SGB series

Gravimetric Blender

Date: Nov, 2013

Version: Ver.B (English)

SHINI

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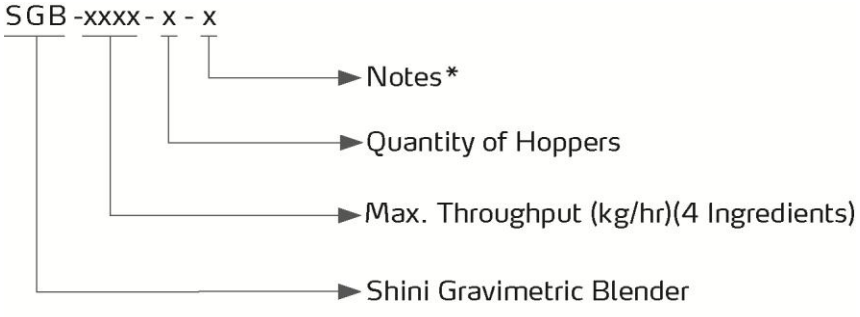
1. General Description

Read this manual carefully before operation to prevent damage of the machine or personal injuries.

SGB series gravimetric blender can be used in the fields of injection moulding machines, blow moulding machines and extrusion lines for proportionally precise mixing of several types of material. This series machines adopt Becca levy PLC controller and latest ingredients calculation methods. The machine is controlled by an advanced microprocessor with a digital display that is simple to calibrate. The self-compensation and calibration function ensure accurate material dosing percentages. A high precision electronic weighing scale is used to ensure precise weighing of every batch and ensure accuracy to ±0.1%~0.3%. There are 8 models available to be selected based on various materials and throughputs. (This series are not suitable for powder and sheet pieces weighing)

Model: SGB-600-4(Machine Mount)

1.1 Coding Principle



Notes:*
CE=CE Conformity

1.2 Feature

1) Standard configuration

- The microscale metering accuracy is ±0.1% when all materials are blended through gravity.
- Auto calibration function which is performed every time after material weighting ensures best proportioning accuracy.
- Up to 100 recipes can be stored for future use.
- Have alarm history record function.
- SGB-600 and models below are directly mounted on machines.
- For SGB-2000 and models above, floor stand is the standard supply (equipped with floor stand, material storage tank and pneumatic discharge valve).
- Has the function of recycled material compensation (recycling hopper is standard equipped with low level switch). Aberration compensation can be automatically calculated according to the feeding amount of recycled materials.

- Each model is standard equipped with a secondary discharge valve for modular proportion within 0.5%~5%.
- Adopt Ethernet communication function to realize online centrally monitor function.
- Possess auto function of material suction.

2) Accessory option

- Hopper low material level sensor is optional for advance warning when lacking materials.
- The current output analog signal (0~10V) is convinient for extruder screw to automatically adjust rotation speed.
- Floor stand, pneumatic discharge valve, storage bin and suction box should be equipped for floor mounting. (Applicable for SGB-600 and models below).
- Vacuum generator SVG and central hopper receiver SHR-U-ST are optional.
- Microscale metering valve is optional for SGB-40/200/600 to meter materials with proportion of 0.2%-0.5%.
- Special material metering valve is optional for metering sheets or irregular materials whose diameters are within 12×12×12mm.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

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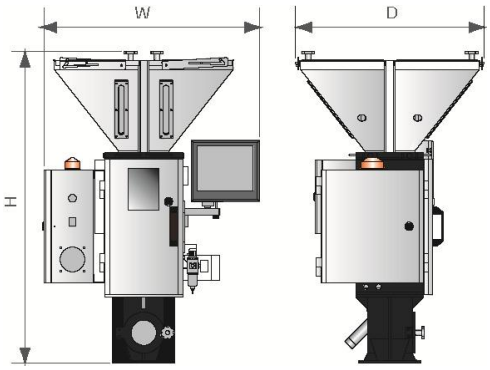
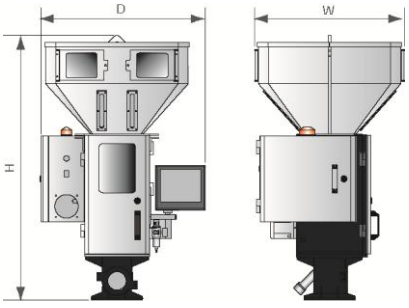
1.3 Technical Specifications

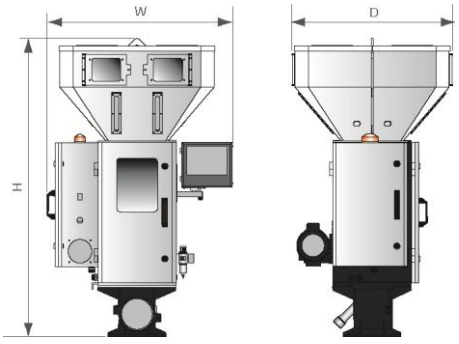
1.3.1 Technical Specifications



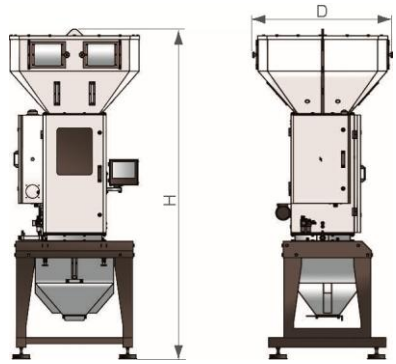
Picture 1-1：SGB-40 Technical Specifications



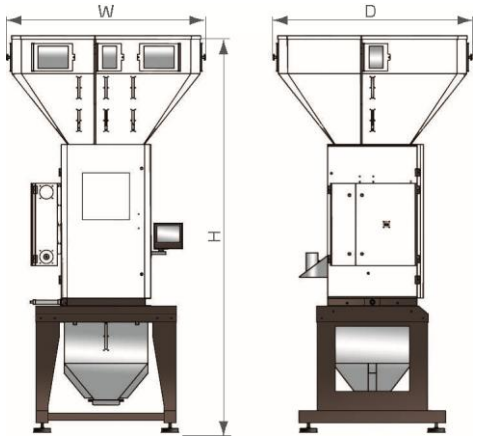
Picture 1-2：SGB-200 Technical Specifications



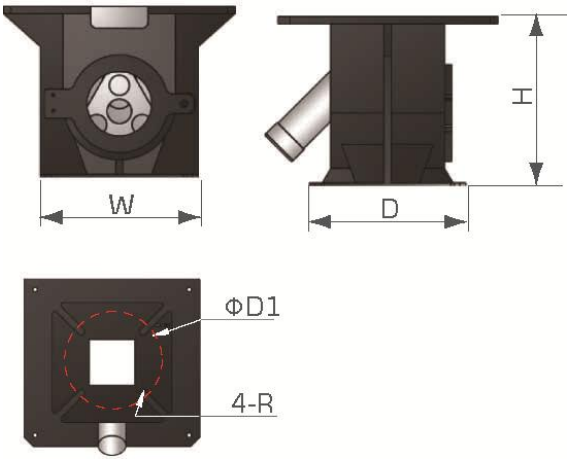
Picture 1-3：SGB-600 Technical Specifications



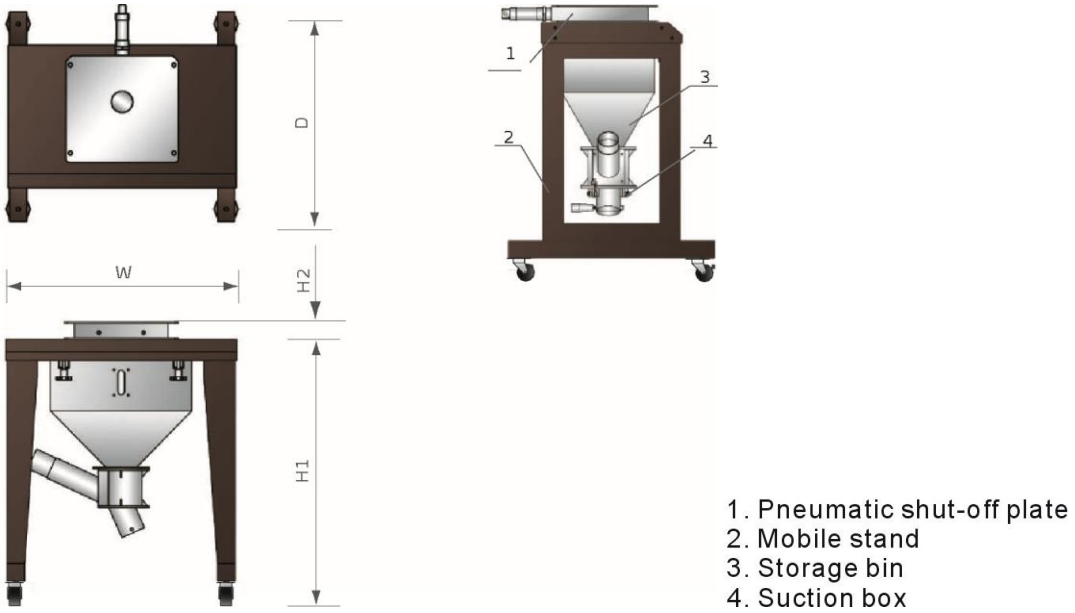
Picture 1-4：SGB-2000 Technical Specifications



Picture 1-5：SGB-3000 Technical Specifications



Picture 1-6：Magnetic Base



Picture 1-7：Floor Stand Assembly

1.3.2 Specifications

Table 1-1：Specifications

Model	SGB-40	SGB-200	SGB-600	SGB-2000	SGB-3000

H(mm)	1110	1300	1445	2800	3375
W(mm)	770	815	905	1110	1695
D(mm)	675	735	785	1180	1695
Magnetic Base (mm) (W×D×H×ΦD1×R)	220×220×243.5 ×160×6.5	250×250×213 ×200×6	280×280×250 ×220×6	-	-
Mobile Stand (mm) (H1×H2×W×D)	713×50×654×600	880×50×724×800	885×60×814×800	1000×65×1060×1000	1075×70×1240×1240
Net Weight (kg) (Machine Mount)	115	135	160	350	650
Net Weight(kg) (Floor Mount)	135	170	220	500	850

Table 1-2：Specifications 1

Model		Ingredients	Main metering valve	Secondary metering valve	Max. Batch (kg)	Mixing Motor Power (kW)	Max. Output (kg/hr)
SGB-40-	4	4	3	1	1.0	0.09	40
SGB-200-	4	4	3	1	3.0	0.18	200
SGB-600-	6	6	4	2	8	0.55	400
	4	4	3	1			600
SGB-1200-	6	6	4	2	12	0.37	900
	4	4	3	1			1200
SGB-2000-	8	8	5	3	18	0.4	1200
	6	6	4	2			1600
	4	4	3	1			2000
SGB-3000-	8	8	5	3	40	1.1	2000
	6	6	4	2			2500
	4	4	3	1			3000

Note: 1) The above data is based on continuous running of even particles whose bulk densities are 0.8kg/L and diameters are 3~4mm. The values varies along material features. Please further discuss if the material is not sure.

2) The main metering valve is suitable for proportion not lower than 5% and raw material of even particles or recycled materials of even particles whose diameters are within 6×6×6mm.

3) The secondary metering valve is suitable for proportioin of 0.5%~5% and master batch of even particles or additives whose diamerters are within 4×4×4mm.

4) Microscale metering valve is optional for proportioin of 0.2%~0.5% and master batch of even particles or additives whose diamerters are within 4×4×4mm.

5) Special material metering valve is suitable for sheets and irregular materials whose diameters are within 12×12×12mm.

6) Mixing and ratio deviation refers to the difference between the setting percent and actual percent of each group. The microscale metering accuracy can reach to ±0.1%.

7) Come with a set of secondary metering valves for use when replacing recipe.

8) Power specifications of the blending motor: 1Φ，230VAC，50Hz for SGB-600 and models below; 3Φ，400VAC，50Hz for SGB-1200 and models above.

1.4 Safety Regulations

Please abide by following safety regulations when to operate to prevent personal injuries and damage of the machine.

1.4.1 Safety Rules for Touch Screen

1) Do not use keen-edged object to replace hands to operate the touch screen, and prevent violent collision by outside force.
2) In a dry environment, static electricity may accumulate on the touch screen. Use a metal wire to discharge it before operating.
3) Use alcohol or eleoptene to wipe off the pollutants on the screen. Other solvent may cause the color of the screen to fade out.
4) Do not tear down any parts of the touch screen or take away any PCBs attached to it.

In the event of loss or damage to a key of a trapped key interlocking device, the complete key lock unit shall be replaced.

1.4.2 Safety Signs and Labels

 Electrical installation should be done by qualified electricians. Turn off the main switch and control switch before servicing and maintenance.

 Warning! High voltage!

The sign is attached on the cover of control box!

 Warning! Be careful!

Be more careful at the place where this sign appears!

 Feeding strip materials can give rise to an entanglement hazard.

 Attention!

No need for regular inspection because all the electrical parts in the control unit are fixed tightly!

1.4.3 Transportation and Storage of the Machine

Transportation

1) SGB series gravimetric blender are packed in crates or plywood cases with wooden pallet at the bottom, suitable for quick positioning by fork lift.
2) Optional floor stand with castors can be used for ease of movement.
3) Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.
4) The structure of the machine is well-balanced, although it should also be handled with care when lifting the machine for fear of falling down.
5) The machine and its attached parts can be kept at a temperature from -25℃ to +55℃ for long distance transportation and for a short distance, it can be transported with temperature under +70℃.

Storage

1) SGB series gravimetric blender should be stored indoors with temperature kept from 5℃ to 40℃ and humidity below 80%.
2) Disconnect all power supply and turn off main switch and control switch.
3) Keep the whole machine, especially the electrical components away from water to avoid potential troubles caused by the water.
4) Plastic film should be used to protect the machine from dust and rains.

Working environment

The machine should be operated:

1) Indoors in a dry environment with max. temperature +45℃ and humidity no more than 80%.

Do not use the machine:

1) If it is with a damaged cord.
2) On a wet floor or when it is exposed to rain to avoid electrical shock.
3) If it has been dropped or damaged until it is checked or fixed by a qualified serviceman.
4) This equipment works normally in the environment with altitude within 3000m.
5) At least a clearance of 1m surrounding the equipment is required during

operation. Keep this equipment away from flammable sources at least two meters.

6) Avoid vibration, magnetic disturbance at the operation area.

Rejected parts disposal

When the equipment has run out its life time and can not be used any more, unplug the power supply and dispose of it properly according to local code.

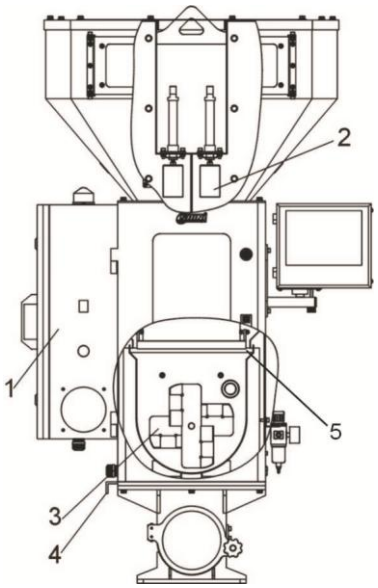
Fire hazard

In case of fire, Co_2 dry powder fire extinguisher should be applied.

1.4.4 Sources of Danger

The equipment is designed and made combining the most advanced technology with the well-acknowledged safety-first engineering rules. Nevertheless, the operation on this equipment might also endanger the life and limbs of the operator or any other third person, or cause damage to equipment itself or other properties.

There are four sources of danger as indicated in the following chart:



Picture 1-8：Sources of Danger

Please refer to the following table for specific statement:

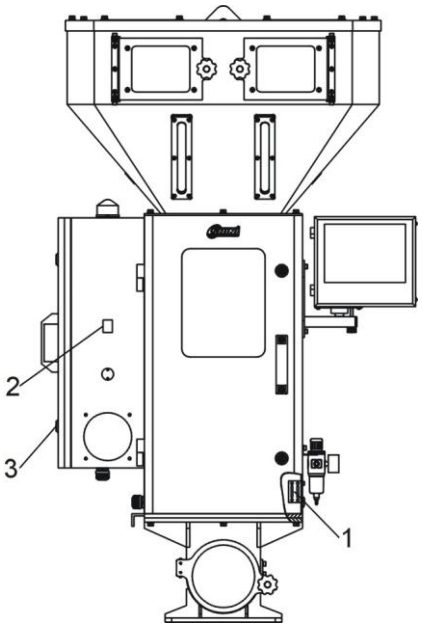
Table 1-3：Sources of Danger

NO.	Source of Danger	Consequences	Precaution Measure
1	ECU	Fatal damage caused by electric shock High-pressure electricity will generate life-threatening current within human body and cause electric shock	1) Only trained and qualified professional technicians can operate ECU 2) Please shut down the switch of power supply before conduct any electric repair work
2	Valve body of the main and sub metering valve	Damages such as roller compaction, collision and shearing, etc owing to the adjacency to parts	Do not touch the valve body or any active parts such as screw during normal and manual operation
3	Blending blade in the mixing barrel	Damages such as roller compaction, shearing and cutting, etc caused by mobile parts	1) Never touch the mixing chamber when the mixer is rotating 2) No extending any object to reach the active radius of the mixer 3) No stopping the use of safety interlock switch 4) Please put on gloves while touching or cleaning the static mixer
4	Plug-in strip at the bottom of the mixing vat	Damages such as roller compaction, collision and shearing, etc owing to the adjacency to parts	Never touching the plug-in strip during normal and manual operation
5	Shut-off plate of weighing pan	Damages such as roller compaction, collision and shearing, etc owing to the adjacency to parts	Never touch the shut-off plate of the weighing pan during normal and manual operation.

1.4.5 Safety Device

Safety device can guarantee your health and life. Don't operate this equipment if it is not equipped with valid safety device.

Please refer to the following chart for the location of safety device.



Picture 1-9：Safety Device

Please refer to the following table for the specific statement

Table 1-4：Safety Device

N0.	Safety Device	Safety Measure
1	Mechanical safety switch	Stop the running of the mixing motor when front safety door is open
2	Main power switch (emergency stop switch)	Stop all acts of the machine
3	Door lock	Lock control cabinet to avoid any unauthorized person from getting close to the dangerous electric components

1.4.6 Specified Use

Standard SGB Gravimetric Blender can be only used for measuring and mixing

plastic particles and additives, etc with natural flow.

It can never be used for measuring the following raw materials:

1) Food of any category (the equipment does not satisfy the standard for food sanitation device).
2) Raw materials with high abrasiveness such as stone, sand, etc (it will accelerate the abrasion of equipment components).
3) Inflammable and explosive chemical raw materials such as sulfur and metal powder, etc (collision of measuring device might cause combustion or explosion).
4) Raw materials with bad performance in natural flow or those with performance of viscosity (those raw materials have bad flow performance and are inclined to bridge, which will influence the measuring function).
5) Fluid and powder (measuring valve does not accord with air-tightness design standard).

1.4.7 Attentions for Operators and Maintenance Personnel

Personnel who are about to operate and maintain this equipment must read carefully related contents in this operation instruction book especially those related to safety before they start relevant operations.

The following statement on safety is very important for avoiding human injury and property loss:

1) Abide by all information related to safety and damage of the equipment.
2) No unauthorized personnel are allowed to get close to this equipment.
3) Please make sure that no person is within the radius of danger each time when the machine is started.
4) Please make sure that there is no tool, other equipment or object in the ork station. Do not place tools or other objects on the equipment. Vibration might cause falling off of the above-mentioned objects, which will cause human injury and/or property loss.
5) Please keep both the equipment and working place clean. Besides, please make sure that no particle can be found on the ground, which might make working personnel fall down and get injured.

6) Please put on work glove while cleaning or maintaining mixer. Work glove will protect both hands and fingers from being cut off.
7) Please abide by safety work regulations made by local government while operating this machine.

1.5 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

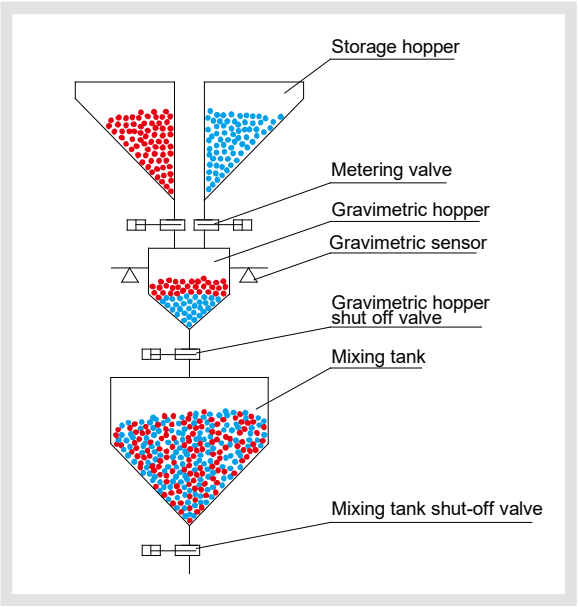
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

2. Structure Characteristics and Working Principle

2.1 Main Function

The SGB series Gravimetric Blender can be installed on extrusion lines, injection molding machines and blow molding machines etc. for precise mixing of several types of material. The machine is controlled by an advanced microprocessor with a digital display that is simple to calibrate. The self-compensation and calibration function ensure accurate material percentages. There are total 12 models with dosing capacity ranging from 40 to 2,000 kg/hr.

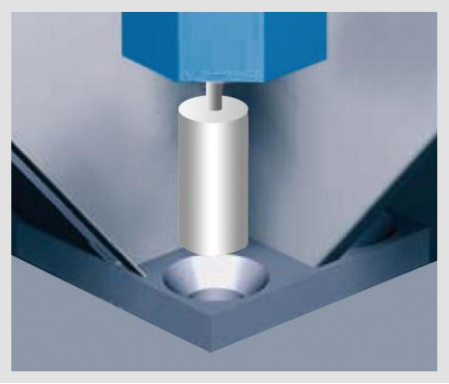
2.1.1 Working Principle



Picture 2-1: Working Principle

When machine starts working, metering valve of storage hopper 1 opens to let material fall into gravimetric hopper according to the preset weight and time; when time is up, the valve shut down and gravimetric sensor inside gravimetric hopper responses that weight reaches the default value, then the next storage hopper metering valve opens. The material metering repeats like this until all the hoppers finish feeding. Then the gravimetric hopper shut-off valve opens to let materials fall into mixing tank to be blended. Once material in gravimetric hopper

falls into mixing tank, gravimetric hopper shut-off valve shuts. Mixers keep working for a period of set time and afterwards the pneumatic slide gate will be open manually or automatically to let material falls into storage tank or injection molding machine. Until here, a complete operation circle has been finished.

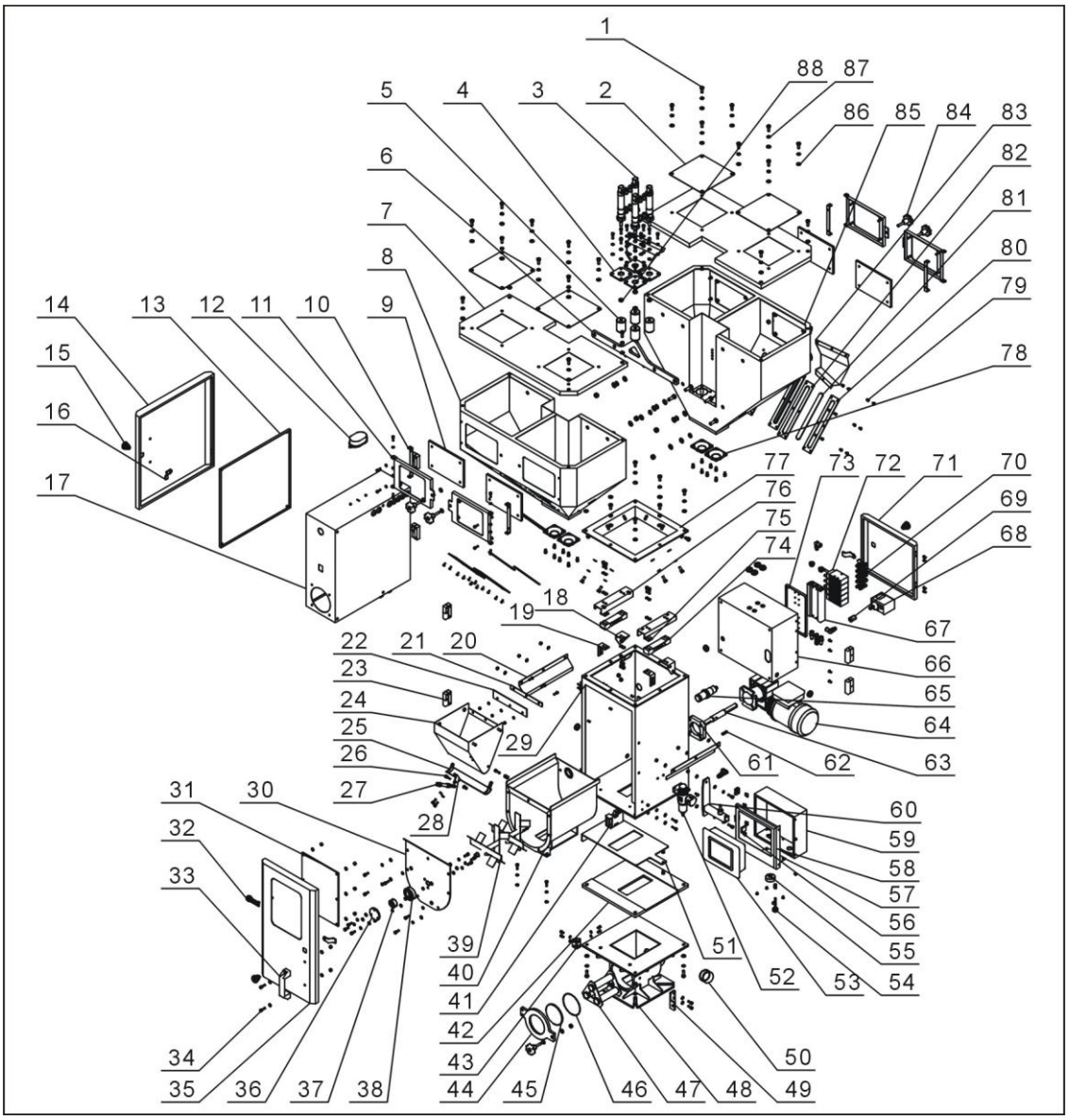


Picture 2-2：Vertical Cone-dosing

Shini newly developed vertical cone-dosing metering valve ensures the accurate metering of granules. At present, the cone-dosing metering valve is applicable on the models with 200kg/hr throughput and above.

2.2 Drawing and Parts List

2.2.1 SGB-200-4 Assembly Drawing



Remarks: Please refer to material List 2.2.6 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-3：SGB-200-4 Assembly Drawing

2.2.2 SGB-200-4 Parts List

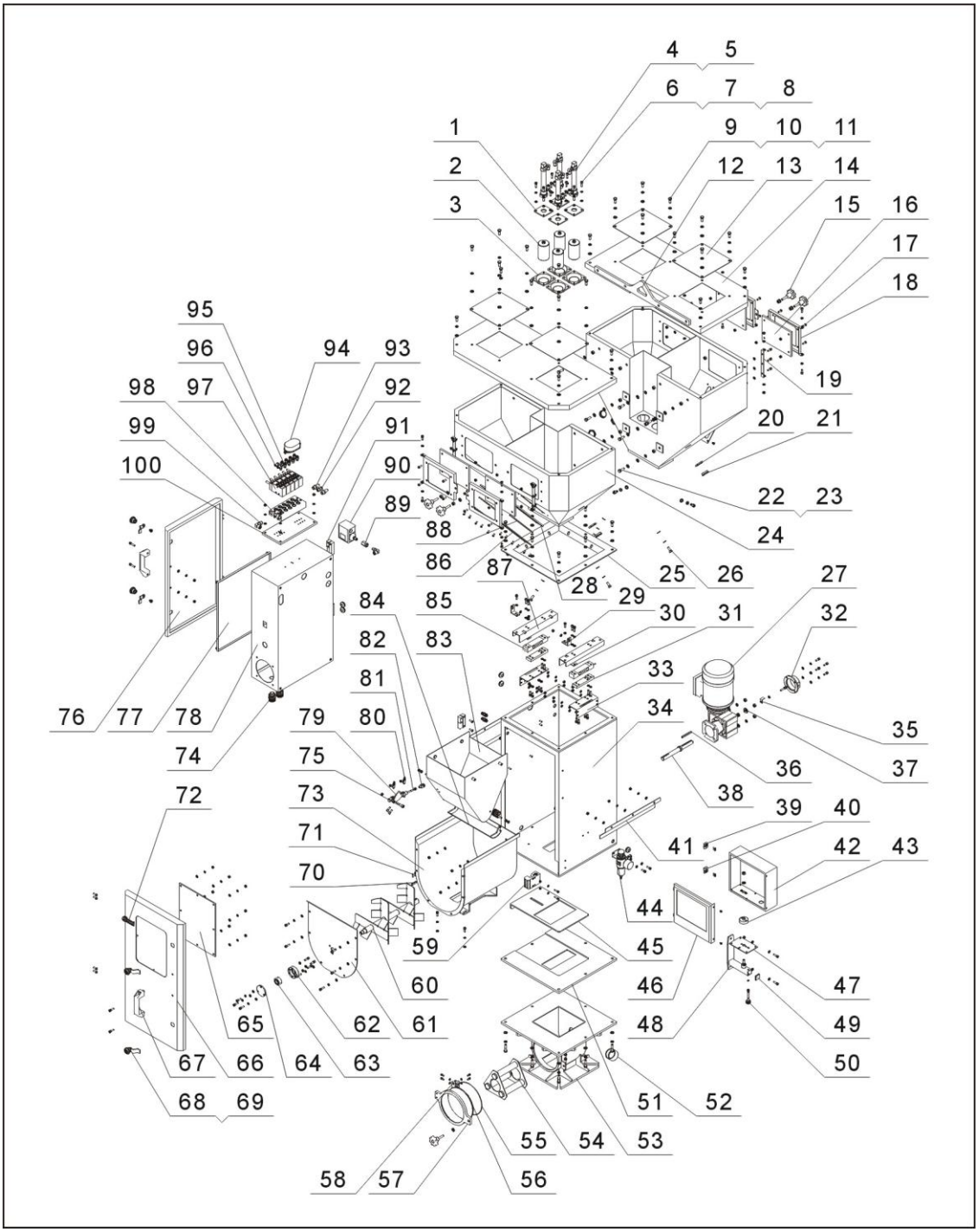
Table 2-1：Parts List (SGB-200-4)

No.	Name	Part No.	No.	Name	Part No.
1	BoltM8×20	YW60082000300	27	Gravimetric hopper cylinder	-
2	Square plate 200×200	YW09202000000	28	Shut-off plate cylinder mounting block	-
3	Metering valve cylinder*	YE31256010000	29	Body welding	-
4	Metering valve cylinder mounting plate	-	30	Mixing tank cover	-
5	Metering valve welding	-	31	Mixing tank cover	-
6	Hanger plate	-	32	Aluminum Shini trademark81×31	YP30813100100
7	Hopper cover	-	33	Aluminum handle120L	BW20012000040
8	Hopper welding	-	34	Socket head cap screwM6×20	YW61062000000
9	Acrylic plate of clearance door	-	35	Door welding	-
10	Clearance door trim strip	-	36	Bearing cover	-
11	Clearance door	-	37	Self aligning ball bearing	YW09220200000
12	Alarm light	YE83305100300	38	Bearing seat	-
13	Electric mounting plate	-	39	Paddle welding	-
14	Electric cabinet door	-	40	Mixing tank welding	-
15	Short circuit gate lock	YW00000600000	41	Inserted switch	YE16147600100
16	Separation blade of door lock	YW00040600000	42	Manual shut-off plate bearer	-
17	Electric cabinet	-	43	Magnetic base hinge	BL01005020020
18	gravimetric sensor mounting plate	-	44	Magnetic base door	-
19	gravimetric sensor fixing plate	-	45	Tempered glass400~600kg	YW70406000000
20	Mixing tank material fender	-	46	Magnetic base spring	YW01040000000
21	Gravimetric hopper material fender trim strip	-	47	Hopper magnet	BY10310000050
22	Gravimetric hopper material fender	-	48	Magnetic base welding	-
23	Big hinge (left)	YW06203100400	49	Magnetic base fittings	-
24	Gravimetric hopper welding	-	50	Discharge pipe cap	-
25	Gravimetric hopper shut-off plate welding	-	51	Manual shut-off plate	-
26	Shut-off cylinder screw	-	52	Filter & pressure regulating valve	YE30421400000

No.	Name	Part No.	No.	Name	Part No.
53	Touch panel	YE80002400000	71	Solenoid valve cabinet door	-
54	Bolt	YW69461600000	72	Solenoid valve*MFH-5-4/8-B	YE32051800100
55	Touch panel cabinet supporting block	-	73	Solenoid valve mounting plate	-
56	Sprue	-	74	gravimetric sensor*LPS-6kg	YE15000600000
57	Touch panel cabinet base plate	-	75	Gravimetric hopper supporting block washer	-
58	Touch panel cabinet cover	-	76	Gravimetric hopper supporting block	-
59	Touch panel cabinet	-	77	Storage hopper mounting plate	-
60	Touch panel support frame	-	78	Discharge port of main metering valve	-
61	Mixing motor bearer	-	79	Cross recess head screwM5×10	YW62051000000
62	Mixer shaft connecting key	-	80	Sight-glass sheet iron (six holes)	YW09000600000
63	Mixing motor shaft	-	81	Acryl (six holes)	YR40001200000
64	Gear motor	YM50402500000	82	Sight-glass sheet iron (six holes)	YR40000600000
65	Sensor*	YE15508200000	83	Air pipe cover	
66	Solenoid valve	-	84	Star knob B typeM8×35	YR40083500000
67	Junction platePRS-1/8-3	YW82180300000	85	Hooper welding	
68	Barometric switch	YE90000800000	86	Flat washer8	YW66081600000
69	Barometric switch changeover nut	-	87	Spring washer8	YW65008000100
70	Air pipe quick coupling	YW80061800200	88	Hex thin nut M10×1.25	YW64101200400

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.3 SGB-600-4 Assembly Drawing



Remarks: Please refer to material List 2.2.12 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-4：SGB-600-4 Assembly Drawing

2.2.4 SGB-600-4 Parts List

Table 2-2：Parts List (SGB600-4)

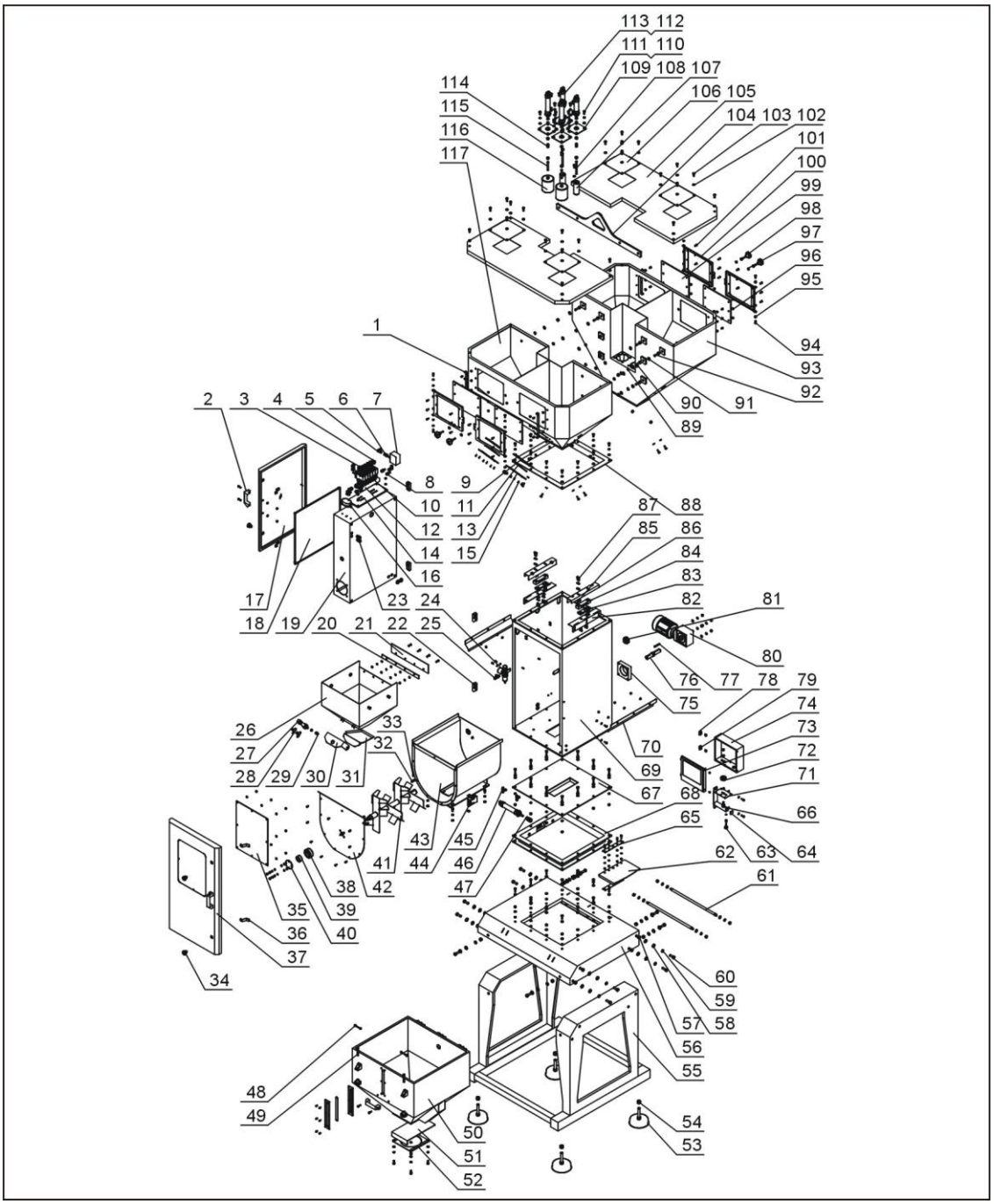
No.	Name	Part No.	No.	Name	Part No.
1	Metering valve cylinder mounting plate	-	26	BoltM8×25	YW60082500200
2	Main metering valve welding	-	27	Gear motor	YM50257100200
3	Discharge port of main metering valve	-	28	Sight-glass packing (six holes)	YR40000600000
4	Air pipe quick coupling APL6-1/8	YW80061800200	29	Sensor protective linking block	-
5	Metering valve cylinder	YE31208000000	30	Gravimetric hopper supporting block washer	-
6	Socket head cap screw M6×20	YW61062000200	31	Sensor bearer	-
7	Spring washer 6	YW65006000100	32	Sense switch mounting plate welding	-
8	Flat washer 6	YW66061800000	33	Gravimetric hopper supporting plate	-
9	Bolt M8×20	YW60082000200	34	Rack welding	-
10	Spring washer 8	YW65008000100	35	Driven detector of mixing motor	-
11	Flat washer 8	YW66081600000	36	Flat keyC6×6×60	BH10646000010
12	Hanger plate	-	37	Flat washer8×22	YW66082200100
13	Square plate 200×200	YW09202000000	38	Mixing motor shaft	-
14	Hopper cover	-	39	Small hinge (right)	YW06203400000
15	Star knob B type M8×35	YR40083500000	40	Small hinge (left)	YW06203400100
16	Clearance glass acryl	-	41	fender	-
17	Phillips screw M6×20	YW62062000000	42	Touch panel cabinet	-
18	Clearance glass door	-	43	Touch panel cabinet supporting block	-
19	Clearance glass supporting bars	-	44	Filter & pressure regulating valve	YE30421400000
20	material level sensor choke plug screwM30×1.5	YR30301500000	45	Shut-off plate at the bottom	-
21	material level sensor choke plug	BR30008400050	46	Touch panel cabinet cover	-
22	Bolt M10×35	YW60103500100	47	Touch panel cabinet base plate	-
23	Nut M10	YW60101050000	48	Touch panel support frame	-
24	Main hopper welding	-	49	Sprue	-

25	Hopper mounting plate	-	50	Bolt	-

No.	Name	Part No.	No.	Name	Part No.
51	Shut-off plate at the bottom bearer	-	76	Control cabinet door plate	-
52	Discharge pipe cap	-	77	Electric elements mounting plate	-
53	Base welding	-	78	Control cabinet	
54	Hopper magnet	BY10340000050	79	Shut-off plate cylinder mounting block	-
55	Magnetic base spring	YW01040000000	80	Throttle valve	YW81050400000
56	Tempered glass 400~600kg	YW70406000000	81	Shut-off plate cylinder	YE31162500000
57	Base door plate	-	82	Y type pin rod	YE31001000000
58	Magnetic base hinge	BL01005020020	83	Gravimetric hopper welding	-
59	Inserted switch	YE16147600100	84	Gravimetric hopper shut-off plate welding	-
60	Paddle welding	-	85	gravimetric sensor	YE15001500000
61	Mixing tank cover	-	86	Sight-glass sheet iron (six holes)	YW09000600000
62	Bearing seat	-	87	Gravimetric hopper supporting plate	-
63	Bearing cover	YW09220200000	88	Acryl (six holes)	YR40001200000
64	Self aligning ball bearing	-	89	Barometric switch changeover nut	-
65	Door acryl	-	90	Barometric switch	YE90000800000
66	Door plate welding	-	91	Hinge (left)	YW06203100400
67	Aluminum square handle 120L	BW20012000040	92	Air pipe quick coupling APC8-1/4	YW80081400000
68	Separation blade of door lock	YW00040600000	93	Copper muffler	YW80010400100
69	Short gate lock	YW00000600000	94	Alarm light	YE83305100300
70	Mixer shaft connecting key	-	95	Air pipe quick coupling APC6-1/8	YW80061800100
71	Socket head cap screw M3×15	YW61031500000	96	Air pipe quick coupling APL4-1/8	YW80041800000
72	Aluminum Shini trademark81×31high stickiness	YP30813100100	97	Solenoid valve* -5-1/8-B	YE32051800100
73	Mixing tank welding	-	98	Junction plate PRS-1/8-5	YW82180500000
74	Cable gland PG13.5	YE67013500000	99	Air pipe quick couplingAPL8-1/4	YW80081400100
75	Shut-off plate cylinder screw	-	100	Pneumatic elements mounting plate	-

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.5 SGB-2000-4 Assembly Drawing



Remarks: Please refer to material List 2.2.14 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-5：SGB-2000-4 Assembly Drawing

2.2.6 SGB-2000-4 Parts List

Table 2-3：Parts List (SGB-2000-4)

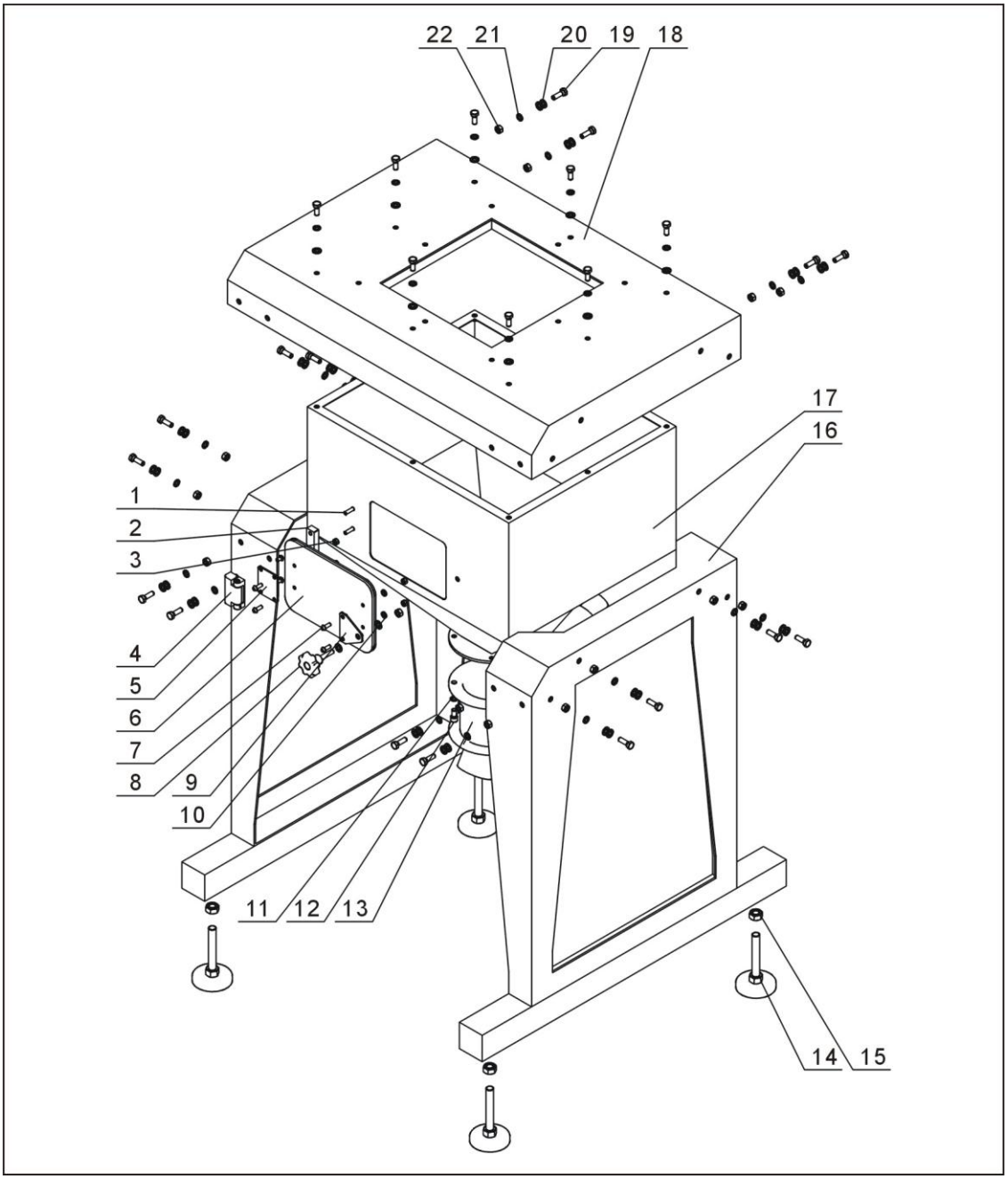
No.	Name	Part No.	No.	Name	Part No.
1	Clearance glass supporting bars	-	25	Air pipe quick couplingSPD8-1/4	YW80801400000
2	Aluminum handle(M6 孔)	BW20012000040	26	Gravimetric hopper welding	-
3	Air pipe quick couplingAPL-6-1/8	YW80061800200	27	Cylinder DSNU-20-25-P-A	YE31205000000
4	Air pipe quick couplingAPL-6-1/8	YW80061800100	28	Speed regulating connector Φ6-1/8	YW80061800300
5	Air pipe quick couplingAPL-8-1/4	YW80081400100	29	Weighing copper head	-
6	Barometric switch changeover nut	-	30	Shut-off plate supporting block	-
7	Low pressure switch controller (0~8kg)	YE90000800000	31	Shut-off plate welding	-
8	Muffler 1/4''(M/S2)	YW80010400000	32	Socket head cap screw M4×10	YW61041001100
9	Sight-glass packing (six holes)	YR40000600000	33	Mixer shaft key	-
10	Solenoid valve* MFH-5-1/8-B	YE32051800100	34	Short gate lock	YW0000600000
11	Acryl (six holes)	YR40001200000	35	Front door acryl	-
12	Junction plate PRS-1/8-6BBT	YW82180600000	36	Separation blade of door lock	YW00040600000
13	Sight-glass sheet iron (six holes)	YW09000600000	37	Front door welding	-
14	Solenoid valve mounting plate	-	38	Bearing seat	-
15	Cross recess head screw M5×10	YW62051000000	39	Bearing 2204E-2RS1TN9	YW11220400000
16	Alarm light	YE83305100300	40	Bearing cap	-
17	Electric cabinet door	-	41	Paddle welding	-
18	Electric mounting plate	-	42	Mixing tank cover	-
19	Electric cabinet	-	43	Mixing tank welding	-
20	Fender trim strip	-	44	Inserted switch	YE16147600100
21	Material fender	-	45	Speed regulating connector Φ6-1/8	YW80061800300
22	Big hinge (left)	YW06203100400	46	Cylinder DSNU-32-100-P-A	YE31321000000
23	Plate type air pipe coupling QSS-6	YW80000600000	47	Y type pin rod SG-M10×1.25	YE31001000000
24	Filter & pressure regulating valve	YE30421400000	48	Socket head cap screwM8-60	YW60086000100

No.	Name	Part No.	No.	Name	Part No.
49	Star bolt 5/16	YW09051600100	78	Small hinge (right)	YW06203400000
50	Storage tank welding	-	79	Small hinge (left)	YW06203400100
51	Storage tank shut-off plate	-	80	Gear motor RNYM05-1220-30	YM10512200000
52	Storage tank base plate	-	81	Material level sprue	-
53	Shock eliminator (M16×20)	YW03162000000	82	Sensor supporting plate	-
54	Hex nut M16	YW64004600200	83	Sensor bearer	-
55	Floor stand welding	-	84	gravimetric sensor15kg	YE15001500000
56	Floor stand cover welding	-	85	Gravimetric hopper supporting block washer	-
57	nutM12	YW64001600000	86	Gravimetric hopper supporting block	-
58	Flat washer12	YW66122400000	87	Socket head cap screwM6×20	YW61062000300
59	Spring washer12	YW65012000000	88	Hopper fixing plate	-
60	BoltM12×5	YW60123500000	89	Spring washer10	YW65010000000
61	Discharge valve guide	-	90	Hex nut M10	YW64001000200
62	Discharge valve shut-off plate	-	91	Flat washer10	YW66102000100
63	Bolt	-	92	BoltM10×35	YW60103500100
64	Sprue	-	93	Hooper welding	-
65	Shut-off plate bearer	-	94	Socket head cap screw M6×16	YW61061600300
66	Touch panel cabinet supporting frame	-	95	Flat washer 6	YW66061300000
67	Discharge valve cover welding	-	96	Hex nut M6	YW64000600200
68	Pneumatic discharge valve welding	-	97	Hex nut M8	YW60082010000
69	Rack welding	-	98	Star knob B typeM×35	YR40083500000
70	Mixing tank material fender	-	99	Clearance glass acryl	-
71	Touch panel cabinet base plate	-	100	Clearance glass door	-
72	Touch panel cabinet supporting block	-	101	Cross recess head screwM6×15	YW62061500000
73	Touch panel cabinet cover	-	102	Flat washer	YW66081600000
74	Touch panel cabinet	-	103	BoltM8×20	YW60082000300
75	Mixing motor bearer		104	Hanger plate	-
76	Mixing motor shaft	-	105	Hopper cover	-
77	Flat key C8×55	-	106	Square plate 200×200	YW09202000000

No.	Name	Part No.	No.	Name	Part No.
107	Second discharge valve welding	-	113	Air pipe quick coupling APL-6-1/8	YW80061800200
108	Second discharge valve connecting screw	-	114	Discharge valve connecting nut	-
109	Discharge valve cylinder mounting plate	-	115	Main discharge valve connecting rod	-
110	Socket head cap screwM8×16	YW61081600200	116	Main discharge welding	-
111	Spring washer8	YW65008000000	117	Hopper welding	-
112	Cylinder DSNU-32-60-P-A	YE31326010000			

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.7 Assembly of Floor Stand



Remarks: Please refer to material List 2.2.16 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-6: Assembly of Floor Stand

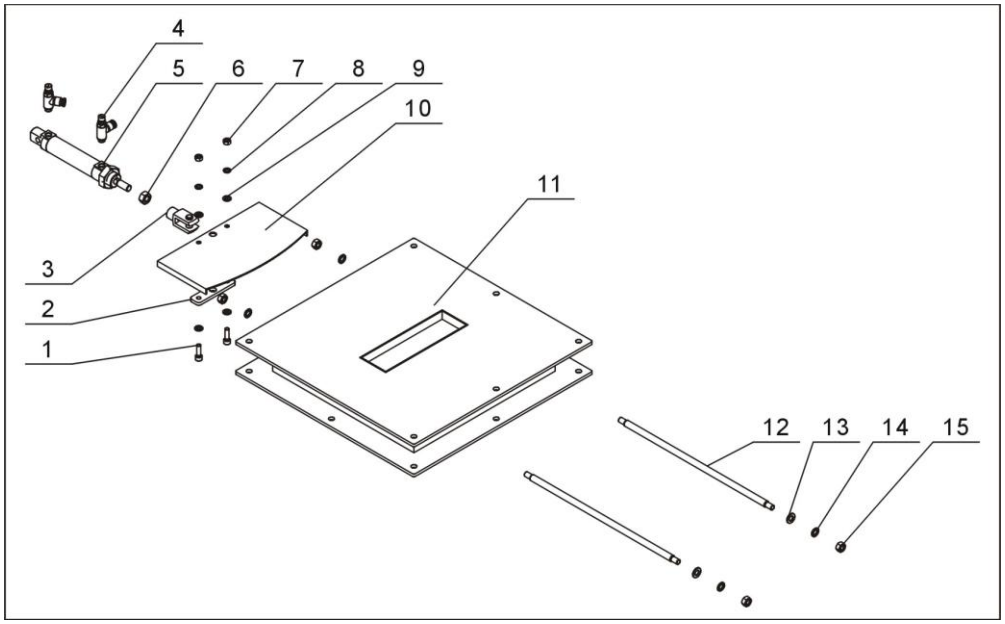
2.2.8 Assembly of Floor Stand Parts List

Table 2-4：Assembly of Floor Stand Parts List

No.	Name	Part No.	
		SGB-200	SGB-600
1	Socket head cap screw M6×25	YW61062500000	YW61062500000
2	Storage hopper hinge bearer	-	-
3	Nut M6	YW64000600100	YW64000600100
4	Big hinge CL219-1	YW06219100000	YW06219100000
5	Square linking block	-	-
6	Clearance glass acryl	-	-
7	Cross recess head screwM6×15	YW62061500000	YW62061500000
8	Star knob B typeM8×35	YR40083500000	YR40083500000
9	Triangle linking block	-	-
10	Flat washer6	YW66061200000	YW66061200000
11	Spring washer6	YW65006000100	YW65006000100
12	Socket head cap screwM6×16	YW61061600300	YW61061600300
13	European type suction box SBU-20-38S	BY10203801150	BY10203801150
14	Shock eliminator M14×75	YW03147500000	YW03147500000
15	Hex nut M14	YW64001400200	YW64001400200
16	Floor stand welding	-	-
17	Storage tank welding	-	-
18	Floor stand cover welding	-	-
19	BoltM8×25	YW60082500200	YW60082500200
20	Flat washer8	YW66081600000	YW66081600000
21	Spring washer8	YW65008000100	YW65008000100
22	Hex nut M8	YW64000800300	YW64000800300

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.9 Pneumatic Discharge Valve Assembly



Picture 2-7：Pneumatic Discharge Valve Assembly Drawing

2.2.10 Parts List of Pneumatic Discharge Valve

Table 2-5：Parts List of Pneumatic Discharge Valve

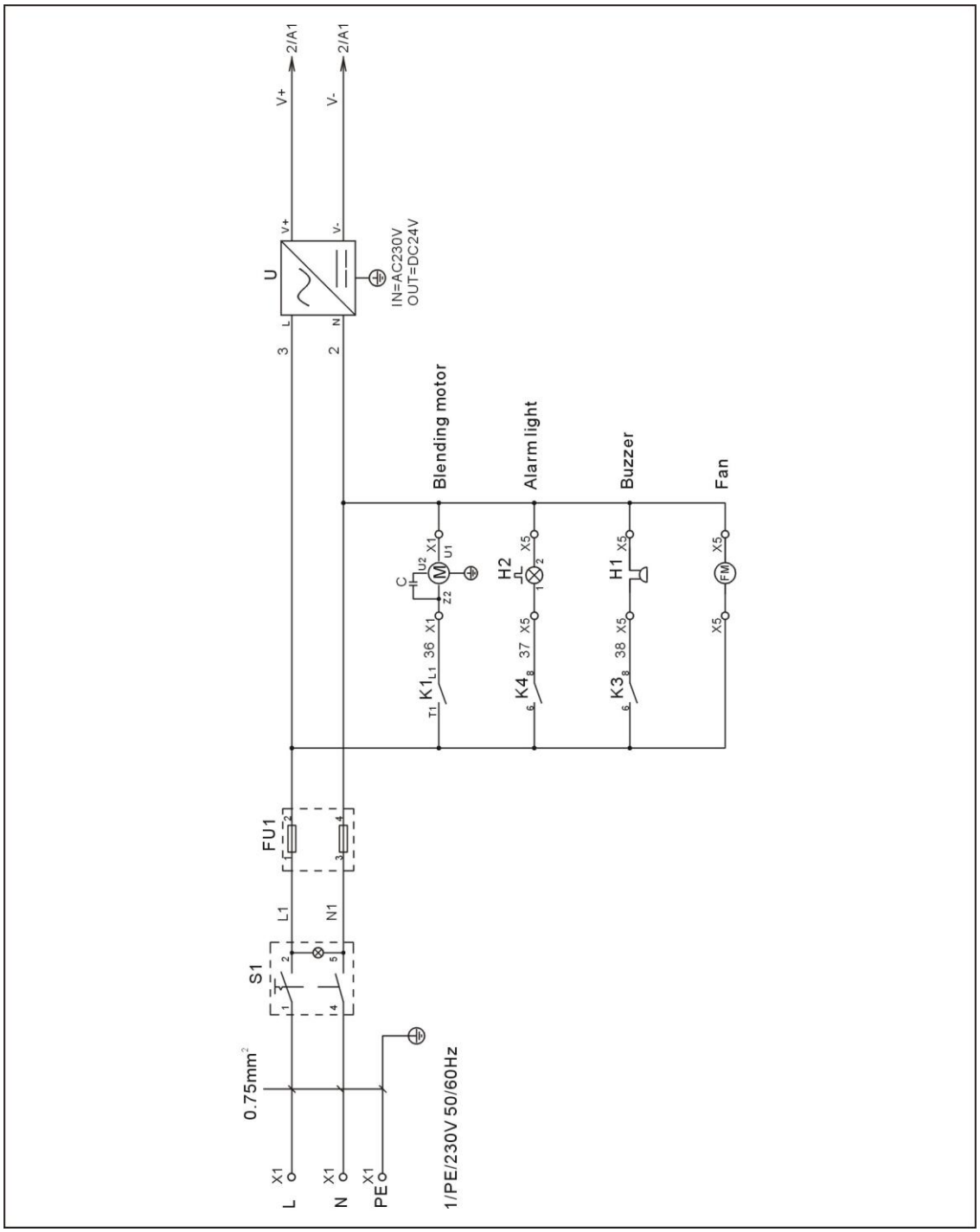
No.	Name	Part No.	
		SGB-200	SGB-600
1	Socket head cap screwM6*20	YW61062000000	YW61062000000
2	Discharge plate bearer	-	-
3	Y type pin rodsg-M10*1.25	YE31001000000	YE31001000000
4	Speed regulating connector 1/8-⌀6	YW80061800300	YW80061800300
5	Cylinder* DSNU-25-60-P-A	YE31256010000	YE31256010000
6	Hex nut M10*1.25	YW64101200400	YW64101200400
7	Hex nut M6	YW64000600100	YW64000600100
8	Spring washer6	YW65006000000	YW65006000000
9	Flat washer6	YW66061300000	YW66061300000
10	Shut-off plate guide rod	-	-
11	Pneumatic discharge valve welding	-	-
12	Shut-off plate guide rod	-	-
13	Flat washer8	YW66081600000	YW66081600000
14	Spring washer8	YW65008000100	YW65008000100
15	Hex nut M8	YW61000800200	YW61000800200

* means possible broken parts. ** means easy broken part. and spare backup is suggested. Please confirm the version of manual before placing the purchase order to guarantee that the

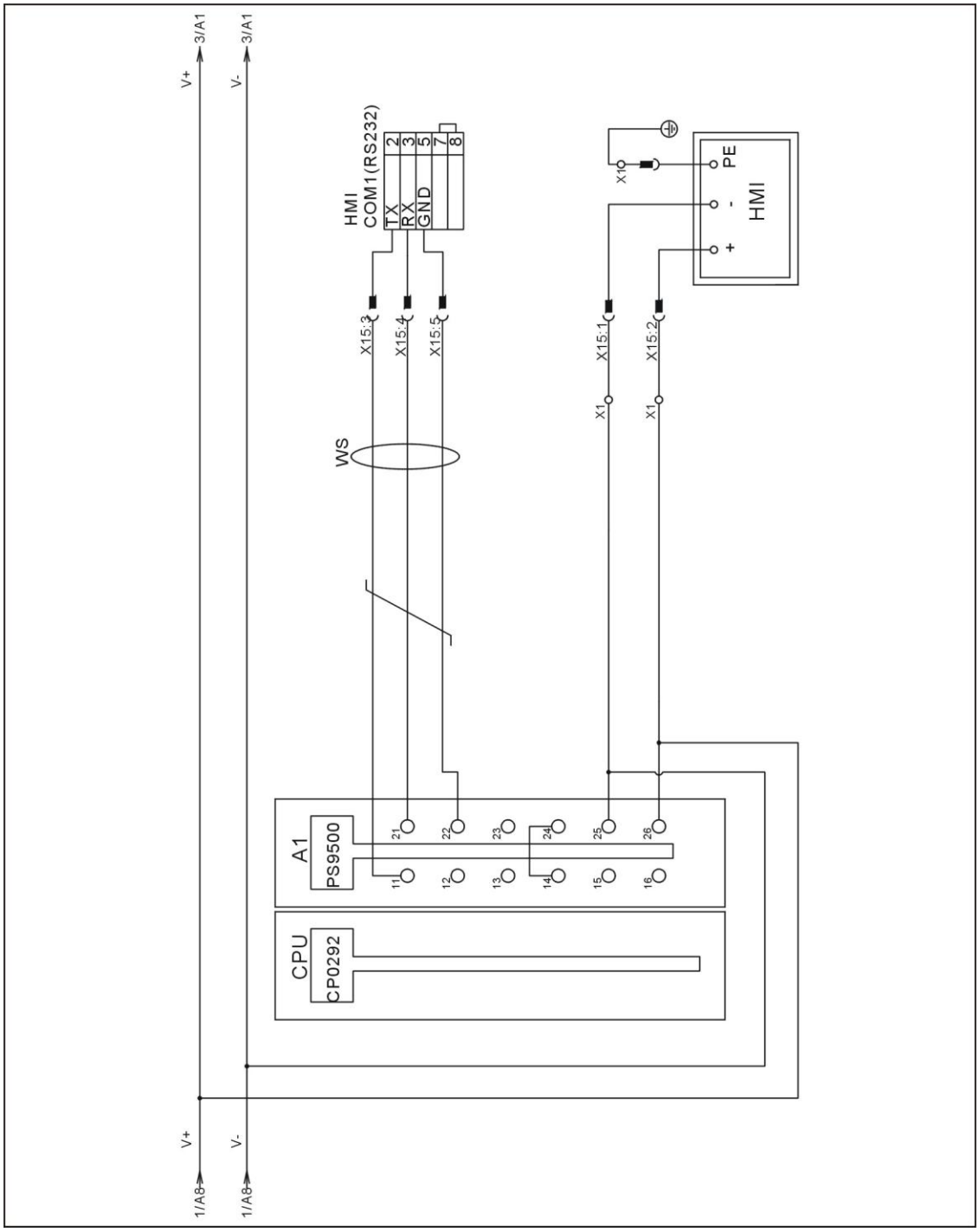
item number of the spare part is in accordance with the real object.

2.3 Electrical Diagram

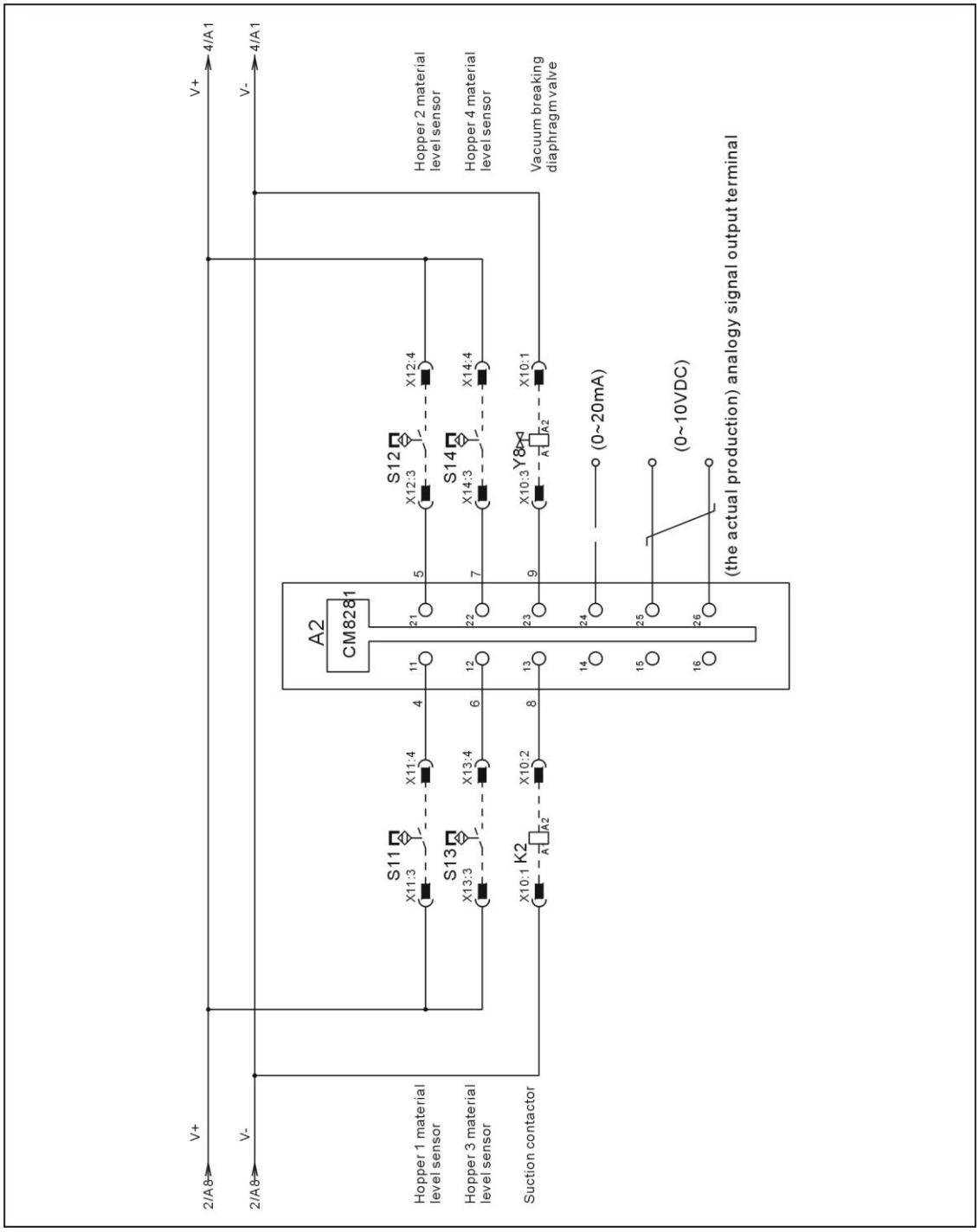
2.3.1 SGB-40~600-4 Main Circuit



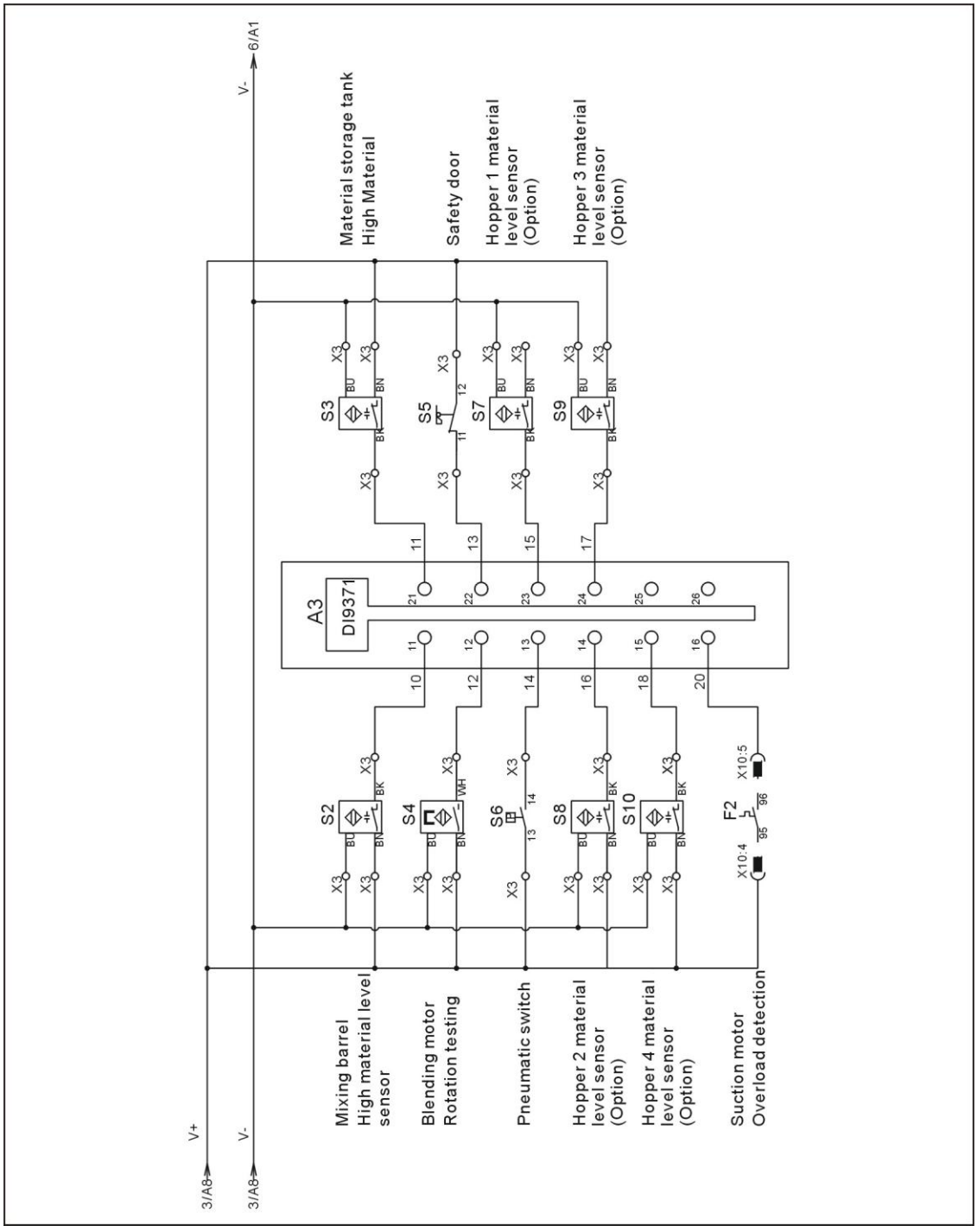
Picture 2-8：SGB-40~600-4 Main Circuit 1



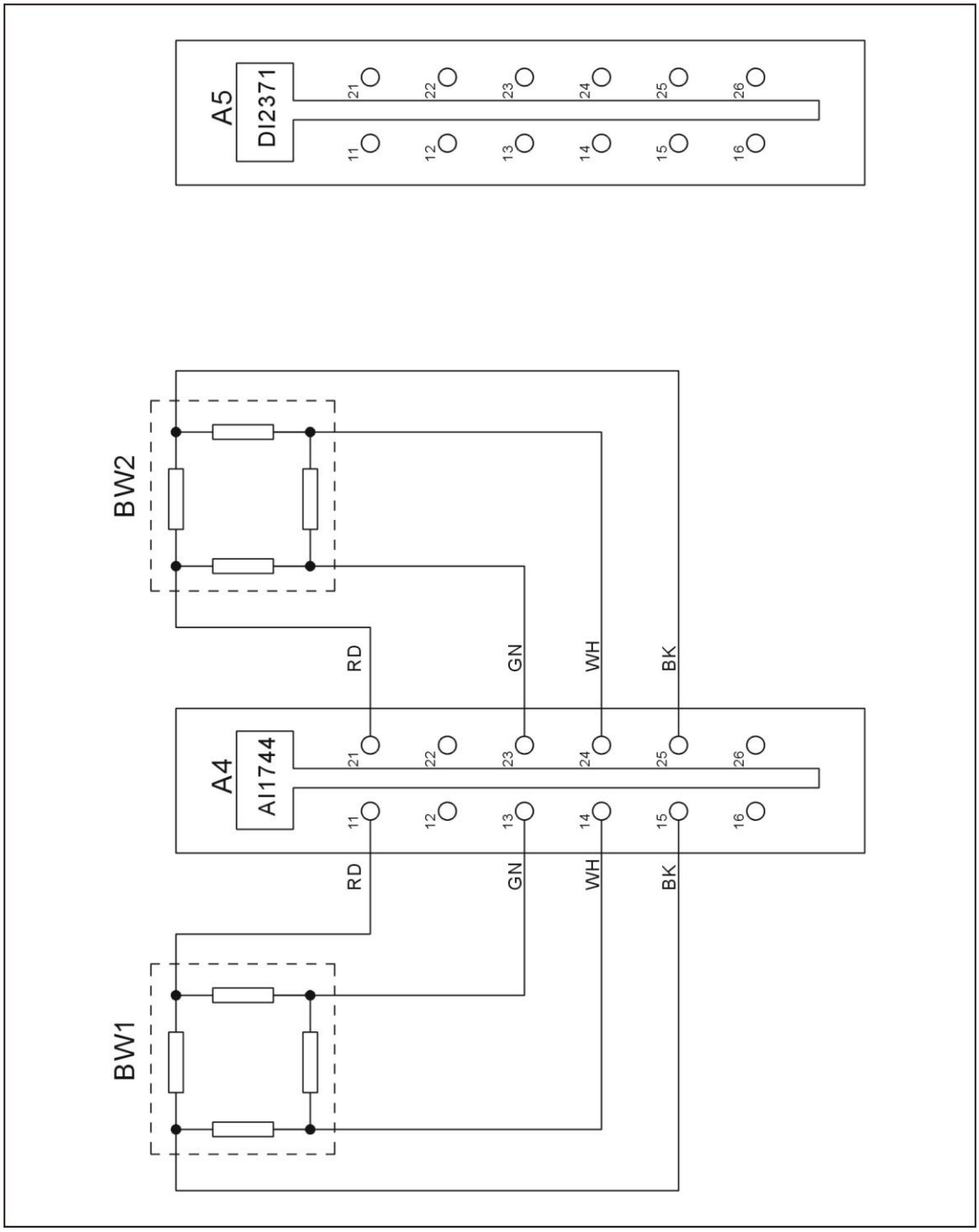
Picture 2-9：SGB-40~600-4 Main Circuit 2



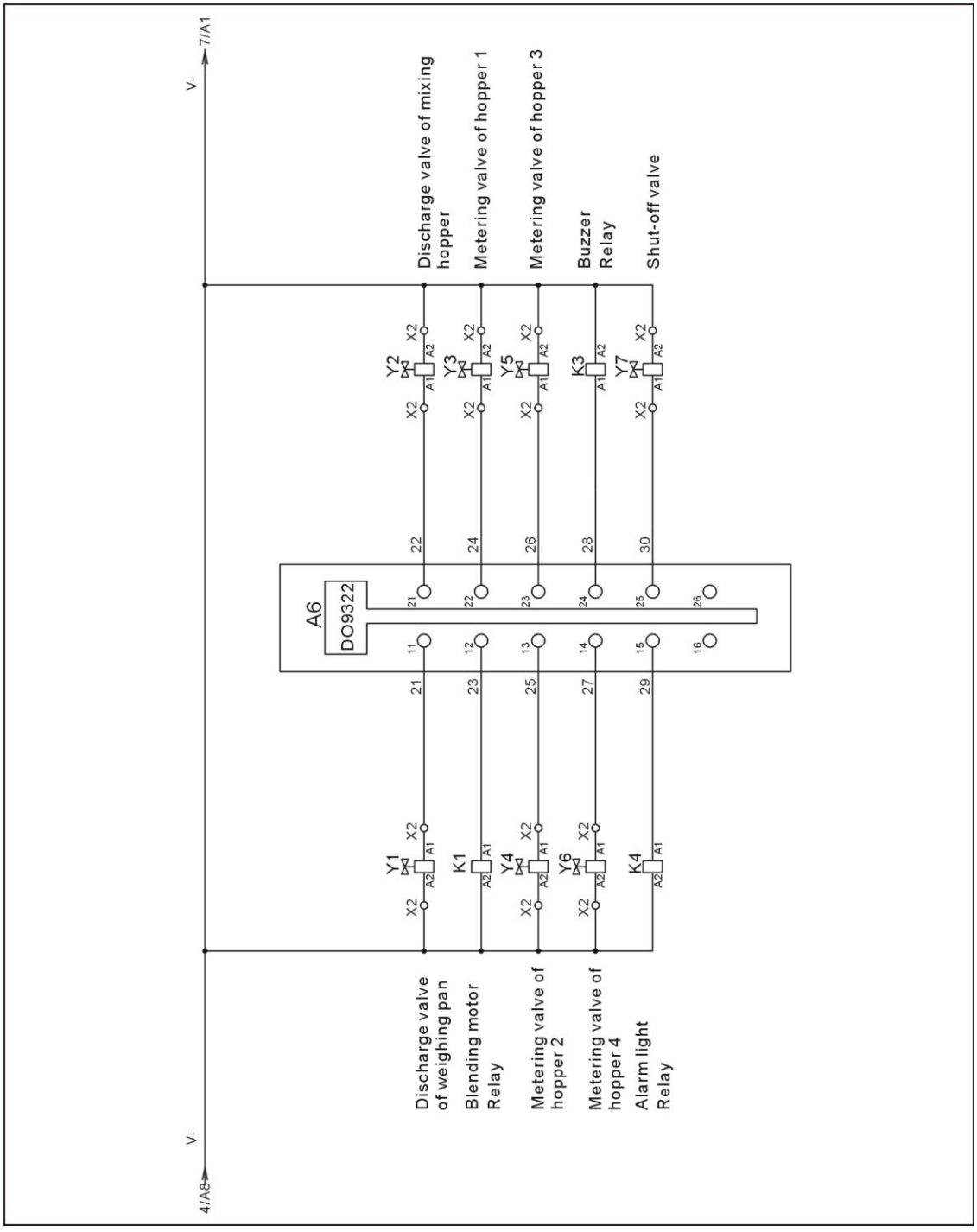
Picture 2-10：SGB-40~600-4 Main Circuit 3



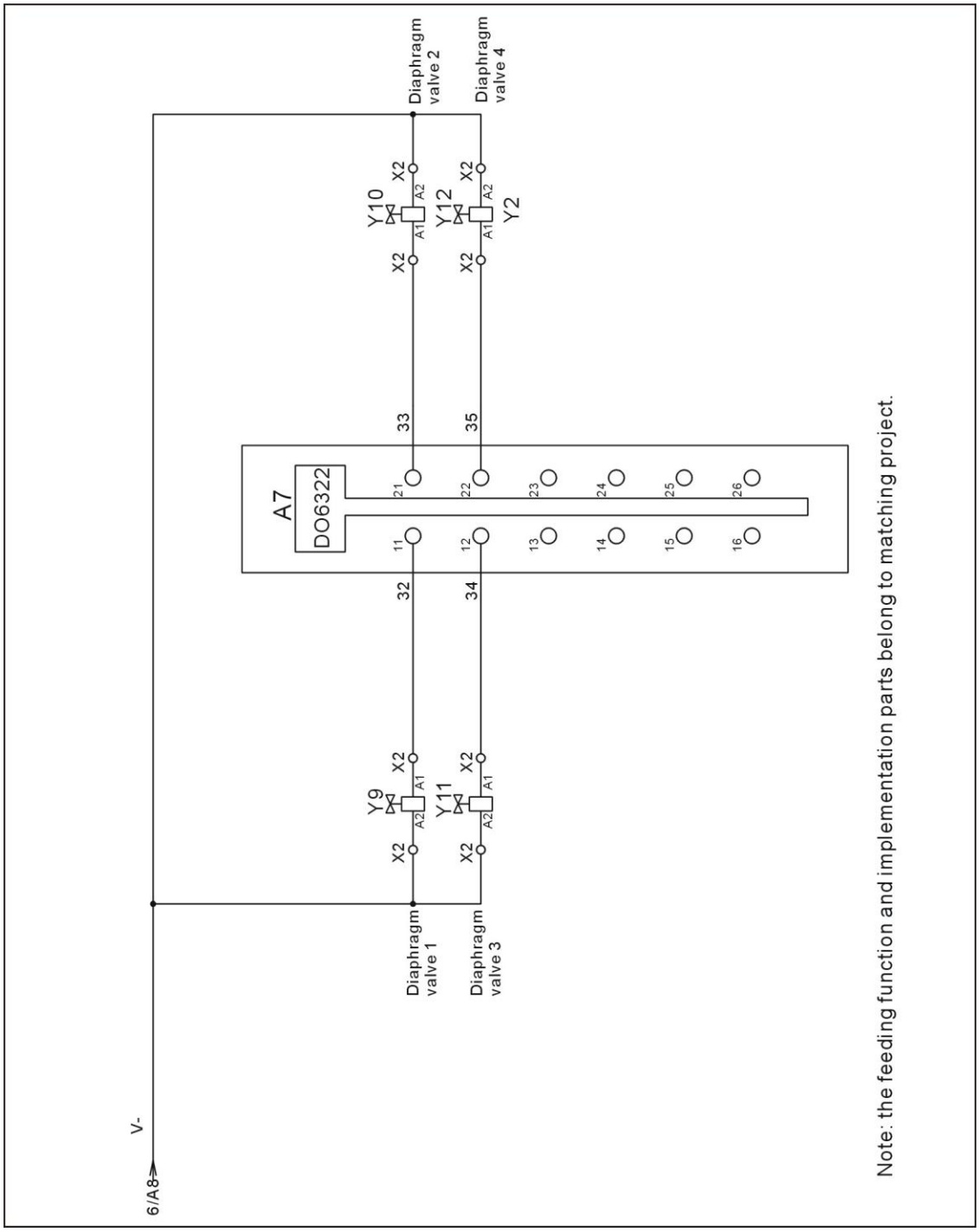
Picture 2-11： SGB-40~600-4 Main Circuit 4



Picture 2-12：SGB-40~600-4 Main Circuit 5

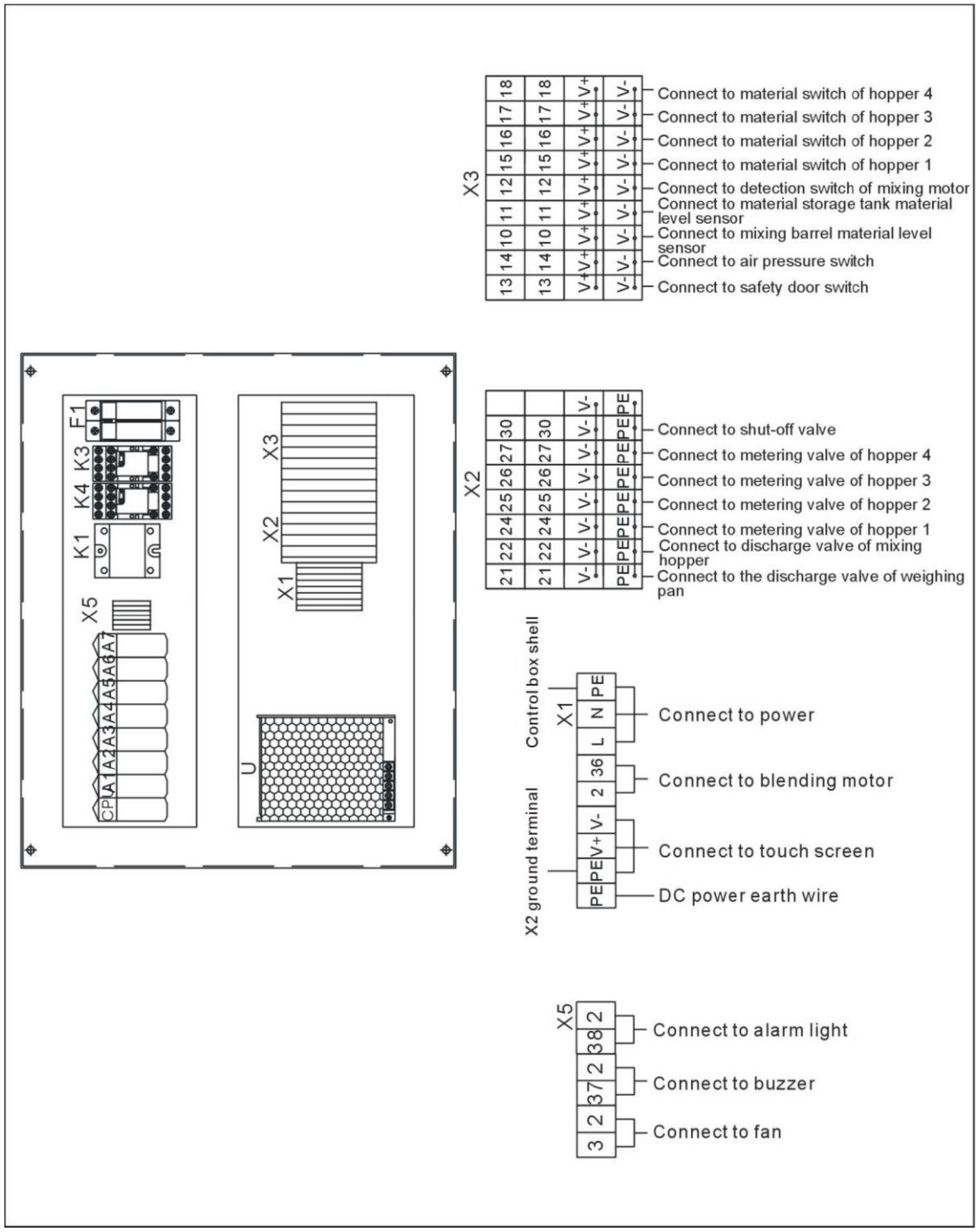


Picture 2-13：SGB-40~600-4 Main Circuit 6



Picture 2-14： SGB-40~600-4 Main Circuit 7

2.3.2 SGB-40~600-4 Electrical Components Layout



Picture 2-15：SGB-40~600-4 Electrical Components Layout

2.3.3 SGB-40~600-4 Electrical Components List

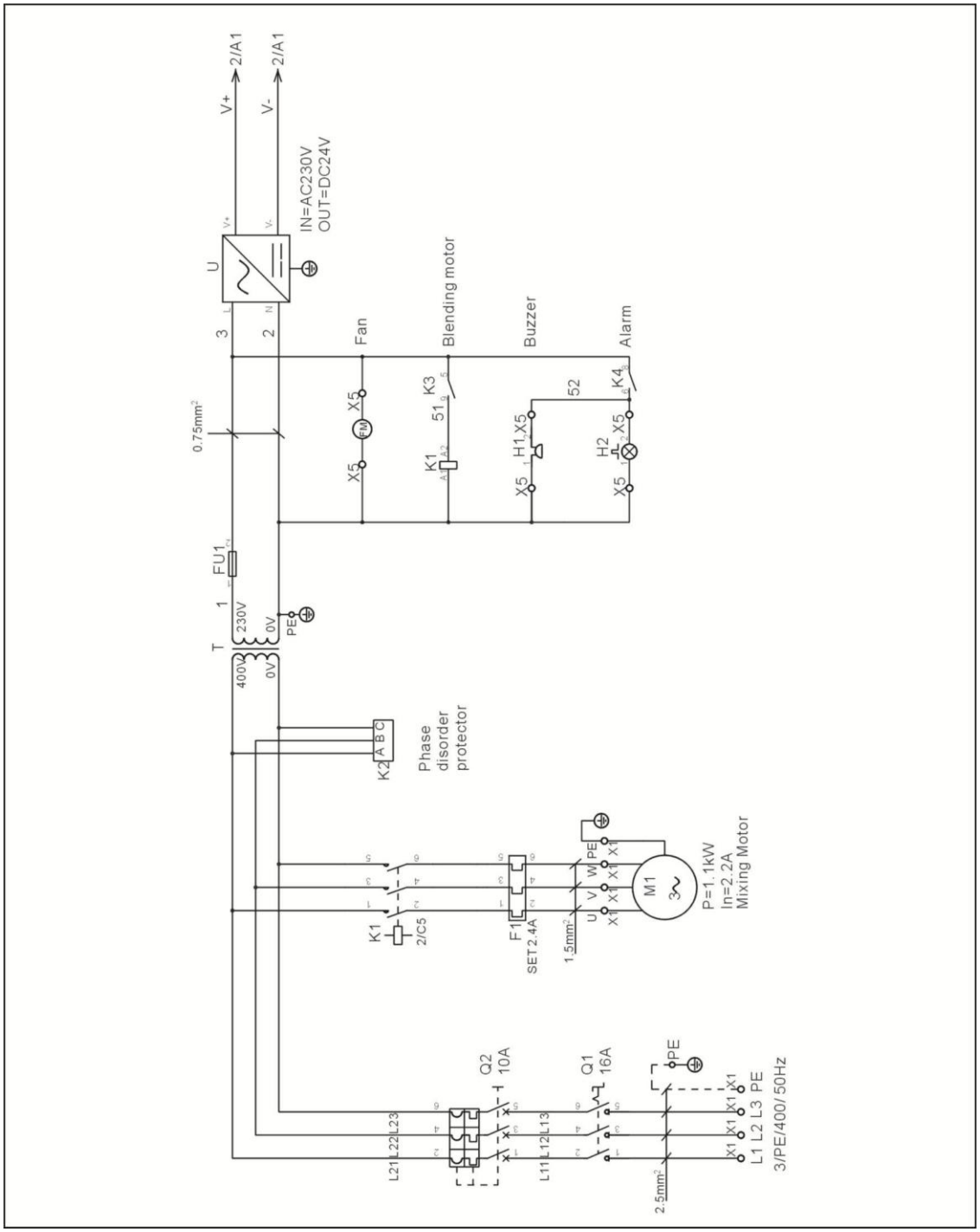
Table 2-6：SGB-40~600-4 Electrical Components List

NO.	Symbol	Name	Specification	Part NO.
1	S1	Control switch	15A 4P WH	BH10210400000
2	S2 S3	Capacitive proximity switch	10~36VDC	YE15508200000
3	S3~S10	Capacitive proximity switch	10~36VDC	YE15508200000
4	S4	Inductive proximity switch	24VDC 8MM	YE15020200000
5	S5	Safety switch	AC-15	YE16147600100
6	S6	Pressure switch	1~12kg	YE15401000000
7	K1	Relay	20-48VDC	YE03404000000
8	K3 K4	Relay	24VDC 12A	YE03272400000
9	FU1	Fuse box*	500V 2P 32A	YE41032200000
10	-	Fuse**	6A 熔芯	YE46006000100
11	U	DC power	+24V 1.5A	YE71102400000
12	CPU	Controller	-	YE90029200000
13	-	CPU base	-	YE90202200000
14	A1	Power module	-	YE80200000600
15	-	Terminal block	-	YE80201100000
16	A2	Weigh moudle	-	YE80200000500
17	-	Terminal block	-	YE80201100000
18	-	Bus moudle	-	YE80200100000
19	A3	Combined moudle	-	YE80200000700
20	-	Terminal block	-	YE80201100000
21	-	Bus moudle	-	YE80200100000
22	A4	Digital input moudle	-	YE80937100000
23	-	Terminal block	-	YE80201100000
24	-	Bus moudle	-	YE80200100000
25	A5	Digital input moudle	-	YE80237100000
26	-	Terminal block	-	YE80201100000
27	-	Bus moudle	-	YE80200100000
28	A6	Digital input moudle	-	YE80209300000
29	-	Terminal block	-	YE80201100000
30	-	Bus moudle	-	YE80200100000
31	A7	Digital input moudle	-	YE80632200000
32	-	Terminal block	-	YE80201100000

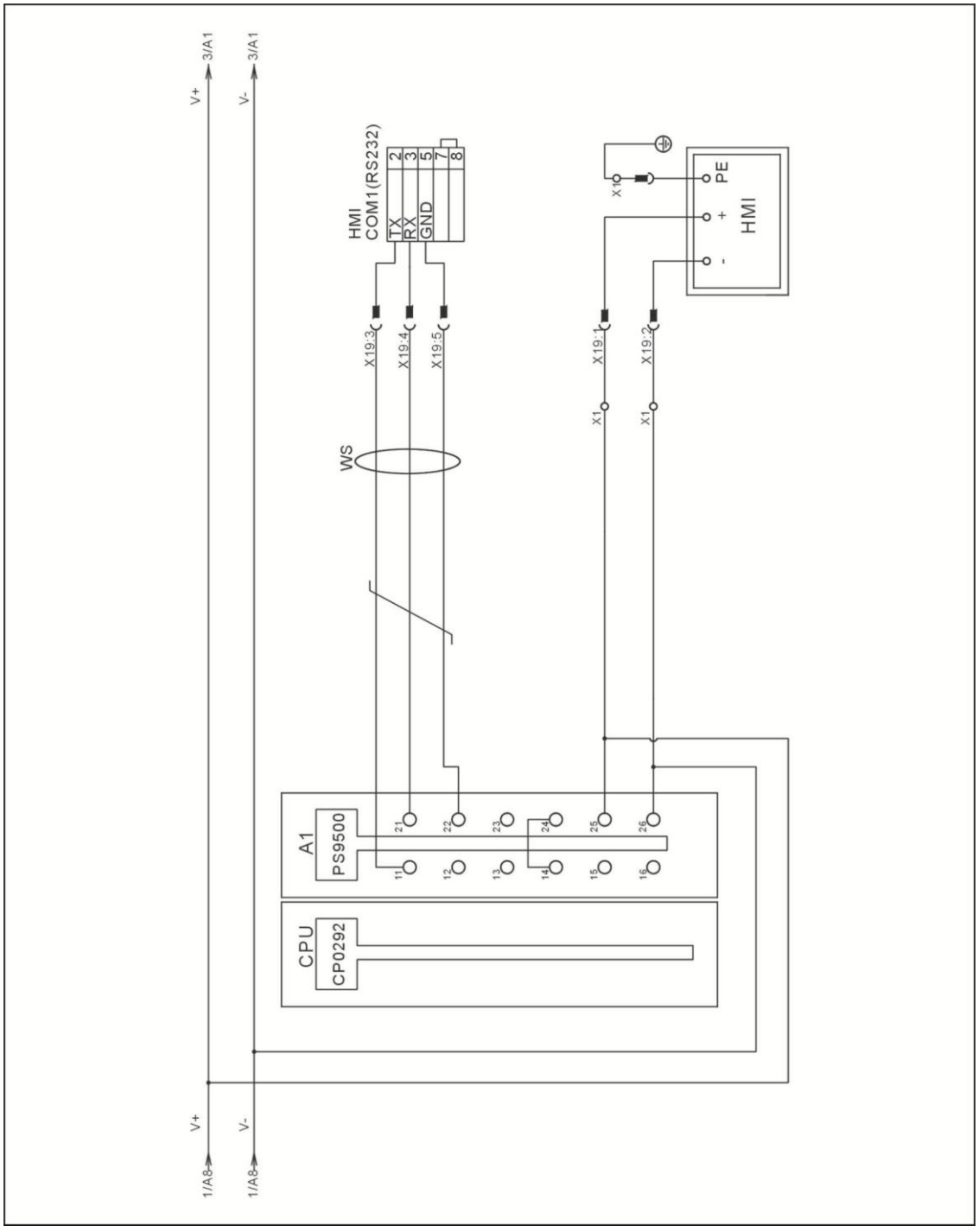
33	-	Bus moudle	-	YE80200100000
NO.	Symbol	Name	Specification	Part NO.
34	HMI	Human-machine interface	24VDC	YE80350100000
35	H1	Buzzer	230VAC 50Hz	YE84003500000
36	H2	Pulse indicate lamp	230VAC 50Hz	YE83305100200
37	BW1 BW2	Dose transducer	10VDC 2mV/V	-
38	X1	Terminal	690V 32A 24-12AWG	YE61250040000
39	-	-	-	YE61253500000
40	X2	Terminal	250V 1.5	YE60001500000
41	-	-	250V 1.5	YE60001000000
42	-	-	250V 1.5	YE60001000100
43	X3	Terminal	250V 1.5	YE60001500000
44	-	-	250V 1.5	YE60001000000
45	-	-	250V 1.5	YE60001000100
46	X5	Terminal	690V 32A 24-12AWG	YE61250040000
47	X6	Terminal	-	YE61253500000
48	X10~X14	Heavy duty connector	5P 10A	YE68000500000
49	X15	Heavy duty connector	5P 10A	YE68000500000
50	WS	Signal bus	1.5m 0.5×3C+9pin	-
51	M	Mixing motor	-	-
52	FM	Cooling fan	220~230VAC 50/60Hz	YM60121200400
53	Y1~Y6	Valve*	24VDC	YE32051800100
54	Y7~Y12	Valve*	24VDC	YE32051800100

* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

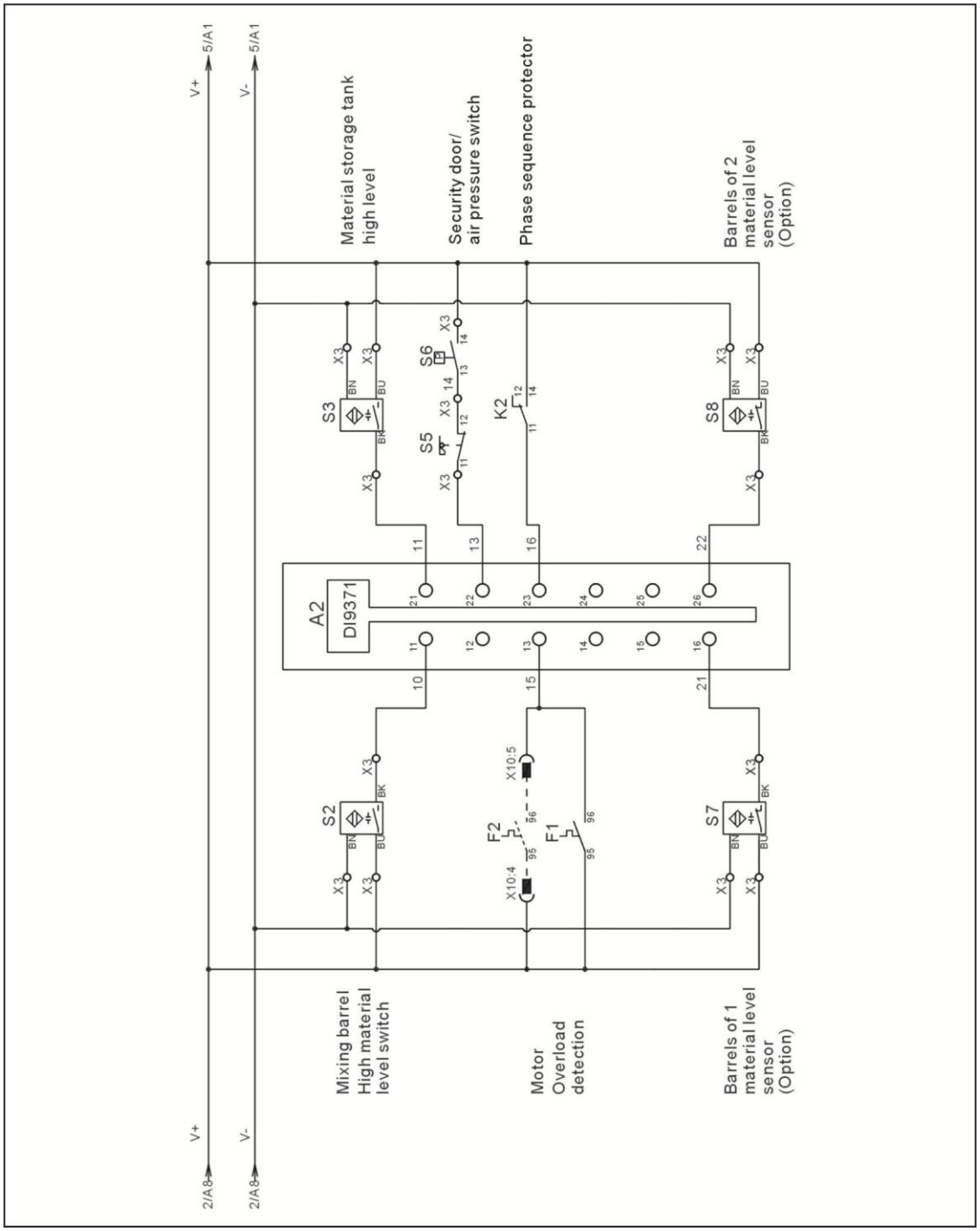
2.3.4 SGB-2000/3000-4 Electrical Circuit Diagram



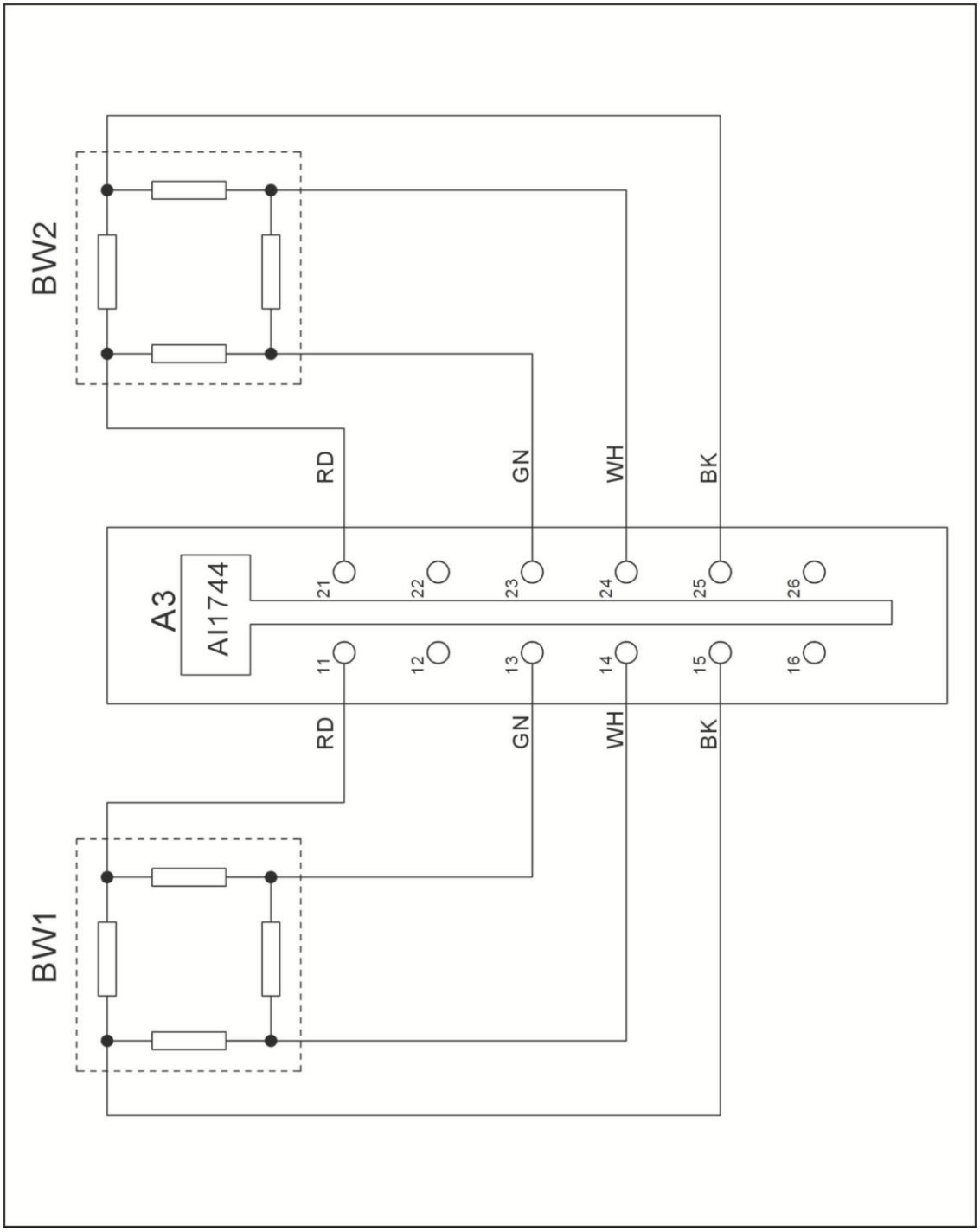
Picture 2-16：SGB-2000/3000-4 Electrical Circuit Diagram 1



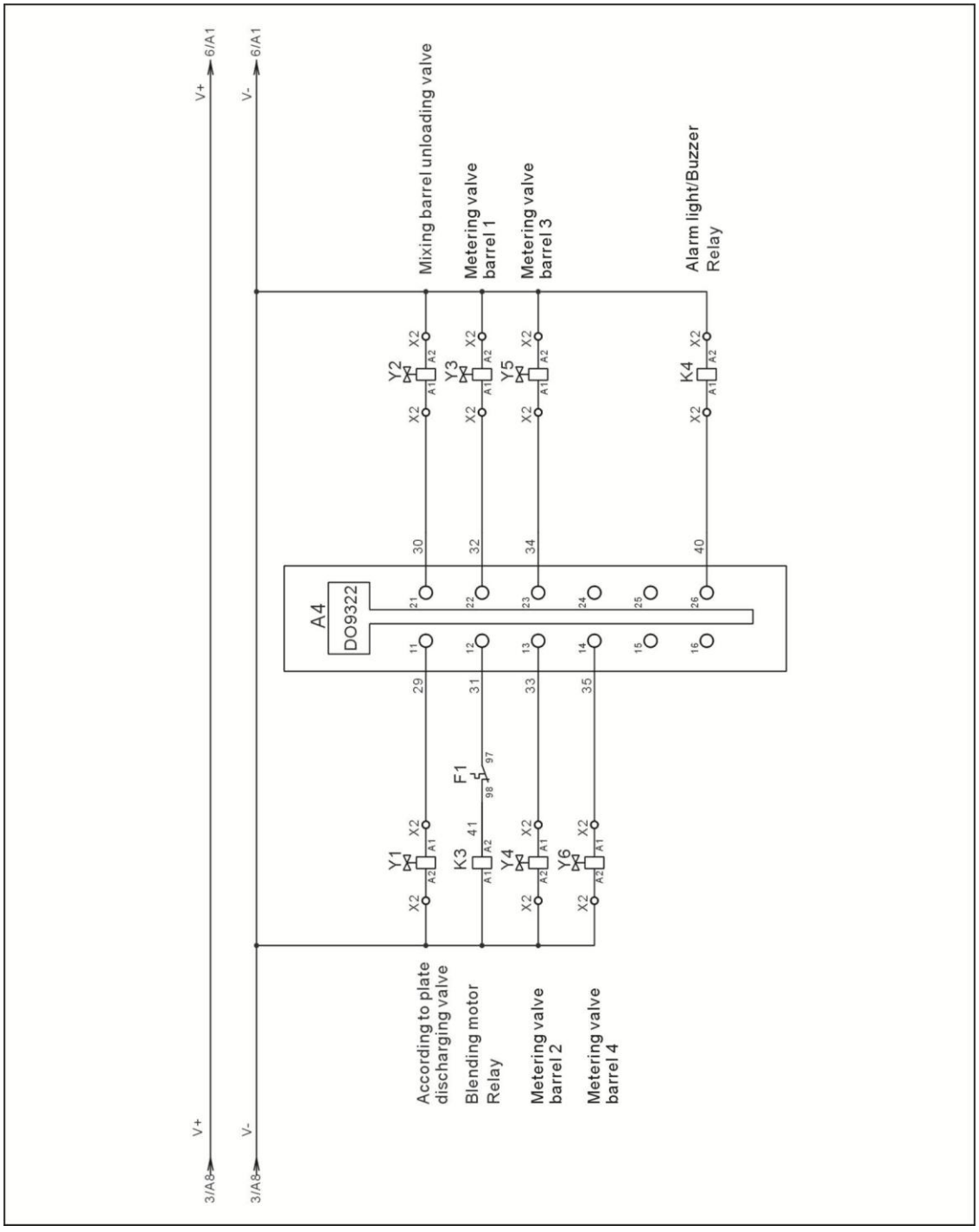
Picture 2-17：SGB-2000/3000-4 Electrical Circuit Diagram 2



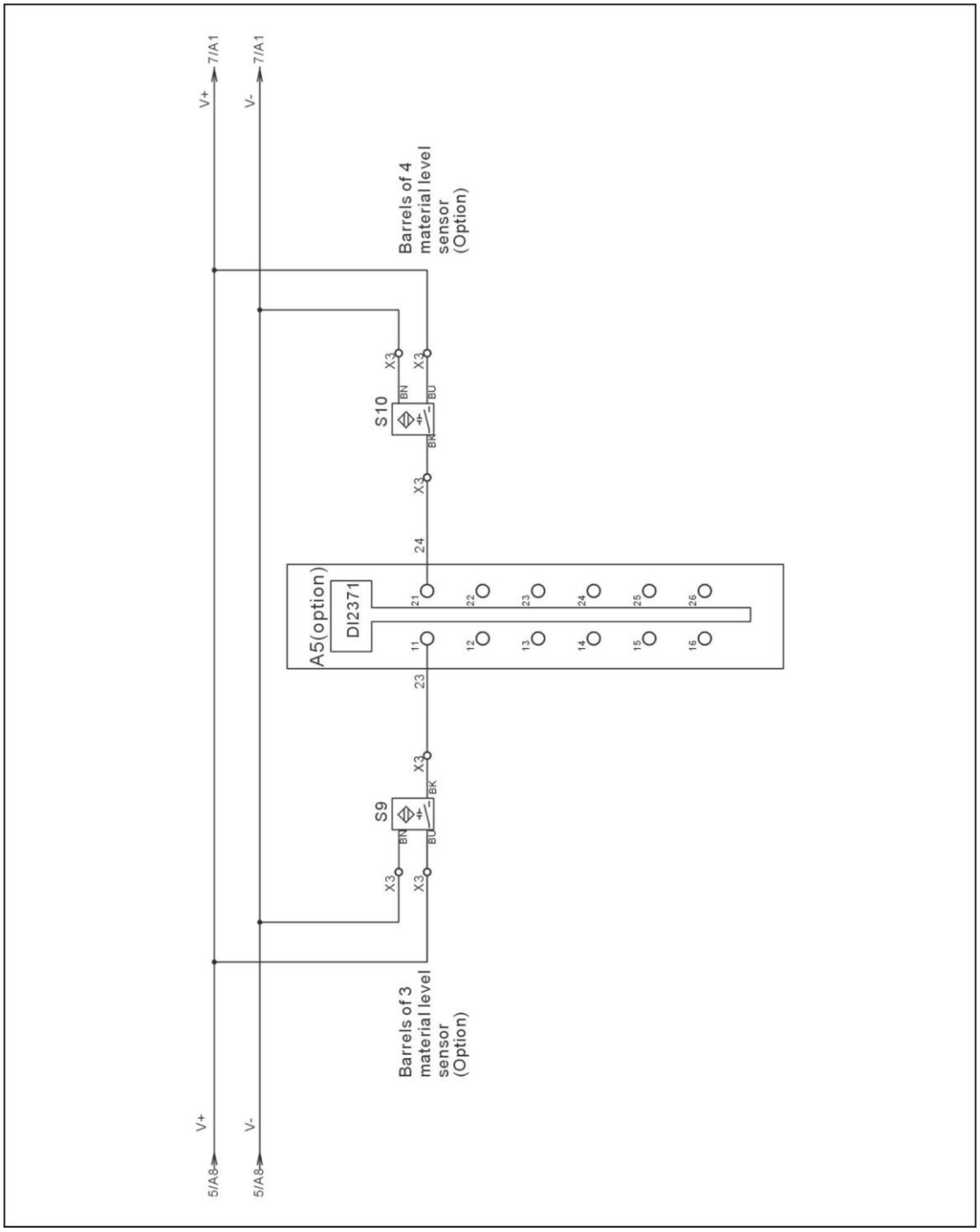
Picture 2-18：SGB-2000/3000-4 Electrical Circuit Diagram 3



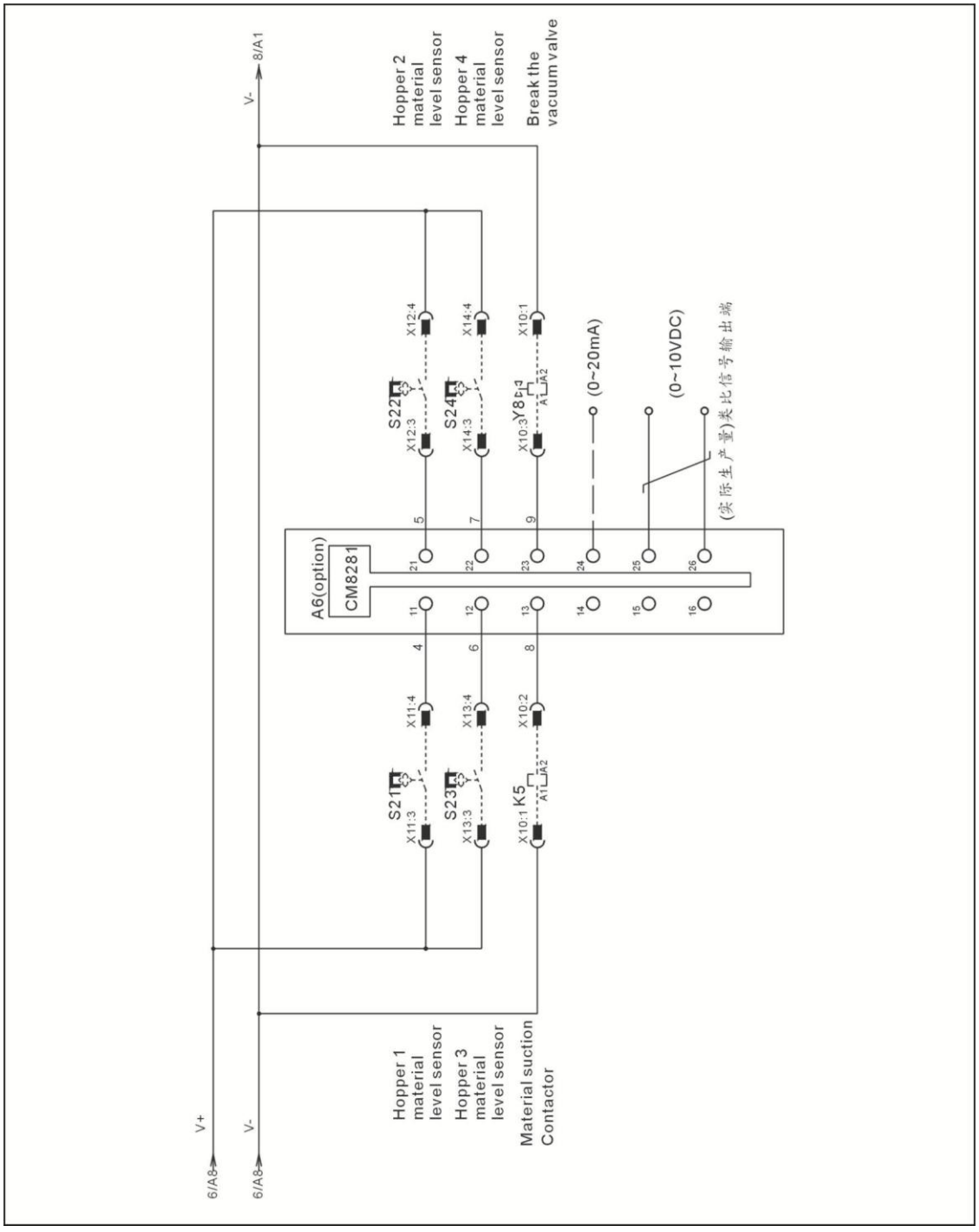
Picture 2-19：SGB-2000/3000-4 Electrical Circuit Diagram 4



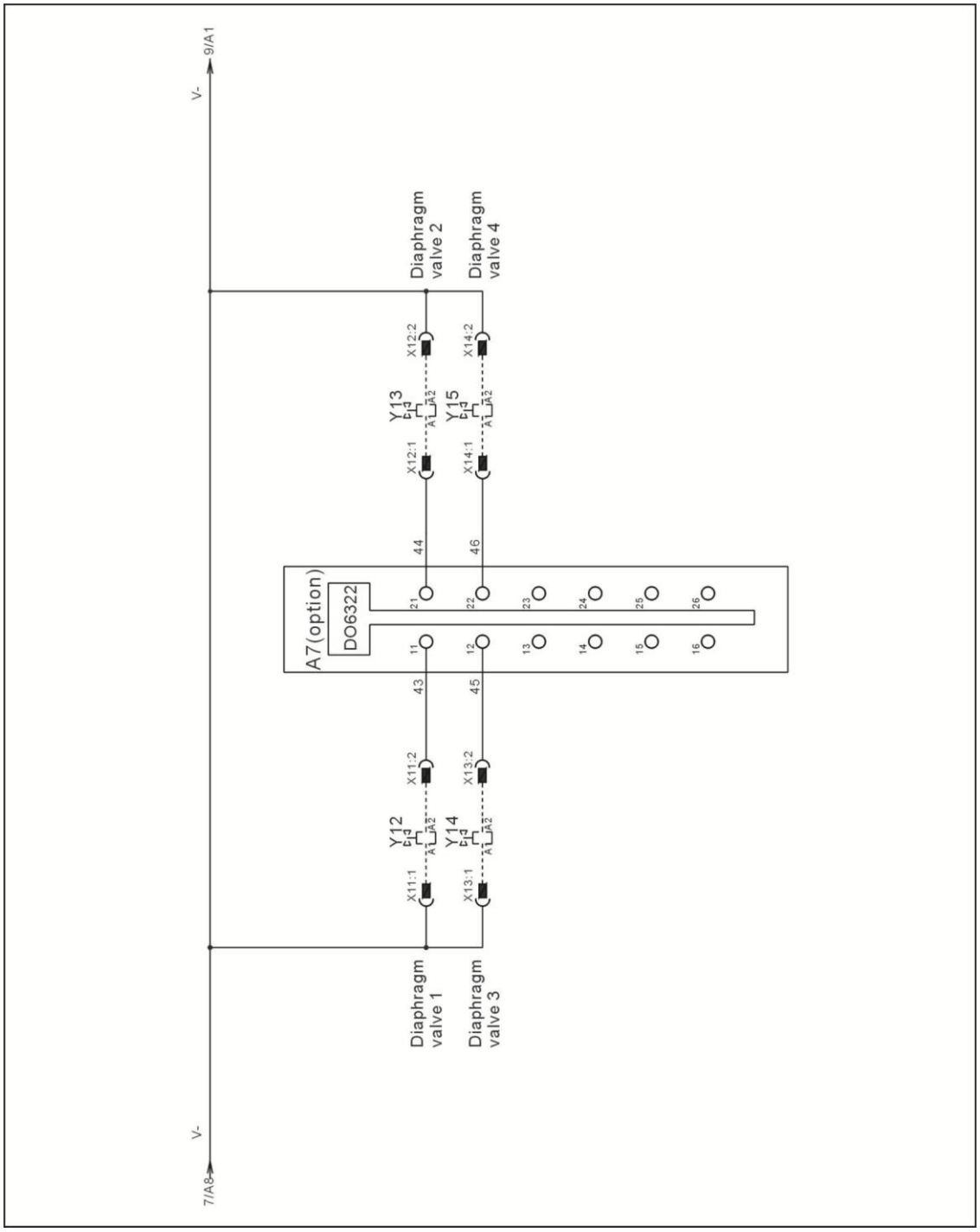
Picture 2-20：SGB-2000/3000-4 Electrical Circuit Diagram 5



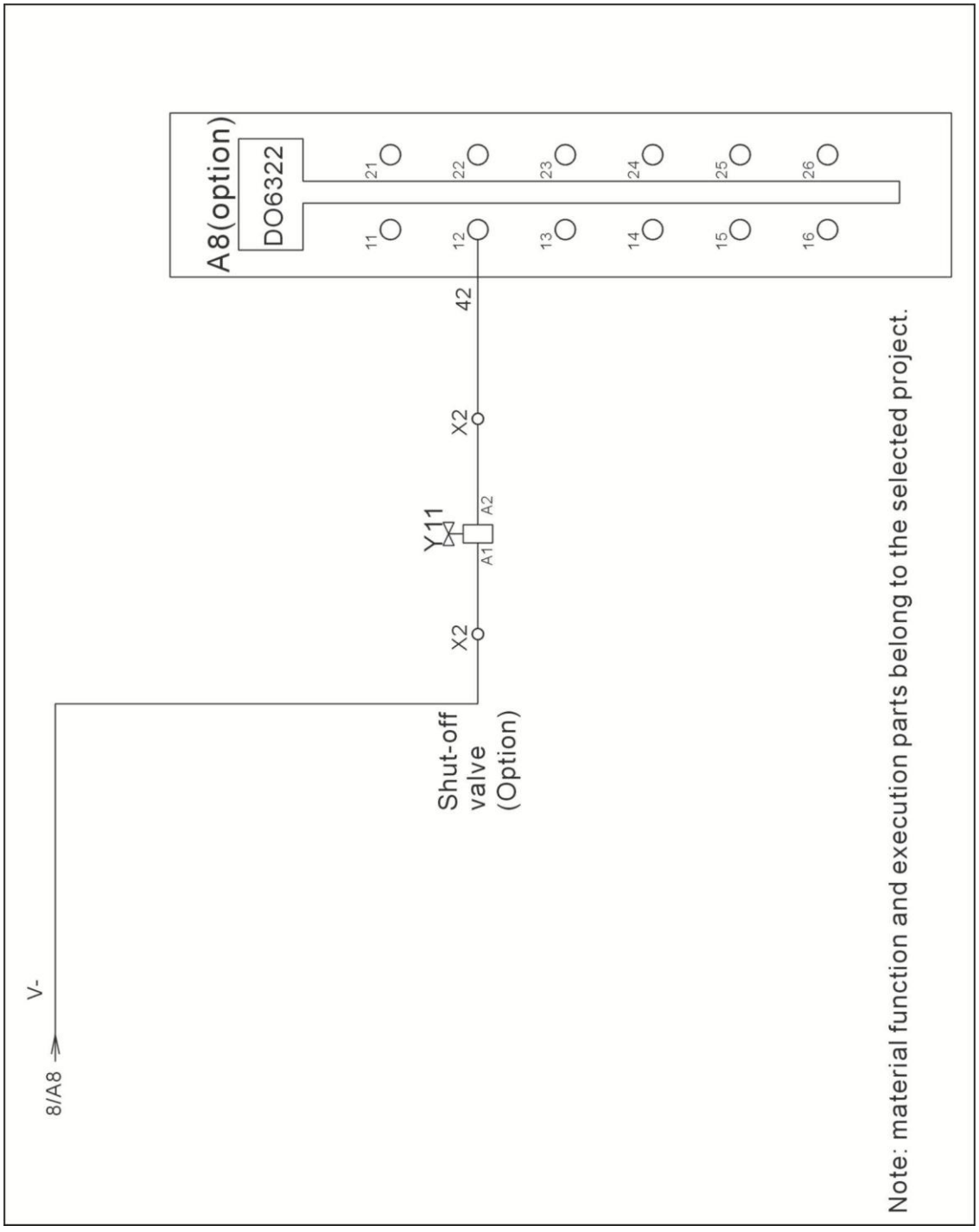
Picture 2-21： SGB-2000/3000-4 Electrical Circuit Diagram 6



Picture 2-22：SGB-2000/3000-4 Electrical Circuit Diagram 7

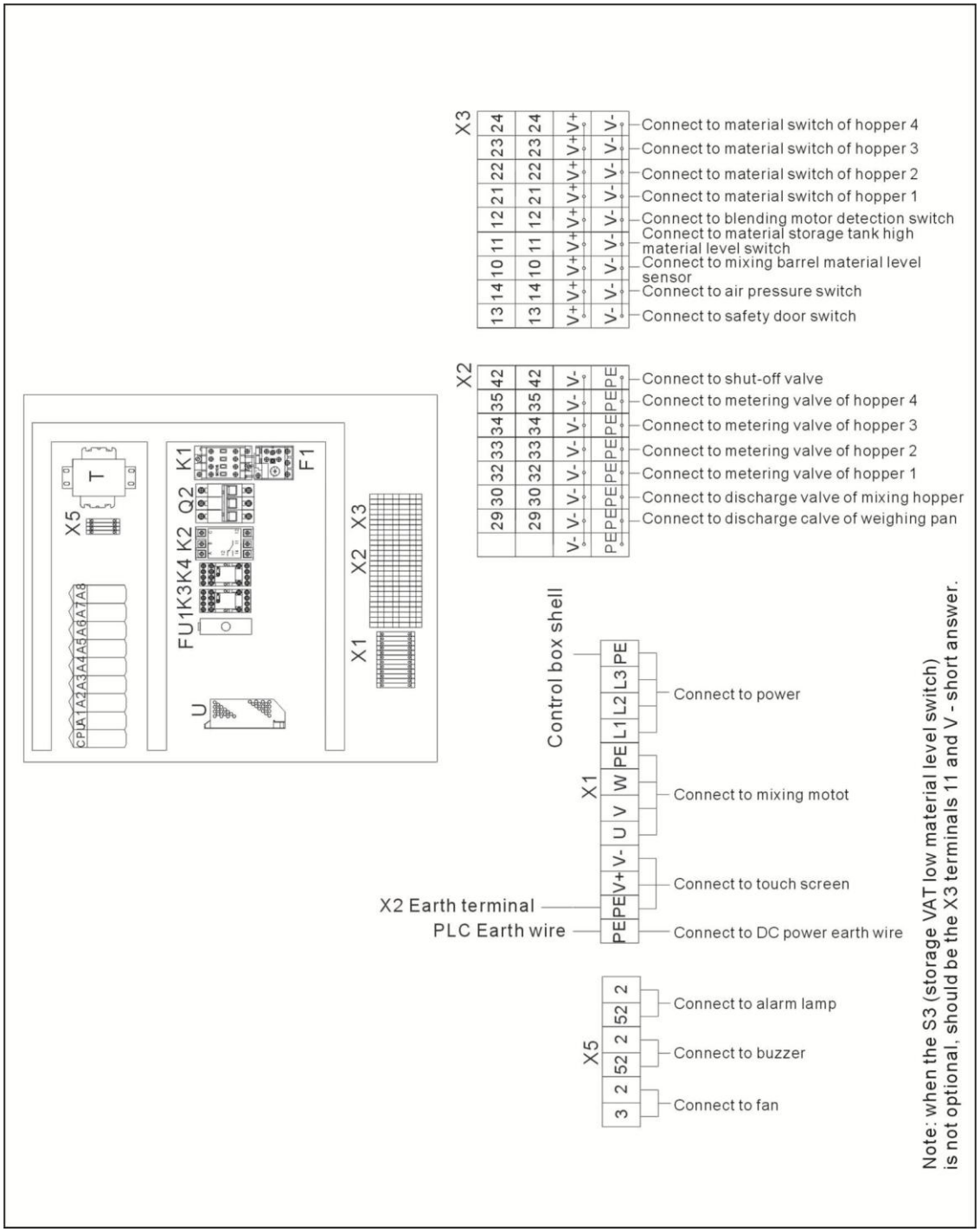


Picture 2-23：SGB-2000/3000-4 Electrical Circuit Diagram 8



Picture 2-24：SGB-2000/3000-4 Electrical Circuit Diagram 9

2.3.5 SGB-2000/3000-4 Electrical Components Layout



Picture 2-25：SGB-2000/3000-4 Electrical Components Layout

2.3.6 SGB-2000/3000-4 Electrical Components List

Table 2-7：SGB-2000/3000-4 Electrical Components List

NO.	Symbol	Name	Specification	Part NO.
1	Q1	Main switch	3P/16A	YE10021160000
2	Q2	Circuit breakers	10A	YE40600300000
3	S2	Capacitive proximity switch	10~36VDC	YE15508200000
4	S3 S7~S10	Capacitive proximity switch	10~36VDC	YE15508200000
5	S5	Safety switch	AC-15	YE16147600100
6	S6	Pressure switch	1~12kg	YE15401000000
7	K1	Contactors	230V 50/60Hz	YE00601521000
8	K2	Phase relay	400V	YE03103800000
9	K3 K4	Relay	24VDC 12A	YE03272400000
10	F1	Overload relays	2.2~3.2A	YE01160220000
11	FU1	Fuse box	250V 2A	YE41001000000
12	T	Transformer	500mA	YE70402300800
13	U	DC power	+24V 1.5A	YE71102400000
14	CPU A1~A7	Controller	-	YE80024000100
15	A8	Digital output interface	-	YE80632200000
16	-	Terminal block	-	YE80201100000
17	-	Bus module	-	YE80200100000
18	HMI	Human-machine interface	24VDC	YE80350100000
19	H1	Buzzer	230VAC 50Hz	YE84003500000
20	H2	Pulse indicate lamp	230VAC 50Hz	YE83305100300
21	BW1 BW2	Dose transducer	10VDC 2mV/V	-
22	X1	Terminal	690V 32A 24-12AWG	YE61250040000
23	-	-	-	YE61253500000
24	X2	Terminal	250V 1.5	YE60001500000
25	-	-	250V 1.5	YE60001000000
26	-	-	250V 1.5	YE60001000100
27	X3	Terminal	250V 1.5	YE60001500000
28	-	-	250V 1.5	YE60001000000
29	-	-	250V 1.5	YE60001000100
30	X5	Terminal	690V 32A 24-12AWG	YE61250040000
31	X10~X18	Heavy duty connector	5P 10A	YE68000500000
32	X19	Heavy duty connector	5P 10A	YE68000500000

33	WS	Signal bus	1.5m	-
NO.	Symbol	Name	Specification	Part NO.
34	FM	Cooling fan	220~230VAC 50/60Hz	YM60121200400
35	M1	Mixing motor	-	-
36	Y1 Y3~Y6	Valve	24VDC	YE32051800100
37	Y2 Y11	Valve	24VDC	YE32051800100

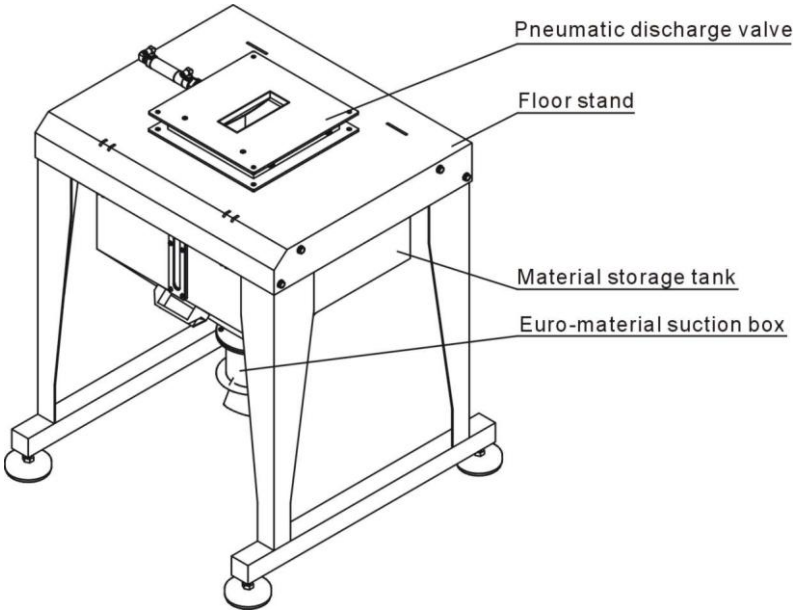
* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.4 Optional Accessories

2.4.1 Floor Stand And Material Storage Tank Combination

For SGB-600 and models below, movable floor stand and material storage tank are optional (including European type suction box).

For SGB-2000 and models above, moveable floor stand and material storage tank are standard (excluding European type suction box).

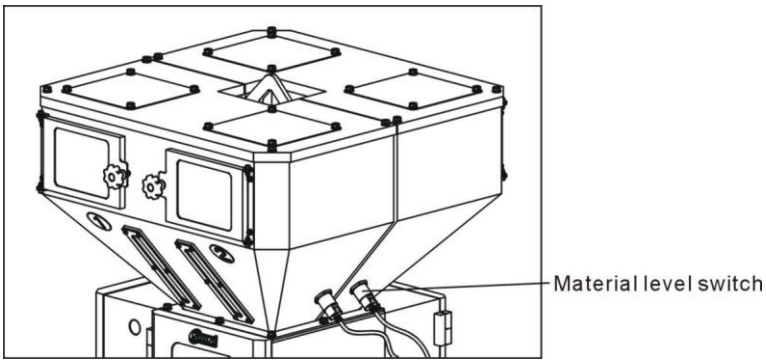


Picture 2-26：Floor Stand And Material Storage Tank Combination

2.4.2 Induction Motor Driven Feeding Device

Picture 2-27：Induction Motor Driven Feeding Device

2.4.3 Material Level Switch



Picture 2-28：Material Level Switch

3. Installation and Debugging

Read this chapter before installation. Install the machine according to following steps!

⚠ Power supply of the machine should connected by professional electricians!

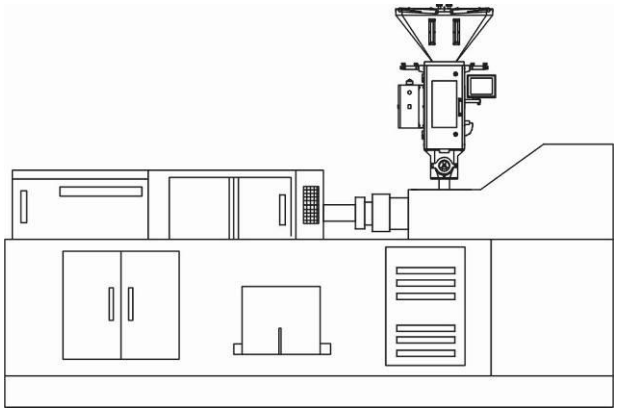
3.1 Installation of SGB

3.1.1 Install SGB machine on a floor stand

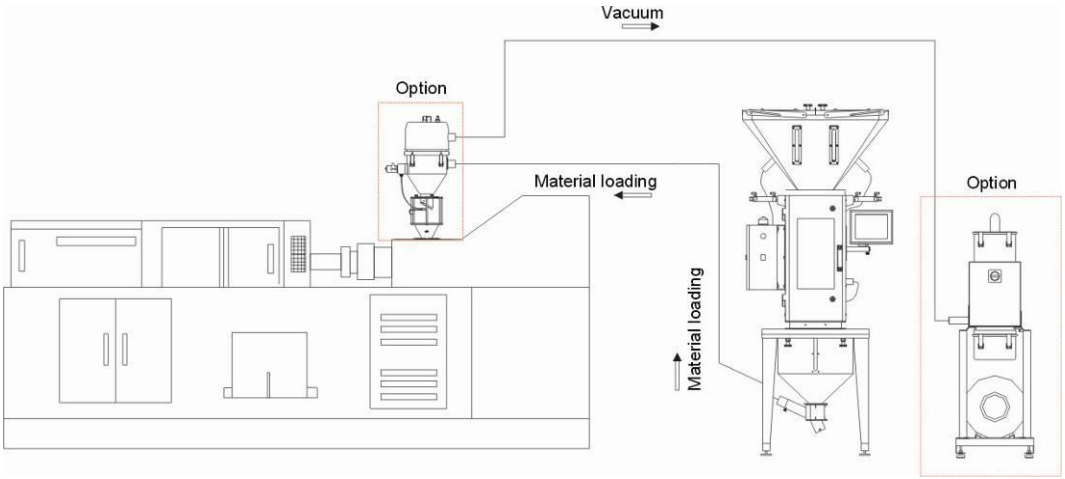
Picture 3-1: SGB-600-4 (Install SGB Machine on a Floor Stand)

SGB can be installed on an optional mobile floor stand to be used with material storage bin and suction box (optional).

3.1.2 SGB Install SGB on a Moulding Machine



Picture 3-2：Machine Mount

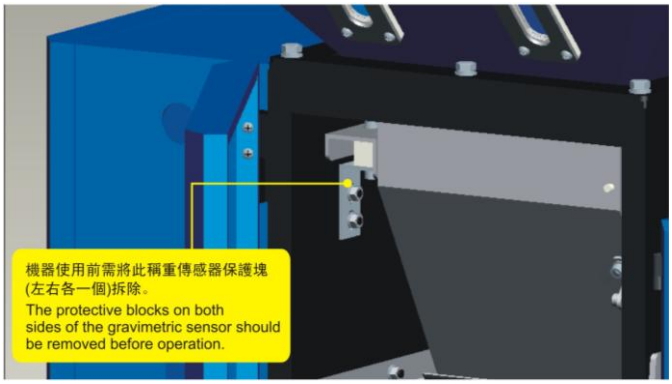


Picture 3-3：Floor Mount

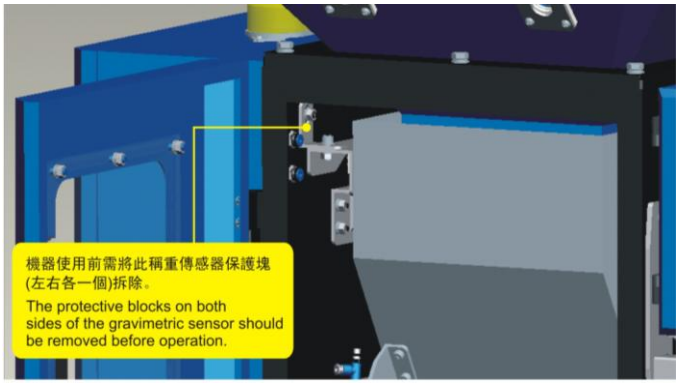
3.1.3 SGB Power Supply

Remove the protective blocks of gravimetric sensor.

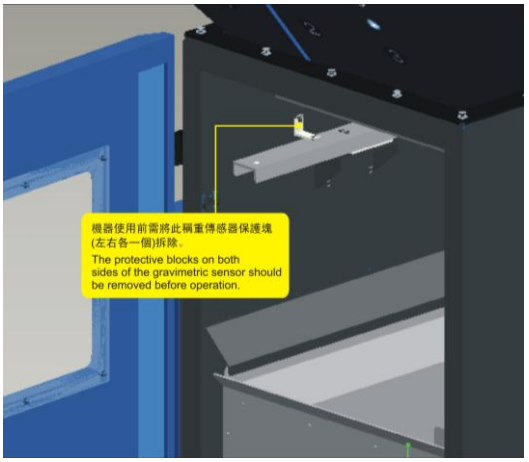
Refer to the following instructions of different models to remove the protective blocks of gravimetric sensor.



SGB-200



SGB-600



SGB-3000

Connect SGB with AC1Φ230V (models blow SGB-600) power supply.

Make sure that the power supply is turned off before fixing the electrical wires!

4. Application and Operation

SGB series gravimetric blender is manipulated through touch screen, which can rotate for convenient operation. Please obey the following rules while using it:

1) Don't use sharp objects (instead of hands) to touch the screen. And, screen should be prevented from fierce collision.
2) Under the environment of dry air, lots of static electricity will be generated on the screen. Thus, before touch the screen, grounding metal should be used to discharge the static electricity.
3) Use economical and applicable alcohol or light oil to scrub the screen. Any other solvent will fade the screen.
4) Never make bold to demount the touch screen and take away any PCB in it, or elements might be damaged.

4.1 Starting up

4.1.1 Essential Conditions of Start-up.

A. Equipment wiring is correct
B. It already connects with compressed air.
C. All hoppers to be weighed are filled with correct raw materials.

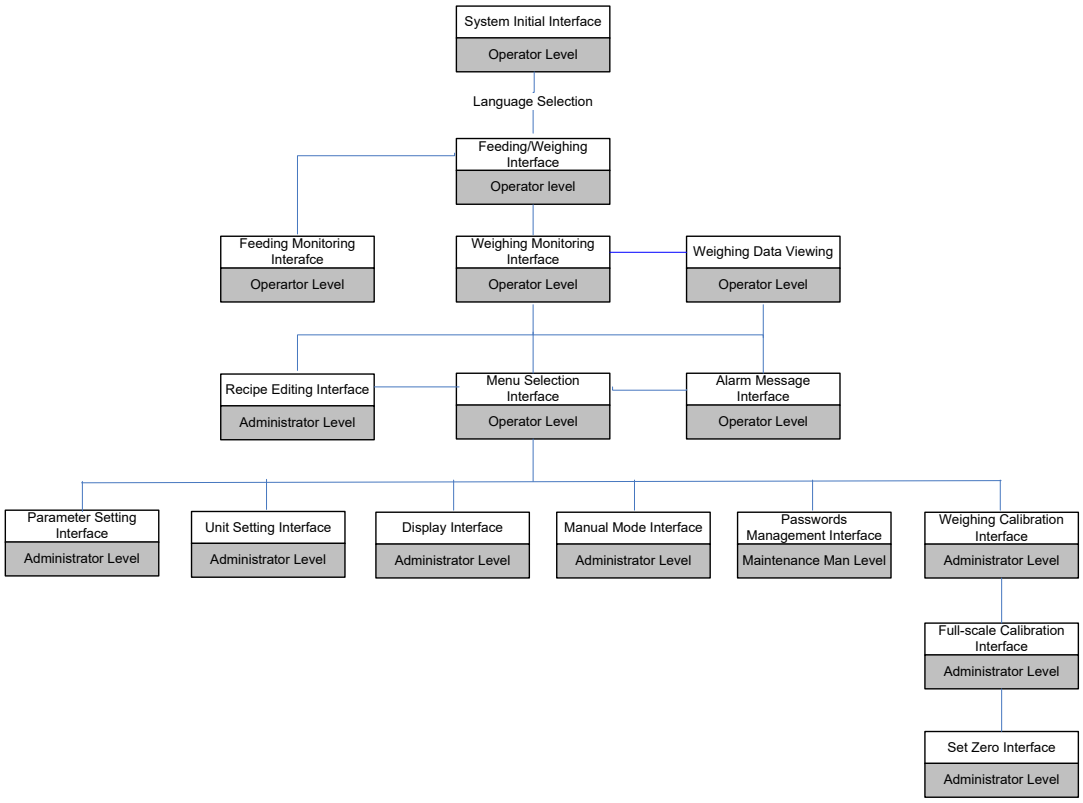
Picture 4-1： Main Power Switch (SGB-600 the Following Models)

4.1.2 Turn on the Main Power Switch

Switch the main power switch to 1, the starting position initiating image shall be displayed as below:
Select operation language by touching the button at lower right corner and enter the feeding/weighing interface.

Picture 4-2：Initiating Image

4.2 Interface Operation Flow

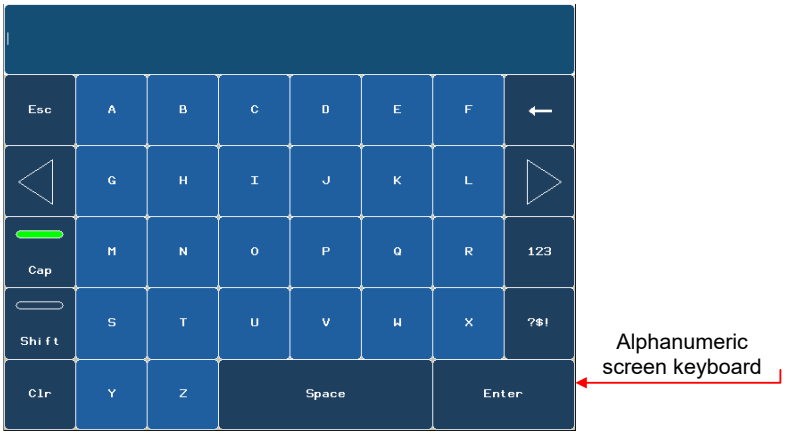


Picture 4-3：Interface Operature Flow

4.3 About Keyboard Interface

Touch the parameter input or setting area and a numerical or alphabetic numerical on-screen keyboard will come out to complete the man-machine conversation (parameter setting). Keyboard will automatically disappear after the input completes.

4.3.1 Input and Edit Alphabetic and Numerial Value



Picture 4-4：Keyboard Interface

Steps:

User may input both numbers and hexadecimal values one character by another by using the numerical on-screen keyboard.

Steps are as the following:

1) Touch the related parameter setting domains on the touch screen

Numerical on-screen keyboard will be opened and display the current value.

2) Set value

The operability of keys depends on the types of the values to be input. User can input values in accordance with the following method:

A) Delete the current value when input the first character and then continues to input other characters.

B) Use 

to delete all the values or characters.

C) Use  to delete values or charcters on the left of the cursor.

D) Use  to switch to the numerical keyboard.

E) Use  to switch to symbol keyboard.

F) Use  to change case.

3) Use  to confirm the input values or use  to cancel it, after the operations the on-screen keyboard will be closed.

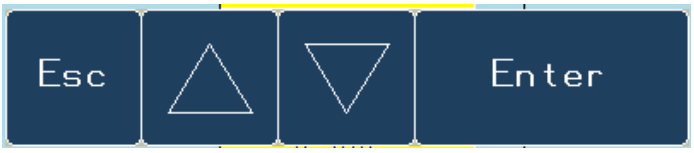
Notices:

If there is maximum/minimum limit, only values within the limits can be input. The system will refuse any value out of the limits and reset the original one.

4.3.2 Alternative Options

1) On-screen Keyboard

Touch the select input ares on the touch screen and the keyboard will come out, and it will disappear when the input finished.



Picture 4-5: On-screen Keyboard

2) Steps:

Parameter select can be set via the select on-screen keyboard.

Steps are as blews:

1) Touch the relevant area in the screen. The keyboard will come out.

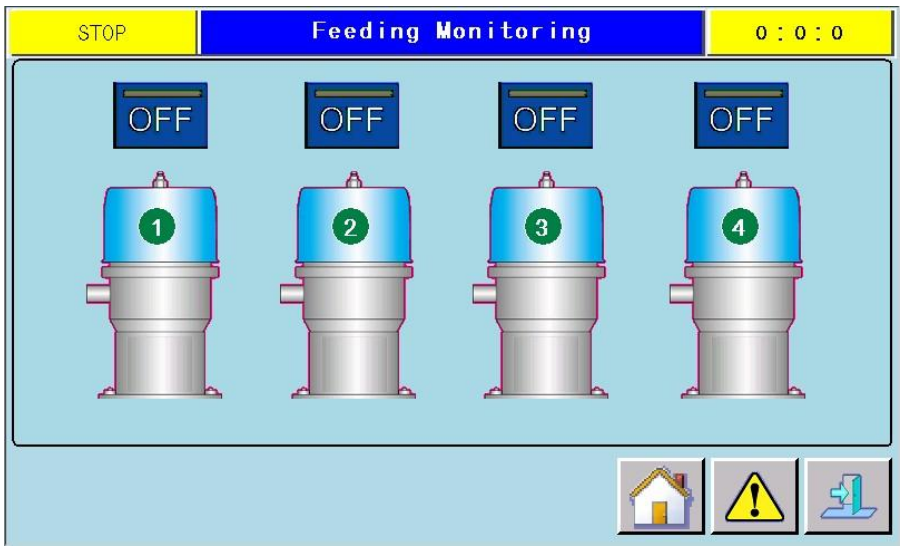
2) Press  or  to choose the input item.

3) Use 

to confirm the input values or use 

to cancel it, after the operations the on-screen keyboard will be closed.

4.4 Start the feed system



Picture 4-6：Feeding Monitoring

1) Initial interface will be displayed after turn on the power, select the operation language and feeding/weighing interface will appear. Click the imagefield on the left and the feeding monitoring interface will come out.

2) Touch 

and the feeding operation will start according to the values set last time or the default value. It will display 

after starting.

4.5 Stop the Feed System

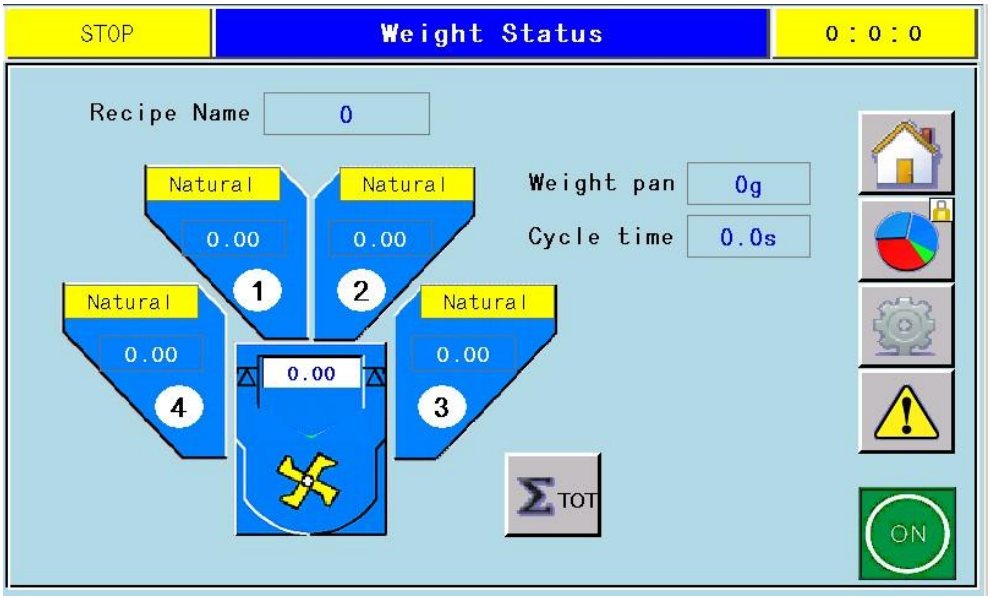
A) Touch 

under operation condition and the feeding process will stop until the feeding process finishes and the then the machine will stops.

B) Switch off the power (or abrupt power failure) under operation condition, the

control actions will be reset and feeding process is forced to stop.

4.6 Start the Weighing and Mixing



Picture 4-7： Weighing and Mixing

1) Initial interface will be displayed after turn on the power, select the operation language and feeding/weighing interface will appear. Click the imagefield on the right and the weighing monitoring interface will come out.

2) Touch 

and the mixing operation will start according to the values set last time or the default value. It will display 

after starting.

4.7 Stop the Weighing and Mixing

A) Touch 

under operation condition and the mixing process will stop until the current batch of material finishes processing and then the machine stops.

B) Switch off the power (or abrupt power failure) under operation condition, the control actions will be reset and batch metering is forced to stop. Before restart, the material in the weight pan must be manually cleared away to

avoid wrong mixing proportion.

4.8 Log in/out

4.8.1 Administrator Log in

User must use the log dialogue box to confirm operation limit when it is necessary to execute operations as administrator or repairman. Input user name and password in log dialogue box.

Picture 4-8：Administrator Log in

1) Steps：

1. Input user name and password.
   Touch the related ares and the alphabetic & numerical on-screen keyboard will be displayed.
2. Touch 
   Notice: user name is case insensitive while password is case sensitive.

2) Result

After logging in successfully, you can execute functions under the password protection within manipulation limit range on HMI equipment. A piece of wrong message will appear when the wrong password is input. At that time, no client logs in the project.

3) Level of users and passwords

No.	Level	Log-in User	Log-in Password	Operation Range
0	Operation level	None	None	Weighing supervision, alarm check and refueling

1	Administrator level	shini	2222	In comparison with limits of authority of operator, it has authorities such as formula editing, parameter setting, starting of manual mode and volume measuring mode and weight correction.
2	Maintenance man level	shiniwx	3333	In comparison with limits of authority of administrator's, it has authorities such as user management and ex-works parameter setting.

Note: the above-mentioned user names and passwords can be modified under user management interface.

4.8.2 Administrator Log out

If there is no action in 5 minutes after logging in as an administrator, the system will automatically log out and log in as an operator. The administrator user must login again when operating the process with password protection.

4.9 Interfaces Details

4.9.1 System Initial Interface

After switch on the power, the touch screen will display the initial interface which can also be displayed by touching the first left key at the bottom the screen.

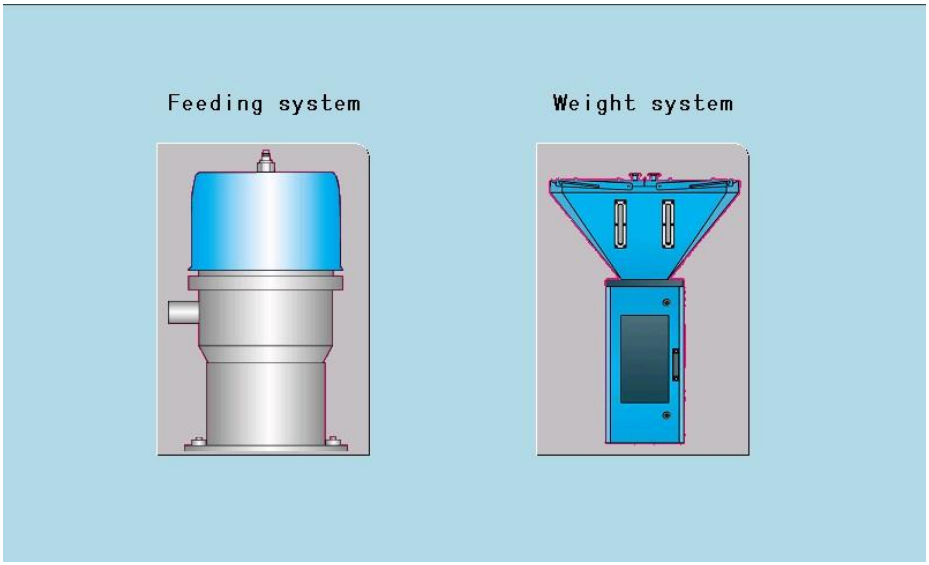
Picture 4-9: System Initial Interface

No.	Items	Description
1	Software version number	Display the version number of the current PLC and HMI.

2	Language selection keys: English/Tranditional Chinese	Select the operation language: English or Chinese, and then system will enter feeding/weighing interface.

4.9.2 Feeding/Weighing Selecting Interface

After selecting language under the initial interface, the system will display feeding/weighing selecting interface.

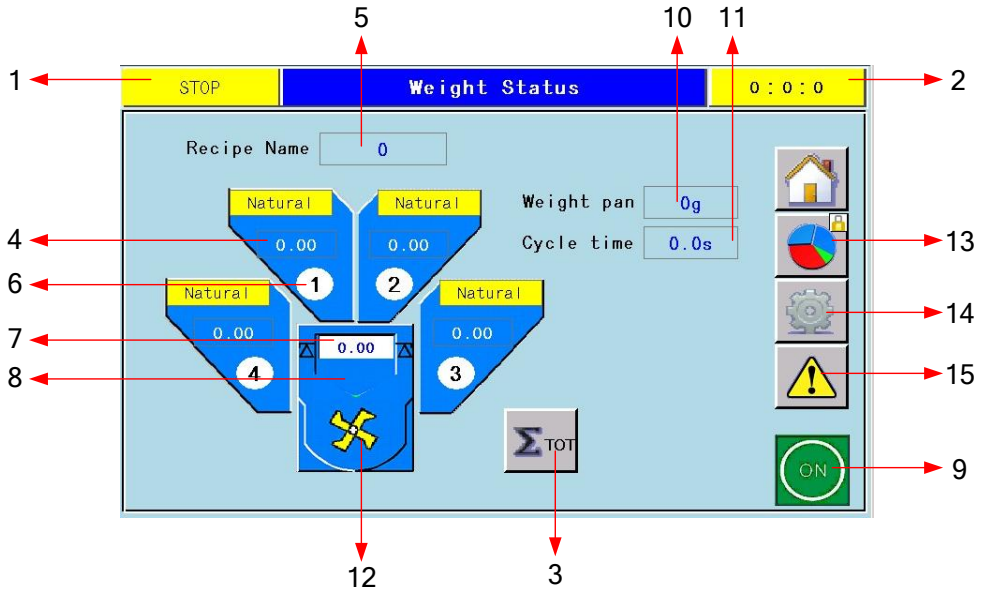


Picture 4-10：Feeding/Weighing Selecting Interface

No.	Items	Description
1	Feed system key	Enter the feeding monitoring interface.
2	Weighing system key	Enter the weighing monitoring interface.

4.9.3 Weighing Monitoring Interface

Selecting weighing system under feeding/weighing selecting interface and the system will display the weighing monitoring interface which can also be displayed by touching return key under other interfaces.



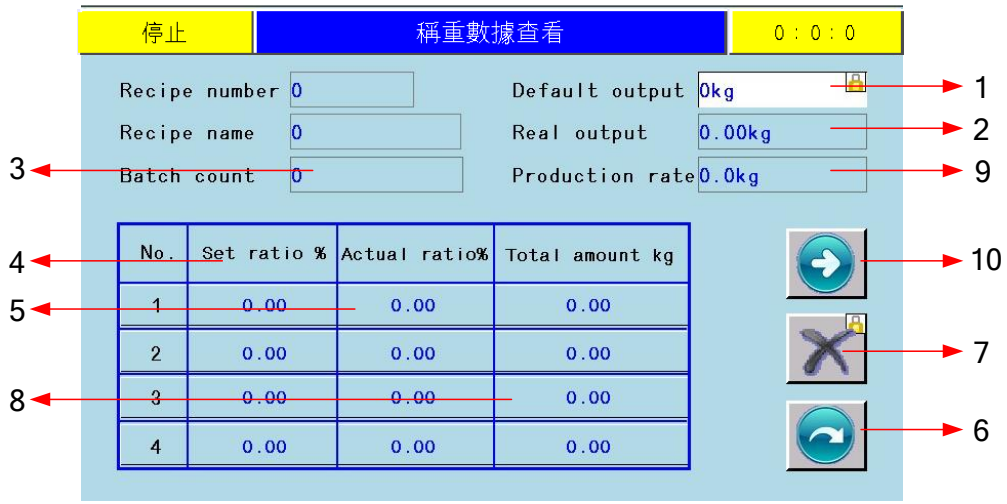
Picture 4-11： Weighing Monitoring Interface

No.	Items	Description
1	Working condition	Display the current work condition Stop: denotes the machine is in stopping condition. Full hopper: denotes the blending hopper is full. Running: denotes machine is in automatically metering and discharging condition. Alarm: denotes system failure.
2	Clock button	Display the time. Time can be adjusted in parameter setting interface1 when it is not correct.
3	Next page button	Press this button to enter weighing data display interface.
4	Setting percentage of each hopper	Display percentage of each hopper. Usually, the percentage of hopper 1 is automatically computed. Enter the recipe setting menu to modify the percent of each hopper.
5	Recipe document number	Display the number of current recipe document.
6	Display the metering status of each hopper	ON indicates the current hopper is in metering status.
7	Batch capacity	Display the current batch capacity. It needs to enter parameter setting interface to modify the parameters.
8	Chart of batch completion	Use histograms and figures to indicate the finished percent of current batch.
9	Start/stop button	When the machine is in stop condition, press this button to start the system. When the machine is under running

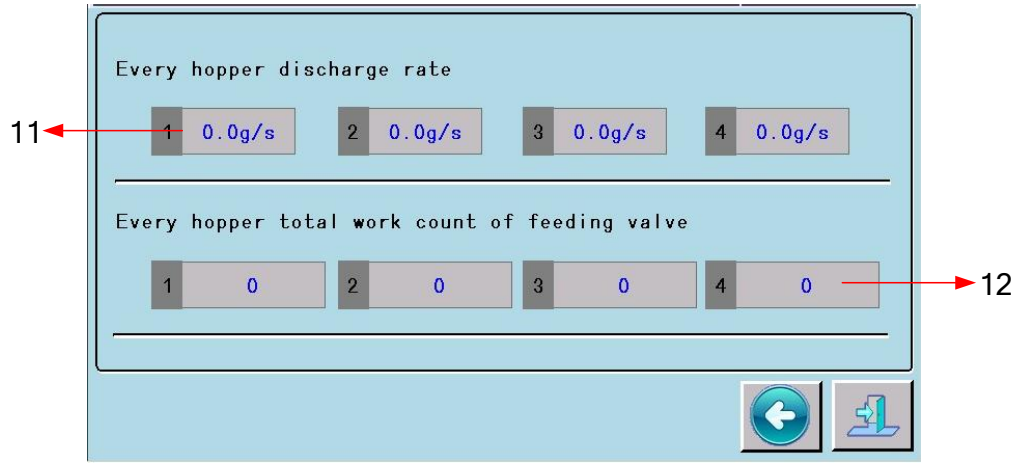
		condition, press this button to stop the system.
10	Weight display	It displays current weight and the actual batch weight shall deduct the tare weight displayed before the batch processing.
11	Time for each batch	Display the whole time for one batch.
12	Operation status of mixer	When mixer is running, this symbol will be blinking.
13	Recipe setting button	Select to enter formula setting interface.
14	Menu selection button	Press this button to enter menu selection. Note: only when machine is under stop condition, the menu selection can be entered.
15	Alarm checking button	Select to enter alarm check interface.

4.9.4 Weighing Data View Interface

Touch  in weighing monitoring, the system will display the weighing date view interface.



Picture 4-12: Weighing Data Display Interface 1



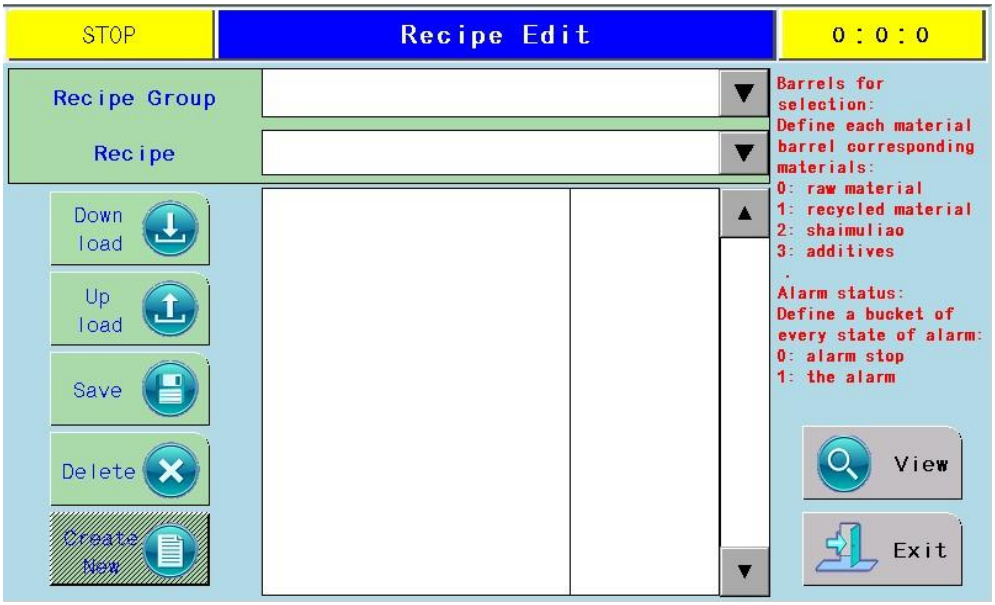
Picture 4-13: Weighing Data Display Interface 2

NO.	Items	Description
1	Maximum yield	It displays the maximum yield within an hour. It is acquired through the calculation of both time and amount for processing with each batch, which changes according to different process time.
2	Actual yield	Accumulated yield within certain period (30 minutes for ex-works setting) divided by time (unit: hour) is actual yield per hour.
3	Accomplished yield	It displays batch number from the last accumulation clearance to current time.
4	Preset percentage of each hopper	Preset percentage of each hopper
5	Actual percentage of each hopper	It displays actual percentage of each barrel last time.
6	Return Key	Return to the weighing monitoring interface.
7	Accumulatiation Clearance Key	Reset accumulated projects in each hopper and batch number counter for accomplished production.
8	Accumulated amount of each hopper	Accumulated amount of each hopper from last time accumulation clearance to current time.
9	Production rate	Display the current production rate.
10	Next page button	The interface will go to the next page by touching this button.
11	Measurement rate of each hopper	Display the discharging rate of each discharging valve.
12	Accumulatd numbers of actions of each discharging	Display the accumulated number of actions of each discharging valve.

	valve	

4.9.5 Recipe Setting Interface

Enter recipe setting interface by pressing Recipe Setting



Picture 4-14：Recipe Setting Interface

User can manipulate the following contents in recipe setting interface:

A. Press 

to create new recipe data record.

B. Click recipe column to rename therecipe data.

C. Press 

to save the modification of recipe data records.

D. Press 

to upload the current recipe data from PLC to the screen.

E. Press 

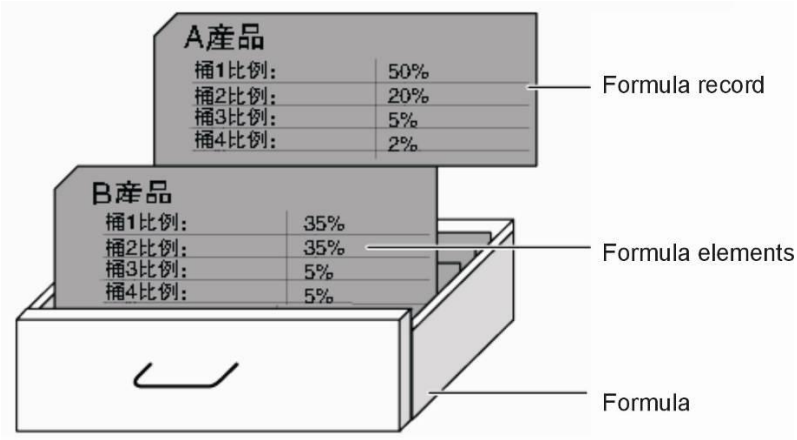
to delete recipe data records.

F. Press 

to download the current recipe data to PLC and the mixture proportion data for next batch will abide by the new recipe data setting. (Invoke recipe)

4.9.5.1 Recipe Elements

Recipe includes the combination of related production data such as mixture proportion, etc. Mixture proportion will be transmitted from touch screen to PLC weighing mixing system for the convenience of converting from product A (for example) to product B. The weighing mixing system is able to manufacture products in categories of A, B and C, etc. with different mixture proportions and it is also able to create one recipe for each product. All necessary ingredients for each product are defined in recipe.



Picture 4-15：Recipe Elements

1) Recipe record

Each recipe stands for the recipe data record necessary for the production of one certain product.

2) Recipe elements

Each index card in one drawer includes application range of different ingredients and each application range corresponds with one recipe ingredient. Therefore, all records of one recipe include the same elements. Nevertheless, the value of each element in different records differs.

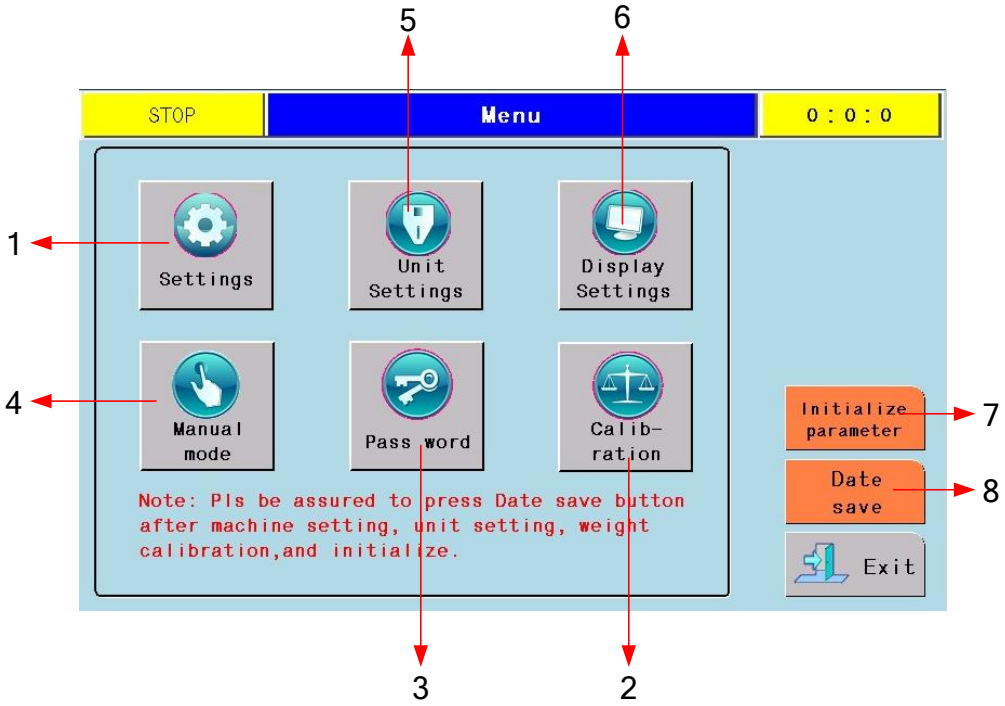
No.	Recipe ingredients names	Meaning	New-built default value
1	Components of each hopper	Set material for each hopper: 0．Raw material 1．Recycled material 2．masterbatch	0

		3．Additive	
2	Hopper 1 starved feeding alarm mode [0-1]	When the computation mode for masterbatch and additives adopts No. 2 (percentage relative to raw materail), it is able to select hopper 1 starved feeding alarm mode by setting from 0 to 1 with the following definition: 0：Sound an alarm and stop the machine 1：Sound an alarm and stop the machine until it finishes the current batch. Note：When the computation mode for master batch and additive adopts No.1 (relative to batch percentage or No.3 computation mode (relative to double raw materials percentage), the mode election is invalid and the starved feeding will be uniformly given an alarm and shop the machine.	0
3	Hopper 2 starved feeding alarm mode [0-2]	When the computation mode for masterbatch and additives adopts No. 2 (percentage relative to raw materail), it is able to select hopper 2 starved feeding alarm mode by setting from 0 to 2 with the following definition: 0: Sound an alarm and stop the machine. 1: Sound an alarm without machine stop, replace it with hopper 1. 2: Neither alarm nor machine stop, replace it with hopper 1. Note：When the computation mode for master batch and additive adopts No.1 (relative to batch percentage or No.3 computation mode (relative to double raw materials percentage), the mode election is invalid and the starved feeding will be uniformly given an alarm and shop the machine.	0
4	Percentage of each hopper [%]	Set percentage for each hopper. Note: percentage of hopper 1 is automatically calculated by the fomula.	0.0
5	Given value of batch [kg]	Set the mixture weight for processing in each period. 1、use the following settings for reference: SGB-40 0.5kg SGB-80 1.5Kg SGB-200 2.5Kg SGB-600 8.0Kg SGB-1200 15.0kg SGB-2000 25.0Kg SGB-3000 40.0Kg 2、If the degraded (reclaimed) materials	0.0

		cover high percentage and their specific gravity is smaller than 0.6Kg/dm3, then the volume of this batch of mixture might exceed the volume of the weight pan and the mixture might overflow. At that time, the batch size should be reduced.	
6	Weight pan discharging time [second]	Set the discharging time of the mixture from the weight pan after gravimetry within each period. Set a suitable time in which the material can discharge completely from the weight pan.	0.0
7	Mixing time of the blender [second]	Set the working time for the blender in one period.	0.0
8	Mixed material discharging time [second]	Set the discharging time of the mixed material from the mixing tank within each period. Set a suitable time in which the material can discharge completely.	0.0
9	Chromatism compensation [%]	Set the compensation value of reclaimed materials. More details please refer to Appendix 4.	0.0

4.9.6 Menu Selection Interface

When the mixing stops, user shall press  to enter menu selection interface under which operation items can be selected according to the needs.

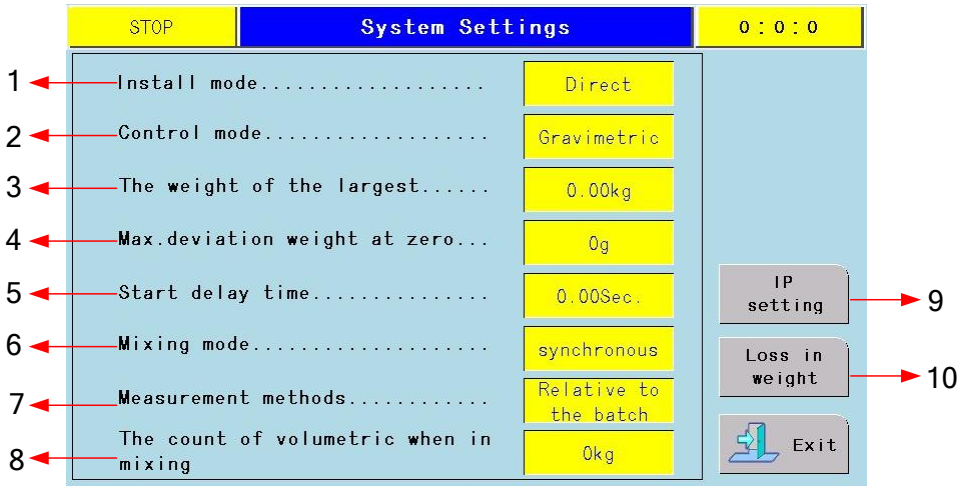


Picture 4-16：Menu Selection

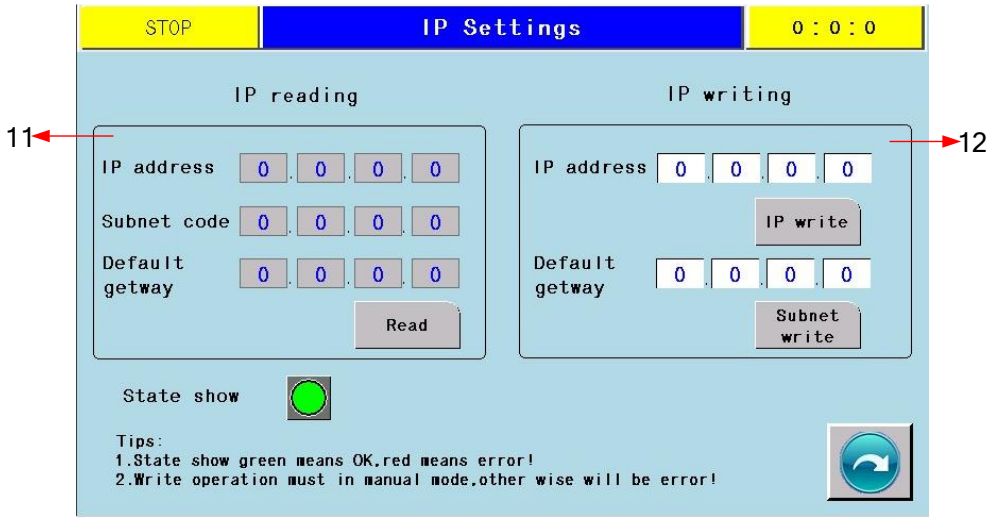
No.	Items	Description
1	Parameter setting button	Press this button to enter parameter setting menu.
2	Weighing calibration menu	Press this button to enter weighing pan calibration menu.
3	User management key	Press it once to enter user management interface.
4	Manual mode key	Press it once to enter manual mode interface.
5	Units setting button	Press it to enter unit setting interface.
6	Display setting button	Press it to enter display setting button.
7	Parameter initialization button	Press it at the first boot to initialize the parameter.
8	Save button	Press it after setting all the parameters and recipes to save the data and prevent loosing it when there is power failure.

4.9.7 Parameter Setting Interface

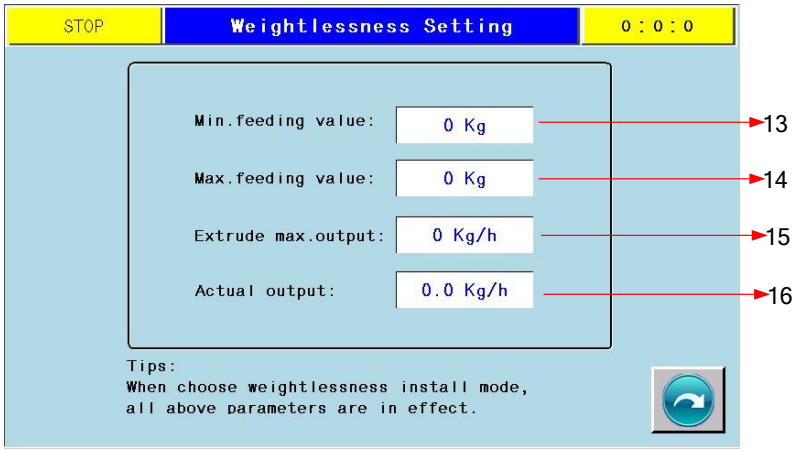
Under menu selection interface, press  to enter parameter setting interface under which items of assembly mode, blender start mode and maximum weighing, etc. can be set.



Picture 4-17：Parameter Setting Interface



Picture 4-18：IP Setting Interface



Picture 4-19：Weightlessness Parameter Interface

No.	Items	Description
1	Assembly mode	Three ways are available: direct installing, installing with floor stand and lost-in-weight installing. Direct installing: start/stop based on high material level signal of mixing hopper. With floor stand: feed material twice into mixing hopper and discharge than to storage hopper, whose high material level control start/stop. Lost-in-weight: discharge valve of mixing hopper is controlled by lost-in-weight hopper signal of material supply.
2	Control mode	Three modes are available: gravimetric metering, volumetric metering and mixing metering.

		More details please refer to appendix 8.
3	Max. weighing volumn	Setting of max. pan bearing weight. If the weight in pan is detected over the set value, machine halts and sounds alarm.
4	Pan zero drift weight	When the weight of empty weighing pan exceeds set point of max. zero drift weight, system will give an error information about the serious zero drift. Factory setting is 100g.
5	Delay time of startup	When machine is under automatic running condition, system will check the low-level of the storage hopper (optional). If level is low, system will begin to meter after the delay-time. If the level is high, system will stop metering and display a state of full material. Factory setting: 3 seconds.
6	Mixing method	Synchro start: the blender starts working while the weighing pan starts discharging. Time-delay start: the blender starts working after the discharging of the weighing pan.
7	Metering method	There are three ways of measuring masterbatch and additives : 1．Percentage relative to the batch 2．Relative to the material 3．Relative to double material More details please refer to appendix 3.
8	Volumetric metering frequency under mixing metering mode	Under mixing metering mode, the times of volumetric metering.
9	IP setting	Press it to enter IP setting interface.
10	Weightlessness	Press it to enter lost-in-weight (when choosing the lost-in-weight hopper assembly) parameter setting interface.
11	IP display	In this area, the current IP address of PLC can be read.
12	IP type-in	In this area, the current IP address of PLC can be typed in. (Modification can be accepted when there is special needs.)
13	Min. feeding value	When choosing a lost-in-weigh hopper, start the weighing metering when the weight of the hopper is smaller than the min. feeding value.
14	Max. feeding value	When choosing a lost-in-weigh hopper, stop the weighing metering when the weight of the hopper is bigger than the min. feeding value.
15	Extrude max. output	According to the output of 10V, work out the analog amount of the current output.
16	Actual output	Display the current output.

4.9.8 Calibration Interface

Under menu selection interface, press  to enter the calibration interface.

All weighing units have been corrected in the manufacturing factories. The  key is pure zero setting key (deduct tare weight). The transportation and/or

operation (for example, the particles that remain in weight pan, or when the weight pan is placed on the weight-supporting stand) might cause minor difference. Nevertheless, the controller will execute the weight pan zero setting before each cycle.

When there is failure, calibration program must be executed when auditing or replacing with a new gravimetric sensor.

1) Weight

Picture 4-20：Calibration Interface

2) Steps:

1. Press full-scale calibration to enter the process, then hang the accessory weight under the weighting pan and input the weight to the system and at last, press calibration to automatically enter the next step.
2. Take down the weight and stabilize the weight pan, then press set zero to finish the calibration process.

4.9.9 User Management Interface

Under menu selection interface, touch  to enter user management interface. Only users with the identity of administrator can execute operations such as adding new users, modifying users names and passwords, etc..

Picture 4-21： User Management Interface

1) Add a user

Press the group column and choose [SecurityGroup01] or [SecurityGroup02],then press user column and type in the user name that you want to create, and next input the passwords and confirm passwords, at last, press  and finish the process.

2) Change a user (name, passwords and group) and delete a user.

The first several steps are the same with the steps of adding a user (refer to add a user), and the last step to press  change users and press  to delete a user.

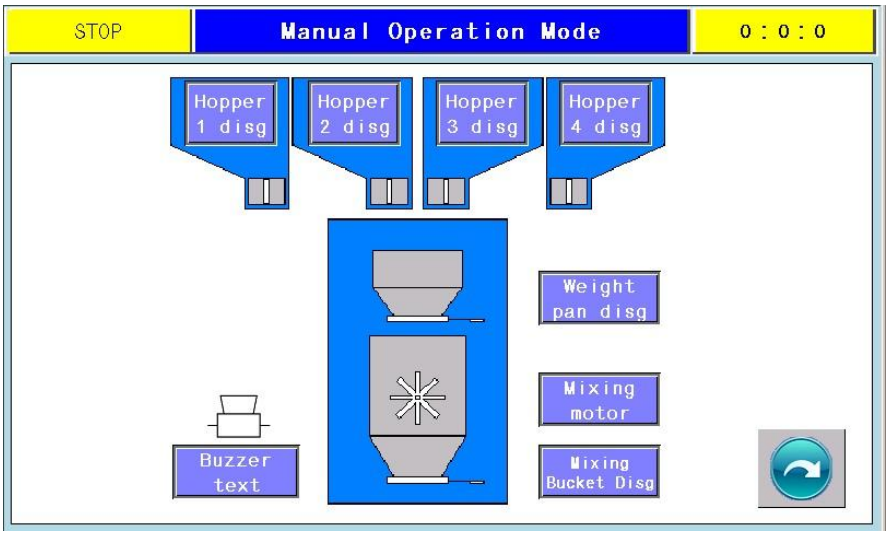
It is important to write down the new user name and passwords when modifying a user. If you can not remember you user name and passwords, please contact SHINI customer service center.

4.9.10 Manual Mode Interface

Under menu selection interface, touch  to enter manual mode interface. User can manually manipulate all mechanical movement units in order to check if all functions work normally.

 Danger of causing injuries!

When compressed air supply is connected, if you touch the outlet or measuring unit of the mixture, it might injure your hands. No touching outlet or feeding & distributing units of the mixture.



Picture 4-22: Manual Mode Interface

1) Operation conditions
   Safety door must be closed and air pressure must meet the requirements.
2) Check the metering units of each hopper
   Diagrams shown the hopper condition must located at the top of the interface.
   Press hopper discharge buttons one by one to check whether each hopper metering unit can open or close smoothly.
3) Check the weight pan, blender and the shut-off valve of the mixing tank.
   Press the button besides the diagram to check whether the weight pan and

the mixing elements is normal.

Press the first button to open or close the weight pan.

Press the button in the middle to start and stop the blender.

Press the button blow to open or close the shut-off valve of the optional mixing tank.

Notice: Make sure all the components work normally.

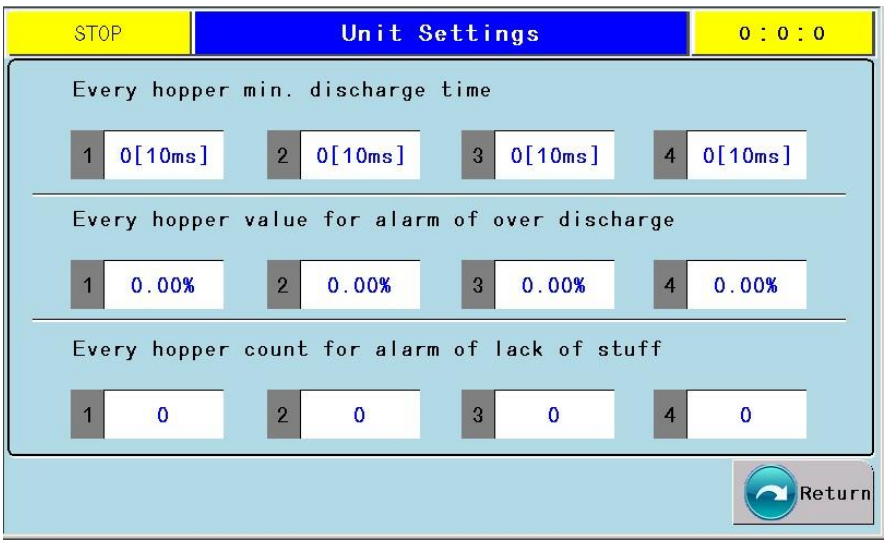
4) Test the alarm and buzzer.

Press 

to test the alarm and the buzzer which are installed on the electrical cabinet door.

4.9.11 Unit Parameter Setting Interface

Under menu setting interface, touch  to enter unit setting interface. Unit parameters are set in the manufacturer and need no adjustment except when replacing a PLC controller.



Picture 4-23：Unit Parameter Setting Interface

No.	Item	Description
1	Every hopper min.	System will complete the metering of certain barrel based on the

	discharge time	parameters when it calculates the feeding precision of certain hopper (actual percentage minus set percentage). The following is ex-works setting: Air cylinder measuring valve is set at 0.3%. Bolt measuring valve and pulse measuring valve are set at 0.1% Remarks: the smaller the feeding precision data are, the higher the control precision is. Precision control might be unstable if feeding precision is less than the hardware limit of the measuring valve. The higher the feeding precision data are, the lower the control precision is. But the yield will also be promoted.
2	Every hopper value for alarm of over discharging	When the weight is bigger than the required weight value x over charging alarm value, give an alarm of over discharging.
3	Discharge hopper count alarm of lack of stuff	During the metering process, try to open the weighing unit several times when the weighing has no variation. Is there is still no variation, give an alarm of starved feeding.

4.9.12 Alarm Message Interface

Touch  and enter alarm message interface under which the faults information can be viewed and the faults can be removed in time.

Picture 4-24： Alarm Message Interface

1) Alarm Message Display

When the system breaking down, the relevant information will be displayed on the screen including date, time, state and message. When the messages are

hided because of the limited space, press  or  to view them.

2) Mute the alarm

The buzzing of alarm can be stop immediately by press 

.

3) Reset alarm information

User must manually press 

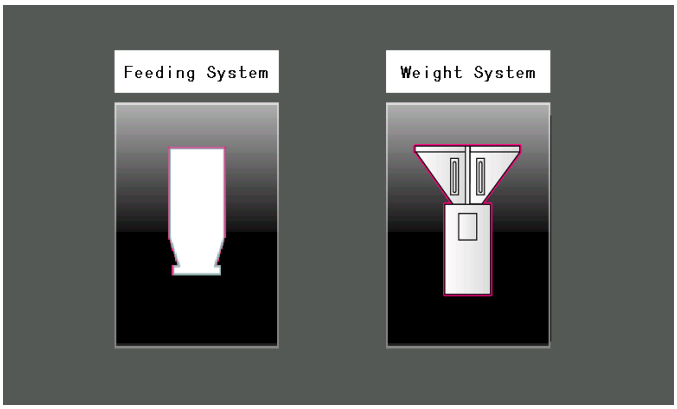
to confirm each piece of information when alarm sounds.

4) Delete alarm information

Select the relevant alarm message that you want to delete and press  to delete it.

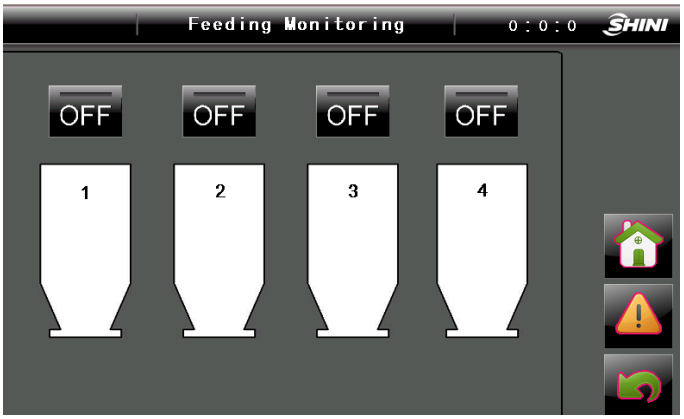
4.9.13 Control of Material Suction

Before operating the control of automatic conveying, please connect the circuit part well by following the operation instruction and electrical control in this manual.

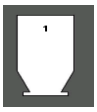


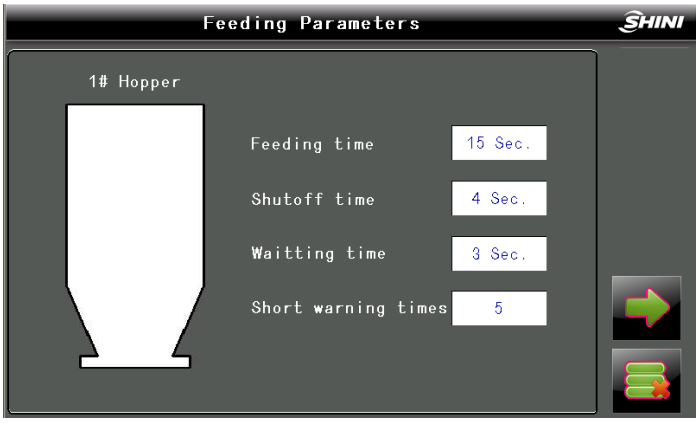
Picture 4-25: Selection Screen of Feeding system and Weight System

1. Enter into the selection screen of feeding system and weight system. Then press  to enter into the feeding monitoring screen.



Picture 4-26: Feeding Monitoring Screen

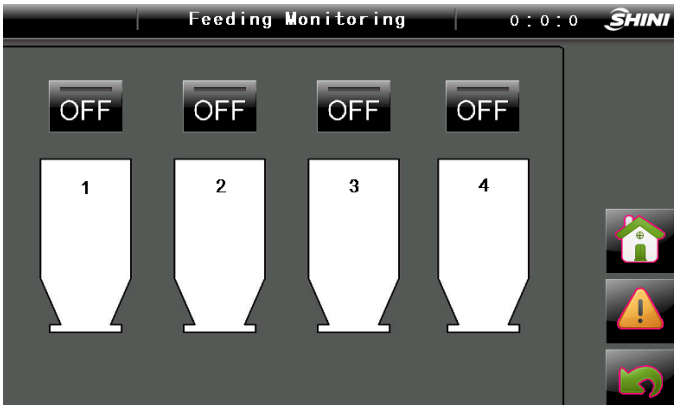
2. Press  to enter into feeding parameters setting screen of each hopper. Parameters of hopper 1 to hopper 4 are set as the following:



Picture 4-27：Feeding Parameters Screen

3. Go back to the feeding monitoring screen after finishing setting of feeding parameters of hopper 1 to hopper 4. Then press the feeding switch 

to make the system automatically complete the material suction cycle (No need to open hoppers which are not used.).



Picture 4-28： Feeding Monitoring Screen

4.10 Appendix

4.10.1 Appendix 3: Adjustment of Material Level Switch

1) When the material level is lower than the level switch, user should find out that the tail indication light of the switch is on; if it is off, it indicates that the sensor is not well adjusted. User shall press [ON] for continuous 6 seconds to accomplish the correction.

2) When the material level reaches or higher than the level switch, user should find out that the tail indication light of the switch is off; if it is on, it indicates that the sensor is not well adjusted. User shall press [OFF] for continuous 6 seconds to accomplish the correction.

3) Please check wiring or replace new material level switch if both methods fail to adjust it. (Remarks: black wire: signal wire; blue wire: connect with 24V-; brown wire: connect with 24V+)

4) The space between material level switch and mixing barrel shall be within 3~6mm and never exceed 8mm.

Picture 4-29：Material Level switch

4.10.2 Appendix 4: Functions of Each Level Switch

1) Level switch on hopper (optional)

It functions as pre-reminding the low level to give the operator enough time to load material. The level switch on hopper 2 has another function when hopper 2 is recycling material, and the raw material (hopper 1) shall take place of it automatically when the recycled material level is lower than this switch position. When the recycled material level exceeds the position of switch again, hopper 2 recovers to unload the material.

Picture 4-30：Level Switch on Hopper

2) Level switch on Mixing Tank

It functions as inspecting the material level of mixing tank. The machine will stop the calculate circulation when the level is higher than this switch position and restart it until the level is lower this switch position.

Picture 4-31：Level Switch on Mixing Tank

3) Level switch on storage tank (only for model with a floor stand)

It functions as inspecting the material level of storage tank. The machine will stop the calculate circulation when the level is higher than this switch position and restart it until the level is lower than this switch position.

Picture 4-32：Level Switch on storage Tank

4.11 Components Instructions

 Attention!

For application on the spot varies with the circumstances, new SGB allows each hopper freely defines its components categories. To operate the machine correctly, please read through this chapter carefully.

1. Eight components proportioning can be controlled at most.
2. Components categories of hopper 1~8 can be defined as follows:
   - Raw material;
   - Regrinds;
   - Material additives;
   - Batch additive
3. Feeding sequence: Regrinds➔Raw material➔Material additives➔Batch additives

   (Components of the same kind will be feed from hopper 1 to hopper 8 in succession.)
4. Components category definition and distribution principle

4.11.1 Regrinds

Definition: recycled plastic granules with additives such as masterbatch in it.

Distribution principle: relative to batch weight percentage

When a component is defined as regrinds, it is always calculated relative to batch weight percentage.

For example: if the batch weight is 1000g, and regrinds proportion is 20%, then regrind weight will be 200g.

4.11.2 Raw material

Definition: natural plastic particles without any additives in it.

Distribution principle: percentage relative to the total weight of raw material (percentage between materials.)

Description: hopper 1 is defined as raw material feeding and its percentage is automatically calculated. Total percentages of all the materials added together should be 100%.

When the component is defined as raw materials, it is always calculated relative to the proportion of each raw material. The actual batch weight proportion is relative to the proportions of regrinds and additives.

For example: batch weight is 1000g, hopper 3 is defined as 20% raw material and there is no regrinds or additives, calculation will be as follow:

Hopper 1（raw material）[AUTO] =100%- Hopper 2 [set]

=100%-20%

=80%;

Hopper 3（raw material）=20%;

The relative proportion=80%：20%=4：1

Because there are no regrinds and additives, the batch is raw materials. Therefore:

Hopper 1（raw material）=1000g*80% =800g;

Hopper 3 =1000g*20%=200g;

If Hopper is defined as 25% regrinds, calculation will be:

Hopper 2(regrinds) =1000g*25%=250g;

The total weight of the material = (batch weight-regrinds weight)

= (1000g-250g) = 750g

Hopper 1（raw material）=750g*80% =600g;

Hopper 3（raw material）=750g*20% =150g;

The proportion between materials =(600: 150)=4：1（no change of material relative proportion）

4.11.3 Material Additives

Definition: A substance to be proportionally added to raw materials. Such as masterbatch, stabilizer, et..

Distribution Principle: percentage relative to the total weight of all the materials.

For example when hopper 4 is defined as 5% additives, calculation will be as below according to the above-mentioned example:

Hopper 2（regrinds）=1000g*25% =250g;

The total weight of raw material and additives = (batch weight- regrinds weight) = (1000g-250g) =750g

Hopper 1（raw material）=（750g/105%）*80% =571.4g;

Hopper 3 (raw material) =（750g/105%）*20% =142.9g;

Hopper 4（additives）=（hopper 1+ Hopper 3）*5%

=（571.4g+142.9g）*5%

=35.7g

Proportion between materials =(571.4: 142.8)=4：1（no change of material relative Proportion）

4.12 Calculation Method of Masterbatch and additives

There are three methods to calculate masterbatch and additives:

1、Relative to batch capacity;

Ratios of masterbatch and additive are calculated relative to batch capacity.
E.g.: BATCH=1.0Kg, Hopper 1=AUTO calculated, Hopper 2=40%,
Hopper 3=3%, Hopper 4=2%. Thus real weights are:

Hopper 1=1.0×(100%-40%-3%-2%)=0.55Kg(550g)

Hopper 2=1.0×40%=0.4Kg(400g)

Hopper 3=1.0×3%=0.03Kg(30g)

Hopper 4=1.0×2%=0.02Kg(20g)

2、Relative to raw material capacity;

Ratios of masterbatch and additive are calculated relative to raw material capacity.
E.g.: BATCH=1.0Kg, Hopper 1=AUTO calculated, Hopper 2=40%,
Hopper 3=3%, Hopper 4=2%. Thus real weights are:

Hopper 1=1.0×(100%-40%)=0.6Kg(600g)

Hopper 2=1.0×40%=0.4Kg(400g)

Hopper 3=0.6×3%=0.018Kg(18g)

Hopper 4=0.6×2%=0.012Kg(12g)

Under this mode, weight of both masterbatch and additives will be adjusted automatically depending on the availability of regrind (Hopper 2). Take above as example: as long as regrind in hopper 2 is full, amount of masterbatch (Hopper 3) and additives (Hopper 4) will always be 18g and 12g respectively. But, if regrind is not available or its level is low, raw material in Hopper 1 will replenish the difference automatically, therefore, real weights of masterbatch and additives will be:

Hopper 3=1.0×100%×3%=0.030Kg(30g)

Hopper 4=1.0×100%×2%=0.020Kg(20g)

3、Relative to double raw material capacity;

Ratios of masterbatch and additive are calculated relative to double raw material (Hopper 1 + Hopper 2) capacity.
E.g.: BATCH=1.0Kg, Hopper 1=AUTO calculated, Hopper 2=40%,
Hopper 3=3%, Hopper 4=2%. Thus real weights are:

Hopper 1=1.0×(100%-40%)=0.6Kg(600g)

Hopper 2=1.0×40%=0.4Kg(400g)

Hopper 3=(0.6+0.4)×3%=0.03Kg(30g)

Hopper 4=(0.6+0.4)×2%=0.02Kg(20g)

4.12.1 Appendix 4: Chromatic Aberration Compensation of Reclaimed Material

In some occasions, the color of reclaimed material may fade. Therefore, it is necessary to add masterbatch.

E.g.: reclaimed material=600g, raw material=1400g,

proportion of masterbatch=4%

If the compensation value of reclaimed material is 0:

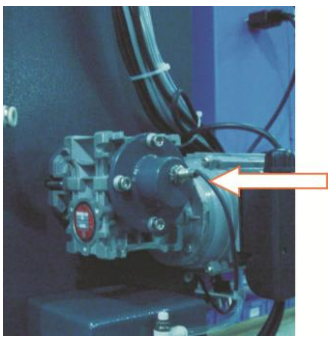
Masterbatch=raw material×masterbatch proportion= 1400×0.04= 56g

If the compensation value of reclaimed material is + 20%:

Used masterbatch = (raw material + reclaimed material x 20%) x masterbatch proportion = (1400 + 600 x 0.2) x 0.04= 60g

4.12.2 Appendix 7: Blending Motor Locked-rotor Inspection Switch

It is used to detect whether the blending motor is blocked up and protect the blending motor effectively. Pay attention to the tail indicator of this inspection switch which shall glitter during the blending motor operation. The inspection switch may be broken or installed improperly if the indicator is not glittering.



Picture 4-33： Blending Motor Locked-rotor Inspection Switch

4.12.3 Appendix 8: Control Mode

There are three modes of metering controlling:

1. Weighing metering: the weight of components is detected by sensor to finish proportioning. (A recommended normal mode)
2. Volumetric (timing) metering: time setting is helpful for components to finish

proportioning. (A standby mode when sensor in fault)

3. Mixing metering: after weighing metering cycle comes the volumetric metering cycle with adjustable cycle-index. (Applicable for low accuracy of proportioning and for enhancing throughput per hour)

1) Weighing Metering Mode

This mode is the accurate metering and with this mode, proportion of every component is measured and controlled via weighing cell. Below is the principle:

1. Based on the batch feeding percentage, reclaims are measured by weighing cell and then they fall in the pan.
2. Total material weight will be come out based on reclaim actual feeding amount. Each component will be weighed by weighing cell according to material total weight and fall in the pan.
3. Masterbatch will be metered according the selected metering method.
4. Additives will be metered according the selected metering method.
5. After four components above are metered, pan opens and mixture will fall into mixing hopper for uniform blending.
6. Mixing period is over and discharge valve opens to allow mixture to be loaded to storage hopper.

In the weighing metering mode, total material usage varies with changes of reclaim actual weight, material additive usage varies with changes of actual material usage, and batch additive varies with changes of whole batch weight. Thus, actual feeding amount of components of each batch is adjusted automatically, which ensures a stable and accurate proportioning.

2) Volumetric (Time) Metering Mode

This mode is an emergency mode, which only comes into effect during weighing system failing to work or other special situations. Below is the principle:

1. First step, metering cell of reclaims conducts volumetric metering based on time setting of the current mode;
2. Second step, metering cell of raw material conducts volumetric metering based on time setting of the current mode;
3. Third step, metering cell of material additives conducts volumetric metering based on time setting of the current mode;
4. Fourth step, metering cell of batch additives conducts volumetric metering

based on time setting of the current mode;

5. After four metering above are finished, pan opens and mixture will fall into mixing hopper for uniform blending.
6. Mixing period is over and discharge valve opens to allow mixture to be loaded to storage hopper.

Under volumetric metering mode, weighing cell is unavailable for using and metering is under time fuzzy control. Thus material in each hopper should be sufficient for proportioning would go wrong if shortage of material exists in this mode. Hopper low level switch is available as an option to early warn the proportioning error.

3) Mixing Metering Mode

In this mode, when a batch is completed via weight metering mode, then up to 8 volumetric metering modes can be added. (Cycles is adjustable). Thus throughput per hour of machine can be increased via reducing weighing times while mixing accuracy may be lowered.

5. Trouble-shooting

SGB-40~600

Alarm information	Results	Possible reasons	Solutions
Hoppers1~4 low level	Alarm	1. No material inside the hopper. 2. Level sensor wasn't adjusted properly.	1. Add material into hopper. 2. Adjust the sensitivity of sensor.
Hoppers 1~4 shortage	Alarm and stop the machine	1. No material in the hopper. 2. Metering valve is blocked or motor failure. 3. Electrocircuits or pneumatic lines fault. 4. Weighing system faults.	1. Check the material in the hopper. 2. Check metering valve and motor. 3. Check electrocircuits or pneumatic lines. 4. Check whether the weighing works normally on the weighing calibration menu.
Hoppers 1~4 over weight	Alarm	The volume of discharged material exceeds the overloading alarm setting value. 1. Metering valve cannot be closed. 2. New controller doesn't carry out weighing calibration. 3. The overloading setting value is too small. 4. Setting proportion is too small. Small proportion isn't suitable for pneumatic metering. 5. Sometimes, it's normal for the first time startup of machine.	1. Check the metering valve. 2. Carry out the weighing calibration. 3. Set the proportion for 5%-10%. 4. Exchange with screw metering device.
Load cell failure	Alarm and stop the machine	Circuit faults or pressure is too high.	1. Check if there is a load in the weighing pan. 2. Check the weighing sensor. 3. Check if the lines break. 4. Calibrate the weight again.
Output reached	Alarm and stop the machine	Reach the estimated output	1. Set a new output vale or input '0' to close this function. 2. After 'clear accumulation', machine will start with a new work cycle0

Alarm information	Results	Possible reasons	Solutions
Over weighing pan	Alarm and stop the machine	The weight of discharged material exceeds the alarm setting value of weighing pan.	Check if all metering valves/motors work normally. 1. Check if there is other heavy load in the weighing pan or weighing pan has been pressed deadly. 2. Overloading alarm setting value is too small. Please refer to parameter setting menu3.
Mixing motor failure	Alarm and stop the machine	During mixing, no rotation action of mixing motor is detected.	1. Check whether this motor works normally. 2. Check whether the motor sensor is adjusted correctly.
Safety door / low pressure	Alarm and stop the machine	Safety door isn't closed or the pressure isn't enough.	1. Check whether the safety door is closed tightly. 2. Check whether the air pressure is enough.
Module failure	Alarm and stop the machine	The red light of loadcell SF is blinking which indicates the load cell or hardware faults.	1. Check the connection of loadcell Is OK or not. 2. Check/change the load cell.
Pan or cell failure	Alarm and stop the machine	When system is under metering condition, the metered weight is decreasing.	1. Check whether the weighing pan is closed tightly . 2. Check whether the connection of load cell is broken.
Deviation at “zero”	Alarm and stop the machine	System detects that the weight of empty weighing pan exceeds the alarm setting value of zero drift. Factory setting is +/-50g。	1. Check the weighing pan can be opened freely or not. 2. Check whether the installation of load cell is correct. 3. Check whether the discharging setting time is too short (3-5s). 4. Check the metering valve of hopper 1 to hopper and see if it can be closed or opened freely to ensure no material leakage.
Module power failure	Alarm and stop the machine	Power supply of load cell disappears.	Check 24V DC power supply of load cell works normally or not.
Hopper 1 replaces hopper 2	Only display this information	When the low material (recycled material) occurs in hopper2, its proportion will be replaced by hopper 1.	

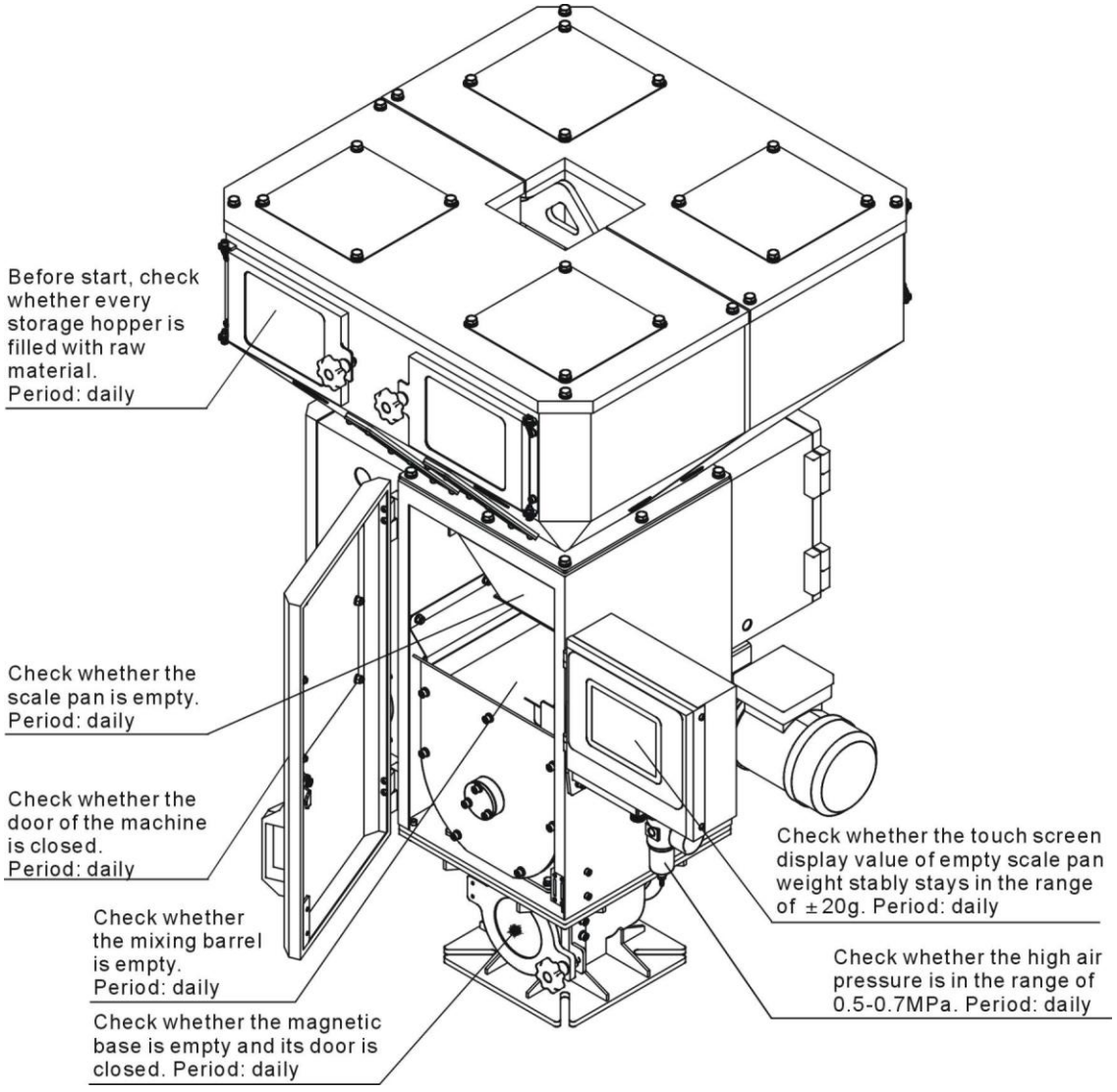
Alarm information	Results	Possible reasons	Solutions
Hopper1~8 low level of material	Alarm	1. No material in hopper. 2. No adjusting level sensor.	1. Filling material. 2. Adjust sensor sensitivity.
Hopper1~8 material shortage	Alarm of machine halt	1. No material in hopper. 2. Stuck of metering valve or motor faults. 3. Electric or air circuit faults. 4. Weighing system faults.	1. Check material in hopper. 2. Check the valve and motor. 3. Check electric or air circuit. 4. In weight calibration interface, check if weighing is normal.
Hopper1~8 overfeeding of material	Alarm	Feeding amount exceeds hopper1~4 overweigh set valve of parameter setting. 1. Metering valve can not be closed. 2. No weighing calibration of new controller. 3. Too small set value of overweight alarm. 4. Too small proportion setting. Pneumatic metering valve can not fit small proportion. 5. First startup, it is a normal situation.	1. Check the valve. 2. Execute weighing calibration. 3. Set the value of 5%~10%. 4. Changed for screw metering.
Off line of weighing sensor	Alarm of machine halt	Off line of weighing gauge or over pressure.	1. Check if there is heavy object in pan. 2. Check the sensor. 3. Check if there is offline in circuit. 4. Recalibrating of weight.
Reach to the throughput	Alarm of machine halt	Set the reach to throughput.	1. Set a new throughput value or input”0” to disable function. 2. Clear total value and startup, a new metering can be available.
Overweight of pan	Alarm of machine halt	Feeding weight exceeds pan overweight alarm setting.	Check if metering valve and motor works normally. 1. Check if heavy objects in pan or if pan gets stuck. 2. Too small overweight alarm setting. Refer to parameter setting screen 3.
Mixing motor faults	Alarm of machine halt	When agitating, mixing rotation of motor can not be detected.	1. Check if mixing motor works normally. 2. Check if mixing motor sensor is adjusted accurately.
Safety door open or low pressure	Alarm of machine halt	No close of safety door or insufficient pressure.	1. Check id the door is locked tightly. 2. Check if pressure is insufficient or not.

Alarm information	Results	Possible reasons	Solutions
Weighing module faults	Alarm of machine halt	SF light is On, indicating module system or hardware faults.	1. Check if weighing sensor is connected normally. 2. Check or replace weighing module.
Pan or sensor faults	Alarm of machine halt	When system is weighing, it detects weight is reducing.	1. Check if pan is closed tightly. 2. Check if weighing sensor wiring if off or broken.
Pan seriously zero deviation	Alarm of machine halt	It detects weight of empty pan exceeds zero deviation alarm setting. Default value is +/-100g.	1. Check if pan can be opened freely. 2. Check if there is any flaw in sensor installation. 3. Check if feeding time is too short. (3~5 seconds.) 4. Check if hopper1~4 metering valve can be opened/closed normally to ensure no material leakage.
Phase sequence error	Alarm of machine halt	Power wiring phase sequence error or default phase.	Check power wiring connection and exchange two wires at random.
Outage of weighing module	Alarm of machine halt	Power supply of weighing module fails	Check if module 24DC power supply is normal.

6. Maintenance and Repair

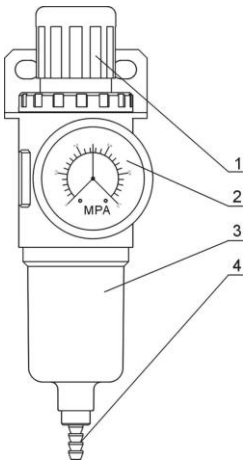
6.1 Maintenance

All the repair work should be done qualified personnel to prevent personal injuries and damage of the machine.



6.2 Filter & Pressure Regulating Valve

6.2.1 Filter & Pressure Regulating Valve Drawing



Parts list:

1. Pressure adjusting knob 2. Pressure gauge 3. Cup 4. Water outlet

Picture 6-1: Filter & Pressure Regulating Valve Drawing

6.2.2 Filter & Pressure Regulating Valve Operation steps

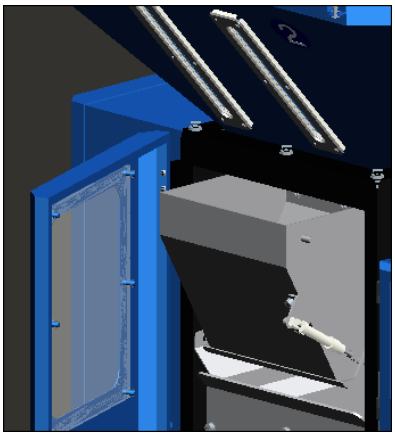
1) Switch on the air source.
2) Pull the black pressure adjusting knob 1 upward and rotate it, observe the pressure gauge 2, generally a 0.5 Mpa pressure is advisable.
3) Push back the black knob 1.

6.3 Storage Hopper Cleaning

1) Start the machine and enter the manual mode, open all the metering valves and shut-of plates.
2) Unscrew the screw and open the clearance door of the storage hopper.
3) Clean the storage hopper with a high pressure air gun.

6.4 Scale Pan Cleaning

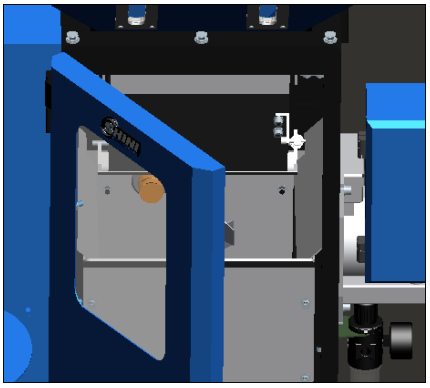
1) Open the shut-off plates in manual mode.
2) Move the gravimetric hopper.
3) Clean the scale pan with a high pressure air gun.



Picture 6-2：Drawing of Scale Pan Cleaning

6.5 Clean Mixing Chamber

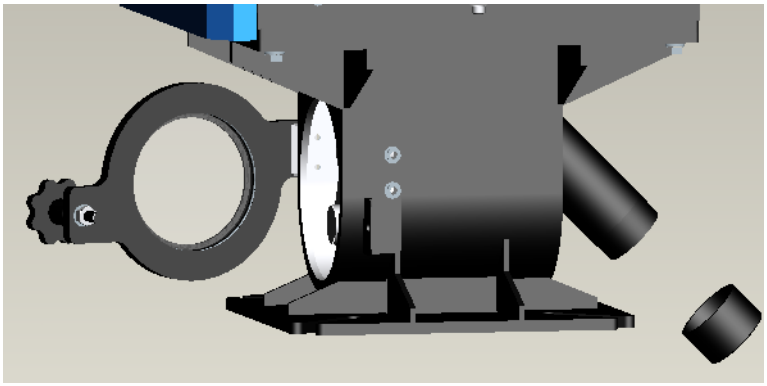
Open the door of the machine and clean the inside with an air gun.



Picture 6-3：Clean Mixing Chamber

6.6 Magnetic Base Cleaning

1) Unscrew the cover of the discharging tube.
2) Unscrew the screw; open the door of the magnetic base.
3) Take out the magnet bar and remove the metal on it.
4) Clean the inside magnetic base with a high pressure air gun.



Picture 6-4：Drawing of Magnetic Base Cleaning

6.7 Clean Material Shut-off Plate

In order not to obstruct material discharging, please clean machine base and material shut-off plate of it regularly.

Picture 6-5：Clean Material Shut-off Plate

6.8 Maintenance Schedule

6.8.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.8.2 Check after Installation

☐Check the pressure of air supply

☐Check that door security switch is tightly fixed

☐Check if machine base is firmly locked or not

Electrical installation

☐Voltage: _____V _____ Hz

☐Fuse melt current: 1 Phase _____ A 3 Phase _____ A

☐Check phase sequence of power supply.

6.8.3 Daily Checking

☐Check the power switch.
☐Check the pressure of air supply.
☐Check material discharge gate at machine base.
☐Check fastening screws of machine base.

6.8.4 Weekly Checking

☐Check all the electrical wires.
☐Check all the electrical connections.
☐Check the status of compressed-air filter & regulator.

6.8.5 Monthly Checking

☐Check the performance of capacitor switch.
☐Check the blending shaft.
☐Check the performance of safety switch.