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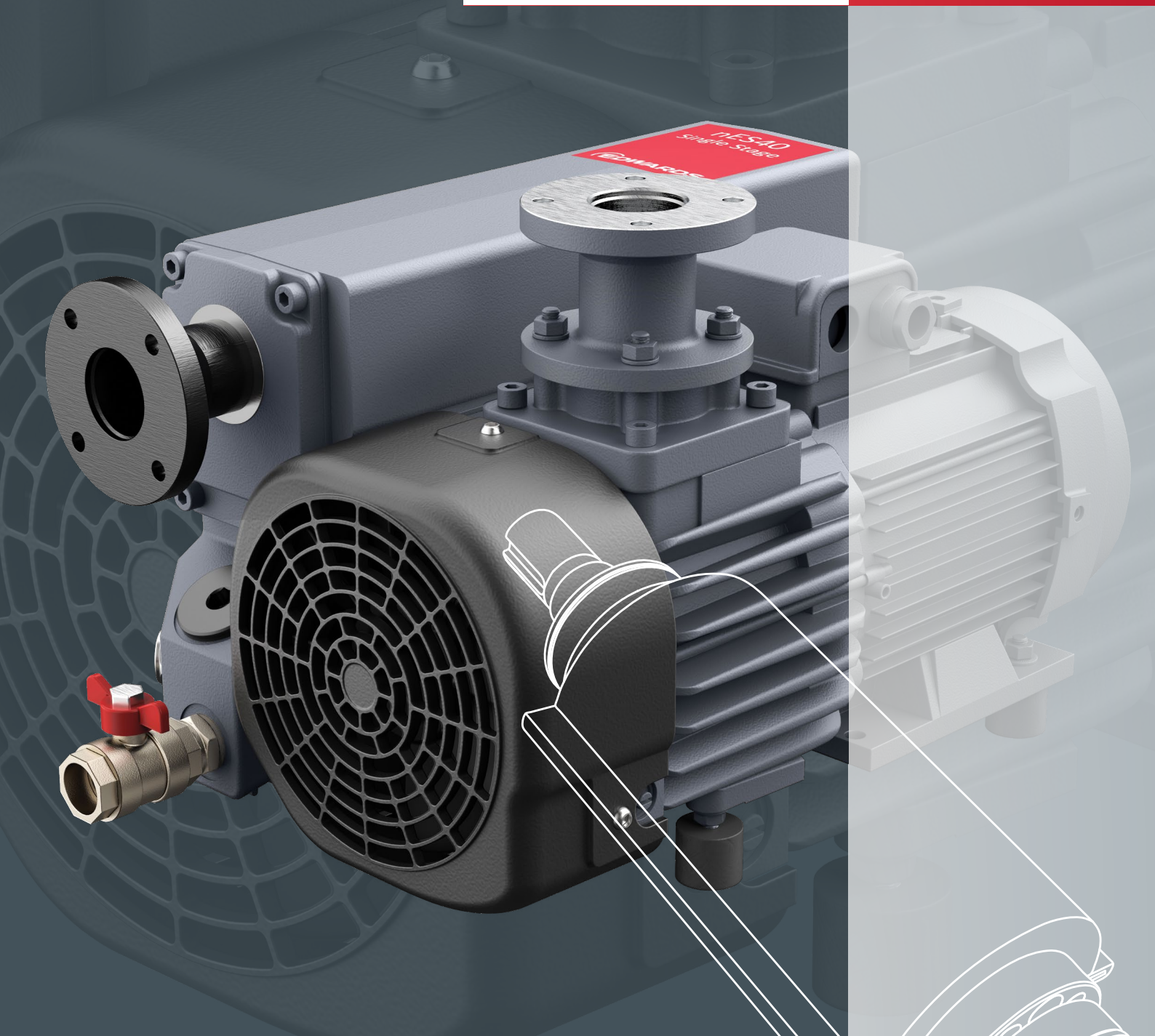
nES SERIES SINGLE STAGE ROTARY VANE PUMPS

EDWARDS

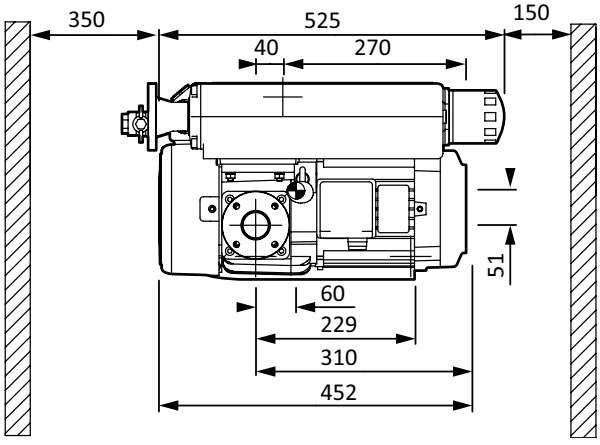


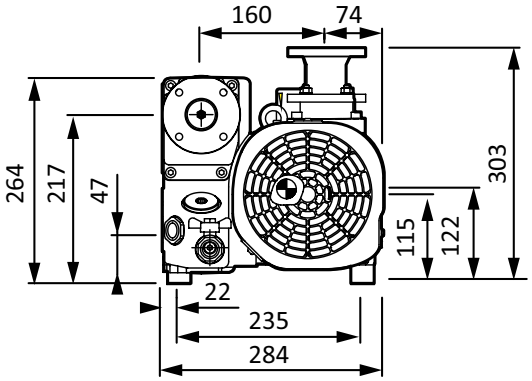
TECHNICAL DATA

	Units	nES40	nES65	nES100	nES200	nES300
Maximum Displacement 50 Hz	m^3h^{-1} / cfm	44.0/25.9	59.0/34.8	98.0/57.4	180/106	280/165
Maximum Displacement 60 Hz	m^3h^{-1} / cfm	53.0/31.2	71.0/41.8	117/68.9	230/130	340/200
Pumping Speed (50 Hz)	m^3h^{-1} / cfm	38.5/22.7	54.0/31.8	87.5/51.5	170/100	240/141
Pumping Speed (60 Hz)	m^3h^{-1} / cfm	47.0/27.7	64.0/37.7	105/61.8	200/118	290/171
Ultimate vacuum without gas ballast	mbar / torr	0.5/0.4	0.5/0.4	0.5/0.4	0.08/0.06	0.08/0.06
Ultimate vacuum with gas ballast	mbar / torr	1.5/1.1	1.5/1.1	1.5/1.1	0.7/0.5	0.7/0.5
Inlet Connection	ISO / G	40 ISO-F / G1 ¼	40 ISO-F / G1 ¼	40 ISO-F / G1 ¼	63 ISO-F / G2	63 ISO-F / G2
Outlet Connection	ISO / G	40 ISO-F / G1 ¼	40 ISO-F / G1 ¼	40 ISO-F / G1 ¼	63 ISO-F / G2	63 ISO-F / G2
Max permitted outlet pressure	bar (abs)	1.15	1.15	1.15	1.15	1.15
Max water vapour pumping rate (50 Hz)	kgh^{-1} / lbh^{-1}	0.76/0.80	1.0/1.1	1.60/1.69	3.4/3.6	1.3/1.4
Max water vapour pumping rate (60 Hz)	kgh^{-1} / lbh^{-1}	0.90/0.95	1.25/1.32	1.70/1.80	5.4/5.7	1.8/1.9
Dimensions (L, W, H) Approximate (tbc)	mm	540/284/303	586/320/314	721/400/319	1002/535/415	1130/555/450
Weight Approximate (tbc)	kg / lb	67/148	86/190	104/230	142/313	244/539
Motor protection rating		IP55	IP55	IP55	IP55	IP55
Motor power (50 Hz)	kW / hp	1.1/1.5	1.5/2.0	3.0/4.0	4.5/6.0	5.5/7.5
Motor power (60 Hz)	kW / hp	1.5/2.0	1.8/3.0	3.6/5.0	5.5/7.5	6.6/10.0
Cooling		air	air	air	air	air
Cooling water flow (if applicable)	L / h	-	-	-	-	-
Noise level (50 Hz) air/water	dB(A)	58	60	61	69	72
Noise level (60 Hz) air/water	dB(A)	60	64	64	73	76
Oil refill capacity	litre	1	2	2	5-9	8.5-11.5
Recommended oil		Edwards ULTRAGRADE Performance 70				

DIMENSIONS

nES40

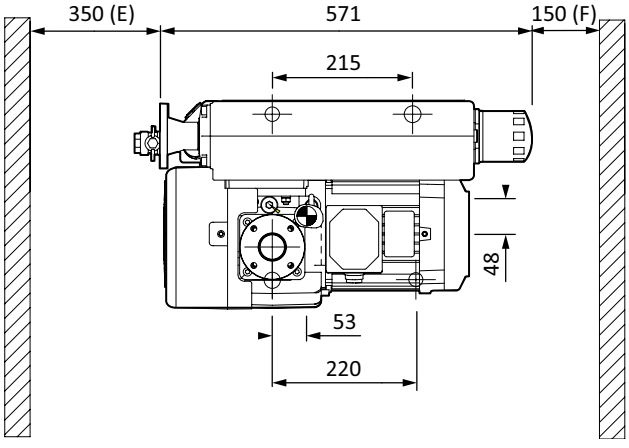


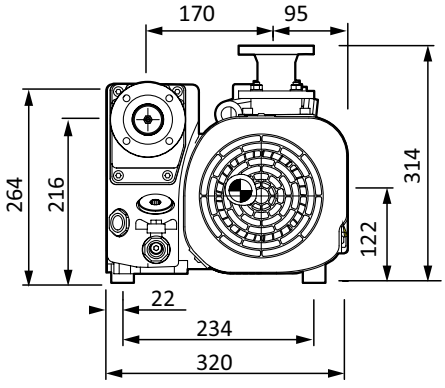


	Units	nES470	nES570	nES630	nES750
Maximum Displacement 50 Hz	m^3h^{-1} / cfm	470/277	570/366	700/412	840/494
Maximum Displacement 60 Hz	m^3h^{-1} / cfm	570/366	-	840/494	-
Pumping Speed (50 Hz)	m^3h^{-1} / cfm	400/236	470/277	640/377	755/444
Pumping Speed (60 Hz)	m^3h^{-1} / cfm	470/277	-	755/444	-
Ultimate vacuum without gas ballast	mbar / torr	0.08/0.06	0.08/0.06	0.08/0.06	0.08/0.06
Ultimate vacuum with gas ballast	mbar / torr	0.7/0.5	0.7/0.5	0.7/0.5	0.7/0.5
Inlet Connection	ISO / G	100 ISO-F / G3	100 ISO-F / G3	100 ISO-F	100 ISO-F
Outlet Connection	ISO / G	100 ISO-F / G3	100 ISO-F / G3	100 ISO-F	100 ISO-F
Max permitted outlet pressure	bar (abs)	1.15	1.15	1.15	1.15
Max water vapour pumping rate (50 Hz)	kgh^{-1} / lbh^{-1}	5.0/5.3	7.5/8.0	17/18	24/25
Max water vapour pumping rate (60 Hz)	kgh^{-1} / lbh^{-1}	7.5/8.0	-	24/25	-
Dimensions (L, W, H) Approximate (tbc)	mm	1330/866/779	1330/866/779	1563/909/740	1563/909/740
Weight Approximate (tbc)	kg / lb	480/1059	550/1214	760/1678	760/1678
Motor protection rating		IP55	IP55	IP55	IP55
Motor power (50 Hz)	kW / hp	11/15	11/15	18.5/25	18.5/25
Motor power (60 Hz)	kW / hp	13.2/18	-	21/30	-
Cooling		air / water	air / water	air / water	air / water
Cooling water flow (if applicable)	L / h	700	800	750	750
Noise level (50 Hz) air/water	dB(A)	72/72	75/72	72/72	75/72
Noise level (60 Hz) air/water	dB(A)	75/72	-	75/72	-
Oil refill capacity	litre	20	20	20-23	20-23
Recommended oil		Edwards ULTRAGRADE Performance 70			

For water cooled versions: inlet/outlet connection M22 x 150 female, water supply pressure 2/8 bar, max water temperature 30°C

nES65





DIMENSIONS

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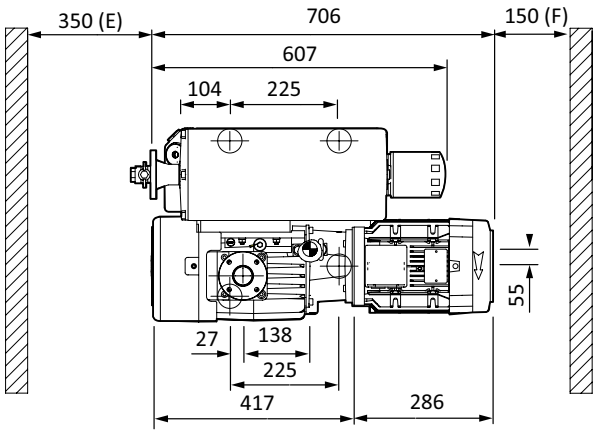

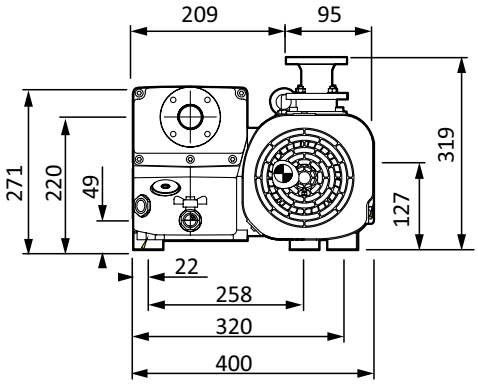

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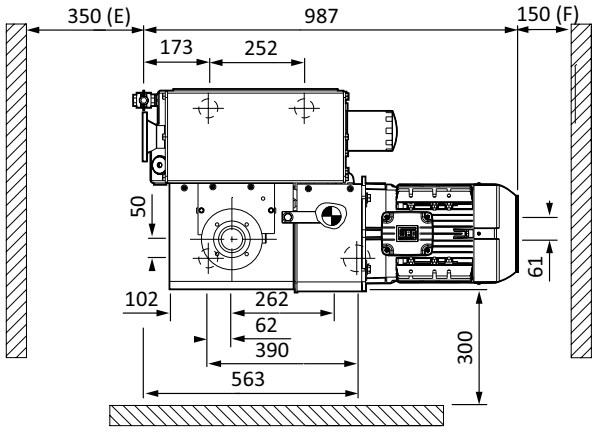

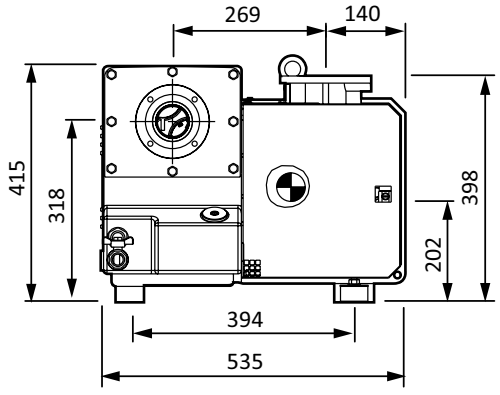

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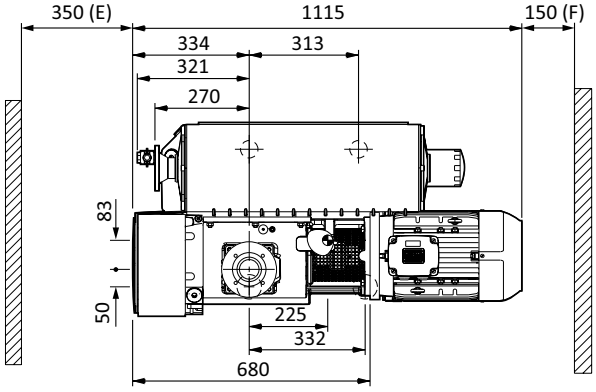
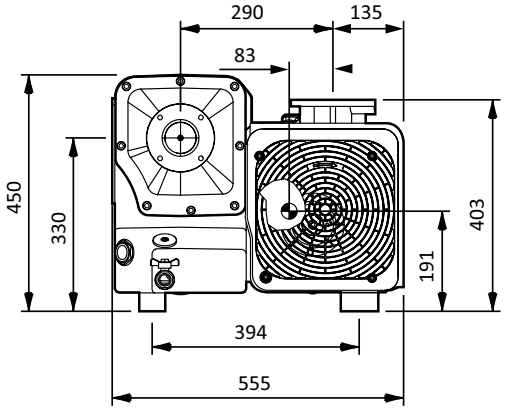
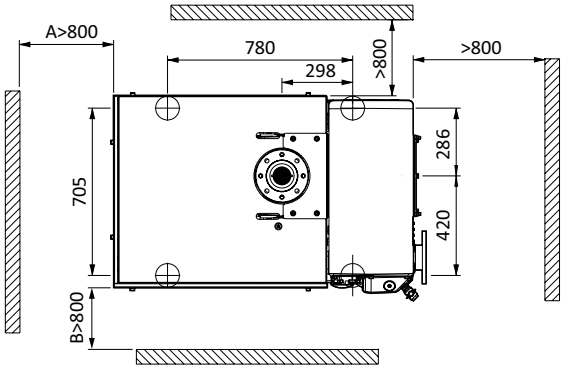
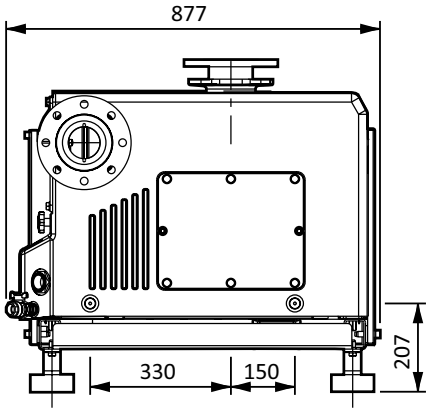


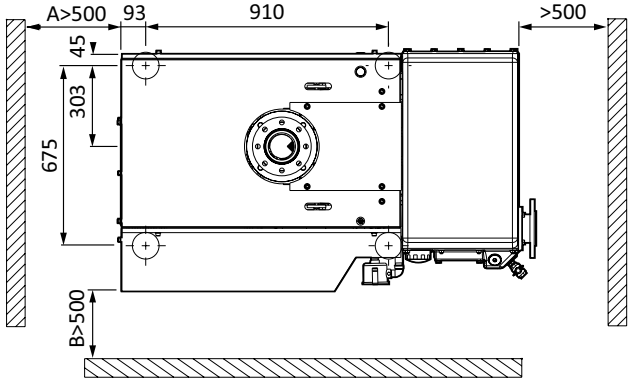


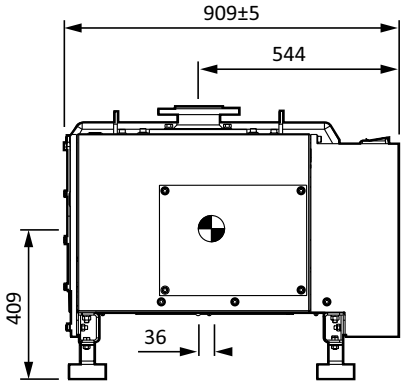
nES470 / nES570





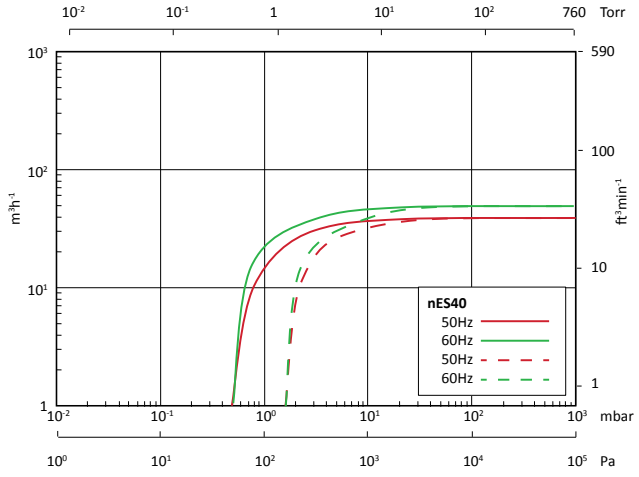
nES630 / nES750





PERFORMANCE CURVES

nES40



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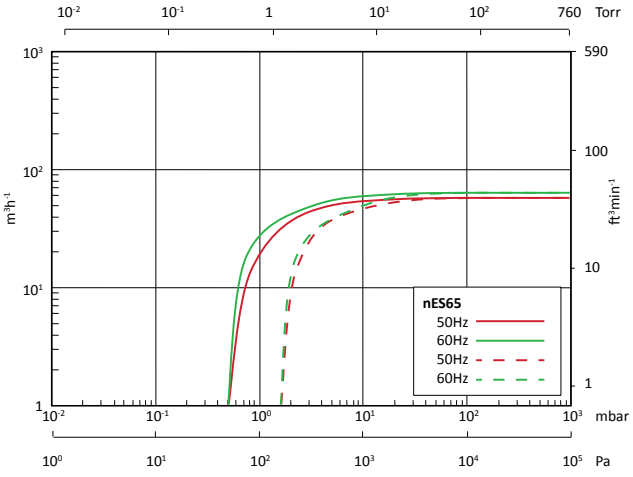

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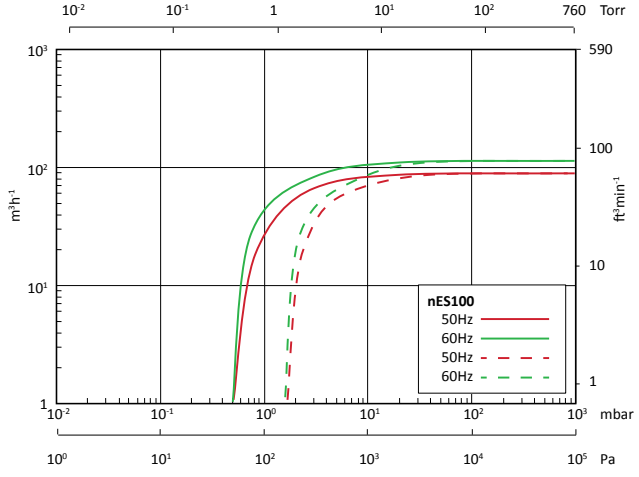

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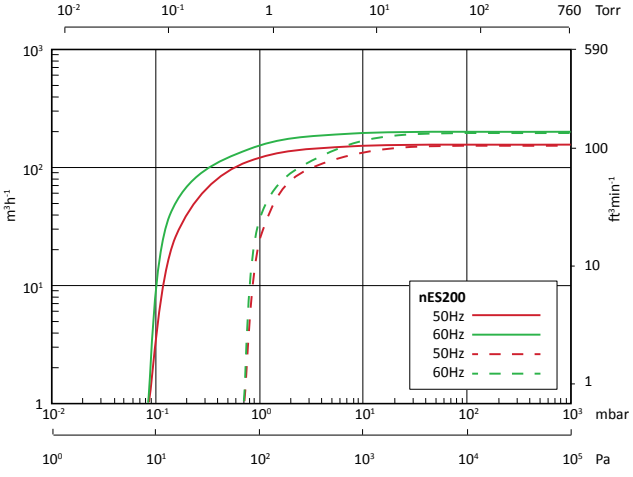

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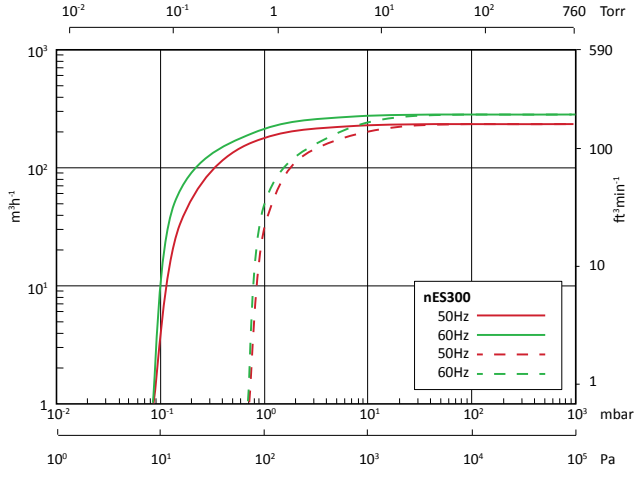

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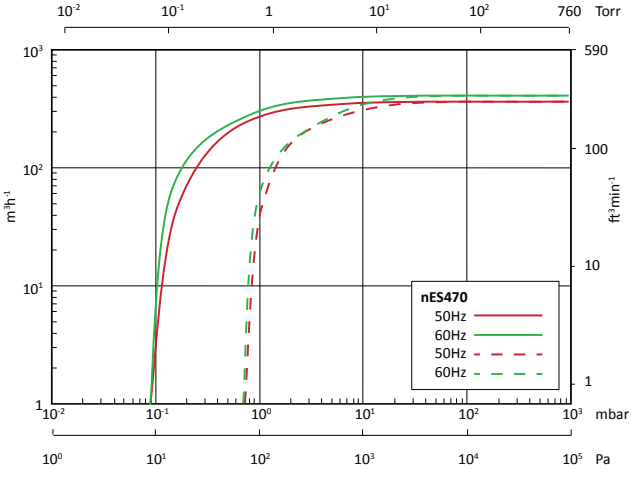

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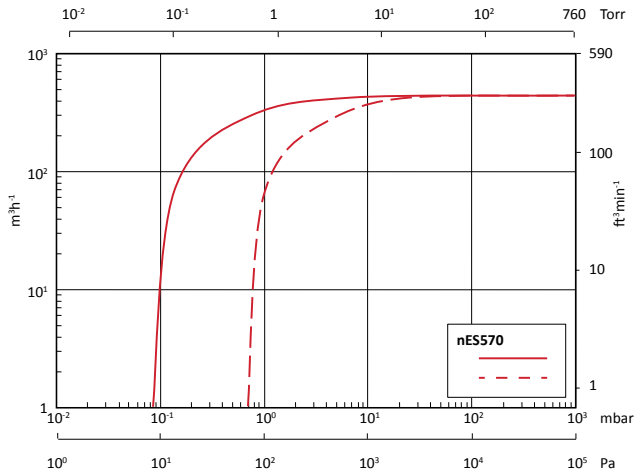

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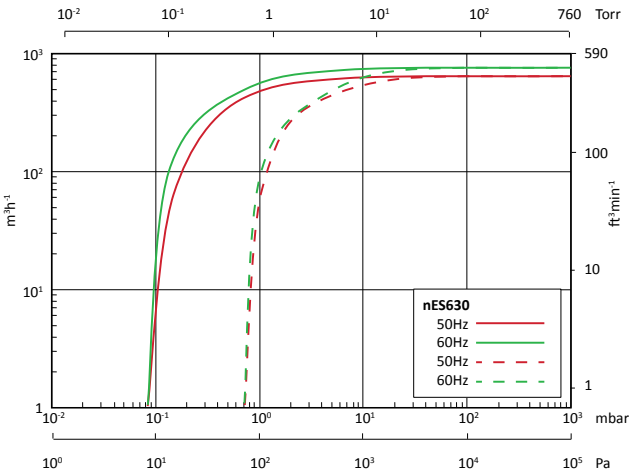

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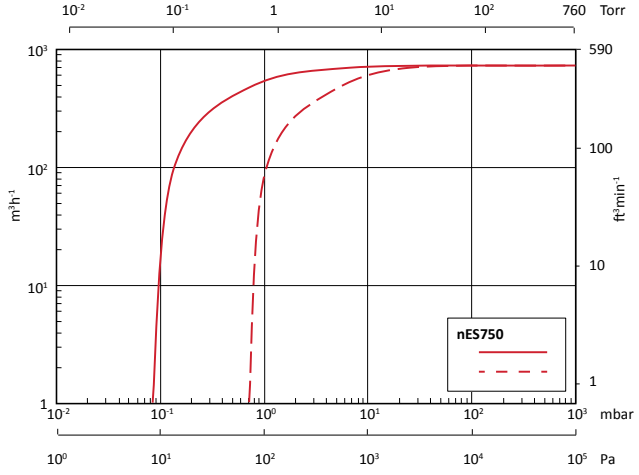

Without gas ballast

With gas ballast

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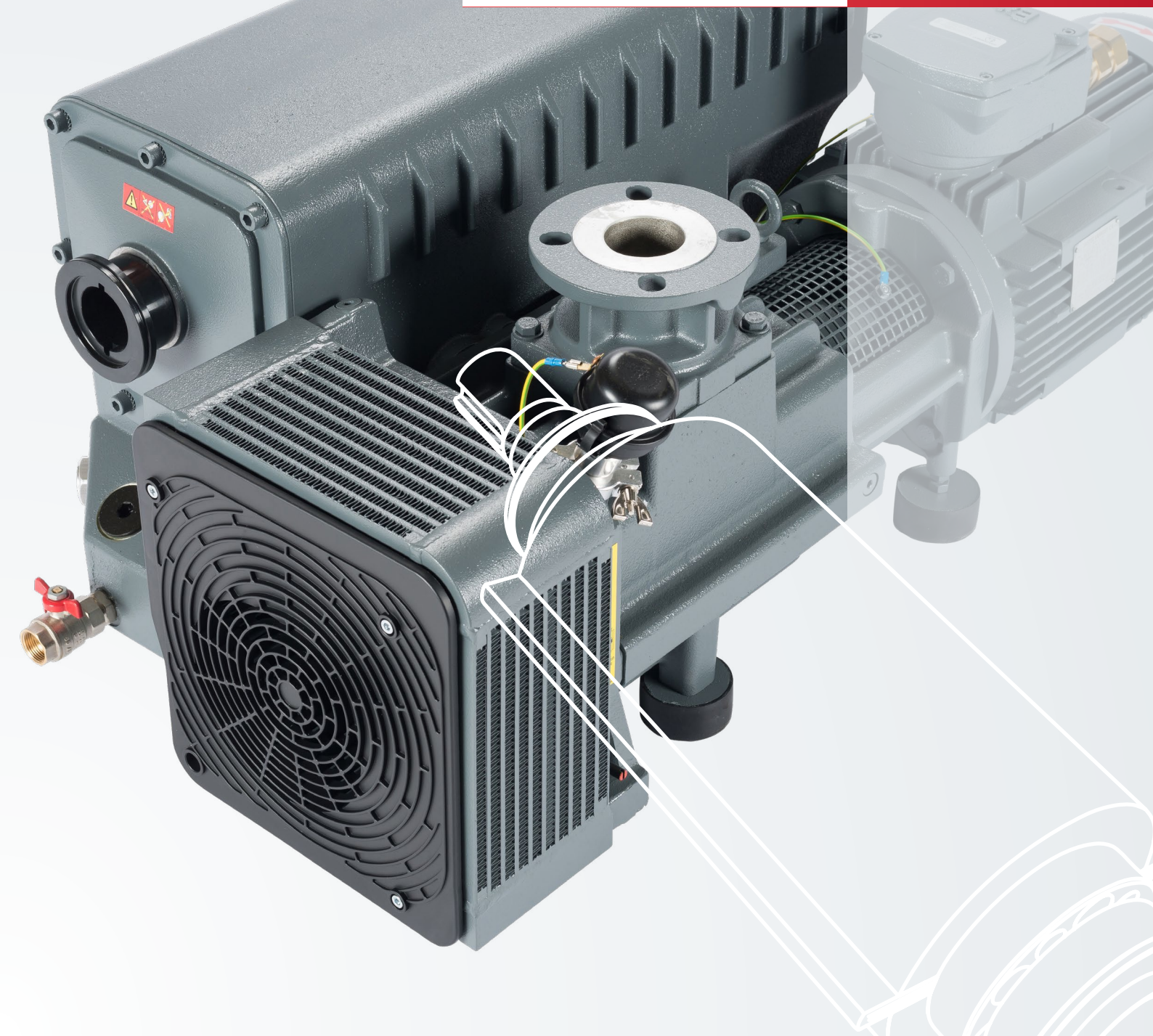
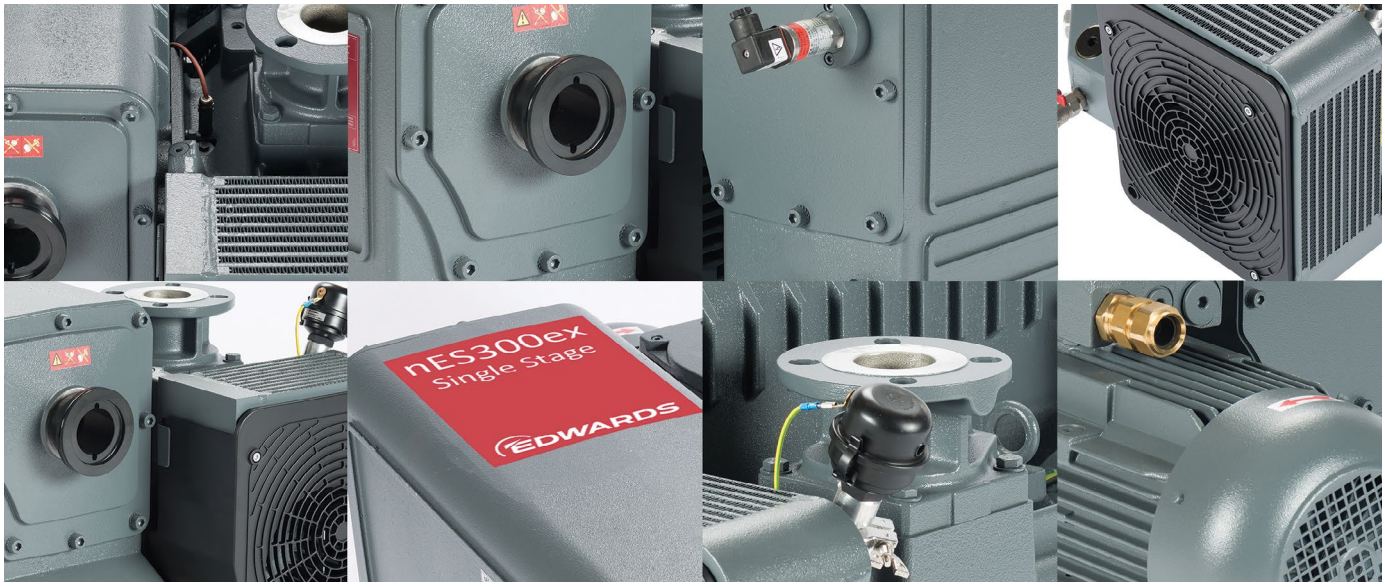
nES SINGLE STAGE EX SERIES ROTARY VANE PUMPS FOR EXPLOSIVE ENVIRONMENTS

EDWARDS



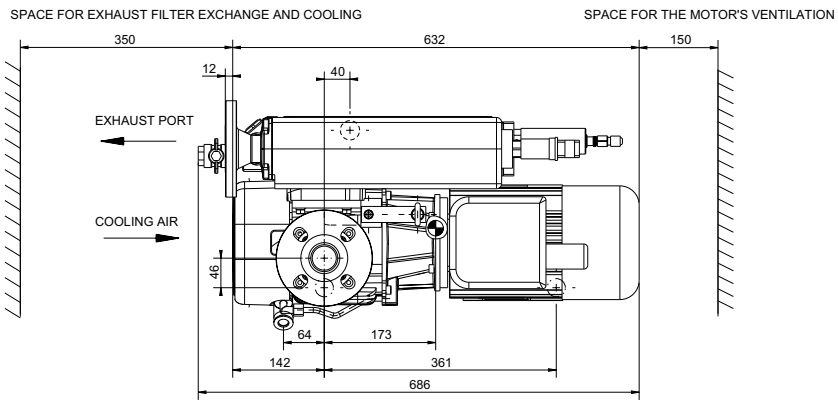
TECHNICAL DATA

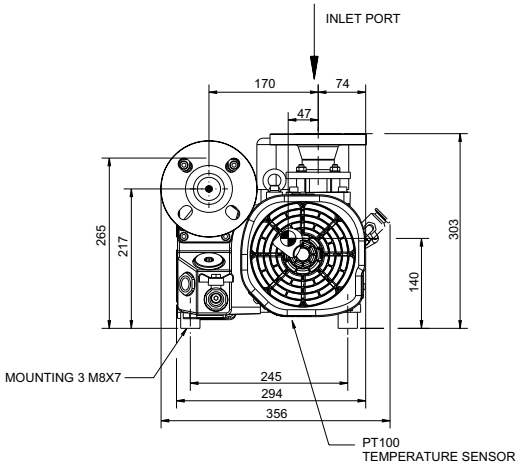
	Units	nES40ex	nES65ex	nES100ex	nES200ex	nES300ex	nES630ex
Maximum displacement (50 Hz)	m^3h^{-1} / cfm	44.0 / 25.9	59.0 / 34.8	98.0 / 57.4	180 / 106	280 / 165	700 / 412
Maximum displacement (60 Hz)	m^3h^{-1} / cfm	53.0 / 31.2	71.0 / 41.8	117 / 68.9	220 / 130	340 / 200	-
Pumping Speed (50 Hz)	m^3h^{-1} / cfm	38.5 /22.7	54.0 /31.8	87.5 / 51.5	170 / 100	240 / 141	640 / 377
Pumping Speed (60 Hz)	m^3h^{-1} / cfm	47.0 /27.7	64.0 /37.7	105 / 61.8	200 /118	290 / 171	-
Ultimate vacuum (total pressure) no gas ballast	mbar / torr	0.5 / 0.4	0.5 / 0.4	0.5 / 0.4	0.15 / 0.13	0.15 / 0.13	0.15 / 0.13
Ultimate vacuum (total pressure) with gas ballast	mbar / torr	1.5 / 1.1	1.5 / 1.1	1.5 / 1.1	0.7 / 0.5	0.7 / 0.5	0.7 / 0.5
Inlet connection	ISO / ANSI	DN40 / ANSI 1"1/2	DN40 / ANSI 1"1/2	DN40 / ANSI 1"1/2	DN50 / ANSI 2”	DN50 / ANSI 2”	DN100 ISO-K / ANSI 4"
Outlet connection	ISO / ANSI	DN40 / ANSI 1"1/2	DN40 / ANSI 1"1/2	DN40 / ANSI 1"1/2	DN50 / ANSI 2”	DN50 / ANSI 2”	DN100 ISO-K / ANSI 4"
Max permitted outlet pressure	bar (abs)	1.15	1.15	1.15	1.15	1.15	1.15
Max water vapour pumping rate (50 Hz)	kgh^{-1} / lbh^{-1}	0.76 / 0.80	1.0 / 1.1	1.60 / 1.69	3.4 / 3.6	1.3 / 1.4	17 / 18
Max water vapour pumping rate (60 Hz)	kgh^{-1} / lbh^{-1}	0.90 / 0.95	1.25 / 1.32	1.70 / 1.80	5.4 / 5.7	1.8 / 1.9	-
Dimensions (L, W, H)	mm	686 / 356 / 303	748 / 386 / 349	810 / 434 / 319	1084 / 535 / 435	1143 / 573 / 450	1568 / 989 / 740
Weight	kg / lb	67 / 148	86 / 190	104 / 230	142 / 313	244 / 539	695 / 1534
Motor Protection rating		IP55	IP55	IP55	IP55	IP55	IP65
Motor Power (50 Hz)	kW / hp	1.5 / 2.0	2.2 / 3.0	3.0 / 5.0	5.5 / 8	7.5 / 10	18.5 / 26
Motor Power (60 Hz)	kW / hp	1.8 / 3.0	2.6 / 4.0	3.6 / 6.0	6.6 / 10	9 / 13	-
Noise level (50 Hz)	dB(A)	58	60	61	69	72	72
Noise level (60 Hz)	dB(A)	60	64	64	73	76	-
Oil Refill Capacity	litre	1	2	2	5 - 9	8.5–11.5	20 - 23
Recommended oil	Ultragrade Endurance Extend 110						



DRAWINGS AND DIMENSIONS

nES40ex





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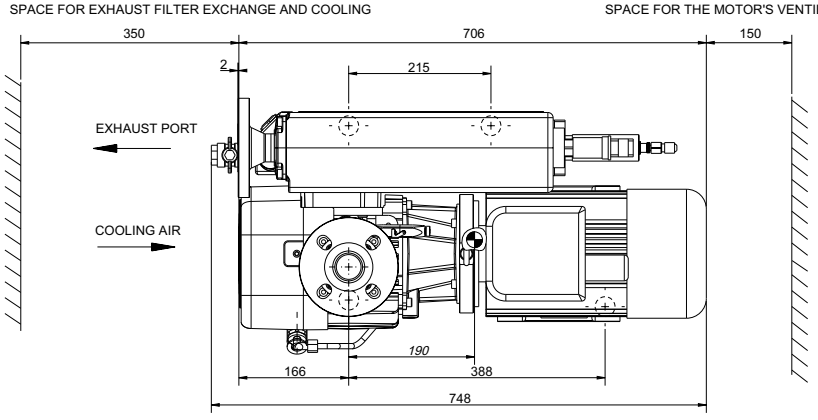

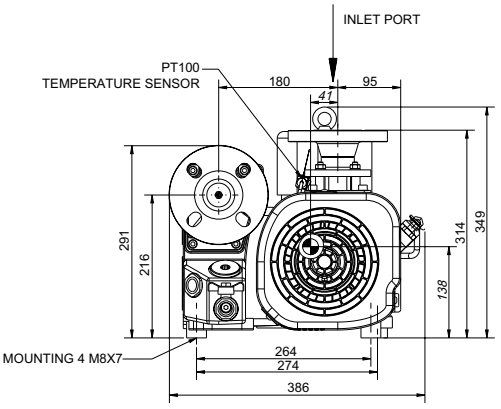

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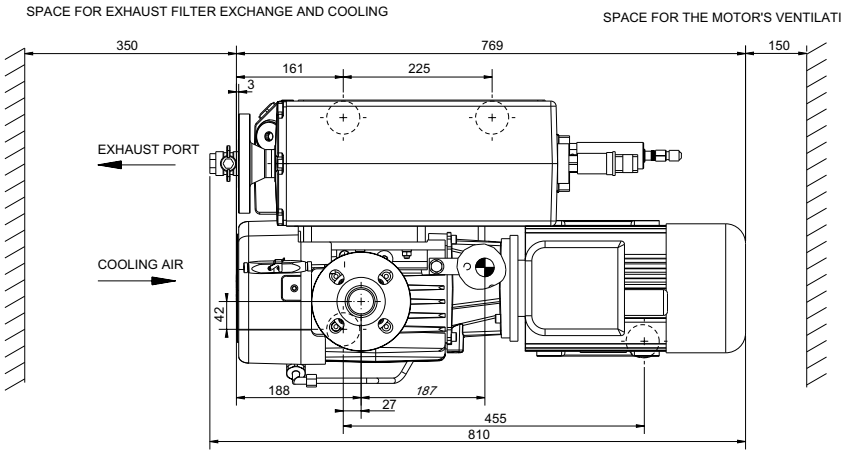

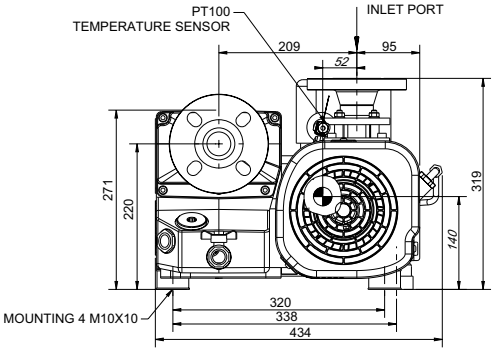

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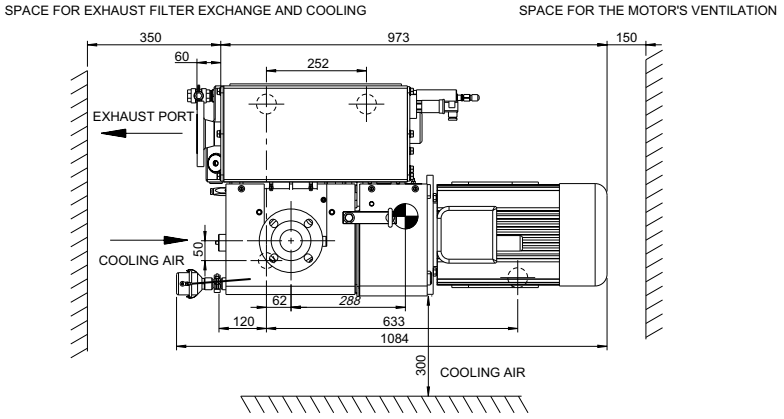

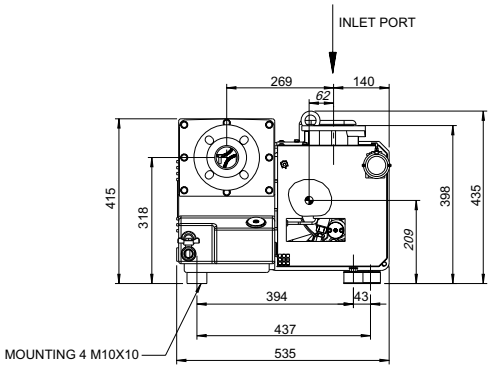

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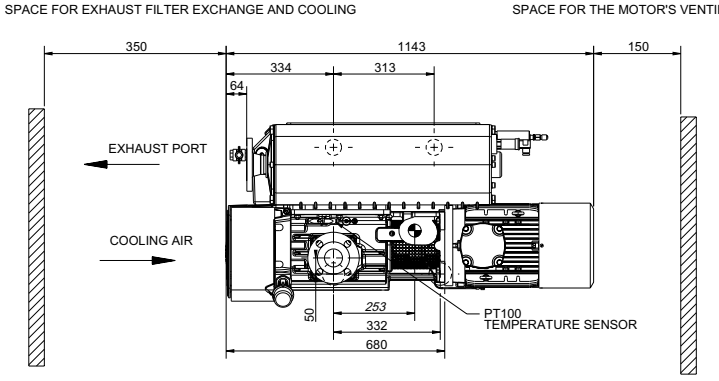

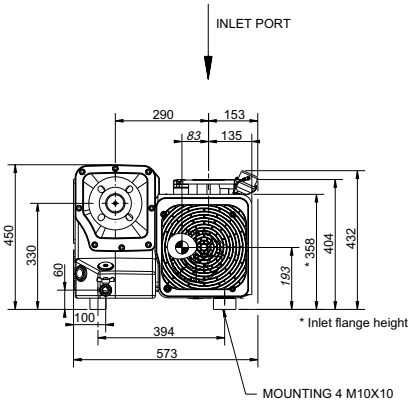

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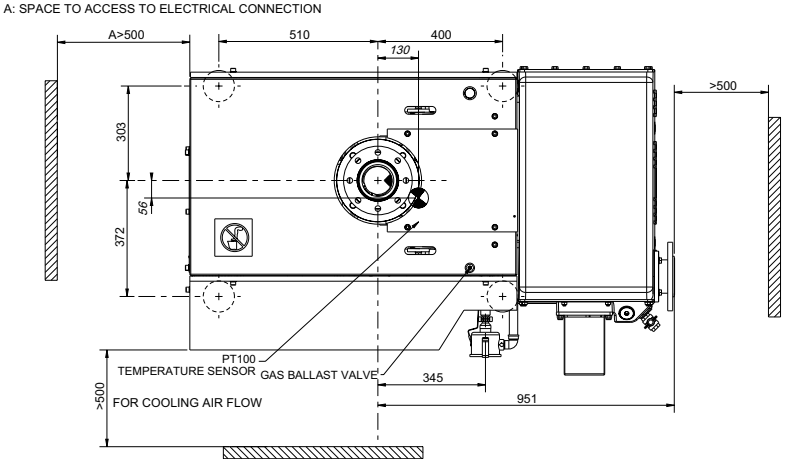
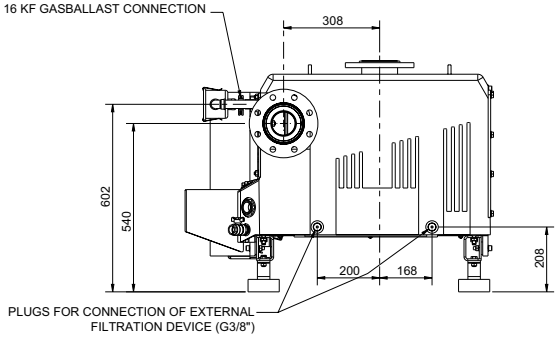
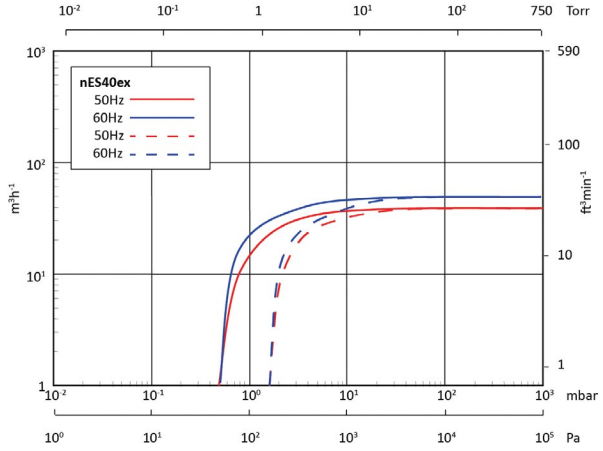




PERFORMANCE CURVES

nES40ex



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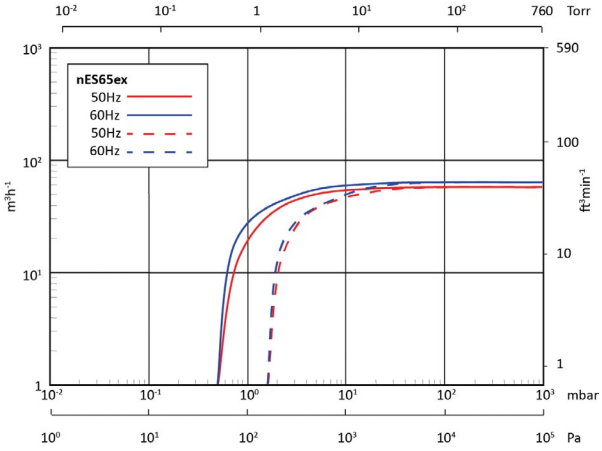
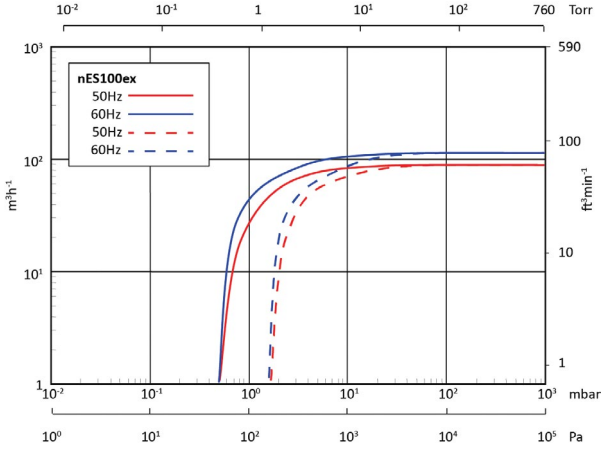


nES100ex



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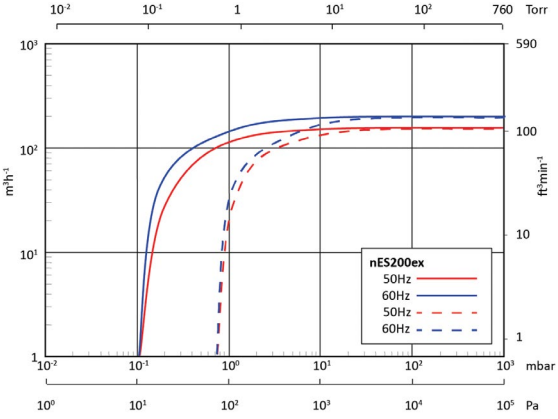

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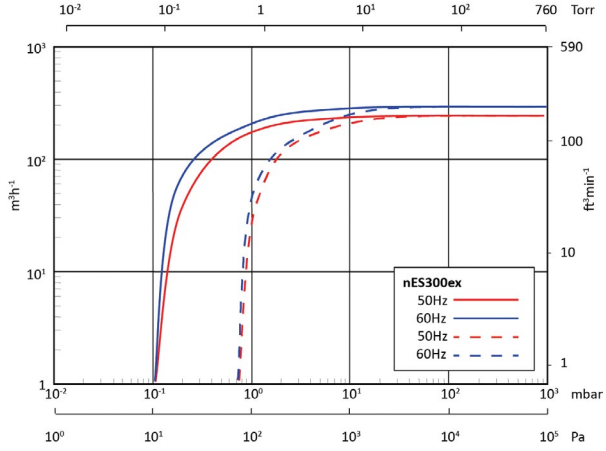

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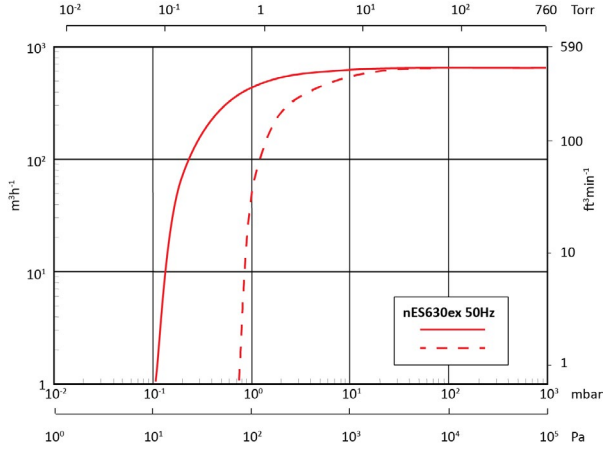

Without gas ballast

With gas ballast

A343-10-880
Issue R Original

Instruction Manual

E1M18 and E2M18 Rotary Vacuum Pumps

Description	Item Number
E1M18, 100/200 V, 50 Hz or 100-105/200-210 V, 60 Hz, single-phase	A343-15-904
E1M18, 115/230 V, 60 Hz, single-phase	A343-15-981
E1M18, 220 V, 50/60 Hz, single-phase	A343-15-920
E1M18, 220-240 V, 50 Hz, single-phase	A343-15-912
E1M18, 220-240 V, 50 Hz, or 230-240 V, 60 Hz, single-phase	A343-15-903
E1M18, 200-230/380-460 V, 50/60 Hz, three-phase	A343-10-940
E1M18, 220-240 V, 50 Hz, or 230-240 V, 60 Hz, single-phase (Amphenol)	A343-16-903
E1M18, 110/200-240 V, 50 Hz, or 115-120/200-230 V, 60 Hz, single-phase	A343-17-984
E1M18, 110/200-240 V, 50 Hz, or 115-120/200-230 V, 60 Hz, single-phase, fomblin filled	A343-25-984
E2M18, 100/200 V, 50 Hz or 100-105/200-210 V, 60 Hz, single-phase	A363-15-904
E2M18, 115/230 V, 60 Hz, single-phase	A363-15-981
E2M18, 220 V, 50/60 Hz, single-phase	A363-15-920
E2M18, 220-240 V, 50 Hz, single-phase	A363-15-912
E2M18, 220-240 V, 50 Hz, or 230-240 V, 60 Hz, single-phase	A363-15-903
E2M18, 200-230/380-460 V, 50/60 Hz, three-phase	A363-10-940
E2M18, 110/200-240 V, 50 Hz, or 115-120/200-230 V, 60 Hz, single-phase	A363-17-984
E2M18-FF, 200-230/380-460 V, 50/60 Hz, three-phase	A363-21-940
E2M18-FF, 100/200 V, 50/60 Hz, single-phase	A363-25-904
E2M18, 220-240 V, 50 Hz, single-phase	A363-25-912
E2M18, 110/200-240 V, 50 Hz, or 115-120/200-230 V, 60 Hz, single-phase, fomblin filled	A363-25-984

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2 Technical data

2.1 Operating and storage conditions

Note: *To comply with EN 61010 and 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	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)

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

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

Parameter	Data	
	E1M18	E2M18
Maximum displacement		
50 Hz electrical supply	20.5 $m^3 h^{-1}$	20.5 $m^3 h^{-1}$
60 Hz electrical supply	25.0 $m^3 h^{-1}$	25.0 $m^3 h^{-1}$
Maximum pumping speed - Pneurop		
50 Hz electrical supply	17.0 $m^3 h^{-1}$	17.0 $m^3 h^{-1}$
60 Hz electrical supply	20.4 $m^3 h^{-1}$	20.4 $m^3 h^{-1}$
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)	2×10^{-2} mbar 2 Pa	1×10^{-4} mbar 1×10^{-2} Pa
without gas-ballast (total pressure)	3×10^{-2} mbar 3 Pa	1×10^{-3} mbar 1×10^{-1} Pa
with full gas-ballast (partial pressure)	6.5×10^{-1} mbar 6.5×10^{1} Pa	5×10^{-3} mbar 5×10^{-1} Pa
Maximum water vapour inlet pressure	50 mbar 5×10^{3} Pa	20 mbar 2×10^{3} Pa

Table 2 - Performance data (continued)

Parameter	Data	
	E1M18	E2M18
Maximum water vapour pumping rate	0.65 kg h^{-1}	0.3 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

Approximate pump mass	38 kg (E1M18), 41 kg (E2M18)
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: *Edwards Material Safety Data Sheets for the oils specified below are available upon request.*

Table 4 - Lubrication data

Hydrocarbon pumps:	
Recommended oil*	Ultragrade 19
Maximum oil capacity	
E1M18	1.4 litres
E2M18	1.05 litres
PFPE-prepared EM pumps:	
Recommended oil	Krytox 1506 or Fomblin 06/6
Maximum oil capacity	
E1M18	1.4 litres
E2M18	1.05 litres

* *To operate the pump when the ambient temperature is outside the range specified in Section 2.1 or to optimise pump performance when processing condensible vapours, a different oil may be required.*

2.5 Electrical data

Refer to Table 5 and 6. The motor start-up current is drawn for less than one second, so slow-blow fuses must be used 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 using 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)	Full load current (A)	Start current (A)	Maximum fuse rating (A)
A343-10-940	200-220	50	3.3	16.1	10
	380-415	50	1.9	10.2	6
	200-230	60	2.3	15.9	10
	460	60	1.6	10.6	6
A363-10-940	200-220	50	3.3	16.1	10
	380-415	50	1.9	10.2	6
	200-230	60	3.4	15.9	10
	460	60	1.6	10.6	6
Motor output rating (continuous)					
50 Hz operation		0.65 kW			
60 Hz operation		0.75 kW			

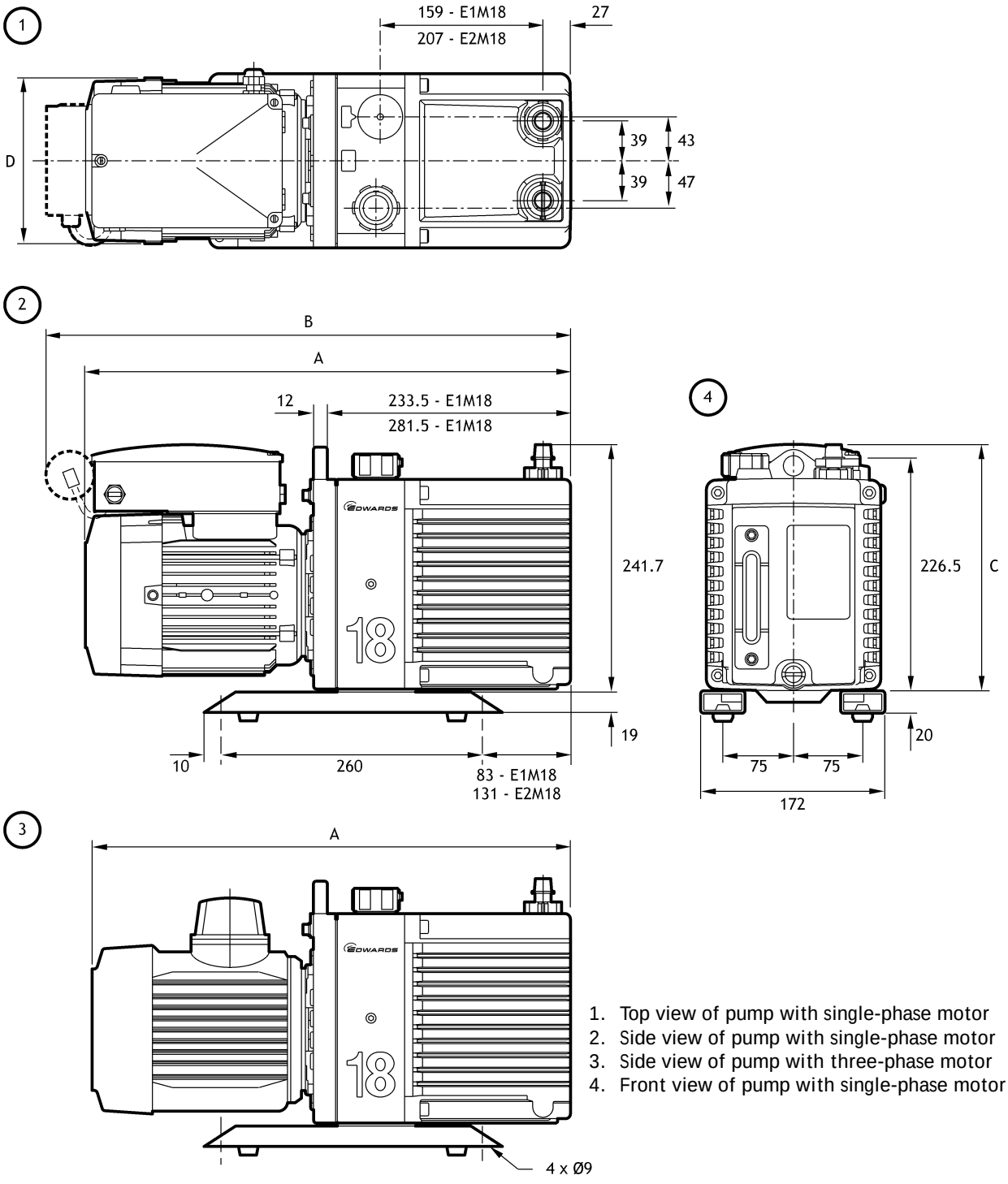
Table 6 - Electrical data: single-phase motors

Pump Item Number	Voltage (V)	Frequency (Hz)	Full load current (A)	Start current (A)	Maximum fuse rating (A)
A363-15-903, A343-16-903, A343-15-903	220-240 230-240	50 60	4.6 5.0	33 33	15 15
A343-15-981, A363-15-981	115 230	60 60	11.0 5.5	70 35	40 20
A343-15-904, A363-15-904	100 100-105 200 200-210	50 60 50 60	12.0 11.0 6.0 5.5	88 88 44 44	30 30 15 15
A343-17-984, A363-17-984, A343-25-984, A363-25-984	110 115-120 200-240 200-230	50 60 50 60	11.0 10.0 5.5 5.0	42 38 32 31	30 25 15 15
A343-15-912, A363-15-912	220-240	50	5.0	25	13
A343-15-920, A363-15-920	220 220	50 60	5.5 5.0	35 35	15 15
Motor output rating (continuous)					
50 Hz operation		0.55 kW or 0.65 kW			
60 Hz operation		0.75 kW			

Figure 2 - Dimensions (mm): key

Pump Item Number	Hz	Dimensions (mm)			
Single-phase motors		A	B	C	D
A343-15-912	50	518	-	241	162
A363-15-912	50	520			
A343-15-920, A363-15-920	50	474	-	241	162
	60	520	-	241	162
A343-15-981	60	474	518	241	162
A363-15-981	60	520	564	241	162
A343-15-904	50/60	474	518	241	162
A363-15-904	50/60	520	564	241	162
A363-15-903, A363-17-984	50/60	550	-	251	183
A343-16-903, A343-15-903, A343-17-984	50/60	504	-	251	183
A343-17-984, A363-17-984	50/60	504	-	251	183
Three-phase motors					
A343-10-940	50/60	474			162
A363-10-940	50/60	520			162

Figure 2 - Dimensions (mm)



1. Top view of pump with single-phase motor
2. Side view of pump with single-phase motor
3. Side view of pump with three-phase motor
4. Front view of pump with single-phase motor

dcs/7743/063

Instruction Manual

E2M40 and E2M80 Rotary Vacuum Pumps

Description	Item Number	Description	Item Number
E2M40, 200 V 50/60 Hz, 380 V, 60 Hz, three-phase	A364-04-934	E2M80, 200 V 50/60 Hz, 380 V 60 Hz, three-phase	A365-04-934
E2M40, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase	A364-04-940	E2M80, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase	A365-04-940
E2M40, 200 V 50/60 Hz, 380 V 60 Hz, three-phase, fomblin prepared	A364-17-934	E2M80, 200 V 50/60 Hz, 380 V 60 Hz, three-phase, fomblin prepared	A365-17-934
E2M40, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, fomblin prepared	A364-17-940	E2M80, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, fomblin prepared	A365-17-940
E2M40, 200 V 50/60 Hz, 380 V 60 Hz, three-phase, Azide compatible	A364-07-934	E2M80, 200 V 50/60 Hz, 380 V 60 Hz, three-phase, Azide compatible	A365-07-934
E2M40, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, Azide prepared	A364-07-940	E2M80, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, Azide prepared	A365-07-940

2 Technical data

2.1 Operating and storage conditions

Table 1 - Operating and storage conditions

Ambient temperature range (operation)	**12 to 40°C**
Normal surface temperature of the pump (at ultimate vacuum, ambient temperature of 20°C)	50 to 70°C
Maximum humidity (operation)	90% RH
Ambient temperature range (storage)	-30 to 70°C

2.2 Performance

Note: *Where total pressures are shown in the technical data tables, measurements were taken using an untrapped total pressure capacitance diaphragm gauge on a header, as specified by Pneurop standards.*

Table 2 - Performance data

		E2M40	**E2M80**
Maximum Displacement m^3h^{-1}			
50 Hz electrical supply		42.5	80
60 Hz electrical supply		50.5	96
Maximum Speed - Pneurop			
50 Hz electrical supply		37	74
60 Hz electrical supply		44	90
Motor rotational speed			
50 Hz electrical supply		1,410	1,420
60 Hz electrical supply		1,720	1,720
Ultimate vacuum			
without gas-ballast	mbar	1×10^{-4}	1×10^{-4}
(partial pressure)	Pa	(1×10^{-2})	(1×10^{-2})
without gas-ballast	mbar	1×10^{-3}	1×10^{-3}
(total pressure)	Pa	(1×10^{-1})	(1×10^{-1})
with full gas-ballast	mbar	5×10^{-3}	5×10^{-3}
(partial pressure)	Pa	(5×10^{-1})	(5×10^{-1})
Maximum permitted outlet pressure	bar gauge	0.5	0.5
(at full pump throughput)	Pa	(1.5×10^{5})	(1.5×10^{5})
Maximum water vapour inlet pressure	mbar	7	5
	Pa	(7×10^{2})	(5×10^{2})
Maximum water vapour pumping rate	kgh^{-1}	0.2	0.3
Maximum gas-ballast flow	m^3h^{-1}	1.7	1.4

Figure 2 - Dimensions E2M40 (mm)

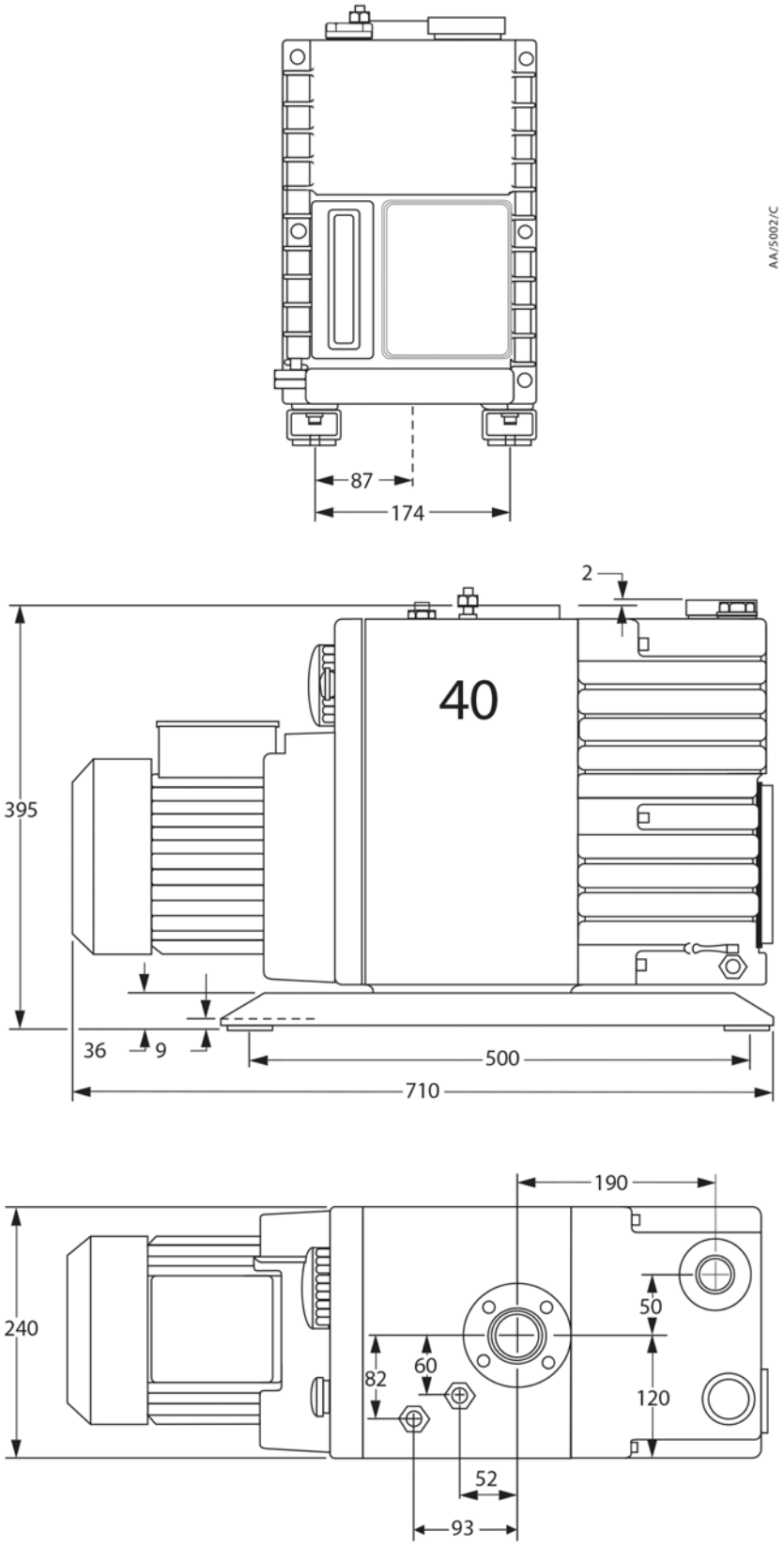
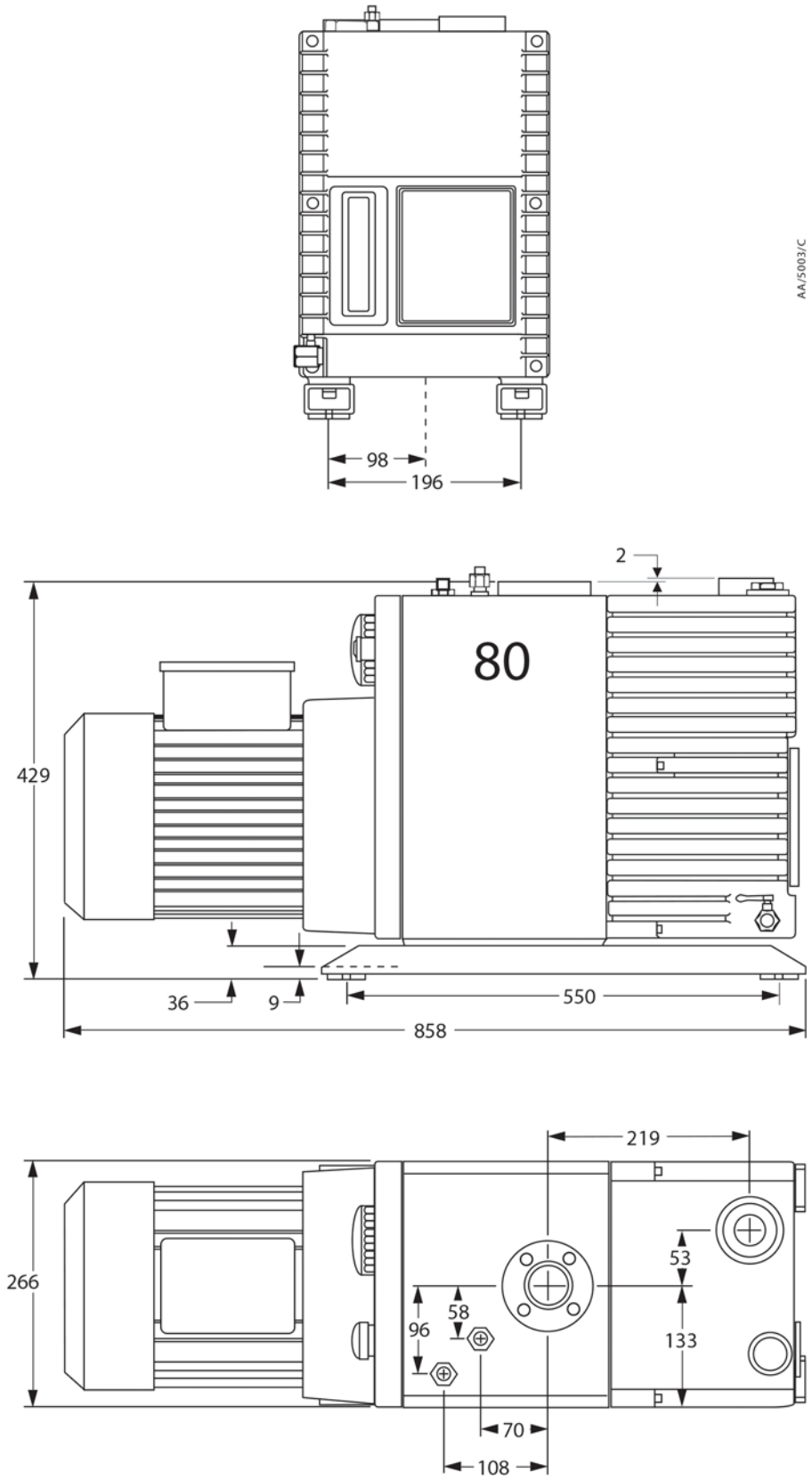


Figure 3 - Dimensions E2M80 (mm)



2.3 Mechanical data

Table 3 - Mechanical data

Item	Mechanical data	
Dimensions	See Figure 2 (E2M40 pumps) and Figure 3 (E2M80 pumps)	
Degree of protection (IEC 34-5:1981)	IP55	
Pump inlet-port	ISO40 or NW40	
Pump outlet-port	25 mm flange, suitable for NW25 fittings	
	E2M40	**E2M80**
Maximum mass (kg)	81.5	130
Vibration severity †	Class 1C	Class 1C
Noise level at 1 metre (dB(A)) *	65	70

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

* *The noise level was measured in accordance with ISO2151 and with the pump running at ultimate pressure. Running at higher inlet pressures will increase the noise level.*

2.4 Electrical data: three-phase motors

For motor wiring information refer to the wiring diagram supplied in the motor terminal box. You can configure the dual voltage motors to operate with either the high range or low range electrical supply.

We endeavour to supply dual voltage motors preset to the highest of the selectable voltages.

For motor current information please refer to the motor rating plate.

Table 4 - Electrical data (three-phase motors)

Pump	Nominal supply (V)	Frequency (Hz)	Power (kW)
E2M40	380	50	1.1
	400	50	1.1
	230	60	1.5
	460	60	1.5
	200	50/60	1.5
	380	60	1.5
E2M80	380	50	2.2
	400	50	2.2
	230	60	3.0
	460	60	3.0
	200	50/60	3.0
	380	60	3.0

Instruction Manual

E2M175 and E2M275
Rotary Vacuum Pumps

Description	Item Number
E2M175 Rotary Vacuum Pump, 200 V 50/60 Hz, 380 V 60 Hz, three-phase	A366-04-934
E2M175 Rotary Vacuum Pump, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase	A366-04-940
E2M175 Rotary Vacuum Pump, 200 V, 50/60 Hz, 380 V 60 Hz 50/60 Hz, three-phase, Fomblin prepared	A366-17-934
E2M175 Rotary Vacuum Pump, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, Fomblin prepared	A366-17-940
E2M175 Rotary Vacuum Pump, 200 V 50/60 Hz, 380 V 60 Hz 50/60 Hz, three-phase, Azide prepared	A366-07-934
E2M175 Rotary Vacuum Pump, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, Azide prepared	A366-07-940
E2M275 Rotary Vacuum Pump, 200 V 50/60 Hz, 380 V 60 Hz 50/60 Hz, three-phase	A367-04-934
E2M275 Rotary Vacuum Pump, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase	A367-04-940
E2M275 Rotary Vacuum Pump, 200 V, 50/60 Hz, 380 V 60 Hz 50/60 Hz, three-phase, Fomblin prepared	A367-17-934
E2M275 Rotary Vacuum Pump, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, Fomblin prepared	A367-17-940
E2M275 Rotary Vacuum Pump, 200 V 50/60 Hz, 380 V 60 Hz 50/60 Hz, three-phase, Azide prepared	A367-07-934
E2M275 Rotary Vacuum Pump, 380/400 V 50 Hz, 230/460 V 60 Hz, three-phase, Azide prepared	A367-07-940

2 Technical data

2.1 Operating and storage conditions

Ambient temperature range (operation)	12 to 40°C
Normal surface temperature of the pump	
body at ultimate vacuum	
ambient temperature of 20°C	50 to 70°C
Maximum humidity (operation)	90% RH
Ambient temperature range (storage)	-30 to 70°C

2.2 Performance

Note: *Where total pressures are shown in the technical data tables, measurements were taken using an untrapped total pressure capacitance diaphragm gauge on a header, as specified by Pneurop standards.*

		E2M175	E2M275
Maximum Displacement	(m^3h^{-1})		
50 Hz electrical supply		178	292
60 Hz electrical supply		214	350
Maximum Speed – Pneurop	(m^3h^{-1})		
50 Hz electrical supply		160	255
60 Hz electrical supply		196	306
Motor rotational speed	$r.min^{-1}$		
50 Hz electrical supply		1,440	1,440
60 Hz electrical supply		1,720	1,720
Ultimate vacuum			
without gas-ballast (partial pressure)	mbar (Pa)	10^{-4} (10^{-2})	10^{-4} (10^{-2})
without gas-ballast (total pressure)	mbar (Pa)	1×10^{-3} (1×10^{-1})	1×10^{-3} (1×10^{-1})
with full gas-ballast (partial pressure)	mbar (Pa)	5×10^{-3} (5×10^{-1})	5×10^{-3} (5×10^{-1})
Maximum permitted outlet pressure (at full pump throughput)	bar gauge (Pa)	0.5 (1.5×10^5)	0.5 (1.5×10^5)
Maximum water vapour inlet pressure			
without thermostatic	mbar	4	2
water flow valve	(Pa)	(4×10^2)	(2×10^2)
with thermostatic water	mbar	20	12
flow valve	(Pa)	(2×10^3)	(12×10^2)
Maximum water vapour pumping rate	kgh^{-1}	2.4	2.5
Maximum gas-ballast flow	m^3h^{-1}	3	3

Figure 2 - Dimensions E2M175 (mm)

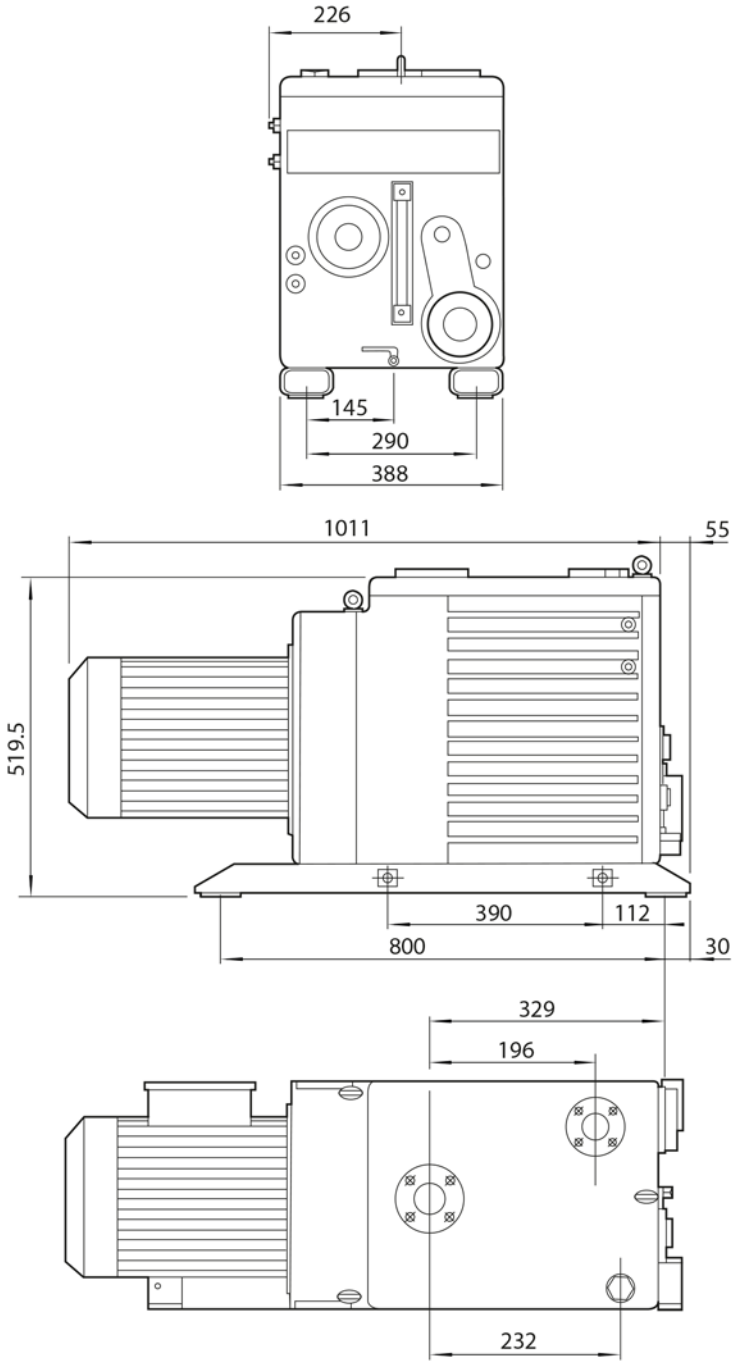
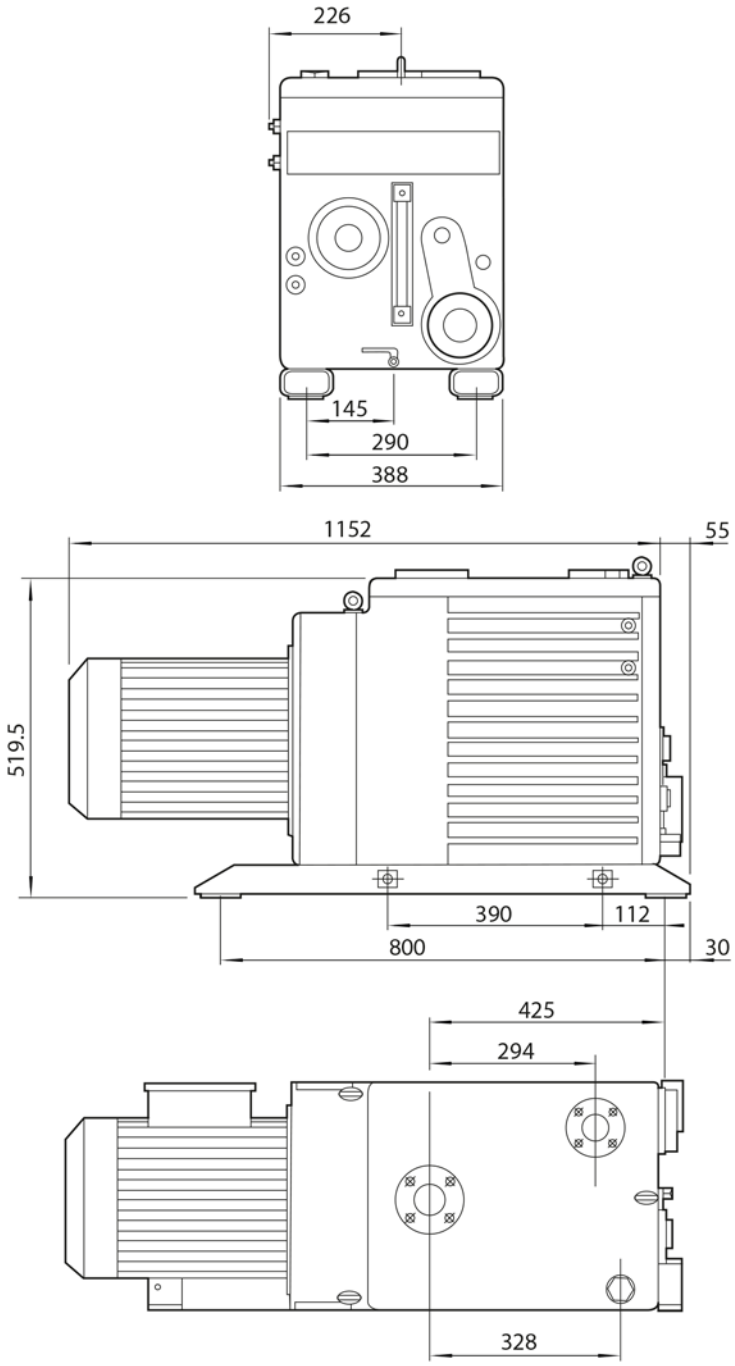


Figure 3 - Dimensions E2M275 (mm)



2.3 Mechanical data

Overall dimensions	See Figure 2 (E2M175 pumps) and Figure 3 (E2M275 pumps)
Degree of protection (IEC 34-5:1981)	IP55
Pump inlet-port	ISO63 (flange with trapped O-ring)
Pump outlet-port	ISO40 (flange centre tapped 1½ in. BSP)
Noise level at 1 metre (dB (A)) *	75
Vibration Severity †	Class 1C for E2M175 and Class 1D for E2M275

* *The noise level was measured in accordance with ISO2151 and with the pump running at ultimate pressure. Running at higher inlet pressures will increase the noise level.*

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

	E2M175	E2M275
Maximum mass (kg)	243	260

2.4 Electrical data: three-phase motors

For motor wiring information refer to the wiring diagram supplied in the motor terminal box. You can configure the dual voltage motors to operate with either the high range or low range electrical supply.

We endeavour to supply dual voltage motors preset to the highest of the selectable voltages.

For motor current information please refer to the motor rating plate.

Table 1 - Electrical data

Pump	Voltage (V)	Frequency (Hz)	Power (kW)
E2M175	380/400	50	5.5
	230/460	60	6.5
	200	50	5.5
	200/380	60	6.5
E2M275	380/400	50	7.5
	230/460	60	8.5
	200	50	7.5
	200/380	60	8.5

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RV OIL SEALED ROTARY VANE PUMPS

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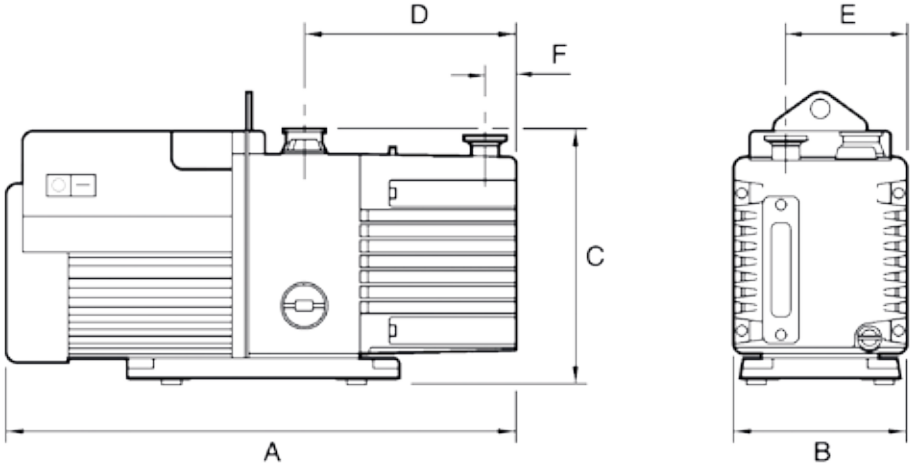
Dimensions



	A	B	C	D	E	F
RV3	430 (16.93)	158 (6.22)	225 (8.86)	156 (6.41)	111 (4.37)	29 (1.14)
RV5	430 (16.93)	158 (6.22)	225 (8.86)	156 (6.41)	111 (4.37)	29 (1.14)
RV8	470 (18.50)	158 (6.22)	225 (8.86)	196 (7.72)	111 (4.37)	35 (1.38)
RV12	490 (19.29)	158 (6.22)	225 (8.86)	216 (8.50)	111 (4.37)	35 (1.38)

Note: Single phase pump diagram shown, 3 phase pumps look different but share the same dimensions.
Dimensions shown in mm(inch).

Technical data

	Hz	Units	RV3	RV5	RV8	RV12
Peak pumping speed	60	cfm	2.3	3.6	5.9	8.4
	50	m^3/h	3.3	5.1	8.5	12
Ultimate pressure (Total)	60	Torr	1.5×10^{-3} (1.5×10^{-2} with Fomblin®)			
	50	mbar	2.0×10^{-3} (2.0×10^{-2} with Fomblin®)			
Ultimate pressure GB I (Total)	50/60	Torr	2.3×10^{-2}			
		mbar	3.0×10^{-2}			
Ultimate pressure GB II (Total)	50/60	Torr	9.1×10^{-2}	9.1×10^{-2}	4.6×10^{-2}	9.1×10^{-2}
		mbar	1.2×10^{-1}	1.2×10^{-1}	6.0×10^{-2}	1.2×10^{-1}
High throughput mode	50/60	Torr	2.3×10^{-2}			
		mbar	3.0×10^{-2}			
Water vapour tolerance		Torr	60	38	38	24
		mbar	80	50	60	32
Water vapour capacity - GB I		g/h	60	60	60	60
Water vapour capacity - GB II		g/h	220	220	220	290
Motor data						
Motor rating 1 phase (nominal)	60	W	550			
	50	W	450			
Motor rating 3 phase	60	W	300	300	550	550
	50	W	250	250	450	450
Nominal rotation speed	60	rpm	1800			
	50	rpm	1500			
Physical data						
Weight		lb	55	55	61.6	63.8
		kg	25	25	28	29
Oil capacity		litres	0.7	0.7	0.75	1
Oil type (Ultragrade)			19			
Inlet flange			NW25			
Exhaust flange			NW25			
Noise level	50 Hz	dB(A)	48			
Noise level (with Acoustic Enclosure)*	50 Hz	dB(A)	41			
Operating temperature range		°C	12 to 40			

** approximate noise reduction of 7 dB(A)*

Ordering information

	Product description	Order No. Ultragrade Oil	Order No. PFPE prepared*
RV3	115/230V, 50/60Hz set to 230V	A65201903	A65209903
	100/200V, 50/60Hz set to 200V	A65201904	A65209904
	200-220/380-415V, 50Hz 200-230/460V, 60Hz, 3 phase	A65201905	A65209905
	115/230V, 50/60Hz set to 115V	A65201906	A65209906
RV5	115/230V, 50/60Hz set to 230V	A65301903	A65309903
	100/200V, 50/60Hz set to 200V	A65301904	A65309904
	200-220/380-415V, 50Hz 200-230/460V, 60Hz, 3 phase	A65301905	A65309905
	115/230V, 50/60Hz set to 115V	A65301906	A65309906
RV8	115/230V, 50/60Hz set to 230V	A65401903	A65409903
	100/200V, 50/60Hz set to 200V	A65401904	A65409904
	200-220/380-415V, 50Hz 200-230/460V, 60Hz, 3 phase	A65401905	A65409905
	115/230V, 50/60Hz set to 115V	A65401906	A65409906
RV12	115/230V, 50/60Hz set to 230V	A65501903	A65509903
	100/200V, 50/60Hz set to 200V	A65501904	A65509904
	200-220/380-415V, 50Hz 200-230/460V, 60Hz, 3 phase	A65501905	A65509905
	115/230V, 50/60Hz set to 115V	A65501906	A65509906

**PFPE fluid not included*

	Product description	Order No.
Cord sets	UK, three pin plug	A50505000
	North European plug	A50506000
	North American plug	A50507000
	No plug	A50508000
Oil	Ultragrade 19, 1 litre bottle	H11025015
	Fomblin® YVAC 06/6 1kg (532 ml)	H11301019
	Ultragrade 19 oil 4 litre	H11025013
Inlet accessories	Foreline trap - FL20K	A13305000
Outlet accessories	Oil mist filter - EMF10	A46226000
	Oil mist filter - EMF20	A46229000
Oil return kits	Clean application (no gas ballast)	A50419000
	Adjustable gas ballast	A50523000
Vibration isolators		A24801404
Spares kits	Clean and overhaul kit	A65201131
Acoustic enclosure	Low volts 110-120V	NRD317000
Acoustic enclosure	High volts 200-240V	NRD318000

Pumps fitted with ATEX approved motors are available, contact Edwards for details
Pumps are supplied with initial charge of Ultragrade oil

edwardsvacuum.com

EOSi ROTARY SCREW VACUUM PUMPS

EDWARDS

Technical Specifications

		Units	EOS 350i	EOS 585i	EOS 730i	EOS 900i	EOS 1300i	EOS 1600i	EOS 1900i
Peak pumping speed		m3/h / cfm	400 / 240	560 / 330	730 / 430	900 / 530	1250 / 740	1590 / 940	1810 / 1070
Ultimate vacuum		mbar / Torr	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26
Inlet connection		-	DN 80	DN 80	DN 80	DN 80	DN 150	DN 150	DN 150
Outlet connection		-	DN 60	DN 60	DN 60	DN 60	DN 100	DN 100	DN 100
Shaft power		kW	5.5	7.5	11	15	22	30	37
Permissible ambient temperature		C	0 - 46	0 - 46	0 - 46	0 - 46	0 - 46	0 - 46	0 - 46
Noise level range		dB(A)	51-65	51-65	51-73	51-76	65-75	65-79	65-80
Oil quantity		l	16	16	16	16	40	40	40
Dimensions	L	mm	1266 x	1266 x	1266 x	1266 x	1420 x	1420 x	1420 x
	W		934 x	934 x	934 x	934 x	1590 x	1590 x	1590 x
	H		1083	1083	1083	1083	1470	1470	1470
Weight		kg	500	500	510	520	1058	1058	1073
Electrical specification: 380/460V 50/60Hz IP54 enclosure CSA/UL.									

Service

Maintaining your EOSi vacuum pump is simplicity itself. Energy efficient control means that the time between major services is greatly extended. Should you forget, the intuitive integrated Airlogic interface will monitor performance and notify you when service is due. Intelligent design makes the EOSi range incredibly easy to access and work on, shortening the time taken to complete inspections and common tasks. Frequent attention to the service requirements of your system greatly increases the period between major overhauls and ensures clean efficient operation. In order to maintain the best possible performance of your EOSi system we recommend always using original Edwards parts. To support this, a comprehensive range of spares and lubricants are available.