

OPERATION AND INSTRUCTION MANUAL

Single & Three-phase Mechanical Frequency Converters

BTFC200





Use this guide along with the parts lists attached to locate and identify components of your convertor. When ordering replacement parts, be sure to provide the model number and serial number from the convertor

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Contact

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BELGIUM

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1. PREFACE

Thank you for selecting BETON TROWEL Mechanical Frequency Converters.

In this manual, you will find specific information, regarding the installation, operation and maintenance of this equipment, as well as safety precautions. Please read the manual carefully before beginning installation of the vibrator. Be sure to follow all instructions and precautions contained herein. Failure to do so could compromise the service life of the vibrator and/or your safety.

If you need clarification or further information about any of the topics in this manual, please feel free to contact BETON TROWEL for assistance.

2. OVERVIEW

The output of series BTFC200 single & three-phase Mechanical Frequency Converters is 48V 3~ 200Hz, which can be used as special power supply source for series BTHFC small-size motor-in-head vibrators.

▲ You must read this operation manual carefully and abide by it strictly to ensure the normal work of the frequency converter.

3. RULES FOR SAFE USE

- 1) This equipment should be used on suitable occasions and should be operated by authorized operators, carry out security inspection regularly, and repair the equipment if necessary.
- 2) The personnel, who are responsible for operating this equipment, must be familiar with the security rules, which are related to this machine and must be executed.
- 3) Once failure that endangers secure operation occurs, the equipment must be stopped immediately.
- 4) During work, the hull should be reliably connected with grounded cable. the connection should be completed by qualified technicians who hold related certificate.
- 5) The green-yellow grounded line of the equipment is longer than the connection cable, so it will not be torn when the line is tightened. or if the earth is connected with power, it will endanger the security of human life.
- 6) The electric components of this equipment can only be repaired by experts.
- 7) Only after you have made clear and sure that the local voltage and frequency are consistent with the specified voltage and frequency on the nameplate of the equipment, can you connect the equipment with local power supply.
- 8) The frequency converter should be placed where there is not much powder or dust and raining can be avoided. check the wind port for heat radiation regularly to see if it's blocked.
- 9) If the end shields of frequency converter unit are missing, so the fan and the collecting ring are exposed into air, now please do not use the machine. Use the machine only after the end shields have been repaired.

4. TECHNICAL DATA

Table 1: Technical Data for Three-phase Mechanical Frequency Converters

Series BTFC200 Three-phase Mechanical Frequency Converters						
Model	Capacity (kVA)	Input (Ph/Hz/V/A)	Output (Ph/Hz/V/A)	Overall Dimension L×W×H(mm)	Weight (kg)	Outlets
BTFC200/45/4	4.5	3/50/380/8.3	3/200/48/54	725x320x440	78	4
BTFC200/18/2	1.8	3/50/380/2.8	3/200/48/22	380x280x360	37	2

Table 2: Technical Data for Single-phase Mechanical Frequency Converters

Series BTFC200 Single-phase Mechanical Frequency Converters						
Model	Capacity (kVA)	Input (Ph/Hz/V/A)	Output (Ph/Hz/V/A)	Overall Dimension L×W×H(mm)	Weight (kg)	Outlets
BTFC200200/25/2-D	2.5	1/50/220/5.7	3/200/48/25	470x300x400	37	2
BTFC200200/11/1-D	1.1	1/50/220/2.8	3/200/48/11	400x300x400	27	1

5. OPERATION

1) Preparation

- a) Check if the nameplate data are correct
- b) Check the ground insulation resistance of the frequency converters: Use megameter of 500V to check it. only if the insulation resistance is $\geq 2M\Omega$, it is qualified.
- c) Do not wear loose-fitting clothing. wear ear muff and goggles.

2) Start

- a) Insert the power plug of frequency converters into terminal board. now the switch of frequency converters should be under "OFF" or "0" state.
- b) BTHFC Motor-in-head vibrator must be under "OFF" or "0" state before it's connected with frequency converters.

Note: The input current of Motor-in-head vibrator should never exceed the output current of frequency converter, which supply power to it. For one machine with multiple vibrators, please check the total current of vibrator and the total current of vibrator should not exceed the output current of the frequency converter.

- c) Insert the plug of vibrator into socket of frequency converter.
- d) Before start up frequency converter, please turn the switch of vibrator to "0" state.
- e) Start up the frequency converter and turn the switch to "ON" or "I" state.
- f) Refer to Operation Manual of vibrator, start up the vibrator and turn the switch to "ON" state.
- g) Vibrator can be normally used.

3) Use

- a) The frequency converter should be placed in shady area with comparatively good ventilation and cleanness during use. prevent plastic bags or paper from being absorbed into frequency converter unit to affect the ventilation and heat radiation.

- b) The frequency converter should be placed firmly rather than in tilted or narrow ground to avoid damaging the frequency converter due to falling.
- c) When vibrator blocking occurs, please cut off the power supply of frequency converter. only after the failure has been removed, the equipment can be used again.

4)Stop

- a) Refer to Operation Manual of vibrator and first cut off the switch of vibrator, so it's under "OFF" state.
- b) Shut off frequency converter, so it's under "OFF" or "0" state.
- c) Plug out the plug of vibrator from socket of frequency converter.
- d) Plug the cable plug of frequency converter out of the power socket.
- e) Store the frequency converter and vibrator on the place, where is dry and of good ventilation.

6. MAINTENANCE

- a) After the frequency converter has been used, clean the surface with dry cloth, especially for the ventilation ports at the two ends, to prevent the jam of concrete from affecting the heat radiation of the frequency converter.
- b) Check the insulation of the power supply regularly to see if it's damaged or the lead is loosened or taken off.

If the frequency converter is found to be abnormal, please stop using it immediately and let qualified professional personnel to repair it.

The following operation description should only be used by competent professional repair personnel:

- 1) Only use spare parts of Beton trowel, or Beton trowel will not be responsible for any liabilities generated from this.
- 2) Before you make any operation and maintenance, you must pull the frequency converter plug out of the power supply terminal board.

- 3) The yellow-green grounded line must be the longest to prevent the grounded line from being broken first after the cable is broken off from the wire clamp. If the yellow-green line is broken first, it will endanger human life. The grounded line must be checked every time after the repair.
- 4) You must correctly assemble the protection of motor after every repair.
- 5) Only skillful workers are allowed to use frequency converter. Non-skillful workers are allowed to operate the frequency converter only after they have obtained approval from builder or the working site principal. The operator should be normal in terms of their physical strength and brain.
- 6) Every operator must know and follow the accident prevention by laws and systems of the electric facilities and equipments.
- 7) Please do not use frequency converter when you're tired to prevent fire, electric shock or even injury due to wrong operation.
- 8) Please do not immerge the frequency converter into water, concrete or any liquid. please do not use it near flammable or explosive materials or in flammable or explosive gases and do not let rain fall onto the frequency converter. The protection of the frequency converter is IPX4.
- 9) Do not move frequency converter by pulling the cable or jerk cable out of the socket. The cable should be far away from hot, oily or sharp objects.
- 10) Check the wearing parts before start up to make sure if the equipment can work normally and can satisfy the anticipated effect.
- 11) Please do not turn on or off the frequency converter by pulling out or inserting power plug, but should control the frequency converter by turning on or off the switch on the side of the frequency converter.
- 12) The power supply of frequency converter, such as terminal board or other operation facilities on the working site, including the vibrator, should be in compliance with the security requirements of the related local authority before they can be used. The terminal board connected with the frequency converter must have overload protection equipment.
- 13) To ensure the perfect performance of frequency converter, please keep cleanness of the machine and use the vibrator in compliance with the operation manual of the vibrator. Check the cable regularly. If the cable is damaged, professional technicians should

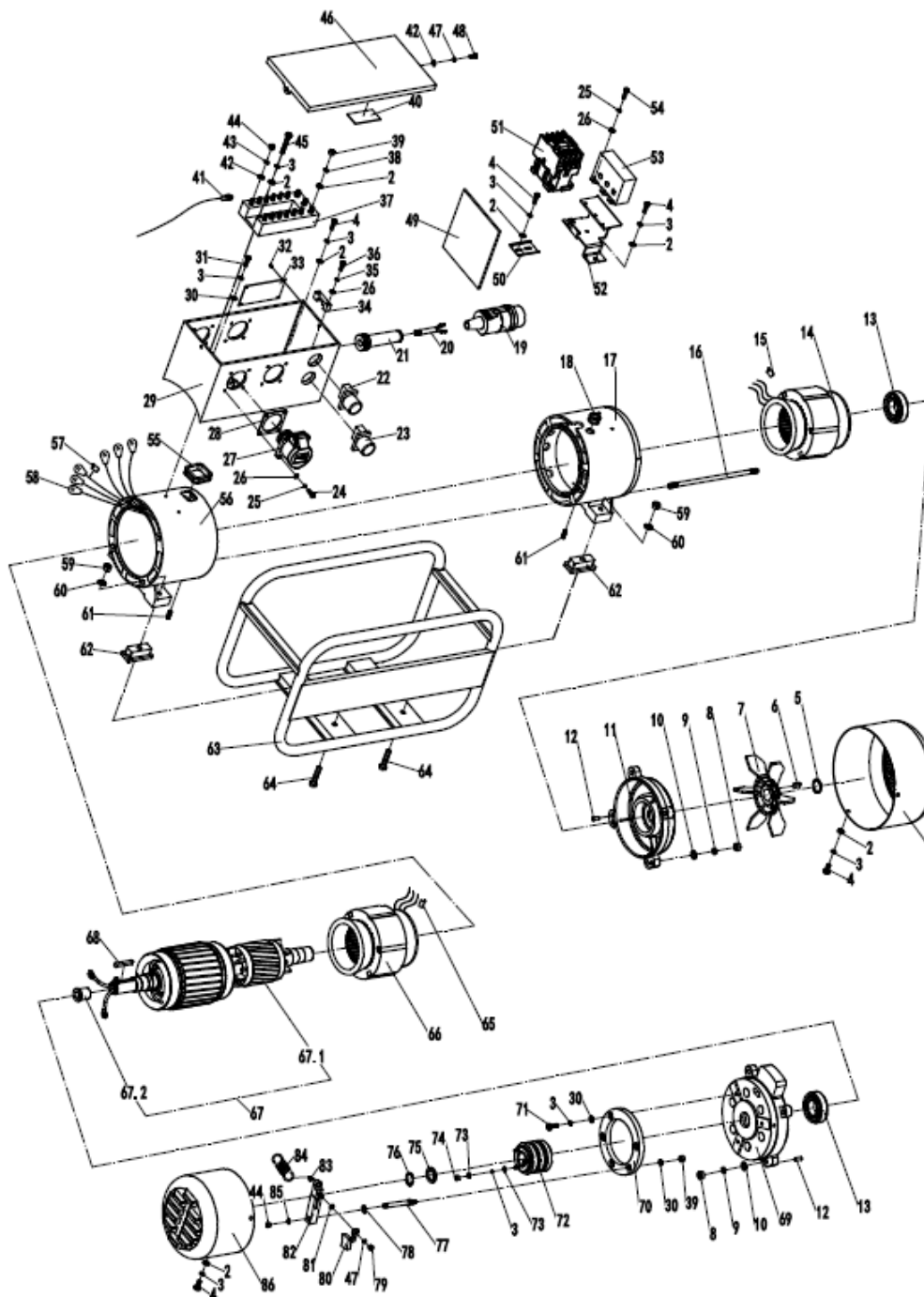
replace the cable of the corresponding specifications in time or entrust BETON TROWEL to repair it.

- 14) During work at height, please place the frequency converter and the vibrator steady and firmly. By no means should the equipment be started without anyone grasping the vibrator, so as prevent the frequency converter from falling from height due to vibration.

7. PACKAGING, TRANSPORTATION AND STORAGE

- 1) Frequency converter and the operation manual are placed in packing cases, and they should not be bottom-up or overturned.
- 2) Please do not drag the frequency converter by pulling the cable to prevent terminal from falling off.
- 3) The outline border of frequency converter is ring-shaped frame, which can be used to move the converter, but the frame should be taken or placed slightly to prevent breaking.
- 4) Please wear gloves and shoes when you move it by hand or work with it.
- 5) The frequency converter should be placed in dry and clean environment with temperature between -10°C to + 40°C.

PARTS DIAGRAM 4.5 kVA

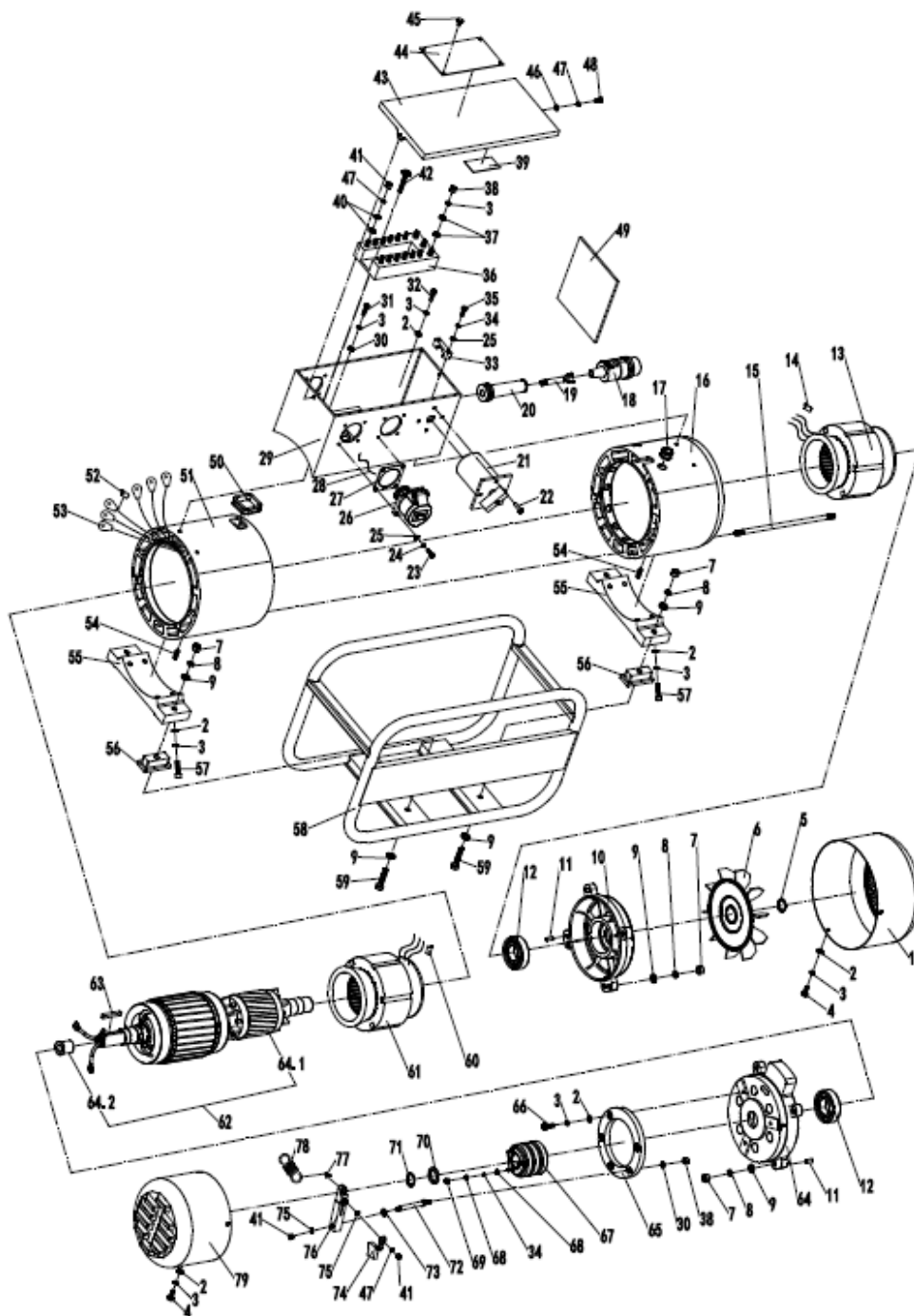


No	Description	Qty	4.5kVA	3.0kVA	kg
1	FAN COVER	1	234001	234001	0,98
2	PLAIN WASHER	19	650302	650302	0,01
3	ELASTIC WASHER	29	650502	650502	0,01
4	SCREW	14	630707	630707	0,01
5	CIRCLIP FOR SHAFT	1	670204	670204	0,01
6	KEY	1	672005	672005	0,02
7	FAN	1	234002	234002	0,53
8	NUT	8	610104	610104	0,01
9	ELASTIC WASHER	8	650504	650504	0,01
10	PLAIN WASHER	8	650304	650304	0,01
11	REAR COVER	1	234003	234003	0,93
12	PIN	4	10105020	10105020	0,02
13	BEARING	2	550518	550518	0,44
14	MOTOR STATOR	1	234100	233100	11,29/11,36
15	WIRE MARK II	3	712002	712002	0,01
16	LONG BOLT	4	234005	234005	0,20
17	MOTOR HOUSING	1	234006	234006	4,86
18	RUBBER RING	3	750116	750116	0,01
19	WATER-PROOF	1	570345	570345	0,13
20	CABLE	1	234007	233007	2,20/2,32
21	CABLE PROTECTOR	1	750117	750131	0,02
22	PUSH BUTTON	1	570819	570819	0,02
23	PUSH BUTTON	1	570820	570820	0,02
24	SCREW	16	630714	630714	0,01
25	ELASTIC WASHER	16	650601	650601	0,01
26	PLAIN WASHER	18	650300	650300	0,01
27	SOCKET	4	570323	570323	0,13
28	RUBBER SHEET	4	756023	756023	0,01
29	SWITCH BOX	1	234020	234021	1,95

No	Description	Qty	4.5kVA	3.0kVA	kg
30	PLAIN WASHER	10	650103	650103	0,01
31	SCREW	5	630708	630708	0,02
32	RIVET	4	632002	632002	0,01
33	NAME PLATE	1	711187	711188	0,01
34	CABLE CLIP	1	712203	712203	0,01
35	ELASTIC WASHER	2	650505	650505	0,01
36	SCREW	2	630715	630715	0,01
37	TERMINAL PLATE	1	753016	753016	0,60
38	SERRATED LOCK WASHER	3	650802	650802	0,01
39	NUT	5	610102	610102	0,01
40	ILLUTATE PLATE	1	711186	711186	0,01
41	SOCKET CABLE	12	234021	234021	0,01
42	PLAIN WASHER	14	650301	650301	0,01
43	SERRATED LOCK WASHER	12	650801	650801	0,01
44	NUT	14	610101	610101	0,01
45	BOLT	2	590305	590305	0,02
46	COVER PLATE	1	234010	234010	0,54
47	ELASTIC WASHER	8	650501	650501	0,01
48	SCREW	2	630703	630703	0,01
49	PARTITION PLATE	1	234017	234017	0,02
50	SUPPORT RAIL	1	234018	234018	0,01
51	COIL CONTACTOR	1	570830	570830	0,36
52	MOUNTING PLATE II	1	234019	234019	0,20
53	PROTECTOR	1	570821	570821	0,10
54	SCREW	3	630717	630717	0,01
55	SQUARE RUBBER RING	1	750135	750135	0,01
56	GENERATOR HOUSING	1	234011	234011	5,02
57	WIRE MARK III	3	712003	712003	0,01
58	EXCITATION WIRE	6	234015	234015	0,01
59	NUT	4	610103	610103	0,01

No	Description	Qty	4.5kVA	3.0kVA	kg
60	PLAIN WASHER	4	650303	650303	0,01
61	SETTING SCREW	2	630502	630502	0,01
62	VIB-ISOLATE RUBBER	4	750130	750130	0,04
63	FRAME	1	234012	234012	7,40
64	BOLT	4	590306	590306	0,03
65	WIRE MARK I	3	712001	712001	0,01
66	GENERATOR STATOR	1	234300	233300	7,78/7,88
67	ROTATOR ASSY.	1	234400	233400	16,80/16,84
67,1	ROTATOR ASSY.	1	234410	233410	16,80/16,84
67,2	INSULATE SLEEVE	1	750107	750107	0,01
68	KEY	1	672006	672006	0,02
69	FRONT COVER	1	234013	234013	1,47
70	BRUSH BRACKET	1	753005	753005	0,16
71	SCREW	3	630709	630709	0,02
72	SLIP RING	1	241400	241400	0,85
73	PLAIN WASHER	6	650202	650202	0,01
74	NUT	3	610202	610202	0,01
75	WASHER	1	241014	241014	0,01
76	CIRCLIP FOR SHAFT	1	670203	670203	0,01
77	BRUSH BOLT	2	241012	241012	0,03
78	PAPER WASHER		241013	241013	0,01
79	NUT	6	610201	610201	0,01
80	CARBON BRUSH	6	714003	714003	0,02
81	PLAIN WASHER	12	650201	650201	0,01
82	BRUSH HOLDER	6	753004	753004	0,03
83	SPLIT PIN	6	671003	671003	0,01
84	SPRING	3	714005	714005	0,01
85	PLAIN WASHER	2	650102	650102	0,01
86	SLIP RING COVER	1	234016	234016	0,80

PARTS DIAGRAM 1.8 kVA

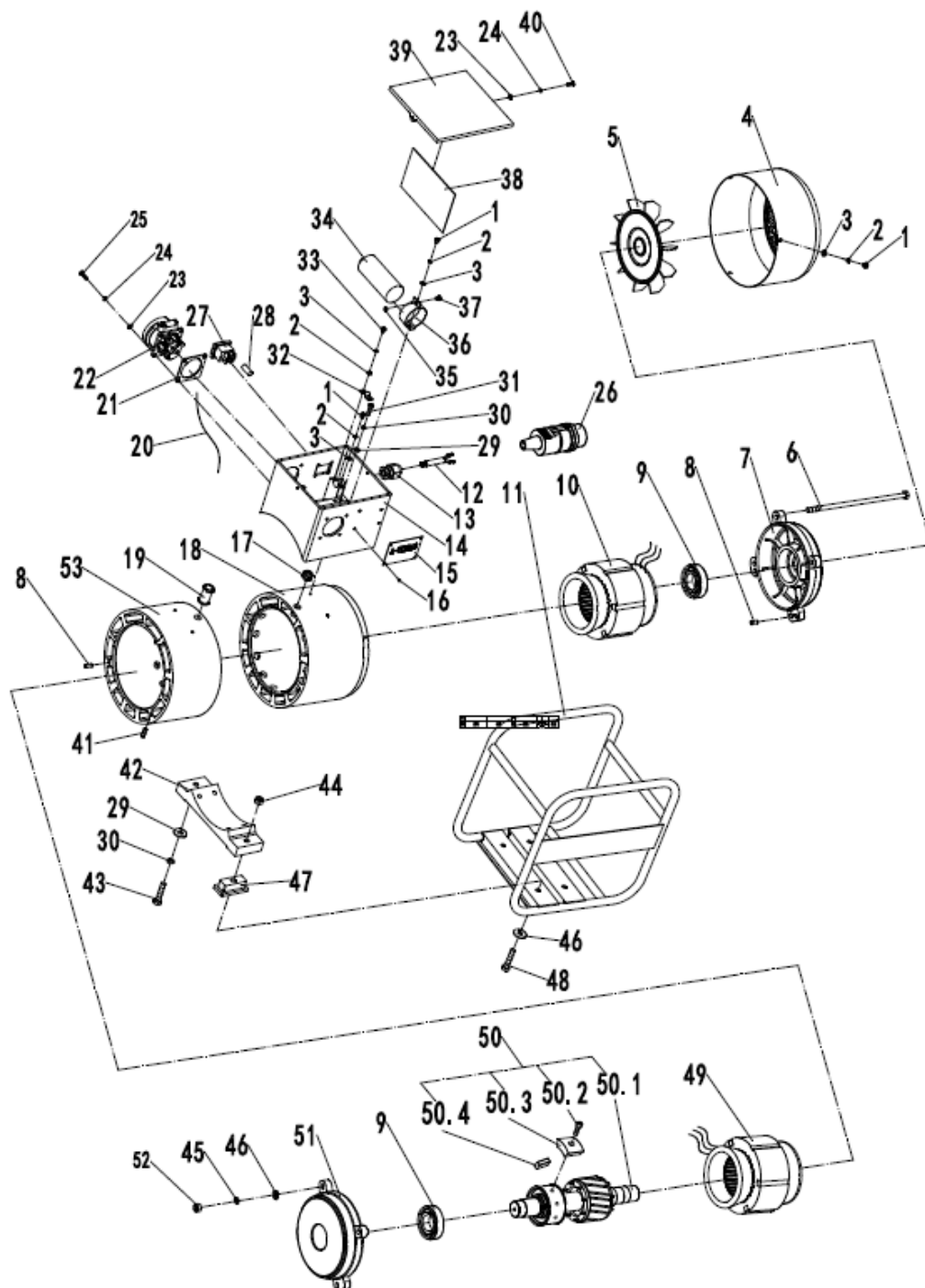


NO.	DESCRIPTION	QTY.	1.8kVA	1.2kVA	kg
1	FAN COVER	1	235001	235001	0.95
2	PLAIN WASHER	14	650302	650302	0.01
3	ELASTIC WASHER	21	650502	650502	0.01
4	SCREW	6	630707	630707	0.01
5	CIRCLIP FOR SHAFT	1	670208	670208	0.01
6	FAN	1	235002	235002	0.52
7	NUT	12	610103	610103	0.01
8	ELASTIC WASHER	12	650503	650503	0.01
9	PLAIN WASHER	16	650303	650303	0.01
10	REAR COVER	1	235003	235003	0.93
11	PIN	4	10105020	10105020	0.01
12	BEARING	2	550526	550526	0.44
13	MOTOR STATOR	1	232100	238100	11.45/ 11.21
14	WIRE MARK II	3	712002	712002	0.01
15	LONG BOLT	4	232001	232001	0.20
16	MOTOR HOUSING	1	232002	232002	3.66
17	RUBBER RING II	3	750114	750116	0.01
18	WATER-PROOF PLUG	1	570334	570334	0.13
19	CABLE	1	234007	234007	2.20
20	CABLE PROTECTOR	1	750117	750117	0.04
21	MAIN SWITCH	1	570307	570307	0.11
22	SCREW	4	633501	633501	0.01
23	SCREW	12	630714	630714	0.01
24	ELASTIC WASHER	12	650601	650601	0.01
25	PLAIN WASHER	18	650300	650300	0.01
26	SOCKET	2	570323	570323	0.13
27	RUBBER SHEET	3	756023	756023	0.01
28	LEADING WIRE	9	232005	232005	0.01

NO.	DESCRIPTION	QTY.	1.8kVA	1.2kVA	kg
29	SWITCH BOX	1	234038	234028	1.98
30	PLAIN WASHER	6	650103	650103	0.01
31	SCREW	4	630708	630708	0.01
32	SCREW	1	630705	630705	0.01
33	CABLE CLIP	1	712203	712203	0.01
34	ELASTIC WASHER	2	650505	650505	0.01
35	SCREW	2	630715	630715	0.01
36	TERMINAL PLATE	1	753018	753018	0.43
37	PLAIN WASHER	6	650402	650402	0.01
38	NUT	8	610202	610202	0.01
39	ILLUSTRATE PLATE	1	711186	711186	0.01
40	PLAIN WASHER	9	650401	650401	0.01
41	NUT	15	610201	610201	0.01
42	BOLT	2	590356	590356	0.02
43	COVER PLATE	1	234010	234010	0.54
44	NAME PLATE	1	711189	711194	0.01
45	RIVET	4	632201	632201	0.01
46	PLAIN WASHER	2	650301	650301	0.01
47	ELASTIC WASHER	17	650501	650501	0.01
48	SCREW	2	630703	630703	0.01
49	PARTITION PLATE	1	234017	234017	0.02
50	RUBBER RING I	1	750136	750136	0.01
51	GENERATOR HOUSING	1	232007	232007	4.30
52	WIRE MARK III	3	712003	712003	0.01
53	EXCITATION WIRE	6	232013	232013	0.01
54	SETTING SCREW	2	630505	630505	0.01
55	HOUSING FOOT	2	235009	235009	0.30
56	VIB-ISOLATE RUBBER	4	235010	235010	0.03
57	SCREW	8	630404	630404	0.02

NO.	DESCRIPTION	QTY.	1.8kVA	1.2kVA	kg
58	FRAME	1	232011	232011	7.32
59	BOLT	4	590338	590338	0.03
60	WIRE MARK I	3	712001	712001	0.01
61	GENERATOR STATOR	1	232300	238300	8.32/ 8.25
62	ROTATOR ASSY.	1	232400	238400	16.71/ 16.52
62.1	ROTATOR COMP.	1	232410	238410	16.70/ 16.51
62.2	INSULATE SLEEVE	1	750107	750107	0.01
63	KEY	1	672207	672207	0.02
64	FRONT COVER	1	232008	232008	0.98
65	BRUSH BRACKET	1	753017	753017	0.16
66	SCREW	3	630709	630709	0.02
67	SLIP RING	1	232500	232500	0.52
68	PLAIN WASHER	6	650200	650200	0.01
69	NUT	3	610200	610200	0.01
70	WASHER	1	232009	232009	0.01
71	CIRCLIP FOR SHAFT	1	670217	670217	0.01
72	BRUSH BOLT	2	232012	232012	0.03
73	PAPER WASHER	1	241013	241013	0.01
74	CARBON BRUSH	6	714010	714010	0.02
75	PLAIN WASHER	8	650201	650201	0.01
76	BRUSH HOLDER	6	753004	753004	0.03
77	SPLIT PIN	6	671003	671003	0.01
78	SPRING	3	714005	714005	0.01
79	SLIP RING COVER	1	232010	232010	0.85

PARTS DIAGRAM 1.1 kVA and 2.5 kVA



No	Description	Qty	1.1kVA	kg	2.5kVA	kg
1	SCREW	5	630716	0,01	630716	0,01
2	ELASTIC WASHER	7	650501	0,01	650501	0,01
3	PLAIN WASHER	7	650301	0,01	650301	0,01
4	FAN COVER	1	235001	0,80	235001	0,80
5	FAN	1	235002	0,08	235002	0,08
6	BOLT	4	590393	0,09	590394	0,13
7	REAR COVER	1	235003	0,64	235003	0,64
8	POSITION PIN	4	673006	0,01	673006	0,01
9	BEARING	2	550526	0,04	550526	0,04
10	MOTOR STATOR	1	235100	5,70	236100	7,65
11	FRAME	1	235004	4,46	236004	4,93
12	CABLE ASSY.	1	235400	0,12	235400	0,12
13	CABLE CLAMP	1	570234	0,01	570234	0,01
14	SWITCH BOX	1	235005	0,89	236005	0,89
15	NAME PLATE	1	711190	0,01	711191	0,01
16	RIVET	4	632002	0,01	632002	0,01
17	CABLE PROTECTOR	2	750103	0,01	750103	0,01
18	HOUSING	1	235006	3,90	236006	3,90
19	RUBBER RING	1	750134	0,01	750134	0,01
20	CABLE	3	237303	0,01	237303	0,01
21	RUBBER SHEET	1	756023	0,01	756023	0,01
22	SOCKET	1 (2)	570323	0,14	570323	0,14
23	PLAIN WASHER	6	650101	0,01	650101	0,01
24	ELASTIC WASHER	6	650505	0,01	650505	0,01
25	SCREW	4	630714	0,01	630714	0,01
26	WATER-PROOF SOCKET	1	570344	0,13	570344	0,13
27	SWITCH	1	756020	0,02	756020	0,02
28	TERNINAL	4	712101	0,01	712101	0,01
29	PLAIN WASHER	12	650103	0,01	650103	0,01

No	Description	Qty	1.1kVA	kg	2.5kVA	kg
30	ELASTIC WASHER	12	650502	0,01	650502	0,01
31	SCREW	4	630708	0,01	630708	0,01
32	TOP COVER CLAMP	1	712204	0,01	712204	0,01
33	SCREW	2	630702	0,01	630702	0,01
34	CAPACITOR	1	570332	0,13	570341	0,13
35	NUT	1	610101	0,01	610101	0,01
36	CAPACITOR CLAMP	1	674101	0,15	674101	0,15
37	BOLT	1	590346	0,01	590346	0,01
38	ISOLATE PLATE	1	235007	0,20	235007	0,20
39	COVER PLATE	1	235008	0,36	235008	0,36
40	SCREW	2	630717	0,01	630717	0,01
41	SETTING SCREW	2	630597	0,01	630597	0,01
42	HOUSING FOOT	2	235009	0,30	235009	0,30
43	SCREW	8	630425	0,01	630425	0,01
44	SELF-LOCK NUT	2	610410	0,01	610410	0,01
45	ELASTIC WASHER	4	650503	0,01	650503	0,01
46	PLAIN WASHER	8	650104	0,01	650104	0,01
47	VIB-ISOLATE RUBBER	4	235010	0,04	235010	0,04
48	BOLT	4	590306	0,02	590306	0,02
49	GENERATOR STATOR	1	235200	2,75	236200	4,80
50	ROTATOR ASSY.	1	235300	4,25	236300	7,12
50,1	ROTATOR ASSY.	1	235310	3,12	236310	6,00
50,2	SCREW	8	630418	0,01	630418	0,01
50,3	MAGNET BLOCK	8	235301	0,10	235301	0,10
50,4	PERMANENT MAGNET	8	235302	0,02	236302	0,05
51	FRONT COVER	1	235011	0,83	235011	0,83
52	NUT	4	610103	0,01	610103	0,01
53	GENERATOR HOUSING	1	—	—	236007	2,61