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Guide Only

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NPE-S Series Tankless Water Heater

One NPE-S Tankless
(Includes NPE-A, Internal Circulation Mode)

Drawn By: B. Fenske  NPE-S-1-BF02  August 1, 2013
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Recommended Pipe Size/Heater Count

- 1 Unit - ¾”
- 2 Units - 1”
- 3 Units - 1-¼”
- 4 to 5 Units - 1-½”
- 6 to 8 Units - 2”
- 9 to 14 Units - 2-½”
- 15 to 16 Units - 3”

NPE-S Series Tankless Water Heater

Two NPE-S Tankless
(Includes NPE-A Internal Circulation Mode)

Drawn By: B. Fenske
NPE-S-2-I-BF02
August 1, 2013
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NPE-S Series Tankless Water Heater
Two NPE-S Tankless
With Two Temperature Operation

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th></th>
<th>1 Unit - ¾&quot;</th>
<th>2 Units - 1&quot;</th>
<th>3 Units - 1-¼&quot;</th>
<th>4 to 5 Units - 1-½&quot;</th>
<th>6 to 8 Units - 2&quot;</th>
<th>9 to 14 Units - 2-½&quot;</th>
<th>15 to 16 Units - 3&quot;</th>
</tr>
</thead>
</table>

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Drawn By: B. Fenske  NPE-S-2LT-I-BF02  August 1, 2013
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Three NPE-S Tankless
(Includes NPE-A Internal Circulation Mode)

<table>
<thead>
<tr>
<th>Recommended Pipe Size/Heater Count</th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
<th>3 Units - 1-¼”</th>
<th>4 to 5 Units - 1-½”</th>
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<th>15 to 16 Units - 3”</th>
</tr>
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</table>

NPE-S Series Tankless Water Heater

NPE-S-3-I-BF02 August 1, 2013

Drawn By: B. Fenske
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<th>Recommended Pipe Size/Heater Count</th>
<th>1 Unit - ¾”</th>
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<th>3 Units - 1-½”</th>
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<th>6 to 8 Units - 2”</th>
<th>9 to 14 Units - 2-½”</th>
<th>15 to 16 Units - 3”</th>
</tr>
</thead>
</table>

**NPE-S Series Tankless Water Heater**

Four NPE-S Tankless (Includes NPE-A, Internal Circulation Mode)

---

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
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<th>4 to 5 Units - 1-½”</th>
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**NPE-S Series Tankless Water Heater**

Four NPE-S Tankless (Includes NPE-A, Internal Circulation Mode)

---

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
<th>3 Units - 1-½”</th>
<th>4 to 5 Units - 1-½”</th>
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Five NPE-S Tankless (Includes NPE-A, Internal Circulation Mode)

Recommended Pipe Size/Heater Count

| 1 Unit - \( \frac{3}{4}\)" | 2 Units - 1" | 3 Units - 1-\(\frac{1}{4}\)" | 4 to 5 Units - 1-\(\frac{1}{2}\)" | 6 to 8 Units - 2" | 9 to 14 Units - 2-\(\frac{1}{2}\)" | 15 to 16 Units - 3" |

Check Valve, Pressure Relief Valve, Mixing Valve, Full-port Ball Valve, Circulator, Expansion Tank, Aquastat, DHW Circulator w/Aquastat & Check Valve

NPE-S Series Tankless Water Heater

Drawn By: B. Fenske  NPE-S-5-I-BF02  August 1, 2013

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Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th></th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
<th>3 Units - 1-⅛”</th>
<th>4 to 5 Units - 1-⅜”</th>
<th>6 to 8 Units - 2”</th>
<th>9 to 14 Units - 2-⅛”</th>
<th>15 to 16 Units - 3”</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPE-S Series Tankless Water Heater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six Plus NPE-S Tankless</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Includes NPE-A, Internal Circulation Mode)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drawn By: B. Fenske</td>
<td>NPE-S-6P-I-BF02</td>
<td>August 1, 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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NPE-S Series Tankless Water Heater

Ten NPE-S Tankless
(Includes NPE-A, Internal Circulation Mode)
Alternative Mounting Shown

Recommended Pipe Size/Heater Count

| 1 Unit - ¾” | 2 Units - 1” | 3 Units - 1-¼” | 4 to 5 Units - 1-½” | 6 to 8 Units - 2” | 9 to 14 Units - 2-½” | 15 to 16 Units - 3” |

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Drawn By: B. Fenske
NPE-A-10-E-BF02
August 1, 2013
Notes:
1. Use Navien Cord P #30011612A
2. Set DIP Switches on Integrated Controller 
   #1 – OFF, #2 – OFF, #3 – ON
3. Select External Circulator Performance  
   to be 2 GPM Minimum, 4 GPM Maximum based on 11 Psi drop @ 4 GPM at tankless  
   * Refer to NPE Installation Manual for further details
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(A) Tankless Circulator
(Bronze or S.S) Selected Shall be 4 GPM Max @ 23’ Total Head (10 PSI) + pipe, valves, fittings & tank.
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(A) Tankless Circulator
(Bronze or S.S) Selected Shall be 8 GPM Max (4 Per Tankless)
@ 23' Total Head (10 PSI)
+ pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th>Units</th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1&quot;</th>
<th>3 Units - 1-¼&quot;</th>
<th>4 to 5 Units - 1-½&quot;</th>
<th>6 to 8 Units - 2&quot;</th>
<th>9 to 14 Units - 2-½&quot;</th>
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</tr>
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</table>

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Two NPE-S with Storage to meet Flow/Temp Rise Requirements

NPE-S Series Tankless Water Heater

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th>Units</th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1&quot;</th>
<th>3 Units - 1-¼&quot;</th>
<th>4 to 5 Units - 1-½&quot;</th>
<th>6 to 8 Units - 2&quot;</th>
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Three NPE-S with Storage to meet Flow/Temp Rise Requirements

(A) Tankless Circulator
(Bronze or S.S) Selected Shall be
12 GPM Max (4 Per Tankless) @
23' Total Head (10 PSI)
+ pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th>Units</th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
<th>3 Units - 1-¼”</th>
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</table>

NPE-S Series Tankless Water Heater

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Drawn By: B. Fenske  NPE-S-3-ST-BF02  August 1, 2013
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(A) Tankless Circulator
(Bronze or S.S) Selected Shall be 16 GPM Max (4 Per Tankless) @ 23' Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum

### NPE-S Series Tankless Water Heater

Four NPE-S with Storage to meet Flow/Temp Rise Requirements

<table>
<thead>
<tr>
<th>Recommended Pipe Size/Heater Count</th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
<th>3 Units - 1-¼”</th>
<th>4 to 5 Units - 1-½”</th>
<th>6 to 8 Units - 2”</th>
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</tr>
</thead>
</table>

**NDVIEIN**

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**NPE-S-4-ST-BF02**

**August 1, 2013**

<table>
<thead>
<tr>
<th>Circulator</th>
<th>Storage Vessel</th>
<th>Check Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansion Tank</td>
<td>Pressure Relief Valve</td>
<td>Mixing Valve</td>
</tr>
</tbody>
</table>
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(A) Tankless Circulator (Bronze or S.S) Selected Shall be 8 GPM Max (4 Per Tankless) @ 23’ Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum

---

**NPE-S Series Tankless Water Heater**

Two NPE-S with Two Storage Tanks to meet Flow/Temp Rise Requirements

Recommended Pipe Size/Heater Count

- 1 Unit - ¾”
- 2 Units - 1”
- 3 Units - 1-¼”
- 4 to 5 Units - 1-½”
- 6 to 8 Units - 2”
- 9 to 14 Units - 2-½”
- 15 to 16 Units - 3”

---

**Check Valve**

**Pressure Relief Valve**

**Mixing Valve**

**Full-port Ball Valve**

**DHW Circulator w/Aquastat & Check Valve**

**Storage Vessel**

**Circulator**

**Expansion Tank**

**Domestic Cold Water**

**Condensate**

**Gas**

**Domestic Hot Water to Fixtures**

---

**Insulated Storage Tank**

**Insulated Storage Tank**

**Optional DHW Recirculation**

---

**Drawn By: B. Fenske**

**NPE-S-2-2ST-BF02**

**August 1, 2013**
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Three NPE-S with Two Storage Tanks to meet Flow/Temp Rise Requirements

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th></th>
<th>1 Unit - ¾”</th>
<th>2 Units - 1”</th>
<th>3 Units - 1-¼”</th>
<th>4 to 5 Units - 1-½”</th>
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</table>
| NPE-S Series Tankless Water Heater

Drawn By: B. Fenske  NPE-S-3-2ST-BF02  August 1, 2013

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(A) Tankless Circulator
(Bronze or S.S) Selected Shall be
12 GPM Max (4 Per Tankless) @
23’ Total Head (10 PSI)
+ pipe, valves, fittings & tank.
(B) Install Circuit Setters to
Maintain Flow into Units @ 4 GPM
Maximum
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Recommended Pipe Size/Heater Count

<table>
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<tr>
<th>1 Unit</th>
<th>2 Units</th>
<th>3 Units</th>
<th>4 to 5 Units</th>
<th>6 to 8 Units</th>
<th>9 to 14 Units</th>
<th>15 to 16 Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>¾&quot;</td>
<td>1&quot;</td>
<td>1-⅛&quot;</td>
<td>1-⅜&quot;</td>
<td>1½&quot;</td>
<td>2½&quot;</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

(A) Tankless Circulator
(Bronze or S.S) Selected Shall be 16 GPM Max (4 Per Tankless) @ 23' Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum

NPE-S Series Tankless Water Heater

Four NPE-S with Two Storage Tanks to meet Flow/Temp Rise Requirements

Drawn By: B. Fenske
NPE-S-4-2ST-BF02
August 1, 2013
This drawing is intended only as a guide and not as a replacement for professionally engineered project drawings. This concept system drawing does not imply compliance with local building codes. Actual installation may vary depending on installation location & parameters and it must be done in accordance to all local building codes. Verify with local building officials before commencement of system installation.

(A) Tankless Circulator (Bronze or S.S) Selected Shall be 8 GPM Max (4 Per Tankless) @ 23' Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum

Two NPE-S with Storage to meet Flow/Temp Rise Requirements
Two Temperature System

Recommended Pipe Size/Heater Count

<table>
<thead>
<tr>
<th>Units</th>
<th>1/4&quot;</th>
<th>1&quot;</th>
<th>1-1/4&quot;</th>
<th>1-1/2&quot;</th>
<th>2&quot;</th>
<th>2-1/2&quot;</th>
<th>3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Unit</td>
<td>3/4&quot;</td>
<td>2 Units</td>
<td>1&quot;</td>
<td>3 Units</td>
<td>1-1/4&quot;</td>
<td>4 to 5 Units</td>
<td>1-1/2&quot;</td>
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</tbody>
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DHW Circulator w/Aquastat & Check Valve

Check Valve
Pressure Relief Valve
Mixing Valve
Full-port Ball Valve

Circulator
Expansion Tank
Aquastat

NPE-S Series Tankless Water Heater

Drawn By: B. Fenske
NPE-S-2-STLT-BF02
August 1, 2013
1. Tankless circulator selected should be approved for domestic water (S.S. or Bronze).

2. Tankless circulator selected shall be 4 GPM @ 23' H (10 PSI) + pipe, valves, fittings & tank.

3. Storage tank volume size selections:
   - High Temp (180°F) 6 X dishwasher GPM requirements
   - Low Temp (140°F) 4 X dishwasher GPM requirements
(A) Tankless Circulator (Bronze or S.S) Selected Shall be 4 GPM Max per Tankless @ 23' Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum.

Storage tank volume size selections:
- High Temp (180°F)
  6 X dishwasher GPM requirements
- Low Temp (140°F)
  4 X dishwasher GPM requirements
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(A) Tankless Circulator (Bronze or S.S) Selected Shall be 4 GPM Max per Tankless @ 23' Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum.

Storage tank volume size selections:
- High Temp (180°F)
  6 X dishwasher GPM requirements
- Low Temp (140°F)
  4 X dishwasher GPM requirements
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(A) Tankless Circulator (Bronze or S.S) Selected Shall be 4 GPM Max per Tankless @ 23’ Total Head (10 PSI) + pipe, valves, fittings & tank.
(B) Install Circuit Setters to Maintain Flow into Units @ 4 GPM Maximum.

Storage tank volume size selections:
- High Temp (180°F)
  6 X dishwasher GPM requirements
- Low Temp (140°F)
  4 X dishwasher GPM requirements
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Circulator Requirement:
Bronze or Stainless Steel
Select & Set - 4 GPM max @ 23 ft head.
(Alternate pump location shown inside AHU)

Domestic Hot Water
To Fixtures

Condensate
Gas

Domestic Cold Water

NPE-S Series Tankless Water Heater
Navien NPE-S Series Tankless
Combi Use Application with Air Handler

Drawn By: B. Fenske NPE-S-Combi-AH-BF02 August 1, 2013
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(A) Circulator Requirement:
Bronze or Stainless Steel
Select & Set - 4 GPM max @ 23 ft head.

(B) Maximum 30 MBTU’s/Hour & 135°F
Maximum Heating System Temperature
with NPE tankless set at 140°F.

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NPE-S Series Tankless Water Heater
Navien NPE-S Series Tankless
Combi Use Application with Required
SS Heat Exchanger

Drawn By: B. Fenske NPE-S-Combi-SS-BF02 August 1, 2013
This drawing is intended only as a guide and not as a replacement for professionally engineered project drawings. This concept system drawing does not imply compliance with local building codes. Actual installation may vary depending on installation location & parameters and it must be done in accordance to all local building codes. Verify with local building officials before commencement of system installation.

Notes:
1. For Storage Tank/Geothermal Operation; DIP Switch #6 of 10 located on Integrated Display Panel should be set ON (UP).
2. With Storage Tank/Geothermal Operation Enabled, NPE Tankless DHW setting may be set at or near storage tank thermostatic mixing valve temperature output.
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Notes:
1. For Storage Tank/Solar Operation; DIP Switch #6 of 10 located on Integrated Display Panel should be set ON (UP).
2. With Storage Tank/Solar Operation Enabled, NPE Tankless DHW setting may be set at or near storage tank thermostatic mixing valve temperature output.