

SAVE 40% IN ENERGY COSTS EACH YEAR WITH VFD!

For applications with varying demand conditions, the use of a VFD (variable frequency drive) on a Mink rotary claw vacuum pump will result in additional energy cost savings (compared to a non-VFD equipped pump). This example represents a Busch MM 1252 AV model pump (7.5 HP) sized for an application with a maximum load condition of 150 ACFM @ 150 Torr (24" Hgv), but with varying daily demand.

| <u>Pump without VFD*</u> | | <u>Pump with VFD</u> | | | | | |
|--------------------------|-------------------------|----------------------|-----------------|-----------------|------------------|-----------------|----------------|
| Operating parameters | Rotary claw dry-running | System demand | ACFM @ 150 Torr | Motor frequency | Brake horsepower | Operating hours | Yearly cost*** |
| Motor HP | 7.5 | 100% | 150 | 58 Hz | 6.8 | 800 | \$361 |
| Run hours/year | 8000 | 75% | 112.5 | 47 Hz | 5.4 | 3200 | \$1,145 |
| Motor efficiency | 90% | 50% | 75 | 36 Hz | 4.0 | 2400 | \$636 |
| \$/kWh | \$0.08 | 25% | 37.5 | 23 Hz | 2.8 | 1600 | \$297 |
| Total yearly cost** | \$3,977 | Totals | | | | 8000 | \$2,439 |

*Comparison of pump technologies to deliver 150 ACFM @ 150 Torr (24" Hgv)
 **Yearly cost = [(HP x .7457 x kWh cost)/Motor efficiency] x 8,000 run hours
 ***Based on \$0.08 kWh and 90% motor efficiency

VFD System Features

- 6" color touch screen display
- Pump status with run hours
- Alarm indicators
- User adjustable set points for each pump (on touch screen)
- Vacuum transducer
- Single point power connection
- Maintenance screens (on touch screen)
 - Run Hours (total and per pump)
 - Hours until scheduled maintenance alert
 - Required maintenance intervals for each pump
- System vacuum level (on touch screen)
- Alarm history log (on touch screen)
- Redundant 120VAC control transformers with fused primary and secondary protection
- Our standard Premium Controls also utilize:
 - BacNet® communication gateway
 - Built in webpage
 - Email notifications for alerts

Alerts[†] will be displayed on the touch screen for any of the following:

- Pump maintenance
- Reserve pump in use
- System general fault alarm

Variable Frequency Drive (VFD) controls improve efficiency over a conventional "on/off" demand based system by more closely matching the pump speed to the changing load requirements. The control system calculates the frequency to speed up or slow down the pump based on changes to the demand verses the set-point. Pump speeds matched to demand will result in lower amp draws, prolonged motor life, prolonged bearing life, and reduced energy costs.



VFD controls are an option available for all Powerex duplex through quadplex Medical Claw Vacuum systems. All VFD systems come standard with our Premium Controls.

[†]NOTE: Systems will also receive email notifications for any of these alerts.