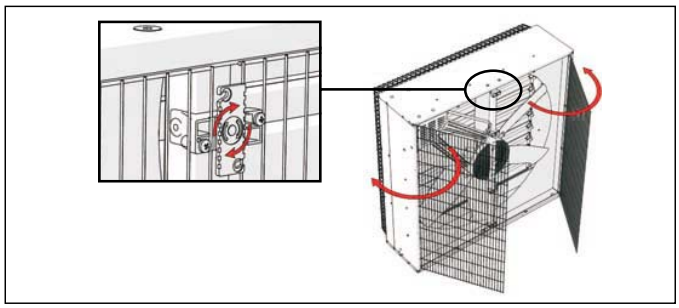


Fig.7

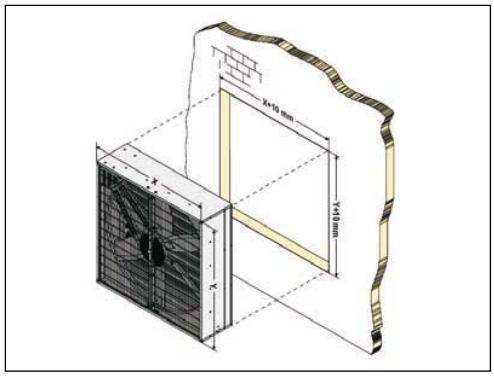
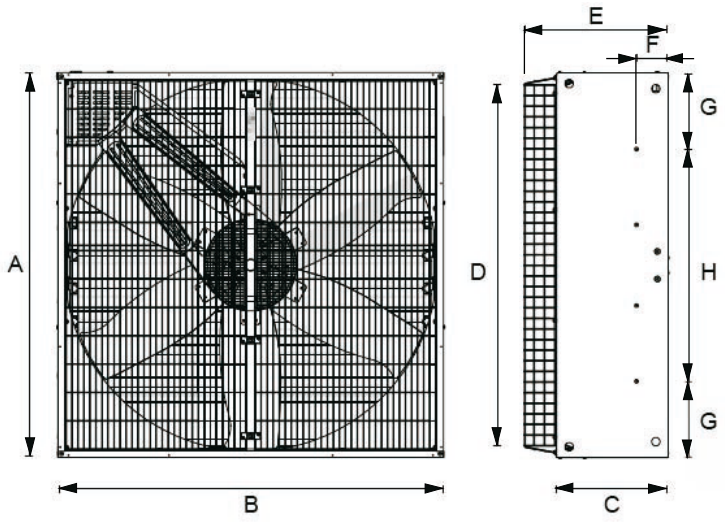


Fig.8



Dimensión - Size	HIT / HIB 1.250	HIT / HIB 1.000	HIT / HIB 800
A (mm)	1.380	1.145	910
B (mm)	1.380	1.145	910
C (mm)	400	400	530
D (mm)	1.340	1.060	780
E (mm)	515	515	645
F (mm)	114	109	250
G (mm)	292	225	225
H (mm)	795	692	455
Peso – Weight (Kg)	69 - 80	50 - 54	47 - 49

Fig.9

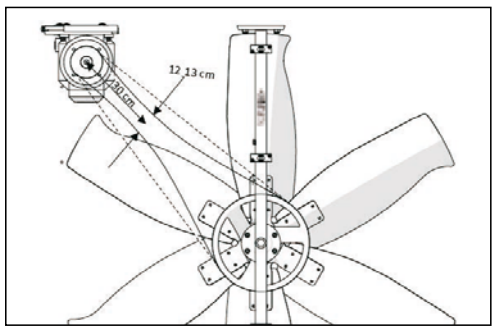


Fig.10

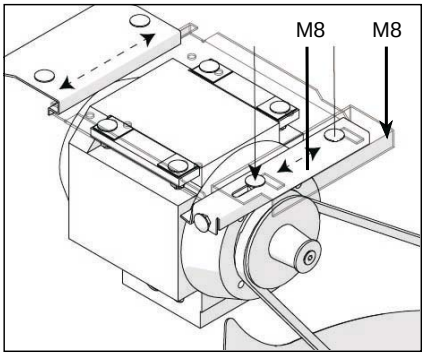


Fig.11

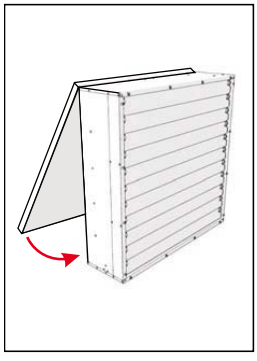


Fig.12

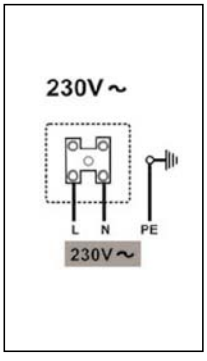


Fig.13

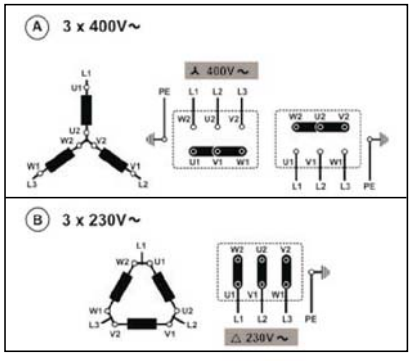


PLATE MOUNTED AXIAL FLOW FANS: HIB/HIT

INSTALLATION AND OPERATION MANUAL

1. INTRODUCTION

- The installation and operation manual is the training reference document written by **S&P**, it is intended for installers and technical operators who will be in contact with the machine throughout its life cycle.

- The aim of this manual is to provide the necessary information for the correct installation and operation of the equipment, highlighting the hazards that may arise from incorrect use.

- For an optimal use and operation of the machine, it is essential to strictly adhere to the instructions set forth in the manual avoiding, above all, any technical problems and exposing operators to health risks.

- The extractor is regulated by the **Machinery Directive 2006/42/EC.** The EC mark certifies conformity of the product with the essential safety requirements of the aforementioned European Community Directive.

1.1 INTENDED USE AND LIMITATIONS

- The **HIB / HIT** ranges comprise air extractors for agricultural and industrial applications, designed to ventilate enclosed areas by extracting the air at atmospheric pressure. They are to be installed in walls / perimeter structures.

- The machine is designed to operate at a room temperature between: 0°C and +40°C

- It is strictly forbidden to modify any product components or to replace them with non-original spares.

  WARNING: Any use of the product other than those described herein is deemed improper and therefore unsafe. Such non-intended uses may cause serious injury and damage the equipment. Any non-intended use or any use of the product not described herein is considered non-compliant and, therefore, the manufacturer shall refuse all liability.

1.2 STORING THE OPERATING INSTRUCTIONS

- This Operating Instructions Manual is a passive safety device; therefore, it is obligatory to keep a copy of it throughout the whole life cycle of the machine. Operators and technical maintenance staff should be able to quickly refer to this document.

1.3 CONTROL UPON RECEIPT

- The machine must arrive safely packaged and in perfect condition. Despite careful procedures, it is possible that the packaging and/or its contents may be damaged during shipping. It is recommended that all units are examined at the time of receipt in order to check for visible damages.

- If any damages are identified, contact **S&P** in order to establish how to proceed. **S&P** reserves the right to carry out their own inspection.

- Check also that the received machine identification data matches exactly the information in your order.

1.4 MACHINE IDENTIFICATION DATA

- The identification plate with the EC mark is located on the metallic structure, on the intake side. The plate specifies the **S&P** identification data, the model, the serial number and the year of manufacture, as well as the specific technical data of the industrial extractor.

2 SAFETY WARNINGS

WARNING: SOLER & PALAU Sistemas de Ventilación S.L.U. (S&P) shall not be liable for damage to the machine and/or injury to personnel resulting from failure to comply with the safety guidelines set forth in this Manual.

WARNING: It is very important to adhere to and respect the safety instructions. Non-compliance may cause personal injury and/or damage the machine.

WARNING: The air extractor should be installed and periodically maintained only by authorised qualified personnel, since they are trained to carry out the necessary operations and they are aware of the safety standards in force in the country of installation.

2.1 PERSONAL PROTECTION EQUIPMENT (PPE)

- To avoid placing the personnel operating the machine at risk during the phases of installation, maintenance, etc., the following personal protection equipment must be used:

SAFETY HELMET

PROTECTIVE CLOTHING

PROTECTIVE GLOVES

EYE PROTECTION

FALL-PREVENTION EOUIPMENT

2.2 SAFETY PICTOGRAMS

- On both sides of each machine (interior / exterior) and in a visible position **(Figure 1)**, the hazard warning pictograms have been displayed to warn about the presence of residual risks that cannot be avoided or cannot be sufficiently limited by measures, methods or work organisation systems, nor by technical protection means.

	**DANGER** It indicates the presence of a residual risk.
	**MOVING PARTS** Presence of moving parts, for example impellers, pulleys and drive belt.
	**DANGER OF CRUSHING** Risk of crushing and/or dragging due to the presence of moving parts.
	**IT IS PROHIBITED TO REMOVE SAFETY GUARDS** It is prohibited to remove or force any protection guards (meshes).

WARNING: The purpose of the pictograms is to inform the user about the risks derived from the rotary movement of and the inlet caused by, the impeller blades. They play an important role in passive safety. It is strictly forbidden to remove them.

3 SAFETY AND INSTALLATION ACCESSORIES

3.1 HIT / HIB SAFETY KIT

- Metallic safety guard meshes have been installed to guarantee a sufficient level of safety against accidental contact with the moving parts of the machine.

- Although all standard models leave the factory with the interior metallic guard mesh **(Figure 1-A)**, it is possible to order upon request the **S&P** HIT / HIB safety kit (exterior metal guard mesh) to protect the exterior **(Figure 1-B)**.

  NOTE: If the base of the fan is at a height of a minimum of **2.7m** from the floor, then it is not necessary to use the exterior metallic mesh guard, although it is recommended.

3.2 HIT / HIB WALL-MOUNTING KIT

- To correctly install the extractor on the wall, you can use the **S&P** mounting profiles **(Figure 2).** These profiles attach to the interior part with M8 screws, to the sides of the machine, where threaded holes are located for that purpose.

3.3 HIT / HIB LIGHT-BLOCKING KIT

- The **S&P** light-blocking screens can be attached to the interior part to prevent light from entering. Especially suitable for poultry farms **(Figure 4)**.

3.4 HIT / HIB INSULATING COVER KIT

- Should it be necessary to take an extractor out of service or to keep it inactive for a long period of time (for example, in winter), and to avoid heat loss and/or air currents, make use of the **S&P** insulating covers **(Figure 11)**.

  NOTE: All these safety / assembly accessories are supplied separately and upon request. Consult our catalogue or visit our website www.solerpalau.com and contact our official distributor.

4 PRELIMINARY INSTALLATION

NOTE: The operations indicated below must be exclusively performed before wall-mounting or before proceeding to the installation in the machine housing.

WARNING: The extractor installation and maintenance procedures must only be performed by adequately trained personnel.

- Take the rubber cable grommet located in the bag with the Operating Instructions Manual and manually place it into the opening located on the side, as indicated in **Figure 5.**

- Open the protection meshes from the air input side, loosening the screws in the fasteners on the mesh **(Figure 6)**. Pass the motor piped cable through the rubber cable grommet previously inserted.

- Ensure that the motor cable has been completely extracted and that it has no defects and/or cuts.

- Replace the protection meshes and, after having placed the anchoring devices in the horizontal position, tighten the screws until the device is locked.

5 INSTALLATION

WARNING: The extractor installation and maintenance procedures must only be performed by adequately trained personnel.

WARNING: The lifting of the machine required to install it in an elevated position must be carried out under strict safety conditions. Therefore, these operations must be performed by expert personnel.

- Given the weight, the extractor should be lifted by self-propelled aerial platforms or forklifts with sufficient lifting capacity.

- The performance characteristics of the lifting devices employed should be well above the performance required to lift the extractor.

- If using lifting straps, they should have a capacity of at least three times the weight of the extractor.

- The use of the personal protection equipment (PPE) is required as indicated in **section 2.1** of this manual.

  NOTE: Under no circumstances will **S&P** be liable for the damages to things and/or persons due to incorrect procedures regarding the movement of the machine or the use of inappropriate equipment.

- Check and make sure that, on the air intake side, the area is free from all obstacles and/or buildings for a distance of at least 10 metres.

- In the wall, there should be a square hole 10mm larger than the size of the device to facilitate insertion **(Figure 7)**.

  NOTE: Figure 8 shows the general dimensions / weight of the range of **S&P HIT / HIB** fans. The net weight of each model is also indicated on the characteristics plate located on the side of the machine.

- The extractor should be anchored in a perfectly vertical position and can be fixed to the site structure with M8 screws (not supplied) affixed to the threaded holes on the chassis.

- The vertical support / wall to which the extractor is anchored must meet the resistance and stability requirements to support the weight and vibrations generated by the extractor. The installer shall be responsible for ensuring these support characteristics, and they are the only person who can assess their feasibility.

- The extractor must not be installed on moving supports, such as door or metal shutters, with resistance and rigidity characteristics inappropriate for this purpose.

  NOTE: Under no circumstances shall S&P be liable for damages caused to persons or objects resulting from the installation of one or more extractors in inadequate supports.

  NOTE: Note that to correctly install the extractor on the wall, the **S&P** mounting profiles **(Figure 2)** may be used. These are supplied upon request. Consult our catalogue or visit our website www.solerpalau.com and contact our official distributor.

- For wall-installation/sealing, the use of expansion foam is not recommended, as it compresses the extractor causing the structure to become deformed and, consequently, results in malfunction of the opening and closing of the shutter flaps.

- If it is necessary to use foam, introduce the expansion product between the support and the extractor chassis along a line of maximum 20cm from the edge, as shown in **Figure 3**.

6 WIRING

WARNING: The connection of the extractor to the electrical supply should be carried out by qualified and trained personnel, observing the standards in force in the country of installation.

WARNING: Before connecting to the power supply, disconnect from the electrical supply by switching off the master switch.

- Check that the available electrical supply at the installation site meets the correct voltage and frequency requirements.

- Single phase models must be connected as shown in Figure 12.

- Three-phase models can be connected to 400V(Star) or 230V(Delta)

- If the three phase main supply has a phase voltage of 400V AC, the fan comes from factory with star configuration, as shown in Figure 13A.

- If the three phase main supply has a phase voltage of 230V AC, the electrician has to access to the motor terminal box and set a delta configuration as we indicated in Figure 13B.

- Connect the extractor to earth using the available connection in the motor. When using a plug, an earth connection is obligatory.

- Make sure that there is a thermal-magnetic trip unit and a residual current device of the correct ratings available for each installed unit.

- The electrical connection between the extractor and the electrical supply must be protected by, at least, a hermetic sealed junction box.

7 INITIAL START-UP

7.1 Before Starting up the Extractor:

- Check that no objects or tools have been left inside the machine.

- Check that cement or lime residues have not fallen on the blades during the installation; the resulting fan imbalance would cause harmful vibrations that would result in rapid wear on the impeller bearing.

- Check that the protection meshes are closed and correctly secured to the machine.

- The machine should never be operated without the standard mesh protection guard correctly installed. If it is damaged, it should be replaced immediately and always with **S&P** original spare parts, as our replacement parts guarantee the safety levels required by the Directive and by technical standards.

- Due to the existing risks derived from the presence of moving parts and from the air extracted by the extractor, it is the user's responsibility to protect the fans outlet area using barriers to prevent access by unauthorised personnel. Mark the restricted access area using the corresponding danger and/or warning signs.
  WARNING: The mesh protection guards are a passive safety device, and it is strictly forbidden to remove or force them.

- Before starting up the air extractor, it is essential that the presence and the correct position of the metallic mesh protection guards are checked.

- Ensure that all present personnel are at an adequate safe distance from the machine.

- Check that the tension in the drive belt is correct, following the procedure referred to in the maintenance section of this Manual (chapter 8). (Only for drive belt models)

7.2 After Start-up:

- Check correct installation ensuring there are no vibrations and/or unusual noises.

- Check the fan from the air intake side and make sure that the fan rotates anti-clockwise. If the rotation direction is clockwise, invert any two cables on the power line (only for three-phase motors).

8 MAINTENANCE STANDARDS

The **S&P HIT / HIB** air extractors have been designed and manufactured for long useful life even under the most severe conditions. However, note that the equipment has moving parts and, as such, requires periodical inspections. Therefore, it is recommended to implement a preventative maintenance programme, which should be carried out by competent and specialised personnel.

Daily inspections should be performed to prevent breakdowns caused by harmful work environment related effects, such as temperature, humidity, dust, dirt, vibrations and other factors.

8.1 SAFETY WARNINGS DURING MAINTENANCE

- Maintenance of the extractor should be carried out only by personnel trained in the safety standards and recommendations set forth in this Manual. Before performing maintenance, disconnect from the electrical supply by switching off the master switch.

- When performing any operation on the machine, all personnel must be notified.

- When accessing the machine for maintenance, place a warning sign over the power supply switch to prevent another operator from accidentally switching the machine on.

- During the machine maintenance and inspection phases, there are risks of the fan catching and cutting clothing, extremities, of hair being caught and also risks to other parts of the body.

- During these phases, Use the PPE indicated in **section 2.1**, especially the safety clothing and the gloves; tie back long hair and do not wear rings, bracelets or necklaces.

8.2 PERIODIC MAINTENANCE

- Make sure the air intake and outlet openings are clean and free of objects.

- Make sure the extractor is always dry. If the extractor is wet, dry it immediately, identify the cause and rectify it to avoid corrosion.

- Check the electrical cables and connections.

- Check for nuts and bolts which might be loose or that may have become rusted on account of environmental conditions. Adjust or replace them.

- Check for the build up of any deposits inside the equipment. Remove the deposits using a jet of compressed air.

- The following table specifies the ordinary periodical controls that the user should carry out to keep the machine in good working order.

OPERATION	FREQUENTLY
LUBRICATING THE MACHINE	NEVER
CLEANING THE MACHINE	WEEKLY
ADJUSTING DRIVE BELT TENSION*	QUARTERLY
CHECKING SCREW ADJUSTMENT	QUARTERLY
CHANGING THE DRIVE BELT	AS REQUIRED

* Only for drive belt models

8.3 CLEANING THE MACHINE

WARNING: Do not carry out cleaning operations while the machine is in operation. When cleaning the exterior of the machine, the mesh protection guards and the metal shutter flaps, it is necessary to disconnect the extractor from the electrical supply.

To ensure the correct cleaning and good working order of the product, adhere to the following provisions:

- Clean the motor housing regularly with a small brush or with compressed air (do not spray with water or steam).

- Regular cleaning of the motor housing is especially important when the extractor operates in particularly dirty or dusty environments, given that the motor must be able to dissipate the heat that it generates.

- For the models of motor that include plastic caps inserted in the cover and in the motor box, use them to empty the residual condensation accumulated inside the motor; once this operation is completed, re-establish the original operating condition.

- At the base of the extractor support structure there are two openings to empty condensation that has formed; keep the base clean and the openings free in order to avoid corrosion.

- Keep clean, on both sides of the machine, the plastic parts (levers) that move the outlet flaps through the metal shutter.

- Clean the flap-opening centrifugal mechanism thoroughly.

- The blades of the impeller do not require any special maintenance as they are self-cleaning.

- When using pressurised water spray for cleaning, do not direct the flow of water or steam at the motor, the central pulley, or the opening / closing mechanisms.

8.4 LUBRICATING THE MACHINE

- The ball bearing in the impeller pulley is sufficiently lubricated for its whole useful life and does not require any special maintenance; the same is also true for the motor bearings.

- The plastic parts (levers), that move the metal shutter flaps, should not be lubricated or greased, thus avoiding the harmful build up of dust or other deposits that may block the mechanism.

8.5 ADJUSTING THE DRIVE BELT TENSION

(Only for drive belt models)

To ensure the long useful life of the extractor, it is recommended that the drive belt tension is checked directly after installation and then once every maintenance cycle.

1. On the air input side, loosen the screws that lock the mesh fasteners, turn them and open both meshes **(Figure 6)**.

2. Remove the drive belt plastic protection. It is attached by a self-locking screw and quick release joining clips.

3. Press the sides of the belt in the middle, approx. 30cm from the motor pulley; if a distance between the sides of the belt of around 12/13cm is measured, then the tension is correct **(Figure 9).**

   If the distance is greater, it means the tension is below its design value and it should be tightened, as this may cause the belt to slip and the motor to burn out. In this case, use the motor shim plate sliding system to set the correct value.

4. Loosen the 2 M8 nuts that anchor the motor shim plate **(Figure 10)**.

5. Slide the motor shim plate in the opposite direction of the impeller until a position with the adequate belt tension is achieved.

6. Tighten the 2 M8 nuts to a torque of 18Nm.

7. Replace the drive belt plastic protection, close the meshes and, finally, adjust the screws on the devices that lock the meshes in place.

8.6 REPLACING THE DRIVE BELT

(Only for drive belt models)

When the drive belt is frayed, with obvious signs of wear or if it is broken, it will need replacing.

1. On the air input side, loosen the screws that lock the mesh fasteners, turn them and open both meshes **(Figure 6)**.

2. Remove the drive belt plastic protection. It is attached by a self-locking screw and quick release joining clips.

3. To remove the worn belt, push the belt sides in the middle of the pulleys towards the interior of the fan (air output side) and, simultaneously, turn the impeller.

4. Once free of the pulleys, unhook the belt between one impeller blade, repeating this operation for the remaining five blades.

5. Remove the two Allen screws, that are fixing the shutters open mechanism with the central shutter. Continue removing the old belt to being replacement with the new one.

6. Pass the new belt between the shutters open mechanism and the central shutter. Put back both Allen screws removed previously and assure that are properly tightened.

7. Insert the new drive belt between one impeller blade and the locking point, repeating this operation for the other five blades.

8. Place the belt over the motor pulley and, as far as possible, over the impeller pulley; turn the impeller pulley so that the belt snaps completely into place in its groove.

WARNING: DO NOT apply any force to the impeller blades as they could become misaligned or bent.

9. Check the deflection of the belt; if the tension force is below the prescribed level, adjust it as detailed in the previous paragraph.

10. Replace the drive belt plastic protection, close the meshes and, finally, adjust the screws on the mesh fasteners.

NOTE: It is recommended to only use original spare parts. Contact the official **S&P** distributor to obtain original replacement parts.

WARNING: Non-original spare parts that may be used, are not guaranteed to resist the forces that may be applied during normal operation.

9 PERIODS OF INACTIVITY

Recommended actions in case it is necessary to take the extractor out of service, and/or keep it inactive for a prolonged period of time (for example, during winter).

- It should be protected from damp and the elements.
- Disconnect the machine from the electrical supply.
- Make sure that the air input has been meticulously sealed.

NOTE: To correctly seal the air input, **S&P** HIT / HIB INSULATING COVERS can be used **(Figure 11)**. See section 3.4 of this manual.

10 DECOMMISSIONING AND RECYCLING

EU regulations and our commitment to future generations oblige us to recycle used materials. Please remember to dispose of all unwanted packaging materials at the appropriate recycling points, and to drop off obsolete equipment at the nearest waste management point.

11 TECHNICAL ASSISTANCE

S&P's extensive **Official Service Centre** network guarantees appropriate technical support. Should you notice any anomaly in the equipment, please contact any of the **S&P Official Service Centres**, where you will be assisted as required.

Any operation on the equipment carried out by persons other than **S&P Official Service Centre Staff** will invalidate the guarantee.

S&P RESERVES THE RIGHT TO MAKE MODIFICATIONS TO THE PRODUCT WITHOUT PRIOR NOTICE.