

Gearmotor Series ServoDisc

INTRODUCTION



- 8 to 2604 in-lb (.9 to 294 N-M) Continuous Stall Torque
- Virtually Zero to Medium Backlash Models
- Compact, Inline Packaging
- Powered by High-Performance DC ServoDisc Motors

Kollmorgen provides an assortment of gearmotors. Characteristics of all these products include high-torque-to-weight ratios, smooth constant torque and fast acceleration.

- The Accurex™ series, with virtually zero backlash, is designed with a minimum of moving parts for extremely reliable operation
- The Revex™ series uses proven spur gear technology to produce a wide range of exact gear ratios with a maximum of 5 arc minutes of backlash
- The Indurex™ series provides fully reversible helical gearing which results in an exceptional gearmotor actuator
- The low voltage Ferrite series is the flattest design, ideal for battery-powered applications

ACCUREX

- Virtually zero backlash for high-position accuracy
- Continuous output torque up to 500 in-lb
- Heavy duty bearing design
- Harmonic drive components for simplicity, high reliability and compact shape
- Exact reduction ratios: 60, 80, 100, 120 and 160:1
- High torque capacity in single-stage ratio
- IP55 environmental sealing and prep for resolver are available

REVEX

- Extremely low backlash; less than 5 arc-minutes
- High-torsional stiffness to ensure high accuracy and repeatability in positioning applications

- Exact reduction ratios: 10:1 up to 100:1 (other ratios optional)
- Continuous output torque up to 2604 in-lbs
- Compact and lightweight
- Gearhead can be sold separately (consult an Kollmorgen Sales Office)
- IP55 environmental sealing and prep for resolver are available

INDUREX

- Low backlash; less than 20 arc-minutes
- Compact ultraquiet design
- Industrial compact design
- Reduction ratios 3.67:1 up to 98.87:1
- Continuous output torque up to 2580 in-lbs
- IP55 environmental sealing and prep for resolver are available

FERRITE

- Flat shape and lightweight for easy design intergration
 - Reduction ratios from 15:1 to 150:1
 - Continuous output torque up to 200 in-lbs
 - Suitable for battery operation: 12 or 24 Volts
 - Constant torque over the entire speed range
 - Zero cogging for smooth operation
 - Low inertia produces rapid, accurate response to command signals
- Options:
 - Tachometers or encoders
 - Fail-safe brakes

Compatible Products

- KXA Plus Amplifier
- EM19 Linear Amplifier

Accurex Gearmotor Series ServoDisc

PERFORMANCE DATA

| Gearmotor Types | | Rated Speed (RPM) | Continuous Torque (in-lb/N-m) | Peak Torque (in-lb/N-m) | Gear Ratio | Motor Voltage (Volts) | Motor Current (amps) |
|-----------------|--------------|-------------------|-------------------------------|-------------------------|------------|-----------------------|----------------------|
| 1.0 | S6M4H/H6D60 | 50.0 | 52/6 | 300/34 | 60:1 | 17.5 | 5.0 |
| 2.0 | S9M4H/H9D60 | 50.0 | 274/31 | 570/64 | 60:1 | 35.0 | 7.5 |
| 3.0 | S6M4H/H6D80 | 37.5 | 70/8 | 300/34 | 80:1 | 17.5 | 5.0 |
| 4.0 | S9M4H/H9D80 | 37.5 | 345/39 | 570/64 | 80:1 | 35.0 | 7.5 |
| 5.0 | S6M4H/H6D100 | 30.0 | 87/10 | 400/45 | 100:1 | 17.5 | 5.0 |
| 6.0 | S9M4H/H9D100 | 30.0 | 431/49 | 770/87 | 100:1 | 35.0 | 7.5 |
| 7.0 | S6M4H/H6D120 | 25.0 | 105/12 | 400/45 | 120:1 | 17.5 | 5.0 |
| 8.0 | S6M4H/H6D160 | 18.8 | 140/16 | 400/45 | 160:1 | 17.5 | 5.0 |
| 9.0 | S9M4H/H9D120 | 17.0 | 500/57 | 990/112 | 120:1 | 26.0 | 7.5 |

| | | Units | S6M4H/H6D (all ratios) | S9M4H/H9D (all ratios) |
|-----|--------------------------------|------------------------|------------------------|------------------------|
| 1.0 | Max Inertia (2) | oz-in-sec ² | 0.0033 | 0.0125 |
| | | g-cm ² | 233 | 883 |
| 2.0 | Radial Load | lbs | 200 | 465 |
| 2.1 | Distance from Mounting Surface | in | 1 1/8 | 1 1/2 |
| 3.0 | Axial Load | lbs | 500 | 500 |
| 4.0 | Basic Weight (3) | lbs | 5.15 | 10.80 |
| 5.0 | Basic Length (3) | in | 5.4 | 6.8 |

Motor electrical and mechanical specifications are subject to change without notice. Please consult a Kollmorgen Sales Office.

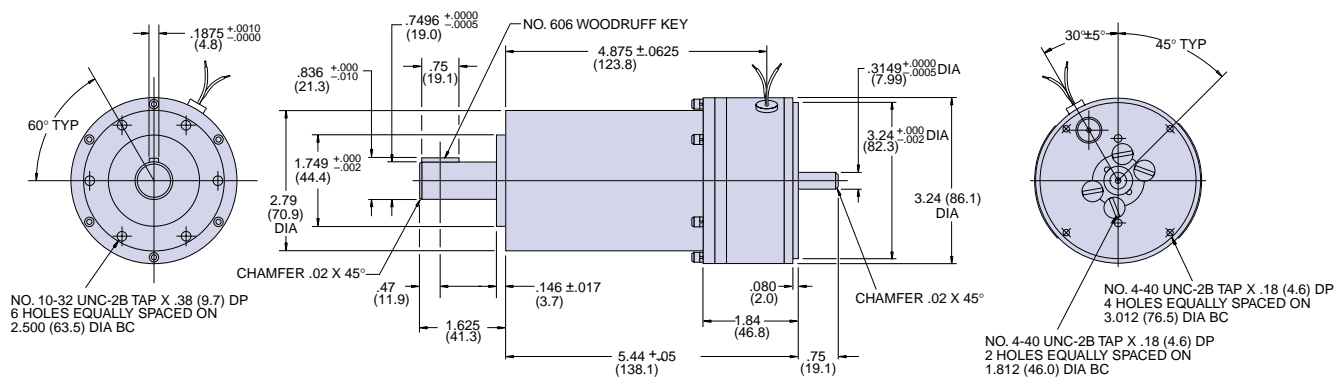
Notes:

1. Mounted on 8" x 16" x 3/8" aluminum heatsink.
2. Motor plus gearhead, measured at motor shaft.
3. Weights and lengths will vary with options.
4. For vertical orientation, a grease cartridge is recommended.
5. Gearmotors can be mounted in any position.

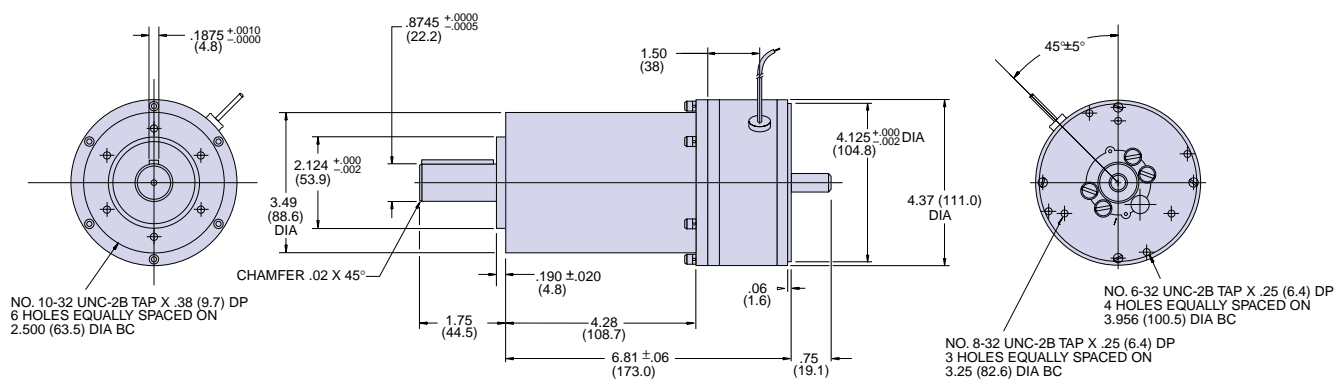
Accurex Gearmotor Series ServoDisc

DIMENSIONS

S6M4H/H6D



S9M4H/H9D



Notes:

1. Illustrations show basic motor lengths only. Lengths will vary with options.
2. Mating connectors are supplied with "Industrial" versions.

Accurex Gearmotor Series ServoDisc

OPTIONS

TACHOMETER SPECIFICATIONS

| Tachometer/Motor Types | S6T/S6M4H | S9A4T/S9M4H |
|---|-----------|-------------|
| 1.0 Output Voltage (Volts/kRPM) | 0.75 | 3.0 |
| 2.0 Max Ripple Peak to Peak (%)* | 1.5 | 1.5 |
| 3.0 Linearity Referred to 3600 RPM (%) | 0.05 | 0.06 |
| 4.0 Bi-directional Tolerance (%) | 1.5 | 1.5 |
| 5.0 Output Impedance (ohm) | <5 | <5 |
| 6.0 Moment of Inertia (oz-in-sec ²) | 0.00025 | 0.0024 |
| 7.0 Temperature Coefficient (%/°C Rise) | -0.02 | -0.02 |
| 8.0 Recommended Load Resistance (ohms) | 1000 | 1000 |
| 9.0 Friction Torque (oz-in) | 0.75 | 1.0 |
| 10.0 Weight (lb) | 1.13 | 2.0 |

*With 500 Hz low pass filter.

BRAKE SPECIFICATIONS

| Motor Types | S6M4H | S9M4H |
|--|---------|---------|
| 1.0 DC Voltage (Volts) | 24 | 24 |
| 2.0 Input Power @ 20°C Nominal (Watts) | 8 | 9 |
| 3.0 Holding Torque (in-lbs) | 3 Min. | 8 Min. |
| 4.0 Inertia (oz-in-sec ²) | 0.00028 | 0.00096 |
| 5.0 Weight (lb) | 0.65 | 1.0 |

Notes:

1. Brakes are electrically released.
2. Brakes are intended for power loss situations or to hold motor when at a standstill.

M23 ENCODER SPECIFICATIONS

(for all motors) (See Encoder Section for more detailed information.)

| | |
|---|---|
| 1.0 Resolution | Up to 2540 Cycles Per Revolution (500 for sinewave) |
| 2.0 Frequency Response (kHz) | 100 |
| 3.0 Output Format | Quadrature Channels and Index |
| 4.0 Phasing | 90° ± 20° Max |
| 5.0 Output Levels (5, 12 and 15 Volts) | TTL and CMOS Compatible |
| 6.0 Input Power | 5, 12 and 15 Volts 150 ma Max |
| 7.0 Moment of Inertia (oz-in-sec ²) | 0.0001 |
| 8.0 Weight | 2.0 oz Typical |

CONNECTION SPECIFICATIONS

(circular MS style mating connector available as industrial version)

**Motor/Tach or
Motor/Tach/Brake**
(for clockwise rotation)
S6M4HI/S9M4HI

| Lead | Pin |
|----------------|-----|
| (+) Motor Lead | A |
| (-) Motor Lead | B |
| (+) Tach Lead | C |
| (-) Tach Lead | D |
| (+) Brake Lead | E |
| (-) Brake Lead | F |
| Case Ground | G |

**Encoder M23
S6M4HI/S9M4HI**

| Function | Pin |
|---------------------|---------|
| Channel A | A |
| Channel B | B |
| Channel I | C |
| V+ | D |
| Common | F |
| Case Ground | G |
| Channel \bar{A} * | H |
| Channel \bar{B} * | I/K (1) |
| Channel \bar{I} * | J |
| +15V** | H |
| -15V** | I/K (1) |

Notes:

S6M4HI uses Pin K. S9M4HI uses Pin I.

*Additional outputs for complementary models.

**Split supply for amplified sinewave.

Revex Gearmotor Series ServoDisc

PERFORMANCE DATA

| | Gearmotor Types | Rated Speed (RPM) | Continuous Torque (in-lb/N-m) | Peak Torque** (in-lb/N-m) | Gear Ratio | Motor Voltage (Volts) | Motor Current (amps) |
|------|-------------------|----------------------|----------------------------------|------------------------------|------------|--------------------------|-------------------------|
| 1.0 | S6M4H/GH6-10 | 300 | 12.6/1.4 | 50/59.6 | 10:1 | 17.8 | 5.2 |
| 1.1 | U9M4T/GH9-10* | 300 | 27/3.1 | 103/11.7 | 10:1 | 22.9 | 8.6 |
| 1.2 | U9M4/GH9-10 | 300 | 30/3.4 | 115/13 | 10:1 | 24.1 | 8.7 |
| 1.3 | N9M4/GH9-10 | 300 | 41/4.6 | 163/18.4 | 10:1 | 30.2 | 7.8 |
| 1.4 | U9M4HT/GH9-10* | 300 | 45/5.1 | 179/20.2 | 10:1 | 29.9 | 8.5 |
| 1.5 | S9M4H/GH9-10 | 300 | 49.4/5.6 | 296/33.5 | 10:1 | 35.0 | 7.8 |
| 1.6 | U12M4T/GH12-10* | 300 | 64/7.3 | 258/29.1 | 10:1 | 40.4 | 8.7 |
| 1.7 | U12M4/GH12-10 | 300 | 75.2/8.5 | 301/34 | 10:1 | 43.4 | 8.8 |
| 1.8 | U12M4HT/GH12-10* | 300 | 93/10.5 | 372/42 | 10:1 | 56.5 | 7.9 |
| 1.9 | U12M4H/GH12-10 | 300 | 103/11.6 | 417/47.2 | 10:1 | 67.7 | 7.8 |
| 1.10 | JR12M4CH/GH12-10 | 300 | 105/11.9 | 420/47.5 | 10:1 | 61 | 8.4 |
| 1.11 | JR16M4CH/GH16-10 | 300 | 263/31.4 | 650/73.4 | 10:1 | 129 | 9.6 |
| 2.0 | S6M4H/GH6-20 | 150 | 24.7/3.1 | 100/11.3 | 20:1 | 17.8 | 5.2 |
| 2.1 | U9M4T/GH9-20* | 150 | 52/5.8 | 207/23.3 | 20:1 | 22.9 | 8.6 |
| 2.2 | U9M4/GH9-20 | 150 | 60/6.8 | 240/27.1 | 20:1 | 24.1 | 8.7 |
| 2.3 | N9M4/GH9-20 | 150 | 81/9.2 | 325/36.7 | 20:1 | 30.2 | 7.8 |
| 2.4 | U9M4HT/GH9-20* | 150 | 90/10.1 | 358/40.4 | 20:1 | 29.9 | 8.5 |
| 2.5 | S9M4H/GH9-20 | 150 | 99/11.2 | 495/56 | 20:1 | 35.0 | 7.8 |
| 2.6 | U12M4T/GH12-20* | 150 | 129/14.6 | 515/58.2 | 20:1 | 40.4 | 8.7 |
| 2.7 | U12M4/GH12-20 | 150 | 150/17 | 602/68 | 20:1 | 43.4 | 8.8 |
| 2.8 | U12M4HT/GH12-20* | 150 | 185/20.9 | 740/87.6 | 20:1 | 56.5 | 7.9 |
| 2.9 | U12M4H/GH12-20 | 150 | 205/23.2 | 836/94.5 | 20:1 | 62.7 | 7.8 |
| 2.10 | JR12M4CH/GH12-20 | 150 | 211/23.8 | 844/95 | 20:1 | 61 | 8.4 |
| 2.11 | JR16M4CH/GH16-20 | 150 | 545/61.5 | 2603/294 | 20:1 | 129 | 9.6 |
| 3.0 | S6M4H/GH6-40 | 75 | 48.3/5.5 | 159/18 | 40:1 | 17.8 | 5.2 |
| 3.1 | U9M4T/GH9-40* | 75 | 108/12.2 | 413/46.7 | 40:1 | 22.9 | 8.6 |
| 3.2 | U9M4/GH9-40 | 75 | 117/13.2 | 468/93 | 40:1 | 24.1 | 8.7 |
| 3.3 | N9M4/GH9-40 | 75 | 158/18 | 636/71.8 | 40:1 | 30.2 | 7.8 |
| 3.4 | U9M4HT/GH9-40* | 75 | 165/18.6 | 681/77 | 40:1 | 29.9 | 8.5 |
| 3.5 | S9M4H/GH9-40 | 75 | 194/21.9 | 681/77 | 40:1 | 35.0 | 7.8 |
| 3.6 | U12M4T/GH12-40* | 75 | 252/28.5 | 1030/116.4 | 40:1 | 40.4 | 8.7 |
| 3.7 | U12M4/GH12-40 | 75 | 294/33.3 | 1178/133 | 40:1 | 43.4 | 8.8 |
| 3.8 | U12M4HT/GH12-40* | 75 | 363/41.0 | 1434/162 | 40:1 | 56.5 | 7.9 |
| 3.9 | U12M4H/GH12-40 | 75 | 411/46.4 | 1433/162 | 40:1 | 67.7 | 7.8 |
| 3.10 | JR12M4CH/GH12-40 | 75 | 421/47.6 | 1534/516.5 | 40:1 | 61 | 8.4 |
| 3.11 | JR16M4CH/GH16-40 | 75 | 1089/123 | 2603/294 | 40:1 | 129 | 9.6 |
| 4.0 | S6M4H/GH6-60 | 50 | 72.5/8.2 | 177/20 | 60:1 | 17.8 | 5.2 |
| 4.1 | U9M4T/GH9-60* | 50 | 161/18.2 | 620/70 | 60:1 | 22.9 | 8.6 |
| 4.2 | U9M4/GH9-60 | 50 | 176/19.9 | 726/82 | 60:1 | 24.1 | 8.7 |
| 4.3 | N9M4/GH9-60 | 50 | 239/27 | 726/82 | 60:1 | 30.2 | 7.8 |
| 4.4 | U9M4HT/GH9-60* | 50 | 248/28 | 725/82 | 60:1 | 29.9 | 8.5 |
| 4.5 | S9M4H/GH9-60 | 50 | 292/33 | 725/82 | 60:1 | 35.0 | 7.8 |
| 4.6 | U12M4T/GH12-60* | 50 | 378/42.7 | 1548/174.6 | 60:1 | 40.4 | 8.7 |
| 4.7 | U12M4/GH12-60 | 50 | 442/50 | 1548/175 | 60:1 | 43.4 | 8.8 |
| 4.8 | U12M4HT/GH12-60* | 50 | 544/61.5 | 1548/175 | 60:1 | 56.5 | 7.9 |
| 4.9 | U12M4H/GH12-60 | 50 | 602 | 1548/175 | 60:1 | 62.7 | 7.8 |
| 4.10 | JR12M4CH/GH12-60 | 50 | 632/71.4 | 1548/175 | 60:1 | 61 | 8.4 |
| 4.11 | JR16M4CH/GH16-60 | 50 | 1634/185 | 2603/184 | 60:1 | 129 | 9.6 |
| 5.0 | S6M4H/GH6-100 | 30 | 79/9 | 195/22 | 100:1 | 15.4 | 3.6 |
| 5.1 | U9M4T/GH9-100* | 30 | 258/29.2 | 796/90 | 100:1 | 22.9 | 8.6 |
| 5.2 | U9M4/GH9-100 | 30 | 293/33.2 | 796/90 | 100:1 | 24.1 | 8.7 |
| 5.3 | N9M4/GH9-100 | 30 | 318/36 | 796/90 | 100:1 | 29.0 | 5.7 |
| 5.4 | U9M4HT/GH9-100* | 30 | 318/36 | 796/90 | 100:1 | 27.8 | 7.4 |
| 5.5 | S9M4H/GH9-100 | 30 | 318/36 | 796/90 | 100:1 | 33 | 5.5 |
| 5.6 | U12M4T/GH12-100* | 30 | 630/71.2 | 1699/192 | 100:1 | 40.4 | 8.7 |
| 5.7 | U12M4/GH12-100 | 30 | 681/77 | 1699/192 | 100:1 | 42.4 | 8.6 |
| 5.8 | U12M4HT/GH12-100* | 30 | 681/77 | 1699/192 | 100:1 | 54.3 | 6.6 |
| 5.9 | U12M4H/GH12-100 | 30 | 681/77 | 1699/192 | 100:1 | 60.7 | 5.7 |
| 5.10 | JR12M4CH/GH12-100 | 30 | 681/77 | 1699/192 | 100:1 | 57.5 | 5.8 |
| 5.11 | JR16M4CH/GH16-100 | 30 | 2604/294 | 3905/441 | 100:1 | 125 | 9.0 |

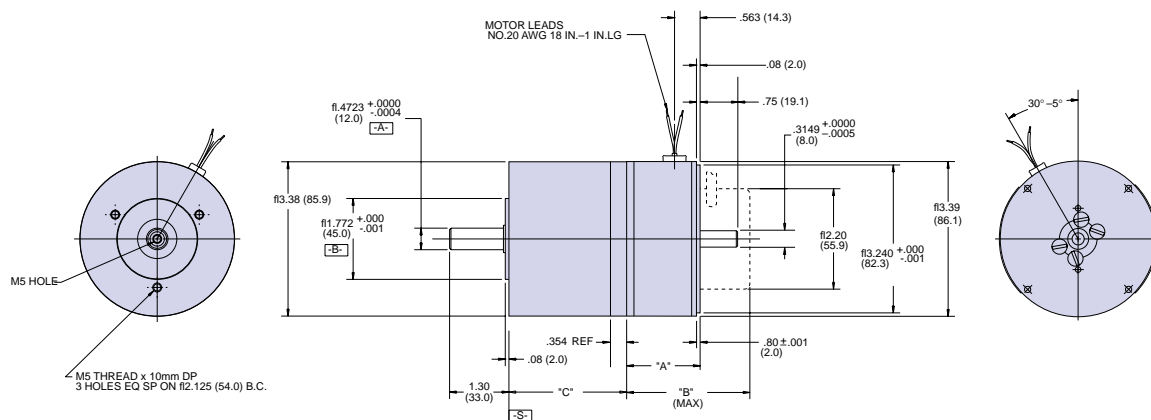
*Smallest axial length for gearmotor with tachometer.

**For short duration only.

Revex Gearmotor Series ServoDisc

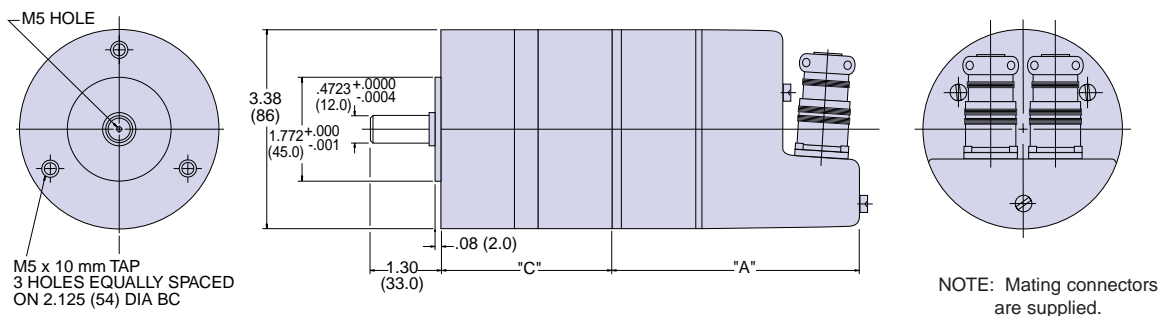
DIMENSIONS

S-SERIES (S6)



| S6M4H/GH6 | | | Motor | Motor/Tachometer | Motor/Brake | Motor/Brake Tachometer |
|-----------|-----------------|----|-------|------------------|-------------|------------------------|
| A | Without Encoder | in | 1.61 | 2.56 | 2.91 | 3.94 |
| | | mm | 40.9 | 65.1 | 73.9 | 100.0 |
| B (max) | With Encoder | in | 2.66 | 3.61 | 3.96 | 4.99 |
| | | mm | 67.6 | 91.7 | 100.0 | 126.7 |

| S6M4H/GH6 and S6M4HI/GH6 | | 10:1 | 40:1 | 100:1 |
|--------------------------|----|------|------|-------|
| C | in | 2.68 | 2.93 | 3.19 |
| | mm | 68.0 | 74.5 | 81 |



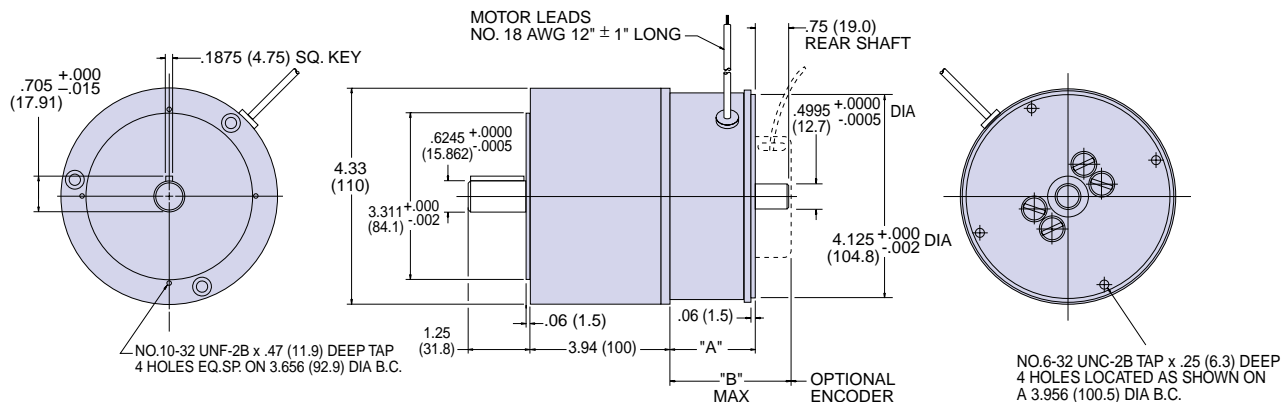
| S6M4HI/GH9 | | | Motor | Motor/Tachometer | Motor/Brake | Motor/Brake Tachometer |
|------------|-----------------|----|-------|------------------|-------------|------------------------|
| A | Without Encoder | in | 4.23 | 5.26 | 4.23 | 5.26 |
| | | mm | 107.4 | 133.6 | 107.4 | 133.6 |
| A | With Encoder | in | 4.23 | 5.26 | 5.61 | 6.56 |
| | | mm | 107.4 | 133.6 | 142.5 | 166.6 |

Motor Connector - Amphenol/Bendix PT 02A-12-8P
Encoder Connector - Amphenol/Bendix PT 02A-12-10P

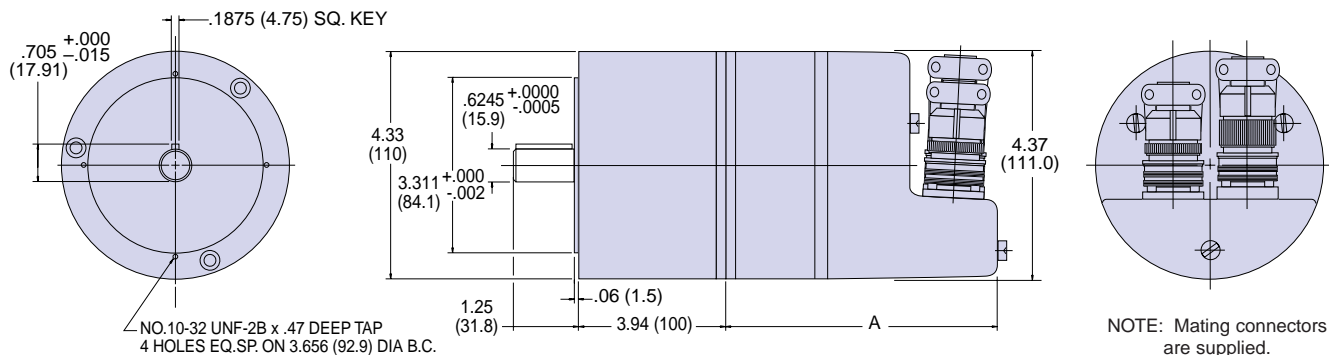
Revex Gearmotor Series ServoDisc

DIMENSIONS

S-SERIES (S9)



| S9M4H/GH9 | | | Motor | Motor/Tachometer | Motor/Brake | Motor/Brake Tachometer |
|-----------|-----------------|----|-------|------------------|-------------|------------------------|
| A | Without Encoder | in | 2.28 | 3.25 | 3.70 | 4.66 |
| | | mm | 57.9 | 82.6 | 94.0 | 118.4 |
| B (max) | With Encoder | in | 3.33 | 4.30 | 4.75 | 5.71 |
| | | mm | 84.6 | 109.0 | 120.7 | 145.0 |



| S9M4HI/GH9 | | | Motor | Motor/Tachometer | Motor/Brake | Motor/Brake Tachometer |
|------------|-----------------|----|-------|------------------|-------------|------------------------|
| A | Without Encoder | in | 5.19 | 6.17 | 6.67 | 7.61 |
| | | mm | 131.8 | 157.0 | 169.4 | 193.3 |
| A | With Encoder | in | 5.19 | 6.17 | 6.67 | 7.61 |
| | | mm | 131.8 | 157.0 | 169.4 | 193.3 |

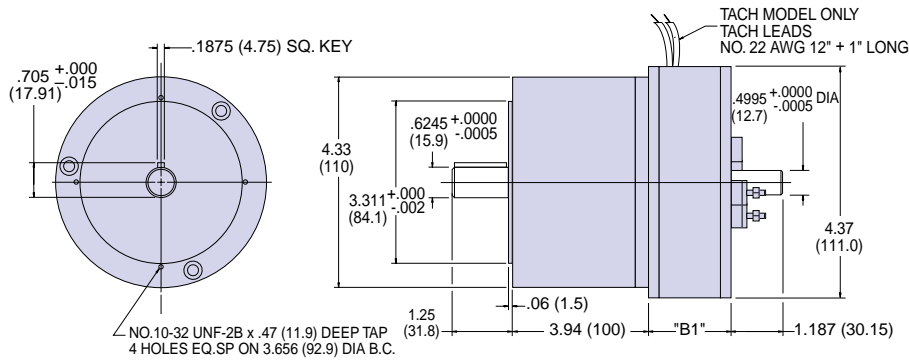
Motor Connector - MS3102A16S-IP

Encoder Connector - MS3102A18-IP

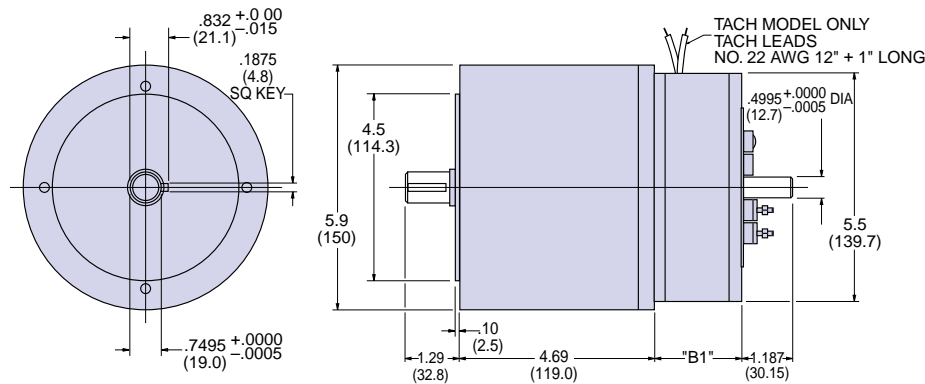
Revex Gearmotor Series ServoDisc

DIMENSIONS

U-SERIES

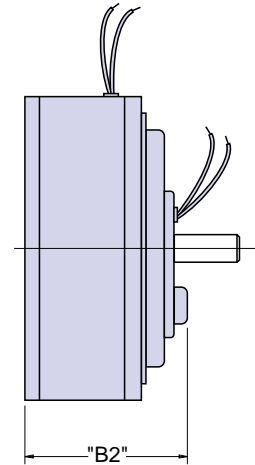


| Gearmotor | | B1 | B2 | B3 | B4 |
|------------|----|-------|------|------|-------|
| U9M4/GH9 | in | 1.84 | 2.78 | 3.32 | 3.98 |
| | mm | 46.74 | 70.6 | 84.4 | 101.1 |
| U9M4T/GH9 | in | 1.86 | — | 3.34 | — |
| | mm | 47.20 | — | 84.8 | — |
| U9M4HT/GH9 | in | 2.41 | — | 3.89 | — |
| | mm | 61.12 | — | 98.8 | — |

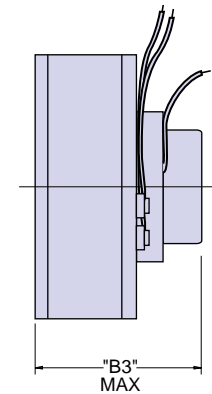


| Gearmotor | | B1 | B2 | B3 | B4 |
|--------------|----|-------|------|--------|------|
| U12M4/GH12 | in | 2.11 | 3.05 | 3.59 | 4.25 |
| | mm | 53.59 | 77.5 | 91.2 | 108 |
| U12M4H/GH12 | in | 2.78 | 3.72 | 4.26 | 4.92 |
| | mm | 70.61 | 94.5 | 108.25 | 125 |
| U12M4T/GH12 | in | 2.11 | — | 3.59 | — |
| | mm | 53.6 | — | 91.2 | — |
| U12M4HT/GH12 | in | 2.81 | — | 4.28 | — |
| | mm | 71.4 | — | 108.7 | — |

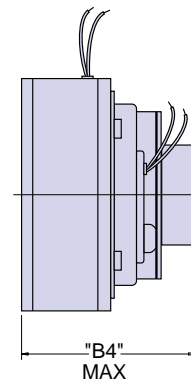
MOTOR/
TACHOMETER



MOTOR/
ENCODER



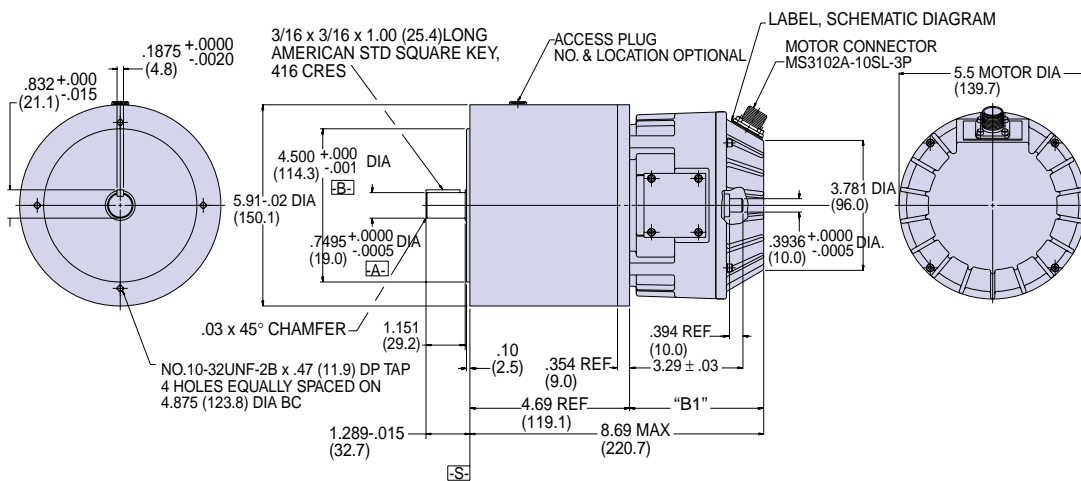
MOTOR/
TACHOMETER/
ENCODER



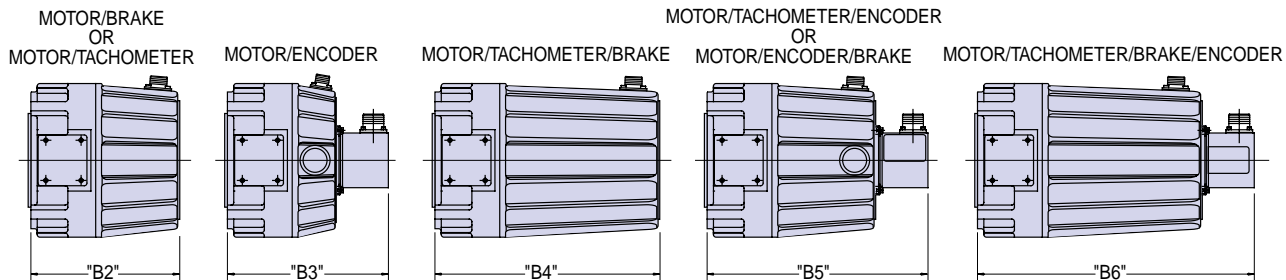
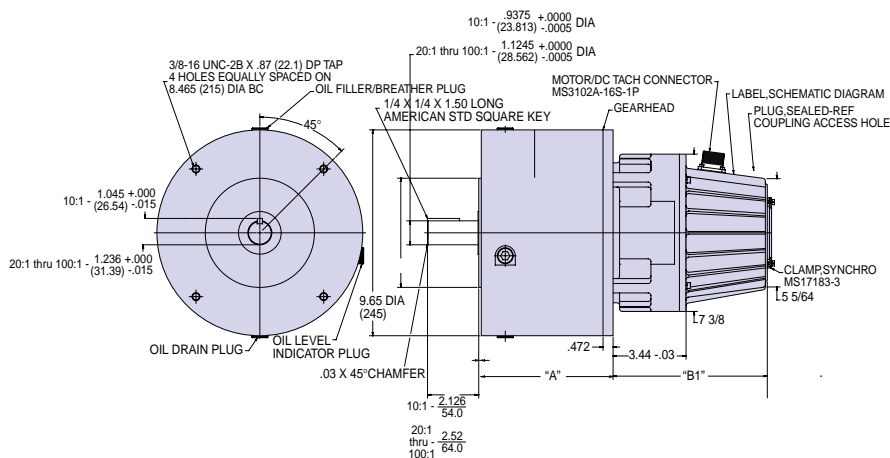
Revex Gearmotor Series ServoDisc

DIMENSIONS

JR12/GH12



JR16/GH16

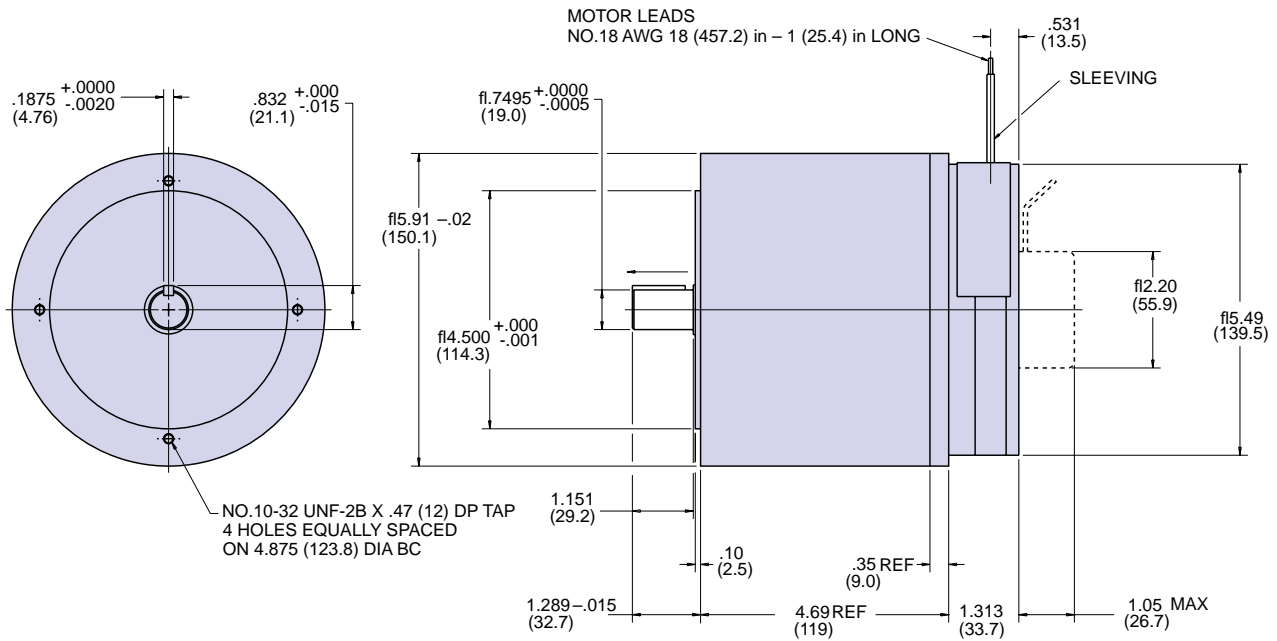


| Gearmotor | | A | | | | | B | | | | | |
|---------------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 10:1 | 20:1 | 40:1 | 60:1 | 100:1 | 1 | 2 | 3 | 4 | 5 | 6 |
| JR12M4CH/GH12 | in | 4.685 | 4.685 | 4.685 | 4.685 | 4.685 | 3.94 | 5.77 | 7.20 | 8.49 | 9.26 | 11.07 |
| | mm | 119.0 | 119.0 | 119.0 | 119.0 | 119.0 | 100.1 | 146.6 | 182.9 | 215.6 | 235.2 | 281.2 |
| JR16M4CH/GH16 | in | 5.20 | 6.20 | 6.20 | 6.20 | 6.20 | 4.50 | 6.34 | 7.77 | 9.06 | 9.81 | 11.62 |
| | mm | 132.1 | 157.5 | 157.5 | 157.5 | 157.5 | 114.3 | 161.0 | 197.4 | 230.1 | 249.1 | 295.1 |

Revex Gearmotor Series ServoDisc

DIMENSIONS

N-SERIES (N9)

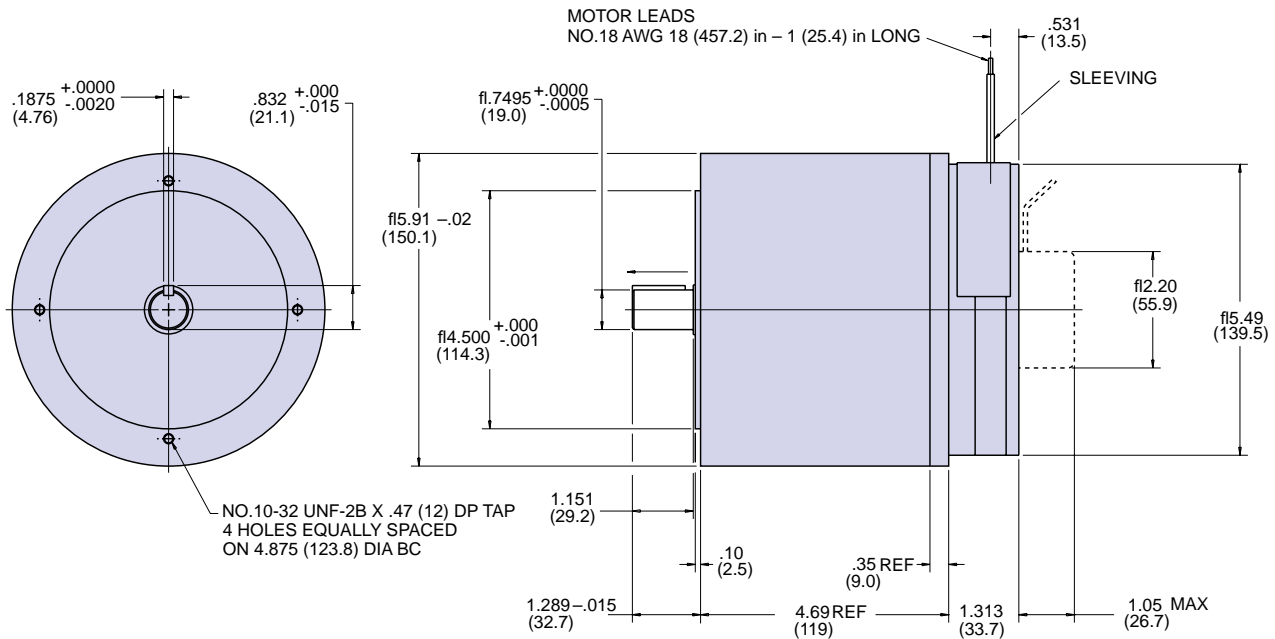


| N9M4/GH9/M23 | | | Motor | Motor/Tachometer | Motor/Brake | Motor/Brake Tachometer |
|--------------|-----------------|----|-------|------------------|-------------|------------------------|
| A | Without Encoder | in | 0.93 | 0.95 | 2.43 | 2.45 |
| | | mm | 23.6 | 24.1 | 61.7 | 62.2 |
| B (max) | With Encoder | in | 1.98 | 2.00 | 3.48 | 3.50 |
| | | mm | 50.3 | 50.8 | 88.4 | 88.9 |

Revex Gearmotor Series ServoDisc

DIMENSIONS

N-SERIES (N12)



| N12M4/GH12/M23 | | | Motor | Motor/Tachometer | Motor/Brake | Motor/Brake Tachometer |
|----------------|-----------------|----|-------|------------------|-------------|------------------------|
| A | Without Encoder | in | 1.06 | 1.09 | 2.87 | 2.90 |
| | | mm | 26.9 | 27.7 | 72.9 | 73.7 |
| B (max) | With Encoder | in | 2.11 | 2.14 | 3.92 | 3.95 |
| | | mm | 53.6 | 54.4 | 99.6 | 100.3 |

| | | Units | GH6 | GH9 | GH12 | GH16 |
|-----|--------------------------------|------------------------|-----------------------|-----------------------|------------------------|-----------------------|
| 1.0 | Max Inertia (2) | oz-in-sec ² | 10.9x10 ⁻⁴ | 5.90x10 ⁻³ | 22.46x10 ⁻³ | 86.5x10 ⁻³ |
| | | g-cm ² | 77 | 417 | 1586 | 6108 |
| 2.0 | Radial Load | lbs | 47 | 135 | 134 | 430 |
| 2.1 | Distance from Mounting Surface | in | .71 | .69 | .93 | 1.7 |
| 3.0 | Axial Load | lbs | 52 | 126 | 253 | 762 |
| 4.0 | Basic Weight (3) | lbs | 4.3-5.0 | 8.2-12.7 | 18.5-24.7 | 50.5-67.5 |
| 5.0 | Basic Length (3) | in | 2.3-2.8 | 3.94 | 4.68 | 5.2-6.5 |

Notes:

1. Mounted on 8" x 16" x 3/8" aluminum heatsink.
2. Motor plus gearhead, measured at motor shaft.
3. Weights and lengths will vary with options.
4. Gearmotors can be mounted in any position.

Revex Gearmotor Series ServoDisc

OPTIONS

TACHOMETER SPECIFICATIONS

| Tachometer/Motor Types | 9FA4T/U-Series | F9T/JR-Series |
|---|----------------|---------------|
| 1.0 Output voltage (Volts/kRPM) | 2.5 | 3.0 |
| 2.0 Max ripple peak to peak (%)* | 5.0 | 4.0 |
| 3.0 Linearity referred to 3600 RPM (%) | 0.06 | 0.05 |
| 4.0 Bi-directional tolerance (%) | 3.0% | 1.5 |
| 5.0 Output impedance (ohm) | 1.18 | 1.0 |
| 6.0 Moment of inertia (oz-in-sec ²) | 0.0024 | 0.005 |
| 7.0 Temperature coefficient (%/°C Rise) | -0.19 | -0.02 |
| 8.0 Recommended load resistance (ohms) | 2500 Min. | 2000 Min. |

*With 500 Hz low pass filter.

BRAKE SPECIFICATIONS

| Brake Types/Motor Types | BRK/JR-Series |
|--|---------------|
| 1.0 DC voltage (Volts) (90V in option) | 24 |
| 2.0 Input power @ 20°C nominal (Watts) | 25 Max |
| 3.0 Holding torque (in-lb) | 70.8 |
| 4.0 Additional inertia (oz-in-sec ²) | 0.0064 |

Notes:

1. Brakes are electrically released.
2. Brakes are intended for power loss situations or to hold motor when at a standstill.

ENCODER SPECIFICATIONS

(For U-Series, use Model #M23 for JR-Series; use Model #BA251.) (See Feedback Section for more detailed information.)

| | |
|---|----------------------------------|
| 1.0 Resolution | Up to 2540 cycles per revolution |
| 2.0 Frequency response (kHz) | 100 |
| 3.0 Output format | Quadrature channels and index |
| 4.0 Phasing | 90° ± 20° max |
| 5.0 Output levels (5, 12 and 15 Volts) | TTL and CMOS compatible |
| 6.0 Input power | 5, 12, and 15 volts 150 ma max |
| 7.0 Moment of inertia (oz-in-sec ²) | |
| M23 | 0.0001 |
| BA251 | 0.00045 |

Indurex Gearmotor Series ServoDisc

PERFORMANCE DATA

| Gearmotor Types | | Rated Speed (RPM) | Continuous Torque (in-lb./N-m) | Peak Torque (in-lb./N-m) | Gear Ratio | Motor Voltage (Volts) | Motor Current (amps) |
|-----------------|-------------------|-------------------|--------------------------------|--------------------------|------------|-----------------------|----------------------|
| 1.0 | JR24M4CH/KR16-4 | 818 | 281/31.7 | 842/95 | 3.67:1 | 139.7 | 26.0 |
| 2.0 | JR24M4CH/KR16-5 | 605 | 379/42.8 | 1138/128 | 4.96:1 | 139.7 | 26.0 |
| 3.0 | JR24M4CH/KR16-6 | 467 | 491/55.4 | 1473/166 | 6.42:1 | 139.7 | 26.0 |
| 4.0 | JR24M4CH/KR16-7 | 435 | 528/59.7 | 1583/178 | 6.90:1 | 139.7 | 26.0 |
| 5.0 | JR16M4CH/KR16-10 | 301 | 269/30.4 | 806/91.1 | 9.96:1 | 127.4 | 9.6 |
| 6.0 | JR24M4CH/KR16-10 | 301 | 762/86.1 | 2286/258 | 9.96:1 | 139.7 | 26.0 |
| 7.0 | JR24M4CH/KR16-20 | 153 | 1498/169 | 3700/418 | 19.58:1 | 139.7 | 26.0 |
| 8.0 | JR16M4CH/KR16-20 | 150 | 528/59.7 | 1614/182 | 19.58:1 | 129.4 | 9.6 |
| 9.0 | JR16M4CH/KR16-40 | 77 | 1022 | 3067/346 | 39.17:1 | 129.4 | 9.6 |
| 10.0 | JR16M4CH/KR16-60 | 53 | 1488/168 | 4464/504 | 57.01:1 | 129.4 | 9.6 |
| 11.0 | JR16M4CH/KR16-80 | 38 | 2055/232 | 6000/678 | 78.76:1 | 129.4 | 9.6 |
| 12.0 | JR16M4CH/KR16-100 | 30 | 2580/291 | 6180/698 | 98.87:1 | 129.4 | 9.6 |

| | | Units | JR16M4CH/KR16 | JR24M4CH/KR16 |
|-----|--------------------------------|------------------------|---------------|---------------|
| 1.0 | Max Inertia (2) | oz-in-sec ² | 0.097 | 0.535 |
| | | kg-cm ² | 6.849 | 37.78 |
| 2.0 | Radial Load | lb | 500 | 272 |
| 2.1 | Distance from Mounting Surface | in | 1 | 1 |
| 3.0 | Axial Load (5) | lb | 114 | 71 |
| 4.0 | Basic Weight (3) | lb | 42 | 84 |
| 5.0 | Basic Length (3) | in | 10.7 | 13 |

Notes:

- Mounted on 16" x 16" x 3/8" (JR16), 21" x 21" x 1/2" (JR24) aluminum heatsink.
- Motor plus gearhead, measured at motor shaft.
- Weights and lengths will vary with options.
- Gearmotors can be mounted in any position.
- Axial Load combined with specified Radial Load.

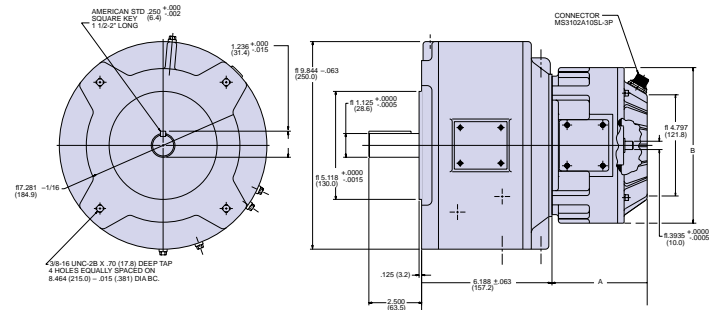
Indurex Gearmotor Series ServoDisc

OPTIONS

JR16M4CH/JR24M4CH

| Gearmotor | | A* | B |
|-----------|----|-------|-------|
| JR16M4CH | in | 5.00 | 7.38 |
| | mm | 127.0 | 187.4 |
| JR24M4CH | in | 6.78 | 11.09 |
| | mm | 172.2 | 281.7 |

*Dimension will change depending on options chosen.



TACHOMETER SPECIFICATIONS

| Tachometer Types | F9T | W6T6 | W6T19 |
|---|-----------|----------|-----------|
| 1.0 Output voltage (Volts/kRPM) | 3 | 6 | 19 |
| 2.0 Max ripple peak to peak (%)* | 4 | 3 | 2 |
| 3.0 Linearity referred to 3600 RPM (%) | 0.05 | 1 | 1 |
| 4.0 Bi-directional tolerance (%) | ±1.5 | ±1 | ±1 |
| 5.0 Output impedance (ohms) | 1.0 | 5.4 | 26.0 |
| 6.0 Moment of inertia (oz-in-sec ²) | 0.005 | 0.008 | 0.008 |
| 7.0 Temperature coefficient (%/°C Rise) | -0.020 | -0.045 | -0.045 |
| 8.0 Recommended load resistance (ohms) | 2000 Min. | 350 Min. | 2600 Min. |
| 9.0 Friction torque (oz-in) | 3 | 3 | 3 |
| 10.0 Weight (lb) | 2.2 | 1.5 | 1.5 |

*With 500 Hz low pass filter.

BRAKE SPECIFICATIONS

| Motor Types | JR16M4CH | JR24M4CH |
|--|----------|----------|
| 1.0 DC voltage (Volts) (90V in option) | 24 | 24 |
| 2.0 Input power @ 20°C nominal (Watts) | 25 Max | 27 Max |
| 3.0 Holding torque (in-lb) | 70.8 | 180.0 |
| 4.0 Additional inertia (oz-in-sec ²) | 0.0064 | 0.0210 |
| 5.0 Disengagement time (millisec) | 70 | 70 |
| 6.0 Engagement time (millisec) | 30 | 30 |
| 7.0 Weight (lb) | 2.5 | 5.0 |

Notes:

1. Brakes are electrically released.
2. Brakes are intended for power loss situations or to hold motor when at a standstill.

BA251 ENCODER SPECIFICATIONS

(See Feedback Section for more detailed information.)

| | |
|---|---|
| 1.0 Resolution | Up to 2540 cycles per revolution (500 for sinewave) |
| 2.0 Frequency response (kHz) | 100 |
| 3.0 Output format | Quadrature channels and index |
| 4.0 Phasing | 90° ± 20° max |
| 5.0 Output levels (5, 12 and 15 Volts) | TTL and CMOS compatible |
| 6.0 Input power | 5, 12, and 15 volts 150 ma max |
| 7.0 Moment of inertia (oz-in-sec ²) | 0.00045 |
| 8.0 Weight | 17 oz (max) |