Solar tunnel dryer type Hohenheim
How to manufacture a solar tunnel dryer type Hohenheim

1. Checklist before installation
Before you start to manufacture the tunnel dryer you have to consider following requirements:
   - an even plane for installation of the tunnel dryer
   - the main wind direction must not blow into the outlet of the tunnel dryer
   - the collector and drying section should be free of shades
   - you need two person for installation

2. Tools you will need during installation:
   - drill machine
   - water-level
   - gripper for blind rivet
   - screw drivers
   - hammer
   - screw clamps
   - measuring rod
   - welding apparatus

3. Installation
   - preparation of the even plane
   - manufacturing of all parts considering the parts list. (unit of measurement are in mm; 1 inch = 25,4mm)
   - gradually follow the guidance

4. Management
   - As the product has usually a high nutrient value it is easily spoiled by mould or microorganisms when it is warm and not dried enough. Therefore, it is essential that the product is placed in the dryer section latest 10:30 a.m.
   - Contamination of the product, e.g. by falling on the ground must not be used anymore as the whole lot can be spoiled.
   - To avoid insects from product close the back from the dryer with a net.
<table>
<thead>
<tr>
<th>Position</th>
<th>Marking</th>
<th>Semifinished part</th>
<th>Units</th>
<th>Total demand</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>side plate short</td>
<td>blank sheet 2,0mm</td>
<td>4</td>
<td></td>
<td>m²</td>
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<tr>
<td>2</td>
<td>side plate long</td>
<td>blank sheet 2,0mm</td>
<td>16</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>side plate</td>
<td>blank sheet 1,5mm</td>
<td>18</td>
<td></td>
<td>m²</td>
</tr>
<tr>
<td>4</td>
<td>base frame</td>
<td>square pipe 30mm x 30mm</td>
<td>10</td>
<td>33</td>
<td>m</td>
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<tr>
<td>5</td>
<td>u-profil</td>
<td>20mm x 20mm x 1mm</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>wooden floor</td>
<td></td>
<td></td>
<td>36</td>
<td>m²</td>
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<tr>
<td>7</td>
<td>wooden border (distance piece)</td>
<td>48mm x 24mm</td>
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<td>8</td>
<td>fan plate</td>
<td>blank sheet 1,5mm x 300mm x 2000mm</td>
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<td>0,6</td>
<td>m²</td>
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<tr>
<td>9</td>
<td>corrugated iron</td>
<td>0,75mm x 800mm x 2000mm</td>
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<td></td>
</tr>
<tr>
<td>10</td>
<td>fan</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
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<tr>
<td>11</td>
<td>blank sheet</td>
<td>blank sheet 0,6mm x 1000mm x 2000mm</td>
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<td>12</td>
<td>roof rack</td>
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<td>13</td>
<td>roof connector</td>
<td>pipe 26mm x 1,5mm</td>
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<td>1,5</td>
<td>m</td>
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<td>14</td>
<td>solar panel</td>
<td></td>
<td></td>
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<td>piece</td>
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<td>6</td>
<td>m</td>
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<td>16</td>
<td>blind rivet (roof and u-profil)</td>
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<td>150</td>
<td>pieces</td>
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<tr>
<td>17</td>
<td>blind rivet (roof)</td>
<td>4,8mm x 10</td>
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<td>50</td>
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<tr>
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<td>blind rivet (base frame)</td>
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<td>180</td>
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<td>wood screw</td>
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<td>150</td>
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<td>machine screw</td>
<td>M10 x50</td>
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<td></td>
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<td>21</td>
<td>roof pipe</td>
<td>pipe 22mm x 2mm</td>
<td>19</td>
<td></td>
<td>m</td>
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<td></td>
<td>foil holder</td>
<td>pipe 1 inch</td>
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<td>m</td>
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<tr>
<td></td>
<td>foil</td>
<td>20m x 2,8m</td>
<td>56</td>
<td></td>
<td>m²</td>
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<td>foil clip</td>
<td>1 inch</td>
<td>18</td>
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<td>pieces</td>
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<tr>
<td></td>
<td>edge protection</td>
<td></td>
<td></td>
<td>31</td>
<td>m</td>
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<td></td>
<td>black colour</td>
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<td></td>
<td>20</td>
<td>m²</td>
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</table>
Prefabricated units
Roof Connector
Pos.13 | 10 Units
Base frame
base frame: 2 units with side plate short Pos.1 and 8 units with side plate long Pos.2

welded

u-profil Pos.5 welded on start base frame and end base frame without u-profil
Fig: 1 base frame with side plate long

Fig: 2 base frame with side plate long complete
drilling and rivet Pos.18
Fig: 3 base frame fixed with side plate

Fig: 4 make holes for rivet in side plate
Fig: 5 base frame fixed with side plate and drilled holes

Fig: 6 rivet stick into the holes
Fig: 7 finished rivet from outside

Fig: 8 finished rivet from inside
Fig: 9 base frame assembling

Fig: 10 base frame assembling
Fig: 11 fix the next side plate

Fig: 12 drilling
Fig: 13 rivet

Fig: 14 shows the gripper for blind rivet
Fig: 15 base frame assembling short time before finished
u-profil Pos.5 drilling and rivet Pos.16 each 30cm
Fig: 16 u-profile

Fig: 17 fix u-profile with a clamp
Fig: 18 make holes

Fig: 19 rivet
Fig: 20 finished base frame with u-profile
Base frame with wooden floor
insert wooden floor Pos.6 in base frame

holes for fans Pos.10
Fig: 21 wooden floor with holes for the three fans

Fig: 22 insert the wooden floor
Fig: 23 insert the wooden floor

Fig: 24 finished wooden floor
wooden border Pos.7 (distance piece for corrugated iron Pos.9 and blank sheet Pos.11)

screw Pos.19 on wooden border bottom up
Fig: 25 make holes through side plate long

Fig: 26 screw wooden floor from underside
Base frame with blank sheet and corrugated iron
fan plate Pos.8

make holes and screw on the corrugated iron

corrugated iron (painted black) as absorber Pos.9

make holes and screw on fan plate
Fig: 27 shows a fan insert and rivet in fan plate

Fig: 28 shows the three fans upside
Fig: 29 shows the three fans underside

Fig: 30 shows the fan plate built-in the dryer
Fig: 31 make holes and screw on the fan plate

Fig: 32 shows the fans
Fig: 35 insert the corrugated iron

Fig: 36 insert the corrugated iron
Fig: 37 insert the corrugated iron

Fig: 38 insert the corrugated iron
Fig: 39 make sideward holes and screw on the corrugated iron
blank sheet Pos.11 for drying floor

wood strip Pos.7 to stabilize blank sheet
Fig: 40 screw on wood strip to stabilize blank sheet

Fig: 41 screw on wood strip to stabilize blank sheet
Fig: 42 insert the blank sheet

Fig: 43 insert the blank sheet, make sideward holes and screw it on
Fig: 44 finished base frame with absorber and drying area
Roof assembling
Fig: 45 roof rack

Fig: 46 roof connector
Fig: 47 roof connector assembled with roof rack and roof pipe
Fig: 48 shows the dryer with roof
Fig: 49 shows the solar panel

Fig: 50 foil attached with edge protection
Fig: 51 front side closed with foil

Fig: 52 front side closed with foil
Fig: 53 front side closed with foil

Fig: 54 foil supporter
Fig: 55 shows foil supporter and foil holder

Fig: 56 foil clip with a rubber layer to protect foil
Fig: 57 foil holder who stretch the foil

Fig: 58 shows the opened dryer
Fig: 59 shows how the foil supporter works

Fig: 60 shows the dryer from back side