Fan Wheel and Motor Solutions for Optimum Performance in Fan Arrays
The air movement experts behind the patented FANWALL TECHNOLOGY® air handling systems continue their legacy of fan array innovation by adding more fan wheel and motor offerings.

These designs offer enhanced benefits for patented FANWALL® air handling systems while continuing their industry-leading benefits such as optimized airflow efficiency, redundancy and minimized turbulence.

Enhanced Benefits

- Higher energy efficiency
- Lower sound levels
- Multiple motor combinations

HPF-P200 Fan Wheel

Fan wheel and cone for use with standard internal rotor motors

- Premium efficient, quiet fan due to the improved aerodynamic shaping of blades, shroud and cones
  - Material provides damping to reduce sound tones from impeller and motor
- Tested to AMCA 210 for air performance and AMCA 300 for sound performance
- Increased fan efficiency by up to 7% on certain fan sizes
- Typical sound reduction of 5 dB of fan blade passage frequencies on inlet and discharge
- Available in 7 wheel diameters: 10, 12, 14, 16, 18, 20 and 22
- Approved for UL 1995
- Wheel operating temperature range of -31°F (-35°C) to 176°F (80°C)

The polymer fan wheel is available on FANWALL air handling systems from Nortek Air Solutions.
The aluminum impeller fan (HPF-A100) is available for FANWALL® air handling systems with high fan static pressure operating requirements.

**HPF-P200-ECMi Fan**

Fan wheel with integrated electronically commutated permanent magnet motor

- Includes all the polymer wheel and cone design advantages of the HPF-P200 impeller and adds the benefits of permanent magnet motors.
- Integrated ECMi drive
  - designed for reduced motor tones
  - eliminates wiring from motor to drive
- Improved turndown efficiencies over induction motors
- External rotor motor provides opportunities for compact applications
- Integrated drive UL Listed E481280
- Permanently lubricated ball bearings
- Continuous wide range of speed control
- Isolated shaft for mitigation of arcing across bearings
- Modbus® communication option
- Motor designed for IP54 protection and a thermal class of THCL 155
- Voltage input of 380-480V AC 3-Phase 50/60Hz.
- Tolerances on power source are ±10% on voltage and 50 Hz - 3% / 60 Hz +5% on frequency
- Built-in active thermal management

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**Very Significant Reduction of BPF with HPF-P200**

![Graph showing the reduction of BPF with HPF-P200 compared to A100 induction motor. The reduction is highlighted for various frequencies ranging from 63 Hz to 8 kHz.]
MOTOR CHOICES
FOR FANWALL® SYSTEMS

Flexibility in Motor Performance
Motors are a major factor in the efficiency of fan systems. The air handler brands of Nortek Air Solutions offer multiple motors to meet your specific fan system performance requirements.

<table>
<thead>
<tr>
<th>Motor</th>
<th>Typical Comparative Efficiency*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Induction</td>
<td>Good/Better</td>
</tr>
<tr>
<td>Electronically Commutated Permanent Magnet (ECMi)</td>
<td>Better</td>
</tr>
<tr>
<td>Permanent Magnet (PM)</td>
<td>Best</td>
</tr>
</tbody>
</table>

* Efficiency depends on specific application and system operating range.

FANWALL Air Handler System Available Motors

<table>
<thead>
<tr>
<th>Wheel Model</th>
<th>Description</th>
<th>Motors</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPF-P200</td>
<td>Polymer Wheel</td>
<td>AC Induction, Permanent Magnet (PM)</td>
</tr>
<tr>
<td>HPF-P200 ECMi</td>
<td>Polymer Wheel</td>
<td>Electronically Commutated Permanent Magnet Motors (ECMi)</td>
</tr>
<tr>
<td>HPF-A100</td>
<td>Aluminum Wheel</td>
<td>AC Induction, Permanent Magnet (PM)</td>
</tr>
</tbody>
</table>

System Efficiency Down System Curve Starting at Peak Static Efficiency

PM Motor
Induction Motor
ECMi Motor

PM HAS BEST EFFICIENCY. ECMi MOTOR REDUCES EFFICIENCY AT HIGHER FLOWS DUE TO BEING IN WHEEL. ECMi HAS GOOD TURNDOWN EFFICIENCY COMPARED TO INDUCTION.