WWS STANDARD LIFT STATION PUMPS

Date Issued: February 1, 2017
Date Last Issued: May 2, 2012
Date First Issued: January 3, 2006

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

David J. O’connor, P.E., Chair

Water and Wastewater Services (WWS) uses a suite of standard pumps for its wastewater lift stations. See Product Specifications for detailed requirements for these pumps. This document contains information on the current set of pumps which may change with each new procurement contract.

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

The Acceptable Operating Range is 40% to 120% of the flow at the best operating point.

The impeller shown is the only impeller allowed. For curves 14 and 15 only, the impeller may be trimmed to meet specific design considerations. All other impellers must be supplied untrimmed.

### WWS Current Standard Pumps

<table>
<thead>
<tr>
<th>Curve</th>
<th>Acceptable Operating Range (gpm)</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Impeller</th>
<th>Horsepower</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>120-360</td>
<td>Ebara</td>
<td>100DLBKFMU62.24 (480v)</td>
<td>DLK-C614-9203</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100DLBKFMU62.22 (240v)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>130-380</td>
<td>Ebara</td>
<td>100DLMGBKFMU63.74 (480v)</td>
<td>DLMK-C607-9203</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100DLMGBKFMU63.72 (240v)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curve</td>
<td>Acceptable Operating Range (gpm)</td>
<td>Manufacturer</td>
<td>Model</td>
<td>Impeller</td>
<td>Horsepower</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------</td>
<td>--------------</td>
<td>-------</td>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td>3</td>
<td>200-600</td>
<td>HOMA</td>
<td>AMX434-193/5.5T/CFM (480v) AMX434/1-206/9.7T/CFM (240v)</td>
<td>7 - 5/8&quot;</td>
<td>5.5</td>
</tr>
<tr>
<td>4</td>
<td>195-590</td>
<td>HOMA</td>
<td>AMX434-206/7.5T/CFM (480v) AMX434-206/7.5T/CFM (240v)</td>
<td>8 - 1/8&quot;</td>
<td>7.5</td>
</tr>
<tr>
<td>5</td>
<td>215-650</td>
<td>HOMA</td>
<td>AMX444-190/10.4T/CFM (480v) AMX444-190/104.4T/CFM (240v)</td>
<td>7-7/8&quot;</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>200-625</td>
<td>HOMA</td>
<td>AMS434-220/10.4T/CFM (480v) AMS434-220/10.4T/CFM (240v)</td>
<td>8-11/16&quot;</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>215-650</td>
<td>HOMA</td>
<td>AMS434-230/13P/CFM (480v) AMS434-230/13P/CFM (240v)</td>
<td>9 - 1/16&quot;</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>210-640</td>
<td>Ebara</td>
<td>100DLMBKFMU6114 (480v) 100DLMBKFMU6112 (240v)</td>
<td>DLMK-C610-9203</td>
<td>15</td>
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<tr>
<td>9</td>
<td>180-540</td>
<td>Ebara</td>
<td>80DLCMBKFMU6114 (480v) 80DLCMBKFMU6112 (240v)</td>
<td>DLMK-C606-9203</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>230-710</td>
<td>HOMA</td>
<td>AMS434-252/20P/CFM (480v) AMS434-252/20P/CFM (240v)</td>
<td>10 - 1/8&quot;</td>
<td>20</td>
</tr>
<tr>
<td>12</td>
<td>260-770</td>
<td>Ebara</td>
<td>100DLMBKFMU6184 (480v)</td>
<td>DLMK-C612-9203</td>
<td>25</td>
</tr>
<tr>
<td>13</td>
<td>480-1440</td>
<td>Ebara</td>
<td>150DLBKFMU6224 (480v)</td>
<td>DLK-C626-9203</td>
<td>30</td>
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<tr>
<td>14</td>
<td>480-1440</td>
<td>HOMA</td>
<td>150DLBFMU63024 (480v)</td>
<td>DLY-C601-9203</td>
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<tr>
<td>15</td>
<td>580-1740</td>
<td>HOMA</td>
<td>AMX644-350/70G/CFM (480v)</td>
<td>13-13/16&quot;</td>
<td>60</td>
</tr>
</tbody>
</table>
Acceptable Operating Range shown as a solid line.
Acceptable Operating Range shown as a solid line.
Ebara Submersible Sewage Pump

Performance Curve 1

Model: 100DLBKFMU62.22/4  HP: 3  FLA: 9.2/4.6  Date: 3/11/11

Curve No: DLK-C614-9203
Solid Dia 3"
LM80

![Chart showing TDH, Efficiency, Flow, and Power vs. Flow for the Ebara Submersible Sewage Pump Model 100DLBKFMU62.22/4.](chart.png)
Ebara Submersible Sewage Pump

Performance Curve 2

Model: 100DLMBKFMU63.72/4  HP: 5  FLA: 14.2/7.1  Date: 7/21/10

Curve No:DLMK-C607-9203
Solid Dia 3"
LL100
Impeller

<table>
<thead>
<tr>
<th>Impeller type:</th>
<th>Solid size</th>
<th>Ø:</th>
<th>Max. Ø:</th>
<th>Min. Ø:</th>
<th>Sel. Ø:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single channel impeller</td>
<td>3 inch</td>
<td>Ø:</td>
<td>8&quot;&quot;</td>
<td>7&quot;</td>
<td>7&quot;/8&quot;</td>
</tr>
</tbody>
</table>

Operating data

<table>
<thead>
<tr>
<th>Speed:</th>
<th>Frequency:</th>
<th>Duty point:</th>
<th>Shaft power P2:</th>
<th>Discharge port:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1750 rpm</td>
<td>60 Hz</td>
<td>Q = 660 US g.p.m. H = 28 ft</td>
<td>5.49 hp</td>
<td>4&quot; ANSI</td>
</tr>
</tbody>
</table>

Power data referred to: Water, clean [100%] : 68°F; 62.322lb/ft³; 1.0818E-5ft²/s

Testnorm: P2>10kW, Hi-Standard Grade 2B
P2<10kW, Hi Standard Sect.14.6.3.4.1
Performance Curve
AMX434-206/7,5T/C FM
Curve #4: 4.01, 4.02

Impeller

<table>
<thead>
<tr>
<th>Impeller type:</th>
<th>Solid size</th>
<th>Ø:</th>
<th>Max. Ø:</th>
<th>Min. Ø:</th>
<th>Sel. Ø:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single channel impeller</td>
<td>3 inch</td>
<td>7.02 hp</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Operating data

<table>
<thead>
<tr>
<th>Speed:</th>
<th>Frequency:</th>
<th>Duty point:</th>
<th>Shaft power P2:</th>
<th>Discharge port:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1750 rpm</td>
<td>60 Hz</td>
<td>Q = 720 US g.p.m. H = 30 ft</td>
<td>7.02 hp</td>
<td>4” ANSI</td>
</tr>
</tbody>
</table>

Power data referred to: Water, clean [100%]; 68°F; 62.322lb/ft³; 1.0818E-5ft²/s

Testnorm: P2<10kW, HI-Standard Sect.14.6.3.4.1

Shaft power P2:
Curve #4: 4.01, 4.02
Performance Curve

AMX444-190/10,4T/C FM

Curve #5: 5.01, 5.02

### Impeller

<table>
<thead>
<tr>
<th>Impeller type:</th>
<th>Solid size</th>
<th>Ø:</th>
<th>Max. Ø:</th>
<th>Min. Ø:</th>
<th>Sel. Ø:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single channel impeller</td>
<td>4 inch</td>
<td>8.92 hp</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Operating data

| Speed: | 1750 rpm |
| Frequency: | 60 Hz |
| Duty point: | Q = 1008 US g.p.m. H = 26 ft |
| Shaft power P2: | 8.92 hp |
| Discharge port: | 4" ANSI |

Power data referred to: Water, clean [100%]: 68°F; 62.322lb/ft³; 1.0775E-5ft³/s

Testnorm: P2>10kW, HI-Standard Grade 2B

P2<10kW, HI Standard Sect.14.6.3.4.1

2.0.1 - 14.05.2013 (Build 84)
Impeller

Impeller type: Single channel impeller
Solid size: 3 inch
Ø: 9 1/16"
Max. Ø: 7 1/16"
Min. Ø: 8 1/16"
Sel. Ø: 8 1/16"

Operating data

Speed: 1750 rpm
Frequency: 60 Hz
Duty point: Q = 720 US g.p.m. H = 40 ft
Shaft power P2: 9.65 hp
Discharge port: 4” ANSI

Power data referred to:
Water, clean [100%] ; 68°F; 62.322lb/ft³; 1.0818E-5ft²/s

Testnorm: HI Standard Sect. 14.6.3.4.1
## Performance Curve

AMS434-230/13P/C FM

### Impeller

<table>
<thead>
<tr>
<th>Impeller type:</th>
<th>Solid size</th>
<th>Ø:</th>
<th>Max. Ø:</th>
<th>Ø:</th>
<th>Min. Ø:</th>
<th>Sel. Ø:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single channel impeller</td>
<td>80 mm</td>
<td>230 mm</td>
<td>190 mm</td>
<td>230 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Operating Data

<table>
<thead>
<tr>
<th>Speed:</th>
<th>1750 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency:</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Duty point:</td>
<td>Q = 0 US g.p.m., H = 0 ft</td>
</tr>
</tbody>
</table>

### Shaft power P2: 4" ANSI

### Discharge port: 4" ANSI

Power data referred to:
Water, clean [100%]: 68°F; 62.322 lb/ft³; 1.0818E-5 ft²/s

Test norm: HI Standard Sect. 14.6.3.4.1

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![Performance Curve Graph](graph)

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Project: Broward
Project no.: Curve 7.01 - 7.02
Created by: Hidalgo, Jimmy
Page: 2
Date: 2015-09-30
Ebara Submersible Sewage Pump

Performance Curve 8

Model: 100DLMBKFMU6112/4  HP: 15  FLA: 39.2/19.6  Date: 12/9/10

Curve No:DLMK-C610-9203
Solid Dia 3"
LL100

![Graph showing performance curve with TDH, Flow, and Efficiency data.]
**Impeller**

| Impeller type: Single channel impeller | Solid size: 4 inch | Ø: | Max. Ø: 10⅜" | Min. Ø: 8⅞" | Sel. Ø: 10⅜" |

**Operating data**

| Speed: 1750 rpm | Frequency: 60 Hz | Duty point: Q = 1008 US g.p.m. H = 55 ft | Shaft power P2: 15.9 hp | Discharge port: 4" ANSI |

Power data referred to: Water, clean [100%] ; 68° F; 62.322lb/ft³; 1.0775E-5ft²/s

Testnorm: P2>10kW, Hi-Standard Grade 2B
P2<10kW, Hi Standard Sect.14.6.3.4.1

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**Performance Curve**

- **Head**
- **Efficiency**
- **Shaft power P2**
### Impeller

<table>
<thead>
<tr>
<th>Impeller type:</th>
<th>Solid size</th>
<th>Ø (Max):</th>
<th>Ø (Min):</th>
<th>Ø (Sel.):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single channel impeller</td>
<td>4 inch</td>
<td>10 1/8&quot;</td>
<td>8 1/2&quot;</td>
<td>10 1/8&quot;</td>
</tr>
</tbody>
</table>

### Operating data

<table>
<thead>
<tr>
<th>Speed:</th>
<th>Frequency:</th>
<th>Duty point:</th>
<th>Shaft power P2:</th>
<th>Discharge port:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1750 rpm</td>
<td>60 Hz</td>
<td>Q = 948 US g.p.m.; H = 62 ft</td>
<td>15.9 hp</td>
<td>4&quot; ANSI</td>
</tr>
</tbody>
</table>

Power data referred to: Water, clean [100%]; 68°F; 62.322 lb/ft³; 1.0775E-5 ft²/s

Test norm: P2<10kW, Hi-Standard Sect.14.6.3.4.1

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![Performance Curve](attachment:image.png)

*AMS434-260/20P/C FM*

Curve #11: 11.01, 11.02

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Project: 
Project no.: 
Created by: 
Page: 2 
Date: 2015-01-30
Ebara Submersible Sewage Pump

Performance Curve 12

Model: 100DLMBKFMU6182/4  HP: 25  FLA: 66.6/33.3  Date: 7/1/10

Curve No: DLMK-C612-9203
Solid Dia 3"
LL100

Flow (gpm) vs. TDH (ft)

Flow (gpm) vs. Efficiency (%)

Flow (gpm) vs. Power (hp)
Ebara Submersible Sewage Pump

Performance Curve 13

Model: 150DLBKFMU6222/4 HP: 30 FLA: 77.6/38.8 Date: 4/1/11

Curve No: DLK-C626-9203
Solid Dia 3"
LL150

Flow (gpm)

Efficiency (%)

TDH (ft)

Flow (gpm)

Power (hp)

Flow (gpm)
Performance Curve 14

Model: 150DLBFMU6302/4  HP: 40  FLA: 95.8/47.9  Date: 4/1/11

Curve No: DLY-C601-9203
Solid Dia 3”
LL150Y

Flow (gpm)

Efficiency (%)

TDH (ft)

Power (hp)

Flow (gpm)
Performance Curve

AMX644-350/70G/C FM

Curve #15: 15.01

Impeller

<table>
<thead>
<tr>
<th>Impeller type:</th>
<th>Solid size</th>
<th>Ø:</th>
<th>Max. Ø:</th>
<th>Min. Ø:</th>
<th>Sel. Ø:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single channel impeller</td>
<td>4 inch</td>
<td></td>
<td>14%</td>
<td>12%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Operating data

| Speed: | 1750 rpm | Frequency: | 60 Hz | Duty point: | Q = 1728 US g.p.m. | H = 95 ft | Shaft power P2: | 58.5 hp | Discharge port: | 6" ANSI |

Power data referred to: Water [100%] ; 68°F; 62.322lb/ft³; 1.0818E-5ft²/s

Testnorm: P2>10kW, HI-Standard Grade 2B
P2<10kW, HI Standard Sect.14.6.3.4.1