

Article

The Aspirator Explained

What is it and how does it work?

Sometimes, things can seem fairly straightforward in principal, but quite confusing in reality. I remember talking to my employer one time about a problem we were having with an electronic component. Now, during the conversation, I realized that he assumed I knew quite a bit more about how this component worked than I actually did, and I felt quite unconfident as the discussion went ahead. I was reluctant to admit I really didn't know as much as he thought, especially since he expected me to. Such seems to be the case for the aspirator in the hearing industry. What is it? How does it work? I hear this question often, so it must be time to talk about it.

First of all – is it OK if you don't know?

I should have stopped my boss and said, "Wait a minute! I really need an explanation on this." I am sure if I did, he would have had more respect for me than if he knew I was bluffing my way through the conversation. But then again, maybe not. I guess that's what keeps us from asking when we don't know sometimes.

The Aspirator finally explained

I guess a good place to start would be the official definition:

\As"pi*ra`tor\, n.

An apparatus for passing air or gases through or over certain liquids or solids, or for exhausting a closed vessel, by means of suction.

The way an aspirator is used in the hearing industry is to clean ears by extracting cerumen and debris using a vacuum pump. The pump is usually configured with a collection bottle connected to a tubing with a suction tool at the end. The suction tool is brought to the ear, and with the vacuum turned ON wax and debris are sucked through the tubing and into the collection bottle where it can be discarded later.

It seems pretty simple, but there are a few things you need to be aware of:

First and most importantly, you need to be familiar with the vacuum regulator on the pump, which adjusts the amount of suction the unit will produce. Now, this is going to depend largely on the vacuum capacity and flow of the pump, but you need to be able to adjust the flow. To check the adjustment, turn the pump ON and plug the end of the suction tool with your finger. Note the vacuum gauge reading. With your free hand, adjust the vacuum regulator to the desired reading. Obviously, you are going to decrease the amount of vacuum flow the deeper you move into the ear canal. How much vacuum and flow should you use? Again, this depends largely on the pump system you are using, but if you are going to be using this deep in the canal, you need some professional training. If you're unsure about how much suction to use, start with a very small flow and work up from there.

Next, the suction tool can be a bit confusing if you've never used one. There is a small hole in the suction tool handle that needs to be plugged with a finger, which forces all of the flow through the suction tool end. To stop the flow, simply lift your finger from the hole. This allows you to keep the pump running while you control the vacuum flow. (It would be quite inconvenient to turn the pump ON and OFF each time you wanted to stop the flow).

Finally, you really need to be connected to a collection bottle of some kind. Now, most suction systems come with an in-line filter and in a pinch you could just trap the debris there, but the filter will fill up rather quickly. The collection bottle can be cleaned between patients and will be much less expensive in the long run as you won't need to replace filters.

Now, when you use a collection bottle you will notice that it takes a moment to feel the vacuum at the end of the suction tool. This is because you first need to remove the air from the collection bottle and tubing before you can achieve flow through the suction tool.

Aren't you supposed to put water in the collection bottle?

Again, it depends on how you use your system. If you are using it to only clean ears, then putting a little water in the collection bottle will help to trap the debris under light vacuum, and make the bottle easier to clean later. But, if you are using a powerful system, such as the VAC-1, as soon as you adjust the regulator to max vacuum to clean hearing aids you will suck water right through the pump, and out of the exhaust port. That can be fun for a minute, but it isn't very good for the internal compressor.

What about cleaning hearing aids?

If you don't mind it taking a few moments to achieve max vacuum, then using a suction pump with aspirator is fine for cleaning hearing aids. You will want to replace the suction tool with a hand wand or some apparatus to connect needle tips, and adjust the pump for maximum vacuum. There is really no need to have two separate systems for cleaning ears and hearing aids unless your office is so busy you are standing in line to use one.

Is that it?

Well, pretty much. I know I was expecting more when I first heard of this practice. We had just developed our VAC-1 Professional Suction System and was approached by one of our distributors to configure it with an Aspirator Option. I hadn't a clue what that meant - it sounded kind of scary. But once we did a little research we found it was rather easy, and actually very non-technical.

Now you don't need to feel unconfident about this subject anymore

About the Author

Chris Perkins is the owner of Lightning Enterprises, and facilitates the Lightning Enterprises newsletter. He has worked in the hearing aid industry since 1991 in hearing aid manufacturing and product development, as well as equipment and process consulting.