



Approved Date:	19-Oct-2018		
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Document Code:	MFG-WI-0098	Revision:	B
Document Title:	Arburg Start Up And Operating Procedures		

Owner(s): Deitz, John-Paul; Murphy, Kyle

1. Purpose

1.1. The purpose of this document is to describe the procedures on how to start up and operate the Arburg 375V ALLROUNDER LSR injection molding machine.

2. Associated Materials or References

- 2.1. QC-WI-0069 – Unit 151 ISO 8 Gowning Procedure
- 2.2. MFG-WI-0097 Arburg Mold Base Installation and Removal Procedures
- 2.3. MFG-FORM-0101 Arburg – Daily Inspection of Safety Devices
- 2.4. Arburg Tooling Maintenance Checklist
- 2.5. Polybags
- 2.6. 70% IPA
- 2.7. Lint free cloth

3. Scope

3.1. The scope of this document is the Arburg 375V ALLROUNDER LSR injection molding machine, LIM Pumping Station, and Thermolator in the Unit 151 Silicone Injection Molding Room (415).

4. Qualification of Personnel

4.1. NewAge Industries has trained its team members to enable them to perform this function.

5. Definitions

5.1. Arburg Controller – The screen display and key button pads, located on the side of the Arburg machine.

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- 5.2. LIM Pump Controller – The screen display and key button pads, located on the side of the LIM Pumping Station.
- 5.3. Purge Cycle – This cycle evacuates material from the barrel by using the Arburg and LIM Pumping Station.
- 5.4. Safety Gate – The glass panel that moves up and down in the front of the Arburg.
- 5.5. Carriage – This controls the movement of the screw, barrel, and nozzle.
- 5.6. Mold Parting Line Cover – This is the metal cover located in the back of the Arburg. It covers the access to the nozzle.
- 5.7. Thermolator Controller – the screen display on the front of the Thermolator.

6. Procedure – Start Up:

6.1. Arburg 375V ALLROUNDER Start Up Procedure

- 6.1.1. Before operating the Arburg, complete MFG-FORM-0101.
- 6.1.2. Turn on the main power switch in the back of the machine, if not already on.



OFF position

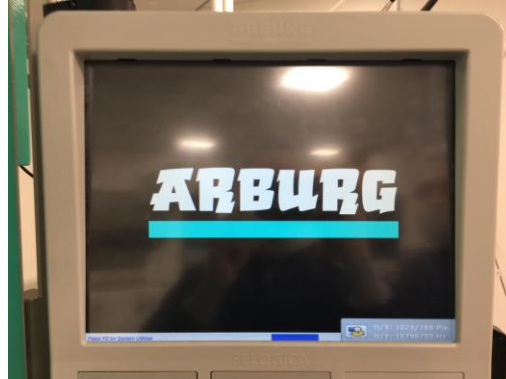
ON position

- 6.1.3. Arburg loading screen will appear on the controller.



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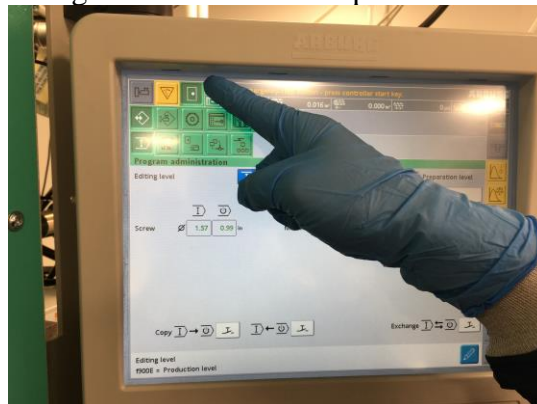
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6.1.4. By default, the machine will display the last loaded program.

6.1.5. To load a different existing program:

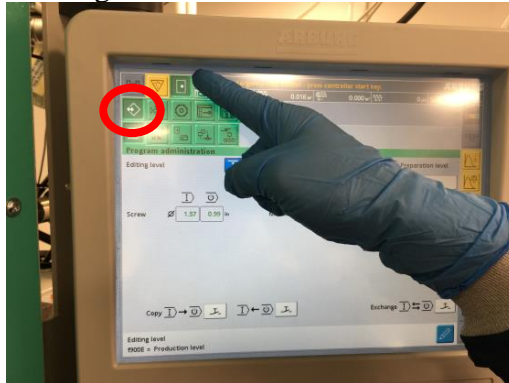
6.1.5.1. Press the green button on the top row.



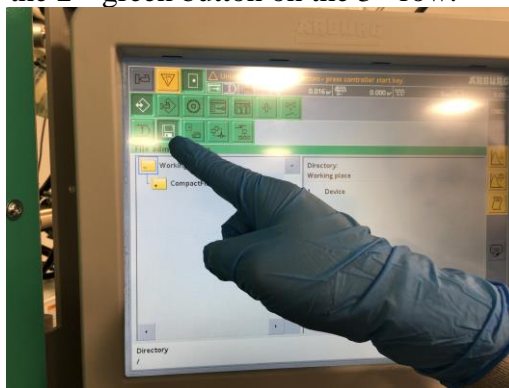
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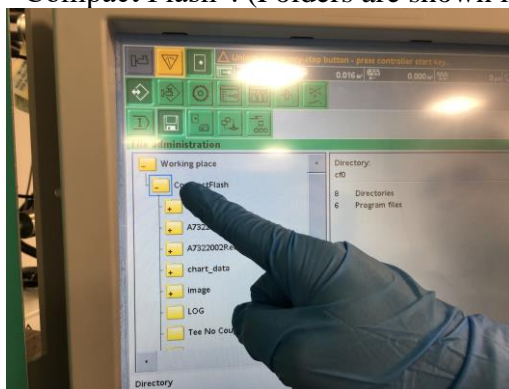
6.1.5.2. Press the 1st green button on the 2nd row.



6.1.5.3. Press the 2nd green button on the 3rd row.



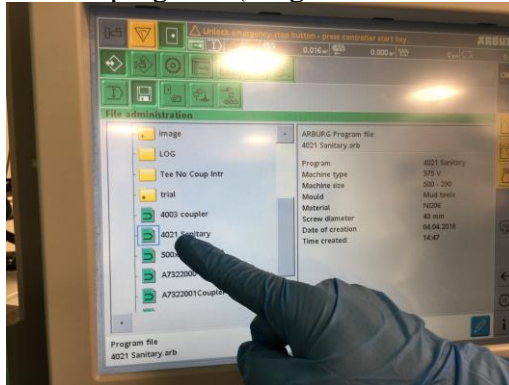
6.1.5.4. Press “Compact Flash”. (Folders are shown in yellow)



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6.1.5.5. Press desired program. (Programs are shown in green)



6.1.5.6. Press the pencil icon.



6.1.5.7. Press "Read in complete program".



6.1.5.8. Press "(Y)" on the Safety Query window.

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6.1.6. If the correct base is installed continue to the next step. If not, follow MFG-WI-0097 Arburg Mold Base Installation and Removal Procedures.

6.1.7. If the correct mold is installed continue to the next step. If not, install the mold(s) per tooling assembly drawing(s).

6.1.7.1. Must fill out Arburg Tooling Maintenance Checklist.

6.1.8. Press the “Heats ON/OFF” button to turn on the heats.



6.1.9. Turn on Thermolator machine next to the Arburg:

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- 6.1.9.1. Locate flow valves on the back of the Arburg and open them slightly (~45 degrees).



Valves in the OFF position.



Valves in the ON Position

- 6.1.9.2. Locate flow valves on the back of the Thermolator and open them all the way.



Valves in the OFF position. Valves in the ON position.

- 6.1.9.3. Turn on main power switch on the front of the Thermolator.

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Main power switch in the OFF position.

- 6.1.9.4. After turning on machine you will see a loading screen. After the loading screen disappears, a main menu screen will appear. It will display the setpoint temperature, the current temperature and will say “OFF” on the display screen.



- 6.1.9.5. If not already done, change the setpoint temperature to 54°C.
- 6.1.9.6. Press the power button to turn the unit ON.

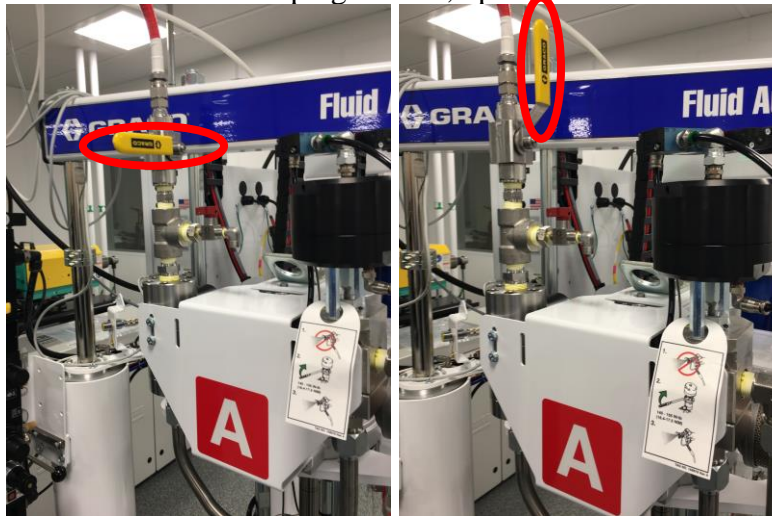
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- 6.1.10. Wait for the mold temperatures to reach the desired levels.
- 6.1.11. While waiting for mold temperatures to reach desired levels, skip to section 6.2 and complete the LIM Pumping Station Start Up Procedure.
- 6.1.12. After completing the LIM Pumping Station Start Up Procedure, LIM can now be pushed into the barrel.
- 6.1.13. Push LIM into the barrel by completing three (3) purges sequence:

6.1.13.1. On the LIM Pumping Station, open both material outlet valves.



OFF position (horizontal)

ON position (vertical)

6.1.13.2. Close the Safety Gate

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6.1.13.3. Bring nozzle/carriage all the way back.



6.1.13.4. Open mold parting line cover on the back of the Arburg machine.



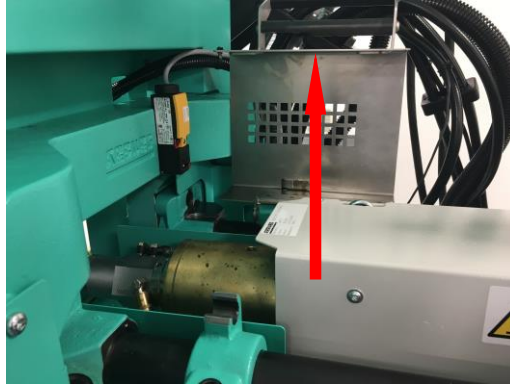
Cover in the closed position



Slide back cover

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Pull up cover handle to open

6.1.13.5. Get a 12" X 12" polybag and cover the nozzle.



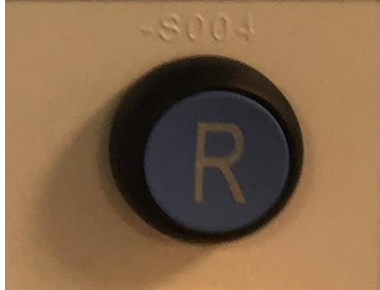
6.1.13.6. Close mold parting line cover.



6.1.13.7. Hit error reset button (big blue "R").

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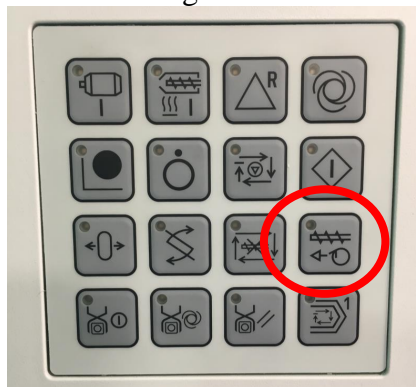
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6.1.13.8. Press the “Motor ON/OFF” button to turn the motor on.



6.1.13.9. Press the “Auto Purge” button.



6.1.13.10. The machine will run through an automatic purge cycle. This will take a few minutes to complete.

6.1.13.11. After the first purge cycle finishes, take out the LIM-filled polybag, replace with an empty polybag, and press the “Auto Purge” button again to purge the machine a second time.

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- 6.1.13.12. After the second purge cycle finishes, take out the LIM-filled polybag, replace with an empty polybag, and press the “Auto Purge” button again to purge the machine a third time.
- 6.1.13.13. After the third purge cycle finishes, the screw will recharge back to the shot size set in the current program. Remove the LIM-filled polybag.
- 6.1.13.14. Open the safety gate.
- 6.1.14. After completing three (3) purge cycles and allowing the mold temperatures to get to the desired levels, zero out the mold clamps and then the nozzle. Always zero out the mold clamps before zeroing out the nozzle.
- 6.1.15. To zero out the mold clamps and the nozzle:
 - 6.1.15.1. Press the “Motor ON/OFF” button to turn on the motor.



- 6.1.15.2. Put the machine in setup mode.

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6.1.15.3. Close the safety gate.



6.1.15.4. Press and hold the “Mold Close” button to lower the upper mold clamp/platen until it completely closes onto the bottom mold clamp/platen.



6.1.15.5. While continuing to hold the “Mold Close” button, press the “Zero Out” button.

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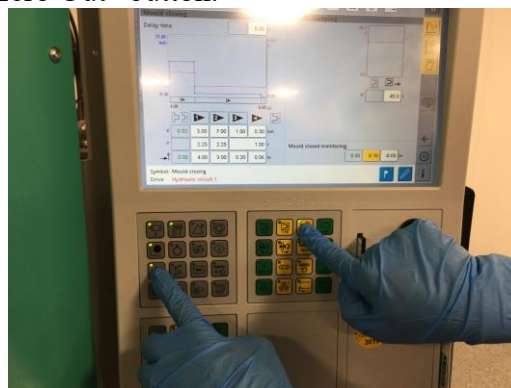
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6.1.15.6. Press and hold the “Nozzle Forward” button until the nozzle touches the back of the MUD Base/mold.



6.1.15.7. While continuing to hold the “Nozzle Forward” button, press the “Zero Out” button.



6.1.15.8. With both the mold clamps and the nozzle zeroed out, press and hold the “Nozzle Retract” button until the black safety guard

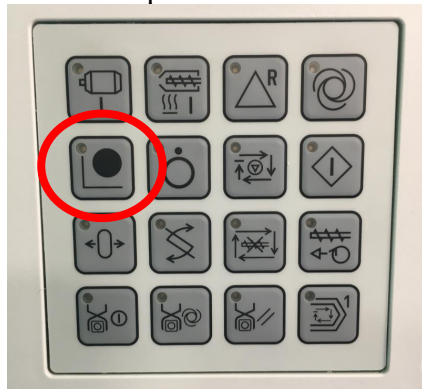
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comes down in front of the nozzle and the nozzle is as far back as it can go.

6.1.15.9. Press and hold the “Mold Open” button until the upper mold clamp/platen is as high as it can go.

6.1.15.10. Press the “Setup Mode” button to take it out of “Setup Mode”.



6.1.15.11. Clean the top and bottom halves of the molds with IPA.

6.1.16. After zeroing out the mold clamps and nozzle, start to run parts per section 6.3.

6.2. LIM Pumping Station Start Up Procedure

6.2.1. Start LIM Pump by pressing ON/OFF button on the controller.



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Screen display while OFF



Screen display after pressing ON

- 6.2.2. Press the button closest to where it says “CONTROL”. “CONTROL ON” should display at the top of the screen.



- 6.2.3. Perform a Ratio Check:

- 6.2.3.1. Make sure both “A” and “B” material outlet valves (yellow handles) are closed and in the “OFF” position.

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OFF position (horizontal) ON position (vertical)

6.2.3.2. Press right arrow on the directional pad to get to the next screen.



6.2.3.3. Get two (2) 5" X 8" polybags.

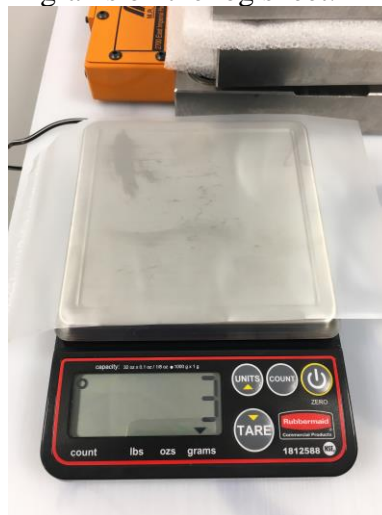
6.2.3.4. Put one (1) of the polybags under the "A" ratio check valve and the other polybag under the "B" ratio check valve.

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- 6.2.3.5. Open both ratio check valves and discard all the LIM that comes out.
- 6.2.3.6. Get two (2) more 5" X 8" polybags.
- 6.2.3.7. Label one (1) of the polybags "A" and the other polybag "B".
- 6.2.3.8. Turn on small scale and set the units to grams.
- 6.2.3.9. Weigh each of the two (2) polybags separately and record the weights in grams on the log sheet.



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6.2.3.10. Put the “**A**” polybag under the “**A**” ratio check valve.



6.2.3.11. Open the “**A**” nozzle valve.



6.2.3.12. Put the “**B**” polybag under the “**B**” ratio check valve.

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6.2.3.13. Open the “**B**” nozzle valve.



6.2.3.14. Back on the LIM controller, press the button next to “**A** & **B**”. This will start the Ratio Check. The LIM Pump will begin to make popping noises and LIM will start to come out of both nozzles.

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- 6.2.3.15. After the Ratio Check is finished, close the valves, and carefully remove the polybags making sure to keep all the LIM contained in the bags.



- 6.2.3.16. Weigh each of the LIM-filled polybags separately, record the weight in grams, and then subtract the weight of the empty polybags.
- 6.2.3.16.1. Example: Empty polybag “A” weighs 3 grams. LIM-filled polybag “A” weighs 123 grams. $123 \text{ grams} - 3 \text{ grams} = 120 \text{ grams}$.

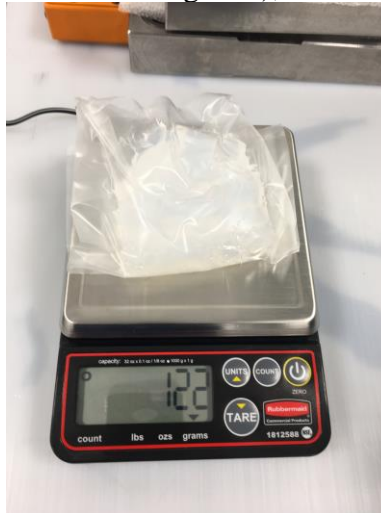


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6.2.3.16.2. The target is 120 grams (+/- 3 grams).

6.2.3.16.3. If the weight is off by 3+ grams (less than 117 grams or more than 123 grams), contact the supervisor immediately.



6.2.4. After completing the Ratio Check and confirming the weights of the “A” and “B” components are both 120 grams (+/- 3 grams), press the left arrow on the directional pad on the controller.



6.2.5. Press the button next to where it says “CONTROL”. “CONTROL ON” should display at the top of the screen.



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6.3. Arburg 375V ALLROUNDER Operating Procedure

6.3.1. After setting up the Arburg injection molding machine, LIM Pumping Station, and Thermolator, start running parts:

6.3.1.1. Press the “Motor ON/OFF” button to turn on the motor.



6.3.1.2. Press the “Sequence” button.



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6.3.1.3.Press the “Start” button.



*****NOTE: When first starting up a new job, make sure to run several cycles before collecting parts for production*****

ARBURG CONTROL PANEL 1



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Motor ON/OFF	Heats ON/OFF	Alarm Reset	Sequence
Setup Mode	Switch-off	Semi-Auto	Start
Zeroing Key	Conversion	Dry Cycle	Auto Purge
Robot ON/OFF	Robot Active/ Inactive	Robot Home Position	Partial Sequence



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ARBURG CONTROL PANEL 2



Mold Open	Mold Close	Nozzle Forward	Nozzle Backward
Ejector Retract	Ejector Advance	Screw Forward	Screw Backward
Sorter Unit	Conveyor Belt	Dosage	Air Blow
Core Insertion	Core Retraction	Safety Gate Open	Safety Gate Close