## Specifications (continued)

### Electrical/Pneumatics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>208VAC</td>
</tr>
<tr>
<td>Frequency</td>
<td>60Hz</td>
</tr>
<tr>
<td>Phases</td>
<td>3</td>
</tr>
<tr>
<td>Wires</td>
<td>5</td>
</tr>
<tr>
<td>Full-load current</td>
<td>60A</td>
</tr>
<tr>
<td>Largest load</td>
<td>10A</td>
</tr>
<tr>
<td>Short circuit</td>
<td>5000A</td>
</tr>
<tr>
<td>Air pressure</td>
<td>80psi</td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>94”</td>
</tr>
<tr>
<td>Width</td>
<td>34”</td>
</tr>
<tr>
<td>Depth</td>
<td>50”</td>
</tr>
<tr>
<td>Working height</td>
<td>97”</td>
</tr>
<tr>
<td>Working width</td>
<td>56”</td>
</tr>
<tr>
<td>Working depth</td>
<td>104”</td>
</tr>
<tr>
<td>Weight</td>
<td>~1500 lbs</td>
</tr>
</tbody>
</table>

### Materials/Construction

- **Process-exposed materials**: Stainless steel, anodized aluminum
- **UV resistance**: Polane-painted frame, Aluminized conduit, Kevlar sleeving
- **Debris generation resistance**: Sealed stage/bearings, PTFE wear plates, contained/guarded gearing/pulleys

### Controls

- **Controller**: Advantech PC with XP Pro, Parker AQR0030
- **Ethernet ports**: 1 (Front Panel)
- **USB ports**: 2 (Front Panel)
- **I/O module**: Wago
- **Software platform**: VB.Net, Windows XP Pro OS
- **Software access**: 4 Levels: Operator, Advanced Operator, Technician, Engineer

### Sensing/Monitoring

- **Lifetime monitoring**: UV bulbs, c-tubes, Limit approaching warning and limit reached alarms
- **Temperature sensing**: Omega Type K Thermocouple
- **UV intensity monitoring (optional radiometry system)**: Delta Ohm DO 9721 Radiometer, Delta Ohm LP 9021 UVA Probes
- **Calibration**: Radiometry – yearly, Thermocouple – yearly

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### OakRiver Medical Device Coating

OakRiver Technology offers a growing portfolio of innovative medical device coating equipment. Our products are built on a foundation of medical device industry experience and unmatched equipment engineering and design capabilities.

OakRiver Technology’s portfolio of medical device coating products includes:

- DC200 Medical Device Dip-Coating System
- DC100 Medical Device Dip-Coating System
- DL100 Durability and Lubricity Test System
- SC1000, HC1000 Specialty Coating Systems

Additional products are currently under development, contact OakRiver for more information.

### For More Information

To learn more about medical device coating products from OakRiver Technology, or our process automation and manufacturing services, please contact OakRiver today.

---

**OakRiver Technology**

640 Hayward Avenue North | Oakdale, MN 55128
Tel.: 651-770-8710 | Fax: 651-770-8724
www.OakRiverTechnology.com

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The DC200 dip coater applies precision hydrophilic coatings onto catheters, guide-wires and other medical devices, with performance, features and size unmatched in the industry. The system was specifically designed for SurModics’ latest Serene™ low particulate, low friction lubricious coatings. The DC200 offers a compact footprint, two-station rotary platform with a load/dip/dry station in parallel with a dry/cure station to maximize manufacturing productivity.

**Precision Performance**
The DC200 was designed to provide precise, repeatable performance for critical applications.

- Compact, two-station rotary platform to maximize manufacturing productivity
- Precision dip/extract coating via servo driven motion
- Dual-coating reservoir (or funnels) for holding two different coating solutions
- Automatic solution coating covers to maintain quality/consistency of coating solution

**Ease of Use**
The DC200 was designed for simple, intuitive use by operators, technicians and engineers.

- Intuitive hardware controls
- Automated part loading/unloading for ergonomics
- UV-filtered dip and cure chamber windows for full-process view
- Interlocks and keyed doors for operator safety

**Flexible Operation**
The DC200 provides the flexibility you need to address a broad range of coating requirements.

- Removable cassette/device fixture
- Customizable part fixturing and solution reservoir options
- Compact footprint with casters for easy placement
- Modular design for feature add-ons and upgrades

**High Reliability**
The DC200 was designed for high reliability and efficient maintenance.

- Robust mechanical and controls system design
- Commercial PC-based controls and components
- Auto-generated process logs to assist in troubleshooting
- Convenient access panels and doors for maintenance and service

**Software**
The DC200 offers a powerful, yet easy to use software environment. Its touch screen interface and intuitive structure allow users to quickly and confidently take advantage of the system’s flexibility, with prompts to guide the user. The system’s main screen provides easy access to system functions.

**Easy to Use**
- Intuitive controls with visual cues for all key functions
- Touch-screen, menu-driven PC interface
- Operator, Advanced Operator, Technician, and Engineer access levels

**Flexible**
- Recipe-driven for customizable process control
- Maintenance modes for control of individual components
- Modular design for easy configuration to specific needs
- Teach function for simple recipe creation

**Reliable**
- Explicit error messages and prompts
- Sensing of all actuation positions
- Feedback and logging of process and system information

**Specifications**

<table>
<thead>
<tr>
<th>Process Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. part length</td>
</tr>
<tr>
<td>Max. coat length</td>
</tr>
<tr>
<td>Max. part diameter</td>
</tr>
<tr>
<td>Max. batch size</td>
</tr>
</tbody>
</table>

**Operation**

- Load height: Adjustable down to 5” (less any fixture length)
- Loading ergonomics: Pneumatically actuated fixtures
- Pressure and button controlled lowering
- Single press button-controlled lifting

**Air Flow**

- Max. exhaust air flow: 1650cfm
- Max. input air flow: 910cfm
- Air filters: Polypropylene (disposable)
- Front window height: 27”
- Monitor height range: 27”-81”
- Fan speed adjustability: 0%, 40-100% of maximum cfm

**Dip tank**

- Max. coating solution reservoir volume: 1.5L per reservoir
- Filter dimensions: 0.4 – 2.75”
- Single press button-controlled lifting
- Lamp standby and on/off
- C-Tube pressure rating: 5psi

**Curing**

- Part curing distance to UV lamps: Less than 12”
- UV lamp warm-up time: 5 – 20 minutes (configurable)
- UV lamp controllability: Lamp standby and on/off
- Individual lamp power supplies and fault detection
- 50%-100% power option
- UV bulb life: 500hrs before drop to 75%

**Motion Control**

- Insertion/extraction rate: 0.5 – 15cm/s
- Controlled extraction zones: Up to 4 separate extraction speeds
- Dip tank speed repeatability: ±0.005 cm/s
- Position repeatability: ±0.001 cm
- Rotation speeds: 1-69rpm
- Spacing between parts: 3”
DC200
MEDICAL DEVICE DIP COATER
2 SOLUTION COATING

The DC200 dip coater applies precision hydrophilic coatings onto catheters, guide-wires and other medical devices, with performance, features and size unmatched in the industry. The system was specifically designed for SurModics’ latest Serene low particulate, low-friction lubricious coatings. The DC200 offers a compact footprint, two-station rotary platform with a load/dip/dry station in parallel with a dry/cure station to maximize manufacturing productivity.

**Precision Performance**
The DC200 was designed to provide precise, repeatable performance for critical applications.

- Compact, two-station rotary platform to maximize manufacturing productivity
- Precision dip/extract coating via servo driven motion
- Dual-coating reservoir (or funnels) for holding different coating solutions
- Automatic solution coating covers to maintain exclusive for applying SurModics’ Advanced Hydrophilic Coatings.

**Ease of Use**
The DC200 was designed for simple, intuitive use by operators, technicians and engineers.

- Intuitive hardware controls
- Automated part loading/unloading for ergonomics
- UV-filtered dip and cure chamber windows for full-process view
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**Specifications**

<table>
<thead>
<tr>
<th>Process Capabilities</th>
<th>Max. part length</th>
<th>180cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. coat length</td>
<td>150 - 175cm</td>
<td></td>
</tr>
<tr>
<td>Max. part diameter</td>
<td>3/8”</td>
<td></td>
</tr>
<tr>
<td>Max. batch size</td>
<td>6 (12 maximum parts in process)</td>
<td></td>
</tr>
</tbody>
</table>

**Operation**

- Load height: Adjustable down to 5” (less any fixturing length)
- Loading ergonomics: Pneumatically actuated fixtures
- Single press button-controlled lowering
- Single press button-controlled lifting
- HMI: 15” VGA Touchscreen

**Air Flow**

- Max. exhaust flow rate: 1650cfm
- Max. input flow rate: 910cfm
- Fan speed adjustability: 0%, 40-100% of maximum cfm
- Air filters: Polyester (disposable)
- Air Flow: Standard commercial sizes

**Dip Tank**

- Max. coating solution reservoir volume: ~1.5L each reservoir
- Fan speed adjustability: 0%, 40-100% of maximum cfm
- Tube change-out time: 0.5 – 1hr (estimated)
- C-Tube pressure rating: 6psi

**Curing**

- Part curing distance to UV lamps: Less than 12”
- UV lamp warm-up time: 5 – 20 minutes (configurable)
- UV lamp controllability: Lamp standby and on/off
- UV bulb life: ~500hms before drop to 75%
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