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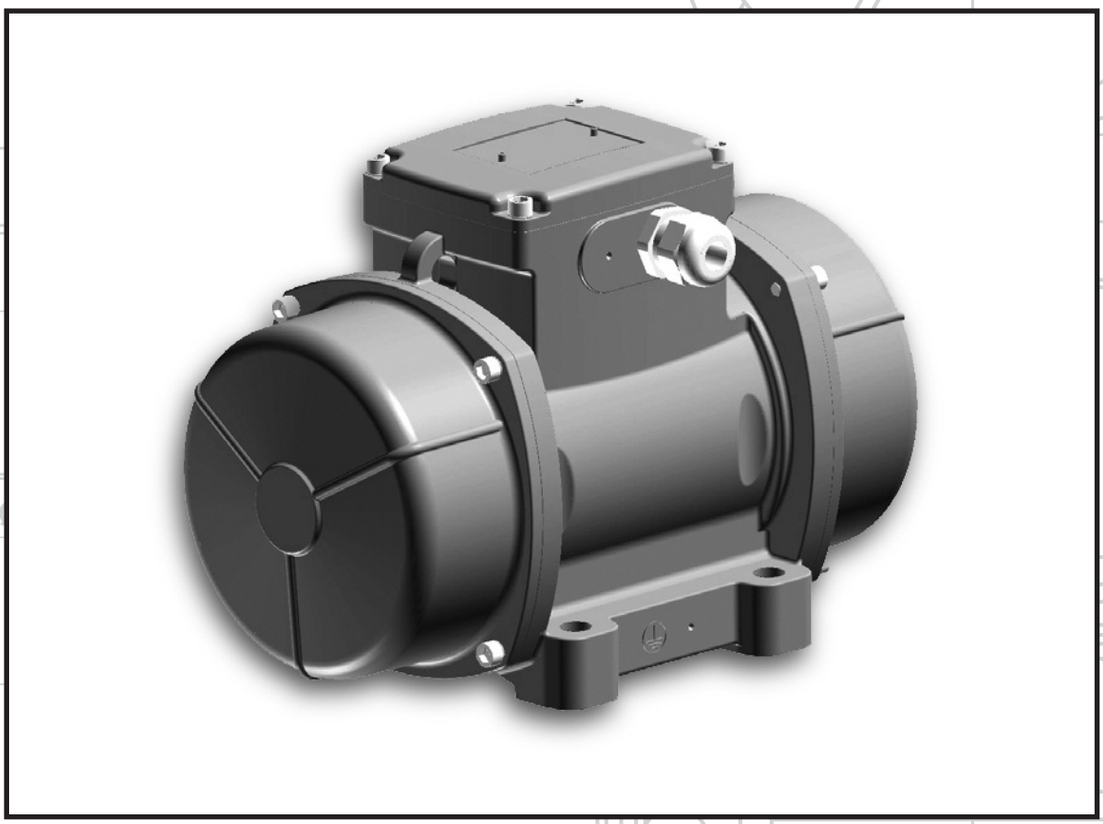
Italvibras USA

Industrial Electric Vibrators

For Use In Hazardous Locations



Model CDX, IMX, VMX

Operator's Manual

italvibras
g.silingardi
USA

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Introduction

Italvibras USA explosion-proof and dust-ignition-proof industrial electric vibrators have been designed and manufactured in accordance with the most exacting international industrial standards and requirements. Italvibras USA industrial electric vibrators are designed for long life at continuous duty and maximum force output. The electric vibrators are suitable for operation in ambient from -25°C to 40°C for Class I and Class II electric vibrators and for operation in ambient from -25°C to 55°C for Class I electric vibrators.

Italvibras USA industrial electric vibrators have been evaluated for installation throughout the world. Standard ratings include Underwriter's Laboratories, Inc. (UL) listing, CSA (Canadian Standards Association) Approval, the CE (European Directive) Mark, EX Approval for Zone 21 (ATEX Ex d IIB tD A21 IP66), Russian GOST Mark for Ex d explosion-proof rating and IECEx Approval (Ex d IIB and tD A21 IP66). Check the electric vibrator nameplate for the exact ratings and Approvals for the specific Model.

The electric vibrator can be referred to by its Model or Type designation or by its Item number. The vibrator Model or Type designations referred to in this manual are as follows:

CDX - Continuous duty explosion-proof industrial electric vibrator, single or three phase.

IMX - Continuous duty explosion-proof industrial electric vibrator having a mounting bolt hole pattern the same as Invicta vibrators.

VMX - Continuous duty explosion-proof industrial electric vibrator having a mounting bolt hole pattern the same as VIMARC® vibrators.

The Italvibras USA explosion-proof electric vibrator is intended for the following hazardous locations:

In areas that have explosive or flammable gases, vapors and/or dusts where the explosion hazard is referred to as Division 1 or Zone 1, the electric vibrator is marked for Class I, Groups C and D and Class II, Groups E, F and G hazardous locations and Ex d IIB 120°C tD A21 IP66 T120°C.

In areas that have explosive or flammable gases and/or vapors where the explosion hazard is referred to as Division 1 or Zone 1, the electric vibrator is marked for Class I, Groups C and D hazardous locations and Ex d IIB 160°C.

Italvibras USA CDX, IMX and VMX explosion-proof electric vibrators comply with the Essential Health and Safety Requirements: EN 60079-0:2006, EN 60079-1:2007, EN 61241-0:2006, EN 61241-1:2004, IEC 60079-0:2004, IEC 60079-1:2007, IEC 61241-0:2004 and IEC 61241-1:2004.

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General Safety requirements

Read this entire manual before proceeding. Compliance with all company, local and OSHA regulations is essential. Any electrical work must be done in accordance with all applicable local and national codes and must be performed only by qualified, licensed and authorized personnel. Always follow lockout and tag out procedures and requirements and always wear ear protection when in close proximity to operating vibratory equipment.

Comprehensive adherence to these documents at a minimum is required – The National Electrical Code NFPA 70, ANSI z244.1 the American National Standard for Personnel Protection – Lockout/Tag out of Energy Sources – Minimum Safety Requirements, CFR 29 Part 1910 – Control of Hazardous Energy Sources (Lockout/Tag out) Final Rule and CFR 29 Part 1910.15 Occupational Noise Exposure.

Dimensions of flame-proof joints are other than the relevant minimum or maximum specified in Table 2 of EN 60079-1:2007. Vibrators are marked with an "X" and manufacturer's Drawing Nos. 601297, 601296, 601294, 601293, 601332, 601292, COMPL-94-40-IMX/VMX, COMPL-94-40-EX-1, COMPL-02-35-EX-4, 88.80/0-EX, 88.70IV/01-EX, 88.60/01-EX, 88.50/01-EX, 88.40/0-EX and 88.30/0-EX detail the dimensions of the flame-proof joints.

Storage

Storage of the electric vibrator should be in an ambient not less than 5°C with a relative humidity not more than 60%. If the vibrator has been stored for longer than two years, the vibrator should be evaluated by authorized and trained personnel to ensure that the grease is intact, that there is no bearing damage such as brinelling and that the ground insulation is sound and not damaged from condensation.

Installation

Before installing the vibrator, make sure that you have everything that you will need and that there is no shipping damage. Any product damage should be reported to the delivery service immediately. Standard metric hand tools will be needed. Carefully handle the electric vibrator. Dropping or impacting the electric vibrator may damage the bearings.

Welding – Never weld on a bin, hopper or machine with the electric vibrator mounted to it since the welding may damage the vibrator bearings or electrical circuits. When you do weld, especially in an enclosed area, make sure that the area is known to be nonhazardous and that there are no flammable or explosive levels of gases, vapors or dusts.

Mounting Surface – The object of vibration on bins and hoppers is to transmit vibration energy through the structure to the material within. The mounting surface must be rigid and strong for this transfer of energy to take place. The mounting surface must also be clean, flat (0.010 in. across mounting feet maximum), free of paint and have a minimum thickness equal to the major diameter of the mounting bolt. Also make sure that the electric vibrator feet are clean and free of debris.

Mounting Plate

The mounting plate should be at least the overall size of the electric vibrator feet. It should be located on the bin and hopper wall at a height of ¼ to 1/3 of the sloped wall height. The mounting plate or bracket should extend at least ¾ the length of the sloped wall. Reference Figure 1. If a second electric vibrator is to be installed to the bin or hopper, install it at a height of ½ of the sloped wall height and 180° from the first vibrator. Weld the mounting plate or bracket to the structure wall with skip welds that are 3 in. long then skip 2 in. then 3 in. long weld, etc. Do not weld at corners of mounting plate within 1 in. of the corner.

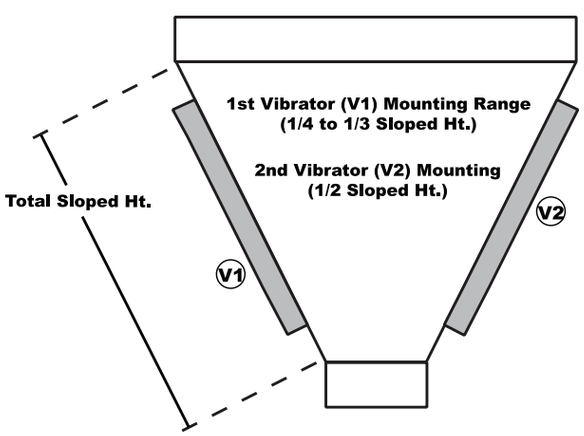


Figure 1. Mounting Examples

Safety Cable

Always install a safety cable metal rope from the electric vibrator to a reliable support should the vibrator become free from its mount and fall more than 6 in. The metal rope should be taut and positioned above the electric vibrator. Reference Figure 2.

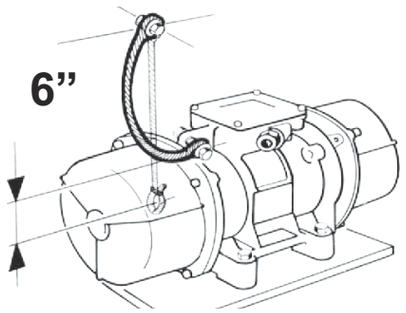


Figure 2. Safety Cable Installation

Mounting Kits

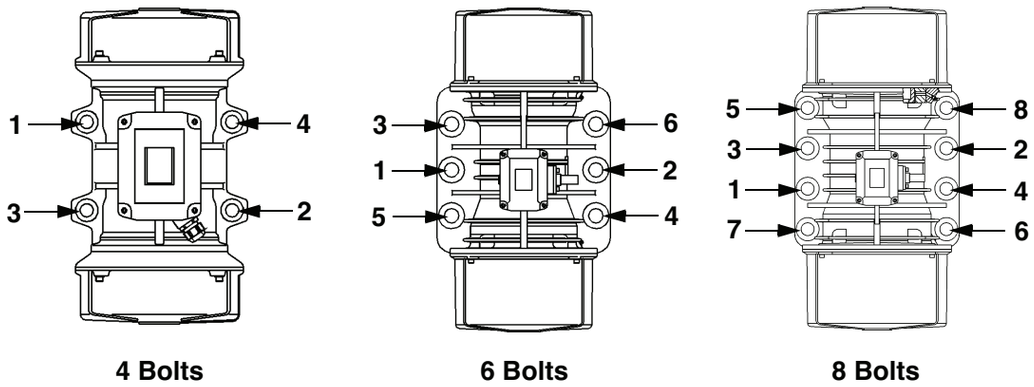
Mounting kits are available from Italvibras USA for frame sizes 00, 01, 10, 20, 30, 40 and 50. The mounting kits include a channel mount with integral mounting plate, mounting screws and washers and safety cable kit. Contact Italvibras USA by phone at 815-872-1350.

Mounting Hardware & Torque

Always use new bolts, nuts and compression washers. The bolts should be Grade 5 or 8 (equivalent international designation is 8.8 and 12.9, respectively). Grade 5 bolts are suitable for a majority of applications. Do not use split lock washers. Use only compression washers. Table I offers suggested mounting bolt torque values. Always check with the bolt manufacturer for recommended torque values. Torque the mounting bolts in the proper sequence as shown in Figure 3 so as not to damage casting. After operating vibrator for 15 minutes, disconnect, lockout/tag out, and torque the mounting bolts a second time. Periodically check the mounting bolt torque thereafter.

Table I. Mounting Bolts & Torque Requirements

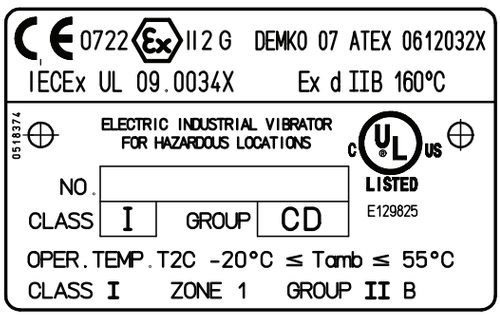
		British		Metric	
	Frame Size	**Bolt Size**	**Dry Torque, Grade 5**	**Bolt Size**	**Dry Torque, Grade 8.8**
CDX	10, 20	1/2 in-13 NC	58	M12	8
CDX	30, 35, 40	5/8 in-11 NC	137	M16	19
CDX	50, 60	3/4 in -10 NC	288	M20	38
CDX	70	7/8 in -9 NC	430	M24	71
CDX	80	1 in-8 NC	645	M24	71
IMX	50, 60	5/8 in-11 NC	137	M16	19
IMX	70, 80	1 in-8 NC	645	M24	71
VMX	60, 70	3/4 in -10 NC	288	M20	38
VMX	80	1 in-8 NC	645	M24	71



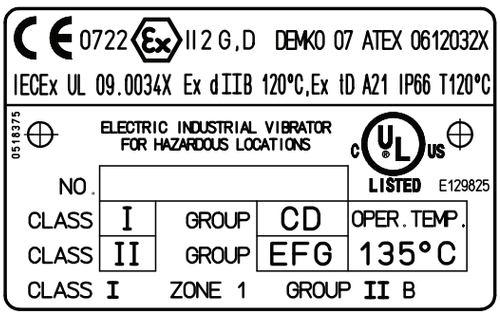
4 Bolts **6 Bolts** **8 Bolts**

Figure 3. Torque Sequence

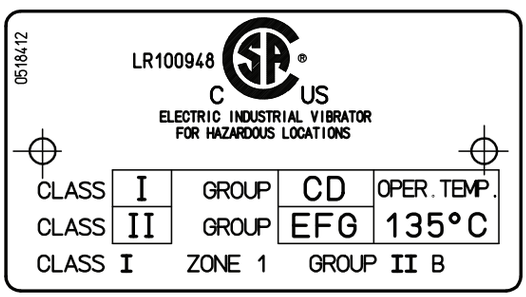
Vibrator Nameplates



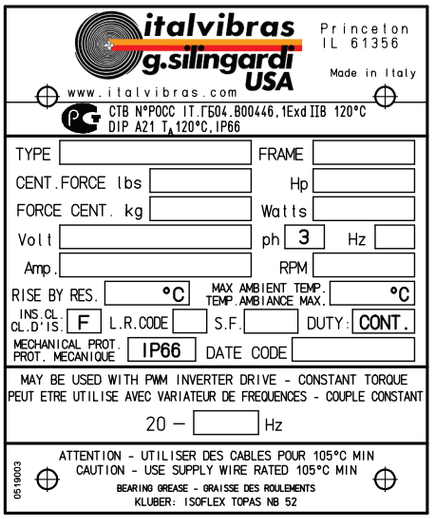
Stainless Name Plate



Alternate Stainless Name Plate



Alternate Stainless Name Plate



Stainless Name Plate For Explosion Proof Vibrators, Item #519003

Stainless Warning Name Plate For Explosion Proof Vibrators Item #518497

Wiring Kits

The wiring kits outlined in the table below are for hazardous locations classified by Divisions only. Hazardous locations classified by Zones shall utilize Ex d flame-proof wiring components. Wiring Kit Item No. 18105 is for use with frame sizes 10, 20 and 30. Wiring Kit 18100 is for use with frame sizes 35, 40 and 50. Wiring Kit 18101 is for use with frame sizes 60, 70, 80 and 110.

Table II. Wiring Kits

Wiring Kit Item No. 18105 Frame Sizes 10, 20, 30			
No.	**Quantity**	**Item Description**	**Item No.**
1	7 feet	18/6 cord	11007
2	1	1/2 in. NPT elbow	18106
3	1	1/2 in. NPT cord connector	18107
4	1	packing fiber	18108
5	1	sealing compound	18104
6	4	wire connectors	12001

Wiring Kit Item No. 18100 Frame Sizes 35, 40, 50			
No.	**Quantity**	**Item Description**	**Item No.**
1	7 feet	12/6 cord	11008
2	1	3/4 in. NPT elbow	18102
3	1	3/4 in. NPT cord connector	18103
4	1	packing fiber	18108
5	1	sealing compound	18104
6	1	wire connectors	12002
7	3	wire connectors	12001

Wiring Kit Item No. 18101 Frame Sizes 60, 70, 80, 110			
No.	**Quantity**	**Item Description**	**Item No.**
1	7 feet	12/6 cord	11008
2	1	3/4 in. NPT elbow	18102
3	1	3/4 in. NPT cord connector	18103
4	1	packing fiber	18108
5	1	sealing compound	18104
6	1	wire connectors	12002

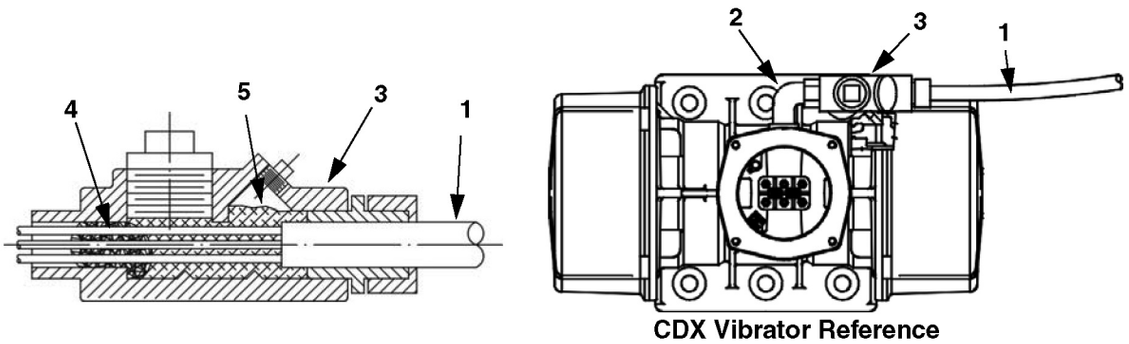


Figure 4. Explosion-Proof Wiring Kit for Hazardous Locations

Wiring Electric Vibrator

It is mandatory to comply with the National Electrical Code, NFPA 70, and all applicable local codes. Remove the screws with washers securing the wiring box cover along with the foam rubber block and set aside. Identify the wiring diagram by referencing the wiring diagram found within the wiring box or by referring to the diagrams shown in Figure 5.

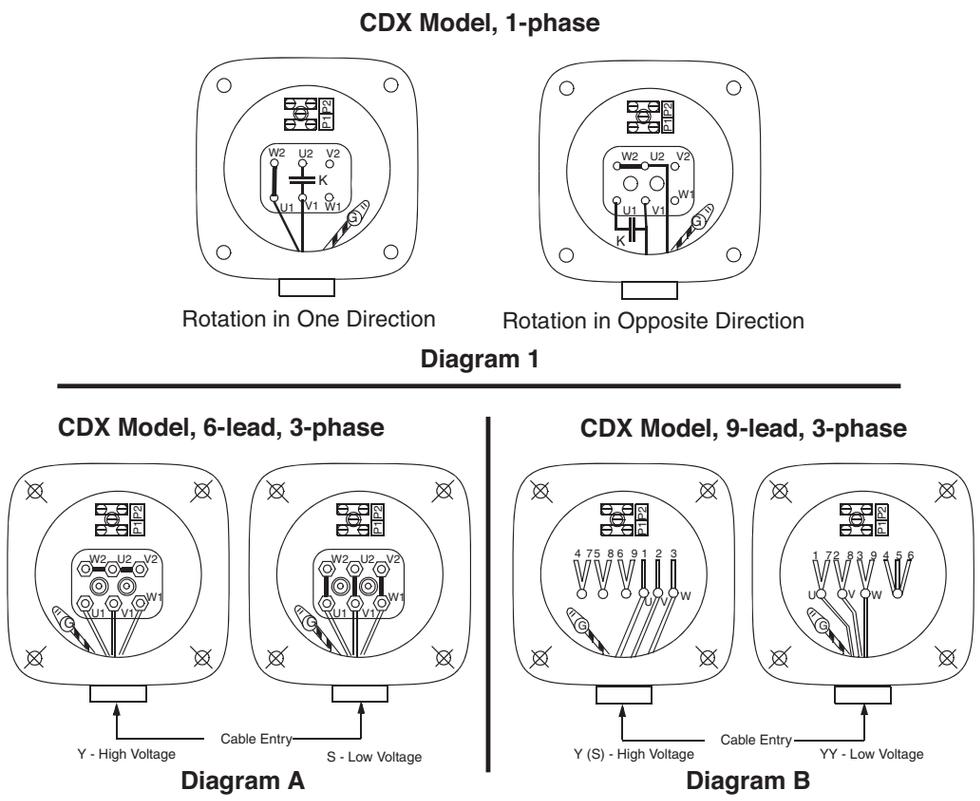


Figure 5. Wiring Diagrams

Wiring Electric Vibrator Cont.

Select a 4-conductor cord for Class I only electric vibrators. Select a 6-conductor cord for Class I and Class II vibrators. The cord type shall have a voltage rating not less than the power supply voltage and a minimum temperature rating of 105°C. We recommend Coleman black cord SEOOW Seoprene cable rated 600 V and 105°C. Coleman Cable Inc. can be reached by phone at 847-672-2300 or at www.colemancable.com. Italvibras USA also stocks the Coleman cable.

When wiring the electric vibrator, leave enough slack in the cord so that the cord does not become taut during operation causing stress on the connections. It is always best to position the cord down so that should there be any moisture present the moisture would tend to run down instead of into the vibrator wiring box.

Trim the cord by removing the jacket exposing the conductors and ground wire for approx. 6 in. Be careful not to cut the conductor or ground wire insulation. Insert the cord through the conduit fittings and then through the opening in the side wall of the wiring compartment. Position the jacket of the cord approx. ½ in beyond the inside wall of the wiring box wall. Assemble all conduit fittings making sure that there is always minimum thread engagement of 5 full threads. Install the conduit seal following all instructions being certain to comply with Articles 501 and 502 of the NEC.

Trim the conductors within the wiring box leaving plenty of slack. Next, strip the conductor insulation for ¼ in. to 3/8 in. Crimp on closed loop wire connectors. Use only the intended crimping tool as designated by the wire connector manufacturer. The conductors should be neatly arranged on the floor of the wiring box. The wires should not cross over each other. See Figure 6.

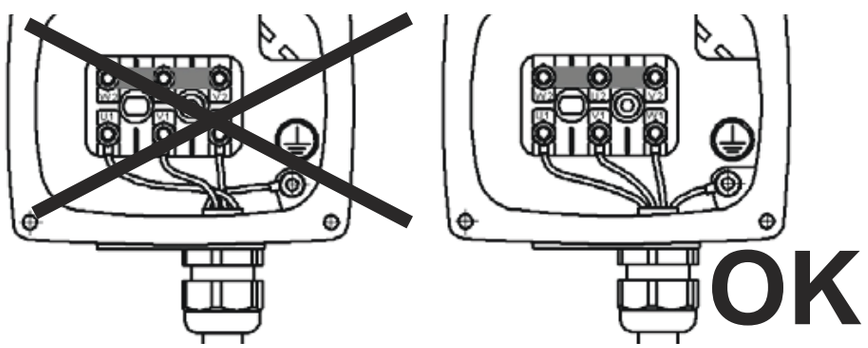


Figure 6. Proper Wiring Arrangement/Positioning

Secure the wire connectors and the shorting bars to the terminal block in the positions shown on the wiring diagram using the hardware provided. It is essential that the hardware be positioned as shown in Figure 7.

Wiring Electric Vibrator Cont.

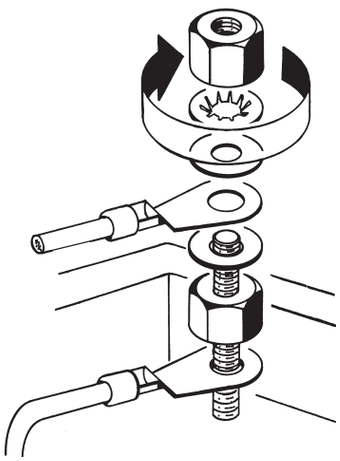


Figure 7. Terminal Block Hardware Installation

Note that the closed loop wire connectors provided on the power supply cord are positioned between the two flat washers. A drop or two of thread sealant such as Locktite is recommended. Do not use permanent thread sealant because the terminal block will be damaged should you wish to remove and replace the power supply cord. The terminal block nuts should not be over tightened since the possibility of damaging the plastic insulating body is high. Reference table IV in the Appendix for torque values. Make the connections hand-tight followed by a ¼ turn but never put a ratchet on these nuts.

For constructions that do not incorporate terminal blocks, make the wire-to-wire connections using wire nuts. The nuts should be taped with electrical insulation.

Electric vibrators for use in Class I and Class II hazardous locations will include a small 2-pole terminal block in the wiring box. This is the thermostat circuit. Proceed to Thermostat Wiring. Class I electric vibrators do not include this circuit. For Class I electric vibrators, reinstall the rubber block over the power supply conductors and install the wiring box cover being careful not to pinch the O-ring. Screw torque is specified in the Appendix. Reference Figure 8.

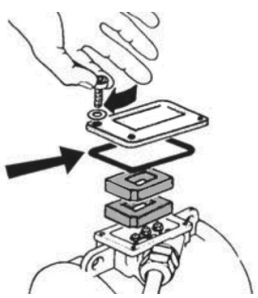


Figure 8. Wiring Block Assembly

Thermostat Wiring

Class I and Class II electric vibrators have thermostat circuits installed in the winding. The thermostat terminals are identified as P1 and P2. These devices are intended to limit surface temperatures to no more than the marked operating temperature (code). Connect the thermostats to the motor starter as shown in Figure 9. The thermostat circuit is rated 600 V ac maximum and 720 VA. Use a manual momentary start switch.

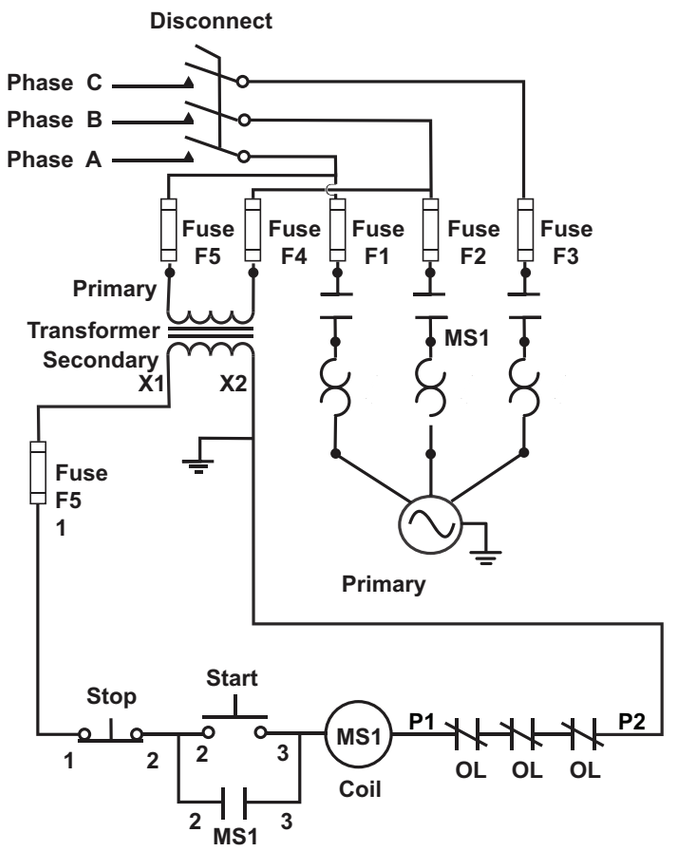
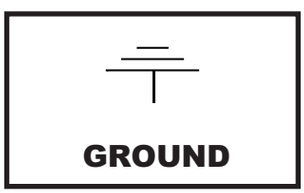


Figure 9. Manual Reset Connections

Reinstall the rubber block over the power supply and thermostat circuit conductors and install the wiring box cover being careful not to pinch the O-ring. Screw torque is specified in the Appendix. See Figure 8.

Grounding & Bonding

The electric vibrator must be grounded using the ground wire provided in the cord. The ground wire shall be connected to a closed loop wire connector which is then connected to the ground terminal located within the wiring box (See Figure 6). The ground terminal is identified by the international symbol.



It may be necessary to bond the electric vibrator to ground using the external ground screw as shown in Figure 10. The external ground terminal is identified by the international symbol. Use a wire size no smaller than the internal ground wire.

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Grounding & Bonding Cont.

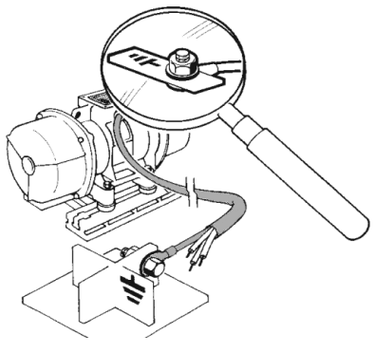

Figure 10. Ground Bonding Screw

Overload, Short-Circuit & Ground-Fault Protection

In the USA, The National Electrical Code, NFPA 70, and all applicable local codes, govern how to properly size, select and install overload protection (sometimes called heaters) and short-circuit and ground-fault protection (fuses or circuit breakers). Proper selection and installation of these devices is required and essential for not only protection of the electric vibrator and the power supply circuit but also for protection of personnel.

If the overload or short-circuit and ground fault protection operate, have qualified personnel locate and fix the problem before resetting.

When operating two electric vibrators, the vibrators should be controlled with a single motor starter that has overload protection dedicated to each electric vibrator. The overloads shall be electrically interlocked such that should there be a fault with one electric vibrator, both electric vibrators will be de-energized.

Variable Frequency Inverter

The electric vibrators may be supplied with a variable frequency inverter. Never operate the vibrators above the maximum frequency noted on the nameplate. If operating two vibrators, use one variable frequency inverter along with overload protection dedicated to each electric vibrator. The overloads shall be electrically interlocked such that should there be a fault with one electric vibrator, both electric vibrators will be de-energized.

The nameplate current should never be exceeded throughout the entire frequency range.

Eccentric Weight Adjustment

The eccentric weights may be adjusted to produce the desired centrifugal force output. It is always best to operate the electric vibrator at the lowest weight setting that produces the desired result. This will result in lower energy expense and extend the bearing life. The factory setting is 50% which would result in 50% of the centrifugal force noted on the nameplate. To adjust the force output, lockout/tag out the electric vibrator. Remove each weight cover and set it and the screws, washers and O-rings aside. The outer adjustable weight clamping screw or the shaft nut may be loosened and then the adjustable weights may be rotated to the desired position. Reference Figure 11.

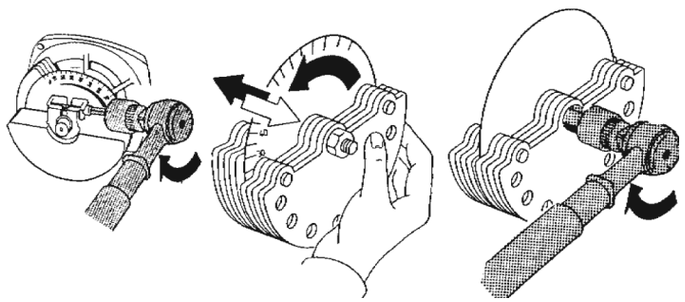

Figure 11. Eccentric Weight Adjust.

The eccentric weights must be adjusted to mirror images of each other at the same setting number as shown in Figure 12.

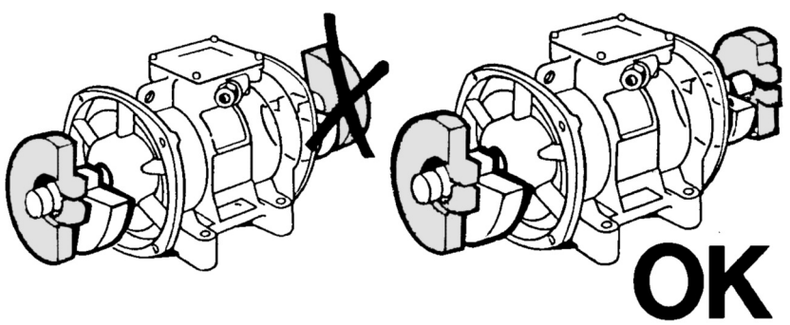

Figure 12. Setting Sets of Eccentric Weights to Mirror Images

Properly torque the clamping screw or shaft nut to secure the weights in position. Torque values are outlined in the Appendix. Reinstall the weight covers making sure not to pinch the O-rings.

Eccentric Weight Adjustment Cont.

Check shaft rotation before replacing weight covers. Start vibrator for 1 second, stop and lockout/tag out. Observe direction of rotation. If desired to reverse the direction of rotation, switch two of the three power supply leads in the wiring box or at the motor starter for 3-phase electric vibrators. For 1-phase electric vibrators, refer to the wiring diagram for changing the direction of shaft rotation.

Replace weight covers using screws and washers being careful not to pinch the O-rings. The screw torque is outlined in the Appendix. Never operate the electric vibrator without weight covers in place. They provide a degree of protection for the bearings and a shield for the rotating eccentric weights. Always replace broken weight covers immediately. Do not operate electric vibrator with weight covers removed or with damaged weight covers.

Starting Up

After making sure that the power supply voltage matches the voltage marked on the nameplate, that the mounting bolts are properly secured, that all covers are in place and secured, and that the motor starter is properly installed and adjusted, turn the electric vibrator on. Excessive noise would indicate a problem but slight bearing noise is normal due to the type of bearing used. After a few hours of operation, check each line current and verify that it does not exceed nameplate current. If the line current exceeds the nameplate current, then the mount needs to stiffened, the vibrator weights need to be reduced or the vibrator needs to be moved to a more rigid location. Never operate the vibrator above nameplate current.

After the first 8 hours of operation, check the line current to make sure that it does not exceed nameplate and check mounting bolt torque. See MOUNTING HARDWARE AND TORQUE.

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Electric Vibrator Lubrication

All electric vibrators are lubricated at the factory. If there are no external grease fittings, then the vibrator construction is lubricated for life. No grease ever need be added to these electric vibrators. If external grease fittings are provided, then it is intended that the bearings be periodically lubricated. The lubrication schedule is outlined in Table III.

Table III. Lubrication Schedule For Each Bearing

Frame Size	Grease Quantity, g	Lubrication Frequency, hrs.
10	life	life
20	life	life
30	life	life
35	life	life
40	12	2000
50	16	2000
60	25	3000
70	40	2000
80	50	2000
110	220	1000

The lubrication frequency is every 2000 hours of operation unless specified otherwise in the table. There is an exception - 3600 rpm electric vibrators operating continuously or for long periods of time should be lubricated in ½ the time specified using ½ the grease volume specified. For all other vibrators, follow the table except when the operating temperature exceeds 90°C. If the operating temperature exceeds 90°C, reduce the lubrication frequency and lubrication volume by 50% for every 10°C increment above 90°C. If the electric vibrator operating temperature exceeds 100°C, contact Italvibras USA by phone at 815-872-1350. The electric vibrator should never operate above 120°C.

When adding grease through the grease fitting, make sure to clean the fitting so as not to introduce dirt into the bearing. Add the specified amount of grease. Experiment with your grease gun to determine how many grams are introduced with each pump. Never over-grease a bearing since this will damage the bearing and cause high operating temperature.

Always use the correct grease. Never mix greases. Use Kluber ISOFLEX TOPAS NB 52 grease. Kluber grease may be purchased direct from Kluber Lubrication by calling 800-447-2238. Italvibras USA also stocks the Kluber grease.

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Electric Vibrator Repair

If the electric vibrator needs repair, contact Italvibras USA at 815-872-1350 for instructions. Most electric motor repair shops are not trained to repair our industrial electric vibrators. We recommend that they be returned to the service center located in Princeton, IL. Attempting to repair the electric vibrator or replace the bearings will void the warranty.

Electric Vibrator Maintenance

Every quarter, we recommend a thorough inspection of the electric vibrator. After lockout/tag out, do the following:

1.) Inspect the cord for any visible damage or wear. Replace the cord if there are any signs of damage or wear. This holds true for both the power supply cord and the thermostat circuit cord.

2.) Remove the wiring box cover and inspect for any foreign matter or liquid. Vacuum any foreign matter. If wet, remove electric vibrator from service and have the ground insulation tested by a trained, qualified and licensed technician.

3.) Before replacing the wiring box cover, make sure the electrical connections are tight (do not over-tighten) and inspect the cover O-ring and rubber compression block. If the O-ring or rubber compression block is damaged or if they have lost their compression set, replace them.

4.) Remove each weight cover and inspect for foreign matter. Vacuum if necessary. Replace O-rings if they are damaged or if they have lost their compression set.

5.) Check the mounting bolt torque.

6.) Replace any broken parts.

Appendix

Electric Vibrator Item Numbers

The table below outlines a list of electric vibrator Model/Type designations next to their respective Item No. The information is sorted by frame size. Please reference the Model/Type designation and Item No. when ordering electric vibrators or their parts.

Table IV. Vibrator Item Numbers By Frame

10 Frame		20 Frame		30 Frame		35 Frame		40 Frame	
Model	**Item No.**	**Model**	**Item No.**	**Model**	**Item No.**	**Model**	**Item No.**	**Model**	**Item No.**
CDX 36-650	600384	CDX 36-1040	600385	CDX 36-1660	600387	CDX 36-1660	600387	CDX 36-3530	600437
CDX 18-470	601409	CDX 18-910	601410	CDX 18-1670	601412	CDX 18-2150	601413	CDX 18-3190	601424
CDX 12-110	602315	CDX 18-1300	601411	CDX 12-750	602318	CDX 12-1630	602320	CDX 12-1990	602325
CDX 12-220	602316	CDX 12-575	602317	CDX 9-570	602577	CDX 9-910	602578	CDX 9-1440	602581
		CDX 9-330	602317						

50 Frame		60 Frame		70 Frame		80 Frame		110 Frame	
Model	**Item No.**	**Model**	**Item No.**	**Model**	**Item No.**	**Model**	**Item No.**	**Model**	**Item No.**
CDX 36-4400	600317	CDX 36-5060	600320	CDX 36-7040	600323	CDX 36-10500	600486	CDX 12-45000	602201
CDX 18-3850	601328	CDX 18-5380	601329	CDX 18-8300	601330	CDX 18-10900	601487	CDX 9-49000	602513
CDX 18-4400	601358	CDX 12-3410	602277	CDX 12-6050	602280	CDX 12-8450	602365		
CDX 12-2530	602274	CDX 9-2920	602555	CDX 9-4640	602558	CDX 9-6830	602602		
CDX 9-2020	602552								

Electric Vibrator Torque Requirements

Table V. Vibrator Nut & Screw Torque Requirements

Cap Screws	ft/lb (kgm)
M6	7 (1)
M8	16.5 (2.3)
M10	35 (4.8)
M12	58 (8)
M14	95 (13)
M16	137 (19)
M18	195 (27)
M20	275 (38)

Shaft Nuts	ft/lb (kgm)
M13x1	22 (3)
M15x1	36 (5)
M20x1	72 (10)
M25x1.5	123 (17)
M30x1.5	246 (34)
M45x1.5	360 (50)

Terminal Block Nuts	ft/lb (kgm)
M4	0.87 (0.12)
M5	1.45 (0.20)
M6	2.17 (0.30)
M8	4.70 (0.65)
M10	9.80 (1.35)

Part# - -Description

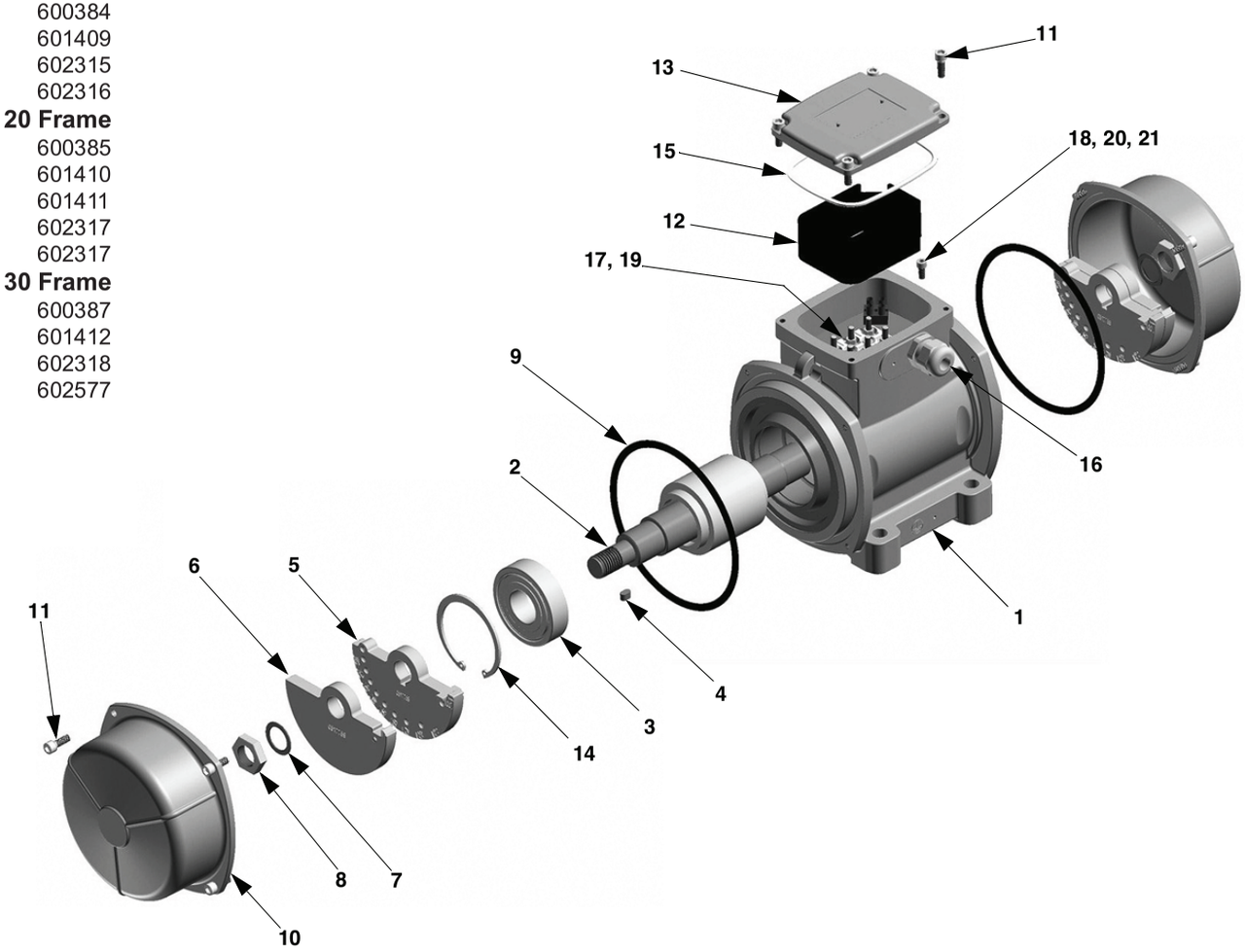
1 - -CASE
2 - -STATOR
3 - -BEARING FLANGE
4 - -SCREW
5 - -SCHNORR WASHER
6 - -O-RING
7 - -SHAFT
8 - -FLANGE ADAPTER
9 - -SHAFT WASHER
10 -BEARING
11 -BEARING COVER
12 -SHAFT SEAL
13 -SHFT KEY
14 -FIXED WEIGHT
15 -ADJUSTABLE WEIGHT
16 -SCREW
17 -SCHNORR WASHER
18 -BRASS WASHER
19 -WEIGHT ADJUSTMENT DISC
20 -EXTERNAL SNAP RING
21 -SHAFT NUT
22 -O-RING
23 -WEIGHT COVER
24 -SCREW
25 -SCHNORR WASHER
26 -TERMINAL BLOCK
27 -SCREW
28 -SCHNORR WASHER
29 -GROUND SCREW
30 -SCHNORR WASHER
31 -GROUND LABEL
32 -RUBBER COMPRESSION BLOCK
33 -O-RING
34 -WIRING BOX COVER
35 -SCREW
36 -SCHNORR WASHER
37 -CORD GRIP
38 -GREASE FITTING/PLUG
39 -LEAD PROTECTOR
40 -INTERNAL SNAP RING
41 -SCHNORR WASHER
42 -SHAFT SEAL
45 -FAN
46 -BEARING COVER
47 -SCREW
48 -SCHNORR WASHER
49 -THERMISTOR TERMINAL BLOCK
50 -SCREW
51 -ADAPTER SCREW
52 -PLUG
53 -SCREW
54 -SCHNORR WASHER
55 -SCHNORR WASHER
59 -SPACER
60 -SCREW
61 -WIRING BOX COVER
64 -SCREW
66 -GREASE SEAL RING
67 -SPLIT WEIGHT COVER
71 -SHAFT SEAL
75 -WEIGHT SPACER

Item Numbers;

10 Frame
600384
601409
602315
602316

20 Frame
600385
601410
601411
602317
602317

30 Frame
600387
601412
602318
602577



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Part# - -Description

1 - -CASE
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25 -SCHNORR WASHER
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48 -SCHNORR WASHER
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50 -SCREW
51 -ADAPTER SCREW
52 -PLUG
53 -SCREW
54 -SCHNORR WASHER
55 -SCHNORR WASHER
59 -SPACER
60 -SCREW
61 -WIRING BOX COVER
64 -SCREW
66 -GREASE SEAL RING
67 -SPLIT WEIGHT COVER
71 -SHAFT SEAL
75 -WEIGHT SPACER

Item Numbers;

35 Frame
600387
601413
602320
602578

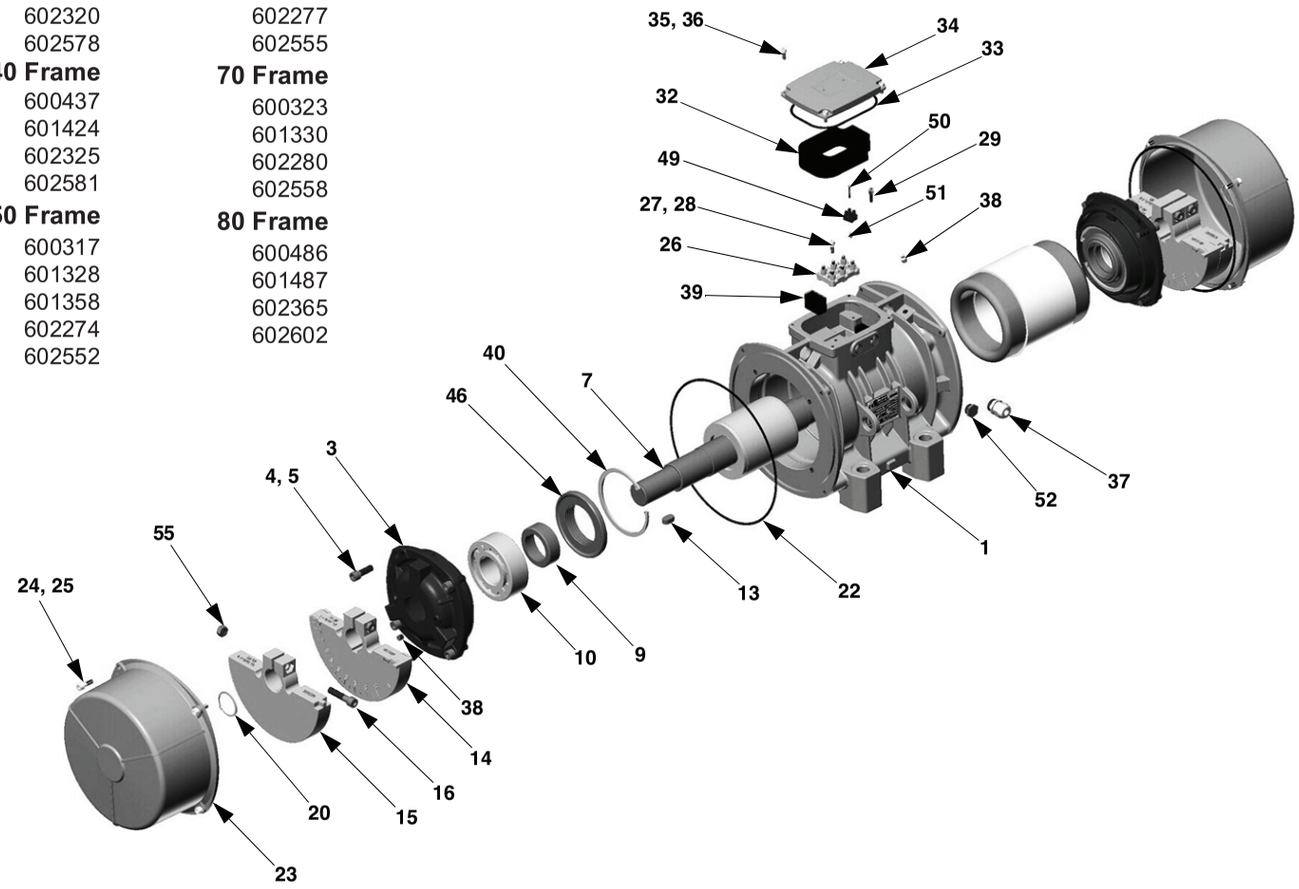
40 Frame
600437
601424
602325
602581

50 Frame
600317
601328
601358
602274
602552

60 Frame
600320
601329
602277
602555

70 Frame
600323
601330
602280
602558

80 Frame
600486
601487
602365
602602



CDX Manual Working.qxd:CDX, IMX, VMX Manual Working 3/17/11 2:21 PM Page 21

Part# - -Description

1 - -CASE
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13 -SHFT KEY
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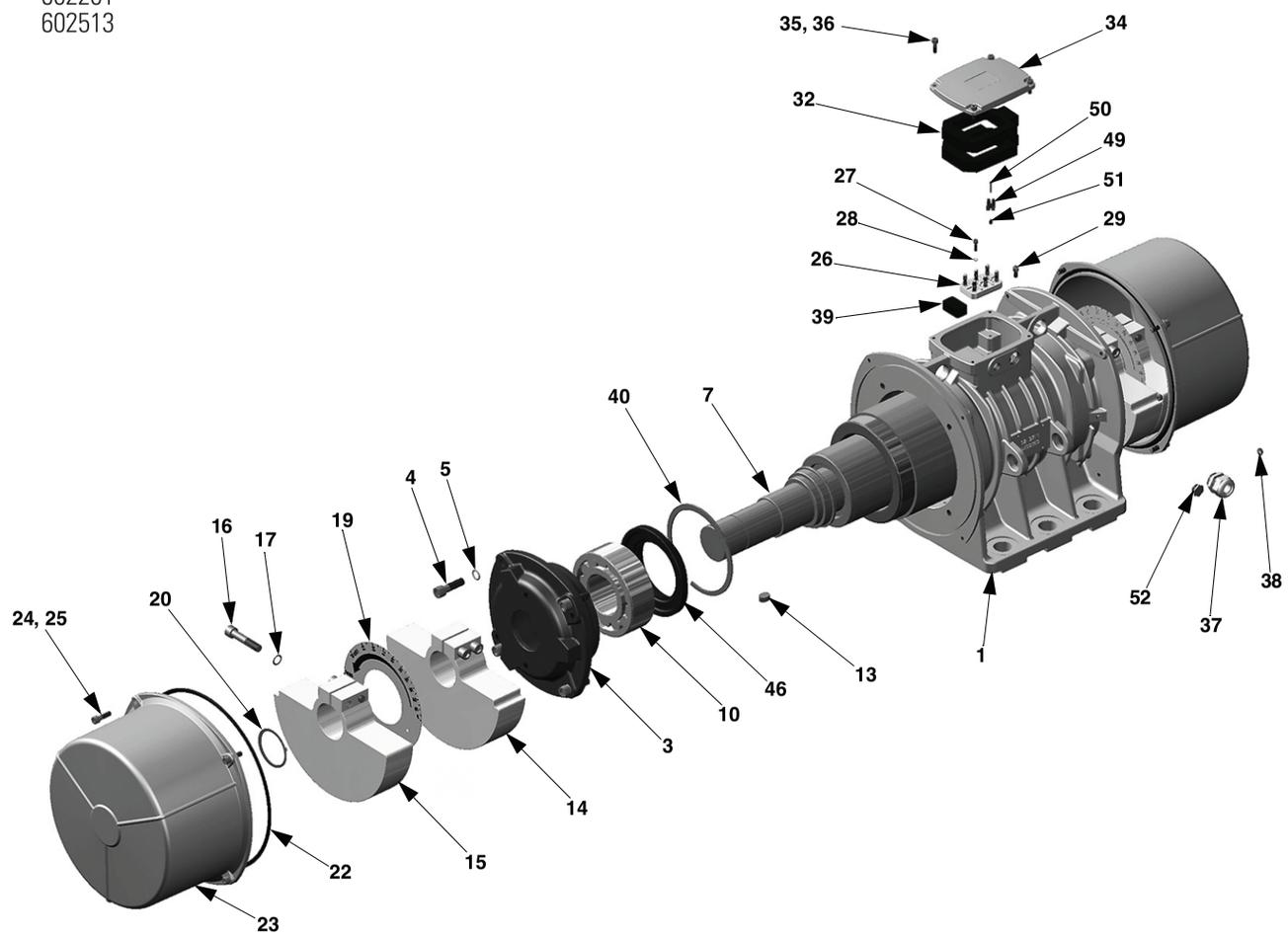
51 -ADAPTER SCREW
52 -PLUG
53 -SCREW
54 -SCHNORR WASHER
55 -SCHNORR WASHER
59 -SPACER
60 -SCREW
61 -WIRING BOX COVER
64 -SCREW
66 -GREASE SEAL RING
67 -SPLIT WEIGHT COVER
71 -SHAFT SEAL
75 -WEIGHT SPACER

Item Numbers;

110 Frame

602201
602513



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Order Information

When ordering, **please specify** the following:

Vibrator Model _____

Series _____

Serial number _____

Voltage, frequency & number of phases _____

Part#/Description	Quantity Required	Part#/Description	Quantity Required
1 CASE		32 RUBBER COMPRESSION BLOCK	
2 STATOR		33 O-RING	
3 BEARING FLANGE		34 WIRING BOX COVER	
4 SCREW		35 SCREW	
5 SCHNORR WASHER		36 SCHNORR WASHER	
6 O-RING		37 CORD GRIP	
7 SHAFT		38 GREASE FITTING/PLUG	
8 FLANGE ADAPTER		39 LEAD PROTECTOR	
9 SHAFT WASHER		40 INTERNAL SNAP RING	
10 BEARING		41 SCHNORR WASHER	
11 BEARING COVER		42 SHAFT SEAL	
12 SHAFT SEAL		45 FAN	
13 SHFT KEY		46 BEARING COVER	
14 FIXED WEIGHT		47 SCREW	
15 ADJUSTABLE WEIGHT		48 SCHNORR WASHER	
16 SCREW		49 THERMISTOR TERMINAL BLOCK	
17 SCHNORR WASHER		50 SCREW	
18 BRASS WASHER		51 ADAPTER SCREW	
19 WEIGHT ADJUSTMENT DISC		52 PLUG	
20 EXTERNAL SNAP RING		53 SCREW	
21 SHAFT NUT		54 SCHNORR WASHER	
22 O-RING		55 SCHNORR WASHER	
23 WEIGHT COVER		59 SPACER	
24 SCREW		60 SCREW	
25 SCHNORR WASHER		61 WIRING BOX COVER	
26 TERMINAL BLOCK		64 SCREW	
27 SCREW		66 GREASE SEAL RING	
28 SCHNORR WASHER		67 SPLIT WEIGHT COVER	
29 GROUND SCREW		71 SHAFT SEAL	
30 SCHNORR WASHER		75 WEIGHT SPACER	
31 GROUND LABEL			

Fax, Phone or E-Mail to:

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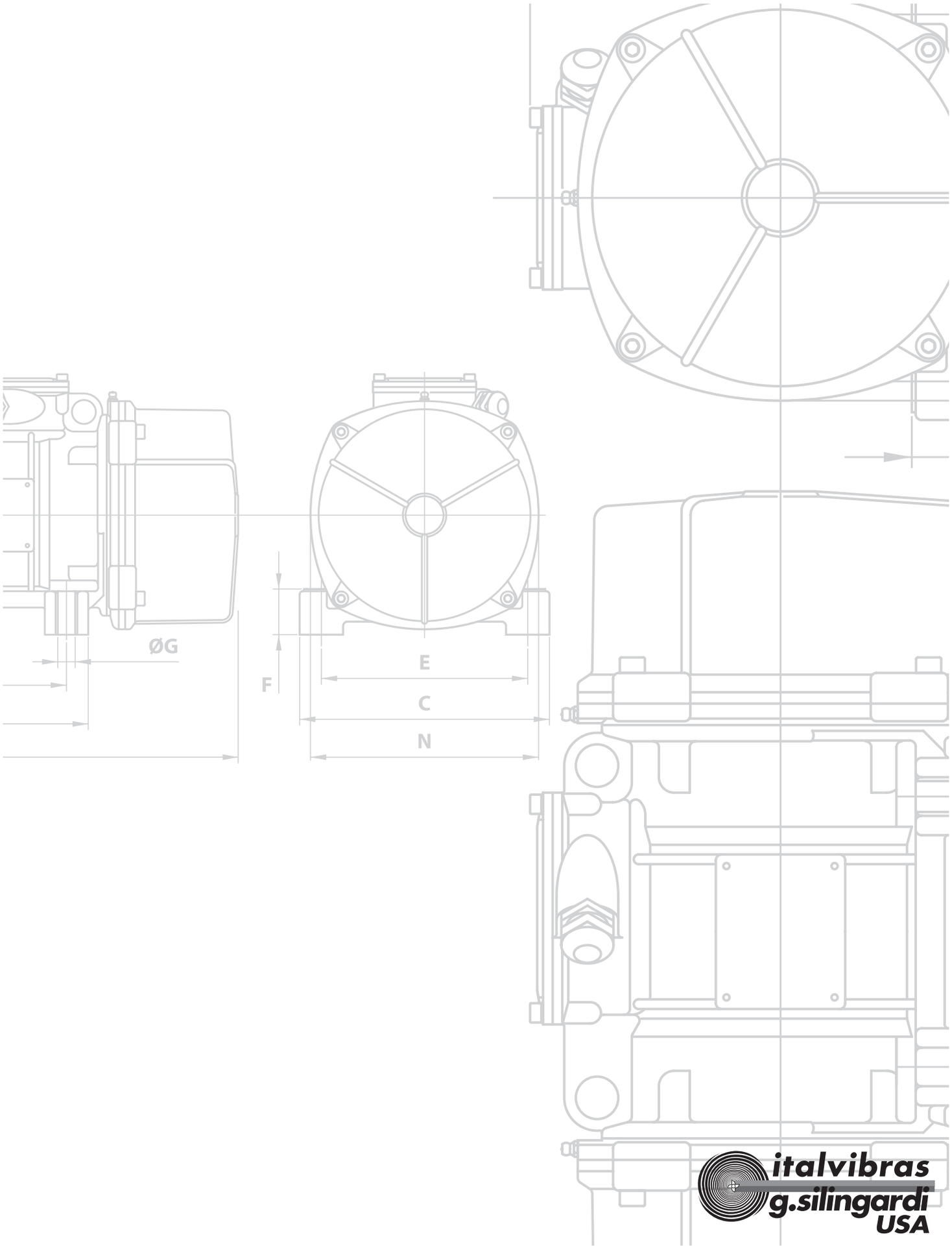
www.italvibrasusa.com



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USA