



**FolaSal® –
premium surface quality
for your thin sheet products**

Organically coated sheet metal made by Salzgitter Flachstahl

FolaSal® is the brand that brand name products are made of

The high-performance material made by Salzgitter Flachstahl

Organically coated sheets are very important materials that have already established themselves in many sectors such as architecture, air conditioning and refrigeration technology and the household appliance industry. FolaSal® allows you to open up a whole world of possibilities for your company. You profit from first-class brand-name quality, a wide range of application options and excellent service.

FolaSal® is the brand name for organically coated steel sheet from Salzgitter Flachstahl. Sheets like these are in demand in all areas that call for aesthetics

in addition to long-term corrosion resistance. After all, good looks are just as important in garage doors as they are in steel furniture, household appliances and wall cladding, to name just a few examples.

Cold-rolled or zinc-coated sheet is coated with various paints or films, depending on the requirements for corrosion protection, formability, temperature resistance, color options, gloss and surface hardness. You can directly process this composite material and form it into the products you want - without any further painting whatsoever. The highest level of manufacturing precision is just as much a matter of course for us as are high availability and on-time delivery. You can count on FolaSal® - whether you're an engineer with the material in mind or a purchaser who's keeping an eye on profitability.

“We have provided this information in order to give you a first look into the world of FolaSal®.

If you would like to know more about 'organically coated flat-rolled steel' we would be happy to provide you with the brochure from the Stahl-Informations-Zentrum (Steel Information Centre).”

Salzgitter Flachstahl – A trusted partner

Salzgitter Flachstahl is the largest steel subsidiary within the Salzgitter Group. We use the most advanced, leading edge manufacturing technologies to produce high quality steel products. Continuous optimization of the process technologies ensures that we will also be meeting the highest quality standards in the future. When you work with our FolaSal® composite material you are working with more than just a good brand name product. You also profit from our company's many years of experience in the steel sector and customer proximity that proves itself every day.



A private home, a superstore or a football stadium

FolaSal® can be found everywhere

“References such as
the Tchibo Logistics Center in Bremen or
the airport in Munich substantiate our competence
as a partner in large projects.”

At first glance, it may seem that the wall cladding on a football stadium does not have much to do with a dishwasher or a computer housing. But if you look again, you'll see that what they have in common is FolaSal®: a composite material that is so versatile that you can employ it for a very wide range of uses. Salzgitter Flachstahl offers coated sheets in widths up to 1,850mm. This size also makes FolaSal® the ideal choice for large-area applications such as garage doors, roofs or facades.

And whether for a football coliseum or kitchen furniture: you can always make the best products with FolaSal®.



Some possible uses for FolaSal®

Inside buildings:

- Heating element panels
- Storage racks or shelves
- Steel furniture
- Lights
- Doors and doorframes
- Dividing walls
- Refrigerators
- Washing machines
- Air conditioners

Outside buildings:

- Balcony panels
- Roof profiles
- Downpipes
- Wall cladding
- Window profiles
- Garage doors
- Rain gutters
- Pipe insulation

Continuous quality and precision

in one of Europe's most modern plants

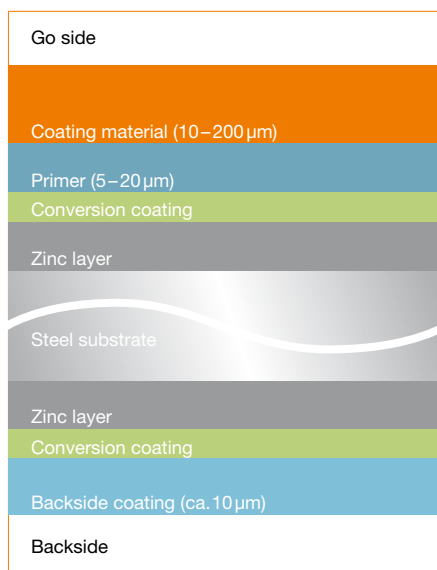
Our plant for the organic coating of steel sheets has been certified for the highest quality requirements. We have also introduced an environmental management system that satisfies ISO 14001:2005 requirements.

FolaSal® is a composite material consisting of a metallic substrate material (cold-rolled sheet or electrolytically or

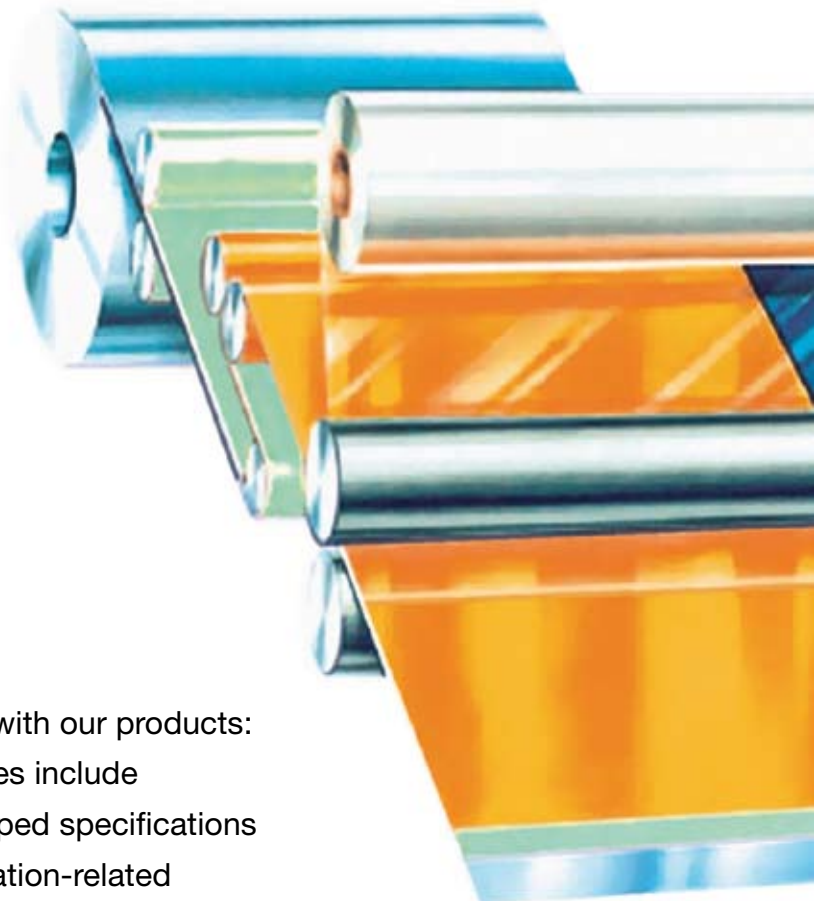
hot-dip zinc-coated sheet) that is cleaned and chemically treated in a continuous production step. The paint is subsequently applied to the strip by means of rollers and then cross-linked in the curing oven. These coatings can be made of synthetic resin baking paints or plastic dispersions. Coating with decorative films or protective films rounds out the product range.

An overview of the plant:

- max. processing speed 120m/min.
- Coil-exchange time 2 – 3 min.
- Capacity of the exit loop accumulator 300 m
- Producibile width up to 1,850 mm
- Strip width range 900 – 1,850 mm
- Strip thickness range 0.36 – 3.0 mm
- Coil weight max. 32 t
- Coil inner Ø 508 mm and 610 mm
- Capacity 20,000 t/month
- Comprehensive quality assurance system
- Certified to ISO 14001:2005



Schematic structure of FolaSal® (exemplary).



“We don't leave you on your own with our products: Our comprehensive services include samples and individually developed specifications as well as intensive application-related consultation.”

From scratch-resistant to flexible

Organic coating systems for every application

With regard to the material, it makes a big difference whether or not a building is exposed to ocean water, the high altitude sun or other climatic extremes. For inside use, products such as dishwashers, kitchen furniture or lamps also face a very wide range of challenges. Some objects must be especially scratch-resistant, while others must be resistant to cleaning agents and moisture, and some must be usable with food or offer a high level of gloss and reflection. Last but not least, the formability and compatibility with other materials naturally also play important roles when deciding which

coating system is best suited for which product. Consequently, Salzgitter Flachstahl offers paint and film coatings with customized properties for all core application areas. This includes coatings that have already proven themselves for many years, as well as innovative materials that have just recently made their breakthrough in the industry. Moreover, in the sense of further specialization, Salzgitter Flachstahl is also working intensively on developing new application fields. We would be happy to talk to you about your visions for the future!

FolaSal® is available with the following coatings:

Paints

- Polyester (interior and exterior use)
- Polyamide mod. polyester
- High durable polyester
- Polyamide modified high durable polyester
- Polyvinylidene fluoride
- Polyurethane
- Polyamide modified polyurethane
- Epoxides

Additional paint systems on request.

Films (only available on one side)

- Polyvinyl chloride film

Colaminates

- Paint + PET film

Detailed product sheets are available at
www.salzgitter-flachstahl.de



“Thanks to our many years of experience,
we know very precisely which coatings are best
suited for very specific products and application areas.
Profit from our know-how!”

The main thing: proper handling for the material

Optimal storage and processing of FolaSal®

FolaSal® allows you a great deal of freedom when processing the composite material into the most diverse products. However, because this is a finished surface that does not receive further processing, your success also depends on following a few basic rules for storage and processing.

For safe transport and optimal storage, our products can be delivered with protective films (self-adhesive protective films or polyethylene heat lamination film).

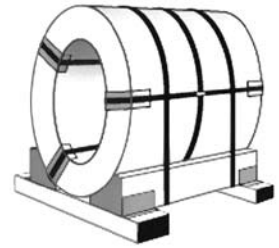
In order to clean the coil coating surfaces, we recommend that you use a mild cleaner whose composition is comparable to that of ordinary household cleaners and that does not contain any active chlorine or active oxygen components. After being cleaned, the surface must be rinsed thoroughly with clear water. Cleaning and disinfecting agents should only be used on intact surfaces.

Avoid using high-pressure cleaners. If steam blasters are used, temperatures are not permitted to exceed 50°C (around 120° F).

The basic rules for correct storage and processing:

- 1 Storage in dry areas on a clean base
- 2 Avoid excessive compressive stress, e.g., due to excessively high stacking; any pressure points will reform after some time or they can be remedied quickly by means of heating to a temperature greater than 60° C (140° F)
- 3 To uncoil, use a coiler with brakes
- 4 Use only clean and flawless tools (recommended: hard chromium-plated or polished)
- 5 During the forming, the object temperature should be at least 20° C (around 70° F); warming, e.g., by means of radiated heat, before processing has proven satisfactory
- 6 Separate lubrication is generally not necessary; never use products containing mineral oil
- 7 Avoid sudden forming if possible
- 8 Do not choose forming radii that are too small (as a rule, greater than 2 x the plate thickness is sufficient)
- 9 Corresponding paints are available for touch-up work
- 10 Plates or parts that have been given a protective film should not be exposed to high temperatures or intense solar or UV radiation. The protective film should not be left on the coated material for more than six months

Detailed information is contained in the already mentioned brochure from the Steel Information Centre.



“Are your general conditions suitable for the storage and processing the product calls for? If you are not sure, we would naturally be happy to help you.”

The entire range

An overview of our product range

“Feel free to discuss special wishes that are not included in the standard program with our team at any time.”

Pre-painted mild steel grades for cold forming according to DIN EN 10130

Steel grade	Steel grade no.	EN 10130	BS 1449/1	NF A 36/401	UNI 5866	JIS G 3141
DC01	1.0330	St 12 (FeP01)	CR 4	C	FeP01	SPCC
DC03	1.0347	St 13 (FeP03)	CR 3	E	FeP03	SPCD
DC04	1.0338	St 14 (FeP04)	CR 1	ES	FeP04	SPCEN
DC05	1.0312	St 15 (FeP05)	-	-	-	-
DC06	1.0873	IF 18 (FeP06)	-	-	-	-
DC07	-	-	-	-	-	-

Electro-zinc coated and pre-painted mild steel grades for cold forming according to DIN EN 10152

Steel grade	Steel grade no.		BS 1449/1	NFA 36/401	UNI 5866	JIS G 3141
DC01+ZE	1.0330		CR 4	C	FeP01	SPCC
DC03+ZE	1.0347		CR 3	E	FeP03	SPCD
DC04+ZE	1.0338		CR 1	ES	FeP04	SPCEN
DC05+ZE	1.0312		-	-	-	-
DC06+ZE	1.0873		-	-	-	-
DC07+ZE	-		-	-	-	-

Hot-dipped galvanised and pre-painted mild steel grades for cold forming according to DIN EN 10346

Steel grade	Steel grade no.		ASTM	BS 2989	NF A 36/421	UNI 5753
DX51D	1.0226		A 527 M	Z 2	GC	Fe P02 G
DX52D	1.0350		A 528 M	Z 3	GE	Fe P03 G
DX53D	1.0355		A 642 M	Z 5	GES	Fe P05 G
DX54D	1.0306		-	-	-	Fe P06 G
DX56D	1.0322		-	-	-	-
DX57D	1.0853		-	-	-	-

Hot-dipped galvanised, pre-painted structural steels for cold forming according to EN 10346

Steel grade	Steel grade no.		ASTM A 466 M	BS 2989	NF A 36-322	UNI 5783
S220GD	1.0241		-	-	-	-
S250GD	1.0242		Grade B	Z 25	C 250	Fe E250 G
S280GD	1.0244		Grade C	Z 28	C 280	Fe E280 G
S320GD	1.0250		-	-	C 320	Fe E320 G
S350GD	1.0529		Grade D	Z 35	C 350	Fe E350 G

Additional steel grades with organic coating upon request.

The entire range

An overview of our product range

Mechanical properties of our steel grades (carrier material) (transverse)

Pre-painted mild steel grades for cold forming according to DIN EN 10130 (longitudinal testing direction)

Steel grade	Yield strength $R_{eL}/R_{p0,2}$ MPa	Tensile strength R_m MPa	Fracture elongation A_{90} %	Vertical anisotropy r_{90}	Hardening exponent n_{90}
DC01	140 - 280	270 - 410	≥ 28	-	-
DC03	140 - 240	270 - 370	≥ 34	≥ 1.3	-
DC04	140 - 210	270 - 350	≥ 38	≥ 1.6	≥ 0.18
DC05	140 - 180	270 - 330	≥ 40	≥ 1.9	≥ 0.20
DC06	140 - 180	270 - 350	≥ 38	≥ 1.8	≥ 0.22
DC07	100 - 150	250 - 310	≥ 44	≥ 2.5	≥ 0.23

Please note: All given mechanical properties refer to the material before painting.

Electro-zinc coated and pre-painted mild steel grades for cold forming according to DIN EN 10152 (transversal testing direction)

Steel grade	Yield strength $R_{eL}/R_{p0,2}$ MPa	Tensile strength R_m MPa	Fracture elongation A_{90} %	Vertical anisotropy r_{90}	Hardening exponent n_{90}
DC01+ZE	140 - 280	270 - 410	≥ 28	-	-
DC03+ZE	140 - 240	270 - 370	≥ 34	≥ 1.3	-
DC04+ZE	140 - 220	270 - 350	≥ 37	≥ 1.6	≥ 0.16
DC05+ZE	120 - 190	270 - 330	≥ 39	≥ 1.9	≥ 0.19
DC06+ZE	120 - 190	270 - 350	≥ 37	≥ 1.8	≥ 0.20
DC07+ZE*	100 - 160	250 - 310	≥ 43	≥ 2.4	≥ 0.21

* target value

Please note: All given mechanical properties refer to the material before painting.

Hot-dipped galvanised and pre-painted mild steel grades for cold forming according to DIN EN 10327 (transversal testing direction)

Steel grade	Yield strength $R_{eL}/R_{p0,2}$	Tensile strength R_m	Fracture elongation A_{90}	Vertical anisotropy r_{90}	Hardening exponent n_{90}
DX51D	-	270 - 500	≥ 22	-	-
DX52D	140 - 300	270 - 420	≥ 26	-	-
DX53D	140 - 260	270 - 380	≥ 30	-	-
DX54D	140 - 220	270 - 350	≥ 36	≥ 1.6	≥ 0.18
DX56D	120 - 180	270 - 350	≥ 39	≥ 1.9	≥ 0.21
DX57D	120 - 170	260 - 350	≥ 41	≥ 2.1	≥ 0.21

Please note: All given mechanical properties refer to the material before painting.

The entire range

An overview of our product range

Surface coating systems

Coating system	Abbreviation	Standard total thickness
		µm
1.0 Paints		
Polyester	SP	25
Polyamide modified polyester	SP-PA	25 - 35
Epoxides	EP	10
Polyurethane	PUR	25 - 45
Polyamide modified polyurethane	PUR-PA	25 - 45
High-durable polymers	HDP	25 - 45
Polyamide mod. high durable polyester	HDP-PA	25 - 45
Polyvinylidene fluoride	PVDF	25 - 55
2.0 Foil coating		
Polyvinylchloride	PVC (F)	100 - 200
3.0 Colaminates		

Additional paint systems on request.

Surface protection

Self-adhesive or self-sticking protective foil

Self-adhesive protective film: 50 - 150 µm

Hot-lamination protective film: ≥ 120 µm

Size range

Thickness*	Width**	Coil outside diameter	Coil weight	Cross section
mm	mm	mm	t	mm ²
0.36 - 3.00	900 - 1,850	max. 2,100	max. 32.0	max. 3,000

* Thicknesses < 0.50 mm by arrangement ** Widths < 900 mm by arrangement

Coil inner diameter 610 mm (or 508 mm upon consultation).

