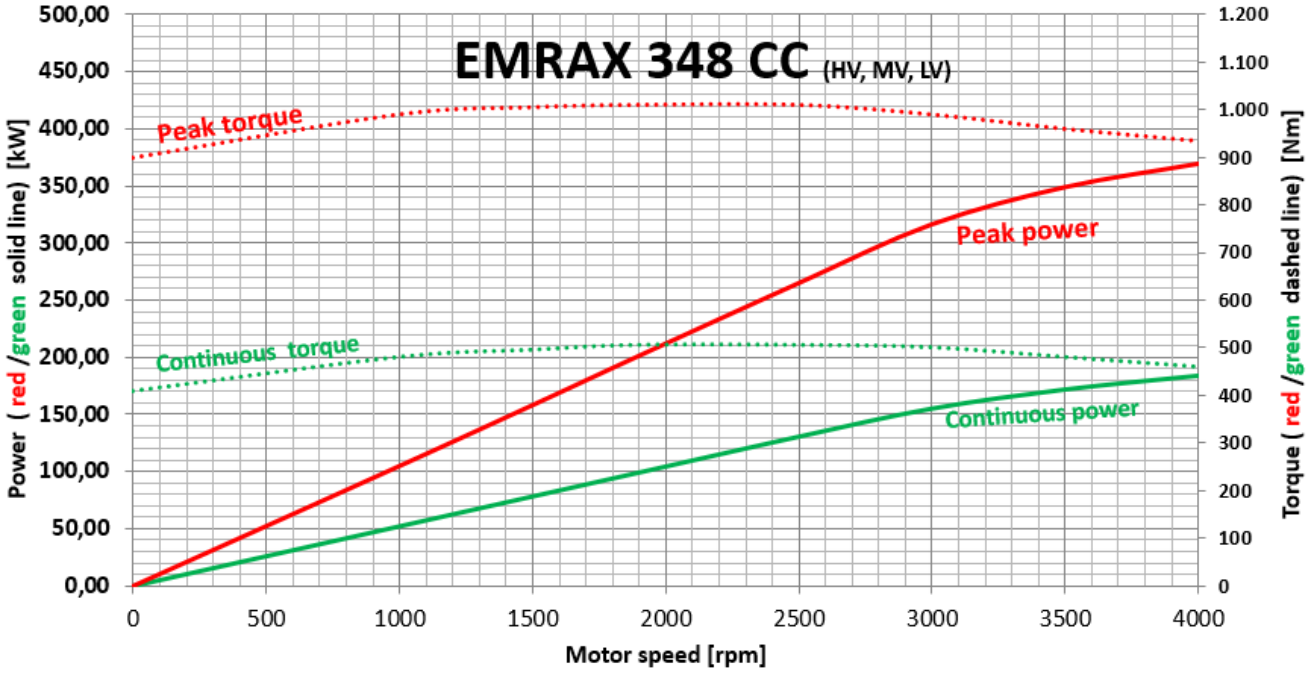
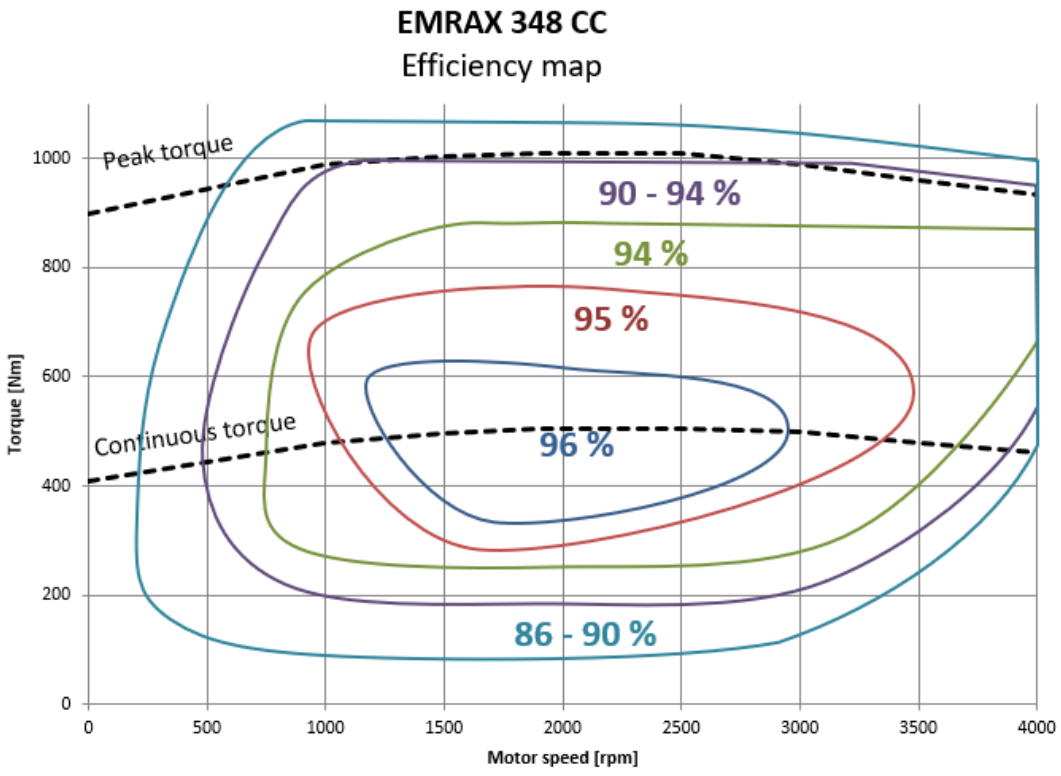
EMRAX 348 Technical Data Table

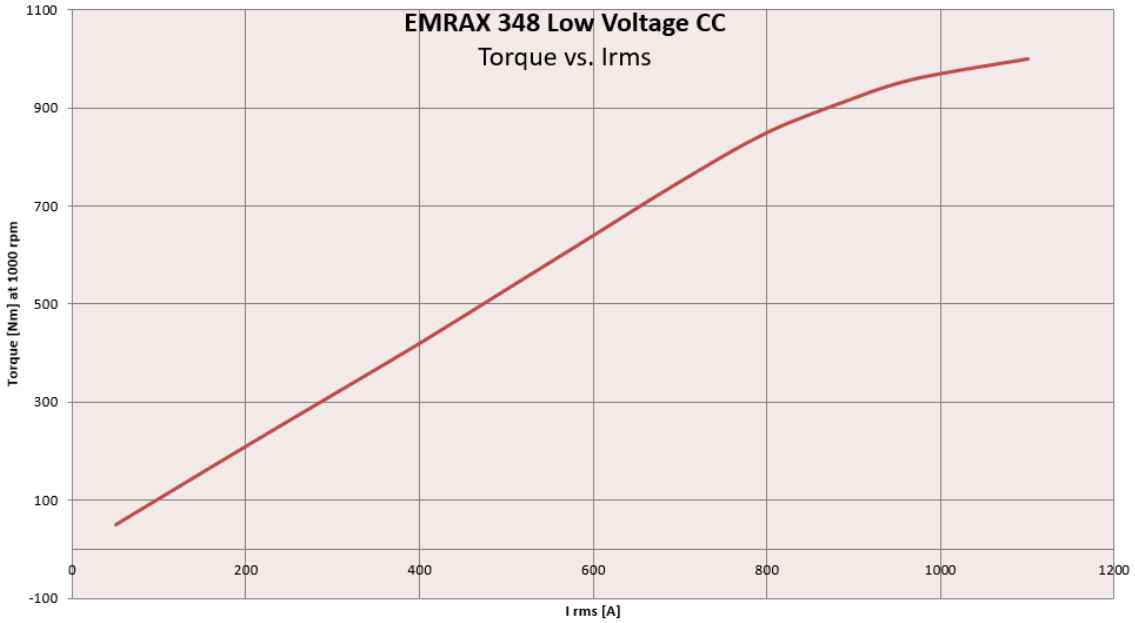
Technical data / Type	EMRAX 348 High Voltage			EMRAX 348 Medium Voltage			EMRAX 348 Low Voltage		
Air cooled = AC Liquid cooled = LC Combined cooled = Air + Liquid cooled = CC	AC	LC	CC	AC	LC	CC	AC	LC	CC
Ingress protection	IP21	IP65	IP21	IP21	IP65	IP21	IP21	IP65	IP21
Cooling medium specification (Air Flow = AF; Water/glycol Flow = WF – if inlet water/glycol temperature and/or ambient temperature are lower, then continuous power is higher)	AF=20m/; AA=25°C	WF=8l/min at 50°C; AA=25°C	WF=8l/min at 50°C; AA=25°C	AF=20m/s ; AA=25°C	WF=8l/min at 50°C; AA=25°C	WF=8l/min at 50°C; AA=25°C	AF=20m/s ; AA=25°C	WF=8l/min at 50°C; AA=25°C	WF=8l/min at 50°C; AA=25°C
Weight [kg]	41	42	41,5	41	42	41,5	41	42	41,5
Diameter ø / width [mm]	348 / 107								
Maximal battery voltage [Vdc] and max load RPM	800 Vdc (1840 RPM)			800 Vdc (2800 RPM)			420 Vdc (4000 RPM)		
Peak motor power at max RPM (few min at cold start / few seconds at hot start) [kW]	170			260			380		
Continuous motor power at load RPM [kW]	68	72	85	103	110	129	170	189	210
Maximal rotation speed [RPM]	4000 (4500 for a few seconds with magnetic field weakening)								
Maximal motor current (for 2 min if it is cooled as described in Manual) [Arms]	280			450			1100		
Continuous motor current [Arms]	140			210			550		
Maximal motor torque (for a few seconds) [Nm]	1000								
Continuous motor torque [Nm]	400	425	500	400	425	500	400	425	500
Torque / motor current [Nm/1Aph rms]	3,8			2,5			0,9		
Cogging torque [Nm]	5								
Maximal temperature of the copper windings in the stator and max. temp. of the magnets [°C]	120								
Motor efficiency [%]	92 – 98 %								
Internal phase resistance at 25 °C [mΩ]	30			12,3			4,4		
Input phase wire cross-section [mm²]	11,4			17,0			42,5		
Wire connection	star								
Induction in Ld/Lq [µH] of 1 phase	418/452			180/195			24,3/26,3		
Controller / motor signal	sine wave								
AC voltage between two phases [Vrms/1RPM]	0,2320			0,1520			0,0560		
Specific idle speed (no load) [RPM/1Vdc]	2,8			4,3			11,8		
Specific load speed (max load) [RPM/1Vdc]	2,3			3,5			9,5		
Magnetic field weakening (for higher RPM at the same power and lower torque) [%]	up to 100 %								
Magnetic flux – axial [Vs]	N/A			N/A			N/A		
Temperature sensor on the stator windings	kty 81/210								
Number of pole pairs	10								
Rotor inertia LC motor [kg*m²]	0,3654								
Bearings (front:back) – FAG	7208:3208 (for axial-radial forces; for pull-push mode, α=25°)								

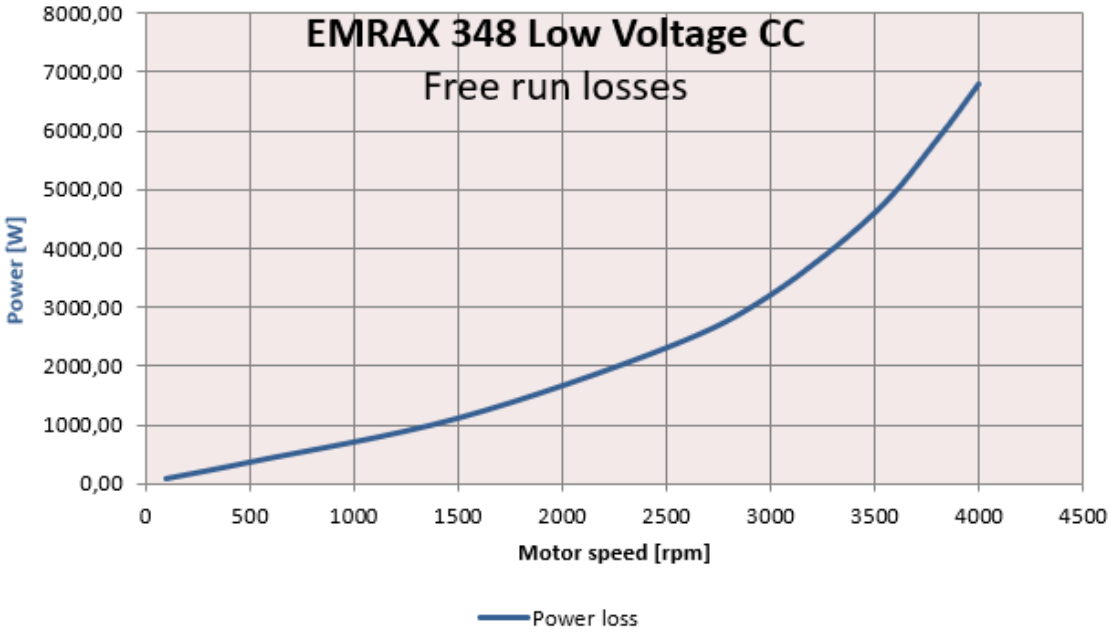
Graphs valid for EMRAX 348:



Note 1: for determening peak or continuous power (kW) you should choose motor speed and than read power from chosen power curve (in the left graph side)
Note 2: for determening peak or continuous torque (Nm) you should choose motor speed and than read torque from chosen torque curve (in the right graph side)







Graphs of EMRAX air cooled and liquid cooled type:
The continuous power and continuous torque for air cooled motor is 20% lower and for liquid cooled motor is 15% lower.