



AUTOMATIC FIRE SUPPRESSION SYSTEM T SERIES

USER MANUAL

IMPORTANT! PLEASE READ CAREFULLY.
This user manual contains important information about the BlazeCut T Series fire suppression system, its use, operation, installation and maintenance.

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PACKAGE CONTENTS

- BlazeCut T Series Fire Suppression System with a pressure gauge
- High temperature cable ties (+125°C) for installation
- General warning label TLA001
- User manual and information about the substance
- BlazeCut logo sticker

FIRE CLASS RATING

Extinguishing agent may be used for the following classes of fire (European Classification):



CLASS A:
Ordinary combustibles
(creating flames)



CLASS C:
burning gases



CLASS B:
Flammable liquids



**Energized
electrical equipment**

FIRST AID MEASURES

In case of direct contact with the extinguishing agent, follow the instructions below.

General Information

In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:

Move the person to fresh air and keep at rest in a position comfortable for breathing. If the person is not breathing or if breathing is irregular or breathing has stopped, administer artificial respiration or oxygen by trained personnel. Loosen tight clothing such as collar, tie, waistband, and belt. Do not administer adrenaline and its derivatives. Seek medical attention immediately.

Following skin contact:

Flush/irrigate the affected area with large amount of water. Do not use hot water. Remove contaminated clothing affected by extinguishing agent. If you experience frostbite, seek medical attention.

Following eye contact:

Carefully flush/irrigate with water for several minutes. If possible, remove contact lenses, if they are inserted. Continue flushing. Seek medical attention.

Following ingestion:

Ingestion is not considered a potential route of exposure.

IMPORTANT! Always ventilate the area after activation.

CERTIFICATION

The safety and performance of the BlazeCut T Series system was confirmed by various independent bodies. Certificates or further information is available from the local BlazeCut agent or at www.blazecut.com.

WARRANTY AND LIFESPAN

BlazeCut T Series has a 2-year warranty.

A lifespan of up to 10 years can be achieved in non-harsh environments. Please note that this may reduce in unstable and harsh environments.

MAINTENANCE

The BlazeCut T Series does not require any special maintenance. It is recommended to visually inspect the system and its state at operating temperature, between every month and three months dependent on the type of environment it has been installed in. During the movement of the tube, bubbles of gas in the extinguishing agent will be visible. This indicates that extinguishing agent is in the tube and the BlazeCut T Series is functional.

SYSTEM PRESSURE INSPECTION

It is recommended to inspect the pressure of the tube when the equipment is at operating temperature.

Due to physical and chemical properties of the agent, pressure in the tube can vary depending on the ambient temperature. The higher the ambient temperature, the higher pressure in the tube and vice versa. At very low temperatures the pressure of agent vapors is close to zero.

Indicator on the pressure gauge can vary from 0 bar (0 psi) when temperatures are very low to 17 bar (247 psi) when temperatures are very high. This is not a sign of defect in the system.

CASES WHEN THE BLAZECUT SYSTEM MUST BE REPLACED

- The system is leaking, was used or emptied from other reason.
- The system was exposed to direct fire.
- The tube shows signs of damaged.
- Metal parts of the enclosure are corroded or shows visible signs of damage.

INSTRUCTIONS FOR PROCEDURE AFTER SYSTEM ACTIVATION

Extinguishing agent does not leave residue. Ventilate the protected enclosure properly, do not enter in the area before ventilation. Remove the used system from the protected enclosure. The same procedure should be followed after the release of extinguishing agent from other reasons (system damage etc.).

In case of fire the system activates automatically burning the tube without previous warning. In case of fire do not come into direct proximity of the system, there is a risk of being affected by extinguishing agent.

In case of activation of the system do not enter the protected enclosure and do not open the covers of the protected enclosure, wait for total release of extinguishing agent.

PRODUCT DISPOSAL

Discharged system consists of recyclable materials. Please dispose of this product responsibly and recycle where possible. Dispose discharged system according to local waste management regulations.

For proper recycling, return charged systems to your local BlazeCut agent.

IMPORTANT! Never dispose charged systems with the extinguishing agent to waste.

NEED SOMETHING MORE?

If there is a requirement for electronic monitoring, external alarm or a larger system, these are available.

Please contact: technical@blazecut.com

INSTALLATION INSTRUCTIONS

If the BlazeCut T Series system is installed in the engine compartment, the system can be placed either on the engine hood or directly into the engine compartment (see figures below). To secure optimal fire suppression effect, it is necessary to determine which option is more suitable in the given engine compartment. For example, if the engine is inside a plastic cover, it is recommended to install the system directly into the engine compartment under the plastic cover.



Installation on the engine hood



Installation into the engine compartment

1. The tube in the retail packaging is secured with cable ties. Cut the cable ties carefully, avoiding damage to the tube. Dispose of the silicone and plastic cushions used for packing purposes.
2. The package contains high temperature cable ties for installation in the protected enclosure. It is possible to use PVC dipped or rubber insulated metal clamps to prevent detachment of the tube in case of a fire. Do not use a steel fastening material for installation. If in direct contact, steel clamps, steel cable ties or wire will cause heat concentrations on the pressure tube. This can result in a lower temperature/false actuations.
3. Place the BlazeCut T Series in the proximity of the protected enclosure where the risk of fire is greatest (in the area of engines, systems containing flammable liquids or gases, protected objects, electrical installations, connections, circuit breakers, inductors, batteries etc.).
4. Bend the tube to shape for the installation. A minimum bend radius of 160mm (6.30 in) must be maintained.
5. The BlazeCut T Series cannot directly contact parts or be in proximity of parts that heat to temperatures exceeding 90°C (194°F) during operation (e.g. engine, turbocharger, exhaust manifold, hot parts of inductors etc.).
6. If there are doubts on the operating temperature exceeding 90°C (194°F), measure the max ambient heat in the area where the tube is to be installed. The tube may not be in direct proximity, but the radiant heat rising to the top of the engine bay or enclosure may exceed the maximum 90°C (194°F) limit, causing a false actuation.
7. For maximum efficiency, do not place the BlazeCut T Series behind barriers that could restrict or prevent direct penetration of extinguishing agent into the protected enclosure.
8. Proceed carefully with the installation, so no damage is caused to the tube by sharp objects. Do not break or crimp the tube. Make sure that the tube will not damage after closing the doors or covers of the enclosure (e.g. after closing the engine hood, installation of covers or enclosure etc.). No part of the system should be hit by moving parts (engine fans etc.).
9. The BlazeCut T Series must be firmly mounted in the protected enclosure so that it does not move. Use included cable ties or PVC dipped/rubber insulated metal clamps. The maximum distance between the mounts shall not be more than 250 mm (9.84 in).
10. Fasten the system to fixed interior parts of the protected enclosure. Do not fasten to parts, which move during operation of the vehicle or enclosure. Make sure that the cables ties or clamps are not damaged during operation of the vehicle or enclosure. If the BlazeCut T Series moves out of place after installation, the extinguishing effect of the system may be decreased and part of the entire protected enclosure may be damaged.
11. Install the system so that it is not exposed to aggressive chemical substances (caustic, acids, solvents, corrosive substances etc.) and avoid direct influence of weather conditions and direct sunlight.
12. When fastening the system make sure not to damage other parts of the vehicle or enclosure.
13. After installation, place the general warning label (TLA001) on a highly visible area of the protected enclosure. The label should be placed on an even smooth surface. Clean the surface thoroughly before sticking. Do not place the label in areas reaching high temperatures (engine block etc.).

DISCLAIMER

The supplier or manufacturer shall not be liable for any damage. This directly relates to health, life, property or any monetary loss caused, due to failure to comply with instructions for installation, use, assembly, maintenance, functional testing, safety, or any other instructions provided in this user manual.

SYSTEM OPERATION

Designed to protect small enclosed spaces with risks of fire. Simple and easy to install, the BlazeCut T Series system operates automatically without any external power source. The extinguishing agent is stored in a tube, which also serves to apply extinguishing agent directly to the fire at its source. When a fire occurs, the combination of heat and internal pressure causes the tube to rupture, creating a nozzle, releasing the extinguishing agent.

WARNINGS AND CAUTIONS



Please ensure that the safety instructions are fully understood before the equipment is put into service.



Do not modify any part of the BlazeCut components as this may void warranty, impair the performance of this product and cause damage or serious injury.



Always wear the appropriate protective equipment and clothing whilst installing or servicing.



The BlazeCut T Series is designed as independently operating unit. It is not possible to connect several independent systems into one unit.



The BlazeCut T Series is not compatible with other fire suppression systems, do not try to connect the system to any other equipment.



The system may be installed only by adult persons, physically and mentally capable. Incorrect interference with the system may cause malfunction of the system and provides threat to safety and health of people.



The system is under constant pressure, any mechanical interference is prohibited.



Never unscrew the pressure gauge, the sealing screw or the pressure switch mounted on the fittings.



Beware of any manipulation with the system if the system has been subjected to higher temperatures. When the system is heated (e.g. during the operation of the device), the gas pressure in the tube increases. If the pressure in the system is higher than 17 bar (247 psi) the system is reaching burst pressure. In this case, the tube must not be mechanically stressed. Release of a hot extinguishing agent under high pressure can cause serious injury. Wait till the system cools down.

Notice for system Installation, Maintenance & Removal in Australia only:



Individuals who handle a controlled extinguishing agent that is used for fire protection must hold an Extinguishing Agent Handling License (EAHL). Licensed installers and further information can be found by visiting the following: Fire Protection Industry (ODS & SGG) Board. Visit www.fpiib.com.au

TECHNICAL SPECIFICATION

Extinguishing agent:	HFC-227ea
Diameter of tube:	19 mm (0.75 in)
Operation temperature:	90°C (194°F) maximum for Tx00E models 80°C (176°F) maximum for Tx00ES models
Activation temperature:	105°C ± 3°C (221°F ± 37°F) for Tx00E models 100°C ± 2°C (212°F ± 36°F) for Tx00ES models
Activation pressure:	24 bar ± 1 bar (348 psi ± 14 psi) for Tx00E models 25 bar ± 1 bar (363 psi ± 14 psi) for Tx00ES models
Minimum bending radius:	160 mm (6.30 in)

SIZING AND SELECTION

With vehicle applications please refer to our vehicle application list instore or visit www.blazecut.com

Other applications can be calculated by a simple process:

Measure the enclosures Width x Height x Depth in metres or feet and this will calculate your m³ or ft³.

Note: the enclosure should be enclosed or have minimal vents. T Series is not suitable for open areas.

Then refer to the chart below to select the suitable length.

Model*	Volume protected at 20°C (68°F) Electrical Fires**	Volume protected at 20°C (68°F) Engine Fires**	Amount of Agent	System Length
T100E	0.46 m ³ 16.24 ft ³	0.35 m ³ 12.36 ft ³	0.25 kg ± 5 g 0.55 lb ± 0.17 oz	113 cm 44.48 in
T200E	0.91 m ³ 32.14 ft ³	0.69 m ³ 24.37 ft ³	0.50 kg ± 5 g 1.10 lb ± 0.17 oz	215 cm 84.64 in
T300E	1.37 m ³ 48.38 ft ³	1.04 m ³ 36.73 ft ³	0.75 kg ± 10 g 1.65 lb ± 0.35 oz	319 cm 125.59 in
T400E	1.82 m ³ 64.27 ft ³	1.39 m ³ 49.09 ft ³	1.00 kg ± 10 g 2.20 lb ± 0.35 oz	422 cm 166.14 in
T100ES	0.46 m ³ 16.24 ft ³	0.35 m ³ 12.36 ft ³	0.25 kg ± 5 g 0.55 lb ± 0.17 oz	120 cm 47.24 in
T200ES	0.91 m ³ 32.14 ft ³	0.69 m ³ 24.37 ft ³	0.50 kg ± 5 g 1.10 lb ± 0.17 oz	222 cm 87.40 in
T300ES	1.37 m ³ 48.38 ft ³	1.04 m ³ 36.73 ft ³	0.75 kg ± 10 g 1.65 lb ± 0.35 oz	326 cm 128.34 in
T400ES	1.82 m ³ 64.27 ft ³	1.39 m ³ 49.09 ft ³	1.00 kg ± 10 g 2.20 lb ± 0.35 oz	429 cm 168.89 in

*Additional sizes available for commercial quantities please contact your local BlazeCut agent.

Letter "S" in model designation stands for an integrated pressure switch.

** Calculated at a 7% (Electrical Fires) and 9% (Engine Fires) design concentration at an ambient temperature of 20°C (68°F) for the enclosure. Please note if a lower temperature is present the coverage potential will be reduced, please contact your local BlazeCut agent for further information.

COMPONENTS OF THE SYSTEM AND THEIR DESCRIPTION

Extinguishing Agent

Type of extinguishing agent: HFC-227ea

Chemical name: 1,1,1,2,3,3,3-Heptafluoropropane

Extinguishing agent is clean extinguishing medium, used in the BlazeCut T Series for volume fire suppression. Extinguishing effects are due to cooling and anticatalyst effect. Extinguishing agent siphons heat from fire, enters the chain chemical reaction of burning, slows this reaction and stops it.

Extinguishing agent is not toxic or poisonous, it does not have carcinogenic or mutagenic effects and it is considered environmentally accepted substitute for halon extinguishing agents.

General characteristic: liquefied gas, colorless, odorless

GWP: 3220

Although the extinguishing agent is not toxic or poisonous, unnecessary excessive exposure of persons to its influence should be avoided. Under no circumstances should persons be exposed to the extinguishing agent for more than 5 minutes also in case when the extinguishing concentration does not exceed the LOAEL level (contact your local BlazeCut supplier for more information).

During the system activation the extinguishing agent is discharged from the tube under high pressure and at very low temperature. No permanent work place should be placed less than 1 meter (3.28 feet) from the system if the system is not installed in enclosure that prevents the extinguishing agent being discharged onto the people or no other barriers are in place preventing the extinguishing agent being discharged onto the people.

If people are constantly present in the protected area, always consult the use of the system with the supplier. The system must be designed so that when the extinguishing agent is released the extinguishing concentration level which could be dangerous to people is not exceeded.

Extinguishing agent under normal (atmospheric) pressure evaporates quickly. Do not breathe vapors. Exposure to high concentrations may cause health problems: a temporary loss of nerve activity, numbness, dizziness, confusion, loss of coordination, drowsiness, unconsciousness, irregular heartbeat, palpitations, depression, fainting, weakness. Exposure to extreme concentrations of extinguishing agent may cause death without warning.

Extinguishing agent in liquid form may cause frostbite upon contact with eyes. Avoid contact of liquid extinguishing agent with eyes. For installation, inspection, maintenance and repair of the system always use eye protection - wear appropriate protective glasses with side-shields.

Extinguishing agent in liquid form may cause frostbite upon contact with skin. When leak of liquid extinguishing agent from the system is detected use appropriate protective impervious working gloves.

Extinguishing agent is subject to thermal decomposition and forms toxic products - hydrogen halides after long exposure to high temperatures in the fire area. Avoid prolonged exposure of extinguishing agent to high temperatures. After fire is indicated take precautions to avoid prolonged exposure of extinguishing agent to high temperatures. After use of the system secure the area by natural or forced ventilation. Use the system only in permissible ways required by the manufacturer.

BlazeCut Pressure Tube

Unique BlazeCut Pressure Tube has both storage and detection function which means that the extinguishing agent is stored directly in the pressure tube. The pressure tube is made of special heat stabilized plastic resistant to most of alcohols, bases, water, ethers, ketones, hydrocarbons, mineral oils, standard fuels, salt solutions, organic acids.

Always consult use of the system in application with presence of mineral acids, phenol and other aggressive chemicals with your supplier.

Pressure tube is under constant pressure. Do not damage the tube, do not puncture or throw. During transportation secure against movement. During transfer do not rub against the ground. Do not mend damaged tube. Do not store or transport in vicinity of strong sources of heat, aggressive chemical substances (caustic, corrosive substances), prevent contact with sharp objects, vibrations or loading with other objects. Store in dry and well-ventilated rooms. Protect from sunlight.

Always handle the pressure tube as if it were under pressure, unless it is directly verified that it is completely empty.

Fittings

The Fittings of the tube close the tube and keep the system under pressure. The fitting is closed by a pressure gauge on one end and sealing screw or pressure switch on the other end. The pressure switch is fitted at the factory when ordered.

Do not try to remove fittings of the tube if it is under pressure. Protect the fittings from corrosive substances during storage and transportation.

Pressure Gauge

Actual pressure in the system can be determined by reading the value on the pressure gauge, which is mounted on the fitting tube. Try to install the pressure gauge so that the pressure values can be read.

Pressure Switch

T Series models with the letter "S" in model designation have an integrated pressure switch that allows connection of signaling devices or to perform a shutdown operation at agent discharge. If you have purchased a model with the pressure switch, please refer to the Pressure Switch User Manual for more information about the pressure switch and its wiring.

HFC-227ea Extinguishing Agent is UL Recognized and FM Approved

