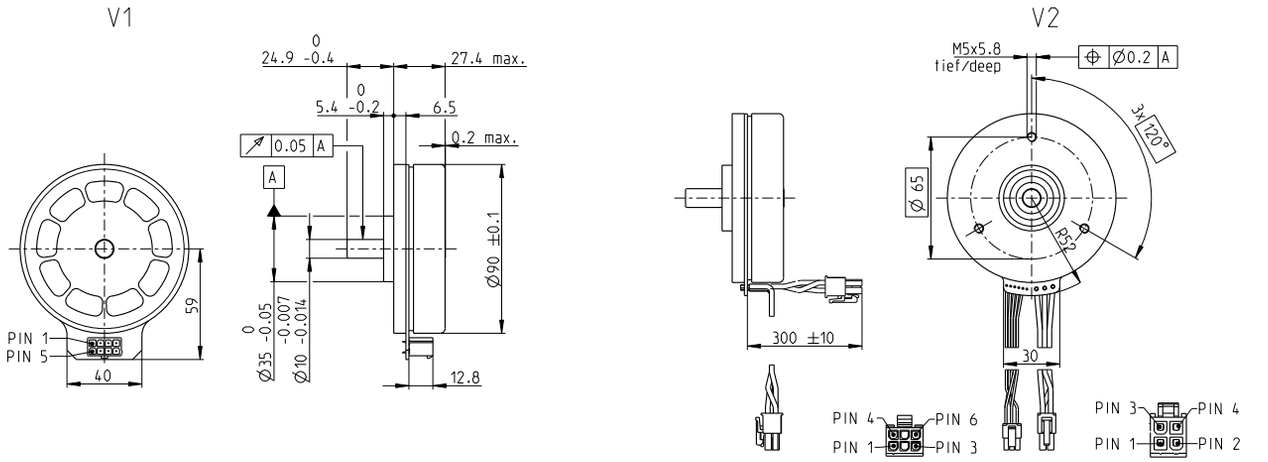
EC 90 flat ∅90 mm, brushless, 220 watt

Open Rotor



M 1:4

Stock program
Standard program
Special program (on request)

Part numbers

V1 with Hall sensors	607942	607943	607944
V2 with Hall sensors and cables	607946	607947	607948

Motor data									
Values at nominal voltage									
1 Nominal voltage	V	24	36	60					
2 No load speed	rpm	3170	3070	2600					
3 No load current	mA	658	420	197					
4 Nominal speed	rpm	2490	2420	2020					
5 Nominal torque	mNm	735	721	697					
6 Nominal current (max. continuous current)	A	9.5	6.04	2.98					
7 Stall torque	mNm	5110	5000	4580					
8 Stall current	A	113	70	30.1					
9 Max. efficiency	%	85.1	84.9	84.3					
Characteristics									
10 Terminal resistance phase to phase	Ω	0.213	0.514	2					
11 Terminal inductance phase to phase	mH	0.232	0.554	2.15					
12 Torque constant	mNm/A	71.2	110	217					
13 Speed constant	rpm/V	134	86.8	44.1					
14 Speed/torque gradient	rpm/mNm	0.401	0.406	0.406					
15 Mechanical time constant	ms	12.1	12.2	12.2					
16 Rotor inertia	gcm²	2875	2875	2875					

Specifications

Thermal data

17	Thermal resistance housing-ambient	1.87 K/W
18	Thermal resistance winding-housing	1.43 K/W
19	Thermal time constant winding	27.7 s
20	Thermal time constant motor	278 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	624 g

Values listed in the table are nominal.

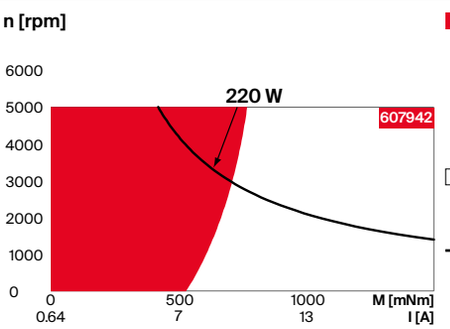
Connection V1		**V2** (sensors, AWG 24)
Pin 1	Hall sensor 1	Hall sensor 1
Pin 2	Hall sensor 2	Hall sensor 2
Pin 3	V_{Hall} 4.5...24 VDC	Hall sensor 3
Pin 4	Motor winding 3	GND
Pin 5	Hall sensor 3	V_{Hall} 4.5...24 VDC
Pin 6	GND	N.C.
Pin 7	Motor winding 1	
Pin 8	Motor winding 2	
		V2 (motor, AWG 16)
Pin 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		39-01-2040

Connection cable for V1	
Universal, L = 500 mm	**339380**
to EPOS4, L = 500 mm	**354045**

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

Note: The cable alignment relative to the mounting holes of the gearhead is not defined.
¹on request

Modular system

Details on catalog page 56

Gear
444_GP 52 C
458_GB 80¹
459_GB 12¹
460_GB 9¹
461_GB 65¹

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
564_EPOS4 Module 50/5
565_EPOS4 Module 50/8
565_EPOS4 Module 50/15
567_EPOS4 Compact 50/5
567_EPOS4 Compact 50/8
568_EPOS4 Compact 50/15
569_EPOS4 50/5
569_EPOS4 70/15
571_EPOS4 Disk 60/12