

Documentation for architects

Documents for the application of rustproof stainless steel for fronts, roof drainage systems and roof covering



Index of contents

Topic	Page
Preamble	03
Tin-coated stainless steel	04
- Object examples	05
Bright, high-gloss stainless steel	08
- Object examples	09
Matt-finished stainless steel	12
- Object examples	13
Coloured stainless steel	16
- Object examples	18
Our innovations	20
- The ferrinox®-system	21
- ferrinox®4000 welding flux	22
- ferrinox®-outlet vent caps	23
- ferrinox®-snow guards	24
- ferrinox®-thrashing binder	25
- ferrinox®-pipe clamps	26
- ferrinox®-tin-coated riveted bolts	28
- ferrinox®-water drain box	29
edel&STAHL - stainless steel differently seen	31

For every stainless steel quality counts:

- absolutely environmentally compatible and 100% recyclable
- consistent against bitumen corrosion
- high durability against aggressive environmental influences
- processable under winterly conditions
- low coefficient of expansion
- no contact corrosion in contact with zinc, copper or lead

PREAMBLE



Stainless steel in building construction – what is taken for granted today once started with lots of barricades

The pioneer of the raw material – BRANDT Edelstahldach Company – is operating for nearly 40 years now and reflects:

Stainless steel as raw material for roof coverings and roof drainage systems has a short history in Germany. It began during the 1970's when our company started to specialize in it.

The company was established by Peter Brandt in 1975 and can look back on nearly 40 years of successful business

A long way

Twelve years after establishment, Gert Bröhl became business leader. With lots of pep and creative power he started to restructure the distribution company into a manufacturing enterprise. In close collaboration with processors and associations he and his employees developed the roof drainage system ferrinox®.

It was a very long way until stainless steel became accepted. The BRANDT Company was significantly engaged in the development of correspondent DIN and EN standards, arranged and still arranges for trainings and presentations and always stands up for the material.

Participants remember biggest discussions about material thicknesses which were defined on the basis of standards and therefore deceptive: At the same quality demand, stainless steel gets along with 0,4mm and 0,5mm instead of 0,7mm.

What once was a barricade for acceptance is the best argument today: in addition to other, traditional raw material for roof drainage and roof covering systems, the little material thickness with consistent quality standards detracts the weight per square meter essentially. This offers a significant cost benefit in case of reconstruction of old or even listed building fabrics. With stainless steel and its little operation weight one can cover up to 75% more surface per m². This depends on comparison reasons and material thicknesses.

Innovations part 1

Precondition for improvements and innovations was a specialisation in conversion technology of edging, pressing and cutting works for those thinner thicknesses, what on the other hand called for reconstruction of engines and a development of material-specific tools. The resulted roof drainage products were tested during series of experiments. Solution for processors was a complete intermateable system consist-

ing of roof gutters, down pipes and correspondent roof drainage accessories.

For roof covering we deliver optionally tinned, bright or matt-finished stainless steel band which can be shaped or rounded additionally.

Innovations part 2

The BRANDT Company is always anxious to improve and complete the ferrinox® system. Wall brackets for pipe clamps, tinned riveted bolts and fluxing agent are only a few of our latest innovations.

To come up to the customers' expectations the company started to distribute also non-tinned stainless steels for roof drainage and covering systems.

Nevertheless, the BRANDT application engineers indicate that non-tinned raw material is much more difficult to handle than tinned stainless steel. In case of joining technology for example it was obvious that it is a complex task to braze stainless steel which is not tinned.

To solve the problem, the BRANDT Edelstahldach GmbH brought out the fluxing agent ferrinox®4000. This is the answer. Right now one can even process bright and matt-finished stainless steel without any difficulty. Therefore those material types also became part of the ferrinox® system.

“Only a perfect product becomes part of the ferrinox® system”

Tinned stainless steel

Rustproof, ferritic stainless steel

Standard DIN 17.441/ EN 10088-2 with material no. 1.4509



Tinned stainless steel (1.4509) is a rustproof, ferritic, 17 per cent chrome steel (magnetic) with 0,59 titanium content and an additional tin coating. For nearly 30 years it is used for roof coverings as well as roof drainage systems. Depending on its high corrosion resistance and a special applicability for restorations of landmarked buildings, it is very successful. Its matt-grey patina forms itself within a few years.

Advantages & properties

- resistant against many acids & bases
- resistant against bitumen and its products – also without protective coating
- resistant against cement and mortar
- UV resistant and resistant against putrefaction
- compatible with all kinds of wood (chipboards etc.)
- resistant against exhaust gases of oil-fired heatings
- no contact corrosion in connection with zinc/copper
- environmentally friendly, unbreakable and easy to braze (in case of using ferrinox®4000)
- especially suitable for restorations of landmarked buildings

Tinned stainless steel

Object examples



Tinned stainless steel

Object examples



Tinned stainless steel

Object examples



Bright, non-tinned stainless steel

Material no. 1.4301, more qualities on request



On account of its little expansion coefficient, stainless steel is an optimum material for roofs and fronts. It is not subject to cold brittleness. Backside-corrosion as a result of condensation water or entrapped moisture will no more occur.

Processing of stainless steel roof drainage and roof covering systems can be effected with customary roofer and plumber tools. Nevertheless it is very important to use a special fluxing agent for brazing and – in contrast to tinned stainless steel – use special riveted bolts, too. The brazed seam has to be cleaned accurately.

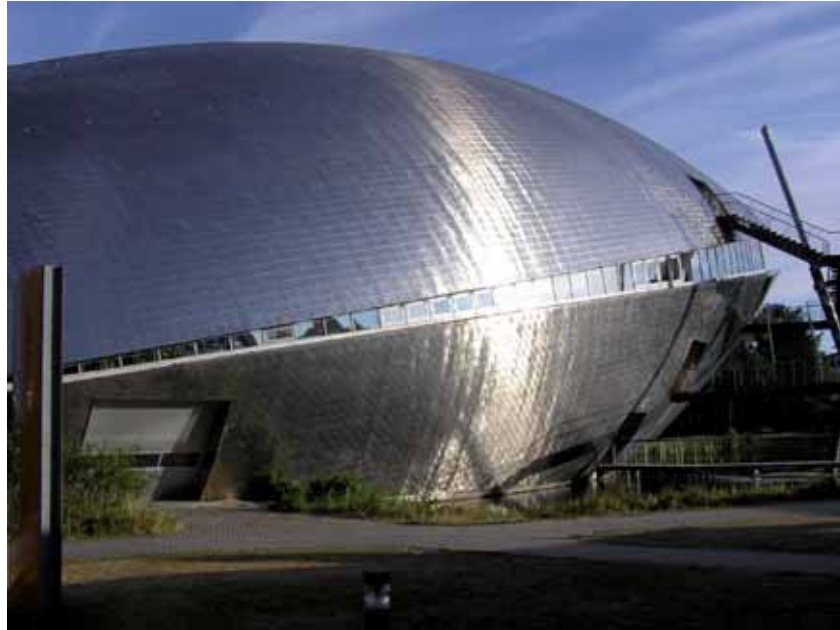
In case of non-tinned stainless steel we can also recommend a R2-surface. It is more reflective than the bright material and therefore more attractive for objects which should catch the viewers' eyes with their inimitability. Its processing is also trouble-free.

Advantages & properties

- first-class optics
- perfect brazeability in spite of missing tin coat (if ferrinox® 4000 is used)
- high corrosion resistance
- high mechanical stability
- little expansion coefficient
- winterly temperature ranges are irrelevant

Bright, non-tinned stainless steel

Object examples



Bright, non-tinned stainless steel

Object examples



Bright, non-tinned stainless steel

Object examples



Matt-finished stainless steel

Material no. 1.4301 & 1.4404



This is a rustproof stainless steel, matt-finished on both sides. Already during processing it shows a diffuse, matt-grey surface. The material is very easy to handle and fulfils all requirements demanded from roof covering systems today. It is easy to incorporate into every countrified or urban environment and consorts with traditional and modern architectural styles in equal measure. Matt-finished stainless steel is compatible with other materials like wood for example, which is used in a roofers' every-day-life.

It can be obtained in amplitudes up to 1250mm and in thicknesses from 0,4mm up to 1,2mm. It is suitable for roof covering, especially to encase bottom views and fronts. Matt-finished stainless steel is complementary to every usual processing technology and can be placed as standing seam or on battens in material thickness 0,4mm or 0,5mm.

Based on its little expansion coefficient, elements with a length between 15cm and 20cm can be processed, depending on their band width. The little net weight of the raw material (3-4kg/m²) permits a placing on simple constructions.

Advantages and properties

- keeps its diffuse, matt-grey surface
- high corrosion resistance (factory fumes, marine air)
- high mechanical stability
- low expansion coefficient
- perfect brazeability (if ferrinox® 4000 is used)
- compatible with other materials applied for roof coverings (wood, mortar, cement, chalk, other metals...)

Matt-finished stainless steel

Object examples



Matt-finished stainless steel

Object examples



Matt-finished stainless steel

Object examples



Coloured stainless steel

(Material no. 1.4301 - others on demand)



Stainless steel with new character

Colour and/or structure – stainless steel re-experienced

In general, stainless steel is known for its silver, metallic surface. Now it shows its different sides. We created BRANDT colourline in order to show our true colours and to emphasize the multiplicity of our raw material. Not only structure calls the customer's attention but also coloured stainless steel shows great promises for prospective business.

The colour comes into existence by chemical reaction. Structured surfaces are cold-rolled on both sides in chain and panel form. Afterwards sheets are cut out.

Surfaces

2B, 2R, glass bead blasted, coloured, burnished and brush-finished

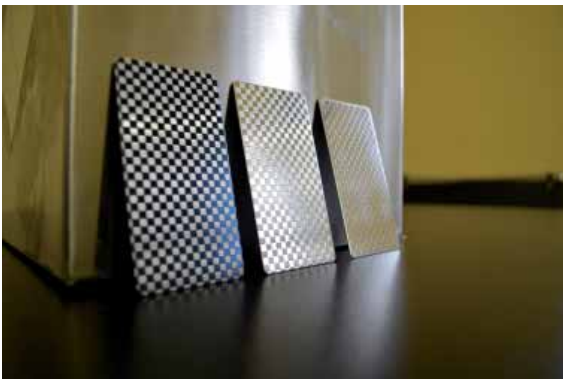
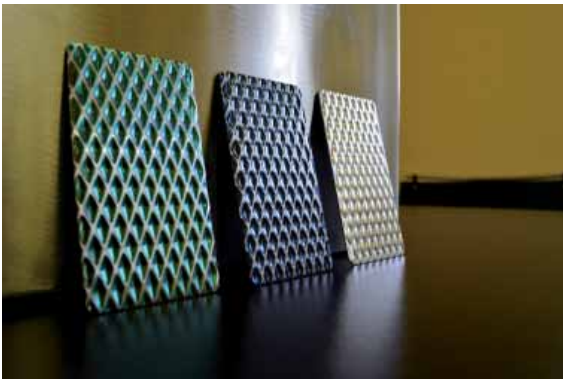
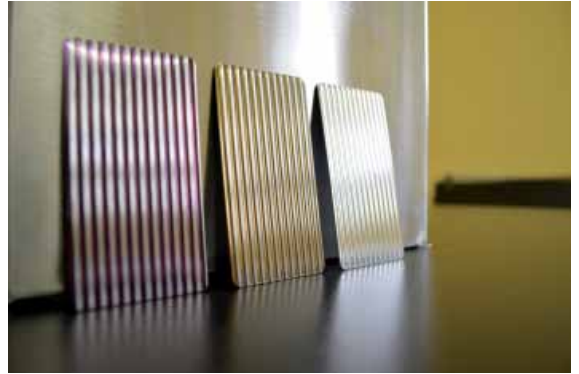
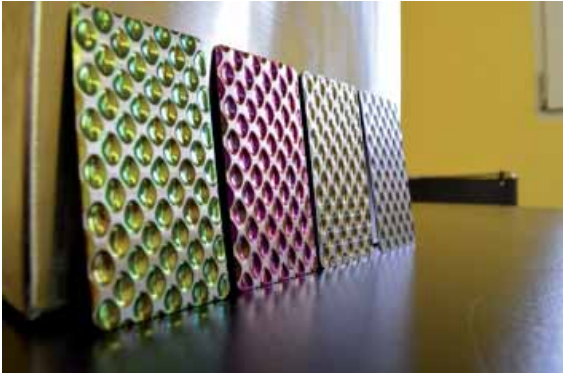
Metal sheet dimensions

Lengths: 2000mm, 2500mm, 3000mm - other lengths on demand

Thicknesses: 1000mm, 1250mm, partially depending on surfaces - other thicknesses on demand

Coloured stainless steel

(Material no. 1.4301 - others on demand)



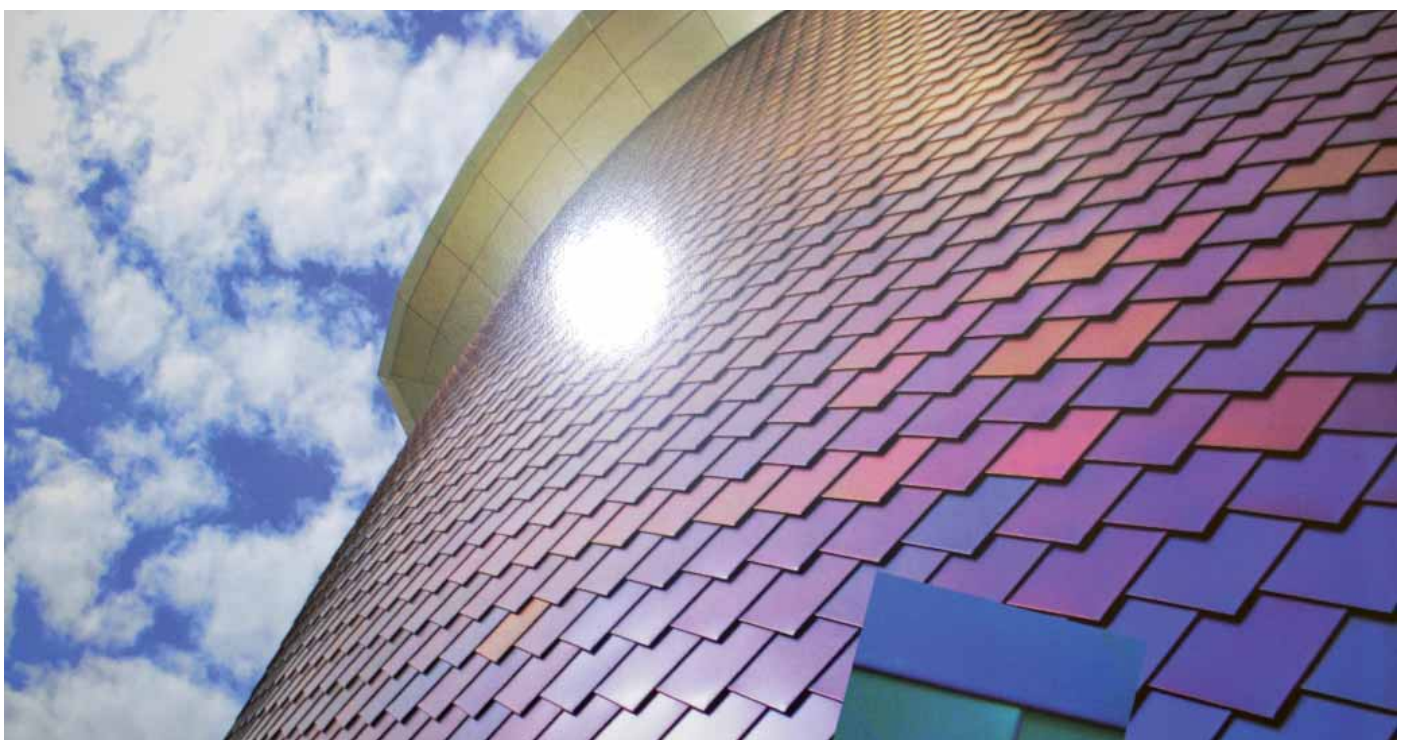
Coloured stainless steel

Object examples



Coloured stainless steel

Object examples



Innovations of BRANDT Edeltahldach GmbH - If you don't go forwards you go backwards.

Permanent innovations from stainless steel for processors and retailer BRANDT recognizes market solutions and searches for solutions

Based on material properties and thicknesses of stainless steel we had to specialize in conversion technologies for edging, pressing and cutting works what on the other hand called for a machine changeover and a material-obtained development of appropriate tools. The emerged roof drainage products were tested in several experimental series.

Result for the processor was a complete and compatible palette consisting of roof gutters, down-pipes and corresponding roof drainage accessories. For roof covering we deliver optionally tinned, non-tinned or matt-finished stainless steel band. It can be profiled or rounded additionally.

We are anxious to improve and complete our ferrinox® system by permanent innovations, new products and processing assistants. Therefore, the close collaboration with processors, associations and committees is very helpful to us.

We maintain many suggestions from our own team of stainless steel experts, application engineers and plumbers who offer our customers a 100% consultancy, even in case of tricky problems. A lot of products worked out that way led to innovations and improvements.

The ferrinox®-system – all from a single source



ferrinox®4000 fluxing agent



Our fluxing agent – developed especially for stainless steel

With registered trade name “ferrinox®4000 Lötwasser” we distribute a soldering fluid with standard 1.1.3 according to DIN EN 29 454-1. To braze stainless steel we recommend the use of usual 30% bar tin (S-Pb 70 su according to DIN EN 49453). If the brazing seam has to be attuned to tinned stainless steel, the processor should make use of a 99,99% tin soldering fluid, DIN 1704. The cleaning of the soldering seam should be effected with clear water only.

We are still carrying out test series with cleaning agents. For an assured compliance with the brazing fit we recommend our stainless steel riveted bolts which are also available especially for stainless steel.

Brazing index for roof covering and roof drainage systems of stainless steel

Among craftsmen circles rust-proof stainless steel has the reputation to be difficult to braze. This impression came into existence, because employees often just worked with the present soldering fluid or fluxing agent, also if it was produced for work with other materials like zinc and copper. Those fluids are unqualified for rustproof stainless steel. Especially in case of using fluxing agent that contains hydrochloric acid or chlorides, corrosion damages can occur.

Brazing of rustproof stainless steel

Among roofer and plumber circles there are often questions about the brazeability of antirust steel types. The necessary knowledge for brazing of rustproof stainless steel is easy to learn. The main reason for a perfect result is the employment of a perfect soldering fluid like ferrinox®4000 from BRANDT. As already mentioned in the introduction it is very important not to use chlorous or inappropriate fluxing agent. Soldering fluids that are generally used for processing zinc and copper are unsuitable for stainless steel. There are even fluxing agents which are said to be qualified for stainless steel and after a few years, the soldering seam comes undone and the visual appearance changes.

These fluxing agents should only be used after exact investigations. We want to point out that the ferrinox®4000 soldering fluid ran through a lot of long-run analysis and offers best results. Furthermore our experience shows that 30% tin plumb line with melting temperature between 215 and 250 degrees or high purity zinc with a fusion point of approximately 230 degrees should be employed if the visual appearance of the soldering seam has to meet highest expenses.

ferrinox®-outlet vent caps



Exclusive from BRANDT Edeltahldach GmbH

The BRANDT Company is the only manufacturer in Germany who produces and offers this type of stainless steel outlet vent caps. Those ferrinox® caps are produced in port diameter Ø80, Ø100, Ø120 and Ø150. They are distributed either with tinned or non-tinned surface.

The cap is manufactured by means of an extensive high-pressure process. Its base part, which is soldered with the cap later on, has got a reinforcing fin and stamped elongated slots that arrange for an adequate air vent.



ferrinox®-snow guards – Protection & safety



Guaranteed protection & safety in winter – compact snow guards from stainless steel

Owners of a house should keep in mind that they have to adhere for material damages and injuries of persons by reason of roof avalanches. In winter snow covered roofs are rather norm than exception. Periods of thawing in between let the snow become wet and heavy. Sooner or later it starts to slide. Without snow guards, house owners are held liable for subsequent damages: every insurance company will investigate whether you met your duty to take care. Snow guards are an important preventive measure against roof avalanches.

BRANDT Edeltahldach GmbH offers a complete range from stainless steel. Snow guards generally prevent a slipping of roof avalanches. Safety hooks avoid that the snow sloughs and stresses the roof edge. Of course not every area is subject to heavy snowfall – therefore the BRANDT Company offers snow guards in different dimensions. In general, they are 200mm high but on demand we can also deliver them up to 250mm.



ferrinox®-thrashing binder



Cost savings due to thrashing binder

In case of high-wind, metal roof owners often have problems with thrashing and chattering noises.

In this connection it is very important which material the metal surface is made of. In consequence of stainless steel, the so called ferrinox® thrashing binder from BRANDT Edeltahldach GmbH are compatible with every kind of raw material that comes into operation in roof covering. Furthermore it is important to make use of a special kind of stainless steel which not only shows a long service life but also bears down disturbing noises due to special spring steel. Altogether you can say that a thrashing binder is a convenient and fortunate solution if your roof got in disturbance.

Exclusive - only from BRANDT cologne



ferrinox®-pipe clamps



round or edged – we got both

In the middle of 2001 the BRANDT company adopted tools and adequate machines for the processing of stainless steel pipe clamps when the Jöcker Company from Wuppertal, who supplied us up to that point, went out of business.

Tools and machines were completely checked up and converted for the manufacturing of pipe clamps only. Due to this measure, quality got improved significantly.

Pipe clamps with drive-in nut were absorbed to the ferrinox® system, too. They have got a stainless steel arbour of 140mm length.

Product advantages persist. Our customer has the opportunity to order clamps with optional long stainless steel threaded rods. The pipe clamps have a combination muff which enables the screwing of either M8 or M10 threaded rods.

In general, our ferrinox® pipe clamps have got a 100mm long M8 rod. It can easily be replaced by threaded rods with a length up to 1000mm.

The two half shells of our pipe clamps are connected with common A2 stainless steel screws. Together with these pipe clamps we deliver special anchor bolts which are suitable for the absorption of a metrical screw thread in M8.

We are able to place pipe clamps with the adequate stainless steel threaded rods at your disposal – even in case of curtain-type fronts. In general, A2 stainless steel (for example with material no. 1.4301) is applied but we can also deliver in a superior grade (1.4401 for example).

We would like to point out that ferrinox® pipe clamps are combinable with every building material applied for down pipes. There will be no contact corrosion. Consequently, a plumber needs only one material at stock and can easily catch the additional costs of these special stainless steel pipe clamps.

Usually, for visual reasons, no plumber would combine copper down pipes and stainless steel pipe clamps. An exception of these rules is the Hamburg town-hall, where copper down pipes were fixed with our ferrinox® pipe clamps. In case of titanium-zinc down pipes the processor can argue for a superior material appearance and high endurance against pipe clamps of zinc-coated steel.



ferrinox®-Tin-coated stainless steel riveted bolts



Common riveted bolts from stainless steel are nearly unbrazable - until the BRANDT Company developed a tin-coated stainless steel riveted bolt for processors

Riveted bolts with a stainless steel arbour have got a tin-coated surface and are easy to braze. According to the basic material stainless steel, ferrinox® riveted bolts are suitable for every material. Only huge shear forces can damage these stainless steel riveted bolts. The rated break point at the arbour is applied very deep so that breaches at the copper parts of the soldering set could not occur and the stainless steel arbour does not lead to any contact corrosion. The dimension of tin-coated riveted bolts from our ferrinox® system is 3,2mm x 6,0mm.



ferrinox®-water drain box



Ferrinox® water drain boxes have got a precasted four- or five piece gutter cutting. It is available with or without overflow. As a complete box, gutters, greenery gate and bolt circle are pre-installed.

Deliverable in dimension

4-piece, H 340mm / B 250mm / T 250mm

5-piece, H 340mm / B 250mm / T 192mmmore

dimensions on demand



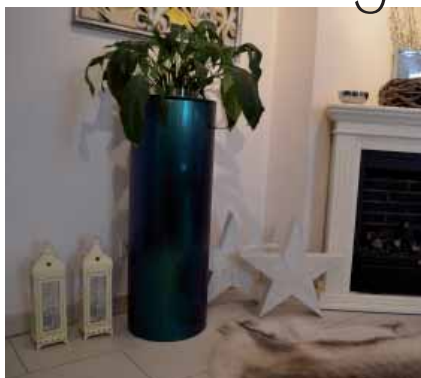
edel & STAHL

Geschenke und Designs aus Edelstahl

presents



designs



customized parts



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