

# SMALL WET PUMPS

## THE PERFORMANCE YOU CAN RELY ON

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# E2M0.7 AND 1.5 OIL SEALED ROTARY VANE PUMPS

## PERFORMANCE YOU CAN RELY ON



The E2M0.7 and E2M1.5 pumps are two-stage, direct drive, sliding vane pumps. The pump is oil-sealed and designed for reliable, long-term operation. The pump is a free-standing unit. The drive is provided through an Oldham coupling by a totally enclosed fan cooled single phase motor. The pump is well suited for scientific applications such as backing turbomolecular pumps and general laboratory applications.

Supplied with: Ultragrade 15 oil, NW O-ring and centering ring, 2 Allen keys and spare seals for oil drain and filler plug.



### Features and Benefits

- E2M0.7 has very low sound level of 43dB(A).
- The pump is designed for reliable, long-term operation.
- Compact dimensions.
- Low energy consumption.
- Low operating temperature will minimise the heat load on the equipment.
- The pump is a free-standing unit.
- The motors are totally enclosed and are cooled by the motor-cooling fan and protected by a thermal overload device.
- Full height O-ring sealed oil sight glass for easy checking of oil level and condition.
- Gas ballast valve for water vapour handling capacity.
- Approved to EN61010, CSA, C22.2 and UL61010.

### Applications

- Analytical instruments
- Leak detectors, helium
- Research and development
- Backing turbomolecular pumps

### Pump Range

#### EM

- E2M0.7
- E2M1.5



# Performance Curves

## E2M0.7 Rotary Vane Pump

### E2M0.7



#### Displacement

50 Hz	0.9 m <sup>3</sup> h <sup>-1</sup> / 0.5 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	1.1 m <sup>3</sup> h <sup>-1</sup> / 0.6 ft <sup>3</sup> min <sup>-1</sup>

#### Speed

50 Hz	0.75 m <sup>3</sup> h <sup>-1</sup> / 0.4 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	0.95 m <sup>3</sup> h <sup>-1</sup> / 0.5 ft <sup>3</sup> min <sup>-1</sup>

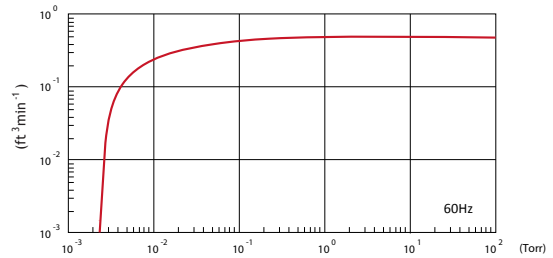
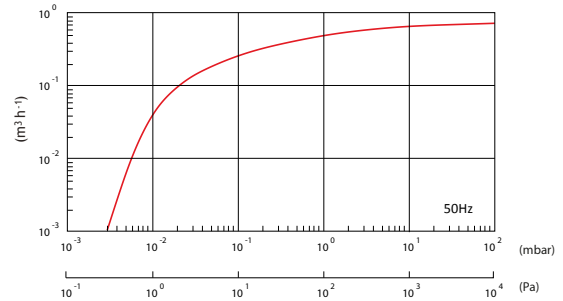
#### Product description

E2M0.7 200-230V, 1-ph, 50/60Hz, IEC 60320 connectors
E2M0.7 100-120V, 1-ph, 50/60Hz, IEC 60320 connectors

#### Order no:

A37141919
A37141902

### E2M0.7 Performance Curve



## E2M1.5 Rotary Vane Pump

### E2M1.5



#### Displacement

50 Hz	1.8 m <sup>3</sup> h <sup>-1</sup> / 1 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	2.2 m <sup>3</sup> h <sup>-1</sup> / 1.3 ft <sup>3</sup> min <sup>-1</sup>

#### Speed

50 Hz	1.6 m <sup>3</sup> h <sup>-1</sup> / 0.8 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	2.0 m <sup>3</sup> h <sup>-1</sup> / 1.2 ft <sup>3</sup> min <sup>-1</sup>

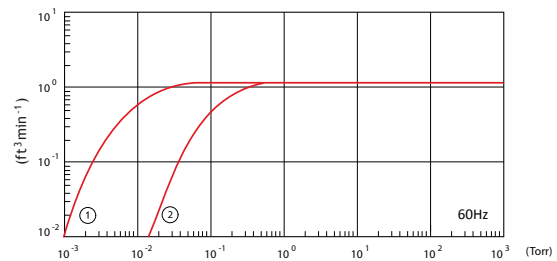
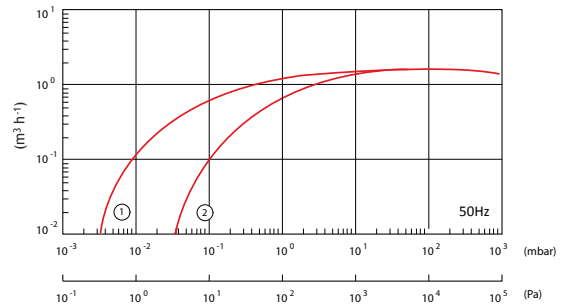
#### Product description

E2M1.5 200-230V, 1-ph, 50/60Hz, IEC 60320 connectors
E2M1.5 100-120V, 1-ph, 50/60Hz, IEC 60320 connectors
E2M1.5 interstage 200-230V, 1-ph, 50/60Hz, IEC 60320 connectors
E2M1.5 interstage 100-120V, 1-ph, 50/60Hz, IEC 60320 connectors

#### Order no:

A37132919
A37132902
A37104919
A37149902

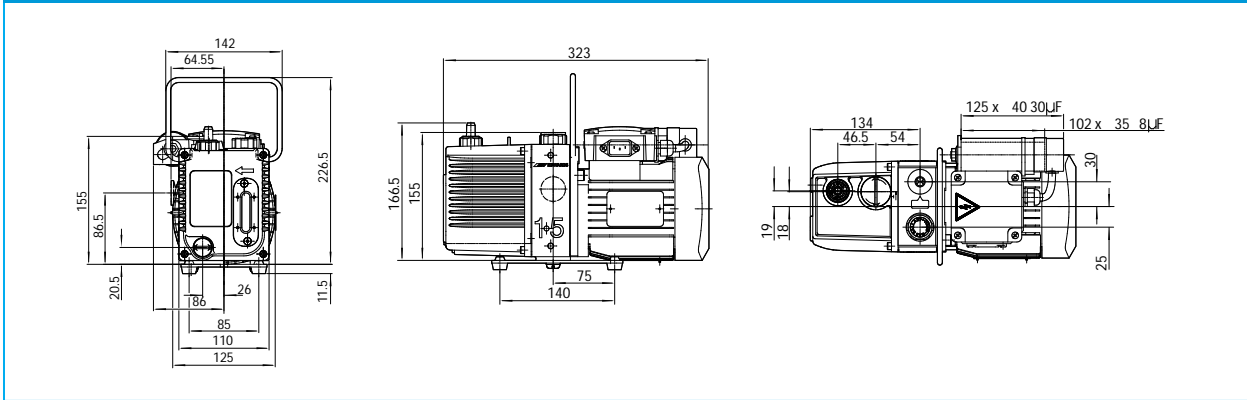
### E2M1.5 Performance Curve



- 1 Without Gas Ballast
- 2 With Gas Ballast

# Dimensions

## E2M0.7/ 1.5. Dimensions



## Technical Data



	Units	E2M0.7	E2M1.5
Displacement (swept volume)			
50 Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	0.9/ 0.5	1.8/ 1
60 Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	1.1/ 0.6	2.2/ 1.3
Speed (Pneurop 6602)			
50 Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	0.75/ 0.4	1.6/ 0.8
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	0.95/ 0.5	2.0/ 1.2
Ultimate vacuum (total pressure)			
without gas ballast	mbar/ Torr	3.0 x 10 <sup>-3</sup> / 2.3 x 10 <sup>-3</sup>	3 x 10 <sup>-3</sup> / 2.3 x 10 <sup>-3</sup>
with full gas ballast	mbar/ Torr	2.0 x 10 <sup>-1</sup> / 1.5 x 10 <sup>-1</sup>	2.5 x 10 <sup>-2</sup> / 1.9 x 10 <sup>-2</sup>
Inlet connection		NW10 flange	
Outlet connection		Nozzle 11 mm external Ø removable from 3/8 inch BSP tapped hole	
Maximum permitted pressure at outlet		0.5 bar gauge / 7 psig	
Maximum inlet pressure for water vapour	mbar/ Torr	15/ 11	
Maximum water vapour pumping rate	gh <sup>-1</sup>	8	16
Motor power	kW	0.09	0.16
Nominal rotational speed 50/60Hz	rpm	1400/1700	2800/3400
Power connector		IEC EN60320 C13	
Operating temperature range	°C	12 - 40	
Weight, without oil	kg/ lbs	10/ 22	
Noise	dB(A)	43 @ 50 Hz	54 @ 50 Hz
Oil capacity - maximum	litre	0.28	
Oil capacity - minimum	litre	0.2	
Recommended oil (supplied)		Ultragrade 15	



## Service, Spares and Accessories

Product description	Order no:
Model EMF3 mist filter	A46220000
2m electrical supply cable for 1-ph pumps, UK, Three-pin plug	A50505000
2m electrical supply cable for 1-ph pumps, North European plug	A50506000
2m electrical supply cable for 1-ph pumps, North America/Japan plug	A50507000
2m electrical supply cable for 1-ph pumps, no plug	A50508000
Spares Kit C&O E2M0.7/1/1.5	A37101131
Spares Kit Blade E2M0.7/1.5	A37101132
NW10 Centring Nitrile S/S Pk1	C10511396
NW10 O Ring Viton Pk 5	H02124032
NW10 x 3/8" BSP Adapter	A25908064

### Service

Edwards products, spares and accessories are available from Edwards companies in Belgium, Brazil, China, France, Germany, Israel, Italy, Japan, Korea, Singapore, United Kingdom, U.S.A. and a world-wide network of distributors.

The majority of these centres employ Service Engineers who have undergone comprehensive Edwards training courses.

Order spare parts and accessories from your nearest Edwards company or distributor.

When you order, please state for each part required:

- Model and item number of your equipment.
- Serial number (if any).
- Item number and description of the part.

# RV OIL-SEALED ROTARY VANE PUMP

## PERFORMANCE YOU CAN RELY ON



Edwards RV pumps have become the industry standard for scientific primary pumping applications. RV pumps are uniquely capable of delivering high or low throughputs with high ultimate vacuum. This, combined with low noise levels, makes them ideal for a wide range of applications including GCMS and other small bench top type applications. All pumps are approved to UL and CSA standards by an external test house. Edwards has a global network, providing world-wide support for product applications and service.

Supplied with: 1 litre of Ultragrade 19 oil, inlet filter and O-ring. Fomblin® must be purchased separately for PFPE RV pumps.



### Features and Benefits

- **High reliability** - generous lubrication of moving parts
- **Safe process and systems** - fast acting inlet valve for best in class anti-suck back protection
- **Configured to meet your vacuum needs** - mode selector and two position gas ballast
- **No unplanned downtime** - designed for easy maintenance
- **Better work environment** - quiet running and intrusive frequencies minimised

### Applications

- Analytical instruments
- Laboratory bench top vacuum
- Backing turbomolecular pumps
- Freeze drying
- Research and development

### Pump Range

<b>RV3</b>	<b>RV8</b>
- RV3	- RV8
- RV3 ATEX	- RV8 ATEX
- PFPE RV3	- PFPE RV8
<b>RV5</b>	<b>RV12</b>
- RV5	- RV12
- RV5 ATEX	- RV12 ATEX
- PFPE RV5	- PFPE RV12



# Performance Curves

## RV3 Oil Sealed Rotary Pump

### RV3



#### Displacement

50Hz	3.7 m <sup>3</sup> h <sup>-1</sup> 2.2 ft <sup>3</sup> min <sup>-1</sup>
60Hz	4.5 m <sup>3</sup> h <sup>-1</sup> 2.6 ft <sup>3</sup> min <sup>-1</sup>

#### Speed (Pneurop 6602)

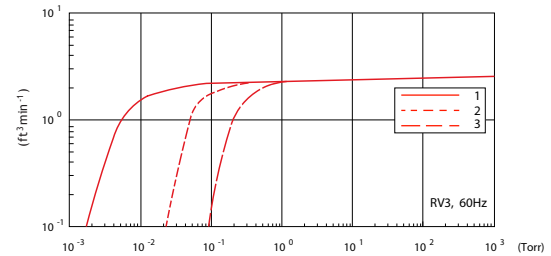
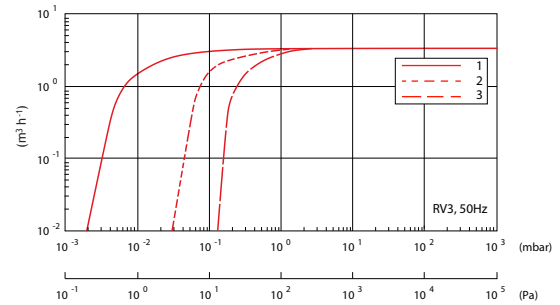
50Hz	3.3 m <sup>3</sup> h <sup>-1</sup> 2.0 ft <sup>3</sup> min <sup>-1</sup>
60Hz	3.9 m <sup>3</sup> h <sup>-1</sup> 2.3 ft <sup>3</sup> min <sup>-1</sup>

### Ordering information

Product description	Order no:
RV3 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65201903
RV3 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65201904
RV3 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz Factory set to 380/460V	A65201905
RV3 115/230V, 1-ph, 50/60Hz, Factory set to 115V for USA	A65201906
PFPE RV3 115/230V, 1-ph, 50/60 Hz, Factory set to 230V for Europe	A65209903
PFPE RV3 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65209904
PFPE RV3 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65209905
PFPE RV3 115/230V, 1-ph, 50/60Hz, Factory set to 115V for USA	A65209906

Please note that Fomblin® must be purchased separately for PFPE RV pumps

### RV3 Performance Curve

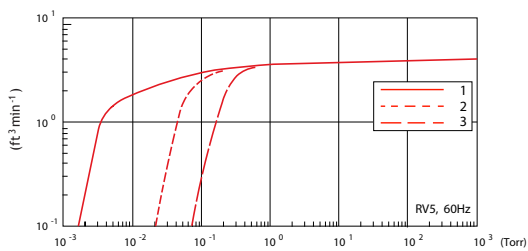
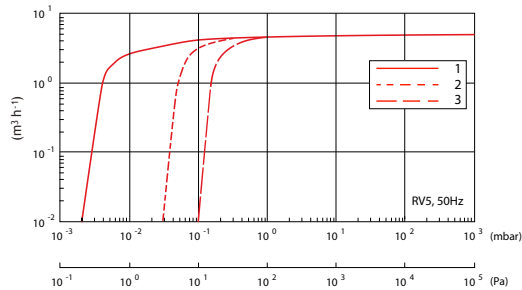


- 1 High vacuum mode, gas ballast =0
- 2 High throughput mode, gas ballast mode = 0 and High vacuum mode, gas ballast = 1
- 3 High vacuum and throughput mode, gas ballast =II



RV5 Performance Curve

RV5



Displacement

50Hz	5.8 m <sup>3</sup> h <sup>-1</sup>
	3.4 ft <sup>3</sup> min <sup>-1</sup>
60Hz	7.0 m <sup>3</sup> h <sup>-1</sup>
	4.1 ft <sup>3</sup> min <sup>-1</sup>

Speed (Pneurop 6602)

50Hz	5.1 m <sup>3</sup> h <sup>-1</sup>
	3.0 ft <sup>3</sup> min <sup>-1</sup>
60Hz	6.2 m <sup>3</sup> h <sup>-1</sup>
	3.7 ft <sup>3</sup> min <sup>-1</sup>



Ordering information

Product description	Order no:
RV5 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65301903
RV5 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65301904
RV5 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65301905
RV5 115/230V, 1-ph, 50/60Hz, Factory set to 115V for USA	A65301906
PFPE RV5 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65309903
PFPE RV5 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65309904
PFPE RV5 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65309905
PFPE RV5 115/230V, 1-ph, 50/60Hz, Factory set to 115V for USA	A65309906

- 1 High vacuum mode, gas ballast =0
- 2 High throughput mode, gas ballast mode = 0 and High vacuum mode, gas ballast = 1
- 3 High vacuum and throughput mode, gas ballast =II

Please note that Fomblin® must be purchased separately for PFPE RV pumps



# Performance Curves

## RV8 Oil Sealed Rotary Pump

### RV8



#### Displacement

50Hz	9.7 m <sup>3</sup> h <sup>-1</sup>
	5.7 ft <sup>3</sup> min <sup>-1</sup>
60Hz	11.7 m <sup>3</sup> h <sup>-1</sup>
	6.9 ft <sup>3</sup> min <sup>-1</sup>

#### Speed (Pneurop 6602)

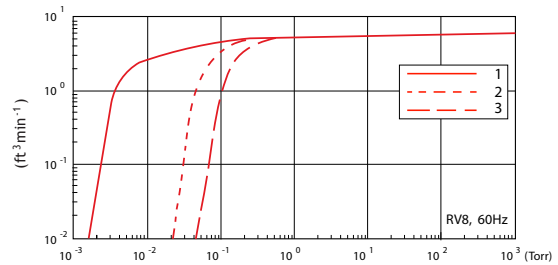
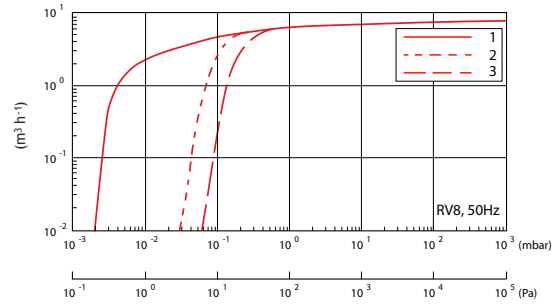
50Hz	8.5 m <sup>3</sup> h <sup>-1</sup>
	5.0 ft <sup>3</sup> min <sup>-1</sup>
60Hz	10 m <sup>3</sup> h <sup>-1</sup>
	5.9 ft <sup>3</sup> min <sup>-1</sup>

### Ordering information

Product description	Order no:
RV8 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65401903
RV8 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65401904
RV8 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65401905
RV8 115/230V, 1-ph, 50/60Hz, Factory set to 115V for USA	A65401906
PFPE RV8 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65409903
PFPE RV8 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65409904
PFPE RV8 200-220/380-415V, 3-ph, 50Hz, and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65409905
PFPE RV8 115/230V, 1-ph, 50/60Hz, Factory set to 115V for Europe	A65409906

Please note that Fomblin® must be purchased separately for PFPE RV pumps

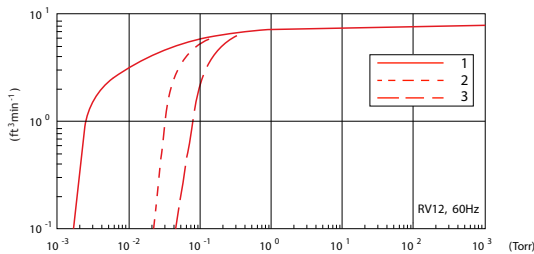
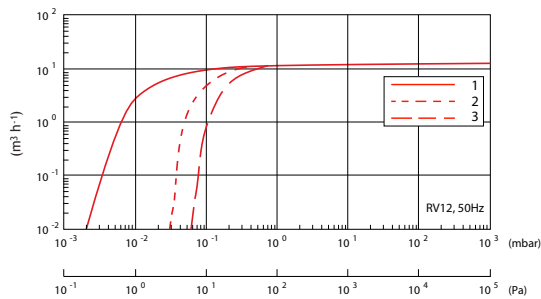
### RV8 Performance Curve



- 1 High vacuum mode, gas ballast = 0
- 2 High throughput mode, gas ballast mode = 0 and High vacuum mode, gas ballast = 1
- 3 High vacuum and throughput mode, gas ballast = II

RV12 Performance Curve

RV12



Displacement

50Hz	14.2 m <sup>3</sup> h <sup>-1</sup> 8.4 ft <sup>3</sup> min <sup>-1</sup>
60Hz	17 m <sup>3</sup> h <sup>-1</sup> 10 ft <sup>3</sup> min <sup>-1</sup>

Speed (Pneurop 6602)

50Hz	12 m <sup>3</sup> h <sup>-1</sup> 7.1 ft <sup>3</sup> min <sup>-1</sup>
60Hz	14.2 m <sup>3</sup> h <sup>-1</sup> 8.4 ft <sup>3</sup> min <sup>-1</sup>



Ordering information

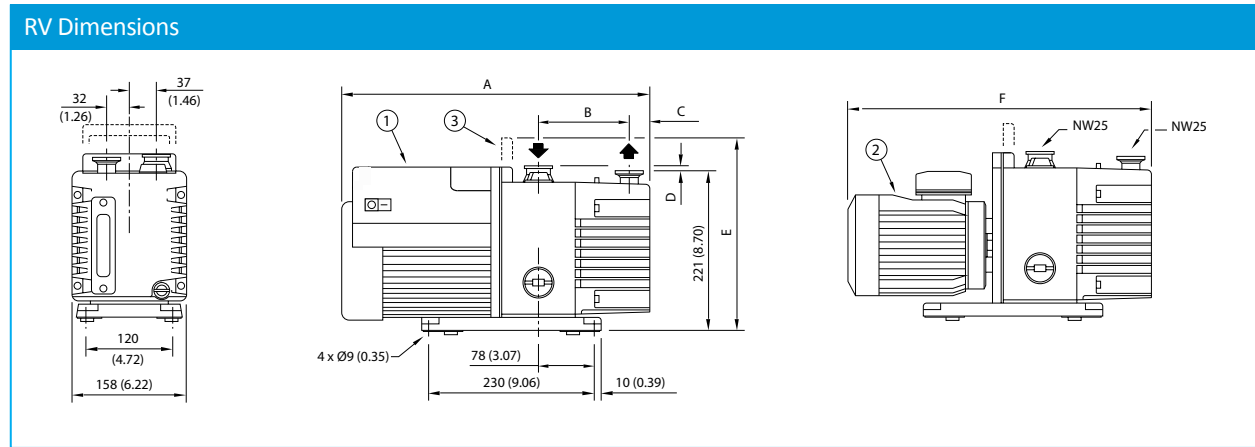
Product description	Order no:
RV12 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65501903
RV12 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65501904
RV12 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65501905
RV12 115/230V, 1-ph, 50/60Hz, Factory set to 115V for USA	A65501906
PFPE RV12 115/230V, 1-ph, 50/60Hz, Factory set to 230V for Europe	A65509903
PFPE RV12 100/200V, 1-ph, 50/60Hz, Factory set to 200V for Japan	A65509904
PFPE RV12 200-220/380-415V, 3-ph, 50Hz and 200-230/460V, 3-ph, 60Hz, Factory set to 380/460V	A65509905
PFPE RV12 Two Stage Rotary Vane Pump 115/230V 1ph 50/60Hz, Factory set to 115V for USA	A65509906

- 1 High vacuum mode, gas ballast =0
- 2 High throughput mode, gas ballast mode = 0 and High vacuum mode, gas ballast = 1
- 3 High vacuum and throughput mode, gas ballast =II

Please note that Fomblin® must be purchased separately for PFPE pumps



# Dimensions



	RV3/5	RV8	RV12
A	430 (16.93)	470 (18.50)	490 (19.29)
B	127 (5)	161 (6.34)	181 (7.13)
C	29 (1.14)	35 (1.38)	35 (1.38)
D	4 (0.16)	4 (0.16)	4 (0.16)
E	267 (10.51)	261 (10.28)	261 (10.28)
F	429 (16.89)	469 (18.46)	489 (19.25)
1	1-Phase motor		
2	3-Phase motor		
3	Retractable handle		

# Technical Data

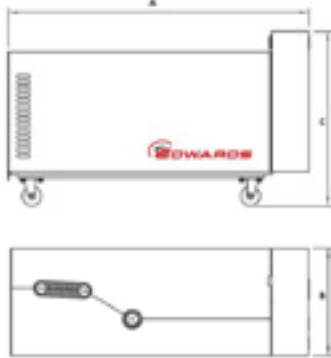


Units	RV3	RV5	RV8	RV12	
Displacement					
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	3.7/ 2.2	5.8/ 3.4	9.7/ 5.7	14.2/ 8.4
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	4.5/ 2.6	7.0/ 4.1	11.7/ 6.9	17/ 10
Speed (Pneurop 6602)					
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	3.3/ 2	5.1/ 3.0	8.5/ 5	12/ 7.1
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	3.9/ 2.3	6.2/ 3.7	10/ 5.9	14.2/ 8.4
Ultimate pressure	mbar/ Torr	2.0 x 10 <sup>-3</sup> / 1.5 x 10 <sup>-3</sup>			
Ultimate pressure GB I	mbar/ Torr	3.0 x 10 <sup>-2</sup> / 2.3 x 10 <sup>-2</sup>			
Ultimate pressure GB II	mbar/ Torr	1.2 x 10 <sup>-1</sup> / 9.1 x 10 <sup>-2</sup>	1.0 x 10 <sup>-1</sup> / 7.5 x 10 <sup>-2</sup>	6 x 10 <sup>-2</sup> / 4.6 x 10 <sup>-2</sup>	
Ultimate Pressure with Fomblin®	mbar/ Torr	2 x 10 <sup>-2</sup> / 1.5 x 10 <sup>-2</sup>			
Max inlet pressure for water vapour	mbar/ Torr	80/ 60	50/ 38	38/ 28.5	32/ 24
Max water vapour pumping rate – GB I	gh <sup>-1</sup>	60			
Max water vapour pumping rate – GB II	gh <sup>-1</sup>	220			
Max allowed outlet pressure	bar gauge/ psig	0.2/ 2.8			
Max allowed inlet and gas ballast pressure	bar gauge/ psig	0.5/ 7			
Motor power 50/60Hz	W	450 / 550			
Power connector 1-ph		IEC EN60320 C13			
Nominal rotation speed 50/60Hz	rpm	1500 / 1800			
Weight (without oil)	kg/ lb	25/ 55		28/ 61.6	29/ 63.8
Oil capacity min/max	litres	0.42/0.7		0.4/ 0.75	0.65/ 1
Recommended oil		Ultragrade 19			
Inlet flange		NW25			
Exhaust flange		NW25			
Noise level	dB(A)	48 @ 50 Hz			
Operating temperature range	°C	12 – 40			



# Service, Spares and Accessories

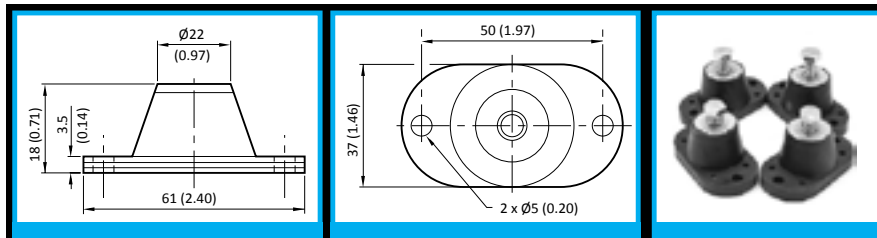
## RV Acoustic Enclosure



Technical Data		
Mass	22.5 kg	
Electrical supply for cooling fans		
Voltage	100-120 V/ 200-240 V	
Fuse rating	2.5A Type T 20mm	
Connector	IEC320 socket	
Approximate noise reduction	7dBA	
A	B	C
789	282	456

## Vibration Isolators

You may need to fit vibration isolators to your pump if you mount it into a frame or a system, if the mounting points are not level or if you need to minimise the transmission of vibration and noise in your application. You must fit flexible bellows or other flexible pipes to the pump inlet and outlet. The height of these neoprene rubber isolators reduces by about 1 mm when the pump is fitted.



## Service

Edwards products, spares and accessories are available from Edwards companies in Belgium, Brazil, China, France, Germany, Israel, Italy, Japan, Korea, Singapore, United Kingdom, U.S.A. and a world-wide network of distributors.

The majority of these centres employ Service Engineers who have undergone comprehensive Edwards training courses.

Order spare parts and accessories from your nearest Edwards company or distributor.

When you order, please state for each part required:

- Model and item number of your equipment.
- Serial number (if any).
- Item number and description of the part.

## RV Accessories

Product description	Order no:
2m electrical supply cable for 1-ph pumps, UK, Three-pin plug	A50505000
2m electrical supply cable for 1-ph pumps, North European plug	A50506000
2m electrical supply cable for 1-ph pumps, North America/Japan plug	A50507000
2m electrical supply cable for 1-ph pumps, no plug	A50508000
Model EMF10 mist filter	A46226000
Clean and overhaul kit	A65201131
Clean and overhaul kit (Nitrile)	A65201137
Outer Shaft Seal Kit RV	A65201134
Gas Ballast adaptor	A50502000

## Acoustic Enclosure

Product description	Order no:
RV acoustic enclosure 110-120V	NRD317000
RV acoustic enclosure 200-240V	NRD318000

## Vibration Isolator

Product description	Order no:
RV Vibration isolator (0.45 kg)	A24801404

## Accessory Kits

Product description	Order no:
Clean application oil return kit	A50419000
Adjustable gas ballast oil return kit	A50523000
RV easy oil box drain kit	A50503000
Exhaust nozzle kit 3/4" to 15mm	A50509000

## Spares Kits

Product description	Order no:
Spares Kit Cartridge RV3	A65201032
Spares Kit Cartridge RV5	A65301032
Spares Kit Cartridge RV8	A65401032
Spares Kit Cartridge RV12	A65501032
Spares Kit Blade RV3	A65201130
Spares Kit Blade RV5	A65301130
Spares Kit Blade RV8	A65401130
Spares Kit Blade RV12	A65501130
Spares Kit Inlet Valve RV3/5/8/12	A65201036



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Small Wet Pumps

109.

# RV ATEX

## Performance Curves

### RV ATEX Oil Sealed Rotary Pump

#### RV ATEX

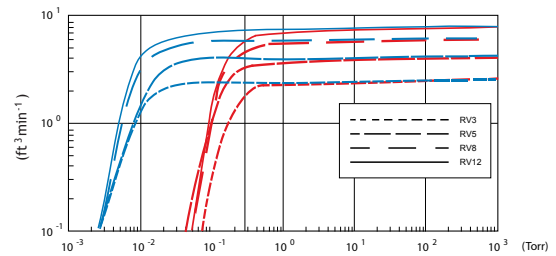
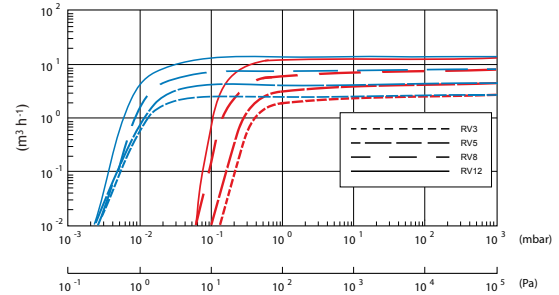


	RV3	RV5	RV8	RV12
<b>Displacement</b>				
50Hz	3.7 m <sup>3</sup> h <sup>-1</sup>	5.8 m <sup>3</sup> h <sup>-1</sup>	9.7 m <sup>3</sup> h <sup>-1</sup>	14.2 m <sup>3</sup> h <sup>-1</sup>
	2.2 ft <sup>3</sup> min <sup>-1</sup>	3.4 ft <sup>3</sup> min <sup>-1</sup>	5.7 ft <sup>3</sup> min <sup>-1</sup>	8.4 ft <sup>3</sup> min <sup>-1</sup>
60Hz	4.5 m <sup>3</sup> h <sup>-1</sup>	7.0 m <sup>3</sup> h <sup>-1</sup>	11.7 m <sup>3</sup> h <sup>-1</sup>	17 m <sup>3</sup> h <sup>-1</sup>
	2.6 ft <sup>3</sup> min <sup>-1</sup>	4.1 ft <sup>3</sup> min <sup>-1</sup>	6.9 ft <sup>3</sup> min <sup>-1</sup>	10 ft <sup>3</sup> min <sup>-1</sup>
<b>Speed (Pneurop 6602)</b>				
50Hz	3.3 m <sup>3</sup> h <sup>-1</sup>	5.1 m <sup>3</sup> h <sup>-1</sup>	8.5 m <sup>3</sup> h <sup>-1</sup>	12 m <sup>3</sup> h <sup>-1</sup>
	2.0 ft <sup>3</sup> min <sup>-1</sup>	3.0 ft <sup>3</sup> min <sup>-1</sup>	5.0 ft <sup>3</sup> min <sup>-1</sup>	7.1 ft <sup>3</sup> min <sup>-1</sup>
60Hz	3.9 m <sup>3</sup> h <sup>-1</sup>	6.2 m <sup>3</sup> h <sup>-1</sup>	10 m <sup>3</sup> h <sup>-1</sup>	14.2 m <sup>3</sup> h <sup>-1</sup>
	2.3 ft <sup>3</sup> min <sup>-1</sup>	3.7 ft <sup>3</sup> min <sup>-1</sup>	5.9 ft <sup>3</sup> min <sup>-1</sup>	8.4 ft <sup>3</sup> min <sup>-1</sup>

#### Ordering information

Product description	Order no:
ATEX RV3 115V, 1-ph, 60Hz Ex II 2G IIC T4	A65218986
ATEX RV3 230V, 1-ph, 50Hz Ex II 2G IIC T4	A65218989
ATEX RV3 400V, 3-ph, 50Hz Ex II 2G IIC T4	A65218992
ATEX RV5 115V, 1-ph, 60Hz Ex II 2G IIC T4	A65318986
ATEX RV5 230V, 1-ph, 50Hz Ex II 2G IIC T4	A65318989
ATEX RV5 400V, 3-ph, 50Hz Ex II 2G IIC T4	A65318992
ATEX RV8 115V, 1-ph, 60Hz Ex II 2G IIC T4	A65418986
ATEX RV8 230V, 1-ph, 50Hz Ex II 2G IIC T4	A65418989
ATEX RV8 400V, 3-ph, 50Hz Ex II 2G IIC T4	A65418992
ATEX RV12 230V, 1-ph, 50Hz Ex II 2G IIC T4	A65518989
ATEX RV12 400V, 3-ph, 50Hz Ex II 2G IIC T4	A65518992

#### RV ATEX Performance Curve



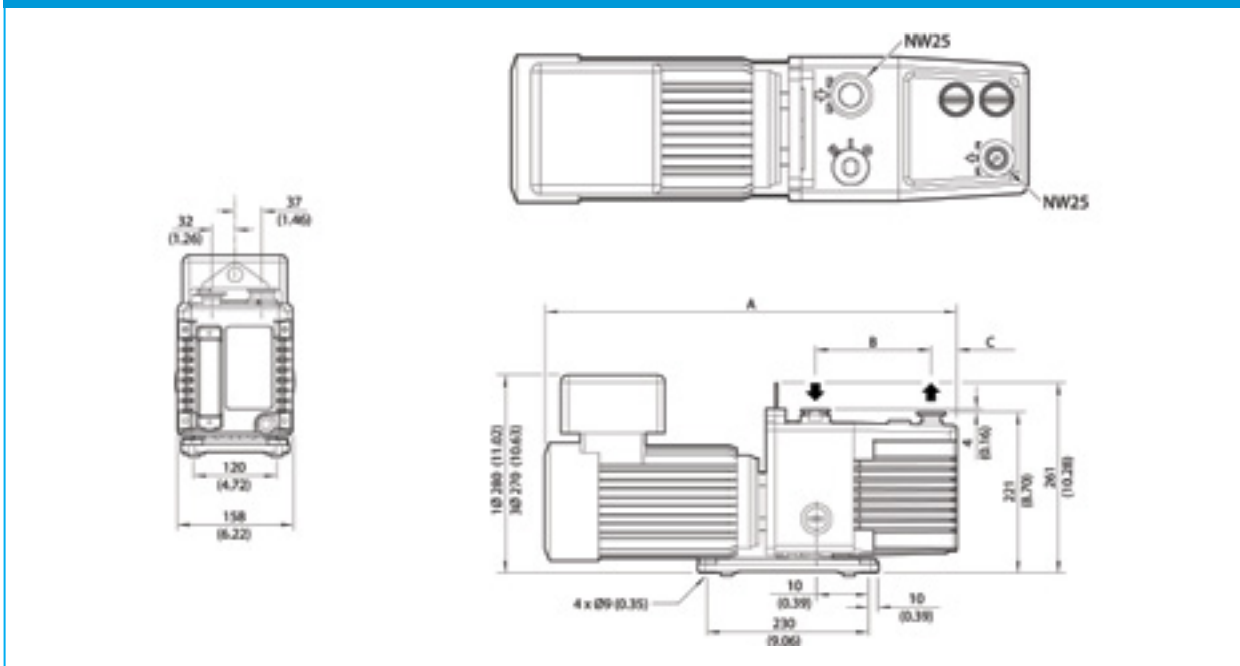
Blue - No gas purge

Red - With inert gas purge



# Dimensions

## RV ATEX Dimensions



Pump	A	B	C
RV3	520 (20.47)	127 (5)	29 (1.06)
RV5	520 (20.47)	127 (5)	29 (1.06)
RV8	560 (22.05)	161 (6.34)	35 (1.38)
RV12	580 (22.83)	181 (7.13)	35 (1.38)

## Technical Data



	Units	RV3 ATEX	RV5 ATEX	RV8 ATEX	RV12 ATEX
Displacement					
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	3.7/ 2.2	5.8/ 3.4	9.7/ 5.7	14.2/ 8.4
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	4.5/ 2.6	7/ 4.1	11.7/ 6.9	17/ 10
Speed (Pneurop 6602)					
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	3.3/ 2	5.1/ 3	8.5/ 5	12/ 7.1
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	3.9/ 2.3	6.2/ 3.6	10/ 5.9	14.2/ 8.4
Max allowed outlet pressure	bar gauge/ psig	0.2/ 2.8			
Max allowed inlet and gas purge pressure	bar gauge/ psig	0.5/ 7			
Nominal rotation speed 50/60Hz	rpm	1430 / 1710			
Motor power 50/60Hz	W	550		750	
Weight (without oil)	kg/ lb	28/ 61.6		31/ 68.2	
Inlet flange		NW25			
Exhaust flange		NW25			
Operating temperature range	°C	12 – 40			

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# EM18 AND 28 OIL SEALED ROTARY VANE PUMPS

## PERFORMANCE YOU CAN RELY ON



The EM range of oil-sealed rotary pumps - renowned for their high ultimate vacuum, rapid pumping speed, quiet operation and ability to handle vapour - have become the industry standard for laboratory and light industrial applications. The pump is a freestanding unit with the drive provided through a flexible coupling by either a single-phase or three-phase (four pole) motor.

Supplied with: Ultragrade 19 oil, NW25 O-ring and centering ring. Fomblin® must be purchased separately for PFPE pumps.



### Features and Benefits

- The pump is designed for reliable, long-term operation.
- Thermal overload device prevents overheating (single phase only).
- The drive is provided through a flexible coupling by a single-phase or three-phase (four pole) motor.
- The motors are totally enclosed and are cooled by the motor cooling fan.
- Full height O ring sealed oil sight glass for easy checking of oil level and condition.
- Large sight glass and operating oil range

### Applications

- Analytical instruments
- Leak detectors, helium
- Research and development
- Backing turbomolecular pumps
- Automotive
- Beam lines and high energy physics
- Centrifuges, ultra-high speed
- Coating

### Pump Range

#### EM

- E1/E2M18
- E1/E2M18 ATEX
- PFPE E1/E2M18
- E2M28
- PFPE E2M28



# Performance Curves

## E1M18 One Stage, E2M18 Two Stage Rotary Vane Pumps

### E1/E2M18



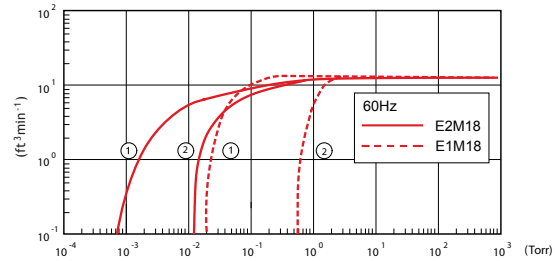
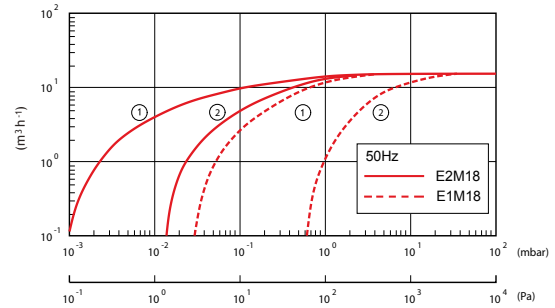
#### Displacement

50Hz	20.5 m <sup>3</sup> h <sup>-1</sup> (12.1 ft <sup>3</sup> min <sup>-1</sup> )
60Hz	25 m <sup>3</sup> h <sup>-1</sup> (14.7 ft <sup>3</sup> min <sup>-1</sup> )

#### Speed (Pneurop 6602)

50Hz	17 m <sup>3</sup> h <sup>-1</sup> (10 ft <sup>3</sup> min <sup>-1</sup> )
60Hz	20.4 m <sup>3</sup> h <sup>-1</sup> (12.1 ft <sup>3</sup> min <sup>-1</sup> )

### E1/E2M18 Performance Curve



### Ordering information

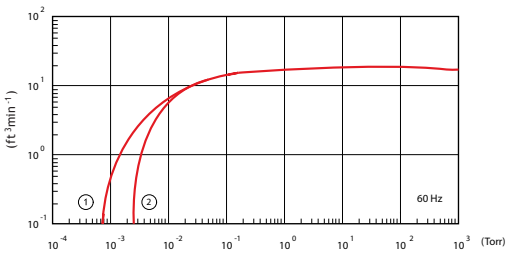
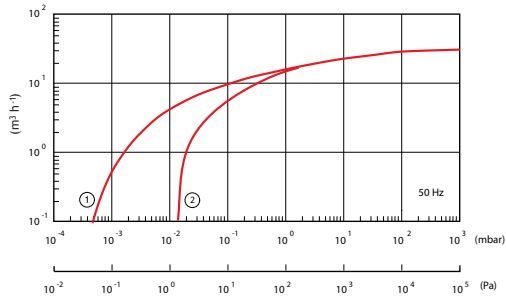
Product description	Order no:
E1M18 200-230/380-415V, 3-ph, 50Hz or 200-230/460V, 3-ph, 60Hz	A34310940
E1M18 100/200V, 1-ph, 50Hz or 100-105/200-210V, 1-ph, 60Hz	A34315904
E1M18 115/200-230V, 1-ph, 50/60Hz with IEC60320 connector, factory set to 230V	A34317984
E1M18 PFPE 115/200-230V, 1-ph, 50/60Hz with IEC60320 connector	A34325984
E2M18 200-230/380-415V, 3-ph, 50Hz or 200-230/460V, 3-ph, 60Hz	A36310940
E2M18 100/200V, 1-ph, 50Hz or 100-105/200-210V, 1-ph, 60Hz	A36315904
E2M18 115/200-230V, 1-ph, 50/60Hz with IEC60320 connector	A36317984
E2M18 PFPE 200-230/380-415 V, 3-ph, 50 Hz or 200-230/460 V, 3-ph, 60 Hz	A36321940
E2M18 PFPE 100/200V, 1-ph, 50Hz or 100-105/200-210V, 1-ph, 60Hz	A36325904
E2M18 PFPE 115/200-230 V, 1-ph, 50/60 Hz with IEC60320 connector fitted	A36325984

Please note that Fomblin® must be purchased separately for PFPE EM pumps

- 1 Without gas ballast
- 2 With gas ballast

E2M28 Performance Curve

E2M28



- 1 Without gas ballast
- 2 With gas ballast

Displacement

50Hz	32.2 m <sup>3</sup> h <sup>-1</sup> (19 ft <sup>3</sup> min <sup>-1</sup> )
60Hz	38.9 m <sup>3</sup> h <sup>-1</sup> (22.3 ft <sup>3</sup> min <sup>-1</sup> )

Speed (Pneurop 6602)

50Hz	27.5 m <sup>3</sup> h <sup>-1</sup> (16.2 ft <sup>3</sup> min <sup>-1</sup> )
60Hz	33 m <sup>3</sup> h <sup>-1</sup> (19.5 ft <sup>3</sup> min <sup>-1</sup> )



Ordering information

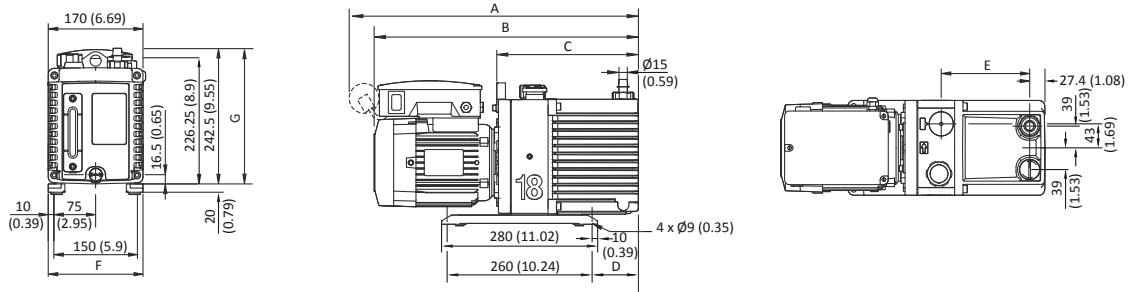
Product description	Order no:
E2M28 200-220/380-415 V, 3-ph, 50 Hz or 200-230/460 V, 3-ph, 60 Hz IE2	A37330940
E2M28 100/200 V, 1-ph, 50 Hz or 100-105/200-210 V, 1-ph, 60 Hz	A37315904
E2M28 115/200-230 V, 1-ph, 50/60 Hz with IEC60320 connector fitted	A37317984
E2M28 PFPE 200-220/380-415 V, 3-ph, 50 Hz or 200-230/460 V, 3-ph, 60 Hz IE2	A37341940
E2M28 PFPE 115/200-230 V, 1-ph, 50/60 Hz with IEC60320 connector fitted	A37325984

Please note that Fomblin® must be purchased separately for PFPE EM pumps



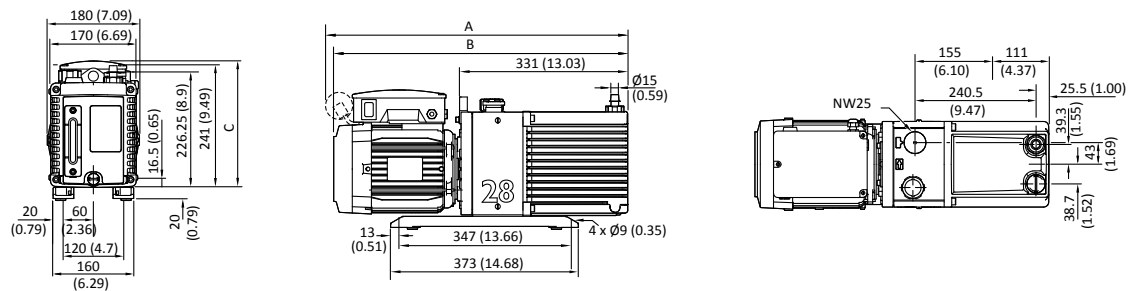
# Dimensions

## E1/ E2M18 Dimensions



Order no:	A	B	C	D	E	F	G
A34310940	-	474	247	83	159	171.4	217
A34315904	518	474	247	83	159	171.4	241
A34317984	-	504	247	83	159	171.4	251
A36310940	-	520	295	131	207	171.4	217
A36315904	564	520	295	131	207	171.4	241
A36317984	-	550	295	131	207	171.4	251

## E2M28 Dimensions



Order no:	A	B	C
A37330940	-	570	217
A37315904	598	584	251
A37317984	-	584	251

## Technical Data



	Units	E1M18	E2M18	E2M28
Displacement				
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	20.5 / 12.1		32.2/ 19
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	25.0/ 14.7		38.9/ 22.3
Speed (Pneurop 6602)				
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	17.0/ 10		27.5/ 16.2
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	20.4/ 12.1		33.0/ 19.5
Ultimate vacuum (total pressure)				
without gas purge	mbar/ Torr	3 x 10 <sup>-2</sup> / 2.2 x 10 <sup>-2</sup>	1 x 10 <sup>-3</sup> / 7.4 x 10 <sup>-4</sup>	1 x 10 <sup>-3</sup> / 7.5 x 10 <sup>-4</sup>
with gas purge	mbar/ Torr	6.5 x 10 <sup>-1</sup> / 4.8 x 10 <sup>-1</sup>	1.5 x 10 <sup>-1</sup> / 1.1 x 10 <sup>-2</sup>	1.5 x 10 <sup>-2</sup> / 1.1 x 10 <sup>-2</sup>
with Fomblin®	mbar/ Torr	3 x 10 <sup>-1</sup> / 2.56 x 10 <sup>-2</sup>	1 x 10 <sup>-2</sup> / 7.5 x 10 <sup>-3</sup>	1 x 10 <sup>-2</sup> / 7.5 x 10 <sup>-3</sup>
Inlet connection		NW25		
Outlet connection*		Nozzle 15 mm external Ø removable from 3/4 in BSP tapped hole		
Max permitted pressure at outlet	bar gauge/ psig	0.5/ 7		
Max inlet pressure for water vapour	mbar/ Torr	50/ 38	20/ 15	30/ 23
Max water vapour pumping rate	kg h <sup>-1</sup>	0.65	0.3	0.7
Operating temp range		13 - 40°C		
Nominal Rotation speed 50/60Hz	rpm	1440 / 1720 rpm		
Power connector 1-ph**		IEC EN60320 C19		
Motor power 50 Hz	kW	0.55 kW		0.75 kW
Motor power 60 Hz	kW	0.75 kW		0.90 kW
Weight	kg/ lbs	37/ 82	39/ 86	44 / 97
Noise @ 50Hz	dB(A)	57		
Oil capacity - max	litre	1.4	1.05	1.5
Oil capacity - min	litre	0.9	0.75	1.2
Recommended oil (supplied)		Ultragrade 19		

\* The PFPE are supplied with NW25 outlet connection

\*\* Pumps listed with IEC connector only



## Service, Spares and Accessories

### EM Accessories

Product description	Order no:
2m Electrical supply cable, UK, three-pin plug	A50505003
2m Electrical supply cable, North European plug	A50506003
2m Electrical supply cable, North America/Japan plug	A50507003
2m Electrical supply cable, no plug	A50508003
Model EMF20 mist filter*	A46229000
*EMF20 is suitable for E2M28 on low throughput applications	
Model MF30 mist filter	A46233000
Clean application oil return kit (E1M18 to E2M28)	A50420000
Suits the E2M0.7 to E2M28 including RV	A50502000
For the E1M18/E2M28 an adapter is required	A50006003
NW25 to 28mm bore tube adaptor	C10520201
3/4" BSP to NW25 outlet adaptor	C10501414

### Acoustic Enclosures

Product description	Order no:
EM acoustic enclosure 110-120V	NRD317000
EM acoustic enclosure 200-240V	NRD318000

### Vibration Isolators

Product description	Order no:
E1M/E2M18 (0.45 kg)	A24801404
E2M28 (0.45 kg)	A24801412

### Spares Kits

Product description	Order no:
Spares Kit C&O E1M18/E2M18	A36301131
Spares Kit Blade E1M18	A34301041
Spares Kit Blade E2M18	A36301020
Spares Kit Blade E2M28/30	A37301135
Clean and overhaul kit (hydrocarbon) E2M28	A37301131

### Service

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# E1M18 One Stage, E2M18 Two Stage Rotary Vane ATEX Pumps

## Performance Curves

### E1M18 One Stage, E2M18 Two Stage Rotary Vane ATEX Pumps

#### E1/E2M18 ATEX

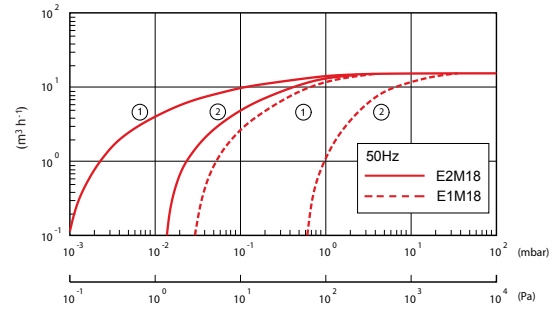


Displacement	
50Hz	20.5 m <sup>3</sup> h <sup>-1</sup> (12.1 ft <sup>3</sup> min <sup>-1</sup> )
60Hz	25 m <sup>3</sup> h <sup>-1</sup> (14.7 ft <sup>3</sup> min <sup>-1</sup> )
Speed (Pneurop 6602)	
50Hz	17 m <sup>3</sup> h <sup>-1</sup> (10 ft <sup>3</sup> min <sup>-1</sup> )
60Hz	20.4 m <sup>3</sup> h <sup>-1</sup> (12.1 ft <sup>3</sup> min <sup>-1</sup> )

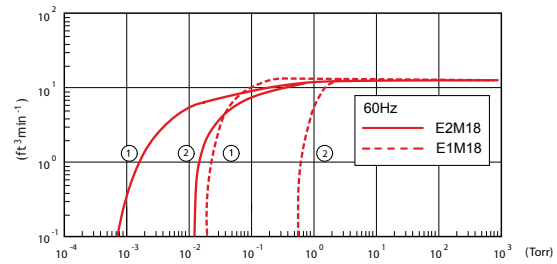
#### Ordering information

Product description	Order no:
E1M18 ATEX 115V, 1ph, 60Hz Ex II 2G IIC T4	A34318986
E1M18 ATEX 230V, 1ph, 50Hz Ex II 2G IIC T4	A34318989
E1M18 ATEX 400V, 3ph, 50Hz Ex II 2G IIC T4	A34318992
E2M18 ATEX 115V, 1ph, 60Hz Ex II 2G IIC T4	A36318986
E2M18 ATEX 230V, 1ph, 50Hz Ex II 2G IIC T4	A36318989
E2M18 ATEX 400V, 3ph, 50Hz Ex II 2G IIC T4	A36318992

#### E1/E2M18 ATEX Performance Curve



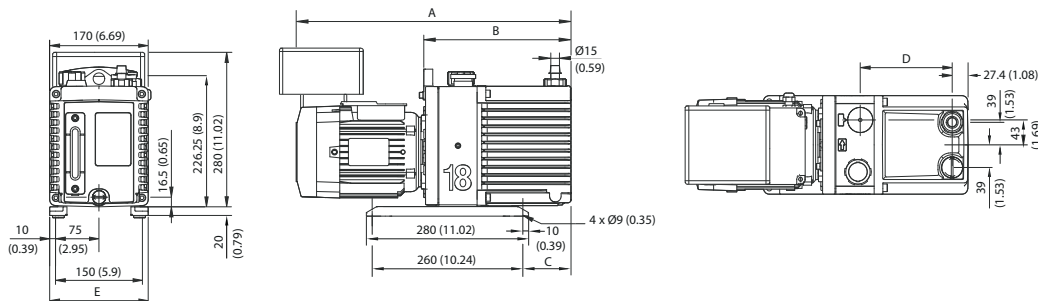
- 1 Without gas ballast
- 2 With gas ballast



- 1 Without gas ballast
- 2 With gas ballast

# Dimensions

## E1/ E2M18 ATEX Dimensions



	A	B	C	D	E
E1M18	526	247	83	159	171.4
E2M18	576	295	131	207	171.4

# Technical Data

	Units	E1M18 ATEX	E2M18 ATEX
Displacement			
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	20.5 / 12.1	20.5 / 12.1
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	25.0 / 14.7	25.0 / 14.7
Speed (Pneurop 6602)			
50Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	17.0 / 10	17.0 / 10
60Hz	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	20.4 / 12.1	20.4 / 12.1
Ultimate vacuum (total pressure)			
without gas purge	mbar/ Torr	3 x 10 <sup>-2</sup> / 2.2 x 10 <sup>-2</sup>	1 x 10 <sup>-3</sup> / 7.4 x 10 <sup>-4</sup>
with gas purge	mbar/ Torr	6.5 x 10 <sup>-1</sup> / 4.8 x 10 <sup>-1</sup>	1.5 x 10 <sup>-1</sup> / 1.1 x 10 <sup>-2</sup>
with Fomblin®	mbar/ Torr		
Inlet connection		NW25	
Outlet connection*		Nozzle 15 mm external Ø removable from 3/4 in BSP tapped hole	
Max permitted pressure at outlet		bar gauge/ psig 0.5 / 7	
Max inlet pressure for water vapour		50 / 38	20 / 15
Max water vapour pumping rate		kg h <sup>-1</sup> 0.65	0.3
Operating temp range		°C 13-40	
Nominal Rotation speed 50/60Hz		rpm 1440/1720	
Power connector 1-ph**			
Motor power 50 Hz		0.55 kW	0.55
Motor power 60 Hz		0.75 kW	0.75
Weight		kg/ lbs 37 / 82	39 / 86
Noise @ 50Hz		dB(A) 57	
Oil capacity - max		litre 1.4	1.05
Oil capacity - min		litre 0.9	0.75
Recommended oil (supplied)		Ultragrade 19	

\* The PFPE are supplied with NW25 outlet connection

\*\* Pumps listed with IEC connector only

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