

electrical actuators

# **SDU** Series

Screw Drive Unit



# numatics®

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### Screw Drive Unit

The ball screw drive provides precise positioning and high load carrying capability. High stiffness and repeatability characterize the ball screw drive. Stroke lengths to 19.7 feet are standard.

Thrust loads up to 1100 lbs. (Square rail model shown above)

Suitable for mounting in any position horizontal, vertical, inverted or on an incline.

Low torque required to drive the load due to high efficiency ball screw drive.

Linear bearings provide low stick slip for precise positioning and ease of moving load.

Magnetic cover strip protects the ball guides from contaminants and effectively seals the profile from the environment.

Low profile saddle.

Tensioning station on cover strip helps eliminate stretching of the strip to extend life.

T-slots for mounting feet or limit switches.

Ball screw support allows higher speeds with longer stroke actuators.

Mounting feet are modular for ease of installation.

Motor mounting for all NEMA standard 23, 34 and 42 frame motors.

Rodless design allows the load to be mounted directly to the carriage, eliminates the need for support bearings and reduces overall length of the unit.

NEMA standard gearheads mount directly to the unit.

Optional NuMate™ mounting pattern is available.



Custom designs such as dual carriage units, special motor mounts and special carriage attachments are available.

### How to Order

**SDU 55 P 060 B B 6 D X**

**Series**

55  
75  
100

**Carriage Support**

P = Prism Guided  
B = Ball / Rail Guided

**Stroke**

001 to 236 Inches

**Mounting Brackets**

A = 2 Brackets  
B = 3 Brackets  
C = 4 Brackets  
D = 5 Brackets  
E = 6 Brackets  
X = No Brackets

**Motor Mounting**

A = NEMA 23  
B = NEMA 34  
C = NEMA 42  
X = No Mount

**NuMate Interface**

A = "A" Mount  
B = "B" Mount  
C = "C" Mount  
D = "D" Mount  
E = "E" Mount  
X = No Mount

**Sensing Position**

A = Single Position Extended  
B = Single Position Retract  
C = Two Position  
D = No Sensing  
E = Three Position  
F = Four Position

**Sensing Type**

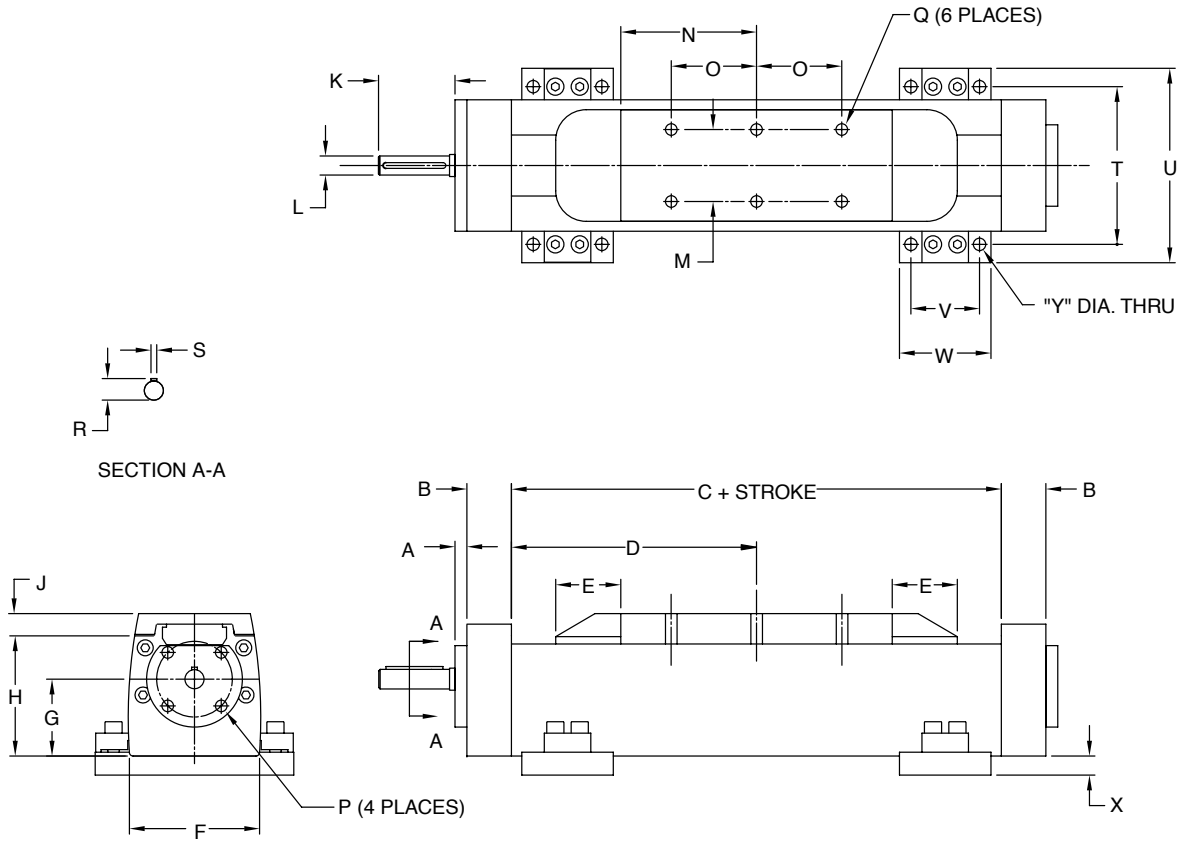
Standard Cord Set  
1 = Hall Effect - PNP (sourcing)  
2 = Hall Effect - NPN (sinking)  
3 = Reed Switch  
6 = No Sensing  
Quick Disconnect Cord Set  
Z = Hall Effect - PNP (sourcing)  
Y = Hall Effect - NPN (sinking)  
X = Reed Switch



## SDU Series Screw Drive Unit

# NUMATICS®

### SDU Dimensions



	SDU 55	SDU 75	SDU 100
A	0.35 (9.0)	0.43 (11.0)	0.39 (10.0)
B	1.14 (29.0)	1.26 (32.0)	1.46 (37.0)
C	11.66 + STROKE	12.93 + STROKE	16.06 + STROKE
D	5.83 (148.0)	6.45 (164.0)	8.04 (204.0)
E	1.30 (33.0)	1.46 (37.0)	2.13 (54.0)
F	2.28 (58.0)	3.39 (86.0)	4.25 (108.0)
G	1.26 (32.0)	1.85 (47.0)	2.52 (64.0)
H	2.17 (55.0)	2.95 (75.0)	3.94 (100.0)
J	0.55 (14.0)	0.69 (17.5)	0.73 (18.5)
K	1.18 (30.0)	2.70 (68.5)	2.50 (63.5)
L	0.43 (11.1)	0.62 (15.8)	0.62 (15.8)
M	1.61 (41.0)	2.36 (60.0)	2.36 (60.0)
N	2.32 (59.0)	2.83 (72.0)	4.45 (113)
O	1.50 (38.0)	2.09 (53.0)	2.80 (71.0)
P	10-32 HELI-COIL	1/4-20 HELI-COIL	5/16-18 HELI-COIL
Q	10-32 HELI-COIL	5/16-18 HELI-COIL	3/8-16 HELI-COIL
R	0.478 (12.5)	0.706 (18.0)	0.706 (18.0)
S	0.125 (4.0)	0.188 (5.0)	0.188 (5.0)
T	3.00 (76.2)	4.00 (101.5)	5.175 (131.4)
U	3.74 (95.0)	5.00 (127.0)	6.375 (161.9)
V	1.50 (38.0)	2.00 (50.8)	2.25 (57.2)
W	2.00 (50.8)	2.75 (70.0)	3.00 (76.7)
X	0.375 (9.5)	0.50 (12.7)	0.625 (15.9)
Y	0.28 (7.1)	0.34 (8.7)	0.40 (10.3)

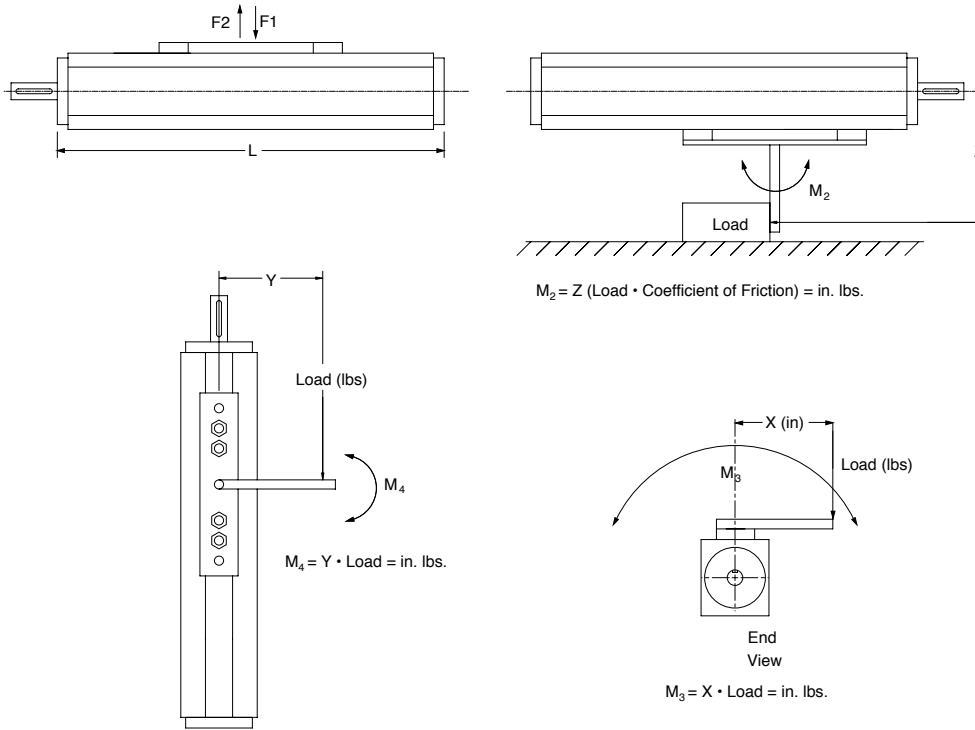
(mm)

### Mounting Brackets Required

SDU SERIES STROKE	SDU 55	SDU 75	SDU 100
1" to 48"	2	2	2
49" to 84"	3	3	3
85" to 132"	4	4	3
133" to 180"	5	5	4
181" to 240"	6	6	5



### SDU Technical Specifications



DESCRIPTION	SDU 55	SDU 55B	SDU 75	SDU 75B	SDU 100	SDU 100B
Maximum Stroke	9.8 feet	9.8 feet	16.4 feet	16.4 feet	19.7 feet	19.7 feet
Maximum Thrust Load	450 lbs.	450 lbs.	562 lbs.	562 lbs.	1124 lbs.	1124 lbs.
Accuracy	±0.005	±0.005	±0.005	±0.005	±0.005	±0.005
Repeatability	±0.004	±0.002	±0.004	±0.002	±0.004	±0.004
Carriage Weight	2.43 lbs.	2.43 lbs.	4.4 lbs.	4.4 lbs.	4.85 lbs.	4.85 lbs.
Radial Load	106 lbs.	106 lbs.	265 lbs.	265 lbs.	398 lbs.	398 lbs.
Torsional Load	45 ft.-lbs.	45 ft.-lbs.	134 ft.-lbs.	134 ft.-lbs.	224 ft.-lbs.	224 ft.-lbs.
Screw Diameter	0.630 in.	0.630 in.	0.787 in.	0.787 in.	0.984 in.	0.984 in.
Screw Lead	0.787 in.	0.787 in.	0.787 in.	0.787 in.	0.984 in.	0.984 in.
Base Unit Weight	10.8 lbs.	11.6 lbs.	17.6 lbs.	21.7 lbs.	38.6 lbs.	43.7 lbs.
Adder/In. of Stroke	0.3 lbs.	0.3 lbs.	0.5 lbs.	0.6 lbs.	0.8 lbs.	0.95 lbs.
Operating Temp.	0 to 158F	0 to 158F	0 to 158F	0 to 158F	0 to 158F	0 to 158F

#### OVERALL LENGTH (L-DIMENSION)

0 Screw Supports	Stroke + 14.39	Stroke + 14.39	Stroke + 15.98	Stroke + 15.98	Stroke + 19.13	Stroke + 19.53
1 Screw Support	N/A	N/A	Stroke + 20.00	Stroke + 19.45	Stroke + 20.39	Stroke + 21.58
2 Screw Supports	N/A	N/A	Stroke + 24.02	Stroke + 23.39	Stroke + 24.33	Stroke + 25.51

#### MAXIMUM LOAD CAPACITIES

F1	88 lbs.	198 lbs.	319 lbs.	440 lbs.	660 lbs.	1100 lbs.
F2	56 lbs.	127 lbs.	230 lbs.	282 lbs.	475 lbs.	704 lbs.
M2	203 in. lbs.	424 in. lbs.	708 in. lbs.	1150 in. lbs.	2433 in. lbs.	3540 in. lbs.
M3	79 in. lbs.	44 in. lbs.	398 in. lbs.	159 in. lbs.	1062 in. lbs.	477 in. lbs.
M4	79 in. lbs.	44 in. lbs.	398 in. lbs.	159 in. lbs.	1062 in. lbs.	477 in. lbs.



**SDU Series  
Screw Drive Unit**



**Application Request Form for Belt and Screw Driven Electrical Products**

Your Name: \_\_\_\_\_ Company Name: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Date: \_\_\_\_\_

**Please Complete the required info in each step:**

**Stroke** (inches): \_\_\_\_\_ **Load** (pounds): \_\_\_\_\_ -and/or- **Opposing Force** (pounds): \_\_\_\_\_

**Repeatability:** +/-0.005 inches (Screw Drive):  -or- +/-0.012 inches (Belt Drive):

**Actuator Orientation:** Horizontal:  -or- Vertical:  *Note: Belt Drive Product is not recommended for Vertical Applications*

Check box if carriage is face DOWN:  -and/or- Include Degree of Incline: \_\_\_\_\_ °

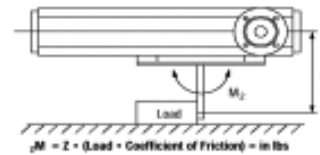
**Check one:**

A) Load is supported by Actuator:  (if no skip to STEP 4)

B) Load is pushed by Actuator:

If load is pushed: 1) What supports the load? \_\_\_\_\_

2) Coefficient of friction? \_\_\_\_\_



**Moment Loading**

Check one of the Following:

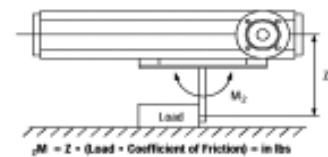
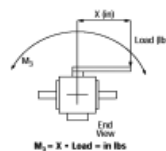
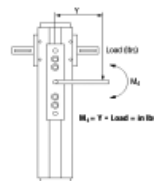
A) A Moment Condition does not occur:  (if so skip to STEP 5)

B). A Moment Condition does occur:

CIRCLE ONE of the following conditions and provide the following information:

Arm Length (inches): \_\_\_\_\_

Force (pounds): \_\_\_\_\_



**Speed/Cycle Time** *Fill out as much information as possible. Must include a move distance and at least 1 other input.*

**Move Distance:** \_\_\_\_\_ inches

**Velocity:** \_\_\_\_\_ in/sec/

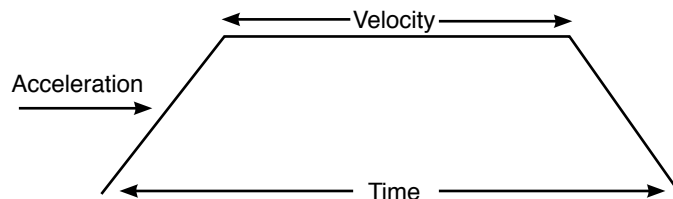
**Acceleration:** \_\_\_\_\_ in/sec<sup>2</sup>

**Time:** \_\_\_\_\_ sec

*Note: Provide Move Distance and at least 1 other input*

If there are multiple stops, check here:  and provide Move Distance and at least one other input per stop in the space below:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

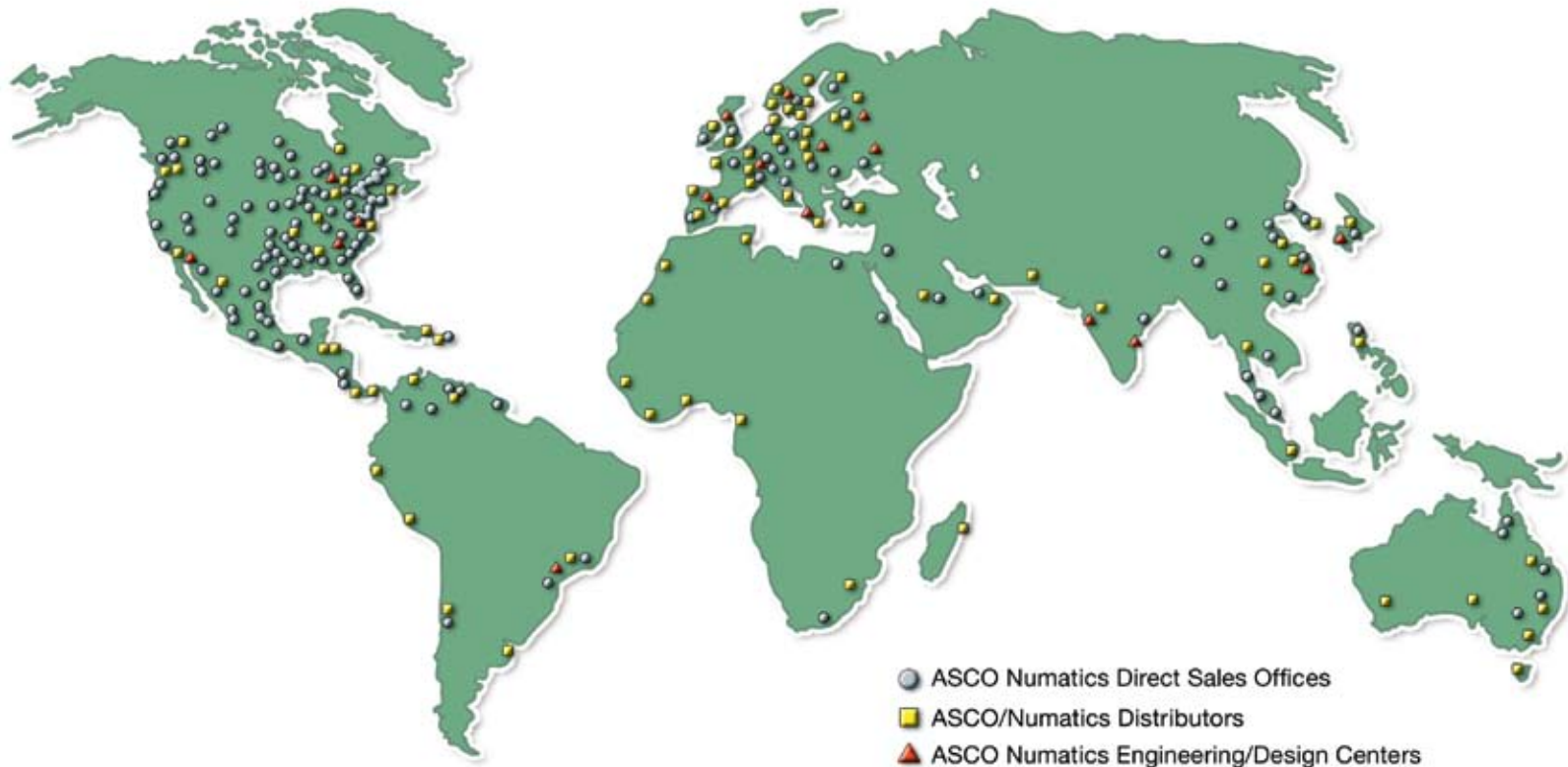


**Total Package? Please check all that apply:** Motor & Controller Package:  Brake:

Customers Controller or PLC will supply host commands:  Encoder/Closed Loop:

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