ArcelorMittal

Granite® HDXtreme

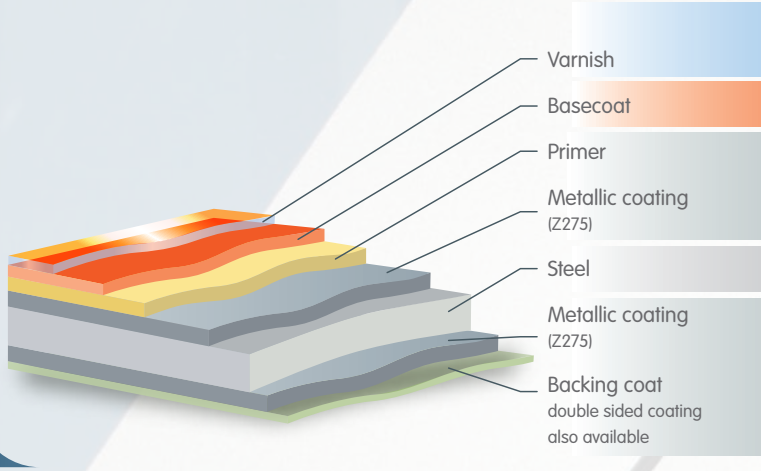
Extremely beautiful, extremely durable

Granite® HDXtreme combines best-in-class

Granite® HDXtreme is a uniquely beautiful, resilient, and sustainable pre-painted steel for outdoor and indoor applications. It combines best-in-class UV and corrosion protection with durability and a large colour palette to make any building unique.

Granite® HDXtreme is the best-in-class organic coated steel on the market. It is composed of several paint layers which provide a coating of 70 to 75 µm depending on the chosen finish.

Granite® HDXtreme has been developed to ensure a long durability performance in very severe environments including sea side, with a unique range of colours, aspects, and gloss.



Each layer performs a different but integral function. The layers include:

- A thick varnish which increases the durability of the coating, its surface robustness, and UV weathering performance.
- A basecoat which provides the colour and offers much better durability compared to classical coatings.
- A thick primer layer which plays a key role in corrosion protection. This layer ensures the top coat adheres strongly to the underlying metallic-coated steel.
- Granite® HDXtreme is available on a galvanised (Z) steel. The coating weight is 275 g/m^2.
- A back coat which is chosen based on the end use for the coated steel. The back coat protects the steel substrate from corrosion and mechanical damage while providing a surface suitable for foam adhesion (if required by the final application).

ArcelorMittal Gent Indi building
Cassettes made of Granite® HDXtreme
(Real building picture with blue and red colours added for the purpose of this brochure)

UV and corrosion protection

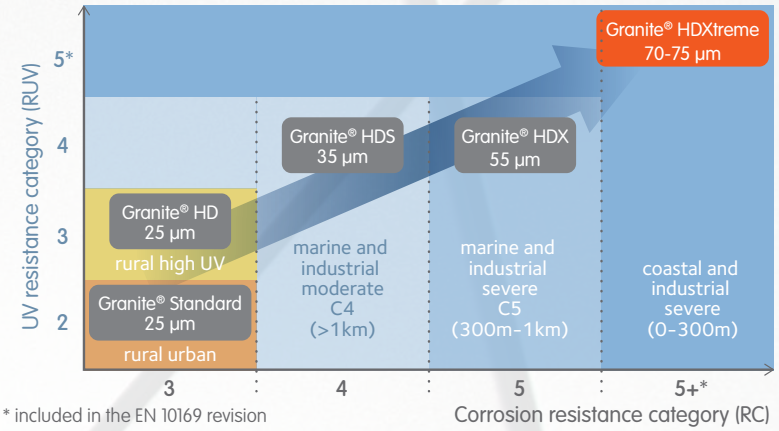
grained, sparkling & matt finishes
durability & surface robustness

colour & UV resistance

protection against corrosion

structural behaviour (including high strength)

protection against corrosion



Requirements for natural outdoor corrosion resistance tests (Extract from revised EN 10169)

Corrosion resistance category	Test duration (years)	Average edge delamination (mm)
RC2	1	≤ 10
RC3	2	≤ 5
RC4	2	≤ 2
RC5	2	≤ 2
RC5+	4	≤ 2

ArcelorMittal's weathering site in Brest (France) is managed by the French Institute of Corrosion
© ArcelorMittal

The most durable coating for construction

Granite® HDXtreme offers best-in-class corrosion resistance. This has been fully tested by ArcelorMittal's Global R&D experts under extreme corrosion and weathering conditions. Tests have been conducted both in the laboratory, and at outdoor exposure sites across the world.

ArcelorMittal expects Granite® HDXtreme to be classified RC5+ when the new version of the EN 10169 standard for organic coated steels will be released. Granite® HDXtreme will ensure the durability and sustainability of constructions, even in close proximity to the sea.

Tested with accelerated corrosion tests and natural weathering

A battery of corrosion tests has been conducted in ArcelorMittal's laboratories to predict the behaviour of Granite® HDXtreme in different environments. This includes coastal and very humid locations. Tests performed include salt spray tests (SST) and condensation resistance tests (QCT).

Specific tests which imitate the effect of acid rain and chemicals have also been conducted. The tests also evaluated the ability of corrosion inhibitors in the Granite® HDXtreme coating to block anodic and cathodic reactions on edges and scribes. Permeability resistance and the effectiveness of the topcoat as a barrier to corrosion have also been evaluated.

Although they are a good guide to the behaviour of the product in-use, accelerated laboratory tests do not fully represent real-life conditions in all environments. For this reason, ArcelorMittal is also carrying permanent natural weathering tests in a range of locations around the world.

Three different aesthetics – over 50 colours!

Granite® HDXtreme is available in three different aesthetic finishes:

Satin (X): a grained satin finish available in either 15 or 30 gloss units (GU) on a 75 µm coating.

Matt (M): a fine wrinkle finish on a 70 µm coating.
The Matt finish has a gloss of less than 10 GU.

Sparkling (S): a unique grained and metallic finish on a 75 µm coating.
The Sparkling finish has a gloss of 30 GU.

Physical samples can be obtained on request.

Link to order samples

The full Granite® palette is available in the Satin (X) finish.

All the colours available in Solano® Nature have also been included. A selection of colours, chosen by leading designers and architects, have been made available in the Matt (M) and Sparkling (S) finishes. More colours may be added later or on demand.

An example of the three distinct finishes in the same colour (Jet Black):

Satin colours 'X'

75 µm, (15/30 GU), grained

Category 1: Classic light

Cream
G901X

Grey white
G902X

Pure white
G910X

Traffic white
G916X

Blanco pirineo
G961X

Category 2: Classic medium

Light ivory
G115X

Crema bidasoa
G122X

Pebble grey
G732X

Light grey
G735X

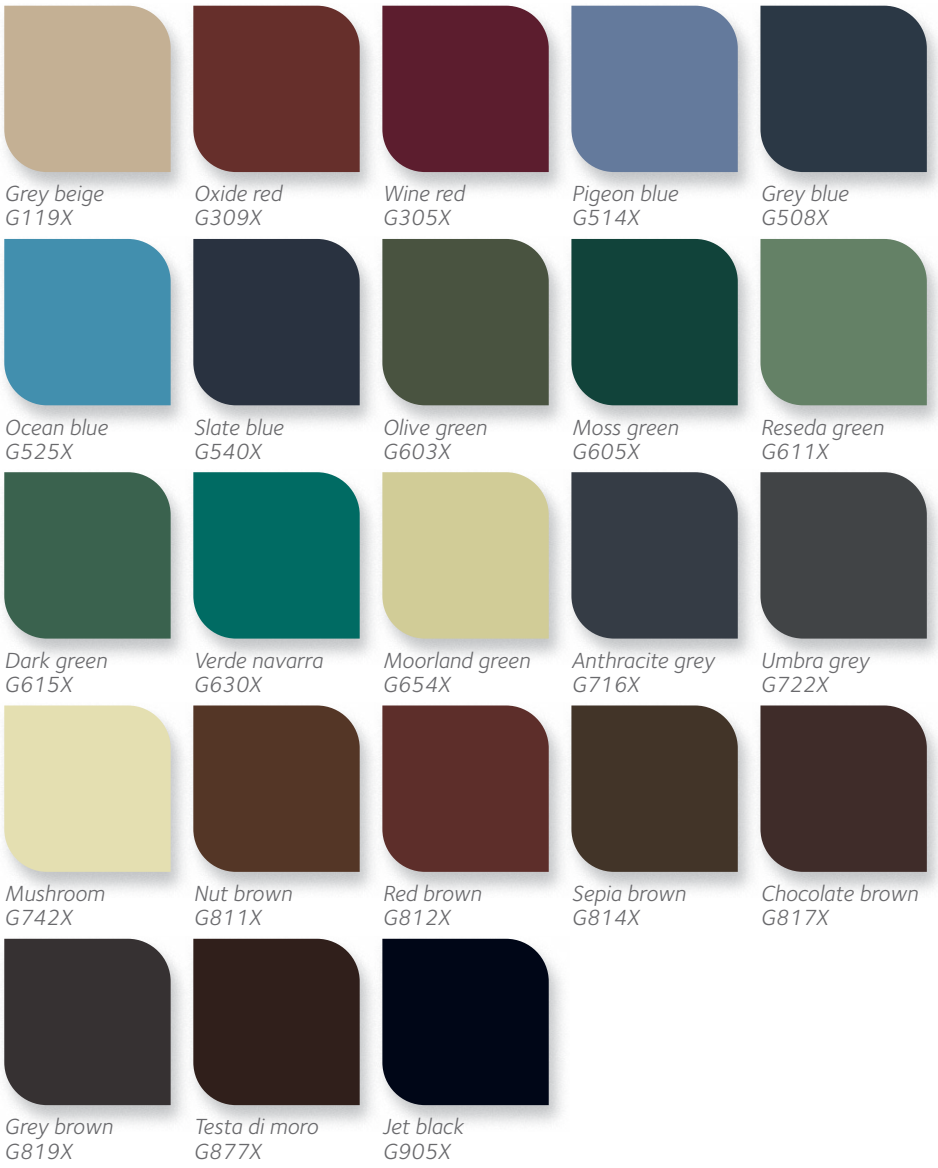
Silk grey
G751X

Goosewing grey
G795X

Merlin grey
G796X

Bianco grigio
G973X

Category 3: Classic dark



Grey beige G119X
Oxide red G309X
Wine red G305X
Pigeon blue G514X
Grey blue G508X
Ocean blue G525X
Slate blue G540X
Olive green G603X
Moss green G605X
Reseda green G611X
Dark green G615X
Verde navarra G630X
Moorland green G654X
Anthracite grey G716X
Umbra grey G722X
Mushroom G742X
Nut brown G811X
Red brown G812X
Sepia brown G814X
Chocolate brown G817X
Grey brown G819X
Testa di moro G877X
Jet black G905X

Category 4: Magic saturated

Sand yellow G102X
Ultramarine blue G502X
Gentian blue G510X
Flame red G300X
Brown red G311X
Mint green G629X
Van dyke brown G710X
Copper brown G804X
Copper beech G870X
Rojo teja G871X

Category 5: Magic metallised

White aluminium G906X
Grey aluminium G907X

Matt colours 'M'

70 µm, (< 10 GU), fine wrinkle

Pure white G910M (Cat.1)
Chocolate brown G817M (Cat.3)
Grey blue G508M (Cat.3)
Jet black G905M (Cat.3)

Sparkling colours 'S'

75 µm, (30 GU), grained

Pure white G910S (Cat.5)
White aluminium G906S (Cat.5)
Grey aluminium G907S (Cat.5)
Grey blue G508S (Cat.5)
Jet black G905S (Cat.5)

All colours from the Solano® Nature palette are available for Granite® HDXtreme

UV weathering resistance

Granite® HDXtreme will be rated RUV5 under the new version of EN 10169. This is highest UV resistance category in the standard. It indicates that the paint system will maintain its colour and gloss over time.

To understand how Granite® HDXtreme resists UV corrosion in a variety of environments, the pre-painted steel has been subjected to a battery of accelerated tests in our laboratories. UV weathering resistance is evaluated by exposing a pre-painted sample of Granite® HDXtreme to accelerated UV, humidity, and temperature variations for 4,000 hours.

The accelerated tests are complemented by natural outdoor exposure tests which have been carried out at locations around the world.

UV resistance testing requirements in natural and artificial conditions (Extract from revised EN 10169)

	UV resistance category			
Requirements	RUV2	RUV3	RUV4	RUV5
Test duration, natural exposure (years)	2	2	2	4
Test duration, artificial UV radiation (hours)	2000	2000	2000	4000
Maximum colour change ΔE before and after the test (CIELab units)	5	3	3 2	3 2
Minimum retained gloss after the test (RG), %	30	50 60	80	80

Sustainability

Like the full Granite® product range, the long life of Granite® HDXtreme will be beneficial throughout the lifecycle of a building. And when the steel reaches the end of its useful life, it is 100 percent recyclable.

Granite® HDXtreme can be combined with ArcelorMittal's high strength steels (HSS) so architects and designers can reduce steel thickness and create lighter structures. This also helps to lower the carbon footprint of the structure.

ArcelorMittal has published an Environmental Product Declaration (EPD) for the entire Granite® range.

link to Granite® EPD on our website

Automatic guarantees for Europe

With more than 50 years of experience in Europe, ArcelorMittal has had the opportunity to analyse how our products behave in different regions and climatic conditions. Our organic coated steels have become the benchmark for pre-painted metals in terms of quality, durability, and sustainability. Architects, building owners, and contractors can be sure they are specifying the right product for their projects when they select an ArcelorMittal pre-painted steel. And like the Granite® range, they come with a full guarantee.

Up to 40 years automatic guarantee

Granite® HDXtreme is guaranteed in all types of areas in Europe. The Satin (X) and Matt (M) colour series can even be used in highly corrosive seafront locations less than 300 metres from the water. This makes Granite® HDXtreme the universal answer for all projects, whatever the environment.

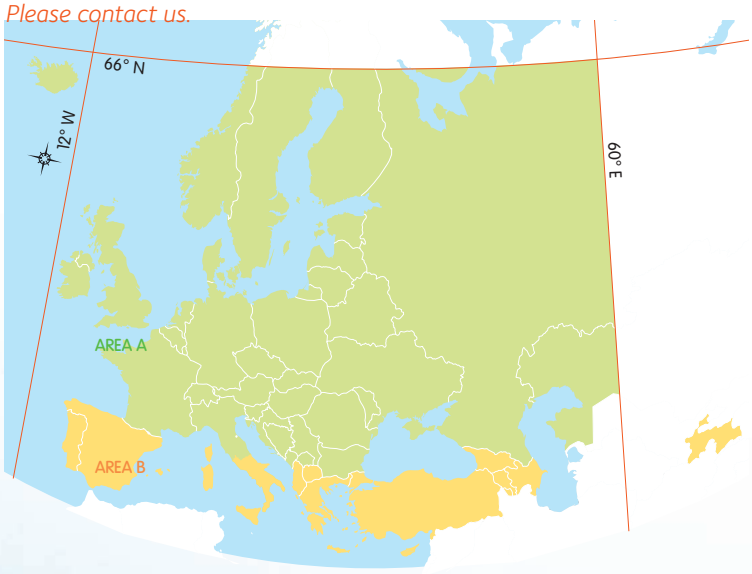
The guarantee is automatic in Europe. As a direct customer, you are automatically covered when you buy Granite® HDXtreme. There is no need to register or complete a questionnaire. That gives you assurance that all your projects are systematically protected.

The Granite® HDXtreme guarantee covers:

- Non-perforation of the sheet metal and non-delamination of the paint film
- Aesthetic properties such as gloss and colour
- Edge peel guarantee included
- Installation of solar (PV or thermal) modules on the roof.

ArcelorMittal's guarantee has the same duration, regardless of whether the Granite® HDXtreme is used for roofing or facades.

The guarantee can be granted Worldwide on request.
Please contact us.



AREA A - Northern Europe:
Below 66° north parallel
East of 12° west longitude
West of 60° east longitude
** Guarantee extended to Iceland*

AREA B - Southern Europe:
Portugal, Spain, Corsica, Albania, Greece, Republic of Macedonia
The southern part of Italy (the Lazio and Abruzzo regions and below)
** Guarantee extended to Armenia, Azerbaijan, Georgia, Tajikistan and Turkey*

Applications

Granite® HDXtreme is usually recommended for roofing and cladding applications made from sandwich panels or profiled sheets. It is also suitable for the manufacture of flashings and accessories, cassettes, flat panels, doors, solar shading, fins, blades, and narrow elements.

Sandwich panels
Composite panels for insulated roofs and facades

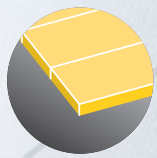
Profiled sheets
Panels or sheets with curved or trapezoidal profiles

Cassettes and flat panels
Cassette panels systems for metal support systems and other flat panel types

Solar shading
Brise-soleil and other solar shading system components

Fins, blades and narrow elements
Specially formed narrow elements for a range of applications

Tile panels
Profiled and stamped panels replicating traditional roof tile shapes



Decking
Formed profiles for short, medium and long-span decking

Porsche Centrum Groningen
Architect: VBJ Architecten
Photographer: ©Mark Sekuur

The best alternative to plastisol

Granite® HDXtreme Matt series offers much better performance for roofs than plastisol paints made with PVC. Its UV and fire resistance are much better, as it is also for the environment.

Surface properties	Plastisol 200 µm	Granite® HDXtreme Matt series 70 µm
Scratch resistance	⊖	⊕
Self-healing	⊕	⊕
Anti-slip resistance	⊖	⊕

Back coat recommendations

The coating on the reverse side of the steel must be properly selected to suit the application. At a minimum, ArcelorMittal recommends you use BFP12. This 12 µm back coat offers adequate protection against corrosion for most construction elements. The following table has specific recommendations for different environments and construction applications:

Environment	Construction component	BOTTOM side selection TOP / **BOTTOM**
Outdoor environment	Sandwich panel roofs and facades (C2 to C5)	Granite® HDXtreme / **BFP12**
	Roofing, cladding profiles, roofing tiles and cassettes (C2, C3, C4)	Granite® HDXtreme / **Access® A, Estetic® Flex**
	Roofing or cladding profiles (C5)	Granite® HDXtreme / **Estetic® Standard Granite® Standard, Granite® Flex**
	Cassettes and blades (C5) ≥ 1 mm	Environmental questionnaire
Indoor ambiances	Roofing or cladding single skin profile & sheet with aggressive indoor ambiance (A4, A5)	Granite® HDXtreme / **Granite® HDXtreme**
	Liner with aggressive indoor ambiance (A4, A5)	Granite® HDXtreme / **BFP12**

Solar energy-generation systems (photovoltaic and thermal)

Granite® HDXtreme can support solar panels over the entire life of the photovoltaic (PV) or thermal system. The coating can withstand dead and climatic loads as well as the effects of corrosion and UV over time. After some years, the Granite® HDXtreme guarantee is not affected if a solar module is installed on a roof, as long as the work is carried out by a fully qualified professional.

Main technical features and performance

Description	Organic coating thickness [1]	Matt 70µm, Satin and Sparkling 75µm
	Steel thickness	0.30 to 1.8 mm
	Steel width	660 to 1500 mm (above upon request) Slit coils and sheets are available from leading steel service centres. Contact us for any request.
	Colours & appearance	Colour palette Satin (15 and 30 GU) grained, Matt (<10 GU) fine wrinkle, Sparkling (30 GU) grained.
Performance	Adhesion of the coating (T-bend)	≤ 1 T
	Resistance to cracking on bending (T-bend)	≤ 1.5 T
	Impact resistance	18 J
	Clemen scratch resistance	≥ 3.5 kg
	Corrosion resistance: • Salt spray test (SST) • Corrosion resistance category	 1000 hours RC5+ (provisional, EN10169 revision)
	Corrosion protection (interior) category	CPI4
	UV resistance: • QUV (UVA + H_2O) test (2000 hours) • UV resistance category	 ΔE ≤ 2; GR ≥ 80% RUV5 (EN 10169 revision)
	Condensation resistance (QCT)	1500 hours
	Fire behaviour classification (EN 13501-1)	A2
Remarks	These performance characteristics refer specifically to metal coating Z275 (guaranteed minimum). If any product (film, oil, foam, glue, paint etc) is to be applied after coil delivery, compatibility with the coating needs to be checked first. Although we take great care to reproduce the same aesthetic aspect on each coil, ArcelorMittal cannot guarantee the visual consistency from one batch to another. Consequently, you need to consider placing one single order for one building.	

(1) Nominal value, tolerance according to EN 10169

Steel Advisor
Find the right steel products

Find out more

For the full information on Granite®, visit the website page at
industry.arcelormittal.com/granite
constructalia.arcelormittal.com
Or contact your local account manager or technical representative.

Credits

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PR-BR-HDXT-EN – 6/2021 – Published by ArcelorMittal Europe Communications