

SINTEF Technical Approval

TG 2265

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 Provided listed on
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SINTEF confirms that

Isola Powertekk roofing tiles

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document



1. Holder of the approval

Isola as
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 3945 Porsgrunn
www.isola.no

2. Product description

Isola Powertekk Nordic, Exclusive and Plano are roofing sheets made of cold rolled steel shaped like roof tiles as illustrated in fig. 1 and fig. 2. Products have different standard dimensions which are described in table 1 and shown in fig. 1 and fig. 2.

Isola Powertekk roofing tiles can be delivered with different surface treatments and different corrosion proofing. See also table 1. Every product can be delivered in different colours.

In addition to the tiles, different types of accessories are available such as ridge fittings, gable tiles, valley gutters etc. in the same material, and screws and screw-nails for fixing of the tiles and accessories.

Table 1

Surface treatment for Isola Powertekk roofing tiles

Type surface / Thickness	Nordic		Exclusive		Plano	
	upper-side	lower-side	upper-side	lower-side	upper-side	lower-side
Zinc layer ¹⁾ / 275 g/m ²	X	X	X	X	X	X
Epoxy primer / 7µm	X	X	X	X	X	X
Coloured acryl layer	X	-	-	-	-	-
Coloured stone granules	X	-	-	-	-	-
Transparent acryl layer	X	-	-	-	-	-
Powder coat 100 +/- 30 µm	-	-	X	-	X	-

¹⁾ Zinc layer performs as a galvanization process with 275 g/m²

3. Fields of application

Isola Powertekk roofing tiles can be used in hazard class 1-6 in fire class 1,2 and 3.

The tiles can be used as roofing on ventilated, sloped roofs where the roof tiles are laid on battens of timber.

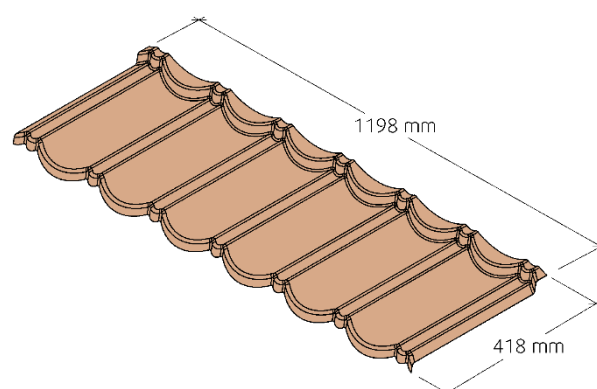


Fig.1.
Isola Powertekk Nordic and Isola Powertekk Exclusive

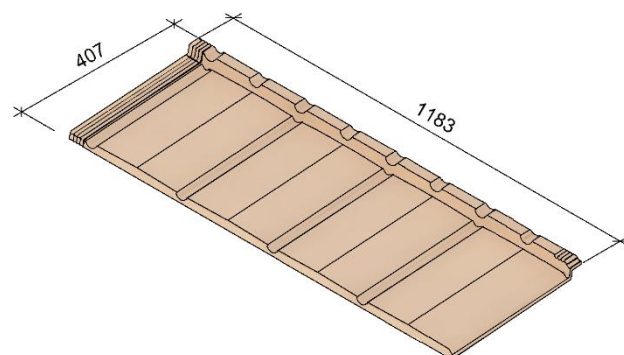


Fig.2.
Isola Powertekk Plano

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Table 2
Product characteristics for Isola Powertekk roofing tiles

Properties	Isola Powertekk roofing tiles						Unit	Tolerance
	Nordic		Exclusive		Plano			
	DoP ¹⁾	Control-limit ²⁾	DoP ¹⁾	Control-limit ²⁾	DoP ¹⁾	Control-limit ²⁾		
Steel thickness	0,45	0,45	0,50	0,50	0,70	0,70	mm	±0,5 %
max. Length		1198		1198		1183	mm	±4 mm
Covered Length		1110		1110		1123	mm	±5%
max. Width		418		418		407	mm	±2 mm
Covered width	-	369	-	371	-	369	mm	-
Distance of battens	-	369	-	371	-	369	mm	-
Upstand	-	28	-	28		24	mm	-
Side overlap	-	88	-	88		60	mm	0/+4 mm
Weight / tile	-	2910	-	1960		2770	g	±100 g
Weight / m²	-	ca. 7,1	-	ca. 4,8		ca. 6,6	kg/m²	-
Snowload resistance	-	Suitable for all snow load zones in Norway	-	Suitable for all snow load zones in Norway		Suitable for snow load up to 7,5 kN/m²	-	-

¹⁾ The manufacturers Declaration of performance, DoP

²⁾ Control limit shows values, product has to satisfy during internal factory production control and audit testing.

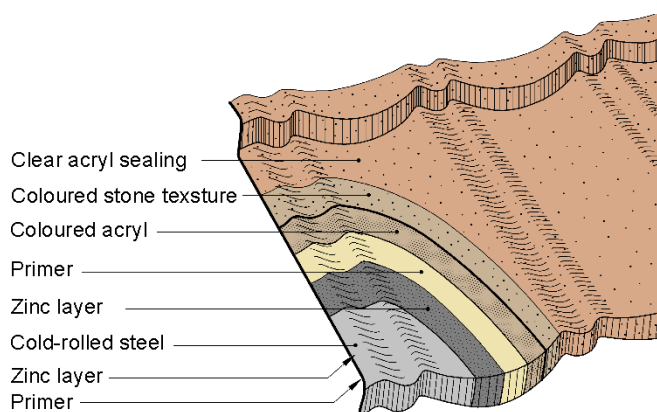


Fig. 4.
Surface treatment for Isola Powertekk Nordic

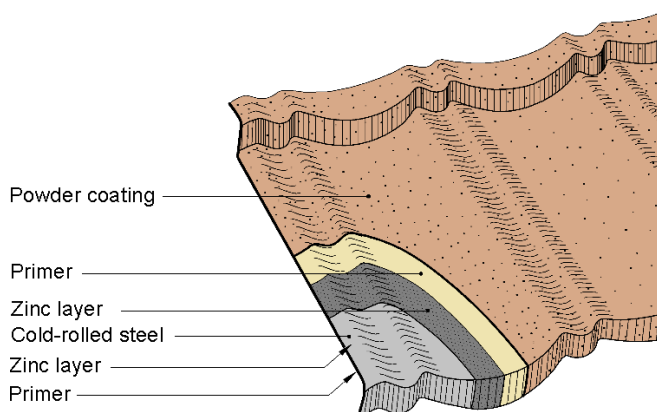


Fig. 5.
Surface treatment for Isola Powertekk Exclusive and Plano

4. Properties

Product characteristics for Isola Powertekk roofing tiles are given in table 2.

Load-carrying capacity

Based on testing and evaluation Isola Powertekk Nordic and Exclusive are considered to have adequate strength and stiffness at all relevant snow loads in Norway. Snow load for Isola Powertekk Plano shall not be higher than 7,5 kN/m². If there will be used an additional batten between (Distance front to front 186 mm) can Isola Powertekk Plano be used for all relevant snow loads also.

Tests with static concentrated loads on Isola Powertekk Nordic and Exclusive show that permanent deformation occurs at loads of just over 1 kN (approx. 10 cm x 10 cm load area) when the load is not placed at the bottom of the section waves. For Isola Powertekk Plano shall the load be placed only over battens where double tiles are located.

Safety in case of fire

Isola Powertekk roofing tiles have reaction to fire classification B_{ROOF} (t2) according to EN 13501-5. Classification for Nordic is valid on all substrates. Classification for Exclusive and Plano is valid for mounting on combustible and non-combustible substrate with a density of in minimum 11,25 kg/m³.

Durability

Isola Powertekk roofing tiles have a good corrosion protection because all surfaces and edges are coated with several treatments at the factory. Cuts, performed on building site for fitting the roof tiles to the roof geometry shall be treated with a corrosion proofing painting. However, in general roofing based on steel sheeting may be subject to corrosion damage over time in locations with particularly corrosive atmospheres.

5. Environmental aspects

Substances hazardous to health and environment

Isola Powertekk roofing tiles contain no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Effect on soil, surface water and ground water

The leaching properties to soil and water have not been tested.

Waste treatment/recycling

Isola Powertekk roofing tiles shall be sorted as metals. The product shall be delivered to an authorized waste treatment plant for material recovery.

Environmental declaration

No environmental declaration (EPD) has been worked out for Isola Powertekk roofing tiles.

6. Special conditions for use and installation

Design considerations

Isola Powertekk roofing tiles should always be mounted on top of a sub-roof. The product can be used on roofs with a slope down to 15° over approved roofing underlay. If the underlay consists either of a approved combined roofing underlay and wind barrier or a continuous waterproof layer such as a bituminous underlay with sealed overlaps, the tiles can be laid on roofs with a slope of down to approx. 10°. This type of waterproof layer should also be used on sites exposed to particularly harsh weather.

Installation

The tiles shall be fastened using screws or screw-nails made of corrosion-protected steel which forms part of the roofing system:

- Screw-nails for machine application: 2.7 x 50 mm
- Screws: 4.2 x 35 mm

The roofing tiles shall be placed on battens which are positioned with a distance between front to front of 369 mm for Isola Powertekk Nordic and Plano, and 371 mm for Isola Powertekk Exclusive like shown in fig. 5 and described in table 2.

Isola Powertekk roofing tiles fastened at the front edge as illustrated in fig. 6. Four screws or four screw-nails shall be used in each sheet, with the fastener placed approx. 60 mm to the side of the centre of the tile profile.

The fastening method requires the battens to be positioned at precise intervals. Battens of at least 30 mm x 48 mm for rafters in c-c of 600 mm are recommended.

Care must be taken to ensure that the roofing tiles are not damaged during the installation work, both as regards walking on the roofing and when fastening the tiles with screws or screw-nails. See the manufacturer's special installation guideline. Special repair sets are available for mending any damage of the surface.

Cutting of Isola Powertekk roofing tiles must be carried out using sheet-metal shears or a special saw with a hardened metal blade. Grinders or high-speed saws that generate high levels of heat in the cut sections shall not be used. Cut sections must be coated with corrosion-protective paint.

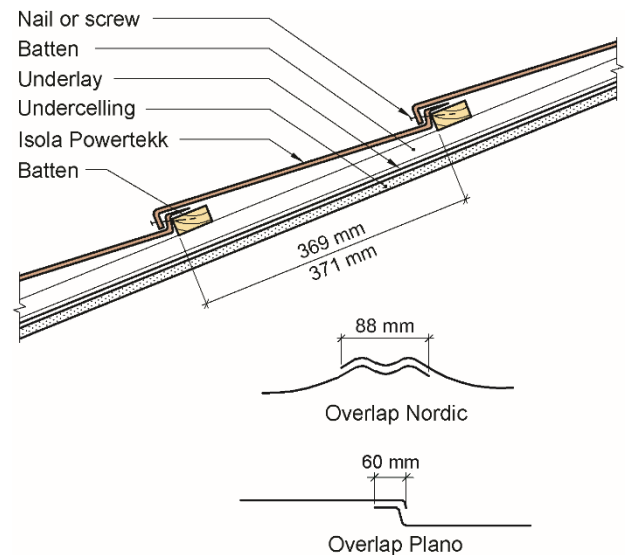


Fig. 6

Roofing tiles are laid on roof battens and counter battens

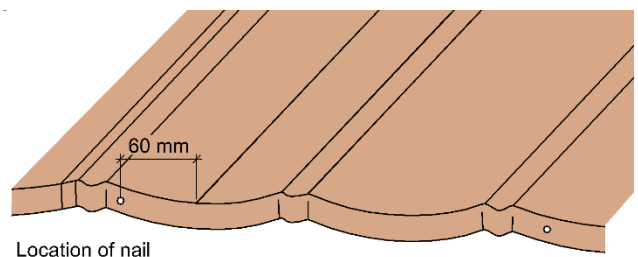


Fig. 7

Fastening method for Isola Powertekk Nordic and Isola Powertekk Exclusive

The roof surface must have good ventilation. Particular care must be taken to assure air supply below the tiles at the eaves, cf. the manufacturer's installation guideline.

Where a snow-guard is required, it must be specially designed for the profiling of Isola Powertekk roofing tiles.

In general, the roofing tiles should be installed in accordance with the principles given in the Building Research Design Guide 544.101 *Tekking med takstein. Materialer, legging og forankring* and 544.103 *Tekking med profilerte metallplater*, including openings in the roof surface and connections to other parts of the building structure. The need for a snow-guard for Isola Powertekk Nordic may be assumed to be the same as for roofing made of bituminous roofing membrane or shingles, and coarse concrete tiles. The need for snow-guard for Isola Powertekk Exclusive and Plano may be the same as for glazed roofing tiles. See also Building Research Design Guide 525.931 *Snøfangere*.

Maintenance

Deformation of tiles due to overloading may lead to damage to the corrosion protection. Roofing with Isola Powertekk roofing tiles should therefore be supplemented with specially designed roof ladder or roof -bridge where access to the roof is required for maintenance purposes. Walking on the roofing tiles must only be done with caution, and the foot should be positioned in the valley of the undulation directly above the roofing batten.

Transport and storage

The roofing tiles are stacked and stored on pallets with a heat-shrunk plastic hood cover. Pallets must not be stacked on top of each other.

7. Reuse

Isola Powertekk roofing tiles are suitable for reuse. The roof tiles are made of cold rolled steel and are installed using screws or screw-nails, allowing gentle assembly and disassembly.

This approval only covers new roof tiles. The condition of the reused roof tiles depends on maintenance, degradation and any damages. Therefore, the assessment of the roof tiles must be carried out in each individual case according to the manufacturer's guidelines for reuse.

When reassembling used Isola Powertekk roof tiles, the principles in section 6 Special conditions for use and installation and the manufacturer's guidelines for reuse must be followed. It is assumed that new screws are used for fastening.

8. Factory production control

Isola Powertekk roofing tiles are produced in the Czech Republic for Isola as, Norway.

The holder of the approval is responsible for the factory production control in order to ensure that the product is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

Isola as has a quality management system certified by Det Norske Veritas (DNV) in compliance with EN ISO 9001, certificate QSC-6011.

9. Basis for the approval

The evaluation of Isola Powertekk roofing tiles are based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given in SINTEF Building Research Design Guides.

10. Marking

Isola Powertekk products are marked on the reverse side of each roofing sheet with the product name and date of manufacture.

Isola Powertekk roofing tiles are CE marked in accordance with EN 14782.

The approval mark for SINTEF Technical Approval TG. 2265 may also be used.

11. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF



Hans Boye Skogstad
Approval Manager