

# 2100 SERIES SUBSEA LINEAR ACTUATOR

## GENERAL SPECIFICATIONS:

- CONTINUOUS OUTPUT FORCE:
  - STANDARD UNIT (2100L): 125 LB
  - ACME SCREW UNIT (2110L): 35 LB
- CONTINUOUS OUTPUT SPEED:
  - STANDARD UNIT (2100L): 2.4 IN/S (AT 24 VDC)
  - ACME SCREW UNIT (2110L): 2.4 IN/S (AT 24 VDC)
- PEAK OUTPUT FORCE:
  - STANDARD UNIT (2100L): 225 LB
  - ACME SCREW UNIT (2110L): 75 LB
  - HIGH-FORCE MODEL AVAILABLE WITH PEAK OUTPUT FORCE UP TO 900 LB. CONTACT 2G FOR DETAILS.
- STROKE LENGTH:
  - 2, 4, OR 6 INCH, WITH INTERNAL COMPENSATOR
  - 8 INCH STROKE AVAILABLE WITH EXTERNAL COMPENSATOR
- INTEGRATED SERVO CONTROL AND MOTOR DRIVER
- INTERNAL PRESSURE COMPENSATOR (EXCEPT 8" STROKE UNITS)
- STANDARD CONNECTOR: 8-PIN MCBH MICRO WET MATE
- COMMUNICATION PHYSICAL LAYER OPTIONS: RS-232, RS-485, CAN, ETHERNET, ANALOG VOLTAGE CONTROL, AND ANALOG CURRENT CONTROL

## OPERATING ENVIRONMENT:

- DESIGNED FOR MISSION-CRITICAL SUBSEA USE
- PRESSURE-BALANCED OIL-FILLED HOUSING
- CORROSION RESISTANT HOUSING MATERIAL OPTIONS
  - STAINLESS STEEL, PASSIVATED
  - ALUMINUM, HARDCOAT ANODIZED
  - TITANIUM
- OPERATIONAL DEPTH RATING: >6000 METERS SEAWATER
- DESIGN PRESSURE: 10,000 PSI
- OPERATING TEMPERATURE RANGE: -20°C TO 65°C
- STORAGE TEMPERATURE RANGE: -30°C TO 85°C
- OPERATING VOLTAGE:
  - STANDARD: 24 VDC NOMINAL (12-60 VDC RANGE)
  - OPTIONAL: 96 VDC NOMINAL (50-120 VDC RANGE)

## ONBOARD MOTOR DRIVER AND SERVO SYSTEM:

- CLOSED-LOOP POSITION CONTROL WITH PID TUNING
- CONFIGURABLE LIMITS FOR CURRENT, POWER, VELOCITY, AND ACCELERATION
- CONFIGURABLE MOTION PROFILE GENERATOR
- CONTACTLESS NON-WEARING ABSOLUTE POSITION SENSOR
- DOES NOT REQUIRE HOMING
- 0.010" ACCURACY, 0.001" RESOLUTION
- COMMS PROTOCOL: MODBUS & 2G PACKETS
- DEFAULT BAUD RATE: 115200

STANDARD 8-PIN  
MCBH CONNECTOR

STANDARD BALL SCREW DRIVE  
OR OPTIONAL SELF-LOCKING  
ACME SCREW DRIVE

INTERNAL PRESSURE  
COMPENSATOR

CORROSION-RESISTANT  
HOUSING MATERIALS

BALL-JOINT ROD END OR  
CLEVIS ON PUSHROD



**2G ENGINEERING**  
WWW.2G-ENG.COM 608-825-4799

TITLE: 2100 SERIES LINEAR  
ACTUATOR

MATERIAL:

-

MATERIAL COMMENTS:

FINISH:

UNLESS OTHERWISE SPECIFIED:

- DIMENSIONS ARE IN INCHES  
- DIMENSIONS IN [ ] ARE IN mm  
- TOLERANCES:  
DECIMALS:  
.X ±.05  
.XX ±.015  
.XXX ±.005  
ANGULAR:  
MACHINED: ±0.5°  
OTHER: ±2°  
- THREAD DEPTHS ON TAPPED HOLES  
ARE MINIMUMS  
- TAP DRILL DIAMETERS ARE REFERENCE  
- MAX FILLET RADIUS ON INSIDE  
SHARP CORNERS: 0.005  
- BREAK ALL SHARP EDGES 0.010 MAX  
AND REMOVE BURRS  
- SURFACE FINISH: ≤63 Ra (µin)

INITIALS

DATE

DRAWN	DJF	08/17/2022
APPROVED	DJF	08/17/2022

**PROPRIETARY AND CONFIDENTIAL**  
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SIZE  
B

THIRD ANGLE  
PROJECTION

INTERPRET GEOMETRIC DIMENSIONING  
& TOLERANCING PER ASME Y14.5-2009

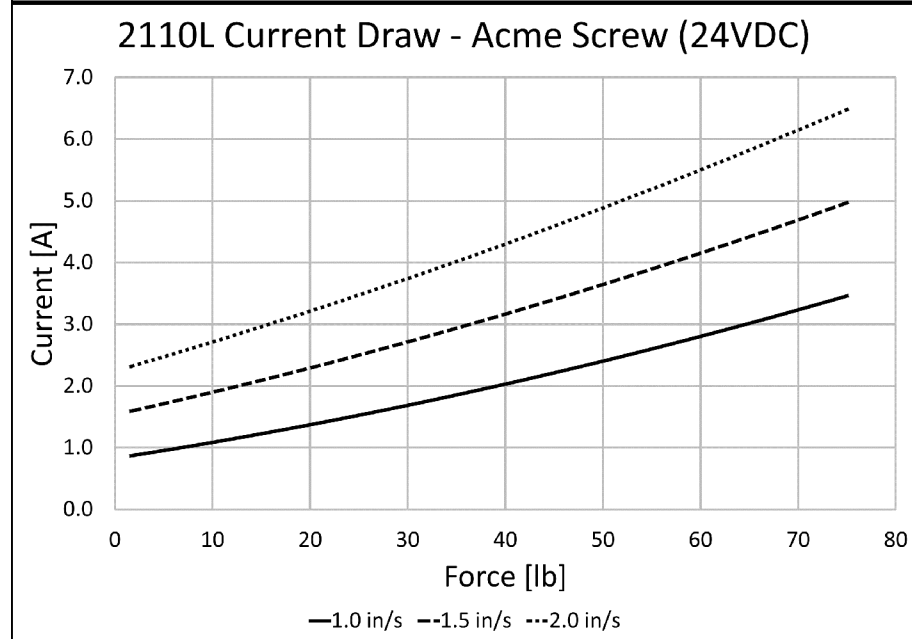
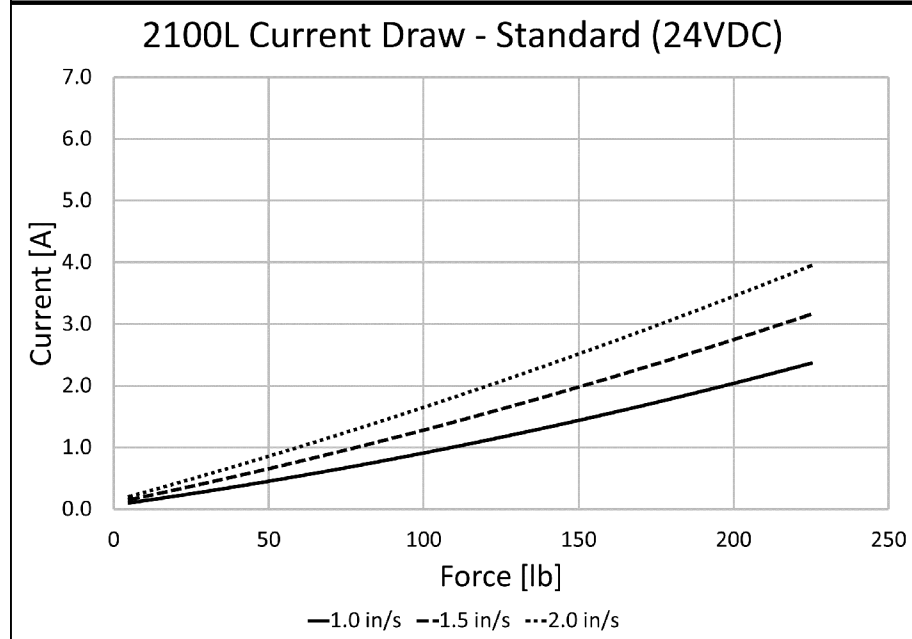
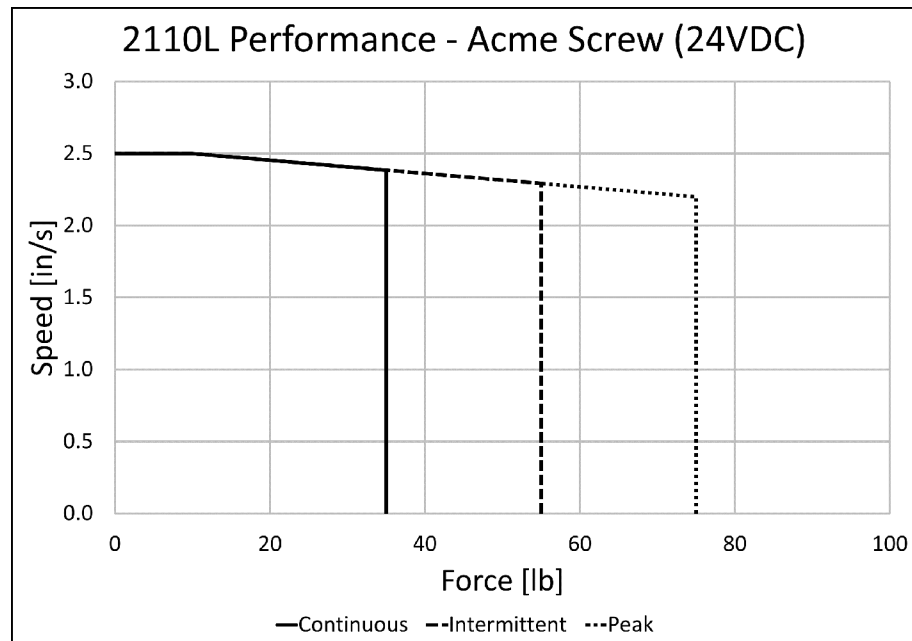
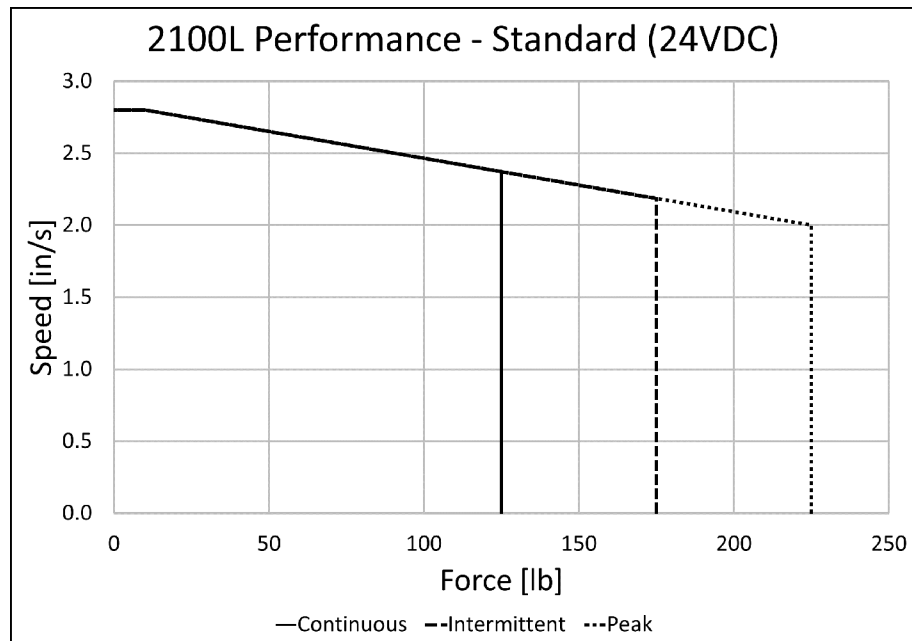
DWG. NO.

**2100L**

SCALE: 2:3

REV.  
C

SHEET 1 OF 6



RATED OUTPUT FORCE [LB]				
MODEL	DRIVE SCREW	CONTINUOUS	INTERMITTENT	PEAK
2100L	STANDARD BALL SCREW DRIVE	125	175	225
2110L	SELF-LOCKING ACME SCREW DRIVE	35	55	75

ALL CHARTS SHOW PERFORMANCE AT 24 VDC. PERFORMANCE AT OTHER VOLTAGES WILL IMPACT PERFORMANCE.

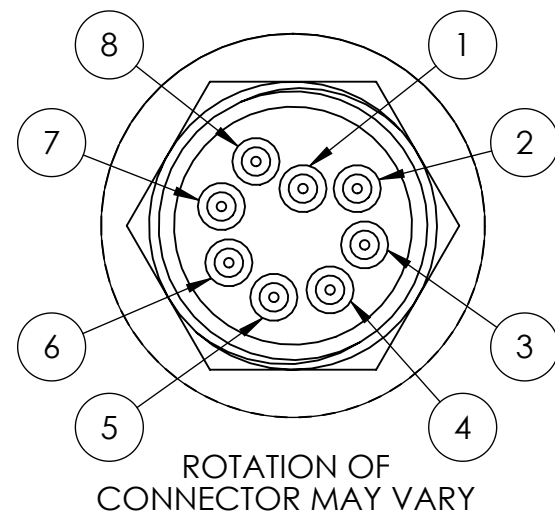
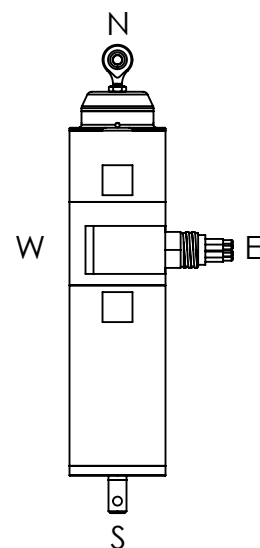
**ACTUATOR RATED LIFE (L<sub>10</sub>):**

- CONTINUOUS DUTY: 50,000 INCHES OF TRAVEL.
- INTERMITTENT DUTY: 20,000 INCHES OF TRAVEL.
- INSPECT SEAL EVERY 5000 INCHES OF TRAVEL.

MATERIAL: -	<b>UNLESS OTHERWISE SPECIFIED:</b> - DIMENSIONS ARE IN INCHES - DIMENSIONS IN [ ] ARE IN mm - TOLERANCES: DECIMALS: .X ±.05 .XX ±.015 .XXX ±.005 ANGULAR: MACHINED: ±0.5° OTHER: ±2° - THREAD DEPTHS ON TAPPED HOLES ARE MINIMUMS - TAP DRILL DIAMETERS ARE REFERENCE - MAX FILLET RADIUS ON INSIDE SHARP CORNERS: 0.005 - BREAK ALL SHARP EDGES 0.010 MAX AND REMOVE BURRS - SURFACE FINISH: ≤63 Ra (µin)	INITIALS	DATE	<b>2G ENGINEERING</b> WWW.2G-ENG.COM 608-825-4799 <b>TITLE: 2100 SERIES LINEAR ACTUATOR</b>	
MATERIAL COMMENTS:		DRAWN	DJF		08/17/2022
FINISH:		APPROVED	DJF		08/17/2022
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF 2G ENGINEERING. ANY DISTRIBUTION OR REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF 2G ENGINEERING IS PROHIBITED.		SIZE B THIRD ANGLE PROJECTION		DWG. NO. <b>2100L</b> SCALE: 2:3 SHEET 2 OF 6	

SERIES		HOUSING MATERIAL		STROKE LENGTH		PUSHROD MOUNT		FIXED END MOUNT		CONNECTOR ORIENTATION		COMMUNICATION		VOLTAGE	
2100L	STANDARD BALL SCREW DRIVE	SS	316 STAINLESS STEEL, PASSIVATED	2	2 INCH	A	Ø 3/16" ROD END	A	Ø 3/16" ROD END	N	TOWARD FIXED END	8R	RS-232 AND RS-485	01	12-60VDC OPERATIONAL RANGE
2110L	SELF-LOCKING ACME SCREW DRIVE	AL	6061-T6 ALUMINUM, BLACK HARDCOAT ANODIZED	4	4 INCH	B	Ø 1/4" ROD END	B	Ø 1/4" ROD END	S	TOWARD PUSHROD	8V	RS-232 AND 0-10V ANALOG VOLTAGE CONTROL	08	50-120VDC OPERATIONAL RANGE
		-	TI			C	Ø 5/16" ROD END	C	Ø 5/16" ROD END	E	90° CW FROM FIXED END	8A	RS-232 AND 4-20mA ANALOG CURRENT CONTROL		
						D	Ø 3/8" ROD END	D	Ø 3/8" ROD END	W	270° CW FROM FIXED END	8C	RS-232 AND CAN		
						E	Ø 3/16" CLEVIS	E	NOSE MOUNT	8E	ETHERNET				
						F	Ø 1/4" CLEVIS			6L	NON-ISOLATED RS-232 AND RS-485				

**CONNECTOR ORIENTATION**  
SHOWN: E (90° CLOCKWISE FROM FIXED END)



PIN ASSIGNMENTS						
PIN	8R	8V	8A	8C	8E	6L*
1	VIN -	VIN -	VIN -	VIN -	VIN -	RS-232 TX
2	VIN +	VIN +	VIN +	VIN +	VIN +	RS-232 RX
3	N/C	N/C	N/C	N/C	RS-232 TX	RS-485 -
4	COMMS GND	COMMS GND	COMMS GND	COMMS GND	RS-232 RX	VIN +
5	RS-232 TX	RS-232 TX	RS-232 TX	RS-232 TX	ETHERNET TX+	VIN -
6	RS-232 RX	RS-232 RX	RS-232 RX	RS-232 RX	ETHERNET TX-	RS-485 +
7	RS-485 +	0-10V ANALOG INPUT	4-20 mA ANALOG INPUT	CAN HI	ETHERNET RX+	N/A
8	RS-485 -	0-10V ANALOG OUTPUT	4-20mA ANALOG OUTPUT	CAN LO	ETHERNET RX-	N/A

\*NON-ISOLATED

[Click here for user manual and communication protocol information.](#)

2G ENGINEERING CAN CUSTOMIZE ANY ACTUATOR TO SUIT YOUR APPLICATION.

CERTAIN OPTIONS MAY IMPACT DIMENSIONS, PERFORMANCE, AND LEAD TIME.

CONTACT 2G TO CONFIRM SPECIFICATIONS FOR YOUR APPLICATION.

2G ENGINEERING, LLC  
2752 CAPITOL DR., #103  
SUN PRAIRIE, WI 53590

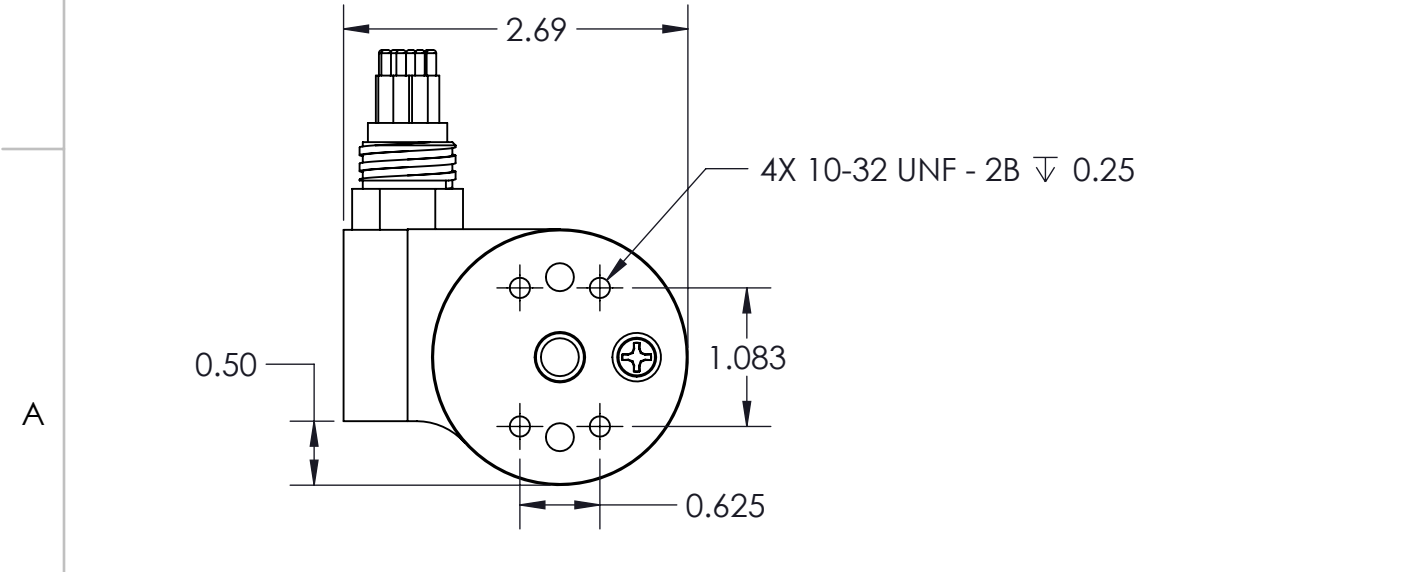
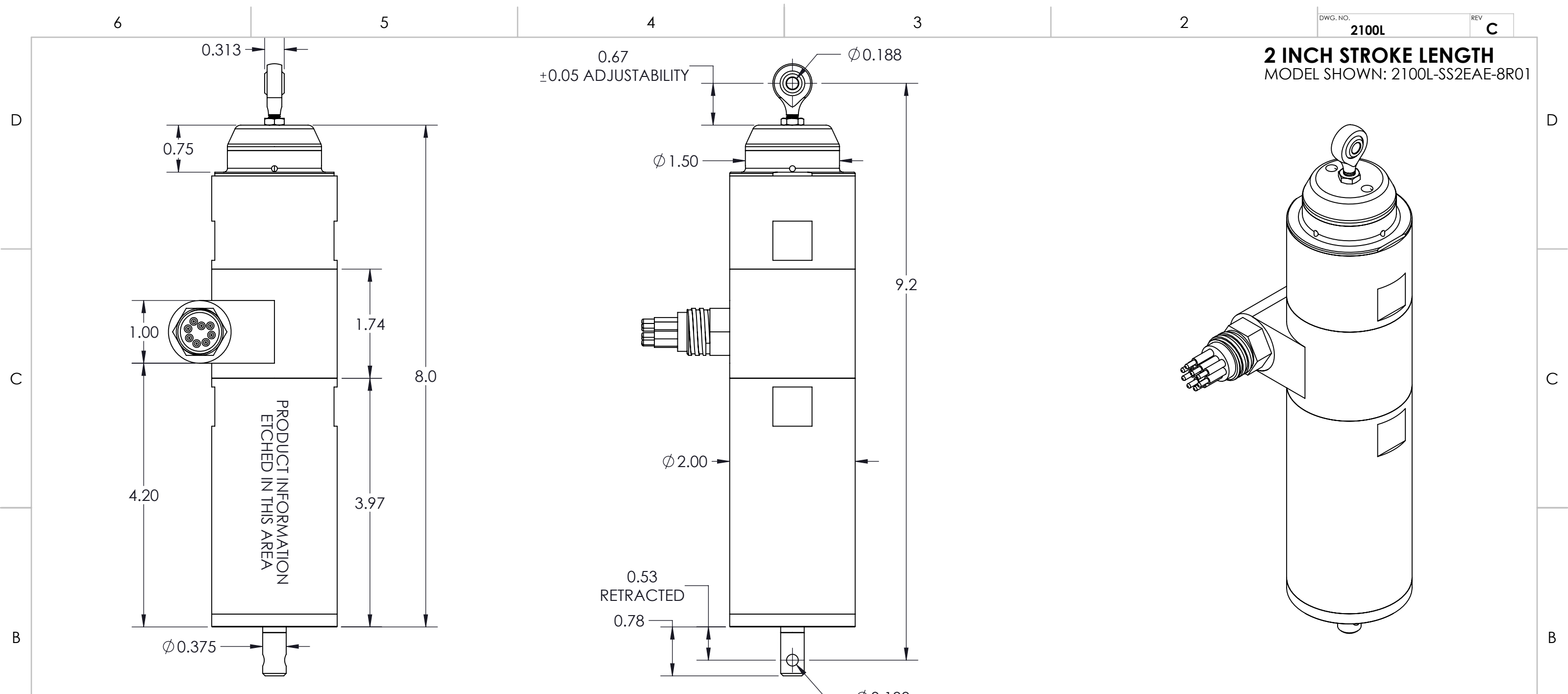
(608) 825-4799

SALES@2G-ENG.COM

WWW.2G-ENG.COM

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		SIZE B THIRD ANGLE PROJECTION		SCALE: 1:4		
		INTERPRET GEOMETRIC DIMENSIONING & TOLERANCING PER ASME Y14.5-2009		SHEET 3 OF 6		

**2 INCH STROKE LENGTH**  
MODEL SHOWN: 2100L-SS2EAE-8R01



NOTES:

- ORIENTATION AND POSITION OF ROD ENDS IS ADJUSTABLE.
- ORIENTATION OF NOSE MOUNT SCREW HOLES MAY VARY RELATIVE TO CONNECTOR HOUSING.
- ORIENTATION OF WRENCH FLATS ON ACTUATOR BODY MAY VARY.

ACTUATOR WEIGHT [LB]		
2 INCH STROKE UNIT		
STAINLESS	ALUMINUM	TITANIUM
4.4 DRY	2.6 DRY	3.1 DRY
3.5 WET	1.7 WET	2.2 WET

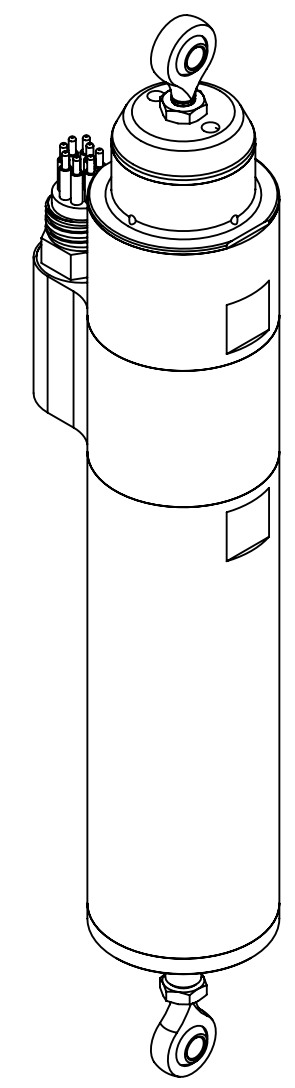
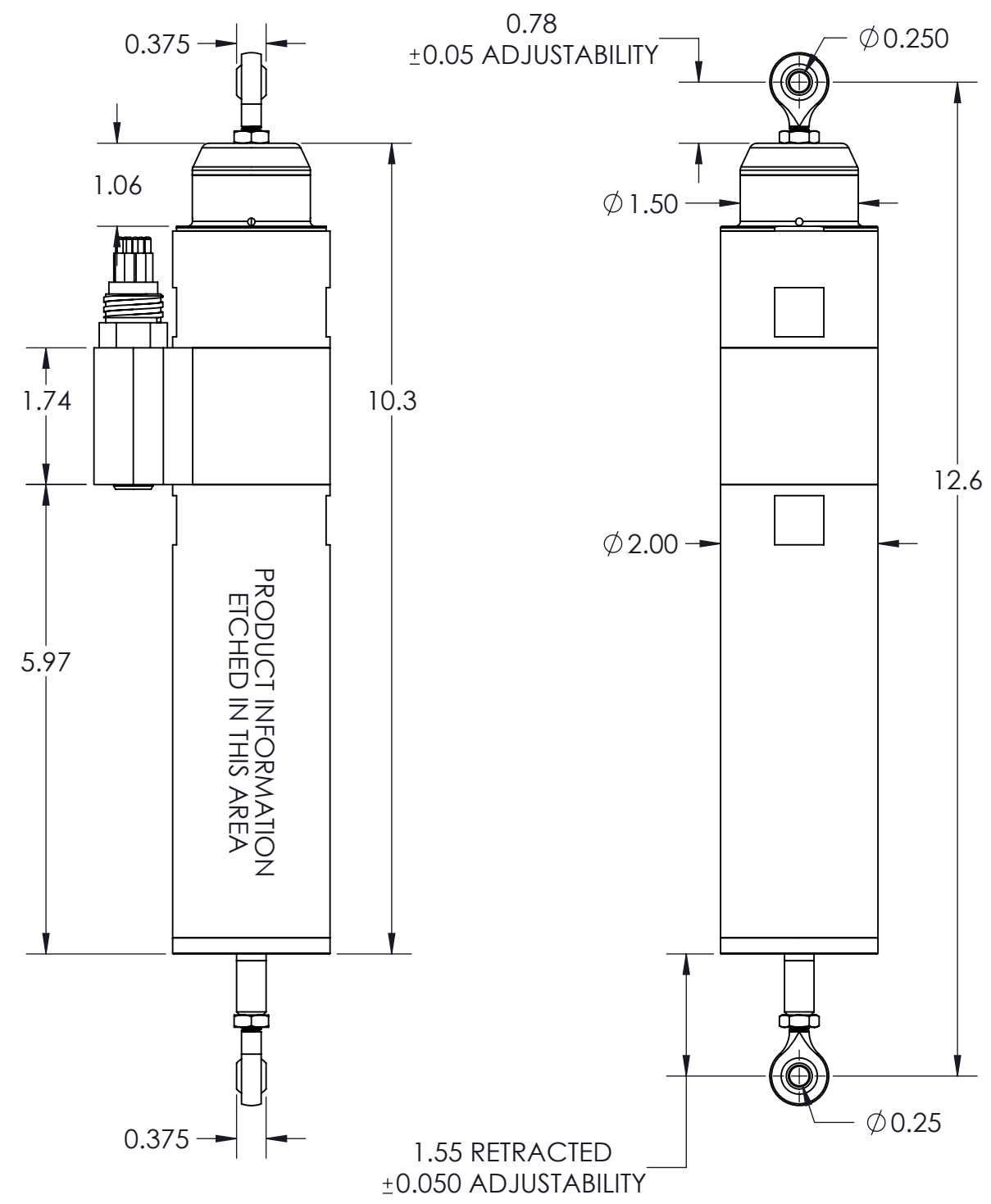
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TITLE: **2100 SERIES LINEAR ACTUATOR**

SIZE	THIRD ANGLE PROJECTION	DWG. NO.	<b>2100L</b>	REV.	<b>C</b>
INTERPRET GEOMETRIC DIMENSIONING & TOLERANCING PER ASME Y14.5-2009		SCALE: 2:3	SHEET 4 OF 6		

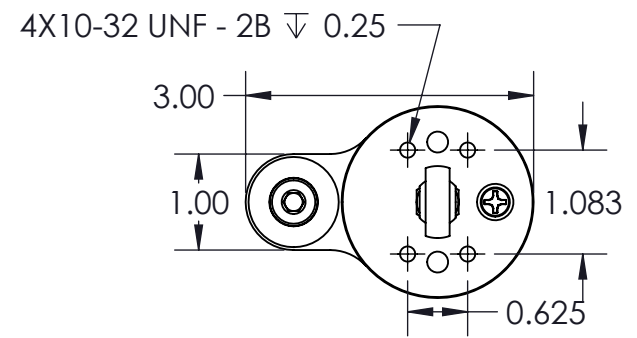
**4 INCH STROKE LENGTH**  
MODEL SHOWN: 2100L-SS4BBN-8R01



NOTES:

1. ORIENTATION AND POSITION OF ROD ENDS IS ADJUSTABLE.
2. ORIENTATION OF NOSE MOUNT SCREW HOLES MAY VARY RELATIVE TO CONNECTOR HOUSING.
3. ORIENTATION OF WRENCH FLATS ON ACTUATOR BODY MAY VARY.

ACTUATOR WEIGHT [LB] 4 INCH STROKE UNIT		
STAINLESS	ALUMINUM	TITANIUM
5.3 DRY 4.2 WET	3.0 DRY 1.9 WET	3.9 DRY 2.7 WET



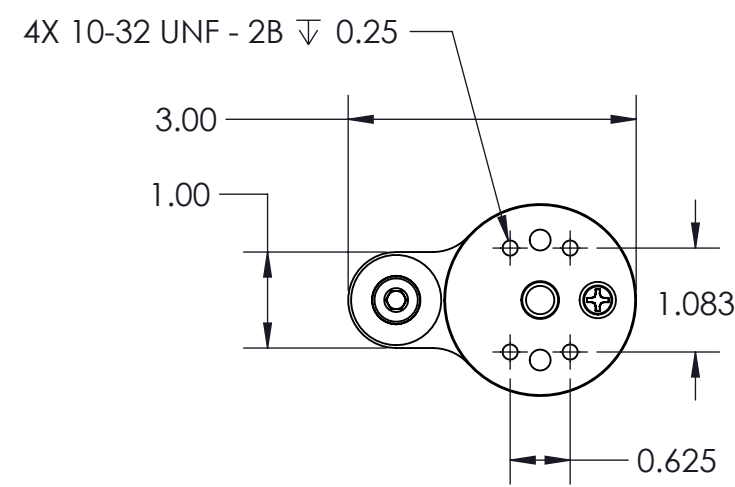
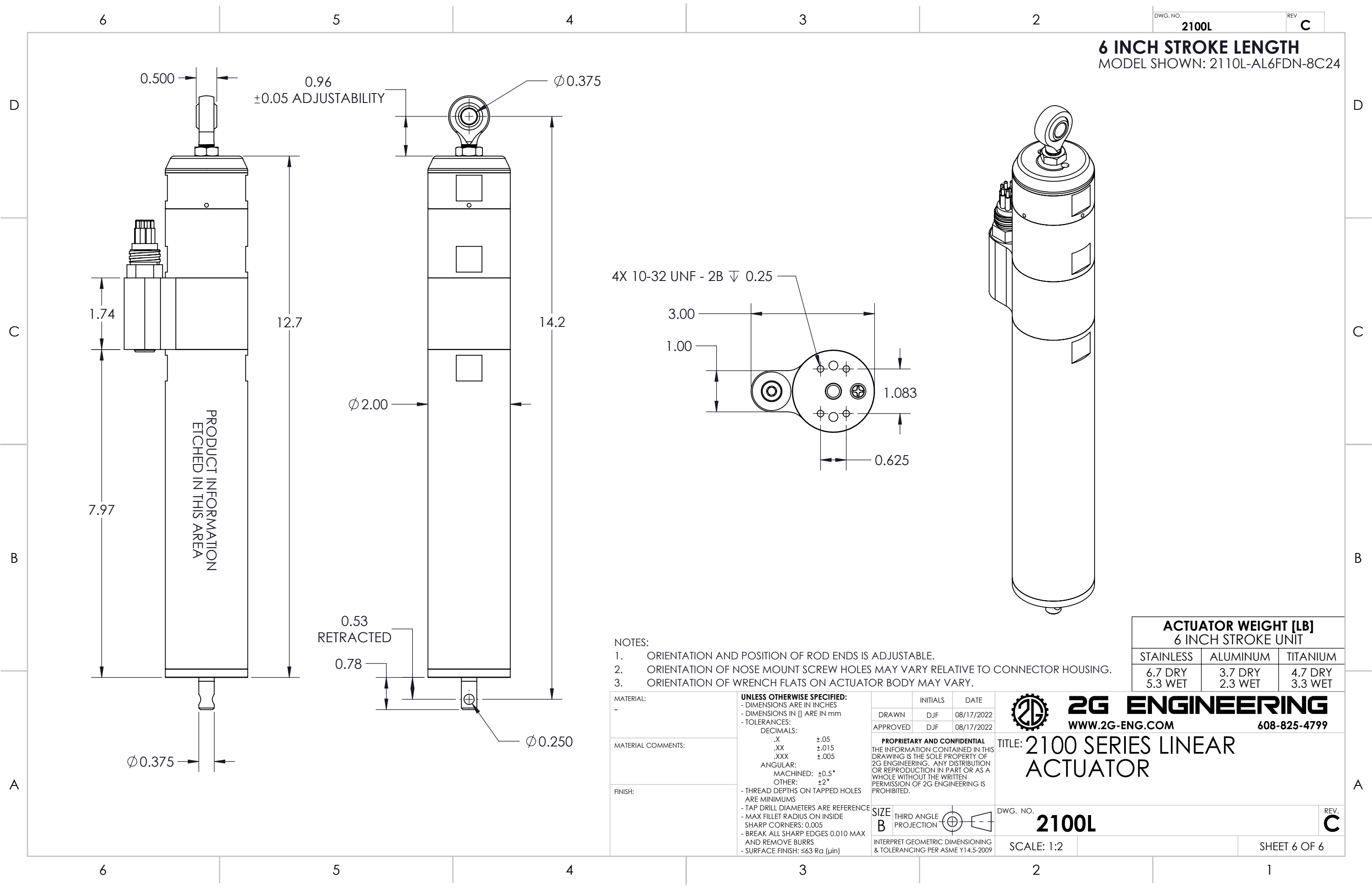
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MATERIAL COMMENTS:		DRAWN	DJF 08/17/2022
FINISH:		APPROVED	DJF 08/17/2022

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TITLE: **2100 SERIES LINEAR ACTUATOR**

DWG. NO. **2100L** REV. **C**

**6 INCH STROKE LENGTH**  
**MODEL SHOWN: 2110L-AL6FDN-8C24**



- NOTES:
1. ORIENTATION AND POSITION OF ROD ENDS IS ADJUSTABLE.
  2. ORIENTATION OF NOSE MOUNT SCREW HOLES MAY VARY RELATIVE TO CONNECTOR HOUSING.
  3. ORIENTATION OF WRENCH FLATS ON ACTUATOR BODY MAY VARY.

ACTUATOR WEIGHT [LB] 6 INCH STROKE UNIT		
STAINLESS	ALUMINUM	TITANIUM
6.7 DRY 5.3 WET	3.7 DRY 2.3 WET	4.7 DRY 3.3 WET

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	SIZE	THIRD ANGLE PROJECTION		
	INTERPRET GEOMETRIC DIMENSIONING & TOLERANCING PER ASME Y14.5-2009			

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TITLE: **2100 SERIES LINEAR ACTUATOR**

DWG. NO. **2100L** REV. **C**

SCALE: 1:2 SHEET 6 OF 6