



LIFE Project Number
LIFE15 ENV/GR/000257

LIFE PROJECT NAME or Acronym
LIFE-F4F (Food for Feed)



Annex Data

Action:	B2: Developing the F4F Pilot Unit
Partner:	ESDAK
Deliverable:	B2.4 The solar drying turners and other various equipment

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1. Construction of the turners

Two different types of turners have been constructed in order to help accelerate the drying process. A horizontal 5m long rotor which turns the pulp in the drying halls (this rotor covers all the width of the drying hall) and a vertical screw.

Horizontal drying turning system

This mixing, turning and transferring system is a horizontal inox screw proper for this quality of product. It has a number of motors and can rotate and move forward and back so as to turn and transfer the drying product and also can move up and down. More specifically, the movements that this drying turner can execute is one along the tank (can move forward and back), one relative to its height (up and down), i.e., a rotation of the shaft may be lifted and submerged, clockwise and counterclockwise. The combination of these movements and its automation contributes to the uniform stirring of the material and its transferability into the tank in order to create a row at the end of the tank to facilitate its removal. For the optimum operation of the drying system, the following program, as presented in Table below was created, based on which the electrician has applied the corresponding commands to the PLC of the central panel of the unit. It also has an electrical panel which is programmed to automatically move. In the pictures below photos from the construction of this turner are being presented.



Picture 1. During the construction of the inox horizontal turner

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Picture 2. During transportation into the pilot unit



Picture 3. Placement on to the drying hall

For the automatic operation of the drying turner an electrical panel with a PLC has also been constructed and placed on the turner.



Picture 4. Construction of the electrical panel and a PLC of the horizontal turner



Picture 5. Placement of the electrical panel on the horizontal turner

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Table 1. Automatic Program for the operation of the turner in coordination with the fans

Automatic Program for the operation of the turner			
	WINDOWS	FANS	ROTOR
8:00	OFF	OFF	OPEN FOR 10'
8:30	OFF	OFF	OPEN FOR 10'
9:00	OFF	OFF	OPEN FOR 10'
9:30	OFF	OFF	OPEN FOR 10'
10:00	OFF	OFF	OPEN FOR 10'
10:30	OFF	OFF	OPEN FOR 10'
11:00	OFF	OFF	OPEN FOR 10'
11:30	OFF	OFF	OPEN FOR 10'
12:00	OPEN FOR 5'	OPEN FOR 5'	OPEN FOR 10'
12:30	OFF	OFF	OPEN FOR 10'
13:00	OPEN FOR 5'	OFF	OPEN FOR 10'
13:30	OFF	OFF	OPEN FOR 10'
14:00	OPEN FOR 5'	OPEN FOR 5'	OPEN FOR 10'
14:30	OFF	OFF	OPEN FOR 10'
15:00	OPEN FOR 5'	OFF	OPEN FOR 10'
15:30	OFF	OFF	OPEN FOR 10'
16:00	OPEN FOR 5'	OPEN FOR 5'	OPEN FOR 10'
16:30	OFF	OFF	OPEN FOR 10'
17:00	OPEN FOR 5'	OFF	OPEN FOR 10'
17:30	OFF	OFF	OPEN FOR 10'
18:00	OPEN FOR 5'	OPEN FOR 5'	OPEN FOR 10'
18:30	OFF	OFF	OPEN FOR 10'
19:00	OPEN FOR 5'	OFF	OPEN FOR 10'
19:30	OFF	OFF	OPEN FOR 10'
20:00	OPEN FOR 5'	OPEN FOR 5'	OPEN FOR 10'
20:30	OFF	OFF	OPEN FOR 10'
21:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
21:30	OPEN	OFF	OFF
22:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
22:30	OPEN	OFF	OFF
23:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
23:30	OPEN	OFF	OFF
0:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
0:30	OPEN	OFF	OFF
1:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
1:30	OPEN	OFF	OFF
2:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
2:30	OPEN	OFF	OFF
3:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
3:30	OPEN	OFF	OFF
4:00	OPEN	OPEN FOR 5'	OPEN FOR 10'

Automatic Program for the operation of the turner			
	WINDOWS	FANS	ROTOR
4:30	OPEN	OFF	OFF
5:00	OPEN	OPEN FOR 5'	OPEN FOR 10'
5:30	OPEN	OFF	OFF
6:00	OPEN	OPEN	OPEN FOR 10'
6:30	OPEN	OPEN	OFF
7:00	OPEN	OPEN	OPEN FOR 10'
7:30	OPEN	OPEN	OFF

Vertical drying turning system

It is a horizontal axis, along of which a vertical screw can move. This drying system has the following moves. The screw can rotate clockwise and counter clockwise, it can also moves right and left along to the horizontal axis and this axis can also move front and rear at the length of the drying hall. Photos during the construction of this drying turner are being presented in the pictures below.



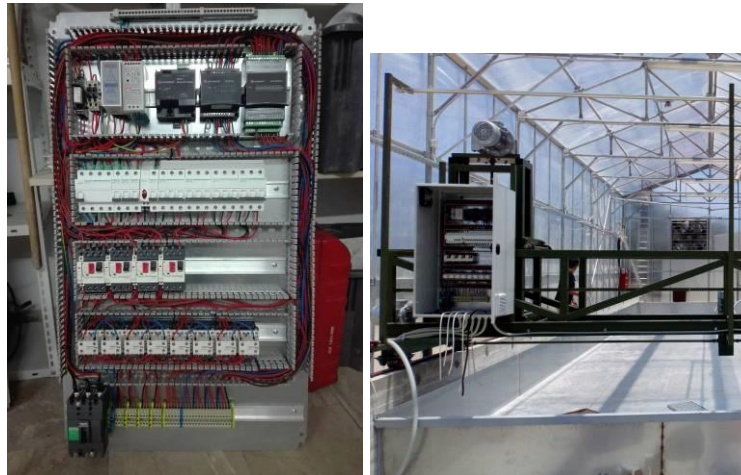
Picture 6. During the construction of the vertical drying system



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Picture 7. During transportation and installation of the vertical turner into the pilot unit



Picture 8. Construction of the electrical panel and a PLC of the horizontal turner



Picture 9. The installed vertical drying turning system on the drying hall

The two different drying systems into the pilot unit



Picture 10. Panoramic view from the inside of the solar drying unit with the drying systems