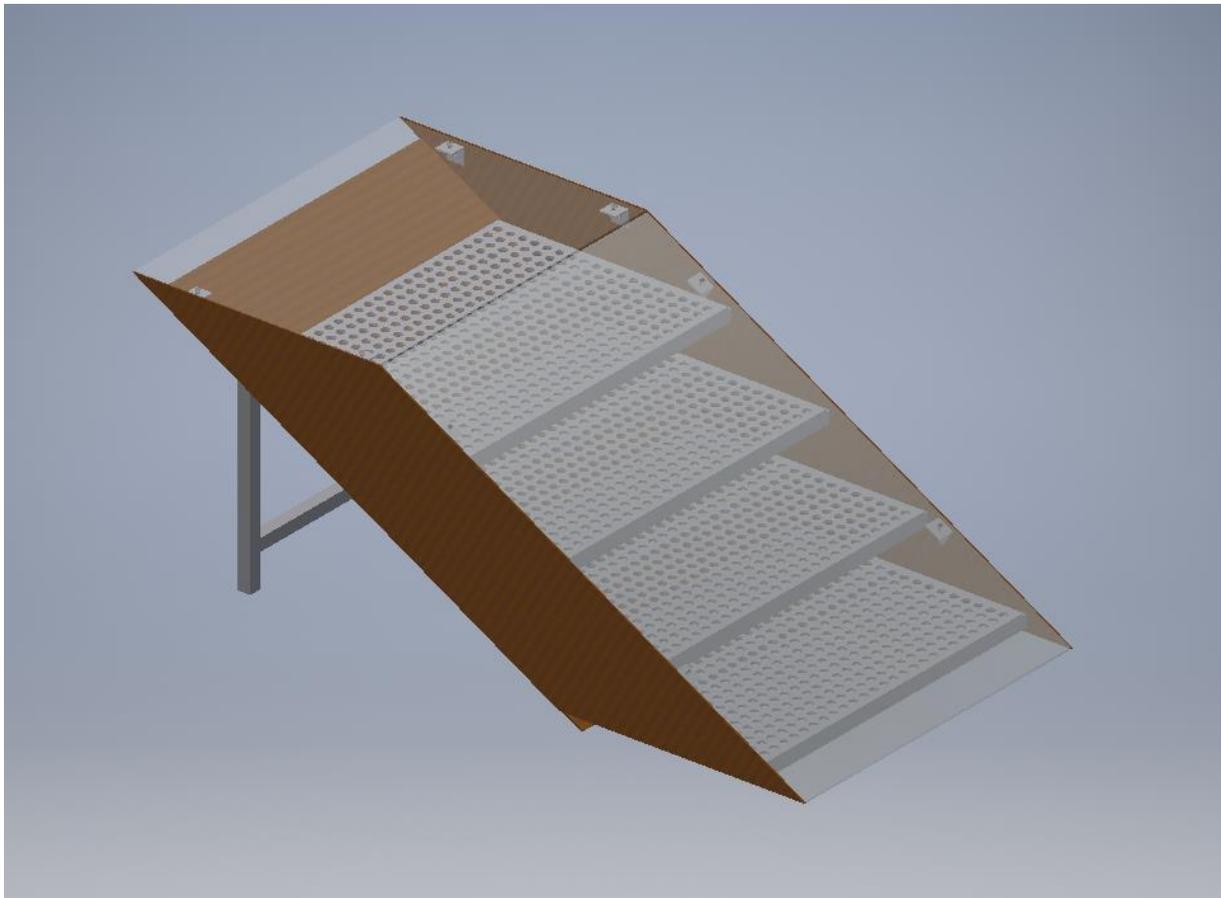


## „Solar dryer“



### General description

With a solar dryer it is possible, to dry food quickly by using sunlight. Vegetables, fruits or meat can be dried within a day when the sun is shining. This construction is based on the chimney effect. The body is set on the ground in a certain angle. When the sun heats up the drying chamber under the glass, the area on the ground is colder than the area of the upper part of the chamber. This temperature difference causes an artificial wind current. The system has two open gates, low and high so the air can get through and takes the wet parts of the drying goods to the outside of the chamber. The gates are closed with a grid, smaller than an insect could pass through while the drying process. The food material lies on stable grids, which can be easily removed and placed.

## Objective

This project contains a lot positive features. Various possibilities for creating comprehensive **theoretical lessons**. Different ways to produce the object in **practical lessons**. It can be used sustainable for the **catering sector** and it can be sold as a product to **increase incoming and prominence** when it is sold.

## Theoretical lessons

- Discussing the principle of the object (chimney effect, bright surface <-> dark surface, etc.)
- Calculation the demand of material -> prices, weights
- Work plans
- Optimization of the principle (rotating advice to follow the sun, bigger or smaller gates, etc.)
- Reading and understanding technical drawings, part lists

## Practical lessons

- Choosing correct material
- Marking and punching drill holes
- drilling
- Cutting metal sheets
- Cutting tubes, angles
- Learning how to work with different materials (mild steel, stainless steel, synthetic materials)
- Welding, bending, grinding, drilling
- Assembling single parts to a complete working module

## Catering section/kitchen

- Can be used daily to dry food, for example various vegetables to create a keep able seasoning mixture for the kitchen. No industrial produced stock cubes needed anymore
- No artificial energy needed -> no CO 2 emissions
- Very sustainable

## Increase incoming and prominence

- The modules can be sold via an online shop -> money can be generated to buy more equipment -> the range of technical skills and manufacturing possibilites can be increased

## Project proposal

- The sustainable and meaningful acting will be attractive for the chambers and the industries

### **Summary**

This work piece/ education product can find its place in several compartments of the foundation. So everybody can take part of it.

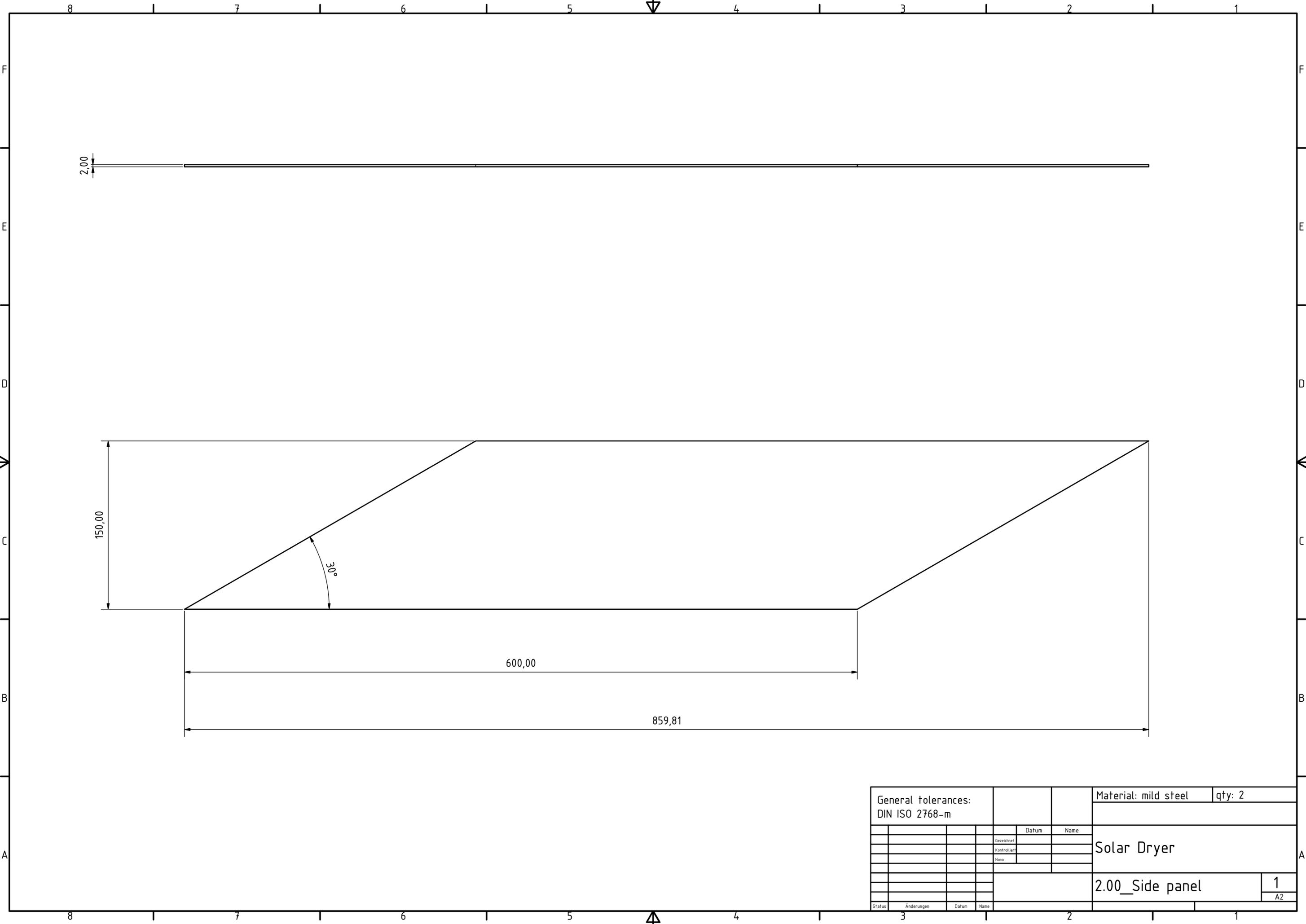
- Sustainable
- Economical friendly
- Useful
- Instructively but not boring

Of course, the design can be optimized, or the used materials. It can be built by carpenters as well, then it is out of wood. It can save money because one need no energy than sunlight, and one doesn't have to buy seasoning cubes anymore for example. Several areas can have advantages in one project.

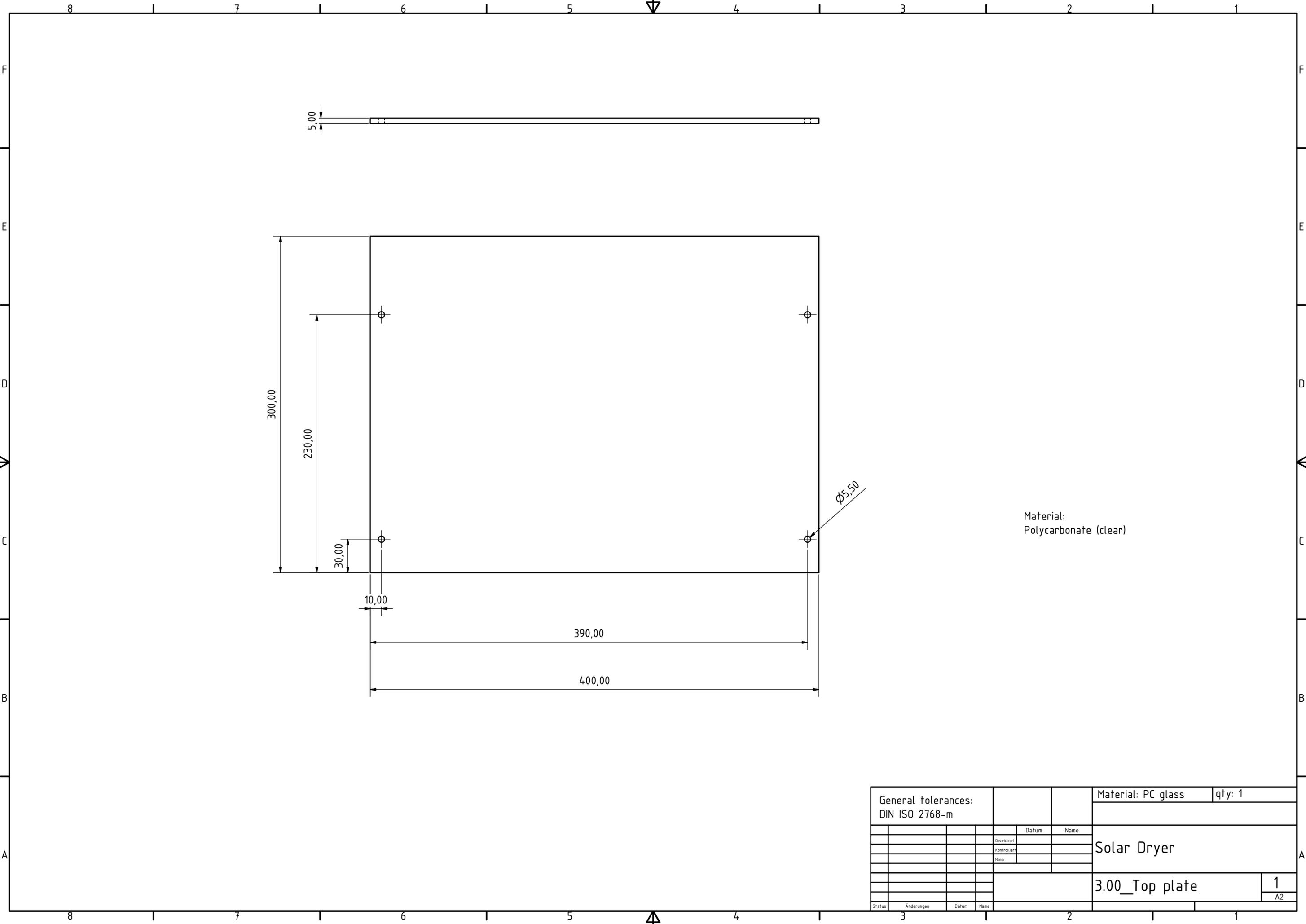
### **Attachment**

- Technical drawings
- Recipe for vegetable broth powder



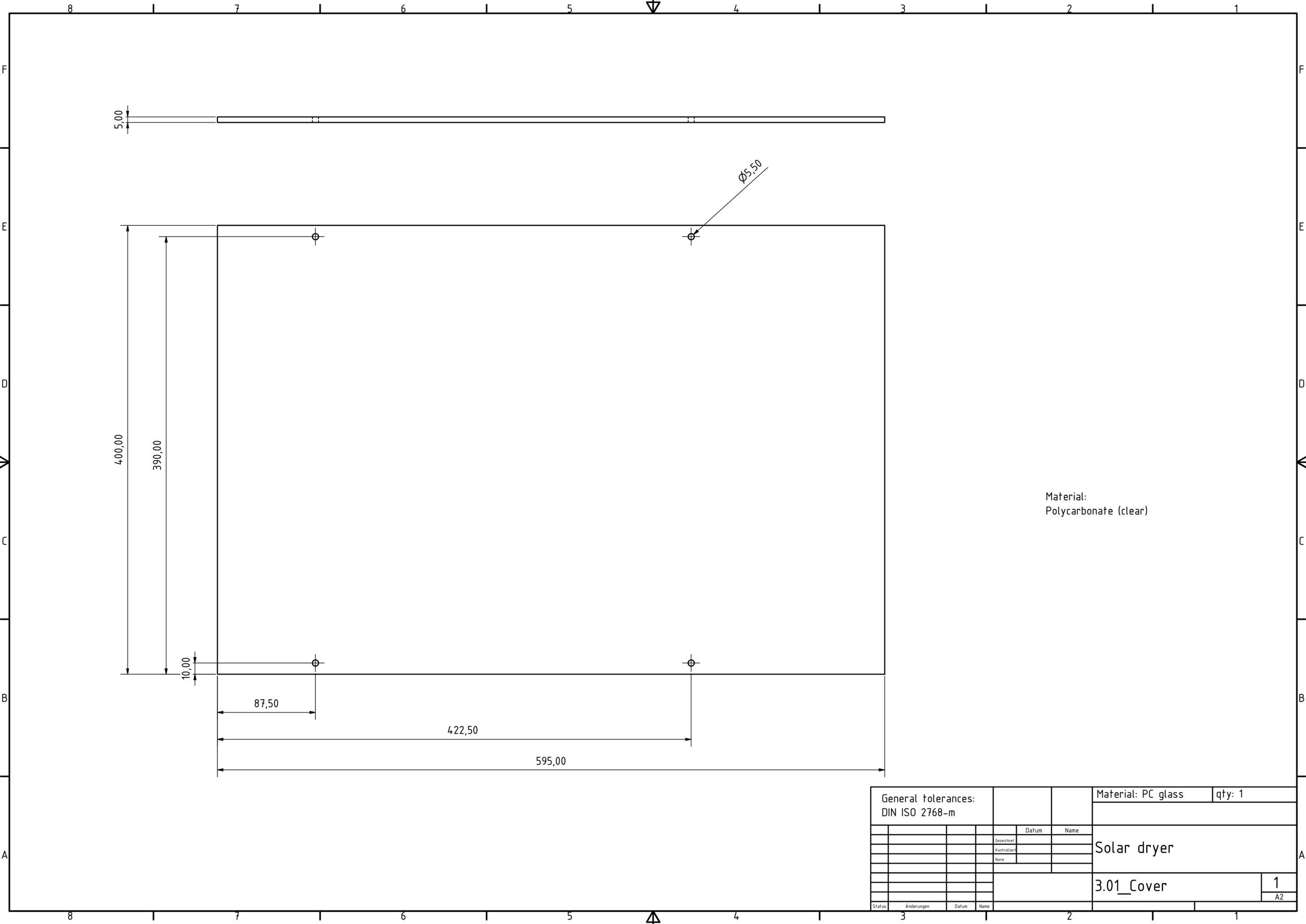


General tolerances: DIN ISO 2768-m				Material: mild steel		qty: 2	
				Datum	Name	Solar Dryer	
				Gezeichnet			
				Kontrolliert			
				Norm		2.00_Side panel	
						1	
						A2	
Status	Änderungen	Datum	Name				

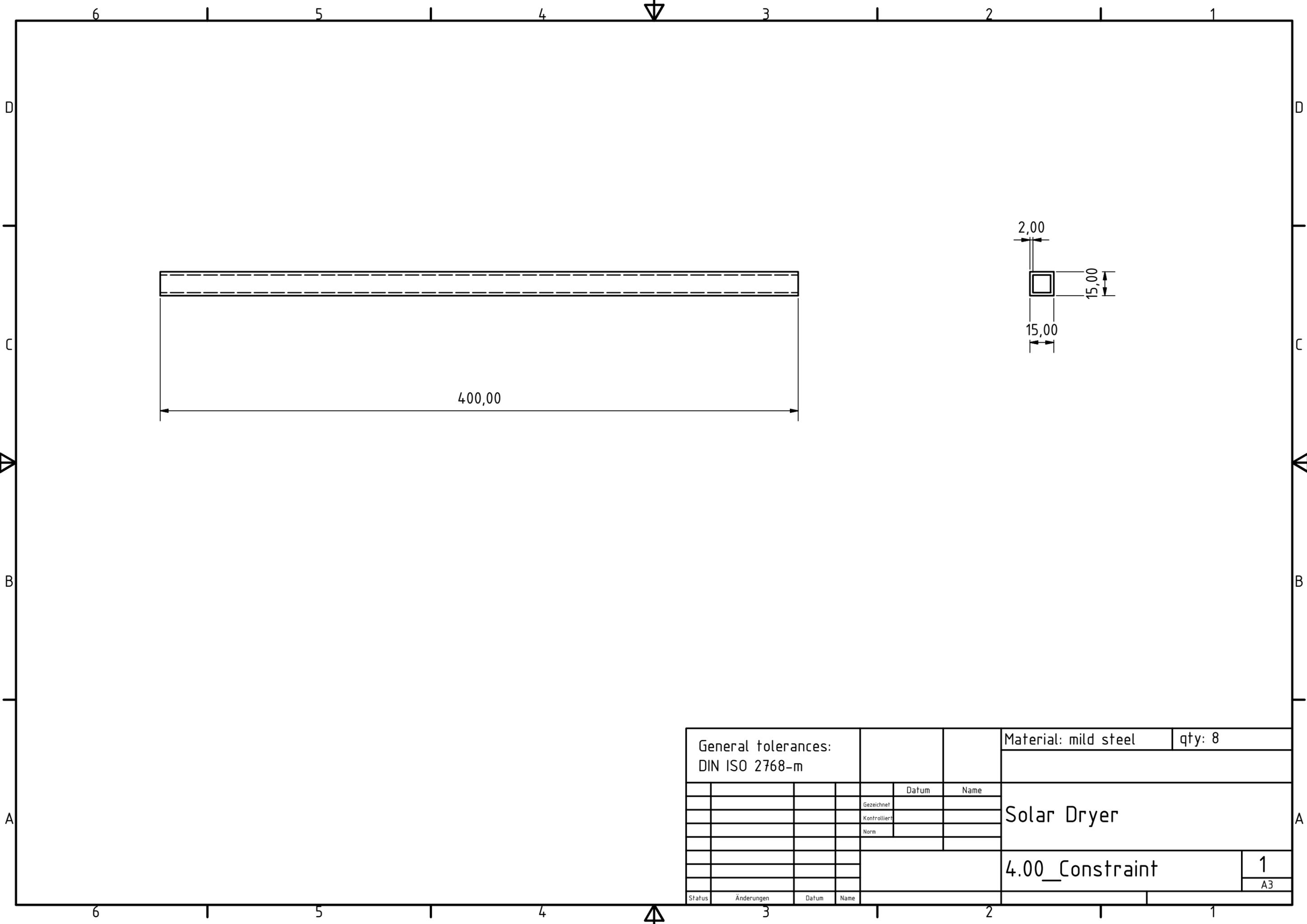


Material:  
Polycarbonate (clear)

General tolerances: DIN ISO 2768-m				Material: PC glass		qty: 1	
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				Kontrolliert			
				Norm			
						3.00_Top plate	
						1	
						A2	
Status	Änderungen	Datum	Name				



General tolerances: DIN ISO 2768-m				Material: PC glass		qty: 1	
				Solar dryer			
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				A2			
Status	Änderungen	Datum	Name				



6 1 5 1 4 3 1 2 1 1

D

D

C

C

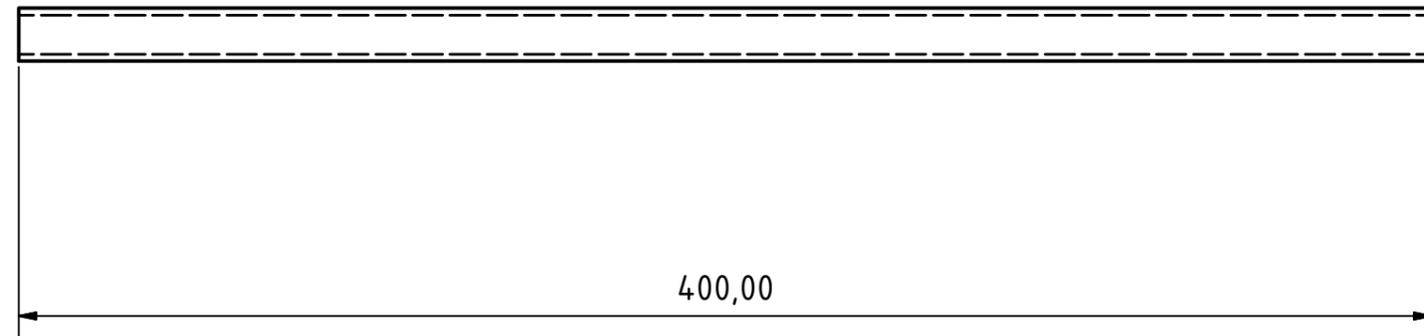
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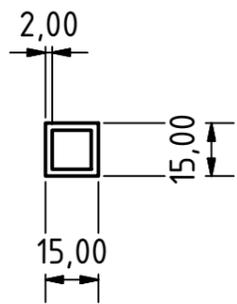
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A

6 1 5 1 4 3 1 2 1 1



400,00



2,00

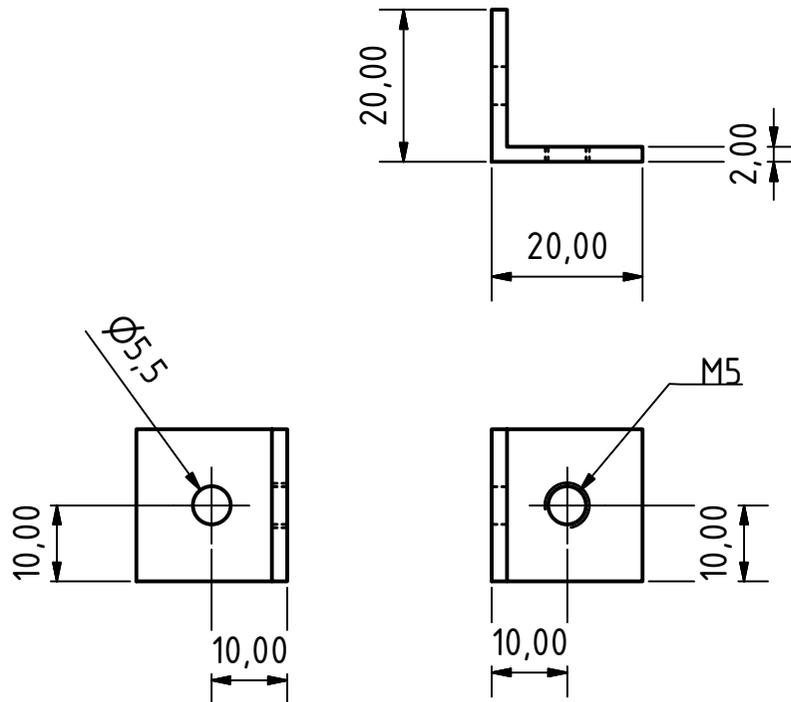
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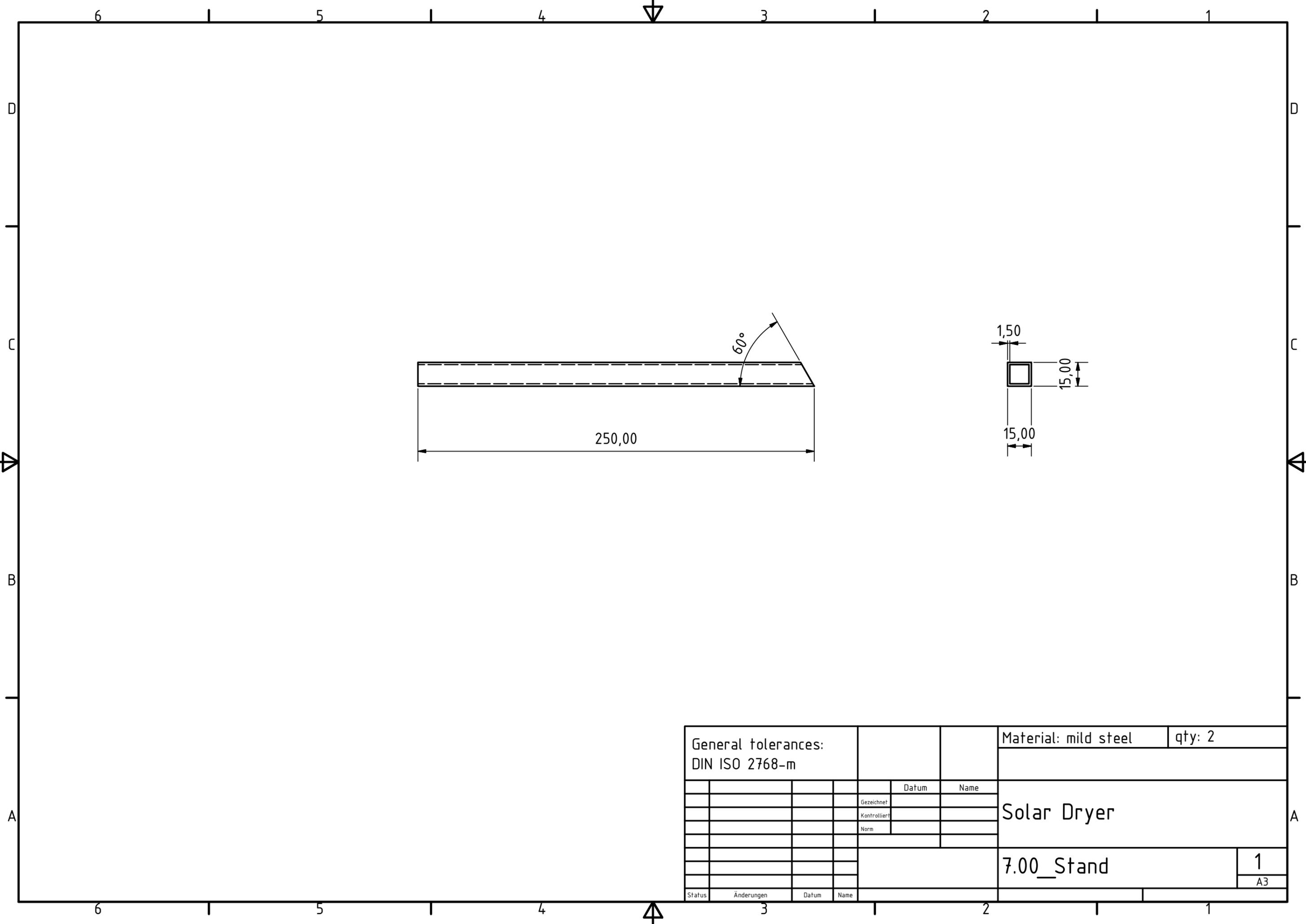
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							4.00_Constraint	1
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Status	Änderungen	Datum	Name					

6 1 5 1 4 3 1 2 1 1

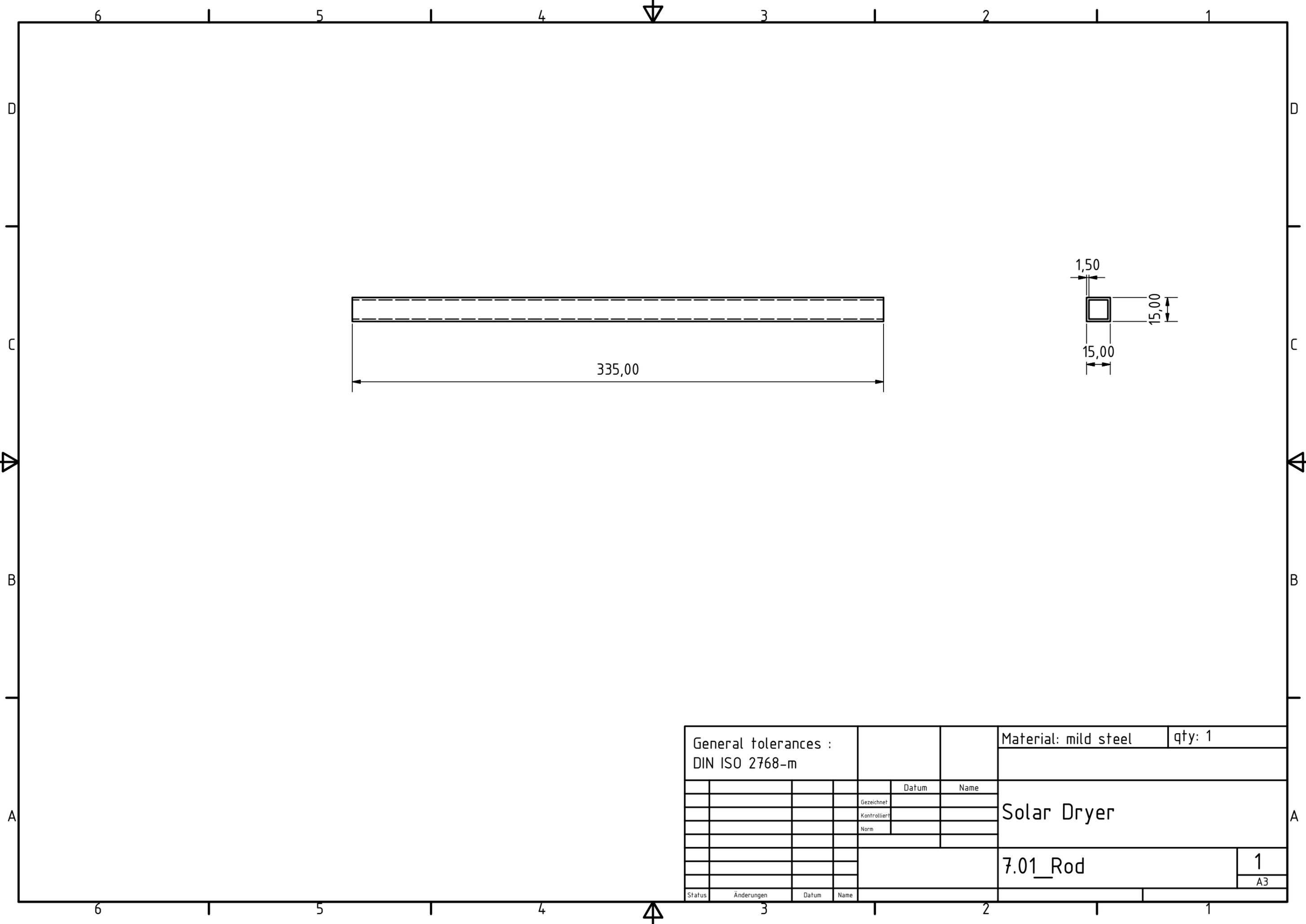




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				Kontrolliert				
				Norm				
							6.00_Fixing angle	1
								A4
Status	Änderungen	Datum	Name					

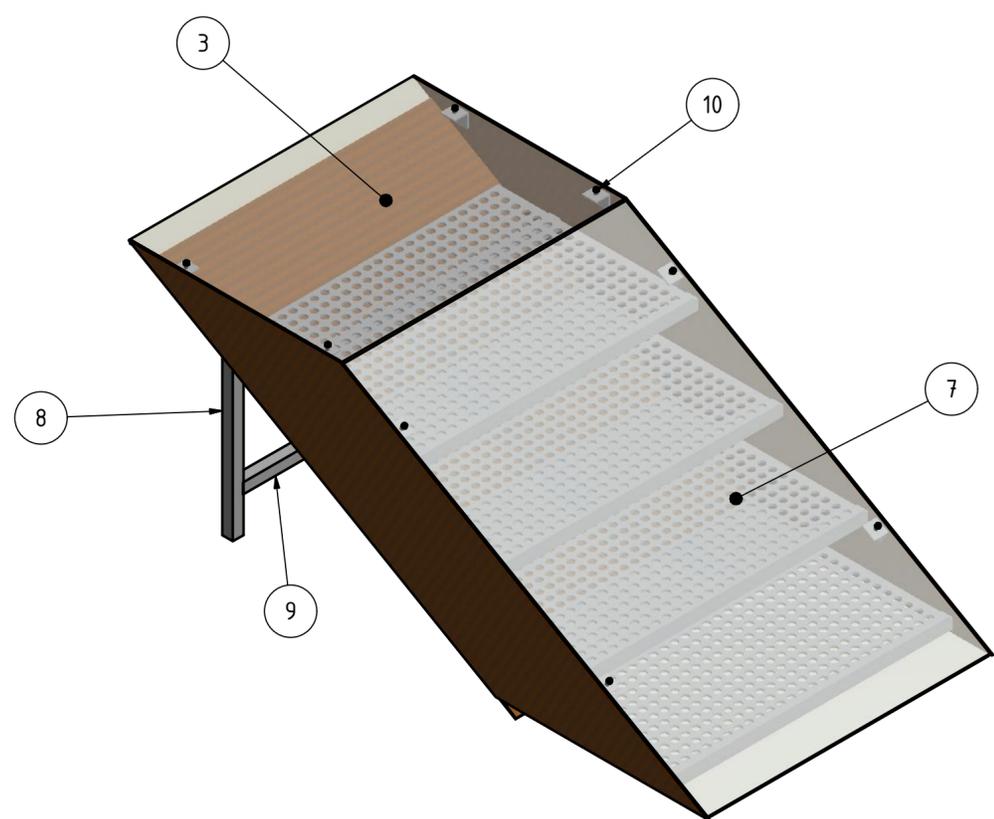
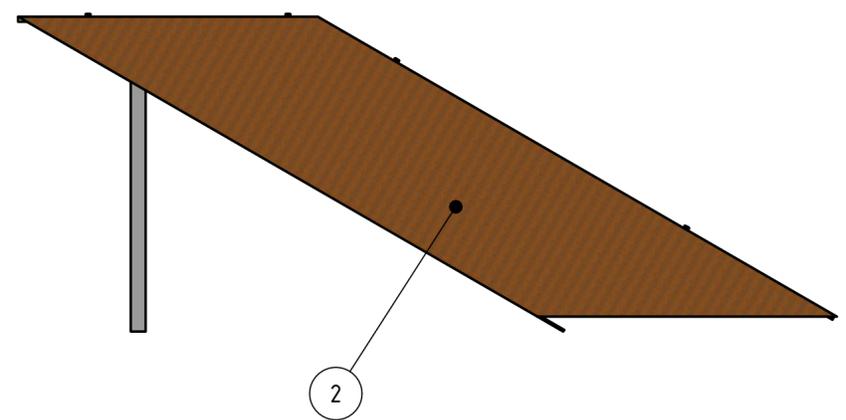
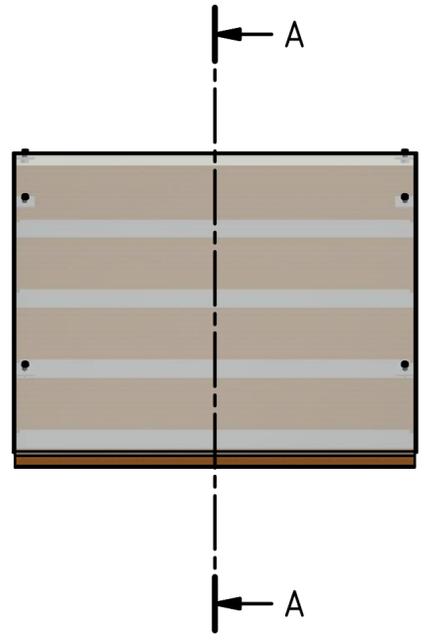
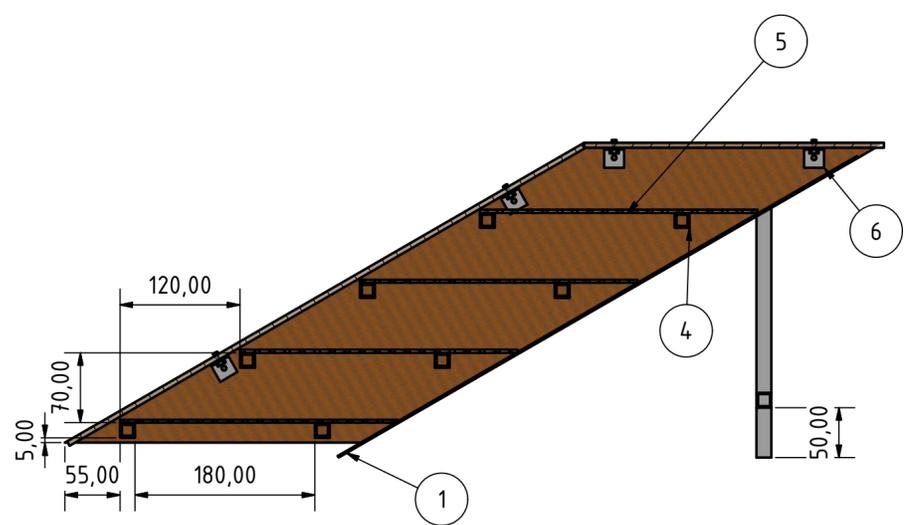


General tolerances: DIN ISO 2768-m						Material: mild steel	qty: 2
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				Gezeichnet			
				Kontrolliert			
				Norm			
						7.00_Stand	
							1
							A3
Status	Änderungen	Datum	Name				



General tolerances : DIN ISO 2768-m						Material: mild steel	qty: 1
				Datum	Name	Solar Dryer	
				Gezeichnet			
				Kontrolliert			
				Norm			
						7.01_Rod	
						1	
						A3	
Status	Änderungen	Datum	Name				

A-A ( 1 : 5 )



Part list			
OBJEKT	ANZAHL	BAUTEILNUMMER	BESCHREIBUNG
1	1	1.00_Base	
2	2	2.00_Side panel	
3	1	3.00_Top plate	
4	8	4.00_Constraint	
5	4	5.00_Drying grid	
6	8	6.00_Fixing angle	
7	1	3.01_Cover	
8	2	7.00_Stand	
9	1	7.01_Rod	
10	8	M5 x 10	Hexagon Head Bolt

			Datum		Name		
			Gezeichnet			Solar Dryer	
			Kontrolliert				
			Norm				
						100.00_Assembly	1
							A2
Status	Änderungen	Datum	Name				

## Recipe for vegetable broth powder

- 300 g onions
- 50 g leek
- 150 g carrots
- 150 g celery
- 300 g tomatoes
- Half bunch of parsley
- 100 g mushrooms
- 100 g salt

Mash all ingredients (raw), except salt. Apply the mixture on a sheet of clean cotton and put it on the grids of the solar dryer. When everything is completely dried, remove it from the cotton and grind it together with the salt to fine powder.

This vegetable broth can be used instead of seasoning cubes, its free of chemicals, no CO2 emissions and it is healthy. You can also take as much as you need. Store it in a glass or box which is waterproof.

It is also possible to add other ingredients like ginger or garlic. But in every case you should add the salt after drying.