



EUPS Unit 4

Munhungdong, Taedonggang District
Pyongyang, DPR of Korea

Phone: ++850-2-381-7250

FAX: ++850-2-381-7249

e-mail: agriculture@kcckp.net
gaadprkag@gmx.net

TUNNEL DRYER INSTRUCTIONS/DESCRIPTION

1. INTRODUCTION

The tunnel dryer is not a product you can buy “ready made” from the shelf. Therefore it is necessary to read and follow these instructions carefully.

It needs to be constructed in a qualified local workshop with the material described and packed according to our instructions.

2. PURPOSE

The purpose of the tunnel dryer is to dry whole corn ears (maize) after harvesting to a moisture content of around 18-20%. Another purpose of the tunnel dryer is to dry seeds of all kinds as well as mushrooms, fruits and vegetables (chilli). No electricity is needed, the airflow is ensured by a chimney installed at one end of the tunnel dryer.

The tunnel dryer is efficient in using the heat from the sun; it protects all material to be dried from rainfall, dust and other impurities. It is hygienic and has a convenient height for working.

It is flexible and can be assembled at any place with access to sunlight.

3. DESCRIPTION

PICTURE Nr. 1: Overview

Width of the tunnel dryer: 2 meter

Length of the tunnel dryer: 10 meter



PRICES must be given for ONE “**TUNNEL DRYER**” (2m by 10m).

The “**TUNNEL DRYER**” consists in general of the following parts:

- Frame for drying (width: 1m, length: 2m), completely assembled, with 3 floors (see also options)
- Side wall, length 2m, formed galvanized iron sheet, thickness: 1mm
- Roof, EVA-PE sheet (thickness: 0,2mm), roof frame: square galvanized iron (see also options)
- Fixation: nuts and bolts
- Chimney, at the end of the dryer
- The loading weight per m² is between 40 and 60 kg.

All parts will be assembled to a complete “**TUNNEL DRYER**” unit, as seen in picture 1.

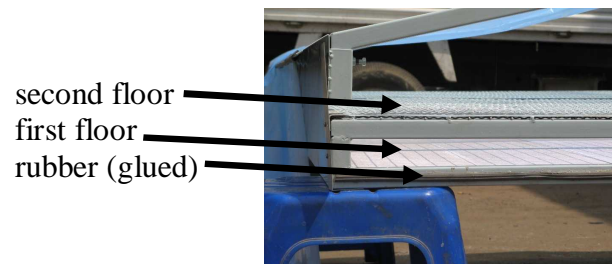
THE FRAME: (Picture Nr. 2)



Square shaped GI (galvanized iron): 2,5 by 2,5 cm

Options: for any option, the structural strength of the frame must be guaranteed

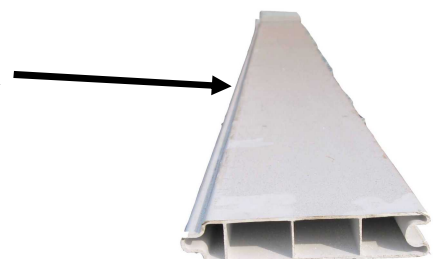
- Any suitable material (such as wood) can be chosen for the frame
- The size of the square shaped GI might be smaller
- If the frame is painted (primer and paint), GI can be replaced by normal steel



Distance between first and second floor: 5 cm

The first floor:

made of PVC panels, female and male connected
As the first floor must be air-tight, at the edges of the frame the PVC panels should be sealed and fixed.



The second floor:

made of GI wire net, mesh: 3cm×3cm , dia. 2.0mm



fixed to the frame (welded), as seen above



The third floor:

This is just a fine netted shading cloth as used for greenhouses. It is put on and off, to avoid seed falling through.



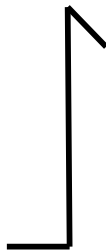
Options for second and third floor:

1. As described above, GI wire net, mesh: 3cm×3cm , dia. 2.0mm covered by not permanent PE shading cloth
2. GI wire net, mesh: 3cm×3cm , dia. 2.0mm and fine GI wire net, mesh: 3mm by 3mm, fixed together (2 layers)
3. Single layer GI wire net, mesh: 3mm×3mm , dia. 1.5mm (in this case it might be necessary to enforce the frame to cope with the loading capacity)

THE SIDE WALL: (Picture Nr. 3)



Shape of bending the side wall:



Material: galvanized iron sheet, thickness: 1mm (if possible spray painted)

FIXATION POINTS/CONNECTIONS:

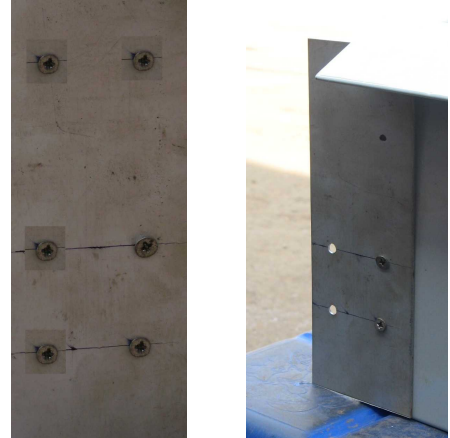
Inclines and beam connections (strong nuts and bolts)



The connection of side walls (after each 2 meter) is achieved by simple GI sheets.

Minimum 8 screws!

PS: the screws shown in the picture are NOT suitable they must be of better quality (bigger size).

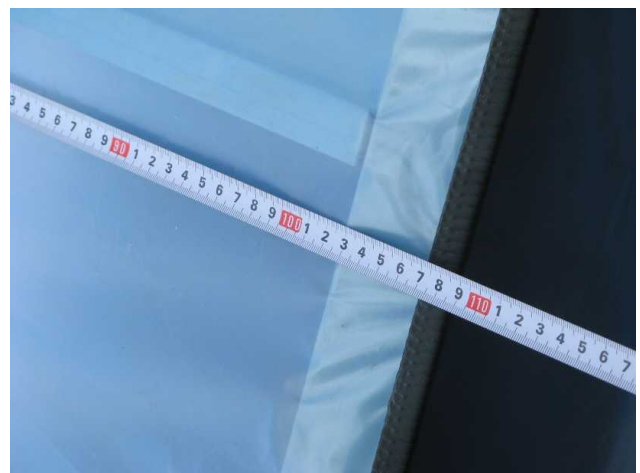


How to fix the EVA-PE sheet



Width of the EVA-PE sheet:

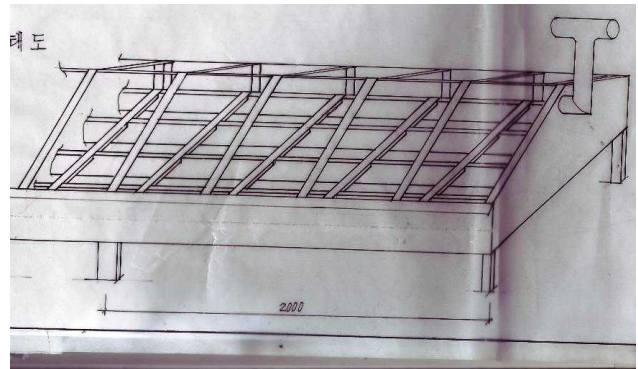
Depending on the angle of the roof
Minimum width: 2,50 meter



Chimney at the end of the tunnel

As seen in picture; the end of the tunnel must be closed (sealed).

Material: GI or PVC pipe



Diameter of the chimney: 30 cm

Height of the chimney: minimum 3,0 meter

At the end of the chimney should be a cover (rain protection)

Example from a different type of tunnel dryer:



4. LIST OF USED MATERIALS/PRICE CALCULATION

Please use the following table to calculate the price of ONE TUNNEL DRYER (Width: 2 meter and Length: 10 meter). If necessary you can add some lines.

At least 2 options (using different materials) must be offered.

Based on prices offered, the project intends to order around 120 tunnel dryers.

Beside the price for one tunnel dryer your offer must include the transport costs to DPRK for 120 tunnel dryers.

Please state also the production time for 120 tunnel dryers and earliest delivery time.

No	ITEM/DESCRIPTION	SPECIFICATION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	GI sheet (side wall)			m ²		
2	Square steel pipe (frame and roof)			meter		
3	GI pipe (beam)			meter		
4	GI wire net (2 nd floor)			m ²		
5	Nuts and bolts			pcs		
6	PVC panel (1 st floor)			m ²		
7						
8	Spring strip to clip EVA-PE Sheet			meter		
9	Isolated rubber (on frame)			meter		
10	EVA-PE Sheet			m ²		
11	Shading cloth (3 rd floor)			m ²		
12	Chimney					
13	Spray painting					
14	Welding					
15	Labour costs					
16	Costs for packing					
17						
18						
19						
TOTAL						