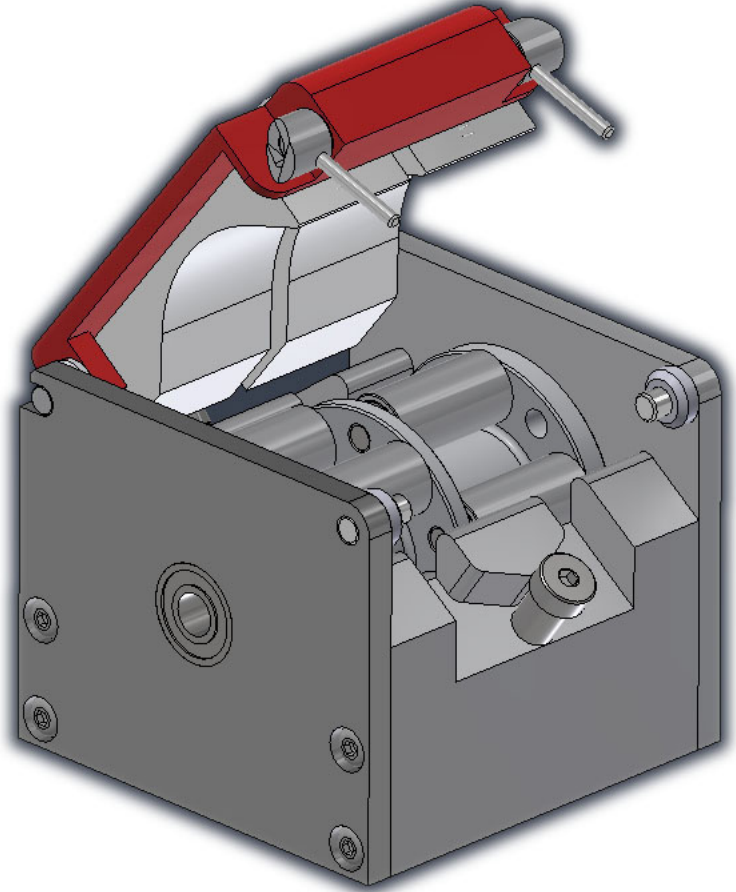
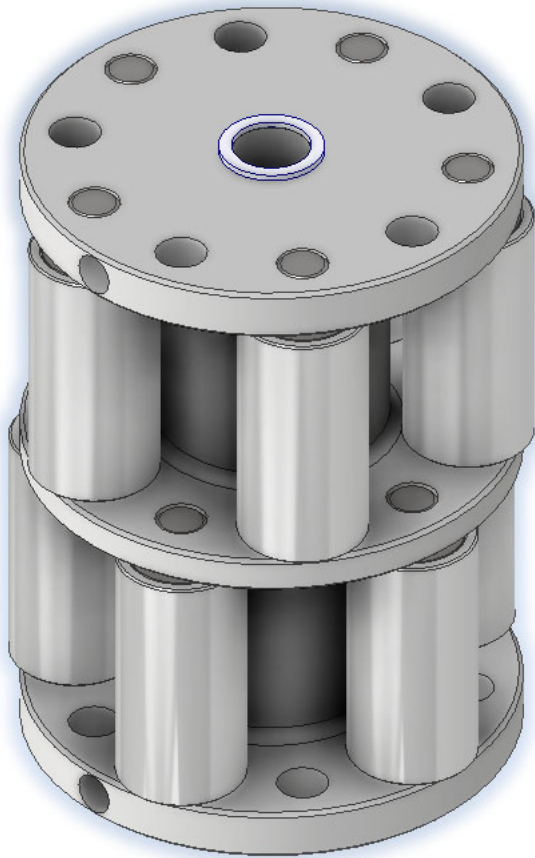


Center Hub Rotor for ONLINE Pump Heads



FEATURES

- Reduces silicone particulate in pump head
- Reduces tubing wear
- Shown to increase process capability across the life of the tubing
- Reduces or eliminates the need for lubrication on rollers
- Maintains offset rotor design
- Eliminates need for grip rings and prevents roller migration
- Drop-in replacement for existing ONLINE rotors
- Contact sales@online-engineering.com for more information



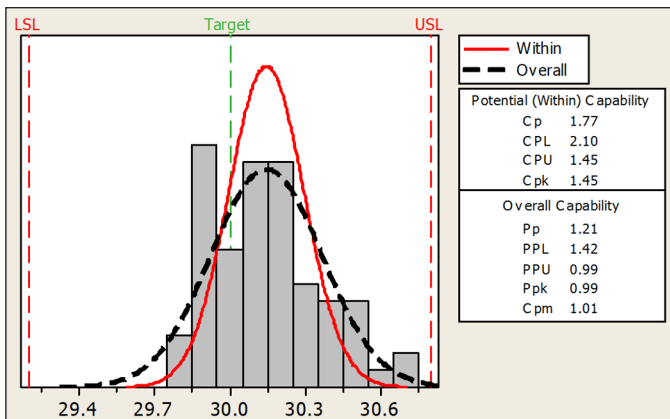
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Center Hub Rotor for ONLINE Pump Heads

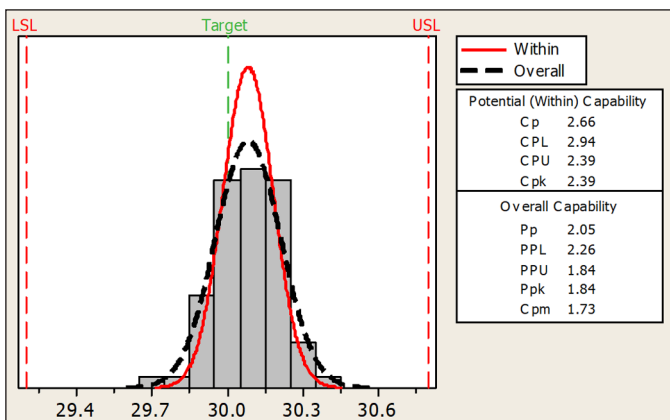
Site Testing

- In limited site testing, process capability was shown to be improved.
- Testing was conducted on an eight lane ONLINE MultiDISH™ machine. Four full shaft rotors were installed on one pump shaft and four center hub rotors installed on the opposite pump shaft. Each shaft was driven by a stepper motor. Existing stator and tie plate assemblies were not changed or modified.
- No lubrication was applied to the rollers.
- The test was run with the pour set connected a 60 liter pressurized media preparator. The 60 liters of media was dispensed over approximately 60 minutes.
- Tests shown were conducted with tubing that had been previously used for approximately 60 hours of run time. Pour set was constructed in keeping with ONLINE practices.
- Target dispense volume was 30ml.
- No additional process parameters were changed.



Existing Full-Shaft Rotor

- Target Volume: 30ml
- Sample Mean: 30.15 ml
- Standard Deviation: 0.22



New Center Hub Rotor

- Target Volume: 30ml
- Sample Mean: 30.08 ml
- Standard Deviation: 0.13

ONLINE Engineering inc. is a global supplier of petri dish filling machines, test tube filling machines, vial filling machines and other prepared media production equipment. We understand that a quick return-on-investment is important. Our goal is to provide the quality of equipment and service that significantly contribute to your success.