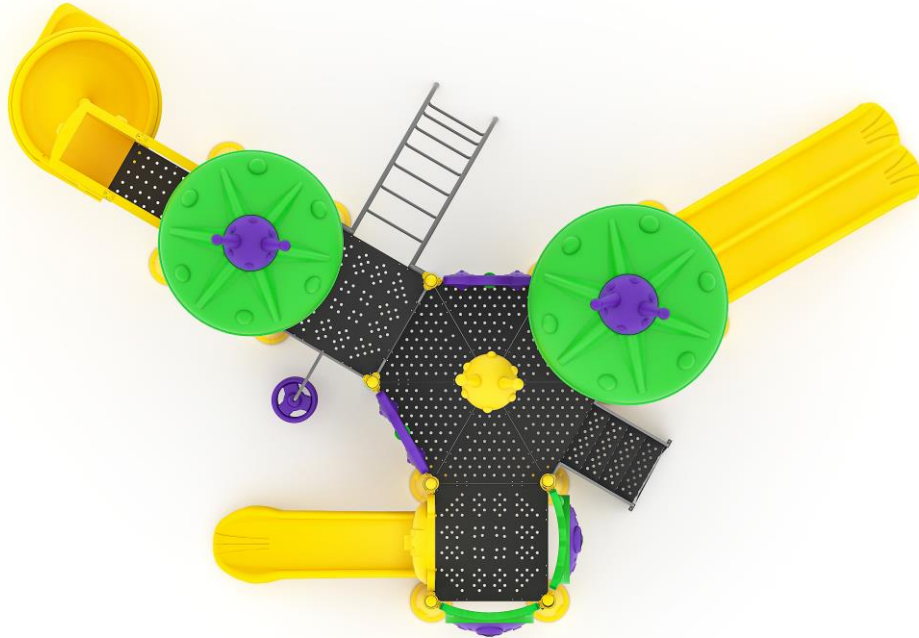




**SPACE-THEMED METAL PLAYGROUND SET**  
**TECHNICAL SPECIFICATIONS**

**75 M**



## **1) METAL LOAD-BEARING STRUCTURES**

The platforms, roofs, and other supporting elements of the playground equipment will be constructed from Ø 114mm steel profiles with a wall thickness of 2mm. The vertical pipes will be manufactured with 17 x 17 x 5 mm flanges welded to the bottom for connection to the platform and other elements, and for mounting purposes. The ends of the Ø 114 mm vertical sections will be sealed with self-colored, hexagonal hemispherical plastic plugs, manufactured using injection molding according to TS EN 1176-1 Safety Standards, to prevent water and similar substances from entering the profiles. These plugs will be used according to TS EN 1176-1 Standards.

## **4. PVC PLATFORMS**

### **4.1. PVC COATED SQUARE PLATFORM**

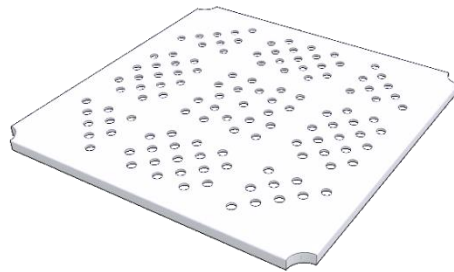
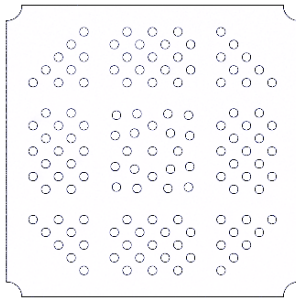
The platform will have a minimum size of 1150 x 1150 mm. It will be manufactured by cutting and bending a single piece of 1.5 mm thick DKP sheet metal, resulting in perforated sheet metal. The holes will not be between 8 mm and 25 mm to prevent finger pinching. Five 1.5 mm L-shaped sheets will be welded to the underside of the platform. The side height of the platform will be at least 70 mm.

The PVC frame will be coated with a corrosion-resistant plastisol coating at every point in contact with the air. This plastisol coating will be applied by dipping at 300°C, and an adhesive primer will also be applied to every point of the platform before hot coating and heated to 300°C. The thickness of the plastic coating will be a minimum of 2 mm at every point on the

top of the platform and a minimum of 1.5 mm on the bottom. Applying the adhesive primer to every point of the platform will prevent the coating from peeling off independently.

All holes in the platform will be drilled before the plastisol coating is applied. Absolutely no further work will be done on the platform after the coating is applied.

Furthermore, coatings applied to metal must comply with TS EN 1176-1/ARTICLE 4.1.6 "HAZARDOUS SUBSTANCES" classification (e.g., the proportions of elements such as zinc, sulfur, chromium, lead, and carbon must be less than 1%).



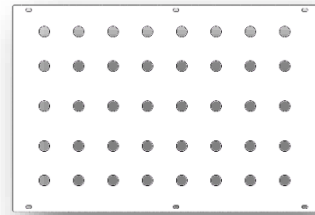
#### **4.2. PVC COATED SPIRAL SLIDE PLATFORM**

The platform will have minimum dimensions of 600 x 900 mm. Perforated sheet metal will be produced by cutting and bending a single piece of 1.5 mm thick DKP sheet metal. The holes will not be between 8 mm and 25 mm to prevent finger pinching. A single 1.5 mm L-shaped sheet metal will be welded underneath to form the platform.

The PVC frame will be coated with a corrosion-resistant plastisol coating at every point in contact with the air. This plastisol coating will be applied by dipping at 300°C, and an adhesive primer will also be applied to every point of the platform before hot coating and heated to 300°C. The thickness of the plastic coating will be a minimum of 1.5 mm at every point on the top of the platform and a minimum of 2 mm on the bottom. Applying the adhesive primer to every point of the platform will prevent the coating from peeling off independently.

All holes in the platform will be drilled before the plastisol coating is applied. Absolutely no further work will be done on the platform after the coating is applied.

Furthermore, coatings applied to metal must comply with TS EN 1176-1/ARTICLE 4.1.6 "HAZARDOUS SUBSTANCES" classification (e.g., the proportions of elements such as zinc, sulfur, chromium, lead, and carbon must be less than 1%).



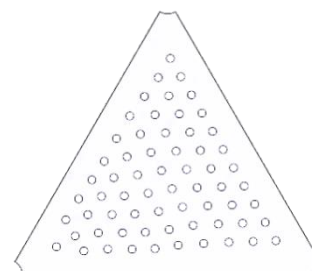
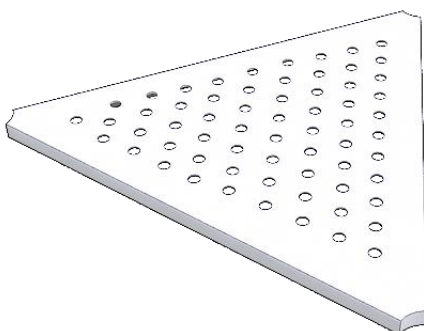
#### 4.3. PVC COATED TRIANGULAR PLATFORM

The platform will be an equilateral triangle with a minimum side size of 1150 mm. Perforated sheet metal will be produced by cutting and bending a single piece of 1.5 mm thick DKP sheet metal. The holes will not be between 8 mm and 25 mm to prevent finger pinching. Two 1.5 mm L-shaped sheets of metal will be welded underneath to form the platform.

A corrosion-resistant plastisol coating will be applied to every point of the constructed frame that comes into contact with the air. This plastisol coating will be applied by dipping at a temperature of 300°C, and additionally, an adhesive primer will be applied to every point of the platform before hot coating and heated to 300°C. The thickness of the plastic coating will be a minimum of 2 mm at every point on the top of the platform and a minimum of 1.5 mm on the bottom. Applying the adhesive primer to every point of the platform will prevent the coating from peeling off independently.

All holes in the platform will be drilled before the plastisol coating is applied. Absolutely no further work will be done on the platform after the coating is applied.

Furthermore, coatings applied to metal must comply with TS EN 1176-1/ARTICLE 4.1.6 "HAZARDOUS SUBSTANCES" classification (e.g., the proportions of elements such as zinc, sulfur, chromium, lead, and carbon must be less than 1%).



## 5. PVC COATED STAIRS

### 5.1. FOUR-STEP (H 100 cm) PVC COATED ENTRANCE STAIRCASE AND RAILING

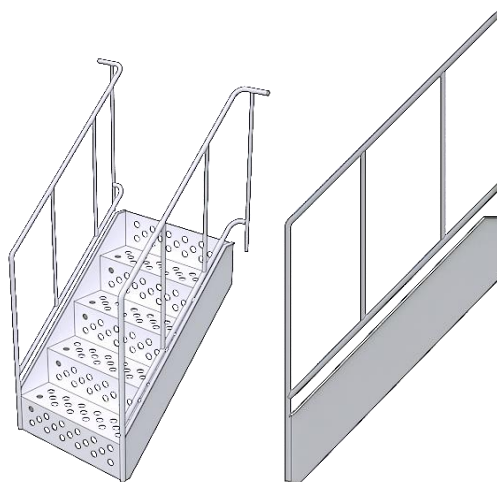
The steps will be manufactured from perforated sheet metal, cut and bent from a single piece of 1.5 mm thick DKP sheet metal, with even the gaps between the steps closed. The holes will not be between 8mm and 25mm to prevent finger pinching. **The step length will be a minimum of 140 mm and a maximum of 275 mm, and the step width will be 650 mm.**

A corrosion-resistant plastisol coating will be applied to every point of the constructed frame that comes into contact with the air. This plastisol coating will be applied by dipping at a temperature of 300°C, and additionally, an adhesive primer will be applied to every point of the platform before hot coating and heated to 300°C. The thickness of the plastic coating will be a minimum of 1.5mm at every point on the top of the platform and a minimum of 1.5mm at every point on the bottom. The application of the adhesive primer to every point of the platform will prevent the coating from peeling off independently.

The stairs will be constructed in groups of four steps to achieve a 1000 mm elevation difference from the ground to the platform. The minimum step height of the stairs will be 110 mm.

Stair railings will be manufactured in sets of two for each group of stairs, with a minimum height of 500 mm and a maximum height of 850 mm. The horizontal pipes of the stair railing will be made of minimum Ø27 x 2 mm pipe, and the vertical pipes will be made of minimum Ø21 x 2 mm pipe. The materials forming the railing will be welded together using a gas welding machine and, after sandblasting, will be painted by baking with polyester-based electrostatic powder paint. The spacing between the railings on the stair railing leading from platform to platform will be a maximum of 89 mm. The stairs will be mounted to the platform using galvanized bolts and nuts. The railing pipes will be attached to the support post using polyamide clamps.

Furthermore, coatings applied to metal must comply with TS EN 1176-1/ARTICLE 4.1.6 "HAZARDOUS SUBSTANCES" classification (e.g., the proportions of elements such as zinc, sulfur, chromium, lead, and carbon must be less than 1%).



## **6.2. POLYETHYLENE STRAIGHT SLIDES**

### **6.2.1. POLYETHYLENE STRAIGHT SLIDE (H 1000 mm)**

Straight slides will be manufactured in accordance with TS EN 1176-3 standards and norms.

The straight slide to be manufactured will have an entrance, a sliding section, and an exit section. The maximum free-fall height of the platform on which the slide will be mounted will be at least 1000 mm from the playing surface. The length of the entrance section of the slide will be 350 mm when the slide is attached independently. The downward slope tolerance of the starting section should be between 0° and 5° when measured along the center line of the starting section in the direction of the slide's length. For a 1000 mm slide, the angle of inclination of the sliding section with respect to the horizontal will not exceed 60° at any point and will not exceed 40° on average.

The handrail side walls will be at least 100 mm high, and the handrails will be rounded to give them the necessary shape. The exit section of the slide will have an entrance length of 350 mm and a total length of 500 mm. The radius at the exit section will be 90 mm from the ground. The height of the exit section from the ground will be between 190 and 300 mm.

The slides will be manufactured with a minimum sliding surface thickness of 6 mm for heights of 1000 mm, and 4 mm thickness for other surfaces. They will be produced in a single piece and double-walled structure using a rotational molding system from self-colored, original polyethylene raw material.



### **6.3.2. POLYETHYLENE SPIRAL SLIDE (H 2000 mm)**

Spiral slides will be manufactured in accordance with TS EN 1176-3 standards and norms. The spiral slide to be manufactured will have an entrance, a sliding section, and an exit section. The maximum free fall height will be 2000 mm in total. The entrance section will be at least 350 mm and the exit section will be 500 mm. The entrance section will not be considered when connected to a platform. The downward slope tolerance of the starting section should be between 0° and 5° when measured along the center line of the starting section in the direction of the slide's length.

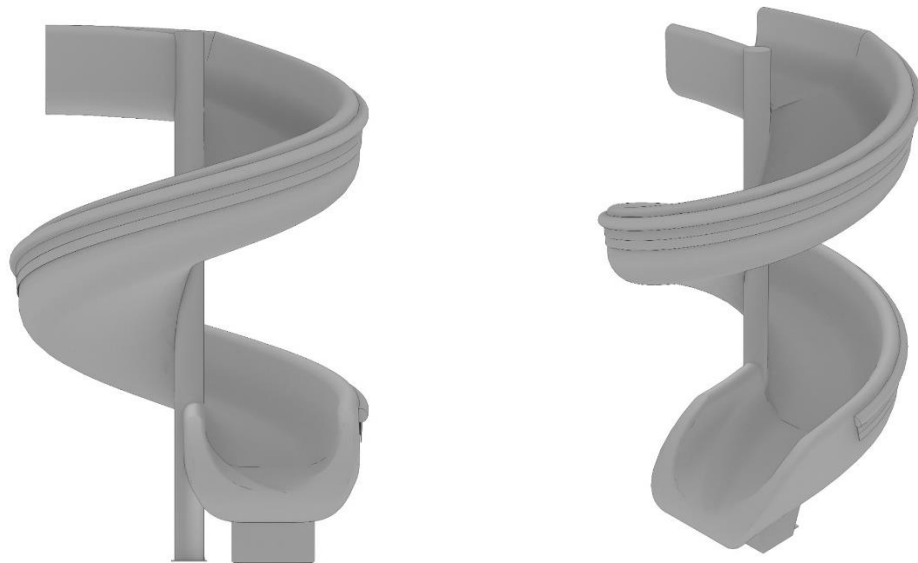
The sliding section of the spiral slide will never have an angle of inclination with the horizontal exceeding 60° at any point, and its average angle will not exceed 40°.

The handrail side walls will be at least 1500 mm high, and the handrails will be rounded to give them the required shape. The exit section of the slide will have a plane length of 500 mm with a 5% slope, and the end of the exit section will be rounded towards the ground with a radius of 50 mm to give it the required shape.

The spiral slide will be manufactured with a sliding width of at least 700 mm. The height of the exit section of the slide from the playing surface will be 190-300 mm.

The spiral slide will be manufactured as a single piece with double walls. The 2000 mm spiral slide is designed to provide children with a larger sliding area. 1 lap or 1.25 laps It will be manufactured to rotate.

The slides will be manufactured from H 2000 mm original polyethylene raw material using a rotational molding system, in a single piece and with double walls.



#### **6.5.2. POLYETHYLENE (H 150 cm) WAVE SLIDE**

Wavy slides will be manufactured in accordance with TS EN 1176-3 standards and norms.

The wavy slide to be manufactured will have an entrance, a sliding section, and an exit section. The maximum free-fall height of the platform on which the slide will be mounted will be at least 1500 mm from the playing surface.

The length of the starting section of the slide will be 350 mm when the slide is connected independently. The downward slope tolerance of the starting section should be between 0° and 5° when measured along the center line of the starting section in the direction of the slide's length. For a slide with a length of H 1500 mm, the angle of inclination that the slide makes with the horizontal will not exceed 60° at any point and will not exceed 40° on average.

The handrail side walls will be at least 100 mm high, and the handrails will be rounded to give them the necessary shape. The exit section of the slide will be 350 mm long. The end of the exit section will be radiused towards the ground with a radius of 50 mm. The height of the exit section from the ground will be between 190 and 300 mm.

H 1500 mm slides will be produced from self-colored, original polyethylene raw material using a rotational molding system, in a single piece and with double walls.



#### 6.14.6. CLASSIC DOOR-SHAPED PANEL

The panels are elements that prevent users from falling from high-level play surfaces on the playground equipment. They will be manufactured according to TS EN 1176-1 safety regulations. The panel will be made of polyethylene in a single piece and double-walled. The enclosure will be a separate piece. The panel dimensions will be 1000 x 1200 mm. The enclosure will be made of 6mm thick plexiglass and mounted to the panel using galvanized bolts. The cross-section of the enclosure will be as shown in the figure. The polyethylene panel will be connected to the support pole with  $\varnothing 27 \times 2$  mm sandblasted and electrostatically powder-coated pipes using polyamide clamps. These pipes will pass through the polyethylene railings as a whole. Holes will be drilled at the connection points of the pipes with the panels to allow the passage of 27 mm diameter pipes.



#### Classic top panel.

The panels are elements that prevent users from falling from the elevated playing surfaces of the playground equipment. They will be manufactured according to TS EN

1176-1 safety regulations. The upper panel is an element that prevents users from falling from the elevated playing surfaces of the playground equipment. The panel will be made of polyethylene in a single piece and double-walled. The panel dimensions will be 440 x 1130 mm.

The polyethylene panel will be attached to the support post using polyamide clamps with Ø27 x 2 mm pipes. These pipes will be passed through the polyethylene railings as a whole. Holes large enough for the 27 mm diameter pipe will be drilled at the connection points of the pipes and panels during installation.



#### **6.18. ROCKET THEMED PANEL**

The panels are elements that prevent users from falling from high-level play surfaces on the playground equipment. They will be manufactured according to TS EN 1176-1 safety regulations. The panel will also allow children to learn while having fun. The space-themed panel will be made of polyethylene in a single piece and double-walled with cylinders featuring embossed numbers and educational symbols. The space-themed panel will measure 890 x 980 mm. Three panels, each measuring 260 x 220 mm, will be attached to the support pole using Ø27 x 2 mm sandblasted pipes with polyamide clamps. These pipes will pass through the polyethylene railings as a whole. Holes will be drilled at the connection points of the pipes with the panels to allow the passage of 27 mm diameter pipes.



#### **6.20. ALIEN PANEL**

The panels are elements that prevent users from falling from high-level play surfaces on the playground equipment. They will be manufactured according to TS EN 1176-1 safety regulations. The panel will be made of polyethylene in a single piece and double-walled. The alien figure will be a separate piece. The panel dimensions will be 1000 x 1200 mm. The alien

figure to be used will be made of polyethylene material, single-walled, with dimensions of 860 x 860 mm, and will be mounted to the panel using galvanized bolts. The cross-section of the alien figure will be as shown in the figure. The polyethylene panel will be connected to the support pole with Ø27 x 2 mm sandblasted and electrostatically powder-coated pipes using polyamide clamps. These pipes will pass through the polyethylene railings as a whole. Holes will be drilled at the connection points of the pipes with the panels to allow the passage of 27 mm diameter pipes.



### 6.21.2. TWIN SLIDE ENTRANCE RAILING

Polyethylene barriers will be installed at the entrance of the slides to slow children down and ensure safe entry. These will be manufactured according to TS EN 1176-1 safety standards. The barriers will prevent children from standing at the entrance of the slide. The slide entrance railing will be made of polyethylene in a single piece and double-walled. The twin slide entrance railing will have dimensions of 1000 x 1000 mm.

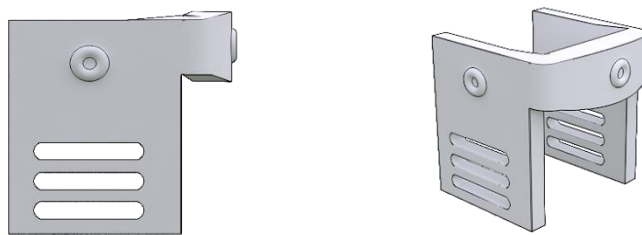
The polyethylene slide entrance railings will be attached to the support post from above using Ø27 x 2 mm sandblasted pipes with polyamide clamps. These pipes will pass through the polyethylene railings as a whole. Holes large enough for 27 mm diameter pipes will be drilled at the connection points of the pipes with the panels during installation.



### 21.3. Spiral Slide Entrance Railing

Polyethylene barriers will be installed at the entrance of the slides to slow children down and ensure safe entry. They will be manufactured according to TS EN 1176-1 safety standards. The barriers will prevent children from standing at the slide entrance. The slide entrance railing

will be made of polyethylene in a single piece with double walls. The spiral slide entrance railing will have dimensions of 950 x 940 x 140 mm. The polyethylene slide entrance railing will be mounted to the top of the spiral slide using galvanized bolts and nuts.



#### **6.21.4) SPIRAL SLIDE RAILING SIDE PANELS**

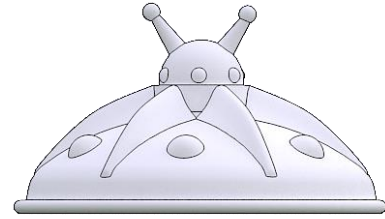
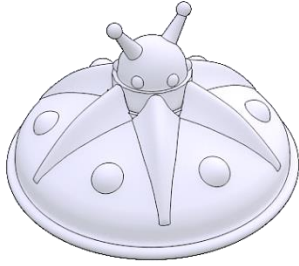
Polyethylene barriers will be installed at the entrance of the slides to slow children down and ensure safe entry. They will be manufactured according to TS EN 1176-1 safety standards. The barriers will prevent children from standing at the slide entrance. The side panels of the slide entrance railing will be made of polyethylene in a single piece and double-walled. The spiral slide entrance railing side panels will have dimensions of 420 x 600 x 640 mm. The polyethylene slide entrance railing side panels will be attached to the support post using Ø27 x 2 mm sandblasted and painted pipes with polyamide clamps.



#### **6.22.11. UFO ROOF POLYETHYLENE ROOFS**

It is used as a visually complementary element to the play structures. The polyethylene roof will be manufactured with dimensions of Ø1850 x 1100 mm and suitable for a square platform. It will be made of single-walled, self-colored polyethylene raw material and produced using a rotational molding system. The upper surface of the roof will feature embossed patterns.

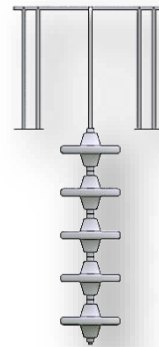
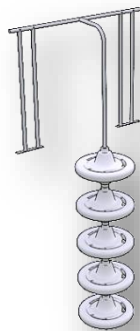
The roof support posts will be placed on top of the posts and mounted with galvanized bolts; no other fasteners will be used in between.



#### 6.23.4. POLYETHYLENE UFO CLIMBING (H 150 cm)

Polyethylene UFO-shaped climbing structures will be used to provide a unique and fun way to climb from the ground to the platform. The main support structure for the climb will be constructed from a single piece of Ø32 x 2 mm pipe bent into an "L" shape. Double-walled, single-piece polyethylene UFO-shaped steps will be fitted onto the support pipe. Each UFO-shaped step will be 280 mm high. Five UFOs will be used for a 1500 mm platform. The UFOs will be secured to the support pole with galvanized bolts to prevent them from rotating.

The constructed system will be mounted to the upper support post by welding a horizontal Ø27 x 2 mm pipe to it and using polyamide clamps.



#### UFO FIGURE

The figures will be manufactured to fit onto a Ø114mm diameter support pipe and will be mounted using galvanized bolts and nuts. The figures will be made of double-walled polyethylene. They will be mounted at a minimum height of 150cm from the platform or standing level.

The figure will have a UFO-like appearance and weigh 7 kg.



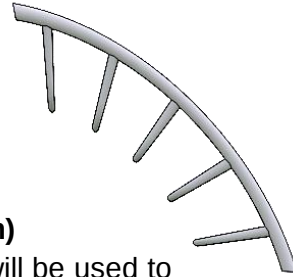
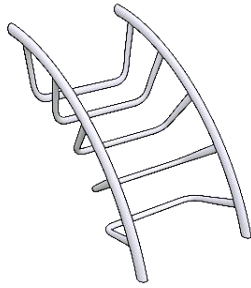
### UFO FOOT CLOSURE

The figures will be manufactured to fit onto a Ø114mm diameter carrier pipe and will be mounted using galvanized bolts and nuts. The figures will be made of two-piece double-walled polyethylene. They will be used to conceal the connection of the carrier system to the ground anchors by being placed on the ground. The figure has a UFO appearance. **and... kg** It will weigh [weight].



### METAL ARC CLIMBING ROD (H 150 cm)

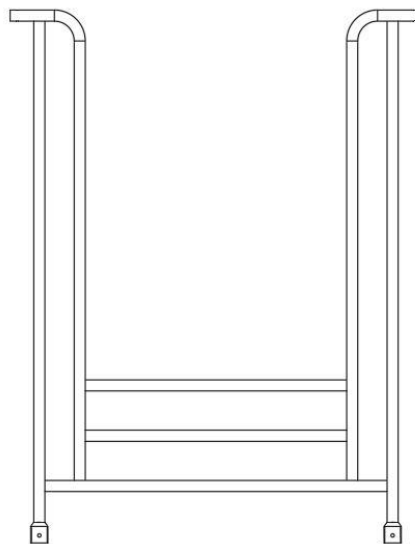
The metal climbing supports in the playground equipment, designed to aid children's exercise, will be made from a single piece of Ø48x2mm pipe, bent into a quarter-circle shape. Spacing will be adjusted to comply with head and neck restraints as specified in TS EN 1176-1. The metal climb will be designed to allow access to a platform 1500 mm high. The materials forming the climb will be welded together using a gas welding machine, sandblasted as a whole, and then painted with polyester-based electrostatic powder coating and baked in an oven. The metal climb will be mounted to the platform using galvanized bolts and nuts, and to the ground using anchors and concrete.



### **VERTICAL STAIRS (H 50 cm)**

The metal vertical staircase will be used to provide access between platforms at different levels and as a barrier in these gaps. The main support structure of the vertical staircase will be made of Ø27x2mm pipe, and the step pipes will also be made of Ø27x2mm pipe. The materials forming the railing will be welded together using a gas welding machine, and after sandblasting, they will be painted with polyester-based electrostatic powder coating and baked in an oven.

The distances between the steps will be adjusted to equal intervals according to the platform level difference, in accordance with the head and neck catches specified in TS EN 1176-1. The vertical ladder will be attached to the platform with galvanized bolts and nuts, and to the main support structure with polyamide clamps.



## **CONNECTING ELEMENTS**

### **POLYETHYLENE CLAMP (with vertical jaw connection)**

The railing clamps will be manufactured from polyamide-based material using the injection molding method, in accordance with the drawing shown. They will be suitable for carrier pipes with an inner diameter of Ø114 mm and will not have any play or wobble when attached to the pipe and the bolts tightened. After the clamp connection is complete, there should be no protrusions or sharp edges that could cause injury. The bolt connections will be designed to prevent spontaneous loosening. The bolt heads and nuts will remain inside the plastic product.



### **SANDBLASTING AND ELECTROSTATIC POWDER OVEN PAINTING**

All metal parts will be prepared for painting by applying sandblasting, the most effective method for removing oil, dirt, and rust that would hinder painting. This will relieve stress in the welded areas and create pores on the surface to ensure better paint adhesion. The sandblasting process involves spraying fine metal pellets, filled in a pressure-resistant chamber, with compressed air to create pores for paint adhesion and remove oil, rust, and dirt from the metal surface. The surface cleaning process will be performed using S-330-390 type steel grits for 4-5 minutes. The sandblasting process must meet the TS EN ISO 8501-1 SA2.5 standard quality.

After sandblasting all metal parts, they will be coated with polyester-based electrostatic paint and then baked in an oven at a temperature of at least 200–220 degrees Celsius for 20 minutes to complete the painting process. Metal coatings must comply with TS EN 1176-1 ARTICLE 4.1.6 HAZARDOUS SUBSTANCES classification (e.g., zinc, sulfur, chromium, lead, carbon, etc., proportions must be less than 1%).