PVD coatings *explained*

PVD is a very thin, hard coloured film that follows the surface beneath it. Specify the base finish, the colour sample, the certified minimum thickness and the tests.

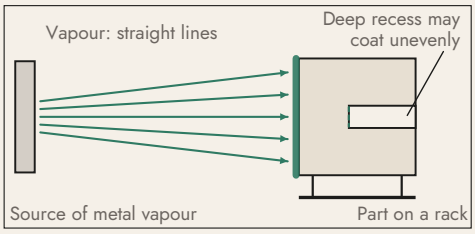
AT A GLANCE

Topic	What the sources say	Source
What it is	A thin, ceramic-type film vaporised in a vacuum chamber and deposited on the metal. PVD is a family of processes.	Euro Inox
Thickness	0.2 to 2.0 micrometres for decorative coatings. Euro Inox gives about 0.3 micrometres as typical.	Coating house datasheet; Euro Inox
Hardness and temperature	1,500 to 2,800 HV (HV 0.05) and a coating temperature of 20 to 200 °C for the coatings listed.	Coating house datasheet
Colours	Gold, rose gold, bronze, blue, black and wine red; also brass, nickel and grey tones. Custom colours are offered.	Euro Inox; datasheet
Metals it goes on	Stainless steel and titanium directly. Aluminium, brass, zinc die-cast and ABS need a nickel and chrome plating first.	Coating house datasheet
The surface beneath	The layer is so thin that the base finish shows through, so polish lines and weld marks remain visible.	Euro Inox
Durability	Much more scratch resistant than electrochemical colouring. Aggressive attack can damage the colour, and that cannot be repaired.	Euro Inox
Repair	No repair on site. Whether a part can be stripped and recoated is for the coating house to say.	Euro Inox; studio
Size	One coating house lists chambers up to 1,500 mm long and 900 mm across, larger on request. Ask your coating house for its limits.	Coating house datasheet
Welding and bending	Weld before coating. If metal is bent after coating, test acceptance with a bend test on receipt.	Euro Inox

1 micrometre (µm) is a thousandth of a millimetre. Figures are as published by the sources named, not a guarantee from any coating house.

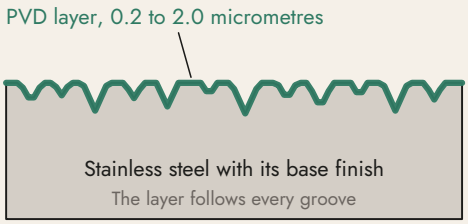
SCHEMATIC: not to scale, drawn far thicker than true scale

A In the vacuum chamber



Chamber size limits the size of a part

B On the surface, very enlarged



Texture and weld marks beneath still show through.

Left, how a part is coated in a vacuum chamber. Right, how the thin layer sits on a brushed surface. Original schematic by Make Bespoke Studio, not to scale: the layer is drawn far thicker than it is.

SPECIFICATION WORDING

PVD COATED STAINLESS COMPONENT

Component: stainless steel, grade [1.4301 (304)], base finish [2J] to EN 10088-2 (edition [to be confirmed]), grain [vertical], approved before coating. All welding and polishing completed before coating. Coating: PVD, colour [name / reference], matched to approved reference sample [ref. __] within [tolerance agreed with the coating house]. Thickness: not less than [__] micrometres, as certified by the coating house with the measurement method and a certificate for each batch. All components of one visible run coated in the same batch where possible. Contact points from the rack to fall on [hidden faces]. Parts protected in transit with [strippable film], removed within its recommended life.

TESTING AND ACCEPTANCE

Coating performance to be demonstrated on [a production-representative sample] before manufacture by tests agreed with the coating house: [adhesion or bend test], [abrasion test], [corrosion test to ISO 9227 (edition [to be confirmed]), duration [__] hours], [colour measurement against the approved sample]. [For kitchen or sanitary fittings, BS ISO 23100:2024 may be referenced (edition [to be confirmed]).] Test reports to be supplied for [the first batch / each batch].

CARE INSTRUCTION FOR THE O&M MANUAL

Clean with warm water and mild detergent using a soft cloth or soft plastic brush, then rinse and dry. Do not use abrasive cleaners, metal brushes, scouring pads or high-pressure jets. Remove mortar or cement splashes immediately. Damage cannot be repaired on site: report it to [contact], and replace or recoat the part through [the coating house]. Follow the coating house's care sheet [ref. __].

TERMS USED

PVD (physical vapour deposition)

A family of vacuum processes that vaporise a coating material and deposit it as a very thin film, here a hard coloured one, on a metal surface.

Substrate

The metal being coated. For decorative PVD it is usually stainless steel, with its final finish already applied.

Micrometre (micron, µm)

One thousandth of a millimetre. Decorative PVD is published at 0.2 to 2.0 micrometres thick.

Vickers hardness (HV)

A hardness scale in which a higher number is harder. HV 0.05 shows the test load used, 0.05 kilogram-force, which suits thin coatings.

STANDARDS AND SOURCES

- Euro Inox, Colouring Stainless Steel (Materials and Applications Series, Vol. 16, 2011): PVD section and cleaning chapter; BSSA-hosted.
- A coating manufacturer's decorative-coatings datasheet: thickness, hardness, temperature, substrates, chamber size; read 5 November 2026 (source named in the review notes).
- BS ISO 23100:2024: Decorative PVD coatings on kitchen and sanitary ware fittings, specification and test methods (BSI, 31 December 2024). Text not read.
- ISO 9227:2022: Corrosion tests in artificial atmospheres, salt spray tests. Text not read; it does not set hours for any product.
- BS EN 10088-2:2024: Stainless steels, for the base finish codes; see the finish codes factsheet.
- Make Bespoke Studio journal: PVD steel finishes: process, colour and use.

Full guide: https://makebespoke.com/trade/technical/pvd-coatings-explained. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.