

OPTISHEEN Wet Polished Stainless Steel Sheet

Introduction

Surface finish is an important element in any specification of stainless steel regardless of the intended use.

For those applications where appearance is important, finish is a design element and must be specified.

In non-decorative applications the surface finish may have implications for friction, wear, maintenance or corrosion resistance and must, therefore, also be carefully chosen and clearly specified.

The choice of finish should never be left to the supplier, or the specification loosely worded, such as "Type 304 with a 180 grit finish".

The finish should be properly identified by a standard industry designation or by a trade name, e.g. OPTISHEEN®.



Finishes and Design

There are a wide range of decorative finishes available; therefore, it is important to pay close attention to the selection of the most appropriate finish for the application required. For highly visible applications the appearance of stainless steel is a critical design element and a misunderstanding of the wrong finish can alter the desired effect. In commercial and hygienic applications, such as restaurants and hospitals, properly finished stainless steel is easier to keep clean. In consumer products, such as catering equipment, the lustre from a well polished sheet of stainless steel has strong sales appeal.

In addition to the visual appearance of polished stainless steel there are a number of functional considerations. In sanitary applications correctly polished stainless steel not only looks good but it helps to reduce the risk of bacteria being retained by the material.

In aggressive environments, such as in the nuclear or offshore industries, a correctly polished stainless steel surface has a better resistance to corrosion than a surface that is roughly or badly polished. A smooth surface is less susceptible to an accumulation of deposits and stainless, which often become focal points for localised corrosion. All stainless steel finishes perform better when cleaned and maintained and details of correct cleaning procedures may be found in our publication, "The Cleaning and Maintenance of Stainless Steel".

Finishes and Fabrication

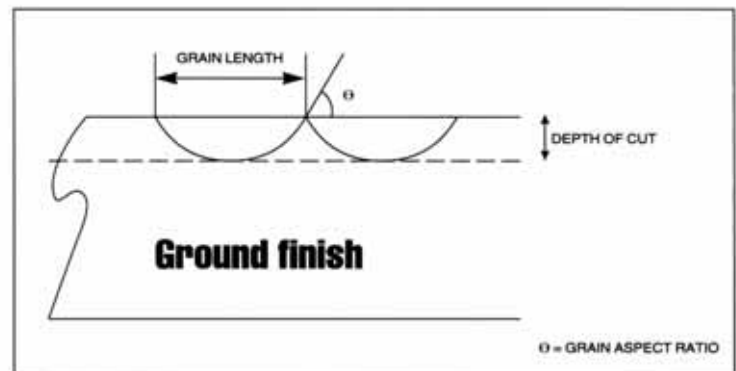
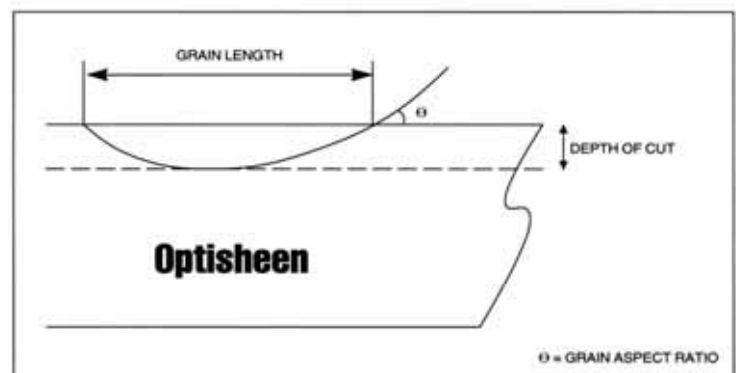
Some fabrication operations, such as grinding prior to painting or gluing, may require a rough surface finish but, generally speaking, a smooth, well finished sheet requires less physical effort than a coarse, rough one when it comes to blending. Certain finishes are more difficult to recreate by hand than others, causing fabrication difficulties; this is especially true of the "special" finishes which cannot be easily replicated in a fabrications workshop. For this reason the fine satin finish (such as OPTISHEEN®) is popular and practical for fabrication shops around the world.

Polished Finishes

The term "polished" defines a range of finishes which generally are of two types, either: (a) satin or grained or (b) brightened and mirror polished. Polishing improves appearance and consistency, make cleaning easier and aids practicality to fabricate and repair/blend after welding and to mask minor damage. Satin Polished stainless steel is practical in use, widely available, relatively low cost and the most commonly used.

OPTISHEEN® – Satin Polish – *the ultimate finish* – (Nearest equivalent in Standard is 1K for Cold Rolled / 2K for Hot Rolled)

OPTISHEEN® is a fine satin finish with an attractive lustre and smooth texture. It is produced using fine abrasives and a special cutting compound, giving it a clean, smooth "wet" cut surface. The smooth surface ensures minimal entrapment of surface debris from polishing or in use, making it suitable for most applications, especially architectural and catering uses. It is also easier to clean due to its long, shallow grain and less prone to staining in external or critical applications. The finer grain blends more easily after fabrications than coarser finishes which require more physical effort. The "wet" cut abrasive system ensures a high degree of consistency from sheet to sheet and grit size can be adjusted to maintain the correct levels of roughness and reflectivity. This finish has a pleasing appearance and is pleasant to the touch, making it suitable for a vast range of products or components. Typical uses include catering equipment, lifts, shop fronts, architectural panels, restaurant equipment, control panels and luggage handling equipment.



For the same depth of cut, the longer grain has a shallower profile — a lower Grain Aspect Ratio. A high Grain Aspect Ratio retains contaminants and is harder to clean.



McDONALD'S ADVERT!

For many years, Optisheen has enjoyed a reputation for being the highest quality satin-polished stainless steel finish. Many well-known household names specify it when ordering checkout counters and kitchen and hospital equipment.

What differentiates Optisheen is that it is a true *polished* finish, achieved by a unique 'wet cut' process involving a polishing belt impregnated with a special polishing compound - made to a secret formula known only to Merlin the OPTISHEEN Wizard!

Most other 'polished' finishes are in fact ground finishes produced by grinding the dry surface with an abrasive belt. The difference is rather like that between having your jewellery polished by a jeweller, using professional jewellers' rouge, and trying to do it yourself... with sandpaper or emery paper. The results would inevitably differ drastically in surface character.

Dry ground material has a torn grain structure caused by direct contact with the polishing belt, with microscopic laps, tears and voids in the surface that give cause for great concern for two reasons: they promote corrosion by breaking the protective oxide film, leading to staining and discolouration; and they cause hygiene problems by providing 'traps' in which bacteria and contamination can reside. Furthermore, the surface tends to be rougher and strongly directional, making it more difficult both to clean and to keep clean.

Optisheen, however, does not suffer from this torn grain structure, having long and shallow graining that is non-directional (see diagrams). This difference, which can easily be felt by running a finger or fingernail across the grain, makes it more hygienic and much easier to clean, as well as more corrosion resistant. During the process the sheet is not in direct contact with the belt, only the lapping paste. Also, the consistency of finish, both from sheet to sheet and from batch to batch, is unrivalled, making 'matching up' extremely straightforward, even over a period of years.

In service, users of equipment and installations made with Optisheen have found that cleaning times are reduced by as much as 75%. Equipment surfaces are also measurably freer from harmful bacteria, which has added to the increasing popularity of the product. It is widely specified for internal and external use by a long list of familiar names — including McDonald's.

In fact, McDonald's rate the importance of appearance and cleanliness standards so highly that they are even prepared to run advertisements in the national and trade press that encourage consumers to inspect their kitchens at any time.

OPTISHEEN SYSTEM

THE PROOF

OPTISHEEN MACHINES

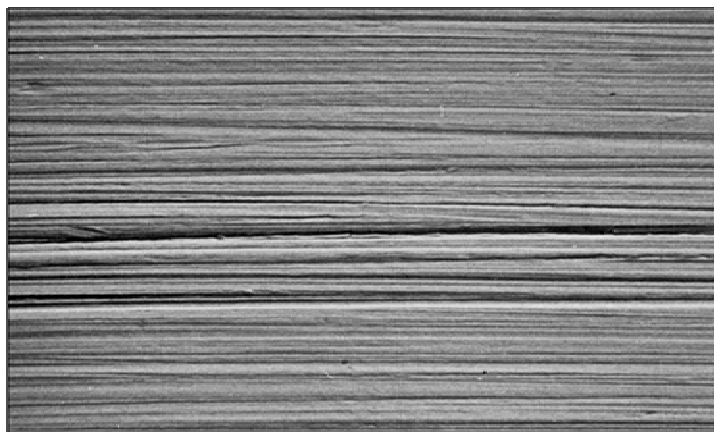
Better action – better finish.

Why 4 roll construction?
Compare the action...

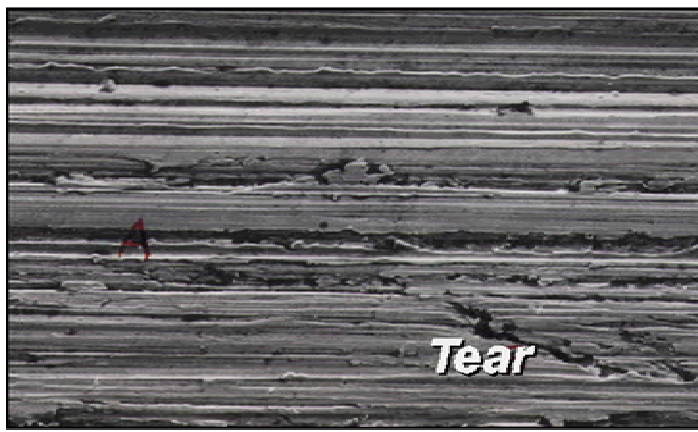
OPTISHEEN® is produced on Mattison machines, whose extremely robust and heavy construction ensures minimal chatter/belt marks.

Three of these unique machines are installed at Aalco's dedicated polishing facility in Walsall.

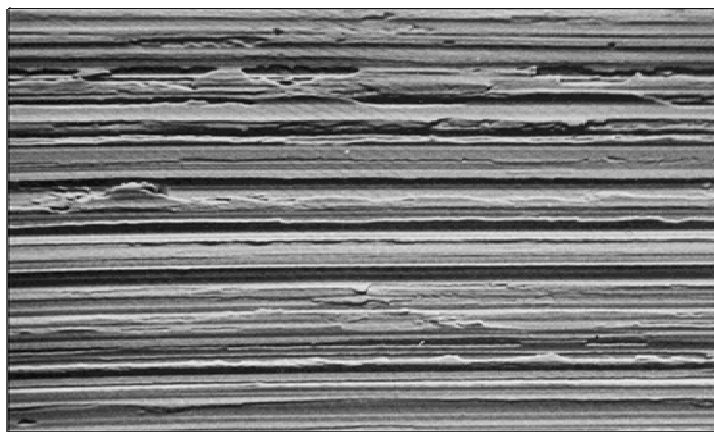
OPTISHEEN® Feature	OPTISHEEN® Benefit
Cleans quicker, easier more hygienic	<i>Cleaning time reduced as much as 75%. Important where large surfaces are involved. Minimal disruption. Multi-directional wiping. Less smears. Simple cleaning regimes.</i>
Less prone to staining	<i>Minimal maintenance. Retains appearance. Good for high profile locations. Less cleaning required. Minimises build-up of biofilms.</i>
Better corrosion resistance	<i>Effective in harsh environments. Good for outdoor applications: architecture, street furniture etc. hot and cold or humid conditions.</i>
Looks good, provides consistency	<i>Always matches simple replacements. Decorative. Product enhancing.</i>



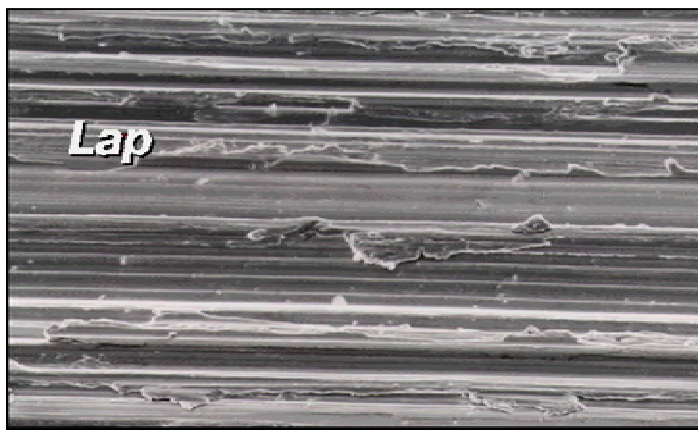
OPTISHEEN® Ra 0.2 μ



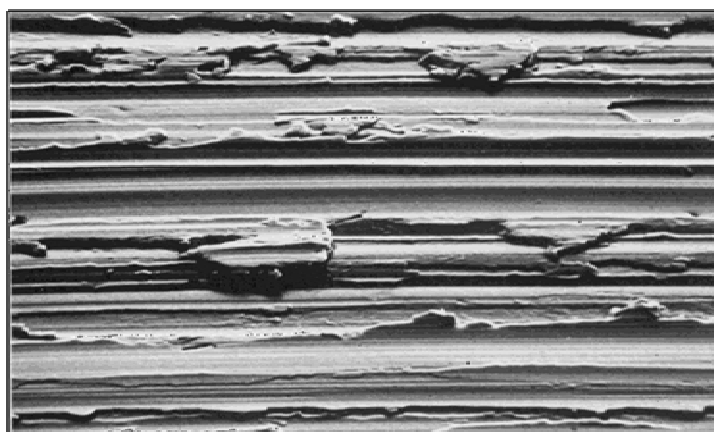
Tear



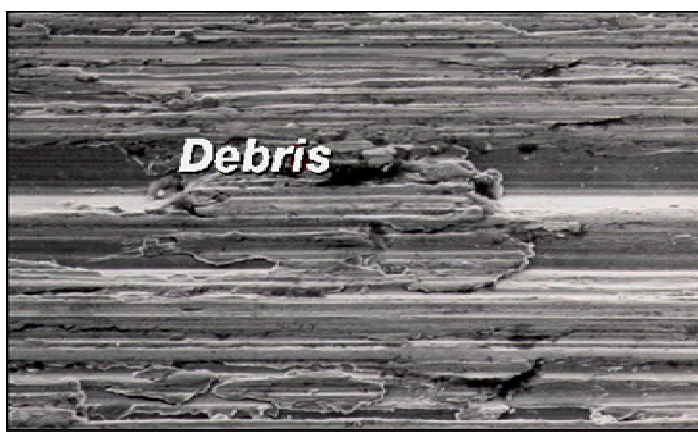
Silicon Finish Ra 0.5 μ



Lap



Aluminium Oxide Finish Ra 1.3 μ



Debris