SCM-E series

Volumetric Dosers

Original Manual Instruction

Date: Feb. 2012

Version: V4.2 (English)

SHINI®
plastics technologies

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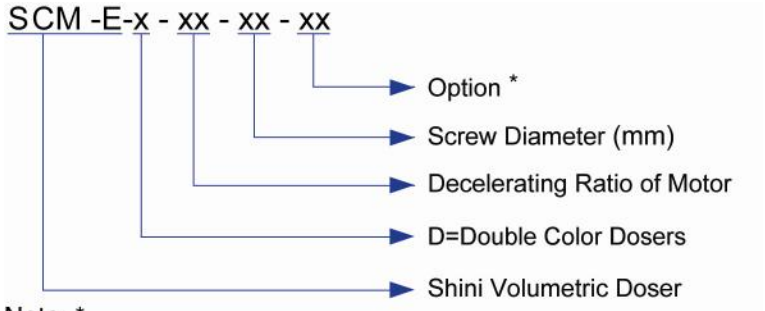
1. General Description

Please read this manual carefully before installation and using of the machine to prevent damage or personal injuries.

The SCM-E series "Standard" volumetric dosers are suitable for auto-proportional mixing of new materials, regrinds, master batch and additives. A carbon-brush motor is used in this series. The operator controls the precise dosing screw by setting its rotation speed to extrude materials with an accuracy of ±1％. A gear motor with deceleration ratio of 38:1 or 75:1 is coupled to a dosing screw of 12, 14 or 16mm diameter to give a total of six models with output ranging from 0.1 to 38kg/hr. Double color dosers can be supplied to match with two single color dosers if required by clients.

Model: SCM-E-38-16 Single Color Doser

1.1 Coding Principle



Note: *
MS=Equipped with Mixer (Only applicable for single color doser)
CE=CE Conformity(Not applicable for “Standard” model)

1.2 Feature

Standard configuration

1) Motor rotating speed and plasticizing time can be adjusted simply and directly.
2) High and low potential starts can be selected for IMM connecting signal
3) Fixed 60-second output testing.
4) Machine halts and sounds alarm when motor faults.
5) Use carbon brush motor, the carbon can be replaced at fixed period.

Accessory option

For collocating with SHD-100 or SHD-160U and above dryers, heavy base should be selected.

Model: SCM-E-D-38/38 Double Color Dosers

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.

Headquarter and Taipei factory:
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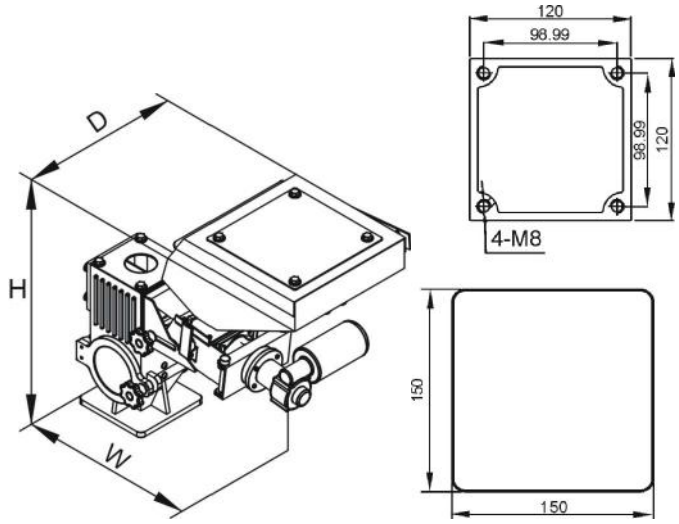
1.3 Technical Specifications

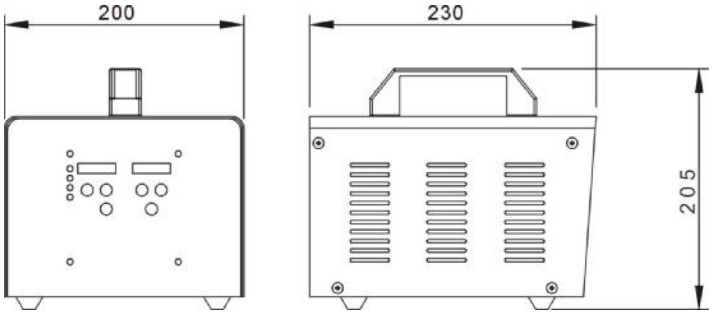
1.3.1 Dimensions of Single-color Doser

1.3.1.1 Dimensions of Single-color Doser Main Body



Picture 1-1: Dimensions of Single-color Doser Main Body

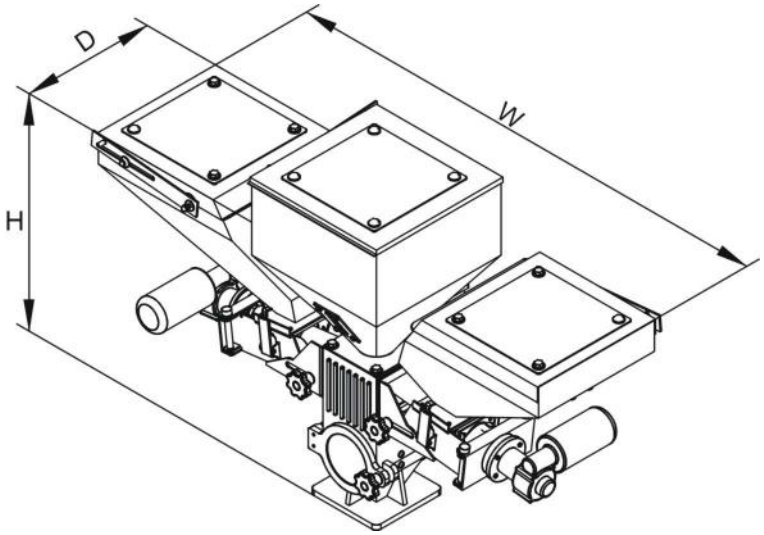
1.3.1.2 Control Cabinet



Picture 1-2: Dimensions of Single-color Doser Control Cabinet

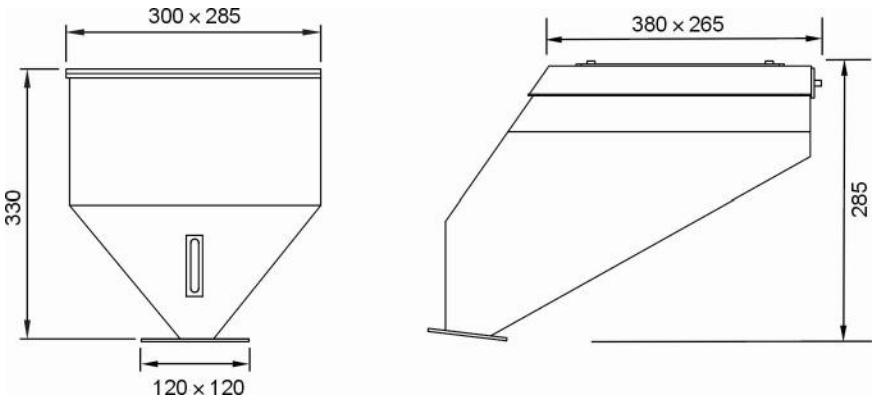
1.3.2 Dimensions of Two-color Doser

1.3.2.1 Dimensions of Two-color Doser Main Body



Picture 1-3: Dimensions of Two-color Doser Main Body

1.3.2.2 Dimensions of Two-color Control Cabinet



Picture 1-4: Dimensions of Two-color Control Cabinet

1.3.3 Specification List

Table 1-1: Specification List

Model	Single Color Unit SCM-E						Double Color Units SCM-E-D		
	38-16	38-14	38-12	75-16	75-14	75-12	38/38	38/75	75/75
Motor Power (kW) (50/60Hz)	0.06	0.06	0.06	0.06	0.06	0.06	0.06×2	0.06×2	0.06×2
Motor Speed (rpm)	0~3000	0~3000	0~3000	0~3000	0~3000	0~3000	0~3000	0~3000	0~3000
Output Power of The Mixer (kW)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Screw External Dia. (mm)	16	14	12	16	14	12	**	**	**
Output Capacity (kg/hr)	1.1~32	0.6~20	0.3~10	0.5~15	0.2~8	0.1~4	*	*	*
Storage Bin (L)	10	10	10	10	10	10	10	10	10
Gear Ratio	38:1	38:1	38:1	75:1	75:1	75:1	38:1/38:1	38:1/75:1	75:1/75:1
Main Material Hopper	Optional	Optional	Optional	Optional	Optional	Optional	Standard	Standard	Standard
Mixer	Optional	Optional	Optional	Optional	Optional	Optional	Standard	Standard	Standard
Floor Stands	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Dimensions									
H (mm)	520	520	520	520	520	520	615	615	615
W (mm)	610	610	610	610	610	610	1045	1045	1045
D (mm)	335	335	335	335	335	335	335	335	335
Weight (kg)	29	29	29	29	29	29	50	50	50

Note: 1) *means the output capacity is depended on model that client selecty, data of single color doser can be a reference. For example: SCM-E-D-38-16/38-14, output capacity 1.7~52 kg/hr. We reserve the right to change specifications without prior notice.

2) **stands for the external dia. of the screw is up to client's model choice.

3) Mount mixer for single color doser, model denotes"MS".

4) All the output capacity from above models is base on the data from density 1.2kg/L ,dia.2~3mm master batch in a test criteria of continuous running.

5) Power supply: 1Φ , 230V, 50Hz.

1.4 Safety Regulations

Strictly abide by the following safety guide to prevent damage of the machine or personal injuries.

1.4.1 Safety Signs and Labels

All the electrical components should be installed by qualified electricians.
Turn off the main switch and control switch during maintenance or repair.

Warning! High voltage!
This sign is attached on the cover of control box!

Warning! Be careful!
Be more careful at the place where this sign appears!

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

Warning!
Watch you hand!
The label sticks to the husing of the hopper!

Warning!
Be careful of scratch!
The label sticks to the coupling place of the screw and the measurement motor!

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.

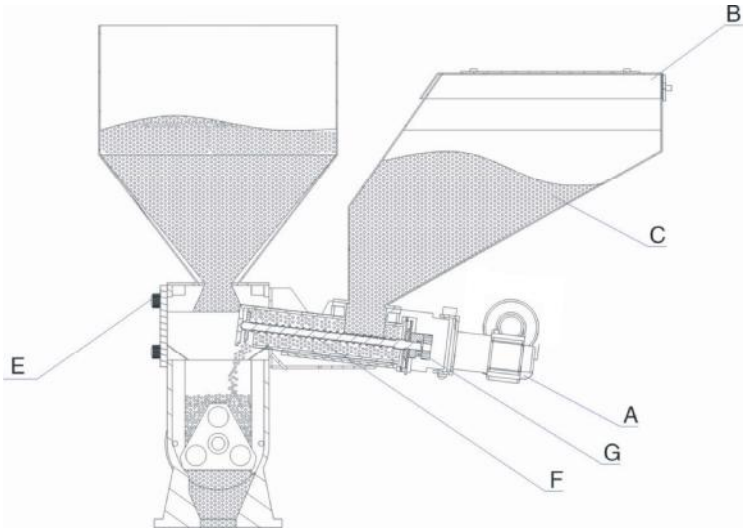
2. Structure Characteristics and Working Principle

2.1 Main Functions

The SCM-E series "Standard" volumetric dosers are suitable for auto-proportional mixing of new materials, regrinds, master batch and additives. A carbon-brush motor is used in this series. According to the set mixing proportion, the microprocessor accurately controls rotation of the high precise dosing screw to squeeze out materials with an accuracy of ±1％. A gear motor with deceleration ratio of 38:1 or 75:1 is coupled to a dosing screw of 12, 14 or 16mm diameter to give a total of six models with output ranging from 0.1 to 38kg/hr. Double color dosers can be supplied to match with two single color dosers if required by clients.

2.2 Working Principle of Single-color Doser

2.2.1 Working Principle of Single-color Doser

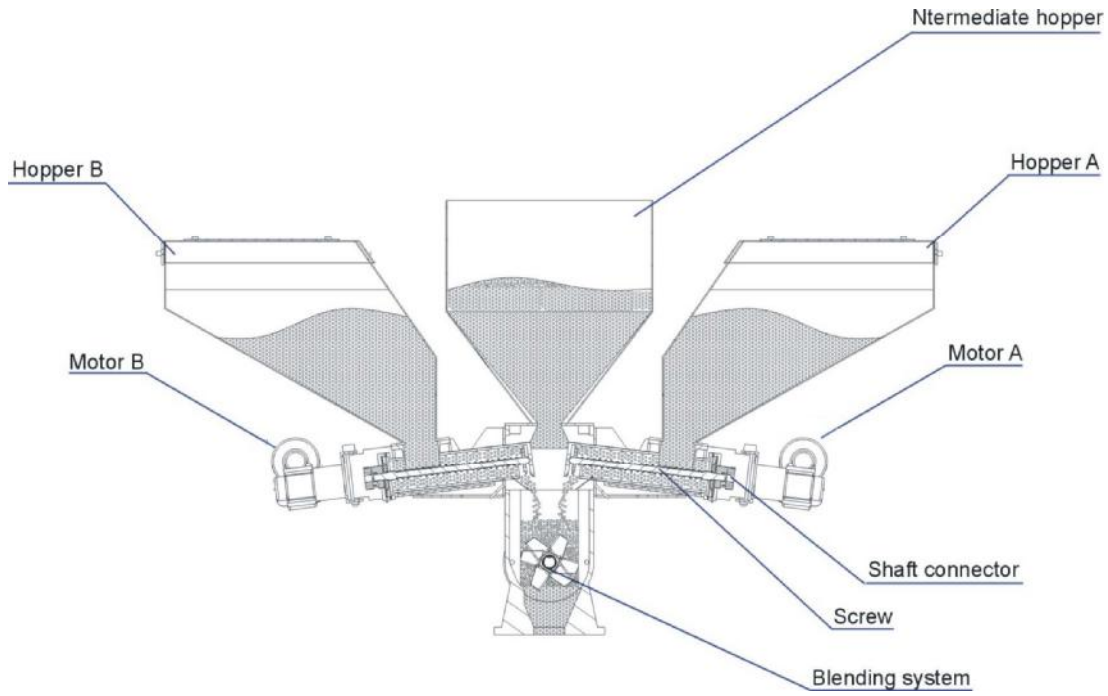


Picture 2-1: Working Principle of Single-color Doser

Signals from control cabinet will be sent to motor (A). Then it begins to work. The rotary force is transferred to the dosing screw (F) through shaft connector (G). Color additives (C) in hopper (B) will fall into the groove of conveying screw (F), then be taken to hopper base (E) by rotating action of the screw (F).

2.2.2 Working Principle of Two-color Doser

Two-color doser combines two dosing units with a blending system. It can be used to convey two color additives at the same time. Choose different kinds of dosing units according to additive usage. Each dosing unit is controlled by separate system, suitable for accurate dosing of virgin material, regrind, materbatch or other additives. P.I.D. control system and microprocessor can ensure the accuracy of 1%.

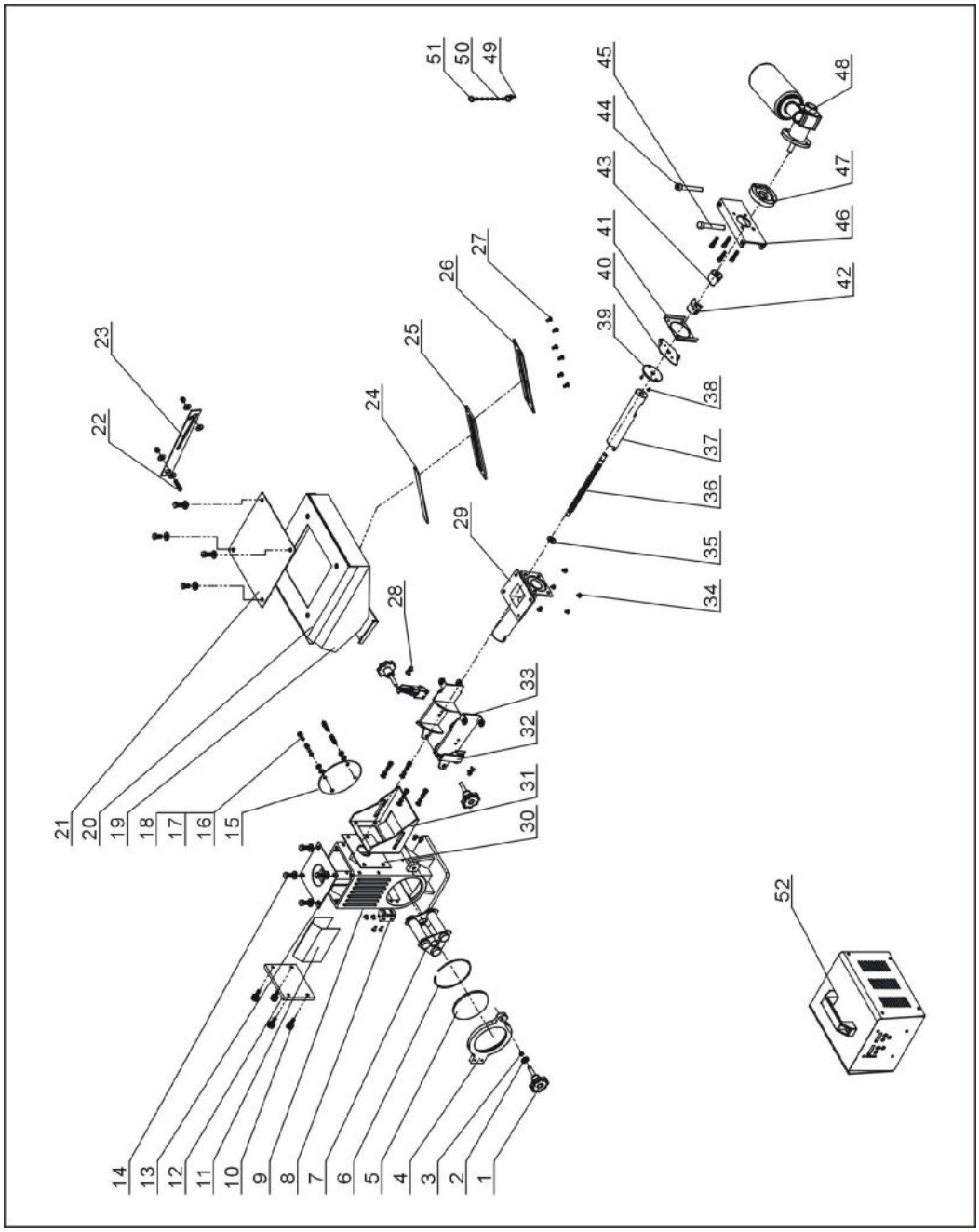


Picture 2-2: Working Principle of Two-color Doser

Signals from control cabinet will be sent to motor A/B. Then it begins to work. The rotary force is transferred to the dosing screw through shaft connector. Color additives in hopper A and B will fall into the groove of conveying screws, then be taken to hopper base by rotating action of the screws and to be mixed by mixing system before sending to moulding machine.

2.3 Assembly Drawing and Parts List

2.3.1 Assembly Drawing of Single-color Doser



Remarks: Please refer to material List 2.3.2 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-3: Assembly Drawing of Single-color Doser

2.3.2 Parts List of Single-color Doser

Table 2-1: Parts List of Single-color Doser (SCM-E-38-16/14/12)

No.	Name	Part number		
		SCM-E-38-16	SCM-E-38-14	SCM-E-38-12
1	Knob B type M8×35	YR40083500000	YR40083500000	YR40083500000
2	Flat gasket 8	YW66081900000	YW66081900000	YW66081900000
3	Nut M8	YW64000800100	YW64000800100	YW64000800100
4	Base door	-	-	-
5	Tempered glass	YW70125000000	YW70125000000	YW70125000000
6	Spring of magnetic base	YW01005000100	YW01005000100	YW01005000100
7	Three-tube magnetic frame	BY10500010050	BY10500010050	BY10500010050
8	Hinge of magnetic base	BL01005020020	BL01005020020	BL01005020020
9	Base	-	-	-
10	Manual tighten up screw M6×6×16	YW69616100000	YW69616100000	YW69616100000
11	Striker plate	-	-	-
12	End plate	-	-	-
13	Base cover	-	-	-
14	Hex screw M8×16	YW60081600100	YW60081600100	YW60081600100
15	Rear cover	-	-	-
16	Hex socket screw M6×20	YW61062000200	YW61062000200	YW61062000200
17	Flat gasket 8	YW66061200000	YW66061200000	YW66061200000
18	Spring gasket 6	YW65006000100	YW65006000100	YW65006000100
19	Storage hopper	-	-	-
20	Storage hopper lid plate	-	-	-
21	Storage hopper lid	BW09202000000	BW09202000000	BW09202000000
22	Hex screw M6×25	YW61062500000	YW61062500000	YW61062500000
23	Hopper connection plate	-	-	-
24	Six-way acryl	YR40001200000	YR40001200000	YR40001200000
25	Six-way acryl stringency	YR40000600000	YR40000600000	YR40000600000
26	Six-way acryl iron sheet	YW09000600000	YW09000600000	YW09000600000
27	Cross socket head cap screw M5×10	YW62051000100	YW62051000100	YW62051000100
28	Cross socket head cap screw M4×10	YW62041000100	YW62041000100	YW62041000100
29	Convey pipeline	-	-	-
30	Material shutter	-	-	-

No.	Name	Part number		
		SCM-E-38-16	SCM-E-38-14	SCM-E-38-12
31	Side fixed housing	-	-	-
32	New snap hook adjustable	YW02003000400	YW02003000400	YW02003000400
33	Body fixed bracket 1	-	-	-
34	Hex socket screw M5×10	YW61051000100	YW61051000100	YW61051000100
35	Screw shaft option 2	-	-	-
36	Screw shaft Φ12	-	-	-
37	Screw shaft Φ12 sleeve	-	-	-
38	Cruciform screw M3×6	YW61030600100	YW61030600100	YW61030600100
39	Screw shaft option 3	-	-	-
40	Screw shaft connection of	-	-	-
41	Conveying connection board	-	-	-
42	Shaft coupler 1	-	-	-
43	Shaft coupler 2	-	-	-
44	Motor fixed rotation pin 2	-	-	-
45	Motor fixed rotation pin 1	-	-	-
46	Body fixed bracket 2	-	-	-
47	Feeding motor flange	-	-	-
48	Gearmotor	-	-	-
49	Screw M3×10	-	-	-
50	1.2 hinge	YW90120000000	YW90120000000	YW90120000000
51	A key ring1.5×13	-	-	-
52	Electrical control box	-	-	-

* 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.

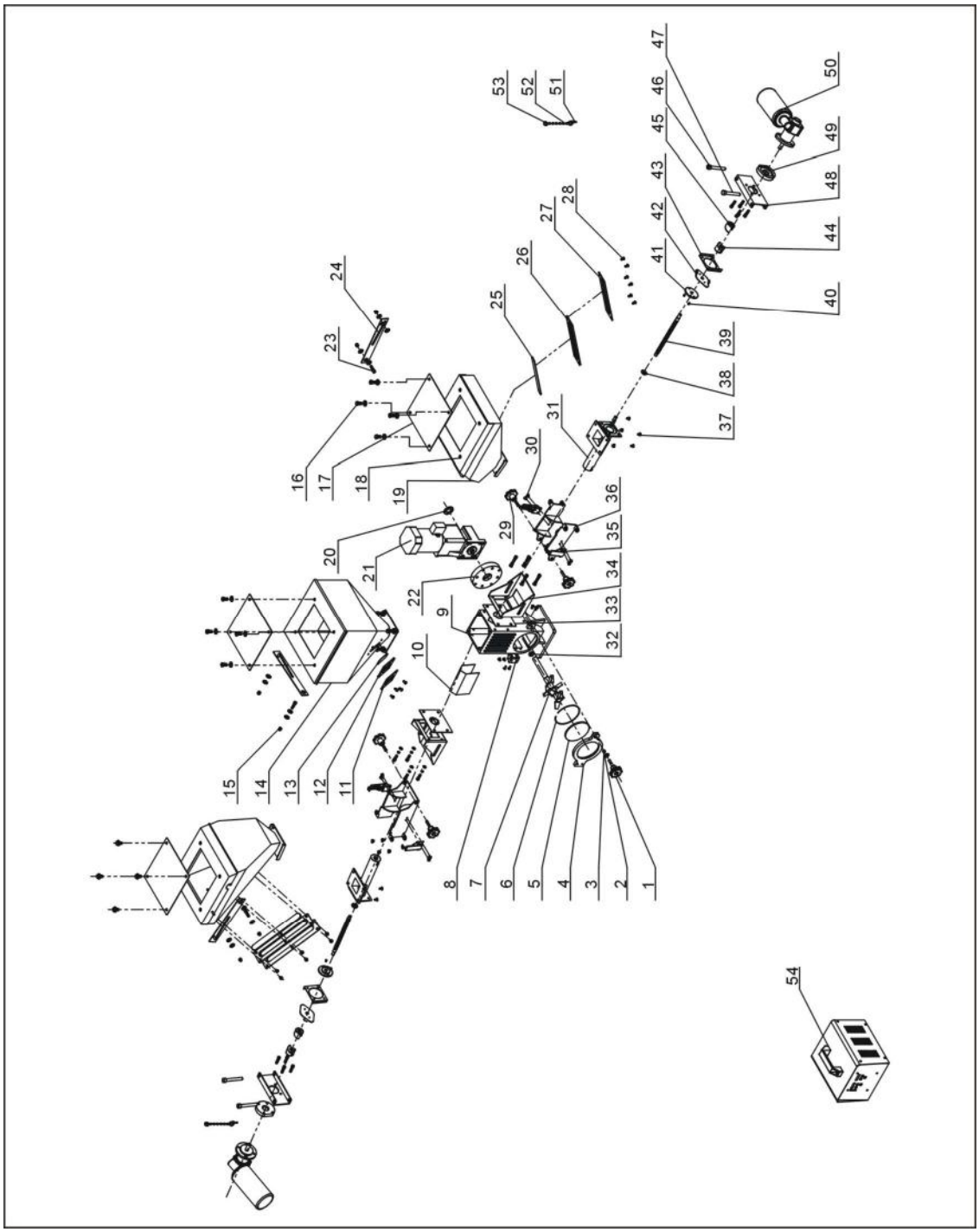
Table 2-2: Parts List of Single-color Doser (SCM-E-75-16/14/12)

No.	Name	Part number		
		SCM-E-75-16	SCM-E-75-14	SCM-E-75-12
1	Knob B typem8×35	YR40083500000	YR40083500000	YR40083500000
2	Flat gasket 8	YW66081900000	YW66081900000	YW66081900000
3	Nut M8	YW64000800100	YW64000800100	YW64000800100
4	Base door	-	-	-
5	Tempered glass	YW70125000000	YW70125000000	YW70125000000
6	Spring of magnetic base	YW01005000100	YW01005000100	YW01005000100
7	Three-tube magnetic frame	BY10500010050	BY10500010050	BY10500010050
8	Hinge of magnetic base	BL01005020020	BL01005020020	BL01005020020
9	Base	-	-	-
10	Manual tighten up screw M6×6×16	YW69616100000	YW69616100000	YW69616100000
11	Striker plate	-	-	-
12	End plate	-	-	-
13	Base cover	-	-	-
14	Hex screw M8×16	YW60081600100	YW60081600100	YW60081600100
15	Rear cover	-	-	-
16	Hex socket screw M6×20	YW61062000200	YW61062000200	YW61062000200
17	Flat gasket 8	YW66061200000	YW66061200000	YW66061200000
18	Spring gasket 6	YW65006000100	YW65006000100	YW65006000100
19	Storage hopper	-	-	-
20	Storage hopper lid plate	-	-	-
21	Storage hopper lid	BW09202000000	BW09202000000	BW09202000000
22	Hex screw M6×25	YW61062500000	YW61062500000	YW61062500000
23	Hopper connection plate	-	-	-
24	Six-way acryl	YR40001200000	YR40001200000	YR40001200000
25	Six-way acryl stringency	YR40000600000	YR40000600000	YR40000600000
26	Six-way acryl iron sheet	YW09000600000	YW09000600000	YW09000600000
27	Cross socket head cap screw M5×10	YW62051000100	YW62051000100	YW62051000100
28	Cross socket head cap screw M4×10	YW62041000100	YW62041000100	YW62041000100
29	Convey pipeline	-	-	-
30	Material shutter	-	-	-

No.	Name	Part number		
		SCM-E-75-16	SCM-E-75-14	SCM-E-75-12
31	Side fixed housing	-	-	-
32	New snap hook adjustable	YW02003000400	YW02003000400	YW02003000400
33	Body fixed bracket 1	-	-	-
34	Hex socket screw m5×10	YW61051000100	YW61051000100	YW61051000100
35	Screw shaft option 2	-	-	-
36	Screw shaft ф12	-	-	-
37	Screw shaft ф12 sleeve	-	-	-
38	Cruciform screw m3×6	YW61030600100	YW61030600100	YW61030600100
39	Screw shaft option 3	-	-	-
40	Screw shaft connection of	-	-	-
41	Conveying connection board	-	-	-
42	Shaft coupler 1	-	-	-
43	Shaft coupler 2	-	-	-
44	Motor fixed rotation pin 2	-	-	-
45	Motor fixed rotation pin 1	-	-	-
46	Body fixed bracket 2	-	-	-
47	Feeding motor flange	-	-	-
48	Gearmotor	-	-	-
49	Screw M3×10	-	-	-
50	1.2 hinge	YW90120000000	YW90120000000	YW90120000000
51	A key ring1.5×13	-	-	-
52	Electrical control box	-	-	-

* 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.

2.3.3 Assembly Drawing of Two-color Doser



Remarks: Please refer to material List 2.3.4 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-3: Assembly Drawing of Two-color Doser

2.3.4 Parts List of Two-color Doser

Table 2-3: Parts List of Two-color Doser (SCM-E-D-38-16/14/12)

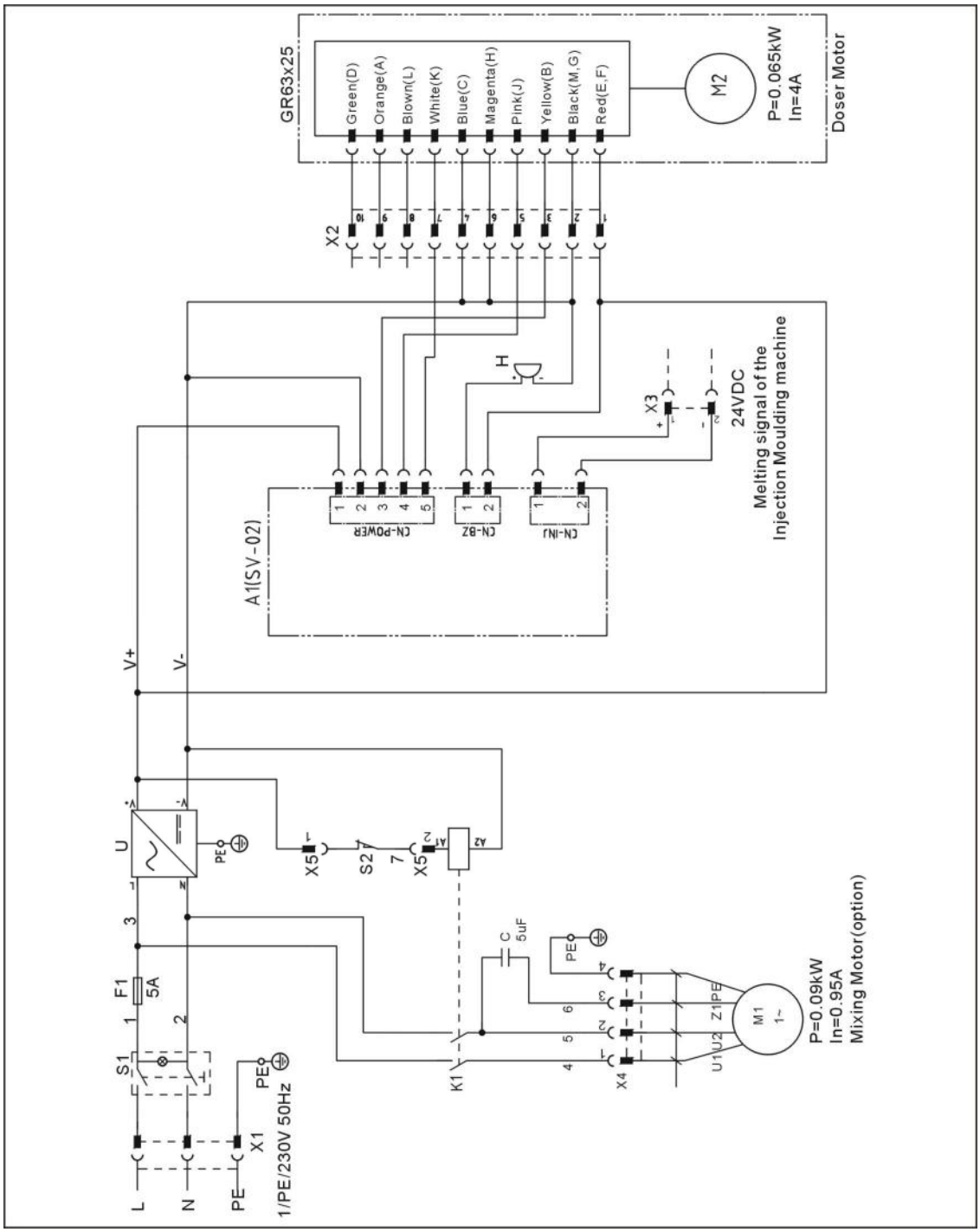
No.	Name	Part number		
		SCM-E-D-38/38	SCM-E -D-38/75	SCM-E -D-75/75
1	Knob B type m8×45	-	-	-
2	Flat gasket 8	YW66081900000	YW66081900000	YW66081900000
3	Nut M8	YW64000800100	YW64000800100	YW64000800100
4	Base door	-	-	-
5	Tempered glass**	YW70125000000	YW70125000000	YW70125000000
6	Spring of magnetic base	YW01005000100	YW01005000100	YW01005000100
7	Mixer welding figure	-	-	-
8	Hinge of magnetic base	BL01005020020	BL01005020020	BL01005020020
9	Base	BW20000000010	BW20000000010	BW20000000010
10	Striker plate	-	-	-
11	Four -way acryl iron sheet	YW09000400000	YW09000400000	YW09000400000
12	Four -way acryl stringency	YR40000400000	YR40000400000	YR40000400000
13	Four-way acryl	YR40001200100	YR40001200100	YR40001200100
14	Main hopper welding figure	-	-	-
15	Acorn nut M6	YW64006000100	YW64006000100	YW64006000100
16	Hex screw M8×16	YW60081600100	YW60081600100	YW60081600100
17	Storage hopper lid	BW09202000000	BW09202000000	BW09202000000
18	Storage hopper lid plate	-	-	-
19	Storage hopper	-	-	-
20	Blending motor cover washer	-	-	-
21	Blending motor	YM50992200000	YM50992200000	YM50992200000
22	Fixed flange for mixing	-	-	-
23	Hex socket screw M6×25	YW61062500000	YW61062500000	YW61062500000
24	Hopper connection plate	-	-	-
25	Six-way acryl	YR40001200000	YR40001200000	YR40001200000
26	Six-way acryl stringency	YR40000600000	YR40000600000	YR40000600000
27	Six-way acryl iron sheet	YW09000600000	YW09000600000	YW09000600000
28	Cross socket head cap screw M5×10	YW62051000100	YW62051000100	YW62051000100
29	Knob B type m8×35	YR40083500000	YR40083500000	YR40083500000
30	Cross socket head cap screw M4×10	YW62041000100	YW62041000100	YW62041000100

No.	Name	Part number		
		SCM-E-D-38/38	SCM-E -D-38/75	SCM-E -D-75/75
31	Convey pipeline	-	-	-
32	Nsk bearing 6003	YW11600300000	YW11600300000	YW11600300000
33	Material shutter	-	-	-
34	Side fixed housing	-	-	-
35	New snap hook adjustable	YW02003000400	YW02003000400	YW02003000400
36	Body fixed bracket 1	-	-	-
37	Cruciform screw m5×10	YW61051000100	YW61051000100	YW61051000100
38	Screw shaft option 2	-	-	-
39	Screw shaft ϕ16	-	-	-
40	Cruciform screw m3×6	YW61030600100	YW61030600100	YW61030600100
41	Screw shaft option 3	-	-	-
42	Screw shaft connection of	-	-	-
43	Conveying connection board	-	-	-
44	Shaft coupler 1	-	-	-
45	Shaft coupler 2	-	-	-
46	Motor fixed rotation pin 2	-	-	-
47	Motor fixed rotation pin 1	-	-	-
48	Body fixed bracket 2	-	-	-
49	Feeding motor flange	-	-	-
50	Gearmotor	-	-	-
51	Screw m3×10	-	-	-
52	Dia. 1.2 hinge	YW90120000000	YW90120000000	YW90120000000
53	A key ring1.2×16	-	-	-
54	Electrical control box	-	-	-

* 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.

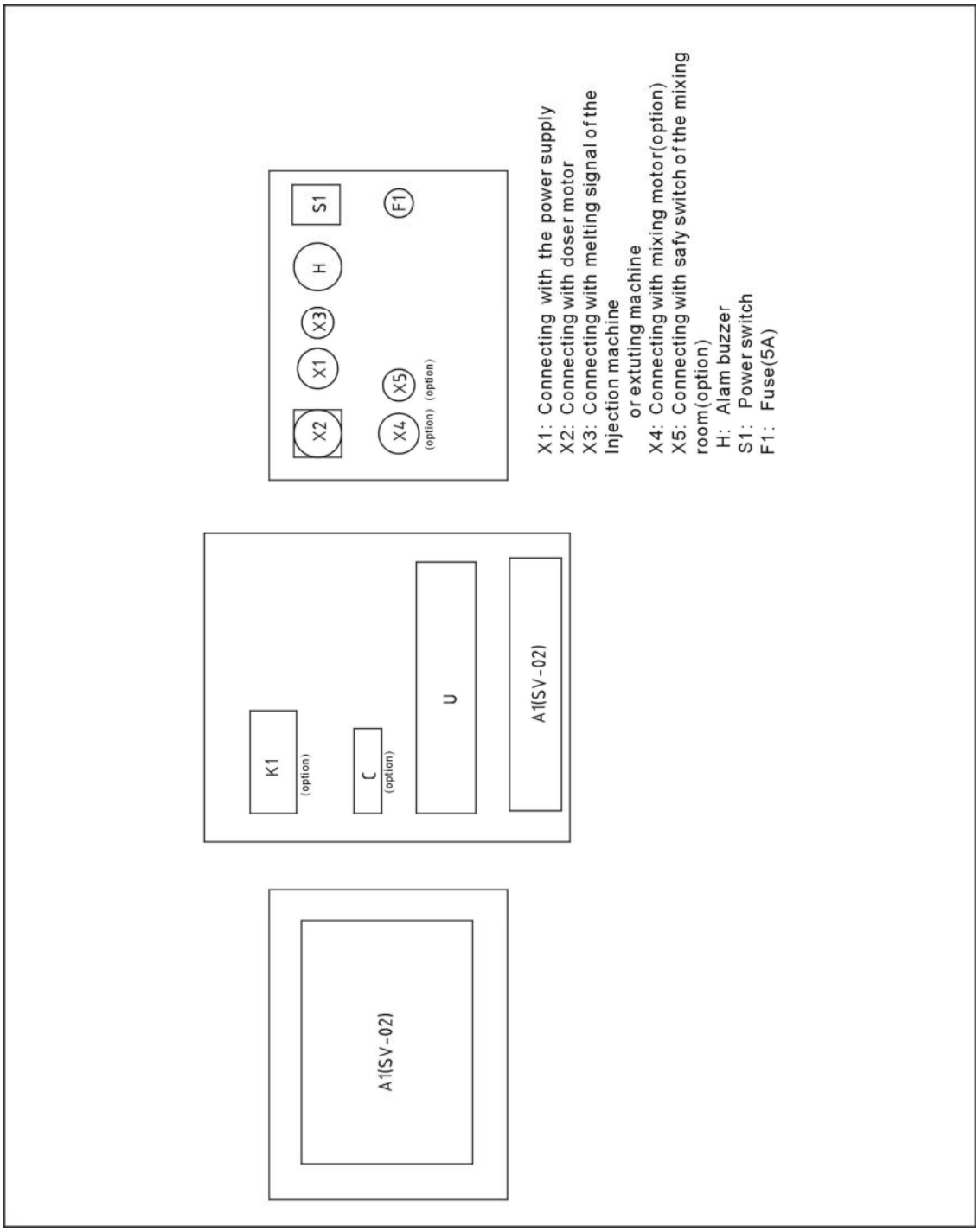
2.4 Electrical Circuit Descriptions

2.4.1 Electrical Descriptions



Picture 2-3: Electrical Descriptions

2.4.2 Electrical Cornponents Layout



Picture 2-4: Electrical Cornponents Layout

2.4.3 Bill of Electrical Components

Table 2-4: Bill of Electrical Components

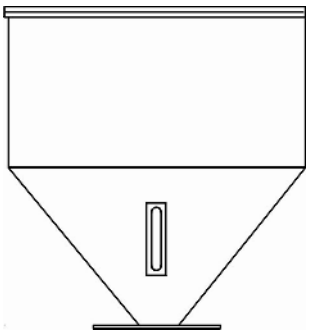
No.	Symbol	Name	Specifications	Part number
1	A1	PCB	24VDC	YE80112200000
2	F1	Fuse**	5A Fuse	YE46201500000 YE46630500200
3	S1	Switch	250V 16A 4P(WH)	YE10210400000
4	H	Buzzer	24VDC	YE84002700000
5	U	DC Power	IN=175/240V OUT=24VDC 3.8A	YE71102400000
6	X1	Power line	250V~10A 3P	YE51802300000
7	-	Socket	3P	YE68025300400
8	-	Socket	3P	YE68025300300
9	X2	Socket	10P	YE62241000000
10	X3	Socket	2P	YE68016200100
11	M2	Motor (SCM-75)	65W 24VDC BG 1:75	YM50652500100
12	-	Motor (SCM-38)	65W 24VDC BG 1:38	YM50652500000
13	K1	Relay *	24VDC 12A	YE03272400000
14	X5	Socket	2P	YE68016200100
15	X4	Socket	4P	YE68025400000
16	M1	Motor	0.09kW 1/230V 50/60Hz	YM50992200000
17	S2	Limit switch	250V-5(4)	YE16310200000

* 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.

2.5 Optional Accessories

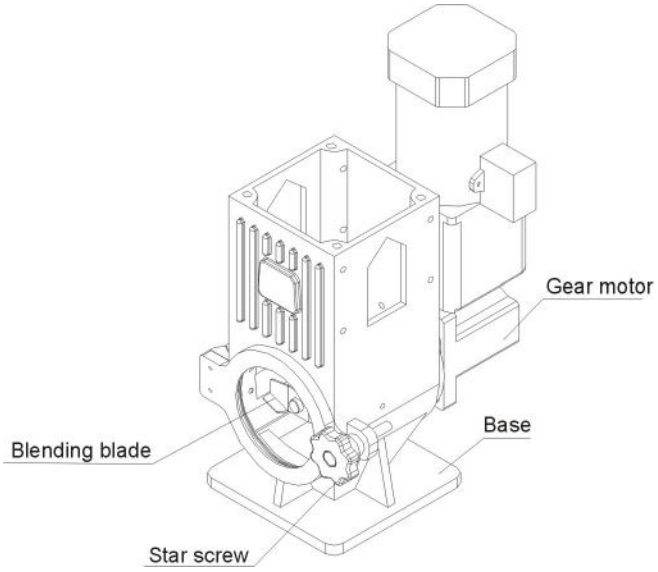
2.5.1 Main hopper

Single color doser can select main material hopper on customer demand.



Picture 2-5: Main hopper

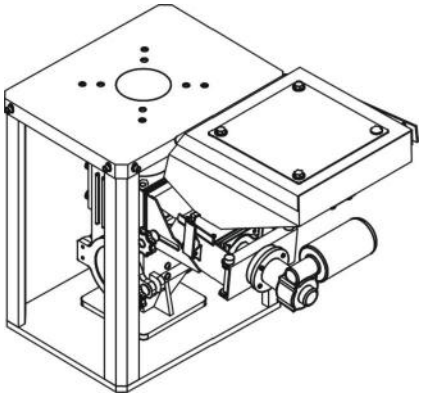
2.5.2 Blending System (for single-color doser)



Picture 2-6: Blending System

2.5.3 Floor Stand

When customer needs work with SHD-100~300kg or SHD-16OU~450U dryer choose this type floor stand.



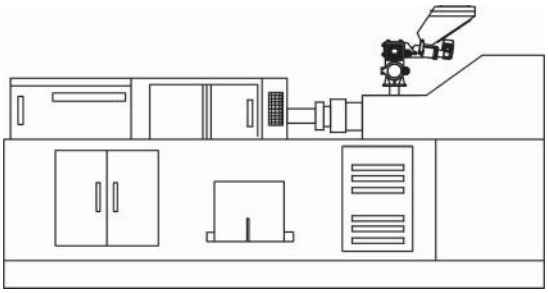
Picture 2-7：Floor Stand

3. Installation and Debugging

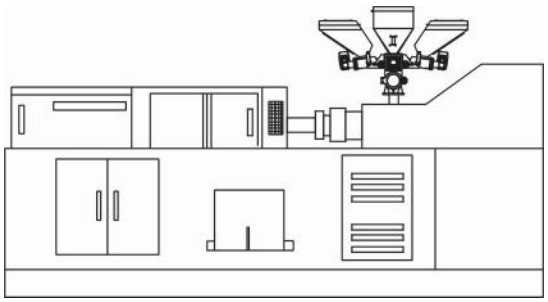
Read this chapter carefully before installation. Install the machine by following steps.

Power supply of the machine should be done by qualified electricians!

3.1 Install on Extrusion or Injection Moulding Machine



Picture 3-1: Installation of Single-color Doser



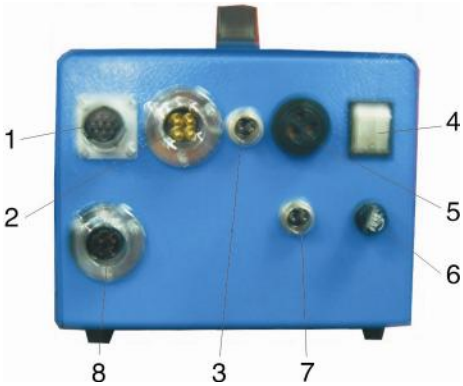
Picture 3-2: Installation of Two-color Doser

According to the specifications of mounting holes on the extruder or injection moulding machine, drill 4 screw holes on the base of SCM machine. Install the whole machine on the extruder or injection moulding machine by locking the 4 screw holes of mounting base.

3.2 Power Supply

Connect single-color doser with 1ΦAC115/230V power supply and earth wire. Connect two-color doser(with blending system) with 3Φ 400 power supply and earth wire, or other special voltage on customer's requirements.

3.3 Sockets and Main Switch at the Back of Control Box



Name of parts:

1. Motor wire socket 2. Main power socket

3. Connect to signal circuit of injection moulding machine or extruder

4. System switch 5. Buzzer 6. Fuse

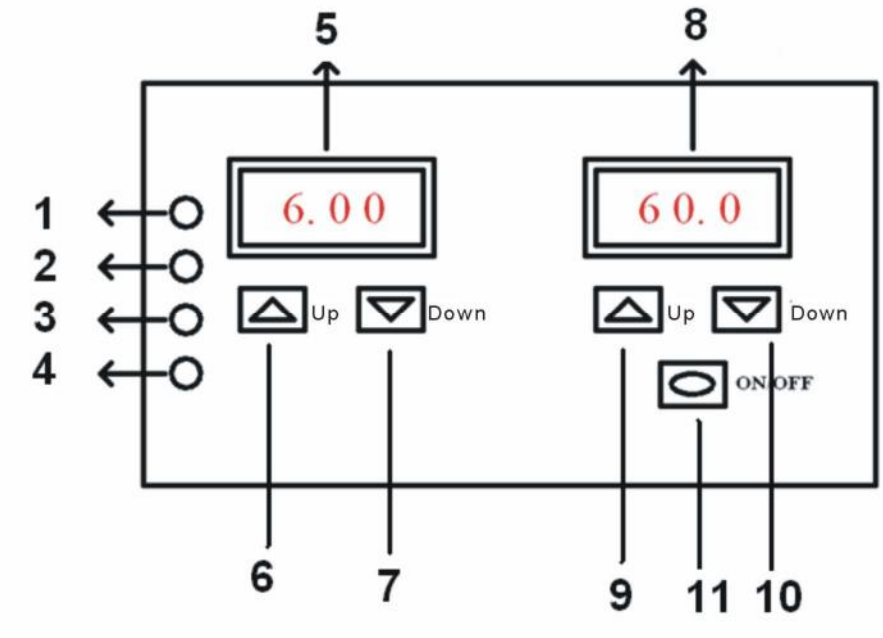
7. Connect to signal circuit of safety door (Option)

8. Motor wire socket (Option)

Picture 3-3: Bi-chrome color machine's control cabinet

4. Application and Operation

4.1 Operation Guide



Picture 4-1: Operation Guide

4.2 Control Panel

NO.	Item	Functions	Remarks
1	Power light	This indicator shines when power is connected.	
2	Stand-by light	This indicator shines if there is no plasticizing signal of IMM or operation signal of extruder.	It indicates the phase of waiting signal starting.
3	Operation light	This indicator shines if plasticizing signal of IMM or operation signal of extruder is connected.	It indicates the phase of motor operation metering.
4	Trouble lamp	This indicator shines when troubles took place.	There are two kinds of troubles including motor trouble and Ram error of circuit board.

NO.	Item	Functions	Remarks
5	Motor rotating speed setting	It is used to display the setting value of motor rotating speed.	
6	Up-regulator of rotate speed.	Increase motor rotate speed.	Highest rotate speed 999
7	Down-regulator of rotate speed.	Decrease motor rotate speed.	Lowest rotate speed 30
8	Display of plasticizing time setting.	It is used to display plasticizing time setting.	Motor starts to run when receiving plasticizing signal and count-down is displayed. Motor would not stop until count down comes to 0.
9	Up-regulator of plasticizing time setting.	Add plasticizing time.	Maximum value 99.9
10	Down-regulator of plasticizing time setting.	Reduce plasticizing time.	Minimum value 0.0
11	Function of plasticizing time ON/OFF	Press it alternately for over 3 seconds to switch on or off the plasticizing function. Plasticizing time would not display if it is shutdown.	Plasticizing time only applies to the IMM mode. If used for extruder, it needs to shut off the function.

4.3 Start/stop of the Machine

1) Check that the power is turned on.
2) Turn on the main switch at the back of control panel.
3) Press the control switch on the panel, the RUN indicator will become bright.
4) After the setting of doser parameters is finished, machine will operate automatically if Extruder start to run and signals get into the dosers.
5) Follow the reversed steps above to finish the shutdown.

4.4 Operation Guide

1) The calculation of color masterbatch quantity demanded per hour of IMM or extruder: W1

Method of calculation for IMM:

W_1=（W_X × P）/T × 3600

W_1 stands for the color masterbatch quantity demanded per hour of IMM. (Unit:

Kg/Hr)

W_X stands for the total weight of IMM each module finished goods and sprues.

P stands for the percentage of color masterbatch.

T stands for the plasticizing time. (Unit: second)）

Method of calculation for extruder:

$W_1=W_P \times P$

W_1 stands for the color masterbatch quantity demanded per hour of extruder. (Unit: Kg/Hr)

W_P stands for the actual production capacity per hour of IMM or extruder. (Unit: Kg/Hr)

P stands for the percentage of color masterbatch.

Note: The data above need to be recalculated and SCM motor rotate speed should be altered on the condition that rotate speed of IMM or extruder is alterd.

2) The actual testing of SCM maximum output per hour: W2.

Firstly draw back both motor and hopper, place a container under material outlet. Then disconnect doser signal, setting motor rotate speed of 999 and plasticizing time of 60 seconds. Press speed up-regulator and down-regulator simultaneously for over 3 seconds, motor starts to operate and stops after 60 seconds. Weigh the material of container within 60 seconds to come out the actual value $W_{max.}$ Conduct calculation according to the formula below:

$W_2=M_{max} /60 \times 3600$

3) Based on W1 and W2, motor rotate speed Sp can be calculated:

SP= W1 / W2 × 999

Note: If the result is more than 999, it means that output capability of SCM fails to meet requirement. A model with greater output capability is needed. If the result is less than 30, it means that the minimum output capability of SCM fails to meet requirement. A model with smaller output capability is needed.

4) Setting of motor rotate speed and plasticizing time based on Sp value and application mode.

Setting of motor rotate speed based on Sp value: if that is the applied IMM mode, press clock key for over 3 seconds to start function of plasticizing time and set the time; if that is the applied extruder mode, it is no need to set plasticizing time and no display of plasticizing time showed on LED.

Note: Both of IMM mode and extruder mode should connect the signal wire. Motor would not start up until it receives the 24 VDC signal. Connect the screw plasticizing signal under the IMM mode while connect the extruder running signal under the extruder mode.

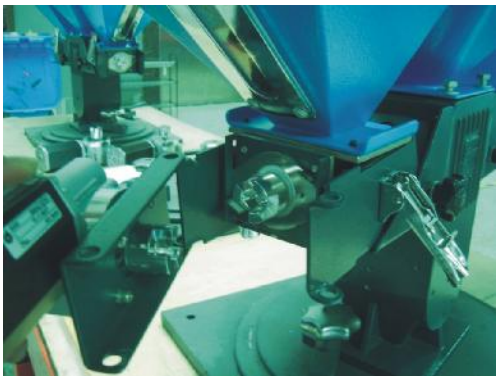
Table 4-1: Table of 50 Seconds Test Values

50 seconds test for the screw of SCM38		
Color additives	Screw diameter(mm)	Weight(g)
White color additives 7028B, density 1.6. Φ2~3mm particles, well-proportioned.	Φ12	131.6
	Φ14	228.2
	Φ16	456.3
White color additives 7018, density 1.4, Φ2~3mm particles, well-proportioned.	Φ12	113
	Φ14	205
	Φ16	442.2
Black color additives 2018B, density 1.2, Φ2~3mm particles, well-proportioned.	Φ12	78.1
	Φ14	138.9
	Φ16	228.9
50 seconds test for the screw of SCM75		
Color additives	Screw diameter (mm)	Weight(g)
White color additives 7028B, density 1.6. Φ2~3mm particles, well-proportioned.	Φ12	54.1
	Φ14	94.4
	Φ16	192.4
White color additives 7018, density 1.4, Φ2~3mm particles, well-proportioned.	Φ12	44.7
	Φ14	81.8
	Φ16	172.9
Black color additives 2018B, density 1.2, Φ2~3mm particles, well-proportioned.	Φ12	32.5
	Φ14	56.4
	Φ16	104.9

Note: the above data is the average value gained from 5 repeated test.

4.5 Change Color Additives

1) Loosen snap hook of hopper, draw out the hopper and screw. Then use high-pressure air to blow away the remained materials.
2) Add color additives.

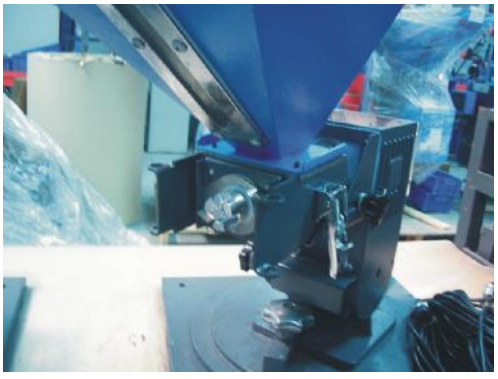


Picture 4-2: Change Color Additives

4.6 Replace Dosing Screws

1. Cut off power supply, loosen snap hook of hopper, and draw out the hopper and screw. Unlock the screw fastening plate to remove the conveying screw for replacement.
2. Install the screw and hopper back to the machine.

Note: Φ12/14 screw is supplied with a sleeve.



Picture 4-3: Replace Dosing Screws

5. Trouble-shooting

Failures	Possible reasons	Solutions
No indicates on the control cabinet.	1. Power supply not connected.	1. Connect through power supply.
	2. Fuse burnt out or control board problems.	2. Replace the fuse or control board.
Motor does not work.	1. Parameter mistakes	1. Reset parameters
	2. Motor overload	2. Contact the manufacturer or local distributor
	3. Motor damaged	3. Replace the motor
	4. Motor Signal wire broken	4. Replace motor signal wire
	5. Connection error of signal wire	5. Conduct the inspection
The buzzer sounds the alarm.	Parameter setting exceeds the limit.	Reset parameters.

Error Code

Failures	Possible reasons	Solutions
	1. The requested output capacity bigger then the machine's highest output capacity. 2. Push the SCREW CLEAR button the screw cleaning action is in the progress.	1. Parameter setting mistake 2. The machine is too small
	Motor trouble	1. Screw jammed 2. Ambient temperature too high
	The signal voltage too high	The signal voltage of the injection machine and extruding machine too high.

6. Maintenance and Repair

6.1 Service

All the repair work should be done by qualified technicians to avoid personal injuries or damage of the machine.

6.2 Maintenance

Please keep the surface of the machine free from pollutants.

6.3 Maintenance Schedule

6.3.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.3.2 Check after Installation

☐Check that dosing screws are fitted correctly.

☐Check the snap hook is tightly locked.

☐Check if the mounting base is firmly locked.

Electrical Installation

☐Voltage: _____ V _____ Hz

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

☐Power supply and signal wire of control cabinet are correctly connected.

6.3.3 Daily Checking

☐Check the main switch.

☐Check fastening screws of mounting base.

6.3.4 Weekly Checking

☐Check if there damaged electrical wires.

☐Check snap hooks are loose or not.

☐Check if the side holding plate is loose or not.