

Roofinox Dura 316L

The electro-colored HFX stainless



Product description

Roofinox Dura was specially designed for use on roofs and façades. Roofinox Dura 316L is an austenitic stainless steel with molybdenum of quality 316L which gets its corrosion resistance through the alloying elements chromium, nickel and molybdenum. It is a brush-rolled and electro-colored HFX stainless steel, whose extraordinary color is created, by controlling the thickness of the natural chromium oxide layer. Due to the different thickness of the chromium oxide, the light spectrum and the viewing angle sensational Color effects are achieved. Since no dyes or pigments are applied, the unique HFX surface structure is retained.

Instructions for use / recommendations

- **General information:** Roofinox Dura should be used in accordance with the latest technical standards, professional regulations and norms. Roofinox Dura is a decorative metal sheeting for the building envelope. No matter whether it is used for cold or warm roofs, for façades, flashing or rainware, it is ideal for almost all requirements and 100% UV-resistant.
- **Areas of application:** Roofinox Dura 316L is ideal for use in rural, urban, and industrial environments. This applies also to marine environments, increased contamination with de-icing salt and for base or bottom of wall flashings. Depending on the area of use, a higher alloyed stainless steel may be necessary. Please ask us if you are uncertain, or if customers have specific requirements.
- **Surface specifics:** Roofinox Dura is a natural product, and with it comes the beauty of variation. The lively surfaces of Dura are characterized by an interplay of nuances - shades of colour and slight cloud or stripe effects - instead of a flat, monotone finish. There are process-related color fluctuations in electro-colouring, which are considered an inherent characteristic of the Dura line. The inhomogeneity in the alloy distribution and microstructure present in the metal prior to processing can yield deviations in the surface's appearance after the coloring process. This is not considered a material defect of the stainless steel substrate nor a malfunction of the electro-processing. Therefore, color deviations are to be expected, which must be taken into account when designing with and installing Roofinox Dura. Dura is supplied with a protective film on the A-side. The surface must be checked for possible errors right after delivery. Later notifications of defects can not be recognized. The marks applied on the protective film

Benefits

- Brilliant, vibrant colors(champagne, bronze, rose-gold, black)
- Matte colors (champagne, bronze, antique-gold and anthracite)
- The incomparable structure of the HFX stainless is retained
- HFX stainless remains corrosion-resistant, weatherproof and aging resistant
- Ideal machinability for use in the building envelope
- 100% UV-resistant
- No dyes or pigments are applied
- Long-term color reliability

must be properly observed during assembly and the foil must be removed immediately after processing. We point out that cut edges of any kind neither be trimmed on the front nor on the back. Therefore do not push or pull the sheets, but lift straight up, to avoid damage. Every sheet has one not colored approx. 25mm wide edge zone on one long side, where the sheet is clamped (e.g. for power supply). Take this into account when determining the usage formats and cutting.

- **Transport and storage:** Roofinox Dura must be transported and stored under flat, dry and ventilated conditions. Roofinox Dura is only available with a protective film.
- **Processing:** Roofinox Dura is ideal for cold forming (folding, rounding, and roll-forming). For processing, suitable tools should be used (ideally made of stainless steel) and machines should be set for use with stainless steel. Roofinox Dura can be processed at low temperatures.
- **Soldering:** In order to solder Roofinox Dura, the chromium oxide layer must first be removed mechanically. This is where the color effect goes lost, which cannot be restored on site. Use soldering fluid based on phosphoric acid without exception (e.g. Roofinox FLM). Flux can cause discoloration, so be sure to test it on an inconspicuous area and be careful with applying. Immediate cleaning with water (or from the manufacturer recommended cleaning agent) after the soldering process is also important. Our leaflet on soft soldering must be followed.

— **Passive layer:** When the alloying element chrome comes in contact with air or precipitation, Roofinox HFX stainless develops a passive layer which ensures that it does not rust. Should the process be disturbed, this is not a problem, as long as it is detected at an early stage. Simply remove the entire corrosive medium using cleaning agents recommended by us and rinse with fresh water. The passive layer will be restored within hours and the HFX stainless will be 100% intact with all its advantages. Optical deviations are not excluded.

— **Corrosion:** Technically speaking, corrosion is the reaction of a substance with its environment that causes a measurable change in the material. With HFX stainless, there are very few environmental influences that can lead to such a reaction. In normal use, there are 2 factors that can cause Roofinox HFX stainless to rust:

1. Extraneous rust: If iron particles come into contact with Roofinox HFX stainless - for example through abrasion by non-cleaned tools, rust film caused by abrasive cutting, water dripping from steel components etc. - and react with water, it will rust, but can nevertheless be easily restored (see "passive layer").

2. Chlorides, salts: If chlorides or de-icing salt used on the roads come into contact with Roofinox HFX stainless, it will also rust. If heavy contact with chlorides or de-icing salt is to be expected, then make sure you use HFX stainless with the alloy 316L or higher.

In both cases, the same applies if detected at an early stage, as described in "passive layer": clean thoroughly, rinse with fresh water and HFX stainless will be 100% intact. Optical deviations are not excluded.

— **Cleaning:** Usually the cleaning effect of rain will suffice. In more demanding cases you can spray Roofinox HFX stainless with water. If necessary, mild soapywater can be used. It is important not to use chloride-containing or abrasive cleaning agents. For special applications or specific requirements please contact our technical support so we can recommend the right cleaning agent. Steel wool, scouring pads etc. are not to be used.

— **Environmental Impact:** Long-term studies have shown that HFX stainless has no measurable metal removal or run-off. Roofinox Dura is thus ideal for domestic water use. There is also no adverse effect on the environment and damage to the microorganisms in the soil to be expected, which means that HFX stainless is ideal for use in drinking water protection areas and open waters.

Specific Data Roofinox Dura 316L

Material No.	1.4404 according to DIN 17441/EN 10 088-2							
Code names	D (DIN/EN)		X 5 CrNi 18-10					
	USA (AISI)		1.4404 / 316L					
Chemical composition (in % by weight)		C	Cr	Ni	Mn			
	min.	-	16,5	10,0	2,0			
	max.	0,03	16,5	13,0	2,5			
Mechanical properties (traverse samples) at room temp. to EN 10 088-2	Dimension range	Rp (0,2 % yield strength) N/mm ²		Rm (tensile strength) N/mm ²			A80 (elongation) %	
	Cold-rolled strip s ≤ 6 mm	≥ 240		530 bis 680			≥ 40	
Minimum properties at elevated temperatures	Temperature °C	100	150	200	250	300	350	
	Rp _{0,2} (0,2%-yield strength) N/mm ²	166	152	137	127	118	113	
Physical properties	Density kg/dm ³	Modulus of elasticity in kN/mm ² at			Thermal expansion in 10 ⁻⁶ K ⁻¹ between 20°C and 100°C			
	7,98	20°C		100°C		16,0		
		200		194				
	Thermal Conductivity at 20°C W/m.K	Specific heat capacity at 20°C J/kg.K		Electrical resistivity at 20°C Ω.mm ² /m			Magnetisability	
	15	500		0,75			not present ¹⁾	
	¹⁾ Roofinox Dura 316L can be slightly magnetic when quenched. The magnetizability increases with increasing strain hardening.							
Bending radius	180 degree = 0 t, 90 degree = 0 t							
Surface finish	Specifically brush-rolled and electro-colored surface in champagne, black, rose gold and bronze. Matte versions are available as well. Special design according to the stored sample. Process-specific color variations are possible.							
Edge finish	cut edges							
Delivery format	Cut sheets, foiled side is the A-side Edge zone of 25mm, which can optically not be used.							
Tolerances	Tolerances according to DIN EN 10259; if possible without or with little edge waviness, which has no influence on edging or profiling; low saturation							

Delivery Options	Dimensions	0,4 mm		0,5 mm		0,6 mm		0,8 mm		1,2 mm	
		Alloy	304	316L	304	316L	304	316L	304	316L	304
3 x 0,625 m sheet				•	•						
2 x 1 m sheet				•	•						
3 x 1,25 m sheet				•	•	•	•	•	•	•	•

• in stock • Orderable

Only available as sheets (max. 6 m), other dimensions possible on request

ROOFINOX®

Roofinox GmbH, Industriestrasse 11, A-6832 Sulz

T +43 5522-79040-0, F +43 5522-79040-15, info@roofinox.com, www.roofinox.com