FINNO MATERIAL SPECIFICATIONS

Multi-jointed products

The wooden parts are made of impregnated glazed and varnished wood or glue-laminated timber. Handles and seats are aluminium and coated with natural rubber. Metal parts are either 1) aluminium, 2) stainless steel, 3a) hot-dip galvanised steel, 3b) blast-cleaned, zinc epoxy-coated and powder-painted steel or 3c) electrodeposited and powder-painted steel.

The joints function much like a spiral spring. Thanks to their enclosed structure, the joints require no maintenance or cleaning. Comprehensive, persistent testing has proven the joint to be a strong and safe solution for heavy use. Every joint is test-loaded after manufacture.

Spring animals

The wooden frames of spring animals are made of multi-layered laminated timber. The frame is cross-glued so that the naturally more hardwearing heartwood is on the outside. To prevent wear on the seat, the surface of the saddle is polyethylene. The handles and footrests are made of fibre-reinforced polypropylene. The frame has a weatherproof lacquer finish.

The panel-framed animals are made of 20-mm-thick high-pressure laminate, which requires no maintenance. UV irradiation is unable to compromise the quality of high-pressure laminate. The handles and seat are black and made of fibreglass-reinforced UV-protected polypropylene. The components withstand outdoor conditions commendably.

The springs and steel feet of both animals are blast-cleaned, zinc epoxy-coated and powder-painted. The foundations are hot-dip galvanised steel. The screws and bolts used to fasten the components are stainless and hot-dip galvanised steel. The foundations are fastened with hot-dip galvanised bolts and nuts.

Swing frames and seats

Lappset swing frames are both robust and easy to assemble and install. The wooden posts measure around 95 x 95 mm and are made of impregnated glue-laminated timber with a glaze finish. Each glue-laminated post comes with four glued bolts for fixing the tubular feet with flanges. The wooden parts of the swing frames are not in contact with the ground. The steel beams are electrodeposited and powder-painted. The posts used in the metallic swing models (010810, 010820, 010850) are 120 x 120 x 8 mm steel pipes, which have been blast-cleaned, zinc epoxy-coated and powder-painted. The beams are of glue-laminated timber, which has been impregnated and given a glaze finish.

All swing frames are supplied with bearings for fastening the seats.

Swing bearings

The bearings are made of stainless steel and come with a sleeve bearing in the moving part. The bearings are always replaced as a complete assembly. The design of the bearing allows the swing chain to rotate around the vertical axis as well.

Chains

The chains are made of 6 mm diameter stainless steel. Stainless steel provides the longest lasting corrosion resistance even in demanding conditions.
Play arenas

The wooden parts are of pressure-impregnated pine. Components of which particular strength is required as well as long, sturdy and bent components are made of glue-laminated timber. The wooden components are not in contact with the ground but are instead fixed to steel foundation posts, which are sunk into the ground.

The handrails that run on top of the walls (45 x 120) and the components of the goal frame (90 x 145) as well as all arch components are painted brown with a glaze finish.

All metal components are of hot-dip galvanised steel. The screws and bolts used to fasten the components are either stainless or hot-dip galvanised steel.

The backboard of the basketball stand is made of 21-mm-thick plywood, painted white. The hoop rim is electrodeposited steel with a black powder paint finish. The hoop is made of polyamide.

The goal net is made of black polyamide. The net is attached to the goal frame with a Ø 16 mm steel-reinforced polyamide rope. The rope is fixed to the posts with plastic couplings.

Play arena for Panna Knockout

The components of the round Panna Knockout arena are welded and comprise steel sheets, pipes and profiled beams. The net walls are made of strong welded netting. The frames of the net walls are arched steel pipe beams. The screws and nuts used to fasten the components of the arena are stainless steel. Steel components are electrodeposited and powder-painted. The play arena’s foundations are above ground and it has no underground components.

Wooden posts

The posts mostly measure around 95 x 95 mm and are made of impregnated glue-laminated timber with a glaze finish. The naturally more hardwearing heartwood is on the outside. Each post comes with four glued bolts for fixing the tubular feet with flanges. The wooden posts for products 150100–150405 are made of glue-laminated timber, are octagonal in shape and measure around 140 mm in diameter. The posts come with eight glued bolts for fixing the tubular feet with flanges.

Steel posts

The steel posts for products 150100–150405 measure 120 x 120 mm in thickness and are blast-cleaned, zinc epoxy-coated and powder-painted.

Post caps

Each post comes with a plastic (HDPE) cap. The cap protects the top of the post, which is the part most susceptible to moisture. The caps are available in yellow, grey and black depending on the product group.

Beams

The beams measure around 45, 70 or 90 x 145 mm and are made of impregnated pine with a glaze finish. Wooden swing beams measure 90 x 145 mm. Steel beams are electrodeposited and powder-painted or blast-cleaned, zinc epoxy-coated and painted.
Walls

The height of the walls is either 760 mm or 1,150 mm from floor level. The handrails measure around 45 x 95 mm, are impregnated to provide rot protection and have a blue-grey glaze finish. The profiled vertical boards measure around 32 x 95 mm or 45 x 95 mm in thickness and are finished with a water-based paint or a glaze. The colour options for the wooden walls are yellow, red and blue. Walls measuring 760 mm from floor level are also available in HPL. The colour options for HPL walls are blue and pale grey. The handrails of HPL walls are the same as those of wooden walls. The walls are fixed to the posts with fibre-reinforced plastic couplings.

Window, mirror and game walls

The components that make up the window, mirror and game walls for Finno products are mounted onto a special-purpose wall element. The window panel is made of impact-resistant polycarbonate. The game and the sand trap walls are made of weather-resistant high-pressure laminate (HPL) and polycarbonate. Sleeve bearings are used in rotating components to ensure maximum service life and low friction.

Roofs

The roofs are made of impregnated pine with a blue-grey glaze finish. Some of the products are also available with a shed roof. The roof is made of 21 mm painted plywood. The roof mountings are made of fibre-reinforced polyamide.

Forest roofs

The roofs in Lappset’s Forest products are made of painted paper-coated plywood. The plywood panels are painted blue or green with weather-resistant paint. The tube is electrodeposited and powder-painted. The plastic corner coupling is made of fibre-reinforced polyamide.

Floors

The floor planks measure 32 x 95 mm and are impregnated to provide rot protection. The floor element is supplied in two sections. The floor beams measure 45 x 145 mm and are made of impregnated pine with a glaze finish. Some of the floors in the Finno products 120136, 120137 and 120138 come with a coat of green polypropylene carpet.

Bridges

The bridges measure 1,600 mm, 2,400 mm or 3,600 mm in length and come with 16 mm steel-reinforced polyamide ropes.

Staircases

The steps comprise 32 mm thick impregnated glue-laminated pine. Other components are impregnated to provide rot protection and given a glaze finish. The ends of the handrails are rounded.

Rope ladders, chinning bars and fireman’s poles

Ropes and rope ladders are fixed to the timber or steel beam with plastic rope couplings.

The chinning bars, mounting brackets and fireman’s poles are electrodeposited and powder-
painted, providing effective protection against corrosion and wear.

The aluminium rungs of the rope ladders are fixed to the steel-reinforced rope with set screws. The aluminium rungs are first green-anodised and then powder-painted.

**Curved climbing ramp and climbing walls**

The steel-reinforced rope used in the climbing ramp has a diameter of 18 mm and a breaking strength of 6,600 kg. The curved sections are made of impregnated glue-laminated timber with a glaze finish. The surface of the curved wooden climbing ramp is made of 32 x 95 and 45 x 95 mm impregnated pine. The panel walls are made of HPL. The walls have footholds to facilitate climbing.

**Nets**

The steel-reinforced ropes used in the nets have a diameter of 16 mm and they are fixed to the posts and beams with plastic couplings. The breaking strength of the Ø 16 mm steel-reinforced ropes is 2,200 kg.

**Tunnels**

The coloured components of the tube tunnels are made of polypropylene and the transparent components of impact-resistant polycarbonate.

**Slides with wooden side panels**

The slide surface is made of 2-mm-thick stainless steel plates. The wooden handrails are made of impregnated curved glue-laminated timber with a glaze finish. The topmost lamella of the handrail is high-pressure laminate. The slide heights are +870 mm, +1,470 mm, and +2,070 mm and the slide angle is 36º.

**Tubular slides**

The tubular slide components can be used to build both straight and spiral slides. In addition to transparent, the slides are available in grey, yellow and red. Transparent tube components can only be used for straight slide sections. The transparent sections cannot be used as slide surfaces. The coloured sections are made of polypropylene and the transparent sections of impact-resistant polycarbonate. Lappset's design team is also happy to tailor the slide to your exact requirements by incorporating different colours and geometric shapes.

**Spiral slides**

The slide height is +2,000 mm. Prefabricated concrete bases can be used as foundations.

Products 120136, 120137, 120138 as well as 080480, 080481, 080482, 080483 and 080484

In order to improve colour contrasts and wear resistance properties, some of the steps are coated with either a screw-fastened aluminium sheet or a glued black safety walk surface.

**MOUNTING ALTERNATIVES**
Steel feet

The steel feet are made of hot-dip galvanised steel and measure about 700 mm in length. The diameter of the tube is 60 mm. The posts and pillars of the products 150100–150405 are supplied with steel feet. The torsional strength of the joint is 6,000 Nm. The feet are made of hot-dip galvanised steel and have a diameter of 89 mm. The feet are galvanised in accordance with the EN ISO 1461 standard.

The foundations used with the products 150100–150405 are either made with prefabricated concrete or alternatively the posts can be set into concrete on site. The foundations are buried at either 600 mm or 900 mm, depending on the size of the product.

The steel feet have flanges at both ends. A hot-dip galvanised foundation plate measuring 380 x 380 mm is attached to the bottom end. The plate eradicates the need for cast concrete in all but a few special circumstances. The steel feet only weigh 6 kg each, making them easy to manoeuvre on site and economic to transport. Most of the products can also be installed above ground.

Foundation plates for swings

A large foundation plate measuring about 1,000 x 350 mm is used with swing frames. The plate is made of 2.5 mm thick hot-dip galvanised steel sheet and fixed to the flange of the foundation of the swing post in the same way as the smaller plate. The plate design takes the angle of the swing post into consideration. Thanks to its large surface area, the plate ensures a strong hold when the swing is mounted with underground foundations without concrete.