

Portescap

Athlonix™

High Power Density DC Motors



24DCT - High torque for performance critical applications.

- ✓ High power density
- ✓ Increased battery life
- ✓ Cost effective motion solution
- ✓ Maximum efficiency

The search ends here! The 24DCT motor delivers high torque for performance critical applications with a low cost of ownership. With torque carrying capabilities reaching up to 14.96 mNm, the 24DCT provides higher performance with efficiency reaching up to 90% while maintaining a long life. Due to the inherent design of the 24DCT, it can deliver higher torque per ampere which leads to better battery life. This makes it ideal for battery driven applications such as medical and industrial pumps, drug delivery systems, robotic systems (bionic fingers), miniature industrial power tools, tattoo machines, mesotherapy guns, dental tools, watch winders and more.

OUTPUT AND PERFORMANCE

- Max continuous torque up to 14.96 mNm
- Efficiency up to 90%
- Output power up to 9W

KEY FEATURES

- High continuous torque enhances power density of the overall composite
- Higher battery life ensures lower cost of ownership for battery operated applications
- Component standardization and design modularity ensures quick customization capability for samples across various applications
- Graphite commutation also available, with a unique constant force spring design ensuring consistent performance throughout the life of the motor
- Option of having REE coil

Medical: Infusion pumps, imaging machines, collimators, bionic fingers, defibrillators



Security & Access: Door locks, cameras, alarm systems, zoom lens and spy cameras



Robotics: Humanoid robotics



Others: Rotary tattoo machines, lab automation applications

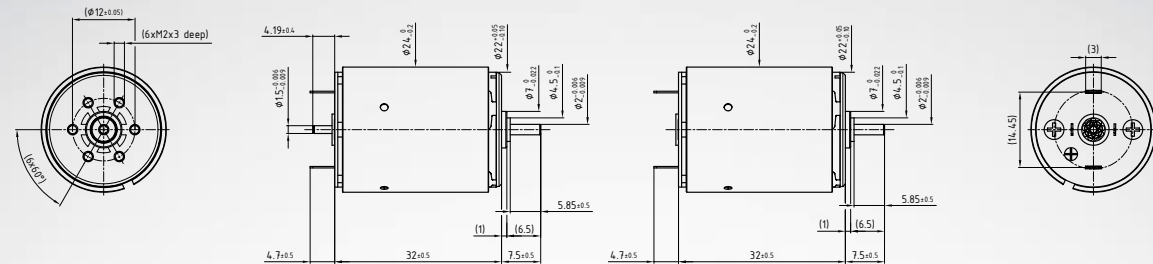


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Learn More.

Visit us at www.athlonix.com

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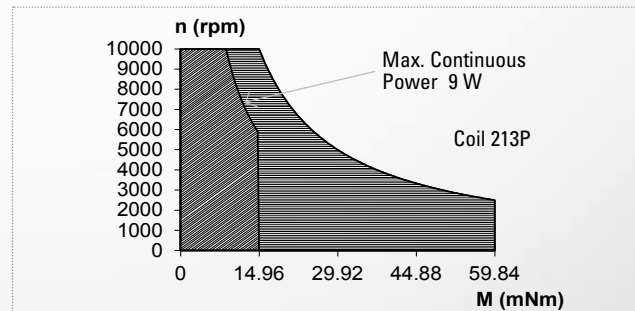
24DCT 32P1/P2 **** *

Electrical Data	****	226P	221P	216P	215P	213P	212P	
1 Nominal Voltage	V	3	6	9	12	15	18	Volt
2 No-Load Speed	n_o	5718	7365	6444	7641	7368	7370	rpm
3 No-Load Current	I_o	44.1	28.4	16.6	14.7	11.4	8.6	mA
4 Terminal Resistance	R	0.4	0.7	2.0	2.5	4.1	5.9	Ω
5 Output Power	P_{2max}	5.3	8.5	7.5	9.4	9.1	9.1	W
6 Stall Torque	mNm	40.6 (5.75)	63.07 (8.94)	60.34 (8.55)	71.54 (10.14)	70.38 (9.97)	70.35 (9.97)	mNm (oz-in)
7 Efficiency	η_{max}	86	89	88	89	89	90	%
8 Max Continuous Speed	$n_{e,max}$	10000	10000	10000	10000	10000	10000	rpm
9 Max Continuous Torque	$M_{e,max}$	12.86 (1.83)	14.15 (2.01)	14.81 (2.1)	14.81 (2.1)	14.96 (2.12)	14.97 (2.13)	mNm (oz-in)
10 Max Continuous Current	$I_{e,max}$	2.62	1.85	1.13	1.00	0.78	0.65	A
11 Back-EMF Constant	k_E	0.52	0.81	1.39	1.57	2.03	2.44	mV/rpm
12 Torque Constant	k_M	4.98	7.75	13.29	14.95	19.38	23.26	mNm/A
13 Motor Regulation	R/k^2	14.75	12.23	11.18	11.18	10.96	10.97	10 ³ /Nms
14 Friction Torque	T_F	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	mNm (oz-in)
15 Mechanical Time Constant	τ_m	6.97	5.87	5.34	5.28	5.20	5.16	ms
16 Rotor Inertia	J	4.73	4.80	4.78	4.72	4.74	4.70	g.cm ²
17 Thermal Resistance (rotor/body)	R_{th1} / R_{th2}	6/22	6/22	6/22	6/22	6/22	6/22	°C/W

General Data

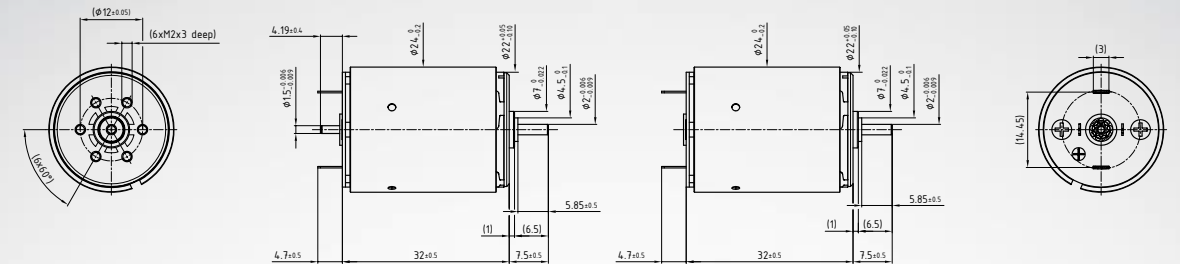
18 Thermal Time Constant (rotor/stator)	τ_{w1}/τ_{w2}	9/550		S
19 Operating Temperature Range:	τ_{w1}/τ_{w2}	-30°C to 85°C (-22°F to 185°F)		°C (°F)
	rotor	100°C (212°F)		°C (°F)
20 Shaft Load Max:		With sleeve bearings		
(5mm from bearing)	-radial	3 (10.79)		N (oz)
	-axial	100 (359.6)		N (oz)
21 Shaft Play:	-radial	0.03 (0.0012)		mm (inch)
	-axial	0.15 (0.0059)		mm (inch)
22 Weight	g	72 (2.54)		g (oz)

Execution				
Gearbox	Single Shaft	MR2	E9	
R22	4	5	6	
M22	1	2	3	
K24	7	8	9	
K27	1	2	3	



— Continuous Working Range
— Intermittent Working Range

Note:
P1 : standard commutation
P2 : special commutation for double shaft version



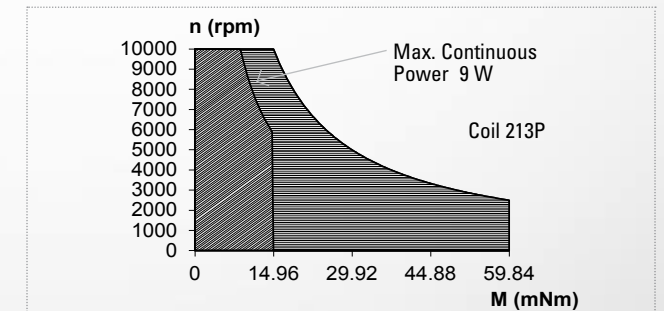
24DCT 31P1/P2 **** *

Electrical Data	****	215E	214E	213E	212E	210E	
1 Nominal Voltage	V	21	24	30	36	48	Volt
2 No-Load Speed	n_o	6980	7076	7837	7837	7631	rpm
3 No-Load Current	I_o	7.7	6.8	6.0	5.0	3.7	mA
4 Terminal Resistance	R	9.9	12.8	16.2	23.4	46.1	Ω
5 Output Power	P_{2max}	8.0	8.0	9.2	9.2	8.6	W
6 Stall Torque	mNm	60.64 (8.59)	60.51 (8.57)	67.38 (9.55)	66.95 (9.49)	62.1 (8.8)	mNm (oz-in)
7 Efficiency	η_{max}	88	88	89	89	88	%
8 Max Continuous Speed	$n_{e,max}$	10000	10000	10000	10000	10000	rpm
9 Max Continuous Torque	$M_{e,max}$	14.25 (2.02)	14.14 (2.01)	14.18 (2.01)	14.13 (2.01)	13.79 (1.96)	mNm (oz-in)
10 Max Continuous Current	$I_{e,max}$	0.50	0.44	0.39	0.32	0.23	A
11 Back-EMF Constant	k_E	3.00	3.38	3.82	4.58	6.27	mV/rpm
12 Torque Constant	k_M	28.63	32.27	36.44	43.72	59.86	mNm/A
13 Motor Regulation	R/k^2	12.05	12.24	12.18	12.26	12.87	10 ³ /Nms
14 Friction Torque	T_F	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	0.22 (0.04)	mNm (oz-in)
15 Mechanical Time Constant	τ_m	5.80	5.78	5.77	5.76	5.75	ms
16 Rotor Inertia	J	4.81	4.72	4.74	4.70	4.47	g.cm ²
17 Thermal Resistance (rotor/body)	R_{th1} / R_{th2}	6/22	6/22	6/22	6/22	6/22	°C/W

General Data

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