

EDP chemical dry pump

Edwards, a world leader in dry vacuum pump technology, successfully pioneered the use of environmentally friendly dry vacuum pumps in the early 1980s. With more than 150,000 systems installed worldwide, Edwards dry pumps create significant benefits for customers in many applications and industries.

This expertise is incorporated in the chemical dry pumps to satisfy the demanding requirements of the chemical, petrochemical and pharmaceutical industries. We offer a range of four pumps with 80 - 400 m³h⁻¹ capacity, and ultimate vacuums of below 1 mbar. Our chemical dry pumps meet the highest safety and performance standards and are second to none in this respect.

EDP pumps are based on Edwards' oil-free, non-contacting, award-winning, reverse claw mechanism. They provide consistent vacuum at high efficiencies and low costs of ownership. Dry pumps completely eliminate all problems of process contamination and creation of polluted effluent, which are experienced with traditional wet vacuum pump technologies.



Features and benefits

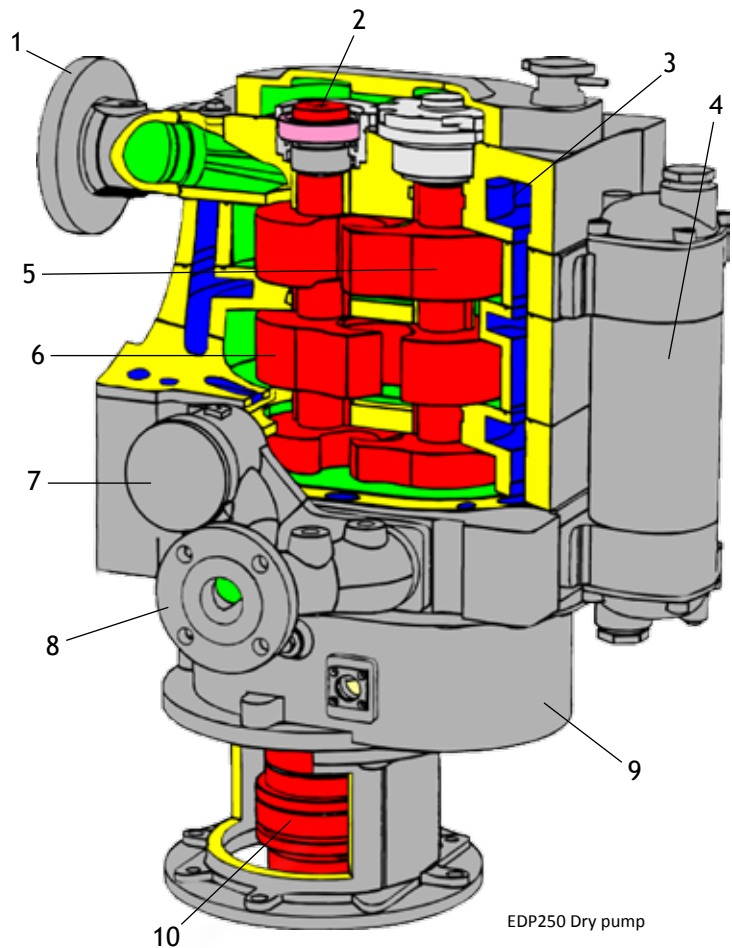
- Staged compression for optimum temperature profile within the pump and no requirement for cooling gas injection
- Inherently free draining
- Able to handle liquid or particulate carry-over
- Short gas path eliminates particulate build-up and corrosion - Edwards' patented design
- Can flush with solvents, water or steam
- No internal valves to block or corrode and no interstage condensers to create potential for corrosion
- Simple robust construction with ample power ensures reliable operation even during process upsets
- Non-contacting mechanisms gives long life and high reliability
- Pump flammable gases safely
- Pump corrosive gases without corroding
- Designed for long life and easy maintenance
 - Minimum of 25 years life expectancy
- Lower cost of ownership

Tried and tested dry pumps

- Market leader with many years of process industry experience
- More than 150,000 reverse stage claw pumps in operation worldwide
- EDP series specifically designed for harsh chemical industry applications
- Largest installed base - most leading companies in the chemical and pharmaceutical industries are on our customer list

Designed and tested for safety and reliability

- Temperature control for optimised operating conditions - hot for corrosive applications and cool for other gases, if required
- Over-temperature protection for fault conditions
- Pump explosive mixtures safely
- Dynamically explosion tested and certified by independent authorities
- Leak checked to 10^{-3} mbar l/s and type pressure tested from 22 - 75 barg
- Non-brittle ductile iron materials of construction for stator and rotors
- Hermetically sealed magnetic drive option available on EDPs for enhanced safety (EDP250/EDP400)



- 1 Inlet flange
- 2 Upper bearing in removable cartridge
- 3 Integral water cooling
- 4 Heat exchanger for cooling water circuit
- 5 Three stage claw mechanism
- 6 Reversed claws for shortest gas path
- 7 Blow-off valve for low power consumption (EDP250/EDP400)
- 8 Outlet flange
- 9 Gear box
- 10 Clutch assembly

Designed for long life and easy maintenance

- 1 year unattended operation
- 3 years between stripdowns
- Bearing cartridges quickly accessible
- Minimum number of seals and bearings
- Designed for a minimum of 25 years life expectancy

Lower cost of ownership

- Easy maintenance at wide intervals
- Low power at operating vacuum
- Adjustable cooling water flow
- Minimum seal purge flow
- No cooling gas injection required
- Cheap to replace rotating parts

Applications

EDP Dry Chemical Pumps are ideally suited to a wide range of chemical and process applications including, but not limited to, the following:

- Drying
- Distillation
- Reactor service
- Solvent recovery
- House/Central vacuum
- Evaporation
- Polymerization
- Ethylene oxide sterilization
- Fatty acids and alcohols
- Biofuels
- Corrosive gases
- Flammable gases
- Pervaporation
- Absorption/Desorption
- Crystallization
- Filtration

Edwards applications specialists throughout the world are able to advise on the most suitable vacuum equipment for your application.



EDP250 + EH1200

Specifications

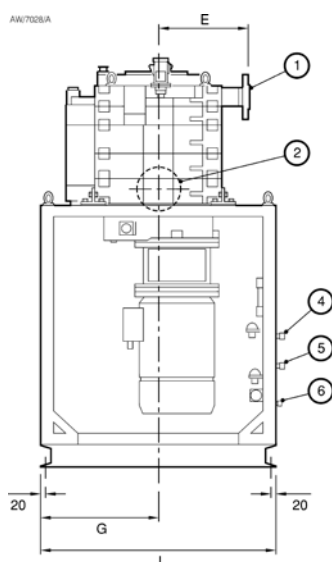
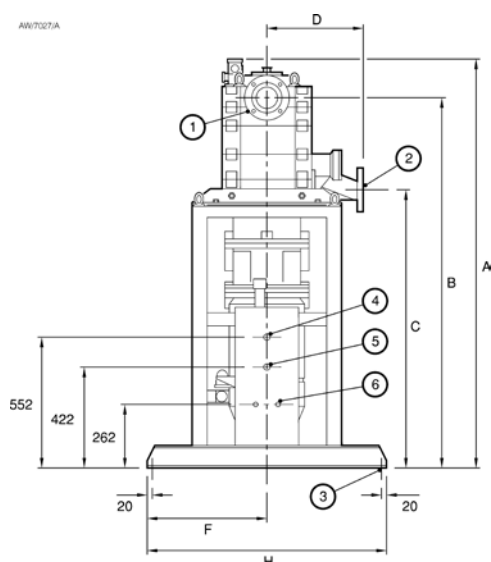
	Units	EDP80		EDP160		EDP250		EDP400	
		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Maximum pumping speed	m ³ h ⁻¹	83	102	163	202	260	320	377	427
	ft ³ min ⁻¹	49	60	96	119	153	188	222	251
Capacity at 10 mbar (7.5 Torr)	m ³ h ⁻¹	75	102	153	198	255	315	377	422
	ft ³ min ⁻¹	44	60	90	117	150	185	222	248
Ultimate vacuum	mbar	0.5	0.3	0.5	0.3	0.5	0.2	0.4	0.2
	Torr	0.4	0.2	0.4	0.2	0.4	0.2	0.3	0.2
Maximum back pressure - standard (optional*)	mbar	1150 (1300*)		1150 (1300*)		1150 (1300*)		1150	
	psig	2.2 (4.4*)		2.2 (4.4*)		2.2 (4.4*)		2.2	
Power consumption at 10 mbar (7.5 Torr)	kW	3.3	4.0	4.9	4.9	6.0	6.0	7.0	7.0
	hp	4.4	5.4	6.6	6.6	8.0	8.0	9.4	9.4
Standard motor (380 - 400V, 3 ph, 50 Hz)	kW	5.5	5.5	7.5	11.0	11.0	15.0	18.5	25.0
Standard motor (200 - 460V, 3 ph, 60 Hz)	hp	7.5	7.5	10.0	15.0	15.0	20.0	25.0	30.0
Cooling water flow rate, (adjustable)	l min ⁻¹	1 - 8	1 - 10	1 - 8	1 - 10	1 - 10	1 - 10	1 - 10	1 - 10
	gal min ⁻¹	0.3 - 2.1	0.3 - 2.6	0.3 - 2.1	0.3 - 2.6	0.3 - 2.6	0.3 - 2.7	0.3 - 2.6	0.3 - 2.7
Cooling water supply pressure	barg	2 - 10							
	psig	29 - 145							
Seal purge flow (maximum), regulated to 0.3 - 0.5 barg, (5 - 7 psig)	l min ⁻¹	20							
	ft ³ min ⁻¹	0.7							
Seal purge supply pressure, (minimum - maximum)	barg	2 - 10							
	psig	29 - 145							
Noise (max. with exhaust silencer)	dB(A)	73	73	77	78	79	79	82	82
Weight (with frame and standard motor)	kg	648	650	747	756	848	860	918	960
	lbs	1429	1433	1647	1667	1870	1909	2024	2116
Process connection, inlet	ANSI/DIN	2"/DN50		3"/DN80		3"/DN80		3"/DN80	
Process connection, outlet	ANSI/DIN	1.5"/DN40		1.5"/DN40		2"/DN50		2"/DN50	
Pumping mechanism		3 stage reversed claw							

* Consult Edwards

Data shown here refers to dry pumps only. Higher capacities and deeper vacuum levels are available by combining one or more dry mechanical boosters with EDP pumps. A wide range of systemisation accessories is also available, including condensers for enhanced performance and a number of safety, instrumentation and control options.

Although every care has been taken in the preparation of data and dimensional drawings, please discuss your individual requirements with Edwards.

Dimensions - mm (inch)

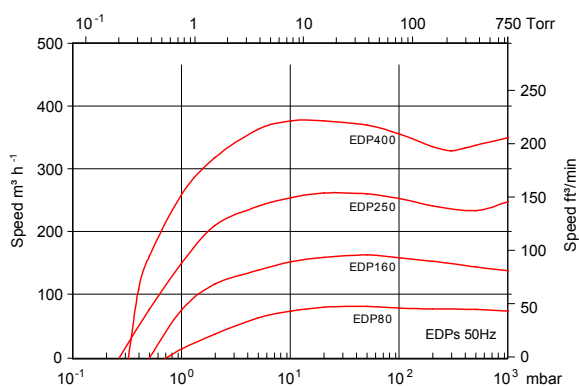


1. Pump inlet
2. Pump outlet
3. Fixing hole: $\varnothing 18$ mm (4 off)
4. Cooling water outlet connection
5. Cooling water inlet connection
6. Nitrogen supply inlet connection

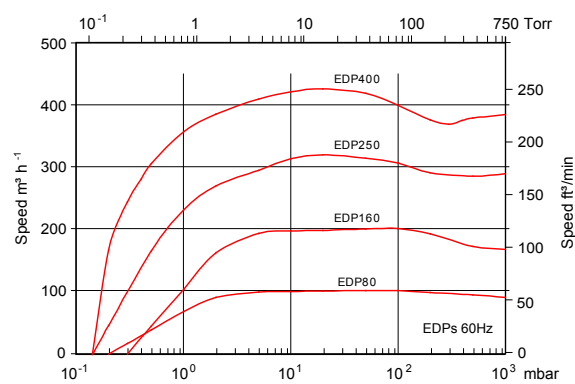
Key	EDP80	EDP160	EDP250	EDP400 50 Hz	EDP400 60 Hz
A	1423 (56.0)	1458 (57.4)	1681 (66.2)	1730 (68.1)	1721 (67.8)
B	1254 (49.4)	1289 (50.7)	1514 (59.6)	1562 (61.5)	1549 (61.0)
C	974 (38.3)	974 (38.3)	1148 (45.2)	1148 (45.2)	1149 (45.2)
D	353 (13.9)	353 (13.9)	377 (14.8)	377 (14.8)	349 (13.7)
E	443 (17.4)	448 (17.6)	359 (14.1)	359 (14.1)	362 (14.3)
F	350 (13.8)	350 (13.8)	500 (19.7)	500 (19.7)	476 (18.7)
G	350 (13.8)	350 (13.8)	475 (18.7)	475 (18.7)	476 (18.7)
H	700 (27.6)	700 (27.6)	1000 (39.4)	1000 (39.4)	997 (39.3)
J	850 (33.5)	850 (33.5)	950 (37.4)	950 (37.4)	946 (37.2)

Performance

Performance curve - 50 Hz



Performance curve - 60 Hz



Systemisation

Because no two installations are identical, Edwards offers a custom systemisation design and build service, exactly matched to customer needs, using pre-engineered modules together with an extensive CAD capability. This also allows subsequent expansion or reconfiguration. A wide range of modules is available, including:

- EH* and HV mechanical booster pumps
- Condensers
- Receivers
- Knockout pots
- Dust filters
- Solvent purging
- Flame arrestors
- Isolation and throttle control valves
- Instrumentation
- Silencers
- Inverter drives and pressure controls
- Electrical control panels
- Air blast closed-loop cooling
- Documentation
- Base skids

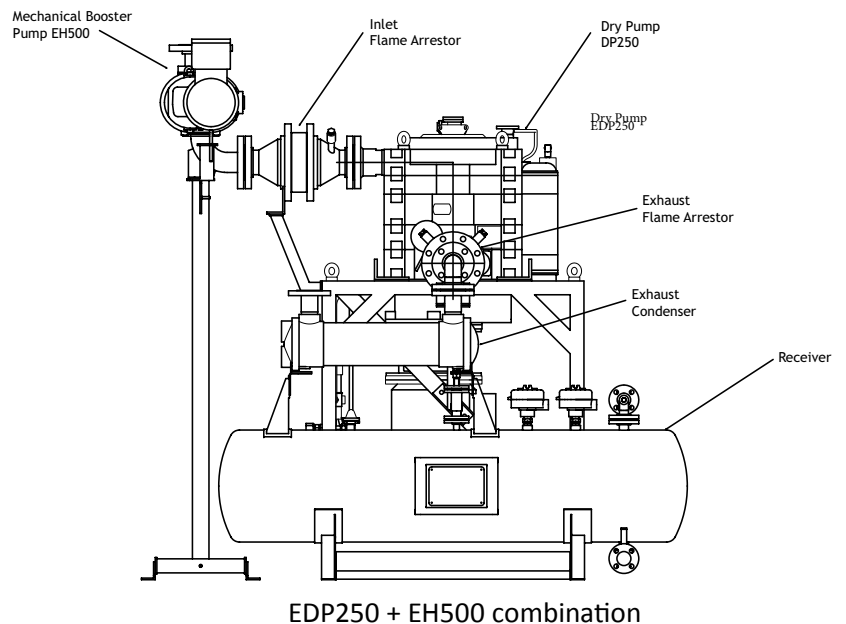
The requirement for these or other accessories is clarified through expert applications engineering.

Work can be carried out to a customer's specifications, or to local or industry standard codes and practices. Full documentation is provided, and full certification can be obtained if necessary.

** Edwards EH Series boosters feature our unique hydrokinetic drive which provides significant cost and performance advantages over direct drive machines. The hydrokinetic drive removes any need for pressure sensors or bypass lines or inverters, and allows the booster to run from atmospheric pressure to ultimate vacuum, giving faster pumpdown and more flexible operation with less maintenance.*

Systemisation to match your process

- Pre-engineered modules
- Customised systems
- Tailored applications support to match performance to process



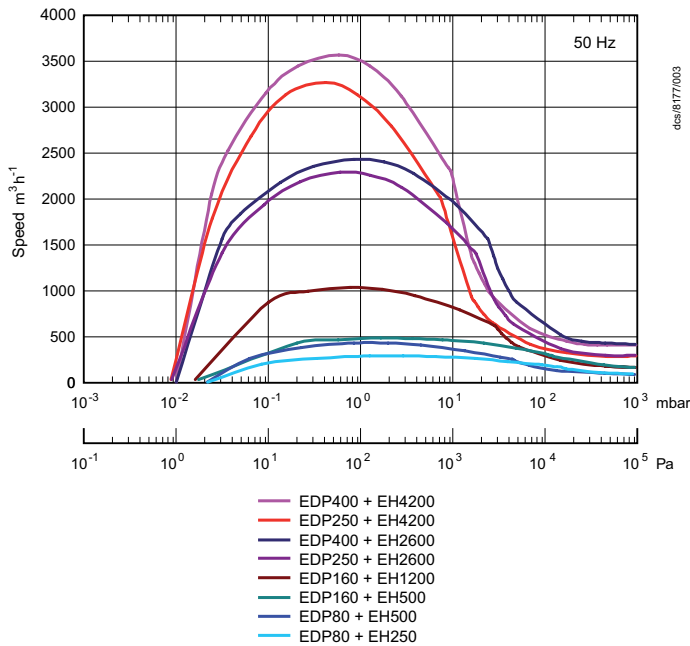
This drawing refers to a typical combination. For other combinations, please contact Edwards.

Typical EDP pumps and EH mechanical booster combinations

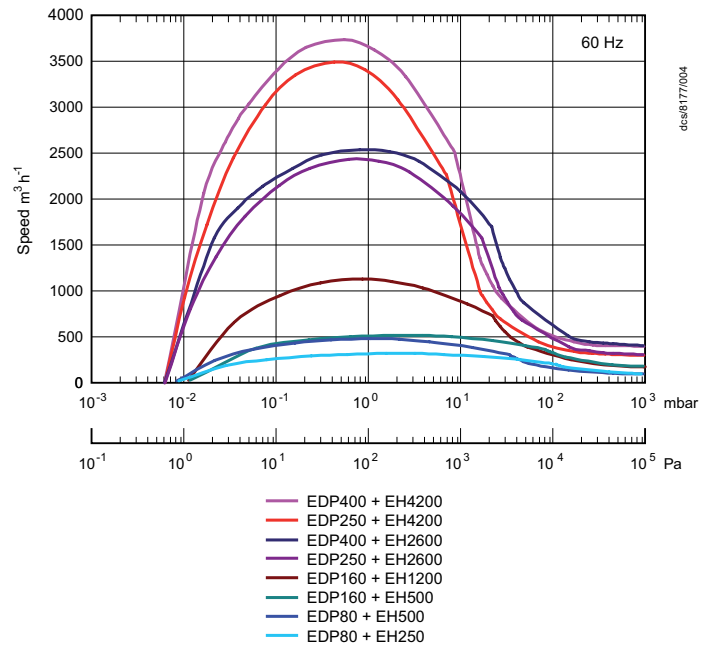
	EDP80	EDP160	EDP250	EDP400
EH250	•			
EH500	•	•		
EH1200		•	•	
EH2600			•	•
EH4200				•

Performance curves

EDP/EH combinations - 50 Hz

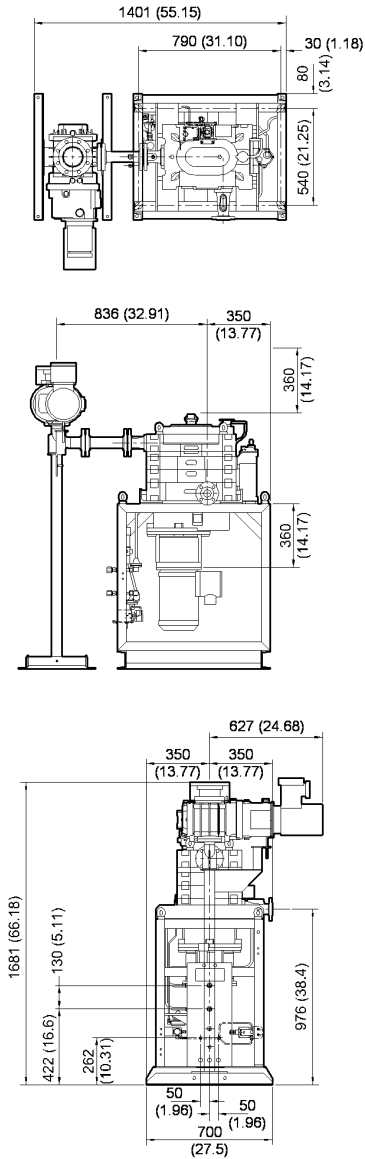


EDP/EH combinations - 60 Hz



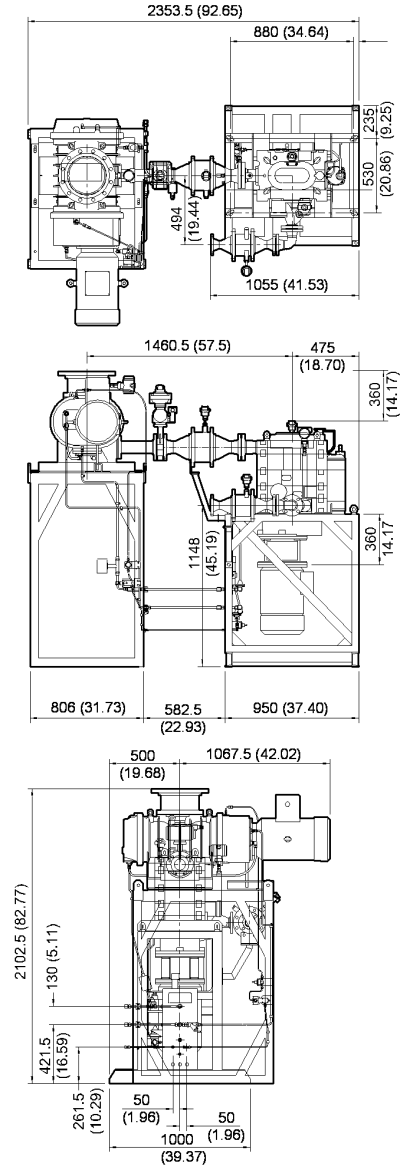
Standard systems dimensions - mm (inch)

EDP + EH250/EH500



dcs/6177/001

EDP + EH1200/EH2600/4200



dcs/6177/002

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Publication Number: A70540895, Issue B
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