

# APPLICATION GUIDE

## Laser Cutters

BlazeCut Pty Ltd  
Three International Towers  
L24, 300 Barangaroo Avenue  
Sydney NSW 2000,  
Australia



### This Product Guide is for Laser Cutter users who wants to install a T Series

We advise clients to follow this product guide to make sure that the fire suppression system operates at an optimal performance and negate any risk from discharging falsely.



Also, be advised that all Laser Cutter brands are not listed and might require the user to measure the dimensions further.

*Disclaimer: The laser cutter information used in this document is for general informational purposes only. While BlazeCut strive for accuracy, we cannot guarantee that all details are current or error-free as they have been taken from public websites and other resources. Product specifications and features may change from the manufactures. Please conduct your own research as we are not liable for any discrepancies or damages resulting from reliance on this information.*

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### 1. Product Introduction: T Series

#### Introduction

Suitable for small, enclosed compartments the BlazeCut T Series is a simple, self-contained tube style fire suppression system where both detection and agent storage are contained within one single unit.



#### Extinguishing Agents

BlazeCut T Series is a clean gaseous agent system. The agent that we use are non-corrosive, no residue, high-performing, environmentally friendly and UL listed.



#### BlazeCut Company

The BlazeCut company is a fire suppression system manufacturer and specialist that delivers the latest in technologies. We focus to make safety accessible to all sectors by delivering innovative, eco-friendly, and effective fire suppression solutions. BlazeCut is the pioneer and the leader in the tube self-contained fire suppression systems.

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

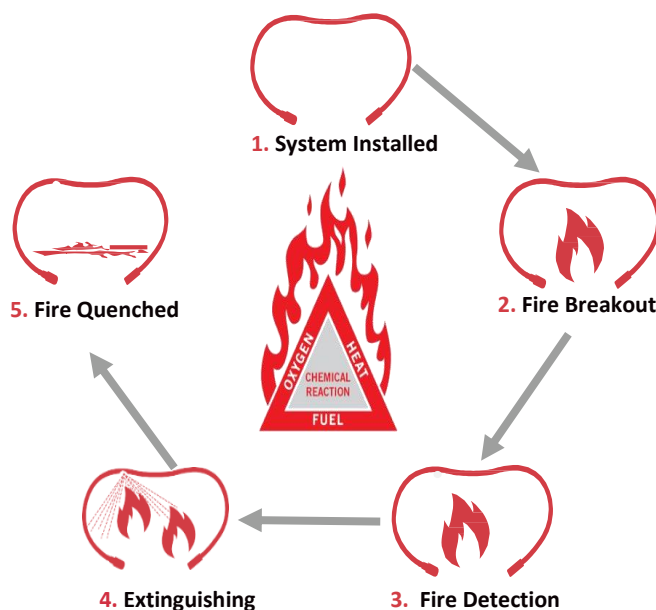


#### T Series - System Simplicity

BlazeCut™ have done extensive Research & Development to have this tube specifically developed and manufactured for the T series. This was to ensure stability; nozzle formation and performance was optimised.

#### Main Features

- No Cylinders
- No power required
- No maintenance parts
- No additional connections
- No operational input from operators
- No pressurisation for installing system
- Clean gaseous agent HFC-227ea.





### 2. Laser Cutter Fire Risks

Laser Cutters and Engravers have a high fire risk due to the nature of the operation of the equipment uses a high-powered laser beam to concentrate onto a flammable material. During operation, regular attention and maintenance is required to not only reduce the overexposure of the laser beam, but also buildup of dust and other material residue can cause fire.

While having adequate monitoring is important, if a fire arise, it's important to have safety features in place to keep yourself, home and environment not exposed to fire risk. Usually, when there is a fire, people will use a fire extinguisher to open the laser cutter lid to put the fire out, where in this case, the enclosure is flooded with oxygen creating more fire flare and a dangerous situation. Also, the powder residue from fire extinguisher can be painful to cleanup and running back to normal.



If you have a BlazeCut automatic fire suppression system properly installed, you can be sure that the risks are mitigated.

### 3. Choosing The Correct T Series Model

The T Series fire suppression system model is chosen based on the application enclosure volume. Depending on the size of the laser cutter, there are various models to cover the volume. The specific application's internal volumetric value must be calculated according to the NFPA 2001 design concentrations to calculate the required agent. You can from below table to choose the correct T Series model:

T Series Model	Highest volume coverage (Electrical)	Agent
T025E	0.09 m <sup>3</sup>	50 gr
T050E	0.18 m <sup>3</sup>	100 gr
T100E	0.46 m <sup>3</sup>	250 gr
T200E	0.91 m <sup>3</sup>	500 gr
T300E	1.37 m <sup>3</sup>	750 gr
T400E	1.82 m <sup>3</sup>	1 kg
T500E	2.28 m <sup>3</sup>	1.25 kg
T600E	2.73 m <sup>3</sup>	1.50 kg

There are 3 different main types of Laser cutters to consider for choosing the T Series.

#### Mini/Desktop Laser Engraver:

Since most of this equipment are small, the internal volume and the outer dimensions are very close. In this regard, it's easy to calculate the volume and choose the T Series products since the outer dimensions are easy to find from online sources.



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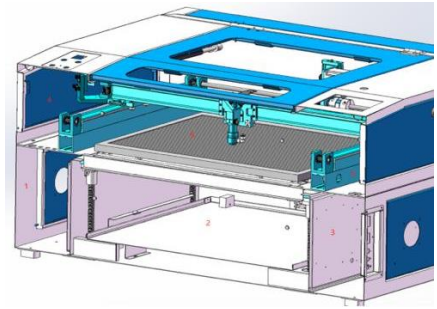


### Laser Cutters:

For Laser Cutters, the outer dimensions or the working bed dimensions are usually not sufficient for calculating the internal volume. Both the working area and the bedding area volumes must be considered for choosing the T Series.



**Ensure to measure the air volume of space under the bed**



### Laser Cutters with Fume Extractors:

For laser cutters with fume extractors, because the fume extractor could circulate out the gaseous agent during system discharge, the performance of the fire suppression system will heavily reduce. In this instance, BlazeCut recommends T Series pressure switch model that sends out a signal to turn off the fume extractor when system is discharging, creating a window of time for the clean agent to fully enclose the laser cutter to siphon the heat. Also, depending on the rpm and power of the fume extractor, additional air volume circulated before shutting off (3-5 seconds) must be additionally calculated to ensure proper design.

So, if there is fume extractor present during laser cutter operations, please consult your nearest BlazeCut representative or [technical@blazecutgroup.com](mailto:technical@blazecutgroup.com) to fit the proper model.

## 4. Application Reference Guide

No	Laser Cutter brand	Model	Internal volume	Recommended T Series Model
1	RM Laser	J630	0.27 m <sup>3</sup>	T100E
2	RM Laser	J750	0.48 m <sup>3</sup>	T200E
3	RM Laser	R960	1.15 m <sup>3</sup>	T300E
4	RM Laser	R1390	2.00 m <sup>3</sup>	T500E
5	Thunder Laser	Nova24	0.25 m <sup>3</sup>	T100E
6	Thunder Laser	Nova35	0.61 m <sup>3</sup>	T200E
7	Thunder Laser	Nova51	1.06 m <sup>3</sup>	T300E
8	Thunder Laser	Nova63	1.26 m <sup>3</sup>	T300E
9	Thunder Laser	Bolt & Bolt Plus	0.16 m <sup>3</sup>	T050E
10	Thunder Laser	Bolt Pro 22	0.32 m <sup>3</sup>	T100E
11	Thunder Laser	Bolt Pro 32	0.51 m <sup>3</sup>	T200E

## 5. Installation Accessories



TxxxES models

There are few options for installation accessories for the T Series pressure switch model that sends out a signal when there is a loss of pressure due to tube rupturing and discharging.

The pressure switch model has an integrated IP65 rated pressure switch that has a selectable switching function, so it can be set to normally open (N/O) or normally closed (N/C) state.

The output signal can be either connected to a signalling/monitoring unit or to de-energise the equipment to prevent re-ignition in higher risk areas.



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Photo	Part number	Description
	AAP310	Alarm panel <b>without</b> a fire button for T and C Series, preconfigured from factory, OK, Fault and Fire LED indication (automatic dimmer function), 9 - 36 V DC, 85 dB buzzer, IP67, -30°C to 70°C, CE, EMC tested, Integrated NO relay output, flush or external mounting, red anodized aluminium body, 55 mm diameter. Includes 1x End-of-line Resistor AER101. Can be used for T Series with a pressure switch. <b>Note: Non-programmable</b>
	AAP400	Alarm panel with a test button for T and C Series, preconfigured from factory, OK, Fault and Fire LED indication, 10 - 30 V DC, 85 dB buzzer, IP65, -30°C to 70°C, CE, EMC tested, flush or external mounting, powder coated aluminium body, 64x58x30 mm, 0.5 m cable. Includes 2x End-of-line Resistor AER106. Can be used for T Series with a pressure switch. <b>Note: Non-programmable</b>
	APB210	Panel bracket stainless steel for Alarm Panels AAP210, AAP211 and AAP310
	ABP212 or ABP224	Back-up power supply 12V or 24V for Alarm Panels AAP210, AAP211 and AAP310, includes 1 x 7.0 Ah battery. For indoor use only
	ACF001	Case for an external fuse, IP66, -20 up to 70 °C, max 10 A (for AEF001, AEF002, AEF100, AEF200)
	ACF002	Case for an external fuse, IP50, max 6.3 A (for AEF001, AEF002, AEF100, AEF200)
	AEF002	External fuse 2 A for Alarm Panels AAP210, AAP211 and AAP310
	AEF200	External fuse 200 mA for Alarm Panel AAP400
	AWB012 or AWB024	red LED dots, 12V or 24V DC, 80 dB (@1 m), IP50. -20 to +50 °C, stainless steel; suitable for fixed and mobile installations; includes ALA019 label
	ASU001	81 dB, CE, 6 - 28 V DC, CE exceeds EN54-3; suitable for indoor, fixed, low vibration installations
	ASU002	high base, 114 dB, IP44, EN54-3/CE/LPCB, 24 V DC, CE exceeds EN54-3; suitable for indoor, fixed, low vibration installations
	ASU003	high base, 101 dB(A), IP65, 18-24 V DC, CE exceeds EN54-3; suitable for indoor, fixed, low vibration installations
	ASR001	multitone with high base, 92 – 112 dB, IP65, CE/VdS, LPCB, 9 – 15 V DC, CE exceeds EN54-3; suitable for indoor, fixed, low vibration installations
	ABR001	IP65, CE, VdS, 9 – 60 V DC, CE exceeds EN54-3; suitable for indoor, fixed, low vibration installations
	ABR002	IP65, CE, R10, 12-24 V DC, -20 to +50 °C, 3 bolt mounting; suitable for outdoor mobile applications
	ASB001	97 dB, IP65, SAE J994 Type C, AMCA, UL, CE, E, 12 – 24 V DC, -40

## 6. Installing the T Series

This section will cover the complete installation of the T Series in a Laser Cutter.

### Step 1

The tube in the retail packaging is secured with high temperature cable ties. Cut the cable ties carefully, avoiding damage to the tube. It is possible to use PVC dipped or rubber insulated metal clamps in harsher environments to prevent detachment of the tube.



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### Step 2

Place the T Series on the lid of the Laser cutter which is the top area of the fire risk. The T Series can be bent with a minimum of 160 mm bending radius. The T Series can't be mounted directly on top of parts that the heat exceeds 80 °C.

### Step 3

Proceed carefully with installation, so no damage is caused to the tube by sharp objects and make sure that there will be no damage after closing the lid of the laser cutter.



### Step 4

The BlazeCut T Series must be firmly mounted in the protected equipment so that it does not move. Use included cable ties with maximum distance between the mounts shall not be more than 250 mm (10 inches). Do not fasten to parts, which move during operation of the vehicle or equipment.

### Step 5

After installation, place the general warning label (ALA008) on a highly visible area of the protected equipment. The label should be placed on an even smooth surface. Clean the surface thoroughly before sticking.

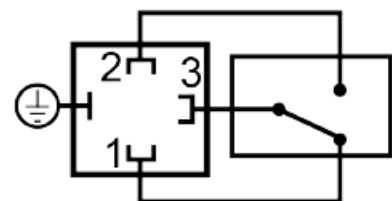
Congratulations, you've finished installing the BlazeCut fire suppression system. Please proceed below for the pressure switch model installation.



### Step 6 (Only for pressure switch model TxxxES)

The pressure switch can be used as a universal means of sending signal after a T Series system activation. External devices can be informed via the signal (alarm panel, sounder, beacon etc.) or automatic processes can be performed (switching off electrical current, equipment shut-down etc.) using a relay. Normal state for the pressure switch is at atmospheric pressure (e.g., unpressurised system or discharged system).

1. Connector for N/C circuit – for sending signal to an alarm panel, switching on devices (sirens, beacons) or switching off devices using an external relay
2. Connector for N/O circuit – for switching off connected devices (e.g., ventilation, that is connected in the electric circuit)
3. COM connector
4. ground connector



APS001 connector



1. Fixing screw; use a screwdriver for installation and removal of the connector. Tightening torque max. 5 Nm.
2. Electrical connector; use flat head screwdriver to remove from the connector body and connect the electrical cable.
3. Gasket
4. Sealing nut to fix the electrical cable. Below the sealing nut is a grommet. Screw the sealing nut tight to seal the electrical cable properly.



### Warnings



Install and use the BlazeCut T Series with originally supplied components. The use of external components not approved by the manufacturer, for example beacons and alarms, will not be the responsibility of BlazeCut and no warranty or claim will be acknowledged in this regard.



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



The system is not designed to be used as portable fire extinguisher. Do not try to suppress fire by holding the system in hands or sprinkling the extinguishing agent directly into the fire. Do not use the system in any other way than described in this manual.

## 7. Maintenance and inspection

The BlazeCut T Series does not require any special maintenance. It is recommended to visually inspect the system and its condition. Monthly inspections for harsh environments and up to three monthly for non-harsh environments.

### Visual inspection

During the movement of the tube bubbles of gas in the extinguishing agent will be visible at its highest point. This indicates that extinguishing agent is in the tube and the BlazeCut T Series is functional. Visually inspect the overall state of the system. Focus on possible damage to the tube, such as grooves, signs of strain (which causes the tube to change a lighter colour), dents, other deformations, corrosion of the metal parts (fittings of the tube, pressure gauge) and any other visible signs of damage. Inspect the fitting parts of the system for any leaks and signs of leakage of extinguishing agent from the system.

### Pressure inspection

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

## 8. Product warranty and compliance

### Warranty and Support

BlazeCut T Series is covered by a market leading 5-year manufacturer's warranty.

Please see the following for further details <https://blazecut.com/terms-conditions-of-warranty/>

### Compliance

As a leader in the fire suppression industry, our systems are continuously tested to ensure that the highest international standards and quality levels are met. Our product testing and quality control is approved by globally recognised testing bodies, such as the following below.



1354



UNECE R107  
Approved System



DEKRA  
On the safe side.

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1354



STU  
FEI



STROJÍRENSKÝ  
ZKUŠEBNÍ ÚSTAV

(Please refer to the following for more information: [Compliance – BlazeCut](#))

### **9. What to do after system activation?**

In case of fire in the Laser Cutter, once determined the fire was extinguished, ventilate the protected equipment properly, do not enter in the area before ventilation.

Once the fault has been identified and repaired in the equipment, remove the used system from the protected equipment and replace with a new system. The same procedure should be followed the release of extinguishing caused from other issues (system damage etc.).

### **10. Questions and Feedback**

If you have any question or feedback or simply need for product/technical support, please reach out to you BlazeCut sales representative or Customer service [customerservice@blazecutgroup.com](mailto:customerservice@blazecutgroup.com)