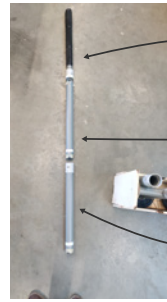
Metrojuggle (New and Improved)

In this document you will find instruction on how to assemble the and how to manufacture it.

Poles Assemblty

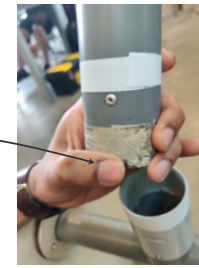


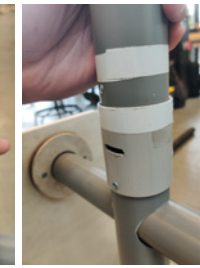
Step- 1

Grab **Pole No.1** of the same color as the base pole color
Make sure the side with the **colour strip is facing down.**

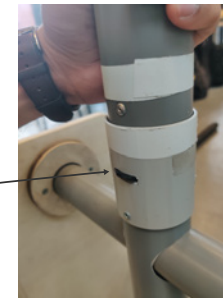
Step- 2

- Press the Locking tab **inward with your thumb** and press the pole inside the base pole.



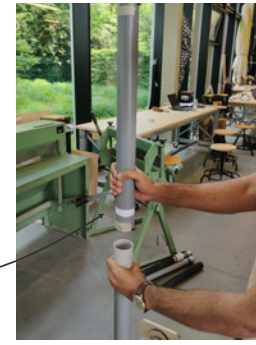


- Twist the pipe from left and right until the Locking tab **pops out of the hole**.



Step- 3

Grab **Pole No.2** of the same color.
Make sure the side with the **colour strip is facing down**.



Step- 4

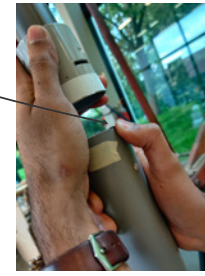
- Press the Locking tab **inward with your thumb** and press the pole inside pole No.1.
- Twist the pipe from left and right until the Locking tab **pops out of the hole**.

Step- 5

Grab **Pole No.3** of the same color.
Make sure the side with the **color strip is facing down.**

Step- 6

- Press the Locking tab **inward with your thumb** and press the pole inside pole No.2.



- Twist the pipe from left and right until the Locking tab **pops out of the hole**.

White Pole fully Assembled

Step- 6

Repeat the same process on the Pole on the other side

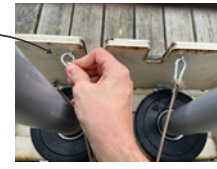
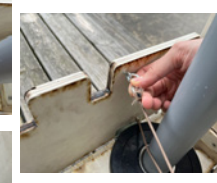
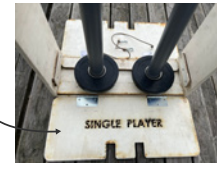
Base Assembly



Step- 1

Unhook both **Carabiners**

Side panels **fold** open

Step- 2

Press in both locking beams on each side panels
Make sure they're fully slid in


Step- 3

Clip in the **Carabiners** at the diagonal ends in the eye of the hook screws
In order lock them and prevent interference with the user or gameplay

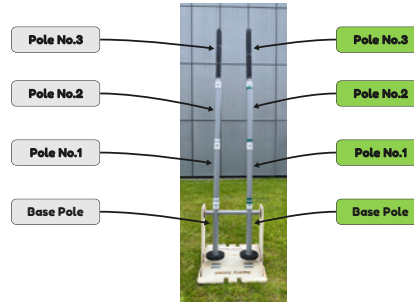
Now the base is fully assembled for two players.

Step- 4

For S**ingle Player,** tilt the pole to expose the hook in the bottom .
Lock in the **carabiners** in the eye of the **hook under** the **poles.**
The Player should stand on the side where the letters "Single Player" is etched to start playing.

Poles Assembly

For ease of understanding we have color coded the pole on the left as white and the pole on the right as green. Each pole is divided into four parts, **Base pole**, **Pole 1, Pole 2 and Pole 3.**



Base Pole

Take the standard 50mm 100 cm long PVC pipe and mark a spot at **38.5 cm** from one end

Step- 1

Drill a Hole of **40cm** diameter all the way through with the center as the marked spot in the previous step.(don't forget to sand the edges of a smoother movement)

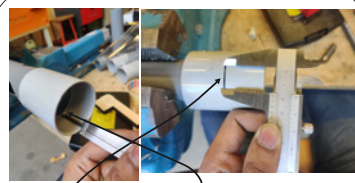
Step- 2

Measure a length of **45cm** from the same end you measured the length for the hole and cut it at that spot.

Step- 3

Place a Standard 50mm to 50mm connector on the side towards the hole and secure it by screwing two screws on the sides.

Step- 4

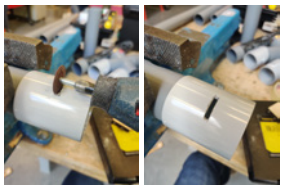


Measure the distance from the open end of the connector to the **small plastic extrusion** that stops the pipes. Mark a **20mm** line at the same distance on the outside (make sure it's in between the holes going through the pole).

Step- 5

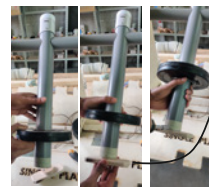
Make another line at a distance of 5mm (Make sure the new line is towards the open end and **not towards the pole side**)

Step- 6



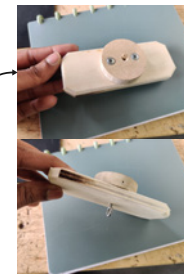
Using a Dremel Cut out the rectangle you just made.

Step- 7



Put the 2KG weight through the bottom end of the pole and lock the weight by putting the **weight locking assembly** inside the open end and securing it using 4 screws.

Step- 8



The weight locking structure is made screwing a 47mm circle to a square piece using two screws. A small screwable ring is added in the bottom on the other side on the center.(All Parts are included in the Part files)

Plastic Clips

Before we start making the rest of the pole we have to make six plastic clips that go into both the poles (3 in each).

Take a 3mm thick plastic sheet and cut it into strips that are 15mm wide and 70mm long

Step- 1

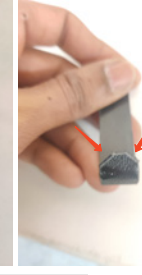
Make two markings at 5mm and at 15mm

Step- 2

Make the first bend of 40 degrees at the 5mm marks

Make the second bend of 90 degrees at the distance of 15mm.

Step- 3



Snip off the edges of the bent portion.

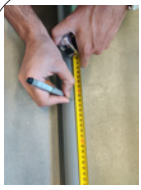
Step- 4

Repeat the steps until you have 6 clips.

Step- 4

We can trim the length of the portion that pops out later in assembly for perfect fit

Pole No.1

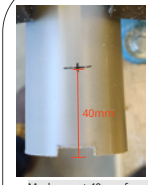



Take the standard 50mm diameter PVC pipe and mark and cut it at **52cm** distance

Step- 1

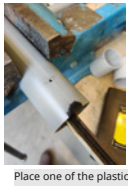
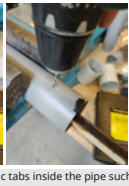

On one end mark two lines at 20mm and one line 5mm from the edge. cut out the rectangle using a Dremel.

Step- 2



Mark a spot 40mm from the edge and make sure it's in center of the notch we made in the previous step. Now drill a hole of 3mm in that spot.

Step- 3

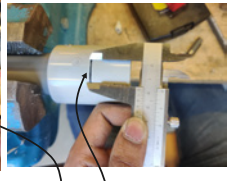




Place one of the plastic tabs inside the pipe such that the portion that is bent is popping out of the notch in the pipe (make sure the plastic tab doesn't extrude beyond the edge of the pipe and is flush with the end).
Holding the plastic tab in place drill through the tab using the same hole you drilled earlier. Finally put a rivet through the hole and rivet the plastic tab with the pipe.

Step- 4

Place a Standard 50mm to 50mm connector on the other side and secure it by screwing two screws on the sides.

Step- 5

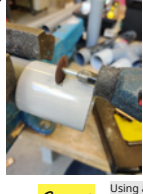



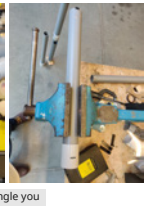
Step- 6

Measure the distance from the open end of the connector to the **small plastic extrusion** that stops the pipes. Mark a **20mm** line at the same distance on the outside (make sure it's in between the holes going through the pole).


Make another line at a distance of 5mm (Make sure the new line is towards the open end and **not towards the pole side**)

Step- 7

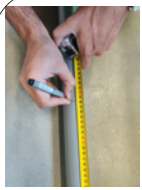




Step- 8

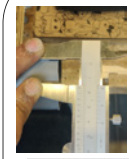
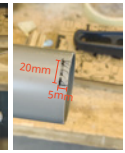
Using a Dremel Cut out the rectangle you just made.

Pole No.2



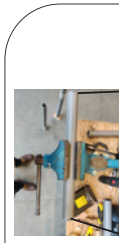

Take the standard 50mm inside diameter PVC pipe and mark and cut it at **55cm** distance

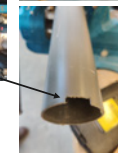
Step- 1

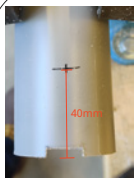
On **BOTH** ends mark two lines at **20mm** and one line **5mm** from the edge. cut out the rectangle using a Dremel.

Step- 2





Step- 3



Mark a spot 40mm from the edge **on Both sides** and make sure it's in center of the notch we made in the previous step. Now drill a hole of 3mm in that spot.

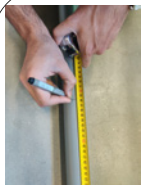
Step- 4




Place one of the plastic tabs inside the pipe such that the portion that is bent is popping out of the notch in the pipe (make sure the plastic tab doesn't extrude beyond the edge of the pipe and is flush with the end). Holding the plastic tab in place drill through the tab using the same hole you drilled earlier. Finally put a rivet through the hole and rivet the plastic tab with the pipe. **Repeat the same step on the other side.**

Step- 5

Pole No.3



Take the standard **40mm (smaller pipe)** inside diameter PVC pipe and mark and cut it at **51cm** distance

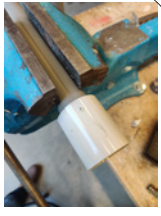
Step- 1

Place a expanding connector that fits on the 40mm diameter pipe and expands it to 50mm.

Step- 2

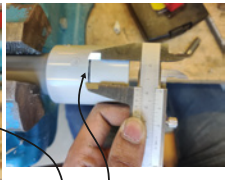
Now it will be possible to place the 50mm-to-50mm connecter on that end.

Step- 3



Secure everything by drilling two holes on both ends and putting a screw through it.

Step- 4



Measure the distance from the open end of the connector to the **small plastic extrusion** that stops the pipes. Mark a **20mm** line at the same distance on the outside (make sure it's in between the holes going through the pole).

Step- 5

Make another line at a distance of 5mm (Make sure the new line is towards the open end and **not towards the pole side**)

Step- 6

Using a Dremel Cut out the rectangle you just made.

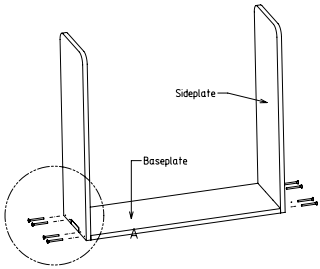
Step- 7

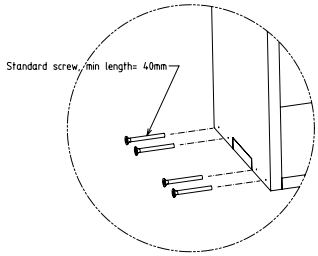
Wrap the exposed PVC pipe side with a soft material for improved safety.

Step- 8

Box- Step 1

Step 1
Put the sideplates against the baseplate as pictured below
Pre-drill the marks on the sideplate and extend the drilled hole to the baseplate
Attach the sideplates to the baseplate using the predrilled holes with four screws per side





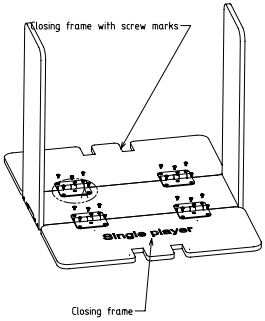
DETAIL A
SCALE 1:2

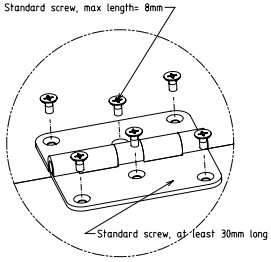
IPO	SCALE: 1:1	PART NAME: Frame assembly step 1	NAME: Woesh Team 15	
	STANDARD: ISO2768mK	MATERIAL: Plywood, Stainless steel	GROUP: IPE design industry	DATE: 05/06/2024
	ID PART: Metrojuggle assembly V2			A3

A3

Box- Step 2

Step 2
Put the normal closing frame and the single player closing frame against the baseplate as pictured below
Lay four hinges centered in between the baseplate and the closing frames, 9cm away from the edge of the closing frame
Pre-drill screw holes for the hinge and put all the screws at the right location





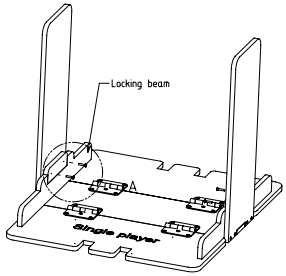
DETAIL A
SCALE 1:1

IPO	SCALE: 1:1	PART NAME: Frame assembly step 2	NAME: Woesh Team 15	
	STANDARD: ISO2768mK	MATERIAL: Plywood, Stainless steel	GROUP: IPE design industry	DATE: 05/06/2024
	ID PART: Metrojuggle assembly V2			A3

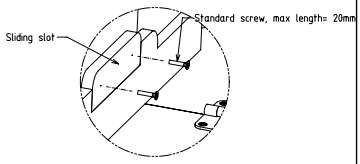
A3

Box- Step 3

Step 3
Pre-drill the hole marks on the sliding slots
Align the locking beams in the middle of the sideplate and put the sliding slots on top of them
Predrill the sideplate using the predrilled holes of the sliding slots
Screw the sliding slots onto the sideplate



DETAIL A
SCALE 1:2

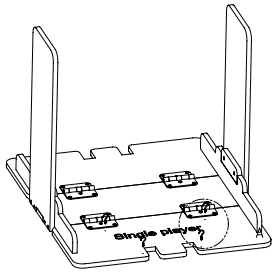


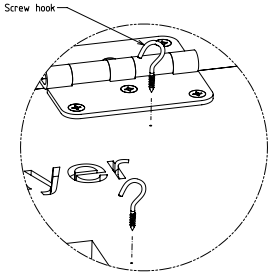
	SCALE:	PART NAME:	NAME:	
IPO	1:1	Frame assembly step 3	Woesh Team 15	
	STANDARD: ISO2768mK	MATERIAL: Plywood, stainless steel	GROUP: IPO, Design for Industry	DATE: 05/06/2024
	ID PART: Metrouggle assembly V2			A3

A3

Box- Step 4

Step 4
Pre-drill the marks on the single player closing frame
Screw the screw hooks into the designated holes
Make sure to not make the screw hooks poke out the other side



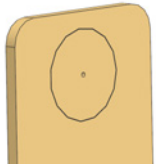


DETAIL A
SCALE 1:1

	SCALE:	PART NAME:	NAME:	
IPO	1:1	Frame assembly step 4	Woesh Team 15	
	STANDARD: ISO2768mK	MATERIAL: Plywood, Stainless steel	GROUP: IPO, Design for Industry	DATE: 05/06/2024
	ID PART: Metrouggle assembly V2			A3

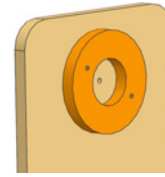
A3

1



Predrill (2mm) hole through the guide points on Side panel

2



Screw in Mounting Disc on the side panels using two (m4 x 20) screws.

3

Drill 2mm guiding hole in both end of the wooden pole

4

Press fit wooden spacers on each end of the wooden pole

5

slide in the wooden pole, with the spacers, inside the PVC base pole

6

Slide in both PVC base poles on the PVC pipe Axle

7

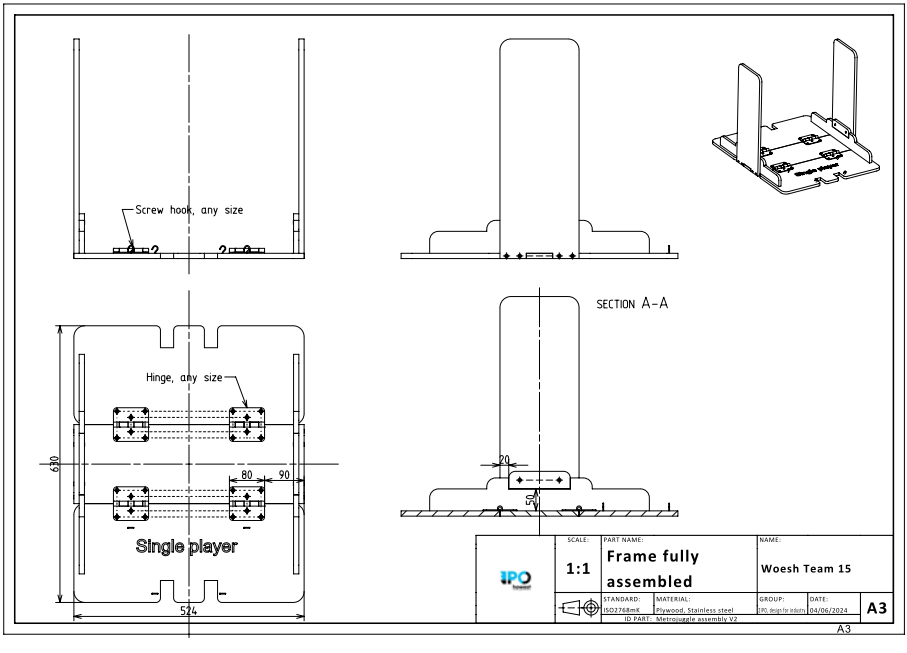
Lock in the PVC pipe in between the two Mounting Discs

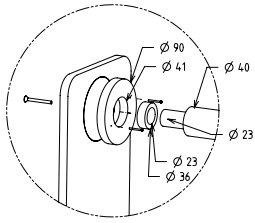
8

Screw in two (m4x 80) screws on each side of the side panels through the guiding holes.

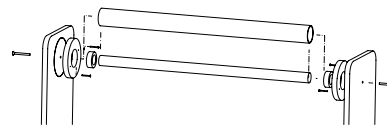
Make sure to screw them on both sides at the same time in order to prevent the wooden pole to rotate inside the PVC pipe axle

Technical Drawings

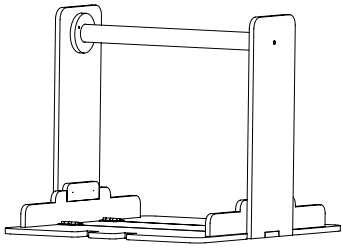




DETAIL A
SCALE 1:3

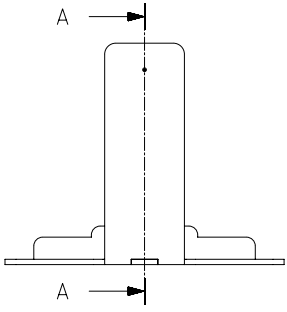


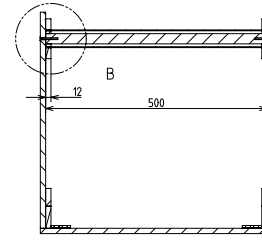
DETAIL B
SCALE 1:5

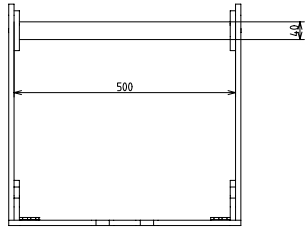


IPO	SCALE: 1:1	PART NAME: Middle Connection	NAME: Nabil, Gaurav, Elio	
	STANDARD: ISO2768mK	MATERIAL: PVC, Wood	GROUP: Group 15	DATE: 4/6/2024
	ID PART: Metrojuggle assembly V2			A3

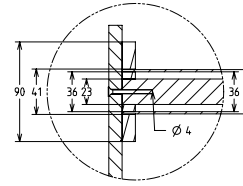
A3





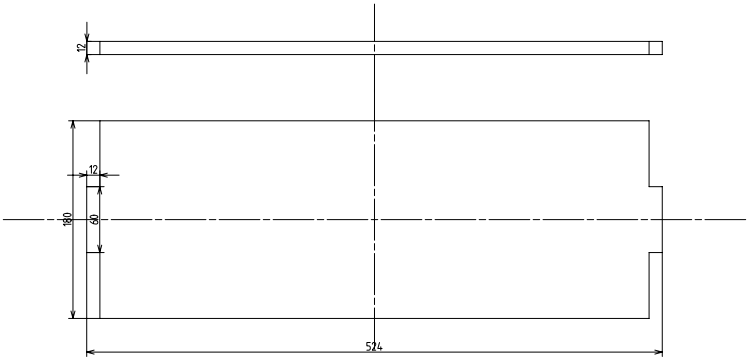


SECTION A-A



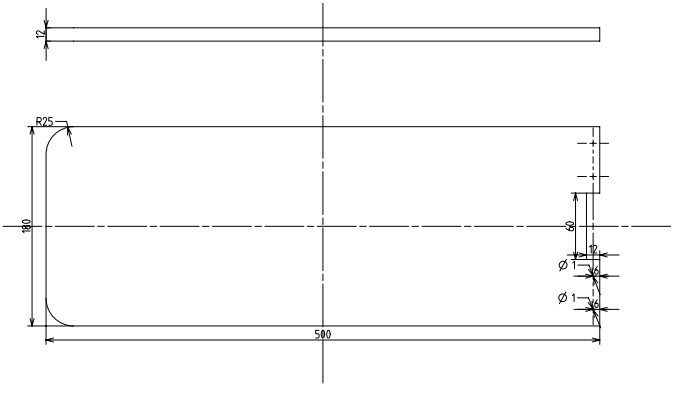
IPO	SCALE: 1:1	PART NAME: Middle Connection	NAME: Nabil, Gaurav, Elio	
	STANDARD: ISO2768mK	MATERIAL: PVC, PLYWOOD	GROUP: Group 15	DATE: 4/6/2024
	ID PART: Metrojuggle assembly V2			A3

A3



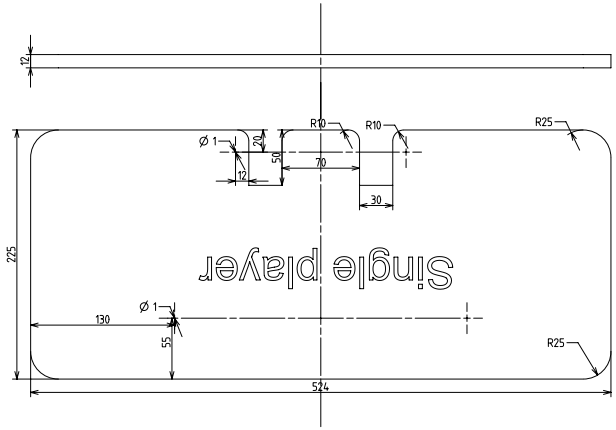
SCALE: 1:1	PART NAME: Baseplate		NAME: Woesh Team 15	
STANDARD: ISO2768mK	MATERIAL: Plywood	GROUP: EPG design for industry	DATE: 04/06/2024	A3
ID PART: Woesh Metrojuggle frame V3 - baseplate				

A3



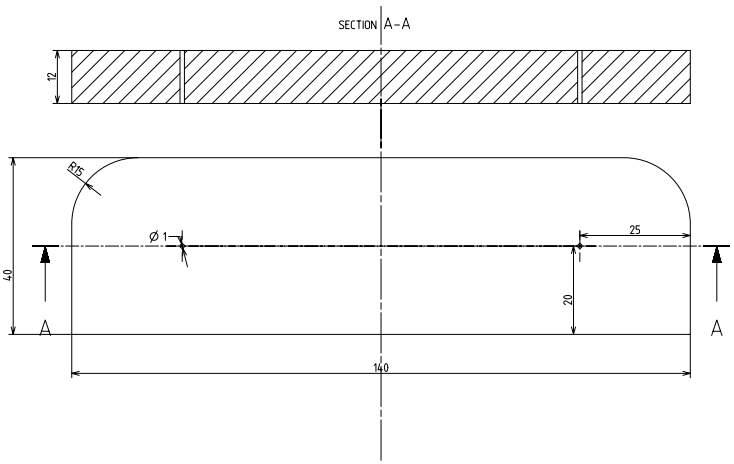
SCALE: 1:1	PART NAME: Side plate		NAME: Woesh Team 15	
STANDARD: ISO2768mK	MATERIAL: Plywood	GROUP: EPG design for industry	DATE: 04/06/2024	A3
ID PART: Woesh Metrojuggle frame V3				

A3



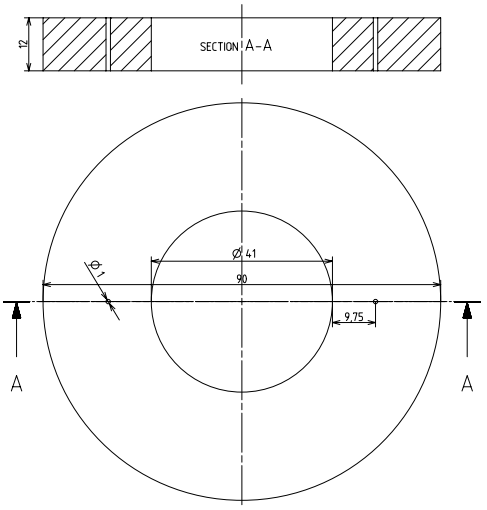
	SCALE:	PART NAME:	NAME:
IPO Twente	1:1	Closing frame with hooks	Woesh Team 15
	STANDARD: ISO2768mK	MATERIAL: Plywood	GROUP: IPO, design for industry	DATE: 04/06/2024	A3
	ID PART: Metrojuggle closing frame screw hooks		

A3



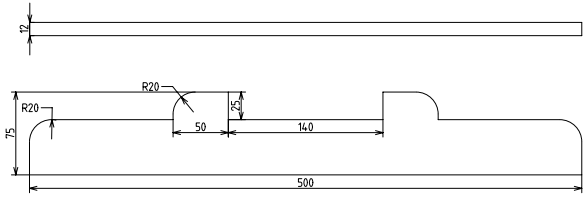
	SCALE:	PART NAME:	NAME:
IPO Twente	1:1	Locking slot	Woesh Team 15
	STANDARD: ISO2768mK	MATERIAL: Plywood	GROUP: IPO, design for industry	DATE: 04/06/2024	A3
	ID PART: Woesh locking slides 2		

A3



	SCALE: 1:1	PART NAME: Pipe mounting disc		NAME: Woesh Team 15	
		STANDARD: ISO2768mK	MATERIAL: Plywood	GROUP: DPO, design for industry	DATE: 04/06/2024
		ID PART:			A3

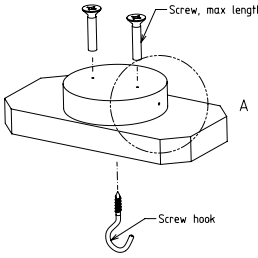
A3

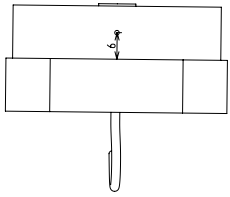


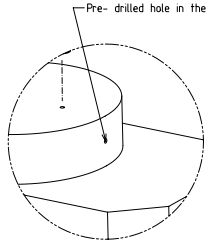
	SCALE: 1:1	PART NAME: Locking beam		NAME: Woesh team 15	
		STANDARD: ISO2768mK	MATERIAL: Plywood	GROUP: DPO, design for industry	DATE: 04/06/2024
		ID PART: Secondary locking beam			A3

A3

Step 1
Pre- drill 2 holes on top of the plywood circle and through the hewagonal piece underneath
Pre- drill 2 holes on the side of the circle
Connect the circle to the hexagonal piece using 2 screws and the pre- drilled holes
Pre- drill the bottom of the hexagonal at the center
Screw the screw hook into te predrilled hole on the bottom





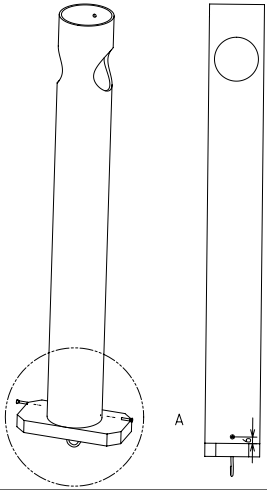


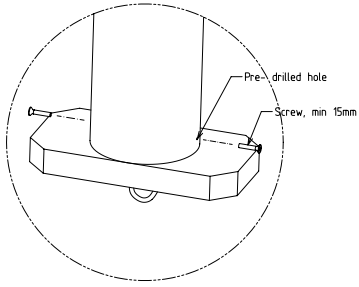
DETAIL A
SCALE 2:1

	SCALE: 1:1	PART NAME: Support base assembly step 1	NAME: Woesh Team 15	
	STANDARD: ISO2768mK	MATERIAL: Plywood, Stainless steel	GROUP: IPO design for industry	DATE: 05/06/2024
	ID PART: Assembly with support base			A3

A3

Step 2
Pre- drill two 1mm holes on the side of the PVC pipe
Screw together the pre- drilled holes on the PVC pipe and the pre- drilled holes on the plywood circle





DETAIL A
SCALE 1:1

	SCALE: 1:1	PART NAME: Support base assembly step 2	NAME: Woesh Team 15	
	STANDARD: ISO2768mK	MATERIAL: Plywood, stainless steel, PVC	GROUP: IPO design for industry	DATE: 05/06/2024
	ID PART: Assembly with support base			A3

A3