

# Technical data

<b>General technical data valid for all pumps/pumping units</b>		
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 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 (bar)	17.5 (1.2)
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
Coolant connection (waste vapor condenser, only "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 ("EK")	psi (bar)	87 (absolute) (6 (absolute))
Permissible range of coolant temperature (waste vapor condenser, only "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** (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 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)

Type		ME 2C NT	ME 4C NT ME 4C NT + 2 AK
Maximum pumping speed* 50/60 Hz (ISO 21360)	cfm (m <sup>3</sup> /h)	1.2 / 1.4 (2.1 / 2.4)	2.3 / 2.6 (3.9 / 4.3)
Ultimate vacuum (absolute)	Torr (mbar)	52.5 (70)	52.5 (70)
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, 120V~ 60 Hz 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:	A	3.4	
100-115 V~ 50/60 Hz,	A	1.8	
120 V~ 60 Hz	A	1.8	
200-230 V~ 50/60 Hz	A		
230 V~ 50/60 Hz	A		
Inlet		hose nozzle for tubing I.D. 3/8" or small flange KF 16 (hose nozzle DN 10 mm or small flange KF 16)	
Outlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)	
Dimensions L x W x H approx. design 2 AK	in (mm) in (mm)	9.6 x 8.3 x 7.8 (243 x 211 x 198) - (-)	10.0 x 9.6 x 7.8 (254 x 243 x 198) 12.4 x 9.6 x 11.5 (316 x 243 x 291)
Weight approx. design 2 AK	lbs. (kg) lbs. (kg)	22.5 (10.2) -	24.3 (11.1) 30.0 (13.6)

\* Pumping speed of diaphragm pump

<b>Type</b>		<b>MZ 2C NT MZ 2C NT + 2 AK MZ 2C NT + AK + EK MZ 2C NT + AK SYNCHRO + EK MZ 2C NT + AK + M + D PC 101 NT</b>
Maximum pumping speed* 50/60 Hz (ISO 21360)	cfm (m <sup>3</sup> /h)	1.2 / 1.4 (2.0 / 2.3)
Ultimate vacuum (absolute) without gas ballast	Torr (mbar)	5.3 (7)
Ultimate vacuum (absolute) with gas ballast	Torr (mbar)	9 (12)
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, 120V~ 60 Hz  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:		
100-115 V~ 50/60 Hz,	A	3.4
120 V~ 60 Hz		
200-230 V~ 50/60 Hz	A	1.8
230 V~ 50/60 Hz	A	1.8
Inlet		hose nozzle for tubing I.D. 3/8" or small flange KF 16 (hose nozzle DN 10 mm or small flange KF 16)
Outlet		hose nozzle for tubing I.D. 3/8" (hose nozzle DN 10 mm)
Dimensions L x W x H approx.		
Pump:	in (mm)	9.6 x 9.6 x 7.8 (243 x 243 x 198)
Vacuum systems:		
design 2 AK	in (mm)	12.6 x 9.6 x 12.2 (319 x 243 x 309)
design AK + EK design	in (mm)	12.8 x 9.6 x 15.8 (326 x 243 x 402)
AK SYNCHRO + EK	in (mm)	12.8 x 9.8 x 15.8 (326 x 248 x 402)
design AK + M + D	in (mm)	12.2 x 9.6 x 12.3 (310 x 243 x 313)
PC 101 NT	in (mm)	12.8 x 9.6 x 15.8 (326 x 243 x 402)
Weight approx.		
Pump:	lbs. (kg)	24.3 (11.1)
Vacuum systems:		
design 2 AK	lbs. (kg)	30.0 (13.6)
design AK + EK	lbs. (kg)	31.3 (14.2)
design AK SYNCHRO + EK	lbs. (kg)	32.0 (14.5)
design AK + M + D	lbs. (kg)	29.5 (13.4)
PC 101 NT	lbs. (kg)	32.0 (14.5)

\* Pumping speed of diaphragm pump

Type	ME 8C NT		MD 4C NT MD 4C NT + 2 AK MD 4C NT + AK + EK MD 4C NT + AK SYNCHRO + EK PC 201 NT
	ME 8C NT + 2 AK		
Maximum pumping speed* 50/60 Hz (ISO 21360)	cfm (m <sup>3</sup> /h)	4.0 / 4.6 (7.1 / 7.8)	2.0 / 2.2 (3.4 / 3.8)
Ultimate vacuum (absolute) without gas ballast	Torr (mbar)	52.5 (70)	1.1 (1.5)
Ultimate vacuum (absolute) with gas ballast	Torr (mbar)	-	2.3 (3)
Rated motor power	hp (kW)	0.34 (0.25)	
Maximum permissible range of supply voltage ( ±10% ) Note: Observe specifications of rating plate!		100 V~ 50/60 Hz 120 V~ 60 Hz	100-115 V~ 50/60Hz, 120 V~ 60 Hz - 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:	A		
100 V~ 50/60 Hz	A		5.0
120 V~ 60 Hz	A		4.0
100-115 V~ 50/60 Hz, 120V~ 60 Hz	A		5.7
200-230 V~ 50/60 Hz	A		3.0
230V~ 50/60 Hz	A		3.0
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)	
Dimensions L x W x H approx.			
Pump:	in (mm)	12.9 x 9.6 x 7.8 (328 x 243 x 198)	
Vacuum systems:			
design 2 AK	in (mm)	12.6 x 9.6 x 14.7 (319 x 243 x 374)	
design AK + EK	in (mm)	-	12.8 x 9.6 x 15.8 (326 x 243 x 402)
design AK SYNCHRO + EK	in (mm)	-	12.8 x 9.8 x 15.8 (326 x 248 x 402)
PC 201 NT	in (mm)	-	12.8 x 9.6 x 15.8 (326 x 243 x 402)

\* Pumping speed of diaphragm pump

Type		ME 8C NT	MD 4C NT
		ME 8C NT + 2 AK	MD 4C NT + 2 AK MD 4C NT + AK + EK MD 4C NT + AK SYNCHRO + EK PC 201 NT
Weight approx.			
Pump:	lbs. (kg)	31.5 (14.3)	31.5 (14.3)
Vacuum systems:			
design 2 AK	lbs. (kg)	36.8 (16.7)	36.8 (16.7)
design AK + EK	lbs. (kg)	-	38.1 (17.3)
design			
AK SYNCHRO + EK	lbs. (kg)	-	38.8 (17.6)
PC 201 NT	lbs. (kg)	-	38.6 (17.5)

## Wetted parts

Components	Wetted materials
Head cover	ETFE carbon fiber reinforced
Diaphragm clamping disc	ETFE carbon fiber reinforced
Diaphragm	PTFE
Valves (ME 2C NT/ME 4C NT/ME 8C NT)	PTFE
Valves (MZ 2C NT/MD 4C NT/ME 8C NT +2AK)	FFKM
O-rings	FPM
Valve head	ECTFE carbon fiber reinforced
Gas ballast tube	PTFE carbon reinforced
Inlet (hose nozzle) Pump Vacuum systems Inlet (small flange)	PTFE carbon reinforced PP (PBT only SYNCHRO designs) stainless steel
Outlet (hose nozzle) Pump / MZ 2C NT + AK + M + D Vacuum systems (waste vapor condenser) Vacuum systems (2 AK)	PTFE carbon reinforced PET PP
Tubing	PTFE
Flow control diaphragm	PTFE
Valve block (SYNCHRO design)	PP
Valves (valve block SYNCHRO)	FFKM
Distribution head	PPS glass fiber reinforced
Blind plug	PP
O-ring at catchpot	fluoroelastomer
Overpressure safety relief device	PTFE / silicone rubber
Exhaust waste vapor condenser / catchpot	Borosilicate glass