



**STANDARD FEATURES:**

- Ball bearings
- High starting torque
- Precision die cast end bells
- Class B rated
- Reversible
- Stainless steel output shafts
- Plastic housing

**OPTIONAL FEATURES:**

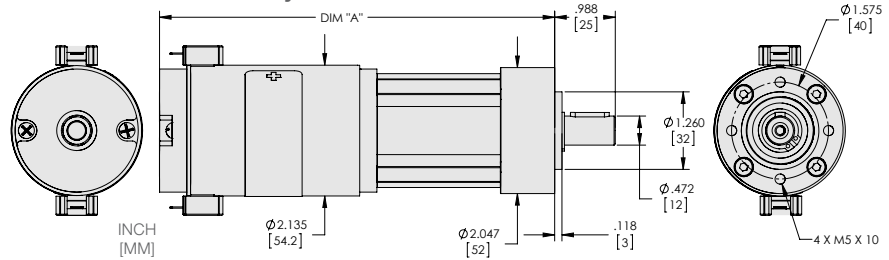
- Encoders up to 2048 CPR
- Voltage ranges to 48VDC
- EMI noise suppression
- Customized shafts
- Customized lead harnesses
- Custom mounting
- Rear shaft extensions
- Gearboxes
  - Planetary  
Ratios up to 2653:1  
(See Series 121-8; 121-9)
  - Spur  
12:1; 48:1; 192:1; 768:1  
(See Series 121-4)
- Housing Available in Metal  
(See Series 121-8)

**TYPICAL APPLICATIONS:**

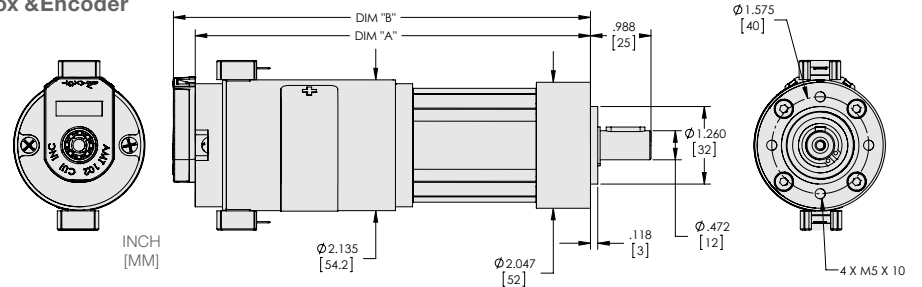
- Printers
- Plotters
- Pumps
- Fans
- Cutting Tools
- Medical Devices
- Robotics
- Beverage Dispensing
- Gaming/Recreational Machines



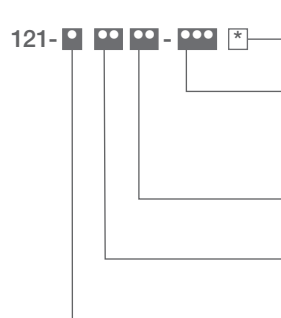
**Series 121-9 with Planetary Gearbox**



**Series 121-9 with Planetary Gearbox & Encoder**



**Series 121  
Part Numbering  
Example**



**ENCODER OPTION C, D, OR M**

Counts Per Revolution (CPR) (C =100, D = 500 or M = 1000)  
(Others Are Available - See Factory) \*\*\*Otherwise Leave Blank\*\*\*

**Gear Ratio**

Motor Type 4 (12, 48, 192, or 768)  
Motor Type 8 (5, 27, 130, or 642)  
Motor Type 9 (5, 27, or 130)

**Motor Speed**

(16, 32, or 48) (e.g. 32 = 3200 RPM)

**Rated Voltage**

(12 or 24)

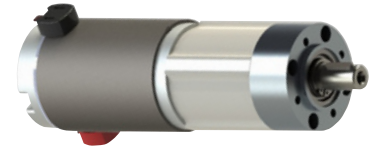
**Motor Type:**

4 = Motor, Terminals, 2" Spur Gearbox, Encoder Optional  
8 = Motor, Terminals, Metal Planetary Gearbox, Encoder Optional  
9 = Motor, Terminals, Plastic Planetary Gearbox, Encoder Optional

# Series 121-9

## 2.1" DC Planetary Gear Motor (Plastic)

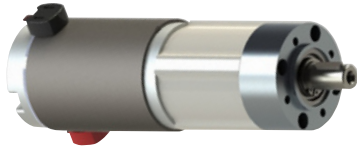
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### PERFORMANCE

PART NUMBER	RATIO	VOLTS NOM	NO LOAD SPEED	NO LOAD CURRENT	LOAD SPEED	LOAD TORQUE	LOAD CURRENT	MAX. THEORETICAL TORQUE (* INDICATES GEARBOX LIMIT)			DIM "A" MAX INCH [mm]	DIM "B" MAX INCH [mm]
			WNL	INL	W	TL	IL	IN-OZ	R.P.M.	AMPS		
			R.P.M.	AMPS	R.P.M.	IN-OZ	AMPS					
			NOM.	MAX.	NOM.	REF.	MAX.	REF.	REF.	REF.		
121-91216-5	5:1	12	405	0.6	300	62	2.6	238	STALL	9	5.8 [148]	6.1 [155]
121-91232-5			690	1.3	585	42	3.8	273	STALL	17		
121-91248-5			935	2.2	830	31	4.5	274	STALL	23		
121-91216-27	27:1		80	0.6	60	312	2.8	708*	35	6	6.3 [160]	6.6 [168]
121-91232-27			135	1.3	110	213	3.7	708*	60	10		
121-91248-27			175	2.8	150	156	5	708*	70	13		
121-91216-130	130:1		15	0.8	15	1062	2.4	1416*	10	3	6.9 [175]	7.3 [185]
121-91232-130			30	1.5	25	951	3.4	1416*	20	5		
121-91248-130			40	2.0	33	700	4.4	1416*	25	7		
121-92416-5	5:1	24	395	0.5	315	62	1.4	283*	30	5	5.8 [148]	6.1 [155]
121-92432-5			720	0.6	640	42	1.7	283*	195	9		
121-92448-5			1000	1.0	925	37	2.3	283*	355	12		
121-92416-27	27:1		80	0.4	60	312	1.5	708*	35	3	6.3 [160]	6.6 [168]
121-92432-27			135	0.7	115	240	2.1	708*	80	5		
121-92448-27			190	1.3	175	185	2.6	708*	130	7		
121-92416-130	130:1		15	0.4	10	1062	1.2	1416*	10	2	6.9 [175]	7.3 [185]
121-92432-130			30	0.7	20	1062	2	1416*	20	3		
121-92448-130			40	1.0	40	825	2.1	1416*	35	3		

For Encoder, Add C, D, or M to end of part number. (C=100 CPR, D=500 & M=1000)



# Series 121-9

## 2.1" DC Planetary Gear Motor (Plastic)

Continued

121-9

2.1" DC Planetary Gear Motor (Plastic)

### CHARACTERISTICS

Stages	1 Stage	2 Stages	3 Stages	4 Stages
Max Torque	35.4 inlb	106.2 inlb	221 inlb	221 inlb
GB Eff	80%	75%	70%	65%
Max Backlash	0.70 Deg	0.75 Deg	0.80 Deg	0.85 Deg
Max Radial Load	45 lbf	72 lbf	101 lbf	112 lbf
Max Axial Load	13.5 lbf	22.5 lbf	33.7 lbf	45 lbf
GB Weight	0.88 lb	2 lb	2.43 lb	2.87 lb

### AVAILABLE RATIOS

1 Stage		2 Stages		3 Stages		4 Stages	
Spur	Helical	Spur	Helical	Spur	Helical	Spur	Helical
3:1 (3.70)	4:1 (3.65)	14:1 (13.73)	14:1 (13.53)	51:1 (50.89)	50:1 (50.16)	189:1 (188.61)	186:1 (185.88)
4:1 (4.28)	5:1 (4.59)	16:1 (15.88)	16:1 (15.65)	59:1 (58.85)	58:1 (58.01)	218:1 (218.12)	215:1 (214.96)
5:1 (5.18)	5:1 (5.36)	18:1 (18.36)	18:1 (17.01)	68:1 (68.06)	67:1 (67.08)	252:1 (252.24)	249:1 (248.59)
7:1 (6.75)	7:1 (6.55)	19:1 (19.20)	19:1 (18.92)	71:1 (71.16)	70:1 (70.13)	264:1 (263.72)	260:1 (259.91)
	9:1 (8.63)	22:1 (22.20)	22:1 (22.96)	79:1 (78.71)	81:1 (81.11)	292:1 (291.71)	287:1 (287.49)
		25:1 (25.01)	25:1 (24.65)	93:1 (92.70)	91:1 (91.36)	305:1 (304.99)	301:1 (300.57)
		27:1 (26.85)	27:1 (27.76)	95:1 (95.17)	98:1 (98.07)	337:1 (337.35)	339:1 (338.56)
		29:1 (28.93)	29:1 (28.05)	100:1 (99.50)	101:1 (101.89)	344:1 (343.54)	348:1 (347.60)
		35:1 (34.97)	35:1 (33.92)	107:1 (107.20)	106:1 (105.65)	353:1 (352.71)	361:1 (361.17)
		46:1 (45.56)	46:1 (44.69)	115:1 (115.07)	115:1 (114.77)	369:1 (368.76)	365:1 (364.66)
			58:1 (58.22)	124:1 (123.97)	123:1 (123.20)	397:1 (397.29)	392:1 (391.53)
				130:1 (129.62)	128:1 (127.74)	408:1 (407.89)	420:1 (420.28)
				139:1 (139.13)	137:1 (136.99)	426:1 (426.46)	425:1 (425.34)
				150:1 (149.90)	145:1 (145.36)	459:1 (459.45)	457:1 (456.56)
				169:1 (168.84)	166:1 (166.40)	480:1 (480.36)	473:1 (473.40)
				181:1 (181.24)	176:1 (175.75)	493:1 (493.18)	492:1 (491.89)
				195:1 (195.26)	192:1 (191.54)	516:1 (515.62)	515:1 (515.24)
				236:1 (236.09)	232:1 (231.59)	531:1 (531.34)	533:1 (533.08)
				308:1 (307.54)	302:1 (301.68)	556:1 (555.52)	547:1 (547.47)
					393:1 (392.98)	596:1 (596.30)	595:1 (594.73)
						626:1 (625.73)	623:1 (622.97)
						642:1 (642.42)	638:1 (638.40)
						672:1 (671.67)	679:1 (678.94)
						721:1 (720.98)	713:1 (713.15)
						724:1 (723.63)	745:1 (745.38)
						777:1 (776.76)	775:1 (774.72)
						837:1 (836.86)	832:1 (831.60)
						875:1 (874.94)	862:1 (862.27)
						939:1 (939.18)	925:1 (924.65)
						1012:1 (1011.84)	1046:1 (1046.08)
						1140:1 (1139.73)	1123:1 (1123.21)
						1223:1 (1223.41)	1200:1 (1200.07)
						1318:1 (1318.05)	1393:1 (1292.91)
						1594:1 (1593.65)	1563:1 (1563.24)
						2076:1 (2075.94)	2036:1 (2036.33)
							2653:1 (2652.59)

Note: Ratios in ( ) denote actual values.