

# PRO 1600 Series Reflow Ovens



Advanced Techniques US Inc.

[www.atco-us.com](http://www.atco-us.com)

## Key Features

- Full Convection and Lead Free Compatible Reflow Oven
- Up to 10 individually programmable zones
- Small Footprint
- Computer control with unlimited profile storage capacity
- Comprehensive software package with monitoring and profiling capability
- No Warm-Up time required before operating
- Integrated Exhaust / Fume Cleaning Unit
- Nitrogen ready with low rates of consumption
- External Thermocouple Control
- Automatic Profile Repeat function (up to 10 times)

## Product Overview

PRO 1600 is a full forced air / nitrogen convection reflow oven. It has been designed for reflow of even the most challenging applications including, high thermal mass and lead free assemblies. A sealed heating chamber containing a fast ramping heater (up to 4° Celsius/ second) with the capability of 10 programmable zones, simulates profiles achievable by high volume production multi-zone ovens.



All profile parameters are individually programmed and are independent of one another. This translates into greater control over each profile making modifications, optimization, and adjustments easy and simple. Precise process control delivers unsurpassed temperature uniformity. An optional External Thermocouple Control (ETC) allows profiles to be executed based on the temperature reading of the part, not the air temperature around it. Increased productivity, superior performance and ease of operation make the PRO 1600 a versatile system ideal for small to medium run production, prototyping, testing or curing.



## Operation

Once the Power-Key switch is turned to the On position, top cover automatically opens while the loading tray slides out. Parts are loaded onto a mesh tray and the profile is selected with a few mouse clicks.

After the Start icon is activated, the tray automatically slides into the heating chamber at an adjustable and controlled speed. A profile is then executed as per the pre-programmed parameters. Software constantly monitors actual ramp up rates and temperature inside an oven to the programmed values for accuracy. At the completion of a reflow cycle, the tray automatically exits from a heating chamber. PRO 1600 is now in a standby mode, ready for a new cycle run.

## Key Features con't.

- Library of predefined profiles
- Password protected login for engineers and operators
- Plug and Operate Configuration
- Minimal maintenance
- Designed and Manufactured in USA

# Profile Programming

The following parameters may be programmed for each profile:

- Up to 5 Ramp Up stages ( ° Celsius / second)
- Up to 5 Temperature stages
- Up to 5 Time at Temperature stages
- Up to 4 In-Process Cooling stages
- Final Cooling stage
- Cooling Modes - 4 types
- Initial Lag time
- Nitrogen purge
- Automatic Profile Repeat (up to 10 times)

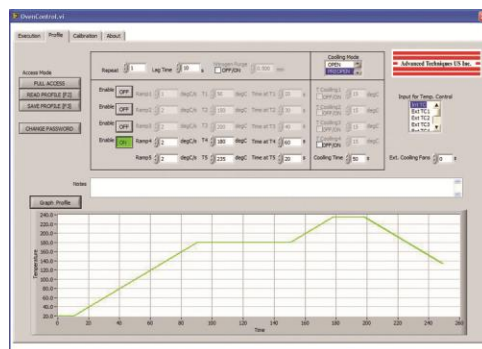
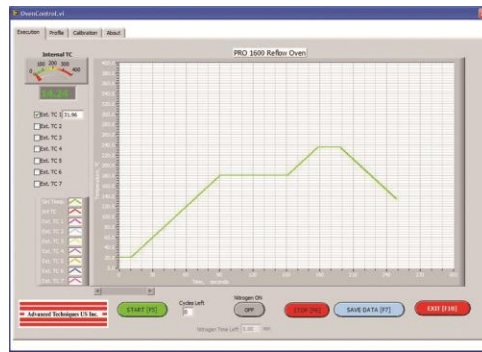


## Software

Profiles are developed, stored, and recalled within PRO 1600's software package. It controls the reflow cycle, automation of process sequences, and automatic execution of safety checks before and during every profile run.

- Real-Time process graphing
- Profile processing based on part / PCB temperature control\*
- Profile development with up to 7 thermocouples\*
- Library with predefined profiles
- On-The-Fly settings adjustment
- Real-time data recording for documentation and analysis
- Password Protected Access
- User friendly environment
- Designed for Windows® XP / Vista / 7 OS

\*Optional



## Features Comparison

There are two standard configurations of the PRO 1600 series. They both share the same design and principle of operation. Below is a comparison matrix outlining features of each model. Additionally, various modifications may be made to satisfy specific application requirements. They include higher temperature rating, process video recording, and fixture customization.



	PRO 1600-S	PRO 1600-EXN
Full Convection	X	X
Lead Free Compatible	X	X
10 Heating Zones	X	X
2 Cooling Zones	X	X
Footprint of 31" x 31"	X	X
Computer Control	X	X
Software Package	X	X
Library with 50 profiles	X	X
Exhaust / Fume Cleaning	N/A	X
Nitrogen Reflow Capable	N/A	X
Notebook PC	N/A	X
ETC-PRO	O	O
MTDA-PRO	O	O
DSBF-PRO	O	O
ECF-PRO	O	O
LCS-PRO	O	O

X - Included  
 O - Optional  
 N/A - Not Available

## Options / Accessories

- External Thermocouple Control (Part: ETC-PRO)
  - profile is executed based on temperature reading from the application
  - allows for both fixed and external thermocouple control
- Multiple Thermocouple Data Acquisition System (Part: MTDA-PRO)
  - built-in 7 thermocouple interface controller for profile development
  - 7 K-type thermocouples
- Double Sided PCB Fixture (Part: DSBF-PRO)
- External Cooling Fans Module (Part: ECF-PRO)
- Laptop Computer Stand (Part: LCS-PRO)



## Specifications

	PRO 1600-S	PRO 1600-EXN
<b>Temperature:</b>	up to 375° Celsius	up to 375° Celsius
<b>Reflow Area:</b>	20" x 20" / 508mm x 508mm	20" x 20" / 508mm x 508mm
<b>Topside Clearance:</b>	4" / 101mm	4" / 101mm
<b>Programmable Heating Zones:</b>	10	10
<b>Cooling Zones:</b>	2	2
<b>Heating Type:</b>	Full Forced Air Convection	Full Forced Air or Nitrogen Convection
<b>Interior:</b>	Stainless Steel	Stainless Steel
<b>Air Requirements:</b>	80 - 100 PSI @ 0.3 CFM	80 - 100 PSI @ 0.3 CFM
<b>Power Requirements:</b>	120/208 VAC, 3 Phase, 50 Amp, 50/60 Hz	120/208 VAC, 3 Phase, 50 Amp, 50/60 Hz
<b>Optional</b>	125/250 VAC, 1 Phase, 50 Amp, 50/60 Hz	125/250 VAC, 1 Phase, 50 Amp, 50/60 Hz
<b>Optional</b>	200-240 VAC, 3 Phase, 50 Amp, 50/60 Hz	200-240 VAC, 3 Phase, 50 Amp, 50/60 Hz
<b>Optional</b>	380-400 VAC, 3 Phase, 50 Amp, 50/60 Hz	380-400 VAC, 3 Phase, 50 Amp, 50/60 Hz
<b>Peak Power Consumption:</b>	16 Kw (during ramp up stages of a profile)	16 Kw (during ramp up stages of a profile)
<b>Operating Consumption:</b>	9 Kw (during reflow)	9 Kw (during reflow)
<b>Warranty:</b>	Five (5) years parts and labor	Five (5) years parts and labor
<b>Weight:</b>	170 lbs / 77 Kg	185 lbs / 84 Kg
<b>Dimensions:</b>	31"L x 31"W x 50"H / 787mm x 787mm x 1270mm	31"L x 31"W x 50"H / 787mm x 787mm x 1270mm



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