

SMALL EM OIL SEALED ROTARY VANE PUMPS

 **EDWARDS**





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 can be used in a wide range of scientific and laboratory applications, and are ideal for backing 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
- Range of accessories available
- Internal ATEX classification of II 3 G Ex h IIB T4 Gc
- Approved to EN61010, CSA22.2 and UL61010
- Fully RoHS compliant

Quiet operation

For a better working environment

Flexibility of use

Free standing unit and compact design

Reliable performance

Proven in a range of laboratory and industrial applications over many years

Gas ballast valve

Used when pumping vapour



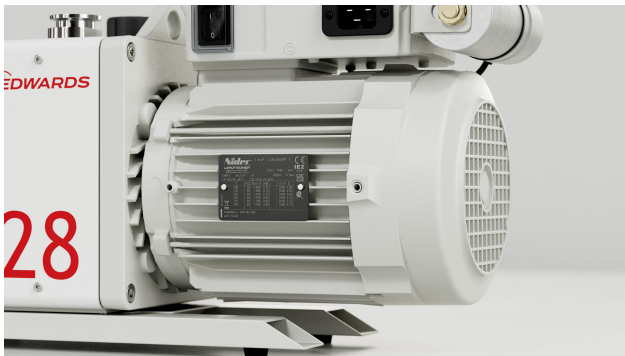
EM ROTARY VANE PUMP TECHNOLOGY





1. Easy control

IEC connector and on/off switch for local control



2. Works where you are

You can select the appropriate motor for your country



3. Large water vapour handling capacity

Gas ballast valve can be used to help pumping vapour and conditioning the oil so you get the optimal performance out of your pump.



4. Forced air cooling

Optimal operating conditions for the pump whilst controlling the temperature of accessible surfaces



5. Easy oil top ups

Thanks to a large oil filling port and recessed top in the oil box



6. Large oil sight glass

Makes visual inspection of oil level and condition easy!

Easy access to oil drain port on the end of the oil box.



7. Plug-in and pump

Integral IEC connector (available on most versions) allows easy connection to mains electric supply



APPLICATIONS

APPLICATIONS

	E2M0.7 - E2M1.5 - E2M2.5	E1M18 - E2M18	E2M28
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	✓	✓	✓
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

VACUUM DATA

	Hz	Units	E2M0.7	E2M1.5	E2M2.5	E1M18	E2M18	E2M28
Peak pumping speed	50	m ³ h ⁻¹	0.75	1.6	2.5	17	17	27.5
	60	cfm	0.5	1.2	1.8	12.1	12.1	19.4
Ultimate pressure w/o gas ballast	50	mbar	3.0x10 ⁻³	1.5x10 ⁻³	3.0x10 ⁻³	3x10 ⁻²	1x10 ⁻³	1x10 ⁻³
	60	Torr	2.3x10 ⁻³	1.1x10 ⁻³	2.3x10 ⁻³	2.3x10 ⁻²	7.5x10 ⁻⁴	7.5x10 ⁻⁴
Ultimate pressure with gas ballast	50	mbar	2x10 ⁻¹	2.5x10 ⁻²	2.5x10 ⁻²	6.5x10 ⁻¹	1.5x10 ⁻²	1.5x10 ⁻²
	60	Torr	1.5x10 ⁻¹	1.9x10 ⁻²	1.9x10 ⁻²	4.9x10 ⁻¹	1.1x10 ⁻²	1.1x10 ⁻²
Ultimate pressure with PFPE fluid	50	mbar	n/a	n/a	n/a	3x10 ⁻¹	1x10 ⁻²	1x10 ⁻²
	60	Torr	n/a	n/a	n/a	2.3x10 ⁻¹	7.5x10 ⁻³	7.5x10 ⁻³
Water vapour tolerance	50	mbar	15	15	15	50	20	30
	60	Torr	11	11	11	38	15	23
Water vapour capacity		g/h	8	16	16	650	300	700
Maximum continuous inlet pressure*		mbar a (Torr a)	50 (38)			100(75)		
Maximum gas ballast/purge pressure		bar gauge (psig)	0.5 (7)					

(*) These oil sealed rotary vane pumps are designed to evacuate chamber from atmospheric pressure down to ultimate vacuum. Please note there is a maximum inlet pressure that these pumps can operate at continuously.

MOTOR DATA

	Hz	Units	E2M0.7	E2M1.5	E2M2.5	E1M18	E2M18	E2M28
Supply voltage		V	100-120/200-240 (+/- 10%)			115/200-230 (+/- 10%)		
Supply frequency		Hz	50/60					
Mechanical power 1 phase	50	kW	0.09	0.16	0.16	0.75	0.75	0.75
	60	kW	0.09	0.16	0.16	0.90	0.90	0.90
Mechanical power 3 phase	50	kW				0.55	0.55	0.75
	60	kW				0.66	0.66	0.90

MOTOR DATA

	Hz	Units	E2M0.7	E2M1.5	E2M2.5	E1M18	E2M18	E2M28
Nominal rotation speed	50	rpm	1400	2800	2800	1440	1440	1440
	60	rpm	1700	3400	3400	1720	1720	1720
Power connector ^(*)			IEC EN60320 C13	IEC EN60320 C13	IEC EN60320 C13	IEC EN60320 C19	IEC EN60320 C19	IEC EN60320 C19

(*) pumps listed with IEC connector only

PHYSICAL DATA

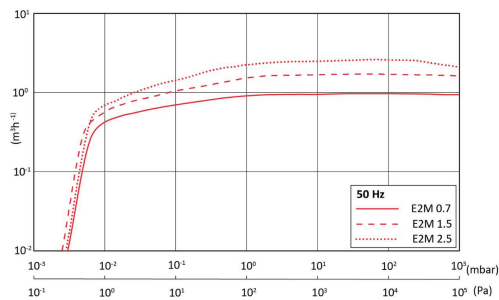
	Units	E2M0.7	E2M1.5	E2M2.5	E1M18	E2M18	E2M28
Weight	lb	22	22	22	84	90	97
	kg	10	10	10	38	41	44
Oil type (recommended)		ULTRAGRADE™ Performance 15			ULTRAGRADE™ Performance 19		
Oil capacity (maximum)	litre	0.32	0.32	0.32	1.4	1.05	1.32
Oil capacity (minimum)	litre	0.2	0.2	0.2	0.9	0.75	1.2
Inlet flange		NW10	NW10	NW10	NW25	NW25	NW25
Exhaust flange ⁽¹⁾		Nozzle 11mm external Ø removable from 3/8 in BSP tapped hole			Nozzle 15mm external diameter removable from 3/4 in BSP tapped hole		
Operating temperature range	°C	12 to 40	12 to 40	12 to 40	13 to 40	13 to 40	13 to 40
Noise level at 50Hz	dB(A)	43	54	55	57	57	57
Noise with acoustic enclosure ⁽²⁾	dB(A)	36	47	48	50	50	50

(1) PFPE variants are supplied with NW25 outlet connection

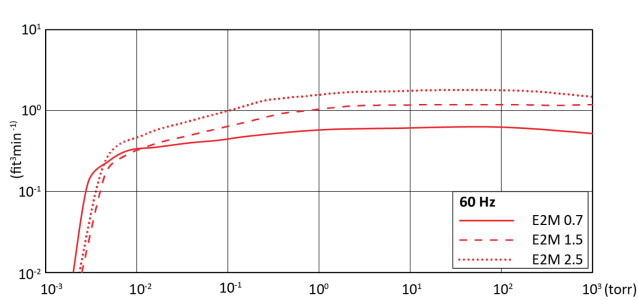
(2) approx. noise reduction 7 dB(A)

PERFORMANCE CURVES

E2M0.7, E2M1.5 and E2M2.5 - 50Hz

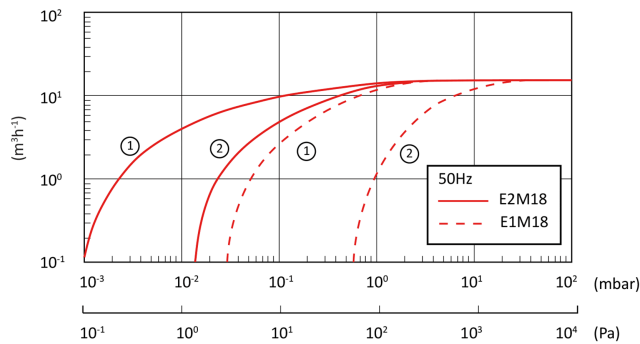


E2M0.7, E2M1.5 and E2M2.5 - 60Hz



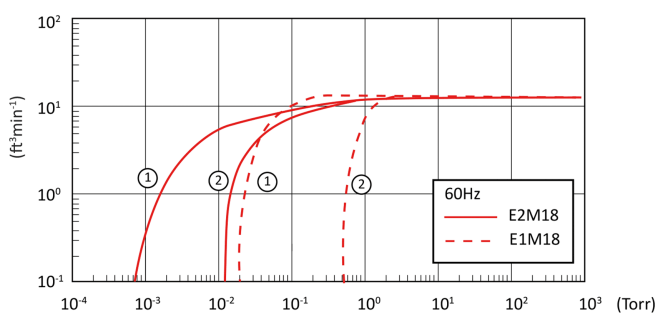
E1M18 and E2M18 - 50Hz

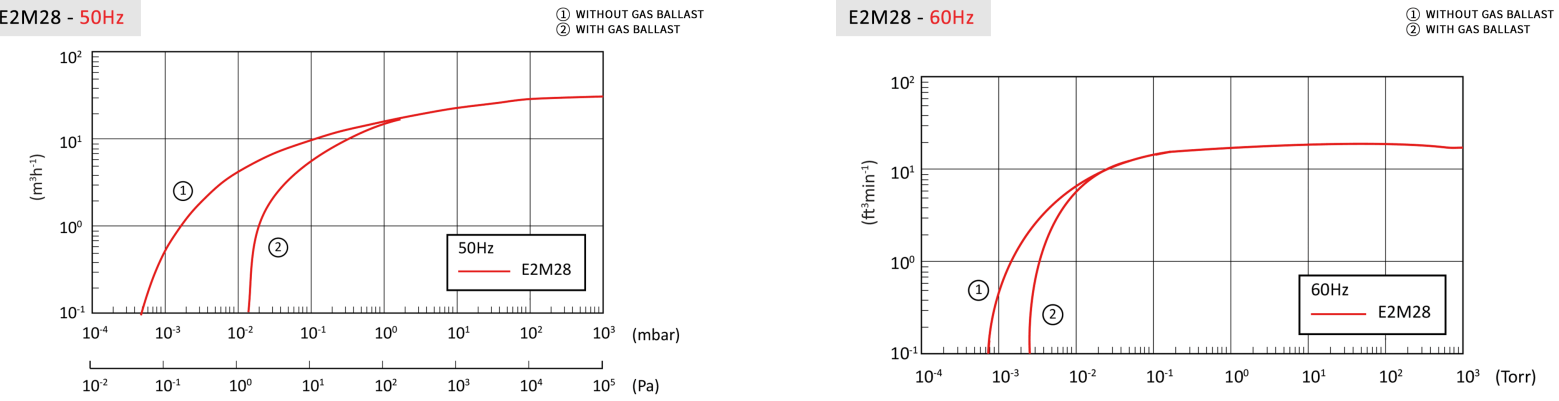
① WITHOUT GAS BALLAST
② WITH GAS BALLAST



E1M18 and E2M18 - 60Hz

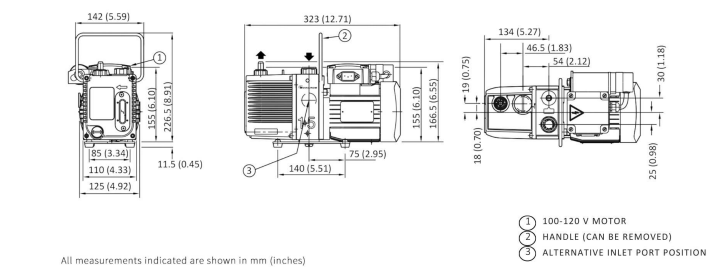
① WITHOUT GAS BALLAST
② WITH GAS BALLAST





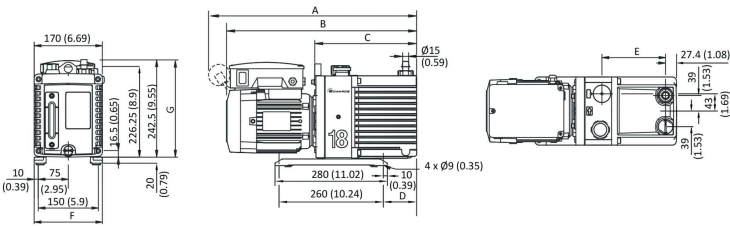
DIMENSIONS

E2M0.7, E2M1.5 and E2M2.5



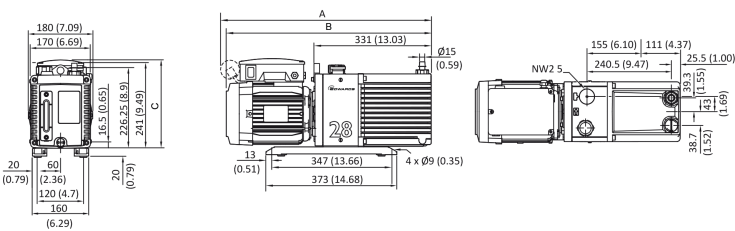
All measurements indicated are shown in mm (inches)

E1M18 one stage - E2M18 two stage dimensions



All measurements indicated are shown in mm (inches)

E2M28



E1M18 one stage -E2M18 two stage dimensions

Ordering Number	A	B	C	D	E	F	G
A34310905, A34310925	-	474	246	83	159	172	217
A34315904	532	504	246	83	159	172	251
A34317984, A34325984	532	504	246	83	159	172	251
A36310905, A36310925, A36321905, A36321925	-	520	294	131	207	172	217
A36315904, A36325904	578	550	294	131	207	172	251
A36317984, A36325984	578	550	294	131	207	172	251

E2M28

Ordering Number	A	B	C
A37317984, A37325984, A37315904	611	583	251
A37333940, A37333934, A37343934, A37343940	-	626	229

ORDERING INFORMATION

E2M0.7 / E2M1.5 / E2M2.5

Product description	Order No.
E2M0.7 HC 200-230V 50 Hz, 200-240V 60Hz, 1-ph, IEC 60320 connector	A37141919
E2M0.7 HC 100-115V 50Hz, 100-120V 60Hz, 1-ph, IEC 60320 connector	A37141902
E2M1.5 HC 200-230V 50 Hz, 200-240V 60Hz, 1-ph, IEC 60320 connector IE2	A37132919
E2M1.5 HC 100 50Hz, 100-120V 60Hz, 1-ph, IEC 60320 connector IE2	A37132902
E2M1.5 interstage HC 200-230V 50 Hz, 200-240V 60Hz, 1-ph, IEC 60320 connector IE2	A37104919
E2M1.5 interstage HC 100 50Hz, 100-120V 60Hz, 1-ph, IEC 60320 connector IE2	A37104902
E2M2.5 HC 200-230V 50 Hz, 200-240V 60Hz, 1-ph, IEC 60320 connector IE2	A37632919
E2M2.5 HC 100 50Hz, 100-120V 60Hz, 1-ph, IEC 60320 connector IE2	A37632902

Each EM pump is supplied with ULTRAGRADE™ Performance 15 oil, O ring and centering ring, two Allen keys and spare seals for oil drain and filter plugs.

E1M18 / E2M18 / E2M28

Product description	Order No.
E1M18 HC EU/US 50/60Hz 380-415V, 50Hz 460V, 60Hz, 3-ph IE2	A34310905
E1M18 HC Asia 50/60 Hz 200-220V 50Hz 200-230V 60Hz, 3-ph IE2	A34310925
E1M18 HC 100/200V, 50Hz or 100/200V, 60Hz 1-ph factory set to 200V IE2	A34315904
E1M18 HC 100/200-230V, 50Hz; 100-120V/200-240V 60Hz 1-ph,with IEC60320 connector, factory set to 230V IE2	A34317984
E1M18 FX 100/200-230V, 50Hz; 100-120V/200-240V 60Hz 1-ph,with IEC60320 connector, factory set to 230V IE2	A34325984
E2M18 HC EU/US 50/60Hz 380-415V, 50Hz 460V, 60Hz, 3-ph IE2	A36310905
E2M18 HC Asia 50/60 Hz 200-220V 50Hz 200-230V 60Hz, 3-ph IE2	A36310925
E2M18 HC 100/200V, 50Hz or 100/200V, 60Hz 1-ph, factory set to 200V, IE2	A36315904
E2M18 HC 100/200-230V, 50Hz; 100-120V/200-240V 60Hz 1-ph, with IEC60320 connector, factory set to 230V IE2	A36317984
E2M18FX EU/US 50/60Hz 380-415V, 50Hz 460V, 60Hz, 3-ph IE2	A36321905
E2M18FX Asia 50/60 Hz 200-220V 50Hz 200-230V 60Hz, 3-ph IE2	A36321925
E2M18 FX 100/200V, 50Hz or 100/200V 60Hz 1-ph, factory set to 200V IE2	A36325904

E1M18 / E2M18 / E2M28

Product description	Order No.
E2M18 FX 100/200-230V, 50Hz; 100-120V/200-240V 60Hz 1-ph, with IEC60320 connector, factory set to 230V IE2	A36325984
E2M28 HC 100/200-230V, 50Hz; 100-120V/200-240V 60Hz 1-ph, with IEC60320 connector, factory set to 230V IE2	A37317984
E2M28 HC EU/US 50/60Hz, 380-400V, 50Hz or 230/460V 60Hz, 3-ph IE3	A37333940
E2M28 HC Asia 50/60Hz, 200V 50Hz; 200/380V 60Hz, 3-ph IE3	A37333934
E2M28 HC 100/200V, 50Hz or 100/200V, 60Hz 1-ph, factory set to 200V, IE2	A37315904
E2M28 FX EU/US 50/60Hz, 380-400V 50Hz or 230/460V 60Hz 3-ph, IE3	A37343940
E2M28 FX Asia 50/60Hz, 200V, 50/60Hz or 380V 60Hz 3-ph, IE3	A37343934
E2M28 FX 100/200-230V, 50Hz; 100-120V/200-240V 60Hz 1-ph, with IEC60320 connector, factory set to 230V IE2	A37325984

Each EM pump is supplied with ULTRAGRADE™ Performance 19 oil, O ring and centering ring, two Allen keys and spare seals for oil drain and filter plugs.

For PFPE prepared FX pumps XTRAGRADE ADVANCED PFPE 64 to be ordered separately.
3-phase and Japanese 100/200V motor to be hard wired.

Accessories and spares E2M0.7 / E2M1.5 / E2M2.5

Product description	Order No.
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™ Performance 15 Oil 1 litre	H11026015
Clean and overhaul kit E2M0.7/1.5/2.5	A37101131
Spares kit blade E2M0.7/1.5	A37101132
Spares kit blade E2M2.5	A37601132
NW10 centring nitrile S/S pack 1	C10511396
NW10 O ring viton pack 5	H02124032
NW10 x 3/8 inch BSP adapter	A23908064

Accessories and spares E1M18 / E2M18 / E2M28

Product description	Order No.
EMF20 mist filter (suitable for E2M28 on low throughput applications)	A46229000
MF30 mist filter	A46233000
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

Accessories and spares E1M18 / E2M18 / E2M28

Product description	Order No.
2m electrical supply cable for 1-ph pumps, no plug	A50508003
ULTRAGRADE™ Performance 19 oil 1 litre	H11025015
ULTRAGRADE™ Performance 19 oil 4 litre	H11025013
XTRAGRADE ADVANCED PFPE 64 (1 litre)	H11041121
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 inch BSP to NW25 outlet adaptor	C10501414
Clean and overhaul kit E2M28	A37301131
Blade kit E2M28/30	A37301135
Acoustic enclosure 110-120V	NRD317000
Acoustic enclosure 200-240V	NRD318000



3601 0064 01 - 2024. All rights reserved. Edwards and the Edwards logo are trademarks of Edwards Limited. Whilst we make every effort to ensure that we accurately describe our products and services, we give no guarantee as to the accuracy or completeness of any information. Edwards Ltd, registered in England and Wales No. 6124750, registered office: Innovation Drive, Burgess Hill, West Sussex, RH15 9TW, UK.