TOSVERT VF-S15

Explanation of Load reduction

Load reduction at use condition, ambient temperature, and installation method
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1. Ambient temperature environment and load reduction

VF-S15 has the maximum applied load (load reduction ratio to rated current) under each condition for the use in various kinds of environments, but please note that load reduction can be required other than standard condition of use, ambient temperature, and mounting environment conditions.

2. VF-S15’s rated current

VF-S15’s rated current conditions are as follows:
- Carrier frequency: 4 kHz or below,
- Ambient temperature: 40 degree C or below,
- and as described in the tables 2.1, 2.2, and 2.3.

Load reduction is necessary depending on the conditions of use, mounting environment, and carrier frequency settings.

Display standard of inverter current (monitor display and parameter set value) is 100%=rated current (PWM carrier frequency: 4 kHz and less, ambient temperature: 40℃ and less). Current value considering current reduction by PWM carrier frequency can be checked with status monitor mode. Set the following items:

<table>
<thead>
<tr>
<th>Monitor</th>
<th>Title</th>
<th>Function</th>
<th>Set value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard monitor</td>
<td>F710</td>
<td>Initial panel display selection</td>
<td>40: Inverter rated current</td>
</tr>
<tr>
<td>Status monitor mode</td>
<td>F711-718</td>
<td>Status monitor 1 - 8</td>
<td>(Carrier frequency corrected)</td>
</tr>
</tbody>
</table>

Note) Overload characteristic of VF-S15 can be selected to 150%-60s or 120%-60s.

[Parameters settings]

<table>
<thead>
<tr>
<th>Title</th>
<th>Function</th>
<th>Adjustment range</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*In case of $R_{UL} = 2$, be sure to install the input AC reactor (ACL) between power supply and inverter.
Table 2.1 Load reduction by ambient temperature and carrier frequency [240V class]

In case of $\mathcal{F}_{UL} = I$ (Constant torque characteristic (150%-60s)) setting.

<table>
<thead>
<tr>
<th>VFS15-VFS15S-</th>
<th>Ambient temperature</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.0k to 4.0kHz</td>
</tr>
<tr>
<td>2002PL-W</td>
<td>40°C or less</td>
<td>1.5 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>1.5 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>1.2 A</td>
</tr>
<tr>
<td>2004 PM/L-W</td>
<td>40°C or less</td>
<td>3.3 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>3.3 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>2.6 A</td>
</tr>
<tr>
<td>2007 PM/L-W</td>
<td>40°C or less</td>
<td>4.8 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>4.8 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>3.8 A</td>
</tr>
<tr>
<td>2015 PM/L-W</td>
<td>40°C or less</td>
<td>8.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>8.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>7.6 A</td>
</tr>
<tr>
<td>2022 PM/L-W</td>
<td>40°C or less</td>
<td>11.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>11.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>10.5 A</td>
</tr>
<tr>
<td>2037PM-W</td>
<td>40°C or less</td>
<td>17.5 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>17.5 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>16.6 A</td>
</tr>
<tr>
<td>2055PM-W</td>
<td>40°C or less</td>
<td>27.5 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>27.5 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>26.1 A</td>
</tr>
<tr>
<td>2075PM-W</td>
<td>40°C or less</td>
<td>33.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>33.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>31.4 A</td>
</tr>
<tr>
<td>2110PM-W</td>
<td>40°C or less</td>
<td>54.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>54.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>51.3 A</td>
</tr>
<tr>
<td>2150PM-W</td>
<td>40°C or less</td>
<td>66.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>66.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>62.7 A</td>
</tr>
</tbody>
</table>

: Rated current
Table 2.2 Load reduction by ambient temperature and carrier frequency [500V class (480V or less)]

In case of $R_{UL} = I$ (constant torque characteristic (150% - 60s) setting)

<table>
<thead>
<tr>
<th>VFS15-</th>
<th>Ambient temperature</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.0k to 4.0kHz</td>
</tr>
<tr>
<td>4004 PL-W</td>
<td>40°C or less</td>
<td>1.5 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>1.5 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>1.4 A</td>
</tr>
<tr>
<td>4007 PL-W</td>
<td>40°C or less</td>
<td>2.3 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>2.3 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>2.2 A</td>
</tr>
<tr>
<td>4015 PL-W</td>
<td>40°C or less</td>
<td>4.1 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>4.1 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>3.9 A</td>
</tr>
<tr>
<td>4022 PL-W</td>
<td>40°C or less</td>
<td>5.5 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>5.5 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>5.2 A</td>
</tr>
<tr>
<td>4037 PL-W</td>
<td>40°C or less</td>
<td>9.5 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>9.5 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>9.0 A</td>
</tr>
<tr>
<td>4055 PL-W</td>
<td>40°C or less</td>
<td>14.3 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>14.3 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>13.6 A</td>
</tr>
<tr>
<td>4075 PL-W</td>
<td>40°C or less</td>
<td>17.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>17.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>16.2 A</td>
</tr>
<tr>
<td>4110 PL-W</td>
<td>40°C or less</td>
<td>27.7 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>27.7 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>26.3 A</td>
</tr>
<tr>
<td>4150 PL-W</td>
<td>40°C or less</td>
<td>33.0 A</td>
</tr>
<tr>
<td></td>
<td>40 to 50°C</td>
<td>33.0 A</td>
</tr>
<tr>
<td></td>
<td>50 to 60°C</td>
<td>31.4 A</td>
</tr>
</tbody>
</table>

: Rated current
Table 2.1 Load reduction by ambient temperature and carrier frequency [500V class (over 480V)]

In case of $R_{UL} = I$ (constant torque characteristic (150%-60s) setting)

<table>
<thead>
<tr>
<th>VFS15-</th>
<th>Ambient temperature</th>
<th>PWM carrier frequency</th>
<th>2.0k to 4.0kHz</th>
<th>4.1k to 12.0kHz</th>
<th>12.1k to 16.0kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>4004 PL-W</td>
<td>40°C or less</td>
<td>1.5 A</td>
<td>1.5 A</td>
<td>1.2 A</td>
<td></td>
</tr>
<tr>
<td>4004 PL-W</td>
<td>40 to 50°C</td>
<td>1.5 A</td>
<td>1.5 A</td>
<td>1.2 A</td>
<td></td>
</tr>
<tr>
<td>4004 PL-W</td>
<td>50 to 60°C</td>
<td>1.4 A</td>
<td>1.2 A</td>
<td>1.0 A</td>
<td></td>
</tr>
<tr>
<td>4007 PL-W</td>
<td>40°C or less</td>
<td>2.1 A</td>
<td>1.9 A</td>
<td>1.9 A</td>
<td></td>
</tr>
<tr>
<td>4007 PL-W</td>
<td>40 to 50°C</td>
<td>2.1 A</td>
<td>1.9 A</td>
<td>1.9 A</td>
<td></td>
</tr>
<tr>
<td>4007 PL-W</td>
<td>50 to 60°C</td>
<td>2.0 A</td>
<td>1.5 A</td>
<td>1.5 A</td>
<td></td>
</tr>
<tr>
<td>4015 PL-W</td>
<td>40°C or less</td>
<td>3.8 A</td>
<td>3.4 A</td>
<td>3.1 A</td>
<td></td>
</tr>
<tr>
<td>4015 PL-W</td>
<td>40 to 50°C</td>
<td>3.8 A</td>
<td>3.4 A</td>
<td>3.1 A</td>
<td></td>
</tr>
<tr>
<td>4015 PL-W</td>
<td>50 to 60°C</td>
<td>3.6 A</td>
<td>2.7 A</td>
<td>2.5 A</td>
<td></td>
</tr>
<tr>
<td>4022 PL-W</td>
<td>40°C or less</td>
<td>5.1 A</td>
<td>4.6 A</td>
<td>4.2 A</td>
<td></td>
</tr>
<tr>
<td>4022 PL-W</td>
<td>40 to 50°C</td>
<td>5.1 A</td>
<td>4.6 A</td>
<td>4.2 A</td>
<td></td>
</tr>
<tr>
<td>4022 PL-W</td>
<td>50 to 60°C</td>
<td>4.8 A</td>
<td>3.7 A</td>
<td>3.4 A</td>
<td></td>
</tr>
<tr>
<td>4037 PL-W</td>
<td>40°C or less</td>
<td>8.7 A</td>
<td>7.9 A</td>
<td>6.9 A</td>
<td></td>
</tr>
<tr>
<td>4037 PL-W</td>
<td>40 to 50°C</td>
<td>8.7 A</td>
<td>7.9 A</td>
<td>6.9 A</td>
<td></td>
</tr>
<tr>
<td>4037 PL-W</td>
<td>50 to 60°C</td>
<td>8.3 A</td>
<td>6.3 A</td>
<td>5.5 A</td>
<td></td>
</tr>
<tr>
<td>4055 PL-W</td>
<td>40°C or less</td>
<td>13.2 A</td>
<td>12.0 A</td>
<td>12.0 A</td>
<td></td>
</tr>
<tr>
<td>4055 PL-W</td>
<td>40 to 50°C</td>
<td>13.2 A</td>
<td>12.0 A</td>
<td>12.0 A</td>
<td></td>
</tr>
<tr>
<td>4055 PL-W</td>
<td>50 to 60°C</td>
<td>12.5 A</td>
<td>9.6 A</td>
<td>9.6 A</td>
<td></td>
</tr>
<tr>
<td>4075 PL-W</td>
<td>40°C or less</td>
<td>15.6 A</td>
<td>14.2 A</td>
<td>12.4 A</td>
<td></td>
</tr>
<tr>
<td>4075 PL-W</td>
<td>40 to 50°C</td>
<td>15.6 A</td>
<td>14.2 A</td>
<td>12.4 A</td>
<td></td>
</tr>
<tr>
<td>4075 PL-W</td>
<td>50 to 60°C</td>
<td>14.8 A</td>
<td>11.4 A</td>
<td>9.9 A</td>
<td></td>
</tr>
<tr>
<td>4110 PL-W</td>
<td>40°C or less</td>
<td>25.5 A</td>
<td>23.0 A</td>
<td>23.0 A</td>
<td></td>
</tr>
<tr>
<td>4110 PL-W</td>
<td>40 to 50°C</td>
<td>25.5 A</td>
<td>23.0 A</td>
<td>23.0 A</td>
<td></td>
</tr>
<tr>
<td>4110 PL-W</td>
<td>50 to 60°C</td>
<td>24.2 A</td>
<td>18.4 A</td>
<td>18.4 A</td>
<td></td>
</tr>
<tr>
<td>4150 PL-W</td>
<td>40°C or less</td>
<td>30.4 A</td>
<td>27.6 A</td>
<td>24.0 A</td>
<td></td>
</tr>
<tr>
<td>4150 PL-W</td>
<td>40 to 50°C</td>
<td>30.4 A</td>
<td>27.6 A</td>
<td>24.0 A</td>
<td></td>
</tr>
<tr>
<td>4150 PL-W</td>
<td>50 to 60°C</td>
<td>28.9 A</td>
<td>22.1 A</td>
<td>19.2 A</td>
<td></td>
</tr>
</tbody>
</table>
3. VFS15’s ambient temperature environment and load reduction ratio

3.1. Ambient temperature environment

VFS15’s ambient temperature environment is –10 to +60 degree C, but load reduction ratio differs according to the following conditions;

Condition 1: Voltage class, Inverter capacity
Condition 2: Installation
   1. Individual mounting with top seal label
   2. Individual mounting without top seal label
   3. Side by side mounting without top seal label
   4. Horizontal mounting without top seal label
   5. DIN rail mounting without top seal label
   6. DIN rail and Side by side mounting without top seal label
   7. Individual mounting with top seal label and side cover
   8. Individual mounting with top seal label and EMC filter

Condition 3: Ambient temperature
   to 40 degree C, to 50 degree C, to 60 degree C

Condition 4: Carrier frequency setting
   to 4 kHz, to 12 kHz, to 16 kHz

Note: For a side-by-side mounting, remove top seal label.

3.2. Load reduction ratio

Load reduction ratio changes depending on voltage class and inverter capacity.

* In case of \( R \neq \) (Overload characteristic selection) = \( L \) (constant torque characteristic (150%-60s) setting)
### 3.2.1. Three-phase 240V class models

1) Three-phase 240V class: 0.4-0.75kW models

#### Table 3.1 Load reduction by mounting conditions [VFS15-2004PM-W to 2007PM-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>12kHz</td>
</tr>
<tr>
<td>1</td>
<td>Individual mounting</td>
<td>With</td>
<td><img src="image1" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td><img src="image2" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="image3" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
<td><img src="image4" alt="Figure" /></td>
<td>40</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>45%</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
<td><img src="image5" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>65%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td><img src="image6" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>55%</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
<td><img src="image7" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>65%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td><img src="image8" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>85%</td>
</tr>
</tbody>
</table>

- : the range available with inverter rated current

Note 1: In case of $RUL = I$ (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
2) Three-phase 240V class: 1.5, 2.2kW models

Table 3.2 Load reduction depending on mounting conditions [VFS15-2015PM-W, 2022PM-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>12kHz</td>
</tr>
<tr>
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<td>Individual mounting</td>
<td>With</td>
<td><img src="image1" alt="Figure" /></td>
<td>40</td>
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</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td><img src="image2" alt="Figure" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="image3" alt="Figure" /></td>
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</tr>
<tr>
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<td>100%</td>
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<td></td>
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<td>75%</td>
</tr>
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<td>4</td>
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</tr>
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<td></td>
<td>60</td>
<td>55%</td>
</tr>
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</tr>
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<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
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<td>65%</td>
</tr>
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<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
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</tr>
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<td></td>
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<td>70%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td><img src="image8" alt="Figure" /></td>
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</tr>
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<td></td>
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<td>60</td>
<td>80%</td>
</tr>
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</table>

: the range available with inverter rated current

Note 1: In case of \( R_{UL} = I \) (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
### Table 3.3 Load reduction depending on mounting conditions [VFS15-2037PM-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
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<th>PWM carrier frequency</th>
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<td>4kHz</td>
<td>4kHz</td>
</tr>
<tr>
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<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100% 100% 100%</td>
</tr>
<tr>
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<td></td>
<td></td>
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<td>60</td>
<td>90% 85% 75%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
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<td>100% 100% 100%</td>
</tr>
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<td></td>
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<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>60</td>
<td>85% 85% 85%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="image" alt="Side by Side Mounting" /></td>
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<td>100% 100% 100%</td>
</tr>
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<td></td>
<td></td>
<td>50</td>
<td>100% 100% 100%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>100% 95% 90%</td>
</tr>
<tr>
<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
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<td>100% 100% 100%</td>
</tr>
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<td>— — —</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
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<td>100% 100% 100%</td>
</tr>
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</tr>
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<td>60</td>
<td>75% 75% 75%</td>
</tr>
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<td>6</td>
<td>DIN rail and side by side mounting</td>
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<td>Individual mounting with side cover</td>
<td>With</td>
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<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>50</td>
<td>100% 100% 95%</td>
</tr>
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<td>65% 60% 55%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
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<td>40</td>
<td>100% 100% 100%</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>60</td>
<td>80% 75% 65%</td>
</tr>
</tbody>
</table>

: the range available with inverter rated current

**Note 1:** In case of $\alpha = \iota$ (constant torque characteristic (150%-60s) setting)

**Note 2:** In case of side by side mounting, be sure to remove the top seal label.

**Note 3:** Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
### Table 3.4 Load reduction depending on mounting conditions [VFS15-2055PM-W, 2075PM-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>4kHz</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
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<td>100%</td>
</tr>
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<td></td>
<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
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<td>100%</td>
</tr>
<tr>
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<td></td>
<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="3" alt="Image" /></td>
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<td>100%</td>
</tr>
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<td>90%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
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<td>100%</td>
</tr>
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<td></td>
<td>60</td>
<td>35%</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
<td><img src="5" alt="Image" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
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<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
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</tr>
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<td></td>
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<td>70%</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
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<td>100%</td>
</tr>
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<td></td>
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<td></td>
<td>60</td>
<td>65%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td><img src="8" alt="Image" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>60</td>
<td>70%</td>
</tr>
</tbody>
</table>

: the range available with inverter rated current

**Note 1:** In case of $R_{UL} = I$ (constant torque characteristic (150%-60s) setting)

**Note 2:** In case of side by side mounting, be sure to remove the top seal label.

**Note 3:** Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
5) Three-phase 240V class: 11, 15kW models

Table 3.5 Load reduction depending on mounting conditions [VFS15-2110PM-W, 2150PM-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>4kHz</td>
</tr>
<tr>
<td>1</td>
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<td></td>
<td>60</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>100%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>—</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
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<td>100%</td>
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</tr>
<tr>
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<td>DIN rail and side by side mounting</td>
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<td>100%</td>
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<td>Individual mounting with side cover</td>
<td>With</td>
<td>40</td>
<td>100%</td>
</tr>
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<td></td>
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<td>—</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>60</td>
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</tr>
</tbody>
</table>

: the range available with inverter rated current

Note 1: In case of $RUL = I$ (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%. 
### 3.2.2 Single-phase 240V class models

1) Single-phase 240V class: 0.2 - 0.75kW models

#### Table 3.6 Load reduction depending on mounting conditions [VFS15S-2002PL-W to 2007PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
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<tbody>
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<td>4kHz</td>
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<td></td>
<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td>40</td>
<td>100%</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>60</td>
<td>85%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
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<td>100%</td>
</tr>
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<td>Horizontal mounting</td>
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<td></td>
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<td>DIN rail mounting</td>
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<td>100%</td>
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<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td>40</td>
<td>100%</td>
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<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
<td>40</td>
<td>100%</td>
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</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
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<td>100%</td>
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<td>60</td>
<td>75%</td>
</tr>
</tbody>
</table>

: the range available with inverter rated current

Note 1: In case of $\frac{R}{U} \leq 1$ (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
2) Single-phase 240V class: 1.5, 2.2kW models

Table 3.7 Load reduction depending on mounting conditions [VFS15S-2015PL-W, 2022PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>4kHz</th>
<th>4kHz</th>
<th>4kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Individual mounting</td>
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<td>100%</td>
<td>100%</td>
<td>100%</td>
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<td></td>
<td>60</td>
<td>85%</td>
<td>85%</td>
<td>75%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
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<td>100%</td>
<td>100%</td>
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<td>85%</td>
<td>75%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="image3" alt="Image" /></td>
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<td>100%</td>
<td>95%</td>
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<td>75%</td>
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<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
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<td>100%</td>
<td>100%</td>
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<td>60</td>
<td>90%</td>
<td>85%</td>
<td>75%</td>
</tr>
<tr>
<td>5</td>
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<td>100%</td>
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<td>75%</td>
<td>75%</td>
<td>65%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td><img src="image6" alt="Image" /></td>
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<td>100%</td>
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<td>70%</td>
<td>65%</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
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<td>100%</td>
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<td>80%</td>
<td>75%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td><img src="image8" alt="Image" /></td>
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<td>100%</td>
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<td>60</td>
<td>75%</td>
<td>75%</td>
<td>65%</td>
</tr>
</tbody>
</table>

: the range available with inverter rated current

Note 1: In case of $\sum U_L = I$ (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
### 3.2.3 Three-phase 500V class models

1) Three-phase 500V class: 0.4 - 1.5kW

#### Table 3.8 Load reduction depending on mounting conditions [VFS15-4004PL-W to 4015PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
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<tbody>
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<td></td>
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<td>4kHz</td>
</tr>
<tr>
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<td>Individual mounting</td>
<td>With</td>
<td><img src="image1.png" alt="Image" /></td>
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<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td><img src="image2.png" alt="Image" /></td>
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<td>100%</td>
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<td>90%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="image3.png" alt="Image" /></td>
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<td>100%</td>
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<td>100%</td>
</tr>
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<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
<td><img src="image4.png" alt="Image" /></td>
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<td>100%</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
<td><img src="image5.png" alt="Image" /></td>
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<td>100%</td>
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<td>80%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td><img src="image6.png" alt="Image" /></td>
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<td></td>
<td>60</td>
<td>60%</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
<td><img src="image7.png" alt="Image" /></td>
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<td>100%</td>
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<td>100%</td>
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<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td><img src="image8.png" alt="Image" /></td>
<td>40</td>
<td>100%</td>
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<td>60</td>
<td>80%</td>
</tr>
</tbody>
</table>

- : the range available with inverter rated current

**Note 1:** In case of $R = L = I$ (constant torque characteristic (150%-60s) setting)

**Note 2:** In case of side by side mounting, be sure to remove the top seal label.

**Note 3:** Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
2) Three-phase 500V class: 2.2kW

Table 3.9 Load reduction depending on mounting conditions [VFS15-4022PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>4kHz</td>
</tr>
<tr>
<td>1</td>
<td>Individual mounting</td>
<td>With</td>
<td>40</td>
<td>100%</td>
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<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
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<td></td>
<td>60</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td>40</td>
<td>100%</td>
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<td></td>
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<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
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<td>100%</td>
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<td>Horizontal mounting</td>
<td>W/O</td>
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<td>100%</td>
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<td>100%</td>
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<tr>
<td>5</td>
<td>DIN rail mounting</td>
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<td>80%</td>
</tr>
<tr>
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<td>DIN rail and side by side mounting</td>
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<td>40</td>
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<td>Individual mounting with side cover</td>
<td>With</td>
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<td>100%</td>
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<td>100%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
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<td>100%</td>
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<td>100%</td>
</tr>
</tbody>
</table>

: the range available with inverter rated current

Note 1: In case of $R_{UL} = I$ (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
### Table 3.10 Load reduction depending on mounting conditions [VFS15-4037PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
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<tbody>
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<td></td>
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<td></td>
<td>4kHz</td>
<td>1kHz</td>
</tr>
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<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td>![Image]</td>
<td>40</td>
<td>100%</td>
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<td>60</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td>![Image]</td>
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<td>100%</td>
</tr>
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<td>DIN rail mounting</td>
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<td>80%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td>![Image]</td>
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</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
<td>![Image]</td>
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<td>100%</td>
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<td>90%</td>
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<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td>![Image]</td>
<td>40</td>
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<td>100%</td>
</tr>
</tbody>
</table>

- **Note 1**: In case of \( R \cup L = l \) (constant torque characteristic (150%-60s) setting)
- **Note 2**: In case of side by side mounting, be sure to remove the top seal label.
- **Note 3**: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: \( 40^\circ C \) and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
4) Three-phase 500V class: 5.5, 7.5kW

Table 3.11 Load reduction depending on mounting conditions [VFS15-4055PL-W, 4075PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>7kHz</td>
</tr>
<tr>
<td>1</td>
<td>Individual mounting</td>
<td>With</td>
<td><img src="image" alt="Individual Mounting" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td><img src="image" alt="Individual Mounting W/O" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td><img src="image" alt="Side by Side Mounting" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
<td><img src="image" alt="Horizontal Mounting" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>50</td>
<td>100%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
<td><img src="image" alt="DIN Rail Mounting" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td><img src="image" alt="DIN Rail and Side by Side Mounting" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>90%</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
<td><img src="image" alt="Individual Mounting with Side Cover" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>75%</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td><img src="image" alt="Individual Mounting with EMC Filter" /></td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>50%</td>
</tr>
</tbody>
</table>

: the range available with inverter rated current

Note 1: In case of $\mu = 1$ (constant torque characteristic (150%-60s) setting)

Note 2: In case of side by side mounting, be sure to remove the top seal label.

Note 3: Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
### Table 3.12 Load reduction depending on mounting conditions [VFS15-4110PL-W, 4150PL-W]

<table>
<thead>
<tr>
<th>No.</th>
<th>Mounting conditions</th>
<th>Top seal label</th>
<th>Figure</th>
<th>Ambient temperature (degree C)</th>
<th>PWM carrier frequency</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4kHz</td>
<td>4kHz</td>
</tr>
<tr>
<td>1</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>90% 90% 75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>- - -</td>
</tr>
<tr>
<td>2</td>
<td>Individual mounting</td>
<td>W/O</td>
<td></td>
<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100% 100% 85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>80% 85% 60%</td>
</tr>
<tr>
<td>3</td>
<td>Side by side mounting</td>
<td>W/O</td>
<td></td>
<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>90% 90% 75%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>- - -</td>
</tr>
<tr>
<td>4</td>
<td>Horizontal mounting</td>
<td>W/O</td>
<td></td>
<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>85% 85% 75%</td>
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<td></td>
<td></td>
<td>60</td>
<td>40% - -</td>
</tr>
<tr>
<td>5</td>
<td>DIN rail mounting</td>
<td>W/O</td>
<td></td>
<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>100% 100% 85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>80% 85% 60%</td>
</tr>
<tr>
<td>6</td>
<td>DIN rail and side by side mounting</td>
<td>W/O</td>
<td></td>
<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>90% 90% 75%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>- - -</td>
</tr>
<tr>
<td>7</td>
<td>Individual mounting with side cover</td>
<td>With</td>
<td></td>
<td>40</td>
<td>95% 95% 95%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>80% 80% 65%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>- - -</td>
</tr>
<tr>
<td>8</td>
<td>Individual mounting with EMC filter</td>
<td>With</td>
<td></td>
<td>40</td>
<td>100% 100% 100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>90% 90% 75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>- - -</td>
</tr>
</tbody>
</table>

- : the range available with inverter rated current

#### Notes:

1. In case of $R_{UL} = I$ (constant torque characteristic (150%-60s) setting)
2. In case of side by side mounting, be sure to remove the top seal label.
3. Load reduction ratio (%) regards the value of Table 2.1, ambient temperature: 40°C and less, PWM carrier frequency: 4kHz or 12kHz as 100%.
4. Variable torque characteristic ($\mu L = 2$)

In case of $\mu L$ (Overload characteristic selection) = 2 (Variable torque characteristic (120% - 60s) setting) setting, be sure to install the input AC reactor (ACL) between power supply and inverter and use at ambient temperature 40°C or less. Set $F300$ to 4.0 kHz or less.

Table 4.1 Load reduction in case of $\mu L = 2$ [Three-phase 240V class]

<table>
<thead>
<tr>
<th>VFS15-</th>
<th>Ambient temperature</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004 PM-W</td>
<td>40°C or less</td>
<td>3.5 A</td>
</tr>
<tr>
<td>2007 PM-W</td>
<td>40°C or less</td>
<td>6.0 A</td>
</tr>
<tr>
<td>2015 PM-W</td>
<td>40°C or less</td>
<td>9.6 A</td>
</tr>
<tr>
<td>2022 PM-W</td>
<td>40°C or less</td>
<td>12.0 A</td>
</tr>
<tr>
<td>2037PM-W</td>
<td>40°C or less</td>
<td>19.6 A</td>
</tr>
<tr>
<td>2055PM-W</td>
<td>40°C or less</td>
<td>30.0 A</td>
</tr>
<tr>
<td>2075PM-W</td>
<td>40°C or less</td>
<td>38.6 A</td>
</tr>
<tr>
<td>2110PM-W</td>
<td>40°C or less</td>
<td>56.0 A</td>
</tr>
<tr>
<td>2150PM-W</td>
<td>40°C or less</td>
<td>69.0 A</td>
</tr>
</tbody>
</table>

Table 4.2 Load reduction in case of $\mu L = 2$ [Single-phase 240V class]

<table>
<thead>
<tr>
<th>VFS15S-</th>
<th>Ambient temperature</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 PL-W</td>
<td>40°C or less</td>
<td>1.9 A</td>
</tr>
<tr>
<td>2004 PL-W</td>
<td>40°C or less</td>
<td>4.1 A</td>
</tr>
<tr>
<td>2007 PL-W</td>
<td>40°C or less</td>
<td>5.5 A</td>
</tr>
<tr>
<td>2015 PL-W</td>
<td>40°C or less</td>
<td>10.0 A</td>
</tr>
<tr>
<td>2022 PL-W</td>
<td>40°C or less</td>
<td>12.0 A</td>
</tr>
</tbody>
</table>
Table 4.3 Load reduction in case of $R U = Z^2$ [500V class]

<table>
<thead>
<tr>
<th>VFS15-</th>
<th>Ambient temperature</th>
<th>PWM carrier frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>4004 PL-W</td>
<td>40°C or less</td>
<td>2.1 A</td>
</tr>
<tr>
<td>4007 PL-W</td>
<td>40°C or less</td>
<td>3.0 A</td>
</tr>
<tr>
<td>4015 PL-W</td>
<td>40°C or less</td>
<td>5.4 A</td>
</tr>
<tr>
<td>4022 PL-W</td>
<td>40°C or less</td>
<td>6.9 A</td>
</tr>
<tr>
<td>4037 PL-W</td>
<td>40°C or less</td>
<td>11.1 A</td>
</tr>
<tr>
<td>4055 PL-W</td>
<td>40°C or less</td>
<td>17.0 A</td>
</tr>
<tr>
<td>4075 PL-W</td>
<td>40°C or less</td>
<td>23.0 A</td>
</tr>
<tr>
<td>4110 PL-W</td>
<td>40°C or less</td>
<td>31.0 A</td>
</tr>
<tr>
<td>4150 PL-W</td>
<td>40°C or less</td>
<td>38.0 A</td>
</tr>
</tbody>
</table>