## Test Case # 5: Weld Quality Test

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| **Test Writers:** Branden Driver | | | | | | | | | |
| **Test Case Name:** | | Weld Quality Test #1 | | | | **Test ID #:** | | 3MP-Weld-01 | |
| **Description:** | | This test will check the quality of the weld across a variety of currents, wire speeds, and CNC movement speeds | | | | **Type:** | |  | |
| **Tester Information** | | | | | | | | | |
|  | **Name of Tester:** |  | | | | | **Date:** | |  |
| **Hardware Ver:** | | Display V1.0, Main Board V1.5, Sensor V1.0 | | | | | **Time:** | |  |
| **Setup:** | | Ensure both welder and CNC are ready to use. Have at least one 1/8” baseplate on hand for each version of test you wish to run. In LinuxCNC, open file “m100”. This file is a G-code program that will print seven 1-inch lines, each at a different CNC movement speed. | | | | | | | |
| **Step** | **Action** | **Expected Result** | **Pass** | **Fail** | **N/A** | | **Comments** | | |
| 1 | Set current level | Current level selected |  |  |  | |  | | |
| 2 | Set wire speed around 2 | Wire speed selected |  |  |  | |  | | |
| 3 | Run program m100 | Printing will begin |  |  |  | |  | | |
| 4 | During weld, run droplet spacing program | Program will output wire speed from encoder and average droplet spacing |  |  |  | |  | | |
| 5 | Quickly record both wire speed and average droplet spacing | Data acquired |  |  |  | |  | | |
| 6 | Repeat steps 4-5 for each of the seven welds of the program | First run is complete |  |  |  | |  | | |
| 7 | Adjust wire speed to 4 | Welder ready for next run |  |  |  | |  | | |
| 8 | Run program m200 | Print will continue on same plate, next to previous run |  |  |  | |  | | |
| 9 | Repeat steps 4-6 | Data acquired for all 7 welds, 2nd run is complete |  |  |  | |  | | |
| 10 | Adjust wire speed to 6 | Welder ready for next run |  |  |  | |  | | |
| 11 | Run program m300 | Print will continue on same plate, next to previous run |  |  |  | |  | | |
| 12 | Repeat steps 4-6 | Data acquired for all 7 welds, 3rd run is complete |  |  |  | |  | | |
| 13 | Adjust wire speed to 8 | Welder ready for next run |  |  |  | |  | | |
| 13 | Run program m400 | Print will continue on same plate, next to previous run |  |  |  | |  | | |
| 14 | Repeat steps 4-6 | Data acquired for all 7 welds, 4th run complete |  |  |  | |  | | |
|  | Adjust wire speed to 8 | Welder ready for next run |  |  |  | |  | | |
|  | Run program m400 | Print will continue on same plate, next to previous run |  |  |  | |  | | |
|  | Run program m400 | Data acquired for all 7 welds, 5th run complete |  |  |  | |  | | |
| **Overall Test Result:** | | |  |  |  | |  | | |