SSC Series

Flexible Spiral Conveyers

Date: Apr, 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.

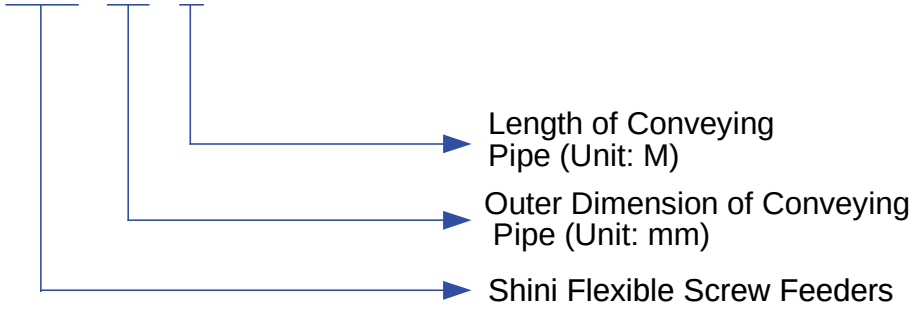
The spiral conveyers, newly launched by SHINI, employs the rotary motion of may occur.

SSC series flexible screw feeders adopt motor-driven screws for raw material conveying, applicable to convey regrinds, virgin materials, powders and their mixtures with features of low noise level, easy installation and maintenance. Two models of SSC-50/65 available with max. horizontal conveying capacity of up to 1,900kg/hr. Besides using in plastic industry, they can also apply in food, chemistry, pharmacy and other various applications.

Model: SSC-50

1.1 Coding Principle

SSC- xx - x



CE=CE Conformity

1.2 Feature

1) Standard configuration

- Evenly mix different materials and effectively avoid material stratification during conveying process.
- Motor-driven spiral screw ensures low noise level in operation.
- Fully closed conveying line, free of contamination.
- Flexible conveying line brings maximum convenience of installation, best compatibility with other conveying equipments, no wearing due to friction and no material blockage.
- Flexible design, easy for installation and maintenance.
- Reverse phase protector is adopted to avoid that the motor is incapable of conveying materials because of motor reversal.
- Standard conveying pipeline is 5 meters long which can reach up to 7 meters.

2) Accessory option

- Combined application with our mixers, granulators and storage bins.
- Applicable to match with special stainless steel made storage tanks, add "P" at model behind for hopper inside polished ones.

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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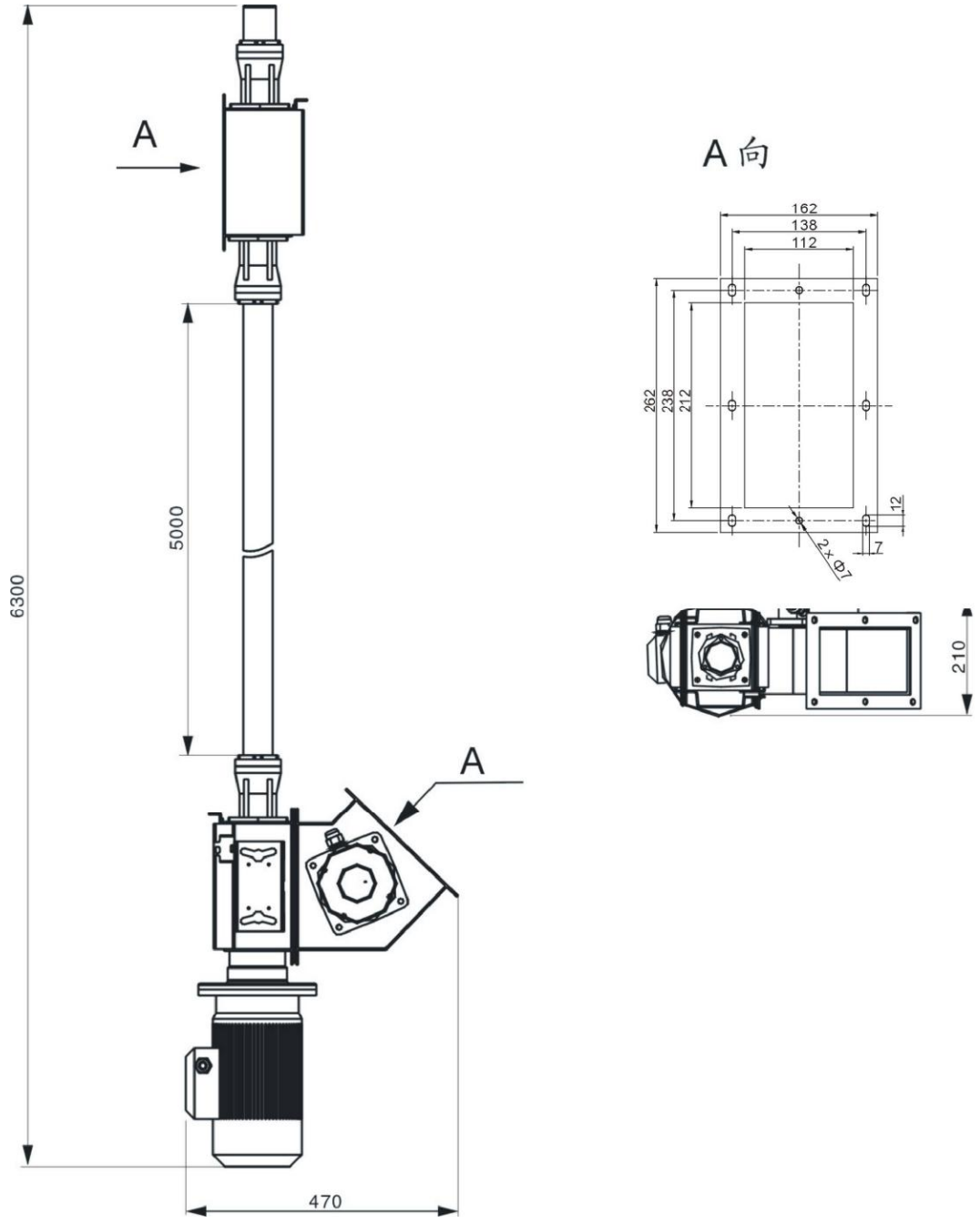
1.3 Technical Specifications

1.3.1 Technical Specifications



Picture 1-1: Technical Specifications

1.3.2 Specifications

Table 1-1: Specifications

Model	Outer Dia. (mm)	Motor Power (kW) (50 / 60Hz)	Motor Rotating Speed (50/60Hz rpm)	Radius	Material	Bulk Oensity (kg/L)	Conveying Capacity (kg/hr,50/60Hz)	
							A=0°	A=45°
SSC-50	Φ50	0.75 / 0.85	910 / 1090	1200	Pellet	0.8	800 / 900	700 / 840
					Powder	0.7	450 / 540	350 / 420
					Sheet	0.3	300 / 360	250 / 300
SSC-65	Φ65	1.1 / 1.26	910 / 1090	1200	Pellet	0.8	1900 / 2280	1400 / 1680
					Powder	0.7	1000 / 1200	800 / 960
					Sheet	0.3	600 / 720	500 / 600

Notes: 1) Material conveying can be realized as the conveying pipeline is less than 7 meters; the spring is inclined to fracture once the pipeline more than 7 meters.

We reserve the right to change specifications without prior notice.

2) Bending radius of conveying pipeline should be more than 1.5 meter and its bending angle should be more than 120℃ to prevent overload, material blockage or spring fracture.
3) To be conveyed granule dia. : For SSC-40/50, it should be less than 4mm and for SSC-65, it should be less than 6mm or material could easily get stuck. Also we suggest do not use it to convey flakes with more than 15mm in length.
4) Power supply: 3Φ, 230/400/460/575VAC, 50/60Hz.

1.4 Safety Regulations

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

1.4.1 Safety Signs and Labels

Electrical installation should be done by qualified technician only.
When the machine is under care or maintenance status, turn both power switch and control switch to off.

Danger! High voltage!
This label is attached on the Electrical control box!

Attention! Becareful!
This label means that this area should be taken care!

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

1.4.2 Transportation and Storage of the Machine

Transportation

1) SSC series are packed in crates or plywood cases with wooden pallet at the bottom, suitable for quick positioning by fork lift.
2) Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.
3) 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.
4) 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) SSC series 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.

1.5 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:

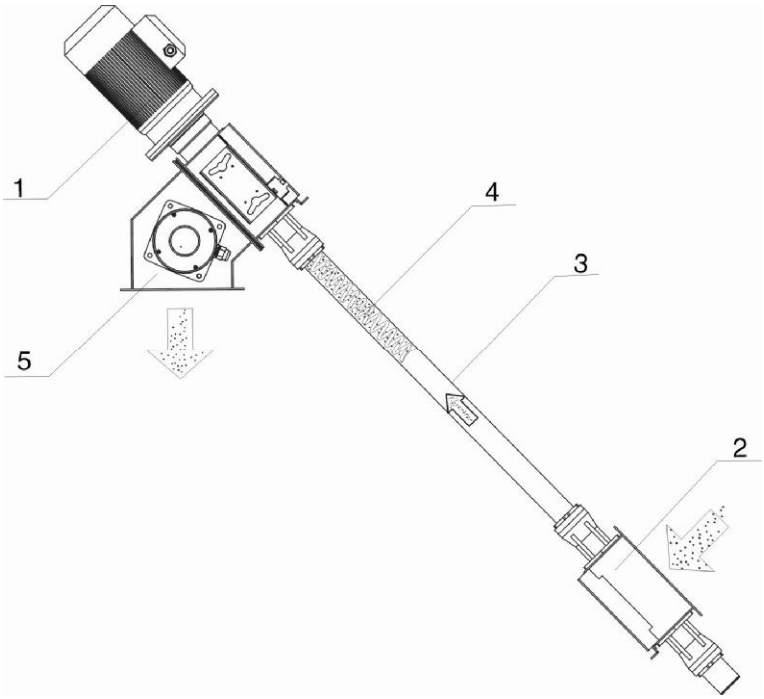
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible 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 spiral conveyer, newly launched by SHINI, employs the rotary motion of cylindrical spring driven by the electromotor to actualize the purpose of material feed. In addition to application in the plastic industry, the machine can additionally utilized in other fields including food, chemical and pharmaceutical industries for convey of powder material, ground material, raw material and mixed material etc.

2.1.1 Working Principle



Names of Parts:

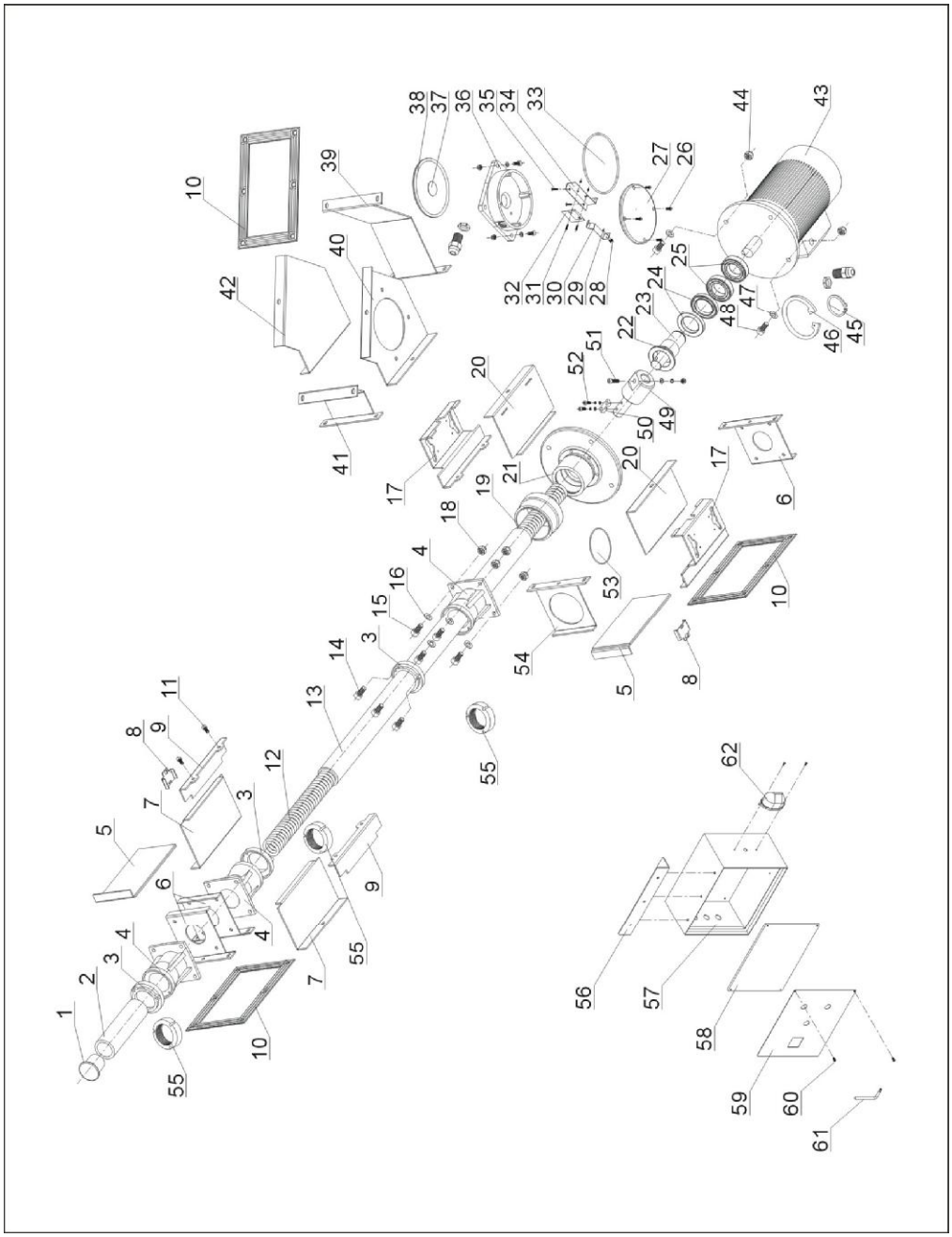
1. Motor 2. Feed-in port 3. Abrasion proof conduit 4. Spring
5. Discharge port

Picture 2-1: Working Principle

After startup, the motor (1) begins working, and raw materials enter the feed-in port (2); the motor drives the cylindrical spiral (4) spring to convey materials, which will later be send out at the discharge port.

2.2 Assembly Drawing

2.2.1 Assembly Drawing (SSC-50/65)



Remarks: Please refer to material list 2.2.2 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-2: Assembly Drawing (SSC-50/65)

2.2.2 Parts List (SSC-50/65)

Table 2-1: Parts List (SSC-50)

No.	Name	Part No.	No.	Name	Part No.
1	Sealing cap	YR10001500200	32	Electrical strengthen washer	-
2	Rubber hose	-	33	O-ring	YR10708000100
3	Pipe sleeve cover	-	34	Electrical fixed board	-
4	Pipe sleeve base	-	35	Cross socket head cap screw	YW62051500000
5	Material plate	-	36	Electrical base	-
6	Material storage base board A	-	37	Electrical contact piece	-
7	Material storage base board B	-	38	Spacer plate	-
8	Material storage board fitting 1	-	39	Material base board-C	-
9	Material storage board fitting 2	-	40	Material base board -D	-
10	Seal washer	-	41	Material base board -A	-
11	Inner hexagon column screw	YW61062000300	42	Material base board -B	-
12	Spring	-	43	Motor 1.1kW	-
13	Wear-proof pipe	YR60655000000	44	Lock nut	YW64000800100
14	Inner hexagon column screw	YW61053000100	45	Circlip for axis use	YW69003500000
15	Inner hexagon column screw	YW61082000200	46	Circlip for hole use	YW69766700000
16	Flat gasket 8	YW66081600000	47	Flat gasket 8	YW66081600000
17	Material base fitting board	-	48	Inner hexagon column screw	YW61083000300
18	Lock nut M8	YW64000800100	49	Joint sleeve	-
19	Flange sleeve	BH10406500010	50	Pressure block	-
20	Material storage base board B	-	51	Inner hexagon column screw	YW61063500000
21	Motor flange	BW20405000310	52	Fastening screw	YW61061600000
22	Gasket	-	53	O-ring	-
23	Shaft core connecting motor	-	54	Material storage board A	-
24	Seal ring	-	55	Pipe sleeve seal ring	-
25	Deep groove ball bearing	YW11600700000	56	Electrical control box fixed board	-
26	Inner hexagon column screw	YW61101500000	57	Electrical control box	-
27	Electrical base cover	-	58	Electrical component installation plate	-
28	Cross socket head cap screw	YW63030600000	59	Electrical control box cover	-
29	Lock nut M3	YW64000300000	60	Star anti-theft screw with column	-
30	Electrical actuator	-	61	Special wrench for anti-theft screws	-
31	Cross socket head cap screw	YW63032000000	62	Alarm light	YE83305100200

* 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 (SSC-65)

No.	Name	Part No.	No.	Name	Part No.
1	Sealing cap	YR10001500200	32	Electrical strengthen washer	-
2	Rubber hose	-	33	O-ring	YR10708000100
3	Pipe sleeve cover	-	34	Electrical fixed board	-
4	Pipe sleeve base	-	35	Cross socket head cap screw	YW62051500000
5	Material plate	-	36	Electrical base	-
6	Material storage base board A	-	37	Electrical contact piece	-
7	Material storage base board B	-	38	Spacer plate	-
8	Material storage board fitting 1	-	39	Material base board-C	-
9	Material storage board fitting 2	-	40	Material base board -D	-
10	Seal washer	-	41	Material base board -A	-
11	Inner hexagon column screw	YW61062000300	42	Material base board -B	-
12	Spring	-	43	Motor 1.1kW	-
13	Wear-proof pipe	YR60655000000	44	Lock nut	YW64000800100
14	Inner hexagon column screw	YW61053000100	45	Circlip for axis use	YW69003500000
15	Inner hexagon column screw	YW61082000200	46	Circlip for hole use	YW69766700000
16	Flat gasket 8	YW66081600000	47	Flat gasket 8	YW66081600000
17	Material base fitting board	-	48	Inner hexagon column screw	YW61083000300
18	Lock nut M8	YW64000800100	49	Joint sleeve	-
19	Flange sleeve	BH10406500010	50	Pressure block	-
20	Material storage base board B	-	51	Inner hexagon column screw	YW61063500000
21	Motor flange	BW20405000310	52	Fastening screw	YW61061600000
22	Gasket	-	53	O-ring	-
23	Shaft core connecting motor	-	54	Material storage board A	-
24	Seal ring	-	55	Pipe sleeve seal ring	-
25	Deep groove ball bearing	YW11600700000	56	Electrical control box fixed board	-
26	Inner hexagon column screw	YW61101500000	57	Electrical control box	-
27	Electrical base cover	-	58	Electrical component installation plate	-
28	Cross socket head cap screw	YW63030600000	59	Electrical control box cover	-
29	Lock nut M3	YW64000300000	60	Star anti-theft screw with column	-
30	Electrical actuator	-	61	Special wrench for anti-theft screws	-
31	Cross socket head cap screw	YW63032000000	62	Alarm light	YE83305100200

* means possible broken parts.

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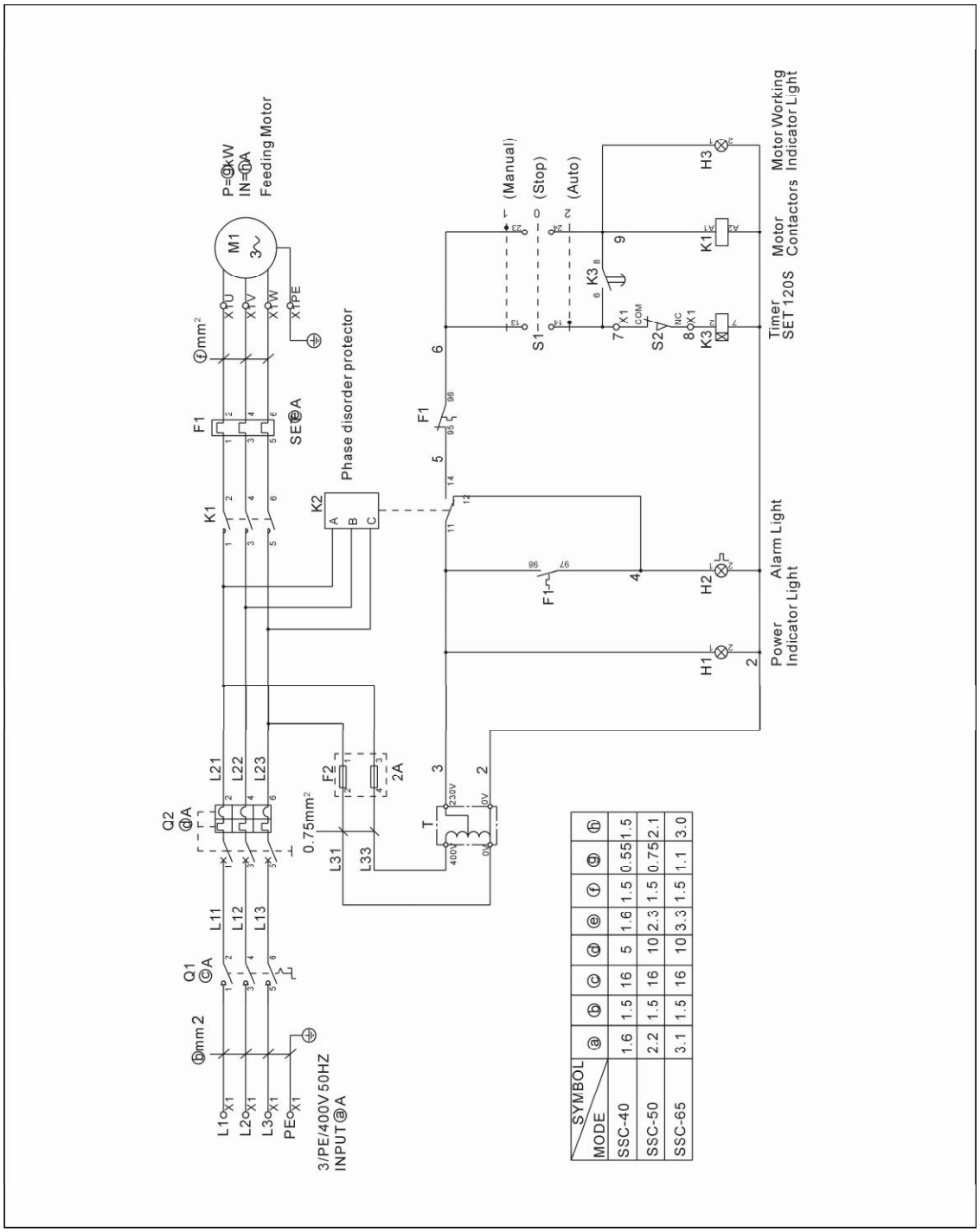
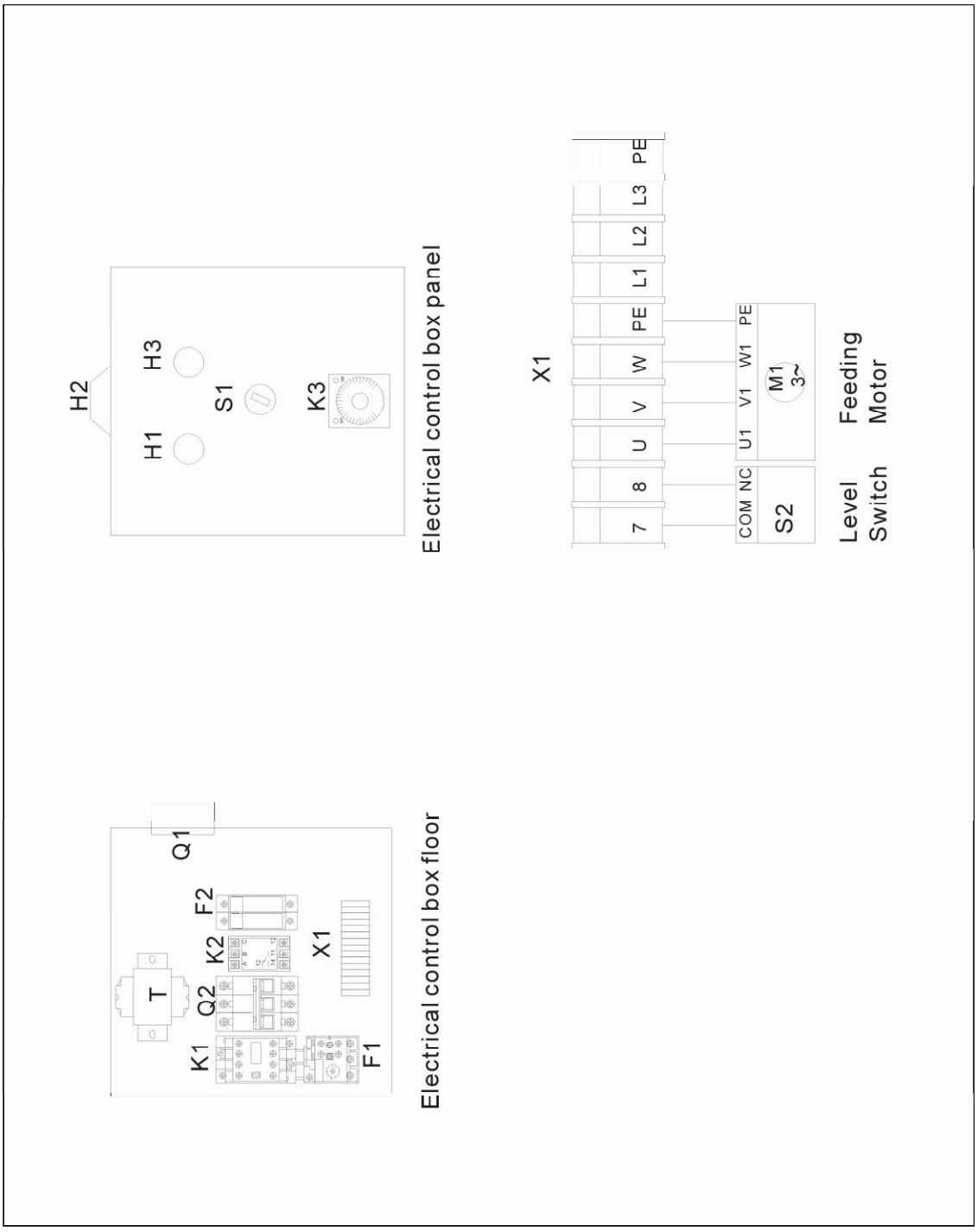
2.3 Electrical Diagram

2.3.1 Electrical Circuit (400V)



SYMBOL / MODE	ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ	ⓗ
SSC-40	1.6	1.5	16	5	1.6	1.5	0.55	1.5
SSC-50	2.2	1.5	16	10	2.3	1.5	0.75	2.1
SSC-65	3.1	1.5	16	10	3.3	1.5	1.1	3.0

Picture 2-3: Electrical Circuit 1 (400V)



Picture 2-4: Electrical Circuit 2 (400V)

2.3.2 Electrical Components List (400V)

Table 2-3: Electrical Components List (SSC-50) (400V)

NO.	Symbol	Name	SSC-50	
			Specification	Part NO.
1	Q1	Main switch	16A	YE10200300000
2	Q2	Circuit breakers*	10A	YE40600300000
3	K1	Contactors*	230V 50/60Hz	YE00311000000
4	K2	Phase disorder protector	400V 50/60Hz	YE03103800000
5	K3	Timer*	230V 50/60Hz	YE86300800000
6	F1	Overload relays*	1.6~2.5A	YE01162500000
7	F2	Fuse box**	500V 2P 32A	YE41032200000
8	-	Fuse	500V 2A 10*38	YE46002000100
9	T	Transformer*	300mA	YE70040000200
10	S1	Selector switches	Ui=300V Ith=5A	YE12102000000
11	S2	Limit switch	250V~10A	YE14831600000
12	H1	Green indicator light	230V 50/60Hz	YE83052300200
13	H2	Alarm indicator light	230V 50/60Hz	YE83052300100
14	H3	White indicator light	230V 50/60Hz	YE83052300000
15	X1	Terminal block	800V/24A	YE61250000000
16	-	Terminal block	-	YE61253500000
17	M1	Motor*	400V 50Hz 0.75kW	-

* 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 2-4: Electrical Components List (SSC-65)(400V)

NO.	Symbol	Name	SSC-65	
			Specification	Part NO.
1	Q1	Main switch	16A	YE10200300000
2	Q2	Circuit breakers*	10A	YE40600300000
3	K1	Contactors*	230V 50/60Hz	YE00311000000
4	K2	Phase disorder protector	400V 50/60Hz	YE03103800000
5	K3	Timer*	230V 50/60Hz	YE86300800000
6	F1	Overload relays*	2.5~4A	YE01025400000
7	F2	Fuse box**	500V 2P 32A	YE41032200000
8	-	Fuse	500V 2A 10*38	YE46002000100
9	T	Transformer*	300mA	YE70040000200
10	S1	Selector switches	Ui=300V Ith=5A	YE12102000000
11	S2	Limit switch	250V~10A	YE14831600000
12	H1	Green indicator light	230V 50/60Hz	YE83052300200
13	H2	Alarm indicator light	230V 50/60Hz	YE83052300100
14	H3	White indicator light	230V 50/60Hz	YE83052300000
15	X1	Terminal block	800V/24A	YE61250000000
16	-	Terminal block	-	YE61253500000
17	M1	Motor*	400V 50Hz 1.1kW	-

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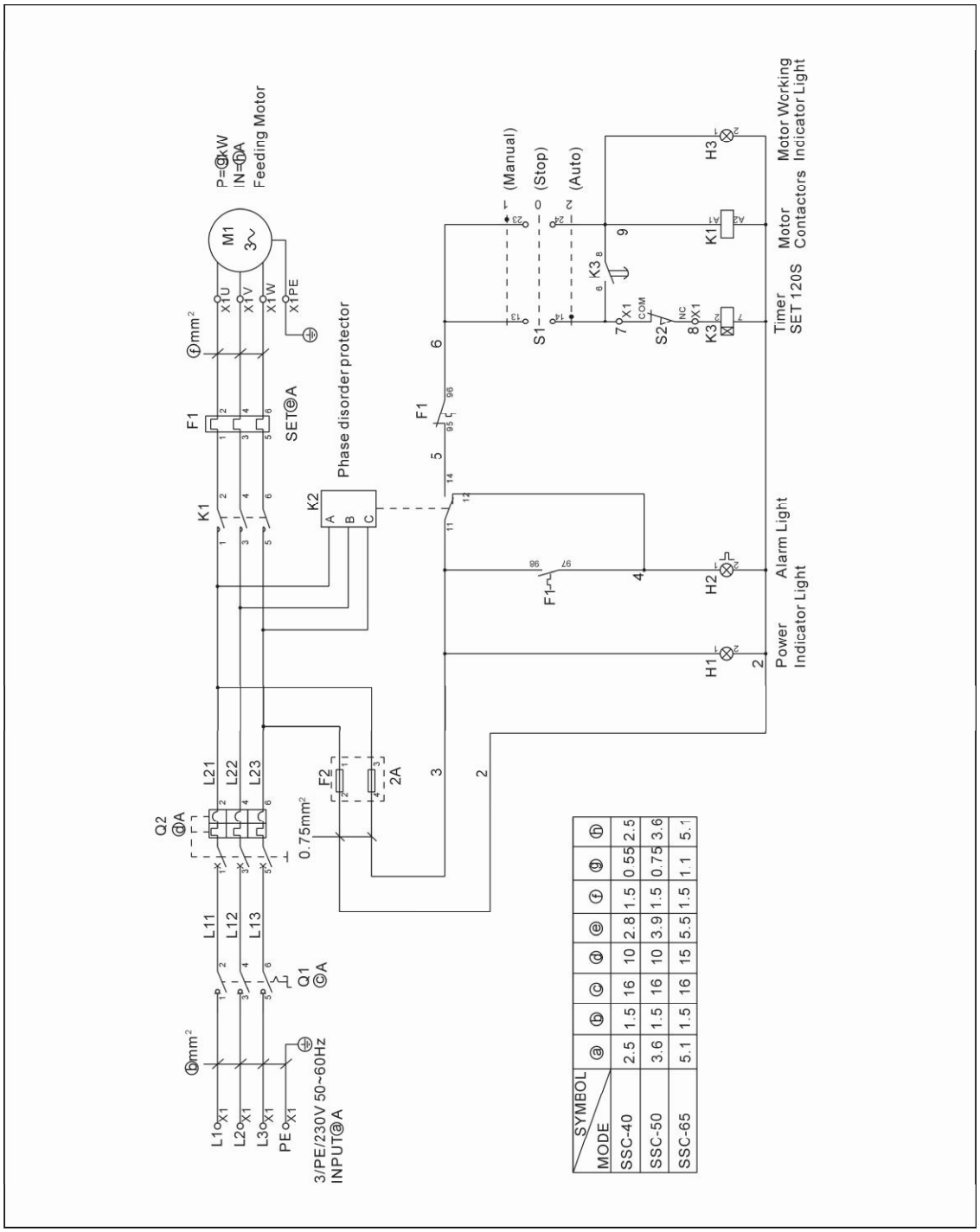
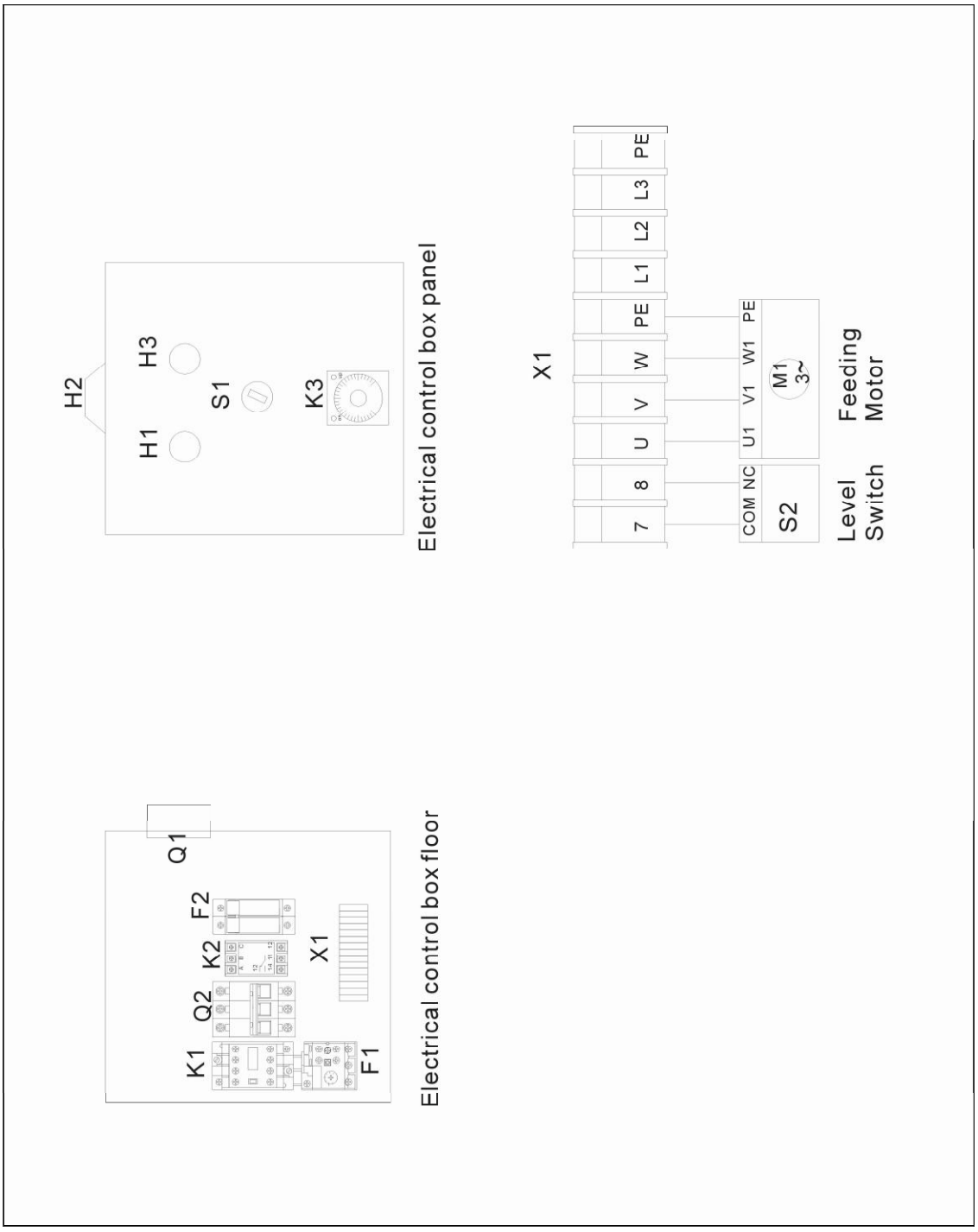
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.3.3 Electrical Circuit (230V)



SYMBOL / MODE	ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ	ⓗ
SSC-40	2.5	1.5	16	10	2.8	1.5	0.55	2.5
SSC-50	3.6	1.5	16	10	3.9	1.5	0.75	3.6
SSC-65	5.1	1.5	16	15	5.5	1.5	1.1	5.1

Picture 2-5: Electrical Circuit 1 (230V)



Picture 2-6: Electrical Circuit 2 (230V)

2.3.4 Electrical Components List (230V)

Table 2-5: Electrical Components List (SSC-50) (230V)

NO.	Symbol	Name	SSC-50	
			Specification	Part NO.
1	Q1	Main switch	16A	YE10200300000
2	Q2	Circuit breakers*	10A	YE40600300000
3	K1	Contactors*	230V 50/60Hz	YE00311000000
4	K2	Phase disorder protector	230V 50/60Hz	YE03102200000
5	K3	Timer*	230V 50/60Hz	YE86300800000
6	F1	Overload relays*	3.2~5A	YE01032500000
7	F2	Fuse **	500V 2P 32A	YE41001000000
8	S1	Selector switches	Ui=300V Ith=5A	YE12102000000
9	S2	Limit switch	250V~10A	YE14831600000
10	H1	Green indicator light	230V 50/60Hz	YE83052300200
11	H2	Alarm indicator light	230V 50/60Hz	YE83052300100
12	H3	White indicator light	230V 50/60Hz	YE83052300000
13	X1	Terminal block	800V/24A	YE61250000000
14	-	Terminal block	-	YE61253500000
15	M1	Motor*	230V 50Hz 0.75kW	-

* 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 2-6: Electrical Components List (SSC-65) (230V)

NO.	Symbol	Name	SSC-65	
			Specification	Part NO.
1	Q1	Main switch	16A	YE10200300000
2	Q2	Circuit breakers*	15A	YE40601500000
3	K1	Contactors*	230V 50/60Hz	YE00311000000
4	K2	Phase disorder protector	230V 50/60Hz	YE03102200000
5	K3	Timer*	230V 50/60Hz	YE86300800000
6	F1	Overload relays*	4~6.3A	YE01046300100
7	F2	Fuse **	500V 2P 32A	YE41001000000
8	S1	Selector switches	Ui=300V Ith=5A	YE12102000000
9	S2	Limit switch	250V~10A	YE14831600000
10	H1	Green indicator light	230V 50/60Hz	YE83052300200
11	H2	Alarm indicator light	230V 50/60Hz	YE83052300100
12	H3	White indicator light	230V 50/60Hz	YE83052300000
13	X1	Terminal block	800V/24A	YE61250000000
14	-	Terminal block	-	YE61253500000
15	M1	Motor*	230V 50Hz 1.1kW	-

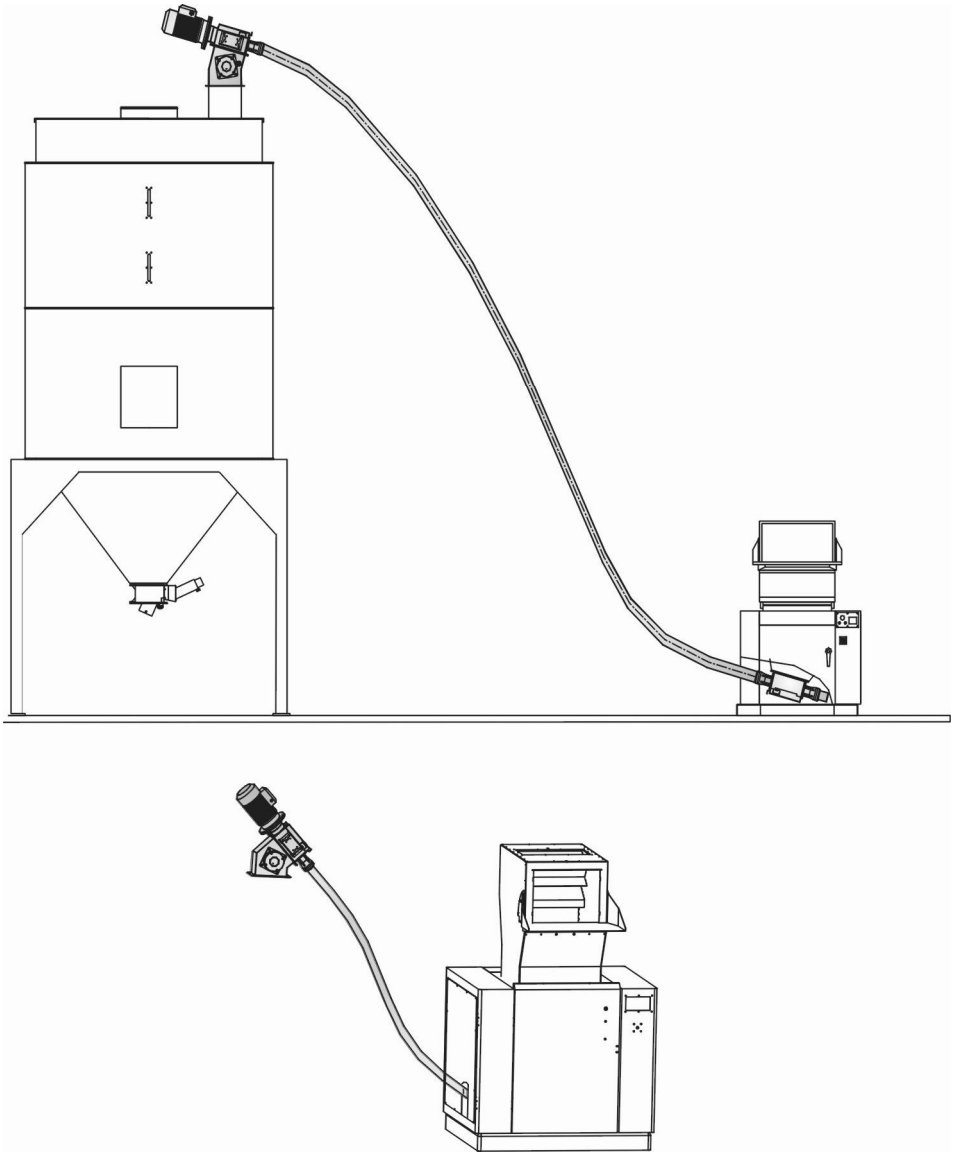
* means possible broken parts.
** means easy broken part. and spare backup is suggested.
Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

3. Installation and Debugging

Read this chapter carefully prior to installation and the installation shall be conducted in the order described below!

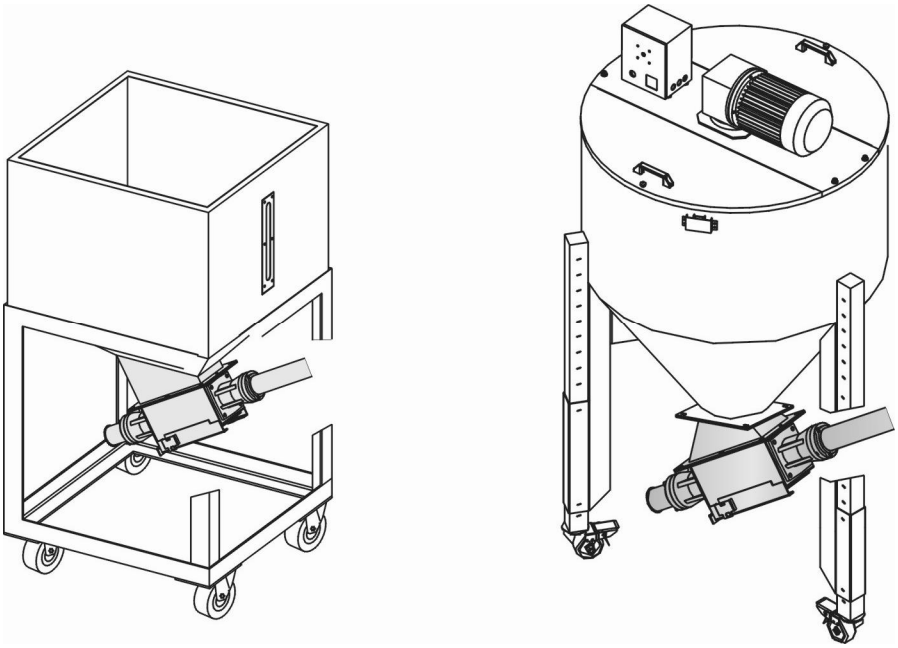
Power connections of the spiral conveyer have to be done by professional technicians!

3.1 Working with Disintegrator and Material Storing Tank



Picture 3-1: Working with Disintegrator and Material Storing Tank

3.2 Working with Material Mixer and Material Storing Tank



Picture 3-2: Working with Material Mixer and Material Storing Tank

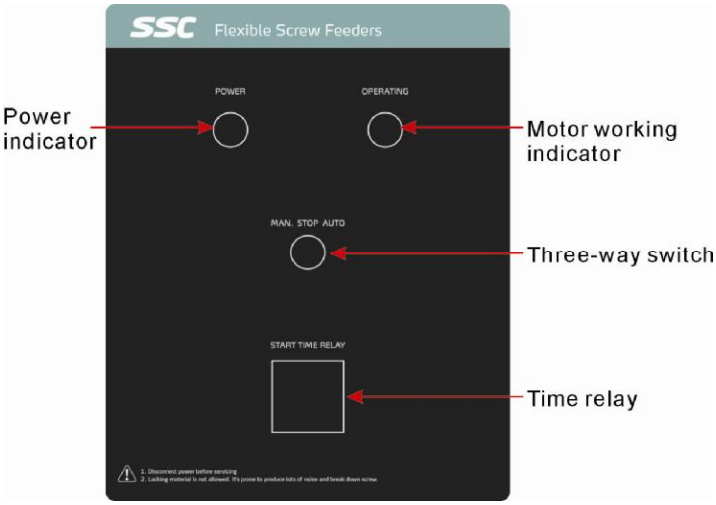
3.2.1 Power Supply

Make sure that the power supply conforms with required specifications before installation. SSC Flexible Screw Feeders are generally set to be used with 3Φ400V power supply or other specifications if required.

Before connecting with the power lead, check and confirm the power switch is OFF.

4. Application and Operation

4.1 Description of Control Panel



Picture 4-1: Description of Control Panel

The screw conveyer, by making use of the rotation of screw, conveys materials from one place to another, with the control systems available in manual and automatic modes. A material level switch is provided. Before actual operation, check the motor's rotation direction. The operation is detailed below:

1) Close the main power switch and the green indicator lamp lights up, indicating the system is electrified.
2) Working manually: turn the third-gear switch to the manual gear and the white indicator lamp gets lit. Motor starts to convey material continuously.
3) Working automatically: turn the third-gear switch to the automatic gear and the material level gets detected by the material level switch, if it is full, machine will back to stand by. Otherwise, the white indicator lamp lights up after a certain adjustable preset delay time and machine starts conveying material. Then after reaching the full material level, the machine will again stop and back to stand by.
4) Turns the third-gear switch to stop gear and machine turns into the stop status at once.

5. Trouble-shooting

Failures	Possible Reasons and Solutions
Put through power, tune the main power supply switch, press down the green button and tune the three-gear switch. But the lamp fails to light up and the motor refuses to run.	Examine the wires according to the wiring diagram, Possible causes include: 1) The line-route may be broken off somewhere. 2) The fuse burnt out. 3) The material level switch reaching a material level position. 4) The timer has been reset.
After press down the control button, the conveyer goes into working. However, it does not stop when the material level switch reaches a material level position.	Examine the wires according to the wiring diagram, Possible causes include: 1) The material level switch damaged. 2) Error in line-route.
The thermal overload relay trips frequently and the yellow lamp lights up.	Examine the wires according to the wiring diagram, Possible causes include: 1) This can suggest the thermal rely has been set to a very small value; increase the value to let it be 1.1 times the motor's current. 2) Loss of phase or short-circuit may exist in the three wires leading out from the electromagnetic switch. 3) The thermal overload relay burnt out. 4) Faulted motor.
The screw conveyer is in working status. press the emergency stop switch but it Does not work.	The emergency stop switch fails; the contact may get burnt sticky. Replace it.
The screw conveyer can be started and stopped normally. Yet it does not convey Materials.	Examine the wires according to the wiring diagram, Possible causes include: 1) The motor is rotating reversely, so change the phase sequence of the power supply. 2) The timer has too short time specified. Increase its time period.

6. Maintenance and Repair

To prevent injury to the operator and damage on the machine, all the maintenance work should be performed by professionals. Pay attention to cleaning of appearance and servicing of motor.

Cleaning Inside the Machine:

1) After Loosening the fix screw of the blocking card in the feed-in port and discharge port, pull out the blocking card and the user may clean the remnant materials in the feed-in port and discharge port.

2) Loosen the fix screw on the socket base of the abrasion proof conduit, remove the conduit; spray and rinse the conduit and spring with high pressure gas.

6.1 Maintenance Schedule

6.1.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.1.2 Installation Check

☐Make sure the pipe connection correctly

☐Make sure the wearable pipe connected tightly

☐Make sure the mounting base lock tightly

Electrical installation

☐Voltage: _____ V _____ Hz

☐The rotating bear of the spring