

Version 2020 (Trial)

VTOPS P2/P2C/P2D

AUGER FILLER
POWDER FILLING MACHINE

(液晶触摸屏、PLC 系统)
(LCD Touch Screen, PLC System)

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Operation Manual

郑州永特机械有限公司

ZHENGZHOU VTOPS MACHINERY CO., LTD.

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1. 前言 Foreword

在使用本公司机械之前，请务必仔细阅读本《操作手册》之各项内容，它将帮您正确使用和维护机器。确保人机安全，并充分发挥其性能，减少故障，延长寿命。

Before using the machine, please read the *Operation Manual* carefully. The manual will help you to correctly use and maintain the machine, ensure safety for both man and machine and fully utilize the machine performance so as to reduce failures and prolong the service life.

安全注意事项 Safety precautions

- 1) 未清楚了解机器的操作方法和安全规定之前，禁止启动机器；

Do not start the machine until you have clearly understood its operating method and safety requirements;

- 2) 使用本机前，必须先详读本手册，并了解全部内容与提示；

Before using the machine, carefully read the Operation Manual first to understand all its content and tips;

- 3) 机器须确认完成安装及必要的调整工作后，才能操作；

The machine can be operated only after its installation and necessary adjustment have been completed and confirmed;

- 4) 电源未关闭，不得触摸机器内部或电气设备；

Do not touch the interior of the machine or its electric devices when the power is not turned off;

- 5) 机器在运转中操作者不得离开机器工作范围；

The operator shall not leave the working range of the machine during operation;

- 6) 检查、维修电气控制电路时须由专业人员完成；

Inspection and maintenance of the electric control circuit shall be conducted by professionals;

- 7) 未经本公司许可，不得任意改装机器或在机器上安装任何非本公司认可的装置或周边设备，以免发生不可控制的危险；

Without permission of our company, alteration to the machine is not allowed and devices or ancillary equipment unrecognized by our company shall not be installed on the machine so as to avoid uncontrollable dangers;

- 8) 本手册内容有任何不明之处，或遇无法解决的问题，请咨询本公司或授权经销商，切勿擅自处理；

For anything unclear in the current manual or problems cannot be solved, please consult our company or our authorized distributors instead of handling on your own;

- 9) 不要在指定环境之外的条件下使用机器；

Do not use the machine under the conditions other than the specified environment;

警告：为了您和他人及机器设备的安全，务必遵守以上安全事项，对于不按上述要求操作而产生的意外及事故，本公司概不负责；

Warning: For the safety of yourself and others as well as the machinery equipment, do observe the above safety precautions, and our company shall not be responsible for the accidents and casualties caused by operations not following the above requirements;

2. 概述 Overview

P 型干粉螺旋填充机是我公司自行开发研制的新一代定量包装设备。采用中文触摸屏（人机界面）、PLC、全数字交流伺服控制系统设计。具有较高的计量精度，而且设备故障率低，整机性能稳定可靠。

VTOPS-P dry powder auger filler filling machine is a new generation of quantitative packaging equipment developed by Zhengzhou Vtops Machinery Co., Ltd. It adopts Chinese and English LCD touch screen (human machine interface), PLC. It has high filled accuracy, and the equipment failure rate is low, and the performance of the whole machine is stable and reliable.

Functions:

1. 包装规格设定 Setting of Filling Weight
2. 生产量显示 Display of the Output of Production
3. 包装速度调整 Adjustment of the Filling Speed
4. 自动计量充填 Automatic Metering-Filling
5. 计量反馈自动校验 Automatic Calibration of Measurement Feedback
6. 超差报警 Tolerance Alarm
7. 料位自动跟踪 Automatic Tracking of the Material Level of Hopper
8. 故障报警 Failure Alarm
9. 自动检测 Automatic Detection
10. 双重搅拌控制 Dual Blender (Agitation) Control
11. 电子秤过载保护 Overload Protection of Electronic Weigher
12. 电机（过压，过载）保护 Motor Protection of Overvoltage Overload
13. 紧急停车 Emergency Shutdown

特点 Features:

1. 中英文液晶触摸屏（人机界面）：实现各种操作和功能显示，使操作更加简单。
Chinese & English LCD touch screen (HMI): It can implement various operations and functions display causing operation easier.
2. PLC：进行核心控制，完成各种操作的逻辑运算和故障检测。
PLC: It can perform core control and achieve the logic operation and fault detection of complete various operations.
3. 全数字交流伺服控制系统：采用全数字交流伺服控制系统代替混合式步进电机使包装速度更快准确度更高，噪音更低。
The digital AC servo control system: Taking the place of hybrid stepping motor, the digital AC servo control system can make the packaging faster with higher accuracy and lower noise.

下料由光电开关控制不受环境影响。与物料接触部分采用优质不锈钢材料制作，抗腐蚀能力强，不污染物料。仅需更换计量螺旋部件便可实现不同物料、不同规格的包装需要，整个过程不足 10 分钟。适用于粉状物料和

小颗粒状物料的定量包装，如农药、兽药、饲料、面粉、添加剂、调味品、洗衣粉、白糖、食盐、米类、豆类、固体饮料等行业。

Blanking is controlled by a photoelectric switch and is not subject to the environment. And the part contacted with the material is made of high-quality stainless steel. It has strong corrosion resistance and the material won't be contaminated. Just replacing the metering spiral components can meet the packaging requirements of different materials and different specifications. Moreover, the whole process takes less than 10 minutes. It is applicable for quantitative packaging of powder and granular materials, such as pesticides, veterinary drugs, feed, flour, additives, spices, detergent powder, refined white sugar, salt, rice, beans, solid drinks and other materials.

3. 工作原理 Working Principle

1. 整机的构成 Components of the Machine:

本机由主机、电气控制柜、反馈电子秤三部分组成

The machine consists of such three parts as a host, the electrical control cabinet and the feedback electronic scale.

(见图一 See Figure 1).

2. 工作过程 Working Process:

开机后只需通过主机显示屏（包装规格项）设定标准重量，遮挡光电开关即可开始包装。在以后的包装过程中，由电子称自动作出调整，将包装重量的误差控制在允许范围内。

After start-up, set the standard weight via the host screen (Item of the packaging specification), now cover the photoelectric switch and packaging can begin. In the later packaging process, the electronic scale can automatically make the adjustment to control the error of the packaging weight within the allowable range.

4. 包装容器 Packaging Container

Model	VTOPS-P2	VTOPS-P2C	VTOPS-P2D
容器 Container	包装容器不受限制，适合各种容器。如：袋子，小袋，瓶子，罐子，等等。 The container is unrestricted and suitable for all kinds of containers. Such as bags, pouches, bottles, pots, and so on.	袋子 Bags, pouches, etc.	瓶子，罐子，桶，等 Bottles, jars, buckets, etc.

5. 技术参数 Technical Parameters

Model	VTOPS-P2	VTOPS-P2C	VTOPS-P2D
System	Fill-By-Volume	Fill-By-Weight	
Filling Weight	5g-5000g	1Kg-6Kg	1Kg-6Kg
Filled Error	≤ ±1%	≤ ±0.3%	
Measurement Method	Auger Filler		
Entrance Height	1600 mm		
Entrance Diameter	150 mm		
Nozzle Ground Clearance	860 mm	800 mm	860 mm
Filling Speed	0-50 fills/min	0-12 fills/min	0-12 fills/min
Contact Materials	SUS 304		
HMI	LCD Touch Screen (Brand of Delta)		
Control System	PLC (Brand of Delta)		
Filling Motor	Stepper Motor		
Hopper Volume	50 Liters		
Monitorable Hopper	Yes		
Easy Clean Hopper	Optional		
Air Consumption	—	0.3 cm3/min	—
Machine Weight	200 Kg		
Voltage	AC 3P 380V 50Hz		
Powder	1.5Kw		
Dimensions	80*80*196cm		
Ambient Temperature	-10 - 40 ° C		
Manufacturer	Zhengzhou Vtops Machinery Co., Ltd.		

6. 使用要求与维护 Requirements of Use and Maintenance

1. 地面平整，保持环境干燥。

Ensure the ground level and keep the environment dry.

2. 附近无强磁场、大的气流和振动，否则影响电气箱和电子秤的正常工作。

There shall be no strong magnetic field, large airflow and vibration, or it will affect the normal operation of the electrical box and electronic scale.

3. 电源为三相四线制。电压为 $380V \pm 15\%$ ，电源频率为 $50Hz \pm 2\%$ 。并应可靠接地，确保使用安全。

Power supply is the system of three-phase four-wire. The voltage shall be $380V \pm 15\%$, and $50Hz \pm 2\%$ for the power frequency. It shall be grounded well and safety use must be ensured.

4. 电子秤不能过载冲击，禁止重压秤台（称重物不要超出秤的最大量程）。

Electronic scale can not be overloaded, and high pressure on the scale platform is prohibited (The material weight shall not exceed the maximum range of the scale).

5. 电子秤在无振动，干燥的环境中使用。

Ensure no vibration and in dry environment for use of the electronic scale.

6. 物料中及包装机料斗内不得混入杂物。

Do not mix with debris in the material and the hopper.

7. 不用时请将整机擦拭干净，并置于干燥通风的室内。

Please clean the machine when it is not in use, and place it in a dry and ventilation room.

8. 机器工作时如有异常声响应立即切断电源。及时检修或询问生产厂家，故障排除后方可开机工作。

If there is abnormal noise during the running of the machine, cut off the power immediately. And timely examine and repair it or inquire the manufacturer. It shall not be put into operation until the trouble is eliminated.

9. 若需更换螺旋，请关闭机器。尽量不要让螺旋空转，更不能长期空转。

Please turn off the machine if replacing the spiral is needed. Try not to make the spiral idle, especially long-term idling.

10. 每 10 个月从加油处给搅拌电机减速机补充锂基润滑脂。

Add lithium grease to the agitation motor reducer from the refueling point every 10 months.

11. 每 3 个月给供料机顶部的轴承加注黄油。加润滑油。

Inject grease into the bearing on the top of the feeder every 3 months. Apply the lubricant.

减速机采用高级油脂润滑，出厂时减速机内已充满润滑脂，在 2000 小时之内不需维护保养。由于在运转中会产生少量油脂损耗，在初始使用 3 个月后，应适量加入一些润滑油脂（推荐使用 00 号减速机润滑脂）。

The reducer is lubricated with high-level grease and had been filled with grease at the factory. Thus there is no need to conduct maintenance within first 2,000 hours of running. Since a small amount of grease will be consumed during the operation, some lubricating grease shall be added after the initial 3 months (00-grade of reducer grease is recommended).

7. 开机前的准备工作 Preparations before Start-up

7.1 机架安装 Machine Frame Installation

7.1.1. 设备拆箱后,请先查阅装箱单,查收随机附件。

After unpacking the package, first check the packing list and the supplied accessories.

7.1.2. 设备安装要水平,稳定可靠,并将机体可靠接地。

The machine shall be installed levelly, stably and reliably, as well as the body shall be grounded well.

7.1.3. 安装顺序:

Installation Sequence:

①料斗盖②搅拌器③料斗④充填螺旋⑤料杯⑥电气控制箱⑦电子称⑧光电(开关)感应器(见图 二)

①Hopper Lid ②Blender ③Hopper ④ Filling Spiral ⑤Cup ⑥Electrical Control Box ⑦Electronic Scale

⑧Photoelectric (Switch) Sensor (See Figure 2)

7.1.4. 调整螺旋高度

Adjustment of the Spiral Height

卸下标牌,松开长轴上端的紧固螺钉,调节螺旋的高低,使螺旋下端距料杯口台阶(若无台阶,应距料杯下端面)的距离在 2—3mm 左右,再拧紧紧固螺钉。因螺旋上端装有弹簧,调整时请勿推螺旋而应调长轴(见图三)。

Remove the label and loosen the locking screw on upper end of the long axis. Adjust the level of the spiral to make the distance be around 2-3mm from the lower end of the spiral to the step of the material cup (It should be the lower end of the cup if no step there), and then tighten the locking screw. Due to the mounted spring on the top of the spiral, please do not push the spiral to adjust the long axis forcefully (See Figure 3).

7.1.5. 调整料杯同心度

Adjustment of the Cup Concentricity

用手转动联轴器时,如有摩擦卡滞现象,可松开固定料杯的三个螺钉进行调整,直到转动螺旋时感到阻力均匀且最小时为止(见图一)。

If there is friction and jamming when turning the coupling manually, loosen the three screws of the cup to turn the spiral until the resistance is felt evenly and reaches to the minimum (See Figure 1).

7.1.6. 刮刀位置的调整

Adjustment of the Position of the Scraper

当更换螺旋时应调整搅拌刮刀,刮刀距螺旋的位置通常在 20 毫米左右(见图一)。调整时松开刮刀螺钉上拉或下推刮刀至合适位置时将刮刀螺钉紧固。

Please adjust the agitation scraper when replacing the spiral, and the distance between the scraper and the spiral shall be commonly about 20 mm (See Figure 1). Loosen the screws of the scraper before adjusting it, and then pull up or push down the scraper to the suitable position. Tighten the screws after adjustment is finished.

7.2 电气安装 Electrical Installation

7.2.1. 连检查电气控制柜上的各个插头是否插好。

Check if all the plugs on the electrical control cabinet are inserted well.

7.2.2. 连接搅拌电机电缆线，下料电机电缆线和供料机电缆线。

Connect the cables of agitation motor, blanking motor and feeder.

7.2.3. 连接反馈电子秤电缆线。

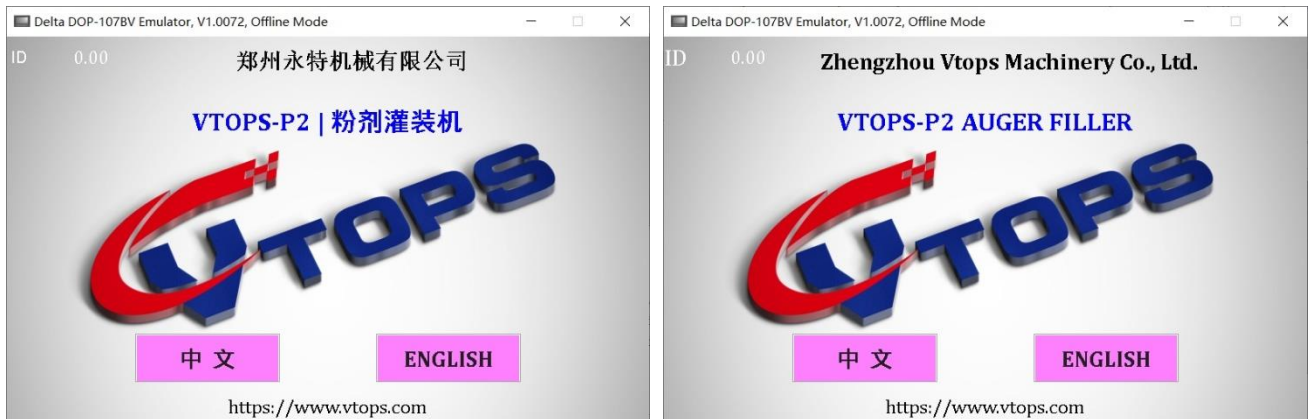
Connect the cables of the feedback electronic scale.

7.2.4. 调整电子秤四个调整座的高度，观察电子秤左下角的水平仪，使水平仪气泡居中。

Adjust the height of four seats of the electronic scale and observe the level instrument at the lower left corner of the electronic scale to place the bubble in the center.

7.2.5. 打开电源开关. 电气柜窗口自检后显示

Turn on the power switch. After the self-check of the cabinet window, the following will be displayed



如显示较暗，可用手轻触显示屏。If the display is dark, touch the screen slightly manually.

7.2.6. 调整电机转向 Adjust the motor rotating direction

搅拌器和供料机的启动 Start-up of the blender and feeder



①在工作页面点搅拌按钮启动搅拌，按下搅拌开关（此开关起到间隔与连续搅拌之间转换，以适应不同性质的物料）。②点供料按钮接通供料机电源，打开供料机开关。

① In the **Work Page**, click the button **Blender** to start it and press the switch Agitation (This switch acts as the alteration between interval and continuous agitation to accommodate the different nature of the material).② Click the button Feeding to turn on the feeder power, and turn on the feeder switch.

搅拌机转动方向应该是呈逆时针方向(从上向下看), 供料机转动方向应该是呈顺时针方向(从上向下看)。如电机的转动方向不对, 请对调三相电源线的任意两相。

The blender shall rotate counterclockwise (Viewed from the top) and the feeder shall rotate clockwise (Viewed from the top). If the direction of rotation of the motor is incorrect, please exchange any two-phase of the three-phase power lines.

搅拌器和供料机的停止

Shutdown of the blender and feeder

①在工作页面点搅拌按钮停止搅拌, ②点供料按钮停止供料机

① In the working screen, click the button Agitation to shut it down ② click the button feeding to stop the feeder

7.2.7. 光电开关的调整

Adjustment of the photoelectric switch

光电开关的灵敏度出厂时已调整好, 如感觉不合适可自行调整。1 先按下紧急停车开关, 断开所有动力部分的供电。2 用螺丝刀旋转光电开关后端部的螺丝(顺时针加大灵敏度, 反之减小), 用手遮挡光电开关, 这时指示红灯会亮, 直至距离合适。3 顺时针转动紧急停车开关。

The sensitivity of the photoelectric switch had been adjusted at the factory. It can be adjusted if you think it is inappropriate. 1. First press the emergency shutdown switch, and cut off the power supply of all parts. 2. Use a screwdriver to rotate the screw at the rear end of the photoelectric switch (Turn clockwise to increase sensitivity, whereas to decrease). Cover the photoelectric switch manually, and then the indicator will be red. Keep going until a suitable distance arises. 3. Turn the emergency shutdown switch clockwise.

7.2.8. 料位开关的调整同上。

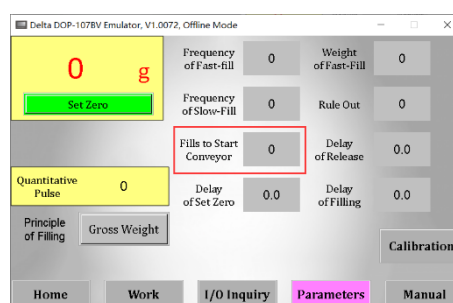
Adjustment of the level switch is the same as the above.

7.2.9. 设置供料袋数(如没有供料机可不必进行此项操作)

Set the number of feeding bags (You may not make this operation if there is no feeder)

在工作页面下点“功能菜单”后显示功能设置页面

In the working screen, click "功能菜单(Menu)" and the settings screen will be displayed



点“供料袋数”后面的数字框显示数字键盘

Click the number box behind the "(供料袋数) Fills to Start Conveyor" to display the numeric keypad

输入要设定的袋数后点“Enter”确定, 建议袋数设定在2—20袋(包装10g物料时可把供料袋数设为20袋, 包装500g以上物料时可把供料袋数设为2袋)。供料袋数设定完成。点“返回”回到工作页面

After input the set number of bags, click "Enter" to confirm. The recommended number of bags is 2-20 (When packaging 10g of material, the number of bags can be set at 20, and set the number at 2 for the material over 500g). After the completion of setting the number, click "Back" to return to the working screen.

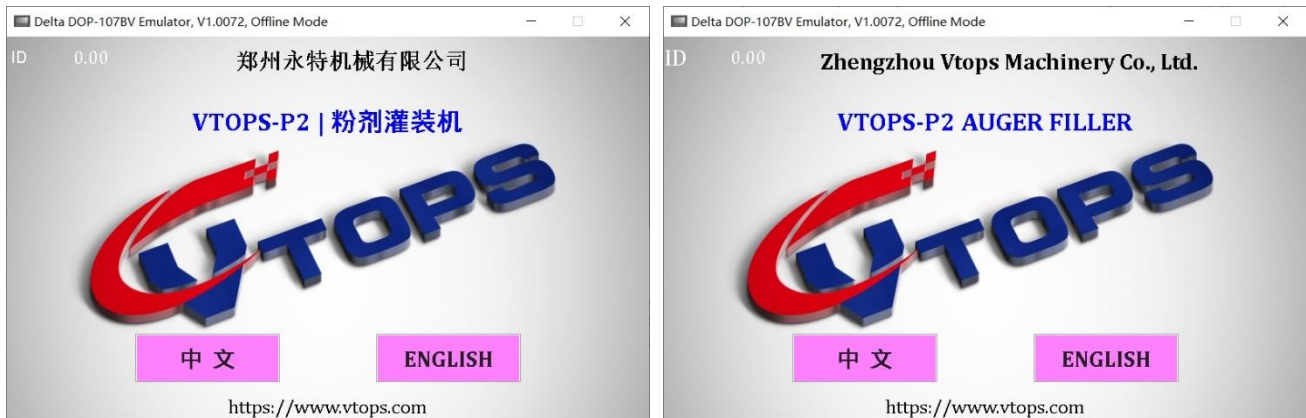
使用前的准备工作完成 Now the preparations before use are completed.

8. 基本操作及功能介绍 Basic Operation and Features

8.1 开机 Starting Up

接通电源，打开电源开关电气柜窗口自检后显示开机画面

Switch on the power supply and turn on the switch. After the self-check of the cabinet window, the boot screen will be displayed

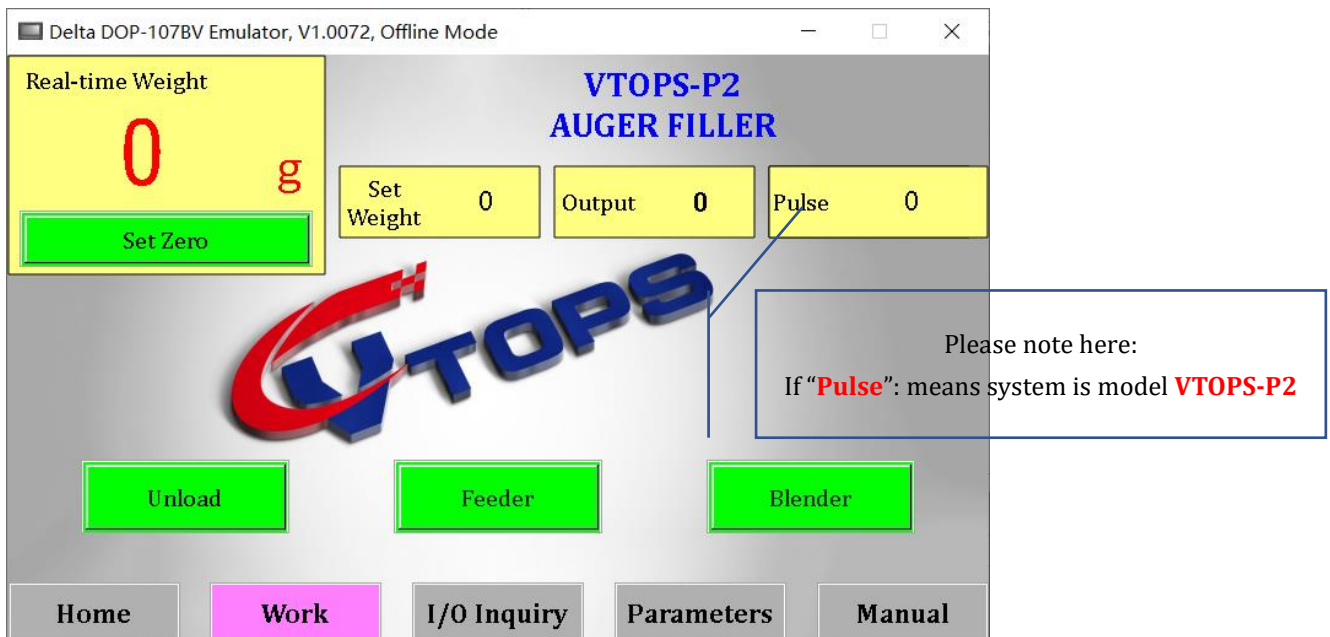


如显示较暗，可用手轻触显示屏。

If the display is dark, touch the screen slightly manually.

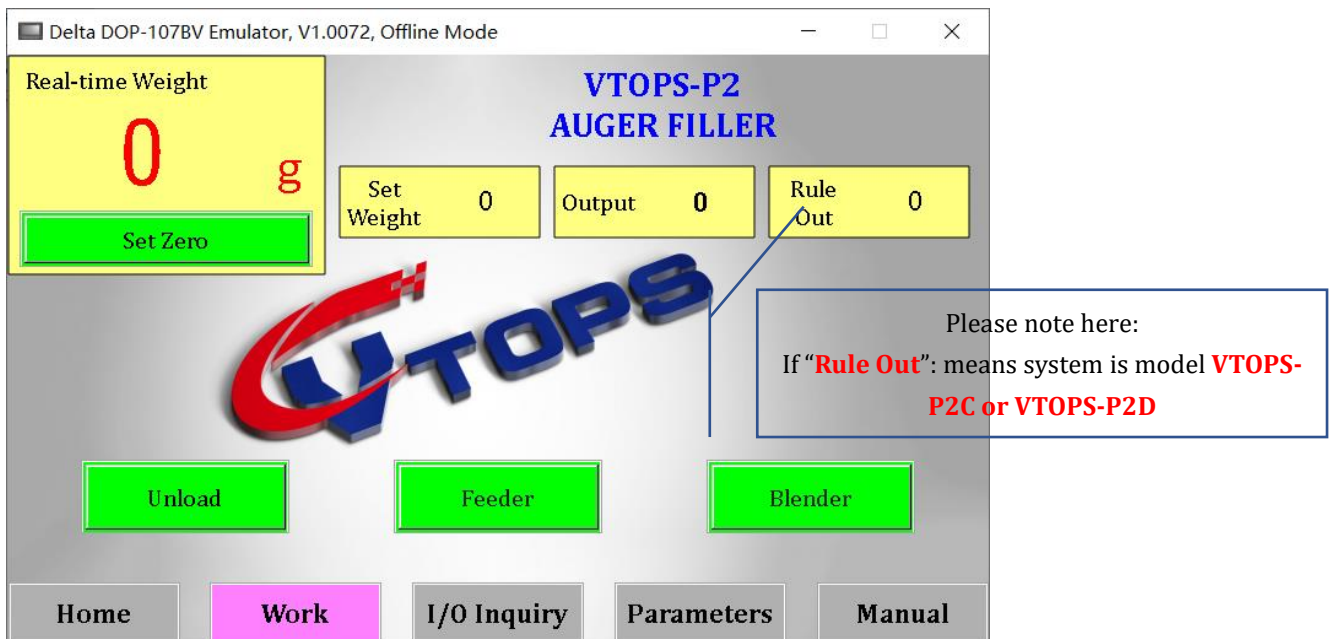
点击开机画面进入工作页面。

Click on the boot screen to enter the working screen.



型号 VTOPS-P2 的计量系统是定量系统。

The metering/dosing system of models VTOPS-P2 is **Quantitative Filling System (Fill-by-Volume)**.



型号 VTOPS-P2C 和 VTOPS-P2D 的计量系统是称重系统。

The metering/dosing system of models VTOPS-P2C/P2D is **Net Weigh Filling System (Fill-by-Weight)**.

打开电子秤，自检完成后将包装容器放在秤台上，待显示稳定后按“去皮”键去除皮重。

Turn on the electronic scale, and after its self-check, put the packaging container on the scale platform. When the display is stable, press "**Set Zero**" to remove the tare weight.

开启搅拌器和供料机，操作方法见使用前的准备工作。

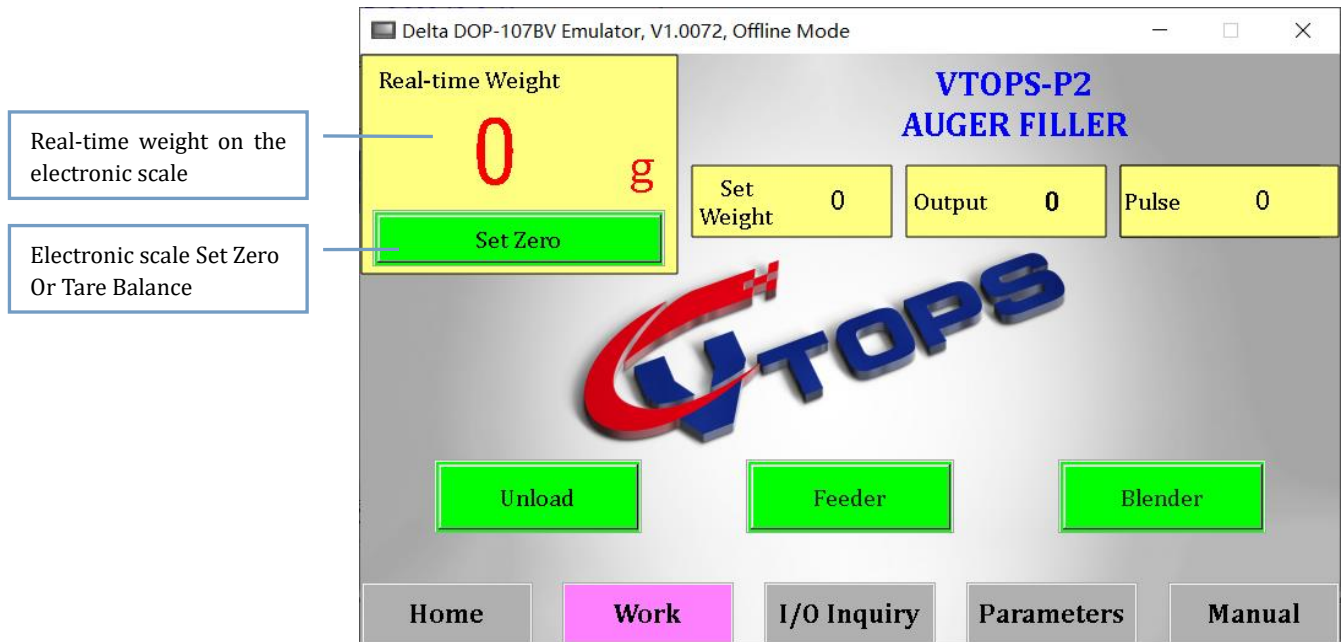
Turn on the blender and feeder; see methods of operation in Preparations before Use.

8.2 工作页面 Work Page

本机操作简单，工作页面就是机器的正常工作的页面，可以完成目标重量的灌装。如果没有技术人员的指导，请不要去往别的页面。

The VTOPS-P2 Auger Filler is easy to operate. **Work Page** is the normal working page of the machine working normally, which can complete the filling of the target weight.

Please do not go to other pages if without the guidance of a technician.



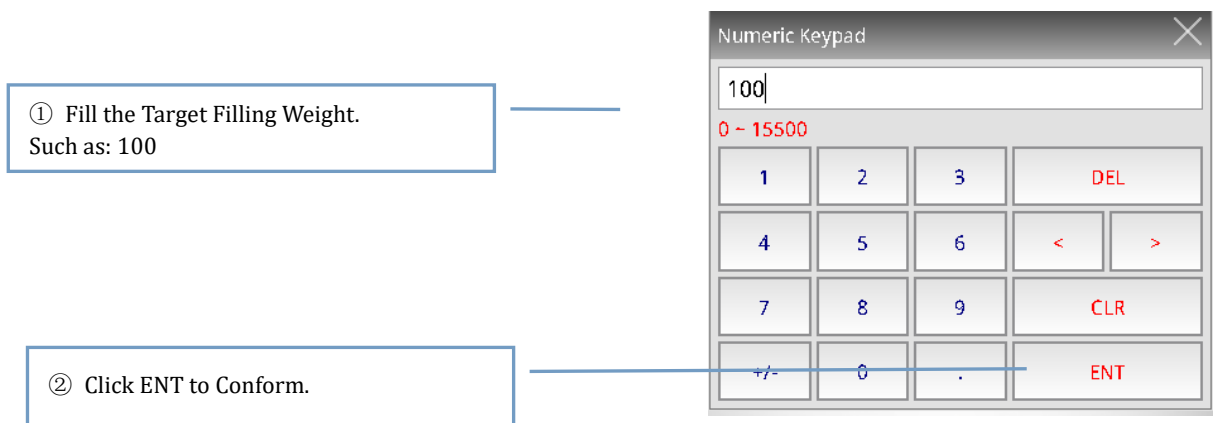
8.2.1. 设定“包装规格” Setting the Target Filling Weight in “Set Weight”

设定方法在工作页面下点包装规格后面的方框。

Going to the **Work Page**. Click the box behind the “Set Weight”.

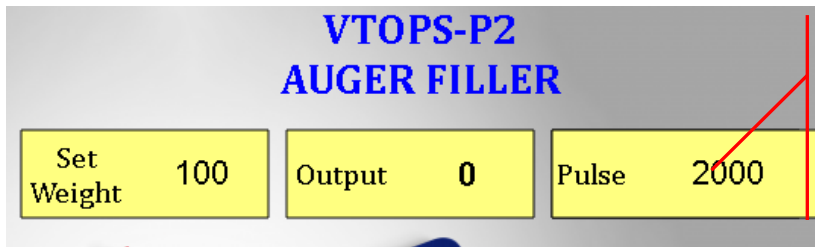
输入要设定的包装规格，如要求包装 100g 的物料，则输入“100”后点“Enter”确定。

Enter the Target Filling Weight in “Set Weight” to be set. Such as if 100g of packing material is required, input "100" and then click "ENT" to confirm.



包装规格的设定完成（可以看到初始脉冲变成 2000）。

Then, completion of settings of the Target Filling Weight (The initial **Pulse** will become 2000).



Initial **Pulse** is 2000.
(If the metering/dosing system of models VTOPS-P2 is **Quantitative Filling System (Fill-by-Volume)**.)

*** TIPS:**

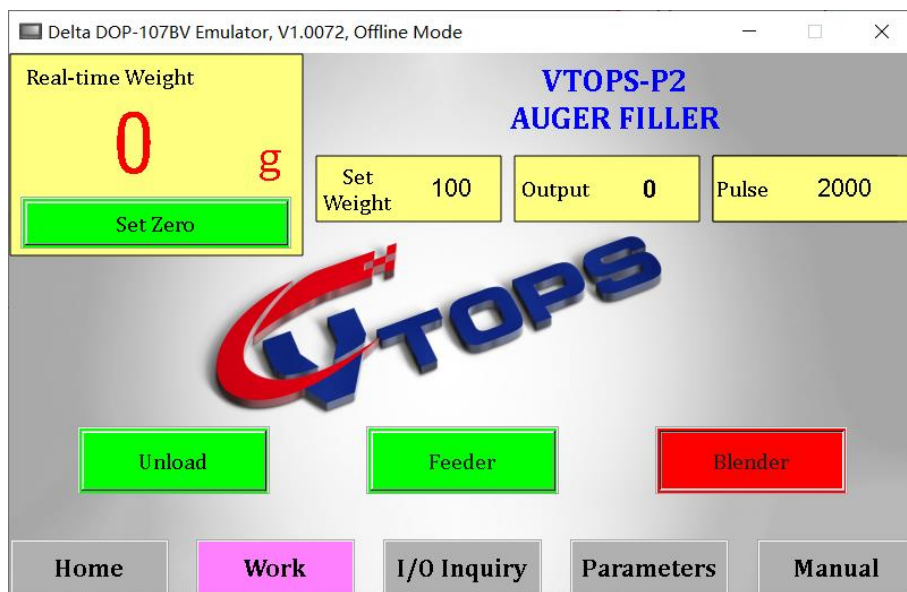
如果您的机器是 VTOPS-P2C 或者 VTOPS-P2D，那么这里显示的是“落差”。则不必关注这个数字。

If your machine is VTOPS-P2C or VTOPS-P2D, then the "**Rule Out**" is displayed here. You don't have to pay attention to this number.

8.2.2.如何正确填充 How To Calculate The Filled Target Weight Correctly?

完成了包装规格的设定。然后请点击搅拌开关。

The target filling weight are set. Then click on the **Blender**. Then the screen will be display following:



I：如果您的机器是 VTOPS-P2C or VTOPS-P2D，可以直接进行灌装。

If your machine is VTOPS-P2C or VTOPS-P2D, you can directly fill it.

II：如果您的机器是 VTOPS-P2，请按照以下步骤进行操作。

If your machine is VTOPS-P2, please follow the steps below.

遮挡光电开关一次并用包装容器接料。充填完成后，将包装物放于电子秤上。

Wave **Once** your hands before **Photoelectric Filling Sensor** and use packaging container to load the material.

The auger filling will filling once to the packaging container.

After once filling is completed, place and keep the packaging container on the **Electronic Scale**. The **Pulse** will be change after 3-5 seconds, means that the PLC calculation is complete.

重复上一步几次，PLC 将会计算到设置的目标重量。

Repeat the previous step several times, and the PLC will calculate the set target weight.

到达设置的目标重量后，即可连续填充而无需放在电子秤上计算。每遮挡光电开关一次完成一次定量充填。

After completing the above steps to the target weight, the auger filling machine can be filled continuously without calculation on the electronic scale.

As soon as your hand waving before the **Photoelectric Sensor** once, the auger filling machine will quantitative filling once.

注意 Notice:

- ① 打开搅拌可以提供灌装的精度。Click ON the **Blender** is available improve the accuracy of filling.
- ② 以下情况，需要放在电子秤上检查重量并计算至目标重量。In the following cases, you need to check the weight on the electronic scale and calculate it to the target weight.
 - (a) 机器重新启动 Machine restart;
 - (b) 重新设置目标重量 Reset target weight;
 - (c) 机器长时间处于待机状态时 Machine in standby for a long time

8.2.3 袋数 Output

袋数：是对生产量的统计。

Output: It is statistics of the production output.

8.2.4 脉冲 Pulse

脉冲：显示当前工作时的脉冲。简单的理解就是螺旋转动的圈数。脉冲可以手动输入脉冲。

Pulse: It displays the current pulse of working. The simple understanding is the number of turns of the auger filling, as you know the powder filling out is by the turns of auger. It is can also set the pulse manually.

如何快速的计算出正确的目标重量的脉冲。此项仅针对工程师阅读。

How to quickly calculate the correct target Pulse. This item is for engineers only.

$$\frac{\text{Target Pulse}}{\text{Target Weight}} = \frac{\text{Actual Pulse}}{\text{Actual Weight}}$$

举例 For Example:

We set the Target Filling Weight is **100** grams.

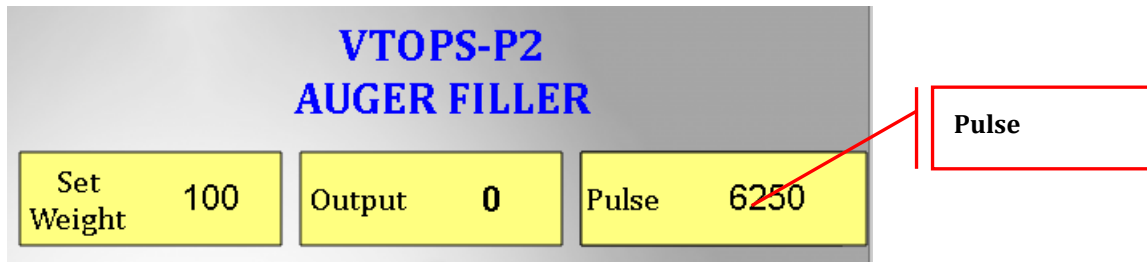
The Pulse on the screen is **2000**.

When the (actual) pulse is 2000, we filling once, then we got the (actual) weight is 32 grams (assume).

Then we got the (assume) Target Pulse:

$$\begin{aligned}\text{Target Pulse} &= \frac{\text{Actual Pulse}}{\text{Actual Weight}} \times \text{Target Weight} \\ &= \frac{2000}{32} \times 100 \\ &= 6250\end{aligned}$$

然后我们将得出的假设的目标脉冲填入脉冲中即可。Then we can fill the (assume) Target Pulse to the box of Pulse.



此项仅针对工程师阅读。This item is for engineers only.

8.2.5 搅拌启动/启动 Start/Stop Blender

搅拌启动，搅拌停止。

Start blender, stop blender.

打开搅拌可以提供灌装的精度。因为搅拌使物料在料斗中分布的更均匀。

Click ON the **Blender** is available improve the accuracy of filling. Because Blender makes the material more evenly distributed in the hopper.

8.2.6 供料启动/停止 Start/Stop Feeder

供料启动，供料停止。

Start Screw Conveyor Feeder, stop Screw Conveyor Feeder.

启动上料机时需开启搅拌。

When the feeder is started, **Blender** must be **ON**.

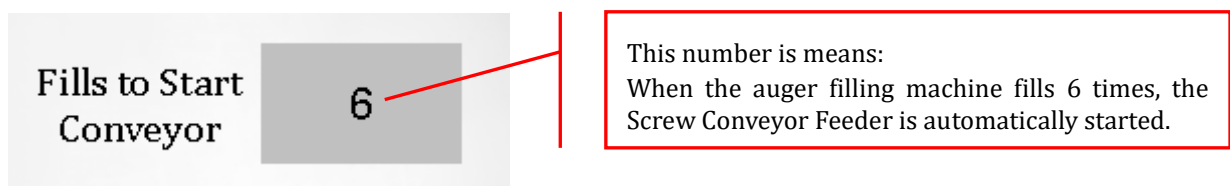
如果配合上料机使用，可以实现上料机的自动供料。

If used with the **Screw Conveyor Feeder**, it can realize the automatic feeding the materials to the hopper.

如何设置上料机自动上料，设置路径：主页》英文》参数》供料袋数。

How to set the automatic loading of the feeder.

Setting Path: **Home》English》Parameters》Fills of Start Conveyor.**



自动上料的工作原理：Working principle of automatic feeding the materials to the hopper:

<a> 什么时候开始上料 When do you start feeding:

填充次数=设置的供料袋数

The fills (filling times) = The Set Number of **Fills of Start Conveyor**.

 什么时候上料停止 When does feeding stop of Feeder.

料斗右上方的传感器检测到料斗已满。

The Sensor on the Right Top of Hopper detected the hopper is full.

每填充 6 (假设数字是 6) 次，启动一次上料机，如此循环。

Every 6 filling fills (Suppose the number is 6), the Screw Conveyor Feeder is started once, and so on.

8.2.7 清料开始/停止 Start/Stop Unload

用于更换包装物时清空主机料仓内的物料。操作方法同搅拌器的启动与停止。

It is used for emptying the material in the hopper of the host when the packaging material is replaced. The operating procedure is the same as the start-up and shutdown of the blender.

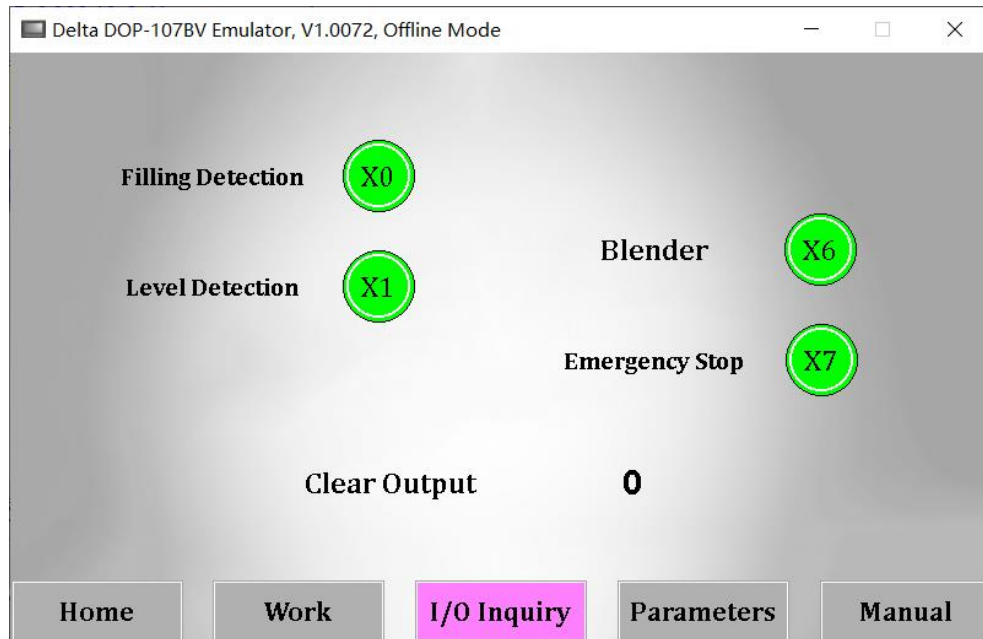
危险 Danger:

- ① 请确保 Auger Funnel 下面有足够大的容器可以存储料斗里面的物料。

Please make sure there is a large enough container under the Auger Funnel to store the material in the hopper.

- ② 请确保工人远离料斗内部。Keep workers away from the inside of the hopper.

8.3 输入查询 I/O Inquiry



8.3.1 X0 放料检测 X0 Filling Detection

X0 放料检测：检测下料传感器是否工作。

X0 Filling Detection: Check whether the **Filling Sensor** works.

8.3.2 X1 料位检测 X1 Level Detection

X1 料位检测：检测料位传感器是否工作。

X1 Level Detection: Check whether the **Materials Level Sensor** works.

8.3.3 X6 搅拌 X6 Blender

X6 搅拌：检测搅拌是否工作。

X6 Blender: Check whether the **Blender** works.

8.3.4 X7 急停 X7 Emergency Stop

X7 急停。

X7 Emergency Stop.

8.3.5 产量清零 Clear Output

产量清零。

Clear Output.

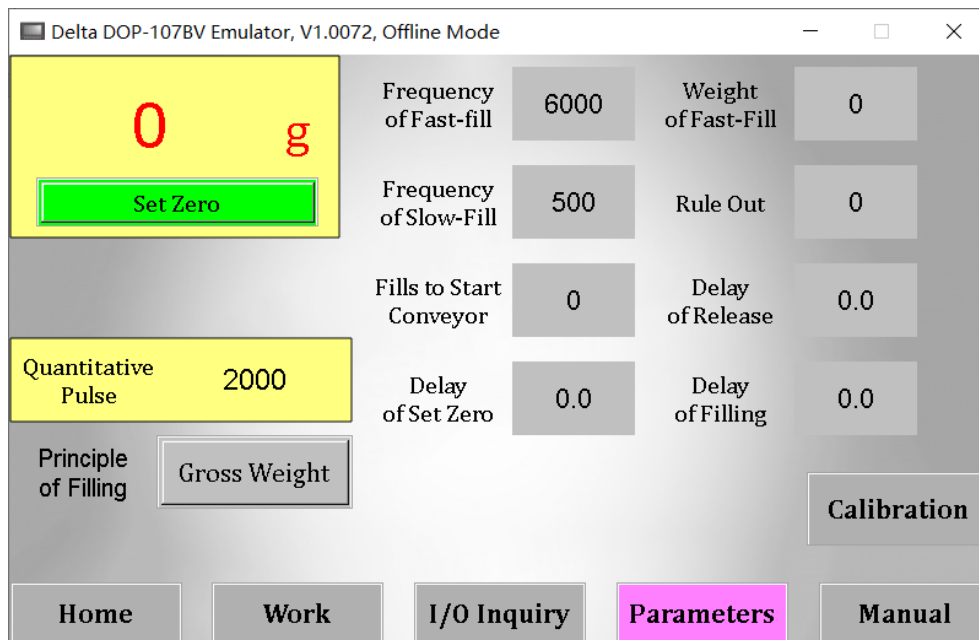
8.4 参数设置 Parameters

非专业人员，请勿设置此页面。

Please do not set this page if you are non-professional!

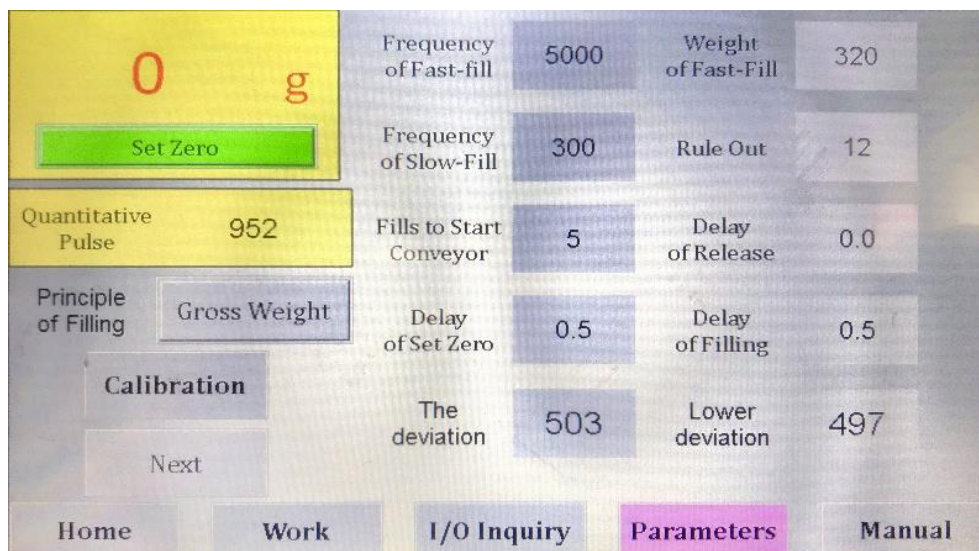
型号 VTOPS-P2 的界面如下：

The **Parameters Interface** of model **VTOPS-P2 Quantitative Filling System (Fill-by-Volume)** is as follows:



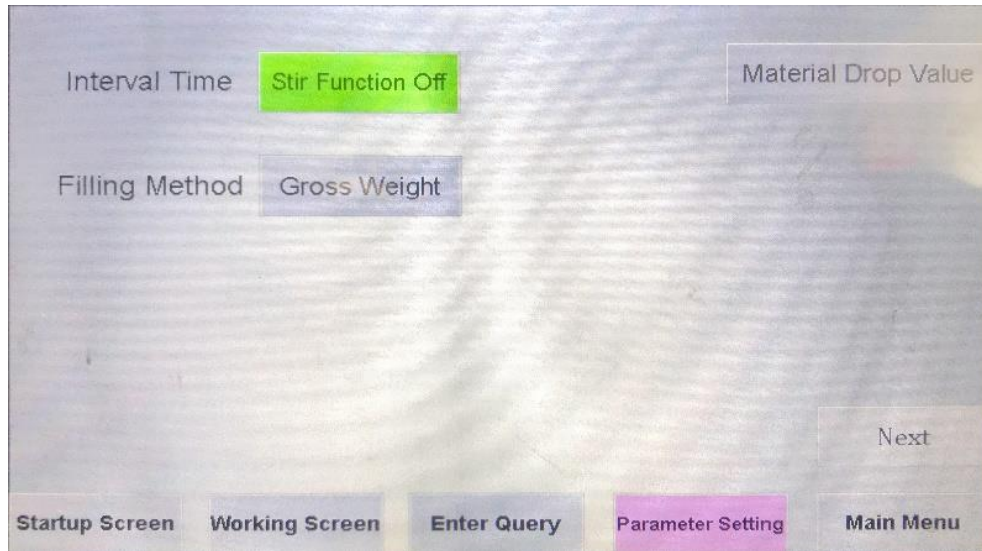
型号 VTOPS-P2C 和 VTOPS-P2D 的界面如下：

The **Parameters Interface** of model **VTOPS-P2C** and **VTOPS-P2D Net Weigh Filling System (Fill-by-Weight)** is as follows:



下一页

Next Page



8.4.1 快加频率 Frequency of Fast-Fill

快加频率：在定量系统中，快加频率是灌装频率；在称重系统中，快加频率是快速填装的频率。

In the Quantitative Filling System (Fill-by-Volume), the quick add frequency is the frequency of filling;

In the Net Weigh Filling System (Fill-by-Weight), the quick add frequency is the frequency of fast filling.

定量系统的机器的型号：VTOPS-P2

The models of Quantitative Filling System (Fill-by-Volume): VTOPS-P2

称重系统的机器的型号：VTOPS-P2C, VTOPS-P2D

The models of Net Weigh Filling System (Fill-by-Weight): VTOPS-P2C, VTOPS-P2D.

频率通常在 3000-8000 之间。频率的数值越大，螺旋的转速越快。

The fast-fill frequency is usually between 3000-8000. The larger the value of the frequency, the faster the rotation speed of the spiral.

默认的快加频率是 6000。

The default fast-fill frequency is 6000.

8.4.2 慢加频率 Frequency of Slow-Fill

在定量系统中，此项设置在定量系统中没有意义。例如：型号 VTOPS-P2。

In Fill-by-Volume system: this setting has no effect in the Quantitative Filling System (Fill-by-Volume). Such model VTOPS-P2.

在称重系统中，慢加频率是慢速填装的频率，起到微调的作用，以提高填装的精度。例如：型号 VTOPS-P2C 和 VTOPS-P2D。

In Fill-by-Weight System: the slow-fill frequency is the frequency of slow-filling, which plays a role of fine-tuning to improve the filling accuracy. Such model VTOPS-P2C and model VTOPS-P2D.

频率通常在 200-600 之间。频率的数值越大，螺旋的转速越快，精度越差。

The slow-fill frequency is usually between 200-600. The larger the value of the frequency, the faster the rotation speed of the spiral, but worse the accuracy.

默认的快加频率是 300。

The default fast-fill frequency is 300.

8.4.3 快加重量 Weight of Fast-Fill

在定量系统中，此项设置在定量系统中没有意义。例如：型号 VTOPS-P2。

In Fill-by-Volume system: this setting has no effect in the Quantitative Filling System (Fill-by-Volume). Such model VTOPS-P2.

在称重系统中，快加重量就是用快加频率快速填装的重量，以提高填装的速度。

In Fill-by-Weight System: fast-fill weight is the weight of fast filling with the fast-fill frequency, to increase the filling speed.

快加重量的设定不应超过目标重量。

The setting of fast-fill weight does not exceed the **Target Weight (8.2.1 Set Weight)**.

快加重量与目标重量越小，填装的速度越快。但是应遵循以下原则。

The fast-fill weight more closer the target weight, the filling speed will be more faster. But the following principles should be followed.

Target Weight (8.2.1 Set Weight)	Fast-Fill Weight / Set Weight
50 grams – 100 grams	60%-70%
100 grams – 500 grams	80%-90%
500 grams – 1000 grams	90%-95%
1000 grams – 6000 grams	95%-98%

建议保持机器计算的默认值。

It is recommended to keep the default values calculated by the machine.

8.4.4 落差 Rule-Out

在定量系统中，此项设置在定量系统中没有意义。例如：型号 VTOPS-P2。

In Fill-by-Volume system: this setting has no effect in the Quantitative Filling System (Fill-by-Volume). Such model VTOPS-P2.

在称重系统中，是排除的重量。用于精确调整实际的填装重量。

In Fill-by-Weight System: is Rule-Out weight. Used to accurately adjust the actual filling weight.

例如 Examples:

在机器填装稳定之后，每次的实际得填装重量高于设定重量的 2 克。那么落差值应增加 2。

After the machine's filling is stable, the actual filling weight is 2 grams **higher** than the set weight each time. Then the value of **Rule-Out** should be **increased** by 2.

反之，如果每次的实际得填装重量低于设定重量的 2 克。那么落差值应减少 2。

On the contrary, if the actual filling weight is **lower** than the set weight of 2 grams each time. Then the value of **Rule-Out** should be **reduced** by 2.

默认的是 0。

The default is 0.

8.4.5 供料袋数 Fills of Start Conveyor

参阅 8.2.6。

Visit 8.2.6 for reference.

8.4.6 落袋延时 Delay of Release

在定量系统中，此项设置在定量系统中没有意义。

In Fill-by-Volume system: this setting has no effect in the Fill-by-Volume system.

在 VTOPS-P2C 称重系统中，是松开夹袋装置的延长时间。

In Fill-by-Weight System of model VTOPS-P2C: Delay time to release the bag Clamp-Hold Device.

8.4.7 去皮延时 Delay of Set Zero

去皮延时。

Delay of Set Zero.

默认的是 0。

The default is 0.

8.4.8 下料延时 Delay of Filling

下料延时。

Delay of Filling.

默认的是 0。

The default is 0.

8.4.9 定量脉冲 Quantitative Pulse

参阅 8.2.4。

Visit 8.2.4 for reference.

8.4.10 标定 Calibration (Re-Calibrate Electronic Scale)

标定电子秤。

Calibration: Means Re-Calibrate Electronic Scale.

此项设置在出厂状态已标定完毕，请不要重复标定。

This setting has been calibrated in the factory state, please do not repeat the Calibration.

只有在以下情况下，才可以重新标定电子秤。Only under the following conditions can do the Re-Calibrate Electronic Scale.

<1> 保持电子秤清洁并没有任何多余的东西。There is nothing extra to keep Electronic Scale clean.

<2> 置零。Click the **Set Zero** on the screen of Top-Left.

<3> 放置 1 公斤的砝码在电子秤上。Place a 1 kg weight on the Electronic Scale.

<4> 如果屏幕的实时重量显示的不是 1 公斤，则需要进行标定。If the real-time weight of the screen is not 1 kg,

you need to perform this **Calibration**.

8.4.11 怎么标定 How to Calibration (Re-Calibrate Electronic Scale)

1) 在校准电子秤之前，我们需要准备什么？

What do we need to prepare before calibration the electronic scale?

	
V-TOPS-P2 Auger Filler	1 Kg Weight (Or an equal weight)

2) 进入标定页面 Enter the Calibration page.

路径：主页>>中文>>参数>>校准。Path: **Home Page >>ENGLISH>>Parameters>> Calibration.**

0 g

Set Zero

Step 1: Empty the weight on the scale(Except for the parts that come with the machine). Then Press →

Step 2: Place the a weight on scale. Then fill in the actual weight of the weight.

Step 3: Confirm Calibration. Press →

OK

0

Confirm

If you have any questions on the Calibration of Vtops Auger Filler.
Please do not hesitate to contact Zhengzhou Vtops Machinery Co., Ltd.

<https://www.vtops.com>

Back

3) 校准步骤：Steps of calibration:

步骤 1：清空秤上的重量（机器随附的零件除外）。然后按确定。

Step 1: Empty the weight on the scale (Except for the parts that come with the machine). Then Press OK.

提示：此步骤是校准电子秤的零位。Tip: This step is to calibrate the zero point of the electronic scale.

步骤 2：将（1000 克）重物放在电子秤的顶部。

Step 2: Place the (1000 grams) weight on the top of electronic scale.

然后填写重量的实际重量。Then fill in the actual weight of the weight.

Step 2: Place the a weight on scale.
Then fill in the actual weight of the
weight.



Tip:

① 这次我们使用的砝码的重量为 1000 克，因此输入 1000。如果您的砝码的重量为 2000 克，则应输入 2000。

This time we used a weight of 1000 grams, so enter 1000. If you put a weight of 2000 grams, you should enter 2000.

② 电子秤的最大重量不超过 5 公斤。

The maximum weight of the electronic scale does not exceed 5 kg.

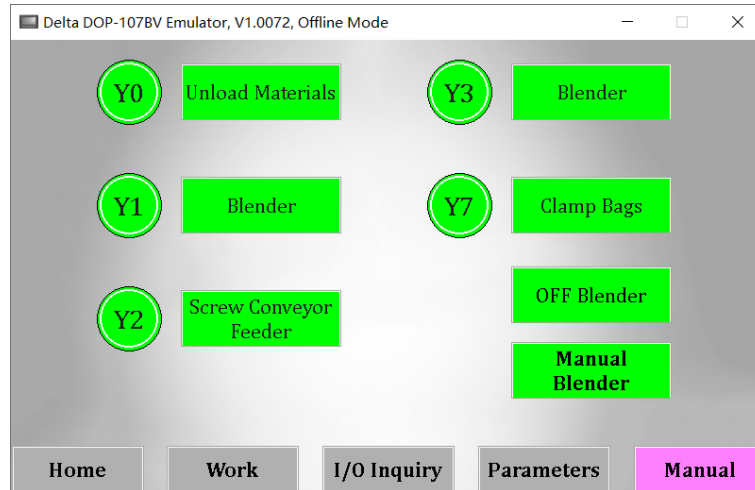
步骤 3：确认校准。按确认。

Step 3: Confirm Calibration. Press Confirm.

8.5 手动/输出 Manual

此页面在手动的状态下，检测各部分运行是否正常。

This page is in the manual state to check whether each part is running normally.



8.5.1 Y0 清料 Y0 Unload Materials

Y0 清料：参阅 8.2.7。Y0 Unload Materials: Visit 8.2.7 for reference.

8.5.2 Y1 搅拌 Y1 Blender

Y1 搅拌：参阅 8.2.5。Y1 Blender: Visit 8.2.5 for reference.

8.5.3 Y2 上料机 Y2 Screw Conveyor Feeder

Y2 上料机：参阅 8.2.6。Y2 Screw Conveyor Feeder: Visit 8.2.6 for reference.

8.5.4 Y3 搅拌 Y3 Blender

Y3 搅拌：参阅 8.2.5。Y3 Blender: Visit 8.2.5 for reference.

8.5.5 Y7 夹袋 Y7 Clamp & Hold Bags

Y7 夹袋：此功能只对 VTOPS-P2C 开放。Y7 Clamp & Hold Bags: This function is only available for VTOPS-P2C.

8.5.6 搅拌功能 OFF Blender

搅拌功能：关闭或开启搅拌功能以适应特殊的自由性物料。OFF Blender: OFF or ON the Blender Function to accommodate special free-following materials.

8.5.7 手动搅拌 Manual Blender

手动搅拌：手动/点动搅拌。Manual Blender: Manual / Inching / Jog the Blender.

8.6 报警功能 Alarm Function

本机提供三种报警方式：

This machine is provided with three modes of alarm:

8.6.1. 超差报警 Tolerance alarm:

当包装物料的实际重量超出允许误差时蜂鸣器鸣响。

When the actual weight of the packaging materials exceeds the allowable error, the buzzer sounds.

8.6.2 故障报警 Failure alarm:

当光电开关长时间被遮挡时蜂鸣器鸣响，并在显示屏上提示“请检查光电开关灵敏度”。

When the photoelectric switch is covered for a long time, the buzzer sounds; and "Please check the sensitivity of the photoelectric switch" will display on the screen.

8.6.3 清料报警 Material clearing switch alarm

当机器工作于清料时蜂鸣器鸣响。

When the machine is clearing the material, the buzzer sounds.

9. 常见故障及处理 Common Faults and Handling

现象 1 Phenomenon 1: 开机不显示 No display when started.

开机不显示。No display when the machine is started.

原因 1：电源线问题。Cause 1: The failure of power line.

解决办法：检查电源是否正确接通。Solution: Check if the power supply is properly connected.

原因 2：1A 保险坏 Cause 2: 1A fuse is broken

解决办法：更换 1A 保险 Solution: Replace the 1A fuse

现象 2 Phenomenon 2: 蜂鸣器报警 Buzzer Alarm

解决办法：参考报警功能。

Solution: Refer to alarm function.

现象 3 Phenomenon 3: 光电开关灵敏度 The sensitivity of photoelectric sensor

光电开关灵敏度低。The sensitivity of photoelectric switch is low.

原因：可能由于光电开关感应头上灰尘太厚或灵敏度太低所致。

Cause: Maybe there is too much dust on the sensor head of the photoelectric switch or the sensitivity is too low.

解决办法：擦去光电开关端面的灰尘，调高灵敏度。擦拭时请按下“紧急停车”。

Solution: Wipe off the dust from the photoelectric switch and increase the sensitivity. Please press the "Emergency Shutdown" when wiping it.

现象 4 Phenomenon 4:遮挡光电开关但不下料。Cover the photoelectric switch but no blanking.

遮挡光电开关但不下料。Cover the photoelectric switch but no blanking.

检查：1. 遮挡光电开关时光电开关红灯是否亮？测量光电开关电压是否正常（应为 24V）；测量光电开关的信号线电压是否正常（被挡住时约为 0V 左右，不被挡时为 24 左右）。

Check: 1. When covering the photoelectric switch, is the red light of the photoelectric switch on? Measure the voltage of the photoelectric switch to determine if it is normal (It should be 24V); Measure the signal line voltage of the photoelectric switch to determine if it is normal (It should be about 0V when it is covered and about 24 when not covered).

2. “紧急停车”开关是否放开。

2. Is "Emergency Shutdown" switch released.

3. 4A 保险坏

3. 4A fuse is broken

现象 5 Phenomenon 5:下料不准确 Inaccurate blanking

原因：物料过湿或有结块，下料螺旋转向不对，螺旋上缠有异物，搅拌器刮刀位置不当，步进电机频率不合适，操作方法有误（如接料时滴漏或是包装容器底部堵住出料口，导致物料不是自由状态进入容器）。

Cause: The material is too wet or caked, or the turning direction of the blanking spiral is incorrect, or there is foreign matter on the spiral, or the position of blender scraper is improper, or the stepping motor frequency is inappropriate, or incorrect methods of operation (For example, the leakage or the bottom of the packaging container block the discharge port which causes the material doesn't enter into the container freely).

另外，料斗内物料料位变化太大、电网电压不稳定也会导致下料不准确。

In addition, the large change of the material level in the hopper and instable grid voltage will also result in inaccurate blanking.

现象 6 Phenomenon 6:下料电机失步 The blanking motor is out of step

原因：1. 可能是频率太高所致（应降低频率）。

Cause: 1. Maybe due to the high frequency (The frequency should be reduced).

2. 驱动器损坏所致（更换驱动器）。

2. Caused by driver breakdown (Replace the driver).

3. 物料中混有异物，使下料电机阻力增大（取出异物）。

3. Material is mixed with foreign matter, so that the resistance on blanking motor increases (Remove the foreign matter).

4. 下料螺旋与出料嘴（料杯）不同心，调整同心度（参考机安装机架）

4. Blanking spiral is not concentric with the discharge nozzle (the Cup). Please adjust the concentricity (Refer to Machine Frame Installation)

现象 7 Phenomenon 7:称量不准 Inaccurate weighing

称量不准不同于下料不准确，它是指在称量标准砝码时不准确。

Inaccurate weighing is different with inaccurate blanking. It refers to the inaccurate standard weight.

原 因：电子秤损坏（更换新秤）。

Cause: Breakdown of the electronic scale (Replace with the new scale).

现象 8 Phenomenon 8:电子秤零点不稳定 Zero point of the electronic scale is unstable

原 因：可能秤台放置不平稳、附近有气流，或工作环境湿度较大导致控制电路板受潮。可用电吹风 的热风驱赶潮气，温度应控制在 40~50℃，时间约 10 分钟。

Cause: Maybe the scale platform is placed unsteadily and there is airflow nearby, or the control circuit board is exposed to the working environment with greater humidity. It is available to drive away the moisture with an electric drier. The temperature should be controlled at 40 ~ 50 °C and the time duration should be about 10 minutes.

现象 9 Phenomenon 9:搅拌器不工作（间隔搅拌，连续搅拌）The blender doesn't work (interval and continuous agitation)

原 因 1：热保护器保护 Cause 1: Protection from the thermal protector

解决办法：将保护器复位（见图四） Solution: Reset the protector (See Figure 4)

原 因 2：搅拌电机损坏 Cause 2: Breakdown of the agitation motor

解决办法：更换电机 Solution: Replace the motor

原 因 3：接触器线圈损坏。Cause 3: The coil of the contactor is damaged.

解决办法：更换接触器。Solution: Replace the contactor.

原 因 4：传动链条脱落。Cause 4: The drive chain falls off.

解决办法：联接传动链条 Solution: Connect the drive chain

现象 10 Phenomenon 10:下料量越来越少以至于螺旋空转不下料 The blanking amount becomes smaller and smaller so that the spiral idles and no blanking

原 因 1：搅拌器没有开启 Cause 1: The blender doesn't be started

解决办法：1. 开启搅拌器（见搅拌的启动与停止）。Solution: 1. Start the blender (See start-up and shutdown of the blender).

2. 参考搅拌器不工作 2. Refer to that the blender doesn't work

原 因 2：物料比重不均 Cause 2: Uneven proportion of the material

解决办法：关闭修正开关，更为人工设定下料脉冲。Solution: Turn off the correction switch. Set the blanking pulse manually.

原 因 3：物料中有线头等杂物。Cause 3: Maybe some debris such as the wire is mixed in the material.

解决办法：清理物料后从新包装。Solution: After clean up the material, package it again.

原 因 4：物料的含水大。Cause 4: The material has a lot of moisture.

解决办法：对物料做煤干处理。Solution: Make the dry distillation of the material.

原 因 5：供料机不工作 Cause 5: The feeder doesn't work

解决办法：见现象 13 Solution: See Phenomenon 13

现象 11 Phenomenon 11:出料口漏料 The material leaks from the discharge port

解决办法：在出料口处加“十”，“井”“*”或“米”字网。

Solution: Set the "+", "#", or "*" net at the discharge port.

现象 12 Phenomenon 12:下料忽多忽少 The amount of the blanking material changes a lot

原因 1：可能是操作不当出现重复下料造成的

Cause 1: It may be caused by repeat blanking which is resulted from improper operation.

解决办法：放慢包装速度，做到下一次料秤量一次，如出现重复下料应将该次包装剔除不可在电子秤上再做校正。

Solution: Slow the packaging speed, and weigh the material as soon as they are discharged. If the repeat blanking happens, this package should be removed and do not make correction on the electronic scale.

原因 2：主机料仓内物料太少（料位低于 2/3）。

Cause 2: The amount of the material in the hopper is too small (The material level is lower than 2/3).

解决办法：调整料位开关的灵敏度。

Solution: Adjust the sensitivity of the level switch.

原因 3：供料袋数太大（包装 100g 以上物料，供料袋料超过 10）。

Cause 3: The number of feeding bags is too large (The number exceeds 10 for packaging the material over 100g).

解决办法：重新设定供料袋料。（详见供料袋数的设定）

Solution: Re-set the number of feeding bags. (See Settings of the number of feeding bags)

现象 13 Phenomenon 13:供料机不供料 The feeder doesn't work.

原因 1：料位开关端部粘结物料。Cause 1: Level switch end adheres with some material.

解决办法：切断电源，取出料位开关将粘结的物料擦拭干净。Solution: Cut off the power, remove the level switch and wipe off the adhered material.

原因 2：供料电机损坏 Cause 2: Breakdown of the feeding motor

解决办法：更换供料电机 Solution: Replace it

原因 3：接触器线圈损坏。Cause 3: The coil of the contactor is damaged.

解决办法：更换接触器。Solution: Replace the contactor.

原因 4：传动皮带脱落。Cause 4: The transmission belt falls off.

解决办法：联接皮带链条 Solution: Connect the belt chain

原因 5：供料机保护器保护。Cause 5: Protection from the feeder protector

解决办法：热保护器保护（复位）Solution: Protection from the thermal protector (reset)

原因 6：供料机袋数设定为“0”或过大 Cause 6: Number of bags is set at "0" or excessive

解决办法：重新设定供料袋料。（详见供料袋数的设定）Solution: Re-set the number of feeding bags. (See setting of the number of feeding bags)

10. 选配装置 Optional Device

10.1 自动供料装置 Screw Conveyor Feeder

供料装置可实现自动供料功能。供料装置的启停是由上下料位控制的,下料位由包装袋数确定,上料位由料位控制器确定。即包装一定袋数后供料装置供料,料位控制器接到信号后停止供料。使用前须设置自动供料袋数,设置方法见前述

Automatic feeding device can achieve automatic feeding. Start-up and stop of the feeding device is controlled by the loading and unloading level. The unloading level is determined by the number of packaging bags and the loading level is determined by the level controller. In other words, the feeding device will work after a certain number of bags are packaged. And the feeding will stop after the level controller receives the signal. The number of the automatic feeding bags shall be set before using. See the above-mentioned setting method.

使用中应注意 Please take note of the following during use:

- 1). 物料中勿夹带杂物。
Do not mix debris in the material.
- 2). 各紧固件是否松动。
Check if every fastener is loose.
- 3). 每 1 个月从上下油嘴加注黄油。
Inject the butter at the upper and lower nozzle each month.
- 4). 操作人员工作时勿穿裙子、大褂等。电机工作时请注意安全。检修时应切断电源。
The operator shall not wear skirts and gowns. Please ensure the safety when the motor is running. When the maintenance is carried out, the power supply shall be cut off.

10.2 防漏料托盘 Free Flow Tray

该装置主要解决物料的滴漏,安装方式如图五所示;

This device is mainly to solve the leakage of materials. The installation procedure is shown in Figure 5;

将甩盘高度调整好后用螺钉及螺母固定在螺旋底部的螺纹上。固定时可打开电源开关,按“紧急停车”,同时光电开关被禁止。

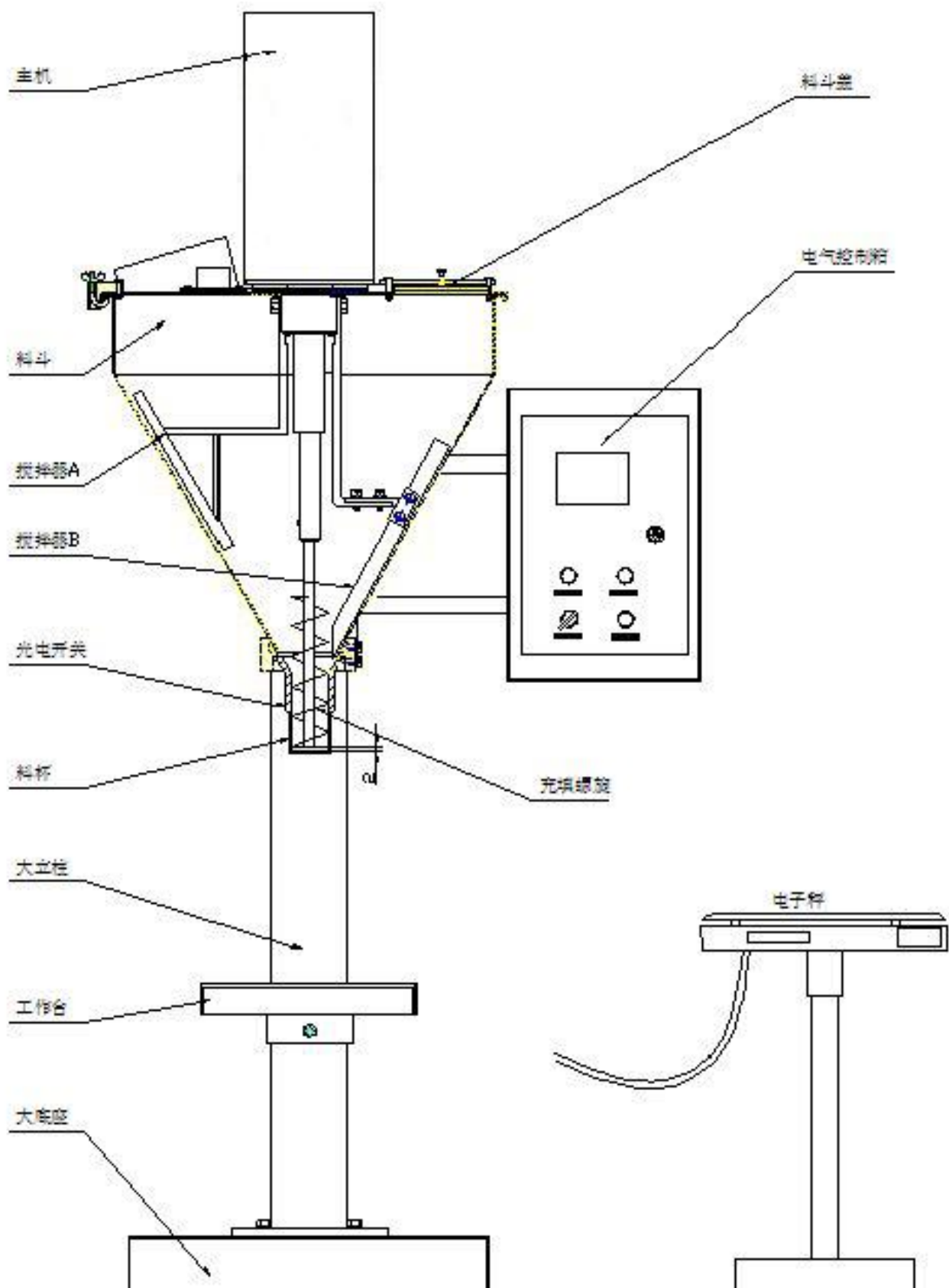
Adjust the height of the projecting disc, and then fix it in the thread at the bottom of the spiral with screws and nuts. During the process, turn on the power switch, press the "Emergency Shutdown" and meanwhile the photoelectric switch is disabled.

托盘的高低位置(C尺寸)以不流料为原则,注意使用中调节螺钉及螺母不得松动,否则会影响充填精度。
Setting of the height of the pallet (C size) shall be based on no flowing material. Take note of that the screws and nuts must not be loose during use, otherwise it will affect the filling accuracy.

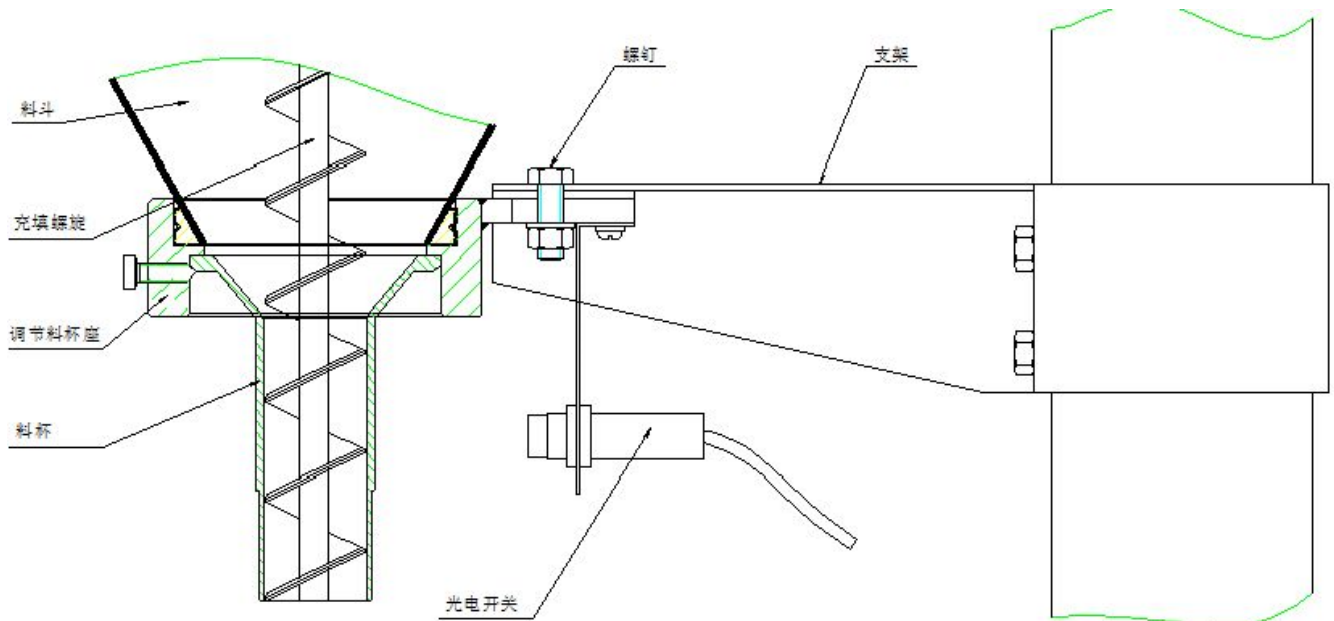
将小料斗用螺钉固定在托架上即可。

Fix the small hopper on the carrier frame with screws.

附件 1 Attachment 1 – 图一 Figure 1

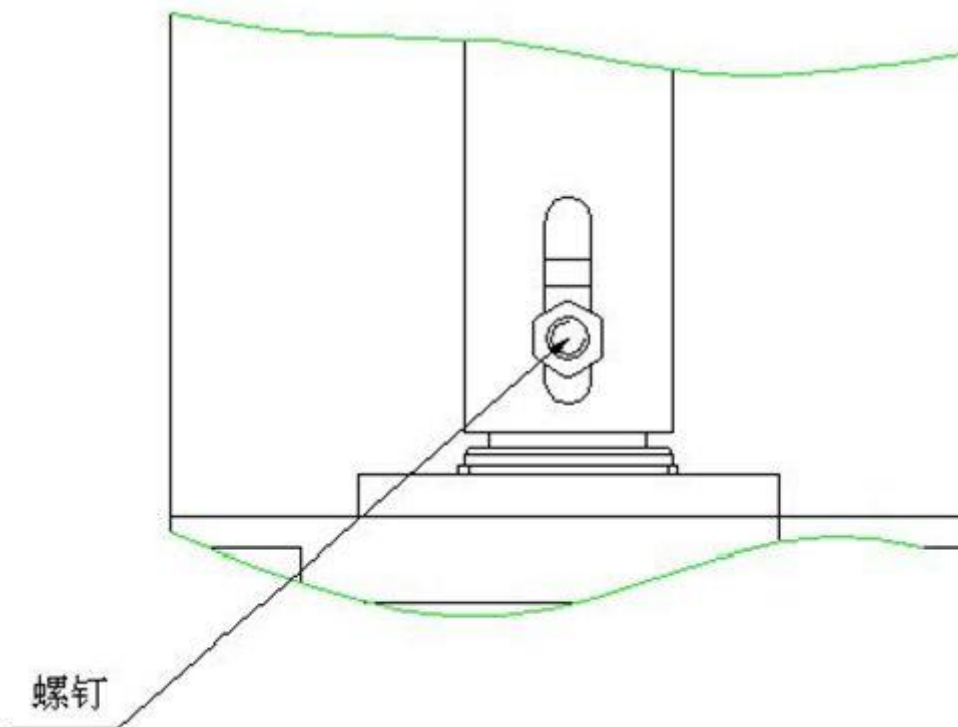


附件 2 Attachment 2 – 图二 Figure 2



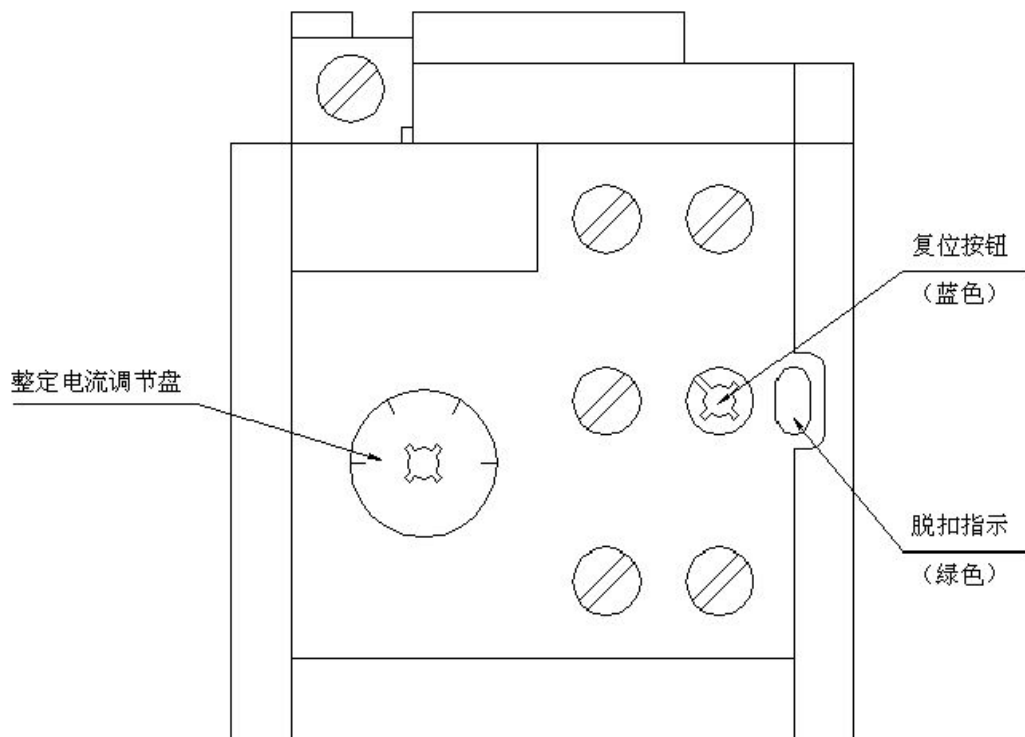
图二

附件 3 Attachment 3 – 图三 Figure 3



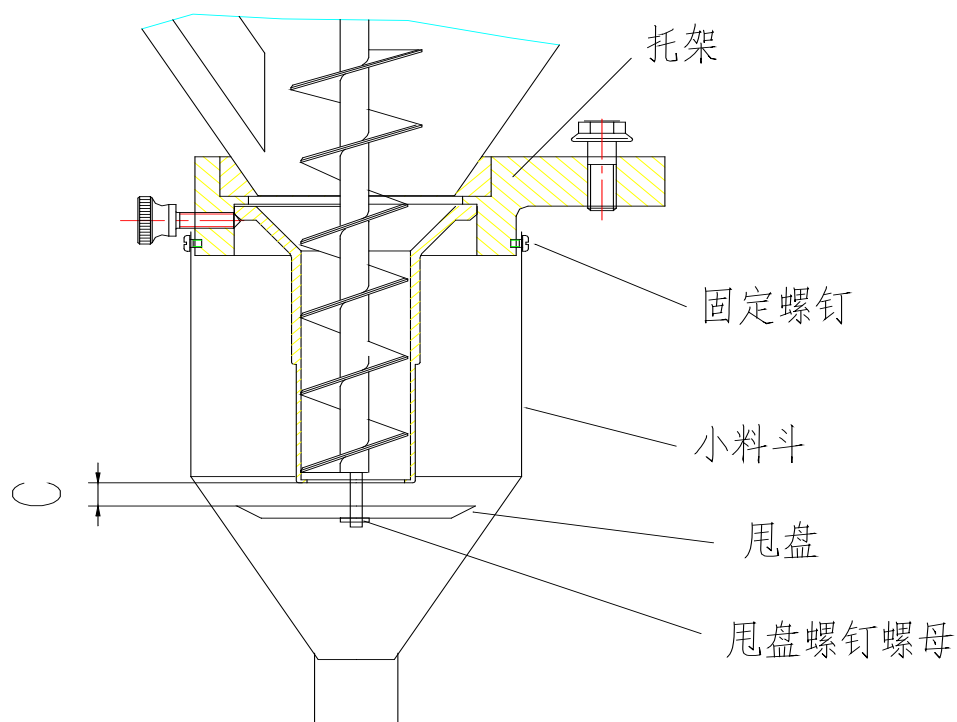
图三 Figure 3

附件 4 Attachment 4 – 图四 Figure 4



图四 Figure 4

附件 5 Attachment 5 – 图五 Figure 5



图五 Figure 5

装箱清单 Packing List

名 称		单 位	数 量	备 注
主 机 Host		台 Unit	1	
电器控制箱 Electrical Control Box		台 Unit	1	
电子称 Electronic Scale		台 Unit	1	
称架 Scale Frame		个 Unit	1	
中间继电器 Intermediate Relay		个 Unit	1	
电 源 线 Power Line		根 Unit	1	
光电开关 Photoelectric Switch		只 Unit	1	
料位开关 Level Switch		只 Unit	1	选配
盖板 Cover Plate		块 Unit	1	
压条 Batten		根 Unit	1	
光电开关 Photoelectric Switch		个 Unit	1	
光电开关架固定螺栓 Set Bolts of the Photoelectric Switch Frame		个 Unit	1	
说 明 书 Manual		本 Unit	1	
保 修 卡 Warranty Card		张 Unit	1	
合格证 Certificate of Quality		张 Unit	1	
装箱单 Packing List		张 Unit	1	
工 具	呆扳手 8—10 Open Spanner 8 - 10	把 Unit	1	
	呆扳手 12—14 Open Spanner 12 - 14	把 Unit	1	
	呆扳手 17—19 Open Spanner 17 - 19	把 Unit	1	
	电 笔 Electro probe	把 Unit	1	
	螺丝刀“+” Screwdriver "+"	把 Unit	1	
	螺丝刀“-” Screwdriver "-"	把 Unit	1	
	内六方扳手 Hexagon Spanner	套 Unit	1	
	保险 10A Fuse 10A	个 Unit	2	
	保险 1A Fuse 1A	个 Unit	2	

电气图 Electrical Diagram

