STANDARD LIFT STATION PUMPS AND WETWELL SIZING REQUIREMENTS

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This document approved by the Broward County Water & Wastewater Services Technical Standards Committee.

Steven W. Uhrick, P.E, Chair

No technical changes were made to this document since its last issuance. Only the letterhead and format were updated.
<table>
<thead>
<tr>
<th>HP</th>
<th>Ebara Model Number</th>
<th>Impeller</th>
<th>Pump Discharge Size</th>
<th>Acceptable Pump Operating Range (gpm)</th>
<th>Minimum Wet Well Diameter</th>
<th>Minimum Distance Between Pumps Off and Wet Well Bottom (inches)</th>
<th>Minimum Distance Between Influent Pipe Invert and Wet Well Bottom (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Low Head</td>
<td>100DLFU62.2</td>
<td>160mm</td>
<td>4-inch</td>
<td>120-360</td>
<td>6-feet</td>
<td>16</td>
<td>60</td>
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<td>80DLMFU62.2</td>
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<td>60-180</td>
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<td>60</td>
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<td>5</td>
<td>100DLMFU63.7</td>
<td>189mm</td>
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<td>150-430</td>
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<td>100DLMFU65.5</td>
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<td>280-840</td>
<td>8-feet</td>
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<td>150DLFU630</td>
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</tbody>
</table>

1. Electrical service must be 3 phase. 240 volt service is acceptable for pumps 20 horsepower and smaller, but 480 volt service is strongly preferred. 480 volt service is required above 20 horsepower.

2. For pumps 30 horsepower and smaller, the impeller shown is the only impeller allowed. For pumps larger than 30 horsepower, the impeller can be shaved to better match operating conditions.
3. Pumps larger than 50 horsepower will be treated as a special case. Pump selection, wet well diameter and wet well distance between influent pipe invert and wetwell bottom must be approved by the Technical Standards Committee.

4. Acceptable pump operating range based on 40% to 120% of best operating efficiency point. Force main velocities must be between 2.0 and 5.0 feet per second.

5. "Minimum Distance Between Pump Off and Wet Well Bottom" is based on half the pump height.

6. "Minimum Distance Between Influent Pipe Invert and Wet Well Bottom" is based on the largest pump that fit into the wet well operating at 120% of BEP with the pumps off point set at half the pump height, 12 inches between first pump on and second pump on, 6 inches between second pump on and alarm, 1 inch between alarm and influent pipe invert and operating ranges based on the following cycle times:
   - Under 15 horsepower: 5 minutes per pump
   - 15 HP to 25 horsepower: 7 minutes per pump
   - Over 25 horsepower: 10 minutes per pump
EBARA Submersible Sewage Pumps

Model Designation

DISCHARGE SIZE – mm
- 50mm – 2"
- 80mm – 3"
- 100mm – 4"
- 150mm – 6"
- 200mm – 8"
- 250mm – 10"
- 300mm – 12"

MODEL TYPE
- DLF/DLMF – submersible sewage pump
- DLFM/DLMFM – FM explosion proof designation

GEOGRAPHIC DESIGNATION
- U – U.S.A. market

HERTZ
- 6 - 60

RATED KW
- 1.5 – 2HP
- 2.2 – 3HP
- 3.7 – 5HP
- 5.5 – 7½HP
- 7.5 – 10HP
- 11 – 15HP
- 15 – 20HP
- 18 – 25HP
- 22 – 30HP
- 30 – 40HP
- 37 – 50HP
- 45 – 60HP

PHASE
- none – three phase

VOLTAGE
- 2 - 208/230
- 4 - 460
- 5 - 575
3 HP LOW HEAD
(Use 4-inch discharge)

100DLF62.2 (3HP) Synchronous Speed: 1800 RPM 3, 4 inch Discharge

EBARA International Corporation
2-174
rev.01/02
3 HP HIGH HEAD
(Use 4-inch discharge)
5 HP
(Use 4-inch discharge)

100DLMF63.7 (5HP) Synchronous Speed: 1800 RPM

3, 4 inch Discharge

Curve No: DLM-G807-9203
Solid Dia 3"
LL100

Max. Dia: 180mm
Min. Dia: 171mm

Efficiency (%)
Total Head (ft)

Brake Horsepower (BHP)
Capacity USGPM
7.5 HP
(Use 4-inch discharge)

100DLMF65.5 (7½ HP) Synchronous Speed: 1800 RPM

3, 4 inch Discharge

Curve No: DLM-0608-9203
Solid Dia 3"
LL100

Max. Dia 207mm
Min. Dia 186mm
10 HP High Head
(Use 4-inch discharge)
15 HP LOW HEAD
(Use 4-inch discharge)

100DLF611 (15HP) Synchronous Speed: 1800 RPM 4.6 inch Discharge

EBARA International Corporation
2-177
rev. 01/02
15 HP MEDIUM HEAD
(Use 4-inch discharge)
15 HP HIGH HEAD
(Use 4-inch discharge)

80DLCMF611 (15HP) Synchronous Speed: 1800 RPM

3, 4 inch Discharge

Curve No: DLM-C605-9203
Solid Dia 3"
Ll80

Efficiency (%) vs. Capacity USGPM

Max Dia. 215/541mm

Mid Dia. 191/257mm

Efficiency

Total Head (ft)

BHP

Brake Horsepower (BHP)

Capacity USGPM
20 HP LOW HEAD
(Use 6-inch discharge)
20 HP HIGH HEAD
(Use 4-inch discharge)
25 HP
(Use 4-inch discharge)
30 HP
(Use 6-inch discharge)
40 HP

150DLF630 (40HP) Synchronous Speed: 1800 RPM  6 inch Discharge