



## ACP 15 / 28 / 40

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

# ACP 15 / 28 / 40

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

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.

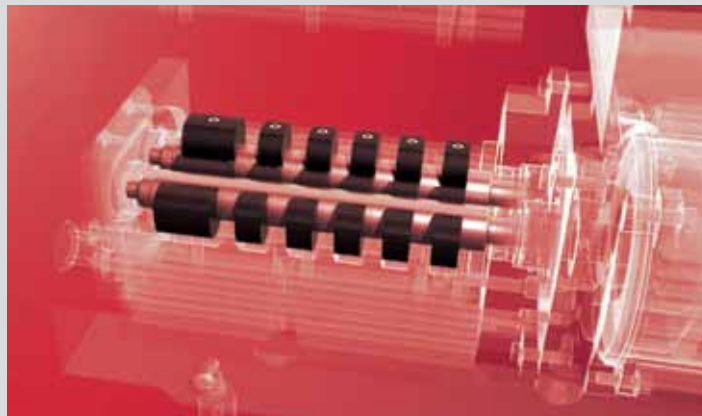
**Low maintenance costs**

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

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

## 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



R & D applications  
(HiCube pumping station with ACP 40)

## 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.



Analytical instruments



Industrial applications



Semiconductor tool



Plasma cleaning machine

**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.



- 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.



Purge port R 1/4"



**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.



Drainable silencer

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

## Technical data

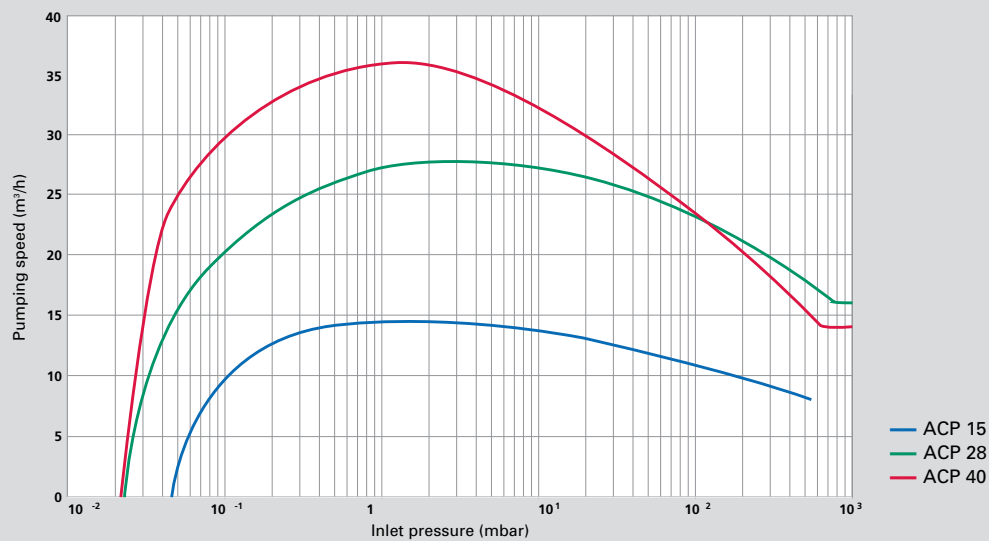
Description	Unit	ACP 15	ACP 28	ACP 40
Pumping speed, max.	m <sup>3</sup> /h	14	27	37
	cfm	8.2	16	22
Ultimate pressure without purge gas <sup>1)</sup>	mbar	$3 \cdot 10^{-2}$	$3 \cdot 10^{-2}$	$3 \cdot 10^{-2}$
	torr	$2.2 \cdot 10^{-2}$	$2.2 \cdot 10^{-2}$	$2.2 \cdot 10^{-2}$
Ultimate pressure with <sup>2)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

<sup>1)</sup> typical values obtained after minimum 1 hour of pump warm up time

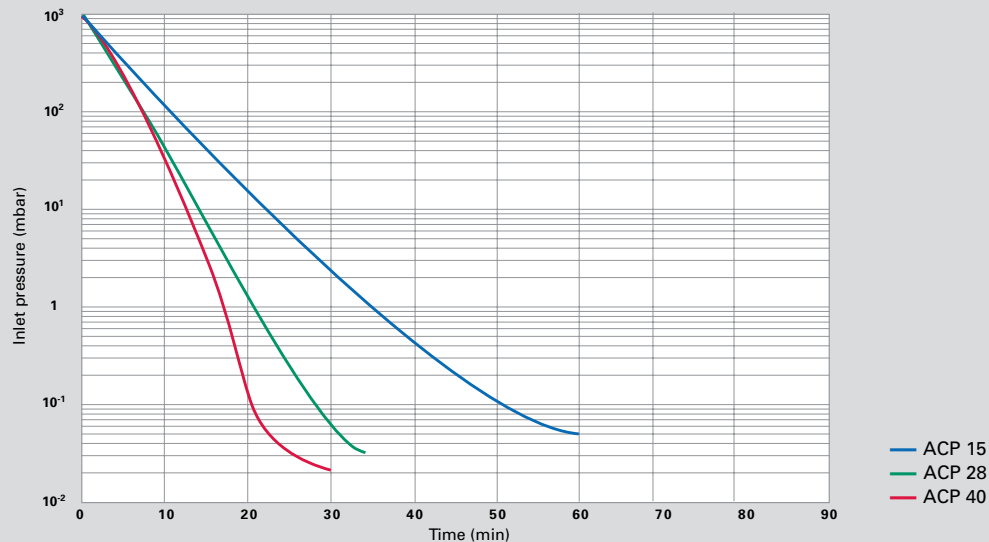
<sup>2)</sup> 5,000 sccm for ACP 15; 3,700 sccm for ACP 28/40

<sup>3)</sup> relative nitrogen pressure 300 mbar

Pumping speed



Pressure drop  
(volume = 1 m³)



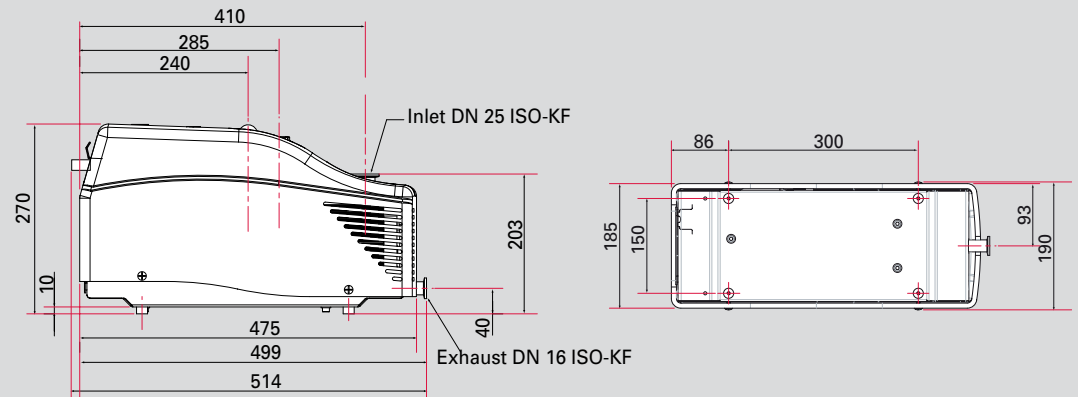
# ACP 15 / 28 / 40

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

## Dimensions

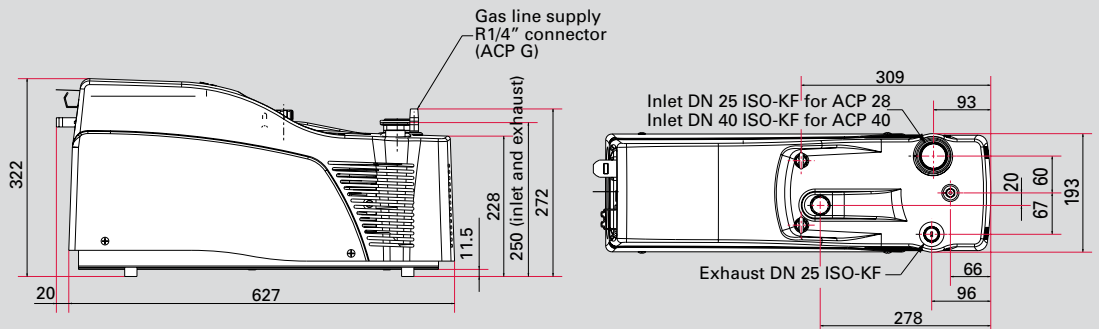
### ACP 15

1-phase motor<sup>1)</sup>

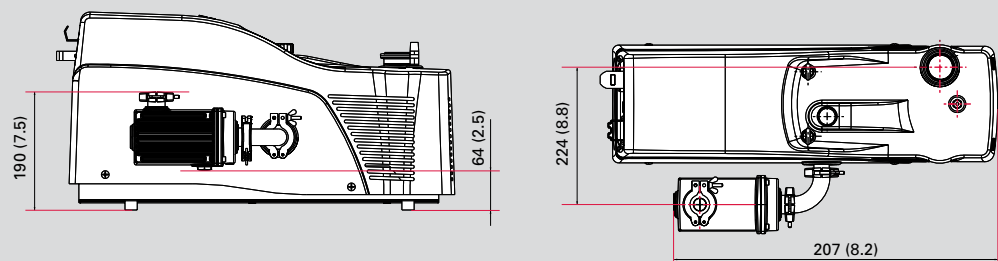


### ACP 28/40

1-phase motor<sup>1)</sup>



### ACP 28CV/40CV<sup>2)</sup>



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

Type	Versions	Inlet port	Exhaust port	Gas ballast	Frequency converter	Power cord	Options
<b>V5:</b> ACP 15	<b>SA:</b> SD version <b>GA:</b> G version	<b>T:</b> DN 25	<b>S:</b> DN 16	<b>M:</b> Manual (On/Off) <b>B:</b> Blanked <b>R<sup>2)</sup>:</b> R 1/4" port (GA version) <b>F:</b> Permanent filter (mesh)	<b>F:</b> 1-phase <b>T:</b> 3-phase	<b>K:</b> UK <b>A:</b> US <b>S:</b> Switzerland <b>J:</b> Japan (1 cable LV only) <b>E:</b> Europe <b>Z:</b> Without <b>R<sup>1)</sup>:</b> 3-phase (without plug)	<b>F:</b> Rubber feet
<b>V5</b>	<b>SA</b>	<b>T</b>	<b>S</b>	<b>M</b>	<b>F</b>	<b>E</b>	<b>F</b>

Example: **V5SATSMFEF**

<sup>1)</sup> **R** is the only option for three phased pump

<sup>2)</sup> **R** is the only option for G version

### ACP 28/40 pumps

Type	Versions	Inlet/Exhaust	Motor	Frequency converter	Power cord	Gas ballast	Options
<b>V6:</b> ACP 28 <b>V8:</b> ACP 40	<b>SA:</b> SD version <b>GA:</b> G version <b>GV:</b> CV version	<b>T:</b> ACP 28 DN 25/DN 25 <b>C:</b> ACP 40 DN 40/DN 25	<b>S:</b> Standard	<b>F:</b> 1-phase <b>T:</b> 3-phase	<b>K:</b> UK <b>A:</b> US <b>S:</b> Switzerland <b>J:</b> Japan (1 cable LV only) <b>E:</b> Europe <b>Z:</b> Without <b>R<sup>3)</sup>:</b> 3-phase (without plug)	<b>M:</b> Manual (On/Off) <b>B<sup>4)</sup>:</b> Blanked <b>F:</b> Permanent filter (mesh) <b>V<sup>5)</sup>:</b> Manual (On/Off) (CV version) <b>H<sup>5)</sup>:</b> Permanent filter (CV version)	<b>F:</b> Rubber feet <b>R:</b> Wheels
<b>V6</b>	<b>SA</b>	<b>T</b>	<b>S</b>	<b>F</b>	<b>E</b>	<b>M</b>	<b>F</b>

Example: **V6SATSFEMF**

<sup>3)</sup> **R** is the only option for 3-phased pumps

<sup>4)</sup> **B** is the only option for G version

<sup>5)</sup> **V** or **H** are the only options for CV versions



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

### Accessories

#### Inlet particle filter

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

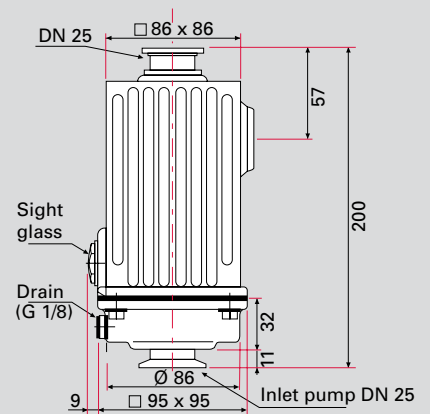
For ACP 15 and ACP 28, the suitable filter is IPF 25:

- Inlet/exhaust ports: DN 25 ISO-KF

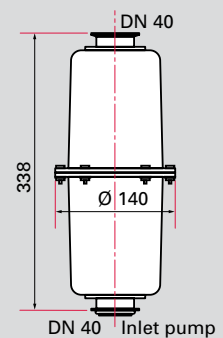
For ACP 40, the suitable filter is IPF 40:

- Inlet/exhaust ports: DN 40 ISO-KF

Filtration threshold: 25 µm



IPF 25



IPF 40

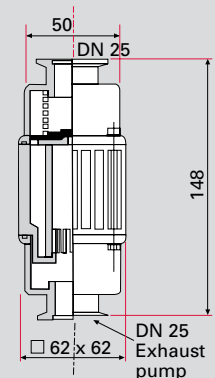
#### External silencer

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.



ES 25S

External silencer	Order number
ES 25S	109873
Replacement cartridge for ES 25S	109797

Dimensions in mm

## Noise reduction covers

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

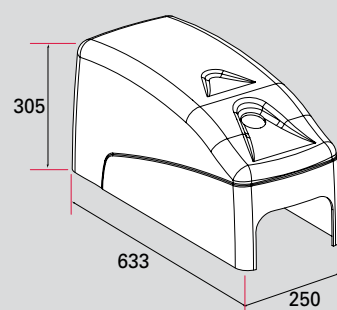
Noise level reduction from 5 to 6 dBA:

- NRC 15 for ACP 15
- NRC 28/40 for ACP 28 and ACP 40
- Max. ambient temperature: 35 °C

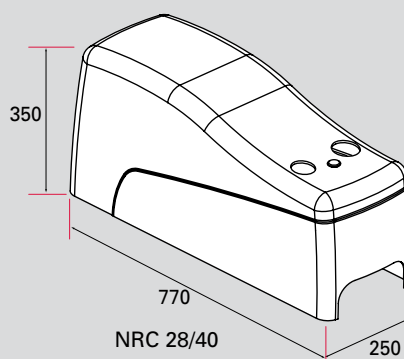
An additional pipe extension is required for each port to connect accessories when NRC is mounted.<sup>1)</sup>

<sup>1)</sup> Pipe extension, centering rings and clamping rings have to be ordered separately.

Noise reduction covers	Order number
NRC 15	111968
NRC 28/40	112637
Pipe extension DN 25 ISO-KF	A462855
Pipe extension DN 40 ISO-KF	303024



NRC 15



NRC 28/40

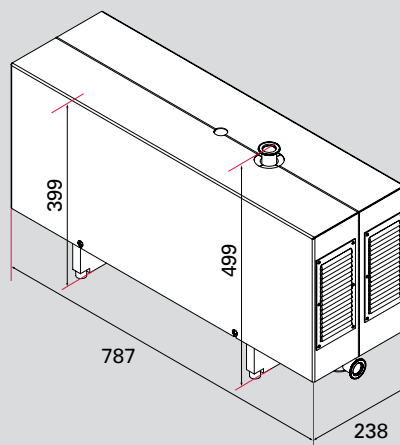
## Sound enclosure kit

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

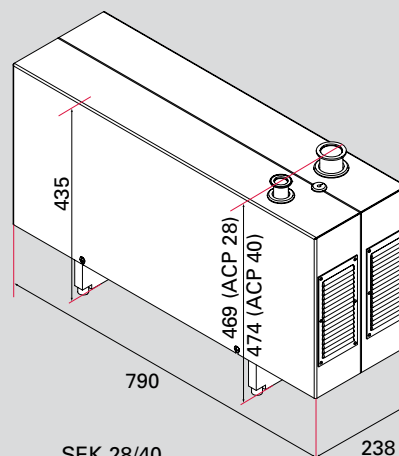
Noise reduction of 10 dBA.

- Max. ambient temperature: 30 °C
- SEK 15 includes dedicated DN 25 exhaust silencer

Sound enclosure kit	Order number
SEK 15	112779
SEK 28/40	114379



SEK 15



SEK 28/40

Dimensions in mm

**Leading. Dependable.  
Customer Friendly.**

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, for German engineering art, competent advice and reliable service.

Ever since the invention of the turbopump, we have been setting standards in our industry and this claim to leadership will continue to drive us in the future.

**Are you looking for a  
perfect vacuum solution?  
Please contact us:**

**Pfeiffer Vacuum GmbH**  
Headquarters · Germany  
T +49 6441 802-0  
[info@pfeiffer-vacuum.de](mailto:info@pfeiffer-vacuum.de)  
[www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

**adixen Vacuum Products**  
France  
T +33 (0) 4 50 65 77 77  
[info@adixen.fr](mailto:info@adixen.fr)  
[www.adixen.com](http://www.adixen.com)