

# PCX SERIES

*Coating Stations*

**ON THE SURFACE**  
*We touch life first*

**MACHINES**

*Making  
Coatings Work*



## A compact, versatile, high throughput coating platform for applying and curing medical device coatings.

### PCX SERIES Coating Stations

Automated coating platforms specifically designed to apply medical coatings to your device.

Devices to be coated are loaded, 12 at a time, into one of two processing modules via a removable cassette. After starting a new cassette of parts into their coating process, coated parts can be unloaded from the opposite processing module and a fresh cassette of parts can be started.

Color touchscreen makes creating and editing coating protocols fast and easy.

Optional Dual Solution Dipping Module allows two distinct coating solutions to be applied sequentially without needing to remove devices.



#### Features:

- Proprietary CoatWorks™ software allows easy programming and storage of coating protocols.
- Dual station design maximizes part throughput in a minimum of floor space.
- No side-to-side part motion which avoids parts touching each other.
- Complete installation and service programs available.



Harland Medical Systems presents the PCX Series Coating System for applying and curing ultraviolet-cured medical device coatings. The PCX coater integrates both dip coating and curing in one compact unit. Ideal for coating catheters, guidewires, introducers and similar medical devices. The pre-engineered modules mean you can select the feature packages and automation levels you need for your particular application, without the long lead times and high costs associated with custom designed equipment.



#### Like having two coaters with one operator...

The PCX Coating System contains two processing chambers – left and right. A dipping module and a curing module shuttle side to side alternatively serving each processing chamber. While one chamber is applying a coating to one cassette of 12 devices, the opposite chamber is curing a second cassette of 12 devices. Then the modules shift positions to continue processing. This concurrent processing provides nearly continuous processing capability with a single operator.

#### Dip Module

Dip Coating Module contains a servo controlled vertical motion column that precisely lowers and extracts a cassette of parts from a set of individual solution tubes. These solution tubes are removable and disposable to keep coating solution fresh. You program the exact immersion speed, distance and extraction speed that is right for your device and coating chemistry.

An optional alignment comb automatically keeps parts aligned with solution tubes and can also serve as an Autofeeder to assist parts into solution tubes.

#### Cure Process

The UV Cure Module produces a flood of the proper wavelength UV light to cure today's UV-cured coating chemistries. Stacked pairs of UV sources mean you can tailor the cure zone to satisfy your device's coated length. Additional sources can easily be added should your needs change. A sliding shutter precisely controls the amount of UV exposure. Parts rotate to provide uniform cure energy to all coated surfaces. UV sensing option continually monitors UV intensity and warns when UV drops below a preset level.

#### Easy Loading

Uncoated parts are loaded into the coater on a removable cassette. After starting new parts into the coating process, the operator removes finished parts from the opposite side of the coater and loads new parts.



*Single bank of shuttling UV sources provides efficient curing energy without need for duplicate sources for each processing chamber.*



*Dual processing chambers are like having two coaters in one compact package.*

### CoatingWorks Software

The versatile, intuitive Harland CoatingWorks Software makes programming your coating sequences fast and easy. The PCX Coater actions are selected from a menu and added to the position you choose in the sequence. Messages can be added to remind the operator of actions to be taken during the coating process. Password protected, multiple coating protocols can be created, modified and saved only by authorized personnel.

After programming, a PLC controller takes over the actual operation of the coater

## Specifications PCX Series Coating Systems

	PCX 175	PCX 100
<b>Process Capabilities</b>		
Maximum Overall Part Length	175 cm	100 cm
Maximum Length to be coated	165 cm	84 cm
Device capacity per cassette – single solution	18	18
Device capacity per cassette – dual solution	12	12
Device capacity per coater	36 Single / 24 Dual Solution	36 Single / 24 Dual Solution
Maximum number of coating solutions	Two	Two
Maximum number of coat layers	10	10
<b>Air Flow</b>		
Exhaust air flow requirement - minimum	1200 cfm	1200 cfm
<b>Coating Solution Reservoirs</b>		
J-shape solution tubes – dual solution	24	24
Straight solution tubes – dual solution	24	24
<b>Cure Module</b>		
UV source type	Mercury metal halide	Mercury metal halide
UV lamp control modes	Off / On standby power / On / full power	Off / On standby power / On / full power
Estimated UV bulb life	500 hours	500 hours
<b>Motion Control</b>		
Dip insertion and extraction rates	0.1 – 10.0 cm/second	0.1 – 10.0 cm/second
Cure rotation speeds	2 – 5 rpm	2 – 5 rpm
Clearance between parts	3 inches	3 inches
<b>Electrical Requirements</b>		
Voltage Requirement	230 volts	230 volts
Frequency	50 Hz – 60 Hz	50 Hz – 60 Hz
Phase	3 phase	3 phase
AC power wiring	4 wire	4 wire
Current draw (max UV sources)	65 amps	55 amps
<b>Dimensions</b>		
Height	108 inches / 275 cm	78.5 inches / 200 cm
Width	96 inches / 244 cm	96 inches / 244 cm
Depth	49.5 inches / 126 cm	49.5 inches / 126 cm
Custom Height Available	Yes	Yes
Approximate weight	1800 lbs	1400 lbs
<b>Materials of Construction</b>		
Materials Exposed to Process	Stainless steel, anodized aluminum, powder coated steel	Stainless steel, anodized aluminum, powder coated steel
<b>Controls</b>		
HMI	Panel PC	Panel PC
Control system	Allen Bradley PLC	Allen Bradley PLC
PLC Software	RS Logix	RS Logix
Ethernet connection ports	Two on Panel PC, Two on control panel, and two on HMI	Two on Panel PC, Two on control panel, and two on HMI
USB Ports	Two on control panel, and two on HMI	Two on control panel, and two on HMI
Software platform for programming coating protocols	Windows 7 Pro Embedded	Windows 7 Pro Embedded
HMI Software	Harland Proprietary CoatingWorks™	Harland Proprietary CoatingWorks™
<b>Safety Features</b>		
Emergency Stop	One E-Stop button on front of coater	One E-Stop button on front of coater
Automatic door interlocks	Powered interlock – frt drs	Powered interlock – frt drs
Electrical Interlock	Main electrical disconnect on rear door	Main electrical disconnect on rear door
<b>Sensors and Monitors</b>		
Lifetime cycle count monitoring	Standard	Standard
Temperature monitor	Available	Available
Humidity monitor	Available	Available
Coating solution viscosity monitor	Available	Available
Internal UV intensity monitor for each UV source	Available	Available
Calibration frequency	Yearly	Yearly

*Loading cassettes can be equipped with a variety of fixtures to hold your device*

*An optional Alignment Comb automatically keeps parts aligned with solution tubes and can also serve as an Autofeeder to assist parts into solution tubes*

*Disposable solution tubes can be emptied and exchanged to keep coating solution fresh.*



## After Sale Service

Available Annual Service Program includes:

- Full coverage of needed repairs including service travel if necessary.
- All software updates.
- Annual on-site recertification by Harland technician including replacement of wear parts.

PCX Coaters are equipped with software for remote access operation via the internet for troubleshooting and diagnostics.

## Optional Features for PCX Series Coating Systems

### Alignment Comb

Separates devices prior to dipping and maintains device alignment with solution tube openings.

### Autofeeder

Assists devices into solution tubes during dipping process. Available only along with Alignment Comb option.

### J-shaped solution tube dipping module

Standard

### Straight Dip Module

Devices enter coating solution without bending. Available only with coating lengths up to 40 cm.

### Dual Solution Dip Module

Allows two distinct coating solutions to be applied sequentially.

### Recirculation Dip Module

Continuously circulates coating solution to extend solution pot life. Available only along with Straight Dip option.

### Automatic Solution Refill

Maintains coating solution level. Available only with Recirculation Dip Module.

### Viscosity Monitoring

Continuously monitors viscosity of coating solution(s). Available only with Recirculation Dip Module

### Barcode Reader

Scans device barcode and coater automatically selects correct coating protocol for device ID read.

### External Radiometer

Detector mounts inside cure chamber. Meter connects externally.

### Continuous UV Monitoring

Each UV Source continuously monitors UV intensity and alarms if intensity drops below a preset level.

### Reflective Cure Module

For devices too large to rotate in front of UV source.

### Air Purge

Provides a burst of air through device lumen to clear excess coating solution.

## THE 4M FRAMEWORK™

*Harland manages all of these elements as an integrated program to provide you with a complete surface enhancement solution tailored to precisely meet your particular technical, functional and economic requirements.*



**MATERIALS** — proprietary chemistries that enable advanced surface enhancement on your medical devices, healthcare disposables or life science products. Harland provides unique, world class chemistry platforms for solving customer surface enhancement challenges.

**METHODS** — processes and protocols to effectively and efficiently apply and cure surface enhancing materials. Harland creates and validates robust methods that optimize the integration of Materials and Machines to meet your product's requirements.

**MACHINES** — automated systems designed specifically to apply and test advanced Materials on your device. Engineered to meet your technical, commercial and operating requirements including throughput and total cost of ownership.

**MANUFACTURING** — with either Harland Contract Coating Services or customer- owned coating operations. Harland is uniquely positioned to offer a full spectrum of surface enhancement manufacturing options based on your manufacturing strategy and volume requirements.

## Total Solution

As a total solution provider, Harland Medical Systems will work with your team through the entire project, providing feasibility and prototype coated devices, process development (OQ and PQ), regulatory and automation support.

Whether you ultimately choose to take advantage of Harland Medical Systems' ISO13485 certified contract coating capabilities or coat your device in house, you can be assured of total support through the entire process.



7418 Washington Avenue South  
Eden Prairie, Minnesota 55344,  
USA • 952.941.0475

[www.harlandmedical.com](http://www.harlandmedical.com)

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