Jeffrey electromagnetic feeders operate through controlled, high-frequency vibration. This is accomplished with electrical pulses and a machine that is tuned to a mechanical resonant frequency that is higher than the electrical frequency of the power supply (sub-resonant tuning).

Electrical pulses in the coils create a series of magnetic pulls that attract the armature and the deck. Restoring forces in the bar oppose each pull, causing the armature to spring away from the magnet. At an electrical frequency of 60 cycles per second, the armature and the deck operate at 3,600 times per minute (the vibration rate of the feeder). Material is moved by a series of “jumps” that correspond to the frequency of the vibrations. The distance the bars move can be changed by varying the voltage to the coils. With this variation in the length of each “jump”, or vibration amplitude, the conveying speed of the material on the feeder deck changes, resulting in a capacity rate that fits your requirements.

Feeder Control
The electrical controllers for our electromagnetic feeders are designed around half-wave rectification of AC power. The efficient switching mechanism of silicon-controlled rectifiers produces DC impulses without wasteful resistor or rheostat energy loss. Plus, it provides a full 0 – 100% range of control. All standard controllers comply with NEMA 12 and CSA design standards, and a variety of custom controllers are available (consult our factory).

The control cabinet has a 115-volt push button for the magnetic contactor, which is in accordance with current NEC requirements. A separate control transformer is provided.

Manual Control
Varies the flow from 0 – 100% with a stepless potentiometer. Install the control cabinet at a local or remote location.

Process Variable Control
All process variable input transmittable in small current signals 4 – 20 mA can automatically increase or decrease material flow.

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www.jeffreycorp.com

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CATALOG EF1800
Highest Capacity For Deck Size In The Industry, Features Easy Access & Rebuildable Power Unit

**Easy Access & Rebuildable Power Unit**

Highest Capacity For Deck Size In The Industry, allowing easy access to the power unit. Removable side and rear covers simplify maintenance and lowers the total cost of ownership. Rebuildable power unit assembly for its deck size than any competitor. Feeder design feeds more material even with varying line power fluctuation. High-frequency vibration affords high efficiency, continued feeder operation. Controls are infinitely adjustable over a 0 to 100% operating range. Debris sub-resonance tuning assures parts, as well as assures trouble-free service in all types of environments. 

**No Moving Parts**
The feeder’s electromagnetic operation has no moving parts to the drive mechanism. This eliminates wear and the cost to replace the parts, as well as assures trouble-free service in all types of environments. 

**Sub-Resonant Tuning**
In the deck liner design, sub-resonance tuning assures efficient, continued feeder operation. Controls are infinitely adjustable over a 0 to 100% operating range, using solid-state circuits.

**High-Frequency Vibration**
With an appropriate deck slope, high-frequency vibration assists conveying speeds as high as 85 ft/min. This vibration is maintained, preventing feeder lining power fluctuation.

### Dimensions & Specifications

**Power Unit Underneath**

<table>
<thead>
<tr>
<th>Deck Size (Width X Length)</th>
<th>Standard Capacity (Weight X Length)</th>
<th>Maximum Capacity (Weight X Length)</th>
<th>Available Capacity (Weight X Length)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 X 60</td>
<td>1200</td>
<td>1350</td>
<td>EF6</td>
</tr>
<tr>
<td>42 X 60</td>
<td>850</td>
<td>1020</td>
<td>EF7</td>
</tr>
<tr>
<td>48 X 72</td>
<td>1000</td>
<td>1120</td>
<td>EF8</td>
</tr>
<tr>
<td>48 X 84</td>
<td>600</td>
<td>660</td>
<td>EF9</td>
</tr>
</tbody>
</table>

**Design Flexibility**
Our experience and longevity in the market have resulted in a variety of design options. 

- **Open**

- **Circular**

- **Feeder Housing**

- **Controller**

- **Controller**

### Field Service
Jaffery provides field service personnel for commissioning, problem solving, and maintenance training.

### Recommended Hopper Design
Proper hopper design plays an important role in obtaining the rated capacity of a feeder. Proper transition design is also critical to controlling the material “headload” to the feeder and avoiding possible resulting damage to the feeder.

#### Recommended Hopper Configuration
The hopper should be at a slope of approximately 60˚ to ensure flow of material from the rear of the hopper. The slope of the front wall should be 5˚ to 10˚ less than that of the rear wall (50˚ to 55˚).

#### Hopper Dimensions
**Generally speaking, the gate height (H) should be a minimum of two to three times the largest particle size to avoid excess bounce of material in the hopper.**

- **Feeder Length**
  - A safety factor of 0˚ – 12˚ (E) of extra length is recommended to prevent the possibility of free flow.

**Skirting Installation** Skirts should be tapered slightly away from the bottom of the feeder deck and have 1/4” clearance from each sidewall of the feeder.

### Recommended Hopper Design
Proper hopper design plays an important role in obtaining the rated capacity of a feeder. Proper transition design is also critical to controlling the material “headload” to the feeder and avoiding possible resulting damage to the feeder. The hopper width dimension (T) should be approximately 1/3 the gate height (H), otherwise the material flow patterns could be distorted and feed rate could be significantly reduced. In addition, it could also create an excessive “headload” of material to the hopper that could overpower the ability of the feeder to convey material and cause feeder damage. The hopper width dimension should allow for approximately a 2 - 3˚ clearance on each side. The hopper width should also be a minimum of 2.5 times the largest particle size to random size material and five times the largest particle size for near-sizes particles.

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