

## NEMA 34 I-Grade Motor/Encoder



QCI-A34HC-1



IP65 (-6T Option)

Note: Motor specifications (including torque curves) are only true when the motors are used in conjunction with QuickSilver’s SilverLode™ Controller/Drivers (i.e. SilverNugget™). See the controller datasheets for more details.

## General Motor Specifications

Specifications	34HC-1	34HC-2	34HC-3	34HC-4	34L-1	34M-1	34N-1	34H-1	34HK-1
Maximum Speed (RPM)	3000	2500	2000	1500	2000	2500	2000	2000	2000
Optimal Speed (RPM) (best power and efficiency)	1600	1600	1000	800	1200	1300	800	800	1000
Torque at Optimal Speed oz-in / Nm	350 2.5	390 2.7	770 5.4	990 6.7	115 .81	210 1.5	275 1.9	390 2.7	330 2.3
Continuous Stall Torque oz-in / Nm	675 4.8	1300 9.2	1950 13.8	2550 18.0	185 1.3	400 2.8	460 3.2	500 3.5	700 4.9
Peak Power (Mech. Watts)	440	565	580	515	112	206	170	260	250
Rotor Inertia oz-in <sup>2</sup> / Kg-m <sup>2</sup>	7.8 1.4E-4	14.7 2.7E-4	21.9 4.0E-4	29.0 5.3E-4	7.7 1.4E-4	7.7 1.4E-4	7.8 1.4E-4	7.8 1.4E-4	7.2 1.3E-4
Weight pounds / Kg	5.7 2.6	9.1 4.1	12.6 5.7	15.8 7.2	5.7 2.6	5.7 2.6	5.7 2.6	5.7 2.6	4.8 2.2
Power Supply Amps* 48V Max/48V	13.7 13.2	16.5 15.5	16.0 16.0	14.5 14.5	3.7 3.3	12.0 7.5	6.0 5.8	8.0 7.6	7.8
Shaft Diameter in/ mm	0.500 12.70	0.500 12.70	0.625 15.88	0.625 15.88	0.500 12.70	0.500 12.70	0.500 12.70	0.500 12.70	0.500 12.70
Maximum Radial Force (lbs)	65	65	110	110	39	39	65	65	65
Maximum Axial Force (lbs)	305	305	305	305	25	25	305	305	100
Notes					Use 34HC-1 EOL	Use 34HC-1 EOL	Use 34HC-1 EOL	Use 34HC-1 EOL	Use 34HC-1 EOL

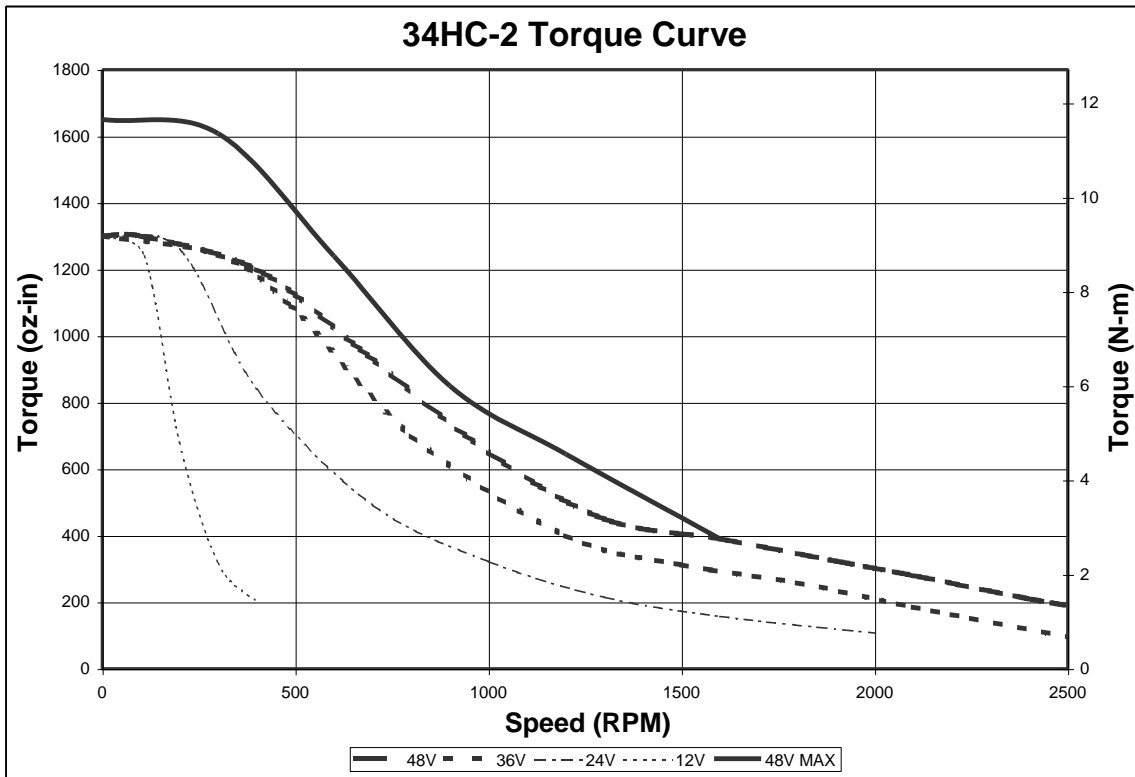
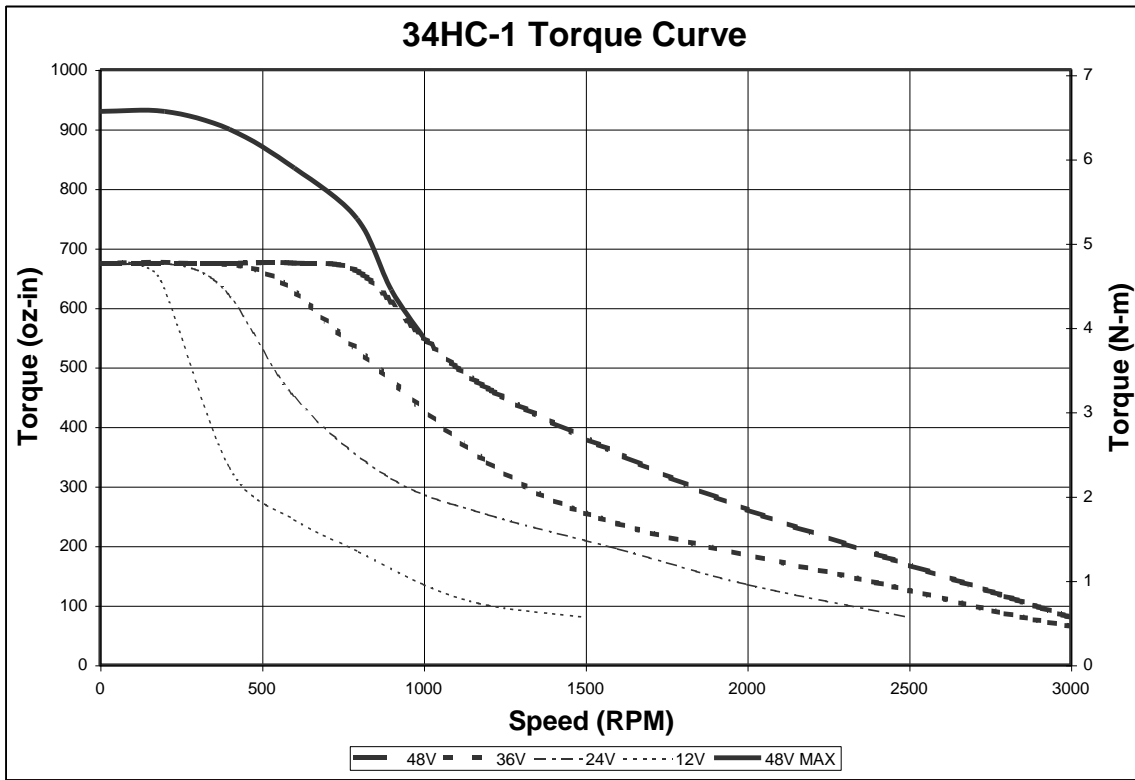
Note: The grayed items are special order only. EOL = end of life, no new orders, information provided for reference only.

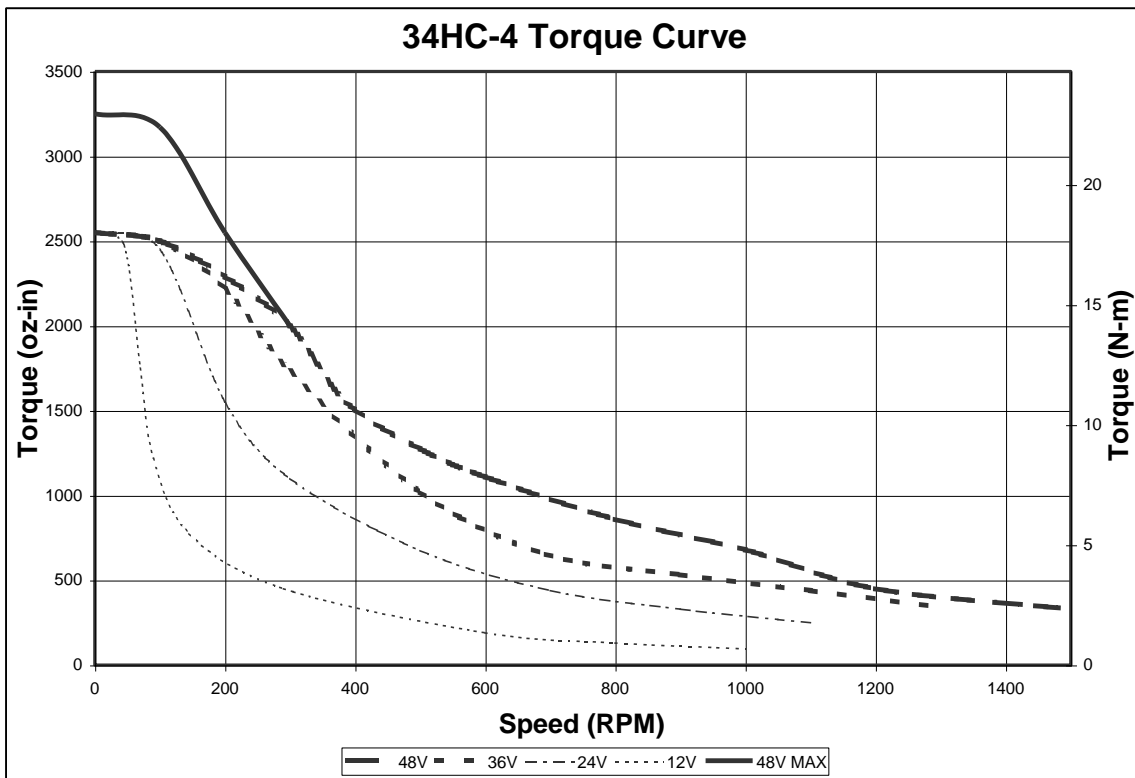
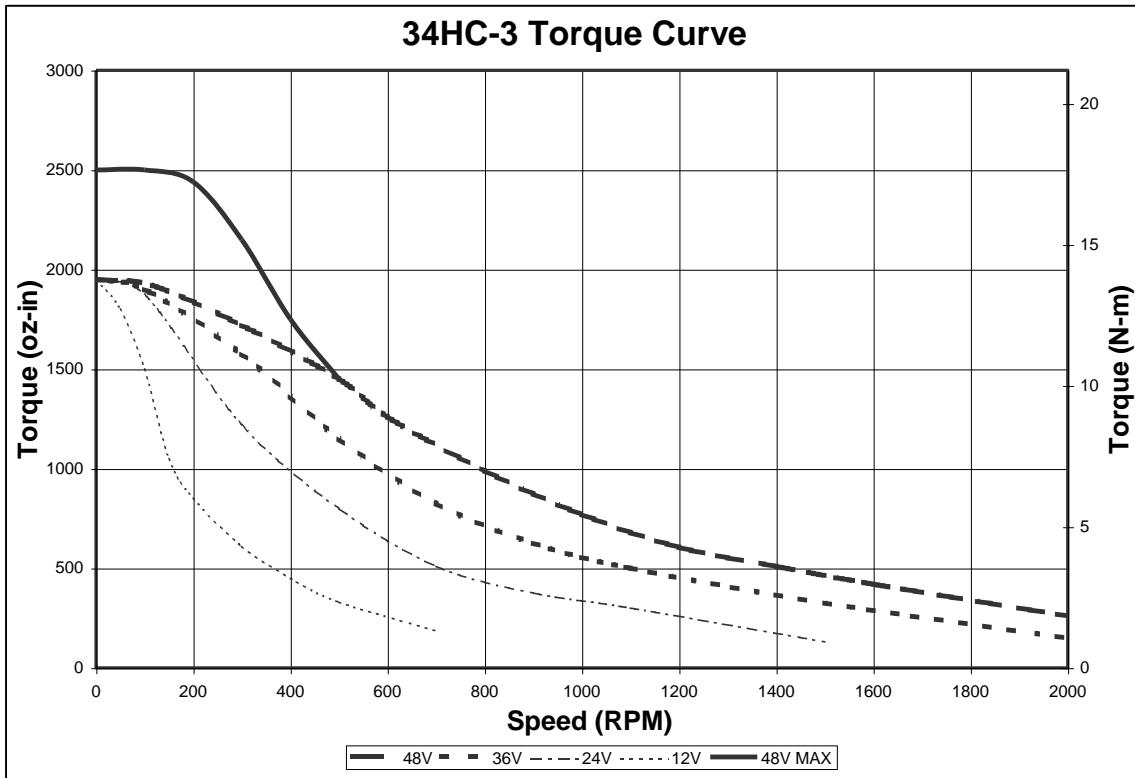
\*Maximum current (amps) drawn from power supply for the “48V Max” and “48V” torque curves respectively (see below for details).

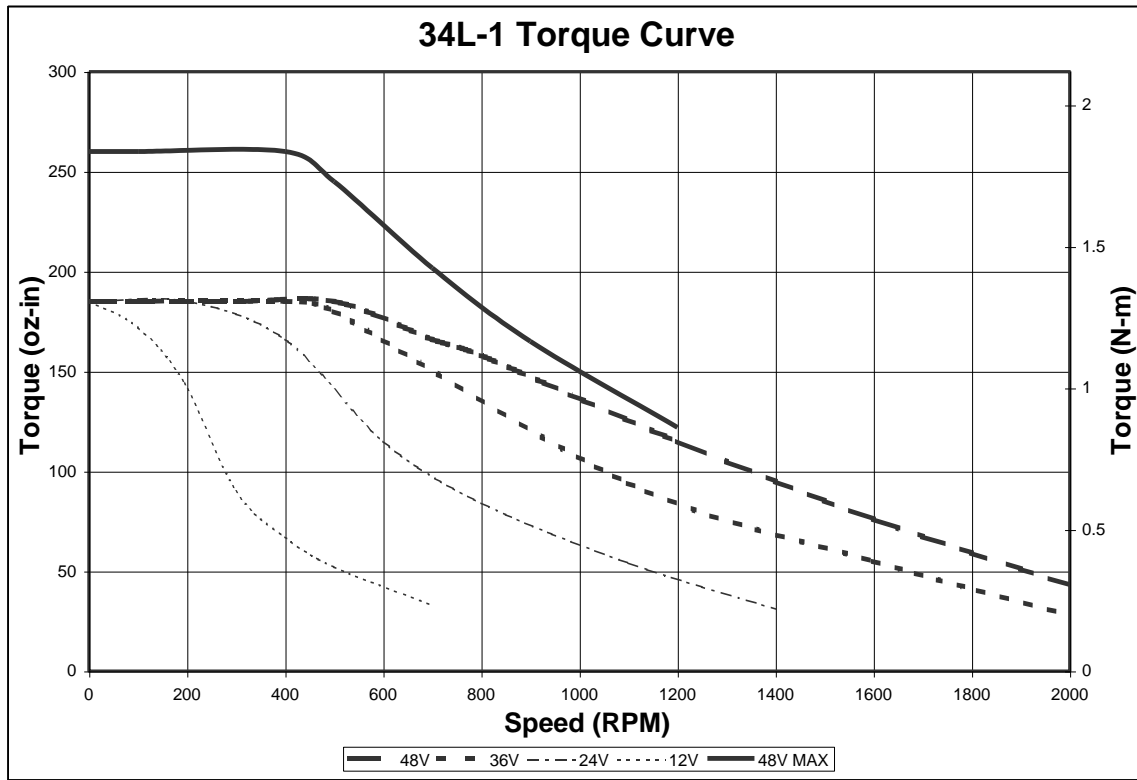
## Torque Curves

48V Max is the torque of the motor when the Torque Limits (TQL) command is set to “Max” (see SilverLode Command Reference for details on the TQL command). Operating the motor in this mode requires proper heat sinking on the Controller/Driver and motor to prevent overheating.

All other torque curves represent motor torque at the specified voltage when the TQL command is set to “100%”. These curves represent torque up to 100% duty cycle depending on ambient temperature, heat sinking and air flow.





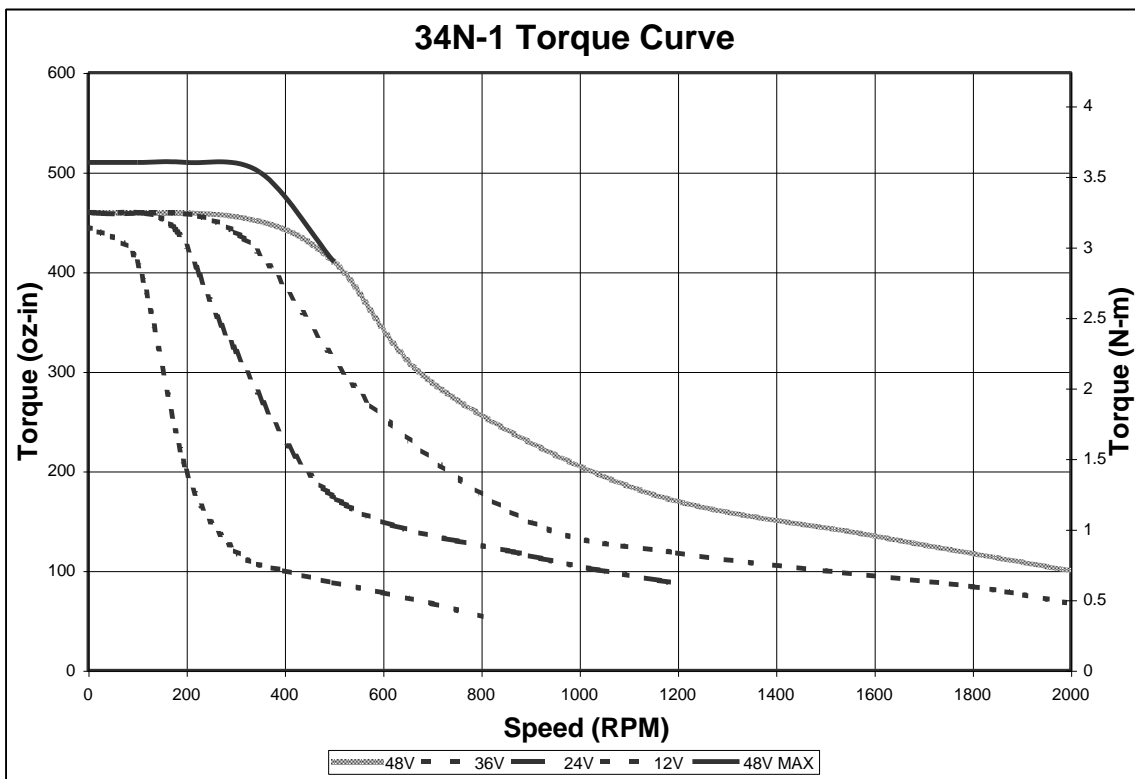
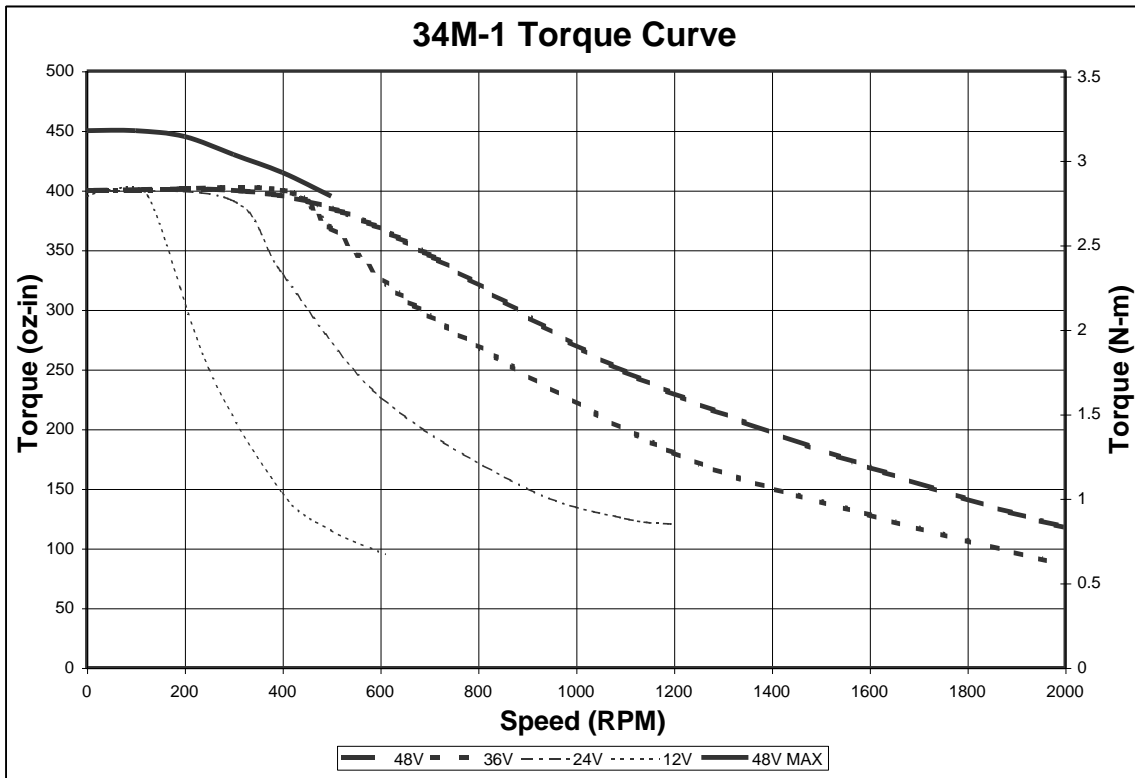


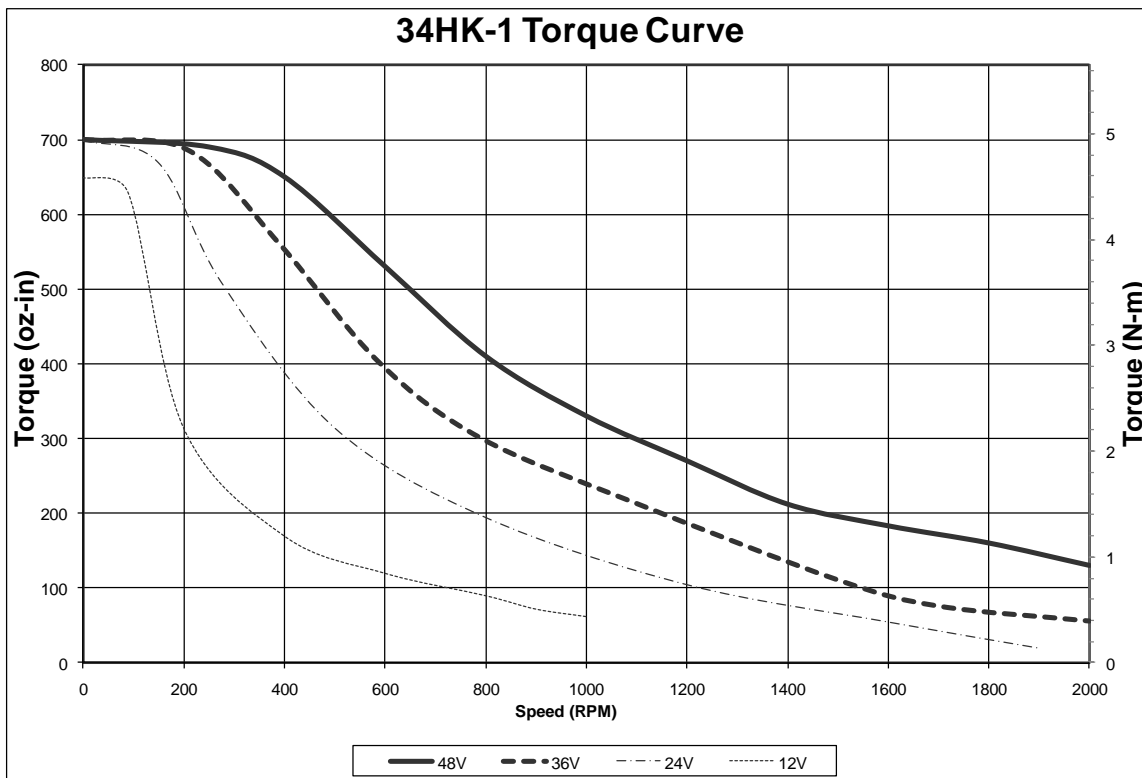
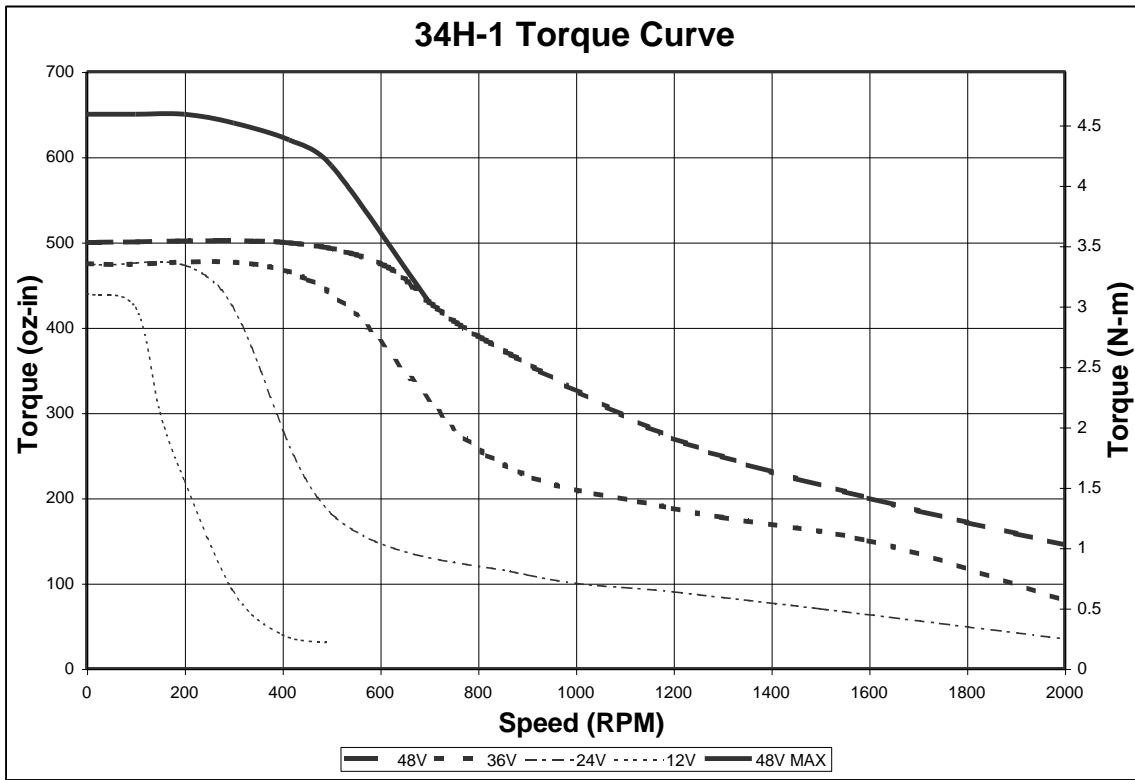
Note: The 34L-1 uses D2 or S2 series controllers and **NOT the N3 controller.**

Recommended controllers for 34L-1:

- QCI-D2-IGB (See QCI-DS-003)
- QCI-D2-IGF (See QCI-DS-021)
- QCI-D2-IG (See QCI-DS-019)
- QCI-D2-IGK (See QCI-DS-023)
- QCI-D2-IG8 (See QCI-DS-018)
- QCI-S2-IG (See QCI-DS-026)

The above controllers have internal clamp to protect the system from regenerative braking.





## Electrical Specifications

### Encoder Interface

Encoder Count Per Revolution: 16000

Index Pulse: 49 - SilverLode Controller/Drivers internally translate to a single index pulse.

### 34L, 34M

Encoder Count Per Revolution: 8000

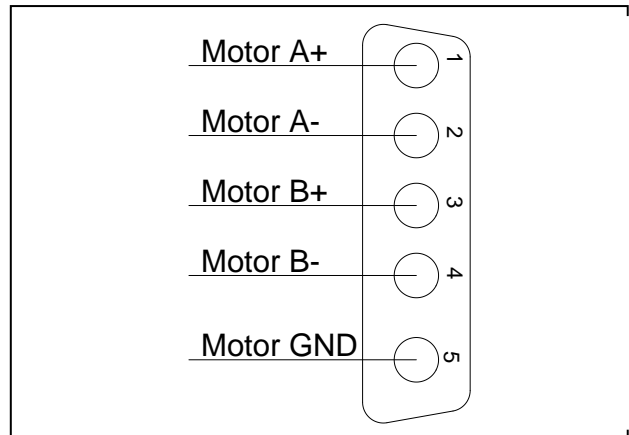
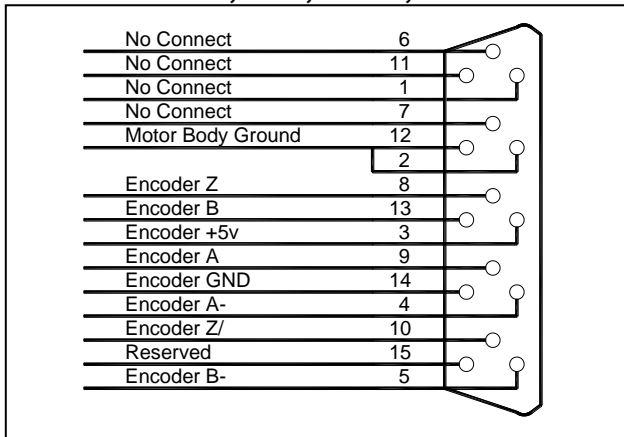
Index Pulse: 49 - SilverLode Controller/Drivers internally translate to a single index pulse.

### Motor Memory

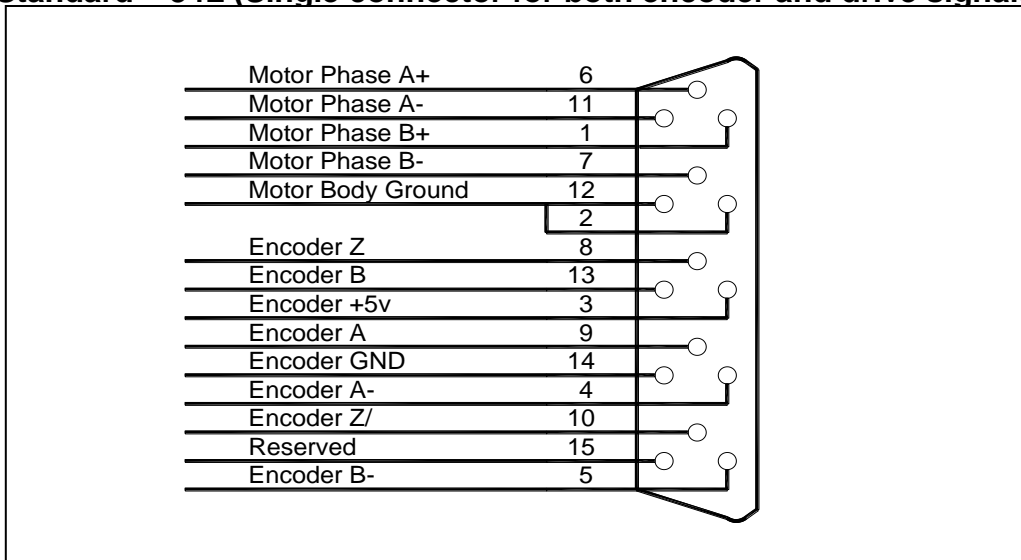
I-Grade motors come from the factory with a memory chip containing encoder and motor information. This information is automatically uploaded by the SilverDust IG/IGB and SilverSterling controller/driver to simplify the initialization process.

## Connector Data

### Standard – 34N, 34H, 34HC, 34HK



### Standard – 34L (Single connector for both encoder and drive signals)



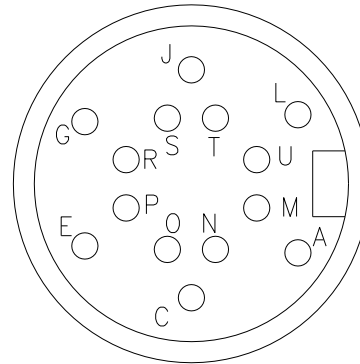


**-6T Option**

IP65 Encoder Connector

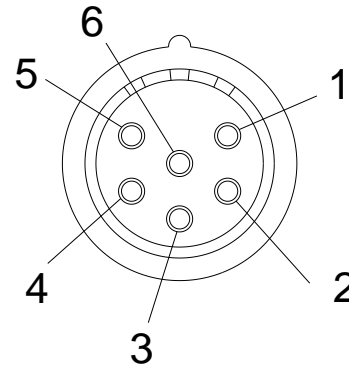
Pin	Signals
A	NC
C	+5V
E	Memory
G	NC
J	NC
L	NC
M	Z+
N	Z -
O	A+
P	B -
R	B+
S	GND
T	A-
U	GND

EXPOSED FRONT VIEW OF MOTOR CONNECTOR



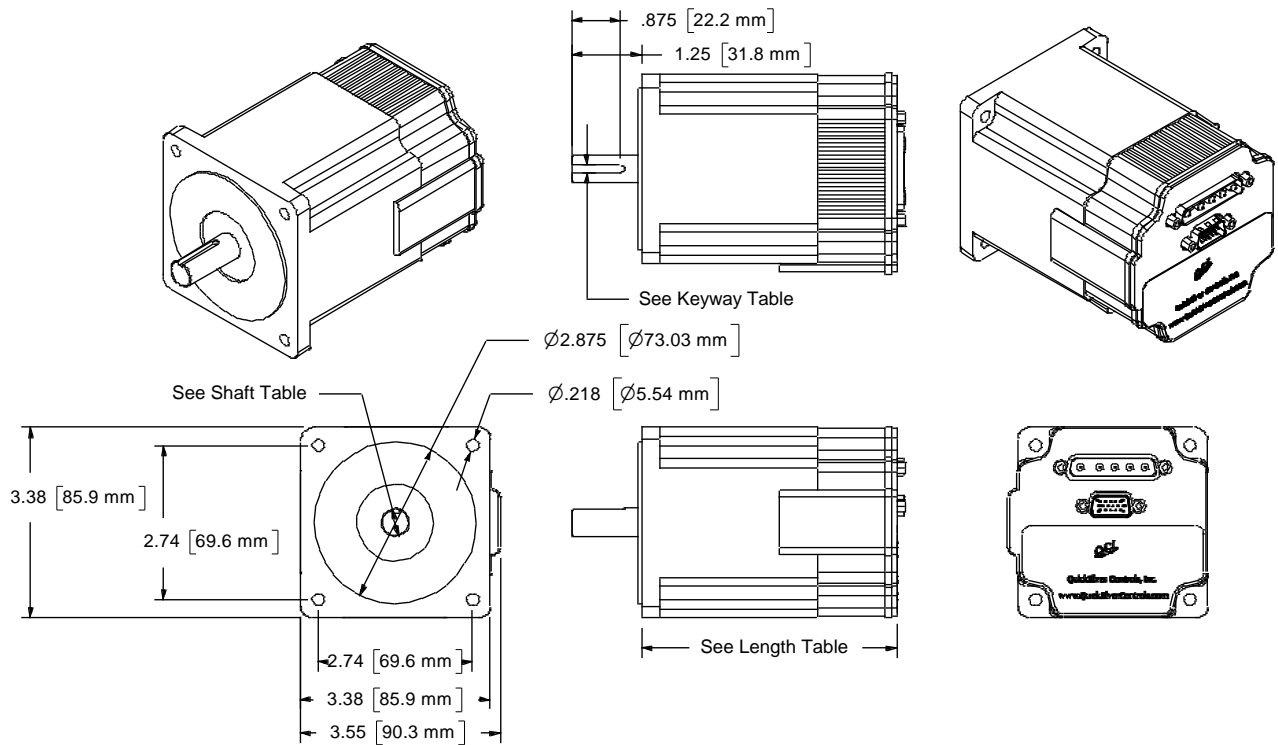
IP65 Motor Power Connector

Pin	Signals
1	Motor A-
2	Motor A+
3	Chassis GND
4	Motor B-
5	Motor B+
6	Chassis GND



# Mechanical Specifications

## Standard

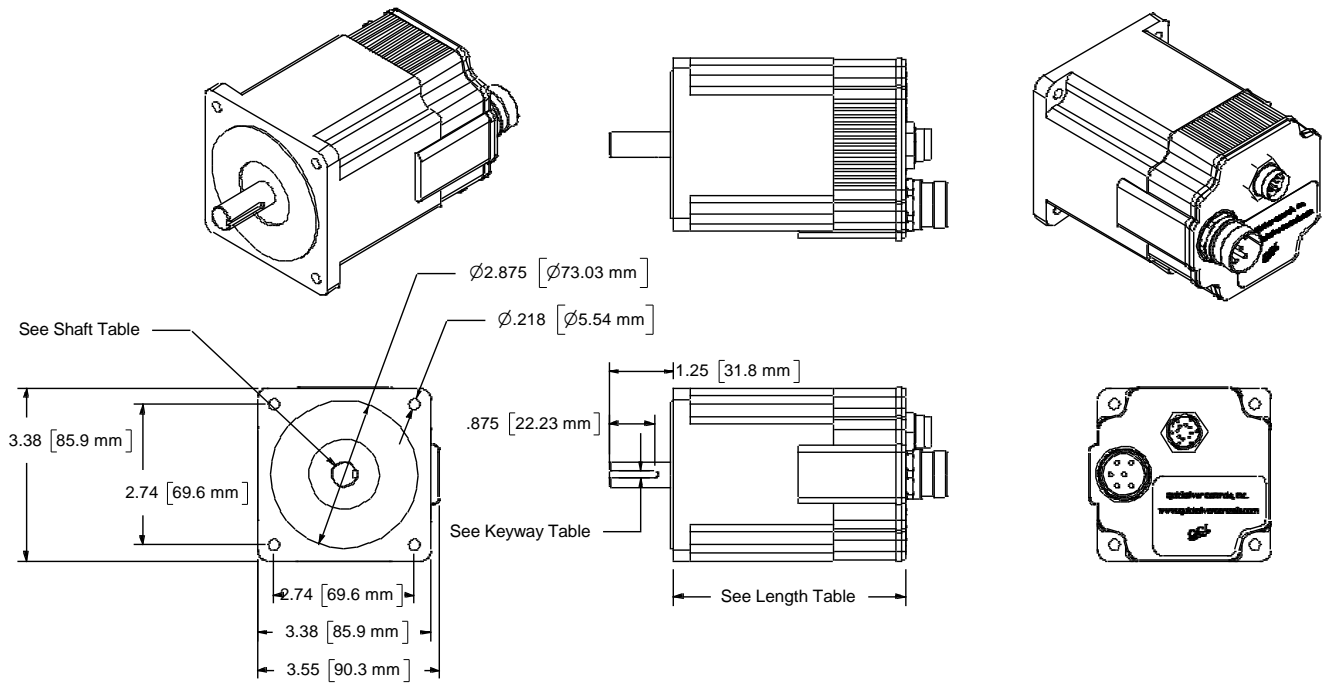


Model	Length	Shaft Diameter	Keyway Width	Notes
34N-1	4.5 [115 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Use 34HC-1 for new designs
34H-1	4.5 [115 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Use 34HC-1 for new designs
34HK-1	4.1 [103 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Use 34HC-1 for new designs
34HC-1	4.5 [115 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	
34HC-2	6.1 [155 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Special order
34HC-3	7.6 [193 mm]	.625 [15.875 mm]	0.1875 [4.7625 mm]	Special order
34HC-4	9.2 [232 mm]	.625 [15.875 mm]	0.1875 [4.7625 mm]	Special order

Note: See our website for 2D drawings and 3D models.

**⚠️ Note: The motor construction uses a wave spring to compensate for mechanical tolerances and thermal expansion in the axial shaft direction. It is important to not push the shaft into the motor in operation or when mounting gears or pulleys as this may damage the encoder disk.**

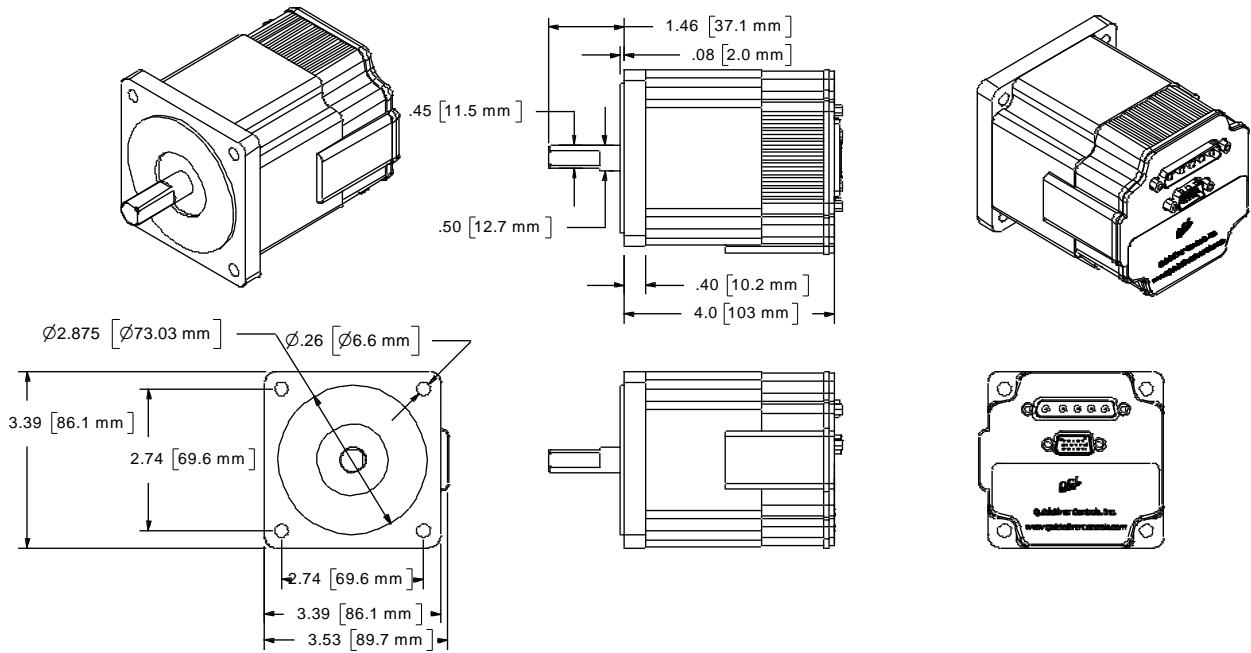
6T Option



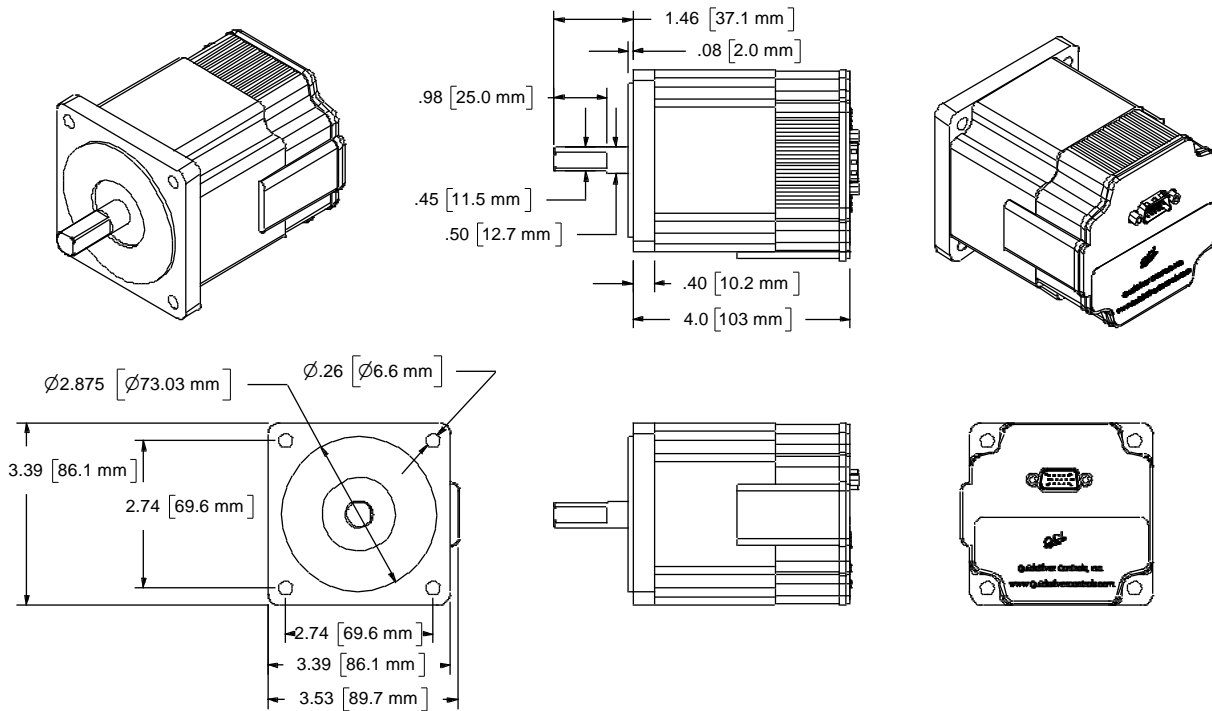
Model	Length	Shaft Diameter	Keyway Width	Notes
34N-1-6T	4.5 [115 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Use 34HC-1 for new designs
34H-1-6T	4.5 [115 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Use 34HC-1 for new designs
34HC-1-6T	4.5 [115 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	
34HC-2-6T	6.1 [155 mm]	.500 [12.70 mm]	0.125 [3.175 mm]	Special order
34HC-3-6T	7.6 [193 mm]	.625 [15.875 mm]	0.1875 [4.7625 mm]	Special order
34HC-4-6T	9.2 [232 mm]	.625 [15.875 mm]	0.1875 [4.7625 mm]	Special order

Note: See our website for 2D drawings and 3D models.

**Standard 34M-1**



**Standard 34L-1**



Note: See our website for 2D drawings and 3D models.

## Environmental Specifications

### Operational Temperature

-10 C to +80 C

### Storage Temperature

- 40 C to +85 C

### Humidity

Continuous specification is 95% RH non-condensing.

### Shock

Limitation is approximately 50g/11ms.

### IP Rating - Standard

IP50

### IP Rating – 6T Option

IP65 is achieved if both a shaft seal and IP65 Motor Interface Cables (QCI-C-D15P-T14S-nn and QCI-C-D15P-T6S) are used.

NOTE: The IP65 rating is for applications with occasional wash downs. It is not meant for continuous wet applications or high-pressure wash downs. See IP65 spec for more details (CEI IEC 529).

## Recommended Components

### Standard Configuration

#### **SilverNugget N3 X-series Controller/Driver (QCI-N3-IX)**

See the SilverNugget I-Grade N3 datasheet (QCI-DS034) for details on designing with these controller/driver.

#### **Encoder Interface Cable (QCI-C-D15P-D15S-nn)**

This cable goes between the motor and the QuickSilver Controller/Driver (SilverNugget). Replace the last two digits “nn” with length of cable in feet (i.e – 10 for 10 feet).

#### **Motor Power Interface Cable (QCI-C-D5P-D5S-nn)**

This cable goes between the motor and the SilverNugget N3. Replace the last two digits “nn” with length of cable in feet (i.e. –10 for 10 feet).

#### **Power Supply (i.e. SE-1000-48 or RSP-1000-48)**

A 12-48V power supply producing the amps specified above (see General Motor Specifications) is required. QuickSilver recommends:

- SE-1000-48 (48V, 20.8A)
  - RSP-1000-48 (48V, 20.8A) with power factor correction.

#### **Power Supply Cord w/ Flying Leads (QCI-C-ACP-FLY-6)**

#### **2' SMI Interface Cable (QCI-EC-SMI-02)**

The QCI-EC-SMI-nn is used to connect the SilverNugget N3 X-series controller to the QCI-BOB4 breakout board. Replace the last two digits “nn” with length of cable in feet (i.e. –10 for 10 feet). Standard lengths are 2 and 10 feet

#### **Basic Breakout Board (QCI-BO-B4)**

QCI recommends purchasing a breakout to simplify wiring processor power, RS-485 communication, and 7 LVTTTL I/O. The breakouts connect to the SilverNugget SMI connector through an SMI cable

#### **USB to RS485 converter (QCI-USB-RS485)**

USB-RS-485 converter provides a USB powered serial port with RS-485 signaling. See QCITD073 USB-RS485 Converter Setup Guide for information on network termination and shielding recommendations.

#### **10' Power cable (QCI-EC-P10)**

This cable provides 4 power conductors for V+, V-, and clamp resistor, in addition to a chassis ground connection

#### **50W Clamp Resistors (QCI-R4-50)**

Rapid deceleration of larger loads may require the use of the Primary Clamp circuit, requiring adding external power resistors between Clamp+ and Clamp.

NEMA 34 I-Grade Motors/Encoders	
MOTOR TYPE/SIZE	MOTOR INTERFACE
<ul style="list-style-type: none"> <li>• <b>A34L-1</b></li> </ul>	<b>Blank</b> – Standard <ul style="list-style-type: none"> <li>• DB15HD Motor/Encoder Connector</li> </ul>
<ul style="list-style-type: none"> <li>• <b>A34M-1</b></li> <li>• <b>A34HK-1</b></li> </ul>	<b>Blank</b> – Standard <ul style="list-style-type: none"> <li>• DB15HD Encoder Connector</li> <li>• DB5 Power Connector</li> </ul>
<ul style="list-style-type: none"> <li>• <b>A34N-1</b></li> <li>• <b>A34H-1</b></li> <li>• <b>A34HC-1</b></li> <li>• <b>A34HC-2</b></li> <li>• <b>A34HC-3</b></li> <li>• <b>A34HC-4</b></li> </ul>	<b>Blank</b> – Standard <ul style="list-style-type: none"> <li>• DB15HD Encoder Connector</li> <li>• DB5 Power Connector</li> </ul> <b>6T</b> – IP65 (special order) <ul style="list-style-type: none"> <li>• Round Encoder Connector (14-Pin)</li> <li>• Round Power Connector (6-Pin)</li> </ul>
To create a part number, choose one from each column above. For example: IP65 34HC-1 Motor	
<b>QCI-A34HC-1</b>	<b>6T</b>
This selection creates the part number: <b>QCI-A34HC-1-6T</b>	

**Standard Items**

- QCI-A34HC-1
- QCI-A34HC-2
- QCI-A34HC-3
- QCI-A34HC-4

**Obsolete/Special Orders**

- QCI-A34L-1
- QCI-A34M-1
- QCI-A34N-1
- QCI-A34H-1
- QCI-A34HK-1

**Contact Information**

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