There are essentially two types of vacuum used to hold parts for routing, conventional vacuum and universal vacuum but with modern technology, the line between the two is blurring.

Conventional vacuum uses a vacuum pump that produces a relatively high vacuum (approx. 29 in Hg) but at relatively low flow. Thus, if a part is sealed to eliminate vacuum leaks, a holding force of approximately 10 pounds per square inch is developed. A one foot by one foot part is held in place by 1,440 pounds of force. If the vacuum seal is lost, however, because of the low flow the holding force quickly disappears. The advantage of conventional vacuum is that, properly applied, with a relatively small investment parts can be held securely. The 5 HP pump offered by Thermwood is a conventional vacuum pump.

Universal vacuum relies on a high flow vacuum pump. A porous spoilboard is placed over a vacuum plenum built into the machine table. The high flow pump pulls air through the spoilboard. Even with the continuous leak, a panel placed on the table is held in place with 2 to 4 pounds per square inch. A one foot by one foot panel is held with 300 to 500 pounds which is adequate for most materials.

In the past, conventional vacuum was used to hold hardwood parts or smaller panels and universal vacuum was used for larger panels or in applications where cut patterns changed often and it was not practical to build fixtures with seals. The new high flow pump offered by Thermwood combines the features of the conventional and high flow universal pumps in a single unit.

The 12 HP through 25 HP pumps function like conventional vacuum pumps creating high vacuum whenever a good vacuum seal is present, a the amount of vacuum leakage increases, the pump begins to function more like a high flow universal vacuum pump. With a moderate amount of leakage the pump offers vacuum levels better than pure universal vacuum but not as good as plain conventional vacuum.

In a single unit, it is now possible to operate conventional vacuum, universal vacuum and variations between the two. For special applications or if you have any questions about the proper pump for your application, feel free to call Thermwood for assistance.
Conventional Vacuum Pump
The Conventional Vacuum Pump provides vacuum for holding parts with conventional vacuum fixtures and seals.

Combination Pump
The Combination Vacuum Pump works as a conventional vacuum pump as well as a universal vacuum pump. These pumps provide vacuum for holding parts with conventional vacuum fixtures and also have high flow capability for holding panels to the table top for machining with no seals or setup.

Busch 5 Horsepower Pump
- Maximum Flow: 63 CFM
- Horsepower: 5
- Maximum Vacuum: 29.3 in. Hg
- Weight: 198 LB.
- Noise Level: 71 dB-A
- Inlet size: 1.5"
- Available Voltages: 460/230/208

Busch 15 Horsepower Pump
- Maximum Flow: 330 CFM
- Horsepower: 15
- Maximum Vacuum: 29.3 in. Hg
- Weight: 1152 LB.
- Noise Level: 83 dB-A
- Inlet size: 3"
- Available Voltages: 460/230/208

Busch 15/17 Horsepower Pump
- Maximum Flow: 323 CFM
- Horsepower: 17
- Maximum Vacuum: 22 in. Hg
- Weight: 815 LB.
- Noise Level: 84 dB-A
- Inlet size: 3"
- Available Voltages (50 Hz): 460/230
- Available Voltages (60 Hz): 460/230

Becker 12 Horsepower Pump
- Maximum Flow: 250 CFM
- Horsepower: 12
- Maximum Vacuum: 23.6 in. Hg
- Weight: 771 LB.
- Noise Level: 84 dB-A
- Inlet size: 3"
- Available Voltages: 460/230/208

Becker 15 Horsepower Pump
- Maximum Flow: 330 CFM
- Horsepower: 15
- Maximum Vacuum: 29.3 in. Hg
- Weight: 1152 LB.
- Noise Level: 83 dB-A
- Inlet size: 3"
- Available Voltages: 460/230/208

Becker 15/17 Horsepower Pump
- Maximum Flow: 291 CFM
- Horsepower: 15
- Maximum Vacuum: 22 in. Hg
- Weight: 815 LB.
- Noise Level: 84 dB-A
- Inlet size: 3"
- Available Voltages (50 Hz): 460/230
- Available Voltages (60 Hz): 460/230

Becker Dual Pump
- Maximum Flow: 500 CFM
- Horsepower: 24
- Maximum Vacuum: 23.6 in. Hg
- Weight: 1600 LB.
- Noise Level: 84 dB-A
- Inlet size: 3"
- Available Voltages: 460/230/208

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