We hope that the information will be of help to you. It is based on concrete data and on the best of our current knowledge.
Read the contents of the manual carefully, including the warnings and recommendations. Also read the conditions of sale, including those governing the warranty.

Machine HOYER COMET N

Serial Number

Tetra Pak Hoyer A/S
Soeren Nymarks Vej, 13
DK 8270 Hoejbjerg
Denmark
Telephone + 45 89 393939
Telefax + 45 86 292200
Telex 68770 Alhoy DK

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20098 San Giuliano Milanese (Milano)
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Telephone +39 2 98292.1
Telefax +39 2 9880171

CN901A

NOTE:

All the drawings show the machine and stations for production on six lanes.

HOYER COMET N

1 - MACHINE IDENTIFICATION DATA

Contents

1.1 Introduction

Thank you for having chosen a Tetra Pax Hoyer machine.
We recommend that you read this manual carefully as it contains essential information regarding the installation, checking and maintenance operations required to keep your machine in perfect working order.
The manual contains tables, drawings and diagrams which will allow you to familiarise yourself with all parts of the machine.
Please let us know if any information is missing or is not sufficiently detailed. Your comments will be used to improve this manual.

1.2 Identification plate

For maintenance and service operations not described in this manual or for any other problem of a technical nature, our Service Department is at your complete disposal for information or to arrange for the necessary measures to be taken.
When contacting our Service Department, please quote the data given on the identification plate affixed to the machine and shown in Fig.1.1.

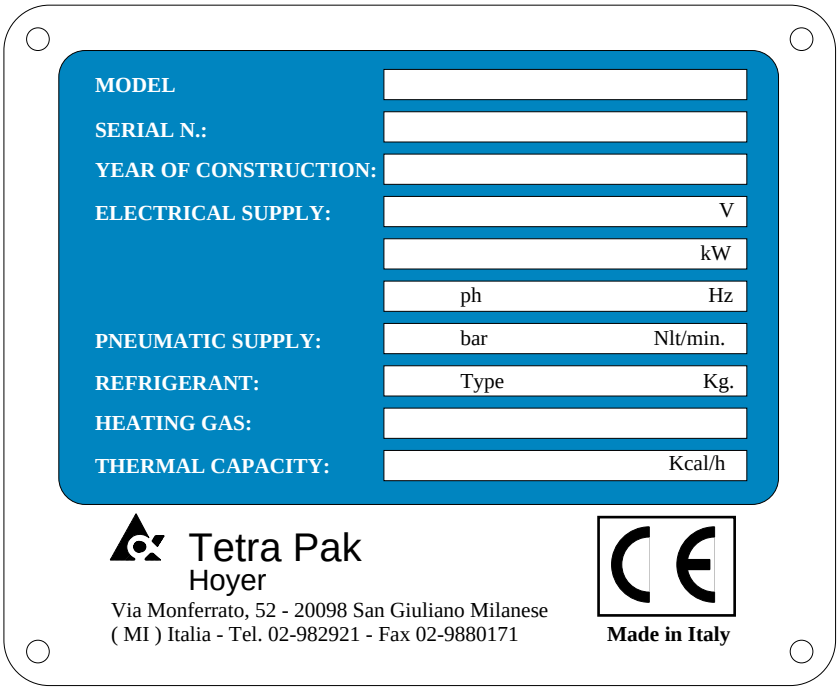

Fig. 1.1 - Identification plate

1.3 Service centres

If you have any requirement or problem that requires our assistance, please contact one of the following service centres, which are authorised to perform maintenance and provide technical service under warranty for Tetra Pak Hoyer machines.

EUROPE and MiDDLE EAST:

Tetra Pak Hoyer ApS
Soeren Nymarks Vej 13
DK-8270 Hoejbjerg
Denmark
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Fax: +45 86 29 22 00
Tlx: 6 87 70 alhoy dk

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Fax: + 39 2 98 80 171

Tetra Pak Hoyer France
c/o Tetra Laval Service SARL
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SOUTH AMERICA:

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Tetra Pak Hoyer Shanghai
Shanghai Overseas Chinese Mansion
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Tetra Pak Hoyer Service
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Fax: +82 2 796 0365

THAILAND:

Tetra Pak Hoyer (Thai) Ltd.
1042 Soi Poosin, Sukhumvit Soi 66/1
Bangchak, Prakanong
Thailand
Phone: +66 2 3611680
Fax: +66 2 3612310

C.I.S.:

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R-11921 Moscow
C.I.S.
Phone: +7 502 2242160
Fax: +7 502 2242162

HOYER COMET N

2 - GENERAL

Contents

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 with the machine, that the **HOYER COMET N** machine is designed and manufactured in accordance with the provisions of Directive 89/392/EC (Machinery Directive) and with the above-mentioned standards.

2.2 Preliminary points

- The illustrations and drawings of the machine are intended for general reference only 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 prior notice;
- The drawings and all other documents provided as a part of this machine remain the property of Tetra Pak Hoyer and must not be passed on to third parties without the written permission of Tetra Pak Hoyer.
- The manual includes instructions for all accessories mounted on the standard machine.
- **The machine is covered by warranty as laid down in the purchase contract. Any repair work not authorised by Tetra Pak Hoyer carried out during the warranty period will automatically invalidate the warranty.**

2.3 General safety rules

- THESE SAFETY RULES HAVE BEEN DRAWN UP IN YOUR INTEREST. Strict observance will reduce the risk of accident to yourself or to others.
- DO NOT attempt to move, install or operate the machine before reading and assimilating the contents of this manual. Ask your superior in case of doubt;
- make sure that all guards and safety covers are in place BEFORE starting the machine;
- NEVER leave tools, mechanical parts or other foreign materials on or inside the machine;
- in the event of a malfunction, press the emergency stop button.
- NEVER PUT YOUR HANDS INSIDE THE MACHINE WHEN IT IS IN OPERATION;
- exercise caution even when the main switch located on the tunnel is in the "OFF" position, as the supply conductors will still be live;
- shut off the compressed air supply before disconnecting any pneumatic component;
- make sure that all guards and safety covers are correctly in place BEFORE restarting the production cycle subsequent to maintenance or repair operations;
- proceed with caution at all times. Remember that you are responsible for your own safety and for that of your colleagues;
- make sure that applicable regulations are observed when moving or lifting the machine.

2.4 Special warnings

- All personnel operating the machine must be familiar with the general safety rules and must observe them strictly. Failure to follow these rules may result in personal injury or damage to machine components;
- maintenance work must be performed with the machine turned off. The main switch must be in the "OFF" position, the tunnel air valve closed and a “work in progress” sign affixed to the machine;
- the user must make sure that all the instructions given in the manual are scrupulously observed;
- users will be solely responsible for risks caused by tampering with the safety system;
- The safety of other plant used together with this machine, unless supplied directly by Tetra Pak Hoyer, is the responsibility of the customer.
- The pressure, speed, temperature and voltage limits and all instructions given are indispensable for correct operation of the machine and must always be complied with by the customer.
- Ambient conditions must be taken into consideration during installation.
- National legislation governing this type of machine must be observed.

2.5 Ambient operating limits

The machine is suitable for operation in the following ambient conditions:

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

☞ **NOTE**:

Tetra Pak Hoyer will accept no responsibility for damage or injury caused by failure to comply with the above warnings.

HOYER COMET N

3 - DESCRIPTION OF THE MACHINE AND TECHNICAL DATA

Contents

3.1 Description of the machine

The HOYER COMET N is a machine used for filling a variety of ice-cream containers.
The structure of the machine, the mechanical components and the commercial components are all fabricated in stainless steel or corrosion proof materials. All the parts directly in contact with the product are in corrosion proof material or other materials approved for use in the food industry.
In order to prevent accidental contact between parts of the body and any moving parts in the machine, the machine itself has been fitted with protective panels and shields, screw-down covers and/or systems requiring special tools and the deliberate action of the operator to remove them.
The machine consists of:

1. Steel structure with adjustable feet *(Part.1 Fig.3.1)*.
2. Mechanical transmission system driven by an electric motor fitted with an inverter.
3. Indexing gear unit for jog feed.
4. Set of lamellas with slots *(Part.2 Fig.3.1)* specifically designed to hold the type of container in production. The lamellas are supported by two members which guide the chains driven by the gear wheels..
5. Vacuum generator.
6. Pneumatic system.
7. Control panel with operator interface program *(Part.3 Fig.3.1)*.

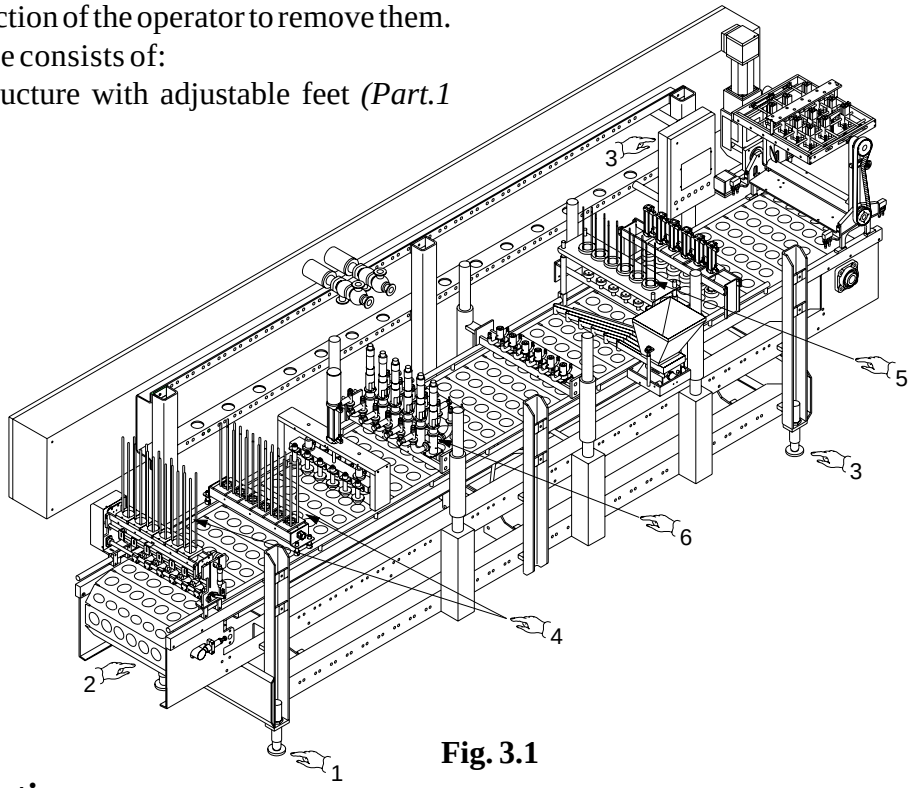

Fig. 3.1

3.2 Operation

- A stack of empty containers and a stack of covers are placed manually in the relative magazines *(Part.4 and Part. 6, Fig.3.1)*.
- The lamellas, with the appropriate slots *(Part.2 Fig.3.1)*, move forward with a jogging action. During the standstill period, an empty container per line is placed in the slot.
- The lamella *(Part.2 Fig.3.1)* with the empty containers is jogged forward once (a number of times) and stops under the dosing stations *(Part.5 Fig.3.1)*. The dosers fill the containers with the required quantity of ice-cream, chocolate and granules.
- The lamella with the full containers is jogged forward once (a number of times) and stops under the lid feed station *(Part.6 Fig.3.2)*, One lid per lane is positioned over the containers. At the next station, the lids are pressed onto the container. (An ink-jet date stamping station is also available on request.).
- At the end of the conveyor, the sealed containers are ejected by an electrically powered combined lifting, extraction and transfer system.

3.3 Technical data

Standard power supply:
220 - 440 V / 3 Ph / 50-60 Hz

Installed power

Main motor:	2,2 kW
Belt motor:	0,37 kW
Total installed power:	9 kW

Net weight: 3500 Kg

Gross weight: 4000 Kg

Compressed air

Inlet pressure:	6 bar minimum
Consumption:	1300 Nl/min
Inlet pipe diameter:	1/2" gas

Dimensions

A (length)	= 5750 mm
B (width)	= 1475 mm
C (height)	= 2000 mm

No. of operators: 2

Equivalent A-weighted sound pressure level at 1 metre: 67.5 dBA
Maximum instantaneous C-weighted sound pressure level at the work stations : lower than 130 dB/20uPa.

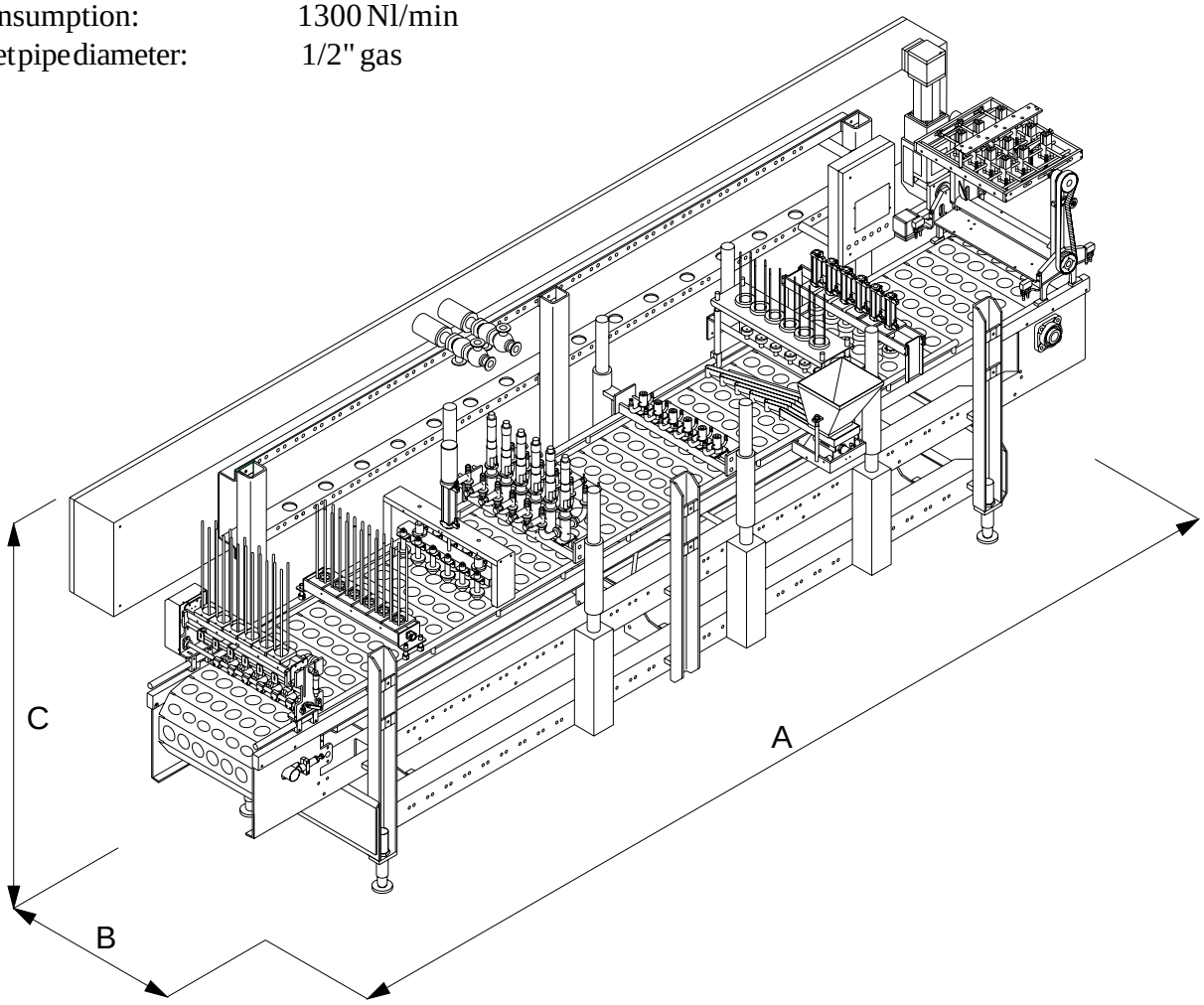

Fig. 3.2

☞ **NOTE:**

Fig. 3.2 shows a machine for the production of cones or cups.

3.4 Programming and control panel

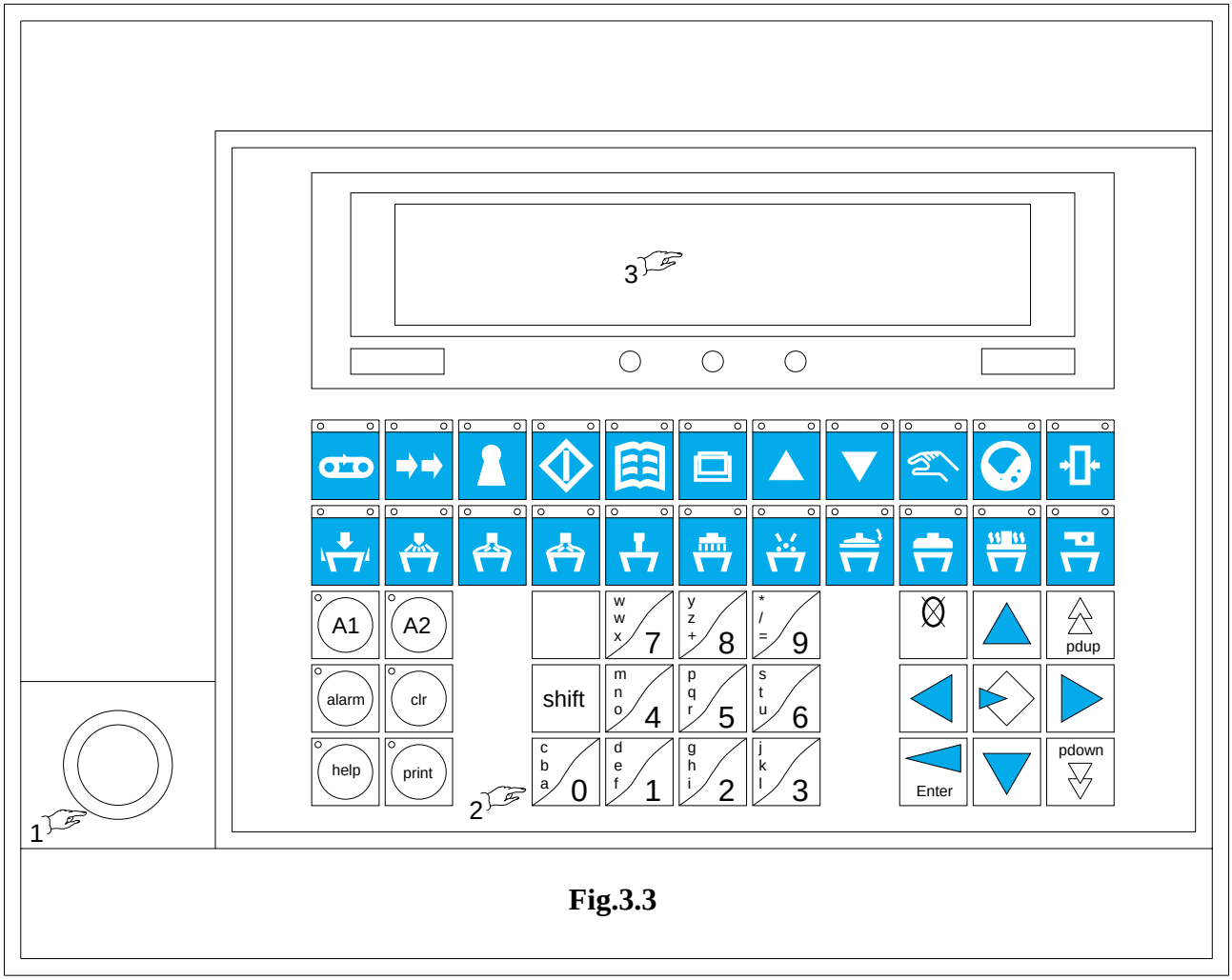

Fig.3.3

Start/Stop main motor

Jog main motor

Select production cycle Auto/Manual

Start/Stop stations and C.I.P. cycle

Data settings

Select format

Save data

Apply data

Position station (for automatic start-up of the production cycle), password “1 2 3 4”


Set C.I.P. data


Reset


Start/Stop loading cones-cups


Start/Stop spraying chocolate


Start/Stop doser 1


Start/Stop doser 2


Start/Sop pencil filler


Start/Stop topping


Start/Stop granule


Start/Stop loading lids


Start/Stop pressing lids


Start/Stop sealing head pressing


Start/Stop date stamp


Shift to the previous paragraph

Go to the previous page


Shift on the left


Activate value modification


Shift on the right

Confirm data


Shift to the next paragraph

Go to the next page

Display alarm messages

Clear

Display help

Print

A1: Chocolate tank heaters

A2: Ice cream by-pass

Pos.1: Emergency push-button

Pos. 2:Alphanumeric keyboard

Pos. 3:Display

HOYER COMET N

4 - INSTALLATION

Contents

4.1 Unpacking and delivery checks

The HOYER COMET N machine and the various operating stations are transported in special containers, generally wooden crates. Unpacking must be done near to the final installation position of the machine. The crates can be easily transported by a lift truck.
When the crate has been positioned correctly, unpack as follows:

a. Unnail the lid and remove it. Do the same thing 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 and other components from the crate.
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. Visually inspect all the electrical components to make sure that they are not damaged.
g. If any part/component is missing, stop unpacking and immediately notify Tetra Pak Hoyer.
h. If the machine has been damaged during transit, notify the insurance company immediately. Do not proceed beyond unpacking until you are authorised to do so by the insurance company.

4.2 Transport and installation

The following measures must be adopted during the installation of the machine:

a. Position the machine at the place of production. Move the machine using a fork lift truck of suitable capacity *(Part.1 Fig.4.1 fork positions)*, checking that there is sufficient space to remove the guards and allow ease of access to the internal machine parts.
b. Adjust the feet *(Part.2 Fig.4.1)* until the machine is perfectly level both longitudinally and transversally.

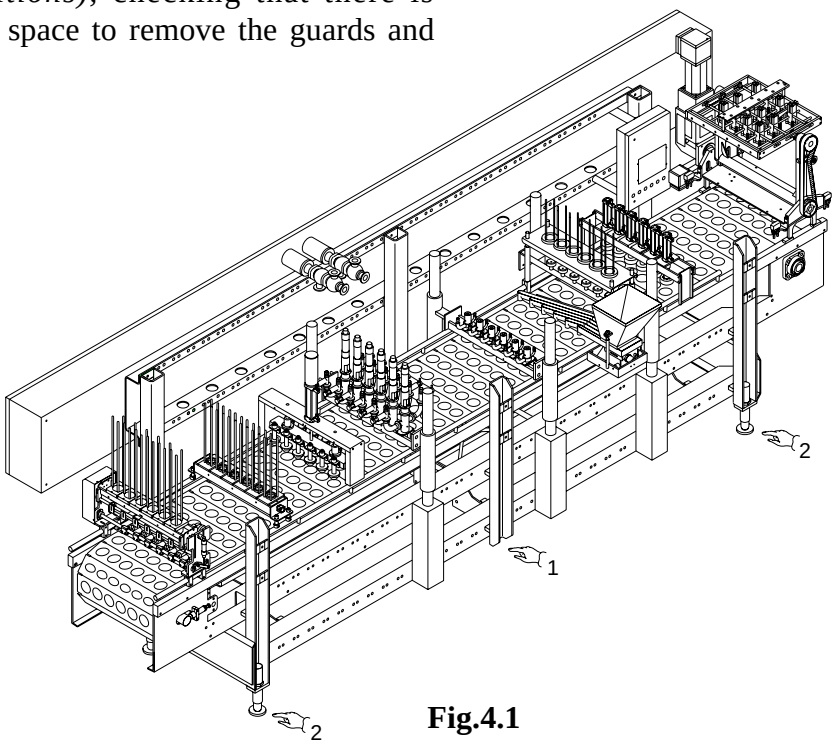

Fig.4.1

4.3 Electrical connection

The machine's electrical system has been factory checked by Tetra Pak Hoyer engineers.
The machine's components are electrically protected against short-circuits.

WARNING:

The connection must be made exclusively by competent technicians familiar with accident prevention legislation.

It is recommended that the power is taken from a master switch fitted with thermal overload cutout and ultra-rapid fuses of adequate amperage.

WARNING:

The differential cutout switch must be class "A" and suitable for protecting inverter electronic power circuits.

- Check the data on the identification plate *(Fig.4.2)* to ensure that the machine is compatible with the factory voltage.
- Connect the three phases to terminals R S T and the earth wire to the earth terminals in the electric panel.

For the minimum sections of the power supply cable, refer to the voltage and power values reported on the identification plate *(Fig.4.2)* and the standards in force in the country of installation.

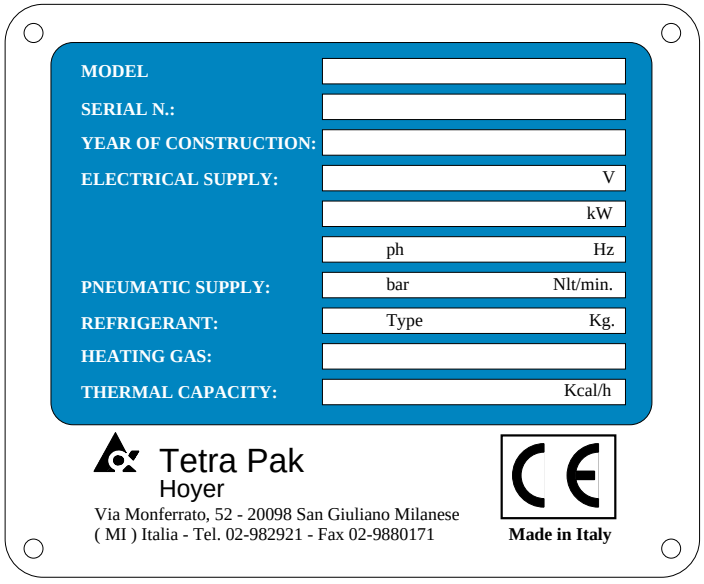

Fig. 4.2

4.4 Pneumatic connection

Connect the machine to the compressed air supply.
The minimum working pressure is 6 bar.
If the pressure is less than 4 bar, a factory-set pressure switch will disable the machine's functions.
Refer to **CHAPTER 3 - DESCRIPTION OF THE MACHINE AND TECHNICAL CHARACTERISTICS** for air consumption and pipe sizes**.**

4.5 Checking the direction of rotation

After having made the electrical and pneumatic connections, check the direction of rotation of the machine as follows:

- Make sure that there are no foreign bodies which may prevent the machine from operating.
- Release the emergency stop button.
- Rotate the main switch.
- Slowly turn on the air supply.
- Press the jog button and check that the lamellas move from left to right *(Part.1 Fig.4.3)* when looking at the machine from the operator's side.
- Press the stop to stop the chain.

WARNING:

If the direction of rotation is incorrect, invert the two phases at the terminal board.
This operation must be carried out exclusively by competent technicians familiar with accident prevention legislation.

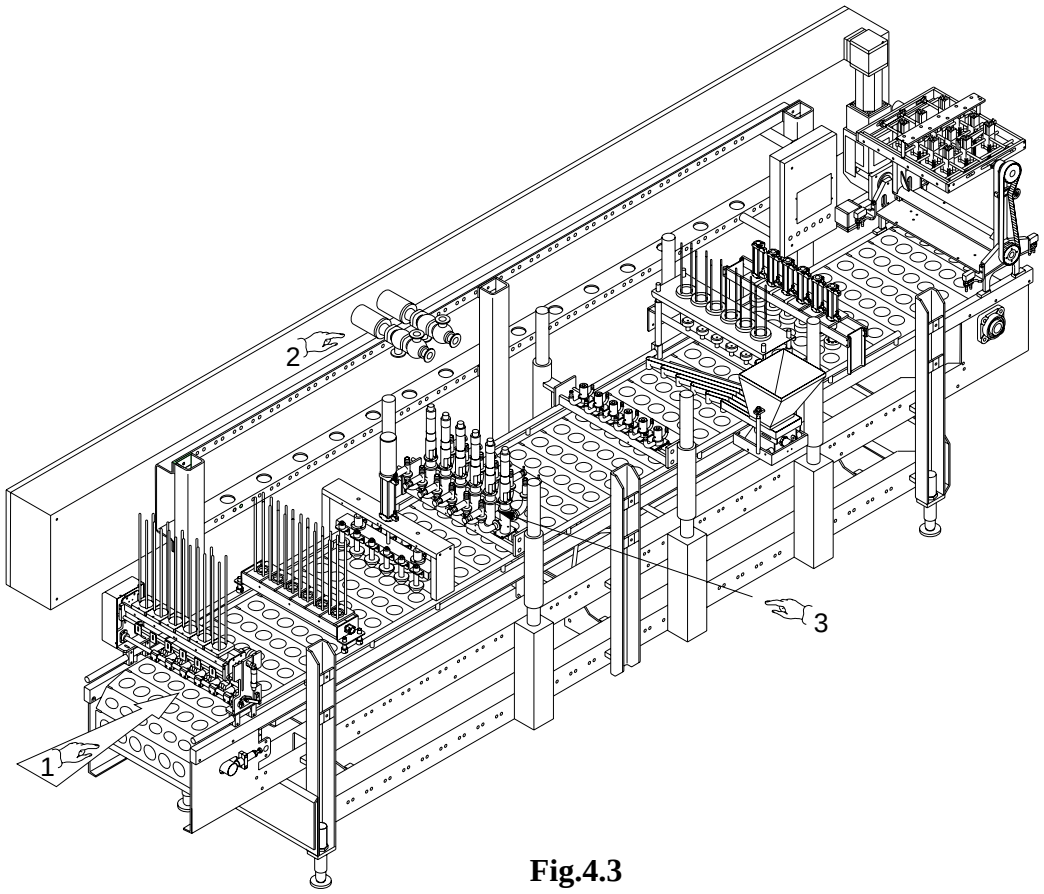

Fig.4.3

4.6 Freezer connection

Make sure that the ice-cream pipes from the bypass valve *(Part.2 Fig.4.3)* to the dosers *(Part.3 Fig.4.3)* are connected as required.
Connect the ice-cream pipes from the freezers to the ice-cream dosers through the bypass valves *(Part.2 Fig.4.3)* located above the pneumatic panel.

Before starting-up the freezers connected to the machine, place a container under the ice-cream bypass outlet pipe and another under the product collection chute.

HOYER COMET N

5 - ADJUSTMENT AND FORMAT CHANGE PROCEDURES

Contents

5.1 Control panel adjustments

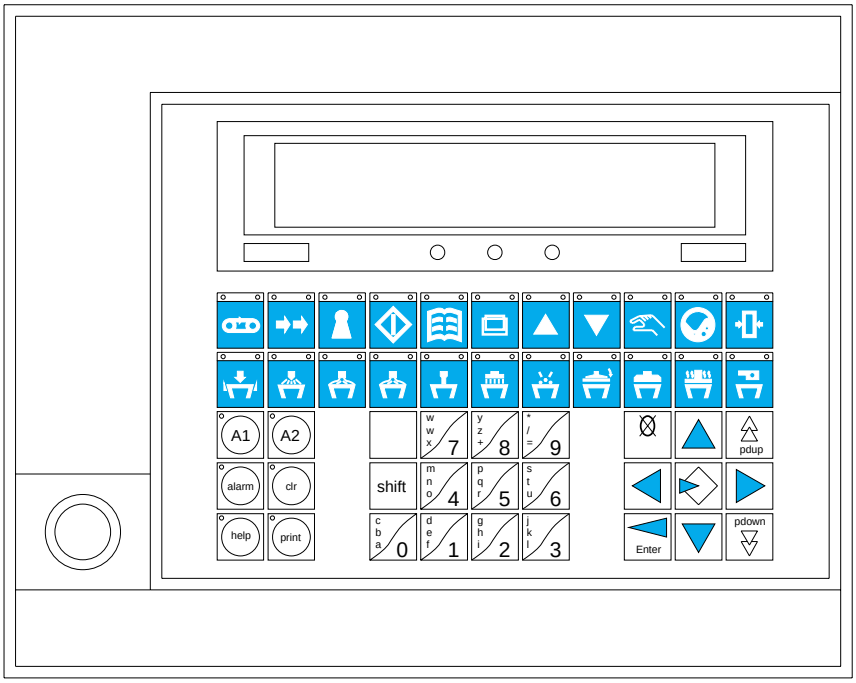

Fig. 5.1

5.1.1 PLC settings

The various functions of the production line are controlled by a PLC. Use the keypad (*Fig. 5.1*) to programme the PLC as described below.

NOTE:

The programme is set in the factory. Every time the control panel is turned on, the main screen with the text COMET N, the encoder degrees and machine status will be displayed.
Two led's come on: the "POWER" led indicating that the power is on and the "BATTERY" led which will come on when the battery is low. The "X O" led will flash if there is no communication between the keypad and the PLC.

: START/STOP MAIN MOTOR

Starts or stops main motor.

: JOG MAIN MOTOR

Jogs or stops the step-by-step chain.

: SELECT PRODUCTION CYCLE AUTO/MANUAL

When the power is on, the led on the keypad display will flash if the machine is in manual mode.
Press this key to display the machine's current status on the display.

To put the machine in automatic mode, press ; the led will stay on without flashing and the display will indicate that the machine is in automatic mode.

NOTE:

The keys at the top (F1 through F11) are for functions to be added to the machine.

: START/STOP STATIONS AND CIP CYCLE

Turns stations F12 through F22 on and off. This key is also used for the CIP washing cycle at the end of production.

To perform CIP washing, stop the stations by pressing the key, then enter the required wash time using the key.

After setting the duration press key to begin washing.

: **DATA SETTINGS**

Press this key to display a series of video pages on all the stations on the machine.
Use the Pgup Pgdn keys to reach the station you wish to edit or enable.

Press the key to enable data editing. When you have finished editing data, press Enter to confirm.

Press the key "**Save data**" and Enter to save the format in the operator panel and then press key: "**Apply data**" to transfer the format to the PLC.
Press CLR to go back to the first page of the display, indicating encoder degrees and machine status.

: **SELECT FORMAT**

Press this key to call up a video page containing formats provided by Tetra Pak Hoyer and those entered by the customer for production.
The following example will appear on the next page of the video:

CODE: 1
DESCRIPTION: STANDARD CONE

: **SAVE DATA**

After entering the required format, save it by pressing and then Enter; next press to transfer the format to the PLC.

: **APPLY DATA**

Transfers data to the PLC.

: **POSITION STATIONS (for automatic start-up of the production cycle); password "1 2 3 4"**

Enter the password "1 2 3 4" to view the video page containing all the stations installed on the machine. Enter the progressive number of steps from the first to last station, and when you have finished entering the steps of the last station, press Enter to store the production cycle in memory automatically.

: **SET C.I.P. DATA**

To perform CIP washing, stop the stations by pressing , then enter wash time settings using the key.

After setting wash time, press to begin washing.

: **RESET**

Resets alarms, broken microswitches, inverter malfunctions, etc.
When an alarm is displayed, the technician must check and repair the problem as necessary.

Press RESET on the display to remove the alarm from the display.

: **START/STOP LOADING CONES/ CUPS**

Starts or stops loading of cones or cups if enabled by the current format.

: **START/STOP SPRAYING CHOCOLATE**

Starts or stops the chocolate spray device if enabled by the current format.

 **START/STOP DOSER 1**

Starts/stops doser 1 if enabled by the current format.

 : **START/STOP DOSER 2**

Starts/stops doser 2 if enabled by the current format.

 : **START/STOP PENCIL FILLER**

Starts/stops pencil filler if enabled by the current format

 **START/STOP TOPPING (chocolate/jam)**

Starts/stops topping if enabled by the current format.

 : **START/STOP GRANULE**

Starts/stops granule station if enabled by the current format.

 : **START/STOP LOADING LIDS**

Starts/stops the lid loading station if enabled by the current format.

 : **START/STOP PRESSING LIDS**

Starts/stops the lid press if enabled by the current format.

 : **START/STOP DATE STAMP**

Starts/stops date stamp if enabled by the current format.

 : **START/STOP SEALING RESISTANCE (optional)**

Starts/stops sealing resistance if enabled by the current format.

A1: **CHOCOLATE TANK RESISTANCES**
Enter all the resistances on the machine: the resistances in the chocolate spray tank, the topping tank, and the sprays are controlled by a thermometer in the tank.

A2: ICE CREAM BY-PASS
This push button works automatically and manually. When enabled, it energises the by-pass valve that closes/opens the ice cream/mix by-pass in the dosers.
When the doser is ready (cooled to the required temperature) production may begin.

STANDARD PROGRAM FOR CONE FORMAT

Page 3/23 CONE DISPENSER

CONSENT:	1	
CONE RELEASE:	ON: 280	OFF: 325
CONE DOWNLOAD:	ON: 355	OFF: 200
WAFER CONTROL:	ON: 060	OFF: 150
CONE BLOW:	ON: 035	OFF: 055

Page 4/23 CHOCO SPRAYER

CONSENT:	1	
SPRAYER DOWN:	ON: 330	OFF: 080
SPRAYER OPEN:	ON: 350	OFF: 060
SPRAYER PUMP:	ON: 010	OFF: 100

Page 6/23 DOSER 1

CONSENT:	1	
DOSER DOWN:	ON: 330	OFF: 080
DOSER OPEN:	ON: 025	OFF: 070

Page 9/23 TOPPING 1

CONSENT:	1	
TOPPING OPEN:	ON: 340	OFF: 070

Page 10/23 DRY NUT 1

CONSENT:	1	
DRY NUT OPEN:	ON: 000	OFF: 070

Page 11/23 LID DISPENSER

CONSENT:	1	
LID DOWN:	ON: 310	OFF: 110
LID ROTATION:	ON: 355	OFF: 140
LID VACUUM:	ON: 240	OFF: 105
LID BLOW:	ON: 000	OFF: 000

Page 12/23 CRIMPER

CONSENT:	1	
CRIMPER DOWN:	ON: 010	OFF: 060

To save the data entered in the recipe, press “ENTER” >  > “ENTER” >  : the data is now memorised in the recipe.

STANDARD PROGRAM FOR CUP FORMAT

Page 1/23 DATA SETTING

CODE:	1
DESCRIPTION:	STANDARD CUP

Page 2/23 GENERAL PARAMETERS

SAFETY CAM:	ON: 220	OFF: 330

Page 4/23 CUP DISPENSER

CONSENT:	1	
CUP RELEASE:	ON: 060	OFF: 130
CUP VACUUM.	ON: 010	OFF: 190
CUP BLOW:	ON: 000	OFF: 000

Page 6/23 DOSER 1

CONSENT:	1	
DOSER DOWN:	ON: 330	OFF: 080
DOSER OPEN:	ON: 025	OFF: 070

Page 9/23 TOPPING 1

CONSENT:	1	
TOPPING OPEN:	ON: 340	OFF: 070

Page 10/23 DRY NUT 1

CONSENT:	1	
DRY NUT OPEN:	ON: 000	OFF: 070

Page 11/23 LID DISPENSER

CONSENT:	1	
LID DOWN:	ON: 310	OFF: 110
LID ROTATION:	ON: 355	OFF: 140
LID VACUUM:	ON: 240	OFF: 105
LID BLOW:	ON: 000	OFF: 000

Page 12/23 CRIMPER

CONSENT:	1	
CRIMPER DOWN:	ON: 010	OFF: 060

Page 15/23 CUP EJECTION

CONSENT:	1	
CUP EJECTION:	ON: 075	OFF: 260

To save the data entered in the recipe, press "ENTER" >  > "ENTER" >  : the data is now memorised in the recipe.

5.2 Product change

The HOYER COMET N CONE – CUP machine fills and seals containers (cones and cups).
It can produce six lanes of cones, cups or tubes up to 80 mm in diameter or four lanes of cones, cups or tubes up to 115 mm in diameter.
Standard cone production involves use of the following stations:

- cone feed (*Part. 1,Fig. 5.1a*);
- gauge and chocolate spray *(Part. 3, Fig. 5.1a*);
- one or more stations for dosing ice cream or ice cream mixes (*Part. 4, Fig. 5.1a*) in one or two flavours;
- topping (*Part. 5, Fig. 5.1a*);
- granule (*Part. 6, Fig. 5.1a*);
- lid feed (*Part. 7, Fig. 5.1a*);
- lid closure (*Part. 8, Fig. 5.1a*);
- product ejector *(Part. 9, Fig. 5.1a).*

Standard cup production involves the use of the following stations:

- cup feed (*Part. 2, Fig. 5.1a*);
- stations for dosing ice cream or ice cream mixes (*Part. 4, Fig. 5.1a*) in one or two flavours;
- lid feed (*Part. 7, Fig. 5.1a*);
- lid closure (*Part. 8, Fig. 5.1a*);
- product ejector (*Part. 9, Fig. 5.1a*).

When changing to a cone format of a different size, it is necessary to replace the slot set, cone feed magazines, gauging pads, lid feed magazines, and crimpers.
When changing format from cones to cups, it is necessary to replace the slot set, assemble the cup feed with its suction cup holders in place, replace the lid feed magazines, replace the cone lid crimpers with lid presses, and replace the cone ejector with the cup ejector, replacing the expulsion plates.
The HOYER COMET N CONE – CUP machine may be equipped with the following optional devices in addition to or in place of the standard stations:

- Tube feed and gauge;
- Chocolate sprayers for cups;
- Doser for two concentric flavours;
- Decorator;
- Pencil filler;
- Rotary dosing device;
- Lid feed for flared products;
- Lid sealing station;
- Date stamp;
- Pick-up release.

☞ **NOTE:**

If the machine is set up for cone and cup production, the topping and granule stations may be used to decorate standard cups.

As the machine is controlled by an operator interface programme, a different operating programme must be established for each product (format).

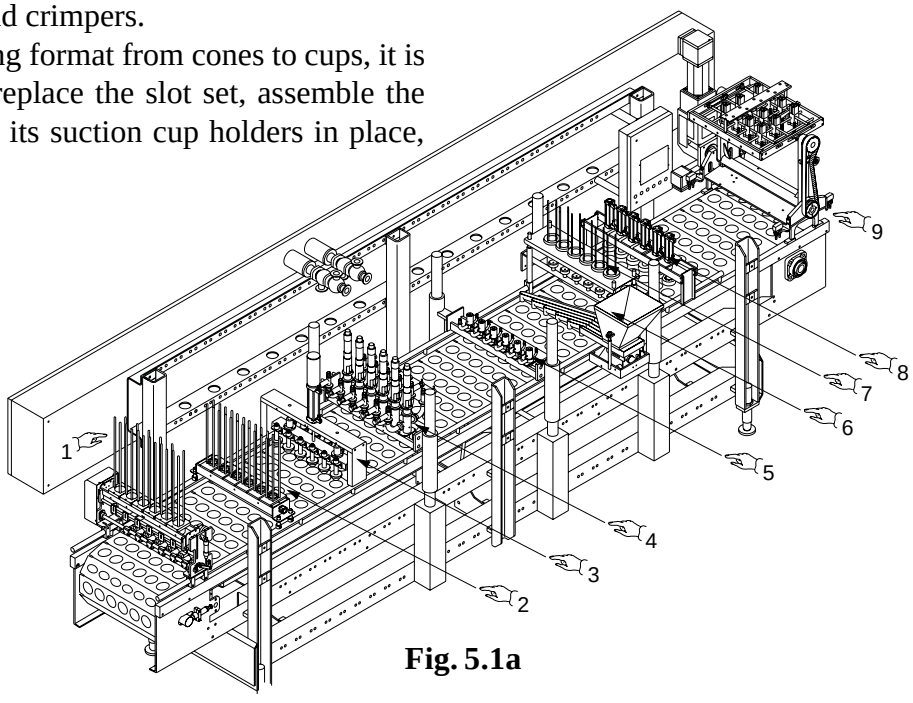

Fig. 5.1a

5.3 Mechanical and pneumatic adjustments

5.3.1 Cone feed station adjustment

Press button  *(Fig. 5.14)* on the control panel to start the cone feed station.

Press jog button  *(Fig. 5.14)* until the upper cone stop blades open.

With the machine stopped and the cone stop blades open (*Part. 2, Fig. 5.2*), insert two cones in the magazine.

Check that the cone in the released position rests correctly in the calliper holes of the oscillating levers *(Part. 1, Fig. 5.2)*, then check that the cone in the released position is 5 mm below the cone stop blade.

Make sure that the oscillating cone release levers hold the cornets without exerting too much pressure .

If the distance is greater than 5 mm, lower the cone magazine (*Part. 3, Fig. 5.2*). If the released cone is between the cone stop blades, raise the cone magazines to the required distance.

At this point check that at low speed the cone is released immediately after the lamella chain has stopped.

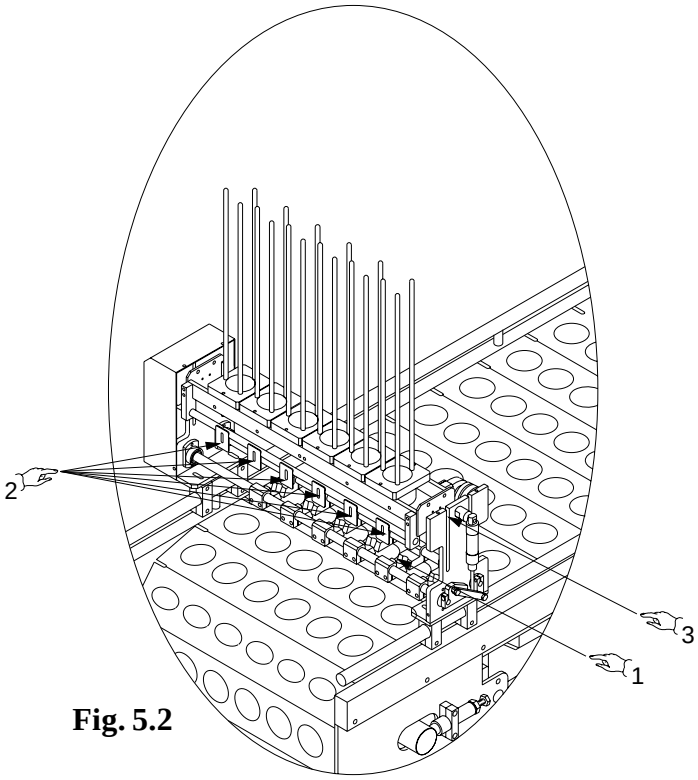

Fig. 5.2

5.3.2 Cup feed station adjustment

Use the jog command  *(Fig. 5.14)*,to position the suction cups at their maximum height.

Then place an ice cream cup in the magazine and check that the blades *(Part. 1, Fig. 5.3)* hold the cup without squashing it. Adjust the height of the cup feed using the nuts and lock nuts *(Part. 2, Fig. 5.3)* such that the suction cups touch the bottom of the container.

Follow the above procedure when changing format.

NOTE:

If the machine is set up to produce different types of cups, it is advisable to make a note of the different adjustments in order to make format changes easier and quicker.

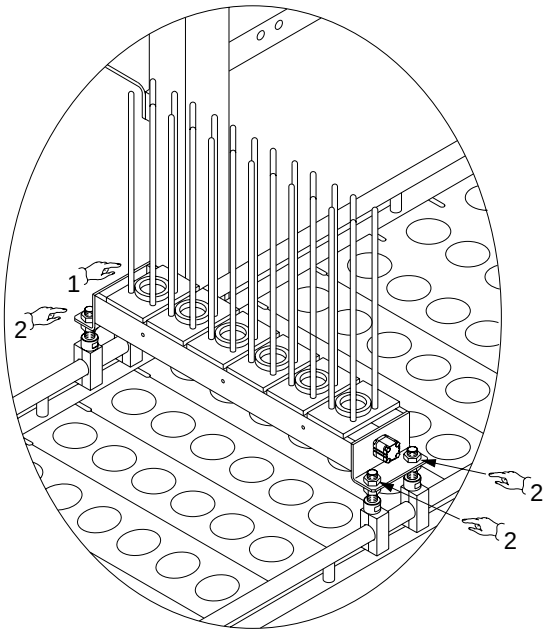

Fig. 5.3

5.3.3 Tube feed and gauge station

Use the jog command  *(Fig. 5.14)*, to position the container pick-up unit at its maximum height.
Then place two containers in the magazine and check that the blades hold the container without squashing it. Adjust the height of the container feed using the nuts and lock nuts *(Part. 2, Fig. 5.3)* such that the suction cups touch the bottom of the container.
To adjust the maximum height of the container pick-up unit, loosen the nut (*Part. 2, Fig. 5.3a*) and adjust the tie rod (*Part. 1, Fig. 5.3a*) until the desired position is obtained.
Use nuts and lock nuts (*Part. 4, Fig. 5.3a*) to adjust gauging cones.
The gauges are mounted on springs so that they will fit the shape of the container inside the slot perfectly (even if pick-up height is changed).
Follow the above procedure when changing format.

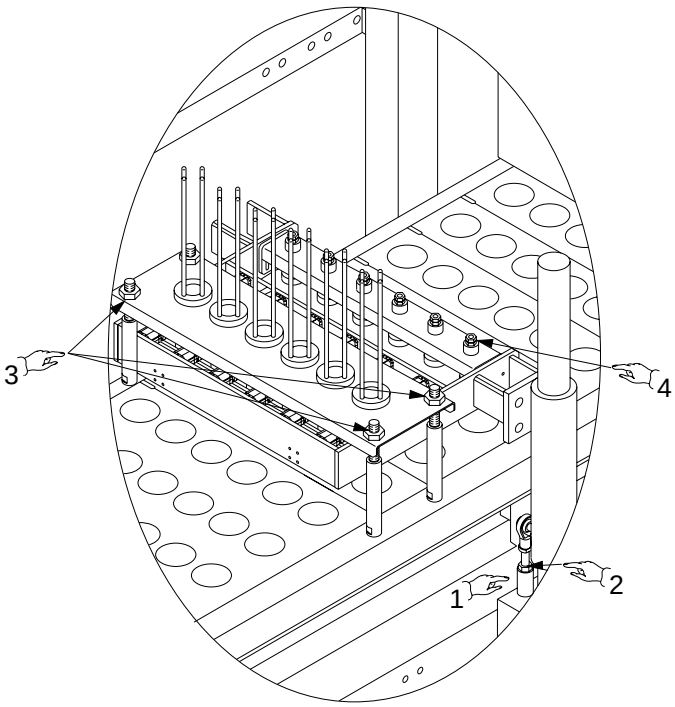

Fig. 5.3a

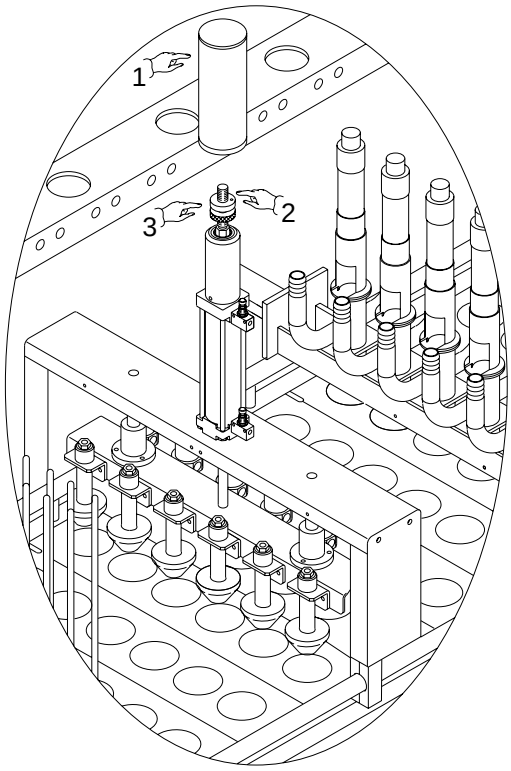

Fig. 5.4

5.3.4 Cone gauging – chocolate spray station adjustment

The cone gauging station is necessary for spreading the mouth of the paper wrapped around the cones, which tends to fold over during feeding.
The height of the spray nozzle can be adjusted by removing the cover (*Part. 1, Fig. 5.4*), slackening the screw *(Part. 2, Fig. 5.4)* and rotating the ring nut *(Part. 3, Fig. 5.4)* clockwise to increase the travel of the pneumatic actuator or anticlockwise to reduce it.
At the end of the adjustment, tighten the screw (*Part. 1, Fig. 5.4*).
Use the pneumatic control to change spraying angle.
The gauges are mounted on springs so that they will fit the shape of the cone inside the slot perfectly (even if chocolate spray height is changed).

5.3.5 Ice cream dosing/decorating station adjustment

To adjust doser/decorator height, slacken the nut *(Part. 1, Fig. 5.5)* and adjust the tie rod *(Part. 2, Fig. 5.5)* until the required position is reached.
At the end of the adjustment, tighten the nut *(Part. 1, Fig. 5.5)*.

The normal position of the end part of the dosing nozzles when in the dosing position should be inside the container below the lid positioning level in order not to cause damage to the ice cream decoration after pressing the lid.

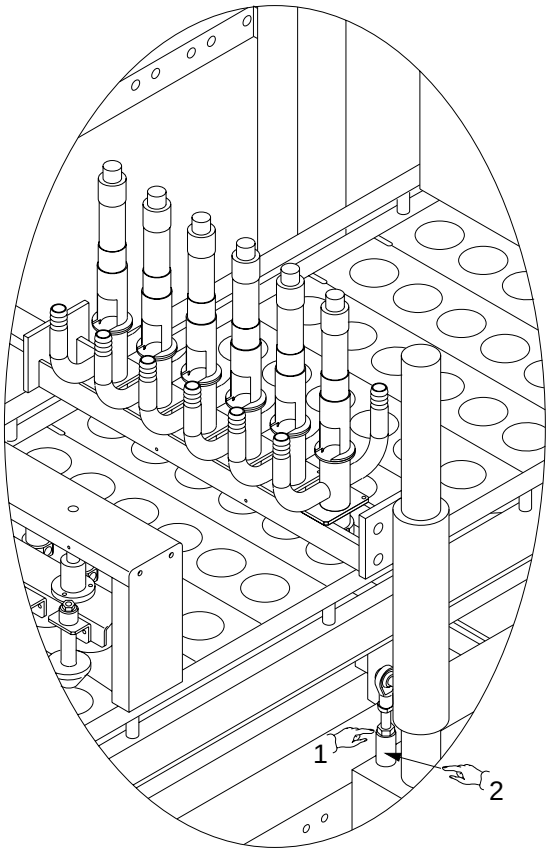

Fig. 5.5

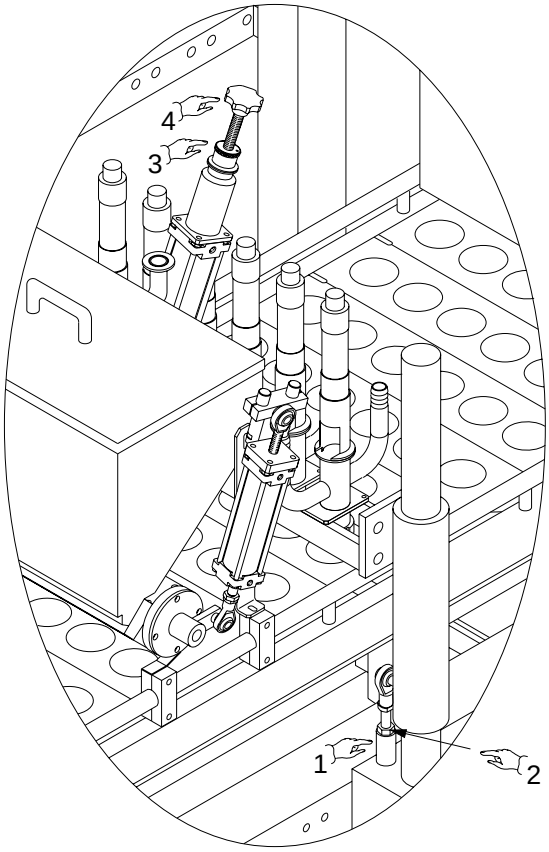

Fig. 5.5a

5.3.6 Volumetric ice cream dosing station adjustment

To adjust doser height, slacken the nut (Part. 1, Fig. 5.5a) and adjust the tie rod (Part. 2, Fig. 5.5a) until the required position is reached.
At the end of the adjustment, tighten the nut (Part. 1, Fig. 5.5a).
The normal position of the end part of the dosing nozzles when in the dosing position should be inside the container below the lid positioning level in order not to cause damage to the ice cream decoration after pressing the lid.
To adjust dosage volume, slacken the locking ring nut (Part. 3, Fig. 5.5a) and turn the knob (Part. 4, Fig. 5.5a) clockwise to increase volume or anticlockwise to decrease it.

5.3.7 Pencil filler station adjustment

To adjust injection position, slacken the nut (*Part. 1, Fig. 5.6*) and adjust the tie rod (*Part. 2, Fig. 5.6*) until the required position is reached. At the end of the adjustment, tighten the nut (*Part. 1, Fig. 5.6*).

The normal position of the end part of the pencil filler nozzles when in the injection position should be inside the container below the lid positioning level in order not to cause damage to the ice cream decoration after pressing the lid.

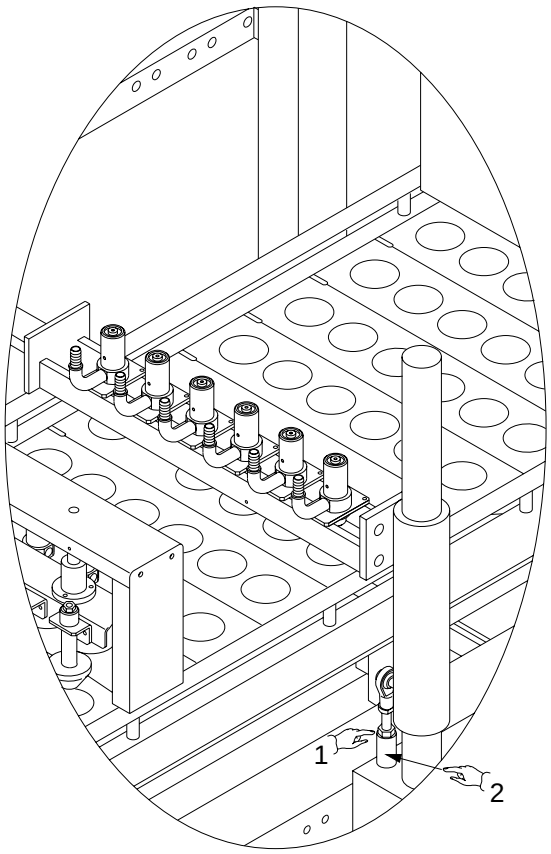

Fig. 5.6

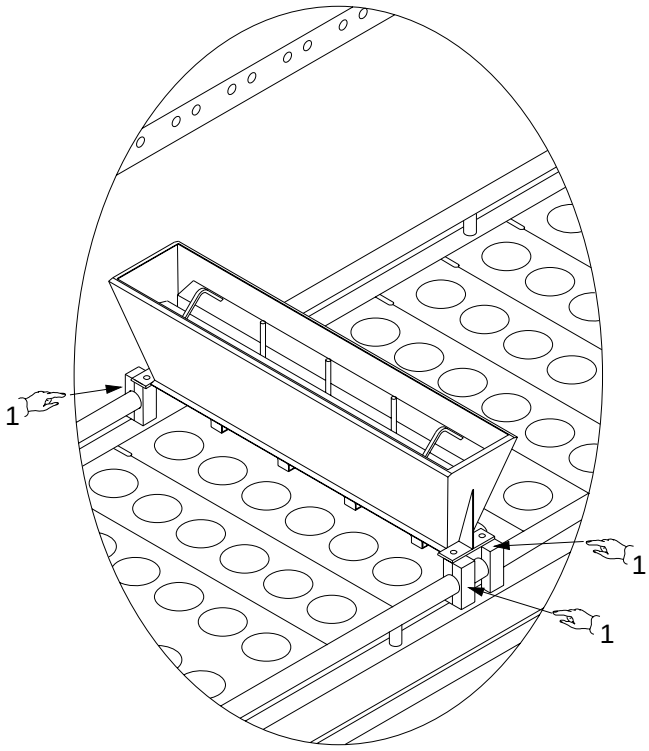

Fig. 5.7

5.3.8 Chewing gum doser station

Check that the chewing gum feed outlets are centred over the slots. If not, loosen the screws of the blocks fastening them in place (*Part. 1, Fig. 5.7*) and move them into the correct position.

5.3.9 Topping station adjustment

To adjust injection position, slacken the nut *(Part. 1, Fig. 5.8)* and adjust the tie rod *(Part. 2, Fig. 5.8)* until the required position is reached.
At the end of the adjustment, tighten the nut *(Part. 1, Fig. 5.8).*

The normal position of the end part of the topping nozzles when in the injection position should be inside the container below the lid positioning level in order not to cause damage to the ice cream decoration after pressing the lid.

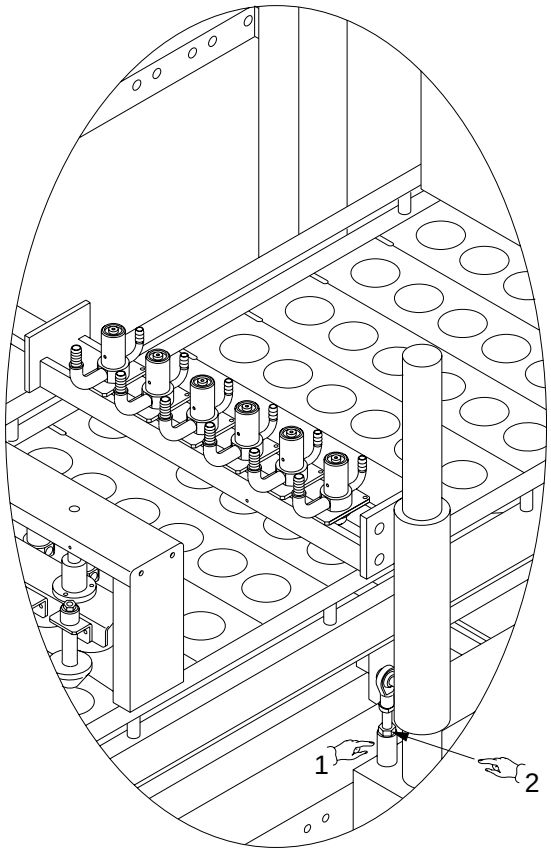

Fig. 5.8

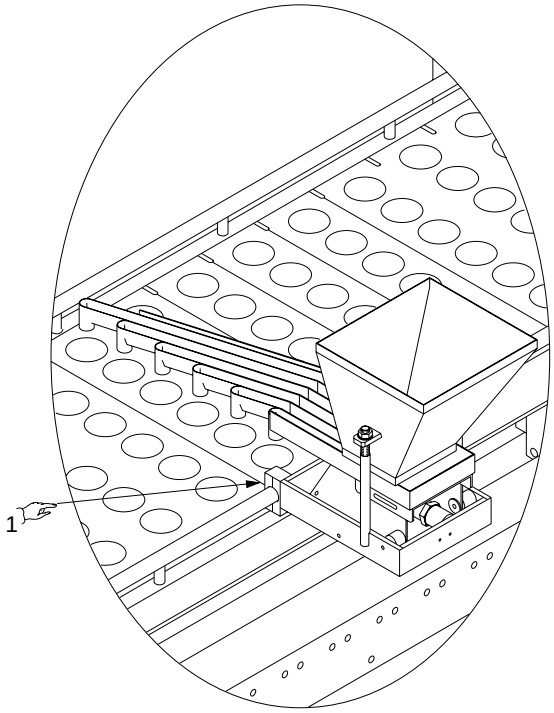

Fig. 5.9

5.3.10 Granule station adjustment

Before starting production, check that the hopper and dosing channels are completely dry.
Also check that the dosing channels are positioned at the centre of the slots. If not, move the station by slackening screws (*Part. 1, Fig. 5.9*) on the fixing blocks.
The flow of product to dose can be optimised by adjusting the angle of action of the vibrator. This is done by slackening the screws on the vibrator support.
To increase or reduce the volume of product dosed, turn the pressure regulator clockwise to increase the intensity of the vibrations or anticlockwise to decrease it.

It is also possible to adjust the insertion “time” of the vibrator for each cycle by changing the relative parameters, indicated as the start and finish angle on a 360° cycle.

5.3.11 Lid feed station adjustment

Make sure that the lid feed station is switched off (button  *(Fig. 5.14)* in OFF position) with the suction cups in the raised position.
Check that the suction cups *(Part. 1, Fig. 5.10)* are in direct contact with the lids inside the magazines. If not, adjust the nuts and lock nuts (*Part. 2, Fig. 5.10*) in order to raise position the lids in direct contact with the suction cups *(Part. 1, Fig. 5.10)*.
With the machine at its slowest speed, check that when the lid feed station is activated, the suction cup mounting shaft drops down immediately after the lamella chain has stopped, and then check that it moves back up before the chain starts moving again.

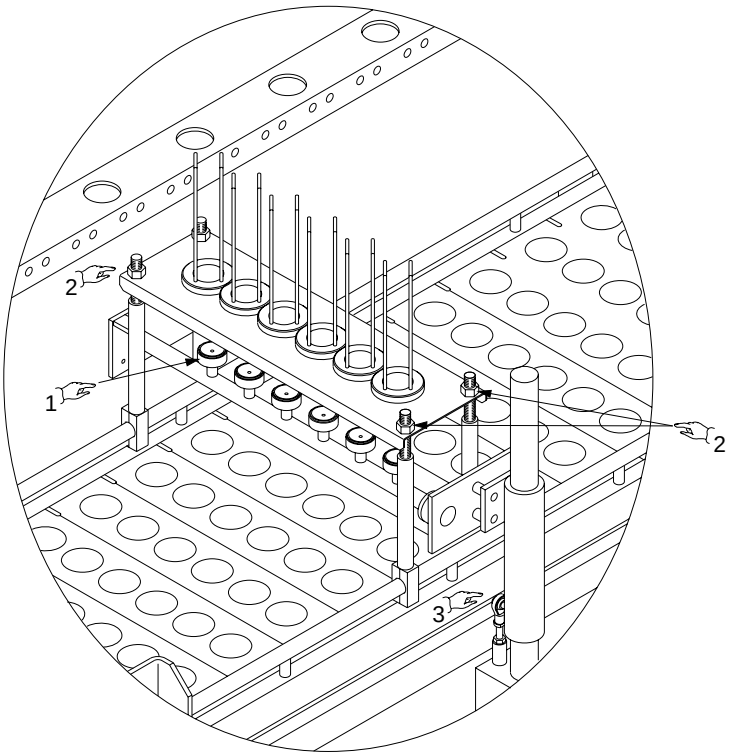

Fig. 5.10

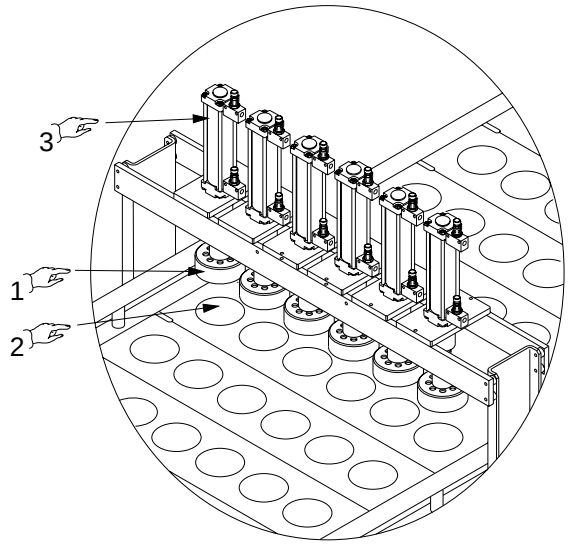

Fig. 5.11

5.3.12 Cone lid closing station adjustment

Check that the crimper *(Part. 1, Fig. 5.11)* rests on the outside of the slot *(Part. 2, Fig. 5.11)* and compresses the inner part of the crimper in order to close off the cone perfectly. If the cone is not closed off correctly, lower the crimper *(Part. 1, Fig. 5.11)* by rotating it clockwise after having slackened the nut anchoring it to the cylinder stem *(Part. 3, Fig. 5.11)*.
If the closure is too accentuated, rotate the crimper *(Part. 1, Fig. 5.11)* anticlockwise until the correct type of closure is obtained.
On completion of the adjustment, remember to tighten the crimper lock nut.

5.3.13 Cup lid closing station adjustment

Check that the lid pressing plate *(Part. 1, Fig. 5.12)* compresses the lid in the cup in such a way that it closes off the cup perfectly. If the closure is not correct, lower the plate by rotating it clockwise after having slackened the lock nut fixing it to the cylinder stem *(Part. 3, Fig. 5.12)*. If the closure is too accentuated, rotate the plate *(Part. 1, Fig. 5.12)* anticlockwise until the correct closure is obtained.
On completion of the adjustment, remember to tighten the plate lock nut .

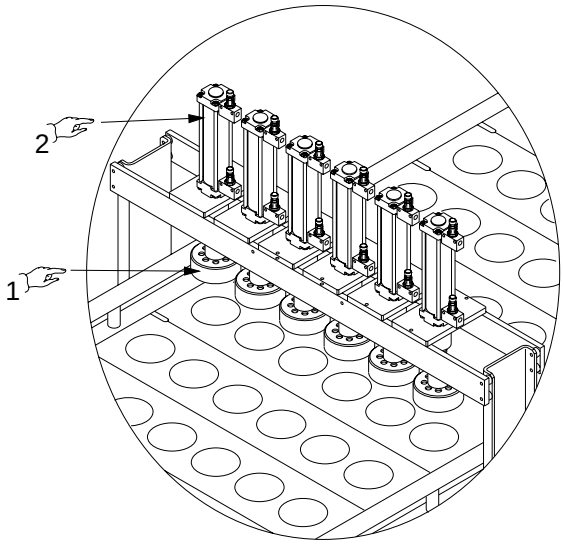

Fig. 5.12

5.3.14 Lid sealing station adjustment

To adjust sealing position, loosen the nut (*Part. 2, Fig. 5.13*) and adjust the tie rod (*Part. 1, Fig. 5.13*) to achieve the required position.
Tighten the nut (*Part. 2, Fig. 5.8*) when finished.

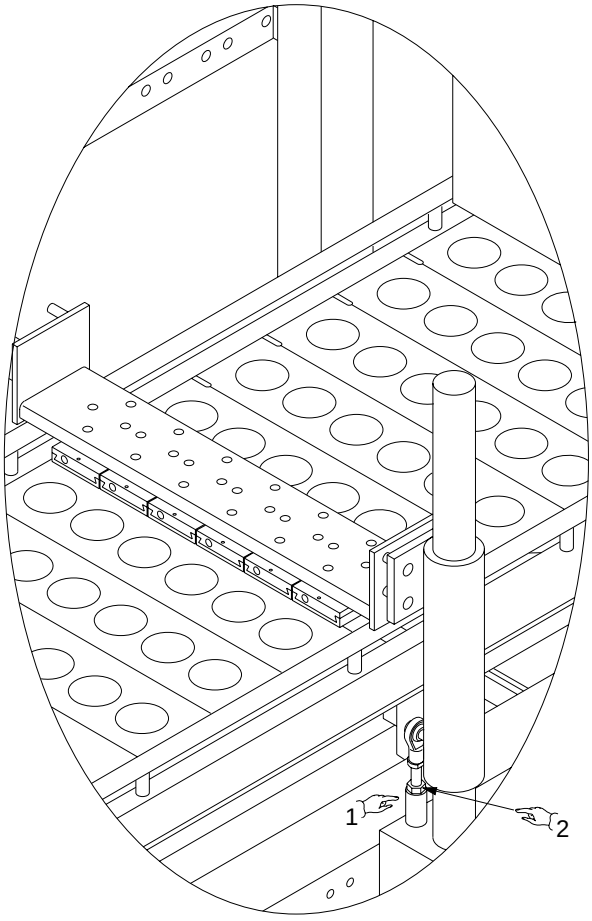

Fig. 5.13

HOYER COMET N

6 - OPERATING PROCEDURES

Contents

6.1 Preliminary controls

Perform the following checks before starting the machine:

a. Make sure that all the panels and guards in the machine are fixed securely in place.
b. Make sure that the machine has been thoroughly washed and cleaned. The cleaning and washing procedures are described in **CHAPTER 7 - CLEANING AND MAINTENANCE**.
c. Make sure that the electrical power supply cable is correctly connected.
d. Make sure that the compressed air supply is correct and that the pressure reducer housed in the pneumatic panel is set to 6 bar.
e. Make sure that the ice cream line clamps are properly tightened.
f. Make sure that the ice cream bypass containers are in position.
g. Make sure that the emergency stop buttons *(Part. 1/2 Fig.6.1)* are disengaged.
h. Connect the bypass valves to the freezers *(Part.3 Fig.6.1)*.
i. Make sure that the compartments of the chocolate container *(Part.3 Fig.6.1)* have been correctly filled and that the chocolate is at the right temperature (between approximately 34°C and 37°C).
l. Make sure that the containers have been correctly positioned in the feed magazines *(Part. 4/5 Fig.6.1)*.
m. Make sure that the granule hopper has been filled correctly *(Part.5 Fig.6.1)*.
n. Make sure that the lids have been correctly positioned in the lid feed magazines *(Part.6 Fig.6.1*).

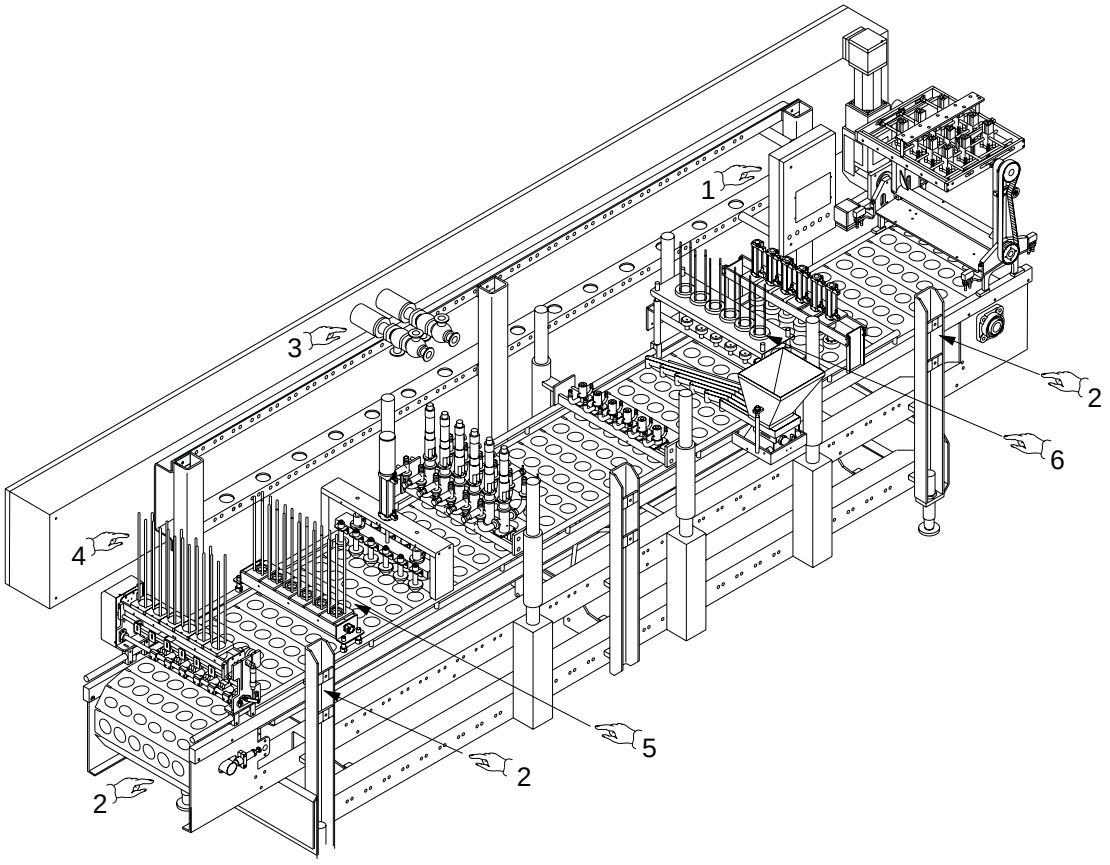

Fig. 6.1

6.2 Start of production

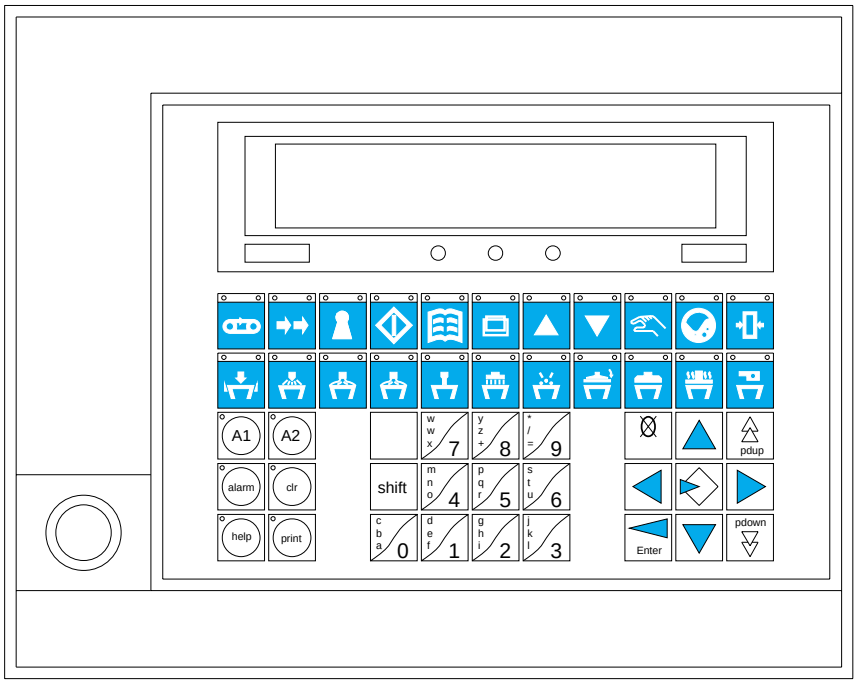

Fig. 6.2

Proceed as follows to start the machine:

a. Switch on the electric power supply to the machine by turning the main switch to the “ON” position. Current alarms will appear on the display.

ALARMS			
EMERGENCY			
AUTOGUARD SAFETY			
N. ALL	0000	08-04-98	08:45:05

b. Press the chocolate tank heater button A1 *(Fig. 6.2)*.

c. Press  *(Fig. 6.2)*. to call up the start-up page.

Tetra Pak Hoyer		
	08-04-98	08:45:05

d. Press  (*Fig. 6.2*) to call up the start-up page.

```
SPEED          :          50
POSITION       :          0°
CYCLE          :      MANUAL
   1
```

e. Press  (*Fig. 6.2*) to call up the production recipe function.

```
                  DATA SETTING
CODE           :      ----------
DESCRIPTION    :
                                    1/23
```

f. Press  *(Fig. 6.2)* to call up the recipes stored in memory.

```
                 STORED RECIPIES
CODE             1        CONE
DESCRI           2         CUP
                                    1/23
```

g. Press  or  *(Fig. 6.2)* to select the desired recipe.

```
                 STORED RECIPIES
CODE             1        CONE
DESCRI           2         CUP
                                    1/23
```

h. Press  *(Fig. 6.2)* to confirm the selected recipe.

```
                    DATA SETTING
CODE            :           1
DESCRIPTION     :       CONE
                                        1/23
```

i. Press  *(Fig. 6.2)* to save data.

```
Overwrite ? (Enter = Yes     Clr = No)          :
```

l. Press  *(Fig. 6.2)* to confirm that you wish to save.

```
SPEED           :           50
POSITION        :           0°
CYCLE           :       MANUAL
   1     1    CONE
```

m. Press  *(Fig. 6.2)* to activate the selected recipe.

```
SPEED           :           50
POSITION        :           0°
CYCLE           :       MANUAL
   1     1    CONE
```

n. Place a suitable container under the bypass valve drain.
o. Place a suitable container under the doser discharge chute.
p. Start feeding ice cream from the freezer.
q. Wait until the ice cream coming from the bypass is of the required consistency.
r. Position the bypass valves to feed the dosers by pressing button A2 *(Fig. 6.2)*.
s. Wait until the ice cream coming from the dosers is of the required consistency.
t. Press the run and start-up buttons  *(Fig. 6.2)*. The lamellas will start moving in synchrony with the dosing.

Press the automatic production start button  (*Fig. 6.2*). The machine will start the production cycle automatically.
If the manual production cycle is selected, start each individual station with the relevant station enable buttons.

6.2.1 Emergency stop

If any component malfunctions, press the emergency stop button *(Part.1/2, Fig.6.2a)* to disable all the machine's electrical functions.
To reset the machine, first remedy the cause of the malfunction, rotate the emergency stop button (*Part.1*, *Fig.6.2a*)  *(Fig. 6.2)* anticlockwise and release it, then press the reset button (*Fig. 6.2*) on the operator interface panel or press the button on the cord emergency stop switch (*Part.2*, *Fig.6.2a*) and then press the reset button  *(Fig. 6.2)*.

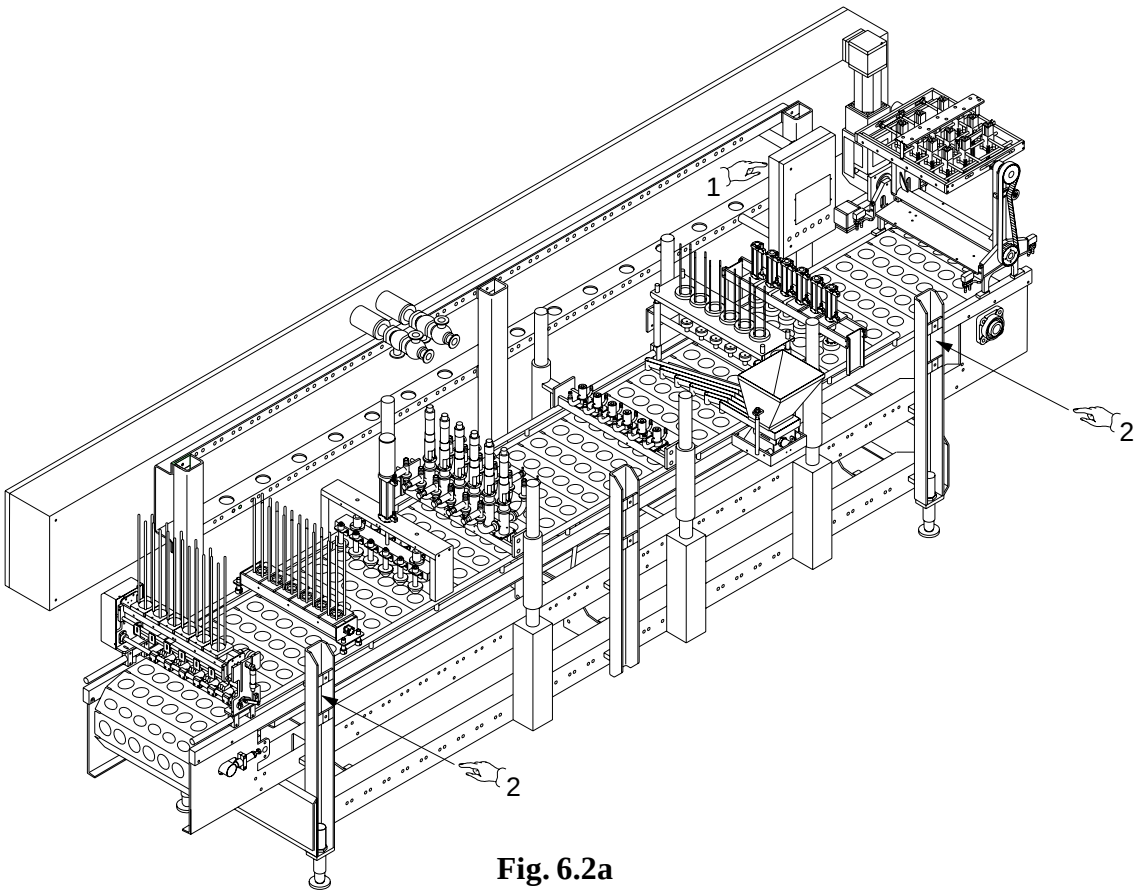

Fig. 6.2a

6.3 End of production

To stop the machine in automatic cycle mode, proceed as follows:

- Press the end of production button *(Fig. 6.2)*  **.** All the operating stations in memory will stop automatically.

To stop the machine manually:

- o stop the machine manually:Disattivare le stazioni premendo i singoli pulsanti sul pannello di interfaccia operatore.

Cleaning and washing procedures are described in **CHAPTER 7- CLEANING AND MAINTENANCE.**

6.4 Description of work stations

6.4.1 Cone feed station

The function of the cone feeders *(Fig. 6.2b)* mounted at the end of the machine is to deposit the cones in the slots in the lamellas. This action is synchronised with the movement of the trays.
The cone feeder consists of magazines *(Pos.1, Fig. 6.2b)*, in which the cones must be placed manually, and a cone dispenser driven by pneumatic actuators *(Pos.2-3, Fig. 6.2b)*.
The station is activated by the cone feed button  *(Fig. 6.10)* on the control panel.

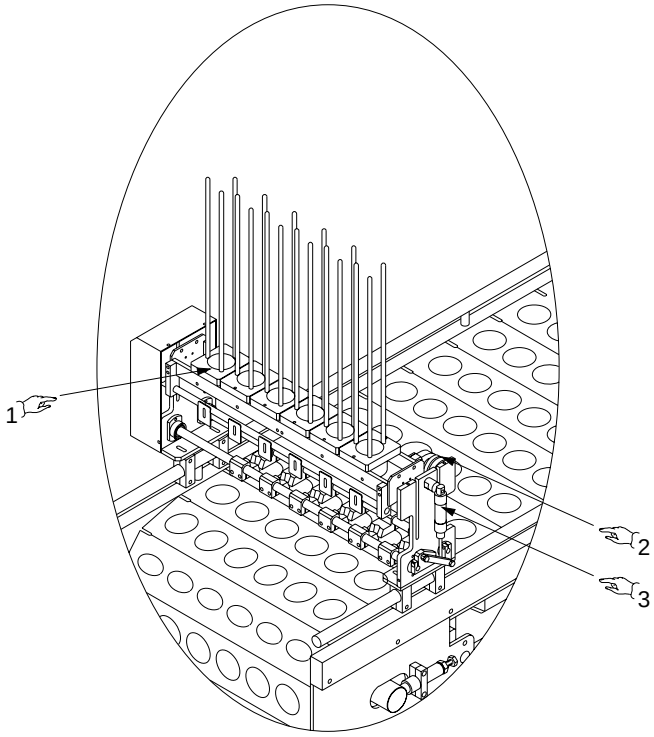

Fig. 6.2b

6.4.2 Gauge and chocolate spray station

A fixed structure supports a pneumatic actuator which controls the up and down movement of the mobile frame. The travel of the pneumatic actuator can be adjusted by removing the cover (*Part. 1 Fig. 6.3*), slackening the screw *(Part.2 Fig.6.3)* and rotating the ring nut *(Part.3 Fig.6.3)* clockwise to increase the travel of the pneumatic actuator and anticlockwise to shorten it.
At the end of the adjustment, tighten screws *(Part.2 Fig.6.3)*.
The travel of the pneumatic actuator must be adjusted to control the entry of the chocolate sprayer nozzle into the cone.
Six gauges *(Pos. 4, Fig. 6.3)* are mounted on the front of the frame and six chocolate sprays *(Pos. 5, Fig. 6.3)* on the rear.
The station is activated by the “chocolate spray” button on the control panel  *(Fig. 6.10)*.

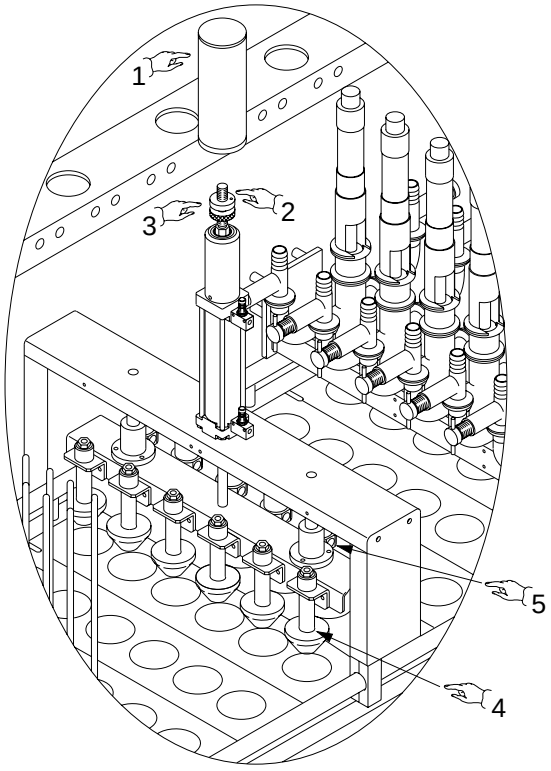

Fig. 6.3

6.4.3 Chocolate spray pump equipment

A frame on wheels (*Pos. 1, Fig. 6.4*) supports the thermostatically controlled chocolate tank *(Pos. 2, Fig. 6.4),* kept at a temperature of approximately 34°C to 37°C by water contained in the jacket which is heated by electrical resistances.
The rate of flow of the displacement pump may be adjusted by slackening the screws (*Part. 3, Fig. 6.4*) using a wrench and turning the ring nut (*Part. 4, Fig. 6.4*) clockwise to increase the stroke of the pneumatic actuator or anticlockwise to decrease it.
Tighten the screw (*Part. 3, Fig. 6.4*) with the wrench when finished.
During production, the tank must be filled manually.
To start heating the chocolate, press the “heat chocolate tank” button *A1 (Fig. 6.13).*
To circulate the chocolate from the tank to the sprayers and back when the machine is stopped, press the “chocolate spray” button  *(Fig. 6.13).*
The chocolate return route to the tank is necessary because the pipes are not heated, and the bypass prevents the chocolate from stopping in the pipe and solidifying.

During production, the dosage volume can be regulated by reducing or increasing the travel of the displacement pump and adjusting the spray nozzle opening time on the programmer.
Time is adjusted by modifying the degrees on the cam.
The chocolate is fed into the cones by the spray nozzle.
The incoming chocolate is atomised by compressed air sent to the appropriate connection.
As the air carrying the chocolate comes into contact with the product, it must first be filtered through a microfilter, an odour filter and a sterile filter.
For hygiene reasons, the machine is supplied with a sealed sterile cartridge.
The customer is responsible for sterilisation of the line downstream of the filter.

Warning:

The water in the jacket must be heated at least half an hour before use. The water is heated by pressing button *A1(Fig. 6.10).*

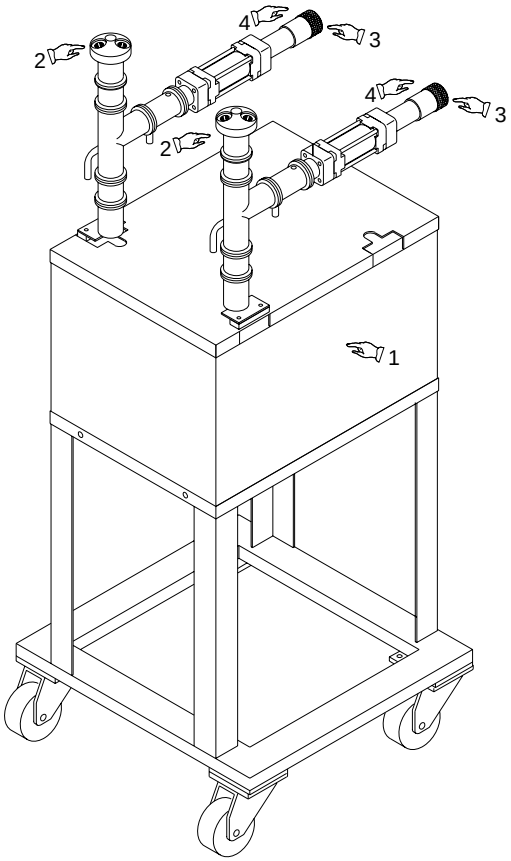

Fig. 6.4

6.4.4 Ice cream dosing station

The cones are filled with ice cream by dosers *(Pos.1, Fig. 6.5)* activated by pneumatic actuators *(Pos. 2, Fig. 6.5)*.
The mobile frame is raised and lowered by a cam. The dosing position can be adjusted by slackening the nut (*Part. 3 Fig. 6.5*) using the wrench and then adjusting the tie rod (*Part. 4 Fig. 6.5*).
At the end of the operation tighten the nut *(Part.3 Fig.6.5)* using the wrench.
The start and duration of the mobile frame movement, which must be synchronised with the stop phase of the lamellas, can be adjusted from the control panel which is interfaced with the PLC.
Six dosers *(Pos. 1 Fig. 6.5)* are mounted on the frame. These dosers feed the required quantity of ice cream into the cones which have already been sprayed with chocolate.
The quantity of ice cream required can be obtained by changing the speed of the freezer and, from the control panel, adjusting the start and duration of the dose.
It is also possible to balance the quantity of ice cream dosed by each dosing nozzle on the lines by adjusting the flow regulators *(Pos. 5 Fig. 6.5)*.
The dosing station is activated by pressing the "ice cream doser" buttons *(Fig. 6.10)*  which automatically close the bypass.

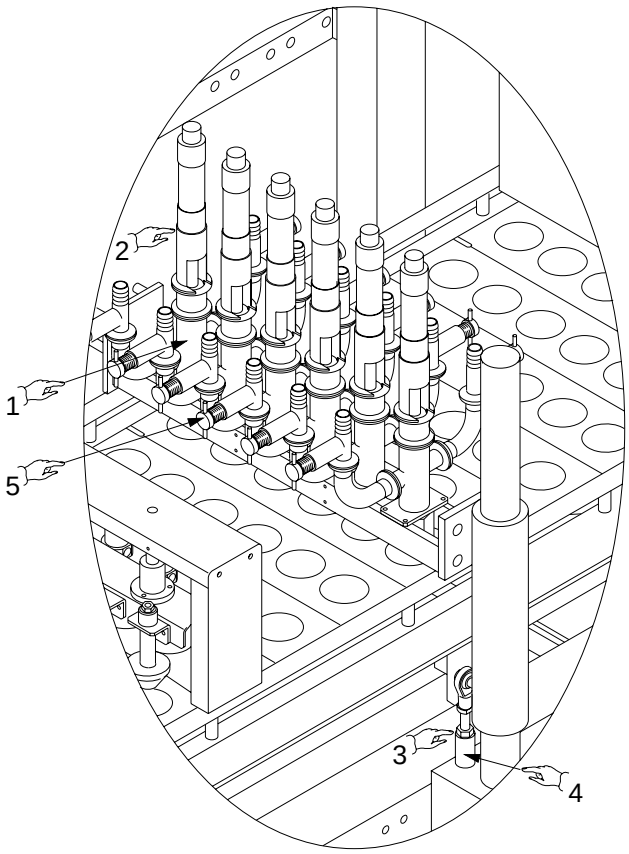

Fig. 6.5

6.4.5 Ice cream decoration station (optional)

Ice cream cones are decorated by dosers (*Pos. 1, Fig. 6.5*) driven by pneumatic actuators (*Pos. 2, Fig. 6.5*).
The mobile frame is raised and lowered by a cam. The dosing position can be adjusted by slackening the nut (*Part. 3 Fig. 6.5*) using the wrench and then adjusting the tie rod (*Part. 4 Fig. 6.5*).
At the end of the operation tighten the nut *(Part.3 Fig.6.5)* using the wrench.
The beginning and duration of movement of the mobile frame while the lamellas are stationary may be set using the operator control panel which interfaces with the PLC.

Six decorators assembled on the frame *(Pos. 1, Fig. 6.5*) dose the required quantity of decorating ice cream. Freezer speed can be changed and dosing start and duration adjusted on the operator interface panel to obtain the required quantity of ice cream.
The quantity of ice cream dispensed by each doser in the rows may be balanced by adjusting the flow regulators (*Pos. 5, Fig. 6.5*). The dosing station is activated using the "ice cream doser" buttons   *(Fig. 6.10)* which automatically close the by-pass.

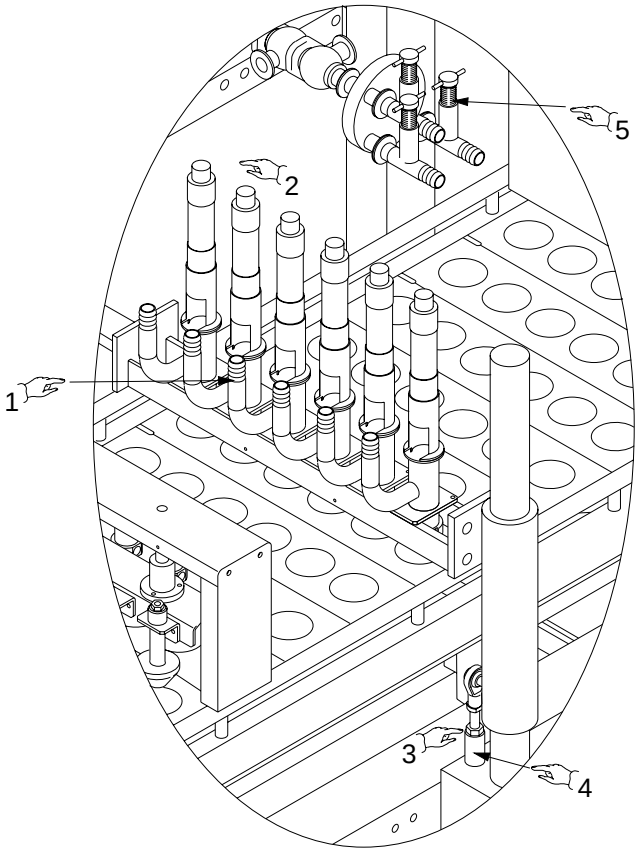

Fig. 6.6

6.4.6 Pencil filler station (optional)

The pencil filler station consists of nozzles connected through hoses to an optional feed tub and driven by pneumatic actuators (*Part. 2, Fig. 6.7*).
The mobile frame is raised and lowered by a cam. The dosing position can be adjusted by slackening the nut (*Part. 1 Fig. 6.6A*) using the wrench and then adjusting the tie rod (*Part. 2 Fig. 6.6A*).
At the end of the operation tighten the nut *(Part.1 Fig.6.6A)* using the wrench.
The beginning and duration of movement of the mobile frame while the lamellas are stationary may be set using the operator control panel which interfaces with the PLC.
Six nozzles assembled on the frame dose the required quantity of liquid.
Freezer speed can be changed and dosing start and duration adjusted on the operator interface panel to obtain the required quantity of product.
The pencil filler station is activated using the "ice cream doser" button  *(Fig. 6.2)* which automatically close the by-pass.

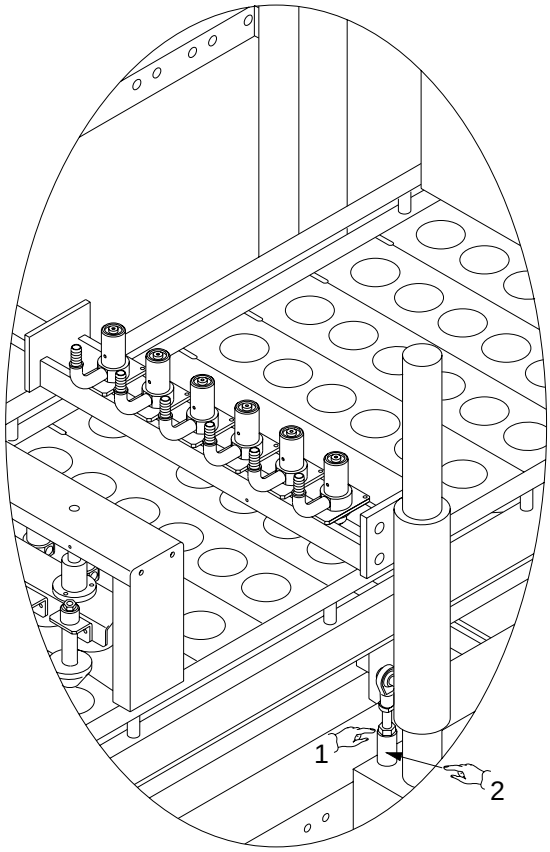

Fig. 6.6a

6.4.7 Topping station

The topping station consists of nozzles connected through hoses to an optional feed tub and driven by pneumatic actuators.
The mobile frame is raised and lowered by a cam.
The dosing position can be adjusted by slackening the nut (*Part. 1 Fig. 6.6b*) using the wrench and then adjusting the tie rod (*Part. 2 Fig. 6.6b*).
At the end of the operation tighten the nut *(Part.1 Fig.6.6b)* using the wrench.
The beginning and duration of movement of the mobile frame while the lamellas are stationary may be set using the operator control panel which interfaces with the PLC.
Six nozzles assembled on the frame dose the required quantity of liquid.
Freezer speed can be changed and dosing start and duration adjusted on the operator interface panel to obtain the required quantity of product.
The topping station is activated using the “ice cream doser” button  *(Fig. 6.2)* which automatically close the by-pass.

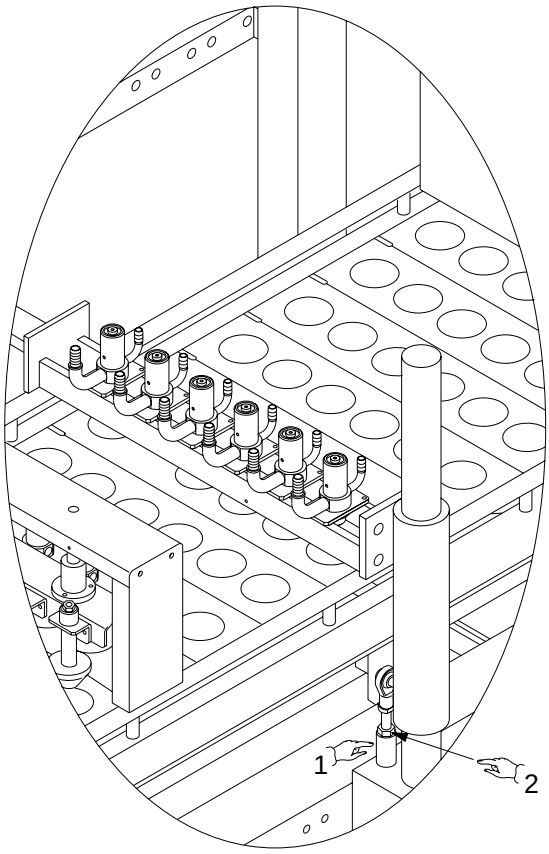

Fig. 6.6b

6.4.8 Granule station

This device, which is mounted on the structure, is used to spread nut granules, chocolate flakes or similar onto the product. The unit consists of a hopper *(Part.1, Fig. 6.7)* connected to distribution channels *(Part.2, Fig. 6.7)* along which the product flows due to the effect of the vibration induced by a vibrator.
The quantity of product to feed is obtained by suitably adjusting the start and duration of the dose on the programmer.
The quantity of granules can also be balanced as follows:

- slacken screws using the wrench and move the adjustable baffles; lifting them increases the granule feed while lowering them reduces the feed.

At the end of the adjustment, tighten the screws using the wrench;

- turn the pressure regulator *(Part.3 Fig.6.7)* clockwise to increase the working pressure of the vibrator and therefore the quantity of granules fed, or turn it anticlockwise to reduce the quantity.

Adjust the position of the vibrator by varying its inclination with respect to the granule transfer channels.
The station is activated by pressing the button  *(Fig. 6.10).*

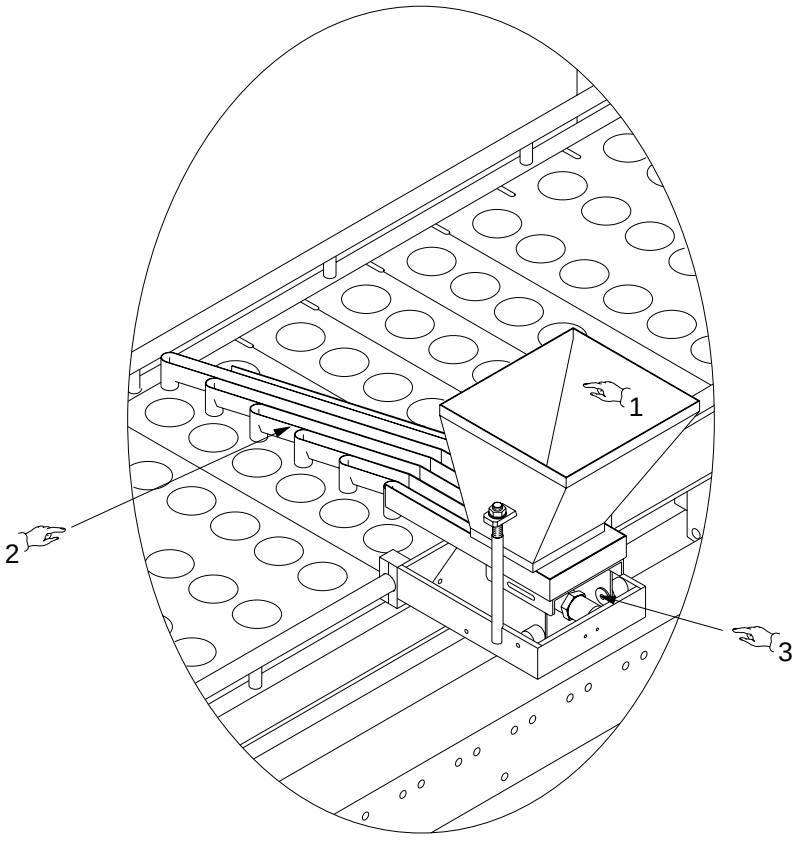

Fig. 6.7

6.4.9 Lid feed station

This station consists of lid magazines *(Part.1, Fig.6.8)* mounted on a support fixed to the structure and a mobile cross-member *(Part.2, Fig.6.8)*, controlled by a cam *(Part.3, Fig.6.8)*, which moves the lid pick-up suction cups.
During its upward travel, the suction cup support *(Part.4, Fig.6.8)* is rotated 180° by a rotary actuator *(Part.3, Fig.6.8)* which brings the suction cups into contact with the lids stacked in the magazines *(Part.1, Fig.6.8)*.
When the suction cups make contact with the lids, a vacuum is generated allowing the lids to be picked up.
During the downward movement, the suction cup support *(Part.4, Fig.6.8)* is rotated 180° to position the lids over the cones. The vacuum switches off and the lids are released.
The station is activated by pressing the button  *(Fig. 6.10)*. The vacuum control and the rotation of the cylinder are adjusted by means of the associated cams.

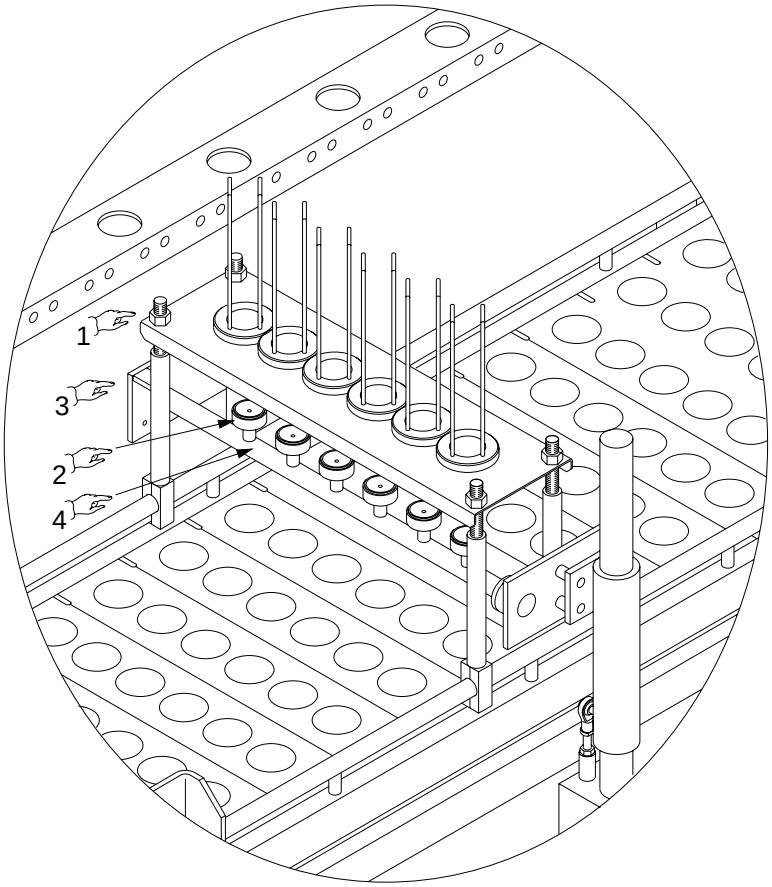

Fig. 6.8

6.4.10 Lid closing station

This station consists of crimping tools *(Part.1, Fig.6.9)* mounted on the structure (*Part. 2, Fig. 6.9*) and controlled by pneumatic actuators *(Part.2, Fig.6.9)*.
The downward movement induced by the pneumatic actuators *(Part.2, Fig.6.9)* brings the crimping tools *(Part.1, Fig.6.9)* into contact with the cones and lids, allowing the lids to be fixed in position.

The process is activated by pressing the button  *(Fig. 6.10)* and adjusted by means of cams through the operator interface, with the appropriate inputs in the electronic programmer. The position of each crimping tool is adjusted independently of the others by adjusting the nut and lock nut anchoring it to the stem of the cylinder.

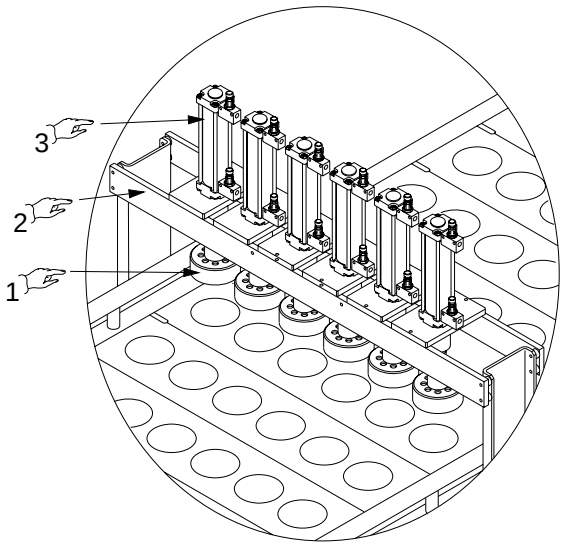

Fig. 6.9

6.4.11 Cone ejector station

This station is mounted underneath the lamellas. It is controlled by a cam on the main shaft and supports the pushers which eject the cones.
The upward movement allows the ejectors to lift the cones from the slots *(Part. 1, Fig. 6.10)* in the lamellas enabling them to be ejected.

6.4.12 Cup feed station

The cup feeders *(Fig. 6.10)* mounted at the end of the machine feed the cups into the slots in the lamellas in synchrony with the movement of the trays.
The station consists of magazines *(Pos.1, Fig. 6.10)*, into which the cups are loaded manually, and a cup dispenser driven by pneumatic actuators *(Pos.2, Fig. 6.10)*.
The station is activated by pressing cup feed button  *(Fig. 6.18)* on the control panel.
The timing of the movements can be modified by adjusting the corresponding cams.
The release and the insertion of the cup in the slot take place with a combination of movements: the pneumatic opening of the plates located at the lower end of the magazine; a mechanical movement, created by a cam mechanism, of a carriage carrying the suction cups which grip the bottom of the cups, and the action of the suction cups which, by means of the vacuum, grip the cups at the top dead centre position and the release them once they are in the slots.
Various types of adjustment are possible:

- adjustment of the height of the magazine support frame, in that the travel of the suction cup carriage is fixed, and as a result, the height of the magazines must be altered to move the bottom of the ice cream cup nearer to the suction cup;
- if format is changed to a different cup diameter, it may be necessary to replace the suction cups with new ones of the appropriate diameter.

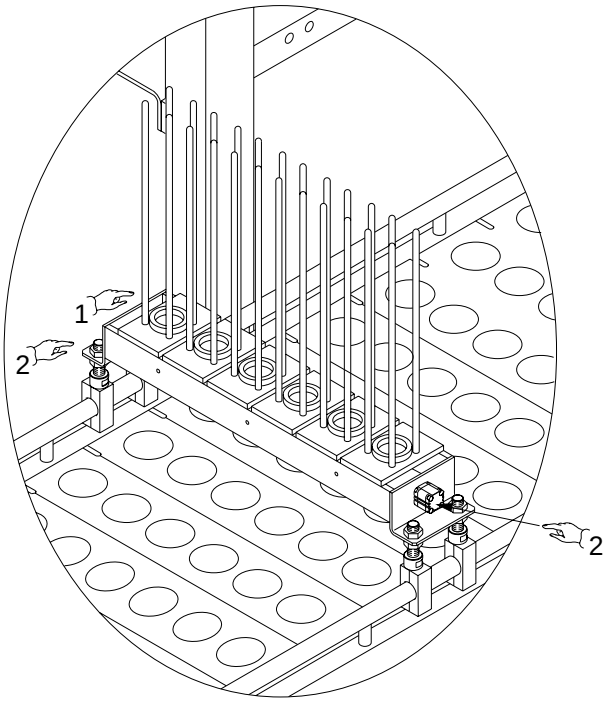

Fig. 6.10

6.4.13 Lid closing station

This station consists of closing plates *(Part.1, Fig.6.11)* mounted on the structure (*Part. 2, Fig. 6.11*) and controlled by pneumatic actuators *(Part.3, Fig.6.11)*.
The downward movement induced by the pneumatic actuators *(Part.2, Fig.6.11)* brings the closing plates *(Part.1, Fig.6.11)* into contact with the cups and lids, allowing the latter to be fixed in position.

The process is activated by pressing the button  *(Fig. 6.18)* and adjusted by means of cams through the operator interface, with the appropriate inputs in the electronic programmer. The position of each crimping tool is adjusted independently of the others by adjusting the nut and lock nut anchoring it to the stem of the cylinder.

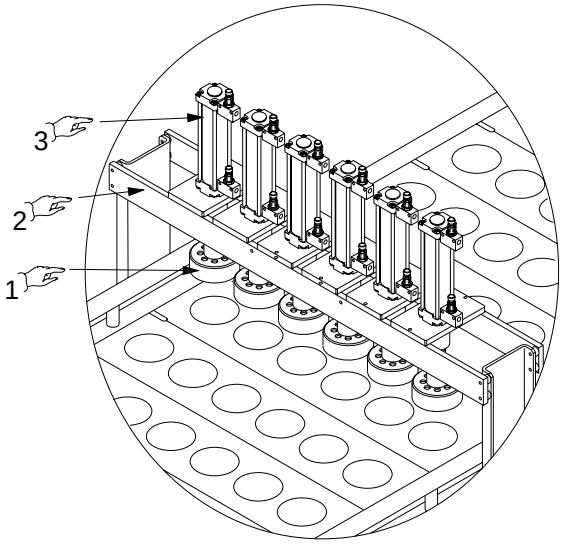

Fig. 6.11

6.4.14 Cup ejector station (optional)

This station is mounted underneath the lamellas. It is controlled by a cam and supports the pushers which eject the cups.
The upward movement allows the ejectors to lift the cups from the slots on the lamellas and eject them.

6.4.15 Tube feed and gauge station (optional)

This station consists of tube magazines (*Part. 1, Fig. 6.12*) mounted on a support assembled on the structure and of a mobile crosspiece controlled by a cam which moves the tube dispensers and gauges (*Part. 2, Fig. 6.12*).
To adjust the position of the tube dispensers, loosen the nut (*Part. 3 Fig. 6.12*) using a wrench and then adjust the tie rod (*Part. 4 Fig. 6.12*). The station is activated by pressing the button *(Fig. 6.10)*.

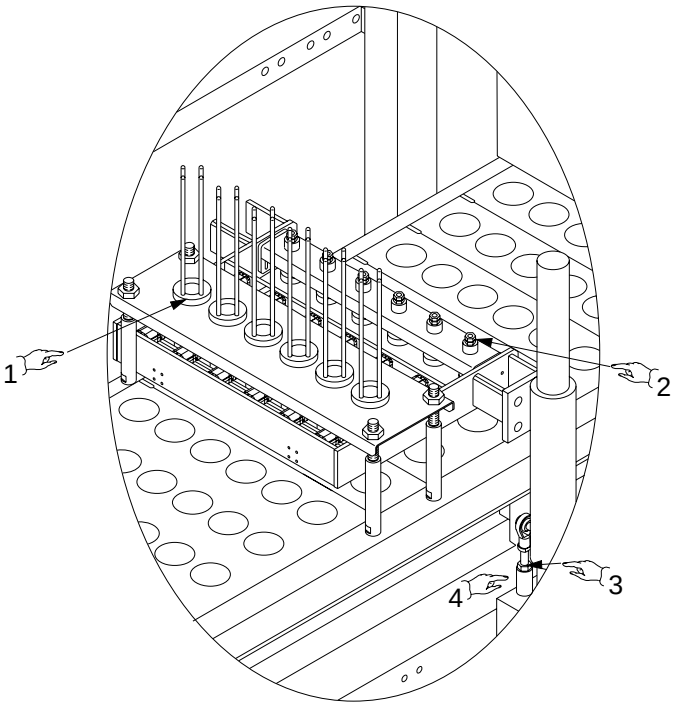

Fig. 6.12

6.4.16 Volumetric dosing station (optional)

This station consists of a hopper assembled on the structure on which is mounted a level control, a pneumatically controlled rotary dispenser and a dosing cylinder. A mobile crosspiece controlled by a cam supports and moves the dosers.
The position of the dosers may be adjusted by slackening the nut (*Part. 1 Fig. 6.13*) using the wrench and then adjusting the tie rod (*Part. 2 Fig. 6.13*).
To adjust the dose volume, slacken the locking ring nut (*Part. 3 Fig. 6.13*) and turn the knob (*Part. 4 Fig. 6.13*) clockwise to increase volume or anticlockwise to decrease it.
The station is activated by pressing the button *(Fig. 6.10)*.

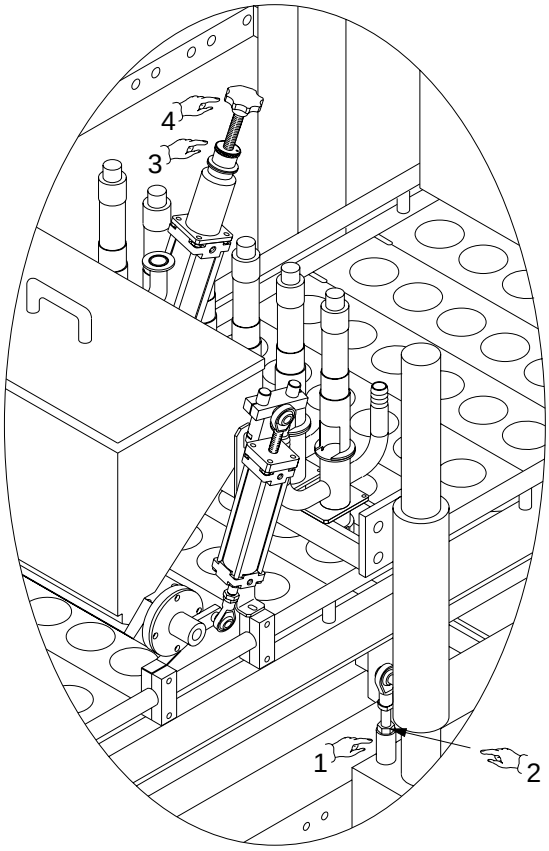

Fig. 6.13

6.4.17 Lid sealing station (optional)

This station consists of sealing heads (*Part. 3, Fig. 6.16*) assembled on a mobile crosspiece controlled by a cam.
The downward movement due to the movement of the mobile crosspiece brings the sealing heads (*Part. 3, Fig. 6.16*) into contact with the cups so that they can be sealed.

The process is activated by pressing button  *(Fig. 6.2)* and controlled by cams through the operator interface which controls the input to the electronic programmer.
The position of each sealing head can be adjusted by slackening the nut (*Part. 1, Fig. 6.14*) using the wrench and adjusting the tie rod (*Part. 2, Fig. 6.14*).

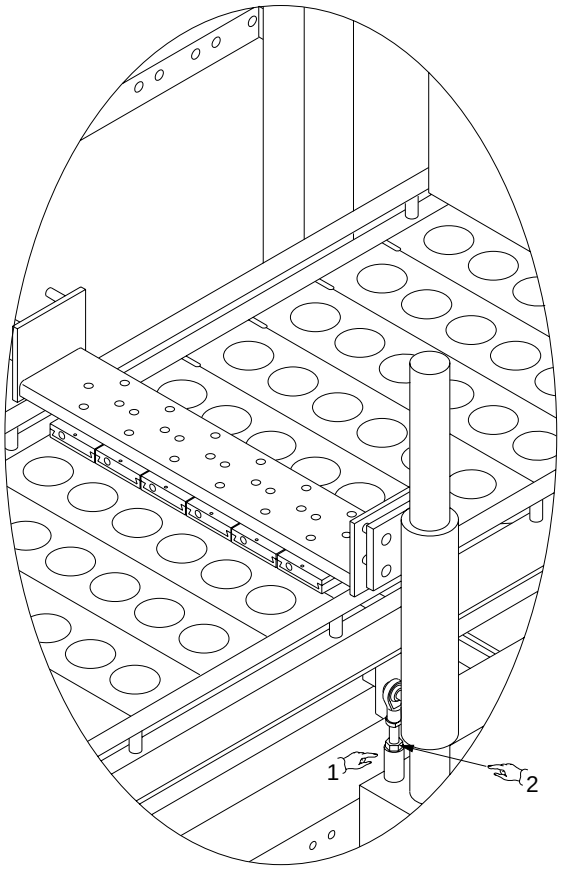

Fig. 6.14

HOYER COMET N

7 - CLEANING AND MAINTENANCE

Contents

7.1 Washing procedure

Before washing the machine, make sure that the main switch is turned to OFF.

The procedure for washing the filling machine is as follows:

a- Prewash with hot water (50ºC).
b- Detergent wash. Use a foaming alkaline detergent or gel detergent which is a powerful fat emulsifier in a concentration of 2% to 10%, depending on how dirty the machine is and on the hardness of the water supply.
c- Rinse with water. Wait 10 minutes and then rinse thoroughly to remove the dirt emulsified by the detergent.
d- Descaling wash. Use an acidic descaler with low viscosity containing a mixture of wetting agents and emulsifiers in a concentration of 2% to 3%. It should remain in contact for at least 15 – 20 minutes.
e- Rinse with water.
f- Disinfectant wash. Use an appropriate disinfectant diluted in water, in a concentration of 1 – 1.2%. It should remain in contact for at least 15 – 20 minutes.
g- Rinse with water.

Important:

Do not use water under high pressure.

7.1.1 Recommended products

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

7.2 Regular maintenance

7.2.1 Beginning of the season

- **Wash machine thoroughly as described in section** 7.1. – Washing procedure
- dismantle dosers and pipes, wash and disinfect thoroughly;
- check the condition of the seals, and replace if necessary;
- lubricate seals;
  material required: vaseline oil
- check that the emergency button and emergency devices are working correctly;
- inspect the machine and tighten any screws that may have come loose;
- check that there is no leakage at connection points;
- check the functioning of all moving parts, and replace if necessary.

7.2.2 Daily maintenance

- **Wash the machine at the end of production as described in section** 7.1. – Washing procedure, **points** a, b, c, d **and** e**.**
- dismantle dosers and pipes, wash and disinfect thoroughly;
  material required: water – detergent – disinfectant
- lubricate seals, dry components and lubricate them with neutral vaseline before reassembling them;
  material required: vaseline oil
- check the oil level in the vibrator or twister doser lubricator container.

7.3 Chocolate sprayer maintenance

At the end of production each day, flush the chocolate feed pipe out with warm water.
Periodically and whenever necessary, dismantle the end (*Pos. 1-3-4, Fig. 7.1*) of the chocolate sprayer nozzle (*Pos. 2, Fig. 7.1*) to ensure that it is working properly.

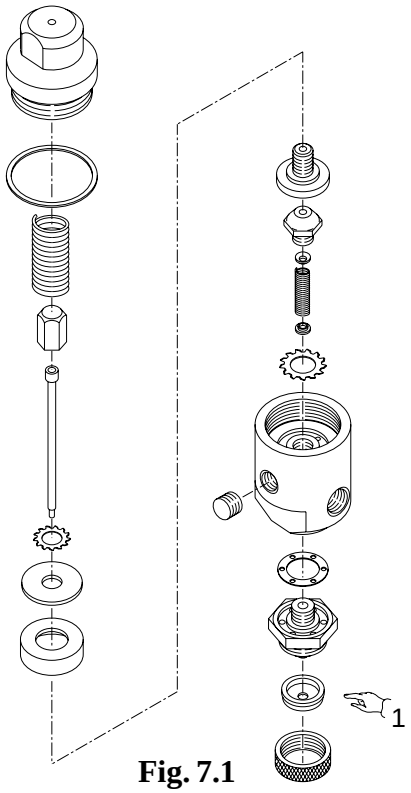

Fig. 7.1

7.4 Doser maintenance

Periodically check the efficiency of the dosers.
Proceed as follows:

1 - Shut off the compressed air supply;
2 - Slacken the screws holding the doser retaining bar;
3 - Remove the doser;
4 - Dismantle the doser:
- unscrew the bottom ring nut (*Pos. 1, Fig. 7.2*);
- open the clamp joining the lower and upper parts (*Pos. 2, Fig. 7.2*);
- extract the doser piston shaft (*Pos. 3, Fig. 7.2*).

With the doser dismantled, check the efficiency of the O-rings (*Pos. 4-5, Fig. 7.2*) on the stem.
If they are worn, ice cream mix will leak from the top of the doser.

5 - Wash using the recommended products shown in the table and reassemble.

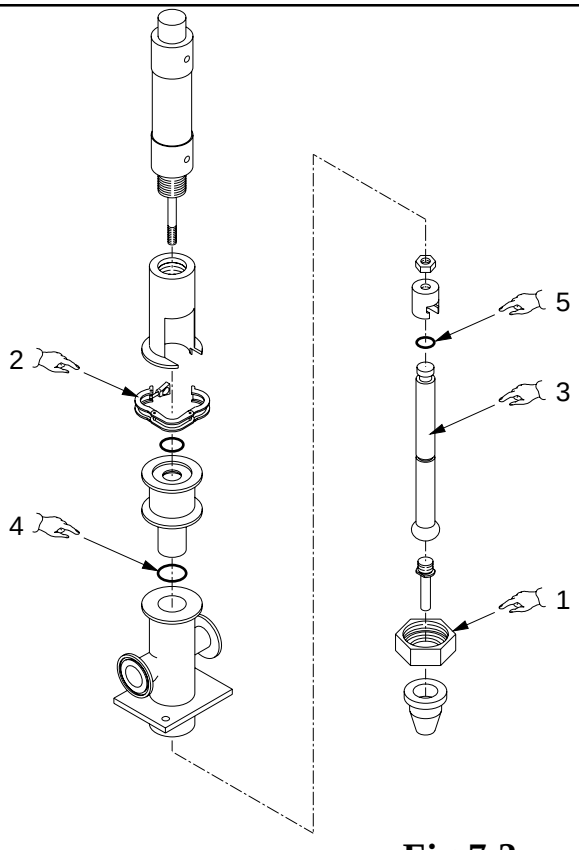

Fig.7.2

7.5 Topping station maintenance

At the end of production each day, flush the feed pipe out with warm water using the doser pump.
Periodically and whenever necessary, dismantle the end (*Pos. 1, Fig. 7.3*) of the doser nozzle and the cap (*Pos. 2, Fig. 7.3*).
While the doser is dismantled, check the condition of the seals (*Pos. 4-5-6, Fig. 7.3*).
Wash using the recommended products shown in the table and reassemble.

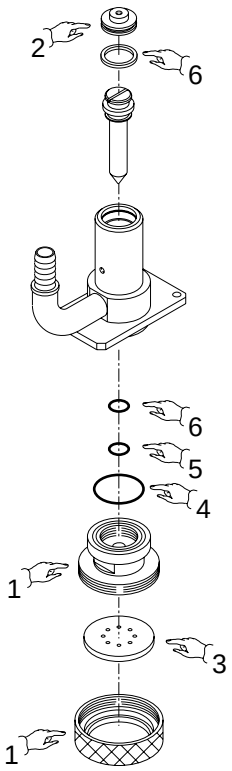

Fig. 7.3

7.6 Pencil filler maintenance

At the end of production each day, flush the feed pipe out with warm water.
Periodically and whenever necessary, dismantle the end (*Pos. 1, Fig. 7.4*) of the doser nozzle and the cap (*Pos. 2, Fig. 7.4*).
While the doser is dismantled, check the condition of the seals (*Pos. 3-4-5, Fig. 7.4*).
Wash using the recommended products shown in the table and reassemble.

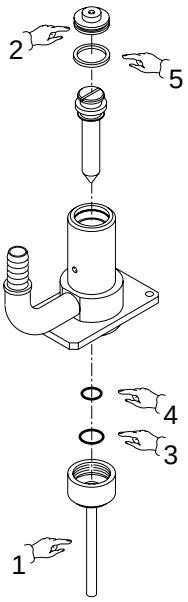

Fig. 7.4

7.7 Adjusting lamella chain tension

Periodically check the tension of the lamella chain as follows:

1 - Slacken the locking nut (*Pos. 1, Fig. 7.5*) and adjust the tension screw (*Pos. 2, Fig. 7.5*) to obtain the correct working tension;

2 - Tighten the locking nut (*Pos. 1, Fig. 7.5*).

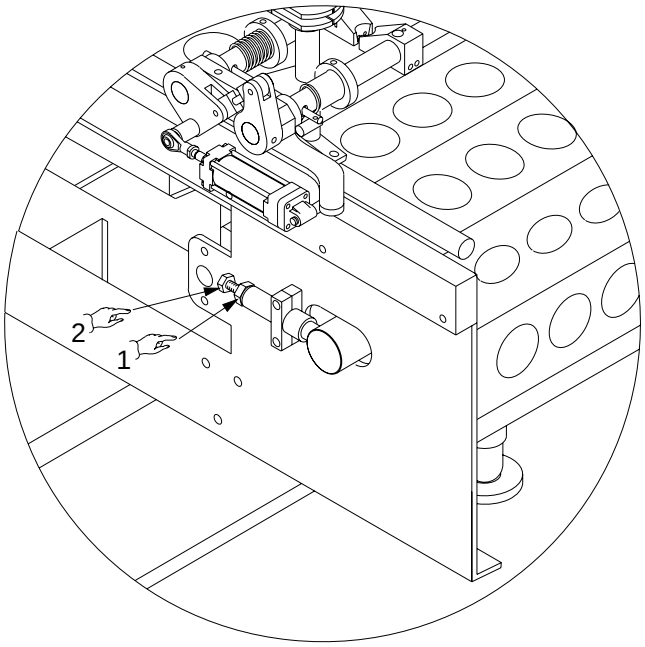

Fig.7.5

HOYER COMET N

9 - LIST OF SPARE PARTS

Contents

Structure - Fig. 9.1

POS.	CODE	DESCRIPTION	Q.TY
1	12041009	Panel support	1
2	12041019	Station guide	2
3	12041010	Right I beam	1
4	12041011	Left I beam	1
5	12041015	Upper chain guide	2
6	12041016	Spacer	9
7	12041017	Lower chain guide	2
8	12041018	Spacer	9
9	12000003	Foot attachment	4
10	12000002	Foot	4
11	12060624	Foot ring nut	4
12	12040012	Spacer	18
13	12041474	Station guide	2
14	VK50B01011	Switch support	1
15	12040006	Spacer	2

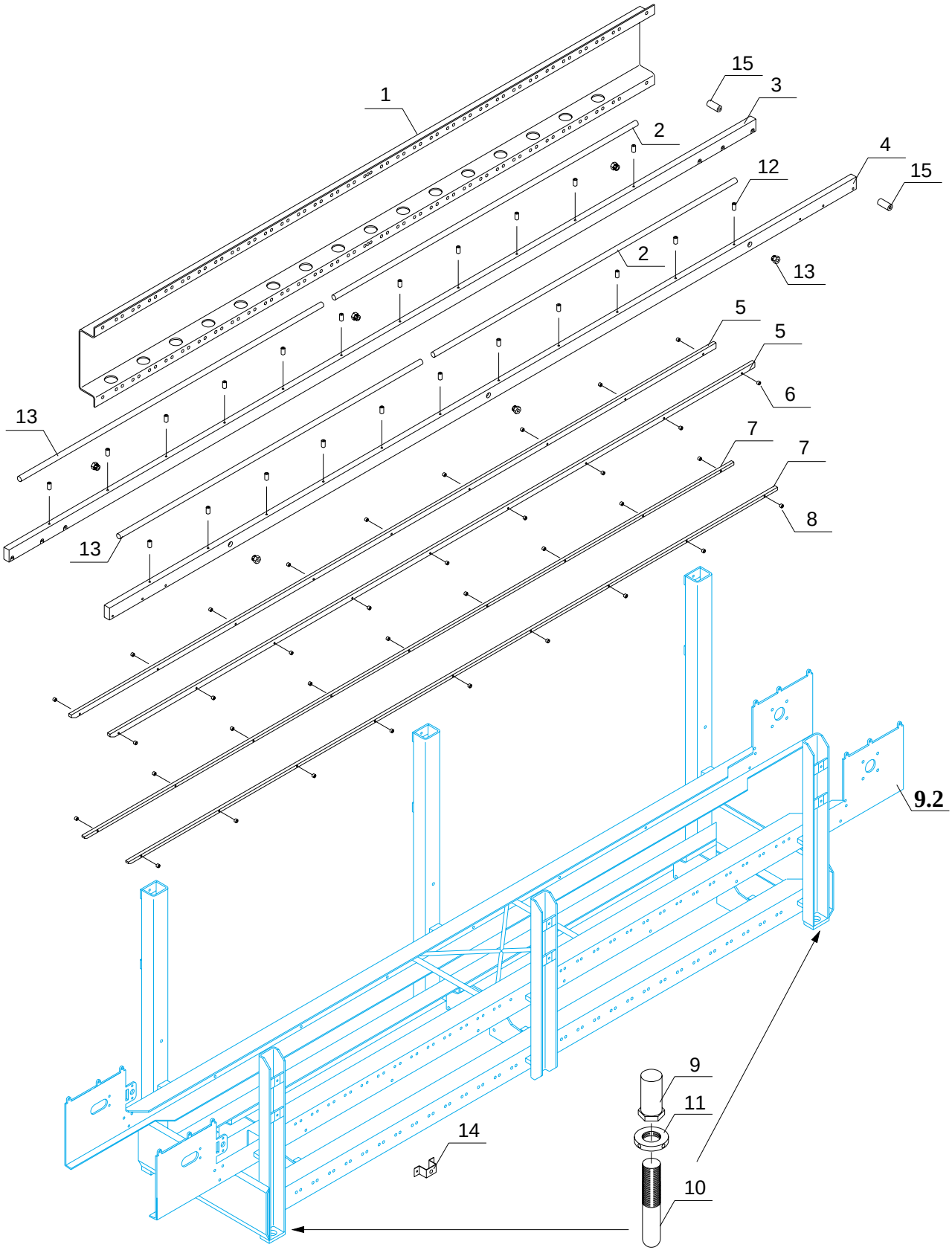

Fig. 9.1 - Structure

Structure - Fig. 9.2

POS.	CODE	DESCRIPTION	Q.TY
1	12041003	Feed end head	1
2	12041006	Rear upright	1
3	12041005	Front upright	1
4	12041004	Ejector end	1
5	12041007	Lower I-beam	2
6	12041008	Kojo support plate	3
7	12041014	Kojo support fastener	6
8	12041013	Cross trestle	1
9	12041002	Shoulder on side opposite motor	1
10	12041001	Shoulder on motor side	1

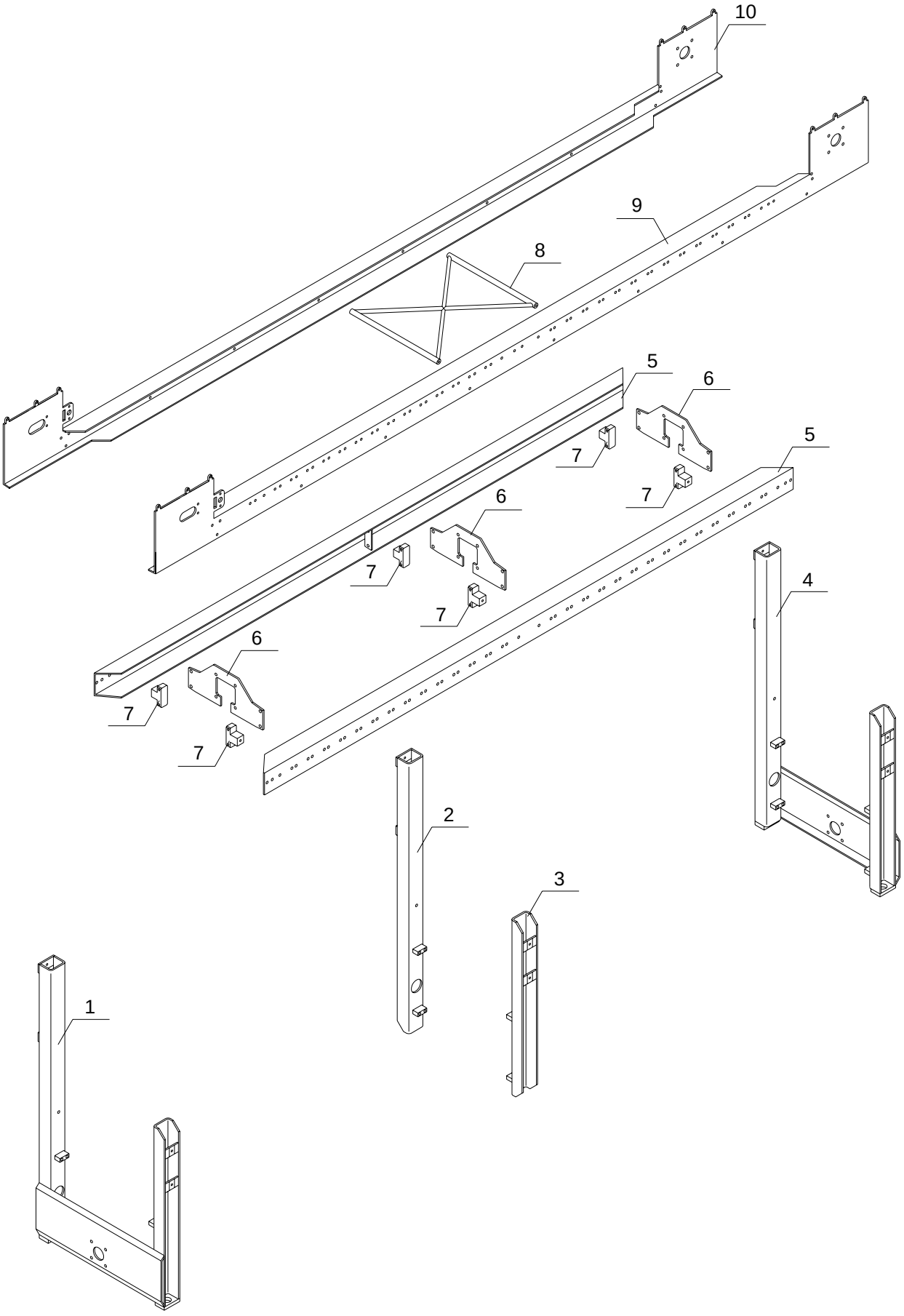

Fig. 9.2 - Structure

Motor drive - Fig. 9.3

POS.	CODE	DESCRIPTION	Q.TY
1	12040266	Motorised shaft	1
2	326013687	Key	2
4	12040265	Driven wheel	2
5	17040019	Support	1
6	12040195	210 mm step chain assembly	x 2
7	17040024	Support	1
8	17000170	Cylinder	1
9	17040023	Coupling	1
10	12040268	Indexing gear unit support	1
11	17040017	Gear unit	1
12	12040273	Proxi disk	1
13	17040020	Left coupling	1
14	12040274	Tie rod	1
15	17040021	Right coupling	1
16	54520012	Reduction gear	1
17	17000291	Hinge support	1
18	17000292	Ball coupling	1
19	17000642	Pressure reducer	1
20	17000176	Pressure gauge	1
21	540313028	Spacer	1
22	12041061	Spacer	2
23	12041139	Spacer	4
24	VK50C08001	Plate	1
25	VK50C20001	Pulley	2
26	17000120	Encoder	1
27	17000121	Encoder cable	1
28	17000056	Limit switch fastening	1
29	17000054	Limit switch	1
30	017035921	xs1-n12pa340 proximity sensor	1
31	017035932	xs1-n12ma230 proximity sensor	1
32	336019996	Belt	1
6a	12040194	140 mm step chain assembly	2

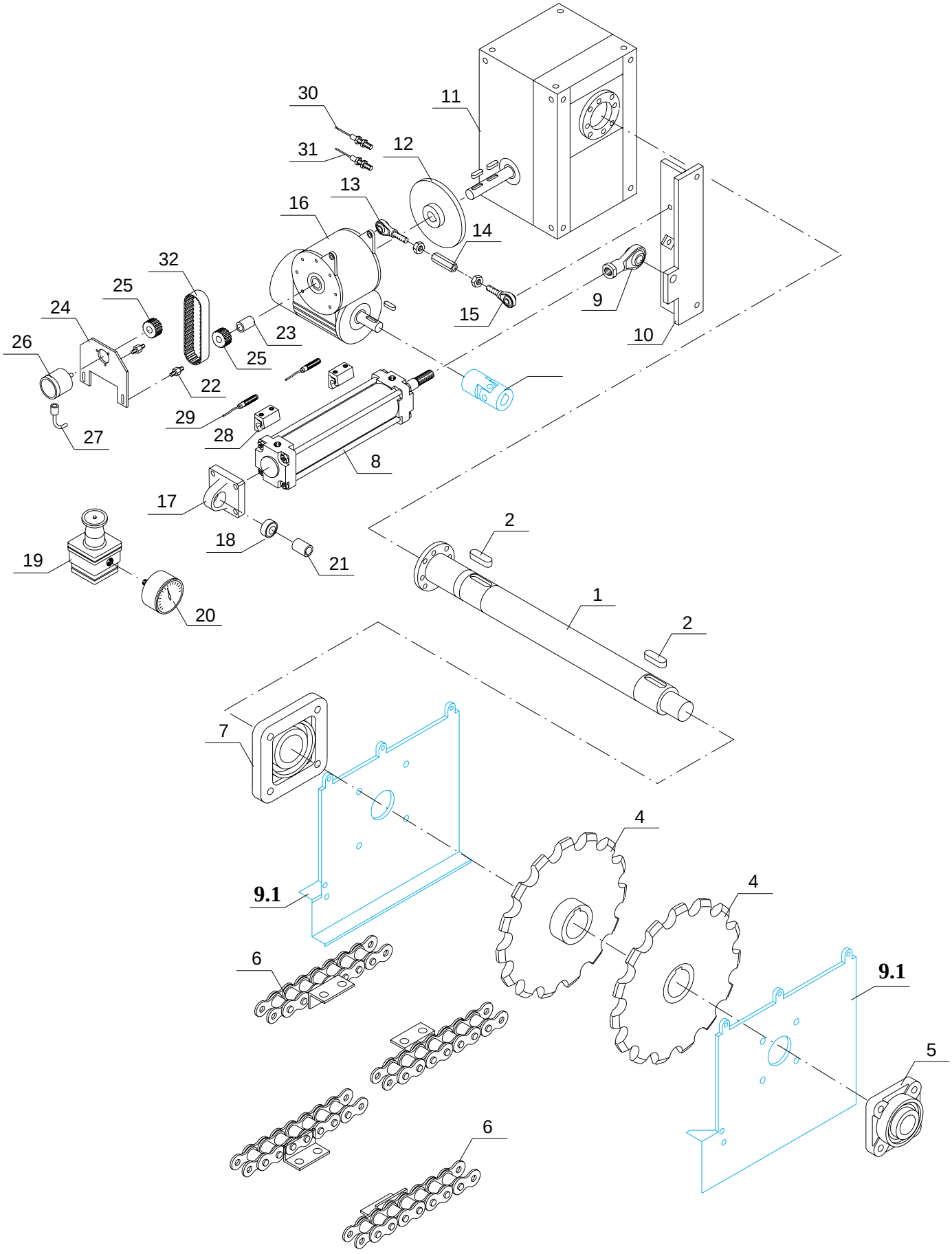

Fig. 9.3 - Motor drive

Motor drive - Fig. 9.4

POS.	CODE	DESCRIPTION	Q.TY
1	12040262	Shoulder washer	2
2	17000144	Bush	2
3	12040264	Driven wheel	2
4	12040263	Retainer ring	2
5	12040261	Driven shaft	1

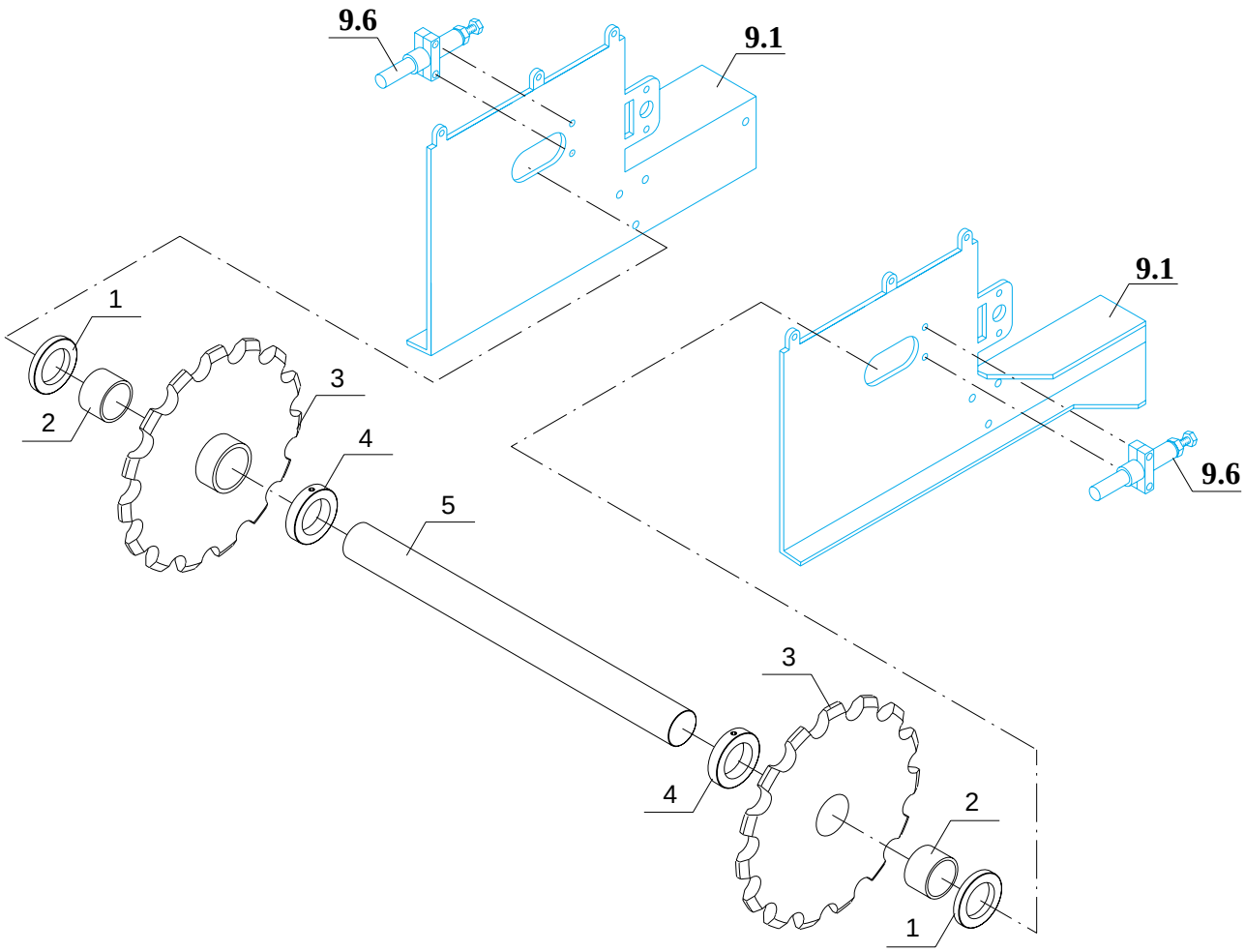

Fig. 9.4 - Motor drive

Cam shaft motor drive - Fig. 9.5

POS.	CODE	DESCRIPTION	Q.TY
1	17040019	Kojo support	1
2	17040024	Kojo support	3
3		Joint*	1
4		Pin*	1
5		Joint*	1
6	12040267	Camshaft	1
7	326013200	Key	1
8	54520013	Reduction gear	1
9	12040270	Toothed pulley	1
10	17040029	Toothed belt	1
11	12040269	Toothed pulley	1
12	014045499	Motor	1
13	12040272	Spacer	4
14	12040271	Pin	1
15	336072390	Cowling	3
16	17040020	Coupling	1
17	12040021	Tie rod	1
18	12040274	Spacer	1
19	17040021	Coupling	1
20	D-FM3146A	Washer	1

* Positions 3, 4 and 5 bear a single code, 5552,9093, as they are ordered as a single component.

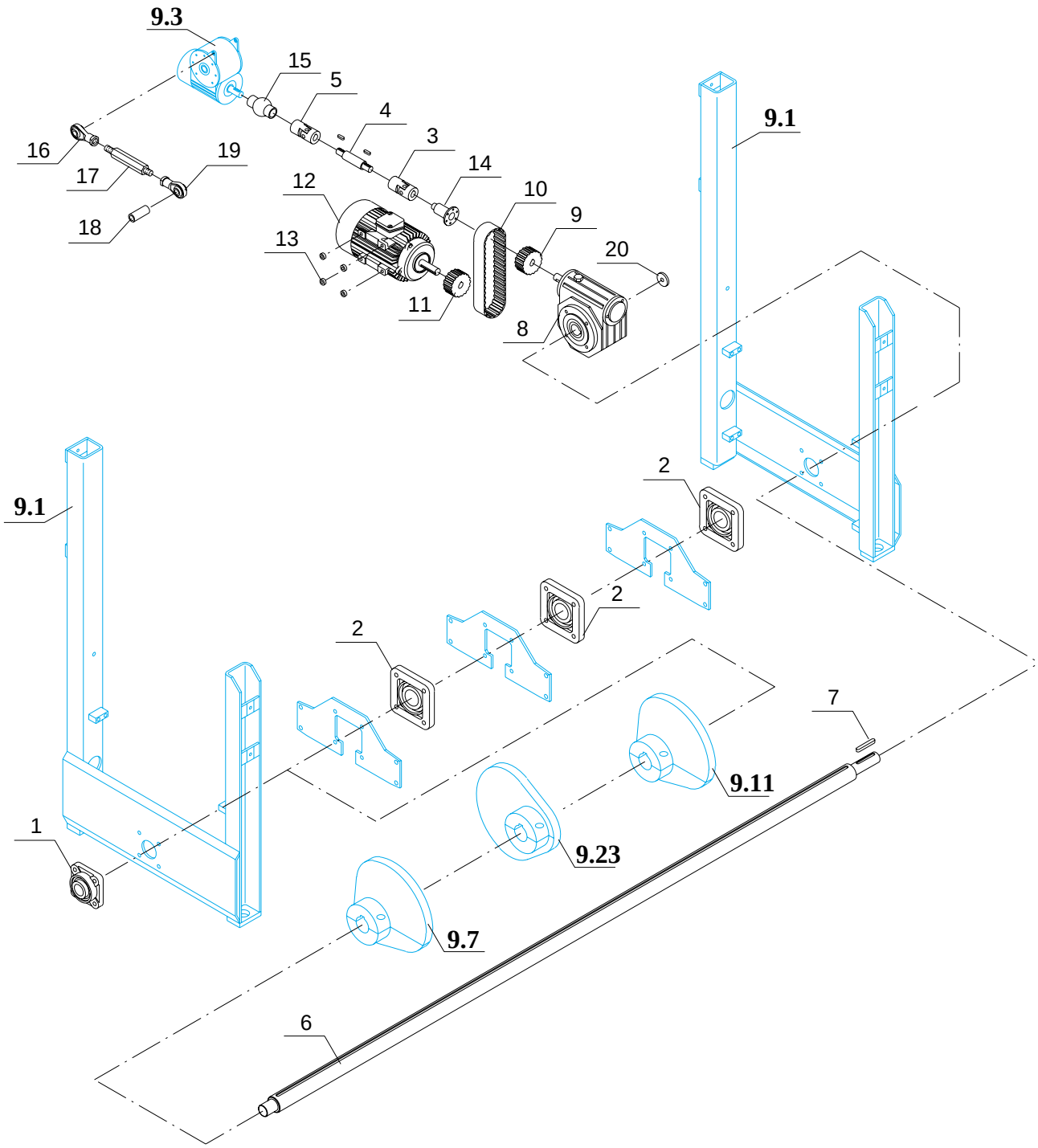

Fig. 9.5 - Cam shaft motor drive

Tensioner - Fig. 9.6

POS.	CODE	DESCRIPTION	Q.TY
1	326003124	Screw	2
2	12040058	Tensioner end piece	2
3	12040042	Support	2
4	12040053	Tensioner body	2
5	336067092	Seal	2
6	12040057	Spring cap	2
7	12040059	Tensioner piston	2
8	12040056	Spring	2

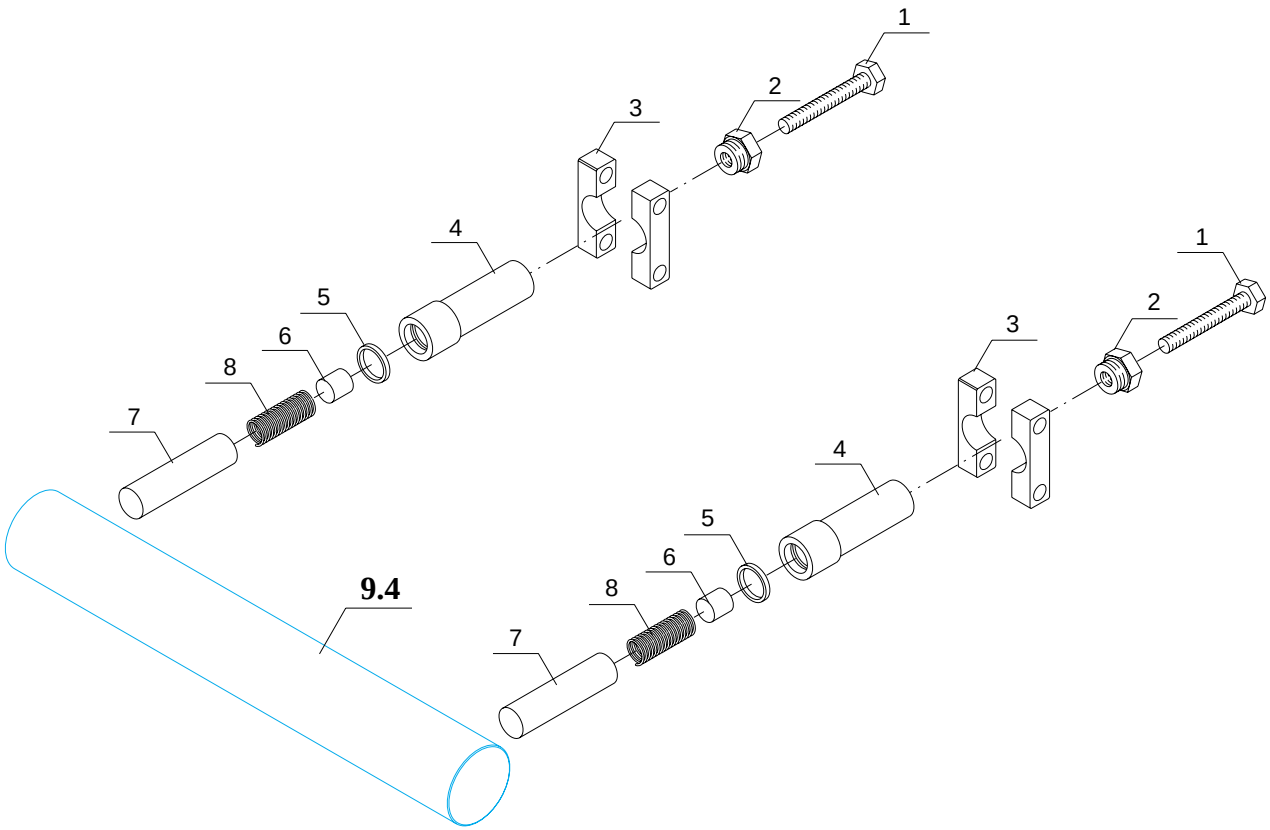

Fig. 9.6 - Tensioner

Cup feed - Fig. 9.7

POS.	CODE	DESCRIPTION	Q.TY
1	17000027	Coupling head	2
2	12041330	Cylinder coupling plate	1
3	17000158	Cylinder	1
4	17000079	Coupling head	1
5	12041030	Spacer	4
6	12041031	Tie rod	2
7	17000079	Coupling head	1
8	12041033	Upright tie rod	1
9	12041026	Ejector movement lever	2
10	12041028	Vertical movement axle	1
11	326015095	Lubricator	1
12	12041023	Spacer	3
13	12041029	Spacer	2
14	336003545	Wheel	1
15	12041027	Fulcrum washer	2
16	12041025	Axle washer	1
17	17000421	Bush	2
18	12041024	Retainer washer	1
19	12041022	Lever movement axle	1
20	12041032	Cam	1
21	12041042	Cylinder pin	1

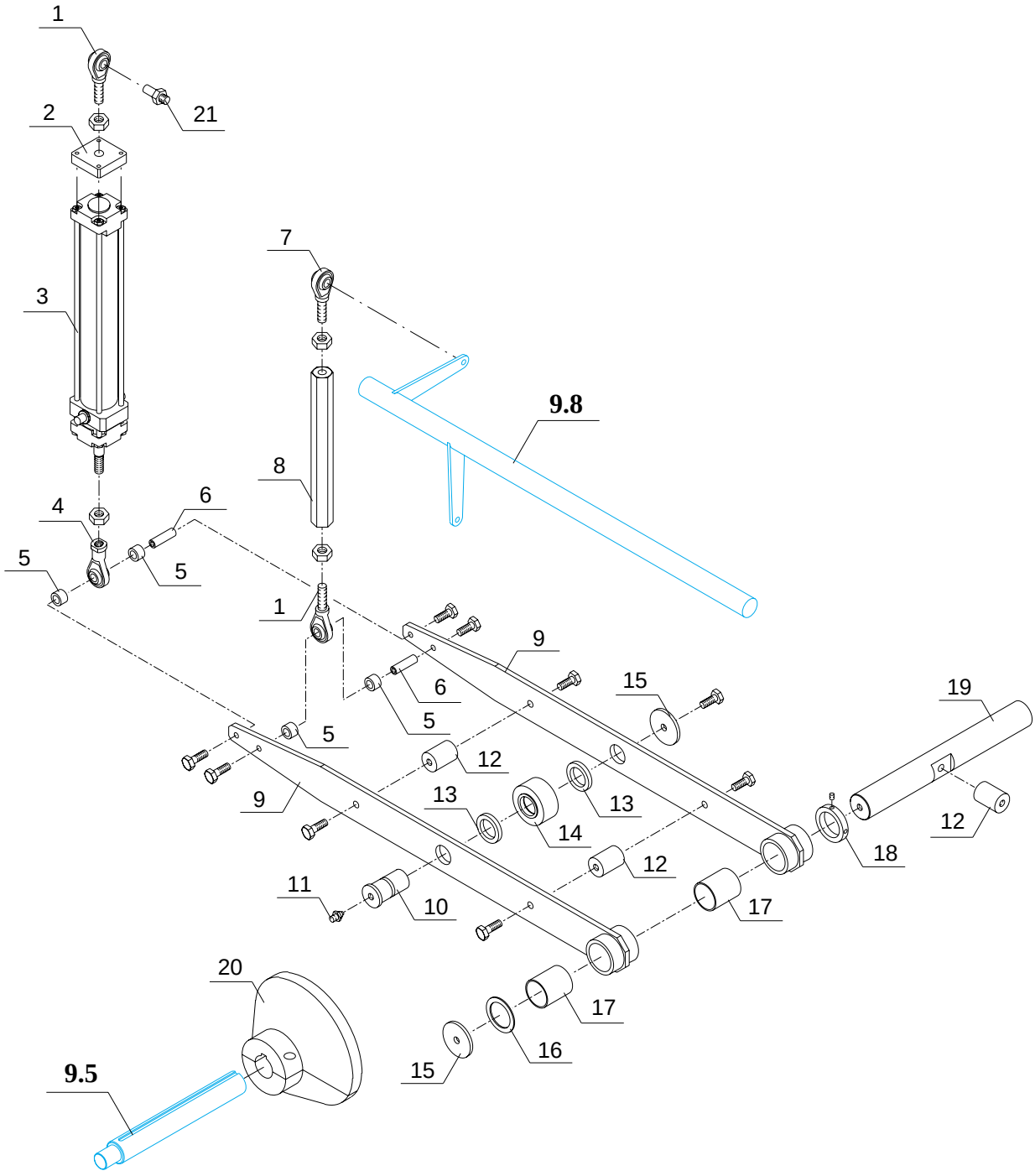

Fig. 9.7 - Cup feed

Cup feed - Fig. 9.8

POS.	CODE	DESCRIPTION	Q.TY
1	12041044	Feed movement lever mechanism	1
2	336007057	Support	2
3	12041038	Uniball spacer	1
4	17000027	Coupling head	1
5	12041045	Horizontal tie rod	1
6	17000079	Coupling head	1
7	12041046	Lever movement fulcrum	1
8	17000239	Coupling head	2
9	17000240	Coupling head	2
10	336007106	Support	2

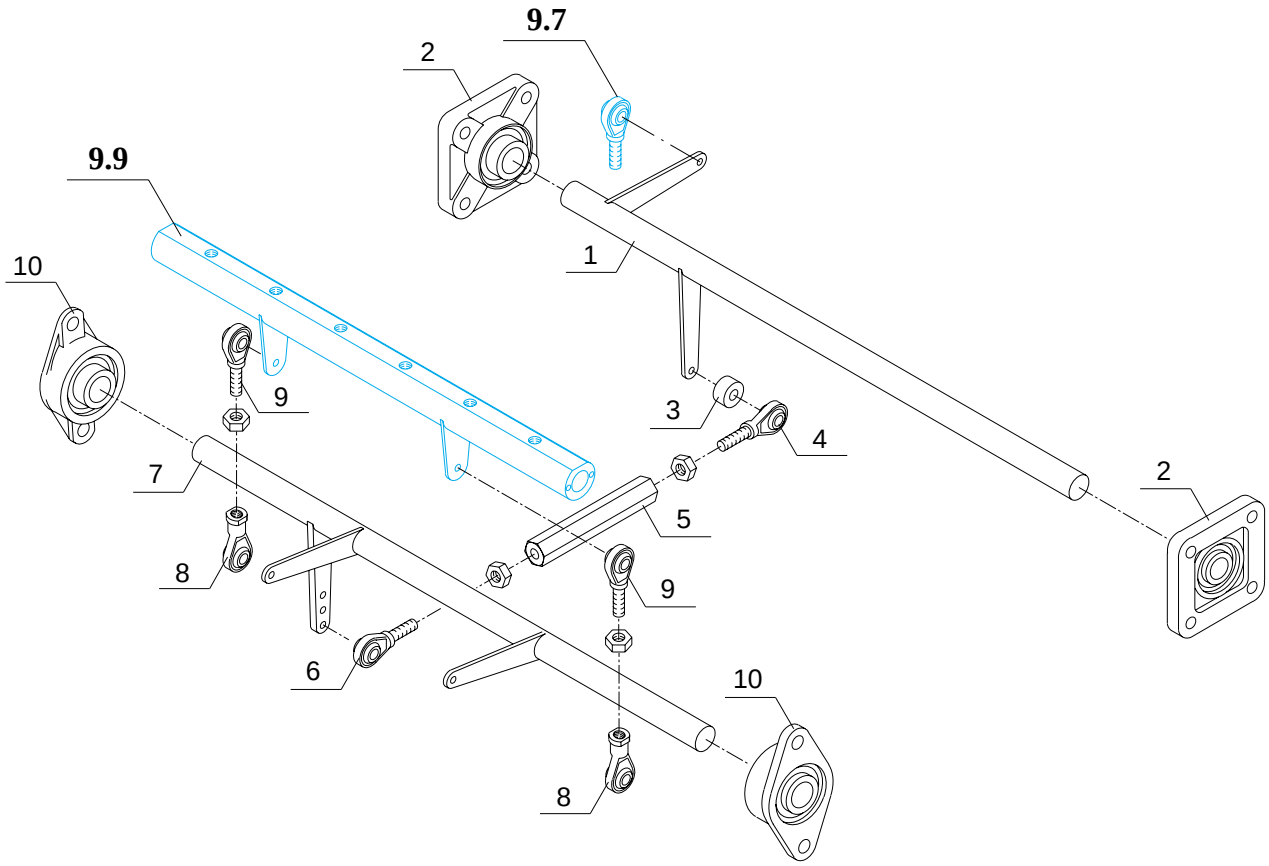

Fig. 9.8 - Cup feed

Cup feed - Fig. 9.9

POS.	CODE	DESCRIPTION	Q.TY
1	12041040	Plate	2
2	336067075	Seal	2
3		Side spacer (according to product)	2
4		Central spacer (according to product)	-
5	12041041	Vacuum crosspiece	1
6		Suction cup holder (according to product)	-
7		Suction cup (according to product)	1
8	12041039	Upper support	2
9	12041035	Upper fork	2
10	17000410	Bush	4
11	12041043	Vertical guide	2
12	12041036	Vertical movement column	2

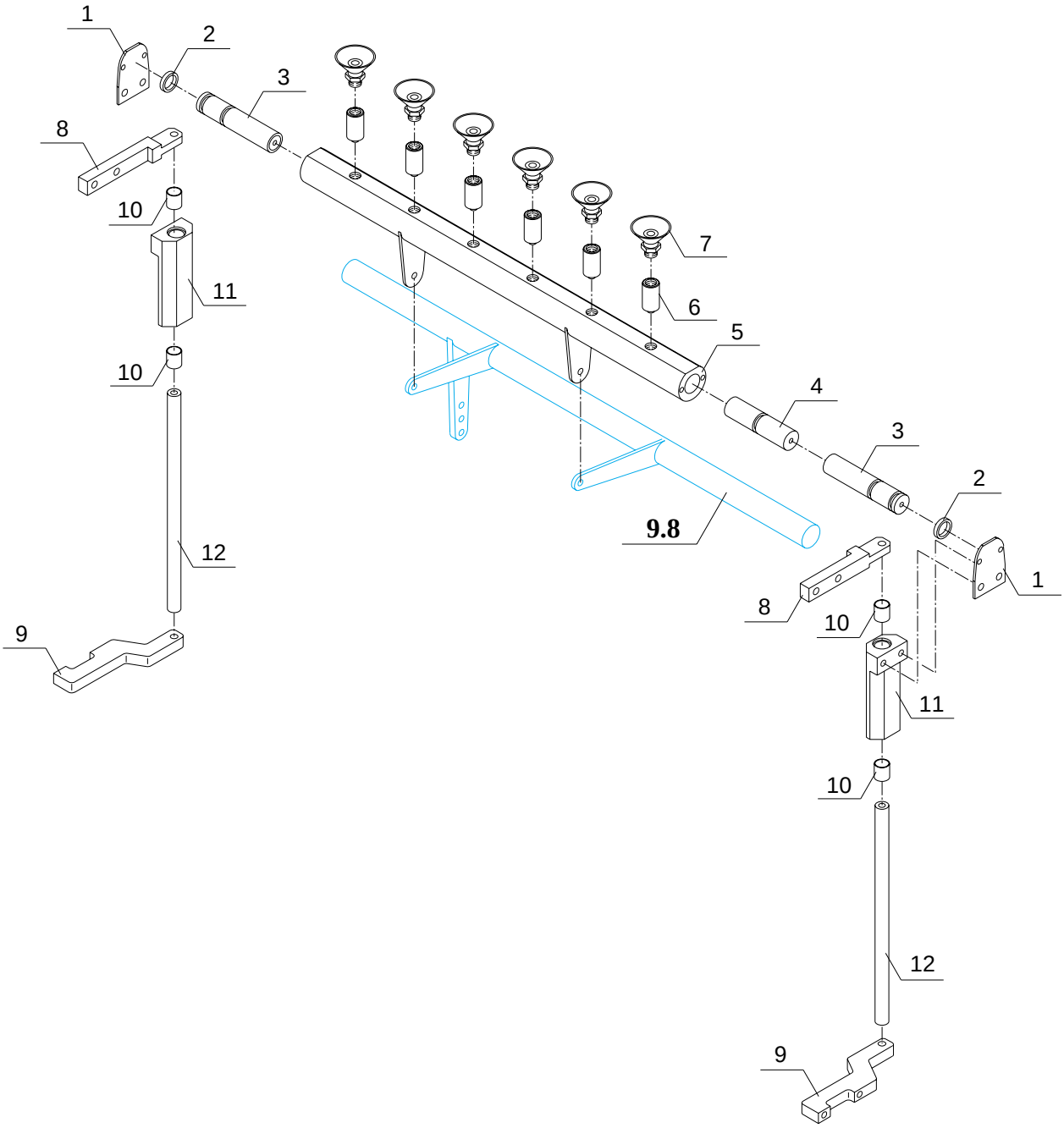

Fig. 9.9 - Cup feed

Cup feed - Fig. 9.10

POS.	CODE	DESCRIPTION	Q.TY
1		Upper blade (depends on product)	1
2		Lower blade (depends on product)	1
3	17000007	Cylinder	2
4	540212003	Coupling	2
5	12040078	Lower clamp	4
6	12041086	Blade guide sliding block	2
7	12041085	Cup feed supporte	1
8	12040079	Upper clamp	4

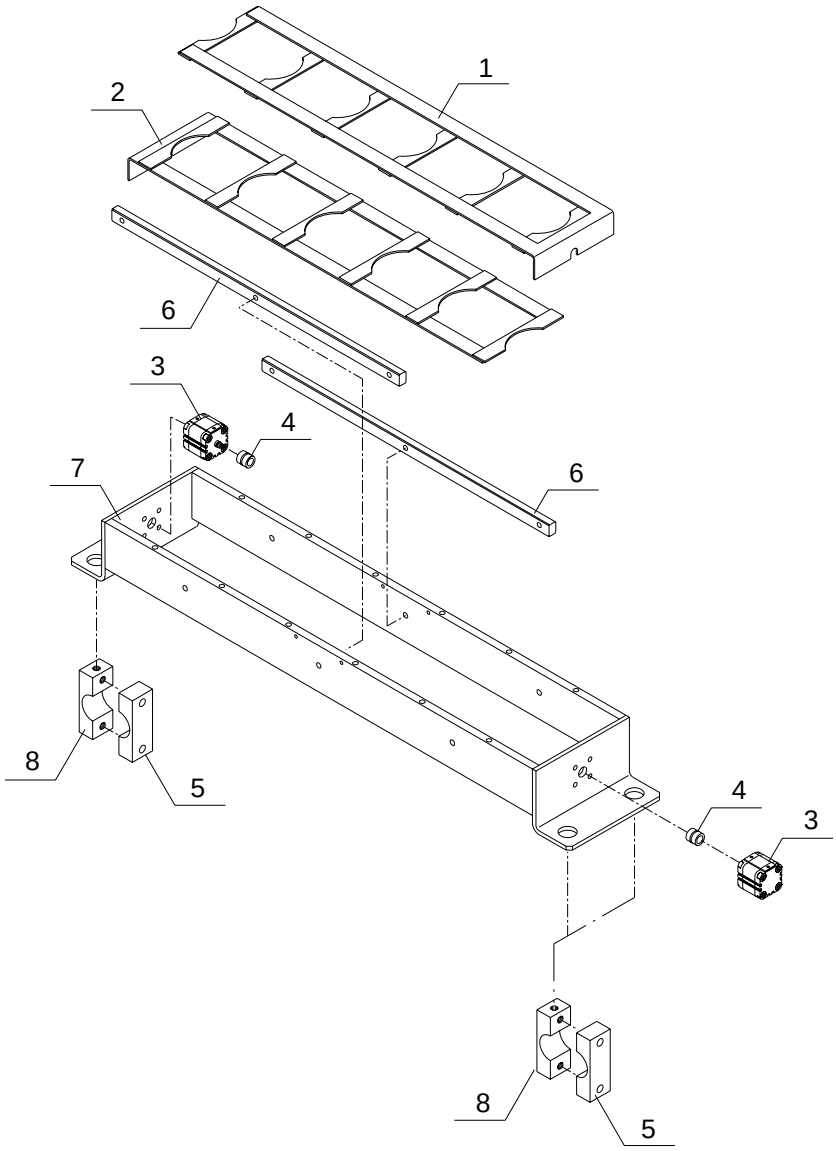

Fig. 9.10 - Cup feed

Pick-up ejector - Fig. 9.11

POS.	CODE	DESCRIPTION	Q.TY
1	17000025	Coupling head	2
2	12041330	Plate	1
3	17000014	Cylinder	1
4	17000159	Coupling head	1
5	12041030	Spacer	4
6	12041031	Tie rod	2
7	17000027	Coupling head	1
8	12041057	Movement tie rod	1
9	12041026	Ejection movement lever	2
10	12041028	Vertical movement lever	1
11	326015095	Lubricator	1
12	12041023	Spacer	3
13	12041029	Spacer	2
14	336003545	Wheel	1
15	12041027	Fulcrum washer	2
16	12041025	Axle washer	1
17	17000421	Bush	2
18	12041024	Retaining washer	1
19	12041102	Lever movement axle	1
20	12041058	Cam	

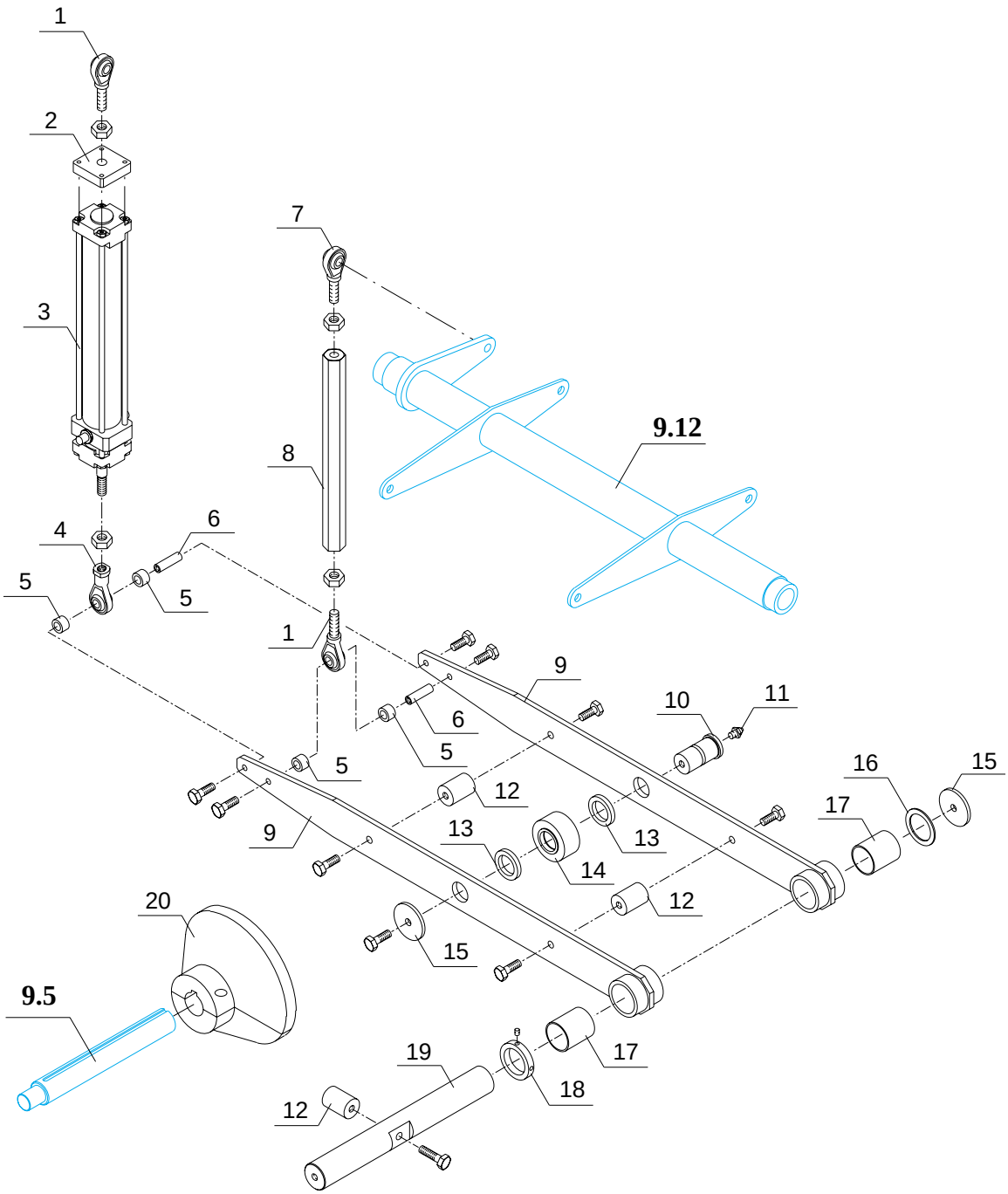

Fig. 9.11 - Pick-up ejector

Pick-up ejector - Fig. 9.12

POS.	CODE	DESCRIPTION	Q.TY
1	12041050	Vertical column	2
2	12041049	Spacer	2
3	12041053	Anti-rotation fork	1
4	12041056	Ejector holder crosspiece	1
5	336069741	Scraper	2
6	5506,9003	Sliding bush	1
7	326019140	I40 elastic ring	1
8	12041054	Seal cap	1
9	17000027	Coupling head	2
10	17000025	Coupling head	2
11	12041052	Horizontal shaft support	2
12	12041332	Lever counterweight	1
13	12041055	Lever mechanism	1

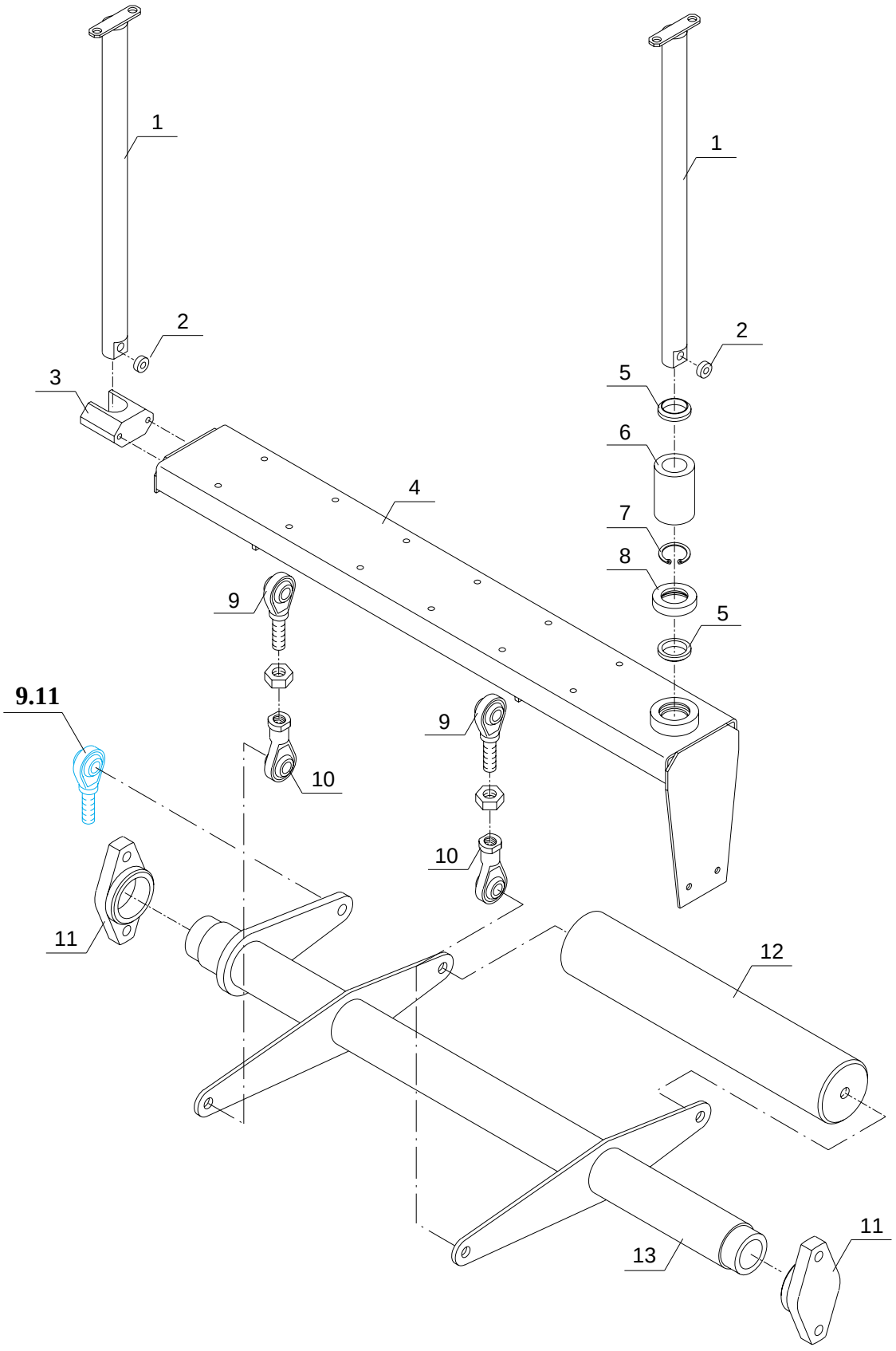

Fig. 9.12 - Pick-up ejector

Pick-up ejector - Fig. 9.13

POS.	CODE	DESCRIPTION	Q.TY
1	12041334	Ejector holder support	2
2	12041331	Ejector holder	6
3	12041342	Tube ejector	24
4	12041341	Cone ejector	24
5	12041333	Cup ejector holder	1

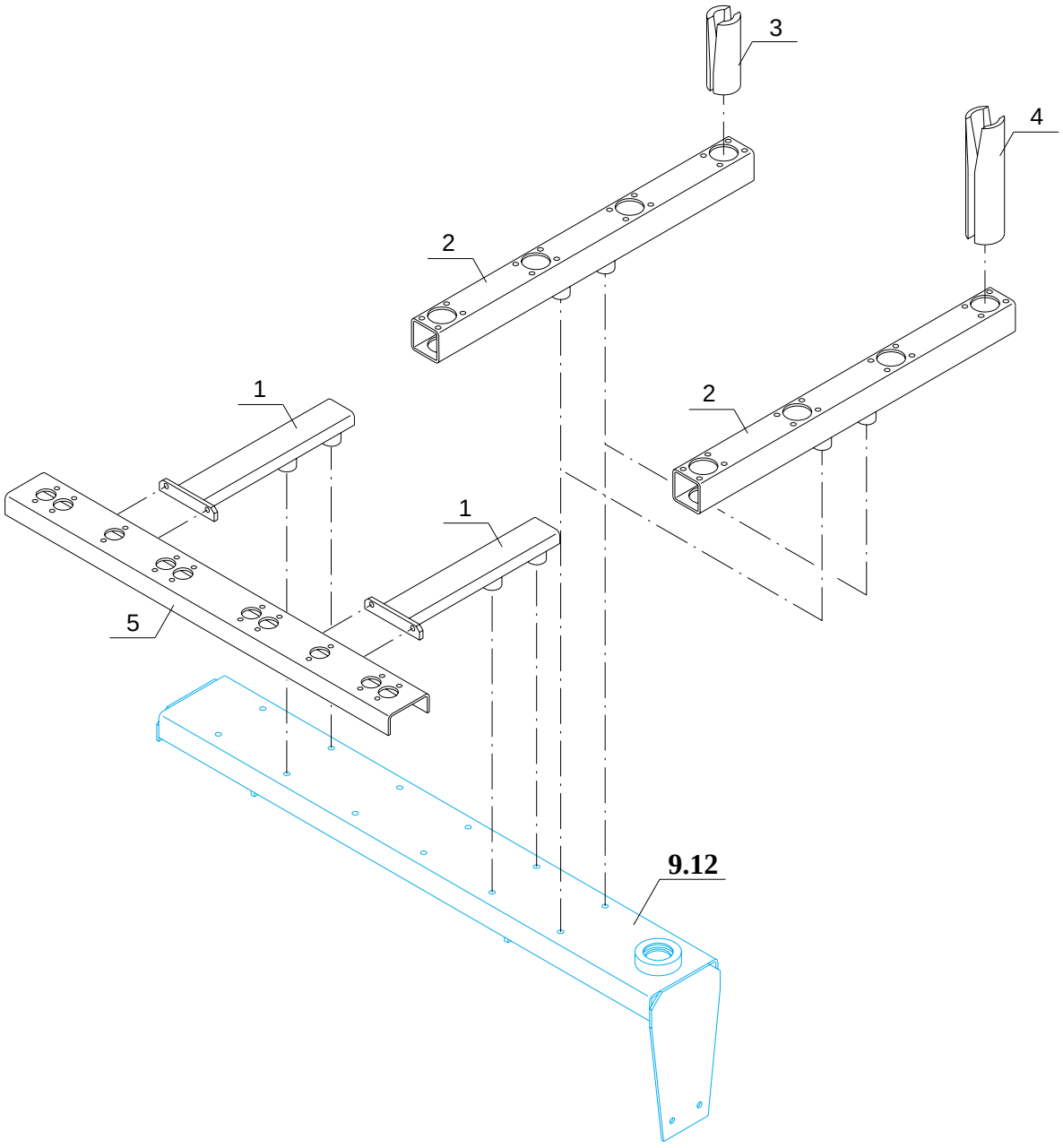

Fig. 9.13 - Pick-up ejector

Pick-up - Fig. 9.14

POS.	CODE	DESCRIPTION	Q.TY
1	12041321	Side crosspiece	2
2	12041319	Sliding bush	6
3	12041324	Spacer	4
4	12041325	Washer	6
5	12041320	Plate	4
6	326019012	E12 elastic ring	6
7	12041316	Guide rod	2
8	12041317	Guide rod	1
9	12041318	Guide rod	1
10	12041323	Front crosspiece	1
11	326019010	E10 elastic ring	12
12	12041322	Rear crosspiece	1
13	12041315	Longitudinal guide rod	6

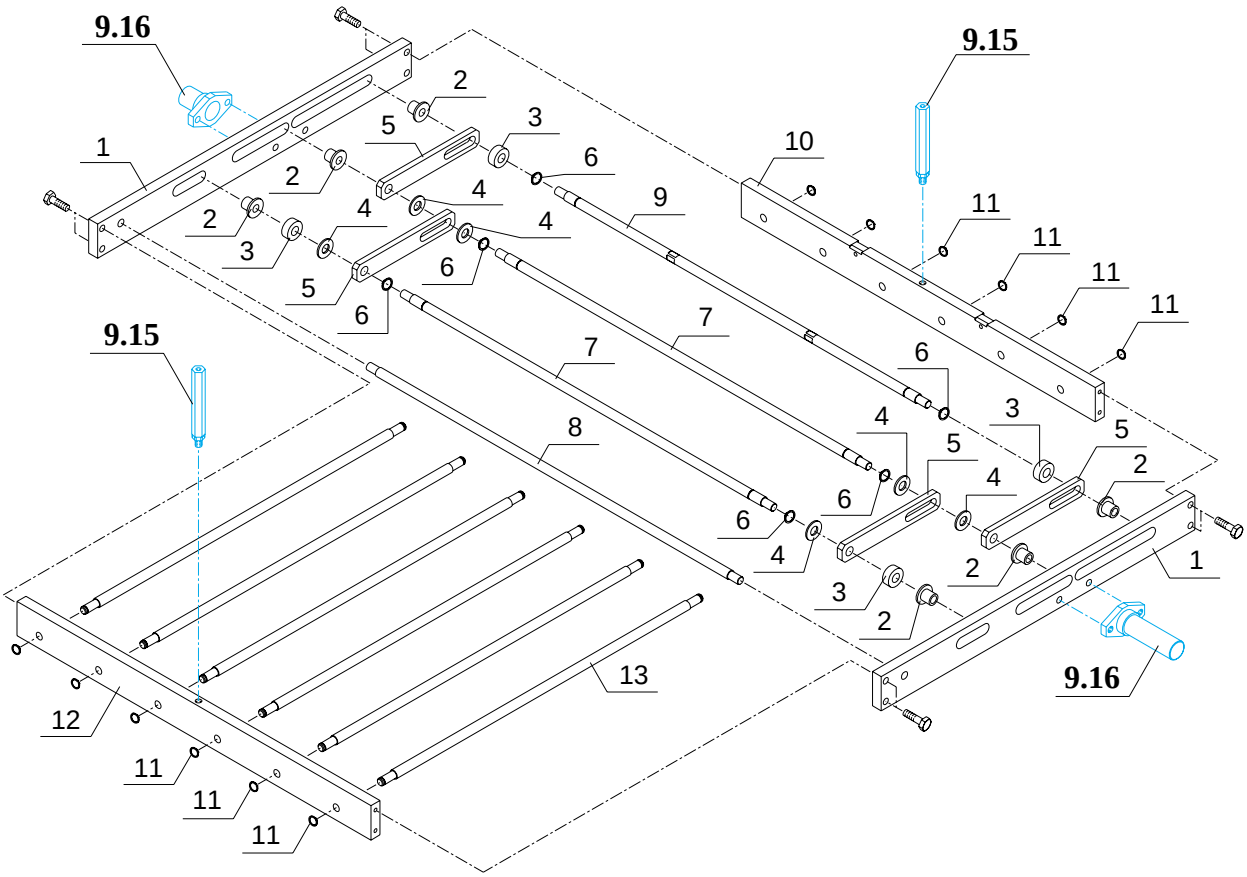

Fig. 9.14 - Pick-up

Pick-up - Fig. 9.15

POS.	CODE	DESCRIPTION	Q.TY
1	12041329	Plate	1
2	13040384	Cylinder	2
3	12041328	Spacer	2
4	12041312	Gripper movement lever	2
5	12041314	Locking plate	2
6		Coupling head	2
7	12041313	Cylinder connection block	2
8	326019006	E6 elastic ring	4
9	12041327	Cylinder fulcrum pin	2
10	12041326	Cylinder support	2

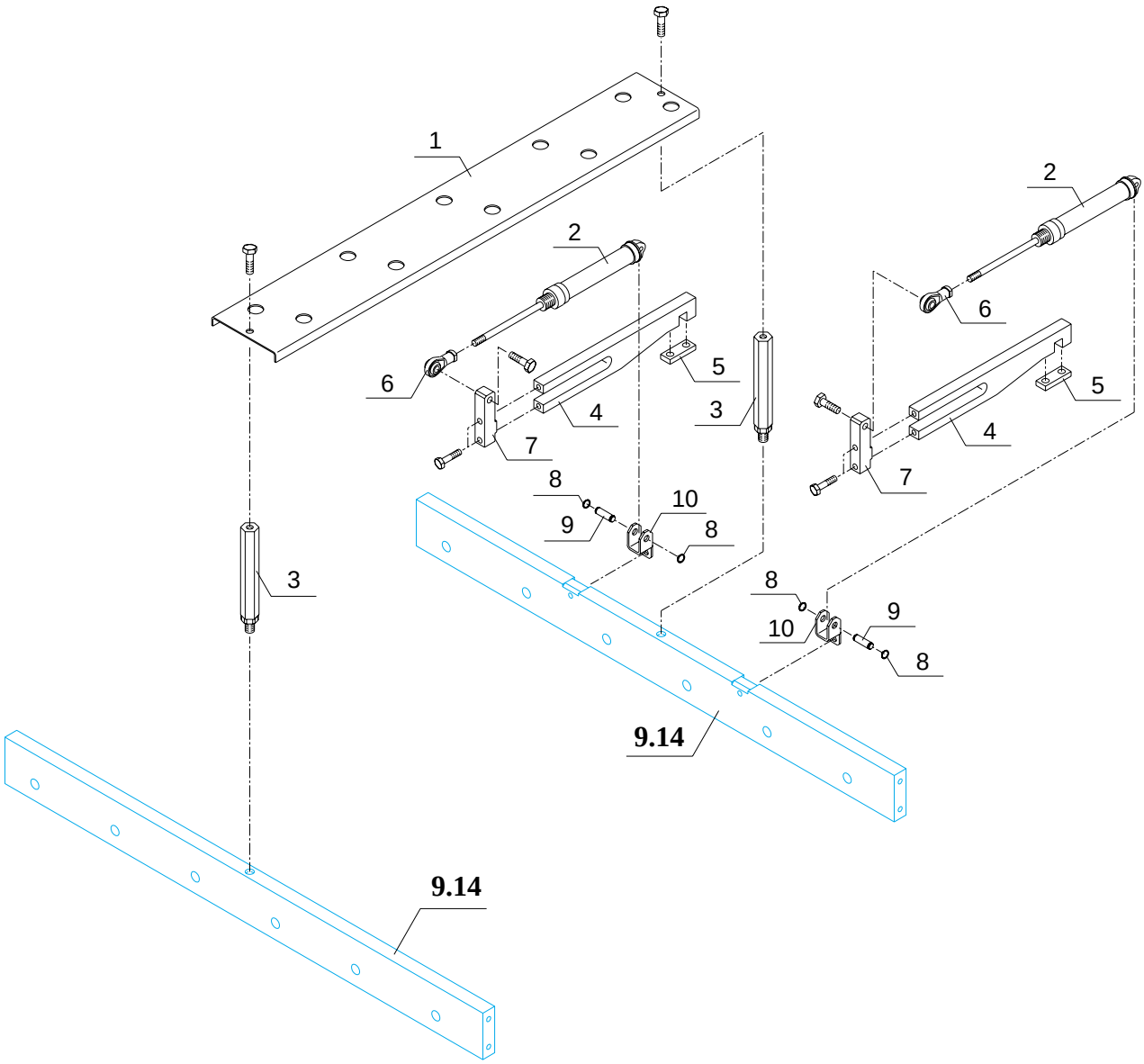

Fig. 9.15 - Pick-up

Pick-up - Fig. 9.16

POS.	CODE	DESCRIPTION	Q.TY
1	336071190	Seal ring	2
2	326019147	Circlip	2
3	17040064	Bearing	2
4	336071225	Seal ring	2
5	12041241	Gripper holder frame support	1
6	12041242	Frame support	1
7	12041239	Overturning arm	1
8	336005850	Expansion bush	1
9	12041300	Pulley plate	1
10	12041233	Roller pin	1
11	336071165	Seal ring	1
12	12041234	Return roller	1
13	17040063	Belt	1
14	12041244	Pulley	1
15	17000622	Bearing	1
16	326019132	Circlipr	1
17	326019012	Circlip	1
18	336071115	Seal ring	1
19	017035921	Proximity sensor	3

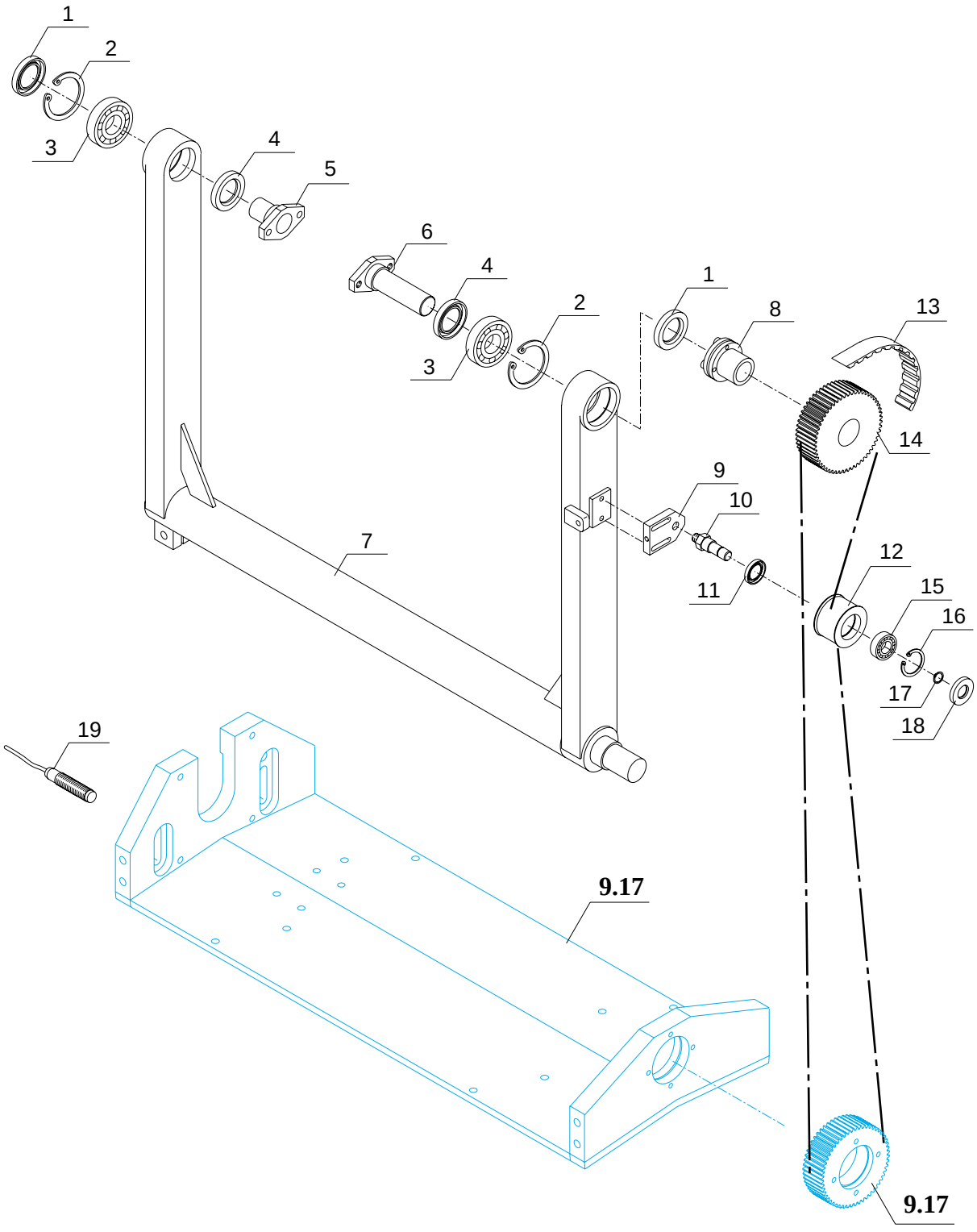

Fig. 9.16 - Pick-up

Pick-up - Fig. 9.17

POS.	CODE	DESCRIPTION	Q.TY
1	5451,9397	Digital motor	1
2	12041235	Block	4
3	12041236	Block support	4
4	12041248	Left support	2
5	12041247	Right support	2
6	5452,0030	Planet gear	1
7	12041245	Pulley	1
8	12041240	Overturn support	1
9	12041246	Limit switch plate	1
10	12041249	Stationary plate	1
11	336071282	Seal ring	1
12	326019162	Circlip	1
13	336001468	Bearing	1
14	336071250	Seal ring	1
15	12041245	Pulley	1

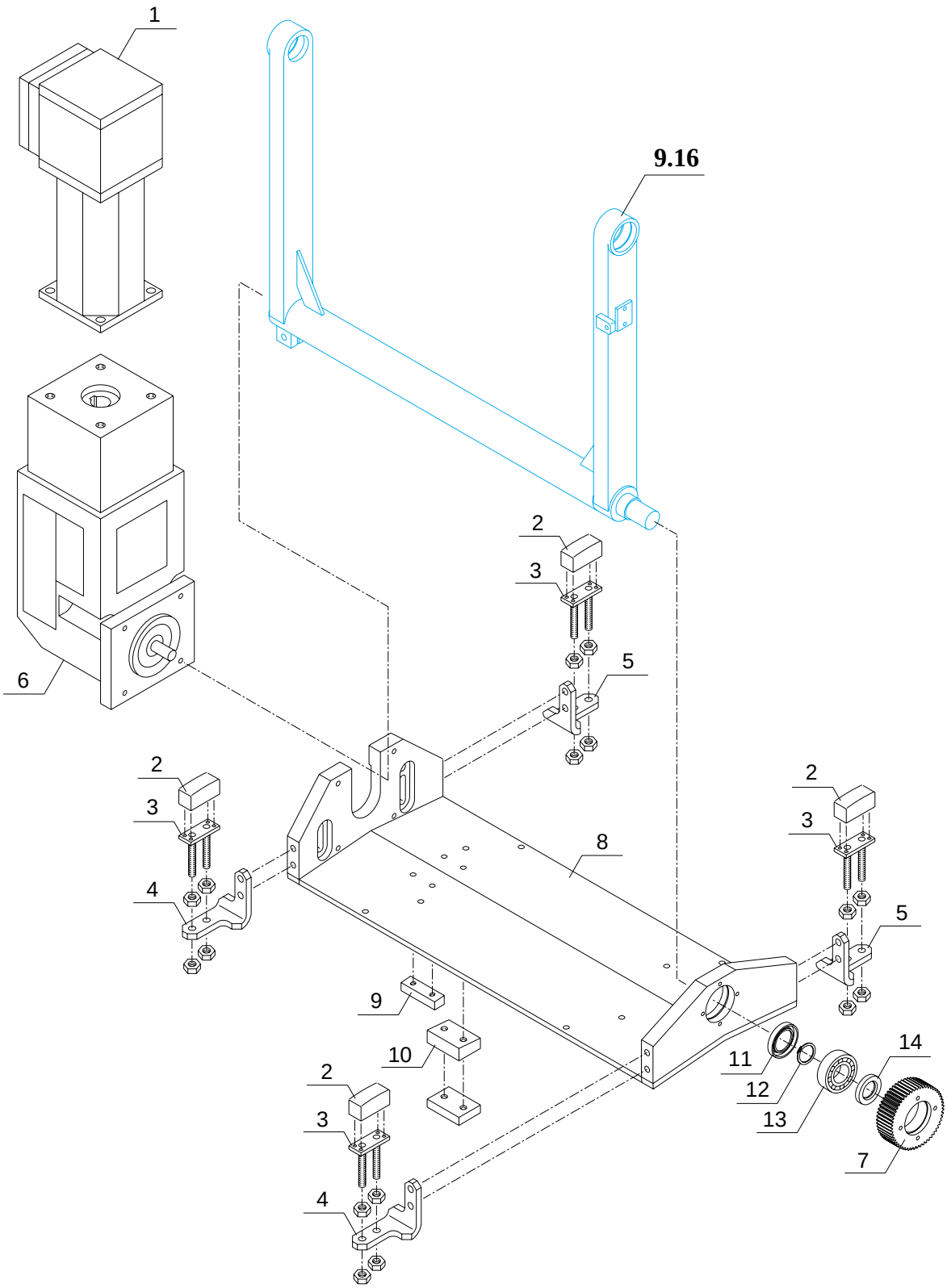

Fig. 9.17 - Pick-up

Pick-up - Fig. 9.18

POS.	CODE	DESCRIPTION	Q.TY
1	12041238	Scraper holder ring	4
2		Scraper ring	8
3	12041237	Linear bearing support	4
4		Linear bearing	4
5	12041304	Shaft	2
6	12041305	Support shoulder	1
7		Lubricator	4

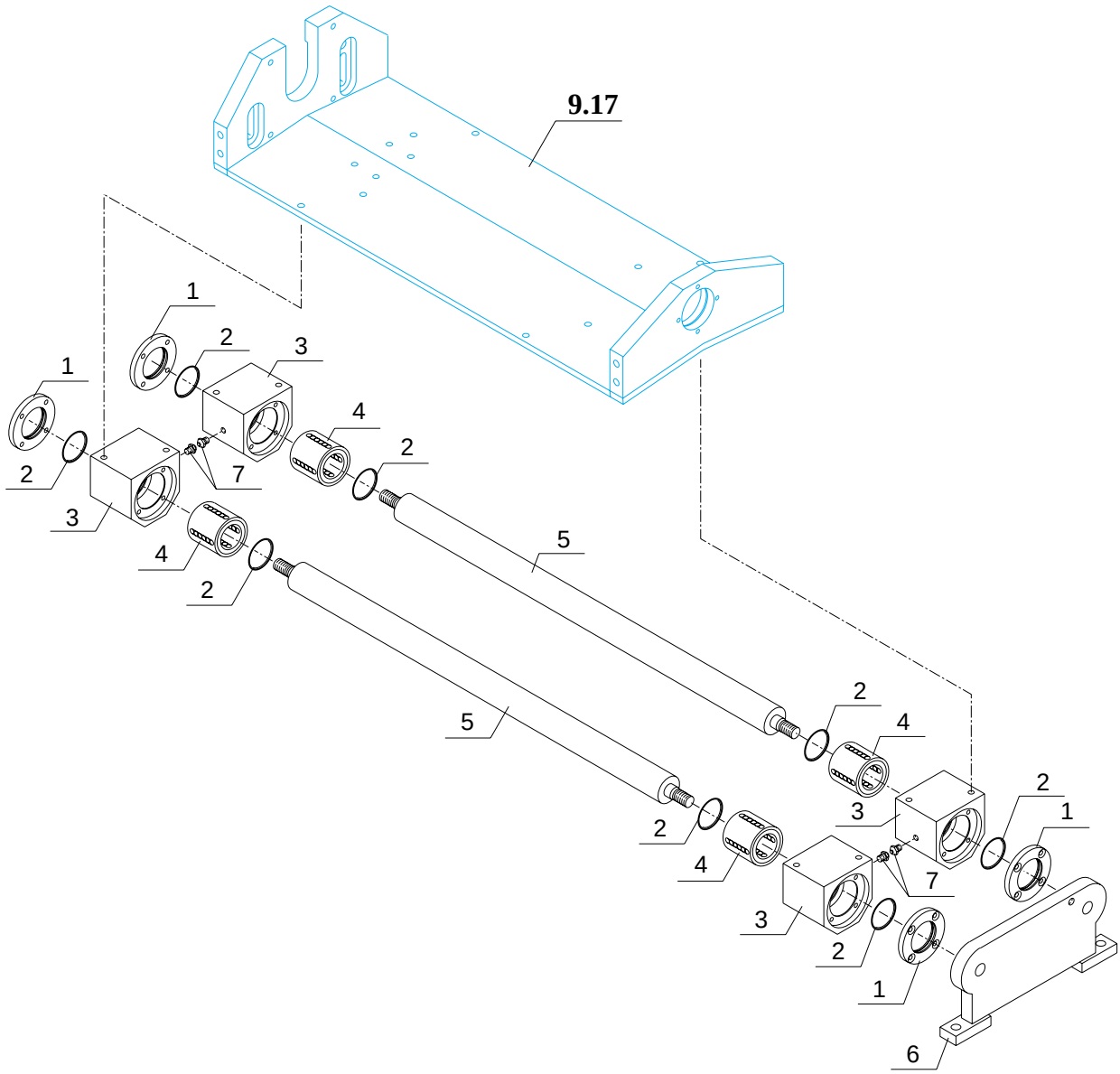

Fig. 9.18 - Pick-up

Pick-up - Fig. 9.19

POS.	CODE	DESCRIPTION	Q.TY
1		Digital motor	1
2	12041306	Support shoulder	1
3	12041231	Pin	1
4		Seal ring	1
5	336001368	Bearing	1
6	326015132	Circlip	1
7	326019012	Circlip	1
8		Seal ring	1
9	12041232	Return roller	1
10		Chain	1
11	12041303	Pulley hub	1
12	12041302	Pulley	1
13	12041228	Pulley	1
14		Seal ring	1
15	326019017	E17 elastic ring	1
16	326019135	I35 elastic ring	1
17	336001020	Bearing 62201-2RS	1
18		Seal ring	1
19	12041227	Pulley pin	1
20	12041230	Inner washer	1
21	12041229	Outer washer	1

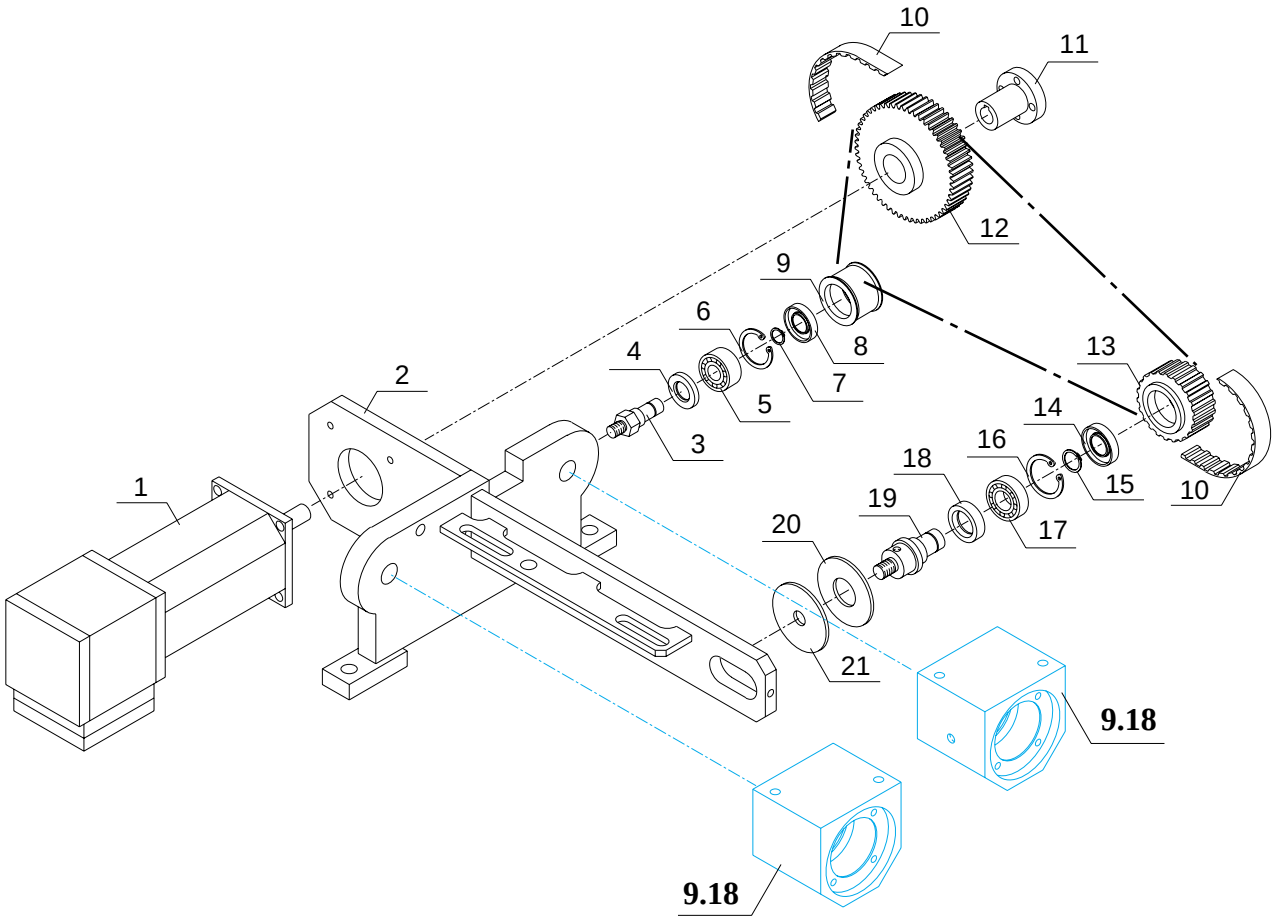

Fig. 9.19 - Pick-up

Pick-up - Fig. 9.20

POS.	CODE	DESCRIPTION	Q.TY
1		Digital motor	1
2	12041235	Block	4
3	12041236	Block support	4
4	12041248	Left support	2
5	12041247	Right support	2
6	326013160	Tab 12x8x50	1
7	12041243	Motor shaft reduction gear	1
8	12041301	Stationary overturn support	1
9	336071282	Seal ring	1
10	326019162	I62 elastic ring	1
11	336001468	Bearing	1
12	336071250	Seal ring	1
13	12041245	Pulley	1

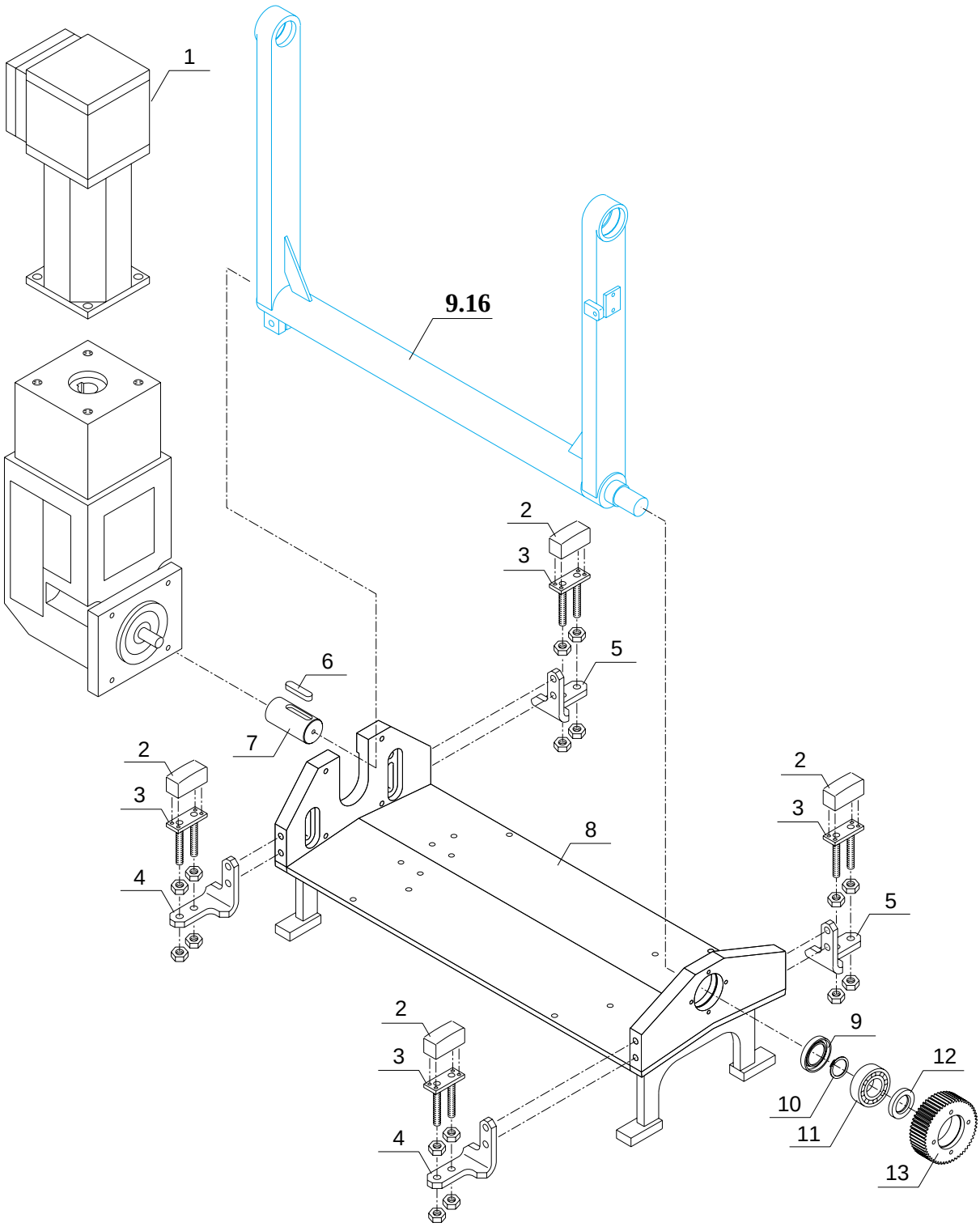

Fig. 9.20 - Pick-up

Pick-up - Fig. 9.21

POS.	CODE	DESCRIPTION	Q.TY
1		Cylinder	1
2	12041309	Open gripper command rod	1
3	12041307	Stationary gripper component	1
4	12041311	Gripper fulcrum pin	8
5	326019006	Circlip	8
6	12041310	Bolt	2
7	12041308	Mobile gripper component	1
8		Gripper	2

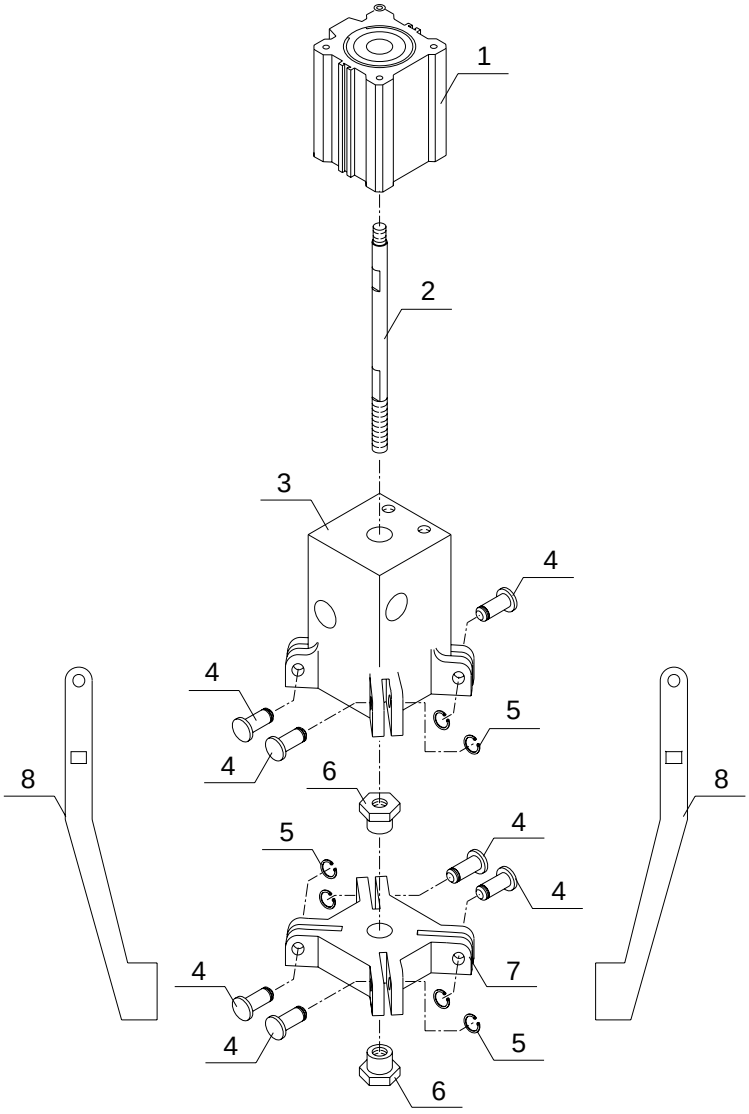

Fig. 9.21 - Pick-up

Pick-up guards - Fig. 9.22

POS.	CODE	DESCRIPTION	Q.TY
1	12041358	Seal on panel side	1
2	12041355	Outer guard spacer	7
3	12041345	Connecting crossppiece	2
4	12041348	Outer guard	1
5	12041354	Door guard	1
6	12041347	Guard on panel side	1
7	12041343	Guard seal on panel side	1
8	12041346	Outer side guard	2
9	12041344	Inner guard seal	1
10	12041349	Inner guard	1
11	12041359	Outer frame	1
12	12041356	Inner guard spacer	5
13	12041357	Door frame	1

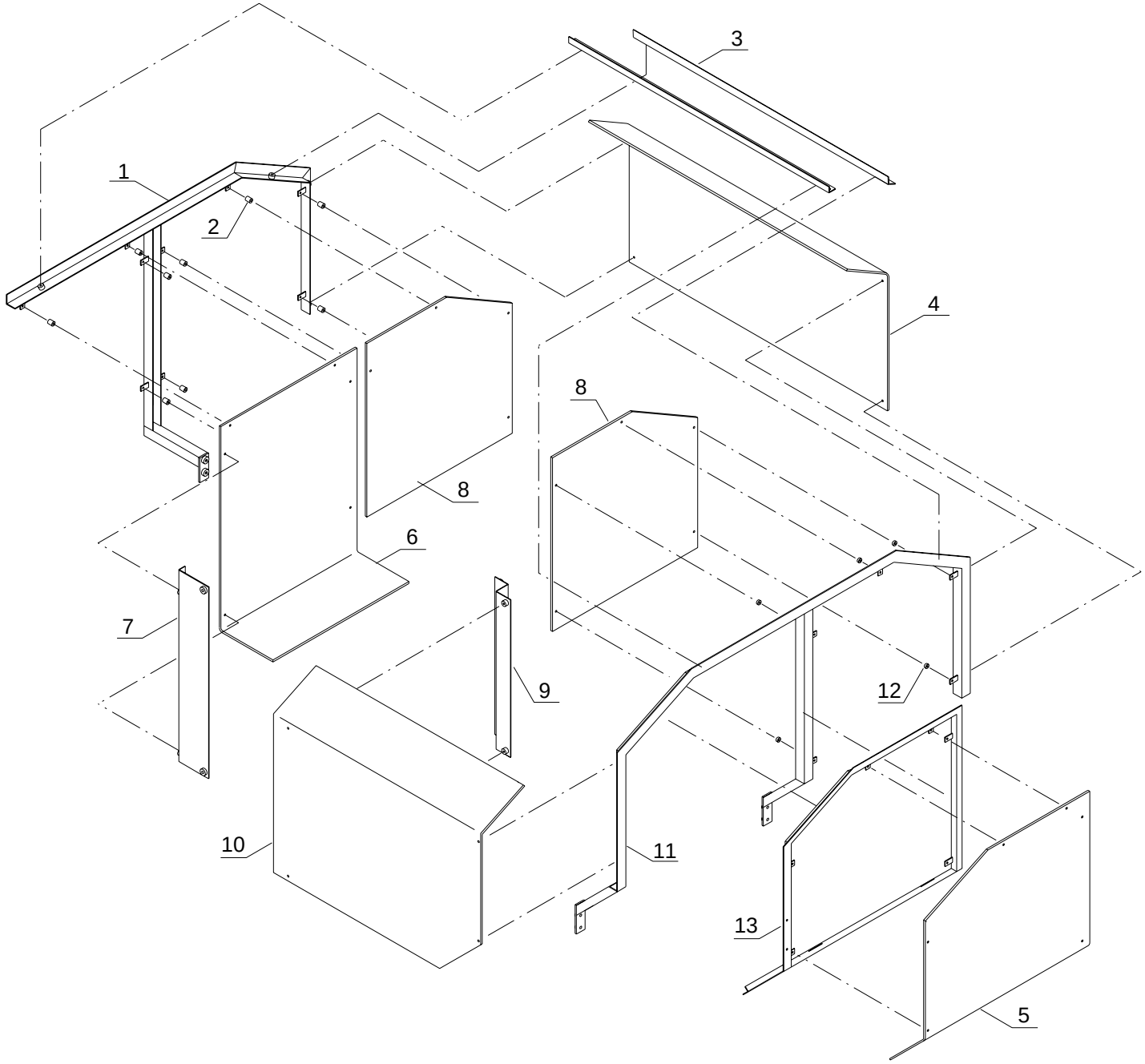

Fig. 9.22 - Pick-up guards

Station movement - Fig. 9.23

POS.	CODE	DESCRIPTION	Q.TY
1	12040517	Rear pan	1
2	12040518	Front pan	1
3	12040506	Support	2
4	12040511	Pin	2
5	12040503	Fifth wheel	4
6	17000160	Bush	4
7	336003545	Wheel	1
8	12040502	Washer	2
9	12040504	Pin	1
10	12040505	Short lever axle	1
11	12040501	Inner lever	2
12	12040500	Outer lever	2
13	12040514	Spacer	2
14	12040510	Tie rod	1
15	17000149	Left coupling 17000159	2
16	12040513	Spacer	2
17	12040508	Spacer	6
18	12040994	Tie rod	2
19	17000027	Right coupling	2
20	12040516	Support	2
21	17000079	Coupling	2
22	12040512	Tie rod fulcrum	1
23	17000158	Cylinder	1
24	17000157	Cylinder	1
25	17000163	Bush	4
26	12040523	Tube/decorator filling cam	1
26	12040529	Pencil filler cam	1
27	12040509	Tie rod between levers	3
28	12040507	Connecting rod	1
29	17000161	Bush	2
30	326015095	Lubricator	1

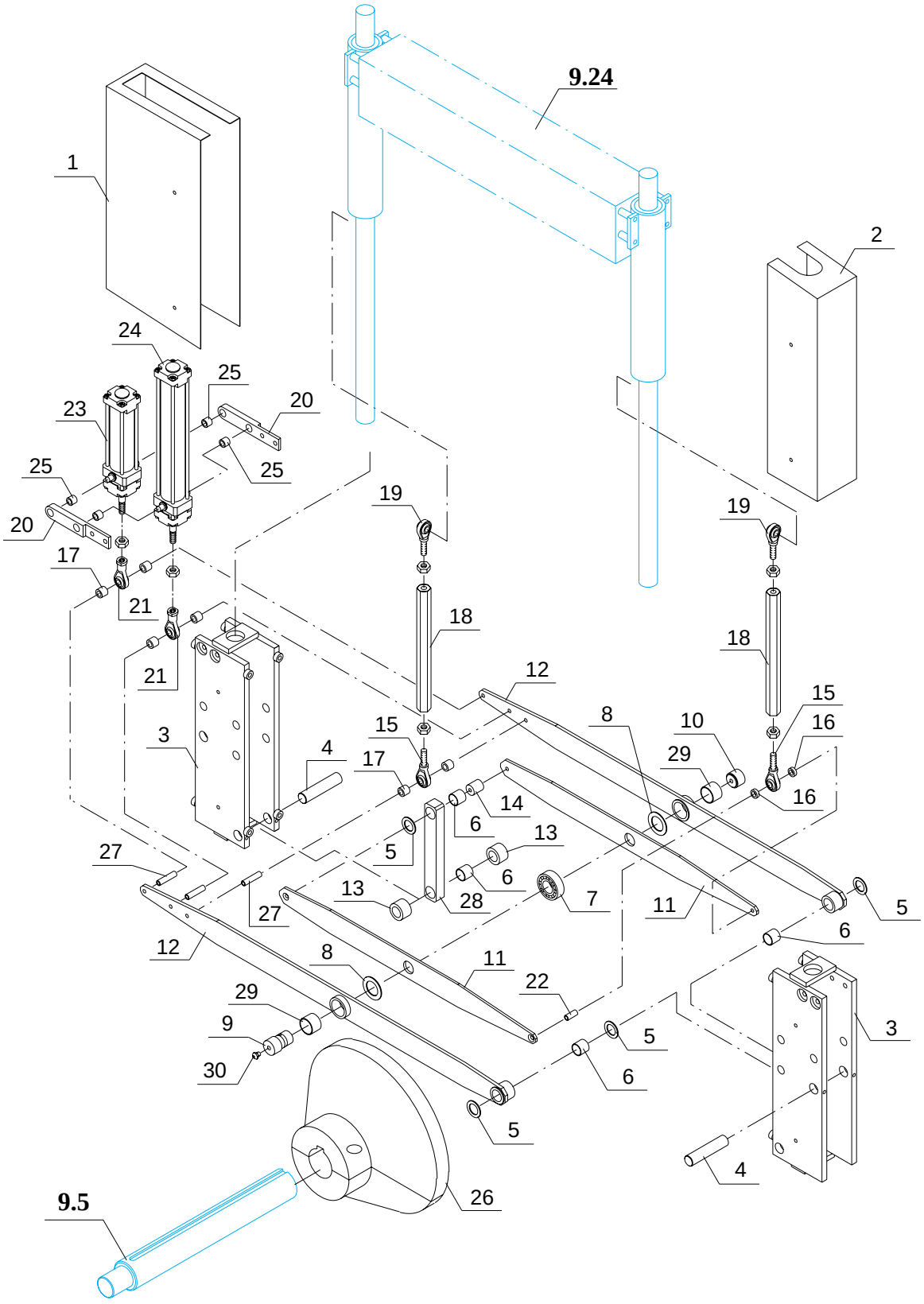

Fig. 9.23 - Station movement

Station movement - Fig. 9.24

POS.	CODE	DESCRIPTION	Q.TY
1	12040545	Column	2
2	336069702	Scraper	4
3	12040546	Upper closure	2
4	5124,9118	Seal	8
5	5506,9006	Bush	4
6	12040544	Sleeve	2
7	12040547	Tension closure	2

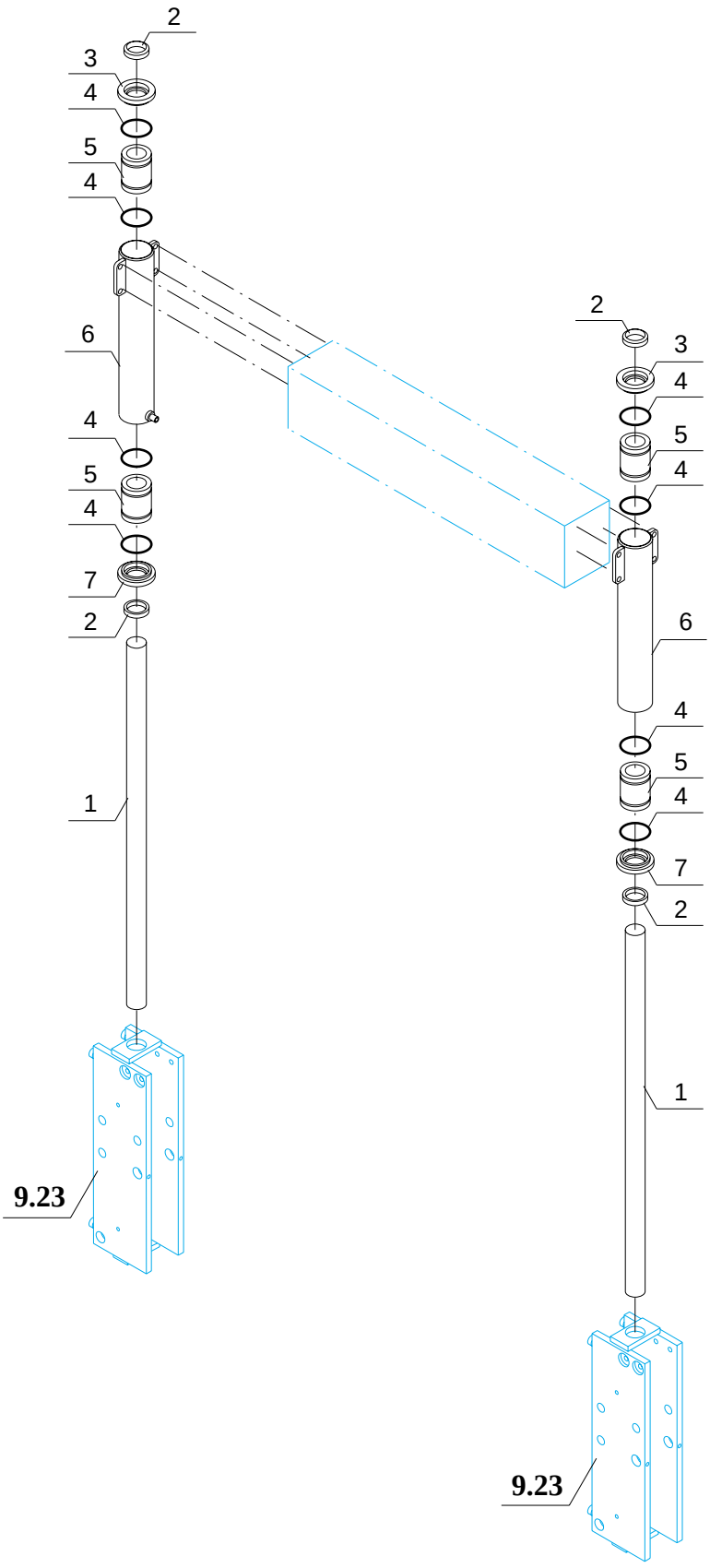

Fig. 9.24 - Station movement

Cone feed - Fig. 9.25

POS.	CODE	DESCRIPTION	Q.TY
1			
2	12040099	Blade guide	4
3	12040807	Blade shaft support	3
4	12040808	Blade movement lever	2
5	17000405	Coupling head	1
6	12040810	Lever tie rod	1
7	17000239	Coupling head	1
8	12040098	Spacer	8
9	17000007	Cylinder	2
10	540212003	Coupling	2
11	12041148	Magazine support frame	1
12	333001053	Actuator	1
13	12040096	Cone release blade	12
14	12041151	Blade command shaft	1
15	12041150	Blade command shaft	1

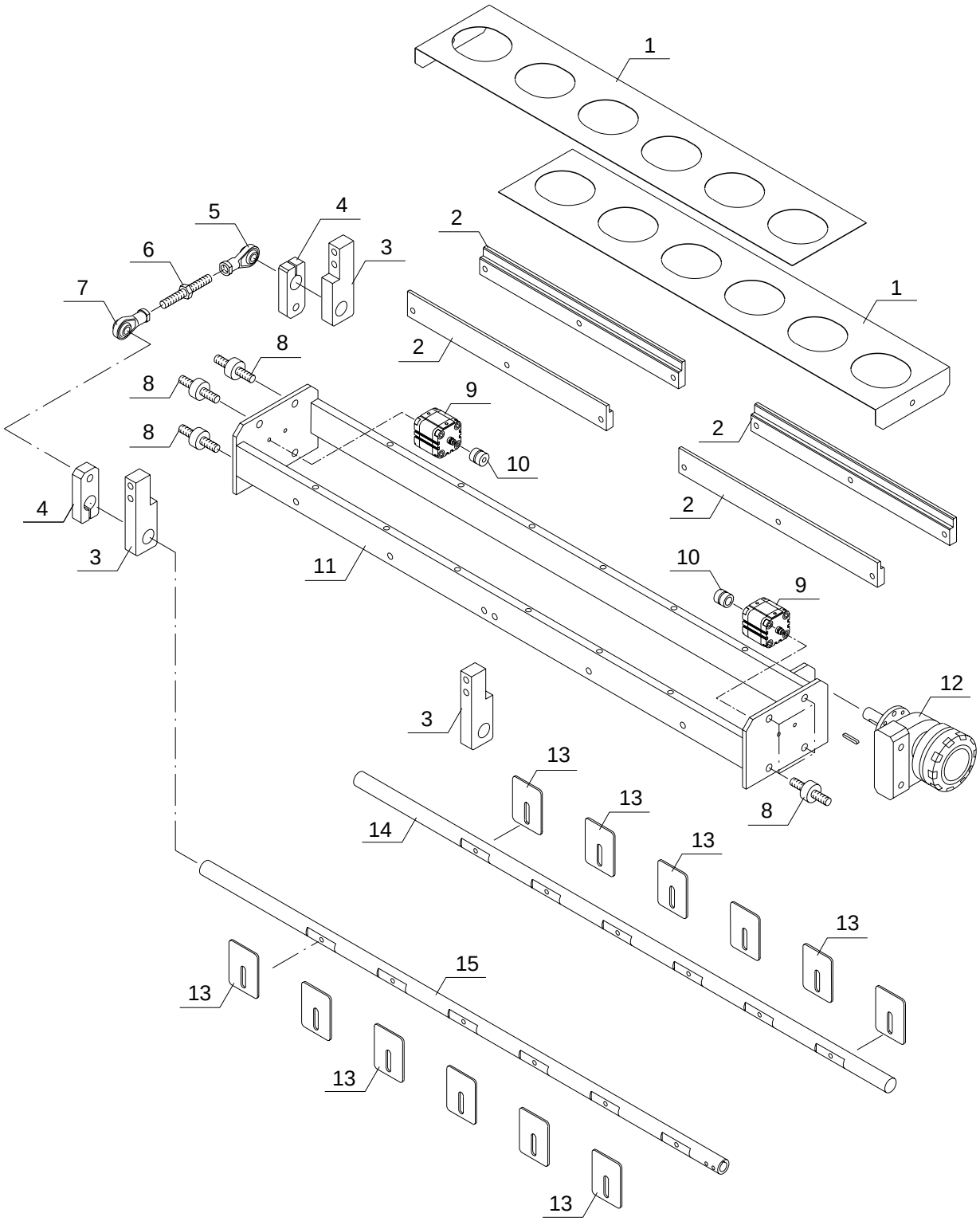

Fig. 9.25 - Cone feed

Cone feed - Fig. 9.26

POS.	CODE	DESCRIPTION	Q.TY
1	12041152	Cone feed pan	2
2	12041145	Vertical plate	2
3	336071135	Corteco seal 2032/7	4
4	12041146	Cone feed base plate	2
5	12040078	Lower clamp	4
6	12040079	Lower clamp	4
7	12041147	Bearing bush	4
8	336001383	Bearing	4
9	336071115	Corteco seal 1535/7	2
10	12041153	Cone retainer hand	12
11	12040097	Pin	2
12	12041149	Hand rotation axle	2
13	17000008	Cylinder	1
14	12040104	Cylinder attachment pin	1
15	17000045	Coupling head	1
16	12040094	Lever	1
17	336005050	Bush	4
18	12040095	Movement connecting rod	1

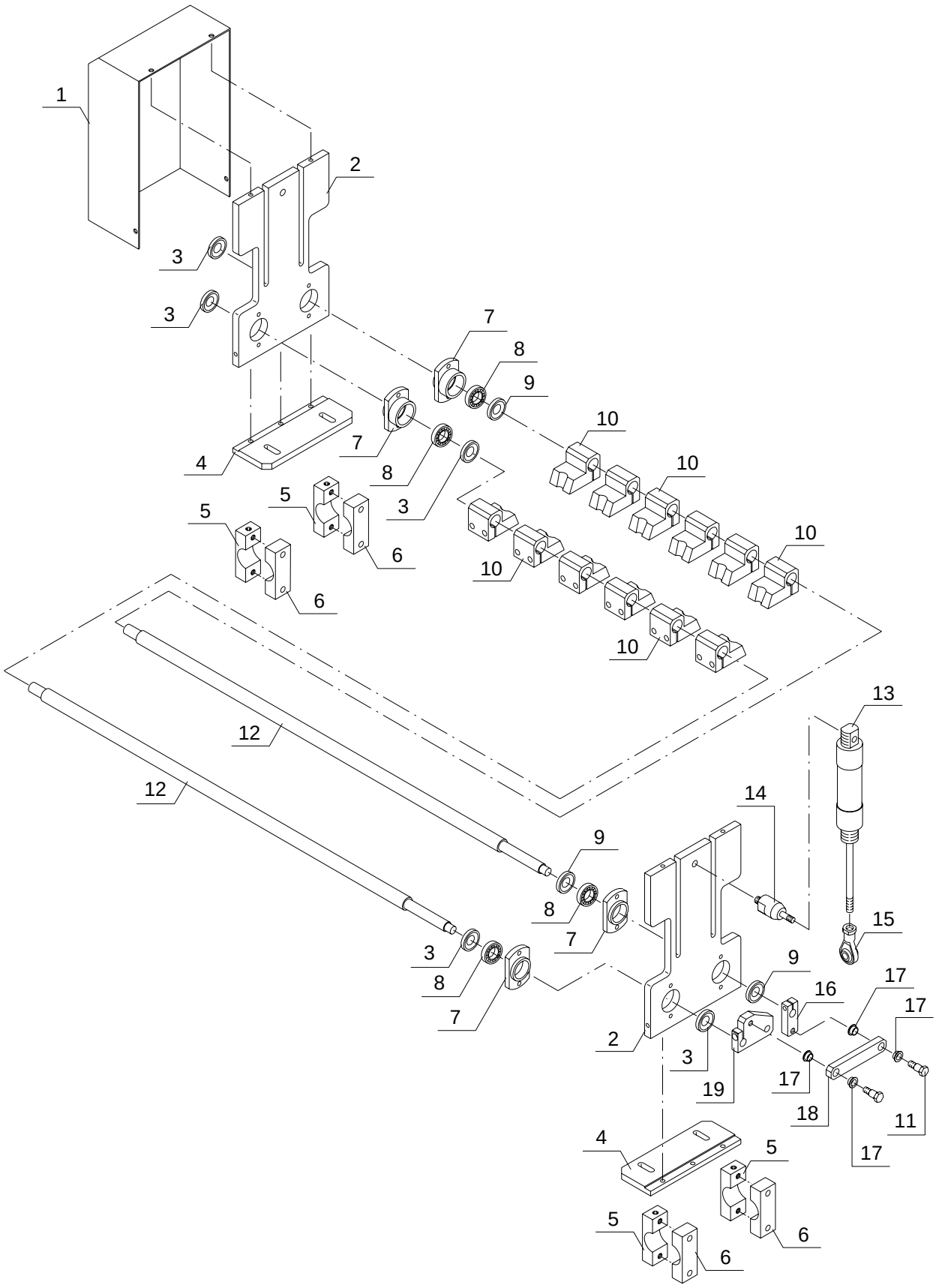

Fig. 9.26 - Cone feed

Gauge and chocolate spray - Fig. 9.27

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	D01M00027	Travel control guard	1	1
2	D01M00055	Adjustment counter ring	1	1
3	D01M00054	Adjustment ring nut	1	1
4	D01M00030	Adjustment screw	1	1
5	336067150	O-ring 4118	1	1
6	D01M00029	Coupling	1	1
7	CM50J50050	6-way manifold	1	1
8	011045254	Control	2	2
9	333001227	Cylinder	1	1
11	CM50J07051	Cylinder crosspiece	1	1
12	CM50J07050	Vertical upright	2	2
14	CM25J43001	Guide column	2	2
15	540204005	Bush band	2	2
16	540307012	Bush holder flange	2	2
17	546051244	Pull box support	1	1
18	546051243	Pull box	1	1
19	011070112	Sprayer	4	6
20	12040217	Sprayer support	4	6
21	CM50J07052	4 lane support crosspiece		1
22	540302006	Gauge guide bush	4	6
23	HF75D08018	Gauge support corner piece	4	6
24	D-FM0606	Spring	4	6
25	D-FM0605	Tie rod	4	6
26	FM0607	Cone widening extruder	4	6
28	12040221	Distributor	1	1
29	12040079	Upper clamp	1	4
30	12040078	Lower clamp	1	4

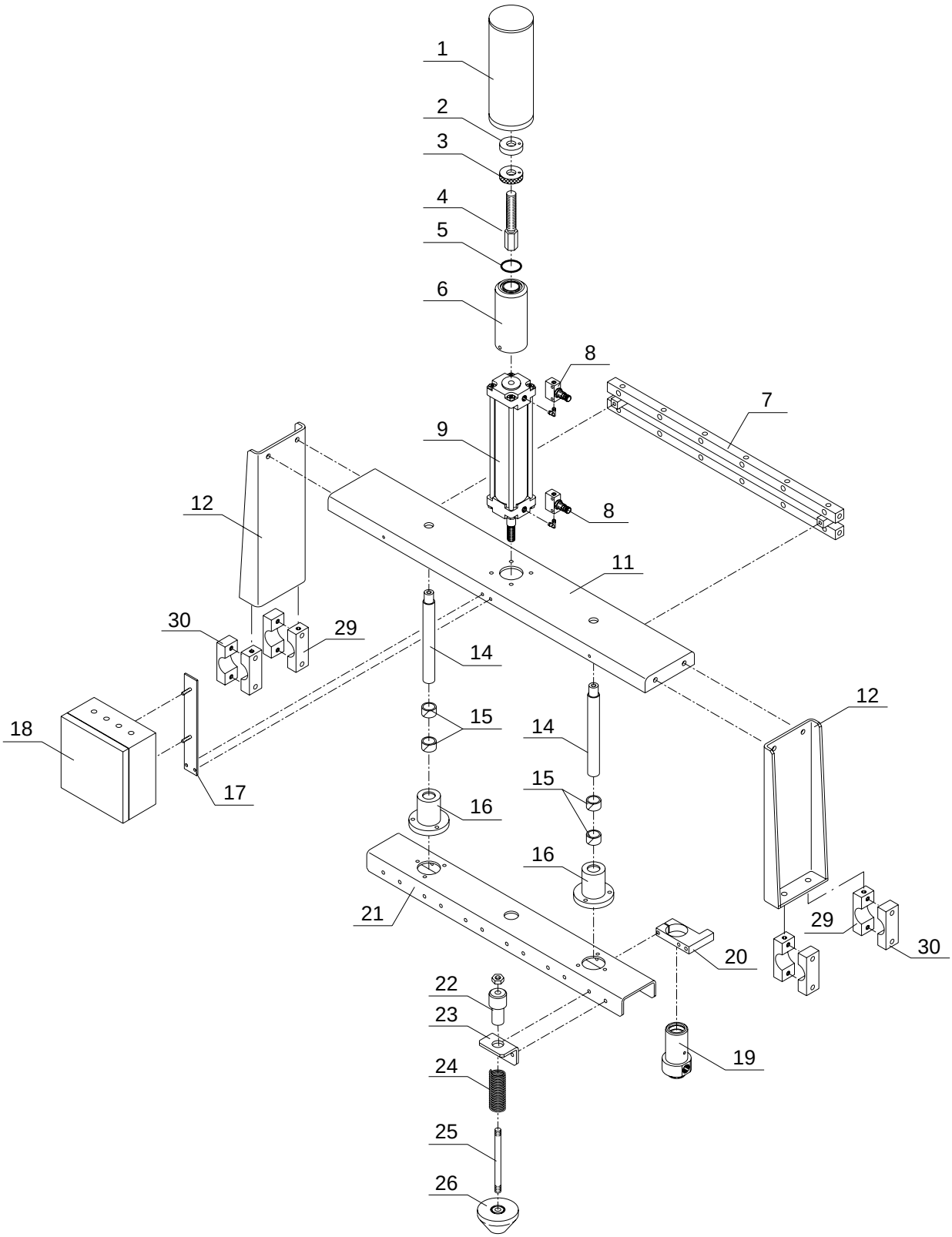

Fig. 9.27 - Gauge and chocolate spray

Dosers - Fig. 9.28

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	17000010	Cylinder	4	6
2	12040213	Cylinder connection	4	6
3	016060219	2” clamp A304	8	12
4	336067042	O-ring 3081	8	12
5	12040210	Upper part of cylinder	4	6
6	336067051	O-ring 3118	4	6
7	12040209	Double body	4	6
8	12040027	Joint	4	6
9	336067036	O-ring 119	4	6
10	12040948	Central piston	4	6
11	12040211	Ring nut	4	6
12	540204063	Nozzle	4	6
13	12040520	Distributor	2	2
14	018020581	1” clamp seal	4	6
15	016060218	Clamp connection	4	6
16	540204085	Curve with hose connection	4	6
17	12040521	Support frame	1	1
18	12040526	Distributor support	2	2

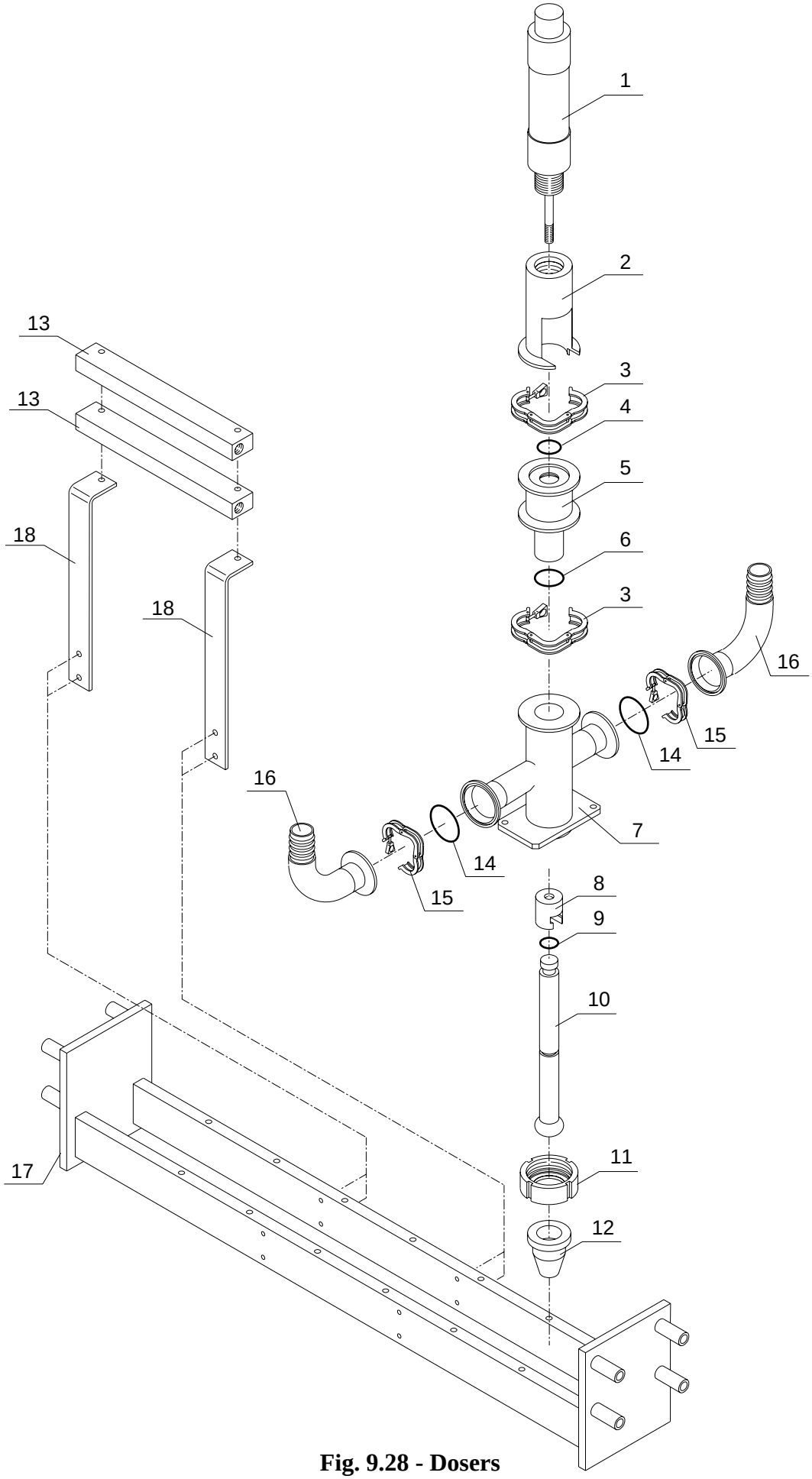

Fig. 9.28 - Dosers

Concentric two-flavour dosers - Fig. 9.29

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	17000010	Cylinder	4	6
2	12040213	Cylinder connection	4	6
3	016060219	2” clamp A304	8	12
4	336067042	O-ring 3081	8	12
5	12040782	Upper part of variegator cylinder	4	6
6	336067051	O-ring 3118	4	6
7	12040209	Double body	4	6
8	12040027	Joint	4	6
9	336067036	O-ring 119	4	6
10	12040948	Central piston	4	6
11	12040211	Ring nut	4	6
12	540204063	Nozzle	4	6
13	540204050	Curve	4	6
14	018020581	1” clamp seal	2	3
15	016060218	Clamp connection	2	3
16	540204085	Curve with hose connection	2	3
17	12040521	Support frame	1	1
18	12040526	Distributor support	2	2
19	12040520	Distributor	2	2
20	141040364	Hose connection	2	3

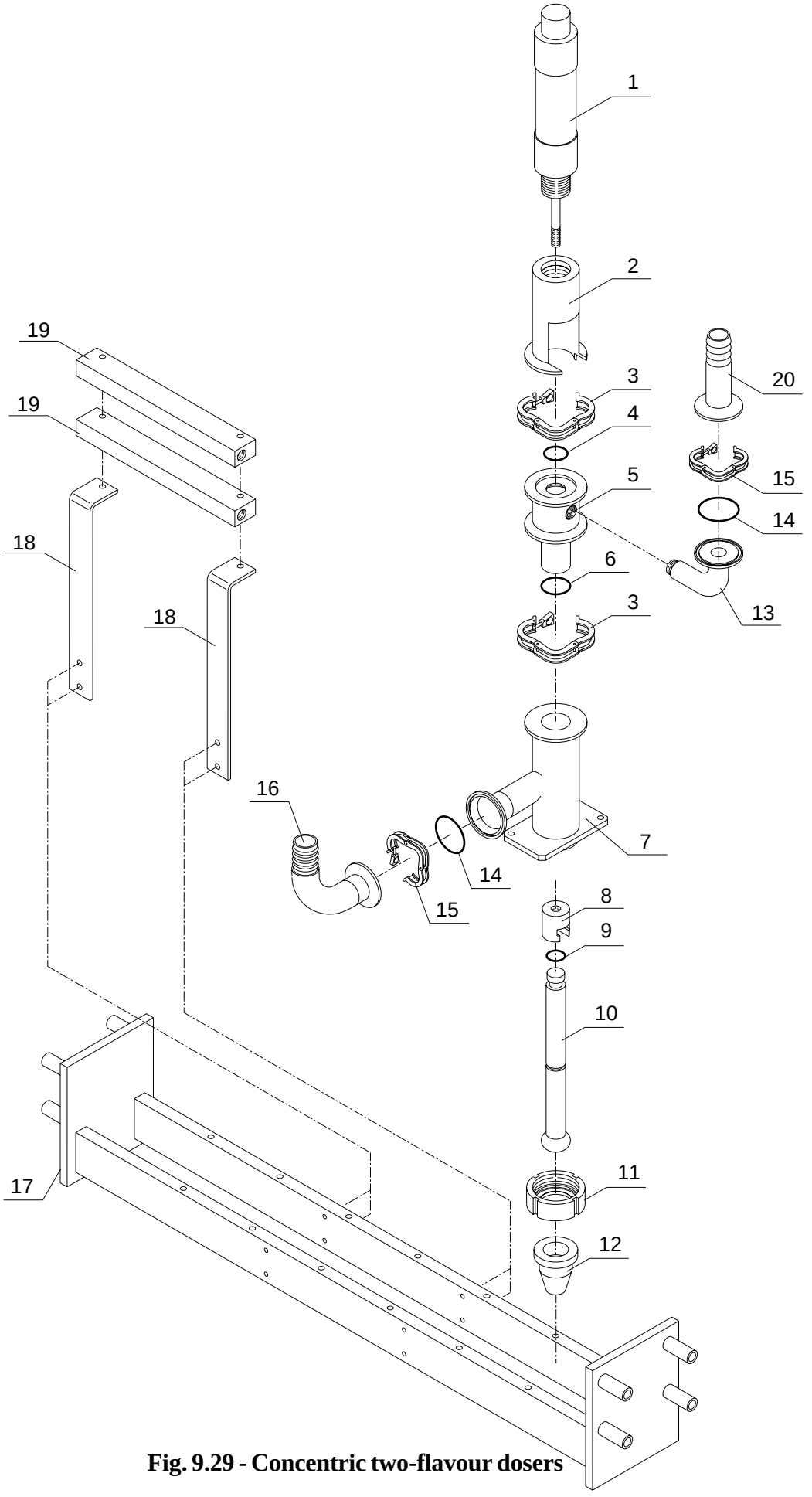

Fig. 9.29 - Concentric two-flavour dosers

By-pass - Fig. 9.30

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	17040009	Pneumatic valve	1	1
2	17000377	Union tee	1	1
3	541110008	Hose connection	1	1
4	016060219	Clamp	4	4
5	018020583	Seal	4	4
6	12040667	Hose	1	1
7	D01E00116	4-lane diffusor	1	-
7a	D01E00104	6-lane diffusor	-	1
8	016060218	Clamp	4	6
9	018020582	Seal	4	6
10	542320022	Balancer	4	6
11	542320029	Lock nut	4	6
12	336067038	Seal	8	12
13	542320023	Balancing tap	4	6
14	018060961	Hose clamp	8	12
15	1700279	Hose	4	6
16	CM25E48007	Connection	4	6
17	12040524	Fixed tie	1	1
18	12040525	Tie	1	1
19	016060930	Hose support	1	1

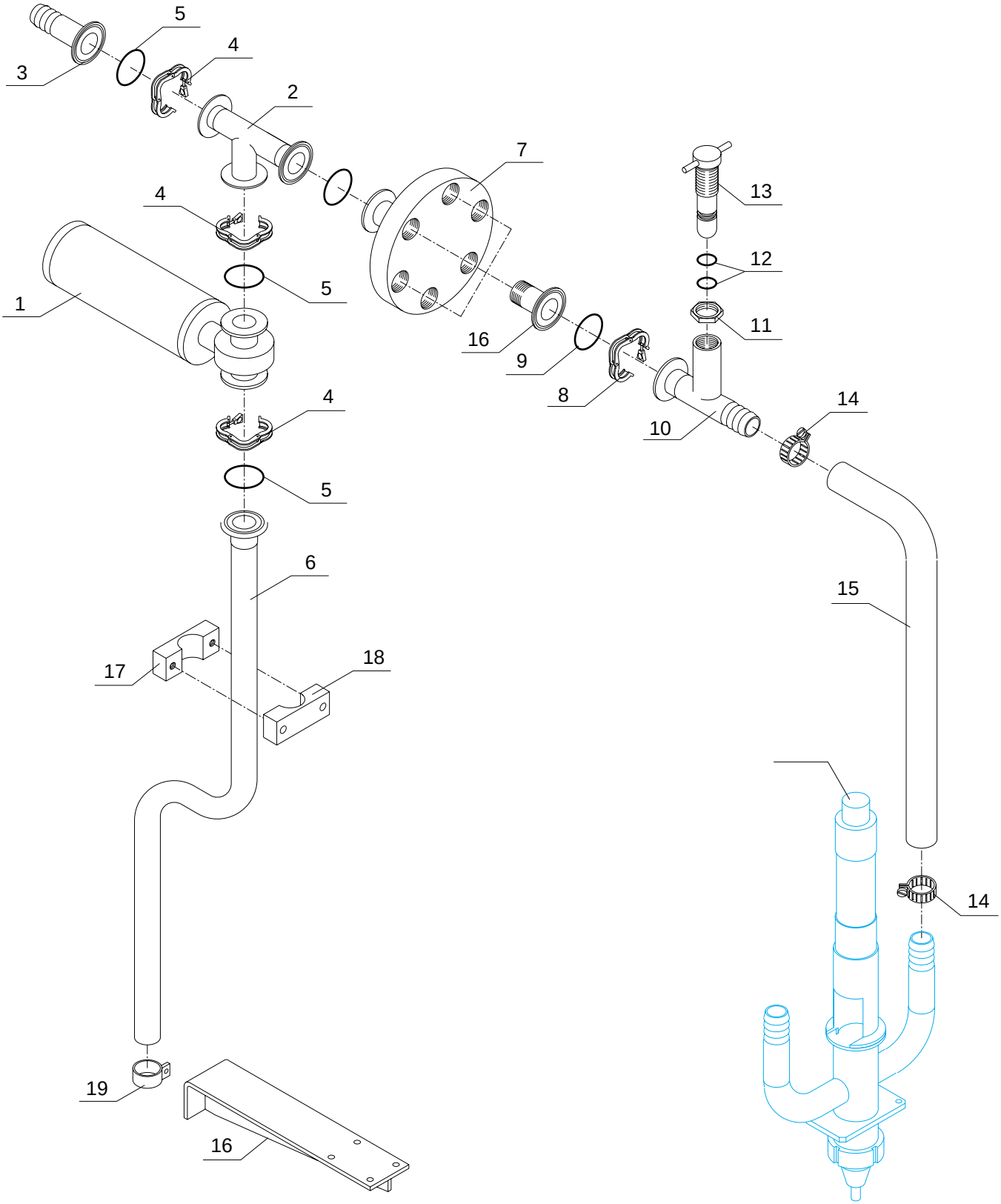

Fig. 9.30 - By-pass

Gravity topping - Fig. 9.31

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	D01H00010	Topping tank rod	4	6
2	D01H00013A	Ring nut	4	6
3	D01H00013B	Travel adjustment screw	4	6
4	VK50N01005	Rod support bar	1	
4a		Rod support bar		1
5	VK50N01006	Rod movement lever	1	1
6	VK50N01003	4-lane topping tank		1
6a		6-lane topping tank		1
7	VK50N16002	Topping station column	3	3
8	333001650	Fork	1	1
9	333001180	Cylinder	1	1
10	333001675	Support	1	1
11	336067092	O-ring 144	4	6
12	336067036	O-ring 119	4	6
13	336067100	O-ring 153	4	6
14	D01H00016A	Ring nut	4	6
15	D01H00042	Sunk nut	4	6
16	D01H00006	Topping bell	4	6
17	D01H00016B	Disk	4	6
18	017975020	Resistor	1	1
19	12040079	Upper clamp	3	3
20	12040078	Lower clamp	3	3

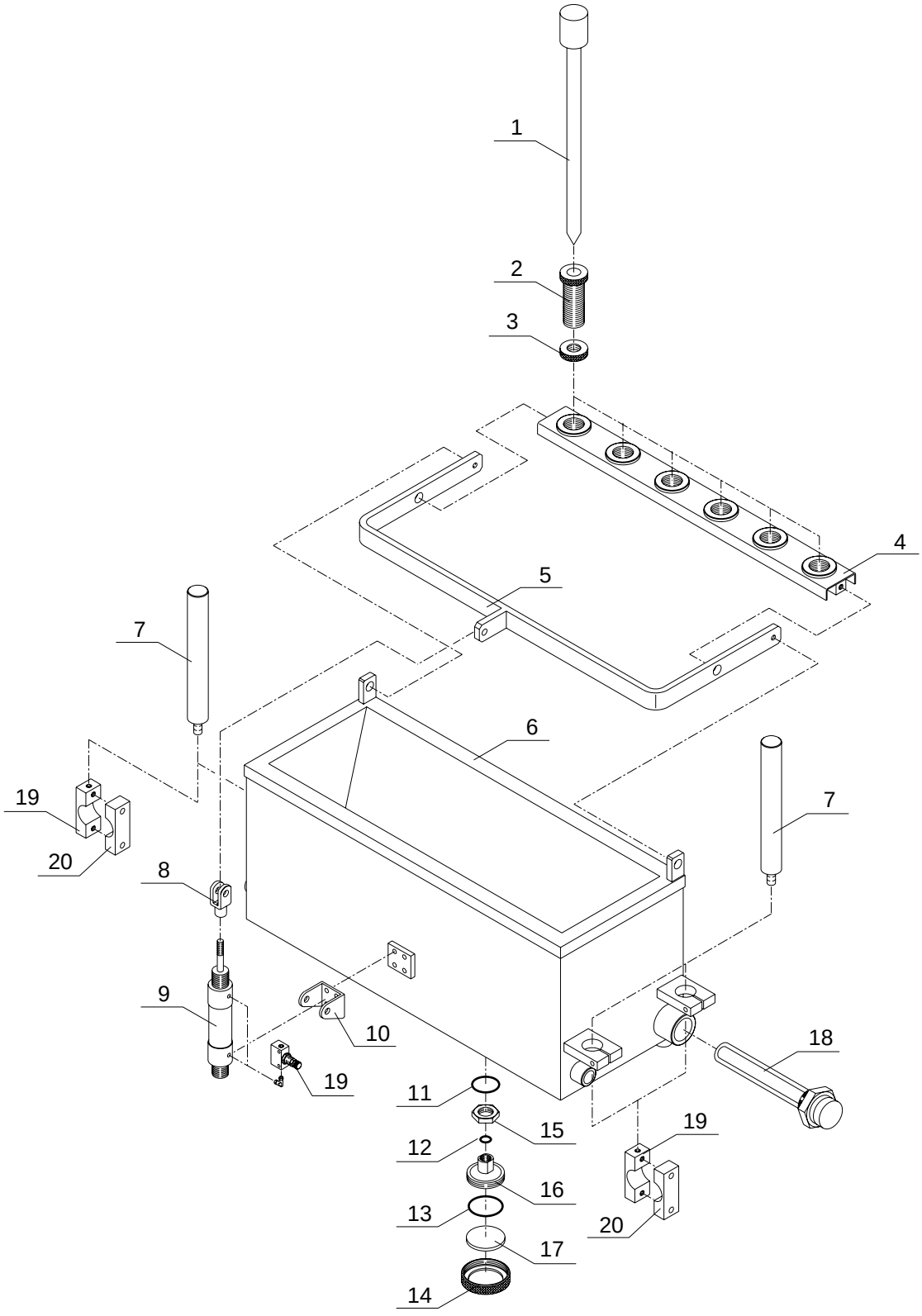

Fig. 9.31 - Gravity topping

Topping - Fig. 9.32

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	540214002	Bottom	4	6
2	336067020	Seal	4	6
3	336069466	Seal	4	6
4	018060961	Hose clip	8	12
5	016061062	Hose connection	4	6
6	540214001	Piston	4	6
7	016030065	Cock	4	6
8	12041127	Valve body	4	6
9	112040521	Support frame	1	1
10	12040526	Distributor support	2	2
11	12040520	Distributor	2	2
13	336067030	Seal	4	6
14	336067092	Seal	4	6
15	12042031	Topping nozzle	4	6
16	336067100	Seal	4	6
18	D01H00016B	Disk	4	6
19	D01H00016A	Ring nut	4	6

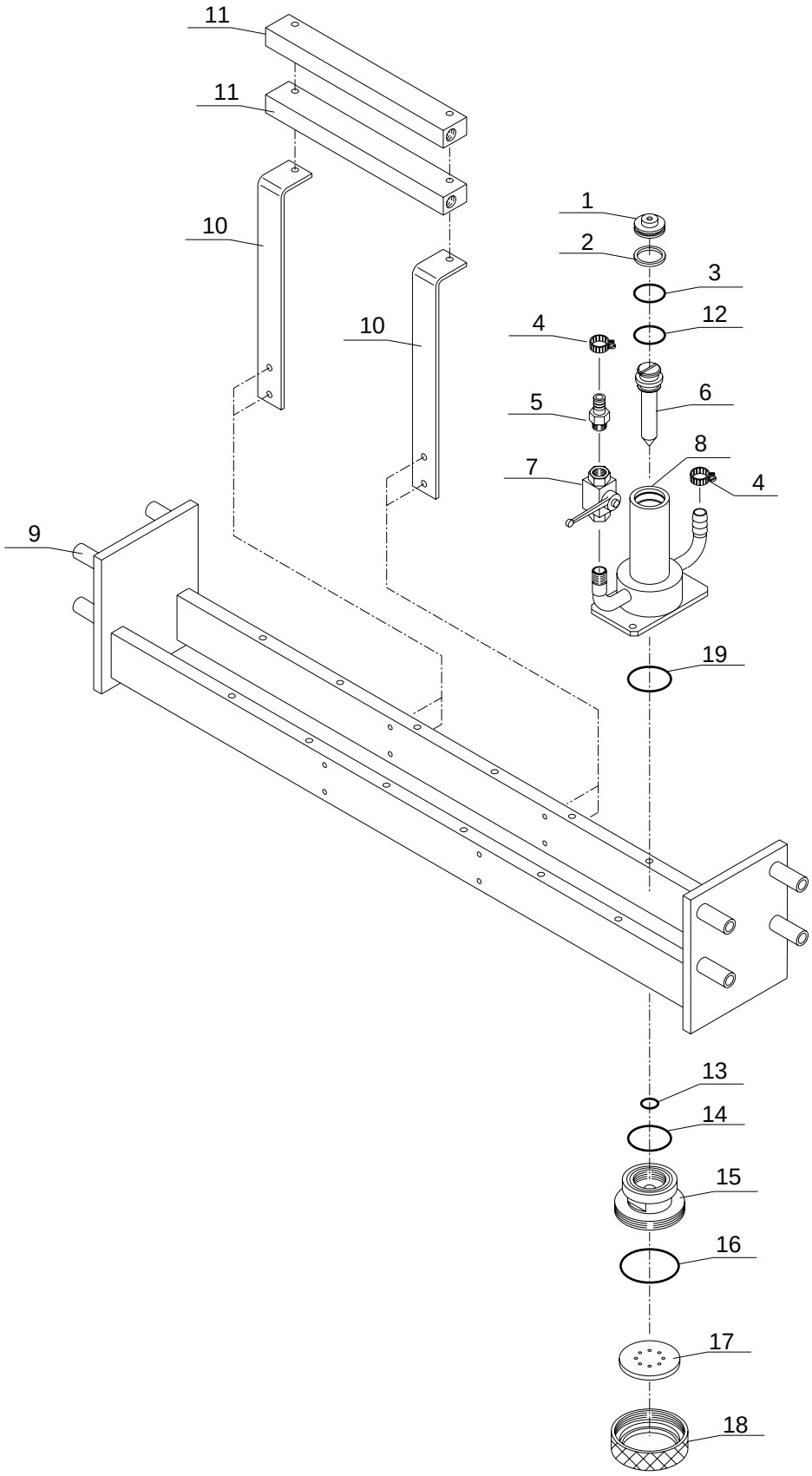

Fig. 9.32 - Topping

Granule doser - Fig. 9.33

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	D01G00027	Granule controls	4	6
2	D01G00007	4-lane steel hopper	1	
2a	D01G00006	6-lane steel hopper		1
3	12040645	4-lane channel	1	
3a	12040991	6-lane channel		1
4	D01G00010	Vibration damper spacers	8	12
5	D01G00003	Pneumatic vibrator support	1	1
6	015010825	Rubber vibration dampers	4	6
7	336091100	Pneumatic vibrator	1	1
8	12040079	Upper clamp	3	3
9	12040646	Granule hopper support	1	1
10	12040078	Lower clamp	3	3
11	12040647	Funnel support	1	
11a	12040993	Funnel support		1
12	12040648	Granule funnels	4	6

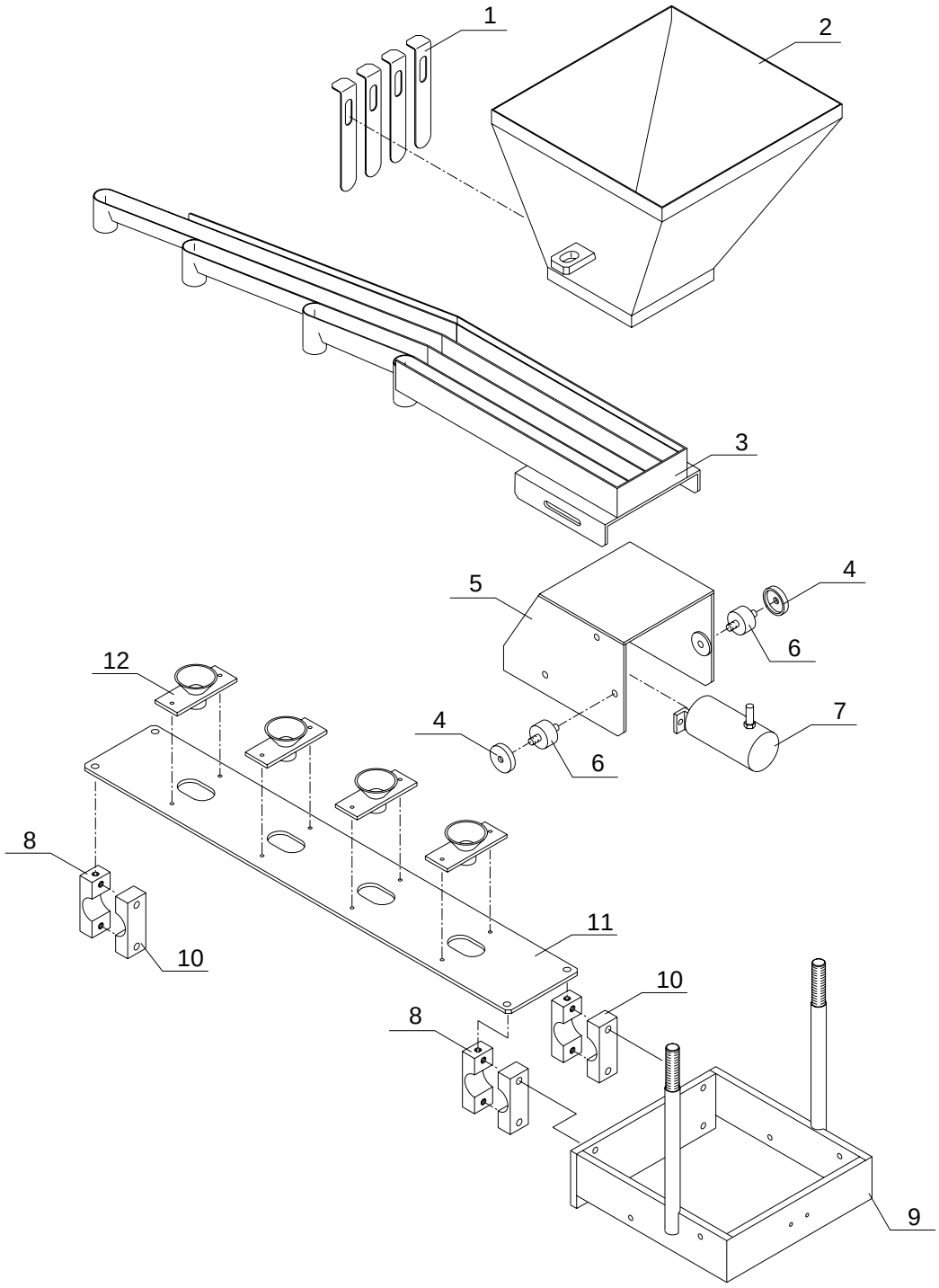

Fig. 9.33 - Granule doser

Lid feed - Fig. 9.34

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1		Cone lid magazine (according to format)	4	6
2	12040532	4-lane/6-lane magazine support piece	1	1
3	12040536	Lid feed support column	4	4
4	011045990	Suction cup	4	6
5	12040530	Plate	1	1
6	12040534	Retainer	1	1
7	12040253	Suction cup holder	4	6
8	12040252	Suction cup holder	4	6
9	12040535	Spacer	1	1
10	12040531	Plate	1	1
11	12040533	4-lane/6-lane suction cup shaft	1	1
12	336001448	Bearing	1	1
13	333001020	“FESTO” lifter	1	1
14	333003207	Hydraulic brake	1	1
15	12040079	Upper clamp	4	4
16	12040078	Lower clamp	4	4

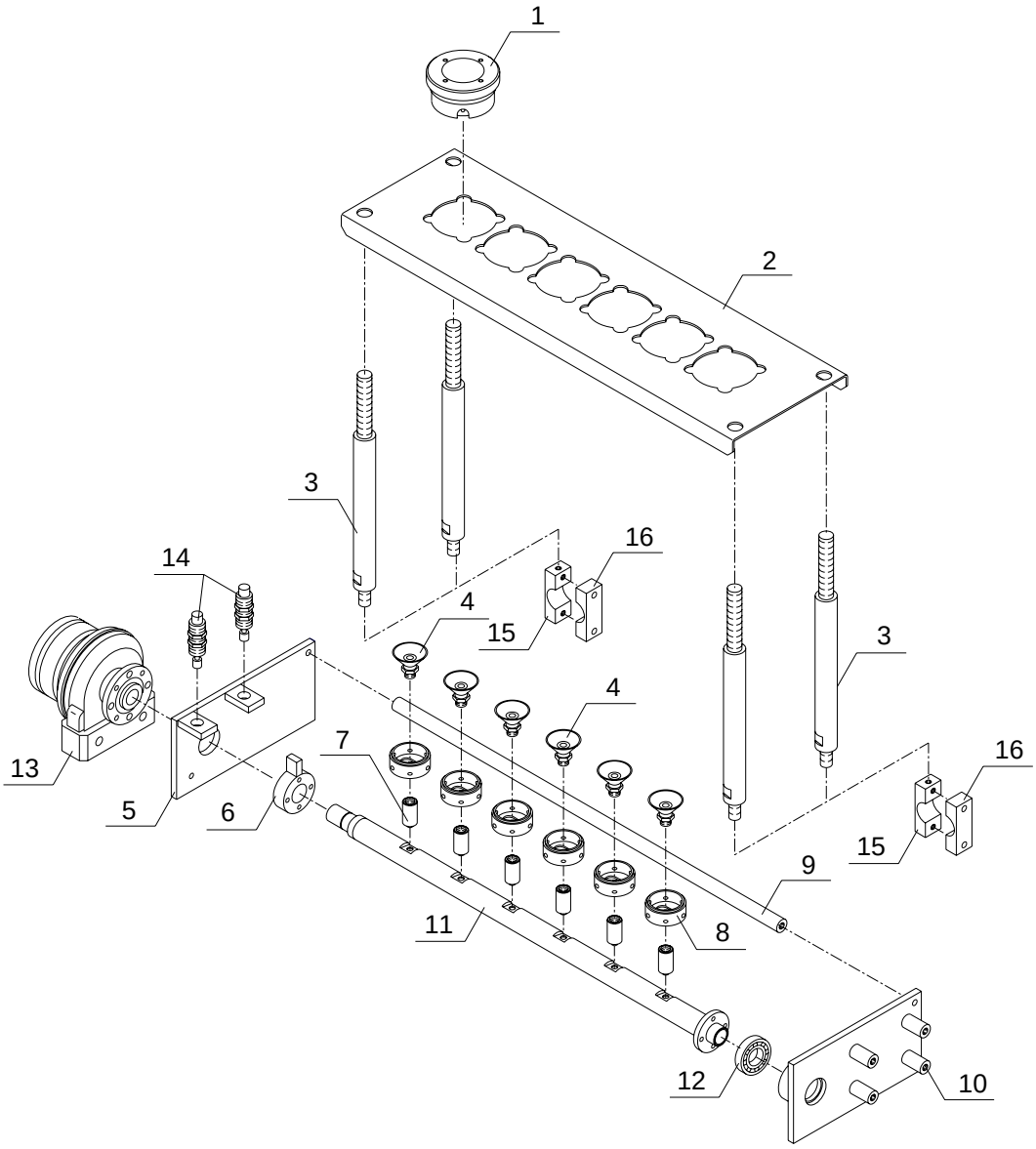

Fig. 9.34 - Lid feed

Cone crimper - Fig. 9.35

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	17000054	Limit switch holder	4	6
2	333001203	Cylinder	4	6
3	12040173	Cylinder holder plate	4	6
4	D01L00067	Piston control bush	4	6
5	FM50R45001	Beader spring	4	6
6	D01L00061	Main component for standard cone	4	6
7	12040074	Crosspiece spacer	8	8
8	12040640	Press upright	2	2
9	12040642	Cylinder support plate	2	2
10	12040079	Upper clamp	4	4
11	VK50R08001	Contrast polyzene	3	3
12	12041045	Lower column	4	4
13	12040641	Contrast profile	1	1
14	17000055	Limit switch	4	6
15	12040520	4-lane distributor	1	-
15a	CM50E50002	6-lane distributor	-	1
16	12040078	Lower clamp	4	4
17	12040079	Upper clamp	4	4

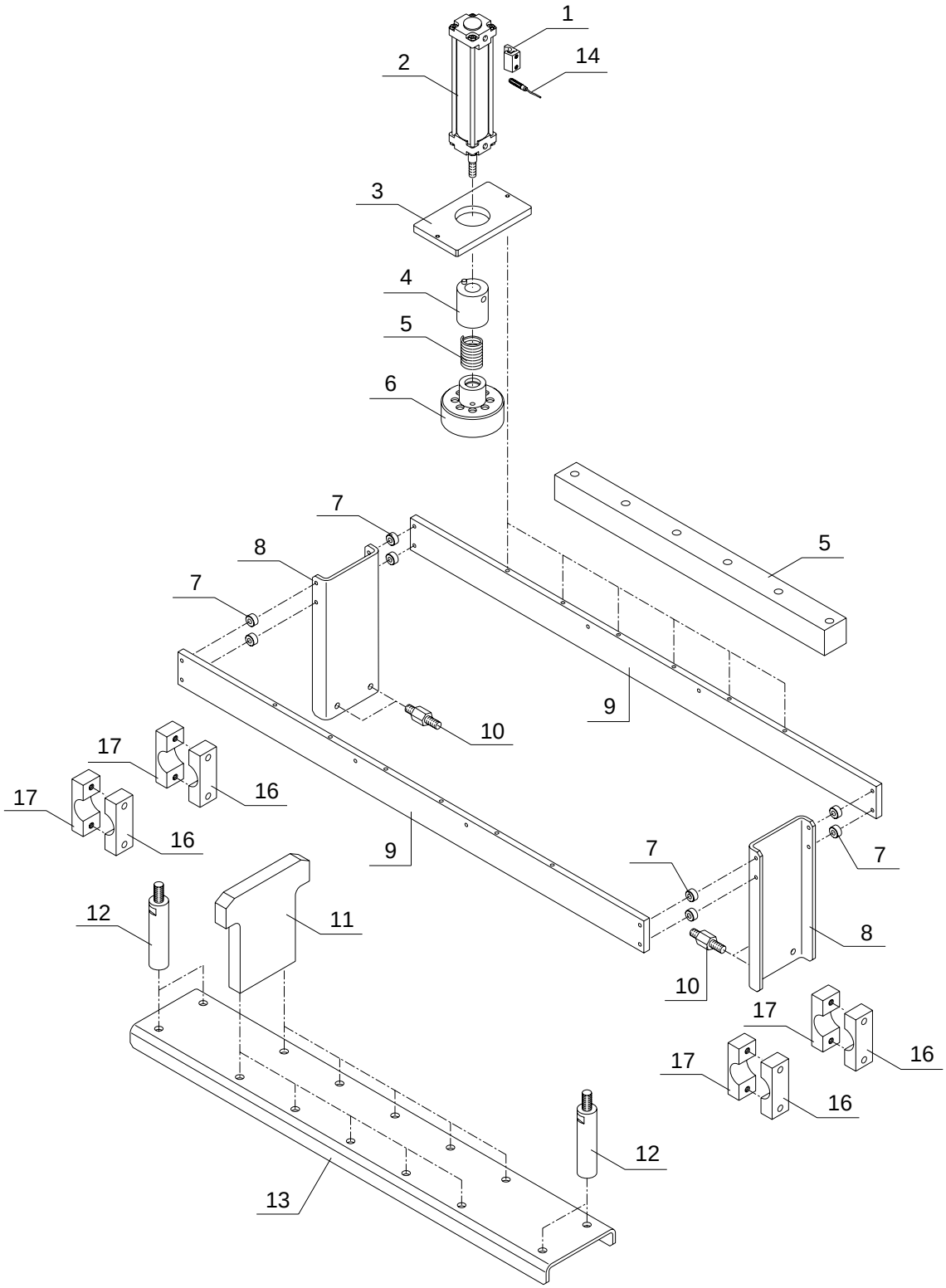

Fig. 9.35 - Cone crimper

Cup lid closure - Fig. 9.36

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	011045254	Control	8	12
2	333001203	Cylinder	4	6
3	12040173	Cylinder holder plate	4	6
4	D01L00067	Piston control bush	4	6
5	FM50R45001	Beader spring	4	6
6	D01L00061	Main component for standard cone	4	6
7	VK50R16001	Crosspiece spacer	8	8
8	12040640	Press upright	2	2
9	12040642	Cylinder support plate	2	2
10	12040079	Upper clamp	4	4
11	VK50R08001	Contrast polyzeneo	3	3
12	12040078	Lower clamp	4	4
13	12040261	Contrast profile	1	1
15	12040078	Lower clamp	4	4
16	12040079	Upper clamp	4	4

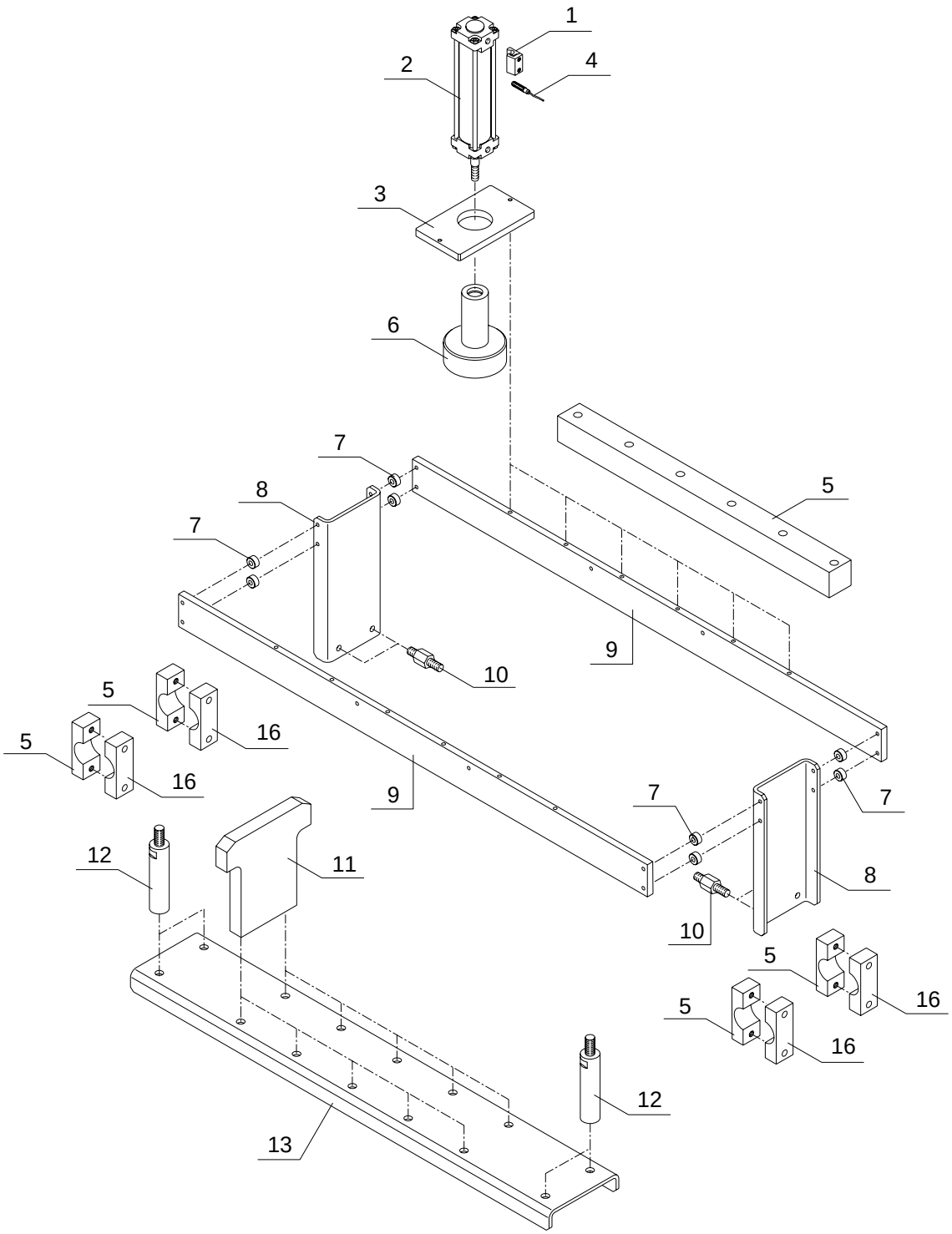

Fig. 9.36 - Cup lid closure

Chocolate tank - Fig. 9.37

POS.	CODE	DESCRIPTION	Q.TY
1	12040816	Tank support frame	1
2	016060218	Clamp	2
3	018020582	Seal	2
4	336054078	Wheel DM100	4
5	017975020	Resistance	1
6	12040814	Chocolate tank	1
7	12040926	Chocolate dipping tube	2
8	12040818	Tank cover	1
9	12040820	Chocolate filter mesh	1
10	12040819	Chocolate return outlet	2
11	016020003	Ball valve A304	1
12	017088239	BSA thermostat	1
13	ML80H61001	Special nut	1
14	336067089	Seal	1
15	336067054	Seal	1
16	016061064	Hose connection	1

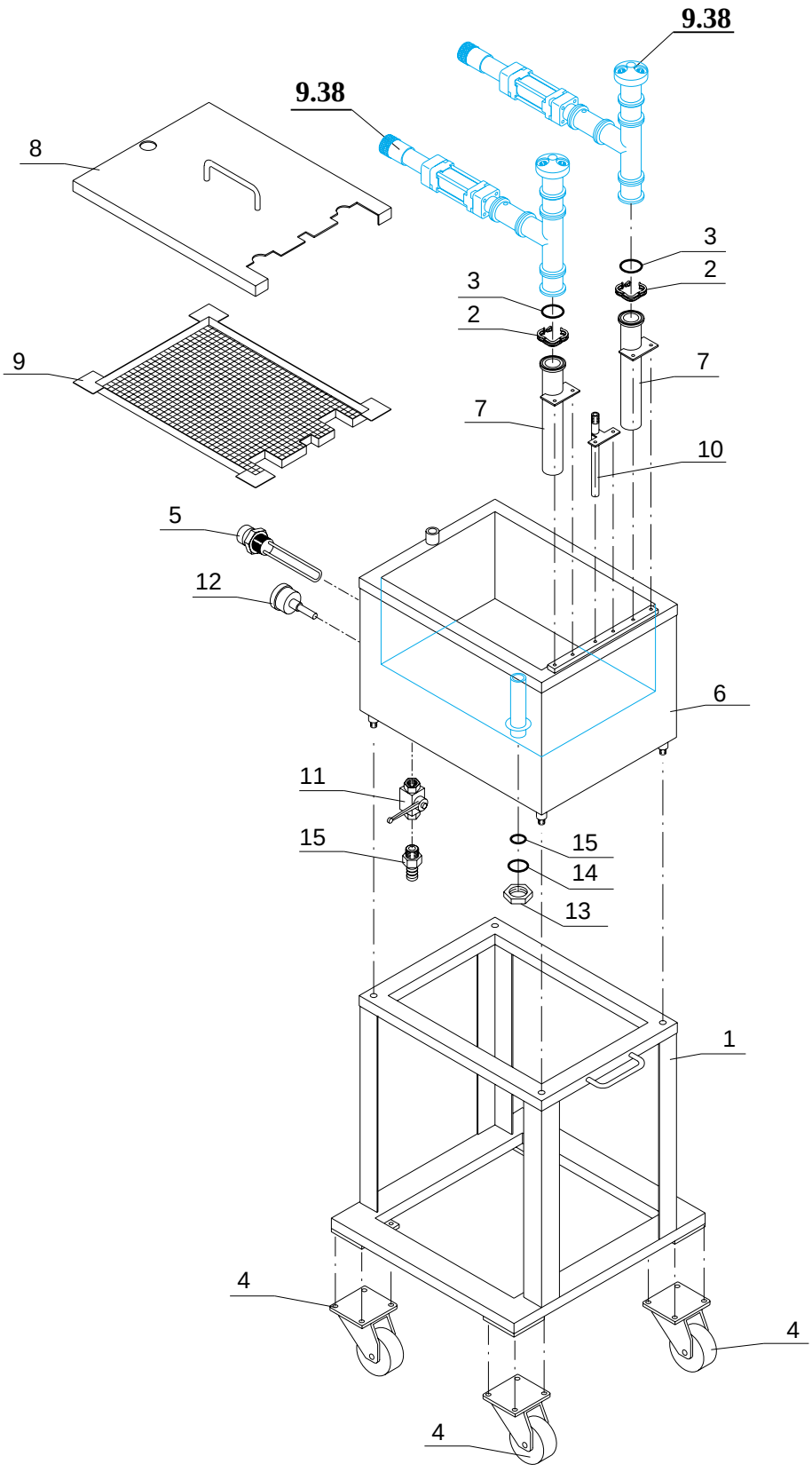

Fig. 9.37 - Chocolate tank

Chocolate spray pump - Fig. 9.38

POS.	CODE	DESCRIPTION	Q.TY
1	336057064	Flywheel	1
2	12040716	Adjustment screw	1
3	540643005	Cap	1
4	12040715	Joint	1
5	12040806	Nipple with two outlets	1
6	12040709	Adjustment sleeve	1
7	17000309	Cylinder	1
8	12040712	Ring nut with connection	1
9	540204053	Coupling	1
10	17000310	Seal	2
11	12040714	Central piston	1
12	018020582	Seal	5
13	016060218	Clamp connection	5
14	12040713	Double sleeve	1
15	17000317	Union tee	1
16	12040711	Spring	2
17	336003999	Ball	2
18	12040710	Spring container	2

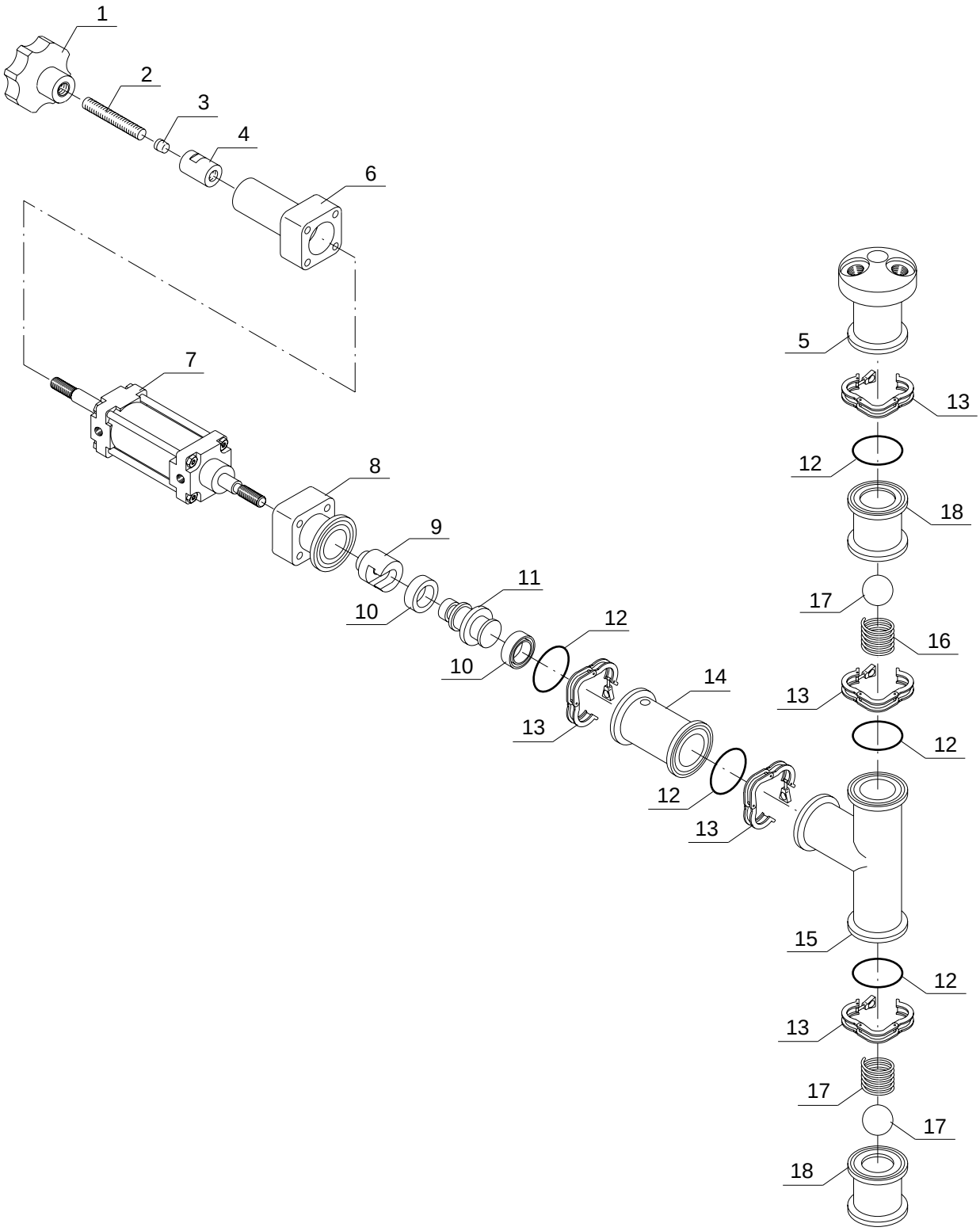

Fig. 9.38 - Chocolate spray pump

Pencil filler - Fig. 9.39

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	12040539	Nozzle	4	6
2	336067030	Seal	4	6
3	336067045	Seal	4	6
4	120401127	Valve body	4	6
5	540214001	Piston	4	6
6	540214002	Bottom	4	6
7	12040538	Support frame	1	1
8	12040526	Distributor support	2	2
9	12040520	Distributor	2	2
11	336069466	Seal	4	6
12	336067020	Seal	4	6

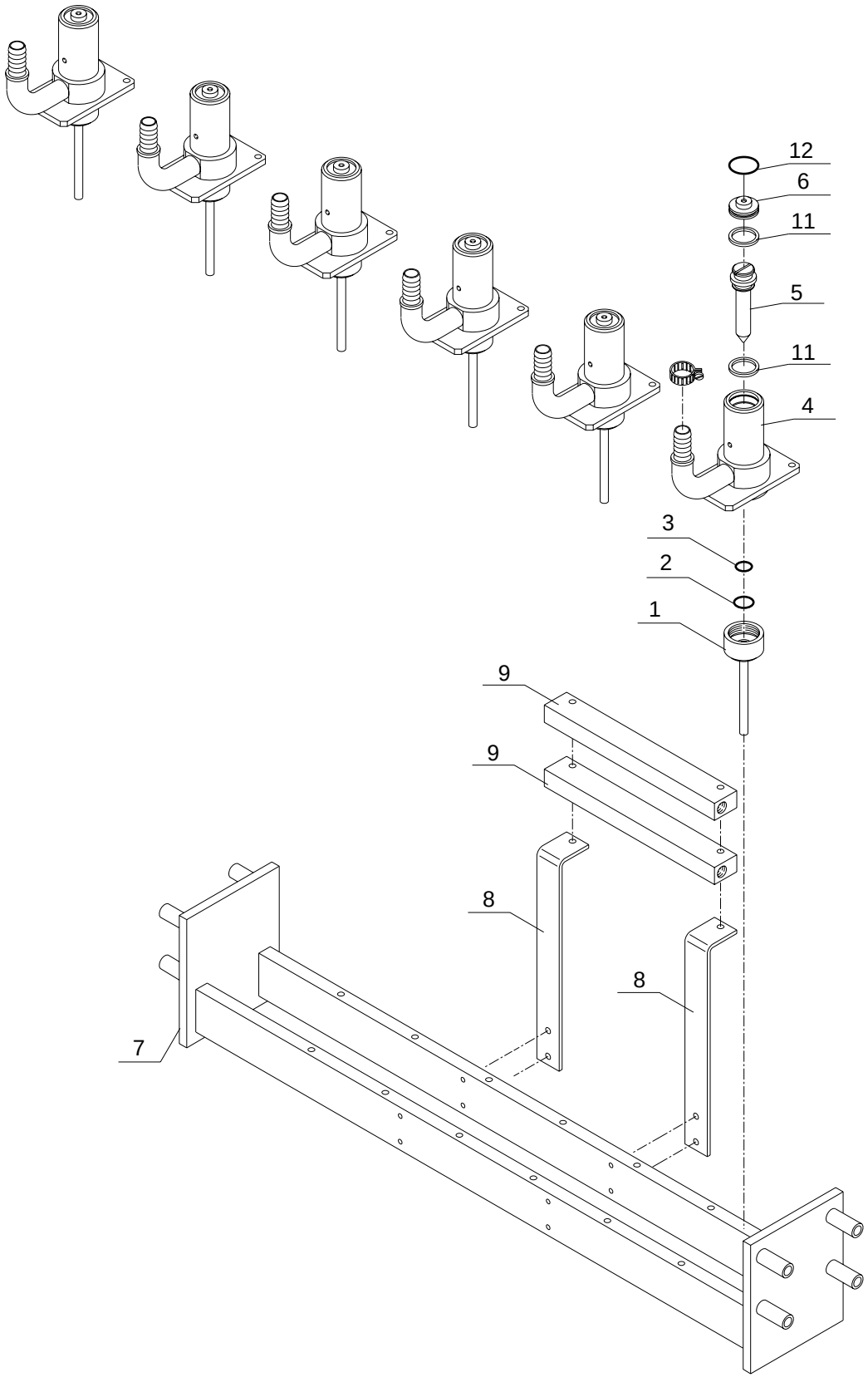

Fig. 9.39 - Pencil filler

Decorators - Fig. 9.40

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	17000010	Cylinder	4	6
2	12040213	Cylinder connection	4	6
3	016060219	2” clamp A304	8	12
4	336067042	O-ring 3081	8	12
5	12040210	Upper part of cylinder	4	6
6	336067051	O-ring 3118	4	6
7	12040212	Decorator body	4	6
8	12040027	Joint	4	6
9	336067036	O-ring 119	4	6
10	12040948	Central piston	4	6
11	12040211	Ring nut	4	6
12	540204063	Nozzle	4	6
13	018020581	1” clamp seal	4	6
14	016060218	Clamp connection	4	6
15	540204085	Curve with hose connection	4	6
16	12040521	Support frame	1	1
17	12040526	Distributor support	2	2
18	12040520	Distributor	2	2

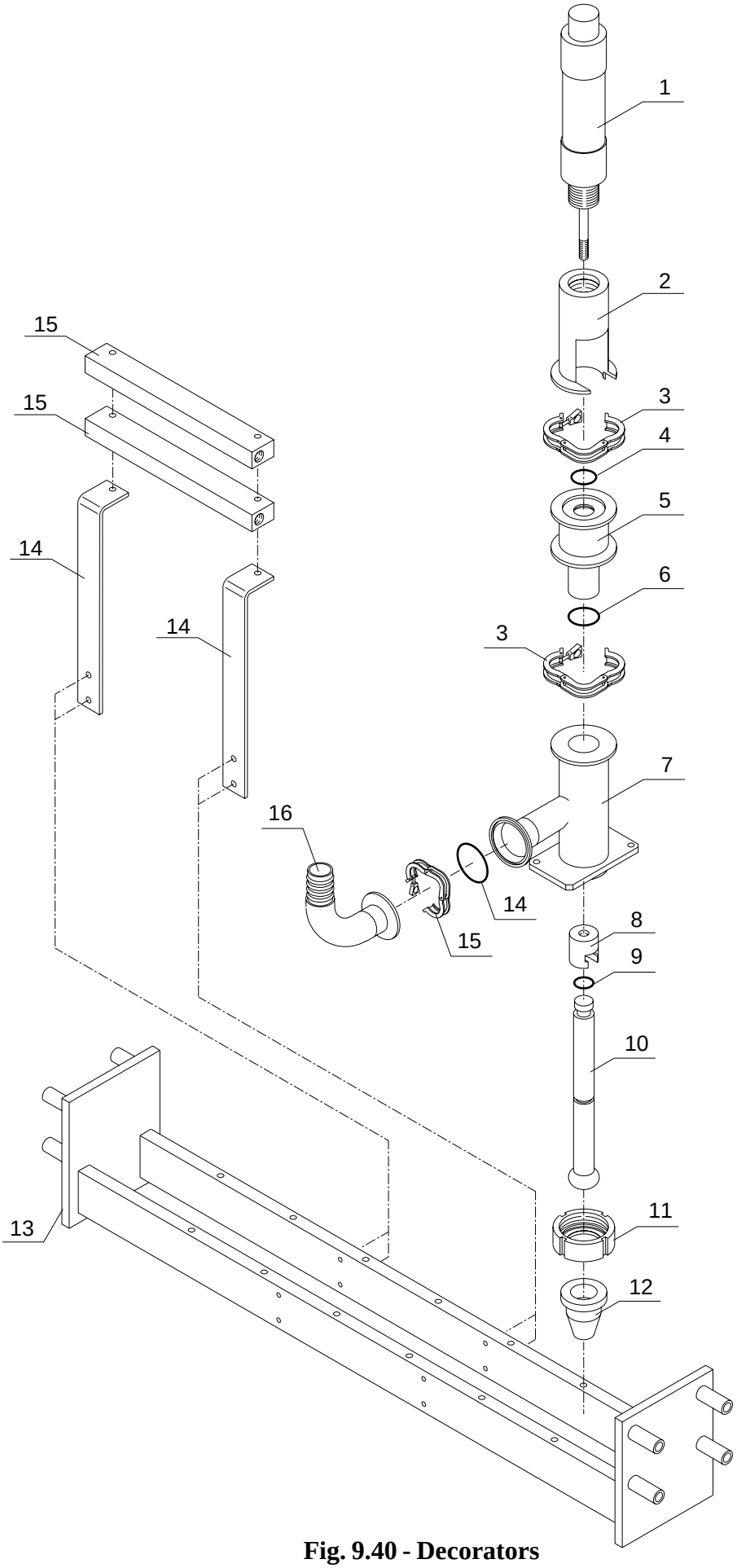

Fig. 9.40 - Decorators

Chewing gum dispenser - Fig. 9.41

POS.	CODE	DESCRIPTION	Q.TY 4 lanes	Q.TY 6 lanes
1	12040630	4-lane hopper	1	
1a		6-lane hopper		1
2	12040631	4-lane container	1	
2a		6-lane container		1
3	12040632	4-lane selector	1	
3a		6-lane selector		1
4	17000010	Cylinder	1	
5	326019010	Circlip	4	
6		Spacer	1	
7		Spacer	1	
8	12040633	Shaker	4	6
9	12040078	Lower clamp	4	4
10	12040079	Upper clamp	4	4

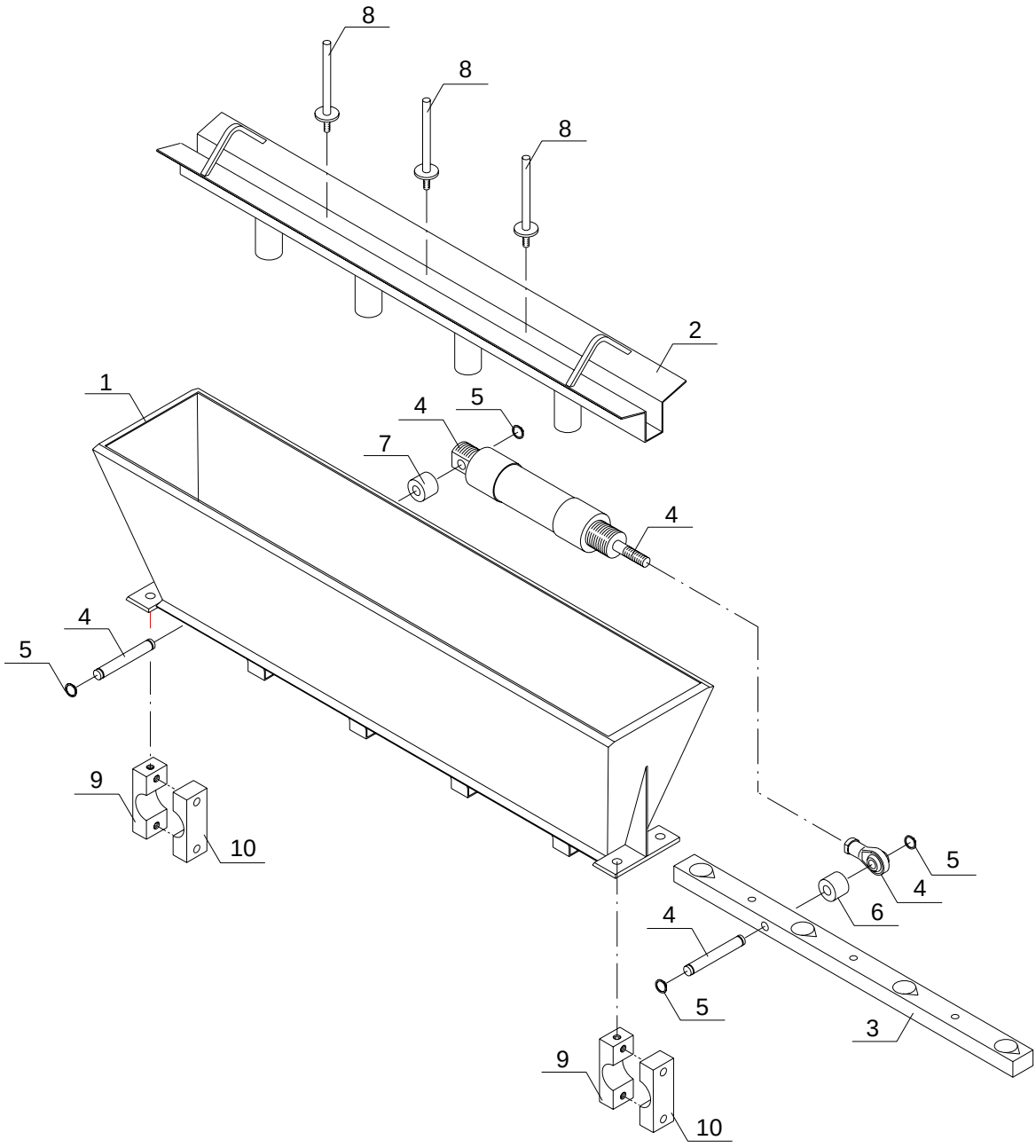

Fig. 9.41 - Chewing gum dispenser

Tube feed pick-up - Fig. 9.42

POS.	CODE	DESCRIPTION	Q.TY
1	17040089	Cylinder	12
2	12041338	Finger support	12
3	12041337	Frame	1
4	17040067	Cylinder	4
5	12041336	Plate	2
6	FM75D05141	Jaw	12

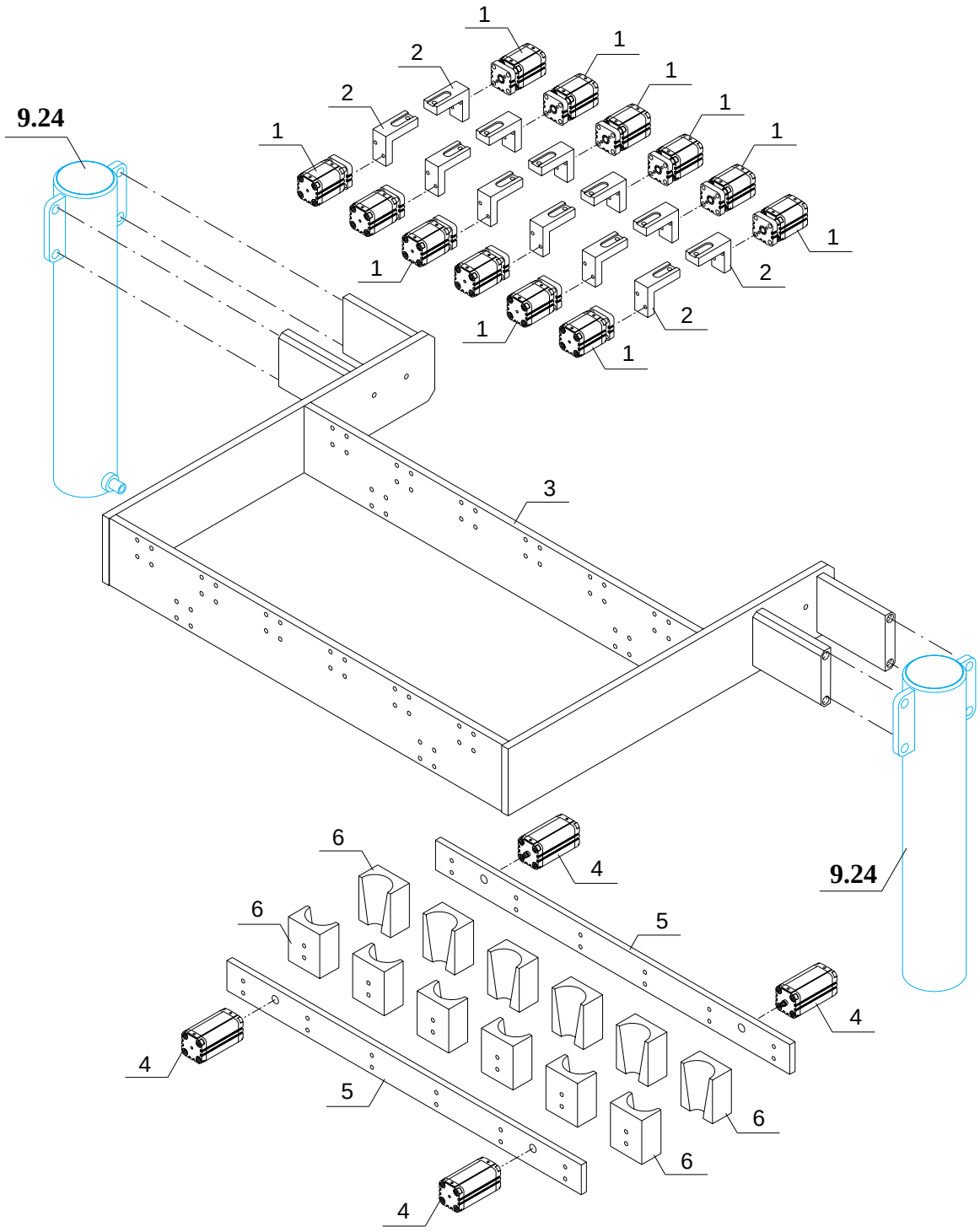

Fig. 9.42 - Tube feed pick-up

Tube gauge - Fig. 9.43

POS.	CODE	DESCRIPTION	Q.TY
1	FM0605	Tie rod	6
2	540602006	Bush	6
3	12041403	Gauge support	6
4	FM0606	Spring	6
5	12040408	Plug	6

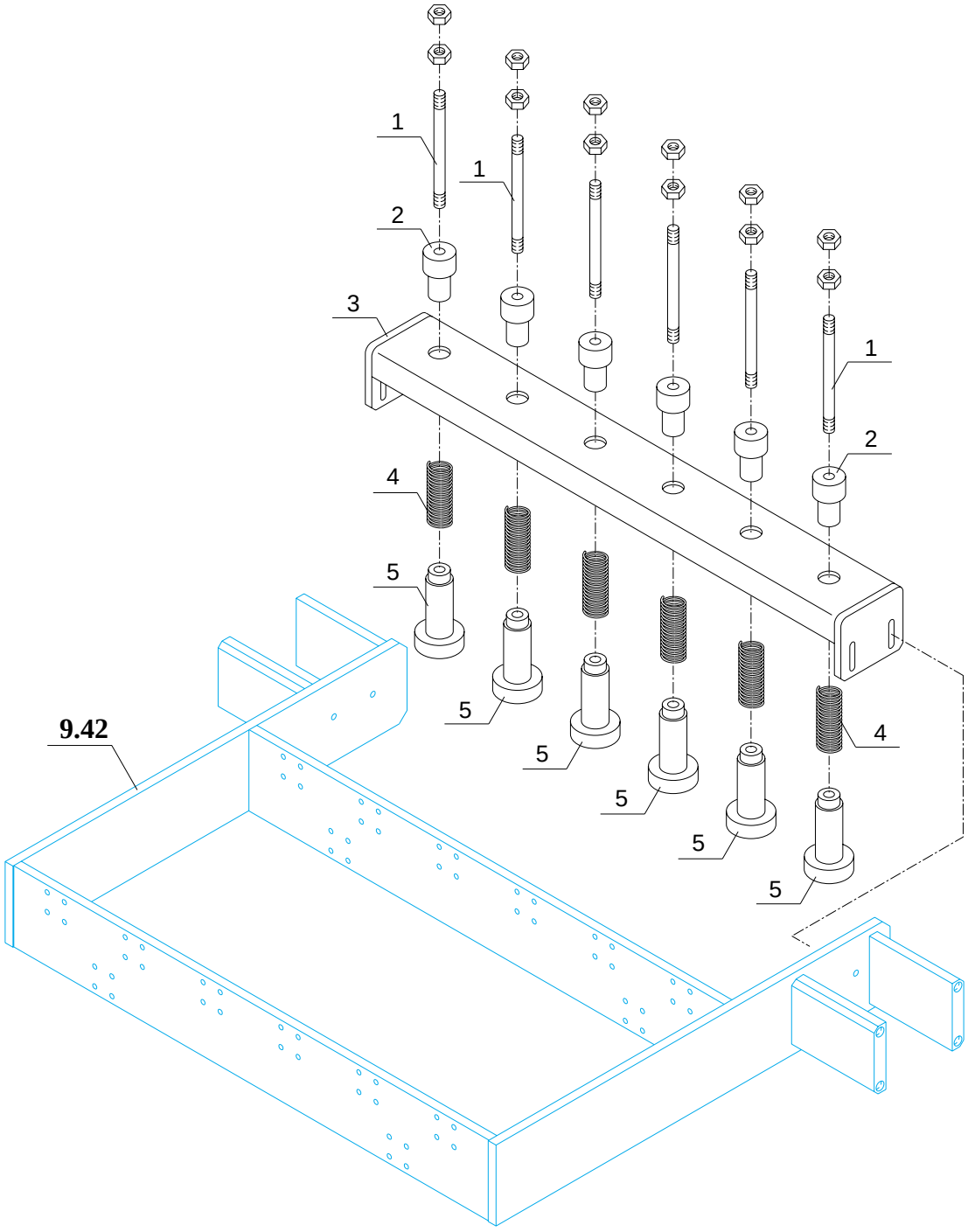

Fig. 9.43 - Tube gauge

Tube magazine - Fig. 9.44

POS.	CODE	DESCRIPTION	Q.TY
1	12040242	Long rod	24
	12040243	Short rod	24
2	12041288	Squeeze-up tube magazine	6
3	12041339	Magazine support	1
4	12041335	Column	4
5	12040078	Lower clamp	4
6	12040079	Upper clamp	4

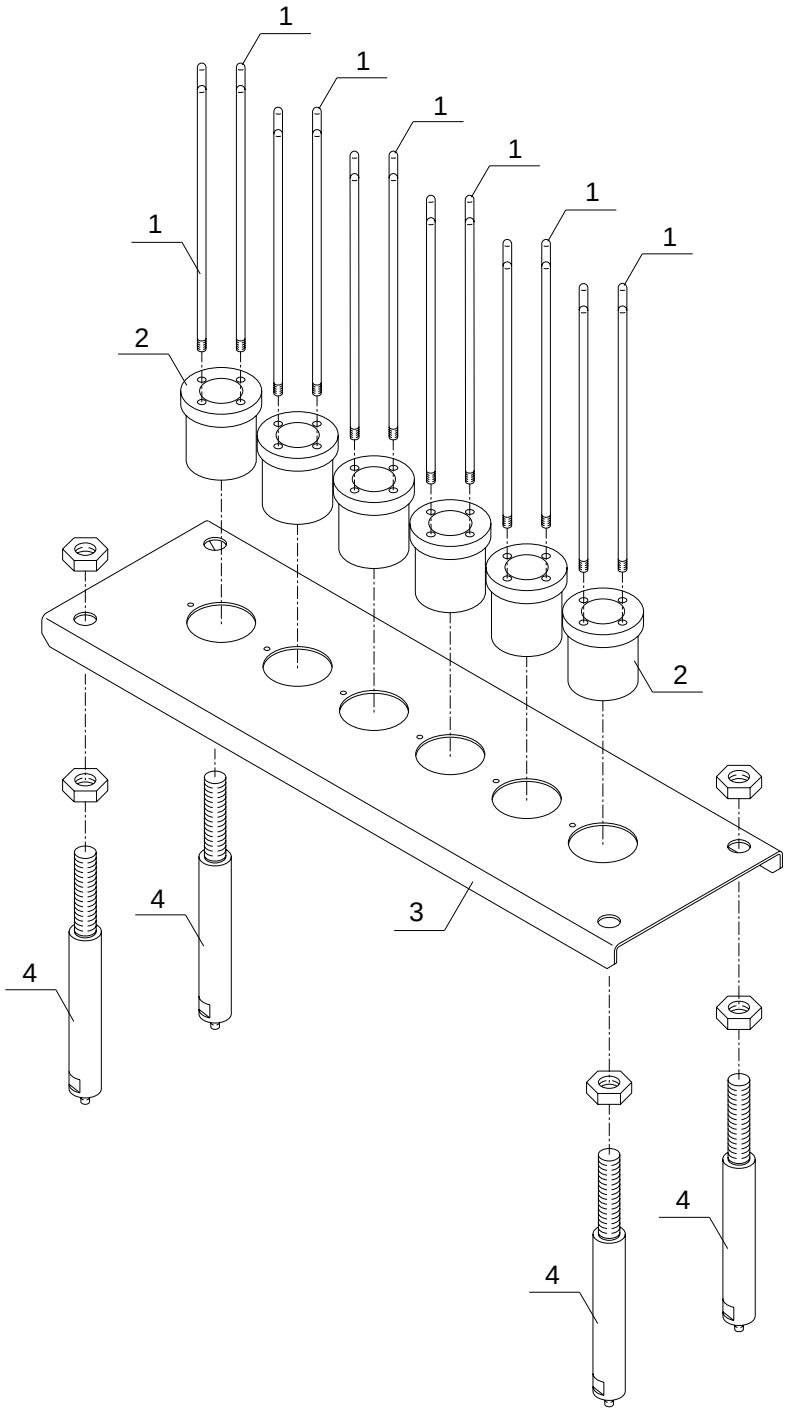

Fig. 9.44 - Tube magazine

Volumetric doser - Fig. 9.45

POS.	CODE	DESCRIPTION	Q.TY
1	12041220	Plate	1
2	12041213	Washer	6
3	12041212	Stem	6
4	12041210	Cylinder	6
5	336069471	Seal	12
6	12041211	Doser piston	6
7	336067059	O-ring 3168	6
8	12041214	Half-rings	6
9	12041204	Shaft	
10	12041222	Shaft seal disk	1
11	336067091	O-ring	1
12	12041215	Union	6
13	12041216	Union fastening ringo	6
14	336067082	Seal	
15	12041205	Distributor bodye	1
16	12041206	Distributor shaft	1
17	336067155	O-ring	1

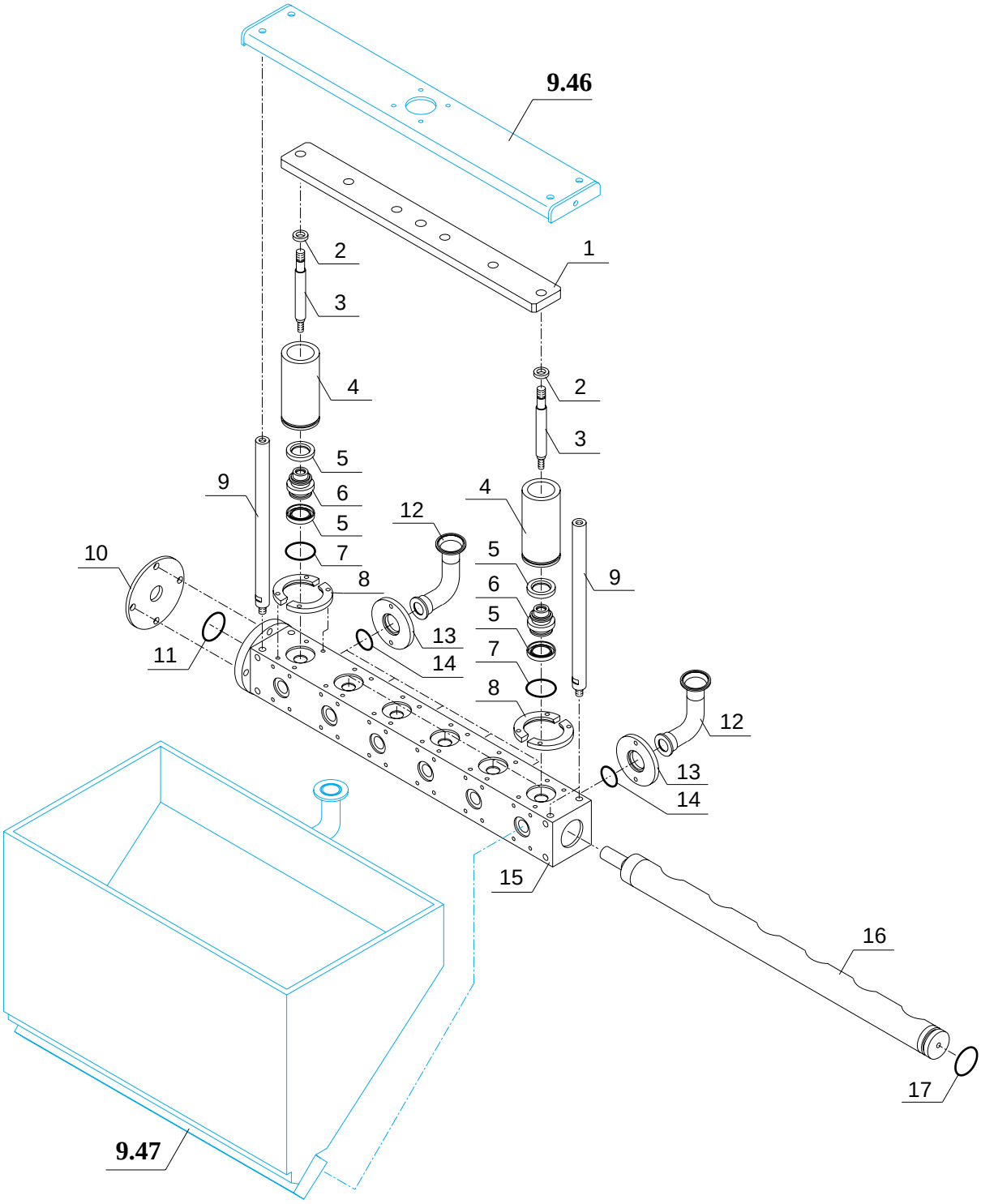

Fig. 9.45 - Volumetric doser

Volumetric doser - Fig. 9.46

POS.	CODE	DESCRIPTION	Q.TY
1	336057062	Flywheel	1
2	326024250	Elastic plug 4x16	1
3	12041218	Adjustment screw	1
4	341657001	Ring nut	1
5	341690023	Terminal	1
6	016060218	Clamp	1
7	12040078	Lower clamp	2
8	326019014	Elastic ring	1
9	12041217	Cylinder adjustment component	1
10	17000067	Cylinder	1
11	12041219	Plate	1
12	12041207	Plate	2
13	12040079	Upper clamp	2

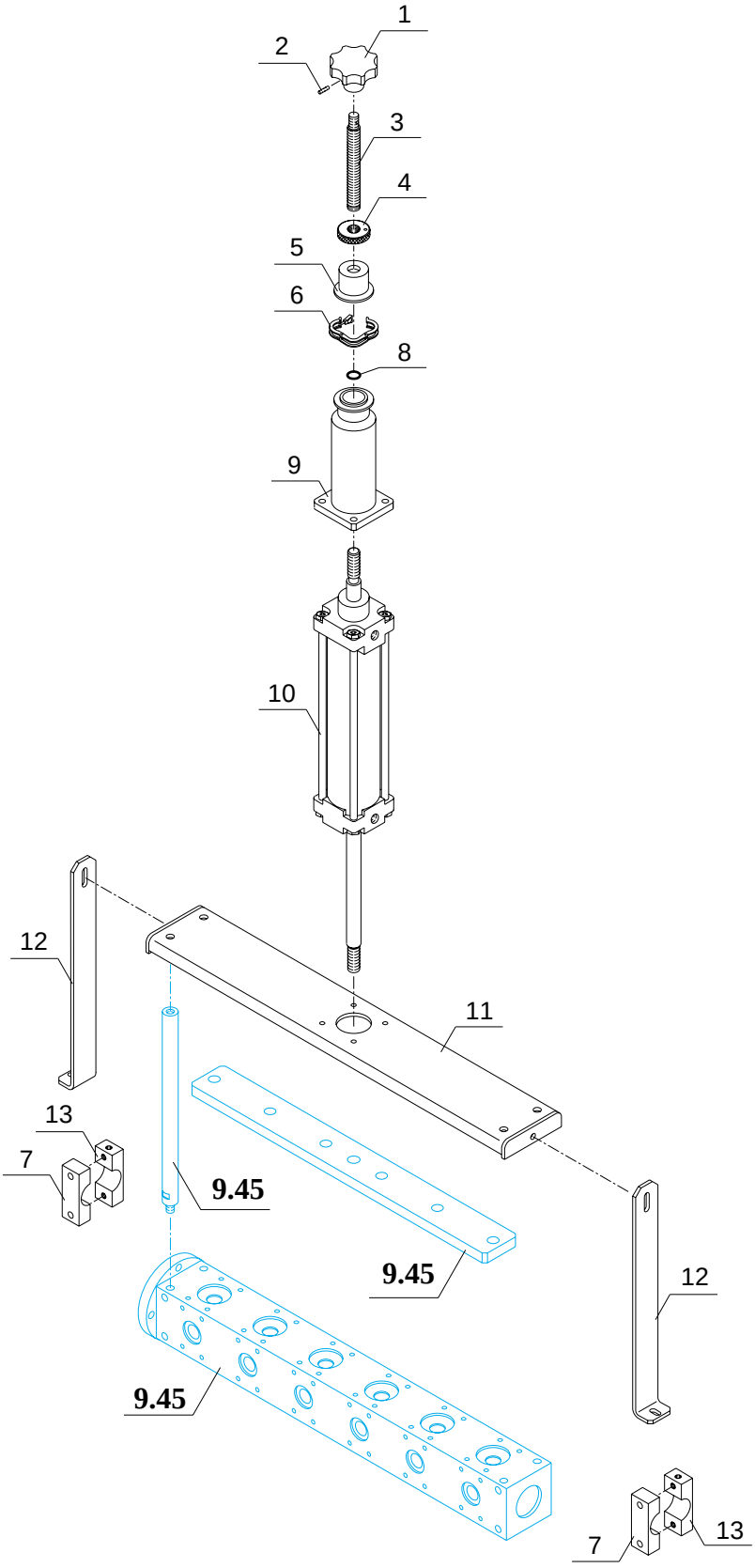

Fig. 9.46 - Volumetric doser

Volumetric doser - Fig. 9.47

POS.	CODE	DESCRIPTION	Q.TY
1	12041200	Hopper lid	1
2	12041201	Guard mesh	1
3	12041202	Hoppera	1
4	12041226	Washer	2
5	12041225	Plate	1
6	17000063	Coupling head	1
7	17000378	Cylinder	1
8	333001647	Coupling head	1
9	12041221	Shaft movement lever	1
10	12041224	Cylinder holder pin	1
11	12041223	Cylinder holder clamp	1
12	12041203	Clamp support shaft	2
13	12041208	Bracket	1
14	336067082	O-ring 4100	12
15	12041209	Right bracket	1
16	12040079	Upper clamp	2
17	12040078	Lower clamp	2
18	336057086	Handle	1

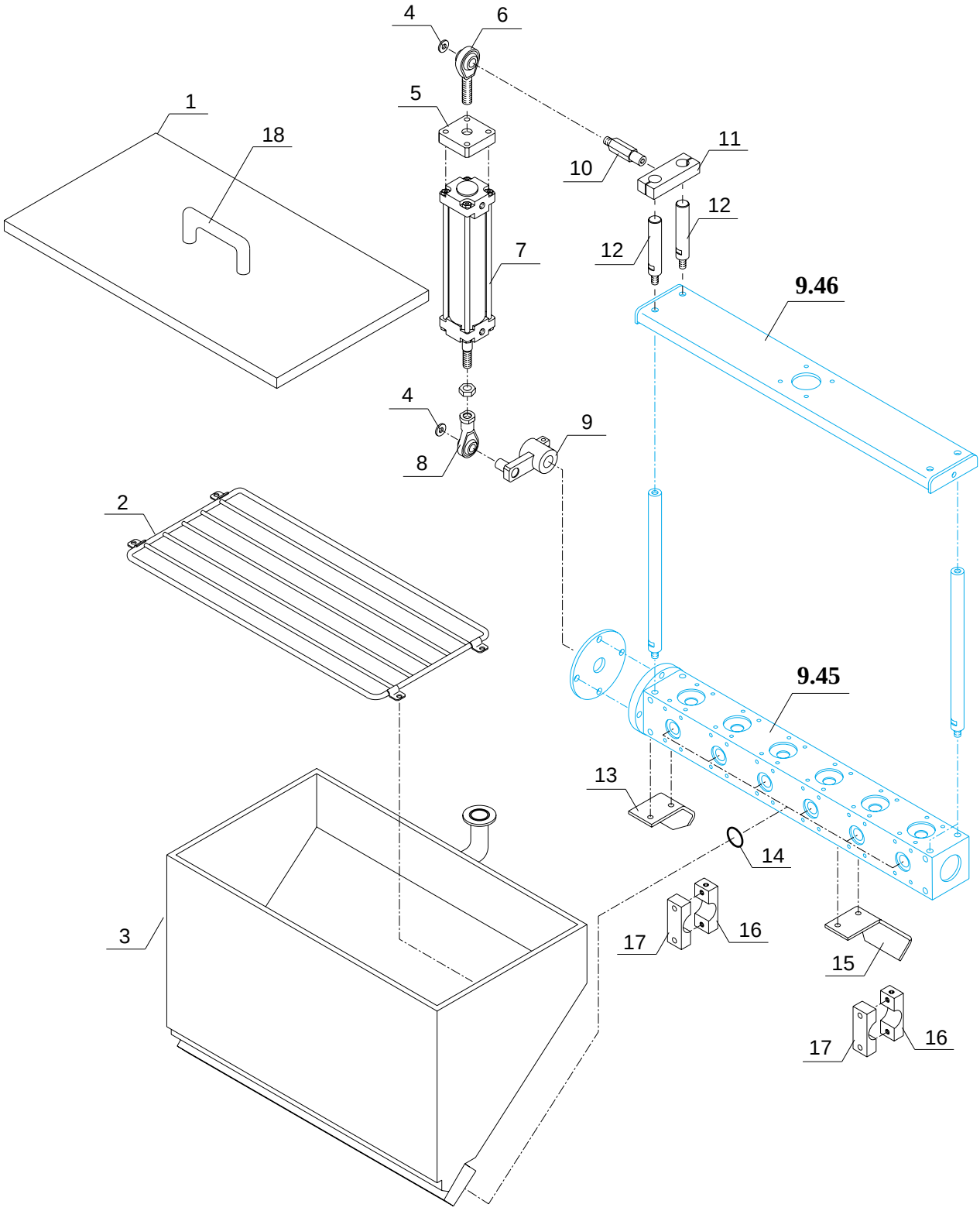

Fig. 9.47 - Volumetric doser

Stamp - Fig. 9.48

POS.	CODE	DESCRIPTION	Q.TY
1	12041516	Station support	1
2	12041521	Protective pan	1
3	12041517	Support crosspiece	1
4	12040079	Upper clamp	4
5	12040078	Lower clamp	4
6	12041518	Side support	1
7		Cylinder	1
8	12041520	Guide rod	1
9	17000432	Bush	2
10	12041504	Sliding block	1
11	12041519	Front band	1
12	12041507	Fastening plate	1
13	12041506	Stamp connection	1
14	12041508	Belt connection plate	1
15	12041505	Stamp support	1
16	017035932	Proximity sensor	2

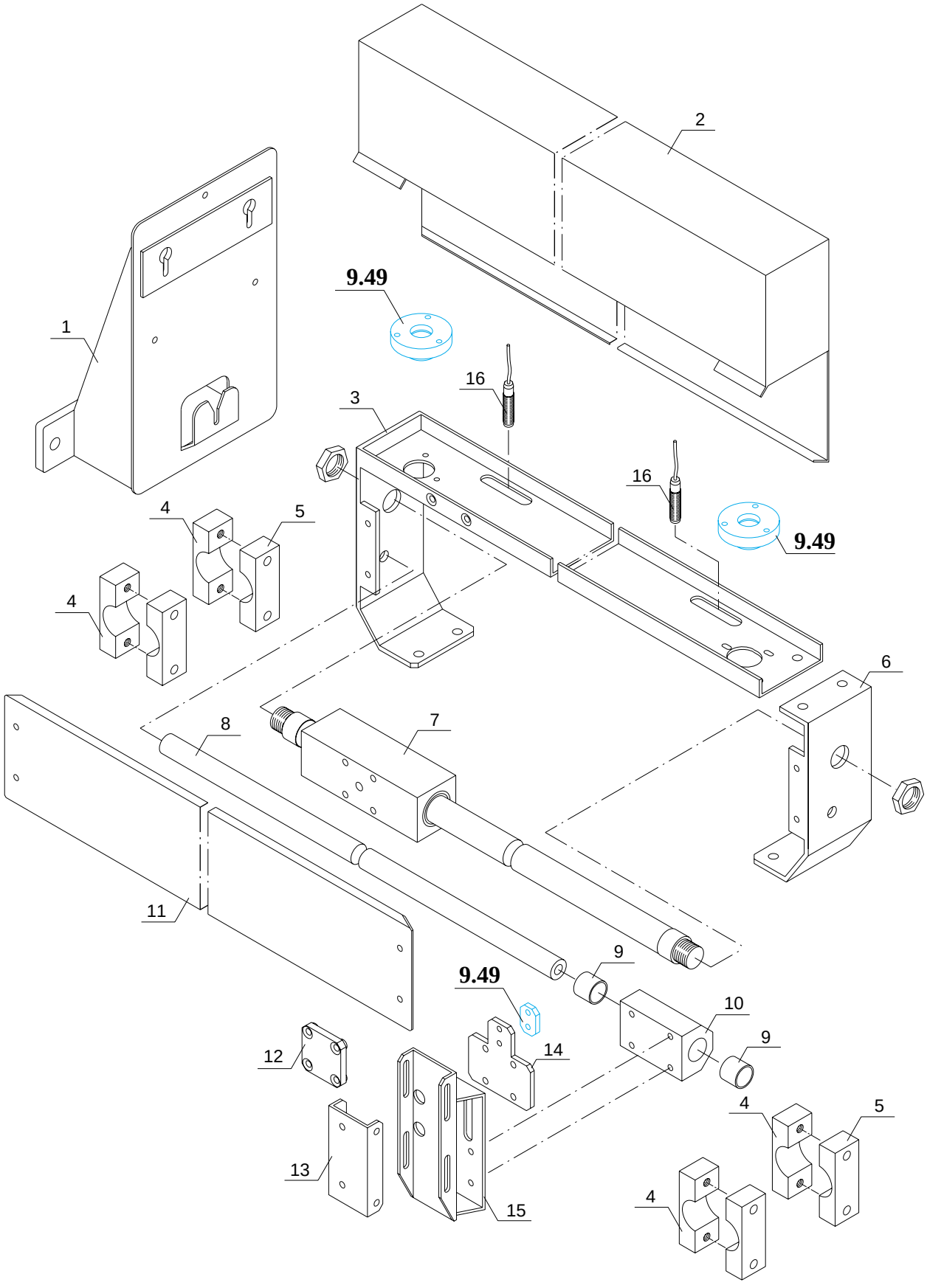

Fig. 9.48 - Stamp

Stamp - Fig. 9.49

POS.	CODICE	DESCRIZIONE	Q.TA'
1	17040085	Encoder	1
2	336019996	Belt	1
3	12041513	Pulley	4
4	12041511	Pin for pulley with encoder	1
5	336001302	Bearing	4
6	326019120	Circlip	4
7	12041510	Belt flange	2
8	12041512	Return pulley pin	1
9	12041514	Encoder support	1
10		Belt	1
11	12041509	Belt retainer plate	1

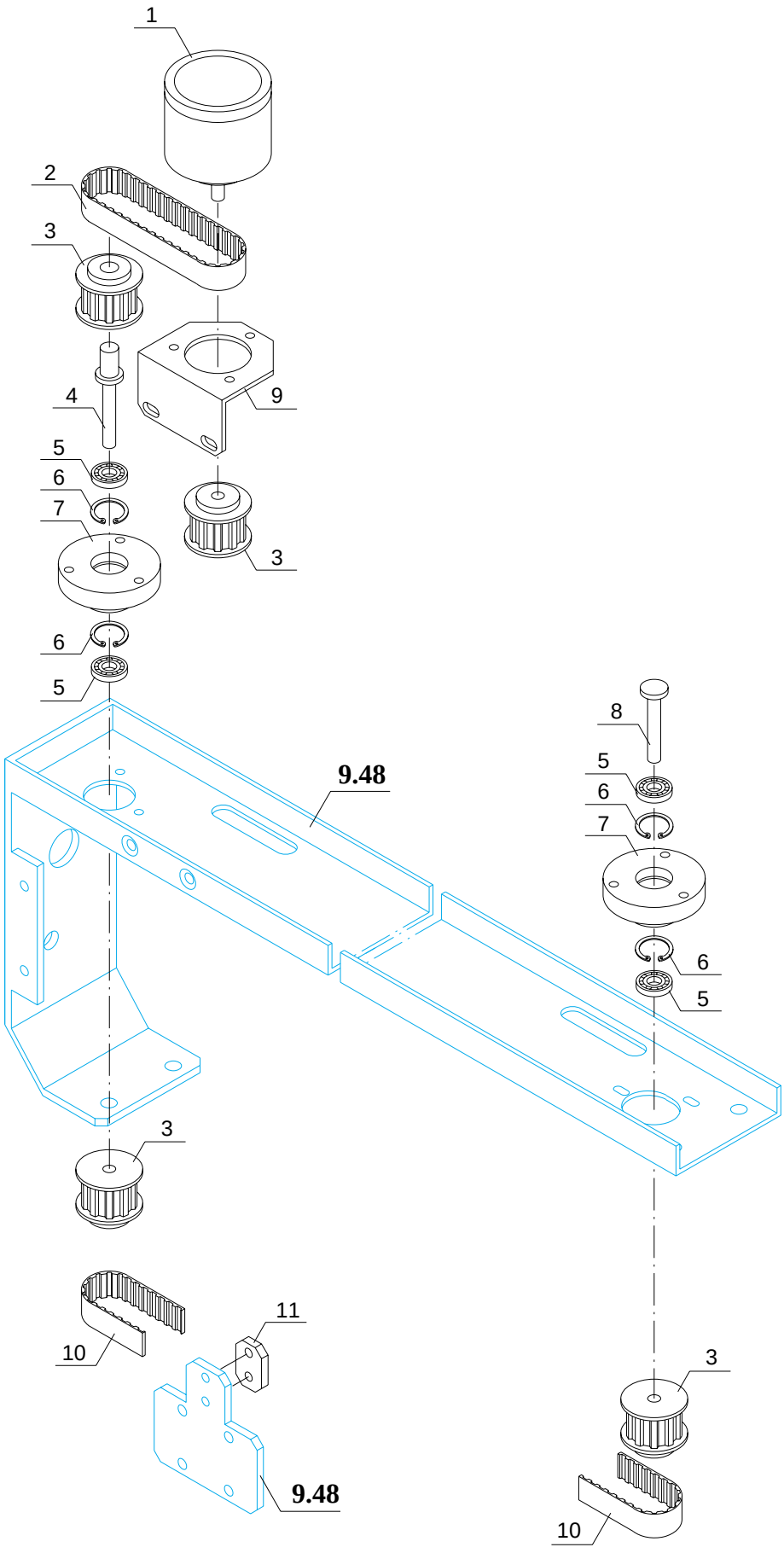

Fig. 9.49 - Stamp

Tube sealing station - Fig. 9.50

POS.	CODE	DESCRIPTION	Q.TY
1		Crosspiece	1
2	540313028	Spacer	24
3	540313057	Spring	24
4	540313029	Tie rod	24
5	12040973	Sealing head holder plate	6
6			6
7	1017075168	Resistance	6
8	017988037	Thermocouple	6

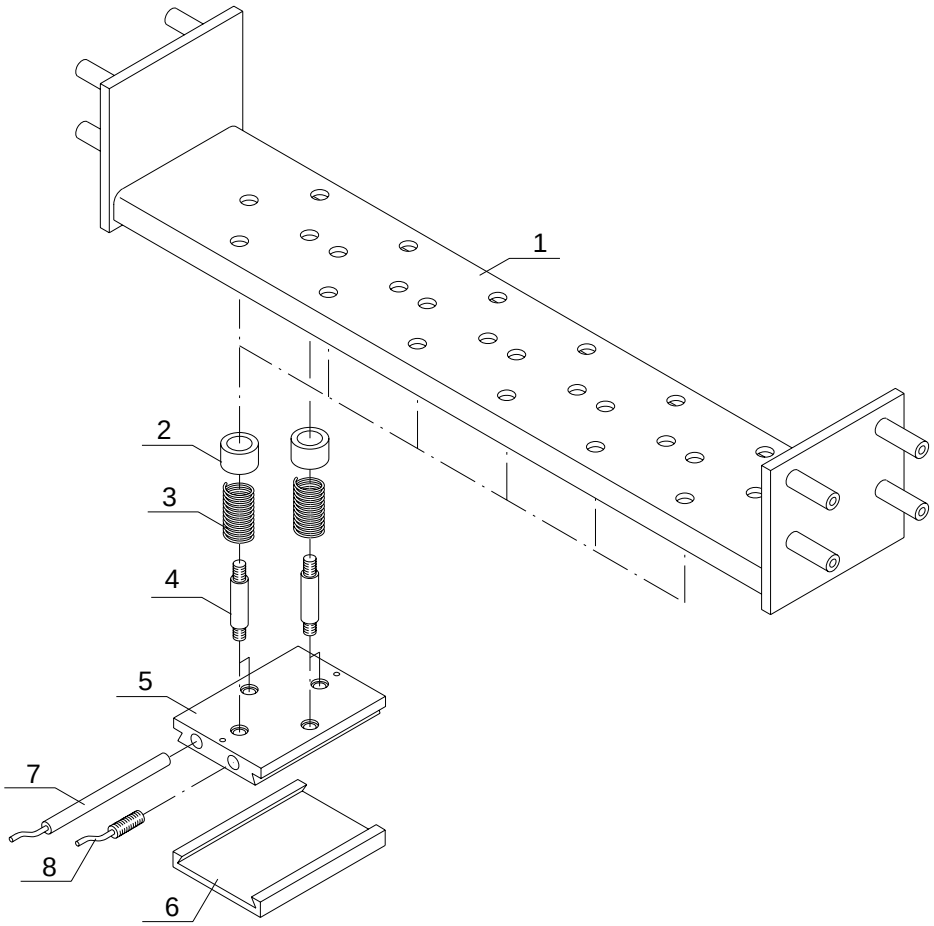

Fig. 9.50 - Tube sealing station

Cup ejector belt - Fig. 9-51

POS.	CODE	DESCRIPTION	Q.TY
1	17040050	Belt	1
2	12041471	Belt support plate	1
3	12041463	Guard panel	2
4	17000367	Reduction gear	1
5	12040233	Reduction gear column	4
6	12040155	I-beam pin	4
7	17000113	Motor ST63 4P 0.18 kW B5	1
8	326019008	Circlip	2
9	12041459	Tension block	2
10	12041462	Pin washer	2
11	12041461	Retainer nut	2
12	12041460	Tension pin	2
13	326019012	Circlip	8
14	12041451	Motor side shoulder	1
15	12040236	Corner piece	1
16	12040234	Rear support	2
17	12040235	Front support	2
18	17000496	Bearing	6
19	12041467	Return roller	3
20	12041469	Return roller axle	3
21	326013075	Key 6x6x20	2
22	12041466	Driving roller	1
23	12041450	Shoulder	1
24	17000017	Flange support UCF-R50205AR	1
25	12041465	Shoulder connection crosspiece	1
26	12041470	Tensioner roller axle	1
27	17000499	Shoulder ring	2
28	17000498	Seal ring	2
29	17000497	Roller cage	2
30	12041456	Return roller	1

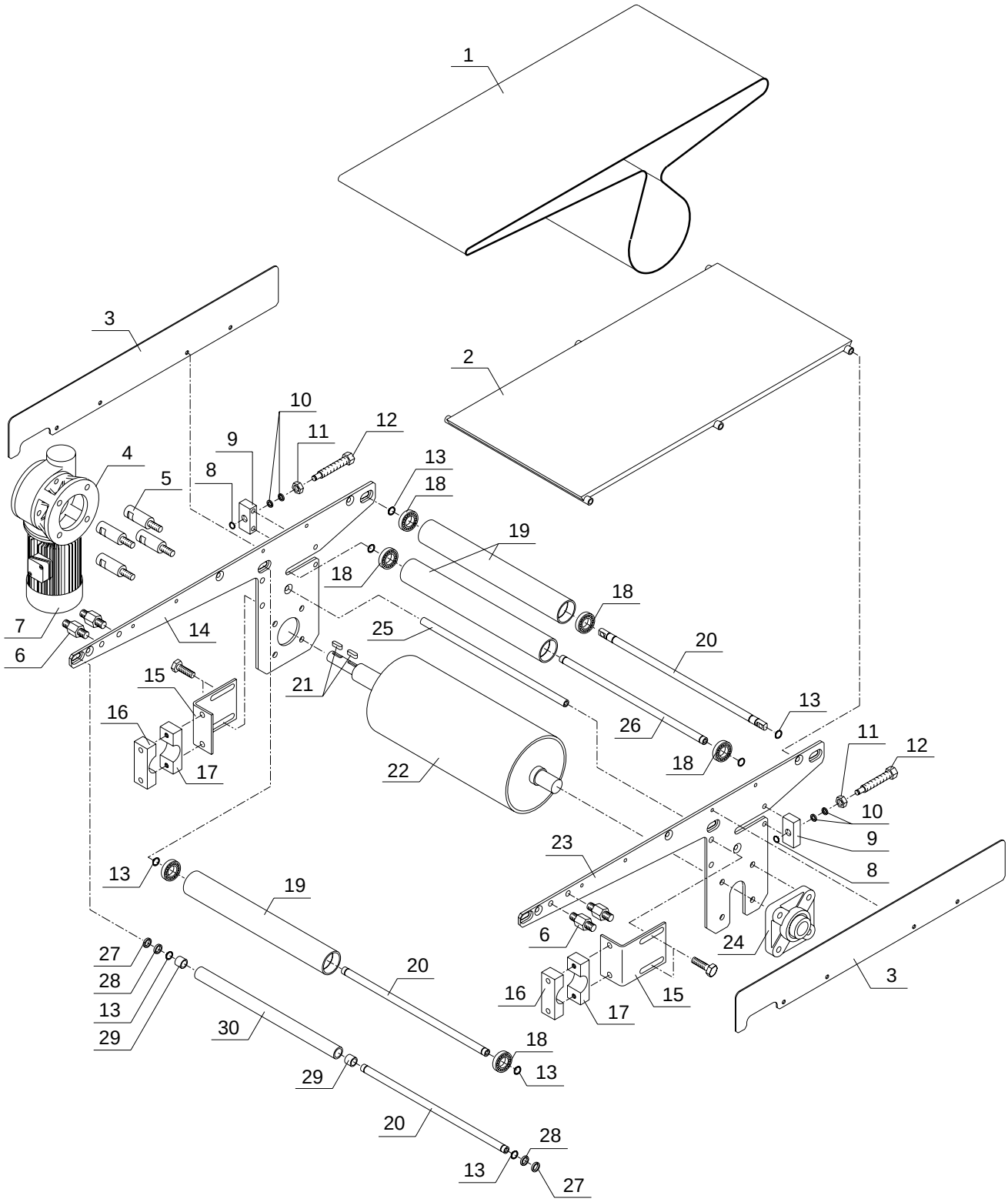

Fig.9-51 - Cup ejector belt

Cup ejector belt - Fig. 9-52

POS.	CODE	DESCRIPTION	Q.TY
1	336003151	Idler pin	2
2	12040153	Blade holder crosspiece	1
3		4-row cup ejector blade (according to format)	4
3a		6-row cup ejector blade (according to format)	6
4	17000014	Cylinder	1
5	12040155	I-beam pin	8
6	12040151	Cylinder support fork	1
7	12040154	Tie rod	1
8	12040152	Fork support	2
9	12040236	Corner piece	1
10	12040552	Corner piece	1
11	12040235	Front support	2
12	12040234	Rear support	2
13	011045494	Rapid ejector	1

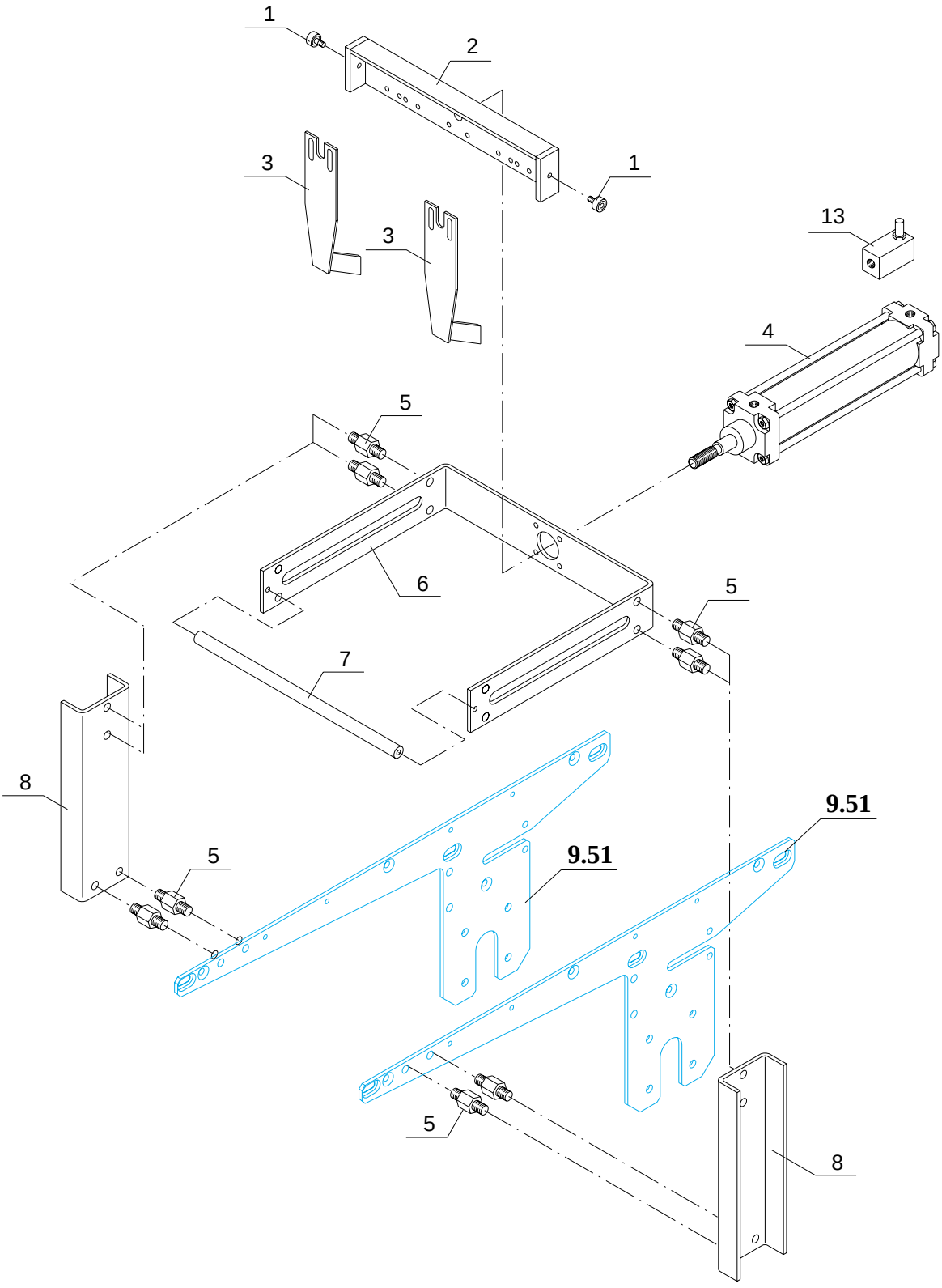

Fig.9-52 - Cup ejector belt