

HOPE

HA17051E

TYPE SSTB
SILENT BLOWER
INSTRUCTION MANUAL



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Table of Contents

1. Inspection confirmation at the time of purchase · Outline.....	1
2. Precautions when using IE 3 (high efficiency motor).....	1
3. Specification.....	2
4. Safety precautions.....	3
5. Please be sure to read.....	4
6. Transportation method · Precautions for installation · Piping	5
7. Wiring connection of the Motor	6
8. Star delta starting	7
9. Starting current and starting time.....	8
10. About electromagnetic contactor, switch, thermal relay.....	9,10
11. Operation · Maintenance inspection · Roll filter.....	11,12
12. Disassembly, Precautions in assembling	13
13. Structure drawing	13,14

Thank you very much for your purchase of SSTB type silent blower.

Please read this manual for the perfect capability to be assured and also for its maintenance and inspection.

Please be sure to deliver this instruction manual not only to the contractor but also to the end user.

■ Inspection confirmation at the time of purchase

Please check with the nameplate of the blower and the specification table below to see if it is the product you ordered.

Especially depending on the area, there is a distinction of 50 · 60 Hz so please check.

Also please check for damage etc. during transportation.

■ Outline

This is a “low noise type blower” realized by improving the air pressure characteristics and suppressing noise of our long-reputed WTB Series.

Owing to the roll filter employed, the filter can be replaced easily with no need of cleaning the filter.

■ Precautions when using IE 3 (high efficiency motor)

Because IE 3 (high efficiency motor) suppresses generation loss, rotation speed generally becomes faster than IE 1 (standard motor). When IE1 (standard motor) is replaced with IE3 (high efficiency motor), the output of the motor increases as this rotational speed increases. Motor efficiency is high, but as the output increases, power consumption may increase.

Also, since the (primary and secondary) resistors are lowered to reduce copper losses, the starting current is higher for IE1 (standard motor), and it is necessary to change wiring breaker, electromagnetic switch, thermal relay, etc. It may become.

■ Specification IE 3 (high efficiency motor)

【Standard type · · · SSTB-S】 50Hz/60Hz

Type	Air quantity (m ³ /min)	Static pressure (kPa)	Motor power (kW)	Rated current (A)	Connection	Revolution per minute (min ⁻¹)	A Sound level (dB)	Weight (kg)
3S	5/4	6.0/6.5	1.5	6.2/6.2	80A	2890/3460	62/63	225
4S	9/9	6.0/6.0	2.2	9.2/9.0	100A	2875/3445	65/66	246
5S	17/16	6.5/6.5	3.7	14.4/14.2	125A	2910/3490	67/68	319
6S	25/26	6.5/6.5	5.5	21.4/21.0	150A	2920/3500	69/71	348
8S	35/34	7.0/7.0	7.5	29.8/28.6	200A	2920/3505	71/73	448
10S	54/55	6.0/6.0	11.0	44.0/43.0	250A	2940/3520	73/74	548
12S	70/70	6.5/6.5	15.0	58.8/56.8	300A	2940/3525	75/76	608
12SH	75/80	7.0/7.0	18.5	72.4/71.0	300A	2940/3525	78/79	649




【High pressure type · · · SSTB-H】 50Hz/60Hz

Type	Air quantity (m ³ /min)	Static pressure (kPa)	Motor power (kW)	Rated current (A)	Connection	Revolution per minute (min ⁻¹)	A Sound level (dB)	Weight (kg)
3H	5/4	7.5/8.5	2.2	9.2/9.0	80A	2875/3445	65/66	246
4H	10/9	7.5/9.5	3.7	14.4/14.2	100A	2910/3490	67/69	259
5H	17/17	8.5/9.5	5.5	21.4/21.0	125A	2920/3500	70/72	348
6H	24/25	8.5/9.5	7.5	29.8/28.6	150A	2920/3505	73/74	358
8H	36/36	8.5/9.5	11.0	44.0/43.0	200A	2940/3520	74/75	518
10H	50/50	8.5/9.5	15.0	58.8/56.8	250A	2940/3525	75/76	568
12H	70/70	8.0/8.5	18.5	72.4/71.0	300A	2940/3525	77/78	639




■ Safety precautions

Be sure to thoroughly read this instruction manual and other attached documents before installation work, test operation adjustment, maintenance and inspection, familiarize all about equipment knowledge, safety information, and precautions before using. In this instruction manual, the rank of safety precautions is classified as "danger", "warning", "caution".








Meaning of indication

Indication	Meaning of indication
 DANGER	Indicates contents that could result in death or serious injury if you handle it with the contents of this indication ignored.
 WARNING	Indicates contents that could result in serious injury if you handle it with the contents of this indication ignored.
 CAUTION	Indicates the possibility of being subject to moderate injury or minor injury, and handling that ignores the contents of this indication, and it is supposed to cause physical damage.

Meaning of drawing

Drawing mark	Meaning of drawing
 INSTRUCTION	This is to tell that there is indication to instruct compulsorily your action. Contents of the instruction must be described definitely nearby.
 PROHIBITION	This is to tell the prohibited action. Specifically prohibited action are described.
 CAUTION	This is to tell that there is a thing to be attended. The specifically attended thing is described nearby.

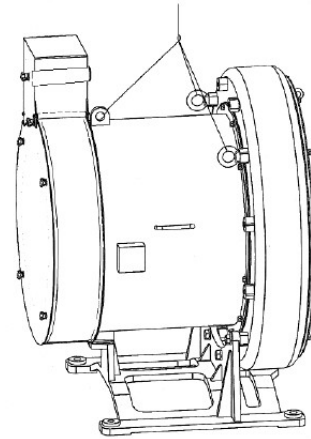
■ Read without fail

 DANGER	
 PROHIBITION	<p>Do not drive beyond the capability of the equipment</p> <p>This machine is designed so that the current value does not exceed the rated current value during operation at the rated flow rate. If the discharge flow rate exceeds the rated flow rate due to, for example, no resistance at the outlet or downstream from the outlet, the overcurrent could cause failure or seizure of the motor. Be sure to use the burner in a manner that the rated current value and rated flow rate are not exceeded.</p>
 ELECTRIC SHOCK	<p>Electric shock attention</p> <p>When you remove the cover of a terminal box, please be sure to carry out after shutting off a former power supply.</p>
 PROHIBITION	<p>Do not disassemble</p> <p>Because you might be hurt with a turning impeller please never remove Looking cover while driving.</p>
 COMPULSON	<p>Please fix a blower with an anchor bolt on the stable foundation.</p>
 COMPULSON	<p>To fix the piping from the blower be sure to provide independent supports.</p>
 PROHIBITION	<p>Do not use the attached gasket for sealing this blower.</p> <p>Put the replaced old gaskets pouch and throw away them according to the waste disposal regulation or 「the waste cleaning regulation」. Never burn up them.</p>

■ Transportation method

As for lifting, please use the eyebolt (2 places) which is assembled to the main body as shown on the right.

Never use the handle of the silent cover.



■ Installation

1. Secure a space at least 1m around the blower in consideration of disassembly cleaning and repair.
2. Please avoid the place described below.
 - Places sucking the corrosive gases.
 - Place with much dust.
 - Place that gets wet with rainwater.
 - Place where the circumference will be 40 °C or more.
3. Fix to the stable foundation firmly with an anchor bolt.

When you install on a steel-materials structure unavoidably, please use the rubber mount of an option.

4. In order to prevent offset load, please install so that a blower axis becomes horizontal.

■ Piping

1. For the piping, be sure to provide independent supports for fixing, and use the accompanying rubber joints to protect the blower from the direct impact of load and vibration from the piping.
2. Piping size should be the same diameter as the blower, or larger size.
3. A straight part of a blower exit pipe more than three times longer than pipe diameter is required.

■ Wire connection of a Motor

Please check the specification of a motor with the name plate stuck on the external terminal box.

The standard motor is 3 ratings of 200V-50 Hz, 200V/220V-60 Hz of single voltage.

As a special motor, there is also different voltage, such as 380V, 400V, and 440V.

	Lead wire Number of terminals	Motor power kW	Lead wire connection method
Applicable standard	3	1.0) 3.7	
Applicable standard	6	5.5) 18.5	

※Please connect so that there is no short circuit between wires.

※When connecting to the star delta starter please remove the short circuit plate.

(Star delta starting is possible for models with 5.5 kW or more)

※Ground the earth terminal securely.

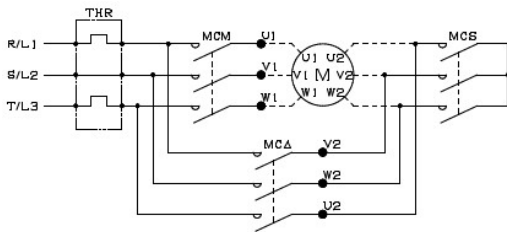
■ Star delta starting

1). Notes on star delta start

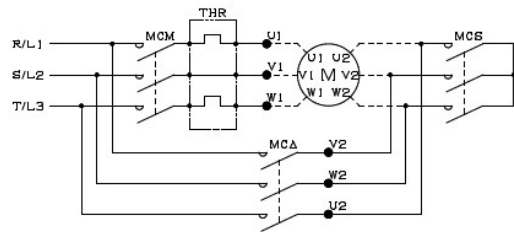
There are three electromagnetic contactor type and two magnetic contactor type in the star delta starting method. 2 Electromagnetic contactor type circuit is simple and economical, but since voltage is constantly applied to the windings of the motor even when the motor is stopped, safety during maintenance and inspection, dust and humidity are high Because it is necessary to pay attention to insulation degradation between the windings of each motor phase winding and winding to ground at the place, 3 electromagnetic contact type is recommended.

2). Current detection method of thermal relay

As shown in the figure below, the thermal relay at the star delta start has the line current detection method and the phase current detection method, and the selection of the heater rating is different. In the line current detection method, the heater rating is selected based on the motor full load current. On the other hand, in the phase current detection method, the heater rating is selected based on the current of $1 / \sqrt{3}$ of the full load current of the motor. In this method, the frame size of the thermal relay can be made smaller than that of the line current detection method, but since the wiring size of the motor circuit does not change in any detection method, in the case of the phase current detection method, Since it is necessary to consider whether wire connection is possible or not, the line current detection method is recommended.



Line current detection method



Phase current detection method

■ Startup current and startup time (Voltage AC200V)

1). Standard specification

SSTB Type	Motor power (kW)	Frequency (Hz)	Starting current (A)		Start time (s)	
			Direct	Star delta	Direct	Star delta
3S	1.5	50	44.8	-	13.57	-
		60	42.2	-	12.86	-
4S	2.2	50	63.7	-	10.03	-
		60	61.4	-	9.69	-
5S	3.7	50	101.5	-	8.84	-
		60	101.1	-	7.80	-
6S	5.5	50	153.2	76.3	6.21	24.4
		60	145.9	63.2	5.51	23.9
8S	7.5	50	217.0	108.0	3.97	14.9
		60	199.7	86.4	3.87	15.5
10S	11.0	50	304.1	151.4	4.00	16.3
		60	295.8	128.0	3.98	17.8
12S	15.0	50	407.8	203.0	3.60	14.1
		60	390.6	169.1	3.80	16.0
12SH	18.5	50	505.4	251.6	3.31	12.5
		60	492.5	213.2	3.34	13.5

2). High pressure specification

SSTB Type	Motor power (kW)	Frequency (Hz)	Starting current (A)		Start time (s)	
			Direct	Star delta	Direct	Star delta
3H	2.2	50	61.8	-	13.78	-
		60	57.9	-	13.68	-
4H	3.7	50	84.1	-	9.26	-
		60	97.1	-	12.33	-
5H	5.5	50	139.1	69.3	7.62	30.0
		60	140.1	60.6	5.11	22.1
6H	7.5	50	188.0	93.6	5.26	19.7
		60	194.0	84.0	3.35	13.4
8H	11.0	50	303.5	151.1	5.91	24.1
		60	290.8	125.9	5.39	24.1
10H	15.0	50	423.6	210.9	4.55	17.7
		60	387.7	167.8	3.80	16.0
12H	18.5	50	510.4	254.1	3.47	13.1
		60	481.9	208.6	3.60	14.6

■ About electromagnetic contactor, switch, thermal relay

※ Compared with conventional motors, the IE3 motor increases the starting current by 15 to 30%.

The startup time also tends to become longer.

1). Main circuit voltage 200 to 220 V direct startup (by Fuji Electric)

※ Please use late type thermal relay for thermal relay.

※ When the thermal relay trips, increase the set value of the thermal relay to 5%

We recommend you to.

SSTB Type	Motor power (kW)	Electromagnetic switch type	Thermal type	Settling range (A)
3S	1.5	SW-0/2L Main circuit AC□V 1.5kW Coil AC□V 1a(1b)	TR-0NL	5~8(5)
3H 4S	2.2	SW-0/2L Main circuit AC□V 2.2kW Coil AC□V 1a(1b)	TR-0NL	7~11(7)
4H 5S	3.7	SW-4-1/2L Main circuit AC□V 3.7kW Coil AC□V 1a(1b)	TR-5-1NL	12~ 18(12)
5H 6S	5.5	SW-N1/2L Main circuit AC□V 5.5kW Coil AC□V 2a2b	TR-N2L	18~ 26(18)
6H 8S	7.5	SW-N2/2L Main circuit AC□V 7.5kW Coil AC□V 2a2b	TR-N2L	24~ 36(24)
8H 10S	11.0	SW-N2S/2L Main circuit AC□V 11kW Coil AC□V 2a2b	TR-N3L	34~ 50(34)
10H 12S	15.0	SW-N3/2L Main circuit AC□V 15kW Coil AC□V 2a2b	TR-N3L	45~ 65(45)
12SH 12H	18.5	SW-N4/2L Main circuit AC□V 18.5kW Coil AC□V 2a2b	TR-N5L	53~ 80(53)

2). Main circuit voltage 200 to 220 V Star delta starting (by Fuji Electric)

For the selection in the table below, the thermal relay uses line current detection and the star electromagnetic switch is selected by the star short circuit method.

※ Please use late type thermal relay for thermal relay.

※ When the thermal relay trips, increase the set value of the thermal relay to 5%

We recommend you to.

SSTB Type	Motor power (kW)	Electromagnetic switch type	Thermal type	Settling range (A)
5H 6S	5.5	MCM:SC-4-0 Coil AC□V 1a MCΔ:SC-4-0 Coil AC□V 1b MCS:SC-5-1 Coil AC□V 1a1b	TR-N2LH	18~26(18)
6H 8S	7.5	MCM:SC-4-1 Coil AC□V 1a MCΔ:SC-4-1 Coil AC□V 1b MCS:SC-N1 Coil AC□V 2a2b	TR-N2LH	24~36(24)
8H 10S	11.0	MCM:SC-N2 Coil AC□V 2a2b MCΔ:SC-N2 Coil AC□V 2a2b MCS:SC-N1 Coil AC□V 2a2b	TR-N2LH	34~50(34)
10H 12S	15.0	MCM:SC-N2 Coil AC□V 2a2b MCΔ:SC-N2 Coil AC□V 2A2b MCS:SC-N2 Coil AC□V 2a2b	TR-N3LH	45~65(45)
12SH 12H	18.5	MCM:SC-N2S Coil AC□V 2a2b MCΔ:SC-N2S Coil AC□V 2a2b MCS:SC-N2 Coil AC□V 2a2b	TR-N3LH	53~80(53)

MCM: Electromagnetic contactor for power

MC Δ: Electromagnetic contactor for delta

MCS: Electromagnetic contactor for star (star short circuit)

■ Before starting operation

< Check of direction of rotation >

1. Rotate the impeller slowly by turning ON/OFF the started switch instantaneously.
2. Looking through the rotation instruction cover, check whether the rotation confirmation mark (yellow) on the spindle shows the same direction as the direction of the arrow.

If not, turn OFF the main power immediately, and correct the connection.

< Starting operation >

1. Turn on the start switch of a blower.
2. When the blower becomes steady, increase the load to the maximum level, and check whether the current value of the motor is not above the rated value. (Never run the motor under overloaded condition.)
3. If the operating air quantity is reduced excessively, a surging phenomenon (pressure fluctuation like waving) may occur. If such phenomenon occurs, it is advisable to provide a vent valve on the delivery side.

■ Maintenance inspection

Please inspection and maintenance in the following way.

1. Even if there is not abnormality, please do the inspection in the main body of impeller and blower once a year.
2. Occasionally check the tightening of the bolts of each part.
3. Always pay attention to the abnormal sound, vibration, overheat of the blower body and any other abnormality.
4. Please rolling up the dirty roll filter and clean it.

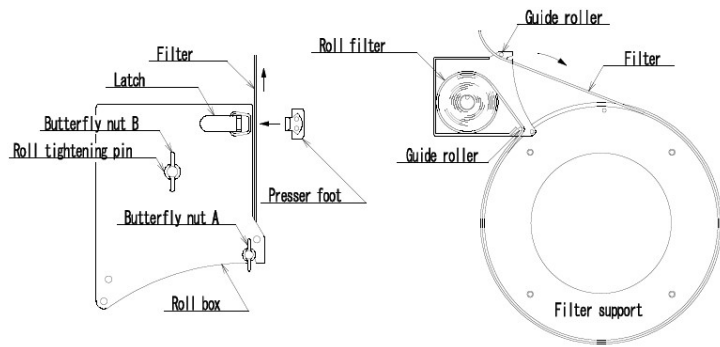
● Roll filter

Please check the filter periodically, and before it starts decreased pressure by the clog of dust etc., Rolling up a roll filter.

The roll filter is supposed to be replaced by rolling up once every week or so, but this replacement frequency may be adjusted according to the usage and the environment.

One roll filter lasts for about one year.

● Detailed view of roll filter



● Rolling up the roll filter

1. Loosen the wing nut B.
2. Release the latch to open the presser foot.
3. Rolling up one circumferential amount of the filter.
4. Put the presser foot back to the former state with the latch.
5. Cut off the soiled portion of the filter.
6. Tighten the wing nut B.

● Exchange of a roll filter

1. Loosen the wing nut A and open the roll box.
2. Remove the wing nut B and pull out the roll receiving pin.
3. Insert a new roll filter and insert the roll receiving pin.
4. Tighten with the wing nut B and fix.
5. Pass the tip of the filter through the inside of the guide roller as shown in the figure.
6. Return the roll box to its original position.
7. Tighten the wing nut A and fix the roll box

● A filter kind and pressure loss

There are 3 filter types as listed below Please use properly according to usage environment.

As of shipping from our facilities, the filter of medium roughness (RF-M) type has been provided.

Type	Model	Sieve opening (mm)	Pressure loss (Maximum) ※
Coarse mesh	RF-□□-L	2.5	Less than 0.06kPa
Medium mesh	RF-□□-M	1.3	Less than 0.10kPa
Fine mesh	RF-□□-S	0.6	Less than 0.20kPa

※Pressure loss (Maximum) is a value at the time of the maximum air quantity in each model. When ordering, make an entry in the □□ spaces as follows.

- S S T B - 3, 4 →
- S S T B - 5, 6 →
- S S T B - 8, 10 →

■ Disassembly

<Blower body inside side>

1. Pass a wire or the like through the eye bolts^② attached to the cover^⑫, hoist the blower body^①, and fix the blower body^① in the hoisted position
2. Remove the bolts from the cover^⑫, and separate the cover^⑫ from the blower body^①.
3. Release the fixing teeth of the bearing washer^⑩, and remove the bearing washer^⑩ together with the bearing nut^⑪ and the collar^⑨.
4. Remove the impeller^⑧, and remove the key^⑦.
5. Remove the positioning collar^⑥.

<Silent cover side>

1. Remove the Wing nut^⑳ and pull out a Filter support^⑱ than a Rod bolt^⑰.
2. Disconnect the wiring and remove the Terminal box[Ⓐ].
3. Remove the Bushing[Ⓒ] and Lock nut[Ⓓ] from the Connector[Ⓔ], push the Plica tube[Ⓕ] to the inside of the cover.
4. Remove the bolt from the cover support[Ⓗ] and silent cover[Ⓖ], and separate the silent cover[Ⓖ] from the blower body^① by using the cover knob.

Now, the disassembly of the inside of the main body and silent cover unit is completed.

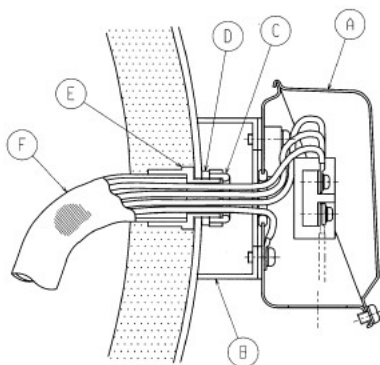
In the case of assembling, please go in the inverse order mentioned above.

● Precautions for assembly

1. Never scratch or bruise the shafts and meshing parts.
2. Apply high quality machine oil to the shaft, etc., after cleaning.
3. Tighten the bearing nuts firmly and fix them bending the pawls of the bearing washers.
4. Upon completion of assembly turn the blower shaft by a hand to confirm that it moves as smoothly as before disassembly.

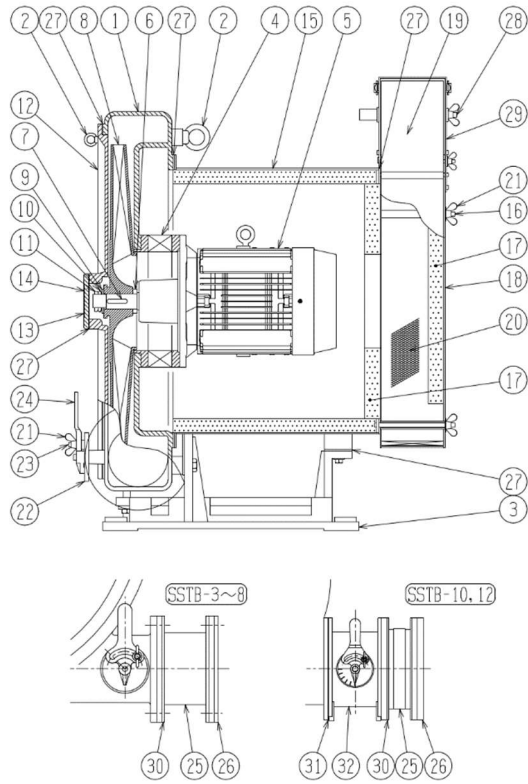
■ Structure drawing

● Terminal box



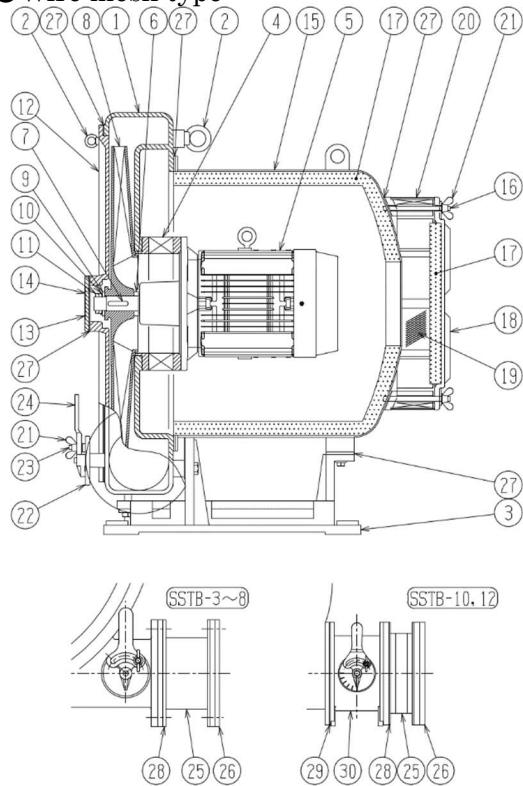
A	Terminal box	D	Lock nut
B	Box support	E	Connector
C	Bushing	F	Plica tube

● Roll filter type



1	Blower Body	17	Silent Pad
2	Eye Bolt	18	Filter Support
3	Base	19	Roll Filter
4	Motor Support	20	Punching Metal
5	Motor	21	Wing Nut
6	Fixed Position Collar	22	Graduation Plate
7	Key	23	Shaft
8	Impeller	24	Butterfly Handle
9	Press Collar	25	Rubber Joint
10	Bearing Washer	26	Mate Flange
11	Bearing Nut	27	Packing(NR)
12	Cover	28	Roll Receive Pin
13	Looking Cover	29	Roll Box
14	Looking Label	30	Split Flange
15	Silent Cover	31	Packing
16	Rod Bolt	32	Butterfly Damper Body

● Wire mesh type



1	Blower Body	16	Rod Bolt
2	Eye Bolt	17	Silent Pad
3	Base	18	Filter Support
4	Motor Support	19	Filter
5	Motor	20	Filter Press
6	Fixed Position Collar	21	Wing Nut
7	Key	22	Graduation Plate
8	Impeller	23	Shaft
9	Press Collar	24	Butterfly Handle
10	Bearing Washer	25	Rubber Joint
11	Bearing Nut	26	Mate Flange
12	Cover	27	Packing(NR)
13	Looking Cover	28	Split Flange
14	Looking Label	29	Packing
15	Silent Cover	30	Butterfly Damper Body

Specifications are subject to change without notice for improvement.

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