External zinc-coating
of centrifugally-cast pipes using PERFECT spray®

Benefits for the customer
Compared to the current competitor system:
- OPEX almost €2,000 lower per day thanks to
  - Greater deposition efficiency (> 75 %)
  - Lower energy consumption (- 30 %)
- More homogeneous coating results

Application & objective
The primary method of preventing corrosion on centrifugally cast pipes is to apply a thin layer of zinc in combination with an additional top layer. The zinc coat actively protects the pipe and, thanks to its cathodic protective effect, prevents damaged areas from corroding. As a result, the zinc coating extends the service life of the centrifugally cast pipes. The manufacturer's objective was to replace the existing wire arc spraying equipment with a PERFECT spray® wire arc spraying system, which offers an equally good if not better coating quality at lower operating costs.

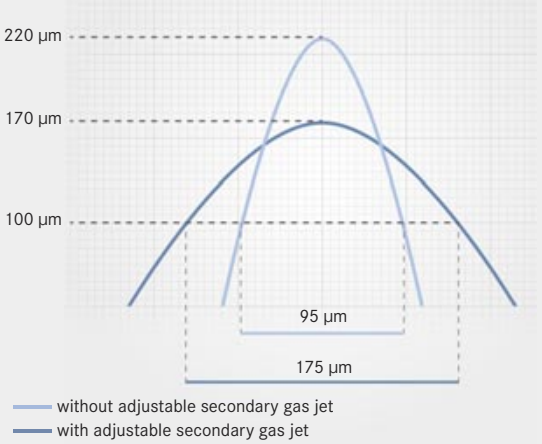
Hardware configuration

Power source:	PERFECT spray® 1000
Control system:	PERFECT control
Burner:	PERFECT jet® 1000 with adjustable secondary gas jet
Wire feeder:	PERFECT drive spray compact

Test setup

Coating material:	Zinc and aluminum
Layer thickness:	Approx. 30 µm (corresponding to approx. 200 g/m²)
Wire diameter:	4.8 mm
Spraying current:	600 A at 13 V
Wire feeder:	5.5 m/min

Example of coating thickness distribution
PERFECT jet® 1000 with/without adjustable secondary gas jet



Result

By combining the secondary-pulsed rectifier and innovative nozzle design for the burner, PERFECT spray® offers a stable and reliable coating process. This resulted in a constant layer thickness in spite of the lower power consumption levels.
Compared to the customer's existing parameters, the laboratory achieved an improvement in the deposition efficiency of over 40%. At the same time, the amount of electrical power consumed was over 60% lower. At a duty cycle of 50%, the customer can achieve daily cost savings of more than EUR 2,000 for each wire arc spraying system.
The adjustable secondary gas jet on the PERFECT jet® 1000 resulted in a wider spray distribution. This produced a more homogeneous coating pattern.
Another significant and positive influence on operating costs is the lower level of overspray, which is achieved thanks to the higher deposition efficiency. A lower overspray means less exposure to dust. This results in a longer service life of the existing filter system and in reduced disposal costs.

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