



LEADING IN PRODUCTION EFFICIENCY

Ecopaint RoDip

EFFICIENCY AND QUALITY THROUGH ROTATION





Ecopaint RoDip – EFFICIENCY ALL AROUND

The **Ecopaint RoDip** rotational painting system stands for the perfect interplay between plant and conveyor, and ensures efficient transport solutions for vehicle bodies through treatment lines. The rotation of the complete body optimizes the process of immersion, flooding and draining.

The use of **Ecopaint RoDip** shortens the plant's length and saves valuable building space. The results are excellent corrosion protection and the highest quality surface coating, as well as favorable costs per unit.

Ecopaint RoDip technology is suited for pre-treatment (PT), cathodic electrocoating (EC) and body washing.

Ecopaint RoDip and nano thin film processes

The best cleaning and degreasing results are the prerequisite for the application of the smallest film thicknesses. Through the combination of rotation and linear movement **Ecopaint RoDip** ensures optimum cleaning of the body in white and thus offers ideal conditions for new technologies such as the nano thin film process as well.

TWO VARIANTS TO MEET YOUR SPECIFIC REQUIREMENTS

Ecopaint RoDip M – chain drive

The main characteristic of the **Ecopaint RoDip M** variant is the chain drive, on both sides, which pulls the rotation carrier through the process line. Special V-cams guide the rotation of the rotating carrier through the tank.

Ecopaint RoDip E – electrical drive

With **Ecopaint RoDip E** the car bodies are transported through the process by means of freely programmable, independently powered transport units. The unit has a conveying drive and a separate drive for rotation. The transport unit is positioned via a path measuring system. A WLAN signal is used to communicate with the controls. **RoDip E** can be integrated in all major PLC-Brands (Siemens, Rockwell, Mitsubishi).

	Ecopaint RoDip M	Ecopaint RoDip E
Technology	+	+
Flexibility	+	++
Driving	Robust drive chain on both sides adjacent to tank	Electrically driven transport unit on one side
Turning/Lifting	Rotation by V-cams	Rotation through a separate drive
Return	Horizontal return lines beneath the tanks	Vertical return lines, fast return line up to 60 m/min
Freedom of movement	Continuous operation 	Continuous and stop-and-go operation 

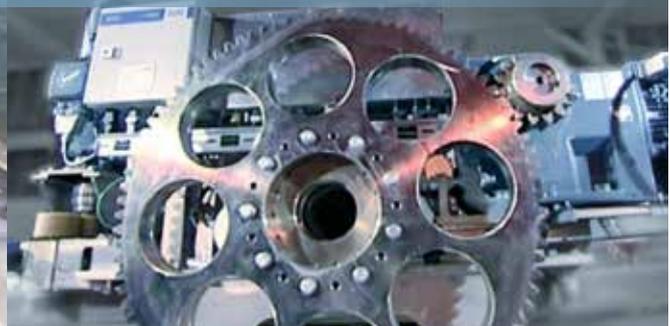
Applications

Which of the two models to use depends mainly on flexibility requirements. Both technologies can be used for plant capacities of up to approximately 100 units per hour. The robust, mechanical **Ecopaint RoDip M** is more suitable for high production rates while the electric **Ecopaint RoDip E** is the more flexible system.

» *Ecopaint RoDip M drive chain*



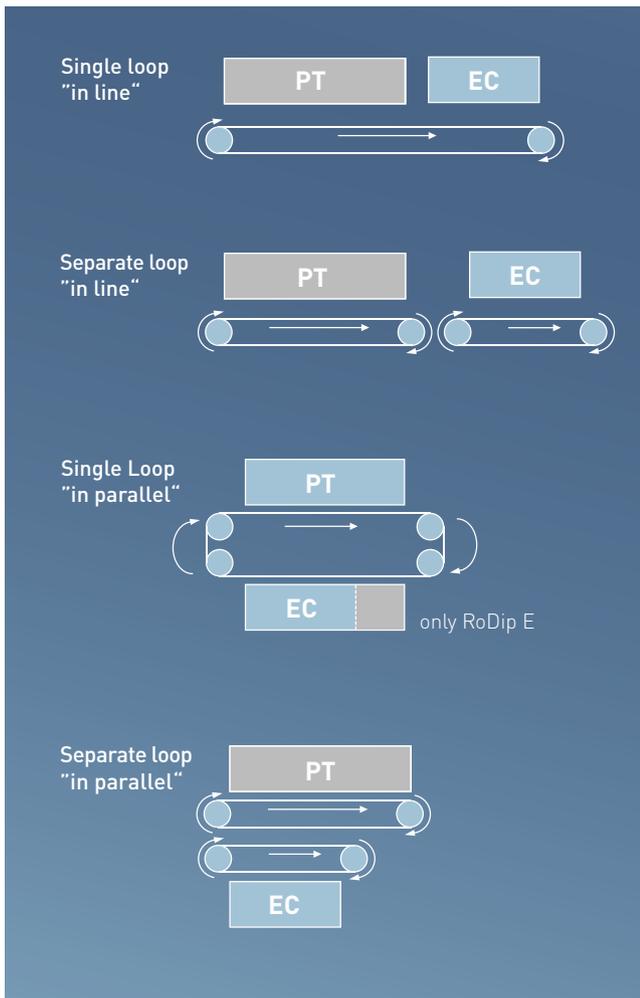
» *Ecopaint RoDip E rotating gears*



Ecopaint RoDip

FLEXIBLE AND SPACE-SAVING

As with all products and systems from Dürr, **Ecopaint RoDip** follows the **ECO+EFFICIENCY**. For us this means continuous development of our products and solutions in regard to improved performance for the entire production. We are pursuing all aspects of efficiency improvement, whether it is higher flexibility, optimized energy usage or reduced use of space.



Greater flexibility

Overall, **Ecopaint RoDip** represents accelerated project realization times and greater layout possibilities by means of its modular standard components. Furthermore **Ecopaint RoDip** offers freely programmable process sequences depending on car body type.

Environmentally friendly and energy saving

Smaller bath volumes allow a lower initial filling and reduce consumption of energy and chemicals. The volume of waste water is also reduced at the same time.

Lower unit costs

The savings in water, chemicals, energy, space and maintenance operations make a very positive impact. With **Ecopaint RoDip** unit cost savings of up to 16% can be reached.



High quality coating

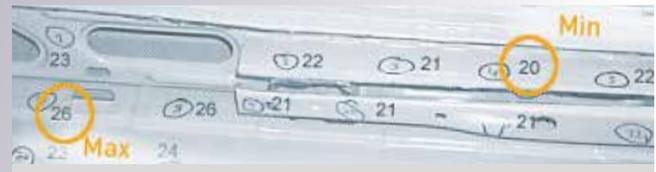
Fewer runs and sags, less carry-over and almost total rinsing out of dirt particles – even in hard to reach cavities. The result: less rework and a uniform coating.

Smaller space requirement

The steep drop-in for the car bodies and the 360° rotation means that there is no need for inclined sections at the entrance and exit of the dip tank. Thus, the dip tank is significantly shortened.

Easier maintenance

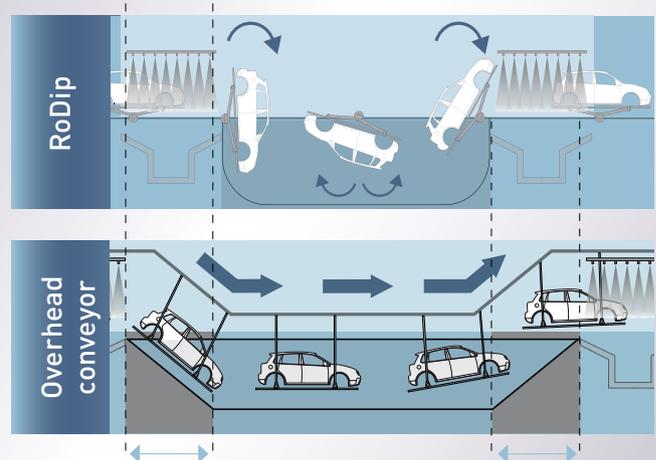
Having the conveyor system positioned on the side allows for easy access in case of maintenance, and fewer moving parts result in less wear and tear. The bottom line: less maintenance.



AFTER APPLICATION OF 7 μm ZINC LAYER:

Coating thickness average =	22.8 - 7 = 15.8 μ
Coating thickness minimum =	20.0 - 7 = 13.0 μ
Coating thickness maximum =	26.0 - 7 = 19.0 μ

Measurement of the cavity coating thickness after treatment with **Ecopaint RoDip**



Space saving with **Ecopaint RoDip**

LOWER COST PER UNIT WITH Ecopaint RoDip

Ecopaint RoDip represents significant cost per unit savings of up to 16%.

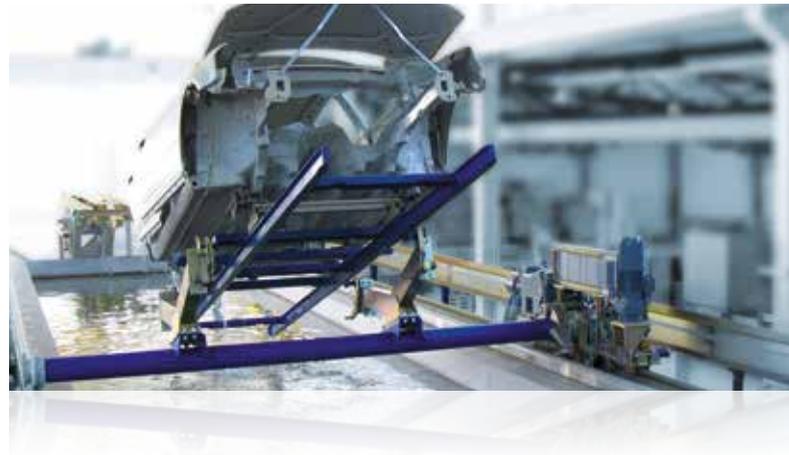
Calculation basis: European plant producing 300,000 mid-sized car bodies per year with a conventional PT/EC coating system.

How ECO+ EFFICIENCY saves money:

Space efficiency reduces plant and building investment: Much smaller installation with **Ecopaint RoDip**; layout flexibility and modular systems lower the costs by about 8%.

Material efficiency and reduced costs in PT and EC: Material costs can be reduced more than 4% through smaller dip tanks, better draining and less carry-over.

Efficiency through quality: Less dirt and fewer runs and sags reduce rework and sanding significantly. The costs are reduced by about 42%.



Process efficiency reduces maintenance costs: Savings of nearly 3% through simple and robust technology with low maintenance, straight chain guidance and good accessibility.

Energy efficiency: Up to 35% lower costs thanks to better circulation and heating efficiency based on smaller bath volumes and less (waste) water.

	CONVENTIONAL PLANTS	RoDip-PROCESS	SAVINGS IN %	<input type="checkbox"/> With RoDip <input type="checkbox"/> Conventional
Energy	5.5	3.5	35.4	
Maintenance	8.0	7.8	2.8	
Personnel	22.8	13.3	41.8	
Materials	28.6	27.4	4.4	
Plant and building investment	35.0	32.2	8.1	
Total	100.0	84.2	15.8	

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YOUR BENEFITS WITH DÜRR

- » Reduced costs per unit of up to 16%
- » The best cleaning results for the highest demands
- » Increased coating quality
- » Environmentally friendly and energy efficient
- » Shorter plants
- » In use worldwide at renowned OEMs



LEADING IN PRODUCTION EFFICIENCY

Dürr – Leading in Production Efficiency

Five divisions, one goal: maximum production efficiency for our customers

- » **Paint and Final Assembly Systems:** paint shops and final assembly systems for the automotive industry
- » **Application Technology:** robot technologies for the automatic application of paint as well as sealants and adhesives
- » **Clean Technology Systems:** exhaust-air purification systems and energy-efficiency technology
- » **Measuring and Process Systems:** balancing systems as well as assembly, testing and filling technology
- » **Woodworking Machinery and Systems:** machinery and systems for the woodworking industry