MVE DC

Section 0 – DESCRIPTION

MVE DC electric vibrators are designed and constructed in accordance with the following applicable standards.

- EN 60034-1 - EN 61241-0 - EN 61241-1

-Conformity to Directive 2014/34/UE according to category3D, and to Directive 2006/42/CE

The general features of the MVE series of electric vibrators are listed below.

- Insulation Class F
- Standard tropicalization
- Protection IP 66
- Operating temperature: –20°C to + 40°C

Section 1 – GENERAL REGULATIONS

Read these instructions carefully before using the equipment,

and keep the manual in a safe place for future reference. On receiving the product please check that:

-the packing is not damaged to such an extent as to have damaged the product.

-there is no external damage to the product.

-the electrical supply corresponds to the order specifications;non compliance and/or external damage, if any, must be reported immediately in detail to the forwarding agent and the manufacturer and/or dealer.

Section 1.1 – IDENTIFICATION

The vibrator's type and other various data are embossed on the identification plate.

This information must always be stated when requesting spare parts or a technical intervention.

Section 1.2 – USE OF THE VIBRATOR

WARNING: It is forbidden to operate the motor-vibrators described in this manual unless the machine or plant in which these are incorporated is declared as conforming to the provisions of Directive 2006/42/EC.

The electric vibrator described in this Manual is designed and tested for use in potentially explosive zones classified as: zone 22 according to standard EN 61241-10 and in accordance with ATEX Directive 2014/34/UE.

The user must make sure that the workplace in which the electric vibrator is installed is set in safety condition from the point of view of risk of explosion.

To operate in safe conditions, check to make sure that the dusts have an ignition temperature higher than 75K of the surface temperature indicated on the electric vibrator rating plate (EN61241-10).

(The maximum temperatures indicated in this Manual and on the electric vibrator rating plate are calculated without taking into consideration the presence of layers of dust, if any, on the surface).

Its use for jobs different from those envisioned and non-conform to that described in this booklet, as well as being considered improper and prohibited, releases the Manufacturer from any direct and/or indirect liability.

Section 2 – WARRANTY

The warranty is valid for manufacturing defects for a period of twelve (12) months from the date of purchase (attested by the delivery note accompanying the goods).

The warranty covers all the mechanical parts and excludes electrical parts and those subject to wear.

The warranty will be invalidated, thus freeing the Manufacturer of any direct or indirect responsibility in the following cases: if the product is mishandled or used improperly, if repairs or modifications are made by unauthorised personnel, or if non-original spare partsare used. The material sent for repair under the warranty are returned CARRIAGE PAID.

Section 3 – SAFETY STANDARDS

the customer observes the normal caution (typical of this kind of equipment) together with the indications contained in the manual"OPERATION AND MAINTENANCE", work is safe. The MVE motovibrator can be installed in any position. Fix the motovibrator on a sturdy surface to ensure that the vibrations induced do not cause breakage or cracks: if this is not possible, use plates and ribbing for reinforcement. Cutting and welding procedures must be carried out by qualified personnel.

Suitable Hot- Works, (like cutting,welding…) and LOTO –lockout/tagout: procedure for disconnecting the machine (electrical and mechanical segregation), must be applied for safe installation of the electric vibrator. Authorization for Hot works MUST be given by specialist trained personnel familiar with the risk of explosion of powders.

The surface on which the machine is installed must be level and flat (max 0.25mm) so that the feet rest uniformly and in perfect contact with the surface, to avoid internal stresses which may cause breakage of the motovibrator feet.

The noise level of the electric vibrators measured IS NEVER greater than 76 dB(A)*

*Measured in normal operating conditions in accordance with standard UNI EN ISO 11202.

Section 3.1 – INSTALLATION

To fix the motovibrator, use bolts (quality 8.8), nuts (quality 8.8) and flat whasher A type UNI6592 Use

a dynamometric wrench adjusted according to the Table in data sheet. Remember that most of these problems and faults are caused by improper fixing and locking.Anchor the motovibrator to the frame by means of a suitable 15 cm long metal chain or cable.

Before starting up the vibrator, and after the first 24 hours of operation, check:

- power the electric vibrator and using an ammeter pliers, check all phases to make sure the power draw does not exceed the value indicated on the rating plate;
- the fixing bolts of the motovibrator and the welds of the reinforcing plates and ribbing;
- the anchoring chain or cable;
- the power cable.

Section 4 – OPERATIVE NOTES

ELECTRICAL CONNECTIONS

THE ELECTRICAL CONNECTIONS MUST BE CARRIED OUT ONLY BY TRAINED PERSONNEL, AFTER DISCONNECTING THE POWER SUPPLY.

For the electrical connections refer to drawings.

The mains supply andmotovibrator connections must conform to the existing safety standards defined by the competent authorities of the area in which the operations are to be carried out.

-Check the mains supply voltage to ensure that it is the same as that indicated on the rating plate fixed on the motovibrator.

-Disconnect the line before carrying out maintenance operations, or while adjusting the parts. Repair and replacement of components must be done only by specialist personnel.

-For single-phase motovibrators, check the condenser to ensure it corresponds with the indications on the rating plate.

-Excessively long power cables cause voltage loss (follow the instructions of the standards). Check

When the motovibrators are installed in pairs, each of these must be provided with its own external overload protection, which must be interlocked in order to prevent just one motovibrator from operating when the other stops accidentally. Always use magneto thermal cutout devices with delayed action to prevent these from being activated during the start-up phase, when the current absorbed reaches very high levels (especially when the temperature is very low).

Overload protection shall NOT BE HIGHER than 10% of the rating plate data; otherwise the warranty will be invalidated.

THE MOTOVIBRATOR MUST BE OPERATED ONLY BY QUALIFIED PERSONNEL.

All the electrical components the installer intends installing in the electric vibrator (such as overload protection, sensors…) must conform to ATEX Directive 2014/34/UE, II 3D or higher.

For connecting the electric vibrator in equipotential, connect the machine to earth using the special clamp provided on the body.

The environmental temperature where the machine is used is between –20°C and +40°C.

BLADE ADJUSTMENT

Disconnect the power supply to the motor-vibrator during disassembly and reassembly operations on the protection devices (mass cover).

After carrying out the operation on both sides, refit the covers using the same screw and washers taking care to make sure the gaskets are fitted correctly in their seats, as incorrect positioning can alter the degree of protection IP.

Section 5 – MAINTENANCE

The machine does not require maintenance.

Before carrying out any maintenance or cleaning on the machine, make sure it is set in safe conditions.

While removing the dust that may be present on the electric vibrator, take care to avoid its dispersal in the surroundings. Dust deposits must never exceed a thickness of 5mm! Use only a damp cloth to remove the dust. Concrete pumps application: Please make sure to clean the motorvibrator at the end of the working cycle to avoid the concrete consolidation on it.

Section 6 – SPARE PARTS

For spare parts please refer to table.

POSITION	1	2	3	4	5
DESCRIPTION	MASS / BLADE COVER	TERMINAL BOX COVER	O-RING	TERMINAL BOX GASKET	CABLE GLAND

Section 7 – RESIDUAL RISKS

Mechanical hazards

For maintenance operations, the operator must always use personal protection devices.

Presence of potentially hazardous powders

For carrying out routine and extraordinary maintenance operations, the operators must use special personal protection devices, and a mask, in particular, to protect the respiratory tract belonging to a Class suitable for the type of powder handled, in addition to protective gloves or clothing.

For more details, consult the safety chart of the powder handled by the appliance in which the electric vibrator is inserted.

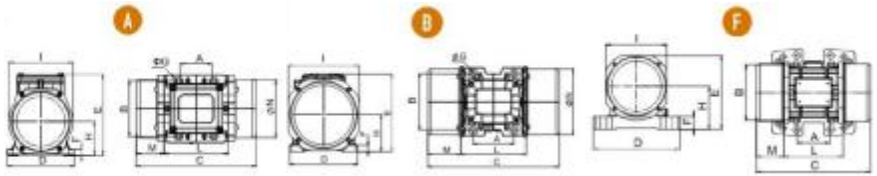
Presence of harmful dusts

If the operator is required to work in the presence of harmful substance while handling the powders,for carrying out routine and special operations, he must use suitable protective equipment as indicated in the safety chart of the product handled by the appliance in which the electric vibrator is inserted.

Section 8 – TROBLESHOOTING CHART

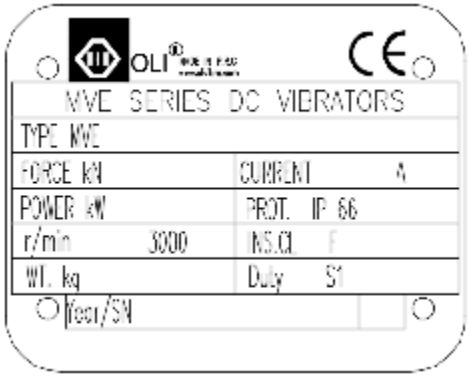
Refer to table.

TECNICHAL DATA



MVE DC	Dimensional Features														Fixing screw		
Type	Fig	SIZE	A	B	C	D	E	F	Φd	H	I	L	M	N	CABLE GLAND			
			(mm)													Metric	Metric	(Nm)
MVE50/3N-DC-10A0-12V	A	10A0	62~74	106	213	136	138	10	9	80	36	123	63	81	Φ16×1.5	M8	6.4×19	23
MVE50/3N-DC-10A0-24V																		
MVE200/3N-DC-23A0-12V	B	23A0	62~74	106	218	164	140	25	9	82	116	123	63	110	Φ20×1.5	M8	9.6×19	23
MVE200/3N-DC-23A0-24V																		
MVE500/3N-DC-40A0-12V	E	40A0	105	140	271	190	197	30	13	98	174	175	73	160	Φ30×1.5	M12	13×24	80
MVE500/3N-DC-40A0-24V																		
MVE1500/3N-DC-50A0-12V		50A0	120	170	324	208	211	42	17	96	186	197	63	170	Φ30×1.5	M16	17×30	180
MVE1500/3N-DC-50A0-24V																		

Identification plate



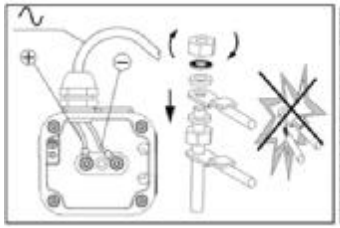
MVE DC	Mechanical Features					Electric Features		
Type	RPM	Working moment	Centrifugal force		weight	Power	Volt	Max current
		Kg cm	kg	kN	kg	kW	V	A
MVE50/3N-DC-10A0-12V	3000	1.02	50	0.5	4.5	0.08	12	6.6
MVE50/3N-DC-10A0-24V							24	3.3
MVE200/3N-DC-23A0-12V		4.17	200	2	6.5	0.16	12	13.3
MVE200/3N-DC-23A0-24V							24	6.7
MVE500/3N-DC-40A0-12V		10.40	530	5	14.4	0.26	12	22
MVE500/3N-DC-40A0-24V							24	11
MVE1500/3N-DC-50A0-12V		22.40	1616	16	21.8	0.52	12	43
MVE1500/3N-DC-50A0-24V							24	21.5

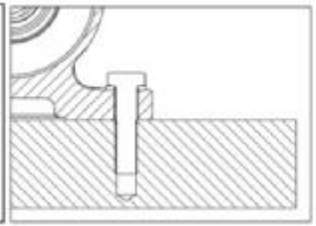
TROUBLE SHOOTING CHART

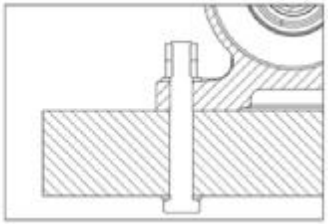
Symptom	Possible Cause(s)	Corrective Action
The vibrator doesn't work	1) no connection 2) mechanical block	1) check mains supply 2) check wiring 3) check shaft movement
Increased temperature (overheating)	1) vibrating structure oversized 2) incorrect supply voltage 3) operating at room temperature	1) check seleltion criteria of motorvibrator and reduce weights adjustement 2) check voltage with that on rating plate 3) restore room temperature within limits
Increased noise	1) fixing bolts slackened 2) bearing noisy	1) check locking of bolts 2) replace bearings if necessary

Connection

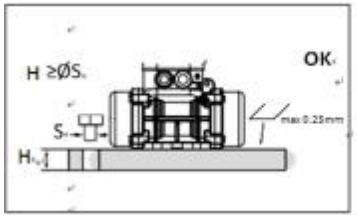
Fixing

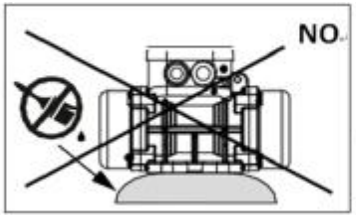


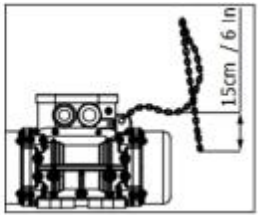




INSTALLATION



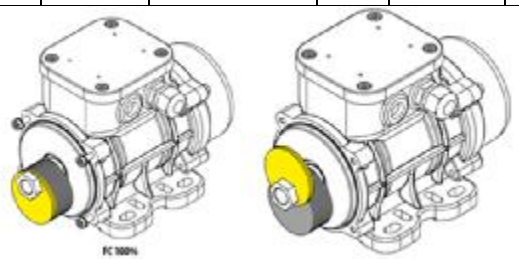




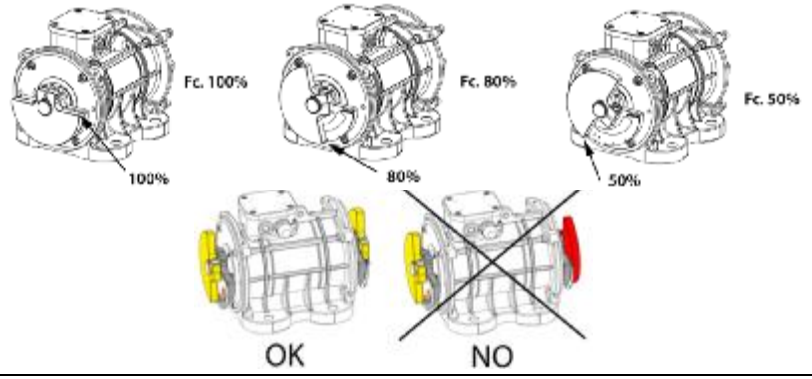
MASS ADJUSTING

MVE50/3N-DC-10A0-12V/24V				
	Unbalance	Centrifugal Force		Bearing Life w/1.3 Load Factor
Position	Kg cm	kg	kN	hrs
100%	0.51	50	0.5	89772
90%	0.45	45	0.44	>100000
80%	0.4	40	0.39	>100000
70%	0.35	35	0.34	>100000
60%	0.3	30	0.29	>100000
50%	0.25	25	0.25	>100000
40%	0.2	20	0.2	>100000
30%	0.15	15	0.14	>100000
20%	0.1	10	0.09	>100000
10%	0.05	5	0.04	>100000

MVE200/3N-DC-23A0-12V/24V					
	Fc	Unbalance	Centrifugal Force		Bearing Life w/1.3 Load Facto
		Kg cm	kg	kN	hrs
12+12 blade	100%	2.08	200	2	3732
Turn 1 blade for each side	83.30%	1.73	167	1.64	6469
Turn 2 blade for each side	66.60%	1.38	133	1.3	10578
Turn 3 blade for each side	49.90%	1.04	100	0.98	30319
Turn 4 blade for each side	33.20%	0.69	67	0.66	>100000
Turn 5 blade for each side	16.70%	0.35	33	0.33	>100000



MVE500/3N-DC-40A0-12V/24V
MVE1500/3N-DC-40A0-12V/24V



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