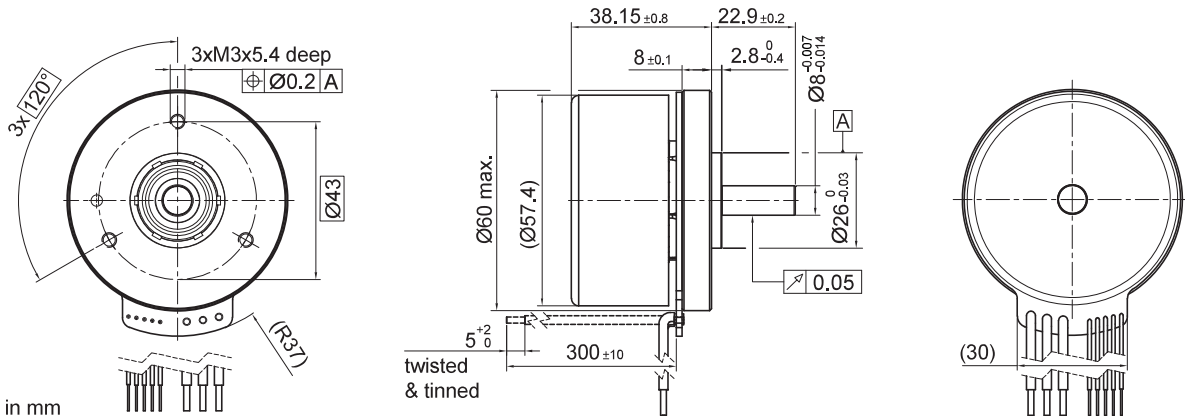


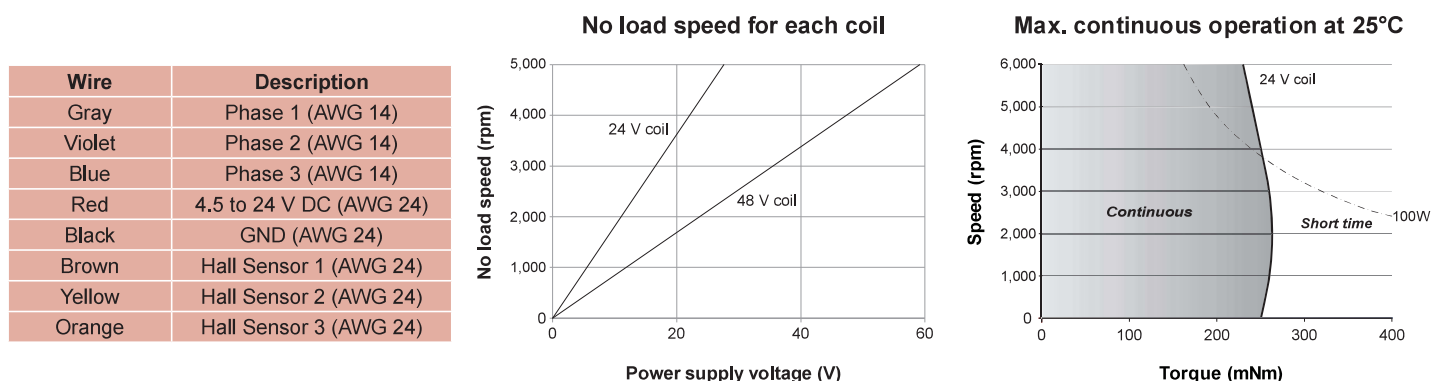


Dimensions in mm

Electrical Data	Symbol	60ECF38-8B-XXX.01		Unit
		14	28	
1 Nominal Voltage	U_N	24	48	Volt
2 Optimization Direction	-	Symmetrical	Symmetrical	-
3 No Load Speed	n_0	4'300	4'020	rpm
4 Typical No Load Current	I_0	493	221	mA
5 Max. Continuous Mechanical Power (@25°C)	P_{max}	100	100	W
6 Max. Continuous Current	$I_{e max}$	5.14	2.61	A
7 Max. Continuous Torque	$M_{e max}$	269 (38.09)	298 (42.2)	mNm (oz-in)
8 Back EMF Constant	k_E	5.5	11.8	V/1000 rpm
9 Torque Constant	k_M	57.3 (8.11)	113 (16)	mNm/A
10 Motor Regulation	R/k^2	0.089	0.08	$10^3/Nms$
11 Motor Regulation	$k/R^{1/2}$	106 (15)	112 (15.8)	mNm/W ^{1/2} (oz-in/W ^{1/2})
12 Internal Resistance - phase to phase	R_I	0.293	1.023	ohms
13 Line to Line Resistance at Connectors	R_L	0.293	1.023	ohms
14 Inductance Phase to Phase	L	0.279	1.28	mH
15 Mechanical Time Constant	τ_m	8.86	7.32	ms
16 Electrical Time Constant	τ_e	0.952	1.25	ms

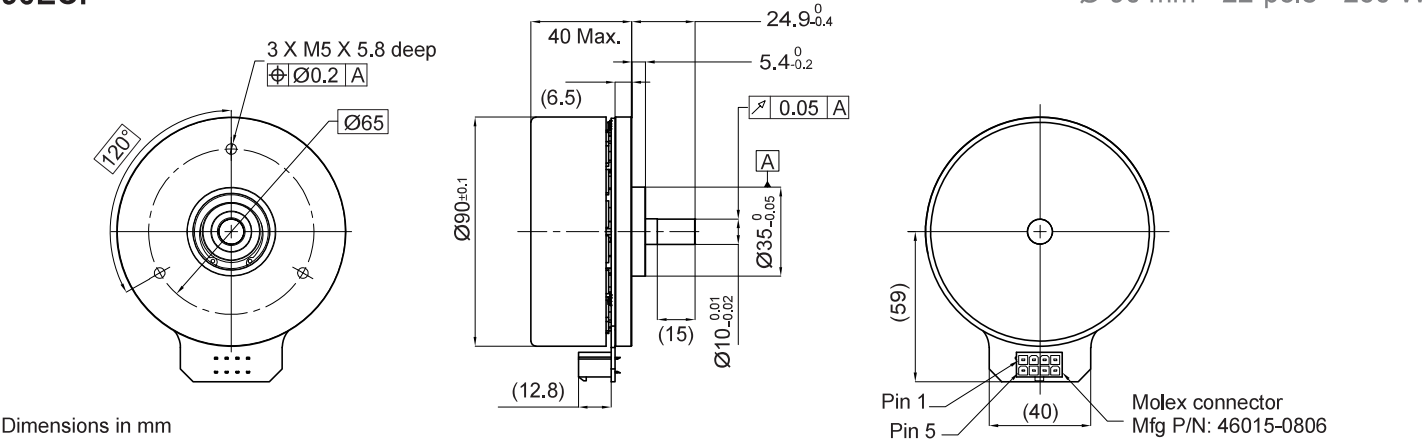
General Data				
17 Maximum Motor Speed	n_{max}	6'000	rpm	
18 Ambient Working Temperature Range	-	-40 to 100 (-40 to 212)	°C (°F)	
19 Ambient Storage Temperature Range	-	-40 to 100 (-40 to 212)	°C (°F)	
20 Ball Bearings Preload	-	12 (2.7)	N	
21 Axial Static Force w/o Shaft Support (max)	-	170 (38.2)	N (lbs)	
22 Maximum Winding Temperature	-	125 (257)	°C (°F)	
23 Thermal Resistance	R_{th}	6.3	°C/W	
24 Thermal Time Constant	τ_w	90	s	
25 Weight	-	355 (12.52)	g (oz)	
26 Rotor Inertia	J	835 (11824)	g-cm ² 10 ⁻⁴ (oz-in-sec ² 10 ⁻⁶)	
27 Hall Sensor Electrical Phasing*	-	120	Electrical °	

*Also available without Hall sensors



90ECF

Ø 90 mm • 22-pole • 260 W



Electrical Data	Symbol	90ECF40 8B xx		Unit
		34	13	
1 Nominal Voltage	U_N	48	18	Volt
2 Optimization Direction	-	Symmetrical	Symmetrical	-
3 No Load Speed	n_0	2,000	1,922	rpm
4 Typical No Load Current	I_0	250	733	mA
5 Max. Continuous Mechanical Power (@25°C)	P_{max}	260	260	W
6 Max. Continuous Current	$I_{e max}$	4.1	12.1	A
7 Max. Continuous Torque	$M_{e max}$	1000 (140.2)	1080 (154.3)	mNm (oz-in)
8 Back EMF Constant	k_E	24.5	9.37	V/1000 rpm
9 Torque Constant	k_M	225 (31.86)	89.47 (12.67)	mNm/A (oz-in/A)
10 Motor Regulation	R/k^2	0.0152	0.0125	10 ³ /Nms
11 Motor Regulation	$k/R^{1/2}$	256 (36.3)	283 (40)	mNm/W ^{1/2} (oz-in/W ^{1/2})
12 Internal Resistance - phase to phase	R_l	0.77	0.1	ohms
13 Line to Line Resistance at Connectors	R_L	0.78	0.114	ohms
14 Inductance Phase to Phase	L	1.07	0.14	mH
15 Mechanical Time Constant	τ_m	7	6.1	ms
16 Electrical Time Constant	τ_e	1.34	1.4	ms

General Data			
17 Maximum Motor Speed	n_{max}	5,000	rpm
18 Ambient Working Temperature Range	-	-40 to +100 (-40 to +212)	°C (°F)
19 Ambient Storage Temperature Range	-	-40 to +100 (-40 to +212)	°C (°F)
20 Ball Bearings Preload	-	90	N
21 Axial Static Force w/o Shaft Support (max)	-	50	N
22 Maximum Winding Temperature	-	125 (257)	°C (°F)
23 Thermal Resistance	R_{th}	3.5	°C/W
24 Thermal Time Constant	τ_w	270	s
25 Weight	-	960 (34)	g (oz)
26 Rotor Inertia	J	5083	g-cm ²
27 Hall Sensor Electrical Phasing*	-	120	Electrical °

*Also available without Hall sensors

Pad Allocation	
Pad 1	Hall sensor 1
Pad 2	Hall sensor 2
Pad 3	4.5 to 24V DC
Pad 4	Phase 3
Pad 5	Hall sensor 3
Pad 6	GND
Pad 7	Phase 1
Pad 8	Phase 2

