

Turbomolecular Pumps ATP series



HIGH VACUUM PUMPS

Introduction

The ATP conventional turbomolecular pumps have a proven track record of reliability.

Rotors made exclusively from carefully selected, machined aluminium, with an uncompromising design, and low rotational speed, are designed to resist heavy duty applications.

With pumping speeds from 80 to 900 l/s, ATP pumps are often used in industrial applications, analytical instruments and R&D labs where reliability, performance and cost effectiveness are essential.

PROVEN RELIABILITY

DESIGN BENEFITS

ON-SITE MAINTENANCE

Turbomolecular Pumps

ATP series

A complete range of ceramic ball bearing turbomolecular pumps for demanding applications

Three versions:

- Standard
- Corrosive "C"
- High pressure corrosive "HPC"



ATP Series: focus on reliability and robustness



ATP pumps with machined rotors and stators and low rotational speed, provide increased resistance to air inrush, minimal gyroscopic effect and low ball bearings stress .



In addition to achieving low ultimate vacuum, a large internal conductance provides faster pumpdown time from atmospheric pressure.



The ATP series are field maintainable providing low cost of ownership and increased uptime.

Turbomolecular Pumps

ATP series

The ATP standard version: a clean vacuum from 10^{-1} to 10^{-10} mbar.

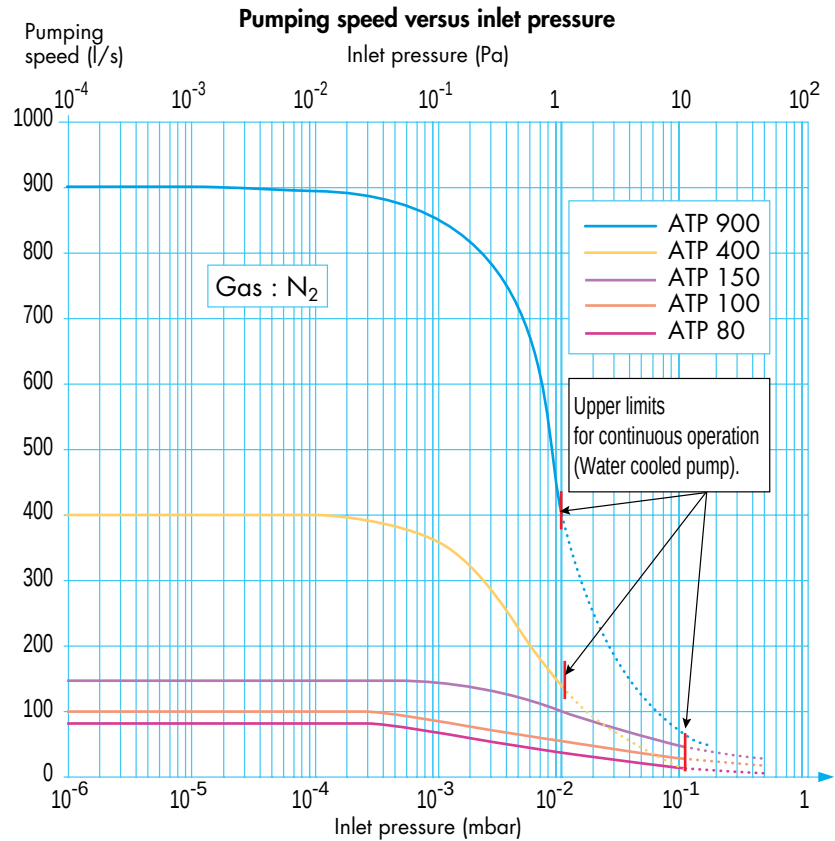
The ATP turbomolecular pump design is focused on reliability.

The standard version:

Five models ranging from 80 to 900 l/s:

- ATP 80
- ATP 100
- ATP 150
- ATP 400
- ATP 900

Grease lubricated ceramic ball bearings allow the pumps to be mounted in any orientation.



Ceramic ball bearings



Natural-Air-Water



ISO-K/CF-F/ASA



Any orientation



ATP standard versions: Technical data

Characteristics				ATP 80	ATP 100	ATP 150	ATP 400	ATP 900
Inlet flange				DN63 ISO-K DN63 CF-F	DN100 ISO-K DN100 CF-F	DN100 ISO-K DN100 CF-F	DN160 ISO-K DN160 CF-F	DN200 ISO-K DN200 CF-F
Pumping speed	N ₂	l/s		80	100	140	400	900
	He	l/s		50	60	100	300	540
	H ₂	l/s		40	40	80	250	300
Compression ratio	N ₂			8x10 ⁷	8x10 ⁷	7x10 ⁸	7x10 ⁸	1x10 ⁹
	He			2500	2500	1.2x10 ⁴	1.5x10 ⁴	2x10 ⁴
	H ₂			300	300	1x10 ³	1x10 ³	2x10 ³
Ultimate pressure (1)(2)			mbar	5x10 ⁹	5x10 ⁹	5x10 ⁻¹⁰	8x10 ⁻¹⁰	5x10 ⁻¹⁰
Maximum continuous inlet pressure (2)			mbar	1x10 ⁻¹	1x10 ⁻¹	1x10 ⁻¹	2x10 ⁻²	1x10 ⁻²
Maximum exhaust pressure (2)			mbar	2x10 ⁻¹	3x10 ⁻¹	4x10 ⁻¹	2x10 ⁻¹	3x10 ⁻¹
Minimum recommended fore pump				Pascal 2005	Pascal 2005	Pascal 2005	Pascal 2015	Pascal 2021
Mounting orientation				Any				
Rotational speed			rpm	27 000				
Start-up time			min	1 min 45s	1 min 45s	2 min	3 min	3 min
Maximum ambient temperature			°C	Pump 50°C / Controller 40°C				
Maximum bake out temperature on flange			°C	120	120	100	100	100
Exhaust flange			ISO-KF	DN 25	DN 25	DN 25	DN 40	DN 40
Weight	ambient cooled	kg (lb)	ISO-K	3 (6.6)	3 (6.6)	-	-	-
			CF-F	4.3 (9.5)	4.3 (9.5)			
Weight	air cooled	kg (lb)	ISO-K	4 (8.8)	4 (8.8)	6.5 (14.3)	9 (19.8)	17.5 (38.5)
			CF-F	5.3 (11.7)	5.3 (11.7)			18.5 (40.8)
Weight	water cooled	kg (lb)	ISO-K	3.4 (7.5)	3.5 (7.7)	6.5 (14.3)	9 (19.8)	17 (37.5)
			CF-F	4.4 (9.7)	4.7 (10.3)			18 (39.7)
Controller				ACT 200T ACT 100	ACT 200T ACT 100	ACT 600T ACT 250	ACT 600T ACT 250	ACT 1000T
Controller weight			kg (lb)	2.6 (5.7) 2.6 (5.7)	2.6 (5.7) 2.6 (5.7)	4 (8.84) 1.8 (3.96)	4 (8.84) 1.8 (3.96)	8.5 (18.8)
Controller size				1/4 Rack	1/4 Rack	1/2 Rack	1/2 Rack	1/2 Rack
Power supply (3)				100 to 240 V - 50/60 Hz - Single phase				
Maximum power consumption			VA	100	100	300	300	800

(1) Measured to Pneuop standards (CPF flange, after 48 hours of baking with an exhaust pressure below to 10⁻² mbar)

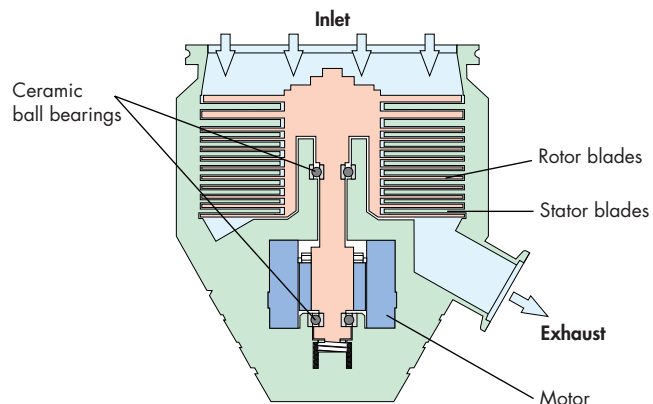
(2) Water cooled model with CF-F inlet flange

(3) For ACT 200T, ACT 250, ACT 600T, ACT 1000T only

Applications

- Space simulation
- Thin film deposition
- Ion pump evacuation
- UHV system
- Particles accelerator
- Ion source
- Surface analysis
- Mass spectrometer
- Scanning electron microscope
- Leak detection

ATP standard version cross section



ATP "C" version: protection for corrosive gas pumping



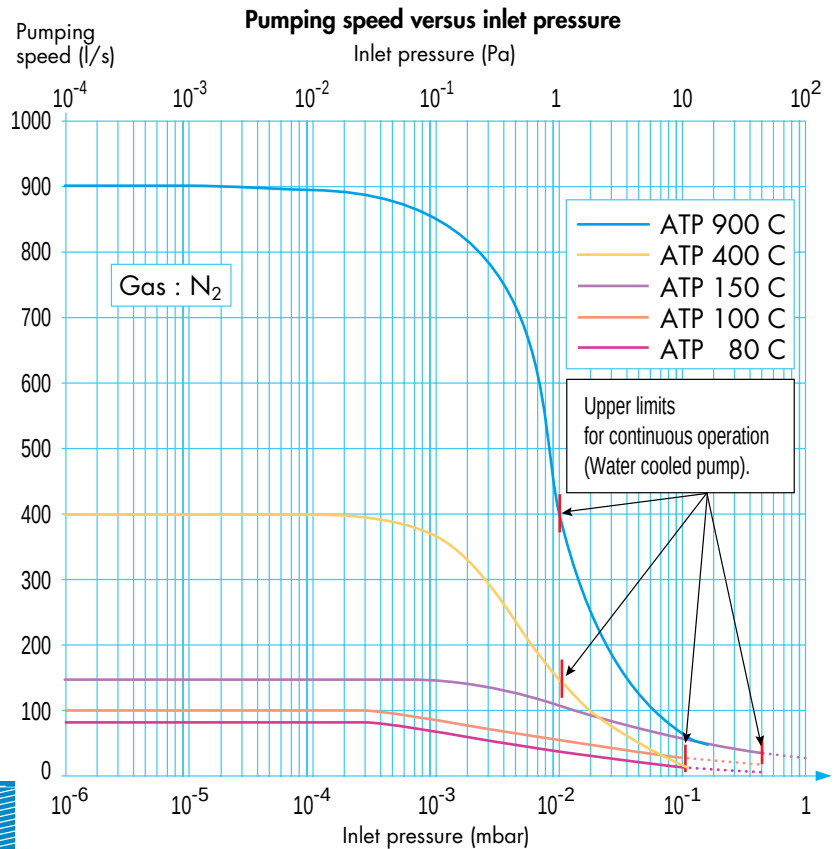
The inverted dynamic seal: corrosion protection

The inverted dynamic seal provides a high compression ratio between the bearings and the pump exhaust, minimizing the amount of corrosive gas reaching the bearings.

This new anti-corrosive protection is a built-in mechanical system based on the molecular drag pump principle.

Additional protection against corrosion:

The ATP "C" version pumps are well adapted to corrosive gas pumping. The gas purge added to the inverted dynamic seal results in enhanced protection against corrosion.



ATP "C" versions: Technical data

Characteristics				ATP 80 C	ATP 100 C	ATP 150 C	ATP 400 C	ATP 900 C
Inlet flange				DN63 ISO-K DN63 CF-F	DN100 ISO-K DN100 CF-F	DN100 ISO-K DN100 CF-F	DN160 ISO-K DN160 CF-F	DN200 ISO-K DN200 CF-F
Pumping speed	N ₂	l/s		80	100	140	400	900
	He	l/s		50	60	100	300	540
	H ₂	l/s		40	40	80	250	300
Compression ratio	N ₂			8x10 ⁷	8x10 ⁷	7x10 ⁸	7x10 ⁸	1x10 ⁹
	He			2500	2500	1.2x10 ⁴	1.5x10 ⁴	2x10 ⁴
	H ₂			300	300	1x10 ³	1x10 ³	2x10 ³
Ultimate pressure without purge (1) (2)			mbar	5x10 ⁻⁹	5x10 ⁻⁹	5x10 ⁻¹⁰	8x10 ⁻¹⁰	5x10 ⁻¹⁰
Ultimate pressure with purge (2)			mbar	5x10 ⁻⁸	5x10 ⁻⁸	1x10 ⁻⁷	1x10 ⁻⁷	1x10 ⁻⁷
Purging nitrogen flow rate			sccm			50		
Maximum continuous inlet pressure (2)			mbar	1x10 ⁻¹	1x10 ⁻¹	1x10 ⁻¹	2x10 ⁻²	1x10 ⁻²
Maximum exhaust pressure (2)			mbar	2x10 ⁻¹	3x10 ⁻¹	4x10 ⁻¹	2x10 ⁻¹	3x10 ⁻¹
Minimum recommended fore pump				Pascal 2005 C2	Pascal 2005 C2	Pascal 2021 C2	2033 C2	2063 C2
Mounting orientation				Any				
Rotational speed			rpm	27 000				
Start-up time			min	1 min 45s	1 min 45s	2 min	3 min	3 min
Maximum ambient temperature			°C	40	40	40	40	50 (pump)
Maximum bake out temperature on flange			°C	120	120	120	100	100
Exhaust flange			ISO-KF	DN 25	DN 25	DN 25	DN 40	DN 40
N ₂ purge flange			ISO-KF	DN 16				
Weight	air cooled	kg (lb)	ISO-K	4 (8.8)	4 (8.8)	6.5 (14.3)	9.1 (20)	17.7 (39)
			CF-F	5.3 (11.7)	5.3 (11.7)			
Weight	water cooled	kg (lb)	ISO-K	3.4 (7.5)	3.5 (7.7)	6.5 (14.3)	9.2 (20.2)	17.2 (37.9)
			CF-F	4.4 (9.7)	4.7 (10.3)			
Controller				ACT 200T ACT 100	ACT 200T ACT 100	ACT 600T ACT 250	ACT 600T ACT 250	ACT 1000T
Controller weight			kg (lb)	2.6 (5.7) 2.6 (5.7)	2.6 (5.7) 2.6 (5.7)	4 (8.84) 1.8 (3.96)	4 (8.84) 1.8 (3.96)	8.5 (18.8)
Controller size				1/4 Rack	1/4 Rack	1/2 Rack	1/2 Rack	1/2 Rack
Power supply (3)					100 to 240 V - 50/60 Hz - Single phase			
Maximum power consumption			VA	100	100	300	300	800

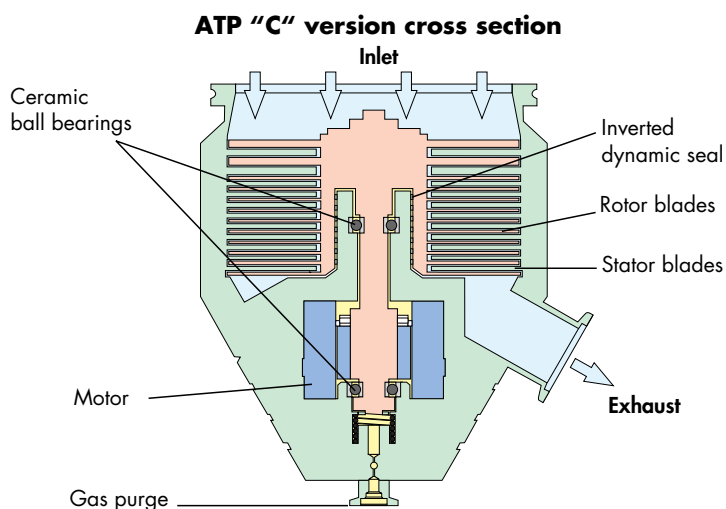
(1) Measured to Pneuop standards
(CFF flange, after 48 hours of baking with
an exhaust pressure below 10⁻² mbar)

(2) Water cooled model with CF-F inlet flange

(3) For ACT 200T, ACT 250, ACT 600T,
ACT 1000T only

ATP "C" applications

Corrosive gas processes



Turbomolecular Pumps

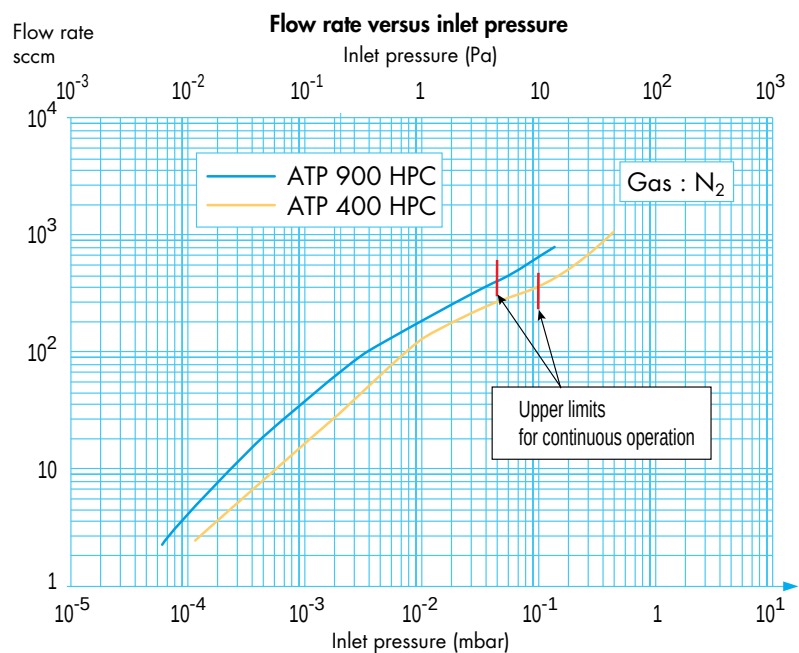
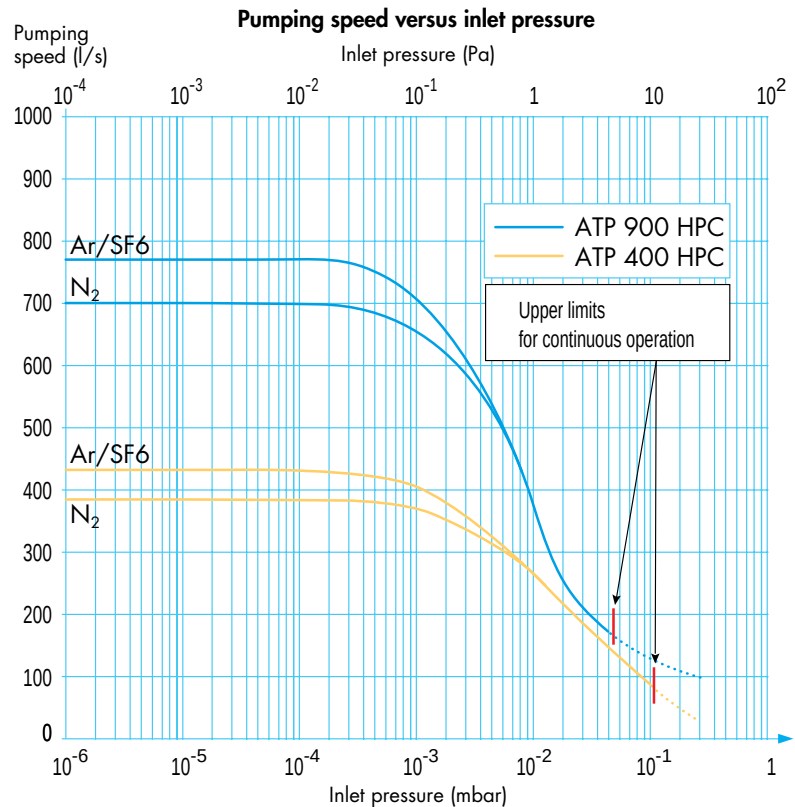
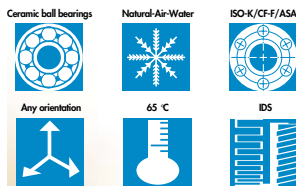
ATP series

ATP "HPC" versions: high pressure, high throughput corrosive gas pumping

Two models designed for semiconductor processes

The **ATP 400 HPC** and **ATP 900 HPC** are dedicated to corrosive applications, such as those found in the semiconductor industry.

These pumps are designed to pump corrosive gases at high pressure with high throughput conditions.



ATP “HPC” versions: Technical data

Characteristics			ATP 400 HPC		ATP 900 HPC	
Inlet flange			DN100 ISO-K	DN160 ISO-K	DN200 ISO-K	DN260 CF-F
Pumping speed	N ₂	l/s	325	380	700	
	Argon	l/s	365	430	785	
	SF ₆	l/s	365	430	785	
Compression ratio	N ₂		7x10 ⁶		1x10 ⁷	
	Argon		700		2x10 ³	
	H ₂		100		200	
Ultimate pressure without purge (1)	mbar		5x10 ⁻⁸			
Ultimate pressure with purge (1)	mbar		8x10 ⁻⁶		5x10 ⁻⁵	
Purging nitrogen flow rate	sccm		50			
Maximum continuous inlet pressure	mbar		1x10 ⁻¹		2x10 ⁻²	
Maximum exhaust pressure	mbar		6x10 ⁻¹		4x10 ⁻²	
Recommended fore pump			2063 C2			
Maximum N ₂ flow rate	sccm		340	400	450	
Mounting orientation			Any			
Rotational speed	rpm		27 000			
Start-up time	min		2 min			
Water coil temperature	°C		65			
Maximum ambient temperature	°C		Pump 50°C / Controller 40°C			
Exhaust flange	ISO-KF		DN 40			
N ₂ purge flange	ISO-KF		DN 16			
Weight	kg (lb)		9 (19.8)	8.5 (18.7)	17.7 (39)	
Controller			ACT 600T ACT 250		ACT 1000T	
Controller weight	kg (lb)		4 (10.7) 1.8 (3.96)		8.5 (22.8)	
Controller size			1/2 Rack			
Power supply			100 to 240 V - 50/60 Hz - Single phase			
Maximum power consumption	VA		300		800	

(1) Measured to Pneuop standards

ATP “HPC” applications

Three corrosion proof features:



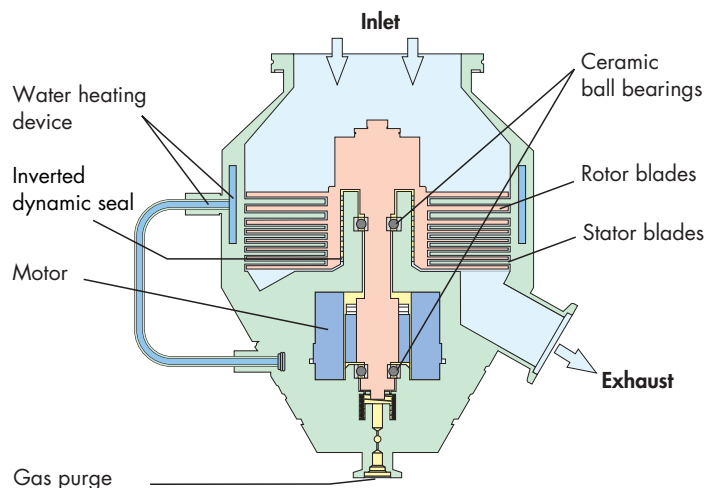
- The pump may be water cooled to 65°C, preventing any build-up from process condensation.



- The inverted dynamic seal protects the bearings, even if the gas purge is shut off during process calibration.

- Inert gas purge.

ATP “HPC” version cross section



Controller options

ACT 100 T, ACT 250 designed with logical I/O interface



ACT 100 T

- 1/4 Rack 3U format
- 4 leds :
 - power
 - pump starting
 - pump at speed
 - fault
- Hour counter
- Remote control: ON/OFF pump
- Available in voltage 100 - 115 V, 200 - 230 V (50/60 Hz)

ACT 250

- 1/4 Rack 3U format
- Pump start - stop switches
- 4 leds :
 - power
 - pump starting
 - pump at speed
 - fault
- Hour counter
- Remote control: start, stop, standby, external safety, mode select
- Automatic power supply detection: 100 – 240 V (50/60 Hz)
- RS 232/485

Controller	Pump
ACT 100 T	ATP 80/100
ACT 250	ATP 150/400

ACT 200 T, ACT 600 T, ACT 1000 T designed with a high level communication interface



Features

- Automatic power supply detection from 100 to 240V 50/60Hz, single phase
- Menu operation

Sophisticated pump monitoring

Display of:

- Rotational speed
- Pump current consumption
- Pump and controller temperature
- Total running time
- Pump fault detection
- Diagnostic mode with last ten alarm codes

Control of:

- Rotational speed
- venting
- Auto start
- Start delay
- Maintenance schedule

Multiple interfaces

- RS 232/485 (configurable)
- Remote control

Inputs:

- Remote start/stop
- Remote stand-by
- Remote interlock

Outputs:

- Pump starting
- Pump at speed
- Stand-by on
- Venting valve on/off
- Power supply of air cooling fan
- Selectable 0-10 volts output (speed/pump current/temperature)

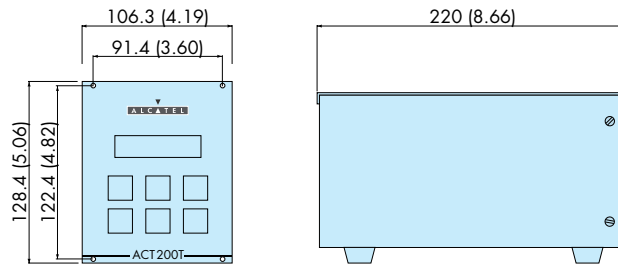
Controller	Pump
ACT 200 T	ATP 80/100
ACT 600 T	ATP 150/400
ACT 1000 T	ATP 900

OEM controller: Various OEM electronics are available. Please consult us.

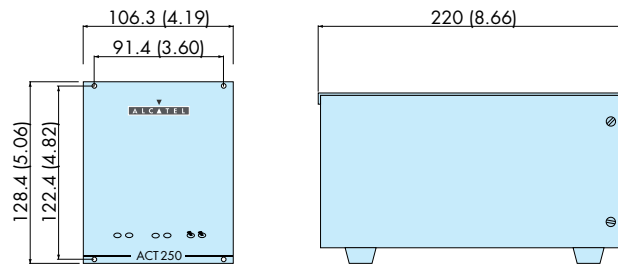
Controller dimensions

mm (inches)

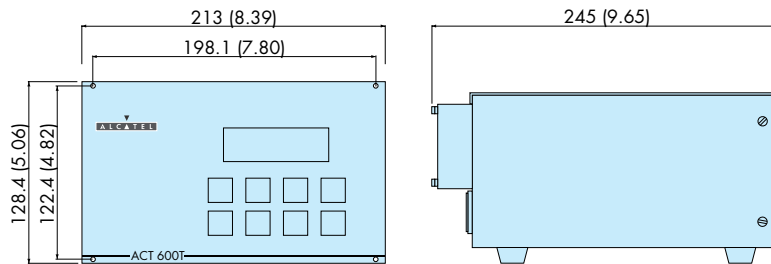
ACT 200 T



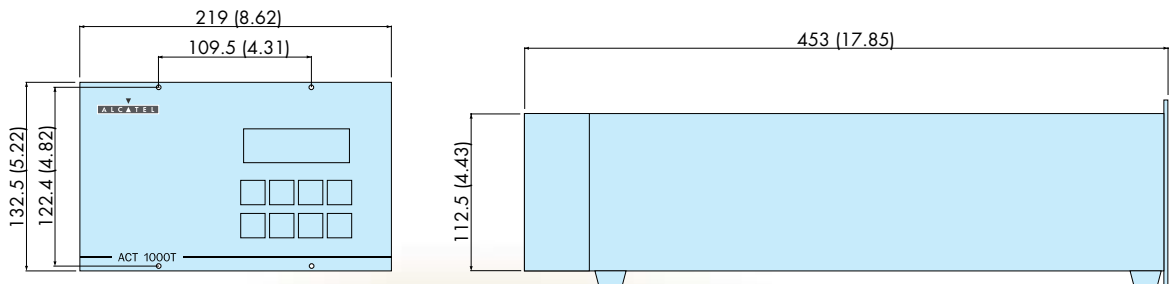
ACT 100 or ACT 250



ACT 600 T



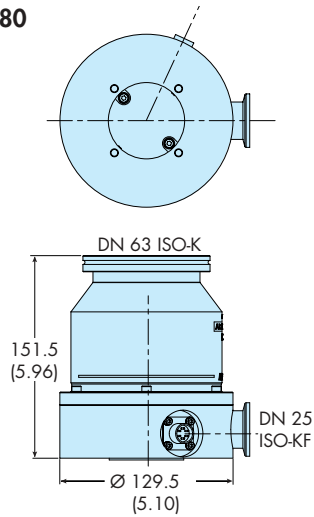
ACT 1000 T



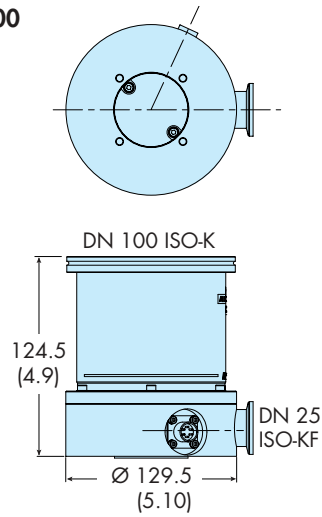
Pump dimensions

mm (inches)

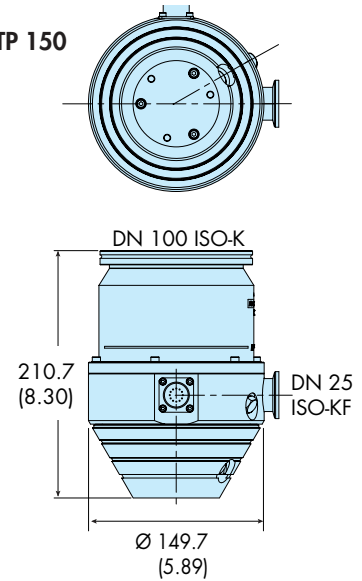
ATP 80



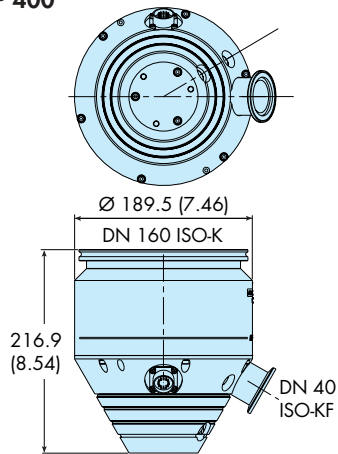
ATP 100



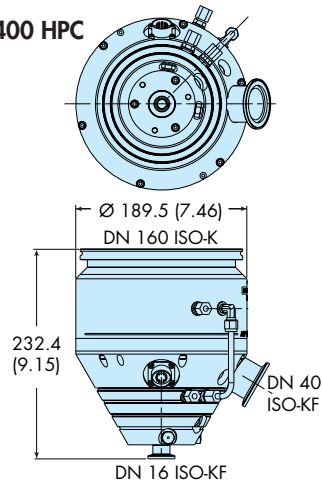
ATP 150



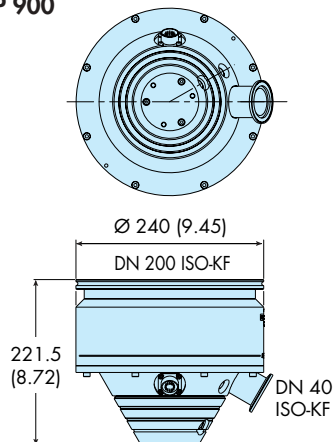
ATP 400



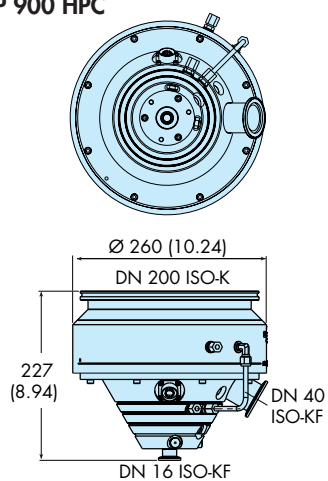
ATP 400 HPC



ATP 900



ATP 900 HPC



Ordering information

Pump only (order controller, inlet screen and interconnecting cable separately)

ATP Standard Version

Model	Inlet flange DN	Cooling method	PART NUMBER
ATP 80	63 ISO-K	NATURAL	F 12101
		AIR	F 12111
		WATER	F 12121
	63 CF-F	NATURAL	F 12201
		AIR	F 12211
		WATER	F 12221
ATP 100	100 ISO-K	NATURAL	G 13101
		AIR	G 13111
		WATER	G 13121
	100 CF-F	NATURAL	G 13201
		AIR	G 13211
		WATER	G 13221
ATP 150	100 ISO-K	AIR	H 13111
		WATER	H 13121
	100 CF-F	AIR	H 13211
		WATER	H 13221
ATP 400	100 ISO-K	AIR	I 13111
		WATER	I 13121
	160 ISO-K	AIR	I 14111
		WATER	I 14121
	100 CF-F	AIR	I 13211
		WATER	I 13221
	160 CF-F	AIR	I 14211
		WATER	I 14221
ATP 900	200 ISO-K	AIR	K 15111
		WATER	K 15121
	200 CF-F	AIR	K 15211
		WATER	K 15221

Ordering information

Pump only (order controller, inlet screen and interconnecting cable separately)

ATP "C" Version for corrosive applications

Model	Inlet flange DN	Cooling method	PART NUMBER
ATP 80 C	63 ISO-K	Air	F 22111
		Water	F 22121
	63 CF-F	Air	F 22211
		Water	F 22221
ATP 100 C	100 ISO-K	Air	G 23111
		Water	G 23121
	100 CF-F	Air	G 23211
		Water	G 23221
ATP 150 C	100 ISO-K	Air	H 23111
		Water	H 23121
	100 CF-F	Air	H 23211
		Water	H 23221
ATP 400 C	100 ISO-K	Air	I 23111
		Water	I 23121
	160 ISO-K	Air	I 24111
		Water	I 24121
	100 CF-F	Air	I 23211
		Water	I 23221
	160 CF-F	Air	I 24211
		Water	I 24221
ATP 900 C	200 ISO-K	Air	K 25111
		Water	K 25121
	200 CF-F	Air	K 25211
		Water	K 25221

ATP "HPC" Version for high pressure and high throughput corrosive applications

Model	Inlet flange DN	Cooling method	PART NUMBER
ATP 400 HPC	100 ISO-K	Water	J 23121
	160 ISO-K	Water	J 24121
	100 CF-F	Water	J 23221
	160 CF-F	Water	J 24221
ATP 900 HPC	200 ISO-K	Water	L 25121
	200 CF-F	Water	L 25221

Ordering information

ACT controllers for ATP pumps

Model	Dimensions	For pumps	Voltage	P/N
ACT 100 T	1/4 Rack	ATP 80/80 C ATP 100/100 C	100 V 50/60 Hz 115 V 50/60 Hz 200 V 50/60 Hz 230 V 50/60 Hz	111110 111111 111112 111113
ACT 200 T	1/4 Rack	ATP 80/80 C ATP 100/100 C	85 to 264 V 50/60 Hz	101932
ACT 250	1/4 Rack	ATP 150/150 C ATP 400/400 C ATP 400 HPC	85 to 264 V 50/60 Hz	108320
ACT 600 T	1/2 Rack	ATP 150/150 C ATP 400/400 C ATP 400 HPC	85 to 264 V 50/60 Hz	102017
ACT 1000 T	1/2 Rack	ATP 900/900 C ATP 900 HPC	85 to 264 V 50/60 Hz	102021

Power cords

ACT 200 T, ACT 600 T and ACT 1000 T controllers are supplied with one European power cord and one US low voltage power cord.

For ACT 100 T and ACT 250 controllers please order the convenient P/N below.

Designation	P/N
A USA low voltage USA high voltage	103567 103898
E Europe	103566
J Japan low voltage Japan high voltage	103567 104559
K United Kingdom	104411
S Switzerland	A459212

ATP/ACT interconnecting cables

ACT 100 T

Cable for pumps	Length	PART NUMBER
ATP 80/80 C ATP 100/100 C	1.0 m	A460913-010
	1.5 m	A460913-015
	3.5 m	A460913-035
	5 m	A460913-050
	10 m	A460913-100
	20 m	A460913-200

ACT 250, ACT 600 T, ACT 1000 T

Cable for pumps	Length	PART NUMBER
ATP 150/150 C ATP 400/400 C/400 HPC ATP 900/900 C/900 HPC	1.5 m	A461237-015
	3.5 m	A461237-035
	5 m	A461237-050
	10 m	A461237-100
	20 m	A461237-200

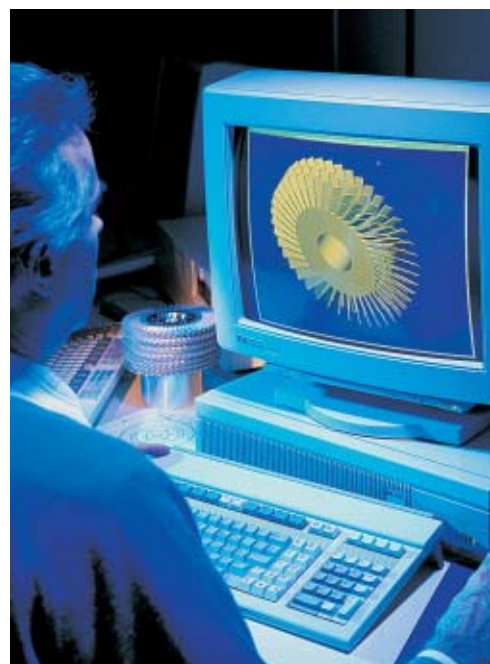
ACT 200 T

Cable for pumps	Length	PART NUMBER
ATP 80/80 C ATP 100/100 C	1.0 m	A460422-010
	1.5 m	A460422-015
	3.5 m	A460422-035
	5 m	A460422-050
	10 m	A460422-100
	20 m	A460422-200

Accessories

Inlet screens and dense mesh dust filters

For pumps	Inlet flange	Mesh size		PART NUMBER
		2.5 mm	20 µ	
ATP 80	DN 63 ISO-K	●		063000
	DN 63 ISO-K		●	063214
	DN 63 CF-F	●		063115
ATP 100	DN 100 ISO-K	●		056844
ATP 150	DN 100 ISO-K		●	063215
ATP 400	DN 100 CF-F	●		056845
ATP 400	DN 160 ISO-K	●		056942
	DN 160 ISO-K		●	063216
	DN 160 CF-F	●		056928
ATP 900	DN 200 ISO-K	●		063158
	DN 200 ISO-K		●	062911
	DN 200 CF-F	●		063159



Bake-out collars (elevated bake-out temperatures accelerates degassing and improves pressure descent)

For pumps	Single phase voltage	
	PART NUMBER	
	200 V/240 V - 50/60 HZ	100 V/115 V - 50/60 HZ
ATP 80/80 C - ATP 100/100 C	056934	063180
ATP 150/150 C	063028	063181
ATP 400/400 C - ATP 400 HPC	101926	101927
ATP 900/900 C - ATP 900 HPC	063324	063323

Electrical venting valves (controlled by the ACT Controller)

For pumps	Flange DN	Power supply from the main network					
		PART NUMBER					
		100 V 50/60 Hz	115 V 50/60 Hz	200 V 50/60 Hz	220 V 50/60 Hz	240 V 50/60 Hz	24 VDC
ATP 80/80 C ATP 100/100 C ATP 150/150 C	25 ISO-KF	063175	063089	063176	056994	063177	108348
ATP 400/400 C ATP 400 HPC	40 ISO-KF	063479	063099	063480	063191	063478	108349
ATP 900/900 C ATP 900 HPC	40 ISO-KF	Powered by the ACT 1000 T controller in 12V.DC 101923					

Inlet adapter flanges

(reducer/adapter)

Flanges DN 1 / DN 2	Material		PART NUMBER
	Alu*	S.S.**	
63 ISO-K / 25 ISO-KF	●		063268
63 ISO-K / 40 ISO-KF	●		063269
63 ISO-K / 50 ISO-KF	●		063270
63 ISO-K / 63 CF-F		●	303333
100 ISO-K / 40 ISO-KF	●		062900
100 ISO-K / 40 ISO-KF		●	068912
100 ISO-K / 50 ISO-KF	●		062901
100 ISO-K / 50 ISO-KF		●	068911
100 ISO-K / 63 ISO-K	●		062902
160 ISO-K / 50 ISO-KF	●		062904
160 ISO-K / 63 ISO-K	●		062905
160 ISO-K / 100 ISO-K	●		062906
160 CF-F / 100 CF-F		●	062903
200 ISO-K / 63 ISO-K	●		062725
200 ISO-K / 100 ISO-K	●		062907
200 ISO-K / 100 ISO-K		●	062909
200 ISO-K / 160 ISO-K	●		062908
200 ISO-K / 160 ISO-K		●	062910
200 ISO-K / 250 ISO-K		●	066659
200 CF-F / 250 CF-F		●	066660

* ALU: Aluminium

** S.S.: Stainless Steel

Maintenance items for pumps

For pumps	Seal kit	Grease syringe	Tool kit
	PART NUMBER	PART NUMBER	PART NUMBER
ATP 80/80 C ATP 100/100 C	062698	056993	101930
ATP 150/150 CP	063078	101924	101930
ATP 400/400 CP ATP 400 HPC	063076	101924	101930
ATP 900/900 C ATP 900 HPC	062992	101924	101930

Ceramic bearing replacement kits

includes ceramic bearing and inner pre-lubricated retainer race.
These part numbers refer to the inner shaft diameter which must correspond to the pump serial number suffix number.

For pumps	PART NUMBER				
	Suffix number				
	1	2	3	4	5
ATP 80/80 C ATP 100/100 C	066671	066672	066673	066674	066675
ATP 150/150 C ATP 400/400 C - ATP 400 HPC ATP 900/900 C - ATP 900 HPC	066691	066692	066693	066694	066695

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