

Ultra EC™ Brushless Motors 30ECT



Ultra high torque in the smallest package

The 4 pole 30ECT motor offers ultra high torque and power, up to 245W max continuous without compromising on the smooth operation and long life you expect from Portescap's brushless slotless motors. The 30ECT is available in two lengths: 30ECT64 & 30ECT90.

With our patented Ultra coil technology, the 30ECT provides unparalleled torque and power density. Portescap's patented high-speed rotor design allows the 30ECT to sustain speeds up to 30,000 rpm. The 30ECT90 is unique and opens new areas for slim/long package with impressive torque capabilities. Thanks to its rugged design, the 30ECTs can sustain peak torque during 2s up to 1.3Nm (30ECT64) and 2.4Nm (30ECT90).

This motor features a laser welded front flange to ensure the strongest housing for heavy duty applications. A temperature probe on the coil head ensures an optimized control of motor performances. These motors are offered with hall sensors and a total of 6 different coils to match your speed and voltage requirements.

The new 30ECT is an ideal choice for industrial applications, and especially hand held tools due to its ergonomic diameter.

✓ Peak torque (2s) up to 2.4Nm

✓ 64mm and 90mm lengths available

✓ Speeds up to 30,000 RPM

Key Features

- High peak torque design
- Up to 225 mNm continuous torque
- 30,000 rpm max continuous speed
- Superior dynamics and harder work cycle
- RoHS compliant
- Rugged design: stainless steel & laser welded flange
- Embedded thermal sensor

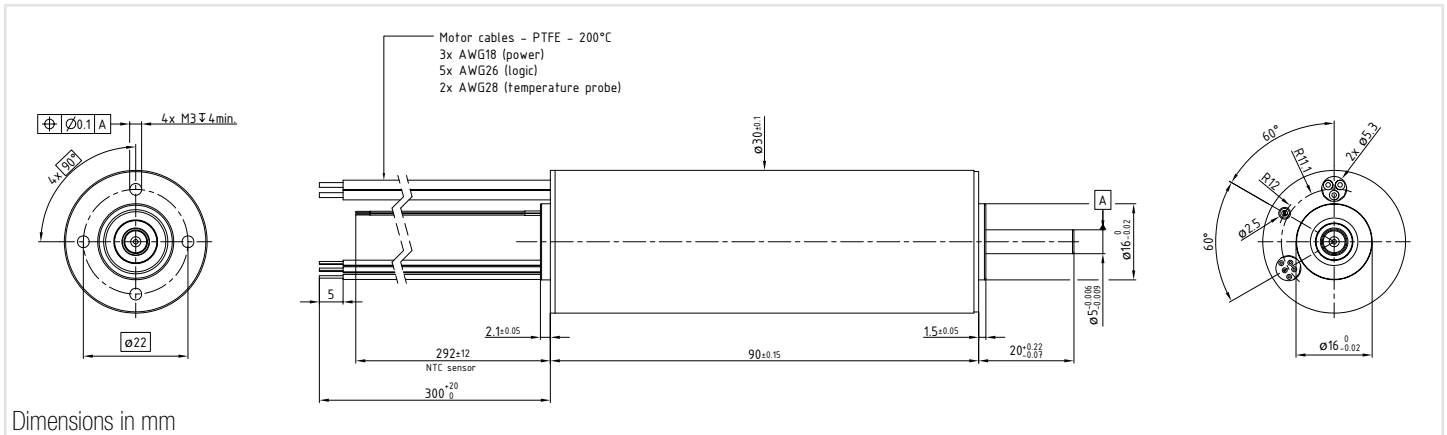
Applications

- Power hand tools
- Nutrunners & screwdrivers
- Drills
- Factory automation equipment
- Electric grippers
- Robotic applications
- Exoskeletons
- Aerospace actuators & window shades

Compatibility & Customization (*)

- Encoders*
 - M-sense, Absolute Digital & Sine/Cosine
- Gearboxes*
 - R32, R40
- Customization
 - Coil variations
 - Mechanical interface modifications

**upon request*



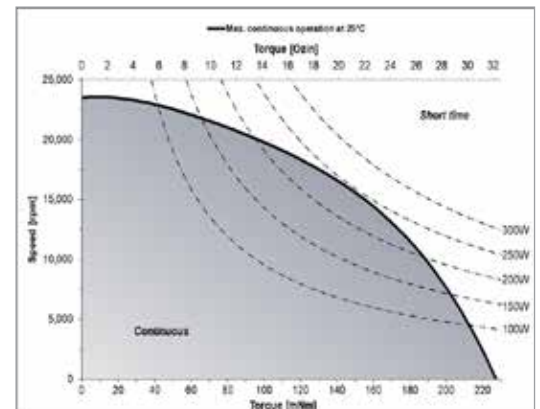
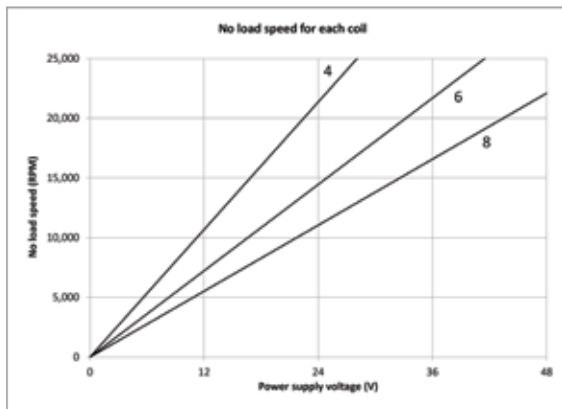
30ECT90 - 10B - **

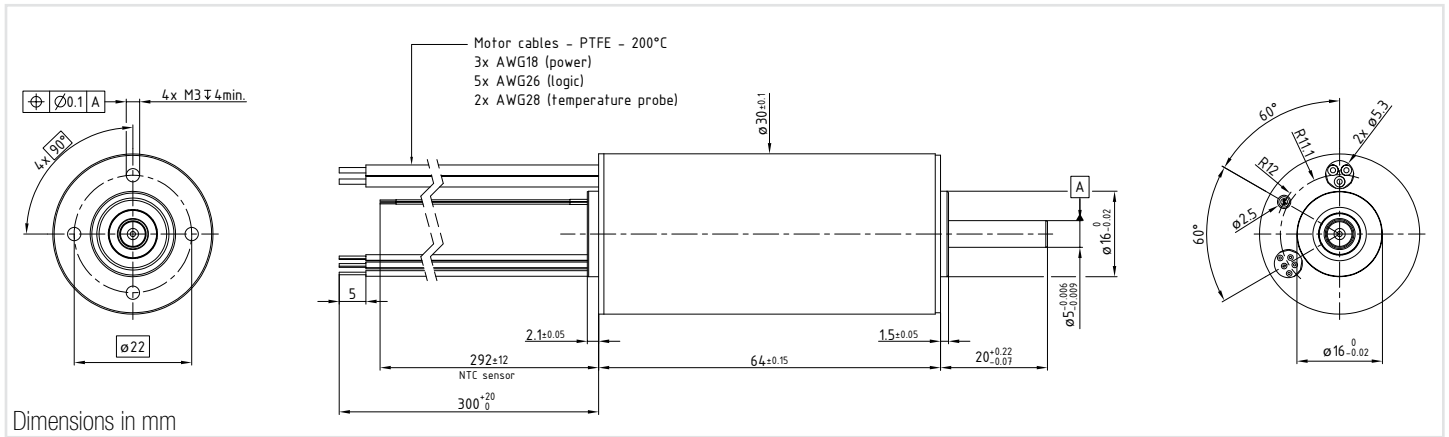
Electrical Data	**	4	6	8	
1 Nominal Voltage	U_N	24	36	48	Volt
2 Optimization Direction	-	Symmetrical	Symmetrical	Symmetrical	-
3 No-Load Speed	n_0	21,370	21,690	22,100	rpm
4 Typical No-Load Current	I_0	1050	640	575	mA
5 Max Continuous Mechanical Power (@25°C)	P_{max}	244.0	244.0	244.0	W
6 Max Continuous Current	$I_{e,max}$	21.0	14.0	10.4	A
7 Max Continuous Torque	$M_{e,max}$	225 (31.86)	221 (31.3)	219 (31.02)	mNm (oz-in)
8 Back EMF Constant	K_E	1.12	1.66	2.21	V/1000 rpm
9 Torque Constant	k_M	10.7	15.8	21.1	mNm/A
10 Motor Regulation	R/k^2	0.25	0.26	0.26	10 ³ /Nms
11 Motor Regulation	$k/R^{1/2}$	63.5 (9)	62.3 (8.83)	61.4 (8.69)	mNm/W ^{1/2} (oz-in/W ^{1/2})
12 Internal Resistance - phase to phase	R_i	0.029	0.065	0.118	ohms
13 Line to Line Resistance at Connectors	R_L	0.044	0.080	0.133	ohms
14 Inductance Phase to Phase	L	0.008	0.017	0.029	mH
15 Mechanical Time Constant	t_m	1.1	1.2	1.2	ms
16 Electrical Time Constant	t_e	0.27	0.26	0.25	ms

General Data					
17 Maximum Motor Speed	n_{max}		25,000		rpm
18 Ambient Working Temperature Range	-		-30 to +100 (-22 to +212)		°C (°F)
19 Ambient Storage Temperature Range	-		-40 to +100 (-40 to +212)		°C (°F)
20 Ball Bearings Preload	-		13.5		N
21 Axial Static Force w/o Shaft Support (max)	-		134		N
22 Maximum Winding Temperature	-		150 (302)		°C (°F)
23 Thermal Resistance	R_{th1}/R_{th2}		0.7/5.9		°C/W
24 Thermal Time Constant	t_w		1,659		s
25 Weight	-		380 (13.41)		g (oz)
26 Rotor Inertia	J		45.00		g.cm ²
27 Hall Sensor Electrical Phasing	-		120		Electrical °

* Available without hall sensor

With hall effect sensors	
Wire	Description
Grey	Phase 1
Violet	Phase 2
Blue	Phase 3
Green	VDC (4 to 24V)
Yellow	GND
Orange	Sensor 1
Red	Sensor 2
Brown	Sensor 3
Black	Thermistor (+)
White	Thermistor (-)





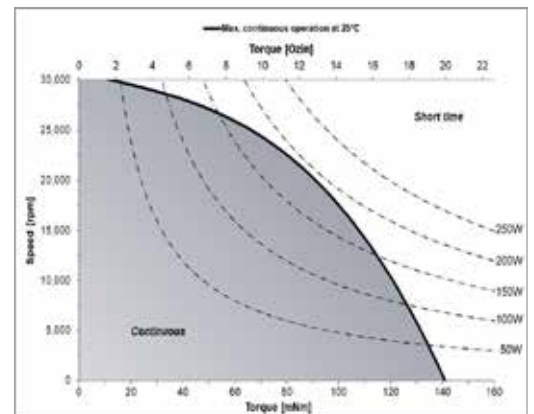
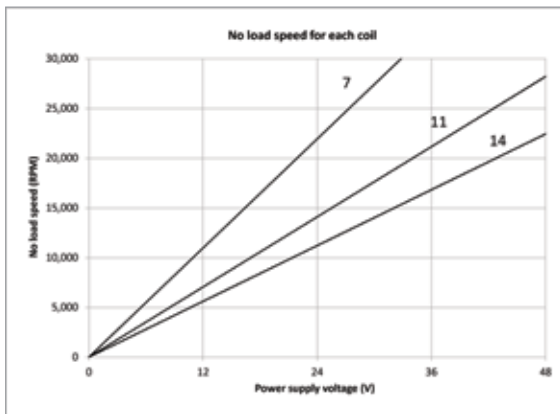
30ECT64 - 10B - **

Electrical Data		**	7	11	14	
1	Nominal Voltage	U_N	24	36	48	Volt
2	Optimization Direction	-	Symmetrical	Symmetrical	Symmetrical	-
3	No-Load Speed	n_0	21,930	21,150	22,425	rpm
4	Typical No-Load Current	I_0	575	425	300	mA
5	Max Continuous Mechanical Power (@25°C)	P_{max}	187.0	187.0	187.0	W
6	Max Continuous Current	$I_{e max}$	12.9	8.1	6.5	A
7	Max Continuous Torque	$M_{e max}$	136 (19.26)	134 (18.98)	133 (18.84)	mNm (oz-in)
8	Back EMF Constant	K_E	1.10	1.74	2.14	V/1000 rpm
9	Torque Constant	k_M	10.5	16.6	20.5	mNm/A
10	Motor Regulation	R/k^2	0.57	0.59	0.60	$10^3/Nms$
11	Motor Regulation	$k/R^{1/2}$	41.8 (5.92)	41.2 (5.85)	40.8 (5.78)	$mNm/W^{1/2}$ (oz-in/ $W^{1/2}$)
12	Internal Resistance - phase to phase	R_i	0.064	0.162	0.252	ohms
13	Line to Line Resistance at Connectors	R_L	0.079	0.177	0.267	ohms
14	Inductance Phase to Phase	L	0.015	0.036	0.058	mH
15	Mechanical Time Constant	t_m	1.6	1.6	1.7	ms
16	Electrical Time Constant	t_e	0.23	0.22	0.23	ms

General Data					
17	Maximum Motor Speed	n_{max}		30,000	rpm
18	Ambient Working Temperature Range	-		-30 to +100 (-22 to +212)	°C (°F)
19	Ambient Storage Temperature Range	-		-40 to +100 (-40 to +212)	°C (°F)
20	Ball Bearings Preload	-		13.5	N
21	Axial Static Force w/o Shaft Support (max)	-		134	N
22	Maximum Winding Temperature	-		150 (302)	°C (°F)
23	Thermal Resistance	R_{th1}/R_{th2}		0.9/7	°C/W
24	Thermal Time Constant	t_w		1,327	s
25	Weight	-		263 (9.28)	g (oz)
26	Rotor Inertia	J		28.00	$g.cm^2$
27	Hall Sensor Electrical Phasing	-		120	Electrical °

* Available without hall sensor

With hall effect sensors	
Wire	Description
Grey	Phase 1
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Ultra EC™

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