

hda ATG Technical Approval with Certification

Approval and Certification Body



Roofs - Metallic roof tiles

**METROTILE® BOND,
METROTILE® ROMAN,
METROTILE® CLASSIC,
METROTILE® SHAKE,
METROTILE® WOODSHAKE,
METROTILE® SHINGLE,
METROTILE® VIKSEN,
METROTILE® MISTRAL,
METROTILE® ROMANA,
METROTILE® GALLO,
METROTILE® BOND PRESTIGE,
METROTILE® MISTRAL PRESTIGE**

Valid from 09/05/2016
until 08/05/2021



Belgian Construction Certification Association
Rue d'Arlon 53 B-1040 Brussels
www.bcca.be - info@bcca.be

Approval holder:

METROTILE EUROPE nv
Michielenweg, 3
B-3700 Tongeren
Tel. : +32 12 24 18 01
Fax : +32 12 24 18 02
Website: www.metrotile.eu
E-mail: info@metrotile.eu

1 Objective and scope of the technical approval

This Technical Approval is based on the favourable evaluation of the system (as described above) by an independent Approval Body designated by UBAtc, BCCA, for the application mentioned in this Technical Approval.

The Technical Approval serves as a record of the approval inspection. This inspection consists of the following: identification of relevant properties of the system for the intended application, laying/installation method, system design and reliability of production.

The Technical Approval provides a high level of reliability, based on the statistical interpretation of inspection results, regular monitoring, adjustments in order to keep abreast of the latest technical developments and quality monitoring by the Approval Holder.

In order to retain the Technical Approval, the Approval Holder must continuously provide evidence that he is taking all necessary steps to demonstrate that the system is suitable for use. In order to do so, it is vital that the conformity of the system with the Technical Approval is monitored. This monitoring is entrusted by the UBAtc to an independent Certification Body known as BCCA.

The Approval Holder is required to adhere to the inspection results described in the Technical Approval if they make information available to third parties. The UBAtc or Certification Body may take any steps that become appropriate if the Approval Holder fails to do so (to a sufficient extent) of his own accord.

The Technical Approval and certification for conformity of the system to the Technical Approval are independent of tasks conducted individually. The contractor and/or architect remain fully responsible for the conformity of the completed work with the provisions contained in the specifications.

The Technical Approval is not concerned, except in specifically included provisions, with on-site safety, health aspects and the sustainable use of raw materials. As a result, the UBAtc shall not be responsible, under any circumstances, for any damage caused by the failure of the Approval Holder, contractor(s) and/or architect to respect provisions relating to on-site safety, health aspects and the sustainable use of raw materials.

Note: in this Technical Approval, the word "contractor" will always be used, when referring to the entity that completes the work. This word has the same meaning as other frequently used words, such as "operator", "installer" and "fitter".

2 Description

This approval relates to the construction of a sloping roof system, with a covering consisting of metallic tiles created by stamping and/or punching metal sheets, which have a finish coating - at least on their exposed side.

The metallic tiles described in this approval include the following products:

- METROTILE® BOND,
- METROTILE® ROMAN,
- METROTILE® CLASSIC,
- METROTILE® SHAKE,
- METROTILE® WOODSHAKE,
- METROTILE® SHINGLE,
- METROTILE® VIKSEN,
- METROTILE® MISTRAL,
- METROTILE® ROMANA,
- METROTILE® GALLO,
- METROTILE® BOND PRESTIGE,
- METROTILE® MISTRAL PRESTIGE.

The metallic roof tiles are subject to product certification, according to the applicable ATG certification regulation. This certification procedure takes the form of continuous production monitoring by the manufacturer, which is complemented by a regular external monitoring conducted by the certification body designated by UBAtc asbl.

In addition, the approval of the entire system is based on the use of auxiliary products. The certificate of conformity with the performance and identification criteria indicated in § 3.2 makes it possible to guarantee the qualities of the latter.

The area of application for the roof systems is indicated in Table 1 (fire behaviour), Table 2 (climate classes, in which the metallic tiles can be used) and Table 3 (permitted roof slopes).

This technical approval with certification relates to the metallic tile itself, including the laying technique, but not the quality of execution.

Table 1 – Area of application for the roof system, according to the Royal Decree of 19/12/1997, which defines basic standards for the prevention of fire and explosion that must be met by new buildings, including the amendments described in the Royal Decree of 04/04/2003, the Royal Decree of 01/03/2009 and the Royal Decree of 12/07/2012

Metallic tile model	Buildings, to which the Royal Decree...	
	applies ⁽²⁾	does not apply
METROTILE® BOND	valid	1. Single-family houses 2. Buildings ≤ 100 m ² and max. 2 levels
METROTILE® ROMAN	valid	valid
METROTILE® CLASSIC	valid	valid
METROTILE® SHAKE	valid	valid
METROTILE® WOODSHAKE	valid	valid
METROTILE® SHINGLE	valid	valid
METROTILE® VIKSEN	valid	valid
METROTILE® MISTRAL	valid	valid
METROTILE® ROMANA	valid	valid
METROTILE® GALLO	valid	valid
METROTILE® BOND PRESTIGE	valid	valid
METROTILE® MISTRAL PRESTIGE	valid	valid
(1):	Building types are defined in the Royal Decree of 19/12/1997, the Royal Decree of 01/03/2009 and the Royal Decree of 12/07/2012.	
(2):	The roof systems either: <ul style="list-style-type: none"> - Meet Class B_{ROOF}(f1) according to NBN EN 13501 part 5; - Use metallic tiles, as a covering, which meet the specifications described in Commission Decision 2000/553/EC and are manufactured from steel sheets with a nominal thickness of ≥ 0.4 mm and an external coating that is inorganic or has a gross calorific value of ≤ 4.0 MJ/m² or an area density of ≤ 200 g/m²; - Use metallic tiles, as a covering, which comply with Commission Decision 2005/403/EC and, in other words, are manufactured from steel sheets, pre-lacquered with a metal thickness ≥ 0.40 mm, an external organic coating (exposed side) and, as an option, an organic coating on the lower side (internal). The external coating is Platisol® paint, which is applied in its liquid state with a nominal dry film thickness of ≤ 0.200 mm, gross calorific value of ≤ 8.0 MJ/m² and a dry area density of ≤ 330 g/m². The organic coating on the bottom side (if any) must have a gross calorific value of ≤ 4.0 MJ/m² and a dry mass of ≤ 200 g/m². 	

Table 2 – Climate class(es), in which the metallic files can be used

Metallic file model	Climate class ^{(1), (2)}							
	Rural	Urban	Industrial			Marine		
			SO ₂ level			Distance from coast		
			Low	Medium	High	10 - 20 km	3 - 10 km	< 3 km
METROTILE® BOND	X	X	X	○	○	X	○	○
METROTILE® ROMAN	X	X	X	○	○	X	○	○
METROTILE® CLASSIC	X	X	X	○	○	X	○	○
METROTILE® SHAKE	X	X	X	○	○	X	○	○
METROTILE® WOODSHAKE	X	X	X	○	○	X	○	○
METROTILE® SHINGLE	X	X	X	○	○	X	○	○
METROTILE® VIKSEN	X	X	X	○	○	X	○	○
METROTILE® MISTRAL	X	X	X	○	○	X	○	○
METROTILE® ROMANA	X	X	X	○	○	X	○	○
METROTILE® GALLO	X	X	X	○	○	X	○	○
METROTILE® BOND PRESTIGE	X	X	X	○	○	X	○	○
METROTILE® MISTRAL PRESTIGE	X	X	X	○	○	X	○	○

⁽¹⁾: The climate classes are defined according to NBN EN 10169 – 2 (2004) "Flat steel products continuously coated with organic materials (pre-lacquered) – Part 2: Products for external use on buildings"

⁽²⁾: X = authorised / ○ = not authorised

Table 3 – Authorised roof slopes

Metallic file model	Slope	
	[°]	[%]
METROTILE® BOND	≥ 10	≥ 18
METROTILE® ROMAN	≥ 10	≥ 18
METROTILE® CLASSIC	≥ 10	≥ 18
METROTILE® SHAKE	≥ 10	≥ 18
METROTILE® WOODSHAKE	≥ 10	≥ 18
METROTILE® SHINGLE	≥ 15	≥ 27
METROTILE® VIKSEN	≥ 15	≥ 27
METROTILE® MISTRAL	≥ 10	≥ 18
METROTILE® ROMANA	≥ 10	≥ 18
METROTILE® GALLO	≥ 10	≥ 18
METROTILE® BOND PRESTIGE	≥ 10	≥ 18
METROTILE® MISTRAL PRESTIGE	≥ 10	≥ 18

3 Materials and roof covering systems

3.1 Metallic files

Table 4 – Catalogue of products

Metallic tile model	Nature ⁽¹⁾	Steel		Finish		Colour
		Protective metallic coating	Thickness ^{(2), (3)} [mm]	Type	Thickness / area density	
METROTILE® BOND	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60) 0,82 (0,90)	granules	1.600 g/m ²	Charcoal, Coffee, Panther Black, Scarlet, Terracotta
METROTILE® ROMAN	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Coffee, Terracotta, Tuscany, Victorian Red
METROTILE® CLASSIC	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Charcoal, Coffee, Panther Black, Scarlet, Terracotta
METROTILE® SHAKE	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60) 0,82 (0,90)	granules	1.600 g/m ²	Coffee, Greenstone, Panther Black, Walnut
METROTILE® WOODSHAKE	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Coffee, Greenstone, Panther Black, Walnut
METROTILE® SHINGLE	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Black-Brown, Brown-Black, Red- Brown
METROTILE® VIKSEN	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Victorian Red, Walnut, Zebra
METROTILE® MISTRAL	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Coffee, Panther Black, Scarlet, Terracotta
METROTILE® ROMANA	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Terracotta, Tuscany, Victorian Red
METROTILE® GALLO	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45) 0,54 (0,60)	granules	1.600 g/m ²	Terracotta, Tuscany, Victorian Red
METROTILE® BOND PRESTIGE	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45)	high durability acrylic paint	50 µm	<u>brilliant</u> : Black, Bordeaux, <u>matt</u> : Black, Brown, Charcoal, Terracotta,
METROTILE® MISTRAL PRESTIGE	DX52D	AZ150 AZ300 ZM120 ZM250	0,39 (0,45)	high durability acrylic paint	50 µm	<u>brilliant</u> : Black, Bordeaux, <u>matt</u> : Black

(1): Classification according to the mechanical properties described in NBN EN 10346
(2): Including the protective metallic coating and any "primer" type coating with a thickness ≤ 10 µm.
(3): Minimum (nominal)

METROTILE® ROMAN metallic tiles consist of 5 different types.

3.1.1 METROTILE® BOND files

METROTILE® BOND tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on a aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® BOND metallic tiles consist of a total of 8 different types.

Fig. 1: METROTILE® BOND file

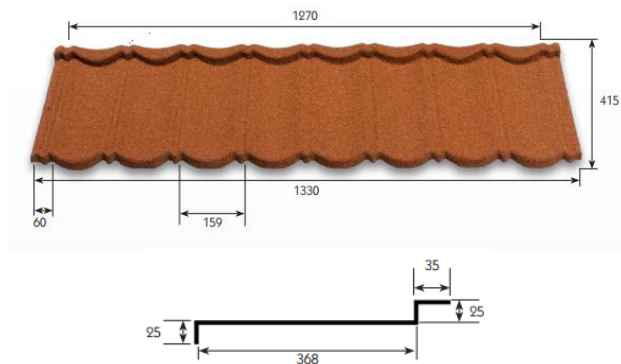


Table 5 – METROTILE® BOND file dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
Width	Height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,330 (1,270)	415 (370)	60	45	~ 2,1

(1): total (useful)

Table 6 – METROTILE® BOND file density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,2
0,54 (0,60)	~ 3,8	~ 8,1
0,82 (0,90)	~ 4,7	~ 10,0

(1): minimum (nominal)

3.1.2 METROTILE® ROMAN tiles

METROTILE® ROMAN tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method and based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

Fig. 2: METROTILE® ROMAN file

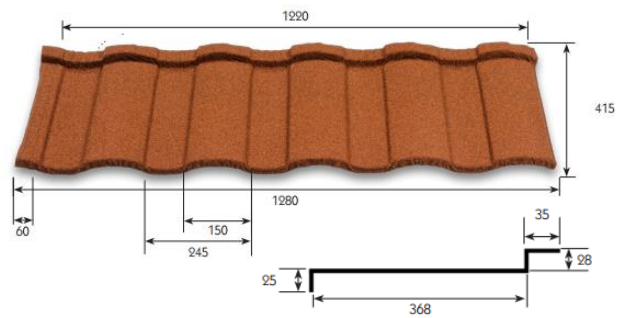


Table 7 – METROTILE® ROMAN tile dimension

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,280 (1,220)	410 (370)	60	45	~ 2,2

(1): total (useful)

Table 8 – METROTILE® ROMAN tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,4
0,54 (0,60)	~ 3,8	~ 8,4

(1): minimum (nominal)

3.1.3 METROTILE® CLASSIC files

METROTILE® CLASSIC tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, with an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® CLASSIC metallic tiles consist of 8 different types.

Fig. 3: METROTILE® CLASSIC files

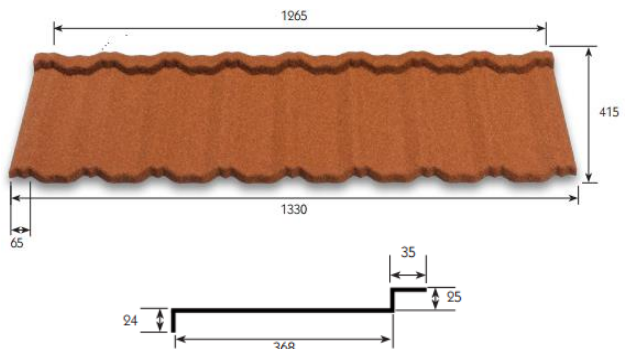


Table 9 – METROTILE® CLASSIC tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,350 (1,128.5)	415 (370)	65	45	~ 2,2

⁽¹⁾: total (useful)

Table 10 – METROTILE® CLASSIC tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,4
0,54 (0,60)	~ 3,8	~ 8,4

⁽¹⁾: minimum (nominal)

3.1.4 METROTILE® SHAKE tiles

METROTILE® SHAKE tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® SHAKE metallic tiles consist of 6 different types. Tile density

Fig. 4: METROTILE® SHAKE tile

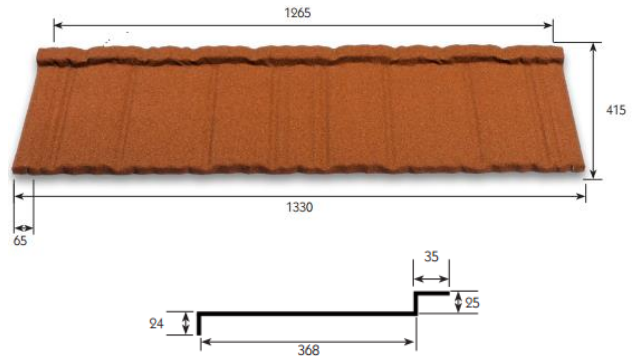


Table 11 – METROTILE® SHAKE tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,325 (1,245)	415 (370)	80	45	~ 2,2

⁽¹⁾: total (useful)

Table 12 – METROTILE® SHAKE tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,3
0,54 (0,60)	~ 3,8	~ 8,2
0,82 (0,90)	~ 4,7	~ 10,2

⁽¹⁾: minimum (nominal)

3.1.5 METROTILE® WOODSHAKE tiles

METROTILE® WOODSHAKE tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, with an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® WOODSHAKE metallic tiles consist of 6 different types.

Fig. 5: METROTILE® WOODSHAKE tile

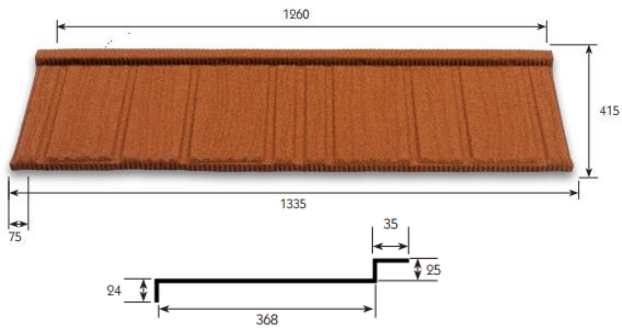


Table 13 – METROTILE® WOODSHAKE tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,330 (1,270)	415 (370)	60	45	~ 2,1
(1): total (useful)				

Table 14 – METROTILE® WOODSHAKE tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,2
0,54 (0,60)	~ 3,8	~ 8,1
(1): minimum (nominal)		

Table 15 – METROTILE® SHINGLE tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,335 (1,235)	300 (252)	100	48	~ 3,2
(1): total (useful)				

Table 16 – METROTILE® SHINGLE tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,3	~ 7,4
0,54 (0,60)	~ 3,0	~ 9,6
(1): minimum (nominal)		

3.1.6 METROTILE® SHINGLE tiles

METROTILE® SHINGLE tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

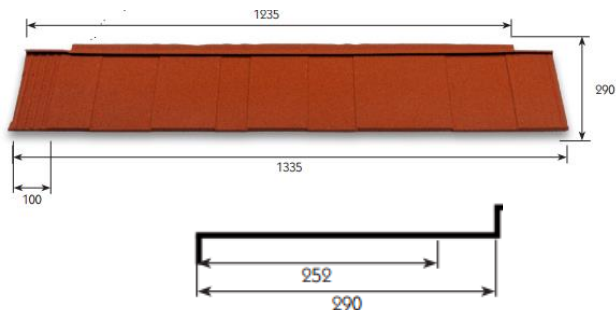
An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® SHINGLE metallic tiles consist of 6 different types.

Fig. 6: METROTILE® SHINGLE tile



3.1.7 METROTILE® VIKSEN tiles

METROTILE® VIKSEN tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, with an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® VIKSEN metallic tiles consist of 8 different types.

Fig. 7: METROTILE® VIKSEN tile

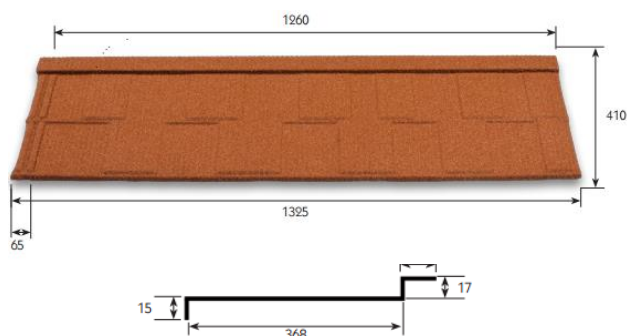


Table 17 – METROTILE® VIKSEN tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,325 (1,260)	451 (370)	65	45	~ 2,2
⁽¹⁾ : total (useful)				

Table 18 – METROTILE® VIKSEN tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,2	~ 6,2
0,54 (0,60)	~ 3,8	~ 8,2
⁽¹⁾ : minimum (nominal)		

3.1.8 METROTILE® MISTRAL tiles

METROTILE® MISTRAL tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, with an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® MISTRAL metallic tiles consist of 7 different types.

Fig. 8: METROTILE® MISTRAL tile

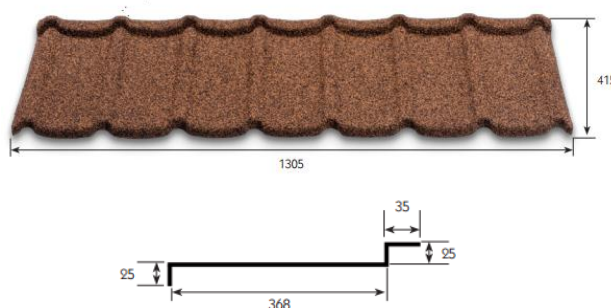


Table 19 – METROTILE® MISTRAL tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,325 (1,260)	451 (370)	65	45	~ 2,2
⁽¹⁾ : total (useful)				

Table 20 – METROTILE® MISTRAL tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,3
0,54 (0,60)	~ 3,8	~ 8,3
⁽¹⁾ : minimum (nominal)		

3.1.9 METROTILE® ROMANA tiles

METROTILE® ROMANA tiles are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, with an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® ROMANA metallic tiles consist of 5 different types.

Fig. 9: METROTILE® ROMANA tile

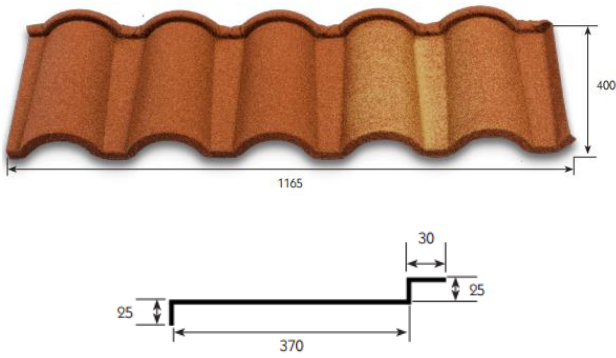


Table 21 – METROTILE® ROMANA tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,165 (1,108.5)	400 (370)	80	40	~ 2,5
⁽¹⁾ : total (useful)				

Table 22 – METROTILE® ROMANA tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 7,2
0,54 (0,60)	~ 3,8	~ 9,5
⁽¹⁾ : minimum (nominal)		

3.1.10 METROTILE® GALLO tiles

METROTILE® GALLO files are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 5 µm thick) is also applied to the surfaces of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of paint, with an incrustation of coloured mineral granules and a layer of colourless acrylic varnish.

METROTILE® GALLO metallic files consist of 8 different types.

Fig. 10: METROTILE® GALLO tile

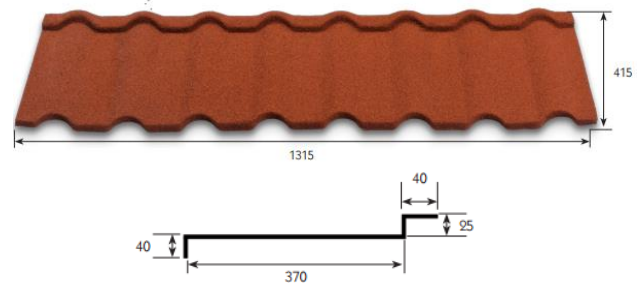


Table 23 – METROTILE® GALLO tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,315 (1,118.5)	415 (370)	30	45	~ 2,3
⁽¹⁾ : total (useful)				

Table 24 – METROTILE® GALLO tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,9	~ 6,6
0,54 (0,60)	~ 3,8	~ 8,7
⁽¹⁾ : minimum (nominal)		

3.1.11 METROTILE® BOND PRESTIGE files

METROTILE® BOND PRESTIGE files are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 15 µm thick) is also applied to the lower surface of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of high durability acrylic paint.

METROTILE® BOND PRESTIGE metallic tiles consist of 7 different types.

Fig. 11: METROTILE® BOND PRESTIGE tile

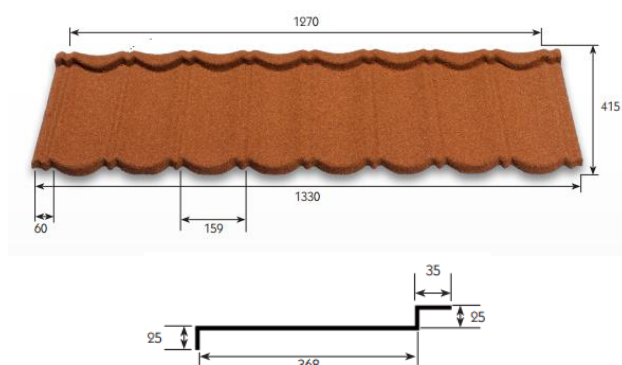


Table 25 – METROTILE® BOND PRESTIGE tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,330 (1,270)	415 (370)	60	45	~ 2,1

⁽¹⁾: total (useful)

Table 26 – METROTILE® BOND PRESTIGE tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,1	~ 4,6

⁽¹⁾: minimum (nominal)

3.1.12 METROTILE® MISTRAL PRESTIGE files

METROTILE® MISTRAL PRESTIGE files are manufactured from steel sheets with a protective metallic coating applied using the continuous hot dip method based on an aluminium-zinc alloy of 300 g/m² (AZ300).

An organic protective layer (1 - 15 µm thick) is also applied to the lower surface of the steel sheets.

The steel sheets used have a minimum thickness of 0.39 mm (nominal = 0.45 mm), including the protective metallic coating.

The steel sheets are stamped and punched. The resulting profiles are coated with a layer of high durability acrylic paint.

METROTILE® MISTRAL PRESTIGE metallic tiles consist of 7 different types.

Fig. 12: METROTILE® MISTRAL PRESTIGE tile

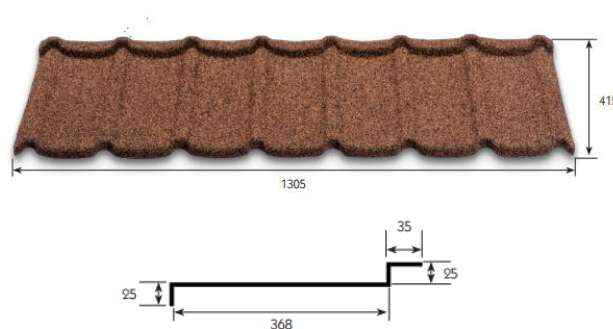


Table 27 – METROTILE® MISTRAL PRESTIGE tile dimensions

Dimensions ⁽¹⁾		Covering		Surface covered
width	height	width	height	
[mm]	[mm]	[mm]	[mm]	[tile/m ²]
1,325 (1,260)	451 (370)	65	45	~ 2,2

⁽¹⁾: total (useful)

Table 28 – METROTILE® MISTRAL PRESTIGE tile density

Sheet thickness	Mass	
	per element	per m ² covered
[mm]	[kg/pc]	[kg/m ²]
0,39 (0,45)	~ 2,1	~ 4,6

⁽¹⁾: minimum (nominal)

3.1.13 Performance of metallic tiles

The performance of METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE, METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE files is shown in § 7.1, § 7.4, § 7.7, § **Error! Reference source not found.** and § **Error! Reference source not found.**.

3.2 Auxiliary products

3.2.1 Accessory elements (ridges, edge profiles, etc.)

The METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE, METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE and METROTILE® MISTRAL PRESTIGE ranges include the accessory elements described in Table 29.

Table 29 – Accessory elements

Description	METROTILE® ⁽¹⁾		
	BOND	ROMAN	CLASSIC
"V" ridge	X	X	X
Round ridge	X	X	X
Under-ridge	X	X	X
Edge profile	X	X	X
Eaves	X	X	X
Hip	X	X	X
Flashing	-	-	-
Description	METROTILE® ⁽¹⁾		
	SHAKE	WOODSHAKE	SHINGLE
"V" ridge	X	X	X
Round ridge	X	X	-
Under-ridge	X	X	-
Edge profile	X	X	X
Eaves	X	X	-
Hip	X	X	-
Flashing	-	-	-
Description	METROTILE® ⁽¹⁾		
	VIKSEN	MISTRAL	ROMANA
"V" ridge	X	X	X
Round ridge	X	X	X
Under-ridge	X	X	X
Edge profile	X	X	X
Eaves	X	X	X
Hip	X	X	X
Flashing	-	-	-
Description	METROTILE® ⁽¹⁾		
	GALLO	BOND PRESTIGE	MISTRAL PRESTIGE
"V" ridge	X	X	X
Round ridge	X	X	X
Under-ridge	X	X	X
Edge profile	X	X	X
Eaves	X	X	X
Hip	X	X	X
Flashing	-	-	-

⁽¹⁾: X= available / - = not available

The accessory elements are manufactured using the same materials as the metallic tiles. The elements are formed by the company Metrotile Europe nv or a subcontractor; the different finishes are added by the company Metrotile Europe nv.

The available accessory elements are subject to a limited certification procedure, which includes:

- Checking approval procedures for accessories supplied by a subcontractor;
- Verification of results from the internal inspection of the finished product.

Certain unavailable accessory elements (such as valleys, gutters, etc.) can be manufactured from zinc in the traditional way. It is not permitted to use lead for the production of accessory elements

3.2.2 Fastening systems (screws, nails)

The available fastening systems are subject to a limited certification procedure, which includes:

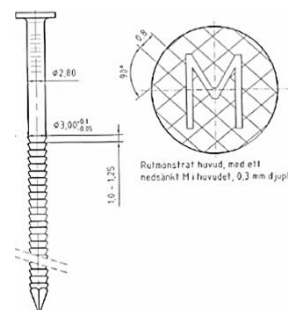
- Inspection of approval procedures for fastening systems provided by the supplier.

3.2.2.1 Nails (TYPE 1)

Table 30 – Fastening system

Characteristics	TYPE 1
Type	Flat head nail
Material	Galvanised steel
Diameter [mm] ⁽¹⁾	2.8
Length [mm]	50.0 mm
Metallic protection level [g/m ²] ⁽²⁾	≥ 400
⁽¹⁾ : UBAtc criterion: Ø ≥ 2.6 mm	
⁽²⁾ : UBAtc criterion: Metallic protection level ≥ 400 g/m ²	

Fig. 13: clous (TYPE 1)



3.2.2.2 Screws (TYPE 2)

Table 31 – Fastening system

Characteristics	TYPE 2
Type	Hexagon head screw
Material	Galvanised steel + coating 40 µm
Diameter [mm] ⁽¹⁾	4.8
Length [mm]	20 / 28 / 35,0
Metallic protection level [g/m ²] ⁽²⁾	≥ 400
⁽¹⁾ : UBAtc criterion: Ø ≥ 2,6 mm	
⁽²⁾ : UBAtc criterion: Metallic protection level ≥ 400 g/m ²	

Fig. 14: Screws (TYPE 2)



3.2.3 Roof underlay

If roof underlay is used:

- **Flexible:** must be covered by a technical approval (ATG) with certification for use on roofs.
- **Rigid:** must comply with NBN EN 14964 (2007) "Rigid roof underlays for discontinuous laying - Definitions and characteristics"

3.2.4 Insulation

The insulation meets the specifications of NIT 251.

3.2.5 Continuous airtight underlay

The continuous airtight underlay used is chosen according to the type of roof underlay or insulation used and the indoor climate class.

Table 32 – Airtight underlay

Description		Indoor climate class ⁽¹⁾	Barrier type
Roof underlay	Capillary	I	(2)
		II	(2)
		III	(2)
		IV	(3)
	Non-capillary in strips	I	(2)
		II	E1
		III	E1
		IV	(3)
	Continuous non-capillary	I	(2)
		II	E2
		III	E2
		IV	(3)
Insulation	Airtight insulation panel	I	(2)
		II	E1
		III	E1
		IV	(3)
⁽¹⁾ : For climate class definitions, see NIT 215 (CSTC, 2000) ⁽²⁾ : Airtight or type E1 or E2 barrier ⁽³⁾ : Request a special study E1: bitumen paper or aluminium plasterboard or E2 type barrier. E2: polyethylene film (thickness ≥ 0.2 mm).			

⁽¹⁾ In the case of uninsulated industrial buildings, it is not necessary to use underlay. However, attention must be drawn to the risks of condensation and their consequences.

4 Manufacture and marketing

4.1 Metallic tiles

METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE, METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE and METROTILE® MISTRAL PRESTIGE metallic roof tiles are manufactured at the Metrotile Europe nv factory in Tongeren (BE).

Labelling: the metallic tiles are labelled with the product name and ATG number.

The metallic tiles are packaged on pallets under a heat-shrinkable hood.

The production code is also shown on the metallic tile and pallet.

The company Metrotile Europe nv markets METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE, METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE and METROTILE® MISTRAL PRESTIGE metallic tiles.

The company Metrotile Europe nv may provide technical assistance to users concerning roof design and construction.

4.2 Auxiliary products

The accessory elements are manufactured by the company Metrotile Europe nv or a subcontractor.

The nails listed in Table 30 and Table 31 are manufactured for Metrotile Europe nv (BE).

The company Metrotile Europe nv markets the auxiliary products.

5 Roof composition

5.1 Reference documents

- NIT 175: (+ addendum) "Terracotta tile roofs" (CSTC, 1989);
- NIT 186: "Flat tile roofs: Design and construction" (CSTC, 1992);
- NIT 240: "Tile roofs" (CSTC, 2011);
- NIT 251: "Thermal insulation of sloping roofs" (CSTC, 2014);
- STS 34: "Roof coverings" (FPS Economy, SMES, Self-employed and Energy, 1972);
- The manufacturer's instructions.

5.2 Roof composition

The supporting structure is constructed according to the specifications of NIT 240.

The trusses or battens in the framework are covered with flexible or rigid roof underlay material ⁽¹⁾ (protection against local infiltrations, dust, powder snow; airtightness of the roof system, etc.). The roof underlay is fastened to the trusses or battens using counter battens.

Any insulation is placed between the battens, rafters or trusses so that the space between the roof underlay and airtight barrier is completely filled.

An airtight barrier is placed under the roof insulation so that it comes into contact with the latter. The airtight barrier must be selected according to § **Error! Reference source not found.**

6 Installation

6.1 General

METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE, METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE and METROTILE® MISTRAL PRESTIGE metallic tiles are supplied in cardboard packages, which are stacked on pallets wrapped in plastic sheets.

When stored at the construction site, the metallic tiles must be kept on a fully level surface, in a covered and properly ventilated area.

When handling the tiles during transport and storage, precautions must be taken to prevent them from slipping or becoming damaged.

The metallic tiles must be laid by trained personnel. The company Metrotile Europe nv has a list of approved fitters at its disposal.

When cutting and bending the metallic tiles, roofing contractors must only use equipment that is approved by Metrotile Europe nv.

Any superficial damage caused to elements during installation and cut-outs are protected on site using touch-up paint approved by Metrotile® Europe nv.

Any zinc flashing under the tiles must meet the general regulations of NBN B 41-001 and NBN B 42-001 and 002.

The durability of the metallic tiles depends on the atmospheric conditions, to which they are subjected. The atmospheres, for which the metallic tiles are authorised, are listed in Table 2, § 2. If there is any doubt concerning the climate class, under which the roof covering will be installed, the most severe class will be used.

6.2 Carpentry

Unless otherwise stipulated, the carpentry components are in compliance with STS 31 and STS 32.

The dimensions of the framework are calculated in order to:

- Meet the stability criteria (dead weight, snow load, wind action, etc.),
- Make it possible to lay the necessary thicknesses of insulation between battens or trusses, in order to achieve the insulation levels required by the applicable legislation.

The dimensions of the struts (or laths) are calculated according to the slope of the roof pitch and space between the battens or trusses.

Table 33 – Nominal section of struts (or laths)

Space between battens or trusses	Dimensions of struts (thickness x nominal width)	
	Roof slope < 45 °	Roof slope ≥ 45 °
	[mm] x [mm]	[mm] x [mm]
[mm]	[mm] x [mm]	[mm] x [mm]
600	27 x 27	27 x 27
900	38 x 38	38 x 38
1,000	50 x 32	-

The distance between the struts (or laths) varies depending on the model. Allowance has been made for adjustments to the ridge.

Table 34 – Space between struts (or laths)

Metallic tile	Space between struts ⁽¹⁾
	[mm]
METROTILE® BOND	368
METROTILE® ROMAN	368
METROTILE® CLASSIC	368
METROTILE® SHAKE	368
METROTILE® WOODSHAKE	368
METROTILE® SHINGLE	250
METROTILE® VIKSEN	368
METROTILE® MISTRAL	368
METROTILE® ROMANA	368
METROTILE® GALLO	368
METROTILE® BOND PRESTIGE	368
METROTILE® MISTRAL PRESTIGE	368

⁽¹⁾: the space between the struts is measured on the uncoated underside of the latter.

6.3 Roof details

6.3.1 With METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tiles

6.3.1.1 Main roof section

METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE and METROTILE® MISTRAL PRESTIGE metallic tiles are laid from top to bottom.

The nails or screws used are in compliance with those required by Metrotile Europe nv.

The second row from the ridge is laid first. The elements in this row are correctly adjusted, paying special attention to the lateral coverings. These elements are secured at the top.

After checking the correct longitudinal and lateral position of the elements, the latter are fastened to the laths.

Table 35 – Number of fasteners in main roof section

Metallic tile	Number of fasteners per element	Figure
METROTILE® BOND	4	Fig. 15
METROTILE® ROMAN	4	Fig. 16
METROTILE® CLASSIC	4	Fig. 15
METROTILE® SHAKE	4	Fig. 17
METROTILE® WOODSHAKE	4	Fig. 18
METROTILE® MISTRAL	4	Fig. 19
METROTILE® ROMANA	4	Fig. 16
METROTILE® GALLO	4	Fig. 15
METROTILE® BOND PRESTIGE	4	Fig. 15
METROTILE® MISTRAL PRESTIGE	4	Fig. 19

Fig. 15: METROTILE® BOND, METROTILE® CLASSIC, METROTILE® GALLO, METROTILE® BOND PRESTIGE tiles - position of fasteners

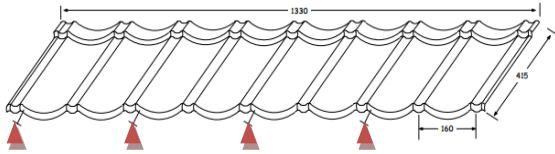


Fig. 16: METROTILE® ROMAN, METROTILE® ROMANA tile - position of fasteners

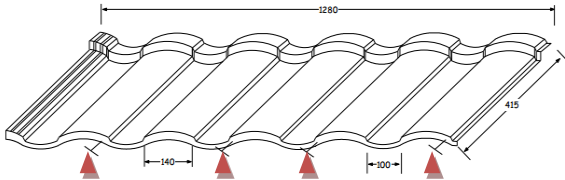


Fig. 17: METROTILE® SHAKE tile - position of fasteners

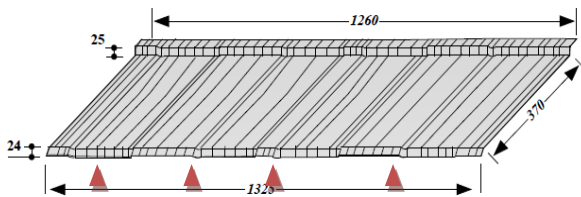


Fig. 18: METROTILE® WOODSHAKE tile - position of fasteners

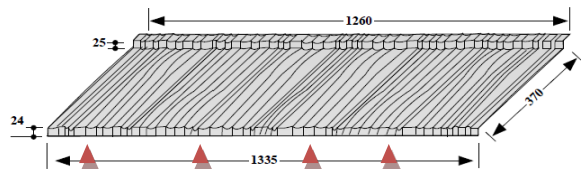
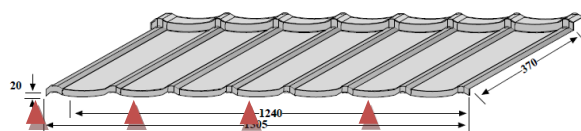


Fig. 19: METROTILE® MISTRAL, METROTILE® MISTRAL PRESTIGE tile - position of fasteners



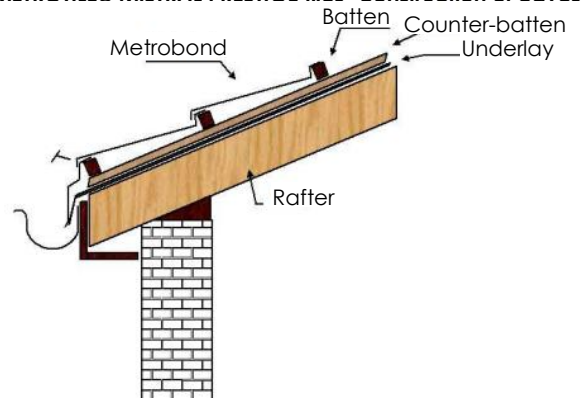
Nails are used in the nose of the metallic tile, in order to fasten the nose of the upper tile to the heel of the lower tile, ensuring that at least two elements are secured to the lath.

6.3.1.2 Eaves

The eaves are finished using the special element provided by the manufacturer (cf. § 3.2). The position of the nails is identical to that in the main roof section.

The lower lath must be dimensioned so that it is properly aligned in the plane of the roof.

Fig. 20: METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tiles - construction of eaves



6.3.1.3 Ridge

If the slope length is not a multiple of the useful height of the METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE or METROTILE® MISTRAL PRESTIGE elements, the row adjacent to the ridge consists of pieces of tile that are cut while working on the roof, with their upper edge bent at the construction site, is raised to a height of at least 60 mm and fastened to the ridge plate. The raised edge is nailed to the ridge lath.

If the distance between the last row of laths and the ridge plate is less than 120 mm, the cut and bent element may become deformed. For this reason, instead of these elements, under-ridge elements are used, which have been bent at the construction site and whose edge has been raised to a height of at least 60 mm.

The ridge covering is installed using "V" or semi-round ridge tiles supplied by Metrotile® Europe nv (cf. § 3.2).

Fig. 21: METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tile - "V" ridge

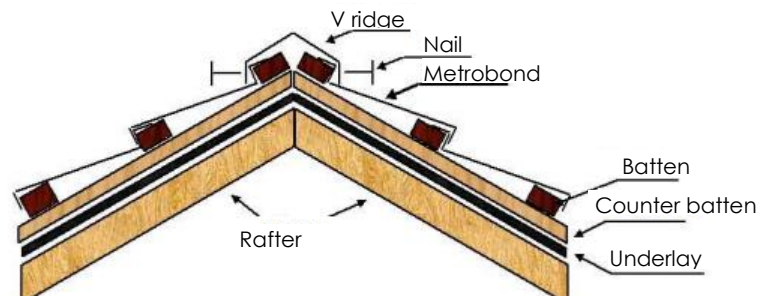
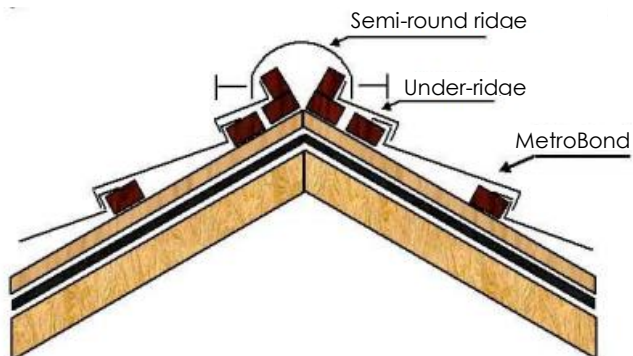


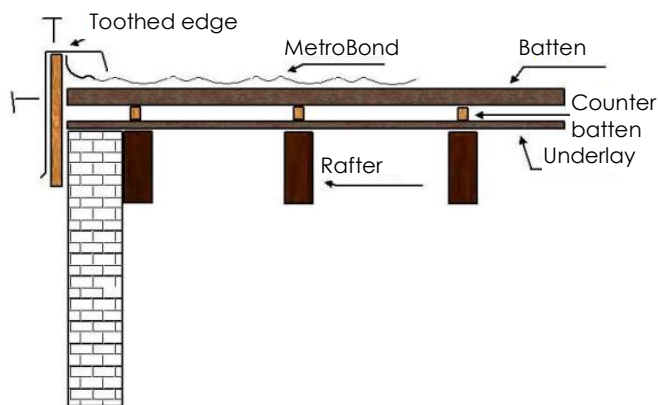
Fig. 22: METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tile – semi-round ridge



6.3.1.4 Lateral edges

An edge profile supplied by Metrotile® Europe nv is also used to form the edges. A raised edge of 20 mm is created on the METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE or METROTILE® MISTRAL PRESTIGE tile, in order to prevent water from penetrating the edges.

Fig. 23: METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tile – lateral edge



6.3.1.5 Specific details

Special structures can be created, such as hips, flashings and valleys:

- Using METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC, METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® MISTRAL, METROTILE® MISTRAL, METROTILE® ROMANA, METROTILE® GALLO, METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE accessory elements, which can be chiselled and bent at the construction site,
- Using conventional zinc elements.

The general regulations of STS 34 apply.

6.3.2 With METROTILE® SHINGLE, METROTILE® VIKSEN tiles

6.3.2.1 Main roof section

METROTILE® SHINGLE and METROTILE® VIKSEN metallic tiles are laid from bottom to top.

The nails or screws used are in compliance with those required by Metrotile Europe nv.

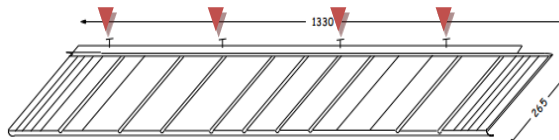
The edge profile and gutter are fitted first (see Fig. 25). The first METROTILE® SHINGLE or METROTILE® VIKSEN tile is nailed to the upper side of the tile above the first profile (see Fig. 24). The elements used in this row must be carefully adjusted, taking special care with the lateral coverings. They are nailed blind to the upper side of the tile.

The following rows can now be laid.

Table 36 – Number of fastenings in main roof section

Metallic tile	Number of fasteners per element	Figure
METROTILE® SHINGLE	4	Fig. 24
METROTILE® VIKSEN	4	Fig. 24

Fig. 24: METROTILE® SHINGLE, METROTILE® VIKSEN tile - position of fasteners

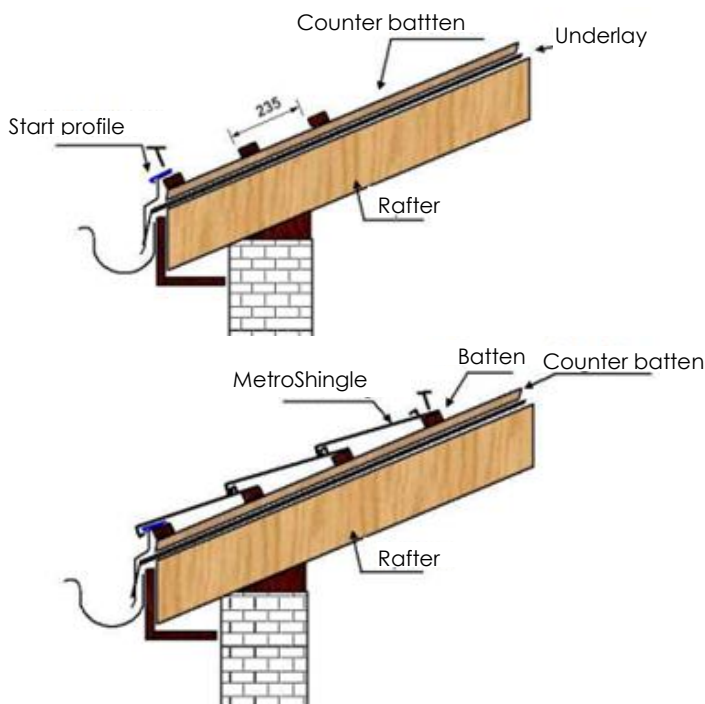


6.3.2.2 Eaves

The eaves are finished with a special elements supplied by the manufacturer (cf. § 3.2). The position of the nails is identical to that on the main roof section.

The lower lath must be dimensioned so that it is correctly aligned on the plane of the roof.

Fig. 25: METROTILE® SHINGLE et METROTILE® VIKSEN tile – eaves construction



6.3.3 Ridge

If the slope length is not a multiple of the useful height of the METROTILE® SHINGLE or METROTILE® VIKSEN elements, the row adjacent to the ridge consists of tile elements, which are cut while working on the roof with their upper edge bent at the construction site and raised to a height of at least 60 mm, and fastened to the ridge plate. The raised edge is nailed to the ridge batten.

If the distance between the last row of laths and the ridge plate is less than 120 mm, the cut and bent element may become deformed. For this reason, instead of these elements, pieces of under-ridge tile are used, which have been bent at the construction site and whose edge is raised to a height of at least 60 mm.

The ridge is covered with semi-round or flat "V" ridge tiles supplied by Metrotile® Europe nv (cf. § 3.2).

Fig. 26: METROTILE® SHINGLE, METROTILE® VIKSEN tile – "V" ridge

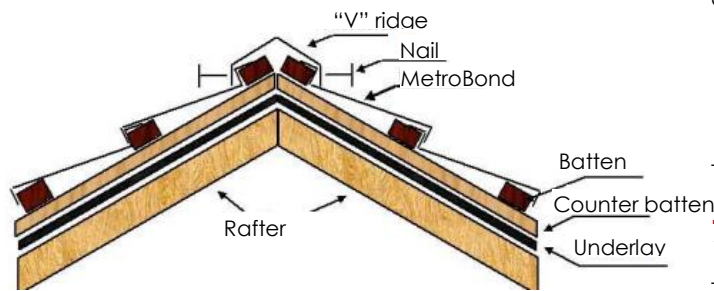
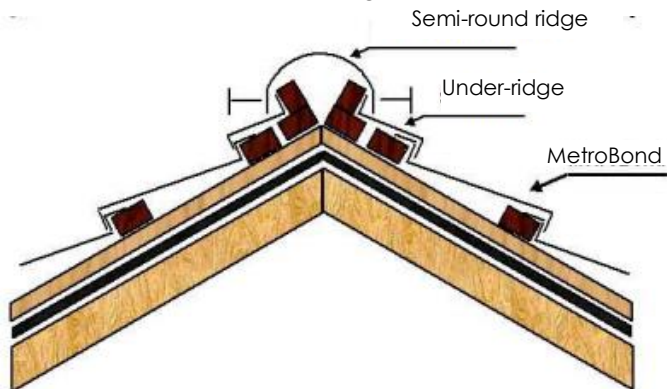


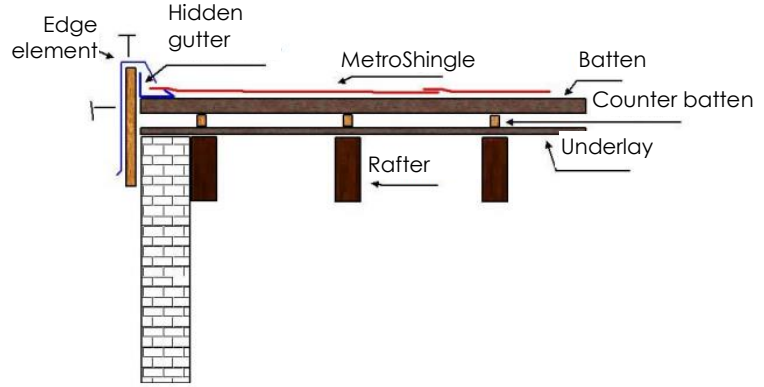
Fig. 27: METROTILE® SHINGLE, METROTILE® VIKSEN tile – semi-round ridge



6.3.4 Lateral edges

An edge profile supplied by Metrotile® Europe nv is also used to construct the edges. A raised edge of 20 mm is created on METROTILE® SHINGLE or METROTILE® VIKSEN tiles, in order prevent water from penetrating the edge.

Fig. 28: METROTILE® SHINGLE, METROTILE® VIKSEN - lateral edge



6.3.5 Specific details

Special structures, such as hips, flashings and valleys can be created:

- Either using METROTILE® SHINGLE or METROTILE® VIKSEN accessory elements, which can be chiselled or bent at the construction site,
- Or using conventional zinc elements.

The general regulations of STS 34 apply.

7 Performance

The performance of metallic roof tiles METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC is shown in § 7.1 of Table 37; the performance of the METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE tiles is indicated in § 7.4 of Table 39; that of METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE®7.37.37.3ROMANA tiles is described in § 7.7 of Table 40; the performance of METROTILE® GALLO tiles is described in § **Error! Reference source not found.** of Table 41; and that of METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tiles is shown in § **Error! Reference source not found.** of Table 42.

The "UBAtc" column shows the acceptance criteria set by the non-profit organisation UBAtc. The "Manufacturer" column shows the criteria set by the actual manufacturer.

Compliance with these criteria is verified during the different checks conducted and forms part of the product certification.

The performance characteristics of the roof covering system using METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC tiles is shown in § 7.2 and § 7.3 of Table 37; that of the roof covering system using METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE tiles is shown in § 7.5 and § 7.6 of Table 39, that of the roof covering system using METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA tiles is described in § 7.8 and § 7.9 of Table 40; that of the roof covering system using METROTILE® GALLO tiles is described in § 7.11 and § 7.12 of Table 41; and that of the roof covering system using METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE tiles is shown in § 7.14 and § 7.15 of Table 42.

The "UBAtc" column shows the acceptance criteria set by the non-profit organisation UBAtc. The "Manufacturer" column shows the criteria set by the actual manufacturer.

In the absence of these criteria, the table mentions the results of external laboratory tests. The values shown are not based on statistical interpretations and are not guaranteed by the manufacturer.

Table 38 – METROTILE® BOND, METROTILE® ROMAN, METROTILE® CLASSIC roof tiles

Characteristics	Test methods	UBA/c criteria	Manufacturer's declarations			Test assessment ⁽¹⁾
			METROTILE®			
			BOND	ROMAN	CLASSIC	
7.1 Performance of the metallic tiles						
Minimum steel thickness ⁽²⁾ [mm]	NBN EN 10143					
0.45 mm		≥ 0.37	≥ 0.39	≥ 0.39	≥ 0.39	X
0.60 mm		≥ 0.54	≥ 0.54	≥ 0.54	≥ 0.54	X
0.90 mm		≥ 0.82	≥ 0.82	/	/	X
Gross calorific value of covering [MJ/m ²]		≤ 4.0	≤ 4.0	≤ 4.0	≤ 4.0	X
Resistance to rapid deformation [J]	NBN EN 13523-5	≥ 5 J	≥ 10 J	≥ 10 J	≥ 10 J	X
Resistance to cracking on bending [T]	NBN EN 13523-7	≤ 12 T	≤ 12 T	≤ 12 T	≤ 12 T	X
Resistance to neutral salt spray [h]	NBN EN 13523-8	Blistering < 2(S2) Detachment ≤ 2 mm Corrosion ≤ 2 mm	≥ 240	≥ 240	≥ 240	X
Corrosion resistance (2 years)	NBN EN 13523-19		-	-	-	-
Resistance to UV exposure for 1,000 hrs(B)	NBN EN 13523-10					
Colour variation						
Terracotta finish		ΔE CIELAB ≤ 3,0	Pass	Pass	Pass	X
Panther Black finish		ΔE CIELAB ≤ 3,0	Pass	Pass	Pass	X
Gloss variation [class]						
Terracotta finish		⁽³⁾	class 1	class 1	class 1	X
Panther Black finish		⁽³⁾	class 1	class 1	class 1	X
7.2 Basic system (without roof underlay)						
Resistance to driving rain						
10 m/s at 45 °	UBA/c	No infiltration	Pass	Pass	Pass	X
15 m/s at 25 °		No infiltration	Pass	Pass	Pass	X
7.3 Fire behaviour						
External fire resistance			expected to be satisfactory	expected to be satisfactory	expected to be satisfactory	X
⁽¹⁾ : X: tested and meets the manufacturer's criteria / = does not apply ⁽²⁾ : including the protective metallic coatings and any "primer" type coatings with a thickness of ≤ 10 µm ⁽³⁾ : gloss loss: – class 1: loss ≤ 30 % – class 2: 30 % < loss ≤ 50 % – class 3: 50 % < loss ≤ 75 % – class 4: loss > 75 %						

Table 39 – METROTILE® SHAKE, METROTILE® WOODSHAKE, METROTILE® SHINGLE metallic roof files

Characteristics	Test methods	UBA _{tc} criteria	Manufacturer's declarations			Test assessment ⁽¹⁾
			METROTILE®			
			SHAKE	WOOD-SHAKE	SHINGLE	
7.4 Performance of the metallic files						
Minimum steel thickness ⁽²⁾ [mm]	NBN EN 10143					
0.45 mm		≥ 0.37	≥ 0.39	≥ 0.39	≥ 0.39	X
0.60 mm		≥ 0.54	≥ 0.54	≥ 0.54	≥ 0.54	X
0.90 mm		≥ 0.82	≥ 0.82	/	/	X
Gross calorific value of covering [MJ/m ²]		≤ 4.0	≤ 4.0	≤ 4.0	≤ 4.0	
Resistance to rapid deformation [J]	NBN EN 13523-5	≥ 5 J	≥ 10 J	≥ 10 J	≥ 10 J	X
Resistance to cracking on bending [T]	NBN EN 13523-7	≤ 12 T	≤ 12 T	≤ 12 T	≤ 12 T	X
Resistance to neutral salt spray [h]	NBN EN 13523-8	Blistering < 2(S2) Detachment ≤ 2 mm	≥ 240	≥ 240	≥ 240	X
Corrosion resistance (2 years)	NBN EN 13523-19	Corrosion ≤ 2 mm	-	-	-	-
Resistance to UV exposure for 1,000 hrs(B)	NBN EN 13523-10					
Colour variation						
Terracotta finish		ΔE CIELAB ≤ 3,0	Pass	Pass	Pass	X
Panther Black finish		ΔE CIELAB ≤ 3,0	Pass	Pass	Pass	X
Gloss variation [class]						
Terracotta finish		⁽³⁾	class 1	class 1	class 1	X
Panther Black finish		⁽³⁾	class 1	class 1	class 1	X
7.5 Basic system (without roof underlay)						
Resistance to driving rain						
10 m/s at 45 °	UBA _{tc}	No infiltration	Pass	Pass	Pass	X
15 m/s at 25 °		No infiltration	Pass	Pass	Pass	X
7.6 Fire behaviour						
External fire resistance			expected to be satisfactory	expected to be satisfactory	expected to be satisfactory	X
⁽¹⁾ : X: tested and meets the manufacturer's criteria / = does not apply ⁽²⁾ : including the protective metallic coatings and any "primer" type coatings with a thickness of ≤ 10 µm ⁽³⁾ : gloss loss: – class 1: loss ≤ 30 % – class 2: 30 % < loss ≤ 50 % – class 3: 50 % < loss ≤ 75 % – class 4: loss > 75 %						

Table 40 – METROTILE® VIKSEN, METROTILE® MISTRAL, METROTILE® ROMANA metallic roof files

Characteristics	Test methods	UBA/c criteria	Manufacturer's declarations			Test assessment ⁽¹⁾
			METROTILE®			
			VIKSEN	MISTRAL	ROMANA	
7.7 Performance of the metallic tiles						
Minimum steel thickness ⁽²⁾ [mm]	NBN EN 10143					
0.45 mm		≥ 0.37	≥ 0.39	≥ 0.39	≥ 0.39	X
0.60 mm		≥ 0.54	≥ 0.54	≥ 0.54	≥ 0.54	X
0.90 mm		≥ 0.54	≥ 0.82	≥ 0.82	≥ 0.82	X
Gross calorific value of covering [MJ/m ²]		≤ 4.0	≤ 4.0	≤ 4.0	≤ 4.0	
Resistance to rapid deformation [J]	NBN EN 13523-5	≥ 5 J	≥ 10 J	≥ 10 J	≥ 10 J	X
Resistance to cracking on bending [T]	NBN EN 13523-7	≤ 12 T	≤ 12 T	≤ 12 T	≤ 12 T	X
Resistance to neutral salt spray [h]	NBN EN 13523-8	Blistering < 2(S2) Detachment ≤ 2 mm	≥ 240	≥ 240	≥ 240	X
Corrosion resistance (2 years)	NBN EN 13523-19	Corrosion ≤ 2 mm	-	-	-	-
Resistance to UV exposure for 1,000 hrs(B)	NBN EN 13523-10					
Colour variation						
Terracotta finish		ΔE CIELAB ≤ 3,0	Pass	Pass	Pass	X
Panther Black finish		ΔE CIELAB ≤ 3,0	Pass	Pass	Pass	X
Gloss variation [class]						
Terracotta finish		⁽³⁾	class 1	class 1	class 1	X
Panther Black finish		⁽³⁾	class 1	class 1	class 1	X
7.8 Basic system (without roof underlay)						
Resistance to driving rain						
10 m/s at 45 °	UBA/c	No infiltration	Pass	Pass	Pass	X
15 m/s at 25 °		No infiltration	Pass	Pass	pass	X
7.9 Fire behaviour						
External fire resistance			expected to be satisfactory	expected to be satisfactory	expected to be satisfactory	X
⁽¹⁾ : X: tested and meets the manufacturer's criteria / = does not apply ⁽²⁾ : including the protective metallic coatings and any "primer" type coatings with a thickness of ≤ 10 μm ⁽³⁾ : gloss loss: – class 1: loss ≤ 30 % – class 2: 30 % < loss ≤ 50 % – class 3: 50 % < loss ≤ 75 % – class 4: loss > 75 %						

Table 41 – METROTILE® GALLO metallic roof tiles

Characteristics	Test methods	UBA _{tc} criteria	Manufacturer's declarations		Test assessment ⁽¹⁾
			METROTILE®		
			GALLO		
7.10 Performance of the metallic tiles					
Minimum steel thickness ⁽²⁾ [mm] 0.45 mm 0.60 mm	NBN EN 10143	≥ 0.37 ≥ 0.54	≥ 0.39 ≥ 0.54		X X
Gross calorific value of covering [MJ/m ²]		≤ 4.0	≤ 4.0		X
Resistance to rapid deformation [J]	NBN EN 13523-5	≥ 5 J	≥ 10 J		X
Resistance to cracking on bending [T]	NBN EN 13523-7	≤ 12 T	≤ 12 T		X
Resistance to neutral salt spray [h]	NBN EN 13523-8	Blistering < 2(S2) Detachment ≤ 2 mm	≥ 240		X
Corrosion resistance (2 years)	NBN EN 13523-19	Corrosion ≤ 2 mm	-		-
Resistance to UV exposure for 1,000 hrs (B) Colour variation Terracotta finish Panther Black finish Gloss variation [class] Terracotta finish Panther Black finish	NBN EN 13523-10	ΔE CIELAB ≤ 3,0 ΔE CIELAB ≤ 3,0 (3) (3)	Pass Pass class 1 class 1		X X X X
7.11 Basic system (without roof underlay)					
Resistance to driving rain 10 m/s at 45 ° 15 m/s at 25 °	UBA _{tc}	No infiltration No infiltration	Pass Pass		X X
7.12 Fire behaviour					
External fire resistance			expected to be satisfactory		X
⁽¹⁾ : X: tested and meets the manufacturer's criteria / = does not apply ⁽²⁾ : including the protective metallic coatings and any "primer" type coatings with a thickness of ≤ 10 µm ⁽³⁾ : gloss loss: – class 1: loss ≤ 30 % – class 2: 30 % < loss ≤ 50 % – class 3: 50 % < loss ≤ 75 % – class 4: loss > 75 %					

Table 42 – METROTILE® BOND PRESTIGE, METROTILE® MISTRAL PRESTIGE metallic roof tiles

Characteristics	Test methods	UBAtc criteria	Déclarations du fabricant		Test assessment (1)
			METROTILE®		
			BOND PRESTIGE	MISTRAL PRESTIGE	
7.13 Performance of the metallic tiles					
Minimum steel thickness (2) [mm] 0.45 mm	NBN EN 10143	≥ 0.37	≥ 0.39	≥ 0.39	X
Area density of outer coating [g/m²]	UBAtc	≤ 200	≤ 60	≤ 60	X
Resistance to rapid deformation [J]	NBN EN 13523-5	≥ 5 J	≥ 10 J	≥ 10 J	X
Resistance to cracking on bending [T]	NBN EN 13523-7	≤ 12 T	≤ 12 T	≤ 12 T	X
Resistance to neutral salt spray [h]	NBN EN 13523-8	Blistering < 2(S2) Detachment ≤ 2 mm	≥ 240	≥ 240	X
Corrosion resistance (2 years)	NBN EN 13523-19	Corrosion ≤ 2 mm	-	-	-
Resistance to UV exposure for 1,000 hrs (B) Colour variation	NBN EN 13523-10				
Brilliant Bordeaux finish		ΔE CIELAB ≤ 5	Pass	Pass	X
Brilliant black finish		ΔE CIELAB ≤ 2	Pass	Pass	X
Terracotta finish mat		ΔE CIELAB ≤ 5	Pass	Pass	X
Mat black finish		ΔE CIELAB ≤ 4	Pass	Pass	X
Gloss variation [class]					
Brilliant Bordeaux finish		(3)	class 2	class 2	X
Brilliant black finish		(3)	class 1	class 1	X
Terracotta finish mat		(3)	class 1	class 1	X
Mat black finish		(3)	class 1	class 1	X
7.14 Basic system (without roof underlay)					
Resistance to driving rain					
10 m/s at 45 °	UBAtc	No infiltration	Pass	Pass	X
15 m/s at 25 °		No infiltration	Pass	Pass	X
7.15 Fire behaviour					
External fire resistance			expected to be satisfactory	expected to be satisfactory	X
(1): X: tested and meets the manufacturer's criteria / = does not apply (2): including the protective metallic coatings and any "primer" type coatings with a thickness of ≤ 10 µm (3): gloss loss: – class 1: loss ≤ 30 % – class 2: 30 % < loss ≤ 50 % – class 3: 50 % < loss ≤ 75 % – class 4: loss > 75 %					

8 Instructions

8.1 Protection against the risk of corrosion

Any direct or indirect contact (e.g. due to spills) between the bare metal of the metallic tiles and their accessories with non-ferrous metals must be avoided, in order to prevent the appearance of galvanic couples, which may cause a risk of corrosion.

For the same reasons, the presence of a bituminous membrane that is not protected against UV rays upstream of the metallic tiles and/or their accessories must be avoided.

8.2 Accessibility

It is possible to walk on the roof covering, provided items are used to distribute your weight (e.g. planks or ladders), or if you rest your feet in the metallic tile cavities on the struts (or laths).

It is recommended that you place anchor points at the bottom and top of the roof slope, in order to guarantee personal safety when the roof is constructed and maintained.

8.3 Maintenance

The roof covering will be maintained and inspected every year after the leaves have stopped falling in the autumn. It will focus on the points mentioned in Table 11 in NIT 240.

When removing moss, a special solution can be applied by spraying. However, the manufacturer must be consulted regarding the choice of solution, in order to avoid any damage.

8.4 Repairs

Any repairs to a metallic tile roof covering must be conducted using a repair kit, including paint and colour granules, which is supplied by the manufacturer. Repairs must be conducted with care, in dry weather, and according to the manufacturer's instructions.

9 Conditions

- A. This Technical Approval refers exclusively to the system mentioned on the cover page of the Technical Approval.
- B. Only the Approval Holder and, if applicable, the distributor may assert rights based on the Technical Approval.
- C. The Approval Holder and, if applicable, the distributor are not permitted, in any way, to use the name of the UBAtc, its logo, the ATG mark, the Technical Approval or the approval number to demand the evaluation of products that fail to comply with the Technical Approval or products, equipment or systems, including their properties or characteristics, which do not form the object of the Technical Approval.
- D. Information provided in any way by the Approval Holder, distributor or an approved contractor or by their representatives for (potential) users of the system, which is described in the Technical Approval (e.g. for clients, contractors, architects, consultants, designers, etc.) must not be incomplete or contradict the content of the Technical Approval or information mentioned in the Technical Approval.
- E. The Approval Holder is bound at all times to provide UBAtc, the Approval Body and the Certification Body with prompt or prior notification of any adjustments made to primary materials and products, installation instructions and/or the manufacturing, installation and equipment process. According to the information communicated, the UBAtc, the Approval Body and the Certification Body will judge whether it is necessary to adjust the Technical Approval.
- F. The technical approval is based on the available knowledge and technical/scientific information, together with information provided by the applicant and complemented by an approval inspection, which takes account of the specific nature of the system. However, users remain responsible for selecting the system, as described in the Technical Approval, for the specific use intended by the user.
- G. The intellectual property rights associated with the Technical Approval, including the copyright, belong exclusively to the UBAtc.
- H. Any references to the technical approval must be accompanied by an ATG index (ATG 2469) and the validity period.
- I. The UBAtc, the approval body and the certification body cannot be held responsible for any damage or adverse consequences suffered by third parties (e.g. the user) that result from the failure of the approval holder or distributor to respect the provisions of Article 9.



UBAAtc asbl is an approval body and member of the European Union of Agrément for Construction (UEAAtc, see www.ueatc.eu) notified by the FPS Economy within the framework of Regulation 305/2011/EEC and member of the European Organisation for Technical Approvals (EOTA, see www.eota.eu). Certification bodies designated by UBAAtc asbl operate in compliance with a system that is set to be accredited by BELAC (www.belac.be).



This technical approval has been published by UBAAtc, under the responsibility of the approval body BCCA, and based on favourable feedback from the specialist "ROOFS" group, issued on March 12th 2015.

In addition, the BCCA certification body has confirmed that the production process meets the conditions for certification and that a certification agreement was signed by the ATG holder.

Date of issue: May 9th 2016.

For UBAAtc, declaration of the validity of the approval process

For the approval and certification body



Peter Wouters, Director



Benny De Blaere, Managing director

This Technical Approval shall remain valid, provided the product, its manufacture and all processes that are appropriate for this purpose:

- are maintained, in order to achieve, as a minimum, the test results defined in the approval document;
- are continuously monitored by the Certification Body, which confirms that the certification continues to be valid;

If these conditions are no longer met, the Technical Approval shall be suspended or withdrawn and the approval document shall be deleted from the UBAAtc website. The technical approvals are regularly updated. It is recommended that you always use the version published on the UBAAtc website (www.ubatc.be).

The most recent version of the Technical Approval can be consulted using this QR code.

