



KOCO
Group

A VARIETY OF APPLICATIONS



PRECISION DC CORELESS MOTOR

1



BRUSHLESS DC MOTOR

2



ELECTRONIC SPEED CONTROLLER

3



PRECISION GEARMOTOR

4



PRECISION SERVO MOTOR

5



DC CORELESS MOTOR

6



FLAT DC MOTOR

7



DC CORE MOTOR

8



MINI STEP MOTOR

9



SONIC MOTOR

10





Overview of the PRECISION DC CORELESS MOTORS

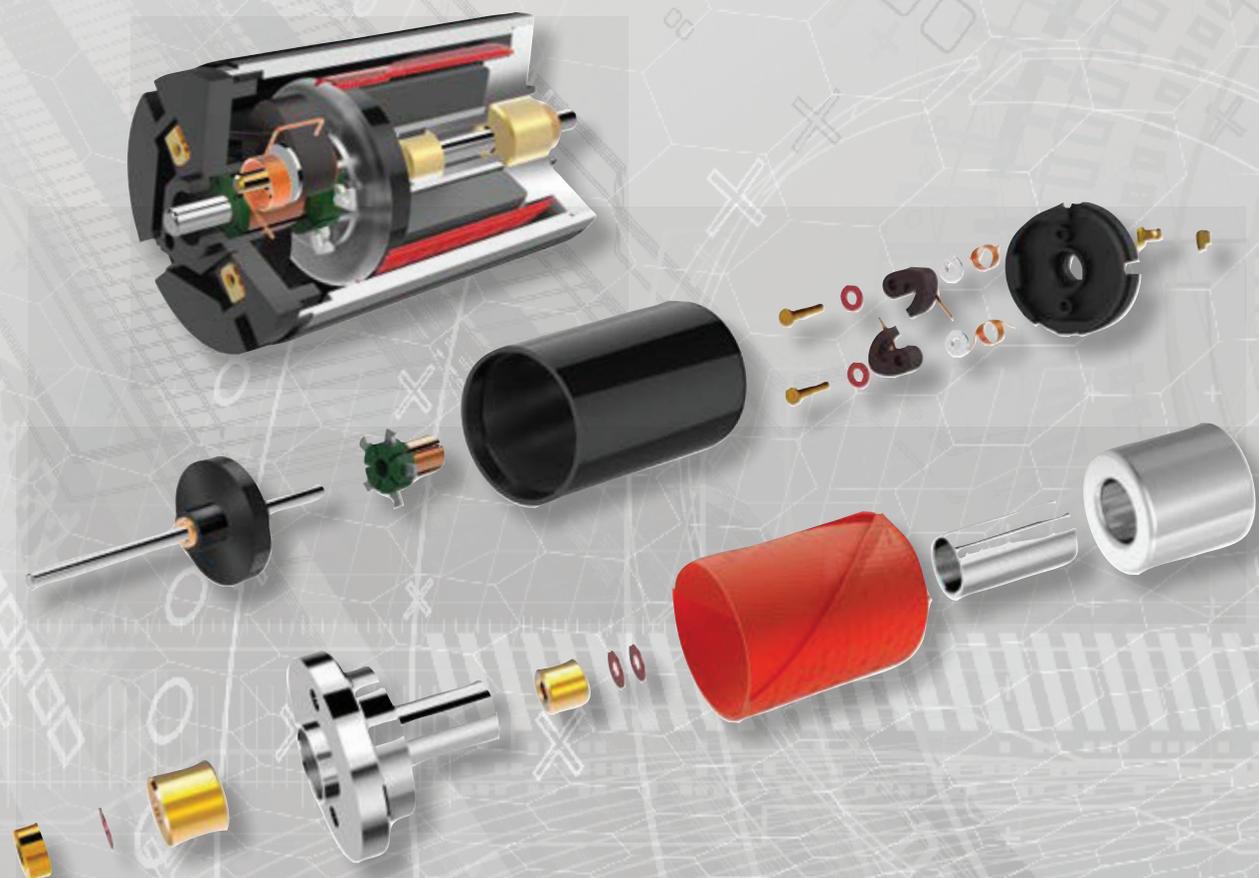
	Motor No.	Dia x Length (max)	Max. Power	Page
1	0615N5M	6.00 x 15.00 mm	0.25 W	4
2	0816N5M	8.00 x 16.20 mm	0.34 W	5
3	1020N5M	10.00 x 20.70 mm	0.60 W	6
4	1025N5M	10.00 x 24.00 mm	1.30 W	7
5	1220N5M2B	12.00 x 21.00 mm	2.30 W	8
6	1221N7M	12.00 x 21.00 mm	2.00 W	9
7	1230N5M	12.40 x 30.90 mm	3.40 W	10
8	1230N7M	12.40 x 30.70 mm	0.60 W	11
9	1331N5M	13.00 x 31.50 mm	1.13 W	12
10	1515N5M	15.00 x 15.20 mm	0.36 W	13
11	1620N5M	16.00 x 20.00 mm	1.30 W	14
12	1625N5M	16.00 x 25.20 mm	2.80 W	15
13	1625N9M	16.00 x 25.20 mm	2.70 W	16
14	1627N5M(1)	16.00 x 27.00 mm	4.45 W	17
15	1627N5M(2)	16.00 x 27.00 mm	1.72 W	18
16	1630N5M2B	16.00 x 30.00 mm	2.82 W	19
17	1630N5M2B	19.00 x 25.00 mm	4.75 W	20
18	2224N5M2B	22.00 x 24.20 mm	4.00 W	21
19	2225N5M	22.00 x 25.30 mm	6.60 W	22
20	2232N5M	22.00 x 31.60 mm	8.00 W	23
21	2232N9M	22.00 x 31.60 mm	8.40 W	24
22	2233N5M2B	22.00 x 33.20 mm	5.00 W	25
23	2433N5M2B	24.00 x 32.80 mm	10.10 W	26
24	1625N5C	16.00 x 25.60 mm	2.60 W	27
25	1630N5C	16.00 x 29.60 mm	3.30 W	28
26	1735N5C2B	17.00 x 35.00 mm	6.60 W	29
27	2233N5C	22.00 x 33.70 mm	7.10 W	30
28	2543N9C2B	25.00 x 43.50 mm	22.70 W	31
29	2554N9C2B	25.00 x 53.30 mm	44.70 W	32
30	3068N9C2B	30.00 x 68.00 mm	215.00 W	33
31	3257N9C2B	32.00 x 57.00 mm	65.00 W	34

PRECISION DC CORELESS MOTOR

Coreless windings are utilized in our precision DC coreless motors (Micromotors). Due to an integrated structure consisting of a symmetrical winding, commutator and motor shaft, these motors are very smooth and stable running and without vibration. The motors are characterized by:

- **low inertia**
- **rapid acceleration**
- **high efficiency**
- **no cogging and linear output performance**

They have excellent speed regulation and servo performance. High performance Nd-Fe-B magnets are used, and the product is compact in size. The motor with precious metal commutation is used in low power applications, whereas carbon-brush commutation is used in higher power applications with long operational lifetime. The product is typically used for precision drives in medical equipment and devices, healthcare products, robotics, automotive, and industrial automation.



Precision DC Coreless Motor · 0615N5M

Precious metal commutation

Characteristics		01-122-3.0	
1	Voltage	V	3.0
2	Terminal resistance	Ω	19.0
3	No-load speed	rpm	12200
4	No-load current	mA	10
5	Stall torque	mNm	0.33
6	Stall current	mA	160
7	Nominal torque	mNm	0.4
8	Nominal speed	rpm	--
9	Nominal current	mA	183
10	Max. output power	W	0.25
11	Max. efficiency	%	60
12	Back-EMF constant	mV/rpm	0.1
13	Torque constant	mNm/A	2.2
14	Speed/torque gradient	rpm/mNm	37000
15	Rotor inertia	gcm ²	0.015
16	Weight	g	2.5
17	Thermal resistance housing-ambient	K/W	75.83
18	Thermal resistance winding-housing	K/W	42.08
19	Thermal time constant motor	s	78
20	Thermal time constant winding	s	15
21	Operating temperature range	°C	-20 ~ +100
22	Thermal class of winding	°C	130
23	Axial play	mm	≤ 0.3
24	Radial play	mm	0.012
25	Axial load dynamic	N	0.15
26	Axial load static	N	10
27	Radial load at 3 mm from mounting face	N	0.7
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 40

Approx. actual size



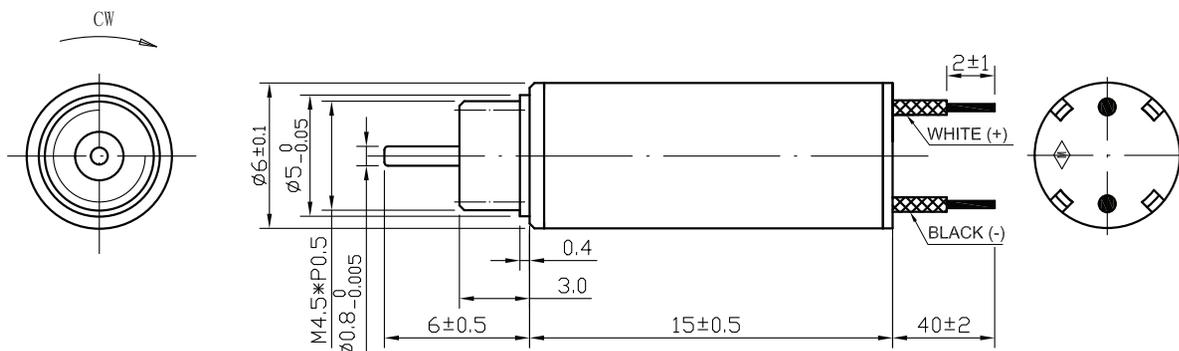
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads

Dimension (mm) · 0615N5M



Precision DC Coreless Motor · 0816N5M

Precious metal commutation

Characteristics			01-155-8.0	02-137-4.2
1	Voltage	V	8.0	4.2
2	Terminal resistance	Ω	60.0	12.4
3	No-load speed	rpm	15500	13700
4	No-load current	mA	6	15
5	Stall torque	mNm	0.61	0.95
6	Stall current	mA	130	340
7	Nominal torque	mNm	0.57	0.74
8	Nominal speed	rpm	--	--
9	Nominal current	mA	120	270
10	Max. output power	W	0.25	0.34
11	Max. efficiency	%	65	65
12	Back-EMF constant	mV/rpm	0.5	0.3
13	Torque constant	mNm/A	4.7	2.8
14	Speed/torque gradient	rpm/mNm	25300	14400
15	Rotor inertia	gcm ²	0.04	0.04
16	Weight	g	3.6	3.6
17	Thermal resistance housing-ambient	K/W	66.15	
18	Thermal resistance winding-housing	K/W	27.25	
19	Thermal time constant motor	s	104	
20	Thermal time constant winding	s	21	
21	Operating temperature range	°C	-20 ~ +100	
22	Thermal class of winding	°C	130	
23	Axial play	mm	≤ 0.3	
24	Radial play	mm	0.012	
25	Axial load dynamic	N	0.15	
26	Axial load static	N	10	
27	Radial load at 3 mm from mounting face	N	0.7	
28	No. of pole pairs		1	
29	Bearings		2 sleeve bearings	
30	Commutator		metal 5 segments	
31	Protection class		IP 40	

5

Approx. actual size



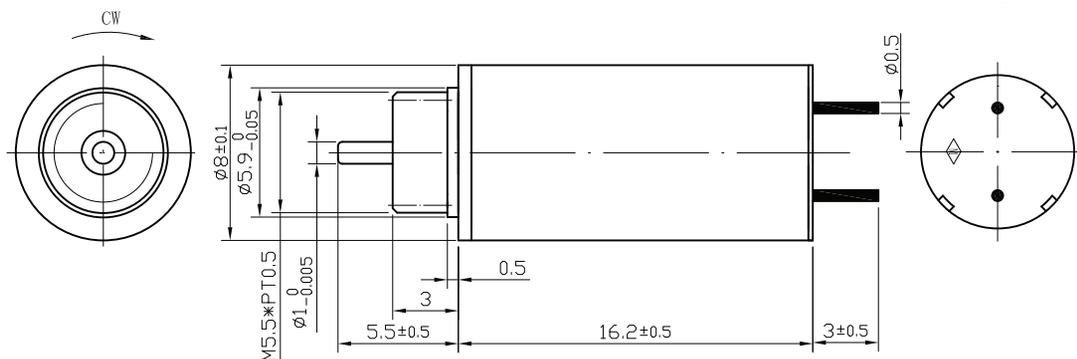
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads
- Encoder

Dimension (mm) · 0816N5M



Precision DC Coreless Motor · 1020N5M

Precious metal commutation

Characteristics		52-115-3.0	
1	Voltage	V	3.0
2	Terminal resistance	Ω	3.8
3	No-load speed	rpm	11500
4	No-load current	mA	16
5	Stall torque	mNm	1.9
6	Stall current	mA	790
7	Nominal torque	mNm	0.5
8	Nominal speed	rpm	8740
9	Nominal current	mA	200
10	Max. output power	W	0.6
11	Max. efficiency	%	74
12	Back-EMF constant	mV/rpm	0.26
13	Torque constant	mNm/A	2.4
14	Speed/torque gradient	rpm/mNm	6100
15	Rotor inertia	gcm ²	0.07
16	Weight	g	6.1
17	Thermal resistance housing-ambient	K/W	38.5
18	Thermal resistance winding-housing	K/W	33.2
19	Thermal time constant motor	s	78
20	Thermal time constant winding	s	61
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.01 - 0.15
24	Radial play	mm	0.012
25	Axial load dynamic	N	0.15
26	Axial load static	N	15
27	Radial load at 3 mm from mounting face	N	0.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 40

6

Approx. actual size



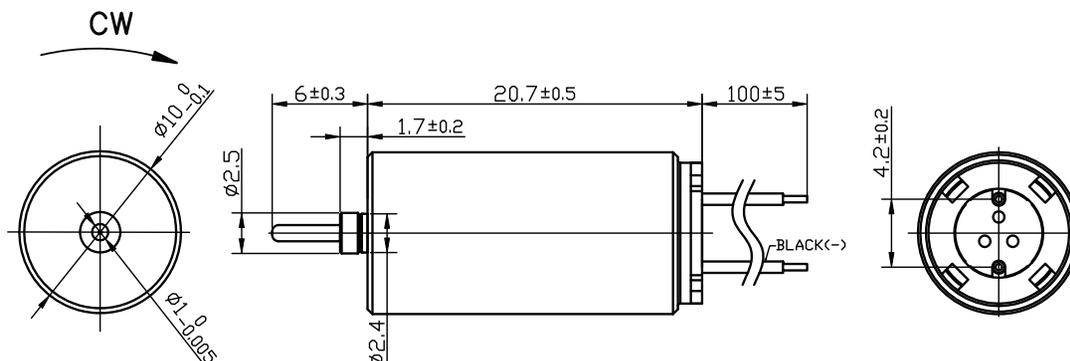
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads
- Encoder

Dimension (mm) · 1020N5M



Precision DC Coreless Motor · 1025N5M

Precious metal commutation

Characteristics		01-115-12.0	
1	Voltage	V	12.0
2	Terminal resistance	Ω	28.0
3	No-load speed	rpm	11500
4	No-load current	mA	10
5	Stall torque	mNm	4.2
6	Stall current	mA	430
7	Nominal torque	mNm	1.9
8	Nominal speed	rpm	4300
9	Nominal current	mA	210
10	Max. output power	W	1.3
11	Max. efficiency	%	74
12	Back-EMF constant	mV/rpm	1.0
13	Torque constant	mNm/A	9.7
14	Speed/torque gradient	rpm/mNm	2700
15	Rotor inertia	gcm ²	0.09
16	Weight	g	7
17	Thermal resistance housing-ambient	K/W	32.56
18	Thermal resistance winding-housing	K/W	36.8
19	Thermal time constant motor	s	113
20	Thermal time constant winding	s	90
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	≤ 0.15
24	Radial play	mm	0.012
25	Axial load dynamic	N	0.15
26	Axial load static	N	15
27	Radial load at 3 mm from mounting face	N	0.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 40

Approx. actual size



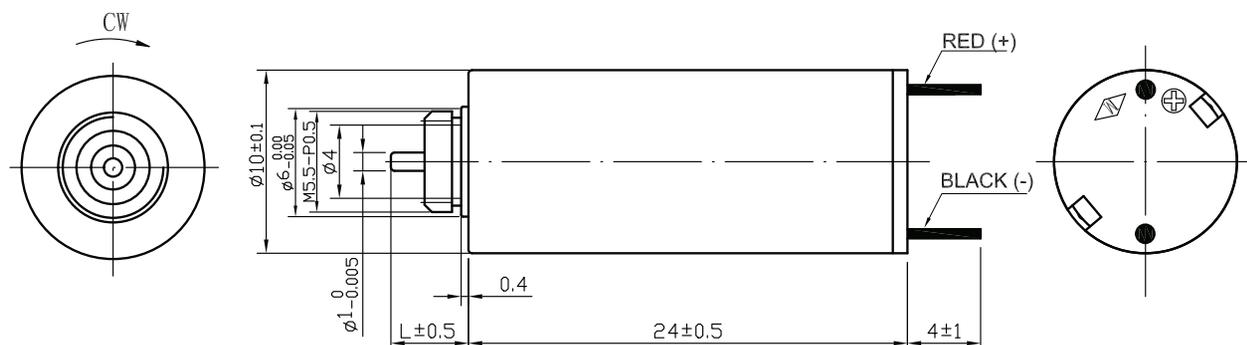
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
Shaft length
Special coils
Gearheads
Encoder

Dimension (mm) · 1025N5M



Precision DC Coreless Motor · 1220N5M2B

Precious metal commutation

Characteristics			26-79-3.3	27-120-6.0	43-141-12.0
1	Voltage	V	3.3	6.0	12.0
2	Terminal resistance	Ω	6.9	5.2	17.9
3	No-load speed	rpm	7900	12000	14100
4	No-load current	mA	12	30	8
5	Stall torque	mNm	1.9	5.3	5.4
6	Stall current	mA	480	1150	670
7	Nominal torque	mNm	0.4	2.3	2.1
8	Nominal speed	rpm	6000	6960	8600
9	Nominal current	mA	120	490	270
10	Max. output power	W	0.4	1.7	2.0
11	Max. efficiency	%	73	72	80
12	Back-EMF constant	mV/rpm	0.4	0.5	0.8
13	Torque constant	mNm/A	3.9	4.7	8.0
14	Speed/torque gradient	rpm/mNm	4200	2200	2600
15	Rotor inertia	gcm ²	0.15	0.15	0.15
16	Weight	g	10	10	10
17	Thermal resistance housing-ambient	K/W		33.3	
18	Thermal resistance winding-housing	K/W		35.3	
19	Thermal time constant motor	s		144	
20	Thermal time constant winding	s		120	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.002 – 0.15	
24	Radial play	mm		0.025	
25	Axial load dynamic	N		0.8	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		4	
28	No. of pole pairs			1	
29	Bearings			2 ball bearings	
30	Commutator			metal 5 segments	
31	Protection class			IP 40	

Approx. actual size



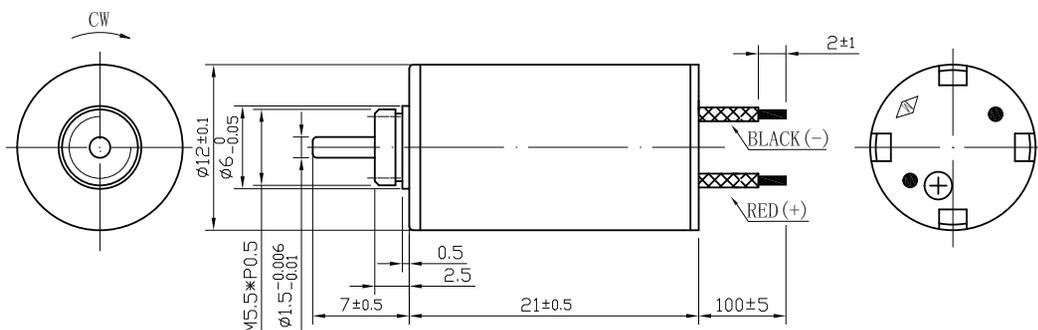
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads
 Encoder

Dimension (mm) · 1220N5M2B



Precision DC Coreless Motor · 1221N7M

Precious metal commutation

Characteristics			26-79-3.3	27-120-6.0	43-141-12.0
1	Voltage	V	3.3	6.0	12.0
2	Terminal resistance	Ω	6.9	5.2	17.9
3	No-load speed	rpm	7900	12000	14100
4	No-load current	mA	12	30	8
5	Stall torque	mNm	1.9	5.3	5.4
6	Stall current	mA	480	1150	670
7	Nominal torque	mNm	0.4	2.3	2.1
8	Nominal speed	rpm	6000	6960	8600
9	Nominal current	mA	120	490	270
10	Max. output power	W	0.4	1.7	2.0
11	Max. efficiency	%	73	72	80
12	Back-EMF constant	mV/rpm	0.4	0.5	0.8
13	Torque constant	mNm/A	3.9	4.7	8.0
14	Speed/torque gradient	rpm/mNm	4200	2200	2600
15	Rotor inertia	gcm ²	0.15	0.15	0.15
16	Weight	g	10	10	10
17	Thermal resistance housing-ambient	K/W		33.3	
18	Thermal resistance winding-housing	K/W		35.3	
19	Thermal time constant motor	s		144	
20	Thermal time constant winding	s		120	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.02 - 0.15	
24	Radial play	mm		0.025	
25	Axial load dynamic	N		0.8	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		4	
28	No. of pole pairs			1	
29	Bearings			2 sleeve bearings	
30	Commutator			metal 7 segments	
31	Protection class			IP 40	

Approx. actual size



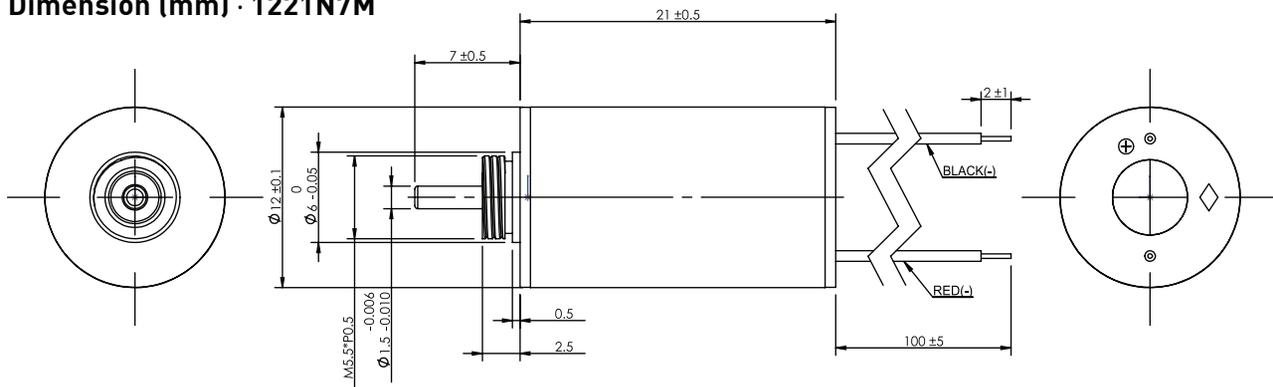
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 1221N7M



Precision DC Coreless Motor · 1230N5M

Precious metal commutation

Characteristics			06-44-5.3	15-113-12.0	17-108-24.0
1	Voltage	V	5.3	12.0	24.0
2	Terminal resistance	Ω	12.9	10.4	59.0
3	No-load speed	rpm	4450	11300	10800
4	No-load current	mA	10	15	5
5	Stall torque	mNm	4.5	11.5	8.6
6	Stall current	mA	410	1150	410
7	Nominal torque	mNm	0.9	3.0	3.7
8	Nominal speed	rpm	3450	7900	5990
9	Nominal current	mA	110	385	185
10	Max. output power	W	0.5	3.4	2.4
11	Max. efficiency	%	73	80	80
12	Back-EMF constant	mV/rpm	1.2	1.0	2.2
13	Torque constant	mNm/A	11.1	10.0	21.0
14	Speed/torque gradient	rpm/mNm	980	980	1260
15	Rotor inertia	gcm ²	0.25	0.25	0.25
16	Weight	g	17.7	17.7	17.7
17	Thermal resistance housing-ambient	K/W		35.15	
18	Thermal resistance winding-housing	K/W		12.49	
19	Thermal time constant motor	s		202	
20	Thermal time constant winding	s		20	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.02 ~ 0.15	
24	Radial play	mm		0.014	
25	Axial load dynamic	N		0.8	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		1.4	
28	No. of pole pairs			1	
29	Bearings			2 sleeve bearings	
30	Commutator			metal 5 segments	
31	Protection class			IP 40	

Approx. actual size



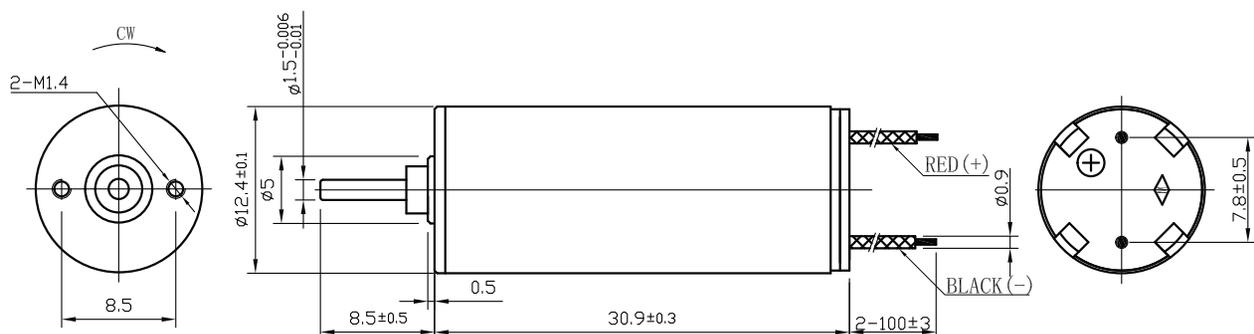
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads

Dimension (mm) · 1230N5M

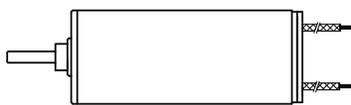


Precision DC Coreless Motor · 1230N7M

Precious metal commutation

Characteristics			-48-4.5
1	Voltage	V	4.5
2	Terminal resistance	Ω	8.5
3	No-load speed	rpm	4800
4	No-load current	mA	12
5	Stall torque	mNm	4.6
6	Stall current	mA	529
7	Nominal torque	mNm	1.0
8	Nominal speed	rpm	3800
9	Nominal current	mA	125
10	Max. output power	W	0.6
11	Max. efficiency	%	74
12	Back-EMF constant	mV/rpm	0.9
13	Torque constant	mNm/A	8.7
14	Speed/torque gradient	rpm/mNm	1036
15	Rotor inertia	gcm ²	0.25
16	Weight	g	17.7
17	Thermal resistance housing-ambient	K/W	27.8
18	Thermal resistance winding-housing	K/W	23.7
19	Thermal time constant motor	s	135
20	Thermal time constant winding	s	20
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	85
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.014
25	Axial load dynamic	N	0.8
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	1.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 7 segments
31	Protection class		IP 40

Approx. actual size



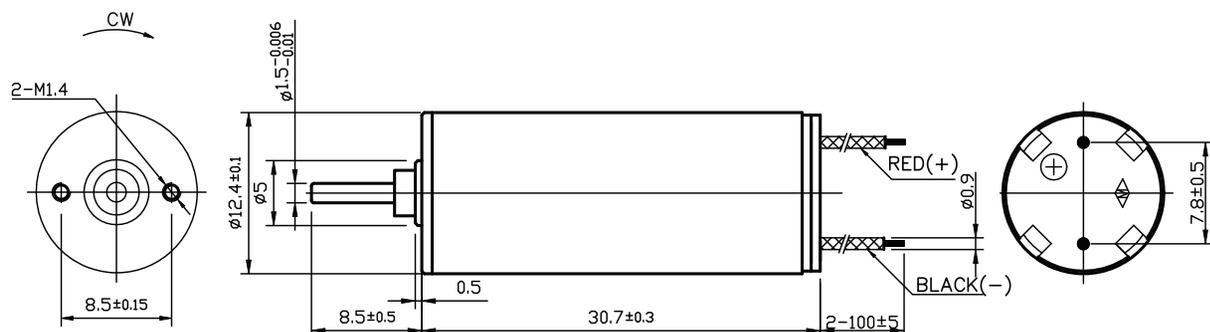
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads
- Encoder

Dimension (mm) · 1230N7M



Precision DC Coreless Motor · 1331N5M

Precious metal commutation

Characteristics		01-67-9.0	
1	Voltage	V	9.0
2	Terminal resistance	Ω	17.7
3	No-load speed	rpm	6730
4	No-load current	mA	7
5	Stall torque	mNm	6.4
6	Stall current	mA	510
7	Nominal torque	mNm	2.0
8	Nominal speed	rpm	4420
9	Nominal current	mA	185
10	Max. output power	W	1.13
11	Max. efficiency	%	79
12	Back-EMF constant	mV/rpm	1.3
13	Torque constant	mNm/A	12.6
14	Speed/torque gradient	rpm/mNm	1050
15	Rotor inertia	gcm ²	0.52
16	Weight	g	19
17	Thermal resistance housing-ambient	K/W	34.8
18	Thermal resistance winding-housing	K/W	38.6
19	Thermal time constant motor	s	211
20	Thermal time constant winding	s	163
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.014
25	Axial load dynamic	N	0.8
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	1.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



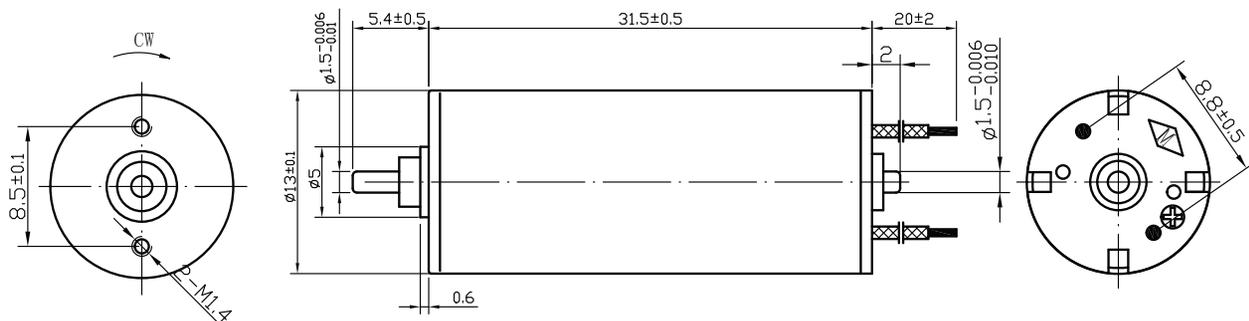
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
Shaft length
Special coils
Bearing type
Gearheads

Dimension (mm) · 1331N5M

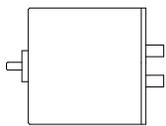


Precision DC Coreless Motor · 1515N5M

Precious metal commutation

Characteristics		04-62-3.0	
1	Voltage	V	3.0
2	Terminal resistance	Ω	6.1
3	No-load speed	rpm	6200
4	No-load current	mA	10
5	Stall torque	mNm	2.2
6	Stall current	mA	490
7	Nominal torque	mNm	0.6
8	Nominal speed	rpm	4650
9	Nominal current	mA	130
10	Max. output power	W	0.36
11	Max. efficiency	%	75
12	Back-EMF constant	mV/rpm	0.5
13	Torque constant	mNm/A	4.5
14	Speed/torque gradient	rpm/mNm	2800
15	Rotor inertia	gcm ²	0.21
16	Weight	g	14.2
17	Thermal resistance housing-ambient	K/W	32.1
18	Thermal resistance winding-housing	K/W	26.3
19	Thermal time constant motor	s	130
20	Thermal time constant winding	s	98
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	≤ 0.3
24	Radial play	mm	0.012
25	Axial load dynamic	N	0.15
26	Axial load static	N	15
27	Radial load at 3 mm from mounting face	N	0.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



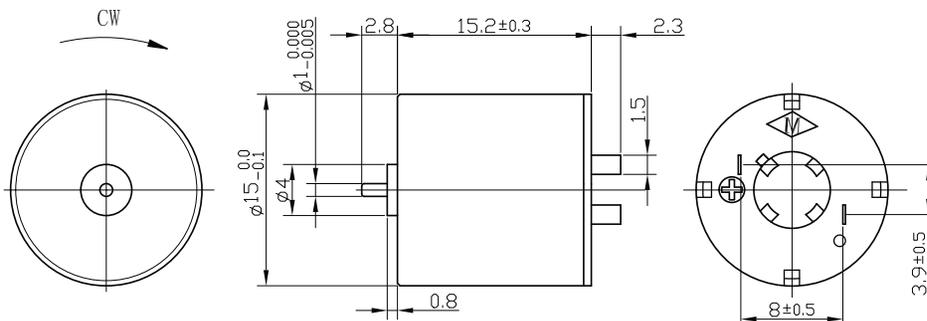
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads

Dimension (mm) · 1515N5M

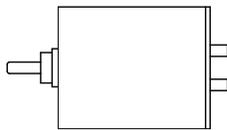


Precision DC Coreless Motor · 1620N5M

Precious metal commutation

Characteristics		21-103-5.0	
1	Voltage	V	5.0
2	Terminal resistance	Ω	4.7
3	No-load speed	rpm	10300
4	No-load current	mA	25
5	Stall torque	mNm	4.8
6	Stall current	mA	1060
7	Nominal torque	mNm	1.0
8	Nominal speed	rpm	8240
9	Nominal current	mA	230
10	Max. output power	W	1.3
11	Max. efficiency	%	73
12	Back-EMF constant	mV/rpm	0.5
13	Torque constant	mNm/A	4.5
14	Speed/torque gradient	rpm/mNm	2150
15	Rotor inertia	gcm ²	0.25
16	Weight	g	16
17	Thermal resistance housing-ambient	K/W	35.7
18	Thermal resistance winding-housing	K/W	25.6
19	Thermal time constant motor	s	172
20	Thermal time constant winding	s	122
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.014
25	Axial load dynamic	N	0.8
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	1.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



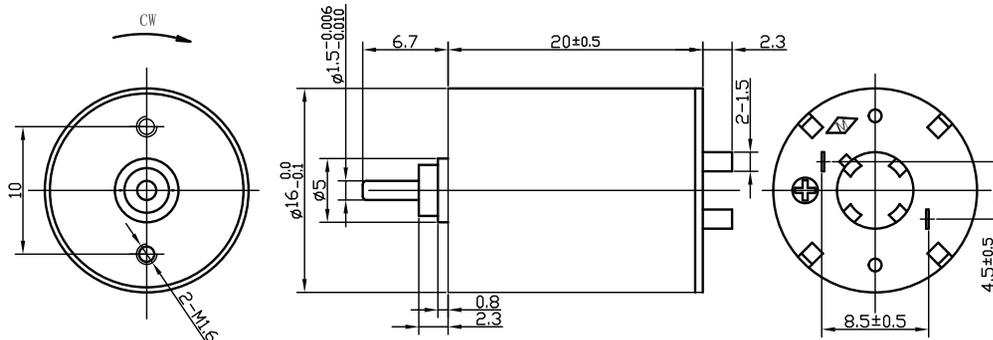
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads

Dimension (mm) · 1620N5M



Precision DC Coreless Motor · 1625N5M

Precious metal commutation

Characteristics			24-60-3.7	25-98-6.0	17-81-12.0
1	Voltage	V	3.7	6.0	12.0
2	Terminal resistance	Ω	7.6	3.1	16.5
3	No-load speed	rpm	6000	9800	8100
4	No-load current	mA	15	20	10
5	Stall torque	mNm	2.9	11.0	9.8
6	Stall current	mA	500	1900	700
7	Nominal torque	mNm	0.5	2.0	2.0
8	Nominal speed	rpm	4730	8080	6520
9	Nominal current	mA	95	350	150
10	Max. output power	W	0.4	2.8	2.1
11	Max. efficiency	%	70	81	79
12	Back-EMF constant	mV/rpm	0.6	0.6	1.5
13	Torque constant	mNm/A	5.7	5.8	14.0
14	Speed/torque gradient	rpm/mNm	2100	890	830
15	Rotor inertia	gcm ²	0.78	0.8	0.8
16	Weight	g	21.8	21.8	21.8
17	Thermal resistance housing-ambient	K/W		24.8	
18	Thermal resistance winding-housing	K/W		30.3	
19	Thermal time constant motor	s		201	
20	Thermal time constant winding	s		175	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.02 ~ 0.15	
24	Radial play	mm		0.014	
25	Axial load dynamic	N		0.8	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		1.4	
28	No. of pole pairs			1	
29	Bearings			2 sleeve bearings	
30	Commutator			metal 5 segments	
31	Protection class			IP 30	

Approx. actual size



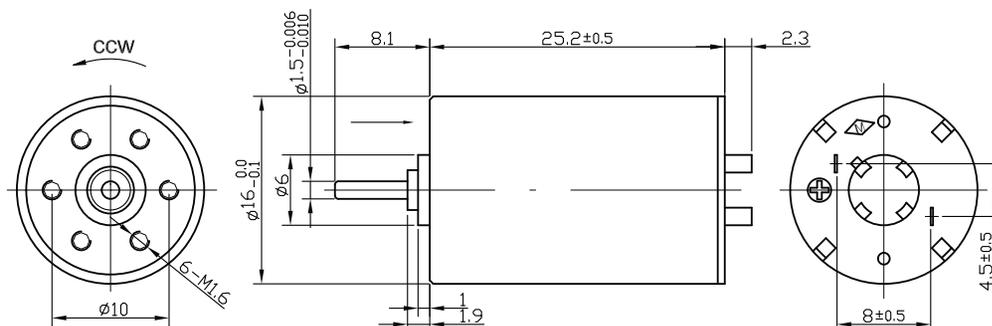
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 1625N5M



Precision DC Coreless Motor · 1625N9M

Precious metal commutation

Characteristics			01-115-3.0	02-92-6.0	03-115-12.0
1	Voltage	V	3.0	6.0	12.0
2	Terminal resistance	Ω	1.1	5.5	13.4
3	No-load speed	rpm	11500	9200	11500
4	No-load current	mA	50	17	12
5	Stall torque	mNm	6.6	6.7	8.8
6	Stall current	mA	2700	1100	900
7	Nominal torque	mNm	1.0	1.2	1.5
8	Nominal speed	rpm	9770	7500	9500
9	Nominal current	mA	450	205	165
10	Max. output power	W	2.0	1.6	2.7
11	Max. efficiency	%	76	78	79
12	Back-EMF constant	mV/rpm	0.3	0.6	1.0
13	Torque constant	mNm/A	2.4	6.1	9.8
14	Speed/torque gradient	rpm/mNm	1740	1360	1300
15	Rotor inertia	gcm ²	0.78	0.8	0.82
16	Weight	g	21.8	21.8	21.8
17	Thermal resistance housing-ambient	K/W		24.8	
18	Thermal resistance winding-housing	K/W		30.3	
19	Thermal time constant motor	s		201	
20	Thermal time constant winding	s		175	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.02 ~ 0.15	
24	Radial play	mm		0.014	
25	Axial load dynamic	N		0.8	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		1.4	
28	No. of pole pairs			1	
29	Bearings			2 sleeve bearings	
30	Commutator			metal 9 segments	
31	Protection class			IP 30	

Approx. actual size



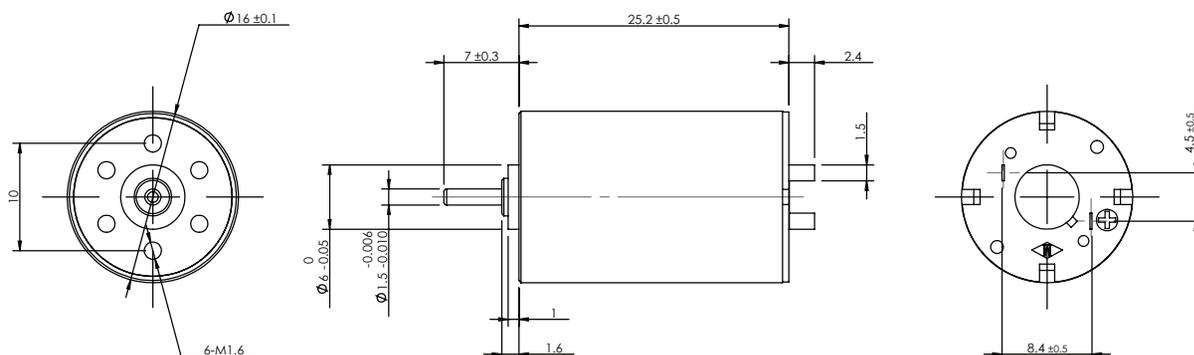
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Bearing type
 Gearheads

Dimension (mm) · 1625N9M



Precision DC Coreless Motor · 1627N5M(1)

Precious metal commutation

Characteristics			07-101-4.5	13-100-6.0	14-100-12.0
1	Voltage	V	4.5	6.0	12.0
2	Terminal resistance	Ω	1.5	2.0	8.5
3	No-load speed	rpm	10100	10000	10000
4	No-load current	mA	45	35	35
5	Stall torque	mNm	12.6	17.0	15.6
6	Stall current	mA	3000	3000	1400
7	Nominal torque	mNm	4.5	4.5	4.5
8	Nominal speed	rpm	6410	7350	7150
9	Nominal current	mA	1120	820	420
10	Max. output power	W	3.33	4.45	4.10
11	Max. efficiency	%	78	81	73
12	Back-EMF constant	mV/rpm	0.4	0.6	1.2
13	Torque constant	mNm/A	4.2	5.7	11.2
14	Speed/torque gradient	rpm/mNm	800	590	640
15	Rotor inertia	gcm ²	0.6	0.6	0.7
16	Weight	g	25	25	25
17	Thermal resistance housing-ambient	K/W		24.88	
18	Thermal resistance winding-housing	K/W		29.38	
19	Thermal time constant motor	s		228	
20	Thermal time constant winding	s		176	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.02 ~ 0.15	
24	Radial play	mm		0.014	
25	Axial load dynamic	N		0.8	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		1.4	
28	No. of pole pairs			1	
29	Bearings			2 sleeve bearings	
30	Commutator			metal 5 segments	
31	Protection class			IP 30	

Approx. actual size



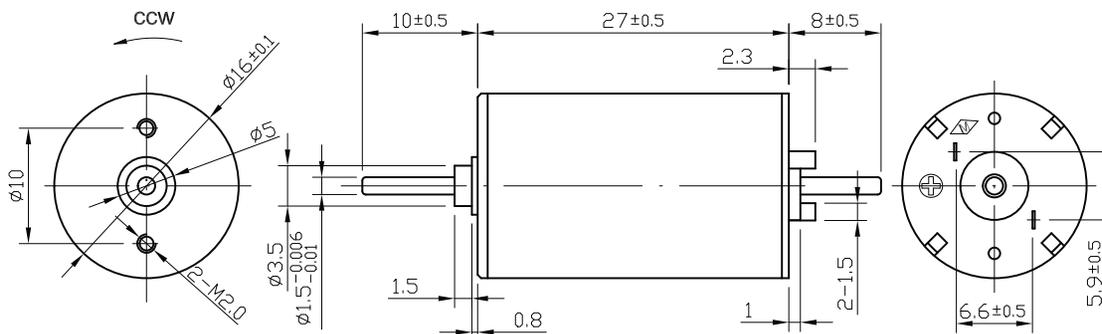
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads
- Encoder

Dimension (mm) · 1627N5M(1)

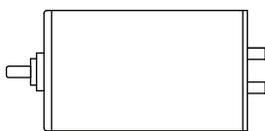


Precision DC Coreless Motor · 1627N5M(2)

Precious metal commutation

Characteristics		16-85-24.0	
1	Voltage	V	24.0
2	Terminal resistance	Ω	72.0
3	No-load speed	rpm	8500
4	No-load current	mA	15
5	Stall torque	mNm	7.7
6	Stall current	mA	300
7	Nominal torque	mNm	2.0
8	Nominal speed	rpm	6450
9	Nominal current	mA	95
10	Max. output power	W	1.72
11	Max. efficiency	%	64
12	Back-EMF constant	mV/rpm	2.7
13	Torque constant	mNm/A	25.7
14	Speed/torque gradient	rpm/mNm	1100
15	Rotor inertia	gcm ²	0.7
16	Weight	g	25
17	Thermal resistance housing-ambient	K/W	24.9
18	Thermal resistance winding-housing	K/W	29.4
19	Thermal time constant motor	s	228
20	Thermal time constant winding	s	176
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.014
25	Axial load dynamic	N	0.8
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	1.4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		

Approx. actual size



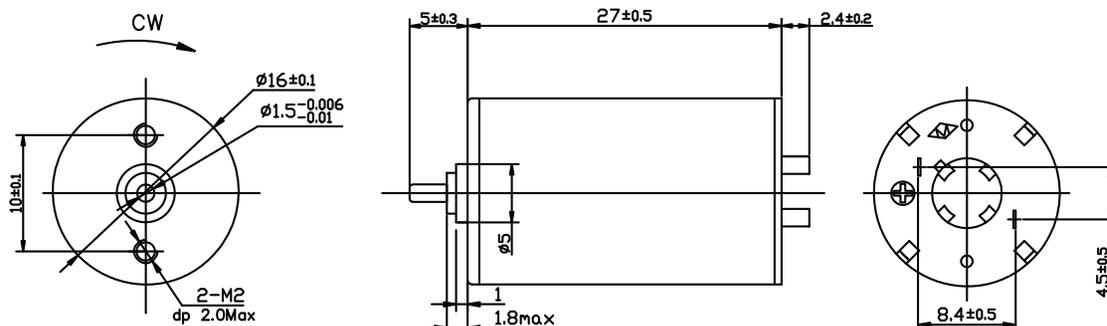
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads
- Encoder

Dimension (mm) · 1627N5M(2)



Precision DC Coreless Motor · 1630N5M2B

Precious metal commutation

Characteristics			23-87-6.0	04-109-12.0
1	Voltage	V	6.0	12.0
2	Terminal resistance	Ω	3.2	15.4
3	No-load speed	rpm	8700	10900
4	No-load current	mA	20	20
5	Stall torque	mNm	12.4	8.2
6	Stall current	mA	1900	800
7	Nominal torque	mNm	3.0	3.0
8	Nominal speed	rpm	6570	7170
9	Nominal current	mA	480	270
10	Max. output power	W	2.82	2.34
11	Max. efficiency	%	81	73
12	Back-EMF constant	mV/rpm	0.7	1.1
13	Torque constant	mNm/A	6.5	10.2
14	Speed/torque gradient	rpm/mNm	700	1330
15	Rotor inertia	gcm ²	0.6	0.7
16	Weight	g	27	27
17	Thermal resistance housing-ambient	K/W		26.79
18	Thermal resistance winding-housing	K/W		3.79
19	Thermal time constant motor	s		242
20	Thermal time constant winding	s		232
21	Operating temperature range	°C		-20 ~ +85
22	Thermal class of winding	°C		130
23	Axial play	mm		0.02 ~ 0.15
24	Radial play	mm		0.025
25	Axial load dynamic	N		2.2
26	Axial load static	N		30
27	Radial load at 3 mm from mounting face	N		8
28	No. of pole pairs			1
29	Bearings			2 ball bearings
30	Commutator			metal 5 segments
31	Protection class			IP 30

Approx. actual size



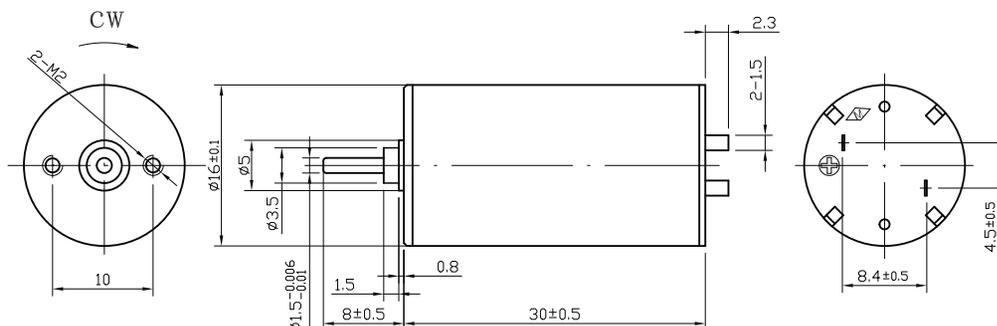
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Bearing type
 Gearheads

Dimension (mm) · 1630N5M2B

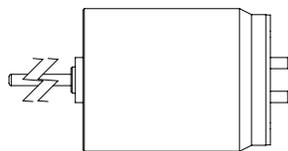


Precision DC Coreless Motor · 1925N9M

Precious metal commutation

Characteristics			01-61-6.0	02-80-12.0	03-85-24.0
1	Voltage	V	6.0	12.0	24.0
2	Terminal resistance	Ω	2.8	9.6	28.3
3	No-load speed	rpm	6900	8000	8500
4	No-load current	mA	25	15	9
5	Stall torque	mNm	17.2	18.4	21.3
6	Stall current	mA	2100	1300	800
7	Nominal torque	mNm	4.0	4.0	4.0
8	Nominal speed	rpm	5310	6160	6970
9	Nominal current	mA	520	300	160
10	Max. output power	W	3.12	3.86	4.75
11	Max. efficiency	%	80	81	81
12	Back-EMF constant	mV/rpm	0.9	1.5	2.8
13	Torque constant	mNm/A	8.2	14.2	26.7
14	Speed/torque gradient	rpm/mNm	400	430	400
15	Rotor inertia	gcm ²	0.6	0.6	0.6
16	Weight	g	30	30	30
17	Thermal resistance housing-ambient	K/W		22.4	
18	Thermal resistance winding-housing	K/W		3.79	
19	Thermal time constant motor	s		267	
20	Thermal time constant winding	s		232	
21	Operating temperature range	°C		-20 ~ +85	
22	Thermal class of winding	°C		130	
23	Axial play	mm		0.02 ~ 0.15	
24	Radial play	mm		0.025	
25	Axial load dynamic	N		2.2	
26	Axial load static	N		30	
27	Radial load at 3 mm from mounting face	N		8	
28	No. of pole pairs			1	
29	Bearings			2 sleeve bearings	
30	Commutator			metal 9 segments	
31	Protection class			IP 30	

Approx. actual size



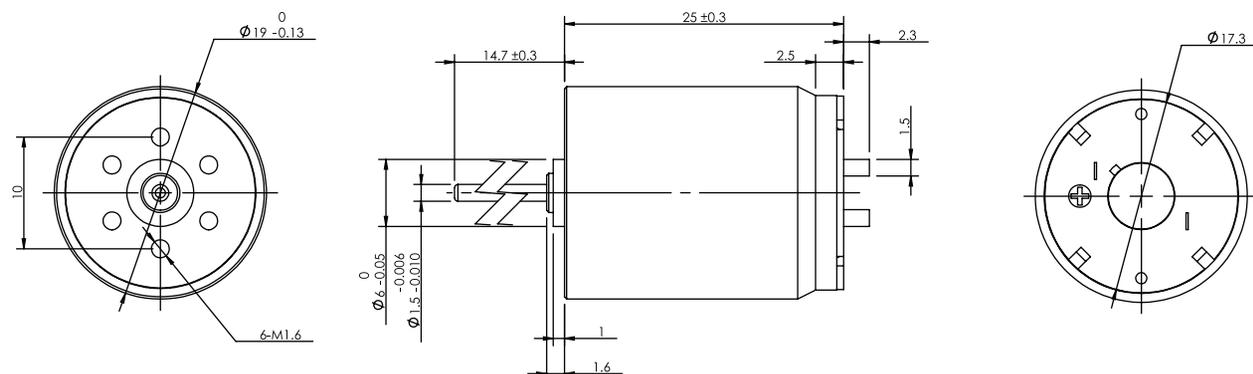
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 1925N9M

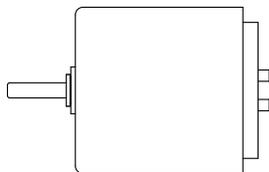


Precision DC Coreless Motor · 2224N5M2B

Precious metal commutation

Characteristics			02-76-6.0
1	Voltage	V	6.0
2	Terminal resistance	Ω	2.2
3	No-load speed	rpm	7650
4	No-load current	mA	35
5	Stall torque	mNm	20.0
6	Stall current	mA	2700
7	Nominal torque	mNm	5.0
8	Nominal speed	rpm	5770
9	Nominal current	mA	680
10	Max. output power	W	4.00
11	Max. efficiency	%	80
12	Back-EMF constant	mV/rpm	0.8
13	Torque constant	mNm/A	7.4
14	Speed/torque gradient	rpm/mNm	380
15	Rotor inertia	gcm ²	2.4
16	Weight	g	36
17	Thermal resistance housing-ambient	K/W	22.31
18	Thermal resistance winding-housing	K/W	6.06
19	Thermal time constant motor	s	313
20	Thermal time constant winding	s	218
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.025
25	Axial load dynamic	N	3.3
26	Axial load static	N	60
27	Radial load at 3 mm from mounting face	N	14
28	No. of pole pairs		1
29	Bearings		2 ball bearings
30	Commutator		metal 5 segments
31	Protection class		IP 40

Approx. actual size



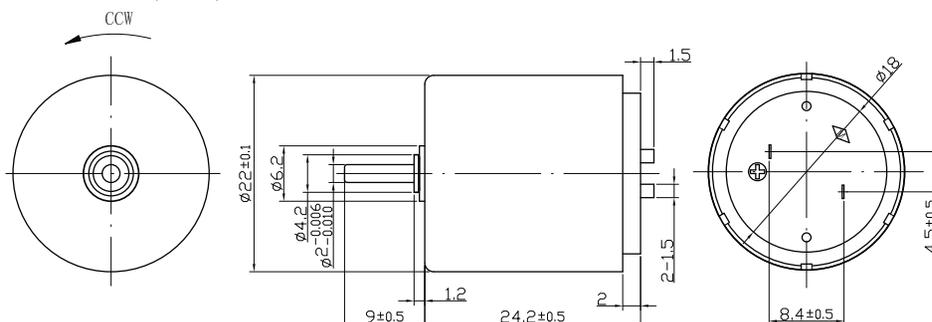
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 2224N5M2B

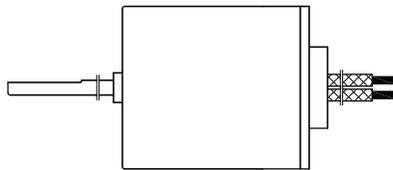


Precision DC Coreless Motor · 2225N5M

Precious metal commutation

Characteristics		01-161-7.2	
1	Voltage	V	7.2
2	Terminal resistance	Ω	1.9
3	No-load speed	rpm	16100
4	No-load current	mA	130
5	Stall torque	mNm	15.7
6	Stall current	mA	3800
7	Nominal torque	mNm	2.5
8	Nominal speed	rpm	13500
9	Nominal current	mA	730
10	Max. output power	W	6.6
11	Max. efficiency	%	69
12	Back-EMF constant	mV/rpm	0.4
13	Torque constant	mNm/A	4.1
14	Speed/torque gradient	rpm/mNm	1027
15	Rotor inertia	gcm ²	2.3
16	Weight	g	42.5
17	Thermal resistance housing-ambient	K/W	22.3
18	Thermal resistance winding-housing	K/W	28.4
19	Thermal time constant motor	s	313
20	Thermal time constant winding	s	218
21	Operating temperature range	°C	-20 ~ +120
22	Thermal class of winding	°C	155
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.012
25	Axial load dynamic	N	2
26	Axial load static	N	150
27	Radial load at 3 mm from mounting face	N	4
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 40

Approx. actual size



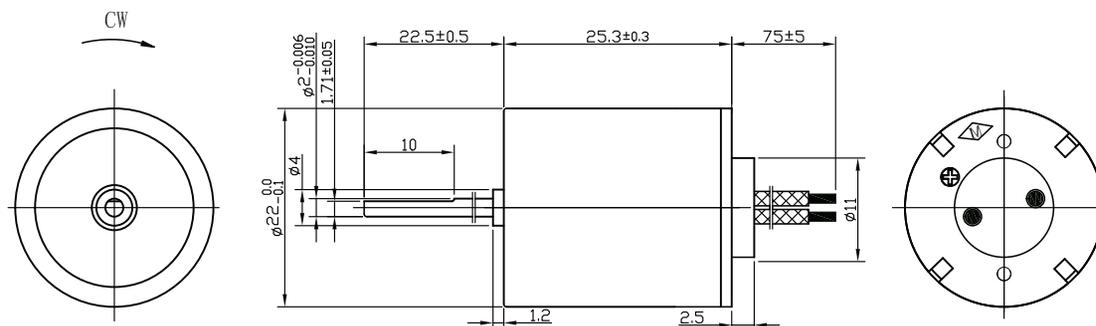
Applications

Nail gun

Options

- Lead wires length
- Shaft length
- Special coils

Dimension (mm) · 2225N5M

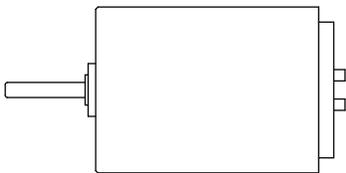


Precision DC Coreless Motor · 2232N5M

Precious metal commutation

Characteristics			03-81-6.0	08-94-9.0	04-101-12.0	05-102-24.0
1	Voltage	V	6.0	9.0	12.0	24.0
2	Terminal resistance	Ω	2.0	2.9	4.4	18.0
3	No-load speed	rpm	8100	9400	10100	10200
4	No-load current	mA	20	17	20	15
5	Stall torque	mNm	21.1	28.2	30.4	28.9
6	Stall current	mA	3000	3100	2700	1300
7	Nominal torque	mNm	6.0	7.0	8.0	8.0
8	Nominal speed	rpm	5790	7060	7470	7440
9	Nominal current	mA	870	770	720	370
10	Max. output power	W	4.5	6.9	8.0	7.7
11	Max. efficiency	%	85	86	84	81
12	Back-EMF constant	mV/rpm	0.7	1.0	1.2	2.3
13	Torque constant	mNm/A	7.0	9.1	11.3	22.2
14	Speed/torque gradient	rpm/mNm	380	330	330	350
15	Rotor inertia	gcm ²	2.2	4.4	4.4	4.4
16	Weight	g	55.8	55.8	55.8	55.8
17	Thermal resistance housing-ambient	K/W			19.4	
18	Thermal resistance winding-housing	K/W			21.7	
19	Thermal time constant motor	s			383	
20	Thermal time constant winding	s			329	
21	Operating temperature range	°C			-20 ~ +85	
22	Thermal class of winding	°C			130	
23	Axial play	mm			0.02 ~ 0.15	
24	Radial play	mm			0.025	
25	Axial load dynamic	N			3.3	
26	Axial load static	N			60	
27	Radial load at 3 mm from mounting face	N			14	
28	No. of pole pairs				1	
29	Bearings				2 sleeve bearings	
30	Commutator				metal 5 segments	
31	Protection class				IP 30	

Approx. actual size



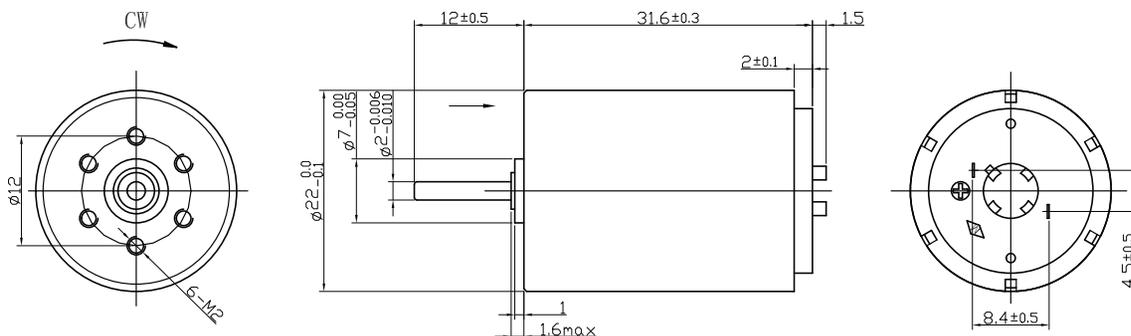
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 2232N5M

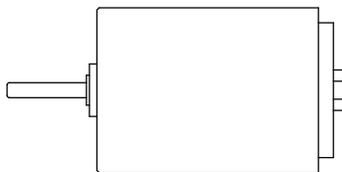


Precision DC Coreless Motor · 2232N9M

Precious metal commutation

Characteristics		12-110-24.0	
1	Voltage	V	24.0
2	Terminal resistance	Ω	17.2
3	No-load speed	rpm	11000
4	No-load current	mA	7
5	Stall torque	mNm	29.0
6	Stall current	mA	1400
7	Nominal torque	mNm	8.0
8	Nominal speed	rpm	7440
9	Nominal current	mA	370
10	Max. output power	W	8.4
11	Max. efficiency	%	87
12	Back-EMF constant	mV/rpm	2.2
13	Torque constant	mNm/A	20.7
14	Speed/torque gradient	rpm/mNm	380
15	Rotor inertia	gcm ²	4.4
16	Weight	g	55.8
17	Thermal resistance housing-ambient	K/W	19.4
18	Thermal resistance winding-housing	K/W	21.7
19	Thermal time constant motor	s	383
20	Thermal time constant winding	s	329
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	85
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.025
25	Axial load dynamic	N	3.3
26	Axial load static	N	60
27	Radial load at 3 mm from mounting face	N	14
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 9 segments
31	Protection class		IP 30

Approx. actual size



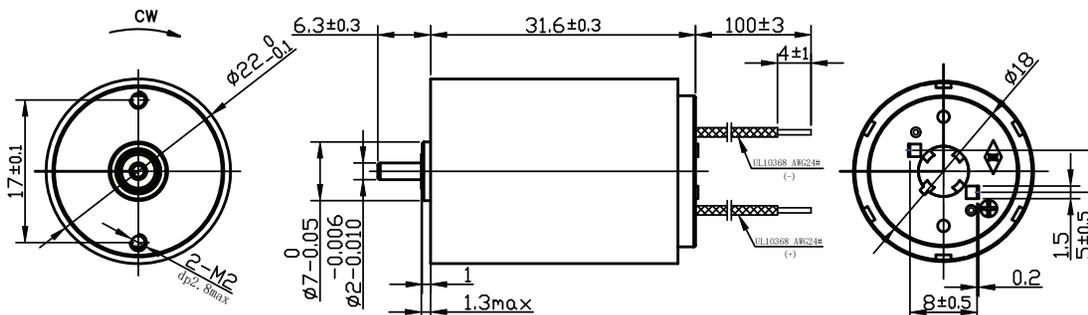
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads
- Encoder

Dimension (mm) · 2232N9M



Precision DC Coreless Motor · 2233N5M2B

Precious metal commutation

Characteristics		01-90-3.0	
1	Voltage	V	3.0
2	Terminal resistance	Ω	0.5
3	No-load speed	rpm	9000
4	No-load current	mA	35
5	Stall torque	mNm	21.2
6	Stall current	mA	6700
7	Nominal torque	mNm	1.5
8	Nominal speed	rpm	8250
9	Nominal current	mA	500
10	Max. output power	W	5.0
11	Max. efficiency	%	87
12	Back-EMF constant	mV/rpm	0.3
13	Torque constant	mNm/A	3.2
14	Speed/torque gradient	rpm/mNm	420
15	Rotor inertia	gcm ²	2.2
16	Weight	g	55
17	Thermal resistance housing-ambient	K/W	17.3
18	Thermal resistance winding-housing	K/W	3.98
19	Thermal time constant motor	s	326
20	Thermal time constant winding	s	262
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.025
25	Axial load dynamic	N	3.3
26	Axial load static	N	60
27	Radial load at 3 mm from mounting face	N	14
28	No. of pole pairs		1
29	Bearings		2 ball bearings
30	Commutator		metal 5 segments
31	Protection class		IP 40

Approx. actual size



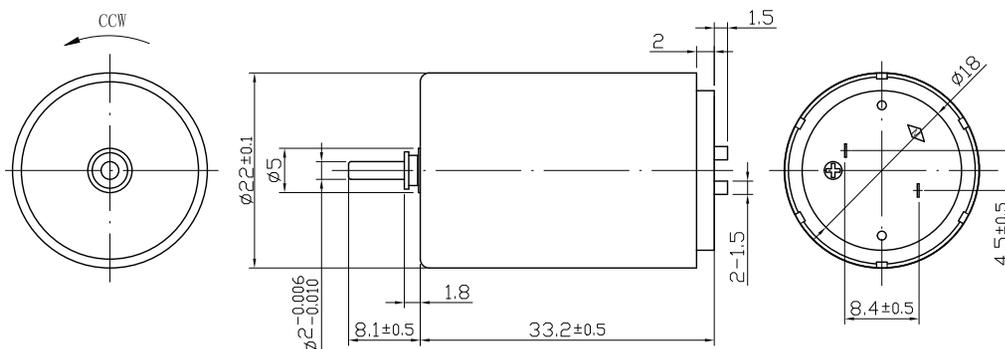
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 2233N5M2B



Precision DC Coreless Motor · 2433N5M2B

Precious metal commutation

Characteristics		01-78-4.5	
1	Voltage	V	4.5
2	Terminal resistance	Ω	0.5
3	No-load speed	rpm	7800
4	No-load current	mA	30
5	Stall torque	mNm	49
6	Stall current	mA	9000
7	Nominal torque	mNm	2.5
8	Nominal speed	rpm	7410
9	Nominal current	mA	480
10	Max. output power	W	10.1
11	Max. efficiency	%	89
12	Back-EMF constant	mV/rpm	0.6
13	Torque constant	mNm/A	5.5
14	Speed/torque gradient	rpm/mNm	160
15	Rotor inertia	gcm ²	2.2
16	Weight	g	68
17	Thermal resistance housing-ambient	K/W	16.8
18	Thermal resistance winding-housing	K/W	22.1
19	Thermal time constant motor	s	332
20	Thermal time constant winding	s	263
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.01 ~ 0.15
24	Radial play	mm	0.025
25	Axial load dynamic	N	3.3
26	Axial load static	N	60
27	Radial load at 3 mm from mounting face	N	14
28	No. of pole pairs		1
29	Bearings		2 ball bearings
30	Commutator		metal 5 segments
31	Protection class		IP 20

Approx. actual size



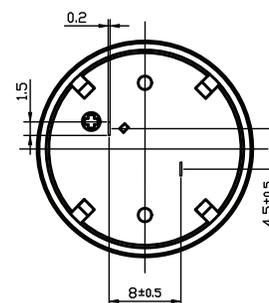
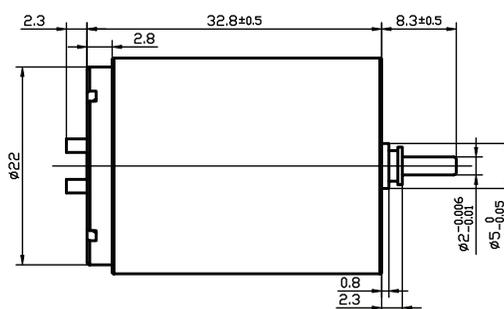
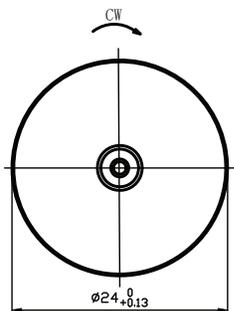
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Gearheads
- Encoder

Dimension (mm) · 2433N5M2B

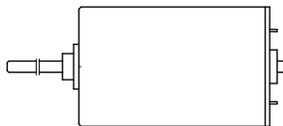


Precision DC Coreless Motor · 1625N5C

Graphite Brush

Characteristics		01-150-12.0	
1	Voltage	V	12.0
2	Rotor resistance	Ω	13.0
3	No-load speed	rpm	15000
4	No-load current	mA	25
5	Stall torque	mNm	6.7
6	Stall current	mA	900
7	Nominal torque	mNm	3.3
8	Nominal speed	rpm	7650
9	Nominal current	mA	460
10	Max. output power	W	2.6
11	Max. efficiency	%	72
12	Back-EMF constant	mV/rpm	0.8
13	Torque constant	mNm/A	7.4
14	Speed/torque gradient	rpm/mNm	2240
15	Rotor inertia	gcm ²	0.95
16	Weight	g	22.5
17	Thermal resistance housing-ambient	K/W	25.04
18	Thermal resistance winding-housing	K/W	9.71
19	Thermal time constant motor	s	190
20	Thermal time constant winding	s	147
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.012
25	Axial load dynamic	N	0.8
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	1.5
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



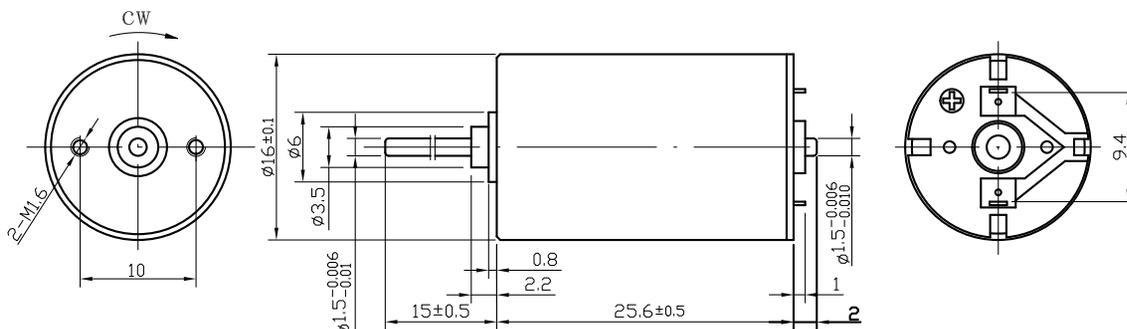
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads
- Encoder

Dimension (mm) · 1625N5C

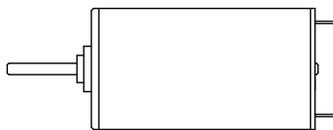


Precision DC Coreless Motor · 1630N5C

Graphite Brush

Characteristics		01-95-24.0	
1	Voltage	V	24.0
2	Rotor resistance	Ω	42.5
3	No-load speed	rpm	9500
4	No-load current	mA	15
5	Stall torque	mNm	13.3
6	Stall current	mA	565
7	Nominal torque	mNm	5.4
8	Nominal speed	rpm	5460
9	Nominal current	mA	250
10	Max. output power	W	3.3
11	Max. efficiency	%	72
12	Back-EMF constant	mV/rpm	2.5
13	Torque constant	mNm/A	23.5
14	Speed/torque gradient	rpm/mNm	720
15	Rotor inertia	gcm ²	0.95
16	Weight	g	22.5
17	Thermal resistance housing-ambient	K/W	26.8
18	Thermal resistance winding-housing	K/W	30.6
19	Thermal time constant motor	s	242
20	Thermal time constant winding	s	232
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.012
25	Axial load dynamic	N	0.8
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	1.5
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



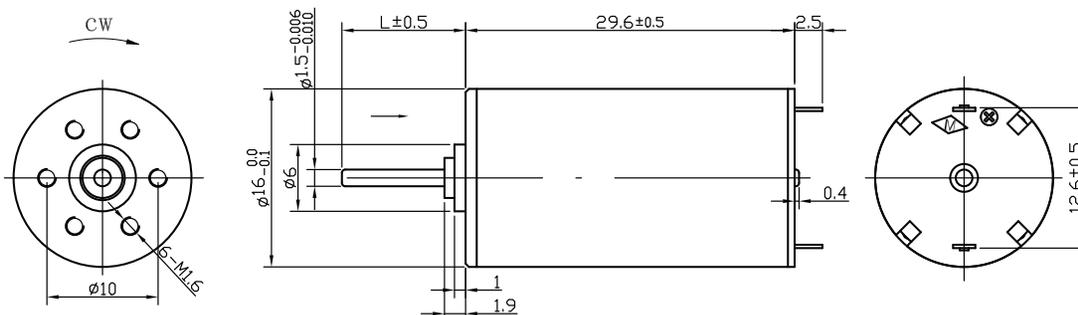
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads

Dimension (mm) · 1630N5C

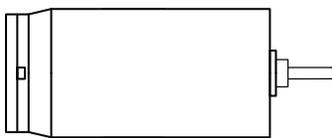


Precision DC Coreless Motor · 1735N5C2B

Graphite Brush

Characteristics		01-125-12.0	
1	Voltage	V	12.0
2	Rotor resistance	Ω	5.2
3	No-load speed	rpm	12500
4	No-load current	mA	20
5	Stall torque	mNm	20
6	Stall current	mA	2300
7	Nominal torque	mNm	1.6
8	Nominal speed	rpm	11500
9	Nominal current	mA	225
10	Max. output power	W	6.6
11	Max. efficiency	%	81
12	Back-EMF constant	mV/rpm	1.0
13	Torque constant	mNm/A	9.1
14	Speed/torque gradient	rpm/mNm	620
15	Rotor inertia	gcm ²	0.95
16	Weight	g	34
17	Thermal resistance housing-ambient	K/W	25.7
18	Thermal resistance winding-housing	K/W	30.4
19	Thermal time constant motor	s	245
20	Thermal time constant winding	s	232
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.01 ~ 0.15
24	Radial play	mm	0.025
25	Axial load dynamic	N	2.2
26	Axial load static	N	30
27	Radial load at 3 mm from mounting face	N	8
28	No. of pole pairs		1
29	Bearings		2 ball bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



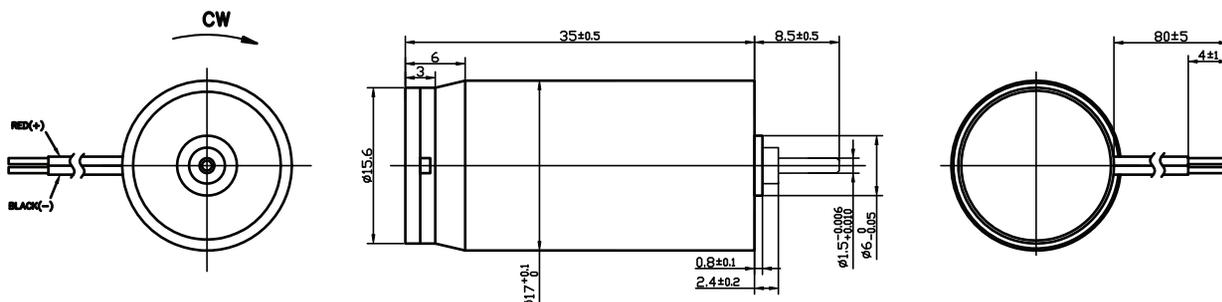
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads
 Encoder

Dimension (mm) · 1735N5C2B



Precision DC Coreless Motor · 2233N5C

Graphite Brush

Characteristics		01-76-24.0	
1	Voltage	V	24.0
2	Rotor resistance	Ω	19.6
3	No-load speed	rpm	7600
4	No-load current	mA	20
5	Stall torque	mNm	35.6
6	Stall current	mA	1200
7	Nominal torque	mNm	12.3
8	Nominal speed	rpm	4970
9	Nominal current	mA	440
10	Max. output power	W	7.1
11	Max. efficiency	%	77
12	Back-EMF constant	mV/rpm	3.1
13	Torque constant	mNm/A	29.7
14	Speed/torque gradient	rpm/mNm	210
15	Rotor inertia	gcm ²	2.5
16	Weight	g	52
17	Thermal resistance housing-ambient	K/W	21
18	Thermal resistance winding-housing	K/W	11.2
19	Thermal time constant motor	s	240
20	Thermal time constant winding	s	10
21	Operating temperature range	°C	-20 ~ +85
22	Thermal class of winding	°C	130
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.012
25	Axial load dynamic	N	1
26	Axial load static	N	80
27	Radial load at 3 mm from mounting face	N	3
28	No. of pole pairs		1
29	Bearings		2 sleeve bearings
30	Commutator		metal 5 segments
31	Protection class		IP 30

Approx. actual size



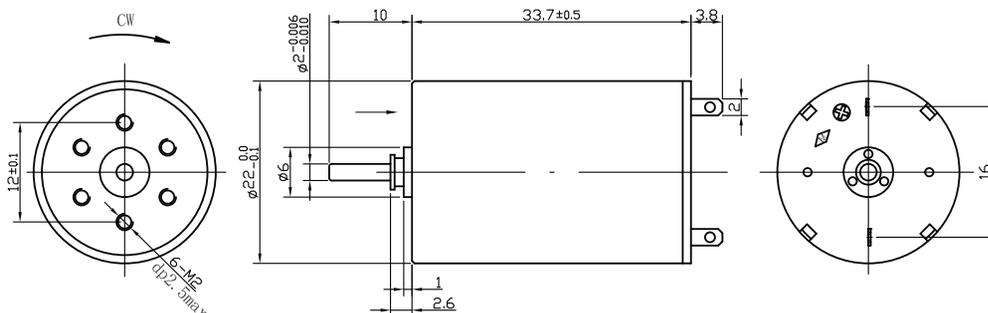
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

- Lead wires length
- Shaft length
- Special coils
- Bearing type
- Gearheads
- Encoder

Dimension (mm) · 2233N5C



Precision DC Coreless Motor · 2543N9C2B

Graphite Brush

Characteristics		03-65-24.0	
1	Voltage	V	24.0
2	Rotor resistance	Ω	6.3
3	No-load speed	rpm	6500
4	No-load current	mA	25
5	Stall torque	mNm	133.4
6	Stall current	mA	3810
7	Nominal torque	mNm	37.6
8	Nominal speed	rpm	4570
9	Nominal current	mA	1070
10	Max. output power	W	22.7
11	Max. efficiency	%	85
12	Back-EMF constant	mV/rpm	3.7
13	Torque constant	mNm/A	35.0
14	Speed/torque gradient	rpm/mNm	48.7
15	Rotor inertia	gcm ²	13.2
16	Weight	g	98
17	Thermal resistance housing-ambient	K/W	11.4
18	Thermal resistance winding-housing	K/W	4.67
19	Thermal time constant motor	s	266
20	Thermal time constant winding	s	123
21	Operating temperature range	°C	-20 ~ +120
22	Thermal class of winding	°C	155
23	Axial play	mm	0.025
24	Radial play	mm	0.02 ~ 0.15
25	Axial load dynamic	N	20
26	Axial load static	N	60
27	Radial load at 3 mm from mounting face	N	40
28	No. of pole pairs		1
29	Bearings		2 ball bearings
30	Commutator		metal 9 segments
31	Protection class		IP 20

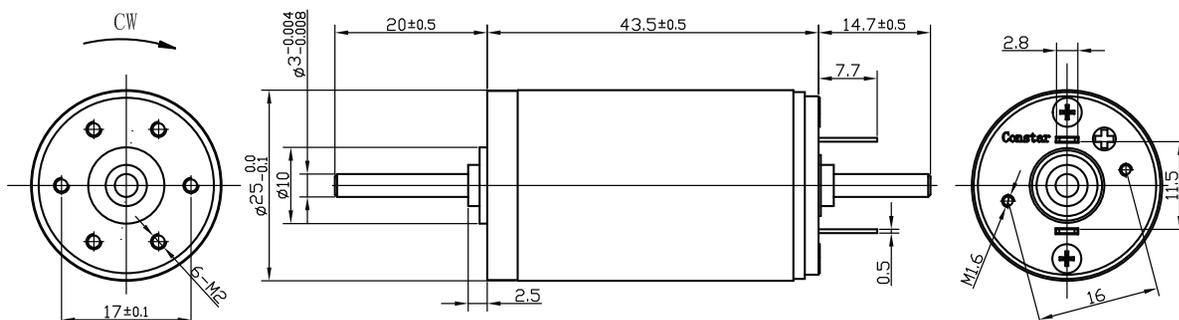
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads
 Encoder

Dimension (mm) · 2543N9C2B · Approx. actual size



Precision DC Coreless Motor · 3068N9C2B

Graphite Brush

Characteristics			01-85-24.0	02-85-36.0
1	Voltage	V	24.0	36.0
2	Rotor resistance	Ω	0.9	1.5
3	No-load speed	rpm	8500	8600
4	No-load current	mA	150	130
5	Stall torque	mNm	691.6	954.2
6	Stall current	mA	25800	24000
7	Nominal torque	mNm	60.0	86.0
8	Nominal speed	rpm	7930	7820
9	Nominal current	mA	2460	2270
10	Max. output power	W	154	215
11	Max. efficiency	%	86	86
12	Back-EMF constant	mV/rpm	2.8	4.2
13	Torque constant	mNm/A	26.8	39.8
14	Speed/torque gradient	rpm/mNm	12.3	9.0
15	Rotor inertia	gcm ²	33	33
16	Weight	g	250	250
17	Thermal resistance housing-ambient	K/W		6.2
18	Thermal resistance winding-housing	K/W		3.8
19	Thermal time constant motor	s		225
20	Thermal time constant winding	s		7.8
21	Operating temperature range	°C		-20 ~ +120
22	Thermal class of winding	°C		155
23	Axial play	mm		0.02 ~ 0.15
24	Radial play	mm		0.025
25	Axial load dynamic	N		5.6
26	Axial load static	N		110
27	Radial load at 3 mm from mounting face	N		30
28	No. of pole pairs			1
29	Bearings			2 ball bearings
30	Commutator			metal 9 segments
31	Protection class			IP 20

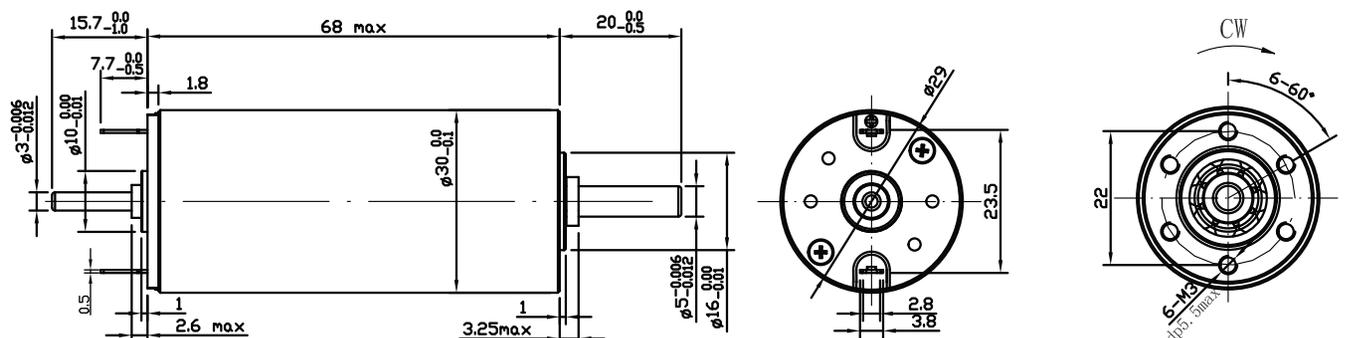
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads
 Encoder

Dimension (mm) · 3068N9C2B · Approx. actual size



Precision DC Coreless Motor · 3257N9C2B

Graphite Brush

Characteristics		02-59-24.0	
1	Voltage	V	24.0
2	Rotor resistance	Ω	2.2
3	No-load speed	rpm	5900
4	No-load current	mA	130
5	Stall torque	mNm	422.2
6	Stall current	mA	11000
7	Nominal torque	mNm	56.5
8	Nominal speed	rpm	5100
9	Nominal current	mA	1585
10	Max. output power	W	65
11	Max. efficiency	%	80
12	Back-EMF constant	mV/rpm	4.0
13	Torque constant	mNm/A	38.4
14	Speed/torque gradient	rpm/mNm	14.0
15	Rotor inertia	gcm ²	42
16	Weight	g	230
17	Thermal resistance housing-ambient	K/W	7.5
18	Thermal resistance winding-housing	K/W	4.05
19	Thermal time constant motor	s	725
20	Thermal time constant winding	s	540
21	Operating temperature range	°C	-20 ~ +120
22	Thermal class of winding	°C	155
23	Axial play	mm	0.02 ~ 0.15
24	Radial play	mm	0.025
25	Axial load dynamic	N	5.6
26	Axial load static	N	110
27	Radial load at 3 mm from mounting face	N	30
28	No. of pole pairs		1
29	Bearings		2 ball bearings
30	Commutator		metal 9 segments
31	Protection class		IP 20

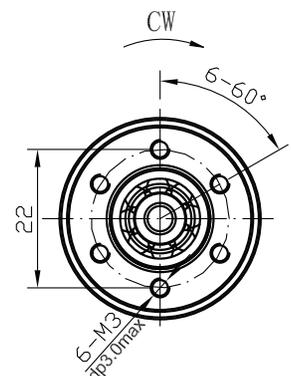
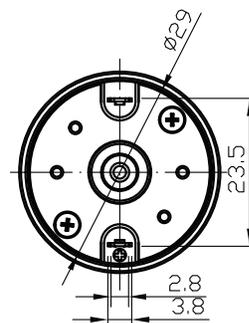
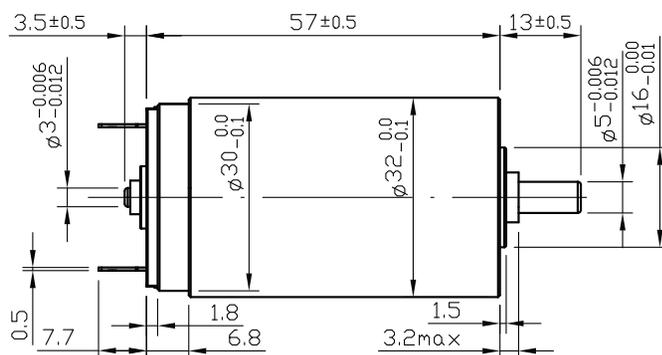
Applications

Precision drives in medical, health care, robotics, automobile and industrial automation fields

Options

Lead wires length
 Shaft length
 Special coils
 Gearheads
 Encoder

Dimension (mm) · 3257N9C2B · Approx. actual size



SALES REPRESENTATIVES



**KOCO
INDIA**

INDIA

KOCO MOTION INDIA PVT. LTD.

S. No. 100/5, Ambegaon,
Pune Satara Highway, Pune 411 046
India

Phone +91 95119 54544, 77700 26168
sales@kocomotionindia.com

www.kocomotionindia.com

KOCO MOTION GROUP

KOCO MOTION GmbH

Niedereschacherstr. 54
78083 Dauchingen
Germany
Phone +49 7720 995858-0
info@kocomotion.de
www.kocomotion.de

KOCO automotive GmbH

Niedereschacherstr. 52
78083 Dauchingen
Germany
Phone +49 7720 995164-0
info@kocoautomotive.de
www.kocoautomotive.de

KOCO DC-MOTION, Inc

20676 Carrey Rd.
Walnut, CA 91789
USA
Phone (+1) 909-468-9877
sales@kocodcmotion.com
www.kocodcmotion.com