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Martin®
Electric Vibrators

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Operator's Manual
M3910

Important

MARTIN ENGINEERING HEREBY DISCLAIMS ANY LIABILITY FOR: DAMAGE DUE TO CONTAMINATION OF THE MATERIAL; USER'S FAILURE TO INSPECT, MAINTAIN AND TAKE REASONABLE CARE OF THE EQUIPMENT; INJURIES OR DAMAGE RESULTING FROM USE OR APPLICATION OF THIS PRODUCT CONTRARY TO INSTRUCTIONS AND SPECIFICATIONS CONTAINED HEREIN. MARTIN ENGINEERING'S LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF EQUIPMENT SHOWN TO BE DEFECTIVE.

Observe all safety rules given herein along with owner and Government standards and regulations. Know and understand lockout/tagout procedures as defined by American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements* and Occupational Safety and Health Administration (OSHA) Federal Register, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*.

The following symbols may be used in this manual:



Danger: Immediate hazards that will result in severe personal injury or death.



Warning: Hazards or unsafe practices that could result in personal injury.



Caution: Hazards or unsafe practices that could result in product or property damages.



Important: Instructions that must be followed to ensure proper installation/operation of equipment.



Note: General statements to assist the reader.

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Introduction

General

Martin® Electric Vibrators (MM models) are designed and manufactured to ensure the best performance and reliability in severe-duty applications. The vibrator motor has a recommended operational ambient temperature and mounting surface temperature range of -22 to 104°F (-30 to 40°C). If operating the motor in environments beyond these temperatures, call Martin Engineering, as the vibrator may require rating reduction, more frequent lubrication, or lubrication substitution.

This manual provides instructions for installation onto steel bins and hoppers only. For installation onto other structures, call Martin Engineering or a representative.

The vibrators in this manual may be referred to by their model numbers or part numbers. Table VI in the “Part Numbers” section provides model numbers and part numbers together with frame size. The following letter designations are used throughout this manual:

- MM (Martin® Vibrator bolt pattern).
- MC (Cougar® Vibrator bolt pattern)
- MI (Invicta Vibrator bolt pattern)
- MV (Vimarc® Vibrator bolt pattern)
- MU (Uras® Vibrator bolt pattern)
- MB (Bosch® Vibrator bolt pattern)

References

The following documents are referenced in this manual:

- *The National Electrical Code (NEC)*, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy MA 02269-9101.
- American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements*, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.
- Code of Federal Regulation (CFR) 29, Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*, Department of Labor, Occupational Safety and Health Administration (OSHA), 32nd Floor, Room 3244, 230 South Dearborn Street, Chicago, IL 60604.
- CFR 29, Part 1910.15, *Occupational Noise Exposure*, Department of Labor, OSHA, 32nd Floor, Room 3244, 230 South Dearborn Street, Chicago, IL 60604.

Safety

All safety rules defined in the above documents and all owner/employer safety rules must be strictly followed when working on the vibrator.

Materials required

In addition to metric hand tools, the following materials are required to install this equipment:

- Rigid beam or mounting plate.
- Martin® BBAC Cable Kit, P/N 32271, or equivalent.

(Mount Kit for Electric Vibrators, P/N 32401-XX includes W-beam Mount, mounting hardware, and Martin® BBAC Safety Cable Kit.)

Storage

Store vibrator in an ambient temperature not less than 41°F (5°C) with a relative humidity not more than 60%. If the vibrator has been stored for 2 or more years, remove bearings, wash them, and repack them with new grease (see “Maintenance”).

Before Installing Vibrator

IMPORTANT

The delivery service is responsible for damage occurring in transit. Martin Engineering CANNOT enter claims for damages. Contact your transportation agent for more information.

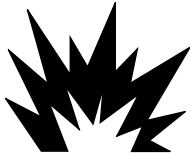
1. Inspect shipping container/pallet for damage. Report damage to delivery service immediately and fill out delivery service's claim form. Keep any damaged goods subject to examination.
2. Remove vibrator from shipping container/pallet.
3. If anything is missing contact Martin Engineering or a representative.



WARNING

Turn off and lockout / tagout / blockout / testout all energy sources to conveyor/loading systems to mounting structure.

4. Before installing vibrator, turn off and lockout / tagout / blockout / testout all energy sources to conveyor/loading systems to mounting structure according to ANSI standards (see "References").



WARNING

If equipment will be installed in an enclosed area, gas level or dust content must be tested before using a cutting torch or welding. Using a cutting torch or welding in an area with gas or dust may cause an explosion.

5. If using a cutting torch or welding, test atmosphere for gas level or dust content.
6. Mounting surface must be strong and flat, 0.01 in. (0.25 mm) across vibrator feet. (This will minimize internal stress to vibrator casting when tightening mount bolts. Welding in the area of the mounting surface could affect its flatness.)
7. Make sure mounting surface is free of paint and debris and foot of vibrator is clean.

Installing Vibrator

IMPORTANT

Read entire section before beginning work. This manual provides instructions for installations onto steel bins and hoppers only. For other installations, call Martin Engineering or a representative.

CAUTION

If installation instructions are not followed, structure and vibrator can be damaged. Abusing or handling vibrator carelessly will accelerate wear and shorten bearing life.

Mounting vibrator onto structure

1. See Figure 1. Locate vibrator in lower 1/4 to 1/3 of structure slope length. If second vibrator is required, mount 180° from first vibrator and halfway up slope.

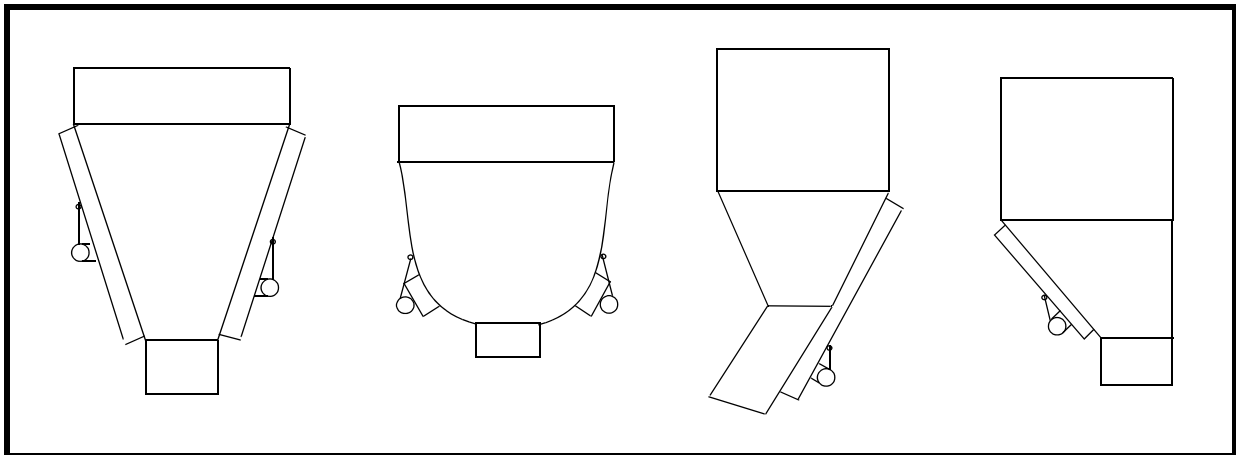


Figure 1. Locating Vibrator on Hoppers

CAUTION

Never weld structure with vibrator mounted and wired. Welding may cause damage to motor windings and bearings.

IMPORTANT

The object of rotary vibration on bins, hoppers, and chutes is to transmit vibration through the wall into the product contained inside. If structure is not made rigid, vibrator may draw high amperage and move material less efficiently.

Make sure structure is free of paint before mounting vibrator.

2. If using customer-supplied mounting plate to mount vibrator onto structure, do the following:
 - a. Make sure plate is at least the size of vibrator base.
 - b. Locate plate so that vibrator can be positioned as shown in Figure 1.
 - c. Weld mounting plate onto structure.

3. If using Martin® W-beam Mount (or equivalent) to mount vibrator onto structure (see Figure 2), do the following:
 - a. Locate beam so that vibrator can be positioned as shown in Figure 1.
 - b. Extend beam at least 3/4 the length of sloped wall. Cut off end(s) of beam if necessary to fit on structure.
 - c. Skip-weld beam in place: Weld 3 in. (76 mm), then skip 2 in. (51 mm). Repeat for entire perimeter of beam. Do not weld last 1 in. (25 mm) of either end of beam or any corner.
 - d. Install vibrator onto W-beam mount.

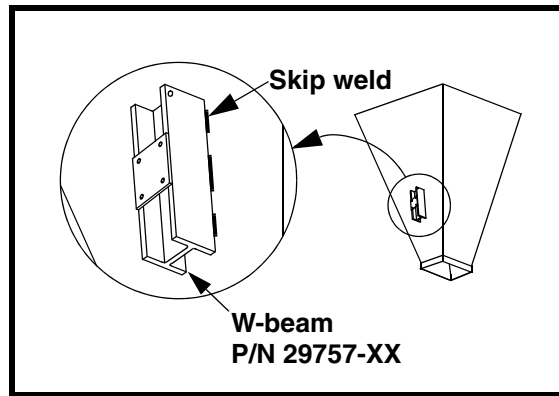


Figure 2. W-beam Mount

⚠ CAUTION

Never weld structure with vibrator mounted and wired. Welding may cause damage to motor windings and bearings.

Use only new Grade 5 bolts and lock nuts to install vibrator. Old fasteners can break and cause damage to vibrator or structure.

Do not use split lock washers to install vibrator onto mount. Damage to vibrator could result.

Tighten mounting bolts in sequence shown in Figure 3. If not tightened in order, vibrator casting could be damaged.

4. Before installing vibrator onto mount, apply thread sealing compound to all bolts.
5. Install vibrator onto mount with new lock nuts, compression washers, and bolts according to Table I. Tighten bolts in order given in Figure 3 to avoid damaging vibrator casting. (Contact fastener manufacturer for specific information regarding bolt torque.)

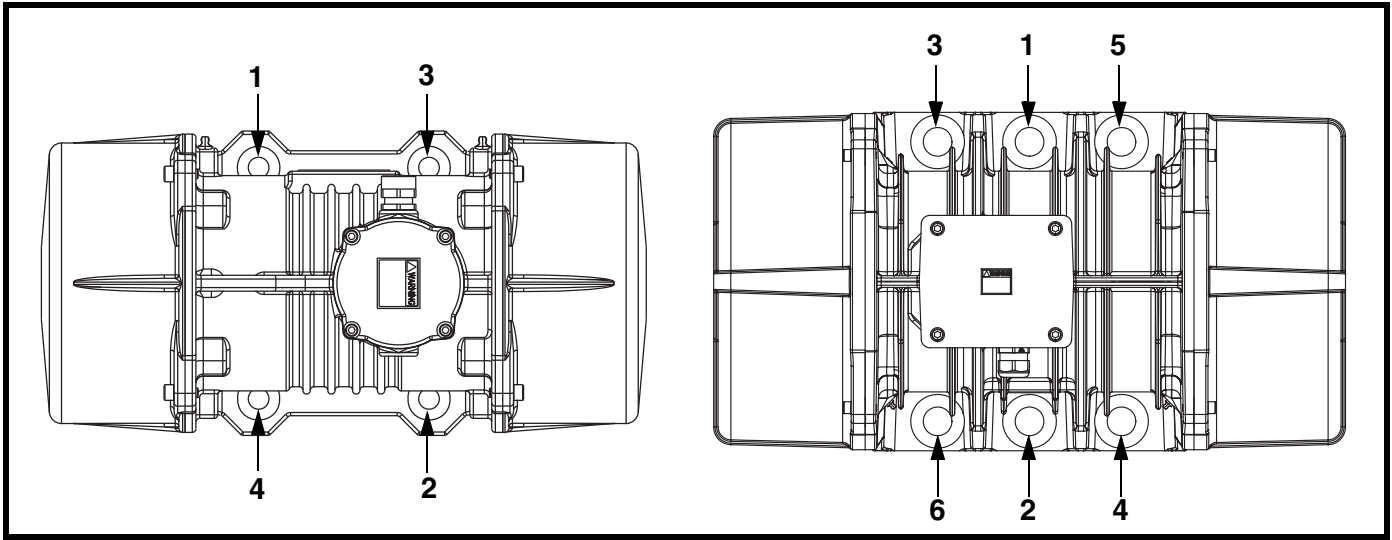


Figure 3. Mounting Bolt Tightening Sequence

- After the vibrator has been operated for 10 to 20 minutes, check bolt torque. Tighten if necessary.

Table I. Mounting Bolts and Torque Requirements*

Vibrator Type	Frame Size*	English		Metric	
		Bolt Size (Gr 5)	Dry Torque (ft-lb)	Bolt Size	Dry Torque (kgm)
MM, MI, MV, MC, MB	30, 33, 35, 40, 50	5/8 in. -11NC	137	M16	19
MM, MI, MV	90, 95	1 in. -8NC	644	M25	89
MI	97	1 in. -8NC	644	M25	89
MU	90, 95	1-1/2 in. -8NC	1950	M36	269
MM	97	1-1/2 in. -8NC	1950	M36	269
MM	100	1-3/4 in. -8NC	N/A	M42	**290

*See "Part Numbers" section for specific model numbers.

**Plated bolt with antiseize.

*Torque specifications are for reference only. Contact fastener manufacturer for specific information regarding bolt torque.

WARNING

If vibrator is mounted more than 6 in. (152 mm) above ground, install cable securing vibrator to structure. Without cable, vibrator could fall and cause injury.

- Secure vibrator to structure by installing Martin® BBAC Cable Kit, P/N 32271, or equivalent as follows (cable is included with Mount Kit for Electric Vibrators, P/N 32401-XX):

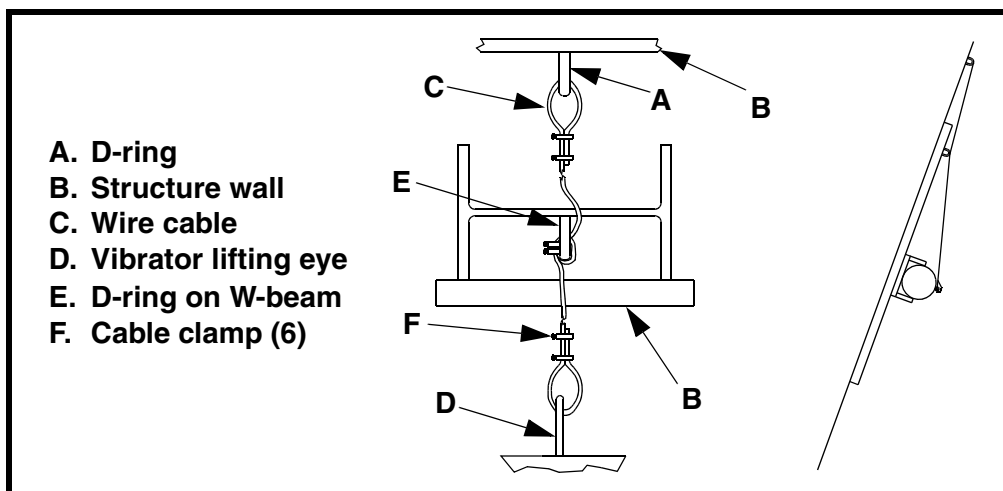


Figure 4. Installing Restraining Cable

- a. Weld D-ring (A, Figure 4) onto structure wall (B) above vibrator.
- b. Loop 1/4-in. (6 mm) wire cable (C) through vibrator lifting eye (D) and D-ring on structure wall.
- c. If using a Martin® W-beam Mount, also loop cable through D-ring on W-beam (E) as shown. Take up slack so cable is taut.
- d. Apply thread-sealing compound to nuts on cable clamps (F). Install six cable clamps (two on each end and two on loop around D-ring on W-beam) to secure cable to vibrator eye and D-rings. Torque nuts on cable clamps according to drawing 32401-XX supplied with Mount Kit for Electric Vibrators.
- e. Trim loose ends of wire cable.

Nut and cap screw torque

After removing any nuts or cap screws from vibrator assembly, re-install to the torque values specified in Table II.

Table II. Vibrator Nut and Cap Screw Torque Requirements

Cap Screws	ft/lb (kgm)	Shaft Nuts	ft/lb (kgm)	Terminal Block Nuts	ft/lb (kgm)
M6	7 (1)	M13x1	22 (3)	M4	0.87 (0.12)
M8	16.5 (2.3)	M15x1	36 (5)	M5	1.45 (0.20)
M10	35 (4.8)	M20x1	72 (10)	M6	2.17 (0.30)
M12	58 (8)	M25x1.5	123 (17)	M8	4.70 (0.65)
M14	94 (13)	M30x1.5	246 (34)	M10	9.80 (1.35)
M16	137 (19)	M45x1.5	360 (50)		
M18	195 (27)				
M20	275 (38)				

Connecting power to vibrator

⚠ WARNING

Wire vibrator in accordance with National Electrical Code Article 430. Have wiring installed by a qualified electrician only.

1. Find wiring diagram number for your vibrator on vibrator nameplate.

⚠ CAUTION

Before running cord to vibrator, make sure cord voltage rating equals or exceeds the voltage at which you will be operating the vibrator. It must have a minimum temperature rating of 221°F (105°C) and a diameter as shown in Table III. If wire is not proper diameter, cord grip will not tighten properly and vibrator could be damaged by moisture or material getting inside wiring compartment. If cord is damaged, it could short power supply or short to ground causing damage to vibrator.

2. Table III provides information on securing the electric vibrator cord grip when installing power supply and thermistor circuit cords. The frame size of the electric vibrator will define the size of the cord grip. Each cord grip is designed for a specific cord diameter range. When installed at the factory, the cord used is noted in Table III.

IMPORTANT

See Figure 5. The compression nut must be tightened to a position that will provide proper strain relief for the cord. If the compression nut is not tight enough, the electrical connections may be stressed. If the compression nut is too tight, the cord may be damaged. When using a factory cord, tighten the compression nut to a position that meets the specified “Distance Between Flats.”

Table III. Cord Grip Specifications

Frame Size	Size	Part No.	Suitable Cord Diameter Range in. (mm)	Cord Provided by Factory		
				Size	Nominal Diameter, in.	Distance Between Flats, in.
30–50	1/2 NPT	823002	.56–.63 (14–16)	14/4	0.575	1/8 to 3/16
90–95	3/4 NPT	823001	.51–.71 (13–18)	10/4	0.705	1/16 to 1/8
97-100	1 NPT	820003	.70–.85 (18–22)	8/4	0.807	1/8 to 3/16

Model	Size	Part No.	Suitable Cord Diameter Range in. (mm)
MB36-3000	1/2 NPT	194856	.38–.50 (10–13)

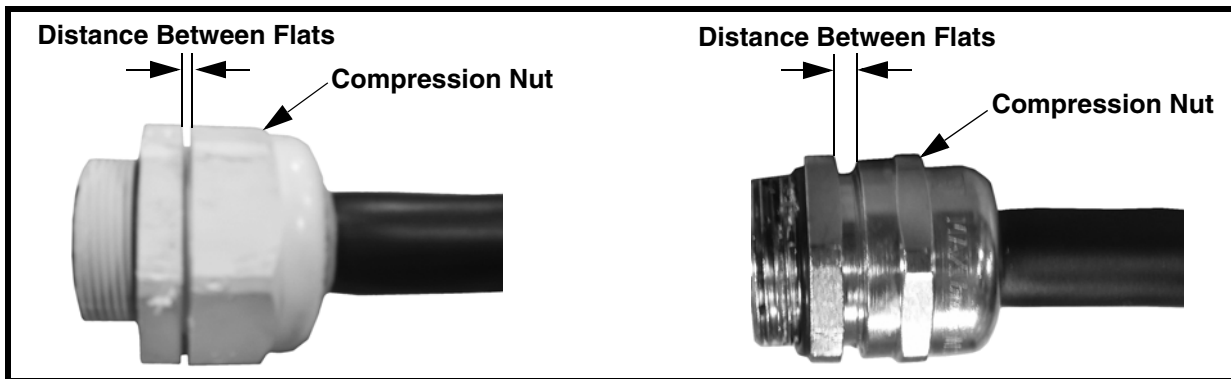


Figure 5. Cord Grip Installation

IMPORTANT

When wiring vibrator, leave slack in electrical cable so that cable does not become taut during vibration cycle and cause stress on wire connections. On applications where moisture is present, leave enough slack in power cable to prevent moisture from running down cable into vibrator.

3. Wire vibrator according to appropriate wiring diagram inside terminal box or see Figure 6 or 7. Use closed loop wire connectors only.

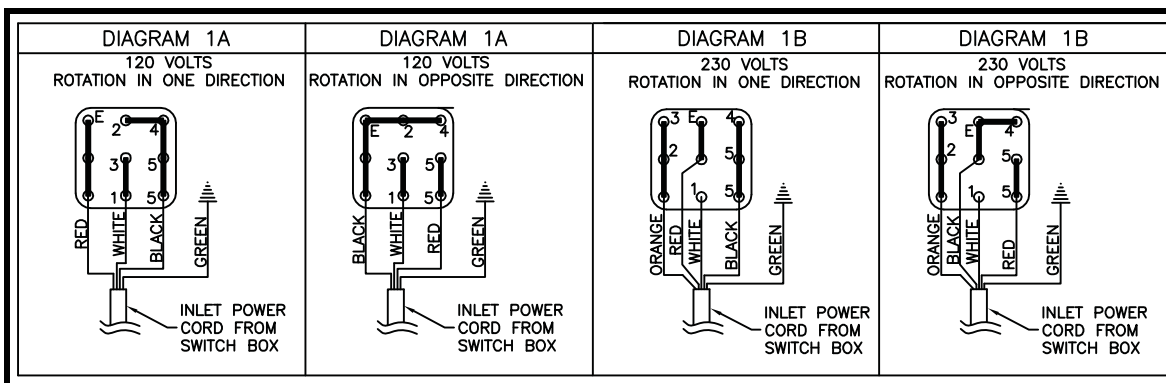


Figure 6. Single Phase Wiring Diagrams

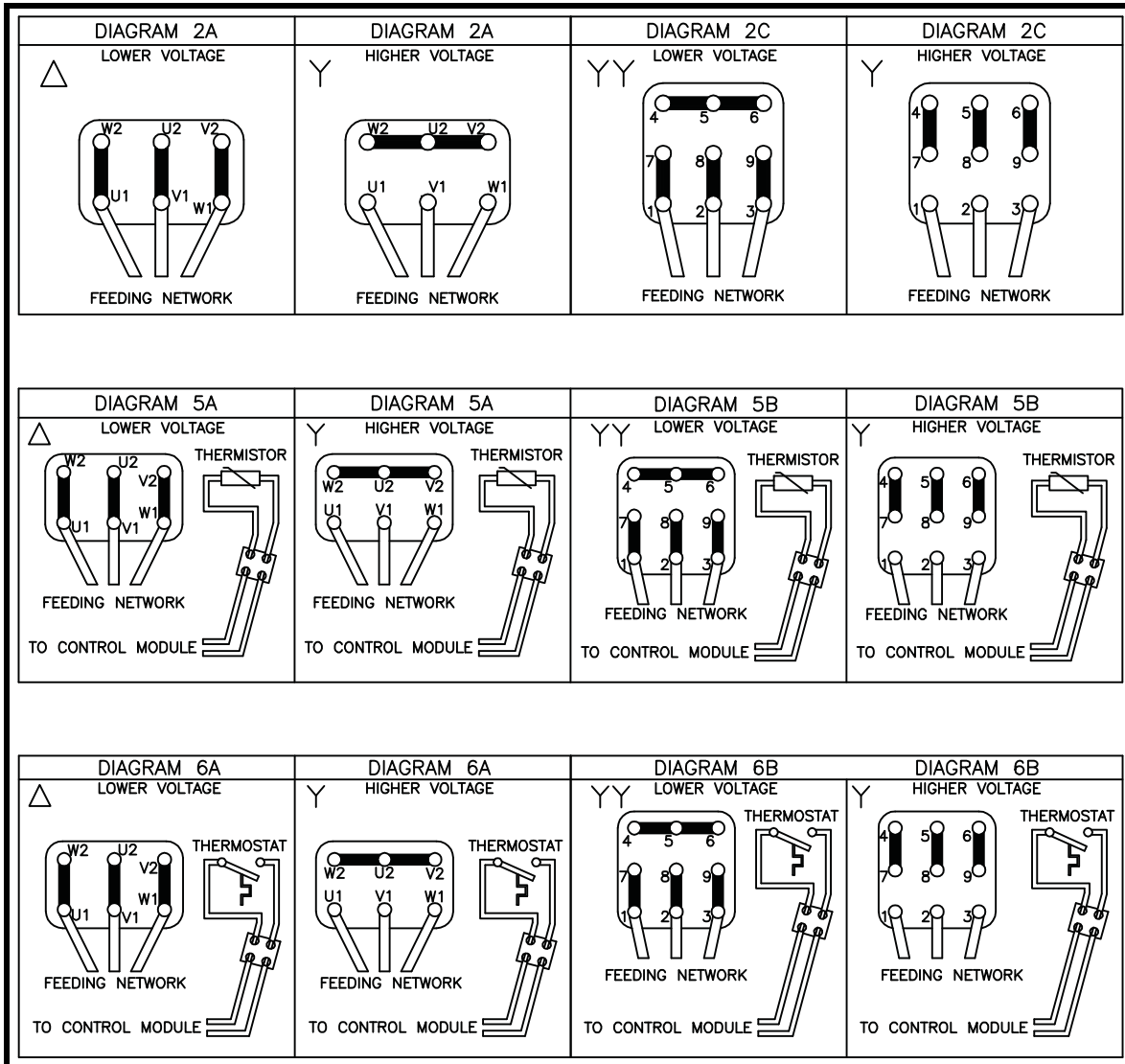


Figure 7. Three Phase Wiring Diagrams

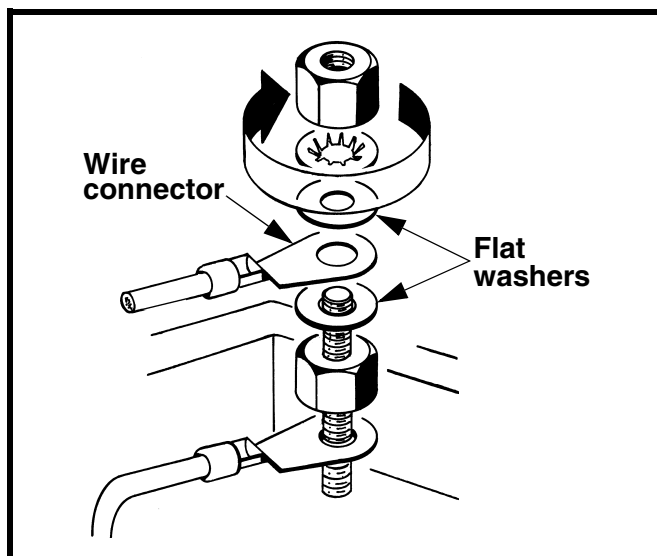


Figure 8. Installing Wire Connector

4. Install wire connector between the two flat washers. See Figure 8.

▲ WARNING

Vibrator must be grounded using the power supply ground wire (or other if specified in the NEC). Failure to properly ground vibrator can cause severe injury or death.

5. Connect power supply ground wire (or other if specified in the NEC) to ground vibrator terminal. Use closed loop wire connector only.
6. Reassemble wiring cover, o-ring, and rubber compression block(s), taking care not to pinch the o-ring. Tighten cord grip around supply line(s).

▲ CAUTION

Install overload protection for vibrator. If vibrator is not protected from overload, vibrator can be destroyed and warranty will be void. Determine size of overload protection according to NEC Article 430 and have it installed by a qualified electrician only.

1. Determine overload, short-circuit, and ground-fault protection according to NEC Article 430.
2. Have qualified electrician install overload, short-circuit, and ground-fault protection.
3. If overload trips during operation, fix problem before resetting.

*Installing
overload, short-
circuit, and
ground-fault
protection*

⚠ CAUTION

For equipment using two vibrators, the two motors must be electrically interlocked. If using a single contactor, each motor must be provided with separate overload protection. The motor control circuit must be arranged so that if one motor becomes de-energized, the other motor will automatically and immediately become de-energized. Failure to properly interlock motors could result in severe damage to equipment if one vibrator fails.

4. If using two vibrators, interlock the two vibrator motors and install separate overload protection for each.

After Installing Vibrator

Checking shaft rotation

IMPORTANT

Read entire section before beginning work.

1. Remove cap screws, washers, and vibrator weight covers.

CAUTION

DO NOT run vibrator with eccentric weights removed. Running vibrator with eccentric weights removed will damage bearings.

WARNING

When checking shaft rotation with weight cover removed, keep hands away from swinging weights. Weights can crush fingers.

2. Start vibrator for one second, then stop.
3. Observe direction of motor rotation. If motor is not rotating in correct direction, lockout / tagout / blockout / testout energy source and reverse rotation. To reverse rotation of three-phase vibrator, reverse any two of the three power supply wires.
4. Replace weight cover, taking care not to pinch o-ring.

Adjusting eccentric weights

NOTE

All Martin® Electric Vibrators have one set of eccentric weights on each end of shaft. Eccentric weights are set at 50% at factory.

The percentage increments on the weight or on the weight adjustment disks are percentages of the total force pounds listed on the nameplate. For example, if the nameplate shows 8340 lb, setting the weights to 50% would produce 4170 pounds of force.

IMPORTANT

For the most efficient operation, vibrator eccentric weights should be adjusted to the lowest force setting required to move the material. This will increase vibrator life and reduce energy costs.



WARNING

Before adjusting eccentric weights, turn off and lockout / tagout / blockout / testout energy source to vibrator.

NOTE

The fixed weight is keyed to the shaft. The adjustable weight rotates around the shaft.

1. Turn off and lockout / tagout / blockout / testout energy source to vibrator according to ANSI standards (see “References”).
2. Remove weight cover.
3. Loosen socket head cap screw (A, Figure 9) so adjustable weight (B) will rotate around shaft (C).

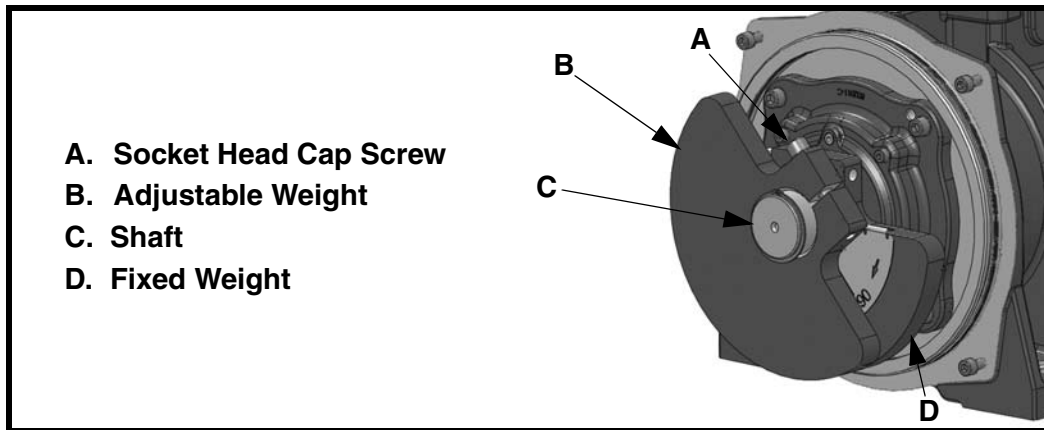


Figure 9. Adjusting Eccentric Weights

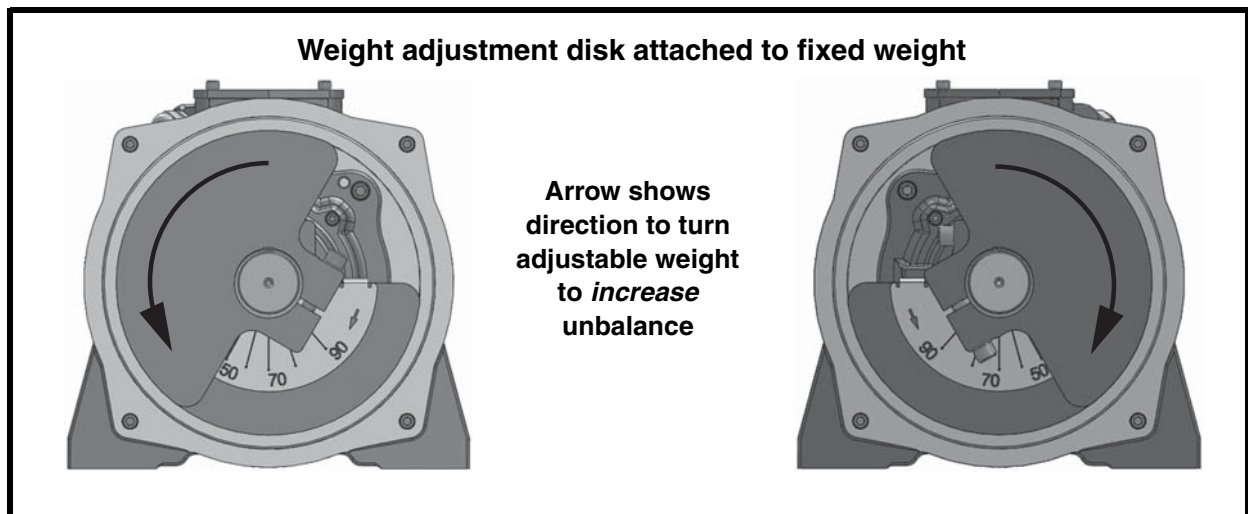


Figure 10. Adjustable Weights Set at 50%

4. See Figure 10. Rotate adjustable eccentric weight to proper setting. To produce more force, move weight to higher setting (i.e., higher number). When set, tighten socket head cap screw according to Table II.

5. Check o-rings for damage. Replace if damaged.

⚠ CAUTION

Do not operate vibrator with weight covers removed. Dust accumulating around vibrator shaft could cause unit to fail.

6. Replace weight covers.

⚠ CAUTION

Adjust both sets of eccentric weights to same setting number (mirror images) or force output will be uneven.

7. Repeat steps 2 through 5 for second set of weights. Set both sets of weights to same setting number so they are mirror images, as shown in Figure 11.

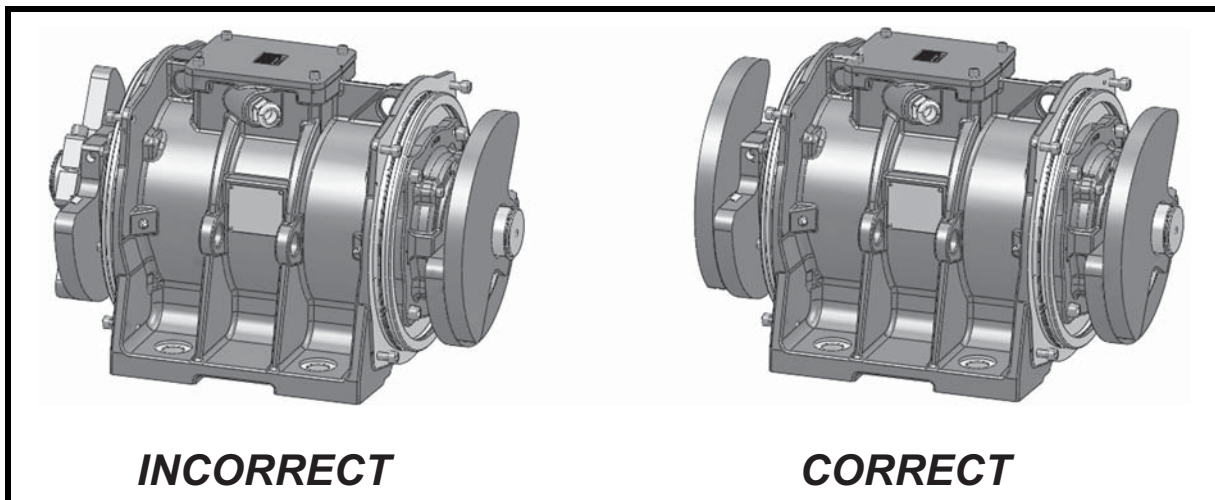


Figure 11. Setting Sets of Eccentric Weights to Mirror Images

***Initial start up/
checking line
current***

1. Close power supply disconnect switch and allow motor(s) to operate for 10 to 20 minutes.
2. If vibrator makes unusual or excessive noise, make sure mounting bolts are tight and mount welds are not damaged.

⚠ WARNING

Vibrator may produce loud noise during operation when mounted on structure. See OSHA 1910.95 for guidelines. If required, wear ear protection to avoid impairment or loss of hearing.

3. Check decibel level of vibrator noise during operation. See OSHA 1910.95 to determine whether noise exceeds safe limits. If required, wear ear protection to avoid impairment or loss of hearing.

⚠ CAUTION

Do not allow motor current to exceed nameplate rating. If vibrator is operated continuously with line current above nameplate rating, vibrator can be damaged.

4. After a few hours of operation, check each line current. If reading is higher than nameplate rating, reduce eccentric weight setting, stiffen vibrator mount, or move vibrator to more rigid location. After making adjustments, check line current again to ensure line current does not exceed nameplate rating.
5. After first 8 hours of use and periodically thereafter, check mounting bolts and tighten if necessary.

⚠ CAUTION

***Variable
frequency inverter***

All motors can be supplied with a variable frequency inverter. NEVER operate the motor at a frequency higher than that specified on the nameplate. Damage to vibrator can result.

Do not operate vibrator motor at frequency higher than specified on nameplate. Throughout frequency range, verify that each line current does not exceed current rating on nameplate. If reading is higher than nameplate, consult inverter manual. If necessary, adjust inverter, reduce eccentric weight setting, stiffen vibrator mount location, or move vibrator to more rigid location. After making adjustment, check line current again to ensure line current does not exceed nameplate rating.

IMPORTANT

Read entire section before beginning work. Allow vibrator to cool to ambient temperature before working on it.

NOTE

All vibrators are lubricated at the factory.

⚠ CAUTION

Use only prescribed grease in vibrator. If a different grease is used, vibrator can be damaged and warranty will be void.

Use only prescribed amount of grease to lubricate vibrator. Too much grease will cause bearings to overheat and result in premature bearing failure.

Lubricating vibrator

1. See Table IV for lubrication schedule and amount of grease required for your vibrator. Unless specified otherwise, lubricate the vibrator after each 2000 hours of operation.

⚠ CAUTION

For 3600 rpm machines operating continuously or for long periods of time, reduce lubrication time and amount as shown in step 2. Failure to do so could run bearings dry and destroy unit.

2. If motor housing temperatures exceed 194°F (90°C), cut lubrication time and amount in half for every 18°F (10°C) increment that meets or exceeds 194°F (90°C). For example, if MM9-1440 motor housing temperature is 204°F (96°C), use 4.5 grams of grease per bearing every 1000 hours. (Maximum bearing temperature allowed is 248°F [120°C].) For motor housing temperatures above 212°F (100°C), consult Martin Engineering or a representative.

NOTE

Kluber and Castrol grease may be purchased from Martin Engineering by calling 800-544-2947.

3. For MM9, MM12, and MM18 model vibrators, lubricate frame size 35 and larger vibrators with Kluber Staburags NBU 8EP grease only. For MM36 and MB36 model vibrators, lubricate with Isoflex NBU 15 grease only. For MC model vibrators, lubricate with Castrol Tribol™ GR 100-2 PD grease only. Lubricate as follows:
 - a. Clean vibrator case around grease fitting.
 - b. Insert grease gun onto grease fitting. Add grease.

Table IV. Lubrication Schedule For Each Bearing*

30 Frame		35 Frame		40 Frame		50 Frame		90 Frame	
Model	Lube (g)	Model	Lube (g)	Model	Lube (g)	Model	Lube (g)	Model	Lube (g)
MM9-590	Life	MM9-910	7	MM9-1440	9	MM9-2020	16	MM9-9310	50
MM12-760	Life	MM12-1630	7	MM12-1990	9	MM12-2530	16	MM9-11700	50
MM18-1690	Life	MM18-2150	7	MM18-3190	9	MM12-3100	16	MM12-11700	50
MM36-1680	Life	MM36-2510	7			MM18-3870	16	MM12-14400	50
		MB36-3000	7			MM18-4500	16	MM18-14500	60**
						MM36-3280	9		
						MM36-4100	9		
						MM36-4910	9		

95 Frame		97 Frame**		100 Frame**	
Model	Lube (g)	Model	Lube (g)	Model	Lube (g)
MM9-14400	80	MM9-14500	90	MM9-24800	130
MM9-15500	80	MM9-21900	90	MM12-26500	130
MM12-17600	80	MM12-14200	90	MM18-25300	130
MM18-17600	80**	MM12-20100	90		
		MM18-19700	90		

*Unless otherwise noted, lubricate every 2000 hours.

**Lubricate every 1000 hours.

30 Frame			35 Frame			40 Frame			50 Frame		
Model	Lube (g)	Interval (hours)	Model	Lube (g)	Interval (hours)	Model	Lube (g)	Interval (hours)	Model	Lube (g)	Interval (hours)
MC9-590	Life		MC9-910	Life		MC9-1440	Life		MC9-2020	Life	
MC12-760	Life		MC12-1630	4.1	770	MC12-1990	5	960	MC12-2530	5	960
MC18-1690	Life		MC18-2150	4.1	770	MC18-3190	5	720	MC12-3100	5	960
MC36-1680	4.1	380	MC36-2510	4.1	380				MC18-3870	7.4	720
			MC36-3500	4.1	380				MC18-4500	7.4	720
									MC36-3280	7.4	340
									MC36-4100	7.4	340
									MC36-4910	7.4	340



Repairing motor and replacing bearings

Do not attempt to repair vibrator motor or replace bearings yourself. If you attempt to do so during the warranty period, the warranty may be void.

If vibrator motor needs repair or if bearings need to be replaced, call Martin Engineering at **800-544-2947** for instructions.

Inspecting vibrator

At least quarterly, inspect vibrator, cable, and connections as follows:

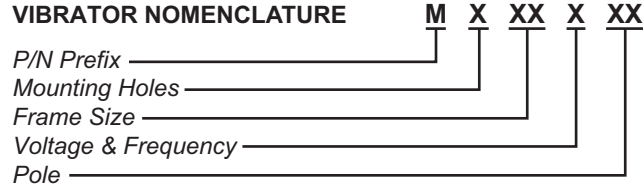
WARNING

**Before inspecting vibrator, turn off and lockout / tagout /
blockout / testout energy source to vibrator.**

1. Turn off and lockout / tagout / blockout / testout energy source to vibrator according to ANSI standards (see “References”).
2. Inspect weight covers for cracks and check cap screws for tightness.
3. Inspect cable for damage including cuts and abrasions. Replace if damaged.
4. Inspect ground connection. Make sure ground connection to motor enclosure does not exceed 0.1 ohm. Ensure screw on ground terminal is tightened to proper torque (see Table II).
5. Make sure all nuts on connections on terminal block are tightened to proper torque. Do not over tighten (see Table II).

Part Numbers

This section provides model numbers and part numbers for the MM Series Martin® Electric Vibrators and related equipment. Please call Martin Engineering at **800-544-2947** for replacement parts.



MOUNTING HOLES

- M:** Martin®
- C:** Cougar® (30–50 Frame only)
- I:** Invicta
- V:** Vimarc®
- U:** Uras®
- B:** Bosch®

VOLTAGE & FREQUENCY

- A:** 220/380V 50Hz
- C:** 230/460V 60Hz
- D:** 240/415V 50Hz
- F:** 330/575V 60Hz

Table V. Martin® Electric Vibrator Model Numbers and Part Numbers

30 Frame		35 Frame		40 Frame		50 Frame	
Model	Part No.	Model	Part No.	Model	Part No.	Model	Part No.
MM9-590	MX30X08	MM9-910	MX35X08	MM9-1440	MX40X08	MM9-2020	MX50X08
MM12-760	MX30X06	MM12-1630	MX35X06	MM12-1990	MX40X06	MM12-2530	MX50X06
MM18-1690	MX30X04	MM18-2150	MX35X04	MM18-3190	MX40X04	MM18-3870	MX50X04
MM36-1680	MX30X02	MM36-2510	MX35X02			MM36-3280	MX50X02
		MB36-3000	MB35X02				

51 Frame		52 Frame		90 Frame		91 Frame	
Model	Part No.	Model	Part No.	Model	Part No.	Model	Part No.
MM12-3100	MX51X06	MM36-4910	MX52X02	MM9-9310	MX90X08	MM9-11700	MX91X08
MM18-4500	MX51X04			MM12-11700	MX90X06	MM12-14400	MX91X06
MM36-4100	MX51X02			MM18-14500	MX90X04		

95 Frame		96 Frame		97 Frame		100 Frame	
Model	Part No.	Model	Part No.	Model	Part No.	Model	Part No.
MM9-14400	MX95X08	MM9-15500	MX96X08	MM9-21900	MX97X08	MM9-24800	MX100X08
MM12-17600	MX95X06			MM12-20100	MX97X06	MM12-26500	MX100X06
MM18-17600	MX95X04			MM18-19700	MX97X04	MM18-25300	MX100X04

Vibrator mounts

W-beam Mount: P/N 29757-XX. XX indicates vibrator frame size for MM models.

Mount Kit for Electric Vibrators: P/N 32401-XX. (Kit includes W-beam Mount, mounting hardware, and Martin® BBAC Cable Kit.)

Model	Frame Size	Part No.
MM	30	32401-30
	35	32401-35
	40/50	32401-50

Model	Frame Size	Part No.
MC	30/35	32401-B2
	40/50	32401-B3

Miscellaneous

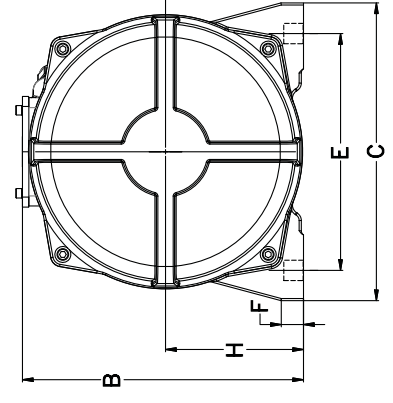
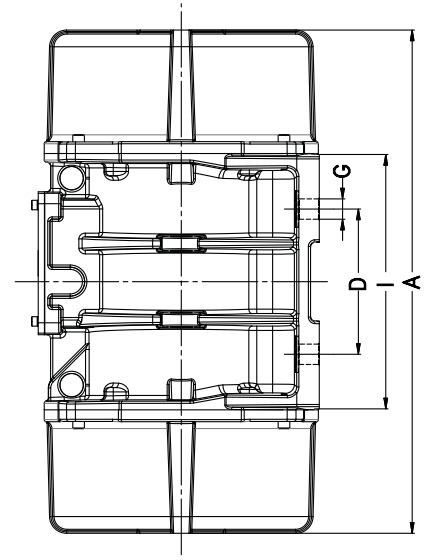
Martin® BBAC Cable Kit: P/N 32271. (Kit includes D-ring, cable, cable clamps, and clamp hardware.)

Appendix

Martin® Electric Vibrator Dimensions

Martin® Electric Vibrator Dimensions (in. [mm])*

Frame Size	Pole	A	B	C	D	E	F	Foot Holes		H	I
								ØG	No.		
30	2, 4, 8	14.92 (379)	9.41 (239)	8.43 (214)	4.72 (120)	6.69 (170)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
	6	17.91 (455)	9.41 (239)	8.43 (214)	4.72 (120)	6.69 (170)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
35	2, 4, 6	14.92 (379)	9.41 (239)	8.43 (214)	4.72 (120)	6.69 (170)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
	8	17.91 (455)	9.41 (239)	8.43 (214)	4.72 (120)	6.69 (170)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
40	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
50	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
51	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	4, 6	19.57 (497)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
52	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	7.48 (190)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	4	27.28 (693)	15.24 (387)	15.91 (404)	7.87 (200)	12.60 (320)	1.13 (29)	1.10 (28)	4	7.48 (190)	13.79 (350)
90	6, 8	35.28 (896)	15.24 (387)	16.14 (410)	7.87 (200)	12.60 (320)	1.13 (29)	1.18 (30)	4	7.48 (190)	13.79 (350)
	6, 8	35.28 (896)	15.24 (387)	16.14 (410)	7.87 (200)	12.60 (320)	1.13 (29)	1.18 (30)	4	7.48 (190)	13.79 (350)
95	4	27.28 (693)	15.24 (387)	16.14 (410)	7.87 (200)	12.60 (320)	1.13 (29)	1.18 (30)	4	7.48 (190)	13.79 (350)
	6, 8	35.28 (896)	15.24 (387)	16.14 (410)	7.87 (200)	12.60 (320)	1.13 (29)	1.18 (30)	4	7.48 (190)	13.79 (350)
96	8	35.28 (896)	15.24 (387)	16.14 (410)	7.87 (200)	12.60 (320)	1.13 (29)	1.10 (28)	4	7.48 (190)	13.79 (350)
	4, 6	33.82 (859)	18.70 (475)	18.11 (460)	4.92 (125)	14.96 (380)	1.50 (38)	1.54 (39)	6	9.17 (233)	17.60 (447)
97	8	37.76 (959)	18.70 (475)	18.11 (460)	4.92 (125)	14.96 (380)	1.50 (38)	1.54 (39)	6	9.17 (233)	17.60 (447)
	4	33.82 (859)	18.70 (475)	20.94 (532)	5.51 (140)	17.32 (440)	1.42 (36)	1.77 (45)	6	9.17 (233)	17.60 (447)
100	6, 8	37.76 (959)	18.70 (475)	20.94 (532)	5.51 (140)	17.32 (440)	1.42 (36)	1.77 (45)	6	9.17 (233)	17.60 (447)



Martin® Electric Vibrator Cougar Dimensions (in. [mm])*

Frame Size	Pole	A	B	C	D	E	F	Foot Holes		H	I
								ØG	No.		
30	2, 4, 8	14.92 (379)	9.41 (239)	8.43 (214)	5.50 (140)	7.00 (178)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
	6	17.91 (455)	9.41 (239)	8.43 (214)	5.50 (140)	7.00 (178)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
35	2, 4, 6	14.92 (379)	9.41 (239)	8.43 (214)	5.50 (140)	7.00 (178)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
	8	17.91 (455)	9.41 (239)	8.43 (214)	5.50 (140)	7.00 (178)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
40	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	6.00 (152)	8.00 (203)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	6.00 (152)	8.00 (203)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
50	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	6.00 (152)	8.00 (203)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	6.00 (152)	8.00 (203)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
51	4, 6	19.57 (497)	10.22 (260)	9.84 (250)	6.00 (152)	8.00 (203)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	6.00 (152)	8.00 (203)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)

Martin® Electric Vibrator Bosch Dimensions (in. [mm])*

Frame Size	Pole	A	B	C	D	E	F	Foot Holes		H	I
								ØG	No.		
35	2	14.37 (365)	8.74 (222)	9.84 (250)	3.937 (100)	7.874 (200)	4.961 (126)	.669 (17)	4	3.54 (90)	6.30 (160)

Martin® Electric Vibrator Invicta Dimensions (in. [mm])*

Frame Size	Pole	A	B	C	D	E	F	Foot Holes		H	I
								ØG	No.		
30	2, 4, 8	14.92 (379)	9.41 (239)	8.43 (214)	3.94 (100)	7.09 (180)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
	6	17.91 (455)	9.41 (239)	8.43 (214)	3.94 (100)	7.09 (180)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
35	2, 4, 6	14.92 (379)	9.41 (239)	8.43 (214)	3.94 (100)	7.09 (180)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
	8	17.91 (455)	9.41 (239)	8.43 (214)	3.94 (100)	7.09 (180)	2.17 (55)	.669 (17)	4	4.53 (115)	6.88 (175)
40	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
50	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
51	4, 6	19.57 (497)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
52	4, 6	16.42 (417)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.91 (150)	7.28 (185)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
97	4, 6	33.82 (859)	18.70 (475)	18.11 (460)	4.63 (117.5)	15.51 (394)	1.50 (38)	1.22 (31)	6	9.17 (233)	17.60 (447)
	8	37.76 (959)	18.70 (475)	18.11 (460)	4.63 (117.5)	15.51 (394)	1.50 (38)	1.22 (31)	6	9.17 (233)	17.60 (447)

Martin® Electric Vibrator Vimarc Dimensions (in. [mm])*

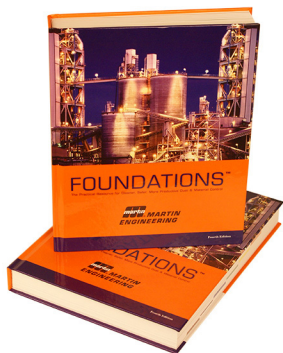
Frame Size	Pole	A	B	C	D	E	F	Foot Holes		H	I
								ØG	No.		
40	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	5.51 (140)	6.69 (170)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	6.69 (170)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
50	4, 6, 8	19.57 (497)	10.22 (260)	9.84 (250)	5.51 (140)	6.69 (170)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	6.69 (170)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
51	4, 6	19.57 (497)	10.22 (260)	9.84 (250)	5.51 (140)	6.69 (170)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)
	2	16.42 (417)	10.22 (260)	9.84 (250)	5.51 (140)	6.69 (170)	2.01 (51)	.669 (17)	4	5.02 (128)	7.87 (200)

Martin® Electric Vibrator Uras Dimensions (in. [mm])*

Frame Size	Pole	A	B	C	D	E	F	Foot Holes		H	I
								ØG	No.		
90	4	27.28 (693)	15.24 (387)	15.91 (404)	8.66 (220)	13.78 (350)	1.09 (28)	1.50 (38)	4	7.48 (190)	13.79 (350)
	6	35.28 (896)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.57 (40)	4	7.48 (190)	13.79 (350)
	8	35.28 (896)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.50 (38)	4	7.48 (190)	13.79 (350)
91	6	35.28 (896)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.57 (40)	4	7.48 (190)	13.79 (350)
	8	35.28 (896)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.50 (38)	4	7.48 (190)	13.79 (350)
95	4	27.28 (693)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.57 (40)	4	7.48 (190)	13.79 (350)
	6, 8	35.28 (896)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.57 (40)	4	7.48 (190)	13.79 (350)
96	8	35.28 (896)	15.24 (387)	16.14 (410)	8.66 (220)	13.78 (350)	1.09 (28)	1.10 (28)	4	7.48 (190)	13.55 (344)

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