

2025

Dehydrators - Technical Characteristics and Pricelist



BLUE SPARK SYSTEMS

Bucharest, Romania

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1. Basic information

1.1. General characteristics

All the models have these basic characteristics. For certain applications, custom models can be built. The basic standard characteristics are presented below.

CHARACTERISTIC	VALUE
ELECTRICAL	
Voltage for $P_{el} > 4kW$ models FD- $\langle 2...7 \rangle \times \langle 1...4 \rangle$	3 x 400v AC
Voltage $P_{el} < 4kW$ models FD- $1 \times \langle 1...4 \rangle$	3 x 400v AC or 1 x 230v AC
Fan type, voltage and power (each module in depth has one fan)	High temperature (120°C), high humidity (100%) H class tropicalized motor, 600[mm] diffuser and propeller diameter, aluminum propeller and motor frame, stainless steel motor shaft 3 x 400v AC or 3 x 230v AC / 1.5 kw
Frequency drives for fans	all systems come equipped with frequency drives for fan speed control and energy saving
Actuators voltage and power	24v DC / 5w
THERMAL	
Thermal energy requirement	avg. 2kWt for each kg of water which is vaporized.
Heating agent	Hot water (deionized) with propylene glycol antifreeze (or ethylene glycol, do not mix) 4:1 at $T_{process\ max} + 15^{\circ}C$, minimum of 85°C. Steam heating is possible for custom builds.
Heating element	Aluminum radiator with 1" connections, 15kw at $\Delta T = 2...3^{\circ}C$ and $Q_{min} = 8000\ l/h$.

Heating control	Computer controlled actuator tap with flow return connection
Air flow rate	0 - 16.000[m ³], variable flow rate due to variable fan speed
Air velocity	0 - 4[m/s]
SHELL AND MECHANICAL	
Shell material	Aluminum resistant in high corrosive environments on the inside, 1.5mm thickness, aluminum painted with electrostatic coating on the outside. Custom builds are also available with stainless steel shell.
Insulation material	100mm thick mineral wool
Assembly and materials	Mostly assembled with aluminum rivets and stainless steel bolts. Certain fasteners and components might be also manufactured out of steel, plastic, brass, copper, or other materials due to their functional role.
Technical space (inside the machine)	960[mm] on each side of the modules, 960[mm] above the carts
TRAYS AND CARTS	
Size of a tray	400[mm] x 600[mm] x 12[mm]
Tray material (standard)	1.5[mm] thick ANSI 304 Stainless Steel frame, with ANSI 304 Stainless Steel Mesh with 2[mm] x 2[mm] x 0.5[mm] weave
Drying area per tray	0.24 [m ²]
Cart	48 trays cart , with 2 trays per level, 24 levels spaced at 65[mm], ANSI 304 Stainless Steel frame, high temperature resistant wheels Custom models can be built in certain conditions.
AUTOMATION AND CONTROL SYSTEM	
Software	The system is controlled by specialized software which runs on computer or tablet with Windows or Linux operating system. All the parameters

	are recorded in a database for further analysis. The system allows more than 10.000 recipes to be created, remote control and monitoring of the process, alarms and many others. <u>The software is continuously updated and the last version can be downloaded for free from our website.</u> Please refer to the automation's documentation for further information.
Electronics	One relay control board, one parameter board with 2 sets of air parameter sensors, 8 inputs for product moisture monitoring*, one digital to analog board for proportional actuators and fan speed control
Electrical components	industrial grade electrical components
Voltage for automation	<ul style="list-style-type: none"> • 1 x 230v or • 3 x 400v depending on the model

* - can only be used with certain products

1.2. Models

Due to the **modular design** of the system only certain dimensions are available. See the [Modules](#) chapter for the module's characteristics. In the table below are the most common dimensions. Other combinations are available, but for larger machinery we recommend using smaller models or our tunnel dehydrators or belt dehydrators. For details regarding those, please contact us.

No.	Model Code	Width [modules]	Depth [modules]	Trays [pcs]	Carts / Modules [pcs]	Drying surface [m ²]	Load (average) [kg]
1	FD-1x1	1	1	<u>48</u>	1	<i>11.52</i>	50
2	FD-1x2	1	2	<u>96</u>	2	<i>23.04</i>	100
3	FD-1x3	1	3	<u>144</u>	3	<i>34.56</i>	150
4	FD-1x4	1	4	<u>192</u>	4	<i>46.08</i>	200
5	FD-2x1	2	1	<u>96</u>	2	<i>23.04</i>	100
6	FD-2x2	2	2	<u>192</u>	4	<i>46.08</i>	200
7	FD-2x3	2	3	<u>288</u>	6	<i>69.12</i>	300

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8	FD-2x4	2	4	<u>384</u>	8	<i>92.16</i>	400
9	FD-3x1	3	1	<u>144</u>	3	<i>34.56</i>	150
10	FD-3x2	3	2	<u>288</u>	6	<i>69.12</i>	300
11	FD-3x3	3	3	<u>432</u>	9	<i>103.68</i>	450
12	FD-3x4	3	4	<u>576</u>	12	<i>138.24</i>	600
13	FD-4x1	4	1	<u>192</u>	4	<i>46.08</i>	200
14	FD-4x2	4	2	<u>384</u>	8	<i>92.16</i>	400
15	FD-4x3	4	3	<u>576</u>	12	<i>138.24</i>	600
16	FD-4x4	4	4	<u>768</u>	16	<i>184.32</i>	800
17	FD-5x1	5	1	<u>240</u>	5	<i>57.6</i>	250
18	FD-5x2	5	2	<u>480</u>	10	<i>115.2</i>	500
19	FD-5x3	5	3	<u>720</u>	15	<i>172.8</i>	750
20	FD-5x4	5	4	<u>960</u>	20	<i>230.4</i>	1000
21	FD-6x1	6	1	<u>288</u>	6	<i>69.12</i>	300
22	FD-6x2	6	2	<u>576</u>	12	<i>138.24</i>	600
23	FD-6x3	6	3	<u>864</u>	18	<i>207.36</i>	900
24	FD-6x4	6	4	<u>1152</u>	24	<i>276.48</i>	1200
25	FD-7x1	7	1	<u>336</u>	7	<i>80.64</i>	350
26	FD-7x2	7	2	<u>672</u>	14	<i>161.28</i>	700
27	FD-7x3	7	3	<u>1008</u>	21	<i>241.92</i>	1050
28	FD-7x4	7	4	<u>1344</u>	28	<i>322.56</i>	1400

If a **height restriction** exists, *small form units* can be manufactured. These units have a height of only **2.12 [m]** but are wider. See their specifications below for more details.

No.	Model Code	Width [modules]	Depth [modules]	Trays [pcs]	Carts / Modules [pcs]	Drying surface [m ²]	Load (average) [kg]
1	FD-1x1-SF	1	1	<u>48</u>	1	<i>11.52</i>	50
2	FD-1x2-SF	1	2	<u>96</u>	2	<i>23.04</i>	100
3	FD-1x3-SF	1	3	<u>144</u>	3	<i>34.56</i>	150
4	FD-2x2-SF	2	2	<u>192</u>	4	<i>46.08</i>	200

When choosing a configuration you have to **take into account the main products that you will be dehydrating**. Dehydrating a fast drying product (apple slices for example) will require a deeper and less wide machine. If you dehydrate a slow drying product (whole or half plums or apricots for example) you can use a shallower and wider machine. Also please note that the **drying time is proportional with the product's thickness**, so thicker slices will take longer to dry than the thinner ones do. When you choose a machine please also note that the "Load" in this document is given for 6mm apple slices. If you dry whole plums or apricots for example, the "Load" can be double. If you have any doubt, please consult with our specialists when choosing a machine.

1.3. Modules

The system is built around the module concept. The modular system allows adding and removing of modules to an already built machine. To add a module to an already existing system the price is calculated taking into account the following: the number of modules to be added, the size of the current machine and the placement of the new modules. Some configurations might not be possible. Please contact us for a quote and technical information.

The unit size is represented by one module which has the following basic characteristics:

CHARACTERISTIC	VALUE
Module dimension (viewed from above)	Normal units: 960[mm] x 960[mm] x (min.) 3100[mm] (H) Small Form units: 960[mm] x 960[mm] x (min.) 2120[mm] (H)
Number of trays	48 pcs.
Number of carts	1 pc. that holds 48 trays on 24 levels (two trays per level), level spacing 65[mm]
Size of a tray	400[mm] x 600[mm] x 12[mm]

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Tray material	ANSI 304 frame with ANSI 304 Mesh with 2[mm] x 2[mm] x 0.5[mm] weave
Drying are per tray	0.24 [m ²]
Drying area per module	11.52 [m ²]
Standard load of one module	50 ... 100 [kg / module]
Standard tray loading	1.04 ... 2.08[kg/tray]
Standard product quantity per m ²	4.3 ... 8.7 [kg/m ²]
Maximum module load	115 [kg / module]
Maximum tray loading	2.4 [kg/tray]
Maximum product quantity per m ²	10 [kg/m ²]
Equipment for adding modules on depth	Fan x 1, Radiator x 1, Intake / Exhaust System x 1, Cart x 1, Ceiling x 1
Equipment for adding widening modules	Door x 1, Cart x 1, Ceiling x 1



Fig. 3. *FD-1x2-SF, 100kg Small Form unit model with back intake and exhaust*

1.4. Machine load

The machine load is dependent on the type of products being dehydrated and the way the products are cut. For products that have a light weight or are cut in a way that doesn't allow them to be laid on the trays in a space efficient manner, the machine load is less than when the products are heavy or arranged on the trays in thicker layers.

The table below presents a few examples for machine load estimation depending on the type of product and the way the products are cut.

Cut and shape		Ultra-thin slices 0.5-2 mm, leaves, flowers, tea, small diameter berries Ø < 5mm	Thin slices 4 – 5 mm, berries with Ø 10-12mm <u>Standard Load</u>	Medium slices 6 – 7 mm, Ø 60-70mm fruit quarters with	Thick slices 10-15 mm, halves / thirds or quarters with Ø 40-50mm	Whole fruits with Ø 40-60mm, squeezed fruits, thick paste
Density		1 - 2 [kg / m ²]	3 - 5 [kg / m ²]	6 - 8 [kg / m ²]	8 - 10 [kg / m ²]	10 - 12 [kg / m ²]
1	FD-1x1 (SF)	25	50	75	100	125
2	FD-1x2 (SF)	50	100	150	200	250
3	FD-1x3 (SF)	75	150	225	300	375
4	FD-1x4	100	200	300	400	500
5	FD-2x1	50	100	150	200	250
6	FD-2x2 (SF)	100	200	300	400	500
7	FD-2x3	150	300	450	600	750
8	FD-2x4	200	400	600	800	1000
9	FD-3x1	75	150	225	300	375
10	FD-3x2	150	300	450	600	750
11	FD-3x3	225	450	675	900	1125
12	FD-3x4	300	600	900	1200	1500
13	FD-4x1	100	200	300	400	500
14	FD-4x2	200	400	600	800	1000

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15	FD-4x3	300	600	900	1200	1500
16	FD-4x4	400	800	1200	1600	2000
17	FD-5x1	125	250	375	500	625
18	FD-5x2	250	500	750	1000	1250
19	FD-5x3	375	750	1125	1500	1875
20	FD-5x4	500	1000	1500	2000	2500
21	FD-6x1	150	300	450	600	750
22	FD-6x2	300	600	900	1200	1500
23	FD-6x3	450	900	1350	1800	2250
24	FD-6x4	600	1200	1800	2400	3000
25	FD-7x1	175	350	525	700	875
26	FD-7x2	350	700	1050	1400	1750
27	FD-7x3	525	1050	1575	2100	2625
28	FD-7x4	700	1400	2100	2800	3500



Fig. 4. Machine load is lower for products on the left and higher for products on the right

3. Prices

3.1. Dehydrators

The prices presented here are only for comparative reference, and are subject to change without notice. These prices are for the **default configuration** of the machine. Please see the notes below regarding the prices. Model codification: FD- $\langle f \rangle \times \langle d \rangle$ or FD- $\langle \text{depth} \rangle \times \langle \text{width} \rangle$

No.	Model Code FD- $\langle f \rangle \times \langle d \rangle$	Load (average) [kg]	Price [EURO]	No.	Model Code FD- $\langle f \rangle \times \langle d \rangle$	Load (average) [kg]	Price [EURO]
1	FD-1x1	50	<i>31107</i>	15	FD-4x3	600	<i>114164</i>
2	FD-1x2	100	<i>38008</i>	16	FD-4x4	800	<i>134310</i>
3	FD-1x3	150	<i>45178</i>	17	FD-5x1	250	<i>86705</i>
4	FD-1x4	200	<i>52078</i>	18	FD-5x2	500	<i>111267</i>
5	FD-2x1	100	<i>44879</i>	19	FD-5x3	750	<i>137956</i>
6	FD-2x2	200	<i>56975</i>	20	FD-5x4	1000	<i>162517</i>
7	FD-2x3	300	<i>68830</i>	21	FD-6x1	300	<i>100316</i>
8	FD-2x4	400	<i>80145</i>	22	FD-6x2	600	<i>130073</i>
9	FD-3x1	150	<i>58590</i>	23	FD-6x3	900	<i>160666</i>
10	FD-3x2	300	<i>74321</i>	24	FD-6x4	1200	<i>191203</i>
11	FD-3x3	450	<i>91641</i>	25	FD-7x1	350	<i>113484</i>
12	FD-3x4	600	<i>107372</i>	26	FD-7x2	700	<i>148436</i>
13	FD-4x1	200	<i>72014</i>	27	FD-7x3	1050	<i>184494</i>
14	FD-4x2	400	<i>92160</i>	28	FD-7x4	1400	<i>217886</i>

The price is given in **EURO** and doesn't include taxes or transportation costs.

The price **includes**: the dehydrator (shell, trays, cart, electrical equipment, and automation), the intake / exhaust system with filters for a distance **up to 1m** from the exterior wall, assembly of the machine, personnel training and testing.

The price **doesn't include**: the tools and machines for preparing the products previous to dehydration, the heating agent generator (thermal power plant), piping for thermal agent transport, the thermal agent (**antifreeze and deionized water 1:4**), heat recovery systems, the transport of the machine, the transport and accommodation for the personnel that will be assembling the machine. These costs depend on the machine placing in the working area, the country's legislation regarding food safety regulations, the country where will be assembled and other factors that are out of our control. These costs will be discussed with each customer.

For **Small Factor** models the prices are given in the table below.

No.	Model Code	Load (average) [kg]	Price [EURO]	No.	Model Code	Load (average) [kg]	Price [EURO]
1	FD-1x1-SF	50	34218	3	FD-1x3-SF	150	49695
2	FD-1x2-SF	100	41809	4	FD-2x2-SF	200	62673

3.2. Parts and accessories

This parts and accessories are either optional or parts for repairs.

No.	Name	Description	Price [EURO/pc]
1	Tray 600 [mm] x 400 [mm]	Stainless steel tray with ANSI 304 frame with ANSI 304 Mesh with 2[mm] x 2[mm] x 0.5[mm] weave	82
2	Cart for 48 trays	Stainless Steel cart (without trays) for 48 trays on 24 levels (two trays per level), level spacing 60[mm]	2897
3	Cart with 48 trays	Stainless Steel cart (1 pc) and trays (48 pc) for food dehydrators	6228
4	Cart wheel	Stainless steel fork and heat resistant plastic wheel	98
5	Fan	600mm fan with tropicalized motor, class H insulation, aluminum propeller and frame, 1.5kW, 3 x 400V or 3 x 230V	998
6	Electric motor for the fan	1.5kW, 3 x 400V or 3 x 230V tropicalized motor, class H, with aluminum housing	760
7	Flap servomotor	Flap servomotor for air intake and exhaust system	288
8	16 outputs board	16 open collector output board for relay operation, with Ethernet and RS488 communication	680

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9	4 analog outputs board	4 analog outputs board, for fan, flaps and heating proportional control with RS485 communication	<i>720</i>
10	Temperature sensor	Temperature sensor for the automation system, -15°C - 125°C	<i>168</i>
11	Humidity sensor	Air humidity sensor 0-100%, -15°C - 125°C	<i>428</i>
12	Electronic module	Analog electronic module for parameters: 2 x temperature, 2 x RH, 8 x moisture, RS485	<i>982</i>
13	Auxiliary box	Auxiliary for 4 moisture probes	<i>360</i>
14	Connector	Chromed Brass connector for moisture probes	<i>3.8</i>
15	Probe nail	Stainless steel nail for product probing, D = 4 [mm], L = 30 ... 50 [mm]	<i>4.5</i>
16	Probe cable	Temperature resistant cable for moisture probes (price is for 1 [m])	<i>5.8</i>
17	Probe for food dehydration	Probe fitting to be used for food dehydration. Samples of the products are inserted in this fitting to allow electronic measuring of the product's water content. Up to 8 probes can be connected to one dehydration machine.	<i>1228</i>
18	Automation system	Automation system without inverter: PC with software, electrical panel, air sensors	<i>7800</i>
19	Hot water radiator	Aluminum radiator for dehydrator heating. Only to be used with antifreeze and water mixed 1:4	<i>3200</i>
20	Tray 600 [mm] x 400 [mm], with legs	Stainless steel tray with ANSI 304 frame with ANSI 304 Mesh with 2[mm] x 2[mm] x 0.5[mm] weave, with legs for doubling the load	<i>128</i>



Fig. 9. *Parts and Accessories*