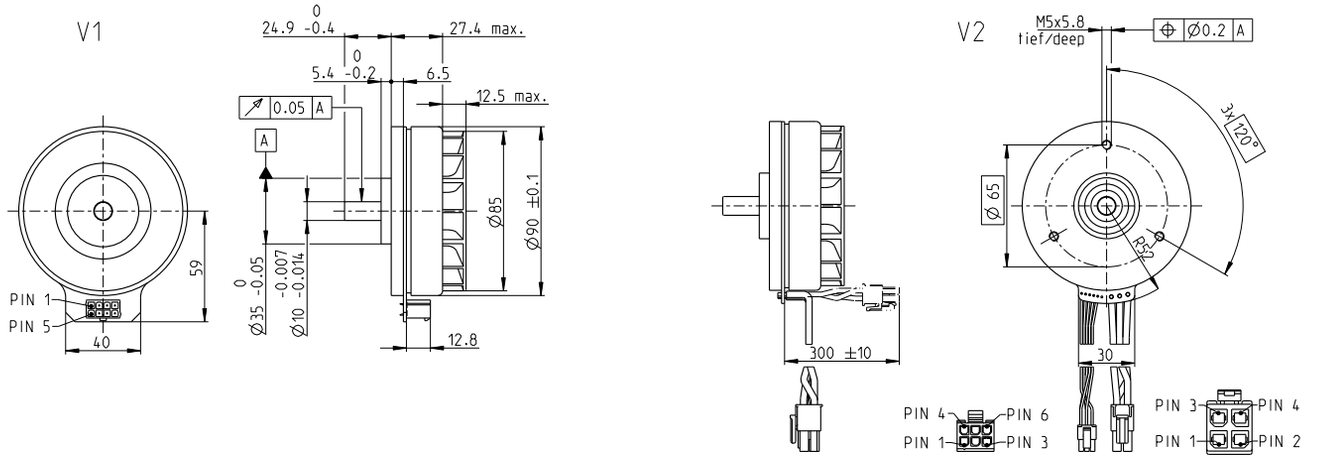
EC 90 flat ∅90 mm, brushless, 360 watt

Ventilated



M 1:4

Stock program
Standard program
Special program (on request)

Part numbers

V1 with Hall sensors		607950	607951	607952
V2 with Hall sensors and cables	607953	607954	607955	607956

Motor data						
Values at nominal voltage						
1 Nominal voltage	V	12	24	36	60	
2 No load speed	rpm	3210	3210	3120	2640	
3 No load current	mA	1390	696	444	210	
4 Nominal speed	rpm	2310	2340	2270	1890	
5 Nominal torque	mNm	958	961	941	901	
6 Nominal current (max. continuous current)	A	24.1*	12	7.66	3.75	
7 Stall torque	mNm	4860	5030	4920	4510	
8 Stall current	A	211	113	70	30.1	
9 Max. efficiency	%	84.2	84.6	84.4	83.7	
Characteristics						
10 Terminal resistance phase to phase	Ω	0.0569	0.213	0.514	2	
11 Terminal inductance phase to phase	mH	0.058	0.232	0.554	2.15	
12 Torque constant	mNm/A	35.1	70.1	108	214	
13 Speed constant	rpm/V	272	136	88.1	44.7	
14 Speed/torque gradient	rpm/mNm	0.442	0.413	0.418	0.418	
15 Mechanical time constant	ms	14.8	13.9	14	14	
16 Rotor inertia	gcm²	3210	3210	3210	3210	

Specifications

Thermal data

17	Thermal resistance housing-ambient	1.12 K/W
18	Thermal resistance winding-housing	1.04 K/W
19	Thermal time constant winding	20 s
20	Thermal time constant motor	166 s
21	Ambient temperature	-40...+100°C
22	Max. winding temperature	+125°C

Mechanical data (preloaded ball bearings)

23	Max. speed	5000 rpm
24	Axial play at axial load	0.14 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	34 N
27	Max. force for press fits (static)	440 N
	(static, shaft supported)	8000 N
28	Max. radial load, 10 mm from flange	100 N

Other specifications

29	Number of pole pairs	11
30	Number of phases	3
31	Weight of motor	638 g

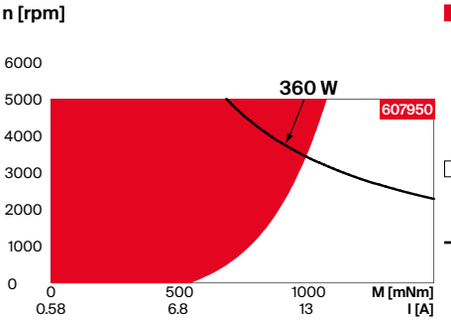
Values listed in the table are nominal.

Connection V1		**V2** (sensors, AWG 24)
Pin 1	Hall sensor 1	Hall sensor 1
Pin 2	Hall sensor 2	Hall sensor 2
Pin 3	V_{Hall} 4.5...24 VDC	Hall sensor 3
Pin 4	Motor winding 3	GND
Pin 5	Hall sensor 3	V_{Hall} 4.5...24 VDC
Pin 6	GND	N.C.
Pin 7	Motor winding 1	
Pin 8	Motor winding 2	
		V2 (motor, AWG 14)
Pin 1		Motor winding 1
Pin 2		Motor winding 2
Pin 3		Motor winding 3
Pin 4		N.C.

Wiring diagram for Hall sensors see p. 69

Connector		**Part number**
Molex	46015-0806	43025-0600
Molex		171692-0104
Connection cable for V1		
Universal, L = 500 mm		**339380**

Operating range



Comments

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

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

Assigned power rating

Modular system

Details on catalog page 56

Gear
444_GP 52 C
458_GB 80[1]
459_GB 12[1]
460_GB 9[1]
461_GB 65[1]

Sensor
531_Encoder MILE

Motor Control
547_DEC Module 50/5
551_ESCON Module 50/5
552_ESCON Module 50/8 HE
553_ESCON 50/5
553_ESCON 70/10
557_ESCON2 Micro 60/5
558_ESCON2 Module 60/12
558_ESCON2 Module 60/30
559_ESCON2 Compact 60/12
559_ESCON2 Compact 60/30

Note: The cable alignment relative to the mounting holes of the gearhead is not defined.
[1]on request
*607953 cannot be combined with the MILE encoder, because the current limit of the connectors of the MILE circuit board is 13 A.