



Excel 1™ Vacuum Press Assembly Instructions

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Simple and Affordable

The new Excel 1™ vacuum pressing kit is a compact and very affordable system for vacuum bags up to 4' x 4' in size. The kit is a testament to simplicity and with its wide range of uses, you'll find it a versatile and practical addition to your arsenal of tools. We have recently redesigned this system, updated a few parts, and made the assembly process easier with all new instructions.

This vacuum press is designed for woodworkers looking for a simple and affordable method to apply wood veneer and clamp wood projects for routing, sanding, carving, and more. The vacuum level is fully adjustable and can generate more than 1,785 lbs of pressure per square foot at sea level. At the heart of the system is a small but powerful 1.4 CFM vacuum pump designed to ensure many years of trouble-free operation. The system runs on standard household current (120v AC).

Every part of this system was designed with simplicity in mind. This makes it easy to assemble and incredibly durable. The assembly consists of only a few pieces and each uses standard NPT threads. There is no wiring involved in the assembly process and the whole system goes together very quickly.

I hope you find the assembly process to be very easy. This guide will help get your vacuum press put together as quick as possible. As always, feel free to contact me any time through my website at VeneerSupplies.com if you have any questions.

Assembly Time: 20 to 25 minutes

Excel 1™ Parts List



1.4 CFM Heavy-Duty Vacuum Pump

- Running Amps: 1.9
- Port size: 1/4 NPT
- Sound Rating: 55 dB @10 ft, A-Scale
- Air Evacuation: 1 CFM
- Cylinder: Wetted Aluminum Alloy
- Design: Oil-less Rocking Piston
- Maximum Bag Pressure: 1,785 lbs/sqr ft
- Maximum Vacuum: 25.5" Hg at Sea Level



Vacuum
Gauge



Vacuum
Filter



Vacuum
Valve



Vacuum
Tube



Lock-On
Plug Fitting



Vacuum
Bleeder



Brass Cross
Fitting



Brass
Elbow



Thread Sealing
Tape



Lock-On
Connector
(Qty: 2)



1/8" NPT
Barb Fitting
(Qty: 2)



Brass Hex
Pipe
(Qty: 2)

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Before You Begin

Time Estimates for Assembly

Assembly time will vary, but it shouldn't take more 25 minutes. If these instructions appear excessively long, it is only because of the large number of pictures I've included throughout this document. The assembly process does not take as long as it appears in these instructions.



Vacuum Gauge Inspection – IMPORTANT!

The vacuum gauge is a sensitive measuring instrument containing a fragile sensing spring inside. Handle the gauge with care; do not drop it or allow a hard object such as a wrench to collide with the gauge. Open the vacuum gauge packaging now and make sure the gauge needle is resting at the zero position. If not, cut the rubber tip off the top of the gauge with scissors. That will often allow the gauge needle to drop to the zero mark.

Do not attach the gauge to the assembly if the needle is not at zero. Stop and contact us immediately so we can help with this issue. We cannot help resolve this issue once the gauge has been installed on the vacuum press assembly.

Required Tools and Abilities

The Excel 1 system is offered as a kit which requires assembly. A certain amount of dexterity and physical strength will be needed to adequately assemble and tighten each fitting. The following wrenches are required: 9/16", 5/8", 11/16", 3/4", 18mm, or two adjustable crescent wrenches.

A Note About Thread Sealing Tape

All metal-to-metal connections must have sealing tape applied to the male threads. Start the process of applying thread sealing tape by holding the fitting in your right hand. Then apply the end of the tape to the threaded portion of the fitting and rotate the fitting clockwise. The fitting should be rotated in the same direction as if it were being inserted into another fitting. No more than three layers of tape should be applied to the fitting.



Tightening Instructions

Throughout these pages, you will find three terms used to describe the amount of effort that must be applied when assembling any two parts.

"Hand-Tighten" - Tighten by hand as far as possible. Do not use tools to further tighten.

"Firmly" - Use tools as required to tighten the fittings with firm but not aggressive force.

"Aggressively" - Use tools to tighten the fittings using as much force as reasonably possible.

Brass Parts Warning

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Brass fittings and other products may contain chemicals known to the state of California to cause cancer, birth defects or other reproductive toxicity. Brass fittings may contain lead and are not for use with potable water.



As with any product of this nature, you should wash your hands after contact with brass parts. We provide this warning based on our knowledge concerning the possible presence of one or more such chemicals, without attempting to evaluate the level of exposure.

Not Suitable for Use Near Flammable or Combustible Materials

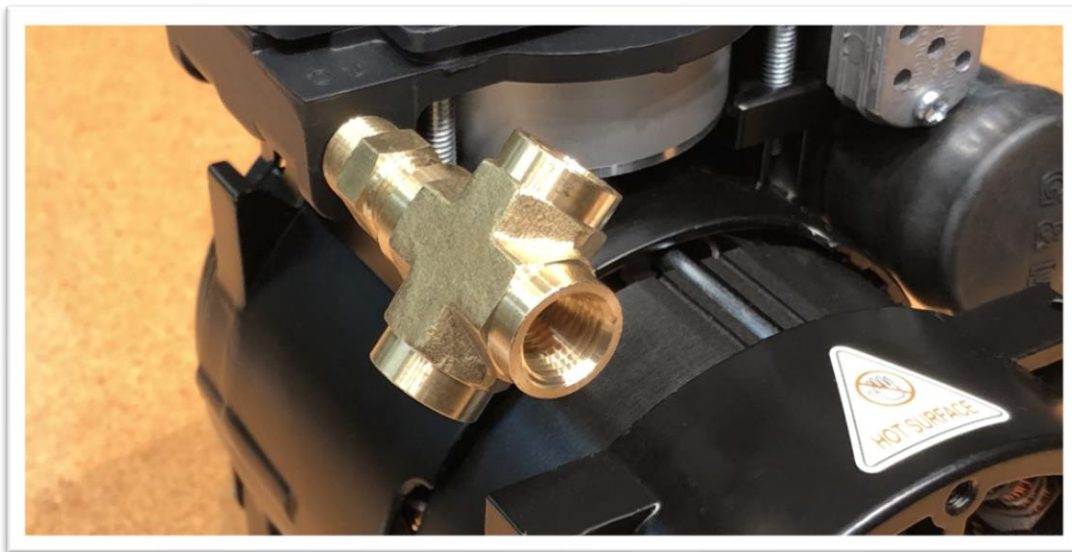
The individual components of this kit and the completed assembly of these components should not be considered suitable for use in areas where flammable or combustible gases or dusts are present.



Assembly Instructions

Before you begin, please keep in mind that there is no need to apply excessive force when tightening any of the fittings. Since this is a continuous-run vacuum press, small leaks will not affect the vacuum level created by the vacuum pump.

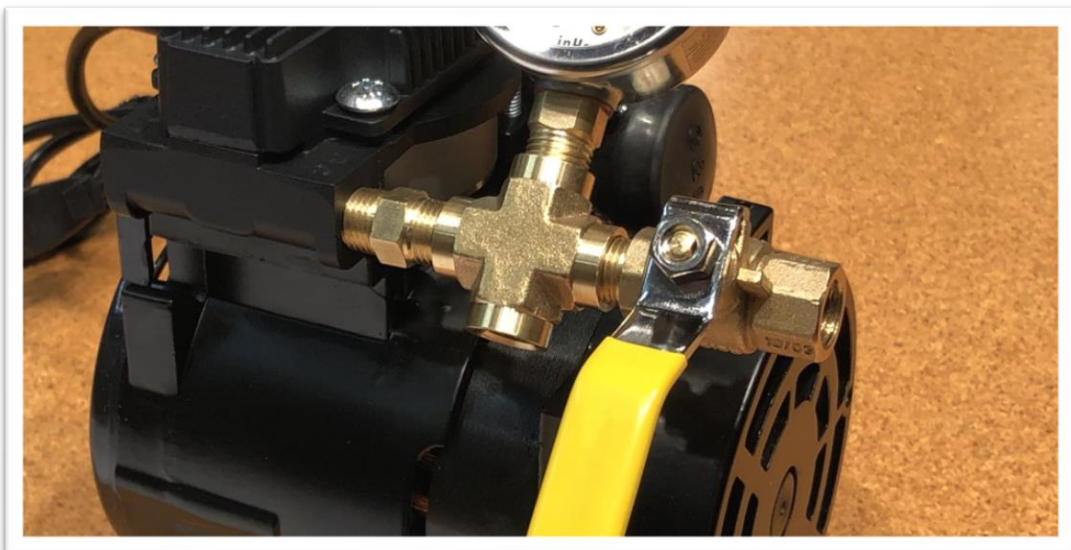
1. Thread sealing tape will be applied only where there will be a metal-to-metal connection. The tape is not shown in the assembly pictures for the sake of clarity. Apply sealing tape to the threads on the following items.
 - a. Brass Elbow
 - b. Vacuum Valve
 - c. Vacuum Bleeder
 - d. Vacuum Gauge
 - e. Brass Hex Pipes (*leave one side of one of these fittings without thread sealing tape*)
 - f. Brass Barb Fittings
2. Remove and discard the nut from each of the four rubber "feet" included in the vacuum pump box. Leave the small lock washer in place on each foot. Attach the four rubber feet to the bottom of the vacuum pump.
3. Find the brass hex pipe fitting that has thread sealing tape applied to both sides and attach it to the intake port (marked with a "C") on the vacuum pump. Hand-tight is fine for this step.
4. Attach the brass cross to the brass hex pipe fitting. Using an 11/16" wrench, apply enough force so that the cross and pipe fitting are firmly tightened. Then stop tightening when the cross is slightly tilted as shown in the following picture.



5. Please read the section titled “Vacuum Gauge Inspection” on page 4 before continuing. Then attach the vacuum gauge to the top port of the brass cross fitting using a 9/16” wrench. Do not apply force to the gauge housing and use care to avoid hitting the gauge with any tools as this will damage the sensing element inside. Firmly tighten the gauge and then stop applying turning force when the gauge is facing forward as shown in the following picture.



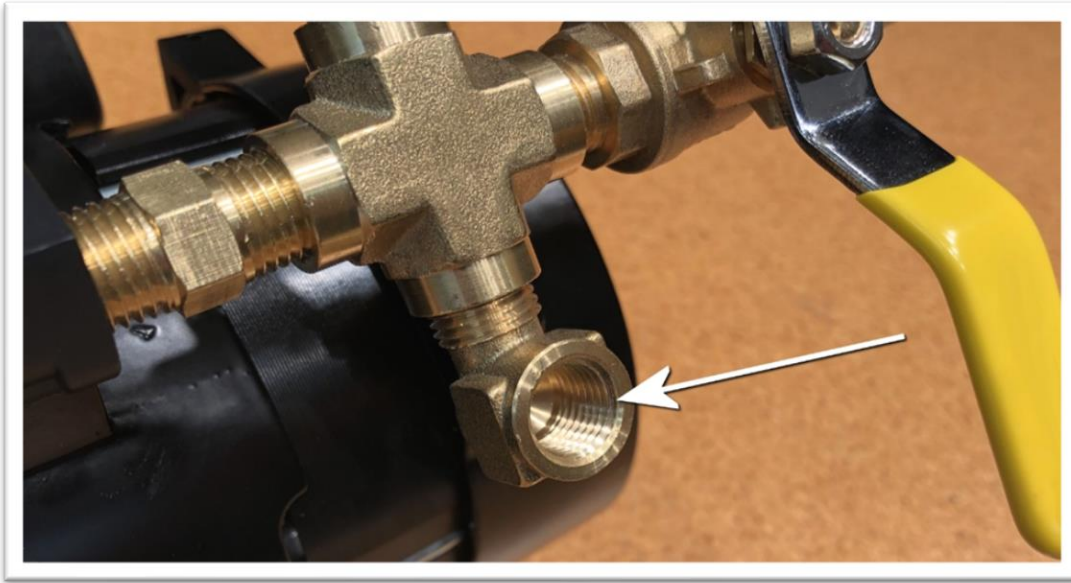
6. Attach the vacuum valve to the port on the right side of the brass cross fitting using an 18mm wrench. You can use a 11/16” wrench on the body of the brass cross to prevent it from turning as you firmly tighten the vacuum valve. When finished, the vacuum valve should be aligned with the brass cross as shown in the picture below.



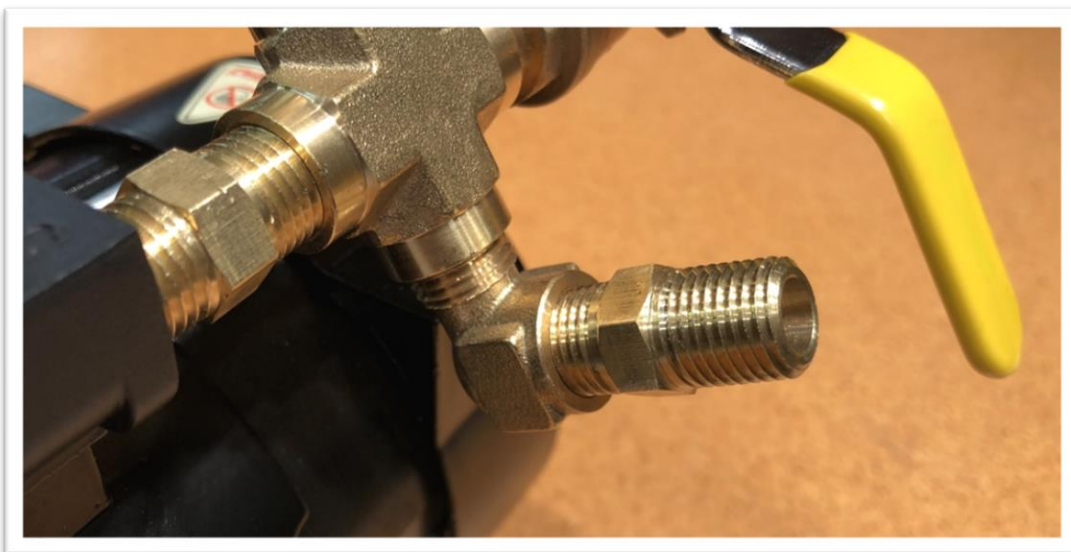
7. Firmly attach the vacuum bleeder fitting to the vacuum valve using 9/16" and 18mm wrenches.

The vacuum valve and bleeder fitting allow the user to quickly and easily adjust the amount of vacuum being applied to the project. The fitting which we call a "bleeder" can be used for many purposes. For this kit, the bleeder simply allows filtered air back into the system to lower the vacuum level on the project.

8. Attach the brass elbow fitting to the lower port on the brass cross fitting and use a 3/4" wrench to firmly (not aggressively) tighten it. Stop applying turning force when the fitting is aligned as shown in the picture below.



9. Firmly attach the remaining brass hex pipe (using the side that has thread sealing tape) to the elbow fitting using a 9/16" wrench. Use a 3/4" wrench to hold the elbow fitting in place as the hex pipe is tightened. The other end of this fitting should not have thread sealing tape applied.



10. Unscrew the clear filter bowl from the black plastic filter head. Attach the filter head to the brass hex pipe. Be sure the directional arrow stamped on the side of the filter head is pointing in the direction of vacuum flow (toward the brass elbow).



Attach the filter head by hand. If you consider yourself a reasonably strong person, then you probably have it tight enough. "Gently snug" is adequate. Tighten the filter head until it is oriented on the brass pipe as shown in the next picture.

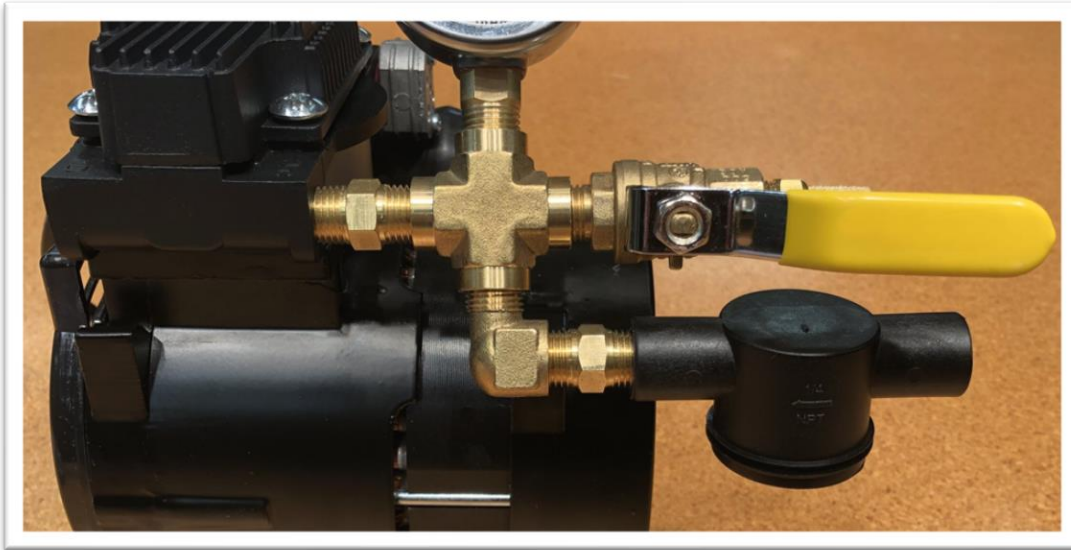
Avoid over-tightening the filter head. The plastic is soft and it will easily seal against the threads on the brass fitting without excessive force.

11. Now turn the vacuum valve handle to the horizontal/open position.

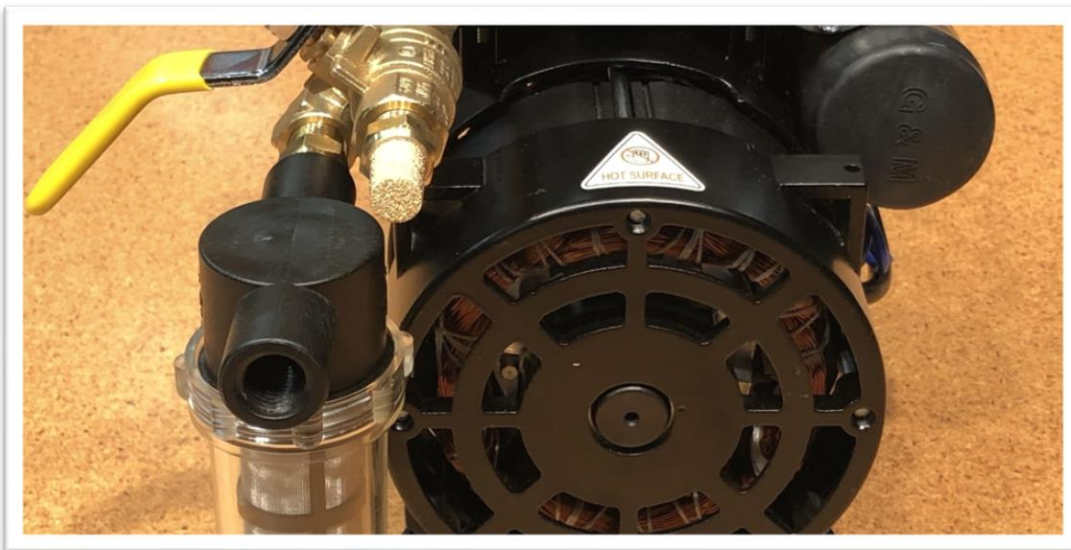


12. Use a 3/4" wrench on the body of the brass elbow and rotate this fitting to the right until the filter head is parallel to the vacuum valve and bleeder fitting.

Tip: To get a wrench on the back of the brass elbow, you might find it easier to first tilt the brass cross and gauge further back against the pump motor. Do this using an 11/16" wrench on the body of the cross. Don't apply force to the gauge housing. When finished, use the 11/16" wrench to rotate the cross back to its original position.



13. The filter bowl can now be re-attached to the filter head. Hand-tight is adequate.
14. Turn the vacuum valve handle to the vertical (closed) position.
15. If necessary, turn the filter head to get the filter bowl to sit vertically. With a bit of effort, you can also tilt the brass cross forward or backward to allow the filter to sit correctly as shown in the picture below.



16. Make sure there is no sealing tape applied to the lock-on plug fitting. Then attach it to the vacuum filter with a 9/16" wrench and slowly tighten it until the hex part of the fitting is approximately 1.5 mm from the plastic filter head. This measurement is important as it prevents the threads on the filter head from splitting. Again, "gently snug" is adequate.



17. Now firmly attach a 1/8" NPT brass barb fitting to both of the lock-on connectors using a 5/8" and 9/16" wrench.



18. Attach each of the above assemblies to the vacuum tube. A high-grade braided tube is included with the Excel kit so the barb fittings should slide in without much effort, but the tubing can be softened in hot water to make this process easier.
19. You can now attach the vacuum tube to the system by pulling back the sleeve on the lock-on connector and pushing it onto the fitting on the vacuum filter. Release the sleeve while gently pushing the vacuum tube toward to filter to snap the lock-on connector into position.

Your Excel 1™ Vacuum Pressing System Is Now Complete!

I've written a short but helpful article that explains what else you will need to use your vacuum press. The article also includes a step by step guide to using your system for vacuum pressing a veneered panel. Check it out here...

www.JoeWoodworker.com/veneering/getting-started.htm

How to Use the Excel 1 Vacuum Press System

Apply the bag closure to the vacuum bag after the project is prepared and placed inside. Pull back the sleeve on the lock-on connector and slide it onto the brass stem* on the vacuum bag. Release the sleeve while gently pushing downward to snap the lock-on connector into position.

Plug in the Excel 1 vacuum press and close the vacuum valve by turning the handle to the vertical position. The gauge will show how much vacuum is being applied to the bag. The ideal vacuum level for most veneering projects is 21" of Hg. Observe the vacuum gauge as the indicator needle moves toward this ideal vacuum level. When the needle passes the 21" of Hg mark on the gauge, slowly open the vacuum valve. Doing so will allow a small amount of air to vent back into the system and the gauge needle will move backward. Adjust the position of the vacuum valve handle until the gauge needle settles at the 21" mark. No further adjustment should be needed during the pressing time for the project.

** The vacuum bags offered at VeneerSupplies.com include a special brass stem that mates with the lock-on connector included with this vacuum press kit.*

Warnings

1. Do not allow the vacuum press system to run unattended.
2. The vacuum gauge is a sensitive instrument and will be rendered inaccurate if dropped or struck with a hard object.
3. The individual components of this kit and the completed assembly of these components should not be considered suitable for use in areas where flammable or combustible gases or dusts are present.
4. The vacuum pump may be hot during and after use. Exercise care when handling the vacuum press system.
5. This system is designed to run continuously. The vacuum pump will not restart if power is removed from the system and there is any amount of vacuum shown on the gauge. If you need to turn the system off while pressing a project, then you must temporarily disconnect the lock-on connector from the vacuum bag before turning on the pump again. Re-attach the connector to the bag only when the pump is running at full speed. Failure to do this will cause the pump to stall and over-heat which can result in permanent pump damage that is not covered by the warranty.



Pressing Time

The adhesive used on your project will determine how long the panel needs to be pressed in the bag. Always follow the instructions on the adhesive bottle for clamping time. Excess clamping time for some adhesives can be problematic so avoid pressing the project for too long.



Optional Excel System with Podz™ Vacuum Clamping Jigs

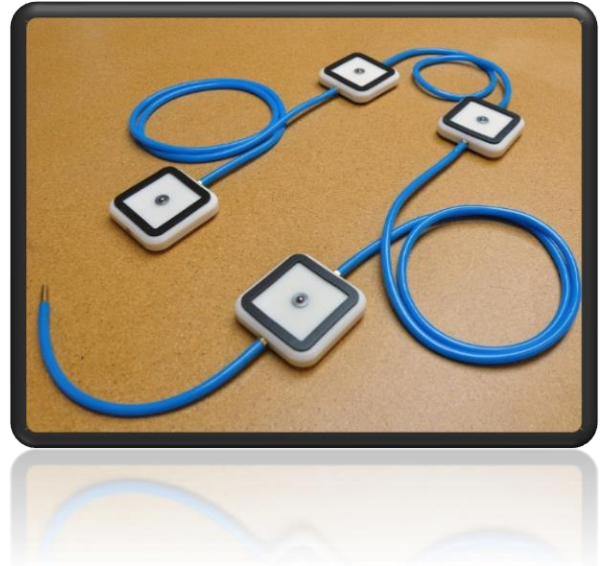
Set Up

If you ordered the Excel system with the optional Podz™ clamping kit, assemble the jigs using the instructions included with that kit.

Begin preparing the vacuum press system and the Podz jigs for use by attaching the tube adapter from the lead Podz clamping jig to the lock-on connector from the Excel vacuum system.

Attach the power cord from the vacuum pump to the end of the power cord on the electric foot pedal included with the Podz clamping kit.

Plug the foot pedal power cord into a standard 120v AC wall socket.



Using the Excel System with Podz™ Vacuum Clamping Jigs

Set the vacuum valve about half way between the fully open and fully closed position. Then turn the system on by depressing the front edge of the foot pedal (the area closest to the power cord). Now place your work piece onto the Podz jigs. You should feel the vacuum pull it down.

You may wish to adjust the vacuum valve if the clamping piece is very porous and causes inadequate clamping pressure. Adjust the vacuum valve handle as needed to create an ideal balance of vacuum clamping force and release time.

Slight adjustments toward closing the vacuum valve increase the clamping pressure and decrease the speed at which the project releases from the clamping jigs. Slight adjustments toward opening the vacuum valve decrease the clamping pressure but increase the rate of release when the system is turned off.

Press the back edge of the foot pedal to turn off the vacuum pump and release your project. You may hear the flow of air from the bleeder fitting as the vacuum from the jigs is unloaded.

