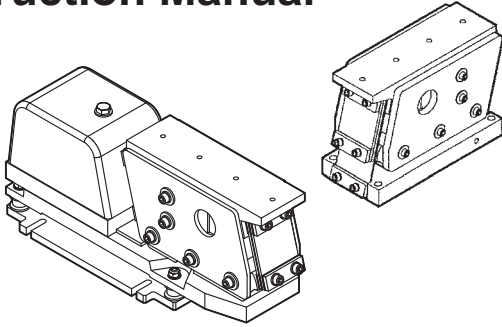


BFC

Electromagnetic Linear Feeder ML Series

Instruction Manual



Thank you for purchasing BFC Parts Feeder. To ensure the right usage, please read this manual carefully before using. Also, please deliver this manual to the end user.

Before Using

■ Fixing brackets for packing and transportation

Be sure to remove them before using.

■ Controller

For this feeder, be sure to use the electromagnetic feeder dedicated controller.

※ Do not use any controller other than electromagnetic feeder dedicated controller.

1. Safety Precautions

DANGER 	<ul style="list-style-type: none"> Do not work with this feeder in the live status, or you could have an electric shock. Do not use this feeder in any place where there is a dangerous material (e.g., ignitable material, inflammable material). Since it is not of explosion-proof type, using this feeder in such place could cause ignition or inflammation. When it is installed at a high place, since this feeder could drop or topple down under some conditions, take preventive measures against dropping or toppling down.
WARNING 	<ul style="list-style-type: none"> When removing the cover, turn OFF the input power source beforehand. Do not retrofit this feeder. Using this feeder with retrofitting could cause failure or breakage to this feeder. Do not place this feeder in or on piles for storage or transportation, or this feeder could drop, causing injury or breakage. Do not damage the lead wire, or fire or electric shock could be caused by short circuit. Connect an earth wire to this feeder before using.
CAUTION 	<ul style="list-style-type: none"> Do not install this feeder in any dusty place. When welding the bowl or the chute, be sure to disconnect the controller from this feeder and ground the bowl or the chute firmly beforehand. Being equipped with rubber legs or leaf springs to isolate vibrations, this feeder may swing during transportation, which could cause breakage not only to itself but also to other equipment. Therefore, attach the fixing brackets before transportation. Do not install this feeder at any hot and humid place but at a well-ventilated indoor place. Use this feeder at ambient temperatures ranging from 0 to 40°C.

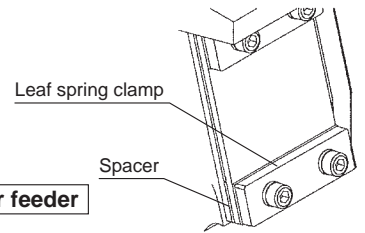
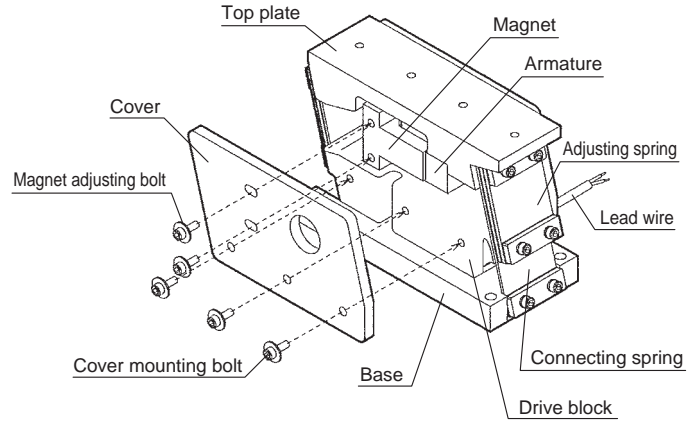
2. Specifications

Vibrator	Main unit mass (kg)	Max. power consumption (VA)	Max. chute length (mm)	Max. chute mass (kg)	Applicable controller
ML-001JD	3.8	18	300	1.0	EMC-003
ML-002JD	10.0	60	500	2.0	
ML-001RD	10.5	18	450	2.0	C10-1VF
ML-002RD	20.0	60	600	4.0	

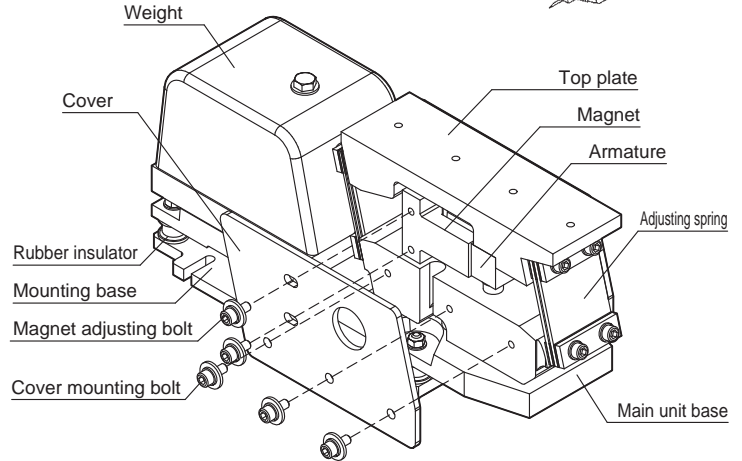
3. Structure and Each Part Name

※ Each feeder is illustrated below with one-side cover removed for the explanation purpose.

Leaf-spring type linear feeder



Rubber-insulator type linear feeder



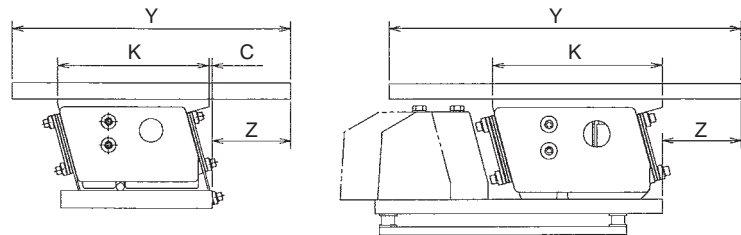
4. Mounting the Linear Feeder

4-1 In order for the linear feeder to be used in the best condition, the chute must be designed properly, and the main unit supporting stand and frame must have sufficient rigidity.

4-2 Mount the chute on the vibrator main unit.

※ When mounting the chute on the linear feeder, refer to the below table.

※ For the rubber leg type linear feeder, if the parts transfer before the chute is not smooth, perform adjustment, such as lowering the weight.



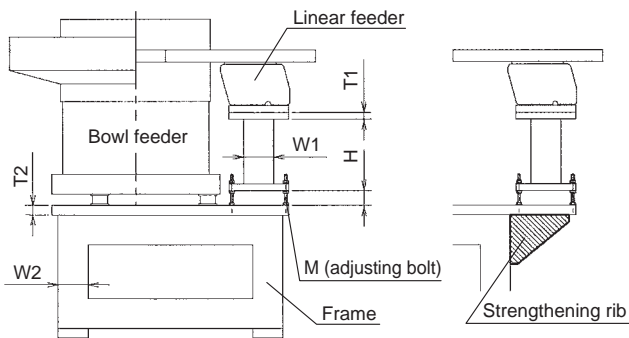
■ Reference table for mounting chute on linear feeder

Vibrator	Y	Z								K	C	
		200	250	300	350	400	450	500	550			600
ML-001JD	40	65	90								140	3
ML-002JD		45	70	95	120	145	170				192	4
ML-001RD				160	185	210					140	
ML-002RD					175	200	225	250			192	

4-3 Fix the vibrator main unit.

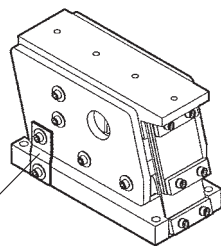
※ Mount the vibrator main unit on a frame having sufficient rigidity by referring to the following table.

Vibrator	ML-001JD ML-001RD	ML-002JD ML-002RD
	H	Within 30
T1	16 or more	16 or more
T2	16 or more	19 or more
W1	□ 50 or ϕ 50 or more	□ 75 or ϕ 75 or more
W2		
M	M6 or more	M8 or more



4-4 Cautions

- In designing the chute, provide rigidity to the chute to prevent separate vibrations.
 - When the stand has to be mounted in a position overhung from the frame, provide strengthening ribs under the linear feeder.
 - If plural linear feeders are mounted on the same base and operated, beating noise will be caused, and parts transfer could be disturbed. In this case, mount each linear feeder on its own base or provide strengthening bolts or ribs.
 - If the chute, the stand or the frame is lacking rigidity, the following could be caused:
 - (1) Parts in transfer flow back in the chute.
 - (2) Parts in transfer jump up and down and stagnate before or behind the chute.
 - (3) Parts transfer is uneven in the chute.
 - (4) Parts in transfer move in harmony with beating.
 - The leaf-spring type linear feeder is provided with spring breakage preventive fittings. Be sure to remove them before using (and fasten the bolts in the original positions).
- ※ When transporting, attach the spring breakage preventive fittings as originally attached.

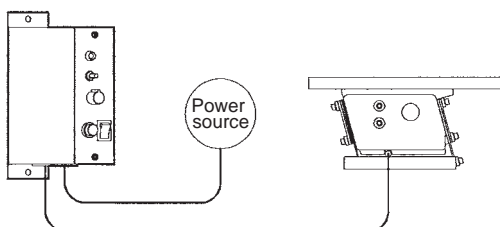


Spring breakage preventive fitting
(2 positions on each side)

5. Wiring and Operation

Make connection to the electromagnetic feeder dedicated controller. Frequency and voltage are adjusted at the leaf spring or the controller to achieve the optimum vibrations.

※ For details, refer to the instruction manual of the controller.rpose.



6. Adjusting the frequency with leaf springs

Procedures for adjusting the vibration (frequency)

- ① Mount the chute. (Mount all parts to be fixed to the chute.)
- ② Fix the linear feeder to the base or the like having sufficient rigidity (so that the vibrating part does not interfere with any peripheral parts).
- ③ Confirm that the linear feeder and other bolts are not loose.
- ④ Turn ON the controller and raise the input to around the middle of the scale.
- ⑤ Check whether the current leaf spring composition is appropriate or not.
 - Loosen one or two adjusting spring mounting bolt(s) on the front or rear side to check the change in vibration.
 - If the vibration is increased by loosening the bolt:
 - Remove the adjusting spring one by one.
 - If the vibration is decreased by loosening the bolt:
 - Add the adjusting spring (s).

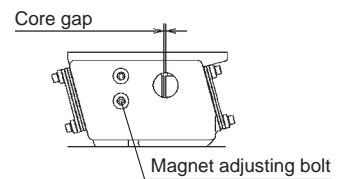
※ Ensure that the bolt has enough thread exposed. Use longer bolts as necessary.

- ⑥ Repeat the step ⑤ for adjustment until the maximum vibration is achieved with the minimum input (at a low scale point of the controller).

※ The composition of the leaf springs should be approximately equivalent for the front and rear sides.

※ Adjusting the leaf springs may cause change in core gap.

Loosen the magnet adjusting bolts (4 locations) and readjust the core gap.



■ Composition of adjusting springs

Vibrator	Location	Front side adjusting spring	Rear side adjusting spring	Spare adjusting spring (included with shipment)
	ML-001JD		2.0tx2	2.0tx1 1.2tx2
ML-002JD		3.0tx2	3.0tx1 2.0tx2	
ML-001RD		2.0tx3	2.0tx3	
ML-002RD		2.0tx3	2.0tx3	

■ Specified core gap

Vibrator	Frequency	50Hz	60Hz
	ML-001JD		0.7mm
ML-002JD		0.8mm	0.7mm
ML-001RD		0.7mm	0.6mm
ML-002RD		0.8mm	0.7mm

7. Warranty

1. The warranty period shall be 12 months from the date of delivery (provided that the feeder is operated 8 hours a day).
2. In any of the following cases, the warranty shall not be applied:
 - a. The feeder was disassembled or retrofitted by the user.
 - b. The feeder was broken apparently by improper usage.
 - c. The feeder was broken by force majeure (e.g., fire, earthquake, flood).
 - d. Expendables (e.g., rubber leg, leaf spring, mounting bolt)
3. Repair with payment shall be fixed through deliberations with us, and the repair charge shall be invoiced by us.

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※ This manual is subject to change without notice for upgrading.