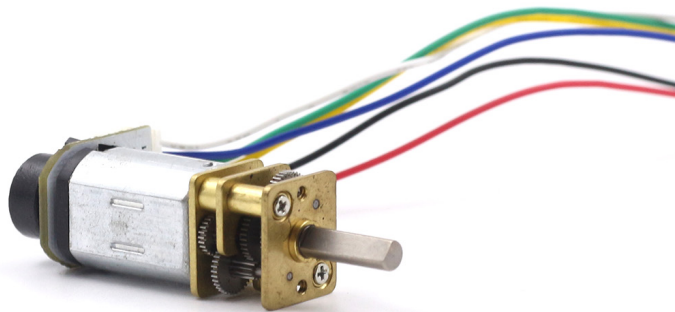


TSL-JGA12-N20-EN

12 mm Brushed DC Gear Motor with Encoder



Product Type	Brushed DC Gear Motor with Encoder
Nominal Voltage	3 VDC / 6 VDC / 12 VDC
Gear Ratios	5:1, 10:1, 20:1, 30:1, 50:1, 100:1, 150:1, 210:1, 298:1, 380:1, 1000:1
Motor Cross-Section	12 mm x 10 mm
Motor Body Length	15 mm
Output Shaft	Ø3.0 mm, D-shaped
Encoder Feedback	7 pulses per motor revolution

Compact Encoder Design

12 mm-class brushed DC gear motor with encoder for space-limited assemblies.

Eleven Gear Ratios

Reduction ratios from 5:1 to 1000:1 cover a wide range of speed and torque requirements.

Three Motor Options

3 V 7500 RPM, 6 V 15000 RPM and 12 V 30000 RPM versions are available.

Performance Parameters - 3 VDC, 7500 Type

Ratio	No Load		Rated Load			Stall	
	Speed	Current	Speed	Current	Torque	Torque	Current
i:1	RPM $\pm 10\%$	A	RPM $\pm 10\%$	A	g.cm	g.cm	A
5	1500	0.02	1154	0.06	3.75	11	0.21
10	750	0.02	577	0.06	7.5	23	0.21
20	375	0.02	288	0.06	15	46	0.21
30	250	0.02	192	0.06	22.5	68	0.21
50	150	0.02	115	0.06	37.5	114	0.21
100	75	0.02	57	0.06	67.5	195	0.21
150	50	0.02	38	0.06	100	293	0.21
210	35.5	0.02	27	0.06	140	408	0.21
298	25	0.02	19	0.06	200	580	0.21
380	19.5	0.02	15	0.06	256.5	740	0.21
1000	7.5	0.02	5	0.06	500	1500	0.21

Performance parameters can be customized according to customer requirements.

Performance Parameters - 6 VDC, 15000 Type

Ratio	No Load		Rated Load			Stall	
	Speed	Current	Speed	Current	Torque	Torque	Current
i:1	RPM $\pm 10\%$	A	RPM $\pm 10\%$	A	g.cm	g.cm	A
5	3000	0.03	2308	0.12	7.5	23	0.43
10	1500	0.03	1154	0.12	15	46	0.43
20	750	0.03	577	0.12	30	91	0.43
30	500	0.03	384	0.12	45	135	0.43
50	300	0.03	231	0.12	75	228	0.43
100	150	0.03	115	0.12	135	390	0.43
150	100	0.03	77	0.12	200	585	0.43
210	71	0.03	55	0.12	280	815	0.43
298	50	0.03	39	0.12	400	1160	0.43
380	39	0.03	30	0.12	513	1480	0.43
1000	15	0.03	11	0.6	1000	3000	0.43

Performance parameters can be customized according to customer requirements.

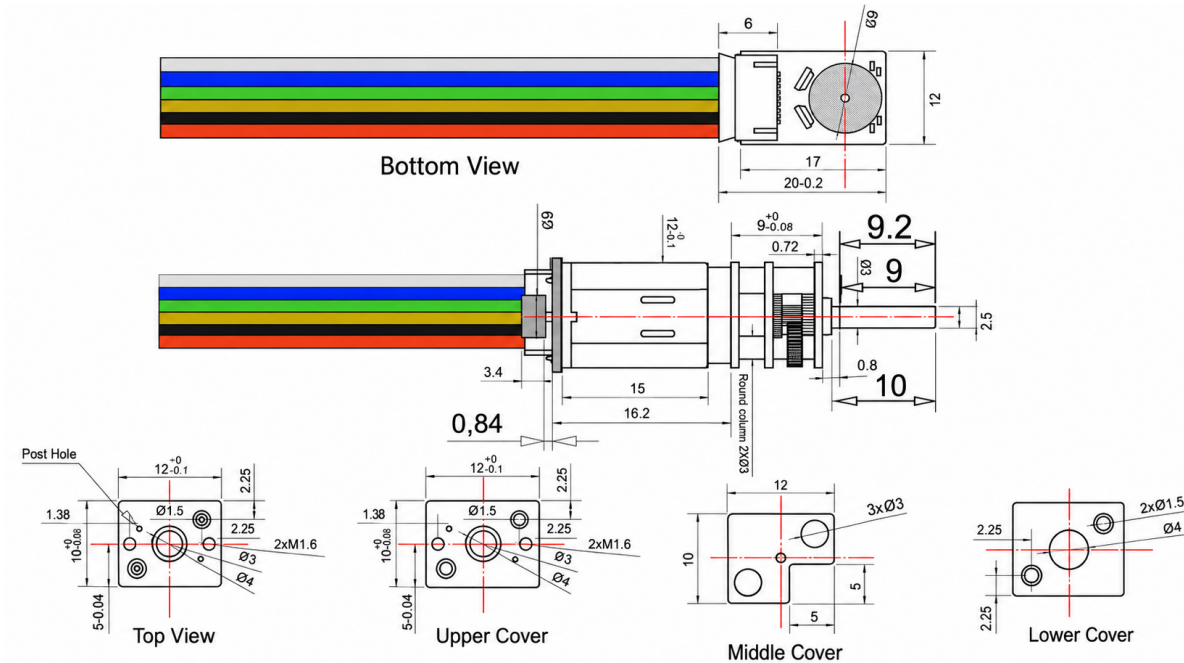
Performance Parameters - 12 VDC, 30000 Type

Ratio	No Load		Rated Load			Stall	
	Speed	Current	Speed	Current	Torque	Torque	Current
i:1	RPM $\pm 10\%$	A	RPM $\pm 10\%$	A	g.cm	g.cm	A
5	6000	0.05	4616	0.2	15	45	0.85
10	3000	0.05	2308	0.2	30	91	0.85
20	1500	0.05	1154	0.2	60	182	0.85
30	1000	0.05	768	0.2	90	270	0.85
50	600	0.05	462	0.2	150	455	0.85
100	300	0.05	230	0.2	270	780	0.85
150	200	0.05	154	0.2	400	1170	0.85
210	142	0.05	110	0.2	560	1630	0.85
298	100	0.05	78	0.2	800	2320	0.85
380	78	0.05	60	0.2	1026	2960	0.85
1000	30	0.05	22	0.2	2000	6000	0.85

Performance parameters can be customized according to customer requirements.

Mechanical Dimensions

All dimensions are in millimetres.

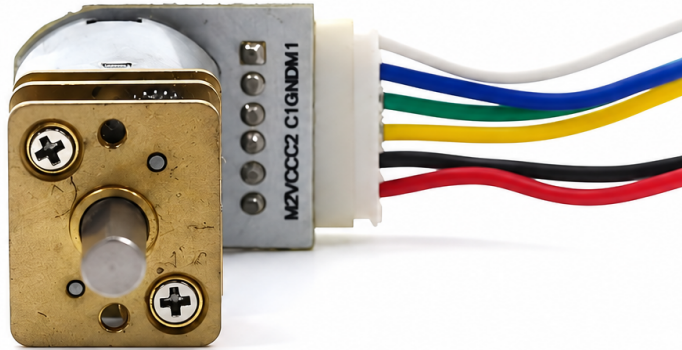


Item	Dimension
Motor cross-section	12 (+0 / -0.1) x 10 (+0 / -0.08) mm
Motor body length	15 mm
Gearbox length	9 (+0 / -0.08) mm
Output shaft	$\varnothing 3.0$ mm, D-shaped
Output shaft length	9.2 mm
D-flat dimension	2.5 mm
Encoder housing	20 (-0.2) x 12 mm

The dimension drawing is for reference only. Output shaft, mounting details, terminal configuration and performance can be customized according to customer requirements.

Wiring Diagram & Pin Assignment

Figure 3. Wiring Diagram



- M1** — Connect to white wire: Motor positive +
- GND** — Connect to blue wire: Sensor negative -
- C1** — Connect to green wire: Signal feedback, outputs 7 pulses per motor revolution
- C2** — Connect to yellow wire: Signal feedback, outputs 7 pulses per motor revolution
- VCC** — Connect to black wire: Sensor positive +
- M2** — Connect to red wire: Motor negative -

Pin	Function
M1 / White	Motor positive +
GND / Blue	Sensor negative -
C1 / Green	Signal feedback, 7 pulses / motor revolution
C2 / Yellow	Signal feedback, 7 pulses / motor revolution
VCC / Black	Sensor positive +
M2 / Red	Motor negative -

Connector, cable length and signal definition can be customized according to customer application requirements.