

SURFACE FINISH
STAINLESS STEEL STENCILS
DSF 3.1.4

Definition:

Stainless steel is available in a wide variety of standard and special finishes. The majority of finishes can be divided into three categories:

- Mill finishes.
- Mechanically polished finishes.
- Special finishes.

This standard focuses on **Milled Finishes. (BS EN 10088-2:2014)**

Properties:

The majority of mill finishes are dull or matt, suitable where appearance is not important or where further finishing is required. Stainless steel is polished by mills in a range of forms, e.g. sheet, plate, bar & tube, but all finishes may not be available on all forms.

- **1D / 1E – Hot Rolled Plate:** Hot rolled, softened (annealed) with the surface de-scaled. The surface remains rough and heavily pitted and subsequent finishing is limited to heavy grinding. It can be used where uniformity and smoothness of finish are not important. (4 - 7 Ra μm .)
- **2D:** This material is cold rolled followed by softening and de-scaling. The effect of cold rolling the material is to produce a smoother, less pitted surface. The surface is not only smooth but of matt grain appearance. Used where a better surface is required or subsequent processing/ finishing is necessary. (0,4 - 1,0 Ra μm .)
- **2B:** The material is cold rolled, softened and de-scaled as in the case of the 2D finish followed by a final light pass on polished rolls which produces a smoother, brighter surface than the 2D finish. This is the general purpose, cold rolled finish and it is suitable for a wide range of applications where stainless steel is specified. It is also suitable for a wide range of subsequent polishing processes such as satin finishing. (0,1 - 0,5 Ra μm .)
- **2R (Bright Annealed):** This finish is also produced by cold rolling and de-scaling but in this case the final annealing is done in a controlled atmosphere furnace. The effect of annealing without the presence of oxygen is to produce a reflective surface on the stainless steel and it is often used in preference to a 2B finish where reflectivity is important. The very smooth surface is suitable for a wide range of subsequent processes such as mirror polishing and chrome plating. (0,05 - 0,1 Ra μm .)

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ASM (DEK) Acceptable Criteria:

- **302 (1.4310) Austenitic Stainless Steel: DSM 1.2.4**

Suitable for applications over a wide range of service temperatures, this grade is quite ductile and can be readily drawn & wire formed. Cold working causes this alloy to gain magnetic properties. Post fabrication annealing is recommended to recover maximum corrosion resistance & a non- magnetic condition. Can be welded.

- **304 (1.4301) Austenitic Stainless Steel: DSM 1.2.4**

This type is the standard “18/8” stainless providing the best all round performance stainless steel at relatively low cost. It has very good low temperature properties and responds well to hardening by cold working. Cold working causes this alloy to gain magnetic properties. Post fabrication annealing is recommended to recover maximum corrosion resistance & a non-magnetic condition. Can be welded.

Both variants are suitable for a **2B** finish.

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