

DEVELOP[®] LLC

MAGNETIC VENTURI KIT

For Vacuum Fixturing Systems and Vacuum Chucks

User Manual

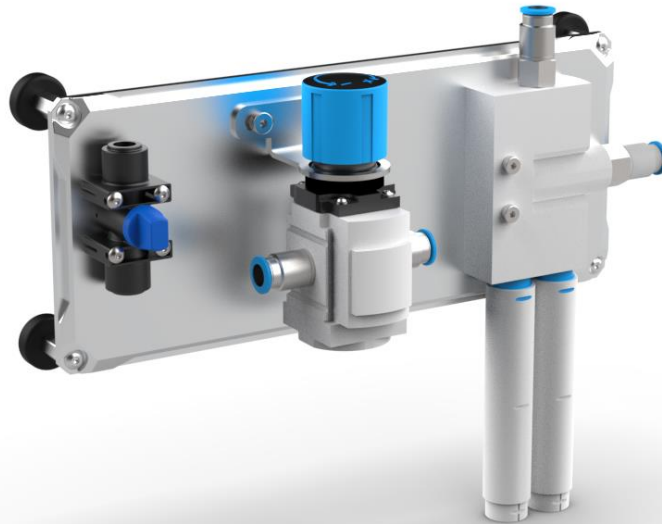


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Magnetic Venturi Kit Overview

The DEVELOP LLC venturi generator kit uses a Festo VN-30-H vacuum generator to create high vacuum force to hold parts to any vacuum apparatus. Paired with the vacuum generator is a regulator and flow shutoff valve.

Included Hardware

- A. Fully Assembled Venturi Kit
- B. 2m length vinyl tubing with wye fitting pre-assembled

1. Installation

How to install the venturi vacuum kit using a DEVELOP LLC Vacuum Fixture System:

1. Check all the pneumatic connections on the venturi plate for proper seating.
2. Locate the position you wish to have the venturi plate installed within the enclosure of your machine.
3. Test the tubing runs. It is best to mockup the tubing runs before cutting the tubing to final length. Testing the tubing length at full travel of your machine's table in X and Y. Some slack is desirable in the lines with the table at the furthest position away from the venturi generator.
4. Ensure that the flow shutoff valve is closed and attach the feed air line from your compressor to the inlet using 10mm OD tubing.
5. Using a length of the included 10mm tubing, plumb the outlet of the venturi vacuum generator to the VFS inlet, using the provided wye fitting.
6. Test the venturi generator by opening the flow shutoff valve and adjusting the regulator to 3 Bar.
7. Using your gasket material of choice attempt to hold a work piece in position on the VFS surface. The work piece should be held firmly in place.

2. Operation

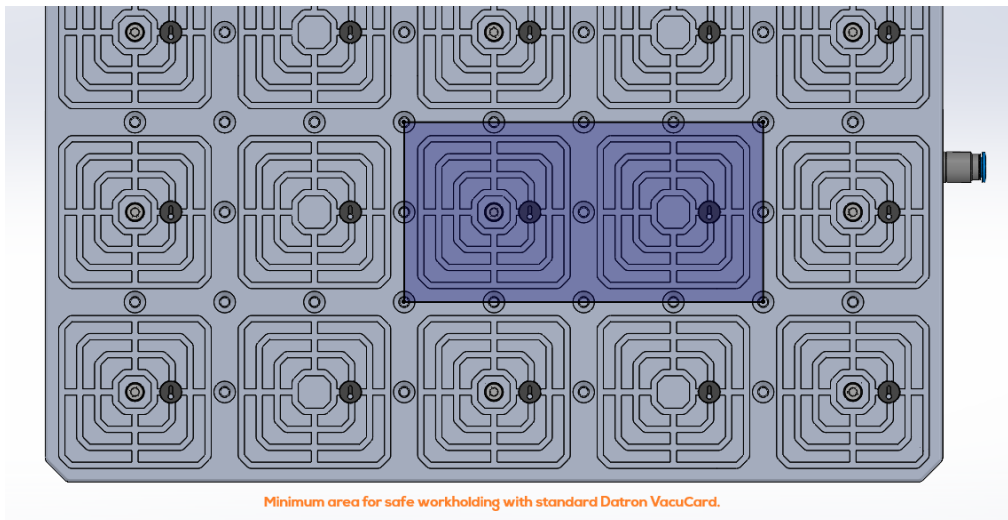
1. Plumb the vacuum generator to your desired apparatus and the flow shutoff valve to your air supply.
2. Once you have done this open the valve and adjust the regulator until it is providing 3 Bar of pressure to the vacuum generator.
3. The vacuum generator will now be producing **up to** 93% vacuum or .93 bar.

Notice: Be aware that the maximum vacuum level achievable is dependent on many factors. These factors can include surface quality of held material, porosity of material, the surface area being held, the style of gasket material used, coverage of vacuum surface, etc.

3.1 Maintenance and Troubleshooting

When using the venturi vacuum generator with a DEVELOP LLC Vacuum Fixture System work holding solution or a third-party vacuum chuck, some best practices should be followed to prevent damage to work pieces, tools, or machinery.

- If using [VacuCard](#) from Datron AG it is always best that the finished part covers at least two zones completely. This area is approximately 200mm x 100mm. If the finished part does not cover two zones, it is recommended that VacuCard+ is used. The adhesive layer greatly increases the work holding capabilities of the VacuCard system allowing the system to hold parts smaller than 200mm x 100mm.



- If using a cord gasket, we recommend the use of an EPDM foam cord such as [McMaster-Carr part number 8605K115](#). This material conforms well to the surface of a work piece while not preventing the piece from seating well on the locating surface of the VFS.
- If using cord gasket, the bottom surface of the work piece **cannot be broken through**. If the bottom surface of the part is machined through the vacuum generator will not be able to keep up with the leak that will be created, and the part will release from the VFS. **When using cord gasket if you break through the bottom, the piece will go flying.**
- No matter the gasketing method used it is best practice to use smaller diameter tooling and reduce step-over and feed rate from normal parameter one might use when holding a part in a vise or fixture. For any given MMR, a smaller diameter tool will produce lower cutting forces than a larger tool. For this reason, we do not recommend the use of any tool over 8 mm in diameter for side milling or pocketing.