268

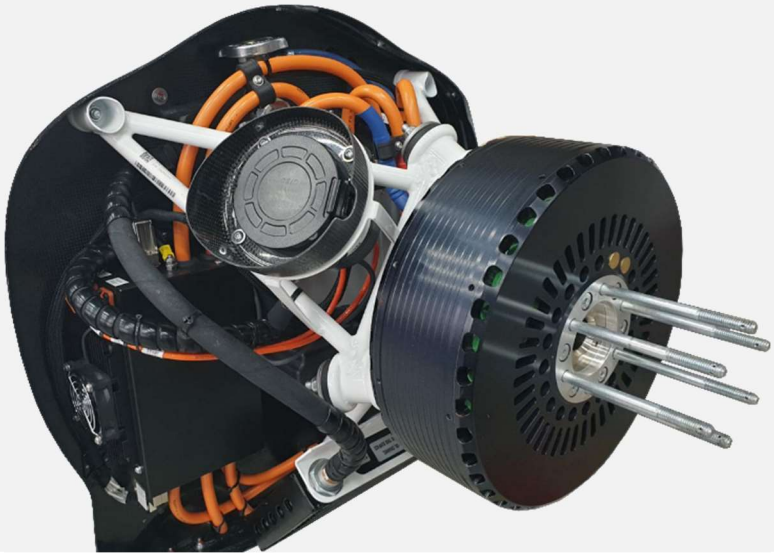
EMRAX 268 is a compact axial flux permanent magnet synchronous electric motor with high power/torque density.

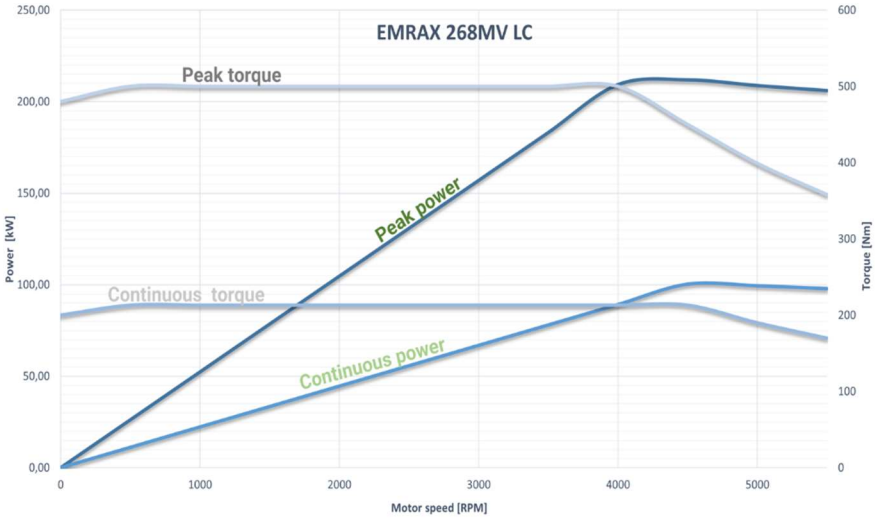
The 268 is a favorite motor choice amongst light aviation, marine and traction applications. It can also be utilized as a hydraulic replacement unit or as a lightweight high power output generator. 268 is the first electric engine certified for use in General Aviation by EASA. Contact us to learn more!

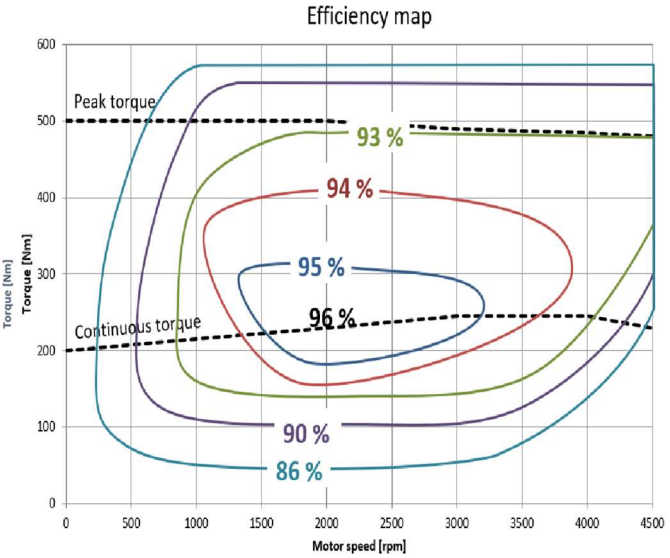
EMRAX 268

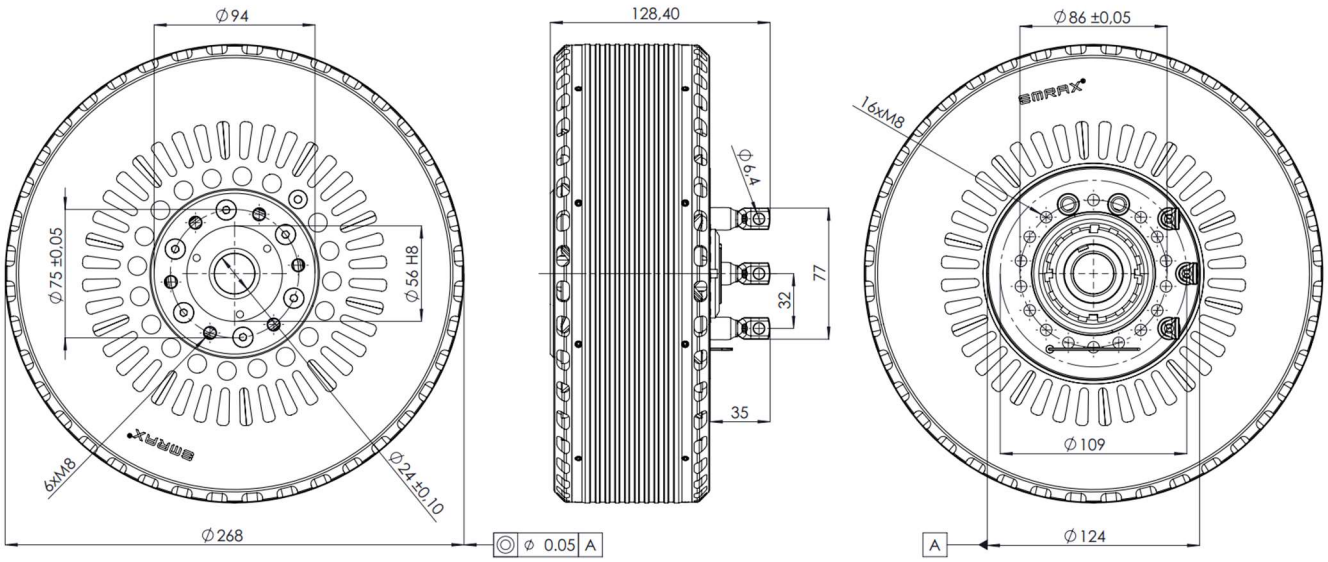
DIAMETER | LENGTH	268 mm | 94 mm
WEIGHT	21,4-22,3 kg
COOLING	air / water / combined
PEAK | CONTINUOUS POWER	210 kW | 117 kW*
PEAK | CONTINUOUS TORQUE	500 Nm | 250 Nm*
MAXIMUM SPEED	4500 RPM
OPERATING VOLTAGE	100 - 830 V
EFFICIENY	up to 96%*
POSITION SENSOR	resolver / encoder

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









	EMRAX 268 High Voltage			EMRAX 268 Medium Voltage			EMRAX 268 Low Voltage		
AC = Air cooled LC = Liquid cooled CC = Combined cooled (Air + liquid)	AC	LC	CC	AC	LC	CC	AC	LC	CC
Ingress protection	IP21	IP66	IP21	IP21	IP66	IP21	IP21	IP66	IP21
Cooling specifications	ambient air 20ºC 20 m/s	min. 6 l/min, max. 50°C T_{amb}≤ 30°C	AC+LC*	ambient air 20ºC 20 m/s	min. 6 l/min, max. 50°C T_{amb}≤ 30°C	AC+LC*	ambient air 20ºC 20 m/s	min. 6 l/min, max. 50°C T_{amb}≤ 30°C	AC+LC*
Maximum motor temperature [°C]	integrated temperature sensor / rotor surface / integrated parts absolute limit 100/100/120								
Motor connection type	UVW or 2x UVW			UVW or 2x UVW			UVW or 2x UVW		
Voltage required for peak power [V_{DC}]**	830 Vdc			830 Vdc			340 Vdc		
Motor peak efficiency [%]	96%								
Peak power S2 60s [kW]	135 kW at 2600 RPM			210 kW at 4500 RPM			210 kW at 4500 RPM		
Continuous power S1 (kW)	80	85	100	94	100	117	94	100	117
Peak torque (60s) [Nm]	500								
Continuous torque [Nm]	200	213	250	200	213	250	200	213	250
Limiting speed [RPM]	4500								
K_V constant at no load [rpm/V_{DC}]	5,85			9,39			24,09		
K_V constant at nominal load [rpm/V_{DC}]	4,72			7,59			19,48		
K_V constant at peak load [rpm/V_{DC}]	3,20			5,17			13,26		
K_T constant [Nm/A_{RMS}]	1,61			1,00			0,39		
Peak motor current 60s [A_{RMS}]	320			500			1300		
Continuous motor current [A_{RMS}]	130			220			550		
Internal phase resistance at 25 °C [mΩ]***	21,87			9,85			1,65		
L_D inductance of 1 phase [µH]	330,5			140,0			22,5		
Ke Induced voltage [V_{RMS}/RPM]	0,12531			0,07823			0,03045		
Magnetic flux – axial [Vs]	0,09769			0,06099			0,02374		
Temperature sensor on the stator windings	KTY 81/210								
Number of pole pairs	10								
Winding configuration	star								
Rotor Inertia [kg*m²]	0,05769								
Bearing configuration	6208 | 3207								
Weight [kg]	21,4	22,3	21,9	21,4	22,3	21,9	21,4	22,3	21,9

*Combined cooled motor (CC) requires cooling specifications from air and liquid cooled motors, to reach its specifications. It cannot only be cooled as an air-cooled motor.
Every EMRAX motor requires sufficient air circulation. To cool down the rotor approximately **0,4 m3/min per 1 kW of power** is required. The motors should not be completely enclosed in any condition. Please check EMRAX motor manual to learn more.
Performance in your application will depend on your installation details and boundary conditions. Please contact us to learn more.
**All motors are tested for 833V maximum voltage.
***Measured Phase to Phase, then divided by 2.

HV option is operating at speeds lower than its limiting, due to 830 V voltage limitations.

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

	EMRAX 268 LV + 43%			EMRAX 268 LV + 100%			EMRAX 268 MV + 42%			EMRAX 268 HV + 42%		
AC = Air cooled LC = Liquid cooled CC = Combined cooled (Air + liquid)	AC	LC	CC	AC	LC	CC	AC	LC	CC	AC	LC	CC
Ingress protection	IP21	IP66	IP21	IP21	IP66	IP21	IP21	IP66	IP21	IP21	IP66	IP21
Cooling specifications*	Amb. air 20ºC, 20 m/s	6 l/min 50°C, T_{amb}≤ 30°C*	AC+LC	Amb. air 20ºC, 20 m/s	6 l/min 50°C, T_{amb}≤ 30°C	AC+LC	Amb. air 20ºC, 20 m/s	6 l/min 50°C, T_{amb}≤ 30°C	AC+LC	Amb. air 20ºC, 20 m/s	6 l/min 50°C, T_{amb}≤ 30°C	AC+LC
Maximum temperature [°C]	integrated temperature sensor / rotor surface / integrated parts absolute limit 100/100/120											
Motor connection type	UVW or 2x UVW											
Voltage required for peak power [V_{DC}]**	485 Vdc			640 Vdc			830 Vdc			830 Vdc		
Motor peak efficiency [%]	96%											
Peak power S2 60s [kW]	210 kW at 4500 RPM			210 kW at 4500 RPM			152 kW at 2900 RPM			95 kW at 1800 RPM		
Continuous power S1 (kW)	94	100	117	94	100	117	90	96	112	56	60	71
Peak torque [Nm]	500											
Continuous torque [Nm]	200	213	250	200	213	250	200	213	250	200	213	250
Limiting speed [RPM]	4500											
Kv constant at no load [rpm/V_{DC}]	16,85			12,05			6,62			4,12		
Kv nominal load [rpm/V_{DC}]	13,62			9,74			5,35			3,33		
Kv peak load [rpm/V_{DC}]	9,27			6,63			3,64			2,26		
Kt constant [Nm/A_{RMS}]	0,57			0,78			1,43			2,28		
Peak motor current 60s [A_{RMS}]	880			650			350			220		
Continuous motor current [A_{RMS}]	380			280			150			100		
Internal phase resistance at 25°C [mΩ]***	3,51			7,35			19,89			45,85		
L_D inductance of 1 phase [µH]	42,1			78,0			282,5			670,0		
Ke Induced voltage [V_{RMS}/RPM]	0,04411			0,06090			0,11108			0,17763		
Magnetic flux – axial [Vs]	0,03439			0,04748			0,08661			0,13849		
Temperature sensor on the stator windings	KTY 81/210											
Number of pole pairs	10											
Winding configuration	star											
Rotor Inertia [kg*m²]	0,05769											
Bearing configuration	6208 | 3207											
Weight [kg]	21,4	22,3	21,9	21,4	22,3	21,9	21,4	22,3	21,9	21,4	22,3	21,9

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**All motors are tested for 833V maximum voltage.
***Measured Phase to Phase, then divided by 2.
MV+42% and HV+42% options are operating at speeds lower than its limiting, due to 830V voltage limitations.
All values given are for a standard 3 phase UVW version, please consult EMRAX on 2x UVW values. $2*R_{1UVW}=R_{2UVW}$