

CORELESS BRUSHED MOTORS



Reliability
CRAFTSMANSHIP
QUALITY
design
support
EXPERIENCE
CUSTOMIZATION
Innovation

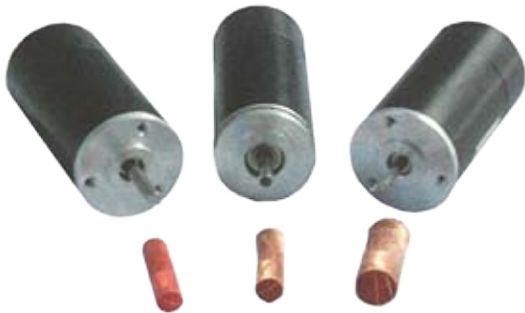


Encoders
AEROSPACE
ROBOTICS
coreless
motors
MEDICAL
SEMICONDUCTOR
Gearmotors

MC SERIES



Our History



For over 30 years Dynetic Systems has built a reputation based on producing quality products and offering excellent service. That tradition is carried on today by our talented and dedicated design and manufacturing staff and supported by one of the most helpful sales and support organizations.

We have many years of application experience with mechanical and electrical aspects of motor and motion control design. Your design staff can communicate directly with our motor design engineers. This offers you the ability to optimize the drive solution for your application. Our knowledge base includes applications involving gearing, encoders, tachometers, filtering brakes, integrated electronics and drive control.

MOTOR COMPATIBILITY GUIDE

MOTORS	ENCODERS			GEARHEADS					
	ECVK22	ECVK30	ECVK35	GAVK22	GAVK28	GAVK32	GAVK36	GAVK53	GAVK62
MCVK22	■	■		■	■	■			
MCVK28	■	■			■	■			
MCVK28	■	■			■	■			
MCVK36	■	■	■			■	■	■	■
MCVK36	■	■	■			■	■	■	■
MCVK36	■	■	■			■	■	■	■
MCVK38	■	■	■				■	■	■
MCVK48	■	■	■					■	■
MCVK48	■	■	■					■	■

Encoder data available on page 4, Gearhead data available on pages 5-6.



MOTOR



MOTOR WITH ENCODER



MOTOR WITH GEARHEAD

Coreless Motors

These small DC motors are sometimes referred to as "ironless" or "basket" motors. Their smooth operation, especially at high speeds, offers maximum power in a small package. Coupled with an encoder they make superior DC servo motors. These motors can be matched with gearheads offering increased torque and a wider range of speed control.

Standard Features:

- High efficiency
- High speed capability
- Less cogging
- Low inertia
- Low mechanical time constant
- Low mass
- Rapid acceleration and deceleration
- Reduced torque ripple or cogging
- Smooth low speed operation
- True linear torque

Custom Features:

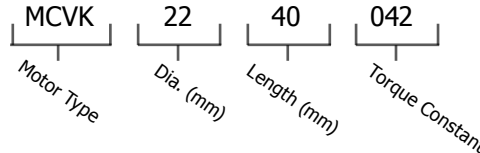
- Stainless Steel Case
- Low Backlash Gearheads
- Precious Metal Commutation
- Custom bolt pattern
- Special connectors
- Planetary or Spur Gearing
- Custom speeds and/or torque windings
- Custom front or rear shaft

MOTOR SELECTION:



There are 4 diameters of motors and 7 motor lengths, offering a wide range of power options, speeds, and torques. A list of standard motor windings are shown below. If you do not see a configuration that fits your needs we can custom wind a motor for you. If you know your available voltage, required power and amperes available our engineering staff can easily configure a motor that works seamlessly in your system.

Model Number:



ELECTRICAL DATA

MODEL NUMBER	WATTS	VOLTAGE	NL SPEED	NL CURRENT	NOMINAL SPEED	NOMINAL TORQUE	NOMINAL CURRENT	STALL TORQUE	STARTING CURRENT	MAX EFFICIENCY	TERMINAL RESISTANCE	TORQUE CONSTANT	SPEED CONSTANT	MAX POWER AT NOMINAL VOLTAGE
	W	V	rpm	A	rpm	g.cm	A	g.cm	A	%	Ohm	mNm/A	V/1Krpm	w
MCVK2240042	3.42	6	13000	0.18	11100	30	0.9	220	5.3	67	1.1	4.2	0.44	7.3
MCVK2240087	6.46	9	9900	0.07	6300	100	1.25	290	3.25	72	2.77	8.77	0.92	7.3
MCVK2240122	6.17	12	9000	0.1	6000	100	0.95	310	2.49	64	4.81	12.22	1.28	7.15
MCVK2240109	27.5	24	20000	0.12	17950	150	1.7	1178	10.5	79	2.29	10.98	1.15	60
MCVK2240297	4.35	24	7800	0.06	5300	80	0.35	290	0.95	60	24.5	29.7	3.12	5.8
MCVK2240481	6.05	36	7150	0.02	4400	134	0.3	370	0.77	70	47	48.1	5.5	6.78
MCVK2843130	15.2	12	9000	0.15	7400	200	1.4	1240	9.3	76	1.29	13	1.37	28.6
MCVK2843245	14.8	24	9000	0.11	7300	200	1.1	1000	4.1	70	5.7	24.5	2.57	23
MCVK2843371	11.9	24	6000	0.07	4100	280	0.85	1017	2.69	70	8.93	37.1	3.89	16
MCVK2843282	14.3	24	8200	0.06	6950	200	0.78	1450	5.04	79	4.76	28.2	2.95	30
MCVK2853080	25.03	12	14300	0.3	12200	200	3	1000	12.5	71	0.96	8.02	0.84	37
MCVK3662230	9.03	12	5000	0.12	4400	200	1	2000	8.4	77	1.43	23	2.45	25
MCVK3662582	74.4	48	7600	0.1	5800	1250	2.8	5460	9.2	80	5.2	58.2	6.1	106
MCVK3662251	71.8	23	9050	0.15	7600	920	4	5040	19.7	83	1.22	25.1	2.63	117
MCVK3662360	41.8	24	6300	0.07	5100	800	2.3	4630	12.6	85	1.9	36	3.78	74
MCVK3671282	143	28	9300	0.12	7000	2000	7.4	10000	35	88	0.69	28.27	2.96	238
MCVK3671242	147	24	9450	0.18	7170	2000	8.3	7232	29.3	85	0.82	24.2	2.53	175
MCVK3671139	254	24	15670	0.5	12380	2000	13.5	8960	63.2	83	0.38	13.9	1.46	360
MCVK3671503	99	42	7950	0.07	6450	1500	2.7	8310	16.2	87	2.6	50.3	5.27	169
MCVK4868183	51.8	12	6250	0.28	5050	1000	6	4670	25	80	0.48	18.33	1.92	75
MCVK4868721	160	48	6300	0.15	5200	3000	4.2	16000	21.8	84	2.2	72.1	7.55	285
MCVK4891357	200	24	6500	0.2	4900	4000	12.5	13800	38.09	86	0.63	35.7	3.74	230

* Other standard voltages not shown - consult factory

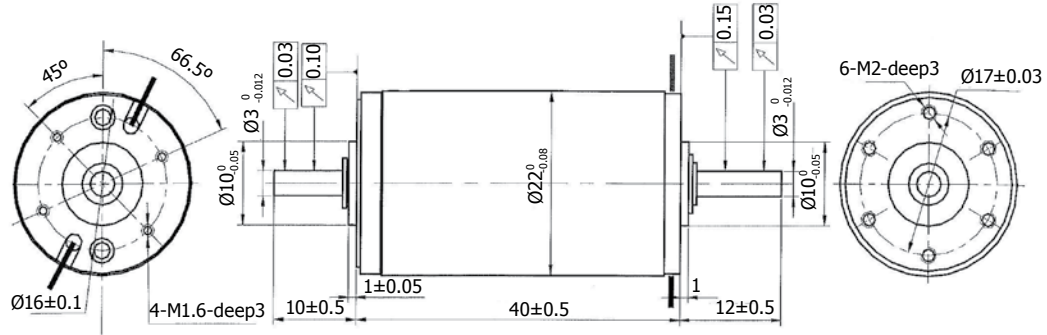
* Custom voltages available

* Ratings measured with standard heat sink

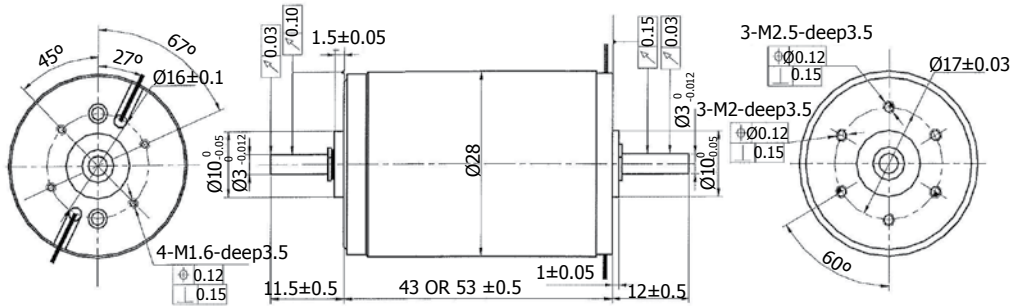
MECHANICAL DATA

DIAMETER	LENGTH	SHAFT PLAY (AXIAL)	BALL BEARING LOAD MAX			SHAFT PLAY (ON BALL BEARING OUTPUT) (RADIAL)	OPERATING TEMPERATURE RANGE	RELATIVE HUMIDITY RANGE	ROTOR OPERATING TEMPERATURE, MAX. PERMISSIBLE
			N	N	N				
mm	mm	mm	radial (dynamic)	axial (5mm from flange)	press fit force, max (static)	mm	°C	25°C	°C
MCVK22	22	40±0.5	0~0.2	1.0	2.0	30	-25~+100	90%	150
MCVK28	28	43±0.5	0~0.2	1.0	2.0	30	-25~+100	90%	150
MCVK36	36	71±0.5	0~0.2	1.0	2.0	30	-25~+135	90%	150
MCVK48	48	90.5±0.5	0~0.2	1.0	2.0	30	-25~+135	90%	150

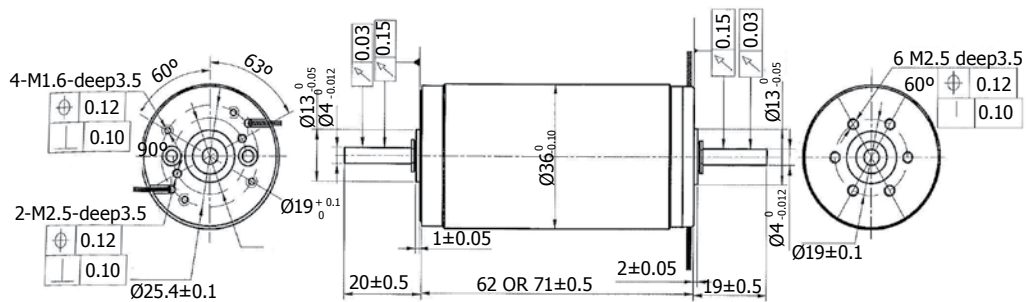
MCVK22



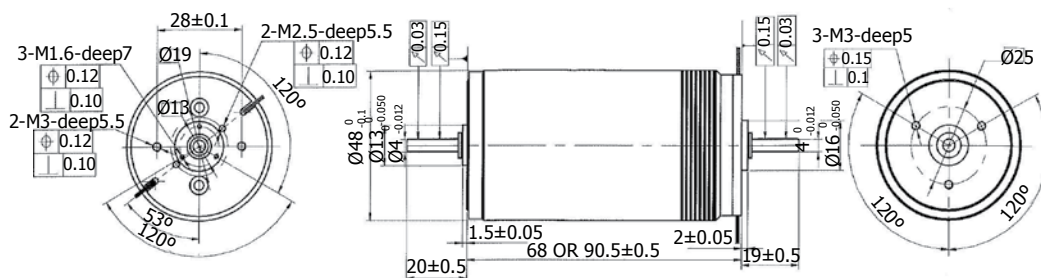
MCVK28 (43mm and 53mm length available)



MCVK36 (62mm and 71mm length available)



MCVK48 (68mm and 91mm length available)



GEARHEAD DATA - See inside cover for motor cross reference

GAVK22

Stage	Length	Continuous Torque	Intermittent Torque	Efficiency	Backlash
	mm	Nm	Nm	%	°
1	18.8	0.5	0.8	90	≤0.8
2	22.6	0.5	0.8	81	≤1.2
3	26.4	0.7	1	73	≤1.5
4	30.2	1	1.5	65	≤1.5
5	34	1	1.5	59	≤1.8

Shaftload, max:(radial)	≤70N
Shaftload, max:(axial)	≤8N
Shaft press fit force, max	≤100N
Shaft play (on bearing output),(radial)	≤0.06mm
Shaft play (on bearing output),(axial)	≤0.1mm
Operating Temperature range	-30 ~ +105°C
Planetary Construction	

GAVK28

Stage	Length	Continuous Torque	Intermittent Torque	Efficiency	Backlash
	mm	Nm	Nm	%	°
1	23.2	0.5	0.8	90	≤1
2	27.7	0.6	0.9	81	≤1.5
3	32.2	1.3	1.9	73	≤1.5
4	36.7	1.8	2.7	65	≤1.5
5	41.2	2	3	60	≤1.5
6	45.7	2	3	55	≤1.5

Shaftload, max:(radial)	≤100N
Shaftload, max:(axial)	≤80N
Shaft press fit force, max	≤100N
Shaft play (on bearing output),(radial)	≤0.05mm
Shaft play (on bearing output),(axial)	≤0.1mm
Operating Temperature range	-30 ~ +125°C
Planetary Construction	

GAVK36

Stage	Length	Continuous Torque	Intermittent Torque	Efficiency	Backlash
	mm	Nm	Nm	%	°
1	40	1.5	2	90	≤0.5
2	46.6	5	6	83	≤0.8
3	53.2	10	12	77	≤1
4	59.8	16	18	72	≤1.2
5	66.4	20	30	67	≤1.5

Shaftload, max:(radial)	≤100N
Shaftload, max:(axial)	≤80N
Shaft press fit force, max	≤100N
Shaft play (on bearing output),(radial)	≤0.05mm
Shaft play (on bearing output),(axial)	≤0.1mm
Operating Temperature range	-30 ~ +125°C
Planetary Construction	

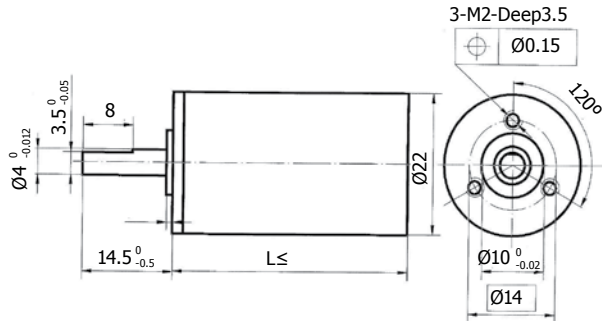
GAVK52

Stage	Length	Continuous Torque	Intermittent Torque	Efficiency	Backlash
	mm	Nm	Nm	%	°
1	47.8	2.5	5	90	≤0.5
2	60.3	8	10	81	≤0.8
3	68.8	20	25	73	≤1
4	77.3	30	45	66	≤1
5	85.8	40	50	59	≤1

Shaftload, max:(radial)	≤1000N
Shaftload, max:(axial)	≤500N
Shaft press fit force, max	≤1200N
Shaft play (on bearing output),(radial)	≤0.05mm
Shaft play (on bearing output),(axial)	≤0.1mm
Operating Temperature range	-30 ~ +155°C
Planetary Construction	

GEARHEAD DATA - See inside cover for motor cross reference

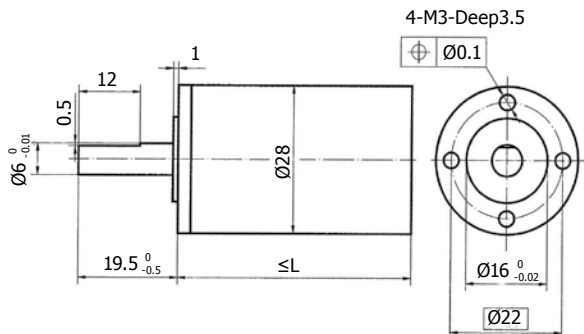
GAVK22



GEARHEAD RATIOS

Stage	Ratio	Length (mm)
1	3.57:1	18.8
2	12.5:1	22.6
3	16.1:1	26.4
4	56.35:1	30.2
5	267.66:1	34
	936.82:1	

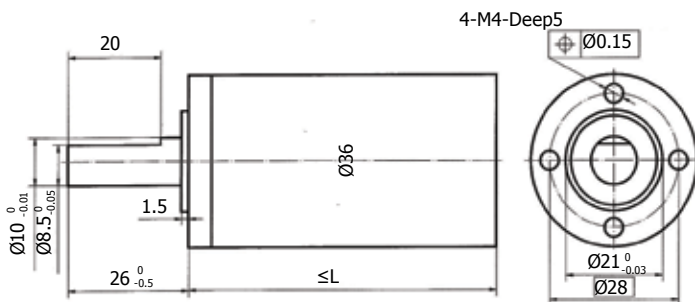
GAVK28



GEARHEAD RATIOS

Stage	Ratio	Length (mm)
1	4:1	23.2
2	12.76:1	27.7
3	16:1	32.2
4	50.98:1	36.7
5	182:1	41.2
	747:1	
6	2598.92:1	45.7

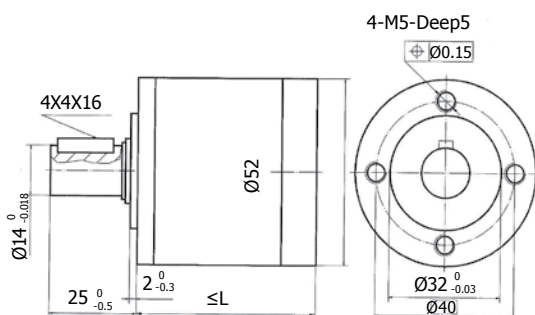
GAVK36



GEARHEAD RATIOS

Stage	Ratio	Length (mm)
1	4:1	40
2	14:1	46.6
3	24:1	53.2
4	49:1	59.8
5	84:1	66.4
	126:1	
	144:1	
	256:1	
	384:1	
	525.22:1	
	784:1	

GAVK52



GEARHEAD RATIOS

Stage	Ratio	Length (mm)
1	4:1	47.8
2	5.6:1	60.3
3	16:1	68.8
4	27:1	77.3
5	64:1	85.8
	108:1	
	151.2:1	
	211.68:1	
	125.44:1	
	256:1	
	501.8:1	
	811.1:1	
	1275.9:1	
	1024:1	
	1537.9:1	

Select from one of 40,000 standard motors we have designed or have us custom design a motor for your special application.

Our Engineers have decades of experience in designing all motor types, styles and sizes. It can be as simple as a custom military connector or as complicated as a custom sized oil filled high torque underwater motor.

Over the past 30 years we have designed motors and actuators for robotic drives, unmanned vehicle controls, military assault weapons, radar systems, UUV propulsion drives, positioning garmotors for gimble mounts, medical beds, conveyer systems, web tensioning, positioning stages, CNC machine centers, Flight controls, Wet motors, Fuel pumps, FANS, Aerospace Actuators, and many more special applications.

MS BRUSHED MOTORS

The Brushed Line is offered in sizes from 1.5" to 3.125" diameter, with peak torque ranging over 64 in-lbs. Standard options include encoders, tachometers, brakes and gear-heads with ratios up to 10,757:1.

Brushed Features Include:

- ABEC 3 Double Shielded Ball Bearings
- Dual Stage Dynamic Balancing
- Tapered-Field Magnet Technology
- Diamond Finished Commutators
- Machined Endcaps
- Stainless Steel Shaft
- Replaceable Copper Graphite Brushes
- Fully Neutralized, Bi-Directional Operations



BL BRUSHLESS MOTORS

Dynetic Systems line of DC Brushless Motors in NEMA sizes 17, 23 and 34. This high torque motor line is designed for today's mobile applications offering high current, low voltage operation.

Brushless Features Include:

- Integrated Gear Reduction
- Sealed IP65 Standard
- Round or square Construction
- Voltages form 12 to 330VDC
- Extreme Temp
- DO-160-E Compliant
- MIL-STD Specifications
- High Shock & Vibration



CUSTOM MOTORS

We have motion engineers available to help you design the perfect custom motor for your application. We have experience designing many types of motors including:

- Submersible
- Integrated electronics
- Low temperature
- Integrated gearing
- Custom shafts
- Custom connectors
- High tempereature
- Wet motors
- High altitude
- Sealed



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