# Submittal Data

## *NP* Series Dual Circuit Non-pressurized Flow Center

Models 1304 - 1309 NPD2LA / NPD2NA / NPD2LL / NPD2NN / NPD3MA / NPD3ML / NPD3PN

| | |
|---|---|
| Project Name: | Representative: |
| Contractor: | Engineer: |
| Ref/P.O. #: | Date: |
| Submitted by: | Date: |
| Qty: Part #: | Description: |

## Technical Data

Circulator: Grundfos UPMXL 25-124 (vari. speed)*; UPS26-99 (3 speed), UP26-99 and/or UP26-116 (single speed)
Cabinet: Powder coated galvanized steel
Tank: Polyvinyl chloride (PVC)
Insulation: CFC-free polyurethane foam
Valves: Quantity six 1", 3-way, 4-position flushing and isolation/service valves. Four bottom valves have composite body and spool; Top valves have brass body and spool. All valves utilize NBR seals and stainless steel retaining ring.

*Available with standard or inverse profile PWM signal. Cable and/or controller required.

Max. fluid temp.: 140°F [60°C]
Min. fluid temp.: 20°F [-7°C]
Max. operating press.: 13 psig [89.6 kPa]
Max. ambient air temp.: 104°F [40°C]

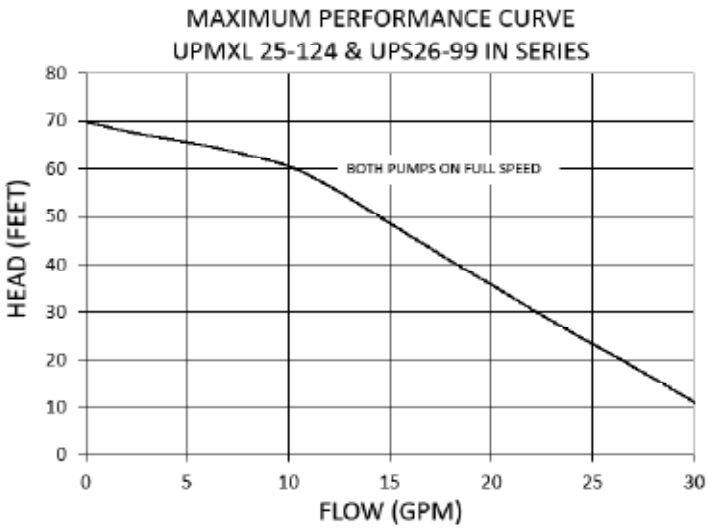
## Electrical Data

UPS26-99 motor: 208-230V, 60 Hz, single phase, 2-pole UL and CSA approved, internal thermal overload protection, insulation class F, three speed
UPMXL 25-124 motor: ECM, 208-230V, 50/60 Hz, single phase, 2-pole, $ETL_{C/US}$ approved (meets UL and CSA requirements), electronically protected, insulation class F, 0.04 to 1.5 Amps, variable speed, PWM controlled via external signal
UP26-116 motor: 208-230V, 60 Hz, single phase, 2-pole UL and CSA approved, internal thermal overload protection, insulation class F, single speed
UP26-99 motor: 208-230V, 60 Hz, single phase, 2-pole UL and CSA approved, internal thermal overload protection, insulation class F, single speed

| Pump Motor | Speed | Nominal HP | Volts | Amps @ 230V* | Watts @ 230V* | Capacitor | Pump Housing (Volute) |
|---|---|---|---|---|---|---|---|
| UPS26-99 | High | 1/6 | 208-230 | 0.9 | 196 | 5µF/400V | Cast Iron |
| | Medium | | | 0.8 | 179 | | |
| | Low | | | 0.7 | 150 | | |
| UPMXL 25-124 | Variable | N/A | 208-230 | 0.04-1.5 | 3-180 | N/A | Cast Iron |
| UP26-116 | -- | 1/6 | 208 - 230 | 1.8 | 385 | 2.5µF/380V | Cast Iron |
| UP26-99 | -- | 1/6 | 208 - 230 | 1.07 | 245 | 2.5µF/380V | Cast Iron |

*Data is maximum for UP26-99 & UPS26-99. UPMXL 25-124 varies with RPM.

## Pump Performance Curves[1]




## Approved Antifreeze

Propylene Glycol
Methanol
Ethanol

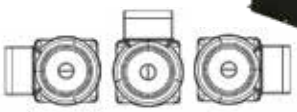
## Mounting

Flow center is designed for indoor installation only.

Flow center must be installed in an upright position as shown to the right.

The terminal box(s) should be located in one of the following orientations:

UP(S)26



UPMXL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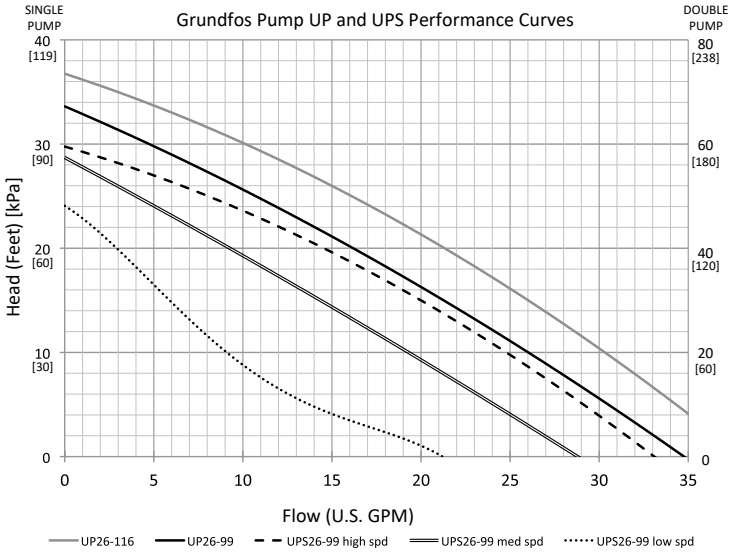
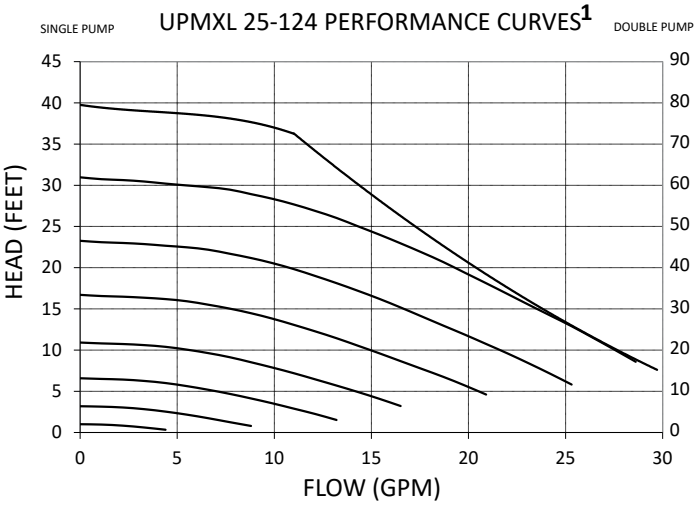
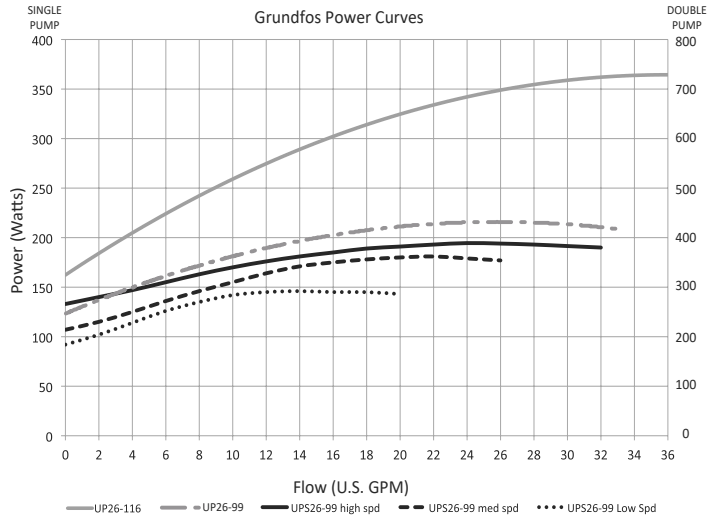
# Pump Performance Curves

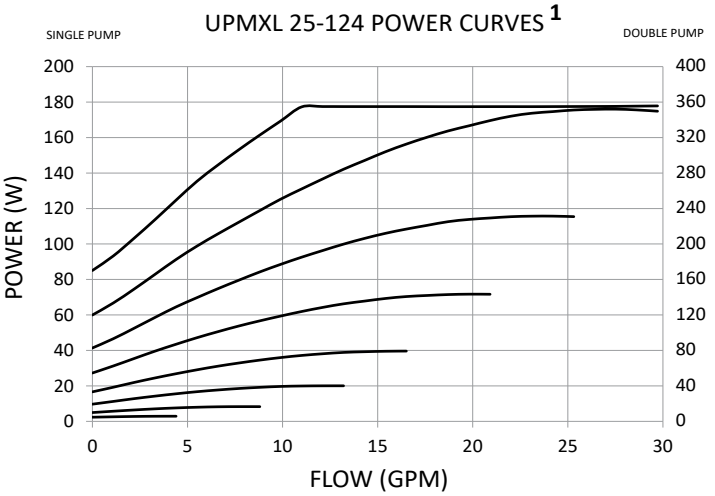



All pump curves are manufacturer's reported averages using water at 68°

# Pump Power Curves



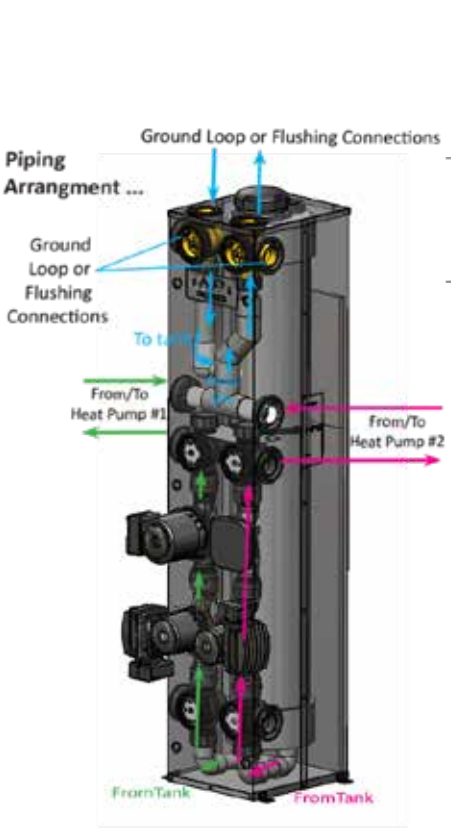



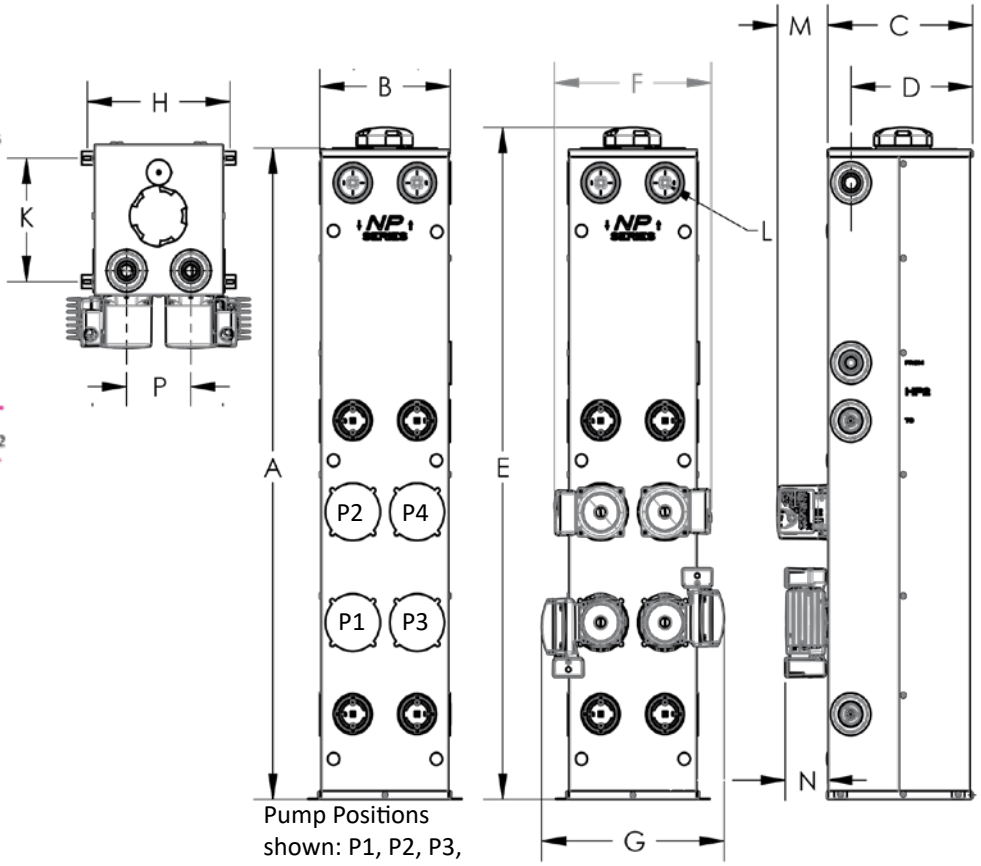

All pump curves are manufacturer's reported averages using water at 68°

# Dimensional Data[2]

| UNITS | A | B | C | D | E | F | G | H | K | L | M | N | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inches | 48 ¼ | 10 ⅛ | 11 1/4 | 9 ½ | 49 ¾ | 12 3⁄16 | 14 3⁄16 | 11 ⅛ | 9 ⅛ | 3/8 DRIVE SOCKET | 3 15⁄16 | 3 5⁄16 | 5 |
| CM | 122.5 | 25.8 | 28.7 | 24.1 | 126.4 | 31.0 | 36.0 | 28.2 | 23.2 | | 9.9 | 8.4 | 12.7 |

Note: Dimensions F and G are not applicable to every model. Shown for maximum distance between like pumps.




Pump Positions shown: P1, P2, P3, & P4

| # OF PUMPS | PART NUMBER | DESCRIPTION | P1 | P2 | P3 | P4 | WEIGHT (LBS) |
|---|---|---|---|---|---|---|---|
| 2 | 1304 | FLOW CENTER, NPD2-99, 3-SPEED, 208-230V | UPS26-99 | -- | UPS26-99 | -- | 84 |
| | 1307 | FLOW CENTER, NPD2-116, 208-230V | UP26-116 | -- | UP26-116 | -- | 84 |
| | NPD2LA | FLOW CNTR, NPD2, UPMXL 25-124 & UPS26-99, 208-230V | UPMXL 25-124 | -- | UPS26-99 | -- | 83 |
| | NPD2NA | FLOW CNTR, NPD2, UPMXL 25-124 INV PWM & UPS26-99, 208-230V | UPMXL 25-124 | -- | UPS26-99 | -- | 83 |
| | NPD2LL | FLOW CNTR, NPD2, (2) UPMXL 25-124, 208-230V | UPMXL 25-124 | -- | UPMXL 25-124 | -- | 80 |
| | NPD2NN | FLOW CNTR, NPD2, (2) UPMXL 25-124 INV PWM, 208-230V | UPMXL 25-124 | -- | UPMXL 25-124 | -- | 80 |
| 3 | 1305 | FLOW CENTER, NPD3-99, 3-SPEED, 208-230V | UPS26-99 | UPS26-99 | UPS26-99 | -- | 90 |
| | 1308 | FLOW CENTER, NPD3-116, 208-230V | UP26-116 | UP26-116 | UP26-116 | -- | 90 |
| | NPD3MA | FLOW CNTR, NPD3, UPMXL+UPS26-99 & UPS26-99, 208-230V | UPMXL 25-124 | UPS26-99 | UPS26-99 | -- | |
| | NPD3ML | FLOW CNTR, NPD3, UPMXL+UPS26-99 & UPMXL, 208-230V | UPMXL 25-124 | UPS26-99 | UPMXL 25-124 | -- | 83 |
| | NPD3PN | FLOW CNTR, NPD3, UPMXL INV+UPS26-99 & UPMXL INV, 208-230V | UPMXL 25-124 | UPS26-99 | UPMXL 25-124 | -- | 83 |
| 4 | 1306 | FLOW CENTER, NPD4-99, 3-SPEED, 208-230V | UPS26-99 | UPS26-99 | UPS26-99 | UPS26-99 | 96 |
| | 1309 | FLOW CENTER, NPD4-116, 208-230V | UP26-116 | UP26-116 | UP26-116 | UP26-116 | 96 |
| | NPD4LA | FLOW CNTR, NPD4, (2) UPMXL 25-124 & UPS26-99, 208-230V | UPMXL 25-124 | UPMXL 25-124 | UPS26-99 | UPS26-99 | |
| | NPD4MA | FLOW CNTR, NPD4, UPMXL+UPS26-99 & (2) UPS26-99, 208-230V | UPMXL 25-124 | UPS26-99 | UPS26-99 | UPS26-99 | |
| | NPD4MM | FLOW CNTR, NPD4, UPMXL+UPS26-99 & UPMXL+UPS26-99, 208-230V | UPMXL 25-124 | UPS26-99 | UPMXL 25-124 | UPS26-99 | |
| | NPD4LL | FLOW CNTR, NPD4, (4) UPMXL 25-124, 208-230V | UPMXL 25-124 | UPMXL 25-124 | UPMXL 25-124 | UPMXL 25-124 | |

NOTE: All connections require Flo-Link™ (double O-ring) transition fittings or hose kits. Check valves are factory-installed on the discharge sides of the flow center (To HP connections).

NOTES:

1. Pump operates in between maximum and minimum curves. Intermediate curves are provided for reference.
2. Dimensional data provided for informational purposes and is rounded to nearest 1⁄16". Metric data is a simple conversion of imperial data and should not be considered more accurate.

## Application Notes

1. The dual circuit flow center includes a pump(s) for each heat pump. The pump(s) for HP1 is in parallel with the pump(s) for unit HP2. If one side has two pumps, those two pumps are in series. Page 3 shows a transparent view of the flow center with internal piping.
2. When sizing pumps for a dual circuit flow center, a pressure drop calculation should be done for the entire system assuming both heat pumps are running. Pump/ flow center selection must be based upon both units running. For example, if the left side is a 4 ton heat pump with two pump, and the right side is a 2 ton heat pump with one pump, each side must be able to provide adequate flow and head when both units are running.
3. The pressure drop for the internal check valves and 3-way valves must be added to the system pressure drop before selecting pumps. The table below provides information based upon the flow rate for each heat pump.

**Pressure Drop Addition for Internal Check Valves and 3-Way Valves**

| Flow Rate (GPM) | | | Tot. Press. Drop (ft. hd.)* |
|---|---|---|---|
| Side A | Side B | Total | |
| 6 | 6 | 12 | 2.3 |
| | 9 | 15 | 3.1 |
| | 12 | 18 | 4.2 |
| | 15 | 21 | 5.6 |
| 9 | 6 | 15 | 3.1 |
| | 9 | 18 | 4.1 |
| | 12 | 21 | 5.3 |
| | 15 | 24 | 6.8 |
| 12 | 6 | 18 | 4.2 |
| | 9 | 21 | 5.3 |
| | 12 | 24 | 6.7 |
| | 15 | 27 | 8.3 |
| 15 | 6 | 21 | 5.6 |
| | 9 | 24 | 6.8 |
| | 12 | 27 | 8.3 |
| | 15 | 30 | 10.1 |
| *Includes internal check valves and 3-way valves. | | | |

Use the chart above to account for the pressure drop of the internal components of the dual circuit flow center.

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