ACP 15 / 28 / 40

Dry Compact Multi-stage Roots Pumps.
Clean Vacuum. High Reliability.

PFEIFFER VACUUM
The multi-stage Roots pump technology of the ACP series meets the requirements of applications where clean and dry vacuum is needed.

**No particle contamination**

The frictionless pumping module is optimized to operate without internal lubricant and provides outstanding oil-free vacuum with no hydrocarbon vapor backstreaming. Without any seals between rotor and stator no particles are generated.

**High reliability**

The absence of wearing parts inside the pumping module allows for unsurpassed long-term stability and high reliability in even the most demanding applications.

**Constant performances**

The frequency converter driven motor provides constant rotational speed, thus stable pumping speed and consistent ultimate pressure are achieved all over the world.

**Low maintenance costs**

Our ACP pumps require overhaul only every 22,000 hours of operation for the ACP 28/40 and 20,000 hours of operation for the ACP 15 resulting in low cost of ownership.

**Condensable vapor ability**

High flow gas ballast ports and drainable silencers allow the ACP to pump high amounts of condensable vapors (up to 1,000 g/h of pure water vapor).

adixen has been an industry leader in multi-stage Roots pumping technology since 1988
### Advantages at a glance

- **Best solution** – Ideal replacement for scroll and oil-sealed pumps
- **Air cooling** – No installation and operational costs for water supply
- **Frequency converter** – Hour meter, remote operation mode (RS-485, dry contacts, multiple rotational speed selection (power saving, noise reduction, adaptation to application cycle)
- **Several gas port options** – Purge gas, gas ballast, other specific ports according to application
- **Universal power supply** – Wide voltage supply 50/60 Hz single-phase and three-phase
- **Standards** – Compliance with CE standards, UL/CSA certified, SEMI S2 certified
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Typical applications of ACP pumps

Analytical instruments
- Electron microscopes
- Surface analyzers
- Leak detectors
- Mass spectrometers
- Optical spectrometers

R & D
- Particle accelerators
- Turbo pumping stations
- Laboratories

Industry
- Lamp manufacturing
- Vacuum coating
- Cryo pumps regeneration
- Plasma cleaning
- Drying
- Load-lock

Specific applications need special solutions

Special versions have been developed for:
- Helium recirculation in a closed-loop
- Backing turbopumps in UHV systems

Please contact us for special versions.
Several versions for a wide range of applications

**Standard version**  
*(ACP 15 / ACP 28 / ACP 40)*  
The SD version is designed for applications that require pumping of clean (dust-free) and non-corrosive gases. Standard pumps are equipped with a gas ballast device to improve pumping of light gases and avoid vapor condensation inside the pump. Three gas ballast options are available to satisfy customer needs.

![Image of standard version pump]

1. Permanently open inlet filter  
2. Manual gas ballast knob (open/close)  
3. Blanked-off (closed by plug)

**Version for corrosive gases**  
*(ACP 15G / ACP 28G / ACP 40G)*  
The G version pump is compatible with traces of corrosive gases. Three purge gas jets protect low and high pressure bearings and dilute trace amounts of corrosive gases.

![Image of version for corrosive gases]

**Version for condensable vapors**  
*(ACP 28CV / ACP 40CV)*  
The CV version is specially designed to avoid vapor condensation inside the pumping module with:  
- A high gas ballast flow to warm up the pump and dilute condensable gases  
- An external drainable silencer to remove liquid from the lowest point of the exhaust stage.  
- A gas purge to protect lip seals and ball bearings from condensable vapors.  
CV versions extend the pure water vapor capacity up to 1,000 g/h.

![Image of version for condensable vapors]

**Drainable silencer**
### Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>ACP 15</th>
<th>ACP 28</th>
<th>ACP 40</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pumping speed, max.</strong></td>
<td>m³/h</td>
<td>14</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>cfm</td>
<td>8.2</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td><strong>Ultimate pressure without purge gas</strong></td>
<td>mbar</td>
<td>3 · 10⁻²</td>
<td>3 · 10⁻²</td>
<td>3 · 10⁻¹</td>
</tr>
<tr>
<td></td>
<td>torr</td>
<td>2.2 · 10⁻²</td>
<td>2.2 · 10⁻²</td>
<td>2.2 · 10⁻²</td>
</tr>
<tr>
<td><strong>Ultimate pressure with purge gas</strong></td>
<td>mbar</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>torr</td>
<td>7.5 · 10⁻²</td>
<td>7.5 · 10⁻²</td>
<td>7.5 · 10⁻²</td>
</tr>
<tr>
<td><strong>For G version only</strong></td>
<td>mbar</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>torr</td>
<td>7.5 · 10⁻²</td>
<td>7.5 · 10⁻²</td>
<td>7.5 · 10⁻²</td>
</tr>
<tr>
<td><strong>Ultimate pressure with open gas ballast</strong></td>
<td>mbar</td>
<td>1,013</td>
<td>1,013</td>
<td>1,013</td>
</tr>
<tr>
<td></td>
<td>torr</td>
<td>750</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td><strong>Max. pure water vapor tolerance (measured)</strong></td>
<td>g/h</td>
<td>80</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-phase</td>
<td></td>
<td>100-230 V +/-10 %, 50/60 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-phase</td>
<td></td>
<td>200-440 V +/-10 %, 50/60 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>W</td>
<td>450</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>550</td>
<td>1,050</td>
<td>1,050</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>°C</td>
<td>12 to 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>°F</td>
<td>54 to 104</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flange in</strong></td>
<td>ISO-KF</td>
<td>DN 25</td>
<td>DN 25</td>
<td>DN 40</td>
</tr>
<tr>
<td><strong>Flange out</strong></td>
<td>ISO-KF</td>
<td>DN 16</td>
<td>DN 25</td>
<td>DN 25</td>
</tr>
<tr>
<td><strong>Max. Helium leak rate</strong></td>
<td>mbar l/s</td>
<td>&lt; 5 · 10⁻⁷</td>
<td>&lt; 5 · 10⁻⁷</td>
<td>&lt; 5 · 10⁻⁷</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>kg</td>
<td>23</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>lbs</td>
<td>51</td>
<td>66</td>
<td>70.5</td>
</tr>
<tr>
<td><strong>Overall dimensions (L x W x H)</strong></td>
<td>mm</td>
<td>514 x 190 x 270</td>
<td>647 x 193 x 322</td>
<td>647 x 193 x 322</td>
</tr>
<tr>
<td></td>
<td>inches</td>
<td>20.2 x 7.5 x 10.6</td>
<td>25.4 x 7.6 x 12.6</td>
<td>25.4 x 7.6 x 12.6</td>
</tr>
<tr>
<td><strong>1-phase motor</strong></td>
<td>mm</td>
<td>497 x 190 x 266</td>
<td>612 x 187 x 314</td>
<td>612 x 187 x 314</td>
</tr>
<tr>
<td></td>
<td>inches</td>
<td>19.5 x 7.5 x 10.4</td>
<td>24.1 x 7.36 x 12.3</td>
<td>24.1 x 7.36 x 12.3</td>
</tr>
<tr>
<td><strong>3-phase motor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) typical values obtained after minimum 1 hour of pump warm up time
2) 5,000 sccm for ACP 15; 3,700 sccm for ACP 28/40
3) relative nitrogen pressure 300 mbar
**Pumping speed**

![Pumping speed graph](image)

**Pressure drop**

*(volume = 1 m³)*

![Pressure drop graph](image)
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Dimensions

ACP 15
1-phase motor\(^1\)

ACP 28/40
1-phase motor\(^1\)

ACP 28CV/40CV\(^2\)

1)3-phase versions are shorter and smaller. See technical specification table.
2)CV versions are wider due to the side mounted external silencer.

Dimensions in mm
Order numbers

ACP 15 pumps

<table>
<thead>
<tr>
<th>Type</th>
<th>Versions</th>
<th>Inlet port</th>
<th>Exhaust port</th>
<th>Gas ballast</th>
<th>Frequency converter</th>
<th>Power cord</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA: G version</td>
<td></td>
<td></td>
<td></td>
<td>R: R 1/4” port (GA version)</td>
<td>T: 3-phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S: DN 16</td>
<td></td>
<td></td>
<td></td>
<td>F: Permanent filter (mesh)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: V5SATSMFEF

1) R is the only option for three phased pump
2) R is the only option for G version

ACP 28/40 pumps

<table>
<thead>
<tr>
<th>Type</th>
<th>Versions</th>
<th>Inlet/Exhaust</th>
<th>Motor</th>
<th>Frequency converter</th>
<th>Power cord</th>
<th>Gast ballast</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>V8:ACP 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: V6SATSFEMF

3) R is the only option for 3-phased pumps
4) B is the only option for G version
5) V or H are the only options for CV versions

Image of three white pumps with text overlay.
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**Accessories**

**Inlet particle filter**

Inlet particle filters will prevent solid particles from entering the ACP pumps.

For ACP 15 and ACP 28, the suitable filter is IPF 25:
- Inlet/exhaust ports: DN 25 ISO-KF

For ACP 40, the suitable filter is IPF 40:
- Inlet/exhaust ports: DN 40 ISO-KF

Filtration threshold: 25 µm

<table>
<thead>
<tr>
<th>Inlet particle filter</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPF 25</td>
<td>111649</td>
</tr>
<tr>
<td>IPF 40</td>
<td>111647</td>
</tr>
<tr>
<td>Replacement cartridge for IPF 25</td>
<td>111650</td>
</tr>
<tr>
<td>Replacement cartridge for IPF 40</td>
<td>111648</td>
</tr>
</tbody>
</table>

**External silencer**

Use of the external exhaust silencer ES 25S will significantly reduce the noise level when operating ACP pumps at high pressures:
- Inlet/exhaust ports: DN 25 ISO-KF

ES 25S can be used at the exhaust of ACP 15, ACP 28 and ACP 40.

Delivered with all necessary fittings for connection at the exhaust port for all ACP pumps.

<table>
<thead>
<tr>
<th>External silencer</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 25S</td>
<td>109873</td>
</tr>
<tr>
<td>Replacement cartridge for ES 25S</td>
<td>109797</td>
</tr>
</tbody>
</table>
### Noise reduction covers

NRC 15 and NRC 28/40 reduce ACP noise levels significantly.

- Noise level reduction from 5 to 6 dBA:
  - NRC 15 for ACP 15
  - NRC 28/40 for ACP 28 and ACP 40
  - Max. ambient temperature: 35 °C

An additional pipe extension is required for each port to connect accessories when NRC is mounted.¹

¹Pipe extension, centering rings and clamping rings have to be ordered separately.

<table>
<thead>
<tr>
<th>Noise reduction covers</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRC 15</td>
<td>111968</td>
</tr>
<tr>
<td>NRC 28/40</td>
<td>112637</td>
</tr>
<tr>
<td>Pipe extension DN 25 ISO-KF</td>
<td>A462855</td>
</tr>
<tr>
<td>Pipe extension DN 40 ISO-KF</td>
<td>303024</td>
</tr>
</tbody>
</table>

### Sound enclosure kit

Sound enclosure kits are the appropriate solution for operating ACP pumps in even the most quiet environments.

- Noise reduction of 10 dBA.
  - Max. ambient temperature: 30 °C
  - SEK 15 includes dedicated DN 25 exhaust silencer

<table>
<thead>
<tr>
<th>Sound enclosure kit</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEK 15</td>
<td>122480</td>
</tr>
<tr>
<td>SEK 28/40</td>
<td>114379</td>
</tr>
</tbody>
</table>

Dimensions in mm
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