

Technical data

Type		MD 1C MD 1C + AK + EK	MZ 1C	MD 1C VARIO-SP
Maximum pumping speed 50/60 Hz (ISO 21360)	cfm (m ³ /h)	0.77 / 0.88 ^(a) (1.3/ 1.5 ^(a))	0.44 / 0.5 ^(a) (0.75 /0.9 ^(a))	1.1 (1.8)
Ultimate vacuum (absolute) without gas ballast	Torr (mbar)	1.5 (2)	9 (12)	1.5 ^(b) (2 ^(b))
Ultimate vacuum (absolute) with gas ballast	Torr (mbar)	3 (4)	15 (20)	3 ^(b) (4 ^(b))
Maximum permissible inlet pressure (absolute)	psi (bar)		16 (1.1)	
Maximum permissible outlet pressure (absolute)	psi (bar)		16 (1.1)	
Maximum pressure difference between inlet and outlet	psi (bar)		16 (1.1)	
Maximum permissible pressure (absolute) at gas ballast valve	psi (mbar)		17.5 (1.2)	
Permissible ambient tempera- ture storage / operation	°F (°C)	14 to 140 / 50 to 104 (-10 to +60 / +10 to +40)		
Permissible relative atmospher- ic moisture during operation (no condensation)	%	30 to 85		
Maximum permissible installation altitude above mean sea level	ft (m)	6500 (2000)		
Rated motor power	hp (kW)	0.01 (0.08)		0.086 (0.064)
No-load speed	rpm	1500 / 1800 ^(a)		0 - 2400 ^(c)
Maximum permissible range of supply voltage (±10%) Attention: Observe specifications of rating plate!		100-120 V~ 50/60 Hz 200-230 V~ 50/60 Hz 120V~ 60 Hz		24 V DC safe extra low voltage (SELV) ^(d)
Maximum rated current at:				
100-120 V~ 50/60 Hz	A	1.6 / 1.7		-
200-230 V~ 50/60 Hz	A	0.8 / 0.85		-
120 V~ 60 Hz	A	1.7		-
24 V DC	A	-		7

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Motor protection		thermal cutout, manual reset ^(e) MD 1 C/US: additional fuse 2.5AT		current limitation (temperature sensor on the circuit board)
Degree of protection IEC 529		IP 44 ^(f) MD 1C + AK + EK: IP 40		IP 20
Inlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)		
Outlet		hose nozzle for tubing I.D. 5/16" (hose nozzle DN 8 mm) MD 1C + AK + EK: hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)		
Coolant connection (waste vapor condenser, only "AK + EK")		hose nozzle for tubing I.D. 1/4" - 5/16" (hose nozzle DN 6-8 mm)		
Maximum permissible pressure of coolant at waste vapor condenser (only "AK + EK")	psi (bar)	87 (absolute) (6 (absolute))		
Permissible range of coolant temperature (waste vapor condenser, only "AK + EK")	°F (°C)	5 to 68 (-15 to +20)		
Volume of catchpot (only "AK + EK")	quarts (ml)	0.52 (500)		
A-weighted emission sound pressure level ^(g) (uncertainty K_{pA} : 3 dB(A))	dB(A)	45	40	42
Dimensions L x W x H approx.	in (mm)	12.4 x 5.6 x 6.9 (316 x 143 x 175)	12.2 x 5.6 x 7.9 (311 x 143 x 200)	9.3 x 5.6 x 6.9 (235 x 143 x 175)
MD 1C C/US	in (mm)	12.8 x 5.6 x 6.9 (326 x 143 x 175)	- -	- -
MD 1C + AK + EK	in (mm)	12.4 x 9.4 x 15.9 (316 x 239 x 405)	- -	- -

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Weight approx.	lbs. (kg)	15.2 (6.9)	13.2 (6.0)	9.3 (4.2)
MD 1C C/US	lbs. (kg)	15.7 (7.1)	-	-
MD 1C + AK + EK	lbs. (kg)	22.5 (10.2)	-	-
MD 1C + AK + EK C/US	lbs. (kg)	22.9 (10.4)	-	-

- (a) at 50/60 Hz
- (b) at 1500 rpm
- (c) running smoothly only at motor speeds higher than 200 rpm
- (d) The pump is designed for operation with safe extra low voltage. Accordingly only safe extra low voltage (SELV) may be connected to the voltage supply connections.
- (e) In case of supply voltage below 100V, the lock of the cutout might be restricted.
- (f) Pumps with voltage changeover switch: IP 40
- (g) Measurement according to EN ISO 2151:2004 and EN ISO 3744:1995 at 230V/50Hz or 1500rpm (MD 1C VARIO-SP) and at ultimate vacuum with exhaust tube at outlet

Gas inlet temperatures

Operating condition	Inlet pressure	Permitted range of gas temperatures at inlet
Continuous operation	> 75 Torr (100 mbar) (high gas load)	➔ 50 °F to 104 °F (+10°C to +40°C)
Continuous operation	< 75 Torr (100 mbar) (low gas load)	➔ 32 °F to 140 °F* (0°C to +60°C*)
Short-time (< 5 minutes)	< 75 Torr (100 mbar) (low gas load)	➔ 14 °F to 176 °F* (-10°C to +80°C*)

* if pumping potentially explosive atmospheres: 50 °F to 104 °F (+10°C to +40°C)

We reserve the right for technical modification without prior notice!