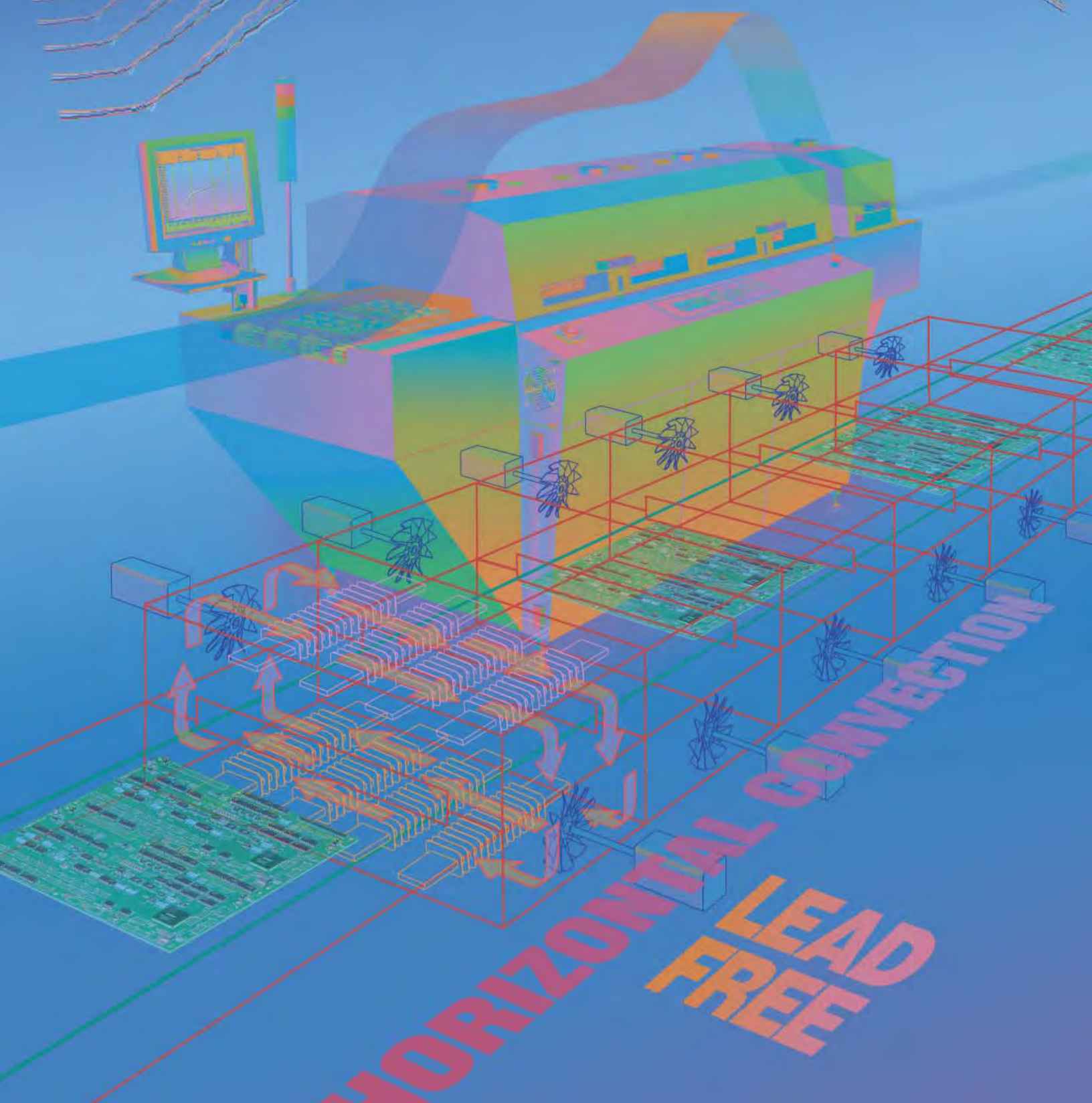


REFLOW OVENS



HORIZONTAL CONVECTION
LEAD FREE

SMT REFLOW OVENS FOR LEAD FREE REFLOW, CURING & THERMAL CYCLING



Model GF-120-HT with 12" wide conveyor and 41" heated tunnel length shown with optional enclosed stand

Model GF-120-HT

- 3 vertical heating zones plus cooling zone
- Low mass 12" wide stainless steel conveyor
- Easy lift clamshell design compo

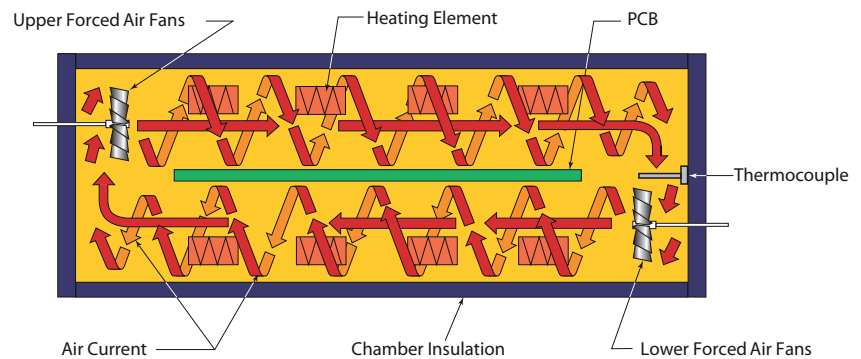
STANDARD FEATURES IN ALL MODELS

- Computer controller with:
 - 100 menu profile storage
 - 7 day timer
 - Real time temperature profiler with graphic display
 - SPC fault monitoring & reporting
 - English or metric units
 - Battery memory backup
 - Password protection
- Horizontal Convection™ technology**
- Cool-down Station
- Low mass stainless steel conveyor
- Stainless steel chambers
- Viewing windows with lights provide full visibility of entire process
- Full access for quick maintenance and easy cleaning
- Unsurpassed performance, service and support

**Machines covered under patent 6,936,793

HORIZONTAL CONVECTION™

DDM Novastar ovens are used for reflowing solder on PC boards, curing, drying and thermal cycling. Our patented** Horizontal Convection™ system provides the most accurate, most consistent and most repeatable profiles. Air is circulated horizontally in one direction above the board, and in the opposite direction below the board. This circular air current or "cyclone" provides better thermal penetration across the board and yields better results with tough-to-solder components such as BGAs and J-leaded quad flat packs.



Cross-section of chamber (end view)

CURING APPLICATIONS

All models are available with conveyor motor gear reduction, or speed increase, for your curing requirements. Special tunnel heights are available with all models.

Nitrogen Inerting



Novastar's isolated chamber design (recirculation of atmosphere within each chamber) maintains low oxygen levels while conserving nitrogen.

with revolutionary Horizontal Convection

**



Model 1800-HT with 18" wide conveyor and 50" heated tunnel length, shown with edge conveyor and PC interface options

Model 1800-HT

- 4 vertical heating zones plus cooling zone
- Low mass 18" wide stainless steel conveyor
- Easy lift clamshell design with gas strut assist
- Status light tower

Model 2000-HT

- 6 vertical heating zones plus cooling zone
- Low mass 20" wide stainless steel conveyor
- Easy lift clamshell design with gas strut assist
- Status light tower

OPTIONS

- Capable of High Temp to 400°C (752°F) for lead free solder
- Status light tower for Model GF-120-HT, (standard on 1800 and 2000)
- Edge rail conveyor (Models 1800 and 2000 only)
- Nitrogen inerting
- PC interface/windows[®] software
- Enclosed stand (GF-120-HT only)
- Enhanced printing option
- PAK profiling accessory kit
- Custom (curing, drying) applications

**Machines covered under patent 6,936,793

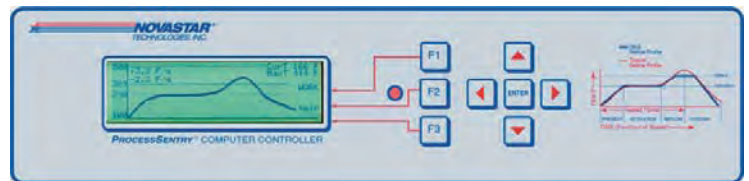
Model 2000-HT with 20" wide conveyor and 72" heated tunnel length shown with PC interface option



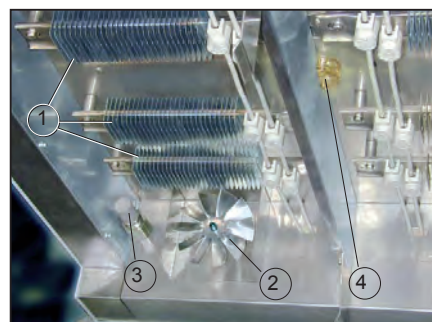
ProcessSentry™ COMPUTER CONTROL

The ProcessSentry™ microprocessor control is the brain of DDM Novastar ovens. All parameters are set and displayed in real time.

The ProcessSentry™ is sophisticated yet clear and straightforward. Programming is intuitive and operation is truly user-friendly. The system provides unrivaled accuracy and repeatability while assuring safety and reliability.



ProcessSentry™ display showing the real-time temperature profile as PC board travels through the oven.

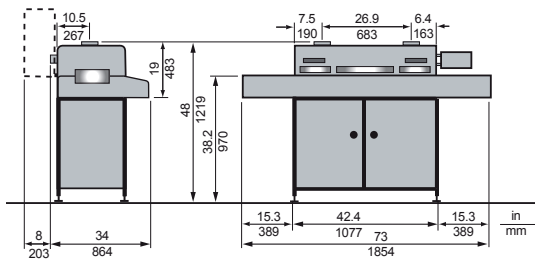


UPPER HEATING ZONE SHOWING :

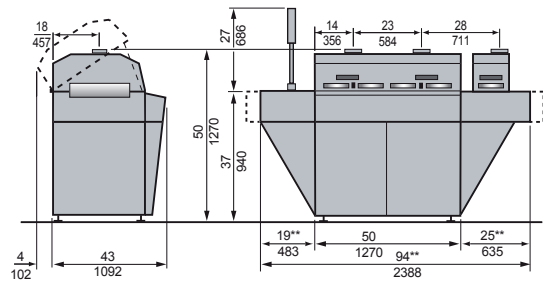
- heating elements (1)
- upper forced turbine (2)
- inert gas suffuser (3)
- interior lighting (4)

REFLOW OVEN SPECIFICATIONS

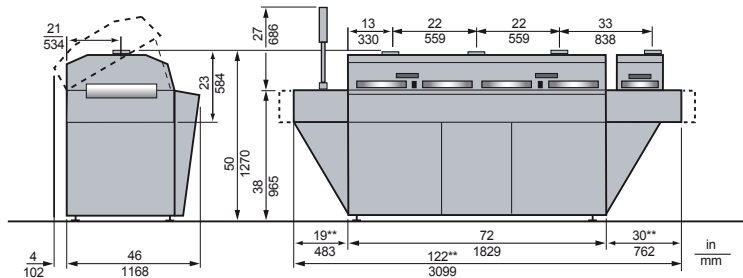
Models GF-120-HT



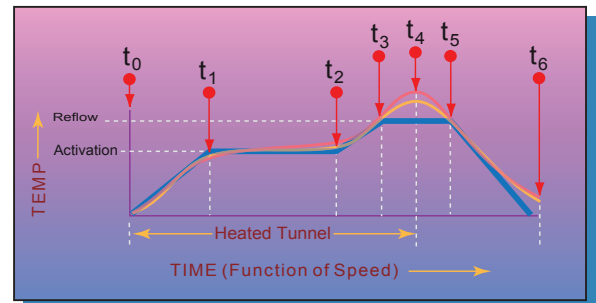
Models 1800-HT



Models 2000-HT



MACHINE SPECIFICATIONS	Models GF-120-HT	Models 1800-HT	Models 2000-HT
Emitter Technology	Horizontal Convection™	Horizontal Convection™	Horizontal Convection™
Heat Tunnel Length	41" (1042mm)	50" (1270mm)	72" (1829mm)
Standard Heating Zones	3 Top, 3 Bottom	4 Top, 4 Bottom	6 Top, 6 Bottom
Cooling Fans	2	2	4
Electrical Power***	220 VAC, 50/60 Hz 1Ø, 50A	220 VAC, 50/60 Hz 3Ø, 70A	220 VAC, 50/60 Hz 3Ø, 100A
Peak Power	8.7 kW	23.2 kW	34.8 kW
Maximum Temperature	HT: 400° C (752° F)	HT: 400° C (752° F)	HT: 400° C (752° F)
Maximum Board Width	12" (300mm)	18" (457mm)	20" (508mm)
Maximum Board Height†	1.375" (35mm)†	1.375" (35mm)†	1.375" (35mm)†
Height of Conveyor	37.5" ± 1/2" (940mm)	37.5" ± 1/2" (940mm)	37.5" ± 1/2" (940mm)
Venting Requirements	Two 4" (102mm) Dia. Flanges 200 CFM (340m³/h) each	Two 4" (102mm) Dia. Flanges 250 CFM (425m³/h) each	Three 4" (102mm) Dia. Flanges 200 CFM (340m³/h) each
Cooling Zone Venting	NA	4" Dia. Flange, 0-400 CFM (680m³/h)	4" Dia. Flange, 0-400 CFM (680m³/h)
Approx. Shipping Weight	600 lbs (272 kg)	1050 lbs (476 kg)	1650 lbs (748 kg)



- Theoretical Reflow Profile
- Typical Profile for Model 1200 (3 Vertical Heating Zones)
- Typical Reflow Profile for Model 2000 (7 Vertical Heating Zones)
- t_0-t_1 PREHEAT
- t_1-t_2 ACTIVATION
- t_2-t_3 RAMP
- t_3-t_4 REFLOW
- t_4-t_6 COOLING
- t_3-t_5 LIQUIDOUS

*All DDM Novastar reflow ovens are covered under patent 6,936,793

**Add 4 inches to each end for edge conveyor

***Other electrical configurations available

†Up to 4" (102 mm) special application tunnel height