

APPLICATION SHEET

Wheel rim · 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

+

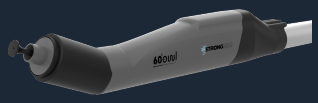


ANATOMY · WRIST

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.



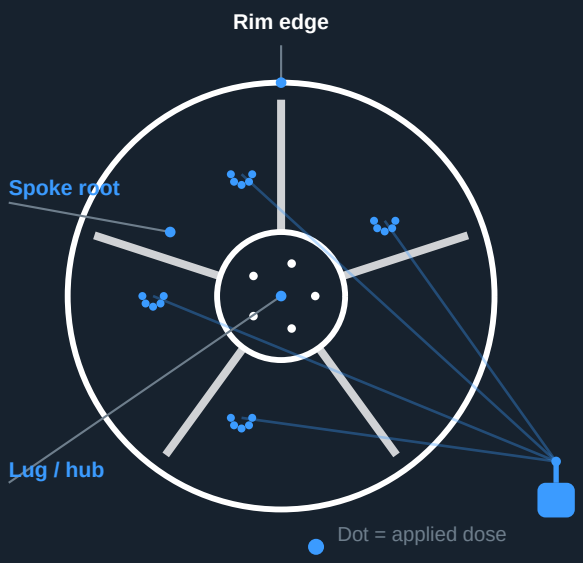


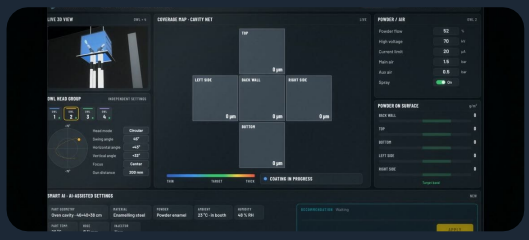
Real footage: OWL heads inside the cavity

ZONE BY ZONE,
WITH A SMART AI RECIPE.

On a wheel, the difficult zones are the spoke roots, the inner well and the hub transitions. OWL's head turns to the right angle for each zone; Smart AI manages the angle, distance, speed and powder amount for each zone as a recipe.

Wheel 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
Spoke root	50°	180 mm	slow	85%
Inner well	40°	170 mm	slow	80%
Rim edge	20°	220 mm	medium	70%
Hub / lug	35°	190 mm	medium	75%
Outer face	10°	260 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.

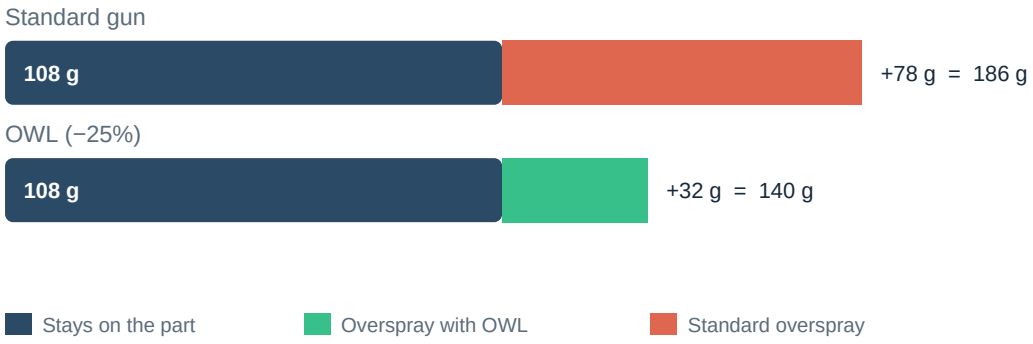
25%
POWDER SAVING
Measured in the field, in real production

−47 g
PER WHEEL
Example calculation

−60%
OVERSPRAY
From the example

9.3 t
ANNUAL POTENTIAL
200,000 wheels/year (example)

Powder sprayed per unit (example calculation)



EXAMPLE ASSUMPTIONS

Coated area	**0.90 m²**
Target film	**80 µm**
Powder density	**1.5 g/cm³**
Deposit per wheel	**~108 g**
Standard first-pass efficiency	**57%**
OWL saving (field)	**25%**

HOW IT IS CALCULATED

Standard use = Deposit ÷ first-pass efficiency

Standard: 108 / 0.58 = 186 g

OWL: 186 × 0.75 = 140 g

Difference: 47 g / wheel (−25%)

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

ANNUAL PROJECTION (EXAMPLE)

For 200,000 wheels a year, a 25% saving means about 9.3 t less powder: a lower reclaim load, less colour-change loss and a smaller environmental footprint.

ON WHEELS,
THE OWL DIFFERENCE.

An alloy wheel shows a Faraday effect at the spoke roots and in the inner well, while the outer face needs showroom quality. OWL applies a targeted dose to difficult zones and a measured dose to easy surfaces, delivering both coverage and saving.



Alloy wheel

- **Uniform film**

  Even thickness at the spoke roots and inner well; a showroom-quality outer face.

- **Less scrap**

  Better first-pass quality means less rework.

- **Less waste**

  No excess powder on easy surfaces; overspray falls.

- **Repeatability**

  The same recipe and result on every wheel, independent of the operator.

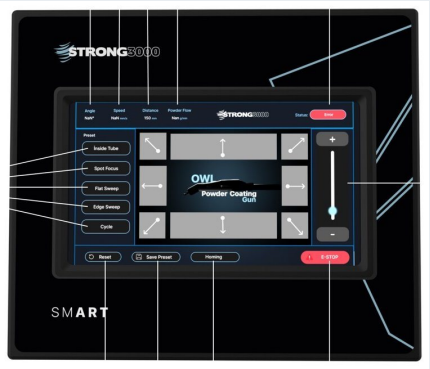
SUMMARY

OWL + Smart AI improve coverage with targeted application at the spoke roots and inner well and cut powder consumption and overspray per wheel. The field-proven powder saving is 25%.

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

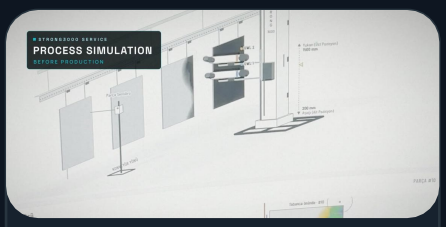
OWL Single Station
Single OWL mounted on your existing booth.

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

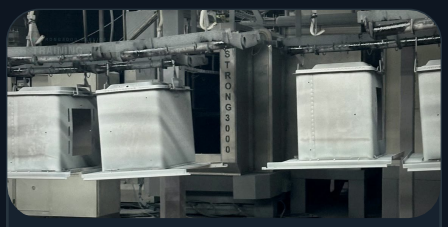
Smart AI Kit
Smart AI offered as a kit: setting recommendations for the part and conditions.

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

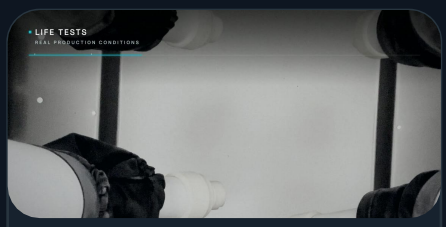
STRONG3000 service



Process simulation
We simulate your process before production.



Training
We train your team before installation.



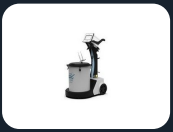
Life tests
Long-term life tests completed under real production conditions.

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 wheel application:

LOW / MEDIUM VOLUME

Manual application



Elite / Elite Plus
Manual powder coating units; kV, µA and air settings.



Smart AI
Suggests settings for the part; guides the operator in manual work.



Manual Powder Coating Gun
Light, ergonomic hand gun.



Manual Powder Booth
Manual application and powder recovery.



Box Oven
Curing in batch production.

SERIES PRODUCTION

Automatic line with OWL



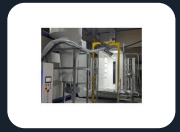
OWL + Smart AI
Recipe-based, zone-by-zone application in difficult areas.



Automatic Powder Coating Gun
Series application in fixed or moving arrays.



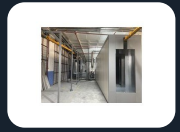
Single / Two-Axis Reciprocator
Automates the gun motion.



PVC Monocyclone Booth
Fast cleaning and powder recovery.



Powder Center
Fast colour change on automatic lines.



Conveyor Oven & Pretreatment
Surface preparation and curing on a continuous line.

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