

# 2100 SERIES SUBSEA LINEAR ACTUATOR

## GENERAL SPECIFICATIONS:

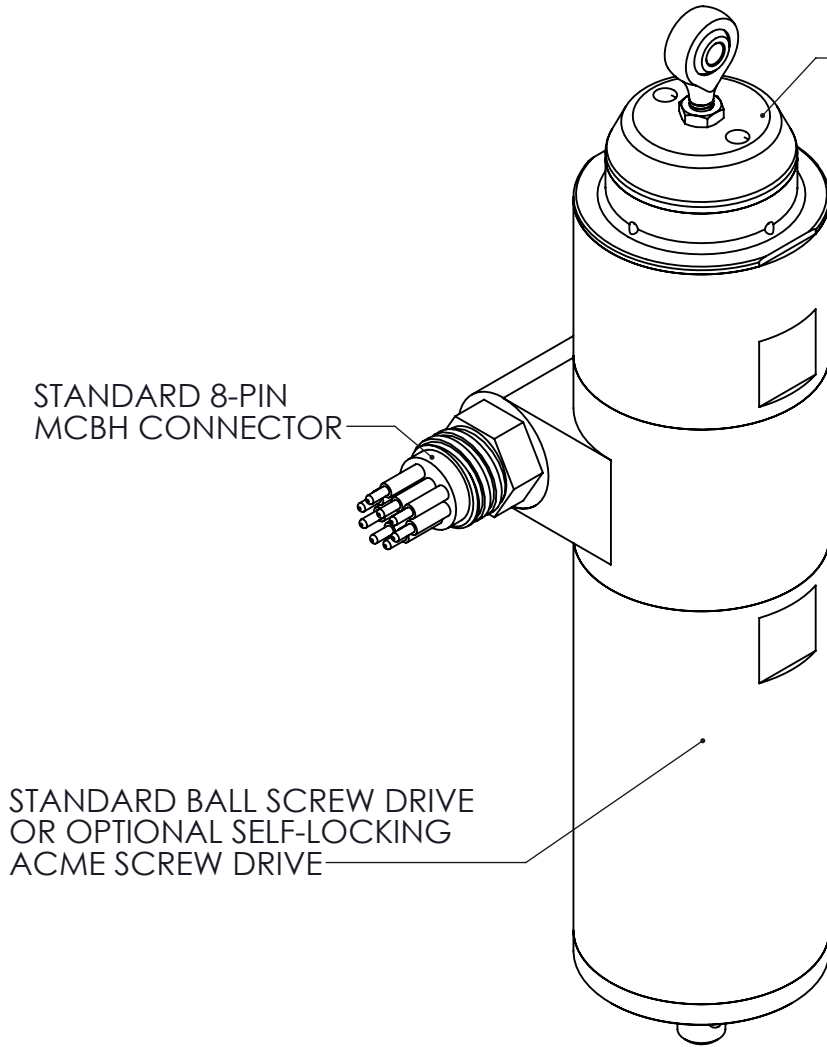
- CONTINUOUS OUTPUT FORCE:
  - STANDARD UNIT (2100L): 125 LB
  - ACME SCREW UNIT (2110L): 35 LB
- CONTINUOUS OUTPUT SPEED:
  - STANDARD UNIT (2100L): 2.4 IN/S (AT 24 VDC)
  - ACME SCREW UNIT (2110L): 2.4 IN/S (AT 24 VDC)
- PEAK OUTPUT FORCE:
  - STANDARD UNIT (2100L): 225 LB
  - ACME SCREW UNIT (2110L): 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
  - STAINLESSS 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

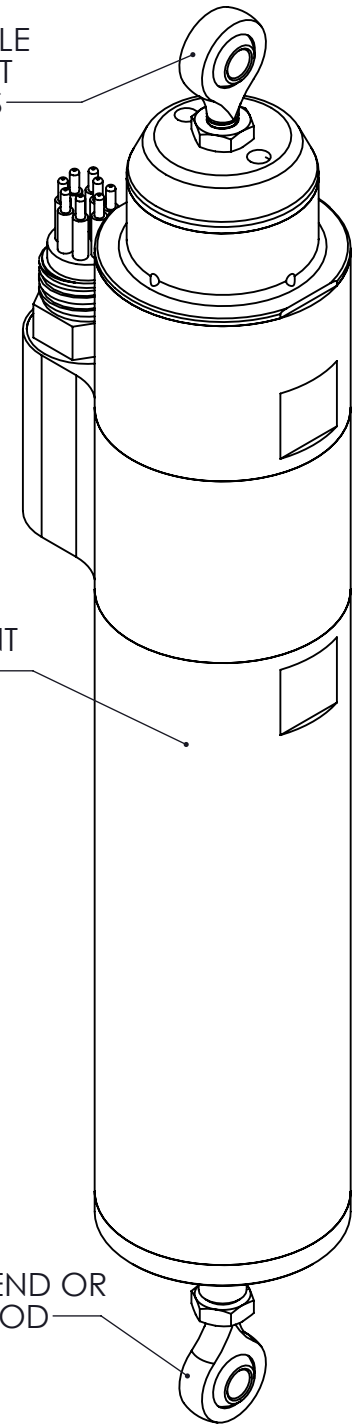
STANDARD BALL SCREW DRIVE  
OR OPTIONAL SELF-LOCKING  
ACME SCREW DRIVE


INTERNAL PRESSURE  
COMPENSATOR

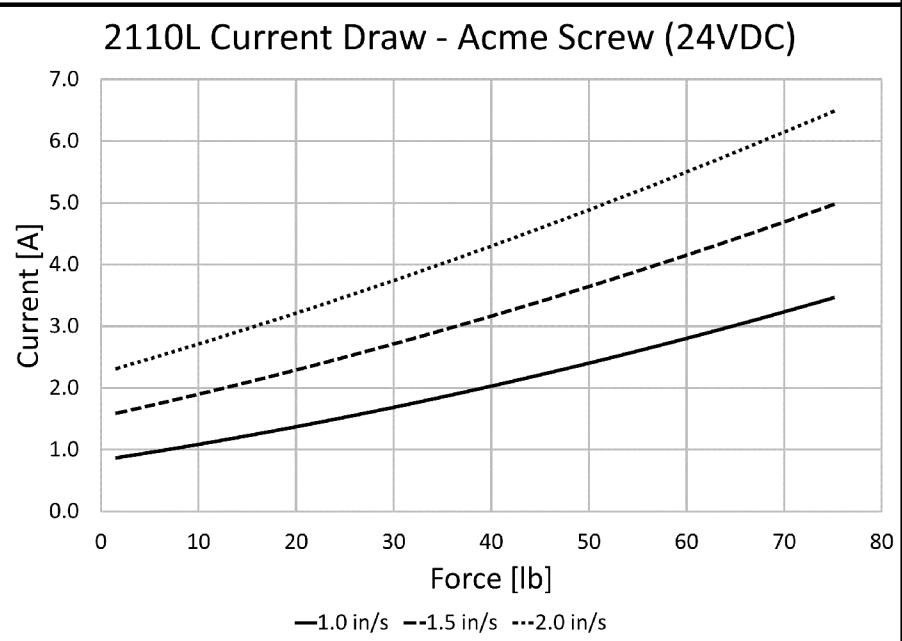
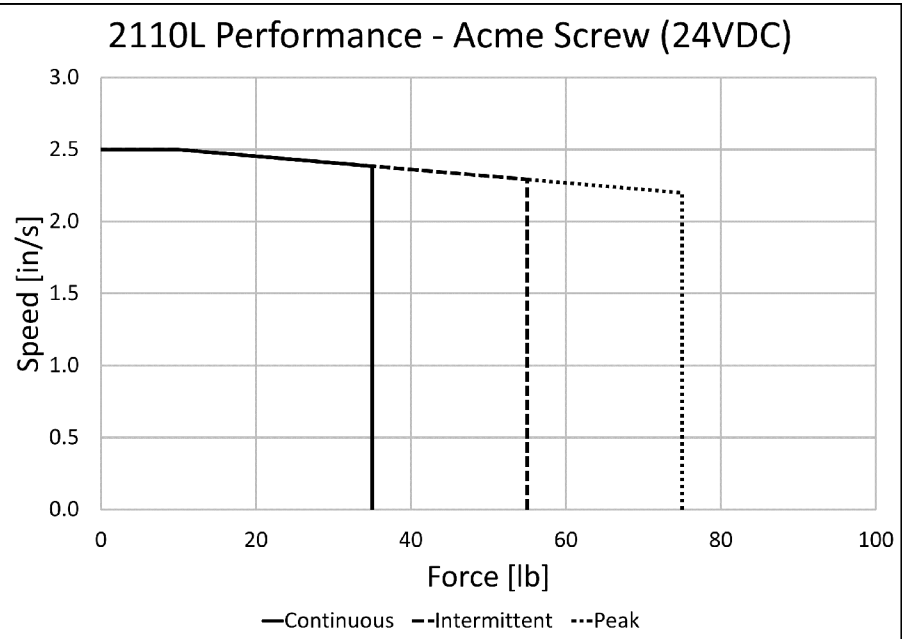
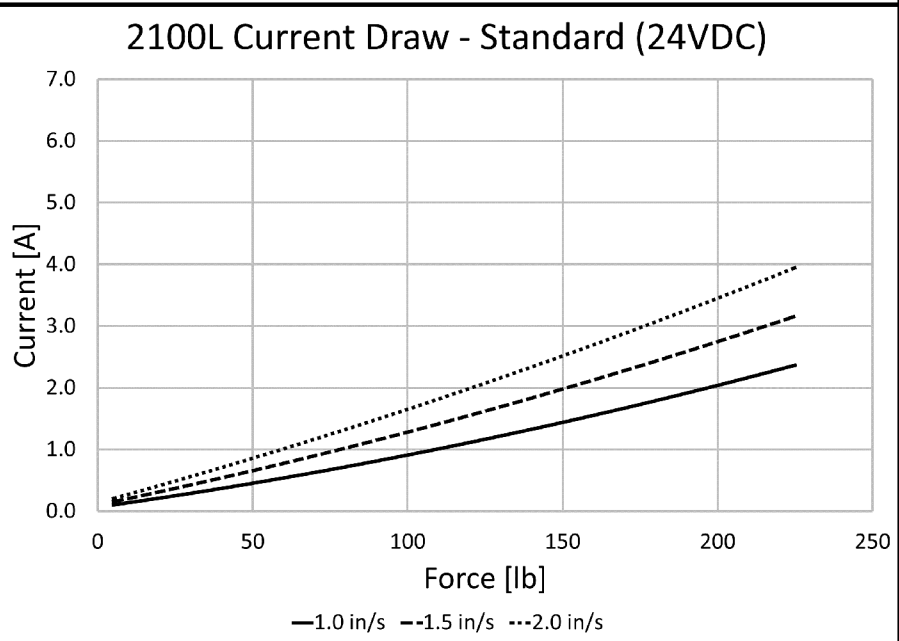
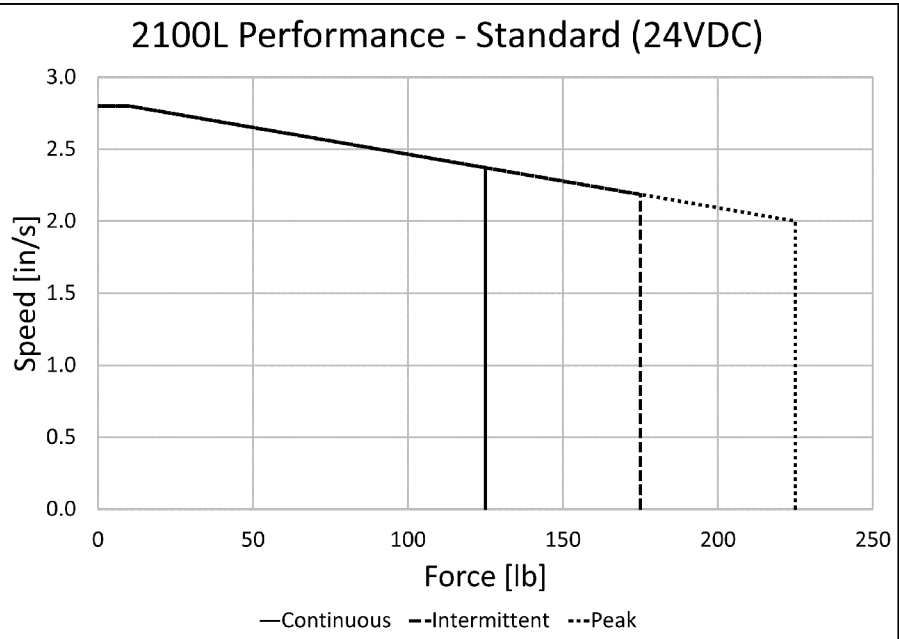
CORROSION-RESISTANT  
HOUSING MATERIALS

ADJUSTABLE  
BALL-JOINT  
ROD ENDS

BALL-JOINT ROD END OR  
CLEVIS ON PUSHROD



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	
		DRAWN	DJF	08/17/2022		
MATERIAL COMMENTS:		APPROVED	DJF	08/17/2022	TITLE: 2100 SERIES LINEAR ACTUATOR	
		<b>PROPRIETARY AND CONFIDENTIAL</b> 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.				
FINISH:		SIZE B	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 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.  
OPERATION AT OTHER VOLTAGES WILL IMPACT PERFORMANCE.

ACTUATOR RATED LIFE ( $L_{10}$ ):

- CONTINUOUS: 50,000 INCHES OF TRAVEL
- INTERMITTENT: 20,000 INCHES OF TRAVEL
- PEAK: 1,000 INCHES OF TRAVEL
- INSPECT SEAL EVERY 5,000 INCHES OF TRAVEL

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

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

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

2G ENGINEERING

WWW.2G-ENG.COM

608-825-4799

TITLE:

2100 SERIES LINEAR ACTUATOR

DWG. NO.

2100L

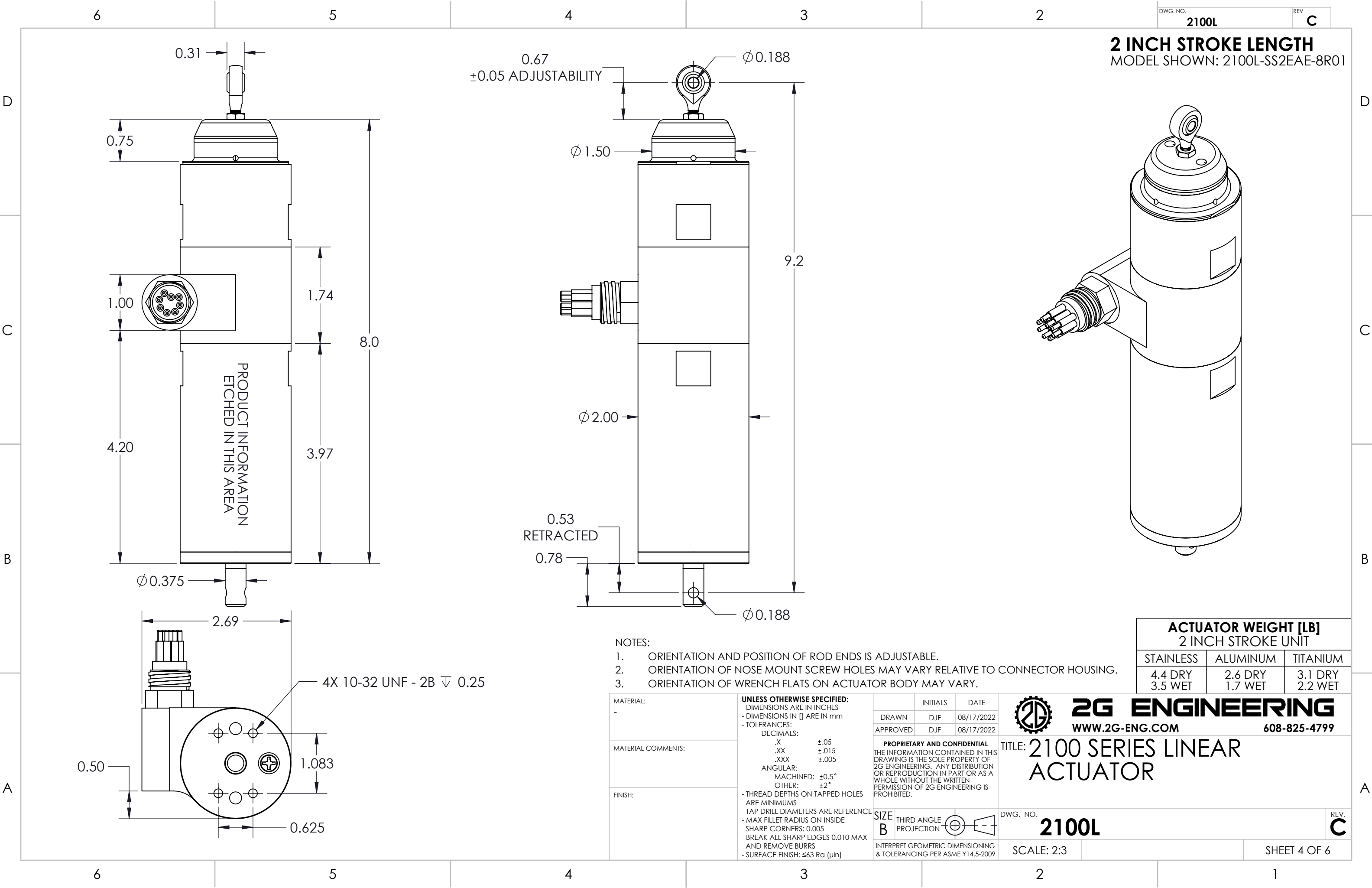
SCALE: 2:3

SHEET 2 OF 6

REV.

C





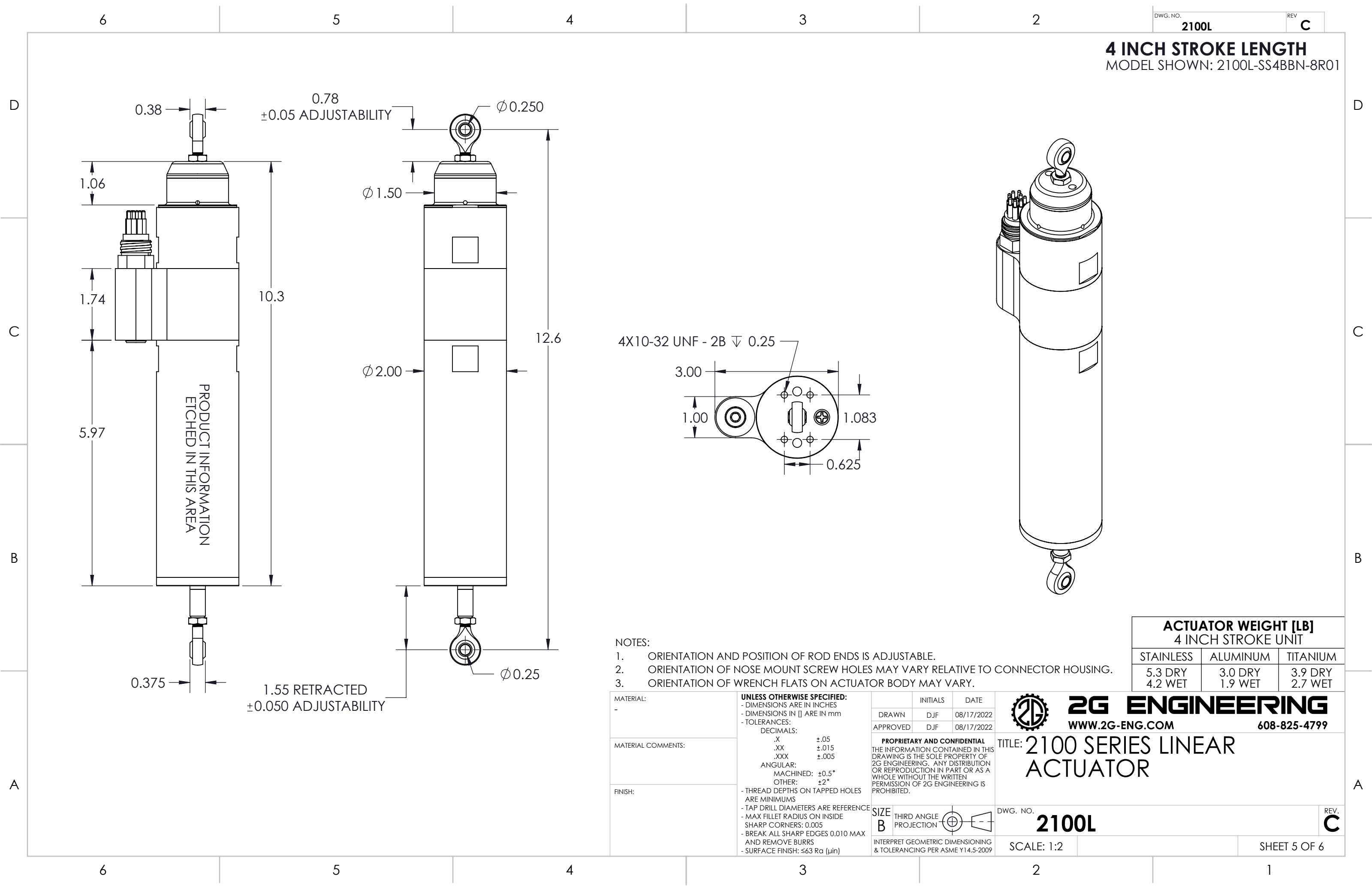


2 INCH STROKE LENGTH  
MODEL SHOWN: 2100L-SS2EAE-8R01

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

- 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.

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
MATERIAL COMMENTS:			DRAWN	DJF	08/17/2022		
			APPROVED	DJF	08/17/2022		
FINISH:			<b>PROPRIETARY AND CONFIDENTIAL</b> 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.		TITLE: 2100 SERIES LINEAR ACTUATOR		
SIZE B					DWG. NO. 2100L		REV. C
INTERPRET GEOMETRIC DIMENSIONING & TOLERANCING PER ASME Y14.5-2009			SCALE: 2:3				SHEET 4 OF 6



DWG. NO.

2100L

REV

C

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

0.38

0.78  
±0.05 ADJUSTABILITY

Ø 0.250

1.06

Ø 1.50

1.74

10.3

12.6

5.97

PRODUCT INFORMATION  
ETCHED IN THIS AREA

Ø 2.00

4X10-32 UNF - 2B ∇ 0.25

3.00

1.00

1.083

0.625

0.375

1.55 RETRACTED  
±0.050 ADJUSTABILITY

Ø 0.25

- 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]  
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

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

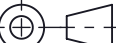
PROPRIETARY AND CONFIDENTIAL

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



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



2G ENGINEERING

WWW.2G-ENG.COM

608-825-4799

TITLE: 2100 SERIES LINEAR ACTUATOR

DWG. NO.

2100L

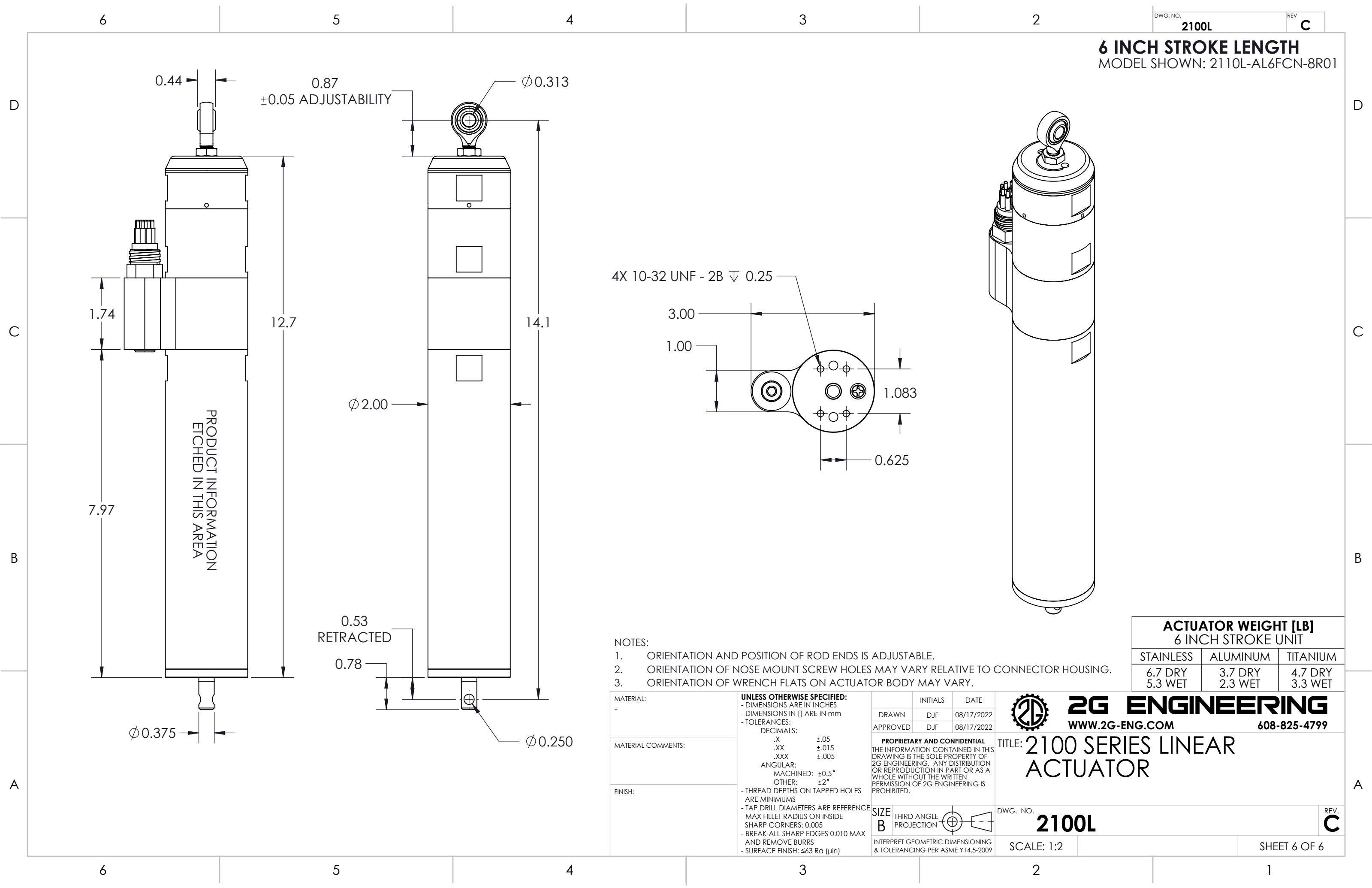
SCALE: 1:2

REV.

C

SHEET 5 OF 6







6 INCH STROKE LENGTH  
MODEL SHOWN: 2110L-AL6FCN-8R01

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

- 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.

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	TITLE: 2100 SERIES LINEAR ACTUATOR	
DRAWN			DJF	08/17/2022			
APPROVED			DJF	08/17/2022			
<b>PROPRIETARY AND CONFIDENTIAL</b> 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.							
MATERIAL COMMENTS:			SIZE B	THIRD ANGLE PROJECTION 	DWG. NO. <b>2100L</b>	REV. <b>C</b>	
FINISH:			INTERPRET GEOMETRIC DIMENSIONING & TOLERANCING PER ASME Y14.5-2009			SCALE: 1:2	SHEET 6 OF 6