



THGT-HATCH



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1. GENERAL

1.1. WARNINGS

This manual provides information and instructions for the correct lifting, installation, operation and maintenance of this fan series.

The manufacturer; Soler & Palau Sistemas de Ventilación S.L.U. accepts no responsibility for costs, breakages, accidents or any inconvenience caused by failure to comply with the instructions contained in this manual, general codes of practice or due to improper use.

The units referred to in this manual have been manufactured in accordance with rigorous quality control and international standards.

This instruction manual contains important information and must be read carefully by competent persons prior to any handling, transport, inspection or installation of this product. Every care has been taken in the preparation of the instructions and information, however, it is the responsibility of the installer to ensure the system complies with relevant national and international regulations, especially safety.

The purchaser, installer, user is responsible for ensuring that the unit is installed, operated and serviced by competent and qualified personnel, acting in accordance with all safety precautions applicable and as required by law, regulations and standards in the country applicable.

This unit is designed and manufactured in accordance with EC Machinery Directive 2006/42/EC. Safety guard and other accessories are available from S&P if required due to specific installation.

This unit is designed for use in standard atmospheric conditions as defined in IEC 60079-0, and clean ambient air or ducted air conditions within, -5°C to +50°C, unless stated otherwise.

S&P manufactures various fan equipment with a sourced / sub-supplier motor. **Only S&P supplied spare parts are to be used for all fans.**

For “high temperature” fans, no modification or repair may be made, without prior agreement with manufacturer, especially with regard to motor, gap between rotating parts / impeller and fixed fan parts / casing, as well as the HATCH opening system. Doing so may result in void warranty.

Any work including transport, installation, inspection, maintenance, service spares replacement, repair and final end of life disposal must be carried out by competent persons and supervised by competent executive.

EC declaration of conformity is available as separate documentation to the fan product.

This Instruction manual is subject to modifications due to further technical developments of the fan described, images and drawings may be simplified representations. Due to improvements and modifications the fan operated may differ from the representations.

S&P reserve the right to vary the product without prior notice.

1.2. SAFETY INSTRUCTIONS

Safety on site is responsibility of competent personnel and in accordance with applicable International, National and Local regulations. This unit should be electrically isolated and locked out before any work started.

- Safety guard accessories are available from S&P if required due to specific installation.
- Safety protective clothing, equipment, hearing protection, and tools may be required.

Safe selection

- Fan equipment shall be selected based on competent users / employers / competent person, data.
- User's electrical supply, air duty, and any relevant data, for example if speed control is required, must be considered.
- All fan data applicable to “Standard Air” with inside ambient air / ducted air temperature within range, -5°C to +50°C unless stated otherwise.

Safe ventilation

- Ensure adequate ventilation available to fan and motor. Working ambient inner temperature for this fan series should not be exceeded, typically this will be within -5°C to +50°C, unless stated otherwise.

Safe operation

- This emergency ventilation fan and motors are suitable for S1 duty cycle, and one off emergency smoke operation (dual purpose). The fan motor power supply must be designed to accommodate any motor protection devices, where applicable, for S1 duty cycle. Ensure these devices are fitted and operating correctly.
However, for emergency smoke extract the fan is designed and certified to run at the stated temperature and time, or to destruction. Therefore, all motor protection devices must be disabled or bypassed under such event.
Power supply should be via a protected source to enable fan to run under emergency fire smoke conditions. In case a VSD is used for normal ventilation, it shall be bypassed in this scenario, leaving the fan in Direct on line supply.
- If fan is not to be operated for long periods of time, it should be run as prescribed by local regulations, or as minimum 15 minutes each month, to ensure safe operation.

- Ensure system operation is safe in event of power cut / power outage / disruption to power supply. If ventilation is stopped due to disruption to power supply, ensure no risk due to build-up of hazardous substance, excessive temperature etc. Care may be needed when restarting fan after disruption to power supply.
- If the fan shall be operated also for daily ventilation, this shall be subject to weather conditions at the time. It may be recommended to install wind and/or rain sensors, so that the HATCH will not open in order to prevent rain ingress or damage to the opening mechanism due to strong wind. However, these sensors shall not have any priority whatsoever in case of fire emergency. Under such event, the THGT-HATCH shall operate regardless of the weather conditions.

Safe installation

- Avoid risk of foreign objects, debris being drawn into, or falling into fan impeller.
- Ensure no objects or tools remain resting on the HATCH's frame, as the cover or opening mechanism may be damaged when closing.
- Allow safe access to fan for inspection, maintenance, replacement of parts, cleaning, especially for dust hazards.
- Access with suitable lifting to repair in-situ, should be provided, greater than largest impeller / motor dimension
- Ensure all necessary safety guards are fitted and secure to prevent injury.
- Axial fans should be installed with clear, unobstructed airflow upstream and downstream, if flexible connectors are fitted on the inlet side to minimize vibration transmission, these should be taught and not encroach into airstream to disrupt airflow.
- The THGT-HATCH shall be installed so that any prevailing winds will blow against the opening motion.

Safe commissioning

- Installer to ensure safe to start fan and commission, which may include determination of installed air duty and system pressure if the fan inlet is connected to ductwork.

Safe maintenance

- The user is responsible for effective maintenance, replacement of parts, cleaning, especially where dust may form inside the fan.
- Do not remove safety protection guards or open access doors when fan is in operation, or if hazardous substance is present. Fan equipment should be electrically isolated and locked out before any access or work is started.
- Refer to specific motor Instructions for further guidance.

Support

- If there is any problem with this unit contact your local S&P Distributor. S&P reserve the right to make modifications without prior notice.

Safety risks – summary list

- Installation: incorrect installation or function represents a risk to safety.
- Rotational speed: identified on fan name plate and motor. Never exceed this speed.
- Rotation of impeller: identified on fan with direction arrows. Do not run impeller in reverse.
- Working temperature: identified on fan nameplate and motor for S1 duty cycle. Never exceed this range.
- Protection devices: These should always be operational and never disconnected for S1 duty cycle.
- Electrical risks: motor name plate data should never be exceeded, effective connection to earth, and all checked regularly every 6 months.
- Power supply should be via a protected source to enable fan to run under emergency fire smoke conditions, Direct on line.
- Foreign bodies: ensure no risk from debris, or material that could be drawn into fan.

1.3. TRANSPORT, LIFTING

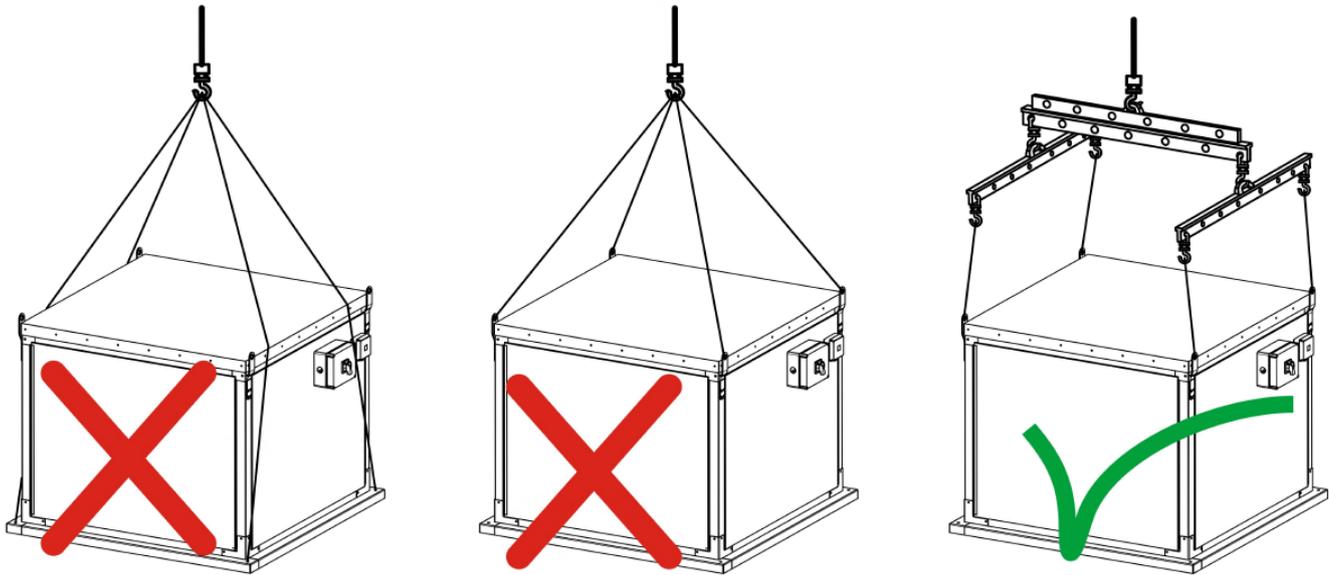
Transport and lifting must be carried out by competent personnel and in accordance with applicable International, National and Local regulations.

When transporting this unit, recommend that:

- Fan equipment and packaging are protected from adverse atmosphere, especially water, sand, dust, vibration and excessive temperature.
- The fan should be protected from any impact, or risk of damage.

When lifting / moving this unit, recommend that:

- All identified fan lifting points are used to support weight and ensure safe transport via hoists, sling, spreader bar as appropriate, without damage. Follow lifting diagram affixed to the unit's side. Maximum included angle of any support sling must not exceed 30°.
- All slings or lifting forks under the fan equipment are safe, and spaced to avoid tipping or slipping or damage to fan equipment.
- Any lifting equipment must be safe and of suitable capacity for weight and size, plus lift distance.



1.4. STORAGE

Storage must be carried out by competent personnel and in accordance with applicable International, National and Local regulations. Recommend that this unit is installed upon delivery, however, if this is not possible then storage must be controlled.

Storage must be in a safe, flat, controlled environment to prevent damage, especially from water, sand, dust, moisture, corrosion, temperature, etc... Recommend that duct connections (inflow and outflow) are closed to avoid dust/debris entering the equipment.

These data may also apply to an installed fan, which is not put into operation for extended period.

- Avoid situations of extreme heat or cold.
- Manually rotating the impeller every two weeks.
- Check proper function of motor bearings.

2. PRODUCT DESCRIPTION

2.1. TECHNICAL SPECIFICATIONS

Combining a motorized hatched enclosure and a mechanical extract fan, the THGT-HATCH is a roof-mounted unit designed for vertical smoke extract in fire conditions. F400-120 certification for dual purpose as per EN 12101-3 (0370-CPR-3963).

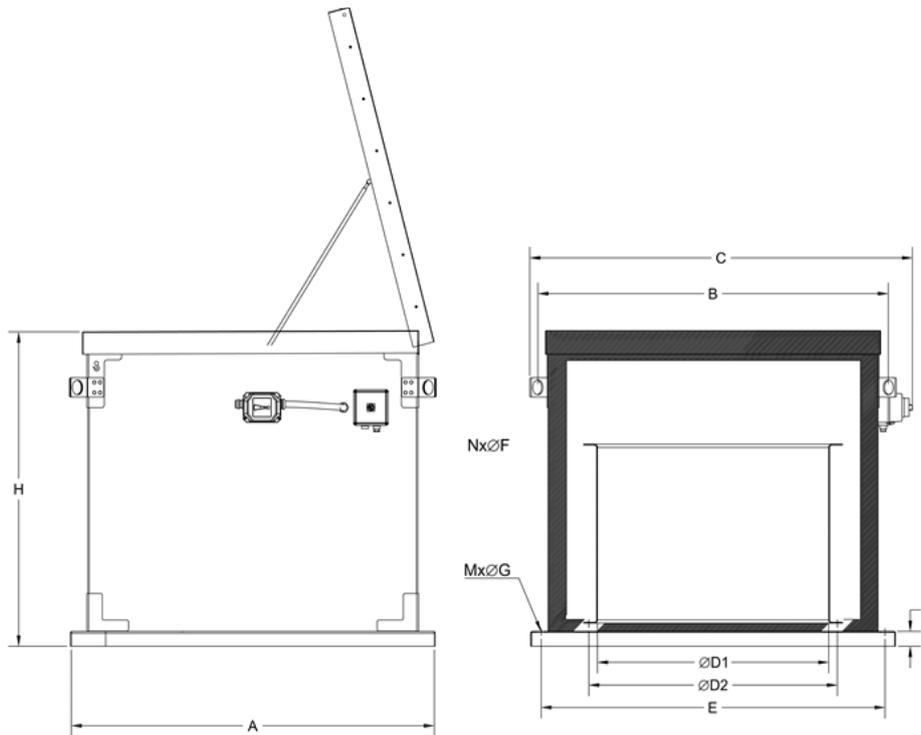
Designed and built for ease of installation and commissioning, energy savings and to withstand severe weather conditions. General specifications would include:

High corrosion resistance through hot dip galvanized finish for casing and motor support.

Dynamically balanced impellers, made of high grade aluminium blades and hubs. Hubs also made from pressed steel sheet, depending on the diameter and temperature requirements.

- Standard design base for roof curb mounting. Mounting through roof on beams or purlins possible with JBS-HATCH accessory.
- Air tightness < 3m³/h/m² @ 50Pa.
- Insulation value U = 0,42W/(m²K) thanks to thermal break.
- Snow Load SL 1000.
- Wind Load WL 200.
- Ambient inner temperature -5°C to +50°C.
- Opening mechanism for 20,000 cycles. Includes contacts for open/closed position monitoring.

2.2. DIMENSIONS



Size	Model	Dimensions (mm)											
		A	H	B	C	ØD1	ØD2	E	N	F	M	G	J
1	500	1076	1058	1032	1143	500	560	1009	12	12	4	14	50
	560					620							
	630					690							
2	710	1256	1058	1212	1325	710	770	1190	16	12	4	14	50
	800					860							
3	900	1455	1164	1412	1550	900	970	1390	16	15	4	14	50
	1000					1070							
4	1120	1704	1394	1662	1815	1120	1190	1640	20	15	4	14	50
	1250					1320							

Note: weight of the particular unit is highly dependent on the in-built THGT motor.

3. INSTALLATION

3.1. PRIOR

The unit shall be installed, operated and serviced by competent and qualified personnel, acting in accordance with all safety precautions applicable and as required by law, regulations and standards in the country applicable. THGT-HATCH is a roof unit. It may be installed onto a specific base or frame for this unit, or directly on the roof on (requires JBS-HATCH mounting accessory). Consider the following for proper installation / safety:

- The unit is electrically isolated before any work is started.
- The unit's HATCH cover is closed.
- Ensure sufficient load capacity or strength to support the unit, wind effects, potential vibration...
- Avoid severe wind or exposure to turbulence, dust, moisture and weather influences.
- Surface must be solid, level, flat and stable. Maximum roof fall shall not surpass 5°.

3.2. INSTALLATION

The unit should be located in position, and assembled with any accessory equipment supplied, on relevant mounting, safety protection guards when applicable, on a solid level base to avoid any distortion and misalignment. Consider all necessary weatherproofing material or sealant when doing so.

Use the corner holes to affix the unit to the base/frame on the roof with bolts or studs.

In case ductwork or accessories are to be connected to the intake side of the fan, the lower area of the unit presents a flat flange provided with all necessary bolts. If flexible connectors are to be installed, these shall be suitable for high temperature and must be taught to ensure no disruption to air flow or vibrations.

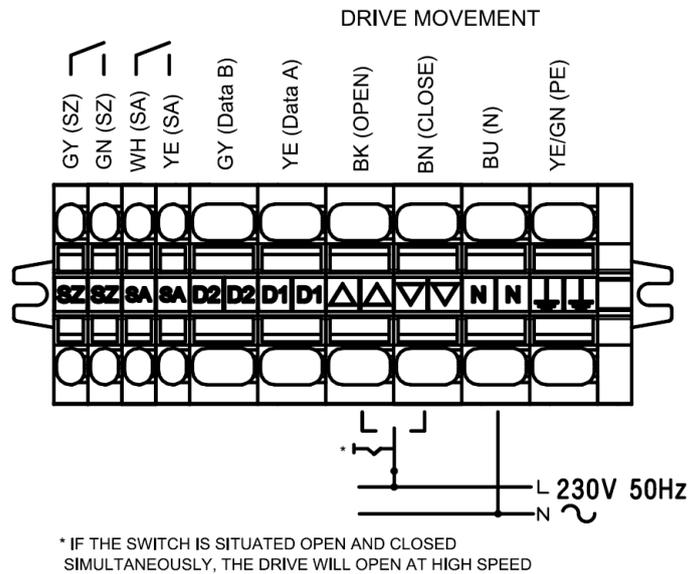
3.3. ELECTRICAL CONNECTION

The electrical connection of this unit is divided in two parts: actuators for the HATCH, and the motor of the FAN. For both parts the diagrams provided inside their respective terminal boxes shall be followed.

Consider a recommended time to fan start of 30s after the cover has started to open.

HATCH

The HATCH cover is operated by two 220-240V IP65 actuators, which may indicate the fully open / fully closed position. Remove the cover of the terminal box to carry out the connection as shown in the following diagram.



The SZ and SA contacts are for “open” and “closed” position respectively, for remote monitoring. Note these signal only the final position of the cover, not while in transition from one position to the next.

The Data B and Data A correspond to the communication bus.

Consider a normal open/close full cycle may take up to 3 minutes.

FAN

The terminal isolator box is supplied with a cable gland for typical electrical power cable connection, to assist installation. However, if installer uses a cable requiring a differing cable gland, this is to be supplied by the Installer, no alternative is offered by S&P. The Installer is responsible to ensure that cable, and cable gland, are suitable and safe for application according to country regulations.

Ensure system operation is safe in event of power cut/power outage/disruption to power supply. If ventilation is stopped due to disruption to power supply, ensure no risk due to excessive temperature (electrical heater). Care may be needed when restarting fan after disruption to power supply.

Motor protection is to be provided by the installer.

Ensure the isolator is in OFF position before and after carrying out the connections, in order to prevent sudden activation while the HATCH cover is closed. Carry out the connections following the wiring diagram affixed to the inside of the box’s cover.

The fan motor power supply must be designed to accommodate any motor protection devices, where applicable, for S1 duty cycle. Ensure these devices are fitted and operating correctly.

However, for emergency smoke extract the fan is designed and certified to run at the stated temperature and time, or to destruction. Therefore, all motor protection devices must be disabled or bypassed under such event.

Power supply should be via a protected source to enable fan to run under emergency fire smoke conditions. In case a VSD is used for normal ventilation, it shall be bypassed in this scenario, leaving the fan in Direct on line supply. If the VSD considered is included in the fan’s high temperature certification, the bypass and Direct on line supply may not be necessary.

Motors with speed control via Variable Speed Drive (VSD) Frequency Inverter, should not be run in excess of nameplate speed. In general applications, we recommend not to run at less than 20% of nameplate speed without reference to manufacturer, since this may damage the motor. However, the fan shall not operate below 40% of its nominal rpm (20Hz).

Consider the addition of sinusoidal or EMC filters depending on cable length from VSD to the terminal box.

4. COMMISSIONING

4.1. PRIOR

- If the fan is accessible to operators and there is a health and safety risk, adequate protection must be fitted; information for safety equipment, including guards, can be found in S&P accessories catalogue.
- Ensure the isolator is in OFF position.
- Check fan equipment name plate data is appropriate to the location electrical supply, especially Voltage, Frequency, Phase, Amps, speed are correct. All safety and protection devices have been fitted and are functional.
- Check earth connections, electrical terminations and terminal box lid, with any seals, if fitted, are correct.
- Check all rotating parts have free, unobstructed movement.
- Check there are no foreign bodies inside the fan or that can be drawn into, or fall into fan.
- Check the structure is complete and has no damage.
- Check installation and area is safe.
- Check all aspects regarding fire safety are compliant with local applicable regulations, that all procedures have been followed and all necessary inspections have been carried out.

4.2. START UP

- Activate HATCH cover mechanism and have it complete a full open/close cycle. Check that it takes circa 3min. Return the HATCH to "open" position.
- Start the fan motor briefly and switch it off. Check that the impeller and airflow direction is correct. In case it is not, swap two phases of the electrical connection.
- Once the rotation is correct, start the fan again and check current does not exceed fan equipment nameplate data. Check also for any abnormal noises and/or vibrations
- After two hours of operation, check that all fixings and supports/bases are tight and adjust if necessary.
- Set up the activation sequence of the THGT-HATCH unit so that the fan starts 30 seconds after the cover starts to open.
- Return the HATCH cover to its "closed" position.

5. MAINTENANCE

Maintenance/repairs must be carried out by competent personnel and in accordance with applicable International, National and Local regulations. The unit should be electrically isolated before any work is started.

Fan equipment should be regularly cleaned, frequency depending upon service load and application, but no less than every 6 months. Units installed in dusty environments may require more frequent cleaning to ensure safe operation. Cleaning should include all areas where dust can accumulate in the fan equipment.

Special attention should be made to any unusual sounds, vibration or temperature. If any problems are detected the unit should be stopped immediately and cause inspected. The impeller and blades should be regularly checked.

Typical checks would be:

- **Typical one (1) month check:**
 - Correct HATCH cover open/close motions.
 - Motor bearings are sufficiently lubricated, all fixings tight, especially impeller locking bolts, support fixings and motor assembly.
 - Safety guards are correctly affixed.
 - All rotating parts have free unobstructed movement.
 - No debris or foreign bodies inside fan or can be drawn into fan.
 - Fan equipment is clean inside and outside casing.
 - Dedicated Emergency Ventilation Fans should be run minimum for 15 minutes.
- **Typical three (3) month check:**
 - Electrical earth connection tight and safe.
 - All fixings are secure.
 - Analyse fan / motor vibration and compare with past readings, and typical action levels in Annex 4: Table of vibration levels.
 - Re-lubrication, if required, in accordance with instructions.
 - Emergency Ventilation fan systems should be run and checked.
- **Typical twelve (12) month check:**
 - Emergency Ventilation fan systems should be run and operation certified

Re-lubrication of motor bearings, where applicable, should be carried out in accordance with specific motor Instructions. **Warning; do not mix different types of grease.**

Vibration sensing, or regular analysis of vibration levels, provides an early indication of potential wear, unbalance, or early warning of breakdown. Readings should be taken at bearing, 90° to shaft center line, on a clean flat secure surface. If access to motor is not possible (motor in airstream) then a suitable external location may be identified for comparison.

The basic principle of condition monitoring is to monitor a suitable measurement, so that any upward trend can be detected and taken as an indication that a problem exists. Thus it is important to:

- A. Identify initial installed vibration level.
- B. Select vibration measuring points.
- C. Determine the interval for measurements.
- D. Establish data recording system.
- E. Establish criteria for assessing condition of fan.

Guidance to vibration action levels may be found in ISO 14694 Industrial fans – Specifications for balance quality and vibration levels.

Regarding repairs and spare parts, contact your local S&P distributor.

6. PUTTING OUT OF SERVICE AND RECYCLING

Disposal must be carried out by competent personnel and in accordance with applicable International, National and Local regulations.

Isolate unit equipment and any associated electrical equipment and lock off. Remove electrical connections.

Disconnect the unit from any duct connections and cover connections with plastic sheet to prevent exposure to any residue material in fan equipment, and any contamination of ducts.

Dismantle and dispose in accordance with applicable National and International laws and regulations, those parts whose service life has expired.



EEC legislation and our consideration of future generations mean that we should always recycle materials where possible; please do not forget to deposit all packaging in the appropriate recycling bins. If your device is also labeled with this symbol, please take it to the nearest Waste Management Plant at the end of its service life.

The unit is mainly made of steel, copper, ferrite, aluminium, plastic and rockwool. These components should be recycled in the following categories:

- Steel and iron
- Aluminium
- Non-ferrous metals
- Plastics
- Insulating materials
- Cables
- Electronic scrap

To clarify any questions regarding S&P products contact your local distributor. For its location and to obtain the EU Declaration of Conformity and certified technical data see our web site www.solerpalau.com.



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Ref. 9023087100