



Vx - Vy - Vyp Series Vibration Motor Installation and Operating Instructions

ATEX II 3D Extc IIIC (T 100 °C) Dc (Vx and Vy Series)



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CONTENTS

1. General information	1
2. Product introduction	1
3. Safety	1
4. Transport and storage	2
5. Installing the product.....	2
6. Operation.....	3

7. Servicing and maintenance.....	3
8. Troubleshooting	3
9. Spare parts.....	4
10. Disposing of the products.....	4
11. EC Declaration of Conformity	4

1. General information

This manual contains the installation, operating and maintenance of Vx - Vy series vibration motor with technical features.

Read the manual carefully before installation and using the motor. Keep this user's manual for as long as the vibration motor is in use.

For detailed information, please contact us.

1.1 Safety symbols used in this manual

Danger of electric shock. Safety sign according to ISO 3864.

General warning sign according to ISO 3864.

2. Product introduction

Micro vibration motors are used in industrial systems which are required the low centrifugal force. The vibrational motion occurs with the oscillation of eccentric weights on the both sides of the rotor shaft of the asynchronous motor.

2.1 Identification

The nameplate is positioned on the motor and indicates the type model - centrifugal force, rotational speed, ATEX type, motor specifications, serial number and production date.

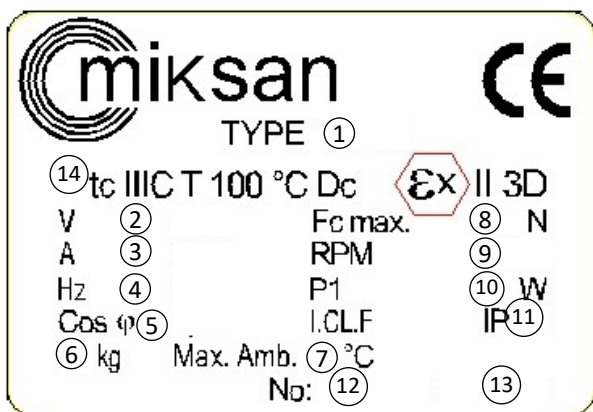


Figure 1. Sample Nameplate

No	Description	No	Description
1	Motor Model	8	Centrifugal Force (N)
2	Rated Voltage (V)	9	Rotational Speed
3	Rated Current (A)	10	Rated Motor Power
4	Frequency (Hz)	11	IP Protection Class
5	Motor Cosφ Value	12	Serial Number
6	Motor Weight	13	Production Date
7	Max. Ambient Temp.	14	ATEX Certificate

Table 1. Description of the values in the nameplate

2.2 Running conditions

Motor type	Vx - Vy Series
Ambient temperature	-15°C..... +40°C
Mechanical protection class	IP 66
Isolation class	F

2.3 Technical specifications

Vx and Vy series micro vibration motor's frames are made of aluminium injection and Vyp series are made of stainless steel. The bedding covers in the Vy series are AISI 1040 structural steel.

The squirrel cage rotor is produced by sheet with low loss and its start-up moment is amplified.

The weights covers of Vx series micro vibration motors are produced by steel plate and the weights covers of Vy and Vyp series micro vibration motors are 304 rustproof plate. Vx, Vy and Vyp series have deep groove ball bearing.

Protection against dust and water is provided by durable O-rings and gasket.

3. Safety

It is only the general safety instructions included under this main heading 'Safety' that have to be followed but also the safety instructions provided under the specific headings. Miksan Motor does not accept any liability for damage and injury caused by not applying the directions and instructions in this manual.

Non-compliance with the safety instructions

Non-compliance with safety instructions may pose a risk to the safety of personnel, the environment and the product itself, and also will lead to forfeiture of all rights to claims for damages.

Non-compliance may result in for example, hazards given below

- Failure of important motor/plant functions,
- Failure of recommended maintenance and repair process,
- Exposure of people by electrical, mechanical and chemical hazards,
- Threatening the environment due to leakage of hazardous substances,

♦ Operating Personnel

All personnel participated in the installation, operation, maintenance and inspection of the product must be adequately qualified. Responsibilities, capability and supervision of the personnel must be clearly defined by the plant operator. Moreover, the operator is responsible for ensuring that the contents of the operating instructions are fully understood by the personnel.

◇ Unauthorised modifications and procurement of spare parts

The product has been designed and manufactured with the greatest possible care and any modification may be made to the motor only after consultation with the manufacturer. Using spare parts and accessories authorised by the manufacturer is required to meet safety regulations. Use of non-original parts can invalidate any liability of the manufacturer for consequential damage and may lead to a safety risk. When operating the motor, the safety instructions contained in this manual, the relevant national accident prevention regulations and any other service and safety instructions issued by the plant operator are to be observed.

◇ During Operation

- ⚠ If hot/cold machine components involve hazards, they must be prevented against accidental contact.
- ⚠ Guards for the moving parts (e.g. covers) must not be removed while the motor is running. Also make sure that covers are never in contact with the moving parts by using proper protection parts
- ⚠ Check the strictness of the screws and tighten the screws till the torque values once a mount.
- ⚠ Always close the terminal box to prevent hazards caused by electricity.

◇ During Installation, Maintenance and Inspect

- Only authorised and qualified personnel may install, maintain and inspect the product and repair electrical components. Observe the local safety regulations.
 - ⚠ Always disconnect the energy supply to the product before installation, maintenance and repairs and secure disconnection.
 - ⚠ Surfaces of a vibration motor can be hot, after continuous operation.
- Check the current which motor draws during the operation and be sure that current does not exceed the values given on the label.
- On completion of work all safety and protective facilities must be re-installed and made operative again.
- Make sure that no one can be near rotating components when starting the motor. Before restarting the machine, observe the instructions listed under 'Start up'.

4. Transport and storage

- Transport the motor in the position as indicated on the packaging.
- When moving the entire system assembly by a crane, all ropes must be mounted around the system.
- ⚠ The lifting capacity of the crane and rope must exceed the weight of the system. Only qualified personnel are allowed to lift the system. Do NOT use the electrical cables to lift the motor.
- Make sure the motor is stable. Protect motor from damage during transportation. The warranty becomes invalid if damages occur during transportation.
- If present, observe the instructions on the packaging.
- All vibration motors should be stored in a clean dry place. Avoid humidity, dirt and any foreign materials from the motor and do NOT remove the protective covers during storage.

5. Installing the product

5.1 Before installation

- Check the nameplate and centrifugal force to ensure that the motor meets requirements of your application.
- ⚠ Make sure that the product operates within its working range. Only then the product performance is guaranteed.

Check the condition of the motor for any damage that may have occurred during shipping.

The electrical supply should be verified so the voltage, phase and frequency match that of the vibration motor.

5.2 Mechanical installation

Remark the following cases, after precursory check of the micro vibration motor is completed;

- All the micro vibration motors are adjusted to 100% centrifugal force delivered to your plant. The requested centrifugal force can be adjusted how to reduce the weight of sheet given in the table below.

Centrifugal force adjustment		
TYPE	Max. F _c (kg)	Percentage of Reduction (%)
Vx 20	21	16,5
Vy (p) 25	25	10
Vy (p) 40	39	25
Vy (p) 60	59	16,5

- The connection of the surface can be installed at any position, but the surface which make a connection must be uncoloured, clean, and smooth.
- When the micro vibration motor is assembled, the torque meter must be used for the bolts. Also, the tightening torque must be adjusted for the given values given in the table below. The quality class of the bolts must be 8.8.
- Irregular fixing or badly performed tightening cause loosening and noise during running.
- In the application of horizontal motion with two micro vibration motors, the direction of rotation of the motors must be opposite to each other.
- After 15-20 minutes operation of vibration motor, tightened the bolts again with the specified torque values. Repeat this operation 2-3 hours later.
- In every month, check tightness of bolts.

TYPE	Motor mounting		Weight mounting	
	Screw	Tightening Torque (kgm)	Nut	Tightening Torque (kgm)
VX	4xM6	3	M6	8
VY (p)	4xM6	3	M12x1,25	10
	4xM8	3,5		

5.3 Electrical connections

- ⚠ Only trained staff should make the electrical connections of the vibration motor. Otherwise, electrical shocks can cause fatal injuries.
- The values of supply voltage and frequency must be monitored with the label values.

- Before the operation, all the necessary precautions of the electrical protection must be taken (fuse, thermal switch etc.).

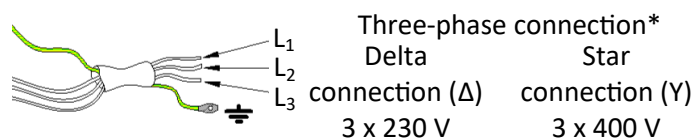
- The grounding of the micro vibration motor must be made according to the connection with the yellow-green conductor on the out of cable and the yellow-green conductor on the supply cable. All micro vibration motors are produced with 75cm cable. Also, in single phase micro vibration motors, needed capacitor is connected to this cable with additional box.

- The supply cable must be chosen in compliance with the current values which is indicated on the label of vibration motor.

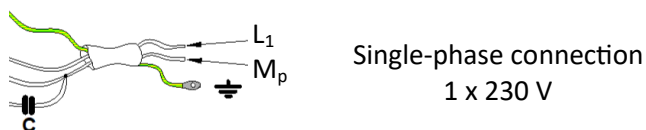
⚠ Be sure that the supply cable are connected tightly and without short circuit.

- The slack cable connections cause the faulty running which may cause damage of motor or system.

- When the protection covers are open, do not run the motor.



* Standard winding of micro series vibration motors are 400V (Y) and cannot be transformed to 230V (Δ) manually. Please contact us for 230V (Δ) winding.



6. Operation

6.1 Start-up

Install the motor according to 'Installation' heading in the manual.

Switch off the mains and connect the terminals according to 'Electrical connections' heading in the manual.

Check installation and electrical connections steps one more time before starting up the motor.

Before running the products that stored for a long time,

- Remove the protection covers, and check the shaft that rotate freely.

- Check electrical insulation apply 220V AC for a time that does not exceed 5 seconds between phases and 10 seconds between phase and earth with Megger Insulation Tester.

- After three years of the storage of the vibration motors' bearings must be completely replaced.

8. Troubleshooting

Fault	Possible cause	Remedy
Motor does not start (no motor noise)	Supply failure	Check the power supply Check the fuses, terminals and supply leads
	Supply leads failure	See above
Motor does not start (makes noise)	Motor bearing faulty	Replace bearing
Too much vibration and noise	Bearing faulty	Replace the defective bearing
Power consumption / current is too high	Too much mechanical friction	Contact to your supplier
	System weight is less than required	Remove the balance weights on motor

6.2 Shut down

- Switch off all the mains.
- Disconnect all the electrical cables.

⚠ All service work must be carried out by qualified service personnel.

6.3 Centrifugal force adjustment

- Take out the protection covers on the both sides of the rotor shaft and loosen the nuts which hold the weights.

- Required centrifugal force can be adjusted by means of decreasing the weight.

⚠ The same number of weights must be decreased on the both sides of the rotor shaft.

⚠ After the required value are adjusted, tighten the screws again by taking notice of the moment values.

7. Servicing and Maintenance

⚠ Observe the general safety precautions for installation, maintenance and repair.

The vibration motor must be stored in dry and clean place. Check the motor shaft by rotating manually before re-installed.

Spare parts are available from the supplier.

7.1 Changing the bearings

- The vibration motor maintenance must be made by persons who have the technical knowledge.

- The damaged parts must be replaced with new one and they must be original.

- Before the vibration motor are demounted, be sure that the electrical energy are cut off and the supply cable are removed from the vibration motor.

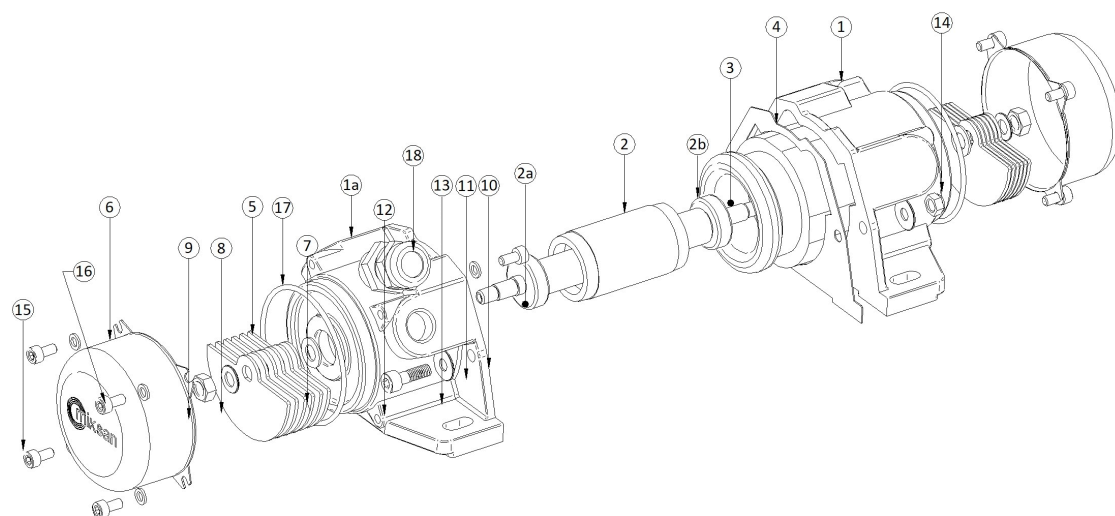
- Take out protection covers, O-rings, weights and key.

- For Vx types micro vibration motor, take out the screws on the frame and pull the part of frames. Take out the bearings by using the convenient device without damaging the bearing cages. Then, change the bearings and montage motor in the contrast way.

- For Vy types micro vibration motor, provide that the rotor shaft and cover work out from the other side by applying the force on the both sides of the rotor shaft. Take out the rotor shaft from the cover slowly. Take out the bearings by using the convenient device without damaging the bearing cages. Then, assembly the motor in the same order.

9. Spare Parts

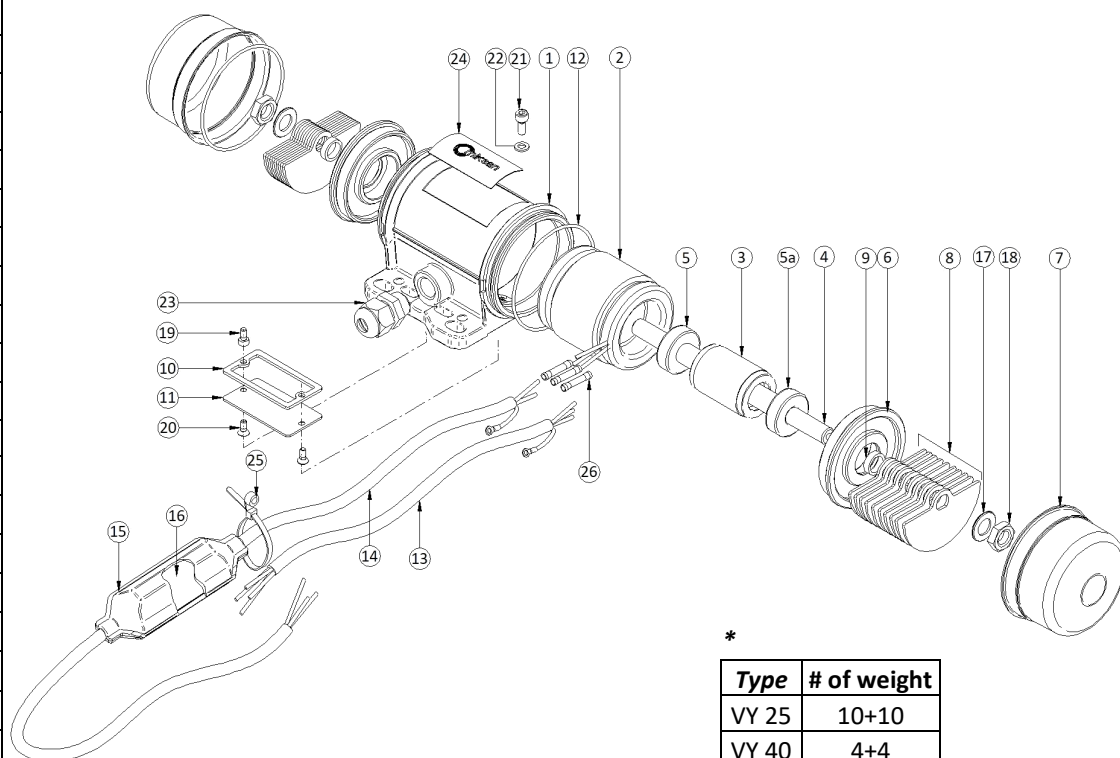
9.1 Spare part list of Vx vibration motor



Item	Description	Qty
1	Frame	1
1a	Frame with cable g.	1
2	Rotor	1
2a	608 2Z Bearing	1
2b	608 2Z Bearing	1
3	Stator with winding	1
4	Gasket	1
5	Weight	12
6	Weight Cover	2
7	Washer	2
8	M6 Washer	2
9	M6 Nut	2
10	M4x8 Screw	1
11	M4 Washer	1
12	M5x16 Screw	2
13	M5 Washer	2
14	M5 Nut	2
15	M4x8 Screw	8
16	M4 Washer	8
17	O-Ring	2
18	Cable Gland M16x1,5	1

9.2 Spare part list of Vy & Vyp vibration motor

Item	Description	Qty
1	Frame	1
2	Stator with winding	1
3	Rotor	1
4	Shaft	1
5	6201 2Z Bearing	1
5a	6201 2Z Bearing	1
6	Bearing cover	2
7	Weight Cover	2
8	Weight	*
9	Washer	2
10	Terminal gasket	1
11	Terminal cover	1
12	O-ring	2
13	Cable (three-phase)	1
14	Cable (single-phase)	2
15	Capacitor box	1
16	Capacitor (s.phase)	1
17	M12 Washer	2
18	M12x1.25 Nut	2
19	M4x10 Screw	1
20	M4x8 Screw	2
21	M5x16 Screw	1
22	M5 Washer	1
23	M16x1,5 Cable g.	1
24	Label	1
25	Cable cord	1
26	Butt connector	3-4



*

Type	# of weight
VY 25	10+10
VY 40	4+4
VY 60	6+6

10. Disposing of the product

This product, all the parts of it and the packaging materials must be disposed according to the local and national regulation for proper disposal.

Prior to its disposal, the motor must be completely decontaminated if necessary.

11. EC Declaration of Conformity

We herewith declare that the design/construction of Micro Series Vibration motors

Complies with the following regulations/standards:

Low Voltage Directive 2014/35/EU

Directive 2014/30/EU Electromagnetic Compatibility Directive

2006/42/EC on Machinery