

EK Vario Engraver VE 600 full size (A3) / half size (A4)



Operating Instructions

EK Vario Engraver VE 600

full size (A3) / half size (A4)

Operating Instructions Content

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1. Introduction:

By buying the **VE 600** you have acquired a flexible engraving device which will enable you to engrave materials made from plastics, aluminum, brass and special steel, easily and rapidly.

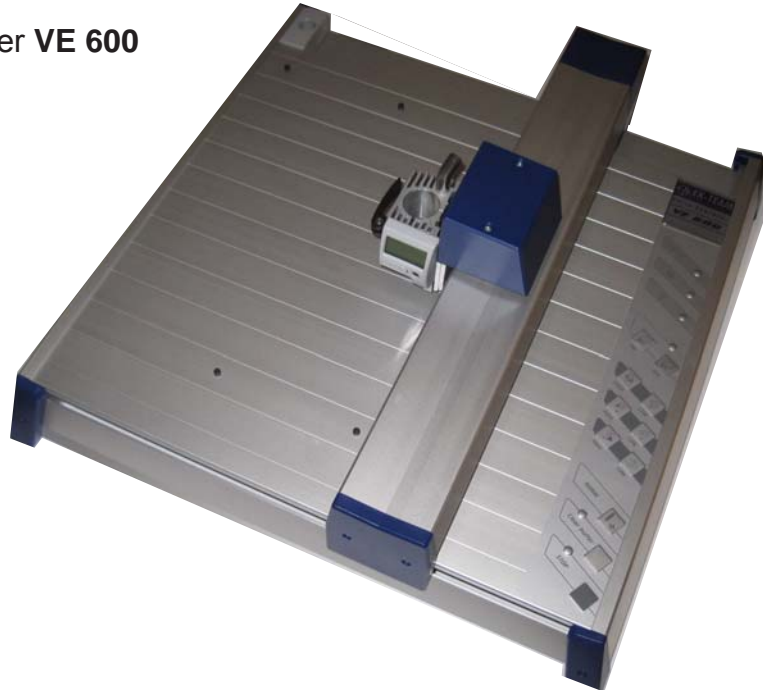
- Tough device structure made of aluminum profiles
- Action area dimensions 220 mm x 305 mm
- Easy exchange of fixing plates for different engraving materials
- Engraving materials in thickness of up to 2.5 mm can be worked.
Special solutions up to a height of 10 mm are also possible
- Universal voltage supply of 100-240V AC
- PC interfaces: USB connection 2.0
- Command language: HPGL
- Material fixing by means of vacuum fixing plate or adhesive mat (option)
- Firmware update for **VE 600** possible by means of PC connection, and therefore via the Internet
- Vacuum cleaner connection for suction removal of engraving chips
- Engraving depth indicator

2. Scope of Supply for the VE 600 Engraver

When you take delivery of the engraver, please check that the consignment is complete. Please keep the outer packing, so that the device can be transported safely when it comes to servicing.

The scope of supply consists of the following components:

1. Vario Engraver **VE 600**



2. Mains power cable



3. USB data cable



4. Operating Instructions



5. Engraving spindle with engraving needle, .5 mm, 15°



Scope of Supply for the VE 600 engraver

6. Connection cable for engraving spindle



7. Suction hose for engraving unit



8. Connection cable for vacuum cleaner



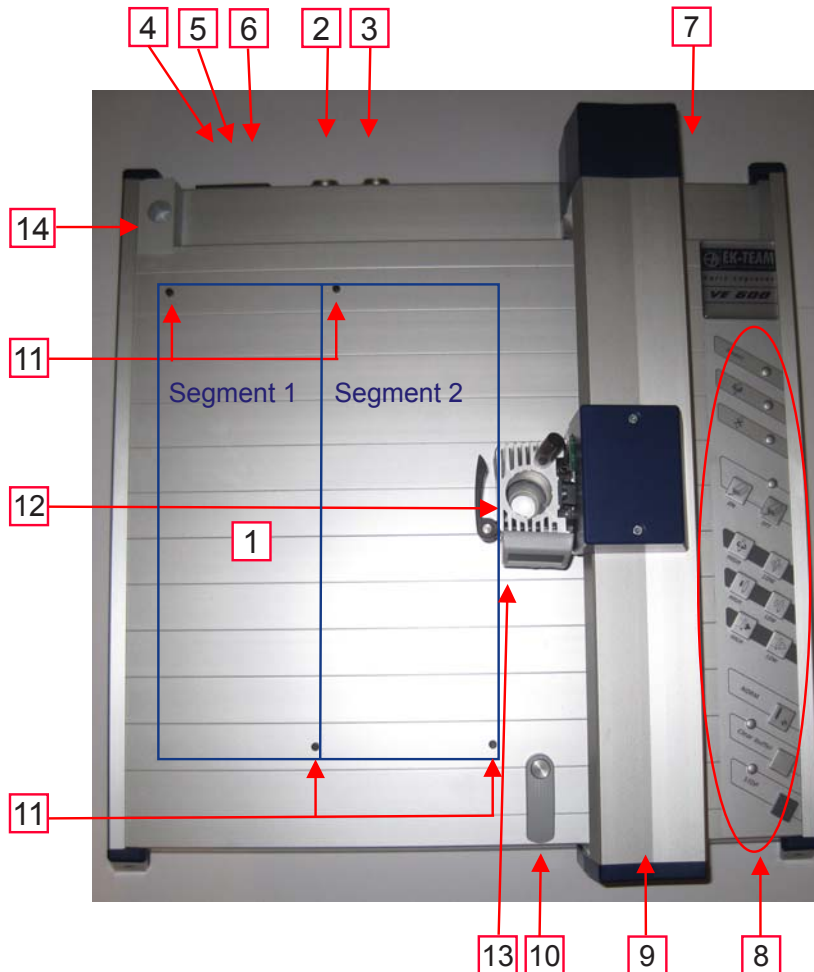
9. Stand tube



10. Clamp for hose and engraving spindle cable



3. Product Overview



- 1) Engraving surface
- 2) Connection for engraving spindle
- 3) Connection for vacuum cleaner
- 4) On/Off switch
- 5) Fuse
- 6) Mains connection
- 7) USB connection
- 8) Operating panel/keypad
- 9) Engraving arm
- 10) Contact surface for zero setting of the engraving needle
- 11) Retaining pins for support plates
- 12) Engraving head
- 13) Engraving depth indicator
- 14) Mounting for cable and hose stand

4. Taking the Vario Engraver VE 600 into operation

4.1 Setting up the engraver

The engraver is best set up in a dry area, as free of dust as possible. Do not expose the device to direct sunlight. Make sure that the connections are accessible at all times. Set the **VE 600** up in such a way that it stands securely and firmly on the surface used.

Ensure that the engraving arm can move freely and is not blocked by any objects.

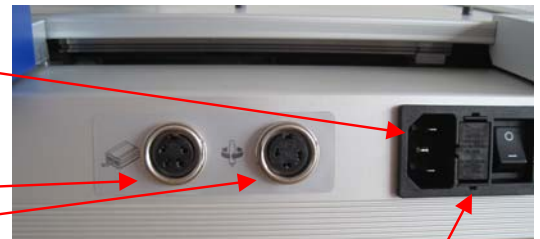
4.2 Connection

Connect the device by means of the mains power cable provided to a socket which has been installed in the regulation manner. The **VE 600** has a variable input AC voltage of 100-240V~ 50-60Hz. The mains cable is exchangeable and can be adapted to various different countries with different mains plugs.

The mains power connection is located on the top left-hand side of the **VE 600**, which is where you insert the mains cable provided.

Next to are the connections for the vacuum cleaner and the engraving spindle.

Located at the connection point, as well as the On/Off switch, is also the miniature fuse (4A).



Next, connect the device by means of the USB data cable provided.

The connection point is located on the top right-hand side of the **VE 600**.



4.3 Insert the engraving spindle into the engraving head

As shown in the illustration, place the engraving spindle into the engraving head and clamp the spindle tight with the quick-action tightener. The engraving spindle is already fitted with an engraving needle.



→ *Note:* Make sure the connection of the engraving spindle is pointing towards the lever.



Caution:

Please read and take note of the safety instructions for operation

4.4 Fitting the cable and hose stand

Insert the aluminum tube into the mounting.

Insert the clamping element for the engraving cable and the suction hose into the aluminum tube.



4.5 Connections at the engraving head

Place the engraving head by hand (the engraver must be switched off) into the bottom right-hand corner.

Connect the engraving spindle cable to the spindle and tighten the screw connection of the plug to hand tightness. Now, as shown in the illustration, lay the cable in a loose loop and clamp it into the clamping element of the stand. Connect the other end of the cable to the **VE 600** and likewise tighten the screw connection to hand tightness. Now plug the suction hose onto the engraving head and lay the hose, like the cable, in a loose loop, then clamp the hose into the clamping element of the stand.



4.6 Vacuum cleaner connection

You have the option of using the **VC 500** vacuum cleaner, which is part of the product range, or a conventional commercial vacuum cleaner for the suction clearance of the engraving chips.

Caution:

Under no circumstances should you work without vacuum cleaning, since otherwise the chips will cause serious dirt contamination of the engraver

The EK-TEAM **VC 500** vacuum cleaner is characterized by its low noise development, and can be used in sustained operation.

→ *Note:* If you use a conventional commercial vacuum cleaner, take care to ensure that it is not overloaded by excessively long operation.



4.7 Connection of the VC 500 vacuum cleaners

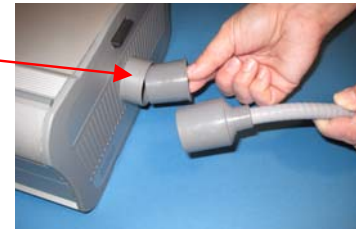
If possible, place the vacuum cleaner on the left next to the engraver.

Now connect the vacuum cleaner connection cable provided with the engraver to the vacuum cleaner and the engraver, and tighten the screw connections to hand tightness.



Next, remove the stopper on the vacuum cleaner and insert the vacuum cleaner hose into the vacuum cleaner.

→ *Note:* During the engraving process the vacuum cleaner switches on automatically and switches off again when the process has ended.



4.8 Changing the vacuum cleaner filter

Conventional commercial vacuum cleaner bags are used for the vacuum cleaner. Replacement bags can be obtained from us or via a retail outlet.

To change the vacuum cleaner bag, actuate the catch on the vacuum cleaner. The cover with the suction hose and vacuum cleaner bag will open.

Before taking the bag out of its mounting, you must take off the suction hose. To do this, rotate the hose and draw it outwards at the same time. Re-installation takes place in the reverse order.



4.9 Replacing or cleaning the motor filter

Once you have opened the cover as described above, you can remove the motor protection filter. To do this, you must reach into the chamber for the vacuum cleaner bag and take out the motor filter. It is sufficient to clean this filter from time to time. Replacement filters can be obtained from EK-TEAM.



4.10 Connecting a conventional commercial vacuum cleaner

If you want to use a conventional commercial vacuum cleaner, you need appropriate adaptations, a switchbox for adapting the electrical arrangement and a suction hose adapter. These can be optionally obtained from us.

Plug the switch box provided into a socket installed in the regulation manner.



Now connect the vacuum cleaner connection cable supplied with the engraver to the switch box and to the **VE 600** and tighten the screw connections to hand tightness.



Connect the suction hose fitted to the **VE 600** to the adapter provided, and plug the hand piece of the vacuum cleaner into the rubber sleeve.



Plug the mains cable of the vacuum cleaner into the socket of the switch box and turn the vacuum cleaner on.

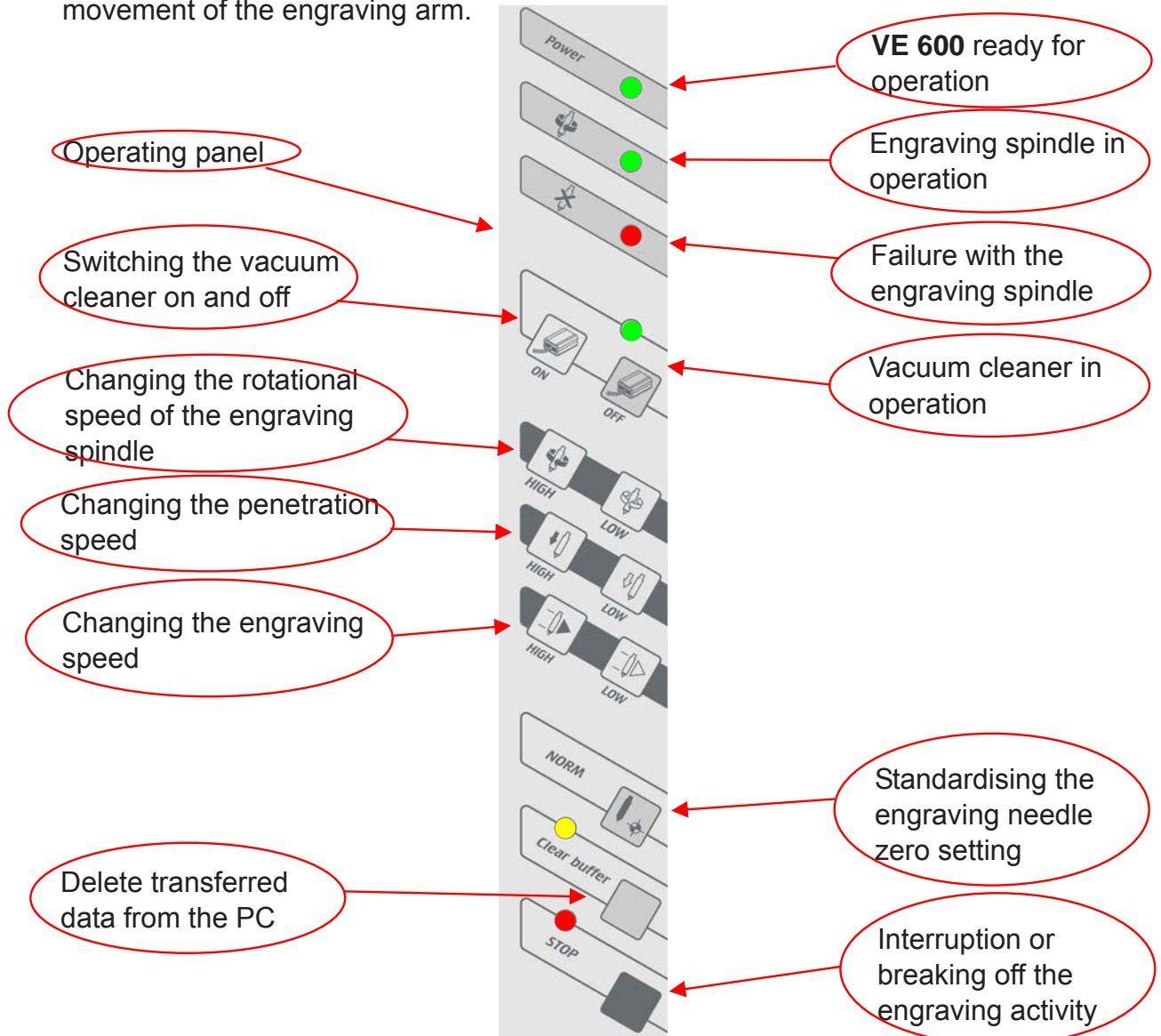
→ *Note:* During the engraving process the vacuum cleaner switches on automatically and switches off again when the process has ended.

5. Operation

Once you have set up the **VE 600**, and the power supply and the data cable are connected, you can switch the device on.

Caution:

Before the device is switched on, please make sure that there are no obstructive objects on the working surface of the engraver which could interfere with the free movement of the engraving arm.



5.1 Switching the VE 600 on and off

Turn the device on or off using the mains switch. When the device is switched on, the engraving arm moves into the upper right-hand corner of the processing area, and carries out auto-calibration. The green display lights up when the device is switched on. The device is now ready for operation and can receive data from the PC.

All settings and actions are carried out via the operating panel.

5.2 Stop button

If the **Stop** button is actuated during a current job, the job will immediately be interrupted and the engraving head will move into the upper right-hand corner of the device. The red display indicates the interruption. When the button is actuated again, the engraving arm will be calibrated and the job continued. The red display will go out.

5.3 Delete data memory with Clear Buffer button

If there are data present in the **VE 600**, this will be indicated by the yellow display lighting up. You can delete these data by using the **Clear buffer** button. To do this, the device must be in Stop mode (red display illuminated).

5.4 Norm button (standardisation of the engraving needle, zero setting)

If the **Norm** button is actuated, the engraving head will move to the position (bottom right of the device) beneath which a contact surface is located, and the engraving head will be lowered slowly. As soon as the engraving needle reaches the contact surface, the lowering of the engraving head will stop and an audible signal will be issued. Now turn the depth adjuster to the left until the audible signal stops.

This sets the engraving needle to the “zero position.”

→ *Note:* If there is no audible signal when the engraving head is lowered, turn the depth adjuster to the right until the signal does sound. Then turn it by one latch engagement position to the left.

The signal will go out and the “zero position” is set.

Press the **button** in order to zero the nos. of the indicator.



5.5 HIGH / LOW rotational speed of engraving spindle

When engraving data are transferred from the PC to the engraver, the rotational speed of the engraving spindle will also be automatically transferred. If you want to change these data during the engraving process, you can change the speed by means of the appropriate buttons.

Actuation of the **HIGH** button will increase the engraving spindle speed 5000 rpm (revolutions per minute), and actuation of the **LOW** button will reduce it by 5000 rpm.

5.6 HIGH / LOW engraving speed

When engraving data are transferred from the PC to the engraver, the engraving speed will also be automatically transferred. If you want to change these data during the engraving process, you can change the speed by means of the appropriate buttons.

By actuating the **HIGH** button, the engraving speed will be increased by 2 mm/sec., and by actuating the **LOW** button it is reduced by 2 mm/sec.

→ *Note:* The adoption of the speed change takes place with a slight delay.

5.7 HIGH / LOW penetration speed

When engraving data are transferred from the PC to the engraver, the penetration speed will also be automatically transferred. If you want to change these data during the engraving process, you can change the speed by means of the appropriate buttons.

By actuating the **HIGH** button, the penetration speed will be increased by 2 mm/sec., and by actuating the **LOW** button it is reduced by 2 mm/sec.

→ *Note:* The adoption of the speed change takes place with a slight delay.

5.8 Placing support plates for fixing the engraving materials

There are a number of different support plates optionally available for fixing the engraving material. Place the support plate being used over the retaining pins on the engraving unit.

1) Universal support plate DIN A4/A3 (adhesion mat)

The universal support plate is suitable for materials up to dimensions of 400x300 mm. The thickness of the material must not exceed 2.5 mm.

The adhesion mat secures the engraving material against sliding.



2) Universal support plate DIN A4 with vacuum connection

The universal support plate is suitable for materials up to dimensions of 200x300 mm. The thickness of the material must not exceed 2.5 mm. The support plate has a vacuum connection to which you can connect an in-house vacuum line.



As an option, we can offer a vacuum pump or a converter which produces a vacuum out of compressed air (see Accessories).



3) 3-fold Universal support plate

You can process three engraving plates on this support plate, up to dimensions of 90x100 mm. Material thickness up to 2.5 mm.



4) 4-fold Universal support plate

You can process four engraving plates on this support plate, up to dimensions of 60x100 mm. Material thickness up to 2.5 mm.



5) 9-fold Universal support plate

You can process nine engraving plates on this support plate, up to dimensions of 30x100 mm. Material thickness up to 2.5 mm.

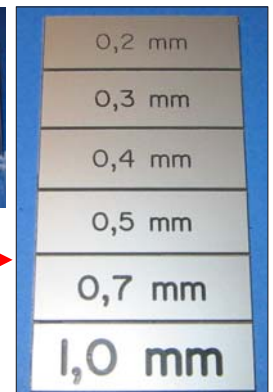


5.9 Adjusting the engraving depth

The engraving depth is determined by means of the depth adjuster on the engraving spindle. Different script widths for the engraving are attained as a function of the width and grinding angle of the engraving needle used, as well as the penetration depth into the material.

For normal use we recommend the use of engraving needles with a grinding angle of 15°.

These are available in widths of 0.2; 0.3; 0.4; 0.5; 0.7; 1.0 mm.



Special shapes are available on request.

The examples shown will give you an idea of the different results of the engravings.

5.9.1 Engraving depth indicator

The setting of the engraving depth is carried out by rotating the depth adjuster. By turning it to the right, the depth of the engraving is increased, and by turning it to the left it is reduced.

When you actuate the depth adjuster, you will feel a latching engagement.



With each engagement, the engraving needle is set higher or lower by 0.05 mm. Once you have turned the adjuster by one revolution to the right, you will have reached an engraving depth of 1 mm (20 latch engagements of 0.05 mm each).

You can read off the depth on the engraving depth indicator on the left next to the engraving spindle.



Caution: The tips of the engraving needle are highly sensitive and must be treated very carefully. Avoid damaging the tips. If they are damaged, the quality of the lettering will be severely impaired.

5.10 Changing the engraving needle

To change the engraving needle, proceed as follows: Release the securing arrangement on the engraving head and take out the

engraving spindle

The connection cable does not need to be detached. Now

rotate the depth adjuster away from the engraving spindle.

Caution: The engraving needle and the spindle may have become hot due to operation.

Next, you must release the clamping jaws by using the rotary knob at the end of the spindle. To do this,

push the knob in and turn it to the left.

The jaws will now be open and you can remove the

engraving needle.



Caution: Only release the clamping jaws just enough to allow the engraving needle to be removed. The clamping jaws should only be opened completely for cleaning purposes.

In order to ensure the correct length of the engraving needle, only use engraving needles supplied exclusively by EK-TEAM with the identification ring. We cannot undertake any guarantee for script quality or damage to the units if other makes are used.



Caution: The tips of the engraving needles are highly sensitive and must be treated very carefully. Avoid damaging the tips. If they are damaged, the quality of the lettering will be severely impaired.

Slide the engraving needle into the clamping jaws as far as the identification ring, and then tighten it up again.

Now rotate the depth adjuster onto the engraving spindle again, until the tip of the engraving needle is still not quite projecting (finger or material test).



Now put the engraving spindle back into the engraving head and tighten the clamping block again with the quick-action clamping device.

For the zero setting of the engraving needle, now actuate the **Norm** switch and proceed as described under 5.4.

6. Cleaning and Care

Protect the **VE 600** from dust and other dirt contamination.

Cover it over when it is not in use.

Wipe the device with a duster occasionally after use, either dry or moistened with a mild cleaning agent.

Caution:

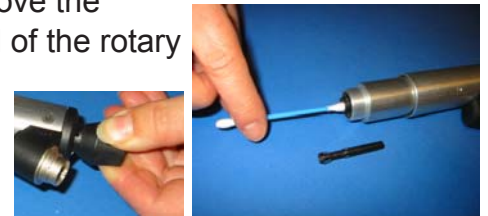
Never use aggressive cleaning agents to clean the Vario Engraver VE 600.

Never oil the mechanical parts of your engraver.





6.1 Handling the engraving spindle






The engraving spindle is a sensitive unit and should be treated extremely carefully. Please use the spindle in dust-free areas only. An excessive dust burden will lead to the sensitive bearings becoming clogged with dust, and then wearing out rapidly. Never use compressed air to clean the spindles, because that will remove the lubricant from the ball bearings. Do not use any lubricants when engraving. Never clean the engraving spindle with water.

If, despite this, dust particles do appear in the clamping jaws, this may be indicated, for example, by unclean engraving. In this case, remove the engraving needle and rotate the jaws out with the aid of the rotary knob. Wipe out the front part of the jaw seat with a clean cotton swab (Q-tip), (see illustration).



7. Accessories

Description	Part no.	Illustration
Engraving needle 15° - .2 mm	3501 0003	
Engraving needle 15° - .3 mm	3501 0002	
Engraving needle 15° - .4 mm	3501 0001	
Engraving needle 15° - .5 mm	3501 0000	
Engraving needle 15° - .7 mm	3501 0004	
Engraving needle 15° - 1.0 mm	3501 0005	
Engraving needle 15° - Set of .2; .3; .4; .5; .7; 1.0	3501 0006	
Engraving needle 36° - .2 mm	3501 0015	
Engraving needle 36° - .3 mm	3501 0016	
Engraving needle 36° - .4 mm	3501 0017	
Engraving needle 36° - .5 mm	3501 0018	
Engraving needle 36° - .7 mm	3501 0019	
Engraving needle 36° - 1.0 mm	3501 0020	
Engraving needle 36° - Set of .2; .3; .4; .5; .7; 1.0	3501 0021	
Engraving needle 60° - .2 mm	3501 0022	
Engraving needle 60° - .3 mm	3501 0023	
Engraving needle 60° - .4 mm	3501 0024	
Engraving needle 60° - .5 mm	3501 0025	
Engraving needle 60° - .7 mm	3501 0026	
Engraving needle 60° - 1.0 mm	3501 0026	
Engraving needle 60° - Set of .2; .3; .4; .5; .7; 1.0	3501 0027	
Engraving needle 90° - .2 mm	3501 0028	
Engraving needle 90° - .3 mm	3501 0029	
Engraving needle 90° - .4 mm	3501 0010	
Engraving needle 90° - .5 mm	3501 0011	
Engraving needle 90° - .7 mm	3501 0012	
Engraving needle 90° - 1.0 mm	3501 0012	
Engraving needle 90° - Set of .2; .3; .4; .5; .7; 1.0	3501 0013	
Engraving needle 35° - .2 mm	3501 0013	
Engraving needle 35° - .4 mm	3501 0014	
Double tooth cutter fishtail .50 mm	3501 0030	
Double tooth cutter fishtail .60 mm	3501 0031	
Double tooth cutter fishtail .80 mm	3501 0032	
Double tooth cutter fishtail 1.00 mm	3501 0033	
Double tooth cutter fishtail 1.20 mm	3501 0034	
Double tooth cutter fishtail 1.40 mm	3501 0035	
Double tooth cutter fishtail 1.60 mm	3501 0036	
Double tooth cutter fishtail 2.00 mm	3501 0037	
Double tooth cutter fishtail 2.40 mm	3501 0038	
Double tooth cutter fishtail 3.00 mm	3501 0039	
Double tooth cutter fishtail - Set of .50; .60; .80; 1.00; 1.20; 1.40; 1.60; 2.00; 2.40; 3.00		

Description	Part no.	Illustration
Adapter set to connect with standard vacuum cleaners	3400 0057	
Converter compressed air to vacuum	3491 0012	
Vacuum pump for vacuum support plates	3491 0011	
Optical measurement tool Engraving for VE 600	3400 0058	
VC 500 Vacuum cleaner	3400 0056	
Vacuum cleaner bags (5 bags)	3502 0000	

Universal support plate for Engraving and Plotting half size (DIN A4)	3490 2106	
Universal support plate for Engraving and Plotting half size (DIN A4) Vacuum	3490 2156	
Universal support plate 90x100 mm	3490 2117	
Universal support plate 60x100 mm	3490 2116	
Universal support plate 30x100 mm	3490 2115	
Engraving material full size DIN A3/ half size DIN A4 blank sheet or pre-sized tags	please call for details	 

8. Fault Rectification

Fault description

VE 600 engraver cannot be switched on.
 The **green** "Power" LED is not lighting up.

The **red** LED is illuminated on the **VE 600**,
 "Spindle fault".

Caution:
Engraving unit interrupts the engraving process.

Engraving operation not possible

Engraving is not being carried out cleanly. Poor script image and/or burr formation on the engraved characters.

The desired engraving depth is not being reached.

Remedy

Check whether the mains power connection cable is connected.
 Check whether the socket being used is in good order.
 Check whether the mains infeed fuse on the **VE 600** is in good order.
 To do this, pull out the mains cable at the infeed module and the fuse element next to the mains switch.
 See Handbook page 7

High-frequency spindle is defective or there is an overload.
 To check this, actuate the buttons **HIGH** and **LOW** together on the **VE 600**. This allows you to increase or reduce the rotational speed of the spindle with the buttons. If the **red** fault LED lights up again, the spindle is defective and must be replaced.

Check whether the connection cable between the **VE 600** and the spindle is connected. Refer to the instructions in the script creation software **VarioSign**. Has the correct output device been selected?
 Check the interface cable.

Check the engraving needle. If the tip is broken off or damaged the engraving needle must be replaced.
 Check whether there are any engraving chips in the spindle head or in the spindle clamping jaws. To do this, unscrew the depth adjuster and take the jaws out of the spindle. Clean the depth adjuster and the spindle clamping jaws as described in the Cleaning and Care section, "Handling the engraving spindle", see page 16.

Caution: Do not use compressed air to carry out cleaning.

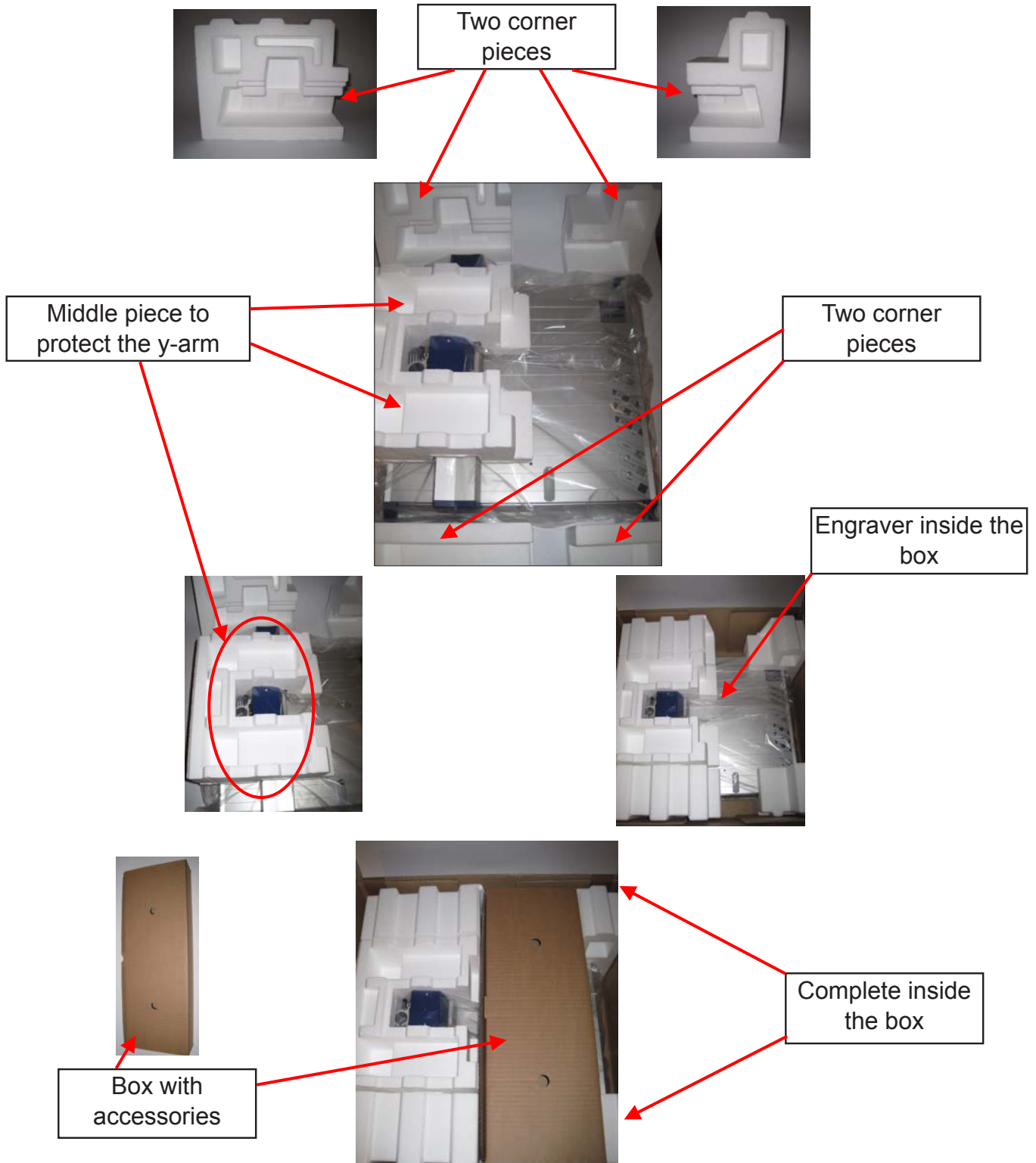
Next, check whether there is a sufficient distance between the depth adjuster and the engraving material, min .5 mm to about 1 mm.
 To do this, move the engraving head, with the **VE 600** switched off, by hand over the engraving material and check the distance in this way.

9. Technical Data

Vario Engraver VE 600

x-y unit:	Flatbed engraver
Maximum engraving surface:	A3: 440 mm x 305 mm/17.32 inch x 12.01 inch, A4: 220 mm x 305 mm/8.66 inch x 12.01 inch
Engraving speed:	max. 20 mm/s / .79 inch/s
Interfaces:	USB Level 2.0
Command language:	based on HP-GL 7475A
Data buffer:	16 MB
Drive:	Two-phase stepper motor
Addressable resolution:	.01 mm / .0004 inch
Repetition precision:	.05 mm / .002 inch
Voltage supply:	100-240V AC 50-60Hz
Input current:	.7 A max.
Ambient conditions:	Operation: 10°C - 35°C / 50°F - 95°F 35% - 75% rel. air humidity Storage: -10°C - 50°C / 14°F - 122°F 10% - 90% rel. air humidity
Safety certificates:	EN 60950-1
Operational reliability:	EN 55022 B EN 61000-4-2 bis 6 EN 61000-4-11
Dimensions:	A3: 660 mm (A4: 440 mm)x 440 mm x 125 mm/ 25.98 inch(A4: 17.32 inch)x 17.32 x 4.92 inch
Weight:	A3: approx. 8,85 kg / 17.64 inch, A4: approx. 7 kg / 15.43 inch
Engraving spindle	
Rotational speed:	min. 5000 RPM, max. 50.000 RPM
Torque:	6 Ncm
Frequency:	83-830 Hz
Power consumption:	max. 60 W
Clamping jaws:	Shaft diameter 3 mm / .12 inch;
Clamping mechanism:	Head gripping
Concentricity with clamping jaws:	.03 mm / .001 inch
Motor design:	Three-phase AC asynchronous, brushless
Housing:	Aluminum
Clamping diameter:	25 mm / .98 inch
Ball bearing type:	Steel, permanent lubrication, two-fold
Cooling:	Self-ventilating with integrated fan
Weight:	approx. 280 g / .62 lbs
Overall length:	approx. 175 mm /6.89 inch
Scope of use:	Exclusively for engraving
Guaranteed bearing service life:	min. 1000 hours with appropriate use

10. Packing Instructions for the VE 600



11. Safety Instructions

Basic safety instructions. Caution: Read these before using the device

When using the engraving unit, referred to hereinafter as the “electrical device”, the following basic safety measures are to be respected to provide protection against electric shock, injury, and the risk of fire.

Read and observe all these instructions before you use the electrical device. Keep these Safety Instructions in a safe place.

Only use the electrical device in accordance with the instructions and observing the general safety and accident prevention regulations.

- Take account of environmental influences.

Do not use the electrical device in damp or wet surroundings. Ensure that you have good lighting.

Operation in the open air is prohibited.

Do not use the electrical device in the vicinity of combustible fluids or gases.

- Check the electrical device for possible damage.

On each occasion before using the electrical device, the protective devices or easily damaged parts must be carefully checked for proper problem-free function. Check whether the moving parts are functioning properly and not jamming, or whether any parts are damaged. All the parts must be correctly fitted and fulfil all the conditions to guarantee the problem-free operation of the electrical device. Damaged protective devices and parts must be properly repaired or replaced by an approved specialist workshop, unless indicated otherwise in the operating instructions. Damaged switches must be replaced at a customer service workshop. Do not use any electrical devices on which the switch does not allow it to be turned on and off.

- Keep away from children.

Do not allow other people to touch the electrical device or the cable. Keep other people away from your work area. Only allow the electrical device to be handled by trained personnel. Young persons may only operate the electrical device if over the age of 16, if this is required to achieve the aim of their training, and if they are under the supervision of a technical specialist.

- Protect yourself from electric shock.

Avoid bodily contact with earthed parts, such as pipes, radiators, ovens, or refrigerators. The electrical device is equipped with an earthed conductor. Only connect the plug to a socket with earthing contact. The electrical device is only to be operated with the mains by way of a 30mA residual current circuit breaker.

- Wear suitable work clothing

Do not wear loose clothing or jewellery which could become caught by moving parts. If you have long hair, wear a hairnet.

- Use personal protective equipment.

Wear protective goggles. Wear ear defenders to provide protection against noise > 85 dB (A). If working in heavily dust-laden environments wear a respirator mask.

- Do not use the cable for purposes for which it was not intended.

Never carry the electrical device by the cable. Do not use the cable to pull the plug out of the socket.

Protect the cable against heat, oil, and sharp edges.

- Keep your work area in good order.

A disorderly work area can result in accidents.

- Avoid an abnormal bodily posture.

Ensure you have a secure place to stand and keep your balance at all times.

- Stay alert.

Pay attention to what you are doing. Take a serious approach to your work. Do not use the electrical device if you are not focused.

- Avoid unintentional starts.

Ensure that the switch is turned off when you insert the plug into the socket.

- Take the plug out of the socket.

Take the plug out of the socket when carrying out any of the work described for taking the device into operation and carrying out maintenance or repairs, when changing tools, and when the device is not in use.

- Use the correct device.

Only use the engraving unit with a plotter (electrical device) for the purposes described in the manual.

- Secure the material which is to be worked on.

Ensure that the universal mounting plate has sufficient adhesion, and clean it regularly under running water. Only use mounting plates manufactured exclusively by EK-TEAM for mounting the material which is to be worked on.

- Never try to take hold of moving (rotating) parts.

- Do not overload your electrical devices.

You will work better and more safely in the performance range indicated. Replace worn tools in good time.

- Look after your tools carefully.

Keep the tools sharp and clean in order to work better and more safely. Follow the maintenance instructions and the instructions for changing tools. Check the cable of the electrical device regularly, and have it replaced by an approved specialist if it becomes damaged. Check the extension cable regularly and replace it if it becomes damaged. Keep the devices dry and free of oil and grease.

- Store your electrical device safely.

Unused electrical devices should be deposited or stored in a dry place, off the ground or locked away, out of reach of children.

- **Caution. Follow these instructions without fail**

For your personal safety and to secure the intended function of the electrical device, use only original accessories and original spare parts. The use of other tools and other accessories may incur the risk of injury for you. Only allow the electrical devices to be repaired by an authorized EK-TEAM Service Centre. This electrical device meets the relevant safety regulations.

Maintenance and repair work, in particular interventions into the electrics, may only be carried out by specialist or trained personnel, making use of original spare parts; this may otherwise incur accidents for the user.

For safety reasons, no modifications may be carried out on the electrical device by users themselves. This will lead to any claims against the manufacturers being rendered null and void.

- **Special safety instructions regarding the operation of the engraving spindle.**

The engraving spindle may only be operated in the engraving head provided for that purpose. During operation, temperature increases occur at the spindle, which must be taken into account in particular when replacing the engraving needle.

It is therefore recommended that the spindle be allowed to cool off after operation before the engraving needle is replaced or the engraving head is dismantled.

Sicherheitshinweise

- Bewahren Sie die Gebrauchsanweisung sorgfältig auf.
- Dieses Gerät entspricht den anerkannten Regeln der Technik und den einschlägigen Sicherheitsbestimmungen für Gerätesicherheit.
- Elektrische Anschlussbedingungen und Angaben auf dem Typenschild müssen übereinstimmen
- Gerätenutzung nur in trockenen Räumen
- Netzstecker nicht am Kabel aus der Steckdose ziehen
- Reparaturen an diesem Gerät, einschließlich der Austausch der Netzzuleitung, dürfen nur von Fachkräften durchgeführt werden

Säkerhetsföreskrifter

- Förvara bruksanvisningen på säker plats.
- Denna apparat är tillverkad enligt modern teknik och i enlighet med gällande säkerhetsföreskrifter för elektriska apparater.
- Kontrollera uppgifterna på typmärket innan anslutning till eluttag.
- Apparaten får endast användas i torra utrymmen.
- Dra inte ur kontakten ur eluttaget genom att rycka i sladden.
- Reparationer av denna apparat, inklusive utbyte av el-sladd, får endast utföras av fackman.

Safety instructions

- Keep the operating instructions in a safe place.
- This device complies with all recognised technical standards and all relevant safety regulations.
- The mains power supply used must correspond with that specified on the name plate.
- Use in dry conditions only.
- Disconnect the device from the mains socket by pulling the plug, not the cord.
- All repairs, including replacement of mains power supply components, must be performed by a qualified service technician.

Instructions de sécurité

- Conserver ces instructions dans un endroit sûr.
- Cet appareil répond aux normes techniques et satisfait toutes les règles de sécurité.
- Le courant utilisé doit être identique à celui spécifié sur l'appareil.
- Ne pas utiliser cet appareil dans un environnement humide.
- Débrancher l'appareil en tirant sur la prise, pas sur le câble.
- Toutes les réparations y compris le remplacement des composants électriques, doivent être effectuées par un technicien qualifié.

Instrucciones de Seguridad

- Conserve las instrucciones de seguridad en un lugar seguro.
- Este equipo cumple con todas las normas técnicas de seguridad eléctrica y requisitos de seguridad eléctrico aplicables en el país de uso.
- La fuente de alimentación debe corresponderse con los valores de tensión y corriente citados en la placa de identificación del producto.
- Las características de la fuente de alimentación a utilizar con el producto son las siguientes : entrada : 100-240Vca, 50/60Hz, 700mA.
- Utilice el equipo en condiciones secas únicamente.
- Desconecte el equipo de la red de alimentación por medio de la ficha, nunca tirando del cordón.
- Todas las reparaciones, incluyendo el reemplazo del cordón de alimentación, deben ser realizadas por personal técnico calificado.

12. Contact information

Technical Support and Service:

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