MOOG DOWNHOLE MOTORS

Optimize Performance, Withstand Higher Temps, and Maximize Equipment Life.

Rev. F, May 2025

MOOG | Shaping the way our world moves™

DOWNHOLE BRUSHLESS SERVO MOTORS

Solutions for Demanding Environments:

Our expertise lies in developing individualized downhole solutions, while also offering a selection of proven and dependable configurations. Reduce your new downhole tool development time, shorten time to market, and increase productivity with our variety of available standard configurations, or work with our highly experienced team to develop a customized solution to fit your unique needs.

All of our downhole motors are built with reliability in mind - equipped to stand up to high environmental pressures (1,723 bar/25,000 PSI) and max winding temperatures (220° C/ 425° F). All our motors are encased in a shock and vibration resistant housing for maximum durability and equipment life.

Multiple Standard-Sized Motors Available:

MOTOR SIZE	8	10	12	16	19	23	28
Outer Diameter. mm (in)	21.9 (.862)	26 (1.02)	32 (1.26)	42 (1.65)	49 (1.93)	60 (2.36)	73 (2.88)
Continuous Output Power Wattage	48	60	61	500	1,040	1,500	2,500
Operating Terminal Peak Voltage	48	48	48	100	100	650	650

ADVANTAGES

- Brushless motors capable of operating in severe duty HPHT downhole service tool environments including temperature, shock, vibration, pressure, fluid filled environments, and more
- Customized solutions using proven downhole brushless motor technologies with Moog downhole application knowledge, experience and support
- Accelerate your return on investment (ROI) on projects with our selection of proven and tested designs. By standardizing our products, we are integrating the best of our downhole technology, honed over 35 years of industry experience, into a ready-to-use product. This standardization is a testament to our commitment to quality and innovation, reflecting our rich pedigree in the industry. We believe it's crucial for our valued clients to understand the depth of expertise and experience that goes into each of our products
- Family of Standard Downhole Motors is compatible with our low and high voltage controllers.

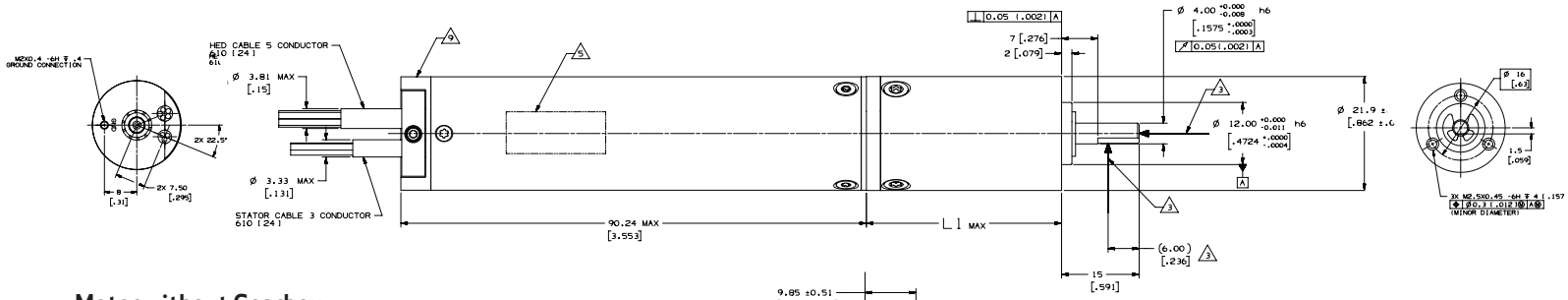
SIZE 8 MOTOR

Outside Diameter: 21.9 mm (.862 in)
Continuous Output Power: Up to 48 Watts
Operating Terminal Peak: 48 Volts

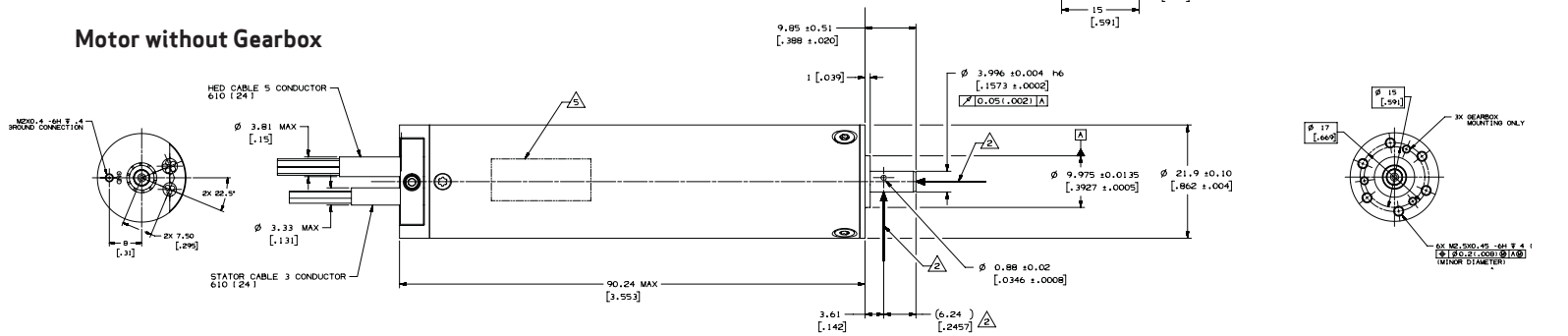
Optional Gearbox Length (L1) [mm (in)]	Continuous Rated Torque [N-m (lbf-in)]	Gear Ratio Options [XX:1]
23.93 (.942)	0.2 (1.77)	4
30.93 (1.218)	1 (8.85)	16
37.93 (1.493)	1.5 (13.28)	64

PRODUCT DIMENSIONS

Motor with Gearbox

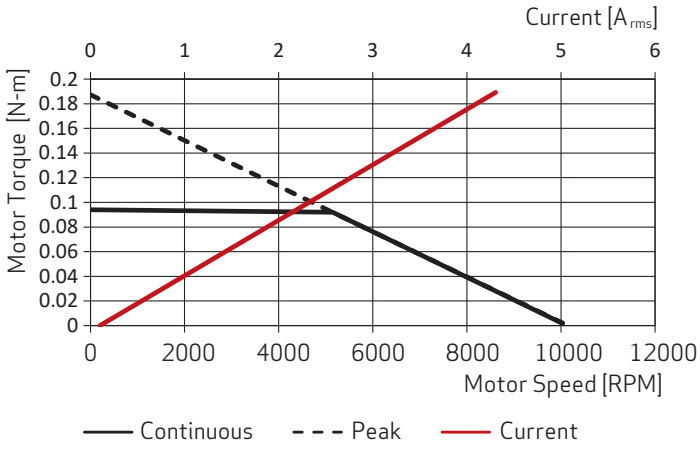


Motor without Gearbox



Dimensions: mm (in.)

PERFORMANCE CURVE (175° C)



Operating Environment: Motor fully immersed in synthetic lubrication oil at 25,000 PSI (1,723 Bar) pressure and up to ambient temperature of 175° C (347° F).

All components inside the motor are designed to withstand the 220° C (428° F) maximum winding temperature.

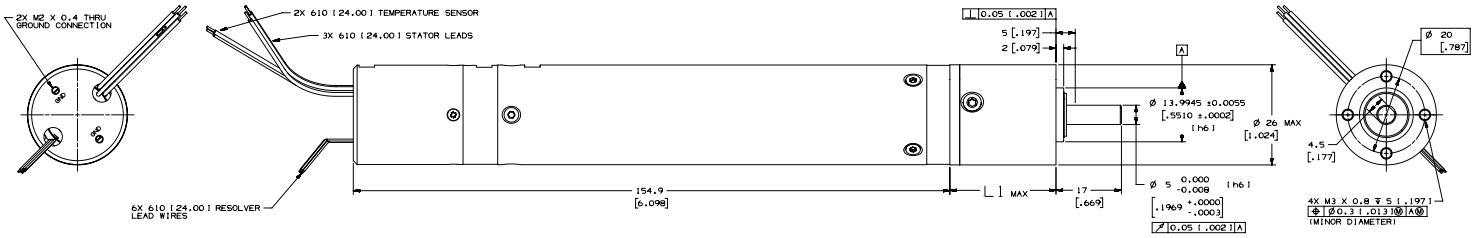
SIZE 10 MOTOR

Outside Diameter: 26 mm (1.02 in)
Continuous Output Power: Up to 60 Watts
Operating Terminal Peak: 48 Volts

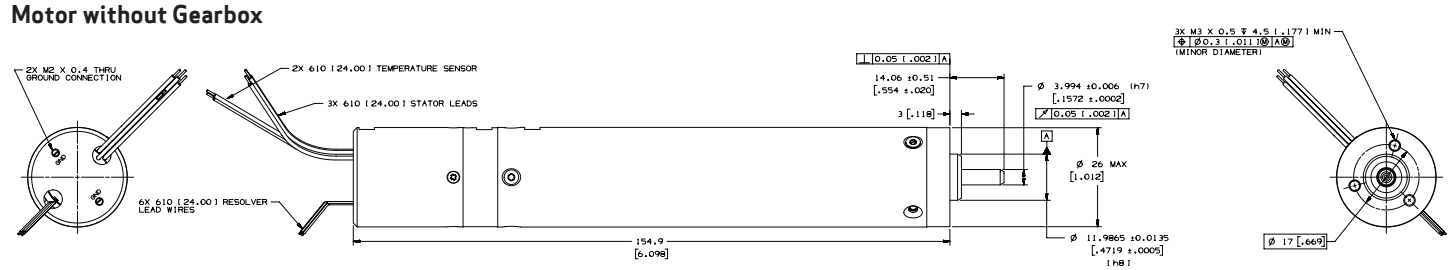
Optional Gearbox Length (L1) [mm (in)]	**Continuous Rated Torque** [N-m (lbf-in)]	**Gear Ratio Options** [XX:1]
28 (1.102)	0.6 (5.31)	3.5, 4.33
36 (1.417)	2 (17.7)	12.25, 18.78, 26, 33.22
44 (1.732)	3 (26.55)	81.37, 112.67, 143.97, 199.33

PRODUCT DIMENSIONS

Motor with Gearbox

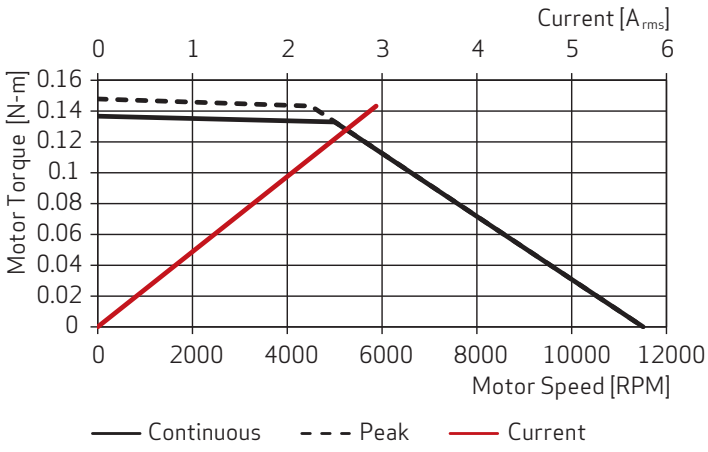


Motor without Gearbox



Dimensions: mm (in.)

PERFORMANCE CURVE (175° C)



Operating Environment: Motor fully immersed in synthetic lubrication oil at 25,000 PSI (1,723 Bar) pressure and up to ambient temperature of 175° C (347° F).

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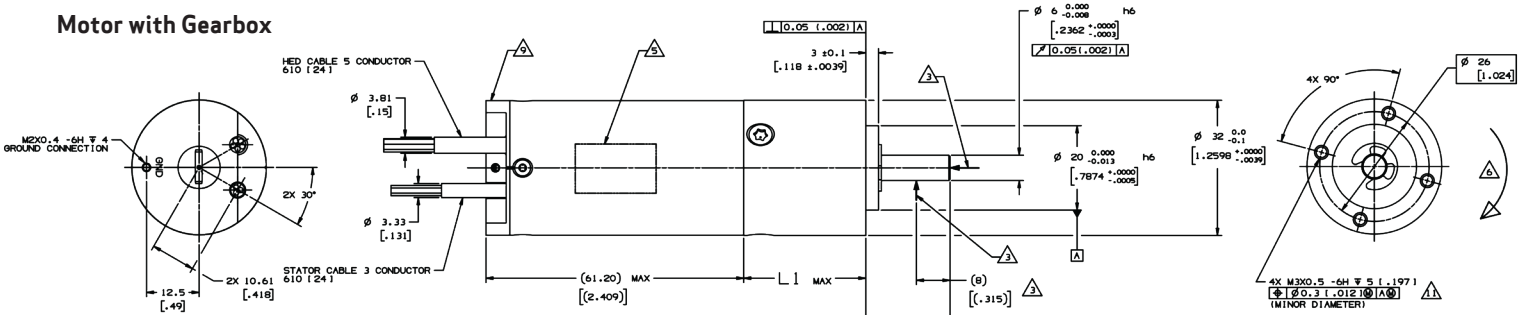
SIZE 12 MOTOR

Outside Diameter: 32 mm (1.26 in)
Continuous Output Power: Up to 61 Watts
Operating Terminal Peak: 48 Volts

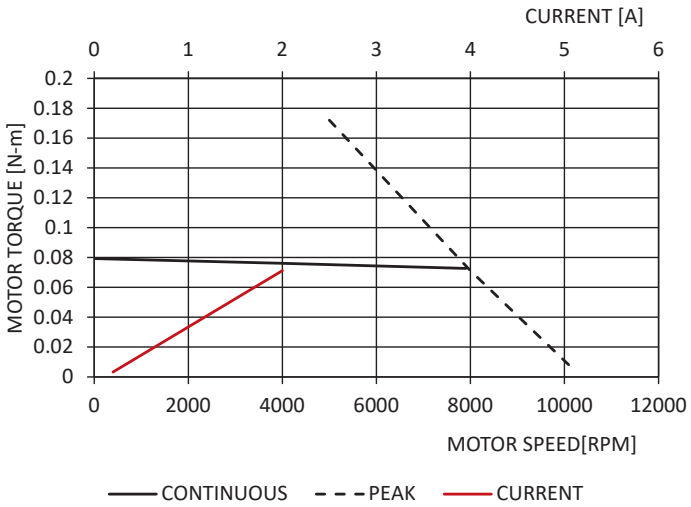
Gearbox Length (L1) [mm (in)]	**Continuous Rated Torque** [N-m (lbf-in)]	**Gear Ratio Options** [XX:1]
29 (1.142)	0.8 (7.08)	4,4.5, 5.2
38 (1.496)	4 (35.4)	12.08, 16, 18, 20.8, 25, 29, 32, 36, 41.6
47 (1.85)	6 (53.1)	64, 72, 81, 100, 130, 144, 175.78, 200, 225, 256, 288, 332.8

PRODUCT DIMENSIONS

Motor with Gearbox



PERFORMANCE CURVE (175° C)



Operating Environment: Motor fully immersed in synthetic lubrication oil at 25,000 PSI (1,723 Bar) pressure and up to ambient temperature of 175° C (347° F).

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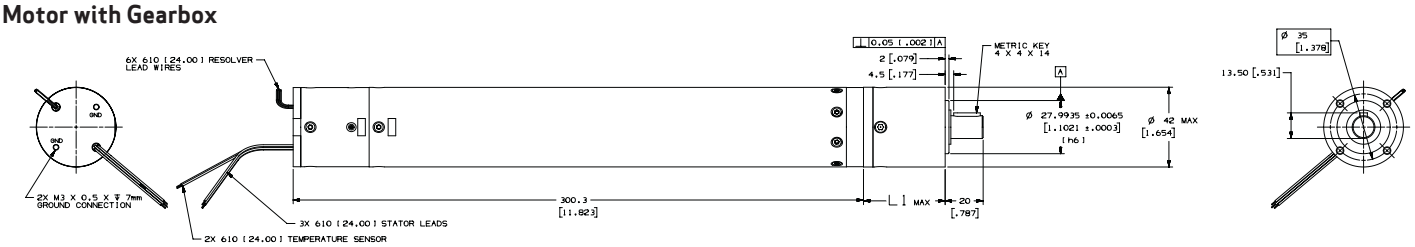
SIZE 16 MOTOR

Outside Diameter: 42 mm (1.65 in)
Continuous Output Power: Up to 500 Watts
Operating Terminal Peak: 100 Volts

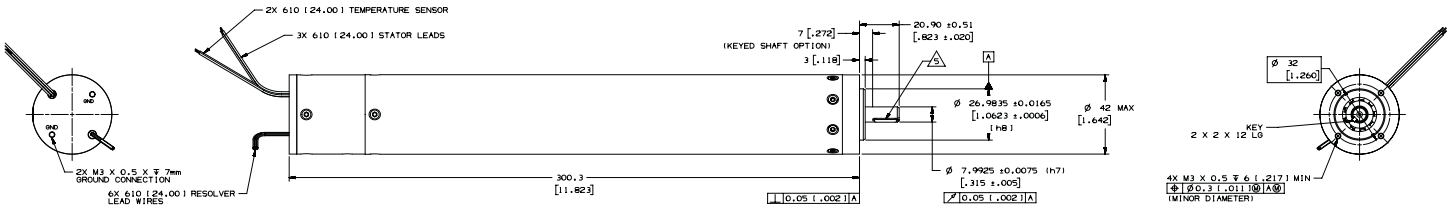
Optional Gearbox Length (L1) [mm (in)]	**Continuous Rated Torque** [N-m (lbf-in)]	**Gear Ratio Options** [XX:1]
43 (1.692)	1.4 (12.39)	3.5, 4, 5
55.5 (2.185)	8 (70.81)	8, 12.25, 14, 16, 20, 24, 25, 30, 30.67, 38.33
68 (2.677)	15 (132.76)	49, 56, 64, 70, 80, 100, 120, 144, 184, 235.11, 293.89

PRODUCT DIMENSIONS

Motor with Gearbox

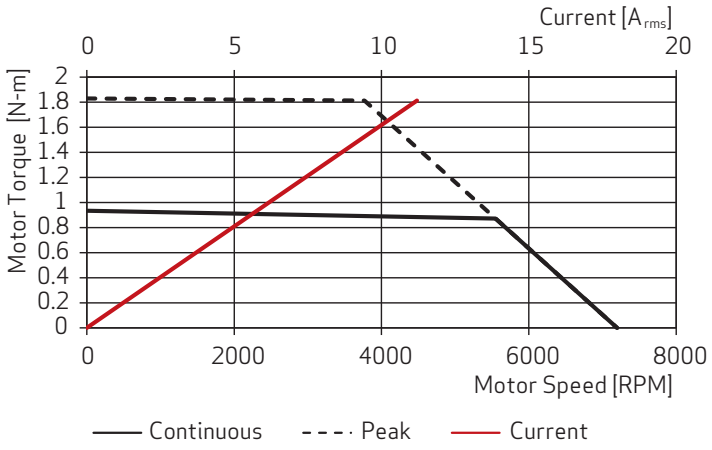


Motor without Gearbox



Dimensions: mm (in.)

PERFORMANCE CURVE (175° C)



Operating Environment: Motor fully immersed in synthetic lubrication oil at 25,000 PSI (1,723 Bar) pressure and up to ambient temperature of 175° C (347° F).

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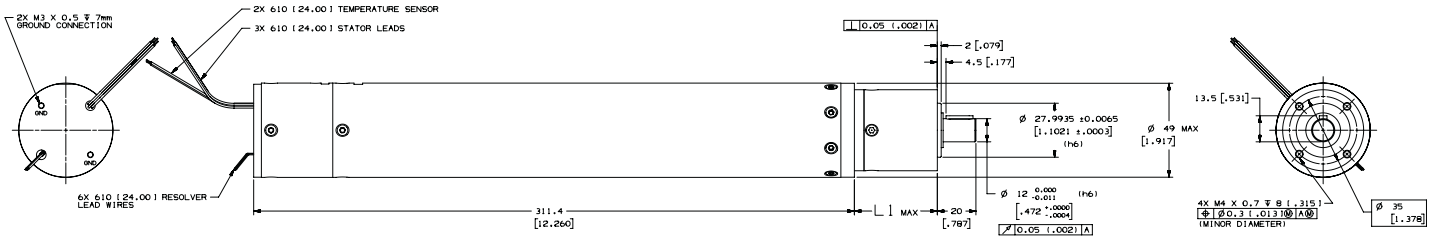
SIZE 19 MOTOR

Outside Diameter: 49 mm (1.93 in)
Continuous Output Power: Up to 1,040 Watts
Operating Terminal Peak: 100 Volts

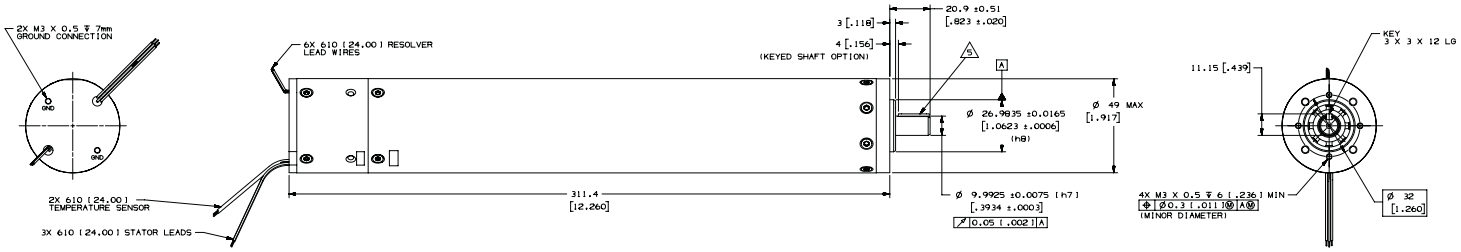
Optional Gearbox Length (L1) [mm (in)]	**Continuous Rated Torque** [N-m (lbf-in)]	**Gear Ratio Options** [XX:1]
43 (1.692)	1.4 (12.39)	3.5, 4, 5
55.5 (2.185)	8 (70.80)	8, 12.25, 14, 16, 20, 24, 25, 30, 30.67, 38.33
68 (2.677)	15 (132.76)	49, 56, 64, 70, 80, 100, 120, 144, 184, 235.11, 293.89

PRODUCT DIMENSIONS

Motor with Gearbox

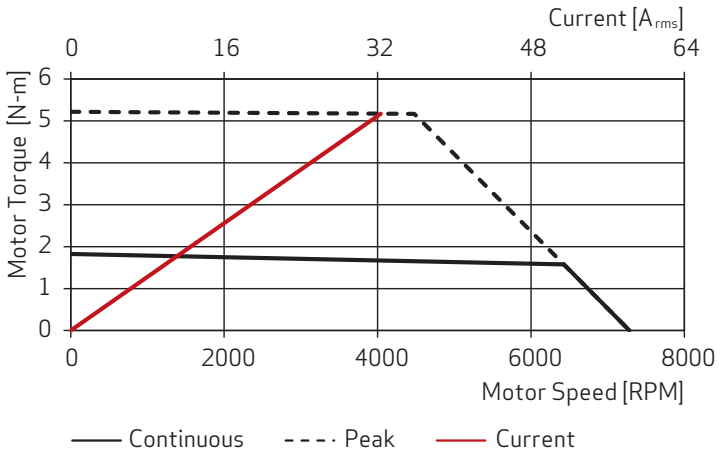


Motor without Gearbox



Dimensions: mm (in.)

PERFORMANCE CURVE (175° C)



Operating Environment: Motor fully immersed in synthetic lubrication oil at 25,000 PSI (1,723 Bar) pressure and up to ambient temperature of 175° C (347° F).

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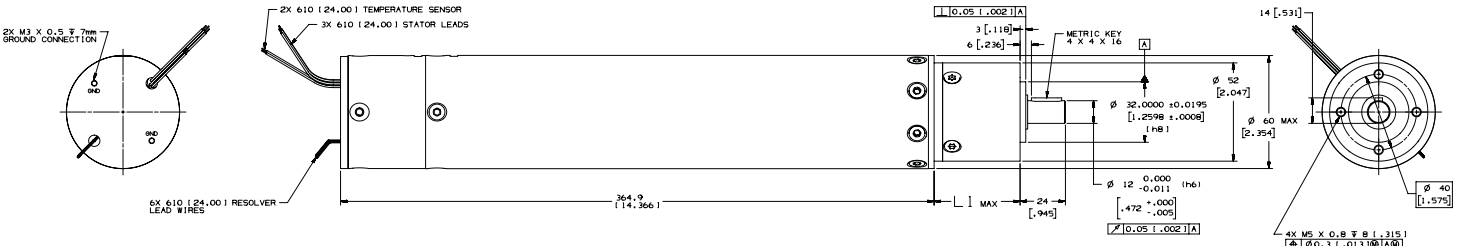
SIZE 23 MOTOR

Outside Diameter: 60 mm (2.36 in)
Continuous Output Power: Up to 1,500 Watts
Operating Terminal Peak: 650 Volts

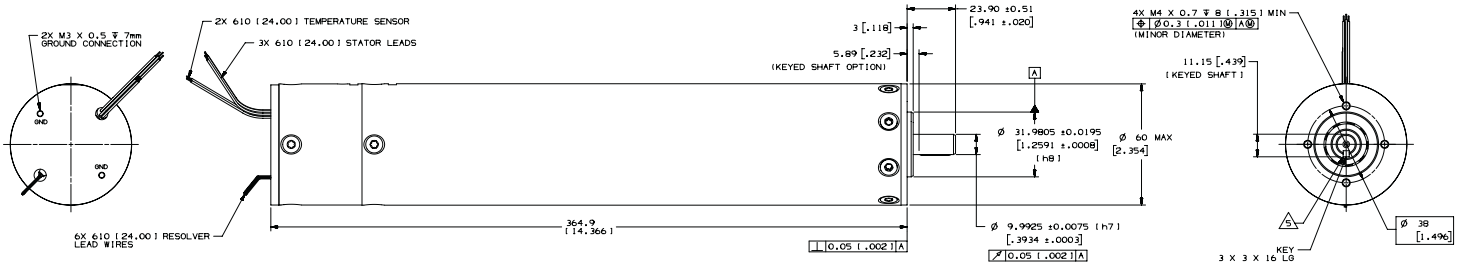
Optional Gearbox Length (L1) [mm (in)]	Continuous Rated Torque [N-m (lbf-in)]	Gear Ratio Options [XX:1]
45.5 (1.791)	3 (26.55)	4, 4.5, 5.2, 8
60 (2.362)	15 (132.76)	12.08, 16, 18, 20.8, 25, 29, 32, 36, 41.6
74.5 (2.933)	30 (265.52)	64, 72, 81, 100, 130, 144, 175.78, 200, 225, 256, 288, 332.8

PRODUCT DIMENSIONS

Motor with Gearbox

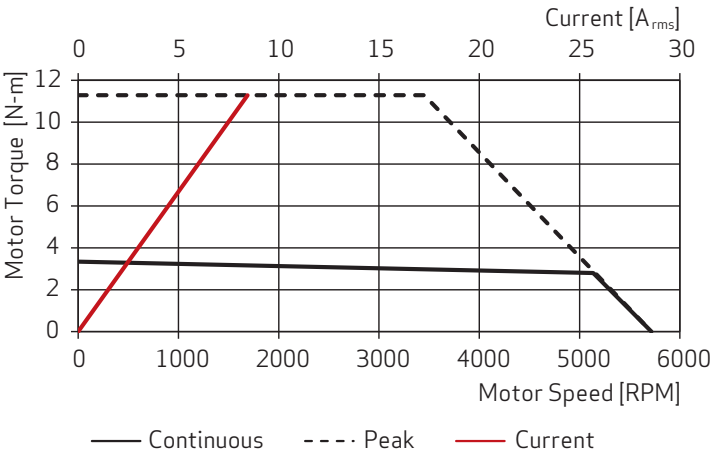


Motor without Gearbox



Dimensions: mm (in.)

PERFORMANCE CURVE (175° C)



Operating Environment: Motor fully immersed in synthetic lubrication oil at 25,000 PSI (1,723 Bar) pressure and up to ambient temperature of 175° C (347° F).

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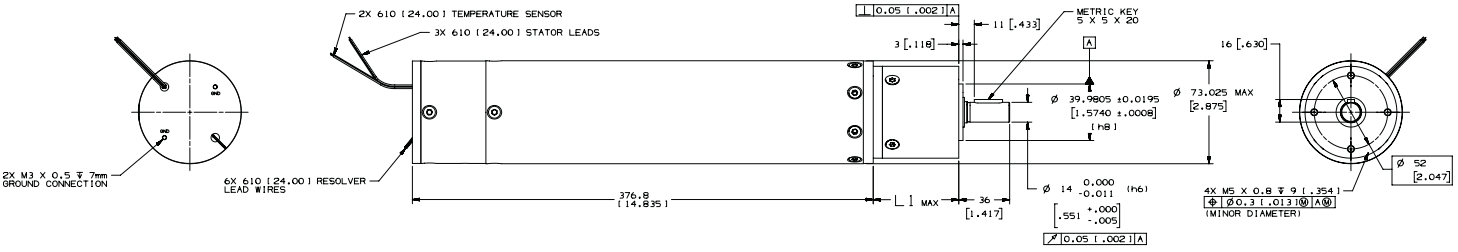
SIZE 28 MOTOR

Outside Diameter: 73 mm (2.88 in)
Continuous Output Power: Up to 2,500 Watts
Operating Terminal Peak: 650 Volts

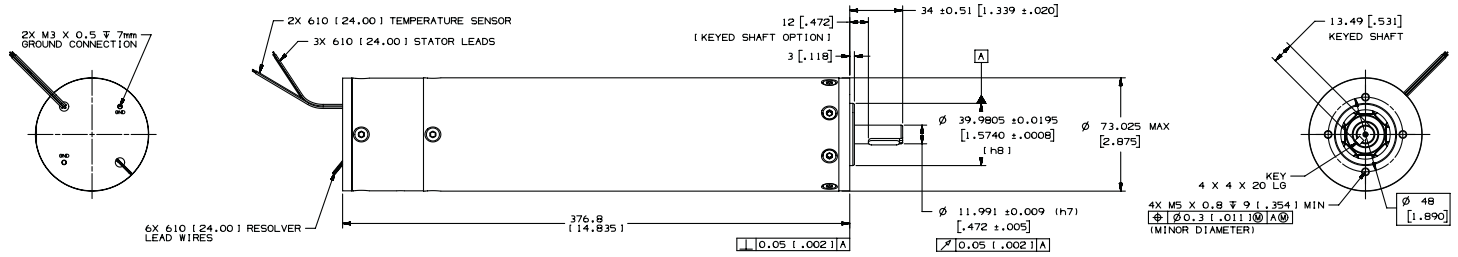
Optional Gearbox Length (L1) [mm (in)]	Continuous Rated Torque [N-m (lbf-in)]	Gear Ratio Options [XX:1]
60 (2.363)	6 (53.1)	3.5, 4, 5
78 (3.070)	30 (265.52)	12.25, 14, 16, 20, 24, 25, 30, 30.67, 38.33
96 (3.779)	38 (336.33)	49, 56, 64, 70, 80, 100, 120, 144, 184, 235.11, 293.89

PRODUCT DIMENSIONS

Motor with Gearbox

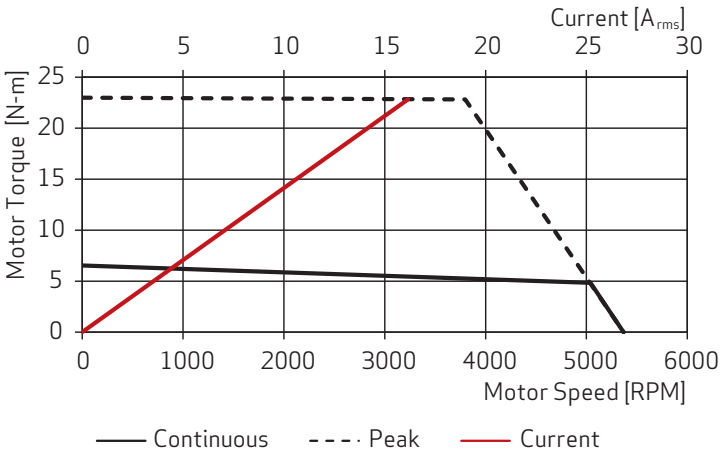


Motor without Gearbox



Dimensions: mm (in.)

PERFORMANCE CURVE (175° C)



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All components inside the motor are designed to withstand the 220° C (428° F) maximum winding temperature.

PRODUCTS FOR TODAY'S TOUGHEST ENVIRONMENTS IN OIL & GAS EXPLORATION

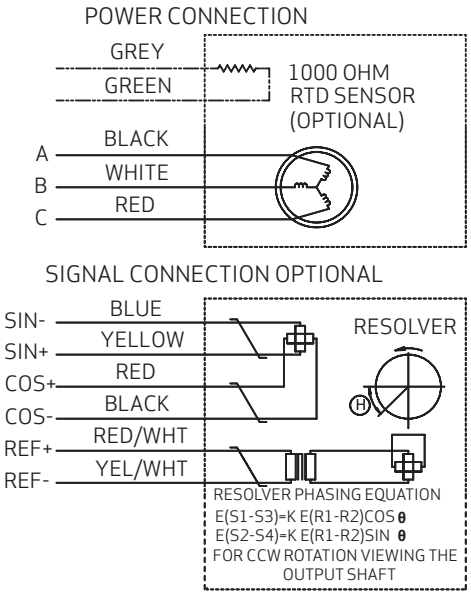
Motion-control technologies are a linchpin for helping oilfield services firms precisely hit a target depth or lateral position. But designing for precision is not enough. That's because the speed and reliability of downhole equipment impacts your overall profitability.

When it comes to choosing the right products for your downhole application, rely on the extensive experience of Moog engineers. In every solution, our team brings with them decades of knowledge designing severe duty products in applications that range from heavy industry to space and defense.

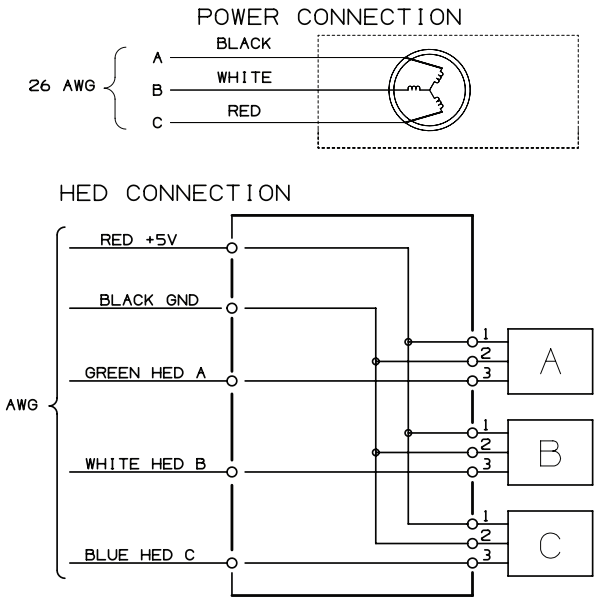
MOTOR FEATURES

- Highly accurate feedback delivered via a two-pole resolver
- RTD 1000 Ω temperature sensor
- Stainless steel construction for long-life durability
- Ruggedized design to withstand extreme environments of shock, vibration, and high pressures

SIZES 10 & 16-28 WIRING DIAGRAM



SIZE 8 & 12 MOTOR WIRING DIAGRAM



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Standard Downhole Motors
KKM Rev. F, May 2025, Id. CDL65865

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