

MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-63-38
0.38" DIA X 0.66"

TOTAL WEIGHT: 0.23 OUNCES
 PLUNGER WEIGHT: 0.03 OUNCES
 CAPTIVE PLUNGER

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	25	6	0.5
watts	2	4	8	20
approximate ampere turns	205	290	410	650

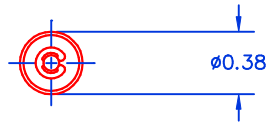
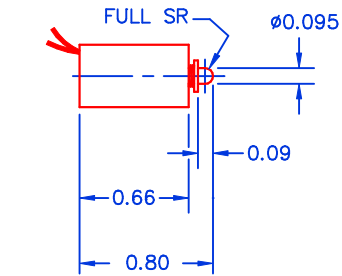
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
27	0.39	0.9	1.3	1.8	2.8
28	0.52	1.1	1.5	2.1	3.4
29	0.69	1.2	1.7	2.5	3.9
30	1.43	1.6	2.3	3.3	5.2
31	1.93	2.0	2.9	4.1	6.4
32	3.20	2.5	3.6	5.0	8.0
33	5.28	3.3	4.6	6.6	10.4
34	7.43	3.9	5.5	7.8	12.4
35	12.1	4.8	6.7	9.5	15.1
36	20.8	6.2	8.8	12.4	19.6
37	30.3	7.7	10.8	15.3	24.3
38	47.8	9.5	13.4	19.0	30.1
39	88.9	13.0	18.4	26.0	41.3
40	127	15.8	22.4	31.7	50.2
41	183	19.2	27.2	38.5	61.0
42	281	24.0	33.9	47.9	76.0

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

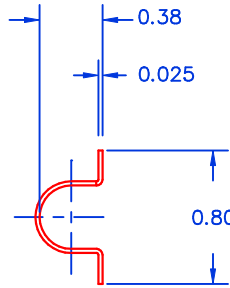
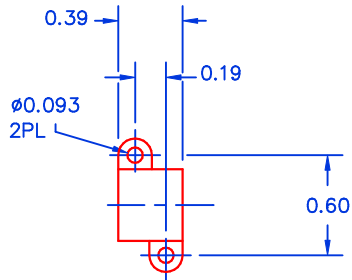
MAGNETIC SENSOR SYSTEMS

S-63-38

MECHANICAL DIMENSIONS



CAPTIVE PLUNGER
TYPICAL STROKE: 0.090



OPTIONAL BRACKET

TOLERANCES: (UNLESS NOTED)

.XXX: ± 0.005

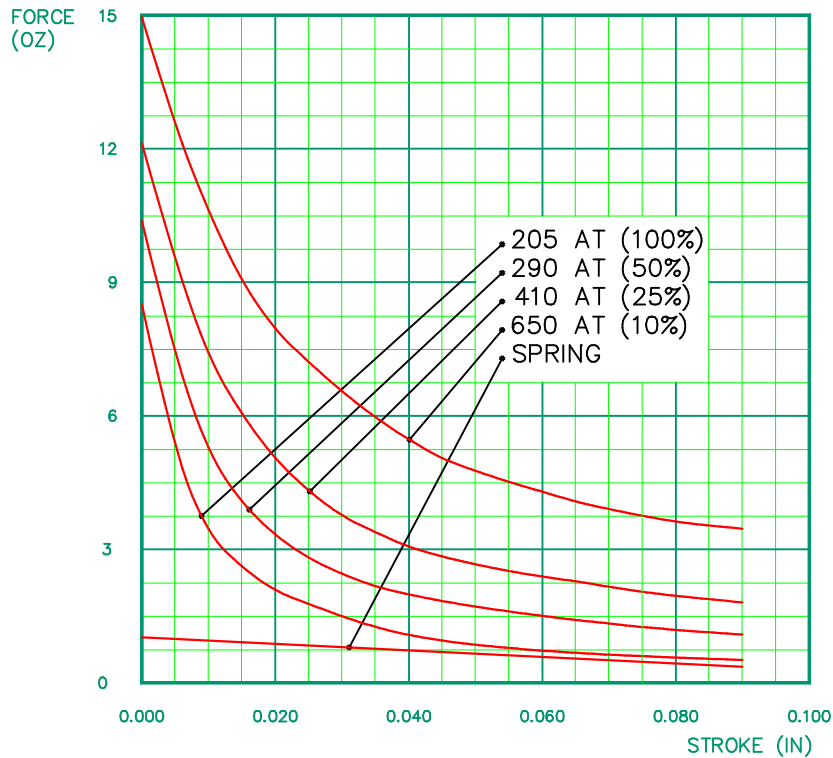
.XX : ± 0.010

X/X: $\pm 1/64$

COIL RESISTANCE: $\pm 10\%$

SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



These force curves do not account for return spring.

The typical return spring force is 0.4/1.0 OZ as shown.

MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-63-38-H
0.38" DIA X 0.66"

TOTAL WEIGHT: 0.23 OUNCES
 PLUNGER WEIGHT: 0.03 OUNCES
 CAPTIVE PLUNGER

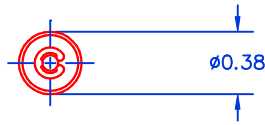
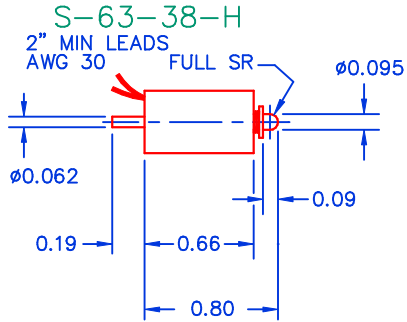
duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	25	6	0.5
watts	2	4	8	20
approximate ampere turns	205	290	410	650

AWG number	resistance	volts DC	volts DC	volts DC	volts DC
27	0.39	0.9	1.3	1.8	2.8
28	0.52	1.1	1.5	2.1	3.4
29	0.69	1.2	1.7	2.5	3.9
30	1.43	1.6	2.3	3.3	5.2
31	1.93	2.0	2.9	4.1	6.4
32	3.20	2.5	3.6	5.0	8.0
33	5.28	3.3	4.6	6.6	10.4
34	7.43	3.9	5.5	7.8	12.4
35	12.1	4.8	6.7	9.5	15.1
36	20.8	6.2	8.8	12.4	19.6
37	30.3	7.7	10.8	15.3	24.3
38	47.8	9.5	13.4	19.0	30.1
39	88.9	13.0	18.4	26.0	41.3
40	127	15.8	22.4	31.7	50.2
41	183	19.2	27.2	38.5	61.0
42	281	24.0	33.9	47.9	76.0

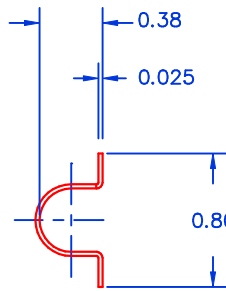
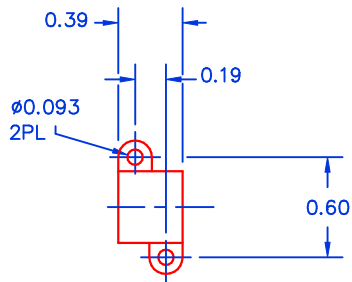
HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

MECHANICAL DIMENSIONS



CAPTIVE PLUNGER
TYPICAL STROKE: 0.090



OPTIONAL BRACKET

TOLERANCES: (UNLESS NOTED)

.XXX: ± 0.005

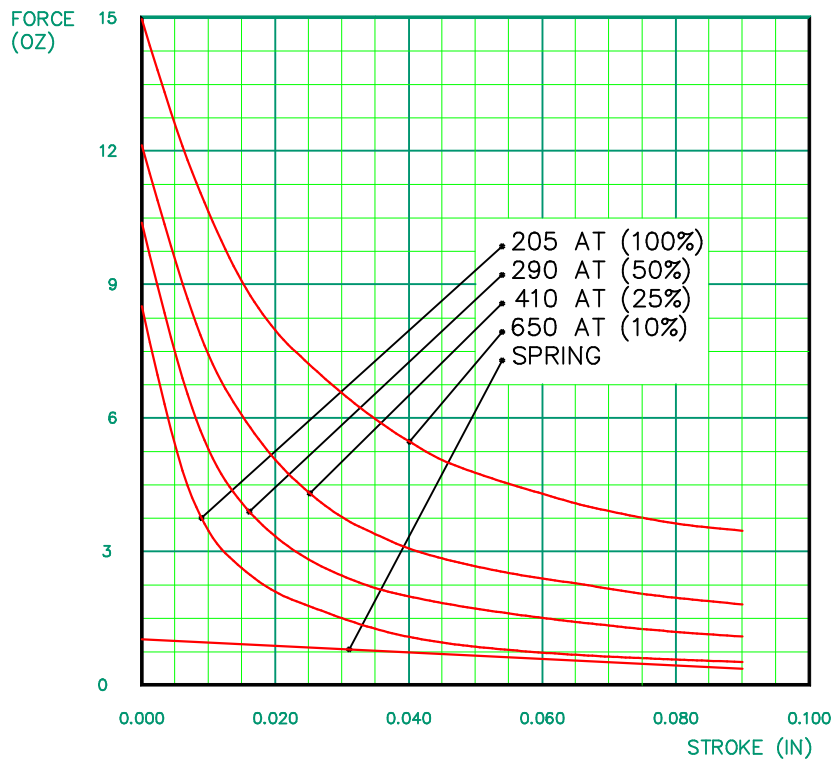
.XX : ± 0.010

X/X: $\pm 1/64$

COIL RESISTANCE: $\pm 10\%$

SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE

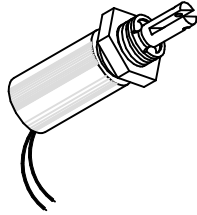


These force curves do not account for return spring.

The typical return spring force is 0.4/1.0 OZ as shown.

MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-69-38
3/8" DIA X 0.69"
[9.7 mm X 17.5 mm]

TOTAL WEIGHT: 0.38 OUNCES [10.8 GR]

PLUNGER WEIGHT: 0.08 OUNCES [2.2 GR]

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	60	10	2
watts	2	4	8	20
approximate ampere turns	230	325	460	725

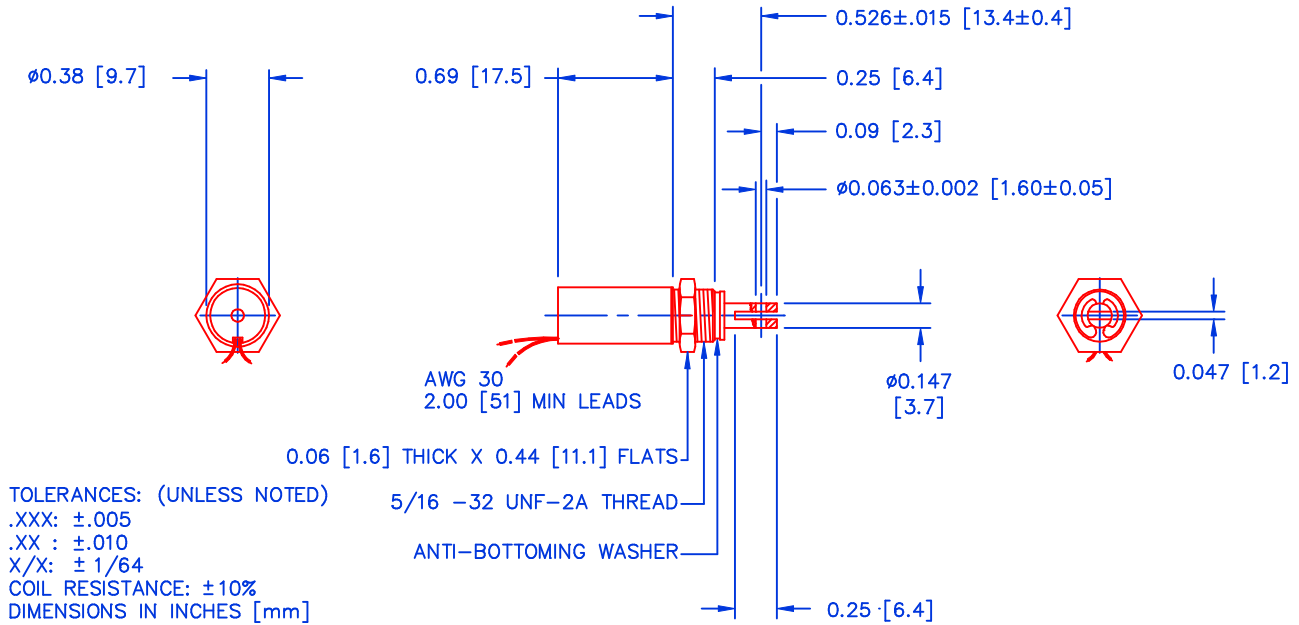
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
27	0.37	0.9	1.2	1.7	2.7
28	0.52	1.0	1.4	2.0	3.2
29	0.69	1.2	1.7	2.3	3.7
30	1.58	1.8	2.5	3.6	5.6
31	2.29	2.1	3.0	4.3	6.8
32	3.10	2.5	3.5	5.0	7.9
33	5.90	3.4	4.9	6.9	10.9
34	8.63	4.2	5.9	8.3	13.1
35	11.6	4.8	6.8	9.6	15.3
36	21.9	6.6	9.4	13.2	20.9
37	33.6	8.2	11.6	16.4	25.9
38	54.3	10.4	14.7	20.8	32.9
39	98.6	14.0	19.9	28.1	44.4
40	159	17.8	25.2	36.0	56.4
41	245	22.1	31.3	44.2	70.0
42	344	26.2	37.1	52.4	82.9

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

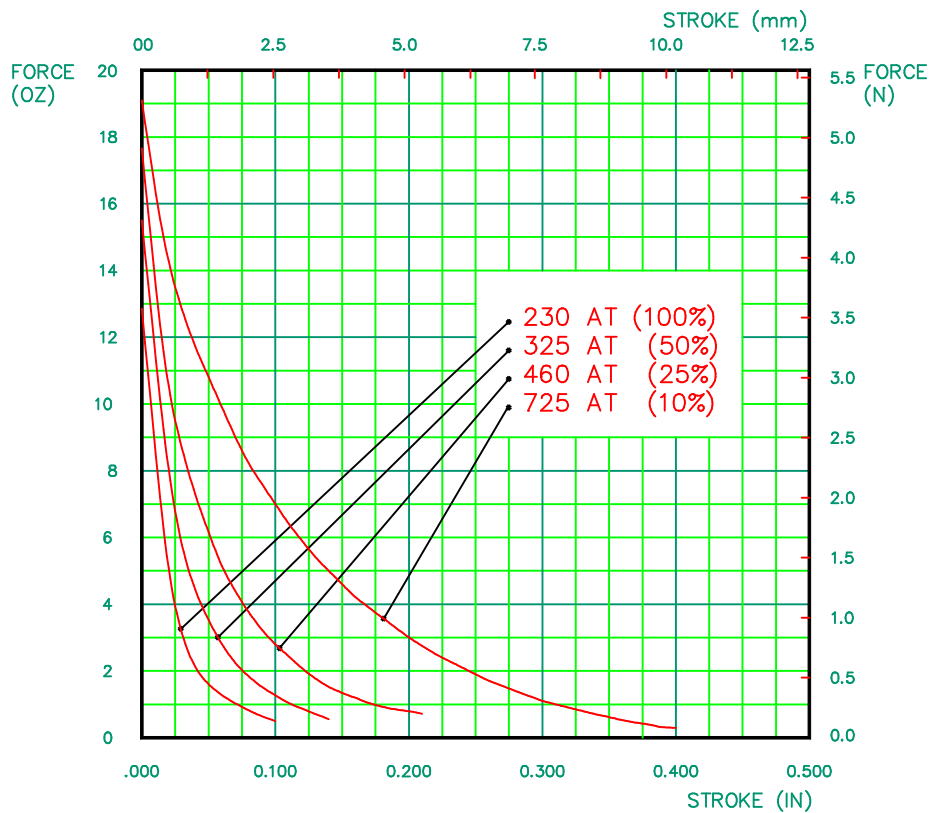
S-69-38

MECHANICAL DIMENSIONS



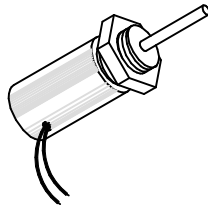
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-69-38-H
3/8" DIA X 0.69"
[9.7 mm X 17.5 mm]

TOTAL WEIGHT: 0.38 OUNCES [10.8 GR]

PLUNGER WEIGHT: 0.06 OUNCES [1.8 GR]

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	60	10	2
watts	2	4	8	20
approximate ampere turns	230	325	460	725

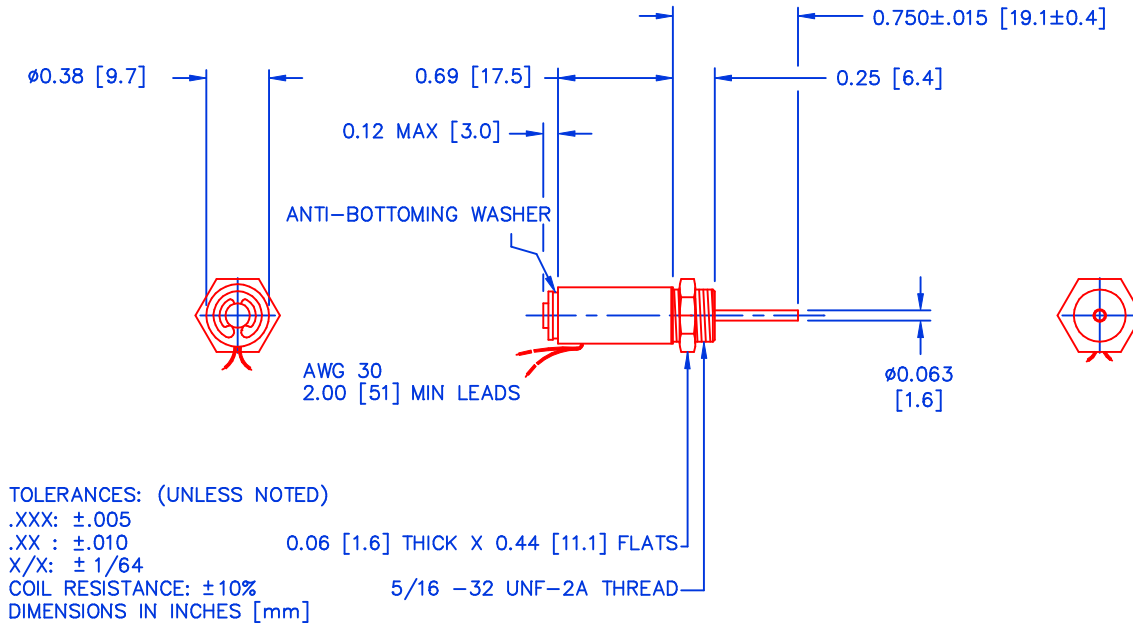
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
27	0.37	0.9	1.2	1.7	2.7
28	0.52	1.0	1.4	2.0	3.2
29	0.69	1.2	1.7	2.3	3.7
30	1.58	1.8	2.5	3.6	5.6
31	2.29	2.1	3.0	4.3	6.8
32	3.10	2.5	3.5	5.0	7.9
33	5.90	3.4	4.9	6.9	10.9
34	8.63	4.2	5.9	8.3	13.1
35	11.6	4.8	6.8	9.6	15.3
36	21.9	6.6	9.4	13.2	20.9
37	33.6	8.2	11.6	16.4	25.9
38	54.3	10.4	14.7	20.8	32.9
39	98.6	14.0	19.9	28.1	44.4
40	159	17.8	25.2	36.0	56.4
41	245	22.1	31.3	44.2	70.0
42	344	26.2	37.1	52.4	82.9

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

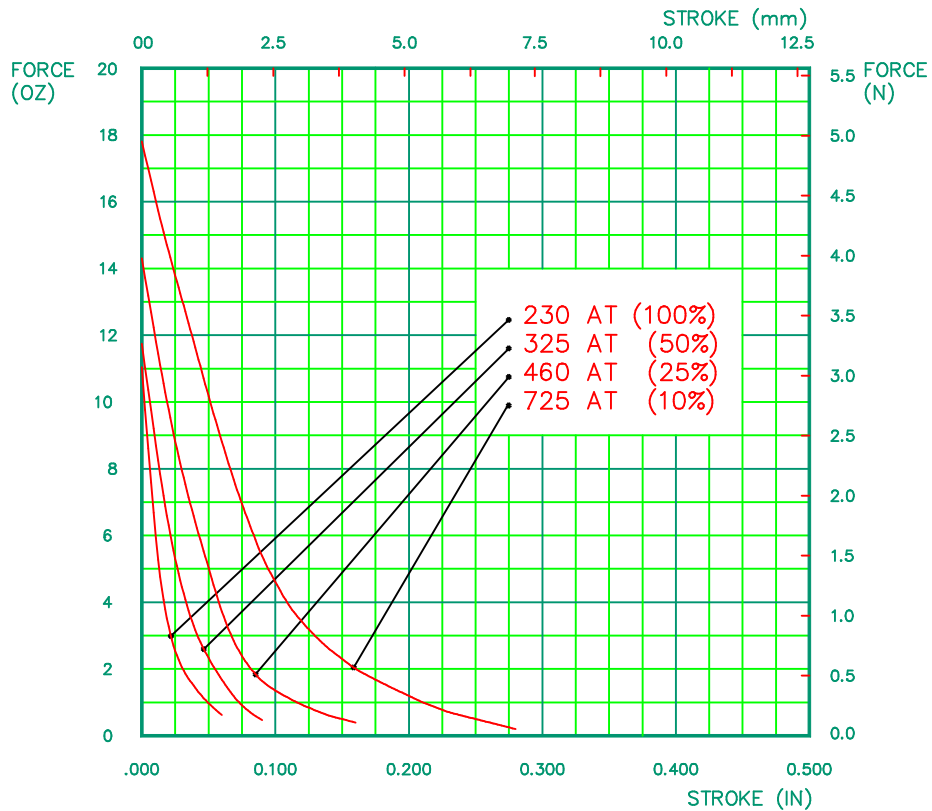
S-69-38-H

MECHANICAL DIMENSIONS



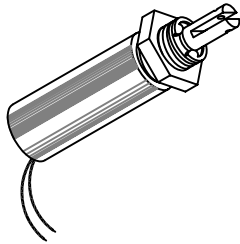
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-10-38
3/8" DIA X 1.00"
[9.7 mm X 25.4 mm]

TOTAL WEIGHT: 0.44 OUNCES [12.5 GR]
PLUNGER WEIGHT: 0.10 OUNCES [2.9 GR]

duty cycle	1(100%)	1/2(50%)	1/4(25%)	1/10(10%)
maximum "ON" time, (Sec.)	∞	65	15	4
watts	2	4	8	20
approximate ampere turns	290	410	580	920

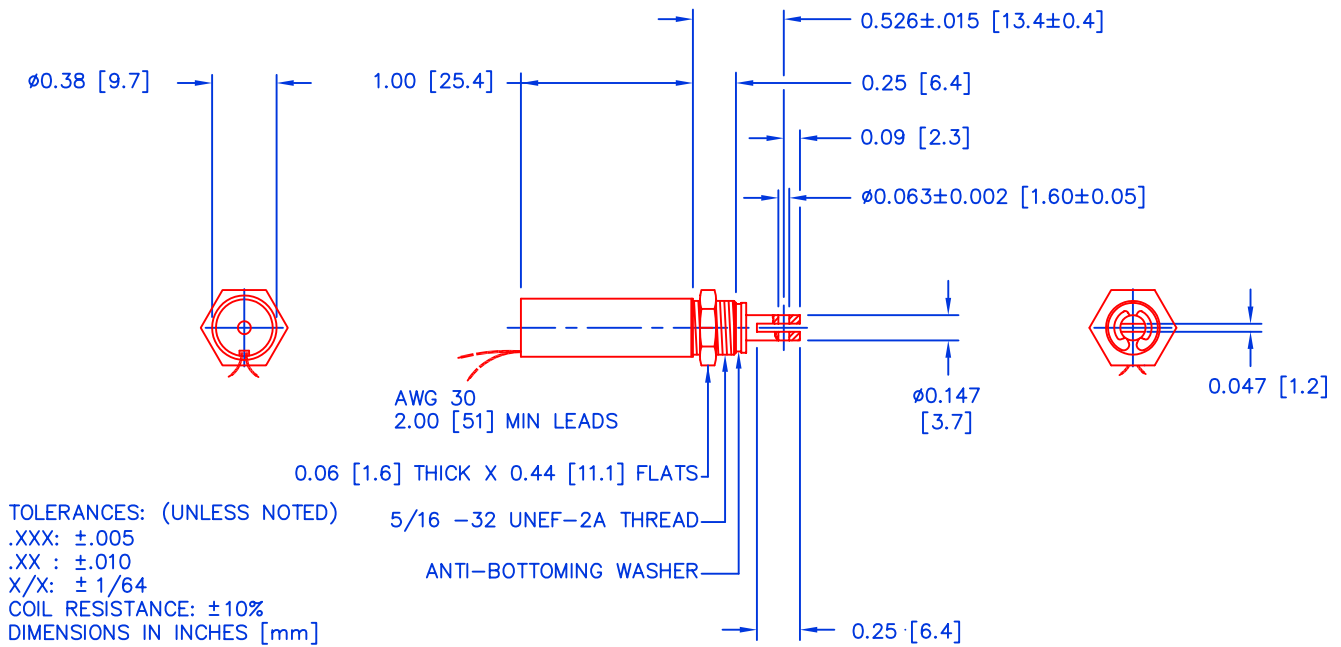
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
27	0.62	1.1	1.6	2.2	3.5
28	0.86	1.3	1.8	2.6	4.1
29	1.56	1.8	2.5	3.5	5.6
30	2.54	2.3	3.2	4.5	7.1
31	3.83	2.8	3.9	5.5	8.8
32	6.0	3.5	4.9	6.9	11.0
33	9.8	4.4	6.3	8.9	14.0
34	12.8	5.1	7.2	10.1	16.0
35	22.9	6.8	9.6	13.5	21.4
36	31.0	7.9	11.1	15.7	24.9
37	50.1	10.0	14.2	20.0	31.7
38	78.9	12.6	17.8	25.1	39.7
39	147	17.2	24.3	34.4	54.4
40	256	22.6	32.0	45.2	71.5
41	400	28.3	40.0	56.6	89.4
42	676	36.8	52.0	73.5	116.3

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

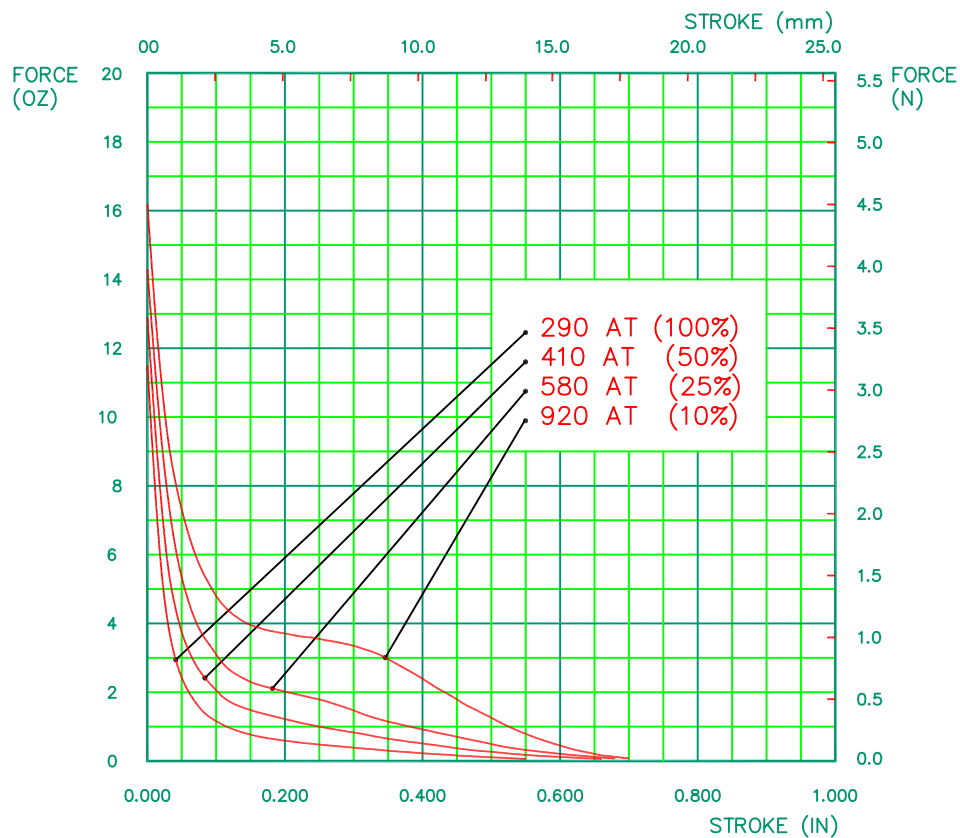
S-10-38

MECHANICAL DIMENSIONS



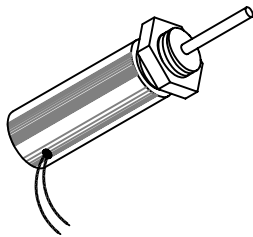
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-10-38-H
3/8" DIA X 1.00"
[9.7 mm X 25.4 mm]

TOTAL WEIGHT: 0.45 OUNCES [12.8 GR]
PLUNGER WEIGHT: 0.08 OUNCES [2.4 GR]

duty cycle	1(100%)	1/2(50%)	1/4(25%)	1/10(10%)
maximum "ON" time, (Sec.)	∞	65	15	4
watts	2	4	8	20
approximate ampere turns	290	410	580	920

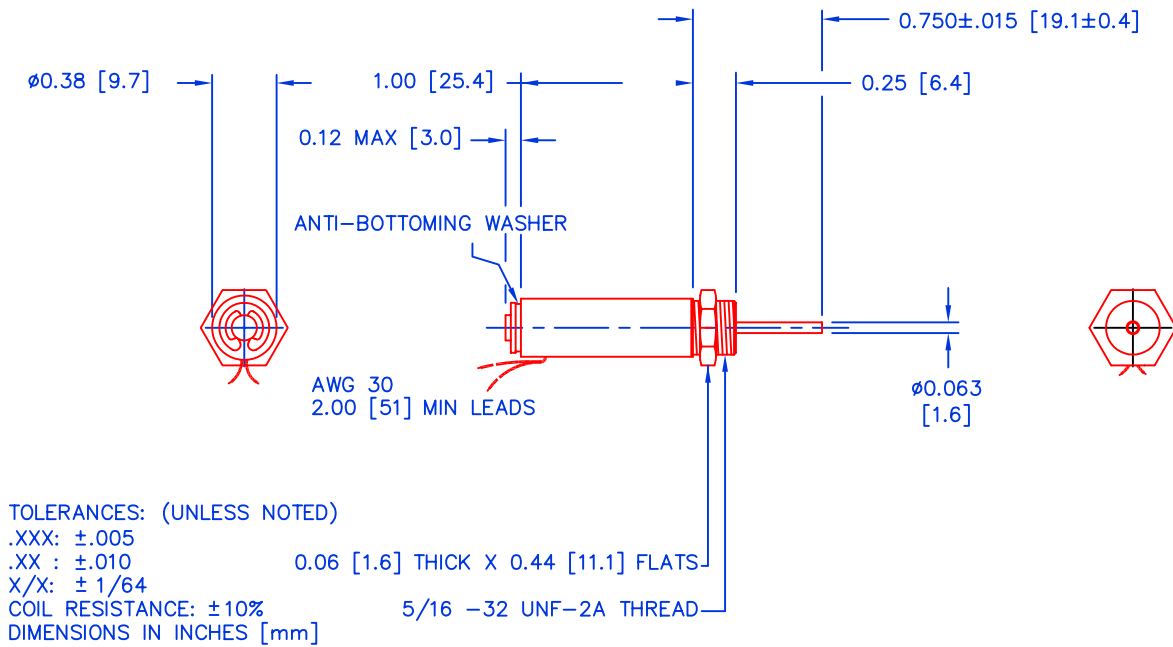
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
27	0.62	1.1	1.6	2.2	3.5
28	0.86	1.3	1.8	2.6	4.1
29	1.56	1.8	2.5	3.5	5.6
30	2.54	2.3	3.2	4.5	7.1
31	3.83	2.8	3.9	5.5	8.8
32	6.0	3.5	4.9	6.9	11.0
33	9.8	4.4	6.3	8.9	14.0
34	12.8	5.1	7.2	10.1	16.0
35	22.9	6.8	9.6	13.5	21.4
36	31.0	7.9	11.1	15.7	24.9
37	50.1	10.0	14.2	20.0	31.7
38	78.9	12.6	17.8	25.1	39.7
39	147	17.2	24.3	34.4	54.4
40	256	22.6	32.0	45.2	71.5
41	400	28.3	40.0	56.6	89.4
42	676	36.8	52.0	73.5	116.3

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

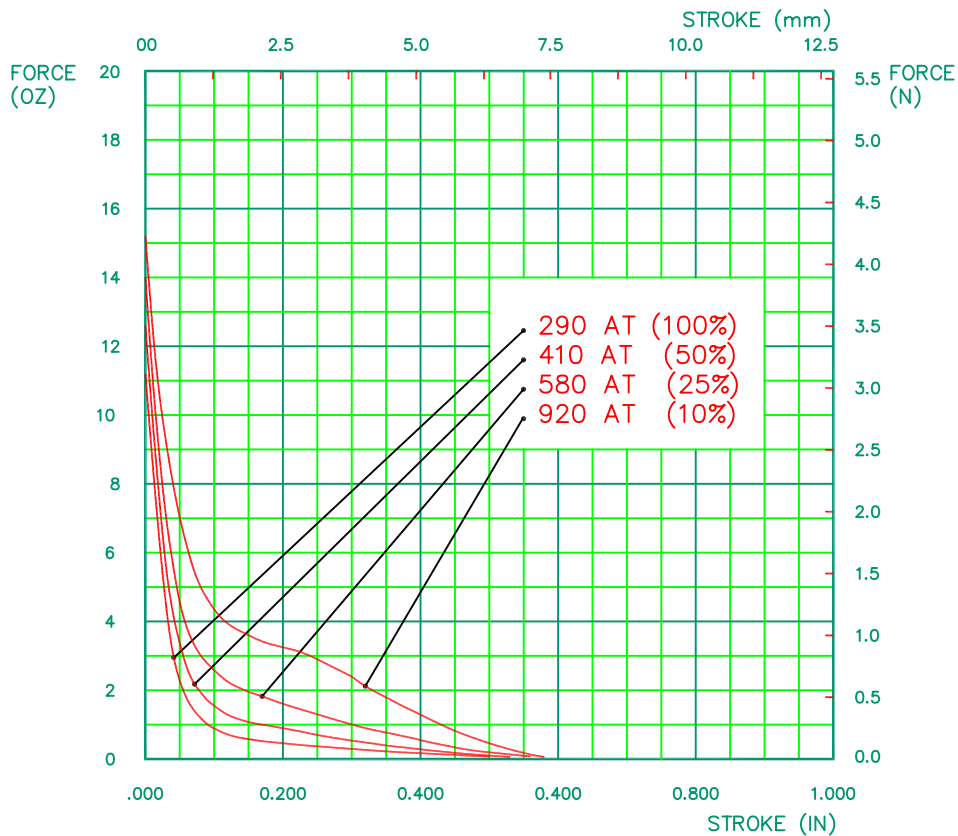
S-10-38-H

MECHANICAL DIMENSIONS



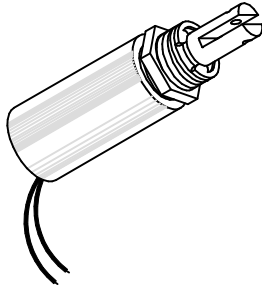
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-10-50
1/2" DIA X 1.0"

TOTAL WEIGHT: 0.79 OUNCES

PLUNGER WEIGHT: 0.15 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	75	20	5
watts	4	8	16	40
approximate ampere turns	480	670	950	1500

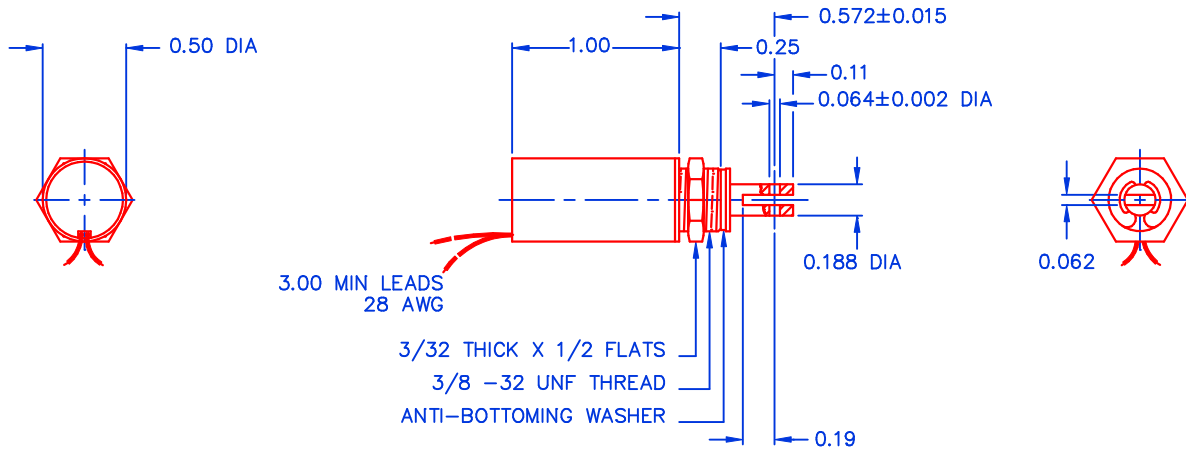
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
25	0.48	1.4	2.0	2.8	4.5
26	0.86	1.9	2.6	3.7	5.9
27	1.20	2.3	3.2	4.5	7.1
28	2.25	3.0	4.2	5.9	9.4
29	3.00	3.4	4.8	6.8	10.7
30	5.80	4.9	6.8	9.7	15.3
31	7.85	5.5	7.8	11.0	17.3
32	12.1	6.7	9.5	13.4	21.2
33	24.8	10.3	14.5	20.5	32.3
34	33.7	11.7	16.5	23.4	36.9
35	54.8	15.2	21.4	30.2	47.8
36	81.6	17.9	25.2	35.5	56.1
37	135	23.9	33.6	47.5	75.0
38	197	28.9	40.8	57.6	91.0
39	367	37.6	53.0	74.8	118
40	520	46.0	64.8	91.5	145
41	808	56.1	79.1	112	177
42	1248	70.7	99.5	141	222

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-10-50

MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)

.XXX: ±.005

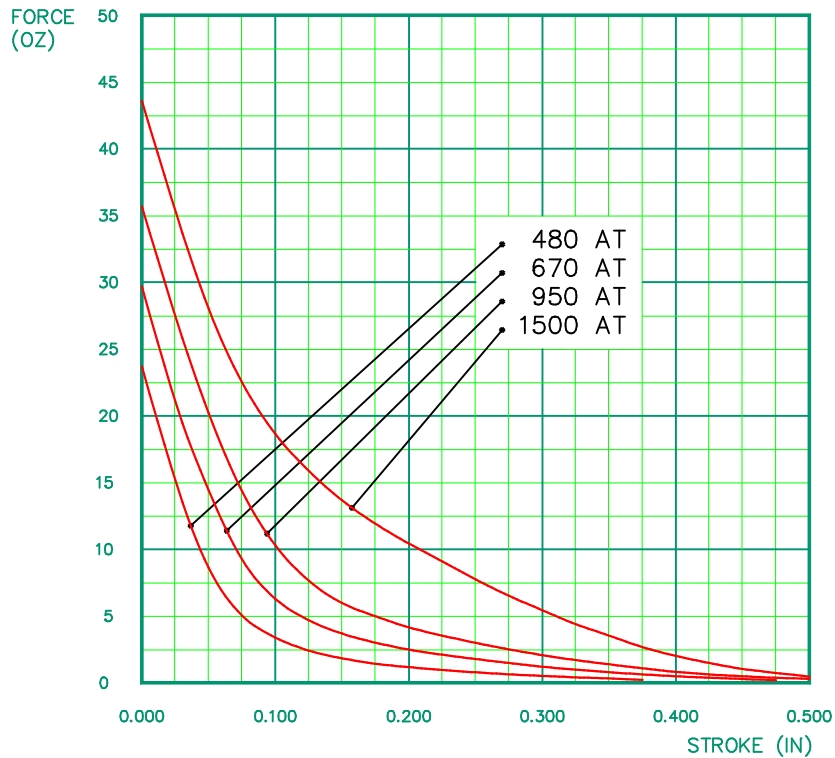
.XX : ±.010

X/X: ± 1/64

COIL RESISTANCE: ±10%

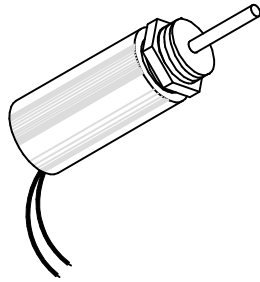
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-10-50-H
1/2" DIA X 1.0"

TOTAL WEIGHT: 0.77 OUNCES

PLUNGER WEIGHT: 0.12 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	75	20	5
watts	4	8	16	40
approximate ampere turns	480	670	950	1500

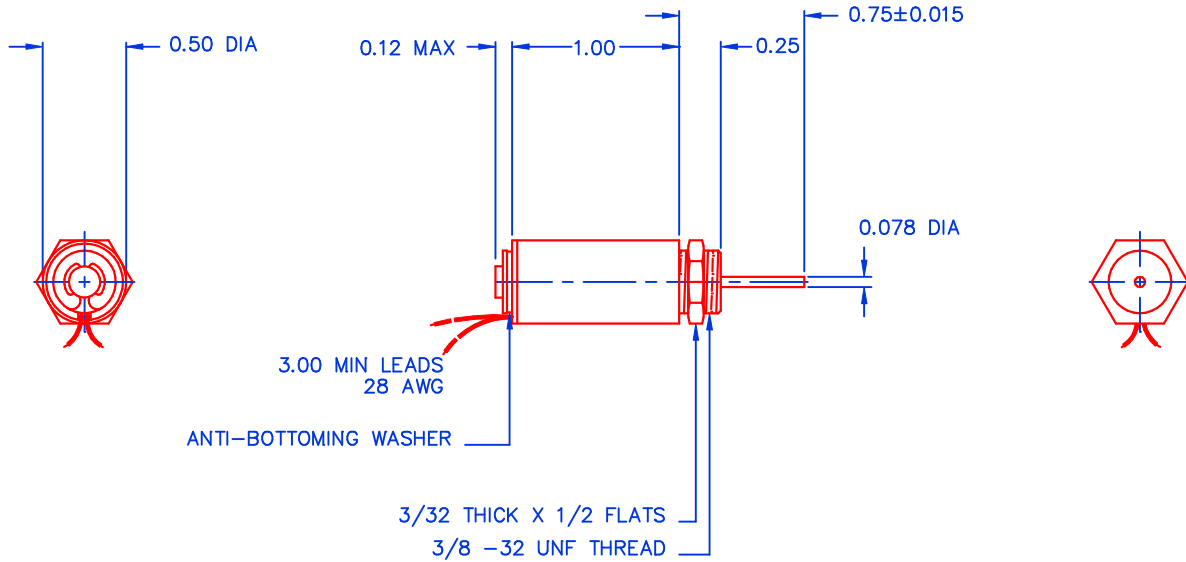
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
25	0.48	1.4	2.0	2.8	4.5
26	0.86	1.9	2.6	3.7	5.9
27	1.20	2.3	3.2	4.5	7.1
28	2.25	3.0	4.2	5.9	9.4
29	3.00	3.4	4.8	6.8	10.7
30	5.80	4.9	6.8	9.7	15.3
31	7.85	5.5	7.8	11.0	17.3
32	12.1	6.7	9.5	13.4	21.2
33	24.8	10.3	14.5	20.5	32.3
34	33.7	11.7	16.5	23.4	36.9
35	54.8	15.2	21.4	30.2	47.8
36	81.6	17.9	25.2	35.5	56.1
37	135	23.9	33.6	47.5	75.0
38	197	28.9	40.8	57.6	91.0
39	367	37.6	53.0	74.8	118
40	520	46.0	64.8	91.5	145
41	808	56.1	79.1	112	177
42	1248	70.7	99.5	141	222

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-10-50-H

MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)

.XXX: ±.005

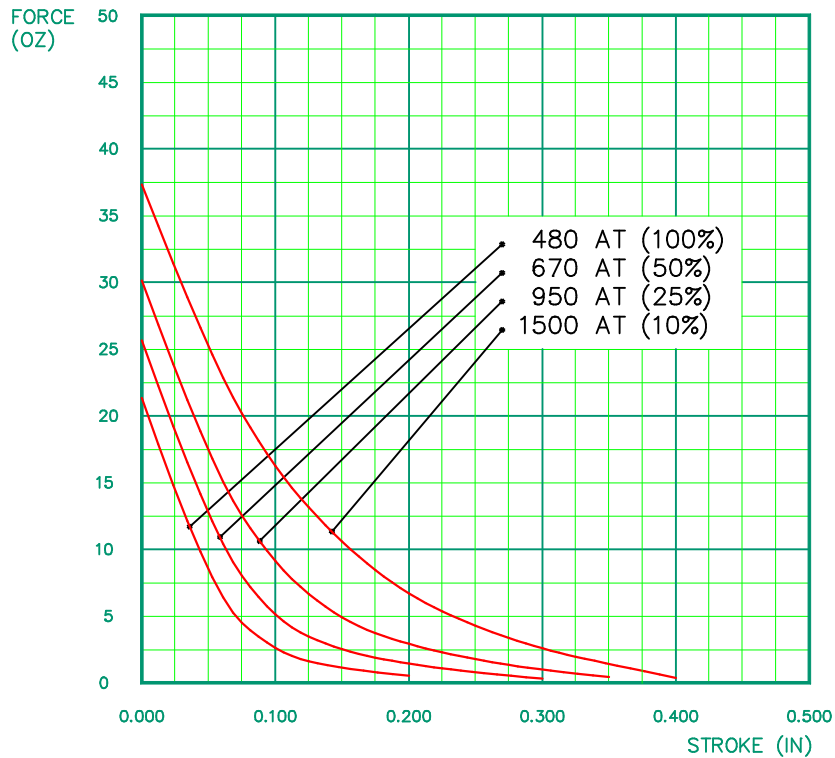
.XX : ±.010

X/X: ± 1/64

COIL RESISTANCE: ±10%

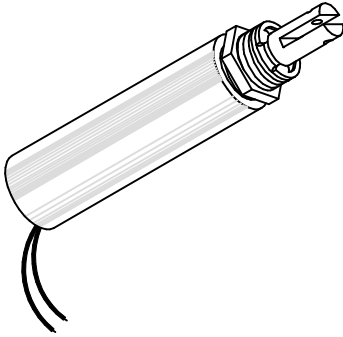
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-16-50
1/2" DIA X 1.6"

TOTAL WEIGHT: 1.12 OUNCES

PLUNGER WEIGHT: 0.22 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	180	50	10
watts	4.5	9	18	45
approximate ampere turns	700	990	1400	2210

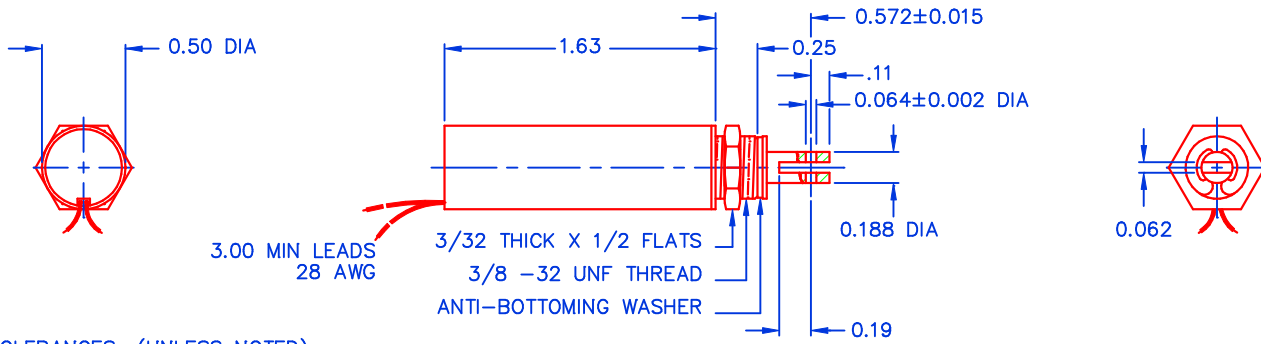
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
25	0.93	2.1	3.0	4.2	6.6
26	1.67	2.7	3.9	5.5	8.6
27	2.33	3.3	4.7	6.6	10.5
28	4.36	4.4	6.2	8.8	13.8
29	5.81	5.0	7.1	10.0	15.8
30	11.2	7.1	10.1	14.2	22.5
31	15.2	8.1	11.4	16.2	25.5
32	23.4	9.9	14.0	19.8	31.2
33	39.8	13.4	18.9	26.8	42.3
34	65.2	17.2	24.4	34.5	54.4
35	106	22.3	31.5	44.6	70.4
36	158	26.2	37.1	52.4	82.7
37	261	35.0	49.5	70.0	111
38	381	42.5	60.0	84.9	134
39	710	55.2	78.0	110	174
40	1007	67.5	95.4	135	213
41	1566	82.3	117	165	260
42	2417	104	147	207	327

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-16-50

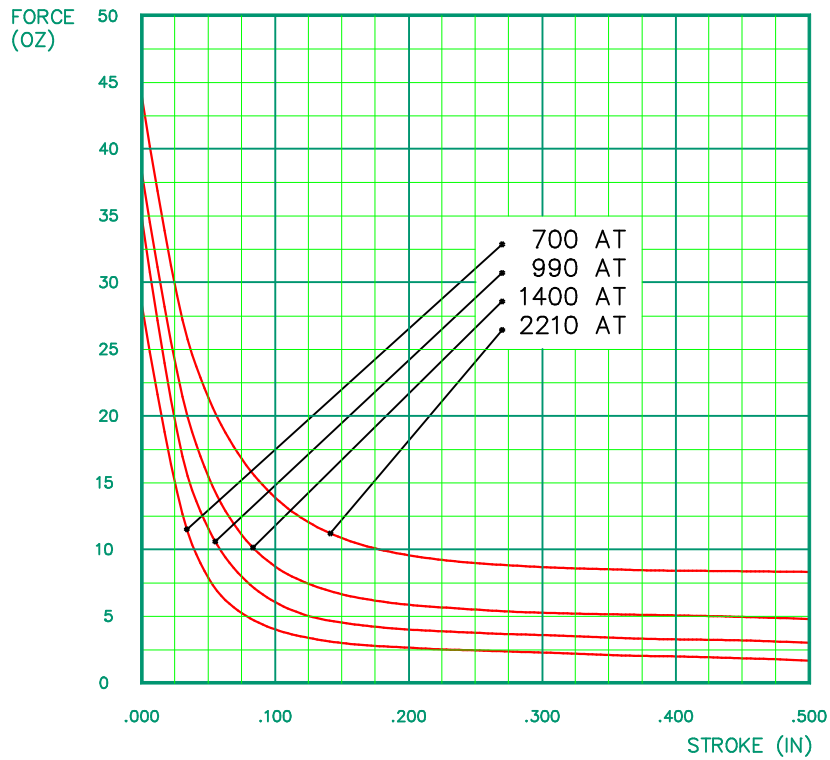
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 .XXX: ±.005
 .XX : ±.010
 X/X: ±1/64
 COIL RESISTANCE: ±10%

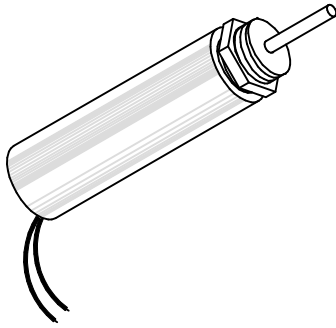
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-16-50-H
1/2" DIA X 1.6"

TOTAL WEIGHT: 1.18 OUNCES

PLUNGER WEIGHT: 0.20 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	180	50	10
watts	4.5	9	18	45
approximate ampere turns	700	990	1400	2210

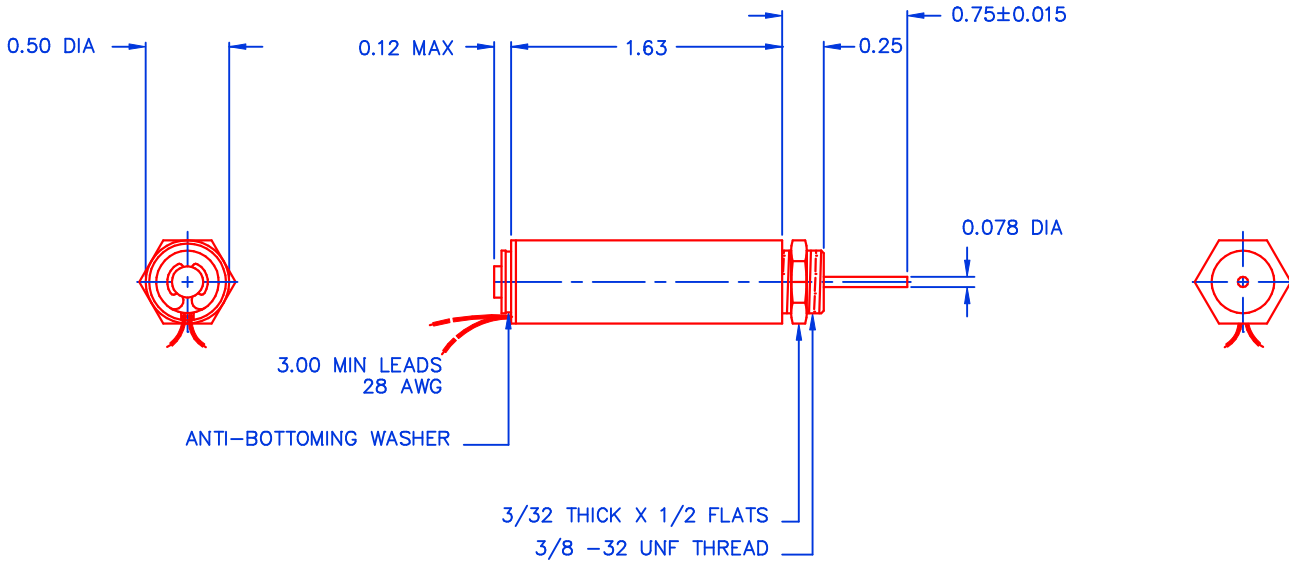
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
25	0.93	2.1	3.0	4.2	6.6
26	1.67	2.7	3.9	5.5	8.6
27	2.33	3.3	4.7	6.6	10.5
28	4.36	4.4	6.2	8.8	13.8
29	5.81	5.0	7.1	10.0	15.8
30	11.2	7.1	10.1	14.2	22.5
31	15.2	8.1	11.4	16.2	25.5
32	23.4	9.9	14.0	19.8	31.2
33	39.8	13.4	18.9	26.8	42.3
34	65.2	17.2	24.4	34.5	54.4
35	106	22.3	31.5	44.6	70.4
36	158	26.2	37.1	52.4	82.7
37	261	35.0	49.5	70.0	111
38	381	42.5	60.0	84.9	134
39	710	55.2	78.0	110	174
40	1007	67.5	95.4	135	213
41	1566	82.3	117	165	260
42	2417	104	147	207	327

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 2.0" x 2.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-16-50-H

MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)

.XXX: ±.005

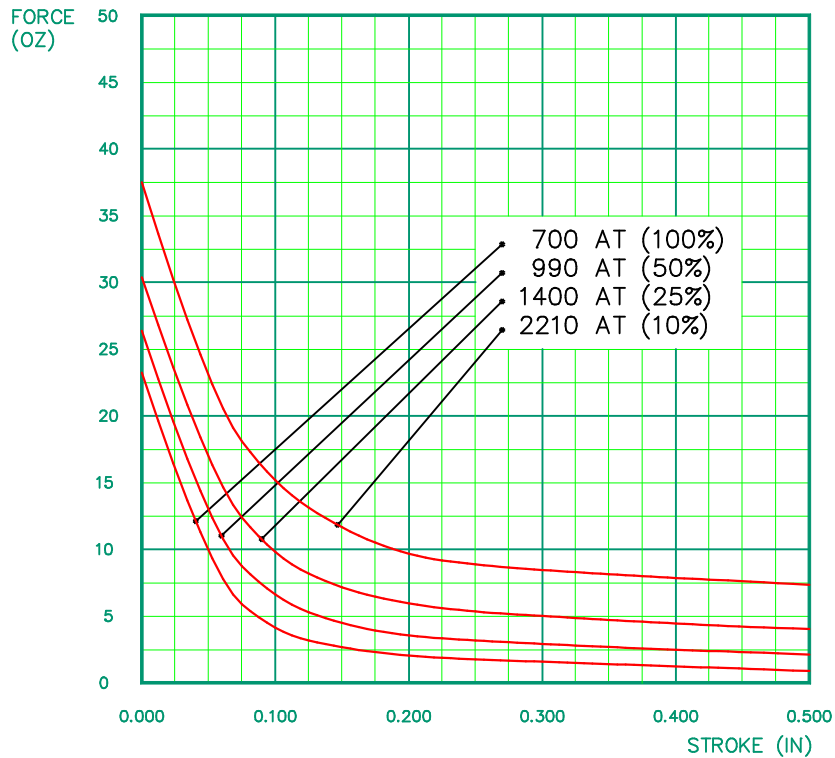
.XX : ±.010

X/X: ± 1/64

COIL RESISTANCE: ±10%

SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE

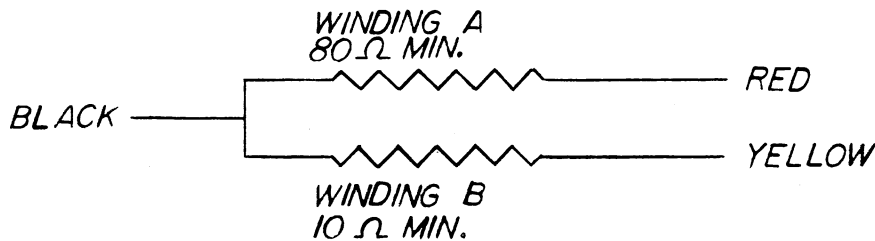
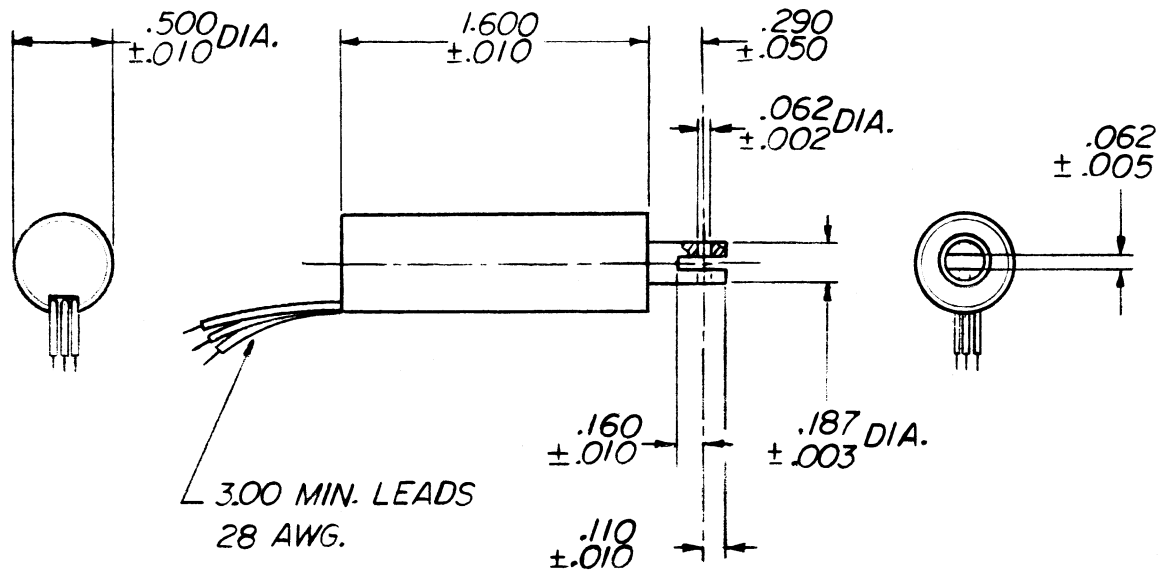


Magnetic Sensor Systems

Pull Type Tubular Dual Coil Solenoid

Series S-15-50-A
1/2" DIA X 1.6"

MECHANICAL DIMENSIONS



SOLENOID SHOWN ENERGIZED

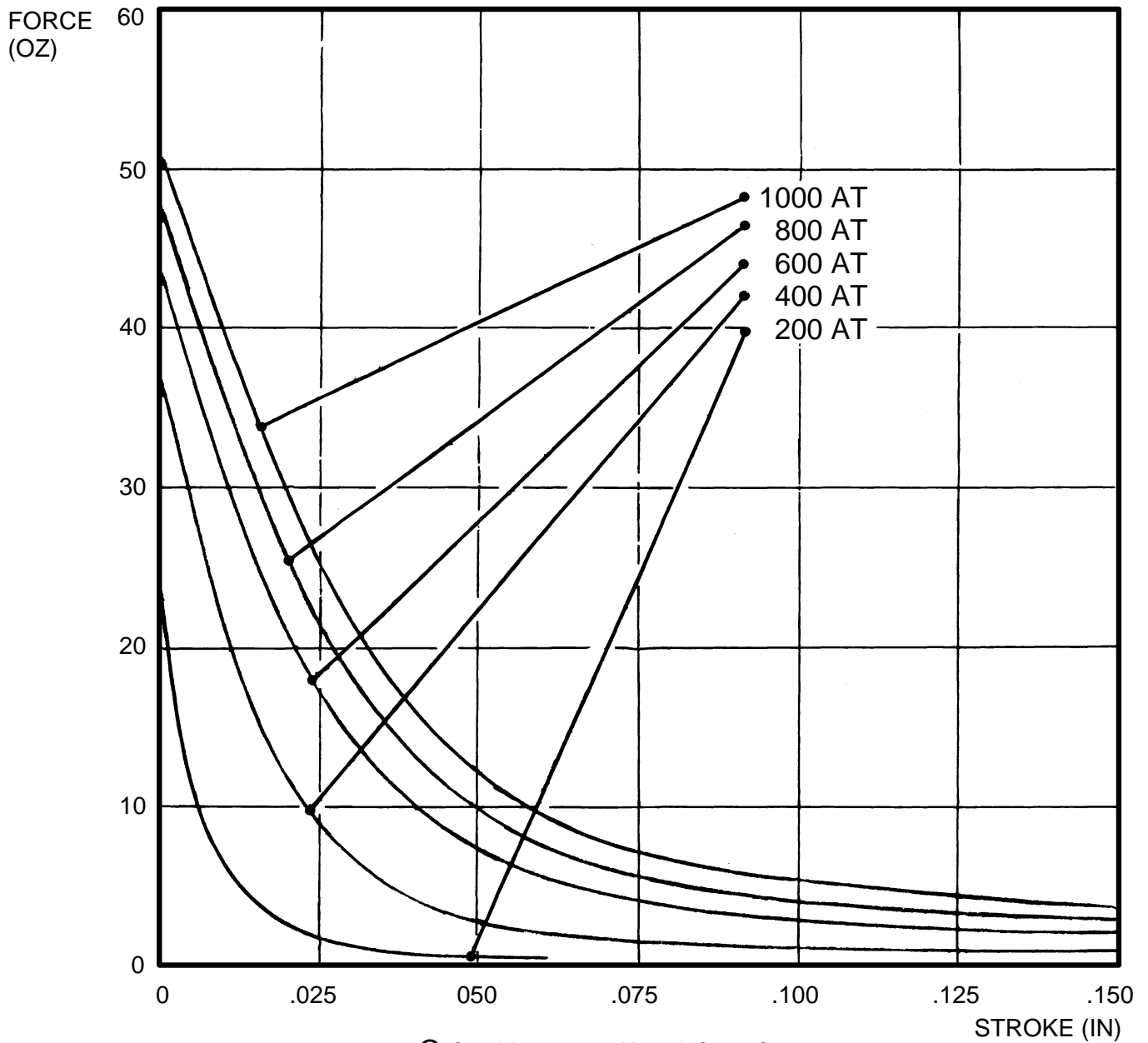
S-15-50-A

Winding A: 80 Ohms Min, 10.6 Ampere-Turns/Volt
Winding B: 10 Ohms Min, 91.4 Ampere-Turns/Volt

$AT/Volt \text{ (In Parallel)} = AT/Volt \text{ (Winding A)} + AT/Volt \text{ (Winding B)}$

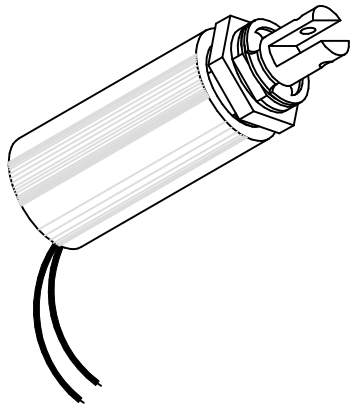
All values are at 25 C

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-15-75
3/4" DIA X 1 1/2"

TOTAL WEIGHT: 2.7 OUNCES

PLUNGER WEIGHT: 0.6 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	180	30	8
watts	8	16	32	80
approximate ampere turns	790	1110	1580	2490

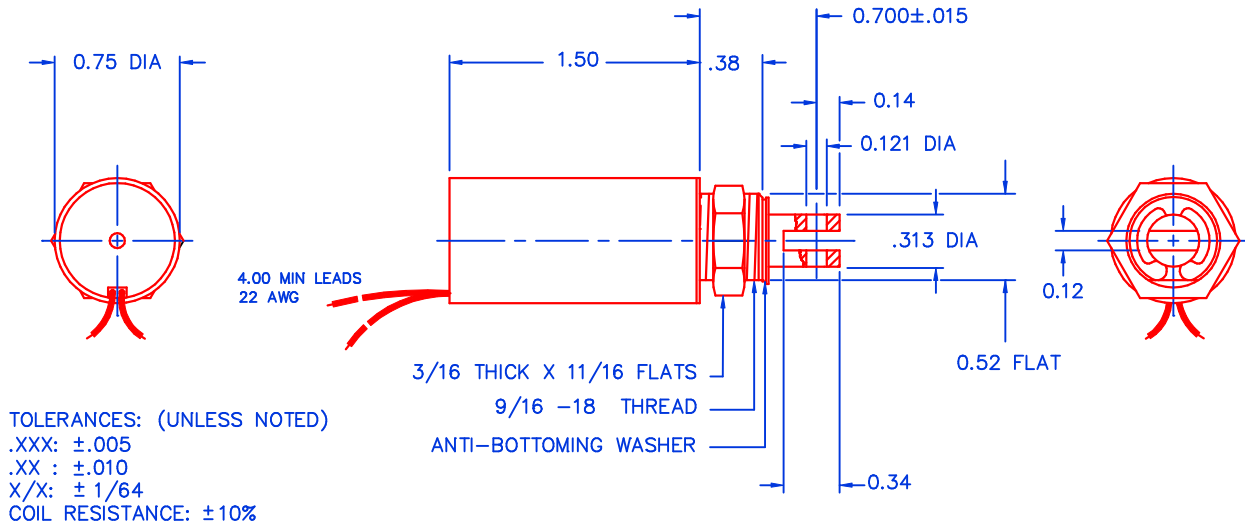
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
23	0.63	2.2	3.2	4.5	7.1
24	1.05	2.9	4.1	5.8	9.2
25	1.48	3.4	4.9	6.9	10.9
26	2.68	4.6	6.5	9.3	14.6
27	4.50	6.0	8.5	12.0	19.0
28	7.03	7.5	10.6	15.0	24.0
29	11.0	9.4	13.3	18.7	30.0
30	20.4	12.8	18.0	25.5	40.3
31	28.2	15.0	21.3	30.1	48.0
32	45.1	19.0	26.9	38.0	60.1
33	72.0	24.0	33.9	48.0	75.9
34	98.8	28.1	39.7	56.2	88.9
35	191	39.0	55.2	78.1	124
36	269	46.4	65.6	92.7	147
37	468	61.2	86.5	122	193
38	692	74.4	105	149	235
39	1243	99.7	141	199	315
40	2066	129	182	257	407

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 3.0" x 3.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

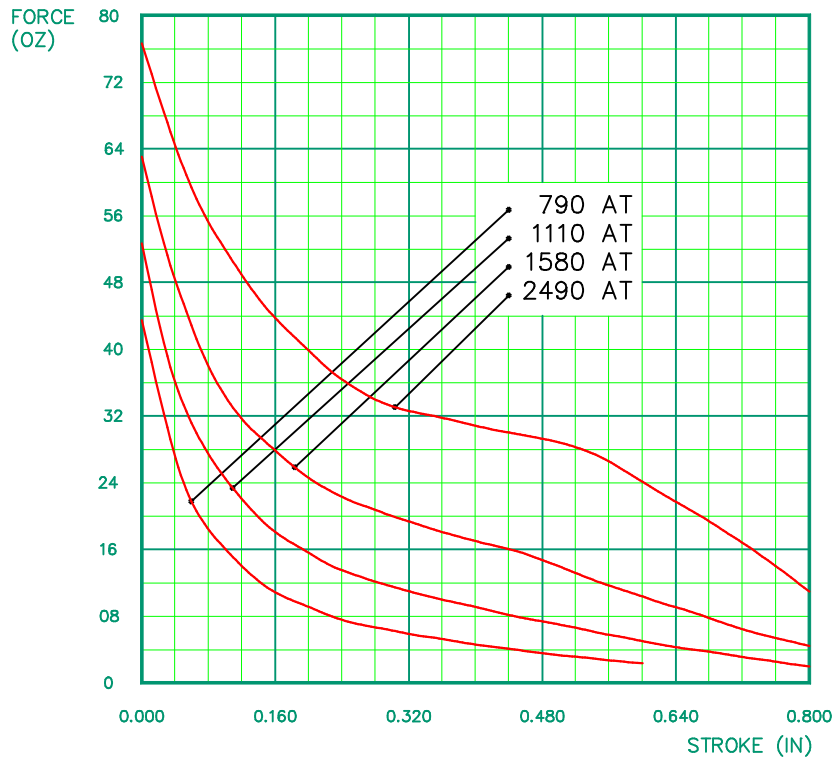
S-15-75

MECHANICAL DIMENSIONS



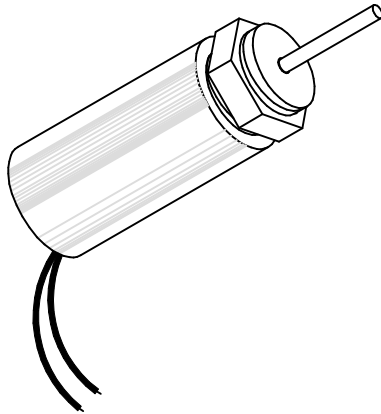
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-15-75-H
3/4" DIA X 1 1/2"

TOTAL WEIGHT: 2.7 OUNCES

PLUNGER WEIGHT: 0.5 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	180	30	8
watts	8	16	32	80
approximate ampere turns	790	1110	1580	2490

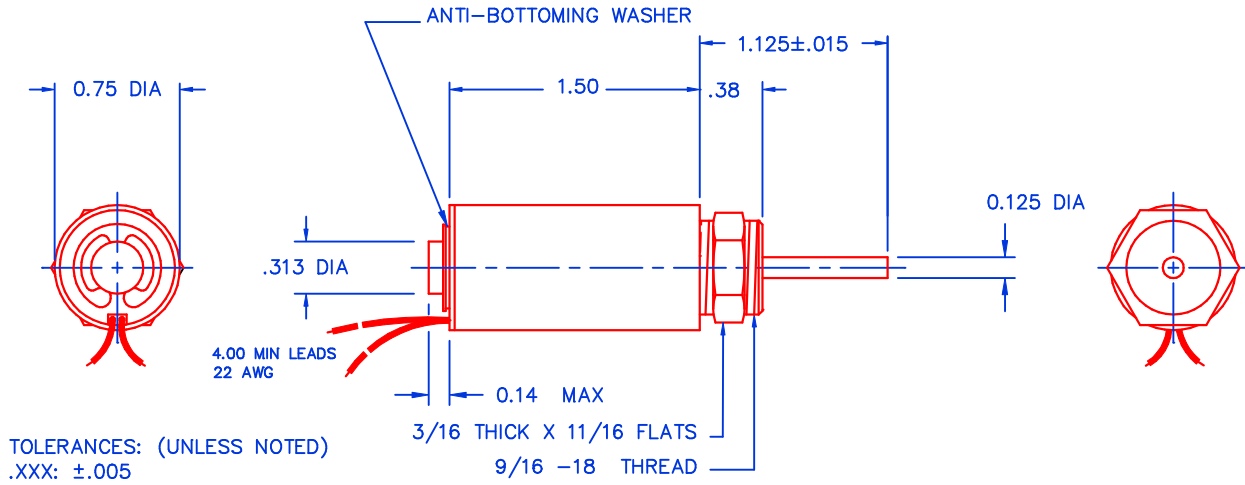
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
23	0.63	2.2	3.2	4.5	7.1
24	1.05	2.9	4.1	5.8	9.2
25	1.48	3.4	4.9	6.9	10.9
26	2.68	4.6	6.5	9.3	14.6
27	4.50	6.0	8.5	12.0	19.0
28	7.03	7.5	10.6	15.0	24.0
29	11.0	9.4	13.3	18.7	30.0
30	20.4	12.8	18.0	25.5	40.3
31	28.2	15.0	21.3	30.1	48.0
32	45.1	19.0	26.9	38.0	60.1
33	72.0	24.0	33.9	48.0	75.9
34	98.8	28.1	39.7	56.2	88.9
35	191	39.0	55.2	78.1	124
36	269	46.4	65.6	92.7	147
37	468	61.2	86.5	122	193
38	692	74.4	105	149	235
39	1243	99.7	141	199	315
40	2066	129	182	257	407

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 3.0" x 3.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-15-75-H

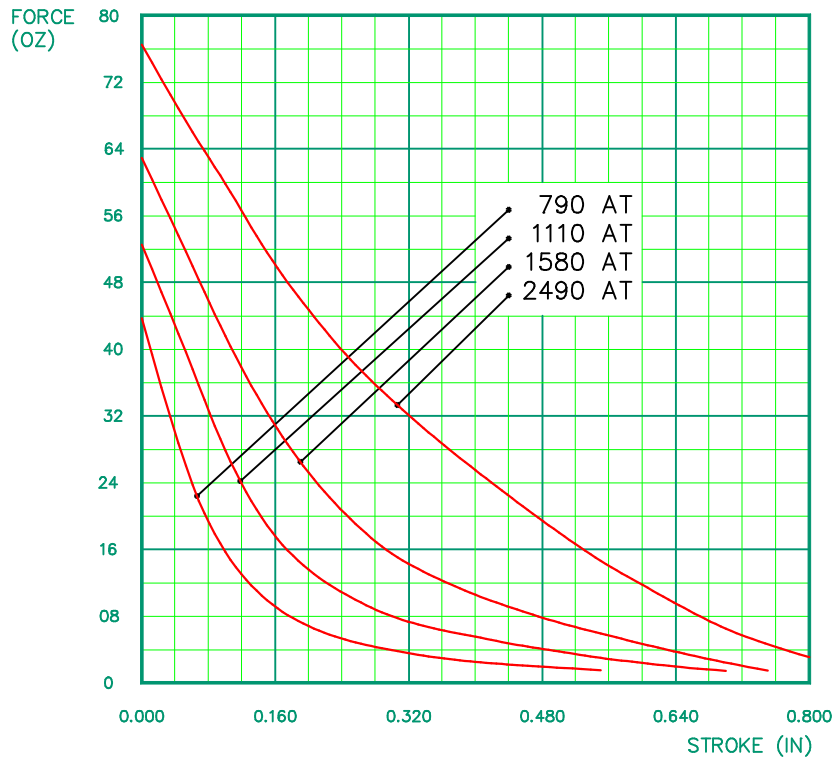
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 .XXX: ±.005
 .XX : ±.010
 X/X: ± 1/64
 COIL RESISTANCE: ± 10%

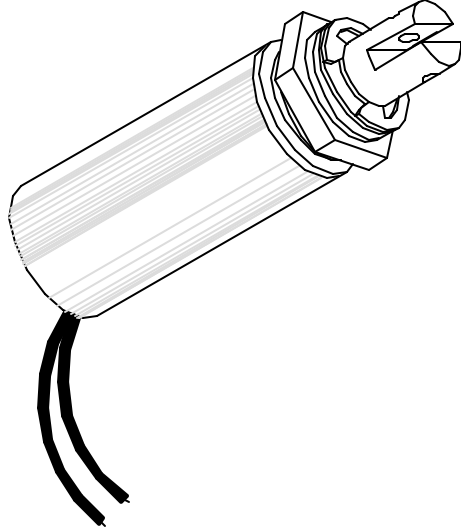
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-20-90
0.9" DIA X 2"
[23.0 mm X 50.8 mm]

TOTAL WEIGHT: 5.6 OUNCES [160 GR]
PLUNGER WEIGHT: 1.6 OUNCES [45 GR]

duty cycle	1 (100%)	1/2 (50%)	1/4 (25%)	1/10 (10%)
maximum "ON" time, (Sec.)	∞	300	60	12
watts	9	18	36	90
approximate ampere turns	825	1165	1650	2610

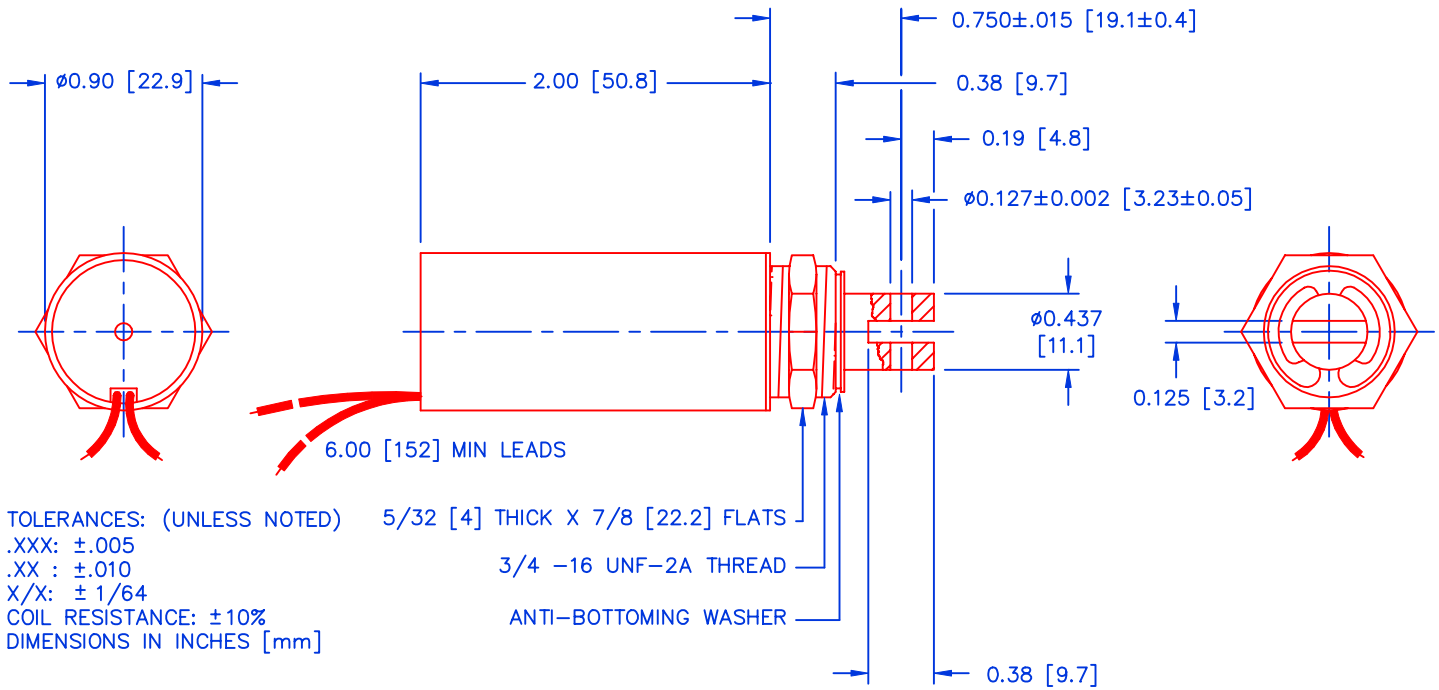
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
22	0.6	2.3	3.2	4.5	7.1
23	0.8	2.7	3.8	5.3	8.5
24	1.5	3.7	5.2	7.4	12.0
25	2.5	4.8	6.7	9.5	15.0
26	4.5	6.4	9.0	12.7	20.1
27	7.0	7.9	11.2	15.9	25.1
28	11.0	9.9	14.1	19.9	31.4
29	16.3	12.1	17.1	24.2	38.3
30	26.6	15.5	21.9	31.0	49.0
31	40.0	19.0	26.8	37.9	60.0
32	66.5	24.5	34.6	48.9	77.4
33	114	32.0	45.2	63.9	101
34	171	39.2	55.4	78.3	124
35	240	46.5	65.8	93.0	147
36	404	60.3	85.2	121	191
37	620	74.7	106	149	236
38	938	91.9	130	184	291
39	1770	126	179	252	399

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 4.0" x 4.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

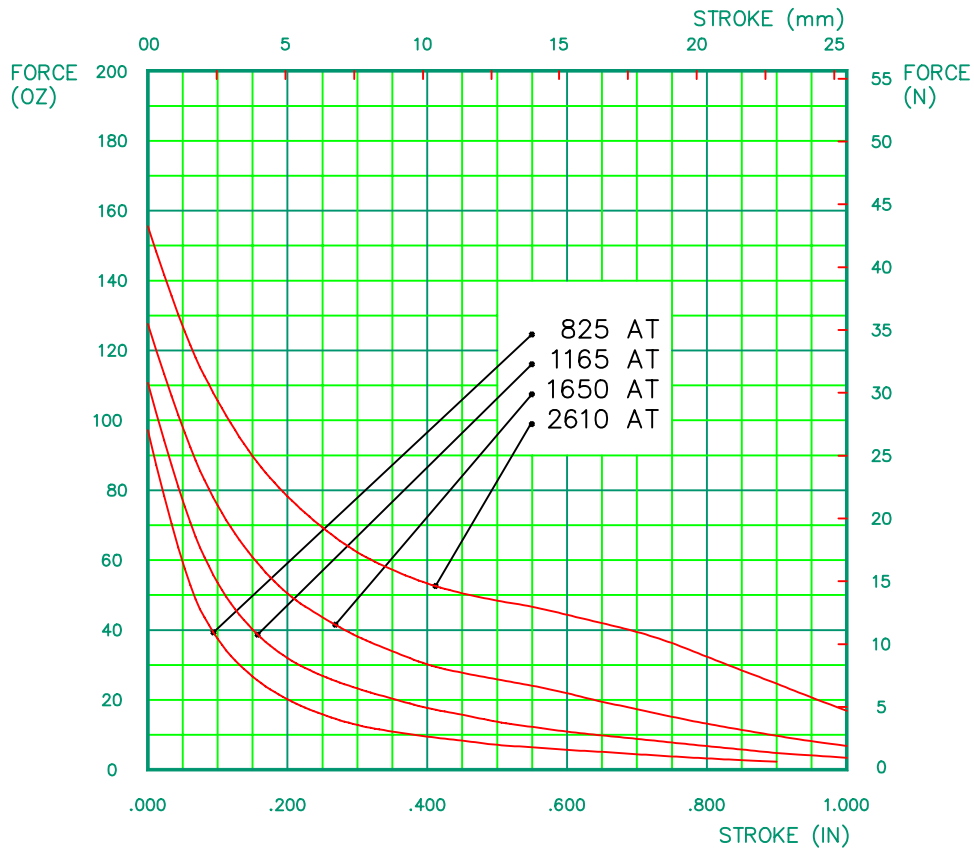
S-20-90

MECHANICAL DIMENSIONS



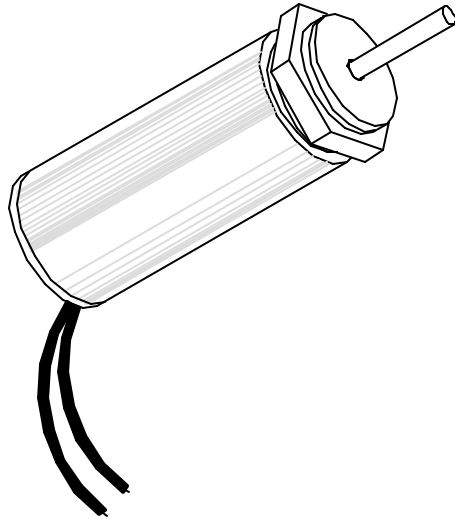
TOLERANCES: (UNLESS NOTED)
 .XXX: \pm .005
 .XX : \pm .010
 X/X: \pm 1/64
 COIL RESISTANCE: \pm 10%
 DIMENSIONS IN INCHES [mm]

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-20-90-H
0.9" DIA X 2"
[23.0 mm X 50.8 mm]

TOTAL WEIGHT: 5.5 OUNCES [155 GR]
PLUNGER WEIGHT: 1.2 OUNCES [34 GR]

duty cycle	1 (100%)	1/2 (50%)	1/4 (25%)	1/10 (10%)
maximum "ON" time, (Sec.)	∞	300	60	12
watts	9	18	36	90
approximate ampere turns	825	1165	1650	2610

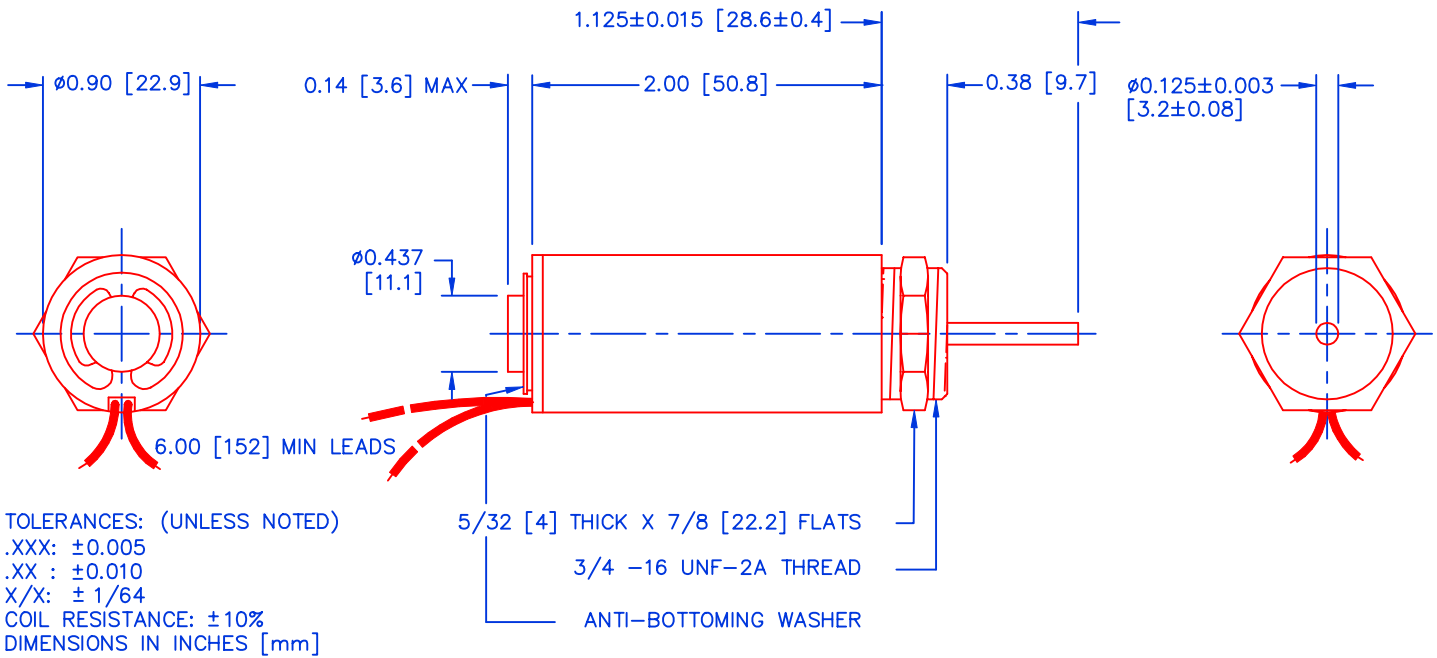
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
22	0.6	2.3	3.2	4.5	7.1
23	0.8	2.7	3.8	5.3	8.5
24	1.5	3.7	5.2	7.4	12.0
25	2.5	4.8	6.7	9.5	15.0
26	4.5	6.4	9.0	12.7	20.1
27	7.0	7.9	11.2	15.9	25.1
28	11.0	9.9	14.1	19.9	31.4
29	16.3	12.1	17.1	24.2	38.3
30	26.6	15.5	21.9	31.0	49.0
31	40.0	19.0	26.8	37.9	60.0
32	66.5	24.5	34.6	48.9	77.4
33	114	32.0	45.2	63.9	101
34	171	39.2	55.4	78.3	124
35	240	46.5	65.8	93.0	147
36	404	60.3	85.2	121	191
37	620	74.7	106	149	236
38	938	91.9	130	184	291
39	1770	126	179	252	399

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 4.0" x 4.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

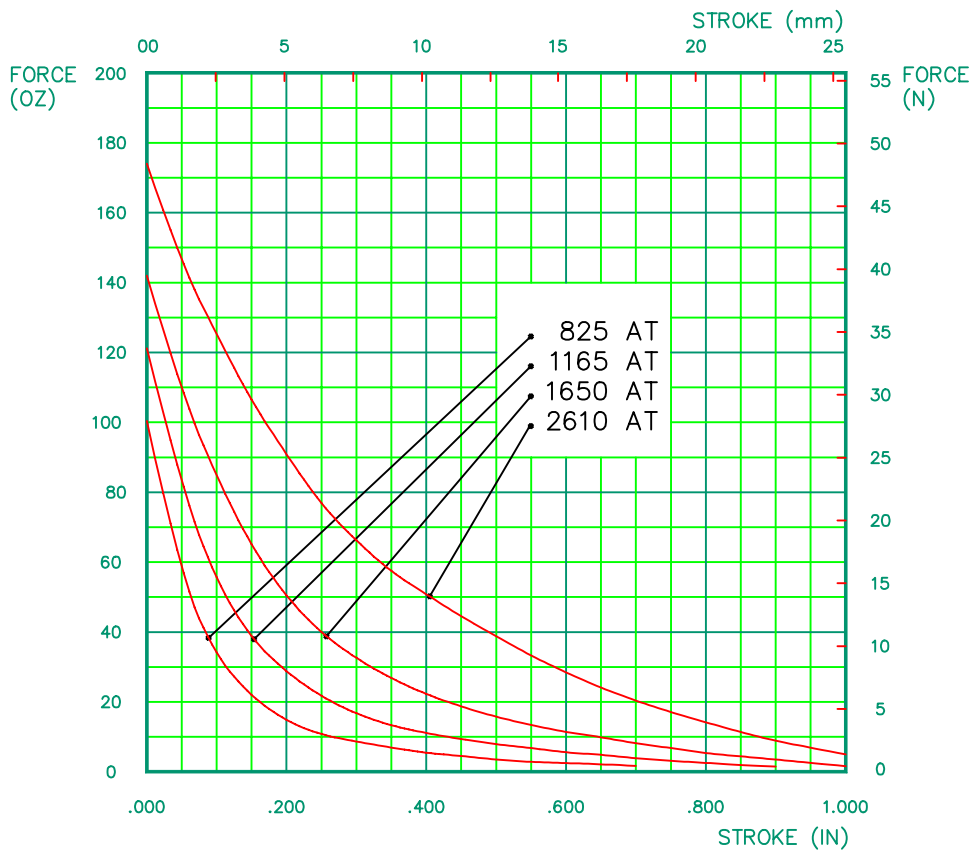
S-20-90-H

MECHANICAL DIMENSIONS



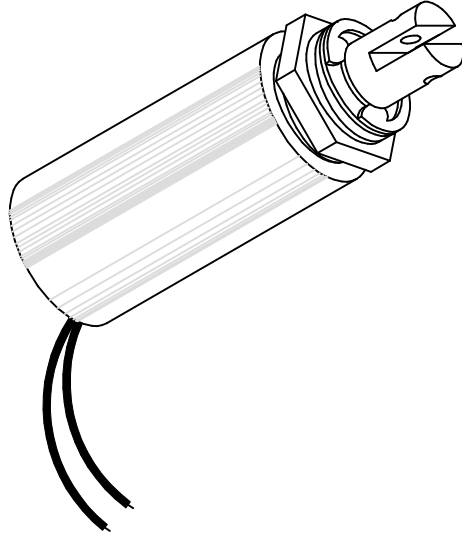
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-20-100
1" DIA X 2"

TOTAL WEIGHT: 6.2 OUNCES

PLUNGER WEIGHT: 1.6 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	400	35	10
watts	10	20	40	100
approximate ampere turns	1110	1590	2220	3510

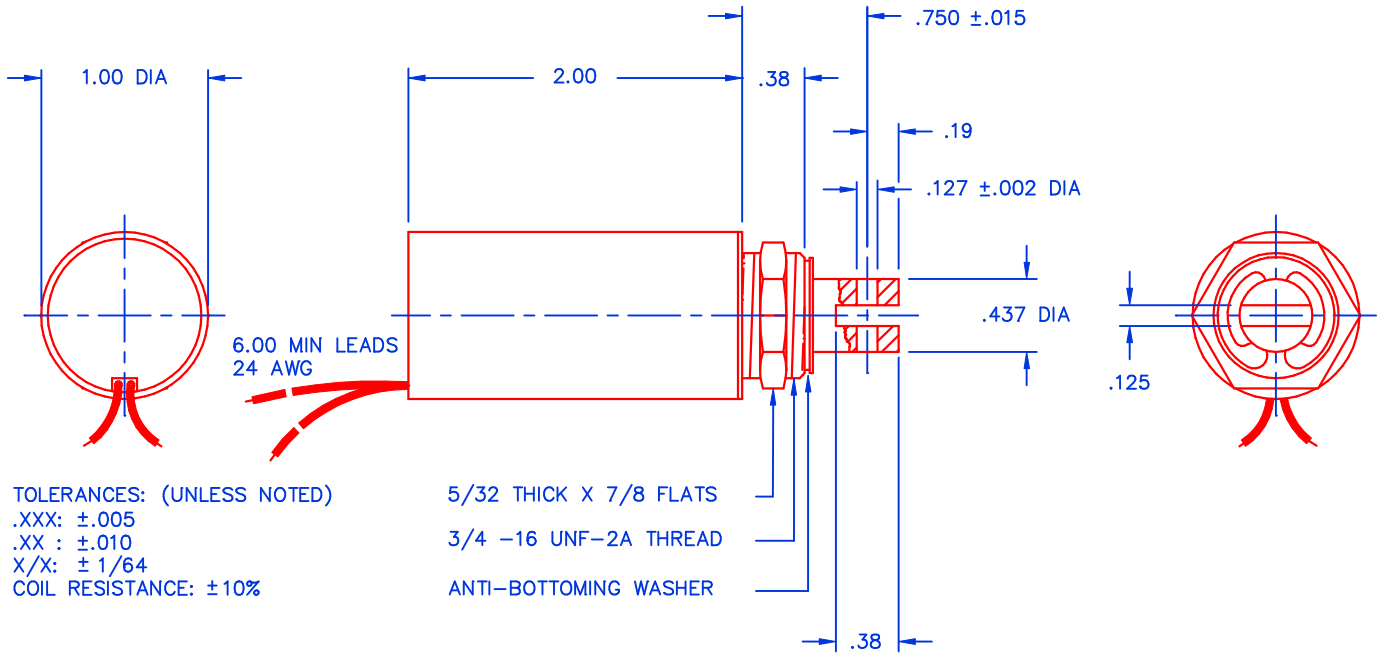
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
23	1.52	3.9	5.5	7.8	12.3
24	2.95	5.4	7.7	10.9	17.2
25	4.01	6.3	9.0	12.7	20.0
26	7.10	8.4	11.9	16.9	26.6
27	9.92	10.0	14.1	19.9	31.5
28	17.1	13.1	18.5	26.2	41.4
29	27.5	16.6	23.5	33.2	52.4
30	46.2	21.5	30.4	43.0	68.0
31	72.0	26.8	37.9	53.7	84.9
32	110	33.2	46.9	66.3	105
33	175	41.8	59.2	83.7	132
34	270	52.0	73.5	104	164
35	450	67.1	94.9	134	212
36	665	81.5	115	163	258
37	1040	102	144	204	323
38	1550	125	176	249	394
39	2750	166	235	332	524
40	4350	209	295	417	660

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 4.0" x 4.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

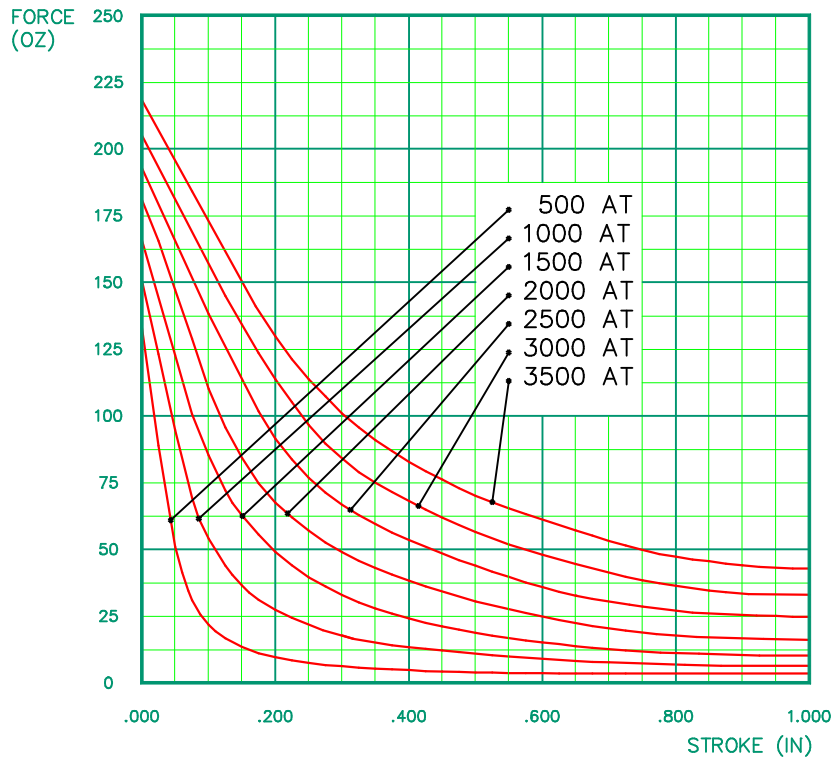
S-20-100

MECHANICAL DIMENSIONS



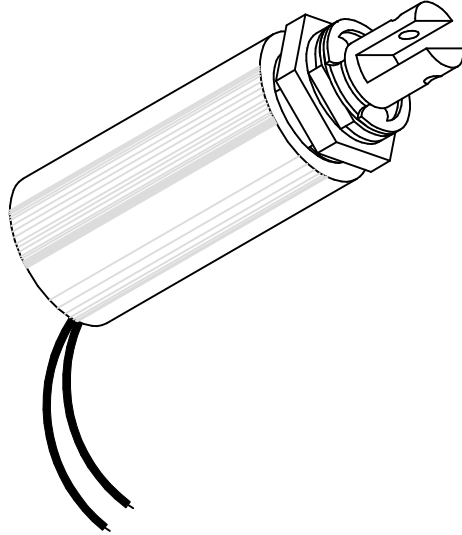
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-20-100X
1" DIA X 2"

TOTAL WEIGHT: 6.2 OUNCES

PLUNGER WEIGHT: 1.6 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	400	35	10
watts	10	20	40	100
approximate ampere turns	1110	1590	2220	3510

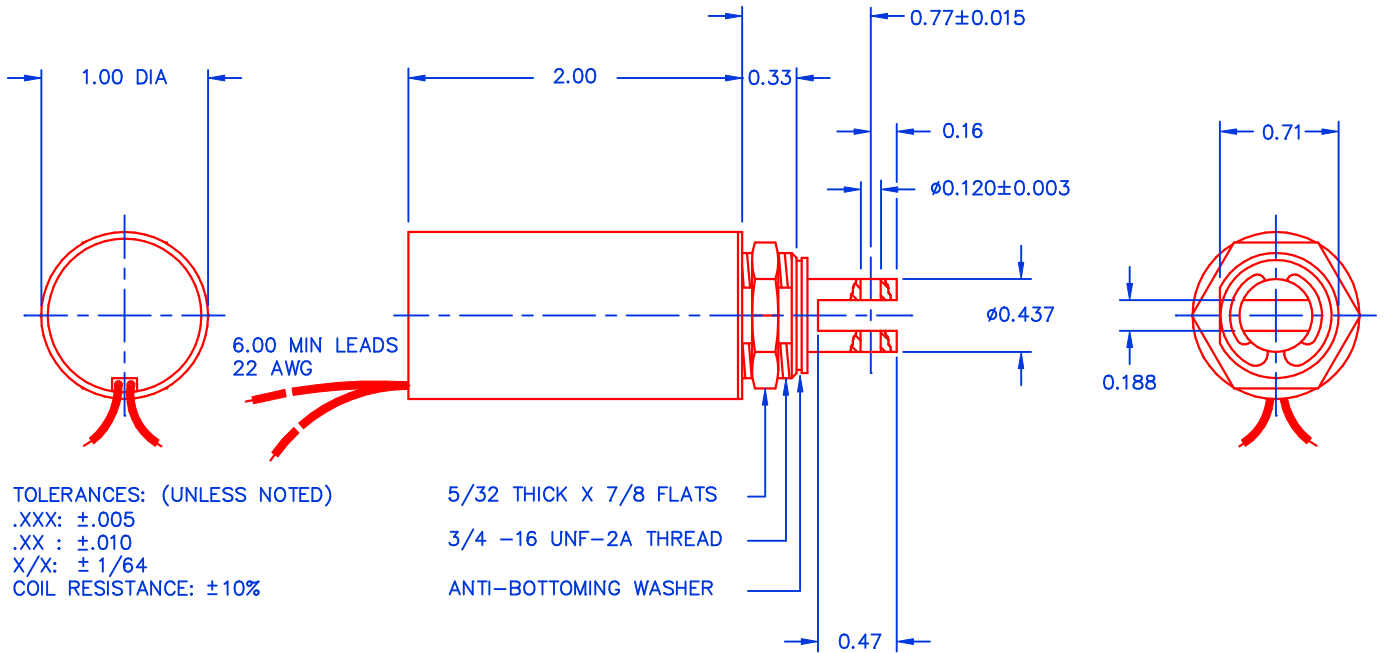
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
23	1.52	3.9	5.5	7.8	12.3
24	2.95	5.4	7.7	10.9	17.2
25	4.01	6.3	9.0	12.7	20.0
26	7.10	8.4	11.9	16.9	26.6
27	9.92	10.0	14.1	19.9	31.5
28	17.1	13.1	18.5	26.2	41.4
29	27.5	16.6	23.5	33.2	52.4
30	46.2	21.5	30.4	43.0	68.0
31	72.0	26.8	37.9	53.7	84.9
32	110	33.2	46.9	66.3	105
33	175	41.8	59.2	83.7	132
34	270	52.0	73.5	104	164
35	450	67.1	94.9	134	212
36	665	81.5	115	163	258
37	1040	102	144	204	323
38	1550	125	176	249	394
39	2750	166	235	332	524
40	4350	209	295	417	660

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 4.0" x 4.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

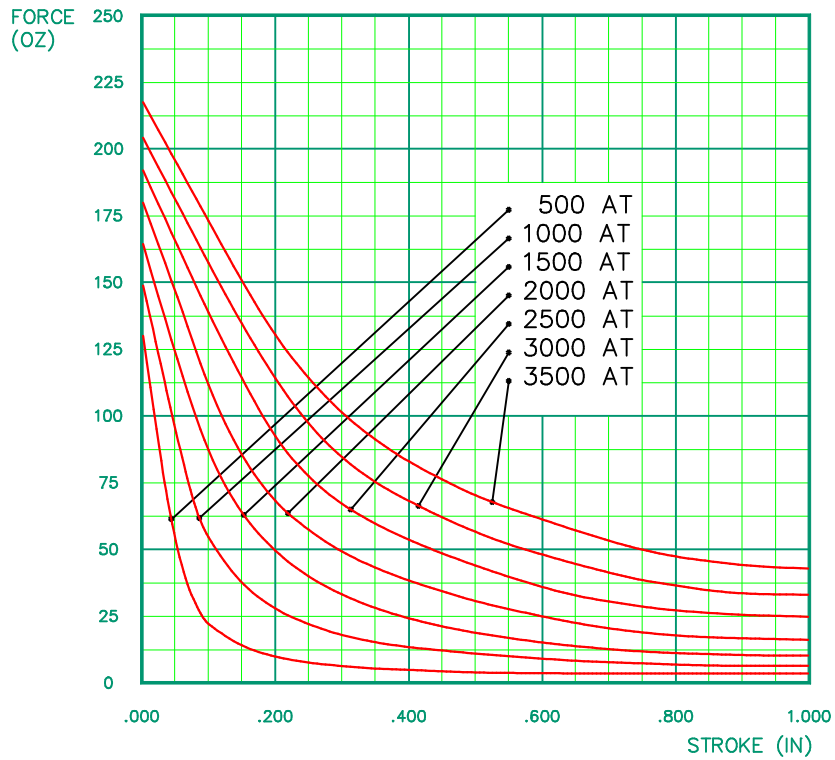
S-20-100X

MECHANICAL DIMENSIONS



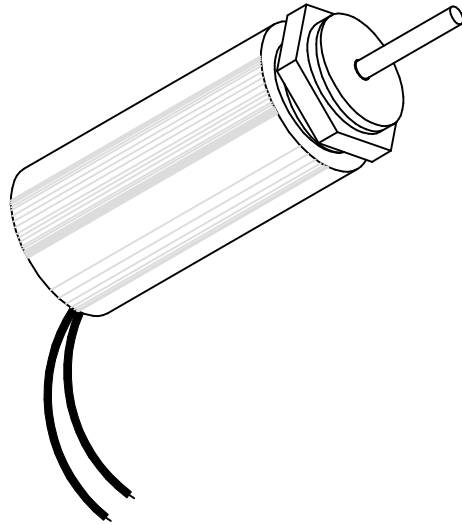
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-20-100-H
1" DIA X 2"

TOTAL WEIGHT: 6.2 OUNCES

PLUNGER WEIGHT: 1.2 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	400	35	10
watts	10	20	40	100
approximate ampere turns	1110	1590	2220	3510

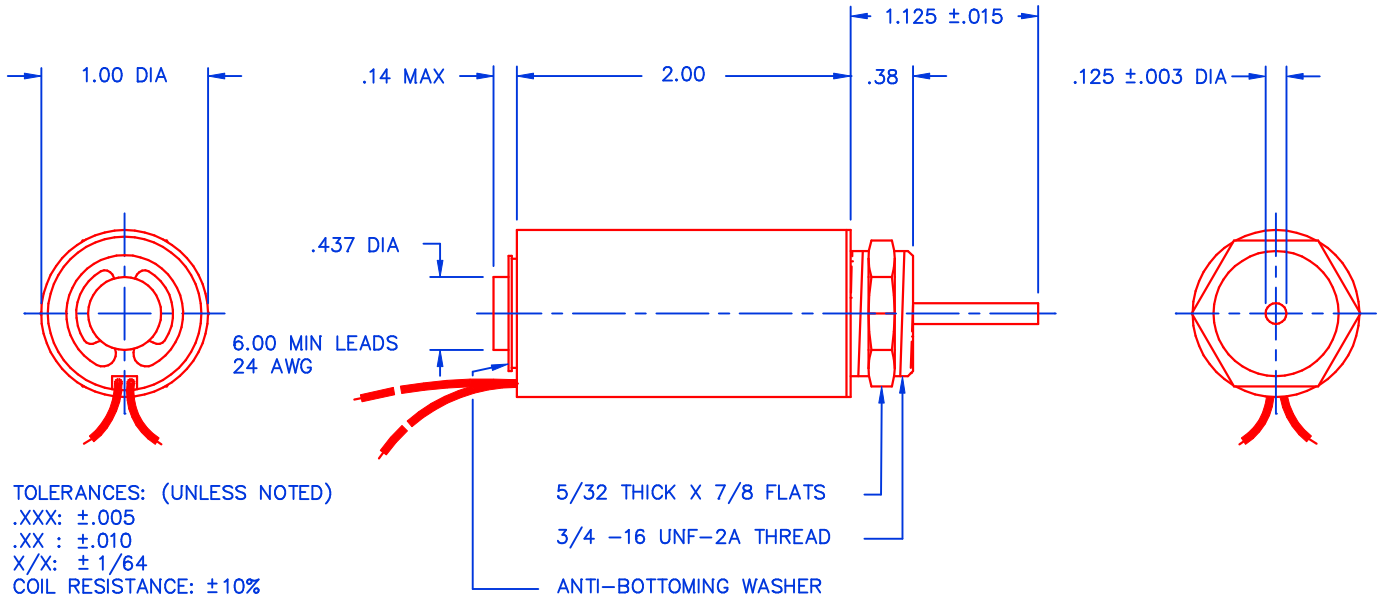
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
23	1.52	3.9	5.5	7.8	12.3
24	2.95	5.4	7.7	10.9	17.2
25	4.01	6.3	9.0	12.7	20.0
26	7.10	8.4	11.9	16.9	26.6
27	9.92	10.0	14.1	19.9	31.5
28	17.1	13.1	18.5	26.2	41.4
29	27.5	16.6	23.5	33.2	52.4
30	46.2	21.5	30.4	43.0	68.0
31	72.0	26.8	37.9	53.7	84.9
32	110	33.2	46.9	66.3	105
33	175	41.8	59.2	83.7	132
34	270	52.0	73.5	104	164
35	450	67.1	94.9	134	212
36	665	81.5	115	163	258
37	1040	102	144	204	323
38	1550	125	176	249	394
39	2750	166	235	332	524
40	4350	209	295	417	660

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 4.0" x 4.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

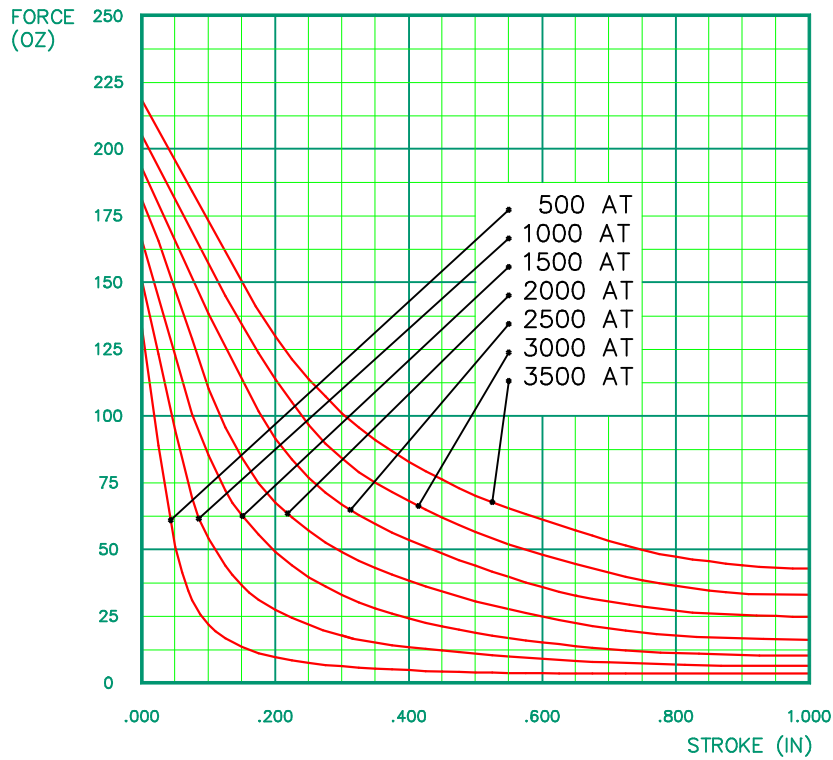
S-20-100-H

MECHANICAL DIMENSIONS



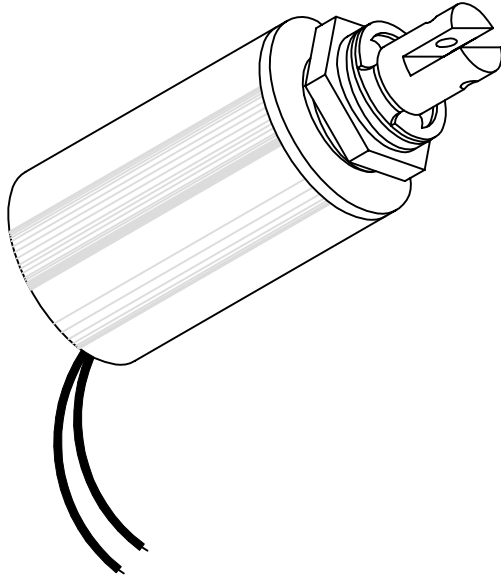
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-20-125
1 1/4" DIA X 2"
[31.8 mm X 50.8 mm]

TOTAL WEIGHT: 9.5 OUNCES [270 GR]
PLUNGER WEIGHT: 1.6 OUNCES [45 GR]

duty cycle	1 (100%)	1/2 (50%)	1/4 (25%)	1/10 (10%)
maximum "ON" time, (Sec.)	∞	240	60	20
watts	12	24	48	120
approximate ampere turns	1300	1840	2600	4110

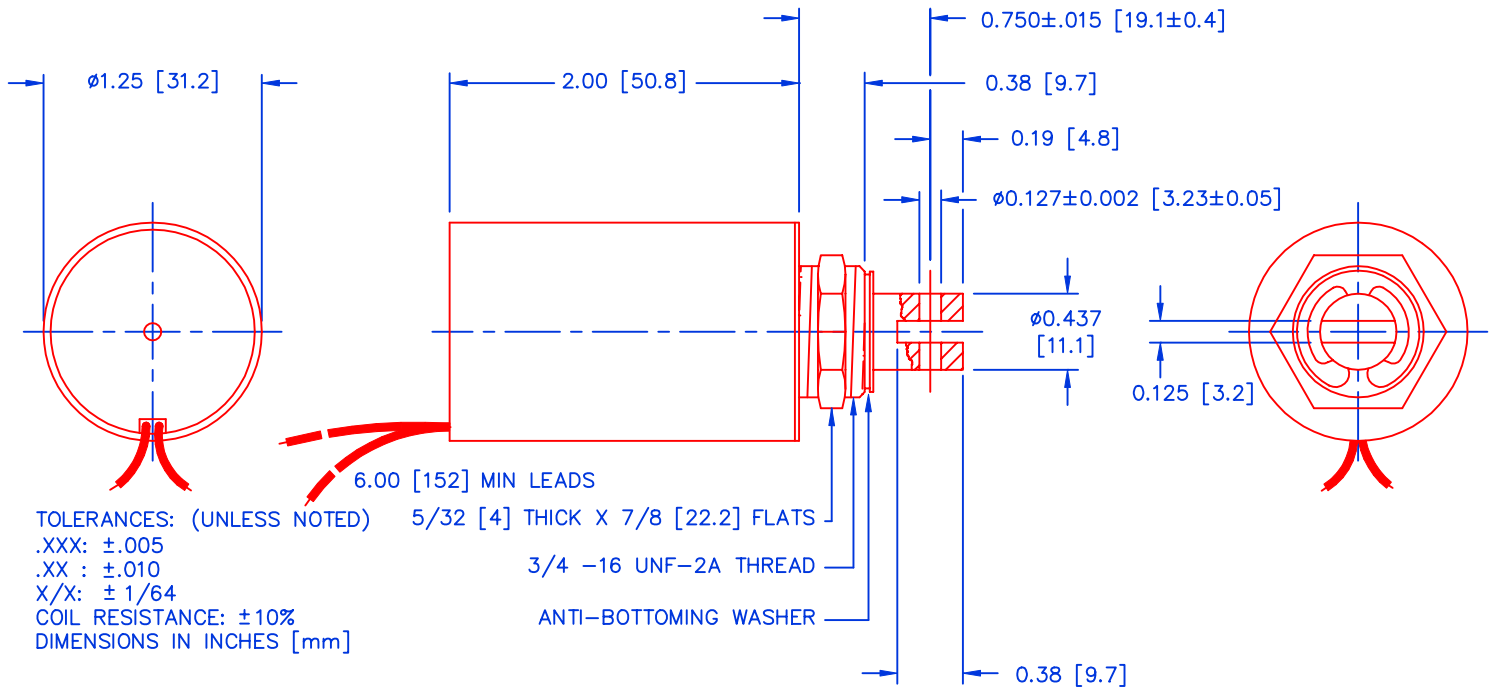
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
19	0.3	2.0	2.8	3.9	6.2
20	0.6	2.8	3.9	5.5	8.7
21	0.9	3.3	4.6	6.5	10.4
22	1.7	4.5	6.3	9.0	14.2
23	2.7	5.7	8.1	11.5	18.1
24	4.4	7.3	10.3	14.6	23.0
25	7.0	9.1	12.9	18.3	28.9
26	11.6	11.8	16.7	24.0	37.4
27	18.1	14.7	20.8	30.0	46.6
28	28.2	18.4	26.0	36.8	58.2
29	39.6	21.8	30.8	43.6	68.9
30	69.3	28.8	40.8	57.7	91.2
31	114	37.0	52.3	74.0	117
32	179	46.3	65.5	92.7	147
33	287	58.7	83.0	117	186
34	461	74.4	105	149	235
35	758	95.4	135	191	302
36	1205	120	170	241	380

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

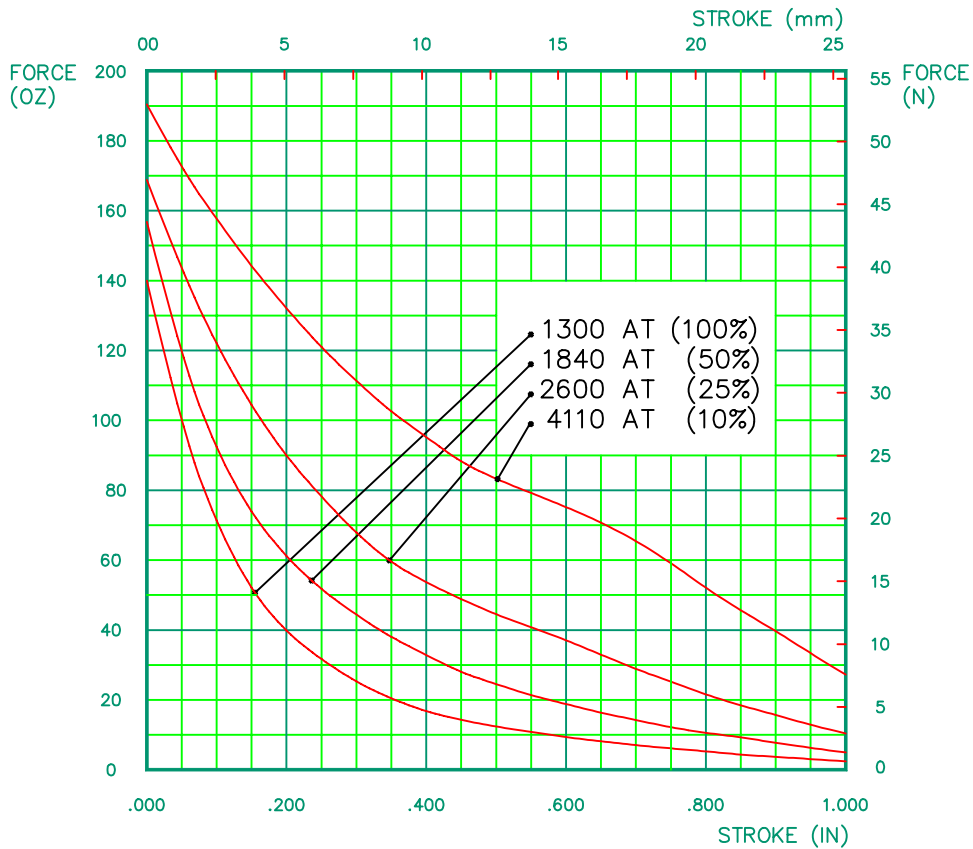
S-20-125

MECHANICAL DIMENSIONS



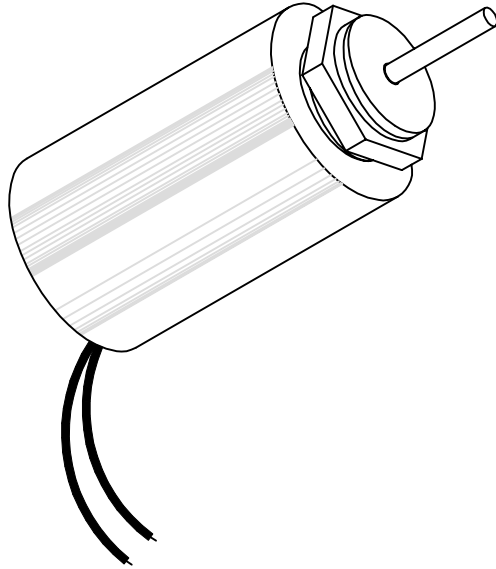
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-20-125-H
1 1/4" DIA X 2"
[31.8 mm X 50.8 mm]

TOTAL WEIGHT: 9.4 OUNCES [266 GR]
PLUNGER WEIGHT: 1.2 OUNCES [34 GR]

duty cycle maximum "ON" time, (Sec.)	1 (100%) ∞	1/2 (50%) 240	1/4 (25%) 60	1/10 (10%) 20
watts	12	24	48	120
approximate ampere turns	1300	1840	2600	4110

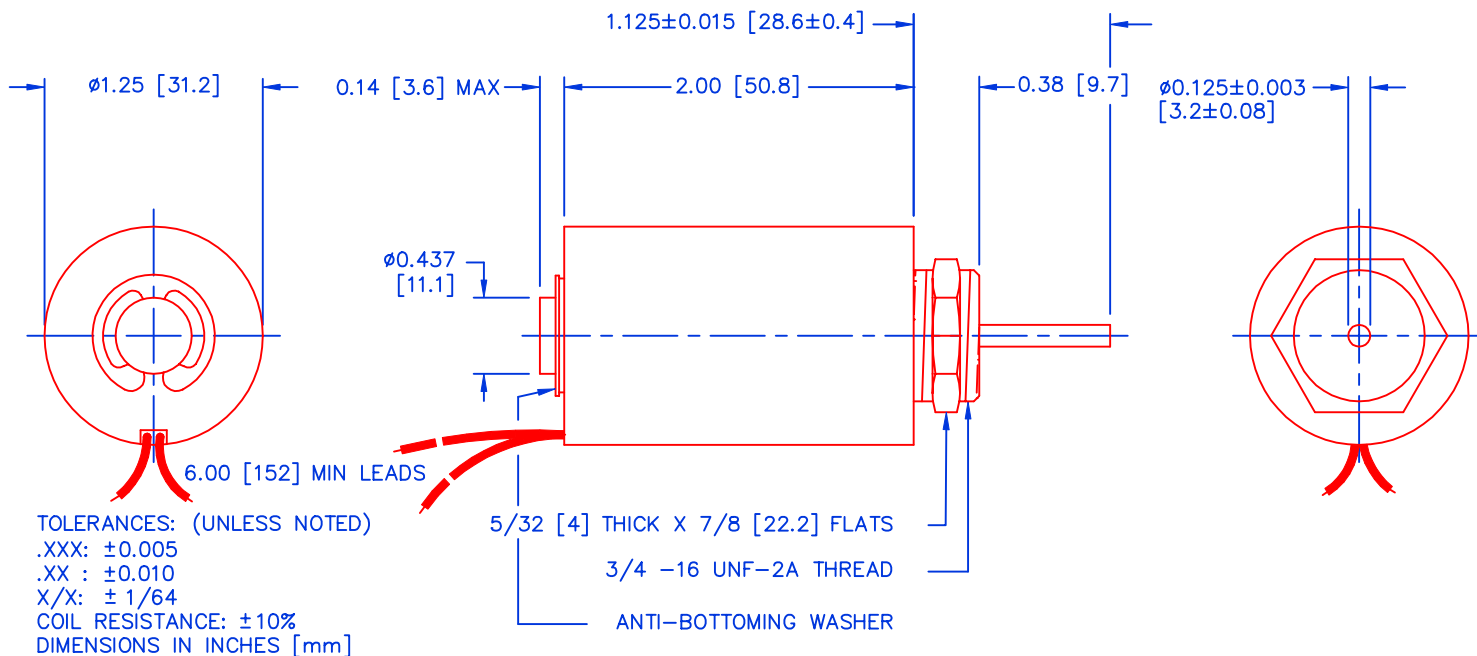
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
19	0.3	2.0	2.8	3.9	6.2
20	0.6	2.8	3.9	5.5	8.7
21	0.9	3.3	4.6	6.5	10.4
22	1.7	4.5	6.3	9.0	14.2
23	2.7	5.7	8.1	11.5	18.1
24	4.4	7.3	10.3	14.6	23.0
25	7.0	9.1	12.9	18.3	28.9
26	11.6	11.8	16.7	24.0	37.4
27	18.1	14.7	20.8	30.0	46.6
28	28.2	18.4	26.0	36.8	58.2
29	39.6	21.8	30.8	43.6	68.9
30	69.3	28.8	40.8	57.7	91.2
31	114	37.0	52.3	74.0	117
32	179	46.3	65.5	92.7	147
33	287	58.7	83.0	117	186
34	461	74.4	105	149	235
35	758	95.4	135	191	302
36	1205	120	170	241	380

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

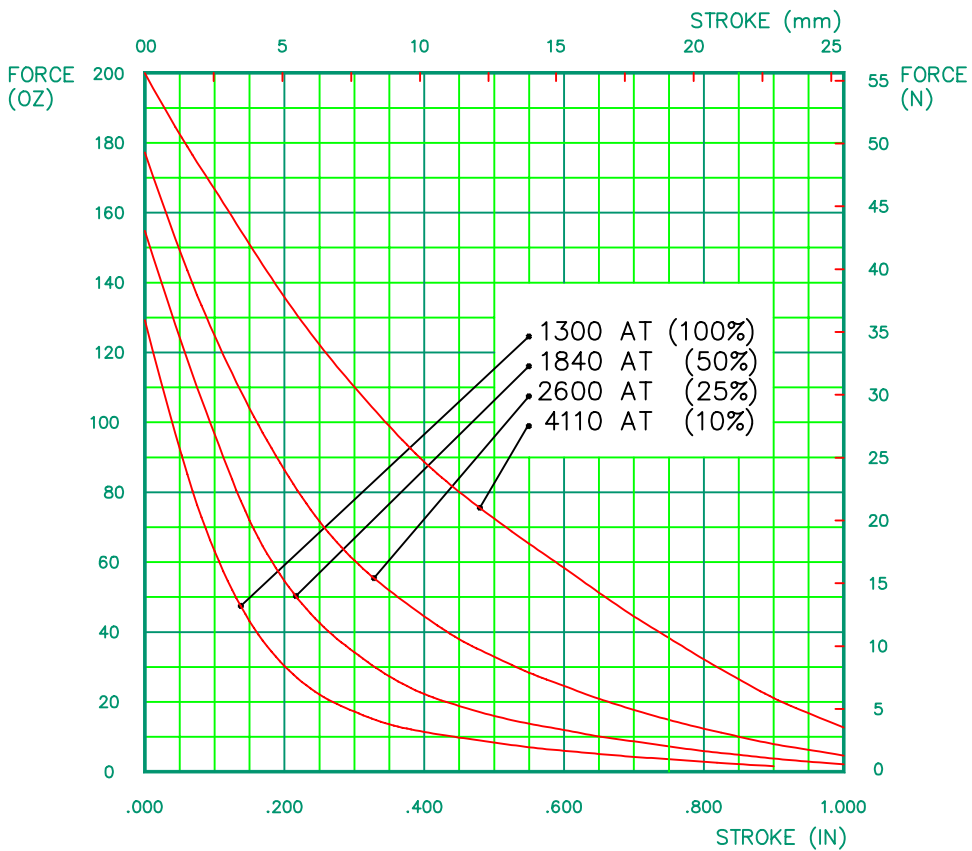
S-20-125-H

MECHANICAL DIMENSIONS



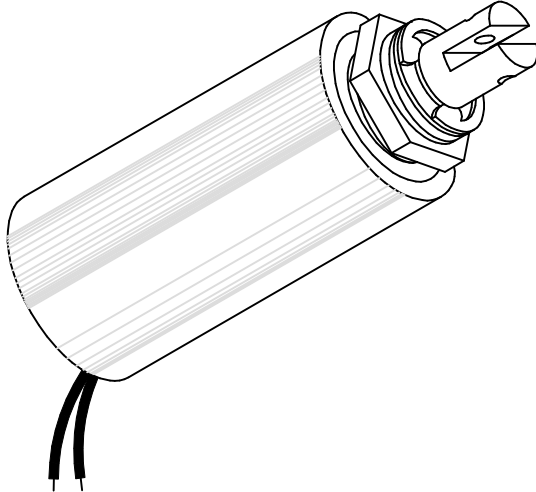
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-25-125
1 1/4" DIA X 2 1/2"

TOTAL WEIGHT: 11.2 OUNCES

PLUNGER WEIGHT: 1.9 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	410	100	30

watts	11	22	44	110
approximate ampere turns	1410	2000	2820	4460

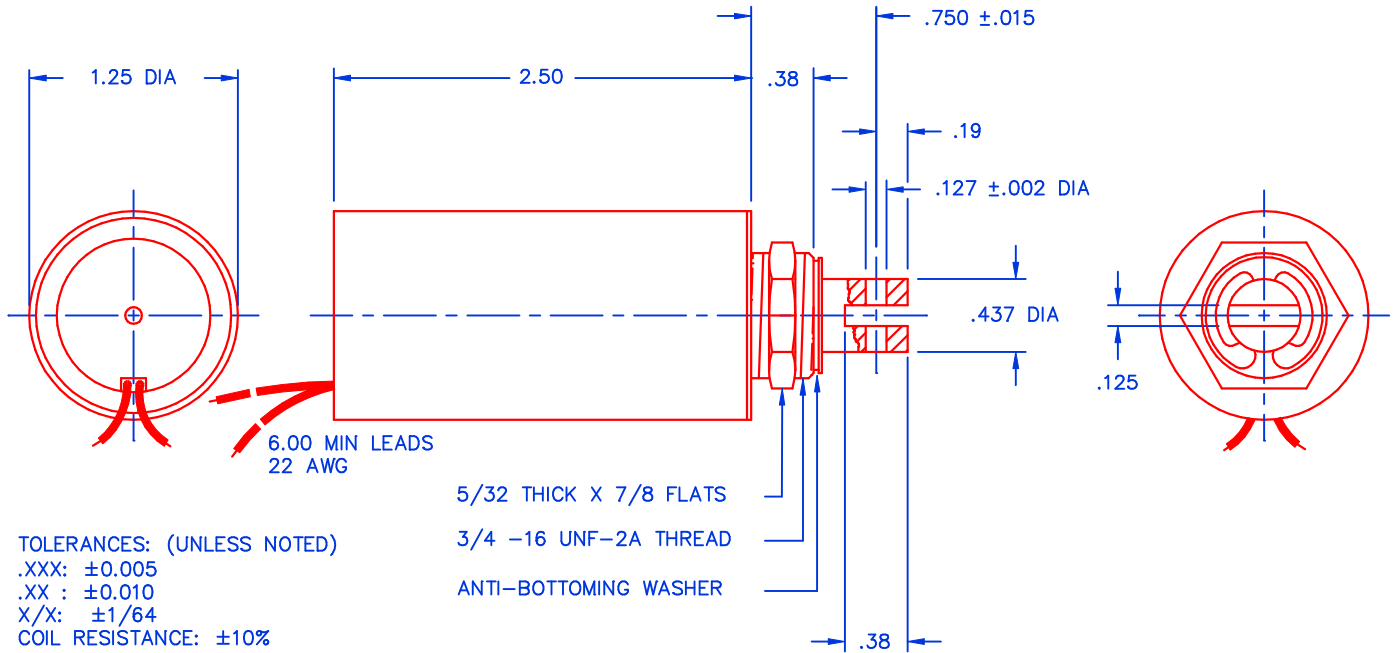
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	0.97	3.2	4.5	6.3	10.0
21	1.38	4.0	5.6	7.9	12.5
22	2.49	5.1	7.2	10.2	16.1
23	3.49	6.2	8.8	12.5	19.7
24	6.06	8.1	11.5	16.2	25.5
25	9.89	10.3	14.5	20.5	32.4
26	16.6	13.0	18.4	25.9	41.0
27	24.5	16.1	22.8	32.2	50.9
28	36.9	20.4	28.9	40.8	64.5
29	61.8	25.5	36.1	51.0	80.6
30	93.3	31.5	44.6	62.9	99.5
31	144	40.3	57.1	80.6	127
32	210	49.4	70.0	98.7	156
33	357	63.5	90.0	127	201
34	553	82	116	164	259
35	993	105	149	210	332
36	1460	131	186	263	415
37	2406	160	227	320	506

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

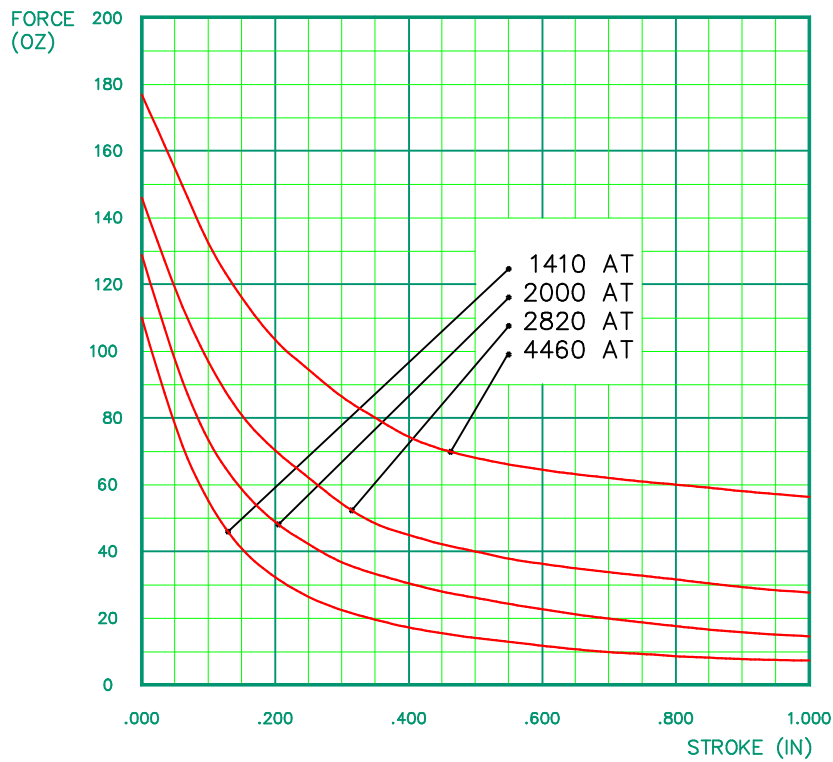
S-25-125

MECHANICAL DIMENSIONS



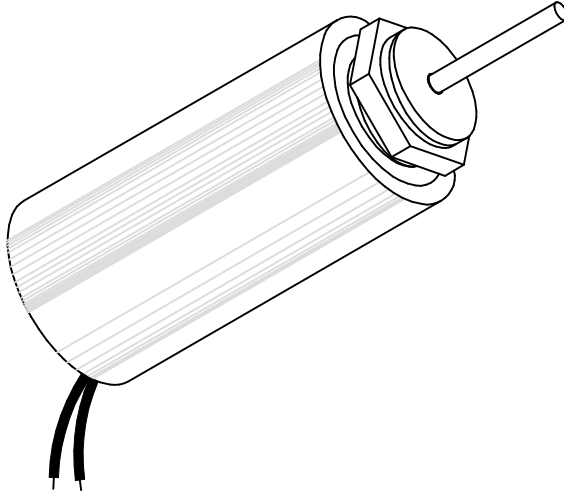
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-25-125-H
1 1/4" DIA X 2 1/2"

TOTAL WEIGHT: 11.2 OUNCES

PLUNGER WEIGHT: 1.5 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	410	100	30

watts	11	22	44	110
approximate ampere turns	1410	2000	2820	4460

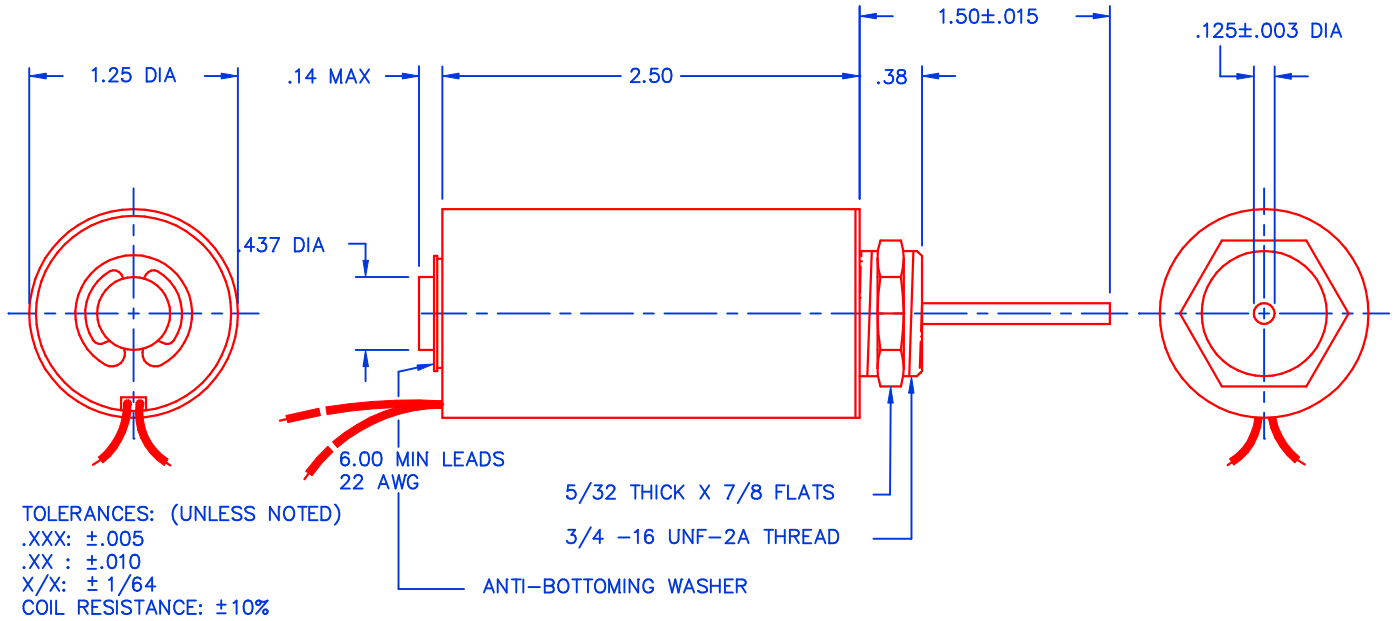
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	0.97	3.2	4.5	6.3	10.0
21	1.38	4.0	5.6	7.9	12.5
22	2.49	5.1	7.2	10.2	16.1
23	3.49	6.2	8.8	12.5	19.7
24	6.06	8.1	11.5	16.2	25.5
25	9.89	10.3	14.5	20.5	32.4
26	16.6	13.0	18.4	25.9	41.0
27	24.5	16.1	22.8	32.2	50.9
28	36.9	20.4	28.9	40.8	64.5
29	61.8	25.5	36.1	51.0	80.6
30	93.3	31.5	44.6	62.9	99.5
31	144	40.3	57.1	80.6	127
32	210	49.4	70.0	98.7	156
33	357	63.5	90.0	127	201
34	553	82	116	164	259
35	993	105	149	210	332
36	1460	131	186	263	415
37	2406	160	227	320	506

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

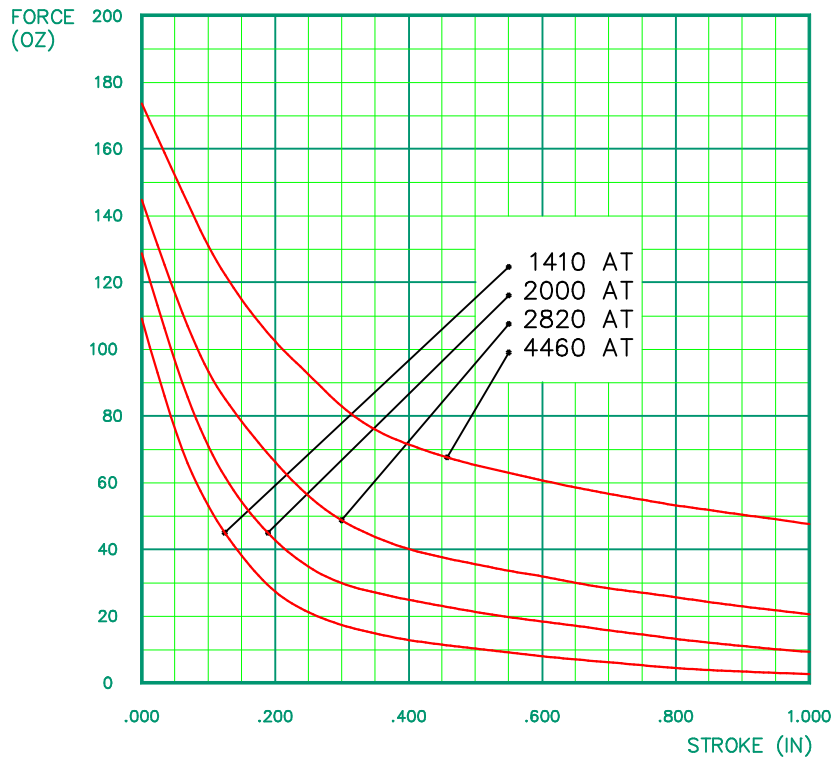
S-25-125-H

MECHANICAL DIMENSIONS



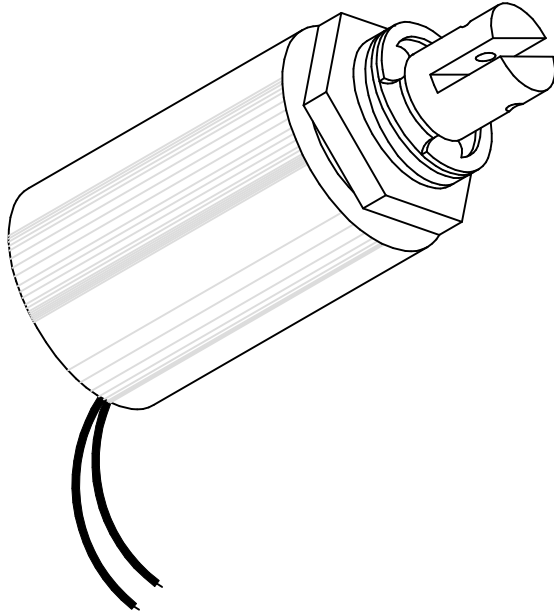
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-22-150
1.5" DIA X 2.19"

TOTAL WEIGHT: 15.7 OUNCES

PLUNGER WEIGHT: 3.4 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	580	210	56
watts	10	20	40	100
approximate ampere turns	1200	1700	2400	3800

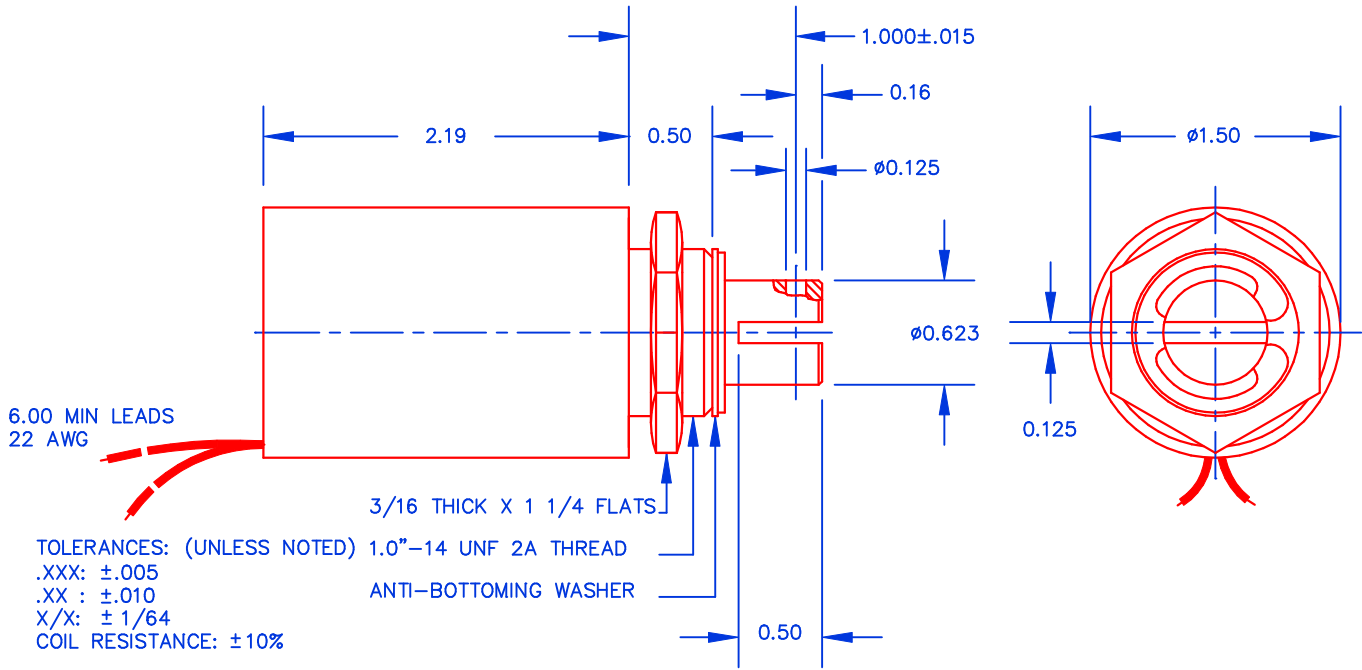
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	0.95	2.9	4.1	5.8	9.3
21	1.90	4.4	6.2	8.8	13.9
22	3.00	5.3	7.6	10.7	16.9
23	4.60	6.6	9.4	13.3	21.0
24	7.40	8.4	11.9	16.8	26.7
25	12.10	10.6	15.0	21.1	33.4
26	20.2	13.6	19.3	27.2	43.1
27	30.5	17.1	24.2	34.1	54.0
28	46.6	21.5	30.5	43.1	68.2
29	76.4	27.2	38.5	54.3	86.0
30	126	34.3	48.6	68.6	109
31	192	43.5	61.6	86.9	138
32	305	54.6	77.4	109	173
33	483	69.7	98.7	139	221
34	787	89.5	127	179	284
35	1260	115	163	230	364
36	1976	142	201	283	448
37	2930	167	237	335	530

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

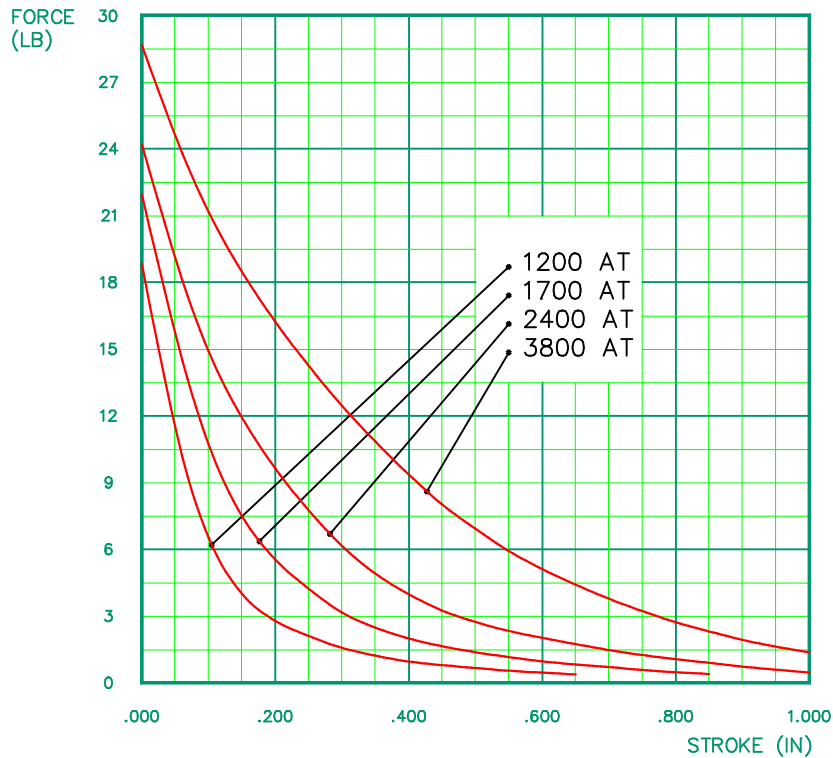
S-22-150

MECHANICAL DIMENSIONS



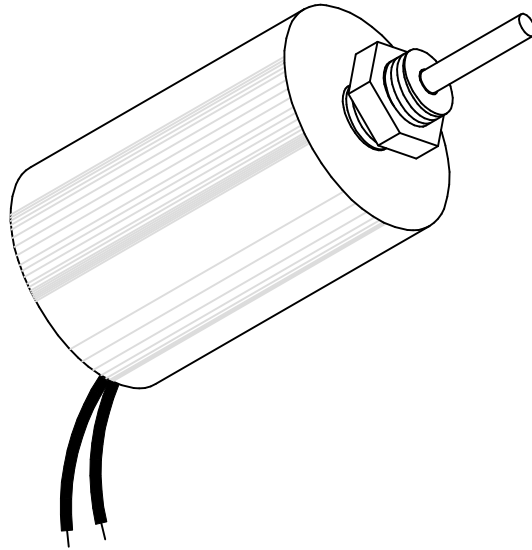
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-22-150-H
1.5" DIA X 2.19"

TOTAL WEIGHT: 14.5 OUNCES

PLUNGER WEIGHT: 2.7 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	580	210	56
watts	10	20	40	100
approximate ampere turns	1200	1700	2400	3800

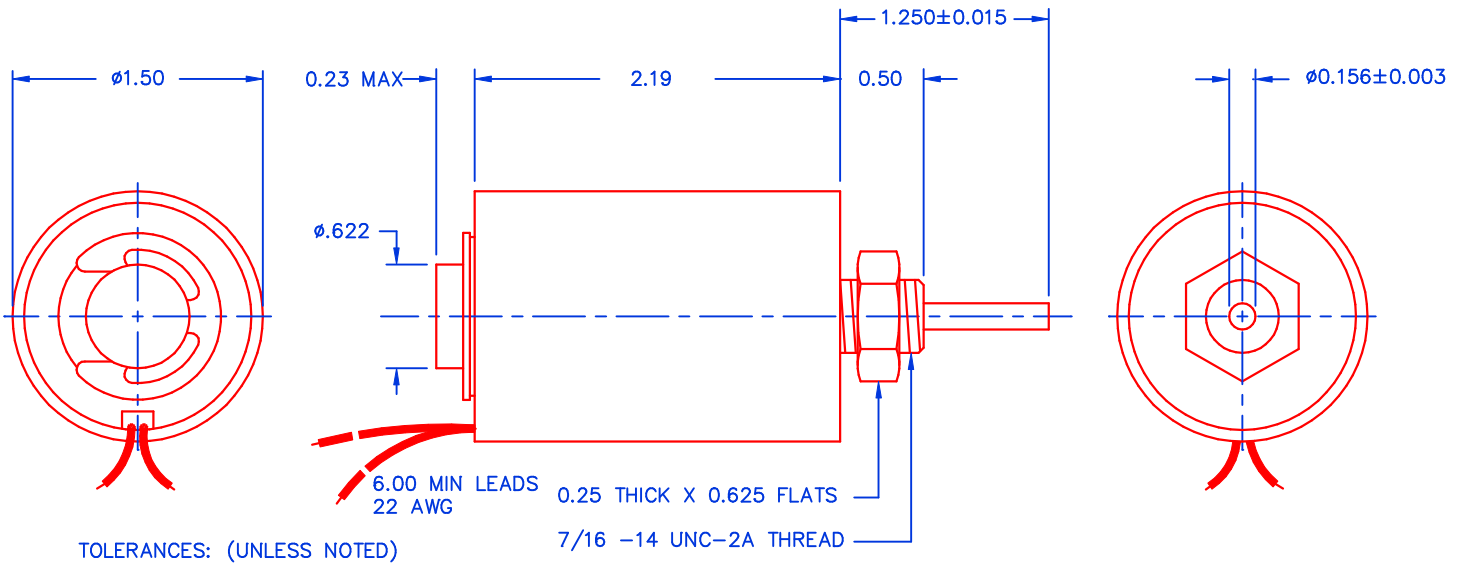
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	0.95	2.9	4.1	5.8	9.3
21	1.90	4.4	6.2	8.8	13.9
22	3.00	5.3	7.6	10.7	16.9
23	4.60	6.6	9.4	13.3	21.0
24	7.40	8.4	11.9	16.8	26.7
25	12.10	10.6	15.0	21.1	33.4
26	20.2	13.6	19.3	27.2	43.1
27	30.5	17.1	24.2	34.1	54.0
28	46.6	21.5	30.5	43.1	68.2
29	76.4	27.2	38.5	54.3	86.0
30	126	34.3	48.6	68.6	109
31	192	43.5	61.6	86.9	138
32	305	54.6	77.4	109	173
33	483	69.7	98.7	139	221
34	787	89.5	127	179	284
35	1260	115	163	230	364
36	1976	142	201	283	448
37	2930	167	237	335	530

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-22-150-H

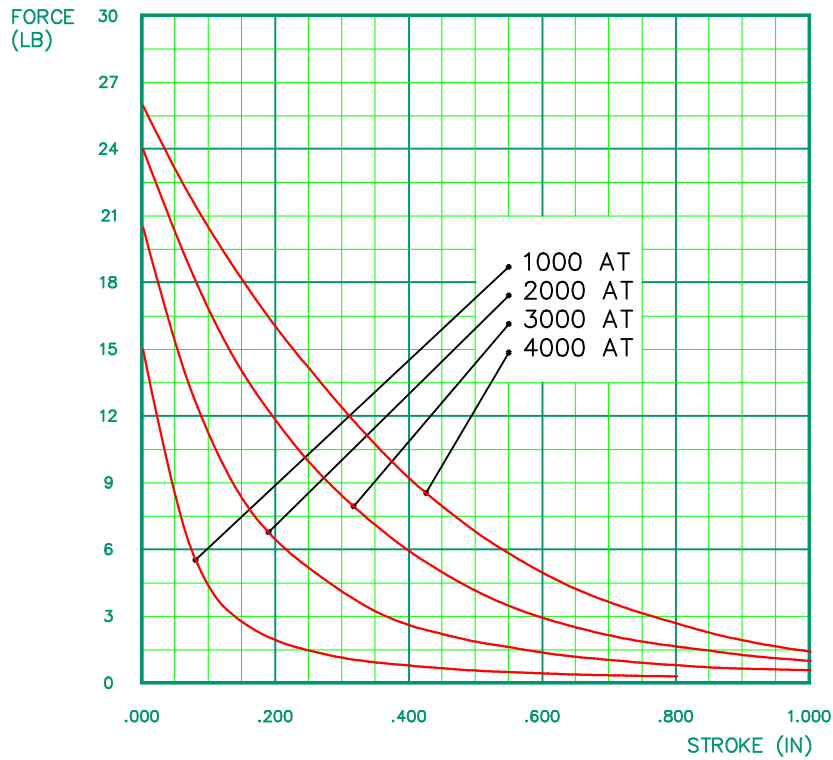
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 .XXX: ± 0.005
 .XX : ± 0.010
 X/X: $\pm 1/64$
 COIL RESISTANCE: $\pm 10\%$

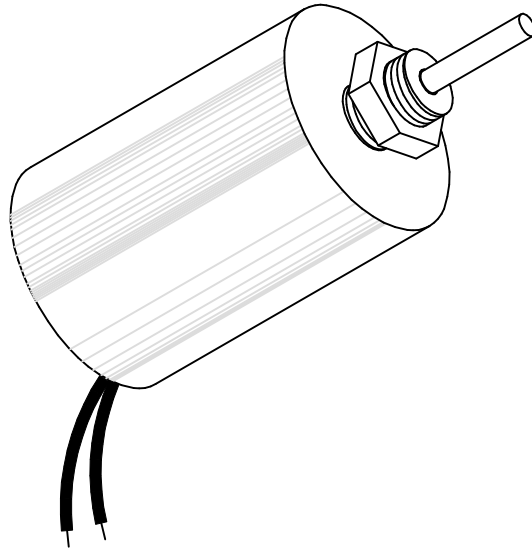
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-22-150-HF
1.5" DIA X 2.19"

TOTAL WEIGHT: 13.6 OUNCES

PLUNGER WEIGHT: 1.9 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	580	210	56
watts	10	20	40	100
approximate ampere turns	1200	1700	2400	3800

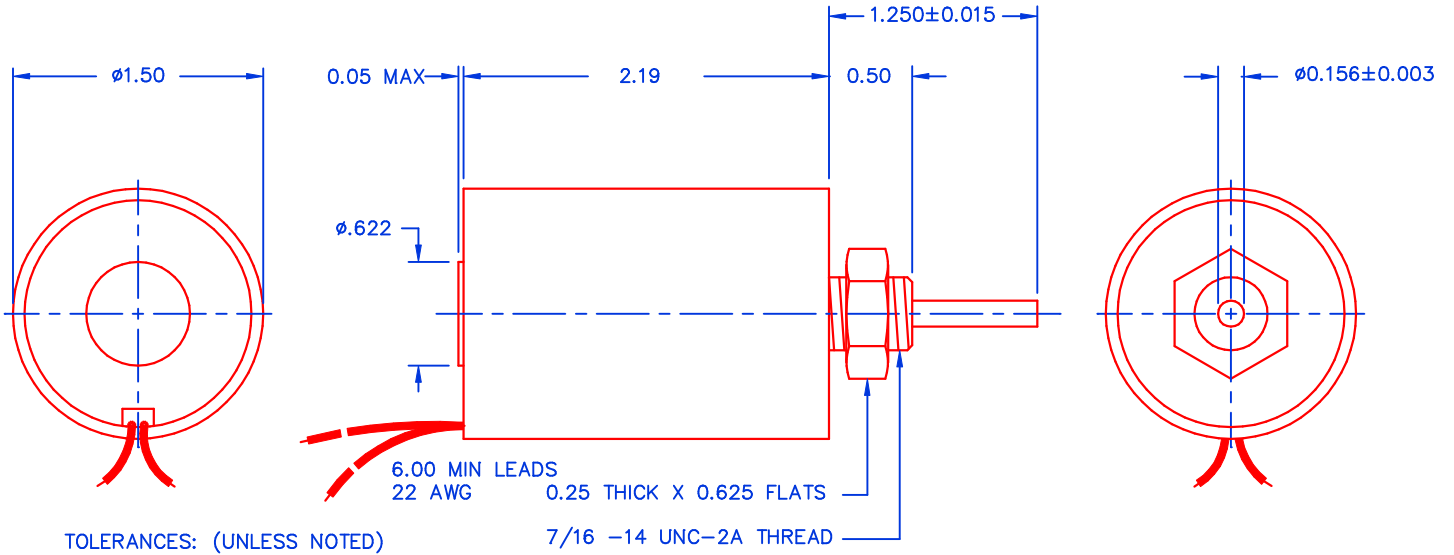
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	0.95	2.9	4.1	5.8	9.3
21	1.90	4.4	6.2	8.8	13.9
22	3.00	5.3	7.6	10.7	16.9
23	4.60	6.6	9.4	13.3	21.0
24	7.40	8.4	11.9	16.8	26.7
25	12.10	10.6	15.0	21.1	33.4
26	20.2	13.6	19.3	27.2	43.1
27	30.5	17.1	24.2	34.1	54.0
28	46.6	21.5	30.5	43.1	68.2
29	76.4	27.2	38.5	54.3	86.0
30	126	34.3	48.6	68.6	109
31	192	43.5	61.6	86.9	138
32	305	54.6	77.4	109	173
33	483	69.7	98.7	139	221
34	787	89.5	127	179	284
35	1260	115	163	230	364
36	1976	142	201	283	448
37	2930	167	237	335	530

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-22-150-HF

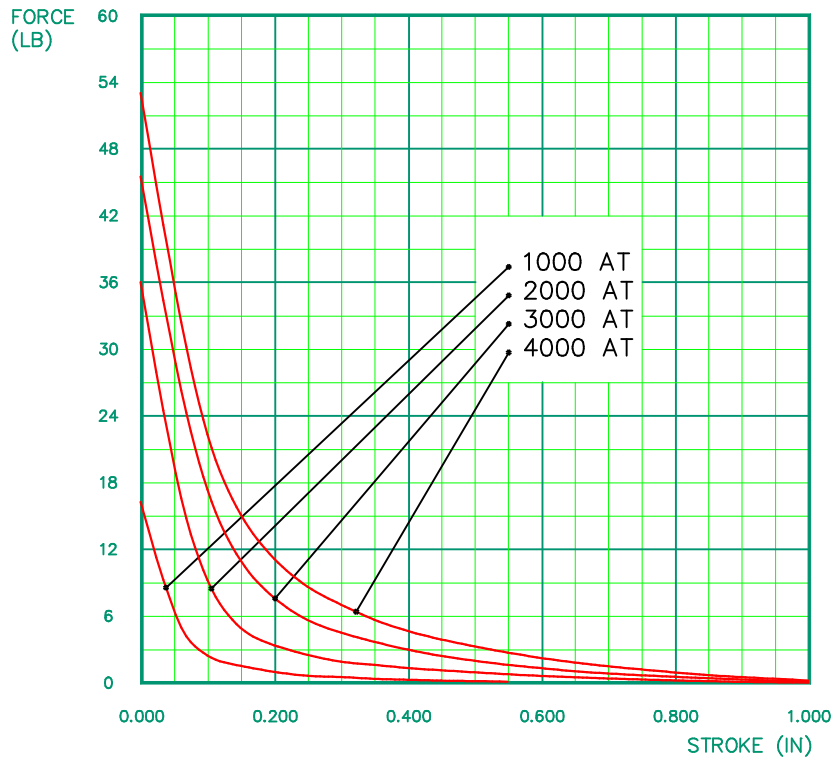
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 .XXX: ± 0.005
 .XX : ± 0.010
 X/X: $\pm 1/64$
 COIL RESISTANCE: $\pm 10\%$

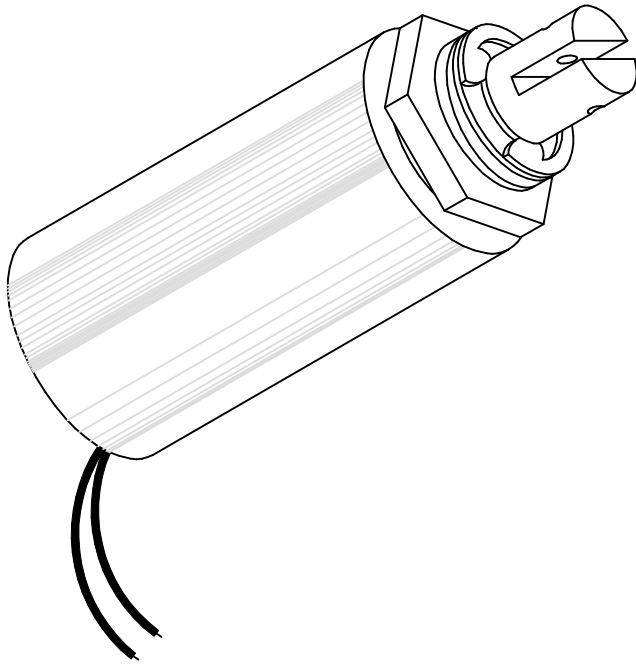
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-29-150
1.5" DIA X 2.85"

TOTAL WEIGHT: 20.6 OUNCES

PLUNGER WEIGHT: 4.3 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	780	180	70
watts	14	28	56	140
approximate ampere turns	1700	2400	3400	5400

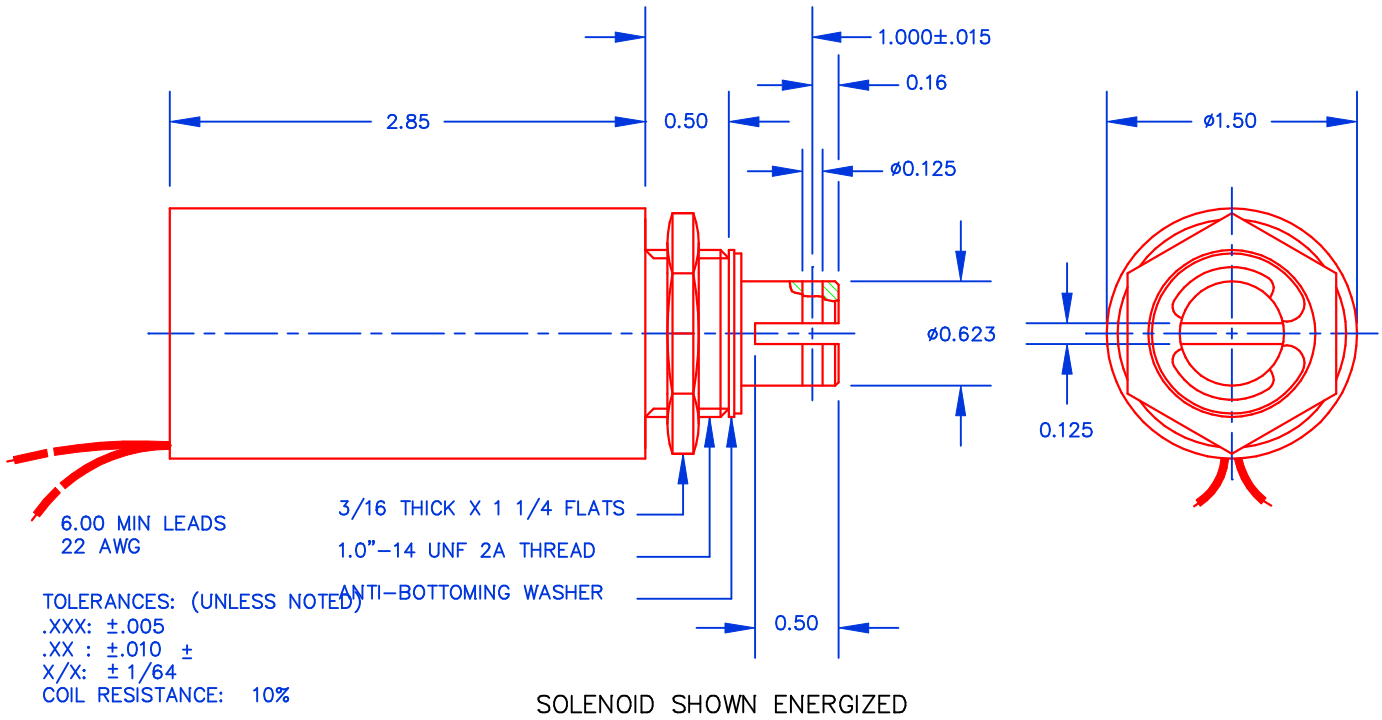
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	1.30	4.1	5.8	8.3	13.1
21	2.60	6.2	8.8	12.4	19.7
22	4.10	7.6	10.7	15.1	24.0
23	6.29	9.4	13.3	18.8	29.9
24	10.1	11.9	16.8	23.8	37.7
25	16.5	14.9	21.0	29.8	47.3
26	27.5	19.2	27.1	38.4	61.0
27	41.5	24.1	34.0	48.1	76.4
28	63.4	30.4	42.9	60.8	96.5
29	104	38.3	54.1	76.6	122
30	171	48.2	68.1	96.4	153
31	261	61.2	86.5	123	195
32	412	76.5	108	153	243
33	652	97.5	138	195	310
34	1062	125	177	250	398
35	1701	161	227	322	511
36	2668	198	280	396	629
37	3956	234	330	468	743

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

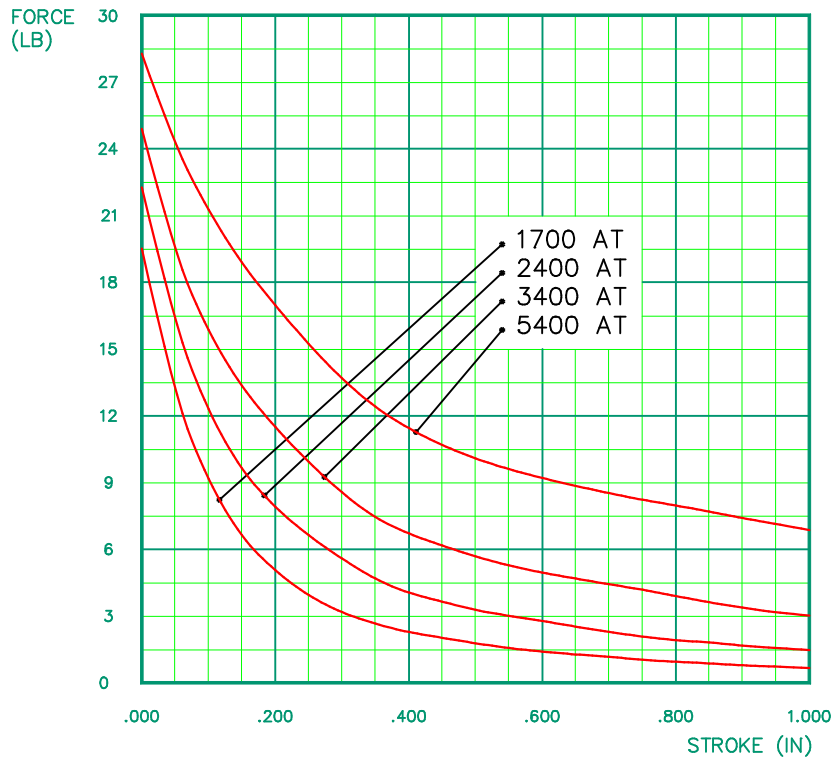
MAGNETIC SENSOR SYSTEMS

S-29-150

MECHANICAL DIMENSIONS

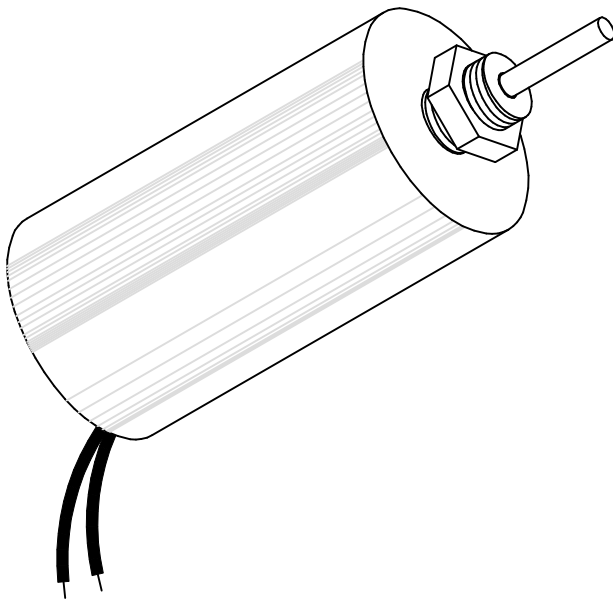


TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-29-150-H
1.5" DIA X 2.85"

TOTAL WEIGHT: 18.2 OUNCES

PLUNGER WEIGHT: 3.5 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	780	180	70

watts	14	28	56	140
approximate ampere turns	1700	2400	3400	5400

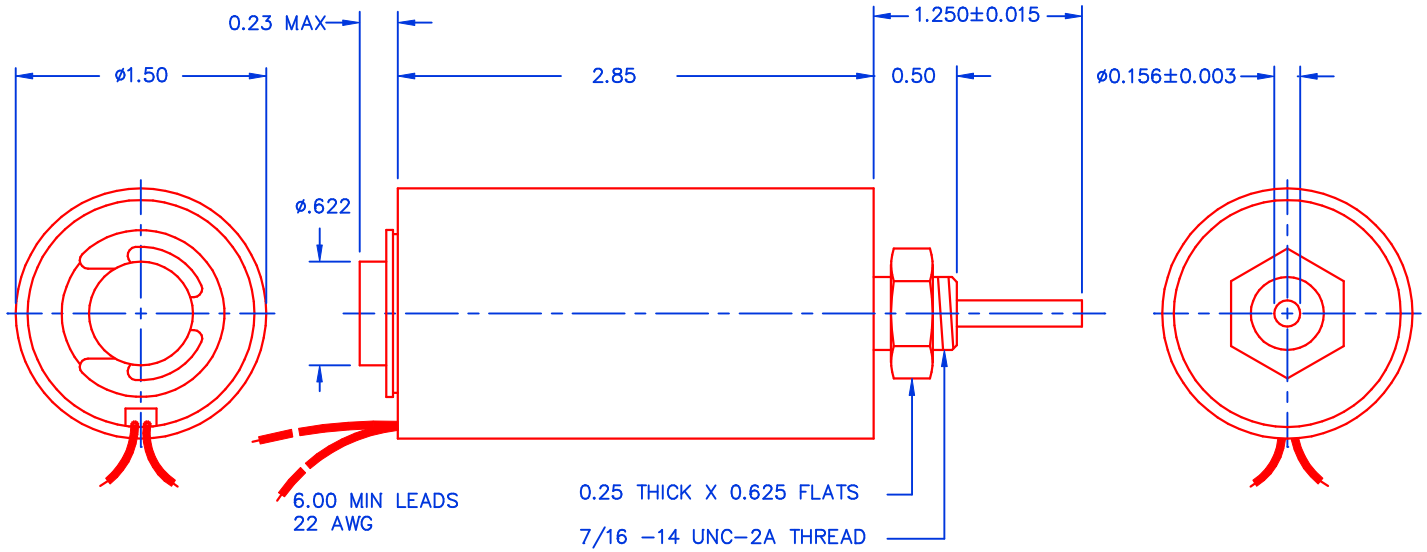
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	1.30	4.1	5.8	8.3	13.1
21	2.60	6.2	8.8	12.4	19.7
22	4.10	7.6	10.7	15.1	24.0
23	6.29	9.4	13.3	18.8	29.9
24	10.1	11.9	16.8	23.8	37.7
25	16.5	14.9	21.0	29.8	47.3
26	27.5	19.2	27.1	38.4	61.0
27	41.5	24.1	34.0	48.1	76.4
28	63.4	30.4	42.9	60.8	96.5
29	104	38.3	54.1	76.6	122
30	171	48.2	68.1	96.4	153
31	261	61.2	86.5	123	195
32	412	76.5	108	153	243
33	652	97.5	138	195	310
34	1062	125	177	250	398
35	1701	161	227	322	511
36	2668	198	280	396	629
37	3956	234	330	468	743

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-29-150-H

MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)

.XXX: ±.005

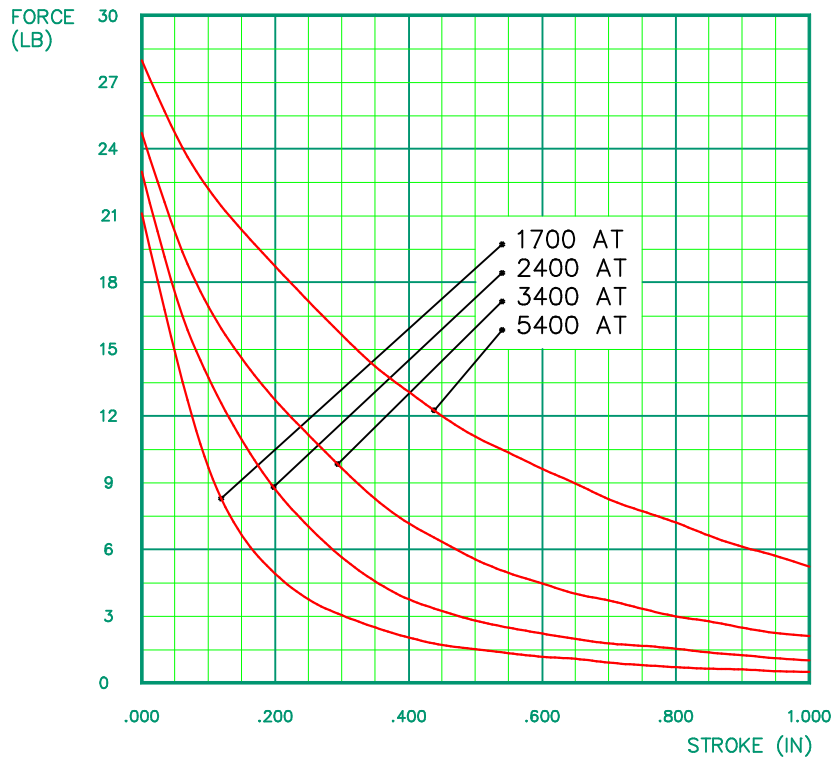
.XX : ±.010 ±

X/X: ± 1/64

COIL RESISTANCE: 10%

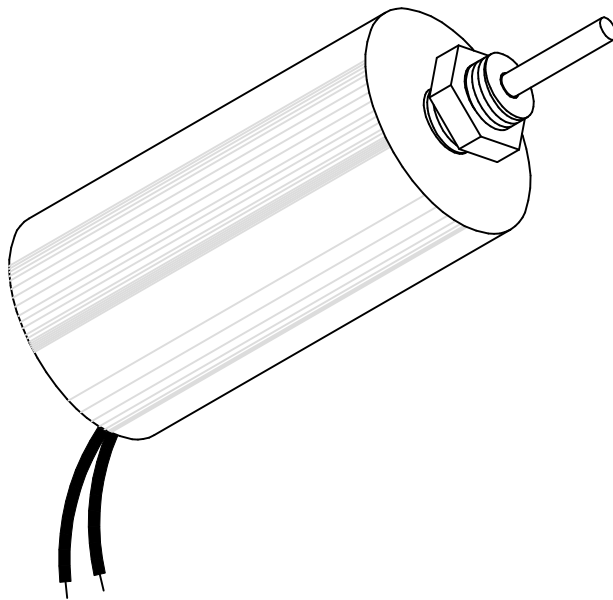
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-29-150-HF
1.5" DIA X 2.85"

TOTAL WEIGHT: 17.5 OUNCES

PLUNGER WEIGHT: 2.8 OUNCES

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	780	180	70
watts	14	28	56	140
approximate ampere turns	1700	2400	3400	5400

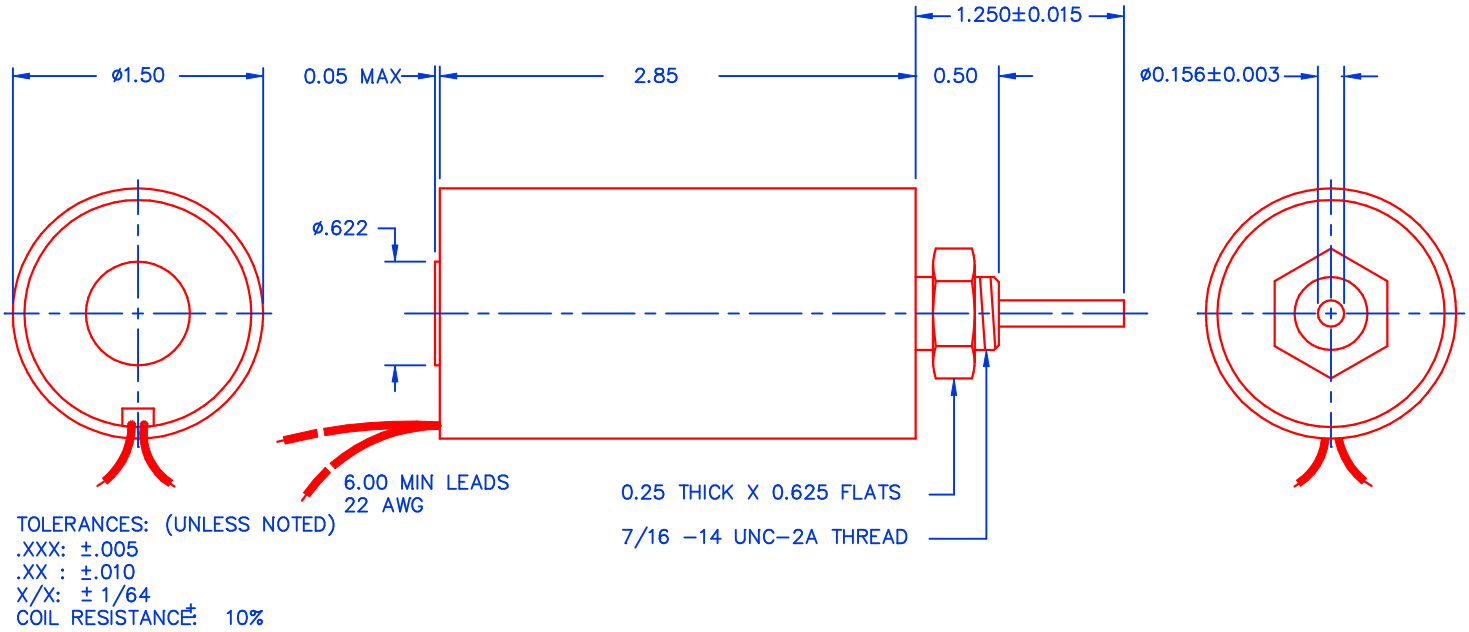
AWG number	resistance	volts DC	volts DC	volts DC	volts DC
20	1.30	4.1	5.8	8.3	13.1
21	2.60	6.2	8.8	12.4	19.7
22	4.10	7.6	10.7	15.1	24.0
23	6.29	9.4	13.3	18.8	29.9
24	10.1	11.9	16.8	23.8	37.7
25	16.5	14.9	21.0	29.8	47.3
26	27.5	19.2	27.1	38.4	61.0
27	41.5	24.1	34.0	48.1	76.4
28	63.4	30.4	42.9	60.8	96.5
29	104	38.3	54.1	76.6	122
30	171	48.2	68.1	96.4	153
31	261	61.2	86.5	123	195
32	412	76.5	108	153	243
33	652	97.5	138	195	310
34	1062	125	177	250	398
35	1701	161	227	322	511
36	2668	198	280	396	629
37	3956	234	330	468	743

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

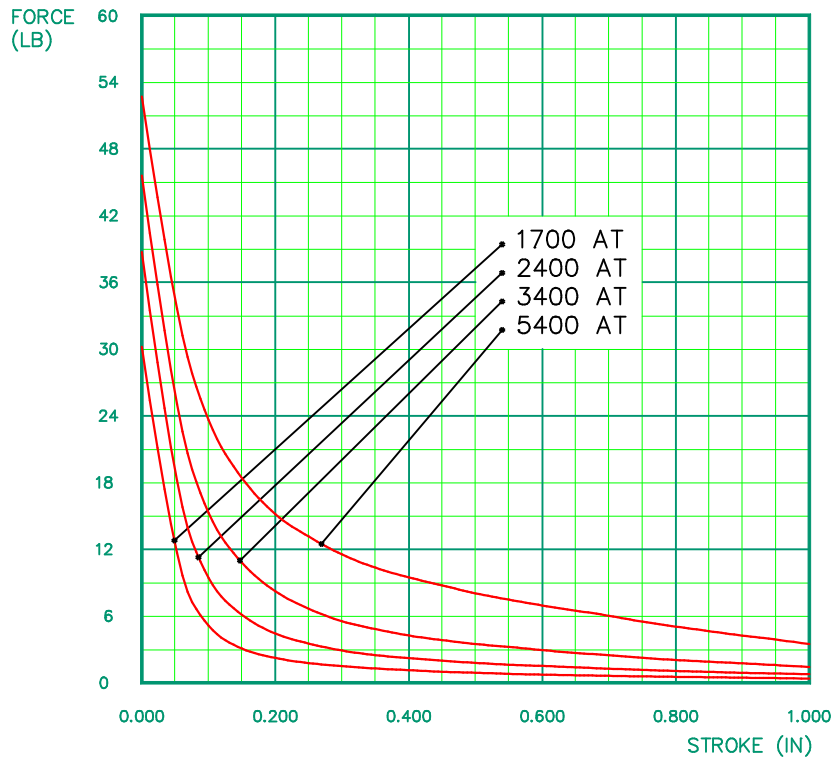
S-29-150-HF

MECHANICAL DIMENSIONS



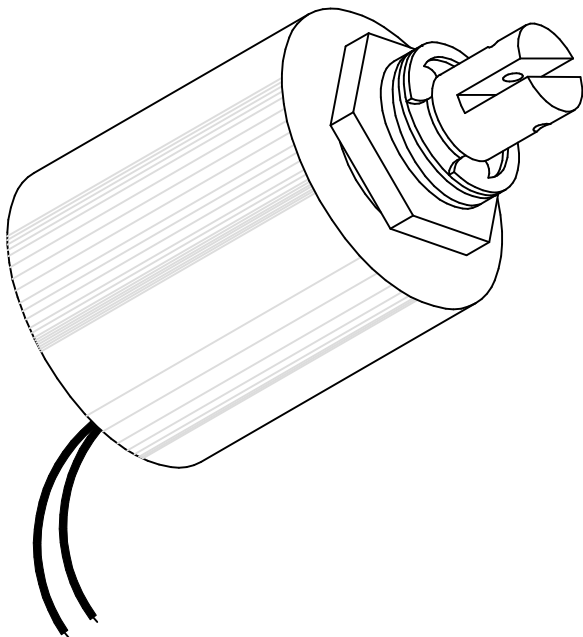
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-22-200

2.0" DIA X 2.19"

[50.8 mm X 55.6 mm]

TOTAL WEIGHT: 25.7 OUNCES [730 GR]

PLUNGER WEIGHT: 3.4 OUNCES [96 GR]

duty cycle	1 (100%)	1/2 (50%)	1/4 (25%)	1/10 (10%)
maximum "ON" time, (Sec.)	∞	600	220	60

watts	15	30	60	150
approximate ampere turns	1850	2620	3700	5850

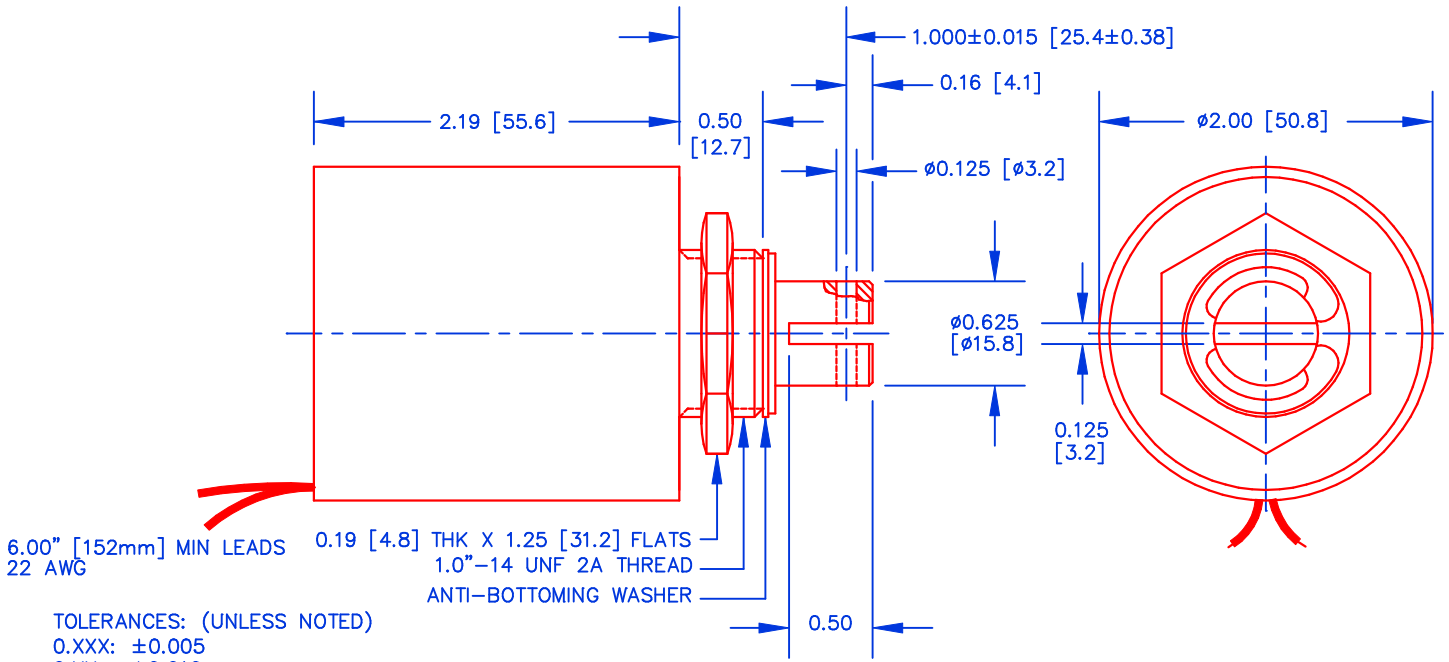
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
18	1.0	4.0	5.6	7.9	12.5
19	1.7	5.0	7.0	9.9	15.7
20	2.6	6.1	8.7	12.3	19.4
21	4.2	8.0	11.2	15.9	25.1
22	6.6	9.9	14.0	19.9	31.4
23	10.8	12.7	17.9	25.4	40.1
24	17.1	15.7	22.2	31.4	49.6
25	27.1	20.1	28.5	40.3	63.7
26	43.6	25.6	36.2	51.2	80.9
27	68.2	31.9	45.1	63.8	101
28	110	40.9	57.8	81.8	129
29	172	51.3	72.6	103	162
30	281	64.6	91.3	129	204
31	446	82.1	116	164	260
32	685	102	144	203	321
33	1135	132	186	263	416
34	1940	172	243	343	542
35	3011	214	303	428	

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-22-200

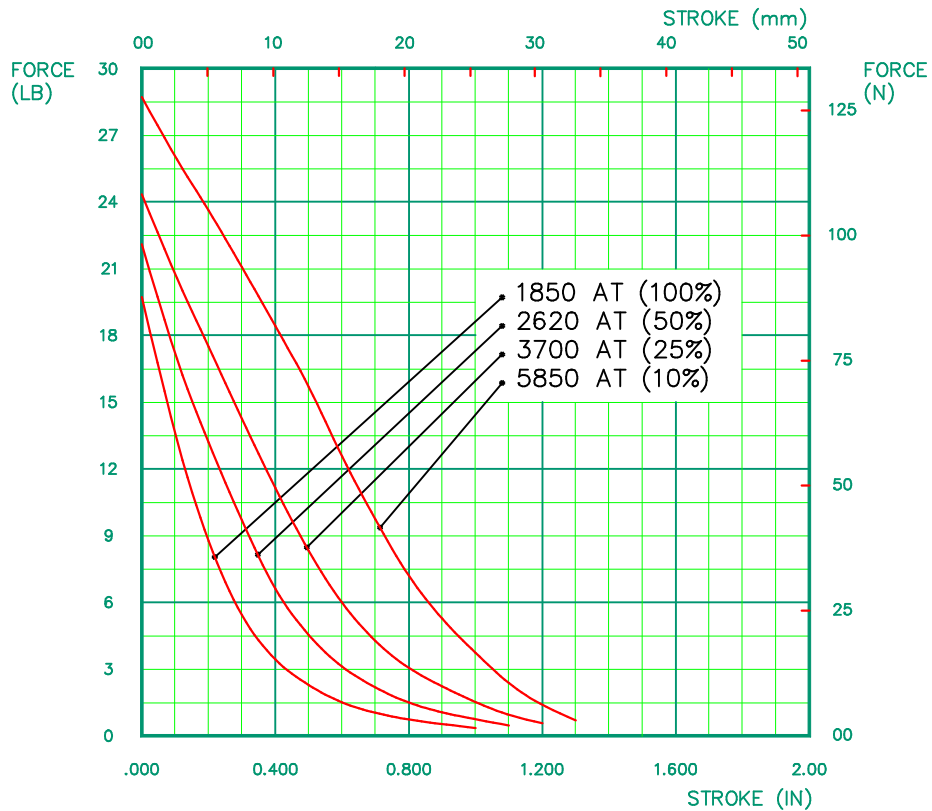
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 0.XXX: ±0.005
 0.XX : ±0.010
 X/X: ±1/64
 COIL RESISTANCE: ±10%
 DIMENSIONS IN INCHES [mm]

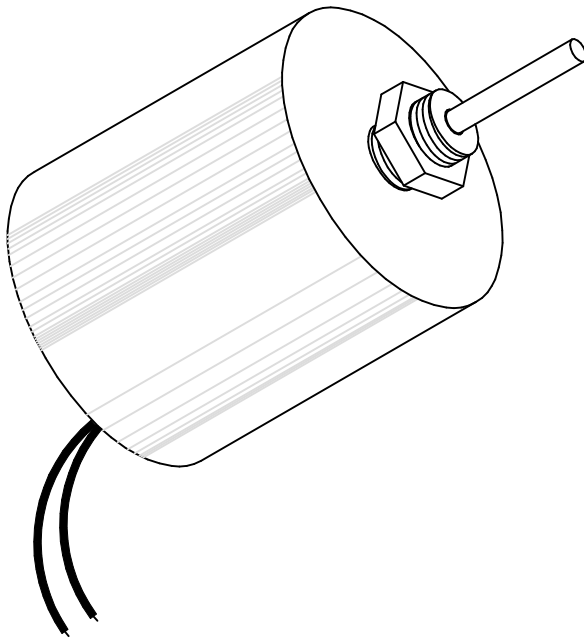
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-22-200-H
2.0" DIA X 2.19"
[50.8 mm X 55.6 mm]

TOTAL WEIGHT: 24.4 OUNCES [692 GR]

PLUNGER WEIGHT: 2.7 OUNCES [77 GR]

duty cycle	1 (100%)	1/2 (50%)	1/4 (25%)	1/10 (10%)
maximum "ON" time, (Sec.)	∞	600	220	60
watts	15	30	60	150
approximate ampere turns	1850	2620	3700	5850

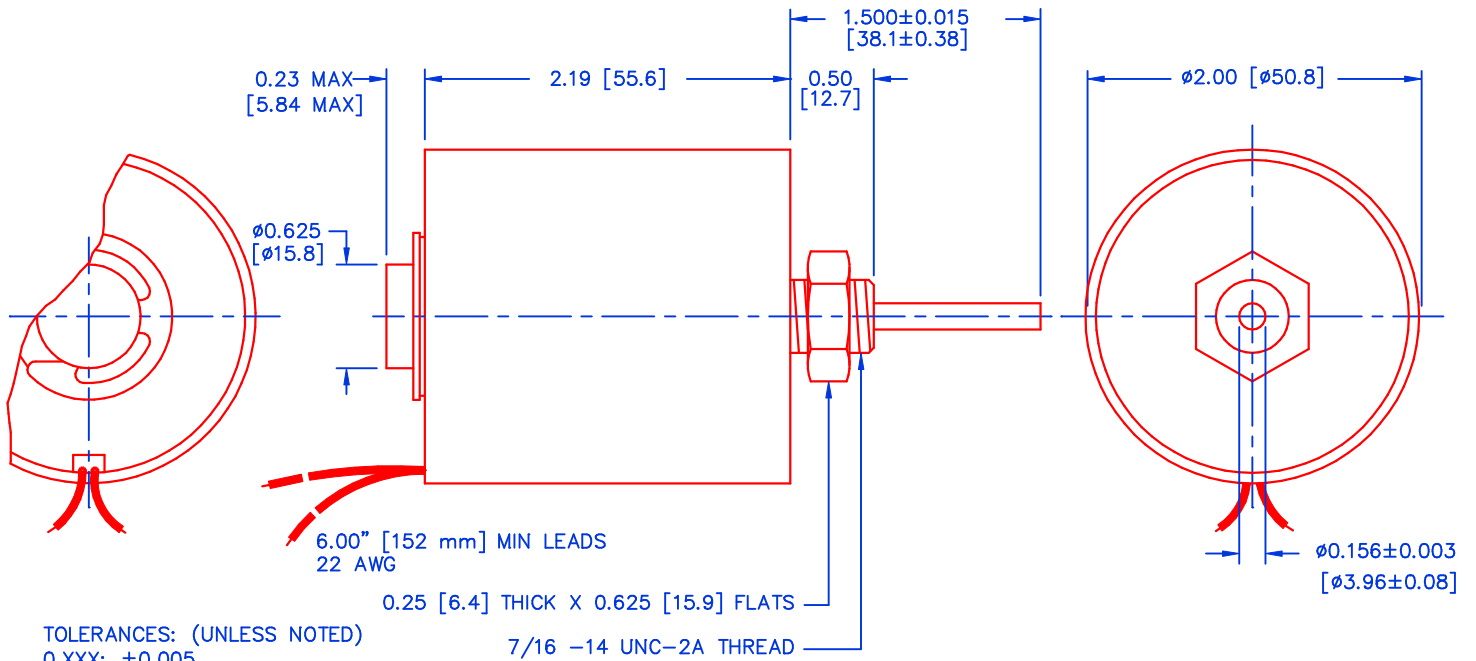
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
18	1.0	4.0	5.6	7.9	12.5
19	1.7	5.0	7.0	9.9	15.7
20	2.6	6.1	8.7	12.3	19.4
21	4.2	8.0	11.2	15.9	25.1
22	6.6	9.9	14.0	19.9	31.4
23	10.8	12.7	17.9	25.4	40.1
24	17.1	15.7	22.2	31.4	49.6
25	27.1	20.1	28.5	40.3	63.7
26	43.6	25.6	36.2	51.2	80.9
27	68.2	31.9	45.1	63.8	101
28	110	40.9	57.8	81.8	129
29	172	51.3	72.6	103	162
30	281	64.6	91.3	129	204
31	446	82.1	116	164	260
32	685	102	144	203	321
33	1135	132	186	263	416
34	1940	172	243	343	542
35	3011	214	303	428	

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-22-200-H

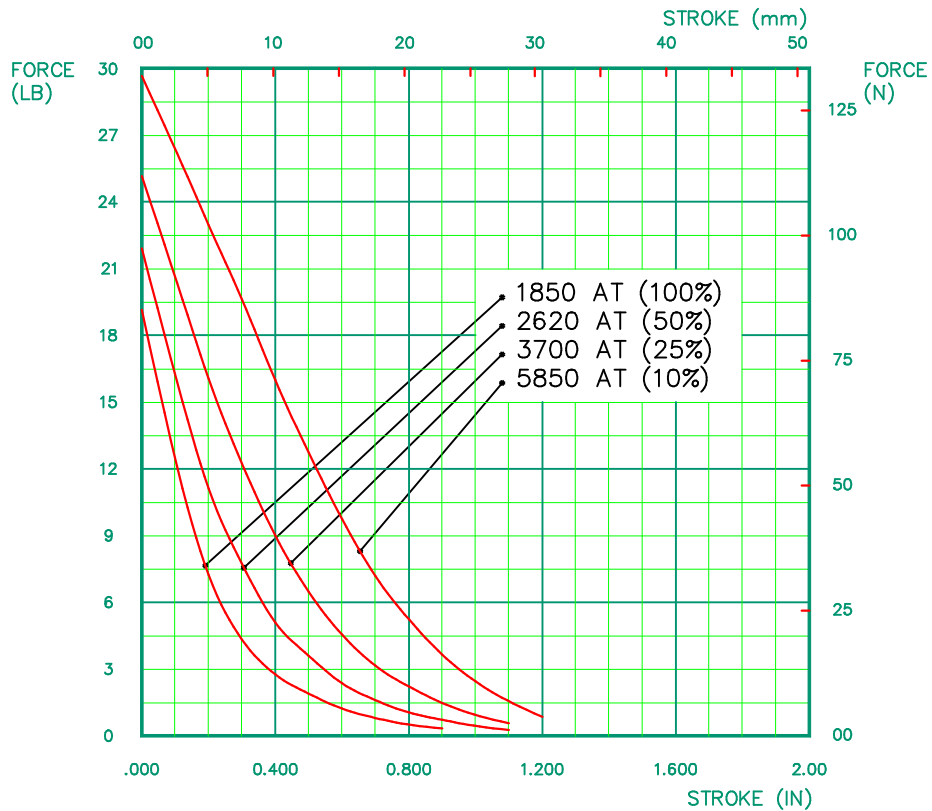
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 0.XXX: ±0.005
 0.XX : ±0.010
 X/X: ±1/64
 COIL RESISTANCE: ±10%
 DIMENSIONS IN INCHES [mm]

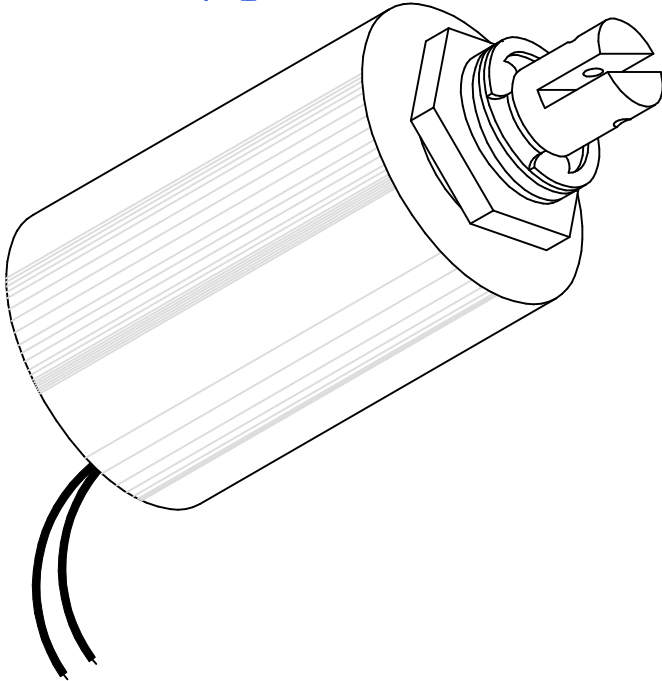
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-29-200
2.0" DIA X 2.85"
[50.8 mm X 72.4 mm]

TOTAL WEIGHT: 34.2 OUNCES [970 GR]

PLUNGER WEIGHT: 4.3 OUNCES [122 GR]

duty cycle maximum "ON" time, (Sec.)	1 (100%) ∞	1/2 (50%) 840	1/4 (25%) 270	1/10 (10%) 90
watts	18	36	72	180
approximate ampere turns	2400	3400	4800	7600

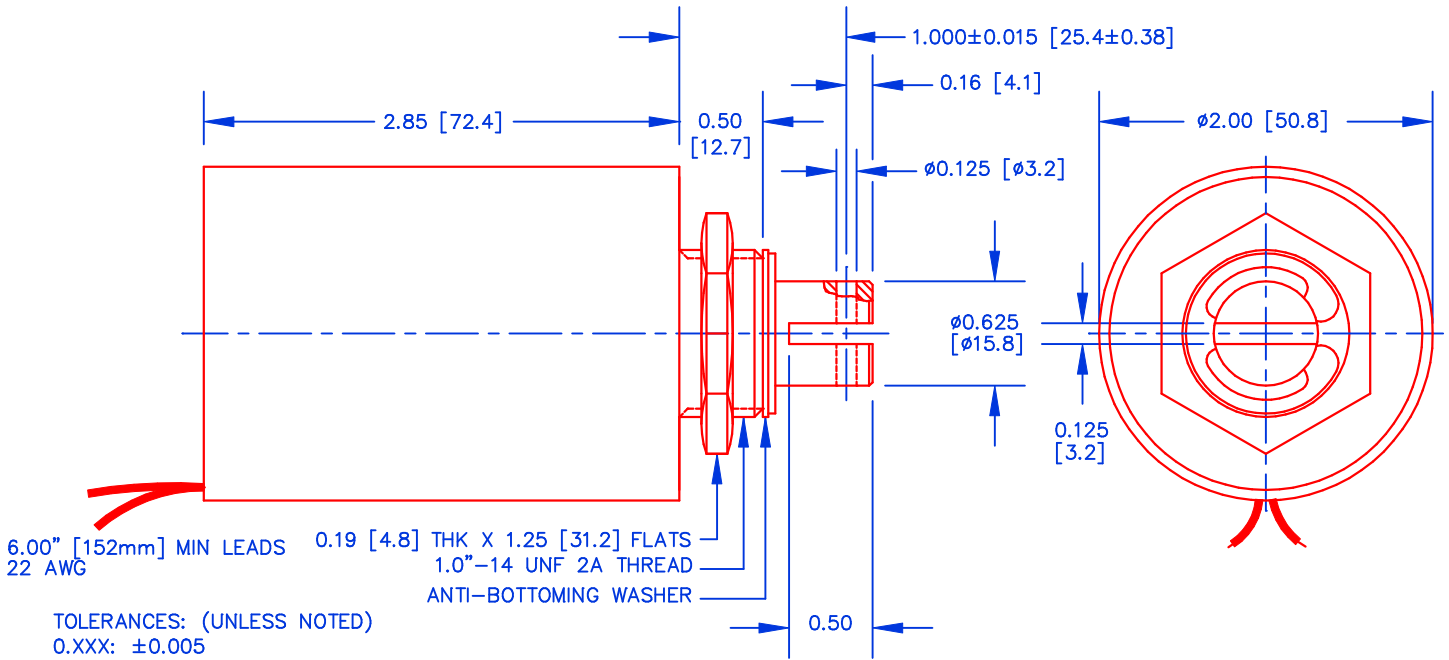
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
18	1.5	5.1	7.3	10.3	16.2
19	2.4	6.4	9.1	12.9	20.4
20	3.7	8.0	11.4	16.0	25.4
21	5.8	10.2	14.5	20.4	32.3
22	9.3	12.8	18.2	25.7	40.6
23	15.0	16.3	23.1	32.7	51.7
24	24.3	20.6	29.1	41.1	65.1
25	38.1	26.2	37.2	52.5	83.0
26	60.7	33.0	46.8	66.0	105
27	94.7	40.9	58.0	81.9	130
28	155	53.2	75.4	106	168
29	238	65.9	93.3	132	209
30	398	84.5	120	169	268
31	625	106	151	213	337
32	965	132	187	264	418
33	1595	171	242	342	541
34	2725	223	315	445	
35	4229	278	393	555	

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-29-200

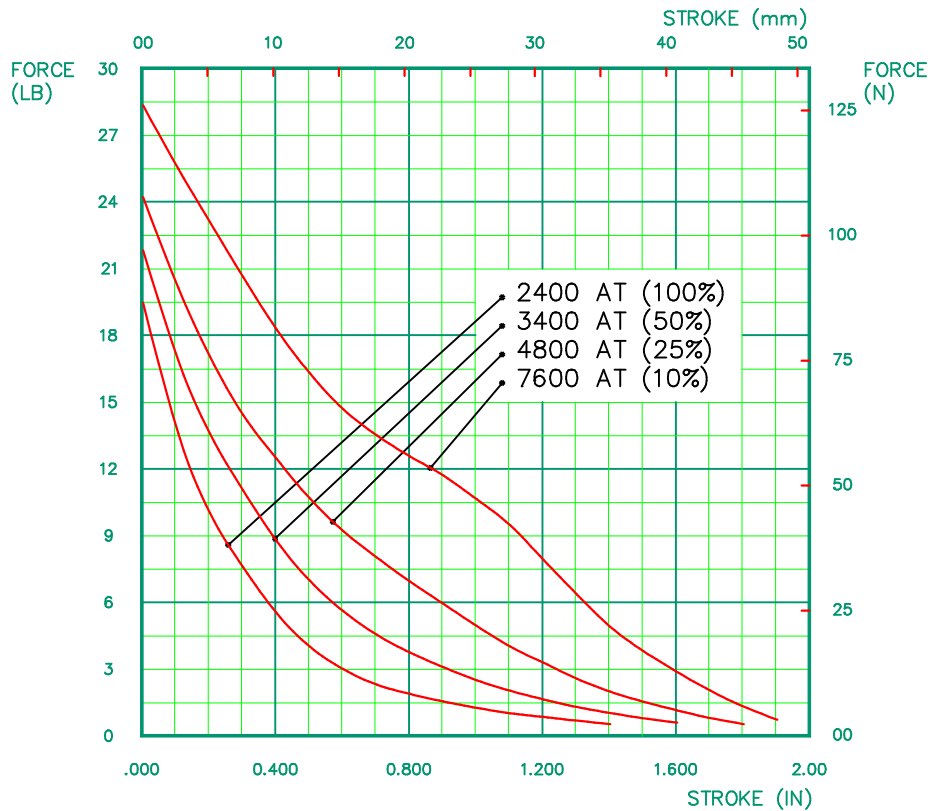
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 0.XXX: ±0.005
 0.XX : ±0.010
 X/X: ±1/64
 COIL RESISTANCE: ±10%
 DIMENSIONS IN INCHES [mm]

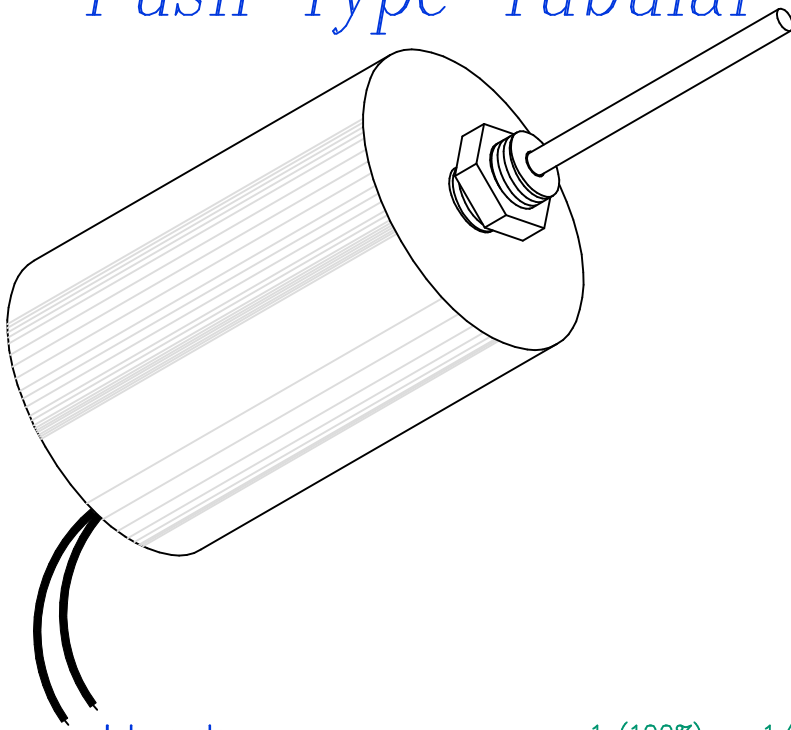
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-29-200-H
2.0" DIA X 2.85"
[50.8 mm X 72.4 mm]

TOTAL WEIGHT: 31.7 OUNCES [900 GR]

PLUNGER WEIGHT: 4.3 OUNCES [122 GR]

duty cycle maximum "ON" time, (Sec.)	1 (100%) ∞	1/2 (50%) 840	1/4 (25%) 270	1/10 (10%) 90
watts	18	36	72	180
approximate ampere turns	2400	3400	4800	7600

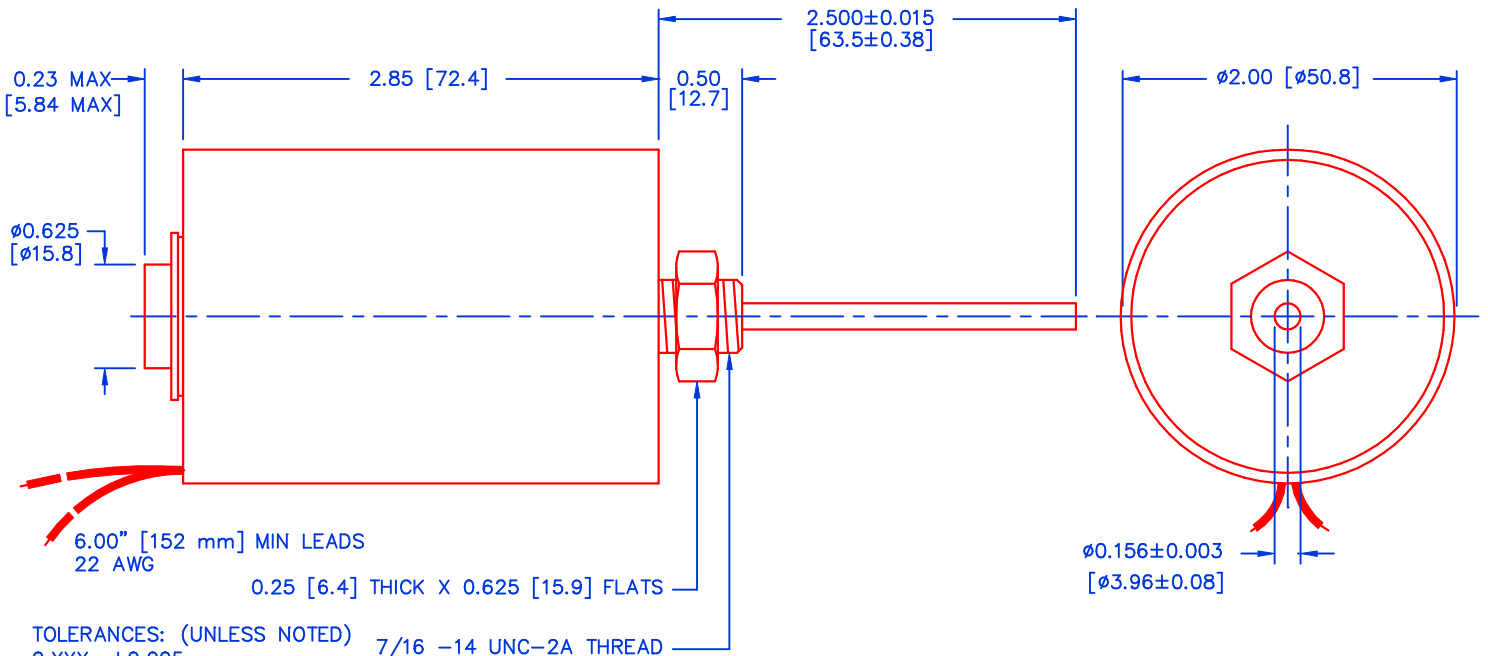
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
18	1.5	5.1	7.3	10.3	16.2
19	2.4	6.4	9.1	12.9	20.4
20	3.7	8.0	11.4	16.0	25.4
21	5.8	10.2	14.5	20.4	32.3
22	9.3	12.8	18.2	25.7	40.6
23	15.0	16.3	23.1	32.7	51.7
24	24.3	20.6	29.1	41.1	65.1
25	38.1	26.2	37.2	52.5	83.0
26	60.7	33.0	46.8	66.0	105
27	94.7	40.9	58.0	81.9	130
28	155	53.2	75.4	106	168
29	238	65.9	93.3	132	209
30	398	84.5	120	169	268
31	625	106	151	213	337
32	965	132	187	264	418
33	1595	171	242	342	541
34	2725	223	315	445	
35	4229	278	393	555	

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 6.0" x 6.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-29-200-H

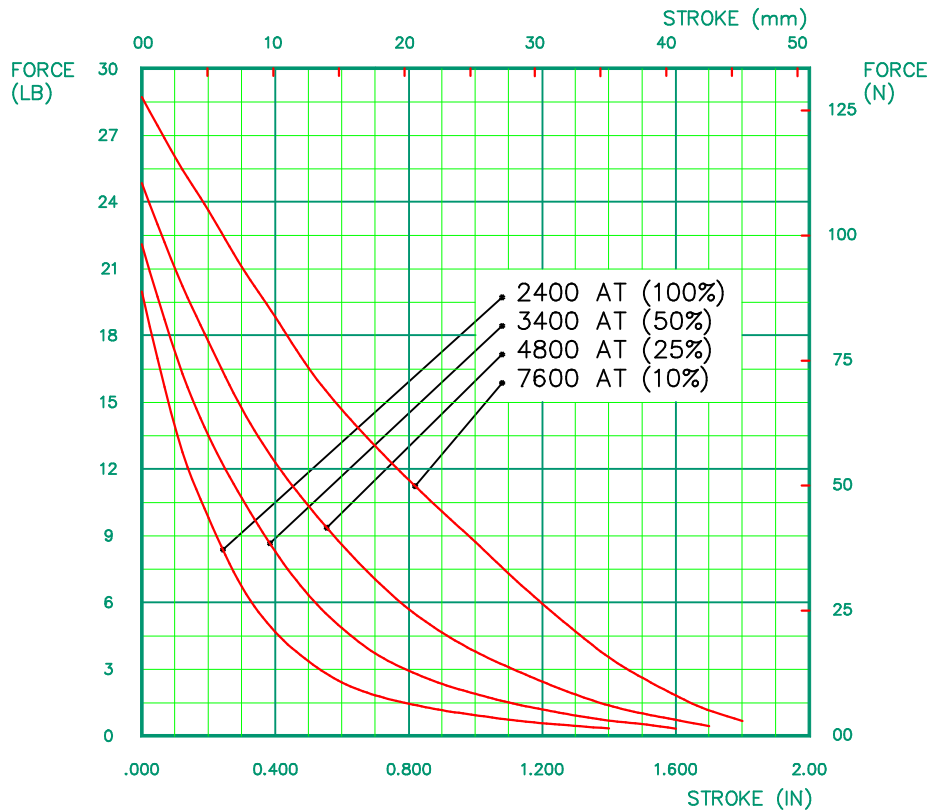
MECHANICAL DIMENSIONS



TOLERANCES: (UNLESS NOTED)
 0.XXX: ± 0.005
 0.XX : ± 0.010
 X/X: $\pm 1/64$
 COIL RESISTANCE: $\pm 10\%$
 DIMENSIONS IN INCHES [mm]

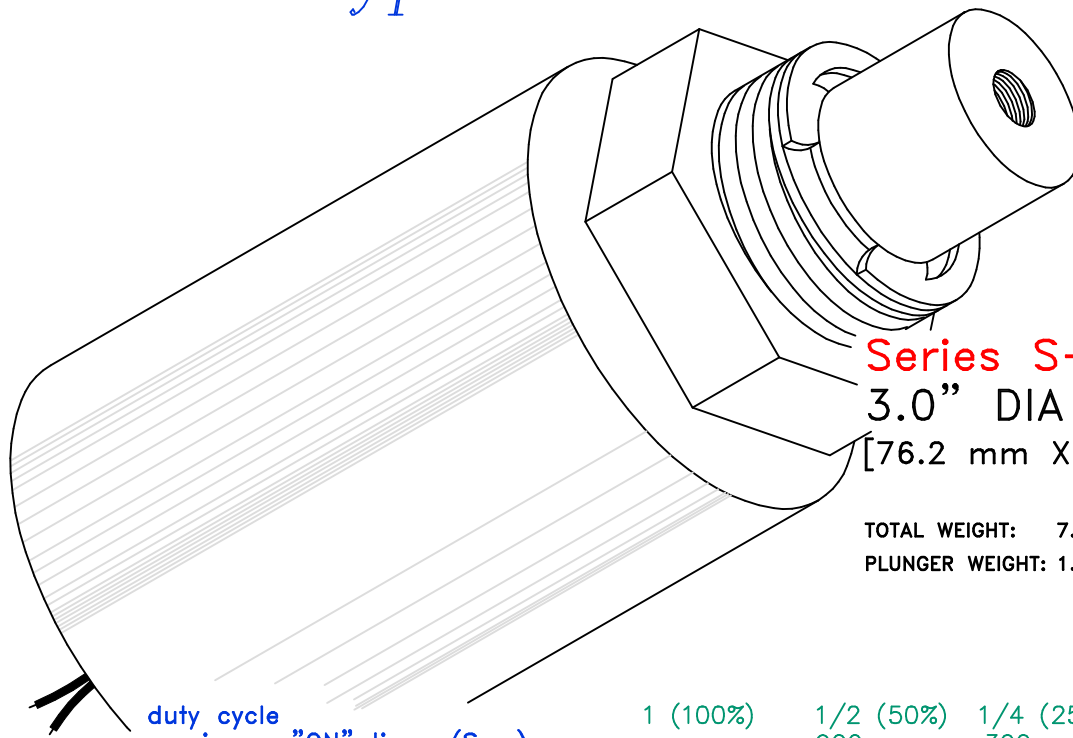
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-41-300

3.0" DIA X 4.13"

[76.2 mm X 104.8 mm]

TOTAL WEIGHT: 7.9 POUNDS (3.6 KG)

PLUNGER WEIGHT: 1.6 POUNDS (0.7 KG)

duty cycle
maximum "ON" time, (Sec.)

1 (100%)	1/2 (50%)	1/4 (25%)	1/10 (10%)
∞	900	300	100

watts
approximate ampere turns

30	60	120	300
2870	4060	5740	9080

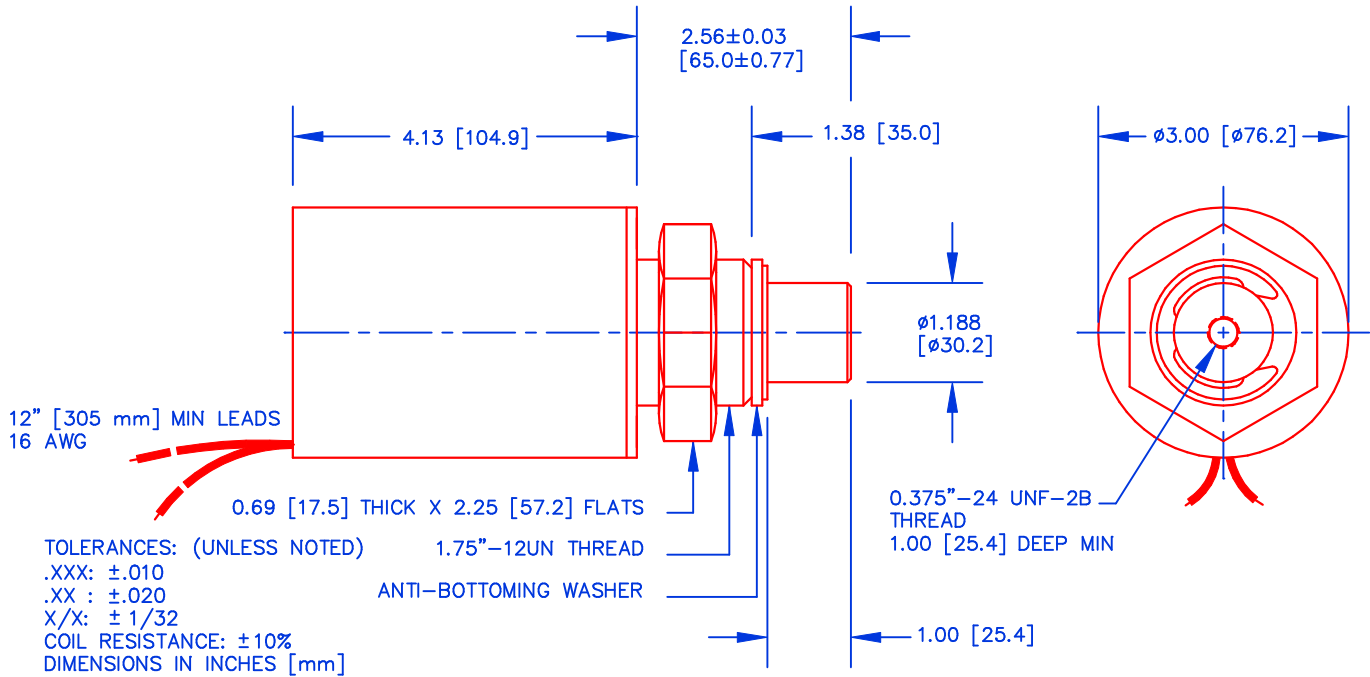
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
17	1.9	7.6	10.8	15.3	24.2
18	3.2	9.9	13.9	19.7	31.2
19	5.2	12.4	17.5	24.8	39.2
20	8.8	16.0	22.6	32.0	50.6
21	14.2	20.3	28.7	40.5	64.1
22	22.6	25.6	36.3	51.3	81.1
23	34.1	31.8	44.9	63.6	101
24	54.6	40.0	56.6	80.1	127
25	89.4	51.7	73.2	104	164
26	139	64.3	90.9	129	203
27	235	82.1	116	164	260
28	350	103	146	206	326
29	550	131	185	261	413
30	822	161	227	321	508
31	1447	209	295	417	659
32	2110	257	363	513	
33	3450	325	459	649	
34	5440	408	577		

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 12.0" x 12.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

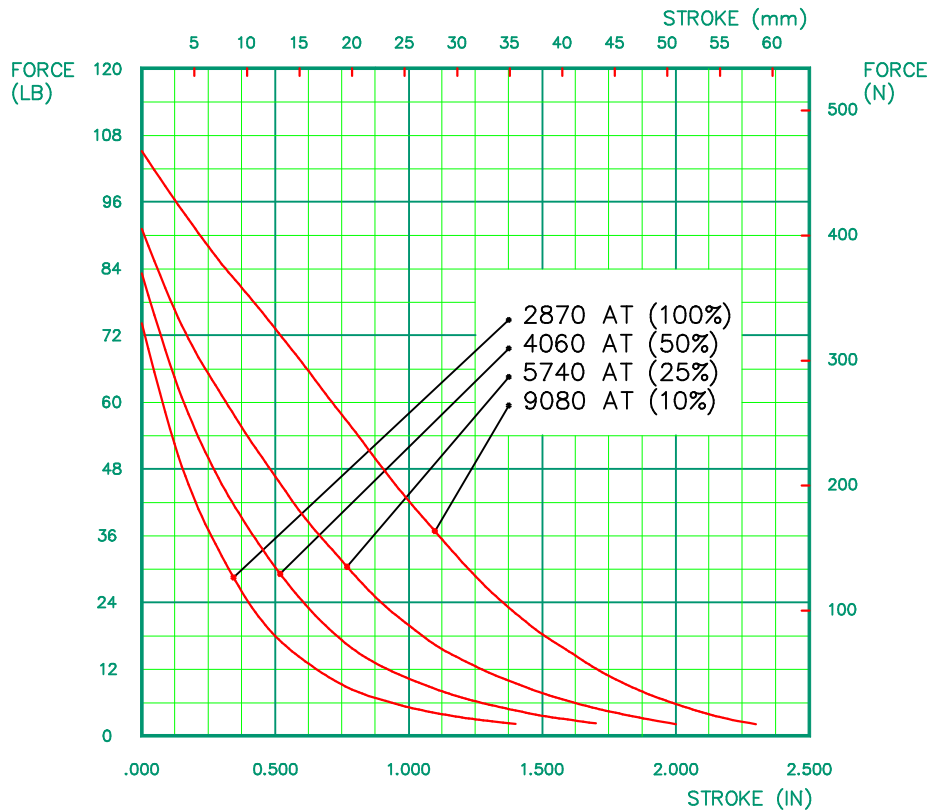
S-41-300

MECHANICAL DIMENSIONS



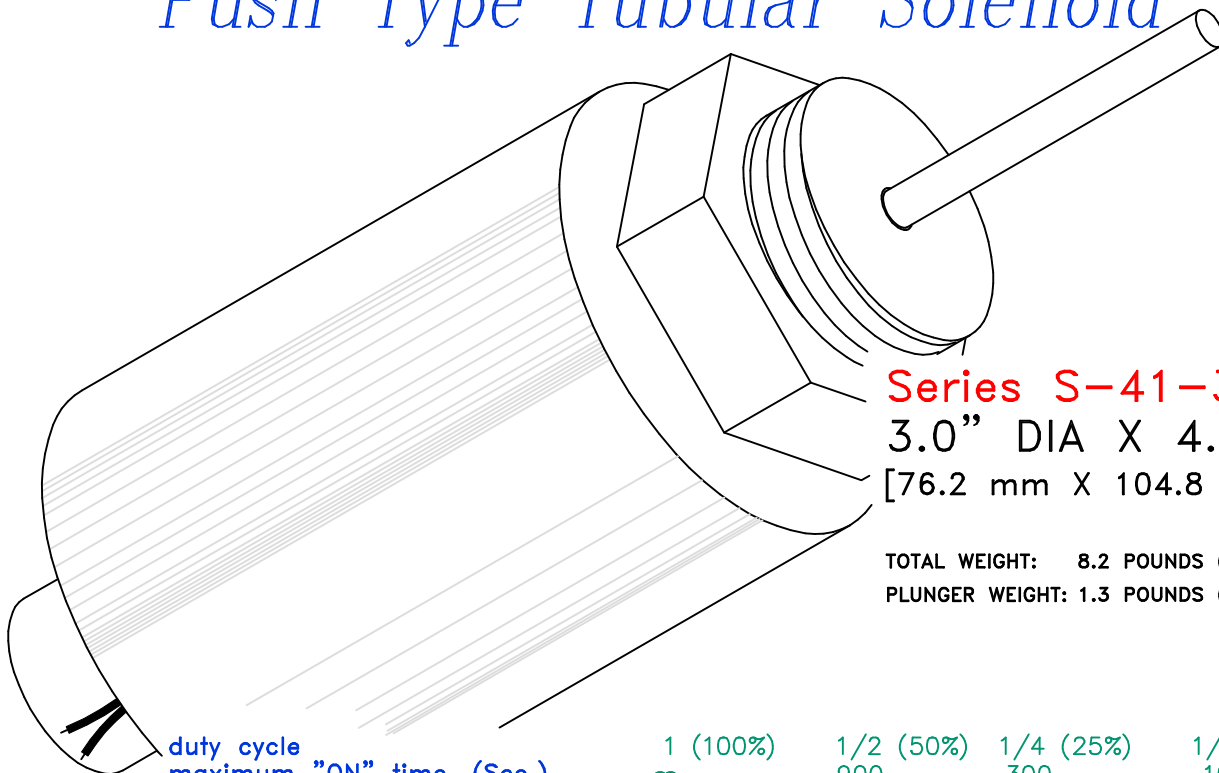
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-41-300-H
3.0" DIA X 4.13"
[76.2 mm X 104.8 mm]

TOTAL WEIGHT: 8.2 POUNDS (3.7 KG)

PLUNGER WEIGHT: 1.3 POUNDS (0.6 KG)

duty cycle maximum "ON" time, (Sec.)	1 (100%) ∞	1/2 (50%) 900	1/4 (25%) 300	1/10 (10%) 100
watts	30	60	120	300
approximate ampere turns	2870	4060	5740	9080

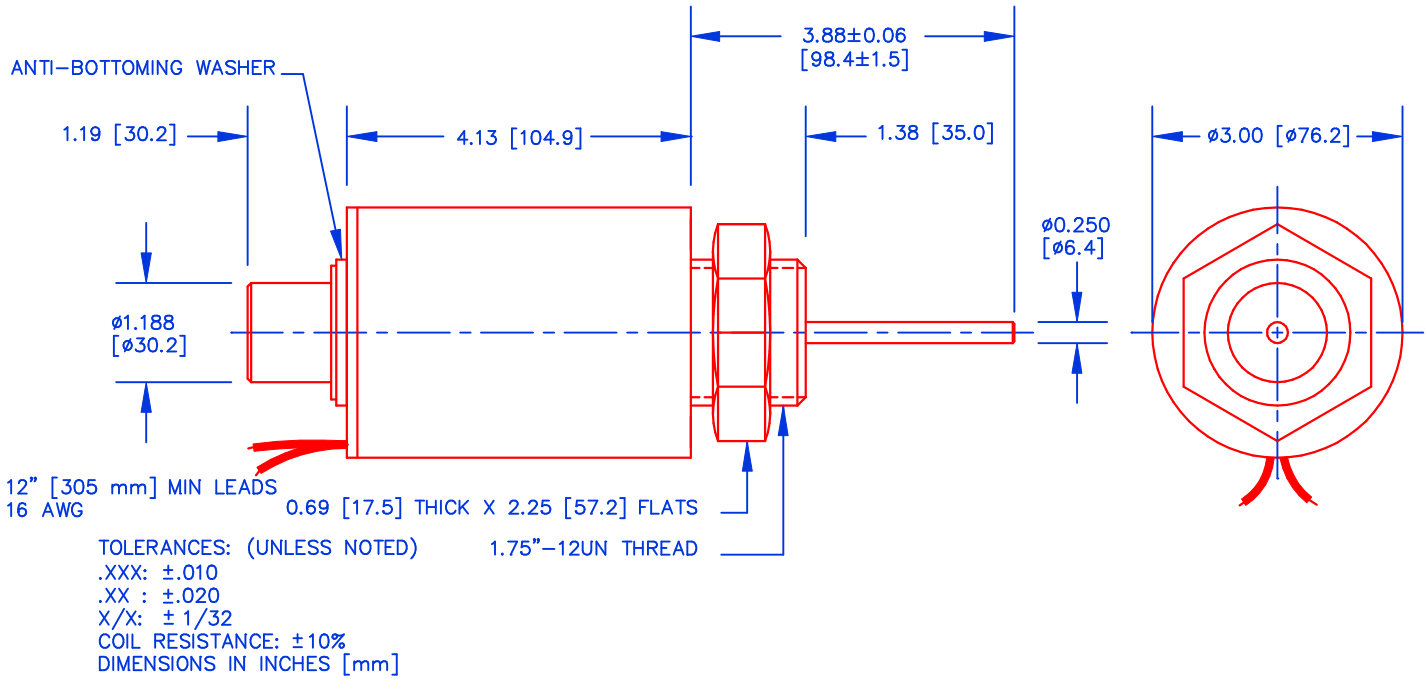
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
17	1.9	7.6	10.8	15.3	24.2
18	3.2	9.9	13.9	19.7	31.2
19	5.2	12.4	17.5	24.8	39.2
20	8.8	16.0	22.6	32.0	50.6
21	14.2	20.3	28.7	40.5	64.1
22	22.6	25.6	36.3	51.3	81.1
23	34.1	31.8	44.9	63.6	101
24	54.6	40.0	56.6	80.1	127
25	89.4	51.7	73.2	104	164
26	139	64.3	90.9	129	203
27	235	82.1	116	164	260
28	350	103	146	206	326
29	550	131	185	261	413
30	822	161	227	321	508
31	1447	209	295	417	659
32	2110	257	363	513	
33	3450	325	459	649	
34	5440	408	577		

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 12.0" x 12.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

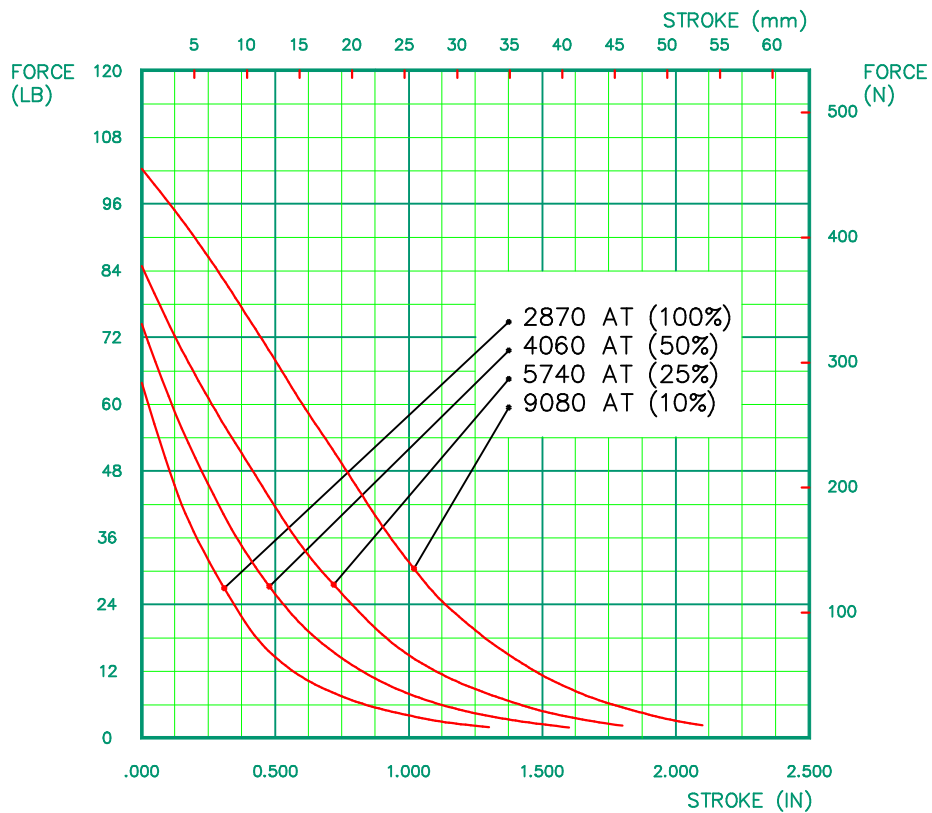
S-41-300-H

MECHANICAL DIMENSIONS



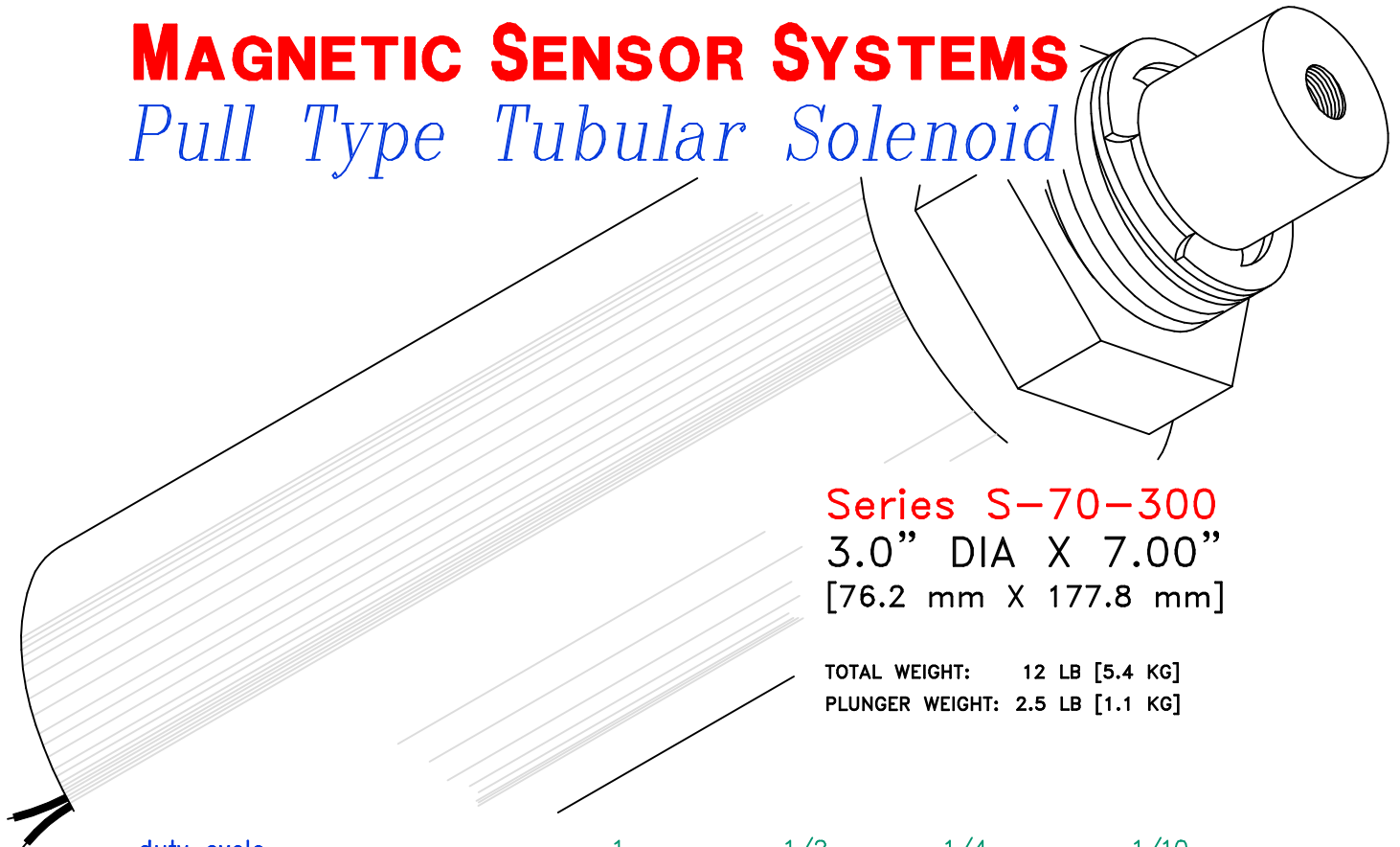
SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Pull Type Tubular Solenoid



Series S-70-300
3.0" DIA X 7.00"
[76.2 mm X 177.8 mm]

TOTAL WEIGHT: 12 LB [5.4 KG]
 PLUNGER WEIGHT: 2.5 LB [1.1 KG]

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	1700	580	190
watts	35	70	140	350
approximate ampere turns	4400	6200	8800	13900

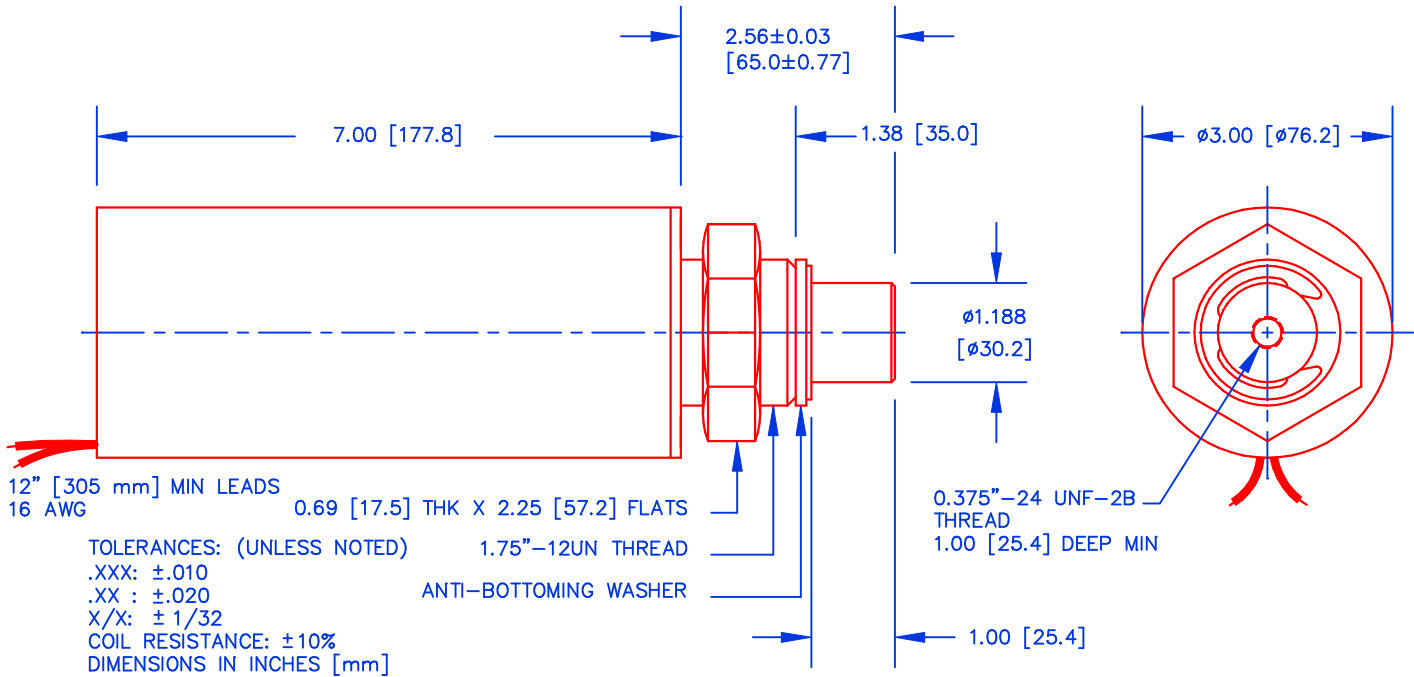
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
17	3.8	11.7	16.5	23.4	37.0
18	6.5	15.1	21.3	30.2	47.8
19	10.4	19.0	26.8	38.0	60.1
20	17.6	24.5	34.6	49.1	77.5
21	28.3	31.1	43.8	62.1	98.1
22	45.2	39.3	55.4	78.6	124
23	68.2	48.7	68.6	97.4	154
24	109	61.4	86.5	123	194
25	179	79.3	112	159	251
26	279	98.6	139	197	311
27	469	126	177	252	398
28	701	158	223	316	499
29	1100	200	282	400	632
30	1644	246	347	492	
31	2893	320	451	640	
32	4220	393	554		
33	6900	498			
34	10880	625			

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 12.0" x 12.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

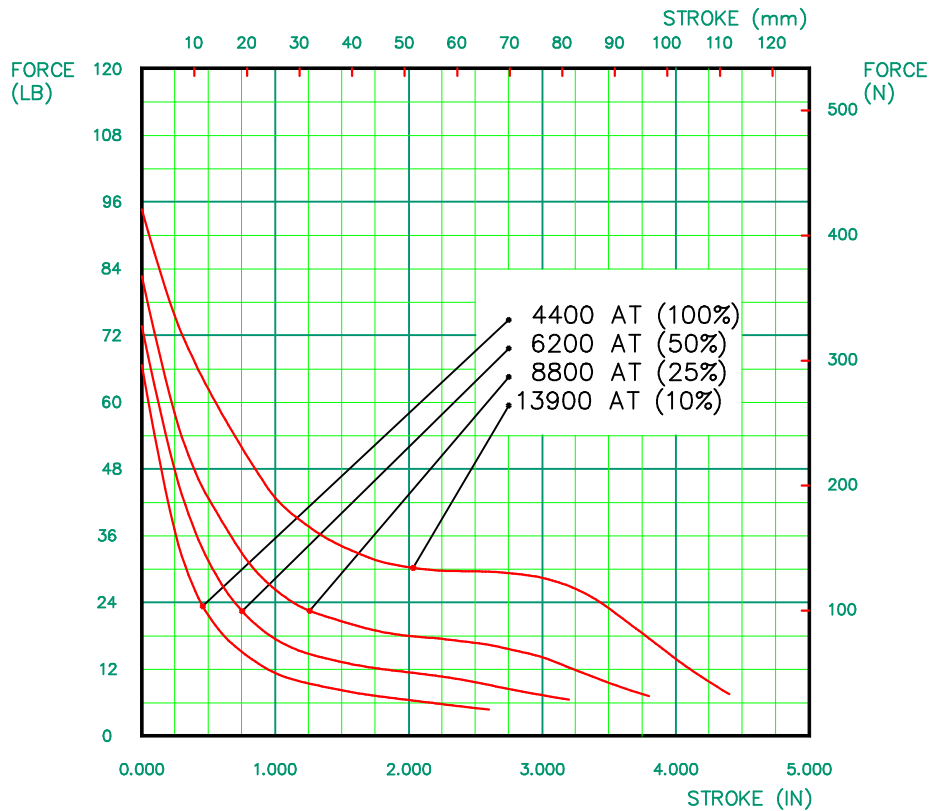
S-70-300

MECHANICAL DIMENSIONS



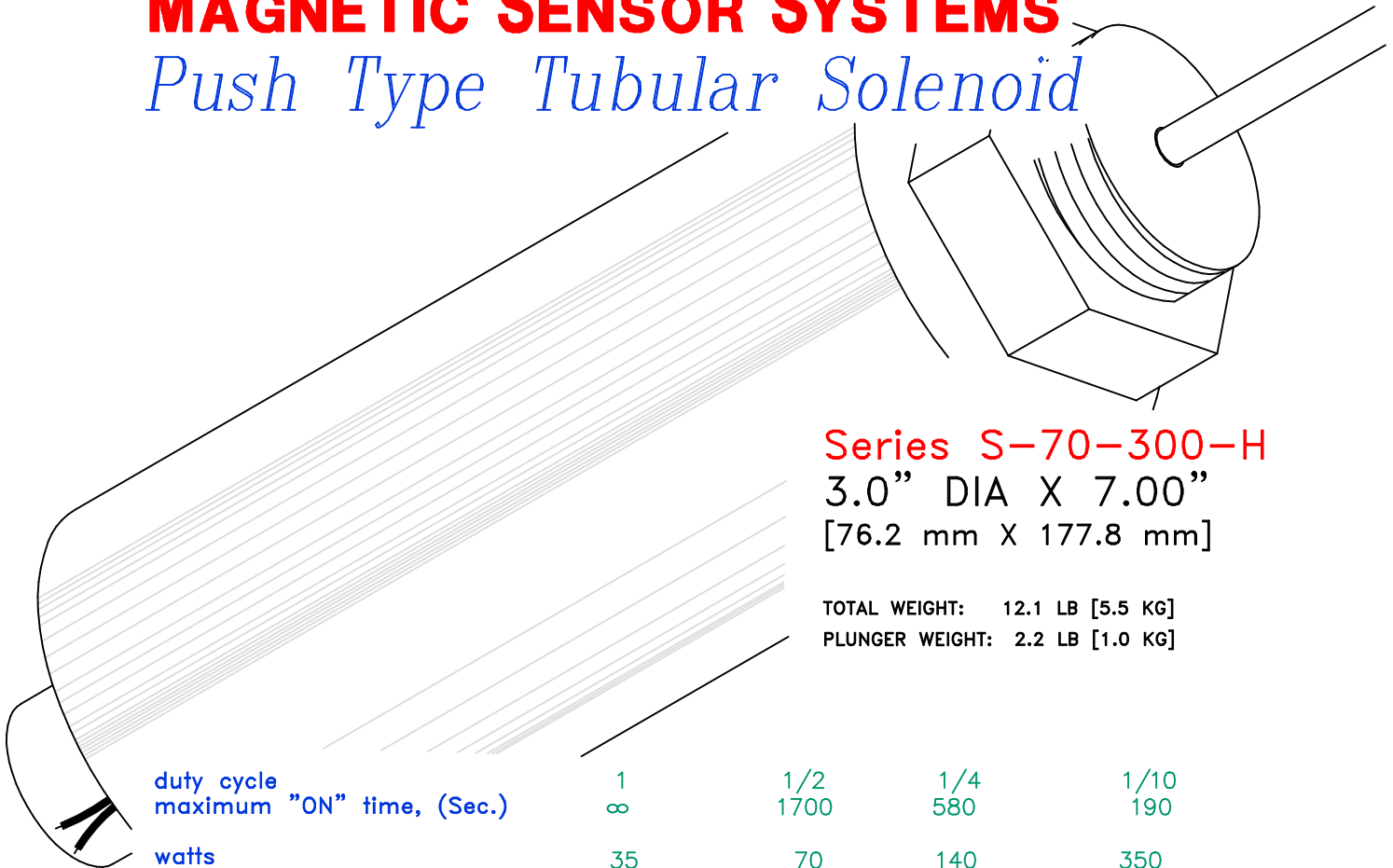
SOLENOID SHOWN ENERGIZED

TYPICAL PULL FORCE VERSUS STROKE



MAGNETIC SENSOR SYSTEMS

Push Type Tubular Solenoid



Series S-70-300-H
3.0" DIA X 7.00"
[76.2 mm X 177.8 mm]

TOTAL WEIGHT: 12.1 LB [5.5 KG]
 PLUNGER WEIGHT: 2.2 LB [1.0 KG]

duty cycle	1	1/2	1/4	1/10
maximum "ON" time, (Sec.)	∞	1700	580	190
watts	35	70	140	350
approximate ampere turns	4400	6200	8800	13900

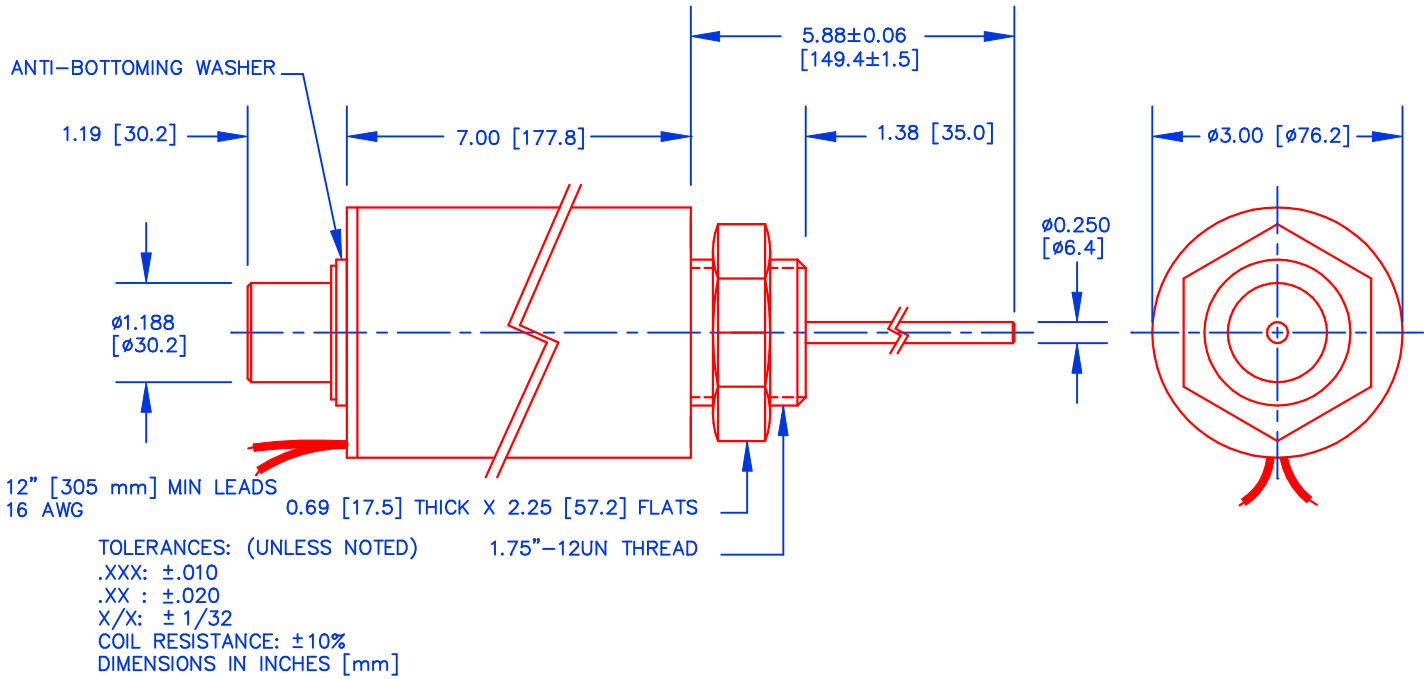
AWG number	resistance (Ω)	volts DC	volts DC	volts DC	volts DC
17	3.8	11.7	16.5	23.4	37.0
18	6.5	15.1	21.3	30.2	47.8
19	10.4	19.0	26.8	38.0	60.1
20	17.6	24.5	34.6	49.1	77.5
21	28.3	31.1	43.8	62.1	98.1
22	45.2	39.3	55.4	78.6	124
23	68.2	48.7	68.6	97.4	154
24	109	61.4	86.5	123	194
25	179	79.3	112	159	251
26	279	98.6	139	197	311
27	469	126	177	252	398
28	701	158	223	316	499
29	1100	200	282	400	632
30	1644	246	347	492	
31	2893	320	451	640	
32	4220	393	554		
33	6900	498			
34	10880	625			

HEAT SINK: For proper heat dissipation, body of solenoid should be mounted on an equivalent of 12.0" x 12.0" x 1/8" aluminum plate in an unrestricted flow of air.

MAGNETIC SENSOR SYSTEMS

S-70-300-H

MECHANICAL DIMENSIONS



SOLENOID SHOWN ENERGIZED

TYPICAL PUSH FORCE VERSUS STROKE

