


12 000 W

MECHANICAL PARAMETERS

Nr.	Parameter	VALUE	Units	Notes	Picture
1	Motor model	QS-273 12 000W / V3 / H70 / 48-144V			
2	Motor type	3 phase Outer Rotor BLDC / PMSM hub motor			
3	Axle Configuration	Single Shaft			
4	Motor diameter	303	mm		
5	PCD	5*112	mm	Other PCD on request: 4*98; 5*100; 5*114.3; 5*118	
6	CB	67	mm	Other on request	
7	Brake system	Disc Brake		PCD 4*114.3mm, M12 Optional: PCD 3x80mm, M8	
8					
9	Speed (depends on wheel size)	120	km/h	Optional 40-70 km/h	
10	Matched Wheel	14 inch		Suitable RIMS: 14 inch or above	
11					
12	Color	Black	-		
13	N.W. // G.W.	41/ 43	kg		
14	Package	50*60*58	cm ³	Carton	

Example of E-Conversion kit with 8kW motors:



2pcs of 273 series 12kw motor bearing 1000-1300kg, can reach at 130kph max. speed.

MOTOR SPECIFICATION:

Nr.	Basic parameters	Value	Units	Notes	Picture
1	Rated Power [kW]	12	kW		
2	Max Power [kW]	24	kW	Peak 20 kW in few sec	
3	Rated Voltage [V]	72	V	Optional 48-144V	
4	Rated Current [A]	140	A		
5	Peak Input Current [A]	250-350	A	@96V 210A	
6	Max Phase Current [A]	530-700	A	In short time	
7	Max Current duration time [s]	10	Sec.		
8					
9	Number of Pole pairs	16	Pairs	32pcs.	
10	Magnet Height	50	mm		
11	Max RPM	933	RPM	Depending on kV	
12	kV (RPM per Volt)	10.0	RPM/V	Optional kV: 10.0 / 10.28 / 13.0 / 10.42 / 11.67 / 12. / 14.58	
13	Rated torque [N.m]	150	N.m.		
14	Max Torque [N.m]	350	N.m.		
15	Max Efficiency [%]	86-92	%		
16					
17	Phase Resistance [mΩ]		mΩ		
18	Phase Induction [100 kHz]		uH		
19					
20	Hall sensors	2	Set.	One for spare, Waterproof connector	
21	Hall sensor electrical Angle	120	°		
22	Hall working Voltage	5	V		
23	Temperature sensor	KTY83/122		Other type on request	
24	Recommended working temperature	up to 70	°C	Peak 120°C; * 1 NOTE	
25					
26	Waterproof Grade	54	IP		
27	Cooling type	AIR		Natural AIR cooling	
28	Cross Section of Phase Wire	2x12	mm ²	not include insulation layer)	

1 NOTE: Suggestion (Setting of Controller)

When it's 90 °C inside of motor (in 30s), the current should be limited 50%.

When it's 120 °C, the controller shut down. When it drop down to 70°C, the controller work again.



QS-273 12kW MOTOR TEST CURVE

Description	U	I	P1	M	n	P2	EFF
	[V]	[A]	[W]	[N.m]	[RPM]	[W]	[%]
No Load	72,20	10.46	755.4	0.0	992.0	0.000	0.0
Max Eff	71.11	151.6	10 780	105.1	866.8	9 538	88.5
Max P out	71.11	154.5	10 974	296.5	231.6	7 190	65.5
Max Torque	71.41	111.9	7 988	300.6	103.7	3 264	40.9
End	71.41	111.9	7 988	300.6	103.7	3 264	40.9

Please note that the test curves can be done at different currents. Therefore the torque and RPM can be different. However at respectively currents **the torque** at 72V and 96V will be the same. For example @72V 151A -> 105Nm respectively similarly @96V 114.5A -> 106Nm.

The test curves at different motor windings and controller settings will be different. The test curves are only for general information.

Regarding Motor Supply Voltage / RPM and Power.

For example if motor is with windings 72V, this motor can also be run at lower (or Higher) voltages, such as 48V (or 96-120V). The difference is that you wouldn't get as much power output since a lower voltage is associated a lower max attainable rpm. As power (W or Nm/s) is the product of angular speed (1/seconds) and torque (nm), with the same amount of torque and a lower rpm, you would have a lower power output.

You can achieve the same amount of torque at any voltage as torque is directly dependent on current. You may see something called a torque constant, such as Nm/A or ft-lbs/A. Simply multiply by the current, and you'll get the torque output before accounting for mechanical and electrical losses.

The main limiting factor on the amount of current you can pump into a motor is heat, which can melt the insulating varnish if too high.

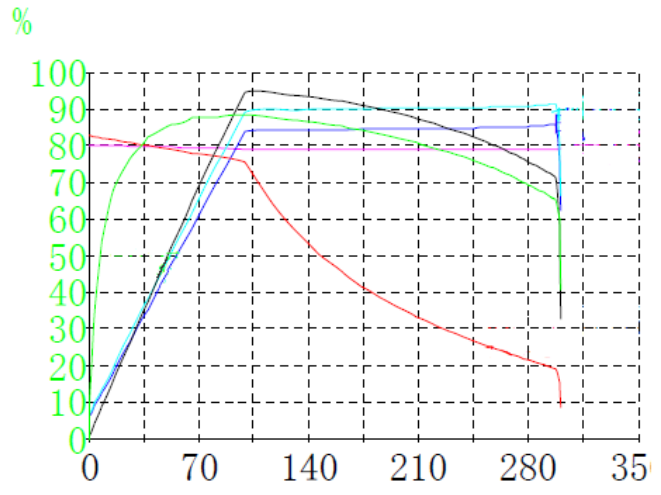
At respectively currents **the motor torque** at any supply voltage (48V or 72V or 96V) **will be the same.**

Duration of max Power / Torque is defined by motor (& controller) overheating.

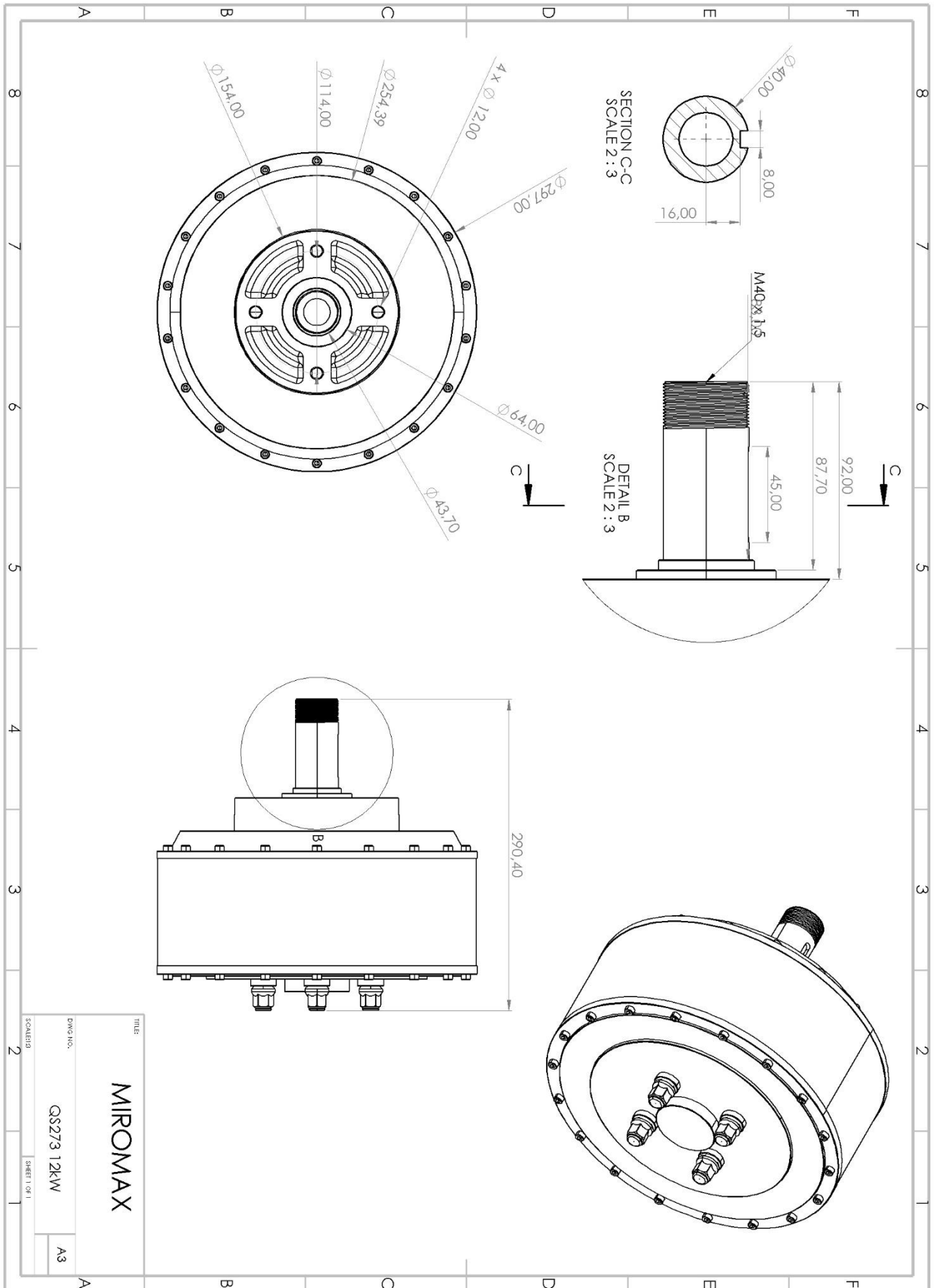
Therefore if motor (& controller) cooling is very good duration time of max Power / Torque can be more longer.

QS-273 12kW MOTOR TEST CURVE

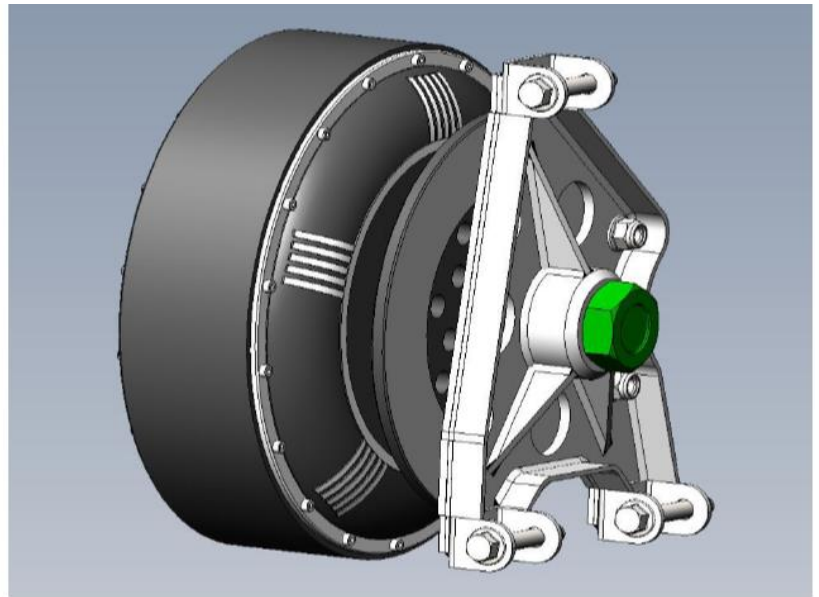
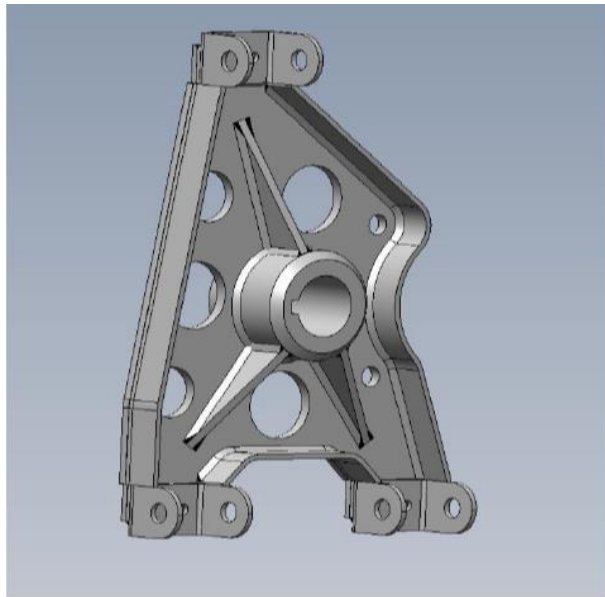
V	A	W	rpm	W
90	180	12000	1200	10000
81	162	10800	1080	9000
72	144	9600	960	8000
63	126	8400	840	7000
54	108	7200	720	6000
45	90	6000	600	5000
36	72	4800	480	4000
27	54	3600	360	3000
18	36	2400	240	2000
9	18	1200	120	1000
0	0	0	0	0



DRAWING



TITLE:	MIROMAX	
DWG. NO.:	QS273 12kW	
SCALE:	1:1	
SHEET 1 OF 1	A3	









CONVERSION KIT

