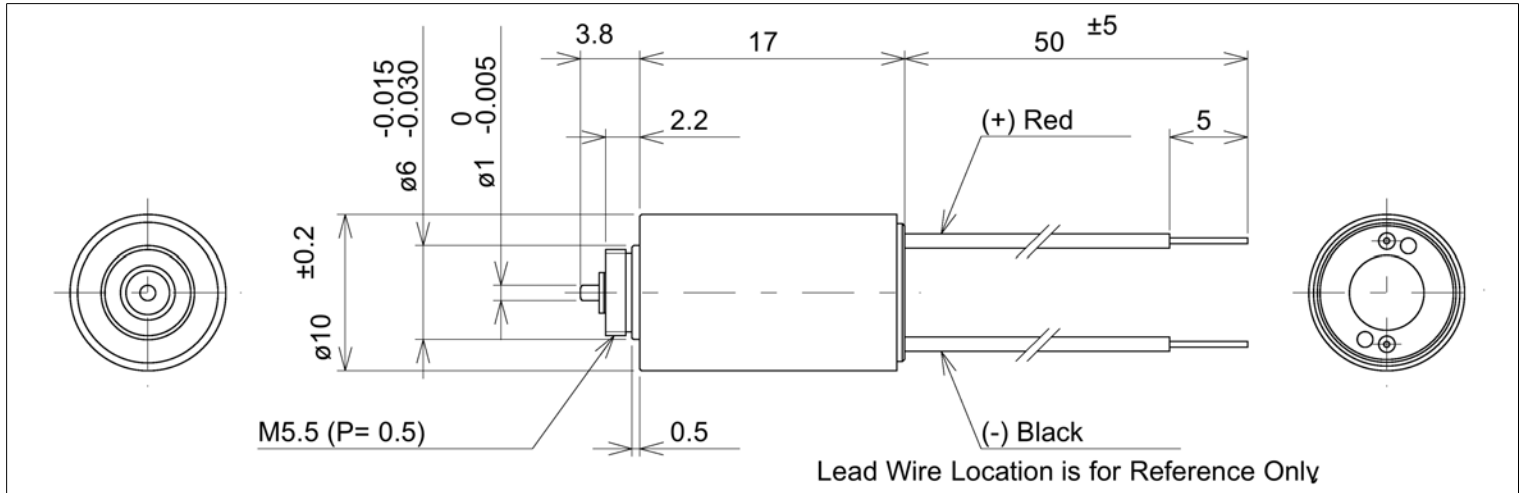


Coreless DC Motor - 10 mm Ø x 17

C10P02SV000 0.25 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	2.4 Volts	2.4 Volts	2.4 Volts
No-Load Speed	10,650 rpm	10,650 rpm	10,650 rpm
Stall Torque	1.0 mNm	10.0 gcm	0.14 oz-in
No-Load Current	0.027 Amps	0.027 Amps	0.027 Amps
Peak Output Power	0.25 Watts	0.25 Watts	0.25 Watts

Torque Constant	2.03 mNm/A	20.70 gcm/A	0.29 oz-in/A
Terminal Resistance	5.11 Ohms	5.11 Ohms	5.11 Ohms
Back-EMF Constant	0.21 V/krpm	0.21 V/krpm	0.21 V/krpm
Inductance	0.100 mH	0.100 mH	0.100 mH
Rotor Inertia	0.069 kg-m ² x10 ⁻⁷	0.069 gm cm ²	0.010 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	8.6 msec	8.6 msec	8.6 msec
Slope of Speed/Torque Curve	11,171.5 rpm/mNm	1,065.0 rpm/gcm	78,888.2 rpm/oz-in
Speed Constant	4,705 rpm/Volt	4,705 rpm/Volt	4,705 rpm/Volt
Motor Constant	0.90 mNm/√Watt	9.16 gcm/√Watt	0.13 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @ 8,750 rpm	0.28 Watts	0.28 Watts	0.28 Watts
Rated Torque @ 8,750 rpm	0.9 mNm	9.2 gcm	0.13 oz-in
Rated Current @ 8,750 rpm	0.470 Amps	0.470 Amps	0.470 Amps

Part Number: How to Order C10P02SV000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	7.4 grams

Gearbox Options 10 mm Diameter Exact Ratio Metal Planetary Gearbox
 Encoder Options Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder
 Options - Other 2.4 Volt to 6 Volt windings. Wire leads and connectors.

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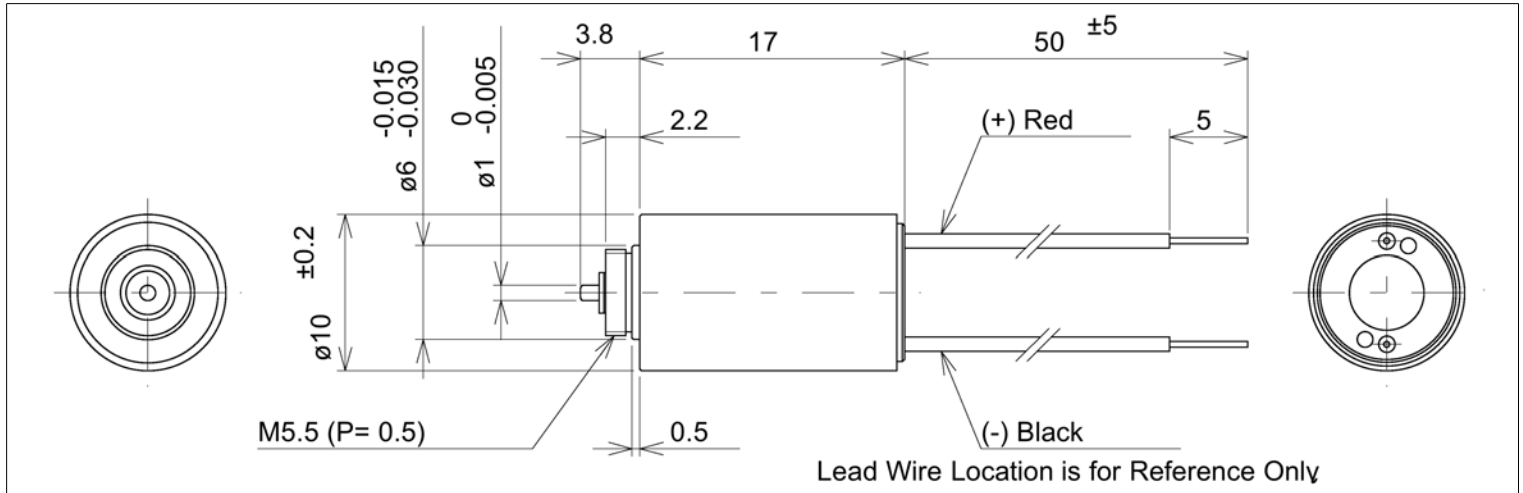
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 17

C10P03SV000 0.25 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	3.0 Volts	3.0 Volts	3.0 Volts
No-Load Speed	10,350 rpm	10,350 rpm	10,350 rpm
Stall Torque	1.0 mNm	10.0 gcm	0.14 oz-in
No-Load Current	0.020 Amps	0.020 Amps	0.020 Amps
Peak Output Power	0.25 Watts	0.25 Watts	0.25 Watts

Torque Constant	2.62 mNm/A	26.71 gcm/A	0.37 oz-in/A
Terminal Resistance	8.05 Ohms	8.05 Ohms	8.05 Ohms
Back-EMF Constant	0.27 V/krpm	0.27 V/krpm	0.27 V/krpm
Inductance	0.100 mH	0.100 mH	0.100 mH
Rotor Inertia	0.071 kg-m ² x10 ⁻⁷	0.071 gm cm ²	0.010 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	8.3 msec	8.3 msec	8.3 msec
Slope of Speed/Torque Curve	10,602.7 rpm/mNm	1,035.0 rpm/gcm	74,871.8 rpm/oz-in
Speed Constant	3,646 rpm/Volt	3,646 rpm/Volt	3,646 rpm/Volt
Motor Constant	0.92 mNm/√Watt	9.41 gcm/√Watt	0.13 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	8,450 rpm	0.28 Watts	0.28 Watts	0.28 Watts
Rated Torque @	8,450 rpm	0.9 mNm	9.6 gcm	0.13 oz-in
Rated Current @	8,450 rpm	0.380 Amps	0.380 Amps	0.380 Amps
Part Number: How to Order	C10P03SV000	Characteristics - Specifications at		22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	7.4 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	2.4 Volt to 6 Volt windings. Wire leads and connectors.		

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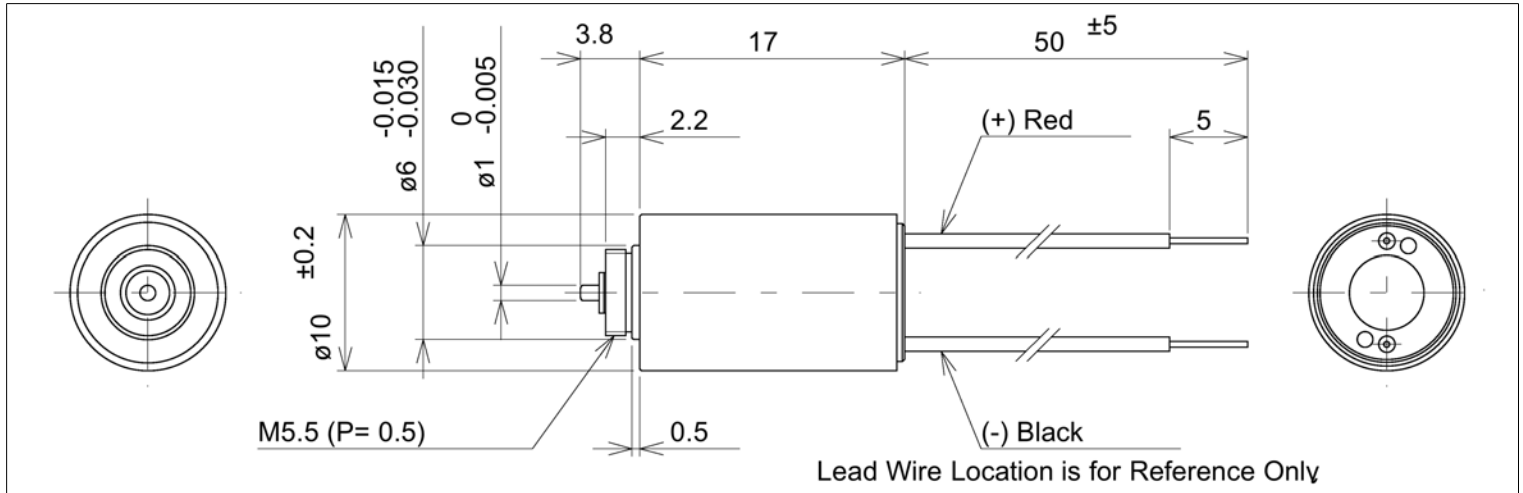
Specifications Subject to change without

Coreless DC Motor - 13 mm Ø x 17

C10P04SV000 0.24 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	3.6 Volts	3.6 Volts	3.6 Volts
No-Load Speed	10,250 rpm	10,250 rpm	10,250 rpm
Stall Torque	0.9 mNm	9.0 gcm	0.13 oz-in
No-Load Current	0.013 Amps	0.013 Amps	0.013 Amps
Peak Output Power	0.24 Watts	0.24 Watts	0.24 Watts

Torque Constant	3.20 mNm/A	32.63 gcm/A	0.45 oz-in/A
Terminal Resistance	12.40 Ohms	12.40 Ohms	12.40 Ohms
Back-EMF Constant	0.34 V/krpm	0.34 V/krpm	0.34 V/krpm
Inductance	0.100 mH	0.100 mH	0.100 mH
Rotor Inertia	0.067 kg-m ² x10 ⁻⁷	0.067 gm cm ²	0.009 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	8.1 msec	8.1 msec	8.1 msec
Slope of Speed/Torque Curve	11,033.4 rpm/mNm	1,138.9 rpm/gcm	77,913.1 rpm/oz-in
Speed Constant	2,984 rpm/Volt	2,984 rpm/Volt	2,984 rpm/Volt
Motor Constant	0.91 mNm/√Watt	9.27 gcm/√Watt	0.13 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @ 8,350 rpm	0.26 Watts	0.26 Watts	0.26 Watts
Rated Torque @ 8,350 rpm	0.9 mNm	9.0 gcm	0.13 oz-in
Rated Current @ 8,350 rpm	0.290 Amps	0.290 Amps	0.290 Amps

Part Number: How to Order C10P04SV000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	7.4 grams

Gearbox Options 10 mm Diameter Exact Ratio Metal Planetary Gearbox
 Encoder Options Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder
 Options - Other 2.4 Volt to 6 Volt windings. Wire leads and connectors.

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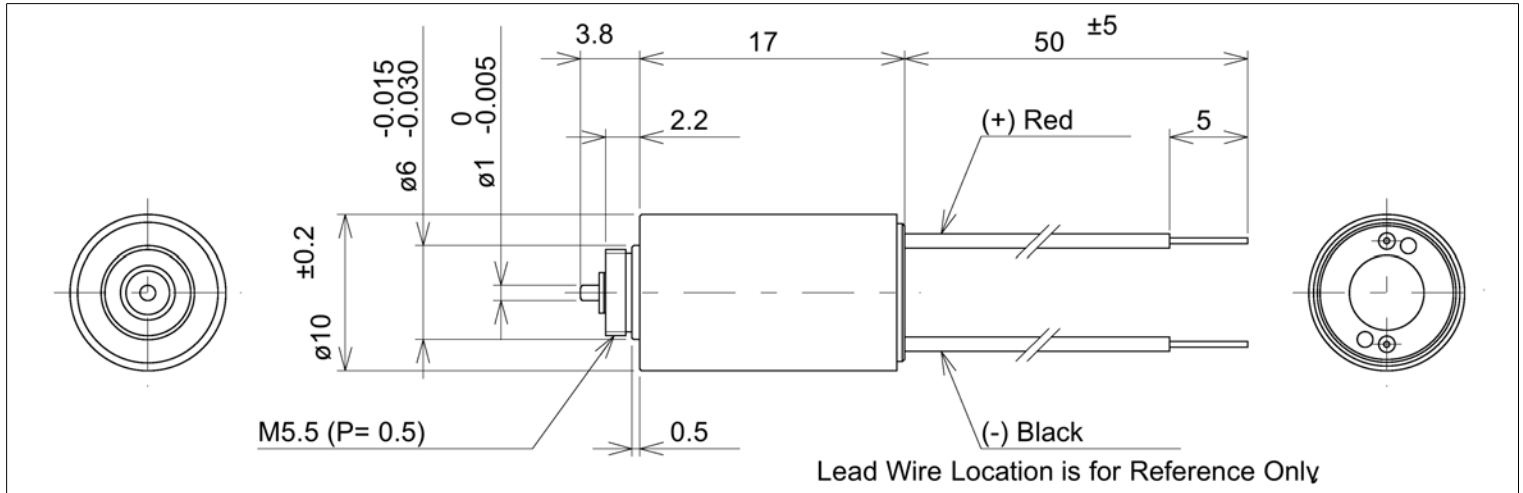
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 17

C10P06SV000 0.39 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	6.0 Volts	6.0 Volts	6.0 Volts
No-Load Speed	14,100 rpm	14,100 rpm	14,100 rpm
Stall Torque	1.1 mNm	12.0 gcm	0.16 oz-in
No-Load Current	0.020 Amps	0.020 Amps	0.020 Amps
Peak Output Power	0.39 Watts	0.39 Watts	0.39 Watts

Torque Constant	3.79 mNm/A	38.67 gcm/A	0.54 oz-in/A
Terminal Resistance	20.00 Ohms	20.00 Ohms	20.00 Ohms
Back-EMF Constant	0.40 V/krpm	0.40 V/krpm	0.40 V/krpm
Inductance	0.200 mH	0.200 mH	0.200 mH
Rotor Inertia	0.061 kg-m ² x10 ⁻⁷	0.061 gm cm ²	0.009 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	8.5 msec	8.5 msec	8.5 msec
Slope of Speed/Torque Curve	12,392.5 rpm/mNm	1,175.0 rpm/gcm	87,509.9 rpm/oz-in
Speed Constant	2,518 rpm/Volt	2,518 rpm/Volt	2,518 rpm/Volt
Motor Constant	0.85 mNm/√Watt	8.65 gcm/√Watt	0.12 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @ 11,500 rpm	0.44 Watts	0.44 Watts	0.44 Watts
Rated Torque @ 11,500 rpm	1.1 mNm	10.8 gcm	0.15 oz-in
Rated Current @ 11,500 rpm	0.300 Amps	0.300 Amps	0.300 Amps
Part Number: How to Order	C10P06SV000	Characteristics - Specifications at	22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	7.4 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	2.4 Volt to 6 Volt windings. Wire leads and connectors.		

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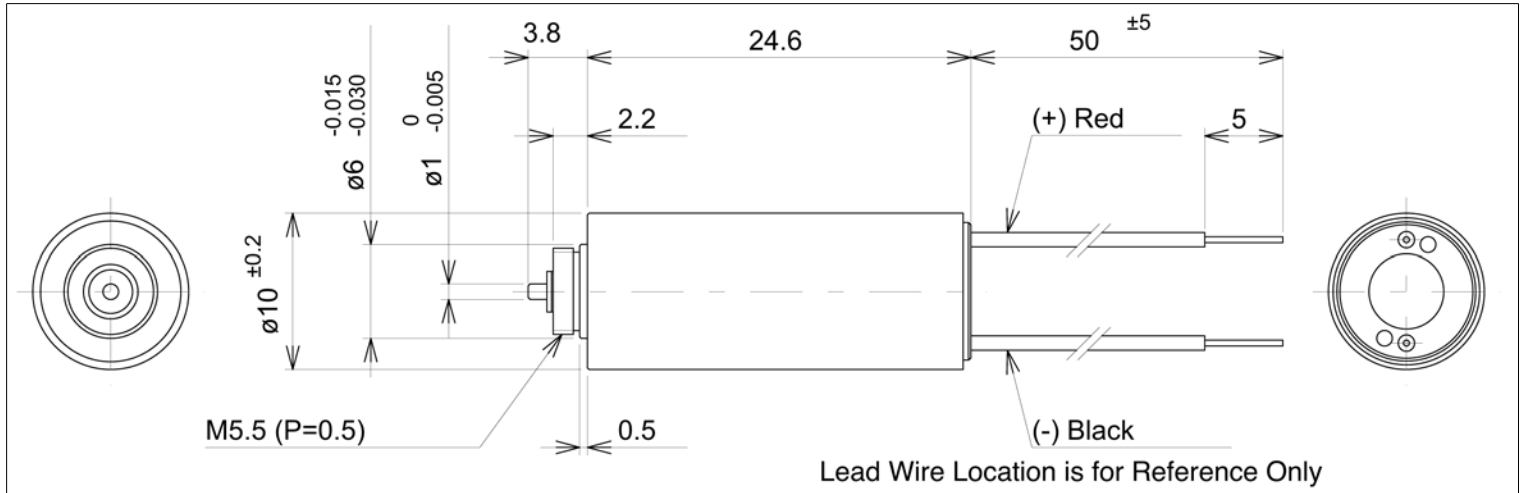
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P03SX010 0.96 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	3.0 Volts	3.0 Volts	3.0 Volts
No-Load Speed	12,750 rpm	12,750 rpm	12,750 rpm
Stall Torque	2.9 mNm	30.0 gcm	0.41 oz-in
No-Load Current	0.020 Amps	0.020 Amps	0.020 Amps
Peak Output Power	0.96 Watts	0.96 Watts	0.96 Watts

Torque Constant	2.21 mNm/A	22.57 gcm/A	0.31 oz-in/A
Terminal Resistance	2.27 Ohms	2.27 Ohms	2.27 Ohms
Back-EMF Constant	0.23 V/krpm	0.23 V/krpm	0.23 V/krpm
Inductance	0.026 mH	0.026 mH	0.026 mH
Rotor Inertia	0.108 kg-m ² x10 ⁻⁷	0.108 gm cm ²	0.015 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	5.0 msec	5.0 msec	5.0 msec
Slope of Speed/Torque Curve	4,359.7 rpm/mNm	425.0 rpm/gcm	30,786.1 rpm/oz-in
Speed Constant	4,315 rpm/Volt	4,315 rpm/Volt	4,315 rpm/Volt
Motor Constant	1.47 mNm/√Watt	14.98 gcm/√Watt	0.21 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	10,250 rpm	0.82 Watts	0.82 Watts	0.82 Watts
Rated Torque @	10,250 rpm	0.6 mNm	5.6 gcm	0.08 oz-in
Rated Current @	10,250 rpm	0.270 Amps	0.270 Amps	0.270 Amps

Part Number: How to Order C10P03SX010 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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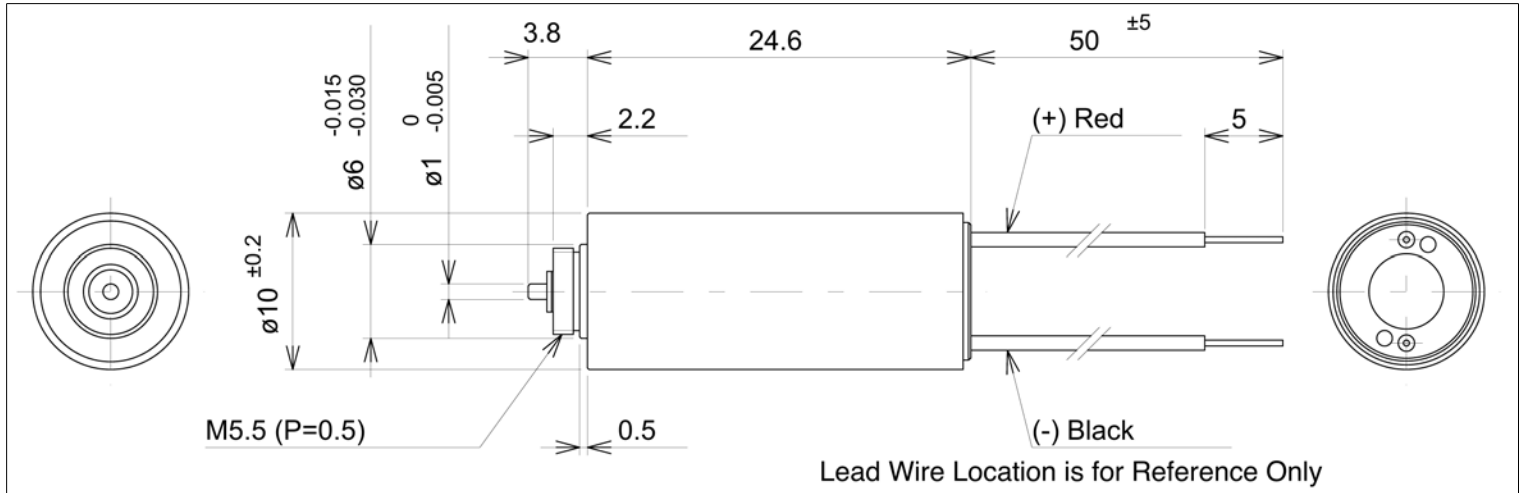
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P03SX000 **0.78 Watts Peak Power**



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	3.0 Volts	3.0 Volts	3.0 Volts
No-Load Speed	11,300 rpm	11,300 rpm	11,300 rpm
Stall Torque	2.7 mNm	27.0 gcm	0.38 oz-in
No-Load Current	0.020 Amps	0.020 Amps	0.020 Amps
Peak Output Power	0.78 Watts	0.78 Watts	0.78 Watts

Torque Constant	2.49 mNm/A	25.37 gcm/A	0.35 oz-in/A
Terminal Resistance	2.78 Ohms	2.78 Ohms	2.78 Ohms
Back-EMF Constant	0.26 V/krpm	0.26 V/krpm	0.26 V/krpm
Inductance	0.029 mH	0.029 mH	0.029 mH
Rotor Inertia	0.103 kg-m ² x10 ⁻⁷	0.103 gm cm ²	0.015 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	4.6 msec	4.6 msec	4.6 msec
Slope of Speed/Torque Curve	4,208.4 rpm/mNm	418.5 rpm/gcm	29,717.5 rpm/oz-in
Speed Constant	3,838 rpm/Volt	3,838 rpm/Volt	3,838 rpm/Volt
Motor Constant	1.49 mNm/√Watt	15.22 gcm/√Watt	0.21 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	9,100 rpm	0.67 Watts	0.67 Watts	0.67 Watts
Rated Torque @	9,100 rpm	0.6 mNm	6.6 gcm	0.09 oz-in
Rated Current @	9,100 rpm	0.280 Amps	0.280 Amps	0.280 Amps

Part Number: How to Order C10P03SX000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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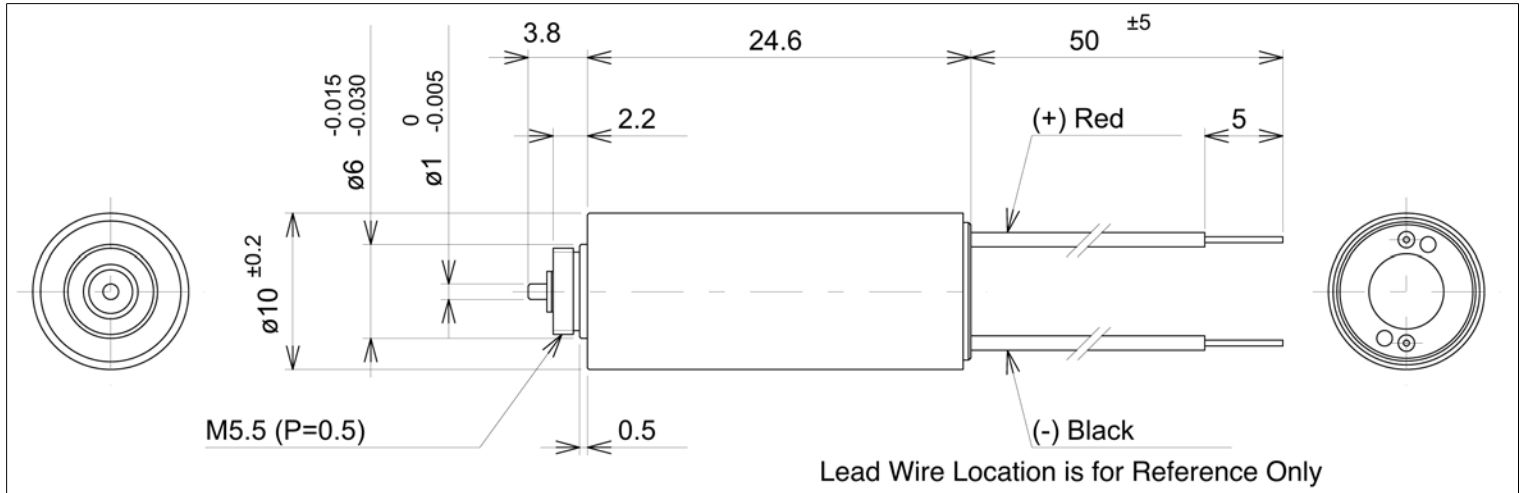
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P05SX010 1.20 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	4.5 Volts	4.5 Volts	4.5 Volts
No-Load Speed	13,900 rpm	13,900 rpm	13,900 rpm
Stall Torque	3.4 mNm	35.0 gcm	0.48 oz-in
No-Load Current	0.040 Amps	0.040 Amps	0.040 Amps
Peak Output Power	1.20 Watts	1.20 Watts	1.20 Watts

Torque Constant	2.98 mNm/A	30.42 gcm/A	0.42 oz-in/A
Terminal Resistance	3.93 Ohms	3.93 Ohms	3.93 Ohms
Back-EMF Constant	0.31 V/krpm	0.31 V/krpm	0.31 V/krpm
Inductance	0.045 mH	0.045 mH	0.045 mH
Rotor Inertia	0.104 kg-m ² x10 ⁻⁷	0.104 gm cm ²	0.015 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	4.6 msec	4.6 msec	4.6 msec
Slope of Speed/Torque Curve	4,068.8 rpm/mNm	397.1 rpm/gcm	28,732.2 rpm/oz-in
Speed Constant	3,201 rpm/Volt	3,201 rpm/Volt	3,201 rpm/Volt
Motor Constant	1.50 mNm/√Watt	15.35 gcm/√Watt	0.21 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	11,200 rpm	0.95 Watts	0.95 Watts	0.95 Watts
Rated Torque @	11,200 rpm	0.8 mNm	8.2 gcm	0.11 oz-in
Rated Current @	11,200 rpm	0.310 Amps	0.310 Amps	0.310 Amps

Part Number: How to Order C10P05SX010 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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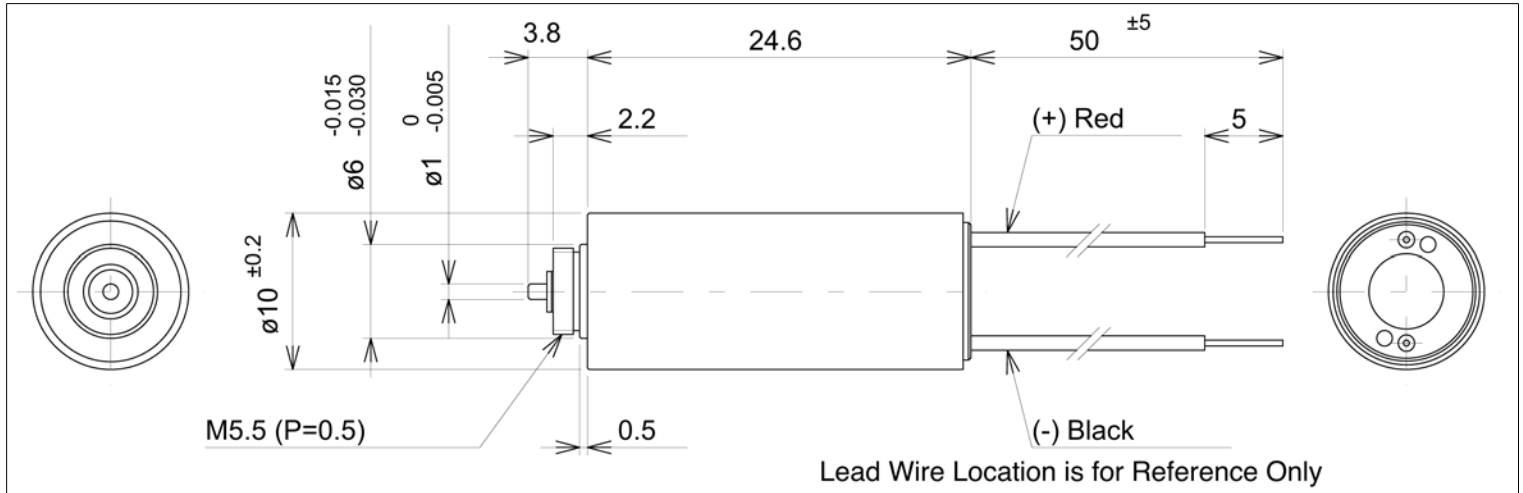
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P05SX000 0.91 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	4.5 Volts	4.5 Volts	4.5 Volts
No-Load Speed	11,500 rpm	11,500 rpm	11,500 rpm
Stall Torque	3.1 mNm	32.0 gcm	0.44 oz-in
No-Load Current	0.020 Amps	0.020 Amps	0.020 Amps
Peak Output Power	0.91 Watts	0.91 Watts	0.91 Watts

Torque Constant	3.65 mNm/A	37.21 gcm/A	0.52 oz-in/A
Terminal Resistance	5.28 Ohms	5.28 Ohms	5.28 Ohms
Back-EMF Constant	0.38 V/krpm	0.38 V/krpm	0.38 V/krpm
Inductance	0.100 mH	0.100 mH	0.100 mH
Rotor Inertia	0.109 kg-m ² x10 ⁻⁷	0.109 gm cm ²	0.015 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	4.3 msec	4.3 msec	4.3 msec
Slope of Speed/Torque Curve	3,697.8 rpm/mNm	359.4 rpm/gcm	26,112.3 rpm/oz-in
Speed Constant	2,617 rpm/Volt	2,617 rpm/Volt	2,617 rpm/Volt
Motor Constant	1.59 mNm/√Watt	16.19 gcm/√Watt	0.22 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @ 9,300 rpm	792.00 Watts	792.00 Watts	792.00 Watts
Rated Torque @ 9,300 rpm	0.7 mNm	7.4 gcm	0.10 oz-in
Rated Current @ 9,300 rpm	0.220 Amps	0.220 Amps	0.220 Amps

Part Number: How to Order C10P05SX000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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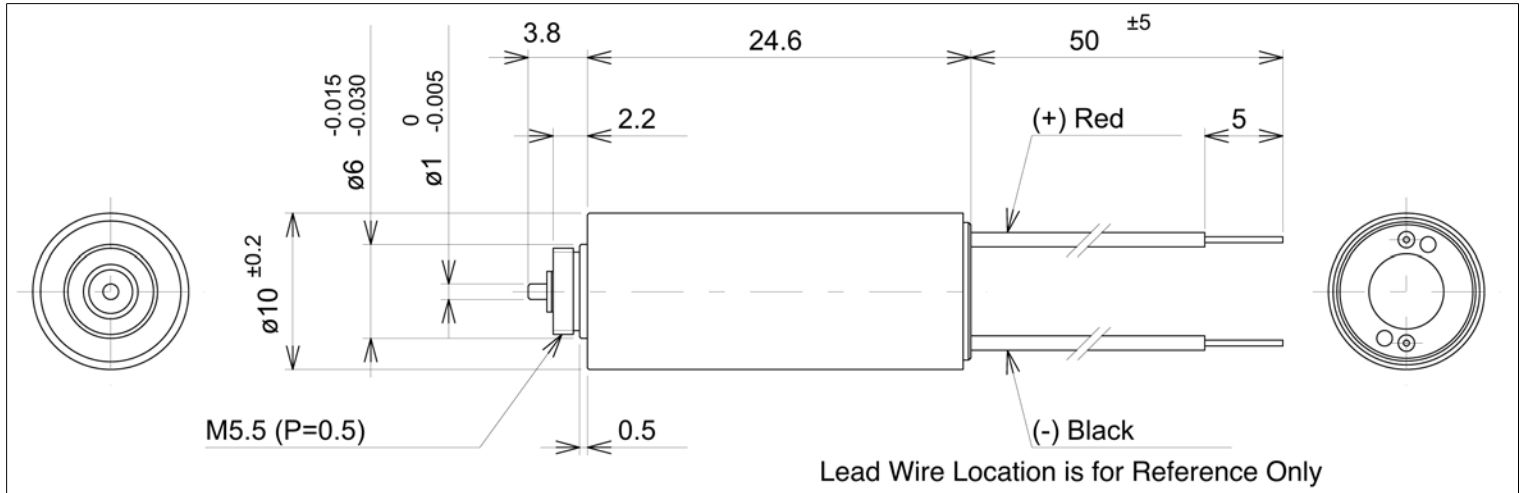
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P06SX000 **1.06 Watts Peak Power**



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	6.0 Volts	6.0 Volts	6.0 Volts
No-Load Speed	11,700 rpm	11,700 rpm	11,700 rpm
Stall Torque	3.5 mNm	36.0 gcm	0.50 oz-in
No-Load Current	0.013 Amps	0.013 Amps	0.013 Amps
Peak Output Power	1.06 Watts	1.06 Watts	1.06 Watts

Torque Constant	4.81 mNm/A	49.03 gcm/A	0.68 oz-in/A
Terminal Resistance	8.18 Ohms	8.18 Ohms	8.18 Ohms
Back-EMF Constant	0.50 V/krpm	0.50 V/krpm	0.50 V/krpm
Inductance	0.100 mH	0.100 mH	0.100 mH
Rotor Inertia	0.112 kg-m ² x10 ⁻⁷	0.112 gm cm ²	0.016 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	4.0 msec	4.0 msec	4.0 msec
Slope of Speed/Torque Curve	3,317.6 rpm/mNm	325.0 rpm/gcm	23,427.1 rpm/oz-in
Speed Constant	1,986 rpm/Volt	1,986 rpm/Volt	1,986 rpm/Volt
Motor Constant	1.68 mNm/√Watt	17.14 gcm/√Watt	0.24 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	9,450 rpm	0.92 Watts	0.92 Watts	0.92 Watts
Rated Torque @	9,450 rpm	0.8 mNm	8.7 gcm	0.12 oz-in
Rated Current @	9,450 rpm	0.190 Amps	0.190 Amps	0.190 Amps

Part Number: How to Order C10P06SX000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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 Technical Support: (760) 451-2723
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Commutation Type: **Manufactured under a Certified ISO 9001:2008 Quality System**
 Precious Metal

RoHS Compliant

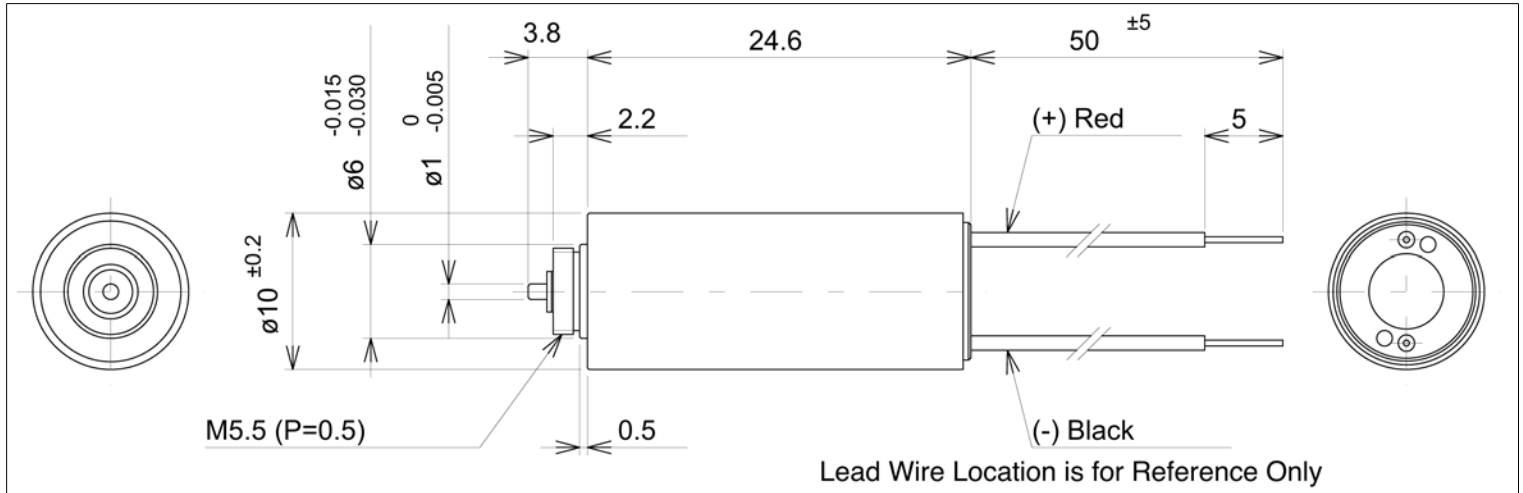
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P06SX010 0.69 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	6.0 Volts	6.0 Volts	6.0 Volts
No-Load Speed	9,800 rpm	9,800 rpm	9,800 rpm
Stall Torque	2.8 mNm	28.0 gcm	0.39 oz-in
No-Load Current	0.013 Amps	0.013 Amps	0.013 Amps
Peak Output Power	0.69 Watts	0.69 Watts	0.69 Watts
Torque Constant	5.69 mNm/A	57.98 gcm/A	0.81 oz-in/A
Terminal Resistance	12.40 Ohms	12.40 Ohms	12.40 Ohms
Back-EMF Constant	0.60 V/krpm	0.60 V/krpm	0.60 V/krpm
Inductance	0.200 mH	0.200 mH	0.200 mH
Rotor Inertia	0.109 kg-m ² x10 ⁻⁷	0.109 gm cm ²	0.015 x10 ⁻⁴ oz in sec ²
Mechanical Time Constant	4.2 msec	4.2 msec	4.2 msec
Slope of Speed/Torque Curve	3,562.3 rpm/mNm	350.0 rpm/gcm	25,155.6 rpm/oz-in
Speed Constant	1,680 rpm/Volt	1,680 rpm/Volt	1,680 rpm/Volt
Motor Constant	1.61 mNm/√Watt	16.46 gcm/√Watt	0.23 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	7,900 rpm	0.65 Watts	0.65 Watts	0.65 Watts
Rated Torque @	7,900 rpm	0.7 mNm	6.8 gcm	0.09 oz-in
Rated Current @	7,900 rpm	0.130 Amps	0.130 Amps	0.130 Amps
Part Number: How to Order	C10P06SX010	Characteristics - Specifications at		22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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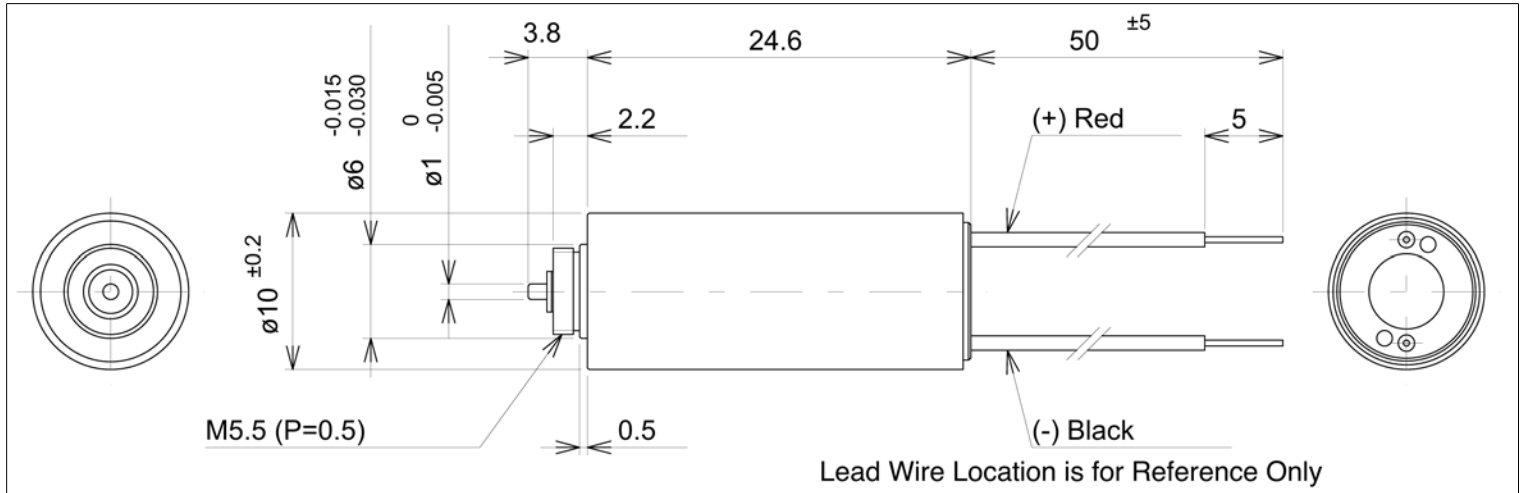
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P09SX000 0.97 Watts Peak Power



Global Motion Products



Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	9.0 Volts	9.0 Volts	9.0 Volts
No-Load Speed	12,300 rpm	12,300 rpm	12,300 rpm
Stall Torque	3.1 mNm	32.0 gcm	0.44 oz-in
No-Load Current	0.013 Amps	0.013 Amps	0.013 Amps
Peak Output Power	0.97 Watts	0.97 Watts	0.97 Watts

Torque Constant	6.78 mNm/A	69.17 gcm/A	0.96 oz-in/A
Terminal Resistance	19.70 Ohms	19.70 Ohms	19.70 Ohms
Back-EMF Constant	0.71 V/krpm	0.71 V/krpm	0.71 V/krpm
Inductance	0.300 mH	0.300 mH	0.300 mH
Rotor Inertia	0.102 kg-m ² x10 ⁻⁷	0.102 gm cm ²	0.014 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	4.4 msec	4.4 msec	4.4 msec
Slope of Speed/Torque Curve	3,969.0 rpm/mNm	384.4 rpm/gcm	28,027.4 rpm/oz-in
Speed Constant	1,408 rpm/Volt	1,408 rpm/Volt	1,408 rpm/Volt
Motor Constant	1.53 mNm/√Watt	15.58 gcm/√Watt	0.22 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	9,700 rpm	0.85 Watts	0.85 Watts	0.85 Watts
Rated Torque @	9,700 rpm	0.8 mNm	8.1 gcm	0.11 oz-in
Rated Current @	9,700 rpm	0.130 Amps	0.130 Amps	0.130 Amps

Part Number: How to Order C10P09SX000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	10.7 grams
Gearbox Options	10 mm Diameter Exact Ratio Metal Planetary Gearbox		
Encoder Options	Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder		
Options - Other	3 Volt to 12 Volt windings. Wire leads and connectors.		

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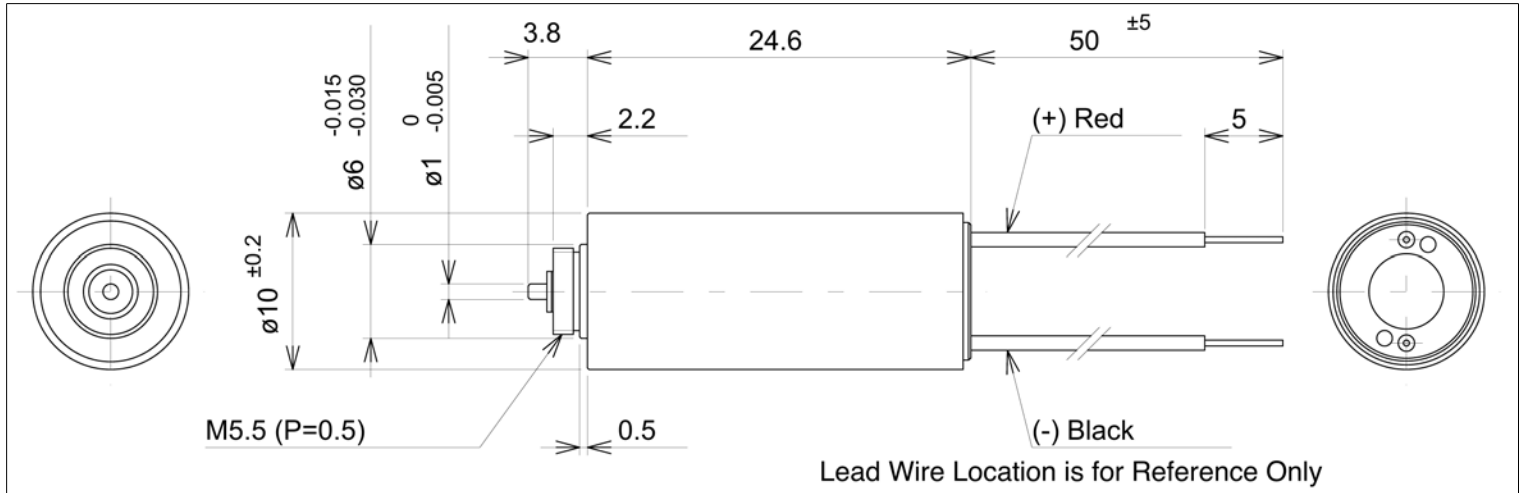
Specifications Subject to change without

Coreless DC Motor - 10 mm Ø x 25

C10P12SX000 1.00 Watts Peak Power



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Not to Scale - Dimensions in millimeters (mm)

Nominal Voltage	12.0 Volts	12.0 Volts	12.0 Volts
No-Load Speed	12,850 rpm	12,850 rpm	12,850 rpm
Stall Torque	3.1 mNm	31.0 gcm	0.44 oz-in
No-Load Current	0.013 Amps	0.013 Amps	0.013 Amps
Peak Output Power	1.00 Watts	1.00 Watts	1.00 Watts

Torque Constant	8.59 mNm/A	87.56 gcm/A	1.22 oz-in/A
Terminal Resistance	33.40 Ohms	33.40 Ohms	33.40 Ohms
Back-EMF Constant	0.90 V/krpm	0.90 V/krpm	0.90 V/krpm
Inductance	0.400 mH	0.400 mH	0.400 mH
Rotor Inertia	0.097 kg-m ² x10 ⁻⁷	0.097 gm cm ²	0.014 x10 ⁻⁴ oz in sec ²

Mechanical Time Constant	4.4 msec	4.4 msec	4.4 msec
Slope of Speed/Torque Curve	4,165.3 rpm/mNm	414.5 rpm/gcm	29,413.2 rpm/oz-in
Speed Constant	1,112 rpm/Volt	1,112 rpm/Volt	1,112 rpm/Volt
Motor Constant	1.49 mNm/√Watt	15.15 gcm/√Watt	0.21 oz-in/√Watt

Ratings below are at 60°C. At room temperature the ratings would be considerably higher.

Rated Power @	10,400 rpm	0.98 Watts	0.98 Watts	0.98 Watts
Rated Torque @	10,400 rpm	0.7 mNm	7.6 gcm	0.11 oz-in
Rated Current @	10,400 rpm	0.100 Amps	0.100 Amps	0.100 Amps

Part Number: How to Order C10P12SX000 Characteristics - Specifications at 22 °C

Radial Load Rating	Radial Play	Max Temperature	65 °C
Radial Load Distance	Thrust Play ≤ 0.300 mm	Min Temperature	-10 °C
Axial Load	Magnet Type NdFeB	Max Winding Temp	120 °C
Press Fit Force - Max	Bearing Type Sleeve Bearings	Mass	7.4 grams

Gearbox Options 10 mm Diameter Exact Ratio Metal Planetary Gearbox
 Encoder Options Integrated 3 to 24 Volt 10 mm diameter 2 channel 10 mA incremental 12 lines/track encoder
 Options - Other 2.4 Volt to 6 Volt windings. Wire leads and connectors.

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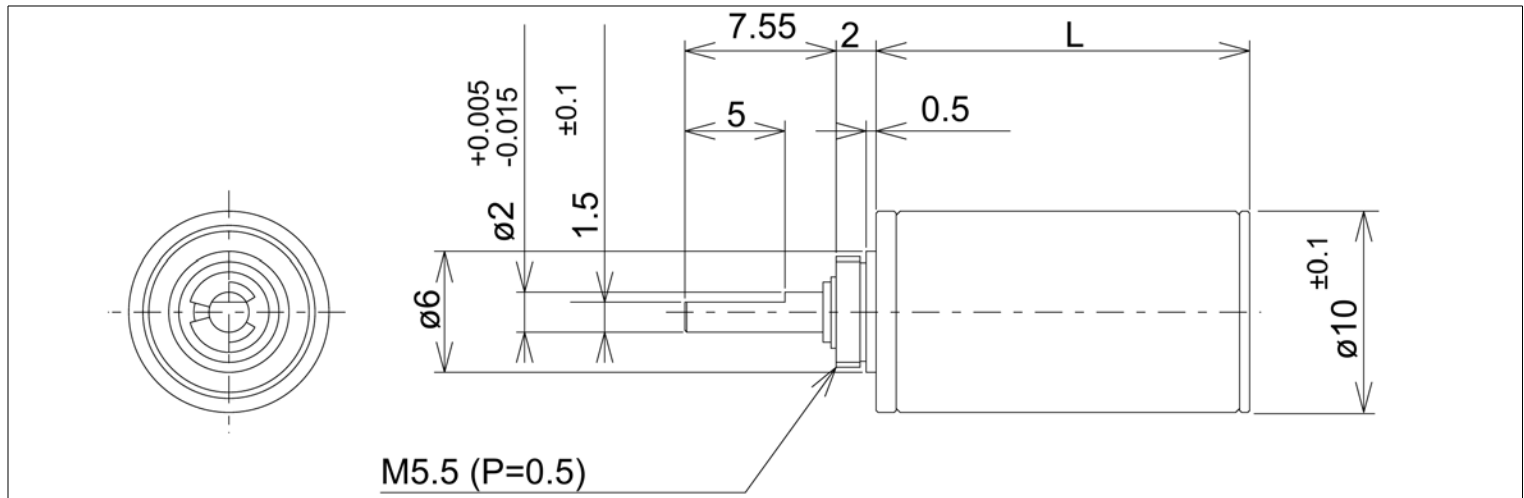
Specifications Subject to change without

Planetary Gearbox - 10 mm Ø



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P10 •••• MS00 - Metal Fabrication - Exact Ratio



M5.5 (P=0.5)

Not to Scale - Dimensions in millimeters (mm)

Ratio	Efficiency %	Continuous Torque mNm	Continuous Torque oz-in	Length L mm	Mass grams	Direction of Rotation*	Order Part Number
16.00:1	66 %	29 mNm	4.2 oz-in	12.85	6.9	Same	P100016MS00
64.00:1	53 %	98 mNm	13.9 oz-in	15.75	6.9	Same	P100064MS00
256.00:1	43 %	147 mNm	20.8 oz-in	18.65	8.3	Same	P100256MS00
1,024.00:1	35 %	147 mNm	20.8 oz-in	21.55	11.1	Same	P101024MS00

Radial Load Rating
Radial Load Distance
Axial Load
Press Fit Force - Max

Radial Play ≤ 0.07 mm
Axial Play ≤ 0.20 mm
Backlash ≤ 3.0 °
Bearing Sleeve

Max Temperature Operating 60°C
Min Temperature Operating -10°C
Relative Humidity Operating 20% to 85%
Characteristics and Specifications at 22°C

The P10 x x x MS00 Series is available as a complete gearmotor with Coreless DC Motors w/optional 2 Channel low Current /low Voltage Encoder 12 PPR per channel. Stainless steel output shaft is standard. GMP offers gearboxes and gearmotors from 6 mm diameter to 90 mm.

Options: Precious Metal Commutated 10 mm diameter Coreless DC Motors with body lengths of 17 or 25mm. Nominal Voltage from 2.4 to 6 Volts. Integrated 2 Channel Magnetic encoder that can operate from 3 to 24 Volts dc with ≤ 10 mA current. Ideal for battery powered devices.

* Rotational Sense of Gearbox Output Shaft to Motor Shaft

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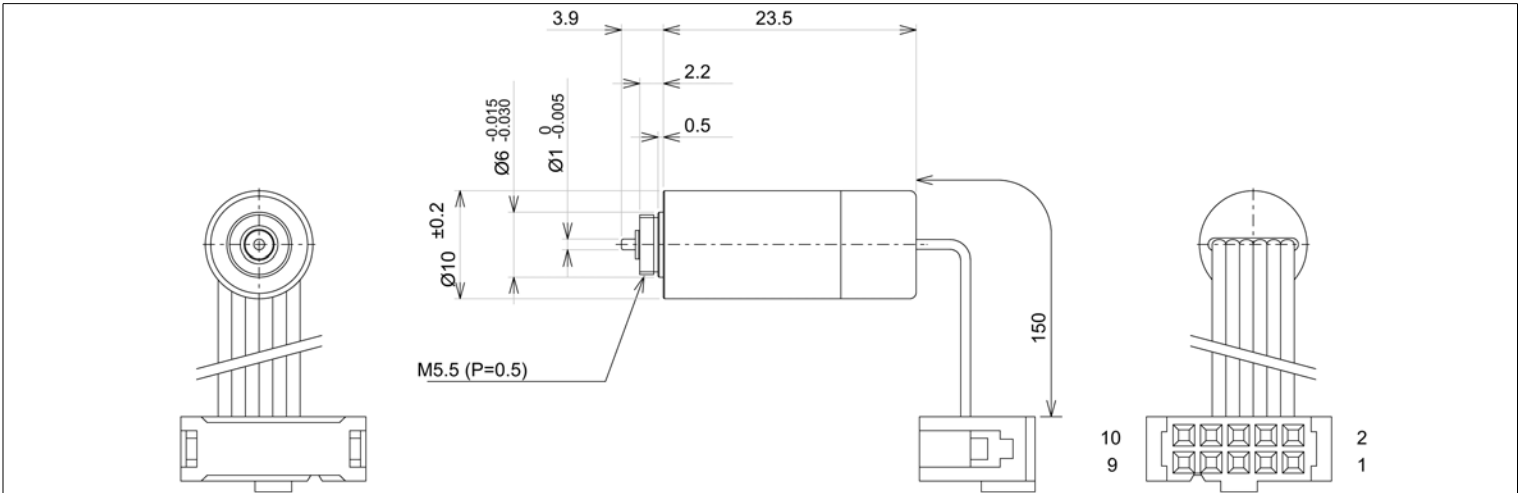
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Specifications Subject to change without notice

10 mm Ø Encoder - 2 Channel

Series EM10 Integrated 3 to 24 Volts ≤ 10 mA



Not to Scale - Dimensions in millimeters (mm)

Encoder Output Signals
 2 Channels
 10 mm Ø
 Integrated
 Hall Effect Encoder

Channel A

Channel B

Supply Voltage - Max	24.00 Volt
Supply Voltage - Min	3.00 Volt
Supply Current - Max	≤ 10 mAmp
Output Current - Max	≤ 10 mAmp
Max Temp - Operating	60°C
Min Temp - Operating	-10°C
Relative Humidity - Operating	20% to 85%

Above Drawing is for encoder mounted to 10 mm diameter x 17 mm long Coreless dc motor.
 Encoder is compatible with 10 mm diameter x 17 mm and x 25 mm long Coreless dc motors.
 Length increase for integrated encoder is less than 6.5 mm.

Counts per Track per Rev.
 12

Maximum Frequency Response
 20 kHz

Pinout Details

Connector Pin Number	Function
1	Motor +
2	Vcc
3	Channel A
4	Channel B
5	Ground
6	Motor -

Connector Details

Manufacturer: 3M
 Socket: 3448-7910LP
 Flat Band Cable: 28 AWG

This Encoder Is Only Available Mounted To A Global Motion Products Coreless DC Motor. It Is Not Sold Separately.

This low current, low Voltage encoder utilized a Hall effect Integrated Circuit. It can be attached to a range of 10 mm diameter coreless dc micromotors with optional planetary gearboxes.

Magneto-resistive 3 channel encoders are available for 13, 16, and 17 mm diameter coreless dc motors. They feature complementary outputs, line drivers, and resolutions up to 512 lines per channel. 2 channel integrated optical encoders are also available for 16 mm to 24 mm diameter coreless dc motors.

Characteristics and Specifications at 22°C