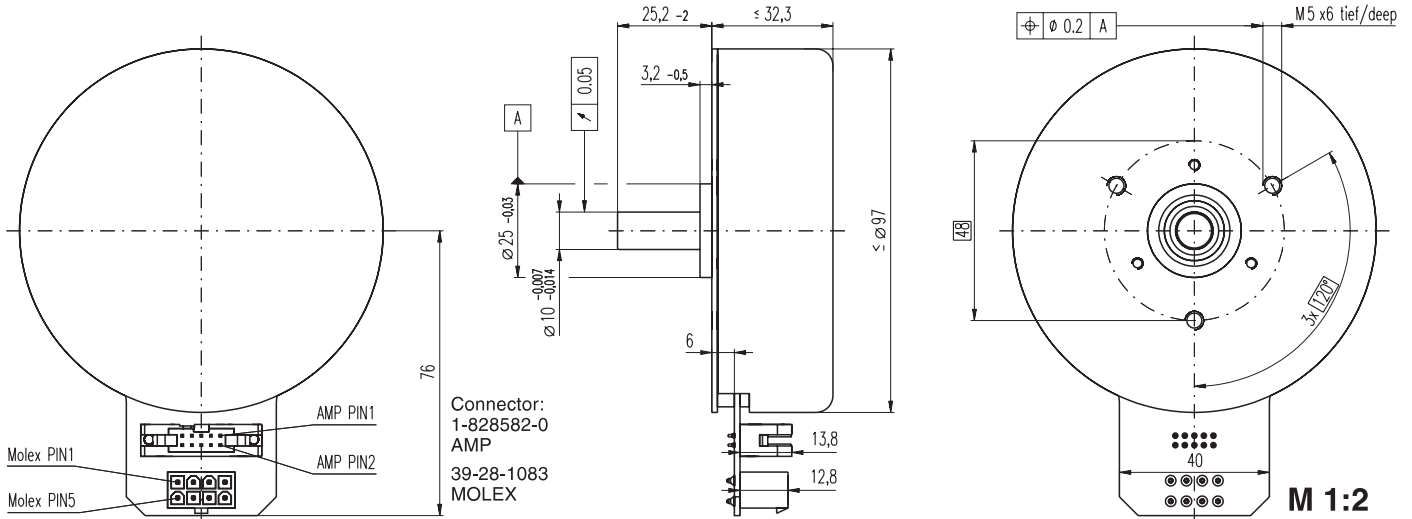


EC 90 flat brushless, 60 Watt, with encoder

NEW



- Stock program
- Standard program
- Special program (on request)

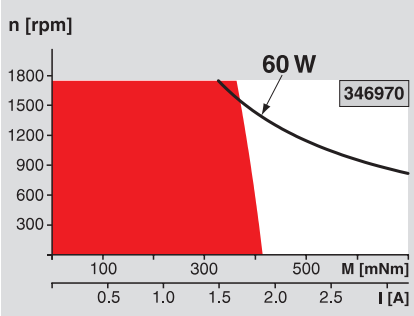
Order Number

	with hall sensors	353984	346970
Motor Data (provisional)			

Values at nominal voltage			
1	Nominal voltage	V	12.0 36.0
2	No load speed	rpm	1600 1560
3	No load current	mA	338 108
4	Nominal speed	rpm	1260 1240
5	Nominal torque (max. continuous torque)	mNm	327 405
6	Nominal current (max. continuous current)	A	4.56 1.78
7	Stall torque	mNm	2330 3400
8	Starting current	A	33.1 15.6
9	Max. efficiency	%	81.2 84.3
Characteristics			
10	Terminal resistance phase to phase	Ω	0.363 2.3
11	Terminal inductance phase to phase	mH	0.264 2.5
12	Torque constant	mNm / A	70.5 217
13	Speed constant	rpm / V	135 44.0
14	Speed / torque gradient	rpm / mNm	0.697 0.467
15	Mechanical time constant	ms	22.3 15.0
16	Rotor inertia	gcm ²	3060 3060

Specifications Operating Range Comments

Thermal data	
17	Thermal resistance housing-ambient 3.7 K / W
18	Thermal resistance winding-housing 3.4 K / W
19	Thermal time constant winding 60 s
20	Thermal time constant motor 549 s
21	Ambient temperature -20 ... +70°C
22	Max. permissible winding temperature +125°C
Mechanical data (preloaded ball bearings)	
23	Max. permissible speed 1750 rpm
24	Axial play at axial load < 15 N 0 mm
	> 15 N 0.14 mm
25	Radial play preloaded
26	Max. axial load (dynamic) 12 N
27	Max. force for press fits (static) 150 N
	(static, shaft supported) 8000 N
28	Max. radial loading, 7.5 mm from flange 30 N
Other specifications	
29	Number of pole pairs 12
30	Number of phases 3
31	Weight of motor 713 g



Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

Short term operation
The motor may be briefly overloaded (recurring).

— Assigned power rating

Values listed in the table are nominal.

Technical Data Encoder	
Function principle	optical
Counts per turn	2048
Number of channels	2
Max. operating frequency	60 kHz
Supply voltage V _{CC}	5V ± 10%
Output signal	EIA Standard RS422
Driver used	DS26C31T
Output current per channel	-20 ... +20 mA
Signal rise and fall times	30 ns
(typical, at C _L = 25pF, R _L = 1kΩ)	

Cable	
Connection cable to EPOS, L = 500 mm	354045
Connection cable Encoder, L = 500 mm	354046

Connection Motor	
Pin 1	Hall sensor 1
Pin 2	Hall sensor 2
Pin 3	4.5 ... 24 VDC
Pin 4	Motor winding 3
Pin 5	Hall sensor 3
Pin 6	GND
Pin 7	Motor winding 1
Pin 8	Motor winding 2

Wiring diagram for Hall sensors see page 29

Connection Encoder	
Pin 1	N.C.
Pin 2	V _{CC}
Pin 3	GND
Pin 4	N.C.
Pin 5	A\
Pin 6	A
Pin 7	B\
Pin 8	B
Pin 9	N.C.
Pin 10	N.C.

Recommended Electronics:	
EPOS 24/5	Page 294
EPOS2 50/5	295
EPOS 70/10	295
EPOS P 24/5	297
Notes	20