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Why use a De-aeration Process?

De-aeration is recommended for all silicone mold making rubbers with only a few exceptions. Air becomes trapped as the base silicone and catalyst are combined during the mixing process . Eliminating these voids ensures a quality molded product. The design of the Rotokinetics Vacuum Chamber enables the user to quickly de-aerate the product.

Vacuum Chamber Setup

Verify that a filtered (25 micron or better) stable air supply is connected to the chamber at a line pressure of approximately 80 PSI to obtain the desired results. The compressed air supply is the power source for the solid state vacuum pump that is an integral part of the chamber. Inlet pressure must be maintained over the complete cycle to pull the maximum vacuum rating of the chamber and achieve the desired product quality. The required air flow is 4.9 SCFM for our “SS” series chambers and 8.6 SCFM for our “HP” series chambers.

To maximize the life of your vacuum chamber, always use clean, dry compressed air filtered to 25 micron or better.

Mixing of the material

Mix the silicone rubber and catalyst per the manufacturer's directions. Please note that it is important to use a container that is 2 to 3 times larger than the mixed volume of product. This equates to approximate 3 ½ lbs of material per gallon of container capacity. Different viscosities of compound may exhibit different characteristics of expansion during the de-aeration process, with higher viscosities typically exhibiting more expansion.

Using the Vacuum Chamber

1. Insert container with proper amount of mixed compound into the chamber and inspect and install the lid on the chamber. The inspection process requires verifying the lid seal is clean and free of contamination. Also ensure that the container mating surface is smooth and free of dust. Failure to observe this procedure may result in a damaged seal surface and inability to reach the desired vacuum levels.

Dirt, dust and other particles on the seal and mating surface of the container can damage the seal and impair vacuum performance.

2. Verify that inlet pressure is at the recommended level of 80 PSI, if not adjust supply pressure regulator to achieve the proper setting. Turn ball valve to full open position to supply air to the vacuum pump. Closely watch the mixed compound through the glass window in the chamber cover. Product will initially expand rapidly. Properly-mixed material in the correct amounts will expand without overflowing the container and then settle back to the original volume during the process. If it appears that the container will overflow, quickly close the ball valve. Once the material settles back into the container, reopen the ball valve to continue the process. Material will expand a second time, but typically at much lower volume, preventing container overflow.
3. Continue the process, closely watching both gauges on the pump. The vacuum gauge will indicate the chamber vacuum and the pressure gauge will indicate the air supply to the pump. Maintain the desired maximum vacuum level (usually 26-29 in Hg) for 1 to 2 minutes to complete the process.
4. Turn off ball valve, when chamber is fully exhausted (vacuum gauge at 0 in Hg), remove lid and container from the chamber. It is recommended to let the material stabilize in the container for at least 1 minute before use.

If you experience any problems using your vacuum chamber, try these steps.

Adjust air supply volume and pressure to 80 psi if necessary.

Ensure a minimum flow of 4.9 SFCM (8.6 SCFM for HP series).

Inspect lid seal surface and container mating surface for particles, dust, contamination or wear. If damaged, return to Rotokinetics for replacement.