

Birch Ply

FormPLUS



Metsä Wood FormPLUS plywood is the phenolic film overlaid panel choice for all formwork uses with high concrete surface quality requirements. FormPLUS plywood surface has a special treatment to resist the surface rippling, which ensures smooth high quality concrete surface from the first use.

Applications

Metsä Wood FormPLUS is a smooth surface, maintenance-free birch plywood panel for different concrete formwork applications: system shuttering, girder formwork, regeneration panels, element industry and concrete block industry.

The durable overlays ensure smooth concrete finish and multiple uses. The number of uses can rise up to 30 – 100 but is highly dependent on the used overlay, site practice, requirements of concrete finish, the quality of release agent and the maintenance, handling and storage practices.

Use high quality release agent to ensure easier and cleaner release. Make sure that the release agent is suitable with the panel overlay. Clean panels after each use to remove all concrete debris. Seal scratches with water proof paint and fill holes with water resistant filler. Afterwards, apply a fresh coat of release agent prior to each subsequent use.

Major advantages

- Surface resists rippling
- Smooth durable overlay
- Excellent strength-to-weight ratio
- Dimensionally stable
- Strong and rigid
- Easy to clean and re-use
- Easy to machine and fasten using conventional woodworking tools and fasteners
- Can withstand impacts and other forms of bruising
- Environmentally friendly
- Weather- and boil-proof bonding

Base plywood

The base plywood of Metsä Wood FormPLUS is Metsä Wood Birch. Birch plywood is made of cross-bonded 1.4 mm thick birch veneers bonded with weather- and boil-resistant phenol formaldehyde adhesive.

Designed and tailor-made to serve in demanding applications, birch plywood can be ordered with special oriented veneer structures to provide even higher strength and stiffness properties.

Overlay

A smooth and durable phenolic film is hot-pressed onto the panel surface. The film consists of special base papers impregnated with phenolic resin. A film with a basis weight of 220 g/m² is normally used. On the backside of the panel, the overlay has Metsä Wood FormPLUS logo imprinted into the panel surface. The overlay can also be ordered with customized logo. Standard film colour is dark brown. The phenol film is not UV resistant and the colour may change when exposed to sunlight over prolonged periods.

Surface properties

The Metsä Wood FormPLUS plywood panel surface has a special treatment which makes the surface moisture-resistant. Hence the FormPLUS panel surface is able to remarkably reduce surface rippling and provides a smooth concrete cast surface from the first use. The treatment is applied to the concrete side only, which normally has dark brown phenolic film without a logo. The backside of the panel has a film overlay with imprinted Metsä Wood FormPLUS logo.

The phenolic film surface is semi-glossy, smooth, hard and slippery. It withstands abrasion, is moisture-resistant and can tolerate commonly used chemicals as well as diluted acids and alkalis. The surface is easy to clean with water or steam. Moisture absorption is minimal.

ABRASION RESISTANCE*

	OVERLAY WEIGHT	TABER REVOLUTIONS**
FormPLUS	220 g/m ²	700

* Values are indicative and valid for new unused panels

**Abrasion resistance is tested according to EN 438-2 / DIN 53799

Edge sealing

Panel edges are sealed against moisture absorption with acrylic edge sealing paint. Even though edge sealing slows down the absorption of moisture into the wood, it does not eliminate it completely.

Panel sizes

	LENGTH (mm)	WIDTH (mm)					
		2,400	2,440	2,500	3,000	3,050	3,660
Form PLUS	1,200*	■	■	■	■	■	■
	1,220*	■	■	■	■	■	■
	1,250*	■	■	■	■	■	■
	1,500*	■	■	■	■	■	■
	1,525*	■	■	■	■	■	■

* The measurement indicates the orientation of the surface veneer grain.

■ = standard panel size

Other sizes are available on request.

Size tolerances

Measured in accordance with standard EN 324, the plywood size and squareness tolerances meet EN 315 requirements.

PANEL TOLERANCES

LENGTH / WIDTH	TOLERANCE
< 1,000 mm	±1 mm
1,000-2,000 mm	±2 mm
> 2,000 mm	±3 mm
Squareness	±0.1 % or ±1 mm/m
Edge straightness	±0.1 % or ±1 mm/m

Thickness, structures and thickness tolerances

The thickness tolerances fulfil the requirements of standard EN 315 and are in part more stringent than the official requirements.

THICKNESSES, STRUCTURES AND THICKNESS TOLERANCES OF THE PANELS *

NOMINAL THICKNESS (mm)	NUMBER OF PLYS (pcs)	THICKNESS TOLERANCE		WEIGHT (kg/m ²)
		min. (mm)	max. (mm)	
12	9	11.5	12.5	8.2
15	11	14.3	15.3	10.2
18	13	17.1	18.1	12.2
21	15	20.0	20.9	14.3

* Moisture content of the product affects its dimensions

* Average density of Metsä Wood birch plywood is 680 kg/m³ (at relative humidity of RH 65 %)

* Special structures and thicknesses are available on request

* Customised tolerances are possible but must be agreed separately

Bonding classes

Metsä Wood plywood panels are bonded with a weather- and boil-resistant phenol formaldehyde adhesive. The gluing meets the requirements of the standard EN 314-2 / Class 3 (exterior).

Formaldehyde emissions

Determined according to EN ISO 12460-3, the formaldehyde emitted by Metsä Wood FormPLUS falls far below the Class E1 requirement of ≤ 3.5 mg/(m²*h). The formaldehyde emission of Metsä Wood FormPLUS is approximately 0.2-0.3 mg/(m²*h).

Mechanical properties

Metsä Wood FormPLUS strength and elasticity properties are identical with the Metsä Wood Birch standard plywood properties. The properties are specified according to standards EN 789 and EN 1058 and can be found in the Metsä Wood Birch Declaration of Performance (DoP). DoP documents can be downloaded from www.metsawood.com/dop.

The Concrete formwork design data (permissible concrete pressure tables, design nomograms) for all Metsä Wood formwork panels can be found in Metsä Wood Concrete Formwork technical data.

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Machining

Metsä Wood FormPLUS plywood panels can be machined according to customer specification on request.

Packaging

Metsä Wood FormPLUS panels are packed in moisture-resistant plastic wrapping.

PACKING QUANTITIES

NUMBER OF PANELS PER PALLET BY THICKNESS

PANEL SIZE (mm)	12	15	18	21
1,500 /1,525 x 2,400–3,660 1,200/1,220/1,250 x 3,000–3,660	50	40	35	30
1,500 /1,525 x 1,500–2,135 1,200/1,220/1,250 x 1,200–2,750	70	60	50	45

Further information

- Metsä Wood Birch Declaration of Performance (www.metsawood.com/dop)
- Metsä Wood Concrete Formwork brochure
- Metsä Wood Concrete Formwork technical data

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06/2022