

# EcoCharge PD

## Direct Charging of Water-Borne Paint

### Operation **EcoCharge PD Potential Separation System with Pigging Technology for Direct Charging of Water-Borne Paint**

The handling of environmentally friendly water-borne paints in electrostatic painting systems with direct charging requires a potential separation system between the earthed material supply and the atomizer to which high voltage is applied.

Dürr uses pigging technology to create the insulation sections that are required, modular design and the *EcoBell2* atomizer to provide a continuous solution up to the point where special colour supplies are connected.

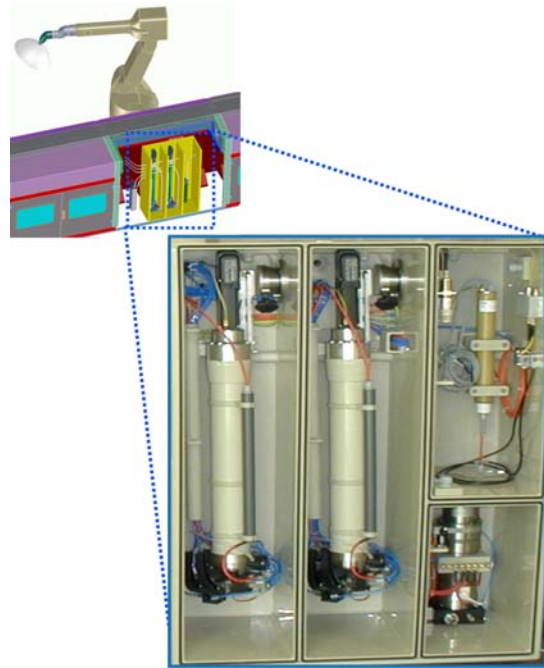
External application, internal application and precision application can be performed perfectly using the *EcoCharge PD* and the *EcoBell2* atomizer.

**Design** The atomizer is supplied with paint material by two piston dispensers, and allows interruption-free painting to take place with an unlimited volume flow.

Piston dispensers A and B are supplied by a dual colour changer. The connections between the atomizers, the piston dispensers and the colour changer consist of piggable, high-voltage proof plastic hoses.

After a piston dispenser has been filled, the line between the colour changer and the piston dispenser is pigged and the insulating section is set up. Subsequently the paint can be delivered to the atomizer that is under high voltage by the piston dispenser. When the paint material reaches the atomizer the pre-painting process stops and painting starts.

Whilst the current painting process is in progress the paint column is pushed back into the piston dispenser in the second branch by pigs. The insulating sections between the atomizer and the piston dispenser are created, the insulation between the piston dispenser and the colour changer is removed and the paint material that is not required is pushed back into the ring line.

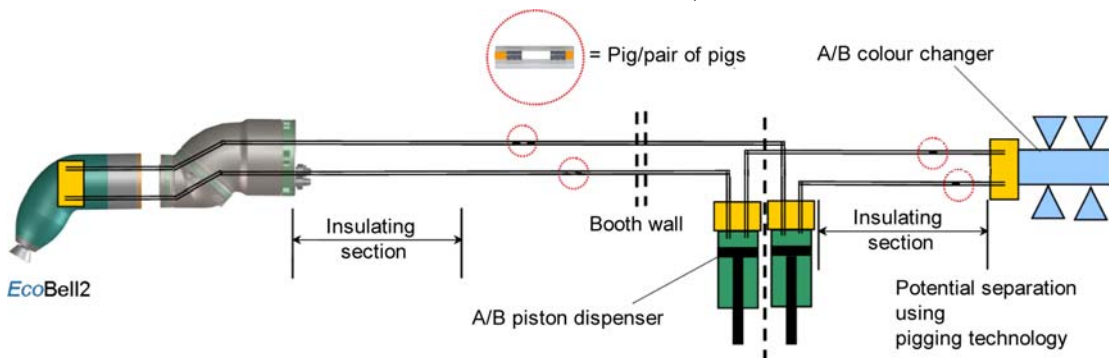


*EcoCharge PD arrangement in the EcoRail House*

The filling line is purged and the piston dispenser is ready for filling with the next colour.

The *EcoCharge PD* potential separation system with its two piston dispensers, colour changer and high-voltage cascade is outside the painting booth for ease of access for maintenance, e.g. in the *EcoRail House*, the housing for the robot travel rail.

There are pigging stations in the atomizer flange of the *EcoBell2* atomizer. No robot arm attachments are needed, and areas of the body that are difficult to access are easier to reach with the "slimmer" robot arm. A pigging station is alternatively available on robot arm 1.



*EcoCharge PD principle*



# Technical Data

## Highlights

- Maximum efficiency because of direct charging
- Substitute for air atomizer for interior painting, improvement of efficiency > 50%
- Exact paint and solvent volume dosing
- Optimisation and cost saving because of reduced consumption
  - Paint loss of just 25 ml (approx.)
  - Purging agent consumption < 200 ml
  - Colour change < 10 sec. possible
- Metering accuracy: deviation from setpoint < 1 % in range from 0 up to 4000 ml/min, therefore little paint shearing and rigid characteristics because of piston metering
- Unlimited paint capacity without intermediate filling
- Special colours are easy to connect
- Exact pig positioning by means of servo motor driven piston and hydraulic coupling
- Compact, modular design, completely replaceable for good availability, simplifies maintenance
- Integration in the *EcoRail House*
- Constant connection between metering unit and atomizer
- Compact, slim painting system (robot atomizer) for interior areas
- 2K water/water potential separation without pre-mixed material
- No atomizer replacement or time-consuming topping up
- No separate atomizer required for potential separation
- Minimum interface maintenance
- No open interfaces over paint surface ("dripping")
- No contact between paint and compressed air
- Minimum soiling in painting booth

Interior painting with *EcoCharge PD*, *EcoBell2* and direct charging of water-borne paint



## Installation Dimensions

Height x width x depth (mm) 1270 x 1430 x 500

## Filling Volume

Per metering container max. (ml)	1500
Purging agent container max. (ml)	900
Paint delivery volume (ml/min)	up to 4000
Metering cylinders can be swivelled individually for maintenance work (x°)	up to 80

## Pigging Hose

Diameter: (mm)	7.25 x 12.6
Length for <i>EcoRP6</i> : (m)	appr. 10
Length for <i>EcoRP7</i> : (m)	appr. 14

## Efficiency (TE)

Application efficiency\* of over 95 % possible  
\*depending on paint material

## Application Area

External painting, interior painting (door cut ins),  
Plastic part painting;  
Robot application, machine application

## Technical Data

Bumper painting with *EcoCharge PD*, *EcoBell2 2K* and direct charging of 2K water-borne paint

