VACON® NXP Liquid Cooled non regenerative front-end (NFE)

Plenty of power in a very compact package

The VACON® NXP Liquid Cooled non regenerative front-end (LC NFE) provides a lot of power to your common DC bus liquid-cooled system in a very compact package.

Versatile and flexible solutions

The single module can be connected as a 6-pulse or 12-pulse bridge providing flexibility for systems where reduced harmonics are required.

2400 amps DC output in one module

External AC chokes (air- or liquid-cooled) minimize the module weight to ease the installation in a cabinet while reducing effects from line disturbances.

With the ability to be connected in parallel, the modules can deliver all the required power to common DC bus systems and provide redundancy for maximum system uptime in critical applications.

Maximum heat transfer

With heat transfer of over 92% of thermal losses to the cooling liquid, the VACON® NXP LC NFE reduces the need for air conditioning systems for enclosures and electrical rooms.

Overall, the VACON® NXP LC NFE provides a compact, cost-effective solution for liquid-cooled common DC bus solutions.

Power range

2400 amps DC output in one module

Maximum heat transfer

With heat transfer of over 92% of thermal losses to the cooling liquid, the VACON® NXP LC NFE reduces the need for air conditioning systems for enclosures and electrical rooms.

Overall, the VACON® NXP LC NFE provides a compact, cost-effective solution for liquid-cooled common DC bus solutions.

Power range

3 x 400-500 V ........................................ 1605 kW
3 x 525-690 V ........................................ 2336 kW

The VACON® NXP Liquid Cooled non regenerative front-end (LC NFE) provides a lot of power to your common DC bus liquid-cooled system in a very compact package.

Monitored for control

Through a simple robust diode supply, the VACONR NXP LC NFE can monitor voltage, current, temperature and fault conditions, providing valuable feedback for system conditions. You can also take advantage of fieldbus options to connect to control systems.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reliability</strong></td>
<td></td>
</tr>
<tr>
<td>Simple diode supply</td>
<td>Minimal part count reduces downtime</td>
</tr>
<tr>
<td>Liquid cooled</td>
<td>Reduce the temperature cycling, eliminate air conditioning</td>
</tr>
<tr>
<td><strong>Compact</strong></td>
<td></td>
</tr>
<tr>
<td>High power density</td>
<td>Reduced cabinet footprint</td>
</tr>
<tr>
<td><strong>Versatile</strong></td>
<td></td>
</tr>
<tr>
<td>Third party approvals</td>
<td>UL and Marine approvals reduce cost of system integrators’ approvals</td>
</tr>
<tr>
<td>Voltage, current and fault monitoring</td>
<td>Less additional equipment required</td>
</tr>
<tr>
<td><strong>Flexible</strong></td>
<td></td>
</tr>
<tr>
<td>6-pulse or 12-pulse operation</td>
<td>Reduced harmonics without additional components</td>
</tr>
<tr>
<td>Can be connected in parallel</td>
<td>High power with the same components</td>
</tr>
</tbody>
</table>

Approved for:

- DNV-GL
- CE
- UL

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## Rating and dimensions

**VACON® NXN Liquid Cooled non regenerative front-end, DC bus voltage 465-800 V DC, 6/12-pulse**

<table>
<thead>
<tr>
<th>AC drive type</th>
<th>AC current</th>
<th>DC power</th>
<th>Power loss c/a/T *</th>
<th>Chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>NXN20006A0T0</td>
<td>2000</td>
<td>1818</td>
<td>1333</td>
<td>1262</td>
</tr>
</tbody>
</table>

**VACON® NXN Liquid Cooled non regenerative front-end, DC bus voltage 640-1100 V DC, 6/12-pulse**

<table>
<thead>
<tr>
<th>AC drive type</th>
<th>AC current</th>
<th>DC power</th>
<th>Power loss c/a/T *</th>
<th>Chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>NXN20006A0T0</td>
<td>2000</td>
<td>1818</td>
<td>1333</td>
<td>1685</td>
</tr>
</tbody>
</table>

**VACON® NXP Liquid Cooled dimensions: drives consisting of one module**

<table>
<thead>
<tr>
<th>Chassis</th>
<th>Width [mm]</th>
<th>Height [mm]</th>
<th>Depth [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>246</td>
<td>673</td>
<td>374</td>
<td>55</td>
</tr>
</tbody>
</table>

**VACON® NXN Liquid Cooled non regenerative front-end line filters**

<table>
<thead>
<tr>
<th>Choke type</th>
<th>Suitability</th>
<th>Power loss c/a/T *</th>
<th>Dimensions 1 pc</th>
<th>Total weight [kg]</th>
<th>Pcs for NNX</th>
<th>Cooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHK1030N6A0</td>
<td></td>
<td>1.18/0.5/1.68</td>
<td>506 x 676 x 302</td>
<td>237</td>
<td>2</td>
<td>Liquid</td>
</tr>
<tr>
<td>FLU-CHK-1030-6-DL</td>
<td>NNX20006A070T1WVA1A2BH8100</td>
<td></td>
<td>1.18/0.5/1.68</td>
<td>506 x 676 x 302</td>
<td>237</td>
<td>2</td>
</tr>
</tbody>
</table>

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**Technical data**

**Mains connection**
- Input voltage Uₑ: 2 x 3 ph 400-690 VAC (–10% to +10%)
- Input frequency: 45-66 Hz

**Output connections**
- Output voltage: Uₑ x 1.35
- Output frequency: DC-voltage
- DC bank capacitance: 4800 μF

**Current capacity**
- Input current: Iₑ, 2 x 1000 AAC
- Output current: Iₑ, 2400 ADC
- Overload: No overload
- Power losses: Power loss into coolant: 5.7 kW
  - Power loss into air: 0.5 kW

**Ambient conditions**
- Ambient operating temperature: –10 °C (no frost) to +50 °C (at Iₑ)
- Installation temperature: 0 to +70 °C
- Relative humidity: 5 to 96% RH, non-condensing, no dripping water
- Altitude: 400-500 V: 3000 m ASL; in case network is not corner grounded
  - 690 V: max. 2000 m ASL
- Vibration: 5-150 Hz
- Shock: Storage and shipping:
  - 6 bar/30 bar peak
- Enclosure class: IP00/open

**EMC**
- Immunity: Fuells IEC/EN 61800-3 EMC immunity requirements
- Emissions: – EMC level N for THN/TT networks
- – EMC level T for IT networks

**Liquid cooling**
- Allowed cooling agents: Drinking water; Water-glycol mixture
- Temperature of cooling agent: 0-43 °C (Iₑ)(input); 43-55 °C
  - please see manual for further details
- Temperature rise during circulation max. 5 °C
  - No condensation allowed
- System max. working pressure: 6 bar/30 bar peak
- Cooling agent flow rates: 25 L/min; flow requirements depend on Glycol content, consult manual for further details

**Protection**
- Undervoltage, overvoltage, mains supervision, unit under-temperature, overtemperature, cooling fan operation, ACB operation, DC precharging operation, choke temperature

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