IP68 Fans from ebm-papst

Highest protection against harsh environments.
Sustainability is the center of our GreenTech philosophy

Eco-friendliness and sustainability have always been at the core of our thoughts and actions. For decades, we have worked according to the simple but strict creed of our co-founder Gerhard Sturm: “Each new product we develop has to be better than the last one in terms of economy and ecology.” GreenTech is the ultimate expression of our corporate philosophy.

The symbol of our commitment
Our company philosophy encompasses much more than designing new and more efficient fans and blowers; we put it into practice daily—in our offices and factories around the world! GreenTech symbolizes our continuous commitment, achievements, and passion to provide customers with the highest quality products using modern development and production methods, responsible business practices and initiatives that benefit the user as well as the environment.

GreenTech is pro-active development
Even in the design phase, the materials and processes we use maximize the greatest possible eco-friendliness, energy balance and—wherever possible—recyclability. We work to continually improve the material components and performance of our products, as well as enhancing the airflow, decreasing noise characteristics and significantly reducing energy consumption.

GreenTech is eco-friendly production
Our GreenTech philosophy drives our product development, upholding the most stringent energy efficiency and environmental standards. Our production processes incorporate GreenTech practices including intelligent use of industrial waste heat and groundwater cooling, photovoltaics and our own cooling and ventilation technology. Our most modern plant consumes 91% less energy than required. From their origin to their recyclable packaging, our products contribute to the protection of the environment.

Our customers profit from this every day
The heart of GreenTech is our EC technology. At the core of our energy-saving motors and fans, EC technology provides up to 90% efficiency, significantly extends service life and makes our products maintenance-free. These values pay off for the environment as well as offer cost-savings for the user! All ebm-papst products feature the greatest possible connection of economy and ecology.

We follow a firm philosophy

Our customers profit from this every day

Exceed regulations

Pro-active development

Eco-friendly production

GREEN TECH

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GREEN TECH
Ingress Protection (IP) is a standard protection rating on electrical enclosures that defines the degree of protection provided against intrusion by solids (fingers, dust, etc.) and liquids. The importance of an IP68 rating on ebm-papst products is to ensure the highest level of protection of the electronics inside the enclosure against foreign objects and water, while also protecting the user against potentially harmful contact.

**Ingress Protection at a glance**

Ingress protection is the level of protection against the intrusion of solid objects, liquids, dust, and accidental contact with electrical enclosures inside a mechanical casing. This rating gives users a more detailed understanding of general terms such as waterproof or water-resistant.

The numerical digits represent conformity with the conditions outlined in the table below. For example, an electrical enclosure rated IP68 is completely protected against dust and can not be damaged or become unsafe during permanent immersion in water (a depth greater than IPX7 which is to be defined between ebm-papst and the end user).

### Applications and target markets

Environmentally protected cooling solutions are highly beneficial to applications within the Alternative Energy, Appliance, Commercial Refrigeration, Heating, IT/Telecom, LED/Lighting and Transportation markets.

IP68 protection may be available beyond what is listed in this brochure. Please contact our application engineers for more information at sales@us.ebmpapst.com

### IP (Ingress Protection) Rating - Code Definition

<table>
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<tr>
<th>Rating</th>
<th>Solid Protection (first digit)</th>
<th>Rating</th>
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<td>1</td>
<td>Protection against objects &gt; 50mm (hands)</td>
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<td>Protection against dripping water or condensation</td>
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<td>Protection against objects &gt; 12mm (fingers)</td>
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<td>Protection against water spray 15° from vertical</td>
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<td>3</td>
<td>Protection against objects &gt; 2.5mm (tools/wires)</td>
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<td>Protection against water spray 60° from vertical</td>
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<td>4</td>
<td>Protection against objects &gt; 1mm (small tools)</td>
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<td>Protection against water spray from all directions.</td>
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<td>5</td>
<td>Protection against dust, limited ingress</td>
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<td>Protection against low pressure jets of water</td>
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**IP68 Defined**

*IP20 protection - for indoor (clean/dry) applications where no additional protection for motor (electronics or windings) is required.

*IP68 protection - the motor (electronics and windings) are completely encapsulated.
DC axial fans
Series 600 NU 60 x 60 x 25 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 22, bare and tin-plated
- Ingress protection rating of IP68

Material:
- Housing: Fiberglass-reinforced PBT composite
- Impeller: Fiberglass-reinforced PA composite

Direction of rotation: Clockwise, seen on rotor

Nominal Data

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<th>Type</th>
<th>CPM</th>
<th>Voltage range</th>
<th>Sound pressure level dB(A)</th>
<th>Air flow</th>
<th>RPM</th>
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Curves

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DC axial fans
Series 630 U 60 x 60 x 25 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 22, bare and tin-plated
- Ingress protection rating of IP68

Material:
- Housing: Fiberglass-reinforced PBT composite
- Impeller: Fiberglass-reinforced PA composite

Direction of rotation: Clockwise, seen on rotor

Nominal Data

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Curves
DC axial fans
Series 8400 NU  80 x 80 x 25 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 24, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

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DC axial fans
Series 8300 U  80 x 80 x 32 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Clockwise, seen on rotor

Nominal Data

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DC axial fans
Series 3300 NU  92 x 92 x 32 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Clockwise, seen on rotor

Nominal Data
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DC axial fans
Series 3400 NU  92 x 92 x 25 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 24, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Counterclockwise, seen on rotor

Nominal Data
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<th>Type</th>
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DC axial fans
Series 3200 JU 92 x 92 x 38 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 24, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite

Direction of rotation: Clockwise, seen on rotor

Nominal Data

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Curves

DC axial fans
Series 3250 JU 92 x 92 x 38 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 24, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite

Direction of rotation: Clockwise, seen on rotor

Nominal Data

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Curves
DC axial fans
Series 4300 NU 119 x 119 x 32 mm

Highlights:
– Motor protection against reverse polarity and locking.
– Air exhaust over struts
– Connection via 310 mm strands AWG 22, TR 64, bared and tin-plated
– Ingress protection rating of IP68

Material:
Housing: Fiberglass-reinforced PBT composite
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Clockwise, seen on rotor

Nominal Data

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<td>4314 NU</td>
<td>112</td>
<td>24</td>
<td>12..28</td>
<td>41</td>
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<td>Yes</td>
<td>-20...75</td>
<td>250 IP68  Yes</td>
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</table>

DC axial fans
Series 4100 NU 119 x 119 x 38 mm

Highlights:
– Motor protection against reverse polarity and locking.
– Air intake over struts
– Connection via 310 mm strands AWG 22, TR 64, bared and tin-plated
– Ingress protection rating of IP68

Material:
Housing: Die-cast aluminum
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Clockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>VDC dB(A)</th>
<th>Bsr(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
<th>Ingress Protection Rating</th>
<th>UL Approval</th>
<th>Curves</th>
</tr>
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<tbody>
<tr>
<td>4112 N/2HU</td>
<td>134.0</td>
<td>12</td>
<td>8...14</td>
<td>57.0</td>
<td>6.5</td>
<td>Yes</td>
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<td>4400 -20...55 IP68 Yes</td>
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</tr>
<tr>
<td>4114 NU*</td>
<td>99.0</td>
<td>24</td>
<td>12...29</td>
<td>48.5</td>
<td>5.7</td>
<td>Yes</td>
<td>5.6</td>
<td>3200 -20...75 400 IP68 Yes</td>
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<td>4114 N/2HU**</td>
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<td>3200 -20...75 400 IP68 Yes</td>
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<tr>
<td>4114 N/2H4AU</td>
<td>153.0</td>
<td>24</td>
<td>12...28</td>
<td>60.0</td>
<td>7.0</td>
<td>Yes</td>
<td>13.6</td>
<td>4900 -20...55 400 IP68 Yes</td>
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<tr>
<td>4114 N/2H4FU</td>
<td>256.0</td>
<td>24</td>
<td>16...30</td>
<td>73.0</td>
<td>8.1</td>
<td>Yes</td>
<td>65.0</td>
<td>8400 -20...65 390 IP68 Yes</td>
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<tr>
<td>4114 N/2H4AU</td>
<td>256.0</td>
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<td>16...30</td>
<td>73.0</td>
<td>8.1</td>
<td>Yes</td>
<td>65.0</td>
<td>8400 -20...65 390 IP68 Yes</td>
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<tr>
<td>4118 N/2H4FU</td>
<td>256.0</td>
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<td>36...60</td>
<td>67.0</td>
<td>7.0</td>
<td>Yes</td>
<td>34.0</td>
<td>6600 -20...65 400 IP68 Yes</td>
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<tr>
<td>4118 N/2H4AU</td>
<td>256.0</td>
<td>48</td>
<td>36...60</td>
<td>67.0</td>
<td>7.0</td>
<td>Yes</td>
<td>34.0</td>
<td>6600 -20...65 400 IP68 Yes</td>
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</tbody>
</table>

Curves

*4114 N/2H4FU-295 has AWG 20 lead wires
**Mounting hole diameter is 0.146 (3.7 ± 0.15) on the 4114NX versions
DC axial fans
Series DV 5200 U 127 x 127 x 38 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via 310 mm strands AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Die-cast aluminum
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
<th>UL Approval</th>
<th>Curves</th>
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<tbody>
<tr>
<td>DV 5214 NU</td>
<td>158.9</td>
<td>24</td>
<td>18...26</td>
<td>56</td>
<td>6.4</td>
<td>Yes</td>
<td>19.8</td>
<td>-20...65</td>
<td>560</td>
<td>IP68</td>
</tr>
<tr>
<td>DV 5214/2NU-807</td>
<td>158.9</td>
<td>24</td>
<td>16...30</td>
<td>56</td>
<td>6.0</td>
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<td>20.1</td>
<td>5000</td>
<td>-20...65</td>
<td>560</td>
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DC axial fans
Series 6200 NU Ø172 x 51 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via leads 310 mm AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Die-cast aluminum
Impeller: Fiberglass-reinforced PA composite
Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
<th>UL Approval</th>
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<tbody>
<tr>
<td>6224 NMU</td>
<td>206.0</td>
<td>24</td>
<td>12...32</td>
<td>50</td>
<td>5.7</td>
<td>Yes</td>
<td>11.6</td>
<td>2500</td>
<td>-20...60</td>
</tr>
<tr>
<td>6224 NU</td>
<td>241.3</td>
<td>24</td>
<td>12...28</td>
<td>55</td>
<td>6.1</td>
<td>Yes</td>
<td>15.6</td>
<td>3400</td>
<td>-20...72</td>
</tr>
</tbody>
</table>

Curves
DC axial fans
Series 6300 U Ø172 x 51 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via leads 310 mm AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Die-cast aluminum
Impeller: Fiberglass-reinforced PA composite

Direction of rotation: Counterclockwise, seen on rotor

**Nominal Data**

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC 12</th>
<th>VDC 24</th>
<th>Ball bearing</th>
<th>Sound pressure level</th>
<th>Sound power level</th>
<th>RPM</th>
<th>C 25°C</th>
<th>g 50°C</th>
<th>Ingress Protection Rating</th>
<th>UL Approval</th>
<th>Curves</th>
</tr>
</thead>
<tbody>
<tr>
<td>6314 HU-227</td>
<td>321.0</td>
<td>24</td>
<td>16...30</td>
<td>58</td>
<td>6.9</td>
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<td>31</td>
<td>5000</td>
<td>-20...50</td>
<td>IP68</td>
<td>Yes 1</td>
<td>1</td>
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<tr>
<td>6318/2 HPU-216</td>
<td>321.0</td>
<td>48</td>
<td>36...60</td>
<td>58</td>
<td>6.9</td>
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<td>31</td>
<td>5000</td>
<td>-20...65</td>
<td>IP68</td>
<td>Yes 1</td>
<td>1</td>
</tr>
<tr>
<td>6318 N/2H5PU</td>
<td>403.0</td>
<td>48</td>
<td>36...72</td>
<td>6.7</td>
<td>7.5</td>
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<td>53</td>
<td>5000</td>
<td>-20...70</td>
<td>IP68</td>
<td>Yes 2</td>
<td>2</td>
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</tbody>
</table>

DC axial fans
Series 6400 U 172 x 51 mm

Highlights:
- Motor protection against reverse polarity and locking.
- Air exhaust over struts
- Connection via leads 310 mm AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
Housing: Die-cast aluminum
Impeller: Fiberglass-reinforced PA composite

Direction of rotation: Counterclockwise, seen on rotor

**Nominal Data**

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC 12</th>
<th>VDC 24</th>
<th>Ball bearing</th>
<th>Sound pressure level</th>
<th>Sound power level</th>
<th>RPM</th>
<th>C 25°C</th>
<th>g 50°C</th>
<th>Ingress Protection Rating</th>
<th>UL Approval</th>
<th>Curves</th>
</tr>
</thead>
<tbody>
<tr>
<td>6420/3U</td>
<td>241.3</td>
<td>24</td>
<td>12...28</td>
<td>57</td>
<td>6.4</td>
<td></td>
<td>17</td>
<td>3400</td>
<td>-20...67</td>
<td>IP68</td>
<td>Yes 2</td>
<td>2</td>
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<tr>
<td>6424 MU</td>
<td>206.0</td>
<td>24</td>
<td>12...32</td>
<td>52</td>
<td>6.0</td>
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<td>12</td>
<td>2850</td>
<td>-20...72</td>
<td>IP68</td>
<td>Yes 1</td>
<td>1</td>
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<td>6448 U</td>
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<td>48</td>
<td>28...60</td>
<td>57</td>
<td>6.4</td>
<td></td>
<td>17</td>
<td>3400</td>
<td>-20...67</td>
<td>IP68</td>
<td>Yes 2</td>
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<tr>
<td>6424 HU</td>
<td>283.0</td>
<td>24</td>
<td>12...28</td>
<td>63</td>
<td>7.1</td>
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<td>26</td>
<td>4100</td>
<td>-20...55</td>
<td>IP68</td>
<td>Yes 3</td>
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</tbody>
</table>
DC centrifugal fans
Series RG 160 NU 220 x 220 x 56 mm

Highlights:
- Backward curved impeller
- Motor protection against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust
- Connection via single strands AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
- Impeller: Fiberglass-reinforced composite
- Housing: Fiberglass-reinforced composite scroll
- Baseplate: Steel

Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
<th>UL Approval</th>
<th>Curves</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG 160-28/14NU</td>
<td>123.0</td>
<td>24</td>
<td>12...28</td>
<td>6.6</td>
<td>20</td>
<td>2850</td>
<td>-20...70</td>
<td>IP68 Yes</td>
<td>1</td>
</tr>
<tr>
<td>RG 160-28/18NU</td>
<td>123.0</td>
<td>48</td>
<td>28...60</td>
<td>6.6</td>
<td>20</td>
<td>2850</td>
<td>-20...70</td>
<td>IP68 Yes</td>
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</tr>
</tbody>
</table>

Curves

DC centrifugal fans
Series RG 160 NTDU 220 x 220 x 55 mm

Highlights:
- Backward curved impeller
- Motor protection against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust
- Connection via single strands AWG 22, TR 64, bared and tin-plated
- Ingress protection rating of IP68

Material:
- Impeller: Fiberglass-reinforced composite
- Housing: Fiberglass-reinforced composite scroll
- Baseplate: Steel

Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
<th>UL Approval</th>
<th>Curves</th>
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</thead>
<tbody>
<tr>
<td>RG 160-28/18N/2TDPU-331</td>
<td>182.5</td>
<td>48</td>
<td>38...57</td>
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<td>57.6</td>
<td>4270</td>
<td>-20...75</td>
<td>IP68 Yes</td>
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</table>

Curves
DC centrifugal fans
Series RER 133 TDU Ø133 x 91 mm

Highlights:
– Backward curved impeller
– Motor protection against reverse polarity and locking
– Direction of air flow: axial air intake, centrifugal air exhaust
– Connection via single strands AWS 22, TR 64, bared and tin-plated
– Ingress protection rating of IP68
Material: Impeller: Fiberglass-reinforced composite
Direction of rotation: Clockwise, seen on rotor

Material:
Impeller: Fiberglass-reinforced composite
Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
<th>UL Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>RER 133-41/18/2TDLOU</td>
<td>211.9</td>
<td>48</td>
<td>36.57</td>
<td>7.4 Yes</td>
<td>51</td>
<td>4200</td>
<td>-20...70</td>
<td>740</td>
<td>IP68 Yes</td>
</tr>
</tbody>
</table>

Curves

DC centrifugal fans
Series RER 160 NTDU Ø165 x 51 mm

Highlights:
– Backward curved impeller
– Motor protection against reverse polarity and locking
– Direction of air flow: axial air intake, centrifugal air exhaust
– Connection via single strands AWS 22, TR 64, bared and tin-plated
– Ingress protection rating of IP68
Material: Impeller: Fiberglass-reinforced composite
Direction of rotation: Clockwise, seen on rotor

Material:
Impeller: Fiberglass-reinforced composite
Direction of rotation: Counterclockwise, seen on rotor

Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>CFM</th>
<th>VDC</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>°C</th>
<th>g</th>
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<tr>
<td>RER 160-28/18/1TDLOU</td>
<td>217.0</td>
<td>48</td>
<td>38.57</td>
<td>7.4 Yes</td>
<td>51</td>
<td>4200</td>
<td>-20...60</td>
<td>700</td>
<td>IP68 Yes</td>
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</tbody>
</table>

Curves
**DC centrifugal fans**
Series RER 190 TDU  Ø190 x 69 mm

**Highlights:**
- Backward curved RadiCal impeller with maximum efficiency and 3-phase motor
- Motor protection against reverse polarity and locking
- Direction of air flow: axial air intake, centrifugal air exhaust
- Connection via single strands AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated
- Ingress protection rating of IP68

**Material:** Impeller: Fiberglass-reinforced composite
Direction of rotation: Clockwise, seen on rotor

---

<table>
<thead>
<tr>
<th>Nominal Data</th>
<th>C</th>
<th>FM</th>
<th>VDC</th>
<th>VDC</th>
<th>dB(A)</th>
<th>Bel(A)</th>
<th>Watts</th>
<th>RPM</th>
<th>ºC</th>
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<tr>
<td>RER 190-39/14/2TDLOU</td>
<td>376.7</td>
<td>24</td>
<td>16...30</td>
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<td>-20...60</td>
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<table>
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<th>dB(A)</th>
<th>Bel(A)</th>
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<td>RER 175-42/14/2TDNLPU</td>
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<td>16...30</td>
<td>-</td>
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<td>-20...65</td>
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**Curves**