

# 2021 International Intelligent RoboSports Cup SDE

- HuroCup Rules Adjustment (Version: 20210724) -

## Schedule

	8/7 (Sat)	8/8 (Sun)
Time	Event	
09:00	Team leader meeting	
09:45	Open ceremony	Archery
10:30	Weightlifting	(draw and field confirmation)
11:00	(draw and field confirmation)	Archery
11:30	Weightlifting	
12:00		
12:30	Triple Jump	
13:00	(draw and field confirmation)	Sprint
13:30	Triple Jump	(draw and field confirmation)
14:00	Basketball	Sprint
14:30	(draw and field confirmation)	
15:00		
15:30	Basketball	
16:00		

## Notices:

- (1) Each team needs to make their own field according to field specifications. If the field doesn't conform the specifications, the player must modify it before the challenge. Otherwise, the team will not be able to participate in the challenge.
- (2) Every team needs 2 online cameras, one faces the whole field (fixed) and the other moves with referee's request (floating).
- (3) In the "Team leader meeting", it confirms the participating challenges of each team.
- (4) In the "Team leader meeting", it confirms the height, weight, and foot dimension of each robot.
- (5) About 1 hour before the challenge, the referee will draw lots to determine the order of the field confirmation and challenge.
- (6) The order of the "draw and field confirmation"
  1. Kid size draw
  2. Adult size draw
  3. Kid size field confirmation
  4. Adult size field confirmation
- (7) The order of the challenge
  1. Kid size
  2. Adult size
- (8) When the kid (adult) size robot challenge starts, other kid (adult) size robots are prohibited from testing same challenge.

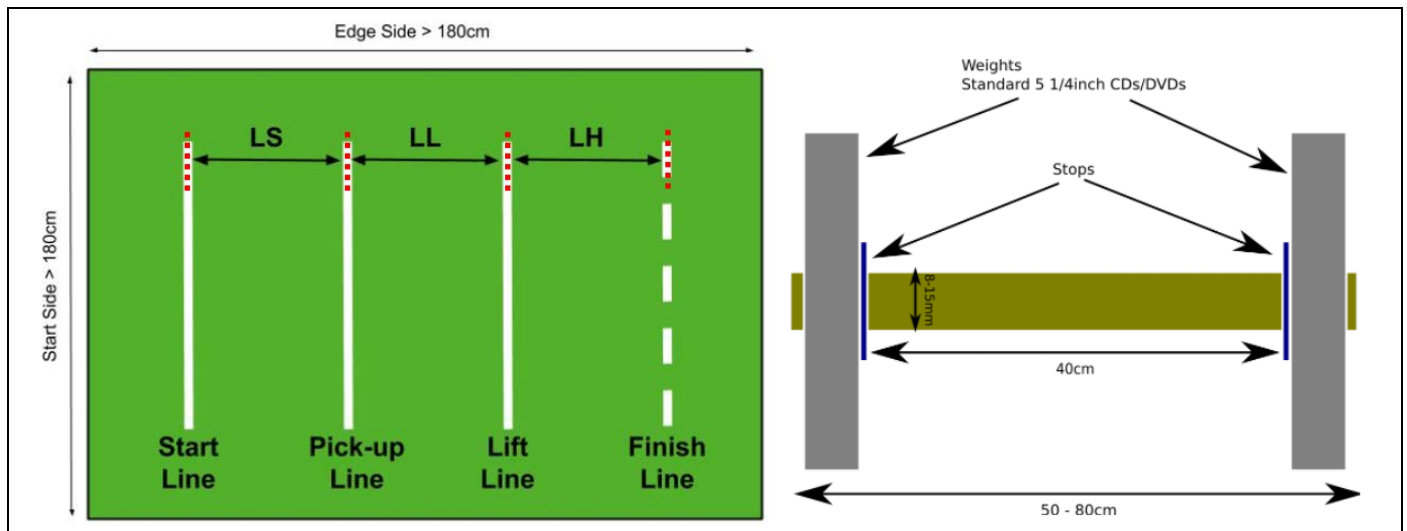
# Weightlifting

## Rules adjustment:

1. Each team makes the finish line with a solid line.
2. The referees will select a random start line (left or right) at the beginning of the challenge.
3. The referee will select a random start line (left or right) every round.

## Requirement:

1. Each team needs to prepare an item with a length \$H. Such as a ruler, rope or bar. It will help the referee determine that the robot lift the lifting bar at least \$H.



Dimension	Comment	Kid Size	Adult size	Measurement method
\$LS	Distance between start and pick-up lines	50cm	100cm	Follow the red dotted line, it can be longer not shorter, the measurement point is the center of the white line.
\$LL	Distance between pick-up and lift lines	50cm	100cm	
\$LH	Distance between lift and finish lines	50cm	100cm	
\$W	Width of the field lines	50cm	100cm	
\$L	Width of the start, pick-up, and lift lines	3cm - 7cm	3cm - 7cm	
\$H	Minimum difference in low and high lift height	15cm	45cm	Each team needs to prepare this item.

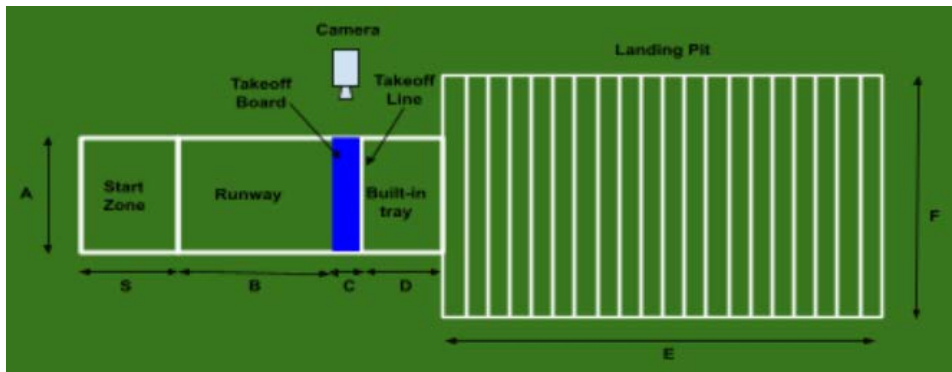
# Triple Jump

## Rules adjustment:

1. No rules are adjusted. Please follow the Triple jump rules of HuroCup.

## Requirement:

1. Each team needs to prepare **ONE** camera (mobile phone) with slow motion.



Dimension	Comment	Kid Size	Adult size	Measurement method
\$A	Width of the Runway track	50cm	50cm	
\$S	Length of the Start Zone	30cm	30cm	
\$B	Length of the Runway	20cm	20cm	
\$C	Width of the Takeoff Board	5cm	5cm	
\$D	Length of the Built-in Tray	10cm	10cm	
\$E	Length of the Landing Pit	100cm	100cm	
\$F	Width of Landing Pit	100cm	100cm	

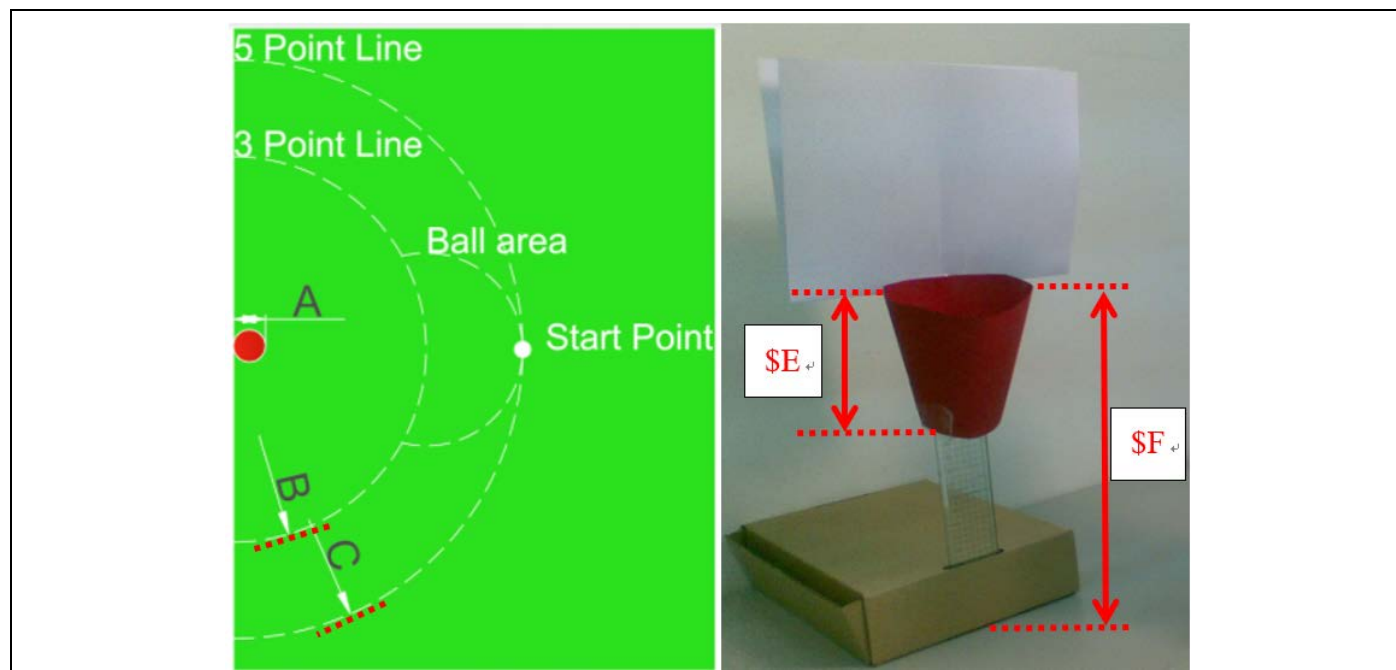
# Basketball

## Rules adjustment:

1. The referee will select a random position of 9 fixed positions for the ball (ball holder).
2. The referee will change the position of the ball (ball holder) every round.

## Requirement:

1. **The bottom of the basket must be sealed.** It will help the referee determine whether the ball is shot into the basket.



Dimension	Comment	Kid Size	Adult size	Measurement method
\$A	Radius of Basket	5cm	15cm	It can be smaller not bigger.
\$B	Radius 3 Point Line	60cm	100cm	Follow the red dotted line, it can be longer not shorter, the measurement point is outside the white line.
\$C	Radius 5 Point Line	90cm	150cm	
\$D	Radius Ball Area	30cm	50cm	
\$E	Length of Basket	10cm	20cm	Follow the red dotted line, it can be shorter not longer.
\$F	Height of Basket Rim	40cm	80cm	Follow the red dotted line, it can be higher not lower.
\$G	Backboard	20cm * 20cm	40cm * 40cm	It can be smaller not bigger.

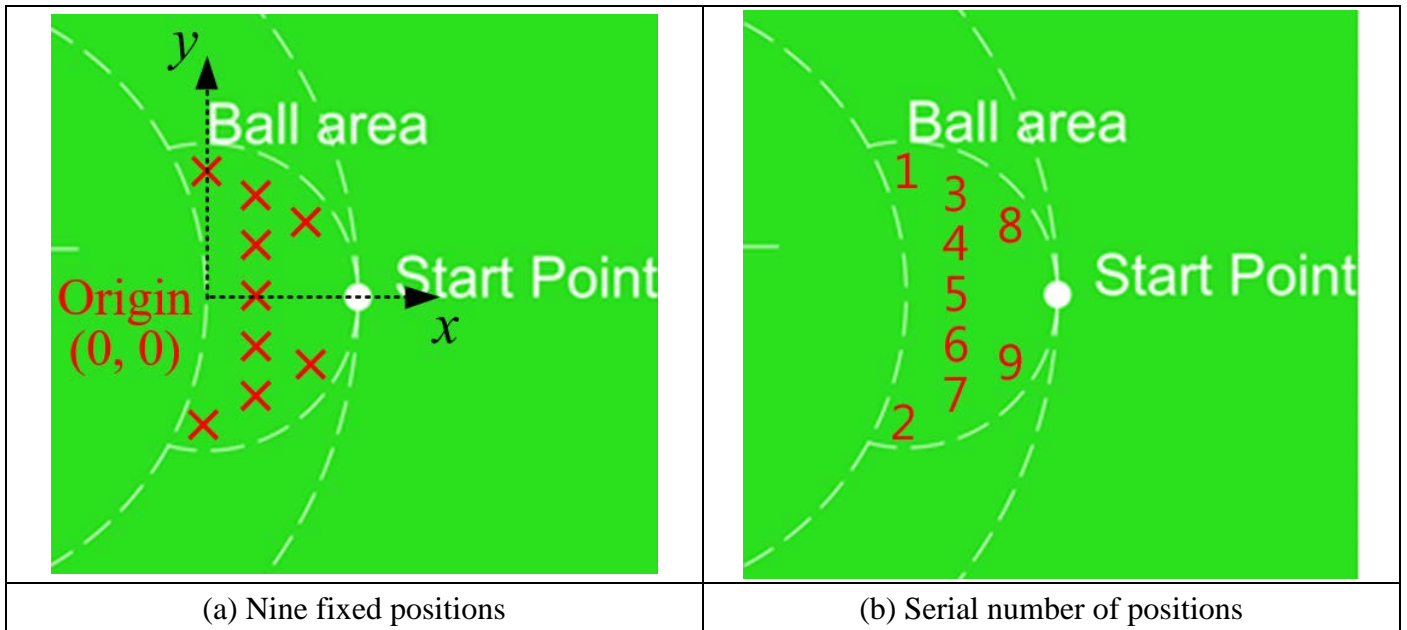


Fig. 1. Nine fixed positions of ball (ball holder)

Table 1. Nine fixed positions of ball (ball holder)

Serial number of position	Coordinate position (cm)	Serial number of position	Coordinate position (cm)	Serial number of position	Coordinate position (cm)
<b>1</b>	Kid: (0, 25) Adult: (0, 40)	<b>3</b>	Kid: (10, 20) Adult: (15, 30)		
		<b>4</b>	Kid: (10, 10) Adult: (15, 15)	<b>8</b>	Kid: (20, 15) Adult: (35, 25)
		<b>5</b>	Kid: (10, 0) Adult: (15, 0)		
		<b>6</b>	Kid: (10, -10) Adult: (15, -15)	<b>9</b>	Kid: (20, -15) Adult: (35, -25)
<b>2</b>	Kid: (0, -25) Adult: (0, -40)	<b>7</b>	Kid: (10, -20) Adult: (15, -30)		

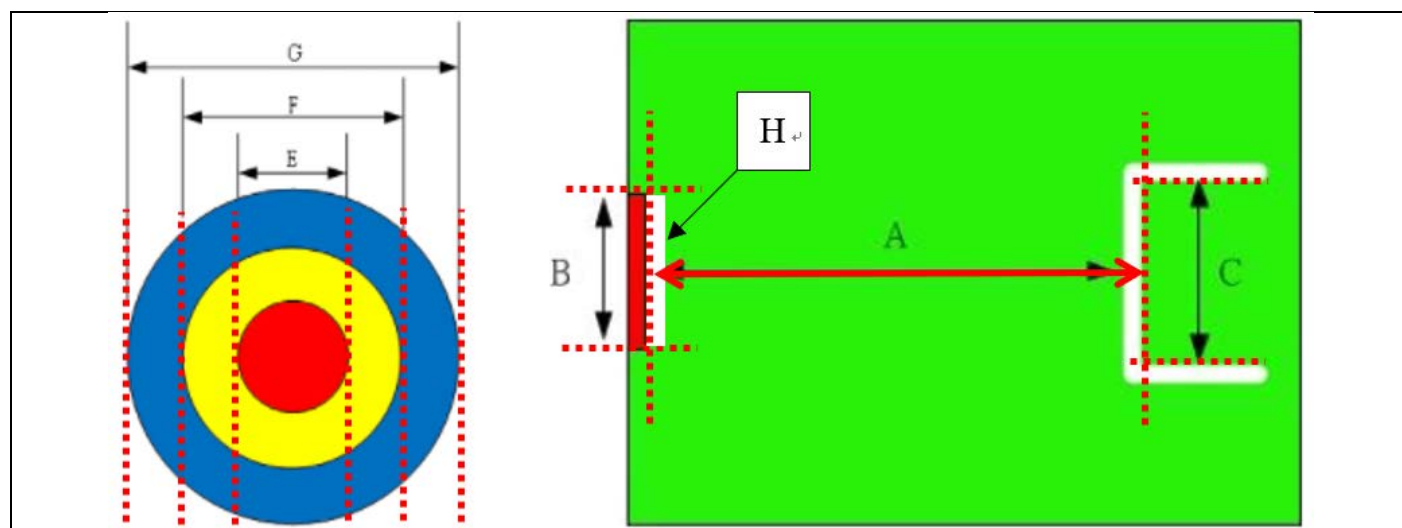
# Archery

## Rules adjustment:

1. The movement of the target board is changed from rotating to fixed.
2. The referee will select a random position of 9 fixed positions for the target board and a random start point for the robot.
3. The referee will change the position of the target board and the position of the robot every round.

## Requirement:

1. The target board must be adjustable in height and horizontal position.



Dimension	Comment	Kid Size	Adult size	Measurement method
\$A	Distance between target board and shooting side	150 cm	300 cm	Follow the red dotted line, it can be longer not shorter.
\$B	Diameter of target board	50 cm	90 cm	Follow the red dotted line, it can be shorter not longer.
\$C	Range of shooting place	80 cm	100 cm	Follow the red dotted line, it can be longer not shorter.
\$DH	Height of target board center	30cm~50cm	90cm~110cm	SDE special rules, referee can ask teams to move the position of target board.
\$DW	Width of horizontal movement of target board	-30cm~30cm	-40cm~40cm	
\$E	Diameter of small circle	10 cm	30 cm	Follow the red dotted line, it can be smaller not bigger.
\$F	Diameter of middle circle	30 cm	60 cm	Follow the red dotted line, it can be smaller not bigger.
\$G	Diameter of big circle	50 cm	90 cm	Follow the red dotted line, it can be smaller not bigger.
\$H	based line of target board	50 cm	90 cm	Same length with target board

Table 2. Nine fixed positions of **target board**

Serial number of target position		Horizontal position		
		Kid: -30 cm Adult: -40 cm	Kid: 0 cm Adult: 0 cm	Kid: 30 cm Adult: 40 cm
Height position	Kid: 50 cm Adult: 110 cm	<b>1</b>	<b>2</b>	<b>3</b>
	Kid: 40 cm Adult: 100 cm	<b>4</b>	<b>5</b>	<b>6</b>
	Kid: 30 cm Adult: 90 cm	<b>7</b>	<b>8</b>	<b>9</b>

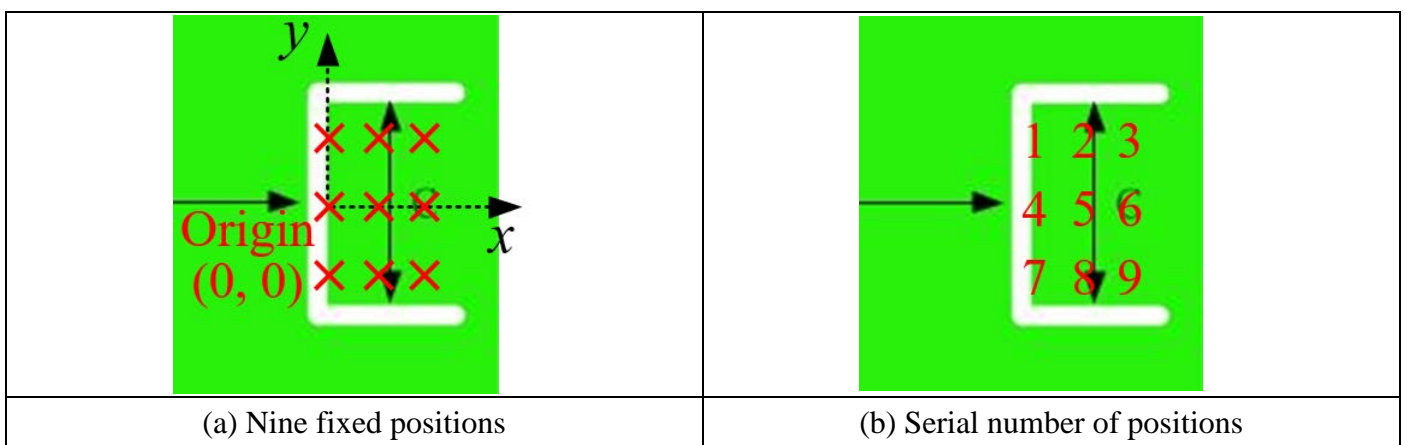


Fig. 2. Nine fixed positions of the **toes of robot**

Table 3. Nine fixed positions of the **toes of robot**

Serial number of target position		x-axis position		
		Kid: 0 cm Adult: 0 cm	Kid: 10 cm Adult: 15 cm	Kid: 20 cm Adult: 30 cm
y-axis position	Kid: 30 cm Adult: 35 cm	<b>1</b>	<b>2</b>	<b>3</b>
	Kid: 0 cm Adult: 0 cm	<b>4</b>	<b>5</b>	<b>6</b>
	Kid: -30 cm Adult: -35 cm	<b>7</b>	<b>8</b>	<b>9</b>

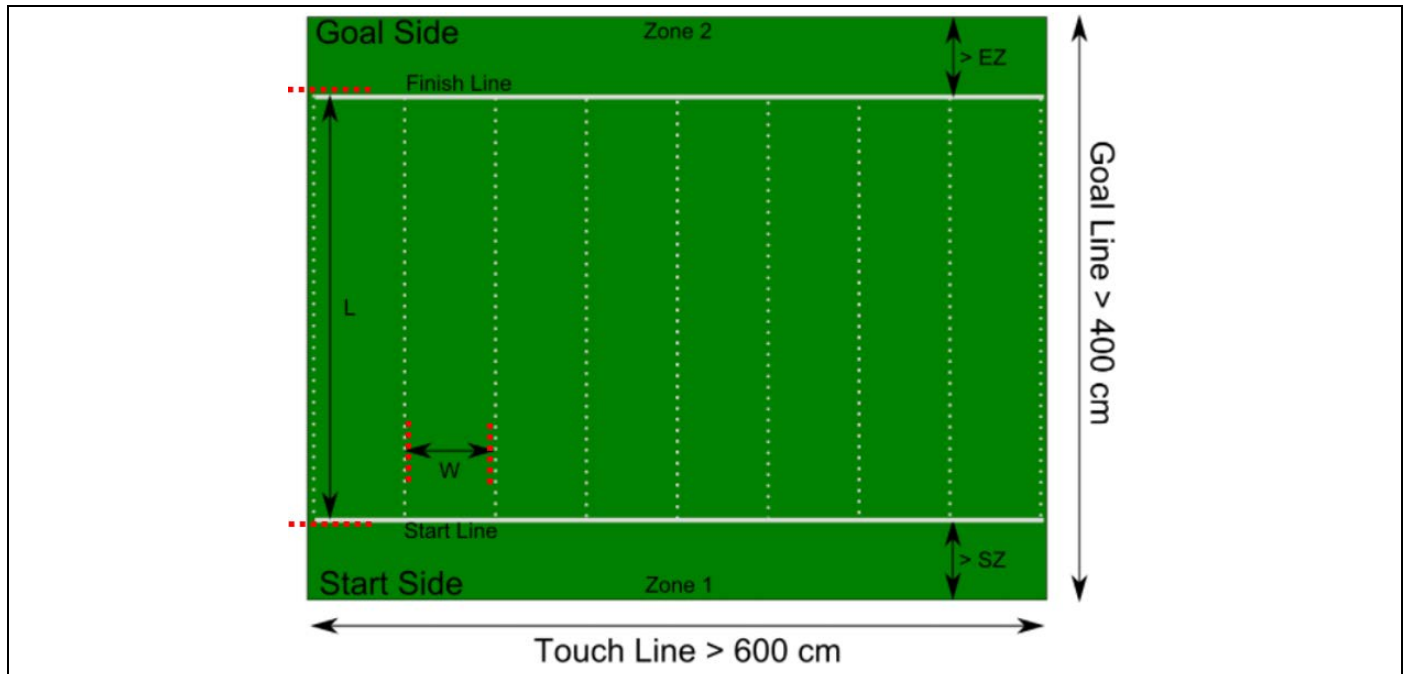
# Sprint

## Rules adjustment:

1. No rules are adjusted. Please follow the Sprint rules of HuroCup.

## Requirement:

1. Each team only needs to make one lane.



Dimension	Comment	Kid Size	Adult size	Measurement method
\$L	Length of Track	300cm	400cm	Follow the red dotted line, it can be longer not shorter, the measurement point is outside the white line.
\$W	Width of Track	80cm - 110cm	200cm - 300cm	Follow the red dotted line, it can be shorter not longer, the measurement point is inside the white line.
\$SZ	Start Zone	30cm	50cm	
\$EZ	End Zone	30cm	50cm	
\$M	Max. dimensions of marker	20cm * 20cm * 20cm	50cm * 50cm * 50cm	