

APPLICATION SHEET

Cavity · powder enamel and powder coating

A GUN HEAD THAT TURNS
UP TO 75° IN EVERY DIRECTION.

OWL is a smart articulating powder gun whose head turns up to 75° in every direction. It goes inside deep parts and directs the powder straight onto corners, edges and inner surfaces. The motion is in the gun itself, so difficult geometries are coated without a large robot investment.

75°	25%	6	CE · ATEX
HEAD MOVEMENT	**POWDER SAVING**	**OWLS FROM ONE SCREEN**	**STANDARDS**
In every direction, up to ±75°	Proven in the field, in real production	Each with its own settings	World patented

Classic system
Fixed gun

- ✕ One-direction spray
- ✕ Thin coating in inner corners
- ✕ Excess powder consumption
- ✕ Uncontrolled film thickness

Industrial robot
The whole arm moves

- ✕ Limited motion in narrow recesses
- ✕ Slower line, longer booth
- ✕ Programming for every part
- ✕ Touch-up with extra guns
- ✕ High investment

OWL
Motion in the gun itself

- ✓ Head group ±75° in every direction
- ✓ Direct to corners and inner surfaces
- ✓ Live coverage map
- ✓ Smart AI setting recommendations
- ✓ Local correction in a few taps
- ✓ 25% powder savings
- ✓ Low investment

INSPIRED BY THE OWL, MOVING LIKE A WRIST.

OWL is an automatic application gun that combines the owl's focus and tracking with the wrist's multi-directional movement. It focuses, follows and applies exactly where, and as much as, it is needed.



INSPIRATION · OWL

Owl

Focus · Tracking · Control

+

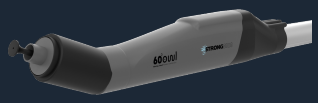


ANATOMY · WRIST

Wrist

Precise multi-directional motion

=



PRODUCT · OWL

OWL

Smart articulating powder gun

What did we take from the owl?

Focus
Targeted dose on the right zone.

Tracking
Motion that follows the geometry.

Control
Zone-by-zone dose control.

The head group turns up to 75° in every direction, like the wrist's flexibility. Smart AI suggests the settings.

PRINCIPLE

Spreading the powder evenly is not enough: difficult zones need more and easy zones less — independently of the operator, and repeatably.



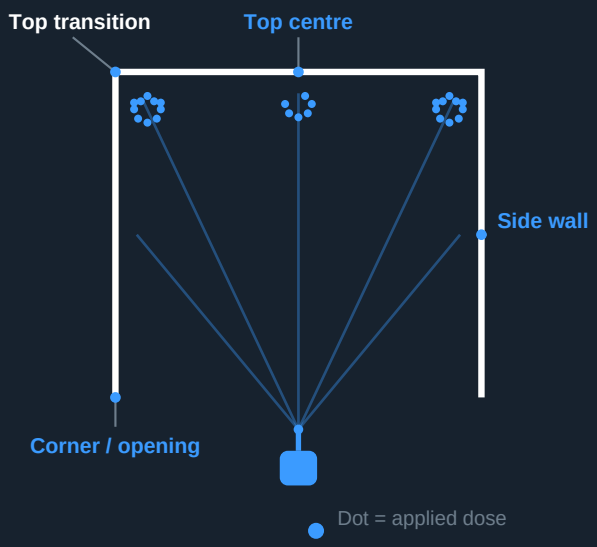


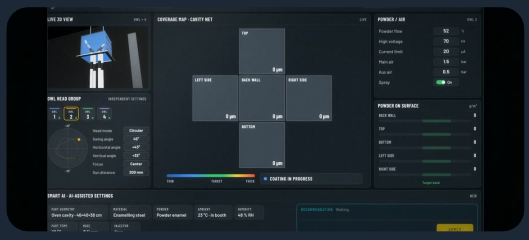
Real footage: OWL heads inside the cavity

ZONE BY ZONE,
WITH A SMART AI RECIPE.

In a cavity, the difficult zones are the corners, the top transitions and the opening. OWL's head turns up to 75° in every direction to reach them directly; Smart AI manages the angle, distance, speed, powder amount and kV/µA/air values for each zone as a recipe.

Cavity zones and targeted dose





Live coverage map: powder reaching each face



Local correction: the right OWL head for the point

Zone	Motion angle	Distance	Speed	Powder amount
Top transition	45°	170 mm	slow	85%
Corner / opening	60°	160 mm	slow	90%
Side wall	30°	200 mm	medium	75%
Top centre	0° (straight)	220 mm	medium	70%
Flat area	15°	250 mm	fast	55%

SMART AI

Smart AI evaluates the part geometry and ambient conditions, and recommends gun distance, head group, kilovolt, microampere and air settings. Recipes are saved and recalled, so every shift and operator gets the same result. Motion profiles: inside tube, spot focus, flat sweep, edge sweep, cycle. (Recipe values are examples.)

25% POWDER SAVING, PROVEN IN THE FIELD.

Field measurements in real production conditions proved a 25% powder saving with OWL. The saving comes from directing the powder straight at corners, edges and inner surfaces and from not overspraying easy zones. The result depends on the part geometry and the existing line; we evaluate it for your project together with a process simulation.

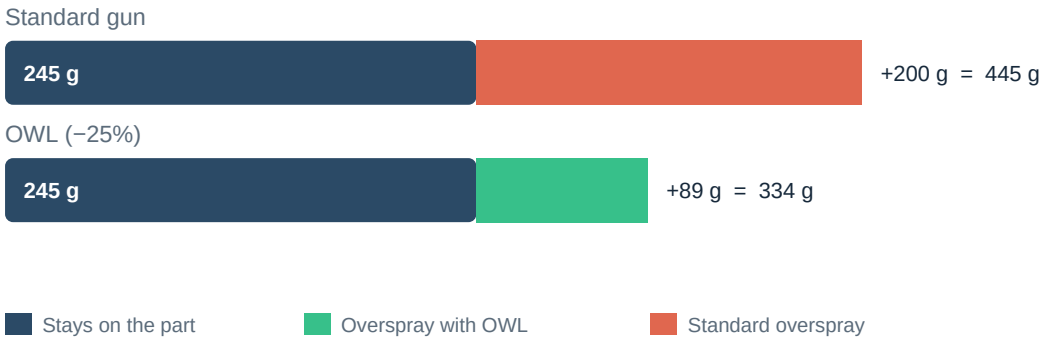
25%
POWDER SAVING
Measured in the field, in real production

−111 g
PER CAVITY
Example calculation

−56%
OVERSPRAY
From the example

13.9 t
ANNUAL POTENTIAL
125,000 cavities/year (example)

Powder sprayed per unit (example calculation)



EXAMPLE ASSUMPTIONS

Coated area	**1.2 m²**
Target film	**120 µm**
Powder density	**1.7 g/cm³**
Deposit per cavity	**~245 g**
Standard first-pass efficiency	**55%**
OWL saving (field)	**25%**

HOW IT IS CALCULATED

Standard use = Deposit ÷ first-pass efficiency

Standard: 245 / 0.55 = 445 g

OWL: 445 × 0.75 = 334 g

Difference: 111 g / cavity (−25%)

Example only; the real saving depends on the part geometry and the existing line.

ANNUAL PROJECTION (EXAMPLE)

For 125,000 cavities a year, a 25% saving means about 13.9 t less powder: a lower reclaim load, less colour-change loss and a smaller environmental footprint.

IN POWDER ENAMEL, THE OWL DIFFERENCE.

Recovering powder enamel (frit-based) is more sensitive than recovering organic powder. Keeping more powder on the part in the first pass lowers both the reclaim load and the quality risk. OWL brings this advantage in both powder enamel and powder coating.



In the field: powder enamel inside a cavity with OWL

- **Uniform layer**

  Even thickness at corners, the top centre and top transitions; more stable firing.

- **Less scrap**

  Better first-pass quality means fewer rejects and less rework.

- **Less waste**

  Overspray falls; reclaim and cleaning loads decrease.

- **Sustainability**

  Lower powder consumption and less waste; a smaller environmental footprint.

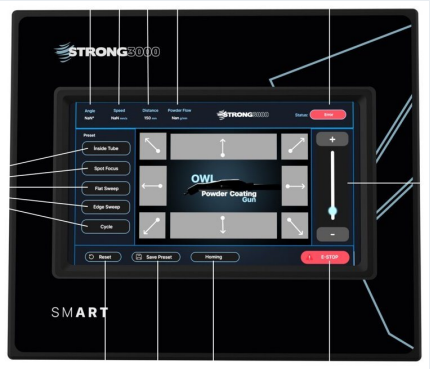
SUMMARY

OWL + Smart AI give a uniform thickness on the corners, edges and inner surfaces of a cavity with a zone recipe. The field-proven 25% powder saving brings cost, quality and sustainability gains together.

TECHNICAL SPECIFICATIONS
& CONFIGURATIONS.

Motion	The head turns up to 75° in every direction
Control	Up to 6 OWLs from one screen, each with its own settings
Motion profiles	Inside tube, spot focus, flat sweep, edge sweep, cycle
Processes	Powder coating and powder enamel; horizontal application and deep-drawn parts
Integration	Smart AI kit · line-optimization version
Interface	Live coverage map, local correction
Standards	CE · ATEX (EN 50177 · EN 50050-2)
Patent	World patented

Values are typical; final values are confirmed per project by STRONG3000 engineering.



OWL control screen: head group, motion profile and settings

Choose your setup

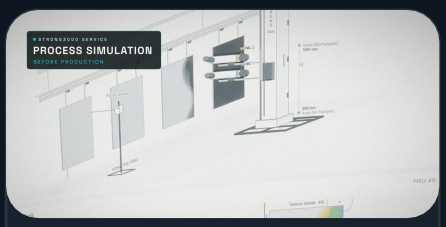
OWL Single Station
Single OWL mounted on your existing booth.

OWL Multi-Station
Up to 6 OWLs from one screen, each with its own settings.

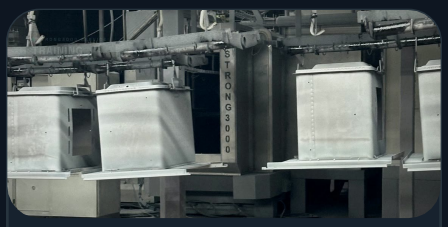
Smart AI Kit
Smart AI offered as a kit: setting recommendations for the part and conditions.

Smart AI Line Optimization
The line-optimization version of Smart AI.

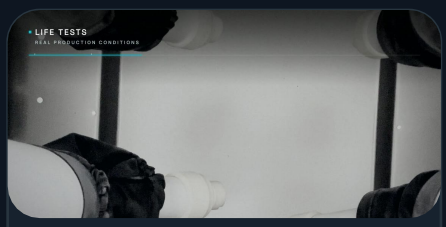
STRONG3000 service



Process simulation
We simulate your process before production.



Training
We train your team before installation.



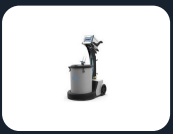
Life tests
Long-term life tests completed under real production conditions.

WITH OWL,
A COMPLETE SYSTEM.

OWL is an automatic gun that works together with Smart AI on series production lines. At low and medium volume the same part can be coated with a manual system. Recommended STRONG3000 equipment for cavity application:

LOW / MEDIUM VOLUME

Manual application



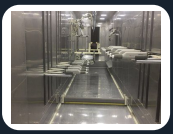
Smart (Powder Enamel)
Control unit for powder enamel application.



Powder Enamel Gun
Manual gun suited to enamel powder.



Powder Enamel Injectors
Feeding for abrasive enamel powder.



Powder Enamel Booth
Part-specific manual application booth.



Box Enamel Furnace
Firing in batch production.

SERIES PRODUCTION

Automatic line with OWL



OWL + Smart AI
Zone-by-zone application on corners, cavities and difficult areas.



Smart Automatic Powder Enamel
Line application with automatic guns.



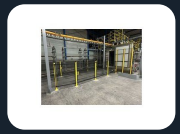
Reciprocator
Automates the gun motion.



Automatic Powder Enamel Booth
In-line application and powder recovery.



Ultrasonic Recovery
Sieves recovered powder and separates foreign metal.



Powder Enamel Firing Furnace
Continuous firing, U-type or line-type.

PROJECT SUPPORT

Share your line, your part and your production target, and we will define the equipment selection and the booth, oven and conveyor layout together. strong3000.com · info@strong3000.com · WhatsApp +90 537 353 54 19