

# Interesting Facts About Metals and Surfaces

edel-stahl Büchele GmbH & Co KG

**BÜCHELE**  
quality by definition

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## **Terms and technical background**

Stainless steel is a term for alloyed or unalloyed steels with a particular degree of purity. Stainless steel does not necessarily have to meet the requirements of a rustproof steel. Often, only rust-free steels are referred to as stainless steels.

Fundamentally, stainless steel has a metallic shiny surface. Its properties vary depending on the type of production. Hot-rolled products generally have a rougher surface than cold-rolled products. Depending on the operating conditions, the surface finish is important for corrosion resistance.

### **Stainless steel – Key properties**

<b>Corrosion resistant</b>	– in the atmosphere, in water, and in aggressive media
<b>Wear resistant</b>	– even at high temperatures, under heavy mechanical stress, and against abrasive force
<b>Hygienic</b>	– up to sterility
<b>Environmentally friendly</b>	– with 60-85% of stainless steel scrap used in production

The corrosion resistance is explained by the formation of a mixed layer on the surface of the stainless steel, invisible to the human eye. This so-called passive layer protects the surface from the corrosive medium and restores itself if damaged. The positive properties of stainless steels can be further improved by increasing the chromium content and adding other alloy elements (especially nickel (Ni) and molybdenum (Mo)).

Rust forms when the passive layer is damaged and can no longer regenerate.

### **Rust Formation in CNS (chrome-nickel steel) products**

**Extraneous rust** (flash rust, ferrous objects on the surface, ...)

Colloquially, flash rust usually refers to a rust layer on a surface that can be easily wiped off.

For example, extensive rust stains appear on an object made of CNS in places where the chrome coating is damaged. In these exposed areas, the underlying steel sheet rusts, while the rust spreads over the chrome surface.

In specialist circles, extraneous rust is referred to a thin layer of rust on steel surfaces. It is no longer possible to remove rust by simply wiping it off.

## **Pitting**

This is the term used to describe apparently small corrosion spots or punctiform holes in the surfaces of passivated metals, which sometimes expand considerably in depth in a trough shape. These often go unnoticed due to their small size on the surface (caused by compounds with chlorine, bromine or iodine - e.g. in cleaning agents).

## **Crevice corrosion**

Occurs on metal parts in the presence of a corrosive medium in narrow, unsealed gaps such as overlaps, attached bars and non-through-welded seams. Even stainless CrNi steels can corrode in crevices if there is no oxygen to form the protective oxide layer.

## **Care on rust formation**

The best way to remove rust would be so-called passivation. In this process, the surface layers are removed in an acid bath, i.e. any existing corrosion, tarnish colours (e.g. from welding), but also the existing passive layer. The passive layer can then form again on the entire surface by reaction of the alloy components with the oxygen in the air.

If rust formation is detected at an early stage, there are also other ways to remove the rust from the surface.

A special cleaning agent (rust remover) is available for this purpose.

In the case of stainless steel surfaces with a satin finish, it is also possible to rework the surface (to a limited extent).

## **Our surfaces and their characteristics:**

### **Stainless steel surfaces**

- OF (1.01) Stainless steel hot rolled
- OF (1.03) Stainless steel hot rolled, high gloss polished
- OF (1.04) Stainless steel satin brushed
- OF (1.05) Stainless steel with swirl finish
- OF (1.06) Stainless steel high gloss polished (mirror)
- OF (1.07) Stainless steel hot rolled with swirl grind
- OF (1.11) Stainless steel hot rolled, blackened
- OF (1.12) Stainless steel hot rolled, blackened, with swirl grind

### **Brass surfaces**

- OF (2.01) Brass satin brushed
- OF (2.02) Brass with swirl finish
- OF (2.03) Brass satin brushed, patinated
- OF (2.04) Brass with swirl finish, patinated
- OF (2.05) Brass dark patinated

### **Copper surfaces**

- OF (3.01) Copper satin brushed
- OF (3.02) Copper with swirl finish
- OF (3.03) Copper satin brushed, patinated
- OF (3.04) Copper with swirl finish, patinated

### **Tombac surfaces**

- OF (4.01) Tombac satin brushed
- OF (4.02) Tombac with swirl finish
- OF (4.03) Tombac satin brushed, patinated
- OF (4.04) Tombac with swirl finish, patinated

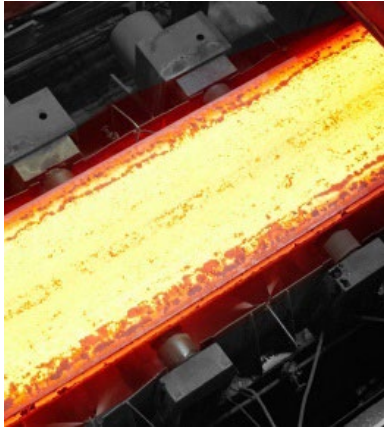
### **Black steel surface**

- OF (9.01) Black steel

## **Hot rolled stainless steel**

Hot-rolled stainless steel is a preliminary product in stainless steel production. The raw plates come hot from the furnace and are hot rolled, after which they are NOT processed further.

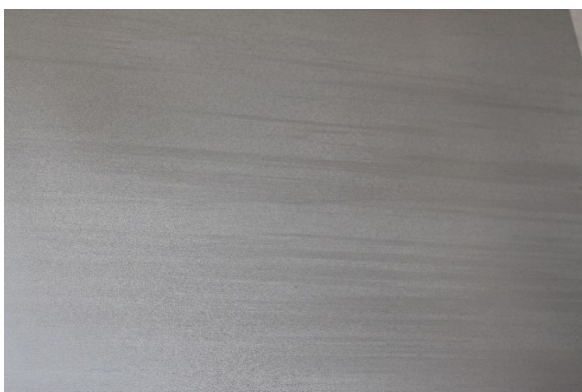
Hot rolled, or hot rolling, refers to the rolling process of a material at a temperature above the recrystallization temperature of the metal being processed. For steel, this temperature range is typically between 720 to 1260 degrees Celsius.



The surface of hot-rolled stainless steel is porous and irregular. The structure of the surface is determined by the rolling process and cannot be influenced.

Every stainless steel plate that comes out of the production process is individual - similar to a stone slab with a naturally grown structure.

**The surface of hot-rolled stainless steel cannot be reconstructed!**



If the roller is damaged or soiled, there will be permanent industrial marks = **rolling irregularities.**

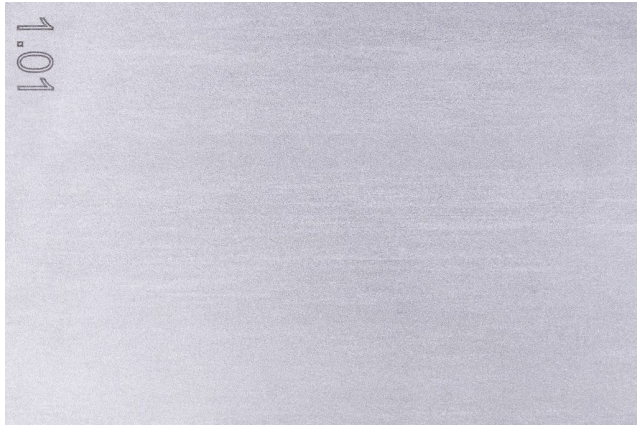




### **Hot rolled stainless steel (OF 1.01)**

Standard material for worktops, 3 or 5 mm thick. All other thicknesses are doubled or chamfered (incl. underlay material and back pull in aluminium).

Possible maximum size joint free: 5350x1950mm. Longer or wider worktops can be joined with a laser weld seam - this remains visible (see photo)!



OF 1.01



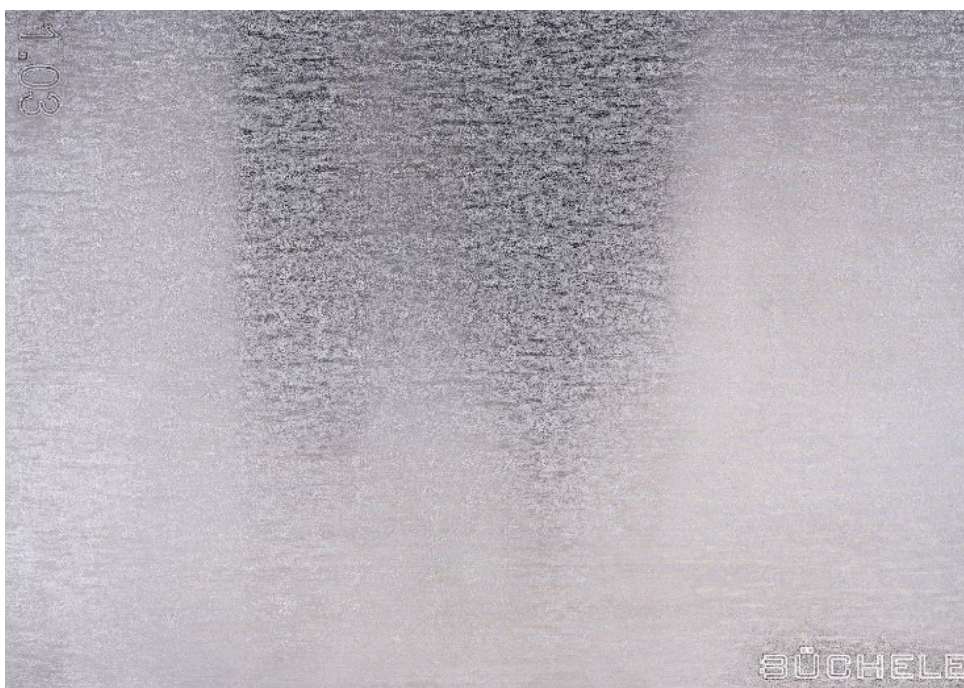
Laser weld

### **Hot rolled stainless steel, high gloss polished (OF 1.03)**

Standard material for worktops, 3 or 5 mm thick. All other thicknesses are doubled or chamfered (incl. underlay material and back pull in aluminium).

The hot-rolled stainless steel is polished to a mirror finish. This creates a unique lustre on the material.

Possible maximum size joint free: 5350x1950mm. Longer or wider worktops can be joined with a laser weld seam - this remains visible (see photo OF 1.01)!



OF 1.03

### **Hot rolled stainless steel with swirl grind (OF 1.07)**

Standard material for worktops, 3 or 5 mm thick. All other thicknesses are doubled or chamfered (incl. underlay material and back pull in aluminium).

The hot-rolled stainless steel is ground with a swirl finish. As a result, traces of use are not as visible and the surface appears somewhat more brilliant than with OF 1.01.

Possible maximum size joint free: 5350x1950mm. Longer or wider worktops can be joined with a laser weld seam - this remains visible (see photo OF 1.01)!

This is also the only surface for our special (basic) base-line countertops, thickness 4mm only, maximum size 2950/1450 mm. Please ask us for further details (limitations).



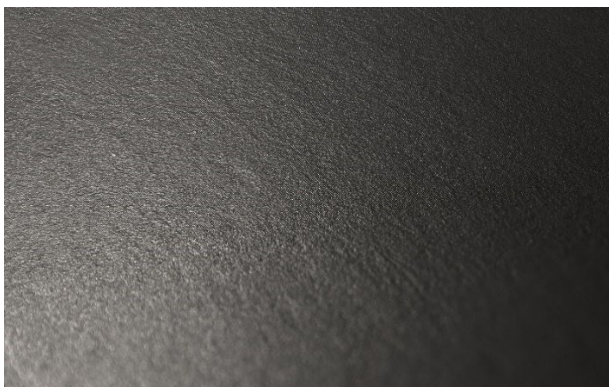
OF 1.07

### **Hot rolled stainless steel, blackened (OF 1.11)**

Standard material for worktops doubled to 8 mm, incl. underlay material and aluminium backing. The black coating is applied to a 3 mm hot-rolled stainless steel sheet.

This is glued to a carrier material and provided with a backing to neutralise the production-related tensions in the sheet. This allows the entire panel to lie flat.

Possible maximum size joint-free: 4050x1420mm, longer or wider worktops can be connected with a welded hairline joint, this remains visible (see photo)!



OF 1.11







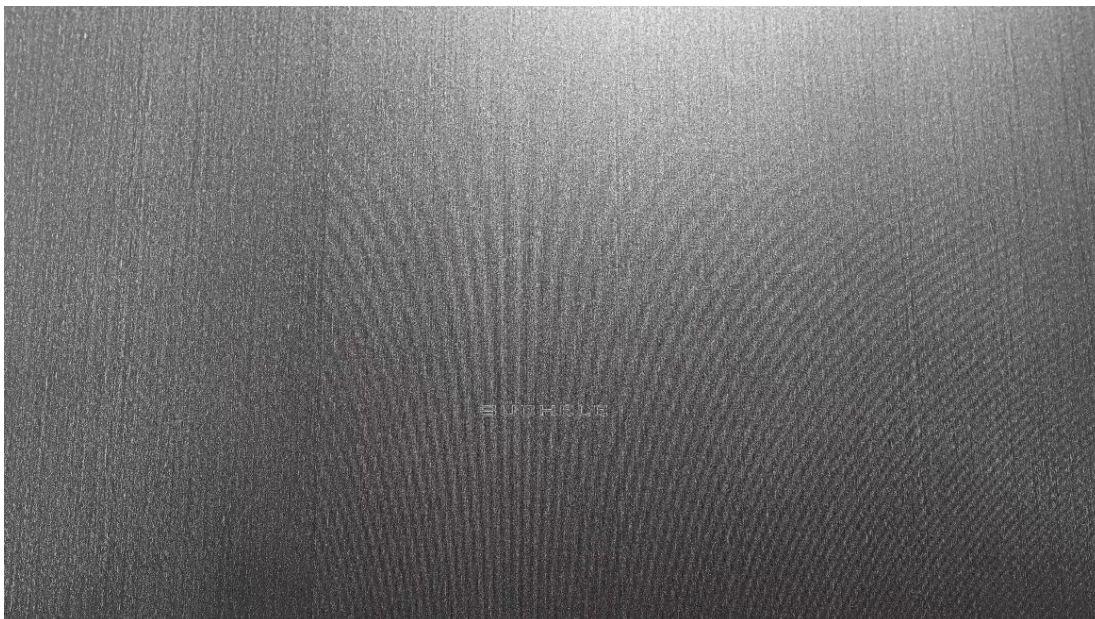
Hairline joint for OF 1.11 and 1.12

**Hot rolled stainless steel, blackened with swirl grind (OF 1.12)**

Standard material for worktops doubled to 8 mm, incl. underlay material and aluminium backing. The black coating is applied to a 3 mm hot-rolled stainless steel sheet. This is glued to a carrier material and provided with a backing to neutralise the production-related tensions in the sheet. This allows the entire panel to lie flat.

The hot-rolled, blackened stainless steel is ground with a swirl finish. This gives the black surface a silver lustre.

Possible maximum size joint-free: 4050x1420mm, longer or wider worktops can be connected with a welded hairline joint, this remains visible (see photo OF 1.11)!



OF 1.12

### **Cleaning of hot rolled stainless steel elements**

(OF 1.01, OF 1.03, OF 1.07, OF 1.11, OF 1.12)

Elements made of hot-rolled stainless steel should be cleaned regularly in everyday use.

As a general rule, stainless steel products may not be exposed to acidic substances and environments, as this can lead to the formation of rust, even on stainless steel.

In particular, the use of cleaning agents containing chlorine should be avoided, as chlorine residues on the surface can react with the material and lead to rust formation.

If acidic or chlorinated substances get onto the surface, remove them immediately with sufficient water and dry.

#### **Cleaning**

For cleaning the hot-rolled stainless steel surface, we recommend using mild and grease-dissolving cleaning agents (such as conventional washing-up liquid or glass cleaner / foam cleaner), always diluted with water. After cleaning with cleaning agents of any kind, stainless steel surfaces must always be thoroughly rinsed with clean water and then dried.

To remove stubborn dirt from hot-rolled surfaces, we recommend the use of slightly abrasive cleaning agents (e.g. Cif). It is important to ensure that the cleaning agent is only worked into the surface in the direction of rolling. Again, remove the cleaning agent completely from the entire surface with clear water and then dry the surface thoroughly.

The use of 'dirt erasers' to remove stains has proved to be very effective.

We generally advise against the use of special care products, as the stain prevention that can be achieved in this way is only ever a 'cover-up' and tends to make the problem worse in the long term.

Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.

**Cold rolled stainless steel**

Cold rolling is the rolling process of a material at a low temperature (below 400 degrees Celsius). They are thus brought to a material thickness of less than 2 mm.

Cold-rolled stainless steel products receive their surface finish during the final processing step in production. The surface can be partially restored by reprocessing - which is not possible with hot-rolled stainless steel.



OF 1.04



### **Stainless steel satin brushed (OF 1.04)**

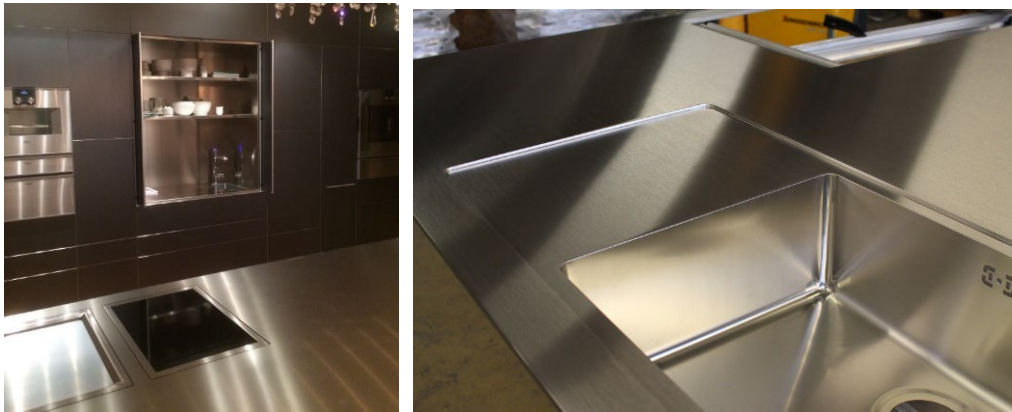
Due to the fine linear brushing that is applied by hand to each element with this finish, marks, scratches and fingerprints are visible more quickly than on the hot-rolled material.

Standard material for worktops: 1.5 mm.

Edge details can be realised variably in thickness and design, bending radius, sharp-edged, chamfer. All edged and doubled variants always with backing material and aluminium back pull. Solid panels, e.g. 5mm, are also possible.

Possible maximum size joint-free (almost) unlimited.

Maximum size often depends on the possibilities during delivery and installation on site.



### **Stainless steel with swirl finish (OF 1.05)**

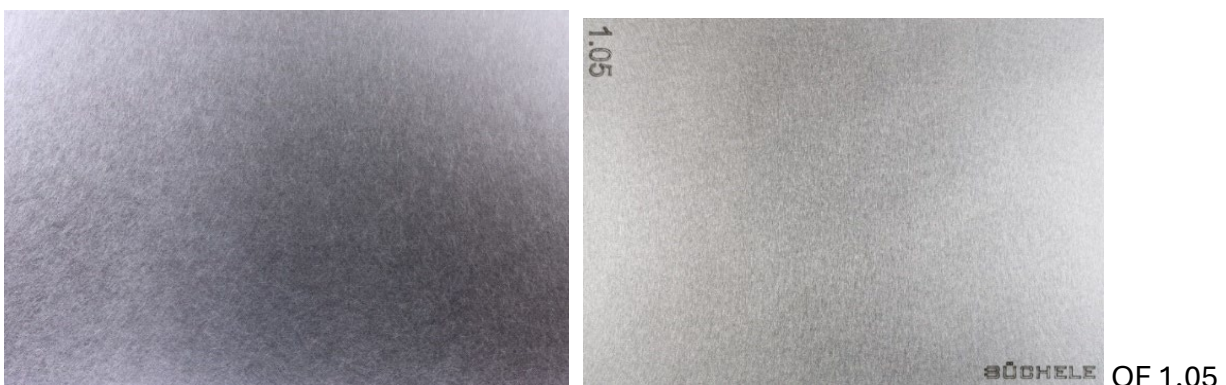
The swirled finish makes marks, scratches and fingerprints less visible on this surface than on the brushed surface.

Standard material for worktops: 1.5 mm.

Edge details can be realised variably in thickness and design, bending radius, sharp-edged, chamfer. All edged and doubled variants always with backing material and aluminium back pull. Solid panels, e.g. 5mm, are also possible.

Possible maximum size joint-free (almost) unlimited.

Maximum size often depends on the possibilities during delivery and installation on site.



## **Cleaning of cold rolled stainless steel elements**

(OF 1.04, OF 1.05)

Elements made of cold-rolled stainless steel should be cleaned regularly in everyday use. Products made of cold-rolled stainless steel may not be exposed to acidic substances and environments, as otherwise rust may also form on the stainless steel. In particular, the use of cleaning agents containing chlorine should be avoided, as chlorine residues on the surface can react with the material and lead to rust formation.

### **Cleaning:**

For cleaning cold-rolled stainless steel surfaces, we recommend using mild and grease-dissolving cleaning agents (such as conventional washing-up liquid or glass cleaner / foam cleaner), always diluted with water. As a general rule, stainless steel surfaces must, after cleaning with any type of cleaning agent, always be thoroughly rinsed with clean water and then dried. To remove stubborn dirt from stainless steel surfaces, we recommend the use of mildly abrasive cleaning agents. Make sure that the cleaning agent is only worked into the surface in the direction of the brushing. Again, remove the cleaning agent completely from the entire surface with clear water and then dry the surface thoroughly. Cleaning the surface in this way can remove the oxide layer of the material. It is therefore advisable to always carry out this type of basic cleaning on the entire surface, as otherwise the cleaned areas will appear lighter in colour than the untreated areas. However, the protective oxide layer forms again on the material by itself.

### **Care:**

These surfaces do not require treatment with special care products.

Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.

## **Brass Surfaces**

Brass is one of the best-known copper alloys. The main components of brass are copper (Cu) and zinc (Zn). The colour is primarily determined by the zinc content (20% - brownish, 36% - light yellow).

The processing properties are significantly influenced by lead and tin, the corrosion properties by nickel.

The surface of the product must always have a satin brushed or swirl finish.





**Brass satin brushed (OF 2.01) or brass with swirl finish (OF 2.02)**

Fingerprints and other stains caused by liquids are very quickly visible on these surfaces. As a result, the surface rapidly acquires a very individual patina created during everyday use.

Standard material for worktops - 1.5 mm thick, edge details can be customised in terms of thickness and finish (solid worktop up to 5 mm, bending radius, sharp-edged, chamfer).

Possible maximum size joint-free (almost) unlimited.

Maximum size often depends on the possibilities during delivery and installation on site.

**Brass satin brushed (OF 2.01)**



OF 2.01



**Brass with swirl finish (OF 2.02)**



OF 2.02

## **Cleaning of elements made of brass satin brushed and brass with swirl finish**

(OF 2.01, OF 2.02)

### **Risks**

Brass is very sensitive to contact with liquids. Fingerprints, for example, are immediately visible. If the material comes into contact with acids, these stains remain visible in the material.

Brass darkens more and more over time. However, water and other liquids can also leave visible stains. To slow down this process somewhat, all brass and products are impregnated with wax at our factory before delivery.

### **Cleaning**

Only mild cleaning agents (e.g. washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through.

If the material comes into contact with liquids such as vinegar, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

Brass products may not be exposed to acidic substances during installation or in daily use, as this will result in discolouration of the material and, with prolonged exposure to acids, verdigris can also form.

In particular, the use of cleaning agents containing chlorine should also be avoided. In general, surfaces made of brass must always be thoroughly rinsed with clean water and then dried after cleaning with cleaning agents of any kind.

### **Care**

Apply the care wax provided sparingly to a dry cotton cloth and work it into the pre-cleaned and dry surface over a large area. The surface should not appear 'wet' after application of the care product; the product should only be applied very thinly and then polished with a dry cotton cloth. Depending on the amount of use, this process can be repeated if the surfaces appears 'dull'.

### **Warning**

If used too frequently, a layer of wax can build up in which dirt remains. If a rough, matt layer develops that cannot be polished up, it must be removed with a solvent (grease-dissolving) cleaning agent. If the wax has hardened, several attempts may be necessary. When the metal surfaces are free of grease again, re-wax and polish.

Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.

**Brass satin brushed patinated (OF 2.03), brass with swirl finish, patinated (OF 2.04) or brass dark patinated (OF 2.05)**

The patinated brass surfaces are manufactured directly in our factory. The material's own patina, which would occur in the natural ageing process, is chemically pre-formed here by hand. This creates the dark brass surfaces.



OF 2.03



OF 2.04



OF 2.05

**Cleaning of elements made of brass satin brushed patinated (OF 2.03), brass with swirl finish patinated (OF 2.04) and brass dark patinated (OF 2.05)**

**Risks**

The same risks exist with patinated brass as with raw brass. However, the patina makes the material somewhat less sensitive and the discolouration is less visible. There is an additional risk that the patina may wear off in places where the material is often touched. In this case, the bare material would then become visible again in these areas. Products made of patinated brass are impregnated with wax in our factory before delivery and thus receive a thin protective coating.

**Cleaning**

Only mild cleaning agents (such as washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through. If the material comes into contact with liquids such as vinegar, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

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Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.



## **Copper surfaces**

As a bare metal, copper has a light red colour, the line colour is pink. The red colour is due to the fact that this metal absorbs the complementary green and blue rays of light at normal temperatures. When exposed to air, it tarnishes and turns a reddish brown colour. Through further weathering and corrosion, a patina forms very slowly (often over centuries) on the surface. The metallic lustre is lost and the colour changes from reddish brown to a bluish green.

Copper is toxic to many microorganisms.

Copper is a component of many alloys:

Brass (with zinc)

Bronze (with tin)

Nickel silver (with zinc and nickel)

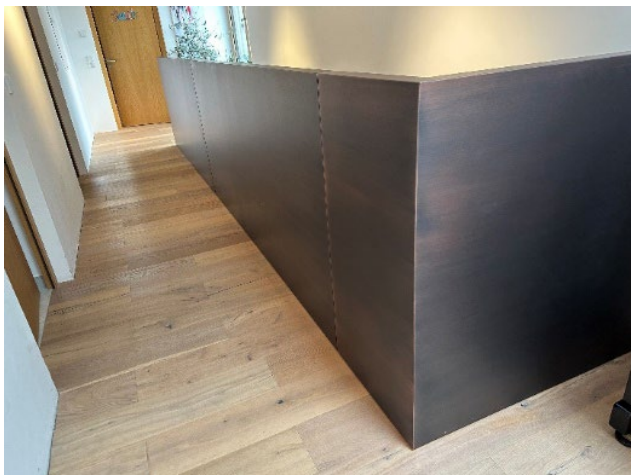
These copper alloys are widely used because of their good properties such as colour, corrosion resistance and workability.

The surface of the product must always have a satin brushed or swirl finish.

Brushed copper worktop in use:



Balustrade made of brushed and patinated copper:



Front panels and shelves made of brushed and patinated copper:



Cube made of brushed copper:



**Copper satin brushed (OF 3.01) and copper with swirl finish (OF 3.02)**

Fingerprints and other stains caused by liquids are very quickly visible on these surfaces. As a result, the surface quickly acquires a very individual patina created through everyday use.

Standard material for worktops - 1.5 mm thick, edge details can be customised in terms of thickness and finish (solid worktop up to 5 mm, bending radius, sharp-edged, chamfer).

Possible maximum size joint-free (almost) unlimited.

Maximum size often depends on the possibilities during delivery and installation on site.



OF 3.01



OF 3.02

## **Cleaning of elements made from satin-brushed copper and copper with swirl finish**

(OF 3.01, OF 3.02)

### **Risks**

Copper is very sensitive to contact with liquids. Fingerprints, for example, are immediately visible. If the material comes into contact with acids, toxic verdigris can form. Verdigris stains can be removed with a scotch, but the scratch marks from the scotch are then visible in the material.

Copper darkens over time. Water and other liquids can also leave visible stains. To slow down this process, all copper products are impregnated with wax in our factory before delivery.

### **Cleaning**

Only mild cleaning agents (e.g. washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through.

If the material comes into contact with liquids such as vinegar, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

Brass products must not be exposed to acidic media during installation or in daily use, as this will result in discolouration of the material and, with prolonged exposure to acids, verdigris may also form.

In particular, the use of cleaning agents containing chlorine should also be avoided. In general, surfaces made of brass or tombac must always be thoroughly rinsed with clean water and then dried after cleaning with cleaning agents of any kind.

### **Care**

Apply the care wax provided sparingly to a dry cotton cloth and work it into the pre-cleaned and dry surface over a large area. The surface should not appear 'wet' after application of the care product; the product should only be applied very thinly and then polished with a dry cotton cloth. Depending on the amount of use, this process can be repeated if the surfaces appears 'dull'.

### **Warning**

If used too frequently, a layer of wax can build up in which dirt remains. If a rough, matt layer develops that cannot be polished up, it must be removed with a solvent (grease-dissolving) cleaning agent. If the wax has hardened, several attempts may be necessary. When the metal surfaces are free of grease again, re-wax and polish.

Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.



**Copper matte brushed patinated (OF 3.03) and copper with swirl finish patinated (OF 3.04)**

The patinated copper surfaces are manufactured directly in our factory. The material's own patina, which would occur in the natural ageing process, is chemically pre-formed here by hand. This creates the dark copper surfaces.



OF 3.03



OF 3.04

## **Cleaning of elements made of patinated brushed satin copper and patinated with swirl finish** (OF 3.03, OF 3.04)

### **Risks**

The same risks exist with patinated copper as with raw copper. However, the patina makes the material somewhat less sensitive and the discolouration is less visible. There is an additional risk that the patina may wear off in places where the material is often touched. In this case, the bare material would then become visible again in these areas. Products made of patinated copper are impregnated with wax in our factory before delivery and thus receive a thin protective coating.

### **Cleaning**

Only mild cleaning agents (such as washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through. If the material comes into contact with liquids such as vinegar, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

### **Care**

Apply the care wax provided sparingly to a dry cotton cloth and work it into the pre-cleaned and dry surface over a large area. The surface should not appear 'wet' after application of the care product; the product should only be applied very thinly and then polished with a dry cotton cloth. Depending on the amount of use, this process can be repeated if the surfaces appears 'dull'.

### **Warning**

If used too frequently, a layer of wax can build up in which dirt remains. If a rough, matt layer develops that cannot be polished up, it must be removed with a solvent (grease-dissolving) cleaning agent. If the wax has hardened, several attempts may be necessary. When the metal surfaces are free of grease again, re-wax and polish.

Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.

## **Tombac surfaces**

Tombac is a brass alloy with a high Copper content (>67% copper content).

Tombac is mainly used for arts and crafts purposes.

The different types of tombac according to copper content are:

Red tombac (90% Cu)

Gold or medium tombac (85% Cu)

Yellow tombac (72% Cu)

The surface of the product must always be finished with a satin brushed or swirl finish.



**Tombac satin brushed (OF 4.01) and tombac with swirl finish (OF 4.02)**

Fingerprints and other stains caused by liquids are very quickly visible on these surfaces. As a result, the surface quickly acquires a very individual patina, which is created through everyday use.

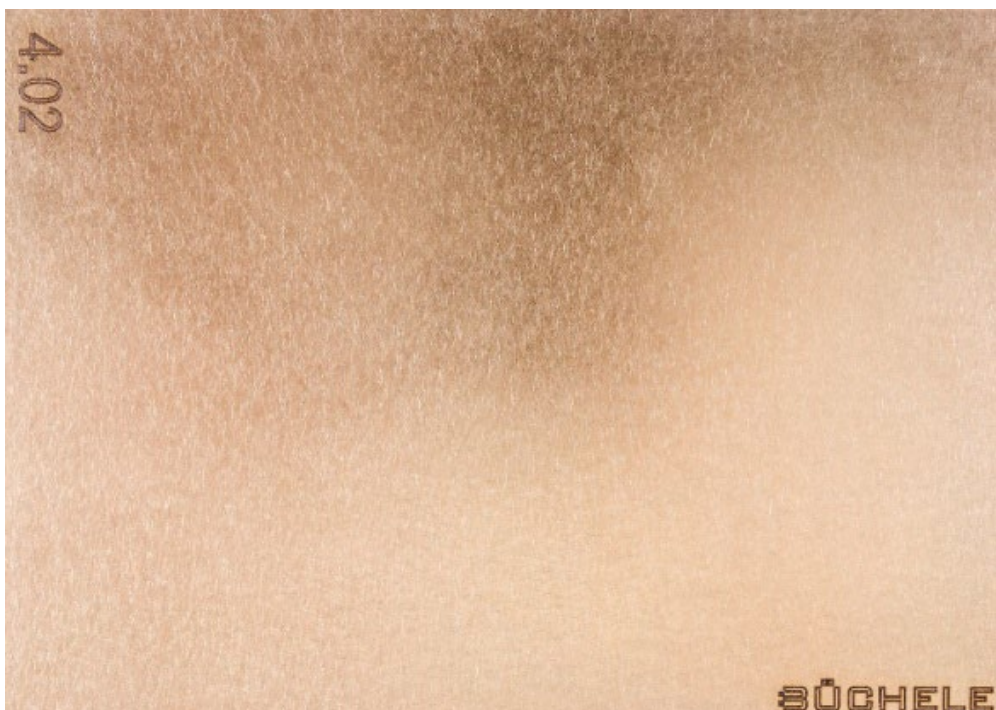
Standard material for worktops - 1.5 mm thick, edge details can be customised in terms of thickness and finish (solid worktop up to 5 mm, bending radius, sharp-edged, chamfer).

Possible maximum size joint-free (almost) unlimited.

Maximum size often depends on the possibilities during delivery and installation on site.



OF 4.01



OF 4.02

## **Cleaning elements made of tombac with a satin-finished surface and tombac with a swirl finish** (OF 4.01, OF 4.02)

### **Risks**

Tombac is very sensitive to contact with liquids. Fingerprints, for example, are immediately visible. If the material comes into contact with acids, toxic verdigris can form. Verdigris stains can be removed with a scotch, but the scratch marks from the scotch are then visible in the material.

Tombac darkens over time. Water and other liquids can also leave visible stains. To slow down this process, all tombac products are impregnated with wax in our factory before delivery.

### **Cleaning**

Only mild cleaning agents (e.g. washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through.

If the material comes into contact with liquids such as vinegar, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

Tombac products must not be exposed to acidic media during installation or in daily use, as this will result in discolouration of the material and, with prolonged exposure to acids, verdigris may also form.

In particular, the use of cleaning agents containing chlorine should also be avoided. In general, surfaces made of tombac must always be thoroughly rinsed with clean water and then dried after cleaning with cleaning agents of any kind.

### **Care**

Apply the care wax provided sparingly to a dry cotton cloth and work it into the pre-cleaned and dry surface over a large area. The surface should not appear 'wet' after application of the care product; the product should only be applied very thinly and then polished with a dry cotton cloth. Depending on the amount of use, this process can be repeated if the surfaces appears 'dull'.

### **Warning**

If used too frequently, a layer of wax can build up in which dirt remains. If a rough, matt layer develops that cannot be polished up, it must be removed with a solvent (grease-dissolving) cleaning agent. If the wax has hardened, several attempts may be necessary. When the metal surfaces are free of grease again, re-wax and polish.

Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.



**Brushed satin patinated tombac (OF 4.03) and tombac with swirl finish patinated (OF 4.04)**

The patinated tombac surfaces are manufactured directly in our factory. The material's own patina, which would occur in the natural ageing process, is chemically pre-formed here by hand. This creates the dark tombac surfaces.



OF 4.03



OF 4.04

**Cleaning of elements made of brushed satin patinated tombac and tombac with swirl finish patinated** (OF 4.03, OF 4.04)

**Risks**

The same risks exist with patinated tombac as with raw tombac. However, the patina makes the material somewhat less sensitive and the discolouration is less visible. There is an additional risk that the patina may wear off in places where the material is often touched. In this case, the bare material would then become visible again in these areas. Products made of patinated tombac are impregnated with wax in our factory before delivery and thus receive a thin protective coating.

**Cleaning**

Only mild cleaning agents (such as washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through. If the material comes into contact with liquids such as vinegar, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

**Care**

Apply the care wax provided sparingly to a dry cotton cloth and work it into the pre-cleaned and dry surface over a large area. The surface should not appear 'wet' after application of the care product; the product should only be applied very thinly and then polished with a dry cotton cloth. Depending on the amount of use, this process can be repeated if the surfaces appears 'dull'.

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Traces of use will always occur. Some of which are unavoidable and tell the everyday story of the life of your customised object.

## **Black steel**

This is NOT a stainless steel, but construction steel. It must be treated with wax to prevent corrosion (rust). The most commonly used grades belong to the category of basic steels. They are usually low alloyed and only partially heat-treated. The distinction between structural and quality steels is no longer appropriate today due to technical progress, as a distinction is made between categorisation according to composition and technical parameters on the one hand and according to intended use on the other.

Due to the manufacturing process, imperfections in the surface are unavoidable. Pores, marks, slight scratches and discolouration are possible and are part of the individual, industrial look of this material. Colours run in parts to blue and silver tones.

Unpickled, unoiled - very sensitive to rust

Pickled, unoiled - there is a risk of rusting

Pickled, oiled - increased corrosion protection

The surface of hot-rolled black steel is porous and irregular. The structure of the surface is determined by the rolling process and cannot be influenced.

Every black steel plate that comes out of the production process is individual - similar to a stone slab with a naturally grown structure.

The surface of the black steel cannot be reproduced!





**Black steel (OF 9.01)**

Standard material for worktops, 3 or 5 mm thick. All other thicknesses are doubled or chamfered (incl. underlay material and back pull in aluminium).

Possible maximum size joint free: 5350x1950mm.



OF 9.01

## **Cleaning of elements made of black steel** (OF 9.01)

### **Risks**

Black steel is a material that reacts with its environment. The risk of this material is that rust stains may form in combination with acidic substances.

Products made of black steel may not be exposed to acidic substances during assembly - as in everyday use. This can lead to rust formation.

In particular, the use of cleaning agents containing chlorine should also be avoided. In general, after cleaning with cleaning agents of any kind, black steel surfaces must always be thoroughly wiped with clean water and then dried thoroughly.

After installing black steel elements such as fronts, wall panelling or other visible elements, the surface should be given initial care. This is necessary to remove any soiling caused by handling, transport and installation and to protect the surface in the best possible way.

### **Cleaning**

Only mild cleaning agents (such as washing-up liquid) should be used for this material, diluted with water. Only use cotton cloths for cleaning - never use Scotch or similar rough sponges. These will leave permanent scratches on the surface where the bare material shines through.

If the material comes into contact with acidic liquids such as vinegar or Coca-Cola, we recommend wiping these away immediately with a damp cloth and drying with a clean cloth.

### **Care**

Apply the care wax provided sparingly to a dry cotton cloth and work it into the pre-cleaned and dry surface over a large area. The surface should not appear 'wet' after application of the care product; the product should only be applied very thinly and then polished with a dry cotton cloth. Depending on the amount of use, this process can be repeated if the surface appears 'dull'.

### **Warning**

If used too frequently, a layer of wax can build up in which dirt remains. If a rough, matt layer develops that cannot be polished up, it must be removed with a solvent (grease-dissolving) cleaning agent. If the wax has hardened, several attempts may be necessary. When the metal surfaces are free of grease again, re-wax and polish.

Traces of use will always occur. Some of these are unavoidable and tell the everyday story of the life of your customised object.



Traces of wear on black steel

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