F40 - Granite® organic coated steels for outdoor building - specialised range

An original, aesthetic surface finish and very good flexibility are essential attributes for metal roof tile applications.

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Properties

This range of Granite® organic coated steels is designed for outdoor applications for the building market and comprises a number of speciality products. These products meet all the requirements of this market in terms of original surface finish and end-use properties.

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Advantages

Designed by ArcelorMittal for specific applications, the Granite® products in this range meet rigorous requirements in terms of aesthetic quality, flexibility, surface strength, chemical and UV resistance etc.

Various paints are applied to a metallic substrate as part of a continuous process, which ensures optimum adhesion of the coating and improved corrosion resistance of the steel.

A wide range of colours and different original surface finishes are proposed, depending on the end use envisaged.

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Applications

Granite® Flex, Granite® Deep Mat, Granite® Quartz, Granite® Storm and Granite® Impression Cloudy & Wood products have an original surface finish and very good flexibility, which is particularly recommended for metal roof tile applications. The surface appearance of these coatings can be smooth or grained (Granite® Flex, Granite® Impression Wood for some colours and patterns), structured and matt (Granite® Deep Mat, Granite® Quartz and Granite® Storm) or bicoloured (Granite® Impression Cloudy).

Granite® HFX Cool has been designed for constructing standing seam roofs in low temperatures, in the cold environments encountered in Northern and Eastern Europe.

Granite® Rain HDS and HDX, with a double-sided finish, are intended for rainwater systems such as gutters, drainpipes and accessories.

Granite® Tex has a strong, textured surface highly suitable for applications such as switch boxes and air conditioning units.

Granite® Farm has been specially designed for the internal surfaces of cladding and roofing to be used in ventilated agricultural buildings for cattle, poultry, grain storage etc.

Granite® PVDF is dedicated to cladding and roofing applications for architectural buildings or buildings exposed to harsh environments where good coating stability is required.

Automatic guarantees can be granted for Granite® range products used in exterior cladding or exterior roofing of buildings located in Europe.

For information on the Automatic Guarantee: industry.arcelormittal.com/construction/buildingguarantees

Name	Main properties	Surface appearance	Applications
Granite® Flex	Very good flexibility, suitable for deep drawing	Smooth or grained	Applications requiring a very high level of steel formability: tiles, HVAC equipment
Granite® Deep Mat 35 µm & 40 µm	Aesthetic quality: deep matt, wrinkled appearance, very good formability, good UV resistance	Wrinkled	Tiles, cladding
Granite® Storm	Nice aesthetic appearance (matt and wrinkled), very good formability, excellent corrosion resistance		
Granite® Quartz	Unique crystalline mineral appearance with light-reflecting properties, very good formability, scratch resistance		
Granite® Impression Cloudy	Aesthetic quality and design (contrasted appearance), very good flexibility, suitable for deep drawing, very good UV resistance	Bicoloured, cloudy	Tiles
Granite® Impression Wood	Aesthetic quality and design, good colour and stability of appearance, good corrosion resistance	Wood pattern. Smooth (grained appearance possible only for some colours and patterns)	Cladding. Note: Granite® Impression Wood cannot be used for garage doors
Granite® HFX Cool	Good formability at low temperature down to -10°C, excellent corrosion resistance, very good UV resistance	Grained	Standing seam roofs, accessories
Granite® Rain HDS	Very good formability, very good corrosion resistance, very good UV resistance		Rainwater systems (gutters, drainpipes, accessories)
Granite® Rain HDX	Formable at low temperature, very good formability, excellent corrosion resistance, very good UV resistance		
Granite® Tex	Very good abrasion resistance, very good compromise flexibility/surface hardness, very good formability, good UV resistance	Textured	Switch boxes, air conditioning units, street furniture
Granite® Farm	For the inner surface: very good chemical resistance in a rural environment (farming). For the outer surface, please select an organic coated steel suited to the environment.	Smooth	Roofing, cladding for agricultural buildings
Granite® PVDF 25 & 35 µm	Very good UV resistance (stability of colour and surface appearance) and temperature resistance, excellent chemical resistance, very good corrosion resistance		Roofing, cladding for architectural buildings or buildings exposed to an aggressive environment

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Recommendations for use

These Granite® products can be processed by cold forming and deep drawing without damaging the top surface. They can be joined using techniques such as clinching, riveting and adhesive bonding.

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Technical properties

These organic coated steel products are used for their wide range of technical properties, which depend on the chemical composition and thickness of the paint, the appearance of the coating and the type of substrate. This range of organic coated steels includes a suitable product for every application. The choice of the paint system depends on the technical requirements during processing and specific end use in terms of flexibility, UV, corrosion, abrasion and chemical resistance. Products used to make tiles are thus designed to enable very deep drawing, without damaging the coating. Being very flexible, they can withstand small profiling or drawing radii.

The substrates used for these applications are galvanised steel or galfan. The choice depends on the end use and the required corrosion resistance.

A temporary removable protective film can be applied on the top side of some products in this range (except for wrinkled surfaces).

The technical properties are summarised in the table below. Please contact us for advice on the choice of the most suitable grade for your application.

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Standards

These products are in compliance with standard EN 10169.

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Mechanical properties

These products are available with a wide range of mechanical properties, depending on the substrate used and the intended application. See properties of the different substrates.

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Brand correspondence

Granite® Flex
Granite® Deep Mat 35 µm
Granite® Deep Mat 40 µm
Granite® Storm
Granite® Quartz
Granite® Impression Cloudy
Granite® Impression Wood
Granite® HFX Cool
Granite® Rain HDS
Granite® Rain HDX
Granite® Tex
Granite® Farm
Granite® PVDF 25 µm
Granite® PVDF 35 µm

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Dimensions

Thickness (mm)	Min width	Granite® Flex, Granite® Deep Mat 35 µm, Granite® Deep Mat 40 µm, Granite® Storm, Granite® Quartz, Granite® Impression Cloudy, Granite® Impression Wood, Granite® HFX Cool, Granite® Rain HDS, Granite® Rain HDX, Granite® Tex, Granite® Farm, Granite® PVDF 25 µm, Granite® PVDF 35 µm
		Max width
0.20 ≤ th < 2.00	700	1850

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Coating properties

The following table lists the guaranteed properties of the coating applied to a galvanised steel substrate with a zinc coating of minimum 225 g/m^2 or 275 g/m^2 depending on the product, or an equivalent weight of galfan (200 g/m^2 or 255 g/m^2, depending on the product).

	Granite® Flex	Granite® Deep Mat 35 µm	Granite® Deep Mat 40 µm	Granite® Storm	Granite® Quartz	Granite® Impression Cloudy	Granite® Impression Wood
Thickness	25 µm	35 µm	40 µm	50 µm	45 µm	35 µm	35 µm
Gloss (Gardner 60°)	10 - 80 GU	Maximum 5 GU	Maximum 5 GU	Maximum 5 GU	Maximum 6 GU	5 GU: Anticato Dark, Anticato Light; 20 GU: Terracotta	5, 20 or 30 GU depending on the colour
Surface appearance	Smooth or grained	Wrinkled	Wrinkled	Wrinkled	Wrinkled	Cloudy effect	Smooth (grained appearance possible only for some colours and patterns)
Adhesion of the coating (T-bend)	≤ 0.5 T	≤ 1 T	≤ 1 T	≤ 1 T	≤ 1 T	≤ 0.5 T	≤ 1 T
Resistance to cracking on bending (T-bend)	≤ 1 T	≤ 2 T	≤ 2 T	≤ 2 T	≤ 2 T	≤ 1 T	≤ 2 T
Condensation resistance (QCT)	1000 hours	1000 hours	1500 hours	1500 hours	1500 hours	1000 hours	1000 hours
UV resistance (QUV (UVA + H_2O) test (2000 hours))	Gloss retention ≥ 30%; Δ E ≤ 5	Gloss retention ≥ 60%; Δ E ≤ 3	Gloss retention ≥ 60%; Δ E ≤ 3	Gloss retention ≥ 80%; Δ E ≤ 2	Gloss retention ≥ 80%; Δ E ≤ 2		
Resistance to acids and bases	Good to very good	Good	Good	Good	Good	Good to very good	Good to very good
Resistance to aliphatic and alcoholic solvents	Very good	Very good	Very good	Very good	Very good	Very good	Very good
Resistance to ketone solvents	Low	Low	Low	Low	Low	Low	Low
Resistance to aromatic solvents	Good	Good to very good	Good to very good	Good to very good	Good to very good	Good to very good	Good to very good
Resistance to mineral oils	Very good	Good to very good	Good to very good	Good to very good	Good to very good	Very good	Very good
Corrosion resistance (salt spray test)	360 hours	360 hours	500 hours	700 hours	360 hours	360 hours	360 hours
UV resistance category	RUV2	RUV3	RUV3	RUV4	RUV4	RUV4	RUV4
Corrosion resistance category	RC3	RC3	RC4	RC5	RC4	RC3	RC3
Minimum zinc coating	Z225	Z225, ZA200	Z225, ZA200	Z275	Z275	Z225	Z225
Scratch resistance (Clemen)	≥ 2 kg	≥ 1.5 kg	≥ 1.5 kg	≥ 2.5 kg	≥ 2 kg	≥ 2 kg	≥ 2 kg

	Granite® HFX Cool	Granite® Rain HDS	Granite® Rain HDX	Granite® Tex	Granite® Farm	Granite® PVDF 25 µm	Granite® PVDF 35 µm
Thickness	Satin: 55 µm; matt: 40 µm	35 µm	55 µm	35 µm	35 µm	25 µm	35 µm
Gloss (Gardner 60°)	Satin: 40 GU; matt: maximum 10 GU	30 or 40 GU depending on the colour	30 or 40 GU depending on the colour	30 - 50 GU	30 GU	30 GU	30 GU
Surface appearance	Grained	Grained	Grained	Textured	Smooth	Smooth	Smooth
Adhesion of the coating (T-bend)	≤ 1 T at 20°C, ≤ 1 T at 10°C, ≤ 1.5 T at 0°C	≤ 1 T	≤ 1 T	≤ 0.5 T	≤ 1 T	≤ 1 T	≤ 1 T
Resistance to cracking on bending (T-bend)	≤ 1 T at 20°C, ≤ 3.5 T at 10°C, ≤ 3.5 T at 0°C	≤ 2 T	≤ 0.5 T	≤ 1 T	≤ 2 T	≤ 2 T	≤ 2 T
Condensation resistance (QCT)	1500 hours	1500 hours	1500 hours	1000 hours	1500 hours	1000 hours	1500 hours
UV resistance (QUV (UVA + H_2O) test (2000 hours))	Gloss retention ≥ 60%; Δ E ≤ 3	Gloss retention ≥ 80%; Δ E ≤ 2	Gloss retention ≥ 80%; Δ E ≤ 2	Gloss retention ≥ 60%; Δ E ≤ 3		Gloss retention ≥ 80%; Δ E ≤ 2	Gloss retention ≥ 80%; Δ E ≤ 2
Resistance to acids and bases	Good to very good	Good to very good	Good to very good	Good to very good	Good to very good	Good to very good	Very good
Resistance to aliphatic and alcoholic solvents	Very good	Very good	Very good	Very good	Very good	Very good	Excellent
Resistance to ketone solvents	Low	Low	Low	Low	Very good	Good	Very good
Resistance to aromatic solvents	Good to very good	Good to very good	Good to very good	Good	Very good	Good to very good	Very good
Resistance to mineral oils	Very good	Very good	Very good	Very good	Very good	Very good	Excellent
Corrosion resistance (salt spray test)	700 hours	500 hours	700 hours	360 hours	360 hours	360 hours	500 hours
UV resistance category	RUV3	RUV4	RUV4	RUV3		RUV4	RUV4
Corrosion resistance category	RC5	RC4	RC5	RC3	CPI4	RC3	RC4
Minimum zinc coating	Z275	Z275	Z275	Z225	Z275, ZA255	Z225, ZA200	Z225, ZA200
Scratch resistance (Clemen)	≥ 3 kg	≥ 2 kg	≥ 2 kg	≥ 3 kg		≥ 2 kg	≥ 2 kg

Any questions?
Ask them via our contact form on https://industry.arcelormittal.com/getintouch