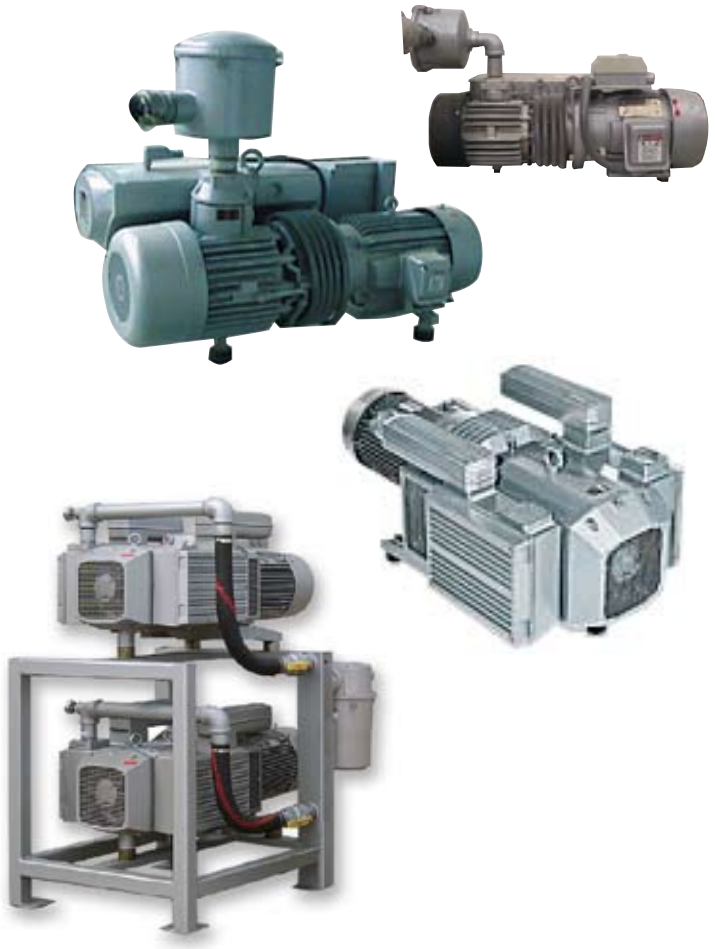
# Vacuum Pumps



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 15 HP, 18 HP and 36HP pumps functions like conventional vacuum pumps creating high vacuum whenever a good vacuum seal is present. As 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.

# 5 HP Conventional Pump

### Conventional Vacuum Pump

The Conventional Vacuum Pump provides vacuum for holding parts with conventional vacuum fixtures and seals.

| | |
|---|---|
| Horsepower | 5 |
| Voltage | 208/230/460 |
| Full Load Amp | 13.6/12.6/6.3 |
| Minimum Fuse Size | 17A/15A/8A |
| Noise Level | 71 dB A |
| Max. CFM | 63 |
| Max. Inlet Vacuum | 29 IN Hg |
| Inlet Diameter | 1 1/4” NPT |

# 15, 18 & 36 HP Combination Pumps

### Combination Pump

The Combination Vacuum System is a unique method for holding panels to the table top for machining. No seals, setup or fixtures are required to change from on part to another.

| | |
|---|---|
| Horsepower | 15 |
| Voltage | 208/230/460 |
| Full Load Amp | 42/38/19 |
| Minimum Fuse Size | 50A/50A/25A |
| Noise Level | 83d dB A |
| Max. CFM | 330 |
| Max. Inlet Vacuum | 29.8 IN Hg |
| Inlet Diameter | 3” NPT |

| | |
|---|---|
| Horsepower | 18 |
| Voltage | 208/230/460 |
| Full Load Amp | 55.6/36.5/24 |
| Minimum Fuse Size | 70A/45A/30A |
| Noise Level | 80 dB A |
| Max. CFM | 280 |
| Max. Inlet Vacuum | 22.5 IN Hg |
| Inlet Diameter | 4” NPT |

| | |
|---|---|
| Horsepower | 36 |
| Voltage | 208/230/460 |
| Full Load Amp (x 2). | 55.6/36.5/24 |
| Minimum Fuse Size(x 2) | 70A/45A/30A |
| Noise Level | 80 dB A |
| Max. CFM (total) | 560 |
| Max. Inlet Vacuum (total) | 22 IN Hg |
| Inlet Diameter (1) | 4” NPT |

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