

Ledex® Tubular Solenoids Selection

Tubular solenoids are available in seven sizes. The three STA Series sizes are available in both push and pull types.

Use the selection overview chart to determine which size offers the desired performance and mechanical specifications.

Refer to the individual size specification pages for complete performance and mechanical data.

Tubular Selection Overview

Size	Solenoid Type	Package Dimension (in)		Max Stroke (in)	Nominal Stroke (in)	Force (lbs) @ Nominal Stroke and Specified Duty Cycle			
		Dia.	Length			100%	50%	25%	10%
STA 1/2" x 1/2"	Pull	0.52	0.55	0.10	0.05	0.18	0.30	0.50	1.0
STA 1/2" x 1/2"	Push	0.52	0.55	0.10	0.05	0.08	0.18	0.25	0.6
STA 1/2" x 1"	Pull	0.52	1.05	0.50	0.10	0.19	0.31	0.56	1.00
STA 1/2" x 1"	Push	0.52	1.05	0.50	0.10	0.13	0.25	0.48	0.94
STA 3/4" x 1 1/2"	Pull	0.77	1.56	0.70	0.20	0.50	1.00	1.63	2.69
STA 3/4" x 1 1/2"	Push	0.77	1.56	0.70	0.20	0.38	0.80	1.50	2.75
STA 1" x 2"	Pull	1.02	2.05	0.70	0.30	0.90	1.75	3.00	5.20
STA 1" x 2"	Push	1.02	2.05	0.70	0.30	0.75	1.88	2.90	5.20
1 1/4" x 2 1/4"	Pull	1.25	2.25	0.75	0.40	1.00	2.00	4.00	6.50
1 1/2" x 2 1/2"	Pull	1.50	2.50	0.75	0.40	1.00	2.50	5.20	9.80
1 3/4" x 4 3/4"	Pull	1.75	4.71	2.50	1.00	1.25	2.50	3.75	6.50

All data is at 20°C coil temperature. Force outputs degrade with elevated temperatures. All specifications subject to change without notice.

How to Use Tubular Performance Charts

1. Select one of the four columns which provides the appropriate duty cycle. (For example 50%.)

2. Reading down this column provides a variety of performance and electrical data including maximum on time, watts, and amp turns.

3. Following down the column further into the VDC ratings, select the voltage which most closely matches your supply voltage. (For example, 11.5 for a 12 VDC power supply.)

4. Read across (to the left) to select the awg suffix. (In this example, 32 awg is required, thus to order, specify: 195203-232. Note that the digit preceding the awg refers to the plunger configuration and anti-rotation flat selected. Review the STA plunger section on page E3 and on the individual specification page to select the appropriate plunger configuration.

Note: The size 125, 150 and 175 standard models do not use this plunger configuration and anti-rotation flat suffix system.

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	50	5	2
Maximum ON Time (sec) for single pulse	∞	140	30	8
Watts (@ 20°C)	4	8	16	40
Ampere Turns (@ 20°C)	497	704	994	1573

Coil Data

awg (0XX)	Resistance (@20°C)	# Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
27	1.43	306	2.4	3.4	4.8	7.6
28	1.95	342	2.8	3.9	5.6	8.8
29	3.84	508	3.9	5.5	7.8	12.4
30	5.29	572	4.6	6.5	9.2	14.5
31	9.56	795	6.2	8.8	12.4	19.6
32	16.54	1068	8.1	11.5	16.3	25.7
33	22.60	1194	9.5	13.4	19.0	30.0
34	37.41	1547	12.2	17.3	24.0	39.0
35	60.71	1976	15.6	22.0	31.0	49.0
36	96.19	2475	19.6	28.0	39.0	62.0
37	149.93	3060	24.5	35.0	49.0	77.0

Ledex® Tubular Solenoids Design Modifications

Options and Modified Designs

Even though many solenoid designs are in stock and available via distribution, our customers often require a product with unique features or performance capabilities. In fact, almost 80% of all solenoids that we make are either modified or custom built to meet our customers' exact application requirements.

So, if you don't find what you're looking for in the catalog, give us a call to discuss your needs with one of our application engineers.

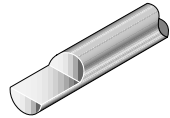
Typical Examples of Custom Features



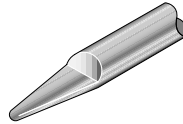
Elliptical



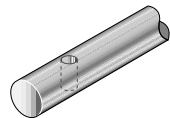
Clevis-grooved



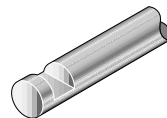
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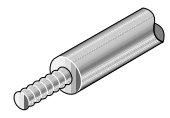
Clevis-tongue



Drilled hole



Notched



Threaded rod



Tapped hole

STA® Pull Tubular Solenoids — 3/4" Dia. x 1 1/2"

Part Number: 195204 - X XX

Coil AWG Number
(from performance chart below)

Plunger Configurations and anti-rotation flat on mounting

- 1 Flat face plunger without anti-rotation flat
- 2 60° plunger without anti-rotation flat
- 5 Flat face plunger with anti-rotation flat
- 6 60° plunger with anti-rotation flat

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously ¹	∞	230	25	6
Maximum ON Time (sec) for single pulse ²	∞	265	63	15
Watts (@ 20°C)	7	14	28	70
Ampere Turns (@ 20°C)	855	1200	1700	2700

Coil Data

awg (0XX) ³	Resistance (@20°C)	# Turns ⁴	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
24	1.10	330	2.7	3.8	5.6	8.8
25	2.13	488	3.9	5.5	7.7	12.2
26	2.90	544	4.5	6.4	9.0	14.2
27	5.27	760	6.1	8.6	12.1	19.2
28	9.15	1026	8.0	11.3	16.0	25.0
29	12.50	1146	9.4	13.2	18.7	30.0
30	20.70	1491	12.0	17.0	24.0	38.0
31	33.60	1904	15.0	22.0	31.0	48.0
32	53.50	2394	19.4	27.0	39.0	61.0
33	83.50	2970	24.0	34.0	48.0	76.0

- ¹ Continuously pulsed at stated watts and duty cycle
- ² Single pulse at stated watts (with coil at ambient room temperature 20°C)
- ³ Other coil awg sizes available — please consult factory
- ⁴ Reference number of turns

Specifications

Dielectric Strength	1000 VRMS
Recommended Minimum Heat Sink	Maximum watts dissipated by solenoid are based on an unrestricted flow of air at 20°C, with solenoid mounted on the equivalent of an aluminum plate measuring 3" square by 1/8" thick
Coil Resistance	±5% tolerance
Holding Force	Flat Face: 5.24 lb (23.31 N) @ 20°C 60°: 2.88 lb (12.81 N) @ 20°C
Weight	2.95 oz (83.6 gms)
Plunger Weight	0.71oz (20.13 gms)
Dimensions	Ø0.77" x 1.56" L (See page E27)

How to Order

Add the plunger number and the coil awg number to the part number (for example: to order a unit with a 60° plunger configuration without an anti-rotation flat rated for 12 VDC at 25% duty cycle, specify 195204-227.

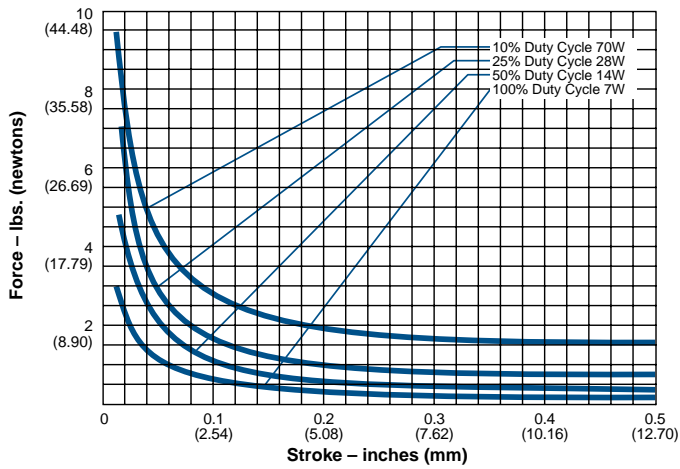
Please see www.ledex.com (click on Stock Products tab) for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

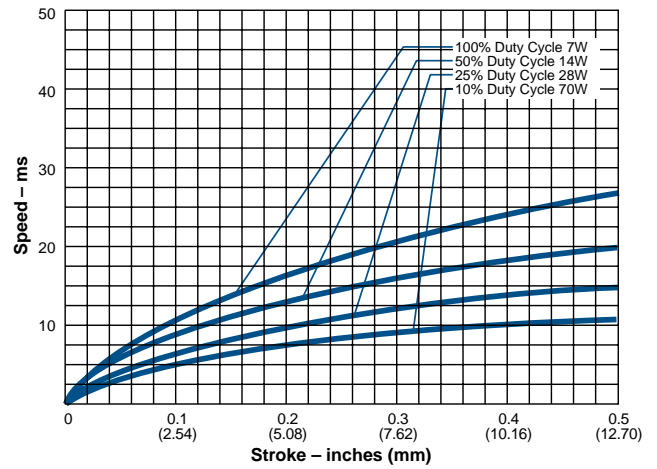
STA® Pull Tubular Solenoids — 3/4" Dia. x 1 1/2"

Pull Tubular Solenoid – 3/4" dia. x 1 1/2" – Flat Face Plunger

Typical Force @ 20°C

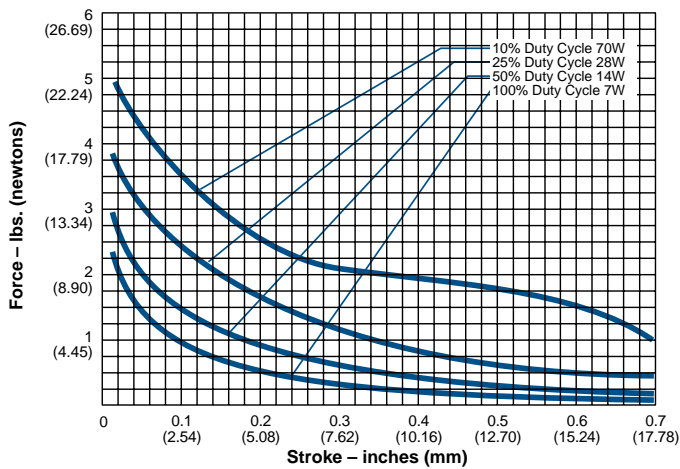


Typical Speed @ No Load, 20°C

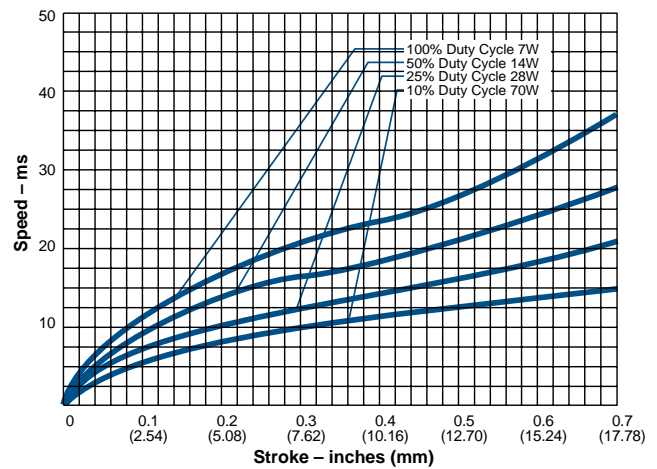


Pull Tubular Solenoid – 3/4" dia. x 1 1/2" – 60° Plunger

Typical Force @ 20°C



Typical Speed @ No Load, 20°C



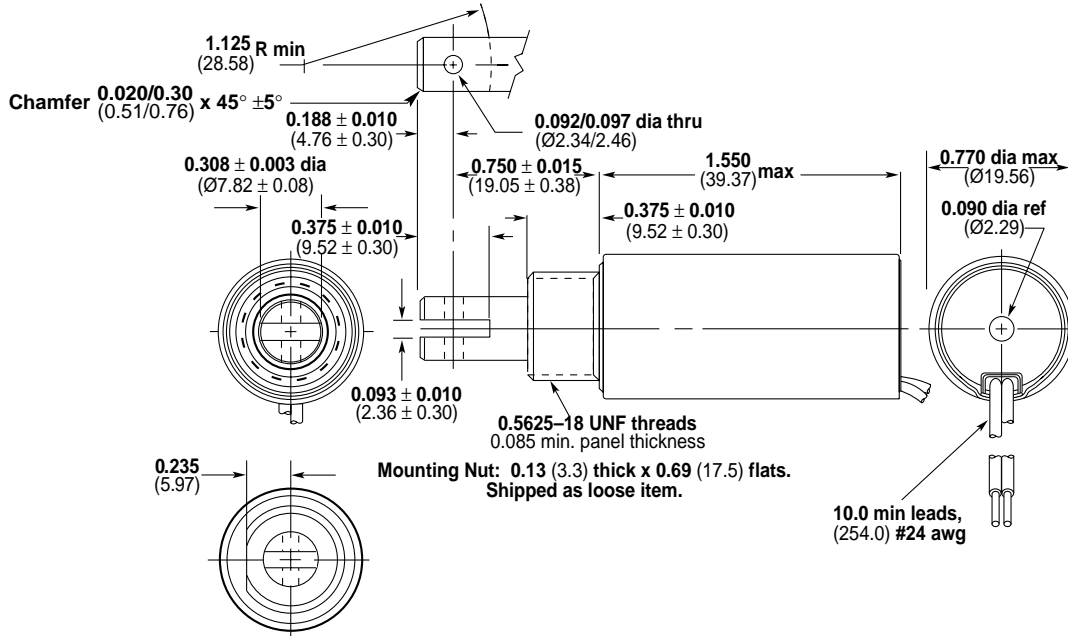
All specifications subject to change without notice.

LINEAR Tubular

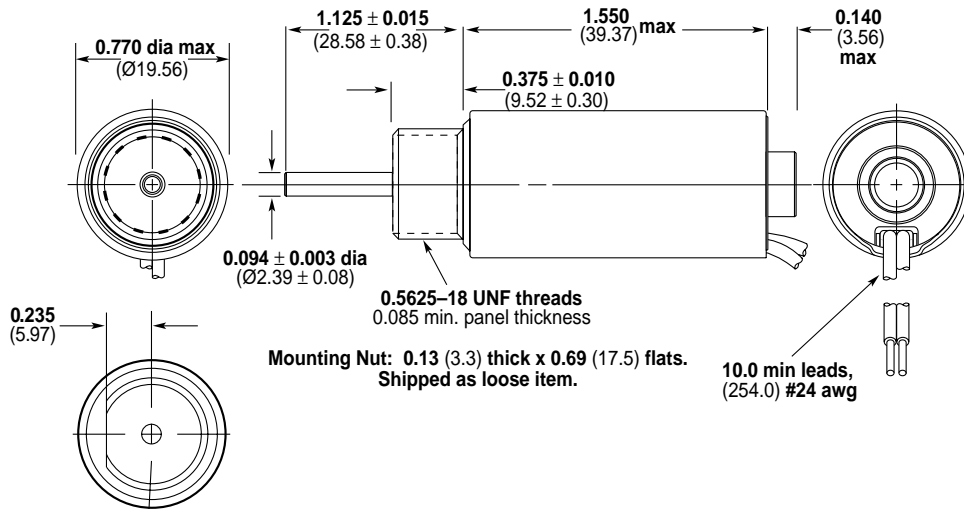
Ledex® Tubular Solenoids Dimensions

Inches (mm)

STA® Series Pull — 3/4" Dia. x 1 1/2"



STA® Series Push — 3/4" Dia. x 1 1/2"



All solenoids are illustrated in energized state

All specifications subject to change without notice.