

Vacuum Furnace Comparison Chart

Standard Units	VF-10	VF-20	VF-30	VF-40
Hot Zone				
Size id x h (inch)	8 x 8	10 x 10	11 x 12	12 x 17
Volume (cu ft)	0.24	0.45	0.66	1.11
Max Operating Temperature (F)	1800	2250	2200	2100
Temperature Uniformity (F)	+/- 25 at 1800	+/- 15 at 2200	+/- 15 at 2200	+/- 25 at 2000
Time to 1900 F (min)	20	12	15	15
Graphite	•	•	•	•
Type - K thermocouples	•	•	•	•
Type - S thermocouples	□	•	•	•
Type - OVERTEMP	•	•	•	•
Thermocouple Calibration System	□	•	•	•
Max Wt. Of Parts (lb)	20	40	60	110
Vacuum Pumping				
* Turbo Pump	•	•	•	•
* Diffusion Pump		□	□	□
Typical Ultimate		5 x 10 ⁻⁶ torr		
Typical Leak Rate		<3 micron/hour		
* Pump Selection Based on Process				
Process Data Out				
Compact Flash - CSV file	□	•	•	•
Ethernet - CSV file	□	□	□	□
Paper Chart Recorder	□	□	□	□
Digital Chart Recorder	□	□	□	□
Vacuum Gauging				
Pirani Gage	□	□	□	□
Thermocouple - Low Vac sensing	•	•	•	•
Convection	□	□	□	□
Diaphragm - Inert gas backfill	•	•	•	•
Cold Cathode - High Vac	•	•	•	•
Hot Ion - High Vac	□	□	□	□
Part Cooling (Std. Cooling Time from 2000°- 1200°)				
300 cfm	30 min	4.5 min	4.5 min	5.5 min
600 cfm				
Required Utilities				
Compressed Air (psi)		80		
Inert Gas (psi)		30		
Water Temperature		60° to 80° F		
Water Quality		< 150 ppm solids and resistivity >2000 ohm-cm		
Water (gpm @ 40 psi differential)	10	20	25	30
Electrical		480 VAC, 3 phase		
Circuit Breaker Size (amp)	50	100	100	150
Peak Current Draw (amp)	40	80	80	135
Cost Per Run				
*** If the Furnace is running a recipe with a fast ramp to near max temp of furnace, holding for 5 minutes, then rapid cooling the furnace down				
Power Usage (kwh)	8.3	12	17	33
Gas Usage (cu ft)	6	8	12	16
Typical hourly running cost (based on \$0.15/kwh \$0.40/ft ³ Ar)	\$1.31/hr	\$1.99/hr	\$2.69/hr	\$5.13/hr
PLC				
GE Fanuc	•	•	•	•
Allen Bradley		□	□	□
HMI				
8 inch touchscreen	•	□	□	□
12 inch touchscreen	□	•	•	•
Operator Safety				
Light Curtain	•	•	•	•
CE Marked	□	□	□	□
Light Tree	□	•	•	•
E-Stop	•	•	•	•
Chamber access interlocks	•	•	•	•
Over-Temp safety latch	•	•	•	•

Protected by US Patents 6649887 & 7724045 - others pending

Standard

•

Option

□