OPITEC

114.066

Metal Aeroplane with Solar Drive

Necessary tools:
Pencil & ruler
Fretsaw
with wood and metal working blades
File
Drill 3,5/4/5 dia
Vice with soft jaws
Metal folder
Screwdriver
Spanner
Countersink
Scissors
Edding pen

Please Note

The OPITEC range of projects are not intended as toys for young children.
They are primarily designed as a teaching aid for Design Technology and to encourage children in practical skills.They should not be attempted without the supervision of a qualified adult . The are NOT suitable for children under 3 years old, they contain small parts that can be swallowed

PARTS LIST				
			Description	
Aluminium sheet	1	200x200x0,8	Aeroplane	1
PLywood	1	260x120x8	Stand	2
Wooden ball	1	ø 12	Pilot head	3
Wooden ball	1	ø 25	Stand	4
Vacuum forming plastic	1	125x125x0,3	Cockpit	5
Spring clip	1		Motorhalterung	6
Solarmotor RF 300	1		Motor	7
Propellor	1		Propeller	8
Screw	2	20x3	Fixing	9
Screw	1	40x4	Fixing	10
Machine screw	2	35x3	Fixing	11
Machine screw	3	8x3	Fixing	12
Nuts	5	M3	Fixing	13
Washers	5	7/3,2	Fixing	14
Solar cell 0,5 V, 200mA	1		Power source	15
Cable	1	500	Wiring	16

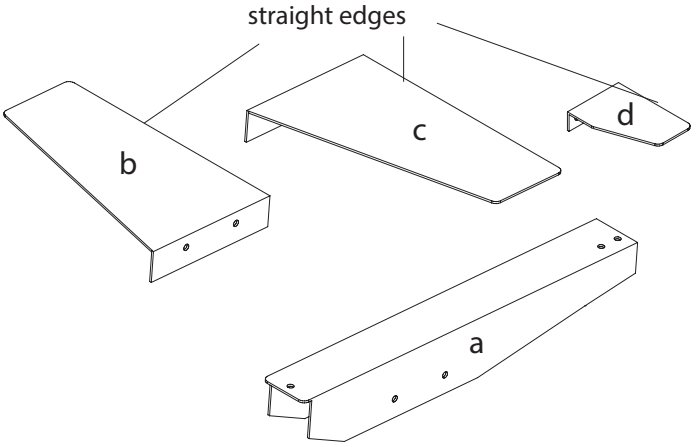
Instructions

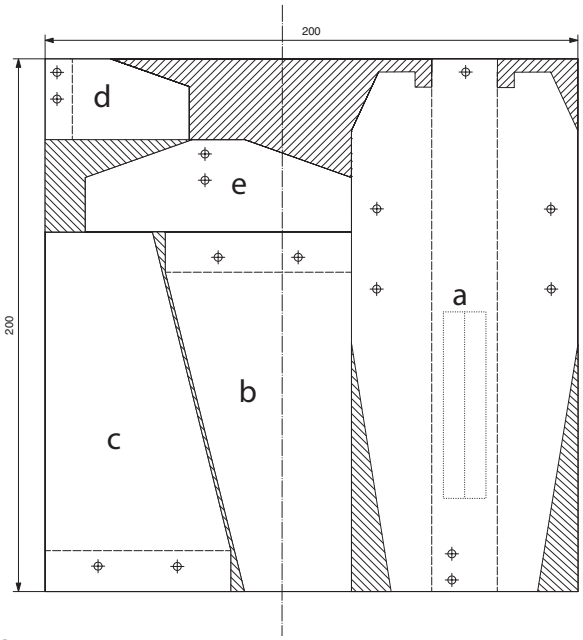
Step 1:

Cut out the patterns (Page 5/7) for the aeroplane and glue them together along the broken line. Transfer (see diagram) the plans on to the aluminium sheet (1)

Drill all the marked holesand cut out the parts with metal shears or afretsaw with a metal working blade

Clean up all the parts with file and remove any burr





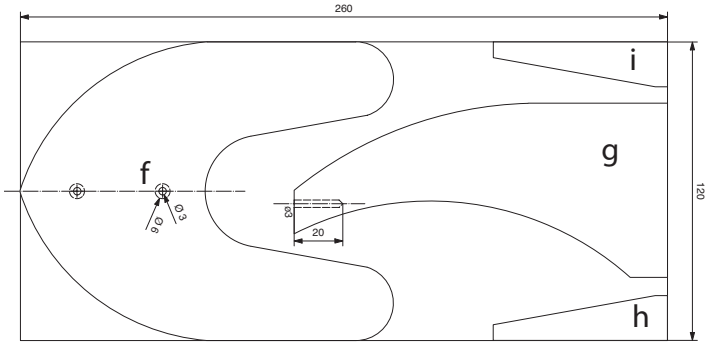
Step 2:

Fold the parts (a-d) as shown, use a vice with soft jaws or folding bars.

Note: Bend in the correct direction!

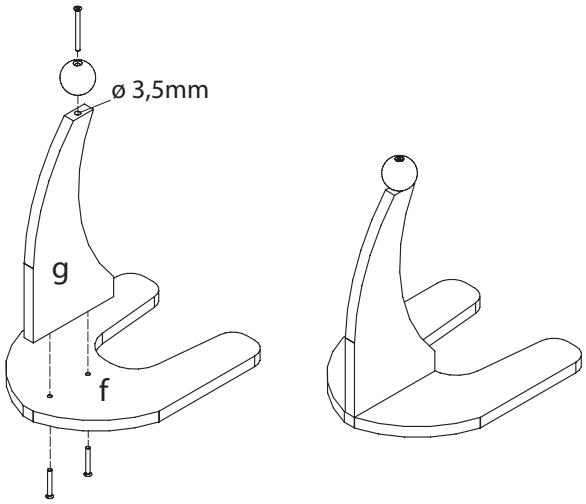
Step 3:

Trace the patterns for the stand (page 9) on to the plywood sheet(2) . Drill the 3mm holes in the base part (f) Use a countersink on the 6mm dia holes. Cut out all the parts with a Fretsaw and sand to finish.



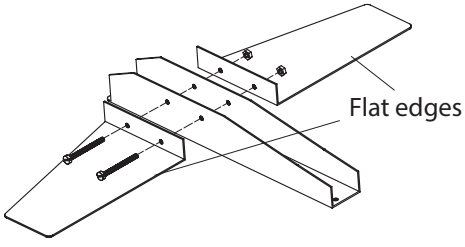
Step 4:

In the stand (g) (see patterns) drill the ø3,5 mm ca. hole 20mm deep. Finally add the ball (4) ø 25mm with a screw (10) 4x40mm in part (g)
Part (f) with screws (9) ø 3x20mm from underneath (g) (The countersink holes are underneath!)



Step 5:

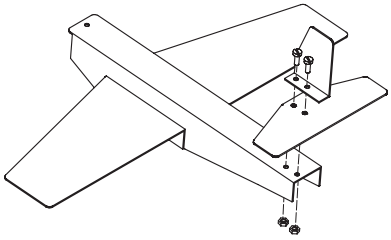
Mount the wings (Parts b/c) as shown using the machine screws (11) M3x35 and nuts (13) to the fuselage body (Part a) (straight edges on the wings point backwards.)



Instructions

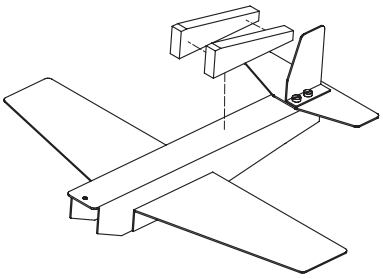
Step 6:

The tailpane (Part e) and the tail fin (Part d) are fitted using two screws (12) and 2 nuts (13) on the back of the fuselage (a)



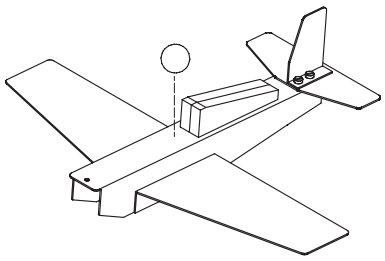
Step 7:

The wooden parts (i/h) are glued together as shown on page 5/7 as marked, use an all purpose glue!



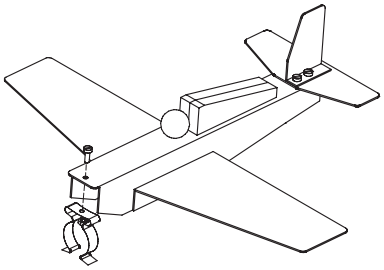
Schritt 8:

The wooden ball (3) once all the parts (i/h) are on the body (a) is fitted with an all purpose glue.



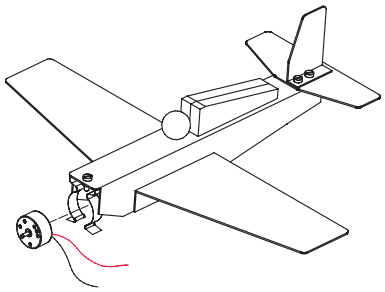
Schritt 9:

The spring clip (6) is fitted as shown with a machine screw (12) and a nut (13) in place



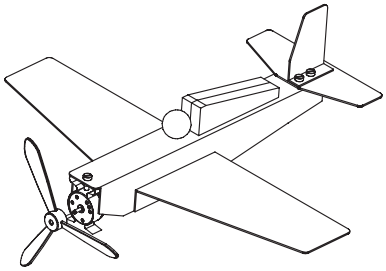
Schritt 10:

Place the motor (7) with spindle to the front, in the spring clip (6)see diagram



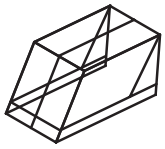
Step 11:

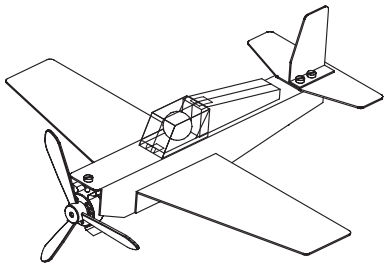
Mount the propellor on the motor spindle (8) as shown

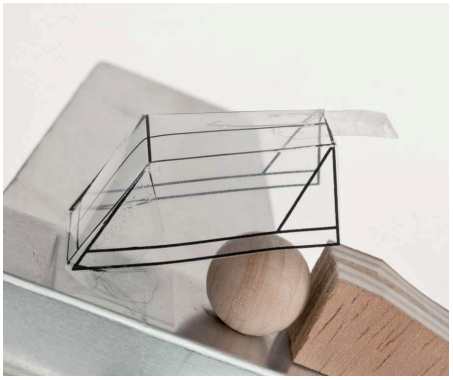


Step 12:

Cut out and fold the cockpit shape from the plastic sheet(5). Fix the parts together with sellotape (see diagram)Use sellotape to hold it on the fuselage .

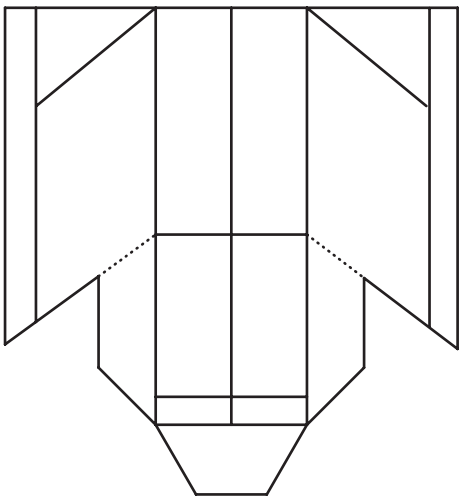






Pattern for the cockpit

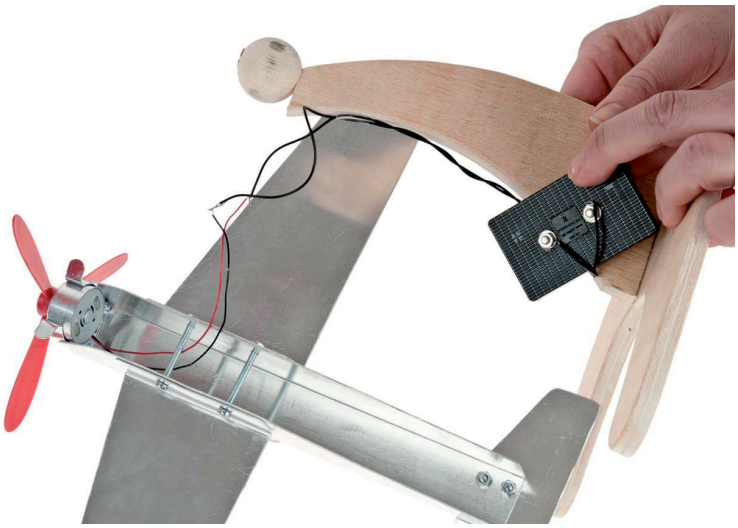
Scale 1:1



Instructions

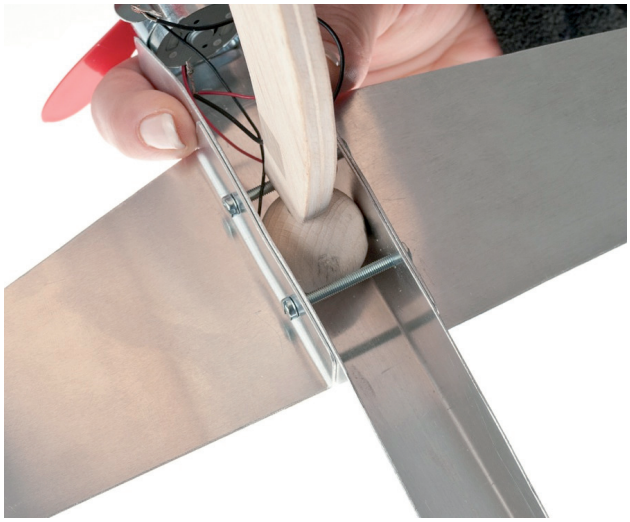
Step 13:

Cut off two ca. 200mm long pieces of cable (16) remove insualation from the ends. Connect one piece to the red wire from the motor with the red cable of the motor and the other end to the pus pole on solar cell (15) The other wire cionnectsfrom the black cable of the motor to the other connection on the cell (15) . Fix the wire to the stand with sellotape.



Step 14

Loosen the nut (14) from the machine screw (13) and guide the ball for the pilot in place.. retighten .



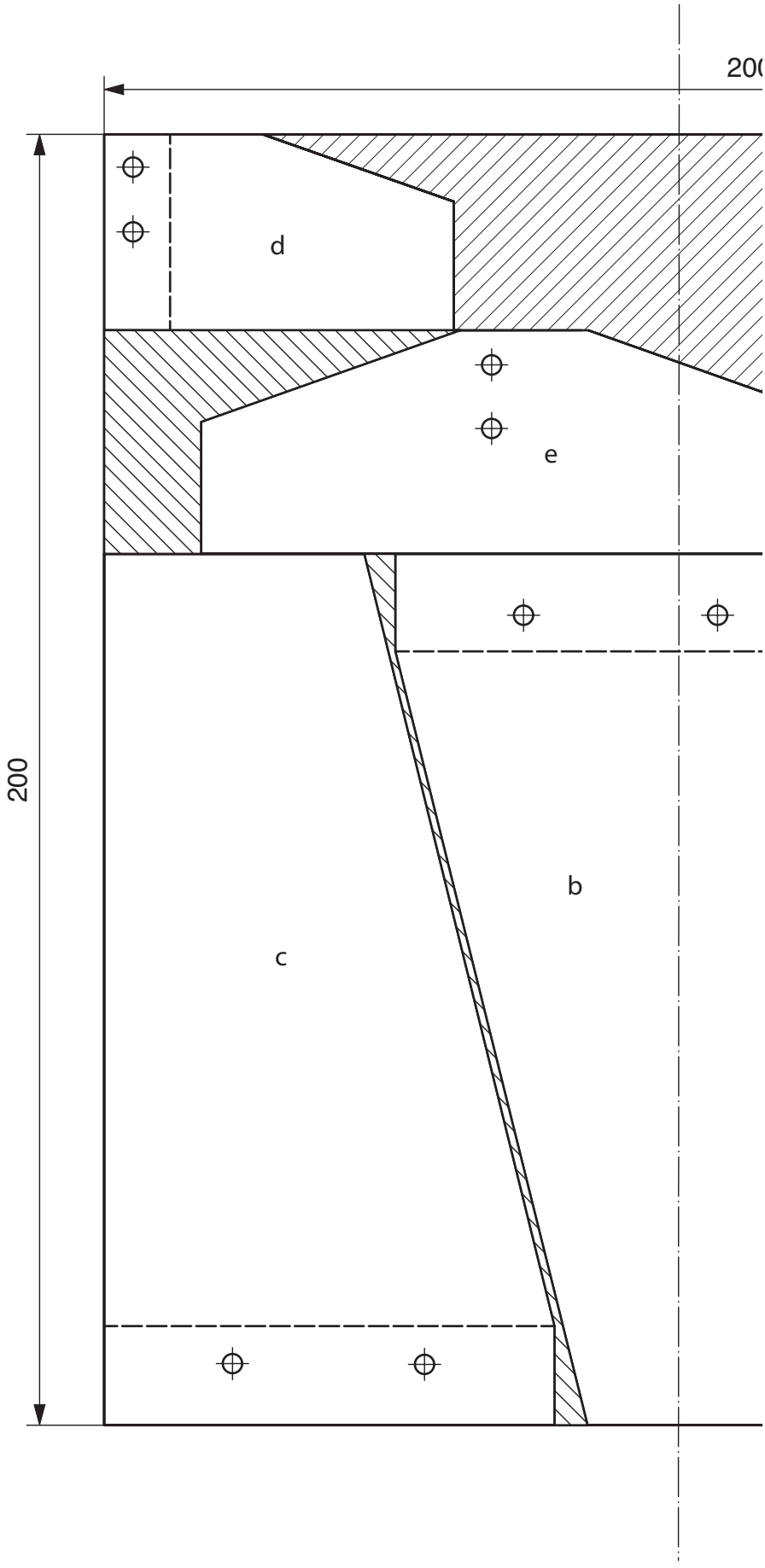
Step 15:

Paint to finnish. Place the model in a sunny place and as soon as enough light falls on the solar cell the propeller will turn.

Fertig!

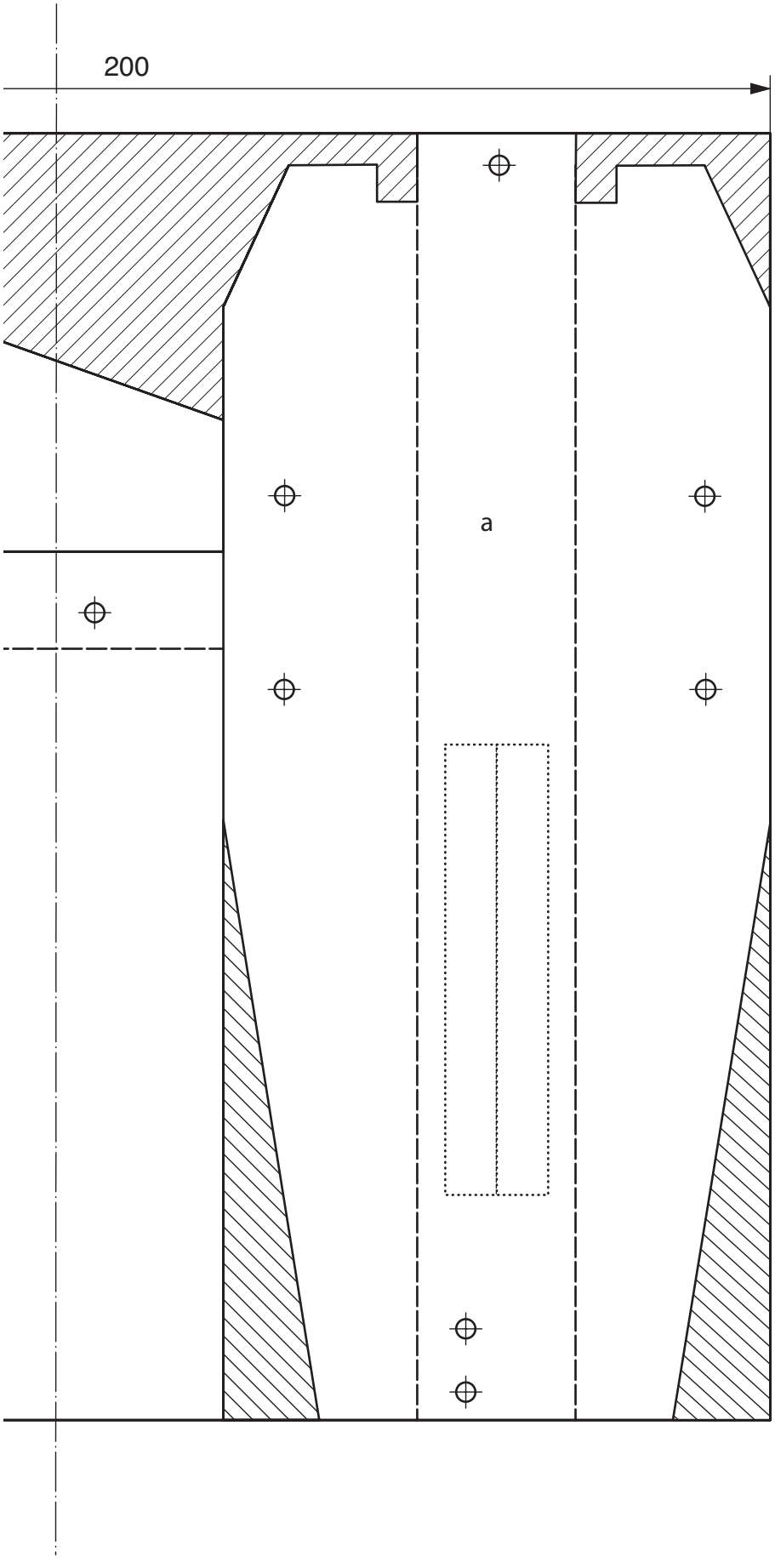
Instructions

Pattern Aluminium sheet
E 1:1



Instructions

Pattern Aluminium sheet
E1:1



Pattern for stand
E 1:1