

BLK24 Series - Brushless DC Motors



FEATURES

- **NEMA Size 24 BLDC Motors**
- **IP65 Rating When Used With Shaft Seal**
- **Compete Protection from Dust Particles**
- **Can be Subjected to Moist or Humid Environments**
- **Long Life and Highly Reliable**
- **Cost-Effective Replacement for Brush DC Motors**
- **Hall Sensor Feedback**
- **Available in Three Different Stack Lengths**
- **CE Certified and RoHS Compliant**



DESCRIPTION

The powerful BLK24 Series are NEMA 24 Brushless DC Motors that can meet the splash-proof requirement for applications, BLK24 Series motors have an ingress protection rating of IP65 for the motor body, and IP54 at the shaft. These motors ship with an included shaft seal, which should be used in installation to maintain the overall IP65 rating. The sealed shafts provide complete protection from debris and dust particles, allowing for a longer life cycle. These Square-bodied BLK24 Series motors include an aluminum square-mounting flange to allow for easy installation, Class F installation, Class F insulation for higher temperature operation, and rated torque of 19-179 oz-in. The BLK24 Series is available in three different lengths, has a rated speed of 3,000 RPM and utilizes Hall Sensor Feedback.

SPECIFICATIONS

Model #	Frame Size	Rated Voltage (VDC)	Rated Speed (RPM)	Rated Power (W)	Rated Torque (oz-in)	Line to Line Resistance (ohms)	Line to Line Inductance (mH)	Torque Constant (oz-in/A)	Motor Efficiency	Back EMF Voltage (V/kRPM)	Rotor Inertia (oz-in-sec ²)	Weight (lb)	"L" Length (mm)
BLK241S-36V-3000	24	36	3000	94	42	0.90	2.0	10.34	72.0%	6.00	0.0042480	1.76	85.09
BLK241D-36V-3000	24	36	3000	94	42	0.90	2.0	10.34	72.0%	6.00	0.0042480	1.76	85.09
BLK241S-170V-3000	24	170	3000	100	45	19.8	41.5	48.86	-	28.2	0.0018408	1.98	85.09
BLK241D-170V-3000	24	170	3000	100	45	19.8	41.5	48.86	-	28.2	0.0018408	1.98	85.09
BLK242S-36V-3000	24	36	3000	180	81	0.38	0.92	10.34	76.2%	6.00	0.0052875	2.65	100.08
BLK242D-36V-3000	24	36	3000	180	81	0.38	0.92	10.34	76.2%	6.00	0.0052875	2.65	100.08
BLK242S-48V-14400	24	48	14400	211	20	0.077	0.12	3.68	-	2.10	0.005310	2.65	100.08
BLK242D-48V-14400	24	48	14400	211	20	0.077	0.12	3.68	-	2.10	0.005310	2.65	100.08
BLK242S-170V-3000	24	170	3000	255	90.6	8.60	21.80	60.40	-	28.8	0.003653	2.43	100
BLK242D-170V-3000	24	170	3000	255	90.6	8.60	21.80	60.40	-	28.8	0.003653	2.43	100
BLK243S-36V-3000	24	36	3000	360	163	0.23	0.41	10.34	77.8%	6.00	0.007222	3.53	130.05
BLK243D-36V-3000	24	36	3000	360	163	0.23	0.41	10.34	77.8%	6.00	0.007222	3.53	130.05
BLK243S-48V-3000	24	48	3000	400	179	0.28	0.83	13.88	86.0%	8.00	0.007222	3.53	130.05
BLK243D-48V-3000	24	48	3000	400	179	0.28	0.83	13.88	86.0%	8.00	0.007222	3.53	130.05
BLK243S-170V-3000	24	170	3000	493	180.0	3.85	10.80	60.40	-	28.8	0.006783	3.52	130
BLK243S-170V-3000	24	170	3000	493	180.0	3.85	10.80	60.40	-	28.8	0.006783	3.52	130

Note: The 7th character "S" denotes a single shaft, use "D" for double shaft.

Hall Sensor Specifications

Supply Voltage: 4.5VDC to 28VDC

Current, I_{off}: 10mA max

Current, I_{on}: 11.3mA max

Rated Sinking Current: 20mA

Saturation Voltage: 0.4VDC max @ 25°C

Output Leakage Current: 10µA

Output Switching Time @ 25°C

Rise, 10% to 90% 1.5µs

Fall, 90% to 10% 1.5µs

L010758

Output Type: Open Collector

Winding Type: Star Connected, 8 Pole

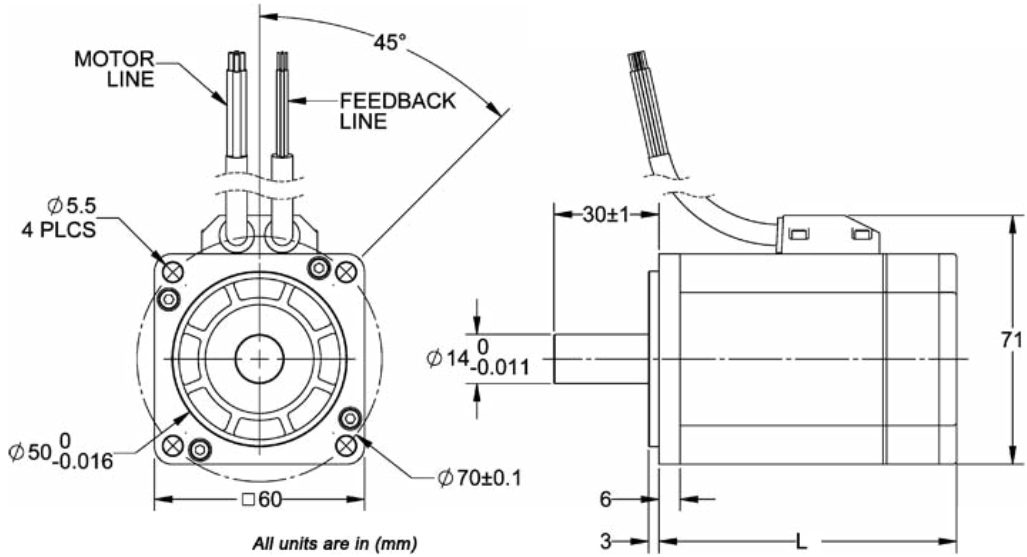
Hall Angle: 120 Degree Electrical Angle

Insulation Resistance: >= 100M Ohm, 500VDC

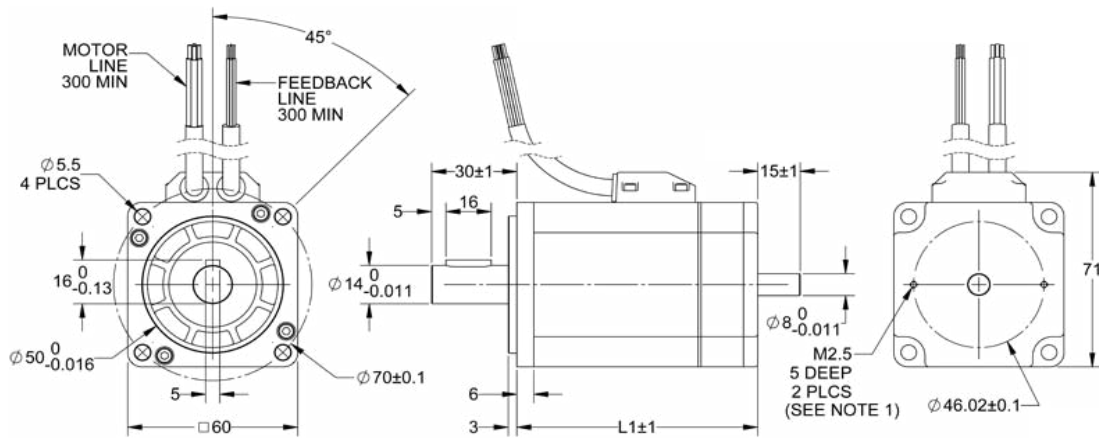
Insulation Class: Class F

Dielectric Strength: 700VDC, 1 min., 5mA

DIMENSIONS



All units are in mm



WIRING INFORMATION

Motor Phase		
Color	Function	AWG
Yellow	Phase A	16
Red	Phase B	16
Black	Phase C	16
GND/Yel	Case GND	16

Hall Sensors		
Color	Function	AWG
Red	Vcc +5V	24
Blue	GND	24
Gray	Hall A	28
Green	Hall B	28
White	Hall C	28

