CONER

Technical and motion documentation of

a FOAM CUTTER from

ThermoCut HOBBY C1/60 series

Contents:

Introduction

ThermoCut HOBBY- a computer-controlled plotter which cuts with a heated resistance wire in materials which can be heat-treated (Styrofoam, styrodur, polyurethane foam). Thanks to digital steering of the plotter's work parameters the elements cut with our plotters are characterised with the highest precision.

A thermal plotter is a **computer-controlled** appliance using a steel resistance wire which is heated to temperature up to ca. 900°C. The heat emitted by the wire causes the material to evaporate in its closes surroundings, which results in the 'cutting' effect. Digital steering of the plotter's work parameters combined with the possibility of creating your own material libraries makes the cut elements characterised with a rare precision of making. Making use of numerous available finishing techniques allows to create an illusion of varied materials. The projects made in this way are highly attractive both visually and financially.

Technical data

Power supply:	230VAC 50/60 Hz
Power consumption:	max. 250 W
Controlling interface:	USB
Horizontal wire voltage:	max. 45VDC
Horizontal wire current:	max. 2A
Remote controlling	NO
Addressed resolution	0.01 mm
Maximum movement speed	1000 mm/min
Maximum work speed	1000 mm/min
Resistance wire cooling	NO
No. of stepper motors	4
Shaping wire	NO
Rotary table	OPTION - S10
Lathe	NO
Independent arm movement ‘perspective’	NO
Additional cutting wires	NOT AVAILABLE

Reading HPGL, DXF files
automatic combination of objects and determining the transition line between shapes
Manually controlling the plotter in X and Y axes
Manually controlling **table rotation** (option)
Possibility of defining various configurations of heat treatment
System warning about the wear of the resistance element
Simulation and preview of cutting
Scaling of projects
Continuation of cutting after wire severance

The noise level on the workstation of the thermal plotter depends on the following factors: the type of treated material and intensity of treatment. This is why we recommend making on the workstation created by your company the equivalent noise measurement Leg in a minimum 8-hour cycle, which will allow you to assess whether any action reducing the impact of the noise on the operator and other employees is necessary.

Test card for the examination and measurement of harmful factors

1	Name of factor	NOISE
2	Date of measurement	24 August 2015
3	Place of measurement	Production hall
4	Measurement performer	Laboratorium Wibroakustyki i Ochrony Środowiska B. Kępski (Laboratory of Vibro-Acoustics and Environmental Protection)
5	Method of measurement	PN-N01307: 1994 PN-EN ISO- 9612:2011
6	Result of measurement	CUTTING A STYROFOAM BLOCK -57.8 dB CUTTING A STYRODUR PLATE – 54.10 dB
7	Interpretation of the result	Multiplicity – 0.01 NDN
8	Workstation	THERMAL PLOTTER THERMOCUT PRO 240 MINI

Chemical substances emitted during the work of the appliance:

- STYRENE < 47.3 mg/m3

- PENTANE < 207 mg/m3

- CARBON MONOXIDE < 2.3 mg/m3

Opportunities for use of the appliance

Advantages:
- possibility of making individual spatial projects of unlimited size
- possibility of assembling ready elements on almost all types of surface, even on glass
- high durability and resistance to weather conditions of the finished projects
- a wide range of finishing materials and colours
- low cost of materials needed for the execution of the project
- a fast return on investment in the appliance

Other uses:
- moulds
- packaging
- furniture
- pipe jackets
- filters and insulation
- acoustic screens
- designing and modelling

Architecture:
- entrance elements, portals, colonnades
- cornices and pendants
- corners and columns
- decorative elements
- furnishings
- elements of scenography (for the film and theatre)

Advertising:
- large-format outdoor advertisements

- company fonts and trademarks

- advertising graphics

- company and event logos

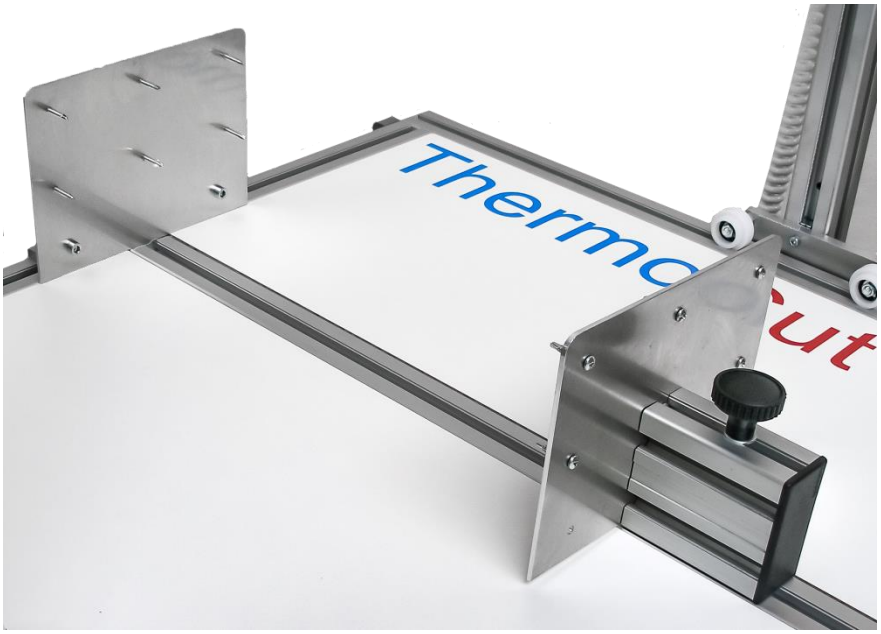
- construction of shop stands

- construction of exhibition stands

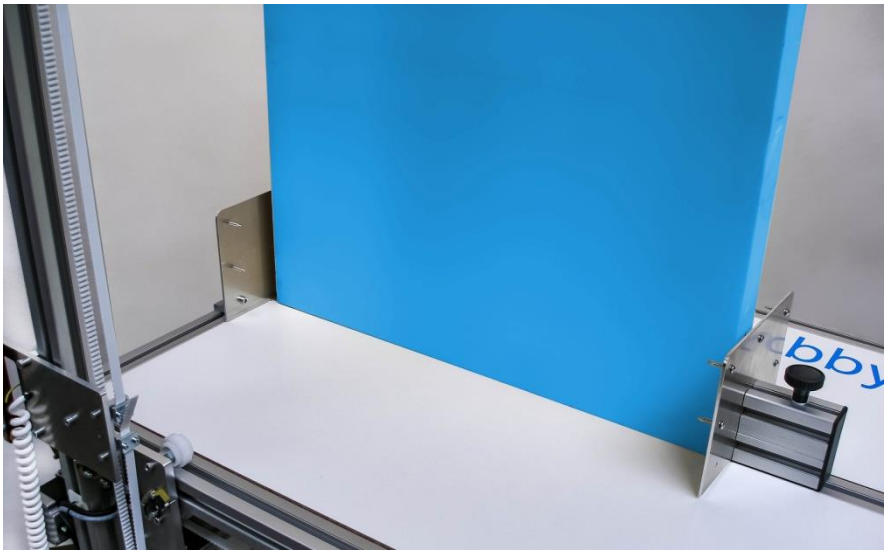
CONSTRUCTION OF THE PLOTTER

CONTROLLER OF THE APPLIANCE

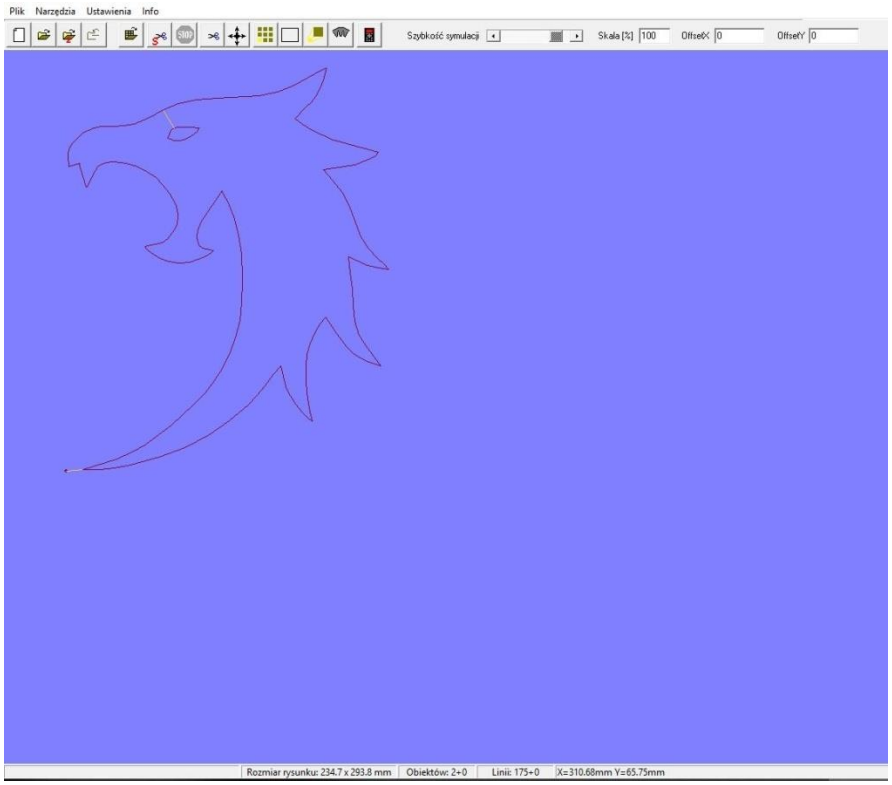
GRIPS FIXING THE CUT MATERIAL



METHOD OF FIXING THE CUT MATERIAL



Program for controlling the plotter - SoftCut



Safety instructions

The Thermal Plotter from the ThermoCut HOBBY series was designed with utmost care for user safety. However, it is impossible to eliminate completely any risk of threat to health. This is why the following instructions includes tips concerning a safe use of the thermal plotter.

WARNING!

The instructions must be read with care.

If any doubts regarding the installation, use or safety should appear, please contact the manufacturer.

The plotter must be plugged into a grounded network.

In order to prevent any damage to the controller as a result of overvoltage, an interference eliminator must be used.

<u>In order to prevent the risk of electric shock:</u>

- **Do not turn on the controller power supply before the controller has been connected to all controlled devices (plotter, rotary table, resistance wires' plug, USB)**
- **The controller's case should not be removed. However, if there is a justified need to open the controller, you must first unplug it from the power supply.**
- **It is forbidden to stick any objects into the sockets, slots and other apertures in the controller's case.**
- **You mustn't cover the vents in the controller.**
- **You mustn't use or store the plotter in conditions with much dust, high air humidity and temperature exceeding the norms stated in the technical specifications.**
- **Before cleaning the plotter you need to unplug it from the power supply.**

The resistance wire during work is hot – DO NOT TOUCH IT!

<u>Contact with a hot wire may result in wounds!</u>

Do not touch the grips of the resistance wire during cutting!

Unplug the plotter from the power supply and contact the manufacturer's customer service:

- If the power supply cord or plug is damaged
- If liquid has been spilt on the controller or the electrical parts of the plotter
- If the controller or plotter has been exposed to rain or water
- If the plotter does not work properly, in accordance with the instructions manual
- If the controller has been damaged mechanically
- If any smell or smoke coming out of the controller is detected

If it is necessary to unplug the plotter from the power supply, always pull the plug, never the cord!

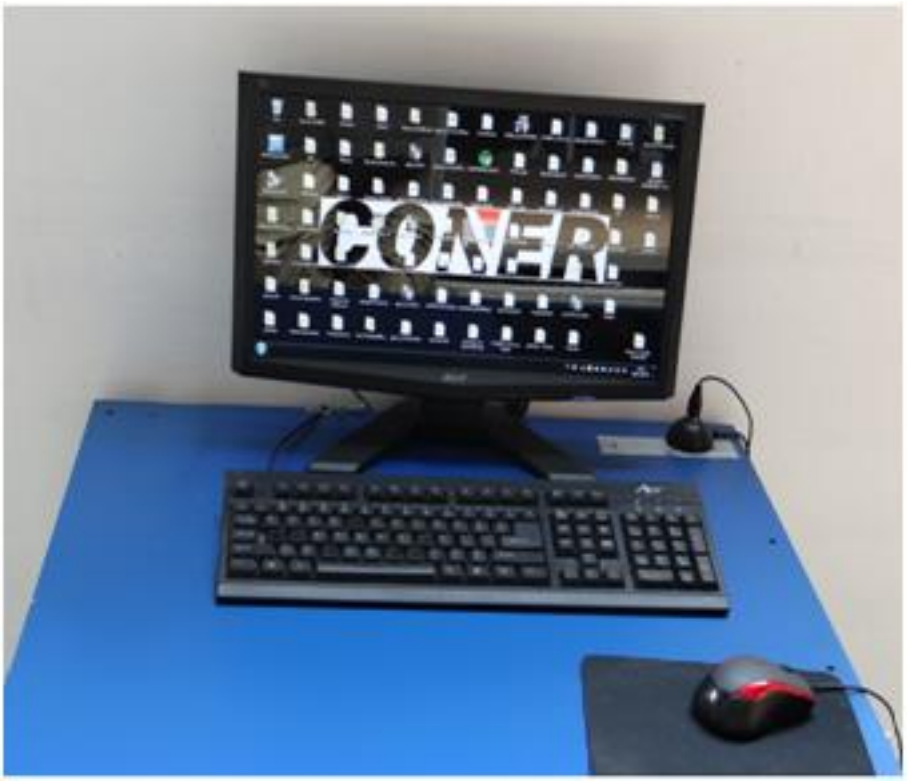
Any checkups or repairs must be done only by the service of the appliance's manufacturer CONER s.c.

Never replace the resistance wire if the safety switch has not been turned off:

Now the resistance wire may be replaced.

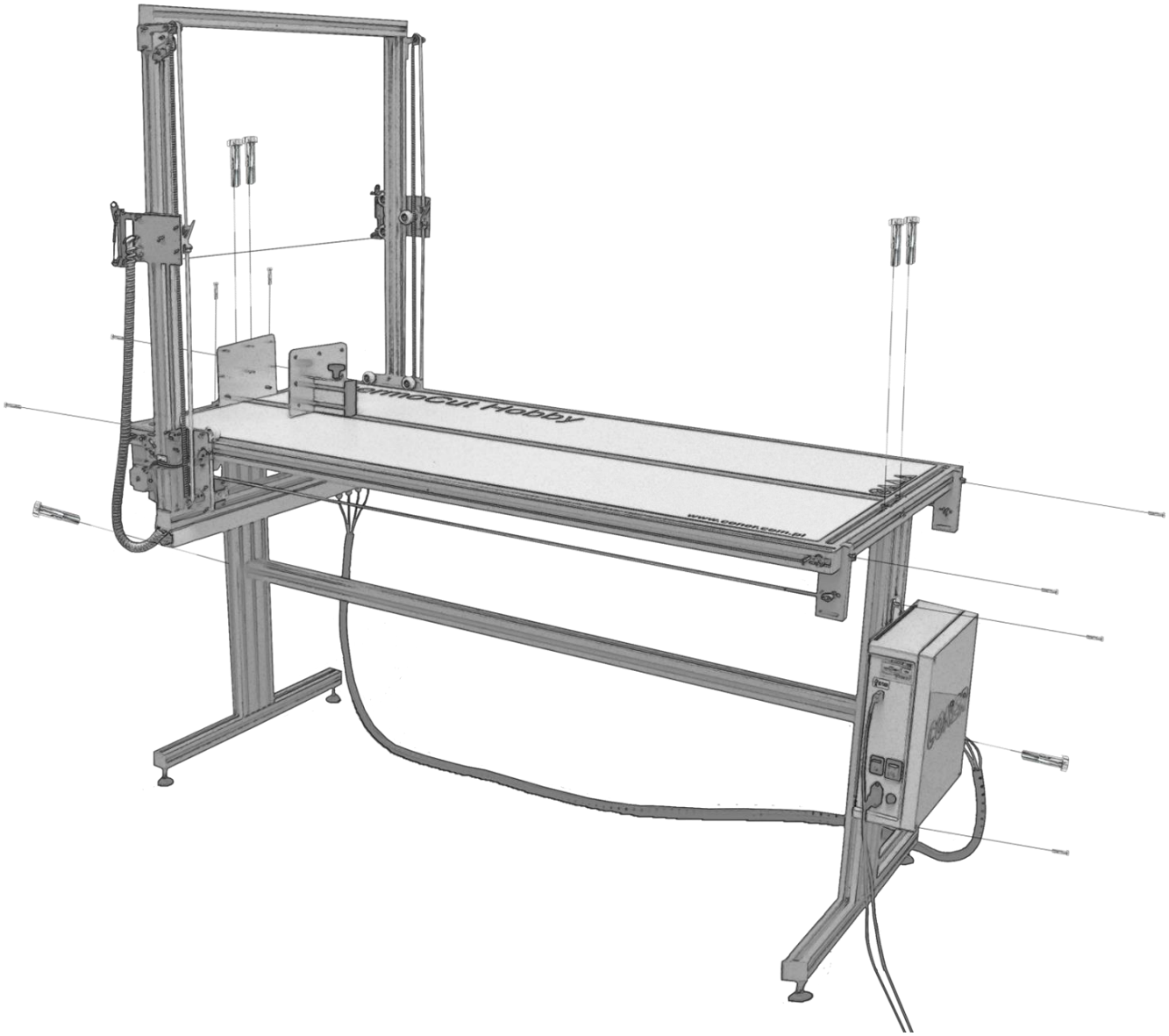
DESCRIPTION OF THE WORKSTATION

1. The appliance should be positioned in a way that at least from two sides there is free access of min. 1m to the appliance.
2. The controlling and powering device is placed in a way that ensures free access to any switches and safe use away from hazardous zones.

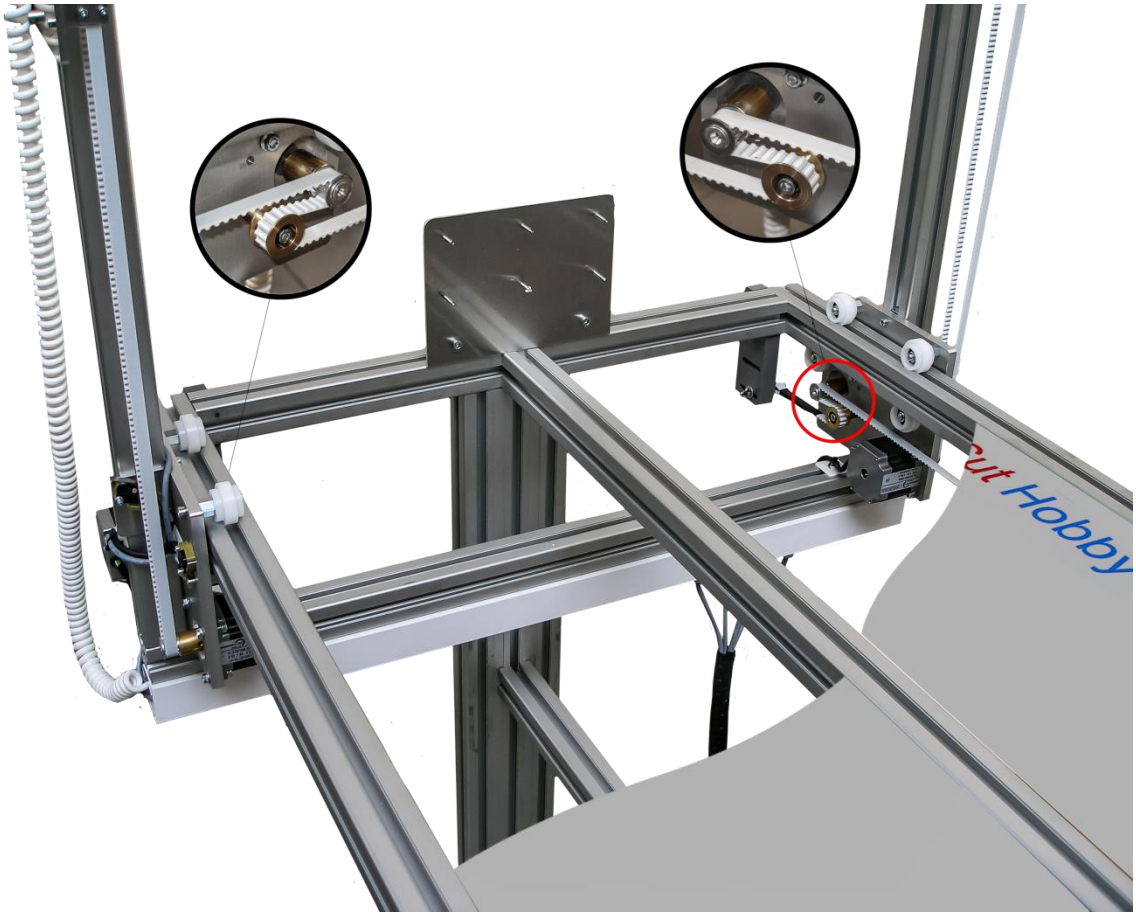


3. During the work of the appliance the operator should be at the post for controlling the appliance (the control panel). The control panel should be positioned in a safe place, min. 1 metre from the appliance.

ASSEMBLY INSTRUCTIONS



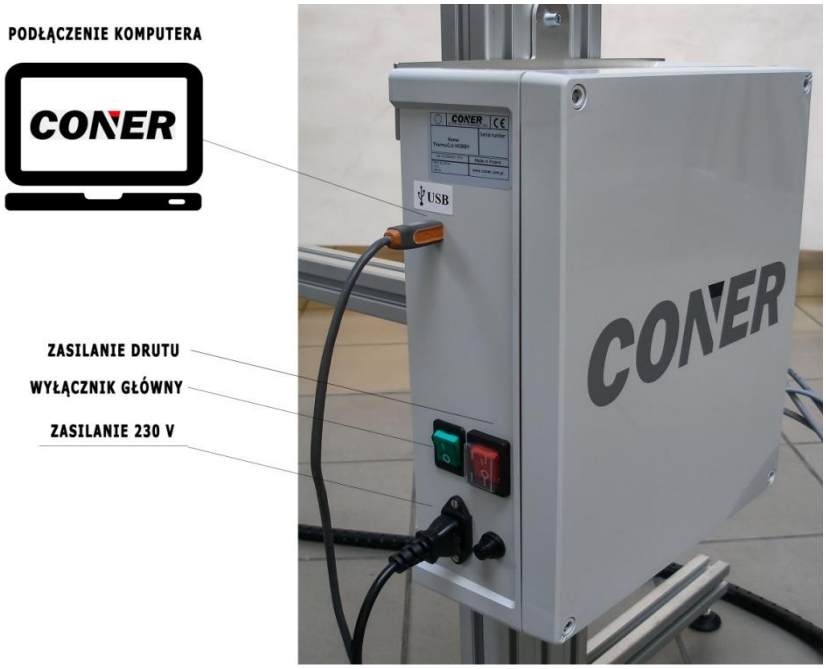
TOOTHED BELTS



END SWITCHES

ASSEMBLY OF THE CUTTING WIRE

CONNECTING THE CONTROLLER

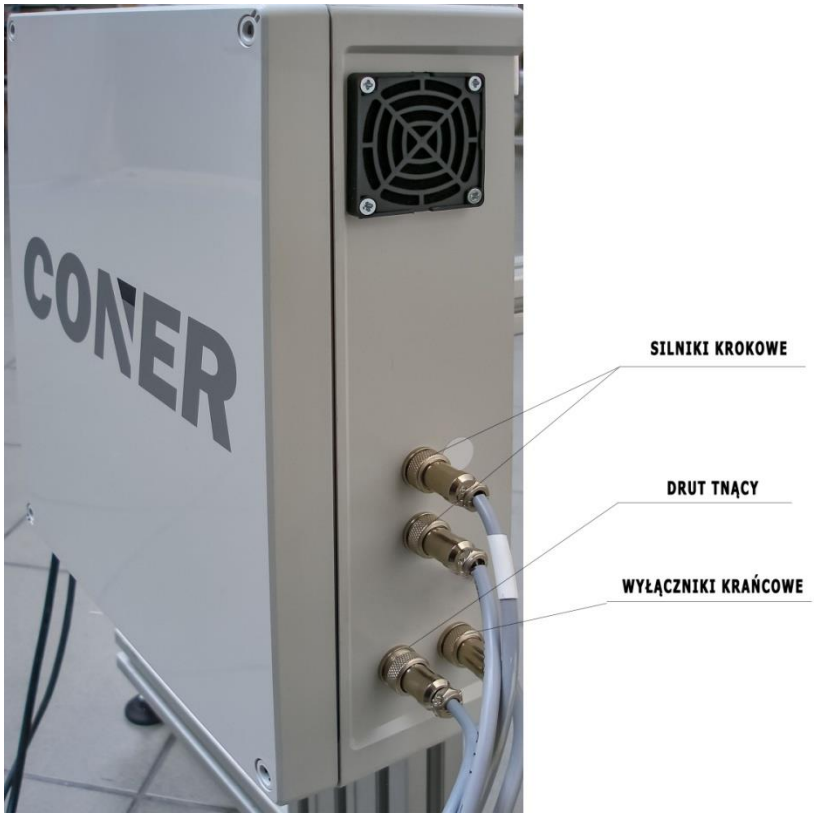


PODŁĄCZENIE KOMPUTERA = COMPUTER CONNECTION

ZASILANIE DRUTU = WIRE POWER SUPPLY

WYŁĄCZNIK GŁ. = MAIN SWITCH

ZASILANIE 230 V = 230 V POWER SUPPLY



SILNIKI KROKOWE = STEPPER MOTORS

DRUT TNĄCY = CUTTING WIRE

WYŁĄCZNIKI KRAŃCOWE = END SWITCHES