Portescap

Ultra EC™ motors

16ECP – Ultra cost optimized motor without compromising on long life, smooth operation and premium performance.

- ✓ Universal solution
- ✓ Great price-to-performance ratio
- ✓ Optimized torque and power
- ✓ Compatible with gearboxes and encoders

Portescap introduces the Ultra EC - 16ECP, designed to be one of the most advanced and highest performing 2 poles brushless slotless motors in its class. The 16ECP offers the right balance of speed and torque capability at a cost-effective price. These motors can provide 30% additional continuous torque, run up to 60'000 rpm and deliver up to 30W continuous power.

The new patented motor coil* achieves unparalleled torque and power density, from low to high speed. The 16ECP mini motor can be adapted to many applications in the Medical and Industrial segments, enhancing the life and reliability of the device without compromising on power and machine throughput.

The compact size and efficiency of the 16ECP allows for applications to be smaller and more mobile. This motor proves to be an excellent choice for battery operated devices and wherever energy savings is a must.

OUTPUT AND PERFORMANCE

- **Ultra compact - 16mm diameter enables machine miniaturization**
- **Up to 30W continuous power**
- **Available in lengths of 36mm and 52mm**

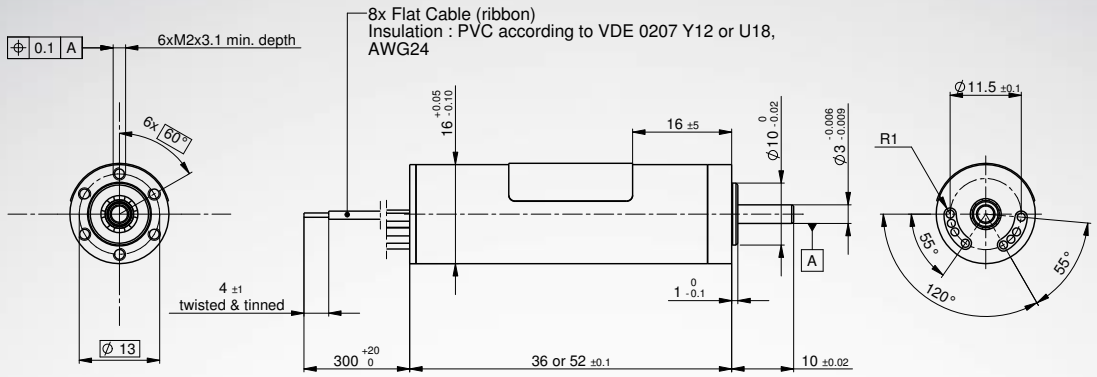
KEY FEATURES

- **Optimized magnetic design enables motor to achieve up to 15 mNm**
- **Flexible mechanical design allows motor to adapt to any application, from low to high speed**
- **Compact size allows reduction of machine footprint without compromising on output performances**
- **Proprietary coil design and optimized bearing assembly**

Medical: Artery Disease Treatment Devices, Infusion Pumps, Bpap Respirator	**Clinical Diagnostics:** Medical Analyzers, Sample Preparation Workstations, XYZ Axes	**Factory Automation:** Electric Grippers, Pick & Place Machines, Screwdrivers	**Aerospace:** Window Shades, Valves, Actuators
			

*This product is covered by the following US Patent: N° 8,847,459

MOTION SOLUTIONS THAT MOVE LIFE FORWARD.™

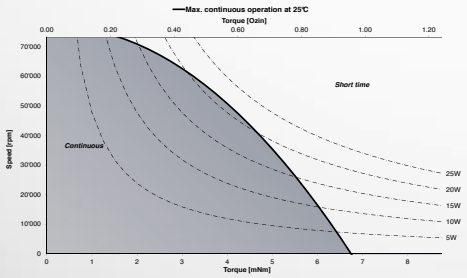


Electrical Data		**	16ECP36** 380	16ECP36** 108	16ECP52** 220	16ECP52** 49	
1	**Nominal Voltage**	U_N	24		24		Volt
2	**Optimization Direction**	-	Symmetrical		Symmetrical		-
3	**No-Load Speed**	n_o	8,100	29,000	6,144	27,800	rpm
4	**Typical No-load Current**	I_o	20	85	19	134	mA
5	**Max Continuous Mechanical Power (@ 25°C)**	P_{max}	23	23	30	30	W
6	**Max Continuous Current**	$I_{e\,max}$	0.2	0.9	0.4	1.9	A
7	**Max Continuous Torque**	$M_{e\,max}$	6.4(0.91)	6.6(0.93)	13.2(1.85)	14.8(2.1)	mNm (oz-in)
8	**Back EMF Constant**	K_E	2.82	0.8	3.77	0.84	V/1000 rpm
9	**Torque Constant**	K_M	26.9	7.7	36	7.99	mNm/A
10	**Motor Regulation**	R/k^2	71.9	68.3	18.9	17.2	10^3/Nms
11	**Motor Regulation**	$k/R^{1/2}$	3.7(0.53)	3.8(0.54)	7.3(1.03)	7.6(1.08)	mNm/$W^{1/2}$ (oz-in/$W^{1/2}$)
12	**Internal Resistance - Phase to Phase**	R_l	52	4.05	24.5	1.1	ohms
13	**Line to Line Resistance at Connectors**	R_L	52.1	4.13	24.6	1.17	ohms
14	**Inductance - Phase to Phase**	L	3.93	0.32	2.32	0.12	mH
15	**Mechanical Time Constant**	t_m	3.9	3.7	1.9	1.6	ms
16	**Electrical Time Constant**	t_e	0.08		0.1		ms

General Data

17	**Maximum Motor Speed**	n_{max}	63,000		40,000		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**	-	5.3				N
21	**Axial static force without shaft support (max)**	-	25				N
22	**Maximum winding temperature**	-	125(257)				°C (°F)
23	**Thermal Resistance**	R_{th1}/R_{th2}	3.5/20.5		3/18.5		°C/W
24	**Thermal Time Constant**	tw	580		750		s
25	**Weight**	-	41 (1.45)		62 (2.19)		g (oz)
26	**Rotor Inertia**	J	0.6		1		$g.cm^2$
27	**Hall Sensor Electrical Phasing**	-	120				Electrical °

Power Curve 16ECP36



Power Curve 16ECP52