

TSL-24GAY-370

Brushed DC Motor with Planetary Gearbox



Product Type	Brushed DC Motor with Planetary Gearbox
Nominal Voltage	6 VDC / 12 VDC / 24 VDC
Motor Type	370 Brushed DC Motor; 60 Type / 85 Type
Gear Ratios	4:1, 16:1, 25:1, 64:1, 88:1, 110:1, 125:1, 138:1, 256:1, 320:1, 400:1, 500:1, 625:1
Gearbox Outer Diameter	Ø24.4 mm
Gearbox Length	20.5 / 26.3 / 32 / 37.8 mm (ratio-dependent)
Motor Body	Ø24.4 mm; 30.8 mm length
Output Shaft	Ø6 mm, D-shaped; 15.5 mm protrusion
Mounting	Through-hole mounting

Two Motor Types

60 Type and 85 Type motor versions provide two speed ranges while retaining the same compact 24 mm planetary gearbox platform.

Thirteen Gear Ratios

Standard ratios from 4:1 to 625:1 provide a broad output-speed and torque range for different motion requirements.

Three Voltage Options

6 V, 12 V and 24 V windings are available. Performance values, shafts and mounting details can also be customized.

Performance Parameters - 6 VDC, 60 Type

Ratio	No Load			Rated Load			Stall	
	Rated Voltage	Speed	Current	Speed	Current	Torque	Torque	Current
	V	RPM ±10%	A	RPM ±10%	A	kg.cm	kg.cm	A
4	6	1500.0	0.20	1100.0	0.80	0.08	0.30	4.00
16	6	375.0	0.20	275.0	0.80	0.40	1.00	4.00
25	6	240.0	0.20	176.0	0.80	0.50	1.70	4.00
64	6	94.0	0.20	68.0	0.80	1.40	4.40	4.00
88	6	68.0	0.20	50.0	0.80	1.90	6.00	4.00
110	6	54.0	0.20	40.0	0.80	2.40	7.70	4.00
125	6	48.0	0.20	35.0	0.80	2.70	8.70	4.00
138	6	43.0	0.20	32.0	0.80	3.00	9.50	4.00
256	6	23.0	0.20	17.0	0.80	5.50	18.00	4.00
320	6	19.0	0.20	14.0	0.80	7.00	22.00	4.00
400	6	15.0	0.20	11.0	0.80	8.50	28.00	4.00
500	6	12.0	0.20	8.5	0.80	11.00	35.00	4.00
625	6	9.5	0.20	7.0	0.80	13.00	43.00	4.00

Note: Motors with reduction ratios above 400:1 must not be operated under stall conditions.

Performance parameters can be customized according to customer requirements. The values above are standard specifications.

Performance Parameters - 6 VDC, 85 Type

Ratio	No Load			Rated Load			Stall	
	Rated Voltage	Speed	Current	Speed	Current	Torque	Torque	Current
	V	RPM ±10%	A	RPM ±10%	A	kg.cm	kg.cm	A
4	6	2125.0	0.30	1650.0	1.20	0.10	0.40	6.50
16	6	531.0	0.30	415.0	1.20	0.40	1.50	6.50
25	6	340.0	0.30	264.0	1.20	0.50	2.00	6.50
64	6	133.0	0.30	103.0	1.20	1.50	5.50	6.50
88	6	96.0	0.30	75.0	1.20	2.00	7.50	6.50
110	6	77.0	0.30	60.0	1.20	2.50	10.00	6.50
125	6	68.0	0.30	53.0	1.20	3.00	11.00	6.50
138	6	61.0	0.30	48.0	1.20	3.50	12.00	6.50
256	6	33.0	0.30	26.0	1.20	6.50	23.00	6.50
320	6	26.0	0.30	20.0	1.20	8.00	28.00	6.50
400	6	21.0	0.30	16.0	1.20	10.00	35.00	6.50
500	6	17.0	0.30	13.0	1.20	13.00	45.00	6.50
625	6	13.0	0.30	10.0	1.20	16.00	55.00	6.50

Note: Motors with reduction ratios above 400:1 must not be operated under stall conditions.

Performance parameters can be customized according to customer requirements. The values above are standard specifications.

Performance Parameters - 12 VDC, 60 Type

Ratio	No Load			Rated Load			Stall	
	Rated Voltage	Speed	Current	Speed	Current	Torque	Torque	Current
	V	RPM ±10%	A	RPM ±10%	A	kg.cm	kg.cm	A
4	12	1500.0	0.15	1100.0	0.50	0.08	0.30	2.00
16	12	375.0	0.15	275.0	0.50	0.40	1.00	2.00
25	12	240.0	0.15	176.0	0.50	0.50	1.70	2.00
64	12	94.0	0.15	68.0	0.50	1.40	4.40	2.00
88	12	68.0	0.15	50.0	0.50	1.90	6.00	2.00
110	12	54.0	0.15	40.0	0.50	2.40	7.70	2.00
125	12	48.0	0.15	35.0	0.50	2.70	8.70	2.00
138	12	43.0	0.15	32.0	0.50	3.00	9.50	2.00
256	12	23.0	0.15	17.0	0.50	5.50	18.00	2.00
320	12	19.0	0.15	14.0	0.50	7.00	22.00	2.00
400	12	15.0	0.15	11.0	0.50	8.50	28.00	2.00
500	12	12.0	0.15	8.5	0.50	11.00	35.00	2.00
625	12	9.5	0.15	7.0	0.50	13.00	43.00	2.00

Note: Motors with reduction ratios above 400:1 must not be operated under stall conditions.

Performance parameters can be customized according to customer requirements. The values above are standard specifications.

Performance Parameters - 12 VDC, 85 Type

Ratio	No Load			Rated Load			Stall	
	Rated Voltage	Speed	Current	Speed	Current	Torque	Torque	Current
	V	RPM ±10%	A	RPM ±10%	A	kg.cm	kg.cm	A
4	12	2125.0	0.25	1650.0	0.80	0.10	0.40	4.00
16	12	531.0	0.25	415.0	0.80	0.40	1.50	4.00
25	12	340.0	0.25	264.0	0.80	0.50	2.00	4.00
64	12	133.0	0.25	103.0	0.80	1.50	5.50	4.00
88	12	96.0	0.25	75.0	0.80	2.00	7.50	4.00
110	12	77.0	0.25	60.0	0.80	2.50	10.00	4.00
125	12	68.0	0.25	53.0	0.80	3.00	11.00	4.00
138	12	61.0	0.25	48.0	0.80	3.50	12.00	4.00
256	12	33.0	0.25	26.0	0.80	6.50	23.00	4.00
320	12	26.0	0.25	20.0	0.80	8.00	28.00	4.00
400	12	21.0	0.25	16.0	0.80	10.00	35.00	4.00
500	12	17.0	0.25	13.0	0.80	13.00	45.00	4.00
625	12	13.0	0.25	10.0	0.80	16.00	55.00	4.00

Note: Motors with reduction ratios above 400:1 must not be operated under stall conditions.

Performance parameters can be customized according to customer requirements. The values above are standard specifications.

Performance Parameters - 24 VDC, 60 Type

Ratio	No Load			Rated Load			Stall	
	Rated Voltage	Speed	Current	Speed	Current	Torque	Torque	Current
	V	RPM ±10%	A	RPM ±10%	A	kg.cm	kg.cm	A
4	24	1500.0	0.10	1100.0	0.40	0.08	0.30	1.00
16	24	375.0	0.10	275.0	0.40	0.40	1.00	1.00
25	24	240.0	0.10	176.0	0.40	0.50	1.70	1.00
64	24	94.0	0.10	68.0	0.40	1.40	4.40	1.00
88	24	68.0	0.10	50.0	0.40	1.90	6.00	1.00
110	24	54.0	0.10	40.0	0.40	2.40	7.70	1.00
125	24	48.0	0.10	35.0	0.40	2.70	8.70	1.00
138	24	43.0	0.10	32.0	0.40	3.00	9.50	1.00
256	24	23.0	0.10	17.0	0.40	5.50	18.00	1.00
320	24	19.0	0.10	14.0	0.40	7.00	22.00	1.00
400	24	15.0	0.10	11.0	0.40	8.50	28.00	1.00
500	24	12.0	0.10	8.5	0.40	11.00	35.00	1.00
625	24	9.5	0.10	7.0	0.40	13.00	43.00	1.00

Note: Motors with reduction ratios above 400:1 must not be operated under stall conditions.

Performance parameters can be customized according to customer requirements. The values above are standard specifications.

Performance Parameters - 24 VDC, 85 Type

Ratio	No Load			Rated Load			Stall	
	Rated Voltage	Speed	Current	Speed	Current	Torque	Torque	Current
	V	RPM ±10%	A	RPM ±10%	A	kg.cm	kg.cm	A
4	24	2125.0	0.15	1650.0	0.60	0.10	0.40	2.20
16	24	531.0	0.15	415.0	0.60	0.40	1.50	2.20
25	24	340.0	0.15	264.0	0.60	0.50	2.00	2.20
64	24	133.0	0.15	103.0	0.60	1.50	5.50	2.20
88	24	96.0	0.15	75.0	0.60	2.00	7.50	2.20
110	24	77.0	0.15	60.0	0.60	2.50	10.00	2.20
125	24	68.0	0.15	53.0	0.60	3.00	11.00	2.20
138	24	61.0	0.15	48.0	0.60	3.50	12.00	2.20
256	24	33.0	0.15	26.0	0.60	6.50	23.00	2.20
320	24	26.0	0.15	20.0	0.60	8.00	28.00	2.20
400	24	21.0	0.15	16.0	0.60	10.00	35.00	2.20
500	24	17.0	0.15	13.0	0.60	13.00	45.00	2.20
625	24	13.0	0.15	10.0	0.60	16.00	55.00	2.20

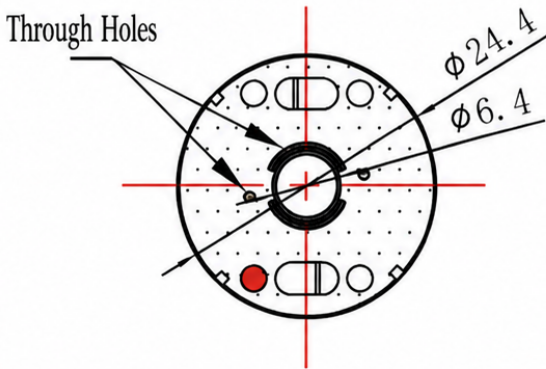
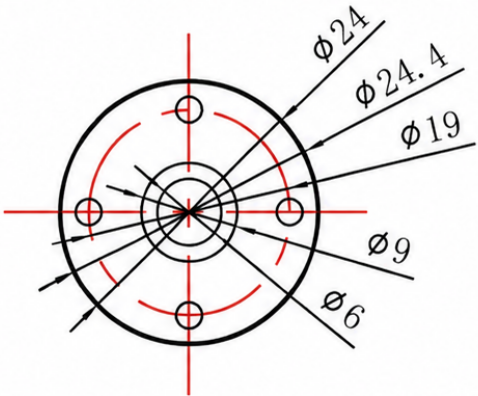
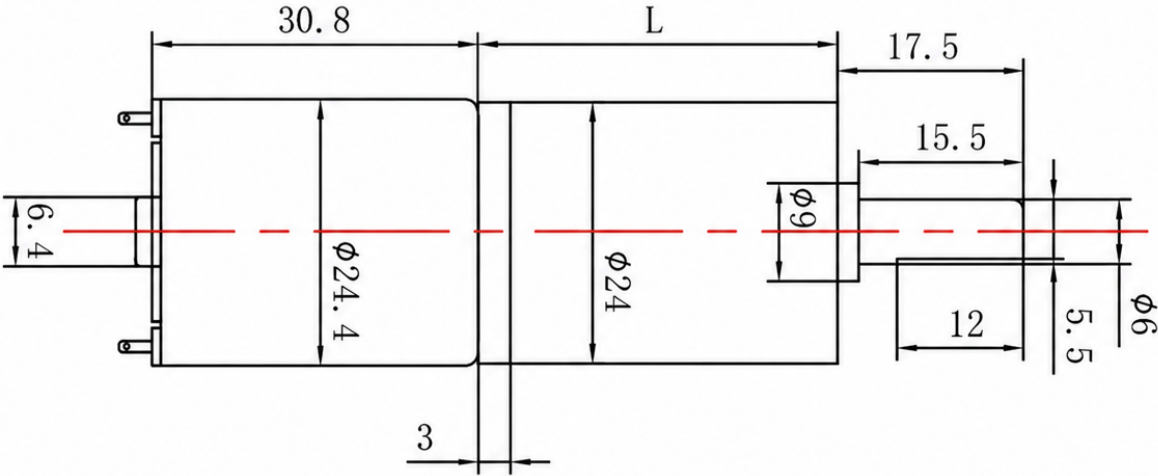
Note: Motors with reduction ratios above 400:1 must not be operated under stall conditions.

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Mechanical Dimensions

All dimensions are in millimetres.

L Value Represents Housing Length for Different Gear Ratios													
Gear Ratio	4	16	25	64	88	110	125	138	256	320	400	500	625
L Dimension (mm)	20.5	26.3		32					37.8				



Item	Dimension
Gearbox Outer Diameter	$\phi 24.4$ mm
Motor Body	$\phi 24.4$ mm
Motor Body Length	30.8 mm
Gearbox Length L	20.5 / 26.3 / 32 / 37.8 mm
Output Shaft	$\phi 6$ mm, D-shaped
Shaft Protrusion	15.5 mm
D-flat Length	12 mm
Mounting	Through holes

The gearbox housing length varies with the selected reduction ratio. Output shaft geometry and mounting details are shown in the drawing. Customized shaft and mounting configurations are available upon request.