

# EcoRP F Painting Robot

## Function **EcoRP, the Painting Robot that Sets Standards**

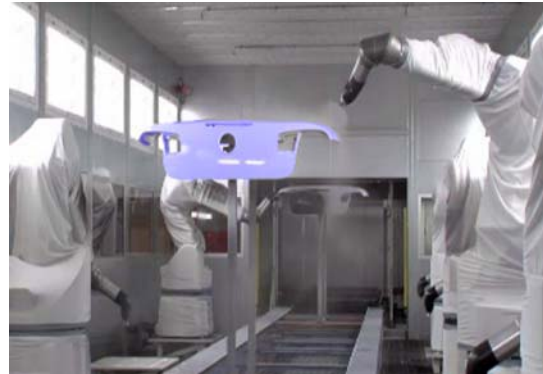
Dürr robots are used in robot painting stations for automatic surface coating of bodies and built-on parts in production line painting for ESTA, AIR and powder applications. All paint materials such as solvent-based paints, water-borne paints and powder paints can be used.

Modular arm concepts, deployment with travelling axes or stationary, handling robots for door and hood opening and the Dürr control concept allow the robots to be flexibly adapted to the relevant task in accordance with customer requirements.

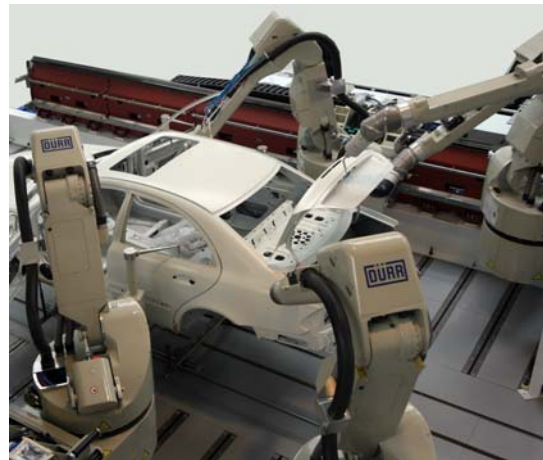
Other application areas for the robots are quality measurements with *Ecopaint* Checker, flaming of plastic parts, body washing and cavity preservation.

## Highlights

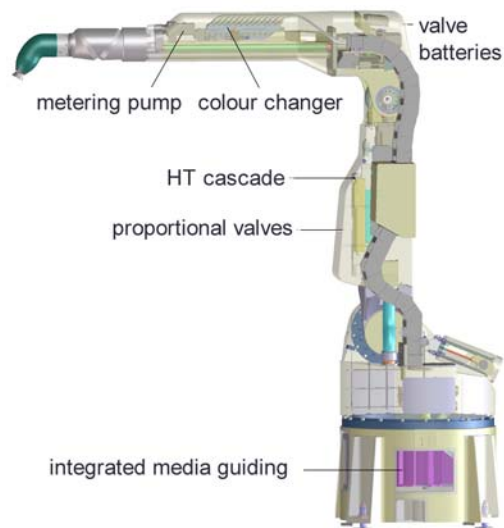
- Integrated application equipment and hose routing in the robot for minimum paint and solvent loss, short rinsing times and minimum soiling
- High voltage insulation by means of fibre glass reinforced plastic robot arm
- Robot arms for painting processes with colour changer and metering pump, pigging technology and piston metering systems
- Robot arms with different arm lengths (vertical and horizontal arm) for adaptation to the paint booth
- Minimum booth widths possible relative to the object to be painted
- High hand axis and robot arm load-bearing capacity
- Hand axis with inner lead-through, 65 or 75 mm depending on hand axis type for reliable hose routing to atomizer
- Closed surface - easy to clean
- Maintenance-free robot
- Easy access to components and thus easy replacement
- CAD and FEM-optimised design
- Use of *EcoDrive* drives for optimum speed and tracking consistency
- Acceleration and braking ramps for rapid readiness for painting
- Robot availability of > 99 %
- Dürr robot controller with integrated application control / process control
- Automatic mastering of axes 1, 2, 3 and 7
- Explosion protection by means of forced ventilation
- ATEX-compliant, FM approval
- Robot validation in accordance with ISO 9283



Painting robot *EcoRP6* F140 in production assignment for painting of built-on parts



Painting robot *EcoRP7* F140 for car body painting and *EcoRP6* F140 as hood opener during pre-commissioning



Robot arm 2 with integrated colour changer, metering pump, valve batteries and high voltage insulation

Robot arm 1 with integrated proportional valves and high voltage cascade

Explosion protection by means of forced ventilation

Robot designation (examples):

*EcoRP6* F140: 6-axis robot with hand axis 140°

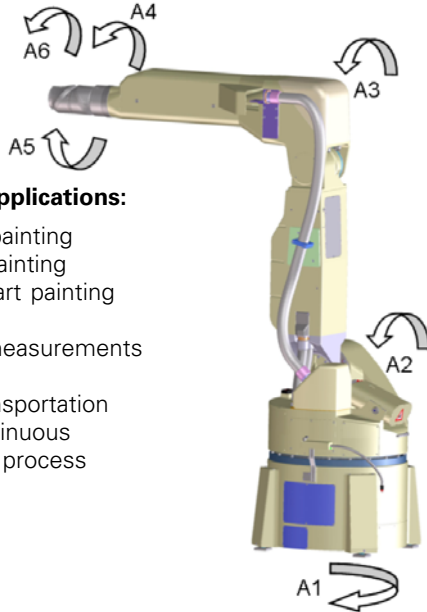
*EcoRP7* F140: 6-axis robot with hand axis 140° on travelling rail (7th axis)

*EcoRP6* F100: 6-axis robot with hand axis 100°



# Technical Data

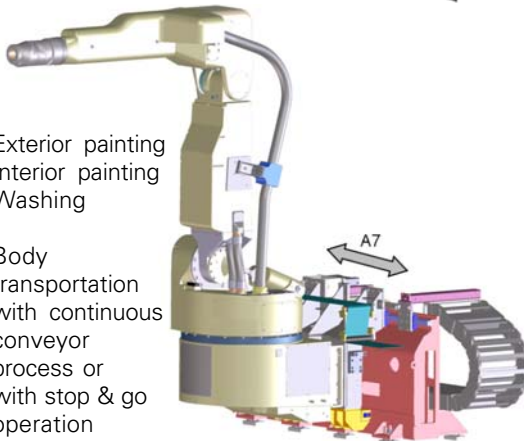
*EcoRP6 F140*  
painting robot



**Typical Applications:**

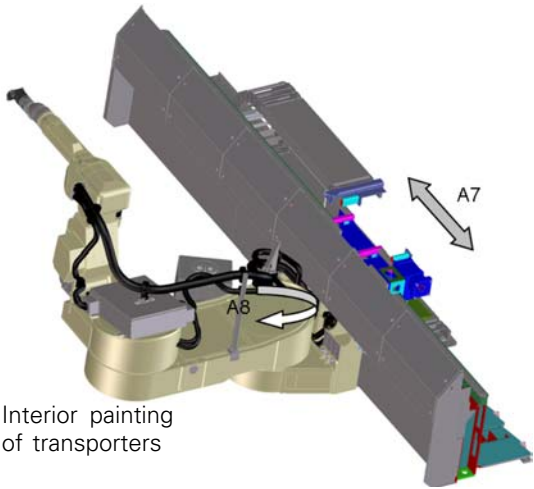
- Exterior painting
- Interior painting
- Add-on part painting
- Flaming
- Quality measurements
  
- Body transportation with continuous conveyor process

*EcoRP7 F140*  
painting robot on *EcoRail V* travelling axis



- Exterior painting
- Interior painting
- Washing
  
- Body transportation with continuous conveyor process or with stop & go operation

*EcoRP8 Swing R*  
painting robot on *EcoRail VSS* travelling axis



- Interior painting of transporters
  
- Body transportation with continuous conveyor process or with stop & go operation

Axis 1:	Robot rotation	<i>EcoRP F... movement axes</i>
Axis 2:	Vertical arm swivelling	
Axis 3:	Horizontal arm swivelling	
Axis 4:	Hand axis rotation	
Axis 5:	Hand axis	
Axis 6:	Atomizer rotation	
Axis 7:	<i>EcoRail V/H/L</i> travelling axis	
Axis 8:	Swivelling axis for <i>EcoRP Swing</i>	

Axis 1 (x°):	± 115	<i>EcoRP F... operating range</i>
Axis 2 (x°):	+ 63 / - 80	
Axis 3 (x°):	± 80	
Axis 4 - 6 (x°):	± 540 (mechanically infinite)	
Axis 7:	depending on travelling axis length	
Axis 8 (x°):	+ 15 / - 115	

Axis 1 (°/s):	115	<i>Max. speeds of EcoRP F...</i>
Axis 2 (°/s):	115	
Axis 3 (°/s):	115	
Axis 4 (°/s):	540	
Axis 5 (°/s):	540	
Axis 6 (°/s):	700	
Axis 7 (m/s):	1.2 - 1.5	
Axis 8 (°/s):	55	
max. conveyor speed (mm/s):	2000	
max. acceleration (mm/s²):	8000	

Load bearing capacity at hand axis (kg):	15	<i>Load bearing capacity</i>
Load on arm 1 and arm 2 (kg):	each 15	

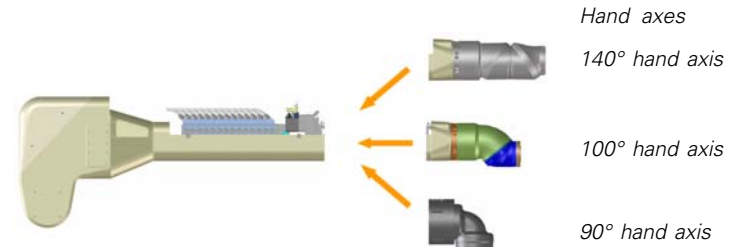
Explosion protection:	Atex category 2 / 3 FM approval	<i>Explosion protection</i>
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Weight (kg):	approx. 750	<i>Weight</i>
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Arm 1 (mm):	850, 1000, 1250, 1500	<i>Arm lengths</i>
Arm 2 (mm):	1600, 1750, 1800	

Repeat accuracy (mm):	± 0.1
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Absolute accuracy in accordance with ISO 9283:	
Painting (mm):	± 2
Cavity preservation (mm):	± 0,5



- 140° hand axis, inner diameter 75 mm with optimised inner diameter
- 100° hand axis, inner diameter 65 mm standard
- 90° hand axis, inner diameter 65 mm (only for ESTA exterior painting, symmetric rotation atomizer, planned)