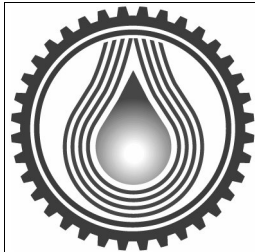


- INSTRUCTION MANUAL, USE AND MAINTENANCE
- INSPECTION REPORT
- CE CONFORMITY DECLARATION



**PRO-DO-MIX**  
PRODUZIONE DOSAGGIO MISCELAZIONE

# **VOLUMETRIC DRY FEEDER VG100**

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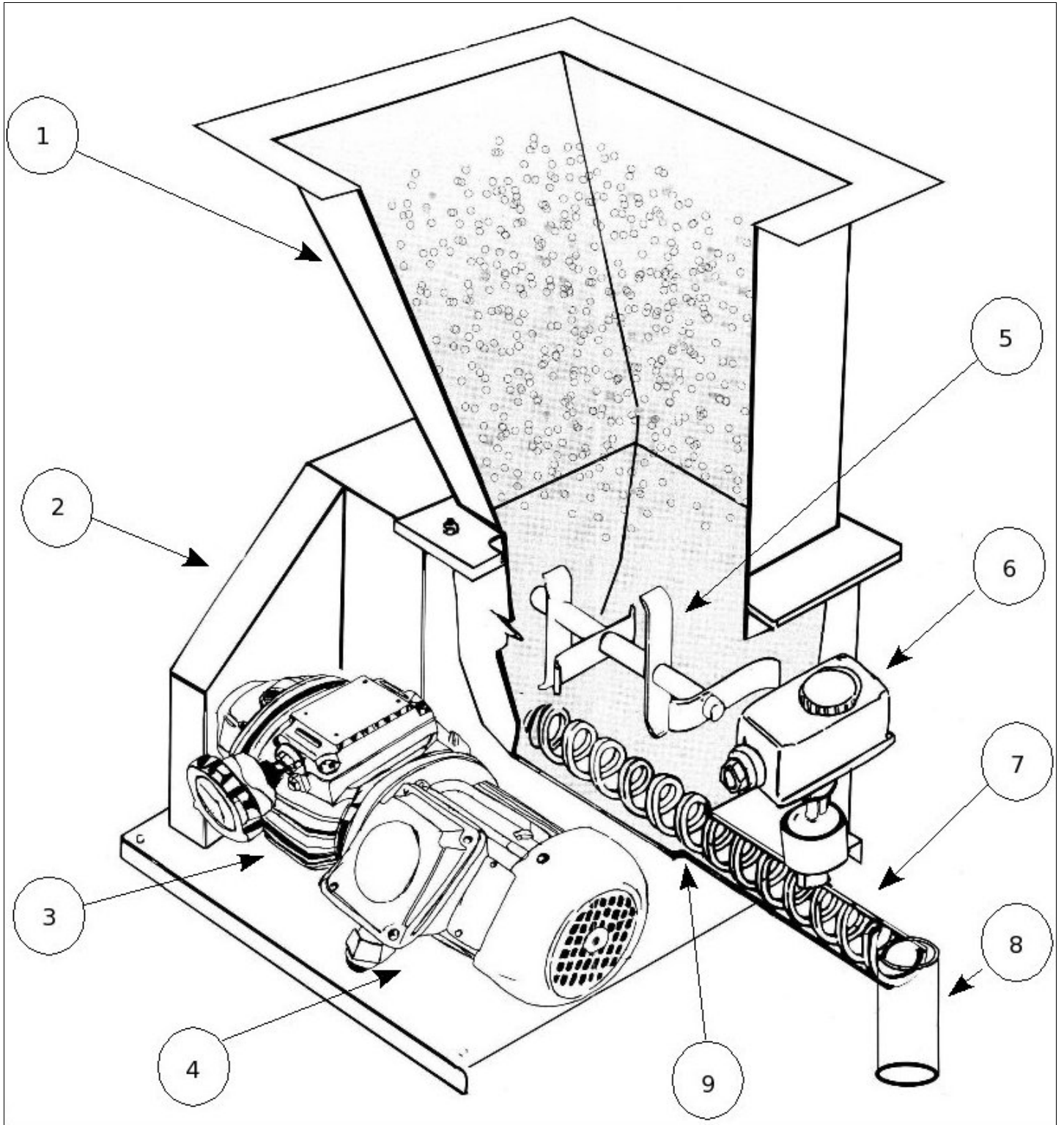
## 0.1 TABLES

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Fig. 2.0: exploded view of the VG100



1	hopper	6	heating kit
2	carter	7	exit duct
3	ratiogear motor	8	drop duct (OPTIONAL)
4	motor	9	metering screw

## 1.0 INTRODUCTION

This manual must be read and understood by all users before operating the volumetric dry feeder VG100 (from here on referred to as the VG100). This manual is of exclusive use by the clients of PRO-DO-MIX of Roberto Voltan (from here on referred to as PRO-DO-MIX). PRO-DO-MIX declines all responsibility for the commercialization and adequacy of the feeder and the instruction manual for specific uses. PRO-DO-MIX will in no case be liable for any accidental or consequential economic or commercial damage of any kind deriving from the use of the VG100. PRO-DO-MIX reserves the right to review or modify the VG100 or the instruction manual at any time, without notification of the changes made.

### THIS MANUAL IS CONSIDERED A COMPONENT OF THE VG100

## 1.1 GENERAL RULES UPON RECEIVAL

The VG100 is usually transported on a pallet with a protective box board for the upper components. Open the box from the top and extract it. The packaging must be closely inspected upon delivery in order to verify that the content has not been damaged. Check the content and compare it to the transport document. Read the manual. Should any parts be missing or damaged, immediately inform PRO-DO-MIX and specify in detail the type and entity of the problem.

## 1.2 STORAGE SAFETY PRECAUTIONS

Proper storage requires that:

- the VG100 be kept on its pallet until it is installed;
- the VG100 not be kept outdoors or in damp environments;
- the VG100 be stored away from vibrations or possible sources of impact;
- any contact with the ground be avoided by placing wood or other material between the VG100 and the pavement

Please contact us for storage over 18 months.

## 1.3 WARRANTY

The warranty of the entire feeder is of 24 months, starting for the date of delivery from PRO-DO-MIX or at least 18 months from the date the official acceptance of the equipment. Within this period of time any parts judged to be flawed or defected (in their material or construction) will be replaced. The warranty is free ex-factory (Conselve, Padova, Italy); Transport and installation fees are at charge of the client. Part replacement does not prolong the warranty.

The warranty is no longer valid if:

- the instructions and warnings in this manual are not followed;
- the installation has not been carried out correctly;
- the machine has been improperly positioned;
- maintenance has not been sufficient;
- health and safety laws are not complied with;

- any modifications or alterations are carried out on the machine;
- safety parts are tampered with.

## **1.4 SAFETY PRECAUTION DURING TRANSPORT**

### KEEP IN MIND THAT THE CENTER OF GRAVITY OF THE PACKAGE MAY NOT BE AT THE CENTER OF THE PACKAGE

The weight of the VG100 varies according to the model. The precise weight is indicated on the travel document. The feeder must be exclusively moved by appropriate means. Harness the VG100 from the base and always keep it in the upright position. Never harness the feeder by the hopper.

Harnessing, lifting and movement with a lift truck or hoist described in this manual must be carried out by trained and qualified personnel.

Verify that there be sufficient space for manoeuvre with the lift truck.

Lift the feeder carefully and operate the lift truck slowly.

## **2.0 DESCRIPTION**

The VG100 has been designed to batch any type of dry powder, grain or fibre, ensuring constant and accurate feeding. The flow rate depends on the type of material and on its characteristics, such as size and shape of the material, density, etc. and depends on where the VG100 is installed (temperature and relative humidity). The flow rate can vary according to the screw installed. Motion is generated by a ratiomotor/gearmotor and transmitted by means of a sprocket chain, connected to the feeding screw and the mixer. A revolving bearing and an aluminium box containing a radial bearing, an o-ring and a seal are positioned between the outside and the homogenization chamber to avoid spilling. The product falls by gravity into the homogenization chamber in which the mixer achieves complete homogenization and breaks any bridges formed. The speed of the rotation of the mixer has a 1:2,5 ratio to the rotation speed of the feeding screw. The drawing in the following page describes maximum size and shape.

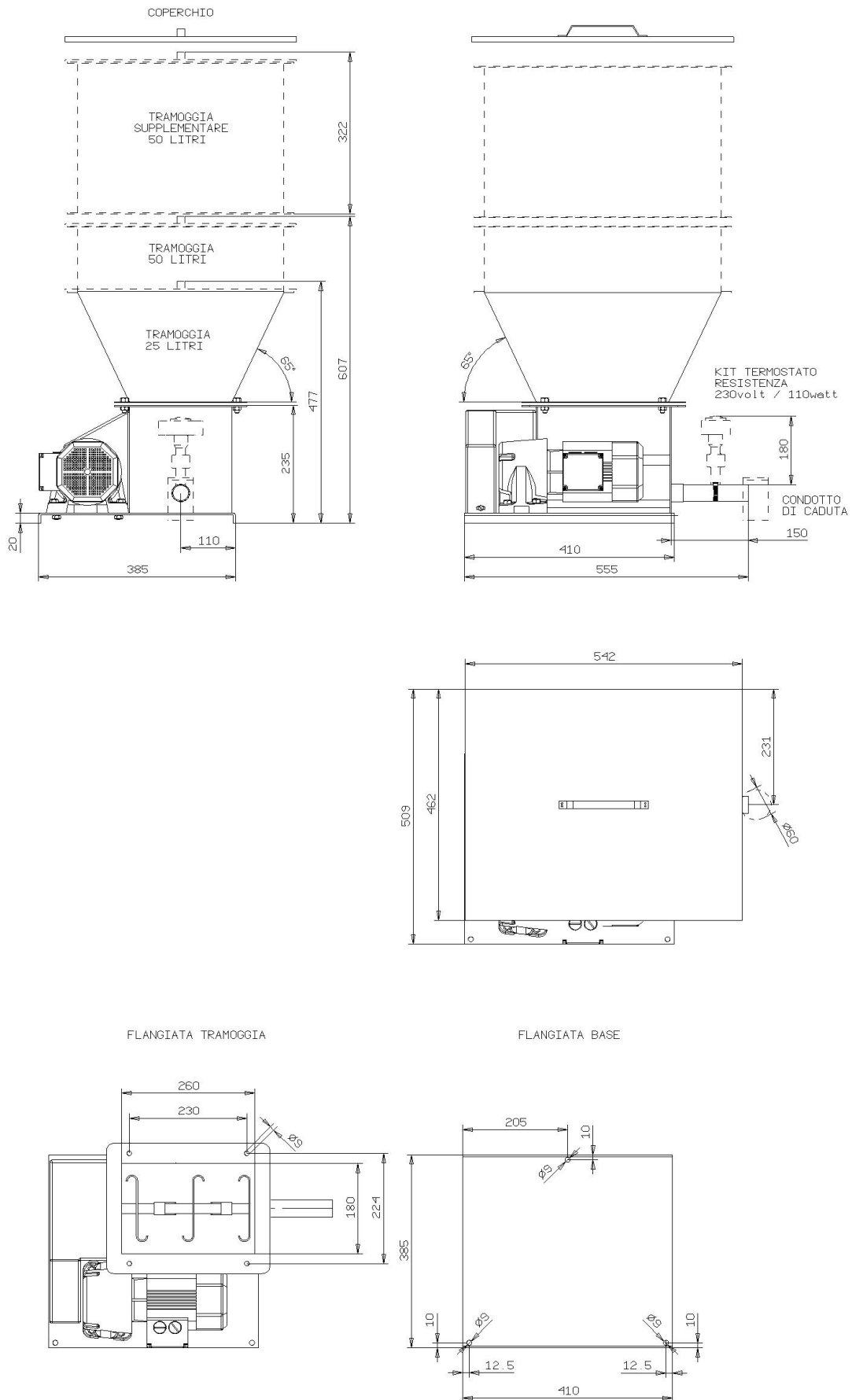
## **2.1 POSITIONING**

Places the VG100 in an adequately lit and ventilated work area, protected from humidity and possibly at 20°C. Remember that proper conditions are fundamental for the functioning of the VG100 and for work safety. Place the machine on a flat surface. The motor must be well ventilated and regular cooling ensured.

Fix the VG 100 to a base that can hold its weight (60 kg + the weight of the product) and make sure the three holes on the base are tightly fixed in order to avoid any vibration. Verify that the base is flat and horizontal.

**CAUTION:** if the product is inserted manually, the operator must reach the feed box by means of a ladder or an adequate footboard with safety barriers.

**Fig. 2.2: VG100 SIZE**



## 2.2 INSTALLATION

Install the VG100 according to the following instructions:

- clean with a solvent the parts that will come into contact with the product;
- do not turn the handwheel when the motor is off if there is a gearmotor;
- remove any undesired objects from the feed box;
- insert the PVC drop duct with transparent top (OPTIONAL) in the exit duct

CAUTION: when using the VG100 it is important that none of the inserted product be dispersed in the environment. Some products may be toxic and/or harmful.

## 2.3 ELECTRICAL CONNECTION PRECAUTIONS

The VG100 must be connected to electricity by qualified personnel. For proper functioning the machine must be protected from indirect contact.

It is essential that the VG100 not be started accidentally. Place a caution warning by the switch for identification. Proceed according to the following specifications:

- Connect the wires according to the specifications written on the box of the motor;
- Connect the motor to the power supply and verify that the mixer rotates clockwise (looking at the VG100 from the drop duct);
- Should it turn counter clockwise, remove from the power supply and invert the two phases.

**ENSURE THAT THE METERING SCREW TURNS CLOCKWISE**  
(looking at the VG100 from the drop duct)

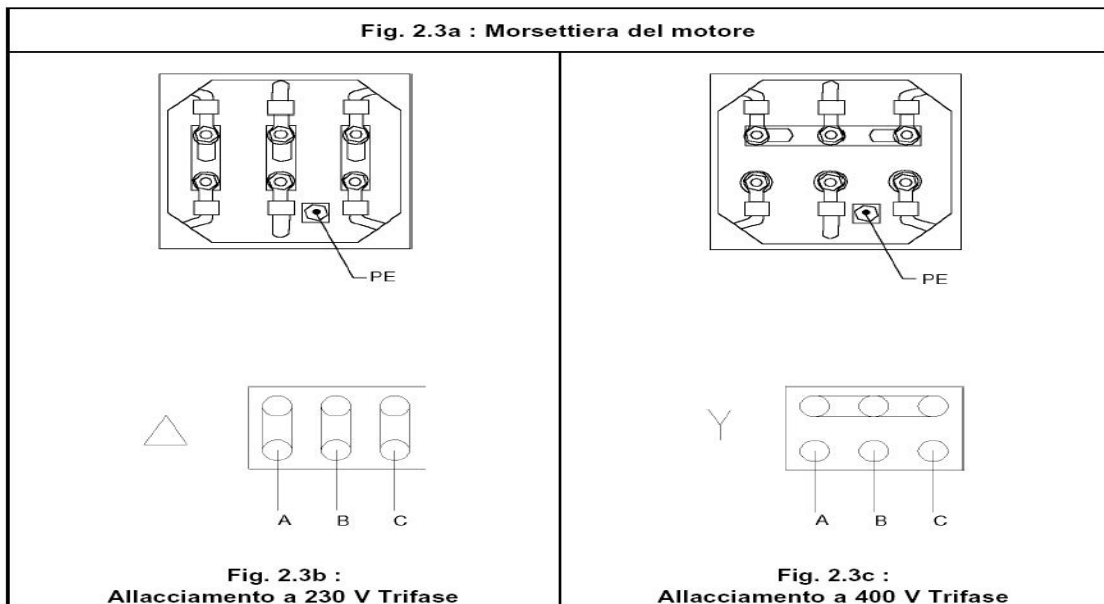
A timer should be installed to switch on the resistance 10 or 20 minutes before the starting of the metering screw in order to eliminate any humidity in the exit duct.

Visual and sound signals that attract the attention of the personnel present near the VG100 should be present.

CAUTION: carefully follow the indications for the electrical connections that come with the motor

CAUTION: remember to connect the motor's ground clamp to the protective conductor

Verify that the motor's voltage is the same as the available one; connect the motor to a suitable switch. To connect a 230 volt TRIPLE-PHASE follow the diagram on the left (fig. 2.3b); to connect a 400v TRIPLE-PHASE follow the diagram on the right (fig. 2.3c)



Legend for the electrical connection of the VG100:

VG100 CIRCUIT

- M motor
- TR1 thermostat (OPTIONAL)
- R1 resistance 230 Vac 110 W (OPTIONAL)

CONTROL PANEL (installer's charge)

- |                                      |                |                          |
|--------------------------------------|----------------|--------------------------|
| INT disconnecting switch             | 400 Va 3+N     | 10 A                     |
| TAR electromagnetic switch 3+ N coil | 24 Va 400 Va   | 10 A                     |
| T1 transformer for auxiliaries       | 230 Va - 24 Va | 1A 24 VA                 |
| SW1 shutdown switch                  |                | MC 24 Va 1A              |
| SW3 Emergency switch                 |                | MC 24 Va 1A (RED BUTTON) |

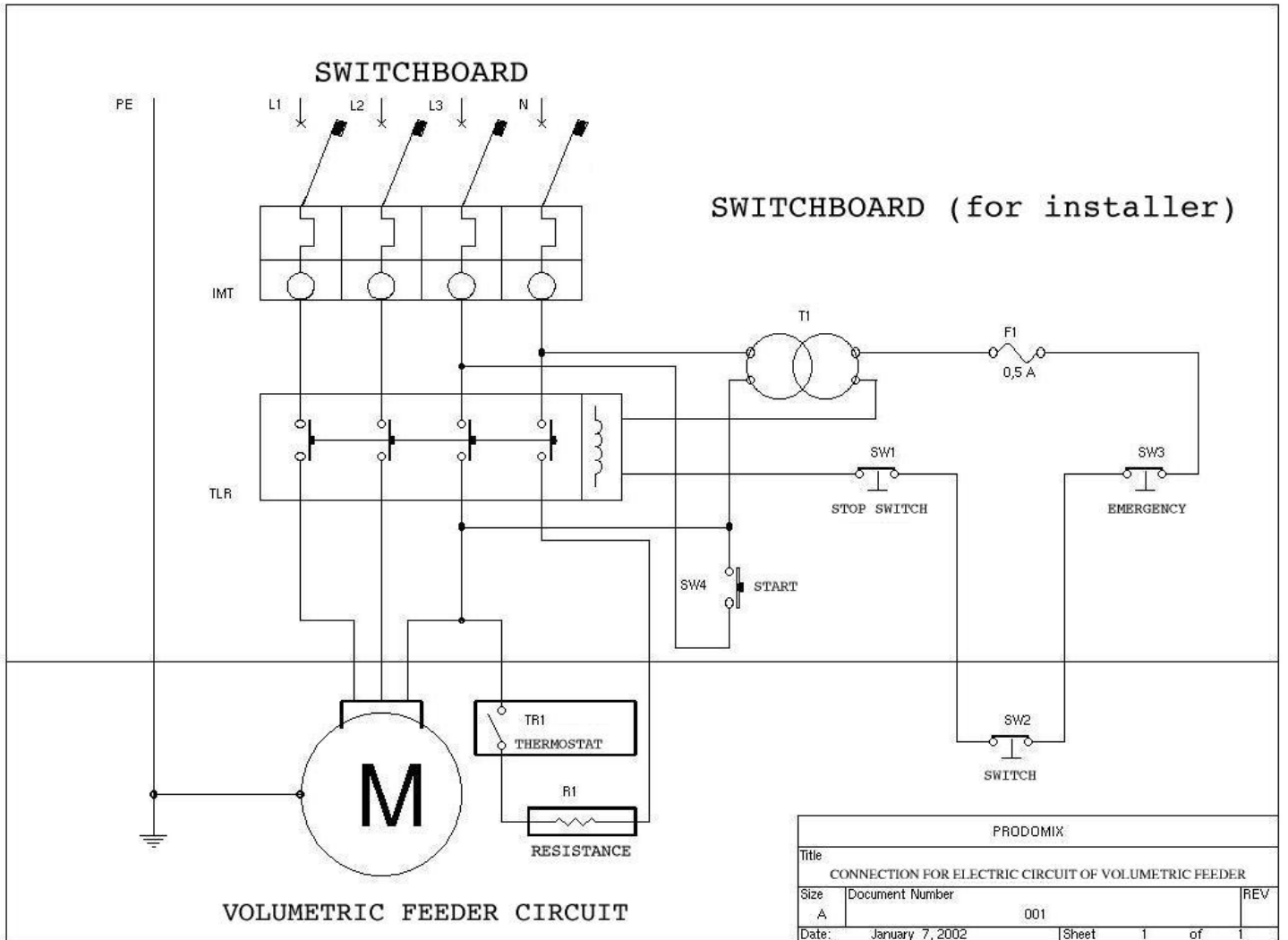
TECHNICAL FEATURES

- |               |  |
|---------------|--|
| Voltage input | 400 V 3~ 50 Hz                         |
| current       | depends on the motor                   |
|               | 1A on resistance phase (if applicable) |

**CAUTION: THE EMERGENCY SHUTDOWN (SW3 IN THE DIAGRAM) MUST BE POSITIONED AT NO MORE THAN ONE METER FROM THE VG100**



**Fig. 2.4: VG100 WIRING DIAGRAM**



## 2.4 STARTING THE VG100

Set the temperature of the resistance with the thermostat at 35°C. The VG100 is ready for use: fill the hopper more than half-way to ensure accurate dosage.

Let the VG100 operate for a few minutes to ensure a constant flow rate. Sample the volume extracted every three minutes, and vary the rotation of the screw (if present), then weigh the samples. The flow rate must be varied while it is in motion by using the crank on the left of the gearmotor, which is at constant ratio with the screw. The flow rate varies between 1 and 5, depending on the minimum speed. Below is a summary of the theoretical flow rates of the VG100's metering screw.

TABLE 1.0:

THEORETICAL FLOW RATES VG100\_/0 l/h (these values are purely indicative)

<b>VG100F/0_</b>	<b>4R</b>	<b>4</b>	<b>5</b>
<i>MOTOR KW</i>	0,18	0,18	0,18
fixed flow rate	12,5	15,5	54

<b>VG100V/0__</b>	<b>4R</b>	<b>46</b>	<b>44</b>	<b>56</b>	<b>54</b>	<b>52</b>
<i>KW MOTOR</i>	0,18	0,12	0,18	0,12	0,18	0,25
min FLOW RATE	3,6	3	4,5	10	15,5	31
max FLOW RATE	17	14	21	48	73	146

TABELLA 1.1:

THEORETICAL FLOW RATES VG100\_/2 l/h (these values are purely indicative)

<b>VG100F/2_</b>	<b>3</b>	<b>4</b>
<i>MOTOR KW</i>	0,37	0,37
fixed flow rate	72	130

<b>VG100V/2__</b>	<b>36</b>	<b>34</b>	<b>46</b>	<b>44</b>	<b>42</b>
<i>MOTOR KW</i>	0,25	0,37	0,25	0,37	0,55
min FLOW RATE	10	14	17	26	51
max FLOW RATE	51	77	92	140	277

### 3.0 MAINTENANCE

Before performing any maintenance operation, always ensure that:

- there are no moving parts close by;
- there no hanging masses near-by; if so block them;
- no sources of heat of flame are near-by when using solvents for cleaning.

The VG 100 requires a few simple operations to guarantee its proper functioning.

Visually inspect the level of the product in the feeder every 24 hours. Should the VG100 remain inoperative for more than 15 days, cover it with a plastic tarp to avoid infiltrations of dust and water. Before re-starting it, grease the chain and the bearings. Repeat this operation whenever necessary.

Always keep the motor free from dust and away from water.

The back grid must not be blocked by any objects or dust. Regularly clean the outside of the gearmotor to avoid any deposits that may hinder cooling. Periodically empty the hopper completely and wash it thoroughly, eliminating any residue of packed product.

**CAUTION: ALWAYS DISCONNECT THE VG100 FROM THE POWER SUPPLY  
BEFORE ANY MAINTENANCE OPERATION**

**IT IS SEVERELY PROHIBITED TO REPAIR OR ADJUST ANY MOVING  
PART**

**3.1 SAFETY RULES**

Every person operating the machine must be instructed on its functioning, on the safety features present and how to use them. Periodically verify that all safety devices are efficient. READ THIS MANUAL BEFORE OPERATING THE VG100. Never tamper with safety devices or use them for any purpose other than what they are intended for.

**IT IS SEVERELY PROHIBITED TO REMOVE ANY SAFETY DEVICES**

Inside the bottom of the hopper there is a metallic grid that does not hinder the flow of the powder towards the homogenization chamber, but avoids the accidental fall of undesired objects in the chamber.

The carter avoids direct contact with internal moving parts.

Should the carter or the metallic grid break, contact us immediately; the part will be replaced as soon as possible.

On the back of the VG100, if a heating kit is present, the duct can reach high temperatures. Keep hands away to avoid burning. A yellow tag signals this danger. If the carter needs to be removed, disconnect the power supply and then remove the screws. Always replace the screws after maintenance.

**4.0 SPARE PARTS**

Should you require any further information, or in case of a breakdown, contact directly:

PRO-DO-MIX di Roberto Voltan  
Via dell'artigianato, 23 35026 Conselve, Italy  
Tel 0039 049 9501368 Fax 0039 049 9501638  
www.prodomix.it info@prodomix.it

For quicker part replacement, please provide the serial number engraved on the identification plate and the year of production.

## 4.1 TROUBLESHOOTING

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>SOLUTION</i>
the metering screw does not move the powder	the metering screw turns counter-clockwise (looking at the VG100 from the drop duct)	invert the motor's electrical phase
	the metering screw is broken	replace the metering screw
the metering screw is broken	undesired material has entered the homogenization chamber	remove the material and replace any broken parts
	the powder has packed	apply the heating kit to the drop duct and activate it before starting the VG100
the VG100 does not batch properly	wrong speed setting	change the speed setting with the cranked
	unsuitable metering screw	change the metering screw
the flow rate is insufficient	the hopper is not full	fill the hopper
the resistance does not heat	the resistance is damaged	replace the resistance
there is noise behind the carter	the chain is too loose	tighten the chain
	the chain is dry	grease the chain
contaminated	the VG100 has not been used for a long time	always empty and clean the hopper before long periods of inactivity
the powder packs		
the powder packs in the supplementary hopper	the powder packs easily	keep the VG100 away from humidity and at 20°C in a well ventilated environment
		install a supplementary mixer or vibrator on the hopper (contact us)

## 5.0 INSPECTION REPORT

The details of the inspection report carried out on the mixer are described below:

MODEL:

SERIAL NUMBER:

MOTOR-TERMINAL BOARD WIRING:

VG100 START-UP:

RUNNING TIME (MIN):

CHAIN LENGTH CHECK:

MOTOR PINION ATTACHMENT TO THE  
REDUCTION GEAR SHAFT CHECK:

REVOLVING BEARING ATTACHMENT  
TO THE PINION'S SHAFT CHECK:

SAFETY DEVICE CHECK:

DATE:

STAMP:

