



UNION INTERNATIONALE  
DE PENTATHLON MODERNE

# UIPM OBSTACLE CATALOGUE

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# Contents

<b>Introduction</b> .....	3
<b>1. Types of courses</b>	
1.1. UIPM Pentathlon Junior World Championships.....	4
1.2. Other UIPM Category A, B, C competitions.....	5
1.3. Other competitions.....	6
<b>2. Obstacles classification and general structure</b>	
2.1. Obstacles classification.....	7
2.2. Structural components.....	8
<b>3. Obstacles description</b>	
Obstacle 1. Steps.....	12
Obstacle 2. Big wheel.....	13
Obstacle 3. 1.5m wall.....	14
Obstacle 4. Over-under.....	15
Obstacle 5. Over-under-through.....	16
Obstacle 6. Rings.....	17
Obstacle 7. Balance beam.....	18
Obstacle 8. Giant steps.....	19
Obstacle 9. Lisbon steps.....	20
Obstacle 10. Wheels.....	21
Obstacle 11. Monkey bars.....	22
Obstacle 12. Swinging globes.....	23
Obstacle 13. Tilting ladders.....	24
Obstacle 14. Finish wall.....	25
<b>4. Safety</b> .....	26
<b>5. Glossary</b> .....	28

# Introduction

This catalogue complements the [UIPM Obstacle Discipline Competition Guidelines](#) published after the new discipline was approved by UIPM 2022 Congress. It is an essential resource that will give athletes, coaches, National Federations and competition organisers the dimensions, parameters, sequence and placement of obstacles to be used at all competition levels for Under 17 (U17), Under 19 (U19) and Junior age groups.

The obstacles presented in this catalogue were selected by the ad-hoc group assigned to elaborate and test competition features and technical details. The group comprised representatives of the UIPM Athletes, Coaches, Technical and Medical Committees as well as an external obstacle expert.

In addition to closely following the four New Pentathlon Discipline Test Events held in 2022 in Ankara (TUR), Manila (PHI), Lignano Sabbiadoro (ITA) and Zielona Gora (POL), the ad-hoc group discussed possibilities and options throughout the season. With a huge number and variety of obstacles in the market, the following principles were observed:

- To provide elements that challenge pentathletes' skills
- To be attractive and appealing for athletes and the public, especially young generations
- To reduce the cost and complexity of training and competition
- To be universally accessible
- To ensure safe conditions for its practice.

Furthermore, as part of the Obstacle Discipline implementation process, the Catalogue will be revised and updated before the beginning of the 2024 season with attention to the number of obstacles, length of the course and integration with the Modern Pentathlon points system.

# 1. Types of courses

This section contains the general course regulations for various events. No matter the level of the event or the flexibility to be applied to its organisation, the course set-up will always consist of eight obstacles over a 60m-70m distance for both individual and relay competitions.

The length of the course is a horizontal distance measured along the centreline of a lane from the vertical plane of the start line to the vertical plane of the finish buzzer centreline, with the athletes competing in two lanes (please see Figures 1 and 2).

The course can be set on a straight line, curve, or “u”/ “v” shape. The examples shown on the figures above mentioned refers to a straight-line course.

## 1.1. UIPM Pentathlon Junior World Championships

In the UIPM Pentathlon Junior World Championships, six of the eight obstacles on the course are fixed by UIPM, while the competition Local Organising Committee (LOC) can select the other two obstacles.

The configuration of the course must be according to **Table 1**. Obstacles 3 and 7 in the first column shall be chosen by the LOC from the three options available in the adjacent columns. The LOC choices must be communicated in the competition invitation letter.

In the UIPM Pentathlon Junior World Championships, platforms must be installed before and after each obstacle according to **Figure 1** with mattresses covering all areas where a fall from height can happen (see items 2.2 c) and d).

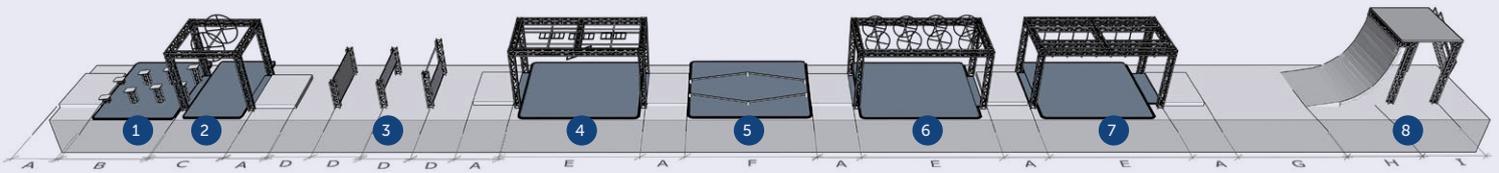
**Table 1. UIPM Pentathlon Junior World Championships: course configuration options**

	OBSTACLES	LOC CHOICE 1	LOC CHOICE 2
1	Steps	1.5m wall	Swinging globes
2	Big wheel	Over-under	Rings
3	LOC CHOICE 1	Over-under-through	Monkey bars
4	Tilting ladders		
5	Balance beam		
6	Wheels		
7	LOC CHOICE 2		
8	Finish wall		

The course must be set on an elevated structure. The height of the running surface must be constant with a minimum of 40cm and a maximum of 100cm from the ground. Structural components may be wider and higher than those described in section 3 of this catalogue to adapt the construction of the obstacles to the elevated structure. Regardless, the obstacle characteristics described in each section will remain the same, while maintaining standard obstacle functionality. The same adjustments are necessary for platforms described on item 2.2 c).

In **Figure 1** a simplified view of the course is presented with obstacle 3 choice “over-under-through” and obstacle 7 choice “swinging globes”.

**Figure 1. UIPM Pentathlon Junior World Championships: simplified profile view of course**



**Obstacle length and spacing**

A (platform).....	200cm	D.....	200cm (+/-50cm)	G.....	500cm (+/-50cm)
B.....	400cm	E.....	680cm**	H.....	350cm
C.....	380cm*	F.....	600cm (+/-50cm)	I.....	250cm

\*The distance includes 300cm (horizontal truss length) + 2 x 40cm (each vertical truss at the start/end of the obstacle)  
 \*\*The distance includes 600cm (horizontal truss length) + 2 x 40cm (each vertical truss at the start/end of the obstacle)

## 1.2. Other UIPM Category A, B, C competitions

In all other UIPM Category A, B and C competitions, six of the eight obstacles on the course are fixed by UIPM for consistency across all events during the season, while each LOC can select the other two obstacles. This includes the UIPM Pentathlon U19 and U17 World Championships.

The configuration of the course must be according to **Table 2**. Obstacles 3 and 5 in the first column shall be chosen by the LOC from the three options available in the adjacent columns. The LOC choices must be communicated in the competition invitation letter.

**Table 2. Other UIPM Category A, B, C competitions: course configuration options**

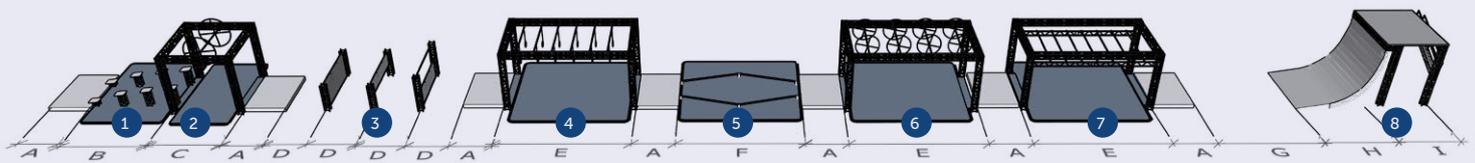
	OBSTACLES	LOC CHOICE 1	LOC CHOICE 2
1	Steps	1.5m wall	Balance beam
2	Big wheel	Over-under	Giant steps
3	LOC CHOICE 1	Over-under-through	Lisbon steps
4	Rings		
5	LOC CHOICE 2		
6	Wheels		
7	Monkey bars		
8	Finish wall		

Platforms must be installed before and after each obstacle according to **Figure 2** with mattresses covering all areas where a fall from height can happen (see items 2.2 c) and d).

With the exception of the UIPM Pentathlon Junior World Championships, all Category A, B and C competition courses can be built with obstacles set directly on ground level.

In **Figure 2** a simplified view of the course is presented with obstacle 3 choice “over-under-through” and obstacle 5 choice “balance beam”.

**Figure 2. Other UIPM Category A, B, C competitions: simplified profile view of course**



**Obstacle length and spacing**

A (platform).....	200cm	D.....	200cm (+/-50cm)	G .....	500cm (+/-50cm)
B .....	400cm	E .....	660cm**	H.....	350cm
C.....	360cm*	F .....	600cm (+/-50cm)	I .....	250cm

\*The distance includes 300cm (horizontal truss length) + 2 x 30cm (each vertical truss at the start/end of the obstacle)  
 \*\*The distance includes 600cm (horizontal truss length) + 2 x 30cm (each vertical truss at the start/end of the obstacle)

### 1.3. Other competitions

LOCs can have more flexibility in Category B and C competitions for U17, U19 and Junior age groups (beneath UIPM World Championships level). But where this flexibility is applied, as explained below, no Pentathlon World Ranking (PWR) points will be granted.

Changing the order of the obstacles is allowed, but modifying their dimensions is not permitted, to ensure the consistency and safety of the competition. Obstacles not listed in this catalogue cannot be used. Using materials other than trusses will be allowed to build structural components (see item 2.2) provided the materials and construction methods meet all safety requirements presented in this catalogue.

Instead of platforms before and after each obstacle, a line can be marked on the ground (or on the safety mattress) clearly indicating the beginning and the finish of each obstacle.

For national competitions, LOCs are given the flexibility to make changes to the obstacle course design. However, the basic structure of the course – eight obstacles and 60/70m in length – must remain consistent. It is important to stress that any obstacle with a structural element must be built according to a qualified professional-approved design. The LOC must always be sure the course is designed and built for minimum risk<sup>1</sup> and its level of difficulty is adequate for competitors.

1 Seiden, R. Matthew. 1984. Product Safety for Engineers and Managers: A Practical Handbook and Guide. Prentice-Hall, Englewood Cliffs, NJ

## 2. Obstacles classification and general structure

### 2.1. Obstacles classification

The obstacles presented in the courses in section 1 were divided into five simplified categories. These categories were determined by some of the elements that make up the fitness components defined by the scientific literature:<sup>2, 3, 4, 5</sup>

- **Power**  
The ability to exert maximum force through a move as quickly as possible. The two components of power are strength and speed.
- **Balance**  
Postural control both moving and stationary.
- **Agility**  
The ability to perform sudden movements in quick succession and in opposite directions.
- **Coordination**  
The ability to execute smooth, accurate, controlled movements, including hand-eye coordination and gross motor skills.
- **Strength (grip strength)**  
The force applied by the hand to pull on or suspend from objects; a specific part of hand strength.

**Table 3** provides the list and classification of obstacles by categories, as well as the specific body segment involved in their successful completion.

**Table 3: Obstacles classification list**

1	Steps	A-C	LB	8	Giant steps	A-C	LB
2	Big wheel	P-C-G	M	9	Lisbon steps	B-A-C	LB
3	1.5m wall	P-A	M	10	Wheels	G-C	UB
4	Over-under	P-A	M	11	Monkey bars	G-C	UB
5	Over-under-through	P-A	M	12	Swinging globes	G-C	UB
6	Rings	C-G	UB	13	Tilting ladders	G-C	UB
7	Balance beam	C-B	LB	14	Finish wall	P	M

P – Power; B – Balance; A – Agility; C – Coordination; G – Grip strength // UB – Upper body; LB – Lower body; M – Mix

2 McArdle, W. D., Katch, F. I., & Katch, V. L. (2016). *Essentials of exercise physiology*. Philadelphia: Wolters Kluwer. pp 186-187

3 Cronin J, Lawton T, Harris N, Kilding A, McMaster DT. A Brief Review of Handgrip Strength and Sport Performance. *J Strength Cond Res*. 2017 Nov;31(11):3187-3217.

4 P. U. (2019). *Fundamentals of Sport and Exercise Psychology*. Human Kinetics.

5 Kottke, F. J. From reflex to skill: the training of coordination. *Arch Phys Med Rehabil* 1980 Dec;61(12):551-61

## 2.2. Structural components

### a) UIPM competitions

The architecture of obstacles is an essential part of the course to maintain long-term consistency across competitions and ensure the safety of athletes. The technical specifications for the obstacles, including their dimensions and structural integrity, are outlined in section 3.

In UIPM competitions, the structures used are of the truss type, with a square cross-section.

The dimensions for these structures vary depending on course characteristics and competition level.

**For the UIPM Pentathlon Junior World Championships, the trusses square cross-section shall measure 40cm x 40cm and 2mm wall thickness.** This provides more rigidity and stability to accommodate the increased obstacle heights. **For other UIPM competitions, the trusses square cross-section dimensions can be set at 30cm x 30cm. These dimensions are mandatory to ensure the safety of the course.**

The standardised truss structure to be used in UIPM events is made in 6082 Aluminum alloy with TUV Homologation. It is chosen for its high strength-to-weight ratio, durability, and ease of assembly, making it the ideal choice for temporary structures that need to be set up and taken down frequently. Additionally, the square cross-section allows for a greater degree of flexibility in terms of layout.

To ensure safety and stability of structural components of rings, wheels, monkey bars, swinging globes and tilting ladders, in UIPM events only 600cm long trusses will be accepted. Therefore, two segments of 300cm each will not be allowed.

When building obstacles using trusses, all load calculations must follow the norm UN-ENV 1999-1-1 (Eurocode 9).

Figure 3: Basic obstacle truss structure



#### Technical description of the truss

- Alloy: EN-AW 6082 T6
- Chords: Extruded tube Ø50mm x 2mm
- Diagonals: Extruded tube Ø16mm x 2mm
- Connecting: WKC Spigot series
- Welding Process: TIG (EWF - EN ISO 9606-2 - 2004)

### b) Other competitions

A variety of materials such as steel trusses, scaffolds and wood, among others, can be considered when constructing obstacles. Using simpler and more efficient construction methods, such as prefabrication or modular construction, can reduce costs while maintaining safety standards.

Using alternative materials or methods should be done under the guidance of a qualified professional<sup>[1]</sup> to ensure the safety and integrity of the structure under repeated loading conditions. Athlete safety should be the top priority when constructing any structure, and it is important that all used materials and methods meet safety standards.

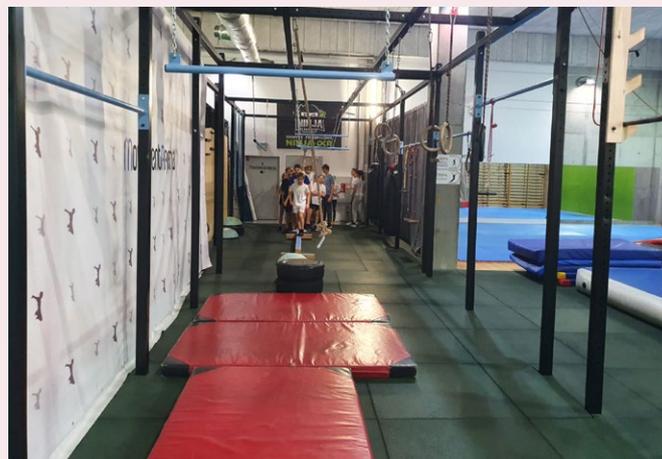
Image 1: Scaffold structure



Image 2: Wood structure



Image 3. Modular structure



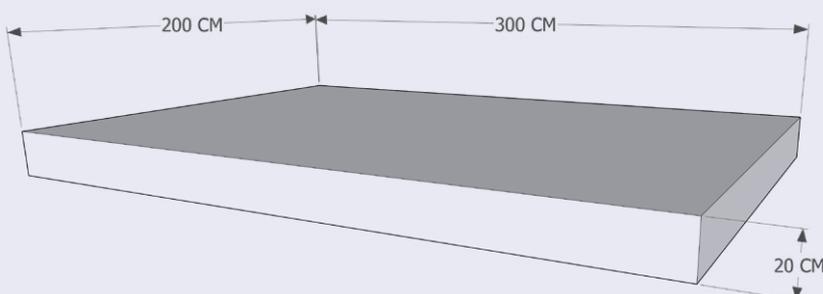
### c) Platforms

The platforms described in this catalogue are designed to mitigate the impact load on the athletes and make the course faster and easier to judge for referees.

Platforms can be constructed using materials such as wood, metal and plastic and should always be covered with a firm mattress (see references on item 2.2. d) to ensure a non-slip surface and provide a secure footing for take-off and landing.

Maintaining the platforms properly is crucial to ensure the surface remains smooth and free of hazards throughout the competition.

Figure 4: Detail of platform



#### d) Safety mattresses

Correct positioning of the safety mats is essential for the safety and security of participants. The mattresses should be placed in a manner that minimizes the risk of injury to athletes while they are traversing the obstacle course.

Thick mats must fully cover the surface under the obstacle and extend beyond its boundaries by a minimum of 100cm on each side, to provide impact attenuation for the athletes in case of a fall from height. Thin, firm mattresses should be placed on the landing platforms, providing an extra layer of protection for the athletes and a softer landing surface.

Thick mattresses should not have space between them and adjacent structures (e.g., trusses). Gaps can create a tripping or entrapment hazard and increase the risk of injury.

Image 4. Thick mat under the obstacle



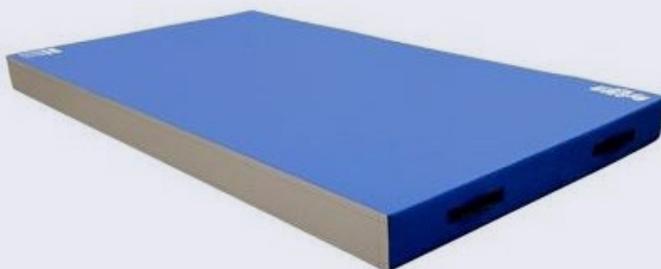
The mats must be designed with a high degree of slip resistance (non-slip surface) to provide secure footing. The core of the mat should be composed of a high-quality composite foam with minimum density requirements presented below. It reduces the risk of injury while increasing the athlete's ability to self-regulate and stabilise their landing. Mattresses should be frequently examined for signs of damage or wear and, where appropriate, repaired or replaced.

Two thicknesses of mats shall be used for this purpose:

- Thick mat must cover the entire surface under each obstacle and extend beyond the boundaries of the obstacle by at least 100cm on each side. The mat should be at least 20cm thick – the same as the adjacent platforms – with a recommended density of RG25 (25kg/m<sup>3</sup>).
- Thin mat should be placed on the landing platforms to enable a softer landing. The mat should be 2cm thick with a recommended density of RG20 (20kg/m<sup>3</sup>).

Figure 5: Thickness of mats

Detail of thick mattress (20cm)



Detail of thin mattress (2cm)



### 3. Obstacles description

Each obstacle includes a start line or take-off platform and a finish line or landing platform so it can be considered successfully completed.

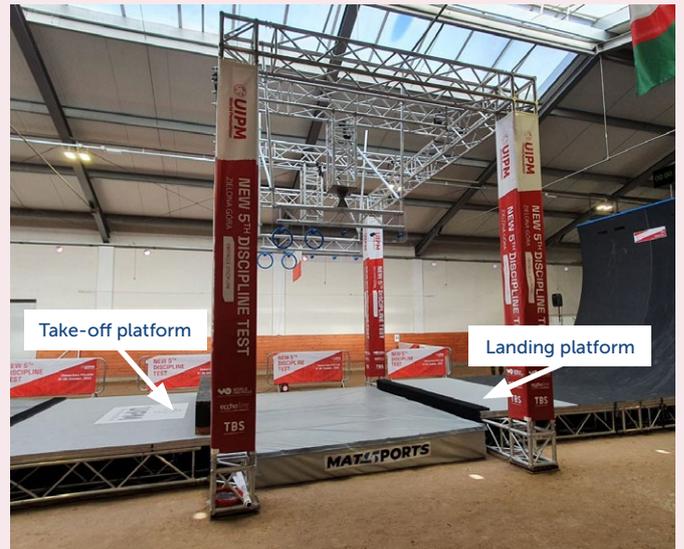
The conditions for correct completion of an obstacle are as follows:

- a. Start line:** The athlete must start the obstacle with both feet before the line marked on the ground. Touching the line with any part of the body is considered a failure.
- b. Finish line:** The athlete must land with both feet beyond the line marked on the ground or mattresses under the obstacle. Touching the line with any part of the body is considered a failure. Falling or stepping backwards on or before the line is considered a failure.
- c. Take-off platform:** The athlete must start the obstacle by taking off from the platform. Falling or stepping forward off the platform is considered a failure.
- d. Landing platform:** The athlete must land only on the platform. Falling or stepping backwards off the platform is considered a failure.

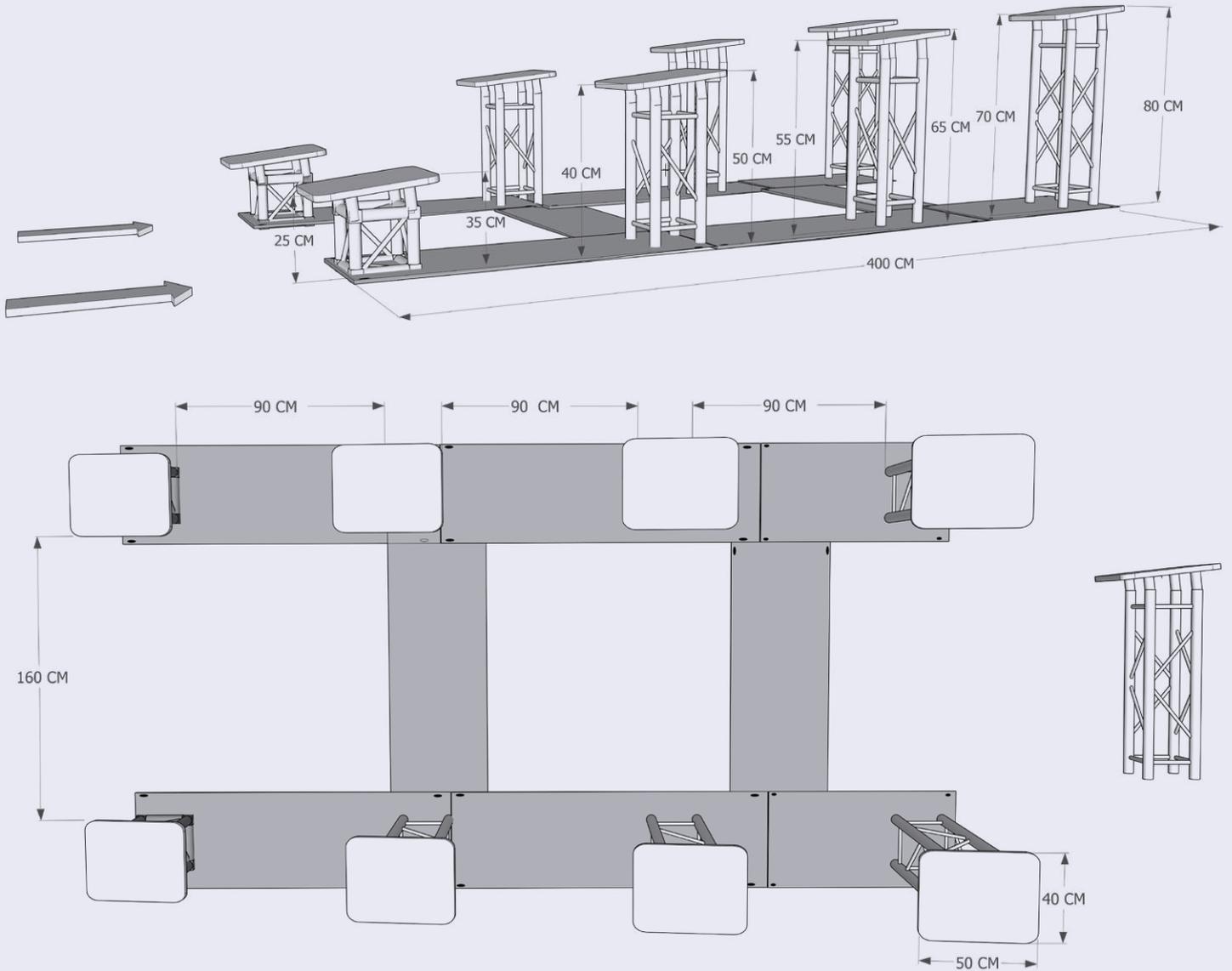
Image 5: Start and finish line



Image 6: Take-off and landing platforms



## Obstacle 1. Steps



### Characteristics

Length.....	400cm (+/-10cm)
Lateral elements spacing.....	160cm
Steps spacing* .....	90cm
Step base.....	30cm x 30cm
Step top .....	50cm x 40cm
Steps height (lower part-upper part)**	
– First step.....	25cm-35cm
– Second step .....	40cm-50cm
– Third step.....	55cm-65cm
– Fourth step.....	70cm-80cm

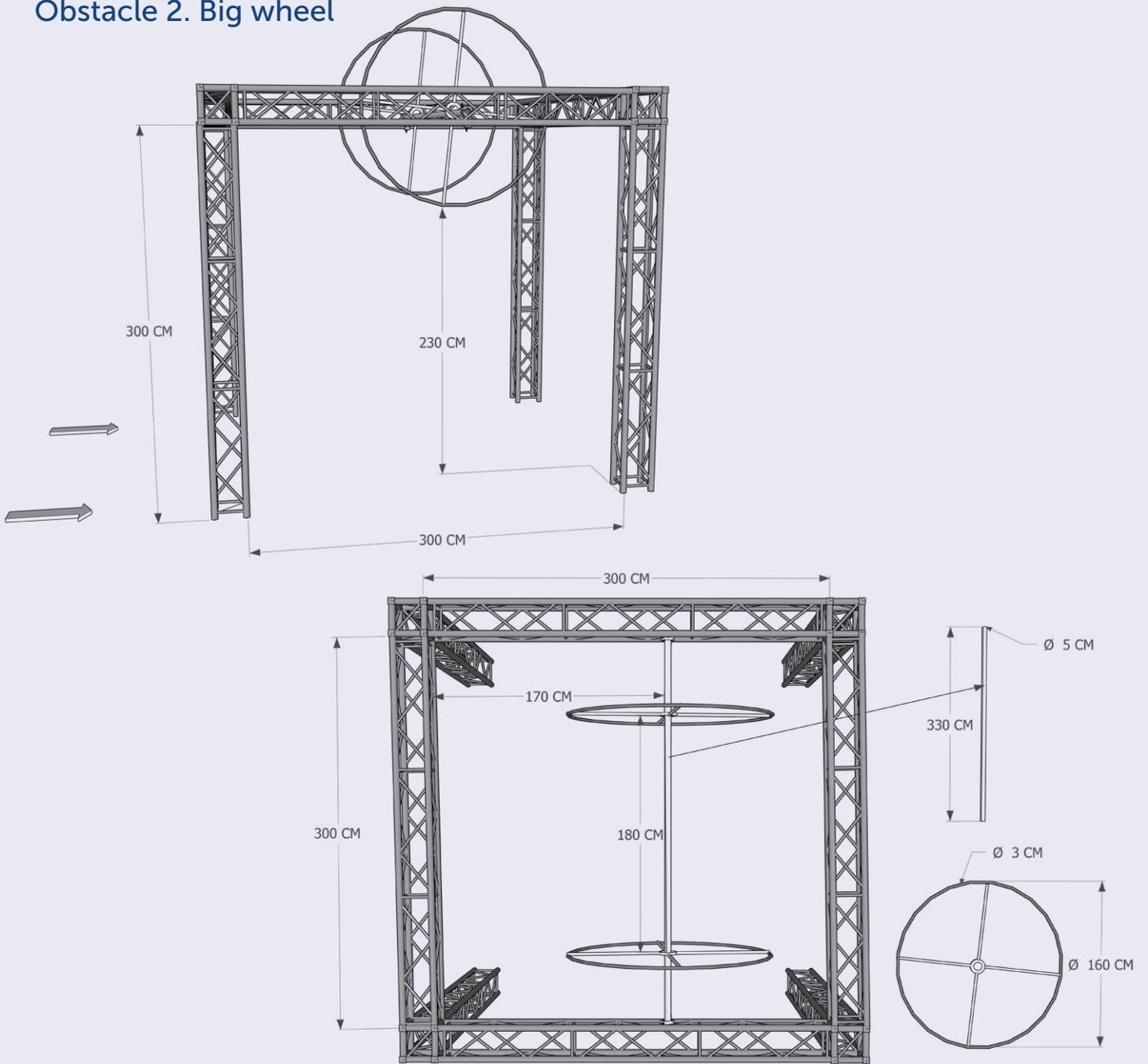
\*Measured between the bases of the steps.

\*\*General tolerance +/-0.25cm

### Crossing

Traverse the steps with the feet. Grasping or touching the steps with the hands is forbidden. There is no obligation to use all the steps except in circumstances described in section 3.8 according to the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 2. Big wheel



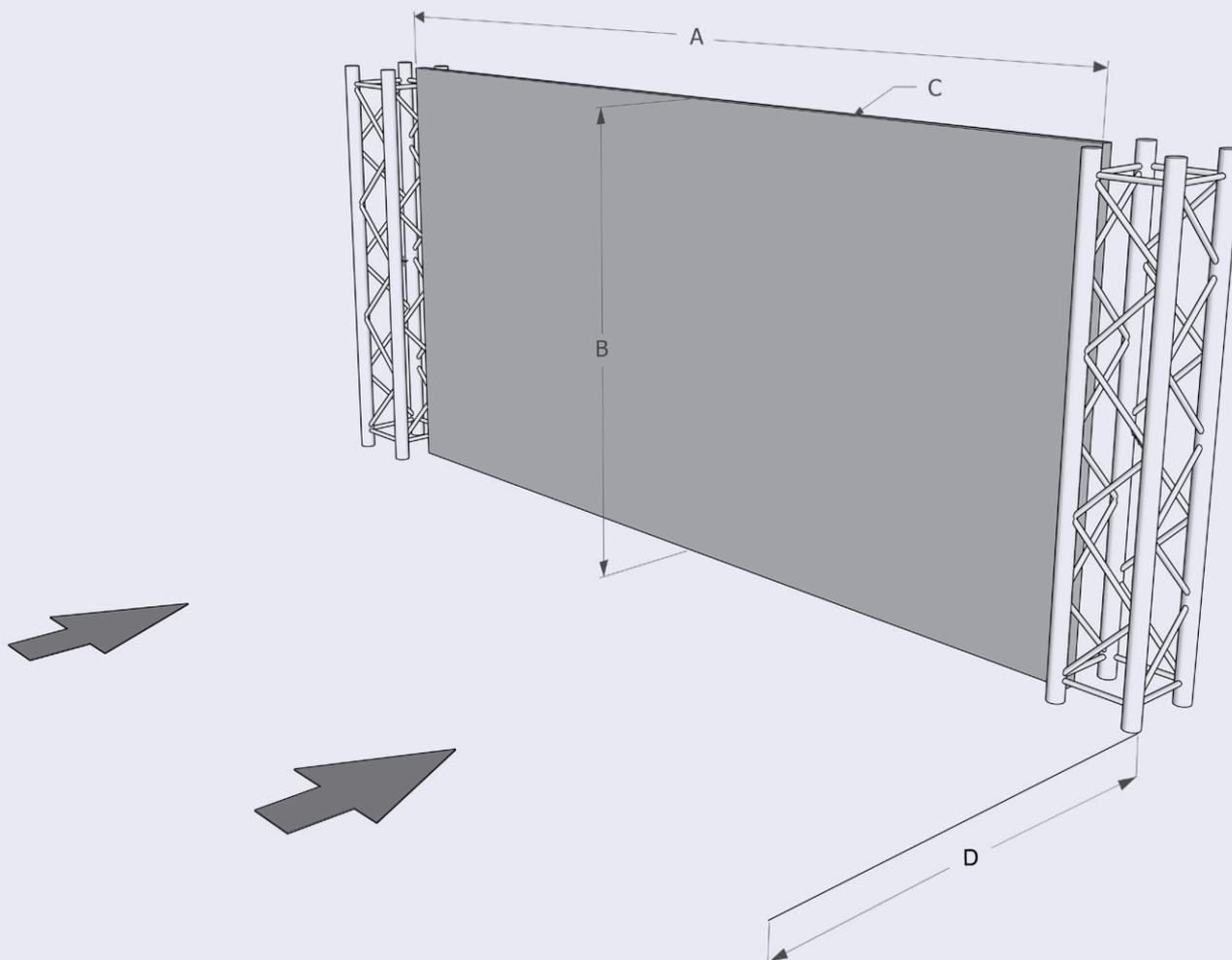
### Characteristics

Length.....	300cm
Lateral elements spacing.....	180cm
Support bar at .....	170cm
Wheel diameter .....	Ø160cm
Wheel height (lowest part) .....	230cm (+/-5cm)
Wheel spoke diameter .....	3cm
Bar wall thickness (steel) .....	1mm
Wheel wall thickness (6082 T6 Aluminium) .....	2mm

### Crossing

Jump from the previous obstacle or platform, grasping the wheel and swinging forward. Touching the ground between the platforms (or start/finish lines) is forbidden.

### Obstacle 3. 1.5m wall



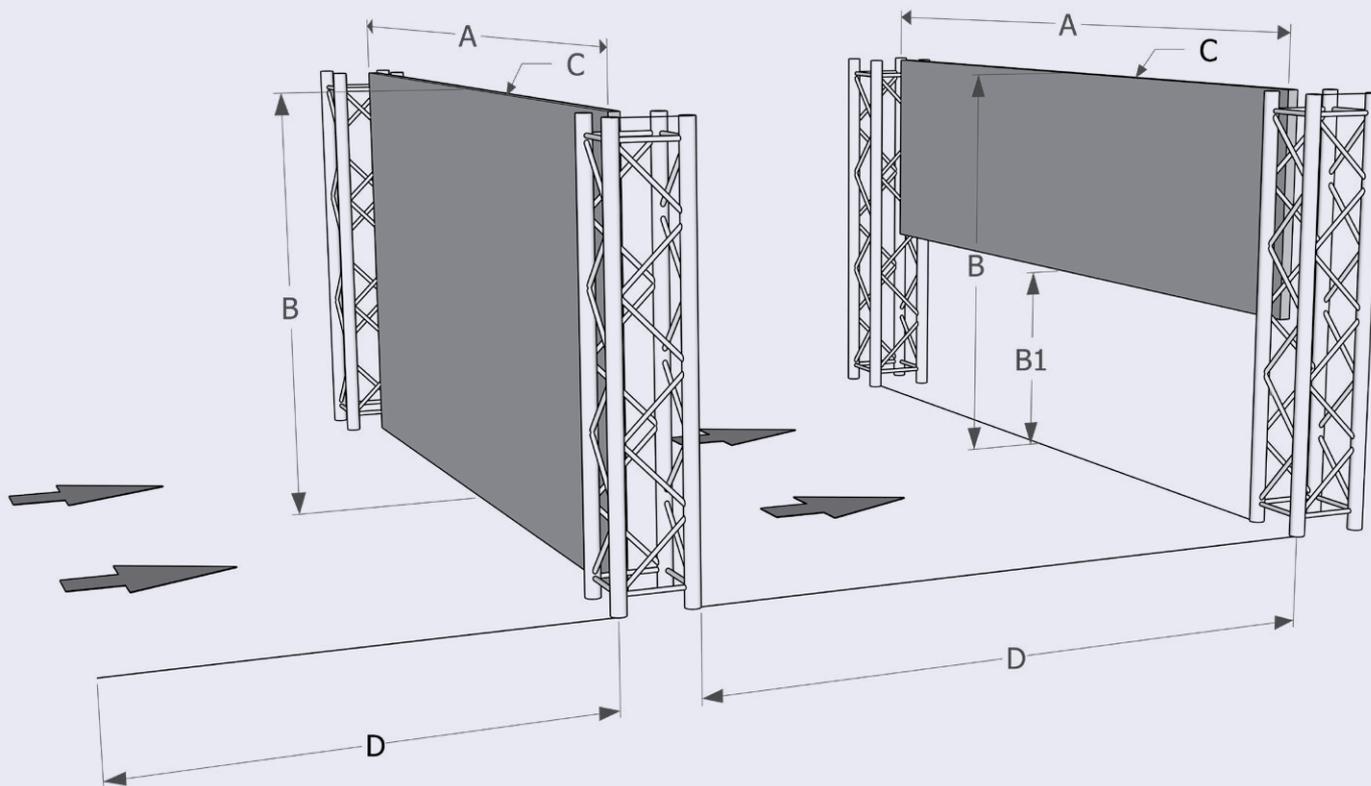
**Characteristics**

- A .....300cm
- B ..... 150cm
- C (thickness) .....4cm-10cm
- D ..... 200cm (+/-50cm)

**Crossing**

Overcome the wall passing over the top edge in any manner. Any part of the wall can be used or touched except for the supporting frame (truss in this image).

## Obstacle 4. Over-under



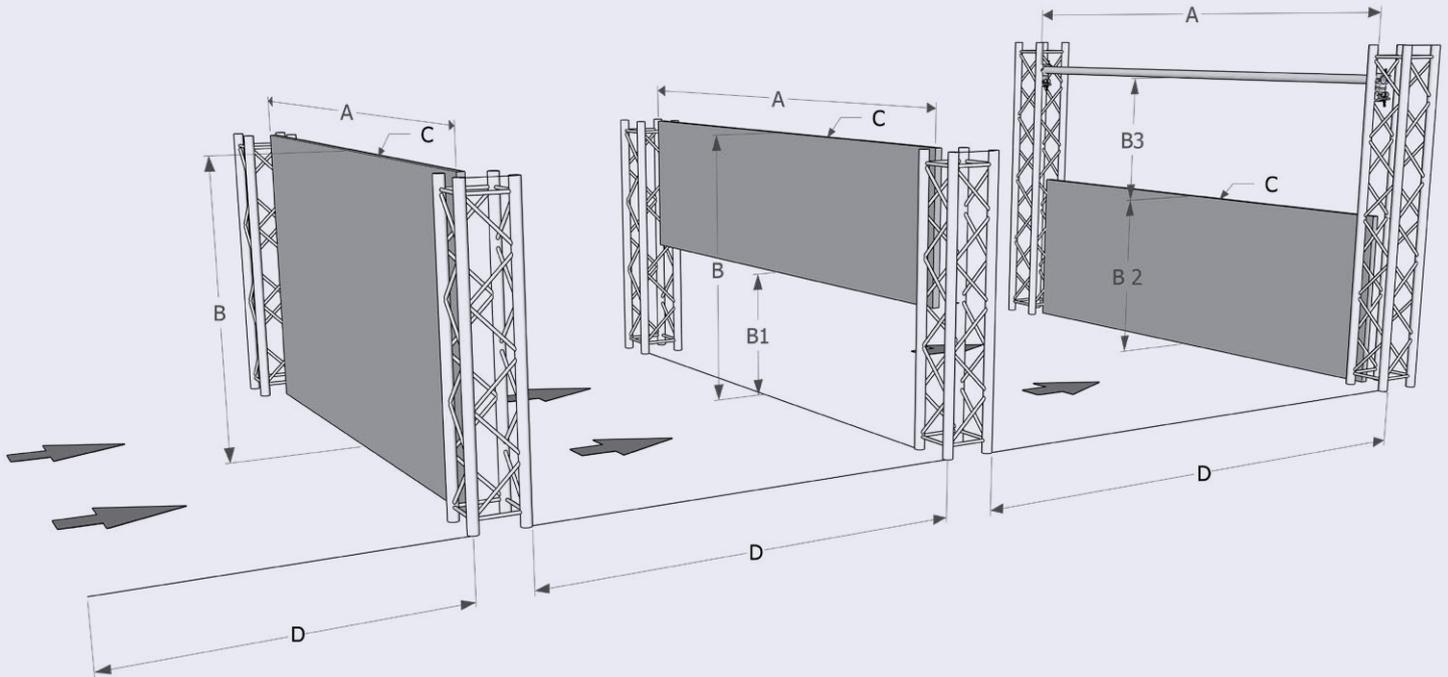
### Characteristics

A .....	300cm
B .....	150cm
B1 .....	70cm
C (thickness) .....	4cm-10cm
D .....	200cm (+/- 50cm)

### Crossing

Pass over the top of the first wall and pass under the second wall. Any part of the walls can be used or touched except for the supporting frame (truss in this image).

## Obstacle 5. Over-under-through



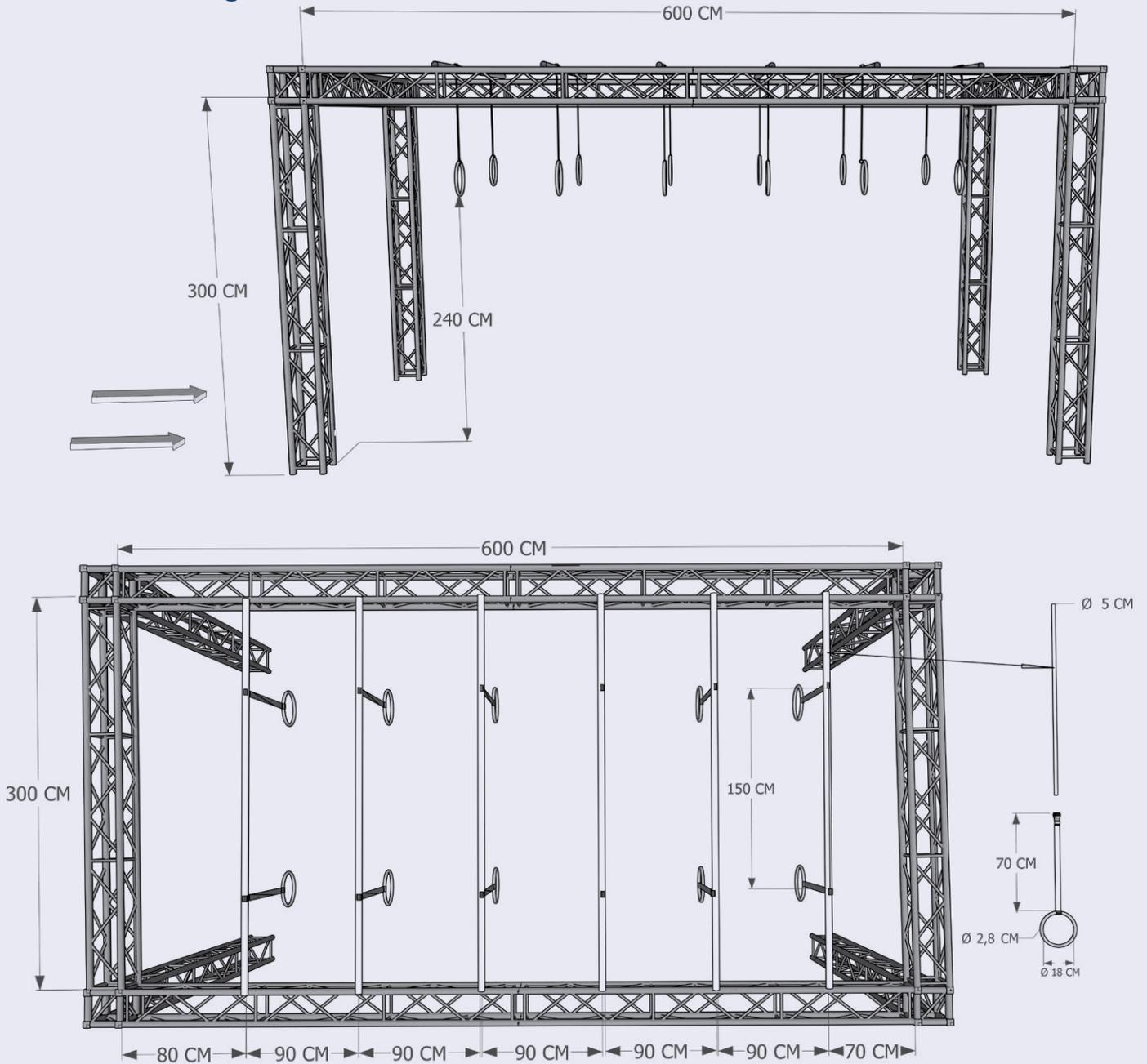
### Characteristics

A .....	300cm
B .....	150cm
B1 .....	70cm
B2 .....	100cm
B3 .....	75cm
C (thickness) .....	4cm-10cm
D .....	200cm (+/-50cm)

### Crossing

Pass over the first wall, under the second wall and through the opening in the third wall. Any part of the walls can be used or touched except for the vertical supporting frames (truss in this image).

## Obstacle 6. Rings



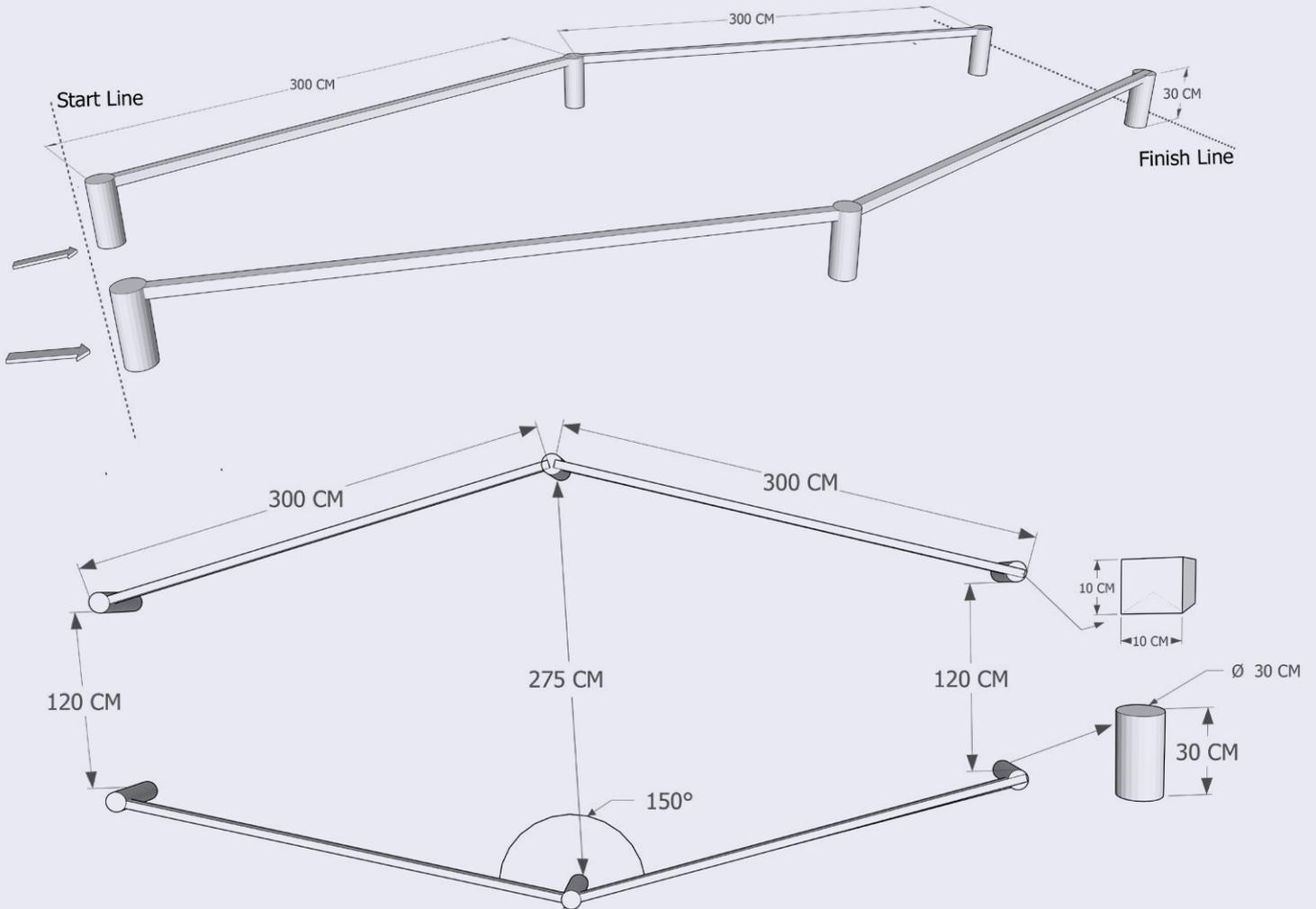
### Characteristics

Lateral elements spacing.....	150cm
Support bar spacing.....	90cm
Ring inner diameter (standard gymnastics ring - synthetic, no wood)....	$\varnothing 18$ cm
Ring spoke diameter .....	2.8cm
Height (lowest part of ring) .....	240cm (+/-5cm)
Ring support strap .....	70cm

### Crossing

Use only hands on the rings to traverse the obstacle. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all the rings except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 7. Balance beam



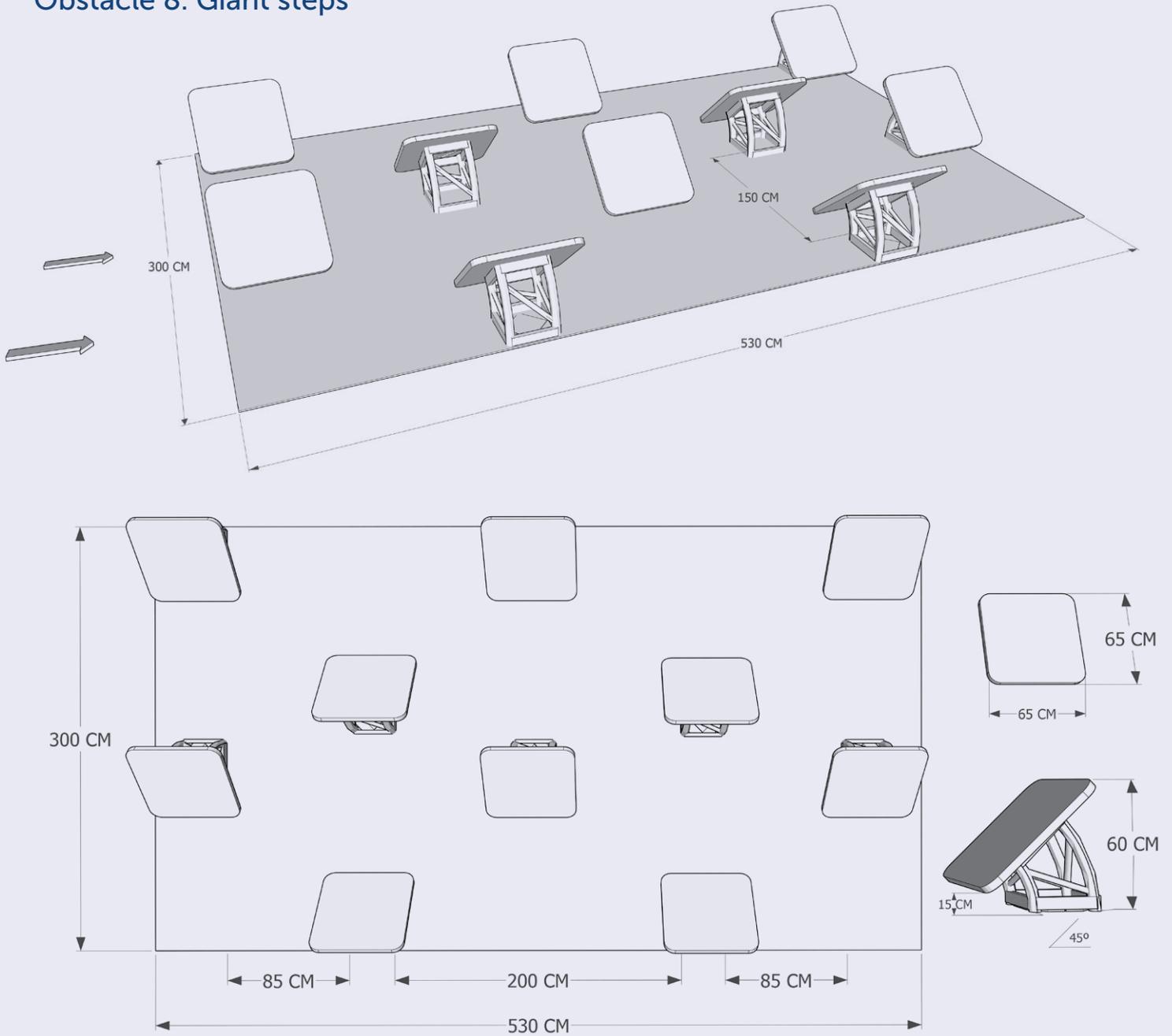
### Characteristics

Beam length (each).....	300cm
Lateral elements spacing (start and finish) .....	120cm
Lateral elements spacing (beams junction).....	275cm
Pillar height.....	30cm
Pillar diameter .....	Ø30cm
Angle between beams .....	150°
Beam squared section .....	10cm x 10cm

### Crossing

Run the length of the obstacle using only feet on the beams. At the far end, jump to the ground beyond the finish line (end support posts). Contact with the ground between the start and finish lines is forbidden. Crawling or hugging the beam is forbidden.

## Obstacle 8. Giant steps



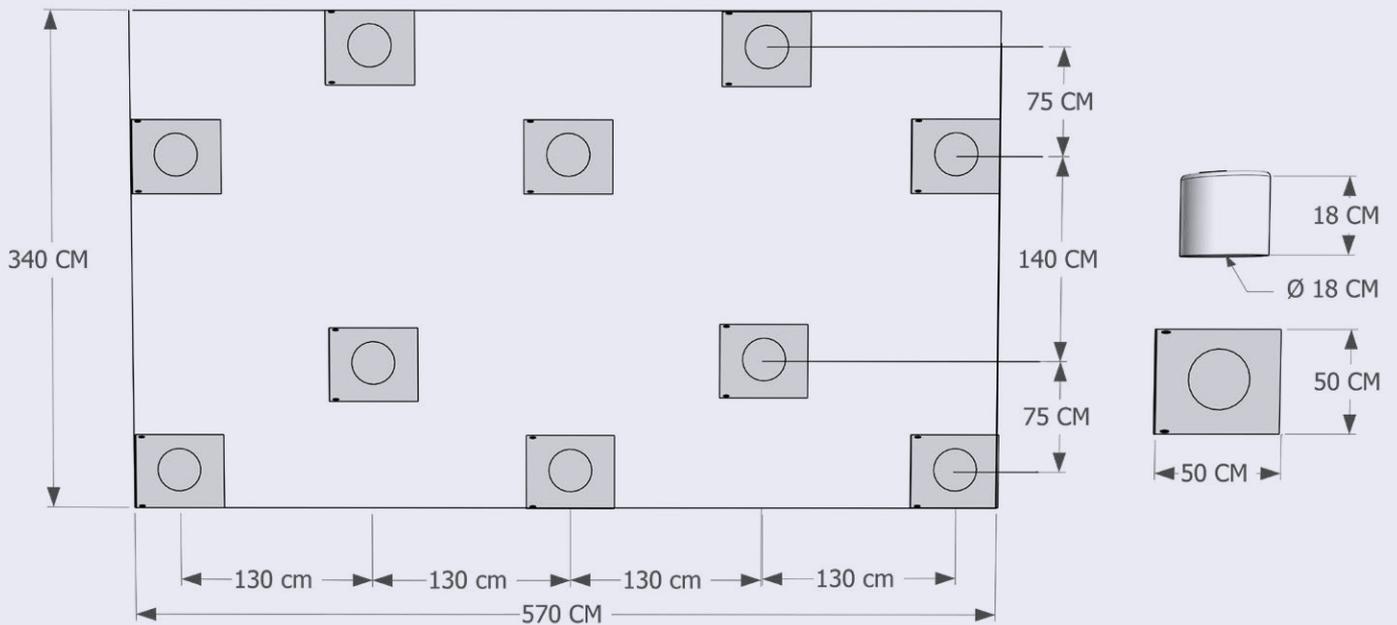
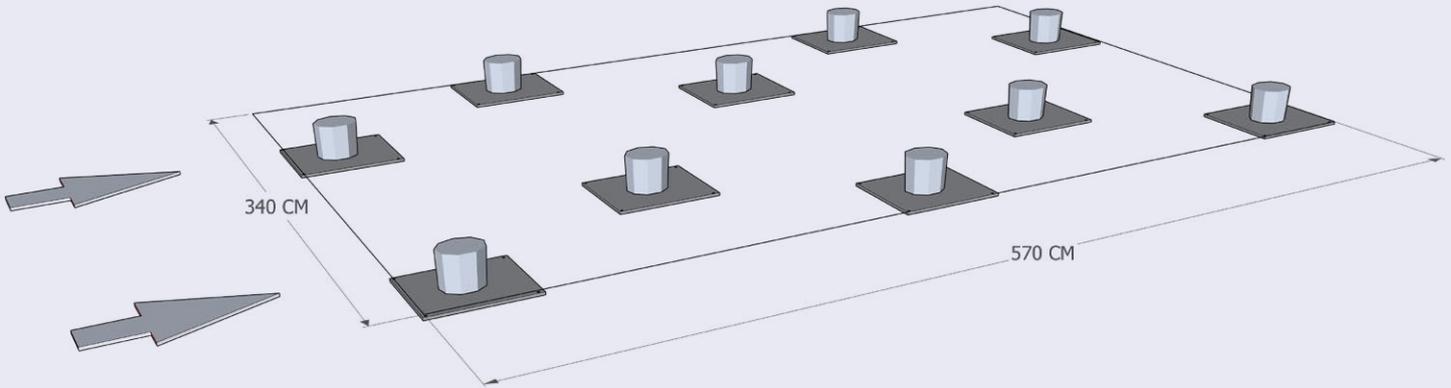
### Characteristics

Length.....	530cm (+/-10cm)
Steps spacing .....	200cm
Steps dimensions .....	65cm x 65cm
Steps height (lower part-upper part) .....	15cm-60cm
Step angle .....	≈45°

### Crossing

Run the length of the obstacle using only feet on the steps. Grasping or touching the steps with the hands is forbidden. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all the steps except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 9. Lisbon steps



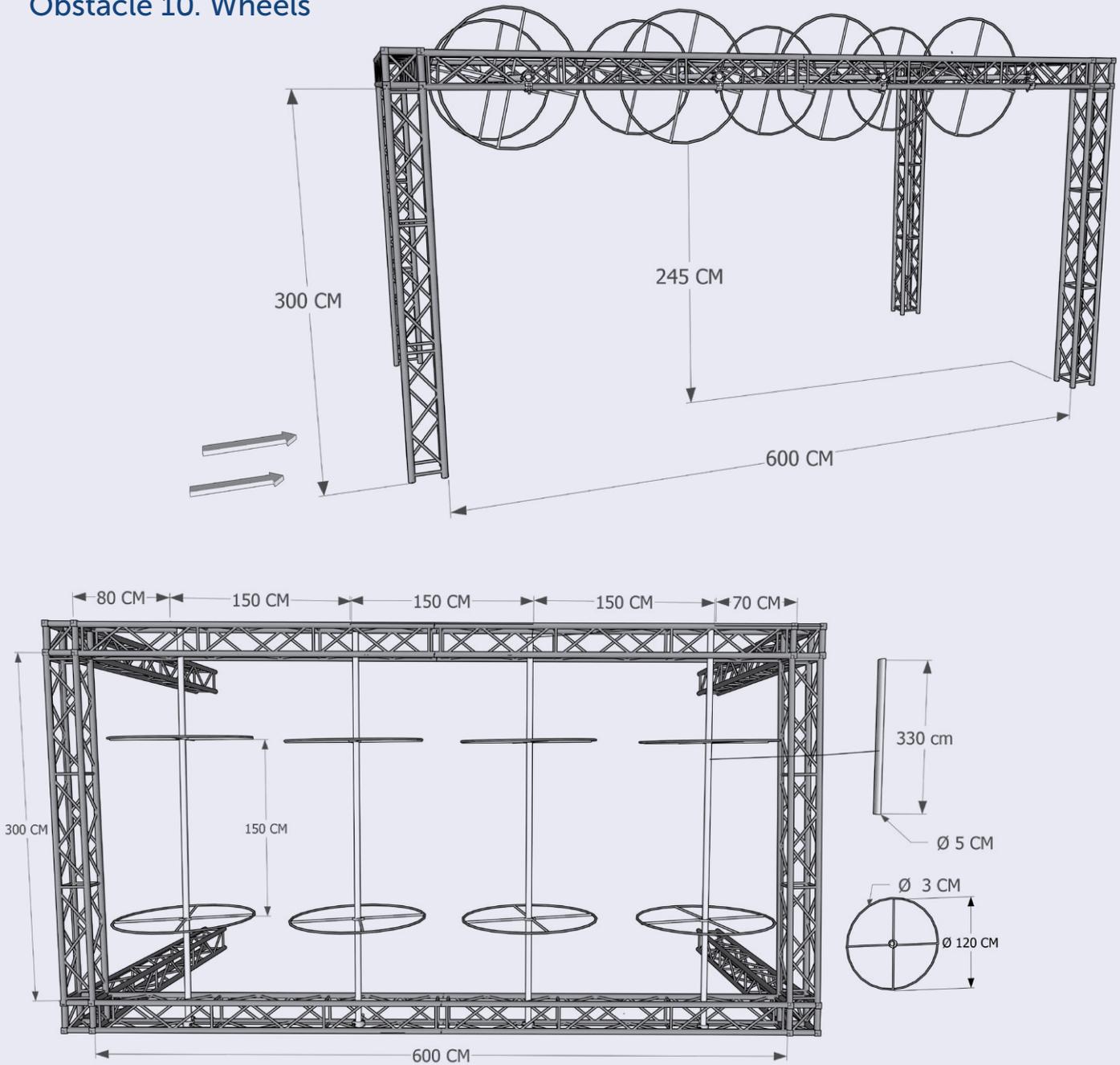
### Characteristics

Length .....	570cm (+/-10cm)
Width .....	340cm (+/-10cm)
Lateral elements spacing .....	140cm
Steps spacing .....	130cm (+/-5cm)
Steps diameter .....	Ø18cm
Steps height.....	18cm
Steps offset .....	75cm
Step top chamfer .....	1cm @ 45°

### Crossing

Run the length of the obstacle using only feet the steps. Grasping or touching the steps with the hands is forbidden. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all the steps except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 10. Wheels



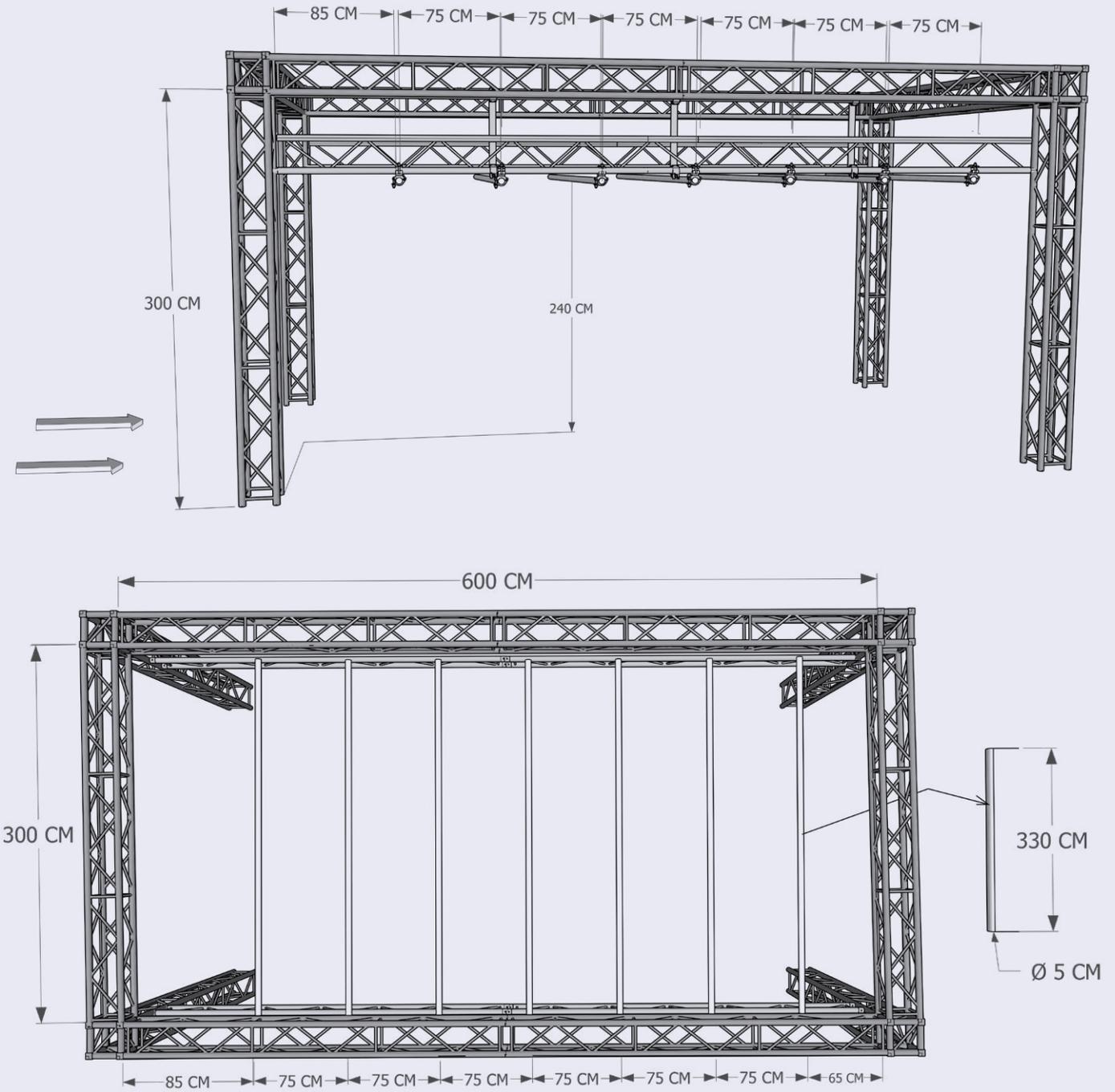
### Characteristics

Lateral elements spacing.....	150cm
Support bar spacing.....	150cm
Wheel diameter .....	Ø120cm
Wheel height (lowest part) .....	245cm (+/-5cm)
Wheel spoke diameter .....	3cm
Bar wall thickness (steel).....	1mm
Wheel wall thickness (6082 T6 Aluminium) .....	2mm

### Crossing

Traverse between platforms using only hands on the wheels. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all the wheels except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 11. Monkey bars



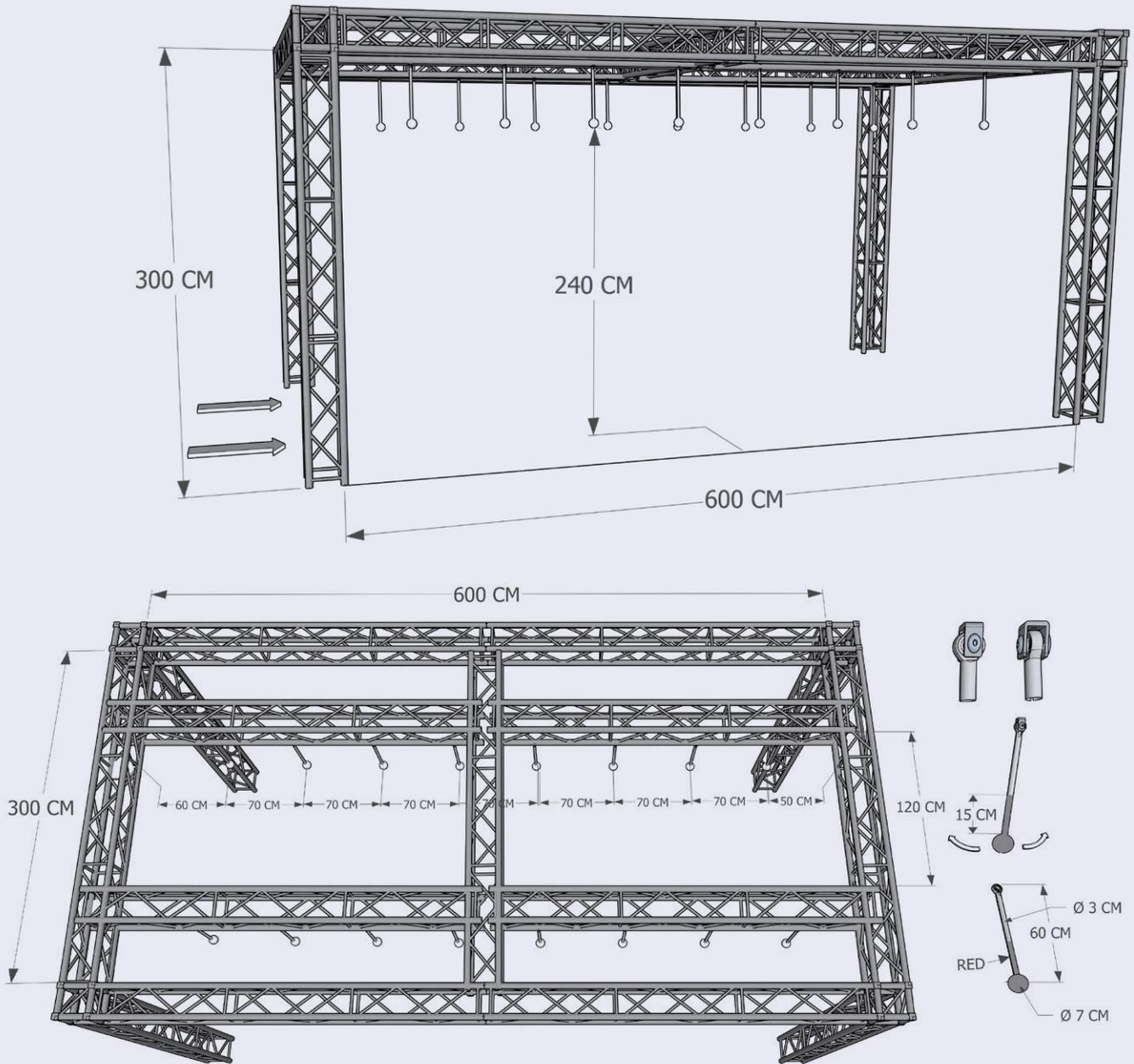
### Characteristics

Bar spacing .....	75cm
Bar diameter .....	Ø5cm
Bar height (lowest part).....	240cm (+/-5cm)
Bar wall thickness (EN 39 steel) .....	4mm

### Crossing

Use only hands on the bars to traverse the obstacle. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all the bars except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 12. Swinging globes



### Characteristics

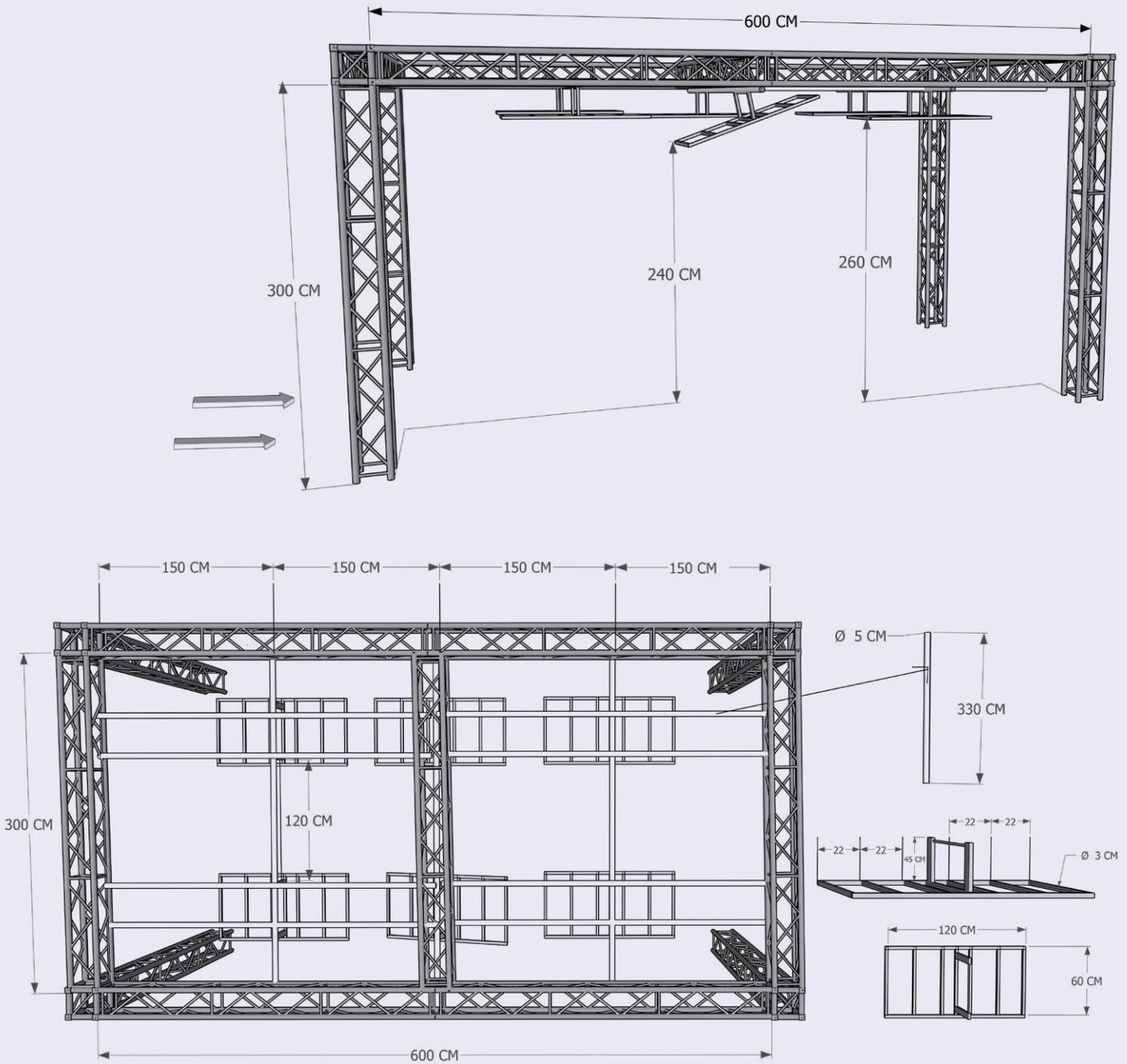
The globe’s movement should be engineered to swing exclusively in the direction of travel through the obstacle. Lateral (side-to-side) movement of the globes is not allowed.

Lateral elements spacing .....	120cm
Globes spacing .....	70cm
Globe diameter .....	Ø7cm
Globe height (lowest part).....	240cm (+/-5cm)
Globe support pole.....	60cm

### Crossing

Use only hands on the globes to traverse the obstacle. It is not allowed to hold the support pole of each globe outside the area painted red (please see the graphic detail above). This red area must extend 15cm above the globe. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all of the globes except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 13. Tilting ladders



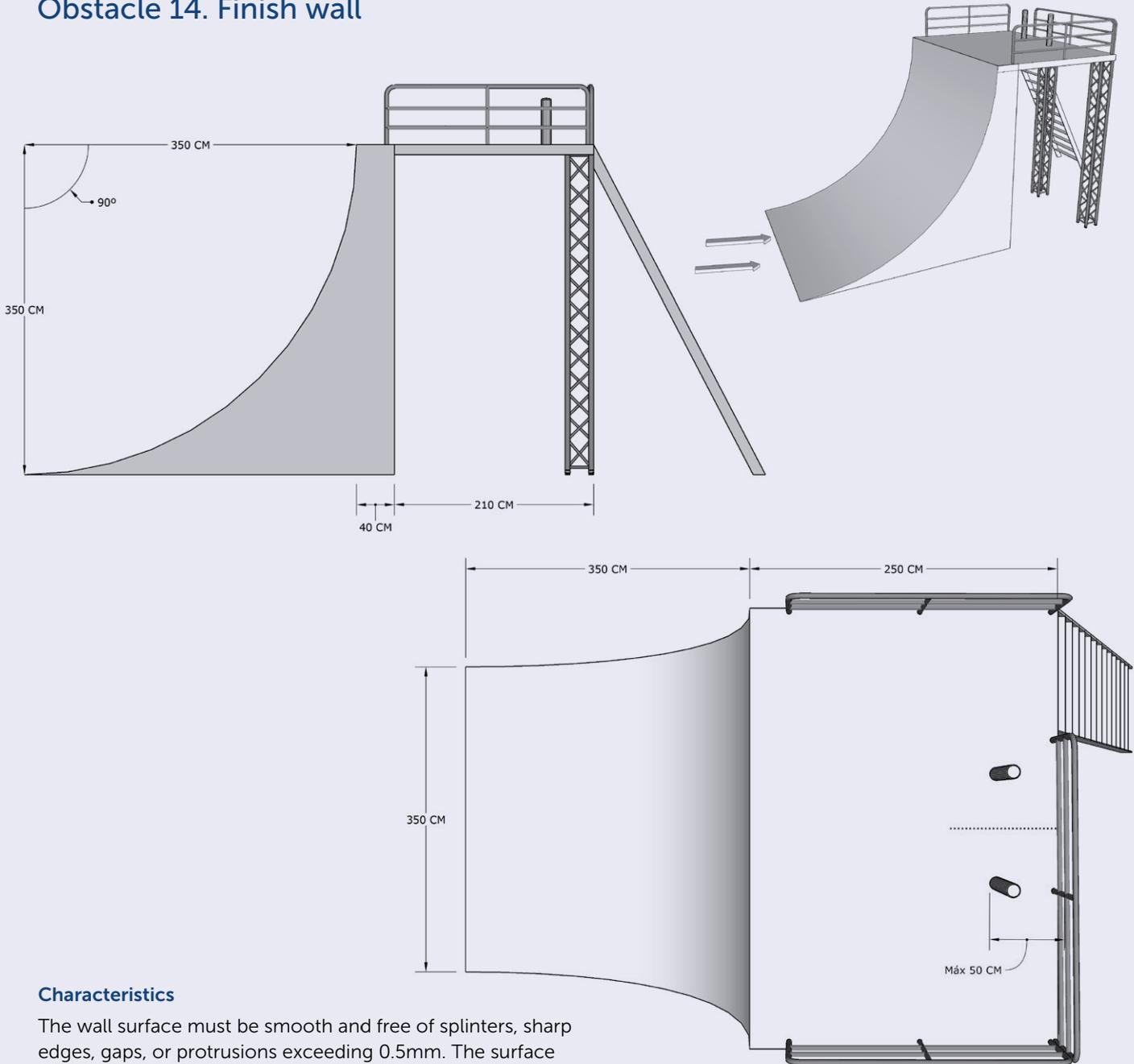
### Characteristics

Lateral elements spacing.....	120cm
Support bar spacing.....	150cm
Ladder bars diameter.....	Ø3cm
Ladder support .....	45cm
Ladder height (Lowest part - horizontal) .....	260cm
Lower height (Lowest part - inclined) .....	240cm

### Crossing

Use only hands on the ladders to traverse the obstacle. Touching the ground between the platforms (or start/finish lines) is forbidden. There is no obligation to use all the bars except as described in section 3.8 of the [UIPM Obstacle Discipline Competition Guidelines](#).

## Obstacle 14. Finish wall



### Characteristics

The wall surface must be smooth and free of splinters, sharp edges, gaps, or protrusions exceeding 0.5mm. The surface should provide good grip for athletic shoes but should not be textured in a manner that could cause injuries to athletes due to abrasions. It can be covered with 2mm or 3mm of smooth, recycled rubber of 900 kg/m<sup>3</sup> density, providing a durable, slip-resistant surface that will help minimize injuries to athletes due to abrasions. The buzzer must be installed within the final 50cm of the finish wall platform.

Ramp length .....	350cm
Top platform length .....	250cm
Width .....	360cm
Height .....	350cm
Ramp curve angle .....	90°

### Crossing

Run up the wall to reach the top platform. Any part of the wall except the sides can be touched or held with any part of the body provided the feet are never above head height.

## 4. Safety

The following points outline procedures and practices related to the design, build, execution, maintenance, inspection and delivery of UIPM events.

It is the responsibility of the LOC (under the supervision of UIPM in UIPM events), to guarantee a safe competition tailored to the environmental conditions, course design, obstacles used, participant abilities and other factors that may influence safety for the obstacle course and event.

### Requirements

#### 1) Structure approval

All obstacles that include a structural element<sup>[2]</sup> require written approval from a qualified professional<sup>[1]</sup> before being used at events.

- a) Upon approval of obstacle drawings, a qualified professional<sup>[1]</sup> must document the structural element<sup>[2]</sup> design loads for the event organizer considering the following factors, including but not limited to: anticipated environmental factors, wind, participant volume, maximum participant weight, maximum number of participants on an obstacle at one time, maximum expected forces applied by participants to the obstacle, and other safety factors.

#### 2) Build and inspection

- a) Obstacles with a structural element<sup>[2]</sup> must be built according to qualified professional approved design(s).
- b) Event organisers must conduct and document a pre-event inspection and confirm the integrity of obstacles before each day of the event.
- c) Any modifications to a structural obstacle that changes the overall structural integrity of the obstacle relative to qualified professional approved designs must be approved and documented by a qualified professional before intended use.
- d) Event organiser shall periodically monitor obstacles throughout the event for fitness for use.
- e) Special attention must be given to all trusses and screw tips, which must be countersunk or be covered with plastic/rubber caps to prevent injury and reduce the risk of tripping. The caps must be placed on the external adjacent side of the course, facing outward, for maximum visibility and safety.
- f) To ensure the safety and longevity of hanging obstacles and grips, it is recommended to use metallic materials instead of wood. Metal is more durable and resistant to environmental factors, reducing the likelihood of instability and accidents.
- g) Wooden obstacles, such as balance beams, must have all edges and corners rounded to prevent injury. Sharp angles can cause splinters, cuts, scrapes or other injuries, and must be eliminated through proper rounding and smoothing of the wooden surfaces. All wooden surfaces must be treated to prevent moisture damage and decay which can weaken the obstacle.
- h) In case of a visible lightning strike in outdoor competitions, all activities must be immediately suspended.
- i) In case of rain, wind or other adverse weather conditions, the Technical Delegates have the power to postpone the competition, exclude obstacles, reduce the number of elements of an obstacle and declare it mandatory to start obstacles with hanging elements by a specific element, and any other measure to ensure the safety of athletes including, for example, the use of ropes with knots to climb obstacles and anti-slip elements.

### 3) Risk assessment

Obstacles must be subject to a risk assessment created and written by a Qualified Risk Assessor<sup>[4]</sup> in coordination with the competition medical team before the course is open for training and/or competition. The risk assessment must identify general hazards and hazardous obstacle elements,<sup>[3]</sup> evaluate the probability and severity of a potential injury, and develop risk mitigation plans associated with the use of obstacles by participants.

For any obstacle with a fall from height (hazardous obstacle element), the risk assessment must consider the following factors: assessment of height of fall, landing surface, type of participant fall, participant body orientation throughout obstacle, participants falling on each other, appropriate fall warning signage and landing surface maintenance.

### 4) Medical provision

Medical provision is mandatory during the competition and must be conducted according to UIPM Competition Rules and Regulations and UIPM Medical Rules in order to ensure prompt and effective medical attention if necessary.

All medical staff must be trained on rescue protocols, specific hazards of the obstacles, locations of life-saving equipment and emergency response protocols.

## 5. Glossary

### **[1] Qualified Professional**

Individual with a professional degree and experience relevant to the design, construction and maintenance of structural elements that may include but are not limited to: obstacles, parts of obstacles, start/finish arches, camera positions, viewing platforms, seating, stages, tents and podiums. In most countries and circumstances, the qualified professional will be a structural or mechanical engineer.

### **[2] Structural Element**

Any component of an obstacle that upon structural failure, overload, or collapse, would cause hazard(s) to people.

### **[3] Hazardous Obstacle Element**

A component of an obstacle that can cause significant injury or death to participants, including but not limited to: fall from height, high-impact fall onto another participant, or water submersion.

### **[4] Qualified Risk Assessor**

Person with extensive knowledge, training and experience relating to events who can identify existing, reasonably anticipated and predictable hazardous scenarios, unsanitary conditions, who is familiar with the obstacle build process, and who has authorization to take prompt corrective measures to address these hazards.



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