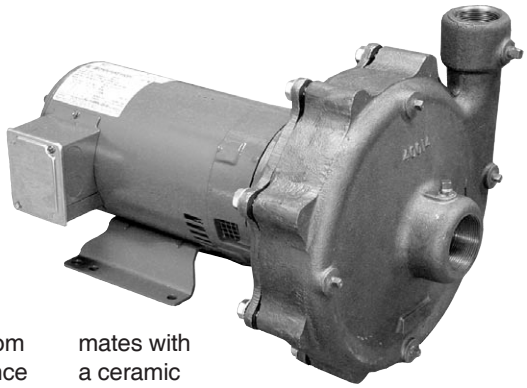
MTH PUMPS

# D51 • D61 • D71 • D91 Series



- **Capacities to 240 GPM**
- **Heads to 360 Feet**
- **Horizontal Close Coupled**

Close-coupled centrifugal pumps from MTH provide economical performance up to 240 GPM applications requiring heads to 360 feet. By combining the latest concepts in pump design with precision manufacturing, the D Series pumps deliver excellent efficiency and low NPSH requirements. Efficient manufacturing processes and highly optimized mechanical designs control costs. Maintenance costs are kept to a minimum by combining a highly serviceable design with quality components to provide a long service life.

**Casing**
Standard casing construction of all units is ASTM A48 Class 30 cast iron. All bronze casings are currently available in the D71 and D91 Series only. In all models, the discharge can be rotated to any 90° position and NPT suction and discharge ports are standard. Back pull out design allows the pump to be serviced without disturbing the piping. The volute was designed to maximize hydraulic efficiency.

**Mechanical Seal**
Type 21 Buna-N seal is rated to 225°F and pressures to 175 PSI and is used on the D51, D61, D71, and D91 Series. The carbon seal face mates with a ceramic seat providing years of trouble-free service. The seal cooling jacket high temperature version of the D51 unit uses a Type 21 Viton seal that is rated to 400°F with pressures to 175 PSI. Alternate seals available upon request.

**Impeller**
The hydraulic design of the enclosed impellers maximizes pressure and capacity while minimizing horsepower. All standard D Series models feature a cast bronze impeller, while the high temp jacketed version of the D51 utilizes a vacuum cast enclosed impeller made of CDA87500 silicon bronze for high temperature resistance. This high temp D51 also features a pressed-on throttle bushing which fits snugly into the motor bracket to restrict hot fluid circulation into the cooled seal cavity.

**Motor Bracket**
Standard construction for motor brackets is ASTM A48 Class 30 cast iron, while the D71 and D91 Series are also available in bronze. Precise machining of the D Series motor brackets allows easy assembly of the pumps. A 1/8" NPT hole is provided in the motor bracket for a seal flush line if desired. The D51 also comes in a high temp version that has a motor bracket with a cast-in seal cooling jacket which allows fluids up to 500°F to be pumped without damage to the mechanical seal or the motor. The seal chamber is specially machined to allow minimal hot liquid circulation, which keeps the area cool. The water jacket has 1/2" NPT ports every 90° for easy water line connections.

**Motor**
The NEMA JM frame motor found on the D71 and D91 Series utilizes a high carbon steel shaft. The NEMA 56J frame motors used on the D51 and D61 Series utilize a 416 stainless steel shaft. The motor's heavy duty ball bearings withstand heavy axial and radial thrust loads. Standard enclosure type is open drip-proof with alternatives available on request.

**STANDARD MATERIALS**

| PART | BRONZE FITTED | ALL BRONZE |
|---|---|---|
| Motor Bracket | Cast Iron ASTM A48 | Bronze ASTM B62 |
| Casing | Cast Iron ASTM A48 | Bronze ASTM B62 |
| Impeller | Bronze CDA 87500 | Bronze CDA 87500 |
| 56J Motor Shaft | Stainless Steel AISI 416 | Stainless Steel AISI 416 |
| JM Motor Shaft | High Carbon Steel | High Carbon Steel |
| "O" Rings | Buna N | Buna N |
| Seals | Carbon/Buna | Carbon/Buna |
| Seats | Ceramic/Buna | Ceramic/Buna |

**LIMITATIONS**

| | |
|---|---|
| Discharge Pressure | 250 PSI |
| Suction Pressure (Max) | 250 PSI |
| Suction Pressure (Min.) | 26" Hg Vac. |
| Speed (Max.) | 3600 RPM |
| **Temperature** | |
| Standard Construction | -20° F |
| Ceramic Seal Seat - Water Graph. Imp. Silicon Carbide | +225° F |
| Seal Seat & Seal Flush Cooling Jacketed | +250° F<br>500° F |
| **Horsepower** | |
| 56J Frame | 3 HP |
| JM Frame | 100 HP |

# Engineering Specifications



### HORIZONTAL CLOSE-COUPLED

The contractor shall furnish (and install as shown on the plans) a close coupled, centrifugal, (bronze fitted) (all bronze) pump model _____. Pump shall have a standard NPT discharge size of __" and a suction size of __" and shall have a capacity of ___GPM when operated at a total head of ___feet.

The pump casing shall be a radially split, horizontal close-coupled end suction style. The casing shall be rotated to a (0° or 12 o'clock) (90°) (180°) (270°) mounting position. There shall be four drain/air ports drilled and tapped 90° apart. The casing should feature a back pull out design.

The pump is to be furnished with a mechanical seal which incorporates stainless steel parts, (Buna-N) (EPR) (Viton) elastomers, and a (Carbon/Ceramic) (Silicon Carbide) seal/seat.

The motor bracket shall be drilled and tapped to allow for the possible addition of a seal flush line.

The pump shall be close-coupled to a NEMA (56J) (___JM) C face ___HP ___Phase ___Hertz ___Volt ___RPM (Open Drip-Proof) (TEFC) (EXP) motor. The motor shall be sized to prevent overloading at the duty point. The motor shall have a stainless steel shaft for 56J motors and high carbon steel for JM motors. All motors will have sealed bearings.

All external cast iron parts shall have at least one coat of a high grade baked on powder coat paint to retard corrosion. Each unit shall be checked by the contractor to regulate the correct pressure, voltage, and amp draw.

### VERTICAL FLANGE MOUNT

The contractor shall furnish (and install as shown on the plans) a close coupled vertical flange mount, centrifugal, (bronze fitted) (all bronze) pump model _____. Pump shall have a standard NPT discharge size of __" and a Shipco/ Dunham Bush style flange suction and shall have a capacity of ___GPM when operated at a total head of ___feet.

The pump casing shall be a radially split, vertical flange mount style. There shall be four drain/air ports drilled and tapped 90° apart. The casing should feature a back pull out design.

The pump is to be furnished with a mechanical seal which incorporates stainless steel parts, (Buna-N) (EPR) (Viton) elastomers, and a (Carbon/Ceramic) (Silicon Carbide) seal/seat.

The motor bracket shall be drilled and tapped to allow for the possible addition of a seal flush line.

The pump shall be close-coupled to a NEMA (56J) (___JM) C face ___HP ___Phase ___Hertz ___Volt ___RPM (Open Drip-Proof) (TEFC) motor. The motor shall be sized to prevent overloading at the duty point. The motor shall have a stainless steel shaft for 56J motors and high carbon steel for JM motors. All motors will have sealed bearings.

All external cast iron parts shall have at least one coat of a high grade baked on powder coat paint to retard corrosion. Each unit shall be checked by the contractor to regulate the correct pressure, voltage, and amp draw.

### JACKETED HORIZONTAL CLOSE-COUPLED

The contractor shall furnish (and install as shown on the plans) a close coupled, centrifugal, (bronze fitted) (all bronze) pump model _____. Pump shall have a standard NPT discharge size of __" and a suction size of __" and shall have a capacity of ___GPM when operated at a total head of ___feet.

The pump casing shall be a radially split, horizontal end suction style. The casing shall be rotated to a (0° or 12 o'clock) (90°) (180°) (270°) mounting position. There shall be four drain/air ports drilled and tapped 90° apart. The casing should feature a back pull out design.

The pump is to be furnished with a mechanical seal which incorporates stainless steel parts, Viton elastomers, and a (Carbon/Ceramic) (Silicon Carbide) seal/seat.

The motor bracket shall be drilled and tapped to allow for a seal cooling chilled water flow. The motor bracket shall also include a thermal isolation bushing.

The pump shall be close-coupled to a NEMA 56J C face ___HP ___Phase ___Hertz ___Volt ___RPM (Open Drip-Proof) (TEFC) motor. The motor shall be sized to prevent overloading at the duty point. The motor shall have a stainless steel shaft and sealed ball bearings.

All external cast iron parts shall have at least one coat of a high grade baked on powder coat paint to retard corrosion. Each unit shall be checked by the contractor to regulate the correct pressure, voltage, and amp draw.

### SELF-PRIMING HORIZONTAL CLOSE-COUPLED

The contractor shall furnish (and install as shown on the plans) a close coupled self-priming, centrifugal, (bronze fitted) (all bronze) pump model _____. Pump shall have a standard NPT discharge size of __" and a suction size of __" and shall have a capacity of ___GPM when operated at a total head of ___feet.

The pump casing shall be a radially split, horizontal end suction self-priming style. There shall be two drain/air ports drilled and tapped. The casing should feature a back pull out design.

The pump is to be furnished with a mechanical seal which incorporates stainless steel parts, (Buna-N) (EPR) (Viton) elastomers, and a (Carbon/Ceramic) (Silicon Carbide) seal/seat.

The motor bracket shall be drilled and tapped to allow for the possible addition of a seal flush line.

The pump shall be close-coupled to a NEMA 56J C face ___HP ___Phase ___Hertz ___Volt ___RPM (Open Drip-Proof) (TEFC) motor. The motor shall be sized to prevent overloading at the duty point. The motor shall have a stainless steel shaft and sealed ball bearings.

All external cast iron parts shall have at least one coat of a high grade baked on powder coat paint to retard corrosion. Each unit shall be checked by the contractor to regulate the correct pressure, voltage, and amp draw.

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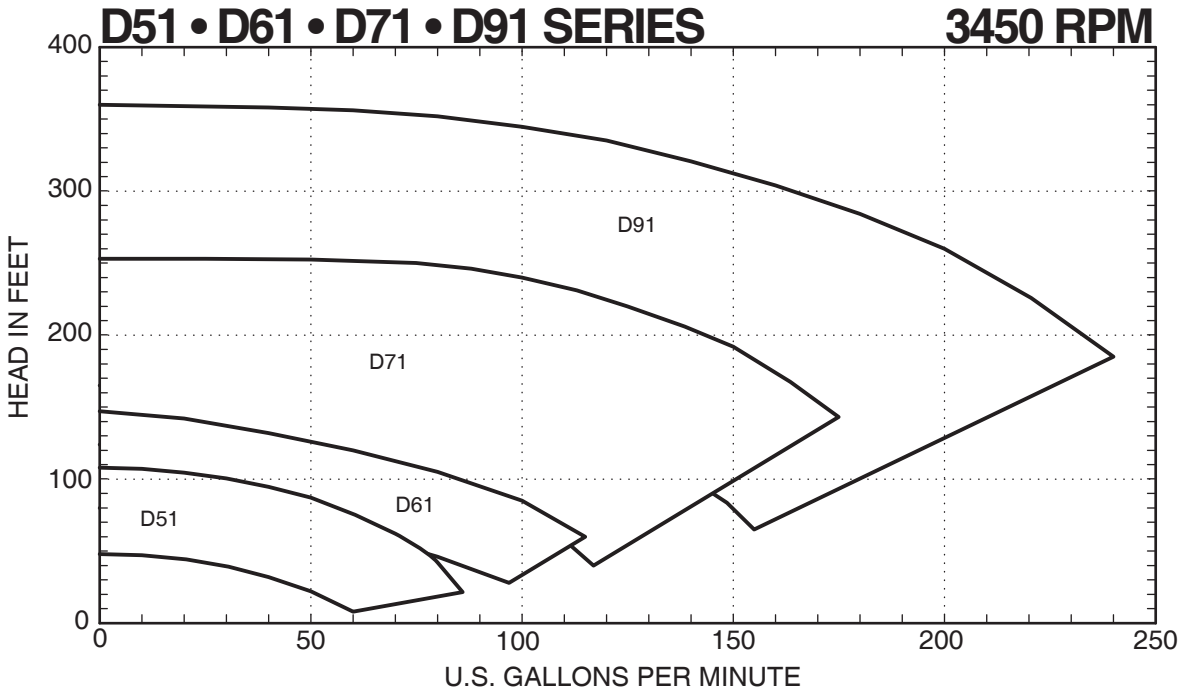
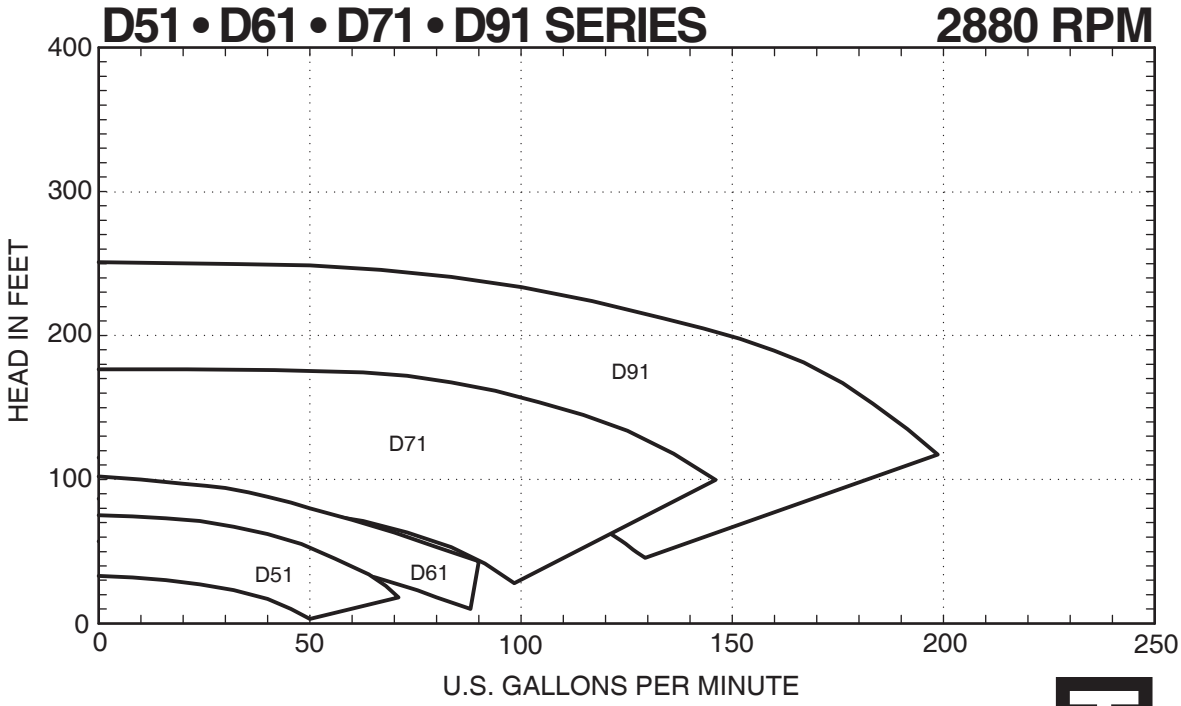
# Composite Curves



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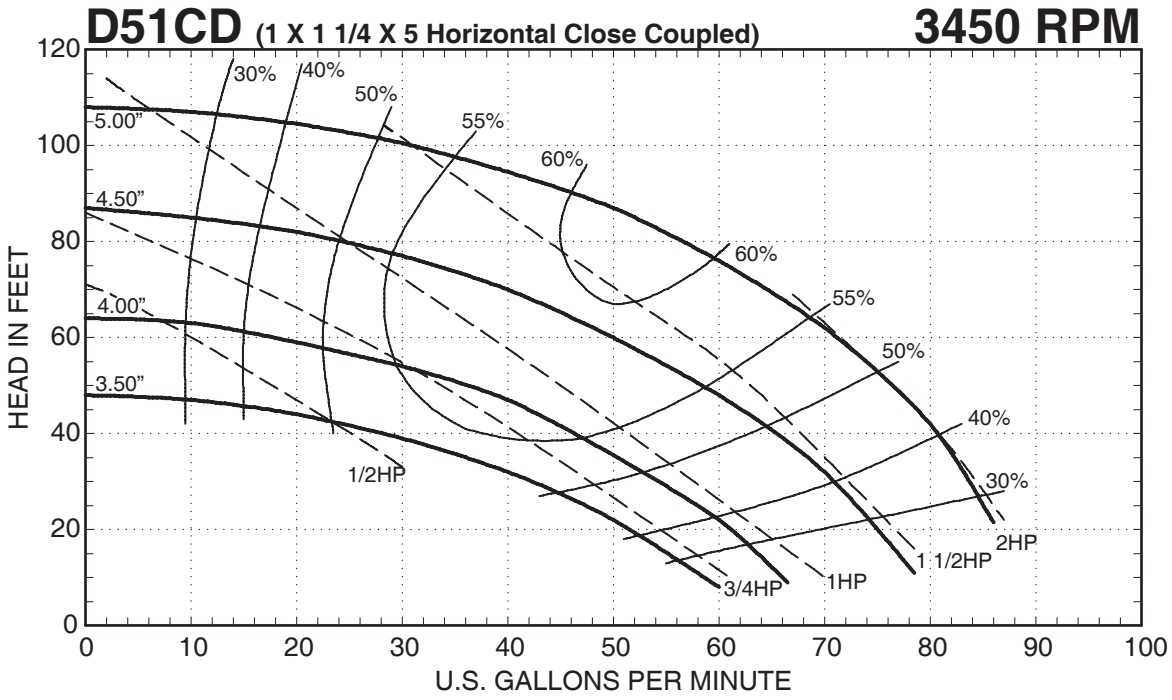
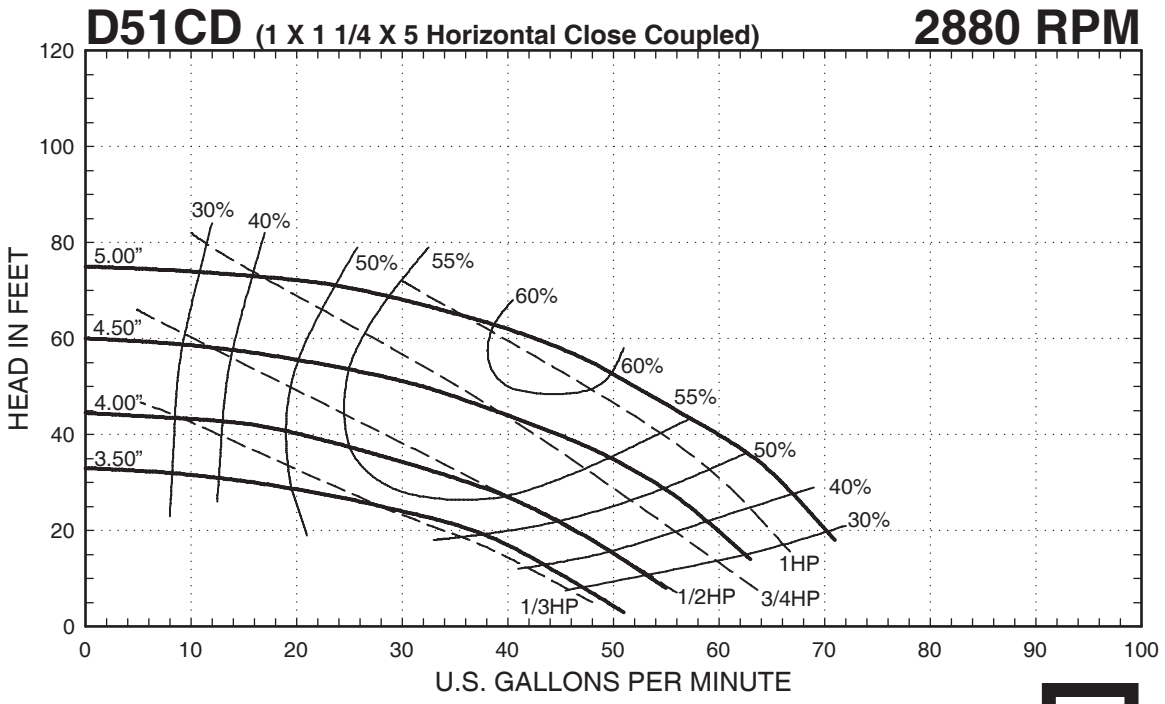
# Performance Curves



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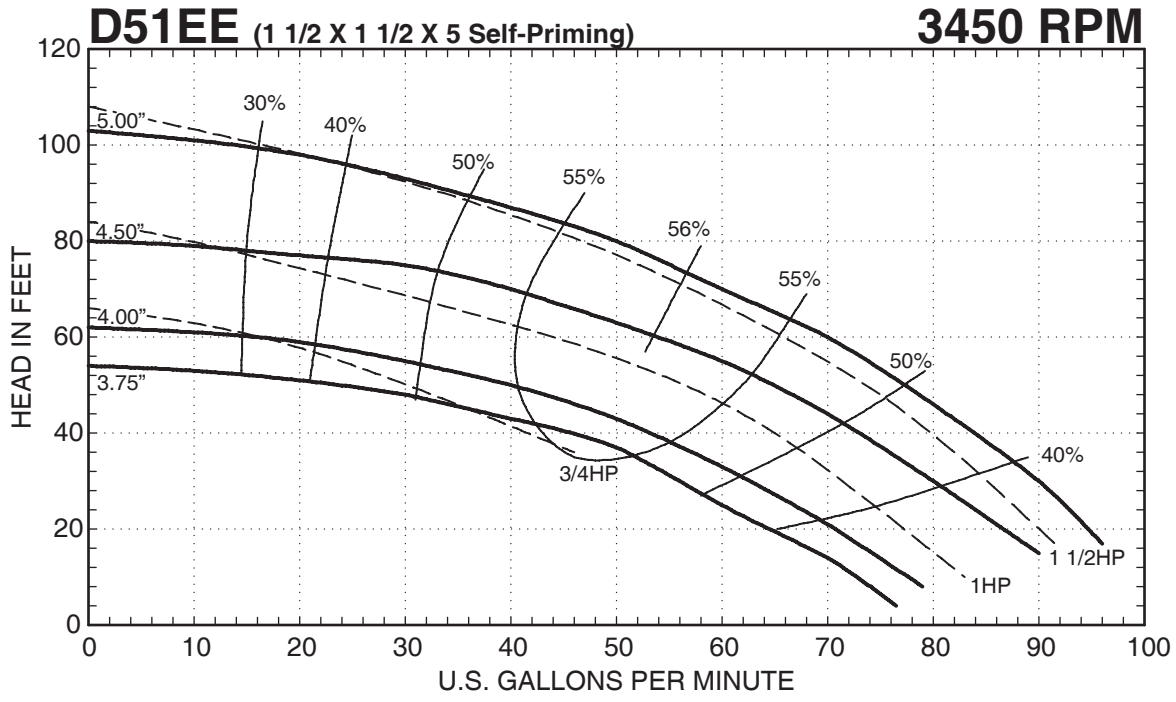


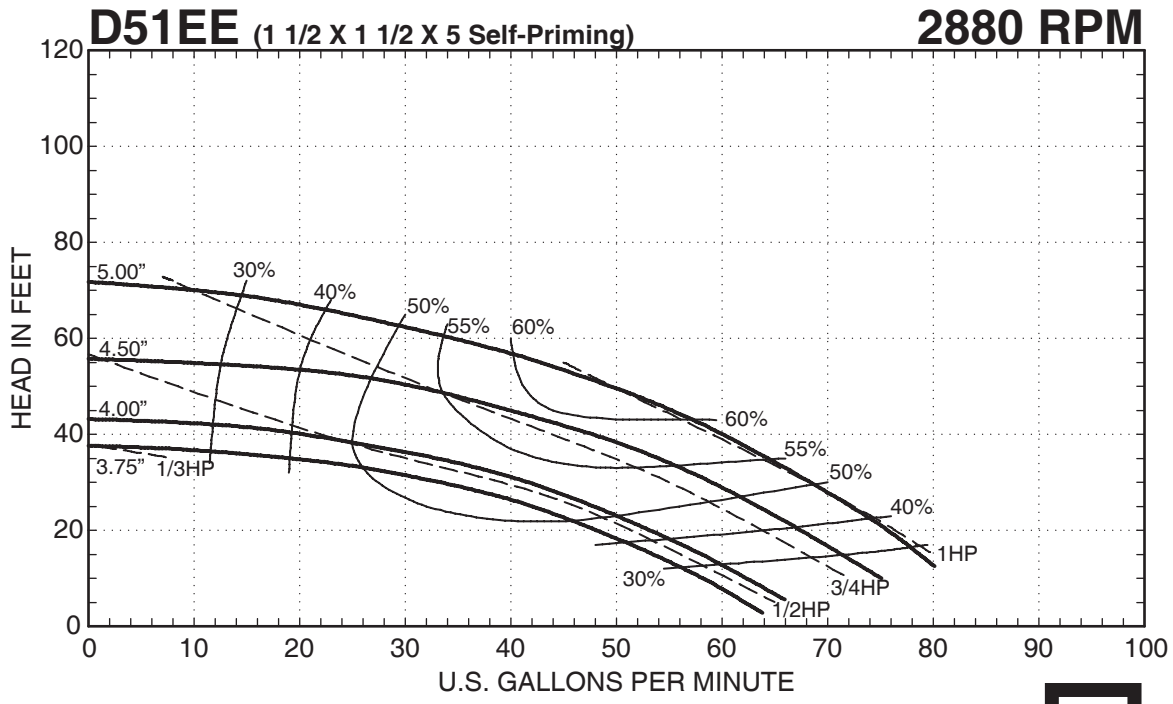


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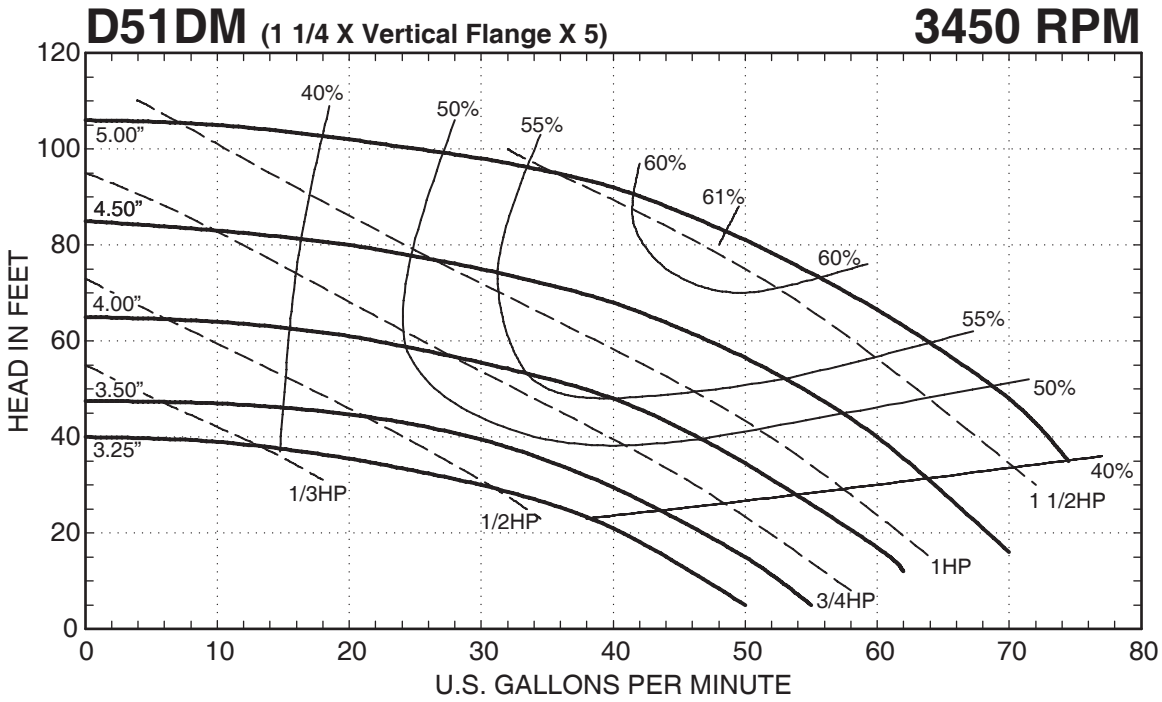


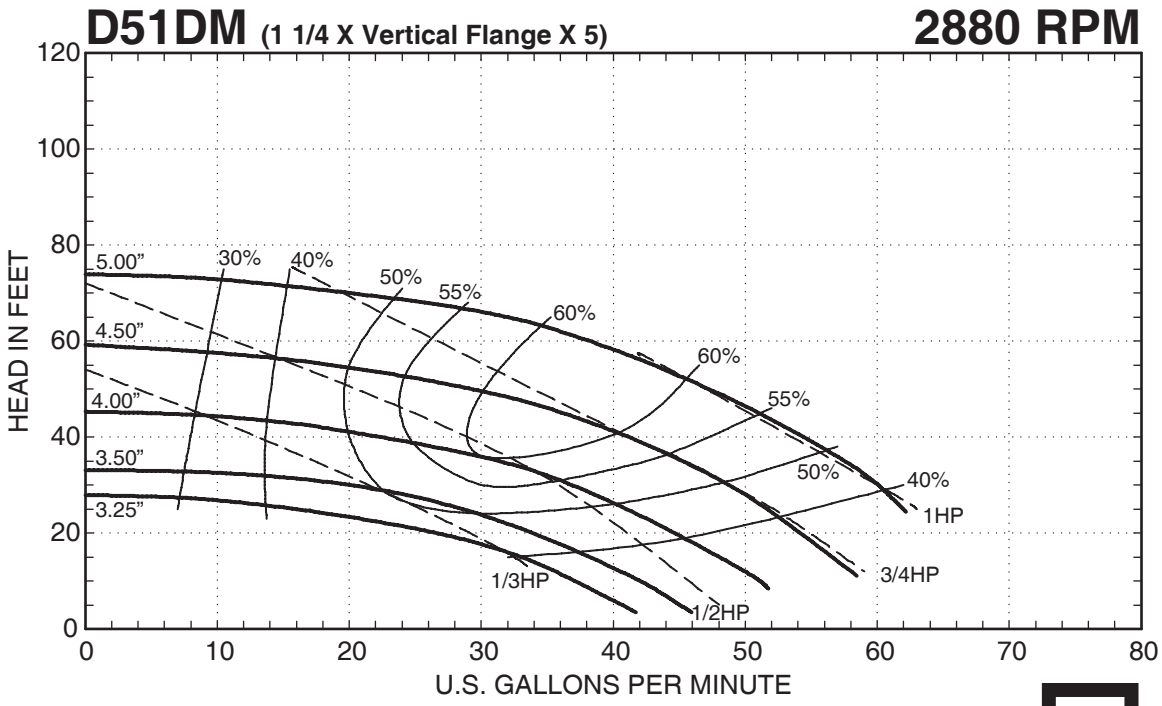


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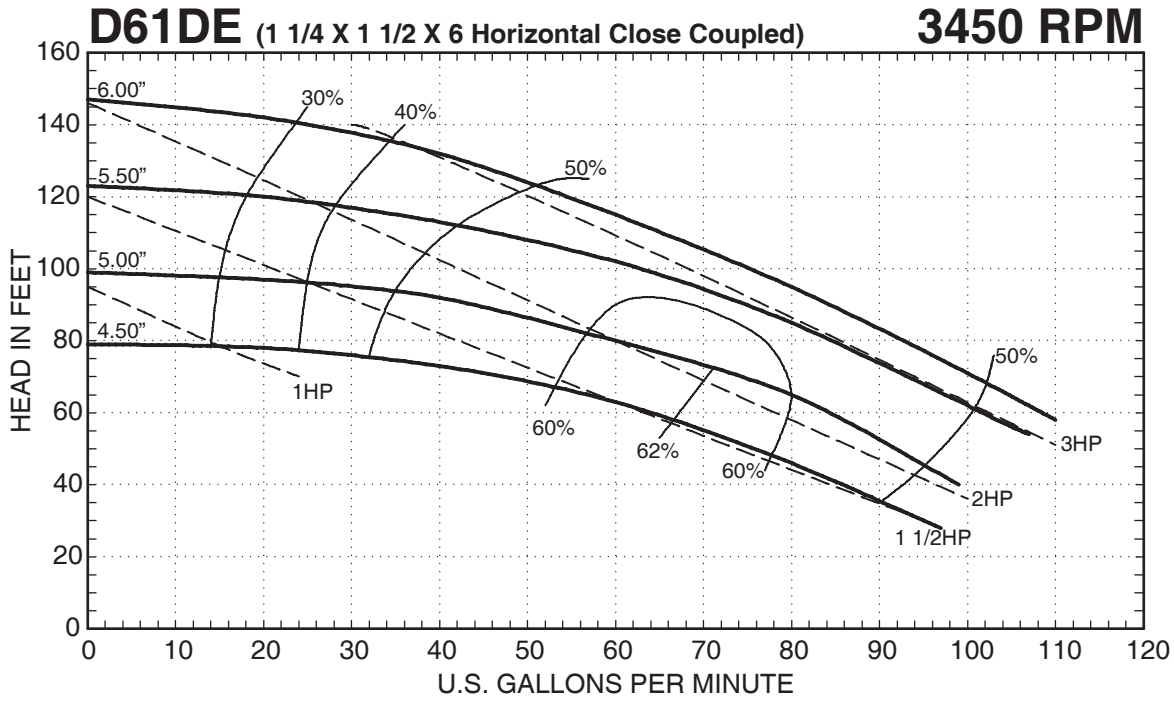


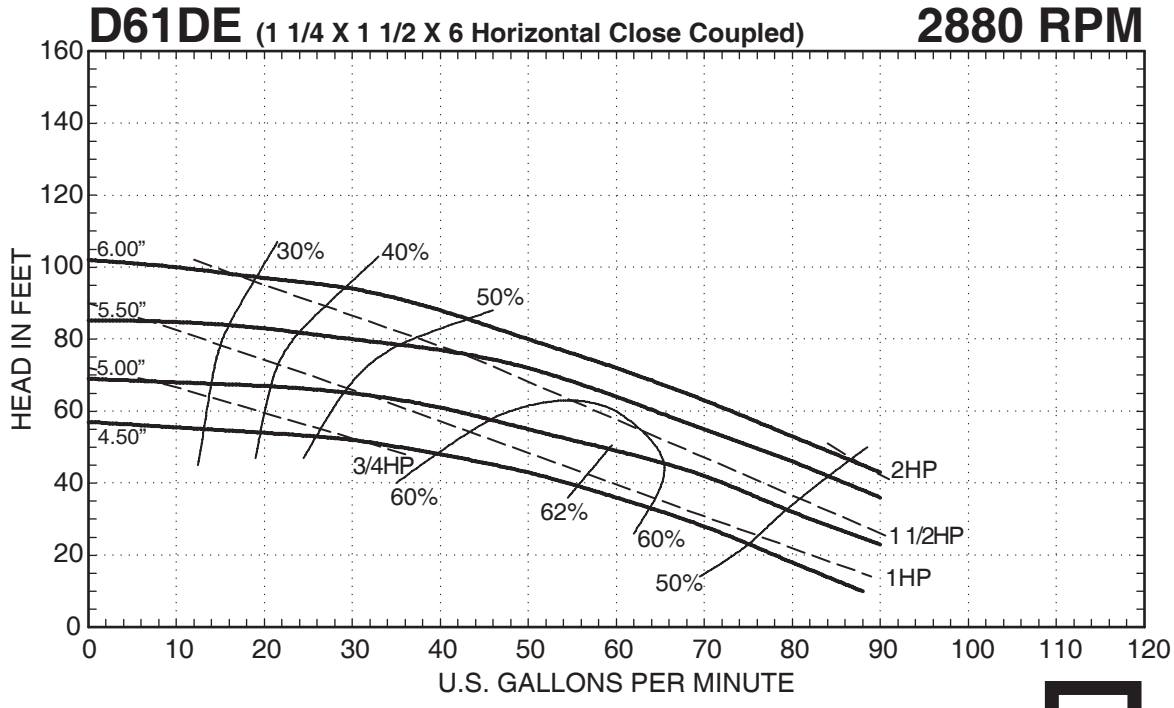


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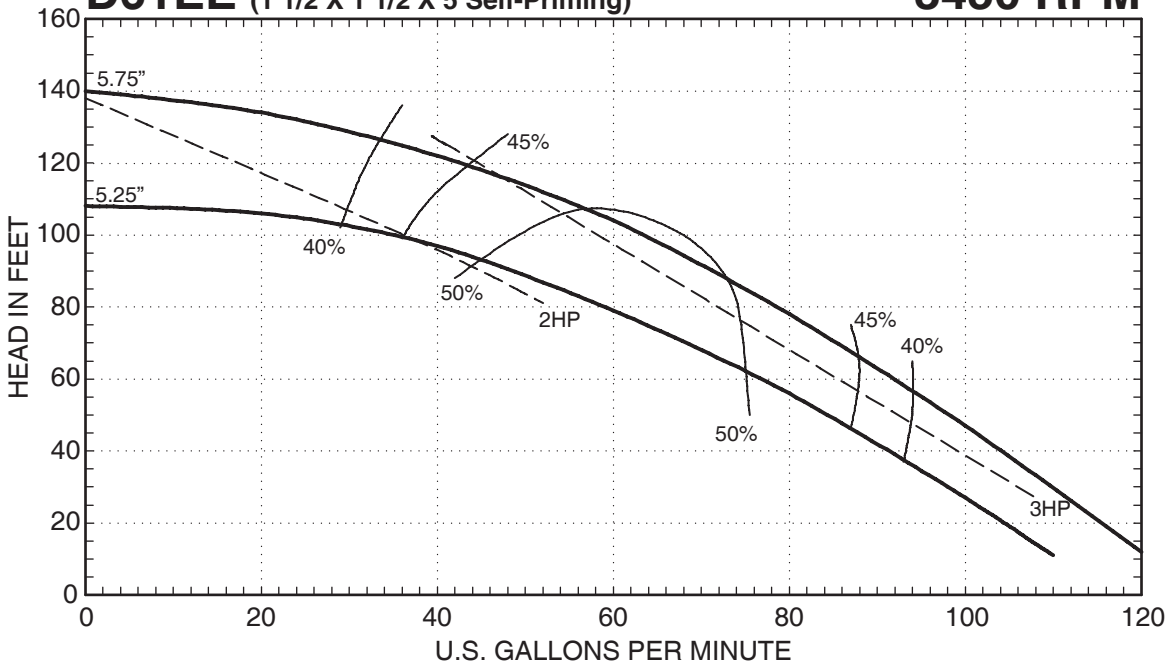
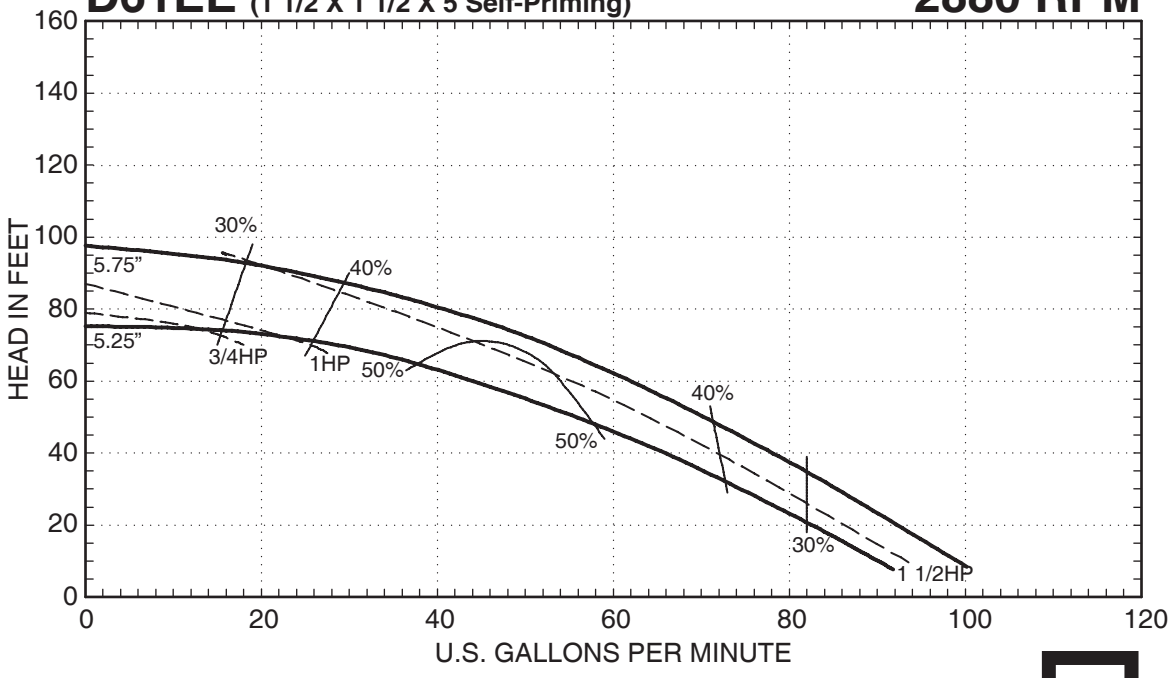
# Performance Curves



## D61EE (1 1/2 X 1 1/2 X 5 Self-Priming) 3450 RPM




## D61EE (1 1/2 X 1 1/2 X 5 Self-Priming) 2880 RPM

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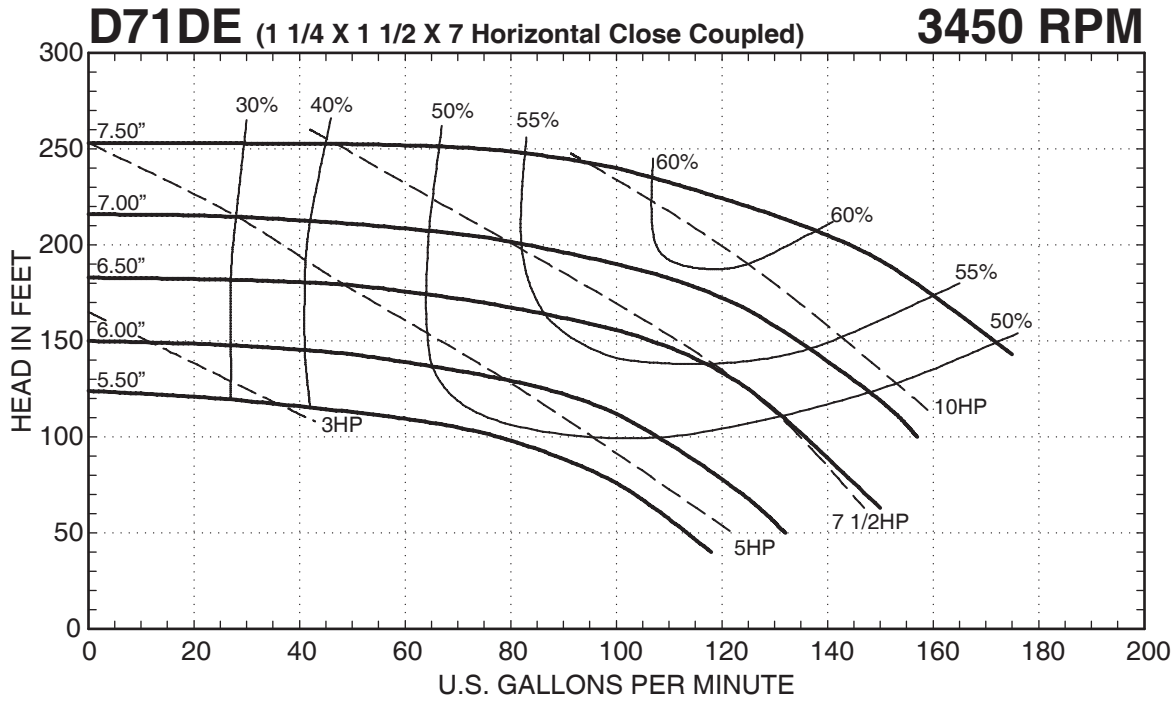


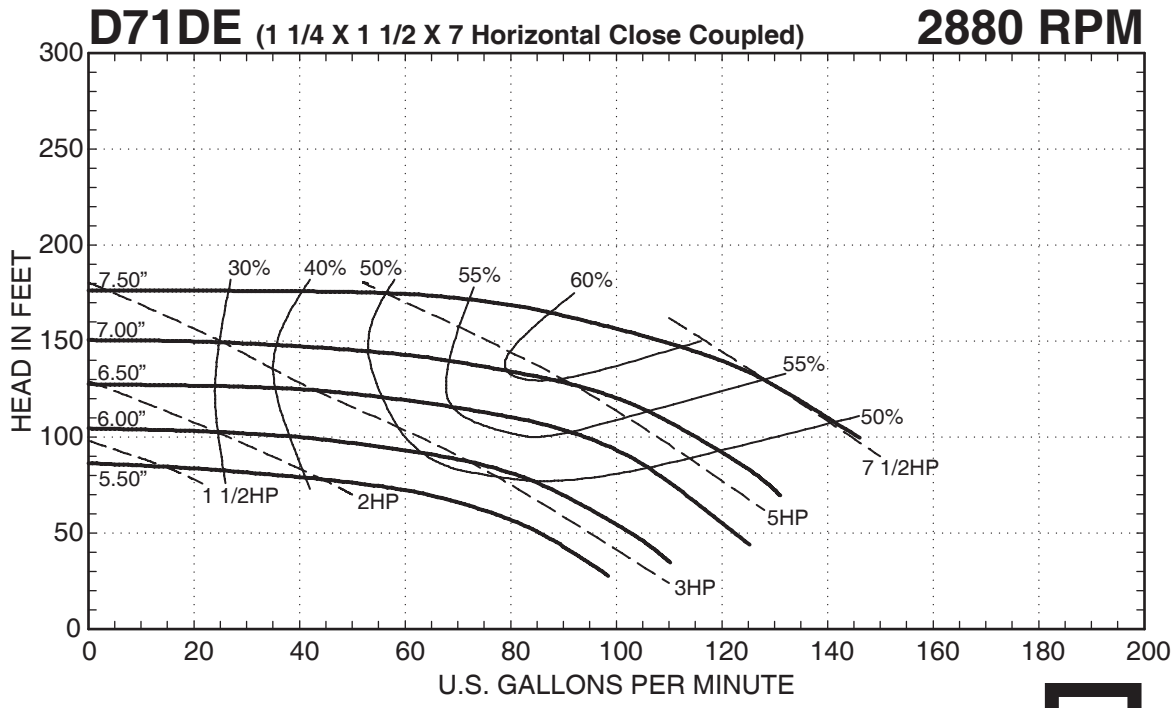


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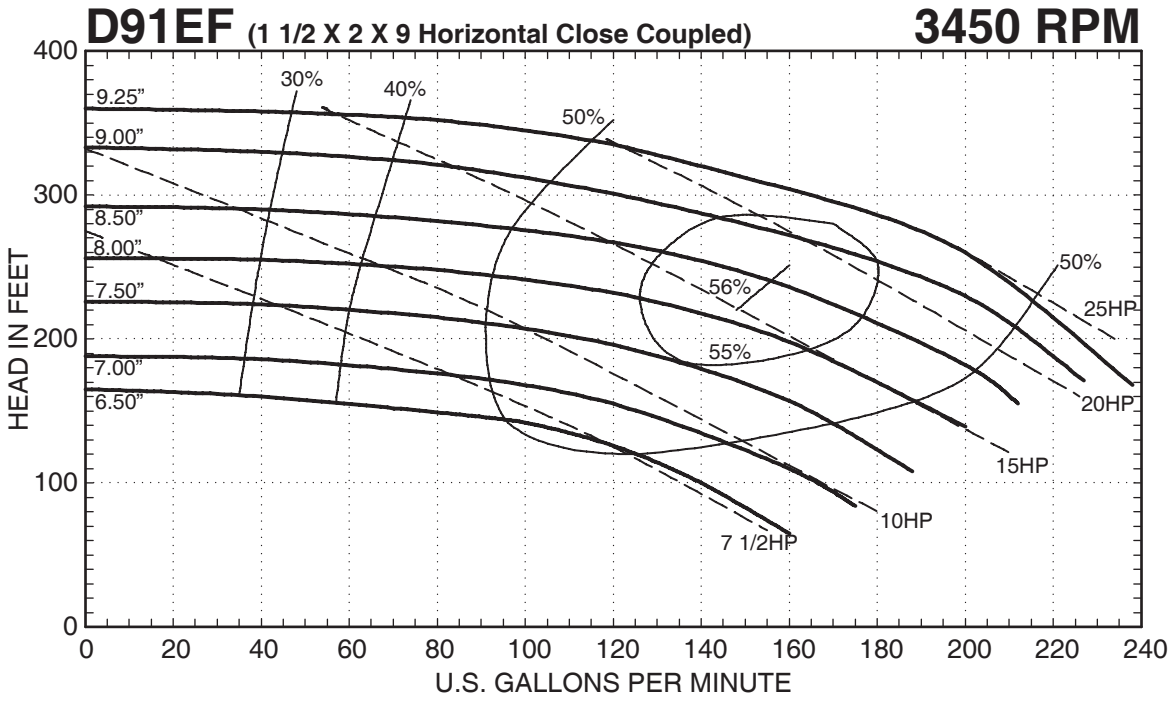


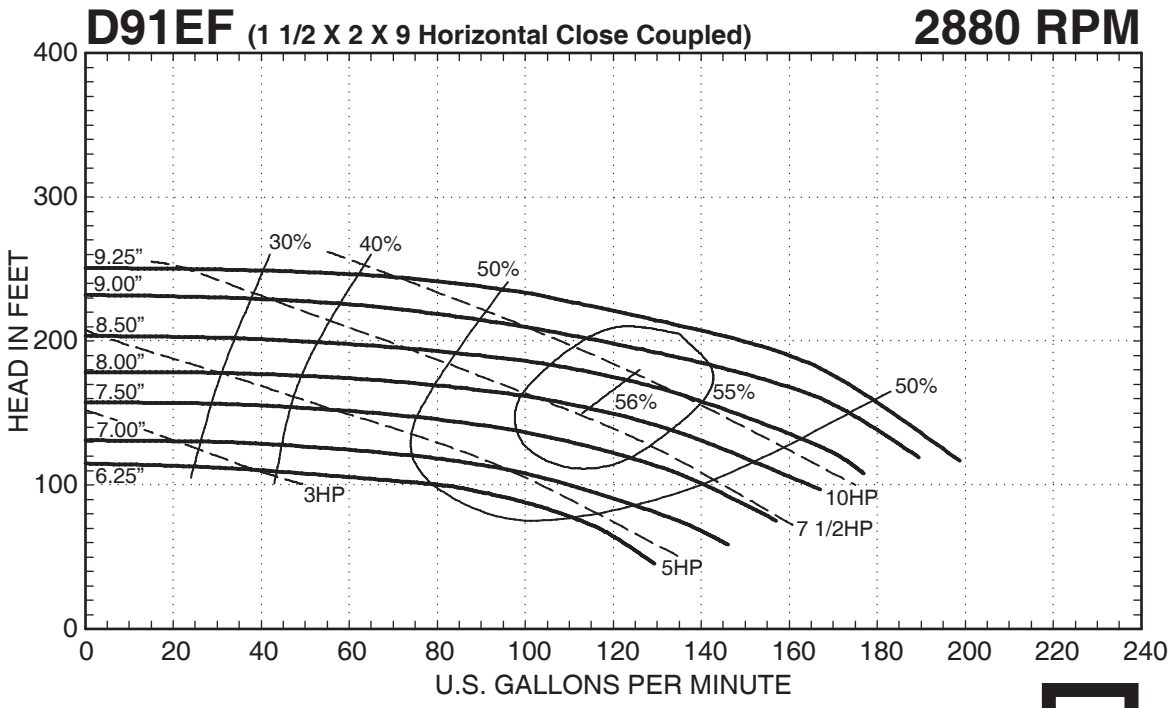


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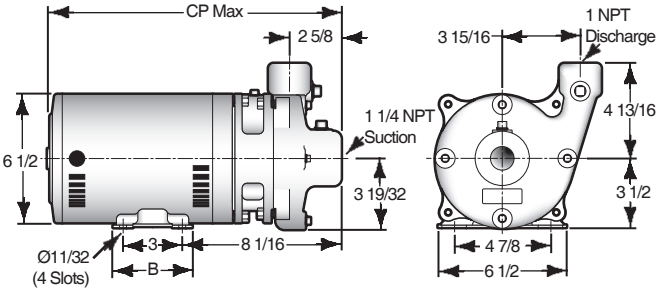
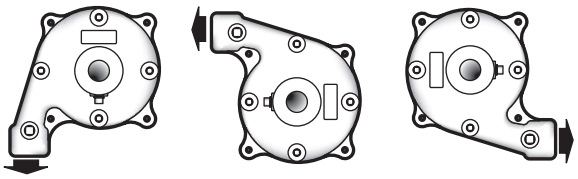
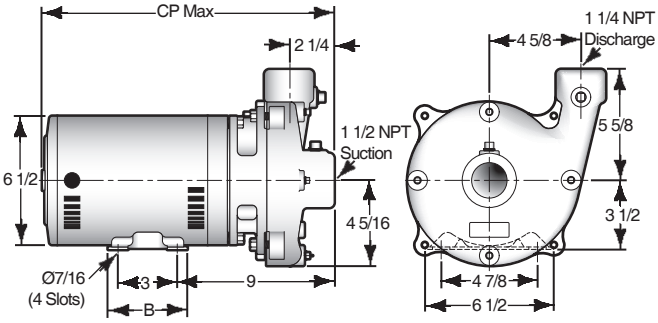
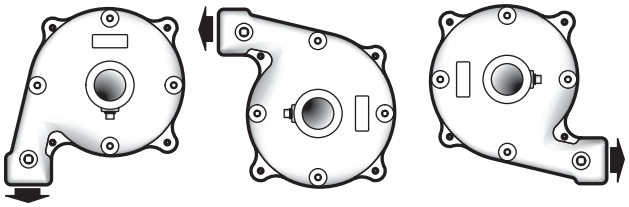
D51 SERIES

# Dimensions



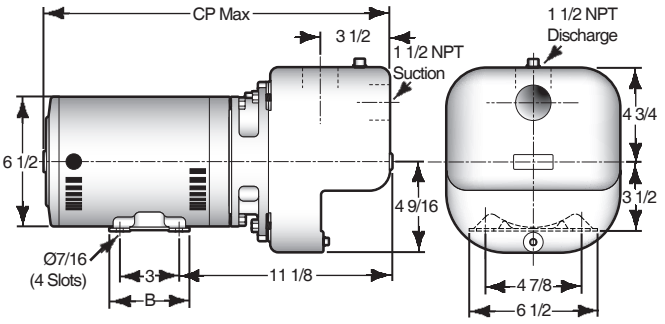



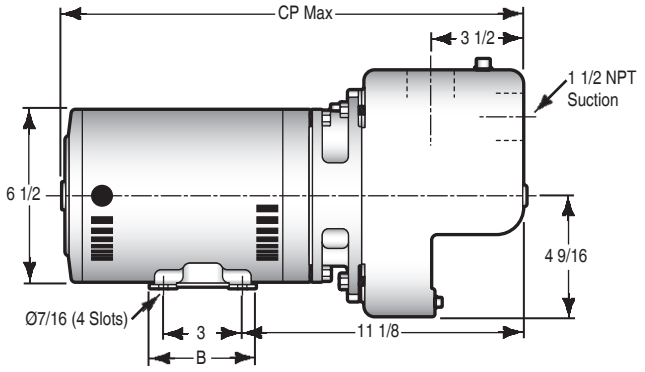

## D51CD (1 X 1 1/4 X 5) HORIZONTAL CLOSE-COUPLED

| HP | FRAME | B | CP MAX | |
|---|---|---|---|---|
| | | | 3Φ 208-230/460V | 1Φ 115/230V |
| 1/3 | 56J | 3 3/4 | 14 | 13 7/8 |
| 1/2 | 56J | 3 3/4 | 14 1/8 | 14 3/8 |
| 3/4 | 56J | 4 | 14 3/4 | 15 |
| 1 | 56J | 4 | 15 3/16 | 15 1/2 |
| 1 1/2 | 56J | 4 | 16 3/4 | 16 3/4 |
| 2 | 56J | 6 1/2 | 16 3/4 | 17 1/2 |
| 3 | 56J | 6 1/2 | 16 3/4 | 18 1/4 |

## D61DE (1 1/4 X 1 1/2 X 6) HORIZONTAL CLOSE COUPLED

| HP | FRAME | B | CP MAX | |
|---|---|---|---|---|
| | | | 3Φ 208-230/460V | 1Φ 115/230V |
| 1/3 | 56J | 3 3/4 | 14 | 13 7/8 |
| 1/2 | 56J | 3 3/4 | 14 1/8 | 14 3/8 |
| 3/4 | 56J | 4 | 14 3/4 | 15 |
| 1 | 56J | 4 | 15 3/16 | 15 1/2 |
| 1 1/2 | 56J | 4 | 16 3/4 | 16 3/4 |
| 2 | 56J | 6 1/2 | 16 3/4 | 17 1/2 |
| 3 | 56J | 6 1/2 | 16 3/4 | 18 1/4 |




## D51EE (1 1/2 X 1 1/2 X 5) SELF-PRIMING

| HP | FRAME | B | CP MAX | |
|---|---|---|---|---|
| | | | 3Φ 208-230/460V | 1Φ 115/230V |
| 1/3 | 56J | 3 3/4 | 14 | 13 7/8 |
| 1/2 | 56J | 3 3/4 | 14 1/8 | 14 3/8 |
| 3/4 | 56J | 4 | 14 3/4 | 15 |
| 1 | 56J | 4 | 15 3/16 | 15 1/2 |
| 1 1/2 | 56J | 4 | 16 3/4 | 16 3/4 |
| 2 | 56J | 6 1/2 | 16 3/4 | 17 1/2 |
| 3 | 56J | 6 1/2 | 16 3/4 | 18 1/4 |

## D61EE (1 1/2 X 1 1/2 X 6) SELF-PRIMING

| HP | FRAME | B | CP MAX | |
|---|---|---|---|---|
| | | | 3Φ 208-230/460V | 1Φ 115/230V |
| 1/3 | 56J | 3 3/4 | 14 1/8 | 14 5/8 |
| 1/2 | 56J | 3 3/4 | 14 7/8 | 15 1/8 |
| 3/4 | 56J | 4 | 15 3/8 | 15 3/4 |
| 1 | 56J | 4 | 15 7/8 | 161/4 |
| 1 1/2 | 56J | 4 | 17 9/16 | 17 5/8 |
| 2 | 56J | 6 1/2 | 17 9/16 | 18 1/4 |
| 3 | 56J | 6 1/2 | 17 9/16 | 18 |

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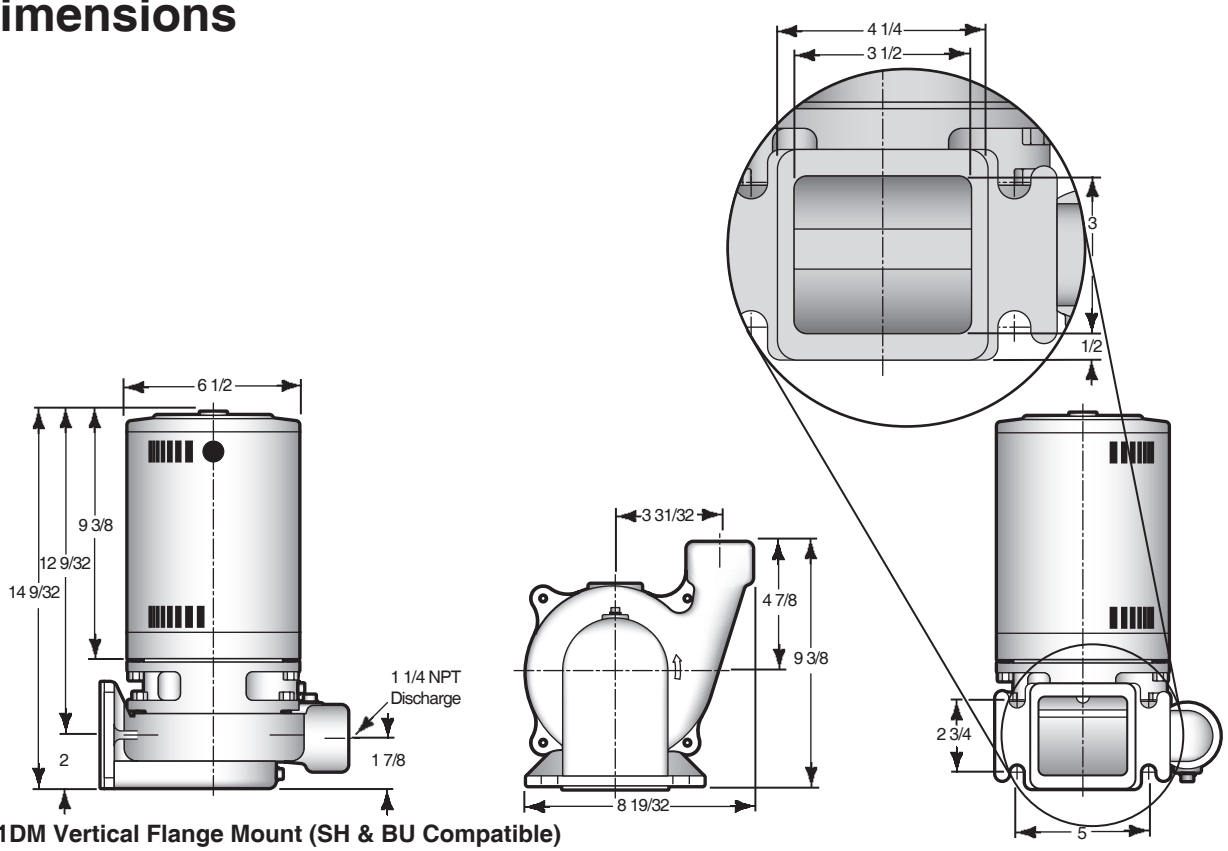
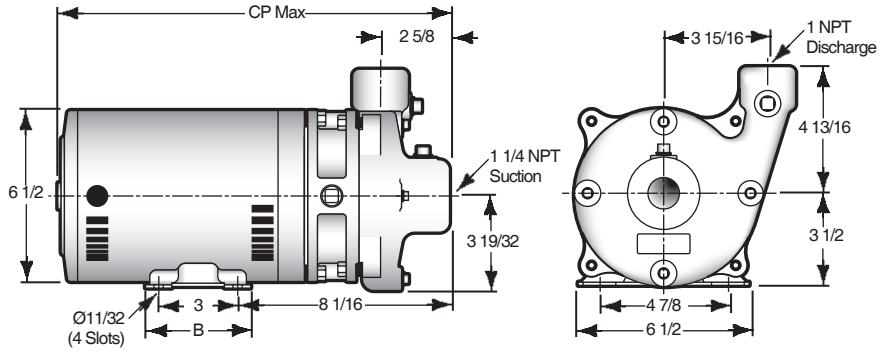
D51 SERIES

# Dimensions






**D51DM Vertical Flange Mount (SH & BU Compatible)**




**D51CD (1 X 1 1/4 X 5) COOLING JACKETED**

| HP | FRAME | B | CP MAX | |
|---|---|---|---|---|
| | | | 3Φ 208-230/460V | 1Φ 115/230V |
| 1/3 | 56J | 3 3/4 | 14 | 13 7/8 |
| 1/2 | 56J | 3 3/4 | 14 1/8 | 14 3/8 |
| 3/4 | 56J | 4 | 14 3/4 | 15 |
| 1 | 56J | 4 | 15 3/16 | 15 1/2 |
| 1 1/2 | 56J | 4 | 16 3/4 | 16 3/4 |
| 2 | 56J | 6 1/2 | 16 3/4 | 17 1/2 |
| 3 | 56J | 6 1/2 | 16 3/4 | 18 1/4 |

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D61 SERIES

# Dimensions



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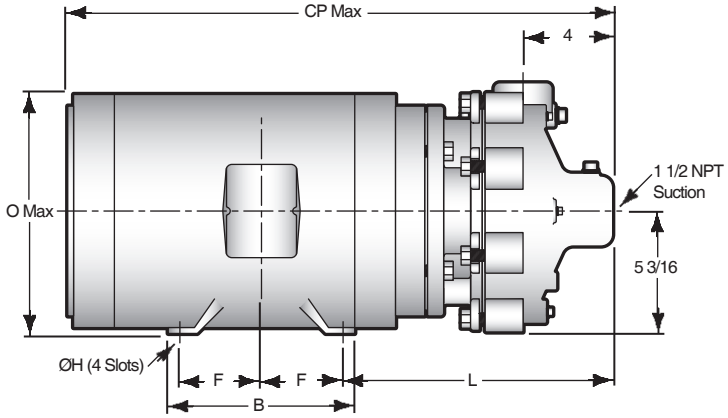
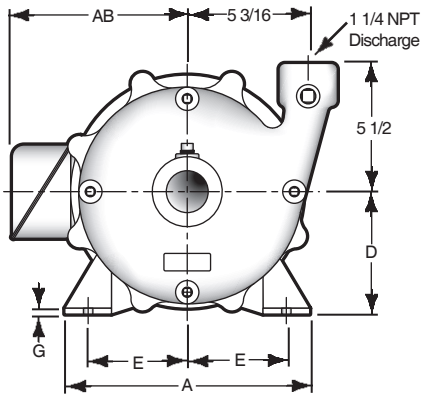
D71 SERIES

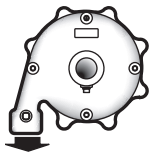
# Dimensions



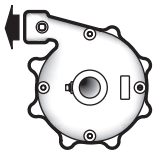


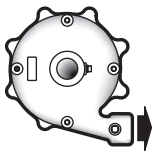

**Optional 180° Position**



**Optional 270° Position**



**Optional 90° Position**



**D71DE (1 1/4 X 1 1/2 X 7) HORIZONTAL CLOSE COUPLED**

| HP | FRAME SIZE | A | AB | B | CP MAX | D | E | F | G | H | L | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1, 1 1/2 | 143JM | 7 | 5 1/4 | 5 7/8 | 22 3/4 | 3 1/2 | 2 3/4 | 2 | 1/8 | 11/32 | 10 5/16 | 6 7/8 |
| 2, 3 | 145JM | | | | 221/4 | | | 2 1/2 | | | | |
| 5 | 182JM | 9 | 5 7/8 | 6 1/2 | 25 3/32 | 4 1/2 | 3 3/4 | 2 1/4 | 3/16 | 13/32 | 10 13/32 | 8 7/16 |
| 7 1/2 | 184JM | | | | 25 15/16 | | | 2 3/4 | | | | |
| 10 | 213JM | 10 1/2 | 7 3/8 | 8 | 27 5/8 | 5 1/4 | 4 1/4 | 2 3/4 | 1/4 | 13/32 | 11 9/16 | 10 1/16 |
| 15 | 215JM | | | | 29 1/8 | | | 3 1/2 | | | | |

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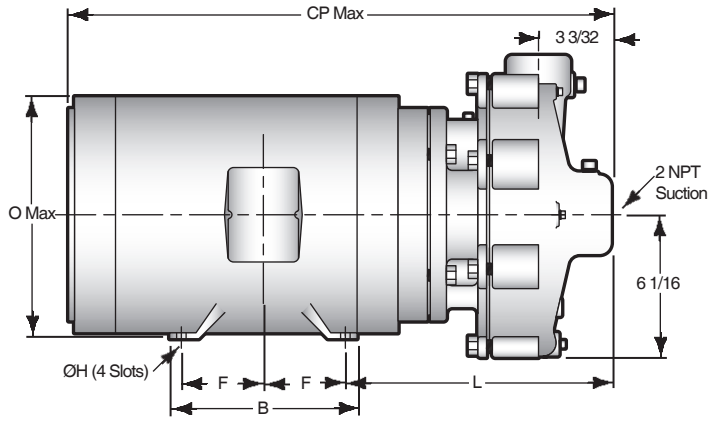
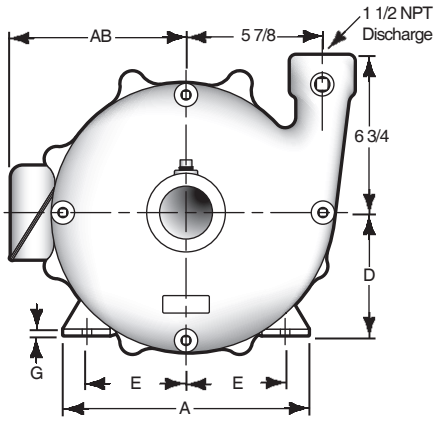
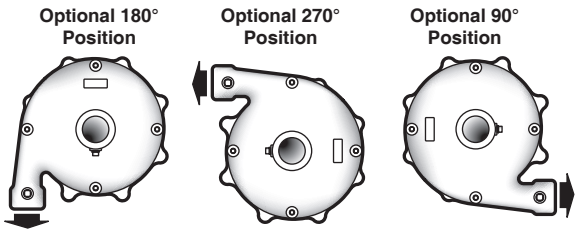
D91 SERIES

# Dimensions




**D91EF (1 1/2 X 2 X 9) HORIZONTAL CLOSE COUPLED**

| HP | FRAME SIZE | A | AB | B | CP MAX | D | E | F | G | H | L | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1, 1 1/2 | 143JM | 7 | 7 1/16 | 5 7/8 | 22 19/32 | 3 1/2 | 2 3/4 | 2 | 1/8 | 11/32 | 10 5/32 | 7 1/2 |
| 2, 3 | 145JM | | | | 24 3/32 | | | 2 1/2 | | | 10 5/32 | |
| 5 | 182JM | 9 | 8 1/8 | 61/2 | 24 15/16 | 4 1/2 | 3 3/4 | 2 1/4 | 3/16 | 13/32 | 10 21/32 | 9 3/8 |
| 7 1/2 | 184JM | | | | 25 15/16 | | | 2 3/4 | | | 10 21/32 | |
| 10 | 213JM | 10 1/2 | 9 5/8 | 8 | 27 15/32 | 5 1/4 | 4 1/4 | 2 3/4 | 1/4 | 13/32 | 11 13/32 | 11 |
| 15 | 215JM | | | | 28 31/32 | | | 3 1/2 | | | 11 13/32 | |
| 20 | 254JM | 12 | 11 | 11 | 25 13/16 | 6 1/4 | 5 | 4 1/8 | 1/4 | 17/32 | 13 21/32 | 14 1/8 |
| 25 | 256JM | | | | 27 9/16 | | | 5 | | | | |

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