



**OAKRIVER  
TECHNOLOGY**  
*A PaR Systems Company*



**DC<sub>10</sub> • DC<sub>20</sub>**

MEDICAL DEVICE DIP COATER

OakRiver Technology's DC<sub>10</sub> and DC<sub>20</sub> dip coaters apply hydrophilic coatings onto catheters, guide-wires and other medical devices, with semi-automated functionality. It offers a coating chamber with easy operator access along with an in-parallel dry/cure chamber. The DC<sub>10</sub> accommodates single solution coating applications, while the DC<sub>20</sub> provides automatic handling of two coating solutions. These dip coaters have been engineered specifically for low-volume applications, utilizing reliable commercial components and proven electro-mechanical techniques for robustness, resulting in a cost-effective system.

### USER-FRIENDLY

The DC<sub>10</sub> and DC<sub>20</sub> ensure the safe operation for operators, technicians and engineers

- Utilizes a light curtain for efficient, safe access to coating chamber
- Automated part loading/unloading height in coating chamber for ergonomics
- UV-filtered cure chamber window for full-process view
- Interlocked and keyed door for operator safety in curing chamber

### CONFIGURABLE DESIGN

The DC<sub>10</sub> and DC<sub>20</sub> provide the flexibility required for your application.

- Modular design to accommodate a variety of part lengths and coat lengths
- Customizable part fixturing
- Automatic handling of 1-solution coating process (DC<sub>10</sub>) or 2-solution coating process (DC<sub>20</sub>)

### HIGH RELIABILITY

The DC<sub>10</sub> and DC<sub>20</sub> were designed for high reliability.

- The basic coating processes - in a simple, robust platform
- Precision dip/extract coating via servo-driven motion
- Commercial PC-based controls and components
- Auto-generated process logs for convenient verifications and tracking

### SOFTWARE

The DC<sub>10</sub> and DC<sub>20</sub> offers a powerful, yet easy to use software environment. Its touch screen interface and intuitive structure allow users to efficiently and confidently take advantage of the system's capabilities, with prompts to guide the user.

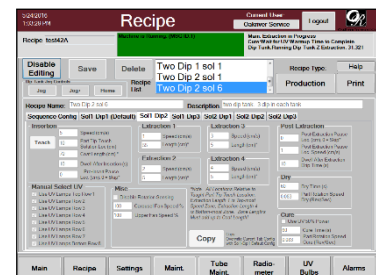
#### Easy to Use

- Intuitive controls with visual cues for all key machine states
- Touch-screen, menu-driven PC interface
- Operator, Technician, and Engineer access levels



#### Flexible

- Recipe-driven for customizable process control parameters
- Maintenance modes for control of individual components
- Modular design for easy configuration



#### Robust

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

## SPECIFICATIONS

Process Capabilities	
Max. part length	• 135cm (standard); 180cm (optional)
Max. coat length	• 135cm (standard); 175cm (optional)
Max. part diameter	• 3/8" (standard); alternatives optional
Max. batch size	• 6 (12 maximum parts in process)

Dimensions	
Height	• 80"
Width	• 62"
Depth	• 30"
Weight	• ~750 lbs

Motion Control	
Insertion/extraction rate	• 0.5 – 10cm/s
Controllable extraction zones	• Up to 3 separate extraction speeds
Dip tank speed repeatability	• $\pm 0.005$ cm/s
Position repeatability	• $\pm 0.001$ cm
Part Rotation speeds	• 5-60rpm
Spacing between parts	• 3" +

Operation	
Load height	• Adjustable down to 5' (less any fixturing length)
HMI	• 17" VGA Touchscreen

Funnels	
Max. funnels	• 6 per coating solution
Number of coating solutions	• Up to 2
Funnel dimensions	• 0.4"ID (standard); alternatives optional

Curing	
Part curing distance to UV lamps	• Less than 12"
UV lamp warm-up time	• 5 minutes
UV lamp controllability	• Individual lamp standby and on/off • Individual lamp power supplies and fault detection
UV bulb life	• 500hrs before drop to 75%

Materials/Construction	
Process-exposed materials	• Stainless steel, anodized aluminum • Funnel material customizable
UV resistance	• Aluminized conduit, Kevlar sleeving
Debris generation resistance	• Sealed stage/bearings, contained/guarded gearing/pulleys

Air Flow	
Max. exhaust flow rate	• 1100cfm : - (2) 550cfm fans
Air filters	• Polyester (disposable) • Expanded Aluminum (cleanable) • Standard commercial sizes

Safety	
Window	• UV filtered and tinted glass
UV Measurements	• ACGIH Guidance, "Threshold Limit Values and Biological Exposure Indices" (Pub. No. 0206)
E-Stops	• 1 (Front Panel)
Keyed Access	• Main electrical enclosure, maintenance door
Interlocks	• Safety interlocks on cure chamber door and maintenance door

Sensing/Monitoring	
Temperature sensing	• Omega Type K Thermocouple
Calibration	• Thermocouple – yearly

Controls	
Controller	• Industrial PC, Parker IPA
Ethernet ports	• 1 (Front Panel)
USB ports	• 1 (Front Panel)
I/O module	• Wago
Software platform	• Visual Basic NET, Windows 7 OS
Software access	• 3 Levels: Operator, Technician, Engineer

Electrical/Pneumatics	
Voltage	• 208VAC
Frequency	• 50Hz
Phases	• 3
Wires	• 5
Full-load current	• 30A
Largest load	• 10A
Short circuit	• 5000A

### SYSTEM OPERATION

The DC10 and DC20 were designed as semi-automatic dip coaters with in-parallel processing of both dipping and curing functions.



- User manually loads devices into coating chamber through light curtain access
- System automatically dips/extracts devices into the recipe-indicated coating solution(s)
- Fixed funnels are used for containment of solution(s)
- Devices are manually moved from the coating chamber to the curing chamber
- User enters curing chamber through locking interlocked door
- System exposes parts to UV lights for the recipe-indicated cure time
- Parts are individually rotated during curing
- User manually unloads the parts from the curing chamber

### 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 current portfolio of medical device coating products includes:

- DC100x Medical Device Dip-Coating System
- DC200 Medical Device Dip-Coating System
- DL1000 Durability and Lubricity Test System
- SC1000, HC1000 Specialty Coating Systems

Additional products are currently under development - contact OakRiver Technology to learn more.



### 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.



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