

eAir 2.1 Data sheet V2-3

Parameter	Unit	Value
Air pressure	[bar]	12.5
Max. flow rate @ 10 bar	[l/min]	325
Max. flow rate @ 6.5 bar	[l/min]	360
Rated flow rate @ 10 bar	[l/min]	270
Device speed range	[rpm]	1000-3500
Rated speed	[rpm]	3000
Drive type		Direct
Motor type		Permanent Magnet Synchronous Motor
Motor rated output power @ 3000 rpm	[kW]	3.6
Motor rated torque	[Nm]	11.5
Motor max. torque	[Nm]	22
Motor rated phase to phase voltage	[V _{RMS}]	400/230
Motor rated current	[A _{RMS}]	7.8/13.5
Motor max. current	[A _{RMS}]	15/26
Overload operating mode @ 200 %	[s]	60
Safety valve setup	[bar]	13
Oil residue	[ppm]	<3
Oil Quantity	[l]	~1.5
Nominal oil temperature	[°C]	70
Maximum oil temperature	[°C]	105
Nominal air temperature	[°C]	<85
Oil heater		24 V – 35 W – 1.5 A
Anti-condensing system		Heater
Noise level	[dB(A)]	68
Minimum/Maximum ambient temp.*	[°C]	-30* / +45
Maximum relative humidity	[%]	85
Protection class		IP 67
Base length / width / hight	[mm]	490 / 320 / 348
Approved compressor oil		Acc. DIN ISO 3448 VG46
Coolant		Water/Glycol 50/50
Min/Max flow rate	[l/min]	2/5
Pressure drop @ min/max flow rate	[bar]	0.2/0.6
Coolant max temperature	[°C]	60
Weight	[kg]	28



* In order to start-up the compressor at ambient temperatures below +3 °C, e.g. after parking the vehicle outside overnight in the winter, the additionally available “**Low-Temperature Hardware- and Software Option**” for the compressor is **mandatory** to avoid ice building up inside the compressor. Not complying with this direction could block the minimum pressure valve resulting in an overpressure situation inside the compressor, damage to the air end and loss of warranty.

Operating temperature is depending on weather the compressor is equipped with or without the available eAir low temperature option and it has to be distinguished between initial start-up e.g. in the morning and normal operation during driving.

For normal driving operation, the ambient operating range is $-30\text{ °C} / +45\text{ °C}$ **with or without** the low temperature option. When operating the compressor at ambient air temperatures below -15 °C , we recommend using synthetic hydraulic oil.

For initial start-up of the compressor the ambient operating temperature **with** low temperature option is as for driving operation $-30\text{ °C} / +45\text{ °C}$.

Without low temperature option the initial start-up ambient operating range is $+3\text{ °C} / +45\text{ °C}$. If the compressor is ordered without low temperature option, it is recommended to park the bus inside overnight in the winter, to avoid icing inside the compressor.

Motor MMA 80-8-60-...-...-W

Parameter	Unit	Value	
		400 V	230 V
Power	[kW]	3.6	
Torque (rated)	[Nm]	11.5	
Torque (max)	[Nm]	22	
Speed (rated)	[rpm]	3000	
Speed (max)	[rpm]	3500	
Freq.	[Hz]	400	
Pole pairs		8	
Current (rated)	[A _{RMS}]	7.8	13.5
Current (max)	[A _{RMS}]	15	26.0
Motor voltage (rated phase to phase)	[V _{RMS}]	400	230
DC-link voltage	[V]	≥ 560	≥ 325
Phase:			
k _E	[V _{RMS} /krpm]	56.6	32.7
R _{Ph,20}	[Ohm]	0.625	0.21
L _d	[mH]	2.7	0.9
L _q	[mH]	2.85	0.95
Line to line:			
k _{E,LL}	[V _{RMS} /krpm]	98	56.6
R _{LL,20}	[Ohm]	1.25	0.42
L _{LL,d}	[mH]	5.4	1.8
L _{LL,q}	[mH]	5.7	1.9
Connection		Y	Y
Moment of inertia	[kgm ²]	0.0020	
Weight	[kg]	7	
Protection class		IP67	
Thermal class		H	
Thermal protection		PTC (Pt1000 on request)	
Cooling type		Water cooled	
Coolant		Water/Glycol 50/50	
Coolant max temperature	[°C]	60	
Rotational direction*		Clockwise	



In order to run the motor, a frequency inverter capable of conducting **sensorless control** for permanent magnet motors is needed, because the motor has no own position sensor or encoder.



*The Rotational Direction is defined according to DIN-EN60034-8 (looking on the motor shaft). For the eAir 2.1 application the motor has to run counterclockwise (left) and therefore the rotational direction in the inverter has to be inverted.

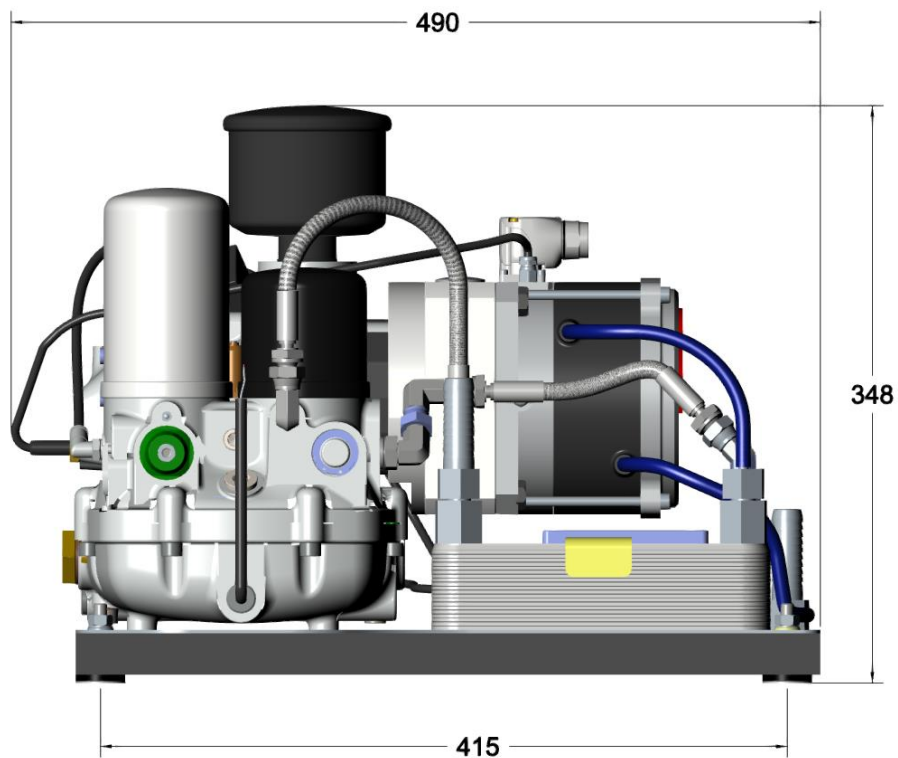


Figure 1 eAir 2.1 Side View

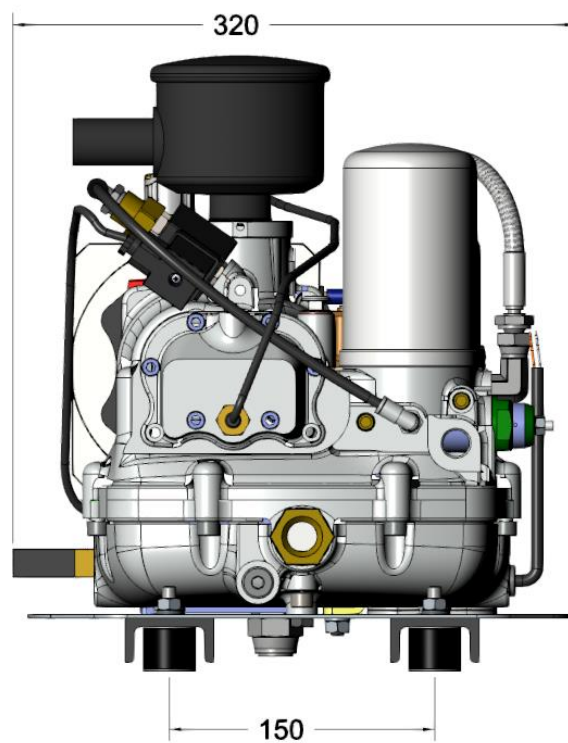


Figure 2 eAir 2.1 Front View