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Pre-Installation Guide

8005 Trotec Professional



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1 Laser Machine Requirements

1.1 Transportation and Handling

Dimensions of wooden crate	2800x2100x1500 mm 110x83x59 inch
Forklift requirement for unloading	minimum 2.000kg or 4,400 lb min. length of forks of 2 m or 7 ft

Operating outside of this temperature range can have a detrimental effect to the working life and/or performance of the system, particularly the laser cartridge. If transporting the laser system from a very cold or very hot environment to the proper operating environment, the laser system must be allowed time to adjust to the ambient temperature. To do this, assemble the system to the instructions provided, move the system to the desired area and allow to stand for two (2) hours. This will allow the system to. Rapid changes of temperature during operation can risk condensation forming within the laser cartridge and/or electronics and increases the potential risk for electronic failure.

1.2 Dimensions and Weight of machine

Dimensions machine	2.400 x 2.000 x 1.300 mm or 95 x 79 x 51 inch
Weight Machine	900 - 1.000 kgs or 1,985 lb - 2,200 lb
Min. door width	2.000 mm or 79 inch

1.3 Unloading of the crate and machine

You receive your Professional packed in a wooden crate if possible keep the packing box. You might require it in case of a return.

1. Remove the top cover of the wooden box. Then the side covers. For this work we strongly recommend to use an electric screwdriver.



Photo 1: the Professional kept in position by wooden spacers

Please note that the machine housing is reinforced only on certain positions so that a fork lift truck can lift the machine.

These positions are:

- machine front (photo 1)
- machine back

These positions are marked. Never place the forks on other positions, as this could cause severe damages on the housing and affect cutting precision as well as life expectancy of the motion system.

- Carefully lift the machine from the box floor. Please notice that you will need forks with a minimum length of 2 meters or 7 ft.



Photo 2

- Position the laser engraver on an even floor capable of carrying the machine weight. This location must meet the ambient requirements mentioned below.



Photo 3

1.4 Operating Environment and Safety

Sound pressure level	70 dB(A)
Laser safety class	Class 2
Wavelength of the laser radiation	10.6 μm
Ambient room temperature	MUST be between 15 and 25°C (58 and 78°F); not condensing

It is important to install your machine in an appropriate operating environment. This will reduce the risk of possible downtime plus increase performance and quality of output.

Follow these guidelines to ensure a proper operating environment for the laser system. Although conforming to these guidelines will greatly reduce the chance of a problem occurring, it does not guarantee it. **It is your responsibility to provide a proper operating environment.**

- Dusty or dirty air environments can damage the laser system. Keep the laser system isolated from any type of sandblasting, sanding equipment, or any other machinery that produces airborne particles.
- Avoid small, enclosed, non-ventilated areas. Some materials, after laser engraving or cutting, continue emitting fumes for several minutes after processing. Having these materials present in a confined, unventilated room can contaminate the room.

We recommend installing the laser system on a concrete floor. The floor underneath the laser system should be flat within 3mm from wheel to wheel. An uneven surface may cause a twisting of the main enclosure. This can cause motion system binding as well as engraving problems.

1.5 Electrical Requirements

Make sure that your electrical outlet is capable of providing the proper voltage, frequency and amperage that the laser system requires.

We recommend to have individual curcuits for

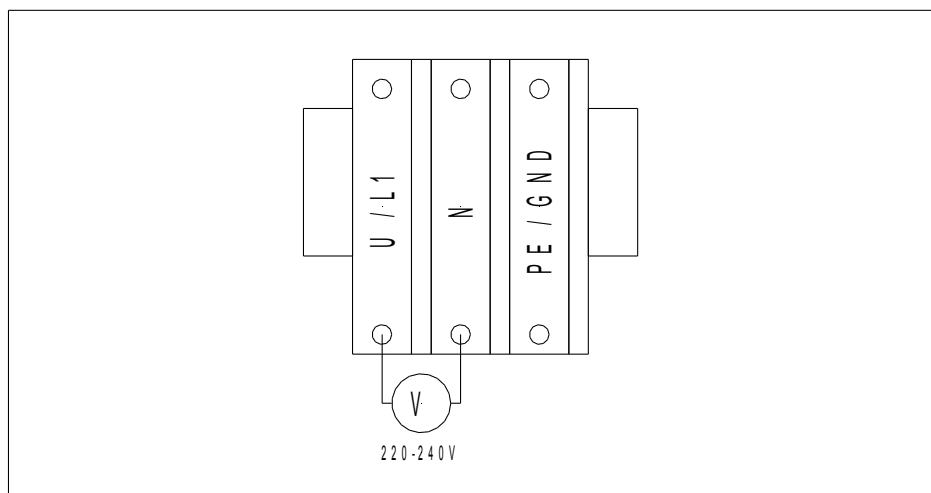
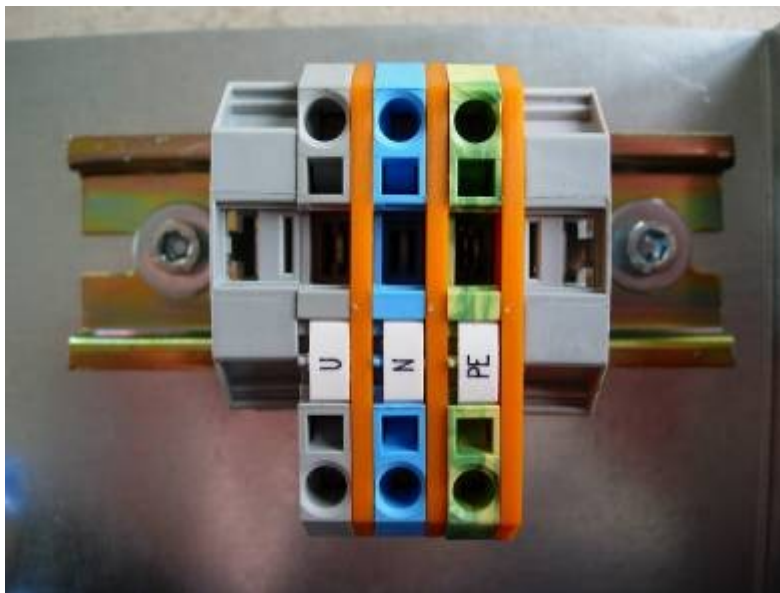
- laser engraver
- extractor
- water chiller

Please install your computer to the same curcuit as the laser engraver to prevent electromagnetic interactions!

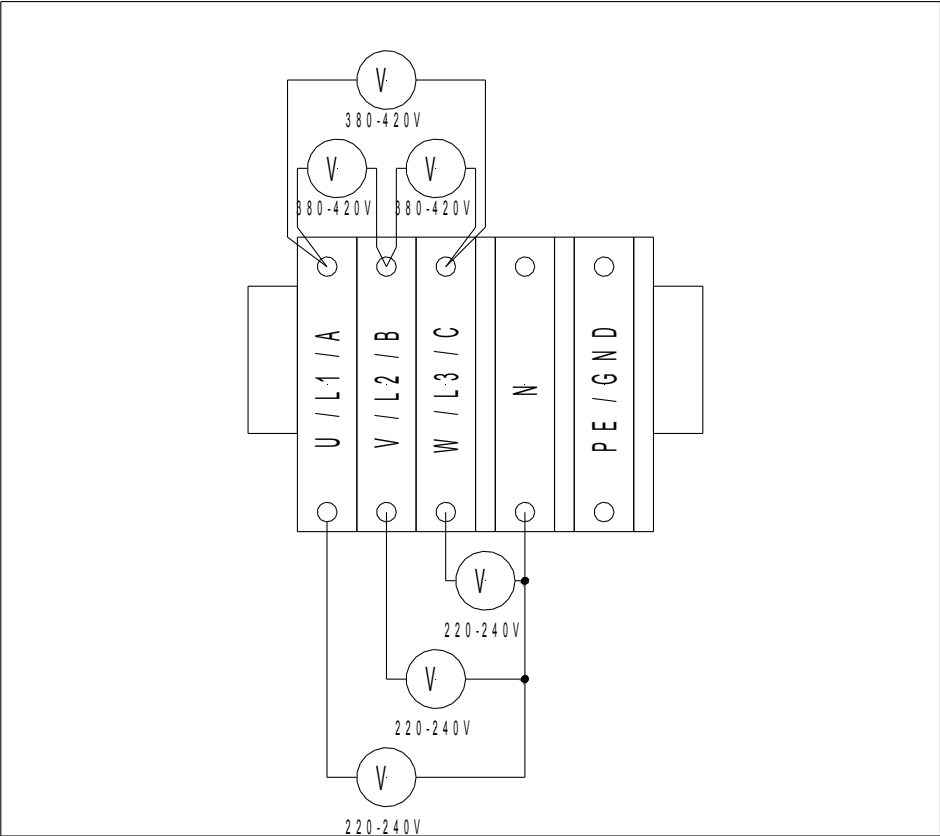
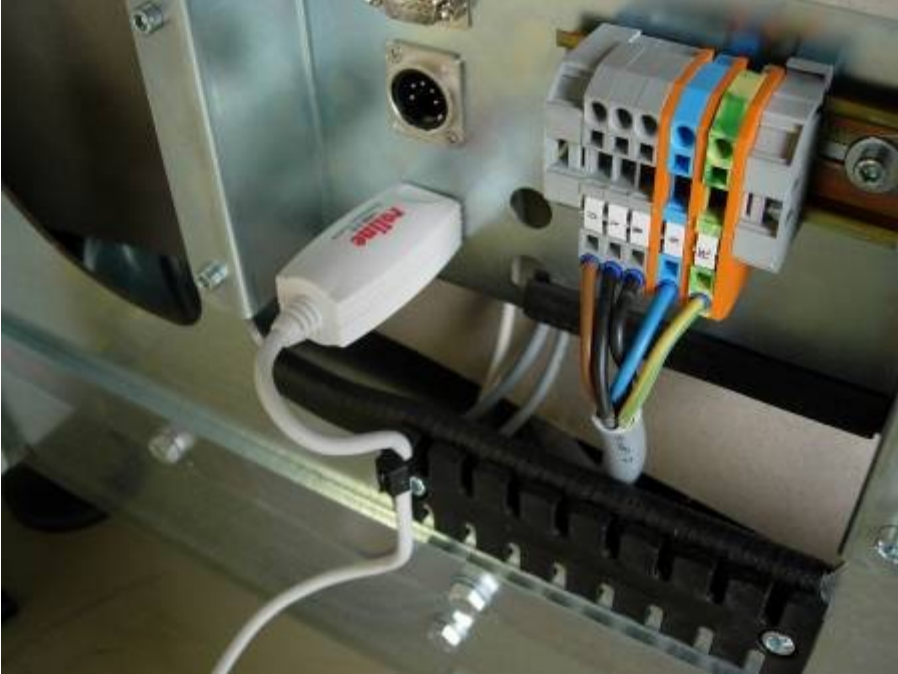
Laser Power	60W	100W	200/240W
Voltage	230V, 1ph	230V, 1ph	230V, 3 ph
Fuse	2x15A slow	2x20A slow	3x25A slow
Frequency	60Hz	60Hz	60Hz
Phases	L, N, Ground (solid neutral is required)	L , N, Ground (solid neutral is required)	L1,L2,L3,N, Ground (solid neutral is required)
Min. Cable length from supply to laser	5m or 16 ft	5m or 16 ft	5m or 16 ft
Power consumption	1300W	2600W	5200-7800W
Required cable at customers location	3x14AWG	3x12AWG	5x10AWG

1.6 Electrical Connection

a. Connection 230V (60, 100W)



b. Connection 400V (200, 240W)



DAMAGES FROM AN INADEQUATE OR INAPPROPRIATE POWER SOURCE ARE NOT COVERED UNDER WARRANTY.

Noisy or unstable electricity as well as voltage spikes can cause interference and possible damage to the electronics of the laser system. It is better to connect the laser system to a dedicated electrical line.

It is highly recommended that you use a surge suppression plugs to protect your computer equipment.

If electrical power fluctuations, brown outs, or constant power outages are a problem in your area, an electrical line stabilizer, UPS (Uninterruptible Power Supply), or backup generator might be required. If installing any of these devices, make sure that they meet the electrical requirements of the laser system.

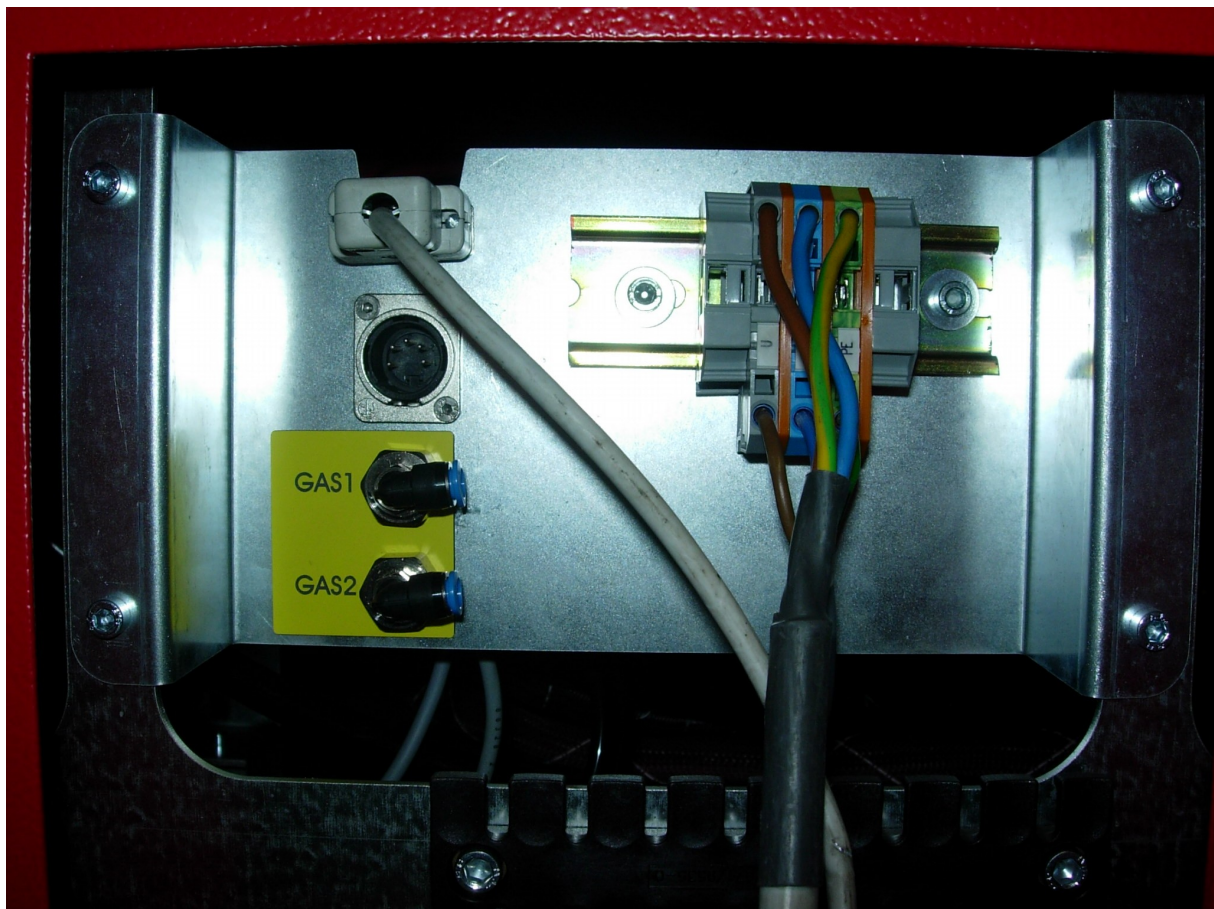
It is your responsibility to provide a suitable electrical supply.

1.7 Gas Requirements for Gas Kit

External gas is used in machines with gas assist as well as for applications where the amount of air that is provided by the internal compressor is too small.

The following requirements must be matched:
the gas must be

- free of mechanical particles (dust)
- free of liquid substances (oil, water)
- flow rate: 150 l/min equals 40gpm
- max. pressure: 10 bar (145 psi)
- the connection is a push fitting with 6 mm or 0.23 in outer diameter



2 Computer and Software Requirements

1.8 Minimum Computer Configuration

- Pentium 1000 MHz
- 512 MB of RAM
- 2 Gigabyte hard drive
- 17 inch color VGA monitor
- 3.5" floppy disk drive
- CD-ROM Drive
- Mouse or other pointing device
- Microsoft Windows XP or 2000

Remember that the laser system is an output device just like a printer is. With a higher specified computer you can create graphics and manipulate your software faster and process data faster to the laser, increasing your productivity.

When a software company updates their version of their programs, it can sometimes cause conflicts with our printer driver/manager. Our programmers constantly test new software programs and updated versions for compatibility. We will update our software/firmware to address issues that we have control of. For bugs or problems with your software not related to the laser system, please contact the software manufacturer.

1.9 Additional Computer Configuration for CCD-Camera (I-Cut)

Additionally to the above mentioned computer configuration, a PCI-card slot of 12x 9 cm or 4.7 x 3.5 in (LxH) is needed inside the PC.

RS-232 connection is required for the use of the CCD-camera.

A USB port is required for the I-Cut dongle.

1.10 Software Recommendation

The following is a list of recommended software programs.

- Graphics Software - CorelDRAW version 9 till 12 for raster engraving
- Bitmap Editing Software – Corel PhotoPaint (supplied with CorelDraw graphics suite)
- CAD Software – Licom AlphaCAM – also can convert raster to vector images.

When a software company updates their version of their programs, it can sometimes cause conflicts with our printer driver/manager. Our programmers constantly test new software programs and updated versions for compatibility. We will update our software/firmware to address issues that we have control of. For bugs or problems with your software not related to the laser system, please contact the software manufacturer.

Trotec software has been designed to interpret objects either as engraving or as cutting objects.

If you use the Trotec printer driver interface and the line thickness (object dimension) is bigger than 0.2 mm items will be engraved, if the smallest possible line thickness that your Desktop publishing program offers is chosen (e.g. 0.001mm in Corel Draw) they will be cut.

If you use CAD software for the design and transfer data via the HPGL interface, all lines will be interpreted as cut lines.

A USB-port is required for the Alpha-CAM dongle.

3 Exhaust Requirements

1.11 Specifications and Electrical Requirements of Vents

Type	VENT 2000	VENT 3000	VENT 4000
Air Flow	max. 2.000 m ³ /h max. 1170 CFM	max. 3.000 m ³ /h max. 1750 CFM	max. 4.000 m ³ /h max. 2340 CFM
Pressure	max. 1.700 Pa max. 7" WG	max. 2.200 Pa max. 9" WG	max. 3.300 Pa max. 13" WG
Motor Power	0,75 kW 0,56 hp (US)	1,5 kW 1,12 hp (US)	3,0 kW 2,24 hp (US)
Rotation Speed	2.800 rpm	2.800 rpm	2.800 rpm
Connection	Ø 160mm (6,3in)	Ø 160 mm (6,3 in)	Ø 250 mm (9,8 in)
Voltage	230 V (1 ph) or 400 V (3 ph)	230 V (1 ph) or 400 V (3 ph)	230 V (3 ph) or 400 V (3 ph)
Frequency	50 Hz	50 Hz	50 Hz
Phases	L, L, N, Ground or L1, L2, L3, Ground	L, L, N, Ground or L1, L2, L3, Ground	L1, L2, L3, Ground
Plug type	Direct	Direct	Direct
Motor Protection Switch	0.55 - 2.2 kW	0.55 - 2.2 kW	3.0 - 5.5 kW
Nominal Current	2,8 A (3 ph) or 4,8 A (1 ph)	3,5 A (3 ph) or 8,5 A (1 ph)	6,6 A (only 3 ph available)
SPL *	72 dB (A)	72 dB (A)	76 - 78 dB (A)
Weight	27 kgs or 60 lbs	27 kgs or 60 lbs	60 kgs or 133 lbs
Dimensions	438 x 488 x 410 mm 17 x 19 x 16 in	438 x 488 x 438 mm 17 x 19 x 17 in	615 x 550 x 650 mm 24 x 22 x 26 in

* according to DIN 45635 T1 in 1m (3,3 ft) distance of the Vent surface outdoors with max. air flow

1.12 Minimum Requirement for the Professional

If you choose not to purchase our internal filtration/extraction unit, to properly exhaust fumes and smoke from the laser engraving system during operation, it is

necessary for you to provide a proper exhaust system. **The high-pressure exhaust blower you choose MUST be capable of supplying the specified rate of airflow.**

Application	Air Flow	Pressure
- Little dust and smoke	min. 2.000 m ³ /h min. 1170 CFM	min. 1.700 Pa min. 7" WG
- heavy dust and smoke	min. 4.000 m ³ /h min. 2340 CFM	min. 3.300 Pa min. 13" WG
- vacuum table	min. 4.000 m ³ /h min. 2340 CFM	min. 3.300 Pa min. 13" WG

We also recommend to use fire resistant metal tubing between laser and vent plus vent and outlet.

**DAMAGE CAUSED TO THE SYSTEM BY THE USE OF IMPROPER EXTRACTION EQUIPMENT
WILL NOT BE COVERED UNDER WARRANTY**



NEVER operate the laser engraving system without a properly installed and operating exhaust system. Some materials when cut or engraved can produce fumes that are hazardous in concentrated amounts.

The exhaust blower **MUST** be mounted on the **OUTSIDE** of the building either on the roof or on a cement pad next to the building possibly mounted on vibration dampers. Maximum tubing length should not exceed 30m.

Rigid tubing should be used for 90% of the distance traveled. The tubing should be smooth walled and have as few 90 degree bends as possible. Two 45 degree bends have better airflow than one 90-degree bend. Use tubing with a diameter that matches the blower unit (usually 150mm) and use a 150mm to 90mm reducer to couple the tubing down to 90mm to within 1m from the laser system. Do not connect the rigid tubing directly to the laser system. Use a short piece of industrial grade, wire reinforced rubber tubing to connect the end of the gate, or rigid tubing, to the laser system. This will provide mobility and will dampen blower vibrations. **Do not** use the silver foil type of flexible tube, as this is not hard wearing enough. Use only a meter or so because it's spiral construction reduces airflow. Install a hose clamp on both ends of the hose to prevent leaks and to prevent the hose from slipping off. Finally, have the blower wired to a wall switch in the same room for easy ON/OFF control.

Also consider installing a gate to control airflow and to close off the exhaust from the outside environment when the laser is not in use. This is especially useful in colder climates where it can be damaging to the laser system to have cold air coming into it from the outside.

In order to meet the laser system's requirements, a high-pressure, high static pressure rated, exhaust blower must be installed. This type of blower has self-cleaning blades and can maintain airflow even though restrictions are introduced. Length of exhaust pipe, exhaust pipe diameter, number of 90-degree angles, and other restrictions must be calculated when determining the correct exhaust blower unit. Installing an incorrect or undersized blower is not only unsafe, but it can also lead to premature and excessive wear and tear to the laser system. We recommend you seek a specialist, local supplier for this equipment.

DO NOT install forward incline, backward incline, in-line, or ventilator fans because these types of air handlers are inadequate and inappropriate for this type of installation. If your contractor has any questions concerning blower specifications or exhaust system requirements, please contact our Support Department directly before installation.

4 Water Chiller Requirements

1.13 Cooling Requirements for laser tubes

Laser tube:	60W	100W	200 W	240W	400 Watt
Minimum water cooling capacity	800 Watt	2.000 Watt	4.000 Watt	6000 Watt	8000 Watt
Minimum flow rate (18-22°C)	6 Liters/min. 1.5 GPM	8 Liters/min. 2 GPM	16 Liters/min. 4 GPM	16 Liters/min. 4 GPM	16 Liter/min. 4 GPM

1.14 Electrical Requirements for chillers

Hyfra !!!!

Water Chiller for:	60W	100W	200/240W	400 Watt
Voltage	230V, 1ph	230V, 1ph	230V, 1ph	
Fuse	2x15A slow	2x15A slow	2 x 15A slow	
Frequency	60 Hz	60 Hz	50 Hz	
Phases	L, N, Ground	L, L, N, Ground	L, L, N, Ground	
Power consumption	1250W	2000W	5045W	
Water cooling cap.				