

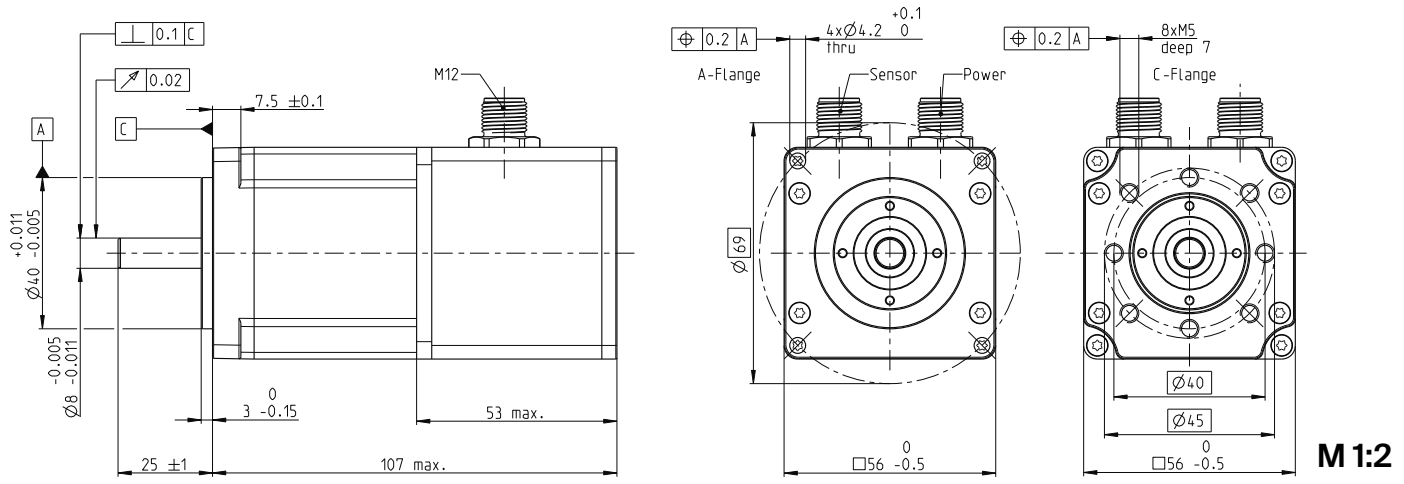
# IDX 56 S □56 mm, brushless, BLDC motor

**NEW**

**Key Data: 270/290 W, 462 mNm, 8000 rpm**



**IDX**



**M 1:2**

**Motor Data**

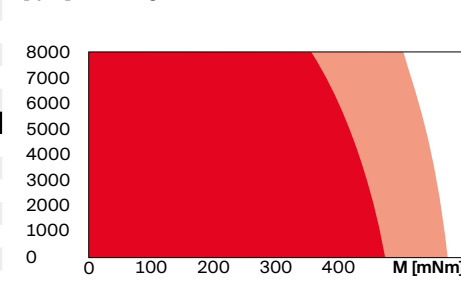
1_	Nominal voltage	V	24	48
2_	No load speed	rpm	7010	7030
3_	No load current	mA	710	356
4_	Nominal speed	rpm	5680	5690
5_	Nominal torque	mNm	459	462
6_	Nominal current (max. continuous current)	A	12.6	6.34
7_	Stall torque	mNm	3200	3250
8_	Stall current	A	300	158
9_	Max. efficiency	%	90.3	90.5
10_	Terminal resistance	Ω	0.0799	0.303
11_	Terminal inductance	mH	0.121	0.492
12_	Torque constant	mNm/A	32.3	64.4
13_	Speed constant	rpm/V	296	148
14_	Speed/torque gradient	rpm/mNm	0.732	0.699
15_	Mechanical time constant	ms	0.82	0.783
16_	Rotor inertia	gcm <sup>2</sup>	107	107

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	2.32
18_	Thermal resistance winding-housing	K/W	1.4
19_	Thermal time constant winding	s	27.6
20_	Thermal time constant motor	s	686
21_	Ambient temperature	°C	-40...+100
22_	Max. winding temperature	°C	155

**Operating Range**

**n [rpm] winding 48 V**



■ 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	
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 574
32_	Typical noise level [rpm]	dB(A) 55 [4000]

**Modular System**

<b>Gear</b>	Stages [opt.]	<b>Sensor</b>	<b>Motor Control</b>
390_GPX 52 A/UP	1-3	integrated	534_ESCON Module 50/8
391_GPX 52 LN	1-3		534_ESCON Module 50/8 HE
		<b>Accessories</b>	535_ESCON 70/10
		569_AB 42 S	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**

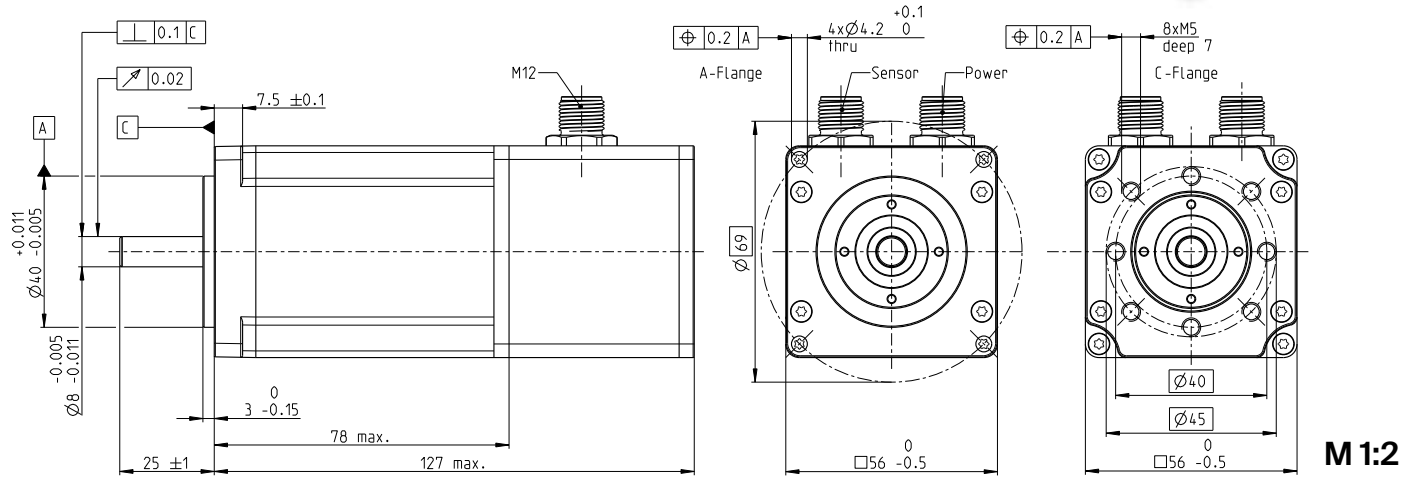
Output level incremental, RS422, with internal supply voltage 5 V  
Input/output level absolute, RS422, with internal supply voltage 5 V  
Resolution (not configurable) 1024 cpt / 4096 steps (12 bit)  
More production information can be found online, under ENX 22 EASY INT

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

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



IDX



M 1:2

## Motor Data

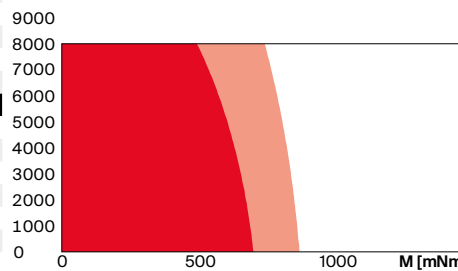
1_	Nominal voltage	V	24	48
2_	No load speed	rpm	5740	7270
3_	No load current	mA	911	653
4_	Nominal speed	rpm	4880	6350
5_	Nominal torque	mNm	640	559
6_	Nominal current (max. continuous current)	A	15.1	8.54
7_	Stall torque	mNm	15800	20500
8_	Stall current	A	399	328
9_	Max. efficiency	%	90.8	91.3
10_	Terminal 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

n [rpm] winding 48 V



■ Continuous operation  
 ■ Continuous operation with reduced thermal resistance R<sub>th2</sub> 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

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

Sensor integrated

Accessories 569\_AB 42 S

## 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

Details on catalog page 36

## 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 <sub>brake</sub> + (optional)
Pin 5	U <sub>brake</sub> 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 <sub>cc</sub> 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

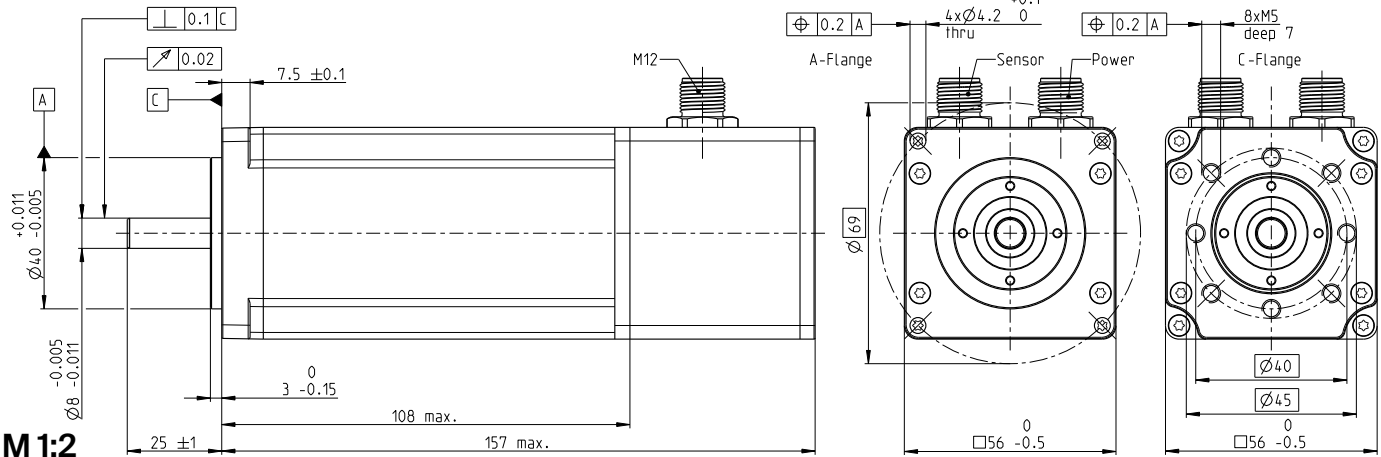
Output level incremental, RS422, with internal supply voltage 5 V  
 Input/output level absolute, RS422, with internal supply voltage 5 V  
 Resolution (not configurable) 1024 cpt / 4096 steps (12 bit)  
 More production information can be found online, under ENX 22 EASY INT

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

Key Data: 450/500 W, 1040 mNm, 6000 rpm



IDX



M 1:2

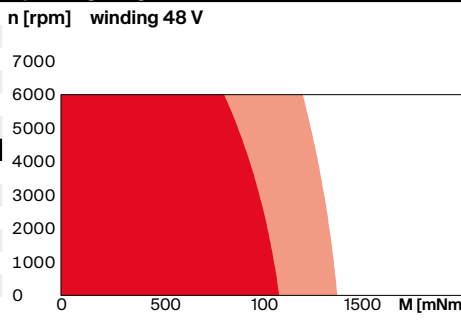
### Motor Data

1_	Nominal voltage	V	24	48
2_	No load speed	rpm	3430	5440
3_	No load current	mA	693	673
4_	Nominal speed	rpm	2890	4780
5_	Nominal torque	mNm	1040	897
6_	Nominal current (max. continuous current)	A	14.7	10.3
7_	Stall torque	mNm	16900	27400
8_	Stall current	A	255	328
9_	Max. efficiency	%	89.9	91.2
10_	Terminal resistance	Ω	0.0942	0.146
11_	Terminal inductance	mH	0.143	0.228
12_	Torque constant	mNm/A	66.2	83.6
13_	Speed constant	rpm/V	144	114
14_	Speed/torque gradient	rpm/mNm	0.205	0.200
15_	Mechanical time constant	ms	0.57	0.55
16_	Rotor inertia	gcm <sup>2</sup>	265	265

### Thermal data

17_	Thermal resistance housing-ambient	K/W	2.2
18_	Thermal resistance winding-housing	K/W	0.68
19_	Thermal time constant winding	s	37.5
20_	Thermal time constant motor	s	1320
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	6000
24_	Axial play	mm	0..0.14
	Preload	N	16
	Direction of force		pull
25_	Radial play	preloaded	
26_	Max. axial load (dynamic)	N	12
27_	Max. force for press fits (static)	N	150
	(static, shaft supported)	N	
28_	Max. radial load [mm from flange]	N	110 [12.5]

### Modular System

29_	Number of pole pairs	8	390_GPX 52 A/UP	1-3	Stages [opt.]	Sensor integrated	Motor Control 534_ESCON Module 50/8
30_	Number of phases	3	391_GPX 52 LN	1-3			534_ESCON Module 50/8 HE
31_	Weight of motor	g	1196			Accessories 569_AB 42 S	535_ESCON 70/10
32_	Typical noise level [rpm]	dB(A)	58 [4000]				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

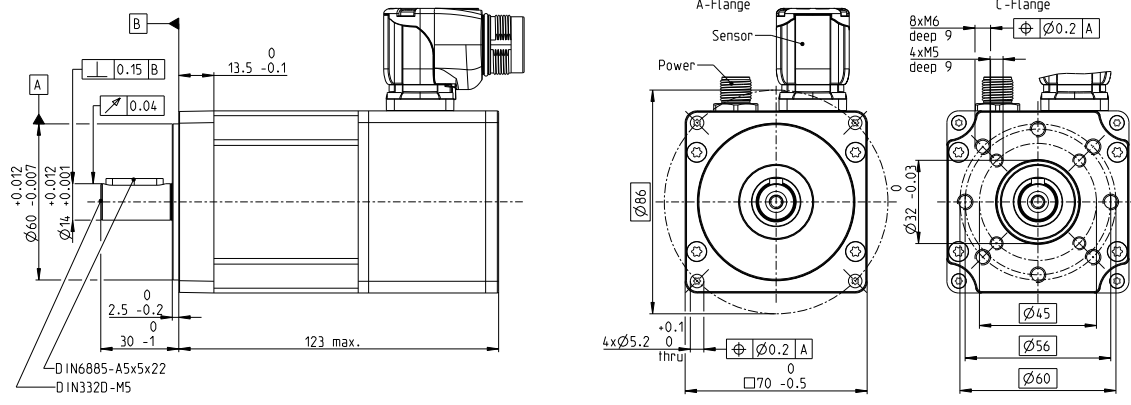
# IDX 70 S □70 mm, brushless, BLDC motor

**NEW**



**Key Data: 600/651 W, 1520 mNm, 6000 rpm**

**IDX**



**M 1:3**

**Motor Data (provisional)**

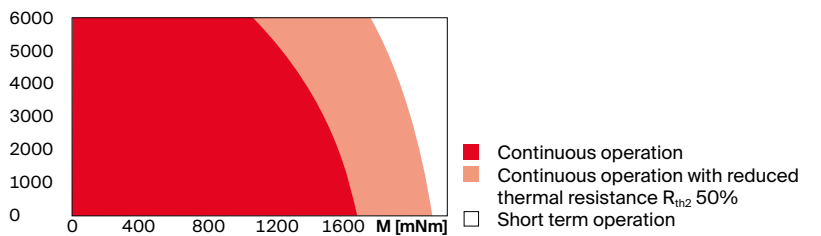
1_	Nominal voltage	V	24	48	60
2_	No load speed	rpm	4770	4790	5000
3_	No load current	mA	1250	659	593
4_	Nominal speed	rpm	4090	4120	4340
5_	Nominal torque (max. continuous torque)	mNm	1520	1490	1360
6_	Nominal current (max. continuous current)	A	29.2	14.4	11.1
7_	Stall torque	mNm	10200	10900	10800
8_	Stall current	A	1000	557	462
9_	Max. efficiency	%	92.7	93.1	92.8
10_	Terminal resistance	Ω	0.024	0.0862	0.13
11_	Terminal inductance	mH	0.058	0.235	0.344
12_	Torque constant	mNm/A	47.7	95	114
13_	Speed constant	rpm/V	200	101	83.9
14_	Speed/torque gradient	rpm/mNm	0.101	0.0912	0.0957
15_	Mechanical time constant	ms	0.598	0.543	0.569
16_	Rotor inertia	gcm <sup>2</sup>	568	568	568

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	1.73
18_	Thermal resistance winding-housing	K/W	0.61
19_	Thermal time constant winding	s	33.7
20_	Thermal time constant motor	s	969
21_	Ambient temperature	°C	-40...+100
22_	Max. winding temperature	°C	155

**Operating Range**

**n [rpm] winding 48 V**



**Mechanical data ball bearings**

23_	Max. speed	rpm	6000
24_	Axial play	mm	0.22
	Preload	N	28
	Direction of force		pull
25_	Radial play	preloaded	
26_	Max. axial load (dynamic)	N	22
27_	Max. force for press fits (static)	N	270
	(static, shaft supported)	N	
28_	Max. radial load [mm from flange]	N	300 [15]

**Other specifications**

29_	Number of pole pairs		8
30_	Number of phases		3
31_	Weight of motor	g	1595
32_	Typical noise level [rpm]	dBA	55 [3000]

**Modular System**

<b>Sensor</b>	<b>Motor Control</b>
integrated	543_EPOS4 Module 50/15
	546-547_EPOS4 Compact 50/15
<b>Accessories</b>	547_EPOS4 70/15
571_AB 60 S	

**Power Connection (M23, male, 6 poles, N-coded)**

- Pin 1 Motor winding 1
- Pin 2 Motor winding 3
- Pin 3 FE
- Pin 4 U<sub>brake</sub> + (optional)
- Pin 5 U<sub>brake</sub> GND (optional)
- Pin 6 Motor winding 2

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

- |                                   |                      |
|-----------------------------------|----------------------|
| Pin 1 GND                         | Pin 10 B             |
| Pin 2 NTC                         | Pin 11 DATA/         |
| Pin 3 V <sub>CC</sub> 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                         |                      |

**Configuration**

Flange front: A-Flange/C-Flange  
Encoder Interface: SSI/BiSS-C  
Angle Power Connector: 0°/90°

**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

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

Wiring diagram for Hall sensors see p. 65

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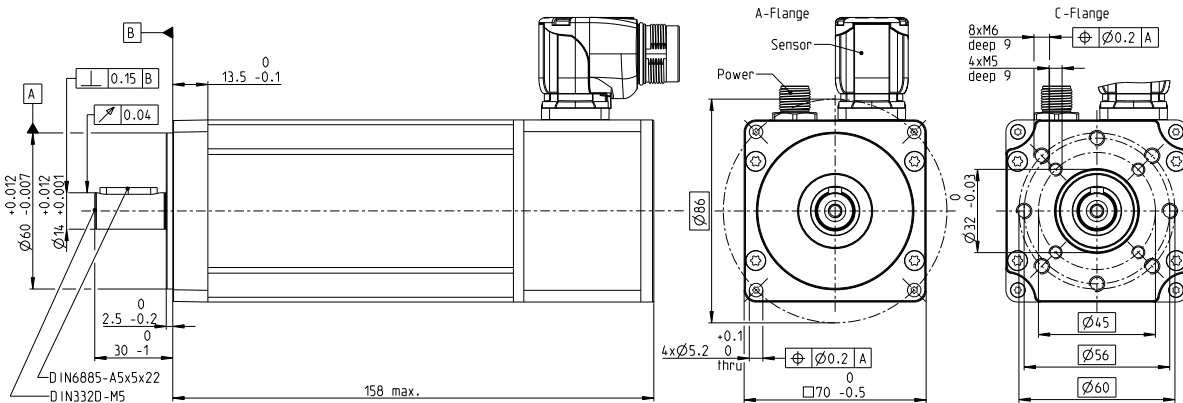
# IDX 70 M □70 mm, brushless, BLDC motor

**NEW**

**Key Data: 800/890 W, 2680 mNm, 4000 rpm**



**IDX**



**M 1:3**

**Motor Data (provisional)**

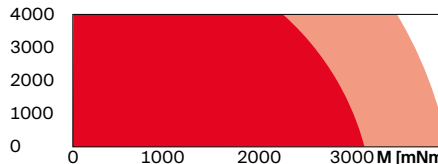
1_	Nominal voltage	V	48	60
2_	No load speed	rpm	3670	3730
3_	No load current	mA	791	648
4_	Nominal speed	rpm	3130	3170
5_	Nominal torque (max. continuous torque)	mNm	2560	2680
6_	Nominal current (max. continuous current)	A	18.8	15.8
7_	Stall torque	mNm	25400	27900
8_	Stall current	A	672	618
9_	Max. efficiency	%	93.1	93.5
10_	Terminal resistance	Ω	0.0715	0.097
11_	Terminal inductance	mH	0.246	0.373
12_	Torque constant	mNm/A	124	153
13_	Speed constant	rpm/V	76.9	62.5
14_	Speed/torque gradient	rpm/mNm	0.0443	0.0397
15_	Mechanical time constant	ms	0.487	0.437
16_	Rotor inertia	gcm <sup>2</sup>	1050	1050

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	1.35
18_	Thermal resistance winding-housing	K/W	0.38
19_	Thermal time constant winding	s	35.5
20_	Thermal time constant motor	s	1130
21_	Ambient temperature	°C	-40...+100
22_	Max. winding temperature	°C	155

**Operating Range**

**n [rpm] winding 48 V**



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

**Mechanical data ball bearings**

23_	Max. speed	rpm	4000
24_	Axial play	mm	0.22
	Preload	N	28
	Direction of force		pull
25_	Radial play	preloaded	
26_	Max. axial load (dynamic)	N	22
27_	Max. force for press fits (static)	N	270
	(static, shaft supported)	N	
28_	Max. radial load [mm from flange]	N	300 [15]

**Other specifications**

29_	Number of pole pairs		8
30_	Number of phases		3
31_	Weight of motor	g	2295
32_	Typical noise level [rpm]	dBA	60 [3000]

**Modular System**

Details on catalog page 36

**Sensor**  
integrated

**Motor Control**  
543\_EPOS4 Module 50/15  
546-547\_EPOS4 Compact 50/15  
547\_EPOS4 70/15

**Accessories**  
571\_AB 60 S

**Power Connection (M23, male, 6 poles, N-coded)**

- Pin 1 Motor winding 1
- Pin 2 Motor winding 3
- Pin 3 FE
- Pin 4  $U_{brake+}$  (optional)
- Pin 5  $U_{brake}$  GND (optional)
- Pin 6 Motor winding 2

**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                  |        |               |

**Configuration**

Flange front: A-Flange/C-Flange  
Encoder Interface: SSI/BiSS-C  
Angle Power Connector: 0°/90°

**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

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

Wiring diagram for Hall sensors see p. 65

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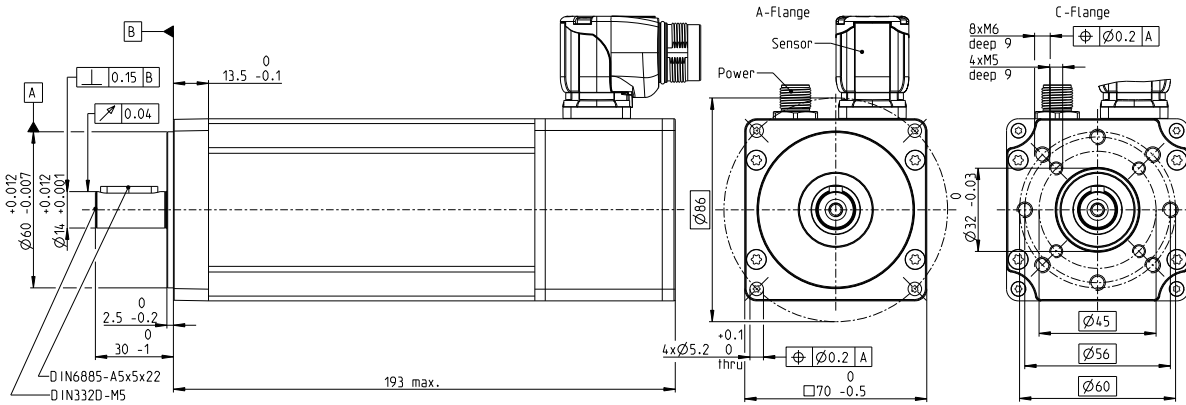
# IDX 70 L □70 mm, brushless, BLDC motor

**NEW**

**Key Data: 900/954 W, 3750 mNm, 3000 rpm**



**IDX**



**M 1:3**

**Motor Data (provisional)**

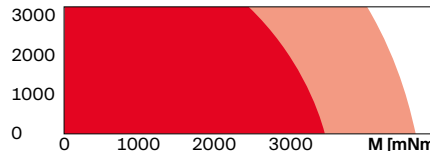
1_	Nominal voltage	V	48	60
2_	No load speed	rpm	2780	3070
3_	No load current	mA	771	712
4_	Nominal speed	rpm	2430	2710
5_	Nominal torque (max. continuous torque)	mNm	3750	3360
6_	Nominal current (max. continuous current)	A	21.3	17.1
7_	Stall torque	mNm	25800	25500
8_	Stall current	A	669	593
9_	Max. efficiency	%	93.2	93.1
10_	Terminal resistance	Ω	0.0718	0.101
11_	Terminal inductance	mH	0.221	0.287
12_	Torque constant	mNm/A	164	186
13_	Speed constant	rpm/V	58.2	51.4
14_	Speed/torque gradient	rpm/mNm	0.0254	0.028
15_	Mechanical time constant	ms	0.408	0.449
16_	Rotor inertia	gcm <sup>2</sup>	1530	1530

**Thermal data**

17_	Thermal resistance housing-ambient	K/W	1.21
18_	Thermal resistance winding-housing	K/W	0.28
19_	Thermal time constant winding	s	40.9
20_	Thermal time constant motor	s	1330
21_	Ambient temperature	°C	-40...+100
22_	Max. winding temperature	°C	155

**Operating Range**

n [rpm] winding 48 V



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

**Mechanical data ball bearings**

23_	Max. speed	rpm	3200
24_	Axial play	mm	0.22
	Preload	N	28
	Direction of force		pull
25_	Radial play	preloaded	
26_	Max. axial load (dynamic)	N	22
27_	Max. force for press fits (static)	N	270
	(static, shaft supported)	N	
28_	Max. radial load [mm from flange]	N	300 [15]

**Other specifications**

29_	Number of pole pairs		8
30_	Number of phases		3
31_	Weight of motor	g	2995
32_	Typical noise level [rpm]	dBA	65 [3000]

**Modular System**

Details on catalog page 36

**Sensor**  
integrated

**Motor Control**  
543\_EPOS4 Module 50/15  
546-547\_EPOS4 Compact 50/15  
547\_EPOS4 70/15

**Accessories**  
571\_AB 60 S

**Power Connection (M23, male, 6 poles, N-coded)**

- Pin 1 Motor winding 1
- Pin 2 Motor winding 3
- Pin 3 FE
- Pin 4  $U_{brake+}$  (optional)
- Pin 5  $U_{brake}$  GND (optional)
- Pin 6 Motor winding 2

**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                  |        |               |

**Configuration**

Flange front: A-Flange/C-Flange  
Encoder Interface: SSI/BiSS-C  
Angle Power Connector: 0°/90°

**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

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

Wiring diagram for Hall sensors see p. 65

[xdrives.maxongroup.com](http://xdrives.maxongroup.com)

# IDX 56 S with integrated electronics

Drive with Positioning/Speed Controller

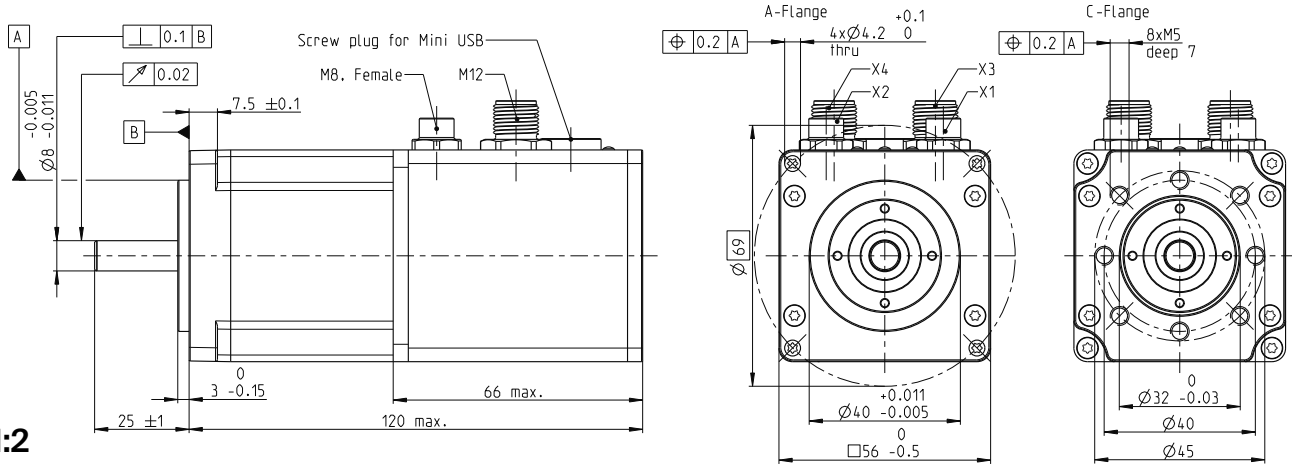
EtherCAT  
CANopen  
I/O ↔



**NEW**

**IDX**

**Key Data: 180/212 W, 450 mNm, 6000 rpm**



**M 1:2**

**Drive data (provisional)**

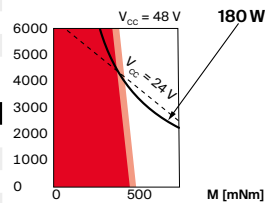
1_ Nominal power supply voltage	V	24	48
2_ Nominal speed	rpm	4400	4500
3_ Nominal torque at 25°C	mNm	393	450
4_ Nominal torque at 40°C	mNm	349	399
5_ Nominal supply current at 25°C	A	9.0	5.3
6_ Nominal supply current at 40°C	A	8.0	4.7
7_ Maximum speed at nominal voltage	rpm	6000	6000
8_ Maximum permissible drive speed	rpm	6000	6000
9_ Maximum torque (short-time)	mNm	775	1546
10_ Maximum supply current (short-time)	A	24	24
11_ Rotor inertia of the drive	gcm <sup>2</sup>	107	107
12_ Nominal supply voltage + V <sub>CC</sub>	V	12..48	12..48
13_ Mechanical time constant	ms	0.82	0.783

**Thermal data**

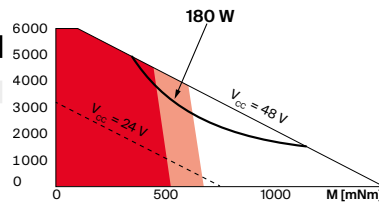
14_ Thermal resistance housing-ambient	K/W	2.04
15_ Thermal resistance winding-housing	K/W	1.94
16_ Thermal time constant winding	s	38.2
17_ Thermal time constant drive	s	585
18_ Ambient temperature	°C	-30...+85

**Operating Range**

**n [rpm] 24-V-system**



**n [rpm] 48-V-system**



■ Continuous operation  
■ Continuous operation with reduced thermal resistance R<sub>th2</sub> 50%  
 Short term operation

**Mechanical data**

19_ Axial play	mm	0.14
Preload	N	16
Direction of force		Pull
20_ Radial play		preloaded
21_ Max. axial load (dynamic)	N	12
22_ Max. force for press fits (static)	N	150
23_ Max. radial load [mm from flange]	N	110 [12.5]

**Other specifications**

24_ Weight of the drive	g	574
25_ Typical noise level [rpm]	dBA	55 [4000]
Encoder: Steps per turn		4096

Supply	M12, male, 5 poles, L-coded
I/O's	M12, male, 12 poles, A-coded
CANopen Input	M8, male, 5 poles, B-coded
CANopen Output	M8, female, 5 poles, B-coded
EtherCAT Input	M8, female, 4 poles, A-coded
EtherCAT Output	M8, female, 4 poles, A-coded

**Modular System**

<b>Gear</b>	Stages [opt.]	<b>Sensor</b>	<b>Motor Control</b>
390_GPX 52 A/UP	1-3	integrated	integrated
391_GPX 52 LN	1-3		
		<b>Accessories</b>	
		569_AB 42 S	

Details on catalog page 40

**Configuration**

Flange front: A-Flange/C-Flange  
 Interface with Positioning/Speed Controller: CANopen / EtherCAT  
 Interface with Speed Controller: I/O

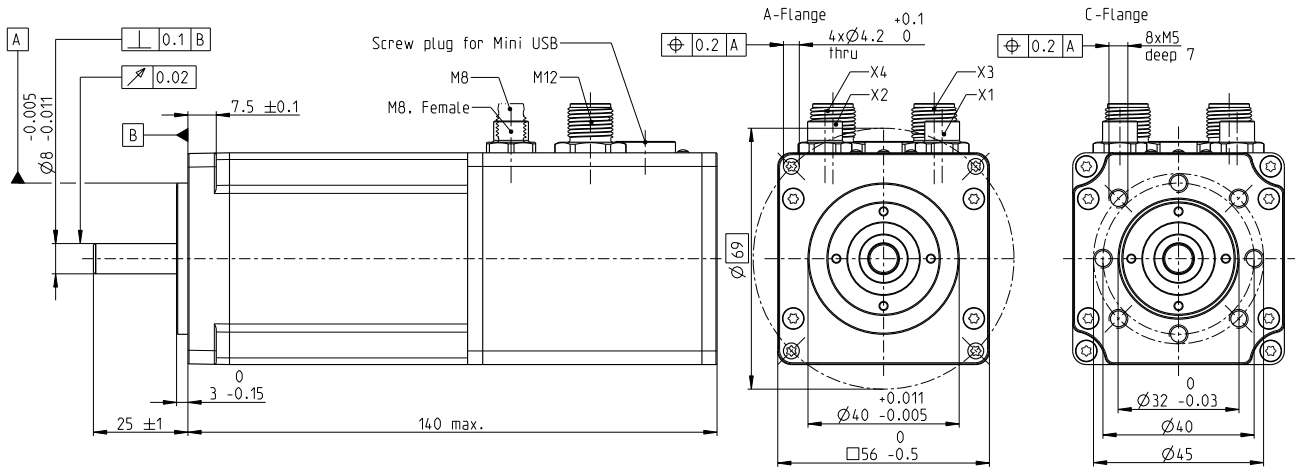
# IDX 56 M with integrated electronics

Drive with Positioning/Speed Controller



Key Data: 230/256 W, 516 mNm, 6000 rpm

## M 1:2



### Drive data (provisional)

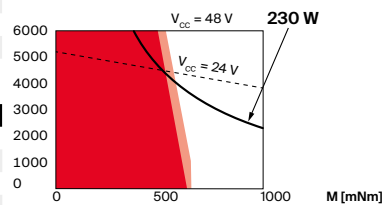
1_	Nominal power supply voltage	V	24	48
2_	Nominal speed	rpm	4477	4500
3_	Nominal torque at 25°C	mNm	433	516
4_	Nominal torque at 40°C	mNm	376	458
5_	Nominal supply current at 25°C	A	10.0	5.8
6_	Nominal supply current at 40°C	A	8.7	5.2
7_	Maximum speed at nominal voltage	rpm	5227	6000
8_	Maximum permissible drive speed	rpm	6000	6000
9_	Maximum torque (short-time)	mNm	948	1498
10_	Maximum supply current (short-time)	A	24	24
11_	Rotor inertia of the drive	gcm <sup>2</sup>	170	170
12_	Nominal supply voltage + V <sub>CC</sub>	V	12..48	12..48
13_	Mechanical time constant	ms	0.654	0.693

### Thermal data

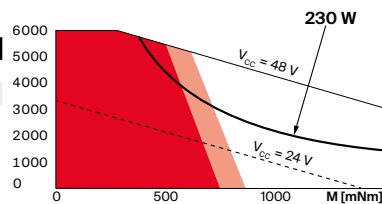
14_	Thermal resistance housing-ambient	K/W	2.47
15_	Thermal resistance winding-housing	K/W	1.16
16_	Thermal time constant winding	s	18.9
17_	Thermal time constant drive	s	1320
18_	Ambient temperature	°C	-30...+85

### Operating Range

#### n [rpm] 24-V-system



#### n [rpm] 48-V-system



- Continuous operation
- Continuous operation with reduced thermal resistance R<sub>th2</sub> 50%
- Short term operation

### Mechanical data

19_	Axial play	mm	0.14
	Preload	N	16
	Direction of force		Pull
20_	Radial play	preloaded	
21_	Max. axial load (dynamic)	N	12
22_	Max. force for press fits (static)	N	150
23_	Max. radial load [mm from flange]	N	110 [12.5]

### Other specifications

24_	Weight of the drive	g	1070
25_	Typical noise level [rpm]	dBA	54 [4000]
	Encoder: Steps per turn		4096

Supply	M12, male, 5 poles, L-coded
I/O's	M12, male, 12 poles, A-coded
CANopen Input	M8, male, 5 poles, B-coded
CANopen Output	M8, female, 5 poles, B-coded
EtherCAT Input	M8, female, 4 poles, A-coded
EtherCAT Output	M8, female, 4 poles, A-coded

### Modular System

<b>Gear</b>	Stages [opt.]	<b>Sensor</b>	<b>Motor Control</b>
390_GPX 52 A/UP	1-3	integrated	integrated
391_GPX 52 LN	1-3		
<b>Accessories</b>			
569_AB 42 S			

Details on catalog page 40

### Configuration

Flange front: A-Flange/C-Flange  
 Interface with Positioning/Speed Controller: CANopen / EtherCAT  
 Interface with Speed Controller: I/O

# IDX 56 L with integrated electronics

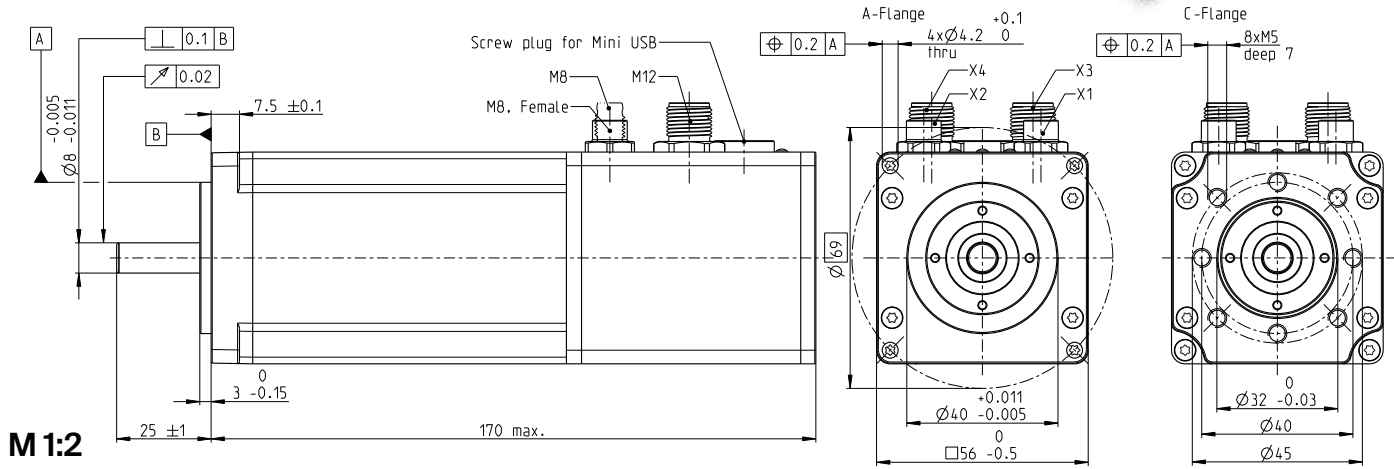
Drive with Positioning/Speed Controller

EtherCAT  
CANopen  
I/O ↔



IDX

**Key Data: 280/316 W, 795 mNm, 6000 rpm**



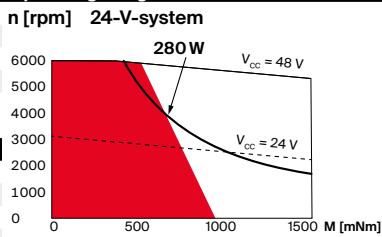
**Drive data (provisional)**

1_ Nominal power supply voltage	V	24	48
2_ Nominal speed	rpm	2724	3500
3_ Nominal torque at 25°C	mNm	795	779
4_ Nominal torque at 40°C	mNm	690	690
5_ Nominal supply current at 25°C	A	11.4	6.7
6_ Nominal supply current at 40°C	A	9.9	6.0
7_ Maximum speed at nominal voltage	rpm	3110	4925
8_ Maximum permissible drive speed	rpm	6000	5000
9_ Maximum torque (short-time)	mNm	1589	2006
10_ Maximum supply current (short-time)	A	24	24
11_ Rotor inertia of the drive	gcm <sup>2</sup>	265	265
12_ Nominal supply voltage + V <sub>CC</sub>	V	12..48	12..48
13_ Mechanical time constant	ms	0.57	0.55

**Thermal data**

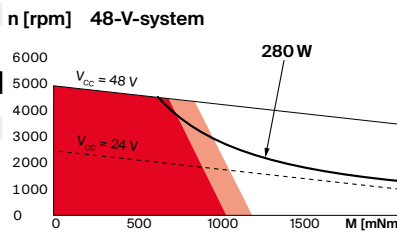
14_ Thermal resistance housing-ambient	K/W	2.01
15_ Thermal resistance winding-housing	K/W	0.76
16_ Thermal time constant winding	s	20.1
17_ Thermal time constant drive	s	1450
18_ Ambient temperature	°C	-30...+85

**Operating Range**



**Mechanical data**

19_ Axial play	mm	0.14
Preload	N	16
Direction of force		Pull
20_ Radial play		preloaded
21_ Max. axial load (dynamic)	N	12
22_ Max. force for press fits (static)	N	150
23_ Max. radial load [mm from flange]	N	110 [12.5]



**Other specifications**

24_ Weight of the drive	g	1445
25_ Typical noise level [rpm]	dBA	58 [4000]
Encoder: Steps per turn		4096

Supply	M12, male, 5 poles, L-coded
I/O's	M12, male, 12 poles, A-coded
CANopen Input	M8, male, 5 poles, B-coded
CANopen Output	M8, female, 5 poles, B-coded
EtherCAT Input	M8, female, 4 poles, A-coded
EtherCAT Output	M8, female, 4 poles, A-coded

- Continuous operation
- Continuous operation with reduced thermal resistance R<sub>th2</sub> 50%
- Short term operation

**Modular System**

<b>Gear</b>	Stages [opt.]	<b>Sensor</b>	<b>Motor Control</b>
390_GPX 52 A/UP	1-3	integrated	integrated
391_GPX 52 LN	1-3		
<b>Accessories</b>			
569_AB 42 S			

Details on catalog page 40

**Configuration**

Flange front: A-Flange/C-Flange  
Interface with Positioning/Speed Controller: CANopen / EtherCAT  
Interface with Speed Controller: I/O

# IDX 70 S with integrated electronics

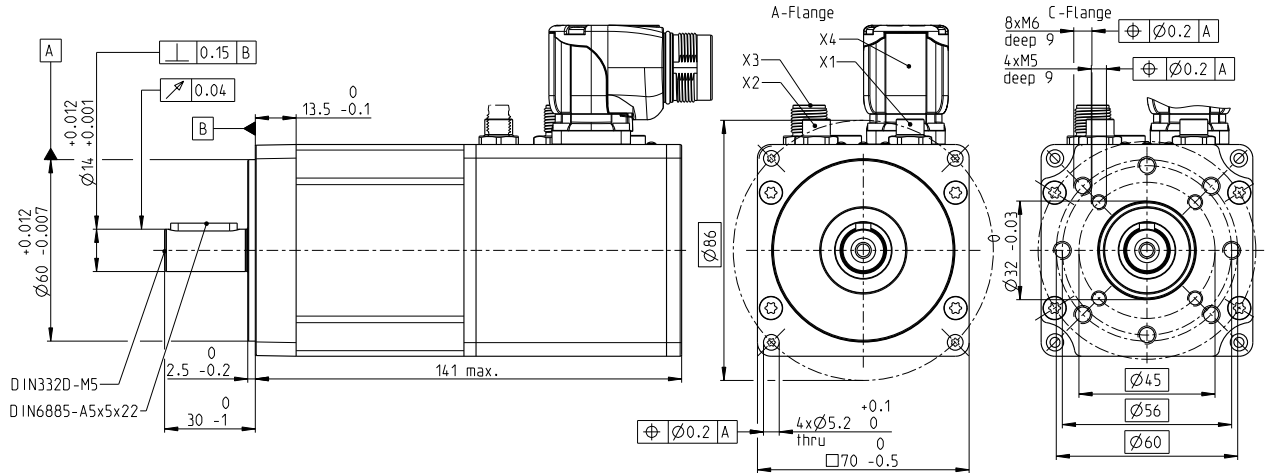
Drive with Positioning/Speed Controller

EtherCAT  
CANopen  
I/O ↔

NEW



Key Data: 550/641 W, 1530 mNm, 6000 rpm



M 1:2

Drive data (provisional)

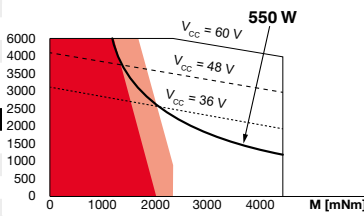
1_ Nominal power supply voltage	V	24	48	60
2_ Nominal speed	rpm	3870	3800	4000
3_ Nominal torque at 25°C	mNm	1069	1339	1530
4_ Nominal torque at 40°C	mNm	928	1163	1329
5_ Nominal supply current at 25°C	A	19.7	12.1	11.6
6_ Nominal supply current at 40°C	A	17.1	10.5	10.1
7_ Maximum speed at nominal voltage	rpm	4100	4100	4280
8_ Maximum permissible drive speed	rpm	6000	5125	4280
9_ Maximum torque (short-time)	mNm	2208	4416	5290
10_ Maximum supply current (short-time)	A	46	46	46
11_ Rotor inertia of the drive	gcm <sup>2</sup>	568	568	568
12_ Nominal supply voltage + V <sub>CC</sub>	V	12..60	12..60	12..60
13_ Mechanical time constant	ms	0.598	0.543	0.569

Thermal data

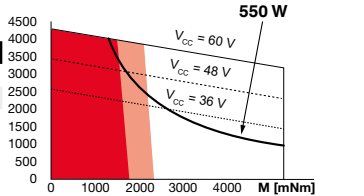
14_ Thermal resistance housing-ambient	K/W	1.76
15_ Thermal resistance winding-housing	K/W	1.07
16_ Thermal time constant winding	s	9.83
17_ Thermal time constant drive	s	1260
18_ Ambient temperature	°C	-30...+85

Operating Range

n [rpm] 48-V-system



n [rpm] 60-V-system



■ Continuous operation  
■ Continuous operation with reduced thermal resistance R<sub>th2</sub> 50%  
 Short term operation

Mechanical data

19_ Axial play	mm	0.22
Preload	N	28
Direction of force		Pull
20_ Radial play		preloaded
21_ Max. axial load (dynamic)	N	22
22_ Max. force for press fits (static)	N	270
23_ Max. radial load [mm from flange]	N	300 [15]

Other specifications

24_ Weight of the drive	g	1800
25_ Typical noise level [rpm]	dBA	55 [3000]
Encoder: Steps per turn		4096

Supply I/O's: M23, male, 6 poles, N-coded  
 CANopen Input: M12, male, 12 poles, A-coded  
 CANopen Output: M8, male, 5 poles, B-coded  
 EtherCAT Input: M8, female, 5 poles, B-coded  
 EtherCAT Output: M8, female, 4 poles, A-coded

Modular System

maxon gear      Sensor integrated      Motor Control integrated

Accessories  
571\_AB 60 S

Details on catalog page 40

Configuration

Flange front: A-Flange/C-Flange  
 Interface with Positioning/Speed Controller: CANopen / EtherCAT  
 Interface with Speed Controller: I/O  
 Angle Power Connector: 0° / 90°

# IDX 70 M with integrated electronics

Drive with Positioning/Speed Controller

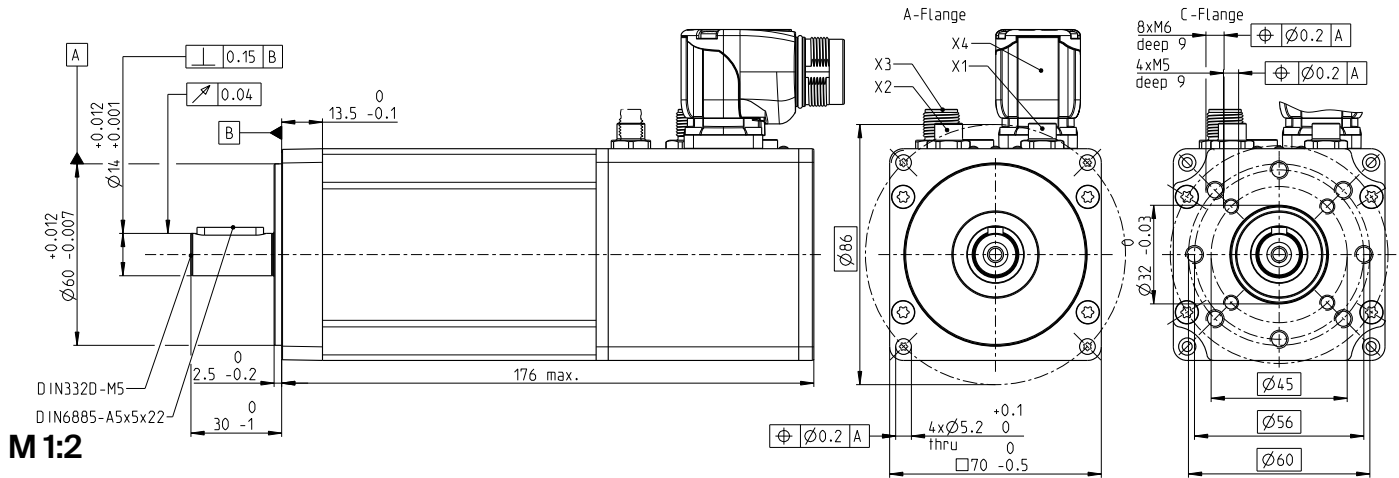
EtherCAT  
CANopen  
I/O ↔

**NEW**



**IDX**

Key Data: 650/773 W, 2441 mNm, 4000 rpm



**M 1:2**

**Drive data (provisional)**

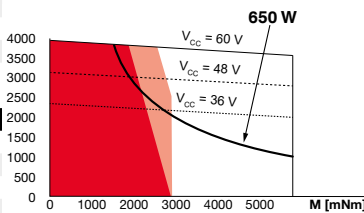
1_ Nominal power supply voltage	V	48	60
2_ Nominal speed	rpm	3038	3022
3_ Nominal torque at 25°C	mNm	2096	2441
4_ Nominal torque at 40°C	mNm	1820	2120
5_ Nominal supply current at 25°C	A	15.3	14.0
6_ Nominal supply current at 40°C	A	13.3	12.2
7_ Maximum speed at nominal voltage	rpm	3150	3195
8_ Maximum permissible drive speed	rpm	4000	3195
9_ Maximum torque (short-time)	mNm	5750	7084
10_ Maximum supply current (short-time)	A	46	46
11_ Rotor inertia of the drive	gcm <sup>2</sup>	1050	1050
12_ Nominal supply voltage + V <sub>cc</sub>	V	12..60	12..60
13_ Mechanical time constant	ms	0.487	0.437

**Thermal data**

14_ Thermal resistance housing-ambient	K/W	1.41
15_ Thermal resistance winding-housing	K/W	0.642
16_ Thermal time constant winding	s	9.83
17_ Thermal time constant drive	s	1260
18_ Ambient temperature	°C	-30...+85

**Operating Range**

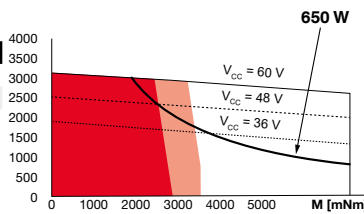
n [rpm] **48-V-system**



**Mechanical data**

19_ Axial play	mm	0.22
Preload	N	28
Direction of force		Pull
20_ Radial play		preloaded
21_ Max. axial load (dynamic)	N	22
22_ Max. force for press fits (static)	N	270
23_ Max. radial load [mm from flange]	N	300 [15]

n [rpm] **60-V-system**



**Other specifications**

24_ Weight of the drive	g	2500
25_ Typical noise level [rpm]	dBA	60 [3000]
Encoder: Steps per turn		4096

Supply I/O's	M23, male, 6 poles, N-coded
CANopen Input	M12, male, 12 poles, A-coded
CANopen Output	M8, male, 5 poles, B-coded
EtherCAT Input	M8, female, 5 poles, B-coded
EtherCAT Output	M8, female, 4 poles, A-coded
	M8, female, 4 poles, A-coded

**Modular System**

Sensor integrated

Motor Control integrated

Accessories  
571\_AB 60 S

Details on catalog page 40

**Configuration**

Flange front: A-Flange/C-Flange  
Interface with Positioning/Speed Controller: CANopen / EtherCAT  
Interface with Speed Controller: I/O  
Angle Power Connector: 0° / 90°

# IDX 70 L with integrated electronics

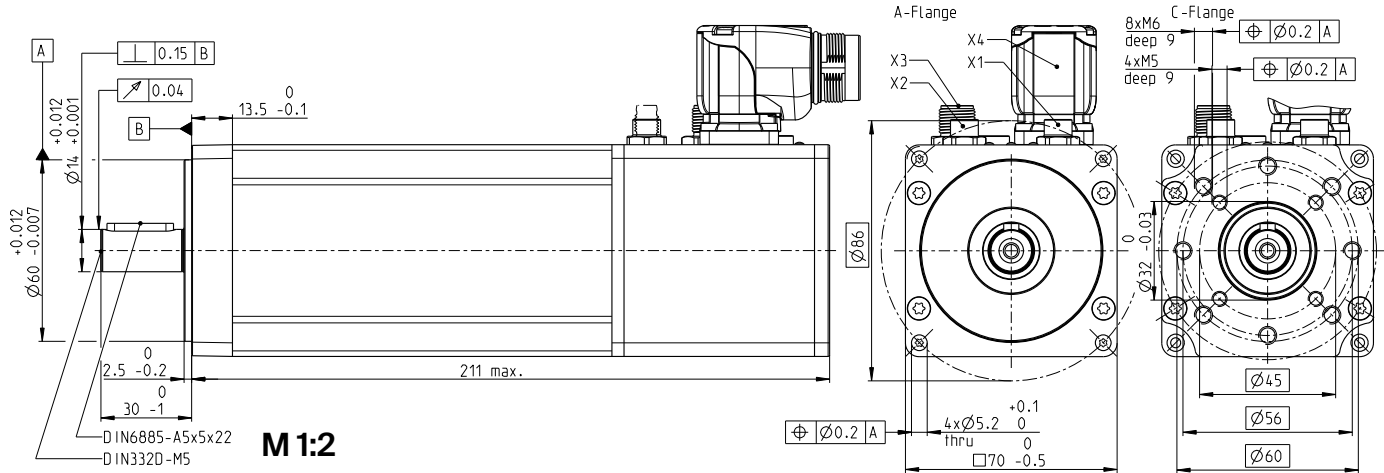
Drive with Positioning/Speed Controller

EtherCAT  
CANopen  
I/O ↔

NEW



Key Data: 750/831 W, 3167 mNm, 3200 rpm



**Drive data (provisional)**

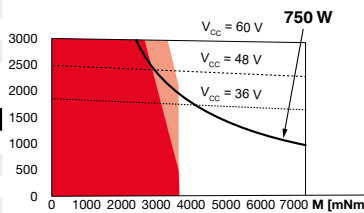
1_ Nominal power supply voltage	V	48	60
2_ Nominal speed	rpm	2424	2505
3_ Nominal torque at 25°C	mNm	2890	3167
4_ Nominal torque at 40°C	mNm	2510	2750
5_ Nominal supply current at 25°C	A	16.7	15.1
6_ Nominal supply current at 40°C	A	14.5	13.1
7_ Maximum speed at nominal voltage	rpm	2490	2630
8_ Maximum permissible drive speed	rpm	3200	2630
9_ Maximum torque (short-time)	mNm	7268	8602
10_ Maximum supply current (short-time)	A	46	46
11_ Rotor inertia of the drive	gcm <sup>2</sup>	1534	1534
12_ Nominal supply voltage + V <sub>cc</sub>	V	12..60	12..60
13_ Mechanical time constant	ms	0.408	0.449

**Thermal data**

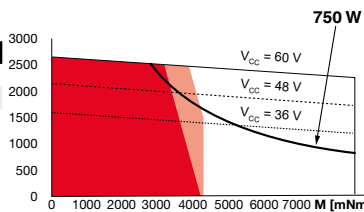
14_ Thermal resistance housing-ambient	K/W	0.364
15_ Thermal resistance winding-housing	K/W	1.143
16_ Thermal time constant winding	s	9.84
17_ Thermal time constant drive	s	1620
18_ Ambient temperature	°C	-30...+85

**Operating Range**

n [rpm] 48-V-system



n [rpm] 60-V-system



■ Continuous operation  
■ Continuous operation with reduced thermal resistance R<sub>th2</sub> 50%  
 Short term operation

**Mechanical data**

19_ Axial play	mm	0.22
Preload	N	28
Direction of force		Pull
20_ Radial play		preloaded
21_ Max. axial load (dynamic)	N	22
22_ Max. force for press fits (static)	N	270
23_ Max. radial load [mm from flange]	N	300 [15]

**Other specifications**

24_ Weight of the drive	g	3200
25_ Typical noise level [rpm]	dBA	65 [3 000]
Encoder: Steps per turn		4096

Supply	M23, male, 6 poles, N-coded
I/O's	M12, male, 12 poles, A-coded
CANopen Input	M8, male, 5 poles, B-coded
CANopen Output	M8, female, 5 poles, B-coded
EtherCAT Input	M8, female, 4 poles, A-coded
EtherCAT Output	M8, female, 4 poles, A-coded

**Modular System**

Sensor integrated

Motor Control integrated

Accessories  
571\_AB 60 S

Details on catalog page 40

**Configuration**

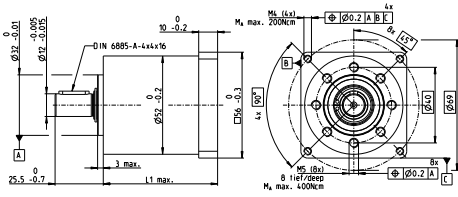
Flange front: A-Flange/C-Flange  
 Interface with Positioning/Speed Controller: CANopen / EtherCAT  
 Interface with Speed Controller: I/O  
 Angle Power Connector: 0° / 90°

# GPX 52 Ø52 mm, planetary gearhead

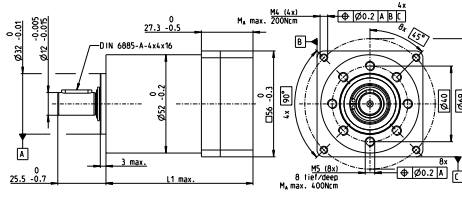
GPX



Stufe/stage: 1 + 2



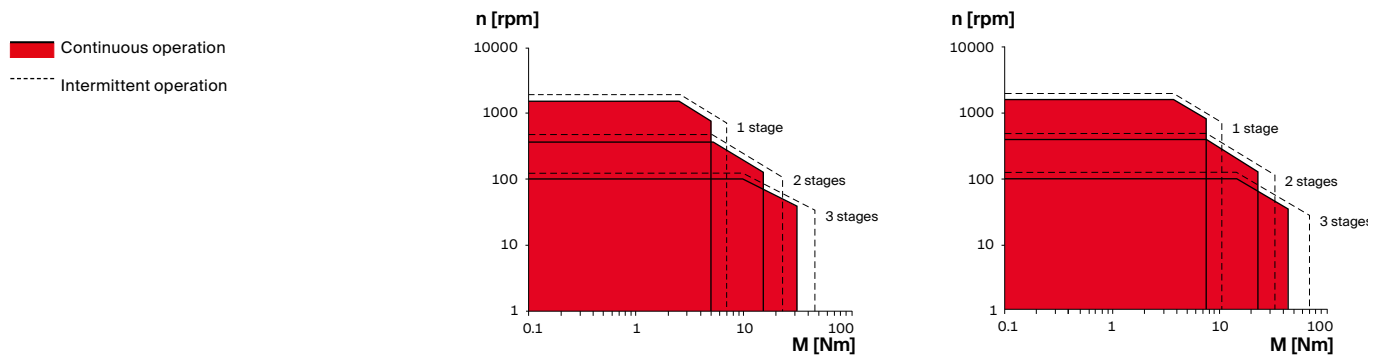
Stufe/stage: 3



## M 1:4

Key Data	A Standard Version	UP Ultra Performance
Max. transmittable power	W 400	600
Max. continuous torque	Nm 30.0	45.0
Max. continuous input speed	rpm 6000	6000
Ambient temperature	°C -40...+100	-40...+100
Bearing at output	Ball bearing	Ball bearing

Operating Range (output shaft)	A Standard Version	UP Ultra Performance
--------------------------------	--------------------	----------------------



Specifications	A Standard Version	UP Ultra Performance
Number of stages	1 2 3	1 2 3
Max. transmittable power (continuous)	W 400 200 100	600 300 150
Max. transmittable power (intermittent)	W 500 250 125	750 375 188
Max. continuous torque	Nm 5.0 15.0 30.0	7.5 22.5 45.0
Max. intermittent torque	Nm 7.0 23.0 45.0	10.5 34.5 67.5
Max. continuous input speed	rpm 6000 6000 6000	6000 6000 6000
Max. intermittent input speed	rpm 7500 7500 7500	7500 7500 7500
Max. efficiency	% 95 92 89	95 92 89
Average backlash no load	° 0.5 0.6 0.8	0.3 0.4 0.5
Max. axial load (dynamic)	N 200 200 200	200 200 200
Max. permissible radial load, 10 mm from flange	N 420 630 900	420 630 900
Gearhead length L <sup>1</sup>	mm 44 61 78	44 61 78
Weight	g 687 855 1080	694 861 1086

Configuration	A Standard Version	UP Ultra Performance	
Number of stages	1 2 3	1 2 3	
Reduction	3.9, 5.3, 6.6 16, 21, 26, 28, 35, 44 62, 83, 103, 111, 138, 172	3.9, 5.3, 6.6 16, 21, 26, 28, 35, 44 62, 83, 103, 111, 138, 172	
Version	Standard/noise reduced/ultra performance		
Flange	Standard flange		
Shaft			

Modular System	Page	Page
EC motor		
N° of stages [opt.]		
IDX 56 S	1-3 239	1-3 347
IDX 56 M	1-3 240	1-3 348
IDX 56 L	1-3 241	1-3 349

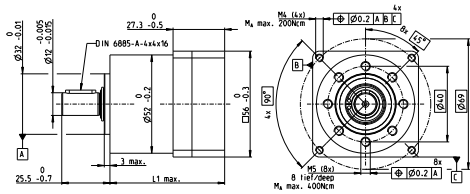
<sup>1</sup>This length may vary depending on the configuration and choice of motor. The effective length is calculated at the end of the configuration process.

# GPX 52 Ø52 mm, planetary gearhead

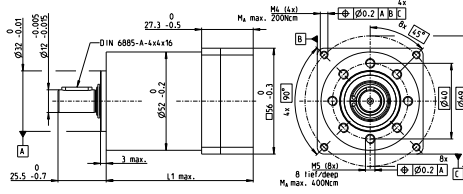


GPX

Stufe/stage: 1 + 2



Stufe/stage: 3

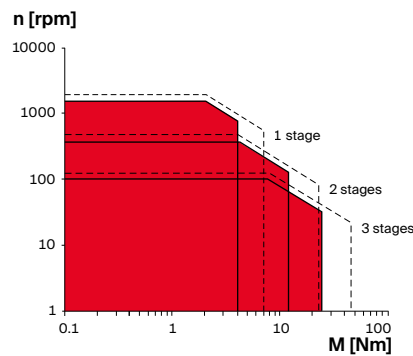


## M 1:4

Key Data	LN Noise Reduced
Max. transmittable power	W 320
Max. continuous torque	Nm 24.0
Max. continuous input speed	rpm 6000
Ambient temperature	°C -40...+100
Bearing at output	Ball bearing
Typical noise level	dBA -5 dBA compared to standard configuration

Operating Range (output shaft)	LN Noise Reduced
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■ Continuous operation  
- - - - - Intermittent operation



Specifications	LN Noise Reduced
Number of stages	1      2      3
Max. transmittable power (continuous)	W 320    160    80
Max. transmittable power (intermittent)	W 400    200    100
Max. continuous torque	Nm 4.0    12.0    24.0
Max. intermittent torque	Nm 7.0    23.0    45.0
Max. continuous input speed	rpm 6000    6000    6000
Max. intermittent input speed	rpm 7500    7500    7500
Max. efficiency	% 95    92    89
Average backlash no load	° 0.5    0.6    0.8
Max. axial load (dynamic)	N 200    200    200
Max. permissible radial load, 10 mm from flange	N 420    630    900
Gearhead length L1 <sup>1</sup>	mm 44    61    78
Weight	g 687    861    1143

Configuration	LN Noise Reduced
Number of stages	1      2      3
Reduction	3.9, 5.3, 6.6    16, 21, 26, 28, 35, 44    62, 83, 103, 111, 138, 172
Version	Standard/noise reduced/ultra performance
Flange	Standard flange
Shaft	

Modular System	Page	Modular System	Page
EC motor	N° of stages [opt.]	IDX drive	N° of stages [opt.]
IDX 56 S	1-3	IDX 56 S	1-3
IDX 56 M	1-3	IDX 56 M	1-3
IDX 56 L	1-3	IDX 56 L	1-3

<sup>1</sup>This length may vary depending on the configuration and choice of motor. The effective length is calculated at the end of the configuration process.

# Brake AB 42 S 24 VDC, 1.4 Nm

**NEW**



### Important Information

- Spring-loaded brake - single-disc brake with two friction surfaces for direct current. Braked in unpowered condition (dry operation).
- Holding brake, prevents rotation of the shaft at standstill or with turned off motor power.
- Not suitable for dynamic braking.
- Not backlash-free (+/-1° max.).

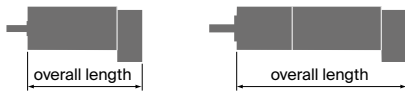
accessories

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

### Part Numbers

x drives

### Type



### maxon Modular System

+ Drive	Page	+ Gearhead	Page	+ Sensor	Page	Overall length [mm] / • see Gearhead
IDX 56 S	347					online
IDX 56 S	347	GPX 52	390/391			online
IDX 56 M	348					online
IDX 56 M	348	GPX 52	390/391			online
IDX 56 L	349					online
IDX 56 L	349	GPX 52	390/391			online

+ Motor	Page	+ Gearhead	Page	+ Sensor	Page	Overall length [mm] / • see Gearhead
IDX 56 S	239					online
IDX 56 S	239	GPX 52	390/391			online
IDX 56 M	240					online
IDX 56 M	240	GPX 52	390/391			online
IDX 56 L	241					online
IDX 56 L	241	GPX 52	390/391			online

Technical Data				Pin Allocation	
Max. permissible static torque at 20°C	1.4 Nm	Nominal voltage, smoothed	24 VDC -10 ... +5%	online	
Mass inertia	6.1 gcm <sup>2</sup>	Resistance	R <sub>20</sub> = 82.6 Ω +10%		
Max. speed	8000 rpm	Duty cycle	100%		
Weight	0.14 kg	Reaction time	- Coupling	≤ 30 ms	
Ambient temperature range	-40...+120°C		- Opening	≤ 85 ms	

