Cook’s CP family of centrifugal utility vent sets offers durability, reliability and flexibility to meet a wide range of needs and budgets. CPs are ideal for low to medium volume and pressure applications.

**DESIGNED FOR**
supply, exhaust or return air movement applications

**FIELD ROTATABLE**
housing is standard on all models.

**PERFORMANCE RANGE**
50-53,500 CFM

**STATIC PRESSURES**
up to 8” w.g.

**CHOOSE FROM**
different wheel types: CPF, CPS, CPS-A, CPA, CPA-A, & CPV

**FULLY WELDED HOUSING**
to prevent leakage

**HIGH TEMP**
Standard construction is rated to 230°F

**SPARK RESISTANCE**
CPA & CPA-A have an aluminum housing and wheel

**EXTRA BENEFITS**
- CP models are licensed to bear the AMCA Certified Rating Seals
- UL 705 is standard on all CP models
- Discharge flanges are standard on all models except down blast and CPFD
- Available with Vari-Flow® motors and controls

For more information, Look at the Vari-Flow® Product Guide or contact Loren Cook Company at 417-869-6474.
Centrifugal wheels have been the workhorse of the fan industry for over 100 years. Their versatility, energy-efficiency and availability are viable solutions for a wide range of applications.

A centrifugal wheel brings air in parallel to the axis of rotation and discharges air perpendicular to the axis of rotation. The air then follows the shape of the fan to the outlet. As a general rule, it is preferred for higher pressure exhaust and ducted systems. Cook offers three CP blade types explained on the next page.
BLADE COMPARISON

There are three primary centrifugal wheel designs. Each one has its strengths.

- **Highest efficiency of the CP impeller designs**
- **Blades of airfoil contour curved away from the direction of rotation**
- **Air leaves the impeller at a velocity less than its tip speed**
- **Relatively deep blades provide efficient expansion within the blade passages**

- **Efficiency is less than that of the airfoil design**
- **Blades are single thickness metal inclined away from the direction of rotation**
- **Air leaves the impeller at a velocity less than its tip speed**
- **Relatively deep blades provide efficient expansion within the blade passages**
- **Less expensive than airfoil**

- **Efficiency is less than airfoil and backward inclined impellers**
- **Has blades with both the heel and tip curved forward**
- **Air leaves the impeller at velocities greater than the impeller tip speed**
- **Operates most efficiently at lowest speed**
- **Good for low pressure applications**
The CPV, CPS/CPA, CPS-A/CPA-A and CPF are each designed for a specific performance range. The curves chart below illustrates typical performance ranges of the different wheel designs.

- **CPF**
  - CPFD & CPFB use a steel wheel with forward curved blades.

- **CPV**
  - CPV uses a riveted aluminum wheel with weld between backward inclined flat blades and shroud.

- **CPA/CPS**
  - CPS uses a welded, Lorenized™ steel wheel with backward inclined flat blades.
  - CPA uses a welded, aluminum wheel with stainless steel hardware.

- **CPA-A/CPS-A**
  - CPS-A uses a welded, Lorenized™ steel wheel with backward inclined airfoil blades.
  - CPA-A uses a welded aluminum wheel with backward inclined airfoil blades and stainless steel hardware.
Arrangement 9 standard construction features are shown below.
Arrangement 4 standard construction features are shown below.
CP’s are offered in Clockwise and Counterclockwise rotation. The CP housing is field rotatable allowing you to adjust to any of 7 positions*

The direction of rotation is determined from the drive side of the fan. On single inlet fans, drive side is always considered as the side opposite the fan inlet.

The discharge designation is based on the horizontal axis of the fan and is designated in degrees (45° standard) above or below the axis of rotation.

*Class 1 only
Beyond the CP Standard Construction Features, Cook offers accessories to fit your custom air-movement requirements and/or preferences.

**ACCESSORIES**

**ARRANGEMENT**

**ACCESS DOOR**
- Available bolted or hinged
- Provides access for cleaning and inspection
- Material same as the fan housing
- Gasket is utilized to minimize leakage

**BELT GUARD**
- Designed to cover the shaft and drive components
- Constructed 16 gauge (min) Lorenized™ steel
- Factory Mounted
- OSHA belt guards are available to completely enclose shaft and drive components

**INLET/OUTLET SAFETY SCREENS**
- Protect personnel and prevent debris from entering the fan in non-ducted applications
- Factory mounted

**DRAIN**
- Optional drain is located in the bottom of the fan housing
- Continuously welded to the housing and threaded for a 3/4 inch pipe connection

**WEATHER COVER**
- Completely encloses the motor, shaft and drive components
- Constructed of 16 gauge (min) Lorenized™ steel
- Functions as an OSHA belt guard

**FLANGED INLET**
- For flange-type duct attachments.
- Allows fan removal without disturbing the surrounding ductwork

**INLET/OUTLET COMPANION FLANGE**
- For use with the flanged outlet and optional flanged inlet
- Attached to the adjacent ductwork to mate to the flanged connection of the fan

**ISOLATION RAILS**
- Supplied in pairs, and are designed to run the full length of the supported equipment (parallel to shafts)
- *See Vibration Isolation brochure for details*
Beyond the CP Standard Construction Features, Cook offers accessories to fit your custom air-movement requirements and/or preferences.

**BELT TENSIONER**
- Maintains constant drive belt tension
- Reduces maintenance costs
- Increases belt life

**SHAFT COOLER**
- Dissipates heat and prevents excessive bearing temperatures
- Required for air temperature above 300°F

**SHAFT SEAL**
- Reduces air leakage around fan shaft in high pressure applications
- Constructed of aluminum and aramid fiber/NBD gasket material

**RUB RING**
- Prevents the shaft and wheel from contacting the housing of the CP
- Constructed of aluminum

**EXTENDED LUBE LINES**
- Quick and convenient way to safely lubricate the bearings while the fan is operating

**PIEZOMETRIC RING**
- Installed in the inlet of a fan
- Differential pressure and a flow coefficient allows the fan airflow to be calculated by reading the pressure across the inlet
- Works with Cook Flow Monitor

**PUNCHED INLET/OUTLET FLANGE**
- Available when a flanged duct connection is desired
- Pre punched with an array of holes at the factory
- Also available in UL 762 specifications

**WEATHER COVER DOOR**
- Completely enclose the motor, shaft and drive components
- Hinged steel door with latches allows access to the drives and motor without removing the weather cover
ACCESSORIES CONTINUED

Beyond the CP Standard Construction Features, Cook offers accessories to fit your custom air-movement requirements and/or preferences.

**ACCESSORIES NOT SHOWN**

**DISCHARGE SHUTTER**
- Aluminum or galvanized
- Gravity or motorized
- Standard duty shutters operate with velocities up to 2000 FPM
- Heavy duty shutters for velocities of 2000-3000 FPM

**ISOLATION BASE**
- Heavy duty structural channel
- Optional height saving brackets are available
- See Vibration Isolation brochure for details

**MOTOR HEAT SHIELD**
- Dissipate heat away from the fan motor

**HIGH TEMPERATURE GREASE**
- High temperatures can break down grease. In these cases, a high temperature grease is provided with the bearings

**STACK EXTENSION**
- Increases discharge height to prevent recirculation of contaminated air
- See page 14 for details

**304 STAINLESS STEEL**
- When corrosion resistance is important
- Both chromium and nickel, key components in resisting oxidation
- (CPS/CPS-A only)

**EXTENDED LIFE BEARINGS**
- Extended life bearings provide up to L10 life in excess of 200,000 hours

**INLET VANE DAMPER (IVD)**
- External IVD provides precise air volume control while maintaining efficiency and stable operation at reduced fan load

**FLEX DUCT CONNECTION**
- Flexible connection between the fan and the attached ductwork
- Reinforced neoprene fabric and aluminum bands
- **NOT to be used for UL762 or smoke control units or temperatures in excess of 250˚F

**CURB CAP AND INLET BOX**
- Provide additional access for wheel and duct work cleaning
- Less than 1% of impact on performance

**STAINLESS STEEL SHAFT**
- When additional corrosion resistance is desired
- Type 304 SS is used unless specified otherwise
- (Standard on CPA, CPA-A)

**ROOF CURB**
- Roof support structures for fans and ventilators
- Available for flat, pitched and peaked roofs with or without insulation

**SPLIT PILLOW BLOCK BEARINGS**
- Offer flexibility in sealing and lubrication, higher loads and range of shaft sizes

**ALUMINUM WHEEL**
- In applications where spark resistance or reduced starting torque is necessary
- **NOT to be used in smoke control applications
- (Standard on CPA, CPA-A)

**GREASE TERMINATOR 2**
- A grease-capture and containment system
- Uses the same material that oil companies use to clean catastrophic oil spills
- Lasts 30 to 45 days and is then replaced

**CONCENTRIC LOCK BEARINGS**
- Provide significantly more holding force on the fan shaft
- Are advisable when fan speed is modulated using VFD or other device, and when system conditions cause vibration

**GREASE TROUGH**
- Designed to accept grease accumulating in the bottom of the fan while separating and releasing accumulated water
Cook also offers a high temperature CP accessory package, which configures fan with all modifications necessary to meet operating requirements. This package provides a quick and simplified selection process.

<table>
<thead>
<tr>
<th>Temperature Range</th>
<th>Construction Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20°F – 230°F</td>
<td>▶ Standard construction</td>
</tr>
<tr>
<td>231°F – 300°F</td>
<td>▶ High temperature paint</td>
</tr>
<tr>
<td></td>
<td>▶ RPM limited to 96% of maximum</td>
</tr>
<tr>
<td>301°F – 500°F (CPS/CPS-A only)</td>
<td>▶ Requires steel wheel construction</td>
</tr>
<tr>
<td></td>
<td>▶ High temperature paint</td>
</tr>
<tr>
<td></td>
<td>▶ Shaft cooler</td>
</tr>
<tr>
<td></td>
<td>▶ Motor heat shield</td>
</tr>
<tr>
<td></td>
<td>▶ High temperature weather cover or belt guard (if weather cover or belt guard required)</td>
</tr>
<tr>
<td></td>
<td>▶ RPM limited to 91% of maximum at 500°F</td>
</tr>
</tbody>
</table>

For more information, contact Loren Cook Company at 417-869-6474 or info@lorencook.com.
Recommended installation and mounting options are shown here. Additional details can be found in the CP Installation, Operation and Maintenance Manual.

**ISOLATION RAILS**

**ISOLATION BASE**

---

**CP DESIGN BENEFITS**

- Height saving brackets where vertical space is an issue.
- Discharge configurations can be rotated in the field.
- Lifting lugs assist in product installation.
- For vibration isolation use isolation rails, isolation base or an inertia base. Recommendations can be found in the Vibration Isolation Brochure.
Cook can provide a pre-engineered stack to extend the CP discharge to 10ft. Preventing contaminated air from reentering the ventilation system.

**STACK EXTENSION**

The aluminum stack extension is highly weather resistant.

10 foot discharge height is good up to 125 MPH continuous wind-load without the need of guy-wires.

Lifting lugs assist in product installation.

Available for class 1 & 2 construction on sizes 60-300.

When Stack is provided, a drain is installed in the fan housing.
The plenum provides a removable, gasketed access door with adjustable quick release latches.

The plenum is designed to have less than 1% impact on performance.

All CP class 1 models are available with integral curb cap and inlet box. (Sizes 60-245) Contact factory for availability of larger sizes or class 2.
For grease collection Cook has you covered with two different options.

**GREASE TERMINATOR 2**

The clear, highly durable, plastic container, constructed of recyclable material provides a visual reminder for changing and cleaning needs.

**GREASE TROUGH**

The aluminum construction of the Grease Trough pan can be placed in a commercial dishwasher for cleaning. The Grease Trough meets all of the requirements for NFPA 96 installation.

Fan must be elevated for proper clearance.

Fan must be elevated for proper clearance.
STANDARD COATING
The CP is available with five coatings. The Lorenized™ coating in gray is standard. Lorenized™ is also available in 12 other colors shown.

LORENIZED™ COATING

- Electrostatically applied, baked polyester powder coating
- Undergoes a five-stage environmentally friendly pretreatment/wash process before coating
- Baked and cured at 400°F; final coating thickness of 1.5–2.5 mil
- Coating is required to exceed 1,000 hour salt spray under ASTM B117 test method
- Offers strong chemical resistance, durable mechanical performance and tough protection from outdoor elements
**OPTIONAL COATINGS**

Each of the following types of coatings offer unique qualities, benefits and color availability for Loren Cook CPs.

<table>
<thead>
<tr>
<th><strong>COOK HIGH TEMP COATING</strong></th>
<th><strong>COOK EPOXY POWDER</strong></th>
<th><strong>AIR DRY PHENOLIC</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Solvent based, heat resistant liquid coating which exhibits good corrosion resistance and color stability</td>
<td>‣ Electrostatically applied, baked epoxy powder coating</td>
<td>HERESITE® VR-514</td>
</tr>
<tr>
<td>‣ Final coating thickness is 0.8–1.5 mil</td>
<td>‣ Final coating thickness is 2.5–3.5 mil</td>
<td>‣ Conventional spray applied phenolic resin coating</td>
</tr>
<tr>
<td>‣ Withstands service temperatures up to 1,000°F</td>
<td>‣ For outdoor applications, an optional UV resistant topcoat is available to prevent coating deterioration</td>
<td>‣ Final coating thickness is 2.0–4.0 mil</td>
</tr>
<tr>
<td>Available in <strong>BLACK</strong>.</td>
<td>Available in <strong>DARK GRAY</strong>.</td>
<td>‣ For outdoor applications, an optional UV resistant topcoat (Heresite® UC-5500) is required to prevent deterioration of the coating</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>COOK EASY-CLEAN POWDER</strong></th>
<th><strong>COOK PHENOLIC EPOXY POWDER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Electrostatically applied, baked modified epoxy silicone powder coating</td>
<td>‣ Electrostatically applied, baked phenolic epoxy powder coating</td>
</tr>
<tr>
<td>‣ High temperature &quot;non-stick&quot; coating</td>
<td>‣ Final coating thickness is 1.5–4.0 mil</td>
</tr>
<tr>
<td>‣ Final coating thickness is 1.0–2.0 mil</td>
<td>‣ For outdoor applications, an optional UV resistant topcoat is required to prevent coating deterioration</td>
</tr>
<tr>
<td>Available in <strong>BLACK</strong>.</td>
<td>Available in <strong>LIGHT GRAY</strong> and <strong>BROWN</strong>.</td>
</tr>
</tbody>
</table>

See our Coatings Brochure for more information.


**AMCA SOUND AND AIR**

**AMCA Certified Ratings Seal**
Loren Cook products that bear the AMCA Certified Ratings Seal are licensed by AMCA International. These products meet the AMCA Standard and are within the product scope of AMCA International.

![AMCA Certified Ratings Seal](image)

**UL 705 LISTED**

**Power Ventilator**
The UL 705 Listing is the standard for electrical safety for permanently connected power ventilators. All CP models are constructed in accordance with UL 705, only when with motors.

![UL 705 Listed](image)

**SEISMIC**

**Seismically Qualified**
The below CP models have been shake table tested to exceed spectral response accelerations covering the most severe seismic conditions found within the United States. For more information, see Seismic Certification Flyer.

- CPV
- CPV-EC
- CPV-VF
- CPS-A
- CPS

*Available with curb cap and inlet box
*Sizes 60 - 150

**HIGH WIND & HURRICANE**

**High Wind and Hurricane Rated**
Through rigorous research and testing, this option is designed to meet three of Miami-Dade County’s Testing Application Standards. In addition, all of these products have received approval from the Florida Building Commission.

- CPS*
- CPS-A*
- CPFB
- CPV*
- CPV-VF
- CPV-EC

*Available with curb cap and inlet box
*Sizes 60 - 150

**CP CERTIFICATIONS**

We use third party verification agencies for certification, qualification and listing of fan performance.

*For more information, see Seismic Flyer.*

*For more information, see High Wind & Hurricane Flyer.*
CP CERTIFICATIONS CONTINUED

We use third party verification agencies for certification, qualification and listing of fan performance.

UL SMOKE CONTROL

Power Ventilator for Smoke Control Systems
The UL Listing “Power Ventilator for Smoke Control Systems” is a test procedure and category initiated by Loren Cook Company and developed in a joint effort with UL in 1990. The products below are UL Smoke Control Listed.

Sizes 60–490

CPS | CPS-A

UL Requirements
- Unit must withstand a specified elevated airstream temperature for a specified duration
- Unit must be listed under UL 705
- Requires steel wheel, motor heat shield, and steel housing

Max. Temp. 300°F

CPV | CPA | CPA-A

Max. Temp. 500°F

CPS | CPS-A

For more information, see UL Smoke Control Flyer.

UL 762 LISTED

Power Ventilator Restaurant Exhaust Appliances
Loren Cook Company products that bear the UL 762 Listing are designed to exhaust contaminated or grease-laden air. The products shown below are UL Listed to operate continuously at the shown elevated temperatures.

Max. Temp. 300°F

CPV | CPA | CPA-A

Max. Temp. 500°F

CPS | CPS-A

UL Requirements
- Unit must be supplied with drain and access door
- Outdoor applications must be supplied with a weather cover
- When airstream temperatures are expected to exceed 180°F, high temperature accessories may be required

For more information, see UL 762 Restaurant Flyer.
The following overall dimensions are for counterclockwise top horizontal discharge units, and are in inches. For more detailed dimensions, see product submittals.

### CPV/CPS/CPS-A/CPA-A

#### INLET SIDE

**Optional Weather Cover Shown**

### OVERALL DIMENSIONS

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Height</th>
<th>Width</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>30 1/2</td>
<td>22 5/16</td>
<td>26 1/2</td>
</tr>
<tr>
<td>70</td>
<td>30 1/2</td>
<td>22 5/16</td>
<td>26 1/2</td>
</tr>
<tr>
<td>80</td>
<td>30 1/2</td>
<td>22 5/16</td>
<td>26 1/2</td>
</tr>
<tr>
<td>100</td>
<td>30 1/2</td>
<td>22 5/16</td>
<td>26 1/2</td>
</tr>
<tr>
<td>120</td>
<td>32 5/8</td>
<td>24 7/8</td>
<td>28 7/8</td>
</tr>
<tr>
<td>135</td>
<td>34 1/4</td>
<td>26 3/4</td>
<td>31 1/4</td>
</tr>
<tr>
<td>150</td>
<td>36 15/16</td>
<td>29 7/8</td>
<td>32 7/8</td>
</tr>
<tr>
<td>165</td>
<td>39 15/16</td>
<td>32 1/8</td>
<td>33 7/16</td>
</tr>
<tr>
<td>180</td>
<td>43 3/16</td>
<td>34 13/16</td>
<td>34 11/16</td>
</tr>
<tr>
<td>195</td>
<td>46 5/16</td>
<td>36 5/8</td>
<td>38 7/8</td>
</tr>
<tr>
<td>210</td>
<td>49 13/16</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>225</td>
<td>53 1/8</td>
<td>42 1/8</td>
<td>42 1/8</td>
</tr>
<tr>
<td>245</td>
<td>58 5/16</td>
<td>45 1/8</td>
<td>44 3/16</td>
</tr>
<tr>
<td>270</td>
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<td>300</td>
<td>70 3/8</td>
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<td>51 1/2</td>
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<tr>
<td>330</td>
<td>76 7/8</td>
<td>59 15/16</td>
<td>53 13/16</td>
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<tr>
<td>365</td>
<td>84 1/2</td>
<td>66 3/16</td>
<td>60 7/16</td>
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<td>402</td>
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<td>73 1/8</td>
<td>64 3/16</td>
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<tr>
<td>445</td>
<td>101 13/16</td>
<td>80 11/16</td>
<td>71 9/16</td>
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<tr>
<td>490</td>
<td>111 11/16</td>
<td>88 3/4</td>
<td>75</td>
</tr>
</tbody>
</table>

**CLASS 1**

**CLASS 2 (CPV NOT AVAILABLE)**

<table>
<thead>
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<th>Unit Size</th>
<th>Height</th>
<th>Width</th>
<th>Length</th>
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</thead>
<tbody>
<tr>
<td>120</td>
<td>36 5/8</td>
<td>24 7/8</td>
<td>36 5/8</td>
</tr>
<tr>
<td>135</td>
<td>38 1/4</td>
<td>26 3/4</td>
<td>37 1/2</td>
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</tr>
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<td>165</td>
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</tr>
<tr>
<td>180</td>
<td>45 1/8</td>
<td>34 13/16</td>
<td>45 7/16</td>
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<tr>
<td>195</td>
<td>47</td>
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<td>40</td>
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<td>245</td>
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</tr>
<tr>
<td>270</td>
<td>63 13/16</td>
<td>49 1/8</td>
<td>56</td>
</tr>
<tr>
<td>300</td>
<td>70 3/8</td>
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</tr>
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<td>76 7/8</td>
<td>59 15/16</td>
<td>62 3/4</td>
</tr>
<tr>
<td>365</td>
<td>84 1/2</td>
<td>66 3/16</td>
<td>66 11/16</td>
</tr>
</tbody>
</table>
The following overall dimensions are for counterclockwise top horizontal discharge units, and are in inches. For more detailed dimensions, see product submittals.

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Height</th>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>30 1/2</td>
<td>26 9/16</td>
<td>22 5/16</td>
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<td>180</td>
<td>43 3/16</td>
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<td>220</td>
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<td>250</td>
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</tr>
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<td>63 13/16</td>
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</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Unit Size</th>
<th>6</th>
<th>7</th>
<th>9</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>15 ¾</td>
<td>18 ¾</td>
<td>20 ½</td>
<td>24 15/16</td>
<td>27</td>
</tr>
<tr>
<td>Length</td>
<td>18 ½</td>
<td>20 ¼</td>
<td>21 ¾</td>
<td>22 ¼</td>
<td>23 ¾</td>
</tr>
<tr>
<td>Width</td>
<td>13 ½</td>
<td>13 ½</td>
<td>14</td>
<td>15 ½</td>
<td>17</td>
</tr>
</tbody>
</table>
OVERALL DIMENSIONS

The following overall dimensions are for counterclockwise top horizontal discharge units, and are in inches. For more detailed dimensions, see product submittals.

CPV DIRECT DRIVE WITH EC MOTOR

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>100</th>
<th>120</th>
<th>135</th>
<th>150</th>
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