



ITW SWITCHES SNAP ACTION SWITCHES

Design, development and manufacture of switch solutions

PUSH BUTTON

SNAP ACTION

ACTUATORS

SLIDE

ROTARY

CUSTOM ASSEMBLIES

MILITARY / AEROSPACE

ITW Switches
SENSORS, SWITCHES, ELECTRONIC CONTROLS



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LICON — SNAP ACTION SWITCHES

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Series 11

MINIATURE 10 AMP DOUBLE-BREAK SNAP ACTION SWITCHES

This rugged miniature switch features the Butterfly® double-break snap action switch mechanism. It is ideal for tough applications where high current capability and Butterfly® reliability are needed.

APPLICATIONS

- Welding guns
- Pipeline valve actuator
- Discrete length tape dispenser machines
- Lift trucks
- Electrical contractors

KEY FEATURES:

- Gold or silver contacts
- Variety of terminals configurations and styles available
- UL recognized and CSA certified
- Reset style switch available
- Roller lever and overtravel plunger actuator are available

ACTUAL SIZE

ORDERING INFORMATION:

Switches

Part Number	Terminals
11-104	End Solder
11-204	#4 Screw
11-304	Side Solder
11-314 Reset	Side Solder
11-504	Quick Disconnect .250

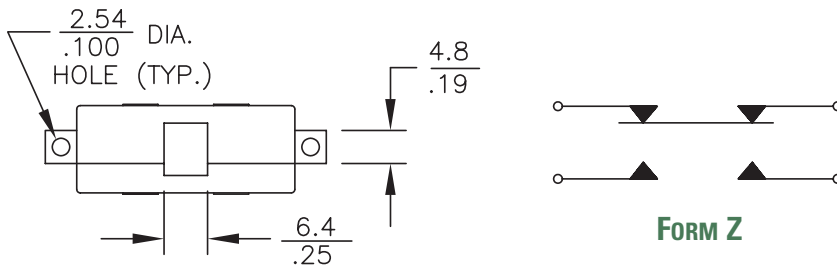
Actuators (see page 68 for additional specifications)

Part Number	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.	Operating Point
71-1040 Roller Lever	3.5 oz max	2 oz min	.093 max	.062 min	.030 ± .015	.671 ± .031
71-2010 Over Travel	8 ± 3 oz	4 oz min	.050 max	.215 min	.020 ± .005	.828±.015

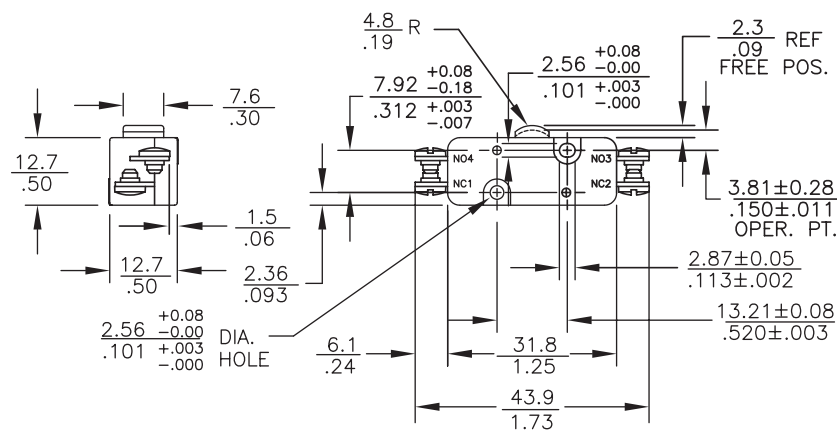
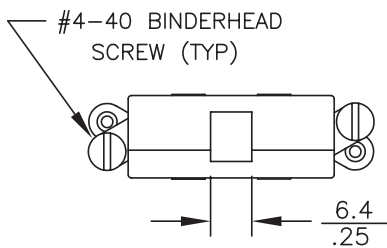
STANDARDS / AGENCY / RATINGS:



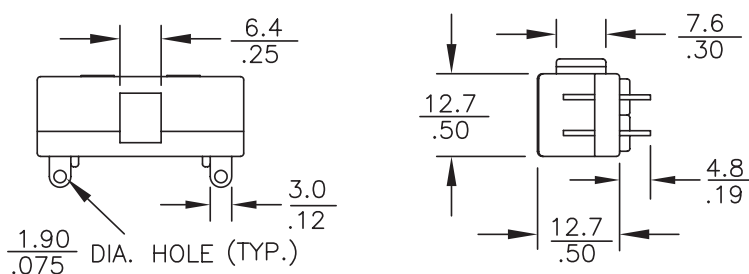
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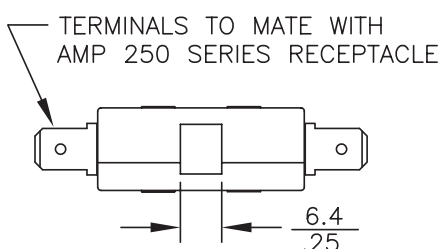
4 SCREW



SIDE SOLDER



QUICK DISCONNECT



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Pretravel:
0.050 inches max

Overtravel:
0.015 inches min

Operating Force:
8 oz + 3 oz

Release Force:
4 oz min

Movement Differential:
0.020 ± 0.007 inches

Operating Point:
0.150 ± 0.011 inches
(from mounting hold centers)

Circuit:
SPDT-DB (Form Z)

Electrical Ratings (Typical):

Circuitry	125/250 VAC	28 VDC
SPST-DB NC (Form Y) or NO (Form X)	10 amp (75-80% PF) 1/2 HP 125 VAC	10 amp Ind 15 amp Res
SPDT-DB (Form Z)	3/4 HP 250 VAC	7 amp Ind 10 amp Res
SPDT-SB (Form C)		4 amp Ind 6 amp Res

Series 14

HEAVY DUTY 20 AMP DOUBLE-BREAK SWITCHES

This rugged single-pole double-break Butterfly® switch will handle up to 20 amps. Ideal for high-current applications which require long life and reliability.

APPLICATIONS

- Train car door operators
- Bus door operators
- Pendant controls
- Lift trucks
- Heavy industrial machinery

KEY FEATURES:

- Available in standard or heavy duty mounting
- Semirefactory contacts and offset #6 screw terminals with cup washers are standard
- Sealed button actuator is available
- Button, overtravel plunger or pivoted lever actuator are available
- UL recognized and CSA certified



ACTUAL SIZE

ORDERING INFORMATION:

Part Number	Mounting	Operating Force	Release Force	Pretravel	Overtravel	Movement Differential	Operating Point	Actuator Style
14-124	Standard	12 ± 3 oz	4 oz min	.074 max	.030 min	.020 ± .007	.808 ± .013	Standard Button Actuator
14-12404	Heavy Duty	12 ± 3 oz	4 oz min	.074 max	.030 min	.021 ± .007	.090 ± .053	Standard Button Actuator
14-324	Standard	12 ± 3 oz	4 oz min	.074 max	.219 min	.020 ± .007	.830 ± .036	Overtravel Panel Mount
14-724	Standard	5 ± 2 oz	2 oz min	.156 max	.060 min	.046 ± .017	1.406 ± .034	Roller Lever Actuator

Electrical Ratings:

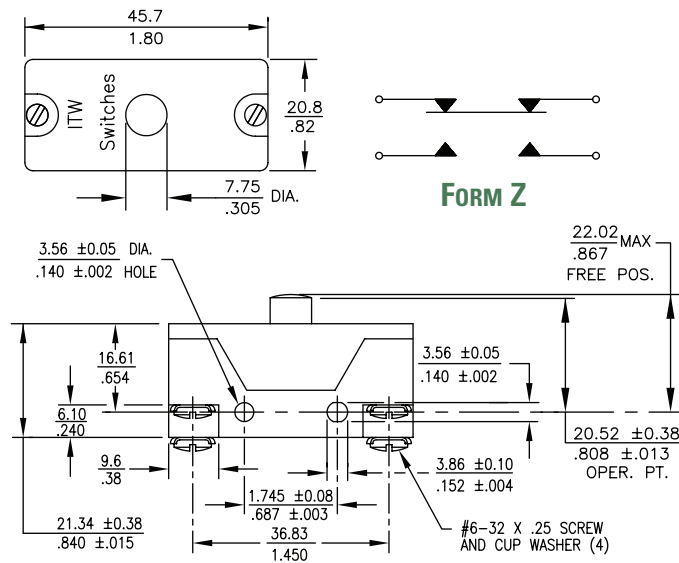
Circuitry	Volts	AC		DC	
		Steady	In-Rush	SPDT	SPST
SPDT-DB(Form Z)	28	20	80	10.0	25.0
SPDT-DB(Form Z)	125	20	80	—	—
SPDT-DB(Form Z)	250	20	80	—	—
SPDT-DB(Form Z)	480	20	50	—	—

UL recognized. Amps @ 125/250/480 VAC 78-80%PF and CSA Certified File No. 16388.
1 HP 125 VAC, 2 HP 250 VAC. Materials recognized by UL for use at temperatures not exceeding 105° C (220° F)

STANDARDS / AGENCY / RATINGS:



STANDARD BUTTON ACTUATOR



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Circuit:

SPDT-DB (Form Z)

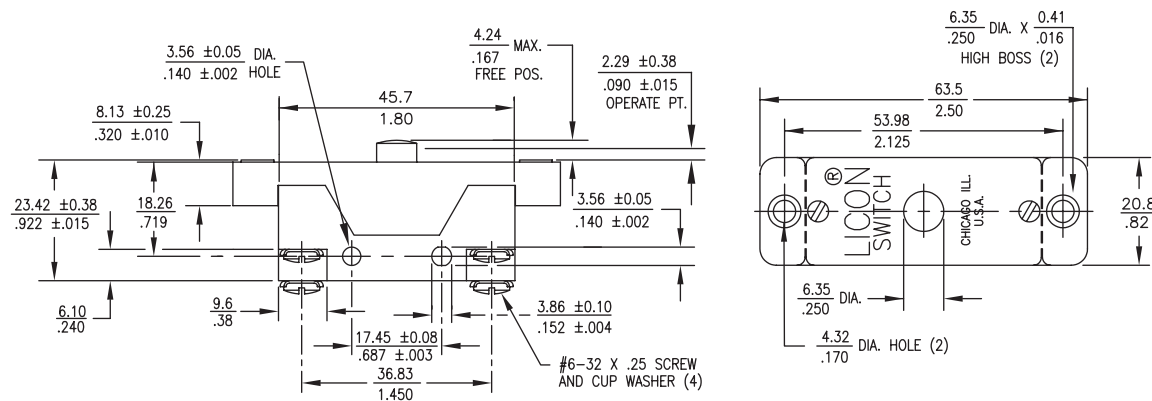
Terminal:

#6 screw with cup washer

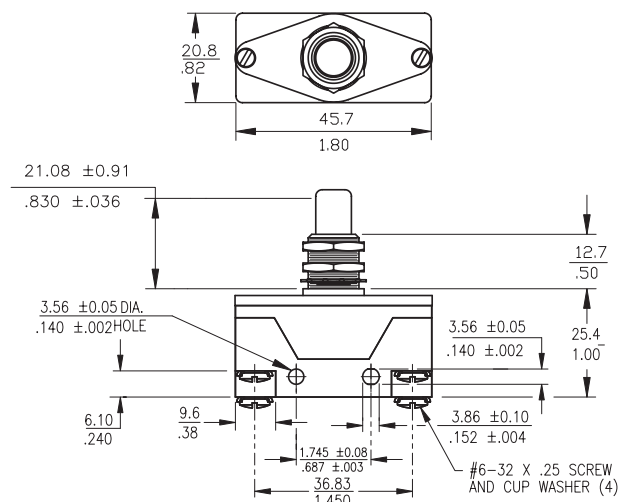
Electrical Ratings :

See chart on left

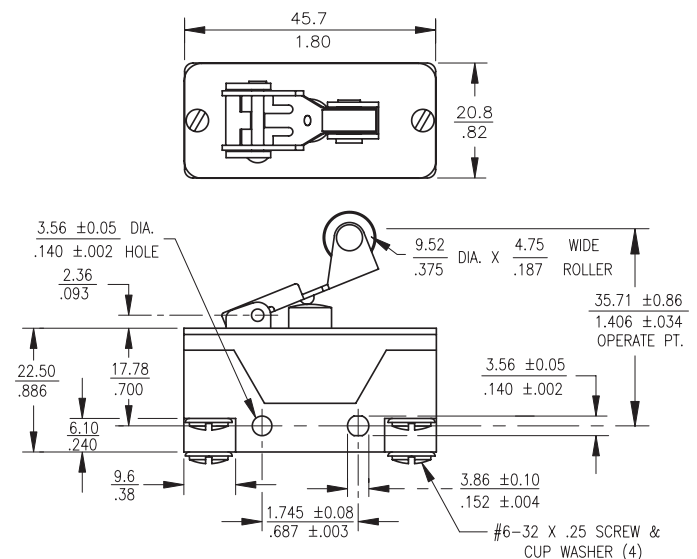
STANDARD BUTTON ACTUATOR—HEAVY DUTY MOUNTING



OVERTRAVEL PANEL MOUNT



ROLLER LEVER



Series 16

SUB-MINIATURE 10.1 AMP DOUBLE-BREAK SNAP ACTION SWITCHES

Series 16 switches feature the Butterfly® double-break momentary switch mechanism. This offers the capability of handling high (or low) current loads in a small switch and gives the options of controlling two circuits with the Form Z switch circuitry.

APPLICATIONS

- Lift truck seat switch
- Aircraft contactor or actuator
- Sump pump float switch
- Valve actuator
- Industrial equipment and machinery
- Office equipment

KEY FEATURES:

- Gold or silver contacts
- Meets MIL-PRF-8805/7
- UL recognized and CSA certified:
10.1 amps @ 125/250 VAC
- Variety of terminal configurations and styles
- Roller lever, lever, short roller lever and bushing mount actuator are available

ACTUAL SIZE

ORDERING INFORMATION:

Part Number	Circuit	Temperature Index	Contacts	Terminals	RoHS Compliant
16-104	SPDT (Form Z)	To 275°F Ambient	Silver **	End Solder	✓
16-188051	SPDT (Form Z)	To 275°F Ambient	Gold Plated	End Solder	✓
16-204	SPDT (Form Z)	To 275°F Ambient	Silver **	End Screw	—
16-304	SPDT (Form Z)	To 275°F Ambient	Silver **	Side Solder	✓
16-404	SPDT (Form Z)	To 275°F Ambient	Silver **	Bottom Solder	✓
16-40401	SPDT (Form Z)	To 275°F Ambient	Gold Plated	Bottom Solder	✓
16-4044*	SPDT (Form Z)	To 275°F Ambient	Silver **	Bottom Solder	✓
16-40441*	SPDT (Form Z)	To 275°F Ambient	Gold Plated	Bottom Solder	✓
16-488051	SPDT (Form Z)	To 275°F Ambient	Gold Plated	Bottom Solder	—
16-530004***	SPDT (Form Z)	To 275°F Ambient	Silver **	Bottom QC .110	✓

* Thermoplastic case and cover.

** For electrical loads under 250mA, consult factory.

*** Mounts easily to Series 76-95 Switches.

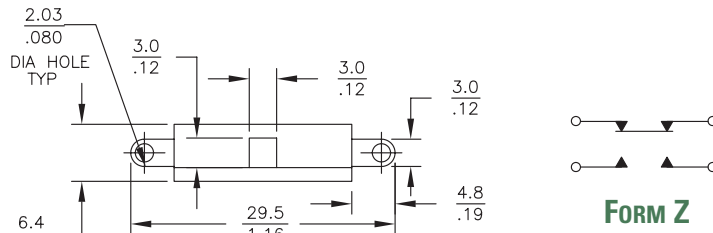
Actuators (see page 69 for additional specifications)

Part Number	Switch Series	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.
76-1200 Roller Lever	16	4 oz max	1 oz min	.125 max	.025 min	.045 ± .011
76-1210 Lever	16	2.5 oz max	1 oz min	.125 max	.025 min	.047 ± .013
76-1220 Short Roller Lever	16	5 + 3 oz - 2 oz min	2 oz min	.050 max	.023 min	.020 ± .005
76-22604 Bushing Mount	16	5 oz	—	.050 max	.156 MIN	—

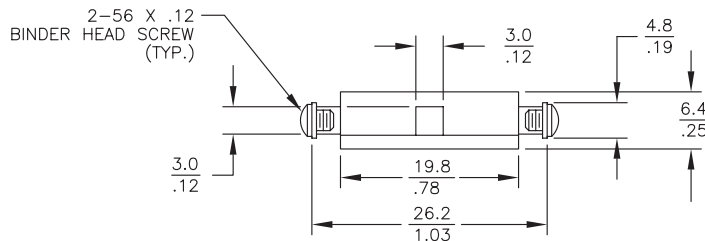
STANDARDS / AGENCY / RATINGS:



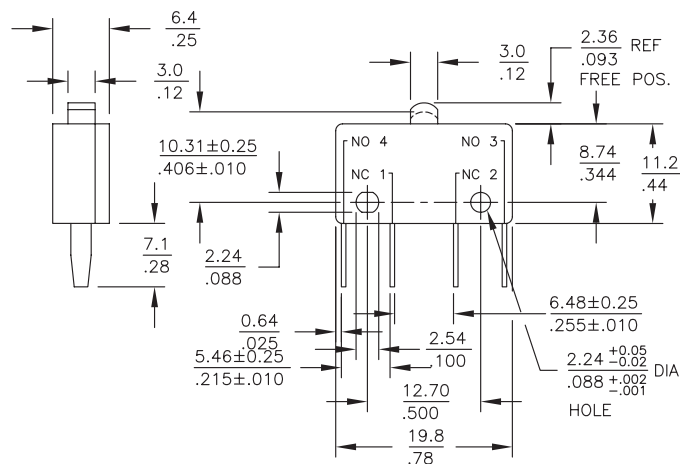
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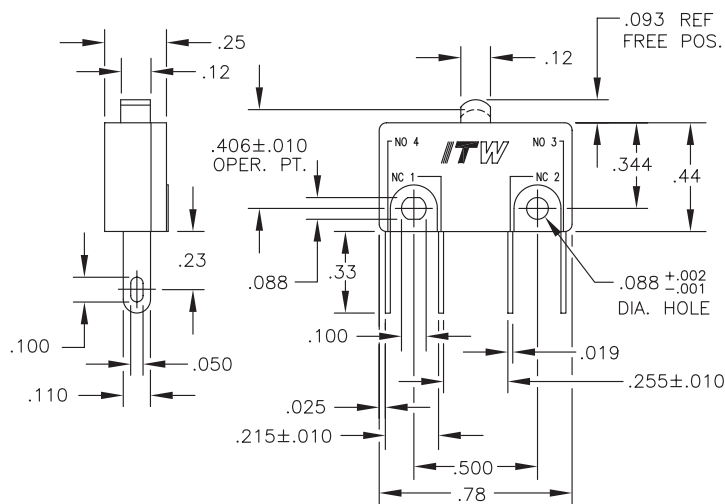
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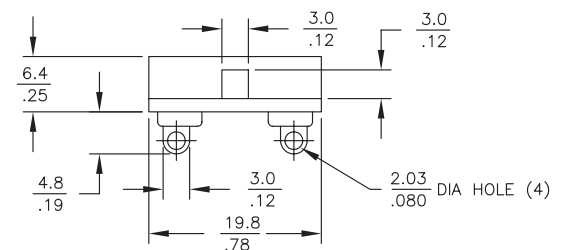
QC TAPER TAB



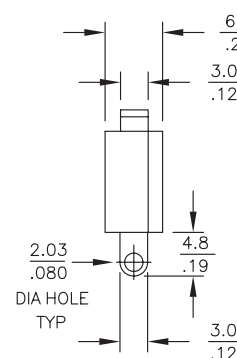
BOTTOM QC .110



SIDE SOLDER



BOTTOM SOLDER



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Pretravel:
0.050 inches max

Overtravel:
0.012 inches min

Operating Force:
5 oz + 3 oz - 2 oz

Release Force:
2 oz min

Movement Differential:
0.020 inches ± 0.005

Operating Point:
0.406 inches ± 0.010
(from mounting hold centers)

Circuit:
SPDT-DB (Form Z)

Temperature Index:
-54°C to +135°C
(-65°F to +275°F)

MIL-PRF-8805/7 QPL listed:
16-188051 MS25476-1
16-488051 MS27217-1

Electrical Rating @ 28VDC:

		Sea Level	70,000 Feet
Form Z 2 Circuit	Res	10A	10A
	Ind*	5A	2A
	Lamp	3A	—
*L/R = .026			

SUB-MINIATURE 10.1 AMP DOUBLE-BREAK SNAP ACTION SWITCHES

Similar to Series 16 switches with improved materials and performance. Ideal for critical applications where long life and reliability are needed.

APPLICATIONS

- Lift truck seat switch
- Aircraft contactor
- Sump pump float switch
- Aircraft actuator
- Valve actuator
- Industrial equipment and machinery
- Office equipment
- Medical equipment

KEY FEATURES:

- Enhanced gold contacts for high or low power applications
- Thermoplastic case sealed to prevent flux intrusion
- Meets MIL-PRF-8805 requirements
- Roller lever, lever, short roller lever and bushing mount actuator are available.

ACTUAL SIZE



ORDERING INFORMATION:

Switches

Part Number	Contacts	Terminals
16-110	Enhanced Gold	End
16-111	Silver	End
16-410	Enhanced Gold	Bottom

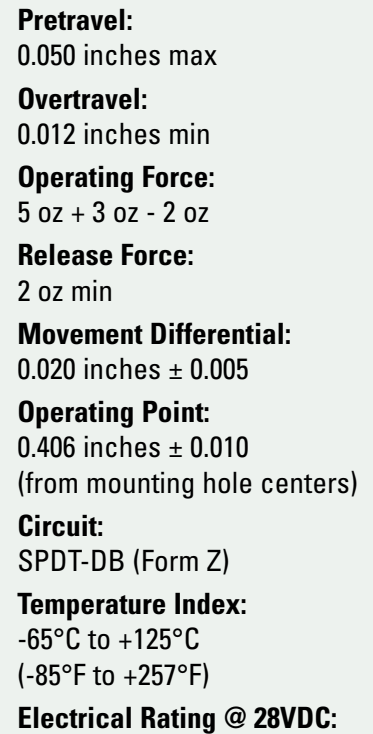
Actuator (see page 69 for additional specifications)

Part Number	Switch Series	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.
76-1200 Roller Lever	16	4 oz max	1 oz min	.125 max	.025 min	.045 ± .011
76-1210 Lever	16	2.5 oz max	1 oz min	.125 max	.025 min	.047 ± .013
76-1220 Short Roller Lever	16	5 + 3 oz - 2 oz min	2 oz min	.050 max	.023 min	.020 ± .005
76-22604 Bushing Mount	16	5 oz	—	.050 max	.156 min	—

STANDARDS / AGENCY / RATINGS:



MECHANICAL / ELECTRICAL CHARACTERISTICS:



		Sea Level	70,000 Feet
Form Z 2 Circuit	Res	10A	10A
	Ind*	5A	2A
	Lamp	3A	—

*L/R = .026

ULTRA SUB-MINIATURE 7 AMP DOUBLE-BREAK SNAP ACTION SWITCHES

Series 18 switches feature the Butterfly® double-break momentary switch mechanism. This very small package can carry a full 7 amp load (or low current load).

APPLICATIONS

- Industrial valve controls
- Aircraft rotary actuator
- Aircraft linear actuator
- Float control pumps
- Spool valves
- Medical equipment
- Aircraft fuel valves
- Pressure switches

Series 18



ACTUAL SIZE

KEY FEATURES:

- Gold contacts
- Solder terminals
- Meets MIL-S-8805/76
- UL recognized and CSA certified:
7 amps @ 125/250 VAC
- Lever and roller actuator are available

ORDERING INFORMATION:

Switches

Part Number	Contacts	Terminals	RoHS Compliant
18-40421	Gold Plated	End Solder	✓
18-488051 (MS27257-1)	Gold Plated	End Solder	✓

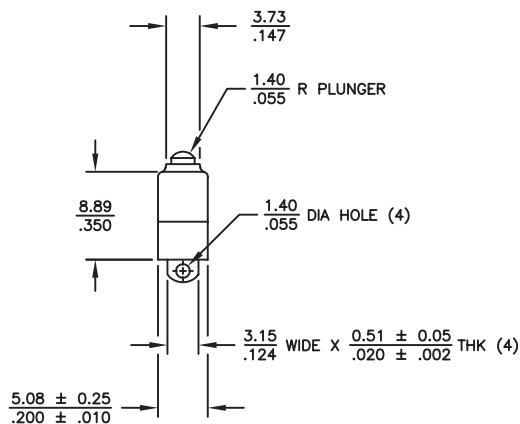
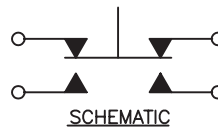
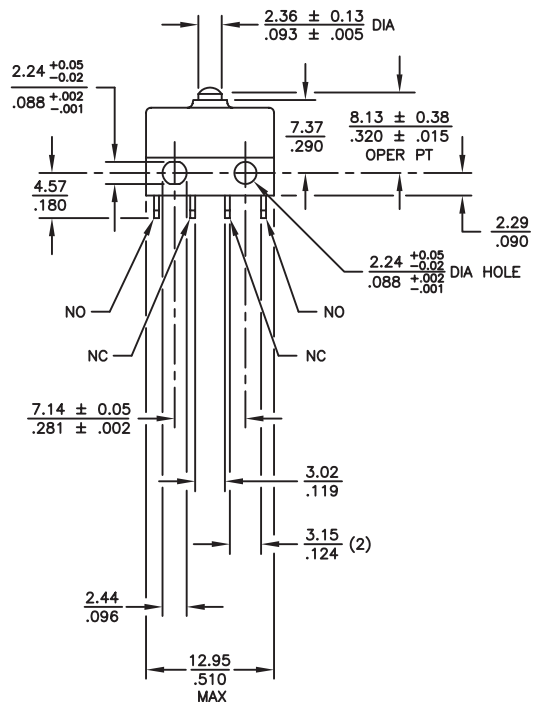
Actuator (see page 70 for additional specifications)

Part Number	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.	Operating Point
78-3000 Spring Lever	6 ± 2 oz	2 oz min	.125 max	.030 min	.030 ± .015	.325 ± .030
78-3100 Roller Lever	6 ± 2 oz	2 oz min	.125 max	.030 min	.035 ± .015	.560±.030

STANDARDS / AGENCY / RATINGS:



PRODUCT DRAWINGS



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Pretravel:
0.030 inches max

Overtravel:
0.006 inches min

Operating Force:
5 oz + 3 oz - 2 oz

Release Force:
1.5 oz min

Movement Differential:
0.015 inches ± 0.005

Operating Point:
0.320 inches ± 0.015
(from mounting hole centers)

Circuit:
SPDT-DB (Form Z)

MIL-PRF-8805/77 QPL listed:
18-488051 MS27257-1

Electrical Rating @ 28VDC:

Circuitry	Current
2 Circuit (SPDT-DB)	5 amp Res 3 amp Ind*
1 Circuit (SPST)	8 amp Res 7 amp Ind*
*L/R = .026	

5-AMP SUB-MINIATURE SWITCHES

This fully sealed snap action switch series is ideal for applications in harsh environments where ingress of water and dust must be prevented.

APPLICATIONS

- Industrial equipment
- Battery chargers for cordless tools
- Medical equipment
- Welding guns

KEY FEATURES:

- Insert molded terminals—fully sealed base
- Meets IP67
- BEAB and ENEC approvals
- SPDT (Form C) circuitry
- Choice of actuator
- Silver or gold contacts
- Non-flammable switch UL94-V0 rated materials

Series 19



ACTUAL SIZE

ORDERING INFORMATION:

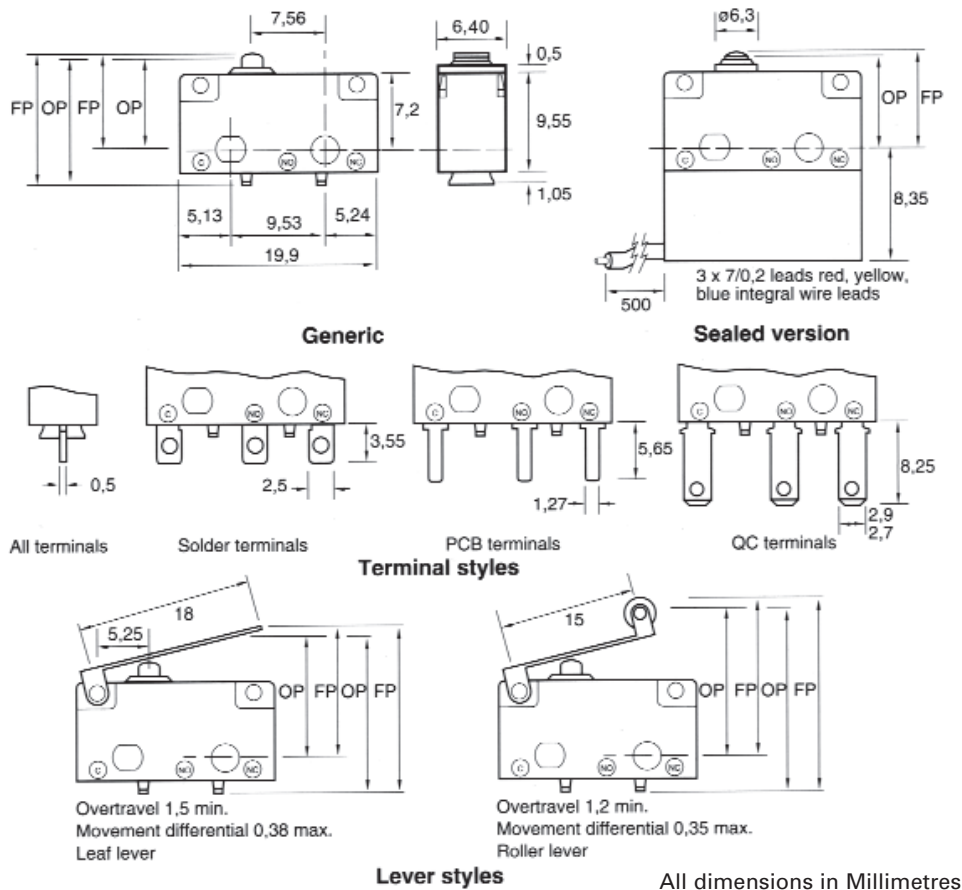
Part Number	Contacts	Actuator Style*	Terminal Style	Sealed	RoHS Compliant	IP67 Compliant
19N402	Silver	Plunger	Solder	Yes	✓	✓
19N402L18	Silver	Leaf lever	Solder	Yes	✓	✓
19N402R15	Silver	Roller lever	Solder	Yes	✓	✓
19N403	Silver	Plunger	Solder	No	✓	—
19N412	Gold	Plunger	Solder	Yes	✓	✓
19N502	Silver	Plunger	P.C.	Yes	✓	✓
19N503	Silver	Plunger	P.C.	No	✓	—
19N512	Gold	Plunger	P.C.	Yes	✓	✓
19N602	Silver	Plunger	Q.C.	Yes	✓	✓
19N603	Silver	Plunger	Q.C.	No	✓	—
19N702	Silver	Plunger	Wire Leads	Yes	✓	✓
19N712	Gold	Plunger	Wire Leads	Yes	✓	✓
19N703	Silver	Plunger	Wire Leads	No	✓	—
19N713	Silver	Plunger	Wire Leads	No	✓	—
19N920	Gold	Plunger	P.C. Right Angle (L)	Yes	—	✓
19N922	Gold	Lever	P.C. Right Angle (R)	Yes	—	✓

*Note: Lever and roller lever actuator are available as options on most switches. Consult factory.

STANDARDS / AGENCY / RATINGS:



PRODUCT DRAWINGS



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Overtravel:

.2mm (min) depress to case

Movement differential:

.1mm reference

Mechanical life:

10,000,000 operations

Operating force:

2.0 N (203.9 gf) sealed

1.5 N (153.0 gf) sealed

Ingress protection:

IP67

Temperature:

-40°C to +125°C

(-40°F to +257°F)

Body material:

Nylon 46

Contacts:

Silver—Silver nickel alloy

Gold—5 microns of gold on copper/nickel

Terminals:

QC — Brass

PCB — Tin plated brass

Solder — Brass

Electrical Rating (Silver):

250VAC (res.) — 5A (Max)

250VAC (ind.) — 1A (Max)

28VDC (res.) — 3A (Max)

28VDC (ind.) — 1A (Max)

Electrical Rating (Gold):

28VDC (res.) — 100mA (Max)

Electrical Life (nominal):

100,000 operations

Dielectric strength:

1000 VAC

Insulation resistance:

1 G Ohm

Contact resistance (initial):

20m Ω (max) gold,

50m Ω (max) silver

Contact bounce:

5 millisecond (max),

1 millisecond per each pulse

BUTTON / LEVER POSITIONS:

Free position (F.P)

Standard switch to mounting holes..... 0.360 inches / 9,14mm (max)

Standard switch to PCB..... 0.486 inches / 12,35mm (max)

Sealed switch to mounting holes..... 0.368 inches / 9,35mm (max)

Leaf lever to mounting holes..... 0.492 inches / 12,50mm (max)

Leaf lever to PCB 0.618 inches / 15,70mm (max)

Roller lever to mounting holes 0.677 inches / 17,20mm (max)

Roller lever to PCB 0.803 inches / 20,40mm (max)

Operating point (O.P)

Standard switch to mounting holes 0.330 inches ±.016 / 8,40mm ± 0,40

Standard switch to PCB 0.457 inches ±.016 / 11,60mm ± 0,40

Sealed switch to mounting holes..... 0.335 inches±.016 / 8,50mm ± 0,40

Leaf lever to mounting holes..... 0.400 inches±.054 / 10,15mm ± 1,37

Leaf lever to PCB 0.527 inches ±.054 / 13,38mm ± 1,37

Roller lever to mounting holes 0.610 inches ±.045 / 15,50mm ± 1,14

Roller lever to PCB 0.719 inches ±.045 / 18,25mm ± 1,14

ITW Switches

SENSORS, SWITCHES, ELECTRONIC CONTROLS

Series 22

MINIATURE 10 AMP DOUBLE-POLE / SIMULTANEOUS SNAP ACTION SWITCHES

This rugged double-pole double-break Butterfly® mechanism switch can be configured for Form XX, Form YY or Form ZZ switching. This unique design is ideal for your toughest applications where reliability is a must.

APPLICATIONS

- Pressure control sensors
- Pendant controls
- Door openers for transit equipment
- Valve actuator
- Lift trucks
- Interlock kiosk

KEY FEATURES:

- Gold or silver contacts
- UL recognized and CSA certified
- Variety of terminal styles
- Roller lever and overtravel plunger actuator are available



ACTUAL SIZE

ORDERING INFORMATION:

Switches

Part Number	Terminals
22-104	End Solder
22-204	#4 Screw
22-304	Side Solder
22-504	Quick Disconnect .250

Actuator (see page 71 for additional specifications)

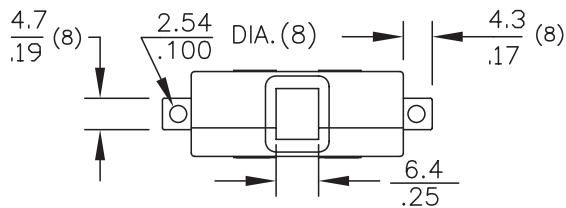
Part Number	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.	Operating Point
72-1160 Roller Lever (1)	10 oz max	1.5 oz min	.150 max	.035 min	.070 ± .015	1.0 ± .031
72-2080 Over Travel (2)	17 ± 5 oz	4 oz min	.060 max	.215 min	.030 ± .007	.828±.031

(1) When used with 22-104 basic switch or 22-204 basic switch
(2) When used with 22-304 basic switch

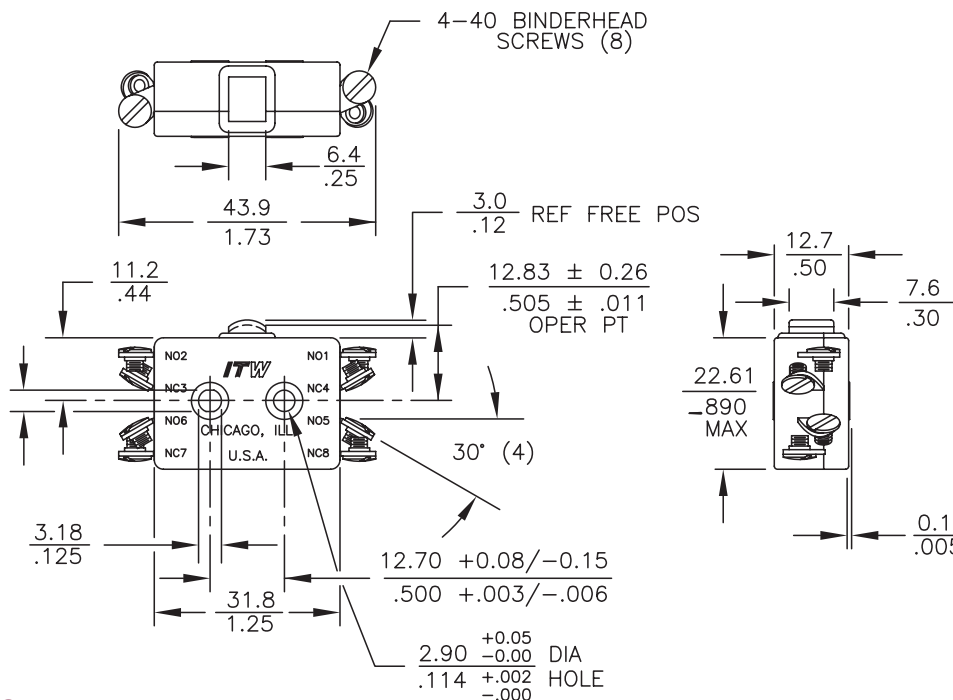
STANDARDS / AGENCY / RATINGS:



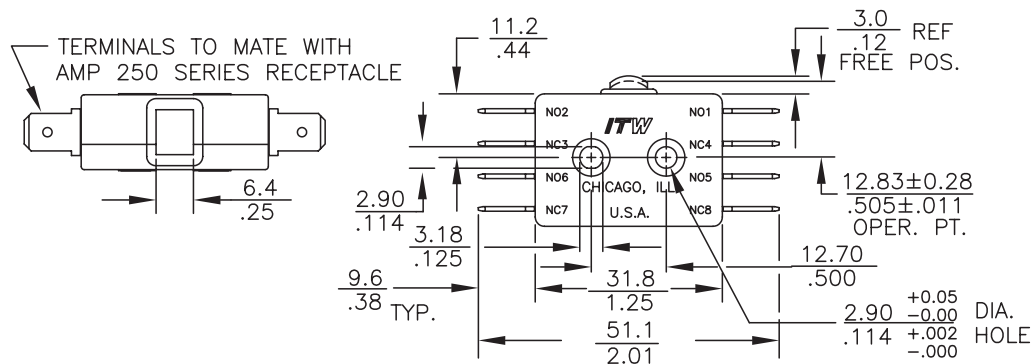
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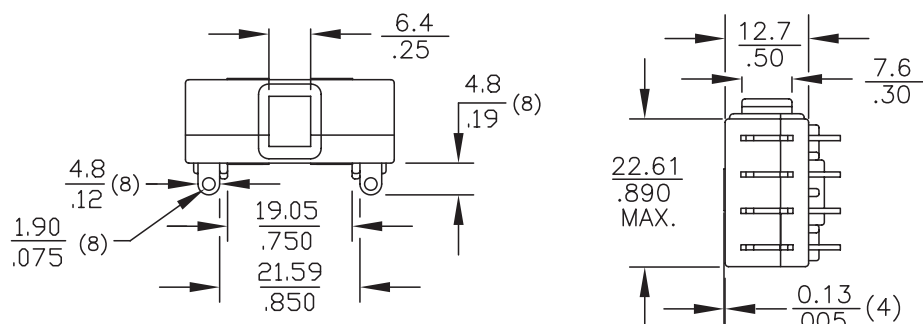
#4 SCREW



QUICK DISCONNECT



SIDE SOLDER



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Pretravel:
0.060 inches max

Overtravel:
0.015 inches min

Operating Force:
17 ± 5 oz

Release Force:
4 oz min

Movement Differential:
0.030 inches ± .009

Operating Point:
0.505 inches ± .011
(from mounting hole centers)

Circuit:
DPDT-DB (Form ZZ)

Electrical Ratings:

Circuitry	125/250 VAC	28 VDC
DPST-DB NO or NC (Form XX or YY)	10 amp (75-80% PF) 1/2 HP 125 VAC	10 amp Ind 15 amp Res
DPDT-DB (Form ZZ)	3/4 HP 250 VAC	7 amp Ind 10 amp Res

Series 26

SUB-MINIATURE 8 AMP DOUBLE POLE SNAP ACTION SWITCHES

This unique design has a DPDT-DB (Form ZZ) contact arrangement, or can be wired externally to provide two commons to form standard DPDT (Form CC) circuitry. This switch can control up to 4 isolated circuits.

APPLICATIONS

- Aircraft rotary actuator
- Aircraft valve actuator
- Circuit breakers
- Aircraft contractors
- Industrial machinery

KEY FEATURES:

- Gold or silver contacts
- Meets MIL-PRF-8805/77
- End or side terminals available
- UL recognized and CSA certified: 8 amps @ 125/250 VAC
- Roller lever, lever, short roller lever and bushing mount actuator are available

ACTUAL SIZE ACTUAL SIZE

ORDERING INFORMATION:

Switches

Part Number	Simultaneity	Contacts	Terminals	RoHS Compliant
26-804	Simultaneous*	Silver**	End Solder	✓
26-888051	Ref. M8805/77-001	Gold Plated	End Solder	—
26-904	Simultaneous*	Silver**	Side Solder	✓
26-988051	Ref. M8805/77-002	Gold Plated	Side Solder	—

* Within .004" of plunger travel.

** For electrical loads under 250 mA, consult factory.

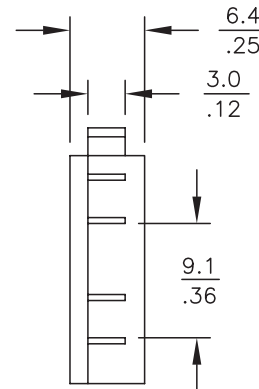
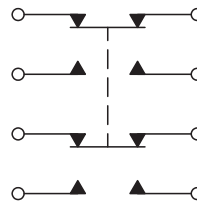
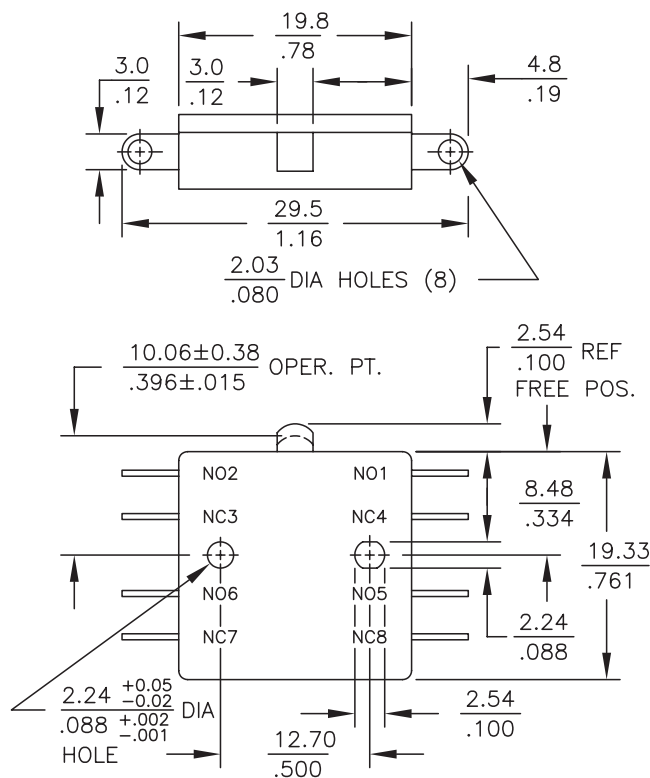
Actuator (see page 72 for additional specifications)

Part Number	Switch Series	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.
76-1200 Roller Lever	26	8 oz max	1 1/2 oz min	.130 max	.026 min	.054 ± .022
76-1210 Lever	26	7 oz max	2 oz min	.155 max	.025 min	.065 max
76-1220 Short Roller Lever	26	16 oz max	5 oz min	.050 max	.012 min	.020 ± .010 - .005
76-22604 Bushing Mount	16	5 oz	—	.050 max	.156 min	—

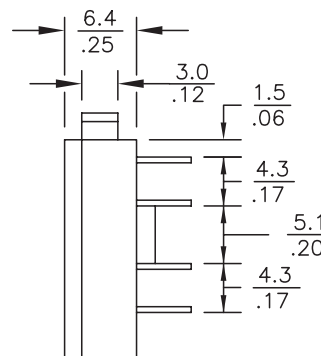
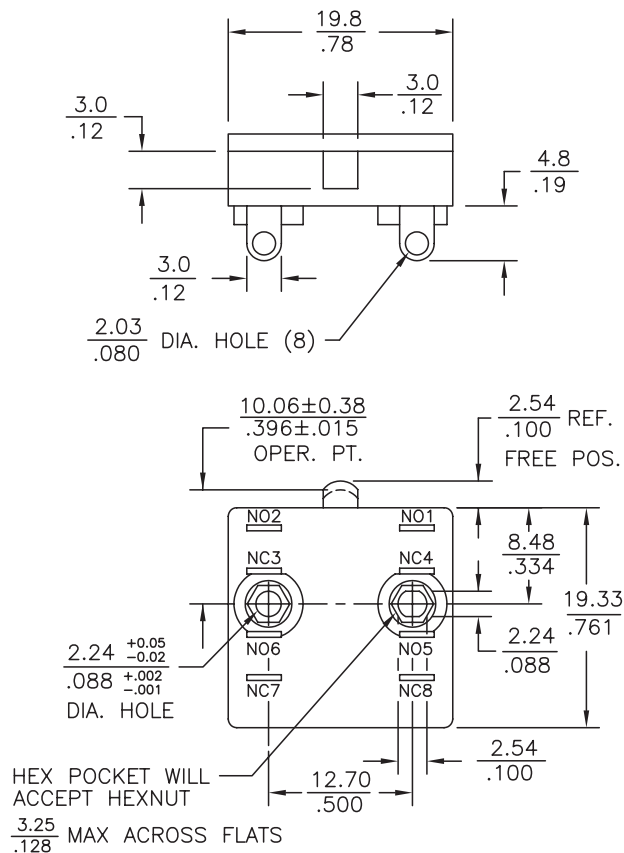
STANDARDS / AGENCY / RATINGS:



END SOLDER



SIDE SOLDER



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Pretravel:
0.050 inches (Max)

Overtravel:
0.012 inches (Min)

Operating Force:
12 ± 4 oz

Release Force:
5 oz (Min)

Movement Differential:
0.020 inches ± .010 / .005

Operating Point:
0.396 inches ± .015
(from mounting hole centers)

Circuit:
DPDT-DB (Form ZZ)

Temperature Index:
To 275°F Ambient

MIL-PRF-8805/7 QPL listed:
26-888051 M8805/77-001
26-988051 M8805/77-002

Electrical Ratings:

Circuitry	Current	Voltage
DPDT-DB	8 Amps	125/250 VAC 75-80% PF
(Form ZZ)	5 Amps	28 VDC

SUB-MINIATURE 8 AMP DOUBLE POLE/SIMULTANEOUS SNAP ACTION SWITCHES

Similar to Series 26 with improved materials and performance. Ideal for critical applications where long life and reliability are needed.

Series KAP 26



APPLICATIONS

- Aircraft rotary actuators
- Aircraft valve actuators
- Circuit breakers
- Aircraft contractors
- Industrial machinery
- Medical equipment

KEY FEATURES:

- Enhanced gold contacts for high or low power applications
- Thermoplastic case sealed to prevent flux intrusion
- Meets MIL-PRF-8805/77
- End or side terminals available
- Roller lever, lever, short roller lever and bushing mount actuators are available

ACTUAL SIZE

ORDERING INFORMATION:

Switches

Part Number	Simultaneity	Contacts	Terminals
26-810	Simultaneous*	Enhanced Gold	End Solder

* Within .002" of plunger travel.

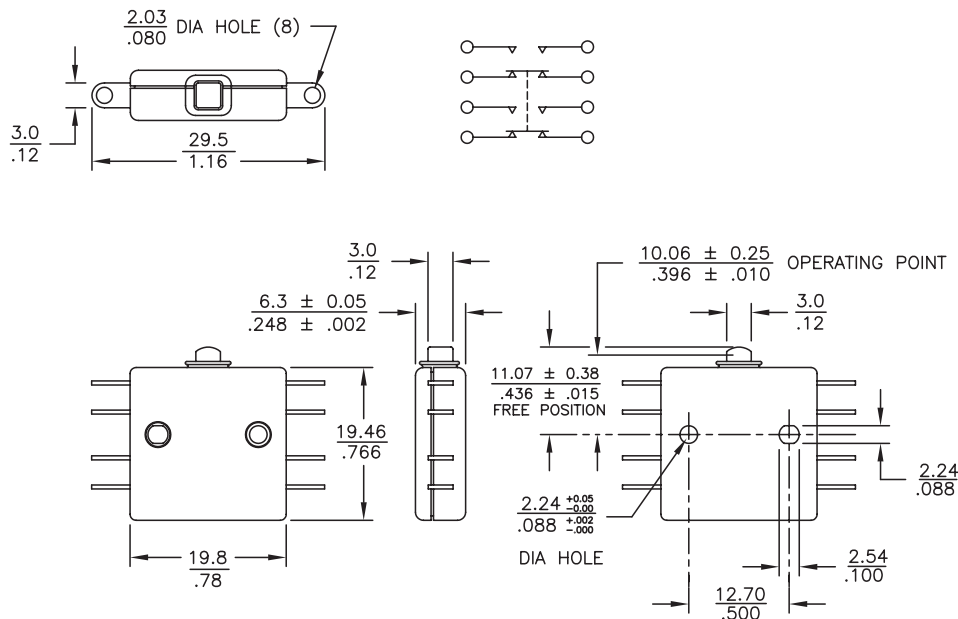
Actuator (see page 72 for additional specifications)

Part Number	Switch Series	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.
76-1200 Roller Lever	26	8 oz max	1 1/2 oz min	.130 max	.026 min	.054 ± .022
76-1210 Lever	26	7 oz max	2 oz min	.155 max	.025 min	.065 max
76-1220 Short Roller Lever	26	16 oz max	5 oz min	.050 max	.012 min	.020 ± .010 - .005

STANDARDS / AGENCY / RATINGS:



END TERMINATION



MECHANICAL / ELECTRICAL CHARACTERISTICS:

- Pretravel:**
0.060 inches (Max)
- Overtravel:**
0.020 inches (Min)
- Operating Force:**
18 ± 5 oz
- Release Force:**
5 oz (Min)
- Movement Differential:**
0.025 inches ± .010
- Operating Point:**
0.396 inches ± .010
(from mounting hole centers)
- Circuit:**
DPDT-DB (Form ZZ)
- Temperature Index:**
-85°F to +275°F Ambient
- MIL-PRF-8805 QPL Listed:**
26-810 M8805/77-003
- Electrical Ratings:**
See chart to the left

Electrical rating, 26-810:

Load	Sea Level				70,000 Ft.	
	28 VDC DPDT	28 VDC 4 CKT	115 VAC 60 HZ DPDT	115 VAC 60 HZ 4 CKT	28 VDC DPDT	28 VDC 4 CKT
Resistive	8 amp	8 amp	6 amp	4 amp	8 amp	8 amp
Inductive	6 amp	4 amp	4 amp	4 amp	2 amp	1 amp
Lamp	0.5 amp	0.5 amp	2 amp	1 amp	—	—

SEALED 10 AMP SUB-MINIATURE SWITCHES

These rugged metal enclosed sealed switches use the Butterfly® switch mechanism providing long-life, durability and reliability. These switches are ideal for demanding military and industrial applications.

APPLICATIONS

- Aircraft valves
- Wheelchair lifts
- Machine tools
- Missiles and missile launchers
- Heavy industrial equipment

KEY FEATURES:

- Meets the (watertight) requirements per MIL-PRF-8805 enclosure design symbol 3
- Gold contacts
- Variety of actuators available
- Solder terminals standard or wire leads available
- Temperature rating: -55°C to +85°C (-65°F to +185°F)
- MIL-PRF-8805 QPL listed switches available



ACTUAL SIZE

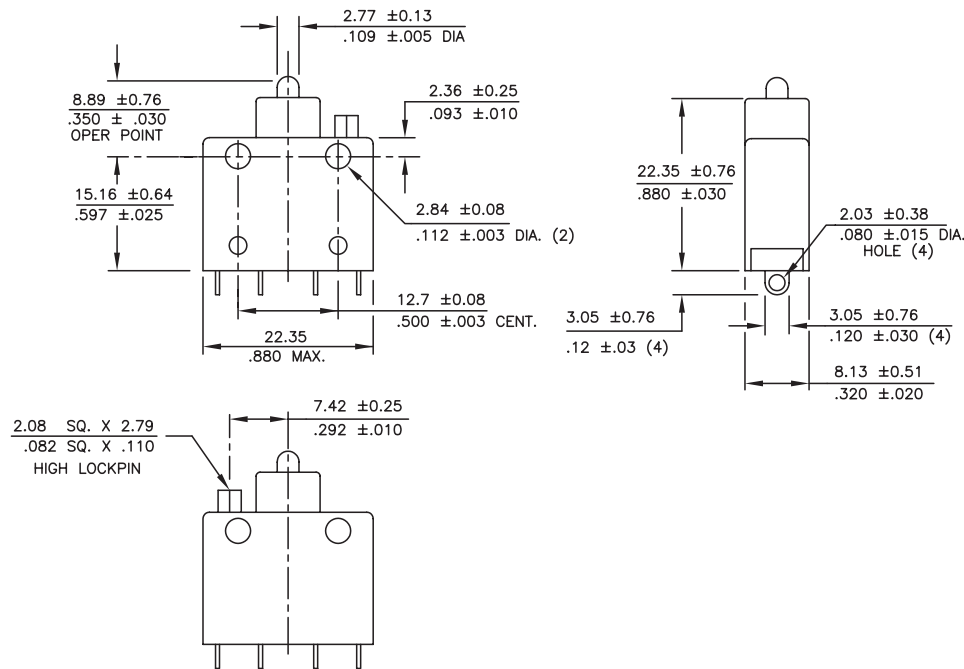
ORDERING INFORMATION:

Part Number	Actuator	P.T.	O.T.	O.F.	R.F.	M.D.
65-201000	Pin plunger	.050 max	.012 min	24 ± 8 oz	8 oz min	.010-.030
65-301000	Roller lever	.115 max	.025 min	16 oz max	5 oz min	.058 max
65-401000	Over travel	.070 max	.187 min	36 oz max	8 oz min	.010-.030

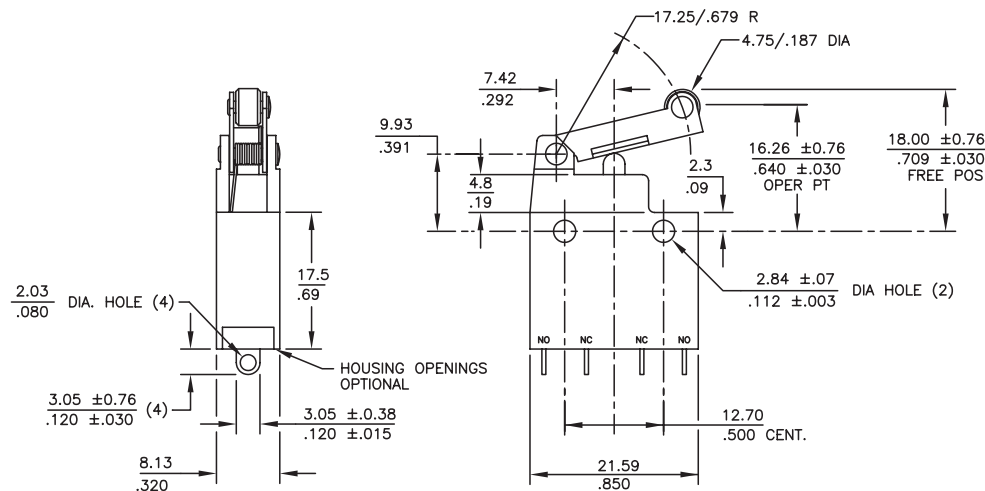
STANDARDS / AGENCY / RATINGS:



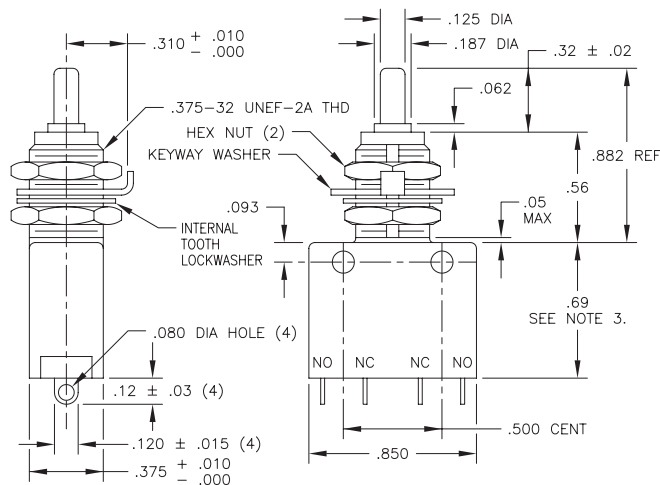
PIN PLUNGER



ROLLER LEVER



OVER TRAVEL



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Circuit:

SPDT-DB (Form Z)

Temperature range:

-55°C to +85°C

(-65°F to +185°F)

Electrical Ratings (Typical):

Circuitry	125/250 VAC	28 VDC
SPDT-DB (Form Z)	10 A	5 A Ind.

DOOR INTERLOCK SWITCHES FOR CABINET, SERVICE DOOR SAFETY

Door interlocks use 10 amp Butterfly® switch mechanisms to provide long life and reliability.

Series 76-6



APPLICATIONS

- Computer door interlocks
- Audio-Visual equipment
- Oil exploration equipment
- Seismographic sending
- Process control enclosures
- Remote enclosure for telephone switches

KEY FEATURES:

- Protection for testing and servicing electronic equipment
- Automatic interruption of power
- Manual set allows continuation of power for testing
- Restores power with closing of door or drawer
- UL recognized

ACTUAL SIZE

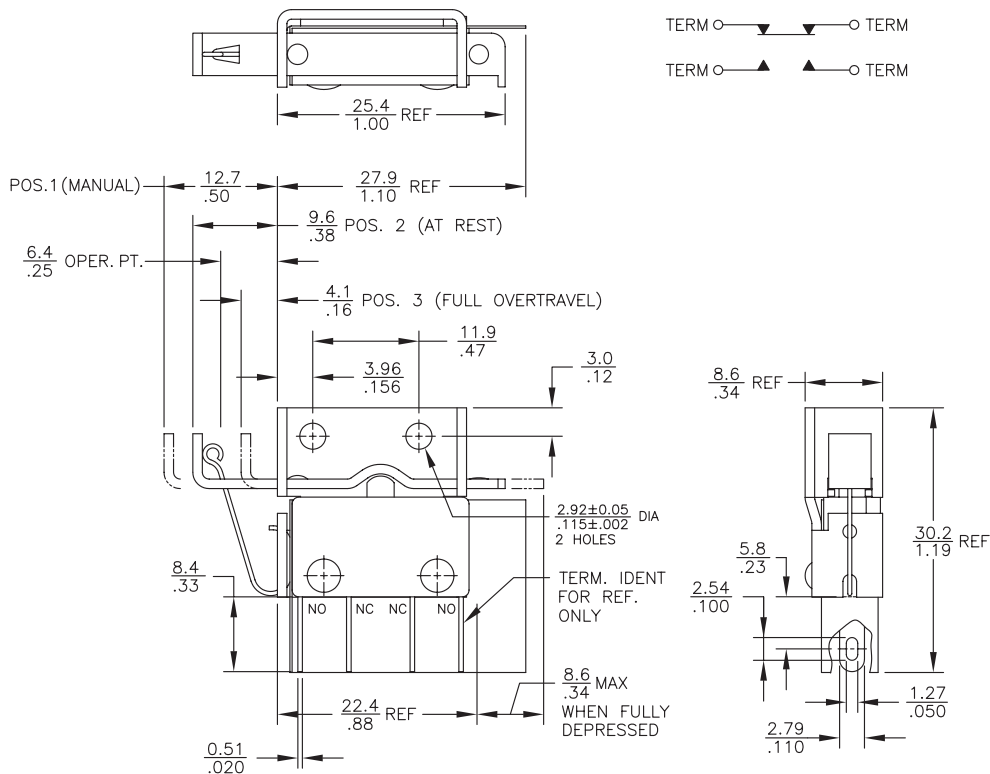
ORDERING INFORMATION:

Part Number	CIRCUIT	125/250 VAC	28 VDC IND	TERMINALS
76-6005	SPDT (Form Z)	5A *	3A	Bottom Solder/ .110 QC
* 75-80% Power Factor				
** Contact Factory for Minimums				

STANDARDS / AGENCY / RATINGS:



PRODUCT DRAWINGS



MECHANICAL / ELECTRICAL CHARACTERISTICS:

Circuit:
SPDT-DB

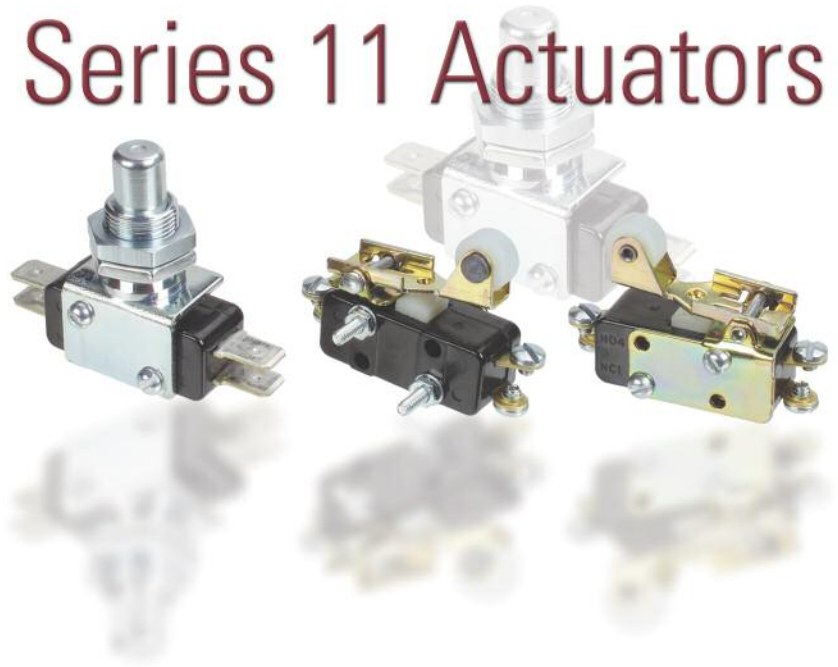
Electrical Ratings:

Circuitry	Current	Voltage
Form X or Y	10 Amps	125/250 VAC *
	10 Amps	28 VDC IND
Form Z	5 Amps	125/250 VAC
	3 Amps	28 VDC IND

* UL and CSA Listed 75% PF

SEE PAGE 46
FOR SWITCHES

Series 11 Actuators



KEY FEATURES:

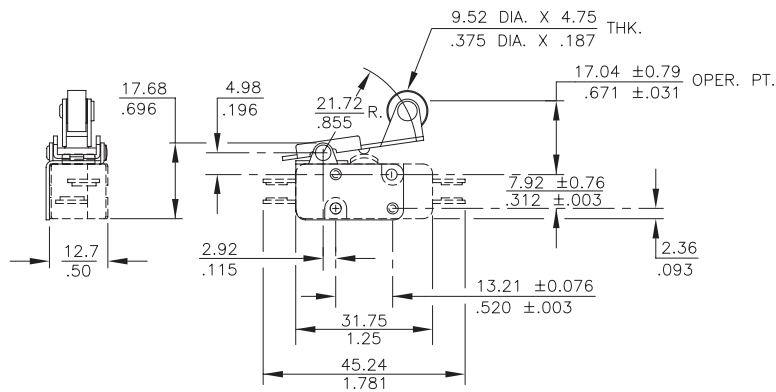
- Roller Lever
- Overtravel

MECHANICAL CHARACTERISTICS*:

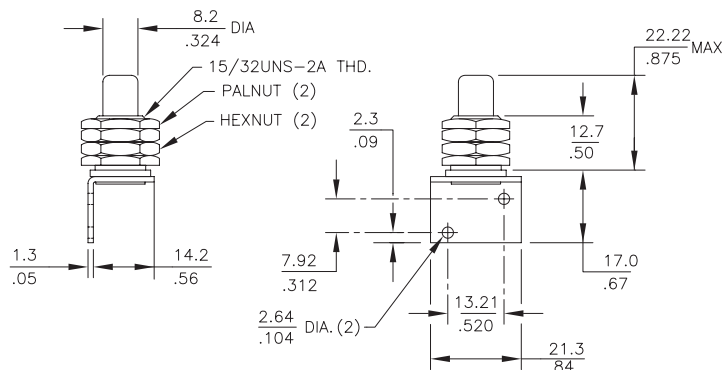
Part Number	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.	Operating Point
71-1040 Roller Lever	3.5 oz max	2 oz min	.093 max	.062 min	.030 ± .015	.671 ± .031
71-2010 Overtravel Plunger	8 ± .3 oz	4 oz min	.050 max	.215 min	.020 ± .005	.828 ± .015

*Mechanical characteristics when used with Basic Switch 11-104.

71-1040



71-2010



Series 16 Actuators

SEE PAGES 50 & 52
FOR SWITCHES



KEY FEATURES:

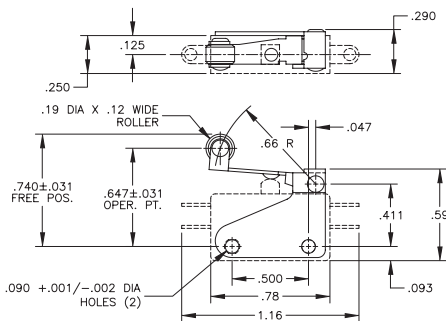
- Roller Lever
- Short Roller Lever
- Lever
- Bushing Mount

MECHANICAL CHARACTERISTICS:

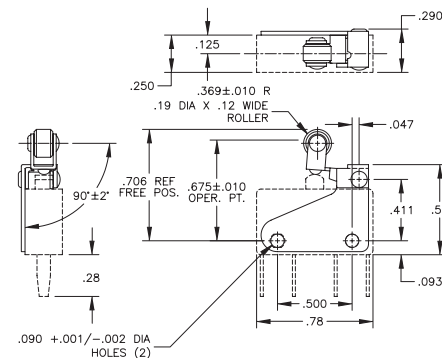
Part Number	Switch Series	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.
76-1200 Roller Lever	16	4 oz max	1 oz min	.125 max	.025 min	.045 ± .011
76-1210 Lever	16	2.5 oz max	1 oz min	.125 max	.025 min	.047 ± .013
76-1220 Short Roller Lever	16	5 + 3 oz - 2 oz min	2 oz min	.050 max	.023 min	.020 ± .005
76-22604 Bushing Mount	16	5 oz	—	.050 max	.156 min	—

Notes: (1) Characteristics may vary depending on type of basic switch used in assembly. (2) All actuators supplied with mounting hardware.

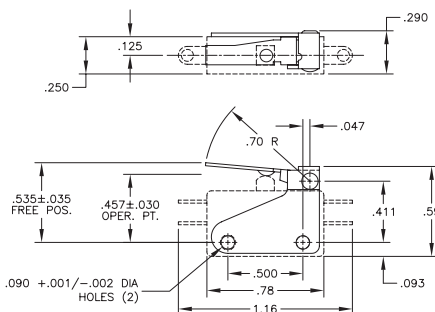
76-1200



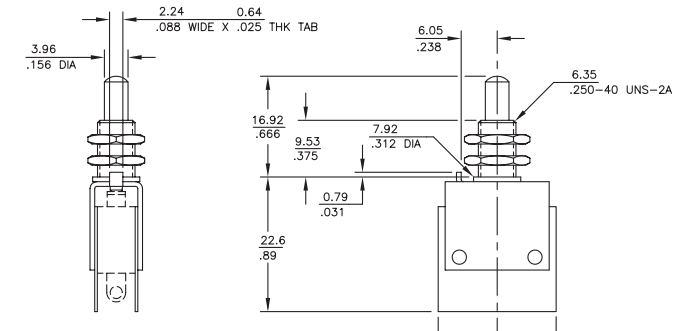
76-1220



76-1210



76-22604



SEE PAGE 54
FOR SWITCHES

Series 18 Actuators



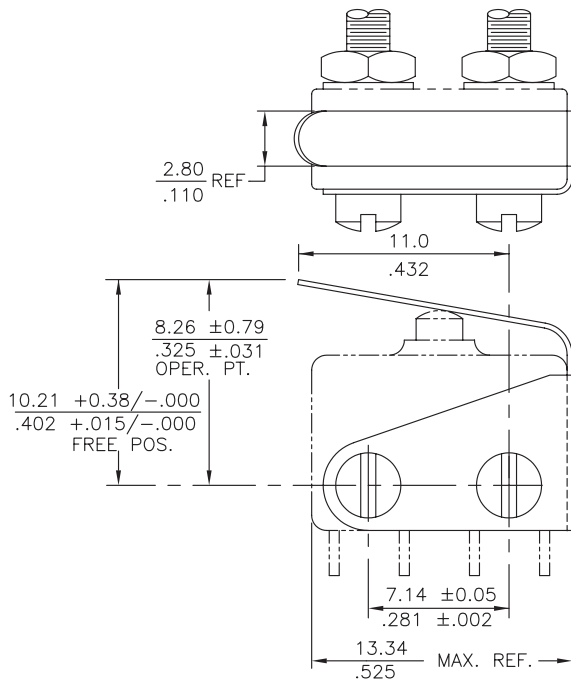
KEY FEATURES:

- Spring Lever
- Roller Lever

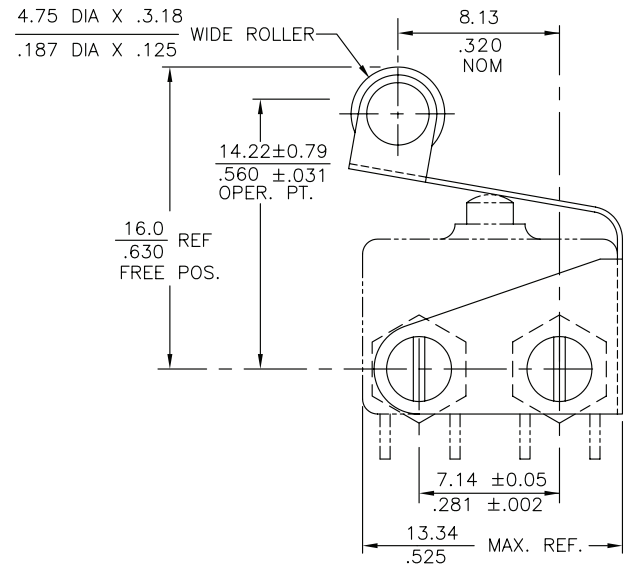
MECHANICAL CHARACTERISTICS:

Part Number	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.	Operating Point
78-3000 Spring Lever	6 ± 2 oz	2 oz min	.125 max	.030 min	.030 ± .015	.325 ± .030
78-3100 Roller Lever	6 ± 2 oz	2 oz min	.125 max	.030 min	.035 ± .015	.560 ± .030

78-3000



78-3100



- Roller Lever
- Overtravel

Part Number	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.	Operating Point
72-1160 Roller Lever (1)	10 oz max	1.5 oz min	.150 max	.035 min	.070 ± .015	1.0 ± .031
72-2080 over travel (2)	17 ± 5 oz	4 oz min	.060 max	.215 min	.030 ± .007	.828 ± .031

(1) When used with 22-104 basic switch or 22-204 basic switch. (2) When used with 22-304 basic switch

Technical drawing of a mechanical part showing two views: a front view on the left and a side view on the right.

Front View Dimensions:

- Total height: 29.0 ± 1.14
- Width: $12.7 \pm .50$

Side View Dimensions:

- Total width: 31.8 ± 1.25
- Central slot width: $12.7 \pm .50$
- Height: 25.4 ± 0.79
- Feature 1: $9.52 \text{ DIA.} \times 4.75 \text{ THK.}$
- Feature 2: $3.81 \text{ MAX. PRETRAVEL}$
- Feature 3: 21.72 R.
- Feature 4: $14.7 \pm .58$
- Feature 5: $11.1 \pm .44$
- Feature 6: $4.4 \pm .17$
- Feature 7: $3.2 \pm .13$
- Feature 8: $1.7 \pm .17$
- Feature 9: $1.8 \pm .18$
- Feature 10: $1.5 \pm .15$
- Feature 11: $1.2 \pm .12$
- Feature 12: $1.0 \pm .10$
- Feature 13: $.8 \pm .08$
- Feature 14: $.6 \pm .06$
- Feature 15: $.4 \pm .04$
- Feature 16: $.2 \pm .02$
- Feature 17: $.1 \pm .01$
- Feature 18: $.05 \pm .005$
- Feature 19: $.02 \pm .002$
- Feature 20: $.01 \pm .001$

15/32-32 HEX NUT

21.03 ± 0.79
.828 ± .031
OPER. PT.

STAINLESS STEEL
INTERNAL TOOTH
LOCKWASHER

17V
CHICAGO, ILL.
U.S.A.

TYPICAL SWITCH APPLICATION
(SWITCH NOT INCLUDED)

71

800.544.3354

SEE PAGE 60 & 62
FOR SWITCHES

Series 26 Actuators



KEY FEATURES:

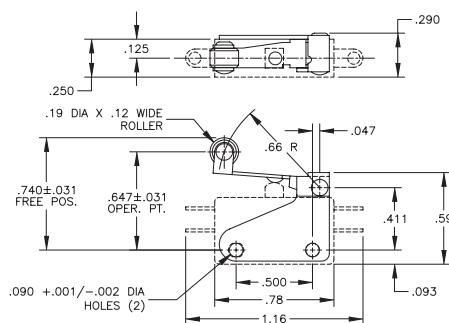
- Roller Lever
- Short Roller Lever
- Lever
- Bushing Mount

MECHANICAL CHARACTERISTICS:

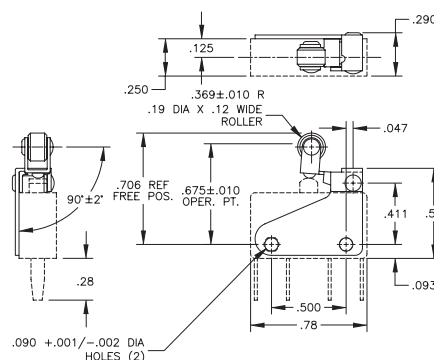
Part Number	Switch Series	Oper. Force	Release Force	Pretravel	Overtravel	Movement Diff.
76-1200 Roller Lever	26	8 oz max	1.5 oz min	.130 max	.026 min	.054 ± .022
76-1210 Lever	26	7 oz max	2 oz min	.155 max	.025 min	.065 max
76-1220 Short Roller Lever	26	16 oz max	5 oz min	.050 max	.012 min	.010 ± .005
76-22604 Bushing Mount	16	5 oz	—	.050 max	.156 min	—

Notes: (1) Characteristics may vary depending on type of basic switch used in assembly. (2) All actuators supplied with mounting hardware.

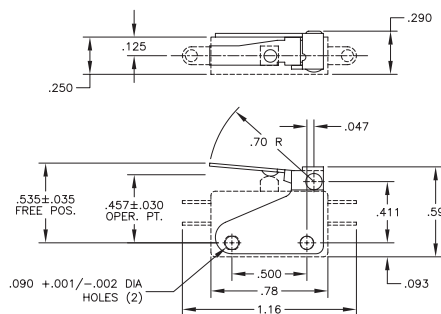
76-1200



76-1220



76-1210



76-22604

