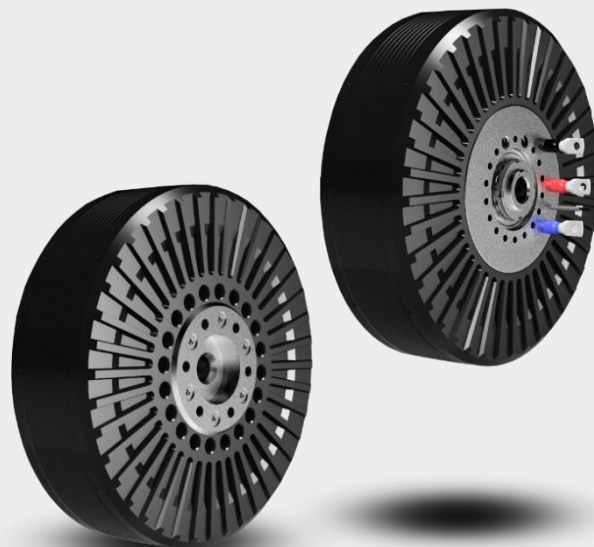


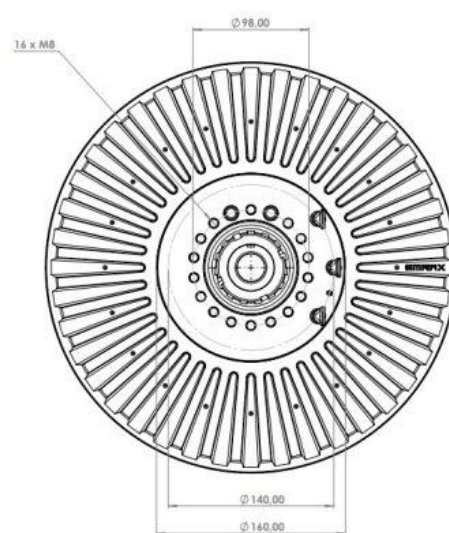
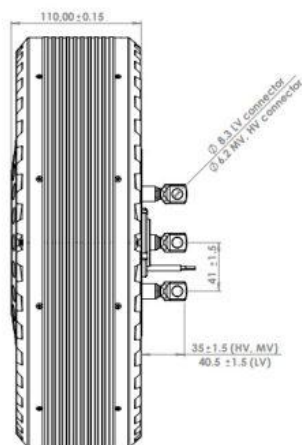
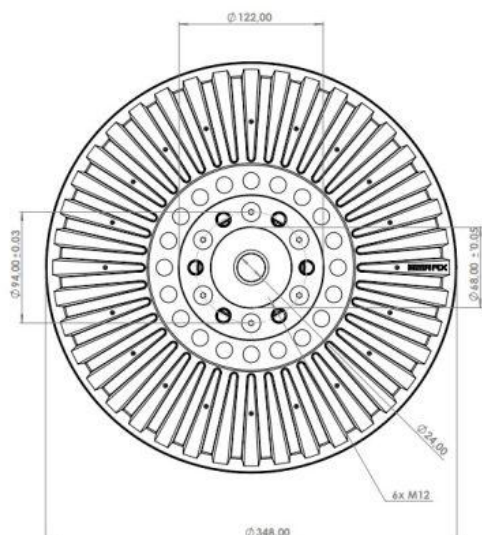
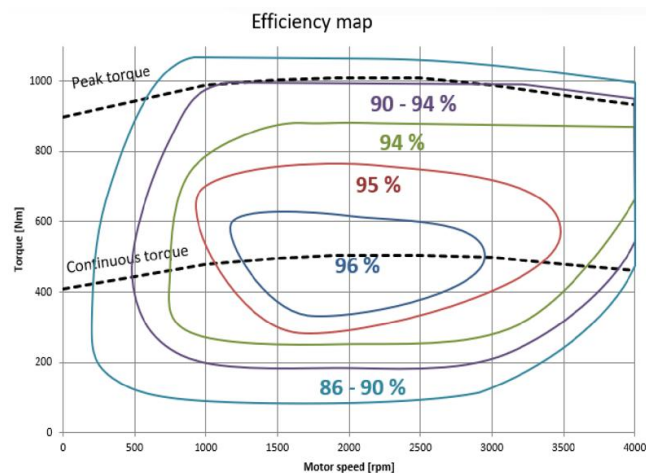
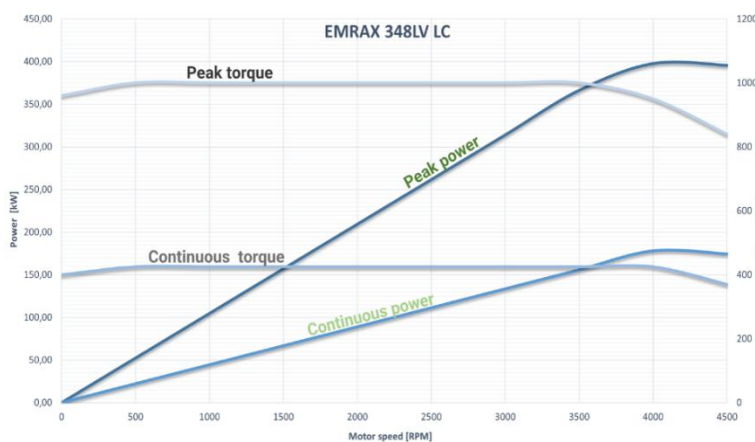
EMRAX 348

is a compact axial flux permanent magnet synchronous electric motor with high power/torque density. It is the largest motor in our lineup. It delivers impressive torque directly at the driveshaft. It has found applications in the aviation, marine and heavy machinery sectors, as well as serving as a traction motor for high-performance vehicle sectors. Contact us to find out more! *****IMPORTANT NOTICE: EMRAX is transitioning to NEXT-GENERATION electric motors, and the current EMRAX 188, 208, 228, 268 and 348 models will gradually be out of production. Envelope dimensions remain the same, while the outer diameter is only slightly larger — 4% for the smallest motor and 2% for the largest.**

DIAMETER LENGTH	348 mm 110 mm
WEIGHT	43,1-43,9 kg
COOLING	air / liquid / combined
PEAK CONTINUOUS POWER	400 kW 180 kW*
PEAK CONTINUOUS TORQUE	1000 Nm 550 Nm*
MAXIMUM SPEED	5500 RPM
OPERATING VOLTAGE	100 - 830 V
EFFICIENCY	up to 96%*
POSITION SENSOR	resolver / encoder



*Subject to motor configuration, drive cycle, thermal conditions, and controller capability.



	EMRAX 348 High Voltage (HV)			EMRAX 348 Medium Voltage (MV)			EMRAX 348 Low Voltage (LV)		
AC = Air Cooled LC = Liquid Cooled CC = Combined Cooled (Air + Liquid) ¹	AC	LC	CC	AC	LC	CC	AC	LC	CC
Ingress protection	IP21	IP66	IP21	IP21	IP66	IP21	IP21	IP66	IP21
Cooling specifications	ambient air 20°C 20 m/s	min. 8 l/min, max. 40°C T _{amb} ≤ 30°C	AC+LC	ambient air 20°C 20 m/s	min. 8 l/min, max. 40°C T _{amb} ≤ 30°C	AC+LC	ambient air 20°C 20 m/s	min. 8 l/min, max. 40°C T _{amb} ≤ 30°C	AC+LC
Maximum motor temperature [°C]	integrated temperature sensor / rotor surface / integrated parts absolute limit 100/80/120								
Motor connection type	UVW or 2x UVW ²								
Voltage required for peak power [V _{DC}] ³	830			830			600		
Motor peak efficiency [%]	96%								
Peak power S2 30 s [kW]	112 kW at 1340 RPM ⁴			174 kW at 2080 RPM ⁴			340 kW at 4000 RPM		
Continuous power S1 [kW]	54	77	85	84	120	132	112	160	176
Peak torque [Nm]	1000								
Continuous torque [Nm]	252	360	396	252	360	396	252	360	396
Limiting speed [RPM]	4500								
K _V constant at no load [RPM/V _{DC}]	3,18			4,92			13,18		
K _V constant at nominal load [RPM/V _{DC}]	2,58			3,96			10,58		
K _V constant at peak load [RPM/V _{DC}]	1,62			2,48			6,56		
K _T constant [Nm/A _{RMS}]	3,19			2,09			0,77		
Peak motor current [A _{RMS}]	375			570			1500		
Continuous motor current (LC) [A _{RMS}]	150			230			550		
Internal phase resistance at 25 °C [mΩ] ⁵	30,21			13,06			2,23		
L _D /L _Q inductance of 1 phase [μH]	468/514			204/223			31/35		
K _e constant [V _{RMS} /RPM]	0,22213			0,14364			0,05365		
PM Flux Linkage [Vs]	0,21267			0,13933			0,05133		
Temperature sensor on the stator windings	KTY 81/210								
Number of pole pairs	10								
Winding configuration	star								
Rotor Inertia LC/AC and CC [kg*m²]	0,3896/0,3881								
Bearing configuration	6210 3208								
Weight [kg]	43,1	43,9	43,5	43,1	43,9	43,5	43,1	43,9	43,5

Actual performance depends on installation details and operating conditions. Contact EMRAX for application-specific guidance.

¹ CC motors require both liquid cooling and sufficient airflow to achieve the specified performance and cannot be operated as air-cooled motors only. All EMRAX motors require adequate airflow (approximately 0.4 m³/min per 1 kW of power) and must not be completely enclosed. For cooling and installation requirements, refer to the EMRAX Motor Manual.

² All values given are for a standard 3 phase UVW version, please consult EMRAX on 2x UVW values. 2*R_{1UVW}=R_{2UVW}

³ All motors are tested up to 833 VDC maximum voltage.

⁴ HV and MV versions operate below the limiting speed due to the 830 VDC voltage limitation.

⁵ Phase-to-phase resistance measured at 25 °C and divided by 2.

	EMRAX 348 Low Voltage (LV) + 43%			EMRAX 348 Low Voltage (LV) + 100%			EMRAX 348 High Voltage (HV) + 42%		
AC = Air Cooled LC = Liquid Cooled CC = Combined Cooled (Air + Liquid) ¹	AC	LC	CC	AC	LC	CC	AC	LC	CC
Ingress protection	IP21	IP66	IP21	IP21	IP66	IP21	IP21	IP66	IP21
Cooling specifications	ambient air 20°C 20 m/s	min. 8 l/min, max. 40°C T _{amb} ≤ 30°C	AC+LC	ambient air 20°C 20 m/s	min. 8 l/min, max. 40°C T _{amb} ≤ 30°C	AC+LC	ambient air 20°C 20 m/s	min. 8 l/min, max. 40°C T _{amb} ≤ 30°C	AC+LC
Maximum motor temperature [°C]	integrated temperature sensor / rotor surface / integrated parts absolute limit 100/80/120								
Motor connection type	UVW or 2x UVW								
Voltage required for peak power [V _{DC}] ³	830			830			830		
Motor peak efficiency [%]	96%								
Peak power S2 30 s [kW]	340 kW at 3920 RPM			236 kW at 2820 RPM ⁶			80 kW at 960 RPM ⁶		
Continuous power S1 [kW]	112	160	176	112	160	176	37	53	58
Peak torque [Nm]	1000								
Continuous torque [Nm]	252	360	396	252	360	396	252	360	396
Limiting speed [RPM]	4500								
K _V constant at no load [RPM/V _{DC}]	9,36			6,69			2,25		
K _V constant at nominal load [RPM/V _{DC}]	7,39			5,29			1,82		
K _V constant at peak load [RPM/V _{DC}]	4,59			3,28			1,14		
K _T constant [Nm/A _{RMS}]	1,10			1,54			4,51		
Peak motor current [A _{RMS}]	1070			760			260		
Continuous motor current (LC) [A _{RMS}]	450			300			105		
Internal phase resistance at 25 °C [mΩ] ⁵	4,62			7,64			63,15		
L _D /L _Q inductance of 1 phase [μH]	57/64			113/124			935/1027		
K _e constant [V _{RMS} /RPM]	0,07557			0,10569			0,31405		
PM Flux Linkage [Vs]	0,07333			0,10267			0,30067		
Temperature sensor on the stator windings	KTY 81/210								
Number of pole pairs	10								
Winding configuration	star								
Rotor Inertia LC/AC and CC [kg*m²]	0,3896/0,3881								
Bearing configuration	6210 3208								
Weight [kg]	43,1	43,9	43,5	43,1	43,9	43,5	43,1	43,9	43,5

Actual performance depends on installation details and operating conditions. Contact EMRAX for application-specific guidance.

⁶ LV+100% and HV+42% versions operate below the limiting speed due to the 830 VDC voltage limitation.