






Parts to Build a Continuous-Run Vacuum Press

1. Vacuum Press Kit
2. Breather Mesh
3. Vacuum Bag
4. 3/4" Thick Melamine Board






- Electric Vacuum Press Kits -					
	Project: EVS-2™ Auto-Cycling Vacuum Press Kit and 3.5 CFM Vacuum Pump	Project: EVS-2™ Auto-Cycling Vacuum Press Kit and 5.0 CFM Vacuum Pump	Excel 1™ Continuous Run Vacuum Press Kit with 1.4 CFM Vacuum Pump	Excel 3™ Continuous Run Vacuum Press Kit with 3.5 CFM Vacuum Pump	Excel 5™ Continuous Run Vacuum Press Kit with 5.0 CFM Pump
Type	Auto-Cycling	Auto-Cycling	Continuous-Run	Continuous-Run	Continuous-Run
Max Bag Size <small>Flat work: Curved work:</small>	4' x 9' 4' x 4'	4' x 15' or 6' x 10' 4' x 6'	4' x 4' 2' x 4'	4' x 9' 4' x 4'	4' x 15' or 6' x 10' 4' x 6'
Vacuum CFM	3.5 CFM	5 CFM	1.4 CFM	3.5 CFM	5 CFM
Maximum Vacuum ¹	25.5" Hg	25.5" Hg	25.5" Hg	25.5" Hg	25.5" Hg
Maximum Force ¹	1,785 lbs per square ft.	1,785 lbs per square ft.	1,785 lbs per square ft.	1,785 lbs per square ft.	1,785 lbs per square ft.
Adjustable Vacuum	Yes (via vacuum controller)	Yes (via vacuum controller)	Yes (via bleeder valve)	Yes (via bleeder valve)	Yes (via bleeder valve)
Sound Level ²	55 dB	55 dB	55 dB	55 dB	55 dB
Evacuation Time ³	114 seconds ⁴	54 seconds ⁴	174 seconds	99 seconds	46 seconds
Build Time ²	4 to 6 hours	4 to 6 hours	20 to 25 minutes	30 to 35 minutes	30 to 35 minutes
Kit Sale Price	\$599.00	\$639.00	\$279.50	\$419.50	\$459.50
Vacuum Pump	Included with kit	Included with kit	Included with kit	Included with kit	Included with kit
Vacuum Clamping	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit
Vacuum Forming	Yes	Yes	Yes	Yes	Yes
Free Instructions	Downloadable PDF	Downloadable PDF	Downloadable PDF	Downloadable PDF	Downloadable PDF
Advantages	Very fast vacuum draw, fully adjustable, and highly adaptable to other uses such as vacuum clamping.	Very fast vacuum draw, fully adjustable, and highly adaptable to other uses such as vacuum clamping.	Fully adjustable and very quiet. Makes vacuum clamping a breeze and this kit is very easy to assemble.	Fully adjustable and can pull down a 4x9 bag very well. Great for bench top vacuum clamping. Easy to assemble.	Fully adjustable, can handle very large vacuum projects, and makes vacuum clamping as easy as can be.
Disadvantages	The system is a bit heavy and takes more time to build than a comparable Excel kit.	The system is a bit heavy and takes more time to build than a comparable Excel kit.	Limited to a vacuum bag no larger than 4' x 4' but for many users, it is perfect.	Not quite as quick as the Excel 5 system and a bit louder than the Excel 1.	A bit louder than the Excel 1 kit but nothing that will cause concern with the neighbors.
Comments	This system is ideal for the woodworker who is looking for an affordable auto-cycling vacuum press kit.	Perfect for the woodworker who requires a power-house vacuum press system that can handle large bags.	The low cost of this system is just incredible. Get the vacuum clamping add-on. It is worth every penny.	Based on price and performance, I suspect this will become our most popular vacuum press kit.	The carrying handle makes this system even more portable and the optional clamping add-on is a bargain.
Image					
Links	Project: EVS-2™ Vacuum Press Kit	Project: EVS-2™ Vacuum Press Kit	Excel 1™ Vacuum Press Kit	Excel 3™ Vacuum Press Kit	Excel 5™ Vacuum Press Kit

¹ At sea level
² Estimated (the EVS-2 kit only creates sound when additional vacuum is needed)
³ Estimated time to achieve 21" Hg for a flat panel in a 4' x 4' vacuum bag
⁴ If the reservoirs are pre-charged with vacuum before opening the vacuum valve

Questions & Answers - <http://www.joewoodworker.com/veneering/frequently-asked-questions.htm>

Parts to Build an Air-Powered Auto-Cycling Vacuum Press

1. **Your Air Compressor**
2. **Project: V4 Kit™**
3. **Breather Mesh**
4. **Vacuum Bag**
5. **3/4" Thick Melamine Board**

- Air Powered Vacuum Press Kits -					
	Project: V4™ Mini Auto-Cycling Venturi Vacuum Press Kit	Project: V4™ Basic Auto-Cycling Venturi Vacuum Press Kit	Project: V4™ Plus Auto-Cycling Venturi Vacuum Press Kit	Project: V4™ Premium 5 Auto-Cycling Venturi Vacuum Press Kit	Project: V4™ Premium 9 Auto-Cycling Venturi Vacuum Press Kit
Type	Auto-Cycling	Auto-Cycling	Auto-Cycling	Auto-Cycling	Auto-Cycling
Max Bag Size <small>Flat work: Curved work:</small>	2' x 4' 2' x 2'	4' x 4' 2' x 4'	4' x 9' 4' x 4'	4' x 15' or 6' x 10' 4' x 6'	6' x 15' 4' x 9'
Vacuum CFM	.5 CFM	1.2 CFM	3.2 CFM	5.5 CFM	9 CFM
Maximum Vacuum ¹	25.5" Hg	25.5" Hg	25.5" Hg	25.5" Hg	25.5" Hg
Maximum Force ¹	1,750 lbs per square foot	1,750 lbs per square foot	1,750 lbs per square foot	1,750 lbs per square foot	1,750 lbs per square foot
Adjustable Vacuum	Yes (via vacuum controller)	Yes (via vacuum controller)	Yes (via vacuum controller)	Yes (via vacuum controller)	Yes (via vacuum controller)
Air Compressor Output Requirement	.8 CFM @ 80 PSI 1.2 CFM @ 90 PSI	1.8 CFM @ 80 PSI 2.2 CFM @ 90 PSI	4.8 CFM @ 80 PSI 5.5 CFM @ 90 PSI	7.8 CFM @ 80 PSI 9 CFM @ 90 PSI	12.5 CFM @ 80 PSI 14 CFM @ 90 PSI
Sound Level ²	68 dB	68 dB	68 dB	68 dB	68 dB
Evacuation Time ³	262 seconds ⁴	118 seconds ⁴	66 seconds ⁴	38 seconds ⁴	25 seconds ⁴
Build Time ³	2 to 3 hours	2 to 3 hours	2 to 3 hours	2 to 3 hours	2 to 3 hours
Items Not Included	PVC Cement	PVC Cement	PVC Cement	PVC Cement	PVC Cement
Kit Sale Price	\$290.50	\$290.50	\$300.50	\$373.50	\$403.50
Vacuum Clamping	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit	Yes, w/ optional add-on kit
Vacuum Forming	Yes	Yes	Yes	Yes	Yes
Free Instructions	Downloadable PDF	Downloadable PDF	Downloadable PDF	Downloadable PDF	Downloadable PDF
Advantages	Great for very small compressors. The kit is easy to build and ultra-reliable.	Great for small compressors. It's very easy to build and of course it's ultra-reliable.	Very reliable and easy to build. Excellent vacuum speed at a super low cost.	This version of the kit is very fast. It's even faster than a 5 CFM electric vacuum pump.	A system like this can handle almost any veneering project that you can imagine.
Disadvantages	It's not as fast as some users prefer and has a lower performance-to-cost ratio.	Faster than the Mini version but not as fast as the other kits offered here.	Requires a small to medium size compressor but it's very efficient with the air.	Requires a decent size air compressor and uses 7.8 CFM of air to create vacuum.	Requires a large air compressor and uses 12.5 CFM of air to create vacuum.
Comments	This system is best suited for smaller projects but if you own a small air compressor, it's not a bad deal.	If your compressor will allow it, spend an extra 10 bucks to get the "Plus" model. It's a very worthwhile upgrade.	This is the kit that gives you the most bang for your buck. This is one of my favorite vacuum presses.	The upgraded parts cause a jump in price but overall, this is a very cost-effective vacuum pressing system.	The 9 CFM venturi is ridiculously quick. Similar high-speed systems can cost more than twice as much.
Image					
Link	Project: V4 Vacuum Press Kit	Project: V4 Vacuum Press Kit	Project: V4 Vacuum Press Kit	Project: V4 Vacuum Press Kit	Project: V4 Vacuum Press Kit

¹ At sea level

² Estimated (the V4 kit only creates sound when additional vacuum is needed)

³ Estimated time to achieve 21" Hg for a flat panel in a 4' x 4' vacuum bag

⁴ If the reservoirs are pre-charged with vacuum before opening the vacuum valve

- Vacuum Pressing Bags -

Nominal Size (W x L)	Actual Size	Maximum Project Size ¹	Included Bag Closure	Min. Vacuum Source ²	Material Name	Material Type	Seam Method ³	Lubricant Infusion ⁴	Price & Product Link
2' x 2'	27" x 27"	24" x 24"	29"	1 CFM	VS Standard™	30 Mil Vinyl	RF Welded	No	\$63.00
2' x 2'	27" x 27"	24" x 24"	29"	1 CFM	VS Elite™	20 Mil Polyurethane	RF Welded	Yes	\$75.00
2' x 2'	27" x 27"	24" x 24"	29"	1 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$88.00
2' x 4'	27" x 54"	24" x 48"	29"	1 CFM	VS Standard™	30 Mil Vinyl	RF Welded	No	\$94.00
2' x 4'	27" x 54"	24" x 48"	29"	1 CFM	VS Elite™	20 Mil Polyurethane	RF Welded	Yes	\$124.00
2' x 4'	27" x 54"	24" x 48"	29"	1 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$147.00
2' x 6'	27" x 78"	24" x 72"	29"	1 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$176.00
2' x 9'	27" x 114"	24" x 108"	29"	1 CFM	VS Elite™	20 Mil Polyurethane	RF Welded	Yes	\$172.00
2' x 9'	27" x 114"	24" x 108"	29"	1 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$219.00
2' x 12'	27" x 150"	24" x 144"	29"	3 CFM	VS Elite™	20 Mil Polyurethane	RF Welded	Yes	\$200.00
2' x 21'	27" x 258"	24" x 252"	29"	5 CFM	VS Elite™	20 Mil Polyurethane	RF Welded	Yes	\$287.00
4' x 4'	54" x 54"	48" x 48"	58"	1 CFM	VS Standard™	30 Mil Vinyl	RF Welded	No	\$146.00
4' x 4'	54" x 54"	48" x 48"	58"	1 CFM	VS Elite™	20 Mil Polyurethane	Seamless	Yes	\$210.00
4' x 4'	54" x 54"	48" x 48"	58"	1 CFM	VS Extreme™	30 Mil Polyurethane	Seamless	Yes	\$255.00
4' x 6'	54" x 78"	48" x 72"	58"	3 CFM	VS Standard™	30 Mil Vinyl	RF Welded	No	\$177.00
4' x 6'	54" x 78"	48" x 72"	58"	3 CFM	VS Elite™	20 Mil Polyurethane	Seamless	Yes	\$248.00
4' x 6'	54" x 78"	48" x 72"	58"	3 CFM	VS Extreme™	30 Mil Polyurethane	Seamless	Yes	\$314.00
4' x 8'	54" x 100"	48" x 94"	58"	3 CFM	VS Standard™	30 Mil Vinyl	RF Welded	No	\$199.00
4' x 9'	54" x 114"	48" x 108"	58"	3 CFM	VS Elite™	20 Mil Polyurethane	Seamless	Yes	\$306.00
4' x 9'	54" x 114"	48" x 108"	58"	3 CFM	VS Extreme™	30 Mil Polyurethane	Seamless	Yes	\$402.00
4' x 12'	54" x 150"	48" x 144"	58"	5 CFM	VS Elite™	20 Mil Polyurethane	Seamless	Yes	\$363.00
4' x 12'	54" x 150"	48" x 144"	58"	5 CFM	VS Extreme™	30 Mil Polyurethane	Seamless	Yes	\$489.00
4' x 15'	54" x 186"	48" x 182"	58"	5 CFM	VS Elite™	20 Mil Polyurethane	Seamless	Yes	\$431.00
6' x 6'	78" x 78"	72" x 72"	82"	3 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$485.00
6' x 9'	78" x 114"	72" x 108"	82"	5 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$647.00
6' x 15'	78" x 186"	72" x 182"	82"	5 CFM	VS Extreme™	30 Mil Polyurethane	RF Welded	Yes	\$911.00

¹ For flat panels up to 1" thick. It assumes a 3/4" bottom platen board is used and that breather mesh is placed over the veneer.

² The required vacuum flow for flat panel work.

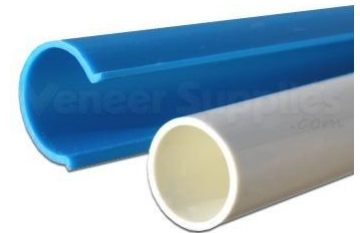
³ This refers to the edge seams. All vacuum bags have an RF welded end seam.

⁴ VS Elite™ and VS Extreme™ vacuum bags are infused with a non-transferring lubricant that prevents most veneering adhesives from sticking to the bag.

Please keep in mind that the bag sizes listed above are subject to availability and some sizes/styles may be out of stock from time to time.

More Information About Our Vacuum Bags

- All VeneerSupplies.com vacuum bags are made in the USA.
- Each vacuum bag includes one [bag closure](#).
- Each vacuum bag also includes our flush-mount stem.
- A [lock-on connector](#), which is included with all of our vacuum press kits, is required to attach the vacuum tube to the bag.



Choosing a Vacuum Press

There are three types of vacuum presses for veneering. The information below refers to the systems offered at VeneerSupplies.com.

Auto-Cycling Venturi System: The [Project: V4](#) kit creates vacuum using compressed air through a vacuum generator called a venturi. This system does not include an air compressor but you can buy one larger home improvement stores. The vacuum press is automatically controlled by a switching device that measures the vacuum level inside of the system and keeps it reasonably constant by opening the flow of compressed air to the venturi if the vacuum level decreases. The air compressor only runs if the air in the tank drops below level set by the manufacturer.

Auto-Cycling Electric Pump System: The [Project: EVS-2](#) kit also cycles on and off but achieves vacuum via an electric pump. Like the venturi system, it is automatically controlled by a switching device which measures vacuum inside of the system and keeps it reasonably constant by turning the pump on until the desired vacuum level is reached.

Continuous-Run Electric Pump System: A continuously running vacuum system such as the [Excel 1](#), [Excel 3](#), or [Excel 5](#) uses an electric pump but does not cycle on and off. It run continuously, but don't worry... most pumps are rated for continuous duty and some manufacturer suggest that these types of pumps can run for two years without stopping. These systems are less expensive and easier to assemble.

Other Considerations

Performance

Maximum Vacuum: Each of these systems can pull more than enough vacuum for veneering and most bent lamination projects. The maximum vacuum is 25.5" of Hg at sea level for all of the systems we offer. This equals roughly 1,800 lbs of pressure per square foot. Approximately 1" of Hg is lost for every 1,000 feet above sea level. If a pump is capable of pulling 25.5" of Hg at sea level, it will only pull 20.5" Hg at 5000' above sea level. Only 21" Hg is needed for most veneering projects.

Cubic Feet per Minute: The most common performance measure is the flow rating at zero vacuum. This coincides with the amount of time it takes to draw full vacuum on a vacuum bag. Bags that have a large amount of air inside (such as those being used with a curved veneer project) will benefit from a high-CFM vacuum source. More information about this is provided in the chart in the next page. VeneerSupplies.com offers vacuum sources from 1 CFM to 9 CFM.

A venturi-based system will typically create full vacuum faster than a comparable electric pump. This is referred to as the "CFM Curve". It simply means that 3 CFM electric pump will draw vacuum slower than a 3 CFM venturi.

Project/Vacuum Bag Size

The CFM of the vacuum source typically determines the maximum bag size that can be used. Keep in mind, these are estimates.

Project	Minimum Requirement	Minimum Requirement
<i>4' x 4' or smaller vacuum bags</i>	1 CFM for flat panels	3 CFM for curved panels
<i>4' x 6' to 4' x 8' vacuum bags</i>	3 CFM for flat panels	5 CFM for curved panels
<i>4' x 9' to 6' x 15' vacuum bags</i>	5 CFM for flat panels	9+ CFM for curved panels
<i>Vacuum clamping</i>	1 CFM for non-porous materials	3+ CFM for porous materials
<i>Vacuum chucking on a lathe*</i>	1 CFM for very small projects	5 CFM for medium projects

* This largely depends on the porosity of the project.

Reliability

All of the systems described here are very reliable pieces of equipment with a focus on reduced complexity. Each component of every vacuum press kit uses vigorously tested components from trusted suppliers. Variations of our vacuum press plans have been available and in use since 2002. A venturi-based model from 2003 is still the workhorse in my own shop! Consider posting a question on any of the online woodworking forums for more feedback on our vacuum press kits. We have very a helpful customer base.

Portability

Though the Project: EVS-2 system is portable in the sense that electricity is easily obtainable, the system does weigh about 32 lbs. Some users opt to put casters on the bottom of the system to roll it around their shop. The 18 lb weight of the Project: V4 makes it very portable, but compressed air is often not as easy to find outside of the workshop. The Excel 1 weighs approximately 14 lbs. The Excel 3 and Excel 5 weigh about 18 lbs and since they run on electricity alone, the Excel kits are the most portable systems we offer.

Adjustability

With the standard vacuum controller included with the Project: EVS-2 and Project: V4 kits, the vacuum level can be adjusted from 10.5" to 25.5" of Hg. For most veneer projects, a setting between 18" and 21" is ideal. Excessive vacuum levels do not improve the bond of the veneer to the substrate. It only forces the vacuum source to work harder and risks glue-line starvation. If you need a lower vacuum level for projects such as foam core modeling, an [alternate vacuum controller](#) can be used on the EVS-2 and V4 kits. The Excel 1, 3, and 5 systems can be adjusted from 5" to 25.5" of Hg using the simple bleeder valve included with the kit.

Noise Factor

- Project V4: These systems operate at 68 dB during the "on" cycle which is less than the sound of a running shower.
- Excel 1, 3, and 5: The Excel 1, 3, and 5 systems operate at 55 dB which is said to be the sound level of conversational speech at home. This rating was done at 10 feet from the pump using the A scale.
- Project EVS-2: The 3 and 5 CFM pumps offered at VeneerSupplies.com operate at 55 dB. In an auto-cycling system the sound is only present when the unit is recharging the vacuum.

Build Time

Project V4: less than 2 hours

Project EVS-2: 4 to 6 hours

Excel 1: 20 to 25 minutes

Excel 3 and Excel 5: 30 to 35 minutes

Benchtop Vacuum Clamping

The companion clamping kit allows you to use the massive holding power of vacuum to instantly hold work pieces to your bench top for sanding, routing, carving and more. The picture shown to the right is the version for the Project: EVS-2 and Project: V4 systems. A clamping add-on for the Excel and CRS kits is also available. You'll likely be surprised by the ease and versatility of a simple vacuum clamping set up.



Don't Forget Breather Mesh

[Breather mesh](#) is a unique plastic fabric that allows air to flow to the bag stem. When used in conjunction with bottom platen made from 3/4" thick melamine board (available at your local hardware store) breather mesh helps create an even level of vacuum on the project. It is used in place of a top platen. Without it, the vacuum bag material will seal itself against the veneer causing pockets of air to form. These pockets have little or no vacuum inside and therefore do not provide the even clamping strength required to keep the veneer pressed firm to the substrate during the vacuum pressing process. [Use breather mesh](#) to distribute vacuum evenly throughout the bag. This is the key to successful vacuum pressing!

