

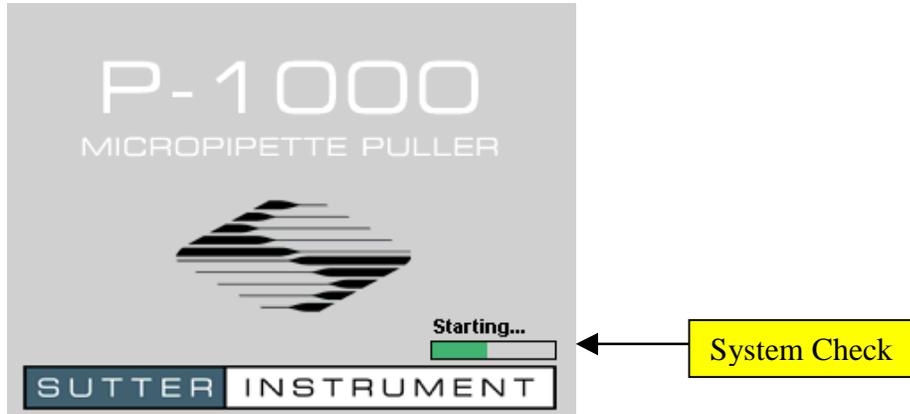
# P-1000 FLAMING/BROWN MICROPIPETTE PULLER SYSTEM

## QUICK START GUIDE

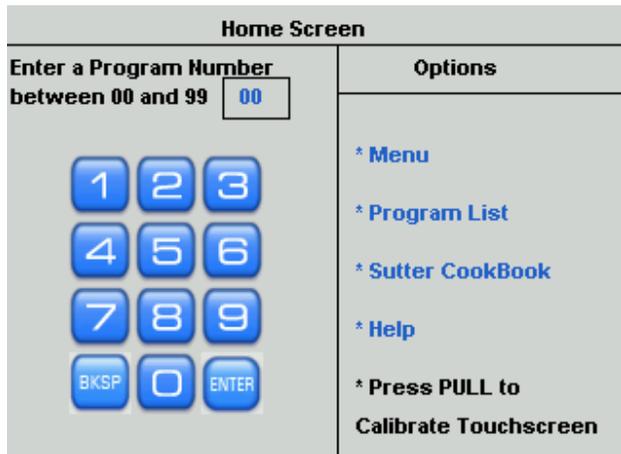
REV. 1.02 (20111121)

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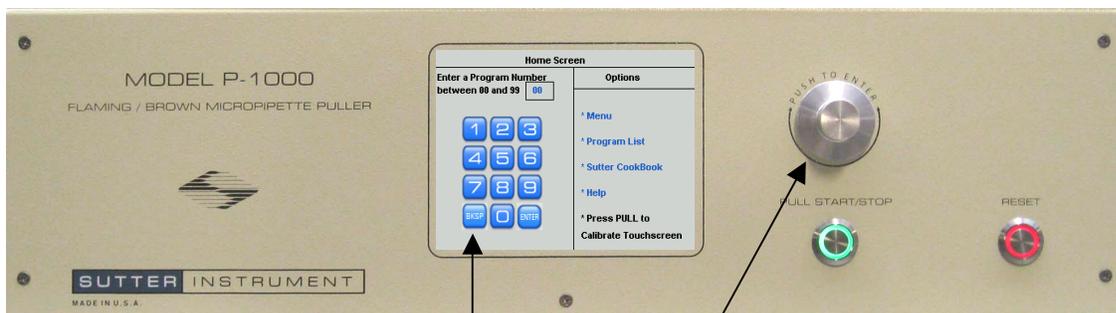
1. Remove the rubber bands from the P-1000 puller bar knobs.
2. Plug in the puller to the power AC mains.
3. Turn the puller ON – the power switch is on the left-side panel.
4. The Startup Screen will be displayed for 5 seconds while the puller systems are checked.



5. The Home Screen will appear.



6. Use knob or keypad to select Program # [3]. Press <ENTER> or push IN the knob to enter Program 3.



7. Program 3 will now be displayed.

Line	Heat	Pull	Vel	Delay	Pressure	Ramp
1 x1	?	0	25	1	500	?
2 x1						
3 x1						
4 x1						

Safe Heat needs a Ramp value  
Press Ramp or uncheck Safe Heat

A "beep" will sound and this message will appear instructing you to run a Ramp Test.

8. Press "Ramp" on the touch-screen display to run a Ramp Test.

Press "Ramp" to run a ramp test

9. Now you will see the Ramp Test Screen.

Ramp for Program 03

Insert glass and press PULL

or

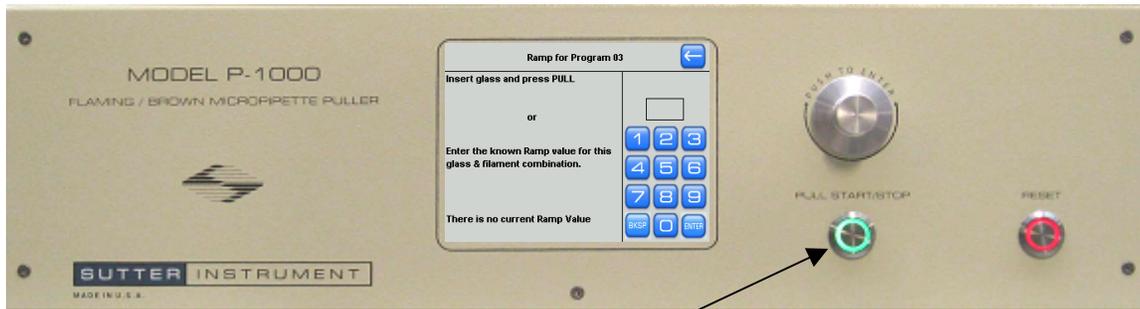
Enter the known Ramp value for this glass & filament combination.

There is no current Ramp Value

The ramp test helps to establish safe heat settings. The ramp value is unknown for the 2.5 x 2.5 box filament (FB255B) filament in your puller and the 1.5 x 0.86 glass you will be using, so you will need to run a Ramp test.

10. Install a piece of **1.5 x 0.86** capillary glass (**BF150-86-10** sample glass was shipped with your puller) and ADVANCE THE PULLER BARS ALL THE WAY TOGETHER before tightening the knobs that clamp the glass. Do not over-tighten the knobs.

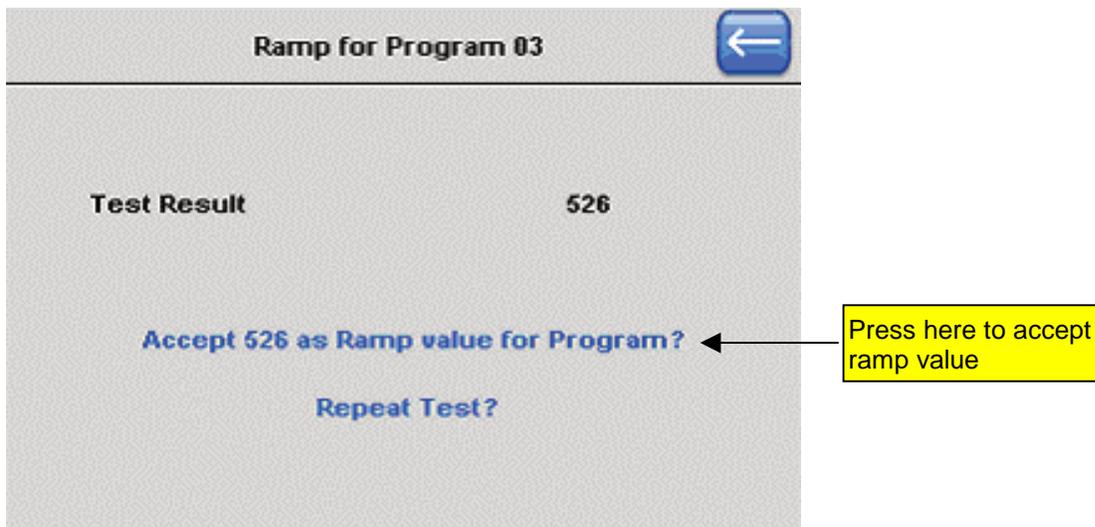
11. Press the “Pull” button on the front panel to start the RAMP TEST.



Press the PULL button on the front panel to start the ramp test

The **Ramp Test** will take a few minutes. Please wait: During the ramp test, the filament will gradually heat up until it is hot enough to melt the glass. The glass will not separate, but once the ramp value is reached, there will be a reduction (hour glass-shape) where the glass softened.

12. Once the Ramp Value has been reached, accept the ramp value.



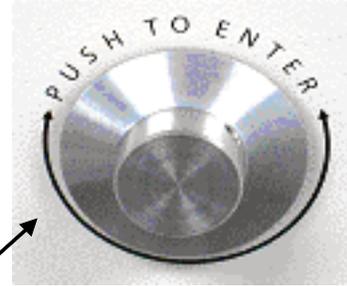
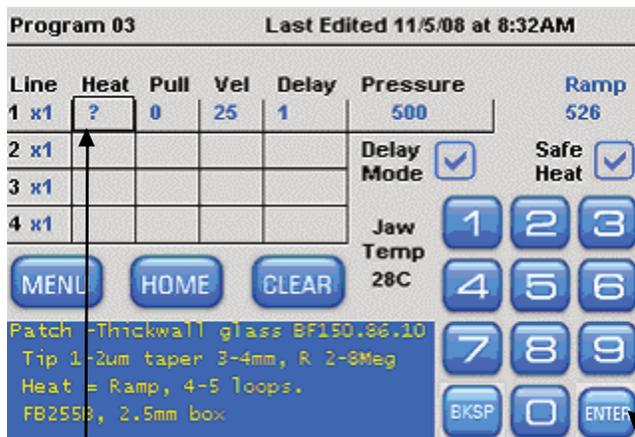
Press here to accept ramp value

13. The accepted ramp value is now installed in the top right corner of Program 3.



Ramp value 526 installed in Program 3

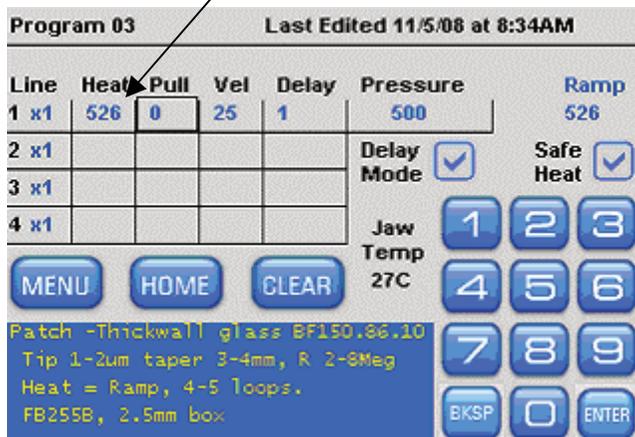
14. Select Line 1 Heat by touching the screen. Use the keypad or knob to install the ramp value as your heat setting. If your ramp test is 526, install 526 for your Heat. Heat settings within 5-10 units of the ramp value are the most stable heat settings to use.



1. Press here to highlight Line 1 Heat.

2. Use keypad or knob to install ramp value for Line 1 Heat. Then press **ENTER**.

3. Heat value is now installed



15. Remove the glass that was used for the Ramp test and install a NEW piece of 1.5 x 0.86 glass into the puller bars.
16. With a new piece of glass and the Heat value installed, press the Pull button on the front panel.



Press the **PULL** button on the front panel to start the Ramp Test

17. The puller will cycle through this one line program and pull the glass in 4-5 heating cycles (Loops).

Program 03 Last Edited 11/5/08 at 8:37AM

Line	Heat	Pull	Vel	Delay	Pressure	Ramp
1 x1	526	0	25	1	500	526
2 x1					Delay Mode <input checked="" type="checkbox"/>	Safe Heat <input checked="" type="checkbox"/>
3 x1						
4 x1						

Jaw Temp 27C

MENU HOME CLEAR

Pull Progress  
Program Loop 3  
Executing Line 1 x1

1 2 3  
4 5 6  
7 8 9  
BKSP 0 ENTER

Pull in Progress

18. After 4-5 loops, the glass will separate making two identical pipettes. You will briefly see the pull results in the bottom text box.

Program 03 Last Edited 11/5/08 at 8:37AM

Line	Heat	Pull	Vel	Delay	Pressure	Ramp
1 x1	526	0	25	1	500	526
2 x1					Delay Mode <input checked="" type="checkbox"/>	Safe Heat <input checked="" type="checkbox"/>
3 x1						
4 x1						

Jaw Temp 28C

MENU HOME CLEAR

Program Looped 4 times  
Ending Line 1  
Heat time 10.76 secs  
Pull Results are in Menu

1 2 3  
4 5 6  
7 8 9  
BKSP 0 ENTER

Final Pull Results will display for 5 seconds. Press "Menu" then "Pull Results" to review.

19. To make a different type of pipette, refer to the program sheet and use one of the six pre-installed programs in your puller (Program # 0-5). If your application or glass and filament combination are not found on the Program Sheet, use the Sutter Cookbook feature found in the menu on the left side of the "Home" screen to search for, and install, the appropriate program settings.

Home Screen

Enter a Program Number between 00 and 99

1 2 3  
4 5 6  
7 8 9  
BKSP 0 ENTER

Options

- \* Menu
- \* Program List
- \* Sutter Cookbook
- \* Help
- \* Press PULL to Calibrate Touchscreen

Use Sutter Cookbook feature to search and install programs ideal for your filament, glass, and application.

20. The **Safe Heat Mode** helps to prevent burning out the filament. If you install a heat setting that is 10% over or under the ramp test value, see example below, a **Safe Heat Warning** will appear in the text box and disallow that heat setting. Change the heat setting to avoid damaging or burning out the filament.

The screenshot shows a control panel for 'Program 03' with parameters: Heat 700, Pull 0, Vel 25, Delay 1, Pressure 500, Ramp 526. The 'Safe Heat Mode' checkbox is checked. A yellow callout box points to the 'Safe Heat Mode <ON>' checkbox. Another yellow callout box points to a warning message: 'Line 1 Heat > Ramp + 10% Filament may burn out Reduce Heat or run Ramp Test or uncheck Safe Heat ( at your risk)'. The interface includes a keypad with buttons for MENU, HOME, CLEAR, and numeric digits 1-9, 0, BKSP, and ENTER.

21. In the Help Menu, you can access additional features including the Glossary, step-by-step instructions on how to install a filament, and more.

The screenshot shows the 'Home Screen' with a numeric keypad and a list of options: \* Menu, \* Program List, \* Sutter CookBook, \* Help, and \* Press PULL to Calibrate Touchscreen. An arrow points from the 'Help' option to the 'Help Topics' screen below. The 'Help Topics' screen lists: About this Puller, Open the Glossary, Trace air leaks, Dial and Keypad use, and Installing a Filament. A back arrow is visible in the top right corner of the Help Topics screen.

For additional information, contact Sutter Instrument at [info@sutter.com](mailto:info@sutter.com) or 415-883-0128.

Happy Pulling!