

2 Technical data

2.1 Operating and storage conditions

Note: To comply with CSA standards, the pump must be installed and used indoors, and within the operating conditions specified in Table 1 below.

Table 1 - Operating and storage conditions

Parameter	Reference Data
Ambient temperature range (operation)	13 to 40 °C
Ambient temperature range (storage)	-30 to 70 °C
Normal surface temperature of the pump-body*	45 to 65 °C
Maximum humidity (operation)	90 % RH
Maximum altitude (operation)	2000 m
Pollution degree	2
Installation category	II
Noise level at 1 metre	57 dB(A) (at 50 Hz)
Vibration severity†	Class 1C

* At ultimate vacuum, with ambient temperature of 20 °C.

† Measured at the inlet port to ISO 2372 (1974)

2.2 Performance

Note: Where total pressures are shown in Table 2 below, measurements were taken using an untrapped total pressure capacitance diaphragm gauge on a header, as specified by Pneurop standards.

Table 2 - Performance data

Maximum displacement	E2M28	E2M30
50 Hz electrical supply	32.2 m ³ h ⁻¹	19 cfm
60 Hz electrical supply	38.9 m ³ h ⁻¹	23 cfm
Maximum pumping speed - Pneurop		
50 Hz electrical supply	27.5 m ³ h ⁻¹	16.2 cfm
60 Hz electrical supply	33.0 m ³ h ⁻¹	19.4 cfm
Motor rotational speed		
50 Hz electrical supply	1440 r min ⁻¹	1440 r min ⁻¹
60 Hz electrical supply	1720 r min ⁻¹	1720 r min ⁻¹
Ultimate vacuum		
without gas-ballast (partial pressure)	1 x 10 ⁻⁴ mbar 1 x 10 ⁻² Pa	7 x 10 ⁻⁵ torr
without gas-ballast (total pressure)	1 x 10 ⁻³ mbar 1 x 10 ⁻¹ Pa	7 x 10 ⁻⁴ torr
with full gas-ballast (partial pressure)	2 x 10 ⁻¹ mbar 2 x 10 ¹ Pa	1.5 x 10 ⁻¹ torr
Maximum water vapour inlet pressure	30 mbar 3 x 10 ³ Pa	22.5 torr

Table 2 - Performance data (continued)

Maximum displacement	E2M28	E2M30
Maximum water vapour pumping rate	0.7 kg h ⁻¹	0.7 kg h ⁻¹
Maximum permitted outlet pressure (for full pump throughout)	0.5 bar gauge 1.5 bar absolute 1.5 x 10 ⁵ Pa	0.5 bar gauge 1.5 bar absolute 1.5 x 10 ⁵ Pa

2.3 Mechanical data

Table 3 - Mechanical data

Parameter	Reference Data
Approximate pump mass	44 kg
Dimensions	Refer to Figure 2
Degree of protection	
Single-phase motors	IP44
Three-phase motors	IP54
Pump inlet port	NW25 (the flange can be removed from the 1 inch BSP threaded hole)
Pump outlet port	15 mm external diameter nozzle (the nozzle can be removed from the 3/4 inch BSP threaded hole)

2.4 Lubrication data

Note: A Edwards Material Safety Data Sheet for the oils specified below is available on request.

Table 4 - Lubrication data

Hydrocarbon pumps:	
Recommended oil*	Ultragrade 19
Maximum oil capacity	1.32 litres
PFPE - prepared EM pumps:	
Recommended oil*	Krytox 1506 or Fomblin O6/6
Maximum oil capacity	1.32 litres

* To operate the pump when the ambient temperature is outside the range specified in Section 2.1, or to optimise pump performance when you process condensable vapours, you may need a different oil.

2.5 Electrical data

Refer to Table 5 and 6. For motor current information please refer to the motor rating plate. The motor start-up current is drawn for less than one second, so you must use slow-blow fuses to prevent unnecessary fuse failure when the pump starts. Fuses should be to EN60269 Section 2.2. For conformance with CSA standards only, CSA certified fuses are to be used. If you use the pump at temperatures lower than 13 °C, the start-up current will be drawn for longer; this may cause the motor thermal overload device to open.

Table 5 - Electrical data: three-phase motors

Pump Item Number	Voltage (V)	Frequency (Hz)
A373-30-940, A373-41-940	200-220	50
	380-415	50
	200-230	60
	460	60
Motor output rating (continuous)		
50 Hz operation		0.75 kW
60 Hz operation		0.90 kW

Table 6 - Electrical data: single-phase motors

Pump Item Number	Voltage (V)	Frequency (Hz)
A373-15-903, A373-16-903, A374-15-903	220-240	50
	230-240	60
A373-15-981, A374-15-981	115	60
	230	60
A373-15-904, A374-15-904	100	50
	100-105	60
	200	50
	200-210	60
A373-17-984, A373-25-984	110	50
	115-120	60
	200-240	50
	200-230	60
Motor output rating (continuous)		
50 Hz operation		0.75 kW
60 Hz operation		0.90 kW