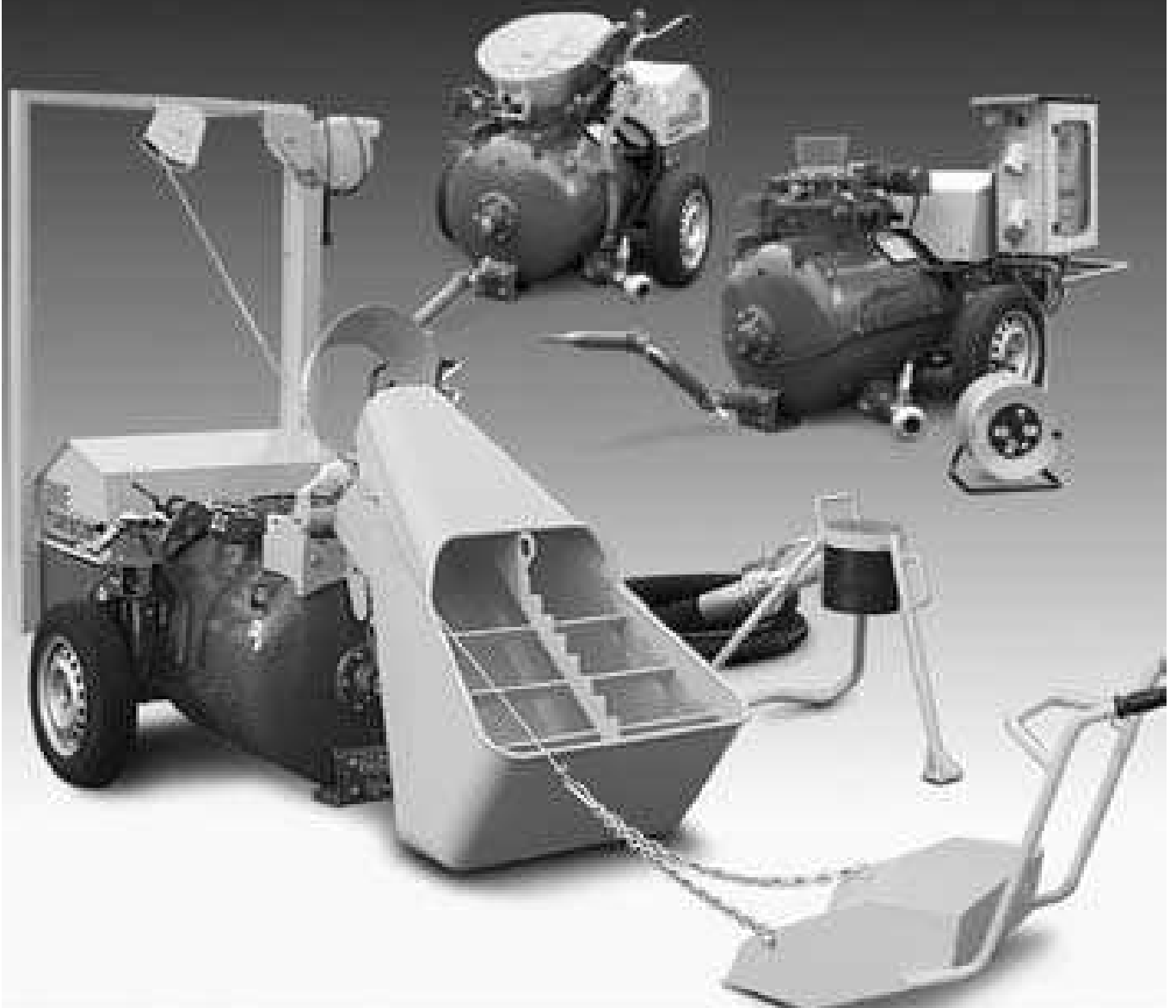




TRANSMAT 250 E



**INSTRUCTIONS FOR USE AND MAINTENANCE,
COMPREHENSIVE CATALOGUE & SPARE PARTS**

CT. 200.366C

machine serial number

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USE AND MAINTENANCE

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IMPORTANT

Read and carefully follow the instructions contained in this booklet. By doing so, you will thus help prevent accidents, be fully covered by the manufacturer's warranty and have always available an equipment that is perfectly efficient and ready for use.

Operation and maintenance of this equipment must be performed only by skilled personnel who are well aware of the dangers inherent to the machinery itself.

All standards aimed at the prevention of work accidents must be rigorously observed, as must all regulations covering safety on the jobsite.

The manufacturer shall not be liable in any manner whatsoever for injury or damage to persons or things resulting from unauthorized changes in or modification of this equipment.

ELECTRIC MIXING AND PUMPING MACHINE FOR SCREEDS

TM 250 E

Machine serial number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

You are strongly advised to enter your machine's serial number in the space above which must always be referred in order to facilitate the work of the personnel in charge, and it must likewise be mentioned when requesting service assistance or spare parts.

We reserve the right to make any technical modification whatsoever in the interests of improving this machinery, even if such eventual modifications are not referred to in this booklet.

Written authorization from Turbosol Produzione SpA must be obtained for any and all reprinting or reproduction, even in part, of the information contained in this booklet.

SYMBOL KEY

DESCRIPTION



It is compulsory to read this maintenance booklet prior to operating the machine



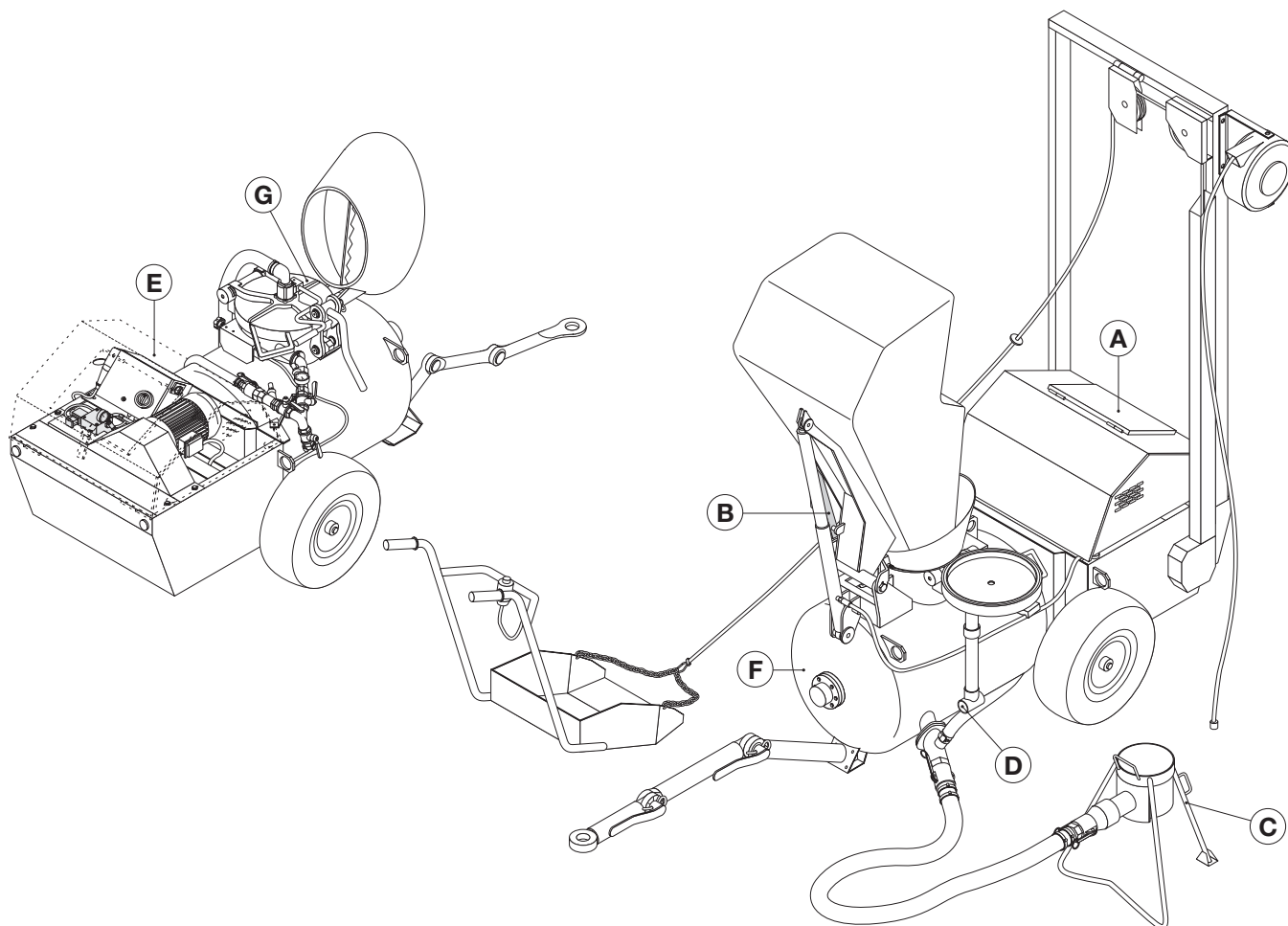
It is compulsory to ready this maintenance booklet for what regards ordinary and general maintenance.



Danger:
electrical shock hazard.

BE CAREFUL!

- A** - Work when the canopy is closed.
- B** - Lock the bucket with the safety device during the transport.
- C** - The machine must not work if not connected to the discharge hopper.
- D** - Check that no one is standing too close to the pressure discharge hose.
- E** - Moving parts and hot parts are present inside the canopy.
- F** - The material vessel is under pressure when the material is conveyed.
- G** - The vessel hatchway is fitted with safety device. The safety grill inside can be opened only when the mixer stops.



1 - GENERAL INFORMATION

1.1 - INTRODUCTION

The electric mixing and conveying machine TM 250 E can be supplied in 3 versions and with various accessories. As a result, some of the components and parts described in this booklet may not be included with your own equipment.

We have taken special care to clearly illustrate the different variations in order to make it easier for you to distinguish the use and maintenance instructions applicable to your own machine.

Please read these instructions carefully prior to turning on your equipment and follow the instructions carefully.

For whatever other information you might require, TURBOSOL PRODUZIONE S.P.A. customer service is at your complete service.

TURBOSOL PRODUZIONE S.P.A.

**Via Volta, 1
31030 Pero di Breda di Piave (TV) - ITALIA**

**Tel. 0039 - 0422 - 90.2.51
Fax 0039 - 0422 - 90.44.08
<http://www.turbosol.it>
e-mail: info@turbosol.it**

1.2 - GENERAL INFORMATION

TURBOSOL Machinery

This machinery is the product of our lengthy experience and continuous development. The know-how thus acquired, together with our stringent requirements for high quality, constitute the basic guarantee for manufacturing low-wearing machinery which offers total reliability at low service costs.

Precautions to take when the machine is operating

Maintenance or repair work must be carried out only when the machine is turned off. Whatever safety devices that have been removed in order to complete such work must be mounted again after maintenance has been carried out.

Care and maintenance

Care and maintenance are vitally important in making it possible for the machinery to operate as expected. It is therefore essential that all maintenance be performed on schedule and that all required maintenance be carried out with extreme care.

Safety



This symbol marks every reference to safety in this booklet, and it must be scrupulously observed.

The personnel in charge must be fully informed about all safety regulations. Safety and accident-prevention regulations currently in effect in your area or country must likewise be observed.

Training



This symbol indicates that the personnel operating this machinery must have received special training in regard to the correct manner in which such operation must take place.


TURBOSOL SERVICE

For any problem related to trouble with this machinery or when you need spare parts, contact your local TURBOSOL dealer.

2 - DESCRIPTION OF THE MACHINE

2.1 - TYPE OF MACHINE

Manufacturer's registration plate

				
TURBOSOL				
TURBOSOL PRODUZIONE S.P.A.				
VIA MARCHE, 50 - 31030 PERO DI BREDA - TV - ITALIA				
TEL. 0039.0422.90251 - FAX 0039.0422.904408				
E-mail: info@turbosol.it - http://www.turbosol.com/				
SERIE		MODELLO		MATRICOLA N°
[]		[]		[]
[]		[]		[]
KG	KW	V	A	Hz
A		B		

The type of machine **(A)**, the serial number **(B)**, and information on the machine's operating power are printed on the manufacturer's registration plate.

The following is the meaning of the letters and numbers used:

(A) = Type of machine: **TM 250 E (B) /P**

TM 250 = *Mixing and pumping machine for cementitious screeds*

E = *Electric version*

B = *With loading bucket*

/P = *With scraper*

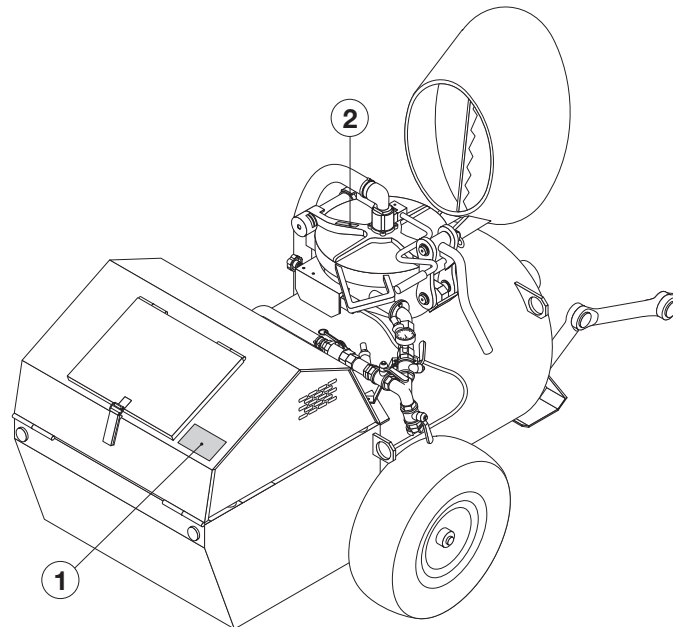
(B) = Machine serial number: **NNNNN/AA**

NNNNN = *Machine serial number*

/AA = *Year of manufacture*

Location of the Manufacturer's registration plate

The manufacturer's registration plate **(1)** is attached to the chassis of the machine.



Location of the machine serial number

The machine serial number **(2)** is punched on the vessel hatchway as well as on the manufacturer registration plate.

2.2 - DESCRIPTION OF THE MACHINE

Standard equipment:

- Protection frame for mechanical parts.
- Pneumatic wheels and articulated towbar.
- Certified pressure vessel with wear-resistant plates.
- Mixer with paddles.
- Delivery collector dia. 65 (Perrot couplings).
- EC certified control board.
- 40 meters (20+10+10) rubber hoses Ø 65 with Perrot couplings.
- Steel elbow clamp.
- Discharge hopper.
- Hydraulic power pack for loading bucket lifting and scraper towing (*versions EB and EB/P*).
- Loading bucket (*version EB*) and scraper (*version EB/P*).
- Accessory box and hose clamp for hoses Ø 65.
- Technical literature and conformity certificate.

Accessories upon request:

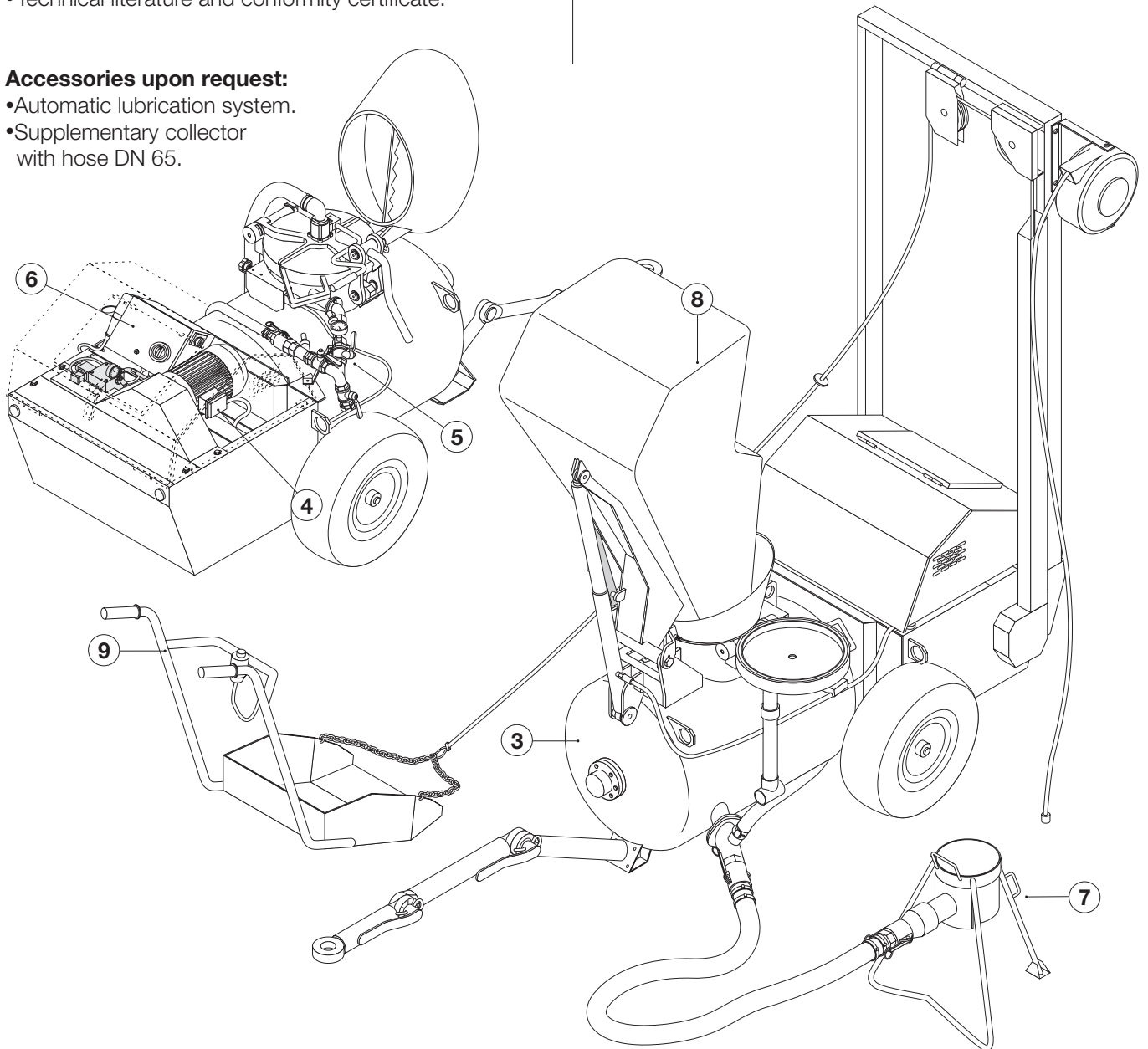
- Automatic lubrication system.
- Supplementary collector with hose DN 65.

Main components:

The machine is made up basically of:
a pressurized vessel for the material **(3)**,
an electric motor **(4)**,
a pneumatic system **(5)**,
a switch board **(6)**,
a discharge hopper **(7)**,

for the version TM 250 EB:
a loading bucket **(8)**
with an hydraulic power pack to lift it

and for the version TM 250 EB/P:
a scraper **(9)**.



2.3 - SIZE OF THE MACHINE

Here are the machine's sizes and their gross weights (ready for use).

TM 250 E version

LENGTH	WIDTH	HEIGHT	WEIGHT
1.650 mm	1.350 mm	1.400 mm	600 kg

TM 250 EB version

LENGTH	WIDTH	HEIGHT	WEIGHT
2.750 mm	1.350 mm	1.300 mm	790 kg

TM 250 EB/P version

LENGTH	WIDTH	HEIGHT	WEIGHT
3.150 mm	1.350 mm	2.250 mm	880 kg

2.4 - TECHNICAL DATA

Max. working pressure		6,5 bar
Max. pressure with site compressor		7 bar
Max. vessel pressure		7,2 bar
Recommended compressor output at 6 bar	min	2.400 - 2.500 l/m'
	max	5.000 l/m'
Electrical tension		400 ± 10% VCA
Electrical frequency		50 Hz
Electric motor power		5,5 kW
Mixer motor absorbed current		12,4 A
Max. short-circuit current		6 kA
Oil change gear-box (ELF REDUCTELF SP 220 - 1,5 l)		every 1.000 hours
Material vessel capacity		270 l
Loading bucket capacity		250 l
Pressure of loading bucket hydraulic system		180 bar
Oil change hydraulic system (ELF OLNA DS 32 - 20 l)		every 1.000 hours
Average output per cycle (approximate)		200 l
Delivery distance (with compressor of 3.500 l/m')		120* m
Height delivery (with compressor of 3.500 l/m')		70* m
Rubber hose, material delivery **		Ø 50 x 66
		Ø 60 x 82
		Ø 65 x 84
		Ø 90 x 112
Max. conveyable granulometry	Ø 50 x 66	0 - 10 mm
	Ø 60 x 82 - Ø 65 x 84	0 - 15 mm
	Ø 90 x 112	0 - 25 mm
Temperature in the work environment		from -5° to + 35° C
LwA warrantied (90% confidence level, law 2000/14/CE), tested by ISET, Notified Body n° 0865		85 dB(A)#

N. B.: * Maximum distance and height cannot be reached at the same time.

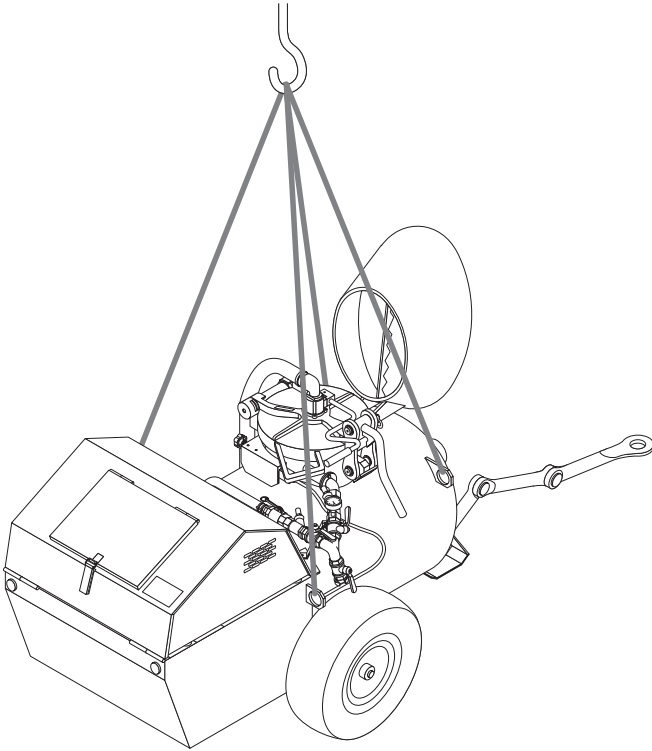
** Use only special hoses made for this machine.

The operator must wear acoustic protection earplugs
which guarantee a reduction of at least 20 dB(A).

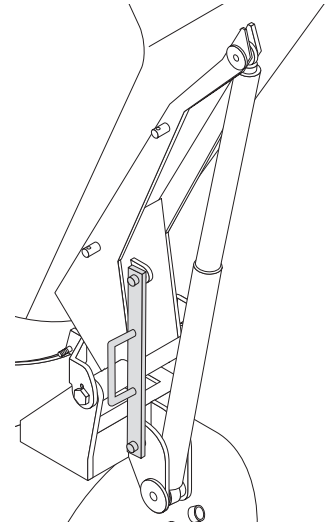
3 - TRANSPORTING


3.1 - TRANSPORT

Connect the cables to the red painted lifting eyes, as shown on the drawing.




The loading bucket must be in vertical position and locked with the red painted safety bar.



 Use only a hook that has been tested and certified for lifting 1.000 kg.

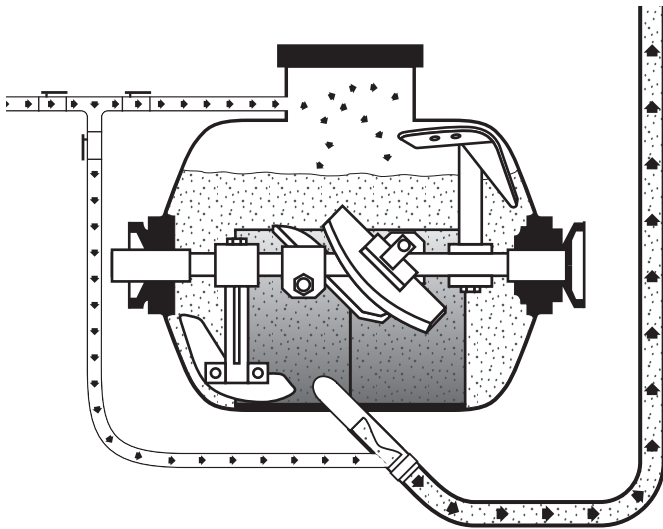
 Uses two cables certified for lifting 1.000 kg or four cables certified for lifting 500 kg.

 Before lifting up the machine, make certain that no one is standing too close to it.

4 - USING THE MACHINE

4.1 - OPERATING PRINCIPLES

The TRANSMAT 250 E consists basically of a vessel that has the dual role of mixer and pressurised tank to convey the material. The vessel, lined on the inside with replaceable wear-resistant plates, is to be filled to three-quarters height with material (sand, a binder and water) all of which is then evenly stirred by the mixer paddles. Close the hatchway and pumping begins.



The vessel itself is pressurised through a compressor and the material, pushed into the hose by the paddles towards the outlet collector, is conveyed to its point of use. Air is blown into the outlet collector to create "air plugs" and thus facilitate delivery of the material. The work cycle stops and starts: a loading phase is followed by a delivery phase.

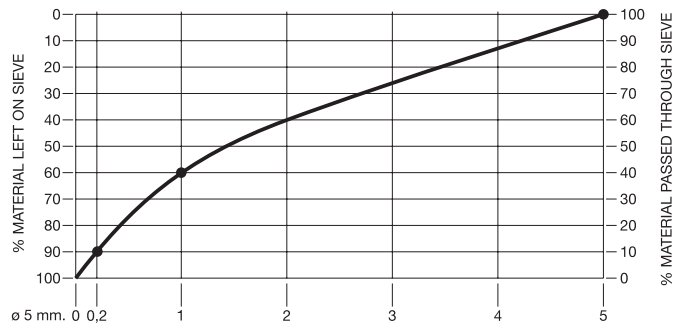
The use of the bucket, filled by the operator during the conveying phase, allows a significant reduction in the time needed for loading.

The use of the scraper, coupled to the loading bucket, allows a reduction in the time needed for the loading too.

4.2 - POMPABLE MATERIALS

These are some basic suggestions on how to prepare the traditional mixes to convey with TRANSMAT 250 E:

- sands have to be in granulometric curve:



Use, for instance, sand with granulometry: 11/3 from 0 and 1 mm;
1/3 from 1 and 4 mm;
1/3 from 4 and 8 mm.

- **the sand must be washed:**

the fine-grain portion, with a granulometry less than 0.25mm, must not be greater than 10%; for a batch of 200 l. one normally uses 25 kg. (half bag) of cement.

- The water/cement ratio must not be greater than 0,4 ÷ 0,5: this means using 8 ÷ 12 litres of water for each batch according to the quantity of cement and the dampness of the sand.

Applications

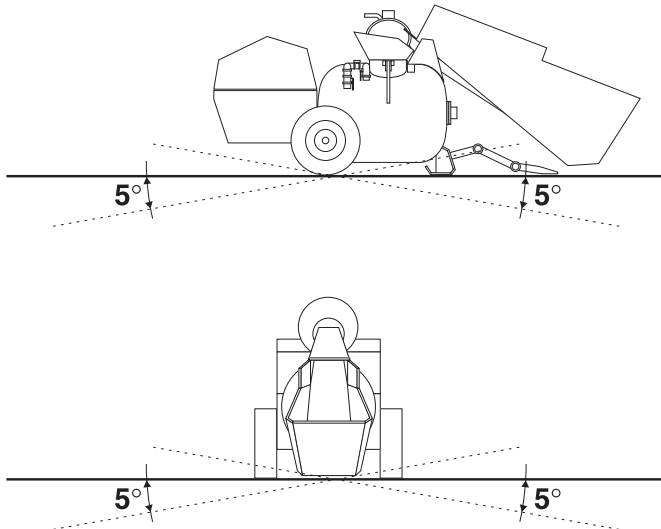
TRANSMAT 250 E is suitable to work with many types of materials:

- Mixing and pumping of floor screeds.
- Mixing and pumping of any type of sands, pebbles, a.s.o. in granulometric curve, directly to the job-site.
- Mixing and pumping of insulated floor screeds with a base of expanded clay, polystyrene, perlite, vermiculite, cork, etc
- Mixing and pumping of brick layer mortar and concrete with granulometry up to 25 mm in accordance with the diameter of the connected hoses.

4.3 - FIRST OPERATIONS

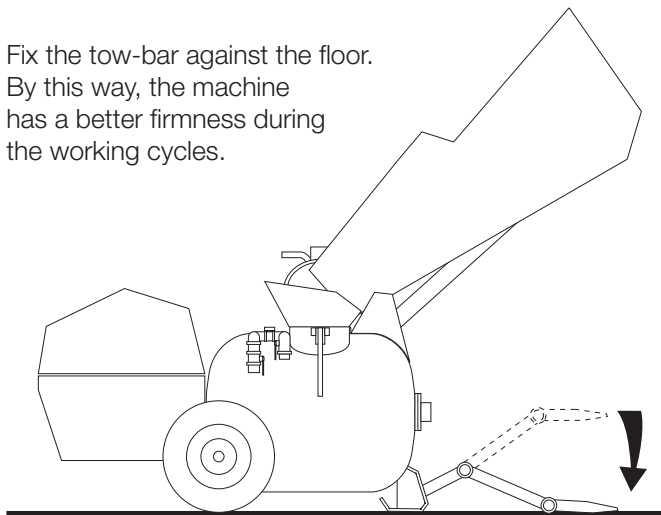
Placing the machine

Place the machine in the most horizontal possible position: the maximum gradient allowed is 5° both lengthwise and sidewise.




The machine must be placed at that point on the jobsite where you can take best advantage of the hoses operating range.

Fix the tow-bar against the floor. By this way, the machine has a better firmness during the working cycles.




Prepare the necessary material for cleaning of the machine (water hose, washing sponges, a.s.o.)

 Leave at least 80 cm. of clear space around the machine and set up a working area free of holes and dangerously protruding edges.

Electrical connection

Connect the machine to the site electric control panel by means of a neoprene cable (scratch-resistant rubber) labelled HO7 RN-F and having a minimum section:

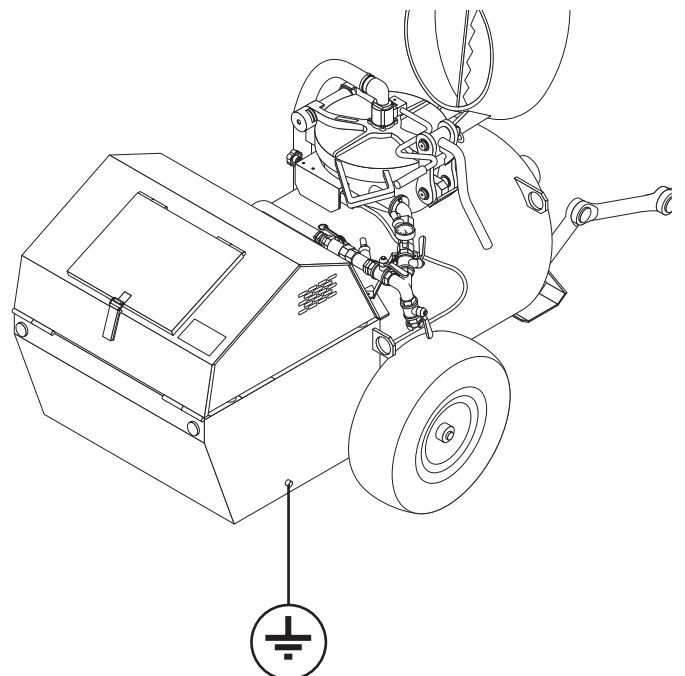
- 4 x 4 mm. for distances up to 20 m;
- 4 x 6 mm. for distances up to 50 m;
- 4 x 10 mm. for distances up to 100 m.

 If a cable of inadequate section is used, the machine does not work properly.

The jobsite's electrical system must have:

- a minimum operating power of 12 kVA,
- be properly grounded,
- fuses of 35 A (type aM),
- highly sensitive differentials (of 30 mA),
- no matter what, it must meet all the regulations currently in effect in the country where the machine is operating.

Connect the machine's ground terminal to the control panel ground post by means of a cable having a section equal to the cable section and never lower than 16 mm².



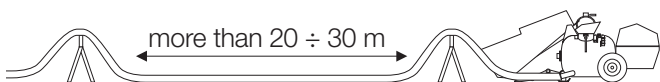
 If the machine is connected to a generating set, use one having 30 kVA.


Hoses

Lay the hoses down and limit their extended length as much as possible (thereby shortening transportation and wear time) and check at the same time that they are in good conditions.

If the initial stretch is horizontal, lift that section of the hose closest to the machine (e.g., by making use of a tripod) so as to prevent deposits and air from flowing out freely.

It is recommended to use a second tripod in case of long hoses (more than 20 ÷ 30 m)

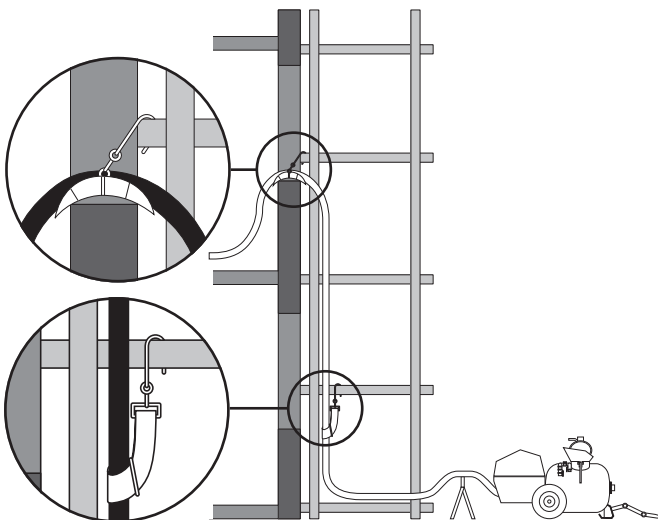


 Use only the hoses and coupling devices originally supplied with the machine.
The hoses must be connected by TURBOSOL PRODUZIONE S.P.A. or by companies explicitly authorized by TURBOSOL.
In no case whatsoever shall TURBOSOL PRODUZIONE S.P.A. be held liable for injury or damage to persons or things resulting from the use of non-original hoses or coupling devices.

A supplementary collector (optional), to be connected to the hoses line and to an auxiliary compressor, is available for the increasing of the delivery height and distance in case of very long hoses.

Anchoring the hoses

The hose line must be properly anchored: use the hose-belt to anchor the vertical portions and the purpose made hose-elbow at the floor.

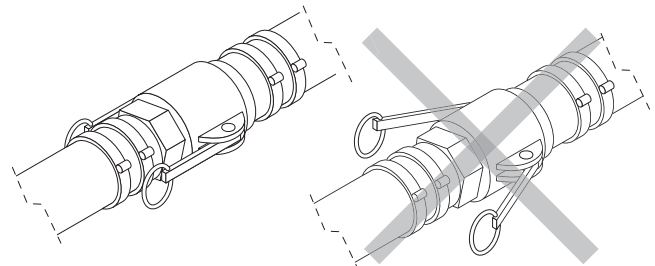
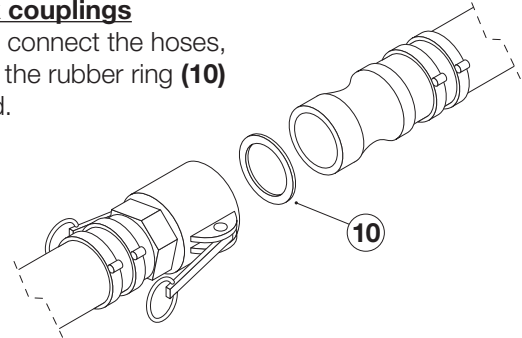


Couplings

Check to be certain that the coupling devices are clean and in good working order.

• Cam-lock couplings

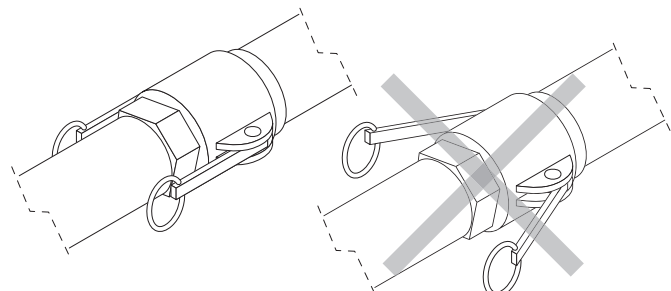
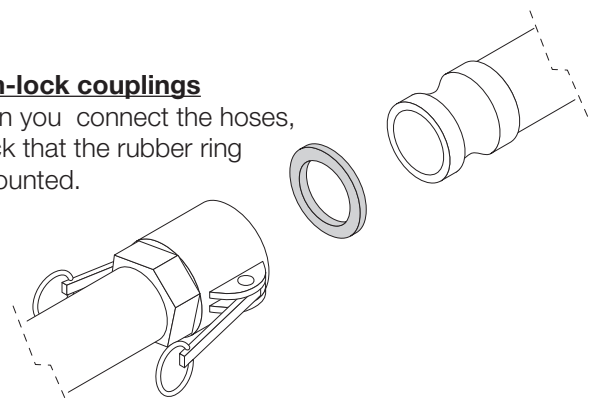
When you connect the hoses, check that the rubber ring (10) is mounted.



Hoses Ø 50 x 66 – length of 10 or 20 meters for max. pumpable granulometry of 0 - 10 mm.

• Cam-lock couplings

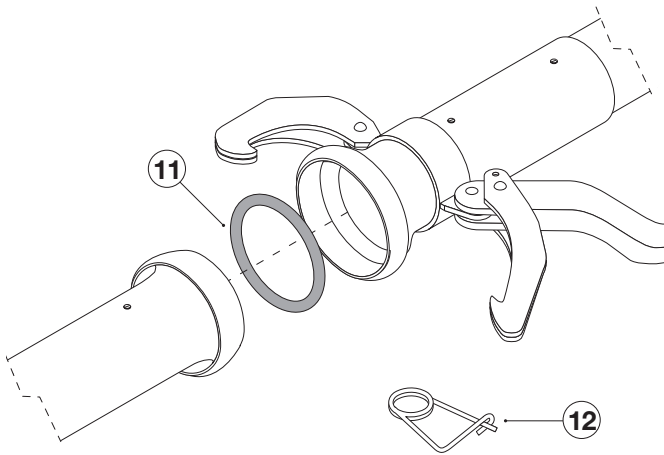
When you connect the hoses, check that the rubber ring is mounted.



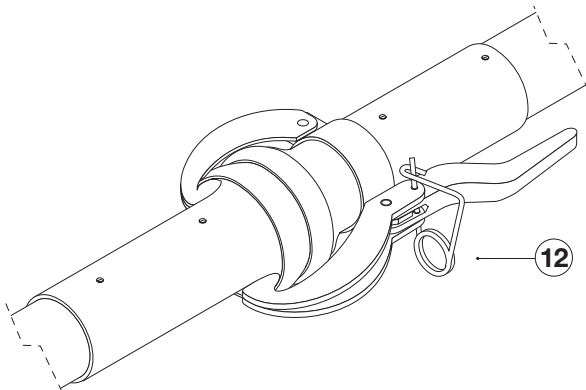
Hoses Ø 60 x 82 – length of 10 or 20 meters for max. pumpable granulometry of 0 - 15 mm.

• **Perrot couplings**

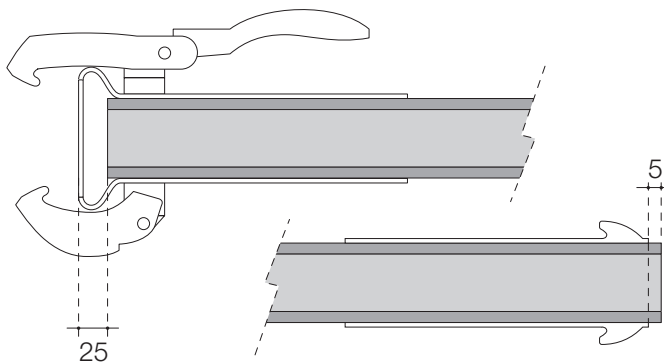
When you connect the hoses, check that the rubber ring (11) is mounted.



lock the levers tightly with the safety pin (12).



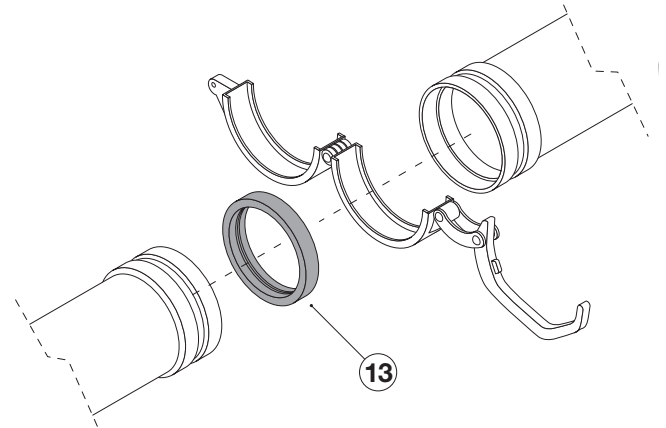
If you have to replace the rubber hoses, connect the new ones abiding by the measures given on the drawing hereunder.



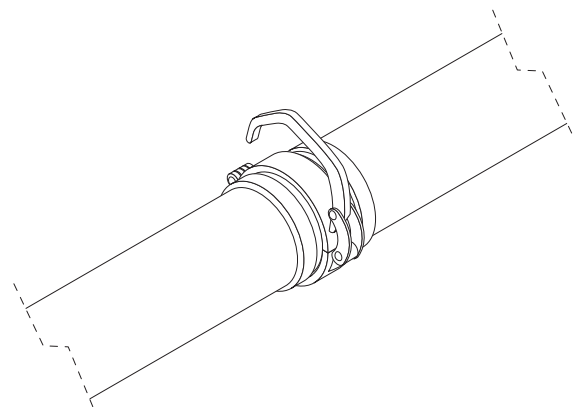
Hoses \varnothing 65 x 84 – length of 10 or 20 meters for max. pumpable granulometry of 0 - 15 mm.

• **Victaulic couplings**

When you connect the hoses, check that the rubber ring (13) is mounted.



lock the lever tightly.



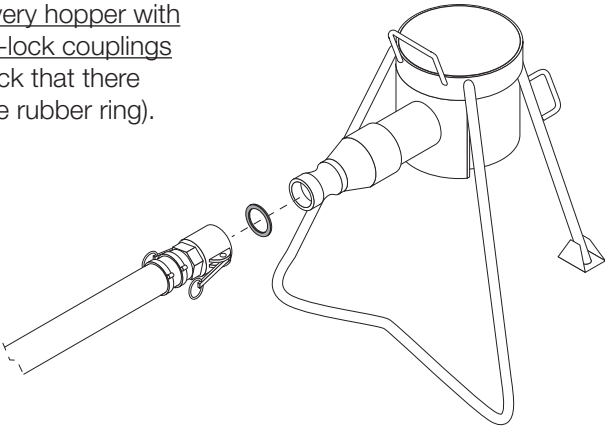
Hoses \varnothing 90 x 114 – length of 10 meters for max. pumpable granulometry of 0 - 25 mm.

Connections

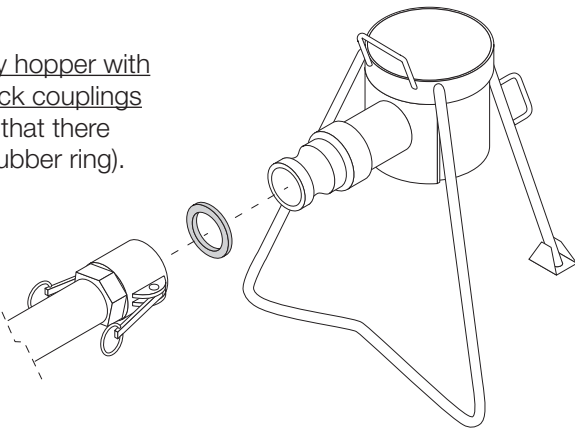
Connect the first part of hose to the delivery collector on the vessel

Connect the delivery hopper to the final part of the hose and place it at the arrival point of the material.

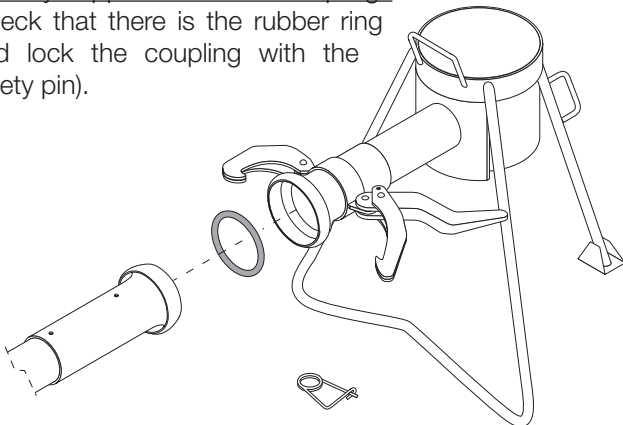
Delivery hopper with cam-lock couplings
(check that there is the rubber ring).



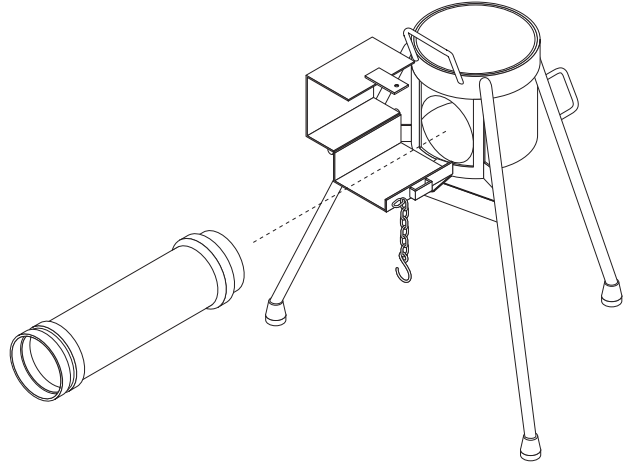
Delivery hopper with cam-lock couplings
(check that there is the rubber ring).



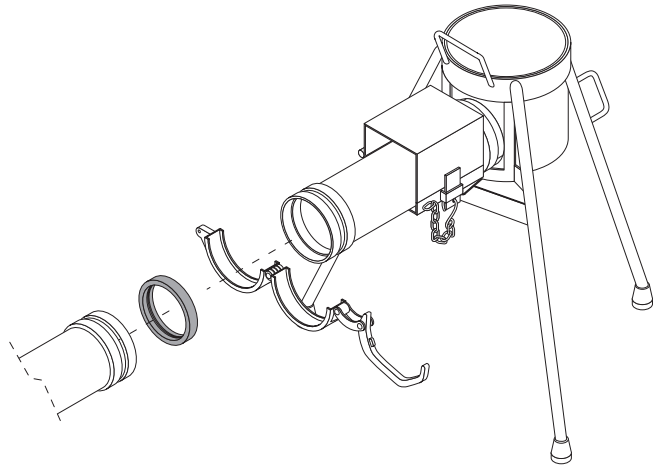
Delivery hopper with Perrot couplings
(check that there is the rubber ring and lock the coupling with the safety pin).



Delivery hopper with Victaulic couplings



(check that there is the rubber ring).



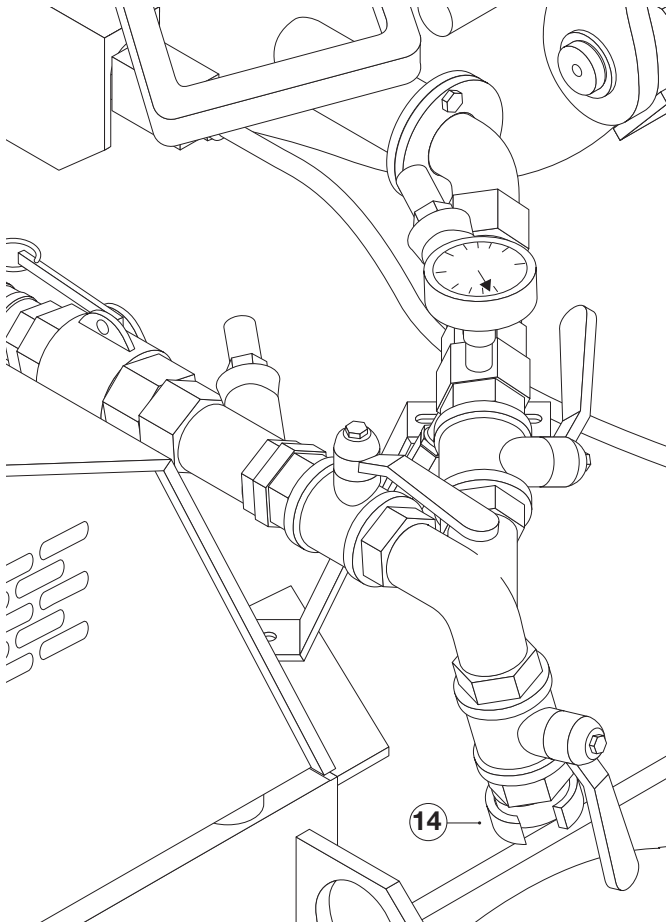
**⚠ The machine must not run if the delivery hopper is not connected.
When pumping without delivery hopper, the hoses movement is uncontrollable and highly dangerous.**

Auxiliary compressor



Connect the compressor to the machine **(14)**.

A standard compressor with a minimum output of 2400 l/min. to a maximum of 5000 l/min can be used as an auxiliary compressor.

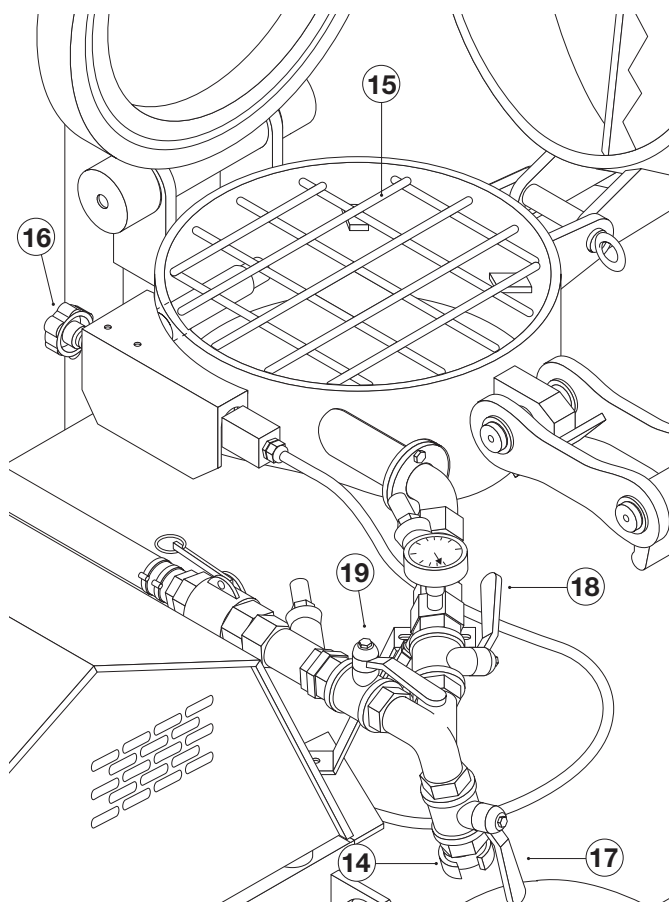


4.4 - OPERATING THE MACHINE

Preventive checks

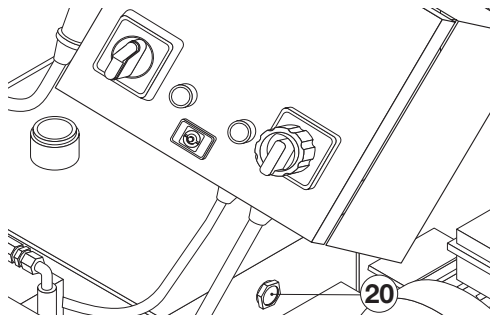
Check as follows:

- Check that the safety grill placed on the hatchway of the material vessel is tightly fixed.



- Check that the locking knob **(16)** of the grill is tightly closed (screwed), otherwise the safety device does not allow starting the machine.
- Check that the canopy is closed.
- Check that the main cock is closed **(17)** and that the service cocks **(18-19)** are opened, as shown.

- Check the oil level of the loading bucket hydraulic system **(20)** version *EB* and version *EB/P*.



Fill up with oil: **ELF OLNA DS32**

- ⚠ *Check oil level and eventually fill up with loading bucket in low position.*

- Connect the compressor to the machine **(14)**.
For the connection, use a hose with \varnothing 25 mm and having a max. length of 15 meters.
- Connect the cable of the site switch board to the socket placed on the side of the machine switch board.

- ⚠ *After completing maintenance or repair work, make sure that all the safety devices have been put back in place and that no tools have been left inside the canopy or the material vessel*

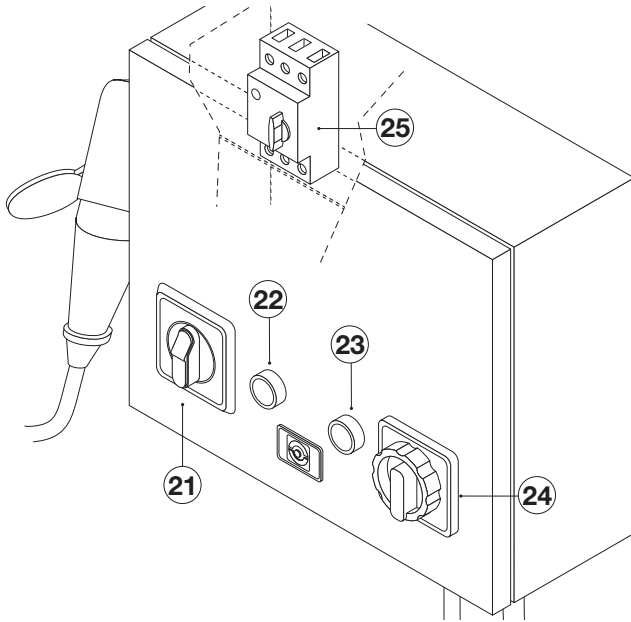
- ⚠ *Before turning the machine on, make certain that no one is standing too close to it i.e., everyone should be at least 1 meter away or out of the bucket or loading shovel operating range.*

- ⚠ *Before turning the machine on, it is compulsory to do the ground connections*

Starting the machine

Turn the main switch **(21)** (red knob on a yellow background) to position 1: the blue lamp, **(22)** displaying the correct electrical tension, lights-on.

The orange lamp **(23)** must be off.



If this does not happen, check that:

- the reverse gear **(24)** is on position 0;
- the circuit-breaker **(25)** is switched on.

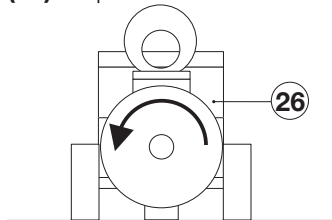


To switch it on, put the reverse gear **(24)** and the main switch **(21)** on position 0 (both are fitted with a lock device) open the board with the key and switch the circuit-breaker on **(25)**.

- the grill safety micro is switched on.

Turn the reverse gear switch **(24)** on position 1 or 2:

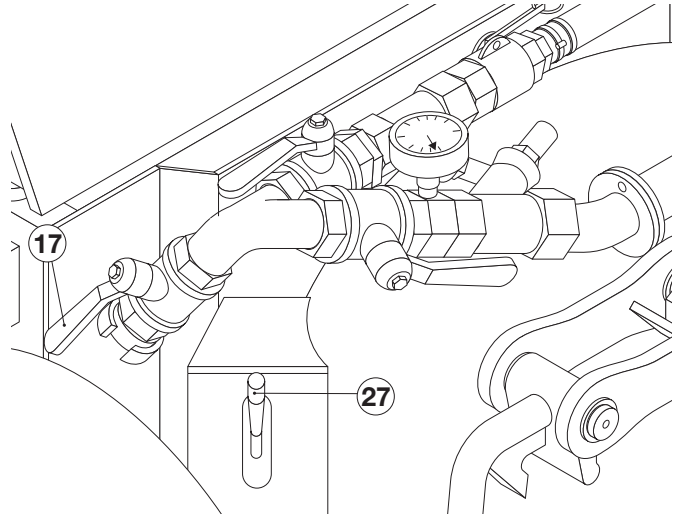
During the pumping, check that the electric motor is spinning as indicated by the arrow **(26)**.



If the blue lamp goes off when starting the motor, it means that the voltage is not sufficient.

Check the feeding line (cable section and site switch board).

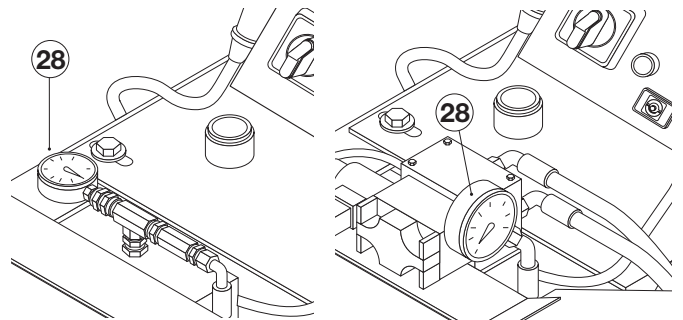
On the version with loading bucket (*EB and EB/P*), the main switch **(21)** controls the hydraulic power pack too.



Check that the machine is running well: close and open the main control cock **(17)**, lift the bucket by turning the lever for the control distributor **(27)** and the scraper, if your machine is fitted with these accessories.

Check that the auxiliary compressor works correctly: open and close the main cock **(17)** a few times.

On the version with loading bucket, check the pressure of the pneumatic system on the gauge **(28)** inside the canopy by lifting the loading bucket up to the end of its stroke. The right pressure is 180 bar.



EB version


EB/P version



Use nitrile gloves to protect yourself against cuts and scratches, preferably models having a CE 940072 certification

Loading of the material

The mix must be semi-dry

 *The safety grill must be well mounted and locked*

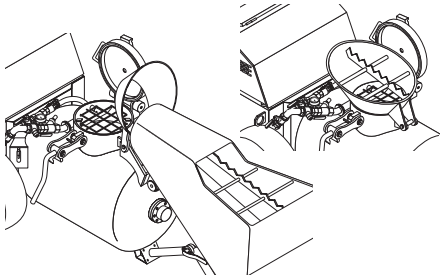
Prepare the mix as follows:

- Start the mixer by using the reverse gear **(24)** on the switch board .

 *The electric motor must runs correctly.*

- Tilt the manual-loading funnel on the hatchway *(E version)*;

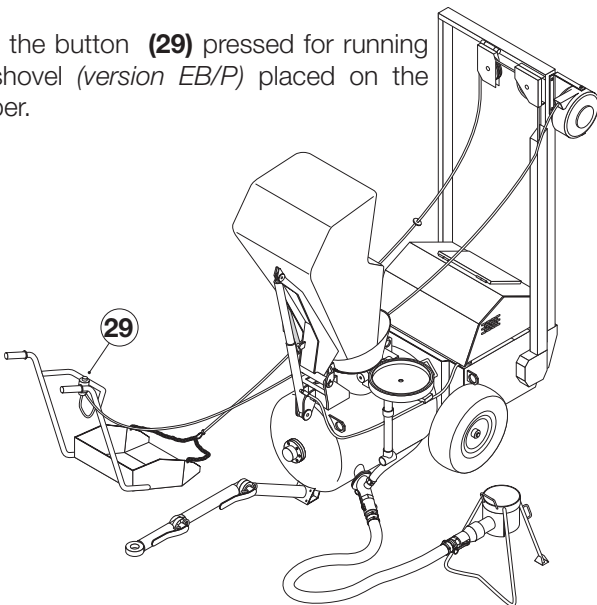
- Place the loading bucket *(EB version)* in position for loading the material;




- Load 50% of the sand, than 100% of the binder (cement), then all the water and finally the remaining 50% of sand. For the version with loading bucket *(EB version)*, the material is loaded into the loading bucket; then trough the lever for the loading bucket control **(27)**, start to unload the material into the vessel.

When the bucket is half loaded, put all the water directly into the bucket, then finish to load the material and lower the bucket (the funnel lifts automatically)


Keep the button **(29)** pressed for running the shovel *(version EB/P)* placed on the scraper.



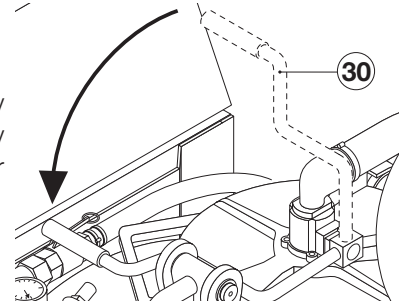
 *To get a mix that is both better and easier to pump, fill the tank to 3/4 (200 l).*

- Lift the hopper for the manual loading *(E version)*;

- Clean the edge of the hatchway in order to make sure that the seal will not leak.

 *Use nitrile gloves for protection against cuts and scratches, preferably gloves having CE 94 0072 certification.*

- Close the hatchway and exhaust cock by using the safety lever **(30)**.



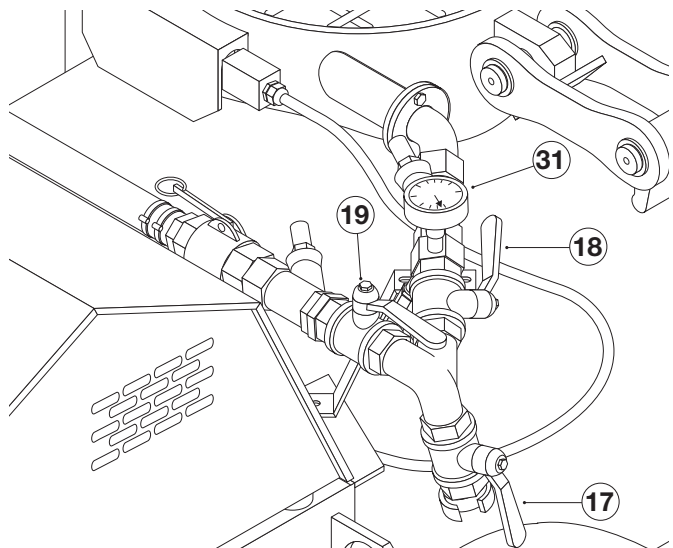
Pumping cycles

During the first pumping cycles, it is necessary to find the correct position of the cocks which regulate the flow of air into the material vessel and the material outlet collector:

Completely open the main control cock **(17)**

Open to 3/4 the cock **(19)** which regulates the air flow to the material outlet collector and open 1/4 of the way the cock **(18)** which regulates the air flow to the material vessel.

Check that the gauge displays a working pressure **(31)** that goes from a minimum of 3,5 to a maximum of 5,5 bar.



It is advisable to start with more air in the delivery collector than into the vessel.

Once the correct setting has been found, it is usually no longer necessary to regulate the cocks because you will simply use the main control cock **(17)**.

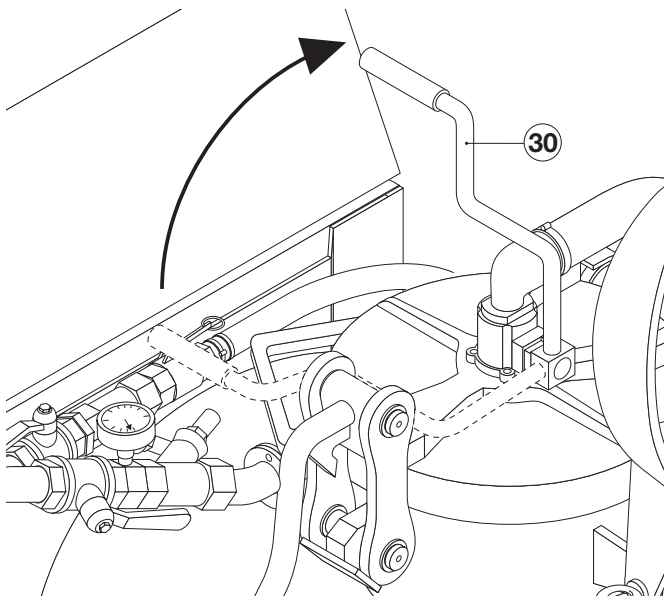
General rule: If the pumping pressure increases, gradually open the cock (19) that regulates the flow of air to the material outlet collector; if the pressure goes down, close that cock gradually but never completely and open gradually the cock (18) that sets the flow of air to the vessel.

With mixes as concrete, mortar etc, it is compulsory to give more air in the vessel than in the delivery collector hose.

The conveying of the material is finished when the air pressure shown on the gauge (31) in the material vessel drops below one 1 bar.

At this point:

- Close the main control cock (17);
- Wait for the pressure to drop below 0.3 bar;
- Use the safety lever (30) to open the lid;

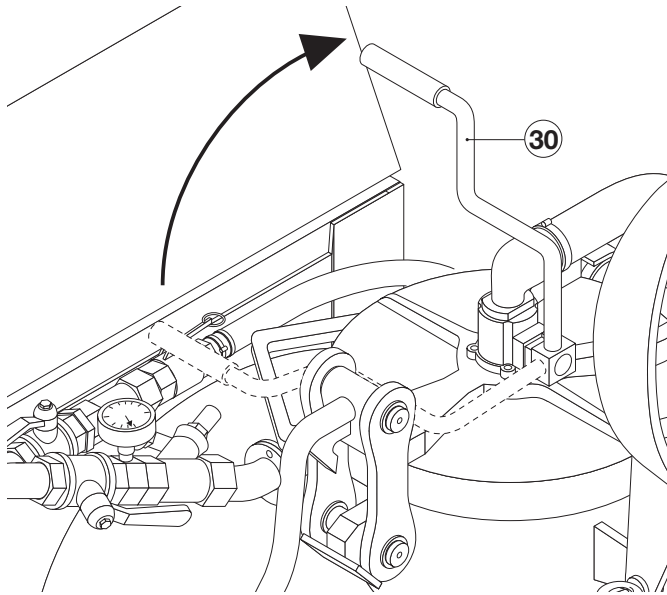


- Wait for the pressure to drop to 0 bar.
- Open the hatchway.
- Begin a new loading cycle.

4.5 - WASHING THE MACHINE AT THE END OF WORK

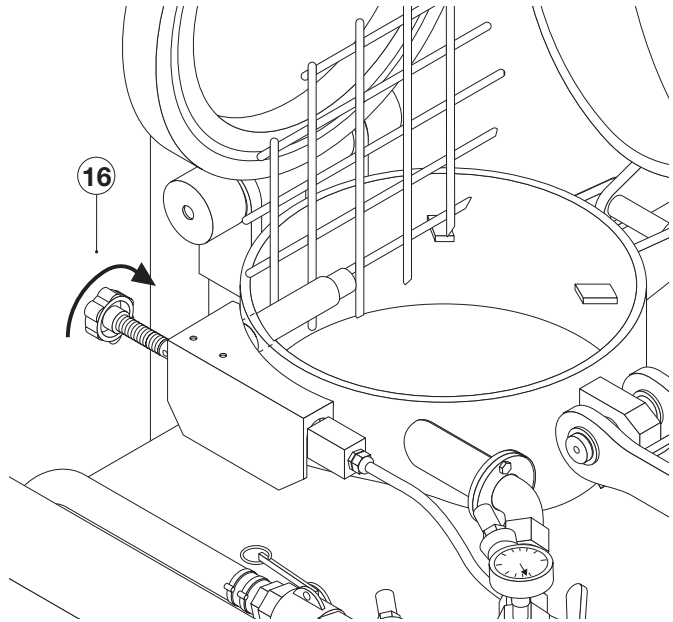
Once the last batch has been pumped, stop the mixer by turning the reverse gear **(24)** to position zero.


- Open the cock with the safety lever **(30)**;




- Wait for the pressure to drop to 0 bar.
- Open the hatchway.

- Unlock the safety grill by turning counter-clockwise the knob **(16)** up to the end in order to release the grill. The **safety device** stops the motor. In that way, **the grill opens only when the mixer has completely stopped.**

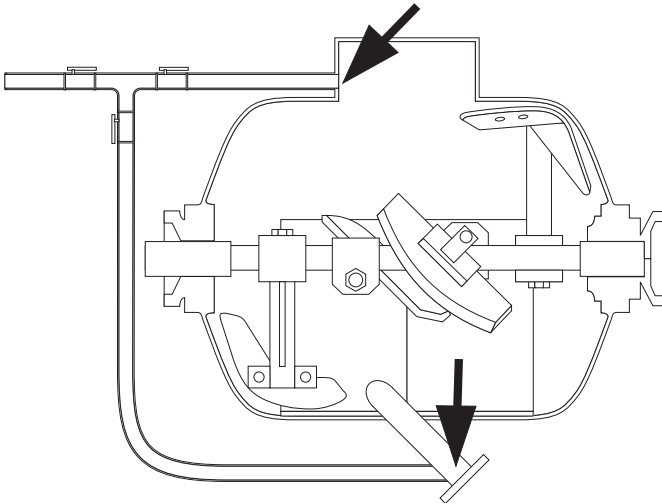


 Before loosening a coupling on the material delivery hose, check that the main switch is turned to position 0 (zero), that the cock with a safety lever is open, that the pressure gauge in the material vessel shows a pressure of 0 (zero) bar and that there is no pressure inside the hoses.

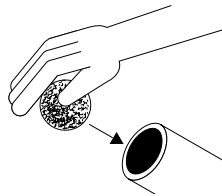
 The operator must be carefully trained before doing this operation. Before the opening of a coupling, check that there is no pressure inside the hoses and that no one stands too close to the hoses. This operation, that could be dangerous, must be carefully carried on by qualified personnel.

- Disconnect the material delivery hose and wash the machine with water inside and outside.
- Let the water flow out from the discharge collector.


- With a steady stream of water or better with an high pressure pump, wash the vessel internally and wash the hatchway as well the air delivery collector outlet.




- Insert a washing sponge (with diameter suitable to the hose) in the material delivery hose and connect the hose to the machine.

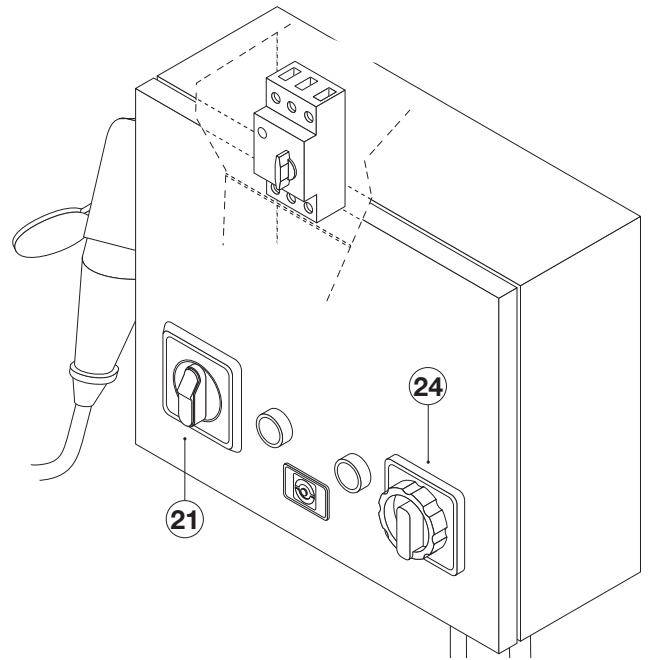


- Pour two or three buckets full of water into the material vessel and then pump that water out as you would in a normal pumping cycle.
To start the mixer again, you have to:
close the grill, turn the knob **(16)** clockwise up to the end of its stroke to have the contact with the micro-switch (otherwise, the shut down switch does not lock), close the hatchway and the cock with the safety lever **(30)**.
Repeat this operation until you are certain that the hoses are completely clean.

 *Never disconnect the delivery hopper until the washing of the material delivery hoses has been completed.*

 *Never place your hand or a tool inside the delivery collector unless the motor is turned off and the socket is disconnected.*

- Stop the machine by turning the reverse gear **(24)** and the main switch **(21)** in position 0 (zero)



Disconnect the air delivery hose from the material delivery collector and check to see that it is clean.

Check that the vessel inlet is clean .

4.6 - IMPORTANT POINTS

Using the material

Use only material that has been sieved. The safety hatch has a mesh that blocks only larger-sized pieces (and for practical reasons, a smaller mesh cannot be used); as a result, large-grain sand and pebbles might pass into the mix and cause obstruction at the vessel's outlet .

If hard pellets 1 or 2 cm. in diameter come out of the delivery hopper, it means that less water must be used with the material.

Never interrupt a delivery cycle halfway.

Connections



Before loosening a coupling on the material delivery hose, check that the main switch is turned to position 0 (zero), that the cock with a safety lever is open, that the pressure gauge in the material vessel shows a pressure of 0 (zero) bar and that there is no pressure inside the hoses.



Before disconnecting the delivery hopper, check that the main switch is turned to position 0 (zero), that the cock with the safety lever is open, that the pressure gauge in the material vessel shows a pressure of zero (0) bar and that there is no pressure inside the hoses.



The operator must be carefully trained before doing this operation.


Before the opening of a coupling, check that there is no pressure inside the hoses and that no one stands too close to the hoses.

This operation, that could be dangerous, must be carefully carried on by qualified personnel.



5 - MAINTENANCE OF THE MACHINE

5.1 - TO BE PERFORMED BY THE OPERATOR

 Listed here below is the essential information needed for proper maintenance of this machine. The machine's operator must read these data before beginning to operate the machine.

Operations to be carried out daily

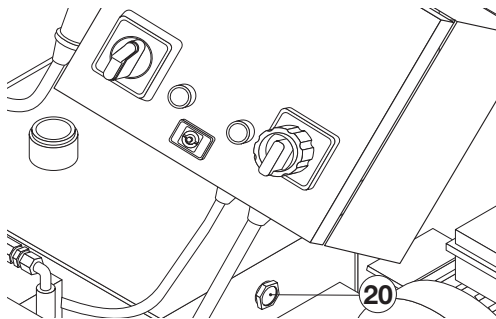
At the beginning of the work:

• Check the oil level of the hydraulic system

(version EB and EB/P)

Check the oil level of the tank **(20)** with the loading bucket in lowered position. If the oil level is not constant, check where the leak is and correct it.

Have only qualified personnel perform such repair work.



Refill with oil: **ELF OLNA DS32**

At the end of the work:

Preventive care

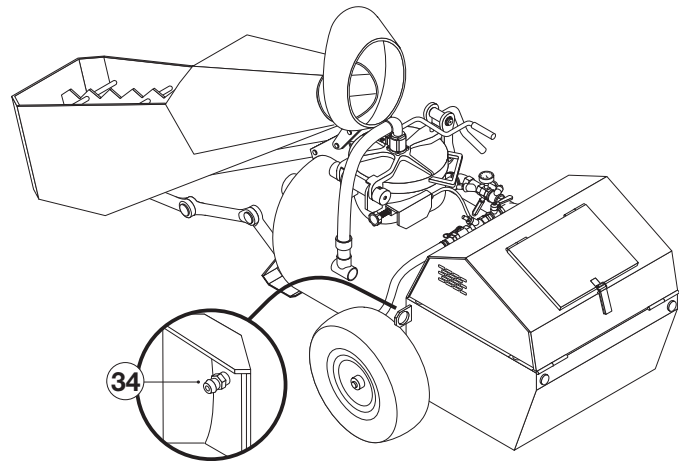
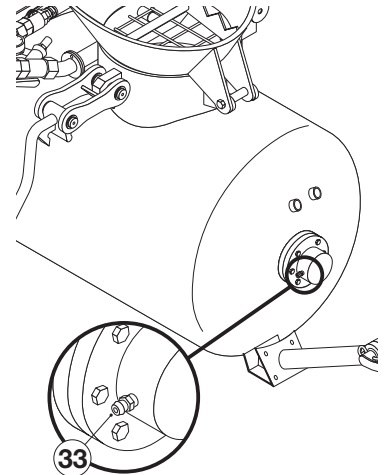
Once work has finished, it is advisable to spray demoulding liquid on the machine.

Grease

• Mixer

With the machine running, lubricate the mixer supports **(33)** and **(34)** by using the grease gun provided with the accessories.

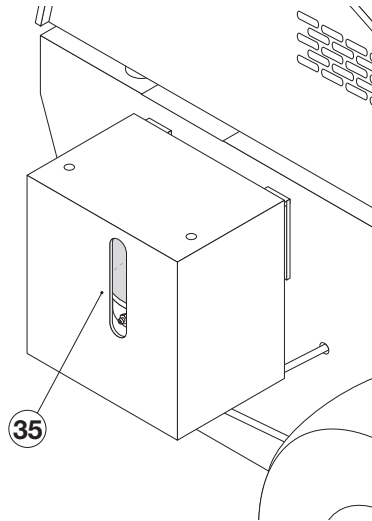
To make sure this operation has been carried out correctly, check to be sure that grease has flowed out inside the material vessel.



If you forget to perform this maintenance, the seals and supports will wear out in a few days (and you will note an outflow of slurry mixed with air).

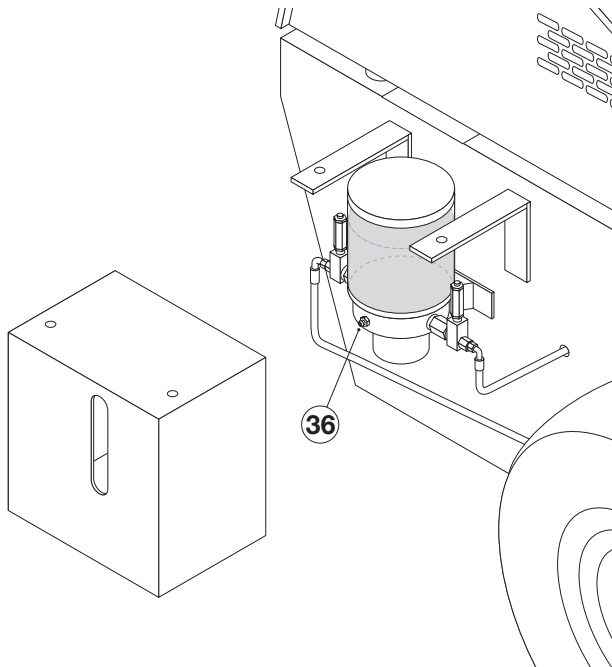
At this point, you must immediately replace worn-out seals and supports, or else the chrome coating on the mixer shaft will be damaged.

The machine can be supplied (optional) with **an automatic grease system (49)** for the mixer shaft supports.

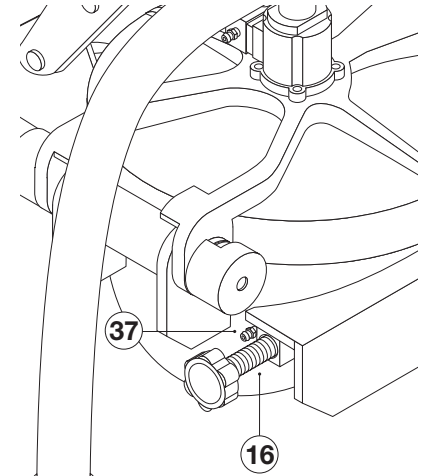


With this system, the grease level in the tank (35) can be weekly checked and eventually refill with clean grease: **ELF TRANSLUBE LI GREASE EP1**.

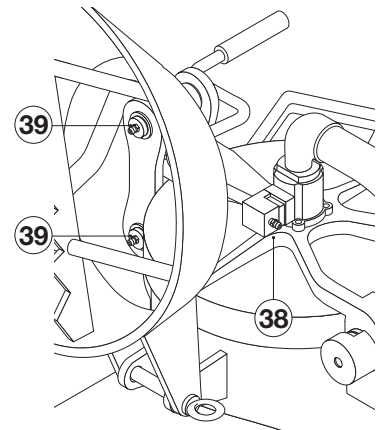
To refill, remove the protection box and by using the grease nozzle (36) and the grease gun, fitted with the equipment, refill it.



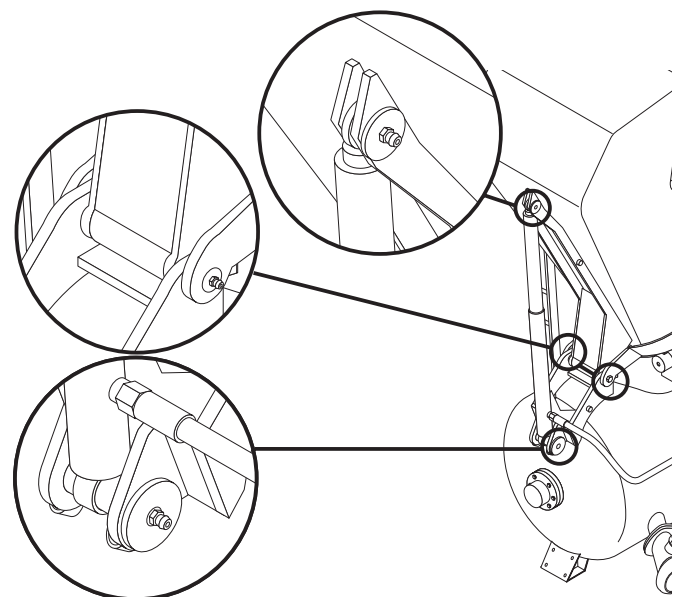
- Thread of the safety flywheel (16)
- Hinge of the safety grill (37)



- Cock of the safety lever (38)
- Connection pins (39)



- Loading bucket (version EB and EB/P)
Grease the four points of the loading bucket.



5.2 - TO BE PERFORMED BY QUALIFIED PERSONNEL

Operations to be performed every 250 hours

• Mixer paddles

Check the wear-and-tear on the mixer paddles: if necessary, fine-tune their position so that the paddles are no more than 15 mm from the pressure vessel inner walls. If the paddles are worn out, replace them.

• Wear plates

Check the wear-and-tear on the material vessel's wear plates. If you find deep nicks or cuts so deep as to compromise the plates functional efficiency, have them replaced immediately.

In any case, the plate must be changed before it wears down excessively.



If the material vessel's wear plates are not replaced in due time and the vessel's lower wall becomes deeply nicked or scored (with holes in the plating), the material vessel will no longer be fit for use and will have to be replaced.

• Delivery collector

Check the wear-and tear on the material delivery collector and, if necessary, change it.

• Checks

Check to be certain the material vessel pressure gauge is working correctly and, if necessary, replace it.

Check the main control cock, the cock regulating the flow of air to the material vessel, the cock with the safety lever, the non-return valves.

Check the tightness of the mixer belts and the hydraulic pump. Replace them if necessary.

• Tubes couplings

Check that the couplings of the hydraulic oil tubes are well screwed (*EB version*).

Operations to be performed yearly or after 1.000 hours

- Change the oil from the hydraulic circuit: 20 l.

Use oil: **ELF OLNA DS 32**

- Change the gear-box oil: 0,8 litri.

Use mineral oil: **ELF REDUCTELF SP 220**

- Check the electrical circuit.

- Check the hydraulic circuit.



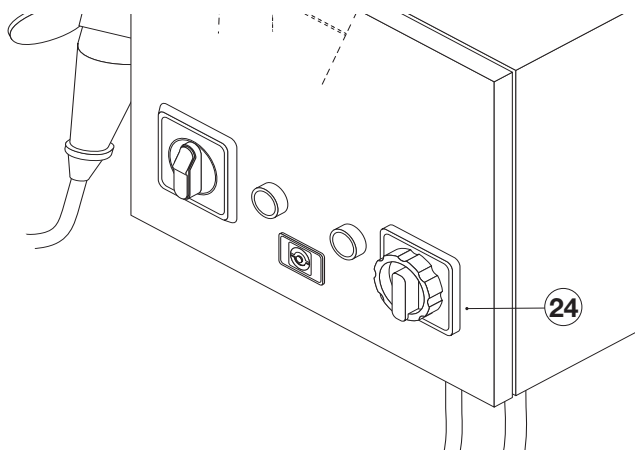
6 - PROBLEMS - CAUSES - REMEDIES

6.1 - FAULTY MIX

Faulty mix

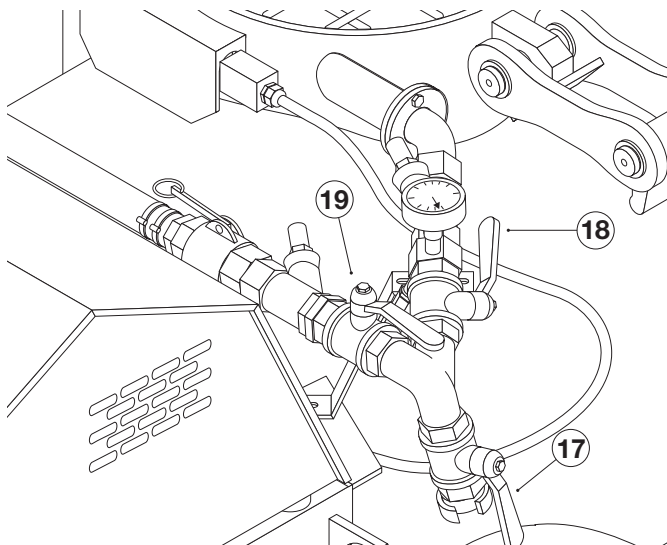
A faulty mix (see page 10) or mistakes on the setting of the cocks **(18-19)** during the first part may cause a blockage of the material delivery hose: the material does not flow out from the discharge hopper and the material vessel pressure gauge indicates always a pressure of 7,0 bar.

In this case, set the start switch **(24)** to position 0, open slowly the cock upon the vessel with the safety lever.



The material vessel pressure lowers quickly to zero.

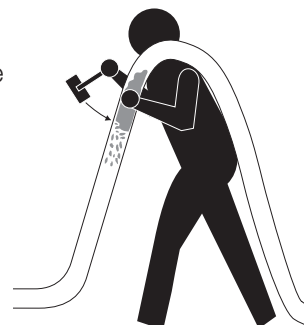
Close the cock with the safety lever once again, open the cock **(19)** that sets the air output to the collector and close the cock **(18)** that sets the air output to the material vessel.



Turn the start switch **(24)** to position 1 and let the mixer start again.

If the pressure of the material vessel does not go gradually below 1 bar, check the material delivery hose, above all on the couplings and the bends.

Once you have discovered just where the blockage is taking place (and this part of the hose will be especially hard and stiff) shake the hose and even hit it with a hammer until the stiffness disappears, a sign that the obstruction has been resolved.



Never disconnect hoses or delivery hopper, unless you are not completely sure that there is no pressure (0 bar) in hoses and vessel.



The operator must be carefully trained before doing this operation.

Before the opening of a coupling, check that there is no pressure inside the hoses and that no one stands too close to the hoses.

This operation, that could be dangerous, must be carefully carried on by qualified personnel.

Let the material flow until the pressure in the material vessel drops below 1 bar, turn the cocks **(18 - 19)** at the original positions.



Never try to unblock the hoses disconnecting one of them or the delivery hopper.

If you keep having blockages, check the mix and if necessary modify it (see p. 10).

6.2 - WORK TO BE PERFORMED BY THE OPERATOR

PROBLEMS	CAUSES	REMEDIES
Mixer shaft blocked with the material vessel empty	No grease in the supports.	<ul style="list-style-type: none"> • Grease the mixer supports
	No electrical feeding (blue pilot lamp (22) off)	<ul style="list-style-type: none"> • Check the feeding line
Mixer shaft blocked with the material vessel not completely full	No electrical feeding (blue pilot lamp (22) off)	<ul style="list-style-type: none"> • Check the feeding line.
	The feeding tension is not sufficient (blue pilot lamp 22 off)	<ul style="list-style-type: none"> • Use a cable with proper section. • Check the site switch board.
The loading bucket cannot be lifted	No pressure in the hydraulic system	<ul style="list-style-type: none"> • Check the oil level and eventually refill with ELF OLNA DS 32. • Check the setting (130 bar) of the max. valve by lifting the loading bucket up to the end of the stroke.

WORK TO BE PERFORMED BY THE QUALIFIED PERSONNEL

For other problems, please contact our qualified after-sales service.

7 - RESPONSIBILITY OF THE OPERATOR

The **PERSON IN CHARGE** of the machinery is responsible for assuring that whoever operates such machinery is well aware of the instructions contained in this use and maintenance manual, and in particular that said operator has received special training in the proper execution of those operations marked in the manual by the following symbol:



The warranty offered by the manufacturer becomes null and void if this machinery is not used in accordance with the instructions in this manual. In addition, this manual must always accompany the machine.

The machine's operator must be thoroughly taught and trained in regard to the operation and use of the machine itself and must sign this use and maintenance manual on the line reading "read and approved". If this procedure is not complied with, the operator is prohibited from using this machine.

Signature of the **PERSON IN CHARGE**

read and approved _____

read and approved _____

read and approved _____

Signature of the **OPERATOR**

read and approved _____

read and approved _____

read and approved _____