Formula Air
Supporting your performance

XCUTTER

Maintenance manual

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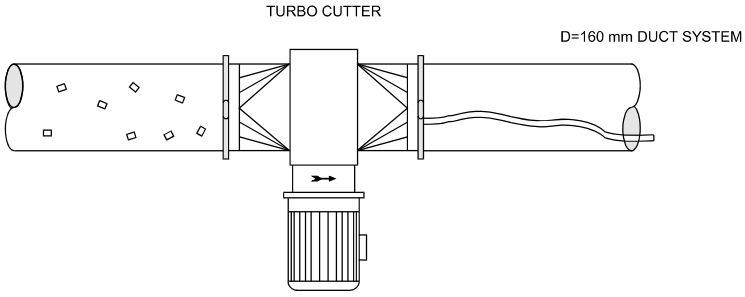
1. Technical information

The XCUTTER is mainly used for shredding trims from rewinders. The XCUTTER can cut materials like plastic, aluminum, laminate, paper, and cardboard.

Weight with motor:	32 kg
Motor type:	Flange motor, standard
Transmission:	Direct, through overload coupling
Motor power:	0,75 or 1,1 kW
Motor speed:	2800 or 1400 rpm
Power supply:	3 x 380 V, 50 Hz. Other voltages are available.

The XCUTTER is provided with transitions to 160 mm roll bead duct system. Quick release clamps connect the Turbo Cutter and the duct system. Transitions to other duct dimensions are available upon request.

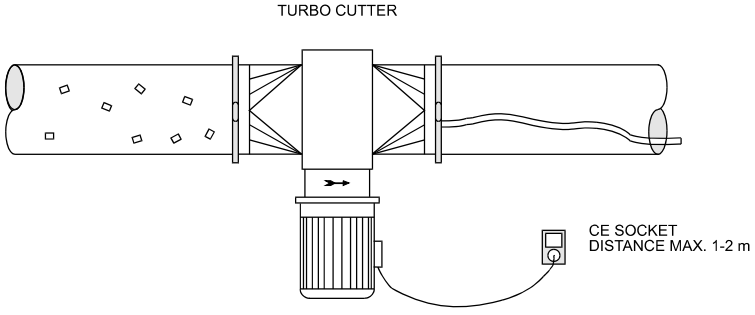


2. Installation instruction

The XCUTTER must be mounted with a CE plug on a corresponding socket / switch.

Place the switch as close to the XCUTTER as possible.

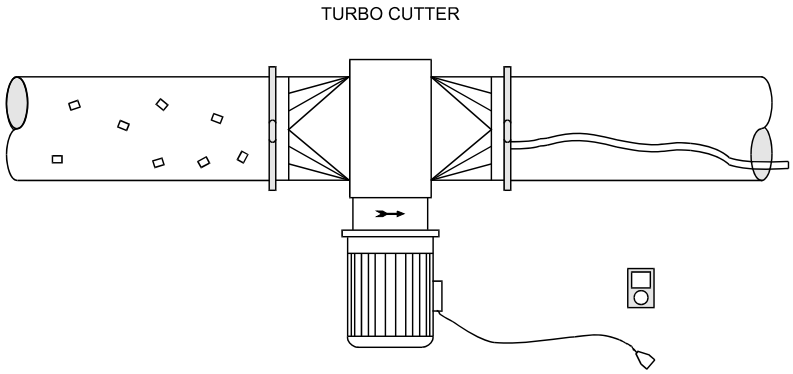
The direction of the rotation of the motor must be checked before the XCUTTER is connected to the power. The direction of rotation must be aligned with the direction of the arrows on the outside of the XCUTTER. A wrong direction will destruct the knives.



3. Maintenance and repair

IMPORTANT:

THE CE PLUG MUST BE DISCONNECTED FROM THE SOCKET BEFORE THE DUCT SYSTEM CAN BE DISMOUNTED AND THE XCUTTER CAN BE REMOVED FOR MAINTENANCE OR REPAIR.



4. Adjustment instruction

4.1 Description

The numbers in parenthesis refer to the different positions on the drawing page 8/9.

The XCUTTER has three rotating knives (6) and one fixed knife (7). The fixed knife is adjustable. It is fixed by means of a knife support (8). This knife support is fixed with screws for knife support (9). The adjustment screws (3) are unbraco screws situated on the outside of the cutter. They can move the fixed knife towards the center of the cutter.

4.2 Adjustment

1. Unplug the XCUTTER and dismount it from the duct system.
2. Remove the cover for adjustment screws (2) by unscrewing the two unbraco screws (1). The three adjustment screws (3) are now exposed.
3. Loosen the tightening screws (10) very little
4. Push down the fixed knife (7) carefully by means of the adjustment screws (3). Always start with the adjustment screw in the middle. Turn the adjustment screws max. 5-15° at a time, at the same time while you turn the rotor by hand.
5. While the rotor is slowly turned by hand, try if the cutter can cut a piece of paper between the fixed knife (7) and the rotating knives (6). Keep on adjusting with the adjustment screws while you try to cut a piece of paper. When the paper can just exactly be cut in a pure and clean cut throughout the whole length of the knife, the fixed knife is at its right place.

6. It is important that the rotating knives are not touching the fixed knife too hard. They are only allowed to touch slightly. During operation, the centrifugal force will provide an even tighter contact with the fixed knife.

4.3 Too tight adjustment

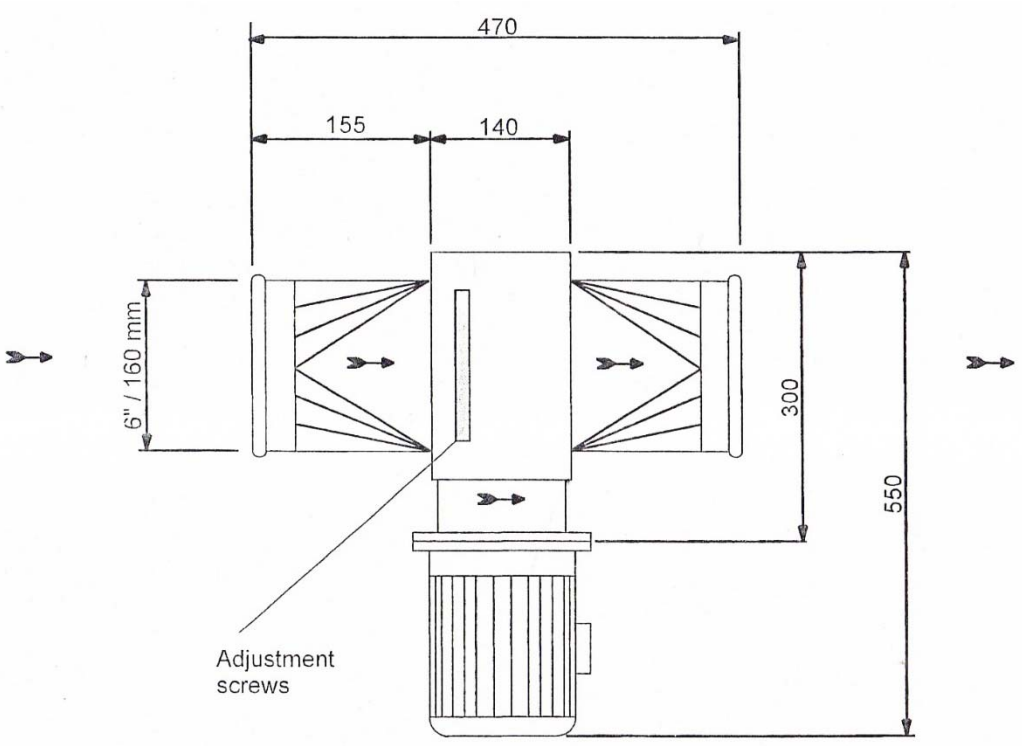
1. It might occur during the adjustment that the fixed knife is accidentally pushed too far towards center so that the rotating knives are running too hard against the fixed knife. If this happens, unscrew the screws no (10) two – three turns.
2. Unscrew the adjustment screws a bit and the fixed knife and the knife support will go backwards. Now, carry out the adjustment with the adjustment screws as described above in 4.2.3. to 4.2.5.
3. When the correct position is obtained, the screws for knife support no (10) must be fastened, so that the knife support is fixing the knife thoroughly. Try again to cut a piece of paper, just to be sure.
4. When the adjustment is correct and the knife support is fastened, the cover for adjustment screws must be remounted. The XCUTTER is now ready for operation.

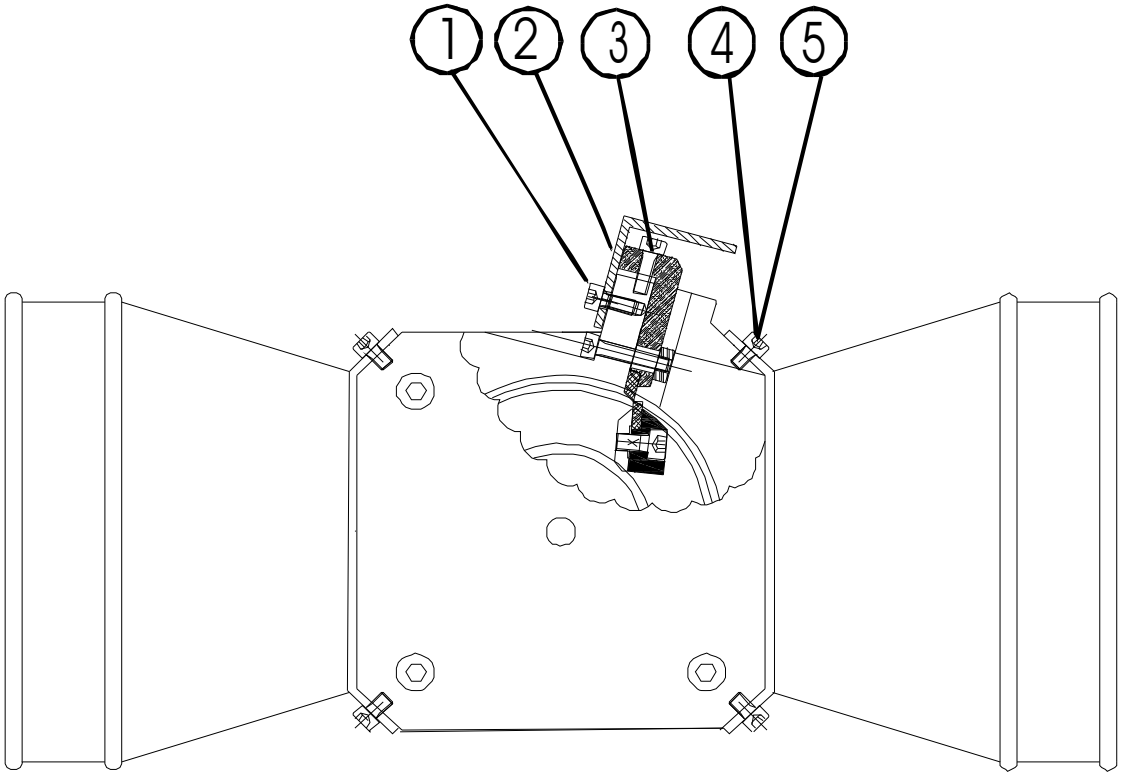
IMPORTANT: ADJUSTMENT MUST NOT BE DONE DURING OPERATION.

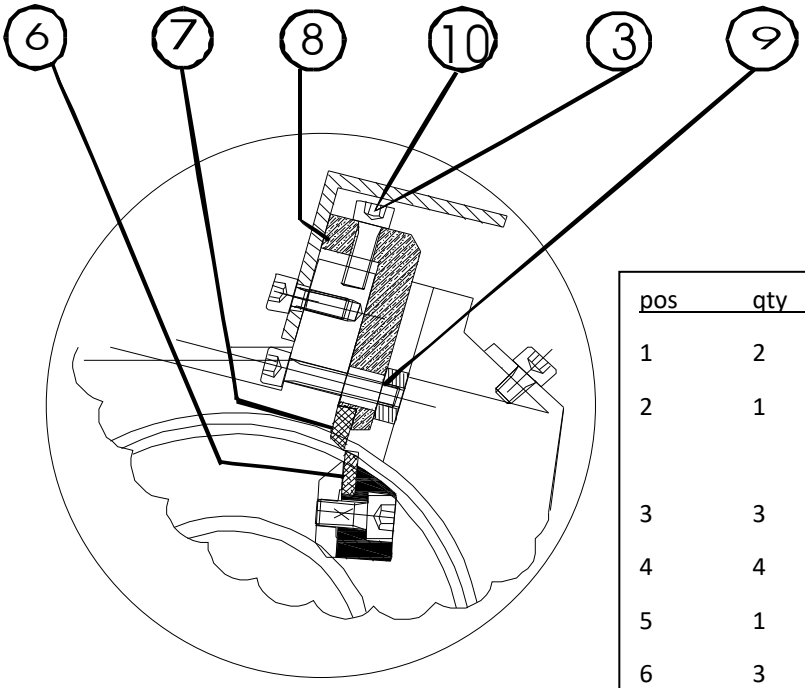
THE KNIVES ARE MADE OF CEMENTED CARBIDE. INCORRECT ADJUSTMENT AND USE MAY EASILY CAUSE DESTRUCTION OF THE KNIVES.

4.4 Dimensions

4.5 Drawing







pos	qty	item
1	2	Screws for cover
2	1	Cover for adjustment screws
3	3	Adjustment screws
4	4	Screws for internal cover
5	1	Internal cover
6	3	Rotor knives
7	1	Fixed knife
8	1	Knife support
9	3	Screws for knife support
10	4	Screws for fixed knife

5. Motor installation and maintenance

5.1 definition

The motor you have purchased will supply driving power to various machines and industrial equipment. It is manufactured according to harmonized standards EN/IEC 60034.

5.2 Safety

Simotop three phase and single phase general purpose motors comply with the recent valid technical standards.

All repair and servicing operations on motors must be carried out when the equipment is electrically isolated and the motor and driven machine are at standstill.

The motors should only be transported, installed, connected, commissioned, maintained and operated by skilled personnel familiar with all relevant safety standards and mounting specifications.

5.3 Efficiency

The efficiency is determined according to the specifications of EN 60034-2-1. For motors < 1kW, the direct measurement method is used. The measurement uncertainty of this method is rated "low". For motors > 1kW the individual loss method is used. The additional losses of this method are determined from the residual losses. The measurement uncertainty of this method is also rated as "low". Efficiency and Efficiency class complying with EN 60034-30 are listed on the name plate of energy saving motors.

5.4 Transport and storage

The motors should never be handled by or stored resting on their fan cover. Do not lift the motor from the shaft end unless otherwise specified. They should always be lifted carefully by taking hold on the housing, never on the plastic parts. For the transport please use the eye bolts/attachment eyes of the motors together with suitable lifting accessories. The eye bolts/attachment eyes must only be used for lifting the motors without additional mountings like foundation plates, gears and others.

Motors with reinforced bearings are supplied with a transportation safety device. The transportation safety device at the shaft end must only be removed during installation of the motor and before switching on.

The motors should be stored in a closed and dry room. Outdoor storage under cover is permitted but for a short time only and requires adequate protection against all harmful effects of the climate as well as against any mechanical damage. The motors should especially be protected against moisture of any kind.

5.5 Long term storage (more than 12 months)

Long term storage must be done indoors in vibration- free, dry rooms with temperatures not below -20°C and not above +40°C. The storage environment must not contain aggressive gas, vapors, dusts and salts. Preferably motors shall be moved and stored only in original packing. Storage and transport with motors standing on their fan covers is not allowed. Additionally unprotected metal surfaces like shaft ends and flanges must be protected with a medium for long-time corrosion protection in addition to the existing factory-provided temporary corrosion protection.

If there is a risk of motors being covered by moisture from condensation, please provide precautionary measures against humidity. Than a special packing in airtight sealed plastic foil is necessary or as alternative packing in plastic foil with desiccants. Please put desiccant bags in the terminal box as well. Before installation, please follow the procedure below:

- Examine the bearings and replace them if necessary.
- Check the insulation resistance. If the insulation

Resistance measured at 20°C and 500V is below 2 Mohm, the motor must be dried at 80°C.

5.6 Installation and fitting

Do not neglect to check the motors for any transport damage prior to installation.

Transmission components (couplings, pinions or belt pulleys) should be drawn onto the shaft by means of appropriate tools or by heating up the part to be drawn onto the shaft. Transmission components must never be mounted onto the shaft using hammer blows as the shaft, the bearings or other motor parts could be seriously damaged.

All components that are to be fitted to the shaft end must be balanced dynamically according to the balancing system of the motors. The rotors of the motors are balanced with half key. The motors are to be further installed in such a way that they are free of vibrations. With precision balanced motors special instructions are to be followed.

Direct coupling to the driven machine requires a particularly accurate alignment. In case of base unevenness wedges must be used to level the motor. In case of pulley belt drive, great care has to be given to pulley minimum diameter and belt-pre-tensioning as excessive belt tension can possibly result in the damaging of the bearings or even in the breaking of the

motor shaft end. Proper pulley dimensions depend on kind of belt, reduction ratio and power to be transmitted.

Vent holes must be kept free and the minimum distances rated in the dimensional drawings must be maintained so that the flow of cooling air is not obstructed.

If motors are installed in the open (protection standard IP44), they should be protected against direct climate effects (freezing of the fan due to direct fall of rain, snow and ice formation).

The type of construction of the motors is indicated on the rating plate. The motors can be used in different types of construction only with permission of the manufacturer. When fixing the motors by their foot or flange holes avoid incorrect fitting or irregular tightening.

5.7 Earthing

It is mandatory to earth the motor. Earthing must be performed in accordance with current regulations (protection of workers) from the earthing terminal  in the terminal box.

5.8 Protection

The motors must be protected against short circuit, phase loss, and overloads by proper fuses, thermal- magnetic switches or electronic protection circuits. The nameplate values are valid where the ambient temperature does not exceed 40°C and altitude is less than 1000 m. The permissible voltage variation according to VDE 0530 is ±5% at the rated output and rated frequency.

5.9 Commissioning

All work is only to be carried out when there is no voltage on the motor. The installation must be carried out according to the valid regulations by qualified and skilled personnel. Before operating the motor, careful attention should be given to following points:

1. It is recommended to check the insulation resistances with a megohmmeter. The value of the resistance between winding and earth and between phases must be 1 M (measured at cold state, applied voltage 500V). If the value is lower the winding needs to be treated with heat-baking.
2. Check the ambient temperature.
3. The mains conditions (voltage and frequency) must be compared with the data on the rating plate of the motor and should match each other.
4. The connection has been made according to the connection diagram.

5. Always start the motor with an over-current protection device that is set in accordance with the relevant nominal values of the motor.
6. The grounding of the motor is correct to insure safety.
7. The assembly bolts are correctly tightened.
8. The rotor rotates freely without disturbance.
9. All connections inside the terminal box are correctly tightened and cable entries are properly sealed.

5.10 Maintenance

You are once again referred to the Safety Regulations, in particular to isolation, to ensure against reconnection and to checking whether all components connected to a voltage source are in dead state. If it is necessary to disconnect the motor from the mains for maintenance work particular care must be taken to ensure that any possibly existing auxiliary circuits (e.g. Anti-condensation heaters, forced ventilators, brakes) are also disconnected from the mains.

Careful and regular maintenance, inspections and revisions are necessary to detect and clear faults in time, before consequential damages will happen.

As individual operating conditions cannot be defined for all applications the listed terms represent a general advice for undisturbed operation. Individual local conditions (degree of pollution, load, etc.) must be taken into account when adjusting these terms.

1. So that the effects of cooling air are not interfered with, all parts of the motor must be cleaned at regular intervals. Most of the time it is sufficient to clean the machine with compressed air that is free from water and oil. Especially the vent holes and the spaces between the ribs must be kept clean. It is recommended to include the electric motors in the regular routine inspections of the driven machine.
2. It is recommended to monitor the current consumption when the motor runs on full load so that any possible overloads and asymmetries occurring in the mains can be recognized immediately.
3. Under normal load and climatic conditions, the quality of grease guarantees an operation of the motor for approximately 10 000 service hours with two pole design and 20 000 service hours with multi-pole design (without grease refilling). However the condition of the grease should be checked occasionally even before this time limit. The indicated number of service hours is valid for operation at rated speed. Re-grease the bearings only after a thorough cleaning using suitable solvents. The same type of grease must be used. When replacing the grease only the equivalent types specified by the motor manufacturer can be used. Please bear in mind that the bearing should only be filled up to about 2/3 of their free space. A complete filling of the bearings and bearing covers with grease leads to increased bearing temperature

and therefore to increased wear off. The temperature of the bearing should never exceed 95°C.

4. Single phase motors with starting capacitor are fitted on the rear end with a centrifugal switch. When the motor attains its nominal speed the centrifugal switch shall give a crisp sound that is the indication that it has cut off the power supply of the secondary winding. Should the motor fail to start or should the centrifugal switch not give its usual noise, both capacitor and switch should receive careful inspection after the motor has been put off mains.

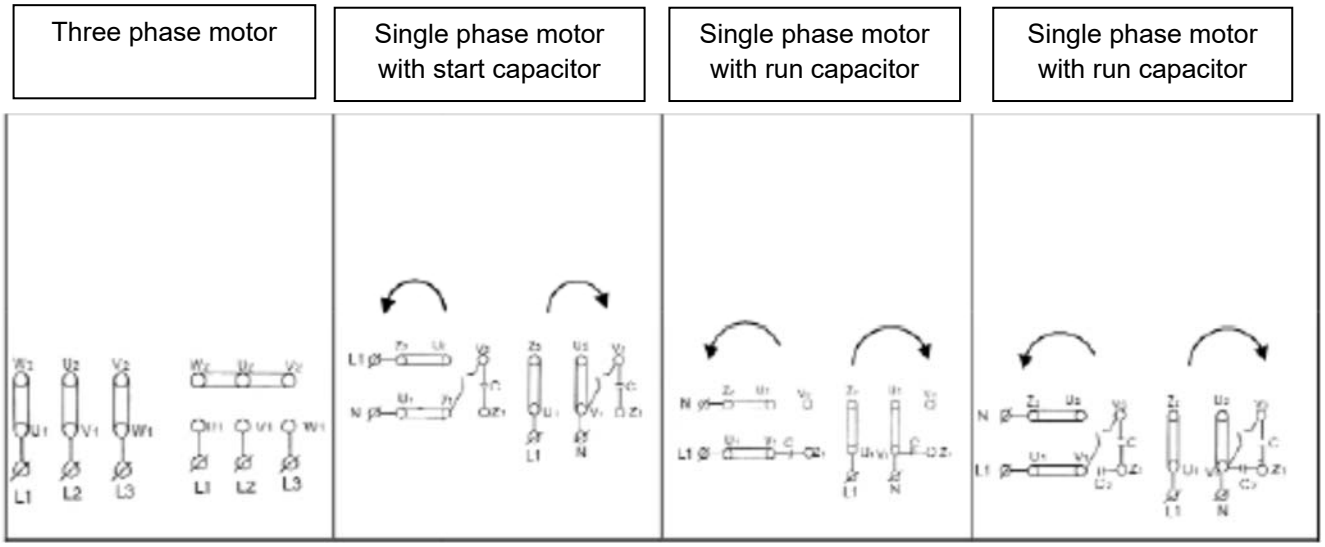
As a rule, to ensure reliable operation, the motors should be overhauled at regular intervals, usually once a year.

NOTE : The motors should be handled by qualified people. Please ensure that shaft, and the electrical terminals are connected properly. The normal rotation of the motor is clockwise facing the shaft end. If connected incorrectly, it may reverse rotation, causing a hazard to machinery and personnel. Therefore, please check the rotation of motor before connecting it to driven unit. SERMES guarantees that its motors comply with this instruction manual. The removal of parts or dismantling of the motor will automatically void this warranty.

The above instructions are valid for the motor you have purchased. The supplier reserves the right to alter these instructions.

Please contact your dealer for items not covered in this manual.

5.11 Connection diagram



6. Dismantling and recycling

When dismantling a unit, be sure to keep in mind the following important information:

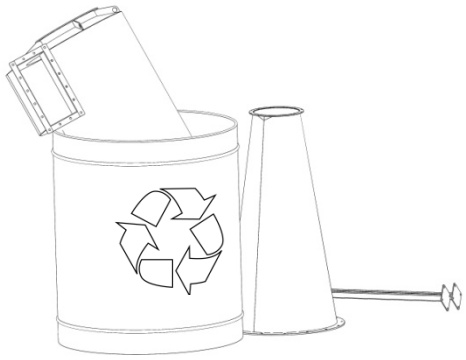
As the unit is dismantled, set aside all still functioning parts in order to re-use them on another unit.

You should always separate the different materials depending on their type : iron, rubber, oils, greases, etc…

Recyclable parts must be disposed of in the appropriate containers or brought to a local recycling company.

The rubbish must be collected in special containers with appropriate labels and disposed of in compliance with the national laws and/or local legislations in force.

CAUTION! It is strictly forbidden to dispose of toxic wastes in municipal sewerage and drain systems. This concerns all oils, greases, and other toxic materials in liquid or solid form.



7. Spare parts

For spare parts please contact Formula Air Group.

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