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1000 Series

Brush, Rotary DC Servomotors

Dynamically balanced, skewed rotor for exceptionally smooth velocity

Standard NEMA 23, 34, and 42 frame sizes

Standard stainless-steel shaft resists corrosion

Double shielded bearing for long motor life

Options include tachometer, encoders, metric flange, and integral cable



The 1000 series motors are Aerotech's high-performance brush-type rotary DC servomotors. These motors are designed for a variety of general and high-performance motion control applications. Custom mechanical or electrical configurations are also available with minimal lead time.

Skewed Rotor

The 1000 series DC motors feature a dynamically-balanced skewed rotor and tachometer assembly for less cogging and smoother velocity control. The skewed laminations help reduce the effects of torque ripple that can cause velocity disturbance. The result is a much smoother velocity profile for such applications as machine tool, medical, semiconductor, and scanning.

Standard NEMA Frames

The 1000 series motors come in standard NEMA frame sizes including 23, 34, and 42. The standardized flange and shaft dimensions make it easy to mount to existing NEMA-based machines.

Each motor is constructed from high-grade materials including a stainless-steel shaft, double-shielded bearings, and precision machined housing. Full burn-in of each motor ensures long-term reliable operation.

Wide Torque Range

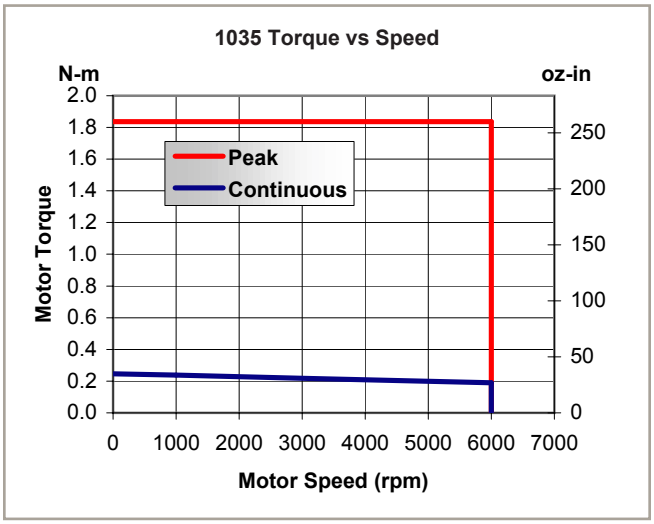
The 1000 series DC motors cover a wide range of torque to meet virtually all high-end DC motor applications. Continuous output torque ranges from 0.25 N-m (35 oz-in) to 1.48 N-m (210 oz-in). Peak output torque ranges from 1.84 N-m (260 oz-in) to 7.1 N-m (1000 oz-in).

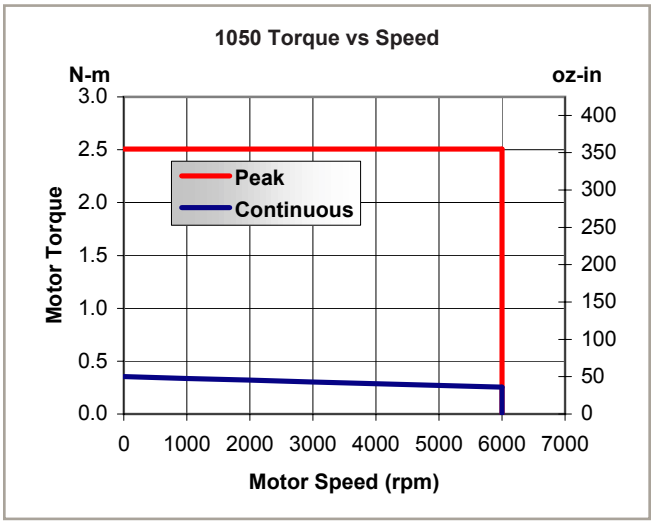
Customized Applications

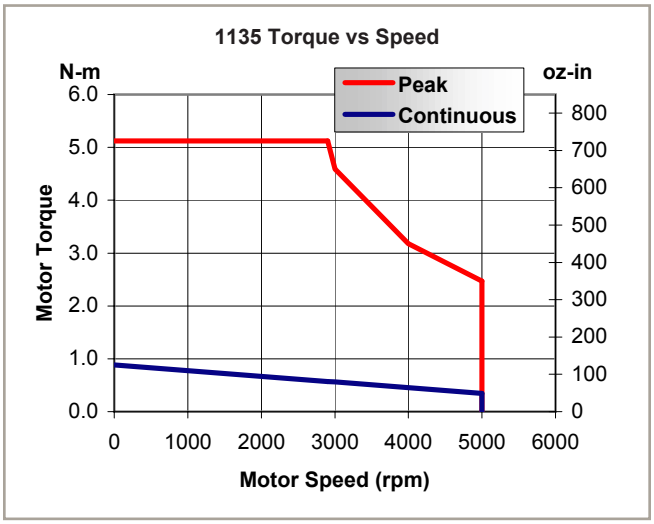
Standard motor models are available with and without a DC tachometer in different voltage gradients. Options include alternate windings, metric shafts and flanges, encoders with line driver or amplified sine-wave output, rear housings with integral cables, or MS-style heavy-duty connectors.

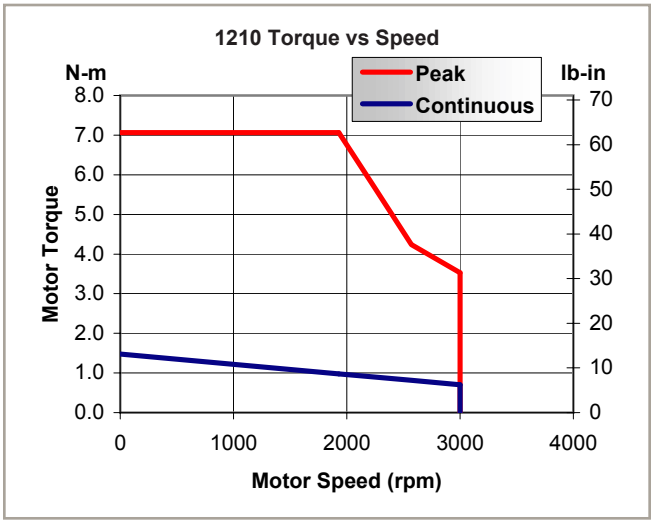
1000 Series SPECIFICATIONS

Motor Model	Units	1035	1050	1135	1210
Performance Specifications					
Stall Torque, Continuous	N·m (oz·in)	0.25 (35)	0.35 (50)	0.95 (135)	1.48 (210)
Peak Torque	N·m (oz·in)	1.84 (260)	2.52 (355)	5.22 (736)	7.1 (1000)
Maximum Speed	rpm	6,000	6,000	5,000	3,000
Rated Power	W (hp)	129 (0.2)	146 (0.2)	200 (0.3)	220 (0.3)
Electrical Specifications					
Winding Designation		01	01	01	01
Continuous Stall Current	A	4.1	5.4	5.5	6.0
Torque Constant	N·m/A oz·in/A	0.06 (8.5)	0.07 (9.3)	0.17 (24.5)	0.25 (35.0)
Terminal Resistance	Ω	0.9	0.7	1.4	1.8
BEMF Constant	V/krpm	6.3	6.9	18.2	25.9
Armature Inductance	mH	2.0	2.5	3.1	4.9
Armature Moment of Inertia	$kg \cdot m^2$ $oz \cdot in \cdot s^2$	$3.8x10^{-5}$ (0.005)	$5.7x10^{-5}$ (0.008)	$3.5x10^{-4}$ (0.052)	$9.2x10^{-4}$ (0.13)
Recommended Bus Voltage	VDC_{DC}	40	40	80	80
Maximum Terminal Voltage	VDC_{DC}	72	72	104	137
Motor Constant	N·m/√W oz·in/√W	0.063 (9.0)	0.084 (11.1)	0.14 (20.7)	0.17 (26.1)
Mechanical Specifications					
Frame Size	NEMA	23	23	34	42
Motor Weight Without Tach	kg (lb)	1.2 (2.5)	1.6 (3.5)	3.7 (8.1)	4.1 (9.0)
Motor Weight With Tach	kg (lb)	1.6 (3.5)	2.1 (4.5)	4.6 (10.1)	5.2 (11.5)
Shaft Radial Load (Max) at Max Speed	N (lb)	1.6 (3.5)		89 (20)	134 (30)
Standards		2011/65/EU RoHS 2 Directive			N/A



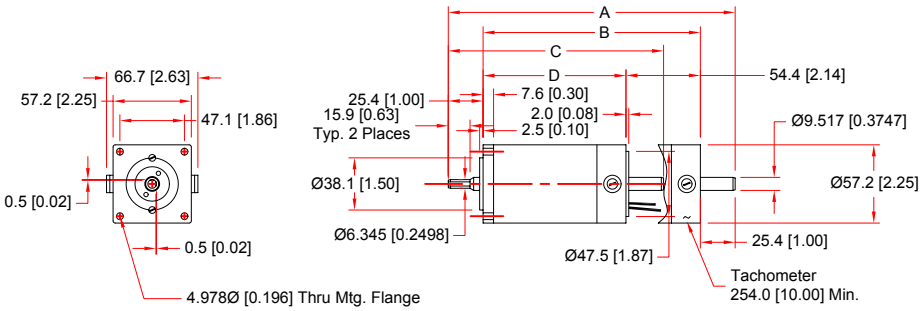






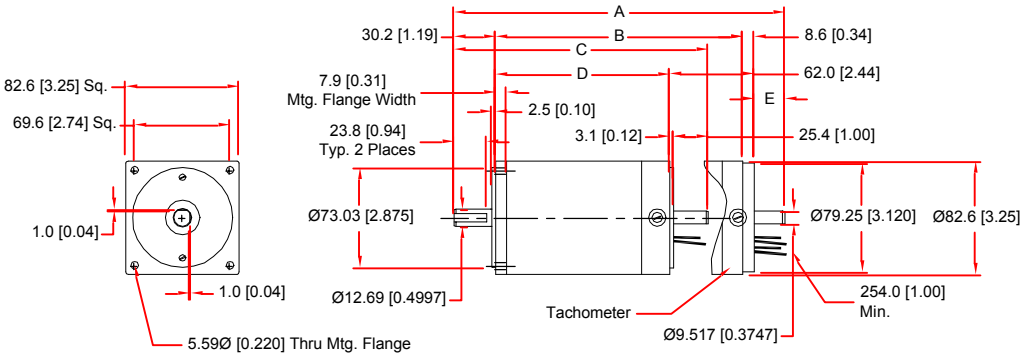
1000 Series DIMENSIONS

NEMA 23



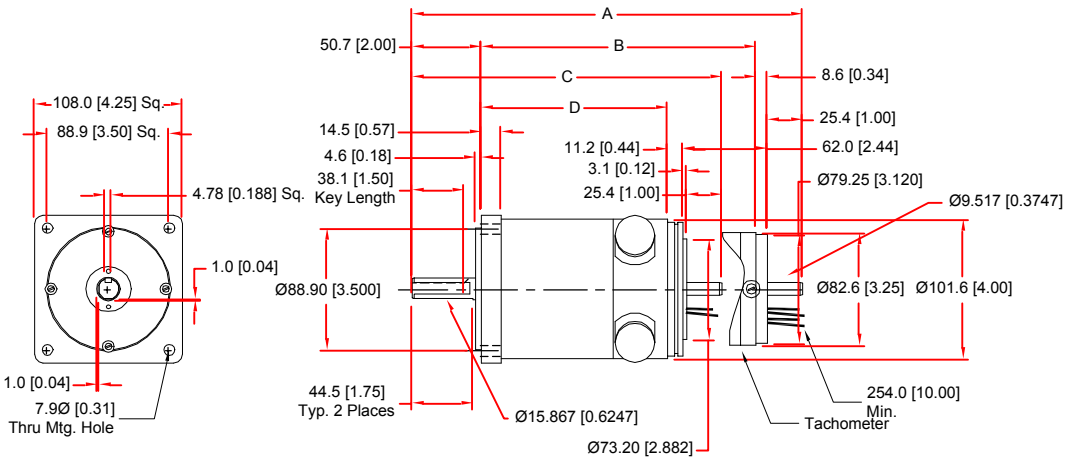
Model Name	Dimensions - Millimeters [Inches]			
	A	B	C	D
1035LT	-	-	157.2 [6.19]	104.4 [4.11]
1050LT	-	-	177.5 [6.99]	124.7 [4.91]
1035DC	209.6 [8.25]	158.8 [6.25]	-	-
1050DC	229.9 [9.05]	179.1 [7.05]	-	-

NEMA34



Model Name	Dimensions - Millimeters [Inches]				
	A	B	C	D	E
1135DC	278.1 [10.95]	215.4 [8.48]	-	-	23.9 [0.94]
1135LT	-	-	220.7 [8.69]	162.1 [6.38]	-

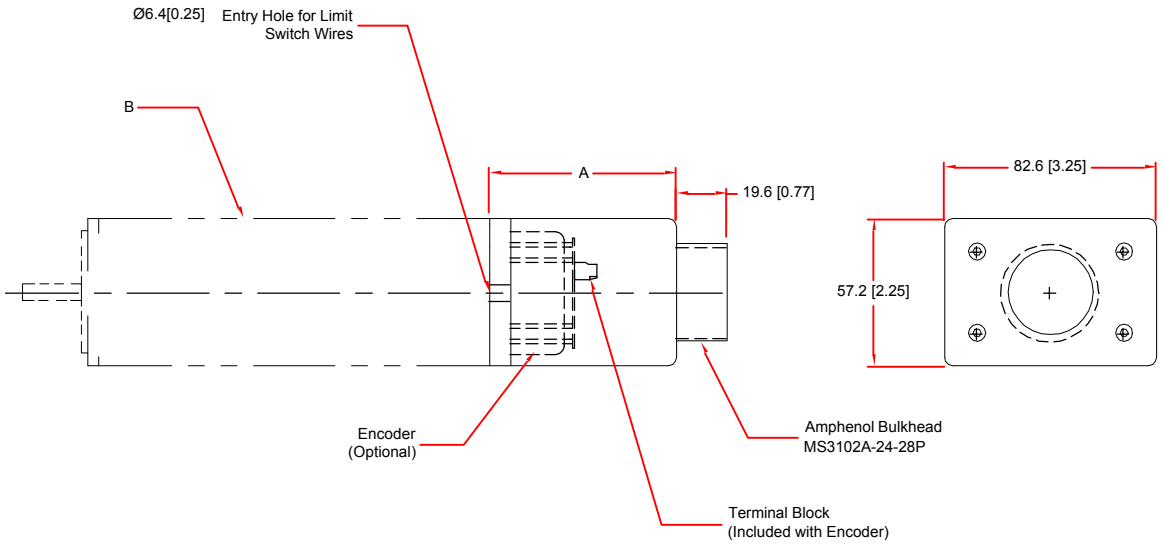
NEMA42



Model Name	Dimensions - Millimeters [Inches]			
	A	B	C	D
1210DC	285.0 [11.22]	200.2 [7.88]	-	-
1210LT	-	-	226.1 [8.90]	135.6 [5.34]

NEMA 23 Motor Cans

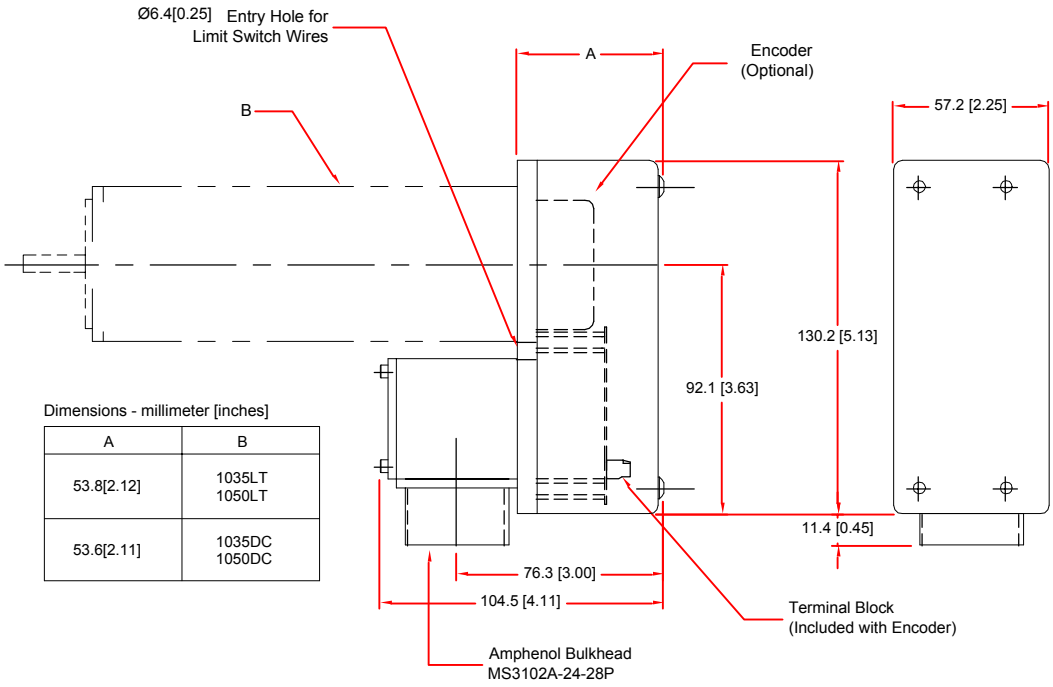
MS01: End-Exit Connector



Dimensions - millimeter [inches]

A	B
72.6[2.86]	1035LT 1050LT
73.9[2.91]	1035DC 1050DC

MSOF: Side-Exit Connector

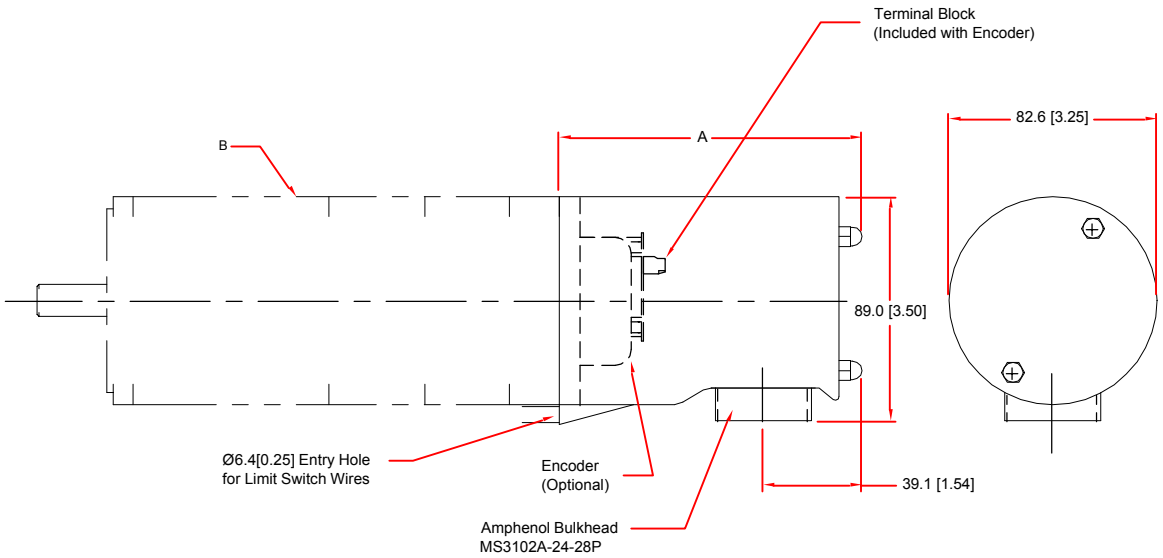


Dimensions - millimeter [inches]

A	B
53.8[2.12]	1035LT 1050LT
53.6[2.11]	1035DC 1050DC

NEMA 34 Motor Cans

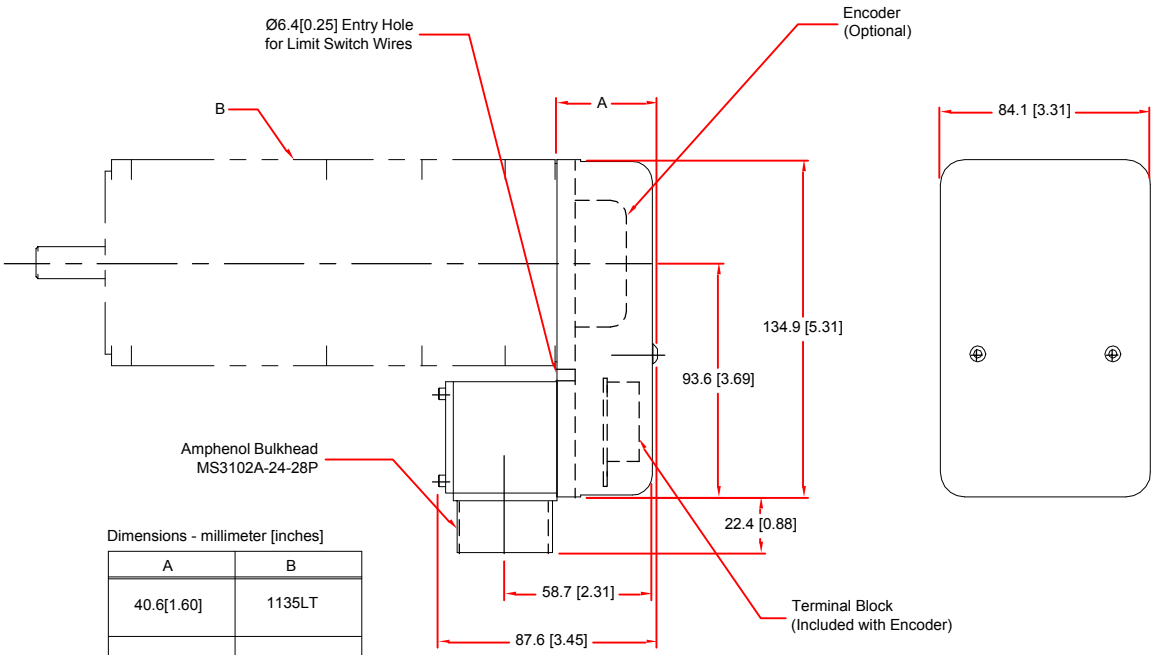
MSO1: Side-Exit Connector



Dimensions - millimeters [inches]

A	B
123.2[4.85]	1135LT
120.0[4.73]	1135DC

MSOF: Side-Exit Connector



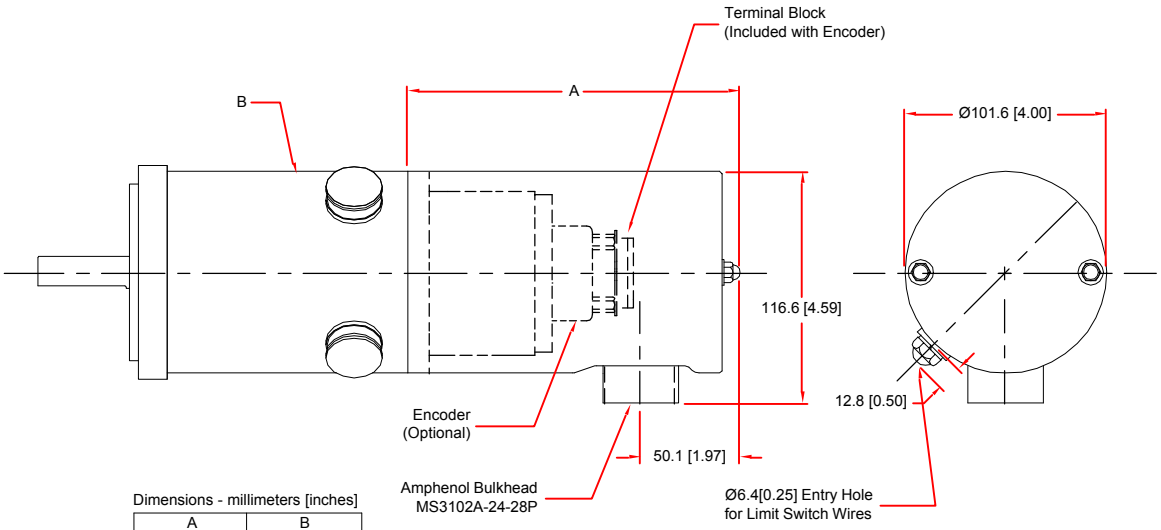
Dimensions - millimeter [inches]

A	B
40.6[1.60]	1135LT
39.6[1.56]	1135DC

1000 Series DIMENSIONS

NEMA 42 Motor Cans

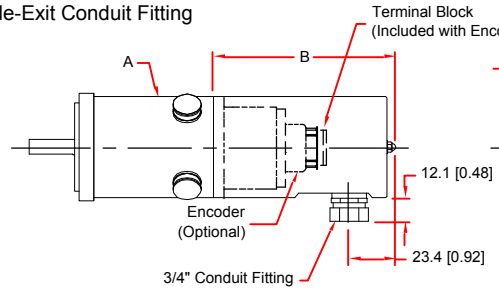
MSO1: Side-Exit Connector



Dimensions - millimeters [inches]

A	B
110.5[4.35]	1210LT
167.4[6.59]	1210DC

MST: Side-Exit Conduit Fitting



Dimensions - millimeters [inches]

A	B
1210LT	154.7[6.09]
1210DC	183.4[7.22]

1000 Series ORDERING INFORMATION

NEMA Brushless Slotless Rotary Servo Motor

1035	1035 NEMA23 brush DC rotary servo motor
1050	1050 NEMA23 brush DC rotary servo motor
1135	1135 NEMA34 brush DC rotary servo motor
1210	1210 NEMA42 brush DC rotary servo motor

Tachometer (Required)

LT	No tachometer
DC	Includes 3V/krpm tachometer

Connector (Required)

-MSO1	Rear housing, end-exit MS connector
-MSOF	Rear housing, side-exit MS connector

Feedback (Required)

-E1000AS	1000 lines/rev 1 Vpp incremental encoder
-E1000LD	1000 lines/rev TTL incremental encoder
-E2000LD	2000 lines/rev TTL incremental encoder

Vacuum Preparation (Optional)

-VAC6	Vacuum preparation to $10e^{(-6)}$ torr

Note: Vacuum preparation motors are ordered as an Engineering Special line item.

Integration (Required)

Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required, or if you desire custom integration support with your system.

-TAS	Integration - Test as system Testing, integration, and documentation of a group of components as a complete system that will be used together (ex: drive, controller, and stage). This includes parameter file generation, system tuning, and documentation of the system configuration.
-TAC	Integration - Test as components Testing and integration of individual items as discrete components that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.

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