

Nomenclature of Stainless Steel Finishes

Ex-mill hot rolled finishes

The table shows the BS EN 10088-2 hot rolled finishes from table 6 of the standard, with a guide to typical Ra values (in micro-metres) , based, where available, on manufacturers or surface finishing contractors' data.

<i>Ex-mill Hot Rolled Finishes</i>			
Abbreviation	Finishing Process Route	Notes	Typical (Ra) micro-metres
1C	Hot rolled, heat treated, not descaled	Surface covered with mill scale. Finished parts may be suitable for heat (oxidation) resisting applications as supplied, but should be descaled to optimise corrosion resistance	
1E	Hot rolled, heat treated, mechanically descaled	Free of mill scale by shot blasting or grinding. This finish can also limit the crevice corrosion resistance	
1D	Hot rolled, heat treated, pickled	Most common 'hot rolled' finish available. Most corrosion resistant hot rolled finish specified	4-Jul
1U	Hot rolled, not heat treated, not descaled	Surface is left covered with rolling (mill) scale. Surface suitable for products intended for further working eg. strip for re-rolling.	

Ex-mill Cold Rolled finishes

The table shows the BS EN 10088-2 cold rolled finishes from table 6 of the standard, with a guide to typical Ra values (in micro-metres) , based, where available, on manufacturers or surface finishing contractors' data.

<i>Ex-mill Cold Rolled Finishes</i>			
Abbreviation	Finishing Process Route	Notes	Typical (Ra) micro-metres
2B	Cold rolled, heat	Most common 'cold rolled' finish available.	0.1-0.5

	treated, pickled, skin passed	Non-reflective, smooth finish, good flatness control. Thickness range limited by manufactures' skin passing rolling capacity.	
2C	Cold rolled, heat treated, not descaled	Smooth with scale from heat treatment, suitable for parts to be machined or descaled in subsequent production or where the parts are for heat resisting applications.	-
2D	Cold rolled, heat treated, pickled	Thicker sheet size ranges. Smoothness not as good as 2B, but adequate for most purposes.	0.4-1.0
2E	Cold rolled, heat treated, mechanically descaled	Rough and dull. Usually applied to steels with a scale which is very resistant to pickling solutions	-
2H	Cold rolled, work hardened	"Temper" rolling on austenitic types improves mechanical strength. Smoothness similar to 2B	-
2R	Cold rolled, bright annealed	Highly reflective "mirror" finish, very smooth. Often supplied with plastic coatings for pressings. Manufactured items usually put into service without further finishing	.05-0.1
2Q	Cold rolled, hardened and tempered, scale free	Only available on martensitic types (eg. 420). Scaling avoided by protective atmosphere heat treatment or descaling after heat treatment	-

Special Finishes

The table shows the BS EN 10088-2 special finishes from table 6 of the standard, with a guide to typical Ra values (in micro-metres), based, where available, on manufacturers or surface finishing contractors' data.

<i>Special Finishes</i>			
Abbreviation	Finishing Process Route	Notes	Typical (Ra) micro-metres
1G or 2G	Ground	Can be based on either '1' or '2' ex-mill finishes. A unidirectional texture, not very reflective	-
1J or 2J	Brushed or dull polished	Can be based on either '1' or '2' ex-mill finishes Smoother than "G" with a	0.2-1.0

		unidirectional texture, not very reflective	
1K or 2K	Satin polished	Can be based on either '1' or '2' ex-mill finishes Smoothest of the special non-reflective finishes with corrosion resistance suitable for most external applications.	less than 0.5
1P or 2P	Bright polished	Can be based on either '1' or '2' ex-mill finishes Mechanically polished reflective finish. Can be a mirror finish.	less than 0.1
2F	Cold rolled, heat treated, skin passed on roughened rolls	Uniform non-reflective matt surface, can be based on either 2B or 2R mill finishes	-
1M or 2M	Patterned	Can be based on either '1' or '2' ex-mill finishes. One side patterned only. Includes "chequer" plates ("1" ex-mill finish) & fine textures finishes ("2" ex-mill finish)	-
2W	Corrugated	Profile rolled (eg trapezoidal or sinusoidal shapes)	-
2L	Coloured	Applied to flat (2R, 2P or 2K type finishes,) or patterned (2M) sheet base finishes in a range of colours	-
1S or 2S	Surface coated	Can be based on either '1' or '2' ex-mill finishes . Normally coated on one side only with a metallic coating, such as tin, aluminium or titanium	-

Electropolished finishes are not covered in BS EN 10088-2 table 6. The process is however covered by BS ISO 15730 and is outlined in the technical article Electropolishing of stainless steels

Comparison of current surface finish codes with BS 1449 (obsolete)

The table gives an indication of how different surface finish specifying systems define similar finishes, in relation to BS EN 10088-2.

-	Description	BS1449-2	DIN	ASTM (A480)
1D	Hot rolled, heat treated, pickled	1	IIa (c2)	1
2B	Cold rolled, heat treated, pickled, skin passed	2B	IIIc (n)	2B
2D	Cold rolled, heat treated, pickled	2D	IIIb (h)	2D
2R	Cold rolled, bright annealed	2A	III d (m)	BA
2G	Cold rolled, ground	3A	-	No.3
2J	Cold rolled, brushed or dull polished	3B (or 4)	-	No.4

2K	Cold rolled, satin polished	5	-	No.6
2P	Cold rolled, bright polished	8	-	No.8

Electropolished finishes are not covered in BS EN 10088-2 table 6. The process is however covered by BS ISO 15730 and is outlined in the technical article
Electropolishing of stainless steels