

We hope that the information contained in this manual will be helpful. It is based on data and is correct to the best of our knowledge.

Read the contents of the manual carefully, including the recommendations and suggestions. Also read the sales conditions, including those that limit the warranty. No part of this manual may be reproduced or passed on to third parties without advance permission in writing from Tetra Pak Hoyer S.p.A.

Macchina

HOYER FRUIT FEEDER 2000

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HOYER FRUIT FEEDER 2000

1 - MACHINE IDENTIFICATION DATA

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1.1 Introduction

Thank you for choosing a machine manufactured by Tetra Pak Hoyer S.p.A.

We recommend you to read this manual carefully as it is indispensable for the installation, checking and maintenance operations required to keep your machine in perfect working order.


We will be pleased to receive your suggestions should you find that any explanation has been omitted or is not exhaustive. We will take them into the greatest consideration in an effort to improve the manual.


1.2 Identification plate

For maintenance and overhaul operations not covered by this manual and for all technical problems, our Service Department is at your complete disposal to provide information and to coordinate the necessary action.

When calling our Service Department, please quote the data shown on the identification plate affixed to the machine and shown in Fig. 1.1.

MODEL	<input type="text"/>
SERIAL N.:	<input type="text"/>
YEAR OF CONSTRUCTION:	<input type="text"/>
ELECTRICAL SUPPLY:	<input type="text"/> V
	<input type="text"/> kW
	<input type="text"/> ph <input type="text"/> Hz
PNEUMATIC SUPPLY:	<input type="text"/> bar <input type="text"/> Nlt/min.
REFRIGERANT:	<input type="text"/> Type <input type="text"/> Kg.
HEATING GAS:	<input type="text"/>
THERMAL CAPACITY:	<input type="text"/> Kcal/h


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Made in Italy

Fig. 1.1 - Targhetta di identificazione

1.3 Services Centres

For any need or problem requiring our help, please contact one of the following centres authorised to carry out technical assistance under warranty or maintenance to machines manufactured by Tetra Pak Hoyer S.p.A.

EUMEA

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France
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C.I.S.

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Att.: Mr. Jörg Roberth

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Bangchak, Prakanong
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HOYER FRUIT FEEDER 2000

2 - GENERAL

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2.1 Declaration of conformity

This machine has been manufactured in accordance with international standards and hygiene and sanitary legislation applicable to food machinery. In particular Tetra Pak Hoyer certifies, through the Declaration of Conformity supplied

together with the machine, that the **HOYER FRUIT FEEDER 2000** machine is designed and manufactured in accordance with the provisions of Directive 89/392/EEC and with the above-mentioned standards applicable to this Directive.

2.2 Preliminary observations

- The illustrations and drawings of the machine are intended purely for general reference and are not necessarily accurate in every detail.
- The machine dimensions and specifications given in this manual are not binding and may be changed without advance warning.
- The drawings and all other documents provided with this machine remain the property of Tetra Pak Hoyer S.p.A. and may not be passed on to third parties without

written authorisation from Tetra Pak Hoyer S.p.A.

- The manual includes instructions covering all accessories mounted on the standard machine.
- **The machine is covered by warranty as specified in the purchase contract. During the warranty period, any repair work not authorised by Tetra Pak Hoyer will automatically invalidate the warranty.**

2.3 General safety precautions

- THESE SAFETY PRECAUTIONS HAVE BEEN DRAWN UP IN YOUR INTERESTS. Follow the guidelines strictly in order to reduce the risk of accident both to you and to others.
- Do NOT attempt to move, install or operate the machine without having read and understood this manual. If in doubt, ask your superior.
- Ensure that all guards and safety covers are in position BEFORE starting the machine.
- NEVER leave tools, mechanical parts or other extraneous material on or inside the machine.
- Press the emergency button in the event of a product blockage.
- NEVER PUT YOUR HANDS INSIDE THE

MACHINE WHILE IT IS RUNNING;

- Take great care even when the main switch is in the “OFF” position, since the power supply cables are still live.
- Turn off the air supply before disconnecting any pneumatic part of the machine.
- Make sure that all guards and protective covers are correctly installed BEFORE restarting the production cycle after maintenance or repair operations.
- Always work with the greatest care and remember that you are responsible for your own safety and for that of your colleagues.
- When moving or lifting the machine, ensure that relevant standards for these operations are followed.

2.4 Warning and special notices

- The personnel operating this machine must be aware of and observe strictly the general safety precautions. Failure to observe the precautions may result in injury to personnel or damage to machine components.
- Maintenance must be carried out with the machine turned off. The main switch must be in the “OFF” position, the air valve must be closed and a “work in progress” notice must be fixed to the machine.
- The user must ensure that all the instructions contained in the manual are followed strictly.
- High (Low) temperatures are reached inside the machine. After turning off the electric power supply, wait for the machine to cool (heat) to room temperature before carrying out work on it.
- Any tampering with the safety system for any reason is at the user’s own risk and shall be his responsibility.
- Never attempt to turn off the safety switches or make them inoperative.
- The safety of machines used in conjunction with the machine described in this manual, if not supplied directly by Tetra Pak Hoyer S.p.A., is the customer’s responsibility.
- The pressure, speed, temperature and voltage limits as well as all other indications given are indispensable for the correct running of the machine and must always be observed by the customer.
- For the pneumatic components, dehumidified compressed air must be used at the right pressure and in the prescribed quantities, without any trace of oil.
- The environmental conditions of the installation site must also be taken into consideration.
- The national laws which govern the use of these kinds of machine must also be respected.

2.5 Environmental working restrictions

The machine is authorized to run within the following environmental restrictions:

- Temperature : from 4°C to 40°C
- Humidity : from 20% to 95%.



NOTE:

Our company declines all responsibility for damage caused by failure to heed the above warnings.

HOYER FRUIT FEEDER 2000

3 - DESCRIPTION OF THE MACHINE AND TECHNICAL SPECIFICATIONS

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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 **FRUIT FEEDER 2000** 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 **FRUIT FEEDER 2000** 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 (*Pos.2, Fig.3.1*) 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 (*Pos.3, Fig.3.1*), 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 Pak Hoyer S.p.A. certifies, through the Declaration of Conformity provided together with the machine, that the **Fruit Feeder 2000** 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.

3.2 Operation

The ingredients are fed manually by the operator into the main hopper (*Pos.1, Fig.3.2*). Access to the main hopper is gained by tilting back the lid (*Pos.2, Fig.3.2*). The safety grid (*Pos.3, Fig.3.2*) must only be removed for maintenance work when the machine is turned off.

The ingredients are kept continually moving by the slow agitator located in the upper part of the main hopper; they are then fed into the secondary hopper by means of the screw feeder (*Pos.4, Fig.3.2*) located on the bottom of the hopper.

The screw feeder is made of aseptic material and is available in various versions according to the type of ingredients to be fed. The speed of the screw feeder and the slow agitator are variable and can be regulated by the potentiometer on the control panel. As a consequence, the flow rate of ingredients can also be continually varied.

From the secondary hopper the ingredients are

fed under gravity towards the inlet port of the vane pump (*Pos.5, Fig.3.2*) located on the bottom of the secondary hopper.

They are then fed into the cavity created between two adjacent vanes as a result of the special profile of the eccentric guide.

During rotation the ingredients come into contact with the ice-cream through the discharge port located on the bottom of the casing. This way the ingredients are fed into the ice-cream flow. The rotor is mounted on the reduction gear output shaft and its speed of rotation can be regulated from the potentiometer on the control panel by means of a frequency converter connected to the gearmotor.

The mix obtained is fed to the vertical mixer (*Pos.6, Fig.3.2*), which serves to mix the ice-cream and the ingredients and hence obtain a uniform and well-mixed product.

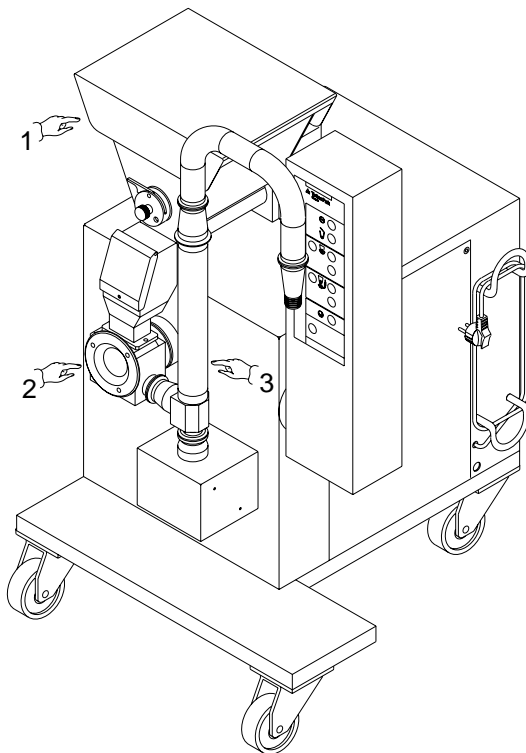


Fig. 3.1

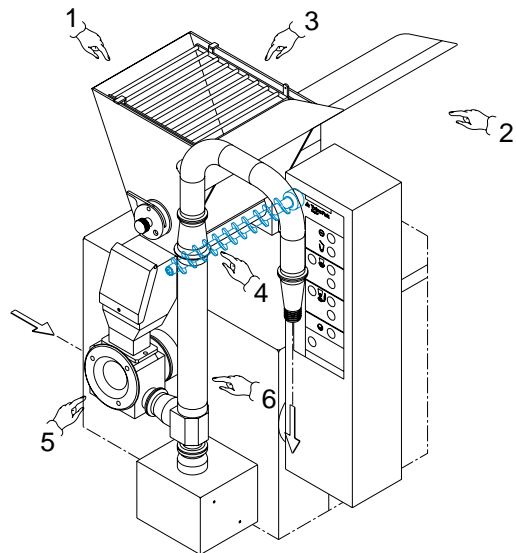


Fig. 3.2

3.3 Technical specifications

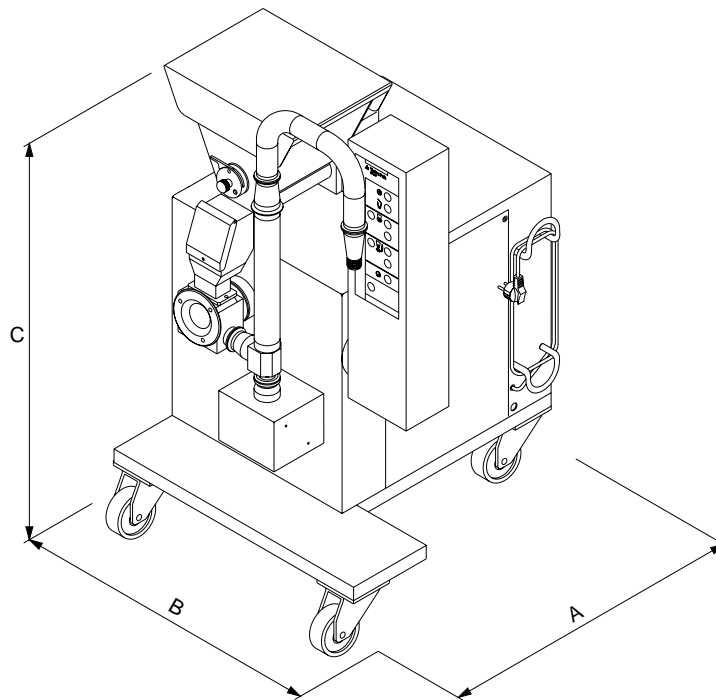


Fig. 3.3

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:	2"
	Out clamp:	2"
Capacity:	the flow of ice cream with standard feeder is 300 ÷ 2000 l/h (80 ÷ 528 US Gals/h). For ingredient capacity see paragraphs 4.4 and 5.2.	
Dimensions:	A (length) =	932 mm
	B (width) =	720 mm
	C (height) =	1291 mm
No. 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.

3.4 Control panel

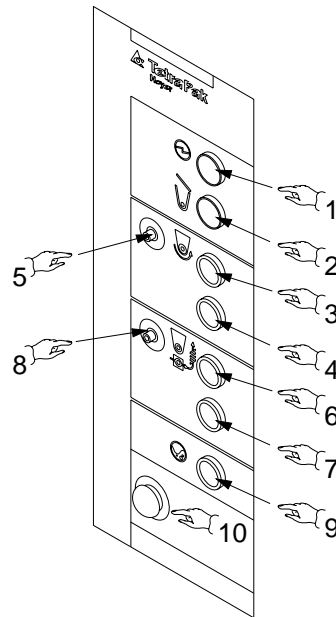


Fig. 3.4

1. Power on (*14HL4*)
2. Safety device tripped (*14HL12*)
3. Screw feeder start button (*18SB10*)
4. Screw feeder stop button (*18SB12*)
5. Potentiometer to regulate speed of screw feeder unit (*9RP8*)
6. Slow agitator and vane pump start button (*19SB7*)
7. Slow agitator and vane pump stop button (*19SB8*)
8. Potenziometro per la regolazione della velocità della pompa a lamelle (*10RP8*)
9. Washing cycle selector switch (*18SA4*)
10. Emergency stop button (*15SB13*)

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4 - INSTALLATION

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4.1 Unpacking and delivery checks

The simplest way to handle the **FRUIT FEEDER 2000** crate is to use a pallet truck or a lift truck. The crate must be unloaded as close as possible to the place of installation.

When the crate has been positioned correctly, unpack as follows:

- a. Unnail the upper lid (*Pos. 1 Fig. 4.1*) and remove it. Do the same with the side panels. Pay particular attention to the wooden spacer blocks located between the sides of the crate.
- b. Remove the spare parts box (*Pos. 2 Fig. 4.1*) and the other components.
- c. Unnail the wooden blocks that hold the machine in place during transport and remove the cellophane sheet.
- d. Check that the contents of the crate correspond to the description given in the shipping documents.
- e. Check that all the covers and panels have been correctly fitted and that there are no loose parts.
- f. Inspect visually all the electrical components to check that they are not damaged.
- g. If any part/component is missing, stop unpacking and immediately notify Tetra Pak Hoyer S.p.A.
- h. If the machine has been damaged during transport, notify the Insurance Company immediately.

Do not proceed beyond unpacking until you are authorised to do so by the Insurance Company.

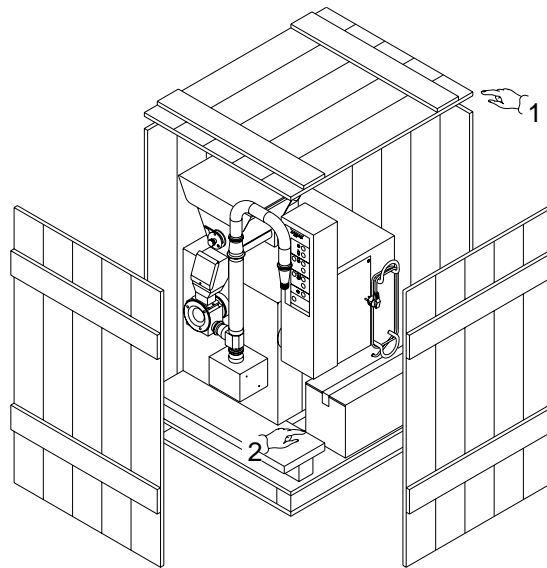


Fig. 4.1

4.2 Transport and installation

As the machine is mounted on wheels (*Pos. 1, Fig. 4.2*), it can be pushed directly by the operator, as shown in *Fig. 4.2*.

Alternatively the machine may be moved by

means of a fork lift truck. Take care to position the forks under the adhesive arrows on the machine frame, as shown in *Fig. 4.3*.

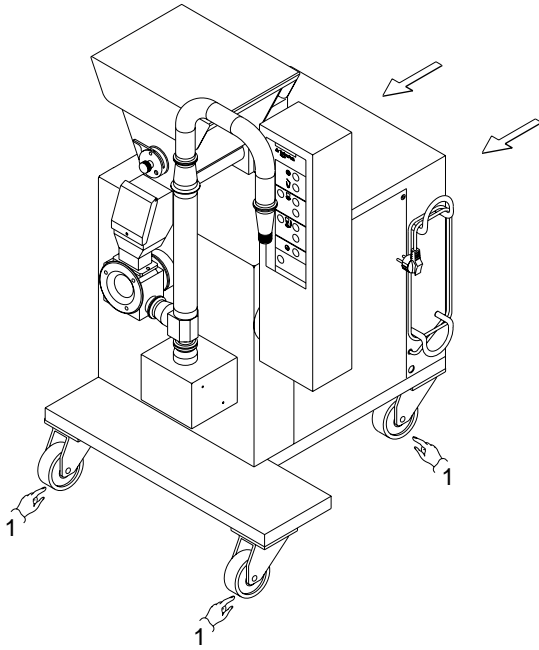


Fig. 4.2

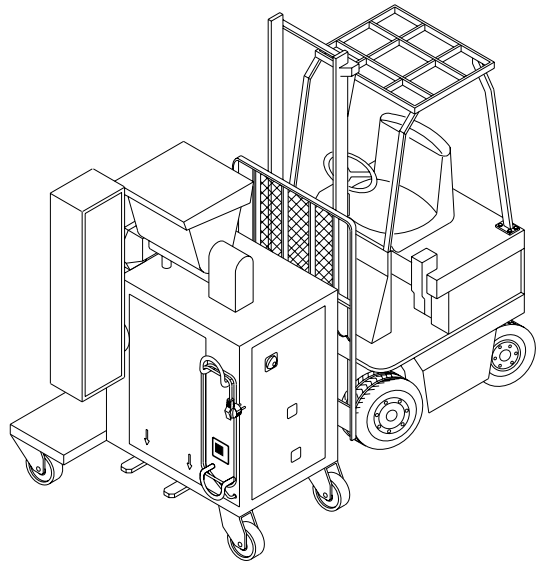


Fig. 4.3

The **FRUIT FEEDER 2000** must be situated as close as possible to the filler machine for the following reasons:

- a. The pressure of ice cream reaches its lowest value at this point.
- b. The ingredients fed in tend to be deposited on the layer of ice-cream in contact with the pipe. Therefore a smaller distance between the mixer and the filler machine will give rise to a more uniform distribution of the ingredients in the ice-cream.

For the installation procedure, ensure that the following instructions are followed:

- a. Position the machine at the place of production and check the nameplate data to ensure that the machine is compatible with the electrical power supply (*Pos.A, Fig.4.4*).
- b. Connect the ice-cream inlet and outlet pipes to the pump body (*Pos.B, Fig.4.4*).
- c. Connect the electrical cable (3 phases + earth) by means of a wall-mounted switch fitted with a fuse.

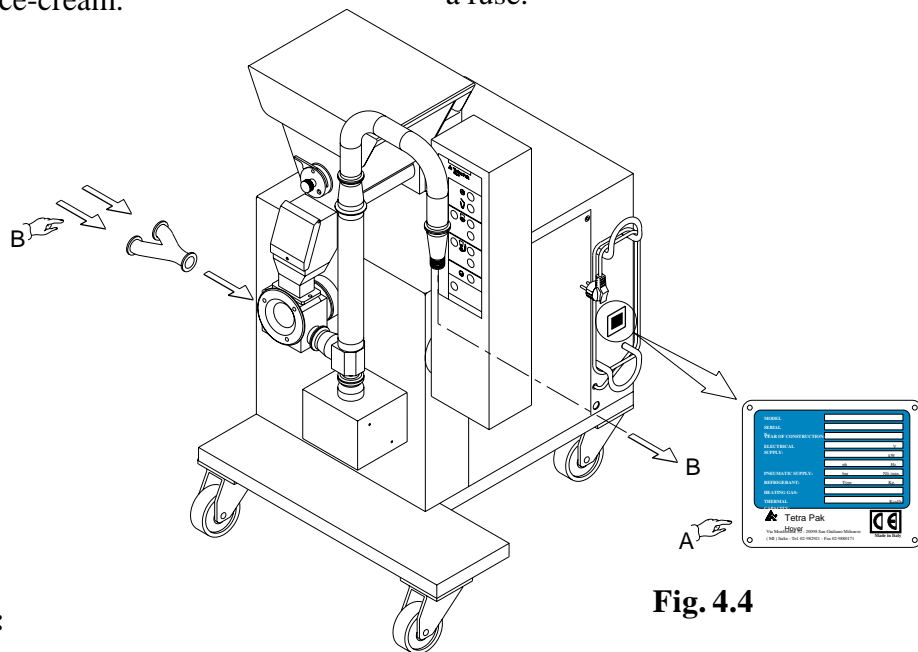


Fig. 4.4



ATTENTION:

L'interruttore differenziale di protezione deve essere di classe "A" adatta alla protezione dei circuiti elettronici di potenza dell'inverter.

4.3 Functional checks

Carry out the following checking procedures before starting the machine:

- a. Check that the emergency stop button is released (*Pos.9 Fig.4.5*).
- b. Turn on the main switch located on the rear panel of the machine (*Pos.1 Fig.4.6*).
- c. Check that the motors work correctly. In order to avoid damaging the machine, make sure that all the motors turn in the correct direction. If they do not, invert the phases. In particular:

1. Screw feeder motor

Press luminous button (*Pos.3 Fig.4.5*) to start the motor. Lift the main hopper lid (*Pos.1, Fig.4.7*) and check that the screw feeder turns clockwise (*Pos.2, Fig.4.7*). Press the luminous button (*Pos.4 Fig.4.5*) to stop the motor.

2. Vane pump motor and in-line mixer motor

Press the luminous button (*Pos.6 Fig.4.5*)

to start the motors. Lift the secondary hopper lid (*Pos.3, Fig.4.7*) and check that the vanes turn anticlockwise (*Pos.4, Fig.4.7*). Check, by viewing from above, that the in-line mixer turns anticlockwise (*Pos.5, Fig.4.7*). To carry out this check, disconnect the 2" to 1 1/2" reducer. Be particularly careful not to crush parts of your body during rotation of the mixer blades. Press the luminous button (*Pos.7 Fig.4.5*) to stop the motor.

N.B.: Since the vane pump needs to be lubricated with ice-cream and/or water during operation, make sure that it does not run empty by introducing water directly into the secondary hopper during this check.

With the motors running, check that the emergency stop button (*Pos.9 Fig.4.5*) works correctly. In the case of a malfunction, contact one of our Service Centres immediately.

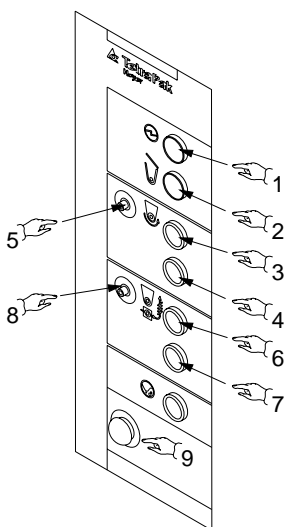


Fig. 4.5

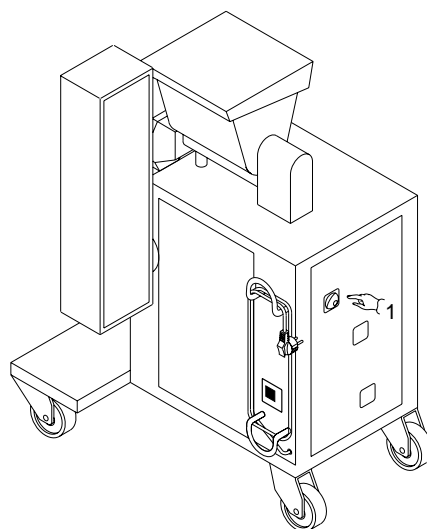


Fig. 4.6

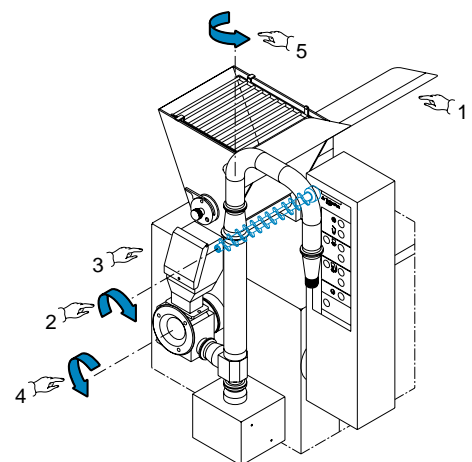


Fig. 4.7

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 dripped before dosing.

The ingredients should have particles of maximum diameter 15 mm.

This means for example that products such as whole strawberries can be fed into the ice-cream flow without being crushed.

The **FRUIT FEEDER 2000** 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 **FRUIT FEEDER 2000** and the liquid part using a volumetric dosing device for liquids installed before the in-line mixer.

The machine is supplied with two standard screw feeders:

- Screw feeder, code no. 540501205
Pitch 40, Diam. 20 (for high flow)
- Screw feeder, code no. 540501202
Pitch 20, Diam. 20 (for low flow)

As optional the following two screw feeders are available to optimize the dosing at intermediate flow:

- Screw feeder, code no. 540501203
Pitch 30, Diam. 20
- Screw feeder, code no. 540501204
Pitch 30, Diam. 24

HOYER FRUIT FEEDER 2000

5 - ADJUSTMENT PROCEDURES

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5.1 Set-up and adjustments

Before starting the machine and beginning the production cycle, make sure that the machine has been carefully washed and sterilised.

After washing and sterilising the machine, connect the ice-cream outlet pipe from the freezer to the pump unit connector (Part.1, Fig.5.1); then connect

the filler machine ice-cream inlet pipe to the outlet connector on the in-line mixer (Part.2, Fig.5.1).

To connect two freezers at the same time, connect a Y fitting (Part.3, Fig.5.1) to the pump unit inlet connector.

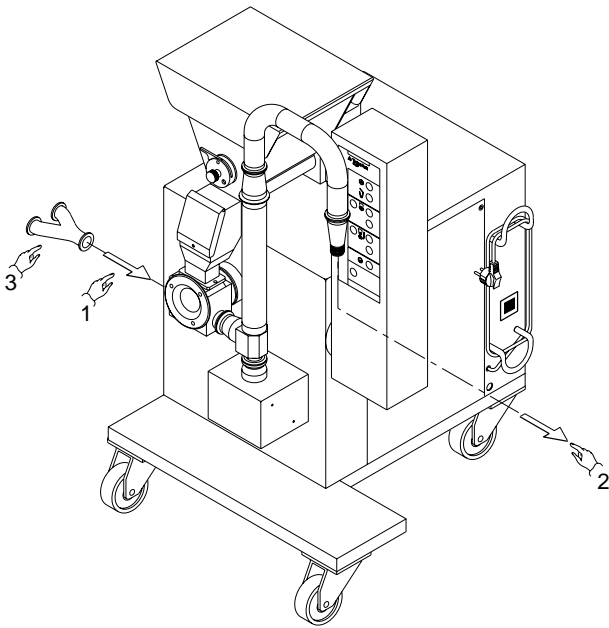


Fig. 5.1

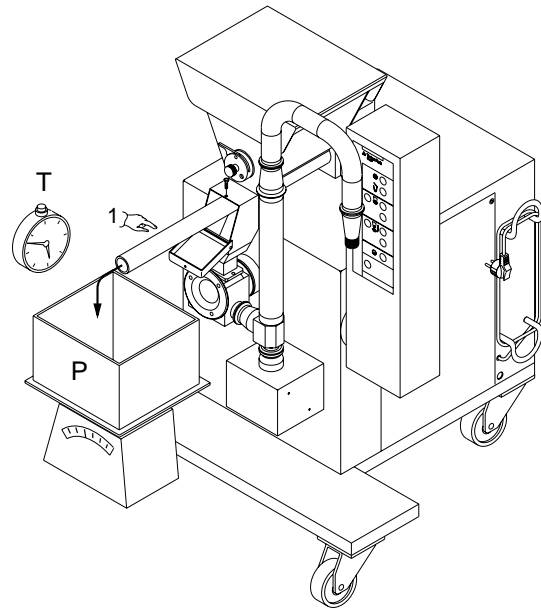


Fig. 5.2

To set the speed of the screw feeder correctly, proceed as follows:

1. Connect the screw feeder outlet pipe to rubber hose provided, leaving the secondary hoper lid open (Part.1 Fig.5.2). Place a container of suitable dimensions under the extension outlet to collect the ingredients.
2. Turn on the electrical power supply to the machine by turning the main switch to the “ON” position.
3. Check that the safety grid is lowered into its safety position.
4. Start the screw feeder by pressing button 18SB10 (Pos. 3, Fig. 3.4).

5. Measure the flow rate over a reasonable period of time and check that it corresponds to the desired value. If not, turn the screw feeder speed adjustment knob (PT3) to increase or reduce the speed according to whether the measured flow rate is lower or higher than desired. Repeat this operation until the desired flow rate is obtained.
6. Turn of the screw feeder motor by pressing luminous button 18SB12 (Pos. 4, Fig. 3.4) and turn off the power supply to the machine.
7. Disconnect the screw feeder outlet pipe extension.
8. If necessary, clean and sterilise the machine.

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 (100% Overrun)	Solid ingredients (g/m) depending on desired %								
	4	6	8	10	12	14	16	18	20
150	54	81	109	136	163	190	217	244	272
200	72	109	145	181	217	253	290	326	362
250	91	136	181	226	272	317	362	407	453
300	109	163	217	272	326	380	434	489	543
350	127	190	253	317	380	443	507	570	634
400	145	217	290	362	434	507	579	652	724
450	163	244	326	407	489	570	652	733	815
500	181	272	362	453	543	634	724	815	905
550	199	299	398	498	597	697	796	896	996
600	217	326	434	543	652	760	869	977	1086
650	235	353	472	588	706	824	941	1059	1177
700	253	380	507	634	760	887	1014	1140	1267
750	272	407	543	679	815	950	1086	1222	1358
800	290	434	579	724	869	1014	1158	1303	1448
850	308	462	615	769	923	1077	1231	1385	1539
900	326	489	652	815	977	1140	1303	1466	1629
950	344	516	688	860	1032	1204	1376	1548	
1000	362	543	724	905	1086	1267	1448	1629	
1050	380	570	760	950	1140	1330	1520		
1100	398	597	796	996	1195	1394	1593		
1150	416	624	833	1041	1249	1457	1665	1200	434
1200	434	652	869	1086	1303	1520			
1250	453	679	905	1131	1358	1584			
1300	471	706	941	1177	1412	1647			
1350	489	733	977	1222	1466				
1400	507	760	1014	1267	1520				
1450	525	787	1050	1312	1575				
1500	543	815	1086	1358	1629				
1550	561	842	1122	1403	1683				
1600	579	869	1158	1448					
1650	597	896	1195	1493					
1700	615	923	1231	1539					
1750	634	950	1267	1584					
1800	652	977	1303	1629					
1850	670	1005	1339						
1900	688	1032	1376						
1950	706	1059	1412						
2000	724	1086	1448						

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

Example:

If the required quantity of solid ingredients is 10% and the production output is 1000 l/h (100% overrun), approximately 905 gr/min of solid ingredients must be fed from the secondary hopper.

 **NOTE:**

with a 70% overrun, multiply 905 gr/min by the corresponding coefficient (in this case 1.18), to obtain 1068 gr/min.

HOYER FRUIT FEEDER 2000

6 - OPERATING PROCEDURES

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ATTENTION:

To ensure perfect operation of the machine, the candied fruit and other ingredients to be fed into the ice-cream flow must be drained thoroughly to reduce stickiness. Good operation of the machine depends on the characteristics of the ingredients used.



PERSONAL INJURY

- a. The machine must be left disconnected until the ice-cream inlet and outlet pipes have been connected to the vane pump body.
- b. The screw feeder, the slow agitator and the pump vanes are all dangerous. For this reason,

the main hopper grid and the secondary hopper lid must remain in their safety positions at all times when the machine is connected to the electrical power supply.

DAMAGE TO THE MACHINE



- a. If the ingredients stop the slow agitator and/or the screw feeder from turning, they must be removed using only the scraper provided with the machine.
- b. Do not use metal or plastic object etc..., as these can cause serious damage to the machine.
- c. The vane pump must **NEVER** be run whilst empty. It must always be lubricated with ice-cream or water during operation.

6.1 Preliminary checks

Before starting the machine, carry out the following checks:

- a. Check that the machine has been thoroughly washed and cleaned.
- b. Check that the ice-cream inlet and outlet pipes to/from the **FF 2000** have been connected to the freezer and the filler machine correctly.
- c. Check that the power cable from the mains

supply is connected correctly.

- d. Check that all the guards are in their safety positions (main hopper grid, secondary hopper lid).
- e. Check that all the machine panels are fixed securely to the frame.

6.2 Start-up

To start the machine, proceed as follows:

- a. Switch on power to the machine by turning the main switch to the "ON" position.
- b. Start the feeding ice-cream from the freezer. To keep production losses down to a minimum, wait until the ice-cream leaving the extrusion pipe has reached the desired consistency before starting the other motors of the **FF 2000**.

- c. Start the vane pump and screw feeder motors by pressing luminous buttons (*Part.3/6, Fig.6.1*) respectively, in that order.
- d. Introduce the ingredients into the main hopper, taking care not to lift the safety grid (which would cause the machine to stop immediately) or the secondary hopper lid.

6.3 Production cycle

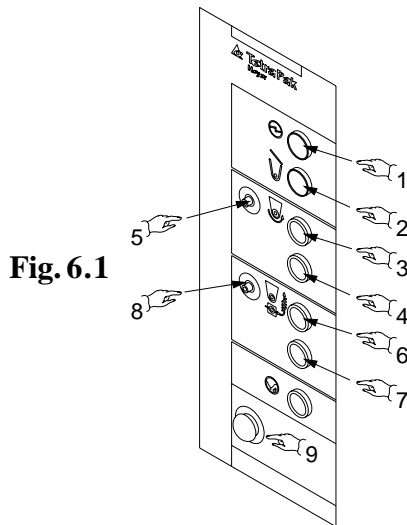


Fig. 6.1

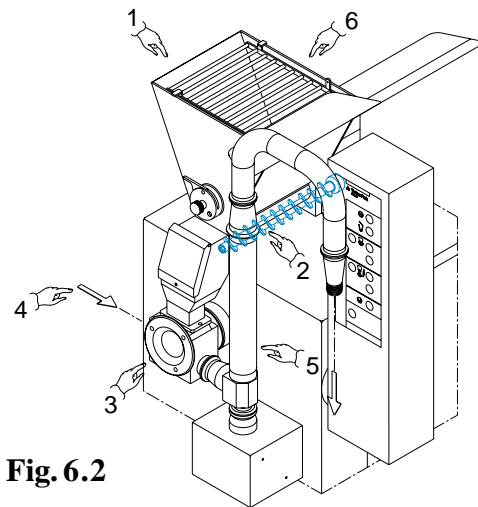


Fig. 6.2

The fruit is placed in the main hopper (*Part. 1, Fig. 6.2*). The screw feeder (*Part. 2, Fig. 6.2*) feeds the fruit into the vane pump (*Part. 3, Fig. 6.2*). The fruit mixed with the ice-cream coming from the freezer (*Part. 4, Fig. 6.2*), is then sent via the mixer (*Part. 5, Fig. 6.2*) to the filler machine.

The operator must perform the following operations:

- Feeding fruit into the main hopper.



WARNING:

The screw feeder stops if the grid is lifted.

- Regulating the quantity of fruit introduced into the ice-cream.

The following can be used to regulate the quantity of fruit introduced into the ice-cream:

- Potentiometer (*Part. 8, Fig. 6.1*), to regulate the speed of the vane pump.
- Potentiometer (*Part. 5, Fig. 6.1*), to regulate the speed of the screw feeder.

The two controls work independently, so both must be used to obtain the correct settings.

These are two ways to increase the quantity of fruit in the ice-cream:

- Turn the potentiometer (*Part. 8, Fig. 6.1*) clockwise to increase the speed of the main motor.
- Turn the potentiometer (*Part. 5, Fig. 6.1*) clockwise to increase the speed of the screw feeder.

There are two ways to reduce the quantity of fruit in the ice-cream:

- Turn the potentiometer (*Part. 8, Fig. 6.1*) anticlockwise to reduce the speed of the main motor.
- Turn the potentiometer (*Part. 5, Fig. 6.1*) anticlockwise to reduce the speed of the screw feeder.

6.4 Shutdown

- Turn off the screw feeder motor (*Part. 4, Fig. 6.1*).
- Turn off the vane pump and agitator motor (*Part. 7, Fig. 6.1*).
- Press the emergency stop button (*Part. 9,*

Fig. 6.1).

- Turn off the main switch.
- Remove fruit residues from the hopper.
- Start cleaning (See Chapter 7 - **CLEANING AND MAINTENANCE**).

HOYER FRUIT FEEDER 2000

7 - CLEANING AND MAINTENANCE

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7.1 Cleaning and washing

Make sure that the main switch is turned OFF before starting to clean the machine.

External washing program:

- a- Prewash with hot water (50°)
- b- Detergent wash. Use a foaming alkaline detergent or in gel with an high fat emulsionant power. The concentration required varies from 2% to 10% depending on the existing dirt and on the water hardness utilized.



Attention:

Do not use high pressure water jets.

- c- Rinse with water. Wait 10 minutes before rinsing thoroughly to remove all trace of dirt.
- d- Descaler wash. Use an acid-base, low viscosity descaler containing a mixture of wetting and emulsifying agents. The concentration required varies from 2% to 3%. The recommended minimum contact time is between 15-20 minutes.
- e- Rinse with water.
- f- Disinfectant wash. Use a suitable disinfectant diluted in water.
The concentration required varies from 1% to 1.2%. The recommended minimum contact time is between 15-20 minutes.
- g- Rinse with water.

RECOMMENDED PRODUCTS:

Detergent	Descaler	Disinfectant
SU928 (Diversey Lever)	P3-topax 52 (50/60°) (Henkel Ecolab)	P3-topax 99 (60°) (Henkel Ecolab)
SU616 (Diversey Lever)		
P3-topax 200 (60°C) (Henkel Ecolab)		
P3-topax 17 per alluminio (60°C)		

7.2 Routine maintenance

7.2.1 After extended period of disuse

- Wash the machine carefully;
materials required: water - detergent - disinfectant.
- Remove pump (see paragraph 7.3), screw feeder, agitators and pipes, wash and disinfect thoroughly;
- Check the condition of the gaskets and replace if necessary;
- Lubricate the gaskets;
- *materials required:* vaseline.
- Check the oil level in the reduction gears and fill up if necessary;
materials required: IP Mellana 320 oil.
- Check that the emergency stop button works correctly;
- Carry out a general inspection;
- Check all moving parts and if necessary replace.

7.2.2 Daily

- Rinse the machine thoroughly with water and/or washing solutions before starting production;
- Wash the machine at the end of the production shift, proceed in the following way:
 - disconnect the machine from the filling line;
 - connect the washing pipe to the pump inlet, proceed with the washing;

7.2.3 Monthly

- Check the oil level in the reduction gears;
material required: IP Mellana 320 oil.
- Check the screw feeder transmission chain

FEEDER

Remove the screw (Part.1, Fig.7.1), open the door (Part.2, Fig.7.1) and pull out the screw feeder (Part.3, Fig.7.1).

Lift the hopper lid (Part.1, Fig.7.2), lift the safety grid (Part.2, Fig.7.2), move the rod (Part.3,

- at the same time, to pour the washing solution (**by the small quantities**) inside of the primary hopper. In this way washes the agitator (Part.4, Fig.7.2) and the screw feeder (Part.3, Fig.7.1).
materials required: water - detergent - disinfectant.

- tension.
- Wash the feeder and the ice-cream line carefully, proceed on the following way:

Fig.7.2) and pull out the mixer (Part.4, Fig.7.2). Wash and disinfect the various components and the hoppers (main and secondary), then reassemble, lubricating the gaskets as required.

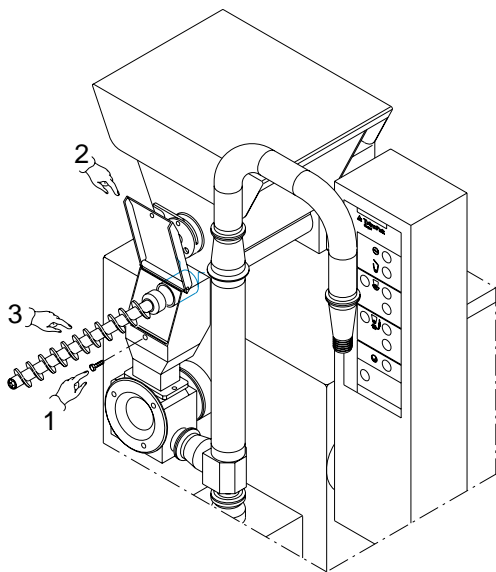


Fig. 7.1

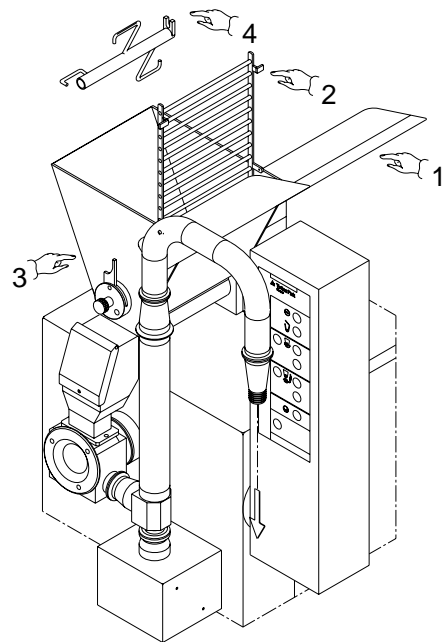


Fig. 7.2

ICE CREAM LINE

Disconnect the machine from the filling line (*Part.1, Fig.7.3*);

Take out the mixer (*Part.2, Fig.7.3*), disconnect the fixing clamps (*Part.3, Fig.7.3*) and take off the connecting pipe (*Part.4, Fig.7.3*).

Connect the washing pipe to the pump inlet, (*Part.5,*

Fig.7.3) e proceed with the washing.

Materials required: water, detergent, disinfectant.

Lubricate the gaskets; after drying the various components, lubricate them with neutral vaseline before reassembling.

Material required: vaseline

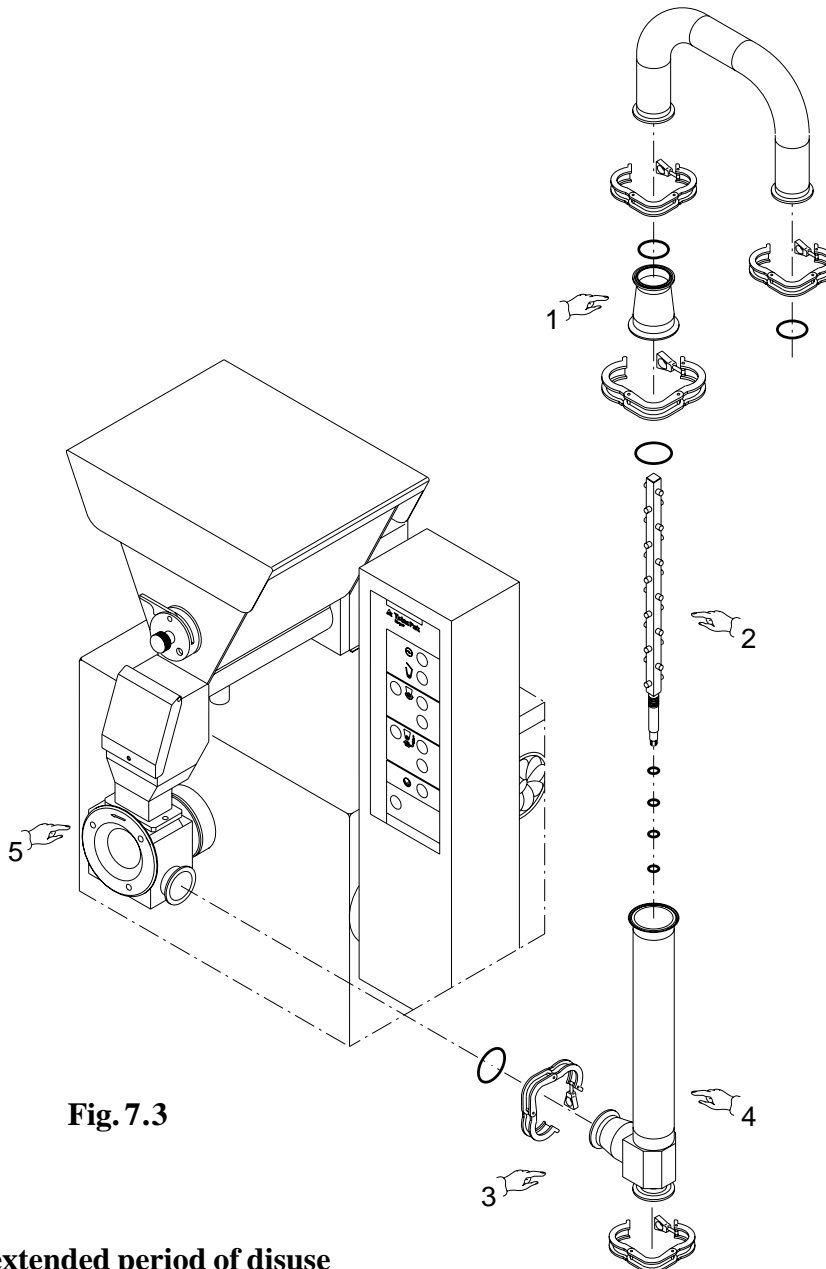


Fig. 7.3

7.2.4 Before extended period of disuse

- Wash and dry the various components, lubricate them (especially the gaskets) with vaseline and reassemble them.

Materials required: water - detergent - disinfectant - vaseline.

7.2.5 C.I.P. washing

The machine is arranged for C.I.P. washing of the pipes, vane pump and vertical agitator.

The feeding unit must be manually washed as described in the paragraph 7.2 “Routine maintenance”.

Proceed as follows for the C.I.P. washing:

- remove the secondary hopper and position the lid supplied with standard equipment;
- connect the machine to the C.I.P. washing system present in the workroom.
- start the washing cycle by commutating the

selector 18SA4: the preset cycle requires 5 seconds of the vane pump movement and vertical agitator and 55 seconds of pause.

- finish the washing program by commutating the selector 18SA4 in “OFF” position.

 **NOTE:**

The C.I.P. washing is not sufficient in particular for sticky products: in these cases it is necessary to wash manually as mentioned in the previous paragraphs.

C.I.P. WASHING PROGRAM FRUIT FEEDER 20000

Wash phases	Advised products	% in water	°C	Minutes	Notes
Pre-wash	Water	100	50	5	throwaway
Detergent wash	SU157 (Diversey Lever) P3-N421 (Henkel Ecolab)	1.2-1.6	65-70	15	at recycle
Rinse	Water	100	20	5	throwaway
Descaler wash	SU475 (Diversey Lever) P3-PE4 Spezial A (Henkel Ecolab)	0.5-1	60-70	10	at recycle
Rinse	Water	100	20	5	throwaway
Disinfectant wash	SU330 (Diversey Lever) P3-dix forte (Henkel Ecolab)	1-1.2	20	10	at recycle
Rinse	Water	100	20	10	throwaway

Tab. 7.1

7.3 Mechanical maintenance

7.3.1 Slow agitator drive unit

If the slow agitator runs noisily, lift the hopper lid (*Part.1, Fig.7.4*), lift the safety grid (*Part.2, Fig.7.4*), move the rod (*Part.3, Fig.7.4*) and take out the slow agitator (*Part.4, Fig.7.4*). Take off the casing (*Part.5, Fig.7.4*) and the transmission chain (*Part.6, Fig.7.4*) and remove the pinion (*Part.7, Fig.7.4*).

Remove the circlips (*Part.8-9, Fig.7.4*), take out the shaft (*Part.10, Fig.7.4*) and replace the bearings (*Part.11, Fig.7.4*) and the gaskets (*Part.12, Fig.7.4*).

Reassemble carefully in the reverse order.

Check that the shaft and the bearings are not loose in their housings.

7.3.2 Screw feeder drive unit

If the screw feeder runs noisily, take out the screw (*Part.1, Fig.7.5*) open the door (*Part.2, Fig.7.5*) and remove the screw feeder (*Part.3, Fig.7.5*). Take off the casing (*Part.4, Fig.7.4*) and the transmission chain (*Part.5, Fig.7.5*) and take out the pinion (*Part.6, Fig.7.5*).

Take off the circlip (*Part.7, Fig.7.5*), remove the shaft (*Part.8, Fig.7.5*) and replace the bearings (*Part.9-10, Fig.7.5*) and the gaskets (*Part.11, Fig.7.5*).

Reassemble carefully in the reverse order.

Check that the shaft and the bearings are not loose in their housings.

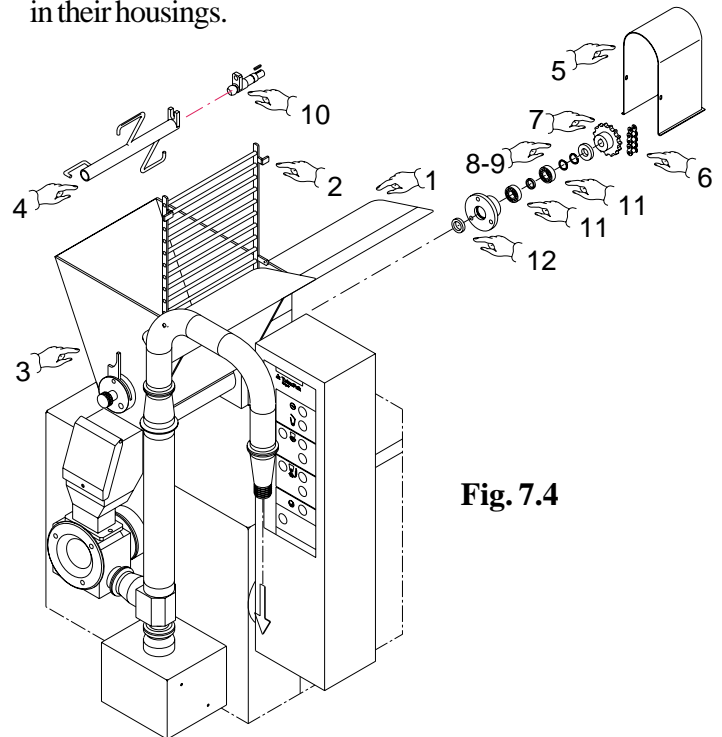


Fig. 7.4

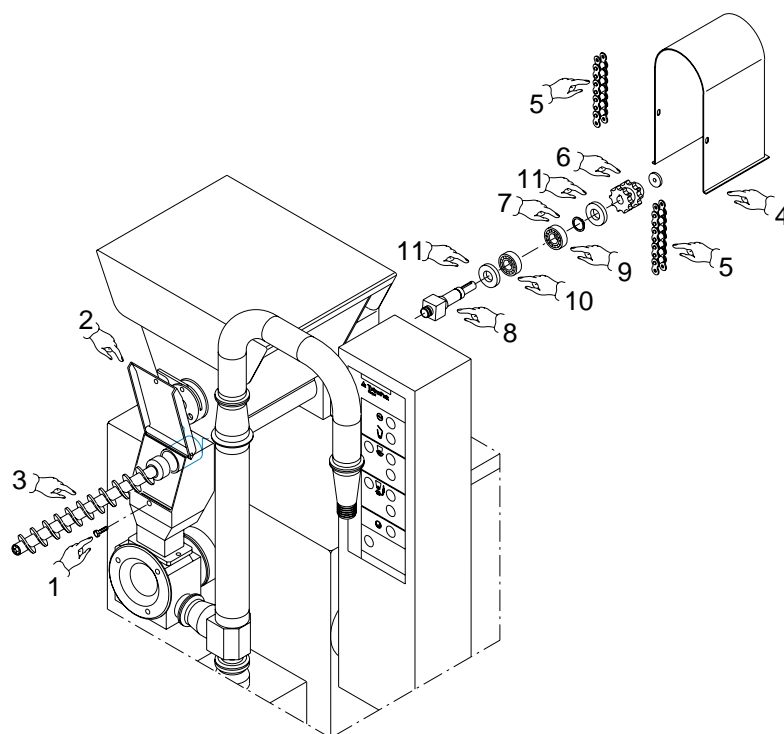


Fig. 7.5

7.3.3 Mixer drive unit

If the mixer runs noisily, remove the clamps (*Part.1/5, Fig.7.6*) dismantle the pipe and pull out the mixer (*Part.2, Fig.7.6*). Take off the bushing (*Part.4, Fig.7.6*) and remove the gaskets (*Part.3, Fig.7.6*). Check the condition of the bushing and the gaskets and if necessary replace.

Remove the casing and release the shaft (*Part.9, Fig.7.6*) from the reducer (*Part.7, Fig.7.6*). Dismantle the support (*Part.6, Fig.7.6*), pull out the shaft (*Part.9, Fig.7.6*) and replace the seal (*Part.8, Fig.7.6*). Reassemble carefully in the reverse order.

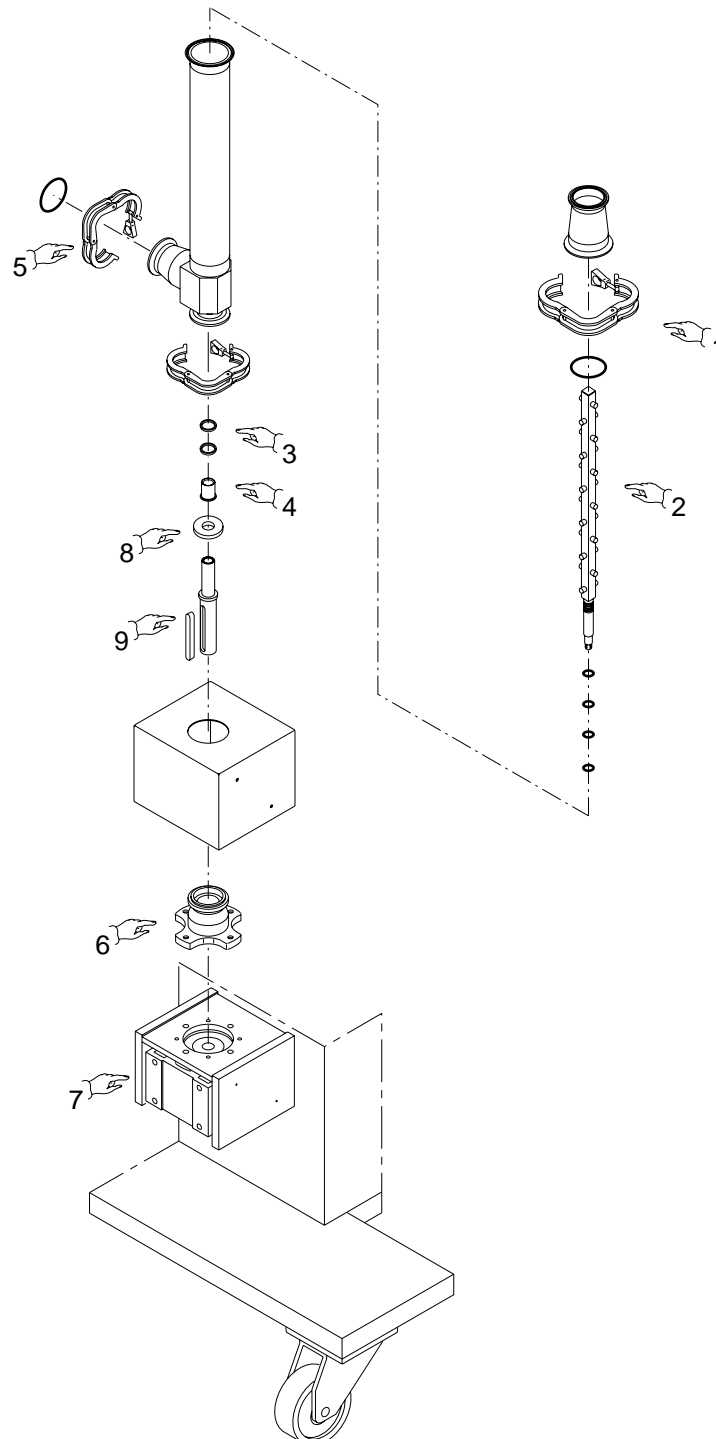


Fig.7.6

7.3.4 Vane pump

If the pump is noisy or gets blocked during operation, unscrew the screw (*Part.1, Fig.7.7*) and the front pump cover (*Part.2, Fig.7.7*) then take out the vanes (*Part.4-5-6, Fig.7.7*) and the rotor (*Part.3, Fig.7.7*).

Check the condition of the vanes and if necessary replace.

Reassemble carefully in the reverse order.

To assemble proceed on the following way:

- first insert the vane (*Part.6, Fig.7.7*) marked with two notches,
- insert the vane (*Part.5, Fig.7.7*),
- insert the vane (*Part.4, Fig.7.7*).

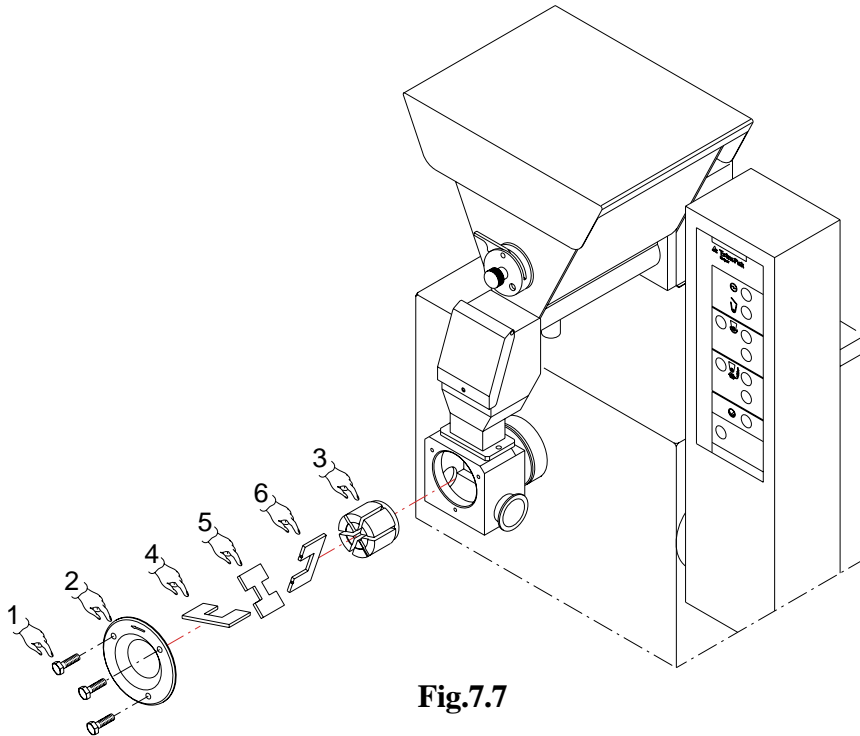


Fig.7.7

7.4 Maintenance of electrical system

The electrical system is designed and built to provide the greatest possible protection for the components of the fruit feeder.

When a motor stops due to overloading, the general alarm lamp HL2 lights up to indicate that the overload cutout has tripped.

If the overload cutout trips again shortly after restarting, this means that the fault/short circuit still exists.

Check the electrical circuit and ascertain whether any mechanical components have seized.

7.5 Lubrificant oil chart for Fruit Feeder 2000

Appliance	Oil type	Density (at 15°C) (Kg/m ³)	Viscosity (at 50°C) (°E)	Flash point (°C)	Freezing point (°C)
Gear motor	Mobil Gear 629	890	11,3	+228	-24
Chain	Suniso 3G	914	2,7	+176	-40

HOYER FRUIT FEEDER 2000

8 - TROUBLE-SHOOTING

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8.1 Trouble-shooting

FAULT	CAUSE	REMEDY
Power on lamp 14HL4 is off.	<ul style="list-style-type: none"> • Faulty main switch. • Main switch in “0” position. • Lamp 14HL4 burned out • Automatic switch QF01-02 open. • Transformer (TC1) faulty. • Short circuit on auxiliary services. • Power off. 	<ul style="list-style-type: none"> • Replace. • Turn main switch in “1” position. • Replace. • Reset switch. • Check and if necessary replace. • Find fault and reset circuit. • Check electrical power supply.
Machine does not start.	<ul style="list-style-type: none"> • Emergency stop button broken. • Emergency stop button has not been released. 	<ul style="list-style-type: none"> • Replace. • Reset.
Overload lamp 14HL12 illuminated.	<ul style="list-style-type: none"> • One or more automatic switches (QF 1-2-3) are open. • One or more automatic switches are broken. 	<ul style="list-style-type: none"> • Reset. • Check and if necessary replace.
Fruit feeder does not start.	<ul style="list-style-type: none"> • Emergency stop button has not been released. • Automatic switch open. • Microswitch broken. • Screw feeder pin not fixed properly. • Grid open. • Inverter card broken or incorrectly adjusted. • Bearings seized. 	<ul style="list-style-type: none"> • Reset. • Reset switch. • Replace. • Check locking of screw feeder. • Close. • See specific manual. • See mechanical maintenance.

FAULT	CAUSE	REMEDY
Mixer does not start.	<ul style="list-style-type: none"> • Emergency stop button has not been released. • Automatic switch open. • Reduction gear broken. • Coupling between motor and reduction gear worn. • Bearings seized. 	<ul style="list-style-type: none"> • Reset. • Reset switch. • Replace. • Replace. • See mechanical maintenance.
Pump unit does not start.	<ul style="list-style-type: none"> • Emergency stop button has not been released. • Automatic switch open. • Vanes locked. • Inverter card to be controlled. 	<ul style="list-style-type: none"> • Reset. • Reset witch. • See mechanical maintenance. • See specific manual.

HOYER FRUIT FEEDER 2000

9 - SPARE PARTS

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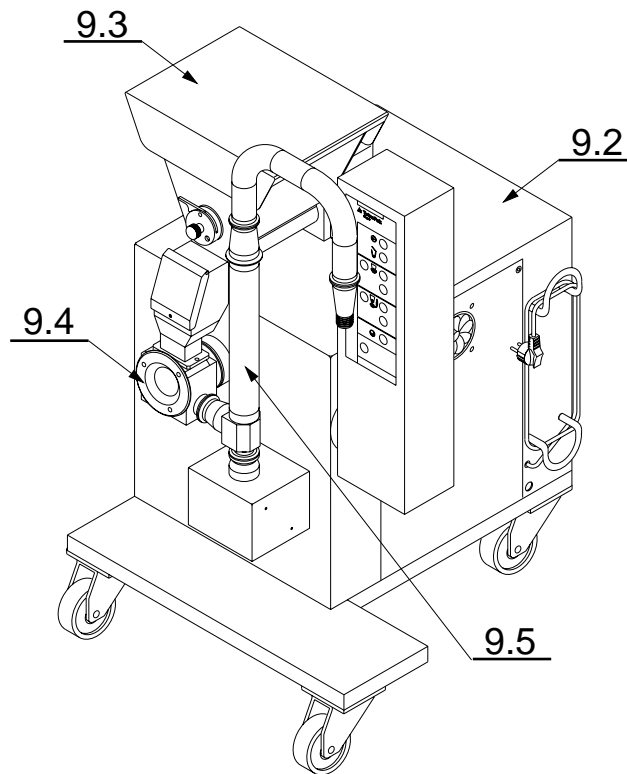


Fig. 9.1 - Lay-out

Frame unit - Fig. 9.2

Pos.	Code	Description	Qty
1	12030066	LH panel	1
2	12030006	Frame	1
3	336054067	Pivoting wheel DM 125	2
4	540501024	Cable bearing arm	2
5	336067137	O-ring 3500	2
6	12030001	Electrical panel box	1
7	540501039	Electrical control panel	1
8	540501038	Electrical control panel spacer	1
9	12030048	Microswitch signal cable covering	1
10	12030067	Electrical control panel drilling	1
11	336067012	O-ring 2050	1
12	12030007	RH panel	1
13	540501006	Centring pin	4
14	12030003	Plate	1
15	336054068	Fixed wheel DM 125	2
16	015062955	Fan	1

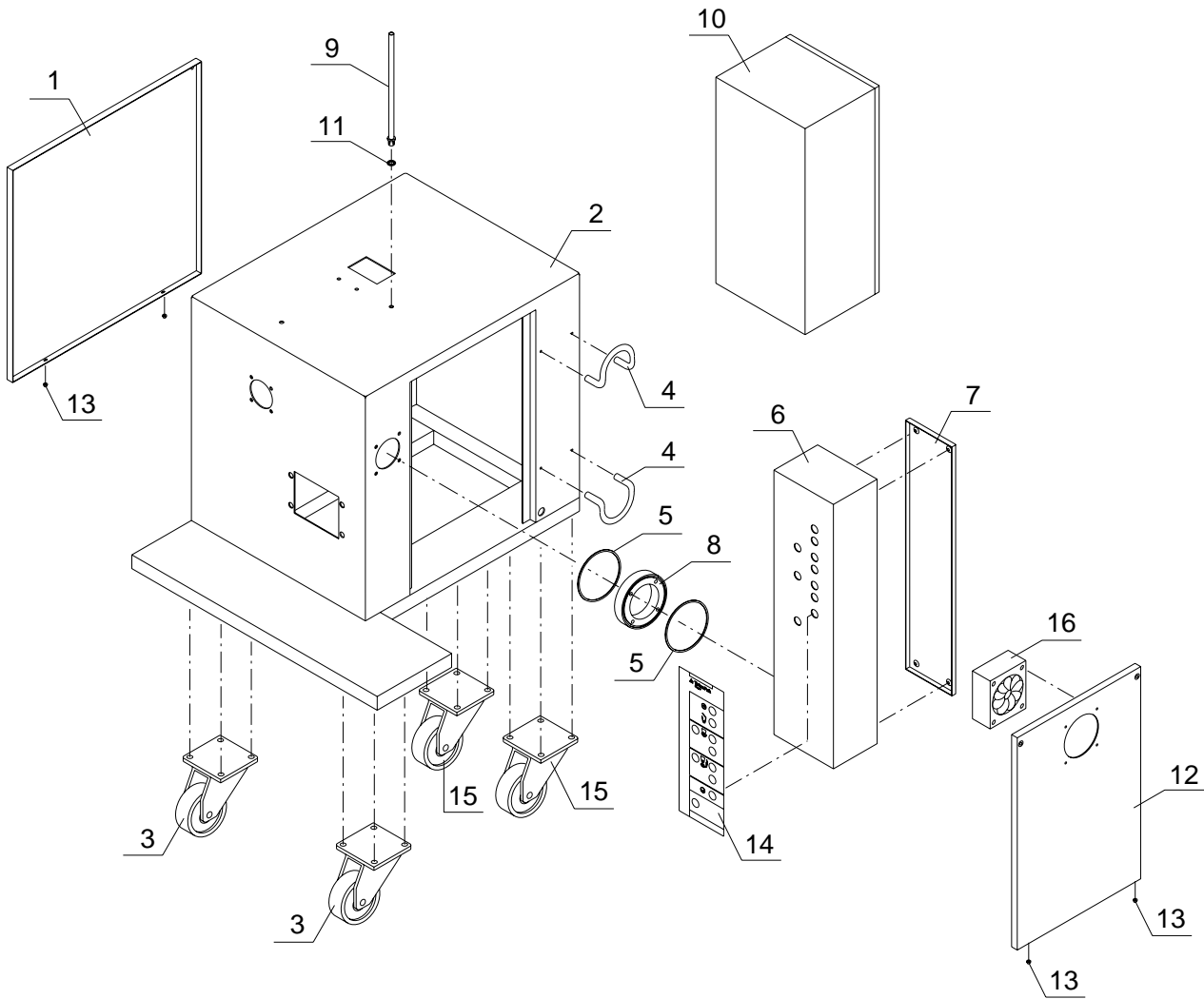


Fig.9.2 - FRAME UNIT

Loading unit - Fig. 9.3

Pos.	Code	Description	Qty
1	12030011	Main hopper cover	1
2	540501059	Hopper cover cap	2
3	540501034	Slow shaft	1
4	12030012	Grid	1
5	540501060	Screw for grid	1
6	017035902	Grid safety microswitch	1
7	540501020	RH hinge pin	1
8	540501021	LH hinge pin	1
9	540501202	Screw feeder	1
10	540500084	Mixer tailstock	1
11	540500081	Stop pin	2
12	540500082	Stop	1
13	540501029	Screw feeder control pin	1
14	540501023	Secondary hopper cover	1
15	540500093	Lever flange	1
16	336010075	Reduction gear MVF49/FRI/28 PAM 80B	1
17	12030010	Main hopper	1
18	12030015	Secondary hopper	1
19	540500056	Agitator bushing	2
20	540501026	Slow agitator	1
21	540501058	Mixer headstock	1
22	014040428	Motor ST80 4P 0,75HP B14	1
23	336001520	Bearing 6003-2RS SKF	4
24	540500080	Agitator flange	1
25	336069720	Gasket	2
26	326019017	Snap ring E17 7435	2
27	540500083	Flange spacer	1
28	326019135	Snap ring I35 7437	1
29	336071121	Corteco 1735/7	2
30	540501044	Agitator pinion	1
31	336017019	Chain 3/8" S /Link 336017025	2
32	540501027	Reduction gear slow shaft pinion	1
33	540501031	Counterflange	1
34	540501033	Washer	2
35	540501032	Double pinion for screw feeder	1
36	12030020	Protective casing	1
37	326019025	Snap ring E25 7435	1
38	336067021	Gasket OR 3043	1
39	336071170	Corteco 2035/7	1
40	540501011	Rod for fixing secondary hopper cover	1
41	336067060	Gasket	1
	12030042	Extension for weight measure	1

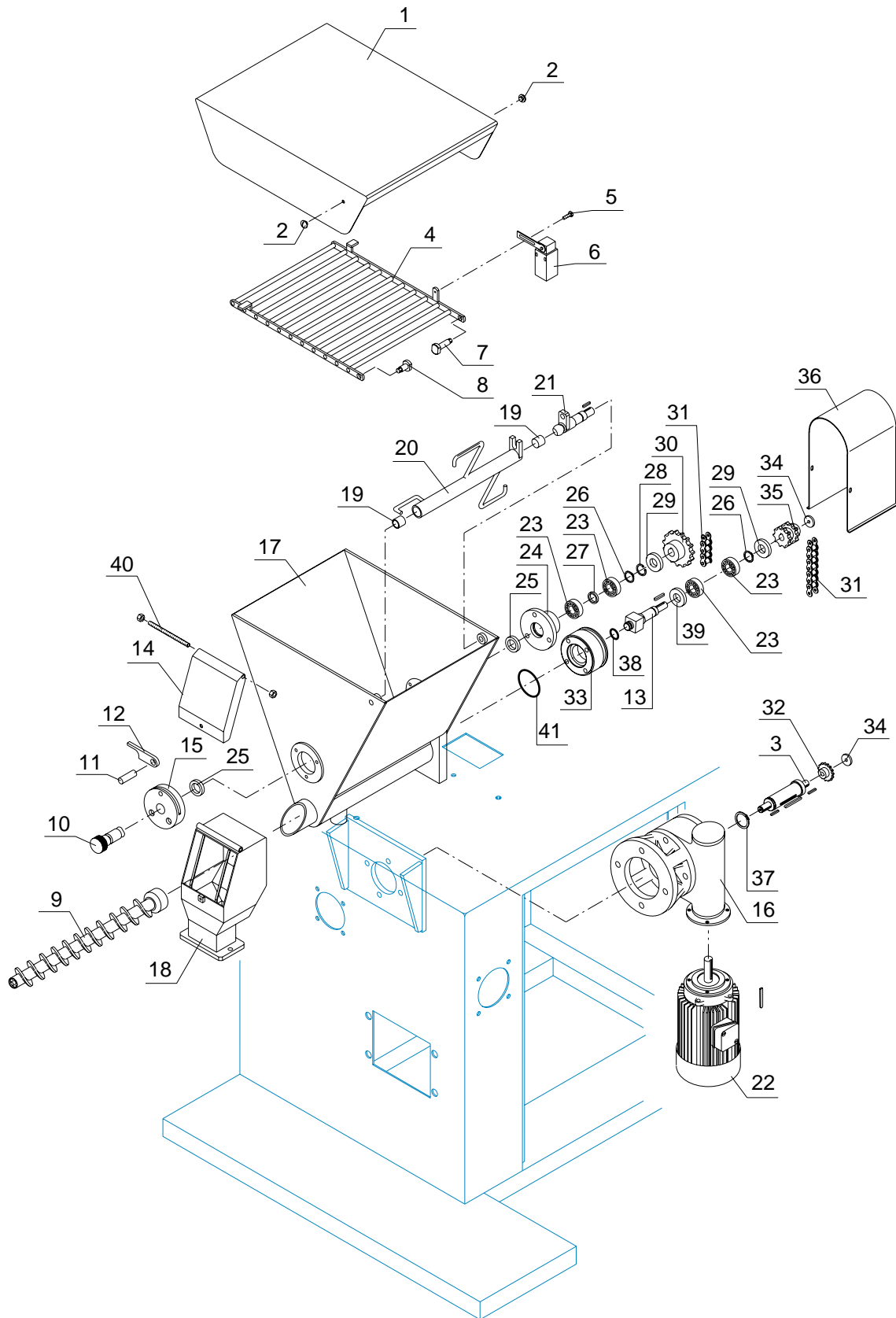


Fig.9.3 - LOADING UNIT

Pump unit - Fig. 9.4

Pos.	Code	Description	Qty
1	016960010	A304 clamp hose adapter	1
2	016060219	A304 clamp	1
3	018020583	Clamp gasket	1
4	014040428	Motor ST80 4p 0,75 kW B14	1
5	12030054	Pump housing vane	1
6	540501213	Rotor	1
7	540501208	Vane	1
8	540501209	Vane	1
9	540501210	Vane	1
10	336067183	O-ring 185	1
11	540501212	Vane pump cover	1
12	336067095	O-ring 147	2
13	12030028	Pump shaft	1
14		Washer	1
15	12030029	Motor coupling flange	1
16	17000005	Reduction gear MVF 49/FR1/24 PAM 80B	1

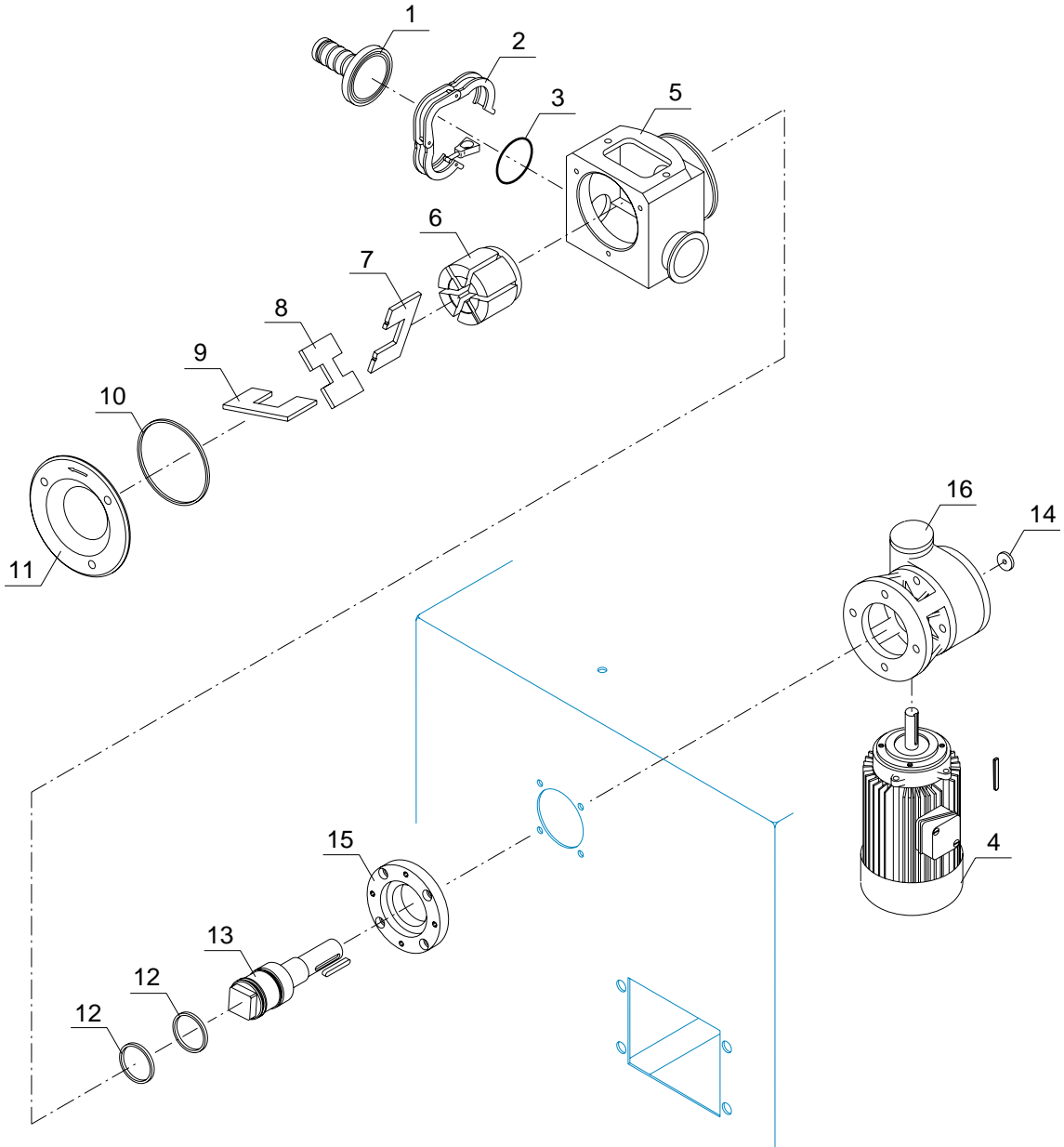


Fig.9.4 - PUMP UNIT

Mixer unit - Fig. 9.5

Pos.	Code	Description	Qty
1	540501075	Reduction for hose adapter	1
2	018020584	Clamp gasket	1
3	016060220	A304 clamp	1
4	12030046	Mixer outlet	1
5	12030004	Insulating spacer	1
6	016060219	A304 clamp	3
7	018020583	Clamp gasket 2"	2
8	12030069	Collector	1
9	17000004	Reduction gear	1
10	540501074	Mixer	1
11	336067012	O-ring 2050	4
12	014940024	Motor	1
13	336067043	O-ring 128	2
14	540501069	Agitator sleeve bushing	1
15	12030044	Shaft	1
16	12030068	Casing	1
17	336071160	Corteco 2047/7 type seal ring	1
18	12030045	Sleeve	1
19	12030065	Support	1
20	540501035	Washer	1

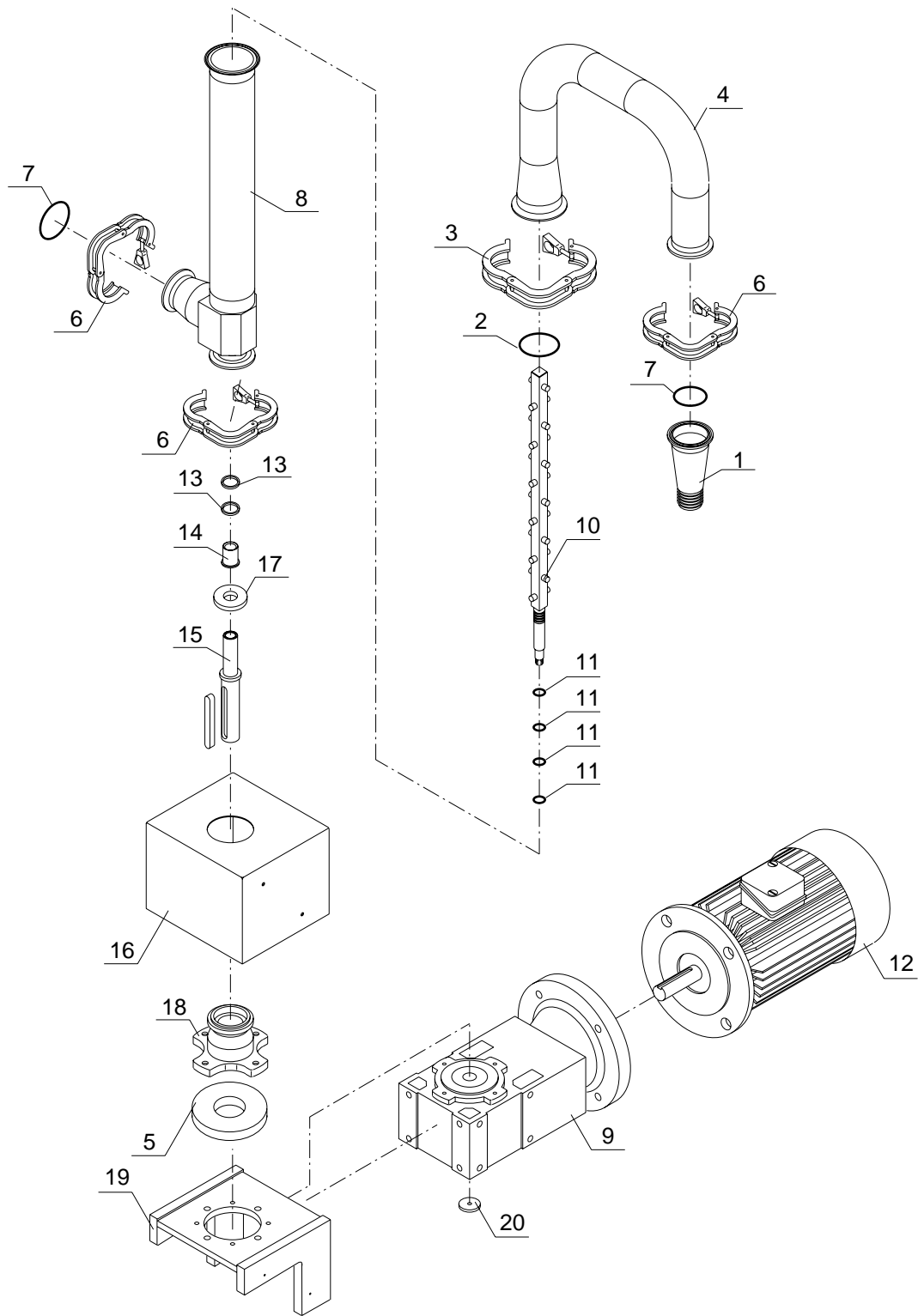


Fig.9.5 - MIXER UNIT