Example of equipment layouts for different types of workpiece

High Frequency Mini Parts Feeder unit for chip LED

Mini Parts Feeder unit for Ultra Thin Material

Mini Parts Feeder unit with Image Processing System
Handling components are transported without bouncing while it is operating by adjusting as lowest vertical amplitude as possible. Very quiet operation noise because of smooth transportation without bouncing on bowl surface. Capable to replace with EA/ER series driving part.

Features
- Elliptical vibration is achieved by controlling optimal phase difference to the horizontal and vertical amplitudes of bowl vibration. Conveyance using elliptical vibration results from controlling friction, and workpieces thus travel as though gliding along the track.
- Dual motion is generated in these parts feeders through feedback of vibration in the horizontal and vertical directions, as shown in the diagram. Sensors detect horizontal and vertical amplitude, thereby allowing separate control.

Applications
- Plastic, easily damaged workpieces for medical and electronic equipment
- For low-noise handling of auto automobile parts or other metal parts
- Precise equipment and other electronic parts that require highly accurate sorting

Part Feeders
- DM/DMS Series
- DMS Series Drive Units
- DM Series Drive Units
- Bowls for DM Series
- Controller for DM Series

Mini Parts Feeders
- ME/HML/HSE Series Mini Parts Feeder
- LFB/HFB Series Linear Feeder
- CH-03VF7C Variable Frequency Digital Controller

CONTROLLERS
- C10 Series Variable Frequency Digital Controller
- Combination Examples

Linear Feeders
- LFR Series Leaf-spring Vbro-isolating type
- LFB Series Leaf-spring Vbro-isolating type
- LFG Series Rubber Mount Vibro-isolating type
- LF Series Direct Mount type
- MF Series Direct Mount type
- LF Series Coll-spring Vibro-isolating type

DUAL MOTION PARTS FEEDERS
DM/DMS Series
DUAL MOTION PARTS FEEDERS
DM Series Drive Units
CONTROLLERS
C10 Series Variable Frequency Digital Controller
Combination Examples
MINI PARTS FEEDERS
ME/HML/HSE Series Mini Parts Feeder
LFB/HFB Series Linear Feeder
CH-03VF7C Variable Frequency Digital Controller
LINEAR FEEDERS
LFR Series Leaf-spring Vibro-isolating type
LFB Series Leaf-spring Vibro-isolating type
LFG Series Rubber Mount Vibro-isolating type
LF Series Direct Mount type
MF Series Direct Mount type
LF Series Coll-spring Vibro-isolating type

Realizing Fast, Quiet, and Smooth volumetric feeding

Friction (transport) controlled through elliptical vibration

Elliptical vibration is achieved by controlling optimal phase difference to the horizontal and vertical amplitudes of bowl vibration. Conveyance using elliptical vibration results from controlling friction, and workpieces thus travel as though gliding along the track.
### Dimensions Chart

#### Straight wall Bowl

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>φC</th>
<th>φD</th>
<th>φE</th>
<th>φF</th>
<th>G</th>
<th>h</th>
<th>M</th>
<th>P</th>
<th>T1</th>
<th>T2</th>
<th>Approx. weight (kg)</th>
<th>Capacity (ℓ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM-30C</td>
<td>180</td>
<td>187.5</td>
<td>25</td>
<td>270</td>
<td>143</td>
<td>158</td>
<td>390</td>
<td>32</td>
<td>99</td>
<td>74</td>
<td>58</td>
<td>38</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>DM-35C</td>
<td>230</td>
<td>218</td>
<td>30</td>
<td>360</td>
<td>214.7</td>
<td>186</td>
<td>340</td>
<td>40</td>
<td>124</td>
<td>92</td>
<td>58</td>
<td>46</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>DM-45C</td>
<td>280</td>
<td>265</td>
<td>40</td>
<td>385</td>
<td>216</td>
<td>232</td>
<td>340</td>
<td>48</td>
<td>158</td>
<td>133</td>
<td>86</td>
<td>60</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>DM-65C</td>
<td>445</td>
<td>405</td>
<td>80</td>
<td>600</td>
<td>363.6</td>
<td>406.4</td>
<td>630</td>
<td>—</td>
<td>322</td>
<td>249.5</td>
<td>340</td>
<td>51</td>
<td>157</td>
<td>116</td>
</tr>
</tbody>
</table>

#### Cascade Bowl

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>φC</th>
<th>φD</th>
<th>φE</th>
<th>φF</th>
<th>G</th>
<th>h</th>
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<th>T2</th>
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<td>40</td>
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<td>249.5</td>
<td>340</td>
<td>51</td>
<td>157</td>
<td>116</td>
</tr>
</tbody>
</table>

### Dimensions

#### Straight wall Bowl

- Track circuits: 2
- φA: 1/4
- φA: 8-M

#### Cascade Bowl

- Track circuits: 1
- φA: 1/2
- φA: 8-M

### Straight wall Bowl Selection Guide

- Workpiece diameter (mm)
- Workpiece length (mm)

### Cascade Bowl Selection Guide

- Workpiece diameter (mm)
- Workpiece length (mm)

### Easy operation!

- **Simple and easy start up**
  Stroke sensor gain adjustment is not required. Just by selecting a drive unit model at the initial setting stage, necessary parameters are set automatically.
- **Easy operation**
  - Selection Dial’ and ‘Setting Encoder’ allow anyone to operate easily.
- **Save more space**
  This controller has the same dimensions as C10-5V/5VF/5EF and the footprint is reduced by 36% from the previous model.

### Features

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  Stroke sensor gain adjustment is not required. Just by selecting a drive unit model at the initial setting stage, necessary parameters are set automatically.
- **Easy operation**
  Selection Dial’ and ‘Setting Encoder’ allow anyone to operate easily.
- **Save more space**
  This controller has the same dimensions as C10-5V/5VF/5EF and the footprint is reduced by 36% from the previous model.
- **Easy wiring**
  Between a driving unit and a controller are connected by connectors.
- **Energy-saving auto-tuning**
  Auto tuning function reduces power consumption by tracking the resonance point and keeping vibration frequency on it continuously.
- **Electronic control gives optimal vibration**
  Electronic control of horizontal/vertical amplitudes and phase difference provides ideal vibration characteristics for any type of workpiece.

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Input power</th>
<th>Control system</th>
</tr>
</thead>
<tbody>
<tr>
<td>C10-DM</td>
<td>AC200-230V/50Hz</td>
<td>PWM system</td>
</tr>
</tbody>
</table>

### Other

- **Noise resistant voltage**
  Over 100V
- **Ambient temperature range**
  0°C to 40°C
- **Ambient humidity range**
  10% ~ 90% (non-condensation)
- **Applicable Space**
  Indoor (Place where no corrosive gas, and dust.)
- **Color of case**
  Japan Paint Industry Association U75-75D
- **Weight**
  2.5 kg

### Compatible equipment

- DM-30C, 38C, 45C, 65C
- DM-45C, 60C, 25C, 30C, 38C, 45C
For handling a wide range of very small, precision workpieces

With high vibration frequencies of 100 to 180 Hz and small amplitude of 0.6 mm, this series is ideal for very small (10 mm or less), high precision or ultra thin workpieces. Can accommodate bowls ranging from 150 to 700 mm in diameter for highly reliable conveyance.

Steady feeding of various sizes of workpieces

With low vibration frequencies of 50 to 90 Hz and a large amplitude of 1.2 mm, this series is suited to workpieces from 10 mm up in size. Bowl diameters from 250 to 1100 mm can be accommodated, to give powerful feeder performance.

Note
*1  With an AC100V power source, use optional C10-TR transformer.

Pictures show counter-clockwise orientation
### Dimensions

#### EA-15B / 20B

- Power cable 2,000
- 4-M12 (bowl attachment screw)
- φA: 165
- φB: 150
- M: 136
- φF: 130

#### EA-25 / 30 / 38 / 45

- Power cable 2,000
- 4-M12 (bowl attachment screw)
- φA: 260
- φB: 250
- M: 216
- φF: 216

#### ER-25B / 30B / 38B / 45B

- Power cable 2,000
- 4-M12 (bowl attachment screw)
- φA: 216
- φB: 200
- M: 252
- φF: 252

#### ER-55B / 65B

- Power cable 2,000
- 4-M12 (bowl attachment screw)
- φA: 216
- φB: 200
- M: 252
- φF: 252

#### ER-75B

- Power cable 2,000
- 4-M12 (bowl attachment screw)
- φA: 216
- φB: 200
- M: 252
- φF: 252

#### Rubber mounts can be adjusted for any desired direction.

#### Dimensions Chart

<table>
<thead>
<tr>
<th>Model</th>
<th>H</th>
<th>φA</th>
<th>φB</th>
<th>M</th>
<th>φF</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA-15B</td>
<td>130-133</td>
<td>185</td>
<td>150</td>
<td>M8</td>
<td>130</td>
</tr>
<tr>
<td>EA-20B</td>
<td>152-155-158</td>
<td>210</td>
<td>200</td>
<td>M10</td>
<td>170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>H</th>
<th>φA</th>
<th>φB</th>
<th>M</th>
<th>φF</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA-25</td>
<td>287-189-198</td>
<td>260</td>
<td>250</td>
<td>M12</td>
<td>216</td>
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<tr>
<td>EA-30</td>
<td>215-220-225</td>
<td>310</td>
<td>300</td>
<td>M12</td>
<td>252</td>
</tr>
<tr>
<td>EA-38</td>
<td>252-256-260</td>
<td>375</td>
<td>375</td>
<td>M16</td>
<td>324</td>
</tr>
<tr>
<td>EA-45</td>
<td>275-280-285</td>
<td>460</td>
<td>450</td>
<td>M16</td>
<td>390</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>H</th>
<th>φA</th>
<th>φB</th>
<th>M</th>
<th>φF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER-25B</td>
<td>194-196-198</td>
<td>260</td>
<td>250</td>
<td>M12</td>
<td>216</td>
</tr>
<tr>
<td>ER-30B</td>
<td>215-220-225</td>
<td>310</td>
<td>300</td>
<td>M12</td>
<td>252</td>
</tr>
<tr>
<td>ER-38B</td>
<td>252-256-260</td>
<td>375</td>
<td>375</td>
<td>M16</td>
<td>324</td>
</tr>
<tr>
<td>ER-45B</td>
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<th>φA</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ER-55B</td>
<td>310-321-323</td>
<td>380</td>
<td>380</td>
<td>M16</td>
<td>460</td>
</tr>
<tr>
<td>ER-65B</td>
<td>310-321-323</td>
<td>380</td>
<td>380</td>
<td>M16</td>
<td>460</td>
</tr>
<tr>
<td>ER-75B</td>
<td>310-321-323</td>
<td>380</td>
<td>380</td>
<td>M16</td>
<td>460</td>
</tr>
</tbody>
</table>

Diagrams show counter-clockwise orientation.

Rubber mounts can be adjusted for any desired direction.
Selection Guide

**Straight Wall Bowls**

- **Dimension Chart**
  - Model: EA/DMS-15
  - Dimensions: 150 x 12 x 73.1 x 89.1 x 22 x 70 x 70 x 18 x 96 x 8.2 x 1.5 x 23 x 2 x 1.1 x 0.1
- **Cascade Bowl**
  - Model: ER-55B
  - Dimensions: 550 x 55 x 388.5 x 318.5 x 309.2 x 78 x 268 x 78 x 221 x 25 x 3 x 28 x 5

Notes:
1. Bowls are made of stainless steel, and standard color is different from the color of pictures above.
2. Bowls available with clockwise or counter-clockwise orientation.
3. Capacity varies according to the type of workpiece. *When supplied unprocessed, neither inside nor outside has been surface-treated.

**Dimensions**

- Track circuits: 2 - 1/4
- Track circuits: 1 - 1/2

**Dimensions Chart**

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**Cascade Bowl**

- Model: EA/DMS-30
  - Dimensions: 300 x 25 x 143 x 150 x 125 x 101 x 101 x 12.2 x 2 x 5.6 x 0.8
- Model: EA/DMS-45
  - Dimensions: 450 x 40 x 282.4 x 209.6 x 190.2 x 116 x 116 x 18.2 x 3 x 15.0 x 3.0

Notes:
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Low-reaction force linear feeder with less floor reaction

A leaf-spring vibro-isolating type linear feeder with reduced floor reaction. We enabled low-reaction force, high accuracy and smooth parts conveyance through our review of the drive unit mechanism in detail.

- **Low floor reaction**
  By reviewing the drive unit mechanism, floor reaction force has been drastically reduced, compared with the existing leaf-spring vibro-isolating type.

- **Leaf spring and Core gap adjustment are unnecessary**
  No troublesome leaf-spring adjustment or even core gap adjustment is necessary, by using the available C9, C10 series variable frequency digital controllers.

- **No vibrational interference**
  Because of the middle frequency vibration range (between Full and Half wave), vibrational interference will not occur, when used in combination with other parts feeders.

- **Uniform chute vibration angle**
  The entire chute vibration angle become uniformly, and has improved the parts conveyance become much more smoothly.

- **Low power consumption**
  Driven near the resonance range enable to gain sufficient stroke in low current.

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>LFBR-350B</th>
<th>LFBR-450B</th>
<th>LFBR-600B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage V</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Rated current A</td>
<td>0.12</td>
<td>0.14</td>
<td>0.28</td>
</tr>
<tr>
<td>Vibration frequency Hz</td>
<td>95~120</td>
<td>75~100</td>
<td>75~90</td>
</tr>
<tr>
<td>Drive unit weight kg</td>
<td>3.5</td>
<td>5.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Leaf-spring angle degree</td>
<td>12</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Max. amplitude mm</td>
<td>0.90</td>
<td>0.65</td>
<td>0.75</td>
</tr>
<tr>
<td>Cross section area of power cable mm²</td>
<td>0.75 x 3 cores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compatible controller</td>
<td>AC200V</td>
<td>C10-1VF / 1VFEF + C10-TR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC150V</td>
<td>C15-1VF / 1VFEF / 1C15/FR</td>
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</tr>
</tbody>
</table>

### Dimensions Chart

<table>
<thead>
<tr>
<th>Parts Feeder Model</th>
<th>Linear Feeder Model</th>
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</thead>
<tbody>
<tr>
<td>LFBR-350B</td>
<td>LFBR-450B</td>
</tr>
<tr>
<td>LFBR-600B</td>
<td>LFBR-350B</td>
</tr>
<tr>
<td>LFBR-450B</td>
<td>LFBR-450B</td>
</tr>
<tr>
<td>LFBR-600B</td>
<td>LFBR-600B</td>
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</tbody>
</table>

### Chute Specifications, Including Basic Position

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length</th>
<th>Max. width</th>
<th>Min. thickness</th>
<th>Weight range (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFBR-350B</td>
<td>350</td>
<td>40</td>
<td>9</td>
<td>0.4~1.2</td>
</tr>
<tr>
<td>LFBR-450B</td>
<td>450</td>
<td>45</td>
<td>12</td>
<td>1.2~2.3</td>
</tr>
<tr>
<td>LFBR-600B</td>
<td>600</td>
<td>55</td>
<td>14</td>
<td>2.3~4.0</td>
</tr>
</tbody>
</table>

### Notes

- All diagrams above show straight wall bowls, however combinations are also possible with track-stepped bowls. (Only bowl diameter and chute exit height vary, all other dimensions are the same for both type of bowls)
- When using the feeder with track-stepped bowls, contact us for more details.
Rubber Mount Vibro-isolating type
LINEAR FEEDERS
LFB Series

Generate uniform vibration without adjustment

Use of a variable frequency controller eliminates the need for leaf-spring and core-gap adjustments. Provides uniform vibration with no adjustments necessary, and is easily installed to link up with other equipment, greatly improving ease of use. Can accommodate heavier chute weights and longer overhangs, to widen scope for applications. The drive unit is slim, and with virtually no vibration interference it can easily be combined with parts feeders, to suit wide-ranging combinations. The three models in this series can be used selectively to handle all sizes and shapes of workpiece.

• Simple, uniform vibration
  Use with heavier chutes and longer overhangs opens a wider range of applications. Consistent, uniform vibration is supplied without the need for adjustment.
• Energy saving type
  Energy consumption cut by half, compared with our earlier models.

Accommodate with variety of chutes for ideal conveyance

The variable frequency controller installed as standard eliminates need for leaf-spring and core-gap adjustments. Easy installation and coordination make it much easier to use, and by adjusting position of the rear-end weight, conveyance irregularities can be quickly and easily eliminated. With minimal lateral movement, there is virtually no vibration interference, making it easy to combine with parts feeders for stabilized delivery. The three models in this series allow a full range of equipment combinations, and cover all shapes and sizes of workpiece. A leaf-spring-vibro-isolating type linear feeder with reduced floor reaction. We enabled low-reaction force, high accuracy and smooth parts conveyance through our review of the drive unit mechanism in detail.

Features

• Applicable longer and wider linear chutes. Because new LFG series have longer body from conventional models, more long and wide chutes can be applicable.
• Stable vibrating conveyance
  It prevents move of body caused by vibration with using original vibration isolation rubber.
• Withstand load improved
  Withstand load improved by applying a long chute
• Almost same size of drive unit compared with conventional size. *Except chute installation tip positions
  Ability improved with same size from conventional size.

Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>LFG-600</th>
<th>LFG-900</th>
<th>LFG-750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. length</td>
<td>260</td>
<td>340</td>
<td>205</td>
</tr>
<tr>
<td>Max. width</td>
<td>190</td>
<td>220</td>
<td>170</td>
</tr>
<tr>
<td>Min. thickness</td>
<td>9</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Weight range</td>
<td>(102)</td>
<td>(132)</td>
<td>(101)</td>
</tr>
<tr>
<td>Feed direction</td>
<td>φ12</td>
<td>φ12</td>
<td>φ10</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>LFG-600</th>
<th>LFG-750</th>
<th>LFG-900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>200</td>
<td>10.0</td>
<td>200</td>
</tr>
<tr>
<td>Rated current</td>
<td>0.2</td>
<td>0.25</td>
<td>0.15</td>
</tr>
<tr>
<td>Vibration frequency</td>
<td>0.5~1.0</td>
<td>0.5~1.0</td>
<td>0.5~1.0</td>
</tr>
<tr>
<td>Drive unit weight</td>
<td>7.4</td>
<td>10.2</td>
<td>7.4</td>
</tr>
<tr>
<td>Leaf-spring angle</td>
<td>15°</td>
<td>15°</td>
<td>15°</td>
</tr>
<tr>
<td>Max. amplitude</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Cross section area of power cable</td>
<td>0.75 x 3 cores</td>
<td>0.75 x 3 cores</td>
<td>0.75 x 3 cores</td>
</tr>
<tr>
<td>Controller</td>
<td>AC100V</td>
<td>AC100V</td>
<td>AC100V</td>
</tr>
</tbody>
</table>

Chute Specifications, Including Basic Position

<table>
<thead>
<tr>
<th>Model</th>
<th>LFB Series chute dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFB-300</td>
<td>L1</td>
</tr>
<tr>
<td>Max. length</td>
<td>86</td>
</tr>
<tr>
<td>Max. width</td>
<td>50</td>
</tr>
<tr>
<td>Min. thickness</td>
<td>6</td>
</tr>
<tr>
<td>Weight range</td>
<td>0.45</td>
</tr>
<tr>
<td>LFB-400</td>
<td>L1</td>
</tr>
<tr>
<td>Max. length</td>
<td>110</td>
</tr>
<tr>
<td>Max. width</td>
<td>50</td>
</tr>
<tr>
<td>Min. thickness</td>
<td>6</td>
</tr>
<tr>
<td>Weight range</td>
<td>0.45</td>
</tr>
<tr>
<td>LFB-550</td>
<td>L1</td>
</tr>
<tr>
<td>Max. length</td>
<td>140</td>
</tr>
<tr>
<td>Max. width</td>
<td>80</td>
</tr>
<tr>
<td>Min. thickness</td>
<td>6</td>
</tr>
<tr>
<td>Weight range</td>
<td>0.45</td>
</tr>
</tbody>
</table>
**Features**

- Handles a wide range of small parts
- Handles a wide range of non-specialized micro-sized, precision parts
- Simple and low cost
- Provides a simple, low-cost solution for small-volume applications.
- Easy, convenient installation
  Compact design allows easy, convenient installation.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (V)</th>
<th>Rated Current (A)</th>
<th>Vibration frequency (Hz)</th>
<th>Weight (kg)</th>
<th>Standard compatible controllers</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF-02B</td>
<td>100/110</td>
<td>0.12</td>
<td>100~180</td>
<td>0.45</td>
<td>C10-1VF/1VFEF</td>
</tr>
<tr>
<td>LF-04B</td>
<td>100/110</td>
<td>0.16</td>
<td>100~180</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

**Chute Specifications**

<table>
<thead>
<tr>
<th>Compatible linear feeder</th>
<th>Max. length (mm)</th>
<th>Max. width (mm)</th>
<th>Max. weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF-02B</td>
<td>180</td>
<td>30</td>
<td>0.2</td>
</tr>
<tr>
<td>LF-04B</td>
<td>240</td>
<td>30</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**Features**

- Compact yet powerful
- Small unit size with half wave operation capable of longer distance conveyance.
- Speedy delivery, and versatile, longer distance conveyance
  High vibration frequency and amplitude give speedy delivery, and can meet a range of longer distance conveyance requirements.
- Easy, convenient installation
  Compact design takes up little space and allows easy, convenient installation.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage (V)</th>
<th>Current (A)</th>
<th>Vibration (Hz)</th>
<th>Weight (kg)</th>
<th>Standard compatible controllers</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF-04C</td>
<td>100/110</td>
<td>0.12</td>
<td>50~90</td>
<td>0.6</td>
<td>C10-1VF/1VFEF</td>
</tr>
<tr>
<td>MF-15C</td>
<td>100/110</td>
<td>0.2</td>
<td>50~90</td>
<td>1.8</td>
<td></td>
</tr>
</tbody>
</table>

**Chute Specifications**

<table>
<thead>
<tr>
<th>Compatible linear feeder</th>
<th>Max. length (mm)</th>
<th>Max. width (mm)</th>
<th>Max. weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF-04C</td>
<td>180</td>
<td>30</td>
<td>0.2</td>
</tr>
<tr>
<td>MF-15C</td>
<td>450</td>
<td>45</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*Note: Chute must straddle drive unit to distribute weight.
For stable feeding of large volumes of large workpieces

Large-capacity electromagnetic drive unit has strong coil springs positioned at front and rear, and drive controlled by amplitude angle adjustment, to give speedy, steady, straight-line delivery of large-sized workpieces. The low-floored half-wave drive provides uniform amplitude and vibration frequency to eliminate irregularities during high-volume conveyance of large workpieces.

• Large size feeder provides smooth workpiece delivery
  Large, vibro-isolating feeder that keeps the flow of workpieces smooth through adjustment of leaf-spring angle.

• Fast, stable delivery of high volumes of large workpieces
  Extremely high conveyance efficiency allows high-volume delivery of large workpieces.

• Dial control for free adjustment of conveyance speed
  By changing the vibration frequency and amplitude with the dial control, delivery speed can be freely adjusted.

<table>
<thead>
<tr>
<th>Model</th>
<th>Leaf-spring adjustment angle</th>
<th>Rated voltage (V)</th>
<th>Rated current (A)</th>
<th>Vibration frequency (Hz)</th>
<th>Weight (kg)</th>
<th>Cross section area of power cable (mm²)</th>
<th>Standard compatible controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF-30</td>
<td>0°~20°</td>
<td>10°~30</td>
<td>200/220</td>
<td>1.5</td>
<td>50~90</td>
<td>1.25 x 3 cone</td>
<td>C10-3VF/3VFEEF</td>
</tr>
<tr>
<td>LF-40</td>
<td>0°~20°</td>
<td>10°~30</td>
<td>200/220</td>
<td>1.8</td>
<td>50~90</td>
<td>2.0 x 3 cone</td>
<td>C10-3VF/3VFEEF</td>
</tr>
</tbody>
</table>

Note:
- Hopper material is stainless steel only.
- Vibration frequency: 50~70Hz; rated voltage: 200/220V; compatible controller: C10-1VFEF. (100/110V model is not standard type.)
- Paint color: Munsell N7.5
- For 15- and 30-liter hoppers, hopper heights becomes 5 levels with 50mm intervals; for 60- and 100-liter hoppers, hopper heights becomes 8 levels with 50mm intervals.
- Heavy-duty 60- and 100-liter hoppers (permissible total work weight 112kg) are available as non-standard models.
- Manufactured to order.
Digital control operated in ‘Analog’ way

A completely new type of digital controller that can be used with the full line-up of feeders, from high frequency mini parts feeders to small electromagnetic feeders and large size models. With ‘analog-style’ operation it can be adjusted very swiftly.

With an auto-tuning function that eliminates the need for frequency adjustment, and convenient digital settings and display, drive units can be operated to their full potential.

With an auto-tuning function that eliminates the need for frequency adjustment, it can be adjusted very swiftly.

From high frequency mini parts feeders to small electromagnetic feeders and large size models.

A completely new type of digital controller that can be used with the full line-up of feeders, settings easy to manage.

- Auto-tuning function eliminates leaf-spring adjustment (C10-1VF, 3VF, 5VF, VFEF)
- Adjustment can be set digitally, and an amplitude sensor allows drive at constant amplitude suited to the workpieces under conveyance.
- Easy-to-use panel design
  The frequency, voltage, soft start, on delay and off delay settings needed for parts feeder adjustment are located on a control panel. A rotary encoder allows ‘analog-style’ setting input to be changed to digital values.
- Many external control functions
  Choices of four speeds can be made by external signal.
- CE Marking conformed product
  Required to be installed inside the control box treated also possible.
- Key lock function
  To avoid arbitrary setting change by many workers, key lock function is available.
- Capable to switching NPN and PNP
  No problem with usage in abroad with easy switching.

Dimensions

<table>
<thead>
<tr>
<th>C10-SVF/SVF</th>
<th>C10-1VFEF/1VF</th>
<th>C10-3VFEF/3VF</th>
<th>C10-5VFEF/5VF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
</tr>
<tr>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
</tr>
<tr>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
</tr>
<tr>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
<td>Width: 194 mm</td>
<td>Height: 69 mm</td>
</tr>
</tbody>
</table>

C10 Series Parts & Functions

- ALARM light
  Lights when -in constant amplitude or auto-tuning mode, output voltage reaches saturation and cannot output. -Error occurs
- RUN light
  Lights while operating
- RUN/STOP button
  Operation can be stopped or started manually
- Data display lights
  Identify settings on data display screen. LED light indicates display mode:
  - Amplitude, voltage, percentage display
  - Frequency display
  - Soft start time display:
    - On delay (soft start time display): 0.2~4.0 sec
    - Frequency display: 0~190Hz
- Data display dial
  Switches data shown on data display screen

Specifications

- Model: C10-3VF, C10-5VF, C10-1VFEF, C10-3VFEF, C10-5VFEF
- Input power source
  - Control system: IP2X system
  - Voltage: 0~190V (for AC 200V input) 0~95V (for AC 100V input)
- Vibration frequency
  - Half wave: 45~90Hz, Full wave: 90~180Hz
  - Intermediate wave: 50~120Hz, Frequency: 50~180Hz
- Max. current
  - 5A
- Operating modes
  - Constant amplitude mode
  - Frequency
  - Speed control
- Additional features
  - On/Off delay
  - Start/Stop control by external signal
- Output signal
  - Output signal synchronized to parts feeder operation
- Synchronized power output
  - Power output synchronized to parts feeder operation
- Noise tolerant voltage
  - Above 1000VDC
- Ambient temperature
  - 0~40°C
- Ambient humidity
  - 10~90%(no condensation)
- Weight
  - 1.2kg
- Case color
  - U75-70D (Japan Paint Industry Association)
- Compatible equipment
  - ER-55B, ER-55B, ER-55B, ER-55B
  - EA-250, EA-250, EA-250, EA-250
  - LF-55, LF-55, LF-55, LF-55

Note: Specifications above are applied for later than ver.4.
**For source voltage AC200/220V**

### Single Drive

- **Parts Feeder Controller** C10-5VF/3VF/1VF
- **Linear Feeder Controller** C10-1VF

### Twin Drive

- **Linear Feeder Controller** C10-1VF
- **Parts Feeder Controller** C10-5VFEF/3VFEF/1VFEF

**Optional Units**

- C10-TR
- C10-3VFEF/1VFEF
- C10-3VF/1VF
- C10-1VF

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**For source voltage AC100/110V**

### Single Drive

- **Parts Feeder Controller** C10-5VF/3VF/1VF
- **Linear Feeder Controller** C10-1VF

### Twin Drive

- **Linear Feeder Controller** C10-1VF
- **Parts Feeder Controller** C10-5VFEF/3VFEF/1VFEF

**Optional Units**

- C10-TR
- C10-3VFEF/1VFEF
- C10-3VF/1VF
- C10-1VF

**Unit Connection Examples**

- Power source AC200/220V
- Hopper
- Controller for hopper
- Level switch
- Vibrator or Feeder
- Sensor amp
- Overflow sensor
- Level sensor
- Amplitude sensor (Corresponding with only VFEF)
High-speed, high-precision handling of micro-sized parts and electronic chips. Compact design and versatility to handle a wide range of small parts.

### Features
- **Smooth, reliable, orderly presentation of tiny, thin parts**
  - High vibration frequency and small amplitude allow for the orderly delivery of micro-sized, thin and complex-shaped parts, which is hard to achieve with conventional feeder vibration characteristics.

- **Highly accurate sorting and conveyance**
  - Bouncing of workpieces during conveyance is reduced, and even slight variations in shape and weight distribution of small parts can be detected for accurate sorting.

- **No problems at connecting points**
  - With little vibration displacement, there is no damage to workpieces caused by gaps between bowl and chute or chute and non-vibrating parts.

- **High vibration frequency gives high speed delivery**
  - High vibration frequency conveys workpieces smoothly, speedily and with no resistance, to supply a stable quantity with little variation, for a significant improvement in efficiency.

- **No readjustment of leaf-spring necessary**
  - Once set, leaf-spring requires no further adjustment. With feedback control for amplitude, changes over time in voltage or load do not cause fluctuations in vibration.

- **Compact design, with a height adjustment function**
  - Down-sized design for maximum space-saving, with a vibro-isolating base. Bowl height can be adjusted within 3 mm range to simplify positioning.

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (V)</th>
<th>Rated Current (A)</th>
<th>Vibration frequency (Hz)</th>
<th>Weight (kg)</th>
<th>Loaded weight (kg)</th>
<th>Max. bowl diameter (mm)</th>
<th>Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME-08C</td>
<td>0.30</td>
<td>100〜180</td>
<td>2.5</td>
<td>0.6</td>
<td>φ140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME-14C/HME-14C</td>
<td>0.30</td>
<td>200〜360</td>
<td>7.8</td>
<td>2.0</td>
<td>φ230</td>
<td></td>
<td>C10-1VF</td>
</tr>
<tr>
<td>HME-08C</td>
<td>0.30</td>
<td>200〜360</td>
<td>7.8</td>
<td>2.0</td>
<td>φ230</td>
<td></td>
<td>C9-03VFTC</td>
</tr>
<tr>
<td>HME-14C</td>
<td>0.30</td>
<td>200〜360</td>
<td>9.3</td>
<td>2.0</td>
<td>φ230</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- Loaded weight is permissible weight of bowl and work.
- Loaded weight is permissible weight of bowl and work.
MINI PARTS FEEDERS / Linear Feeder

**LFB/HLFB Series**

Ideal vibration characteristics to reduce bouncing

A high-precision electromagnetic drive unit ideal for use with chutes for precision parts, to meet present-day requirements for rapid processing of micro-sized workpieces. Vibro-isolating leaf-springs are installed front and rear to absorb rebound, and vibration characteristics can be adjusted to match the workpiece. Giving uniform vibration the whole length of the trough, this series provides smooth delivery of the most delicate, easily damaged parts with minimal bouncing.

### Features

- **Leaf-spring vibro-isolating type ideal for precision parts**
  This leaf-spring vibro-isolating series is ideal for micro-sized, flat and precision parts.

- **Minimizes bouncing**
  Adjustable vibration characteristics give increased delivery efficiency while minimizing workpiece bouncing.

- **Compact and high precision**
  Compact unit accommodates demands for rapid processing, providing high precision conveyance of micro-sized and precision parts.

- **Reduce Vibration Reaction Force to 1/3**
  By gaining number of tapped hole for chute installation on movable base from 4 to 14, it is suitable for many working conditions.

- **14 tapped holes for chute installation** (HLFB-04C)
  By gaining number of tapped hole for chute installation on movable base from 4 to 14, it is suitable for many working conditions.

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (V)</th>
<th>Rated Current (A)</th>
<th>Vibration frequency (Hz)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFB-02</td>
<td>100/110</td>
<td>0.12</td>
<td>100~180</td>
<td>1.2</td>
</tr>
<tr>
<td>LFB-04</td>
<td>100/110</td>
<td>0.18</td>
<td>100~180</td>
<td>2.7</td>
</tr>
<tr>
<td>HLFB-02</td>
<td>100/110</td>
<td>0.25</td>
<td>220~380</td>
<td>1.2</td>
</tr>
<tr>
<td>HLFB-04C</td>
<td>100/110</td>
<td>0.30</td>
<td>220~380</td>
<td>2.7</td>
</tr>
</tbody>
</table>

### Dimensions Chart

<table>
<thead>
<tr>
<th>Chute Specifications</th>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFB-02/04 / HLFB-02</td>
<td>175 x 55</td>
</tr>
</tbody>
</table>

### Chute Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. length</th>
<th>Max. width</th>
<th>Max. weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFB-02</td>
<td>20</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>LFB-04</td>
<td>30</td>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>

### Features

- **Auto-tuning function eliminates frequency adjustments**
  This digital equipment has an advanced vibration frequency auto-tuning function. It automatically tracks resonance point changes not only from variations in workpiece input volume, but also from mechanical changes over time, to deliver optimal vibration at all times. No leaf-spring adjustment or even frequency adjustment is necessary, thereby boosting operating efficiency and saving energy.

- **Digital setting and display makes settings easy to manage**
  Amplitude, drive frequency, output voltage notches are all set and displayed digitally, for easy management.

- **Constant amplitude control matched to workpieces**
  Amplitude can be set digitally, and an amplitude sensor keeps drive at a uniform amplitude suited to the workpieces under conveyance.

- **One controller for all**
  One controller can control both parts feeders or linear feeders.

- **Computerized control delivers optimal drive**
  ideal for applications requiring frequent installation of chutes with micro-sized parts.

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Vibration frequency</th>
<th>Max. current</th>
</tr>
</thead>
<tbody>
<tr>
<td>C9-03VFTC</td>
<td>AC100~230V 50/60Hz</td>
<td>0.6A</td>
<td></td>
</tr>
</tbody>
</table>

### Operating modes

- **Auto-tuning mode**
  Automatically senses particular vibration frequencies of parts feeder or linear feeder and controls drive at that frequency.

- **Constant amplitude control**
  Constant amplitude control based on frequency setting.

### Additional features

- **Sensor power source**
  DC12V, Max. 80mA for 3 phase socket plug.

- **Ambient temperature**
  0~40°C

- **Case color**
  Gray (Japan Paint Manufacturer association S-2-1006)

### Others

- **Weight**
  1.6 kg

### Compatible Parts feeders

- **ME-08C, ME-14C, HME-08C, HME-14C, HSE14**

### Our compatible Linear feeders

- **LFB-02/04, HLFB-02/04C**