

## Technische specificaties

De belangrijkste kenmerken van de DC-Wormwielmotoren zijn:

- Voeding 12, 24VDC (andere optioneel)
- Gegoten aluminium behuizing
- Wormwielkast wordt permanent gesmeerd met synthetische olie, hierdoor is montage in iedere positie mogelijk.
- Geschikt voor encoder montage (AA versie)

## Selectie

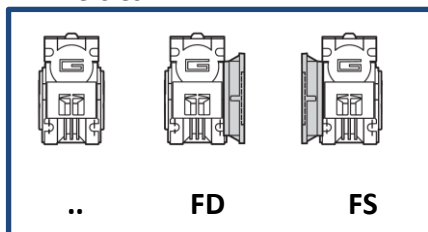
Artikel sleutel					
898x0	xxVDC	AA	ZW0xx	i	
Motor type	Voltage	Achter as	Vertraging type	Uitgaande flens type	Overzetverhouding
89830	12VDC	- : none	ZW030	.. : none	...:1
89890	24VDC	AA : achter as*		FD	
	48VDC			FS	
	90VDC				
	120VDC				

### Comments

48, 90 and 120VDC zijn leverbaar op bestelling. Schakel ons in bij uw innovatie en ervaar onze meerwaarde.

\* IP65 behoudens de uitgaande as, deze is IP54. De achteras opties (encoder en rem) zijn IP20

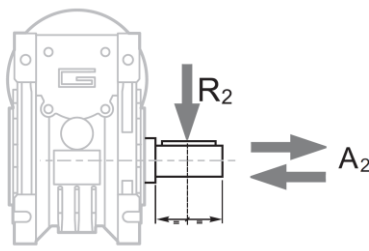
\* Versies



## Definities

<b>V</b>	(VDC)	Voltage	<b>i</b>	Overzetverhouding
<b>A<sub>2</sub></b>	(N)	Max. axiale belasting	<b>Rd</b>	Rendement
<b>R<sub>2</sub></b>	(N)	Max. radiale belasting	<b>IP</b>	Dichtheidsklasse
<b>P<sub>n</sub></b>	(W)	Nominale vermogen	<b>IC</b>	Isolatieklasse
<b>M<sub>n</sub></b>	(Nm)	Nominaal koppel	<b>Kg</b>	Gewicht
<b>M<sub>2</sub></b>	(Nm)	Uitgaand koppel (bij S1 gebruik)		
<b>n1</b>	(min <sup>-1</sup> )	Motor toerental		
<b>n2</b>	(min <sup>-1</sup> )	Uitgaand toerental		

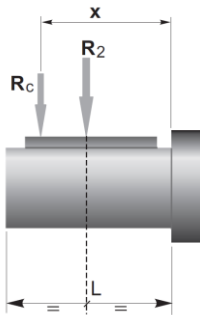
**Asbelasting**



$A_2 = R_2 \times 0.2$

n <sub>2</sub> (min-1)	R <sub>2</sub> (N)
	ZW 030
187	674
140	743
93	851
70	936
56	1008
47	1169
35	1279
28	1270
23	1356
18	1471
14	1600

Wanneer de radiale asbelasting niet wordt toegepast in het midden van de as, kunt u de effectieve belasting berekenen met de volgende formule:



$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_e$$

a, b waarden volgens de tabel

ZW	
030	
a	65
b	50
R <sub>2</sub> max	1600

**Vertanding**

	Wormwiel Data	Overzetverhouding											
		5	7.5	10	15	20	25	30	40	50	60	80	100
ZW 030	Z	6	4	3	2	2	2	1	1	1	1	1	1
	B	27° 4'	24° 28'	18° 50'	12° 49'	10° 23'	8° 43'	6° 29'	5° 14'	4° 23'	3° 46'	2° 57'	2° 25'

**Efficiëntie**

	n <sub>1</sub> (min-1)	Efficiëntie	Overzetverhouding											
			5	7.5	10	15	20	25	30	40	50	60	80	100
ZW 030	2800	Rd	0.89	0.88	0.86	0.84	0.81	0.78	0.74	0.70	0.65	0.62	0.57	0.52
		Rs	0.72	0.67	0.63	0.55	0.50	0.43	0.39	0.35	0.31	0.27	0.23	0.21

## Specificaties

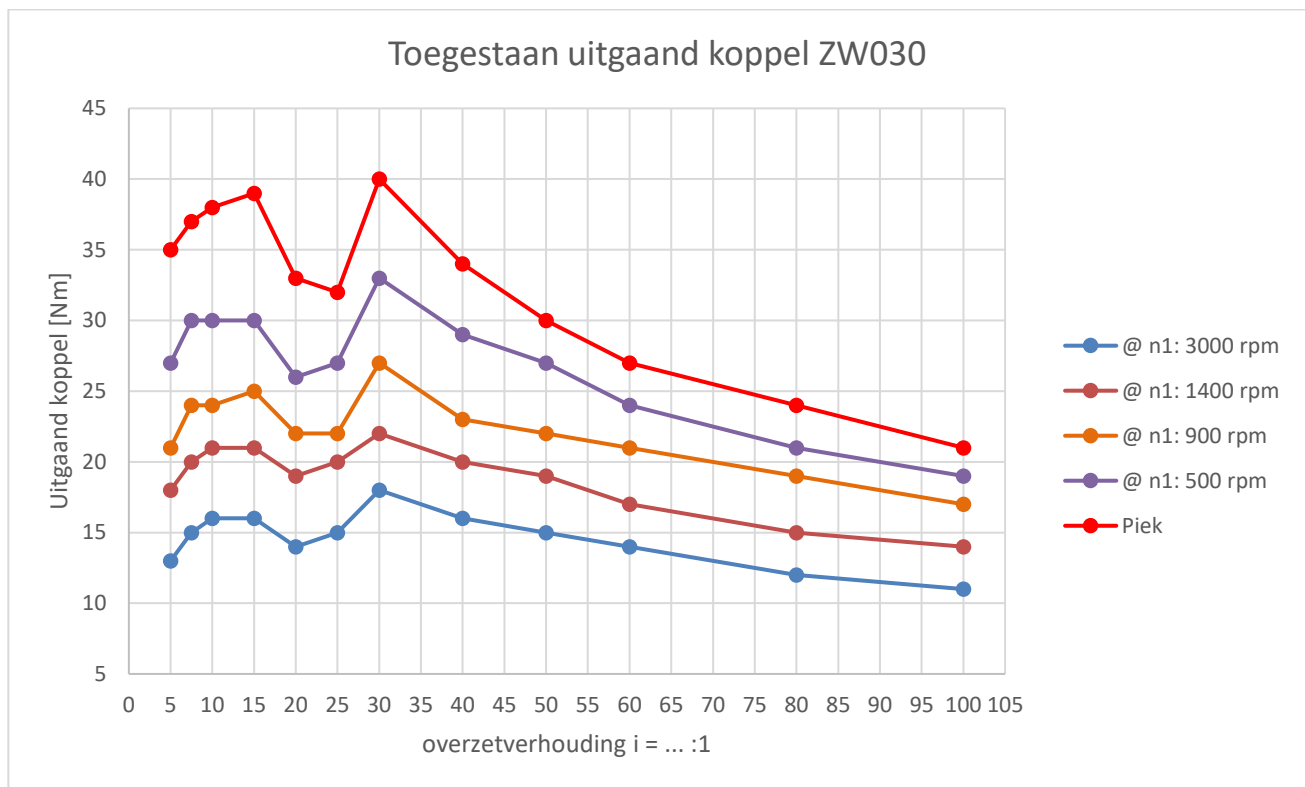
Motor serie: 89830		Wormwielvertraging: ZW030											
Overzetverhouding (...:1)		5	7,5	10	15	20	25	30	40	50	60	80	100
12VDC	Nominale snelheid (rpm)	570	380	285	190	143	114	95	71	57	48	36	29
	Nominale koppel (Nm)	0,8	1,2	1,5	2,3	2,9	3,5	4	5	6	7	8	9
24VDC	Nominale snelheid (rpm)	600	400	300	200	150	120	100	75	60	50	37,5	30
	Nominale koppel (Nm)	0,8	1,2	1,5	2,3	2,9	3,5	4	5	6	7	8	9
Motor serie: 89890		Wormwielvertraging: ZW030											
Overzetverhouding (...:1)		5	7,5	10	15	20	25	30	40	50	60	80	100
24VDC	Nominale snelheid (rpm)	686	457	343	229	172	137	114	86	69	57	43	34
	Nominale koppel (Nm)	1,3	1,9	2,5	3,7	4,7	6	6	8	9	11	13	15

In **ROOD**: Max. belasting, zie de belastinggrafiek vertraging

Type	Inschakelduur	Pn (W)	V (VDC)	I (A)	IC	Mn (Nm)	n <sub>1</sub> (min <sup>-1</sup> )	IP	kg
89830-12VDC	S1	54	12	6,5	E	0,18	2850	65*	1,2
89830-24VDC	S1	57	24	3,1	E	0,18	3000	65*	1,2
89890-24VDC	S1	104	24	5,4	E	0,29	3430	65*	1,6

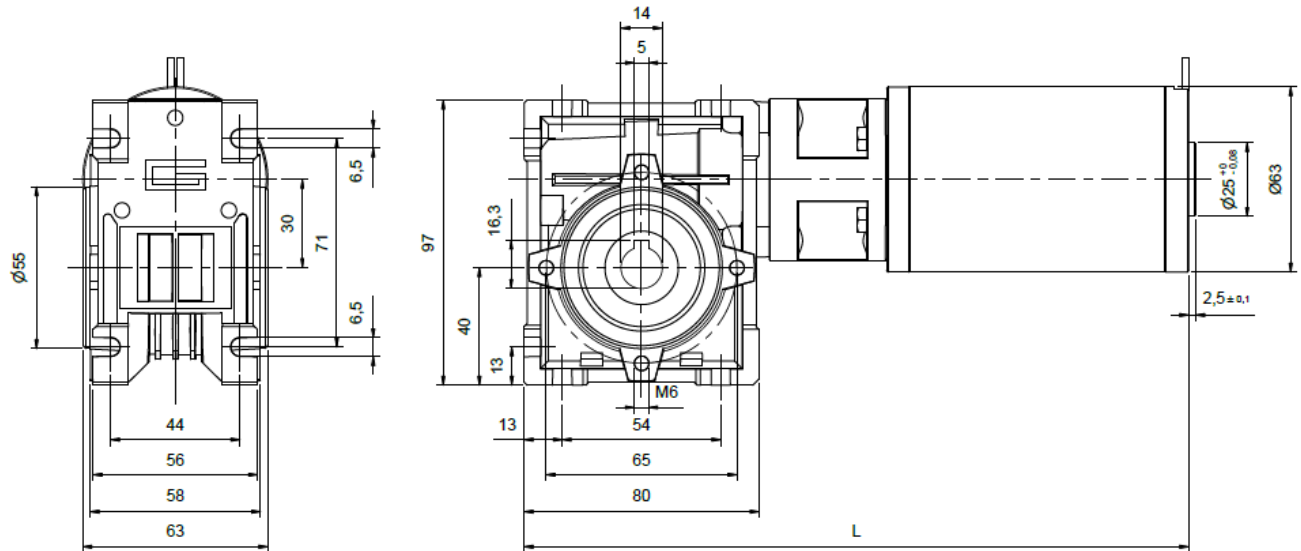
\*exclusief de uitgaande as. Encoder en rem uitvoering is IP20.

## Belastinggrafiek vertraging



## Afmetingen

### 898x0\_ZW030

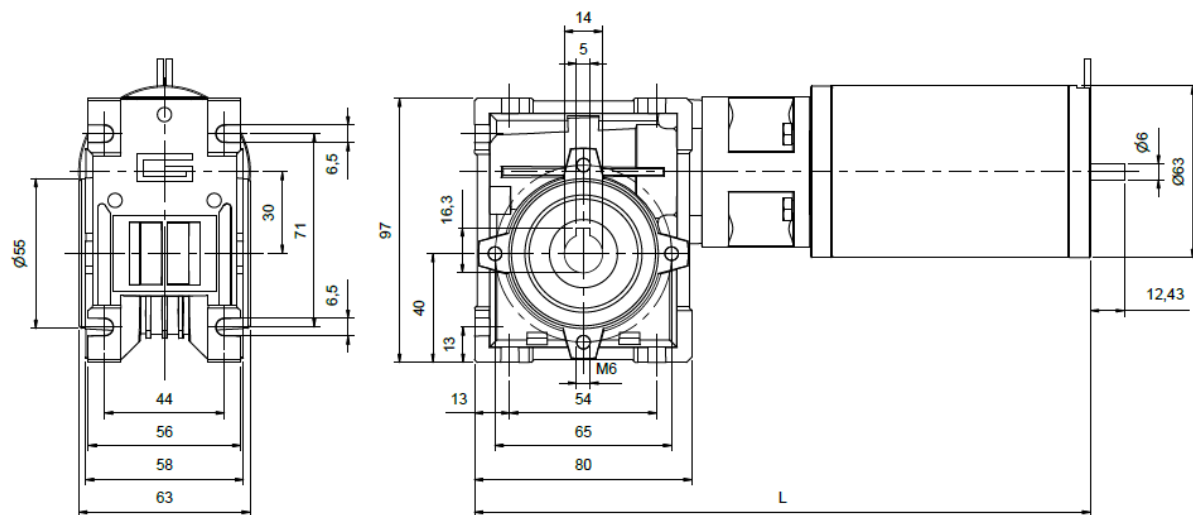

**89830\_ZW030**

L: 226,5mm

**89890\_ZW030**

L: 250,6mm

### 898x0\_AA\_ZW030


**89830-AA\_ZW030**

L: 226,5mm

**89890-AA\_ZW030**

L: 250,6mm

2D & 3D tekeningen van deze combinaties staan op onze website.



# DCmind: DC direct-drive brush motors

→ Ø 63 mm - 102 W

- Silent motor
- 12 V and 24 V built in EMC filter class B
- Excellent efficiency
- Long life
- IP65
- In accordance with UL - CE - ROHS regulations



## Part numbers

	12 V	24 V	48 V	90 V
Type	89830	89830	89830	89830
Voltage	12 V $\overline{---}$	24 V $\overline{---}$	48 V $\overline{---}$	90 V $\overline{---}$
<b>References</b>				
Option: IP65 level	<b>89830011</b>	<b>89830012</b>	<b>89830003</b>	<b>89830004</b>
Option: holding brake 0.5 Nm, 24 V $\overline{---}$	<b>89830511</b>	<b>89830512</b>	<b>89830503</b>	<b>89830504</b>
Option: 2 channels encoder 1000 pulses/revolution, 5 V $\overline{---}$	<b>89830911</b>	<b>89830912</b>	<b>89830903</b>	<b>89830904</b>
<b>No-load characteristics</b>				
Speed (rpm)	3830	3600	3550	3550
Absorbed current (A)	0.52	0.23	0.14	0.07
<b>Nominal characteristics</b>				
Speed (rpm)	2850	3000	3050	3000
Torque (mNm)	180	180	180	180
Output power (W)	54	57	57	57
Absorbed current (A)	6.5	3.1	1.54	0.83
Efficiency (%)	69	77	78	76
<b>Maximum efficiency characteristics</b>				
Speed (rpm)	3340	3240	3200	3200
Torque (mNm)	90	111	131	128
Output power (W)	31	38	44	43
Absorbed current (A)	3.5	1.97	1.15	0.61
Efficiency (%)	75	80	80	78
<b>General characteristics</b>				
Insulation conforming to IEC 60085	Class E	Class E	Class E	Class E
Noise level (dBA)	35	35	35	35
Max. output power (W)	70	102	114	109
Starting torque (mNm)	703	1080	1230	1177
Starting current (A)	24	17.2	9.7	5
Resistance ( $\Omega$ )	0.5	1.4	4.9	18
Inductance (mH)	0.38	1.7	7	25
Torque constant (mNm/A)	30	64	129	237
Electrical time constant (ms)	0.8	1.2	1.4	1.4
Mechanical time constant (ms)	21	13	11	12
Inertia (g.cm <sup>2</sup> )	380	380	380	380
Weight (g)	1200	1200	1200	1200
Commutator segments	12	12	12	12
Service life (h)	5000	5000	5000	5000
Wires length (mm)	200	200	200	200
Ball bearing	✓	✓	✓	✓
<b>Comments</b>				
IP65 level except for the output shaft. Encoder and brake options are IP20.				

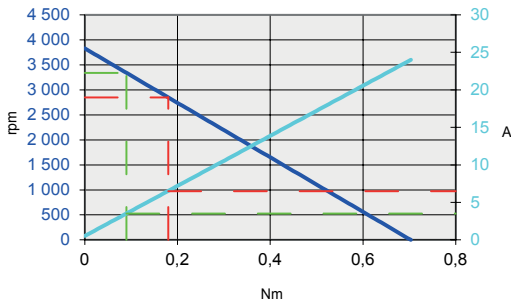
## Product adaptations, contact us



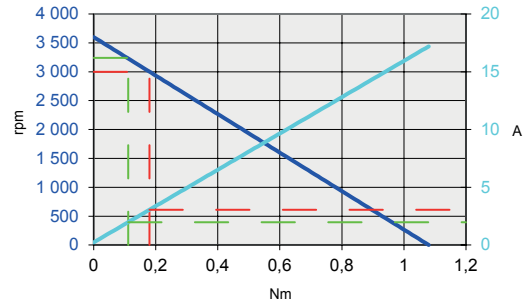
- Special output shaft
- Shaft with pinion, pulley, worm gear
- Special supply voltage
- Other wire length
- Optical or Hall effect encoder - 1 or 2 channels
- Specific motor mounting flange
- Special motor connectors
- IP67, IP69K

## Curves

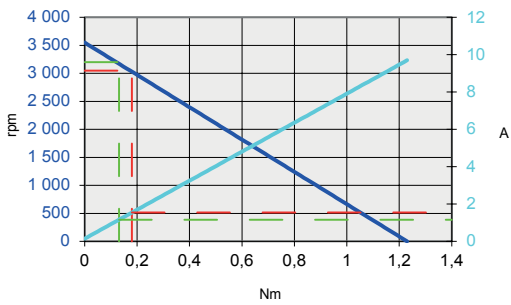
89830011 - 89830511 - 89830911



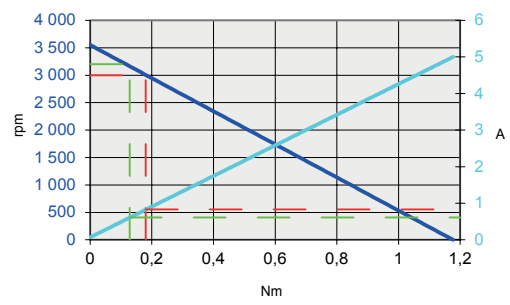
89830012 - 89830512 - 89830912



89830003 - 89830503 - 89830903

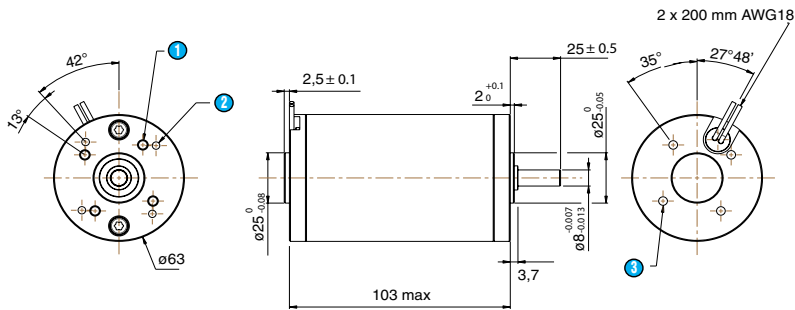


89830004 - 89830504 - 89830904



- Speed (rpm)
- Current (A)
- Torque at nominal
- Torque at maximum efficiency

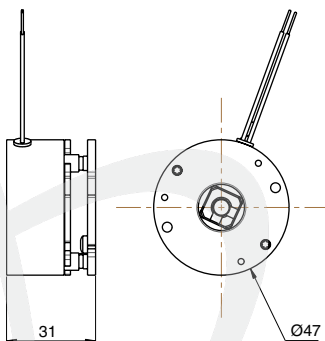
## Dimensions (mm)



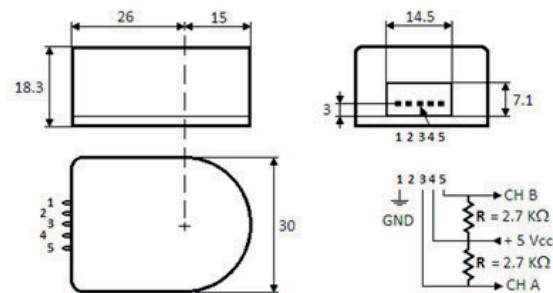
- ① 4 x M5 at 90° depth 10 over Ø 40
- ② 4 x Ø 3.65 at 90° depth 8 over Ø 48
- ③ 4 x M5 at 90° depth 7 over Ø 40

## Options

### Holding brake 0.5 Nm



### Encoder





# DCmind: DC direct-drive brush motors

→ Ø 63 mm - 209 W

- Silent motor
- 24 V built in EMC filter class B
- Excellent efficiency
- Long life
- IP65
- In accordance with UL - CE - ROHS regulations



## Part numbers

	24 V	48 V	90 V	120 V
Type	89890	89890	89890	89890
Voltage	24 V $\overline{---}$	48 V $\overline{---}$	90 V $\overline{---}$	120 V $\overline{---}$
<b>References</b>				
Option: IP65 level	<b>89890011</b>	<b>89890003</b>	<b>89890004</b>	<b>89890005</b>
Option: holding brake 0.5 Nm, 24 V $\overline{---}$	<b>89890511</b>	<b>89890503</b>	<b>89890504</b>	<b>89890505</b>
Option: 2 channels encoder 1000 pulses/revolution, 5 V $\overline{---}$	<b>89890911</b>	<b>89890903</b>	<b>89890904</b>	<b>89890905</b>
<b>No-load characteristics</b>				
Speed (rpm)	4000	3780	3700	3730
Absorbed current (A)	0.34	0.16	0.09	0.07
<b>Nominal characteristics</b>				
Speed (rpm)	3430	3370	3320	3350
Torque (mNm)	290	290	290	290
Output power (W)	104	102	101	102
Absorbed current (A)	5.4	2.53	1.34	1.01
Efficiency (%)	80	84	84	84
<b>Maximum efficiency characteristics</b>				
Speed (rpm)	3660	3480	3410	3430
Torque (mNm)	179	207	218	230
Output power (W)	69	75	78	83
Absorbed current (A)	3.5	1.9	1	0.82
Efficiency (%)	82	84	84	84
<b>General characteristics</b>				
Insulation conforming to IEC60085	Class E	Class E	Class E	Class E
Noise level (dBA)	35	35	35	35
Max. output power (W)	209	265	269	281
Starting torque (mNm)	2000	2680	2780	2875
Starting current (A)	35.3	22.2	12.1	9.4
Resistance ( $\Omega$ )	0.7	2.2	7.4	12.8
Inductance (mH)	0.73	3.3	12	21
Torque constant (mNm/A)	57	122	232	308
Electrical time constant (ms)	1.1	1.5	1.6	1.6
Mechanical time constant (ms)	13	9	9	9
Inertia (g.cm <sup>2</sup> )	650	650	650	650
Weight (g)	1600	1600	1600	1600
Commutator segments	12	12	12	12
Service life (h)	5000	5000	5000	5000
Wires length (mm)	200	200	200	200
Ball bearing	✓	✓	✓	✓
<b>Comments</b>				

IP65 level except for the output shaft. Encoder and brake options are IP20.

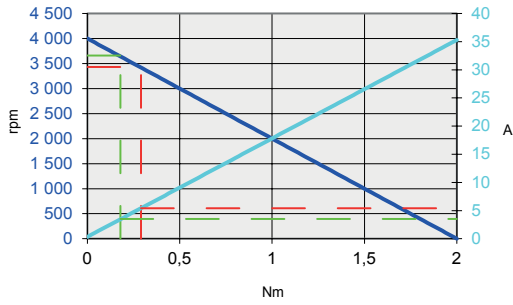
## Product adaptations, contact us

- Special output shaft
- Shaft with pinion, pulley, worm gear
- Special supply voltage
- Other wire length
- Optical or Hall effect encoder - 1 or 2 channels
- Specific motor mounting flange
- Special motor connectors
- IP67, IP69K

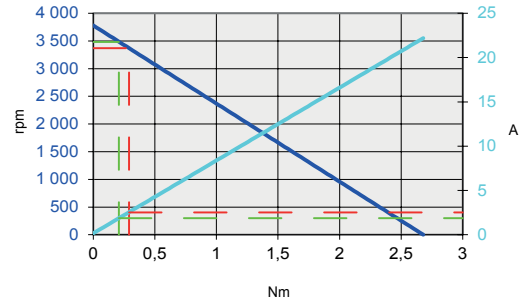


## Curves

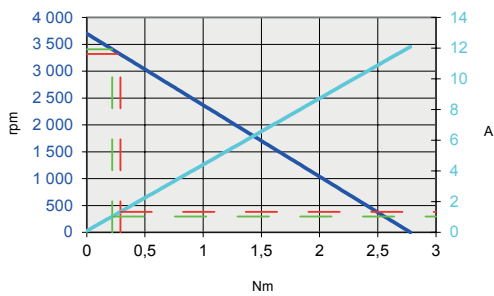
89890011 - 89890511 - 89890911



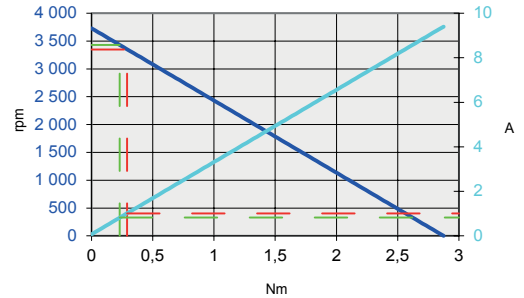
89890003 - 89890503 - 89890903



89890004 - 89890504 - 89890904

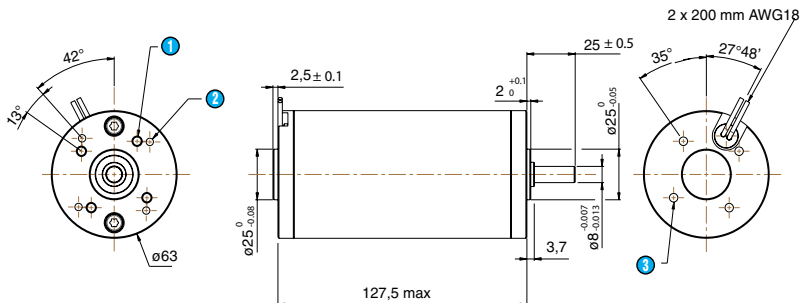


89890005 - 89890505 - 89890905



- Speed (rpm)
- Current (A)
- - - Torque at nominal
- - - Torque at maximum efficiency

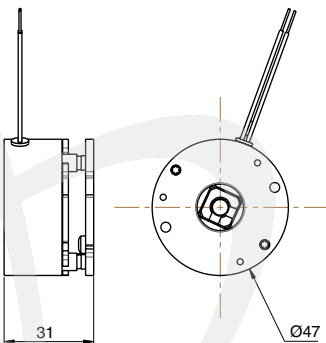
## Dimensions (mm)



- ① 4 x M5 at 90° depth 10 over Ø 40
- ② 4 x Ø 3.65 at 90° depth 8 over Ø 48
- ③ 4 x M5 at 90° depth 7 over Ø 40

## Options

### Holding brake 0.5 Nm



### Encoder

