

Portescap

Ultra EC™ motors



NEW

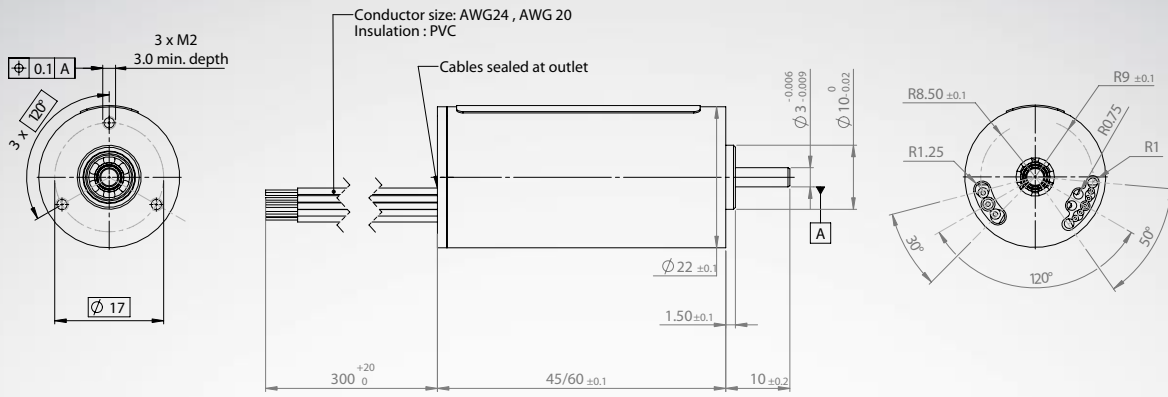
A renewed wind in the respirator market. 22ECS SERIES BRUSHLESS MOTOR

From home care to ICU's, ventilators require increased performance and reliability in more portable designs.

The new magnetic design (patent pending) of Portescap's 22mm ECS brushless motor improves motor performance and efficiency.

The 22ECS can operate at high peak current which improves motor responsiveness to ensure the best patient therapy acceptance. Additionally, by improving efficiency, the 22ECS uses less power and can operate at lower temperatures. Using less power helps optimize battery life and improve overall device mobility. Similarly, the 22ECS typically runs 30% cooler than similar motors at speeds over 45,000rpm which has shown to greatly extend blower life as well as enhance the life and reliability of the motor.

Attributes	Features	Benefits
Compact	Ø22mm	Small package in different lengths, portability
Powerful	Up to 180 W mechanical power at 50'000 rpm	Invasive / non-invasive ventilation modes
Efficient	Optimized ironlosses for an efficiency up to 91% continuously	Reduced power supply, extended operation on battery
Reactive	Shorter mechanical time constant enables fast acceleration/ deceleration	Bi-level, increased patient therapy acceptance
Fast	Optimized bearing assembly for speeds up to 73'000 rpm	Broad flow and pressure range for neonatal to adult ventilation
Cool	Up to 30% cooler	Extended bearing life and ventilator reliability
Smart	Built-in thermal sensor	Thermal management for increased reliability



with or without hall sensors

Designation	Electrical Data - Winding Type**	22ECS45 **		22ECS60 **			
		24	18	21	17		
1	Nominal voltage	V	24	24	24	24	±0,1
2	Optimization direction (standard)	-	CCW	CCW	CCW	CCW	typical
3	No-load speed	rpm	51600	68500	35000	43000	±10%
4	Typical no-load current	mA	240	300	190	270	±50%
5	Max. continuous mechanical power (@ 25°C)	W	120	120	180	180	typical
6	Max. continuous current	A	6.4	8.2	7.1	8.7	typical
7	Max. continuous torque	mNm (oz-in)	26.7 (3.78)	26.8 (3.80)	45.9 (6.50)	44.5 (6.30)	typical
8	Back-EMF constant	V/1000 rpm	0.44	0.34	0.68	0.53	±10%
9	Torque constant	mNm/A (oz-in/A)	4.2 (0.59)	3.3 (0.47)	6.5 (0.92)	5.1 (0.72)	±10%
10	Motor regulation R/k ²	10 ³ /Nms	8.5	8.5	3.6	3.8	typical
11	Motor regulation k/R ^{1/2}	mNm/W ^{1/2} (oz-in/W ^{1/2})	10.8 (1.53)	10.8 (1.53)	16.7 (2.36)	16.1 (2.28)	typical
12	Internal resistance - phase to phase	Ω	0.15	0.09	0.15	0.10	±8%
13	Line to Line resistance at connectors	Ω	0.17	0.10	0.17	0.12	typical
14	Inductance - phase to phase	mH	0.02	0.015	0.012	0.009	typical
15	Mechanical time constant	ms	1.9	1.9	1.3	1.3	typical
16	Electrical time constant	ms	0.13	0.17	0.08	0.09	typical

General Data

17	Thermal resistance coil-housing	°C/W	1.3	1.3	1.1	1.1	typical
18	Thermal resistance housing-ambient	°C/W	10.4	10.4	8.3	8.3	typical
19	Thermal time constant	s	660	660	950	950	typical
20	Mass	g (oz)	110 (3.88)	110 (3.88)	150 (5.29)	150 (5.29)	typical
21	Rotor inertia	kg.m ² ·10 ⁻⁷ (oz.in.sec ²)	2.3 (3.3·10 ⁻⁵)	2.3 (3.3·10 ⁻⁵)	3.5 (5·10 ⁻⁵)	3.5 (5·10 ⁻⁵)	typical

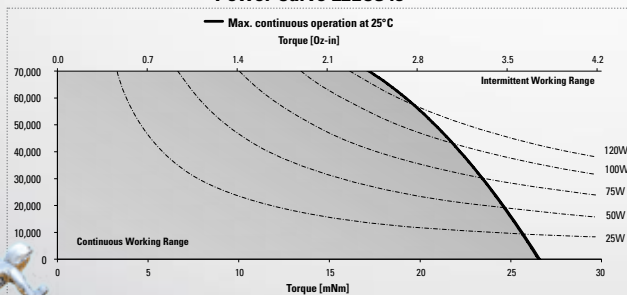
General Data

All

22	Max. motor speed	rpm	73,000	max
23	Ambient working temperature range	°C	-30 / +100	-
24	Ambient storage temperature range	°C	-40 / +100	-
25	Ball bearings preload	N	5.5	typical
26	Axial static force without shaft support	N	34	max
27	Max. winding temperature	°C	125	max
28	Typical housing material	Stainless steel / aluminium rear flange		
29	Hall sensor electrical phasing	°	120	typical

*RoHS Compliant

Power Curve 22ECS45



Power Curve 22ECS60

