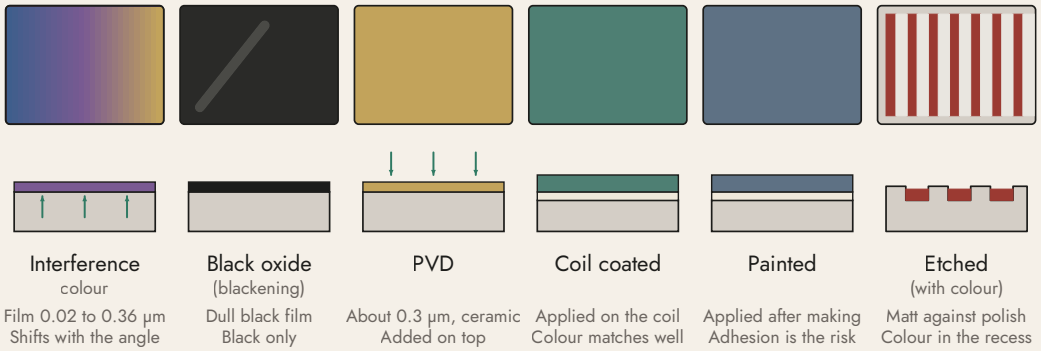
Coloured stainless steel: *the options compared*

Colour reaches stainless steel as a film grown from the steel or a layer added to it. PVD is the harder wearing thin film, interference colour suits low-traffic walls, and none can be repaired on site.

AT A GLANCE

Route	How the colour is made	Wear and repair	Welding and forming after
Interference (electrochemical) colour	A hot acid bath thickens the steel's own clear oxide film to 0.02 to 0.36 µm, then it is hardened. Light interference gives bronze, gold, red, purple, blue, green on austenitic steel (ferritic: dark grey only). Colour shifts with the viewing angle.	No fade in sunlight. Abrasion removes it: not for high-traffic areas. No repair on site: replace the panel.	Bends (the film thins at the bend). Welding destroys the colour. Screws, rivets, clamps, adhesive are fine.
Black oxide (blackening)	A molten sodium dichromate salt bath at about 400 °C leaves a thin, smooth, dull black oxide film. Any stainless type. Black only.	Does not age; good abrasion resistance; removed by corrosion or heavy abrasion. For small parts and handles needing a tougher black.	Ductile: moderate forming does no harm.
PVD	A ceramic layer, typically 0.3 µm, vaporised on to the finished surface in a vacuum chamber. Gold, rose gold, bronze, blue, black, wine red. Colour does not change with the angle.	Much more scratch resistant than interference colour, not scratch proof. Aggressive damage is not repairable.	Weld before coating. If formed after coating, make acceptance subject to a bend test.
Coil coated	Primer and a clear or opaque top coat rolled on to the coil in the factory. Wide colour range, close matching, anti-fingerprint varnish possible. Minimum order quantities.	Adds no corrosion resistance; the steel still protects scratches and cut edges. Repair not covered by the source.	Bendable. Treated as non-weldable (follow the supplier's rules if unavoidable). Adhesive bonding works well.
Painted after fabrication	Any colour, for looks not protection. Remove the passive film shortly before painting; use an etchant primer.	The usual failure is lost adhesion. A scratch is not enlarged by corrosion. Repainting depends on matching the colour.	Paint after welding and forming.
Etched, with colour	A printed or silk-screened mask, then acid etching removes a little metal: dull, slightly coarse against polished. Interference colour before or after etching, or paint in the recess.	Etching, pickling and electropolishing remove interference colour, so order matters. Colour left in the recess is less exposed.	Depends on the colour route chosen: ask the finisher.

As stated by Euro Inox (2011 and 2005 guides). No prices: ask the partner to price each route.



Six colour routes as a sample board, with a section through the layers of each. Swatch colours are illustrative, not matches; layers are not to scale. Original drawing by Make Bespoke Studio, from Euro Inox, Colouring Stainless Steel (2011).

SPECIFICATION WORDING

INTERFERENCE-COLOURED STAINLESS PANEL

Stainless steel sheet, grade [1.4301 (304); 1.4401 (316) where chlorides reach the surface], [1.2] mm, cold rolled, colour finish designation [2L] to EN 10088-2 (edition [to be confirmed]), on a base finish of [2J brushed / 2P mirror] approved before colouring. Colour by electrochemical (interference) colouring, [colour name], matched to approved large sample [ref. __] viewed under [project lighting] within [tolerance agreed with the finisher]. All panels in one visible run from the same batch, grain [vertical]. No welding, brazing or abrasion after colouring. Fixed by [screws, rivets, clamps or adhesive]. Strippable film removed within its recommended life. Spares: [__] from the same batch.

PVD, COIL-COATED OR PAINTED STAINLESS

Colour by [PVD (wording as the PVD coatings sheet) / coil-coated sheet / paint], [colour name or reference] matched to approved sample [ref. __]. Coil-coated: [supplier's system ref. __], one coil batch per visible run, no welding in coated areas. Painted: welding and forming complete first; passive film removed and etchant primer applied [as the paint supplier directs]; paint system [by the paint supplier].

APPROVAL, DAMAGE AND CARE

Full-size samples [300 x 300 mm] of each colour on each base finish approved under [project lighting] and kept as the visual standard. Colour cannot be repaired on site: damaged panels replaced by [__]. Clean with warm water and mild detergent, soft cloth or soft plastic brush. No metallic brushes, abrasives, chloride-containing cleaners or high-pressure jets. Wash cement and mortar splashes off at once.

TERMS USED

Interference colour (electrochemical colouring)

Colour made when light reflects inside a thin transparent oxide film on stainless steel, as with oil on water. The film is thickened in an acid bath and then hardened. The apparent colour changes with the angle of view.

Passive film

The thin, invisible chromium oxide layer that gives stainless steel its corrosion resistance and repairs itself in air. Interference colour thickens it; paint needs it removed first.

STANDARDS AND SOURCES

- Euro Inox, Colouring Stainless Steel, Vol. 16, 1st ed. 2011
- Euro Inox, Guide to Stainless Steel Finishes, Vol. 1, 3rd ed. 2005: colour, pattern, etch.
- BS EN 10088-2:2024: current (BSI, 30 Sep 2024); text not read. The 2005 edition Euro Inox cites was withdrawn.

Full guide: https://makebespoke.com/trade/technical/coloured-stainless-steel-options. 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.