

# LBF Series



## Braking Assemblies for Frequency Drives

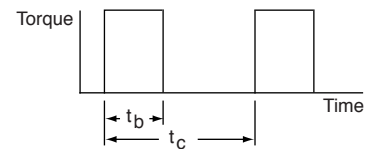
Ohmite braking resistor assemblies increase the braking torque capability of a variable frequency drive. This produces faster and more controlled braking for the drive and increases the braking torque of the drive system. Each braking assembly is assembled using heavy gauge galvanized steel with a wired terminal block and provisions for an optional thermostat. These assemblies are constructed with harsh environments in mind and provide a professional aesthetic.



### CHARACTERISTICS

|                              |   |                         |                             |
|------------------------------|---|-------------------------|-----------------------------|
| <b>Enclosure Material</b>    | Galvanized Steel std, Stainless steel hardware std, Others on request     |                         |                             |
| <b>Thermostat</b>            | Optional  |                         |                             |
| <b>Tolerance</b>             | 10%   |                         |                             |
| <b>Duty Cycle</b>            | 5 duty cycles based on cycle time of one minute: 10%, 20%, 30%, 50%, 100% |                         |                             |
| <b>Temperature rise</b>      | 375°C at max rated duty cycle   |                         |                             |
| <b>Drive Input voltage</b>   | 3 voltage designs: 230V, 460V, 575V                                       |                         |                             |
| <b>Drive Horsepower</b>      | 0.5 HP to 500 HP; voltage dependent                                       |                         |                             |
| <b>Braking Torque</b>        | 100% and 150%   |                         |                             |
| <b>Peak Braking Current</b>  | 0.5 amps to 800 amps  |                         |                             |
| <b>Maximum Braking Times</b> | <b>Duty cycle</b>   | <b>Overhauling load</b> | <b>Deceleration braking</b> |
|                              | 10%   | 6 sec.                  | 12 sec.                     |
|                              | 20%   | 12 sec.                 | 24 sec.                     |
|                              | 30%   | 18 sec.                 | 36 sec.                     |
|                              | 50%   | 30 sec.                 | continuous                  |
|                              | 100%  | continuous              | continuous                  |

### Duty Cycle



The duty cycle determines the power rating of the braking resistor. Duty cycle is calculated by dividing the braking stop time by the total cycle time as Duty Cycle: The duty cycle determines the power rating. Duty Cycle =  $t / t \times 100\%$

Also, it is important to determine whether your application is an overhauling load cycle or a deceleration braking cycle (refer to the graphs for proper identification).

### ORDERING INFORMATION

|                                    |   |  |  |
|------------------------------------|---|--|--|
| <b>L B F - 1 0 0 A - 0 1 0 T E</b> |   |  |  |
|                                    |   | Thermostat<br>optional   | RoHS<br>Compliant  |
| Series                             | HP rating                                   | Braking<br>and voltage   | Duty Cycle %   |
| Load Bank                          | 005 = 0.5 HP<br>100 = 10 HP<br>101 = 100 HP | A = 100% / 230V<br>B = 150% / 230V<br>C = 100% / 460V<br>D = 150% / 460V<br>E = 100% / 575V<br>F = 150% / 575V | 010 = 10%<br>020 = 20%<br>030 = 30%<br>050 = 50%<br>100 = 100% |

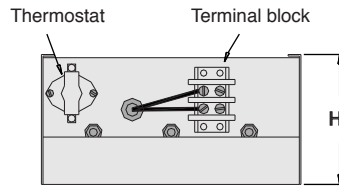
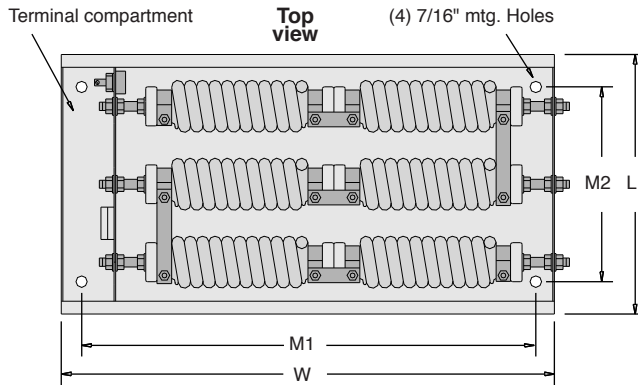
# LBF Series

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### DIMENSIONS

(in./mm)

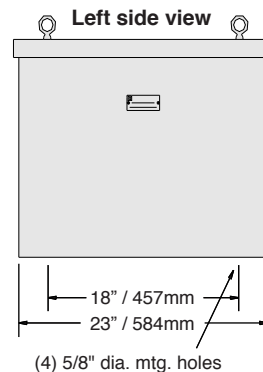
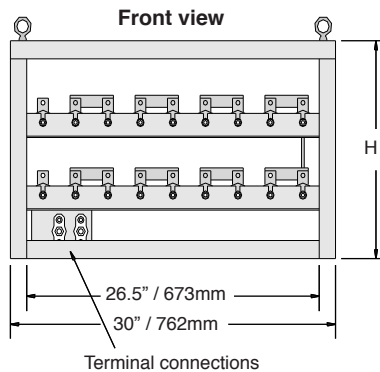
#### Standard Enclosures



**Left side view**

| Enclosure | W          | L        | H        | M1         | M2         |
|-----------|------------|----------|----------|------------|------------|
| 1         | 12 / 305   | 5 / 127  | 5 / 127  | 10.5 / 267 | -          |
| 2         | 12 / 305   | 7 / 178  | 5 / 127  | 10.5 / 267 | 4.5 / 114  |
| 3         | 12 / 305   | 10 / 254 | 5 / 127  | 10.5 / 267 | 7.5 / 191  |
| 4         | 12 / 305   | 13 / 330 | 5 / 127  | 10.5 / 267 | 10.5 / 267 |
| 5         | 12 / 305   | 16 / 406 | 5 / 127  | 10.5 / 267 | 13.5 / 343 |
| 6         | 19 / 483   | 10 / 254 | 5 / 127  | 17.5 / 445 | 7.5 / 191  |
| 7         | 19 / 483   | 13 / 330 | 5 / 127  | 17.5 / 445 | 10.5 / 267 |
| 8         | 26.5 / 673 | 10 / 254 | 5 / 127  | 25 / 635   | 7.5 / 191  |
| 9         | 19 / 483   | 16 / 406 | 5 / 127  | 17.5 / 445 | 13.5 / 343 |
| 10        | 26.5 / 673 | 13 / 330 | 5 / 127  | 25 / 635   | 10.5 / 267 |
| 11        | 26.5 / 673 | 16 / 406 | 5 / 127  | 25 / 635   | 13.5 / 343 |
| 12        | 28 / 711   | 10 / 254 | 10 / 254 | 26.5 / 673 | 7.5 / 191  |
| 13        | 28 / 711   | 13 / 330 | 10 / 254 | 26.5 / 673 | 10.5 / 267 |
| 14        | 28 / 711   | 16 / 406 | 10 / 254 | 26.5 / 673 | 13.5 / 343 |

#### High-Capacity Enclosures



| Enclosure | H          |
|-----------|------------|
| HC1       | 10 / 254   |
| HC2       | 16 / 406   |
| HC3       | 24 / 610   |
| HC4       | 32 / 813   |
| HC5       | 40 / 1,016 |
| HC6       | 48 / 1,219 |
| HC7       | 56 / 1,422 |
| HC8       | 64 / 1,626 |
| HC9       | 72 / 1,829 |
| HC10      | 80 / 2,032 |

# LBF Series

## Braking Assemblies for Frequency Drives

### ORDERING INFORMATION

#### 230V Drive Voltage - 100% Braking Torque

| H.P  | Ohms | 10% Duty Cycle | Encl. | 20% Duty Cycle | Encl. | 30% Duty Cycle | Encl. | 50% Duty Cycle | Encl. | 100% Duty Cycle | Encl.   |
|------|------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|-----------------|---------|
| 0.5  | 375  | LBF-005A-010E  | 1     | LBF-005A-020E  | 1     | LBF-005A-030E  | 1     | LBF-005A-050E  | 1     | LBF-005A-100E   | 2       |
| 0.75 | 250  | LBF-007A-010E  | 1     | LBF-007A-020E  | 1     | LBF-007A-030E  | 1     | LBF-007A-050E  | 2     | LBF-007A-100E   | 2       |
| 1    | 190  | LBF-010A-010E  | 1     | LBF-010A-020E  | 1     | LBF-010A-030E  | 2     | LBF-010A-050E  | 2     | LBF-010A-100E   | 3       |
| 1.5  | 125  | LBF-015A-010E  | 1     | LBF-015A-020E  | 1     | LBF-015A-030E  | 2     | LBF-015A-050E  | 3     | LBF-015A-100E   | 4       |
| 2    | 95   | LBF-020A-010E  | 1     | LBF-020A-020E  | 2     | LBF-020A-030E  | 2     | LBF-020A-050E  | 3     | LBF-020A-100E   | 4       |
| 3    | 63   | LBF-030A-010E  | 1     | LBF-030A-020E  | 2     | LBF-030A-030E  | 3     | LBF-030A-050E  | 4     | LBF-030A-100E   | 6       |
| 5    | 38   | LBF-050A-010E  | 1     | LBF-050A-020E  | 3     | LBF-050A-030E  | 4     | LBF-050A-050E  | 7     | LBF-050A-100E   | 9       |
| 7.5  | 26   | LBF-075A-010E  | 2     | LBF-075A-020E  | 4     | LBF-075A-030E  | 6     | LBF-075A-050E  | 10    | LBF-075A-100E   | 10      |
| 10   | 19   | LBF-100A-010E  | 2     | LBF-100A-020E  | 5     | LBF-100A-030E  | 8     | LBF-100A-050E  | 10    | LBF-100A-100E   | 11      |
| 15   | 12.6 | LBF-150A-010E  | 3     | LBF-150A-020E  | 6     | LBF-150A-030E  | 8     | LBF-150A-050E  | 11    | LBF-150A-100E   | 13      |
| 20   | 9.6  | LBF-200A-010E  | 4     | LBF-200A-020E  | 6     | LBF-200A-030E  | 10    | LBF-200A-050E  | 13    | LBF-200A-100E   | 14      |
| 25   | 7.5  | LBF-250A-010E  | 5     | LBF-250A-020E  | 7     | LBF-250A-030E  | 11    | LBF-250A-050E  | 13    | LBF-250A-100E   | 14      |
| 30   | 6.3  | LBF-300A-010E  | 6     | LBF-300A-020E  | 10    | LBF-300A-030E  | 12    | LBF-300A-050E  | 14    | LBF-300A-100E   | HC2     |
| 40   | 4.9  | LBF-400A-010E  | 6     | LBF-400A-020E  | 11    | LBF-400A-030E  | 13    | LBF-400A-050E  | 14    | LBF-400A-100E   | HC3     |
| 50   | 3.9  | LBF-500A-010E  | 7     | LBF-500A-020E  | 12    | LBF-500A-030E  | 13    | LBF-500A-050E  | HC3   | LBF-500A-100E   | HC3     |
| 60   | 3.3  | LBF-600A-010E  | 7     | LBF-600A-020E  | 12    | LBF-600A-030E  | HC2   | LBF-600A-050E  | HC3   | LBF-600A-100E   | HC4     |
| 75   | 2.7  | LBF-750A-010E  | 7     | LBF-750A-020E  | 13    | LBF-750A-030E  | HC2   | LBF-750A-050E  | HC4   | LBF-750A-100E   | HC6     |
| 100  | 1.9  | LBF-101A-010E  | 9     | LBF-101A-020E  | 13    | LBF-101A-030E  | HC3   | LBF-101A-050E  | HC5   | LBF-101A-100E   | HC6     |
| 125  | 1.6  | LBF-121A-010E  | 12    | LBF-121A-020E  | HC3   | LBF-121A-030E  | HC4   | LBF-121A-050E  | HC5   | LBF-121A-100E   | HC8     |
| 150  | 1.3  | LBF-151A-010E  | 12    | LBF-151A-020E  | HC4   | LBF-151A-030E  | HC4   | LBF-151A-050E  | HC7   | LBF-151A-100E   | HC8     |
| 200  | 1    | LBF-201A-010E  | 13    | LBF-201A-020E  | HC4   | LBF-201A-030E  | HC6   | LBF-201A-050E  | HC9   | LBF-201A-100E   | (2) HC6 |
| 250  | 0.8  | LBF-251A-010E  | 14    | LBF-251A-020E  | HC4   | LBF-251A-030E  | HC8   | LBF-251A-050E  | HC9   | LBF-251A-100E   | (2) HC8 |

#### 230V Drive Voltage - 150% Braking Torque

| H.P  | Ohms | 10% Duty Cycle | Encl. | 20% Duty Cycle | Encl. | 30% Duty Cycle | Encl.   | 50% Duty Cycle | Encl.   | 100% Duty Cycle | Encl.   |
|------|------|----------------|-------|----------------|-------|----------------|---------|----------------|---------|-----------------|---------|
| 0.5  | 250  | LBF-005B-010E  | 1     | LBF-005B-020E  | 1     | LBF-005B-030E  | 1       | LBF-005B-050E  | 2       | LBF-005B-100E   | 2       |
| 0.75 | 170  | LBF-007B-010E  | 1     | LBF-007B-020E  | 1     | LBF-007B-030E  | 2       | LBF-007B-050E  | 2       | LBF-007B-100E   | 3       |
| 1    | 125  | LBF-010B-010E  | 1     | LBF-010B-020E  | 1     | LBF-010B-030E  | 2       | LBF-010B-050E  | 3       | LBF-010B-100E   | 4       |
| 1.5  | 85   | LBF-015B-010E  | 1     | LBF-015B-020E  | 2     | LBF-015B-030E  | 3       | LBF-015B-050E  | 4       | LBF-015B-100E   | 5       |
| 2    | 63   | LBF-020B-010E  | 1     | LBF-020B-020E  | 2     | LBF-020B-030E  | 3       | LBF-020B-050E  | 4       | LBF-020B-100E   | 6       |
| 3    | 42   | LBF-030B-010E  | 1     | LBF-030B-020E  | 3     | LBF-030B-030E  | 4       | LBF-030B-050E  | 7       | LBF-030B-100E   | 8       |
| 5    | 25   | LBF-050B-010E  | 2     | LBF-050B-020E  | 4     | LBF-050B-030E  | 6       | LBF-050B-050E  | 10      | LBF-050B-100E   | 10      |
| 7.5  | 16.8 | LBF-075B-010E  | 2     | LBF-075B-020E  | 6     | LBF-075B-030E  | 8       | LBF-075B-050E  | 10      | LBF-075B-100E   | 11      |
| 10   | 12.6 | LBF-100B-010E  | 3     | LBF-100B-020E  | 6     | LBF-100B-030E  | 8       | LBF-100B-050E  | 11      | LBF-100B-100E   | 13      |
| 15   | 8.4  | LBF-150B-010E  | 5     | LBF-150B-020E  | 7     | LBF-150B-030E  | 11      | LBF-150B-050E  | 13      | LBF-150B-100E   | 14      |
| 20   | 6.3  | LBF-200B-010E  | 6     | LBF-200B-020E  | 10    | LBF-200B-030E  | 12      | LBF-200B-050E  | 14      | LBF-200B-100E   | HC2     |
| 25   | 5    | LBF-250B-010E  | 6     | LBF-250B-020E  | 11    | LBF-250B-030E  | 13      | LBF-250B-050E  | HC2     | LBF-250B-100E   | HC3     |
| 30   | 4.2  | LBF-300B-010E  | 7     | LBF-300B-020E  | 11    | LBF-300B-030E  | 13      | LBF-300B-050E  | HC3     | LBF-300B-100E   | HC3     |
| 40   | 3.2  | LBF-400B-010E  | 7     | LBF-400B-020E  | 12    | LBF-400B-030E  | HC2     | LBF-400B-050E  | HC3     | LBF-400B-100E   | HC4     |
| 50   | 2.5  | LBF-500B-010E  | 7     | LBF-500B-020E  | 14    | LBF-500B-030E  | HC2     | LBF-500B-050E  | HC3     | LBF-500B-100E   | HC7     |
| 60   | 2.1  | LBF-600B-010E  | 9     | LBF-600B-020E  | 14    | LBF-600B-030E  | HC3     | LBF-600B-050E  | HC5     | LBF-600B-100E   | HC7     |
| 75   | 1.7  | LBF-750B-010E  | 10    | LBF-750B-020E  | HC3   | LBF-750B-030E  | HC4     | LBF-750B-050E  | HC5     | LBF-750B-100E   | HC9     |
| 100  | 1.3  | LBF-101B-010E  | 12    | LBF-101B-020E  | HC3   | LBF-101B-030E  | HC4     | LBF-101B-050E  | HC7     | LBF-101B-100E   | HC9     |
| 125  | 1    | LBF-121B-010E  | 13    | LBF-121B-020E  | HC3   | LBF-121B-030E  | HC5     | LBF-121B-050E  | HC7     | LBF-121B-100E   | (2) HC6 |
| 150  | 0.85 | LBF-151B-010E  | 13    | LBF-151B-020E  | HC4   | LBF-151B-030E  | HC6     | LBF-151B-050E  | (2) HC5 | LBF-151B-100E   | (2) HC8 |
| 200  | 0.65 | LBF-201B-010E  | HC2   | LBF-201B-020E  | HC4   | LBF-201B-030E  | HC8     | LBF-201B-050E  | (2) HC7 | LBF-201B-100E   | (2) HC8 |
| 250  | 0.5  | LBF-251B-010E  | HC3   | LBF-251B-020E  | HC5   | LBF-251B-030E  | (2) HC5 | LBF-251B-050E  | (2) HC7 | LBF-251B-100E   | (3) HC8 |

#### 460V Drive Voltage - 100% Braking Torque

| H.P  | Ohms | 10% Duty Cycle | Encl. | 20% Duty Cycle | Encl. | 30% Duty Cycle | Encl. | 50% Duty Cycle | Encl.   | 100% Duty Cycle | Encl.   |
|------|------|----------------|-------|----------------|-------|----------------|-------|----------------|---------|-----------------|---------|
| 0.5  | 1500 | LBF-005C-010E  | 1     | LBF-005C-020E  | 1     | LBF-005C-030E  | 1     | LBF-005C-050E  | 1       | LBF-005C-100E   | 1       |
| 0.75 | 1000 | LBF-007C-010E  | 1     | LBF-007C-020E  | 1     | LBF-007C-030E  | 1     | LBF-007C-050E  | 1       | LBF-007C-100E   | 2       |
| 1    | 750  | LBF-010C-010E  | 1     | LBF-010C-020E  | 1     | LBF-010C-030E  | 1     | LBF-010C-050E  | 2       | LBF-010C-100E   | 3       |
| 1.5  | 500  | LBF-015C-010E  | 1     | LBF-015C-020E  | 1     | LBF-015C-030E  | 2     | LBF-015C-050E  | 3       | LBF-015C-100E   | 4       |
| 2    | 375  | LBF-020C-010E  | 1     | LBF-020C-020E  | 2     | LBF-020C-030E  | 3     | LBF-020C-050E  | 4       | LBF-020C-100E   | 6       |
| 3    | 250  | LBF-030C-010E  | 1     | LBF-030C-020E  | 2     | LBF-030C-030E  | 4     | LBF-030C-050E  | 5       | LBF-030C-100E   | 7       |
| 5    | 150  | LBF-050C-010E  | 2     | LBF-050C-020E  | 3     | LBF-050C-030E  | 5     | LBF-050C-050E  | 7       | LBF-050C-100E   | 9       |
| 7.5  | 100  | LBF-075C-010E  | 2     | LBF-075C-020E  | 4     | LBF-075C-030E  | 6     | LBF-075C-050E  | 9       | LBF-075C-100E   | 11      |
| 10   | 75   | LBF-100C-010E  | 2     | LBF-100C-020E  | 5     | LBF-100C-030E  | 7     | LBF-100C-050E  | 11      | LBF-100C-100E   | 12      |
| 15   | 50   | LBF-150C-010E  | 3     | LBF-150C-020E  | 7     | LBF-150C-030E  | 10    | LBF-150C-050E  | 13      | LBF-150C-100E   | 13      |
| 20   | 38   | LBF-200C-010E  | 4     | LBF-200C-020E  | 9     | LBF-200C-030E  | 12    | LBF-200C-050E  | 13      | LBF-200C-100E   | 14      |
| 25   | 30   | LBF-250C-010E  | 5     | LBF-250C-020E  | 10    | LBF-250C-030E  | 12    | LBF-250C-050E  | 14      | LBF-250C-100E   | HC2     |
| 30   | 25   | LBF-300C-010E  | 6     | LBF-300C-020E  | 10    | LBF-300C-030E  | 12    | LBF-300C-050E  | 14      | LBF-300C-100E   | HC3     |
| 40   | 19   | LBF-400C-010E  | 7     | LBF-400C-020E  | 11    | LBF-400C-030E  | 13    | LBF-400C-050E  | HC3     | LBF-400C-100E   | HC3     |
| 50   | 15   | LBF-500C-010E  | 7     | LBF-500C-020E  | 12    | LBF-500C-030E  | 14    | LBF-500C-050E  | HC3     | LBF-500C-100E   | HC4     |
| 60   | 12.6 | LBF-600C-010E  | 7     | LBF-600C-020E  | 13    | LBF-600C-030E  | HC2   | LBF-600C-050E  | HC3     | LBF-600C-100E   | HC4     |
| 75   | 10   | LBF-750C-010E  | 8     | LBF-750C-020E  | 14    | LBF-750C-030E  | HC3   | LBF-750C-050E  | HC4     | LBF-750C-100E   | HC6     |
| 100  | 7.5  | LBF-101C-010E  | 11    | LBF-101C-020E  | 14    | LBF-101C-030E  | HC3   | LBF-101C-050E  | HC4     | LBF-101C-100E   | HC6     |
| 125  | 6    | LBF-121C-010E  | 12    | LBF-121C-020E  | HC3   | LBF-121C-030E  | HC4   | LBF-121C-050E  | HC4     | LBF-121C-100E   | HC8     |
| 150  | 5    | LBF-151C-010E  | 12    | LBF-151C-020E  | HC3   | LBF-151C-030E  | HC4   | LBF-151C-050E  | HC6     | LBF-151C-100E   | HC8     |
| 200  | 3.8  | LBF-201C-010E  | 13    | LBF-201C-020E  | HC3   | LBF-201C-030E  | HC6   | LBF-201C-050E  | HC9     | LBF-201C-100E   | (2) HC6 |
| 250  | 3    | LBF-251C-010E  | 14    | LBF-251C-020E  | HC4   | LBF-251C-030E  | HC8   | LBF-251C-050E  | HC9     | LBF-251C-100E   | (2) HC8 |
| 300  | 2.5  | LBF-301C-010E  | 14    | LBF-301C-020E  | HC4   | LBF-301C-030E  | HC8   | LBF-301C-050E  | (2) HC7 | LBF-301C-100E   | (2) HC8 |
| 350  | 2.2  | LBF-351C-010E  | 14    | LBF-351C-020E  | HC6   | LBF-351C-030E  | HC8   | LBF-351C-050E  | (2) HC7 | LBF-351C-100E   | (3) HC8 |
| 400  | 1.9  | LBF-401C-010E  | HC3   | LBF-401C-020E  | HC6   | LBF-401C-030E  | HC9   | LBF-401C-050E  | (3) HC7 | LBF-401C-100E   | (3) HC8 |
| 500  | 1.5  | LBF-501C-010E  | HC4   | LBF-501C-020E  | HC8   | LBF-501C-030E  | HC9   | LBF-501C-050E  | (3) HC7 | LBF-501C-100E   | (4) HC8 |

# LBF Series

## Braking Assemblies for Frequency Drives

### ORDERING INFORMATION

#### 460V Drive Voltage - 150% Braking Torque

| H.P  | Ohms | 10% Duty Cycle | Encl. | 20% Duty Cycle | Encl.   | 30% Duty Cycle | Encl.   | 50% Duty Cycle | Encl.   | 100% Duty Cycle | Encl.   |
|------|------|----------------|-------|----------------|---------|----------------|---------|----------------|---------|-----------------|---------|
| 0.5  | 1000 | LBF-005D-010E  | 1     | LBF-005D-020E  | 1       | LBF-005D-030E  | 1       | LBF-005D-050E  | 1       | LBF-005D-100E   | 2       |
| 0.75 | 675  | LBF-007D-010E  | 1     | LBF-007D-020E  | 1       | LBF-007D-030E  | 1       | LBF-007D-050E  | 2       | LBF-007D-100E   | 3       |
| 1    | 500  | LBF-010D-010E  | 1     | LBF-010D-020E  | 1       | LBF-010D-030E  | 2       | LBF-010D-050E  | 2       | LBF-010D-100E   | 4       |
| 1.5  | 335  | LBF-015D-010E  | 1     | LBF-015D-020E  | 2       | LBF-015D-030E  | 3       | LBF-015D-050E  | 4       | LBF-015D-100E   | 6       |
| 2    | 250  | LBF-020D-010E  | 1     | LBF-020D-020E  | 2       | LBF-020D-030E  | 4       | LBF-020D-050E  | 5       | LBF-020D-100E   | 7       |
| 3    | 170  | LBF-030D-010E  | 1     | LBF-030D-020E  | 3       | LBF-030D-030E  | 5       | LBF-030D-050E  | 7       | LBF-030D-100E   | 8       |
| 5    | 100  | LBF-050D-010E  | 2     | LBF-050D-020E  | 4       | LBF-050D-030E  | 7       | LBF-050D-050E  | 9       | LBF-050D-100E   | 11      |
| 7.5  | 67   | LBF-075D-010E  | 3     | LBF-075D-020E  | 6       | LBF-075D-030E  | 9       | LBF-075D-050E  | 11      | LBF-075D-100E   | 13      |
| 10   | 50   | LBF-100D-010E  | 3     | LBF-100D-020E  | 7       | LBF-100D-030E  | 10      | LBF-100D-050E  | 13      | LBF-100D-100E   | 13      |
| 15   | 34   | LBF-150D-010E  | 4     | LBF-150D-020E  | 10      | LBF-150D-030E  | 12      | LBF-150D-050E  | 13      | LBF-150D-100E   | 14      |
| 20   | 25   | LBF-200D-010E  | 6     | LBF-200D-020E  | 10      | LBF-200D-030E  | 12      | LBF-200D-050E  | 14      | LBF-200D-100E   | HC3     |
| 25   | 20   | LBF-250D-010E  | 7     | LBF-250D-020E  | 11      | LBF-250D-030E  | 13      | LBF-250D-050E  | HC2     | LBF-250D-100E   | HC3     |
| 30   | 17   | LBF-300D-010E  | 8     | LBF-300D-020E  | 11      | LBF-300D-030E  | 14      | LBF-300D-050E  | HC3     | LBF-300D-100E   | HC3     |
| 40   | 12.6 | LBF-400D-010E  | 8     | LBF-400D-020E  | 13      | LBF-400D-030E  | HC2     | LBF-400D-050E  | HC3     | LBF-400D-100E   | HC4     |
| 50   | 10   | LBF-500D-010E  | 8     | LBF-500D-020E  | 14      | LBF-500D-030E  | HC3     | LBF-500D-050E  | HC4     | LBF-500D-100E   | HC6     |
| 60   | 8.4  | LBF-600D-010E  | 11    | LBF-600D-020E  | 14      | LBF-600D-030E  | HC3     | LBF-600D-050E  | HC5     | LBF-600D-100E   | HC6     |
| 75   | 6.7  | LBF-750D-010E  | 11    | LBF-750D-020E  | HC2     | LBF-750D-030E  | HC4     | LBF-750D-050E  | HC5     | LBF-750D-100E   | HC8     |
| 100  | 5    | LBF-101D-010E  | 12    | LBF-101D-020E  | HC3     | LBF-101D-030E  | HC4     | LBF-101D-050E  | HC8     | LBF-101D-100E   | (2) HC6 |
| 125  | 4    | LBF-121D-010E  | 13    | LBF-121D-020E  | HC3     | LBF-121D-030E  | HC5     | LBF-121D-050E  | (2) HC5 | LBF-121D-100E   | (2) HC6 |
| 150  | 3.4  | LBF-151D-010E  | 13    | LBF-151D-020E  | HC4     | LBF-151D-030E  | HC6     | LBF-151D-050E  | (2) HC5 | LBF-151D-100E   | (2) HC8 |
| 200  | 2.5  | LBF-201D-010E  | 14    | LBF-201D-020E  | HC6     | LBF-201D-030E  | HC8     | LBF-201D-050E  | (2) HC6 | LBF-201D-100E   | (2) HC8 |
| 250  | 2    | LBF-251D-010E  | HC3   | LBF-251D-020E  | HC6     | LBF-251D-030E  | (2) HC5 | LBF-251D-050E  | (2) HC6 | LBF-251D-100E   | (3) HC8 |
| 300  | 1.7  | LBF-301D-010E  | HC3   | LBF-301D-020E  | HC6     | LBF-301D-030E  | (2) HC5 | LBF-301D-050E  | (2) HC7 | LBF-301D-100E   | (4) HC8 |
| 350  | 1.5  | LBF-351D-010E  | HC4   | LBF-351D-020E  | HC8     | LBF-351D-030E  | (2) HC8 | LBF-351D-050E  | (2) HC9 | LBF-351D-100E   | (4) HC9 |
| 400  | 1.3  | LBF-401D-010E  | HC4   | LBF-401D-020E  | HC8     | LBF-401D-030E  | (2) HC8 | LBF-401D-050E  | (2) HC8 | LBF-401D-100E   | (4) HC9 |
| 500  | 1    | LBF-501D-010E  | HC5   | LBF-501D-020E  | (2) HC6 | LBF-501D-030E  | (2) HC7 | LBF-501D-050E  | (2) HC8 | LBF-501D-100E   | (5) HC9 |

#### 575V Drive Voltage - 100% Braking Torque

| H.P  | Ohms | 10% Duty Cycle | Encl. | 20% Duty Cycle | Encl. | 30% Duty Cycle | Encl. | 50% Duty Cycle | Encl.   | 100% Duty Cycle | Encl.   |
|------|------|----------------|-------|----------------|-------|----------------|-------|----------------|---------|-----------------|---------|
| 0.5  | 2000 | LBF-005E-010E  | 1     | LBF-005E-020E  | 1     | LBF-005E-030E  | 1     | LBF-005E-050E  | 1       | LBF-005E-100E   | 1       |
| 0.75 | 1500 | LBF-007E-010E  | 1     | LBF-007E-020E  | 1     | LBF-007E-030E  | 1     | LBF-007E-050E  | 1       | LBF-007E-100E   | 2       |
| 1    | 1200 | LBF-010E-010E  | 1     | LBF-010E-020E  | 1     | LBF-010E-030E  | 1     | LBF-010E-050E  | 2       | LBF-010E-100E   | 3       |
| 1.5  | 800  | LBF-015E-010E  | 1     | LBF-015E-020E  | 1     | LBF-015E-030E  | 2     | LBF-015E-050E  | 2       | LBF-015E-100E   | 4       |
| 2    | 575  | LBF-020E-010E  | 1     | LBF-020E-020E  | 1     | LBF-020E-030E  | 2     | LBF-020E-050E  | 3       | LBF-020E-100E   | 6       |
| 3    | 400  | LBF-030E-010E  | 1     | LBF-030E-020E  | 2     | LBF-030E-030E  | 4     | LBF-030E-050E  | 5       | LBF-030E-100E   | 7       |
| 5    | 235  | LBF-050E-010E  | 1     | LBF-050E-020E  | 3     | LBF-050E-030E  | 5     | LBF-050E-050E  | 7       | LBF-050E-100E   | 9       |
| 7.5  | 150  | LBF-075E-010E  | 2     | LBF-075E-020E  | 4     | LBF-075E-030E  | 6     | LBF-075E-050E  | 9       | LBF-075E-100E   | 11      |
| 10   | 120  | LBF-100E-010E  | 3     | LBF-100E-020E  | 5     | LBF-100E-030E  | 7     | LBF-100E-050E  | 11      | LBF-100E-100E   | 13      |
| 15   | 78   | LBF-150E-010E  | 3     | LBF-150E-020E  | 7     | LBF-150E-030E  | 11    | LBF-150E-050E  | 13      | LBF-150E-100E   | 14      |
| 20   | 59   | LBF-200E-010E  | 4     | LBF-200E-020E  | 9     | LBF-200E-030E  | 12    | LBF-200E-050E  | 14      | LBF-200E-100E   | 14      |
| 25   | 47   | LBF-250E-010E  | 5     | LBF-250E-020E  | 10    | LBF-250E-030E  | 13    | LBF-250E-050E  | 14      | LBF-250E-100E   | HC2     |
| 30   | 39   | LBF-300E-010E  | 6     | LBF-300E-020E  | 11    | LBF-300E-030E  | 13    | LBF-300E-050E  | 14      | LBF-300E-100E   | HC3     |
| 40   | 29   | LBF-400E-010E  | 7     | LBF-400E-020E  | 11    | LBF-400E-030E  | 14    | LBF-400E-050E  | HC3     | LBF-400E-100E   | HC3     |
| 50   | 23   | LBF-500E-010E  | 8     | LBF-500E-020E  | 12    | LBF-500E-030E  | 14    | LBF-500E-050E  | HC3     | LBF-500E-100E   | HC4     |
| 60   | 20   | LBF-600E-010E  | 10    | LBF-600E-020E  | 13    | LBF-600E-030E  | HC2   | LBF-600E-050E  | HC4     | LBF-600E-100E   | HC5     |
| 75   | 15.6 | LBF-750E-010E  | 10    | LBF-750E-020E  | 14    | LBF-750E-030E  | HC3   | LBF-750E-050E  | HC4     | LBF-750E-100E   | HC5     |
| 100  | 11.7 | LBF-101E-010E  | 11    | LBF-101E-020E  | HC2   | LBF-101E-030E  | HC3   | LBF-101E-050E  | HC4     | LBF-101E-100E   | HC7     |
| 125  | 9.3  | LBF-121E-010E  | 12    | LBF-121E-020E  | HC2   | LBF-121E-030E  | HC4   | LBF-121E-050E  | HC6     | LBF-121E-100E   | HC8     |
| 150  | 7.8  | LBF-151E-010E  | 12    | LBF-151E-020E  | HC3   | LBF-151E-030E  | HC4   | LBF-151E-050E  | HC6     | LBF-151E-100E   | (2) HC5 |
| 200  | 5.9  | LBF-201E-010E  | 13    | LBF-201E-020E  | HC3   | LBF-201E-030E  | HC4   | LBF-201E-050E  | HC9     | LBF-201E-100E   | (2) HC7 |
| 250  | 4.7  | LBF-251E-010E  | 13    | LBF-251E-020E  | HC3   | LBF-251E-030E  | HC6   | LBF-251E-050E  | (2) HC6 | LBF-251E-100E   | (2) HC8 |

#### 575V Drive Voltage - 150% Braking Torque

| H.P  | Ohms | 10% Duty Cycle | Encl. | 20% Duty Cycle | Encl. | 30% Duty Cycle | Encl. | 50% Duty Cycle | Encl.   | 100% Duty Cycle | Encl.   |
|------|------|----------------|-------|----------------|-------|----------------|-------|----------------|---------|-----------------|---------|
| 0.5  | 1500 | LBF-005F-010E  | 1     | LBF-005F-020E  | 1     | LBF-005F-030E  | 1     | LBF-005F-050E  | 1       | LBF-005F-100E   | 2       |
| 0.75 | 1000 | LBF-007F-010E  | 1     | LBF-007F-020E  | 1     | LBF-007F-030E  | 1     | LBF-007F-050E  | 2       | LBF-007F-100E   | 3       |
| 1    | 800  | LBF-010F-010E  | 1     | LBF-010F-020E  | 1     | LBF-010F-030E  | 2     | LBF-010F-050E  | 2       | LBF-010F-100E   | 4       |
| 1.5  | 525  | LBF-015F-010E  | 1     | LBF-015F-020E  | 2     | LBF-015F-030E  | 2     | LBF-015F-050E  | 4       | LBF-015F-100E   | 6       |
| 2    | 400  | LBF-020F-010E  | 1     | LBF-020F-020E  | 2     | LBF-020F-030E  | 4     | LBF-020F-050E  | 6       | LBF-020F-100E   | 8       |
| 3    | 260  | LBF-030F-010E  | 1     | LBF-030F-020E  | 3     | LBF-030F-030E  | 6     | LBF-030F-050E  | 7       | LBF-030F-100E   | 9       |
| 5    | 160  | LBF-050F-010E  | 2     | LBF-050F-020E  | 4     | LBF-050F-030E  | 7     | LBF-050F-050E  | 10      | LBF-050F-100E   | 11      |
| 7.5  | 100  | LBF-075F-010E  | 3     | LBF-075F-020E  | 6     | LBF-075F-030E  | 8     | LBF-075F-050E  | 12      | LBF-075F-100E   | 13      |
| 10   | 80   | LBF-100F-010E  | 3     | LBF-100F-020E  | 7     | LBF-100F-030E  | 11    | LBF-100F-050E  | 13      | LBF-100F-100E   | 14      |
| 15   | 52   | LBF-150F-010E  | 4     | LBF-150F-020E  | 10    | LBF-150F-030E  | 12    | LBF-150F-050E  | 14      | LBF-150F-100E   | 14      |
| 20   | 39   | LBF-200F-010E  | 6     | LBF-200F-020E  | 11    | LBF-200F-030E  | 12    | LBF-200F-050E  | 14      | LBF-200F-100E   | HC3     |
| 25   | 32   | LBF-250F-010E  | 7     | LBF-250F-020E  | 11    | LBF-250F-030E  | 13    | LBF-250F-050E  | HC2     | LBF-250F-100E   | HC4     |
| 30   | 26   | LBF-300F-010E  | 8     | LBF-300F-020E  | 12    | LBF-300F-030E  | 14    | LBF-300F-050E  | HC3     | LBF-300F-100E   | HC4     |
| 40   | 20   | LBF-400F-010E  | 10    | LBF-400F-020E  | 13    | LBF-400F-030E  | HC2   | LBF-400F-050E  | HC3     | LBF-400F-100E   | HC5     |
| 50   | 16   | LBF-500F-010E  | 10    | LBF-500F-020E  | 14    | LBF-500F-030E  | HC3   | LBF-500F-050E  | HC4     | LBF-500F-100E   | HC5     |
| 60   | 13   | LBF-600F-010E  | 10    | LBF-600F-020E  | 14    | LBF-600F-030E  | HC3   | LBF-600F-050E  | HC4     | LBF-600F-100E   | HC5     |
| 100  | 7.8  | LBF-101F-010E  | 12    | LBF-101F-020E  | HC3   | LBF-101F-030E  | HC4   | LBF-101F-050E  | HC6     | LBF-101F-100E   | (2) HC5 |
| 125  | 6.3  | LBF-121F-010E  | 13    | LBF-121F-020E  | HC3   | LBF-121F-030E  | HC5   | LBF-121F-050E  | HC8     | LBF-121F-100E   | (2) HC6 |
| 150  | 5.2  | LBF-151F-010E  | 14    | LBF-151F-020E  | HC4   | LBF-151F-030E  | HC6   | LBF-151F-050E  | (2) HC6 | LBF-151F-100E   | (2) HC7 |
| 200  | 3.9  | LBF-201F-010E  | 14    | LBF-201F-020E  | HC5   | LBF-201F-030E  | HC9   | LBF-201F-050E  | (2) HC6 | LBF-201F-100E   | (2) HC9 |
| 250  | 3.2  | LBF-251F-010E  | 14    | LBF-251F-020E  | HC5   | LBF-251F-030E  | HC9   | LBF-251F-050E  | (2) HC8 | LBF-251F-100E   | (3) HC7 |