One of the world's highest quality ergonomic material handling equipment
Mechanical Lift (Ball Screw, Electric Type)

ML
Ultra-low Platform
Mini Type

Compact, space-saving, and thin type which can be placed anywhere.

MAJOR FEATURES OF THE ML SERIES
- 3 in ultra-low platform (no external units)
- SPN motor
- Vector control
- Dry cylinder
- 110 V single-phase power supply
- Built-in unit
- Maximum starting frequency 10 times per minute
- Maximum usage frequency 30 times per hour
- Maximum/minimum limit switch
- Foot switch with LED Cord: 78.7 in
- Power cord: 118.1 in
- Bellows type full cover (with "U" at the end)

Load capacity: 220 / 330 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load capacity</th>
<th>Table dimensions (W x L)</th>
<th>Stroke (ST)</th>
<th>Table height (W x H1)</th>
<th>Duration of lifting and lowering (in seconds)</th>
<th>Motor output (W)</th>
<th>Deadweight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML-100-47V</td>
<td>220 lb</td>
<td>15.7 x 28.3&quot;</td>
<td>19.6&quot;</td>
<td>3.2&quot; to 22.8&quot;</td>
<td>10</td>
<td>70</td>
<td>79 lbs</td>
</tr>
<tr>
<td>ML-100-58V</td>
<td>330 lb</td>
<td>15.7 x 19.7&quot;</td>
<td>13.7&quot;</td>
<td>3.2&quot; to 16.9&quot;</td>
<td></td>
<td>70</td>
<td>80 lbs</td>
</tr>
<tr>
<td>ML-150-45V</td>
<td>220 lb</td>
<td>20.5 x 24.8&quot;</td>
<td>19.6&quot;</td>
<td>3.2&quot; to 22.8&quot;</td>
<td>10</td>
<td>70</td>
<td>93 lbs</td>
</tr>
<tr>
<td>ML-150-56V</td>
<td>330 lb</td>
<td>20.5 x 24.8&quot;</td>
<td>13.7&quot;</td>
<td>3.2&quot; to 16.9&quot;</td>
<td></td>
<td>70</td>
<td>80 lbs</td>
</tr>
</tbody>
</table>

* Bellows cannot be installed in a standard type.

Note: After the lifters are powered up, the lifters remember the maximum and minimum position based on the first signals of the limit switch. On the succeeding operation, the lifter will stop at about 0.2 in lower than the maximum position during lifting and about 0.1 in higher than the minimum position when lowering.

Note: When loading from the side of the table, please do so in the following manner: from side 1, load less than or equal to 1/2 of the loading capacity (see table), and from side 2, load less than or equal to 1/4 of the loading capacity (see table).

Note: Do not carry out welding operations on top of the table.
# Mechanical Lift (Ball Screw, Electric Type)

## MLM

### Mini Type

Compact, space-saving, and thin type which can be placed anywhere.

### Major Features of the MLM Series
- 3.1 in ultra-low platform (no external units)
- SPM motor
- Vector control
- Dry cylinder
- 110 V single-phase power supply
- Built-in unit
- Maximum starting frequency 10 times per minute
- Maximum usage frequency 30 times per hour
- Maximum/minimum limit switch
- Foot switch with LED Cord: 78.7 ln
- Power cord: 118.1 ln
- Bellows type full cover (with ‘J’ at the end)

### Load Capacity: 220 / 551 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load Capacity (lb)</th>
<th>Table Dimensions (N x L)</th>
<th>Stroke (ST)</th>
<th>Table Height (H in H')</th>
<th>Duration of Lifting and Lowering (in seconds)</th>
<th>Motor Output (Watts)</th>
<th>Deadweight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLM-100-40V-12</td>
<td>220</td>
<td>15.7”x26.6”</td>
<td>16.8”</td>
<td>5.2” to 22.0”</td>
<td>10</td>
<td>70</td>
<td>71</td>
</tr>
<tr>
<td>MLM-100-50V-12</td>
<td>29.5”x33.5”</td>
<td>19.5”</td>
<td>6.0” to 25.5”</td>
<td>22</td>
<td>70</td>
<td>93</td>
<td>99</td>
</tr>
<tr>
<td>MLM-100-45V-12</td>
<td>551</td>
<td>15.7”x26.6”</td>
<td>33.4”</td>
<td>7.9” to 41.3”</td>
<td>23</td>
<td>70</td>
<td>97</td>
</tr>
<tr>
<td>MLM-100-55V-12</td>
<td>220</td>
<td>19.7”x25.6”</td>
<td>33.4”</td>
<td>7.9” to 41.3”</td>
<td>23</td>
<td>70</td>
<td>110</td>
</tr>
<tr>
<td>MLM-100-55VJ-12</td>
<td>220</td>
<td>19.5”x33.5”</td>
<td>33.4”</td>
<td>7.9” to 41.3”</td>
<td>23</td>
<td>70</td>
<td>130</td>
</tr>
</tbody>
</table>

* Bellows cannot be installed in a standard type.

Note: After the lift powers up, the lift remembers the maximum and minimum position based on the first signals of the limit switch. On the succeeding operation, the lift will stop at about 0.2 in lower than the maximum position during lifting and about 6.1 in higher than the minimum position when lowering.

Note: When loading from the side of the table, please do so in the following manner: from side @ load less than or equal to 1/2 of the loading capacity (see table), and from side @ load less than or equal to 1/4 of the loading capacity (see table).

Note: Do not carry out welding operations on top of the table.
Mechanical Lift (Ball Screw, Electric Type)

MLSB
Ultra-low & Slim Type

It's possible to directly place a hand-pushed cart or a flat cart currently in use on top of the lift. Work can be more efficient since there is no need to pile up items over again on the table lift.

Major Features of the MLSB Series
- Ultra-low platform
- Stand-alone unit
- Foot switch cord: 76.7in.
- High pressure hose: 78.7in.
- Power cord: 157.9in. (E-type)
- Maximum usage frequency: 30 times per hour

Load capacity: 220 lb

<table>
<thead>
<tr>
<th>Electric screw type</th>
<th>Model</th>
<th>Load capacity</th>
<th>Table dimensions (W x L)</th>
<th>Stroke (ST)</th>
<th>Table height (H i to III)</th>
<th>Lifting duration in seconds</th>
<th>Lowering duration in seconds</th>
<th>Output Watts</th>
<th>Deadweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>220 lb</td>
<td>MLSB-100-2007</td>
<td>7.9&quot;x27.6&quot;</td>
<td>19.6&quot;</td>
<td>3.2&quot; to 22.8&quot;</td>
<td>12</td>
<td>12</td>
<td>70</td>
<td>62 lb</td>
<td></td>
</tr>
<tr>
<td>220 lb</td>
<td>MLSB-100-2507</td>
<td>9.8&quot;x27.6&quot;</td>
<td>11.8&quot;x27.6&quot;</td>
<td>25.5&quot;</td>
<td>3.2&quot; to 29.7&quot;</td>
<td>15</td>
<td>15</td>
<td>66 lb</td>
<td></td>
</tr>
<tr>
<td>220 lb</td>
<td>MLSB-100-3007</td>
<td>7.9&quot;x35.4&quot;</td>
<td>7.9&quot;x35.4&quot;</td>
<td>25.5&quot;</td>
<td>3.2&quot; to 29.7&quot;</td>
<td>15</td>
<td>15</td>
<td>71 lb</td>
<td></td>
</tr>
<tr>
<td>220 lb</td>
<td>MLSB-100-2009</td>
<td>9.8&quot;x35.4&quot;</td>
<td>9.8&quot;x35.4&quot;</td>
<td>25.5&quot;</td>
<td>3.2&quot; to 29.7&quot;</td>
<td>15</td>
<td>15</td>
<td>75 lb</td>
<td></td>
</tr>
<tr>
<td>220 lb</td>
<td>MLSB-100-2509</td>
<td>11.8&quot;x35.4&quot;</td>
<td>11.8&quot;x35.4&quot;</td>
<td>25.5&quot;</td>
<td>3.2&quot; to 29.7&quot;</td>
<td>15</td>
<td>15</td>
<td>79 lb</td>
<td></td>
</tr>
</tbody>
</table>

*When the table is raised from the lowest position to the highest position, the table shifts up to 1.1in. in the longitudinal direction (direction of L).

Note: After the lift powers up, the lift maintains the maximum and minimum position based on the first signals of the limit switch. On the subsequent operation, the lift will stop at about 0.2in. lower than the maximum position during lifting and about 0.1in. higher than the minimum position when lowering.
Mechanical Lift (Ball Screw, Electric Type)

MLP

Mini Type
Using IPM Motor

Long Service Life and High Output by Adopting the IPM Motor

MAJOR FEATURES OF THE MLP SERIES

- IPM motor
- Vector control
- Dry ball screw cylinder
- No oil leaks
- No hydraulic drift
- 110 V single-phase power supply
- Built-in unit
- Maximum starting frequency 10 times per minute
- Maximum/minumum limit switch
- Foot switch with LED cont: 78.7 in
- Power cord: 118.1 in
- Enhanced rigidity with cam-type cylinder head
- Enhanced durability through strengthening the axis
- Bellows type full cover (with "U" at the end)

Load capacity: 551 / 1102 / 2204 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load capacity</th>
<th>Table dimensions (W x D x H)</th>
<th>Stroke (ST)</th>
<th>Table height (H to R1)</th>
<th>Lifting duration in seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLP-250-47</td>
<td>551 lb</td>
<td>15.7&quot; x 20.3&quot;</td>
<td>16.2&quot;</td>
<td>6.2&quot; to 22.4&quot;</td>
<td>Approx. 20</td>
</tr>
<tr>
<td>MLP-250-58</td>
<td>551 lb</td>
<td>20.5&quot; x 33.5&quot;</td>
<td>23.5&quot;</td>
<td>4.0&quot; to 27.5&quot;</td>
<td>Approx. 20</td>
</tr>
<tr>
<td>MLP-250-69W-12</td>
<td>551 lb</td>
<td>23.5&quot; x 34.5&quot;</td>
<td>4.0&quot; to 32.2&quot;</td>
<td>Approx. 18</td>
<td></td>
</tr>
<tr>
<td>MLP-250-69V-9-12</td>
<td>551 lb</td>
<td>31.5&quot; x 37.3&quot;</td>
<td>4.0&quot; to 32.2&quot;</td>
<td>Approx. 14</td>
<td></td>
</tr>
<tr>
<td>MLP-250-810-12</td>
<td>1162 lb</td>
<td>23.6&quot; x 41.3&quot;</td>
<td>28.2&quot;</td>
<td>4.5&quot; to 33.6&quot;</td>
<td>Approx. 15</td>
</tr>
<tr>
<td>MLP-250-612-12</td>
<td>1162 lb</td>
<td>25.6&quot; x 42.7&quot;</td>
<td>32.1&quot;</td>
<td>4.5&quot; to 37.5&quot;</td>
<td>Approx. 15</td>
</tr>
<tr>
<td>MLP-250-812-12</td>
<td>1162 lb</td>
<td>31.5&quot; x 41.3&quot;</td>
<td>28.2&quot;</td>
<td>4.5&quot; to 33.6&quot;</td>
<td>Approx. 15</td>
</tr>
<tr>
<td>MLP-1000-612-12</td>
<td>2204 lb</td>
<td>25.6&quot; x 41.3&quot;</td>
<td>28.2&quot;</td>
<td>4.5&quot; to 33.6&quot;</td>
<td>Approx. 15</td>
</tr>
</tbody>
</table>

* Bellows cannot be installed in a standard type.

Note After the lifter powers up, the lifter remembers the maximum and minimum position based on the first signals of the limit switch. On the succeeding operation, the lifter will stop at about 0.2 in lower than the maximum position during lifting and about 0.1 in higher than the minimum position when lowering.

Note When loading from the sides of the table, please do so in the following manner: from side load less than or equal to 1/2 of the loading capacity (see table), and from side load less than or equal to 1/4 of the loading capacity (see table).

Note Few substitutions will occur.

Note The unit cannot be used outdoors, or in places that are dusty, with high temperature and humidity, or in temperature (90°F or below).
Mechanical Lift (Ball Screw, Electric Type)

MLP
Low & Mini Type
Using IPM Motor

Compact, space-saving, and thin type which can be placed anywhere.

MAJOR FEATURES OF THE MLP SERIES

- 3.3in. low platform (no external units)
- IPM motor
- Vector control
- Dry ball screw cylinder
- No oil leaks
- No hydraulic drift
- 110 V single-phase power supply
- Built-in unit
- Maximum starting frequency 10 times per minute
- Maximum/minimum limit switch
- Foot switch with LED Cord: 78.7 in.
- Power cord: 118.1 in.
- Enhanced rigidity with cam-type cylinder head
- Enhanced durability through strengthening the axis
- Bellows type full cover with "J" at the end
- Quiet operation through the use of planetary gears in the decelerator (MLP-100-XX)
- With built-in control board BOX (excluding MLP-100-XX)

Load capacity: 220 / 330 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load capacity</th>
<th>Table dimensions (W × L)</th>
<th>Stroke (ST)</th>
<th>Table height (H to H1)</th>
<th>Lifting duration (in seconds)</th>
<th>Lowering duration (in seconds)</th>
<th>Usage frequency</th>
<th>Deadweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLP-100-47</td>
<td>220 lb</td>
<td>15.7&quot; × 28.3&quot;</td>
<td>19.4&quot;</td>
<td>3.4&quot; to 22.8&quot;</td>
<td>Approx. 10</td>
<td>Approx. 10</td>
<td>30 times/hour</td>
<td>66 lb</td>
</tr>
<tr>
<td>MLP-100-58</td>
<td>330 lb</td>
<td>20.5&quot; × 33.5&quot;</td>
<td>13.5&quot;</td>
<td>3.4&quot; to 16.9&quot;</td>
<td></td>
<td></td>
<td></td>
<td>68 lb</td>
</tr>
<tr>
<td>MLP-150-45</td>
<td>330 lb</td>
<td>15.7&quot; × 19.7&quot;</td>
<td>20.5&quot; × 24.8&quot;</td>
<td>3.4&quot; to 16.9&quot;</td>
<td>Approx. 10</td>
<td>Approx. 10</td>
<td>30 times/hour</td>
<td>77 lb</td>
</tr>
<tr>
<td>MLP-150-56</td>
<td>330 lb</td>
<td>20.5&quot; × 33.5&quot;</td>
<td>19.4&quot;</td>
<td>3.4&quot; to 22.8&quot;</td>
<td></td>
<td></td>
<td></td>
<td>104 lb</td>
</tr>
<tr>
<td>BeLEVEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLP-100-58J</td>
<td>220 lb</td>
<td>20.5&quot; × 33.5&quot;</td>
<td>19.4&quot;</td>
<td>3.4&quot; to 22.8&quot;</td>
<td>Approx. 10</td>
<td>Approx. 10</td>
<td>30 times/hour</td>
<td>66 lb</td>
</tr>
<tr>
<td>MLP-150-56J</td>
<td>330 lb</td>
<td>20.5&quot; × 24.8&quot;</td>
<td>13.5&quot;</td>
<td>3.4&quot; to 16.9&quot;</td>
<td>Approx. 10</td>
<td>Approx. 10</td>
<td>30 times/hour</td>
<td>86 lb</td>
</tr>
</tbody>
</table>

* Bellows cannot be installed in a standard type.

Note: After the lifters power up, the lifter remembers the maximum and minimum position based on the first signals of the limit switch. On the proceeding operation, the lifter will stop at about 0.2 in. lower than the maximum position during lifting and about 0.1 in. higher than the minimum position when lowering.

Note: When loading from the side of the table, please do so in the following manner. from side A: load less than or equal to 1/2 of the loading capacity (see table), and from side B: load less than or equal to 1/4 of the loading capacity (see table).

Note: Few subductions will occur.

Note: The unit cannot be used outdoors, or in places that are dusty, with high temperature and humidity, or in temperatures (0°C or below).
Mechanical Lift Features

Hamaco lifts utilize a ball screw driving system, making them exceptionally compact and easily able to adapt to any work environment. This dry cylinder method, rather than hydraulic, virtually eliminates leaks and enhances performance. Additionally, they feature brushless motors for much greater longevity and simple maintenance.

Some of the major advantages Hamaco lifts offer include:

- **Lower Cost**
  Costs less to purchase and maintain than hydraulic models.

- **No Leak**
  Using a dry cylinder, there's no oil leakage and the work environment stays clean.

- **Longer Life**
  With brushless motor design, it is not prone to typical wear and tear and will last significantly longer.

- **Precision Positioning**
  The ball-screw design makes it possible to perfectly position the lift to your exact needs as well as to keep levels steady when loading or unloading the tables.

- **No Hydraulic Lift**
  Table height stays steady and consistent even when leaving it fully loaded for long periods of time.

- **Quiet**
  Hamaco motors are quiet during operation, eliminating additional workplace noise.

- **Easy Maintenance**
  Because of the simplified, clean design, such as long-life brushless motors and leak-free operation, maintenance is minimal and easy.

- **Built-in Power Unit**
  Lifters use a built-in power unit enabling you to use them anywhere.

- **LED Alarm**
  A LED alarm on the foot switch alerts you to operational troubles.

- **High Quality Foot Switch**
  Made of durable, rigid plastic, the foot switch is two-toned (UP: black and DOWN: red) to make it easy to use even in low light. Switch is water-resistant.

- **Consistent Speed Control**
  By controlling the amount of current through the motor, we are able to accurately control the rotation speed. (Mint type)

- **Ultra-Efficient**
  Because of significant efficiency advantages over hydraulic, the lifters are able to use smaller output motors to handle large loads.

Vector Control Features

While a conventional system (120-degree conduction system) has the current impressed in the motor as a square wave, a vector control impresses voltage, which turns into a sine wave toward the rotor's position (angle of the magnet), so it becomes possible to control the motor current.

Vector control offers numerous advantages, including:

- Efficient operation using low torque pulsation. By being able to control the motor current according to the angle of the magnet, you can achieve smoother acceleration and accurate stopping.

- It can instantly respond to speed changes during load fluctuations.

- Compared with conventional systems, the degree of speed regulation greatly improves when lifting or lowering, regardless of the load.
The IPM (Interior Permanent Magnet) Motor

A conventional SPM (Surface Permanent Magnet) motor features a permanent magnet attached to the rotor surface. It only uses magnetic torque from a magnet. On the other hand, the IPM (Interior Permanent Magnet) motor, like Hameco uses, features an embedded permanent magnet in the rotor itself and uses reluctance through magnetic resistance in addition to magnetic torque.

The IPM motor offers significant advantages:

- **High torque and high efficiency**
  By using reluctance torque in addition to magnetic torque, the motor can achieve high output.

- **Energy-saving operation**
  It consumes up to 30% less power compared to conventional SPM motors.

- **High-speed rotation**
  It can respond to high-speed motor rotation by controlling the two types of torque using vector control.

- **Safety**
  Since the permanent magnet is embedded, mechanical safety is improved. Unlike in a SPM, the magnet will not detach due to centrifugal force.

How the Brushless Motor Works

The Brushless Motor operates using a sensor and IC and without mechanical sliding parts such as brush and commutator. Because there is no friction, it lasts much longer and doesn’t give off carbon. We use a microcomputer to control the motor and it’s possible to easily control and change functionality simply through software.

Controlling and Rotating the Motor

The brushless motor, like typical motors, uses a magnet to make it rotate. However, the brushless motor also relies on electrical current running through coils to move the rotor to the proper position, also called “repetitive force of attraction.”

The right figure represents the rotation principle of the brushless motor. The blue, green, and yellow coils represent the 3 phases. U, V, and W represent the coil, Hu, Hv, Hw indicates Hall element, and N, S is rotor magnetic pole. Also, (N), (S) shows the magnetic pole.

<table>
<thead>
<tr>
<th>course</th>
<th>Hall element</th>
<th>Coils</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>on</td>
<td>off</td>
</tr>
<tr>
<td>2</td>
<td>on</td>
<td>on</td>
</tr>
<tr>
<td>3</td>
<td>off</td>
<td>on</td>
</tr>
<tr>
<td>4</td>
<td>off</td>
<td>on</td>
</tr>
<tr>
<td>5</td>
<td>off</td>
<td>off</td>
</tr>
<tr>
<td>6</td>
<td>on</td>
<td>off</td>
</tr>
</tbody>
</table>

1. Only Hu (Hall element) is ON. The rotor rotates to clockwise by making U → S and W → N.
2. Hu and Hw are ON. The rotor rotates to counterclockwise by making V → S and W → N.

Rotate the motor using this control. Reverse N and S poles of the coil and it will spin in reverse.

Brushless Mechanical Lifter Options

**OPTION 1. Three Push Button**

The three push button switches (rise, fall, and stop) work by holding Driving Mode. Push rise (fall) button one time and it operates automatically to the highest (lowest). The LED alarm display is lit, but the safeguard feature keeps working.

**OPTION 2. Two Push Button**

Using the two push button option (rise and fall), the LED alarm display is lit, but the safeguard feature keeps working.
HYDRAULIC LIFT TABLES
Hydraulic/Step Type

HLH

Standard

Free moving casters and wide stroke from a low position to a high position. The lowering of the table is minimized to 2% or less strokes when left for 15 minutes with the maximum load weight. (JIS standard)

MAJOR FEATURES OF THE HLH SERIES

- Hydraulic cylinder
- Swivel casters with brakes
- Foot pedal for easy height adjustment
- Overloading prevention device *1
- Springback mechanism in the release handle *2

Option
- Pump with a rapid traverse device

MAJOR SPECIFICATIONS

Oil Used
- Turbine oil: E50 VG22

Materials
- Pump: Urethane type resin spray painting
- Cylinder: Urethane type resin spray painting
- Main body: Baked melamine / Powder coating

*1 The lifter will not elevate when overloaded.
*2 In an emergency, lowering will stop as soon as you release the handle.

To raise the lifter, tighten the release handle. This is not attached to the HLH-130.
<table>
<thead>
<tr>
<th>Model</th>
<th>Load Capacity (lb)</th>
<th>Table Dimensions (W x L)</th>
<th>Stroke (St)</th>
<th>Table Height (H) (in)</th>
<th>Overall Length (LL) (in)</th>
<th>Wheels</th>
<th>Number of Pedals</th>
<th>Deadweight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLH-100</td>
<td>220</td>
<td>13.8&quot;x22.4&quot;</td>
<td>15.7&quot;</td>
<td>7.9&quot; to 23.6&quot;</td>
<td>30.1&quot;</td>
<td>3.9 rubber</td>
<td>Approx. 12</td>
<td>41.9 lb</td>
</tr>
<tr>
<td>HLH-120</td>
<td>264</td>
<td>15.7&quot;x28.3&quot;</td>
<td>19&quot;</td>
<td>9.3&quot; to 28.3&quot;</td>
<td>36.8&quot;</td>
<td>3.9 rubber</td>
<td>Approx. 20</td>
<td>66.1 lb</td>
</tr>
<tr>
<td>HLH-150W</td>
<td>330</td>
<td>19.7&quot;x31.5&quot;</td>
<td>43.4&quot;</td>
<td>14.0&quot; to 57.4&quot;</td>
<td>39.8&quot;</td>
<td>3.9 rubber</td>
<td>Approx. 62</td>
<td>150 lb</td>
</tr>
<tr>
<td>HLH-200</td>
<td>440</td>
<td>19.7&quot;x31.5&quot;</td>
<td>21.1&quot;</td>
<td>10.3&quot; to 31.4&quot;</td>
<td>39.9&quot;</td>
<td>3.9 rubber</td>
<td>Approx. 62</td>
<td>99 lb</td>
</tr>
<tr>
<td>HLH-300W</td>
<td>661</td>
<td>23.6&quot;x35.4&quot;</td>
<td>47.5&quot;</td>
<td>16.2&quot; to 64.1&quot;</td>
<td>44.1&quot;</td>
<td>5.9 rubber</td>
<td>Approx. 85</td>
<td>220 lb</td>
</tr>
<tr>
<td>HLH-400S</td>
<td>881</td>
<td>23.6&quot;x35.4&quot;</td>
<td>20.5&quot;</td>
<td>10.9&quot; to 31.4&quot;</td>
<td>33.8&quot;</td>
<td>5.9 rubber</td>
<td>Approx. 62</td>
<td>136.7 lb</td>
</tr>
<tr>
<td>HLH-400SW</td>
<td>881</td>
<td>23.6&quot;x35.4&quot;</td>
<td>20.5&quot;</td>
<td>10.9&quot; to 31.4&quot;</td>
<td>33.8&quot;</td>
<td>5.9 rubber</td>
<td>Approx. 62</td>
<td>136.7 lb</td>
</tr>
<tr>
<td>HLH-400M</td>
<td>881</td>
<td>23.6&quot;x35.4&quot;</td>
<td>23.6&quot;</td>
<td>13&quot; to 36.6&quot;</td>
<td>44.1&quot;</td>
<td>5.9 rubber</td>
<td>Approx. 50</td>
<td>154 lb</td>
</tr>
<tr>
<td>HLH-400L</td>
<td>881</td>
<td>23.6&quot;x35.4&quot;</td>
<td>34.2&quot;</td>
<td>13&quot; to 47.2&quot;</td>
<td>56.9&quot;</td>
<td>5.9 rubber</td>
<td>Approx. 85</td>
<td>170 lb</td>
</tr>
<tr>
<td>HLH-700</td>
<td>1543</td>
<td>23.6&quot;x35.4&quot;</td>
<td>23.6&quot;</td>
<td>13&quot; to 36.6&quot;</td>
<td>44.1&quot;</td>
<td>5.9 rubber</td>
<td>Approx. 85</td>
<td>170 lb</td>
</tr>
</tbody>
</table>

* HLH-100’s push handle can be folded.
Hydraulic/Step Type

HLH
Ultra-low Type

Wide hoisting stroke. Equipped with wheels for easy movement. A lifter with many applications only limited by your imagination.

MAJOR FEATURES OF THE HLH SERIES
- Hydraulic cylinder
- Casters with brakes
- Foot pedal type
- Overloading prevention device
- Nose dive prevention valve (HLH-100-80L only)

Duration Lowering

Load capacity: 220 / 440 lb

<table>
<thead>
<tr>
<th></th>
<th>Load capacity</th>
<th>Table dimensions (W x L)</th>
<th>Stroke (ST)</th>
<th>Table height (ft to ft)</th>
<th>Total Length (LL)</th>
<th>Wheel Dimensions</th>
<th>Number of pump steps</th>
<th>Deadweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>HLH-100-80L</td>
<td>220 lb</td>
<td>15.7&quot; x 28.3&quot;</td>
<td>21.7&quot; to 24.9&quot;</td>
<td>40.6&quot;</td>
<td>Ø3.0</td>
<td>Approx. 20</td>
<td>77 lb</td>
</tr>
<tr>
<td>Platform</td>
<td>HLH-200-80L</td>
<td>440 lb</td>
<td>19.7&quot; x 31.5&quot;</td>
<td>24.8&quot; to 28.0&quot;</td>
<td>44.9&quot;</td>
<td>Ø3.0</td>
<td>Approx. 46</td>
<td>125.7 lb</td>
</tr>
</tbody>
</table>

Note: The swivel casters have rubber wheels and the rigid casters have urethane wheels.
Note: HLH-100-80L has rubber wheels.
Mechanical (Ball Screw, Electric Type)

HFH Standard

Battery powered high-performance achieved at a low cost! This is one equipment necessary for transporting small articles.

MAJOR FEATURES OF THE HFH MECHANICAL LIFT SERIES

- IPM motor
- Dry ball screw cylinder
- No oil leak
- No hydraulic drift
- Maintenance free
- Battery powered
- Vector control
- Simple, smooth operation

Electric types comparison table

<table>
<thead>
<tr>
<th>Electric Type</th>
<th>Speed</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic type HFH-P200X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ball screw type HFH-P300X</td>
<td>△</td>
<td>□</td>
</tr>
</tbody>
</table>

Load capacity: 440 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load Capacity (lb)</th>
<th>Fork Height</th>
<th>Fork Dimensions</th>
<th>Leg Dimensions</th>
<th>Wheel Diameter</th>
<th>External Dimensions (in)</th>
<th>Battery Type</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HFH-P200-9</td>
<td>440</td>
<td>35.4 32.6</td>
<td>2.4 2.2</td>
<td>14.2 18.1</td>
<td>0.7</td>
<td></td>
<td>1681</td>
<td></td>
</tr>
<tr>
<td>HFH-P200-12</td>
<td>440</td>
<td>30.5 59.9</td>
<td>2.4 2.2</td>
<td>14.2 18.1</td>
<td>0.7</td>
<td></td>
<td>1741</td>
<td></td>
</tr>
<tr>
<td>HFH-P200-15</td>
<td>440</td>
<td>35.4 32.6</td>
<td>2.4 2.2</td>
<td>14.2 18.1</td>
<td>0.7</td>
<td></td>
<td>1811</td>
<td></td>
</tr>
</tbody>
</table>

*When the fork is placed on the legs the minimum height will be increased by about 0.4in.*
Hydraulic/Electric Type

HFH

Standard

Useful in transporting pallets between narrow spaces and walkways.

MAJOR FEATURES OF THE HFH ELECTRIC TYPE SERIES

- Easy operation
- Battery-powered
- Soft touch lever switch for easy lifting and lowering
- Safe design for minimal impact of lifting
- Equipped with an "EB" long-life battery used in golf carts
- Chargeable anytime, anywhere using the provided automatic charger (110VAC)
- Self-winding charger cord (78 in.) that prevents dragging
- Can lift or lower the maximum weight continuously for 30 times in 1 full cycle charge
- Easy to view remaining battery gauge
- Overloading prevention valve
- PC flow control (maintains constant descent speed despite changes in the weight of the load)

Load capacity: 881 / 1322 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load capacity</th>
<th>Fork height</th>
<th>Fork dimensions</th>
<th>Leg dimensions</th>
<th>External dimensions</th>
<th>Weight</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFH-D400-9</td>
<td>881 lb</td>
<td>13.8&quot; 3&quot;</td>
<td>35.4&quot; 44.2&quot;</td>
<td>3.1&quot; 21.7&quot;</td>
<td>58.2&quot; 77.1&quot;</td>
<td>293 lb</td>
<td>315 lb</td>
</tr>
<tr>
<td>HFH-D400-12</td>
<td>1322 lb</td>
<td>15.7&quot; 3.2&quot;</td>
<td>47.2&quot; 44.4&quot;</td>
<td>3.1&quot; 21.7&quot;</td>
<td>58.2&quot; 77.1&quot;</td>
<td>366 lb</td>
<td>388 lb</td>
</tr>
<tr>
<td>HFH-D400-15</td>
<td>15.7&quot; 3.2&quot;</td>
<td>47.2&quot; 44.4&quot;</td>
<td>3.1&quot; 21.7&quot;</td>
<td>58.2&quot; 77.1&quot;</td>
<td></td>
<td>410 lb</td>
<td></td>
</tr>
</tbody>
</table>

* When the fork is placed on the legs the minimum height will be increased by about 13.5 to 0.7 in.

Note: The swivel casters have rubber wheels and the rigid casters have urethane wheels.
## Hydraulic/Step Type

### HFH Standard

Useful in transporting pallets between narrow spaces and walkways.

### Major Features of the HFH Manual Type Series

- Compact hydraulic step type lift is easy to operate in narrow walkways.
- Low total height type is easy to operate in entrances and exits and in buildings with low ceilings.
- Swivel handling with creatively designed pistol handles.
- The rigid casters have urethane wheels, and the swivel casters have rubber wheels with brakes on both sides.
- Strong and light-weight mast and fork design that uses high tensile strength steel.
- Comes with an overloading prevention valve.
- Fork width is easy to adjust.
- Mast with new structure that prevents fork vibration.
- Comes with a rapid traverse device (attached to the HFH-H150 or H300).
- Has a springback mechanism in the release handle. *1

*1 In an emergency, lowering will stop as soon as you release the handle. Close the release handle when raising the lift. The pump pedal is designed to be easy to press.

### Load Capacity: 330 to 1322 lb

<table>
<thead>
<tr>
<th>Model</th>
<th>Load Capacity (lb)</th>
<th>Fork Height</th>
<th>Fork Dimensions</th>
<th>Leg Dimensions</th>
<th>Weight Dimensions</th>
<th>External Dimensions</th>
<th>No. of Stages</th>
<th>Dataweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFH-H150-9</td>
<td>330 lb</td>
<td>13.0&quot;</td>
<td>3.3&quot; 2.5&quot; 2.4&quot;</td>
<td>4.7&quot; 4.4&quot; 4.3&quot;</td>
<td>3.6&quot; 31.5&quot;</td>
<td>3.9&quot; 3.8&quot; 2.8&quot;</td>
<td>13.0&quot; 15.7&quot;</td>
<td>191 lb</td>
</tr>
<tr>
<td>HFH-H150-12</td>
<td>440 lb</td>
<td>11.8&quot;</td>
<td>3.2&quot; 2.0&quot; 2.4&quot;</td>
<td>4.7&quot; 4.4&quot; 4.3&quot;</td>
<td>3.6&quot; 31.5&quot;</td>
<td>3.9&quot; 3.8&quot; 2.8&quot;</td>
<td>13.0&quot; 15.7&quot;</td>
<td>191 lb</td>
</tr>
<tr>
<td>HFH-H200-9</td>
<td>651 lb</td>
<td>15.7&quot;</td>
<td>3.1&quot; 3.7&quot; 3.7&quot;</td>
<td>4.7&quot; 4.4&quot; 4.3&quot;</td>
<td>3.6&quot; 31.5&quot;</td>
<td>3.9&quot; 3.8&quot; 2.8&quot;</td>
<td>15.7&quot; 21.7&quot;</td>
<td>25.8 lb</td>
</tr>
<tr>
<td>HFH-H200-12</td>
<td>651 lb</td>
<td>15.7&quot;</td>
<td>3.1&quot; 3.7&quot; 3.7&quot;</td>
<td>4.7&quot; 4.4&quot; 4.3&quot;</td>
<td>3.6&quot; 31.5&quot;</td>
<td>3.9&quot; 3.8&quot; 2.8&quot;</td>
<td>15.7&quot; 21.7&quot;</td>
<td>25.8 lb</td>
</tr>
</tbody>
</table>

* When the fork is placed on the legs the minimum height will be increased by about 0.4in.

Note: The swivel casters have rubber wheels and the rigid casters have urethane wheels.