

**CL Series 3 to 25 W Coreless DC Motors**

*Smooth-running, optimized-performance coreless DC motors*

Allied Motion's CL series of small coreless DC motors provides maximized performance through the use of high performance permanent magnets, a uniquely wound and formed coreless rotor, and in the CL29 and CL40 a precious-metal commutation system. CL motors are efficient, having zero iron loss, and being coreless, they have no preferred rotor position (cog-free), minimal torque ripple, and low rotor inertia.

Available in three diameters (29, 40, and 66 mm), CL series motors are ideal for medical devices, small pumps, mirror/prism drives, and ticket and money dispensers.

**Features & Benefits**

- Coreless rotor design for smooth, cog-free operation
- High-strength magnets for maximized performance

- Coreless design means no iron loss and higher efficiency compared to iron-core motors
- Precious metal commutation system in CL29 and CL40 models for low starting voltage
- Low inertia rotor for rapid response

**Options**

- Spur or planetary gearhead with ratios up to 900:1
- Incremental or absolute encoder
- Integrated tachometer
- Ball bearings for CL29 and CL40 models
- Custom winding for alternate voltages
- Custom lead and connector configurations
- Alternate shaft configurations



- High performance DC coreless motors in 29, 40, and 66 mm diameters
- Power ratings from 3 to 25 W and voltage ratings from 6 to 36 VDC
- Optimized performance from coreless winding and high strength magnets

**SPECIFICATIONS**

Series	CL29	CL40		CL66
Rated Shaft Power	3 W	7 W	12 W	25W
Bearing System	Sleeve	Sleeve	Sleeve + Ball	Ball
Commutation System	Precious metal	Precious metal	Graphite-Copper	Graphite-Copper
Radial Load (max., 10 mm (0.39") from front mount)	5 N (18 oz)			100 N (22.5 lb)
Axial Load (max.)	0.5 N (1.8 oz)			15 N (3.37 lb)
Ambient Temp. Range (Operating)	-10 to +60 °C			
Ambient Temp. Range (Storage)	-40 to +70 °C			
Mass (Weight)	125 g (4.41 oz)	200 g (7.05 oz)		900 g (31.7 oz)
<b>OPTIONS</b>				
Ball Bearings	Yes	Yes	Yes	N/A
Special Shaft Configuration	Yes	Yes	Yes	Yes
Connection Cable	Yes	Yes	Yes	Yes
Integrated EMI Suppression	Yes	Yes	Yes	Yes
Special Windings for Alternate Voltages	Yes	Yes	Yes	Yes
Tachometer	Yes	Yes	N/A	N/A
Encoder	Yes	Yes	Yes	Yes
Gearheads	P32A, S30A*, S37A, S38A	P32A, P32B, S37A, S38A, S52B, S70C		P52A, S64A, S66A

\* Use motor with 2 mm shaft



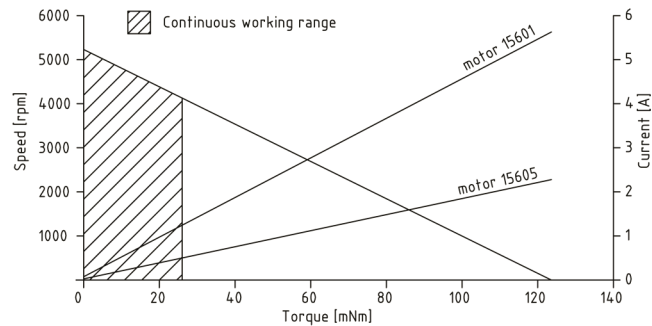
# Small Coreless DC Motors

## CL40 Series 7 W Coreless DC Motors

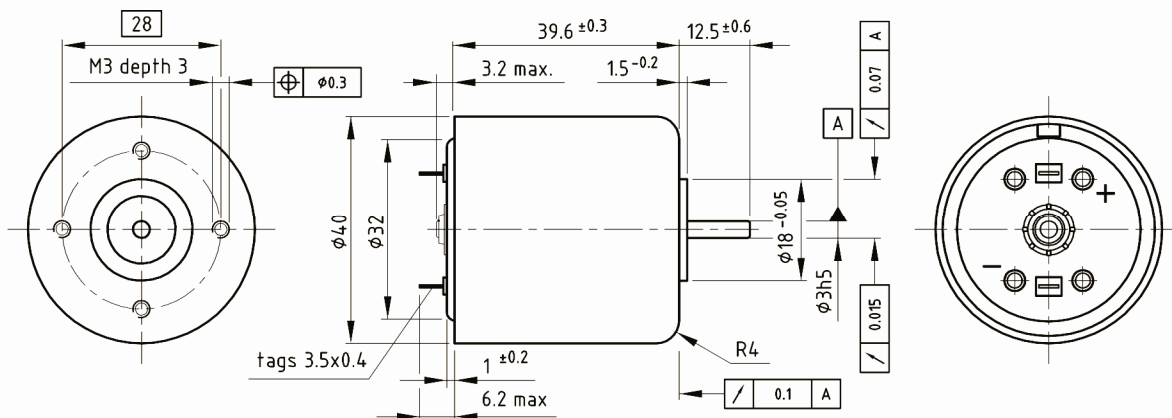
### SPECIFICATIONS

Model	9904 120 +	16701	16702	16703	16704	16705	16706	16707	
Nominal Voltage	V	6	9	12	15	18	24	30	
Nominal Torque	mNm (oz-in)	22 (3.12 oz-in)							
Nominal Speed	RPM	2650	3010	2700	2920	3050	2980	2930	
Nominal Current	mA	1520	1090	760	635	540	400	320	
No-Load Speed	RPM	3780	4050	3780	3940	4050	3980	3940	
No-Load Current	mA	60	44	30	25	22	16	13	
BEMF at 3000 RPM	V	4.71	6.59	9.42	11.3	13.2	17.9	22.6	
Torque Constant	mNm/A (oz-in/A)	15 (2.12)	21 (2.97)	30 (4.25)	36 (5.1)	42 (5.95)	57 (8.07)	72 (10.2)	
Terminal Resistance	Ohm	1.2	2.2	4.6	6.3	8.4	15.6	25.1	
Starting Torque at Nom. Voltage	mNm (oz-in)	74 (10.5)	86 (12.2)	77(10.9)	85 (12)	89 (12.6)	87 (12.3)	85 (12)	
Starting Current at Nom. Voltage	A	5	4.1	2.6	2.4	2.1	1.5	1.2	
Rotor Inductance	mH	0.15	0.29	0.59	0.85	1.16	2.14	3.41	
Rotor Inertia	kgm <sup>2</sup> (oz-in-s <sup>2</sup> )	4E-6 (5.67E-4)							
Mech. Time Constant	ms	20				19			
Thermal Resistance Winding-Housing	°C/W					5.5			
Thermal Resistance Housing-Ambient	°C/W					13			

### PERFORMANCE



### DIMENSIONS









[www.alliedmotion.com](http://www.alliedmotion.com)



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