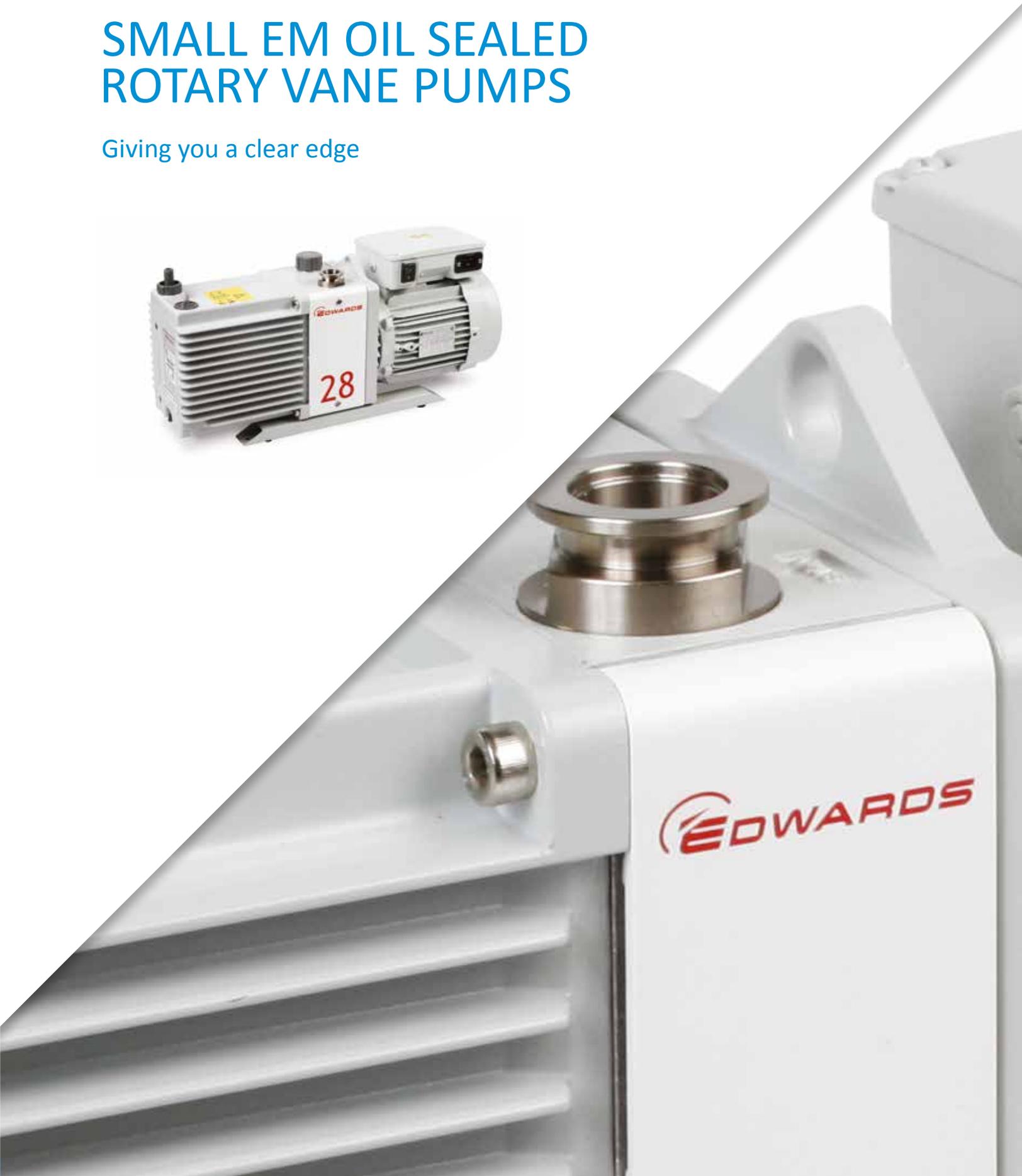


SMALL EM OIL SEALED ROTARY VANE PUMPS

Giving you a clear edge





EDWARDS THE PARTNER OF CHOICE

Edwards is a world leader in the design, technology and manufacture of vacuum pumps, with over 95 years' history and more than 75 years' manufacturing experience.

Edwards believes in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions to your problems. Using the most innovative and up-to-date modelling techniques, we can optimise the pumping configuration for customers to provide a system design giving the maximum performance in the most reliable and cost-effective way.

PERFORMANCE YOU CAN RELY ON

Edwards EM pumps are designed for reliable, long term operation

Our EM range of small oil sealed rotary vane pumps are renowned for achieving high ultimate vacuum and rapid pumping speeds, with quiet operation and exceptional reliability. These pumps have become the industry standard in a range of scientific and laboratory applications, and are ideal for backing small turbomolecular pumps.

- Single and two stage design options
- Pumping speeds from 0.7 to 28 m³h⁻¹
- Simple installation and operation with no customer wiring
- Alternate side inlet connection port so that overall installation height can be reduced to minimum (0.7 and 1.5 variants only)
- Internal ATEX classification of Ex II 3 G c IIB T4
- Approved to EN61010, CSA22.2 and UL61010
- Fully RoHS compliant

Quiet operation

Better working environment

Reliable performance

Proven in a range of laboratory and industrial applications

Free standing unit and compact design

Flexibility of use

Gas ballast valve

Large vapour handling capacity

EM Rotary Vane Pump Technology



1 Easy control: motor on/off switch

5 No oil leaks: integrated oil-seals, pressure die cast oil box

2 Wide voltage motors: all major countries covered with less variants

6 Visual inspection of oil level and condition: O ring sealed sight glass

3 Large water vapour handling capacity: gas ballast valve

7 No customer wiring: integral IEC connector

4 Low surface temperature: forced air cooling



E2M0.7

E2M1.5

E1M18

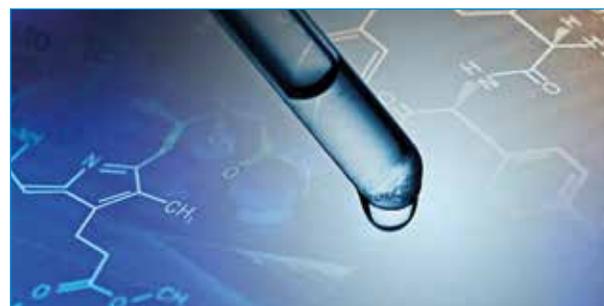
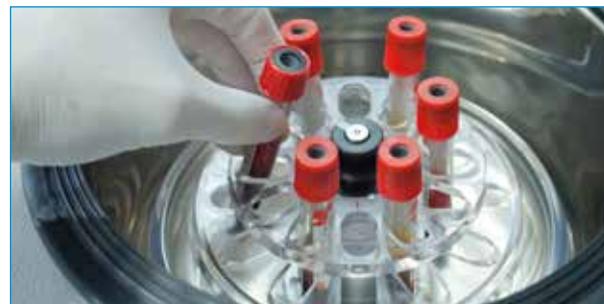
E2M18

E2M28

Applications

EM pumps are suitable for a wide range of applications requiring low and medium vacuum:

	E2M0.7 E2M1.5	E1M18 E2M18	E2M28
INSTRUMENTATION			
Analytical instruments - GCMS	•		
Analytical instruments - LCMS		•	•
Automotive		•	•
Beam lines and high energy physics		•	•
Centrifuges, ultra-high speed		•	•
Coating		•	•
Cryogenics		•	•
Degassing/curing - oil, epoxy resin		•	•
Distillation/extraction/filtration		•	•
Freeze drying		•	•
Furnaces		•	•
Gas bottle filling/emptying			•
Gel drying		•	•
Glove boxes, ovens		•	•
Laboratory bench top vacuum	•	•	•
GENERAL			
Lasers, gas recovery and re-circulation			•
Leak detectors, Helium	•	•	•
Load locks and transfer chambers		•	•
Refrigeration manufacture		•	•
Research and development	•	•	•
Rotary, centrifugal evaporators		•	•
Scanning electron microscopes - SEM	•	•	
SEM/FIB (Ion beam repair)		•	
Solvent recovery		•	•
Surface science instruments		•	•
Turbomolecular backing pumps	•	•	•



Technical data

	Hz	Units	E2M0.7	E2M1.5	E1M18	E2M18	E2M28
Vacuum Data							
Peak pumping speed	50	m ³ h ⁻¹	0.75	1.6	17	17	27.5
	60	cfm	0.5	1.2	12.1	12.1	19.5
Ultimate pressure w/o gas ballast	50	mbar	3.0x10 ⁻³	3x10 ⁻³	3x10 ⁻²	1x10 ⁻³	1x10 ⁻³
	60	Torr	2.3x10 ⁻³	2.3x10 ⁻³	2.2x10 ⁻²	7.4x10 ⁻⁴	7.5x10 ⁻⁴
Ultimate pressure with gas ballast	50	mbar	2x10 ⁻¹	2.5x10 ⁻²	6.5x10 ⁻¹	1.5x10 ⁻²	1.5x10 ⁻²
	60	Torr	1.5x10 ⁻¹	1.9x10 ⁻²	4.8x10 ⁻¹	1.1x10 ⁻²	1.1x10 ⁻²
Ultimate pressure with Fomblin®	50	mbar			3x10 ⁻¹	1x10 ⁻²	1x10 ⁻²
	60	Torr			2.3x10 ⁻¹	7.5x10 ⁻³	7.5x10 ⁻³
Water vapour tolerance		mbar	15	15	50	20	30
		Torr	11	11	38	15	23
Water vapour capacity		g/h	8	16	650	300	700
Motor Data							
Motor power	50	kW	0.09	0.16		0.55	0.75
	60	kW	0.09	0.16		0.75	0.90
Nominal rotation speed	50	rpm	1400	2800		1440	
	60	rpm	1700	3400		1720	
Power connector ⁽¹⁾			IEC EN60320 C13		IEC EN60320 C19		
Physical Data							
Weight		lb	22		82	86	97
		kg	10		37	39	44
Oil type (recommended)			Ultragrade 15		Ultragrade 19		
Oil capacity (maximum)		litre	0.28		1.4	1.05	1.5
Oil capacity (minimum)		litre	0.2		0.9	0.75	1.2
Inlet flange			NW10		NW25		
Exhaust flange ⁽²⁾			Nozzle 11mm external Ø removable from 3/4 in BSP tapped hole		Nozzle 15 mm external diameter removable from 3/4 in BSP tapped hole		
Operating temperature range		°C	12-40		13-40		
Noise level at 50 Hz		dB(A)	43	54	57		
Noise with acoustic enclosure ⁽³⁾		dB(A)	36	47	50		

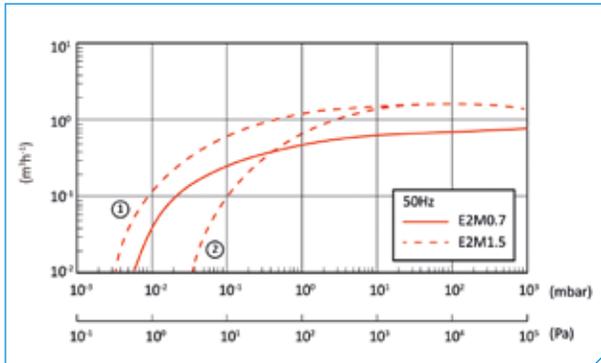
(1) pumps listed with IEC connector only

(2) PFPE variants are supplied with NW25 outlet connection

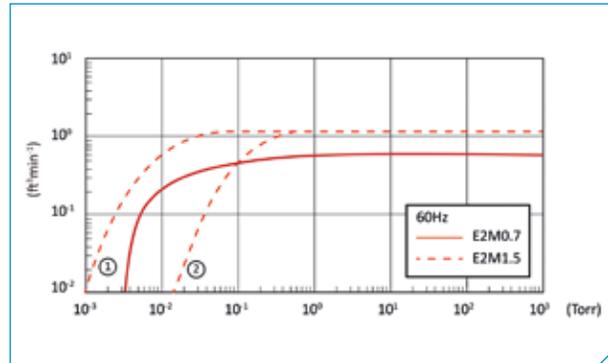
(3) approx. noise reduction 7 dB(A)

Performance Curves

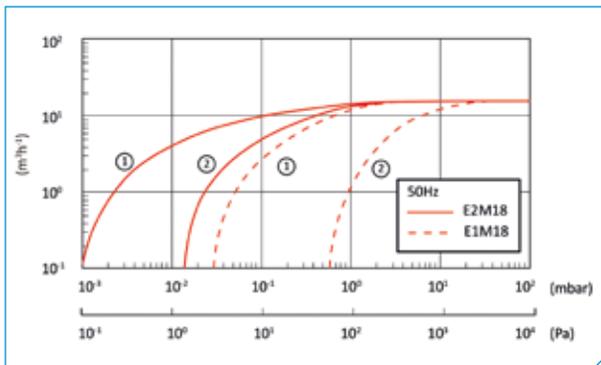
E2M0.7 and E2M1.5
50 Hz



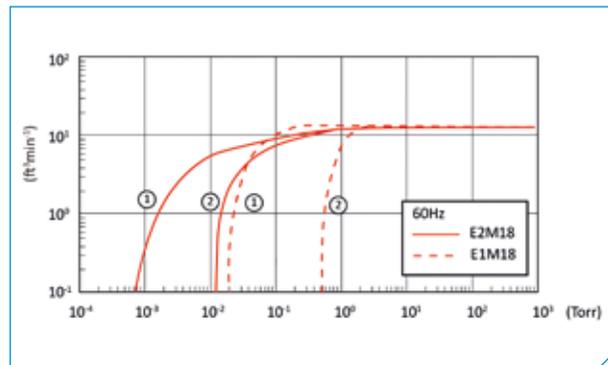
E2M0.7 and E2M1.5
60 Hz



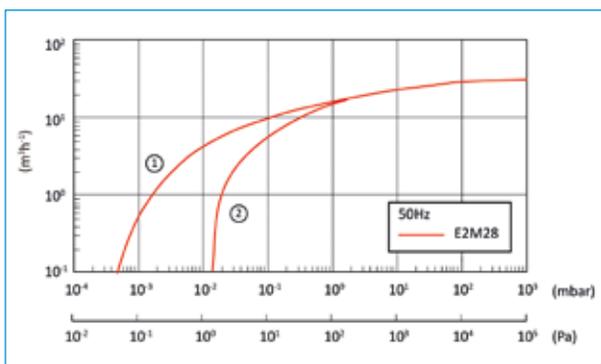
E1M18 and E2M18
50 Hz



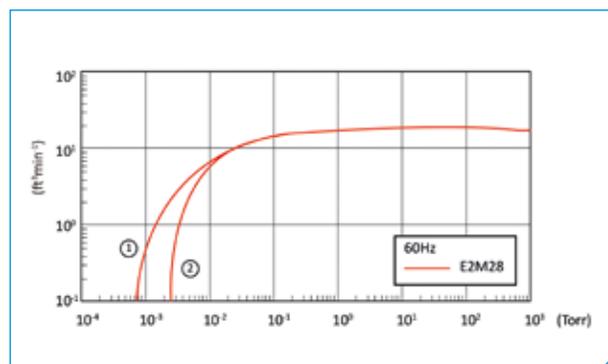
E1M18 and E2M18
60 Hz



E2M28
50 Hz



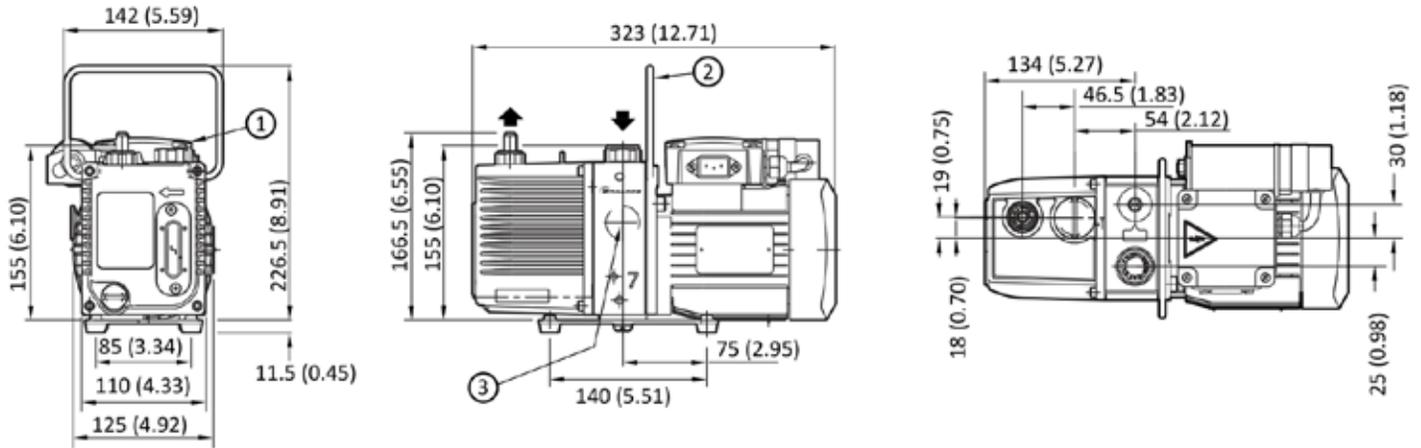
E2M28
60 Hz



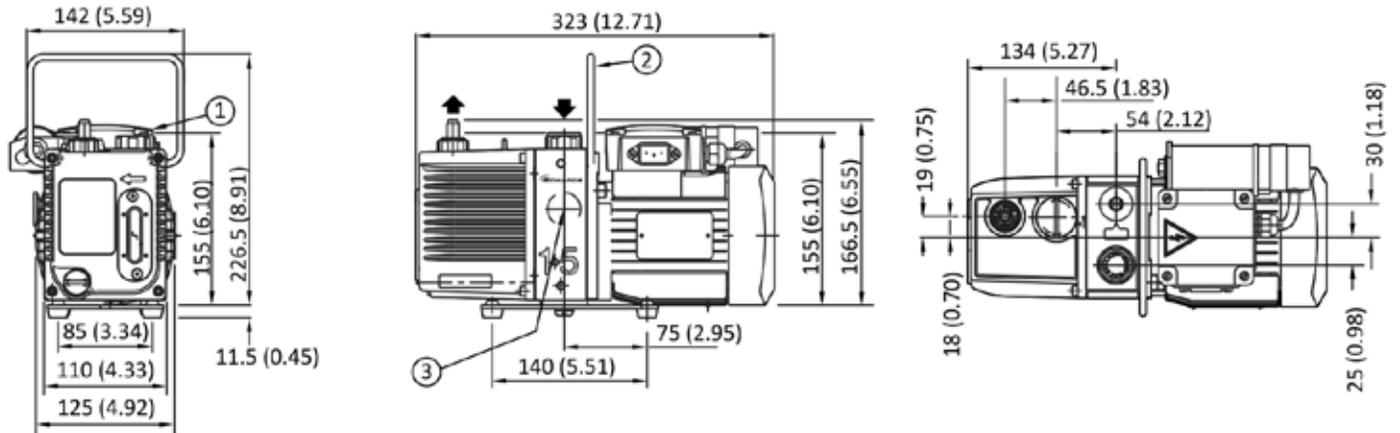
1. Gas Ballast off
2. Gas Ballast on

Dimensions

E2M0.7



E2M1.5

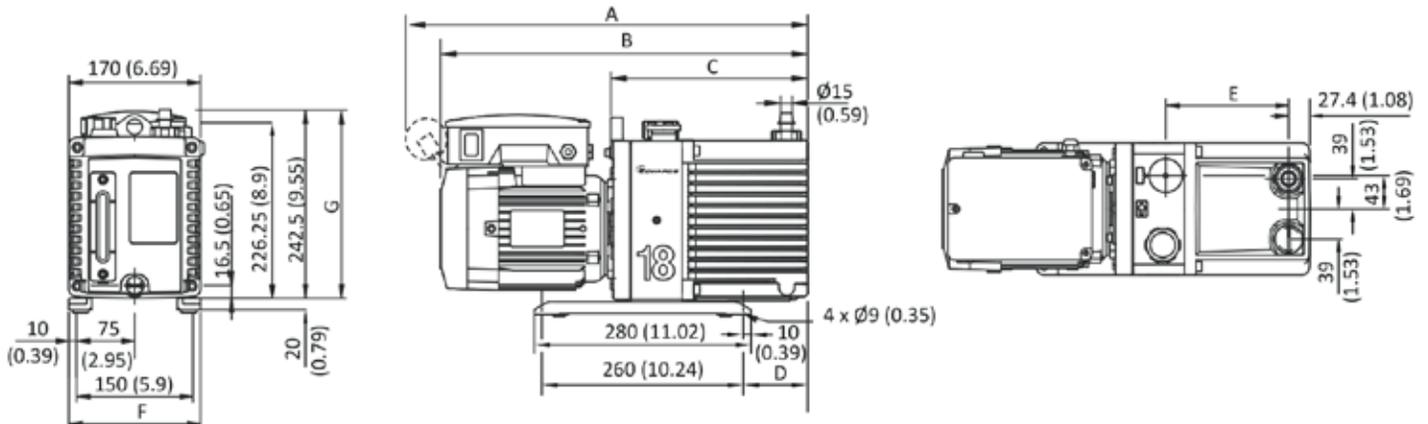


1. 220-240 V motor
2. Handle (can be removed)
3. Alternative inlet port position

All measurements indicated are shown in mm (inches)

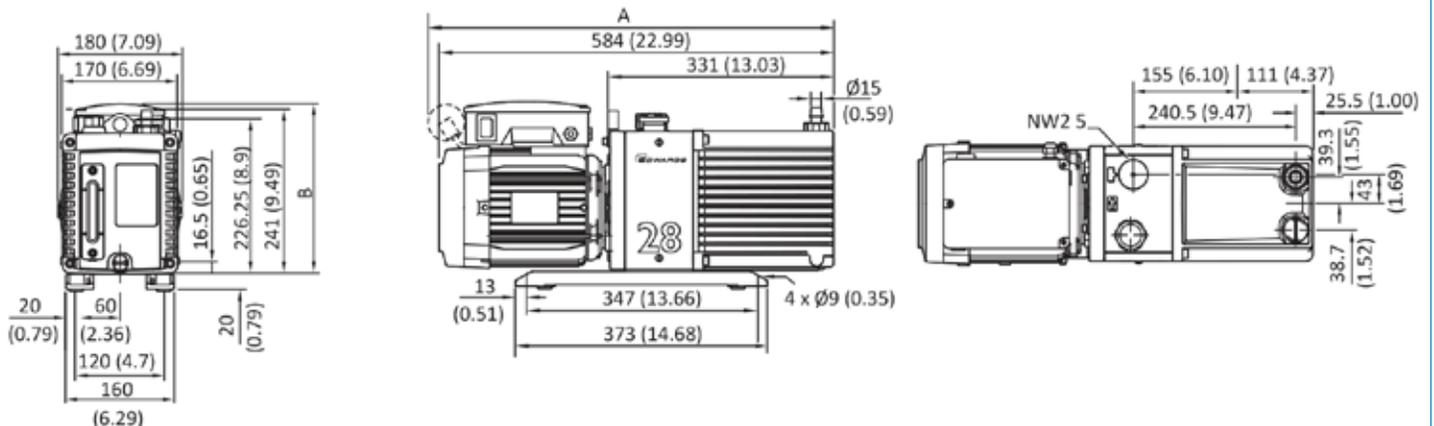
Dimensions

E1M18 one stage - E2M18 two stage Dimensions



Ordering 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



Ordering No.	A	B
A37315904	598	251
A37317984	-	251
A37333940	-	229

All measurements indicated are shown in mm (inches)

Ordering information

Product Range

E2M0.7 E2M1.5	E2M0.7 200-230V, 1-ph, 50/60Hz, IEC 60320 connectors	A37141919	
	E2M0.7 100-120V, 1-ph, 50/60Hz, IEC 60320 connectors	A37141902	
	E2M1.5 200-230V, 1-ph, 50/60Hz, IEC 60320 connectors	A37132919	
	E2M1.5 100-120V, 1-ph, 50/60Hz, IEC 60320 connectors	A37132902	
	E2M1.5 interstage 200-230V, 1-ph, 50/60Hz, IEC 60320 connectors	A37104919	
	E2M1.5 interstage 100-120V, 1-ph, 50/60Hz, IEC 60320 connectors	A37104902	
E1M18 / E2M18	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 FX 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 FX 200-230/380-415V, 3-ph, 50Hz or 200-230/460V, 3-ph, 60Hz	A36321940	
	E2M18 FX 100/200V, 1-ph, 50Hz or 100-105/200-210V, 1-ph, 60Hz	A36325904	
	E2M18 FX 115/200-230V, 1-ph, 50/60Hz with IEC60320 connector	A36325984	
	E2M28	E2M28 HC IE3 EU/US 50/60Hz, 380-400V 3-ph, 50Hz or 230/460V 3-ph, 60Hz	A37333940
	E2M28 HC IE3 Asia 50/60Hz, 200V 3-ph, 50/60Hz or 380V 3-ph, 60Hz	A37333934	
E2M28 100/200V, 1-ph, 50Hz or 100-105/200-210V, 1-ph, 60Hz	A37315904		
E2M28 115/200-230 V, 1-ph, 50/60 Hz with IEC60320 connector	A37317984		
E2M28 FX IE3 EU/US 50/60Hz, 380-400V 3-ph, 50Hz or 230/460V 3-ph, 60Hz	A37343940		
E2M28 FX IE3 Asia 50/60Hz, 200V 3-ph, 50/60Hz or 380V 3-ph, 60Hz	A37343934		
E2M28 FX 115/200-230V, 1-ph, 50/60Hz with IEC60320 connector	A37325984		

Each EM pump is supplied with 1 litre of Ultragrade 15 or 19 oil, O ring and centering ring, two Allen keys and spare seals for oil drain and filter plugs. For PFPE prepared FX pumps Fomblin® to be ordered separately.

Accessories and Spares

E2M0.7 / E2M1.5	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
	Ultragrade 15 Oil 4 litre	H11026013
	Fomblin® YVAC 06/6 fluid 1 kg (532 ml)	H11301019
	Clean and overhaul kit E2M0.7/1.5	A37101131
	Spares Kit Blade E2M0.7/1.5	A37101132
	NW10 Centring Nitrile S/S Pack 1	C10511396
	NW10 O Ring Viton Pack 5	H02124032
	NW10 x 3/8" BSP Adapter	A23908064
	EMF20 mist filter (suitable for E2M28 on low throughput applications)	A46229000
	MF30 mist filter	A46233000
E1M18 / E2M18 / E2M28	2m electrical supply cable for 1-ph pumps, UK, Three-pin plug	A50505003
	2m electrical supply cable for 1-ph pumps, North European plug	A50506003
	2m electrical supply cable for 1-ph pumps, North America/Japan plug	A50507003
	2m electrical supply cable for 1-ph pumps, no plug	A50508003
	Ultragrade 19 Oil 4 litre	H11025013
	Clean and overhaul kit E1M18/E2M18	A36301131
	Spares Kit Blade E1M18	A34301041
	Spares Kit Blade E2M18	A36301020
	NW25 to 28mm bore tube adaptor	C10520201
	¾" BSP to NW25 outlet adaptor	C10501414
	E2M28 Clean and overhaul kit (suitable for use with hydrocarbon and PFPE Prepared pumps)	A37301131
	Blade Kit E2M28/30	A37301135
	NW10 Centring Nitrile S/S Pack 1	C10511396
	NW10 O Ring Viton Pack 5	H02124032
	NW10 x 3/8" BSP Adapter	A23908064
	Acoustic Enclosure 110-120V	NRD317000
	Acoustic Enclosure 200-240V	NRD318000

Service and support

Your business success depends on maximum equipment uptime and minimum total cost of ownership, and we constantly strive to support those objectives. As a global leader in vacuum technology and processes, we understand how vacuum pumps and systems perform in real life. Our wide portfolio of services is designed with you in mind: to help keep your processes and equipment running in the most economical and environmentally efficient manner.

Services include:

- Overhaul and repair using genuine Edwards OEM parts
- OEM spares and kits available for immediate despatch
- ReManufactured products available for cost-effective expansion and backups
- Global network of expert field service engineers available to respond quickly to unexpected equipment failures
- Extended warranty, to help manage the cost of the unexpected

Our Expert Advantage Service Plans provide you with the on-going support necessary to continuously improve your operational efficiency and meet your business objectives. As service offerings may vary slightly from product to product, please contact your Edwards representative to discuss your specific requirements.

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