

After making my home-made vacuum chuck system, I welcomed the opportunity to test and review the Air Press Company's vacuum chucking system if only to make the inevitable comparison with mine.

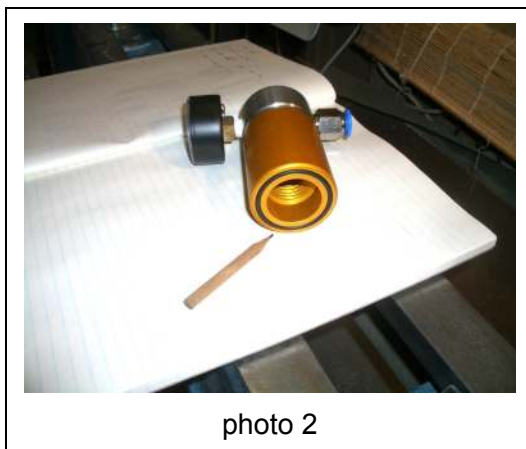
Air Press's Peter Hoggard was very helpful and soon a surprisingly small but very well-packed box arrived containing all the parts needed to set up the system (**photo 1**).



Although no instructions were included, it was fairly easy to put together. The rotary adaptor goes on the outboard side of my Vicmarc lathe, and is connected to the air filter by a length of plastic tubing which has push-fit connectors rather like those for plastic plumbing. The air filter screws directly onto the pump. I found that the length of the tubing (1.65m) was a little too short and meant that I was restricted in my choice for placing the pump in an out of the way place. This was not helped by the short power lead to the pump (2.1m), but these are trivial criticisms.

Incidentally, Air Press make another rotary adaptor, suitable for lathes without a hole through the headstock spindle.

The chuck itself must be attached to the thread adaptor which, of course, varies from lathe to lathe. This was a very precise fit and the presence of a rubber sealing ring made it very difficult to push the adaptor into the chuck. However, some fairly forceful persuasion from a wooden mallet got it in and when the four screws were fastened, it was very secure. I was a little concerned that, when the time came, I would not be able to get the adaptor back out again, but I needn't have worried, this is precision engineering and, after a gentle tap with the mallet, it slid off fairly easily. These rubber sealing rings are a feature of this system and are fitted wherever metal is expected to meet metal (**photo 2**). This ensures a good airtight seal, as any air entering the system would reduce the vacuum inside.



With it all assembled, (**photo 3**) the first thing I did was to put a piece of smooth Perspex (to make a perfectly airtight seal) over the chuck and turn on the pump. A total vacuum, never achievable in practice, is minus 30 inches of mercury. The gauge on the rotary adaptor showed a vacuum of minus 19 inches and my home-made system showed minus 22 inches. I should point out, however, that the two figures were measured by different gauges.



photo 3

If you have any doubts that different measuring instruments can give different readings for the same thing, ask a group of people what time it is!

My conclusion is that my system is as good as Air Press's but I wouldn't claim it is any better.

I began my test of the Air Press system with the 150mm chuck. The chuck is made of very thick aluminium with a rubber seal around the open end of the chuck. It made my plastic soil-pipe version look cheap and flimsy (well, actually it *is* cheap, but not as flimsy as you might think). The Air-Press chuck is superbly engineered but incredibly thick walled and heavy. When I asked Peter Hoggard why the chuck

was so robust and presumably expensive to manufacture, he said he wanted to eliminate any vibration and also pointed out that because it is machined from solid aluminium bar, it would represent no cost saving to make it thinner.

Because I wanted to really put the chuck through its paces I decided to try making a bowl from start to finish on the vacuum chuck. All went well for a few minutes until I had a dig-in which immediately knocked the blank off the chuck. No great harm was done, either to me or the blank, so I replaced it and continued. The chuck held the work satisfactorily, although I was cautious and took light cuts. The outside of the bowl was turned, sanded, sealed and polished in the usual way, *including the foot* (**photo 4**).

This is not usual for me, as I would normally have a spigot on the foot to reverse the bowl onto. It felt quite odd finishing the outside completely, leaving no visible means of holding it in order to hollow it out.

The rotary adaptor has an air-inlet operated by a small tap. Opening this, air is let in to reduce the vacuum. This makes it easy to remove or adjust the workpiece without switching the pump on and off. The only way of turning the pump off is to unplug it, and if the plug is out of reach this would be very tricky.

The bowl was reversed and its lower part set in the chuck. There then followed a lengthy trial and error session to try to get it centralised and turning true. This is essential or the walls of the bowl will vary in thickness. I couldn't find an easy way of centralising the bowl, but with patience I eventually got it right and the bowl ran true. The inside was hollowed without further mishap (**photo 5**).



photo 4



photo 5

In a future piece in this magazine I hope to show in more detail how this bowl, and another, were made using nothing but the vacuum chuck.

To try out the faceplate I put a large bowl on it in order to re-polish the bottom. My bowl was bigger than the faceplate, but had a small inner rim which located on the rubber seal and the

bowl was held very securely (**photo 6**).

It proved very difficult to centre, because although the face plate has concentric circles marked on it, I couldn't see them. A smaller bowl would not have presented the problem. There was no doubt that the bowl was held very securely.



photo 6

I have no hesitation in recommending the Air Press system. It is superbly engineered and performed well in every test I tried. I had previously been sceptical of making a bowl from start to finish on the vacuum chuck, but now I know it can be done. My only reservation is the cost. The system reviewed here is (at the time of writing) £889 including VAT, which is a lot of money however you look at it, and more than some turners will have paid for their lathe. To save a few quid, don't buy the face plate, but spend the savings on a thread adaptor for each chuck you purchase.

Individual prices (ex VAT):

150 mm chuck	£95
300mm face plate	£146
RA2 rotary adaptor	£106
Pump & filter	£375
Thread adaptor	£35

www.airpress.co.uk