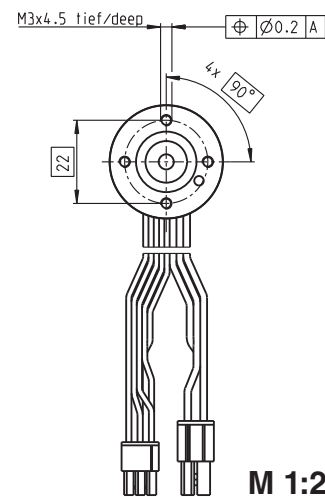
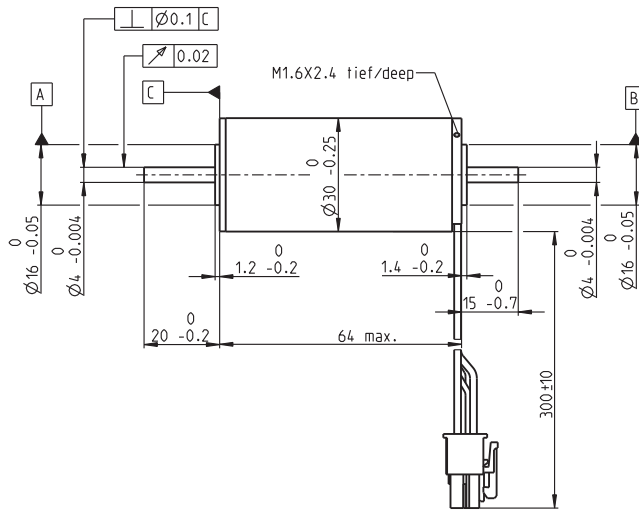
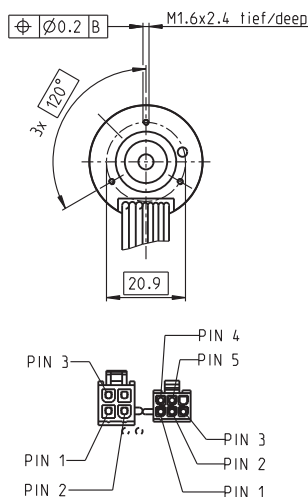


# EC-max 30 Ø30 mm, brushless, 60 Watt



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

## Part Numbers

272762	272763	272764	272765
--------	--------	--------	--------

## Motor Data

Values at nominal voltage					
1 Nominal voltage	V	12	24	36	48
2 No load speed	rpm	7980	9340	9490	9350
3 No load current	mA	302	191	130	95.4
4 Nominal speed	rpm	6590	8040	8270	8130
5 Nominal torque (max. continuous torque)	mNm	63.6	60.7	63.7	64.1
6 Nominal current (max. continuous current)	A	4.72	2.66	1.88	1.4
7 Stall torque	mNm	381	458	522	519
8 Starting current	A	26.8	18.8	14.5	10.7
9 Max. efficiency	%	80	81	82	82
Characteristics					
10 Terminal resistance phase to phase	Ω	0.447	1.27	2.48	4.49
11 Terminal inductance phase to phase	mH	0.049	0.143	0.312	0.573
12 Torque constant	mNm/A	14.2	24.3	35.9	48.6
13 Speed constant	rpm/V	672	393	266	197
14 Speed/torque gradient	rpm/mNm	21.2	20.6	18.4	18.2
15 Mechanical time constant	ms	4.86	4.73	4.21	4.17
16 Rotor inertia	gcm <sup>2</sup>	21.9	21.9	21.9	21.9

## Specifications

- Thermal data**
- 17 Thermal resistance housing-ambient 7.4 K/W
  - 18 Thermal resistance winding-housing 0.5 K/W
  - 19 Thermal time constant winding 2.76 s
  - 20 Thermal time constant motor 1000 s
  - 21 Ambient temperature -40...+100°C
  - 22 Max. permissible winding temperature +155°C
- Mechanical data (preloaded ball bearings)**
- 23 Max. permissible speed 15000 rpm
  - 24 Axial play at axial load < 6.0 N 0 mm
  - > 6.0 N 0.14 mm
  - 25 Radial play preloaded 5 N
  - 26 Max. axial load (dynamic) 98 N
  - 27 Max. force for press fits (static) (static, shaft supported) 1300 N
  - 28 Max. radial loading, 5 mm from flange 25 N
- Other specifications**
- 29 Number of pole pairs 1
  - 30 Number of phases 3
  - 31 Weight of motor 305 g

Values listed in the table are nominal.

### Connection motor (Cable AWG 20)

- |       |                 |       |
|-------|-----------------|-------|
| red   | Motor winding 1 | Pin 1 |
| black | Motor winding 2 | Pin 2 |
| white | Motor winding 3 | Pin 3 |
|       | N.C.            | Pin 4 |

### Connector Part number

Molex 39-01-2040

### Connection Sensors (Cable AWG 26)

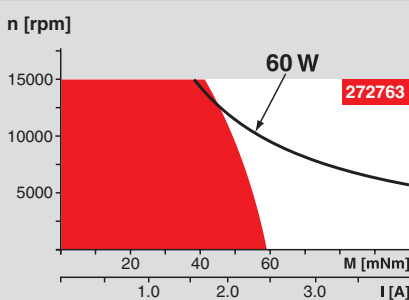
- |        |                              |       |
|--------|------------------------------|-------|
| yellow | Hall sensor 1                | Pin 1 |
| brown  | Hall sensor 2                | Pin 2 |
| grey   | Hall sensor 3                | Pin 3 |
| blue   | GND                          | Pin 4 |
| green  | V <sub>Hall</sub> 3...24 VDC | Pin 5 |
|        | N.C.                         | Pin 6 |

### Connector Part number

Molex 430-25-0600

Wiring diagram for Hall sensors see p. 35

## Operating Range



## Comments

**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

## maxon Modular System

### Planetary Gearhead

Ø32 mm

8.0 Nm

Page 266

### Koaxdrive

Ø32 mm

1.0 - 4.5 Nm

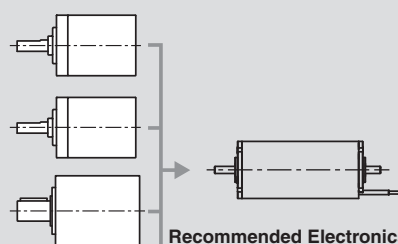
Page 268

### Planetary Gearhead

Ø42 mm

3 - 15 Nm

Page 271



### Recommended Electronics:

ESCON 36/3 EC Page 320

ESCON 50/5, Module 50/5 321

ESCON 70/10 321

DECS 50/5 324

DEC Module 24/2 325

DEC Module 50/5 325

EPOS2 24/5, 50/5 331

EPOS2 P 24/5 334

EPOS3 70/10 EtherCAT 337

Notes 24

## Overview on page 20 - 25

### Encoder MR

500/1000 CPT,

3 channels

Page 302

### Encoder HEDL 5540

500 CPT,

3 channels

Page 308

### Brake AB 20

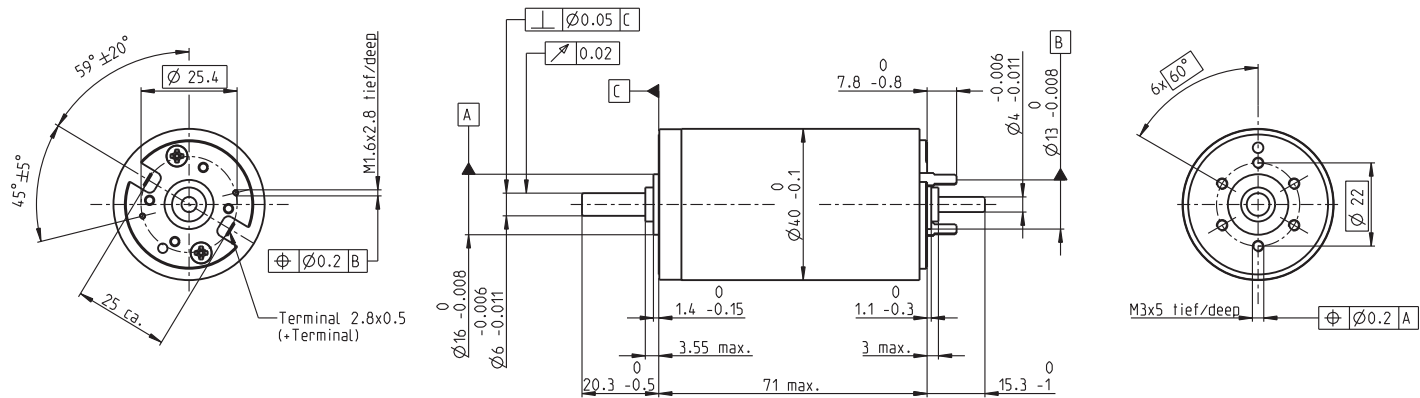
24 VDC



0.1 Nm

Page 346

## NEW

maxon DC motor



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

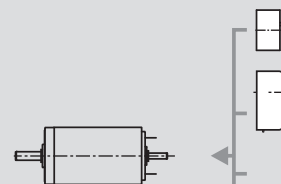
448588	448589	448590	448591	448592		
9	18	24	42	48		
2850	2850	2780	2920	2690		
49.7	24.8	18.1	11	8.62		
2610	2600	2480	2640	2410		
87.8	87.8	88.2	87.6	87.6		
2.96	1.48	1.09	0.65	0.524		
873	956	794	895	818		
29	15.9	9.66	6.53	4.81		
92	92	92	92	92		
0.311	1.14	2.49	6.43	9.97		
0.0824	0.33	0.613	1.7	2.62		
30.2	60.3	82.2	137	170		
317	158	116	69.7	56.2		
3.27	2.98	3.51	3.27	3.3		
4.85	4.29	4.36	4.14	4.13		
142	137	119	121	120		

<b>Thermal data</b>	
17 Thermal resistance housing-ambient	4.65 K/W
18 Thermal resistance winding-housing	1.93 K/W
19 Thermal time constant winding	41.5 s
20 Thermal time constant motor	809 s
21 Ambient temperature	-20...+85°C
22 Max. permissible winding temperature	+100°C
<b>Mechanical data (ball bearings)</b>	
23 Max. permissible speed	3330 rpm
24 Axial play	0.05 - 0.15 mm
25 Radial play	0.025 mm
26 Max. axial load (dynamic)	5.6 N
27 Max. force for press fits (static) (static, shaft supported)	110 N 1200 N
28 Max. radial loading, 5 mm from flange	28 N
<b>Other specifications</b>	
29 Number of pole pairs	1
30 Number of commutator segments	13
31 Weight of motor	480 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).

Overview on page 20 - 25



<b>Recommended Electronics:</b>	
ESCON 36/2 DC	Page 320
ESCON 50/5	321
ESCON Module 50/5	321
EPOS2 24/2	330
EPOS2 Module 36/2	330
EPOS2 24/5	331
EPOS2 50/5	331
EPOS2 P 24/5	334
EPOS3 70/10 EtherCAT	337
<b>Notes</b>	<b>22</b>

**Encoder MR**  
256 - 1024 CPT,  
3 channels  
Page 303

**Encoder HED\_ 5540**  
500 CPT,  
3 channels  
Page 305/307