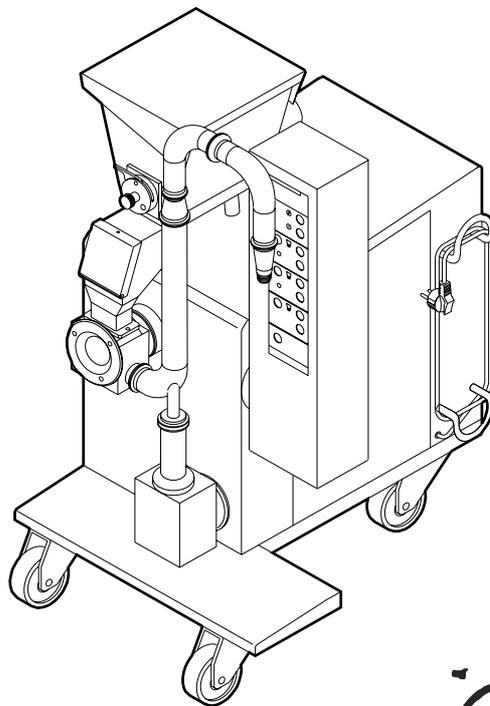


FF 1200 FRUIT FEEDER

OPERATION MANUAL AND SPARE PARTS CATALOGUE



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CHAPTER 3

DESCRIPTION OF THE MACHINE AND TECHNICAL SPECIFICATIONS

3.1 DESCRIPTION OF THE MACHINE

This machine has been designed and constructed to provide reliability and safety when used for a wide range of applications.

The automatic machine **FF 1200** is capable of feeding continuously pieces of fresh fruit, candied fruit, granular products such as hazelnuts and nougat, chocolate and a wide range of products normally used for ice-cream production.

Designed as a stand-alone unit, it is normally installed on ice-cream production lines between a continuous freezer and a filler machine

To put into service, simply hook it up to the mains power supply and connect to the freezer and the filler machine.

The **FF 1200** consists of three main units:

- 1.** A dosing unit, consisting essentially of a main hopper, a screw feeder and a secondary hopper. The ingredients are fed manually by the operator into the main hopper and then move under gravity towards the bottom of the hopper, where a horizontal-axis screw feeder is situated. As they descend, the ingredients are mixed continually by a slow agitator, which ensures a constant flow of product to the screw feeder. The screw feeder feeds the ingredients into the secondary hopper from where, again under gravity, they are fed to the pump unit.
- 2.** A pump unit, consisting of a vane pump which serves to feed the ingredients into the flow of ice-cream coming from the continuous freezer. The vane pump consists of a rotor containing radial vanes which are guided by an eccentric guide machined inside the casing. The pump also serves a function as a separating seal between the pressurised ice-cream line and the external environment so as to allow a one-way flow of ingredients from the secondary hopper to the ice-cream.
- 3.** An in-line mixer, consisting of a shaft with angled blades positioned inside the section of pipe downstream of the pump unit. This unit serves to provide intensive mixing of the product with the ice-cream before it goes on to the filler machine.

The machine has been constructed to international standards and to health and sanitary regulations applicable to food machinery. In particular, Tetra Laval Food Hoyer S.p.A. certifies, through the Declaration of Conformity provided together with the machine, that the **Fruit Feeder FF 1200** has been designed and constructed in conformity with the Directive 89/392/EEC (Machinery Directive) and with the applicable above-mentioned standards.

The machine has an entirely stainless steel structure and is mounted on wheels. All parts directly in contact with the product are made entirely of stainless or aseptic material and are polished internally. In order to avoid accidental contact between parts of the operator's body and moving machine components, the machine is fitted with panels, guarding and covers fixed by means of screws and/or systems that in any case require the use of special tools and deliberate action on the part of the operator to be removed.

Only the lid of the main hopper can be raised without the use of special tools to allow the operator to feed in the ingredients. A safety grid prevents the operator from accidentally coming into contact with the slow agitator of the hopper.

Opening the grid activates a microswitch which causes the machine to stop immediately.

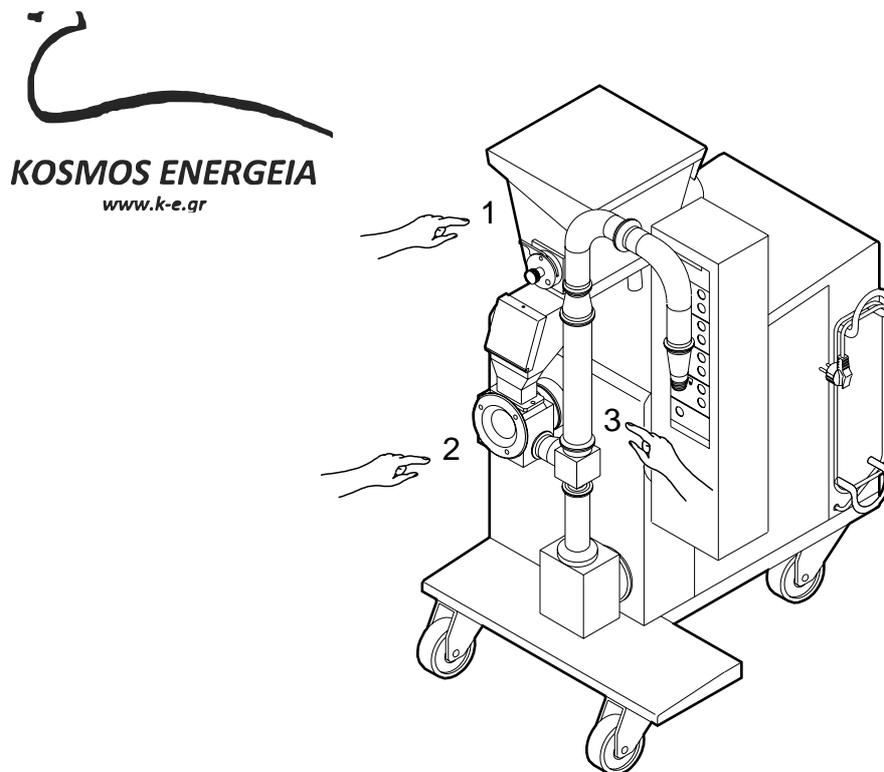


Fig.3.1

3.3 TECHNICAL SPECIFICATIONS

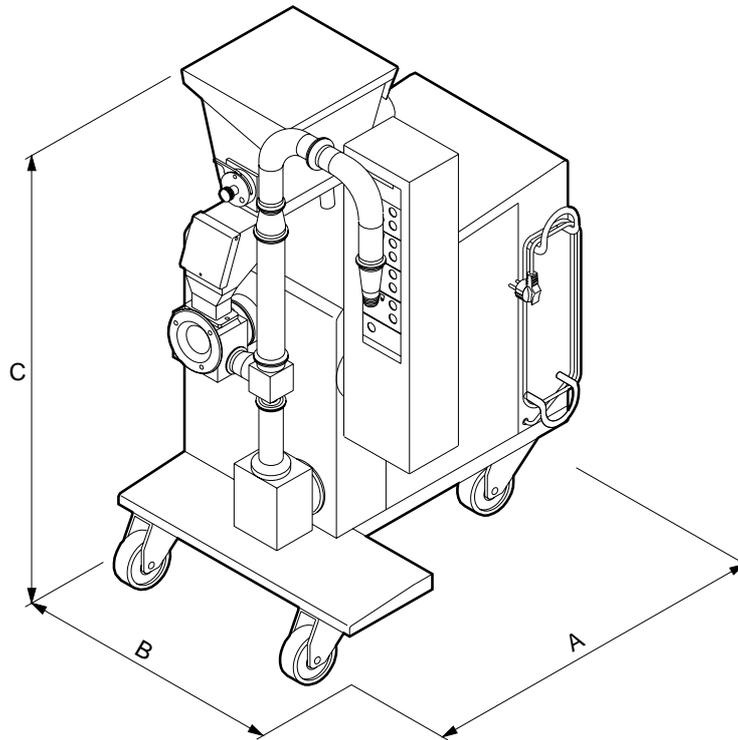


Fig.3.3

Power supply	standard	: 220 - 380 V / 3 PH / 50-60 Hz
	on request	: 415 V / 50-60 Hz
Installed power	screw feeder	: 0.75 kW
	mixer	: 0.75 kW
	pump	: 0.75 kW
	transformer	: 0.15 kW
Total installed power		: 2.4 kW
Net weight		: 190 kg
Pipe diameter	In clamp	: 1 1/2"
	Out clamp	: 2"
Capacity	the flow of ice cream with standard feeder is 300 - 1100 l/h (79 - 290 US Gals/h). For ingredient capacity see sez.4.4 and Sez.5.2.	
Dimensions	A (length)	= 932 mm
	B (width)	= 720 mm
	C (height)	=1291 mm
No. of operators		: 1

Equivalent A-Weighted Sound Pressure Level at 1 metre: 67.5 dBA

Max. Instantaneous C-Weighted Sound Pressure Level in the Workplace: less than 130 dB/20µPa.

4.4 CHARACTERISTICS OF INGREDIENTS

Ingredients that are viscous, sensitive to humidity or tend to stick together to form lumps are not suitable for dosing.

Note: some ingredients like raisins must be washed and tripped before dosing.

The ingredients should have particles of maximum diameter 25 mm. This means for example that products such as whole strawberries can be fed into the ice-cream flow without being crushed.

The **FF 1200** is designed for any kind of solid and/or highly viscous product. Liquids or products with low viscosity (e.g. jam, fruit juice with whole pieces of fruit, etc.) should not be used in the machine. In these cases it is advisable to feed in the solid part using the **FF 1200** and the liquid part using a volumetric dosing device for liquids installed before the in-line mixer.

Table 4.1 gives a general guideline of the type of screw feeder and the way it should be used according to the type of ingredients to be fed.

NOTE

The values mentioned in table 4.1 are indicative, it can change depending on the product type used.



		Screw feeder Standard 540501205 Pitch 40 Diam. 20	Screw feeder Standard 540501202 Pitch 20 Diam. 20	Screw feeder Optional 540501203 Pitch 30 Diam. 20	Screw feeder Optional 540501204 Pitch 30 Diam. 24
DRY NUT g/min	Min	60	150	100	90
	Max	1400	660	1000	940
CHOCOLATE g/min	Min	180	90	135	115
	Max	1700	700	1300	1000
RICE					

Table 4.1

5.2 ICE CREAM SOLID INGREDIENTS

THE TABLE SHOWS SOLID INGREDIENT QUANTITIES (gr/min) FOR ICE CREAM

Note: The max. percentage of solid ingredients may depend on ingredient type.

PRODUCTION l/h (Overrun 100%)	SOLID INGREDIENTS					
	10%	12%	14%	16%	18%	20%
150	136	163	190	217	244	272
200	181	217	253	290	326	362
250	226	272	317	362	407	453
300	372	326	380	434	489	543
350	317	380	443	507	570	634
400	362	434	507	579	652	724
450	407	489	570	652	733	815
500	452	543	634	724	815	905
600	543	652	760	869	977	1086
700	634	760	887	1014	1140	1267
800	724	869	1014	1158	1303	1448
900	815	977	1140	1303	1466	1629
1000	905	1086	1267	1448	1629	
1100	996	1195	1394	1593		
1200	1086	1303	1520			

MULTIPLICATIVE COEFFICIENTS FOR OVERRUN VALUES

60%	70%	80%	90%	100%	110%	120%
1.25	1.18	1.11	1.05	1	0.95	0.9


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EXAMPLE

If the required quantity of solid ingredients is 16% and the production output is 500 l/hr (100% overrun), approximately 724 gr/min of solid ingredients must be fed from the secondary hopper.

NOTE: with a 70% overrun, multiply 724 gr/min by the corresponding coefficient (in this case 1.18), to obtain 854 gr/min.