

Technical data

General technical data valid for all pumps

Permissible ambient temperature storage / operation	°F (°C)	14 to 140 / 50 to 104 (-10 to +60 / +10 to +40)
Permissible relative atmospheric moisture during operation (no condensation)	%	30 to 85
Maximum permissible installation altitude above mean sea level	ft (m)	6500 (2000)
No-load speed 50/60 Hz	rpm	1500 / 1800
Device fuse		slow blow fuse 6.3 A
Motor protection		thermal cutout, manual reset*
Overvoltage category		II
Degree of protection IEC 60529		IP 40
Degree of protection UL 50E		type 1
Pollution degree		2
A-weighted emission sound pressure level** (uncertainty K_{pA} : 3 dB(A))	dB(A)	45

* In case of supply voltage below 115 V, the lock of the cutout might be restricted.

** Measurement according to EN ISO 2151:2004 and EN ISO 3744:1995 at 230V/50Hz and ultimate vacuum with (optional) silencer 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)

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Type		ME 4 NT ME 4S NT	MZ 2 NT	MZ 2S NT
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)		II 3/- G Ex h IIC T3 Gc X Internal Atm. only Tech.File: VAC-EX02		
Maximum pumping speed 50/60 Hz (ISO 21360)	cfm (m ³ /h)	2.4 / 2.6 (4.0 / 4.4)	1.3 / 1.4 (2.2 / 2.4)	1.2 / 1.4 (2.0 / 2.3)
Ultimate vacuum (absolute)	Torr (mbar)	52 (70) ME 4S NT: 56 (75)	5.2 (7)	5.2 (7)
Maximum permissible inlet pressure (absolute)	psi (bar)	16 (1.1)		
Maximum permissible outlet pressure (absolute)	psi (bar)	29 (2)		
Maximum pressure difference between inlet and outlet	psi (bar)	29 (2)		
Rated motor power	hp (kW)	0.24 (0.18)		
Maximum permissible range of supply voltage (±10%) Attention: Observe specifications of rating plate! Dual voltage motor		100-115 V~ 50/60 Hz, 120 V~ 60 Hz 230 V~ 50/60 Hz 100-115 V~ 50/60 Hz, 120 V 60 Hz / 200-230 V~ 50/60 Hz		
Maximum rated current at: 100-115 V~ 50/60 Hz, 120 V~ 60 Hz 200-230 V~ 50/60 Hz 230 V~ 50/60 Hz	A A A	3.4 1.8 1.8		
Inlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)		
Outlet		thread G1/4"		
Dimensions L x W x H approx.	in (mm)	9.7 x 9.4 x 7.8 (246 x 239 x 198)		
Weight approx.	lbs. (kg)	24.2 (11.0)		

Type		MZ 2D NT	ME 8 NT	ME 8S NT
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)		II 3/- G Ex h IIC T3 Gc X Internal Atm. only Tech.File: VAC-EX02		
Maximum pumping speed 50/60 Hz (ISO 21360)	cfm (m ³ /h)	1.4 / 1.5 (2.3 / 2.5)	4.3 / 4.8 (7.3 / 8.1)	4.2 / 4.6 (7.1 / 7.8)
Ultimate vacuum (absolute)	Torr (mbar)	3 (4)	52 (70)	60 (80)
Maximum permissible inlet pressure (absolute)	psi (bar)	16 (1.1)	16 (1.1)	
Maximum permissible outlet pressure (absolute)	psi (bar)	16 (1.1)	29 (2)	
Maximum pressure difference between inlet and outlet	psi (bar)	16 (1.1)	29 (2)	
Rated motor power	hp (kW)	0.24 (0.18)	0.34 (0.25)	
Maximum permissible range of supply voltage (±10%) Attention: Observe specifications of rating plate!		100-115 V~ 50/60 Hz, 120 V~ 60 Hz -	100 V~ 50/60 120 V~ 60 230 V~ 50/60 Hz	
Dual voltage motor		100-115 V~ 50/60 Hz, 120 V 60 Hz / 200-230 V~ 50/60 Hz		
Maximum rated current at:				
100 V~ 50/60 Hz	A	-	5.0	
120 V~ 60 Hz	A	-	4.0	
230 V~ 50/60 Hz	A	1.8	3.0	
100-115 V~ 50/60 Hz, 120 V~ 60 Hz	A	3.4	5.7	
200-230 V~ 50/60 Hz	A	1.8	3.0	
Inlet		small flange KF 16	hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)	
Outlet		silencer / G1/4"	2x thread G1/4"	
Dimensions L x W x H approx.	in (mm)	9.7 x 9.5 x 7.8 (246 x 242 x 198)	12.9 x 9.4 x 7.8 (328 x 239 x 198)	
Weight approx.	lbs. (kg)	25.1 (11.4)	36.2 (16.4)	

Type		MD 4S NT	MD 4 NT	MV 2 NT
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)		II 3/- G Ex h IIC T3 Gc X Internal Atm. only Tech.File: VAC-EX02		
Maximum pumping speed 50/60 Hz (ISO 21360)	cfm (m ³ /h)	2.2 / 2.5 (3.8 / 4.3)		1.3 / 1.4 (2.2 / 2.4)
Ultimate vacuum (absolute)	Torr (mbar)	1.5 (2)	0.75 (1.0)	0.4 (0.5)
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)		
Rated motor power	hp (kW)	0.34 (0.25)		
Maximum permissible range of supply voltage (±10%) Attention: Observe specifications of rating plate! Dual voltage motor		100-115 V~ 50/60 Hz, 120 V~ 60 Hz 230 V~ 50/60 Hz 100-115 V~ 50/60 Hz, 120 V 60 Hz / 200-230 V~ 50/60 Hz		
Maximum rated current at: 100-115 V~ 50/60 Hz, 120 V~ 60 Hz 200-230 V~ 50/60 Hz 230 V~ 50/60 Hz	A A A	5.7 3.0 3.0		
Inlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)	small flange KF 16	
Outlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)	silencer / G1/4"	
Dimensions L x W x H approx.	in (mm)	12.9 x 9.4 x 7.8 (328 x 239 x 198)		
Weight approx.	lbs. (kg)	36.2 (16.4)		

Type		ME 4R NT	ME 2 NT
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)		-	II 3/- G Ex h IIC T3 Gc X Internal Atm. only Tech.File: VAC-EX02
Maximum pumping speed 50/60 Hz (ISO 21360)	cfm (m ³ /h)	2.2 / 2.5 (3.8 / 4.2)	1.2 / 1.3 (2.0 / 2.2)
Ultimate vacuum (absolute)	Torr (mbar)	75 (100)	52 (70)
Maximum permissible inlet pressure (absolute)	psi (bar)	16 (1.1)	
Maximum permissible outlet pressure (absolute)	psi (bar)	58 (4)	29 (2)
Maximum permissible outlet pressure (manometer reading)	psi (bar)	44 (3)	-
Maximum pressure difference between inlet and outlet	psi (bar)	58 (4)	29 (2)
Rated motor power	hp (kW)	0.24 (0.18)	
Maximum permissible range of supply voltage (±10%) Attention: Observe specifications of rating plate!		100-115 V~ 50/60 Hz, 120 V 60 Hz 230 V~ 50/60 Hz	
Maximum rated current at: 100-115 V~ 50/60 Hz, 120 V~ 60 Hz 230 V~ 50/60 Hz	A A	3.4 1.8	
Inlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)	
Outlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)	thread G1/4"
Dimensions L x W x H approx.	in (mm)	10.0 x 10.6 x 11.4 (254 x 268 x 290)	9.7 x 8.3 x 7.8 (246 x 211 x 198)
Weight approx.	lbs. (kg)	25.4 (11.5)	22.5 (10.2)

Type	MD 4CRL NT	
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)	II 3/- G Ex h IIC T3 Gc X Internal Atm. only Tech.File: VAC-EX02	
Maximum pumping speed 50/60 Hz (ISO 21360)	cfm (m ³ /h)	2.0 / 2.2 (3.4 / 3.8)
Ultimate vacuum (absolute)	Torr (mbar)	1.1 (1.5)
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)
Leak rate (integral)	Torr*cfm (mbar*l/s)	0.0016 (0.001)
Rated motor power	hp (kW)	0.34 (0.25)
Maximum permissible range of supply voltage (±10%) Attention: Observe specifications of rating plate!	100-115 V~ 50/60 Hz, 120 V 60 Hz / 200-230 V~ 50/60 Hz	
Maximum rated current at: 100-115 V~ 50/60 Hz, 120 V~ 60 Hz 200-230 V~ 50/60 Hz	A A	5.7 3.0
Inlet	small flange KF 16	
Outlet	small flange KF 16	
Dimensions L x W x H approx.	in (mm)	12.9 x 9.6 x 7.8 (328 x 243 x 198)
Weight approx.	lbs. (kg)	43.7 (19.8)

Wetted parts

Components	Wetted materials
Housing cover	aluminum alloy (AlMgSi0.5 or AlSi12)
Head cover	aluminum alloy (AlSi12)
Diaphragm clamping disc	aluminum alloy (AlSi12)
Diaphragm clamping disc (ME 4S NT / MZ 2S NT / ME 8S NT / MD 4S NT)	ETFE glass fiber reinforced
Diaphragm	FPM
Diaphragm (ME 4S NT / MZ 2S NT / ME 8S NT / MD 4S NT / ME 4R NT)	PTFE
Valves	FPM
Valves (MZ 2D NT)	FPM / PTFE
Valves (ME 4S NT / MZ 2S NT / ME 8S NT / MD 4S NT)	FFKM
Valves (ME 4R NT)	PTFE
O-rings	FPM
Connection tube	aluminum alloy (AlMgSi0.5)
Small flange	stainless steel
Hose nozzle	PBT
Hose nozzle (ME 4 NT / ME 4S NT)	stainless steel
Silencer (MD 4 NT / MV 2 NT / MZ 2D NT)	aluminum alloy / silicone
Silencer, optional (ME 2 NT / ME 4(S) NT / ME 8(S) NT / MZ 2(S) NT)	PA / PE / aluminium
Fittings (ME 4 NT / ME 4R NT / ME 4S NT / MZ 2 NT / MZ 2S NT / MZ 2D NT)	aluminum, anodized
Tubing (ME 4(R) NT / MZ 2 NT / MZ 2D NT)	PE
Tubing (ME 4S NT / MZ 2S NT)	PTFE
Seal rings (ME 4 NT / ME 4R NT / ME 4S NT / MZ 2 NT / MZ 2S NT / MZ 2D NT)	PVC
MD 4CRL NT	
Housing cover	stainless steel
Head cover	ETFE carbon fiber reinforced
Diaphragm clamping disc	ETFE carbon fiber reinforced
Diaphragm	PTFE

Components	Wetted materials
Valves	FFKM
Connection tube	PTFE
MD 4CRL NT	
Fittings	stainless steel
Seal rings	FPM
Vacuum / pressure adjustment device (ME 4R NT)	
O-ring	NBR
Valve block	aluminum alloy
Seal ring at manometer	copper
Hollow bolt, dispensing screw	stainless steel
Overpressure safety relief device	FPM

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Abbreviations

ETFE: Ethylene/Tetrafluoroethylene

FFKM: Perfluoro elastomer

FPM: Fluoroelastomer

NBR: Nitrile butadiene rubber

PA: Polyamide

PBT: Polybutylene terephthalate

PE: Polyethylene

PTFE: Polytetrafluoroethylene

PVC: Polyvinyl chloride