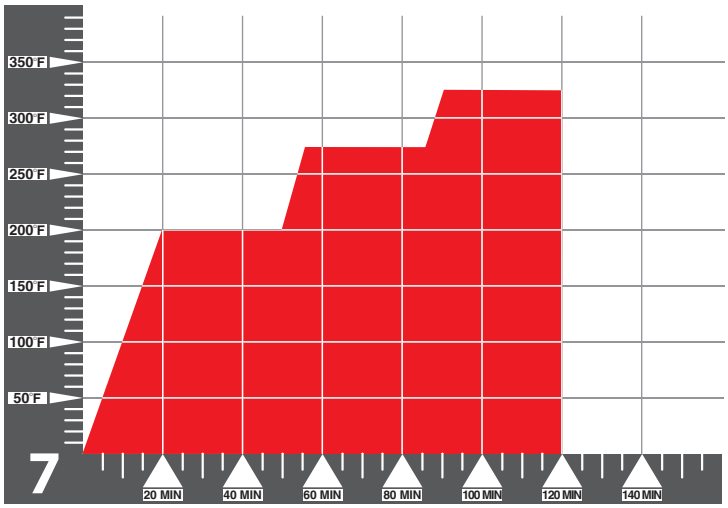
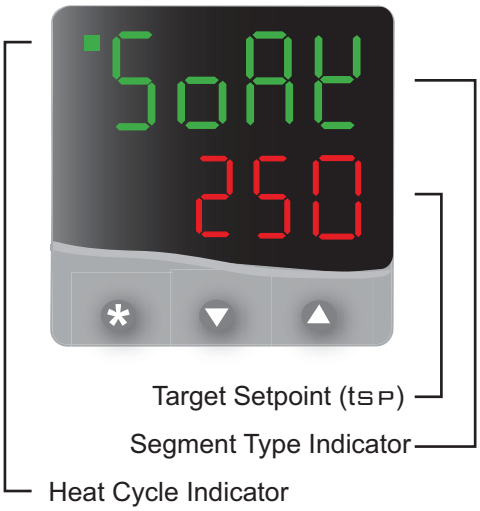
Quincy Lab, Inc.

Ramp & Soak Programming Operating Manual
All ER Bench Series Ovens Models



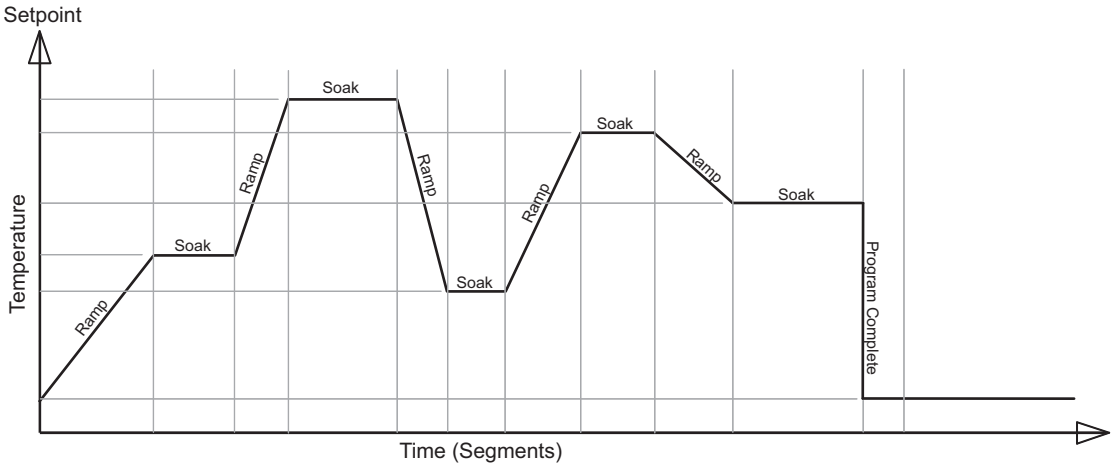
Segment 1: ramp/200 target
Segment 2: soak/30 min.
Segment 3: ramp/275 target
Segment 4: soak/30 min.
Segment 5: ramp/325 tgt.
Segment 6: soak/30 min.
Segment 7: soak/0.2 min.
Segment 8: EOP

DIGITAL MICROPROCESSOR
Programmable Ramp & Soak Control



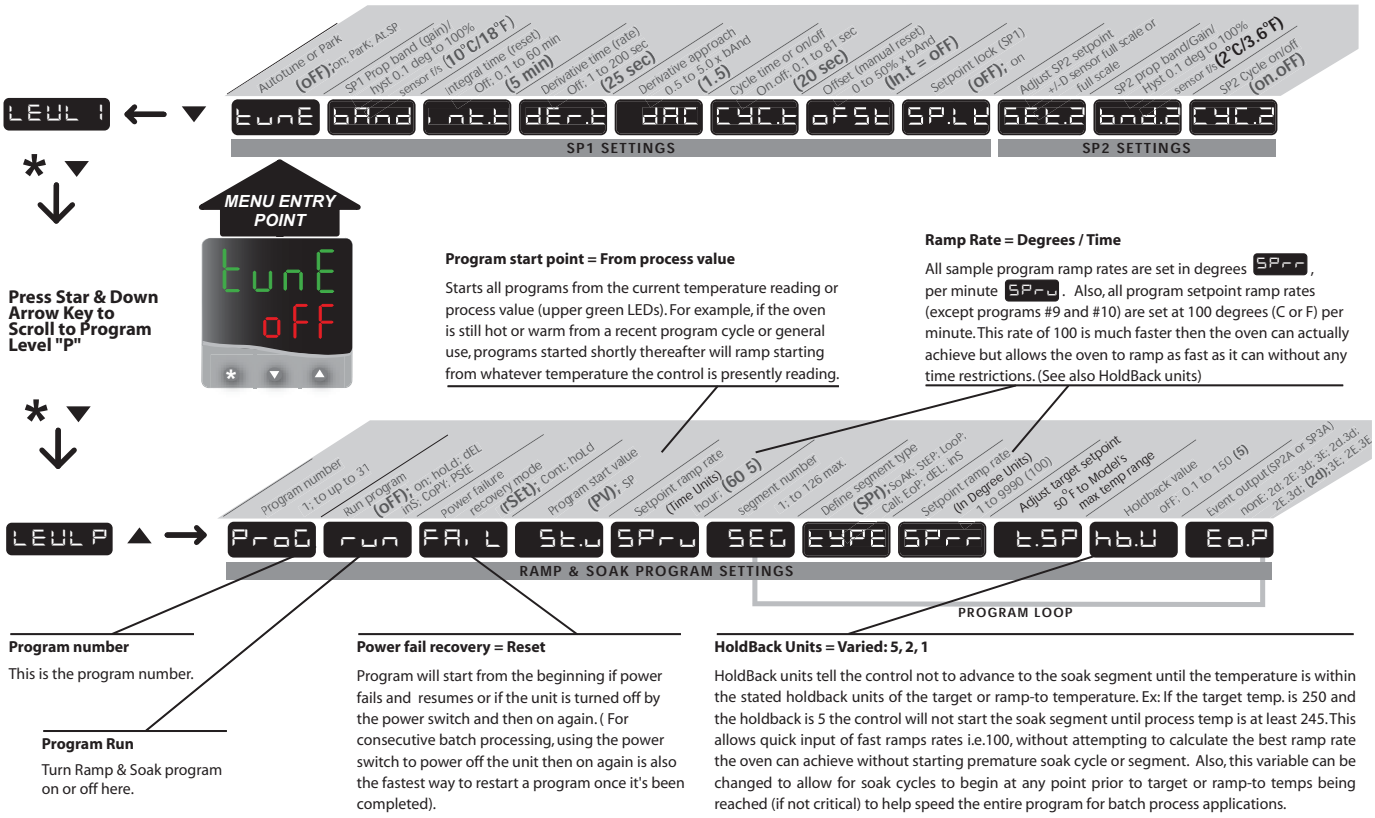
Function Overview

The Ramp and Soak Controller provides the opportunity to control applications needing set-point changes over time. Examples of this are RAMP changes where a gradual rate of temperature change can be set. These can be separated by SOAK periods during which the process is held at a constant value. Each individual time interval in the program or SEGMENT, together with its associated moving setpoint value can be stored as a unique PROGRAM, as represented by the diagram below.



Programming Function

Below are the defined programming functions and default settings for the (12) pre-installed sample Ramp & Soak Programs. Changes can be made to the sample programs to accommodate your particular application by simply following the steps as outlined below (Programming Ramp & Soak Programs).



Program start point = From process value

Starts all programs from the current temperature reading or process value (upper green LEDs). For example, if the oven is still hot or warm from a recent program cycle or general use, programs started shortly thereafter will ramp starting from whatever temperature the control is presently reading.

Ramp Rate = Degrees / Time

All sample program ramp rates are set in degrees SPrr, per minute SPru. Also, all program setpoint ramp rates (except programs #9 and #10) are set at 100 degrees (C or F) per minute. This rate of 100 is much faster then the oven can actually achieve but allows the oven to ramp as fast as it can without any time restrictions. (See also HoldBack units)

Program number

This is the program number.

Program Run

Turn Ramp & Soak program on or off here.

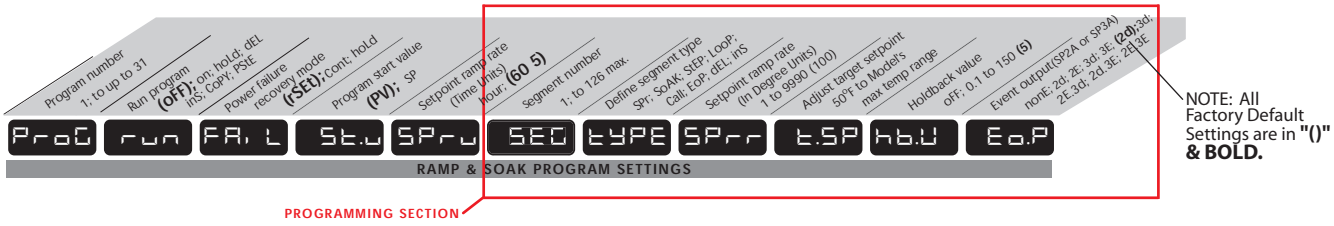
Power fail recovery = Reset

Program will start from the beginning if power fails and resumes or if the unit is turned off by the power switch and then on again. (For consecutive batch processing, using the power switch to power off the unit then on again is also the fastest way to restart a program once it's been completed).

HoldBack Units = Varied: 5, 2, 1

HoldBack units tell the control not to advance to the soak segment until the temperature is within the stated holdback units of the target or ramp-to temperature. Ex: If the target temp. is 250 and the holdback is 5 the control will not start the soak segment until process temp is at least 245. This allows quick input of fast ramps rates i.e.100, without attempting to calculate the best ramp rate the oven can achieve without starting premature soak cycle or segment. Also, this variable can be changed to allow for soak cycles to begin at any point prior to target or ramp-to temps being reached (if not critical) to help speed the entire program for batch process applications.

Programming Ramp & Soak Programs



Programming a ramp & soak program to fit your individual needs and applications is quick and easy.
Basic programming consists of programming "SEGMENTS" which control the RAMP and the SOAK function parameters. [For information re: *advanced function programming* - eg: linking or looping of programs - see Controller manufacturer's instruction manual]

When at: SEG **SEGMENT,** choose the segment to program.

When at: tYPE **TYPE,** choose the desired function for that segment - ramp SPr, soak SoAY, etc.

When SPr **RAMP** is selected, the following prompts will appear:

When at: SPrr **SET POINT RAMP RATE,** enter the temperature ramp rate (in degrees per minute) to achieve set temperature (preset at 100 deg./min.).

When at: t.SP **TARGET SET POINT,** set target ramp temperature desired (whether increase or decrease).

Programming Ramp & Soak Programs cont.

When SoAK **SOAK** is selected, S, nt will appear in the program loop.

When at: S, nt **SOAK INTERVAL,** select the amount of time (duration), the controller is programmed to hold the temperature before executing the next function command. Soak time is set in minutes.

Pre-Installed Ramp & Soak Programs

There are 12 sample ramp and soak programs (refer to configurations chart below), that are resident in your controller. These programs allow you to more easily customize programs by changing the temperature and time values within each program rather than entering a complete program from the start.

To run any of the pre-installed programs, enter the menu levels by pressing the up & down arrow keys together until the prompt "tune" appears. Toggle "left" (down key once) to the "levl / 1" prompt. Hold the star key then press the down key once to get to the program "levl / P." Toggle "right" (up key) to program number prompt "prog/ 1", select an alternate program by pressing and holding star key and pressing up or down arrow keys. Toggle "right" (up key again) to "run/off" prompt, select "on" by holding star key and then pressing up arrow key once. Return to temperature display by pressing and holding both up/down arrow keys. The control display will now alternate the running program segment with the current process temperature. See control manual menu flow diagram for a better understanding of how to navigate the menu levels from the related display prompts.

Once program is finished, the control will prompt with "stop". To return control to standard operational or non-program mode, enter menu "levl / P" toggle to "run" prompt and select "off". To restart the same program select "off" and then "on" again.

Pre-Installed Program Configurations	
Programs 1 - 4: Single target set-point programs	Program 10: Slow ramp rate program with two target set-points
Programs 5 & 6: Double target set-point programs	Program 11: Delay on or overnight program with single set-point
Programs 7 & 8: Triple target set-point programs	Program 12: Pre cool-down program with single set-point
Program 9: Slow ramp- rate program with single target set-points	

Program # 1

Seg 001 - Ramp to setpoint 150, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 45 minutes EOP 2D
Seg 003 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 004 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 2

Seg 001 - Ramp to setpoint 225, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 240 minutes EOP 2D
Seg 003 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 004 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 3

Seg 001 - Ramp to setpoint 300, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 90 minutes EOP 2D
Seg 003 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 004 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 4

Seg 001 - Ramp to setpoint 325, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 120 minutes EOP 2D
Seg 003 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 004 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 5

Seg 001 - Ramp to setpoint 200, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 60 minutes EOP 2D
Seg 003 - Ramp to setpoint 325, ramp rate 100, holdback 5, EOP 2D
Seg 004 - Soak 30 minutes EOP 2D
Seg 005 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 006 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 6

Seg 001 - Ramp to setpoint 225, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 30 minutes EOP 2D
Seg 003 - Ramp to setpoint 300, ramp rate 100, holdback 2, EOP 2D
Seg 004 - Soak 60 minutes EOP 2D
Seg 005 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 006 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 7

Seg 001 - Ramp to setpoint 200, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 30 minutes EOP 2D
Seg 003 - Ramp to setpoint 275, ramp rate 100, holdback 5, EOP 2D
Seg 004 - Soak 30 minutes EOP 2D
Seg 005 - Ramp to setpoint 325, ramp rate 100, holdback 5, EOP 2D
Seg 006 - Soak 30 minutes EOP 2D
Seg 007 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 008 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 8

Seg 001 - Ramp to setpoint 250, ramp rate 100, holdback 5, EOP 2D
Seg 002 - Soak 30 minutes EOP 2D
Seg 003 - Ramp to setpoint 325, ramp rate 100, holdback 5, EOP 2D
Seg 004 - Soak 60 minutes EOP 2D
Seg 005 - Ramp to setpoint 150, ramp rate 100, holdback 5, EOP 2D
Seg 006 - Soak 60 minutes EOP 2D
Seg 007 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 008 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 9

Seg 001 - Ramp to setpoint 225, ramp rate 5, holdback 1, EOP 2D
Seg 002 - Soak 30 minutes EOP 2D
Seg 003 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 004 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 10

Seg 001 - Ramp to setpoint 150, ramp rate 1, holdback 1, EOP 2D
Seg 002 - Soak 30 minutes EOP 2D
Seg 003 - Ramp to setpoint 250, ramp rate 3, holdback 1, EOP 2D
Seg 004 - Soak 45 minutes EOP 2D
Seg 005 - Soak .2 of a minute EOP 2E (Energize audible alarm: optional)
Seg 006 - Stop soak/program EOP 2D (de-energize audible alarm)

Program # 11

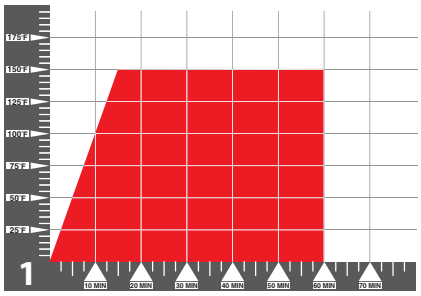
Seg 001 - Step to setpoint 75, EOP 2D
Seg 002 - Soak 480 minutes (8 hours) EOP 2D
Seg 003 - Ramp to setpoint 200, ramp rate 100, holdback 5, EOP 2D
Seg 004 - Soak 120 minutes EOP 2D

Program # 12

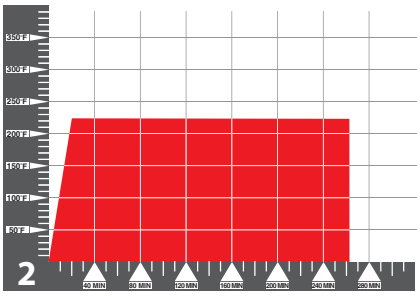
Seg 001 - Ramp to setpoint 95, ramp rate 200, holdback 2, EOP 2D
Seg 002 - Ramp to setpoint 325, ramp rate 100, holdback 5, EOP 2D
Seg 003 - Soak 45 minutes EOP 2D
Seg 004 - Ramp to setpoint 50, ramp rate 200, holdback 2, EOP 2D
Seg 005 - Soak .4 of a minute EOP 2E (Energize audible alarm: optional)
Seg 006 - Stop soak/program EOP 2D (de-energize audible alarm)

Ramp & Soak Graphs (Pre-Installed)

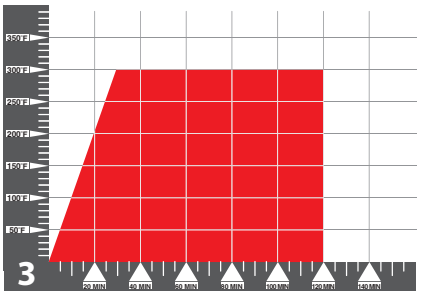
The following is a graphical representation of the (12) pre-installed Ramp & Soak programs, and the parameters used to create each pre-installed program.



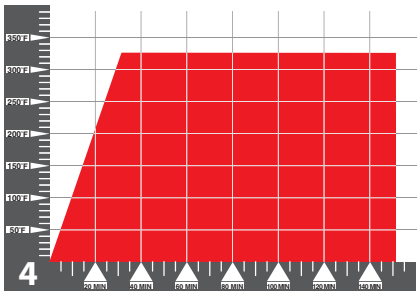
Segment 1: ramp/150 target
Segment 2: soak/45 min.
Segment 3: soak/0.2 min.
Segment 4: EOP



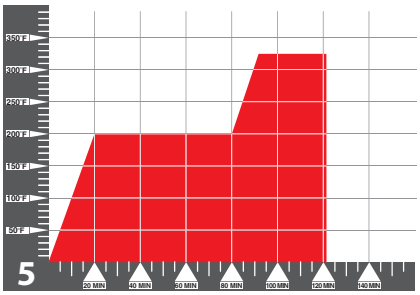
Segment 1: ramp/225 target
Segment 2: soak/240 min.
Segment 3: soak/0.2 min.
Segment 4: EOP



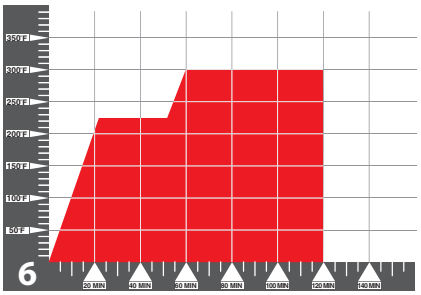
Segment 1: ramp/300 target
Segment 2: soak/90 min.
Segment 3: soak/.2 min.
Segment 4: EOP



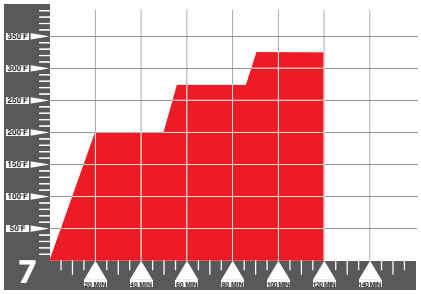
Segment 1: ramp/325 target
Segment 2: soak/120 min.
Segment 3: soak/0.2 min.
Segment 4: EOP



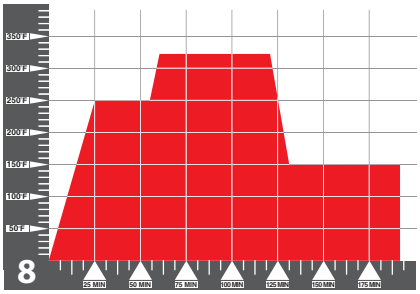
Segment 1: ramp/200 target
Segment 2: soak/60 min.
Segment 3: ramp/325 target
Segment 4: soak/30 min.
Segment 5: soak/0.2 min.
Segment 6: EOP



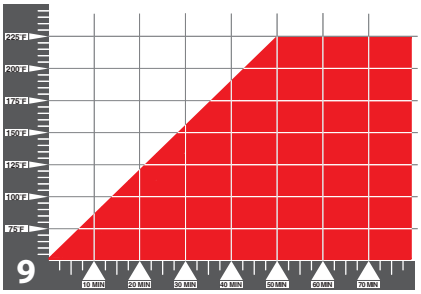
Segment 1: ramp/225 target
Segment 2: soak/30 min.
Segment 3: ramp/300 target
Segment 4: soak/60 min.
Segment 5: soak/0.2 min.
Segment 6: EOP



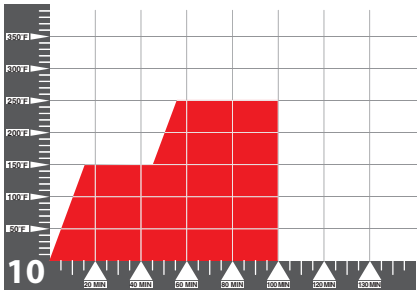
Segment 1: ramp/200 target
Segment 2: soak/30 min.
Segment 3: ramp/275 target
Segment 4: soak/30 min.
Segment 5: ramp/325 tgt.
Segment 6: soak/30 min.
Segment 7: soak/0.2 min.
Segment 8: EOP



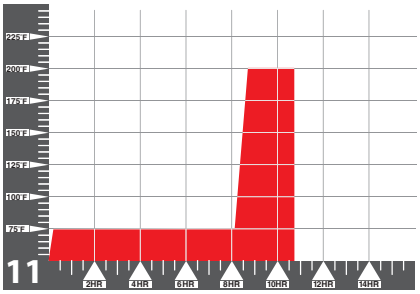
Segment 1: ramp/250 target
Segment 2: soak/30 min.
Segment 3: ramp/325 target
Segment 4: soak/60 min.
Segment 5: ramp/150 tgt.
Segment 6: soak/60 min.
Segment 7: soak/0.2 min.
Segment 8: EOP



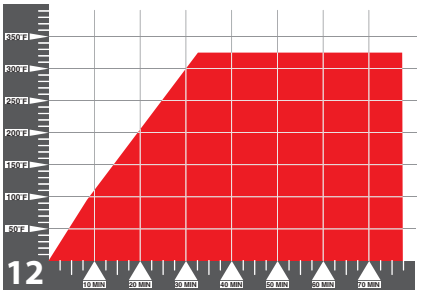
Segment 1: ramp/225 target
Segment 2: soak/30 min.
Segment 3: soak/0.2 min.
Segment 4: EOP



Segment 1: ramp/150 target
Segment 2: soak/30 min
Segment 3: ramp/250 target
Segment 4: soak/45 min
Segment 5: soak/0.2 min.
Segment 6: EOP



Segment 1: step/75 target
Segment 2: soak/480 min.
Segment 3: ramp/200 target
Segment 4: soak/120 min.



Segment 1: ramp/95 target
Segment 2: ramp/325 target
Segment 3: soak/45 min.
Segment 4: ramp/50 target
Segment 5: soak/50/0.4 min.
Segment 6: EOP

Tech Support

If you have any questions or need technical assistance, please contact Quincy Lab customer support at

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