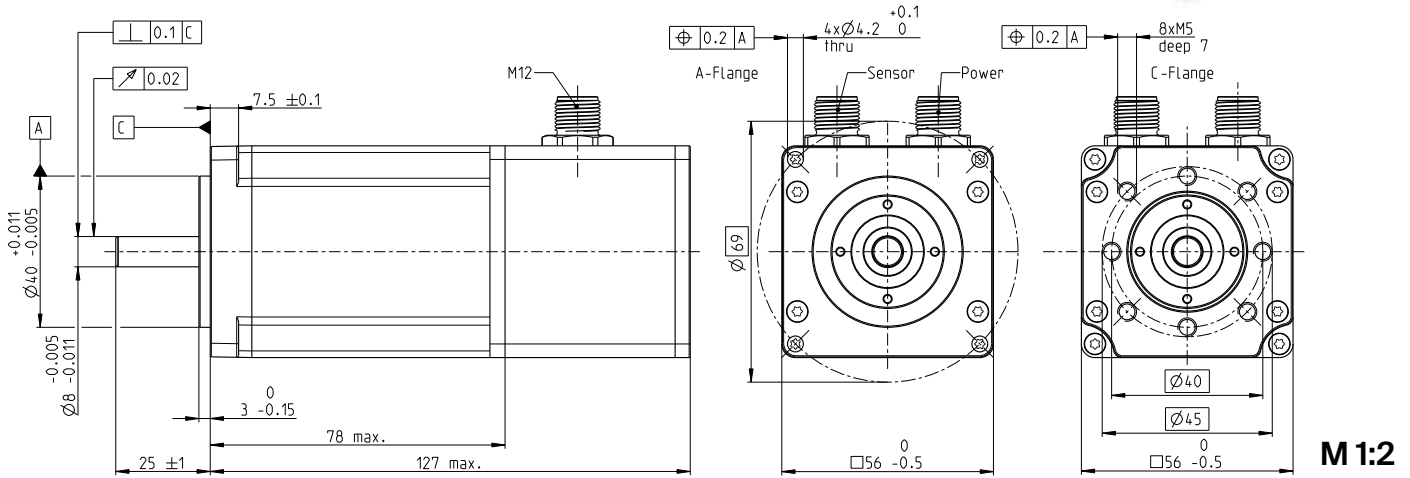


# IDX 56 M □56 mm, brushless, BLDC motor

**Key Data: 330/420 W, 640 mNm, 8000 rpm**



**M 1:2**

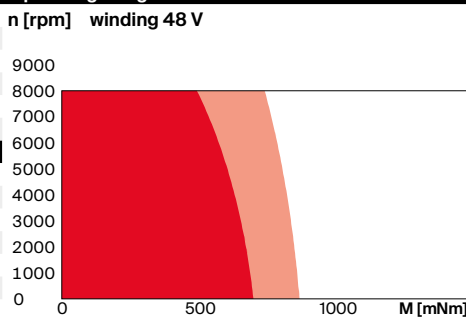
**Motor Data**

1_	Nominal voltage	V	24	48
2_	No load speed	rpm	5740	7270
3_	No load current	mA	911	653
4_	Nominal speed	rpm	4880	6350
5_	Nominal torque	mNm	640	559
6_	Nominal current (max. continuous current)	A	15.1	8.54
7_	Stall torque	mNm	15800	20500
8_	Stall current	A	399	328
9_	Max. efficiency	%	90.8	91.3
10_	Terminal resistance	Ω	0.0601	0.146
11_	Terminal inductance	mH	0.0941	0.234
12_	Torque constant	mNm/A	39.5	62.4
13_	Speed constant	rpm/V	242	153
14_	Speed/torque gradient	rpm/mNm	0.367	0.359
15_	Mechanical time constant	ms	0.654	0.639
16_	Rotor inertia	gcm <sup>2</sup>	170	170

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	2.69
18_	Thermal resistance winding-housing	K/W	1.07
19_	Thermal time constant winding	s	36.6
20_	Thermal time constant motor	s	1100
21_	Ambient temperature	°C	-40...+100
22_	Max. winding temperature	°C	155

**Operating Range**



■ Continuous operation  
■ Continuous operation with reduced thermal resistance  $R_{th2}$  50%  
 Short term operation

**Mechanical data ball bearings**

23_	Max. speed	rpm	8000
24_	Axial play	mm	0..0.14
	Preload	N	16
	Direction of force		pull
25_	Radial play	preloaded	2000
26_	Max. axial load (dynamic)	N	12
27_	Max. force for press fits (static) (static, shaft supported)	N	150
28_	Max. radial load [mm from flange]	N	110 [12.5]

**Other specifications**

29_	Number of pole pairs	8
30_	Number of phases	3
31_	Weight of motor	g 815
32_	Typical noise level [rpm]	dB(A) 54 [4000]

**Modular System**

<b>Gear</b>	Stages [opt.]
390_GPX 52 A/UP	1-3
391_GPX 52 LN	1-3

**Sensor**  
integrated

**Accessories**  
569\_AB 42 S

**Details on catalog page 40**

**Motor Control**  
 534\_ESCON Module 50/8  
 534\_ESCON Module 50/8 HE  
 535\_ESCON 70/10  
 543\_EPOS4 Module 50/15  
 545\_EPOS4 Compact 50/15  
 547\_EPOS4 70/15

**Power Connection (M12, male, 5 poles, L-coded)**

- Pin 1 Motor winding 1
- Pin 2 Motor winding 2
- Pin 3 Motor winding 3
- Pin 4  $U_{brake+}$  (optional)
- Pin 5  $U_{brake}$  GND (optional)

**Sensor Connection (M12, male, 17 poles, A-coded)**

- |       |                      |        |               |
|-------|----------------------|--------|---------------|
| Pin 1 | GND                  | Pin 10 | B             |
| Pin 2 | NTC                  | Pin 11 | DATA/         |
| Pin 3 | $V_{cc}$ 4.75...26 V | Pin 12 | DATA          |
| Pin 4 | A                    | Pin 13 | CLK           |
| Pin 5 | I/                   | Pin 14 | CLK/          |
| Pin 6 | A/                   | Pin 15 | Hall Sensor 3 |
| Pin 7 | B/                   | Pin 16 | Hall Sensor 1 |
| Pin 8 | I                    | Pin 17 | Hall Sensor 2 |
| Pin 9 | NTC                  |        |               |

NTC resistor 25°C: 10 kOhm ±1%, beta (25-100°C): 3460 K

Wiring diagram for Hall sensors see p. 65

**Configuration**

Flange front: A-Flange/C-Flange  
Encoder Interface: SSI/BiSS-C

**Notes about the encoder**

Output level incremental, RS422, with internal supply voltage 5 V  
 Input/output level absolute, RS422, with internal supply voltage 5 V  
 Resolution (not configurable) 1024 cpt / 4096 steps (12 bit)  
 More production information can be found online, under ENX 22 EASY INT